Subject: Re: Friday's Climate@Home meeting
From: "Bruce A. Wielicki" <b.a.wielicki@nasa.gov>
Date: Tue, 6 Feb 2007 18:20:08 -0500
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Gavin:

good to have you chime in. I greatly enjoy your work on the realclimate.org site and watch the site regularily as well as recommend it in my public climate lectures (I give about 1 a month and have done the university, art-house movie theatres, air/space museum, rotary club, church groups, etc.) so I recommend realclimate.org as the climate science blog for up to the minute news.

the CPDN for me was an epiphany in terms of how to think about climate prediction uncertainty and tie it to observation requirements. but many in the U.S. modeling community remain extreme skeptics.

cheers
bruce

> Don, I'd like to second Bruce on this. There is serious science that can be done with PPEs and it isn't being covered by the existing CPDN effort. I see our contribution to this as a method by which to enhance our computing capacity significantly. If a DOE/NSF machine of the capacity you mention were available (do you have a timescale?), any such PPE use would have to compete against some very worthy projects indeed and even hoping for a 1/12 of the years' machine time might be extremely optimistic. With a CPDN-like effort, there is no such competition since the resources are only available for ensemble runs and not for super-high resolution runs etc.
>
> Gavin
>
> On Tue, 2007-02-06 at 13:45, Bruce A. Wielicki wrote:
>> Don:
>>
>> I agree that a huge rapid effort is a bad approach. I also agree that a clear science focus is critical. Instead, after some up front thought and advice from those who have done it, we should engage a modest activity to complement the UK efforts and primarily to deal with two science issues:
>>
>> a) are the UK results using the UKMO model robust to very different model structures? this seems to be a consistent scientific criticism that needs to be addressed. an example might be Model E, but it need not be a huge effort to test: a few hundred to a few thousand model runs might be enough.
>> b) can the PPE approach help the climate community develop more rigorous climate observing system requirements? this is a science question relevant to nasa observing priorities. we currently have no climate OSSE (Observing System Simulation Experiment) capability. this is more about analyzing what PPE experiments can tell us is key in testing the accuracy of climate prediction. the primary reason we might want to do our own is to allow control of the model output metrics being tested. but this could wait while we build up the ability to analyze the UK PPE runs being done at Oxford and UKMO. If DOE, NOAA, or NCAR are already planning on trying item a), then nasa efforts might be better focused on b).

In a minimalist world with tight budgets, we could look first for early success in analysis of the UKMO and Oxford results to attack item b): Yong Hu is already being funded on his NRA proposal to do this, and early results look encouraging.

I'm assuming the "Toy" comment comes from how far you push this into the education arena, and basically making it a SimEarth sort of climate exploration. In that venue it would be an educational toy. A useful educational tool, but still would "look" like a toy.

We only grow an initial modest effort if it proves successful and useful. And the education aspect is much less critical than the science rationale.
My own view remains that the PPE approach is the ONLY way we will ever get observation requirements and priorities that are based in a physical hypothesis: a fully coupled climate model. Everything else we use is individual intuition, committee intuition, politics, or more commonly the hot button of the day. It is basically analogous to a random walk to climate change observing requirements. Not very
> rigorous and won't stand scrutiny. When we walk into OMB or decide how much is needed in a decadal study we do one of three things:
>

a) we need it all (bretherton report in the 1980s that started EOS, which was then downsized 3 separate times by roughly 30% each time)

b) we have a budget reduction of X%, so change what you will do by X% (EOS rebaselines in 1990s)

c) we think we can convince congress to give us X dollars, so we ask for X (recent nrc decadal study)

These are weak arguments to base a global climate observing system on. Thats why they don't hold up over time. There are no requirements, only wishes and votes.

In the simplest sense, there are 1000s of climate metrics (model vs observations) in the climate journals. They almost all invalidate the models. But which ones matter most for predicting a given climate change variable? When is a model accurate enough? These are fundamental climate prediction science questions that the PPE approach may well be the only way to address. It was one of three major approaches to evaluation of climate prediction uncertainty used in the new IPCC AR4 draft. Yet little to nothing on this appears to be going on in the U.S. climate model research community. Have I missed it?

If there is a better or more promising approach to develop a Climate OSSE capability for NASA and NOAA long term climate observations, I'd love to hear/read about it. Climate models are our hypothesis on the physics of the climate system. Embedded in them and their uncertain physics are the hypothesis tests we need to make. Whether PPE or some other approach, we need to tie our observing system requirements to physical hypothesis not to intuition.

I understand the skepticism and the tight budgets. When in doubt go slow and prototype/test in small chunks. Build if successful. Eliminate if not. Save education for later if funding is so tight you can barely start the science. Or NSF might want to tackle that one.
cheers
bruce

At 10:23 AM -0500 2/6/07, Donald Anderson wrote:

> I am getting significant feedback that looks at all this as a bit of
> a toy, and of limited value to climate science.
> In particular, why bother with such a complex effort to address
> science questions, when we can got to, e.g. DOE machines and get
> thousands of processors to do an arbitrary number of ensemble
> members?
> DOE and NSF have plans for, or have on the floor, machines with in
> excess of 150,000 processors. Accessing any one of those for say a
> month might be a much simpler solution.
>
> The discussion in this email is not about E&O at all, just do we
> need it for the science?
> Unless we can make a compelling case for a scientific advantage to
> the overhead required to 'manage' thousands of as available
> machines, this won't happen in MAP.
>
> My 'global' interest in this remains, but I'm not sure we have a
> science driver yet for proceeding with this approach.
> I am fairly confident that at least episodically I can find
> resources at the 100,000+ processor level to attack a specific short
> list of high priority questions.
>
> Note that for the MAP Science Team Meeting, CPDN is being removed
> from the agenda. The original idea has been submerged by the
> changed due date of Senior Review proposals.
> So bringing this together before the meeting is not necessary, or
> possible.
>
> What Mark has done helps us think about some of the practical
> issues, and SIVO should continue to assist in getting us to a
> preliminary strawman, but anything beyond that may require setting
> up a workshop to specifically discuss the science return on
> investment with this approach. And a strawman design/estimate would
> help frame that discussion.
>
> Don
>
>
> On 2/5/07 6:03 PM, "Bruce A. Wielicki" <b.a.wielicki@nasa.gov>
> wrote:
> Mike and Mark:
> > I'm also glad to see the level of interest. I like Mark's
> > initial schematic to help in the thought process. Some
> points I'll chime in from our discussions last fall with the
> > Oxford climateprediction.net group:
> > I The major challenges
> > a) quality control of the submitted runs (weeding out
> things that went wrong)
> > b) data storage of the results: the logistics blue and
> pink box in the middle marked
> "primary server"
> > II The major things that helped
> > a) BOINC (they initially did their own but decided in
> the end it was better to use BOINC)
> > > III The challenges clarified by the new
schematic
> > a) What is the process we use to define the major
> experiments?
> > b) What is the process we use to define the output
data
> saved from the model runs?
> this will to a great degree focus and limit the

> studies and visualization that can be
> done. For example, my own interests in using
> this as a tool to develop objective
> Climate OSSEs: analysis to prioritize climate
> observations and to set their
> requirements (variable, time/space scales,
> absolute accuracy, stability)
> > c) the data storage in the primary server (central box)
> will be driven by answers to
> questions a) and b).
> > cheers
> bruce
> > > > > At 8:16 AM -0500 2/5/07, Michael Seablom wrote:
> Mark,
> > Thanks for your enthusiastic response... John
> Dorband is going to be the point of contact at this
> end regarding the use of the BOINC infrastructure,
> and also setting up a ModelE prototype. I say that
> with the assumption we'll use BOINC, I consider it a
> likely option but John is going to investigate other
> options, as you suggest, with cost-effectiveness in
> mind. You also raise some good questions regarding
> the management of the project, the proposal process,
> data distribution, etc., that I'm assuming NASA
> Headquarters will attend. Setting up the prototype
> infrastructure, I believe, can and should go forward
> as those questions are addressed.
> Best,
> Mike
> > Michael Seablom
> > Head, Software Integration & Visualization Office,
> Code 610.3
> NASA Goddard Space Flight Center
> > Office/ Secretary: +1-301-286-8580
> eFax: +1-202-318-2386
> > > > On Feb 4, 2007, at 19:26 , Mark Chandler wrote:
> Hi all,
> > We've spent some time this week considering
> the design of a
> Climate@Home, which would produce PPE
> modeling capabilities (perturbed
> physical ensembles, as discussed in Bruce
> Wielicki's email of
> 11/26/06) similar to those of
> climateprediction.net. Don Anderson's
> charge was that we, additionally, consider
> ways to improve on the CPDN
> design by creating a system that would allow
> > users to design, create
> and run their own experiments. In this way
> the huge numbers of CPU
> > contributors could really participate and
> learn from the experiments
> that they were running on their computers.
> Such
> contributor/participants fall into (at

> least) three categories: 1)
> individuals who simply want to learn more
> about climate modeling and
> climate science by running experiments of
> their own design on their
> own computers, 2) the community of
> scientists who would propose
> experiments to use the distributed network
> (probably via a formal
> proposal and review process handled by MAP)
> and 3) educational
> institutions seeking to participate in large
> experiments while also
> providing training and education to students
> and the general public
> (schools, museums, etc.).
> > I've included a schematic design of such a
> network, which is a straw
> man for comment and discussion. "Model E"
> and "EdGCM" are labeled
> explicitly, but they are simply
> representative of the two sides of the
> same software coin - one which provides the
> scientific modeling
> capability, the other which provides users
> with the option to interact
> with climate models, and learn about climate
> science topics. The BOINC
> software layer is labeled as well, since it
> seems logical that we
> would collaborate with CPDN to leverage what
> they've already learned
> about how to create the distributed network
> to run PPE climate model
> experiments. In about two weeks, we are
> going to begin setting up a
> small BOINC network using our local EdGCM
> client/server network, just
> so we understand what we're dealing with.
> However, Mike Seablom, David
> Herring and crew at GSFC, together with
> Gavin at GISS, will need to
> discuss if BOINC is the most logical option
> for distributed computing
> with Model E. I've already heard from David
> Rind regarding numerous
> possible PPE experiments that would be of
> interest, including PPEs
> related to aerosol, sea ice, ocean and cloud
> parameterizations.
> Certainly Gavin and Jim will have ideas and
> priorities as well, and
> they can all be discussed at GISS model
> meetings. Ultimately it would
> be a group of scientists at GISS, GSFC,
> Langley etc. who would design
> and approve the initial experiments.
> However, Don indicated that the
> goal is to design a Cimate@Home network that
> > could eventually be made
> available to others as well. I believe the

> > procedure for this type of
> "availability" would be through
> Announcements of Opportunity (AO),
> which could be used to direct experiments
> toward specific goals.
> > The schematic diagram also makes note of the
> fact that some
> Institutional Clients, such as universities
> and other "big-hardware"
> participants, probably have enough
> distributed resources of their own
> that they may wish to design experiments or
> educational exercises (for
> courses) that utilize "EdGCM-like"
> capabilities to create and run
> simulations, without necessarily vetting
> everything through a
> proposal/review process. In the EdGCM
> project we've certainly had
> requests for such a capability from large
> universities, but haven't
> yet provided this. Individual departments
> often have their own
> clusters that they want students and
> professors to be able to take
> advantage of and it's preferable that such
> clients use their own
> resources when possible, as opposed to
> having to vet every experiment
> idea through a central system. The central
> system and the associated
> large distributed network would then be
> reserved for AO-level
> experiments vetted through NASA MAP.
> > Finally, all participants, whether they be
> Individual Clients,
> Institutional Clients, or Proposing
> Scientists, would have access to
> their own results (thus, the two way arrows
> everywhere on the
> diagram). However, one last group of
> potential users are those who did
> not participate in experiment design,
> creation or running, but would
> like to view and analyze the results. You'll
> see that the diagram has
> two sets of participants labeled "Scientific
> Community". The first
> group consists of users who proposed
> experiments, probably in response
> to an Announcement of Opportunity, to run on
> the Climiate@Home
> distributed network. The other group, which
> we haven't discussed,
> would be those users who request access to
> the results of experiments
> that they themselves didn't design or
> create. How would such requests
> be handled? Would the results be openly
> available to the community?

> Would they be available only to those who
> wrote formal proposals to
> use the data? Would they be available to
> educators in a form that they
> > could use? Would there be a waiting period
> for others while the chief
> > scientists on a project had "first crack" at
> the results? I suppose
> NASA has formal standards in place for such
> requests, science space
> missions must have to deal with this all the
> time, but it is an issue
> to consider for the Climate@Home project as
> well.
> > Feedback and discussion are
welcome and
> please let me know if I've
> left people off this mailing list that
> should be included.
> > Regards, Mark
> > p.s. I included this email
in the pdf that I
> attached since it
> contains a lot of explanation of the
> diagram. I also attached a second
> pdf showing a schematic of the BOINC network
> layer.
> > ----
> Mark A. Chandler
> Columbia University - CCSR/GISS
> 2880 Broadway, New York, NY 10025
> phone: NY (212) 678-5644
> WI (608) 270-9645
> >
<Climate@Home Schematic.pdf>
> <BOINClayer.pdf>
>
>
> _____
> Don Anderson
> 3G84
> Modeling, Analysis and Prediction (MAP)
> Earth Science Division
> Science Mission Directorate
> NASA HQ
> Washington, DC, 20546-0001
> 202-358-1432 Fax: x2770
> email: Donald.Anderson-1@nasa.gov
>

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Bruce A. Wielicki
Mail Stop 420
NASA Langley Research Center
Hampton, VA 23681-2199

Phone: (757) 864-5683
FAX: (757) 864-7996

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Bruce A. Wielicki
Mail Stop 420

NASA Langley Research Center
Hampton, VA 23681-2199

Phone: (757) 864-5683
FAX: (757) 864-7996

Subject: Re: 'total' forcing experiments
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Thu, 22 Feb 2007 17:03:31 -0500
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

I only left out g03-6 and g08-10 and g25-26.

According to Valdar, no correction for the case of no ozone was needed.
Looking at the changes in the code, only cases where the column amount
for CO2 was < 1.1d-10 could possibly have been significantly affected.
Small changes also seem possible if H2O is very small
(UH2O=sum(ulgas(1:lm,1))<228).

I did rerun g18 - g24, but only g19 and g21 showed any changes at all.

Reto

On Thu, 2007-02-22 at 14:18 -0500, Gavin Schmidt wrote:
> Thanks again. A couple of anomalies though, I thought the error was in
> the erroneous overlap between CO2 and O3 when both were small (or is it
> just when CO2 is small?). Thus I think you missed a few that needed
> redoing. For instance, the clouds only run (g22) (and the CH4-only and
> CFC-only runs (g18 and g20). Depending on the nature of the error, I'm
> not sure if CO2 only needs redoing (g17).
>
> To summarise, if the error only affects CO2 removal, then these need
> doing over: g18, g20, g22, g23, g24
>
> If it affects calculations when O3 is zero too, then additionally: g06,
> g17.
>
> I think you did g07 by mistake....
>
> Gavin
>
> On Wed, 2007-02-21 at 17:25, Reto Ruedy wrote:
> > Yes, they are done, forgot to let you know. The results are stored in
> > halem:/giss3/giss/RADfrc/gavin_new . In only 3 cases were the results
> > very different: no CO2, no GHG, H2O only; a few more cases were slightly
> > affected.
> >
> > Andy thinks that the adjusted forcings in the extreme cases are not too
> > meaningful.
> >
> > Reto
> >
> > On Wed, 2007-02-21 at 16:09 -0500, Gavin Schmidt wrote:
> > > Did these finish? Thanks
> > >
> > > Gavin
> > >
> > > On Wed, 2007-02-14 at 11:30, Reto Ruedy wrote:
> > > > Gavin,
> > > >
> > > > Valdar just gave me a version of the radiation that should handle cases
> > > > in which water vapor or CO2 is missing in a more appropriate way. I am
> > > > currently rerunning the 17 cases that are affected by the change.
> > > >
> > > > Reto

On Fri, 2006-12-29 at 18:07 -0500, Gavin Schmidt wrote:
Thanks a bunch!

On Fri, 2006-12-29 at 18:04, Reto Ruedy wrote:
It seems you need the up rather than the net fluxes; most of the original files were created by the script "do_gavin_net" in /giss3/giss/RADfrc (then moved to the subdirectory gavin)

do_gavin_up created the corresponding files for the up (away from the center of the earth) fluxes. (There is a corr. program for the down fluxes)

If you only need the global means, something like
```
  for x in *upthrmlij.top ; do /giss3/giss/exec/GM $x ; done
```
may be used to create the corresponding table.

The program(s) I used need some cleaning up before they can be added to the repository. I'll get to it within the next few days.

Reto

On Fri, 2006-12-29 at 16:19, Gavin Schmidt wrote:
Thanks again. Looking at it, I think I'll need some extra diags, specifically the incident LW at the ground. This is because I want to calculate the change in atmospheric absorption of LW - thus I need LW_UP_AT_SURF and LW_OUT_AT_TOA. All I can see in the diags you summarised is LW_NET_AT_SURF and that is only half what's required for the first term. This should be close to the net LW change at the tropopause in the adjusted cases, but I need to check.

I tried to use pdE on the acc files directly, but that doesn't work, so
you must have another program for extracting info right? (is this something we can fix, ie. merging your extraction files directly into the model?).

I also need the baseline levels of all these things in the base control
run g00, but I guess that is available from your program too?

Gavin

On Thu, 2006-12-28 at 15:39, Reto Ruedy wrote:
Hi Gavin,

Here is a summary of the results of the experiments you suggested:

	annual global mean	
dNet Radiation (W/m2)	instantaneous at tropopause	adjusted in stratosphere
E2g01 - remove water vapor	-60.29	-59.61
E2g02 - remove CO2	-23.29	-20.40
E2g03 - remove CH4	-1.31	-1.37
E2g04 - remove N2O	-1.67	-1.68
E2g05 - remove CFC11/12	-0.13	-0.13
E2g06 - remove O3	1.02	-1.40
E2g07 - remove clouds	25.39	25.38
E2g08 - remove other CFCs	-0.03	-0.03
E2g09 - remove LW aerosol effects	-0.41	-0.41
E2g10 - remove all aerosol effects	2.67	2.61
E2g11 - remove water vapor and CO2	-95.05	-90.39

E2g12 - remove water vapor and clouds	-50.36	-48.96
E2g13 - remove water vapor,CO2,clouds	-91.65	-85.33
E2g14 - remove GHGs	-28.78	-29.99
E2g15 - remove all but GHGs	-41.49	-40.19
E2g16 - remove all but water vapor	2.43	1.37
E2g17 - remove all but CO2	-43.71	-45.85
E2g18 - remove all but CH4	-85.14	-85.13
E2g19 - remove all but N2O	-83.85	-83.06
E2g20 - remove all but CFC11/12	-87.33	-85.29
E2g21 - remove all but O3	-87.60	-80.72
E2g22 - remove all but clouds	-96.94	-97.83
E2g23 - remove all but other CFCs	-87.26	-85.05
E2g24 - remove all but aerosols	-96.72	-97.83
E2g25 - Doubling water vapor	12.29	11.97
E2g26 - Doubling CO2	4.54	4.16

The various output files were collected on halem:
/giss3/giss/RADfrc/gavin

The model used is on halem:/giss2/giss/RUNS/E050frc/modelE

Some of the combined results seem a little puzzling, but so far I could
not find any errors in the rundecks.

For the runs without O3, I had to limit the temperature changes such that the resulting temperatures stayed within the 124-370K interval. I
extended those runs to a third year, since the forcing was not constant
throughout the stratosphere. However, the results did not change significantly (see /giss3/giss/RADfrc/gavin/adj_table).

Reto

On Sat, 2006-12-23 at 15:13, Gavin Schmidt wrote:

> 1) The control doesn't matter as long as it's constant - 1980 is fine.
>
> 2) dust aerosols should be lumped in as well.
>
> 3) does it matter whether we do both SW + LW effects for aerosols? The
> LW calculation should be independent of the SW absorption no? Though now
> that I think about it, I could see that SW absorption increases LW emittance ... so let's do both. i.e. LW only and then SW+LW.
>
> 4) Those diags should be fine (as well as the tropopause numbers). I'll
> boil them down to percent change in LW absorption by the atmosphere and
> LW and SW forcing at the tropopause.
>
> Thanks a lot.
>
> Gavin
>
> On Sat, 2006-12-23 at 12:13, Reto Ruedy wrote:
>
> > Most of these factors are already available and the rest is easy enough
> > to add. A few questions:

1 - should all these cases be compared to the 1980 conditions
2 - if we remove aerosols, should that include desert dust aerosols
3 - for aerosols, should both LW and SW effects be set to 0 (FS8OPX,
too)
4 - what diagnostics do you need (I'm saving the SW and LW up and down
fluxes at all LM+4 interfaces, so this can be decided later)

Reto

On Fri, 2006-12-22 at 16:33, Gavin Schmidt wrote:
> Great. The experiments are as follows - the idea is to remove each LW
> absorber individually, and then only have that absorber (and a few
> interesting combinations). The ones I'm interested in are CO2, CH4, N2O,
> CFCs, O3, 'Others'(X), H2O, Clouds, and aerosols.
>
> One absorber removed:
>
> 1) H2OX=0 (all radiative effects of water vapour zeroed out)
> 2) CO2X=0 (no CO2)
> 3) CH4X=0
> 4) N2OX=0
> 5) CFCX=0
> 6) O3X=0 (no ozone)
> 7) CLD=0 (no radiative effect from clouds)
> 8) X=0 (no 'other' GHGs)
> 9) AER=0 (no aerosols)
>
> Combos:
> 1) H2OX=CO2X=0 (no water vapour or CO2)
> 2) H2OX=CLD=0 (no water vapour or clouds)
> 3) H2OX=CO2X=CLD=0 (no water vapour, clouds or CO2)
> 3) No GHGs (CO2X=CH4X=N2OX=CFCX=O3X=X=0)
> 4) Only GHGs (H2OX=AER=CLD=0)
>
> Single absorbers
>
> 1) Only H2O
> 2) Only CO2 (no CO2)
> 3) Only CH4
> 4) Only N2O
> 5) Only CFC
> 6) Only O3
> 7) Only CLD
> 8) Only 'other' GHGs
> 9) Only aerosols
>
> other comparisons:
>
> 1) 2xH2O
> 2) 2xCO2 (I think we might have done that one already)
>
> If needed, I can put in some rundeck switches for all of these factors -
> currently, only a few are there...
>
> Gavin

On Tue, 2006-12-19 at 17:15, Reto Ruedy wrote:
Hi Gavin,

That should easily be possible, I'll gladly set them up; do you have a
list of the approx. 25 experiments? Instantaneous forcings repeat after
a year, adjusted forcings stabilize after 1 year, so there we look at
year 2.

Reto

On Tue, 2006-12-19 at 16:16, Gavin Schmidt wrote:
Hi Reto, A while back I did some basic experiments with the GCM for the
blog where I selectively removed all of the individual absorbers and
combinations to see what contribution they had on the LW absorption. I
used a 'poor mans' calculation (instantaneous forcing at the tropopause
for one single calculation on the 1 JAN). I have since been asked lots
of times whether I was going to publish this. I didn't think it said
anything that people didn't already know, but as far as I can tell,
no-one has done this with a GCM - the usual reference is Ramanathan and
Coakley (1978) who used an radiative-convective model (which did give
very similar answers).

Anyway, it is something that might be worth doing properly. For that I'd
need to use the radiative forcing calculations you use - and calculate
the instant and adjusted forcings for each perturbation over a year or
so. There are about 25 experiments in total, most of which can be
controlled from the rundeck.

Depending on how straightforward this is, I could do it, or if you were
interested, I'd be happy to collaborate on it (i.e. you could do the
runs, and we could share the glory!). Let me know.

Gavin

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Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: 'total' forcing experiments
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Thu, 22 Feb 2007 18:06:43 -0500
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

I just talked to Valdar; if both CO2 and H2O are missing, then the old and new code are supposed to give the same results (as actually happened). Maybe he can more accurately describe what his changes were all about.

The 2 codes used are in halem:/giss2/giss/RUNS/E050frc/modelE/model as RADIATION_E2g.f and RADIATION_E2gn.f .

Reto

On Thu, 2007-02-22 at 17:53 -0500, Gavin Schmidt wrote:
> huh.... then I'm even more confused. Why isn't there a change to the clouds only run? This has no water vapour or CO2. So that is very puzzling.... Oh well, I'll just accept it. The numbers are all pretty close still (water goes down a notch, CO2 goes up).
>
> Thanks
>
> Gavin
>
> On Thu, 2007-02-22 at 17:03, Reto Ruedy wrote:
> > I only left out g03-6 and g08-10 and g25-26.
> >
> > According to Valdar, no correction for the case of no ozone was needed. Looking at the changes in the code, only cases where the column amount for CO2 was < 1.1d-10 could possibly have been significantly affected. Small changes also seem possible if H2O is very small (UH2O=sum(ulgas(1:lm,1))<228).
> >
> > I did rerun g18 - g24, but only g19 and g21 showed any changes at all.
> >
> > Reto
> >
> > On Thu, 2007-02-22 at 14:18 -0500, Gavin Schmidt wrote:
> > > Thanks again. A couple of anomalies though, I thought the error was in the erroneous overlap between CO2 and O3 when both were small (or is it just when CO2 is small?). Thus I think you missed a few that needed redoing. For instance, the clouds only run (g22) (and the CH4-only and CFC-only runs (g18 and g20). Depending on the nature of the error, I'm not sure if CO2 only needs redoing (g17).
> > >
> > > To summarise, if the error only affects CO2 removal, then these need doing over: g18, g20, g22, g23, g24
> > >
> > > If it affects calculations when O3 is zero too, then additionally: g06, g17.
> > >
> > > I think you did g07 by mistake....
> > >
> > > Gavin
> > >
> > > On Wed, 2007-02-21 at 17:25, Reto Ruedy wrote:
> > > > Yes, they are done, forgot to let you know. The results are stored in halem:/giss3/giss/RADfrc/gavin_new . In only 3 cases were the results very different: no CO2, no GHG, H2O only; a few more cases were slightly

affected.

Andy thinks that the adjusted forcings in the extreme cases are not too meaningful.

Reto

On Wed, 2007-02-21 at 16:09 -0500, Gavin Schmidt wrote:
> Did these finish? Thanks
>
> Gavin
>
> On Wed, 2007-02-14 at 11:30, Reto Ruedy wrote:
> > Gavin,
> >
> > Valdar just gave me a version of the radiation that should handle cases in which water vapor or CO2 is missing in a more appropriate way. I am currently rerunning the 17 cases that are affected by the change.
> >
> > Reto
> >
> > On Fri, 2006-12-29 at 18:07 -0500, Gavin Schmidt wrote:
> > > Thanks a bunch!
> > >
> > > On Fri, 2006-12-29 at 18:04, Reto Ruedy wrote:
> > > > It seems you need the up rather than the net fluxes; most of the original files were created by the script "do_gavin_net" in /giss3/giss/RADfrc (then moved to the subdirectory gavin)
> > > >
> > > > do_gavin_up created the corresponding files for the up (away from the
> > > > center of the earth) fluxes. (There is a corr. program for the down fluxes)
> > > >
> > > > If you only need the global means, something like
> > > > for x in *upthrmlij.top ; do /giss3/giss/exec/GM $x ; done
> > > > may be used to create the corresponding table.
> > > >
> > > > The program(s) I used need some cleaning up before they can be added to
> > > > the repository. I'll get to it within the next few days.
> > > >
> > > > Reto
> > > >
> > > > On Fri, 2006-12-29 at 16:19, Gavin Schmidt wrote:
> > > > > Thanks again. Looking at it, I think I'll need some extra diags, specifically the incident LW at the ground. This is because I want to
> > > > > calculate the change in atmospheric absorption of LW - thus I need LW_UP_AT_SURF and LW_OUT_AT_TOA. All I can see in the diags you summarised is LW_NET_AT_SURF and that is only half what's required for
> > > > > the first term. This should be close to the net LW change at the tropopause in the adjusted cases, but I need to check.
> > > > >
> > > > > I tried to use pdE on the acc files directly, but that doesn't work, so
> > > > > you must have another program for extracting info right? (is this something we can fix, ie. merging your extraction files directly into
> > > > > the model?).

I also need the baseline levels of all these things in the base control
run g00, but I guess that is available from your program too?

Gavin

On Thu, 2006-12-28 at 15:39, Reto Ruedy wrote:
Hi Gavin,

Here is a summary of the results of the experiments you suggested:

dNet Radiation (W/m2)	annual global mean instantaneous at tropopause	adjusted in stratosphere
E2g01 - remove water vapor	-60.29	-59.61
E2g02 - remove CO2	-23.29	-20.40
E2g03 - remove CH4	-1.31	-1.37
E2g04 - remove N2O	-1.67	-1.68
E2g05 - remove CFC11/12	-0.13	-0.13
E2g06 - remove O3	1.02	-1.40
E2g07 - remove clouds	25.39	25.38
E2g08 - remove other CFCs	-0.03	-0.03
E2g09 - remove LW aerosol effects	-0.41	-0.41
E2g10 - remove all aerosol effects	2.67	2.61
E2g11 - remove water vapor and CO2	-95.05	-90.39
E2g12 - remove water vapor and clouds	-50.36	-48.96
E2g13 - remove water vapor,CO2,clouds	-91.65	-85.33
E2g14 - remove GHGs	-28.78	-29.99
E2g15 - remove all but GHGs	-41.49	-40.19
E2g16 - remove all but water vapor	2.43	1.37
E2g17 - remove all but CO2	-43.71	-45.85
E2g18 - remove all but CH4	-85.14	-85.13
E2g19 - remove all but N2O	-83.85	-83.06
E2g20 - remove all but CFC11/12	-87.33	-85.29
E2g21 - remove all but O3	-87.60	-80.72
E2g22 - remove all but clouds	-96.94	-97.83
E2g23 - remove all but other CFCs	-87.26	-85.05
E2g24 - remove all but aerosols	-96.72	-97.83
E2g25 - Doubling water vapor	12.29	11.97
E2g26 - Doubling CO2	4.54	4.16

The various output files were collected on halem:
/giss3/giss/RADfrc/gavin

The model used is on halem:/giss2/giss/RUNS/E050frc/modelE

Some of the combined results seem a little puzzling, but so far I could
not find any errors in the rundecks.

For the runs without O3, I had to limit the temperature changes such
that the resulting temperatures stayed within the 124-370K interval. I
extended those runs to a third year, since the forcing was not constant
throughout the stratosphere. However, the results did not change significantly (see /giss3/giss/RADfrc/gavin/adj_table).

Reto

On Sat, 2006-12-23 at 15:13, Gavin Schmidt wrote:

1) The control doesn't matter as long as it's constant - 1980 is fine.

2) dust aerosols should be lumped in as well.

3) does it matter whether we do both SW + LW effects for aerosols? The
LW calculation should be independent of the SW absorption no? Though now
that I think about it, I could see that SW absorption increases LW
emittance ... so let's do both. i.e. LW only and then SW+LW.

4) Those diags should be fine (as well as the tropopause numbers). I'll
boil them down to percent change in LW absorption by the atmosphere and
LW and SW forcing at the tropopause.

Thanks a lot.

Gavin

On Sat, 2006-12-23 at 12:13, Reto Ruedy wrote:

Most of these factors are already available and the rest is easy enough
to add. A few questions:

1 - should all these cases be compared to the 1980 conditions
2 - if we remove aerosols, should that include desert dust aerosols
3 - for aerosols, should both LW and SW effects be set to 0 (FS8OPX,
too)
4 - what diagnostics do you need (I'm saving the SW and LW up and down
fluxes at all LM+4 interfaces, so this can be decided later)

Reto

On Fri, 2006-12-22 at 16:33, Gavin Schmidt wrote:

Great. The experiments are as follows - the idea is to remove each LW
absorber individually, and then only have that absorber (and a few
interesting combinations). The ones I'm interested in are CO2, CH4, N2O,
CFCs, O3, 'Others'(X), H2O, Clouds, and aerosols.

One absorber removed:

1) H2OX=0 (all radiative effects of water vapour zeroed out)
2) CO2X=0 (no CO2)
3) CH4X=0
4) N2OX=0
5) CFCX=0
6) O3X=0 (no ozone)
7) CLD=0 (no radiative effect from clouds)
8) X=0 (no 'other' GHGs)

9) AER=0 (no aerosols)

Combos:
1) H2OX=CO2X=0 (no water vapour or CO2)
2) H2OX=CLD=0 (no water vapour or clouds)
3) H2OX=CO2X=CLD=0 (no water vapour, clouds or CO2)
3) No GHGs (CO2X=CH4X=N2OX=CFCX=O3X=X=0)
4) Only GHGs (H2OX=AER=CLD=0)

Single absorbers

1) Only H2O
2) Only CO2 (no CO2)
3) Only CH4
4) Only N2O
5) Only CFC
6) Only O3
7) Only CLD
8) Only 'other' GHGs
9) Only aerosols

other comparisons:

1) 2xH2O
2) 2xCO2 (I think we might have done that one already)

If needed, I can put in some rundeck switches for all of these factors -
currently, only a few are there...

Gavin

On Tue, 2006-12-19 at 17:15, Reto Ruedy wrote:
> Hi Gavin,
>
> That should easily be possible, I'll gladly set them up; do you have a
> list of the approx. 25 experiments? Instantaneous forcings repeat after
> a year, adjusted forcings stabilize after 1 year, so there we look at
> year 2.
>
> Reto
>
> On Tue, 2006-12-19 at 16:16, Gavin Schmidt wrote:
> > Hi Reto, A while back I did some basic experiments with the GCM for the
> > blog where I selectively removed all of the individual absorbers and
> > combinations to see what contribution they had on the LW absorption. I
> > used a 'poor mans' calculation (instantaneous forcing at the tropopause
> > for one single calculation on the 1 JAN). I have since been asked lots
> > of times whether I was going to publish this. I didn't think it said
> > anything that people didn't already know, but as far as I can tell,
> > no-one has done this with a GCM - the usual reference

is Ramanathan and
Coakley (1978) who used an radiative-convective model
(which did give
very similar answers).

Anyway, it is something that might be worth doing
properly. For that I'd
need to use the radiative forcing calculations you
use - and calculate
the instant and adjusted forcings for each
perturbation over a year or
so. There are about 25 experiments in total, most of
which can be
controlled from the rundeck.

Depending on how straightforward this is, I could do
it, or if you were
interested, I'd be happy to collaborate on it (i.e.
you could do the
runs, and we could share the glory!). Let me know.

Gavin

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Fwd: Climate news and blog thoughts
From: Erik Noble <enoble@giss.nasa.gov>
Date: Thu, 15 Mar 2007 13:14:09 -0400
To: gschmidt@giss.nasa.gov

These were my thoughts for a blog. My earlier file was an old version.
-Erik

Begin forwarded message:

From: Erik Noble <enoble@giss.nasa.gov>
Date: March 15, 2007 1:03:24 PM EDT
To: gschmidt@giss.nasa.gov
Subject: Climate news and blog thoughts

Dear Dr. Schmitt,

I apologize for stopping you in the hallway while you busy. Yesterday, I read the news email that Leslie McCarthy sent out to everyone and became interested in the fact that the UK has proposed another policy that strictly deals with Climate Change.

I even wrote a small piece that might be fitting for a blog (attached). In your opinion, would it be appropiate for a site such as RealClimate.org?
Even though I want to focus 100% of all my attention at studying climate change in the global sense with the models here, I still feel the pull and attraction for science policy discussions wrapped in climate change.

Privately, I am looking to explore discussions branching apart from the connections I have through CU Boulder to establish my own foundation
in the arena of climate science and decision making.

May I drop by in your spare time?
Thank you for your time and consideration.
Sincerely,
Erik Noble

Begin forwarded message:

From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: March 14, 2007 10:22:56 AM EDT
To: giss-people-l@giss.nasa.gov
Cc: mark.s.hess@nasa.gov, Franco.Einaudi@nasa.gov, robert.j.gutro@nasa.gov, mbettwy@aol.com, lychand@pop100.gsfc.nasa.gov, david.d.herring@nasa.gov, cookander@gmail.com, scole@pop600.gsfc.nasa.gov, dorothy.j.zukor@nasa.gov, michon@nsidc.org, eoeditor@yahoo.com, dwayne.c.brown@nasa.gov, edward.s.campion@nasa.gov, sdewitt@pop100.gsfc.nasa.gov, "Wade E. Sisler" <Wade.E.Sisler@nasa.gov>, tabatha.thompson-1@nasa.gov, cynthia.m.ocarroll@nasa.gov, grey.hautaluoma-1@nasa.gov, coh@ei.columbia.edu
Subject: NASA/climate news stories

Britain aims for CO2-limit target dates

By JENNIFER QUINN, Associated Press Writer
Wed Mar 14, 12:02 AM ET

LONDON - The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions a move it hopes will prompt the United States, China and India to follow suit.
ADVERTISEMENT

The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050.

http://news.yahoo.com
/s/ap/britain_climate_change;_ylt=At5nXihBW3rIzvTxUf3C43NrAlMA

Democrats in Congress Push Measures To Curb Global Warming

Legislative strategies aim for support from private sector, White House

By Andrzej Zwaniecki
USINFO Staff Writer (US State Department)
March 13, 2007

Washington – Congressional Democrats are pressing ahead with legislation to address global warming despite uncertainty over where the White House stands on specific issues.

A draft bill that would set limits on greenhouse gas (GHG) emissions could be "put forward" as soon as April, according to Senator Jeff Bingaman, chairman of the Senate Committee on Energy and Natural Resources. In the House of Representatives, Speaker Nancy Pelosi has asked her Democratic colleagues to have their version of climate-change legislation ready for floor action before July, according to news reports.

http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2007&m=March&x=20070313161124saikceinawz1.445949e-03

The New Scientist (about J. Hansen)

Chris Mooney
Seed Magazine
Posted March 11, 2007 11:49 AM

"They would have been better off if they'd just ignored me, rather than trying to shut me up. They brought the publicity about themselves."

James Hansen is sitting in his cluttered corner office on the seventh floor of the NASA Goddard Institute for Space Studies, just blocks from the Columbia University campus in upper Manhattan, and upstairs from Tom's Restaurant (of *Seinfeld* fame). A wiry scientist who looks young for his 65 years, Hansen speaks with a distinct Midwestern accent; as he talks, he gazes off into space, as if scrutinizing an invisible PowerPoint presentation. If he has a lot on his mind, it's no surprise: Hansen is the number one scientist in America and perhaps the world who has been publicly speaking out about our looming climate catastrophe. And in so doing, he has shattered some long-held convictions in the scientific community, ones overdue for a challenge.

http://www.seedmagazine.com/news/2007/03/the_new_scientist.php

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From a Rapt Audience, a Call to Cool the Hype

William J. Broad, New York Times
Published: March 13, 2007

Hollywood has a thing for Al Gore and his three-alarm film on global warming, "An Inconvenient Truth," which won an Academy Award for best documentary. So do many environmentalists, who praise him as a visionary, and many scientists, who laud him for raising public awareness of climate change.

But part of his scientific audience is uneasy. In talks, articles and blog entries that have appeared since his film and accompanying book came out last year, these scientists argue that some of Mr. Gore's central points are exaggerated and erroneous. They are alarmed, some say, at what they call his alarmism.

http://www.nytimes.com/2007/03/13/science/13gore.html?8dpc

THINKING GREEN AND ACTING LOCALLY

Brigid Bergin
City Limits
March 12, 2007

A scientific group recommends making environmental change on the neighborhood level.

If a NASA scientist and her colleagues have their way, Chinatown, the Lower East Side and the East Village could soon become the greenest part of New York City.

Cynthia Rosenzweig, who heads the Climate Impacts Group at the Goddard Institute for Space Studies at Columbia University, presented a study to leaders from those neighborhoods describing how to lower the temperature and reduce energy demand. The results ranked the effectiveness of specific strategies for certain areas, one of which was theirs – "Lower Manhattan East."

http://www.citylimits.org/content/articles/viewarticle.cfm?article_id=3290&content_type=1&media_type=4

Scientists Debate Sun's Role in Global Warming (D. Rind mentioned)

Tuesday, March 13, 2007
By Ker Than
Live Science.com

Earth is heating up lately, but so are Mars, Pluto and other worlds in our solar system, leading some scientists to speculate that a change in the sun's activity is the common thread linking all these baking events.

Others argue that such claims are misleading and create the false impression that rapid **global warming**, such as Earth is experiencing, is a natural phenomenon.

http://www.livescience.com/environment/070312_solarsys_warming.html

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Pelosi Reveals Who's Who On Global Warming Panel

Monday, March 12, 2007; Page A11

The best-kept secret on the Hill -- the full membership of the new committee on global warming -- is no longer secret. House SpeakerNancy Pelosi (D-Calif.) has announced the 15 members of the committee, formally known as the Select Committee on Energy Independence and Global Warming.

http://www.washingtonpost.com/wp-dyn/content/article/2007/03/11/AR2007031101044.html

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Arctic impact on global warming lures scientists

By Deborah Zabarenko, Environment Correspondent
Wednesday, March 14, 8:30 am

HANOVER, New Hampshire (Reuters) - A polar bear swimming amid melting Arctic sea ice may be one image of global warming's impact. But it could just as well be a California wildfire, a European heat wave or a Caribbean hurricane.

That's because the consequences of climate change at the poles affect the whole world, said Ross Virginia, professor of environmental studies at New Hampshire's Dartmouth College and one of the organizers of a summit on Arctic science this week that will focus on global warming.

http://news.yahoo.com/s/nm/20070314/sc_nm
/arctic_globalwarming_dc_1;_ylt=Ah_upem4ize3mMFgeCes7B1rAlMA

U.S. bars talk of climate change effects on bears
Memos set strict limits on what officials can say abroad

Seattle Post-Intelligencer staff and news services
Last updated March 8, 2007 10:40 p.m. PT

The Bush administration is ordering federal wildlife officials headed for international meetings on polar bears not to talk about how climate change and melting ice are affecting the imperiled

animals.

It is the latest in a string of cases in which the administration has carefully controlled or even banned government employees' public speech about global warming.

This latest chapter involves two memorandums written in late February that put strict limits on what U.S. Fish and Wildlife Service employees could discuss at meetings in Norway and Russia.

http://seattlepi.nwsource.com/national/306820_bears09.html?source=mypi

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Part 1.1.1.3

Part 1.1.1.3	**Content-Type:** text/html **Content-Encoding:** 8bit

Thoughts_for_ a_Blog.rtf

Thoughts_for_ a_Blog.rtf	**Content-Type:** text/rtf **Content-Encoding:** 8bit

Part 1.1.1.5

Part 1.1.1.5	**Content-Type:** text/html **Content-Encoding:** 8bit

Title: UK's Limits on Carbon Emissions: Votes, Please!

Jennifer Quinn's press release * yesterday in the Associated Press highlights the UK's policy proposal for a legislative initiative for mandatory CO2 limits. The first two paragraphs of the release says:

"The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions a move it hopes will prompt the United States, China and India to follow suit."

"The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050."

Its too early to tell whether good policy options will result from the British government's push for a carbon tax. Prime Minister Tony Blair sums up the symbolic action:
"This is a revolutionary step in confronting the threat of climate change," Prime Minister Tony Blair said. "It sets an example to the rest of the world.

Is this window-dressing for emotional appeal or an implementation of action? Only the votes will tell.

-Erik Noble

*

http://hosted.ap.org/dynamic/stories/B/BRITAIN_CLIMATE_CHANGE?SITE=ALTAL&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2007-03-14-00-02-59

or
http://news.yahoo.com/s/ap/britain_climate_change;_ylt=At5nXihBW3rIzvTxUf3C43NrAIMA

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*

http://hosted.ap.org/dynamic/stories/B/BRITAIN_CLIMATE_CHANGE?SITE=ALTAL&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2007-03-14-00-02-59

or
http://news.yahoo.com/s/ap/britain_climate_change;_ylt=At5nXihBW3rIzvTxUf3C43NrAIMA

**

http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001091postipcc_political_.html

Subject: Re: Lyman et al correction
From: Josh Willis <jwillis@pacific.jpl.nasa.gov>
Date: Wed, 11 Apr 2007 16:09:53 -0700
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Thanks, Gavin!

Let me stew on that for a bit. I am definitely interested in writing something for the blog, but as always, finding time will probably be the biggest obstacle.

As for the long term OHC estimates, we will have to wait and see. I have some suspicion that the last 10 years or so is probably not too unreasonable, but I suspect that the 50 year time series by Levitus and so forth will probably experience some pretty sizable changes when the XBT problem finally gets corrected. One thing is for sure, though. It probably won't happen right away. That XBT bias looks like it might be really nasty to correct.

Anyway, thanks for the email and I promise to keep you posted as things develop.

Cheers, Josh

--
****
Josh Willis, Ph.D. joshua.k.willis@jpl.nasa.gov
Jet Propulsion Laboratory
M/S 300-323 office: 300-321U
4800 Oak Grove Dr. phone: (818) 354-0881
Pasadena, CA 91109 fax: (818) 393-6720
****

On Wed, 11 Apr 2007, Gavin Schmidt wrote:

> Josh, thanks!
>
> Hopefully now that these various issues have been identified (and may soon be corrected?) we can get a new synthesis of the long term changes relatively soon. One question is obviously how much impact the XBT issues have on the longer term changes....
>
> Given the prominence of the OHC discussion in the whole GW debate, we'll have to blog about this once the correction is properly published. I anticipate it will cover the self correcting nature of science, and the unfortunate willingness of some (who probably won't remain nameless) to jump to extreme conclusions. Maybe I'll throw in some discussion of Bayesian priors as well...
>
> However, if you were minded to write something on the situation and what it does or doesn't mean, we'd definitely put it up. Might save you some effort in explaining it to dozens of people separately...
>
> Gavin
>
> On Wed, 2007-04-11 at 17:54, Josh Willis wrote:
> > Hi Gavin,
> >
> > Many thanks for your sentiments. I guess as they say, it's three steps foward, two steps back with these things...
> >
> > I actually sent out an email just today to a bunch of people containing

our correction as it was when we submitted it to GRL this week. Sorry I didn't get your name on that original list. I did it in kind of a hurry this morning.

Anyway, we now think that the cooling that we reported in the 2006 GRL paper was caused in part by bad Argo data, which was biased cold, and in part by XBT data which is biased warm. Most of the details are in the attached manuscript. Let me know if you have any comments or questions.

Cheers, Josh

Subject: Re: [GISS csr #7639] proxy server problem?
From: "GISS CSR" <csr@giss.nasa.gov>
Date: Thu Apr 12 0:26:30 EDT 2007
To: gschmidt@giss.nasa.gov
CC: kbell@giss.nasa.gov, nobody@babylon.giss.nasa.gov

Ken, Gavin,

After Googling for info, I have found that in some cases
he message is coming from a WordPress blog plugin called
"Bad Behavior", which is intended to block spambots from
leaving comment and referrer spam.

I am not sure if the "Bad Behavior" plugin is the cause of
all these, as the error that I have seen from different blogs
varies between an "Error 412 Precondition Failed" message and
a more generic "Error 400". It _might_ be the case that a PHP
script trying to send back a 412 error might cause some servers
to instead send back a 400 error.

Legitimate users may/will get blocked by "Bad Behavior" if
their request to the webserver is missing the HTTP header
"Accept". Apparently some proxies do omit that header.

But... as best I can tell, our proxy _does_ pass the Accept
header. Or so a CGI script seems to indicate when I check
the environment variables that the server gives it when I
hit that address.

Responses by the author of "Bad Behavior" to queries in the
message boards on his website in regards to this particular
problem indicate he is an arrogant ***. He will always blame
the problem on the user end and will insists that his plugin
works perfectly. (Odd then that he has had to post updates
to his software to take care of "issues".) So good luck on
getting a useful response to the e-mail that you sent to
ioerror.us.

One can get through to these sites if you switch to Mozilla
and go into preferences and set the proxy setting to "direct
connection to internet".

rbs

On Apr 11, 2007, at 21:20, GISS CSR wrote:

> still get the same message. I think this is something to do with what
> the proxy attaches to the http request that makes it look like you are
> faking where you are coming from. But I don't know what it is or
> how to
> fix it... Might be something to do the "Bad Behaviour" spam blocking,
> but interestingly enough I'm blocked from that site too....
>
> Gavin
>
> On Wed, 2007-04-11 at 21:03, GISS CSR wrote:

Hi Gavin,

I restarted the proxy.

If you are still having problems, please let us know the problem URL's
as well as the OS and browser you are using. Thanks.

Ken

==========
MESSAGE INFORMATION
==========
* From: Gavin Schmidt <gschmidt@giss.nasa.gov>
* Ticket Email List: gschmidt@giss.nasa.gov, kbell@giss.nasa.gov

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This mail was sent from the RUST Mail System
Please direct all replies to csr@giss.nasa.gov
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Robert B. Schmunk, rschmunk@giss.nasa.gov
NASA Goddard Institute for Space Studies, 2880 Broadway, New York, NY 10025

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MESSAGE INFORMATION
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* From: "Robert B. Schmunk" <rschmunk@giss.nasa.gov>
* Ticket Email List: gschmidt@giss.nasa.gov, kbell@giss.nasa.gov,nobody@babylon.giss.nasa.gov

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==========
This mail was sent from the RUST Mail System
Please direct all replies to csr@giss.nasa.gov
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Subject: Re: 1934 warmest ? ...
From: "Cynthia Rosenzweig" <crosenzweig@giss.nasa.gov>
Date: Fri, 10 Aug 2007 16:10:50 -0400
To: "Stuart Gaffin" <stuart.gaffin@gmail.com>
CC: "Gavin Schmidt" <gschmidt@giss.nasa.gov>, "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, "Ron Miller" <rmiller@giss.nasa.gov>, rhorton@giss.nasa.gov

Hi Stuart -- IPCC WGI uses other temperature datasets besides the GISS one and states in the AR4 SPM that '11 out of the last 12 years (1995-2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850).' -- Cynthia

On 8/10/07, **Stuart Gaffin** <stuart.gaffin@gmail.com> wrote:

> Gavin, Thanks for this useful information.
>
> The Times did not clarify that the changes refer to only the contiguous US, a very small percentage of globe of course ...
>
> Apropos of this, if someone had asked me for the 10 warmest years for the continental US, I would not have been able to say offhand, although I would expect them to be concentrated more towards the present ...
>
> If the corrections switched the bulk of the 10 warmest years to early in the century, that's somewhat surprising to me. Maybe the only newsworthy aspect.
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> Beware the Wall Street Journal abusing all of this of course !
> Stuart
>
> On 10 Aug 2007 15:21:02 -0400, **Gavin Schmidt** <gschmidt@giss.nasa.gov> wrote:
>
> > Stuart, this is much ado about nothing, and the opinionator piece is mostly made up.
> >
> > The issue is that McIntyre noticed an odd jump in some US stations at the switch between 1999 and 2000. He sent a letter pointing out the jump, the GISTEMP people looked into it, saw the problem, and fixed it in less than a day. No 'reverse engineering' nobody 'always puzzled by the gaps' and no 'havoc'.
> >
> > The issue was that there was a transition between data sources at that point for the US stations which had been assumed to be continuous, but was in fact slightly offset. The fix just adjusted for the offset.
> >
> > The difference it made? 0.15 deg C for 2000-2006 in the US numbers (since the problem was melding the US data with the global numbers) and some very minor adjustments down the line. The global mean change was zero (less than 0.01 C). 2005 is still the warmest year in the corrected GISS analysis, as it is with the NCDC analysis. Only CRU has 1998 as the warmest year, and that is not affected by anything that GISS does.

Still, some people want so desperately to believe it's all a mistake
that they'll grasp at anything.

Gavin

On Fri, 2007-08-10 at 14:27, Stuart Gaffin wrote:
> Anyone heard about this, especially the claim "NASA has now silently
> released corrected figures ..." Was in today's NY Times Opinionator
>
> August 10, 2007, 9:06 am
> 'Hottest Year' Data Meltdown
> By Tobin Harshaw
>
> Tags: global warming
>
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> You just thought you were sweating? Among global warming Cassandras,
> the fact that 1998 was the "hottest year on record" has always been an
> article of faith. Stephen McIntyre, who runs the Climateaudit blog was
> always puzzled by some gaps he saw in the raw data provided by NASA
> that supported the claim (data compiled in part by James Hansen, the
> climate scientist who has long accused the Bush administration of
> trying to "silence" him). McIntyre says he has "reverse engineered"
> the data to find NASA's algorithm, discovered that a Y2K bug played
> havoc with some of the numbers, and notified the space agency.
>
> Michael Asher at DailyTech explains the fallout:
>
> NASA has now silently released corrected figures, and the
> changes are truly astounding. The warmest year on record is
> now 1934. 1998 (long trumpeted by the media as recordbreaking)
> moves to second place. 1921 takes third. In fact, 5 of the 10
> warmest years on record now all occur before World War II.
> Anthony Watts has put the new data in chart form, along with a
> more detailed summary of the events.
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> The effect of the correction on global temperatures is minor
> (some 1-2% less warming than originally thought), but the
> effect on the U.S. global warming propaganda machine could be
> huge.
>
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--
Dr. Cynthia Rosenzweig

Goddard Inst. for Space Studies
2880 Broadway
New York, NY 10025
tel. 212-678-5562
fax 212-678-5648

Subject: Re: 1934 warmest ? ...
From: "Cynthia Rosenzweig" <crosenzweig@giss.nasa.gov>
Date: Fri, 10 Aug 2007 16:26:06 -0400
To: "Stuart Gaffin" <stuart.gaffin@gmail.com>
CC: "Gavin Schmidt" <gschmidt@giss.nasa.gov>, "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, "Ron Miller" <rmiller@giss.nasa.gov>, rhorton@giss.nasa.gov

Why is this different from the IPCC statement?

On 8/10/07, **Stuart Gaffin** <stuart.gaffin@gmail.com> wrote:
> Nice to see ! So there's really 'nothing there' there ...
>
> On 10 Aug 2007 16:18:56 -0400, **Gavin Schmidt** < gschmidt@giss.nasa.gov> wrote:
> > It wasn't. The ranking were
> >
> > Year anomaly:
> > 1998 1.24
> > 1934 1.23
> > 2006 1.23
> > 1921 1.12
> > 1931 1.08
> >
> > and now:
> >
> > 1934 1.25
> > 1998 1.23
> > 1921 1.15
> > 2006 1.13
> > 1931 1.08
> >
> > the differences between 1998 and 1934 were statistically
> > indistinguishable then, and they are now. The five year means however
> > remain warmer now (0.8 above mean 2001-2006), compared to 1930-1934 0.63
> > above). That is much more apropos and significant.
> >
> > Gavin
> >
> >
> >
> >
> >
> > On Fri, 2007-08-10 at 16:11, Stuart Gaffin wrote:
> > > -- Should have added that I think someone should check on whether or
> > > not the pattern for the 10 warmest years or so for the continental US
> > > was dramatically changed by the corrections.
> > >
> > > If so, then maybe that's a small news item.

> If not, then it's no news at all.
>
>
> On 8/10/07, Stuart Gaffin < stuart.gaffin@gmail.com> wrote:
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> The Times did not clarify that the changes refer to only the
> contiguous US, a very small percentage of globe of course ...
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> year in the corrected
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> > Tags: global warming
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Dr. Cynthia Rosenzweig
Goddard Inst. for Space Studies
2880 Broadway
New York, NY 10025
tel. 212-678-5562
fax 212-678-5648

Subject: Re: Fwd: US temperature correction graphic and file
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Sun, 12 Aug 2007 12:06:10 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: gavin@giss.nasa.gov

It's probably not worth mentioning that some of the differences are due to the fact that the original map was created on January 12, 2007, when some December 2006 and earlier data may not have been reported yet.

Your display shows the effect of the correction only, hence may differ a little from Robert's. I'm bracing myself against accusations of white wash attempts.

Reto

On Sun, 2007-08-12 at 09:54 -0500, James Hansen wrote:

---------- Forwarded message ----------
From: Robert A. Rohde <bobbyr@berkeley.edu>
Date: Aug 12, 2007 6:56 AM
Subject: US temperature correction graphic and file
To: Gavin Schmidt <gschmidt@giss.nasa.gov>, Stephen McIntyre <smcintyre25@yahoo.ca>, Anthony Watts <awatts@itworks.com>, Tim Lambert <deltoidblog@gmail.com>, James Hansen <jhansen@giss.nasa.gov>

In light of the recent fuss over the significance of the correction to the United States temperature record, I tracked down a copy of the data as it existed on August 1 st (from MSN's search engine cache) and made a direct comparison (something that was largely lacking in much of the coverage of this issue).

I am distributing the comparison numbers and a graphic made from them to many of the principle commentators on this issue. Feel free to use and redistribute this at will, though I would appreciate an acknowledgment if you do so.

-Robert A. Rohde

http://www.globalwarmingart.com/

Subject: Re: Fwd: US temperature correction graphic and file
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Mon, 13 Aug 2007 11:30:24 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: Makiko Sato <makis@giss.nasa.gov>, gavin@giss.nasa.gov, klo@giss.nasa.gov

Jim,

I did make those calculations (I assume you mean using only GHCN and hand-adjusting only St.Helena and Lihue, in both cases decreasing the trend, eliminating a 1C and .8C step, resp., as stated in our 1999 paper, also using our urban adjustment).

I only held them back because bringing in a new analysis at this time would confuse the situation beyond hope.

As far as the global means are concerned, the effect of our cleaning is slightly negative for the pre-1950 period, slightly positive thereafter, the biggest deviations are -.01C in 1922, +.01C in 2006; the change in the 1900-1999 (lin. trend) is .01C/century (i.e. without the cleaning it would decrease by .01C).

The US trend however is a different story though not surprising: In addition to the change caused by the USHCN modifications (+.30C for the 1900-1999 change, as noted in our 2001 paper: +.14 TOBS, +.16 station hist.adj), the other modifications added .08C/century to the trend. So the trend would decrease by .38C.

The deviations for the individual years caused by the cleaning range from -.13 in 1922 to +.37 in 2006. The optical impression this creates when you look at the table of data is totally misleading: the 1998 anomaly just happens to fall below 1C (.93C) whereas 1921,1931,1934 are above 1C (1.27,1.20,1.37C) !

Reto

On Sun, 2007-08-12 at 12:02 -0500, James Hansen wrote:

> Yes, the brouhaha is surely not over. So it is important to do the calculation that we discussed the last time we met. Jim
>
> On 8/12/07, Reto Ruedy <rruedy@giss.nasa.gov> wrote:
>
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> > to the fact that the original map was created on January 12, 2007, when
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Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Possible story about the temp record
From: David Herring <dherring@climate.gsfc.nasa.gov>
Date: Tue, 14 Aug 2007 11:46:26 -0400
To: gschmidt@giss.nasa.gov
CC: cahalan@climate.gsfc.nasa.gov

Hey Gavin,

I just left you voicemail, but also wanted to write to explore your availability to speak with me about the GISS temperature record. Bob Cahalan feels, and I agree, that given the recent turn of events it might be a good idea to educate the public about how these data are gathered, and why it's actually harder to calculate average temperature for, say, the continental U.S. than it is for the whole globe.

Anyway, I can see the rightwing blogosphere is revving up into high gear now and so perhaps a report on NASA's Earth Observatory and seizing this opportunity to inform the public will steal most of the hot air out of their collective balloon, eh?

Please advise me on your availability to bring me up to speed. I think Bob C. would like to join us in that conversation as well.

best regards,

--

David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: Possible story about the temp record
From: David Herring <dherring@climate.gsfc.nasa.gov>
Date: Tue, 14 Aug 2007 12:09:42 -0400
To: jhansen@giss.nasa.gov
CC: gschmidt@giss.nasa.gov, cahalan@climate.gsfc.nasa.gov, franco.einaudi@nasa.gov

Thank you for clarifying, Gavin.

Dear Jim,

I know you're extremely busy, but I'm writing to request a little of your time in the near future to interview you for a short feature article on NASA's Earth Observatory that we would like to do about this issue. I'd like a little help in understanding more clearly how you conduct your analyses, what the nature of the "bug" was, and the fix that you put into place.

I have time late today (after 4 p.m.); any time after 11 a.m. tomorrow; any time before 3 p.m. on Thursday; and all day Friday. What could work for you? Also, any background reading material you care to send me / direct me to will help me to come better prepared with questions.

Best regards,

David Herring

At 11:56 AM -0400 8/14/07, Gavin Schmidt wrote:

> If you like, but you need to discuss this with Jim - This is his analysis, and he is the lead author. It actually doesn't have much to do with me at all - I'm just commenting....
>
> gavin
>
> *----------*
> | Gavin Schmidt | NASA/Goddard Institute for Space Studies |
> | | 2880 Broadway |
> | Tel: (212) 678 5627 | New York, NY 10025 |
> | | |
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NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: Possible story about the temp record
From: Robert Cahalan <Robert.F.Cahalan@nasa.gov>
Date: Tue, 14 Aug 2007 12:10:17 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>, David Herring <dherring@climate.gsfc.nasa.gov>

Yes, I agree that this could be an educational opening for mainstream media.

My feeling is we need to lead with some of the faulty claims, and then illustrate that:
(1) the data is all freely available and widely used for scientific study;
(2) scientists use extensive statistical testing to determine whether observed differences can be ignored as being within the observational uncertainty or natural year-to-year variations;
(3) changes of a given magnitude at a station or in a limited area average like the lower 48 contiguous United States, which covers about 2% Earth's surface, are less likely to be significant than a change of similar magnitude in averages over the full surface area of the Earth, which is less affected by many local influences (mention corrections to minimize urban effects too); and
(4) changes in individual years, even ones that change the ranking of years, are less likely to be associated with sustained climate change than changes averaged over several successive years. On this last point we might quote the CCSP temperature synthesis and assessment product 1.1, which emphasized this point.

Of course these are all basic points that any of us climatologists know, but the public needs reminding, and this brouhaha could give a good opportunity to educate any "fence-sitters" who might be listening...
-Bob.

On Aug 14, 2007, at 11:46 AM, David Herring wrote:

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Bob Cahalan, Head | Climate and Radiation Branch
NASA/Goddard Space Flight Center, Greenbelt, MD 20771
robert.f.cahalan@nasa.gov | office: 301-614-5390 - FAX: 301-614-6307 - cell: 301-905-2611

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Part 1.3

Part 1.3	Content-Type: text/plain Content-Encoding: 8bit

Subject: Re: Possible story about the temp record
From: Robert Cahalan <Robert.F.Cahalan@nasa.gov>
Date: Tue, 14 Aug 2007 13:52:47 -0400
To: jhansen@giss.nasa.gov
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Franco Einaudi <franco.einaudi@nasa.gov>, David Herring <dherring@climate.gsfc.nasa.gov>

Jim,
Earlier I sent the following to Gavin -- and I realize that these are points you've been repeating for many years, just want to add that EarthObservatory could be helpful to get the word out:

> Yes, I agree that this could be an educational opening for mainstream media.
>
> My feeling is we need to lead with some of the faulty claims, and then illustrate that:
> (1) the data is all freely available and widely used for scientific study;
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gavin

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| Gavin Schmidt NASA/Goddard Institute for Space Studies |
| 2880 Broadway |
| Tel: (212) 678 5627 New York, NY 10025 |
| |
| gschmidt@giss.nasa.gov http://www.giss.nasa.gov/~gavin |
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Part 1.3

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Subject: Re: Possible story about the temp record
From: James Hansen <jhansen@giss.nasa.gov>
Date: Tue, 14 Aug 2007 14:16:12 -0400
To: Robert Cahalan <Robert.F.Cahalan@nasa.gov>
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Franco Einaudi <franco.einaudi@nasa.gov>, David Herring <dherring@climate.gsfc.nasa.gov>, rruedy@giss.nasa.gov, makis@giss.nasa.gov

Thanks, Bob, I am writing something -- perhaps it can be used there, or modified to be used there. Jim

At 01:52 PM 8/14/2007, Robert Cahalan wrote:

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I know you're extremely busy, but I'm writing to request a little of your time in the near future to interview you for a short feature article on NASA's Earth Observatory that we would like to do about this issue. I'd like a little help in understanding more clearly how you conduct your analyses, what the nature of the "bug" was, and the fix that you put into place.

I have time late today (after 4 p.m.); any time after 11 a.m. tomorrow; any time before 3 p.m. on Thursday; and all day Friday. What could work for you? Also, any background reading material you care to send me / direct me to will help me to come better prepared with questions.

Best regards,

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>
> gavin
>
> *---------- *
> | Gavin Schmidt NASA/Goddard Institute for Space Studies |
> | 2880 Broadway |
> | Tel: (212) 678 5627 New York, NY 10025 |
> |
> |
> | gschmidt@giss.nasa.gov http://www.giss.nasa.gov/ ~gavin |
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Please advise me on your availability to bring me up to speed. I think Bob C. would like to join us in that conversation as well.

best regards,

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David Herring
Project Manager for Education & Outreach
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ph: 301-614-6219
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Bob Cahalan, Head | Climate and Radiation Branch
NASA/Goddard Space Flight Center, Greenbelt, MD 20771
robert.f.cahalan@nasa.gov | office: 301-614-5390 - FAX: 301-614-6307
- cell: 301-905-2611

Subject: Re: Recent events
From: "James Hansen" <jhansen@giss.nasa.gov>
Date: Wed, 15 Aug 2007 10:12:05 -0400
To: "Phil Jones" <p.jones@uea.ac.uk>
CC: "Gavin Schmidt" <gschmidt@giss.nasa.gov>, d.lister@uea.ac.uk, "Reto Ruedy" <rruedy@giss.nasa.gov>, "Makiko Sato" <makis@giss.nasa.gov>

Hi Phil,

Thanks, this is very helpful. Glad that you are keeping on top of these things -- we can only give a small fraction of our time to this topic, so it is good that someone keeps on top of it. By the time you are ready to retire global warming may be large enough that it doesn't require that level of expertise and detail. I am especially interested in your comments about NOAA SSTs -- they seemed just a hair cool to me.

Jim

On 8/15/07, **Phil Jones** <p.jones@uea.ac.uk> wrote:

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> records in real time
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> we've been doing over the past year. Don't pass any of this on via
> Real Climate
> or whatever. Eventually, we will get around to documenting all
> we've been doing.
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> 1. You may have noticed that Canada has changed loads of its WMO IDs. We've
> been in contact with Lucie Vincent there who's also been doing some
> homogeneity work
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> adjustments in
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Problems with both Australia and NZ associating these with WMO IDs we had.

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Other issues:

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The SST issues highlight that it is the biases (bucket/intakes and urbanization)
that are important as they are potentially pervasive. Individual station homogeneity issues cancel as sites are all affected differently. Getting this right has hardly any effect (none in fact) on the large-scale averages. Might affect smaller regions, and it's good to get as many right as possible, as the deniers will claim if one is wrong the whole lot is wrong. The law of large numbers seems to be totally forgotten by those collecting pictures of sitings across the US. Still it gives them something to do...

Cheers
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Prof. Phil Jones
Climatic Research Unit Telephone +44 (0) 1603 592090
School of Environmental Sciences Fax +44 (0) 1603 507784
University of East Anglia
Norwich Email p.jones@uea.ac.uk
NR4 7TJ
UK

Subject: Re: Possible story about the temp record
From: James Hansen <jhansen@giss.nasa.gov>
Date: Tue, 14 Aug 2007 14:16:12 -0400
To: Robert Cahalan <Robert.F.Cahalan@nasa.gov>
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Franco Einaudi <franco.einaudi@nasa.gov>, David Herring <dherring@climate.gsfc.nasa.gov>, rruedy@giss.nasa.gov, makis@giss.nasa.gov

Thanks, Bob, I am writing something -- perhaps it can be used there, or modified to be used there. Jim

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School of Environmental Sciences Fax +44 (0) 1603 507784
University of East Anglia
Norwich Email p.jones@uea.ac.uk
NR4 7TJ
UK

Subject: [Fwd: RE: GISS Raw Data]
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Thu, 16 Aug 2007 19:43:47 -0400
To: gavin@giss.nasa.gov

He never asked for the urban adjustment code; the first request was for "the code that processes the GHCN data". In the interview and on his blog site he asks for the code that "fixes" bad station data - we never claimed to have anything like that. Below he asks essentially for the gridding program. If we relent, his requests will become more insane so that he will always be able to claim that we hide something.

I still think our best defense is the fact that all our procedures are explicitly described and open to anyone who wants to code them in their favorite programming language. This is the proper way to audit our results (and that's what NOAA and other groups are doing).

I was ready to respond to the email below, but before I got around to it he came out with his prank and I have no intention to ever respond to him again.

Reto

-------- Forwarded Message --------
From: Steve McIntyre <stephen.mcintyre@utoronto.ca>
To: rruedy@giss.nasa.gov
Cc: James E. Hansen <jhansen@giss.nasa.gov>
Subject: RE: GISS Raw Data
Date: Wed, 8 Aug 2007 10:46:10 -0400

Dear Dr Ruedy,

Thank you for this information and for the courteous acknowledgement at your website. I can now see where your post-2000 data comes from, but I remain unable to identify a digital source for your data prior to 2000 from available information. I have compared GISS raw to all the archived USHCN versions and have been unable to find a match for US data. In some cases, the differences are substantial.

Can you provide me with (1) a URL from which the U.S. data prior to 2000 (in the version that you used) can be downloaded. (2) If this is no longer possible due to the passage of time, could you please provide me with a copy of the data that you used (or upload it to an area of your FTP site) and also provide its provenance and date of acquisition? Obviously mere print citations are inadequate for this purpose.

I would like to assess the impact of these modifications on the US and global averages for myself. I would appreciate a copy of the source code used for these calculations.

Regards, Steve McIntyre

-----Original Message-----
From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
Sent: Tuesday, August 07, 2007 5:33 PM
To: Steve McIntyre
Cc: James E. Hansen; gavin@giss.nasa.gov
Subject: Re: GISS Raw Data

Dear Sir,

As to the question about documentation, the basic "GISS Surface Temperature Analysis" page starts with a "Background" section whose first paragraph contains the sentence:"Input data for the analysis ,..., is the unadjusted data of GHCN, except that the USHCN station records were replaced by a later corrected version". A similar statement appears in the "Abstract" and the "Introduction" section of our 2001 paper (JGR Vol 106, pg 23,947-23,948). The Introduction explains the above statement in more detail.

In 2000, USHCN provided us with a file with corrections not contained in the GHCN data. Unlike the GHCN data, that product is not kept current on a regular basis. Hence we used (as you noticed) the GHCN data to extend those data in our further updates (2000-present).

I agree with you that this simple procedure creates an artificial step if some new corrections were applied to the newest data, rather than bringing the older data in sync with the latest measurements - as I naively assumed. Comparing the 1999 data in both data sets showed that in about half the cases where the 1999 data were changed, the GHCN data were higher than the USHCN data and in the other half it was the other way round with the plus-corrections slightly outweighing the minus-corrections.

Although trying to eliminate those steps should have little impact on the US temperature trend (much less the global trend), it seems a good idea to do so and I'd like to thank you for bringing this oversight to our attention.

When we did our monthly update this morning, an offset based on the last 10 years of overlap in the two data sets was applied and our on-line documentation was changed correspondingly with an acknowledgment of your contribution. This change and its effect will be noted in our next paper on temperature analysis and in our end-of-year temperature summary.

The effect on global means and all our tables was less than 0.01 C. In the display most sensitive to that change - the US-graph of annual means - the anomalies decreased by about 0.15 C in the years 2000-2006.

Respectfully,

Reto A Ruedy

On Sat, 2007-08-04 at 17:28 -0400, Steve McIntyre wrote:

> Dear Sirs,
>
> In your calculation of the GISS "raw" version of USHCN series, it appears to me that, for series after January 2000, you use the USHCN raw version whereas in the immediately prior period you used USHCN time-of-observation or adjusted version. In some cases, this introduces a seemingly unjustified step in January 2000.
>
> I am unaware of any mention of this change in procedure in any published methodological descriptions and am puzzled as to its rationale. Can you clarify this for me?
>
> In addition, could you provide me with any documentation (additional to already published material) providing information on the calculation of GISS raw and adjusted series from USHCN versions,

> including relevant source code. Thank you for your attention, Stephen McIntyre

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: canada.com Story
From: lnolan@giss.nasa.gov
Date: Fri, 17 Aug 2007 07:13:13 -0400
To: gschmidt@giss.nasa.gov

Dear gschmidt@giss.nasa.gov,

Your friend lnolan@giss.nasa.gov thought you might be interested in this canada.com story:

"Irate NASA rejects blogger's nitpicking"

http://www.canada.com/montrealgazette/news/story.html?id=ed87ac09-f62b-44b9-960f-7ffa30cdf9c1&k=97359

FYI..Leslie

This is a free service courtesy of
canada.com (http://www.canada.com)

Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Fri, 17 Aug 2007 13:29:31 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>, gavin@giss.nasa.gov

Jim,

Gavin suggested some time ago that we should do the analysis with the current USHCN.

I downloaded the "FILIN" USHCN data; the filled-in numbers are marked. So I can use or ignore them. I have to write a program anyway to reformat this file to the format used by GHCN. This includes the easy conversion from F to C, but they also use a different set of ID-numbers to characterize the station. So first, I'll have to construct and check a conversion table to identify the stations properly.

Reto

On Fri, 2007-08-17 at 11:44 -0400, Reto Ruedy wrote:
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> > > On 8/17/07, lesgiss@verizon.net <lesgiss@verizon.net> wrote:
> > > Good morning:
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> > >
> > > Leslie
> > >
> > > ---
> > > mail2web.com - Microsoft® Exchange solutions from a leading provider - http://link.mail2web.com/Business/Exchange

--
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Date: Fri, 17 Aug 2007 16:10:35 -0400
To: rruedy@giss.nasa.gov
CC: "Reto Ruedy" <cdrar@giss.nasa.gov>, "Makiko Sato" <makis@giss.nasa.gov>, gavin@giss.nasa.gov

What is the matter with the way that we do it? Among other things, we have a more realistic urban adjustment. Changing has various drawbacks. Jim

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> > >
> > >
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> > > ---
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TOBS does not have the station history adjustment (SHAP) - FILIN has it and is the last stage before their urban adjustment. I can run with or without the filled-in data (filling in added .05C/century to the US mean trend in our analysis).

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Reto Ruedy <rruedy@giss.nasa.gov>

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Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Fri, 17 Aug 2007 17:04:16 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
CC: Jim Hansen <jhansen@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>, gavin@giss.nasa.gov

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Reto Ruedy <rruedy@giss.nasa.gov>

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Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: "James Hansen" <jhansen@giss.nasa.gov>
Date: Fri, 17 Aug 2007 19:06:48 -0400
To: rruedy@giss.nasa.gov
CC: "Gavin Schmidt" <gschmidt@giss.nasa.gov>, "Reto Ruedy" <cdrar@giss.nasa.gov>, "Makiko Sato" <makis@giss.nasa.gov>

Technical arguments with a jackass or a jester, which most observers not wanting to understand the details, can appear to lower one to a comparable level. Better not argue with him about whether we fix data; we do an urban adjustment, for example. Jim

On 8/17/07, **Reto Ruedy** <rruedy@giss.nasa.gov> wrote:

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Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Fri, 17 Aug 2007 19:28:04 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>

I understand, that was just meant as a suggestion to bring up on Gavin's RealClimate site, if he needs to counter requests for our "fixing" code.

Reto

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Subject: MAP Modeling Program Wiki. Tell Don what to do!
From: Lara Clemence <Lara.B.Clemence@nasa.gov>
Date: Thu, 23 Aug 2007 23:16:23 -0400
To: map_program@listserv.gsfc.nasa.gov
CC: Robert Ferraro <Robert.Ferraro@jpl.nasa.gov>, Bill LaPenta <bill.lapenta@msfc.nasa.gov>, Mike Seablom <Michael.S.Seablom@nasa.gov>, Gail McConaughy <gail.mcconaughy@nasa.gov>, gschmidt@giss.nasa.gov, Susan Strahan <sstrahan@pop600.gsfc.nasa.gov>, Paul Newman <Paul.A.Newman@nasa.gov>, Waleed Abdalati <waleed@icesat2.gsfc.nasa.gov>, cjvdv@ku.edu, bromwich.1@osu.edu, curryja@eas.gatech.edu, Lars Peter Riishojgaard <larspr@gmao.gsfc.nasa.gov>, tom.sever@msfc.nasa.gov

Folks-
This email from Ricky Rood bounced to the map_program listserv earlier this week. I'm on vacation and will address this when I return next week. For now, here it is forwarded from me.....

Lara

> Date: Tue, 21 Aug 2007 17:14:28 -0400
> From: "Richard B. Rood" <rbrood@umich.edu>
> User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.7.13) Gecko/20060414
> X-Accept-Language: en-us, en
> MIME-Version: 1.0
> To: map_program@listserv.gsfc.nasa.gov,
> Robert Ferraro <Robert.Ferraro@jpl.nasa.gov>,
> Bill LaPenta <bill.lapenta@msfc.nasa.gov>,
> Mike Seablom <Michael.S.Seablom@nasa.gov>,
> Gail McConaughy <gail.mcconaughy@nasa.gov>, gschmidt@giss.nasa.gov,
> sstrahan@pop600.gsfc.nasa.gov, Paul Newman <Paul.A.Newman@nasa.gov>,
> Waleed Abdalati <waleed@icesat2.gsfc.nasa.gov>, cjvdv@ku.edu,
> bromwich.1@osu.edu, curryja@eas.gatech.edu,
> Lars Peter Riishojgaard <larspr@gmao.gsfc.nasa.gov>,
> tom.sever@msfc.nasa.gov
> Subject: MAP Modeling Program Wiki. Tell Don what to do!
>
> MAP PI's and community,
>
> As you might remember we had a MAP Project Meeting back in March. One of Don Anderson's goals of that meeting was to collect together MAP community ideas on future directions of research. We had some presentations, some breakout groups, but no real consolidation and extraction into pithy paragraphs of future research directions. What do we carry forward? What are the new things MAP should be doing? Well, now, is the time to make this discussion happen. Don likes connections.
>
> Towards that end, I have set up a wiki site.

http://mapmodeling.org/wiki

On that wiki I have provided a skeleton. This skeleton is drawn from the March Meeting, many discussions with Don, and regular discussions with Robert Ferraro, Bill LaPenta, Mike Seablom, and Gail McConaughy.

I know that Don has talked to many people, trying to build connections in the MAP community. He tells me to include this or that idea, and I have tried to do that. But I know I have not made the complete skeleton, and I know I might not have organized things the way you would have organized them. That is the beauty of the wiki; you can change it. You can make sure that you are there.

So please look at it and have at it. I have sent this message to the PI list, the people who presented at the March meeting, and a few others who Don has told me are supposed to be writing up some ideas. It is not restricted to these people. Expand the community.

This is a chance to organize ideas and pass them back to Don. (Remember a new NRA approacheth.)

r
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Richard B. Rood

Professor: Atmospheric, Oceanic, and Space Sciences

University of Michigan

2455 Hayward Street

Ann Arbor, MI 48109-2143

734-647-3530

Rood AOSS Web Page <http://aoss.engin.umich.edu/go/?id1=10&id2=1&id3=48>

Rood Weather Underground Climate Blog
<http://www.wunderground.com/blog/RickyRood/show.html>

Rood AMS climatepolicy.org Blog <http://www.climatepolicy.org/>

Subject: Re: Possible story about the temp record
From: Robert Cahalan <Robert.F.Cahalan@nasa.gov>
Date: Fri, 24 Aug 2007 08:45:38 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Franco Einaudi <franco.einaudi@nasa.gov>, David Herring <dherring@climate.gsfc.nasa.gov>, rruedy@giss.nasa.gov, makis@giss.nasa.gov

Jim,
Please give an estimated completion date for your writeup on the temperature data adjustment, so Earth Observatory can make plans to support it.
.Bob.

On Aug 14, 2007, at 2:16 PM, James Hansen wrote:

> Thanks, Bob, I am writing something -- perhaps it can be used there, or modified to be used there.
> Jim
>
> At 01:52 PM 8/14/2007, Robert Cahalan wrote:
>
> > Jim,
> > Earlier I sent the following to Gavin -- and I realize that these are points you've been repeating for many years, just want to add that EarthObservatory could be helpful to get the word out:
> >
> > > Yes, I agree that this could be an educational opening for mainstream media.
> > >
> > > My feeling is we need to lead with some of the faulty claims, and then illustrate that:
> > > (1) the data is all freely available and widely used for scientific study;
> > > (2) scientists use extensive statistical testing to determine whether observed differences can be ignored as being within the observational uncertainty or natural year-to-year variations;
> > > (3) changes of a given magnitude at a station or in a limited area average like the lower 48 contiguous United States, which covers about 2% Earth's surface, are less likely to be significant than a change of similar magnitude in averages over the full surface area of the Earth, which is less affected by many local influences (mention corrections to minimize urban effects too); and
> > > (4) changes in individual years, even ones that change the ranking of years, are less likely to be associated with sustained climate change than changes averaged over several successive years. On this last point we might quote the CCSP temperature synthesis and assessment product 1.1, which emphasized this point.
> > >
> > > Of course these are all basic points that any of us climatologists know, but the public needs reminding, and this brouhaha could give

> a good opportunity to educate any "fence-sitters" who might be listening...

.Bob.

On Aug 14, 2007, at 12:09 PM, David Herring wrote:

> Thank you for clarifying, Gavin.
>
> Dear Jim,
>
> I know you're extremely busy, but I'm writing to request a little of your time in the near future to interview you for a short feature article on NASA's Earth Observatory that we would like to do about this issue. I'd like a little help in understanding more clearly how you conduct your analyses, what the nature of the "bug" was, and the fix that you put into place.
>
> I have time late today (after 4 p.m.); any time after 11 a.m. tomorrow; any time before 3 p.m. on Thursday; and all day Friday. What could work for you? Also, any background reading material you care to send me / direct me to will help me to come better prepared with questions.
>
> Best regards,
>
> David Herring
>
> At 11:56 AM -0400 8/14/07, Gavin Schmidt wrote:
>
> > If you like, but you need to discuss this with Jim - This is his analysis, and he is the lead author. It actually doesn't have much to do with me at all - I'm just commenting....
> >
> > gavin
> >
> > *---------- *
> > | Gavin Schmidt NASA/Goddard Institute for Space Studies |
> > | 2880 Broadway |
> > | Tel: (212) 678 5627 New York, NY 10025 |
> > | |
> > | gschmidt@giss.nasa.gov http://www.giss.nasa.gov/ ~gavin |
> > *---------- *

On Tue, 14 Aug 2007, David Herring wrote:

> Hey Gavin,
>
> I just left you voicemail, but also wanted to write to explore your availability to speak with me about the GISS temperature record. Bob Cahalan feels, and I agree, that given the recent turn of events it might be a good idea to educate the public about how these data are gathered, and why it's actually harder to calculate average temperature for, say, the continental U.S. than it is for the whole globe.
>
> Anyway, I can see the rightwing blogosphere is revving up into high gear now and so perhaps a report on NASA's Earth Observatory and seizing this opportunity to inform the public will steal most of the hot air out of their collective balloon, eh?
>
> Please advise me on your availability to bring me up to speed. I think Bob C. would like to join us in that conversation as well.
>
> best regards,
>
> --
>
> David Herring

--

David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Bob Cahalan, Head | Climate and Radiation Branch
NASA/Goddard Space Flight Center, Greenbelt, MD 20771
robert.f.cahalan@nasa.gov | office: 301-614-5390 - FAX: 301-614-6307
- cell: 301-905-2611

Bob Cahalan, Head | Climate and Radiation Branch
NASA/Goddard Space Flight Center, Greenbelt, MD 20771
robert.f.cahalan@nasa.gov | office: 301-614-5390 - FAX: 301-614-6307 - cell: 301-905-2611

Subject: Fwd: Re: request for a graph
From: Vivien Gornitz <vgornitz@giss.nasa.gov>
Date: Wed, 12 Sep 2007 11:58:04 -0400
To: gschmidt@giss.nasa.gov

Hi Gavin:

The website below may be of interest to post on your climate blog. My German is a bit rusty, but basically Stefan Rahmstorf is counter-attacking the climate change skeptics and nay-sayers, like Fred Singer and others, particularly in the German media, by exposing their techniques of disinformation of making misleading and outright false statements and getting away with it.

Cheers,

Vivien

> Date: Tue, 11 Sep 2007 18:34:41 +0200
> From: Brigitta Krukenberg <brigitta@pik-potsdam.de>
> User-Agent: Thunderbird 1.5.0.13 (Windows/20070809)
> To: Vivien Gornitz <vgornitz@giss.nasa.gov>
> Subject: Re: request for a graph
>
> Dear Vivien,
> you can read the article now on Stefan's homepage at: http://www.pik-potsdam.de/~stefan/klimahysterie.html
> Best regards !
> Gitta

Subject: RE: Gistemp Changes
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Mon, 17 Sep 2007 09:54:07 -0400
To: "James E. Hansen" <jhansen@giss.nasa.gov>, rschmunk@giss.nasa.gov, cdmss@giss.nasa.gov
CC: gavin@giss.nasa.gov

Jim,

We could fix this by changing "magnitude of the effect" by "relevance of the effect" which is obviously what you meant. Not that this will prevent him from further maligning us.

Reto

On Mon, 2007-09-17 at 09:05 -0400, Steve McIntyre wrote:

> Dear Sirs,
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> I see that you have decided to report the change in methodology as requested in my previous email. While you should have reported the change in methodology when it was made, it is better late than never.
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> In your new webpage, you state: " This August 2007 change received international attention via discussions on various blogs and repetition by some other media, with no graphs provided to show the magnitude of the effect." This is incorrect and I request that you correct this statement. On Aug 6, 2007, at Climate Audit, http://www.climateaudit.org/?p=1868 , the two graphs below were provided to estimate the magnitude of the effect. The first graph shown below estimated the impact on the U.S. temperature history at a little more than 0.15 deg C. Despite having no access to your source code, this proved to be an accurate estimate.
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> The next graph shown below shows the distribution of changes over the 1221 U.S. stations, which are very substantial in individual cases. Despite your professed concern for illustrating the impact of changes, you did not yourself provide any graph to show the magnitude of the changes on individual stations, nor did you even provide explicit notice on your webpage that any changes had been made.
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> Would you please correct the incorrect information on your webpage. This request is made pursuant to the Data Quality Act.
> Yours truly,
>
> Stephen McIntyre
>
> -----Original Message-----
> From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
> Sent: Friday, September 14, 2007 6:12 PM
> To: Steve McIntyre

Cc: James E. Hansen
Subject: Re: Gistemp Changes

Dear Sir,

As indicated in the description of our input files, we switched from the old year 2000 version of USHCN to the current version. The differences you noticed reflect corrections that were made by USHCN within the last six years.

Reto A. Ruedy

On Wed, 2007-09-12 at 15:38 -0400, Steve McIntyre wrote:

> Dear Sirs, I notice that you've changed the historical data for some US stations since Sep 7, 2007. In particular, I noticed that temperatures for Detroit Lakes MN in the early part of the century were reduced by nearly 0.5 deg C. These changes are subsequent to your
> changes in August 2007 for the changing versions. To my knowledge, there is no explanation for this most recent change and I was wondering what the reason is.
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> Figure 1. Difference between Sep 10, 2007 version of Detroit Lakes MN
> and Aug 25, 2007 version.
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> Thank you for your attention.
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> Regards,
>
> Steve McIntyre

--
Reto Ruedy <rruedy@giss.nasa.gov>

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: Gistemp Changes
From: "James Hansen" <jhansen@giss.nasa.gov>
Date: Mon, 17 Sep 2007 18:33:19 +0200
To: rruedy@giss.nasa.gov
CC: rschmunk@giss.nasa.gov, cdmss@giss.nasa.gov, gavin@giss.nasa.gov

Yes, you can make that change. Of course what I meant was in the places that mattered, Wall Street Journal, etc. there was no proper indication of the magnitude or relevance of the effect. Jim

On 9/17/07, **Reto Ruedy** <rruedy@giss.nasa.gov> wrote:

Jim,

We could fix this by changing "magnitude of the effect" by "relevance of the effect" which is obviously what you meant. Not that this will prevent him from further maligning us.

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Reto Ruedy < rruedy@giss.nasa.gov>

Subject: Re: Gistemp Changes
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Mon, 17 Sep 2007 13:01:00 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: rschmunk@giss.nasa.gov, cdmss@giss.nasa.gov, gavin@giss.nasa.gov

Jim,

I made the change in the text. Do you think, that a direct response to McIntyre is needed ? Something like:

Thanks for bringing to our attention that the term "magnitude of the effect" might be misunderstood as "size" rather than "relevance", magnitude having both meanings. We clarified our formulation correspondingly.

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On Mon, 2007-09-17 at 18:33 +0200, James Hansen wrote:

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Reto Ruedy <rruedy@giss.nasa.gov>

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: Gistemp Changes
From: "James Hansen" <jhansen@giss.nasa.gov>
Date: Mon, 17 Sep 2007 19:03:43 +0200
To: rruedy@giss.nasa.gov
CC: rschmunk@giss.nasa.gov, cdmss@giss.nasa.gov, gavin@giss.nasa.gov

Ho, ho, that is nice -- you are enjoying sparring with him -- sure, go ahead with it. Jim

On 9/17/07, **Reto Ruedy** <rruedy@giss.nasa.gov> wrote:

Jim,

I made the change in the text. Do you think, that a direct response to McIntyre is needed ? Something like:

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> > -----Original Message-----
> > From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
> > Sent: Friday, September 14, 2007 6:12 PM

> > To: Steve McIntyre
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Reto Ruedy <rruedy@giss.nasa.gov>

Subject: [Fwd: RE: Gistemp Changes]
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Wed, 19 Sep 2007 16:25:16 -0400
To: Mark.S.Hess@nasa.gov
CC: infoquality@nasa.gov, ltravis@giss.nasa.gov, makis@giss.nasa.gov, jhansen@giss.nasa.gov, gavin@giss.nasa.gov, rschmunk@giss.nasa.gov

Dear Mark,

In addition to abusing FOIA, these people now also start to invoke the Data Quality Act. Larry Travis suggested I contact you.

Can you advise us whether there is anything we have to do in response to the email below because of that act ? In case you don't know, who should we ask ? Is there a department at nasa with the email address infoquality@nasa.gov ? (I assume there is no "nasa.giv")

As far as this case is concerned, the man either has no idea or pretends to have no idea that "relevance" and "non-zero size" are not identical. Rather than showing corrected and uncorrected graph (which are basically indistinguishable), he showed the difference of the 2 curves (which makes any estimate of the relevancy of the correction impossible). So we are sure that his claim is baseless.

Sincerely,

Reto

-------- Forwarded Message --------
From: Steve McIntyre <stephen.mcintyre@utoronto.ca>
To: rruedy@giss.nasa.gov, infoquality@nasa.giv, James E. Hansen <jhansen@giss.nasa.gov>
Subject: RE: Gistemp Changes
Date: Mon, 17 Sep 2007 13:48:34 -0400

Dear Sirs,

Your revised webpage http://data.giss.nasa.gov/gistemp/ contains the following incorrect statement: "This August 2007 change received international attention via discussions on various blogs and repetition by some other media, with no graphs provided to show the relevance of the effect."

This is incorrect and I request that you correct this statement. As I advised you previously, on Aug 6, 2007, at Climate Audit, http://www.climateaudit.org/?p=1868 , the two graphs below showed the relevance of the effect to U.S. temperature history and to U.S. stations.

The first graph shown below showed that the error was relevant to U.S. temperature history - a topic specifically considered in Hansen et al 2001.

The NASA website provides individual station histories, as well as U.S. and global estimates. The graph below showed the error was relevant to individual U.S. station histories.

The claim that "no graphs provided to show the relevance of the effect" remains incorrect. Once again, please correct the false statement on the NASA webpage http://data.giss.nasa.gov/gistemp/ . This request is made under the Data Quality Act.

Yours truly,

Steve McIntyre

-----Original Message-----
From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
Sent: Monday, September 17, 2007 1:22 PM
To: Steve McIntyre
Cc: James E. Hansen
Subject: RE: Gistemp Changes

Dear Sir,

Thanks for bringing to our attention that the term "magnitude of effect" might be interpreted as "size" rather than "relevance", our obvious intent. We clarified our formulation correspondingly.

On Mon, 2007-09-17 at 09:05 -0400, Steve McIntyre wrote:

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Reto Ruedy <rruedy@giss.nasa.gov>

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Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: [Fwd: RE: Gistemp Changes]
From: "Mark S. Hess" <Mark.S.Hess@nasa.gov>
Date: Tue, 02 Oct 2007 08:53:07 -0400
To: <rruedy@giss.nasa.gov>
CC: <ltravis@giss.nasa.gov>, <makis@giss.nasa.gov>, <jhansen@giss.nasa.gov>, <gavin@giss.nasa.gov>, <rschmunk@giss.nasa.gov>

Reto and all.

I followed up with Goddard's STI Program Manager and here's his evaluation of this issue:

If you go to the STI web site, there's a link to the NASA Guidelines for Ensuring the Quality of Information - http://www.sti.nasa.gov/FINAL_NASA_guidelines.pdf – and if you scroll down far enough in the document, there is a process whereby the person can ask NASA to conduct a review of any disputed scientific information. The CIO's office handles that. Seems to me, if this person really wants to pursue this, that is the process.

I'm sure if somebody wanted to get more info from Kevin, he'd be happy to help. His email address is: Kevin Glasper <Kevin.L.Glasper@nasa.gov>

Mark

Hi Mr. Hess. I am responding to your inquiry about the STI process and how people who want to complain about data found on NASA Websites can correspond with us.

Center STI Program Manager and CASI:

The information that is in question on the GISS Website titled GISS Surface Temperature Analysis is considered Scientific and Technical Information based on the NPR 2200.2b and the NF 1676, Document Availability Authorization Form (DAA) that was found on a journal article with a similar title "GISS Analysis of Surface Temperature Change." According to the Center for Aerospace Information (CASI), there was no record of a DAA sent on the actual GISS Website. However, there is a process for NASA websites that address scientific and technical information to also go through the DAA review approval protocol. I have attached the DAA, NF-1676 and a copy of first page of the journal article for your review. The DAA shows that this article was approved back in April of 1999. The lead author was Dr. James Hansen. Dr. Hansen is also listed as the project officer. The Export Control Officer at that time was Mr. J.R. Hedgpeth and the final approver was Mr. Vincent Salomonson. Please note that we are not certain that the refuted claim brought forth by Mr. McIntyre was taken from the above mentioned journal article, but we are certain that the related article above was approved via the DAA approval process. It was the closest reference found by CASI.

GISS Curator:

I spoke with the curator of the GISS Website, Mr. Robert Schmunk. He explained to me that the initial posting of the information to the website took place around 1998/1999. The website is updated monthly. The most recent update to the website was done on September 18, 2007.

Agency STI Program Manager:

I also spoke with the Agency STI Program Manager, Ms. Lynn Heimerl. Her position is that the proper procedures would require a peer review evaluation to examine the refuted claim. If the information is found to be inaccurate then it would have to be deleted from the GISS website and all other information associated with the article recalled. However, the decision to modify information has to be carefully determined through the peer review process excluding our office. The NASA Guidelines for Quality of Information lays out the specific protocols for following those procedures. http://www.sti.nasa.gov/ Since the original GISS Website does not have a DAA and if the change is made then it would have to go through the DAA/NF 1676 review and approval

process. This procedure would involve our office. Otherwise, it is a tech/peer review issue.

I hope this helps. Thanks and please do not hesitate to contact me if more questions or concerns arise.

Kevin Glasper
NASA STI Program Manager
X6-2324

On 9/19/07 4:25 PM, "Reto Ruedy" <rruedy@giss.nasa.gov> wrote:

Dear Mark,

In addition to abusing FOIA, these people now also start to invoke the Data Quality Act. Larry Travis suggested I contact you.

Can you advise us whether there is anything we have to do in response to the email below because of that act ? In case you don't know, who should we ask ? Is there a department at nasa with the email address infoquality@nasa.gov ? (I assume there is no "nasa.giv")

As far as this case is concerned, the man either has no idea or pretends to have no idea that "relevance" and "non-zero size" are not identical. Rather than showing corrected and uncorrected graph (which are basically indistinguishable), he showed the difference of the 2 curves (which makes any estimate of the relevancy of the correction impossible). So we are sure that his claim is baseless.

Sincerely,

Reto

-------- Forwarded Message --------
From: Steve McIntyre <stephen.mcintyre@utoronto.ca>
To: rruedy@giss.nasa.gov, infoquality@nasa.giv, James E. Hansen <jhansen@giss.nasa.gov>
Subject: RE: Gistemp Changes
Date: Mon, 17 Sep 2007 13:48:34 -0400

Dear Sirs,

Your revised webpage http://data.giss.nasa.gov/gistemp/ contains the following incorrect statement: "This August 2007 change received international attention via discussions on various blogs and repetition by some other media, with no graphs provided to show the relevance of the effect."

This is incorrect and I request that you correct this statement. As I advised you previously, on Aug 6, 2007, at Climate Audit, http://www.climateaudit.org/?p=1868 , the two graphs below showed the relevance of the effect to U.S. temperature history and to U.S. stations.

The first graph shown below showed that the error was relevant to U.S. temperature history - a topic specifically considered in Hansen et al

2001.

The NASA website provides individual station histories, as well as U.S. and global estimates. The graph below showed the error was relevant to individual U.S. station histories.

The claim that "no graphs provided to show the relevance of the effect" remains incorrect. Once again, please correct the false statement on the NASA webpage http://data.giss.nasa.gov/gistemp/ . This request is made under the Data Quality Act.

Yours truly,

Steve McIntyre

-----Original Message-----
From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
Sent: Monday, September 17, 2007 1:22 PM
To: Steve McIntyre
Cc: James E. Hansen
Subject: RE: Gistemp Changes

Dear Sir,

Thanks for bringing to our attention that the term "magnitude of effect" might be interpreted as "size" rather than "relevance", our obvious intent. We clarified our formulation correspondingly.

On Mon, 2007-09-17 at 09:05 -0400, Steve McIntyre wrote:
> Dear Sirs,
>
> I see that you have decided to report the change in methodology as
> requested in my previous email. While you should have reported the
> change in methodology when it was made, it is better late than never.
>
> In your new webpage, you state: " This August 2007 change received
> international attention via discussions on various blogs and
> repetition by some other media, with no graphs provided to show the
> magnitude of the effect." This is incorrect and I request that you
> correct this statement. On Aug 6, 2007, at Climate Audit,
> http://www.climateaudit.org/?p=1868 , the two graphs below were
> provided to estimate the magnitude of the effect. The first graph
> shown below estimated the impact on the U.S. temperature history at a
> little more than 0.15 deg C. Despite having no access to your source
> code, this proved to be an accurate estimate.
>
>
>

>
> The next graph shown below shows the distribution of changes over the
> 1221 U.S. stations, which are very substantial in individual cases.
> Despite your professed concern for illustrating the impact of changes,
> you did not yourself provide any graph to show the magnitude of the
> changes on individual stations, nor did you even provide explicit
> notice on your webpage that any changes had been made.
>
>
>
>
> Would you please correct the incorrect information on your webpage.
> This request is made pursuant to the Data Quality Act.
> Yours truly,
>
> Stephen McIntyre
>
>
>
>
>
>
> -----Original Message-----
> From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
> Sent: Friday, September 14, 2007 6:12 PM
> To: Steve McIntyre
> Cc: James E. Hansen
> Subject: Re: Gistemp Changes
>
>
> Dear Sir,
>
> As indicated in the description of our input files, we switched from
> the old year 2000 version of USHCN to the current version. The
> differences you noticed reflect corrections that were made by USHCN
> within the last six years.
>
>
> Reto A. Ruedy
>
>
> On Wed, 2007-09-12 at 15:38 -0400, Steve McIntyre wrote:
> > Dear Sirs, I notice that you've changed the historical data for some
> > US stations since Sep 7, 2007. In particular, I noticed that
> > temperatures for Detroit Lakes MN in the early part of the century
> > were reduced by nearly 0.5 deg C. These changes are subsequent to
> your
> > changes in August 2007 for the changing versions. To my knowledge,
> > there is no explanation for this most recent change and I was
> > wondering what the reason is.
> >
> >
> > Figure 1. Difference between Sep 10, 2007 version of Detroit Lakes
> MN
> > and Aug 25, 2007 version.
> >
> > Thank you for your attention.
> >
> > Regards,
> >
> > Steve McIntyre
> --
> Reto Ruedy <rruedy@giss.nasa.gov>

>
>
--
Reto Ruedy <rruedy@giss.nasa.gov>

--
Reto Ruedy <rruedy@giss.nasa.gov>

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Date 9/27	Time 1:50 pm	Page 1 (this page) of 4 Pages	
Subject GISS DAA - Hansen			
Name	Kevin Glasper	Name	Kurt McIntyre
Company	GSFC	Company	NASA CASI
Telephone	301-286-2374	Telephone	301 621 0235
Fax	301-286-1705	Fax	301 621 0134

Confirmation of Receipt Requested (Place X for choice)		Please call (only if different than number above)
YES	NO X	

Note DAA & first page of Doc.

(33)

IN 45
050125
p. 30

GISS Analysis of Surface Temperature Change

J. Hansen, R. Ruedy, J. Glascoe and M. Sato

NASA Goddard Institute for Space Studies, New York

Abstract. We describe the current GISS analysis of surface temperature change based primarily on meteorological station measurements. The global surface temperature in 1998 was the warmest in the period of instrumental data. The rate of temperature change is higher in the past 25 years than at any previous time in the period of instrumental data. The warmth of 1998 is too large and pervasive to be fully accounted for by the recent El Nino, suggesting that global temperature may have moved to a higher level, analogous to the increase that occurred in the late 1970s. The warming in the United States over the past 50 years is smaller than in most of the world, and over that period there is a slight cooling trend in the Eastern United States and the neighboring Atlantic ocean. The spatial and temporal patterns of the temperature change suggest that more than one mechanism is involved in this regional cooling.

1. Introduction

Surface air temperature change is a primary measure of global climate change. Studies of temperature change over land areas based on measurements of the meteorological station network are routinely made by groups at the University of East Anglia (Jones et al., 1982; Jones, 1995), the Goddard Institute for Space Studies (Hansen et al., 1981; Hansen and Lebedeff, 1987) and the National Climatic Data Center (Peterson et al., 1998b; Quayle et al., 1999), hereafter abbreviated as UEA, GISS and NCDC, respectively. These studies are updated frequently because of current interest in global warming and the possibility of human influence on climate (IPCC, 1996). Analysis by several independent groups provides a useful check, because of their different ways of handling data problems such as incomplete spatial and temporal coverage, urban influences on the station environment, and other factors affecting data quality (Karl et al., 1989).

Our purpose is to update and document the current GISS analysis, which has evolved substantially since the previous documentation by Hansen and Lebedeff (1987), hereafter abbreviated as HL87. Our analysis concerns primarily meteorological station measurements over land areas, as was the case with HL87. However, we also illustrate results for a global surface temperature index formed by combining our land analysis with sea surface temperature data of Reynolds and Smith (1994) and Smith et al. (1996), as described by Hansen et al. (1996). It is useful to estimate global temperature change from both the meteorological station data alone, as well as from the combined analysis, because the land and ocean data have their own measurement characteristics and uncertainties.

We first describe the source of our raw data, our data quality controls, and an optional adjustment for estimating urban effects on local data. We describe the method for combining station records to obtain regional and near-global temperature change, illustrate the resulting near-global temperature change of the past century, and compare this with the temperature change in the United States. Finally, we present examples of data products that are available over our web site (www.giss.nasa.gov).

2. Source Data

The source of monthly mean station temperatures for our present analysis is the Global Historical Climatology Network (GHCN) version 2 of Peterson and Vose (1997). This is a compilation of 31 datasets, which include data from more than 7200 independent stations. One of the 31 data sets, the Monthly Climatic Data of the World (MCDW) with about 2200 stations, was the data source used in the analysis of Hansen and Lebedeff (1987). The GHCN version 2 dataset has many merits for research applications, including provision of useful

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AUTHOR(S)
James Hansen, R. Ruedy, J. Glascoe and M. Sato

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Subject: heads up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: Mon, 31 Mar 2008 11:17:48 -0500 (EST)
CC: Group RealClimate <group@realclimate.org>

Nature Geoscience will have two commentaries this month - one by me on why blogging is a useful activity (but with no direct reference to RealClimate), and an opposing one from Myles Allen - where he tries to make the point that there is a tension between responding in the peer-reviewed literature and on a blog, and therefore to save peer-review, one can't ever say anything informally. In making this point however, he quite specifically singles out our (well, my) treatment of the Stainforth et al paper and the subsequent controversy (How not to write a press release) as the example of how unfair commenting on blogs is and how we were out to 'get' him.

I reviewed those two pieces and apart from potentially one statement that Myles is obsessing over (whether the cluster of cpdn models with sensitivities around 2-4 deg C was an important result), I don't see anything wrong with what we said in either post. I have therefore put clearly marked updates in both posts to clarify one point of fact and to make it clear that I never accused Myles of deliberately trying to mislead anyone.

Nonetheless, when the pieces come out (sometime this week), some people will clearly see a personalised conflict between Myles and us (and James Annan who is obliquely mentioned as well). Once I see what was in the final version (I protested quite strongly and so it will hopefully not be inaccurate or personal as the earlier draft), I will put a short piece focussing on the real issue (i.e. how commentary on blogs and peer-review intersect) along with some links to the pieces Myles is protesting about.

However, I am not going to allow this to turn into a re-hash of the 11 deg climate sensitivity issue or the Stainforth paper or any me-vs.-Myles issue. So if you end up moderating any commments, please avoid letting in anything that will inflame the situation.

Myles and I have had a pretty frank email discussion (which has not been pleasant), but I'd rather not bring that out. His one constructive suggestion is that we should always send blog posts ahead of time to the original authors of any paper we comment on to ensure 'accuracy'. Since this is presumably only relevant if we are critical, that (it seems to me) to preclude us writing anything critical about anybody. However, he suggested I ask what you lot think, and so I will. What do you think?

Anyway, since this will be coming done the pipe soon, I thought I'd let you know.

Gavin

Gavin Schmidt	NASA/Goddard Institute for Space Studies
	2880 Broadway
Tel: (212) 678 5627	New York, NY 10025
gschmidt@giss.nasa.gov	http://www.giss.nasa.gov/~gavin

Subject: RE: rating notes
From: "Emily Michaud" <emichaud@giss.nasa.gov>
Date: Wed, 4 Jun 2008 12:14:47 -0400
To: "'Gavin Schmidt'" <gschmidt@giss.nasa.gov>

Thanks Gavin. I'll 'cut and paste' into your plan.

e

-----Original Message-----
From: Gavin Schmidt [mailto:gschmidt@giss.nasa.gov]
Sent: Tuesday, June 03, 2008 11:58 AM
To: Emily Michaud
Cc: Jim Hansen
Subject: rating notes

Emily, for some reason, the plan document kept crashing on me, so here are the main points for each of the four elements:

gavin

=======

1) Work results are measured through quality peer-reviewed publications and submitted or funded proposals.
Writes or contributes significantly as author or coauthor on the average of at least one paper per year that will be submitted to a refereed science or high quality technical journal. The paper(s) will be based on funded research relevant to NASA strategic goals. Present the results of this research at a national or international meeting.

In 2007 and 2008, Gavin Schmidt authored or co-authored 12 peer reviewed papers in the technical literature (including 3 "in press") (listed below). He has presented his research at the following meetings over the last year: Abrupt Climate Change workshop (Obergurgl, Austria, May 2007), the International Conference on Paleoceanography (Shanghai, China, 2007), SORCE Investigators Meeting (Santa Fe, Feb, 2008), Leverhulme Climate Symposium (Cambridge, UK, Mar 2008), Swiss Global Climate Day (Bern, Apr 2008).

LeGrande, A.N., and G.A. Schmidt, 2008: Ensemble, water-isotope enabled, coupled general circulation modeling insights into the 8.2-kyr event. Paleoceanography, in press, doi:10.1029/2008PA001610.

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Masson-Delmotte, V. et al, A Review of Antarctic Surface Snow Isotopic Composition: Observations, Atmospheric Circulation and Isotopic Modelling, 2008, J. Climate, (in press)

Hansen, J., et al, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., et al, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2) COLLABORATION AND TEAMWORK

Gavin Schmidt has co-authored with over 70 people in the journal articles listed above, from within NASA, across the US and internationally. He recently submitted a proposal for NASA NEWS in collaboration with investigators from JPL and the U. Colorado, and to NASA MAP with colleagues from GSFC and Columbia U. He is instrumental in coordinating overall model development strategy and the work being done at GISS on carbon cycling and interactive tracers (aerosols, chemistry, dust). He coordinates the input of the GSFC SIVO into GISS model development. He is the co-chair of the PAGES/CLIVAR Intersection Panel which tries to coordinate reasarch internationally that is of value for understanding both past and present climate variability. He successfully mentored Allegra LeGrande through her PhD and now works with here as a post-doc at GISS. He currently advises one Columbia graduate student.

He is active in looking at ways to expand collaboration and progress in the field of ice sheet modelling (see Little, C.M., et al, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002) and is actively collaborating with Bill Lipscomb at LLNL and Olga Sergienko, Portland State University).

3) COMMUNICATIONS

(This is a tough one since I'm not sure how you can show proof of any of this).

The quality of Gavin Schmidt's oral presentations are demonstrated by the frequent repeat invitations for talks and radio/television interviews and the positive feedback received from audiences. He has been frequently asked to write for popular audiences (Physics Today, Physics World, Nature Geoscience, blogs, the GISS Website). No article of his has been found to not meet NASA's prescribed standards.

4) Community and Academic Outreach

Contribute to community and student outreach. Whenever possible provide lay-person version of research on GISS web site

Gavin Schmidt is active in outreach to the wider academic community and to the public. He has given introductory talks on climate change science at the New York Academy of Science summer program (2007), American Museum of Natural History, Auburn Universtiy (Auburn AL, Feb 2008), the Brattleboro Art Museum (Vermont, Feb 2008), PITTCON 08 (New Orleans, Mar 2008), Bristol University (Mar, 2008).

He contributes to the RealClimate.org blog and has written a tutorial on climate modelling for Physics Today (Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.), and recently wrote a commentary for Nature Geoscience on outreach in the digital age (Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170).

He has edited a book on the science and photography of climate change for a lay audience (Schmidt, G and J. Wolfe, "Climate Change: A Look behind the science, W.W. Norton to be published spring 2009). He has contributed a chapter to the book New Questions in Science (edited by Max Brockman, Vintage Press, to be published spring 2009).

In the last 12 months, he has appeared on "This Week in Science" (NPR), "The Daily Show with Jon Stewart", "Pale Blue Dot" (radio show), "Greener Living" (radio show), Diane Rehm (NPR) as well as print newspapers such as the Washington Post, New York Times, and magazines such as New Scientist and Popular Mechanics in order to explain his research and provide context for other climate change stories in the media.

Subject: Re: FV core
From: "Clune, Thomas L. (GSFC-610.3)" <thomas.l.clune@nasa.gov>
Date: Thu, 19 Jun 2008 13:46:04 -0400
To: Denis Gueyffier <dgueyffier@giss.nasa.gov>
CC: "Putman, William M. (GSFC-610.3)" <william.m.putman@nasa.gov>, <gschmidt@giss.nasa.gov>, "Maxwell Kelley" <mk98@columbia.edu>

All,

Apologies for the delay in creating the Blog on MG. Turns out both admins for MG are out today ... We could start it as a "disussion" but I think we'll ultimately want the extra flexibility of a blog for this purpose. If you'd rather not wait another day, just let me know.

Cheers,

- Tom

On Jun 17, 2008, at 2:37 PM, Denis Gueyffier wrote:

> Bill, Tom,
>
> Is it possible for you to call me (phone: 212-678-5572) from your phone?
> Max Kelley will also join us for the meeting.
>
> Best,
>
> Denis Gueyffier
> NASA GISS & Columbia CCSR
> 2880 Broadway
> New York, NY 10025
> E-mail: dgueyffier@giss.nasa.gov
> Phone: 212-678-5572
> Office: 678
>
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> <dgueyffier@giss.nasa.gov> wrote:
> >
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> > Denis
> >
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> >>
> >> William.M.Putman@nasa.gov
> >>
> >> NASA - Goddard Space Flight Center
> >>

>> Code 610.3, Software Integration and Visualization Office
>>
>> Greenbelt, MD 20771
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>> Cell Phone: 240-778-5697
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>> In the meantime, I was planning to read a few papers by Bill and S. J. Lin, and also earlier papers by Colella & Woodward.
>> Please tell me if you have other pointers about things that you think I should look at (papers, presentations,codes...).
>> Thanks,
>> Denis Gueyffier
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>>>> of the cubed sphere version and it is with him you will need to
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>>>> Bill, Tom, just to introduce Denis who will be working on the
>>>> FVcore/cubed sphere implementation here.

>>>>
>>>> Gavin
>>>>
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>>>> > located in room 678 on the 6th floor.
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>>>> > finite volume (FV core) scheme, when you have time for this.
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>>>> >
>>>
>>>
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>>> Advanced Software Technology Group 240-266-0400 (F)
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CC: "Putman, William M. (GSFC-610.3)" <william.m.putman@nasa.gov>, gschmidt@giss.nasa.gov, "Maxwell Kelley" <mk98@columbia.edu>

Hi Tom, Hi Bill,

It was nice meeting you over the phone yesterday.
I will need to talk with Bill about regridding, mostly on the following topics:

* How do I get the regridding code that was implemented with (or at) GFDL?

* What does the code do? My understanding is that it provides us with interpolation and integration routines ensuring that quantities which are globally conserved on one grid are still conserved on the other.

Thanks,

Denis

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Subject: Cubed Sphere Blog on Modeling Guru
From: "Clune, Thomas L. (GSFC-610.3)" <thomas.l.clune@nasa.gov>
Date: Wed, 25 Jun 2008 10:18:07 -0400
To: "Dennis ((ARC-TNE)) Jespersen C." <dennis.jespersen@nasa.gov>, Putman Bill <William.M.Putman@nasa.gov>, Gavin Schmidt <gschmidt@giss.nasa.gov>

This is my first attempt using the "blog" facility on Guru, so please be patient as we learn the consequences. The link is below, and I think that after you have started responding you will get automatic email notifications of changes in the future.

https://modelingguru.nasa.gov/clearspace/people/blogs-manage.jspa?blogID=1037

Cheers,

- Tom

Thomas Clune, Ph.D. 301-286-4635 (W)
Advanced Software Technology Group 240-266-0400 (F)
Software Integration and Visualization Office <Thomas.L.Clune@nasa.gov>
NASA GSFC (610.3) <http://sivo.gsfc.nasa.gov>

Subject: [Cubed Sphere Migration] New Comment: "Notes from kickoff meeting on 6/18/08"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Wed, 25 Jun 2008 11:05:50 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Notes from kickoff meeting on 6/18/08:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/25/notes-from-kickoff-meeting-on-61808#comments-1203

Author : dgueyffi
Profile: https://modelingguru.nasa.gov/clearspace/people/dgueyffi

Comment:

Igor Aleinov was not present during the kickoff meeting. Maxwell Kelley was attending the meeting.

Subject: Re: FV core
From: "Denis Gueyffier" <dgueyffier@giss.nasa.gov>
Date: Wed, 25 Jun 2008 12:38:03 -0400
To: mkelley@giss.nasa.gov, gschmidt@giss.nasa.gov

Hi,

Tom and Bill have posted notes regarding the kickoff meeting at
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere

Denis

On Wed, Jun 25, 2008 at 11:10 AM, Denis Gueyffier <dgueyffier@giss.nasa.gov> wrote:

> Tom,
> I've been able to post a first comment on the blog.
> Thanks, Denis
>
> On Wed, Jun 25, 2008 at 10:51 AM, Clune, Thomas L. (GSFC-610.3) <thomas.l.clune@nasa.gov> wrote:
>
> > OK - you should be good now. The admin for Guru is out today, though, so I can't yet make you an author for the blog. You should be able to "comment" on the posts though.
> >
> > - Tom
> >
> > On Jun 25, 2008, at 10:18 AM, Denis Gueyffier wrote:
> >
> > > Dear Tom,
> > >
> > > Thanks.
> > > I have applied but when I submitted the application a message on the screen was saying I already submitted an application before, so I assumed things were working fine.
> > > I'm going to call the helpdesk at NCCS.
> > >
> > > Best,
> > >
> > > Denis
> > >
> > > On Wed, Jun 25, 2008 at 10:12 AM, Clune, Thomas L. (GSFC-610.3) <thomas.l.clune@nasa.gov> wrote:
> > >
> > > > Hi Denis,
> > > >
> > > > We don't see an ID for you yet on Guru. Have you applied for one online? I've created the blog for posting our meeting notes, but want to add you as an author.
> > > >
> > > > - Tom

On Jun 20, 2008, at 12:01 PM, Denis Gueyffier wrote:

> Tom,
>
> > Yes - but there are some interesting wrinkles. First, anyone can _see_ most
> > of the content on Modeling Guru. An account is only needed to post. You
> > are free to go ahead and get an account on Modeling Guru, but when you get
> > an NCCS ID there is a risk you'll have 2 different Modeling Guru accounts
> > since the NCCS ID automatically generates a MG ID. Until now, that has not
> > been much of an issue since MG is new, and people already had NCCS ID's. I
> > presented the issue to the NCCS yesterday and we're working on a long term
> > strategy. In the meantime, since the consequence of having 2 ID's is
> > rather small, I recommend going ahead and getting your MG account.
>
> Thanks. I just submitted an application online to get access to MG.
>
> Best,
>
> Denis

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Subject: [Cubed Sphere Migration] New Comment: "Notes from kickoff meeting on 6/18/08"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 12:11:00 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Notes from kickoff meeting on 6/18/08:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/25/notes-from-kickoff-meeting-on-61808#comments-1204

Author : kelley
Profile: https://modelingguru.nasa.gov/clearspace/people/kelley

Comment:

Perhaps we should add Reto to this blog - he could verify what I've outlined here.

The problematic aspect of the radiation is the task of computing a time-averaged solar zenith angle for a grid cell which does not line up along lat-lon axes. Upon thinking about it further, I remember that there are actually two zenith angle computations. The first is the angle averaged over the regular physics timestep (30 min). The second angle is an average over the radiation timestep (normally every 2.5 hours) and is the one used when computing light scattering.

Even though the full radiative transfer calculation is done only every 2.5 hours, solar heating rates are recomputed every 30 min, essentially using the ratio of the 30-min and 2.5-hour zenith angles.

Only the 30-min zenith angle needs to be "conservative" in the sense that the space- and time-averaged solar irradiance should closely match what we get in the lat-lon model.
Obviously it would be easier to calculate the 30-min result accurately using discretizations.

Max

Subject: [Cubed Sphere Migration] New Comment: "Additional item"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 12:13:00 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Additional item:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/25/additional-item#comments-1205

Author : kelley
Profile: https://modelingguru.nasa.gov/clearspace/people/kelley

Comment:

I will do this soon...

Subject: [Cubed Sphere Migration] New Comment: "Questions"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 12:30:33 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Questions:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/26/questions#comments-1206

Author : wputman
Profile: https://modelingguru.nasa.gov/clearspace/people/wputman

Comment:

Yes we are using the gnomonic gid, and those metric terms are used as i the JCP paper. Momentum is handled in a similar fashion.

The cube is unfolded as on the SIVO page, and there are 3 ghost cells in each direction.

Yes, the area is computed using the spherical excess formula, and the core makes available several geometric factors including grid lengths, unit vectors, and the sin(alpha) and cos(alpha) metric factors.

The only other places where special treatment of the corners come in is the kinetic energy term in the D-grid SW equations, and the divergence damping. There is no detailed documentation on this as of yet, just what comments/code appear in sw_core.F90

Subject: [Cubed Sphere Migration] New Comment: "Notes from kickoff meeting on 6/18/08"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 12:56:36 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Notes from kickoff meeting on 6/18/08:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/25/notes-from-kickoff-meeting-on-61808#comments-1207

Author : clune
Profile: https://modelingguru.nasa.gov/clearspace/people/clune

Comment:

I'm certainly open to adding Reto (and others), but anyone should be able to post comments to threads. The real problem is simply how to let new people know to "look". Generally someone needs to send the person an email with a link to this blog and then they will be able to get email notifications for new posts. Since we are authors, we are not seeing the same options that non-authors see, but I think there will be an "email notifications" button for Reto if he logs in ...

Subject: [Cubed Sphere Migration] New Comment: "Notes from kickoff meeting on 6/18/08"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 13:38:12 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Notes from kickoff meeting on 6/18/08:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/25/notes-from-kickoff-meeting-on-61808#comments-1208

Author : dgueyffi
Profile: https://modelingguru.nasa.gov/clearspace/people/dgueyffi

Comment:
---
that's right. I also discussed this a little with Gary Russell and I believe that the time-averaged zenith angle COSZ is to be seen as a function of space (time has disappeared after the averaging) that we can sample at any point on the sphere, i.e. at lat-lon discrete points or at the cubed-sphere cell centers. See my post above on the scoping of RAD_DRV.f

Denis

Subject: [Cubed Sphere Migration] New Comment: "Tom's Notes from 6/24/08"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Thu, 26 Jun 2008 17:49:16 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post Tom's Notes from 6/24/08:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/26/toms-notes-from-62408#comments-1209

Author : dgueyffi
Profile: https://modelingguru.nasa.gov/clearspace/people/dgueyffi

Comment:

We just re-discussed the Zenith Angle calculation with Gary Russell and Max Kelley and it appears that the
Zenith angle COSZ is a function defined per m^2 that is first averaged in time and which is defined at any point on the sphere. It can be sampled at discrete points corresponding to cell centers indifferently of any grid.
We don't need to care about area weighting during the calculation of COSZ, but we care later when we do the regridding to check that \int_{Sphere} COSZ dA = 1/4

To answer Tom question during the meeting, we can quite easily make the zenith angle visible to other parts.

Subject: [Cubed Sphere Migration] New Comment: "problem using mpp_update_domains in the QUS"
From: NASA Modeling Guru Administrator <ModelingGuru@nasa.gov>
Date: Sun, 29 Jun 2008 12:25:10 -0400
To: Gavin A Schmidt <gschmidt@nccs.nasa.gov>

Gavin A Schmidt,

A new comment was created on the blog post problem using mpp_update_domains in the QUS:
https://modelingguru.nasa.gov/clearspace/blogs/cubedsphere/2008/06/27/problem-using-mppupdatedomains-in-the-qus#comments-1212

Author : kelley
Profile: https://modelingguru.nasa.gov/clearspace/people/kelley

Comment:

I've replicated and adapted the relevant bits of code to create a "column" version. This will allow work to continue until a more elegant solution is found. Or, a less elegant solution, like some f77-style routines with extra arguments specifying which dimensions correspond to X and Y.

Subject: RealClimate blocked by US military?
From: "Andy Ackerman" <andrew.ackerman@nasa.gov>
Date: Thu, 31 Jul 2008 11:21:29 -0400
To: "Gavin Schmidt" <gschmidt@giss.nasa.gov>

Hi Gavin,

An item on DailyKos today pointed to a blog indicating that the US military is now blocking RealClimate.org:

http://andysocial.livejournal.com/482164.html

Clearly your agenda is unpatriotic!

-Andy

Subject: [600_all] Education and Outreach Colloquium, September 24
From: Holli Riebeek <holli.a.riebeek@nasa.gov>
Date: Tue, 09 Sep 2008 17:49:23 -0400
To: <600_all@nccs.nasa.gov>

Hello,
The education and outreach colloquium normally scheduled for the second Wednesday of the month (September 10) has been moved to September 24. Our speakers, Jason Samenow and Anne Waple, will discuss communication strategies of the US Climate Change Science Program and how NASA can contribute.

Date: September 24, 2008
Time: 12:00 - 1:00
Location: Bldg 33, H114

About our speakers:

Dr. Anne Waple currently serves as the communications Manager for the U.S. Climate Change Science Program (CCSP) in Washington DC. At CCSP - a $2billion program that integrates and coordinates climate research and activities across the federal government - Anne is responsible for coordinating the Communications Interagency Working Group and the Education Interagency Working Group. Anne's other activities include facilitating science communication of the Program's current assessments, coordinating communication across participating agencies and with stakeholders of climate information.

Before joining CCSP, Anne worked in the Climate Monitoring Branch at NOAA's National Climatic Data Center in Asheville, NC where she coordinated science communication of the NOAA-led CCSP Synthesis and Assessment reports, co-edited the annual "State of the Climate" reports, and contributed to and edited numerous other NOAA climate science documents, among other tasks. Anne received her PhD from the University of Massachusetts, where her research focused on causes of climate change over the last several hundred years and projections of future climate.

Jason Samenow has worked as a Climate Change Analyst at the U.S. EPA for the past seven years. In that capacity, he has played a leading role in tracking and assessing climate change science developments and communicating the salient information to policymakers and the general public. Specifically, he was the project manager responsible for the development of EPA's new Climate Change Web site launched in late October 2006<http://www.epa.gov/climatechange> and drafted the entire section on science as well as pages on extreme events and regional climate impacts, working with scientists across the Federal government. In addition, Jason led production of the Excessive Heat Events Guidebook <http://www.epa.gov/heatisland/about/heatguidebook.html> -- an interagency report (EPA, NOAA, CDC and FEMA) published in June 2006, offering detailed information about the climatology of excessive heat events, the risk factors, and options for responding to them. Finally, Jason is a co-chair for the U.S. Climate Change Science Progam's Communications Interagency Working Group.

Jason earned his undergraduate degree in Environmental Science (concentration: Atmospheric Science) from the University of Virginia in 1998 and an MS in Atmospheric Science from the University of Wisconsin-Madison in 2000. He is a past Chair of the DC Chapter of the American Meteorological Society, a Weather and Society Integrated Studies Fellow <http://www.sip.ucar.edu/wasis/>, an alumnus of the American Meteorological

Society's Policy Colloquium, and Chief Meteorologist of the Capital Weather Gang blog on washingtonpost.com -- which offers original, interactive Washington, DC weather commentary.

Subject: Fwd: Scientific American to the rescue (?)
From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: Wed, 19 Nov 2008 15:37:50 -0500
To: jhansen@giss.nasa.gov, rruedy@giss.nasa.gov, rschmunk@giss.nasa.gov, makis@giss.nasa.gov, gschmidt@giss.nasa.gov

FYI...

Leslie

Subject: Scientific American to the rescue (?)
Date: Tue, 18 Nov 2008 14:28:49 -0600
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Scientific American to the rescue (?)
Thread-Index: AclJvEPcXrBT6cyBQi2ZdmIjCxWyJA==
From: "Cole, Stephen E (HQ-NB060)" <Stephen.E.Cole@nasa.gov>
To: "Leslie McCarthy" <lnolan@giss.nasa.gov>
Cc: "Mike Carlowicz" <mcarlowicz@sesda2.com>, <cookander@gmail.com>
X-OriginalArrivalTime: 18 Nov 2008 20:28:49.0856 (UTC) FILETIME=[43E57400:01C949BC]

More on the GISS October "anomaly":

http://www.sciam.com/blog/60-second-science/post.cfm?id=global-warming-data-blunder-worth-t-2008-11-18

Steve

Steve Cole
NASA Office of Public Affairs
Washington, DC 20546
tel. 202-358-0918
stephen.e.cole@nasa.gov
www.nasa.gov/topics/earth

Subject: Re: Today's Top Stories (November 19, 2008)
From: Donald Anderson <donald.anderson-1@nasa.gov>
Date: Thu, 20 Nov 2008 08:52:01 -0500
To: "Kaye, Jack (HQ-DK000)" <Jack.Kaye@nasa.gov>, "Cole, Stephen E (HQ-NB060)" <stephen.e.cole@nasa.gov>
CC: "Schmidt, Gavin A. (GSFC-611.0)" <gavin.a.schmidt@nasa.gov>

Jack,
Gavin can give detail, but essentially NOAA is not doing a great job of data stewardship in his area and occasionally mess it up. Gavin notes that it's a continual challenge to monitor this.
Indeed 'egg on the face', but it really belongs to NOAA , not GISS.

Don

On 11/19/08 8:08 AM, "Kaye, Jack (HQ-DK000)" <Jack.Kaye@nasa.gov> wrote:

> Steve/Don – is something going on here? Did I miss something? - Jack
>
> ------ Forwarded Message
> **From:** "Harrington, J D. (HQ-NB060)" <jharring@nasa.gov>
> **Date:** Wed, 19 Nov 2008 06:37:03 -0600
> **To:** <undisclosed-recipients:;>
> **Conversation:** Today's Top Stories (November 19, 2008)
> **Subject:** Today's Top Stories (November 19, 2008)
>
> **12. October Second Warmest On Record.** In USA Today <http://blogs.usatoday.com/weather/2008/11/october-was-2nd.html> 's (11/18) "The Weather Guys" blog, Doyle Rice wrote, "The Earth's temperature for the month of October was the second-warmest since records began in 1880, according to data from [NOAA]," which "does include the correct October temperature data for Russia...unlike NASA's October data released last week, which caused the agency to end up with egg on its face. After NASA announced that October was the warmest ever recorded, eagle-eyed bloggers at skeptic blogs...pointed out that the data from Russia was for September." Rice contends that "Even if you don't agree with all (or any) of the...claims posited by the warming skeptics, I think they are doing a needed service by keeping the climate change adherents...on their toes." Even with the corrected data, "temperatures across Australia, Asia (including Russia), the western USA, eastern Europe, northern Canada, eastern Brazil, and the southern countries of South America were all warmer-than-average...And so far this year, 2008 is the ninth-warmest year on record...with all nine of the Earth's warmest years occurring since the mid-1990s."
>
> —— End of Forwarded Message

Don Anderson
3G84
Modeling, Analysis and Prediction (MAP)
Earth Science Division
Science Mission Directorate
NASA HQ
Washington, DC, 20546-0001
202-358-1432 Fax: x2770
email: Donald.Anderson-1@nasa.gov

Subject: Re: Fwd: 610_CSO: Urgent ACTION due December 2, 2008: Update Anti-Virus and Run Full Scans (action #GSFC20081125)
From: Ken Bell <kbell@giss.nasa.gov>
Date: Wed, 7 Jan 2009 19:02:55 -0500
To: giss-people-l@giss.nasa.gov

Dear GISS-People,

We have received reports on 47 PCs from their owners, so far,

GSFC believes that GISS has 189 Windows PCs (I'm not sure if they are correct, but I think that's a bit high), and they are insistent that we provide them with reports on the remaining 142 PCs "immediately".

If you have not yet responded to the email (appended below) with a scan report for your Windows PC(s), please do so via email to:

virus-scan-log@giss.nasa.gov

If the machine finds no malware, please report it, by name (or IP address) as "clean".

If, on the other hand, malware is found, please have the antivirus remove the malware, reboot and rescan to verify that the machine is now clean, and then include in your email report a copy of the logfile showing what malware had been found.

Should you need help with any of this, please open a CSR and someone will be around to assist, ASAP.

Please note that installers for both 32-bit and 64-bit versions of F-Prot antivirus, and the respective license keys, are available here:

http://csr.giss.nasa.gov/software/F-Prot/

Thank you.

Ken

On Wed, Nov 26, 2008 at 03:52:20PM -0500, Ken Bell wrote:

> Dear GISS-People,
>
> The email (appended below) was received today by Larry Travis, who has asked me to distribute it GISS-wide along with our request that each Windows PC owner scan his/her own computer(s) and report back the result of these scans.
>
> This report must be received by noon Tuesday (to give Larry time to report back to GSFC about it). Please note that the GSFC letter indicates that any system that is not in compliance may be disconnected from the NASA network.
>
> Every Windows PC within GISS must have up-to-date antivirus software installed and configured to run (its "real time component") continuously. Our standard antivirus is F-Prot, and its current version is 6.0.9.1 as of May 5, 2008.
>
> If you do not yet have the current version of F-Prot installed, you may

download the installer and the GISS license key from:

http://babylon.giss.nasa.gov/software/F-Prot/fpav-windows-x86-hc-en-6.0.9.1.msi

http://babylon.giss.nasa.gov/software/F-Prot/fpav-windows_subscription-key.txt

Please ensure that your antivirus software is configured to regularly (daily) check for updated virus signatures and install them.

Next, run a full system scan on each of these PCs using the antivirus software. If malware is found, have the antivirus remove it and then reboot and scan again to verify that the system is clean.

Finally, send email to "virus-scan-log@giss.nasa.gov" when your scans are complete, and indicate "malware found" if the virus scanner detected malware on your PC, or "clean" otherwise. If malware was found, please also indicate "malware removed" if the subsequent scan reported no malware, or "malware still present" if removal was unsuccessful.

As usual, please direct problems (should you have any) regarding the performance of this task to "csr@giss.nasa.gov".

Thank you very much for your attention to this.

Ken

----- Forwarded message from Larry Travis <Larry.D.Travis@nasa.gov> -----

!Date: Wed, 26 Nov 2008 12:00:30 -0500
!To: kbell@giss.nasa.gov
!From: Larry Travis <Larry.D.Travis@nasa.gov>
!Subject: Fwd: 610_CSO: Urgent ACTION due December 2, 2008: Update
! Anti-Virus and Run Full Scans (action #GSFC20081125)
!
!Ken,
!
!This action requires that we ensure that all GISS machines have updated
!anti-virus, full scans are performed, and the status reported (including
!the number of machines) by next Tuesday.
!
!Larry

>SBRS: 4.5
>MID: 47028239
>X-IronPort-Anti-Spam-Filtered: true
>X-IronPort-Anti-Spam-Result:
>AmMCALYHLUnGdQB6kWdsb2JhbACCPzGFA4ttAQEBAQkLCgcRBbJKjF6CfQ
>X-IronPort-AV: E=Sophos;i="4.33,670,1220241600";
> d="scan'208,217";a="47028239"
>X-Mailer: QUALCOMM Windows Eudora Version 7.1.0.9
>Date: Wed, 26 Nov 2008 11:32:35 -0500
>To: <610cso@listserv.gsfc.nasa.gov>
>From: Rosa Kao <rosa.kao@nasa.gov>
>Subject: 610_CSO: Urgent ACTION due December 2, 2008: Update Anti-Virus
>and Run
> Full Scans (action #GSFC20081125)
>Cc: <610acso@listserv.gsfc.nasa.gov>, <610SysAdmin@listserv.gsfc.nasa.gov>
>X-OriginalArrivalTime: 26 Nov 2008 16:32:38.0114 (UTC)
>FILETIME=[982F3C20:01C94FE4]
>Sender: owner-610cso@listserv.gsfc.nasa.gov
>Reply-To: Rosa Kao <rosa.kao@nasa.gov>

>
>
>Greetings Code 610 CSOs, (with a cc to ACSOs, and System Administrators),
>
>Please see the action item below from Josh. I understand your
>comments..... CSOs please provide the status report for your organization
>to rosa.kao@nasa.gov by 2 PM EST Tuesday 2008-12-02.
>
>Many thanks.
>
>Rosa
>ext. 4-5673
>
>>From: Joshua Krage <Joshua.Krage@nasa.gov>
>>To: gsfc-infosec@lists.nasa.gov
>>Date: Tue, 25 Nov 2008 19:42:41 -0500
>>Cc:
>>Subject: [ocso] [infosec] GSFC INFOSEC ACTION: Update Anti-Virus and Run
>>   Full Scans (action #GSFC20081125)
>>
>>
>>DIRECTORATES:
>>Please review this action and conduct the requisite activities.
>>
>>DUE DATE:
>>All systems must be updated, full anti-virus scans performed, and status
>>reported by 4 PM EST Tuesday 2008-12-02.
>>
>>ACTION:
>>All devices containing or processing NASA data shall:
>>
>>   * Run the anti-virus software update and ensure the current
>>anti-virus signature downloads are installed.
>>   * NOTE: If the anti-virus software version is not currently
>>supported by the vendor, install a supported version to ensure the
>>anti-virus software will work properly.
>>   * After the software is up-to-date, run a full disk scan on all disk
>>drives.
>>   * The immediate action is to ensure all systems are not infected
>>with known malware.
>>   * Ensure all removable media, such as USB sticks/drives, are fully
>>scanned prior to use.
>>   * This portion of the action does not have to be complete by the
>>Action Due Date, as a long as the media is appropriately scanned in a
>>timely manner.
>>   * Report status, by Directorate.
>>   * Please report total number of devices and total which have been
>>scanned. If any devices are unscanned, daily reports will be required
>>until the scans are completed. Devices remaining unscanned are at risk
>>of losing network access privileges.
>>   * If any malware is identified as part of the full disk scans,
>>immediately report the the following information:
>>   * Device IP address, asset tag, and assigned user
>>   * Identified malware -- the anti-virus software scanning log is
>>the best way to report this
>>   * Confirmation the malware has been removed and a repeated full
>>scan reports no malware.
>>
>>ODIN staff shall be responsible for ODIN seats and will report
>>separately. ODIN seats should not be included in per-Directorate reports.
>>
>>This action is posted to the GSFC Information Security Blog which will
>>also serve as an open Q&A forum:

>> < https://blogs.gsfc.nasa.gov/infosec/?p=138>
>>
>>
>>ACTION POC:
>>The point of contact for more information is Joshua Krage.
>>
>>BACKGROUND:
>>US-CERT issued a request that all Federal Agencies conduct immediate
>>anti-virus software updates and scan all devices. Subsequently, the NASA
>>Deputy CIO for IT Security directed all Centers implement the request.
>>
>>
>>--
>>--
>><mailto:Joshua.Krage@nasa.gov>Joshua.Krage@nasa.gov, CISSP, CEH
>>NASA GSFC Associate CIO for Information Security, Chief Information
>>Security Officer, and (Acting) IT Security Manager
>>
>>----gsfc-infosec@lists.nasa.gov----
>

----- End forwarded message -----

--
Ken Bell : kbell@giss.nasa.gov : (212) 678-5526 (v): (212) 678-5552 (fax)
======== : kenbell@panix.com : (212) 475-4976 (v)

Subject: Re: Distributing Presentations
From: Drew Shindell <dshindell@giss.nasa.gov>
Date: Thu, 8 Jan 2009 15:49:48 -0500
To: "Charo, Art" <ACharo@nas.edu>
CC: Ka-Kit Tung <tung@amath.washington.edu>, Drew.T.Shindell@nasa.gov, Judith Lean <jlean@ssd5.nrl.navy.mil>, Caspar Ammann <ammann@ucar.edu>, Gavin Schmidt <gschmidt@giss.nasa.gov>

My presentation was not created as a stand-alone document. Without accompanying narration, I don't think it would get across any of the information I was trying to convey. So while I have no problem with making the content available to those who were at the meeting and heard the talk, it would not be useful to the general public in its current form and might even lead to confusion. Hence I would like it not to be publically available. The papers that I drew from are publically available (my own are all on the GISS website) and contain the necessary citations and discussion of the content, so I'd encourage those to be referred to rather than a powerpoint.

Drew

On Jan 7, 2009, at 3:28 PM, Charo, Art wrote:

> My understanding is that Roger plans to write a blog whose theme will be along the lines of what he stated at the meeting, which is that he believes it would be useful to review questions like solar influences on climate with a committee that is not already entrained in the IPCC process.
>
> As for how he intends to use the PowerPoints from our meeting: Roger tells me he plans to include a listing of our meeting agenda and he would just include a URL link next to each presentation that is made available to him.
>
> Arthur Charo
> Senior Program Officer
> Space Studies Board, Keck 1002A
> National Research Council
> 500 Fifth Street, NW
> Washington, DC 20001
>
> tel: 202 334-3477
> fax: 202 334-3701
> e-mail: acharo@nas.edu
> http://www.nationalacademies.org/ssb/
>
> ---
>
> **From:** Ka-Kit Tung [mailto:tung@amath.washington.edu]
> **Sent:** Wednesday, January 07, 2009 2:32 PM
> **To:** Charo, Art
> **Cc:** Drew.T.Shindell@nasa.gov; Judith Lean; Caspar Ammann
> **Subject:** Re: Distributing Presentations

Dear Art,
Often the ppts we prepared for our presentation contain additional material that we decided not to present at the meeting. So it would be good if you let us edit what you have before it is made public. I would like to make a general comment on making ppt public in a blog: Often the slides are not accompanied by notes, because it was an oral presentation. When it is made public this way, it may lead to misinterpretation of our positions. And this being a sensitive subject, it is important to avoid being misinterpreted. It would be helpful if Roger can let us know how he plans to use these ppts in his blog.

--KK

Charo, Art wrote:

<image001.jpg>

Apologies if you already responded to the note below.

Roger Pielke would like to make public the powerpoints from our solar influences on climate one-day meeting as part of a "blog" he is preparing for posting on his website. Please let me know if you have any objections; if not, I will send the PPT you left with me to Roger.

Regarding potential follow-up to our meeting: we had a little bit of e-mail exchange before Christmas, but nothing since. Notably missing from the conversation were any comments from a NASA or NOAA or NSF official who might want to support a follow-on activity (with possible exception of Dick Fisher at NASA, who is very interested in solar connections to climate because he runs the Living with a Star program).

Art

Arthur Charo
Senior Program Officer
Space Studies Board, Keck 1002A
National Research Council
500 Fifth Street, NW
Washington, DC 20001

tel: 202 334-3477
fax: 202 334-3701
e-mail: acharo@nas.edu
http://www.nationalacademies.org/ssb/

From: Charo, Art
Sent: Wednesday, December 10, 2008 4:13 PM
To: 'Drew.T.Shindell@nasa.gov'; 'gschmidt@giss.nasa.gov'; 'Ka-Kit Tung'; 'Judith Lean'; 'Caspar Ammann'; 'Roger A Pielke Sr'
Subject: Distributing Presentations

Thanks again to all for participating and please be sure to submit your travel expense forms as

soon as possible—if we do not file them by Dec. 22, it may not be possible to reimburse.

I am writing to clarify some questions regarding dissemination of your presentations among yourselves and possibly to the public.

Distribution among participants: no problem except that some of the files may be too large for e-mail. Worst case, I can burn a CD and send around.

Distribution to the public: We did not discuss this at the meeting, but I know that some of you think it would useful to have the presentations available to the public. The easiest way to do this would be to post the presentations on the NRC website. Unfortunately, my boss just reminded me of a new NRC policy, which requires that we obtain copyright releases before posting to an NRC website (probably we should have been doing this all along; only recently did the Academy lawyers become aware of the issue). The easiest way to get around this is for one of you to offer to host the presentations and/or disseminate the presentations on request—if I get involved, the process will grind to a halt. Please let me know if:

a. You have an objection to making your presentation public; and
b. You have an ftp site or other way to host.

Finally, I would appreciate any summary thoughts you all may have about the meeting.

Thanks.

Art

Arthur Charo
Senior Program Officer
Space Studies Board, Keck 1002A
National Research Council
500 Fifth Street, NW
Washington, DC 20001

tel: 202 334-3477
fax: 202 334-3701
e-mail: acharo@nas.edu
http://www.nationalacademies.org/ssb/

Drew Shindell
NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025 USA
tel/fax: 1-212-678-5605
email: dshindell@giss.nasa.gov
pubs: http://pubs.giss.nasa.gov/authors/dshindell.html

Subject: Re: few clarifications
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Wed, 11 Mar 2009 11:42:09 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

On Tue, Mar 10, 2009 at 1:55 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> ok this is what I wanted to send....
>
> > You appear to be confusing me with someone with whom you have cordial
> > relations. Please update your contact list accordingly.

Snarky, restrained (i.e. not obscene), and most important: funny (at least to everyone but Pielke).

Of course the issue is whether Pielke Jr. has the self-awareness to recognize this as an earned rebuke. Since his central technique is to misinterpret others' work and take umbrage, it seems unlikely.

I guess whether you send it or not depends on whether you want to respond to his follow-up.

But I laughed.

Ron.

> but you spoilt all my fun....
>
> gavin
>
> ---------- Forwarded message ----------
> From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
> To: "Gavin Schmidt" <gschmidt@giss.nasa.gov>
> Date: Tue, 10 Mar 2009 09:48:52 -0600
> Subject: few clarifications
>
> Hi Gavin-
>
> Just saw your post on blogging. Overall pretty thoughtful Here are a few quick thoughts:
>
> 1. "One can criticize George Will's or Alexander Cockburn's misuse of climate science without agreeing or disagreeing or even having looked at their public policy proposals. Of course, the corollary of this position, that any such criticism of your statements must itself be directed at supporting the opposite political action is very rarely appreciated."
>
> This statement presumes that policy issues are dichotmous. Sometimes there are, but often they are not. Many policy issues have multiple positions. I try to deal with this by tryingto be very clear as to what my policy positions actually are. For some people, the idea that one can criticize Al Gore's presentations and also support action on climate change is imcompatible. It is not.
>
> 2. You will likely find yourself accused of 'stealth advocacy' i.e. of secretly agreeing with the misquoters.
>
> I use the term "stealth advocacy" to refer to those who claim to be focused only on science but really have an agenda. the agenda need not be specific (such as

support or opposition of a specific policy proposal). That agend amight simply be educating the reader that the author's position is authoritative and correct. Stealh advocacy is the inevitable result of entering public debate while at the same time claiming to be focused on a "pure information stream."

3. "This should go without saying, but trivially accusing scientists of dishonesty, theft, academic malpractice and fraud pretty much rules you out of serious conversation. Instead it will serve mainly to marginalize you - though you may gain a devoted following among a specific subset. Don't be surprised if as a consequence other people start to react negatively to your comments."

Apparently you've been reading Climate Audit Hopefully, this statemnt indicates some effort at a reconciliation with Steve M.

4. "If you get noticed by the propagandists, wear that attention like a badge of honor. "

Should I then be happy to see Joe Romm spreading lies?

Anyway, nice post ... All the best from Boulder,

Roger

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: Fwd: Reconciling sea ice models with reality
From: Dorothy Koch <dkoch@giss.nasa.gov>
Date: Fri, 20 Mar 2009 09:00:33 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
CC: Drew Shindell <dshindell@giss.nasa.gov>

Gavin,
Will the sea-ice simulation be better in our new model?
Dorothy

----- Forwarded message from ebaum@catf.us -----
Date: Fri, 20 Mar 2009 07:41:14 -0400
From: Ellen Baum <ebaum@catf.us>
Reply-To: Ellen Baum <ebaum@catf.us>
Subject: Re: Fwd: Reconciling sea ice models with reality
To: Dorothy Koch <dkoch@giss.nasa.gov>, dshindell@giss.nasa.gov
Cc: armond@catf.us, joe100@gwi.net

Dorothy and Drew -- I have been thinking about this paper. I don't know all the models that the authors looked at, but I can see that the GISS models are at the top of the graph, suggesting (I think I have the right) the greatest amount of sea ice stability over the next few decades.What I don't know is if that matters for the experiments that Dorothy is doing -- trying to detect Arctic warming and melting from changes in black carbon emissions. Could be that we are looking at relative changes, so the actual sea ice extent wouldn't matter. But I'd like to hear from both of you.
Ellen

At 06:50 PM 3/19/2009, Ray Minjares wrote:
> FYI
>
> **********
> Ray J Minjares
> Policy Analyst
> International Council on Clean Transportation
> San Francisco, CA USA
> 415-399-9019
>
>
>
>
>
> Begin forwarded message:
>
> > Date: March 19, 2009 8:23:38 AM PDT
> > Subject: Reconciling sea ice models with reality
> > Source: Climate Feedback - Blog Posts
> > Author: abarnett
> >
> >
> > ngeo467-f1.jpg
> > The Arctic has been losing summer sea ice fast. At the end of the melt season in

> September 2008 the ice extent <http://blogs.nature.com/climatefeedback/2008/10/has_arctic_summer_sea_ice_tipp.html>was barely above its record low of 2007, even after a much cooler summer. Most climate models did not anticipate the pace of this ice disappearance and still cant replicate it. And as shown in the figure above, the futures projected by models are all over the map.
>
> But researchers are reporting this week that there may be a way around the problems with modelling sea ice. With a new method for using observations to constrain climate projections, they find that the summertime ice is going, going, and set to be gone well before 2100.
>
> The study was published in <http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo467.html>Nature Geoscience (subscription) by Julien Boé and his colleagues at UCLA. They calculate that the models showing the fastest future ice loss are also the most realistic about the recent past - something you could guess at by looking at the graph above, where the actual ice trend is shown as a black line. So rather than simply averaging across models, their technique teases out the most likely future sea ice evolution using the differences between the models that show the 1979-2007 ice extent most accurately and those that perform less well at reproducing past trends (if youve a yen for statistics its worth checking out the paper itself - the method is explained in a <http://www.nature.com/ngeo/journal/vaop/ncurrent/fig_tab/ngeo467_F3.html>neat graphic). They project, based on a moderate emissions scenario, that September sea ice will most likely disappear between 2066 and 2085. That is sooner than even the most pessimistic models suggest on their own (see graph again).
>
> <http://feeds.nature.com/~r/reports/rss/climate_feedback/~3/KsVTqeLbIAU/reconciling_sea_ice_models_wit_1.html>Read more

----- End forwarded message -----

Dorothy Koch
Research Scientist
Columbia University and
Goddard Institute for Space Studies
2880 Broadway, New York NY 10025

Dorothy and Drew -- I have been thinking about this paper. I don't know all the models that the authors looked at, but I can see that the GISS models are at the top of the graph, suggesting (I think I have the right) the greatest amount of sea ice stability over the next few decades. What I don't know is if that matters for the experiments that Dorothy is doing -- trying to detect Arctic warming and melting from changes in black carbon emissions. Could be that we are looking at relative changes, so the actual sea ice extent wouldn't matter. But I'd like to hear from both of you.
Ellen

At 06:50 PM 3/19/2009, Ray Minjares wrote:

> FYI
>
> **********
> Ray J Minjares
> Policy Analyst
> International Council on Clean Transportation

San Francisco, CA USA
415-399-9019

Begin forwarded message:

Date: March 19, 2009 8:23:38 AM PDT
Subject: Reconciling sea ice models with reality
Source: Climate Feedback - Blog Posts
Author: abarnett

ngeo467-f1.jpg

The Arctic has been losing summer sea ice fast. At the end of the melt season in September 2008 the ice extent was barely above its record low of 2007, even after a much cooler summer. Most climate models did not anticipate the pace of this ice disappearance and still cant replicate it. And as shown in the figure above, the futures projected by models are all over the map.

But researchers are reporting this week that there may be a way around the problems with modelling sea ice. With a new method for using observations to constrain climate projections, they find that the summertime ice is going, going, and set to be gone well before 2100.

The study was published in Nature Geoscience (subscription) by Julien Boé and his colleagues at UCLA. They calculate that the models showing the fastest future ice loss are also the most realistic about the recent past - something you could guess at by looking at the graph above, where the actual ice trend is shown as a black line. So rather than simply averaging across models, their technique teases out the most likely future sea ice evolution using the differences between the models that show the 1979-2007 ice extent most accurately and those that perform less well at reproducing past trends (if youve a yen for statistics its worth checking out the paper itself - the method is explained in a neat graphic). They project, based on a moderate emissions scenario, that September sea ice will most likely disappear between 2066 and 2085. That is sooner than even the most pessimistic models suggest on their own (see

> graph again).
>
> Read more

Subject: Re: For RC
From: Ken Mankoff <mankoff@giss.nasa.gov>
Date: Thu, 26 Mar 2009 22:45:20 -0400 (EDT)
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Version Two. Probably closer to something that might show up on RC. I'm not much of a blogger though so I'd still appreciated feedback.

-k.

On Wed, 25 Mar 2009, Gavin Schmidt wrote:

> Ken thanks. I would say a lot fewer technical details and more about why anyone would be interested in this. For instance, no-one is likely to care about how many CTDs you cast, but they would be interested in a discussion of the impact of potentially warmer water getting under the ice shelf. Or the importance of under-shelf process and the different ways we have of getting to them...
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> > Hi Gavin,
> >
> > Please DO NOT post. I'm just wondering if this is the type of write-up you'd like. Should I remove the links to the images? Add a paragraph about life-on-ship? Discuss more science? Let me know, then I'll send it to Stan Jacobs for review, then you can post.
> >
> > -k.

RC.txt

On February 26, 2009, the Nathaniel B. Palmer (NBP) returned from 52 days at sea in the Southern Ocean. We departed Punta Arenas, Chile on January 5th, 2009 and sailed directly to Pine Island Bay (PIB) at the terminus of the Pine Island Glacier (PIG).

We were fortunate to be able to access Pine Island Bay, a difficult to reach location as it is often blocked by sea ice even in the summer months. However, with minimal ice breaking we were able to reach a large polynya. We remained in PIB from January 16 through February 6th except for some short reconnaissance trips to the northwest to check the ice conditions for later in the cruise. During the three weeks in PIB we sampled the ocean, performed a number of sea ice and biology stations, watched six runs of a small autonomous yellow submarine (Autosub III), studied the face of PIG, measured snowflakes, mapped the sea floor, observed calving events, and watched whales and seals and penguins go about their daily lives.

The goal of the NBP09-01 research cruise was to study 1) Amundsen Sea influence on West Antarctic ice sheet stability and sea level rise, 2) Ocean circulation and ice shelf melting under PIG, 3) phytoplankton reactions to iron, and 4) the ocean and sea ice interactions in the Antarctic Dipole. In addition to these four major goals, a variety of minor science projects were hosted onboard. The lead U.S.

researcher was Stan Jacobs from the Lamont Doherty Earth Institute at Columbia University, and the lead British researcher was Adrian Jenkins from the British Antarctic Survey. The U.S. components were funded by the National Science Foundation (NSF) and the U.K. by the Natural Environment Research Council (NERC).

Why are these studies taking place and why does PIG have the answers? We performed these studies to improve our understanding of the long-term changes of the ocean and ice (ice sheets, ice shelves, and sea ice), and their relationship together. PIG is of particular interest because it is contributing more to sea level rise than any other source and it is a drain to approximately 10% of the West Antarctic Ice Sheet (WAIS). Should WAIS collapse there will be an approximately 7 m rise in global sea level. PIG has also sped up significantly in the past few decades.

Pine Island Glacier and its surroundings lie in the following geographic context: The PIG begins in the West Antarctic Ice Sheet and is a very wide ice stream flowing approximately 30 m per year. Surrounding it is the relatively slow moving WAIS which drifts off the continent on the order of cm per year. The grounding line of PIG is approximately 50 km from the glacial terminus, meaning the last 50 km of PIG are floating with Amundsen sea waters underneath. After the PIG ends there is a bay of a few hundred km diameter influencing local winds and water currents. Farther north is sea ice or open water depending on the season, with a shelf margin from 500 to 750 m deep, until the Antarctic continental shelf drops off to the deep ocean and one enters the Southern Ocean proper.

Ice shelves are the floating edge of ice sheets. Ice shelves cover more than 40 % of the continental shelf around Antarctica. However, PIG is one of the few glaciers which does not have an ice shelf holding it onto the continent. PIG empties directly into the Amundsen sea. And it is the Amundsen sea which appears to be responsible for some of the recent major changes with PIG. It has sped up by nearly 75% over the past 30 years, with the majority of that occurring over just a few recent years. One explanation for recent PIG changes are that regional winds have changed local ocean circulation patterns. These new patterns put more warm Circumpolar Deep Water (CDW) onto the continental shelf. These warm waters are then transported into the PIG cavity by troughs on the continental shelf, and then melt PIG from below. Should warm water continue to melt the PIG from below, one expects it will continue to provide an easy and fast exit for ice from WAIS to the Amundsen Sea.

Studying the cavity below an ice shelf is not an easy task. Past projects have usually used remote sensing techniques to infer cavity properties via satellite or aerial survey. Future projects (Bindschlader et al.) plan to access the surface and drill through it to deploy sensors. This past January and February we used a ship full of science equipment to gain a picture of the ocean outside PIG which allows us to infer what is going on beneath it. We also had a customized model (GFDL HIM). More importantly, we had a small yellow submarine called Autosub III provided by the U.K. Natural Environmental Research Council. PIG is 9 m long and runs on 4000 D-cell batteries. It sailed alone under the ice for periods up to 30 hours and several hundred kilometers. It mapped the sea floor below the glacier, the underside of the glacier itself, and collected data to help determine how heat is transferred from the CDW to melt the ice.

We don't yet have a solid answer for why PIG behaves the way it does, but we collected some good data this field season. We will be analyzing it over the coming months and years and will continue to examine this important glacier and ice off-ramp from the West Antarctic Ice Sheet. Improved understanding is critical to improving estimates of sea level rise in the near and long term.

Additional material:
 * NSF Press Release: http://www.nsf.gov/news/news_summ.jsp?cntn_id=114381&govDel=USNSF_51
 * Google Earth layer showing cruise track and CTD and XBT locations: http://spacebit.org/maps/NBP09-01/KML/NBP09-01.kmz
 * Google Earth layer showing cruise track and 350 geo-tagged photos:

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RC.txt	**Content-Type:** text/plain **Content-Encoding:** 8bit

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Subject: Re: For RC
From: Ken Mankoff <mankoff@giss.nasa.gov>
Date: Sun, 12 Apr 2009 19:30:34 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Actually don't spend too much time on that version I've written some more with some comments from Stan and will send that soon.

-k.

On Apr 12, 2009, at 19:15, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> thanks. It's still a little dry... I'll do some editing and send you
> back a hopefully livelier version.
>
> gavin
>
> On Thu, 2009-03-26 at 21:45, Ken Mankoff wrote:
> > Version Two. Probably closer to something that might show up on RC.
> > I'm not much of a blogger though so I'd still appreciated feedback.
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> > > >
> > > > -k.

Subject: Re: for RC
From: Drew Shindell <dshindell@giss.nasa.gov>
Date: Thu, 16 Apr 2009 10:54:58 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Gavin,
Ben Santer pointed out to me that Taylor and Penner looked at aerosols in a climate model before Mitchell et al. So first paragraph in the attached is revised. Feel free to further edit.
Drew

On Apr 15, 2009, at 4:08 PM, Gavin Schmidt wrote:

> not bad. Do you want to add a paragraph dealing specifically with some of the blogosphere idiocy? (i.e. that apparently you now fear for your job in Hansen's lab...?)
>
> On Wed, 2009-04-15 at 15:31, Drew Shindell wrote:
> > What do you think of this?
> > Drew

aerosol_forcing_RealClimate_09.doc	**Content-Type:** application/msword **Content-Encoding:** base64

Part 1.3

Part 1.3	**Content-Type:** text/plain **Content-Encoding:** 8bit

Our paper "Climate response to regional radiative forcing during the twentieth century", published in the April 2009 issue of Nature Geoscience [*Shindell and Faluvegi*, 2009] has generated some interesting discussion. This post attempts to give a brief overview of some of the methods, conclusions, and implications of the study.

First, some context. Several earlier studies, starting with [*Taylor and Penner*, 1994], have shown that when forcing is inhomogeneously distributed, the climate response does not closely follow the forcing. This is very clearly illustrated in the two figures shown here from studies related to the US CCSP Report: Climate Projections Based on Emissions Scenarios for Long-Lived and Short-Lived Radiatively Active Gases and Aerosols. The first shows the GISS model's response to historical aerosol forcing for direct and direct+indirect cases (Figure 1). Despite extremely large localized forcings over the industrialized areas, the climate response is spread out much more broadly in the zonal direction. The second figure shows a similar result from the GFDL model. Although forcing is extremely large over India and Southeast Asia, those areas show only very weak warming. In general, both models shows that the response is spread out fairly broadly in the zonal direction, and that the Arctic climate response can be quite different than the local forcing would imply.

In the new Nature Geoscience paper, what I wanted to do was to characterize the geographic forcing/response relationship more clearly. Prior studies had looked at particular scenarios or time periods when forcings were typically changing over much of the world (albeit most strongly in certain regions). So we put idealized forcings from GHGs, aerosols, and ozone in the tropics, mid-latitudes and polar regions to see what would happen. The results showed that the tropics, like the global mean, is only mildly sensitive to the location of forcing. That is, you get an enhanced response to forcing in the Northern Hemisphere extratropics where you can activate strong positive feedbacks like snow/ice albedo, but the enhancement is only 40-50% versus forcing elsewhere. In contrast, the extratropical zones are much, much more sensitive to local radiative forcing than to tropical forcing or to forcing in the opposite hemisphere. So to quote from the paper "global and tropical mean temperature trends during the twentieth century would have been quite similar if short-lived-species radiative forcing had been distributed homogeneously rather than being concentrated in the northern extratropics. Regional concentration of forcing contributed to the departures of Northern Hemisphere mid-latitude and Arctic temperature trends from the global or Southern Hemisphere extratopical means, however."

We then used the regional forcing/response relationships to derive the aerosol forcing needed to explain the observed global and regional temperature trends. Our results have a substantial uncertainty range which arises primarily from the influence of unforced, internal variability. The global mean preindustrial to present-day aerosol forcing we calculate is -1.31 +- 0.52W per m^2. The IPCC AR4 range is -0.6 to -2.4, so our results are quite consistent with prior estimates of global mean total aerosol forcing.

Our results are not confined to the global mean, however. We estimated aerosol forcing for the tropics and Northern Hemisphere mid-latitudes for several time periods, and compared with historical emissions estimates to tie the forcings to sulfate or black carbon (BC) aerosols when possible. The results show, for example, that nearly all CMIP3 models (models run in support of the IPCC AR4) require strong aerosol cooling at Northern Hemisphere mid-latitudes during the 1931-1975 period to capture both the

global mean trends and the NH mid-latitude versus Southern Hemisphere extratropics temperature trends. During the last 3 decades (1976-2007), the models require negative forcing from tropical aerosols but positive forcing from Northern Hemisphere mid-latitude aerosols (showing the power of using the temperature gradients to test the models, as the models capture global mean trends quite well without aerosols). It's the latter, the positive Northern Hemisphere mid-latitude aerosol forcing that leads to the strong warming impact on the Arctic as well, as the Arctic responds to mid-latitude and local forcing, but the local forcing is primarily driven by mid-latitude emissions that are transported to the Arctic, so the overall climate response ends up being closely tied to Northern Hemisphere mid-latitude emissions. Given the strong sensitivity of the Northern Hemisphere extratropical zones to aerosol forcing, it's then understandable that those areas could have cooled during the mid 20th century when the aerosol forcing we calculate is substantially larger than greenhouse gas forcing (in absolute magnitude).

A big uncertainty is still the influence of unforced internal variability, which we estimated from coupled ocean-atmosphere climate runs. Though that contribution is large, it was still not large enough to account for many of the mid-latitude and Arctic temperature trends without including aerosol forcing. For many cases, the influence of aerosols and internal variability were comparable in size. Though the influence of internal variability leads to a substantial uncertainty range in our results, they are nonetheless useful as other techniques of estimating aerosol forcing of climate have comparably large or larger uncertainties. These include 'forward' modeling from emissions to concentration to optical properties (e.g. see [*Schulz et al.*, 2006]), and various estimates based at least in part on satellite observations (e.g. [*Bellouin et al.*, 2005; *Chung et al.*, 2005]).

Some of the most interesting conclusions of the study include those relating to the Arctic. For example, we estimate that black carbon contributed 0.9 ± 0.5 °C to 1890-2007 Arctic warming (which has been 1.9C total), making BC potentially a very large fraction of the overall warming there. We also estimated that aerosols in total contributed 1.1 ± 0.8 °C to the 1976-2007 Arctic warming. This latter aerosol contribution to Artic warming results from both increasing BC and decreasing sulfate, and as both were happening at once their contributions cannot be easily separated (unlike several earlier time periods we analyzed, when one increased while the other remained fairly constant). Though the uncertainty ranges are quite large, it can be useful to remember that the 95% confidence level conventionally used by scientists is not the only criteria that may be of interest. As the total observed Arctic warming during 1976-2007 was 1.5 ± 0.3 °C, our results can be portrayed in many ways: there is about a 95% chance that aerosols contributed at least 15% to net Arctic warming over the past 3 decades, there is a 50% chance that they contributed about 70% or more, etc.

It's also worth considering how to interpret the effects of decreasing sulfate during the past 3 decades. To try to make sure that the complex role of aerosols wouldn't be misunderstood, when referring to the recent warming due to aerosols at Northern Hemisphere mid-latitudes and in the Arctic, I stated in the conclusions of the paper "much of this warming may stem from the unintended consequences of clean-air policies that have greatly decreased sulfate precursor emissions from North America and Europe (reducing the sulfate masking of greenhouse warming) and from large increases in Asian black carbon emissions." So it is incorrect, or at least quite incomplete, to say that that

controls on air pollution such as those created under the Clean Air Act in the US have caused the recent warming. In the absence of increasing greenhouse gases, our large historical emissions of sulfate precursors would have led to substantial cooling from sulfate, and the subsequent reduction in emissions would have brought temperatures back towards their normal level. So reduced sulfate does not cause warming in an absolute sense, only relative warming compared to a time when emissions were larger. Over the mid-20th century, sulfate precursor emissions appear to have been so large that they more then compensated for greenhouse gases, leading to cooling in the Northern Hemisphere. During the last 3 decades, the reduction in sulfate has reversed that cooling, and allowed the effects of greenhouse gases to clearly show. In addition, black carbon aerosols lead to warming, and these have increased during the last 3 decades.

If you like to think in analogies, try picturing a reservoir with a typical water depth of 50ft. Say that around the 1930s, rainfall into the watershed supplying the reservoir began to increase. However, around the same time, a leak developed in the dam. The lake level stayed fairly constant as the rainfall increased at about the same rate the leak grew over the next few decades. Finally, the leak was patched (say around 1970 or 1975). Over the next few decades, the lake level increased rapidly. Now, what's the cause of that increase? Is it fair to say that lake level went up because the leak was fixed? Remember that if the rainfall hadn't been steadily increasing, then the leak would have led to a drop in lake levels whereas fixing it would have brought the levels back to normal. However, it's also incomplete to ignore the leak, because then it seems puzzling that the lake levels were flat despite the increased rain during the first few decades and that, were you to compare the increased rain with the lake level rise, you'd find the rise was more rapid during the past three decades than you could explain by the rain changes during that period. You need both factors to understand what happened, as you need both greenhouse gases and aerosols to explain the surface temperature observations (and the situation is more complex than this simple analogy due to the presence of both cooling and warming types of aerosols).

Hence the implication is not that cleaning up the air causes warming, but that air pollution plays a substantial role in climate, and we can better understand regional climate changes during the past by taking this into account. Economists have argued that inclusion of a broader array of climate forcing agents leads to more cost-effective strategies to mitigate climate change (e.g. [*O'Neill*, 2003]), so that taking into account the large impact of air pollution and its ancillary effects on human and ecosystem health may also lead to better solutions for climate change.

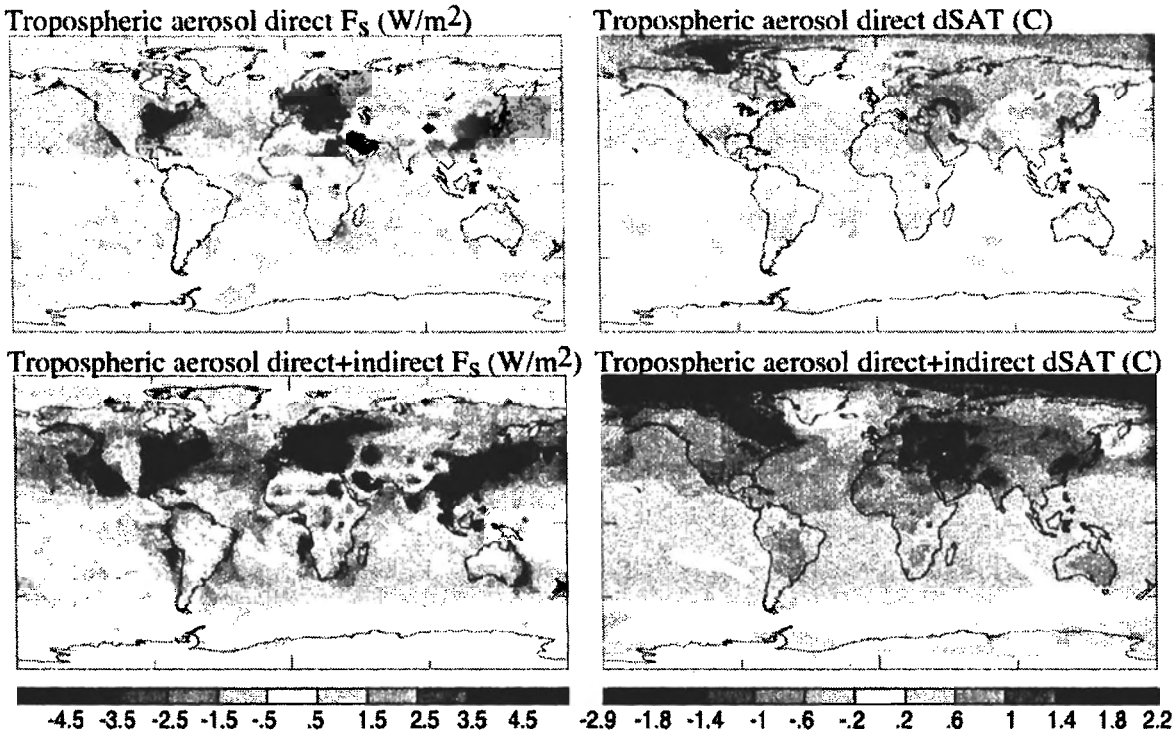


Figure 1. Ensemble mean annual average 1880–2003 radiative forcing (Fs, the top-of-the-atmosphere forcing with fixed SSTs and sea-ice, left column) and the surface air temperature (SAT) response (°C, local linear trends, right column) from 5-member ensemble simulations driven by tropospheric aerosols including their direct radiative effect only (top row) and both their direct and indirect (via cloud cover) effects (bottom row). Figure taken from [*Shindell et al.*, 2007].

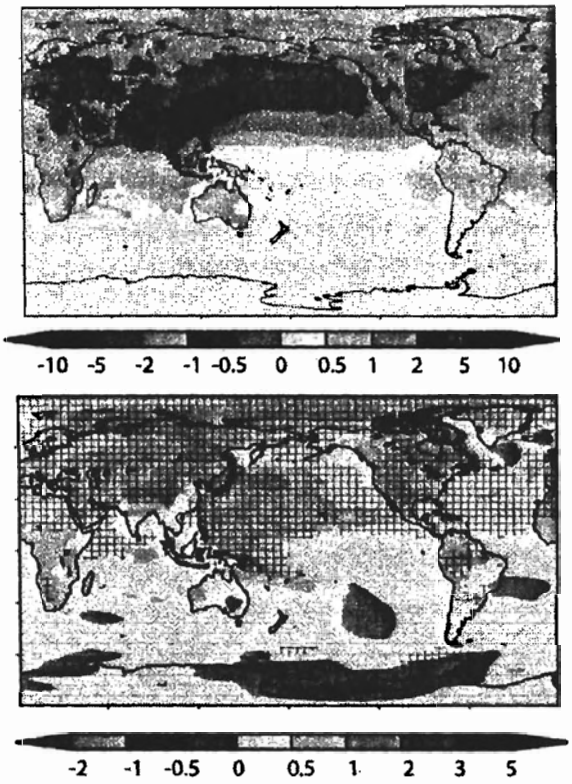


Figure 2. Annual mean-adjusted radiative forcing (W/m^2) between years 2100 and 2000 from tropospheric aerosols and ozone changes simulated under an A1B scenario (top) and annual surface air temperature change (°K) from the 2000s (years 2001–2010) to the 2090s (years 2091–2100) due to those same short-lived species. Results are from the GFDL model (figure adapted from [*Levy et al.*, 2008]).

Bellouin, N., O. Boudher, J. Haywood, and M. Shekar Reddy (2005), Global estimate of aerosol direct radiative forcing from satellite measurements, *Nature*, *438*, 1138-1141.

Chung, C. E., V. Ramanathan, D. Kim, and I. A. Podgorny (2005), Global anthropogenic aerosol direct forcing derived from satellite and ground-based observations, *J. Geophys. Res.*, *110, D24207*, doi:10.1029/2005JD006356.

Levy, H., M. D. Schwarzkopf, L. Horowitz, V. Ramaswamy, and K. L. Findell (2008), Strong sensitivity of late 21st century climate to projected changes in short-lived air pollutants, *J. Geophys. Res.*, *113, D06102*, doi:10.1029/2007JD009176.

O'Neill, B. C. (2003), Economics, Natural Science, and the Costs of Global Warming Potentials, *Clim. Change*, *58*, 251-260.

Schulz, M., et al. (2006), Radiative forcing by aerosols as derived from the AeroCom present-day and pre-industrial simulations, *Atmos. Chem. Phys.*, *6*, 5225-5246.

Shindell, D., and G. Faluvegi (2009), Climate response to regional radiative forcing during the 20th century, *Nature Geosci.*, *2*, 294-300.

Shindell, D. T., G. Faluvegi, S. E. Bauer, D. M. Koch, N. Unger, S. Menon, A., R. L. Miller, G. A. Schmidt, and D. G. Streets (2007), Climate response to projected

changes in short-lived species under an A1B scenario from 2000-2050 in the GISS climate model, *J. Geophys. Res., 112, D20103*, doi:10.1029/2007JD008753.

Taylor, K. E., and J. E. Penner (1994), Response of the climate system to atmospheric aerosols and greenhouse gases, *Nature, 369*, 734-737.

Subject: Re: GISS Station Data (fwd)
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Mon, 11 May 2009 14:05:21 -0400
To: Georg Hoffmann <Georg.Hoffmann@lsce.ipsl.fr>
CC: gschmidt@giss.nasa.gov, rschmunk@giss.nasa.gov

Georg,

To answer your 3rd question first: Hohenpeissenberg is special because Hans Erren pointed us to his complete record for that station from 1781-2003 - we replaced the GHCN data by that record (as noted in the first of our updates at

"http://data.giss.nasa.gov/gistemp/updates"

and also in the short documentation provided at

"http://data.giss.nasa.gov/gistemp/sources/gistemp.html").

I don't know why those data were not incorporated by NOAA in the GHCN.

As to 1: We never fill holes in station data, but in case of multiple partially overlapping data series for the same location, we combine - if possible - the various records into a single record (step 1 of the documentation mentioned above).

That method is not meant to be used for local studies; for those purposes, meta data have to be considered and the origins of the various pieces have to be investigated, a task that goes well beyond our means and is not essential for our analysis. USHCN provides such an effort for selected stations of the US.

As to 2: The source codes have been available at

"http://data.giss.nasa.gov/gistemp/sources"

since September 2007. However, we cannot repeat often enough that those tools are not suitable for local studies.

Reto

On Sat, 2009-05-09 at 20:26 +0200, Georg Hoffmann wrote:

> Reto
> a quick question. If I plot for example Stations (typically old ones) such as De Bilt
> (Holland: http://data.giss.nasa.gov/work/gistemp/STATIONS//tmp.633062600003.1.1/station.txt) or Hohenpeissenberg (Bavaria: http://data.giss.nasa.gov/work/gistemp/STATIONS//tmp.617109620002.1.1/station.txt) there are two or three different ghcn versions for the same stations. That means after the station code number there is a 0,1 or 2 GHCN version number. The raw or the adjusted GHCN data do not allow to plot what ist plotted on the GISS site. So there was something done. My questions are
>
> 1) To understand what has been done to fill the holes (for example at Hohenpeissenberg serie 1 ended 1980 and 2 starts 1991) or to compute the overlapping periods (De Bilt 0 and 1 have about 30 years in common) I have to read the paper you've mentioned and then everything

is clear?

2) If the answer for 1) is yes: Might be everything is clear but to get exactly your station data output I could use a program which is available?

3) Hohenpeissenberg ist an old serie and a a kind of reference station for Southern Germany. So no doubt the data between 1980 and 1993 exist (actually one can find them on the webside of the German weather service www.dwd.de). Is there any special reason that there are these kinds of gaps.

Thanks again for your help.

Cheers Georg

Le 6 mai 09 à 21:10, Reto Ruedy a écrit :

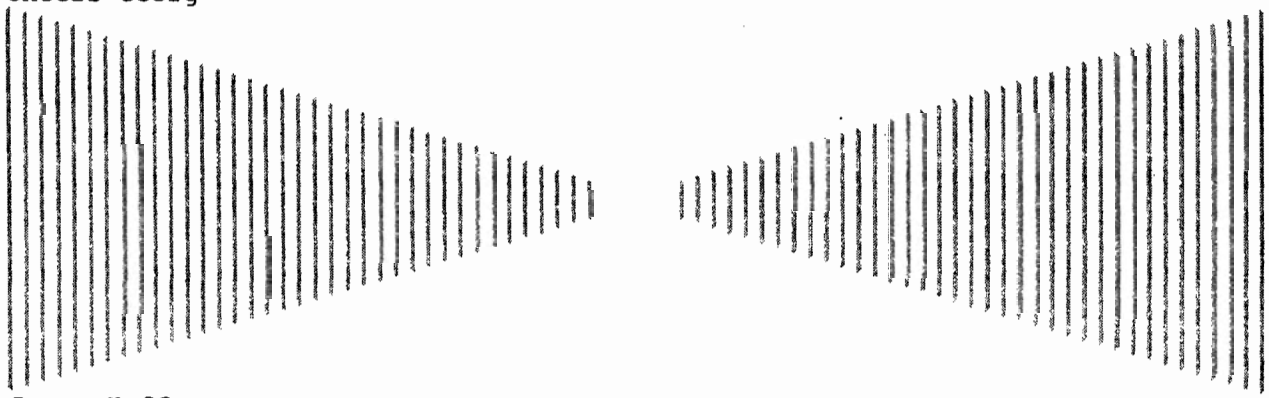
> Gavin, Georg, Robert,
>
> Most of our displays are created on the fly and kept for a short while
> in temporary holding space to make it easier to go back to them. After
> that, they are scratched as Georg noticed, and have to be recreated. The
> scratching is essential for two reasons:
>
> - to save space
>
> - to allow recreation of the displays based on the newest data when the
> basic data sets are updated.
>
> The GISS site is not the proper place to go if the interest is in
> individual stations, local sources are be more reliable and complete.
> In our 1999 paper we explicitly discourage using our data for local
> studies (JGR pg 30,999) and recommend to use the original GHCN data.
>
> To do so, one simply has to download GHCN's v2.mean, then do a
>
> grep ^station_ID v2.mean , e.g. grep ^6171060900 v2.mean
>
> (i.e. select all lines starting with "6171060900")
>
> to extract the information for that particular station. It will be
> virtually identical to what the GISS table shows and can easily be
> automated.
>
> Reto
>
> On Wed, 2009-05-06 at 09:58 -0400, Gavin Schmidt wrote:
>> can we do anything for this?
>>
>> gavin

| Gavin Schmidt NASA/Goddard Institute for Space Studies |
| 2880 Broadway |
| Tel: (212) 678 5627 New York, NY 10025 |
| gschmidt@giss.nasa.gov http://www.giss.nasa.gov/~gavin |

---------- Forwarded message ----------
Date: Wed, 6 May 2009 12:09:32 +0200
From: Georg Hoffmann <Georg.Hoffmann@lsce.ipsl.fr>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: GISS Station Data

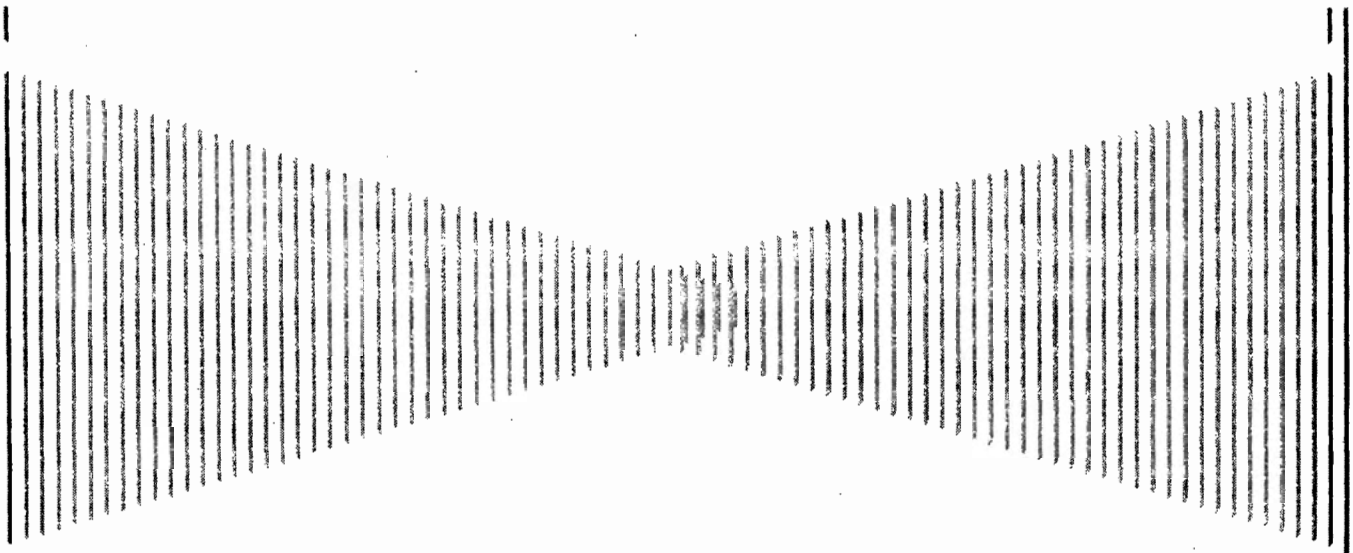
Gavin
I have question of how best reading GISS station data.
I identified some station I would like to check each month and to read them
automatically (with R).
It is not possible to read the station data just by their address.
(eg even entering this address:
http://data.giss.nasa.gov/work/gistemp/STATIONS//tmp.617106090000.1.1/station.txt
into your browser gives an error)
But selecting this station from the station page manually is possible. Once you
did that, even automatic reading is possible (for a while).
Any ideas? Might be someone has an idea how to fix that?

Cheers Georg



Georg Hoffmann
LSCE/CEA Orme des Merisiers
91191 Gif surYvette, France
mail:Georg.Hoffmann@cea.fr
Tel. +33 1 69 08 46 72
Fax. +33 1 69 08 77 16
Skype georghof
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

--
Reto Ruedy <rruedy@giss.nasa.gov>



Georg Hoffmann
LSCE/CEA Orme des Merisiers
mail:Georg.Hoffmann@lsce.ipsl.fr
Tel. +33 1 69 08 46 7
Fax. +33 1 69 08 77 16
skype:georghof
Blogg: http://www.scienceblogs.de/primaklima/
Web:http://www.ipsl.jussieu.fr/GLACIO/hoffmann/hoffmannengl.html
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

Subject: hurricane blog
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Mon, 11 May 2009 10:49:03 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Do you still want me to blog on the Evan et al dust/hurricane article that appeared last Fri in Sci?

Ideally, I would have given you something to post last Fri, but I can probably have a first draft by late this evening or else tomorrow. (My mom's in town so my hours are a bit curtailed.)

Ron.

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: real climate hurricane draft
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Wed, 13 May 2009 18:42:18 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Attached is a draft of the blog on Evan et al Sci 2009.

It's a bit rough or else dull in spots, but it will give you the general outline of what I have to say. I haven't seen any other blog posts. We can discuss this tomorrow before final rewrites?

Ron.

(The pdf is missing a satellite image of dust streaming off Africa over the Atlantic. I haven't figured out how to incorporate jpg's in latex files. It is probably trivial albeit irrelevant since the tex file will be converted to html.)

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
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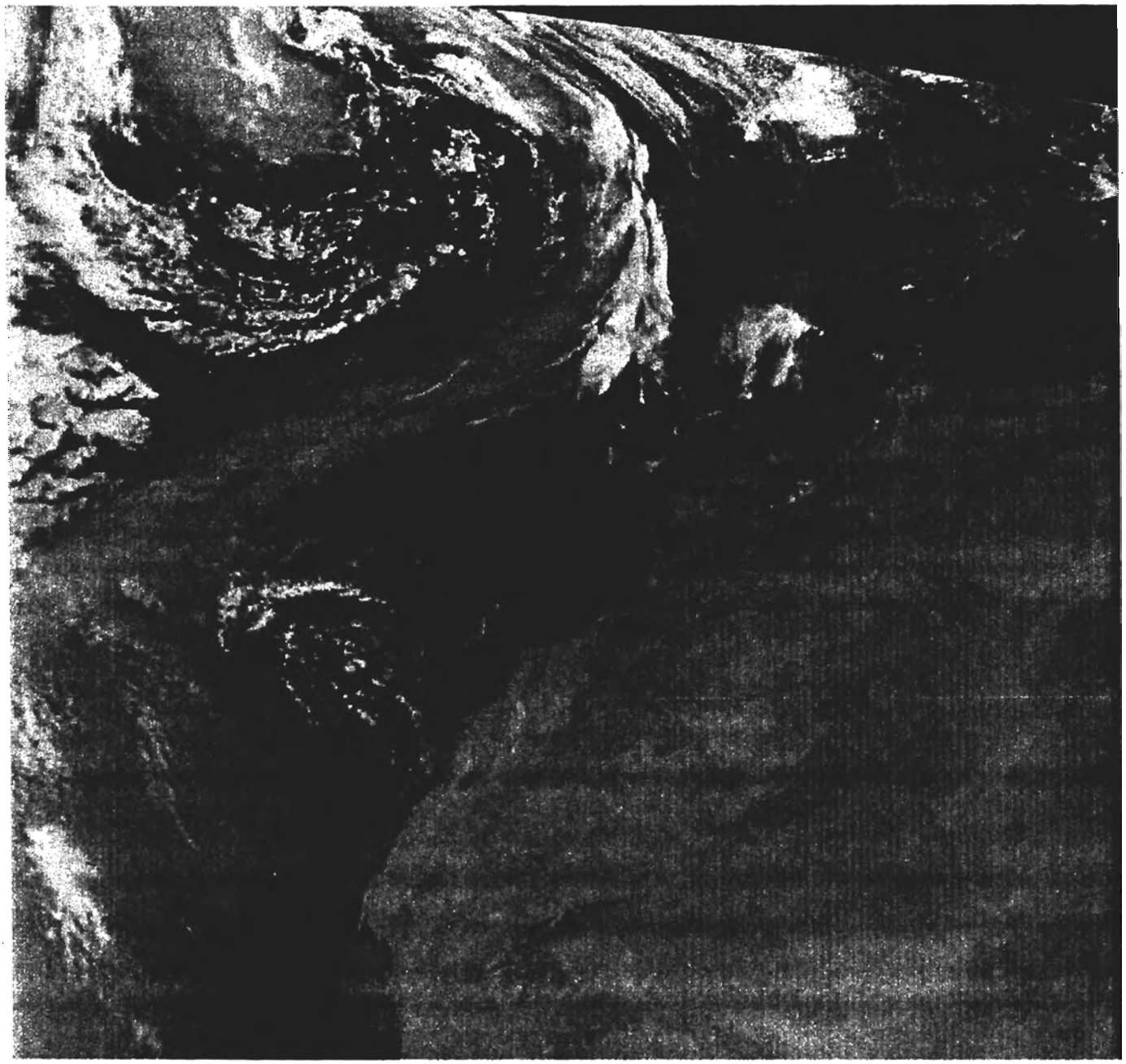
--- spainDust010213_high.jpg ---



evan.hurricanedust.Sci09.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

spainDust010213_high.jpg

spainDust010213_high.jpg	**Content-Type:** image/jpeg **Content-Encoding:** base64

On Tempests, Barren Ground, and a Thousand Furlongs Of Sea

Tropical cyclones (known as hurricanes within the Caribbean and Atlantic), have long been recognized to form over the warmest regions of the ocean. Some research suggests that the strongest storms are becoming more frequent (*Webster et al.*, 2005), although large variations in hurricane activity from one decade to the next make it difficult to settle this question given the short observational record (ref?). A central question among climate scientists is whether the warming associated with an increase in greenhouse gas concentration will lead to more numerous or powerful hurricanes (*Meehl et al.*, 2007). Almost all of the climate models surveyed by the latest (2007) IPCC report have insufficient resolution to explicitly simulate hurricanes and answer this question. Thus, much of the research has been empirical, attempting to identify trends in cyclone activity, along with the part of the observed trend in sea surface tempearture (SST) can be attributed to global warming. Observed trends in activity attributable to global warming are expected to continue throughout the 21st century as the planet warms.

In the region of hurricane genesis within the tropical Atlantic, warming by apparent natural cycles such as the Atlantic Multidecadal Oscillation are superimposed upon trends in sea surface temperature (SST) attributed to global warming. This region is also downwind of West Africa, where the Sahara desert and Sahel export prodigious amounts of dust aerosols, soil particles that are stripped by wind erosion rom barren ground and lifted high into the atmosphere to be transported far downwind. The extensive plumes of dust streaming off the African coast within the Trade winds are easily recognized within satellite photos, and were described by Charles Darwin (http://darwin-online.org.uk/content/frameset?viewtype=text&itemID=F16 *note: remove escape slash before the ampersand in URL*), who cited a number of previous accounts.

Figure 1: (NASA Eye candy) West African dust streaming offshore and entrained into a mid-latitude cyclone.

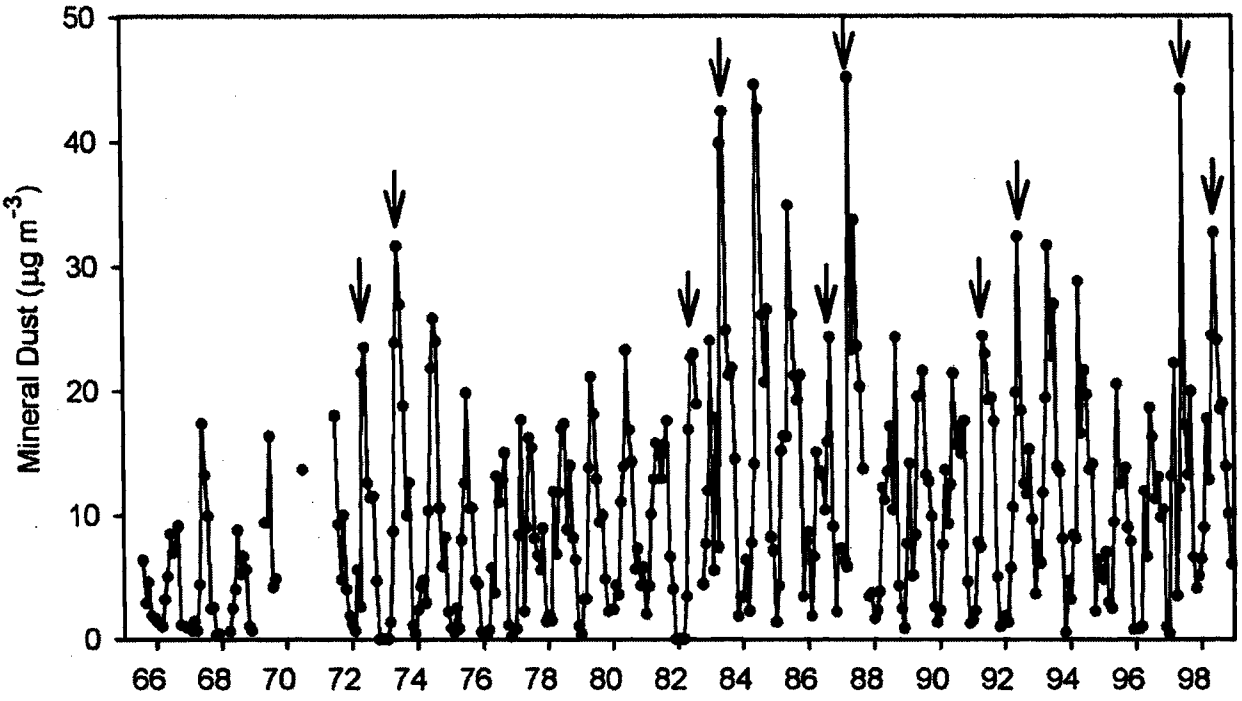


Figure 2: Monthly mean dust concentration measured at Barbados. Arrows mark years with large El Niño events. From *Prospero and Lamb* (2003).

Substantial decadal variations in dust transport over the Atlantic have been measured at Barbados by Joe Prospero since the mid 1960's (see the following figure). Measured dust generally varies inversely with rainfall over the Sahel (*Prospero and Lamb*, 2003), and one can see a threefold increase in dust at Barbados during the original part of the record, when the Sahel was relatively wet, compared to the mid 1980's at the peak of the Sahelian drought.

Several studies have shown a statistical correlation during recent decades between Atlantic hurricane activity and the dust load over the region of cyclogenesis (*Evan et al.*, 2008). It remains unclear whether this indicates the influence of dust upon hurricanes or whether some other factor is driving variations in both hurricanes and dust (*Wong et al.*, 2008). African dust crosses the tropical Atlantic within the Saharan Air Layer (SAL), an elevated duct of air perched above marine boundary layer between about 2 and 5 km in altitude. Because of its continental origin, this air is not only dusty but extremely dry, and the entrainment of SAL air could rapidly strangle by a developing cyclone with its low humidity. *Dunion and Velden* (2004) show a number of examples of hurricanes where this

appears to be the case. Here, dust appears to be passively accompanying the dry air, which is disappointing to afficionados of dust aerosols (and who among us isn't?).

Numerical models suggest that the effect of dust is to cool the underlying ocean (*Miller and Tegen*, 1998; *Yoshioka et al.*, 2007), raising the possibility that African dust influences hurricane activity by lowering SST. A few studies have attempted to calculate the reduction in ocean temperature by observed variations in dust *Lau and Kim* (2007); *Evan et al.* (2008). In the most detailed calculation to date, *Evan et al.* (2009) use a retrieval of dust optical thickness from the Advanced Very High-Resolution Radiometer (AVHRR) instrument to calculate the contribution to observed changes in SST over the last few decades by dust along with volcanic aerosols.

Evan et al. (2009) calculate that the ocean warmed by 0.25°C per decade in the region of Atlantic hurricane genesis (15–65°W and 0–30°N) between 1982 and 2007. For comparison, they calculate a trend of 0.18°C per decade due to a combination of dust and volcanic aerosols (due to the eruption of El Chichon in 1982 and Pinatubo in 1991). This implies that greenhouse gases have made a relatively modest contribution to the observed warming (and by implication to observed trends in hurricane activity), with two-thirds of the warming trend over this period is due to aerosols. Of the aerosol warming, *Evan et al.* (2009) calculate that stratospheric aerosols make roughly twice the contribution of dust.

Evan et al. (2009) calculate the aerosol contribution to warming using a simple model where the ocean surface temperature is related to the aerosol radiative forcing at the surface, and variations in heat transport by ocean currents are neglected. (Surface aerosol forcing is the change in the net radiation into the surface, calculated before the climate has the opportunity to respond. The absence of this response makes it slightly different from the anomalous net radiation into the surface at any point in time.) Surface forcing is calculated using a radiative transfer model and combined with the aerosol optical thickness retrieved from the AVHRR instrument. Ocean temperature is also influenced by the flux of heat across the ocean surface into the atmosphere. This flux includes contributions by evaporation, turbulent transfer, and radiation. While precise formulation of each contribution is complicated, for purposes of discussion, they can be idealized as proportional to the temper-

ature difference between the ocean and atmosphere. Thus, *Evan et al.* (2009) calculate the SST anomaly due to aerosols (denoted by T_o) using:

$$\rho h C_{p,o} \frac{\partial T_o}{\partial t} = k(T_a - T_o) + F_s, \tag{1}$$

where ρ is the ocean density, h is the mixed-layer depth, and $C_{p,o}$ is the specific heat of the ocean. On the right-hand side, the first term represents the heat exchange between the ocean and atmosphere (where T_a is the surface air temperature).air-sea temperature difference. The last term F_s represents radiative forcing of the ocean mixed layer by aerosols. (*Evan et al.* (2009) include an additional term to allow heat to be stored beneath the mixed layer during the summer months, which we neglect for simplicity.) Cooling of the ocean by aerosols is expected to be offset by a reduction in the flux of heat from the ocean to the atmosphere. *Evan et al.* (2009) represent this offset by the term $-kT_o$ in the equation, and choose k so that T_o matches observed variability.

A key point noted by *Evan et al.* (2009) is that the contribution of the surface heat flux as a result of changes to the surface air temperature (proportional to kT_a) is neglected. This is an important simplification to the calculation of SST, since knowledge of T_a requires an atmospheric model along with a consideration of aerosol forcing at the top of the atmosphere (TOA). Indeed, the radiative forcing cited by the IPCC is a TOA value rather than the value at the surface. Numerical calculations of T_a suggest that forcing at TOA is key to the surface air temperature response to dust (*Miller and Tegen*, 1998). In this study, despite dust surface forcing that corresponds to a reduction of radiation into the ocean surface by over55 Wm^{-2} during Northern Hemisphere (NH) summer, the surface air temperature is reduced by less than 0.4°C. The explanation is that the forcing at TOA is nearly zero. This requires that the temperature in the upper troposphere (which controls the amount of longwave emission to space) be roughly unchanged. During NH summer, the strongest dust forcing is within a region efficiently mixed in the vertical by convection, which relates the temperature at different levels in the column. The negligible temperature anomaly in the upper tropospheric requiries that the air temperature be similarly unchanged, despite the strongly negative surface forcing. The surface forcing can be balanced without a reduction in surface air temperature by a reduction in the air-sea temperature *difference* (*Pierrehumbert*,

1995), as is apparent from the equation used by *Evan et al.* (2009) in equilibrium where the time-derivative of SST is zero.

This adjustment of the atmosphere and ocean together to radiative forcing is well-understood, and is the reason that radiative forcings are usually characterized by their value at TOA and not the surface (*Forster et al.*, 2007). As a consequence, SST depends upon not only forcing at the surface (that determines the air temperature and thus the air-sea difference) but the forcing at TOA (that determines the air temperature). By neglecting the effect of the surface air temperature upon SST, *Evan et al.* (2009) exclude the effect of TOA forcing upon their calculated trend. This is potentially important, because dust and volcanic aerosols have very different forcing at TOA.

The following figures show the reduction in SST beneath the dust plume according to recent unpublished calculations. The dust distribution is calculated separately and compares well to a range of observations over the tropical Atlantic (*Miller et al.*, 2006). The optical properties and absorption by the dust particles is currently uncertain and the two figures probably bracket the actual ocean cooling, which in either case is about 0.5°C or less. Note that this is the equilibrium response after the ocean surface has adjusted (over two decades) to the forcing. One question is whether the cooling might be larger on shorter time scales during the adjustment.

In summary, *Evan et al.* (2009) note that their calculation of the SST response to aerosols neglects the effect of changes to the surface air temperature by dust. This is potentially important because the atmosphere can help balance the surface forcing by reducing the ocean heat loss through the surface fluxes. Moreover, lateral export of heat to other regions within the atmosphere may be reduced. One way to tetst the importance of atmospheric changes would be for *Evan et al.* (2009) to calculate both the TOA and surface forcing by aerosols, using the aerosol optical thickness retrieved by AVHRR. They could then impose this forcing along with its time variations in a general circulation model, comparing the calculated SST to that derived from their current mixed-layer ocean model, and subsequently calculating to what extent either model SST anomaly resembled the observed fluctations.

Evan et al. (2009) is one of the few studies that attempt to quantify the importance of

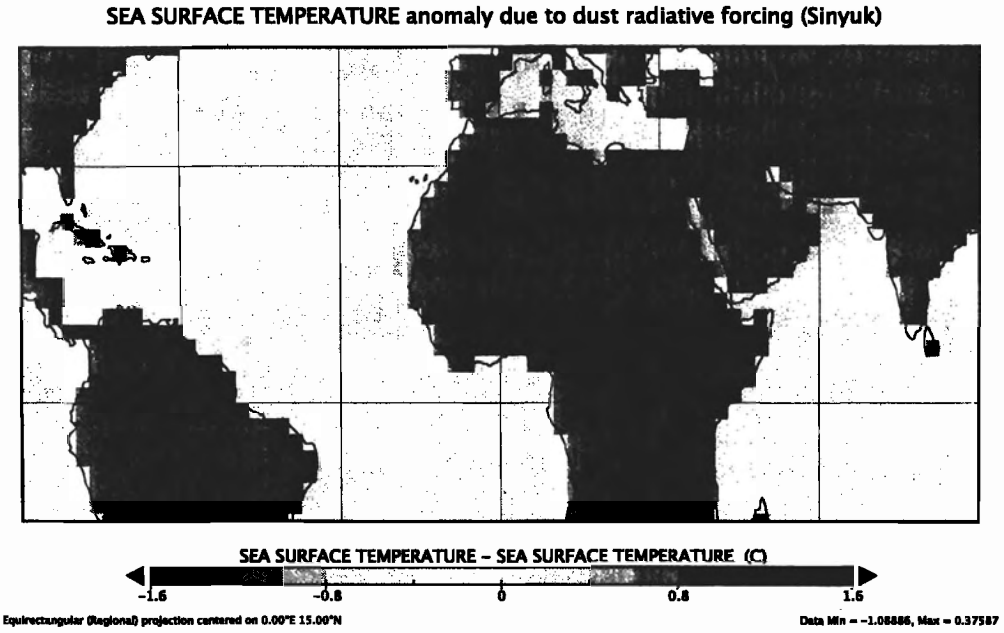


Figure 3: SST anomaly calculated in response to dust radiative forcing. The anomaly is calculated using an atmospheric general circulation model (GCM) coupled to a mixed-layer ocean model where heat transport by ocean currents are fixed. The dust optical properties are based upon values retrieved by *Sinyuk et al.* (2003). The cooling is an average over the last decade of a 31-year simulation. (The ocean takes the first two decades adjusting to dust radiative forcing and coming into equilibrium.) Note that the calculated ocean cooling excludes the effect of volcanic aerosols.

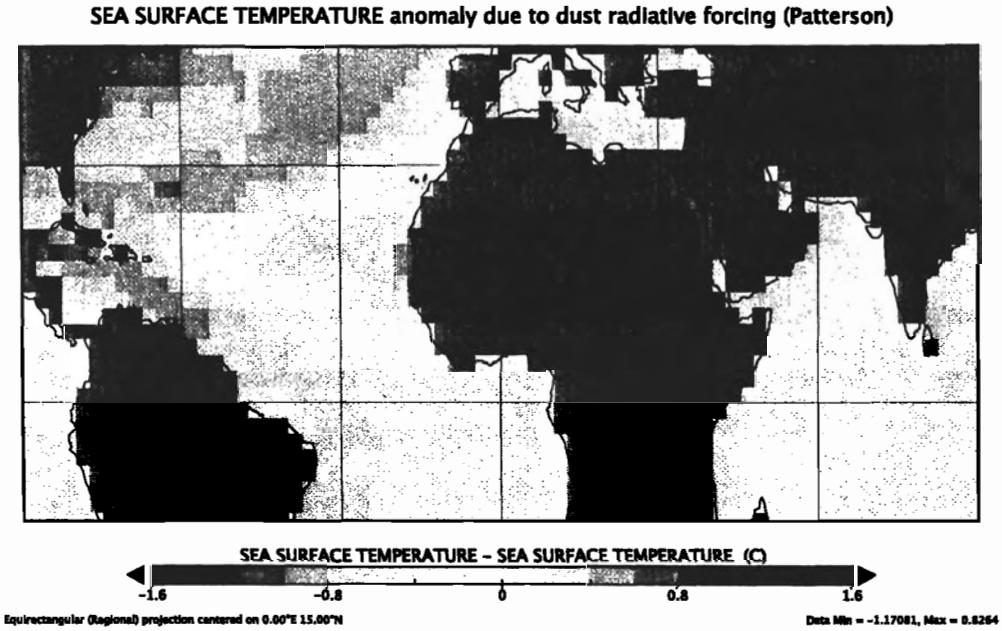


Figure 4: Same as above but assuming that the dust particles are slightly more absorbing, based upon measurements of far-travelled Saharan dust by *Patterson et al.* (1977).

hypothesized physical mechanisms that underly the correlation between dust and hurricane activity. Similarly, a recent study by *Zhang et al.* (2009) considers uses a cloud resolving model to calculate the effect of dust aerosols that act as ice nuclei within a hurricane updraft. One of the broader issues raised by the empirical correlations is what variable represents a potential linkage. Historically, the link between SST and hurricanes has received attention because SST data has been widely available, especially within the tropical Atlantic that is traversed by numerous shipping lanes. However, models could be used to calculate the influence of aerosols on more dynamical metrics of hurricanes, such as the maximum potential intensity *Emanuel* (1995); *Holland* (1997).

Ultimately, the effect of dust upon hurricanes is important because like ocean temperatures, African dust export is expected to change during the 21st century in response global warming and related changes in Sahel climate. One study shows that dust production is expected to decrease (*Mahowald and Luo*, 2003), which emphasizes the value of mechanistic studies like *Evan et al.* (2009).

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Subject: Re: real climate hurricane draft
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Wed, 13 May 2009 18:56:14 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

How do I incorporate the equation, or is this a problem?

(I suppose I could use the equation editor in powerpoint to create a jpg)

Ron.

On Wed, May 13, 2009 at 6:48 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> just send the jpg (or a link) separately in any case, and the text needs to be in ascii. I'll try and look at it tonight.
>
> gavin
>
> On Wed, 2009-05-13 at 18:42, Ron Miller wrote:
>
> > Attached is a draft of the blog on Evan et al Sci 2009.
> >
> > It's a bit rough or else dull in spots, but it will give you the general outline of what I have to say. I haven't seen any other blog posts. We can discuss this tomorrow before final rewrites?
> >
> > Ron.
> >
> > (The pdf is missing a satellite image of dust streaming off Africa over the Atlantic. I haven't figured out how to incorporate jpg's in latex files. It is probably trivial albeit irrelevant since the tex file will be converted to html.)

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Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: revised hurricane draft
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Wed, 13 May 2009 19:11:35 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

On Wed, May 13, 2009 at 6:59 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> holy moly - this is a book!
>
> Good for a real paper, bad for a blog post. Let me have a look and I'll suggest a somewhat paired down version....

Actually, I'm one GCM calculation short of writing a (GRL?) article. I'll stop by tomorrow and see what you recommend. (It doesn't seem that much out of the range given that two pages are references, and three are figures. The text is 'only' about 5 pages?)

Ron.

> On Wed, 2009-05-13 at 18:52, Ron Miller wrote:
> > Use this version. I forogt to add the punchline to the original.
> >
> > Ron.

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
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Dept of Applied Physics and Applied Math
Columbia University
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rmiller@giss.nasa.gov

Subject: Re: revised hurricane draft
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Wed, 13 May 2009 19:57:01 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Why don't I spare you some time and try to cut the draft down to about 2-3 pages. We can talk in the afternoon...

Ron.

On Wed, May 13, 2009 at 7:11 PM, Ron Miller <rmiller@giss.nasa.gov> wrote:
> On Wed, May 13, 2009 at 6:59 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > holy moly - this is a book!
> >
> > Good for a real paper, bad for a blog post. Let me have a look and I'll suggest a somewhat paired down version....
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> Actually, I'm one GCM calculation short of writing a (GRL?) article. I'll stop by tomorrow and see what you recommend. (It doesn't seem that much out of the range given that two pages are references, and three are figures. The text is 'only' about 5 pages?)
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> > On Wed, 2009-05-13 at 18:52, Ron Miller wrote:
> > > Use this version. I forogt to add the punchline to the original.
> > >
> > > Ron.

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: pine beetles and forest fire (fwd)
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Thu, 4 Jun 2009 16:31:17 -0400
To: gschmidt@giss.nasa.gov

You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.

I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.

Ron.

On Thu, Jun 4, 2009 at 12:10 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> Ron, some advice needed. Do I:
>
> 1) ignore
> 2) respond in rude manner:
> 2a) obviously: "Piss off"
> 2b) more subtly: "Perhaps you could let me know the psychic you are using to discern my opinions on the relative role of pine bark beetles vs. drought and temperature on widlfires?"
> 3) engage seriously as if Pielke was indeed terribly concerned about the issue.
> 4) wait until he misrepresents my statement and then put up a post on realclimate pointing out how many people he has misrepresented in the past.
>
> needless to say, 3 is off the table.
>
> gavin
>
> *----------*
> | Gavin Schmidt | NASA/Goddard Institute for Space Studies |
> | | 2880 Broadway |
> | Tel: (212) 678 5627 | New York, NY 10025 |
> | gschmidt@giss.nasa.gov | http://www.giss.nasa.gov/~gavin |
> *----------*
>
> ---------- Forwarded message ----------
> Date: Wed, 3 Jun 2009 23:31:30 -0600
> From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
> To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> Subject: pine beetles and forest fire
>
> Dear Gavin-
>
> You say in your Salon interview:
>
> "If you visit Colorado, behind the Front Range, you'll see whole hillsides devastated by these pine-bark beetles. In British Columbia and Alaska, it's huge thousand-mile tracts of forest. These changes have been leading to forest fires, because now you've got more fuel, which increases carbon emissions."

I had a student in my graduate seminar last semester submit an interesting final paper on how the association between the beetle infestation and forest fires is now generally dismissed by most ecologists. Here is a somewhat lengthy excerpt from his paper:

"Moreover, claims that beetle attacks necessarily increase fire risk are not supported by much scientific evidence. "A growing body of scientific research.shows that bark beetles have very little influence on forest fires," according to congressional testimony by Dominik Kulakowski (2006), a researcher at the University of Colorado-Boulder. "If the weather is dry enough, [high-elevation forests in Colorado] are likely to burn and if the weather is not dry enough, these forests are unlikely to burn, largely irrespective of the effect of beetles."

Kulakowski's testimony is generally in line with several recent reviews of research on fire-beetle interactions. In a 2006 report, the Colorado Forest Restoration Institute (CFRI) cast doubt on the notion that beetle attacks lead to severe wildfires. "The few scientific studies that support this idea report a very small effect, and other studies have found no relationship between insect outbreaks and subsequent fire activity" (Romme et al. 2006, p. 8). They contended instead that weather-related factors-specifically drought and high temperatures-have the greatest effects on fire risk. Under certain conditions, live trees can be nearly as flammable as dead ones, contrary to public perception that dead forests pose a significantly greater fire risk. The CFRI authors developed a theoretical model of fire risk, arguing that during the first two years after the tree's death, dead needles remaining on limbs may increase fire risk compared to the pre-attack baseline. Once those needles fall from the trees, however, that important fuel source is no longer present to contribute to the propagation of crown fires. Only decades later, after dead trees fall to the ground and young trees begin to grow taller, would the fire risk begin to approach or possibly exceed the pre-outbreak fire risk (Romme et al., 2006).

More recent reviews generally agree with the CFRI report. McHugh, Finney, and Hardy (2006) conclude that the lowered moisture content of dead needles would increase fire risk for the first fire season following a beetle attack. Over the longer term, however, needles falling from the canopy would discourage the spread of a catastrophic crown fire. Simard et al.'s review (2008) breaks out the findings based on different forest types. In spruce-fir forests, they conclude that spruce beetle outbreaks have no effect on either the occurrence or the severity of catastrophic wildfires. In lodgepole pine forests, the authors report that research results on the impacts of MPB attacks on fire occurrence and severity are unclear. Effects of insect attacks on fire regimes in pinyon-juniper, douglas fir, and ponderosa pine forests are unknown. Finally, Kaufmann et al. (2008) point out that the presence of dead needles could mean greater risk of crown fire in the short term. Over the long term, falling needles could reduce the risk of crown fire but increase the risk of severe surface fire.

These reviews were based on a number of empirical studies attempting to clarify the relationship between beetle attacks and fire. Two of those studies examined whether the famous 1988 fire in Yellowstone National Park was related to beetle outbreaks. Turner et al. (1999) found that areas with heavy beetle mortality were somewhat more likely to burn than unaffected areas, but areas with moderate mortality were no more likely to burn. Lynch (2006) found that forested areas killed by beetles in the early and mid-1970s were 11 percent more likely to burn than areas unaffected by the beetles, but that a more recent (1980-83) beetle outbreak was not a statistically significant factor. In spruce-fir forests in Colorado, however, Bebi et al. (2003) and Kulakowski et al. (2003) found no increase in fire density or occurrence following a massive spruce beetle outbreak during the 1940s. Bigler et al. (2005) found a small correlation between a 1940s beetle attack and wildfire in 2002 but concluded that local climatic

factors were much more relevant in predicting fire outbreak. Kulakowski and Veblen (2007) examined the legacy of another spruce beetle attack and found that it had no detectable effect on the likelihood of subsequent fire outbreak.

Finally, in an attempt to experimentally determine the effect of beetle attacks on fire risk, a group of Canadian researchers cut into the bark of trees to kill them in a manner similar to a bark beetle attack. One year after killing the trees, the researchers started fires in the treatment and control plots. Their results show that both stands quickly developed crown fires, implying that a beetle attack might make no difference in highly flammable forests (Schroeder and Mooney 2009)."

Before I blog on your assetion, I am writing to ask if you would like to clarify your assertion or otherwise support it via a guest post on our site.

By the way, your comments on framing made good sense.

All the best,

Roger

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: pine beetles and forest fire (fwd)
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Thu, 4 Jun 2009 22:05:28 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

On Thu, Jun 4, 2009 at 4:40 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> yeah... but why do I have to play the game he has set up? You know there will be a "i gave gavin the chance to respond...." bullshit

True, but why spend much time in the game at all? He's the schoolyard bully. The community already recognizes this, and will be sympathetic to you, especially if you don't play along. Be bland in your response and he will get bored and move on.

Write a brief and polite explanation to Pielke how he has misinterpreted your comment, and make this point on his site if he goes ahead anyway. This way your comment is in the public record. You can stop there, or you can escalate down the road if necessary. (But I feel that an RC post on Pielke's deliberate misniterpretations will be perceived as a personal attack, which gives him an excuse to be indignant and present himself as the aggrieved.)

Ron.

> On Thu, 2009-06-04 at 16:31, Ron Miller wrote:
> > You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.
> >
> > I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.
> >
> > Ron.
> >
> > On Thu, Jun 4, 2009 at 12:10 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> >
> > Ron, some advice needed. Do I:
> >
> > 1) ignore
> > 2) respond in rude manner:
> > 2a) obviously: "Piss off"
> > 2b) more subtly: "Perhaps you could let me know the psychic you are using to discern my opinions on the relative role of pine bark beetles vs. drought and temperature on widlfires?"
> > 3) engage seriously as if Pielke was indeed terribly concerned about the issue.
> > 4) wait until he misrepresents my statement and then put up a post on realclimate pointing out how many people he has misrepresented in the past.
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> > gavin
> >
> > *----------*
> > | Gavin Schmidt NASA/Goddard Institute for Space Studies |

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All the best,

Roger

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Ron Miller

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Armstrong 550

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Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Guardian/Edge
From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: Tue, 07 Jul 2009 10:21:42 -0400
To: gschmidt@giss.nasa.gov

FYI....

http://www.guardian.co.uk/environment/blog/2009/jul/06/gavin-schmidt-climate-change

http://www.edge.org/documents/archive/edge292.html#tc

Subject: Re: Guardian/Edge
From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: Tue, 07 Jul 2009 11:55:40 -0400
To: gschmidt@giss.nasa.gov

I printed it but haven't read it yet...bad?

I hear Johannes Loschnigg will be over at OSTP...

At 11:33 AM 7/6/2009, you wrote:

> oooh... fame. But did you read the comments on the Guardian piece? Sigh....
>
> thanks
>
> *--*
> | Gavin Schmidt | NASA/Goddard Institute for Space Studies |
> | | 2880 Broadway |
> | Tel: (212) 678 5627 | New York, NY 10025 |
> | | |
> | gschmidt@giss.nasa.gov | http://www.giss.nasa.gov/~gavin |
> *--*
>
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>
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> >
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> >
> > http://www.edge.org/documents/archive/edge292.html#tc

Subject: Re: referred by Mike Mann
From: Drew Shindell <dshindell@giss.nasa.gov>
Date: Thu, 16 Jul 2009 21:02:13 +0200
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Aargh, you're right that the press releases are even worse. Are they so clueless they really think that their results imply all the models are wrong, or are they craven media whores? Looking forward to the RC post...
Drew

On Jul 16, 2009, at 7:49 PM, Gavin Schmidt wrote:

> the novelty is the constraint from the lowering of the CCD gives on the total carbon. They come up with a much bigger number than we used (about twice as much), and while that gives about twice as large a CO2 spike, it still isn't big enough to match the (also increased) temperature estimates (now 5 to 9 deg C).
>
> they dismiss the methane connection in one line and with a reference to Sloan et al 1992!
>
> but even that would have been ok if it wasn't for the press release - that is way out to lunch.
>
> http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=12794&SnID=1419357327
> http://blogs.usatoday.com/sciencefair/2009/07/could-we-be-wrong-about-global-warming.html
>
> an RC post is imminent!
>
> gavin
>
> PS. I emailed Jerry yesterday - no response.
>
> On Thu, 2009-07-16 at 13:38, Drew Shindell wrote:
> > Gavin - Did you see this? I can only get the abstract from here, but can they really have written a whole paper about their new discovery that CO2 alone won't account for the PETM and there must be something else without mentioning that we already wrote about that, and Zachos certainly knows it! Maybe they just acted like they were the first to ever have such a thought in their abstract in order to get it into Nature Geoscience? If you can get the whole thing, I'm curious to know.
> > Drew
> >
> > http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo578.html
> >
> > <ngeo578.pdf>

Subject: FW: Presentations from Abrupt Climate Change in a Warming World Annual Meeting
From: "Patricia Formosa" <pformosa@giss.nasa.gov>
Date: Thu, 6 Aug 2009 14:42:30 -0400
To: <giss-people-l@giss.nasa.gov>

Dear All,

The PDFs of the presentations from last month's Abrupt Climate Change in a Warming World meeting are now available online
via the Columbia Climate Center (CCC) web site <http://climate.columbia.edu/?id=abruptcc_july_meeting>.
A blog post on the meeting by Dr. Mary-Elena Carr (Associate Director, CCC) is also available at <http://blogs.ei.columbia.edu/climate/2009/08/06/abrupt-climate-change-in-a-warming-world/>.

Cheers, Moanna

--
Moanna St. Clair
(Assistant to W. S. Broecker)
(Administrator, the Climate Center)
(Project Coordinator, CORC ARCHES)
Room 405 / Gary C. Comer Building
Lamont-Doherty Earth Observatory of Columbia University
61 Route 9W/P.O. Box 1000, Palisades, New York 10964-8000, USA
Tel: (845) 365-8300 / Fax: (845) 365-8169
"For I believe that much of a man's character will be found betokened in his backbone.
I would rather feel your spine than your skull, whoever you are.
A thin joist of a spine never yet upheld a full and noble soul." -Herman Melville

Subject: Re: noaa support letter
From: "Allegra N. LeGrande" <legrande@giss.nasa.gov>
Date: Mon, 24 Aug 2009 14:37:05 -0400
To: gschmidt@giss.nasa.gov

Umm... can you be a bit more specific? Which Santer paper? Is this just the citation that should be in the references for IPCC? Where should I put in the IDAG paper? We did add the Tett paper...

Ugh -- the paperwork with these!

Hope you are having fun over there.

Allegra

PS OT: Where is Carla's blog about her experience?

On Mon, Aug 24, 2009 at 2:28 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> not much to add. Be a little careful in saying 'solar forcing' when you really mean solar activity (i.e. from cosmo isotopes), and make sure that you cite some of the other D&A literature:
>
> ```
> @article{IDAG05,
>  author =      {{IDAG (International ad hoc Detection and Attribution Group)}},
>  title =       {Detecting and attributing external influences on the
>                climate system: {A} review of recent advances},
>  journal =     {J. Clim.},
>  year =        2005,
>  volume =      18,
>  pages =       {1291--1314}
> }
>
> @InCollection{IPCCAR4_Ch9,
>  author =      {G.C. Hegerl and F. W. Zwiers and P. Braconnot and
>                N.P. Gillett and Y. Luo and J.A. Marengo Orsini and
>                N. Nicholls and J.E. Penner and P.A. Stott},
>  title =       {Understanding and Attributing Climate Change},
>  booktitle =   {Climate Change 2007: The Physical Science
>                Basis. Contribution of Working Group I to the Fourth
>                Assessment Report of the Intergovernmental Panel on
>                Climate Change},
>  publisher =   {Cambridge University Press, Cambridge, United
>                Kingdom and New York, NY, USA},
>  year =        2007,
>  editor =      {S. Solomon and D. Qin and M. Manning and Z. Chen and
>                M. Marquis and K. B. Averyt and M. Tignor and H. L. Miller}
> }
> ```
>
> and a couple of papers by Santer et al. perhaps. It will show we are more plugged in.

gavin

| Gavin Schmidt NASA/Goddard Institute for Space Studies |
| 2880 Broadway |
| Tel: (212) 678 5627 New York, NY 10025 |
| |
| gschmidt@giss.nasa.gov http://www.giss.nasa.gov/~gavin |

On Fri, 21 Aug 2009, Allegra N. LeGrande wrote:

> Can you update your old letter...
>
> --
> legrande@giss.nasa.gov | legrande@ldeo.columbia.edu
> http://www.ldeo.columbia.edu/~legrande
> (p) 212-678-5556
> (f) 212-678-5552
> NASA Goddard Institute for Space Studies &
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New York, NY 10025

Subject: Re: noaa support letter
From: "Allegra N. LeGrande" <legrande@giss.nasa.gov>
Date: Mon, 24 Aug 2009 14:59:31 -0400
To: gschmidt@giss.nasa.gov

Yes... I thought Jeff's stuff was a little heavy on self-referencing!

On Mon, Aug 24, 2009 at 2:41 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> http://knitcrit.blogspot.com/
>
> include the other D&A papers when you have the list of all Jeff's stuff (he won't be the reviewer!).
>
> if you have IDAG and IPCC you should be able to pick out an early Santer paper on D&A - don't have a specific paper in mind and I don't have these things in front of me. He had a very recent paper on water vapour trends last week - cite that to be up to the minute.
>
> gavin
>
> *----------*
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> >
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```
@article{IDAG05,
 author =     {{IDAG (International ad hoc Detection and Attribution
Group)}},
 title =      {Detecting and attributing external influences on the
           climate system: {A} review of recent advances},
 journal =    {J. Clim.},
 year =       2005,
 volume =     18,
 pages =      {1291--1314}
}

@InCollection{IPCCAR4_Ch9,
 author =     {G.C. Hegerl and F. W. Zwiers and P. Braconnot and
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           Basis. Contribution of Working Group I to the Fourth
           Assessment Report of the Intergovernmental Panel on
           Climate Change},
 publisher =  {Cambridge University Press, Cambridge, United
           Kingdom and New York, NY, USA},
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2880 Broadway
New York, NY 10025

Subject: Re: NEWS Modeling WG telecon, Friday Oct 9, 11:30 ET
From: Michael Bosilovich <Michael.Bosilovich@nasa.gov>
Date: Fri, 09 Oct 2009 16:40:03 -0400
To: Guojun.Gu-1@nasa.gov
CC: "Peters-Lidard, Christa D. (GSFC-6143)" <christa.d.peters-lidard@nasa.gov>, Wu-Ki Tao <tao@agnes.gsfc.nasa.gov>, "Adler, Robert F. (GSFC-613.1)[UNIV OF MARYLAND COLLEGE PARK]" <robert.f.adler@nasa.gov>, "Robertson, Franklin R. (MSFC-VP61)" <pete.robertson@nasa.gov>, "Chen, Junye (GSFC-610.1)[ESSIC, University of Maryland, College Park]" <junye.chen-1@nasa.gov>, "Hu, Yongxiang (LARC-E302)" <yongxiang.hu-1@nasa.gov>, "Schmidt, Gavin A. (GISS-6110)" <gavin.a.schmidt@nasa.gov>, Bob Schiffer <schiffer@umbc.edu>, Debbie Belvedere <debbie@iges.org>, "Entin, Jared K. (HQ-DK000)" <jared.k.entin@nasa.gov>, "Paul R. Houser" <phouser@gmu.edu>

Good Afternoon all,

As promised, my take on the telecon this afternoon. I did not attempt to transcribe the science brainstorming part. I think it generated some good starts, but we'll have to get more meat to really follow up on those.

Important dates to remember. Oct 30 with a request and title for an oral slot in the working group agenda for the December meeting. Nov 13, 11:30 AM, next telecon with the purpose of reviewing the agenda for the Dec meeting and seeing if any integration project ideas are more refined.

I may look into starting a blog page for brief reports of results. It would be up to all PIs to contribute a result or two when they com in though.

Thanks and have a great weekend!!

Mike

Michael Bosilovich wrote:

> Hi all,
>
> NEWS program management has identified you or your project as having some potential interest or contribution in the modeling integration activities of NEWS.
>
> The modeling working group co-chairs, Yong Hu and I, would like to invite you to a telecon discussion on NEWS and the formation of these working groups and their purpose. We will review the recent emails from management, and discuss the plans and agenda for the December meeting. It could be a very brief telecon, but your contribution would be valuable. The time slot that has been reserved for us is 11:30 this Friday.
>
> Telecon information:
>
> Participant pascode:
> press *0 for help
>
> I'll try to pass some notes back to the mail list, for those who cannot attend. Likewise, do not hesitate to call or email with questions or suggestions.
>
> Also, as I understand it, the working groups are still in a formative stage so there may be multiple invites to the different groups. Sorry Duane, but I couldn't send this out without including you as well, and I suspect that there will be modeling interests across the other groups.
>
> Mike

--

+--------------------+------------------+
Michael G. Bosilovich
Global Modeling and Assimilation Office

Earth Sciences Division
NASA/GSFC Code 610.1
Greenbelt, MD 20771-0001
+------------------+------------------+
Phone: (301) 614 - 6147
Fax: (301) 614 - 6297
Email: Michael.Bosilovich at nasa.gov
WWW: http://gmao.gsfc.nasa.gov/merra/
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NEWS Modeling WG Telecon 10/9/09

Roll: Gu, Pete, Debbie, Bob S., Joe S., Christa, Junye C., Yong Hu, Karen M.

From NEWS Mgmt:

Expectations from the working groups include:
- Coordinate and integrate NEWS PI science investigations
- Liaison with relevant flight missions and R&A programs
- Annual assessment of progress in meeting NEWS science requirements
- Contribute to periodic Implementation Plan updates
- Prepare annual progress summaries
- Promote scientific journal publications
- Conduct regularly scheduled telecons
- Assist in planning and organization of annual Science Team meetings & sessions at national meetings (e.g. AMS, AGU)
- Chairs to be appointed by NASA (3-year terms)

Differences from Int Team Leaders

WG Chairs are not responsible for reporting on individuals projects

WG is responsible for facilitating collaborations toward integration

WG Chairs are not funded above and beyond original projects.

Implementation:

Process oriented projects

Link Observations and models to the process

Perform Model experiments or evaluations in support of understanding the process or suggestions for improving models

Ownership is a must. Someone must be vested in a project to build collaborations and to see it through to publication. So, there won't be just one modeling integration project. We will try to grow several, based on the needs of individual PIs. Some projects may be comprised of primarly model group members, however, most will liky have broad representation across the NEWS PIs. Whether a project thrives and grows will largely depend on the owner(s), and projects that don't show progress will be deemphasized or dropped.

While we did have some interesting discussions regarding prospective integration projects utilizing LIS, MERRA and ClimatePrediction.net, It was recognized that this group would also have a great need to collaborate with the other working groups. We will likely hit a snag in the Dec meeting where the Model group PIs also need to spend some time in another parallel working group.

Actions for the WG:

1. individual PI should think about coming up with an integration project or needs idea so that we can discuss during the December meeting and make selection

2. Debbie and Bob S. - collect telecom notes from all the working groups and make available, so we can track their discussions and potential points of collaboration.
3. inform Mike on the availability of the meeting, requests for oral presentation time slots, titles of the talks by Oct 30th
4. next telecom Nov 13 (Friday), 11:30am ET

Subject: Re: List of earth science bloggers
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Nov 2007 15:57:52 -0500
To: Sarah Dewitt <Sarah.L.Dewitt@nasa.gov>

Hi Sarah,

well, the other opinion list on RC is probably a good start. Dot Earth (Andy Revkin), Michael Tobis, Atmoz (N. Johnson), Deltiod (Tim Lambert), OpenMind etc.

However, I would council you not to overdo any mass mailings to these people - bloggers tend to be a little more independent than normal journalists and aren't particularly disposed to reporting on press releases and the like.

Gavin

On Thu, 2007-11-15 at 15:51, Sarah Dewitt wrote:

> Hi Gavin,
>
> I'm an earth science media producer at Goddard and am starting a distribution list for top earth science and climate bloggers. I'm hoping you can help me kickstart the list with a few of your favorites. I read Real Climate when I can but I usually don't have time to follow any of the others out there, so any recommendations you can make are welcome. Once I have a short list I'll put some more development time into it and would be happy to share what I find.
>
> Thanks in advance,
> Sarah

Subject: Re: [Fwd: Half of recent arctic warming may not be due to greenhouse gases]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Apr 2009 11:01:16 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

I can't be picking up after everybody,...

On Thu, 2009-04-09 at 10:23, Drew Shindell wrote:

> Want to have a guest RC post to explain?
>
> I thought that explaining the science to the general public/
> blogosphere was your job.
> Drew

Subject: Re: Fwd: referred by Mike Mann
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Jul 2009 13:49:16 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

the novelty is the constraint from the lowering of the CCD gives on the total carbon. They come up with a much bigger number than we used (about twice as much), and while that gives about twice as large a CO2 spike, it still isn't big enough to match the (also increased) temperature estimates (now 5 to 9 deg C).

they dismiss the methane connection in one line and with a reference to Sloan et al 1992!

but even that would have been ok if it wasn't for the press release - that is way out to lunch.

http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=12794&SnID=1419357327
http://blogs.usatoday.com/sciencefair/2009/07/could-we-be-wrong-about-global-warming.html

an RC post is imminent!

gavin

PS. I emailed Jerry yesterday - no response.

On Thu, 2009-07-16 at 13:38, Drew Shindell wrote:

> Gavin - Did you see this? I can only get the abstract from here, but can they really have written a whole paper about their new discovery that CO2 alone won't account for the PETM and there must be something else without mentioning that we already wrote about that, and Zachos certainly knows it! Maybe they just acted like they were the first to ever have such a thought in their abstract in order to get it into Nature Geoscience? If you can get the whole thing, I'm curious to know.
> Drew
>
> http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo578.html

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nature geoscience

LETTERS

PUBLISHED ONLINE: 13 JULY 2009 | DOI: 10.1038/NGEO578

Carbon dioxide forcing alone insufficient to explain Palaeocene–Eocene Thermal Maximum warming

Richard E. Zeebe[1]*, James C. Zachos[2] and Gerald R. Dickens[3]

The Palaeocene–Eocene Thermal Maximum (about 55 Myr ago) represents a possible analogue for the future and thus may provide insight into climate system sensitivity and feedbacks[1,2]. The key feature of this event is the release of a large mass of ^{13}C-depleted carbon into the carbon reservoirs at the Earth's surface, although the source remains an open issue[3,4]. Concurrently, global surface temperatures rose by 5–9 °C within a few thousand years[5–9]. Here we use published palaeorecords of deep-sea carbonate dissolution[10–14] and stable carbon isotope composition[10,15–17] along with a carbon cycle model to constrain the initial carbon pulse to a magnitude of 3,000 Pg C or less, with an isotopic composition lighter than −50‰. As a result, atmospheric carbon dioxide concentrations increased during the main event by less than about 70% compared with pre-event levels. At accepted values for the climate sensitivity to a doubling of the atmospheric CO_2 concentration[1], this rise in CO_2 can explain only between 1 and 3.5 °C of the warming inferred from proxy records. We conclude that in addition to direct CO_2 forcing, other processes and/or feedbacks that are hitherto unknown must have caused a substantial portion of the warming during the Palaeocene–Eocene Thermal Maximum. Once these processes have been identified, their potential effect on future climate change needs to be taken into account.

The magnitude of future global warming from anthropogenic CO_2 forcing remains unknown because of uncertainties in predicting climate system feedbacks[1]. Studying past episodes of global warming and rapid carbon release such as the Palaeocene–Eocene Thermal Maximum (PETM) may help to reduce those uncertainties or at least isolate the possible sources[2]. The onset of the PETM was marked by a global increase in surface temperatures by 5–9 °C within a few thousand years[5–9]. At nearly the same time, a substantial carbon release occurred, as demonstrated by a large drop in the $^{13}C/^{12}C$ ratio of surficial carbon reservoirs. The carbon release led to ocean acidification and widespread dissolution of deep-sea carbonates[10,18]. Different sources for the carbon input have been suggested, which has led to speculations concerning the mechanism. Some, such as volcanic intrusion, imply that the carbon drives the warming. Others, such as the destabilization of oceanic methane hydrates, imply that the carbon release is a feedback that can exacerbate warming[3,4,19]. Remarkably, however, even the lower estimates for the carbon release during the onset of the PETM ($\sim 1\ Pg\ C\ y^{-1}$) and over the past 50 years from anthropogenic sources seem to be of a similar order of magnitude (see the Methods section). The PETM may therefore serve as a case study for the consequences of the carbon dioxide released at present by human activities.

We have used deep-sea carbonate dissolution records[10–14] and stable carbon isotope records across the PETM (refs 10, 15–17) in combination with carbon cycle modelling[2,18,20] to constrain the mass of the PETM carbon input (Fig. 1). The observed drop in the stable carbon isotope composition ($\delta^{13}C$) of the surficial carbon reservoirs is about 3‰. However, the $\delta^{13}C$ signal alone is insufficient to determine the mass and $\delta^{13}C$ value of the carbon input. In this study, the input mass is estimated from carbonate dissolution records. The $\delta^{13}C$ composition of this carbon was then constrained by requiring the model outcome to match observed marine $\delta^{13}C$ records at the given input mass (see Supplementary Information). For our model simulations, we used the long-term ocean–atmosphere–sediment carbon cycle reservoir model LOSCAR (see refs 2, 18, 20 and Supplementary Information).

To simulate the observed time-dependent profile (that is, magnitude and duration) of the carbon isotope excursion (CIE) during the PETM main phase (Fig. 1b,c), we assumed a large initial input pulse followed by further smaller pulses and a low, continuous carbon release during the main event (Fig. 1a). Without the further release, the model was unable to reproduce the CIE duration because $\delta^{13}C$ values returned to pre-excursion values too quickly (Fig. 1b, dotted green line). A pulsed carbon release (rather than a single input peak) is consistent with $\delta^{13}C$ records from most marine and terrestrial sections[21,22].

The prolonged carbon release is also important to simulate the observed duration of deep-sea carbonate dissolution (Fig. 1d–f). For example, the carbonate records from Walvis Ridge in the Atlantic Ocean show that wt% $CaCO_3$ values at various palaeowater depths return to pre-excursion values only after more than 70 kyr (Fig. 1e). The extended duration of the dissolution event could not be reproduced in the model without the continued carbon release (Fig. 1d).

The size of the carbon input, on the other hand, is determined by the magnitude of $CaCO_3$ dissolution or shoaling of the calcite compensation depth (CCD) in the different ocean basins (Fig. 1f,g). Note that for the quantification of the carbon input, the position of the CCD before the event is as critical as the actual shoaling. For example, the late Palaeocene CCD was about 1–1.5 km shallower than today in all ocean basins, including the Pacific basin, which was much larger than today (see refs 23, 24 and references therein). Just before the event, Ocean Drilling Program core sites 1208 (Pacific Shatsky Rise) and 1221 (Equatorial Pacific) at 3,350 m and 3,200 m palaeowater depth, respectively, were located very close to the CCD, indicating a Pacific pre-event CCD shallower than 3,500 m. This depth is consistent with other reconstructions[11,23] (see Supplementary Fig. S5). In the late-Palaeocene Pacific basin, the erodible sediment $CaCO_3$ inventory in the depth range 3.5–4.5 km would have been ~2,000 Pg C, which has the capacity to neutralize ~2,200 Pg C of CO_2 (see the Methods section). Setting the pre-event CCD at a depth below that indicated by observations

[1]School of Ocean and Earth Science and Technology, Department of Oceanography, University of Hawaii at Manoa, 1000 Pope Road, MSB 504, Honolulu, Hawaii 96822, USA, [2]Earth and Planetary Sciences Department, University of California, Santa Cruz, California 95064, USA, [3]Department of Earth Sciences, Rice University, Houston, Texas 77005, USA. *e-mail: zeebe@soest.hawaii.edu.

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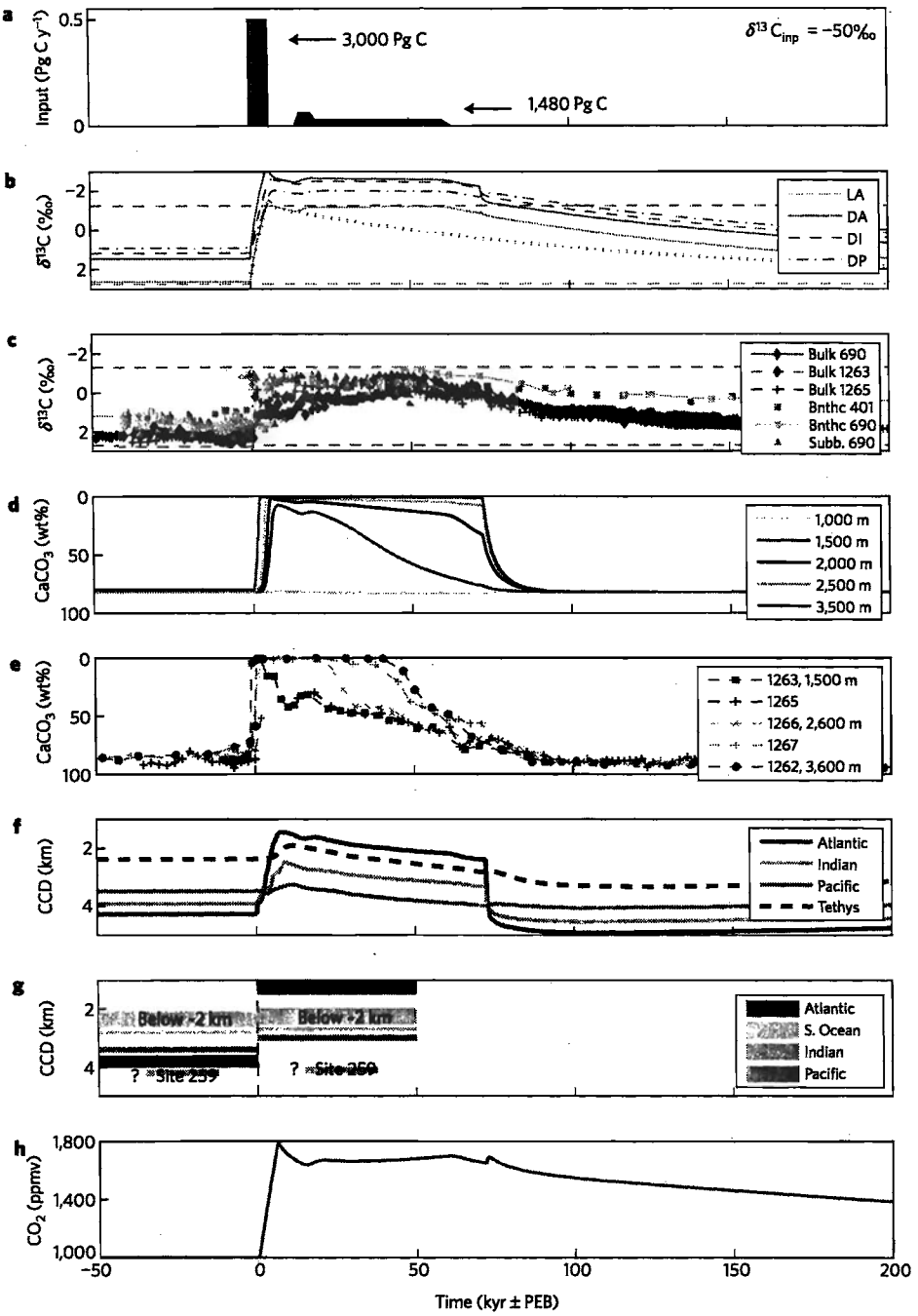

Figure 1 | PETM model simulations and palaeorecords. **a**, PETM carbon-release scenario (model input); $t = 0$ corresponds to the onset of the PETM. **b**, Simulated $\delta^{13}C$ of TCO_2 in the low-latitude surface Atlantic (LA), deep Atlantic, Indian and Pacific oceans (DA, DI, DP) using the carbon release shown in **a**, including the continuous release (solid green and red lines). In simulations without the continuous release (dotted green line), the duration of the $\delta^{13}C$ excursion was not captured in the model. **c**, Observed $\delta^{13}C$ in bulk $CaCO_3$, benthic and planktonic foraminifera[15–17]. **d**, Simulated wt% $CaCO_3$ at various depths in the deep Atlantic. **e**, Observed wt% $CaCO_3$ at Walvis Ridge, South Atlantic Ocean[10]. **f**, Simulated CCD in different basins. **g**, Observed CCD before and during the PETM main event (see Supplementary Information). **h**, Simulated atmospheric CO_2 (PEB: Palaeocene/Eocene boundary).

would therefore erroneously increase the available $CaCO_3$ for dissolution/erosion and lead to a significant overestimate of the carbon input[25]. During the event, the Atlantic CCD shoaled markedly by at least 2 km (Fig. 1e)[10], whereas the Pacific CCD shoaled by only a few hundred metres (see refs 11, 13, 14, 18 and Supplementary Information).

To simulate the profound differences in observed Atlantic and Pacific CCD changes, we made additional assumptions on the basis of earlier suggestions (the model sensitivity to these assumptions is examined in Fig. 2). First, we assumed a partial carbon injection directly into the deep Atlantic[3]. Second, we assumed a steady contribution of North Pacific Deep Water (NPDW) formation during the event[26], which makes Atlantic deep waters more corrosive[18] (the Southern Ocean source remains active but is reduced relative to its pre-event strength). Both processes enhance carbonate dissolution in the deep Atlantic. Without NPDW, the Atlantic CCD shoaling in the model is too small relative to observations, even at a total carbon input of 4,000 Pg C and

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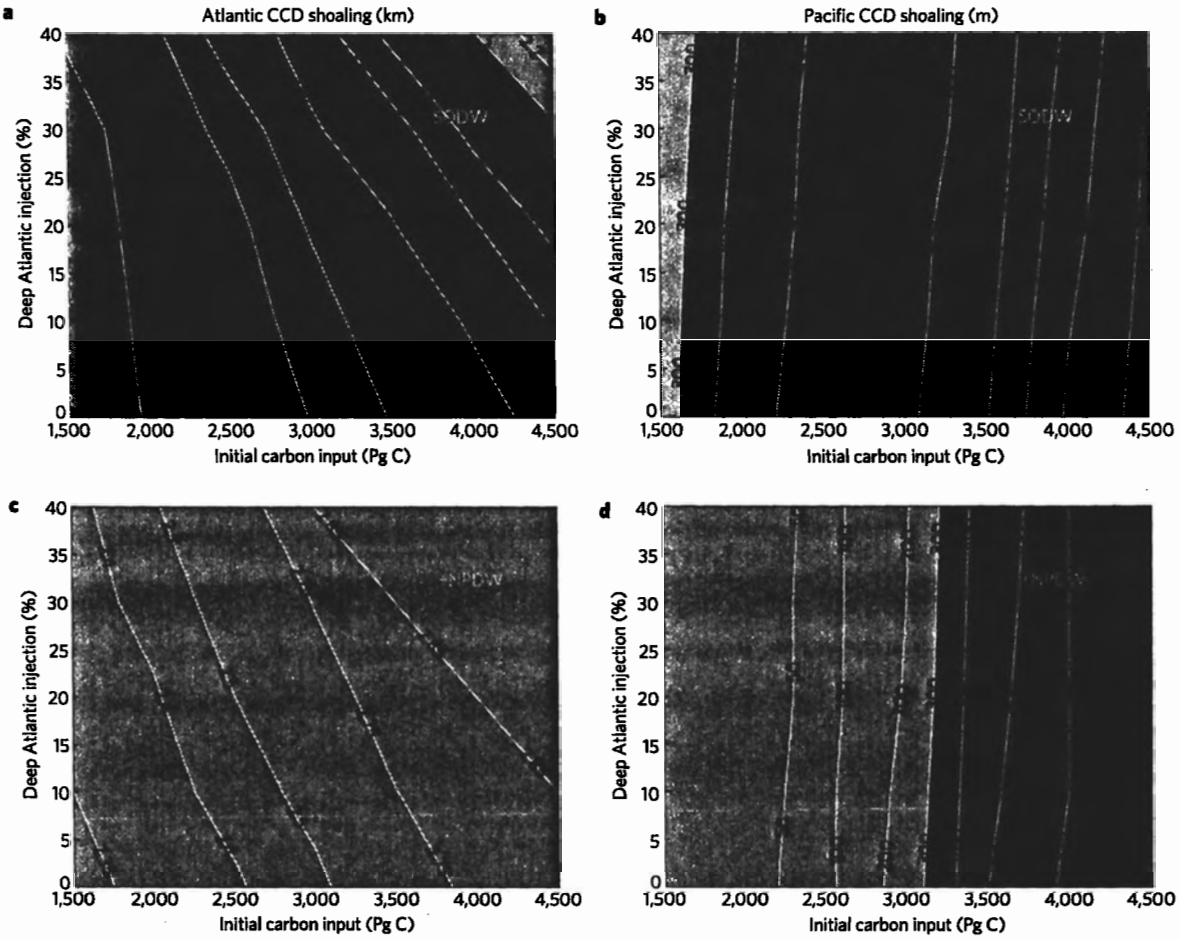

Figure 2 | Simulated CCD shoaling. CCD shoaling as a function of initial carbon input (see Fig. 1a) and %carbon injected into the deep Atlantic. The green and red areas indicate data compatibility and incompatibility, respectively. **a**, Atlantic CCD shoaling (in km) with a global Southern Ocean Deep Water (SODW) source. **b**, Pacific CCD shoaling (in m) with SODW alone. **c**, Atlantic CCD shoaling when a contribution of North Pacific Deep Water (NPDW) is included. **d**, Pacific CCD shoaling including NPDW.

40% direct injection into the deep Atlantic (Fig. 2a). To match observations, total input and/or direct injection into the deep Atlantic must be greater (green and red areas in Fig. 2 indicate data compatibility and incompatibility, respectively). However, such scenarios lead to excessive CCD shoaling in the Pacific (inconsistent with the data; red area in Fig. 2b). Alternatively, with NPDW, the simulated CCD shoaling in the Atlantic is consistent with observations for all input scenarios between 1,500 and 4,500 Pg C (Fig. 2c). The maximum initial input is constrained to ~3,000 Pg C by the observed CCD shoaling of less than ~300 m in the Pacific (green area in Fig. 2d). This estimate of the maximum initial carbon input is largely independent of its duration (see Supplementary Fig. S1).

An additional key model benchmark (in addition to simulating adequate $\delta^{13}C$ and CCD changes) is to replicate the reconstructed deep-sea [CO_3^{2-}] gradient between the different ocean basins[18]. This basin gradient was reversed during the PETM relative to the modern. That is, during the PETM main phase, the most corrosive deep water resided in the Atlantic and not in the Pacific as today (Fig. 3a). Observations indicate that deep [CO_3^{2-}] in the Pacific was about 1.5 times higher than in the South Atlantic. This ratio is reproduced by our model (Fig. 3b).

In summary, using the rate of carbon input shown in Fig. 1a and the input location and circulation changes discussed above, the model captures the essential features of the observed carbon isotope and deep-sea dissolution records. This constrains the initial PETM carbon input to less than 3,000 Pg C, as a larger input would lead to more intense dissolution, particularly in the Pacific, which is not supported by the data. The magnitude of the CIE then requires the isotopic composition of the carbon input to be lighter than −50‰, consistent with a highly ^{13}C-depleted source such as biogenic methane. (Note that methane would have been oxidized rapidly to CO_2 in the water column and/or the atmosphere[3].) The pattern of the carbon input scenario required by the model to match observations (Fig. 1a) seems to be consistent with carbon release from oceanic gas hydrate reservoirs. The pulsed input pattern could indicate carbon release from different ocean basins or depth horizons containing gas hydrate[21]. The continued release could be explained by non-steady-state fluxes from marine gas hydrate systems following the initial dissociation of gas hydrate[27] or fluxes from marine/terrestrial sedimentary reservoirs.

As a result of the carbon input, we calculate an increase in atmospheric CO_2 from a baseline of 1,000 ppmv to ~1,700 ppmv during the PETM main phase (Fig. 1h) (a baseline pCO_2 several times higher than the pre-industrial value is generally accepted as the PETM is superimposed on a much warmer climate[4,24]). Thus, if initiated at a baseline CO_2 of 1,000 ppmv, CO_2 increases by a factor of ~1.7. We found this factor to be largely independent of the assumed baseline CO_2, for instance, at 500, 1,000 or 1,500 ppmv.

At the accepted equilibrium climate sensitivities of 1.5–4.5 °C warming per doubling of CO_2 (ref. 1), our calculated 1.7-fold increase in CO_2 would at most have caused ~3.5 °C warming

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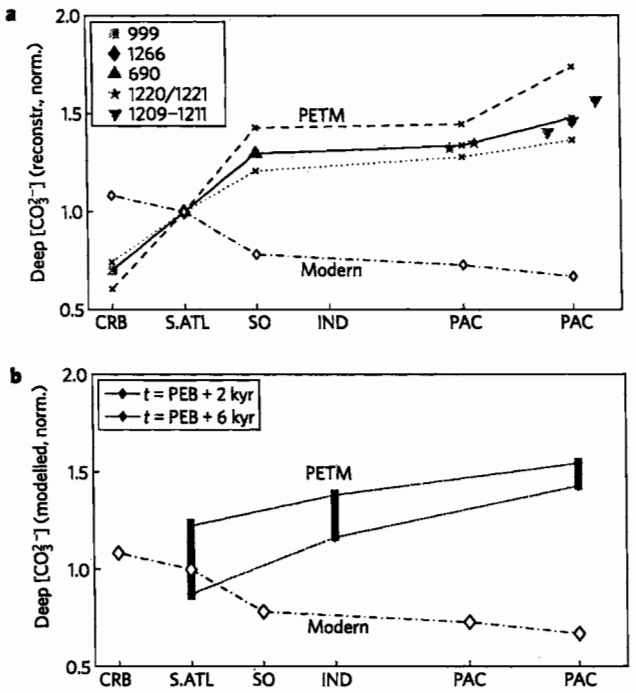

Figure 3 | Deep-sea carbonate ion basin gradient during the PETM. **a**, Reconstruction based on carbonate records from different sites (colour symbols, as indicated)[18]. **b**, Simulation from our carbon cycle model (blue and red lines) at 2 and 6 kyr after the onset of the PETM ($t = 0$). The black bars indicate the range of the simulated gradient at different times. The open diamonds in **a**,**b** show the corresponding gradient based on modern observations. Deep-sea $[CO_3^{2-}]$ concentrations are normalized to the concentration in the South Atlantic Ocean. CRB: Caribbean, S.ATL: South Atlantic Ocean, SO: Southern Ocean, IND: Indian Ocean, PAC: Pacific Ocean, PEB: Palaeocene/Eocene boundary.

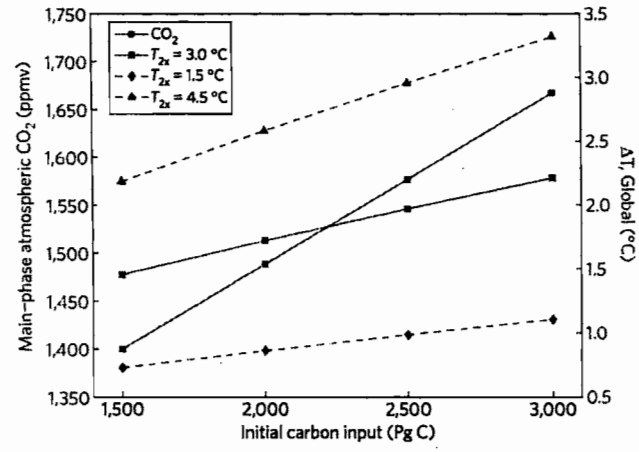

Figure 4 | Simulated atmospheric CO_2 during the main event. Average pCO_2 over 70 kyr (see Fig. 1h) as a function of initial carbon input (blue, left axis); pre-PETM CO_2 is 1,000 ppmv. The red graphs (right axis) show the calculated global temperature increase based on different climate sensitivities. Note that whereas peak atmospheric CO_2 is a nonlinear function of the carbon input, the '70 kyr-average' increase is nearly linear over the range shown. The percentage of deep Atlantic injection has little effect on the '70 kyr-average'.

during the PETM main phase (Fig. 4). This constitutes an enigma because proxy records globally indicate surface warming by 5–9 °C (refs 5–9). If the temperature reconstructions are correct, then feedbacks and/or forcings other than atmospheric CO_2 caused a major portion of the PETM warming. The origin of this additional warming is unknown at present. Possible causes of the excess warming include increased production and levels of trace greenhouse gases as a consequence of the climatic warming (such as CH_4; ref. 28). Regardless, this mismatch poses a challenge for our understanding of past episodes of strong and rapid global warming. Undoubtedly, the climatic boundary conditions before the PETM were different from today's—including different continental configuration, absence of continental ice and a different base climate, which limits the PETM's suitability as the perfect future analogue. Nevertheless, our results imply a fundamental gap in our understanding of the amplitude of global warming associated with large and abrupt climate perturbations. This gap needs to be filled to confidently predict future climate change.

Methods

The PETM carbon release rate was estimated using our initial carbon input of 3,000 Pg C and an input timescale of the order of 5,000 years (ref. 29), giving a rate of ~0.6 Pg C y^{-1}. The average carbon release rate from fossil-fuel burning and cement manufacturing from 1954–2004 is ~5 Pg C y^{-1} (ref. 30).

Given a Palaeocene/Eocene bathymetry[26], the Pacific seafloor area between 3.5 and 4.5 km depth can be estimated as $A_{\Delta z} = A_{oc} \cdot a_P \cdot a_{\Delta z} \simeq 5.5 \times 10^{13}$ m^2, where $A_{oc} \simeq 3.5 \times 10^{14}$ m^2 is the area of the ocean, $a_P \simeq 0.52$ is the Palaeocene/Eocene Pacific fraction and $a_{\Delta z} \simeq 0.30$ is the Pacific area fraction between 3.5 and 4.5 km depth. The calcite inventory in the top sediment layer of thickness h over this area is given by $M_{cal} = A_{\Delta z} h \rho f_c (1-\phi)$, where $\rho = 2{,}500$ kg m^{-3} is the sediment density, f_c is the calcite dry weight fraction and ϕ is the porosity. Using $f_c = 0.9$ and $\phi = 0.7$ and converting to carbon units, we have $M_C = M_{cal} \times 12/100 \simeq 440$ Pg C. The erodible calcite is larger than the surface inventory by a factor $[1 + r_\phi f_c/(1-f_c)]$, where $r_\phi \simeq 0.4$ (ref. 18). Thus, the erodible $CaCO_3$ inventory in the late Palaeocene Pacific in the depth range 3.5–4.5 km would have been about 2,000 Pg C.

Restoring the carbonate ion concentration (CO_2 neutralization) by deep-sea $CaCO_3$ dissolution in response to CO_2 acidification requires about 0.9 mol $CaCO_3$ dissolved per mol CO_2 added. For example, adding 100 μmol kg^{-1} CO_2 to a seawater sample at $[TCO_2, TA] = [2.3, 2.4]$ mmol kg^{-1} (T, S, P = 10 °C, 35, 350 bar), reduces $[CO_3^{2-}]$ from 84 to 42 μmol kg^{-1} (TCO_2: total dissolved inorganic carbon, TA: total alkalinity, T: temperature, S: salinity, P: pressure). Dissolution of 92 μmol kg^{-1} $CaCO_3$ restores $[CO_3^{2-}]$ back to 84 μmol kg^{-1}.

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Acknowledgements

The research was supported by NSF grant EAR06-28719 to J.C.Z. and EAR06-28394 to R.E.Z.

Additional information

Supplementary information accompanies this paper on www.nature.com/naturegeoscience. Reprints and permissions information is available online at http://npg.nature.com/reprintsandpermissions. Correspondence and requests for materials should be addressed to R.E.Z.

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Subject: [Fwd: attribution of total present day greenhouse effect]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Jan 2007 15:33:44 -0500
To: alacis@giss.nasa.gov

Andy, any comment? Thanks

Gavin

-----Forwarded Message-----

From: Gavin Schmidt <gschmidt@giss.nasa.gov>
To: alacis@giss.nasa.gov, Tony DelGenio <adelgenio@giss.nasa.gov>
Subject: attribution of total present day greenhouse effect
Date: 30 Dec 2006 17:10:53 -0500

Andy, Tony,

Just so that I don't completely waste my time, are either of you aware of a study that gives the portion of the total greenhouse effect for water vapour/clouds/CO2/aerosols etc... in a way that accounts for (or at least acknowledges) the overlaps, global distribution, seasonality etc? (I imagine either a GCM forcing study, or a LBL calculation using the re-analysis data?)

I can only find vague and unsourced numbers (with no context) with references that don't go any further than Ramanathan and Coakley (1979) or Manabe and Strickland (1964) - both of whom used rad-conv models. IPPC 1990 has a vague 60-70% water vapour, 25% CO2 (each acting alone, no ref) and TAR reuses RC79 to suggest 14% reduction if you remove CO2, and 36% reduction removing H2O.

I don't think this is a particularly important issue, but it does get raised a lot (thanks mainly to Lindzen's off hand statements on the topic - '98% due to water vapour and clouds' - which is clearly wrong). The lack of a clear reference clearly handicaps debunking of those kinds of arguments. I am actually finding that a piece I wrote on the blog is now being cited as the right answer - and that's not very satisfactory.

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Subject: Re: [Fwd: attribution of total present day greenhouse effect]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Jan 2007 18:11:56 -0500
To: alacis@giss.nasa.gov

Andy, thanks - that's useful. However, I was specifically interested in whether there has been a paper that directly addressed the CO2 vs H2O vs clouds longwave trapping in the current atmosphere in a way that would be absolutely clear. Any LBL or GCM code could be used for that (and Reto did some of these experiments with GCM for me already) -I was wondering whether someone had written it up that way already.

I'm not thinking this groundbreaking new science or anything - just that it might be a useful thing to have out there....

Gavin

On Fri, 2007-01-05 at 17:54, alacis@giss.nasa.gov wrote:

> Gavin,
>
> The radiative forcing formulas in Hansen et al (JGR 93, 9341-9364., 1988) give about 7K of deltaTzero no-feedback forcing for 380ppm of CO2. This is relative to the total 33K of the terrestrial greenhouse effect. This is the radiative forcing that you would have if all of the atmospheric CO2 were removed.
>
> The formula also gives about 1.2K for doubled CO2. The radiative forcing formulas are all calculated in the context of the terrestrial atmosphere and thus fully account for the radiative effects of overlapping absorption by other atmospheric absorbers.
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> To ascribe specific amounts of radiative forcing to changes in water vapor and clouds is more complicated since these radiative forcings depend in detail on cloud and water vapor amount, height, and latitudinal distribution. The cloud and water vapor radiative forcing contributions can be inferred from the feedback amplification that occurs for specified radiative forcings as described in Hansen et al (JGR 102, 6831-6864, 1997) for changes in solar, CO2, ozone, cloud and aerosol forcings. Hansen et al give tables for the instantaneous, adjusted and deltaTzero forcings, including fixed cloud and all-feedback responses.
>
> The adjusted forcings W/m2, divided by 3.36, can be converted to deltaTzero equivalent radiative forcing expressed as a temperature change, which then can be compared on a fractional basis to the total 33K terrestrial greenhouse effect.
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> A more detailed evaluation of the radiative forcings is described in the Efficacy paper (Hansen et al, JGR 110, D18104, 2005). In all cases, the radiative effects of spectral and absorber overlap are fully taken into account.
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From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Jan 2007 17:47:39 -0500
To: alacis@giss.nasa.gov

One final question. You use a factor 3.36 to convert the deltaT_nofeedback into a W/m2 forcing. Presumably that is simply an empirical number drawn from the 1D model taking into account the spectral windows etc?

Thanks

Gavin

On Fri, 2007-01-05 at 17:54, alacis@giss.nasa.gov wrote:

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Gavin

Subject: Re: 'total' forcing experiments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 21 Feb 2007 16:09:16 -0500
To: rruedy@giss.nasa.gov

Did these finish? Thanks

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> > > >
> > > > On Thu, 2006-12-28 at 15:39, Reto Ruedy wrote:

Hi Gavin,

Here is a summary of the results of the experiments you suggested:

dNet Radiation (W/m2)	annual global mean instantaneous at tropopause	annual global mean adjusted in stratosphere
E2g01 - remove water vapor	-60.29	-59.61
E2g02 - remove CO2	-23.29	-20.40
E2g03 - remove CH4	-1.31	-1.37
E2g04 - remove N2O	-1.67	-1.68
E2g05 - remove CFC11/12	-0.13	-0.13
E2g06 - remove O3	1.02	-1.40
E2g07 - remove clouds	25.39	25.38
E2g08 - remove other CFCs	-0.03	-0.03
E2g09 - remove LW aerosol effects	-0.41	-0.41
E2g10 - remove all aerosol effects	2.67	2.61
E2g11 - remove water vapor and CO2	-95.05	-90.39
E2g12 - remove water vapor and clouds	-50.36	-48.96
E2g13 - remove water vapor,CO2,clouds	-91.65	-85.33
E2g14 - remove GHGs	-28.78	-29.99
E2g15 - remove all but GHGs	-41.49	-40.19
E2g16 - remove all but water vapor	2.43	1.37
E2g17 - remove all but CO2	-43.71	-45.85
E2g18 - remove all but CH4	-85.14	-85.13
E2g19 - remove all but N2O	-83.85	-83.06
E2g20 - remove all but CFC11/12	-87.33	-85.29
E2g21 - remove all but O3	-87.60	-80.72
E2g22 - remove all but clouds	-96.94	-97.83
E2g23 - remove all but other CFCs	-87.26	-85.05
E2g24 - remove all but aerosols	-96.72	-97.83
E2g25 - Doubling water vapor	12.29	11.97
E2g26 - Doubling CO2	4.54	4.16

The various output files were collected on halem:
/giss3/giss/RADfrc/gavin

The model used is on halem:/giss2/giss/RUNS/E050frc/modelE

Some of the combined results seem a little puzzling, but so far I could not find any errors in the rundecks.

For the runs without O3, I had to limit the temperature changes such that the resulting temperatures stayed within the 124-370K interval. I extended those runs to a third year, since the forcing was not constant throughout the stratosphere. However, the results did not change significantly (see /giss3/giss/RADfrc/gavin/adj_table).

Reto

On Sat, 2006-12-23 at 15:13, Gavin Schmidt wrote:

1) The control doesn't matter as long as it's constant - 1980 is fine.

2) dust aerosols should be lumped in as well.

3) does it matter whether we do both SW + LW effects for aerosols? The LW calculation should be independent of the SW absorption no? Though now that I think about it, I could see that SW absorption increases LW emittance ... so let's do both. i.e. LW only and then SW+LW.

4) Those diags should be fine (as well as the tropopause numbers). I'll boil them down to percent change in LW absorption by the atmosphere and

LW and SW forcing at the tropopause.

Thanks a lot.

Gavin

On Sat, 2006-12-23 at 12:13, Reto Ruedy wrote:
Most of these factors are already available and the rest is easy enough
to add. A few questions:

1 - should all these cases be compared to the 1980 conditions
2 - if we remove aerosols, should that include desert dust aerosols
3 - for aerosols, should both LW and SW effects be set to 0 (FS8OPX, too)
4 - what diagnostics do you need (I'm saving the SW and LW up and down fluxes at all LM+4 interfaces, so this can be decided later)

Reto

On Fri, 2006-12-22 at 16:33, Gavin Schmidt wrote:
Great. The experiments are as follows - the idea is to remove each LW
absorber individually, and then only have that absorber (and a few interesting combinations). The ones I'm interested in are CO2, CH4, N2O,
CFCs, O3, 'Others'(X), H2O, Clouds, and aerosols.

One absorber removed:

1) H2OX=0 (all radiative effects of water vapour zeroed out)
2) CO2X=0 (no CO2)
3) CH4X=0
4) N2OX=0
5) CFCX=0
6) O3X=0 (no ozone)
7) CLD=0 (no radiative effect from clouds)
8) X=0 (no 'other' GHGs)
9) AER=0 (no aerosols)

Combos:
1) H2OX=CO2X=0 (no water vapour or CO2)
2) H2OX=CLD=0 (no water vapour or clouds)
3) H2OX=CO2X=CLD=0 (no water vapour, clouds or CO2)
3) No GHGs (CO2X=CH4X=N2OX=CFCX=O3X=X=0)
4) Only GHGs (H2OX=AER=CLD=0)

Single absorbers

1) Only H2O
2) Only CO2 (no CO2)
3) Only CH4
4) Only N2O
5) Only CFC
6) Only O3
7) Only CLD
8) Only 'other' GHGs
9) Only aerosols

other comparisons:

1) 2xH2O

2) 2xCO2 (I think we might have done that one already)

If needed, I can put in some rundeck switches for all of these factors -
currently, only a few are there...

Gavin

On Tue, 2006-12-19 at 17:15, Reto Ruedy wrote:
Hi Gavin,

That should easily be possible, I'll gladly set them up; do you have a
list of the approx. 25 experiments? Instantaneous forcings repeat after
a year, adjusted forcings stabilize after 1 year, so there we look at
year 2.

Reto

On Tue, 2006-12-19 at 16:16, Gavin Schmidt wrote:
Hi Reto, A while back I did some basic experiments with the GCM for the
blog where I selectively removed all of the individual absorbers and
combinations to see what contribution they had on the LW absorption. I
used a 'poor mans' calculation (instantaneous forcing at the tropopause
for one single calculation on the 1 JAN). I have since been asked lots
of times whether I was going to publish this. I didn't think it said
anything that people didn't already know, but as far as I can tell,
no-one has done this with a GCM - the usual reference is Ramanathan and
Coakley (1978) who used an radiative-convective model (which did give
very similar answers).

Anyway, it is something that might be worth doing properly. For that I'd
need to use the radiative forcing calculations you use - and calculate
the instant and adjusted forcings for each perturbation over a year or
so. There are about 25 experiments in total, most of which can be
controlled from the rundeck.

Depending on how straightforward this is, I could do it, or if you were
interested, I'd be happy to collaborate on it (i.e. you could do the
runs, and we could share the glory!). Let me know.

Gavin

Subject: Re: 'total' forcing experiments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 21 Feb 2007 17:28:13 -0500
To: rruedy@giss.nasa.gov
CC: alacis@giss.nasa.gov

Thanks. I concur with Andy's assessment so I'll edit accordingly.

On Wed, 2007-02-21 at 17:25, Reto Ruedy wrote:
> Yes, they are done, forgot to let you know. The results are stored in
> halem:/giss3/giss/RADfrc/gavin_new . In only 3 cases were the results
> very different: no CO2, no GHG, H2O only; a few more cases were slightly
> affected.
>
> Andy thinks that the adjusted forcings in the extreme cases are not too
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>
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From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 21 Feb 2007 18:00:03 -0500
To: rruedy@giss.nasa.gov
CC: alacis@giss.nasa.gov

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On Thu, 2006-12-28 at 15:39, Reto Ruedy wrote:
Hi Gavin,

Here is a summary of the results of the experiments you suggested:

dNet Radiation (W/m2)	annual global mean instantaneous at tropopause	annual global mean adjusted in stratosphere
E2g01 - remove water vapor	-60.29	-59.61
E2g02 - remove CO2	-23.29	-20.40
E2g03 - remove CH4	-1.31	-1.37
E2g04 - remove N2O	-1.67	-1.68
E2g05 - remove CFC11/12	-0.13	-0.13
E2g06 - remove O3	1.02	-1.40
E2g07 - remove clouds	25.39	25.38
E2g08 - remove other CFCs	-0.03	-0.03
E2g09 - remove LW aerosol effects	-0.41	-0.41
E2g10 - remove all aerosol effects	2.67	2.61
E2g11 - remove water vapor and CO2	-95.05	-90.39
E2g12 - remove water vapor and clouds	-50.36	-48.96
E2g13 - remove water vapor,CO2,clouds	-91.65	-85.33
E2g14 - remove GHGs	-28.78	-29.99
E2g15 - remove all but GHGs	-41.49	-40.19
E2g16 - remove all but water vapor	2.43	1.37
E2g17 - remove all but CO2	-43.71	-45.85
E2g18 - remove all but CH4	-85.14	-85.13
E2g19 - remove all but N2O	-83.85	-83.06
E2g20 - remove all but CFC11/12	-87.33	-85.29
E2g21 - remove all but O3	-87.60	-80.72
E2g22 - remove all but clouds	-96.94	-97.83
E2g23 - remove all but other CFCs	-87.26	-85.05
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The various output files were collected on halem:
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The model used is on halem:/giss2/giss/RUNS/E050frc/modelE

Some of the combined results seem a little puzzling, but so far I could
not find any errors in the rundecks.

For the runs without O3, I had to limit the temperature changes such
that the resulting temperatures stayed within the 124-370K interval. I
extended those runs to a third year, since the forcing was not constant
throughout the stratosphere. However, the results did not change significantly (see /giss3/giss/RADfrc/gavin/adj_table).

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LW calculation should be independent of the SW absorption no? Though now
that I think about it, I could see that SW absorption increases LW
emittance ... so let's do both. i.e. LW only and then SW+LW.

4) Those diags should be fine (as well as the tropopause numbers). I'll
boil them down to percent change in LW absorption by the atmosphere and
LW and SW forcing at the tropopause.

Thanks a lot.

Gavin

On Sat, 2006-12-23 at 12:13, Reto Ruedy wrote:
Most of these factors are already available and the rest is easy enough
to add. A few questions:

1 - should all these cases be compared to the 1980 conditions
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Combos:
1) H2OX=CO2X=0 (no water vapour or CO2)
2) H2OX=CLD=0 (no water vapour or clouds)
3) H2OX=CO2X=CLD=0 (no water vapour, clouds or CO2)
3) No GHGs (CO2X=CH4X=N2OX=CFCX=O3X=X=0)
4) Only GHGs (H2OX=AER=CLD=0)

Single absorbers

1) Only H2O
2) Only CO2 (no CO2)
3) Only CH4

4) Only N2O
5) Only CFC
6) Only O3
7) Only CLD
8) Only 'other' GHGs
9) Only aerosols

other comparisons:

1) 2xH2O
2) 2xCO2 (I think we might have done that one already)

If needed, I can put in some rundeck switches for all of these factors -
currently, only a few are there...

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On Tue, 2006-12-19 at 17:15, Reto Ruedy wrote:
> Hi Gavin,
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> That should easily be possible, I'll gladly set them up; do you have a
> list of the approx. 25 experiments? Instantaneous forcings repeat after
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> > combinations to see what contribution they had on the LW absorption. I
> > used a 'poor mans' calculation (instantaneous forcing at the tropopause
> > for one single calculation on the 1 JAN). I have since been asked lots
> > of times whether I was going to publish this. I didn't think it said
> > anything that people didn't already know, but as far as I can tell,
> > no-one has done this with a GCM - the usual reference is Ramanathan and
> > Coakley (1978) who used an radiative-convective model (which did give
> > very similar answers).
> >
> > Anyway, it is something that might be worth doing properly. For that I'd
> > need to use the radiative forcing calculations you use - and calculate
> > the instant and adjusted forcings for each perturbation over a year or
> > so. There are about 25 experiments in total, most of which can be
> > controlled from the rundeck.

Depending on how straightforward this is, I could do it, or if you were interested, I'd be happy to collaborate on it (i.e. you could do the runs, and we could share the glory!). Let me know.

Gavin

Subject: Re: 'total' forcing experiments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 23 Feb 2007 15:30:30 -0500
To: rruedy@giss.nasa.gov
CC: voinas@giss.nasa.gov

Ok I'm a little clearer. Looking at the code, it seems to me like the numbers should change if CO2=0 regardless of whether H2O is zero (which is consistent with the g13 and g11 results) - however, this will only kick in for the calculations for H2O, ozone and N2O (igas=4,9,11). Therefore in cases where CO2+H2O+ozone+N2O are all zero, there is no change (thus g21 and g19 have a difference, but not g17, g18 or g22).

That all seems to make sense now, and so I've amended the line in the paper to state:

"We made one adjustment to the ModelE radiative scheme for the purposes of these experiments which was to adjust the calculations for CO$_2$ such that the scheme matched line-by-line calculations at low concentrations that had not previously been allowed for \citep{LacisOinas91}."

thanks

Gavin

On Thu, 2007-02-22 at 18:06, Reto Ruedy wrote:
> I just talked to Valdar; if both CO2 and H2O are missing, then the old and new code are supposed to give the same results (as actually happened). Maybe he can more accurately describe what his changes were all about.
>
> The 2 codes used are in halem:/giss2/giss/RUNS/E050frc/modelE/model as RADIATION_E2g.f and RADIATION_E2gn.f .
>
> Reto
>
> On Thu, 2007-02-22 at 17:53 -0500, Gavin Schmidt wrote:
> > huh.... then I'm even more confused. Why isn't there a change to the clouds only run? This has no water vapour or CO2. So that is very puzzling.... Oh well, I'll just accept it. The numbers are all pretty close still (water goes down a notch, CO2 goes up).
> >
> > Thanks
> >
> > Gavin
> >
> > On Thu, 2007-02-22 at 17:03, Reto Ruedy wrote:
> > > I only left out g03-6 and g08-10 and g25-26.
> > >
> > > According to Valdar, no correction for the case of no ozone was needed.
> > > Looking at the changes in the code, only cases where the column amount for CO2 was < 1.1d-10 could possibly have been significantly affected.
> > > Small changes also seem possible if H2O is very small (UH2O=sum(ulgas(1:lm,1))<228).
> > >
> > > I did rerun g18 - g24, but only g19 and g21 showed any changes at all.
> > >
> > > Reto

On Thu, 2007-02-22 at 14:18 -0500, Gavin Schmidt wrote:
Thanks again. A couple of anomalies though, I thought the error was in the erroneous overlap between CO2 and O3 when both were small (or is it just when CO2 is small?). Thus I think you missed a few that needed redoing. For instance, the clouds only run (g22) (and the CH4-only and CFC-only runs (g18 and g20). Depending on the nature of the error, I'm not sure if CO2 only needs redoing (g17).

To summarise, if the error only affects CO2 removal, then these need doing over: g18, g20, g22, g23, g24

If it affects calculations when O3 is zero too, then additionally: g06, g17.

I think you did g07 by mistake....

Gavin

On Wed, 2007-02-21 at 17:25, Reto Ruedy wrote:
Yes, they are done, forgot to let you know. The results are stored in halem:/giss3/giss/RADfrc/gavin_new . In only 3 cases were the results very different: no CO2, no GHG, H2O only; a few more cases were slightly affected.

Andy thinks that the adjusted forcings in the extreme cases are not too meaningful.

Reto

On Wed, 2007-02-21 at 16:09 -0500, Gavin Schmidt wrote:
Did these finish? Thanks

Gavin

On Wed, 2007-02-14 at 11:30, Reto Ruedy wrote:
Gavin,

Valdar just gave me a version of the radiation that should handle cases
in which water vapor or CO2 is missing in a more appropriate way. I am currently rerunning the 17 cases that are affected by the change.

Reto

On Fri, 2006-12-29 at 18:07 -0500, Gavin Schmidt wrote:
Thanks a bunch!

On Fri, 2006-12-29 at 18:04, Reto Ruedy wrote:
It seems you need the up rather than the net fluxes; most of the original files were created by the script "do_gavin_net" in /giss3/giss/RADfrc (then moved to the subdirectory gavin)

do_gavin_up created the corresponding files for the up (away from the
center of the earth) fluxes. (There is a corr. program for the down
fluxes)

If you only need the global means, something like
  for x in *upthrmlij.top ; do /giss3/giss/exec/GM $x ; done
may be used to create the corresponding table.

The program(s) I used need some cleaning up before they can be added to
the repository. I'll get to it within the next few days.

Reto

On Fri, 2006-12-29 at 16:19, Gavin Schmidt wrote:
> Thanks again. Looking at it, I think I'll need some extra diags, specifically the incident LW at the ground. This is because I want to
> calculate the change in atmospheric absorption of LW - thus I need
> LW_UP_AT_SURF and LW_OUT_AT_TOA. All I can see in the diags you summarised is LW_NET_AT_SURF and that is only half what's required for
> the first term. This should be close to the net LW change at the tropopause in the adjusted cases, but I need to check.
>
> I tried to use pdE on the acc files directly, but that doesn't work, so
> you must have another program for extracting info right? (is this
> something we can fix, ie. merging your extraction files directly into
> the model?).
>
> I also need the baseline levels of all these things in the base control
> run g00, but I guess that is available from your program too?
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runs, and we could share the glory!). Let me know.

Gavin

Re: Fwd: Climate news and blog thoughts

Subject: Re: Fwd: Climate news and blog thoughts
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Mar 2007 18:04:33 -0500
To: Erik Noble <enoble@giss.nasa.gov>

Hi Eric, Sorry if I appeared a little brusque yesterday - I was quite stressed for various reasons. With your blog post, it's not really the kind of thing we post, but if you expanded in a bit more depth, you might send it over to climatepolicy.org - they've just started up and might be interested...

Gavin

On Thu, 2007-03-15 at 12:14, Erik Noble wrote:
These were my thoughts for a blog. My earlier file was an old version.
-Erik

Begin forwarded message:
From: Erik Noble <enoble@giss.nasa.gov>
Date: March 15, 2007 1:03:24 PM EDT
To: gschmidt@giss.nasa.gov
Subject: Climate news and blog thoughts

Dear Dr. Schmitt,

I apologize for stopping you in the hallway while you busy.
Yesterday, I read the news email that Leslie McCarthy sent out to everyone and became interested in the fact that the UK has proposed another policy that strictly deals with Climate Change.

I even wrote a small piece that might be fitting for a blog (attached). In your opinion, would it be appropiate for a site such as RealClimate.org?
Even though I want to focus 100% of all my attention at studying climate change in the global sense with the models here, I still feel the pull and attraction for science policy discussions wrapped in climate change.

Privately, I am looking to explore discussions branching apart from the connections I have through CU Boulder to establish my own foundation
in the arena of climate science and decision making.

May I drop by in your spare time?
Thank you for your time and consideration.
Sincerely,
Erik Noble

Begin forwarded message:
From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: March 14, 2007 10:22:56 AM EDT
To: giss-people-l@giss.nasa.gov
Cc: mark.s.hess@nasa.gov, Franco.Einaudi@nasa.gov, robert.j.gutro@nasa.gov, mbettwy@aol.com, lychand@pop100.gsfc.nasa.gov, david.d.herring@nasa.gov, cookander@gmail.com, scole@pop600.gsfc.nasa.gov, dorothy.j.zukor@nasa.gov, michon@nsidc.org, eoeditor@yahoo.com, dwayne.c.brown@nasa.gov, edward.s.campion@nasa.gov, sdewitt@pop100.gsfc.nasa.gov, "Wade E. Sisler" <Wade.E.Sisler@nasa.gov>, tabatha.thompson-1@nasa.gov, cynthia.m.ocarroll@nasa.gov, grey.hautaluoma-1@nasa.gov, cch@ei.columbia.edu
Subject: NASA/climate news stories

Britain aims for CO2-limit target dates
By JENNIFER QUINN, Associated Press Writer
Wed Mar 14, 12:02 AM ET

LONDON - The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions a move it hopes will prompt the United States, China and India to follow suit.
ADVERTISEMENT

The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050.

http://news.yahoo.com/s/ap/britain_climate_change;_ylt=At5nXin2W3rIzvTxUt3C43NzAlMA

Democrats in Congress Push Measures To Curb Global Warming
Legislative strategies aim for support from private sector, White House

By Andrzej Zwaniecki
USINFO Staff Writer (US State Department)
March 13; 2007

Washington - Congressional Democrats are pressing ahead with legislation to address global warming despite uncertainty over where the White House stands on specific issues.

A draft bill that would set limits on greenhouse gas (GHG) emissions could be "put forward" as soon as April, according to Senator Jeff Bingaman, chairman of the Senate Committee on Energy and Natural Resources. In the House of Representatives, Speaker Nancy Pelosi has asked her Democratic colleagues to have their version of climate-change legislation ready for floor action before July, according to news reports.

http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2007&m=March&x=20070313161124saikceinawz1.445949e-03

The New Scientist (about J. Hansen)
Chris Mooney
Seed Magazine
Posted March 11, 2007 11:49 AM

"They would have been better off if they'd just ignored me, rather than trying to shut me up. They brought the publicity about themselves."

James Hansen is sitting in his cluttered corner office on the seventh floor of the NASA Goddard Institute for Space Studies, just blocks from the Columbia University campus in upper Manhattan, and upstairs from Tom's Restaurant (of Seinfeld fame). A wiry scientist who looks young for his 65 years, Hansen speaks with a distinct Midwestern accent; as he talks, he gazes off into space, as if scrutinizing an invisible PowerPoint presentation. If he has a lot on his mind, it's no surprise: Hansen is the number one scientist in America and perhaps the world who has been publicly speaking out about our looming climate catastrophe. And in so doing, he has shattered some long-held convictions in the scientific community, ones overdue for a challenge.

http://www.seedmagazine.com/news/2007/03/the_new_scientist.php

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From a Rapt Audience, a Call to Cool the Hype

William J. Broad, New York Times
Published: March 13, 2007

Hollywood has a thing for Al Gore and his three-alarm film on global warming, "An Inconvenient Truth," which won an Academy Award for best documentary. So do many environmentalists, who praise him as a visionary, and many scientists, who laud him for raising public awareness of climate change.

But part of his scientific audience is uneasy. In talks, articles and blog entries that have appeared since his film and accompanying book came out last year, these scientists argue that some of Mr. Gore's central points are exaggerated and erroneous. They are alarmed, some say, at what they call his alarmism.

http://www.nytimes.com/2007/03/13/science/13gore.html?ei=

THINKING GREEN AND ACTING LOCALLY

Brigid Bergin
City Limits
March 12, 2007

A scientific group recommends making environmental change on the neighborhood level.

If a NASA scientist and her colleagues have their way, Chinatown, the Lower East Side and the East Village could soon become the greenest part of New York City.

Cynthia Rosenzweig, who heads the Climate Impacts Group at the Goddard Institute for Space Studies at Columbia University, presented a study to leaders from those neighborhoods describing how to lower the temperature and reduce energy demand. The results ranked the effectiveness of specific strategies for certain areas, one of which was theirs - "Lower Manhattan East."

http://www.citylimits.org/content/articles/viewarticle.cfm?article_id=3290&content_type=1&media_type=4

Scientists Debate Sun's Role in Global Warming (D. Rind mentioned)
Tuesday, March 13, 2007
By Ker Than
Live Science.com

Earth is heating up lately, but so are Mars, Pluto and other worlds in our solar system, leading some scientists to speculate that a change in the sun's activity is the common thread linking all these baking events.

Others argue that such claims are misleading and create the false impression that rapid global warming, such as Earth is experiencing, is a natural phenomenon.

http://www.livescience.com/environment/070312_solarsys_warming.html

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Pelosi Reveals Who's Who On Global Warming Panel
Monday, March 12, 2007; Page A11

The best-kept secret on the Hill -- the full membership of the new committee on global warming -- is no longer secret. House SpeakerNancy Pelosi (D-Calif.) has announced the 15 members of the committee, formally known as the Select Committee on Energy Independence and Global Warming.

http://www.washingtonpost.com/wp-dyn/content/article/2007/03/11/AR2007031101044.html

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Arctic impact on global warming lures scientists
By Deborah Zabarenko, Environment Correspondent
Wednesday, March 14, 8:30 am

HANOVER, New Hampshire (Reuters) - A polar bear swimming amid melting Arctic sea ice may be one image of global warming's impact. But it could just as well be a California wildfire, a European heat wave or a Caribbean hurricane.

That's because the consequences of climate change at the poles affect the whole world, said Ross Virginia, professor of environmental studies at New Hampshire's Dartmouth College and one of the organizers of a summit on Arctic science this week that will focus on global warming.

http://news.yahoo.com/s/nm/20070314/sc_nm/arctic_globalwarming_dc_1;_ylt=Ah_upem4ize3mMFqeCes7BlrAlMA

U.S. bars talk of climate change effects on bears
Memos set strict limits on what officials can say abroad

Seattle Post-Intelligencer staff and news services
Last updated March 8, 2007 10:40 p.m. PT

The Bush administration is ordering federal wildlife officials headed for international meetings on polar bears not to talk about how climate change and melting ice are affecting the imperiled animals.

It is the latest in a string of cases in which the administration has carefully controlled or even banned government employees' public speech about global warming.

This latest chapter involves two memorandums written in late February that put strict limits on what U.S. Fish and Wildlife Service employees could discuss at meetings in Norway and Russia.

http://seattlepi.nwsource.com/national/306820_bears09.html?source=mypi

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Subject: Re: Lyman et al correction
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Apr 2007 19:59:40 -0400
To: Josh Willis <jwillis@pacific.jpl.nasa.gov>

Josh, thanks!

Hopefully now that these various issues have been identified (and may soon be corrected?) we can get a new synthesis of the long term changes relatively soon. One question is obviously how much impact the XBT issues have on the longer term changes....

Given the prominence of the OHC discussion in the whole GW debate, we'll have to blog about this once the correction is properly published. I anticipate it will cover the self correcting nature of science, and the unfortunate willingness of some (who probably won't remain nameless) to jump to extreme conclusions. Maybe I'll throw in some discussion of Bayesian priors as well...

However, if you were minded to write something on the situation and what it does or doesn't mean, we'd definitely put it up. Might save you some effort in explaining it to dozens of people separately...

Gavin

On Wed, 2007-04-11 at 17:54, Josh Willis wrote:

> Hi Gavin,
>
> Many thanks for your sentiments. I guess as they say, it's three steps foward, two steps back with these things...
>
> I actually sent out an email just today to a bunch of people containing our correction as it was when we submitted it to GRL this week. Sorry I didn't get your name on that original list. I did it in kind of a hurry this morning.
>
> Anyway, we now think that the cooling that we reported in the 2006 GRL paper was caused in part by bad Argo data, which was biased cold, and in part by XBT data which is biased warm. Most of the details are in the attached manuscript. Let me know if you have any comments or questions.
>
> Cheers, Josh

Subject: proxy server problem?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Apr 2007 20:10:33 -0400
To: csr@giss.nasa.gov

I've started to get a lot of these kinds of messages when accessing blog postings:

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Error 400
We're sorry, but we could not fulfill your request for */blog/2007/04/09/dissecting-the-proposed-bloggers-code-of-conduct/* on this server.

Your proxy server sent an invalid request. Please contact the proxy server administrator to have this problem fixed.

Your technical support key is: a99a-cc02-b783-0251

You can use this key to fix this problem yourself.

If you are unable to fix the problem yourself, please contact blog at tnl.net and be sure to provide the technical support key shown above.

==========

The 'fix the problem yourself' link is to:

http://www.ioerror.us/bb2-support-key?key=a99a-cc02-b783-0251

Technical Support
Your request was intercepted by security software which protects the Web site you visited from malicious activity, such as hackers, spam and viruses. We apologize for the inconvenience, but your request matched a profile of suspicious activity. This problem is usually quite easy to fix.

Your computer appears to have sent a request through a proxy server which corrupted the request. Uninstall the proxy server and try again. It is not normally enough to simply disable the proxy server. If you are required to use the proxy server, contact the proxy server administrator for assistance.

This problem may be caused by misconfigured or malfunctioning browser privacy software or personal firewall software. If you use this type of software, turn it off or reconfigure it and try again.

==========

can we fix something at our end to stop this happening? Thanks

gavin

Subject: [Fwd: realclimate saturation post? -PS]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Jun 2007 20:23:37 -0400
To: mann@psu.edu, steig@ess.washington.edu, d-archer@uchicago.edu, rahmstorf@ozean-klima.de, ammann@ucar.edu, wmconnolley@gmail.com, rasmus.benestad@met.no, garidel@cerege.fr, gschmidt@giss.nasa.gov, rbradley@geo.umass.edu, rtp1@geosci.uchicago.edu

A guest post from Spencer Weart?

Gavin

-----Forwarded Message-----

From: Spencer Weart <sweart@aip.org>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: realclimate saturation post? -PS
Date: 31 May 2007 11:06:21 -0400

Gavin,

As you may know, I have a feedback form on my history Website, which about 1 in 1000 visitors fill in (evidently the most dedicated and responsible readers!). In the last few months I've had an unusual number who say they arrived at my site because they were Googling queries about the saturation of CO2 radiation absorption -- apparently a contrarian argument. I haven't followed the blogs, but a Google search on [carbon AND dioxide AND "global warming" AND (saturated OR saturation OR saturate)] produces 324,000 hits, so it looks like a live argument.

I was going to suggest that realclimate respond, but in case it is helpful I have cut and pasted material from my site that you might want to consider as a post. Being a historian I naturally took a historical approach, which may not be appropriate, and if you reject it for whatever reason, I won't be offended... but if you find any flaw in the explanation please let me know so I can correct it on my site.

Best regards, keep up the good work,

Spencer

==========
Spencer Weart, Director
Center for History of Physics
American Institute of Physics
College Park, MD 20740 USA
(301) 209-3174 FAX -0882
See www.aip.org/history
==========

PS: I found one likely source of the "saturated" contrarian argument, http://www.junkscience.com/Greenhouse/

saturate.rtf	**Content-Type:** application/msword **Content-Encoding:** base64

A Saturated Gassy Argument

The greenhouse effect seems like simple physics, but simple thinking can lead you astray when you get to climate. Some people have been confused about whether humanity is really causing global warming, for doesn't simple physics show that there is already so much carbon dioxide in the atmosphere that its absorption of radiation is "saturated," so that adding more gas will absorb no more? And anyway isn't water vapor already blocking more radiation than carbon dioxide ever could?

The arguments sound so good that they suppressed research on the greenhouse effect for half a century. In 1900, shortly after Svante Arrhenius published his pathbreaking argument that our use of fossil fuels will eventually warm the planet, another scientist did a simple experiment. He sent infrared radiation through a tube filled with carbon dioxide, containing as much of the gas in total as would be found in a column of air reaching to the top of the atmosphere (that's not much, since the concentration in air is only a few hundred parts per million). When he doubled the amount of gas in the tube, the amount of radiation that got through scarcely changed. The reason was that the CO2 absorbs radiation extremely well. In the specific bands of the infrared spectrum that it blocks, it took only a trace of the gas to"saturate" the bands, making them so thoroughly opaque that more gas made little difference.

Still more persuasive to scientists of the day was the fact that water vapor, which is far more abundant in the air than carbon dioxide, also intercepts infrared radiation. In the spectrographs of the time, the bands of the two gases entirely overlapped one another. More CO2 could not affect radiation in bands of the spectrum that H2O (as well as CO2 itself) already entirely blocked. When these ideas were published, even scientists who had been enthusiastic about Arrhenius's work decided it was plainly in error. Work on the question stagnated If there was ever an "establishment" view about the greenhouse effect, it was confident that the CO2 emitted by humans could scarcely affect anything so grand as the Earth's climate.

But the early studies had an unsuspected logical flaw. They were looking at bands of the spectrum at sea-level pressure and temperature. When the coming of quantum mechanics allowed physicists in the 1930s to work up a theory of how absorption works, they realized that in the frigid and rarified upper atmosphere, where the crucial infrared absorption takes place, the nature of the absorption would change. New measurements made at low pressure backed that up. Suppose you isolated a single molecule of CO2 or H2O. It will absorb light only in a set of specific wavelengths, which show up as thin dark lines in a spectrum. But in a gas at sea-level temperature and pressure, the countless molecules colliding with one another at different velocities each absorb at slightly different wavelengths, so the lines are broadened and merge into the continuous bands that early scientists saw. At low pressure, each band resolves into a cluster of sharply defined lines, like a picket fence. There are gaps between the H2O lines where radiation can get through unless blocked by CO2. As for carbon dioxide by itself, high up where the molecules are cold and thinned out, if more gas is added, each individual line will get a bit more smeared out and able to block more radiation.

In 1952 the theoretical physicist Lewis D. Kaplan ground through numerical computations which

showed that in the upper atmosphere, the saturation of CO2 lines would be weak. Take a layer so high and thin that heat radiation from lower down would slip through, add more gas, and the layer would absorb some of the rays. Therefore the place from which heat energy finally left the Earth would shift to a higher layer. That would be a colder layer, unable to radiate heat so efficiently. So the planet as a whole would start to receive more energy than it radiated (which is in fact our current situation). The imbalance would cause all the lower levels to get warmer until the high levels became hot enough to radiate as much energy back out as the planet received. The effect had been neatly explained by John Tyndall back in 1862: "As a dam built across a river causes a local deepening of the stream, so our atmosphere, thrown as a barrier across the terrestrial [infrared] rays, produces a local heightening of the temperature at the Earth's surface."

Nobody could say anything specific without far more extensive computations. By 1956, these could be carried out thanks to the increasingly powerful new digital computers. The physicist Gilbert N. Plass took up the challenge. Calculating radiation and temperature layer by layer in the atmosphere and point by point in the spectrum, he showed that adding CO2 could affect the world's radiation balance enough to cause noticeable warming. To be sure, his calculation relied on unrealistic simplifications. Plass had to ignore such important effects as the way a rise of global temperature might cause the atmosphere to contain more water vapor and more clouds. It was not until the late 1960s that computer models got good enough to include all the essential factors and produce a reasonably good simulacrum of the real world's climate. Yet Plass's calculation already showed that the simple arguments about saturation just did not hold water. From that point scientists realized global warming was worth studying, and began to work on the difficult and complex calculations and measurements that would pin it down. (References and more history are <HREF="http://www.aip.org/history/climate/co2.htm>here</A> and <HREF="http://www.aip.org/history/climate/Radmath.htm>here</A> .)

Subject: [Fwd: BAMS Decision #2441]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Jun 2007 13:14:59 -0400
To: alacis@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>
CC: Drew Shindell <dshindell@giss.nasa.gov>

Hmmm... some reviews of our BAMS submission. Bottom line, nobody liked it!

There are some constructive suggestions and I would suggest revising and trying again.

Reviewer 2's comments about the NCAR website giving equivalent numbers is ironically simply a cut and paste from my original blog posting on the subject. I'm pretty sure Lindzen is reviewer 3, but his comments are mostly constructive although he does resort to some rhetorical excess at the end.

Any thoughts/comments welcome....

Gavin

-----Forwarded Message-----

From: Mark Baldwin <mark@nwra.com>
To: gschmidt@giss.nasa.gov
Cc: editorinchief <editorinchief@ametsoc.org>
Subject: BAMS Decision #2441
Date: 11 Jun 2007 14:50:28 +0100

Dear Dr. Schmidt,

I have received three reviews of your paper "Attribution of the present-day total greenhouse effect." All three reviewers recommend that the paper be rejected. Reviewer 3, in particular raises some deeper questions regarding the fundamental approach of the paper. Although the topic is certainly of interest to BAMS readers, this manuscript has problems serious enough that I cannot consider it for publication in BAMS.

If you choose to submit a new submission on this topic, please refer to #2441 and include a detailed letter responding to all the reviewer comments, and explaining why the new manuscript overcomes these issues. I would likely send the manuscript to the same reviewers, and possibly one additional person. Convincing the reviewers would likely be a challenge, but you have the option to try.

Best regards,

-Mark Baldwin

Reviewer #1

I was looking forward to reviewing this paper, as I know the authors produce excellent research papers. Regrettably, the paper fell far short of my expectations and I unambiguously recommend rejection on a number of grounds. I'm afraid that if (as stated at the end of

Section 1), the aim of this paper is to make "subsequent discussions … more informed", it will fail.

1. Language

BAMS articles are meant to appeal to the non-specialist, and junior undergraduates. This paper is full of "cryptic" remarks - in most (but not all!) cases, I understand what the authors are trying to say, having had almost 25 years in the subject, but I think any non-specialist would struggle. Here are some examples:

In the abstract: "Since water vapor and clouds are fast feedbacks in the climate system, their dominant contribution to the present day climate effect does not imply that the climate is insensitive to trace greenhouse gas changes."

In the introduction "The real question that underlies public concern is the uncertainty in climate sensitivity". Really?

The entire first sentence of Section 2. Baffling, unless you understand that a top of the atmosphere view is being taken, and as for "the absorbed solar irradiance due to the absorption of LW radiation" …

The discussion in Section 3 on "minimum" and "maximum" effects, when the meaning of this nomenclature appears only later in the paper.

The use, in section 5, of the union and intersection symbols

Section 6 "because efficacies are close to unity"

My overall impression is that I am not reading a polished paper, but reading an early draft - an impression that certainly isn't helped by the fact that one of the authors is acknowledged in the Acknowledgements (I apologise if, after all, there are two Ron Millers).

2. Prior literature

Had I been asked to refer a non-specialist to information on the contribution of different absorbers to the greenhouse effect, I would have referred them to Kiehl and Trenberth (1997), and even after reading this paper, I would still refer them to Kiehl and Trenberth. (The authors should note that I am not, nor have I ever been, Kiehl or Trenberth.) As it is, Kiehl and Trenberth's paper is only referred to in a rather cursory way on page 3, and is never referred thereafter - but their paper, and in particular Table 3 of their paper (and the accompanying discussion of other work) is absolutely central to the topic of this paper. To be sure, there are a number of shortcomings in Kiehl and Trenberth's work (e.g. use of a single not-even-global-mean profile) and some ambiguities in their methodology that keep me awake at night, but I would submit that it is the prime reference in this area, and the clearest discussion for the current intended audience.

3. Science

There are some clear and surprising misinterpretations of the calculations. In the first paragraph of Section 2, there is the statement that "the amount of long-wave radiation absorbed in the atmosphere … is 155 Wm-2". No it isn't! This is in a sense the net absorption, as the fact that the atmosphere emits, and therefore contributes to TOA radiation seems to have been forgotten. The actual amount absorbed is way more than 155 Wm-2. This isn't just careless

English, because the error is repeated, in starker form on page 6: "removing ozone actually ends up increasing LW absorption". No it doesn't! What I guess is happening is that the (real) decrease in absorption is being more than balanced by a decrease in emission by the ozone. Greenhouse sceptics would just love this! (In passing, I note that I am a bit surprised that ozone plays such a small role - K&T imply a much larger role, and closer to what I would expect.)

The reader will also end up seriously confused about the roles of cloud. 3 lines in on page 6, we are told that "for each absorber, both shortwave and long wave effects were used or removed" … but as far as I can tell, henceforth, only LW effects are presented, with a minor exception of the (not very helpful) discussion on adjusted forcings. The reader will be left with the overwhelming impression that clouds contribute to the warming of the climate system, because of their 26% contribution to the greenhouse effect whereas they actually cool the climate system because their shortwave effect dominates. But there is not a single mention of this extremely important fact. And, as above, this misinterpretation is cemented in Section 6, top of page 8, where a misguided attempt is made to derive the strength of climate feedbacks by looking at LW fluxes alone. Most feedbacks alter the SW radiation field too (and some, e.g. snow-albedo, do so exclusively).

Reviewer #2

This is a clearly written paper of interest to a general audience. It addresses a point of misunderstanding on the realclimate.org website. The authors make a compelling argument, which I read with interest. However, I think that the authors are not necessarily correct that these numbers are not in the science literature.

Firstly it could be argued that minimum effects are the correct way to look at this problem, as this is more akin to the radiative forcing concept. Therefore Ramanathan and Coakley (1978) would appear to be still valid, insofar as to make the broad "education" point of the paper - I use the R&C results at the start of my lecture course on climate change, for example.

Secondly, similar numbers are given or can easily be inferred from Kiehl and Trenberth, 1997 (Table 3) (they also discuss overlap) as well as Charnock, H., and K. P. Shine, 1993: (Physics Today, 46, December, 66.)
I would also encourage the authors to look in text books that I don't have access to in my hotel, so can't be certain. However, Danny Harvey, Liou, and Goody may well have similar numbers in their books. I also found the numbers on the ncar education website, these must have a source of somekind (which also include overalap effects)

http://www.windows.ucar.edu/tour/link=/earth/climate/greenhouse_effect_gases.html

The role of overlap (Table 1) and contribution of aerosols and CFCs appear original, but I don't think these are alone interesting enough for BAMS

I am happy to be argued against, as the article is informative to a BAMS audience and I'm all for explaining radiation to anyone who will listen. However, I think the paper should be recast as a review with an add-ons rather than original science. So in present form, I'm afraid that I advocate rejection due to lack of originality.

Other points that the authors may like to think about

1) I found framing the argument in terms of forcing and feedback/ sensitivity somewhat convoluted and I would suggest this is unnecessary. Making the argument that forcing and feedback mechanisms are inherently different, so not putting feedbacks into Table 3 plays right into nay-sayers hands. Surely the most appropriate way to frame the argument is in energy balance terms, so each constituent in today's atmosphere is essentially providing an energy balance change or a greenhouse forcing, to get you your 120Wm-2 or so needed to keep the Earth at it's present day equilibrium. Therefore I think feedbacks could go on Figure 3. If this makes CO2 look small, remember that it's lifetime is much longer than either clouds or water vapour….
2) With this in mind maybe table 1 should also present units of Wm-2?
3) Isn't the minimum more appropriate -as percentages add up to 100 and this is what you do when calculating a radiative forcing?
4) As interest, when I've tried to do similar calculations with GCM codes (ECHAM, UKMO and CCM3) they also appear to go wrong at small concentrations or even crash. So in fact these calculations are not as easy as they should be.

Reviewer #3 (attached .pdf)

Mark P. Baldwin
Editor, Climate Subject Matter
Bulletin of the American Meteorological Society

Northwest Research Associates
14508 NE 20th Street
Bellevue, WA 98007-3713 USA

+1 425.644.9660 ext. 323
(fax) +1 425.644.8422
mark@nwra.com

www.nwra.com/baldwin

Schmidt-etal-Review.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

Review: Attribution of the present-day total greenhouse effect by Schmidt et al

This a curious paper. Nominally, it plaintively (literally) aspires to dispel popular misunderstanding of the relative importance of various greenhouse gases in the present climate, while noting that the existing scientific literature has no clear reference on this matter. More explicitly, a popular question is what is the relative importance of CO_2 vis a vis other greenhouse substances – most notably water vapor and clouds. The primary reason for the lack of any straightforward reference for this question is simply that the question, itself, is ill posed. While the present authors touch on this matter, they fundamentally leave most misconceptions in place. As best I can tell, the popular question implicitly contains a number of important and incorrect assumptions:

1. The role of each greenhouse substance is independent of the presence of other greenhouse substances.

2. The role of each greenhouse substance is proportional to the amount of that substance and independent of its location.

The first assumption relates to the matter of spectral and physical overlap (the latter being especially important for clouds, but also important for the highly spatially heterogeneous water vapor). The present paper specifically discusses spectral overlap, noting quite correctly that the impact of any particular greenhouse substance depends on whether one is considering it present by itself or together with other substances. Their suggestion that one split the difference (as a matter of fairness no less), however, hardly clarifies anything.

The second assumption, which the present paper only implicitly and fleetingly mentions, is the more serious one. The reason I suppose that people are interested in the present day (or more accurately the preindustrial) importance of various greenhouse substances is the expectation that this will offer information as to the role of additional quantities of that substance. Thus, taking the present LW flux (as cited in the present paper) of 155 Wm^{-2}, and the present paper's claim that CO_2 contributes about 21% would lead to the impression that doubling CO_2 might contribute about 30 Wm^{-2}. Of course, the present authors say nothing of the sort, but they don't explain why they come up with a very different number. Thus, when they cite the Hansen result that removing all CO_2 reduces the equilibrium temperature by about 6.5K, they don't mention that the bulk of this decrease is due to the removal of the last 25 ppmv of the total 280 ppmv. Referring to this as the 'present day' contribution is formally correct, but clearly misleading. Beyond about 50 ppmv, one is well into the logarithmic regime for CO_2 where each doubling essentially increases forcing only about 2%.

In terms of popular understanding, it would probably be better to explain why the appropriate question for the public to ask might be how much would doubling CO_2 add to the preexisting greenhouse LW flux. The answer here is the relatively uncontroversial 2%. In this sense, the rather the formally incorrect claim of Lindzen 1991 is less misleading than the present paper.

Finally, the present paper makes the correct point that water vapor and clouds (although dominant for the preexisting greenhouse forcing) are primarily internally determined variables in

the climate system, and are thus properly considered feedbacks rather than forcings per se. This hardly serves to diminish their importance since without them the response to a 2% increase in long lived greenhouse substances would only provide about 1C warming, and these feedbacks are highly uncertain components of present models even where models agree among themselves.

Thus, this paper focuses on a poorly framed though common question, answering it in an ambiguous and confusing manner, while leaving essentially untouched the real problems with the question itself. As such, it is difficult to identify what useful contribution this paper makes, though it is clear that a paper that really attempted to clarify the confusion might well be helpful. Such a paper would, of necessity, focus more on the underlying physics and less on specific model realizations. It would certainly not be the present paper which I feel serves no useful purpose, offers no new information, and perpetuates unnecessary confusion.

Although the major problems with this paper have been addressed, the paper also has a number of technical problems. Thus, on page 5, the authors mention the use of experiments where stratospheric temperatures are allowed to respond without explaining why this is called for. On page 8, they confuse 'gain' with 'feedback factor.'

Subject: one further anomay
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Jul 2007 16:00:26 -0400
To: alacis@giss.nasa.gov

In the email below you sent, you give the conversion from radiative forcing to 'no-feedback' delta T as 3.36. Therefore a 7 deg 'no feedback' for removing CO2 should be equivalent to a 7*3.36 = 23.5 W/m2 forcing, and thus a 23.5/155 = 15% change in net absorbed LW.

This is clearly not the same as the change in upward LW at the surface given a change of temperature (sigma*288^4 - sigma*281^4 = 36.5 W/m2).

The first calculation is closer to what everyone else reports, but I can't quite see why the second one is not appropriate. I referenced the first one in the paper, but your correction is to the second.

Thanks

Gavin

-----Forwarded Message-----

From: alacis@giss.nasa.gov
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: Re: [Fwd: attribution of total present day greenhouse effect]
Date: 05 Jan 2007 22:54:53 +0000

Gavin,

The radiative forcing formulas in Hansen et al (JGR 93, 9341-9364., 1988) give about 7K of deltaTzero no-feedback forcing for 380ppm of CO2. This is relative to the total 33K of the terrestrial greenhouse effect. This is the radiative forcing that you would have if all of the atmospheric CO2 were removed.

The formula also gives about 1.2K for doubled CO2. The radiative forcing formulas are all calculated in the context of the terrestrial atmosphere and thus fully account for the radiative effects of overlapping absorption by other atmospheric absorbers.

To ascribe specific amounts of radiative forcing to changes in water vapor and clouds is more complicated since these radiative forcings depend in detail on cloud and water vapor amount, height, and latitudinal distribution. The cloud and water vapor radiative forcing contributions can be inferred from the feedback amplification that occurs for specified radiative forcings as described in Hansen et al (JGR 102, 6831-6864, 1997) for changes in solar, CO2, ozone, cloud and aerosol forcings. Hansen et al give tables for the instantaneous, adjusted and deltaTzero forcings, including fixed cloud and all-feedback responses.

The adjusted forcings W/m2, divided by 3.36, can be converted to deltaTzero equivalent radiative forcing expressed as a temperature change, which then can be compared on a fractional basis to the total 33K terrestrial greenhouse effect.

A more detailed evaluation of the radiative forcings is described in the Efficacy paper (Hansen et al, JGR 110, D18104, 2005). In all cases, the radiative effects of spectral and absorber overlap are

fully taken into account.

Andy

Andy, any comment? Thanks

Gavin

-----Forwarded Message-----

From: Gavin Schmidt <gschmidt@giss.nasa.gov>
To: alacis@giss.nasa.gov, Tony DelGenio <adelgenio@giss.nasa.gov>
Subject: attribution of total present day greenhouse effect
Date: 30 Dec 2006 17:10:53 -0500

Andy, Tony,

Just so that I don't completely waste my time, are either of you aware of a study that gives the portion of the total greenhouse effect for water vapour/clouds/CO2/aerosols etc... in a way that accounts for (or at least acknowledges) the overlaps, global distribution, seasonality etc? (I imagine either a GCM forcing study, or a LBL calculation using the re-analysis data?)

I can only find vague and unsourced numbers (with no context) with references that don't go any further than Ramanathan and Coakley (1979) or Manabe and Strickland (1964) - both of whom used rad-conv models. IPPC 1990 has a vague 60-70% water vapour, 25% CO2 (each acting alone, no ref) and TAR reuses RC79 to suggest 14% reduction if you remove CO2, and 36% reduction removing H2O.

I don't think this is a particularly important issue, but it does get raised a lot (thanks mainly to Lindzen's off hand statements on the topic - '98% due to water vapour and clouds' - which is clearly wrong). The lack of a clear reference clearly handicaps debunking of those kinds of arguments. I am actually finding that a piece I wrote on the blog is now being cited as the right answer - and that's not very satisfactory.

I'm thinking that unless I can find a good reference, I'll write something up myself, maybe for BAMS or EOS. So, if you know something, let me know, and it'll save me the bother.

Thanks

Gavin

Subject: Pielke Sr.
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Aug 2007 14:42:45 -0400
CC: Surabi Menon <SMenon@lbl.gov>, dkoch@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, James.E.Hansen@nasa.gov

To clarify, all I said was that you were working on climate impacts of aerosols. I made no representation that a) Matsui+Pielke's analysis was interesting (it might be, although I am sceptical), or b) that you would do any such similar analysis with the GISS efficacy results.

In fact, what I did suggest was that he download the files himself and do whatever he wanted,

If, of course, this is interesting to you, please feel free to reply to him.

Sorry for any possible confusion

Gavin

On Thu, 2007-08-02 at 15:29, Roger A. Pielke, Sr. wrote:

> Hi All
>
> As result of a discussion on my weblog Climate Science, Gavin gave me your e-mails to contact you on research you that you are doing that addresses the issue that we quantified in our paper
>
> Matsui, T., and R.A. Pielke Sr., 2006: Measurement-based estimation of the spatial gradient of aerosol radiative forcing. Geophys. Res. Letts., 33, L11813, doi:10.1029/2006GL025974.
> http://climatesci.colorado.edu/publications/pdf/R-312.pdf
>
> This issue was also emphasized in
>
> National Research Council, 2005: Radiative forcing of climate change: Expanding the concept and addressing uncertainties. Committee on Radiative Forcing Effects on Climate Change, Climate Research Committee, Board on Atmospheric Sciences and Climate, Division on Earth and Life Studies, The National Academies Press, Washington, D.C., 208 pp.
> http://www.nap.edu/openbook/0309095069/html/
>
> The fundamental hypothesis is that the more spatially heterogeneous human climate forcings, such as from land use/land cover change and aerosols, have as much, or more, of an effect in altering regional weather (and other aspects of climate), than does the more spatially homogenous effect of the radiative effect of added CO2 and other well-mixed greenhouse gases. This issue, which was reported in the 2005 NRC Report, was not explored by the 2007 IPCC Report in the format such as we present in the Matsui and Pielke paper, where it is the gradient of radiative forcing that needs to be quantified, in addition to the top-of-the-atmosphere radiative forcing.
>
> This analysis, which you have data already available to assess, would significantly broaden the role of human climate forcings as they affect regional and global climate.
>
> Sincerely
>
> Roger A. Pielke Sr.
> Senior Research Scientist at CIRES

University of Colorado at Boulder
Professor Emeritus at Colorado State University
pielkesr@cires.colorado.edu
http://cires.colorado.edu/science/groups/pielke/
http://climatesci.colorado.edu/

Subject: Re: [Fwd: Fwd: Question]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Aug 2007 19:24:22 -0400
To: rruedy@giss.nasa.gov

agreed.

On Thu, 2007-08-09 at 19:12, Reto Ruedy wrote:

Gavin,

Jim gets many of these kinds of responses - a change whose effect we described as well within the margin of error has become an "astonishing change".

I guess the best thing is to ignore it and - if at all - set matters straight in a place like RealClimate .

Reto

-------- Forwarded Message --------
From: James Hansen <jhansen@giss.nasa.gov>
To: rruedy@giss.nasa.gov, makis@giss.nasa.gov
Subject: Fwd: Question
Date: Thu, 09 Aug 2007 18:13:23 -0400

DomainKey-Signature: a=rsa-sha1; q=dns; c=nofws; s=s1024;
d=yahoo.com;
h=Received:X-YMail-OSG:From:To:Subject:Date:Message-ID:MIME-Version:Content-Type:X-Mailer:Thread-Index:X-MimeOLE:Disposition-Notification-To;
b=ffkH2tg2tl5Z4nC6MwTIbe8N2agSXy0S+Mr4wPMswbQJdfchkU+64OU3se8vtx+Di6KFgNc1dgwzzbp5PDkotaOObRYkc+Usn1/0ugGm7gw8KnFEjITxLy9cc1DAIhnq4sSMIZyOj[illegible]
;
X-YMail-OSG:
kEot1KsVM111f1VC31qkqzwt1okpR3HYVAPxQCuUAnoXdfzY1j2A3q7Zk.gU1cYAwj5E.mbIWXbc97AenQB33NLMIg0vLabH2jPKs5nRtcb6PiL2mA--
From: [redacted] @yahoo.com>
To: <James.E.Hansen@nasa.gov>
Subject: Question
Date: Thu, 9 Aug 2007 18:55:53 -0300
X-Mailer: Microsoft Office Outlook 11
Thread-Index: Acfaz/NMEFUhL8W1T7+QO5t4TLtH8Q==

Dr. Hansen,

Below is a link to a posting today that I was hoping you could comment on.

It is dispiriting that questions regarding climate change have been politicized, but I was hoping you could shed some light on this posting.

http://www.dailytech.com/Blogger+finds+Y2K+bug+in+NASA+Climate+Data/article8383.htm

Thank you very much for any clarification you can provide.

Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 15:21:02 -0400
To: Stuart Gaffin <stuart.gaffin@gmail.com>
CC: hrh2103@columbia.edu, "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, Ron Miller <rmiller@giss.nasa.gov>, Cynthia Rosenzweig <crr2@columbia.edu>

Stuart, this is much ado about nothing, and the opinionator piece is mostly made up.

The issue is that McIntyre noticed an odd jump in some US stations at the switch between 1999 and 2000. He sent a letter pointing out the jump, the GISTEMP people looked into it, saw the problem, and fixed it in less than a day. No 'reverse engineering' nobody 'always puzzled by the gaps' and no 'havoc'.

The issue was that there was a transition between data sources at that point for the US stations which had been assumed to be continuous, but was in fact slightly offset. The fix just adjusted for the offset.

The difference it made? 0.15 deg C for 2000-2006 in the US numbers (since the problem was melding the US data with the global numbers) and some very minor adjustments down the line. The global mean change was zero (less than 0.01 C). 2005 is still the warmest year in the corrected GISS analysis, as it is with the NCDC analysis. Only CRU has 1998 as the warmest year, and that is not affected by anything that GISS does.

Still, some people want so desperately to believe it's all a mistake that they'll grasp at anything.

Gavin

On Fri, 2007-08-10 at 14:27, Stuart Gaffin wrote:

> Anyone heard about this, especially the claim "NASA has now silently released corrected figures ..." Was in today's NY Times Opinionator
>
> August 10, 2007, 9:06 am
> 'Hottest Year' Data Meltdown
> By Tobin Harshaw
>
> Tags: global warming
>
> You just thought you were sweating? Among global warming Cassandras, the fact that 1998 was the "hottest year on record" has always been an article of faith. Stephen McIntyre, who runs the Climateaudit blog was always puzzled by some gaps he saw in the raw data provided by NASA that supported the claim (data compiled in part by James Hansen, the climate scientist who has long accused the Bush administration of trying to "silence" him). McIntyre says he has "reverse engineered" the data to find NASA's algorithm, discovered that a Y2K bug played havoc with some of the numbers, and notified the space agency.
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> Michael Asher at DailyTech explains the fallout:
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> > NASA has now silently released corrected figures, and the changes are truly astounding. The warmest year on record is now 1934. 1998 (long trumpeted by the media as recordbreaking) moves to second place. 1921 takes third. In fact, 5 of the 10

warmest years on record now all occur before World War II. Anthony Watts has put the new data in chart form, along with a more detailed summary of the events.

The effect of the correction on global temperatures is minor (some 1-2% less warming than originally thought), but the effect on the U.S. global warming propaganda machine could be huge.

Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 16:18:56 -0400
To: Stuart Gaffin <stuart.gaffin@gmail.com>
CC: "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, Ron Miller <rmiller@giss.nasa.gov>, Cynthia Rosenzweig <crr2@columbia.edu>, rhorton@giss.nasa.gov

It wasn't. The ranking were

Year anomaly:
1998 1.24
1934 1.23
2006 1.23
1921 1.12
1931 1.08

and now:

1934 1.25
1998 1.23
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the differences between 1998 and 1934 were statistically indistinguishable then, and they are now. The five year means however remain warmer now (0.8 above mean 2001-2006), compared to 1930-1934 0.63 above). That is much more apropos and significant.

Gavin

On Fri, 2007-08-10 at 16:11, Stuart Gaffin wrote:
> -- Should have added that I think someone should check on whether or not the pattern for the 10 warmest years or so for the continental US was dramatically changed by the corrections.
>
> If so, then maybe that's a small news item.
>
> If not, then it's no news at all.
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> On 8/10/07, Stuart Gaffin <stuart.gaffin@gmail.com> wrote:
>> Gavin, Thanks for this useful information.
>>
>> The Times did not clarify that the changes refer to only the contiguous US, a very small percentage of globe of course ...
>>
>> Apropos of this, if someone had asked me for the 10 warmest years for the continental US, I would not have been able to say offhand, although I would expect them to be concentrated more towards the present ...
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>> If the corrections switched the bulk of the 10 warmest years to early in the century, that's somewhat surprising to me. Maybe the only newsworthy aspect.

Beware the Wall Street Journal abusing all of this of course !
Stuart

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>

Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 16:27:46 -0400
To: Cynthia Rosenzweig <crosenzweig@giss.nasa.gov>

US not Global.

On Fri, 2007-08-10 at 16:26, Cynthia Rosenzweig wrote:
Why is this different from the IPCC statement?

On 8/10/07, Stuart Gaffin <stuart.gaffin@gmail.com> wrote:
Nice to see ! So there's really 'nothing there' there ...

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> > >
> > >
> >
> >

--
Dr. Cynthia Rosenzweig
Goddard Inst. for Space Studies
2880 Broadway
New York, NY 10025
tel. 212-678-5562
fax 212-678-5648

Subject: Re: [Fwd: RE: GISS Raw Data]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Aug 2007 21:19:46 -0400
To: rruedy@giss.nasa.gov

McIntyre is an ass - almost goes without saying. But be careful not to start to take this personally. While it is clear that the most appropriate thing for him to do would be to code the methodology himself from the descriptions in the papers, he is unlikely to do so while he gets so much attention with the 'NASA secret code' meme. You are also correct in thinking that he will not be satisfied with the gridding code or the raw data set, and so inevitably a line needs to be drawn. However, where that line should be is debatable.

Did you examine what differences you get if you download the very latest USHCN dataset and use that instead of the one we got in 2000? If he does end up coding things himself he'll see those differences easily, and it's best if we know what they are first.

Gavin

On Thu, 2007-08-16 at 19:43, Reto Ruedy wrote:

> He never asked for the urban adjustment code; the first request was for "the code that processes the GHCN data". In the interview and on his blog site he asks for the code that "fixes" bad station data - we never claimed to have anything like that. Below he asks essentially for the gridding program. If we relent, his requests will become more insane so that he will always be able to claim that we hide something.
>
> I still think our best defense is the fact that all our procedures are explicitly described and open to anyone who wants to code them in their favorite programming language. This is the proper way to audit our results (and that's what NOAA and other groups are doing).
>
> I was ready to respond to the email below, but before I got around to it he came out with his prank and I have no intention to ever respond to him again.
>
> Reto
>
> -------- Forwarded Message --------
> From: Steve McIntyre <stephen.mcintyre@utoronto.ca>
> To: rruedy@giss.nasa.gov
> Cc: James E. Hansen <jhansen@giss.nasa.gov>
> Subject: RE: GISS Raw Data
> Date: Wed, 8 Aug 2007 10:46:10 -0400
>
> Dear Dr Ruedy,
>
> Thank you for this information and for the courteous acknowledgement at your website. I can now see where your post-2000 data comes from, but I remain unable to identify a digital source for your data prior to 2000 from available information. I have compared GISS raw to all the archived USHCN versions and have been unable to find a match for US data. In some cases, the differences are substantial.
>
> Can you provide me with (1) a URL from which the U.S. data prior to 2000 (in the version that you used) can be downloaded. (2) If this is no longer possible due to the passage of time, could you please provide me with a copy of the data that you used (or upload it to an area of your FTP site) and also provide its provenance and date of acquisition?

Obviously mere print citations are inadequate for this purpose.

I would like to assess the impact of these modifications on the US and global averages for myself. I would appreciate a copy of the source code used for these calculations.

Regards, Steve McIntyre

-----Original Message-----
From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
Sent: Tuesday, August 07, 2007 5:33 PM
To: Steve McIntyre
Cc: James E. Hansen; gavin@giss.nasa.gov
Subject: Re: GISS Raw Data

Dear Sir,

As to the question about documentation, the basic "GISS Surface Temperature Analysis" page starts with a "Background" section whose first paragraph contains the sentence:"Input data for the analysis ,...., is the unadjusted data of GHCN, except that the USHCN station records were replaced by a later corrected version". A similar statement appears in the "Abstract" and the "Introduction" section of our 2001 paper (JGR Vol 106, pg 23,947-23,948). The Introduction explains the above statement in more detail.

In 2000, USHCN provided us with a file with corrections not contained in the GHCN data. Unlike the GHCN data, that product is not kept current on a regular basis. Hence we used (as you noticed) the GHCN data to extend those data in our further updates (2000-present).

I agree with you that this simple procedure creates an artificial step if some new corrections were applied to the newest data, rather than bringing the older data in sync with the latest measurements - as I naively assumed. Comparing the 1999 data in both data sets showed that in about half the cases where the 1999 data were changed, the GHCN data were higher than the USHCN data and in the other half it was the other way round with the plus-corrections slightly outweighing the minus-corrections.

Although trying to eliminate those steps should have little impact on the US temperature trend (much less the global trend), it seems a good idea to do so and I'd like to thank you for bringing this oversight to our attention.

When we did our monthly update this morning, an offset based on the last 10 years of overlap in the two data sets was applied and our on-line documentation was changed correspondingly with an acknowledgment of your contribution. This change and its effect will be noted in our next paper on temperature analysis and in our end-of-year temperature summary.

The effect on global means and all our tables was less than 0.01 C. In the display most sensitive to that change - the US-graph of annual means - the anomalies decreased by about 0.15 C in the years 2000-2006.

Respectfully,

Reto A Ruedy

On Sat, 2007-08-04 at 17:28 -0400, Steve McIntyre wrote:
Dear Sirs,

In your calculation of the GISS "raw" version of USHCN series, it appears to me that, for series after January 2000, you use the USHCN raw version whereas in the immediately prior period you used USHCN time-of-observation or adjusted version. In some cases, this introduces a seemingly unjustified step in January 2000.

I am unaware of any mention of this change in procedure in any published methodological descriptions and am puzzled as to its rationale. Can you clarify this for me?

In addition, could you provide me with any documentation (additional to already published material) providing information on the calculation of GISS raw and adjusted series from USHCN versions, including relevant source code. Thank you for your attention, Stephen McIntyre

Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 17 Aug 2007 16:23:07 -0400
To: Jim Hansen <jhansen@giss.nasa.gov>
CC: rruedy@giss.nasa.gov, Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>, gavin@giss.nasa.gov

I didn't suggest using their urban adjustment, but that the most up-to-date USHCN data may have more in the way of documented station adjustments and more data earlier on. The FILIN data do not include their urban adjustment as far as I can tell. I get the impression from the USHCN web site that you should be able to extract just the TOBS corrected data without the FILIN.

The point is to make sure that the difference between the earlier USHCN data set we were using and the latest version does not make a significant difference to the results. Since any independent replication of the GISS procedure will use the currently available data set (not the one we are using), we should probably be ahead of the game in understanding what impact it has.

As is usual in these cases, the smarter of the court jesters have already stopped talking about 1934 and are now pushing the transparency 'meme'. That has a lot more resonance....

Gavin

On Fri, 2007-08-17 at 16:10, James Hansen wrote:

> What is the matter with the way that we do it? Among other things, we have a more realistic urban adjustment. Changing has various drawbacks. Jim
>
> On 8/17/07, Reto Ruedy <rruedy@giss.nasa.gov> wrote:
>
> Jim,
>
> Gavin suggested some time ago that we should do the analysis with the current USHCN.
>
> I downloaded the "FILIN" USHCN data; the filled-in numbers are marked. So I can use or ignore them. I have to write a program anyway to reformat this file to the format used by GHCN. This includes the easy conversion from F to C, but they also use a different set of ID-numbers to characterize the station. So first, I'll have to construct and check a conversion table to identify the stations properly.
>
> Reto
>
> On Fri, 2007-08-17 at 11:44 -0400, Reto Ruedy wrote:
> > What I wrote was true last week - today it says that monthly data are
> > available from 1900-2005. They must have updated it in the last few
> > days.
> >

> Reto
>
> On Fri, 2007-08-17 at 11:35 -0400, Reto Ruedy wrote:
> > Jim,
> >
> > On the USHCN site it says that the data available from their web site go
> > to 2002. I never downloaded them since the stage we use is not stored at
> > that site - we would have to make a special request.
> >
> > Reto
> >
> > On Fri, 2007-08-17 at 11:18 -0400, James Hansen wrote:
> > > Mc claims that USHCN data is actually available up-to-date. Is that
> > > right? Jim
> > >
> > > On 8/17/07, lesgiss@verizon.net <lesgiss@verizon.net> wrote:
> > > Good morning:
> > >
> > > Here is the Town Hall story entitled "NASA Blocked Climate
> > > Change Blogger
> > > from Data"...
> > >
> > >
> > > http://www.townhall.com/Columnists/AmandaCarpenter/2007/08/17/nasa_blocked_c
> > >
> > > limate_change_blogger_from_data?page=full&comments=true
> > >
> > > Leslie
> > >
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> > > ---
> > > mail2web.com - Microsoft® Exchange solutions from a leading
> > > provider -
> > > http://link.mail2web.com/Business/Exchange
> > >
> > >
> > >
> > >
> > >
> > --
> > Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: ozone again
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 28 Sep 2007 14:38:51 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

thanks. I'll pass it by the others and probably post it tomorrow morning...

gavin

On Fri, 2007-09-28 at 14:25, Drew Shindell wrote:
> Only a few minor changes, in CAPITALS.
> Drew
>
> On Sep 28, 2007, at 12:54 PM, Gavin Schmidt wrote:
>
> I made some edits for clarity. DO you like this?
>
> <small>Guest commentary by Drew Shindell</small>
>
> The unique chemistry that causes dramatic ozone depletion in the polar springtime lower stratosphere has been studied intensely for the past 2-3 decades and much that was speculated about 30 years ago when the problem first emerged has been verified and made more coherent. However, a new reported concerning laboratory measurements of a key molecule involved in this chemistry have raised questions about current understanding. The results (Pope et al., J. Phys. Chem., 2007) suggest a reduced ability for sunlight to break apart the chlorine monoxide dimer (Cl2O2) and have already led to a great deal of debate about their implications. I'll try here to help assess what these new measurements really mean.
> <!--more-->
>
> The past decades of study have developed a comprehensive understanding of how polar ozone depletion (Ozone Holes) takes place. In brief, human-produced halocarbons (chlorofluorocarbons (CFCs) and a few other molecules like methyl bromide) are broken down by sunlight in the stratosphere, releasing chlorine and bromine. These highly reactive atoms mostly go into fairly long-lived molecules that are not very reactive and therefore act as reservoirs. There are two situations in which a substantial amount of chlorine, the more important of the two, can come out of the reservoirs in large enough amounts to destroy a substantial amount of ozone. One is in the upper stratosphere around 40-50 km altitude, where strong sunlight forms reactive molecules that frees the chlorine. The other is the polar springtime lower stratosphere, where extremely cold temperatures lead to unique chemistry on the surface of ice particles that again transforms chlorine from its reservoirs into more reactive forms.
>
> ATMOSPHERIC observations show that in both these situations, there is indeed enhanced reactive chlorine and simultaneous depletion of ozone. Measurements from satellites, aircraft, and ground-based instruments all give independent, consistent information verifying

the links between cold temperatures in the polar springtime lower stratosphere and chlorine, and between chlorine and ozone. It's important to note that none of the laboratory data on the direct chemical reactions that destroy ozone have been questioned. What has now been questioned is not the link between the chlorine released from CFCs and ozone loss, but rather the rate at which the chlorine atoms can destroy ozone via a particular cycle involving the Cl2O2 molecule.

Measurements of this molecule are exceedingly difficult to make in the laboratory as it is highly unstable. Several earlier measurements of the relevant rate have shown variations of a factor of 3 or so, so that the uncertainty in the rate is not new. However, we have substantial auxiliary evidence for what the rates must be i.e. observations of chlorine in the atmosphere provide independent constraints on Cl2O2. Limited direct observations of Cl2O2, as well as many measurements of total chlorine and of chlorine monoxide (ClO), constrain the amount of Cl2O2 (which CANNOT be greater than the total minus the amount in the ClO molecule) are inconsistent with either the new measurements or even earlier reports of a reduced ability of sunlight to break up Cl2O2 (Shindell and de Zafra, GRL, 1995, 1996; Stachnik et al., GRL, 1999; Stimpfle et al., JGR, 2004). Thus although the current state of knowledge is that the laboratory measurements on the stability of the Cl2O2 molecule vary by roughly a factor of 10 (including the newly reported values), the independent measurements suggest strongly that the upper half of that range is more likely to be correct, not the lower.

Given the difficulty in making the laboratory measurements, it is quite possible that these are wrong, and confirmation of the new results is certainly needed. Should the results hold up, the chemistry involved in polar ozone loss may need to be re-evaluated. As there are other cycles that do not involve the Cl2O2 molecule but cause similar dramatic ozone depletion, such as cycles including both ClO and BrO (its bromine-containing analogue), any revision to current understanding would most likely simply shift the relative importance of the various ozone-destroying cycles. However, as noted, it is not clear how one would reconcile these NEW measurements with actual atmospheric observations, which are not consistent with a more stable Cl2O2 molecule.

A wealth of observational data supports the role of chlorine and bromine in polar ozone loss, and uncertainty in a single step of the relevant chemistry does not undermine the Montreal Protocol controlling substances that release these atoms into the stratosphere. It is important, however, that the new results be tested so that we can be confident we understand the potential effects of future changes in temperature on polar ozone loss (as different chemical reactions have different sensitivities to temperature). This will allow us to better understand the effects of climate change on the stratospheric ozone layer, and to verify the effectiveness of the Montreal Protocol, which HAS already SHOWN success in reducing the growth of atmospheric concentrations of CFCs, AND SEEMS TO HAVE LED TO AT LEAST A LEVELING OFF OF OZONE DEPLETION OVER MOST OF THE PLANET. Recovery is not expected for a few decades.

========

Gavin

Subject: Re: ozone again
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 28 Sep 2007 17:38:48 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

it's up. Feel free to comment if anyone says anything interesting!

http://www.realclimate.org/index.php/archives/2007/09/uncertainty-in-polar-ozone-depletion/

gavin

On Fri, 2007-09-28 at 14:25, Drew Shindell wrote:
> Only a few minor changes, in CAPITALS.
> Drew
>
> On Sep 28, 2007, at 12:54 PM, Gavin Schmidt wrote:
>
> > I made some edits for clarity. DO you like this?
> >
> > <small>Guest commentary by Drew Shindell</small>
> >
> > The unique chemistry that causes dramatic ozone depletion in the polar springtime lower stratosphere has been studied intensely for the past 2-3 decades and much that was speculated about 30 years ago when the problem first emerged has been verified and made more coherent. However, a new reported concerning laboratory measurements of a key molecule involved in this chemistry have raised questions about current understanding. The results (Pope et al., J. Phys. Chem., 2007) suggest a reduced ability for sunlight to break apart the chlorine monoxide dimer (Cl2O2) and have already led to a great deal of debate about their implications. I'll try here to help assess what these new measurements really mean.
> > <!--more-->
> >
> > The past decades of study have developed a comprehensive understanding of how polar ozone depletion (Ozone Holes) takes place. In brief, human-produced halocarbons (chlorofluorocarbons (CFCs) and a few other molecules like methyl bromide) are broken down by sunlight in the stratosphere, releasing chlorine and bromine. These highly reactive atoms mostly go into fairly long-lived molecules that are not very reactive and therefore act as reservoirs. There are two situations in which a substantial amount of chlorine, the more important of the two, can come out of the reservoirs in large enough amounts to destroy a substantial amount of ozone. One is in the upper stratosphere around 40-50 km altitude, where strong sunlight forms reactive molecules that frees the chlorine. The other is the polar springtime lower stratosphere, where extremely cold temperatures lead to unique chemistry on the surface of ice particles that again transforms chlorine from its reservoirs into more reactive forms.
> >
> > ATMOSPHERIC observations show that in both these situations, there is indeed enhanced reactive chlorine and simultaneous depletion of ozone. Measurements from satellites, aircraft, and ground-based

instruments all give independent, consistent information verifying the links between cold temperatures in the polar springtime lower stratosphere and chlorine, and between chlorine and ozone. It's important to note that none of the laboratory data on the direct chemical reactions that destroy ozone have been questioned. What has now been questioned is not the link between the chlorine released from CFCs and ozone loss, but rather the rate at which the chlorine atoms can destroy ozone via a particular cycle involving the Cl2O2 molecule.

Measurements of this molecule are exceedingly difficult to make in the laboratory as it is highly unstable. Several earlier measurements of the relevant rate have shown variations of a factor of 3 or so, so that the uncertainty in the rate is not new. However, we have substantial auxiliary evidence for what the rates must be i.e. observations of chlorine in the atmosphere provide independent constraints on Cl2O2. Limited direct observations of Cl2O2, as well as many measurements of total chlorine and of chlorine monoxide (ClO), constrain the amount of Cl2O2 (which CANNOT be greater than the total minus the amount in the ClO molecule) are inconsistent with either the new measurements or even earlier reports of a reduced ability of sunlight to break up Cl2O2 (Shindell and de Zafra, GRL, 1995, 1996; Stachnik et al., GRL, 1999; Stimpfle et al., JGR, 2004). Thus although the current state of knowledge is that the laboratory measurements on the stability of the Cl2O2 molecule vary by roughly a factor of 10 (including the newly reported values), the independent measurements suggest strongly that the upper half of that range is more likely to be correct, not the lower.

Given the difficulty in making the laboratory measurements, it is quite possible that these are wrong, and confirmation of the new results is certainly needed. Should the results hold up, the chemistry involved in polar ozone loss may need to be re-evaluated. As there are other cycles that do not involve the Cl2O2 molecule but cause similar dramatic ozone depletion, such as cycles including both ClO and BrO (its bromine-containing analogue), any revision to current understanding would most likely simply shift the relative importance of the various ozone-destroying cycles. However, as noted, it is not clear how one would reconcile these NEW measurements with actual atmospheric observations, which are not consistent with a more stable Cl2O2 molecule.

A wealth of observational data supports the role of chlorine and bromine in polar ozone loss, and uncertainty in a single step of the relevant chemistry does not undermine the Montreal Protocol controlling substances that release these atoms into the stratosphere. It is important, however, that the new results be tested so that we can be confident we understand the potential effects of future changes in temperature on polar ozone loss (as different chemical reactions have different sensitivities to temperature). This will allow us to better understand the effects of climate change on the stratospheric ozone layer, and to verify the effectiveness of the Montreal Protocol, which HAS already SHOWN success in reducing the growth of atmospheric concentrations of CFCs, AND SEEMS TO HAVE LED TO AT LEAST A LEVELING OFF OF OZONE DEPLETION OVER MOST OF THE PLANET. Recovery is not expected for a few decades.

========

Gavin

Subject: OISM
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Oct 2007 14:59:07 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

http://www.realclimate.org/index.php/archives/2007/10/oregon-institute-of-science-and-malarkey/

http://rabett.blogspot.com/2007/10/before-there-was-e-there-was-jpands.html

(incomplete, but worth a look)

http://www.realclimate.org/wiki/index.php?title=OISM

gavin

Subject: Re: List of earth science bloggers
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Nov 2007 15:57:52 -0500
To: Sarah Dewitt <Sarah.L.Dewitt@nasa.gov>

Hi Sarah,

well, the other opinion list on RC is probably a good start. Dot Earth (Andy Revkin), Michael Tobis, Atmoz (N. Johnson), Deltiod (Tim Lambert), OpenMind etc.

However, I would council you not to overdo any mass mailings to these people - bloggers tend to be a little more independent than normal journalists and aren't particularly disposed to reporting on press releases and the like.

Gavin

On Thu, 2007-11-15 at 15:51, Sarah Dewitt wrote:
> Hi Gavin,
>
> I'm an earth science media producer at Goddard and am starting a distribution list for top earth science and climate bloggers. I'm hoping you can help me kickstart the list with a few of your favorites. I read Real Climate when I can but I usually don't have time to follow any of the others out there, so any recommendations you can make are welcome. Once I have a short list I'll put some more development time into it and would be happy to share what I find.
>
> Thanks in advance,
> Sarah

Subject: Re: FW: EO Comment: Global Warming, RealClimate website.
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 02 Jan 2008 17:49:21 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

seems fine.

FWIW posts as on climateaudit.org

gavin

On Wed, 2008-01-02 at 17:33, David Herring wrote:

> R,
>
> Here is my proposed reply. We can fine-tune the wording so please review and let's discuss when you're ready...
>
> Dear ,
>
> Thank you for your note and for taking the time to express your concerns. My team and I are not in the habit of posting material on blog sites, nor do we respond to postings on external blog sites, so I won't comment on what is or is not on the sites you referenced. We do, however, respond as time permits to letters people send us directly. So while I have noted the source of your concerns, I am addressing my response specifically to you and to the particular concerns you raised in your letter.
>
> Perhaps I should first elaborate on NASA's Earth sciences research to put the objectives of NASA's Earth Observatory into proper context. NASA is a world leader in Earth system science research -- in terms of our agency's current capacity for space-based observations and measurements of Earth's environment; in terms of the contributions made by scientists within our agency to the body of knowledge about our home planet; and in terms of improving the science community's ability to model and predict the workings of Earth's climate system. In addition to being tasked and funded by the President and by Congress to advance understanding about how our world works, NASA is also mandated to share that new knowledge with the public. NASA's Earth Observatory is an Internet publication by which we help to fulfill that mandate. The Earth Observatory is based at NASA's Goddard Space Flight Center, under my management. We have no other motive nor outside influence.
>
> In your note, you stated that we linked to realclimate to answer a global warming question. Not true. Please visit our site for yourself, athttp://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/
>
> ...and there you will see that we provided clear, concise answers to each question, and then we provided links to a variety of places where people could go if they wanted to read more about the subject. There are no government policies prohibiting such links.
>
> In your note, you pointed out the political nature of some aspects of climate science. My team and I are fully aware that global warming is controversial in political contexts. Indeed, I feel that the politics of the subject only ***heighten*** the need for good, effective science communication about Earth's current warming trend. We try to do so in a way that clarifies the science and makes the subject easy to understand. In short, I believe it is important to help people to become conversant in climate science. The Earth science articles

published on NASA's Earth Observatory are written and designed for that purpose. So too, I find, are the entries on RealClimate. So we provided links to that site for people who may be interested in further reading on the subject.

That said, I should point out that NASA's Earth Observatory confines the scope of its articles to science. I believe we have done a good job of presenting the science without deviating into policy advocacy. We do not advocate for or against a given policy, nor do we lobby anyone in any way. There is no formal relationship between the Earth Observatory and RealClimate. NASA does not provide funding nor manpower to RealClimate. In short, NASA does not "back" RealClimate, as you suggested. (Some NASA scientists do donate some of their own personal time and expertise to RealClimate, but of course they are free to do so.) With respect to RealClimate's funding, I have no idea where it comes from. What concerns me is whether they've gotten their climate science information right, and whether it is easy to understand.

You articulated a concern that NASA is "evading quality control." I assure you that we do not evade quality control. On the contrary, we embrace it and go to great lengths to ensure that all of the information that we publish, and that we link to, is of the highest quality. We employ multiple rounds of editorial review in our articles that include both our own internal team reviews as well as reviews by scientists not on our team but who have relevant expertise (both within and outside of NASA) before publication.

Regarding your concern about our link to the RealClimate site, there is no policy that I'm aware of that prohibits such a link. Nor is there a reason that I can see to remove the link. To paraphrase the policy governing Web links, we must take steps to ensure that the information we link to is relevant, accurate, timely, and complete. In my view, the RealClimate site meets these requirements. And, for the reasons stated above, I believe the RealClimate site is a healthy public forum in which citizens can interact firsthand with leading climate scientists from a variety of agencies and universities. Such interaction is, after, what democracies are all about. As such, it's a useful and recommended resource.

I hope I have adequately addressed the specific concerns you stated in your letter. With respect to the veracity of global warming, I refer you to a fairly recent press release issued by the White House's Office of Science and Technology Policy (dated Feb. 2, 2007, which you can find here:http://www.whitehouse.gov/news/releases/2007/02/20070202.html) in reference to the most recent IPCC Assessment Report, to which NASA and NOAA (and many others) contributed significantly:

"This Summary for Policymakers captures and summarizes the current state of climate science research and will serve as a valuable source of information for policymakers," said Dr. Sharon Hays, the leader of the U.S. delegation at the meeting and Associate Director/Deputy Director for Science at the White House Office of Science and Technology Policy. "It reflects the sizeable and robust body of knowledge regarding the physical science of climate change, including the finding that the Earth is warming and that human activities have very likely caused most of the warming of the last 50 years."

You can find the complete IPCC Climate Change Assessments, and summary reports, here: http://www.ipcc.ch/

With best regards,

David Herring
NASA Earth Observatory Project Manager

Here is the first of three messages we received about this issue. I have not
responded to any of them yet.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Friday, December 28, 2007 11:31 AM
To: eoeditor@yahoo.com
Subject: EO Comment: Global Warming, RealClimate website.

From:
1@earthlink.net

Topic: ContentFeedback
Subject: Global Warming, RealClimate website.

Comment/Question:
To the Director of NASA:

That NASA publicly links to "realclimate.org" for answers to global warming
question, in which realclimate.org has unknown sources of support and
funding, and takes very very specific positions on a very political issues
within their website dialog is very very outside the bounds of federal
policy. Outlined here: NASA Evasion of Quality Control Procedures
http://www.climateaudit.org/?p=2536. It is stunning actually. Why is this
happening?

As a citizen of this country and a wife of a working Earth Scientist myself,
I am stunned. I've been following the "realclimate" website for over a
year. Does NASA support all these other postings they make as well? Such
as:

http://www.realclimate.org/index.php/archives/2007/12/les-chevaliers-de-l%e2%80%99ordre-de-la-terre-plate-part-ii-courtillots-geomagnetic-excursion/
"Prelude: It's the physics, stupid"

you might want to read what others think about this here:
http://www.climateaudit.org/?p=2531#comment-183884

Is this what science has come to be with the help of people such as these,
backed by NASA?

Sincerely,

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: FW: EO Comment: Climate change
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Jan 2008 11:52:07 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

nice one. Note that I'm not an American citizen though...

On Thu, 2008-01-03 at 10:49, David Herring wrote:

> Dear
>
> Thank you for your letter, and for sharing your concerns. Taking your last point first, I can assure you that objectivity in the science conducted at NASA is paramount and remains intact.
>
> It appears (by your question) that you may be misinformed. Please note that Gavin Schmidt is not "using" the Earth Observatory site as you said. Rather, we invited him to contribute to our update of a NASA overview article about Global Warming. Gavin was one of about 15 NASA scientists and communications personnel who contributed to our update of that article. We feel that our updated version of that article as well as the linked Question and Answer follow-up we published present a balanced, accurate, and up-to-date overview of global warming. I invite you to review the piece and see if you agree. In the article, we remain focused on the science and how we know what we know about global warming, its causes, and its consequences. You can review it here:
> http://earthobservatory.nasa.gov/Library/GlobalWarmingUpdate/
>
> and the Q&A is
> here: http://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/
>
> Please note: there is no NASA policy that prohibits our linking to the RealClimate site. We did so because clearly that site is relevant to our article about Global Warming, and because we find the site to be accurate and its authors to be knowledgeable and credible experts in the field, and because we feel the site represents a "best practice" in science communication with the public. That link was provided for folks who may want to read further about the subject beyond what we included in our own articles. Publication of clear, concise information firsthand from real climate scientists, with an opportunity to discuss and ask questions, seems to me to be an outstanding way to help people better understand climate science and to help them become conversant in the subject.
>
> Regarding your questions about the legal implications of Gavin's contributions to RealClimate, please note that it is commonly known that Gavin donates his own time to posting information and answering questions on the RealClimate.org site. He is free to do so and there is nothing illegal, unethical, or unusual about it. Like all Americans, Gavin enjoys and exercises his freedom of speech. I'm sure we both agree that freedom of speech is a good thing.
>
> I hope I've satisfactorily addressed your concerns.
>
> Best regards,
>
> David Herring
> NASA Earth Observatory Project Manager

Third of three messages about real climate.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Monday, December 31, 2007 1:54 PM
To: eoeditor@yahoo.com
Subject: EO Comment: Climate change

From:
.com

Topic: ContentFeedback
Subject: Climate change

Comment/Question:
Why is a Nasa employee (Gavin Schmidt, NASA Goddard Institute for Space
Studies)using the Nasa climate change website to reference his own real
climate website and blogging on his website during normal working hours? As
a tax payer, I find this highly irregular and bothersome and possibly
illegal. It also raises more important issues, such as the objective nature
of the science being done at NASA.

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: mysteries of the universe
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 07 Jan 2008 12:15:15 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

quite possibly. Plus it might endlessly be brought up in various blog postings (however, I have seen no evidence of that). However, you have to ask about the competition.....

Gavin

On Mon, 2008-01-07 at 12:11, Ron Miller wrote:

> How does this remain at the top of the list month after month? Has someone constructed an automated download program to guarantee a large number of hits?
>
> AMS Top 20
> Articles viewed Last Month.
> 1. Some Coolness Concerning Global Warming
> Bulletin of the American Meteorological Society Vol. 71 Iss. 3

Subject: [Fwd: Re: BAMS Decision #2539]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 07 Jan 2008 15:45:17 -0500
To: alacis@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>

more follow up....

-----Forwarded Message-----

From: Mark Baldwin <mark@nwra.com>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: Re: BAMS Decision #2539
Date: 07 Jan 2008 10:59:04 -0800

Hi Gavin,

My experience has been that papers that deal with misconceptions don't review well. The reviewers (of course) have no misconceptions. And if you cite papers with misconceptions, the authors will not be pleased. I once wrote a paper (GRL) about the misconceptions of statistical significance. It got rejected and is in one of my file cabinets.

Michael McIntyre is working on a paper that deals with statistical misconceptions. You might want to check his Web site.

You might consider ACPD, which is designed for discussions. ACP has a pretty high impact factor (above 4).

After the first round of reviews, I set the bar pretty high, since all 3 reviewers recommended rejection. One reviewer gave the paper a mild endorsement, put the other two did not. I noted that two reviewers had similar opinions (and mentioned KT97). The other reviewer's objections had little overlap with the first two.

I still think that the topic is a good one for BAMS. So I think that (as you suggested starting from scratch) the paper could be BAMS-worthy. If you do this, I suggest first soliciting the opinions of those who might be the most critical. I will not be the Editor at BAMS, since my term will be over by the time you submit a new paper. But I would be willing to ask the Chief Editor to look at it as a new manuscript (many manuscripts are turned down without being set to an Editor).

Please let me know what you plan to do.

Cheers,

-Mark

On Jan 3, 2008, at 1:10 PM, Gavin Schmidt wrote:

> Mark, Thanks.
>
> Disregarding Lindzen's nonsense, I get the impression that the reviewers
> are not particularly impressed by the novelty here. That's fine since we
> weren't going for novelty, but rather illustration. Mind you, we seem
> to failed there as well!

However, don't you find this curious - one reviewer says there is no advance beyond KT97 and yet you think this is 'challenging' and that confusions remain? Partly that is related to (presumably) this specific
paper, but there are larger issues.

Where and how are clarifications of common misconceptions (even among scientists in the field) supposed to be published? Blogs are certainly not the place, the technical literature (QJ and J. Clim included) rightly demands novelty. All one is left with is EOS or BAMS or else the
non-peer reviewed pop. sci. publications (American Scientist etc). In this case EOS length constrictions are too onerous and peer review is absolutely necessary.

If we were starting from scratch, is there no conceivable form this discussion could take that would make it BAMS-worthy?

Gavin

On Thu, 2008-01-03 at 15:48, Mark Baldwin wrote:

> Dear Dr. Schmidt,
>
> In the decision letter for MS# 2441 I wrote: "I would likely send the manuscript to the same reviewers, and possibly one additional person. Convincing the reviewers would likely be a challenge, but you have the
> option to try."
>
> Unfortunately, the reviewer's opinions of the revised manuscript range
> from marginal support to strongly negative. One of the reviewers feels
> that the manuscript improved, and might be worthy of publication, but the other two reviewers again recommend rejection.
>
> Although, as Reviewer 2 points out, the manuscript may be suitable for
> another journal, I am rejecting it for publication in BAMS. The topic of this paper is very challenging, in part because even experts in the
> field disagree regarding terminology. For BAMS readers I do not think that this paper would clarify the situation. Although Reviewer 1's critique is overly harsh, I do agree with the essential message that confusion over several issues remains.
>
> Having been through two rounds of reviews with BAMS, I hope that the reviewers' comments are useful in revising the manuscript for submission to another journal, such as the QJ or Journal of Climate.
>
> Best Regards,
>
> -Mark
>
> ---
> Mark P. Baldwin
> Editor, Climate Subject Matter
> Bulletin of the American Meteorological Society
>
> Northwest Research Associates
> 4118 NE 148th Ave. NE
> Redmond, WA 98052 USA

+1 425.556.9055 ext. 323
(fax) +1 425.556.9099
mark@nwra.com

www.nwra.com/baldwin

Reviewer #1 (attached)

Reviewer #2:

The reviewers of the first paper pointed out that the authors had failed to cite the KT97 paper which performed a very similar analysis.
This oversight has now been corrected and, although in my mind it doesn't give KT97 as much credit as it might, it points out how their results are different. They have also adequately addressed and/or responded to other reviewer comments.

The originality of revised Schmidt et al over KT97 is presenting results for all-sky cases - which are not in KT97, and updating results with newer and possibly better radiation schemes. They also use their paper as a framework to provide some interesting musings on the climate problem. However, I am afraid that I honestly can't see the major advance over KT97. The 'new' all sky case can be roughly worked out from KT97 Table 3 anyway and working out precise numbers do
not seem to be important for their arguments made in the discussion. I
would happily accept this paper for JGR but still argue against it's appearance in BAMS. As far as the BAMS readership is concerned this problem was more than adequately addressed by KT97 as does not require
revisiting.

Reviewer #3:

Review of BAMS2543 Schmidt et al

Without question, the revised version of this paper is considerably better than the original. I am still stuck though. In my original review, I noted that, if asked about the contribution of different absorbers to the greenhouse effect, I would have referred them to KT97. Even after reading the revised version of this paper, I still think I would refer readers, preferentially, to KT97. To be sure KT97 has its faults, but it also has useful additional information not found here. In a sense, the authors undermine their own case with the statement (page 7, 2-3 lines up) that "most of our results are within a couple of percent of all previously published estimates". So where has this paper got us?

I would have no great objection to seeing this paper published,

following some further modifications; it is largely incremental, and does not really present enough analysis to resolve some of the (interesting) differences between the results here and in KT97, but I think that I would probably refer to it quite frequently.

Major comments (in order of appearance, rather than importance)

1. Page 4, semantic confusion: Actually the semantic confusion on forcings versus feedbacks is deeper than indicated here and I think that IPCC AR4 have not helped the confusion. From the definition here,
changes to clouds and water vapour are not classed as forcings but as feedbacks. But then how do you class the indirect and semi-direct effects of clouds? Are these feedbacks or forcings? Arguments for both
exist in the literature, but I would maintain that any change in one of these prognostic variables that occurs in the absence of any surface temperature change is a forcing not a feedback and this is the
spirit of the definition of forcings discussed so extensively in Hansen et al. (2005). To argue that indirect forcings are a feedback appears bizarre to me, as in principal one could imagine getting a response without a forcing! And what about stratospheric water vapour changes as a result of methane oxidation? Surely this is a forcing?

2. Page 6, line 9: "the all-sky percent contributions cannot be calculated from the numbers presented [in KT97]" … I am not so sure; I
noted in my previous review that aspects of KT97 keep me awake at night and this is one of them. Their all-sky greenhouse effect is 155 Wm-2 and the contribution of all the gases in their table 3 is 86 Wm-2. So does this mean the actual contribution of clouds is 69 Wm-2? I think it probably does and they note in their text that clouds play a dual role in both absorbing radiation and shielding the role of other gases. So this would make the cloud contribution to be 45% and water vapor to be 32%, somewhat different to the numbers presented here, although the sum is almost identical. Can the authors resolve this (apparent) discrepancy? Maybe it is something to do with their use of a single "global-mean" profile?

3. Page 8, line 4: "larger role for water vapour" - KT97 are somewhat coy about what water vapor continuum they use (mind you, so are you!) and I suspect that they might be using the old Roberts continuum - this might be one explanation.

4. Page 9, 15 lines up: "is balanced by" … surely this is wrong? Shouldn't this be "consisting of" … i.e. the 20 is made up of an increase in surface emission of 15 and a decrease of TOA emission by 5. I think I had never properly thought about this number before, and it is quite interesting.

5. Table 3. This is confusing. The table itself says "TOA" while the caption says "tropopause" - I think it must be tropopause, otherwise I
cannot make sense of the fact that the SW contribution varies in sign between water vapor and the other gases. Also note that my reading of Collins et al is that the SW CH4 forcings is not so small - for the actual increases in methane and CO2 since pre-industrial times, the methane SW forcing is the larger of the two.

Minor comments

Page 4, line 7: "other minor contributors only make small

contributions" … a tautology?

Page 4, lines 9-10: Gases also have a significant SW effect.

Page 5, section 3, line 3: "Wetherald"

Page 7, line 10: "One detail worth noting …" - there are many details worth noting that you haven't noted, more important than this one. I would delete this, if the paper is published.

Page 8, line 10: Presumably these are annual mean values?

Mark P. Baldwin
Vice President & Senior Research Scientist
Northwest Research Associates

New address & phone as of 1 October:
4118 148th Ave. NE
Redmond, WA 98052 USA

phone +1 425.785.8751
(fax) +1 425.556.9099
mark@nwra.com

www.nwra.com/baldwin

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 11:35:18 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

you were just humouring me? how often does that happen?

On Wed, 2008-01-09 at 11:28, Ron Miller wrote:

> I have to confess that I misinterpreted all your 'saving the planet' joke's these past few days, until last night, when I read Andy Revkin's dot earth blog, and realized that I had overlooked your election to the Guardian's '50 People Who Could Save the Planet'. (That's what I get for visiting realclimate every day and not dot earth).
>
> So congratulations! Now get that cape back from the dry cleaner and get to work.
>
> Ron.

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 12:30:57 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

bast*d!

On Wed, 2008-01-09 at 12:19, Ron Miller wrote:
> I just assumed it was your usual grandiosity.
>
> PS, Paradoxically, I got some limited satisfaction from seeing Lomborg cited, if only because I could imagine Roger Pielke Jr. seething for having his pseudo-centrist mantle usurped.
>
> On 09 Jan 2008 11:35:18 -0500, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > you were just humouring me? how often does that happen?
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> > > Ron.

Subject: more middle muddle
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 13:07:33 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

http://initforthegold.blogspot.com/2007/12/on-compromise.html

Subject: Re: Your Reply to: GISS Temperature Correction Problem?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 19 Feb 2008 14:38:47 -0500
To: rruedy@giss.nasa.gov

I had a little look at the data, and this whole business seems to be related to the infilling of seasonal and annual means. There is no evidence for any step change in any of the individual months.

The only anomalous point (which matches nearby deltas) is for Sep 2005. Given the large amount of missing data in lampasas this gets propagated into the annual (D-N) mean - I think - with a little more weight than in nearby stations. The other factor might be that since lampasas is overall cooling, if we use climatology to infill in recent years, that might give a warm bias. But I'm not sure on how the filling-in happens.

Gavin

On Tue, 2008-02-19 at 13:46, Reto Ruedy wrote:

> Dear Forrest,
>
> Please look at
>
> http://data.giss.nasa.gov/gistemp/sources/cleaning.html
>
> which fully documents our "cleaning" and its effect; by no stretch of the imagination can this effect (and much less the addition or subtraction of a single US station) be called significant for our purposes.
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> Our homogeneization causes the modified stations to have the same longterm trend as the neighboring non-modified stations; hence whether we keep or drop any or all modified stations has no effect on the global longterm trends. Since Lampasas is a modified station, its inclusion or exclusion is therefore not only insignificant, but totally irrelevant.
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> By the way, the longterm trend based on non-homogenized data would actually increase (insignificantly) if we dropped Lampasas.
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> Finally, Lampasas is a USHCN station; as soon as USHCN applies a correction to any of their stations, our fully disclosed analysis will automatically include such corrections. Our description explicitly states that we are not applying any cleaning to USHCN data; so the answer to your question can only be: as long as USHCN keeps Lampasas, it will be included in the GISS analysis.
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> Best regards,
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> On Mon, 2008-02-18 at 20:41 -0500, FMims@aol.com wrote:
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> > Dear Reto,
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> > Thanks for your reply, which raises one final but significant question: Based on what you now know about Lampasas, will this data be kept or thrown away?

I am very familiar with heat island articles at Wikipedia, NASA, HARC, EPA, etc., etc. I am also familiar with the scholarly literature. As for my question, I have compared carefully your reply to David Herring's interview with Jim Hansen on the GISS website (http://www.giss.nasa.gov/research/features/temptracker/page2.html) and also with the Watt's post about Lampasas, Texas at www.climateaudit.org. I found in the comments at the latter post a comparison by McIntyre with a site near Lampasas (Blanco) that clearly affirms the anomalously sharp warming that is absent at Blanco. Watt claims the Lampasas site was moved from a better site to downtown at the same time the show the strange upward spike occurred.

There is no similar temperature spike in the towns (San Antonio, New Braunfels and Seguin) I have studied for my newspaper columns on the UHI (one of which was published today in the SAN ANTONIO EXPRESS NEWS). I hope to visit Lampasas and Blanco during spring break so I can see for myself if the Watt's claim are valid or exaggerated.

Based on all this and David's interview with Jim, I assumed that this is a situation in which the temperature data are not used, but from your reply it is unclear if the Lampasas data are considered valid and usable for modeling purposes. Here is the relevant section of David's article on the GISS site:

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Second, Hansen's team "cleans" the weather station data by finding and filtering out flawed data entries. Specifically, they apply a computer algorithm that checks each data point for temperature readings that are very significantly higher or lower than average for a given location at that time of year. Whenever such an anomaly is flagged, the algorithm compares those data to data from nearby stations to see if they show a similar anomaly. If so, then the data in question are kept; if not, or if there are no nearby stations for comparison, then the data are thrown away. [Bold added.]

His team also modifies the data from stations located in densely populated areas by removing the long-term bias of these "urban heat islands." The team uses satellite data to determine if a given station is in an urban or near-urban location. If so, then the team uses the nearest rural stations to determine the long-term trend at the urban site. If there are no rural neighbors, then Hansen's team throws out the urban station data.

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Thanks and best regards,

Forrest

Forrest M. Mims III
www.forrestmims.org
www.sunandsky.org
Geronimo Creek Observatory
Phone: 830-372-0548

In a message dated 2/18/2008 2:55:25 P.M. Central Standard Time, gschmidt@giss.nasa.gov writes:

FYI.

-----Forwarded Message-----

> From: Reto Ruedy <rruedy@giss.nasa.gov>
> Subject: Re: GISS Temperature Correction Problem? (fwd)
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> As to the specifics:
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> effect is to adjust the longterm trend of a non-rural station so that it
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> adjustment shows more warming than before the adjustment, he calls it an
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> longterm trends is real but much smaller than the impact of the natural
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> > Date: Fri, 15 Feb 2008 14:16:04 EST
> > From: FMims@aol.com
> > To: Gavin.A.Schmidt@nasa.gov
> > Cc: forrest.mims@ieee.org
> > Subject: GISS Temperature Correction Problem?
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> > Did Watts misrepresent the GISS correction? If not, can you please explain
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Delicious ideas to please the pickiest eaters. Watch the video on AOL Living.

Subject: Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 19 Feb 2008 15:24:38 -0500
To: rruedy@giss.nasa.gov

I know. sorry about that.

As an aside, what is the formula for the in-filling for the seasonal and annual means?

Gavin

On Tue, 2008-02-19 at 15:06, Reto Ruedy wrote:

> I usually don't respond to people who preach to me in the thinly disguised form of asking a question - and I'm sorry I did not stick to that policy this time around.
>
> Reto
>
> -------- Forwarded Message --------
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> To: rruedy@giss.nasa.gov
> Cc: gschmidt@giss.nasa.gov, forrest.mims@ieee.org
> Subject: Re: Your Reply to: GISS Temperature Correction Problem?
> Date: Tue, 19 Feb 2008 14:52:38 EST
>
> Dear Reto,
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> The obvious flaw in the Lampasas temperature record may indeed be "totally irrelevant." The problem is that there are flaws in the records from apparently hundreds of stations. There are GLOBE schools that do much better.
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> The bottom line is that the great majority of US surface stations reviewed and photographed by citizen volunteers fail to meet key WMO and NSW site guidelines. The warming trends shown by some of these stations is clearly influenced by their placement near or even on pavement or concrete and near buildings, air conditioning vents, vehicles, signs and so forth. I even found papers by Roger Pielke confirming this. At least one site shows a false cooling trend, apparently caused by nearby trees.
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Frankly, I see no other options at this point, for accurate temperature records are crucially important if global warming is to be properly monitored and modeled.

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Date: 19 Feb 2008 16:30:18 -0500
To: rruedy@giss.nasa.gov

On Tue, 2008-02-19 at 16:10, Reto Ruedy wrote:
> If at least 2 of the 3 months of a season are known, the mean of those months is the seasonal mean; after all seasonal means are found, the annual means are derived from those seasonal means: If at least 3 of the 4 seasons are known, their average is the annual mean.
>
> I think this is perfectly legitimate to use in the urban adjustment step where we deal with anomalies.

agreed

> However, Jay also used it in an earlier step (where we combine station data for the same location). In addition, it is used to create the tables and annual mean plots in the "Station Data" section of our web site, but those data are not used for anything.

these are the ones that puzzle me a little. They aren't the average of the two months with data. Thus I think some use of climatology or recent years must be used. Which program writes these out? I'll have a look.

However, the annual data that come from this is used in the figures that Watts is so fond of.

> In these cases we deal with absolute temperatures, and the technique obviously does not work too well if the hottest or coldest season is missing. I remember vaguely that we played with various ways of filling in the missing data rather than ignoring them, but Jay must have decided that in the average, the result were not substantially better.

that might be worth writing up a little more formally....

> Reto
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Subject: Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 20 Feb 2008 15:01:26 -0500
To: rruedy@giss.nasa.gov

That works.

That implies that missing months are assumed to have the same mean anomaly as the other two months, and that the missing seasons are assumed to have the same mean anomaly as the seasons present. Hence, one strong anomaly in a couple of months (ie. Sep and Nov 2005) can have a large impact on the annual mean.

I'm pretty sure that the Lampasas spike is just then a fluke of the annual average construction. There are only eight months - of which only 7 are used to calculate the annual mean. The missing month (May) has the smallest anomaly, and so including it would bring down the annual mean by about 0.4 deg C.

There may be some improvements that could be made here. i.e. annual means could use as many months as there are available (rather than just whether the seasons are available), and it should be made clearer that this is Dec-Nov mean, not the calendar year mean. Somewhere it should also be stated that the seas/ann values in the printout and figure are not used in the gridded data.

Thanks

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a little bit more digging. The Lampasas annual mean data for 2005 turns out to be a little oddly weighted in the printout table.
JAN/MAR/APR/OCT/DEC are missing, and the D-N annual mean is made up of the remaining anomalies weighted thus:

DEC04	FEB	MAY	JUN	JUL	AUG	SEP	NOV
1/6	1/6	0	1/9	1/9	1/9	1/6	1/6

giving 2.4 deg C anomaly. Equal monthly weighting would give 2.0 deg C.

On another topic, if you look at the NOAA site, they have significantly more up-to-date numbers than we do:

http://www.ncdc.noaa.gov/oa/climate/stationlocator.html

(if you follow it through, it shows data through to October 2007 for Lampasas).

Why isn't this in the data we get from GHCN? They must be updating some stations, but why not all of them?

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> Second, Hansen's team "cleans" the weather station data by finding and
> filtering out flawed data entries. Specifically, they apply a computer
> algorithm that checks each data point for temperature readings that
> are very significantly higher or lower than average for a given
> location at that time of year. Whenever such an anomaly is flagged,
> the algorithm compares those data to data from nearby stations to see
> if they show a similar anomaly. If so, then the data in question are
> kept; if not, or if there are no nearby stations for comparison, then
> the data are thrown away. [Bold added.]
>
> His team also modifies the data from stations located in densely
> populated areas by removing the long-term bias of these "urban heat
> islands." The team uses satellite data to determine if a given station
> is in an urban or near-urban location. If so, then the team uses the
> nearest rural stations to determine the long-term trend at the urban
> site. If there are no rural neighbors, then Hansen's team throws out
> the urban station data.
>
>
>

++

>
> So my question is this: Based on what you now know about Lampasas,
> will this data be kept or thrown away?
>
> Thanks and best regards,
>
> Forrest
>
> Forrest M. Mims III
> www.forrestmims.org
> www.sunandsky.org
> Geronimo Creek Observatory
> Phone: 830-372-0548
>
>
> In a message dated 2/18/2008 2:55:25 P.M. Central Standard Time,
> gschmidt@giss.nasa.gov writes:
> FYI.

> -----Forwarded Message-----
>
> > From: Reto Ruedy <rruedy@giss.nasa.gov>
> > Subject: Re: GISS Temperature Correction Problem? (fwd)
> >
> >
> > As to the specifics:
> > Our method to counteract any potential impact of the urban
> > heat island
> > effect is to adjust the longterm trend of a non-rural
> > station so that it
> > equals the mean trend of the neighboring rural stations
> > while preserving
> > the local short term variability. As far as global trends
> > are concerned,
> > this is equivalent to disregarding non-rural stations.
> >
> > A. Watts - in spite of our description - insists that our
> > adjustment was
> > designed to fix bad station data and exhibits examples of
> > stations where
> > that goal is not reached. In this sense, he does
> > misrepresent our
> > adjustment.
> >
> > In addition, whenever he finds a station whose longterm
> > trend after the
> > adjustment shows more warming than before the adjustment, he
> > calls it an
> > "artificial warming trend" created by GISS.
> >
> > The fact of the matter is, the impact of the urban heat
> > island effect on
> > longterm trends is real but much smaller than the impact of
> > the natural
> > variability at individual locations. This explains, why
> > currently in 45%
> > of the cases the adjustment increases the trend. But in the
> > majority of
> > the cases it decreases the trend - strangely enough, none of
> > those cases
> > ever show up on their blogs as examples of "artificial
> > cooling trends"
> > created by GISS.
> >
> > For information on urban heat island effect and its relation
> > to global
> > warming

> > >
> > >
> >
http://en.wikipedia.org
/wiki/Urban_heat_island#Relation_to_global_warming
> > >
> > > might be a better source than climateaudit.
> > >
> > > Reto
> > >
> > > >
> > > > ---------- Forwarded message ----------
> > > > Date: Fri, 15 Feb 2008 14:16:04 EST
> > > > From: FMims@aol.com
> > > > To: Gavin.A.Schmidt@nasa.gov
> > > > Cc: forrest.mims@ieee.org
> > > > Subject: GISS Temperature Correction Problem?
> > > >
> > > > Hi Gavin,
> > > >
> > > > I have completed a pair of installments for my
weekly
> science column in the
> > > > SAN ANTONIO EXPRESS NEWS on temperature in South
Texas
> since 1885 and am
> > > > writing the third installment on urban heat
islands. So I
> went to
> > > > www.climate.org (http://www.climate.org) audit
to see
> their take on this and the latest
> > > > post is by Anthony Watts about a rather bizarre
GISS
> correction to data from
> > > > Lampasas, Texas.
> > > >
> > > > Did Watts misrepresent the GISS correction? If
not, can
> you please explain
> > > > what's going on here?
> > > >
> > > > Thanks very much.
> > > >
> > > > Best regards,
> > > >
> > > > Forrest
> > > >
> > > > Forrest M. Mims III
> > > > www.forrestmims.org
(http://www.forrestmims.org/)
> > > > www.sunandsky.org
> > > > Geronimo Creek Observatory
> > > > Phone: 830-372-0548
>

Delicious ideas to please the pickiest eaters. Watch the video on AOL Living.

Subject: Re: civil service ratings
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 May 2008 15:16:15 -0400
To: Jim Hansen <jhansen@giss.nasa.gov>

1. Research contributions, as evidenced by publications, etc. (2007+2008):

Comment on 'Heat Capacity, Time Constant, and Sensitivity of Earth's Climate System,' by S.E. Schwartz, Foster, G., J.D. Annan, G.A. Schmidt and M.E. Mann, J. Geophys. Res. (in press).

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Little, C.M., M. Oppenheimer, R.B. Alley, V. Balaji, G.K.C. Clarke, T.L. Delworth, R. Hallberg, D.M. Holland, C.L. Hulbe, S. Jacobs, J.V. Johnson, H. Levy, W.H. Lipscomb, S.J. Marshall, B.R. Parizek, A.J. Payne, G.A. Schmidt, R.J. Stouffer, D.G. Vaughan, and M. Winton, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2. "Company (NASA, GISS) business" as evidenced by proposals, funding received, contributions to project team, etc.

Proposals:

Co-I on "NASA GISS Global Climate Model Development Proposal" with Jim Hansen (GISS) NASA MAP, FY2004--2009

PI on "Effects of Light Absorption by Ocean Phytoplankton on Ocean Circulation and Climate Predictions" $120,000 per/year, NASA MAP FY2006-2008

PI on "Water Isotope model-data comparison for Holocene climate variability". NSF $383.616, FY2006-2008

PI on "Satellite and model constraints on water cycling responses to ENSO and tropical storms using water isotopes" Requested $200,000 per year (pending). NASA NEWS.

Meetings and workshops:

SORCE annual meeting, Santa Fe, Feb 2008
State Department Climate Risks Workshop, Jun 2007
MAP Science Team Meeting, Adelphi Maryland, Mar 2007.

3. Outreach, evidenced, e.g., by education outreach, popular science, public speaking, IPCC contributions, etc.

Tutorials/Reviews/Commentary:

Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170.
Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.
Schmidt, G., 2007: Clouding the issue of climate. Phys. World, 20, no. 6 (June 2007), 44-45.
Contributions to RealClimate.org, The Bulletin of Atomic Scientists

Book:

Climate Change: A look behind the science, Eds. Gavin Schmidt and Joshua Wolfe, W. W. Norton, New York (to appear Mar 2009).

Public Speaking:

Columbia Journalism School, Panel on communicating climate change, May 2008
Rosenstiel School of Marine and Atmospheric Science, Miami, Panel on communicating uncertainties in climate science, May 2008
Swiss Global Climate Change Day, Bern, Apr. 2008
Bristol University, Mar 2008
The Royal Society, Leverhulme Climate Symposium, London, Mar 2008
2008 Pittcon, New Orleans, Mar 2008
Auburn University, Feb. 2008
Hofstra University, Jan 2008
New York Academy of Science,
American Museum of Natural History, Oct 2007
Rockefeller University, Panel on science communication, Nov 2007
New Jersey Institute of Technology, Climate Change Panel, Jul 2007
Intelligence Squared Debate, New York, Mar 2007.
Columbia Journalism School, Covering Globalization Conference, Mar 2007
Video Conference on Global Warming and Climate Change, US-UK High Schools, Feb 2007

Media:

Interviews for New York Times, Washington Post, The Guardian, Scientific American, New Scientist, BBC, Liberation, Newsweek, Nature, Science, NPR, WTIC, Air America, CNN, CBS, Bloomberg Television, Daily Show, Plenty Magazine, Globo Televison, NHK Japan, Chemistry and Engineering News, Geotimes, Readers Digest, among others.

Misc:

Advisory Board member for Popular Mechanics

IPCC Contributing author (Chapter 10, WGI), expert reviewer WGI and WGII

Co-chair PAGES/CLIVAR Intersection Panel

Associate Editor Journal of Climate

Subject: rating notes
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Jun 2008 11:58:10 -0400
To: Emily Michaud <emichaud@giss.nasa.gov>
CC: Jim Hansen <jhansen@giss.nasa.gov>

Emily, for some reason, the plan document kept crashing on me, so here are the main points for each of the four elements:

gavin

=======

1) Work results are measured through quality peer-reviewed publications and submitted or funded proposals.
Writes or contributes significantly as author or coauthor on the average of at least one paper per year that will be submitted to a refereed science or high quality technical journal. The paper(s) will be based on funded research relevant to NASA strategic goals. Present the results of this research at a national or international meeting.

In 2007 and 2008, Gavin Schmidt authored or co-authored 12 peer reviewed papers in the technical literature (including 3 "in press") (listed below). He has presented his research at the following meetings over the last year: Abrupt Climate Change workshop (Obergurgl, Austria, May 2007), the International Conference on Paleoceanography (Shanghai, China, 2007), SORCE Investigators Meeting (Santa Fe, Feb, 2008), Leverhulme Climate Symposium (Cambridge, UK, Mar 2008), Swiss Global Climate Day (Bern, Apr 2008).

LeGrande, A.N., and G.A. Schmidt, 2008: Ensemble, water-isotope enabled, coupled general circulation modeling insights into the 8.2-kyr event. Paleoceanography, in press, doi:10.1029/2008PA001610.

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Masson-Delmotte, V. et al, A Review of Antarctic Surface Snow Isotopic Composition: Observations, Atmospheric Circulation and Isotopic Modelling, 2008, J. Climate, (in press)

Hansen, J., et al, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., et al, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and

Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2) COLLABORATION AND TEAMWORK

Gavin Schmidt has co-authored with over 70 people in the journal articles listed above, from within NASA, across the US and internationally. He recently submitted a proposal for NASA NEWS in collaboration with investigators from JPL and the U. Colorado, and to NASA MAP with colleagues from GSFC and Columbia U. He is instrumental in coordinating overall model development strategy and the work being done at GISS on carbon cycling and interactive tracers (aerosols, chemistry, dust). He coordinates the input of the GSFC SIVO into GISS model development. He is the co-chair of the PAGES/CLIVAR Intersection Panel which tries to coordinate reasarch internationally that is of value for understanding both past and present climate variability. He successfully mentored Allegra LeGrande through her PhD and now works with here as a post-doc at GISS. He currently advises one Columbia graduate student.

He is active in looking at ways to expand collaboration and progress in the field of ice sheet modelling (see Little, C.M., et al, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002) and is actively collaborating with Bill Lipscomb at LLNL and Olga Sergienko, Portland State University).

3) COMMUNICATIONS

(This is a tough one since I'm not sure how you can show proof of any of this).

The quality of Gavin Schmidt's oral presentations are demonstrated by the frequent repeat invitations for talks and radio/television interviews and the positive feedback received from audiences. He has been frequently asked to write for popular audiences (Physics Today, Physics World, Nature Geoscience, blogs, the GISS Website). No article of his has been found to not meet NASA's prescribed standards.

4) Community and Academic Outreach

Contribute to community and student outreach. Whenever possible provide lay-person version of research on GISS web site

Gavin Schmidt is active in outreach to the wider academic community and to the public. He has given introductory talks on climate change science at the New York Academy of Science summer program (2007), American Museum of Natural History, Auburn Universtiy (Auburn AL, Feb 2008), the Brattleboro Art Museum (Vermont, Feb 2008), PITTCON 08 (New Orleans, Mar 2008), Bristol University (Mar, 2008).

He contributes to the RealClimate.org blog and has written a tutorial on climate modelling for Physics Today (Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.), and recently wrote a commentary for Nature Geoscience on outreach in the digital age (Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170).

He has edited a book on the science and photography of climate change for a lay audience (Schmidt, G and J. Wolfe, "Climate Change: A Look behind the science, W.W. Norton to be published spring 2009). He has contributed a chapter to the book New Questions in Science (edited by Max Brockman, Vintage Press, to be published spring 2009).

In the last 12 months, he has appeared on "This Week in Science" (NPR), "The Daily Show with Jon Stewart", "Pale Blue Dot" (radio show), "Greener Living" (radio show), Diane Rehm (NPR) as well as print newspapers such as the Washington Post, New York Times, and magazines such as New Scientist and Popular Mechanics in order to explain his research and provide context for other climate change stories in the media.

Subject: graduate junction
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Jul 2008 14:13:15 -0400
To: Allegra LeGrande <legrande@ldeo.columbia.edu>, Christy Field <cfield@giss.nasa.gov>

this might be interesting to you....

-----Forwarded Message-----

From: Esther Dingley <esther@graduatejunction.com>
To: mann@psu.edu
Cc: gschmidt@giss.nasa.gov
Subject: Real Climate
Date: 10 Jul 2008 19:19:35 +0100

Dear Dr. Schmidt and Dr Mann,

I am one of two graduate researchers who have recently launched The Graduate Junction. The aim of the website is to help Masters, PhD and postdoctoral researchers find others who share their research interests. Below I have copied some further information.

www.graduatejunction.com

I would be really grateful if you could take a look. We have been met with an overwhelmingly positive response from researchers, academics and academic institutions in the UK and now as we spread the news further a field we are being met with the same response. We already have three official University endorsements and large organisations such as Research Councils UK, European University Association are helping us raise awareness through their internal information channels.

If you like it, please would you help us to spread the news to graduate researchers or those that supervise researchers, perhaps on your blog or around your department/institution. The more researchers online, the more like those with similar research interests are to find each other!

I look forward to hearing any feedback you might have.

Best Wishes,

Esther Dingley
The Graduate Junction
Block 2 Mountjoy Research Centre
Durham DH1 3UP

The Graduate Junction

www.graduatejunction.com

A new website designed to help Masters, Doctoral and Postdoctoral researchers make contact with others who share their research interests, regardless of which department, institution or country they work in.

The Graduate Junction has been created by two graduate researchers at Durham University U.K., who felt isolated within their own research projects and wanted to find others who shared their research interests. Literature reviews only ever revealed completed work and relevant conferences happen

infrequently. The Graduate Junction aims to prevent this isolation and provide an atmosphere similar to that at academic events. Through the use of the internet The Graduate Junction aims to establish an on-line worldwide graduate research community.

The Graduate Junction has been designed to be simple and provide only information and functionality that is relevant to researchers. It is proving very popular with researchers and academics worldwide.

* Launched in May 2008

* 2000 UK researchers registered in the first two weeks

* Now - members in more than 40 countries

Upon registering, you have the option to create your own research profile as well as searching for fellow researchers by keyword, institution, department, supervisor or name. Alternatively, you can search The Graduate Junction's on-line research groups, allowing you to find and communicate with a number of other researchers sharing your research interest. With the addition of conference and postgraduate job listings imminent, The Graduate Junction aims to be one of the most useful resources available for all graduate researchers.

Register now and become part of this rapidly growing on-line global graduate research community. The Graduate Junction is still very new and we need help to spread the news to researchers worldwide since the more researchers online, the more likely those with the similar research interests are to find each other!

Subject: Re: RealClimate blocked by US military?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 31 Jul 2008 11:35:33 -0400
To: Andy Ackerman <andrew.ackerman@nasa.gov>

I know - I passed it on to them. I did think it weird.

Gavin

On Thu, 2008-07-31 at 11:21, Andy Ackerman wrote:

> Hi Gavin,
>
> An item on DailyKos today pointed to a blog indicating that the US military is now blocking RealClimate.org:
>
> http://andysocial.livejournal.com/482164.html
>
> Clearly your agenda is unpatriotic!
>
> -Andy

Subject: Re: update on Crichton comments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Aug 2008 17:00:13 -0400
To: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>

On Fri, 2008-08-08 at 08:41, Nancy Y. Kiang wrote:

> Hi, Gavin -
>
> I was looking at your RealClimate thing on Michael Crichton's novel
> and couldn't figure out how to post a comment,

Hi Nancy, Good to know someone reads this stuff. Note that commenting goes off after a month to stop spam.

> so I thought I'd send
> you these additional notes about forest vs. crop cover impacts on
> climate. Switching from forest to crops:
> - changes albedo from darker to lighter, which is a negative feedback
> to warming

This is not a feedback (i.e. it isn't a response to climate change) - it is a different forcing (which, as you correctly state is towards cooling).

> - reduces standing biomass stock dramatically, releasing all that
> carbon to the atmosphere, which is a positive feedback to warming

yes. But this isn't an additional forcing (since deforestation is already included as an addition to anthropogenic carbon flux).

> - reduces soil carbon stock, since crop plowing and loss of
> litterfall inputs to the soil will cause loss of soil carbon

sure.

> - reduces root access to deeper soil moisture, which, in absence of
> irrigation, reduces transpiration to the atmosphere and often cloud
> cover, which is a positive feedback to warming.

Hmmm.... how well do we know that? What happens if you just change rooting depth but not albedo (or vice versa) - I think it would be hard to ambiguously determine this, and it may well be model dependent. What is the impact on water vapour for instance?

> In light of the controversy over biofuels and the cutting down of
> forests for biofuel crops, you might want to update your blog, since
> the switch from forest to crop cover probably is a worse positive
> feedback to warming than the negative feedback from higher albedo.

that's certainly something worth talking about - what is the net effect of chopping down forests? (you could add chemical emissions such as VOCs impact on methane/ozone as well). Caldiera wrote a paper on this a couple of years ago, and I think he concluded that it depended on where you were - tropical forests have a different impact than boreal ones).

But why don't you write something up? You can do your bit for outreach....

Gavin

Nancy

Subject: Re: Fwd: Re: update on Crichton comments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 12 Aug 2008 16:37:19 -0400
To: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>

great!

On Tue, 2008-08-12 at 15:41, Nancy Y. Kiang wrote:

> Date: Tue, 12 Aug 2008 08:39:56 -0400
> To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> From: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>
> Subject: Re: update on Crichton comments
> Cc:
> Bcc:
> X-Attachments:
>
> > On Fri, 2008-08-08 at 08:41, Nancy Y. Kiang wrote:
> >
> > > Hi, Gavin -
> > >
> > > I was looking at your RealClimate thing on Michael Crichton's novel
> > > and couldn't figure out how to post a comment,
> >
> > Hi Nancy, Good to know someone reads this stuff. Note that commenting
> > goes off after a month to stop spam.
> >
> > > so I thought I'd send
> > > you these additional notes about forest vs. crop cover impacts on
> > > climate. Switching from forest to crops:
> > > - changes albedo from darker to lighter, which is a negative feedback
> > > to warming
> >
> > This is not a feedback (i.e. it isn't a response to climate change) - it
> > is a different forcing (which, as you correctly state is towards cooling).
> Ah, right, it's a forcing.
> > > - reduces standing biomass stock dramatically, releasing all that
> > > carbon to the atmosphere, which is a positive feedback to warming
> >
> > yes. But this isn't an additional forcing (since deforestation is
> > already included as an addition to anthropogenic carbon flux).
> Not sure what you mean. The write-up didn't mention the release of carbon from switching from forest to grassland, or I missed it somewhere.
> > > - reduces soil carbon stock, since crop plowing and loss of
> > > litterfall inputs to the soil will cause loss of soil carbon
> >
> > sure.
> >
> > > - reduces root access to deeper soil moisture, which, in absence of

> irrigation, reduces transpiration to the atmosphere and often cloud
> cover, which is a positive feedback to warming.

Hmmm.... how well do we know that? What happens if you just change rooting depth but not albedo (or vice versa) - I think it would be hard to ambiguously determine this, and it may well be model dependent. What is the impact on water vapour for instance?

There are several instances where cutting down trees led to boggy wet soil (logged temperate forest), or planting certain trees drastically lowered the water table (eucalyptus in Hawaii, in contrast to native sandalwood). The cloud cover difference can be seen at the Australian bunny fence, where it's clear and dry over the grazed area and cloudy over the ungrazed shrubby side. Of course, the effect is dependent on scale, and, except for the Hawaii example, these examples had changes in albedo, too. I suppose increasing water vapor from more transpiration could increase warming if it doesn't lead to more clouds.

> In light of the controversy over biofuels and the cutting down of
> forests for biofuel crops, you might want to update your blog, since
> the switch from forest to crop cover probably is a worse positive
> feedback to warming than the negative feedback from higher albedo.
>
> that's certainly something worth talking about - what is the net effect
> of chopping down forests? (you could add chemical emissions such as VOCs
> impact on methane/ozone as well). Caldiera wrote a paper on this a
> couple of years ago, and I think he concluded that it depended on where
> you were - tropical forests have a different impact than boreal ones).

Yes, with the biofuels, the problem is that the chopping down is happening in the tropics.

> But why don't you write something up? You can do your bit for
> outreach....

Okay, I'll try to get around to writing something...

Nancy

> Gavin
>
> Nancy
> --

--

Subject: possible contact
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Sep 2008 17:54:59 -0400
To: Christy Field <cfield@giss.nasa.gov>

this is interesting. I know Anne quite well, and it's possible she might have some advice/opportunities for you (maybe not everything is in DC?)

gavin

About our speakers:

Dr. Anne Waple currently serves as the communications Manager for the U.S. Climate Change Science Program (CCSP) in Washington DC. At CCSP - a $2billion program that integrates and coordinates climate research and activities across the federal government - Anne is responsible for coordinating the Communications Interagency Working Group and the Education Interagency Working Group. Anne's other activities include facilitating science communication of the Program's current assessments, coordinating communication across participating agencies and with stakeholders of climate information.

Before joining CCSP, Anne worked in the Climate Monitoring Branch at NOAA's National Climatic Data Center in Asheville, NC where she coordinated science communication of the NOAA-led CCSP Synthesis and Assessment reports, co-edited the annual "State of the Climate" reports, and contributed to and edited numerous other NOAA climate science documents, among other tasks. Anne received her PhD from the University of Massachusetts, where her research focused on causes of climate change over the last several hundred years and projections of future climate.

Jason Samenow has worked as a Climate Change Analyst at the U.S. EPA for the past seven years. In that capacity, he has played a leading role in tracking and assessing climate change science developments and communicating the salient information to policymakers and the general public. Specifically, he was the project manager responsible for the development of EPA's new Climate Change Web site launched in late October 2006<http://www.epa.gov/climatechange> and drafted the entire section on science as well as pages on extreme events and regional climate impacts, working with scientists across the Federal government. In addition, Jason led production of the Excessive Heat Events Guidebook <http://www.epa.gov/heatisland/about/heatguidebook.html> -- an interagency report (EPA, NOAA, CDC and FEMA) published in June 2006, offering detailed information about the climatology of excessive heat events, the risk factors, and options for responding to them. Finally, Jason is a co-chair for the U.S. Climate Change Science Progam's Communications Interagency Working Group.

Jason earned his undergraduate degree in Environmental Science (concentration: Atmospheric Science) from the University of Virginia in 1998 and an MS in Atmospheric Science from the University of Wisconsin-Madison in 2000. He is a past Chair of the DC Chapter of the American Meteorological Society, a Weather and Society Integrated Studies Fellow <http://www.sip.ucar.edu/wasis/>, an alumnus of the American Meteorological Society's Policy Colloquium, and Chief Meteorologist of the Capital Weather Gang blog on washingtonpost.com -- which offers original, interactive Washington, DC weather commentary.

Subject: Re: Lomborg - sea level has dropped over past 2 years ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 21 Oct 2008 13:59:27 -0400
To: Stuart Gaffin <stuart.gaffin@gmail.com>
CC: Vivien Gornitz <vgornitz@giss.nasa.gov>, Radley Horton <rmhorton@giss.nasa.gov>

He's referring specifically to the graphic visible on the topex/posieden/jason analysis:

http://sealevel.colorado.edu/

But it is, as you correctly guessed, bollocks. There plenty of short term periods where the trend is flat or even negative - it is just the way of the weather.

Gavin

On Tue, 2008-10-21 at 11:08, Stuart Gaffin wrote:

> Hi,
>
> For my next Exhausted Earth blog, I wanted to critique parts of a recent editorial by Bjorn Lomborg:
>
> http://www.theaustralian.news.com.au/story/0,,24497983-7583,00.html
>
> In particular he throws out this tidbit:
>
> " ... Moreover, over the past two years, sea levels have not increased at all; actually, they show a slight drop. Should we not be told that this is much better than expected? "
>
> This strikes me as a typical Lomborg tactic: throw some major counter claim out there on something quite important and let the readers try and figure it out.
>
> On a quick search I can't find anything online suggesting sea levels have droppped over the last 2 years -- I find it hard to believe that kind of short term trend is even deducible. But maybe I'm wrong.
>
> My first reaction is that he's probably extrapolating from flat or slight global temperature declines over the last 2 years and assuming this is showing up in sea levels as well.
>
> Have any of you seen any evidence that sea levels have dropped over the past 2 years ?
>
> many thanks for any thoughts, Stuart
> --
> Stuart R. Gaffin, Ph.D.
> Center for Climate Systems Research
> Columbia University &
> NASA Goddard Institute for Space Studies
> 2880 Broadway
> New York, NY 10025
> cell: 917-865-4421

Subject: Re: Fwd: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 22 Jan 2009 12:25:18 -0500
To: Michael Mann <mann@meteo.psu.edu>
CC: Drew Shindell <dshindell@giss.nasa.gov>, Eric Steig <steig@ess.washington.edu>

indeed. They are really pulling out the stops. I think this just points to how much they really liked the 'antarctica is cooling' meme and how upset they are it's being taken away. Maybe we should do a follow-up piece on the contrarian meltdown? (throwing in a Pielke or two just for fun).

I love the Christy headline "Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature" " - what would he have us use instead? The worst estimate?

Oh and by the way, even if it is warming it's all caused by a volcano. This is verging on self-parody.

Gavin

On Thu, 2009-01-22 at 12:17, Michael Mann wrote:

> in case you guys didn't see, we've made the radar screen of the chief disinformer himself,
>
> m
>
> Begin forwarded message:
>
> > From: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > Date: January 22, 2009 10:55:35 AM EST
> > To: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > Subject: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
> >
> > Excerpt: The media, led by Newsweek's woeful Sharon Begley, were downright gleeful about the new Antarctic study. [..] The supposed cooling has delighted climate contrarians, such as the prolific Senate staffer (to 'global warming is the biggest hoax' Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media hype, the vast majority ofAntarctica has cooled over the past 50 years.'" [...] Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's Trenberth critique and debunk this study. One new study that 'makes data where none exist' and is contradicted by multiple previous studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review the latest science developments.
> > #
> >
> > Web Posted on Senate EPW
> > website: http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=fc7db6ad-802a-23ad-43d1-2651eb2297d6

Scientists, Data Challenge New Antarctic 'Warming' Study
January 21, 2009

Posted By Marc Morano - 11:01 PM ET - Marc_Morano@EPW.Senate.Gov
Scientists, Data Challenge New Antarctic 'Warming' Study
'It is hard to make data where none exist'
Comprehensive Data Round Up Debunks New Antarctic 'Estimate of Temperature Trends'
Washington, DC: A new study on Antarctic temperatures - which is contrary to the findings of multiple previous studies - claims "that since 1957, the annual temperature for the entire continent of Antarctica has warmed by about 1 degree Fahrenheit, but still is 50 degrees below zero."
Despite the fact that the study was immediately viewed with major skepticism by scientists who are not skeptical of anthropogenic global warming claims, many in the media pounced on the study as a chance to attacks those skeptical of man-made climate doom. According to the release of the study, "The researchers devised a statistical technique that uses data from satellites and from Antarctic weather stations to make a new estimate of temperature trends. […] The scientists found temperature measurements from weather stations corresponded closely with satellite data for overlapping time periods. That allowed them to use the satellite data as a guide to deduce temperatures in areas of the continent without weather stations." (emphasis added)
Few media outlets noted that in 2007 Antarctic "sea ice coverage has grown to record levels since satellite monitoring began in the 1979, according to peer-reviewed studies and scientists who study the area." [See also other factors impacting Antarctica: "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier & The Antarctic deep sea gets COLDER - April 21, 2008 & A January 12, 2008, peer-reviewed paper in AGU (American Geophysical Union) found "A doubling in snow accumulation in the western Antarctic Peninsula since 1850."Map of Volcanoes - See comprehensive data round up below]
The new Antarctic study was published in Thursday's issue of the journal Nature and the lead author of the study was Eric Steig, a University of Washington professor of Earth and Space Sciences. Other co-authors include: David Schneider of the National Center for Atmospheric Research in Boulder, Colorado, a former student of Steig's; Scott Rutherford of Roger Williams University in Bristol, RI; and Michael Mann of Pennsylvania State University.

UN IPCC lead author, Dr. Kevin Trenberth, who is not in any way a climate change skeptic, said of the study, "I remain somewhat skeptical… It is hard to make data where none exist." Echoing Trenberth's analysis were several other scientists.

Climatologist Dr. John Christy of the University of Alabama in Huntsville questioned the study. "One must be very cautious with such results because they have no real way to be validated," Christy told the AP. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time," Christy added.

Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Bouldersaid the authors of the Antarctic study "overstated" their results. "In terms of the significance of their paper, it overstates what they have obtained from their analysis," Pielke told the AP. "In the abstract they write, for example, 'West Antarctic warming exceeds 0.1C per decade

over the past 50 years.' However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why," Pielke wrote. Pielke also questioned how the authors "reconcile the conclusions in their paper with the cooler than average long term sea surface temperature anomalies off of the coast of Antarctica." Pielke added, "These cool anomalies have been there for at least several years. This cool region is also undoubtedly related to the above average Antarctic sea ice areal coverage that has been monitored over recent years."

A critical analysis of the paper from December 21, 2008, accused the authors of the Antarctic study of making questionable data "adjustments." (See: Scientist adjusts data -- presto, Antarctic cooling disappears - December 21, 2008) The analysis concluded, "Looks like [study author] Steig 'got rid of' Antarctic cooling the same way [Michael] Mann got rid of medieval warming. Why not just look at the station data instead of 'adjusting' it (graph above)? It shows a 50-year cooling trend," the analysis concluded.

Alarmists Play Both Sides

The BBC's Richard Black filed a report on the new study that included this claim: "'It's hard to think of any situation where increased greenhouse gases would not lead to warming in Antarctica,' said Drew Shindell from Nasa's Goddard Institute for Space Studies (GISS) in New York."
Sadly, Black of the BBC does not report that the promoters of man-made global warming fears had already concocted explanations for the failure of Antarctica to warm as models predicted. [See: Antarctic temperatures disagree with climate model predictions - February 15, 2007]

The warming partisans at RealClimate.org have claimed that a cooling Antarctica is just what the models predict! "A cold Antarctica is just what calculations predict," stated a February 12, 2008, post on Real Climate titled "Antarctica is Cold? Yeah, We Knew That." The website claimed "Despite the recent announcement that the discharge from some Antarctic glaciers is accelerating, we often hear people remarking that parts of Antarctica are getting colder, and indeed the ice pack in the Southern Ocean around Antarctica has actually been getting bigger. Doesn't this contradict the calculations that greenhouse gases are warming the globe? Not at all, because a cold Antarctica is just what calculations predict… and have predicted for the past quarter century."

So which is it? Models predict Antarctic cooling or do they predict warming? If Antarctica is now allegedly warming, why didn't the models predict that? The spin by Michael Mann of RealClimate.org and the media on this study is stunning.

'Tortured logic'

Real Climate's logic was mocked by Professor Roger Pielke, Jr., professor in the environmental studies program at theUniversity of Colorado. "So a warming Antarctica and a cooling Antarctica are both 'consistent with' model projections of global warming. Our foray into the tortured logic of 'consistent with' in climate science raises the perennial question, what observations of the climate system would be inconsistent with the model predictions?," Pielke Jr. wrote on January 21.

Begley of Newsweek Gleeful
The media, led by Newsweek's woeful Sharon Begley, were downright gleeful about the new Antarctic study. Begley declared, "And now the last holdout has succumbed" to global warming. Begley -- who has been the subject of severalblunt but accurate Inhofe EPW Blog critiques -- took a shot at the U.S. Senator and his aide. Begley wrote, "The supposed cooling has delighted climate contrarians, such as the prolific Senate staffer (to 'global warming is the biggest hoax' Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media hype, the vast majority of Antarctica has cooled over the past 50 years.'"
Begley concluded, "I look forward to the climate contrarians' arguments that this observed warming is a natural occurrence and has nothing to do with manmade greenhouse gases." [Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's Trenberth critique and debunk this study. One new study that 'makes data where none exist' and is contradicted by multiple previous studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review the latest science developments. How come you are not reporting on the slowdown in sea level rise? Or how about reporting on this: New Peer-Review study challenges 'notion that human emissions are responsible for global warming' or any of the following: The global tropical cyclone season of 2008 'close to lowest levels observed' in decades Global temperatures failing to warm; Peer-reviewed studies predicting a continued lack of warming; a failed attempt to revive the discredited 'Hockey Stick';inconvenient developments and studies regarding rising CO2; the Spotless Sun; Clouds; Antarctica; the Arctic;Greenland's ice; Mount Kilimanjaro; Global sea ice; Causes of Hurricanes; Extreme Storms; Extinctions; Floods;Droughts; Ocean Acidification; Polar Bears; Extreme weather deaths; Frogs; lack of atmospheric dust; Malaria;the failure of oceans to warm and rise as predicted." Sadly, Begley's attitude and reporting appears to be indicative of most of the mainstream media's shoddy climate reporting. Also See: Defense of Lou Dobbs & Climate Challenge to Andrew Revkin of NYT & U. S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims]

Alex Morales of Bloomberg News cited the late author Michael Crichton's novel, State of Fear. "The findings may help puncture arguments by global-warming skeptics such as the late author Michael Crichton who have pointed to cooling in parts of Antarctica as an indicator that climate change is exaggerated." [Note: Kudos to AP's Seth Borenstein for writing the most balanced of all the media's articles about this new Antarctic study.]

Summary of Reactions to New Study and Peer-Reviewed Studies and Analyses Countering Study
Michael "Hockey Stick" Mann Touts Study as a Way to Refute Skeptics
Excerpt: "Contrarians have sometime grabbed on to this idea that the entire continent of Antarctica is cooling, so how could we be talking about global warming," said study co-author Michael Mann, director of the Earth System ScienceCenter at Penn State University and Real Climate contributor. "Now we can say: no, it's not true ... It is not bucking the trend." [Note: For a reality check on Michael Mann's failed attempt to resurrect the "Hockey Stick," see this report.]
Meteorologist Anthony Watts who runs WattsUpWithThat.com also questioned Mann's involvement in the study. "Anytime Michael Mann gets involved in a paper and something is "deduced" it makes me wary of the veracity of the methodology. Why? Mann can't even correct simple faults like latitude-longitude errors in data used in

previous papers he's written," Watts wrote on January 21.

Study claims large parts of Antarctica has been cooling from 1970s to 1990s
Excerpt: However, autumn temperatures in east Antarctica are cooling over the long term. And east Antarctica from the late 1970s through the 1990s, cooled slightly, Steig said.

Even Pro-AGW scientists wary of this new study! Kevin Trenberth says 'I remain somewhat skeptical... It is hard to make data where none exist.'
Excerpt: The researchers used satellite data and mathematical formulas to fill in missing information. That made outside scientists queasy about making large conclusions with such sparse information. "This looks like a pretty good analysis, but I have to say I remain somewhat skeptical," Kevin Trenberth, climate analysis chief at the National Center for Atmospheric Research, said in an e-mail. "It is hard to make data where none exist." Shindell said it was more comprehensive than past studies and jibed with computer models.

Alabama State Climatologist Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature"
Excerpt: Technique questioned: Researchers in this study developed a new technique that combined data from satellites and automated weather stations in Antarctica to make what they say is the best estimate of the continent's temperature so far. However, there are very few weather stations on Antarctica, and the satellite data have been available for only the past 25 years. This troubles some scientists. "One must be very cautious with such results because they have no real way to be validated," says atmospheric scientist John Christy of the University of Alabama-Huntsville, who was not part of the study. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time." Researchers had thought Antarctica was getting cooler in part because of the ozone hole over the South Pole. This break in the protective ozone layer brings cooling weather patterns across parts of Antarctica. Steig agrees that the ozone hole has contributed to cooling in East Antarctica. "However, it seems to have been assumed that the ozone hole was affecting the entire continent, when there wasn't any evidence to support that idea, or even any theory to support it," he adds.

Pielke Sr. Challenges New Antarctic Study - January 21, 2009
By Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Boulder
Excerpt: 3. How do the authors reconcile the conclusions in their paper with the cooler than average long term sea surface temperature anomalies off of the coast of Antarctica? [see: http://www.osdpd.noaa.gov/PSB/EPS/SST/data/anomnight.1.15.2009.gif]. These cool anomalies have been there for at least several years. This cool region is also undoubtedly related to the above average Antarctic sea ice areal coverage that has been monitored over recent years; seehttp://arctic.atmos.uiuc.edu/cryosphere/IMAGES/current.anom.south.jpg]. 4. In Figure 2 of their paper, much of their analyzed warming took place prior to 1980. For East Antarctica, the trend is essentially flat since 1980. The use of a linear fit for the entire period of the record produces a larger trend than has been seen in more recent years. In terms of the significance of their paper, it overstates what they have obtained from their analysis. In the abstract they write, for example, "West Antarctic warming exceeds 0.1C per

decade over the past 50 years". However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why.

Scientist adjusts data -- presto, Antarctic cooling disappears - December 21, 2008
Abstract excerpt: "We use statistical climate field reconstruction techniques to determine monthly temperature anomalies for the near-surface of the Antarctic ice sheet since 1957. Two independent data sets are used to provide estimates of the spatial covariance patterns of temperature: automatic weather stations and thermal infrared satellite observations. Quality-controlled data from occupied instrumental weather stations are used to determine the amplitude of changes in those covariance patterns through time. We use a modified principal component analysis technique (Steig et al., in review, Nature) to optimize the combination of spatial and temporal information. Verification statistics obtained from subsets of the data demonstrate the resulting reconstructions represent improvements relative to climatological mean values."
Mann's not the only one inventing his own "modified" PCA. Looks like Steig "got rid of" antarctic cooling the same way Mann got rid of medieval warming. Why not just look at the station data instead of "adjusting" it (graph above)? It shows a 50-year cooling trend.

Antarctic Facts Debunk Alarmists - Comprehensive Report on Antarctic Data & Studies - As of October 31, 2008
March 27, 2008 Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth

Alarmists Try Again: Claim CO2 Causes 2% of Antarctic to Melt & Ozone Depletion Causes 98% to COOL! - October 30, 2008
Claim: CO2 causing Antarctic peninsula to warm; ozone depletion caused the rest to cool - Data pins polar warming blame on humans - CNN.com
Excerpt: The report may go some way towards silencing climate skeptics who point to evidence that most of Antarcticahas been cooling for some time. "There is strong warming in the Antarctic Peninsula," Karpechko said. "But for several decades there has been a slight cooling of the rest of the continent. This slight cooling is due to circulation changes which are partly caused by ozone depletion. "This is why there has been a bit of confusion as to what is happening in Antarctica. But we expect a recovery of the ozone layer in the future. We may also expect that the Antarctic warming trends will emerge more clearly." Commenting on the study conducted by the UEA, Professor David Vaughan, a Glaciologist at the British Antarctic Survey told CNN, "This is exactly the sort of study we need. The poles are extremely important in the climate change debate and the rapid warming in the Arctic is one of the icons." Professor Vaughan, who is studying the patches of warming happening in Antarctica, concedes that the cooling that's occurred in the past 30 to 50 years is "a little perplexing." But he agrees with Dr. Karpechko over the effects of the ozone hole.

Reality Check: Climatologist John Christy Debunks Latest Claims on Antarctica - October 30, 2008 (Kudos to Canadian Press for striving for balance in a global warming article!)
Excerpt: The Canadian Press: John Christy, an atmospheric scientist at the University of Alabama, has done studies on climate models and says they are extremely limited tools in trying to mimic what happens in nature. He said they are unable to reproduce all of the naturally occurring influences and, as a result, give a false picture of what might be causing changes in the environment. Clouds,

for example, can dampen warming in the real world, but he said models have been shown to amplify warming. "They overstate the confidence of what they have in that result because we have too many examples of models that fail," Christy said from Huntsville. "We have shown that climate models just don't have the variability that nature provides to us." Christy too disputed whether the bulk of continental Antarctica is warming, saying that it is, in fact, cooling. The report looks largely at the Antarctic peninsula - which makes up two per cent of the continent - and the eastern and western coastal regions, where they have found warming. The report focuses on temperature changes going back to 1900 and up to the present, but doesn't include earlier periods when areas in the Arctic were actually warmer than they are today and were not affected by man-made greenhouse gases, said Christy. "Just 1,000 years ago the Arctic was much warmer than it is today so it's interesting that they would use the term conclusively," he said. "Natural variability can account for warming since the Arctic has been warmer before."

Inconvenient Peer-Reviewed Study: East and West Antarctic ice sheets have 'different climate histories' - 'a phenomenon that persists in modern times' - May 30, 2008
Excerpt: There is an interesting News Focus story in this week's Science journal, that helps to confirm the different climate histories for the East and West Antarctic ice sheets - a phenomenon that persists in modern times: ANTARCTICA: Freeze-Dried Findings Support a Tale of Two Ancient Climates - A surprising cache of ancient plant material adds evidence for divergent climate histories of the East and West Antarctic ice sheets over the past 14 million years. Excerpt: These findings appear to be contradictory at first glance, but in fact they buttress an evolving view among scientists that the two major features of the continent, the western and eastern ice sheets, have experienced vastly different climate histories. Data from the Dry Valleys reveals an East Antarctic Ice Sheet that is high, dry, cold, and stable, at least in its central area. And the ANDRILL cores suggest a more volatile West Antarctic Ice Sheet that is subject to the changing temperatures of the sea in which it wades. "It reaffirms the fragility of the West Antarctic Ice Sheet [WAIS] and the stability of the central part of the East Antarctic Ice Sheet," says Peter Barrett, a sedimentologist at the Victoria University of Wellington (VUW) in New Zealand, who advised the ANDRILL project.
We can't think of any other cause, it must be us - 'Prehistoric civilization' blaming thunderstorms on upset gods - October 31, 2008
Claim: 'We could only explain the warming that's been observed if we included human-climate influences'
Excerpt: 'We can't think of any other cause, it must be us' - This is the depth to which scientific research into climate change has sunk, like a kind of prehistoric civilization that blames thunderstorms, earthquakes and volcanoes on humanity somehow having "upset the gods". A Canadian study has concluded that we must be causing climate change because nothing else can explain it. Under the triumphant headline "Study confirms human impact on climate change", The Age reports all this without any discrimination: "We found that we could only explain the warming that's been observed if we included human-climate influences, particularly greenhouse gases," the study's author, Nathan Gillett, told ABC Radio. "And we couldn't explain those changes [if there] were just natural influences on climate like volcanoes and changes in the brightness of the sun."

Excerpt: Arctic Reality Check: Why isn't the cooling Antarctic considered 'an indicator of what might happen to the rest of the world?' - By Climate Scientist Dr. Ben Herman.

Dr. Herman Excerpt: First of all, the Arctic sea ice is at its minimum in September, not October or November as the scientists in the McClatchy article states. As Arctic ice experts, they certainly should have known this. Another point is that the Arctic temperatures do not "naturally peak in October or November". They peak in mid Aug ust generally. Also the article states that since the world's climates are interconnected, what happens in the Arctic may be an indicator of what will happen in the rest of the world. How about what happens in the Antarctic then? Since its ice area has been increasing, is this also an indicator of what might happen in the rest of the world?
[Note: Alarmists up to same tricks alleging present climate only explainable by human activity. Even the partisans at Real Climate now appear to concede CO2 is not all powerful! 1) Oops! Propagandists at RealClimate.org Let Truth Slip Out! - 'The actual temperature rise is an emergent property resulting from interactions among hundreds of factors' - September 20, 2008 -
2) UK Scientist: - 'Climate change is governed by hundreds of factors, or variables' Not Just CO2! By UK Professor Emeritus of Biogeography Philip Stott of
the University of London -http://web.me.com/sinfonia1/Global_Warming_Politics/A_Hot_Topic_Blog/Entries/2008/8/27_Wot%21_No_Sunspots_At_All%21.html]

Flashback: A February 2007 study reveals Antarctica is not following predicted global warming models - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: "A new report on climate over the world's southernmost continent shows that temperatures during the late 20th century did not climb as had been predicted by many global climate models." The research was led by David Bromwich, professor of atmospheric sciences in the Department of Geography, and researcher with the Byrd PolarResearch Center at Ohio State University.

Not Global Warming: Winds are Dominant Cause of Greenland and West Antarctic Ice Sheet Losses - October 3, 2008
Excerpt: Two new studies summarized in a news article in Science magazine point to wind-induced circulation changes in the ocean as the dominant cause of the recent ice losses through the glaciers draining both the Greenland and West Antarctic ice sheets, not 'global warming.' The two studies referred to are: 1) 'Acceleration of Jakobshavn Isbræ triggered by warm subsurface ocean waters' by Holland et al, published in Nature Geoscience. The Abstract states: Observations over the past decades show a rapid acceleration of several outlet glaciers in Greenland andAntarctica. One of the largest changes is a sudden switch of Jakobshavn Isbræ, a large outlet glacier feeding a deep-ocean fjord on Greenland's west coast, from slow thickening to rapid thinning in 1997, associated with a doubling in glacier velocity. Suggested explanations for the speed-up of Jakobshavn Isbræ include increased lubrication of the ice-bedrock interface as more meltwater has drained to the glacier bed during recent warmer summers and weakening and break-up of the floating ice tongue that buttressed the glacier.

2) 'Modelling Circumpolar Deep Water intrusions on the Amundsen Sea continental shelf, Antarctica' by Thoma et al, published in GRL. The Abstract states:
Results are presented from an isopycnic coordinate model of ocean circulation in the Amundsen Sea, focusing on the delivery of Circumpolar Deep Water (CDW) to the inner continental shelf around Pine Island Bay. The warmest waters to reach this region are channeled through a submarine trough, accessed via bathymetric irregularities along the shelf break. Temporal variability in the influx of CDW is related to regional wind forcing. Easterly winds

Subject: Re: Friday's Climate@Home meeting
From: "Bruce A. Wielicki" <b.a.wielicki@nasa.gov>
Date: Tue, 6 Feb 2007 18:20:08 -0500
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Gavin:

good to have you chime in. I greatly enjoy your work on the realclimate.org site and watch the site regularily as well as recommend it in my public climate lectures (I give about 1 a month and have done the university, art-house movie theatres, air/space museum, rotary club, church groups, etc.) so I recommend realclimate.org as the climate science blog for up to the minute news.

the CPDN for me was an epiphany in terms of how to think about climate prediction uncertainty and tie it to observation requirements. but many in the U.S. modeling community remain extreme skeptics.

cheers
bruce

> Don, I'd like to second Bruce on this. There is serious science that can be done with PPEs and it isn't being covered by the existing CPDN effort. I see our contribution to this as a method by which to enhance our computing capacity significantly. If a DOE/NSF machine of the capacity you mention were available (do you have a timescale?), any such PPE use would have to compete against some very worthy projects indeed and even hoping for a 1/12 of the years' machine time might be extremely optimistic. With a CPDN-like effort, there is no such competition since the resources are only available for ensemble runs and not for super-high resolution runs etc.
>
> Gavin
>
> On Tue, 2007-02-06 at 13:45, Bruce A. Wielicki wrote:
>> Don:
>>
>> I agree that a huge rapid effort is a bad approach. I also agree that a clear science focus is critical. Instead, after some up front thought and advice from those who have done it, we should engage a modest activity to complement the UK efforts and primarily to deal with two science issues:
>>
>> a) are the UK results using the UKMO model robust to very different model structures? this seems to be a consistent scientific criticism that needs to be addressed. an example might be Model E, but it need not be a huge effort to test: a few hundred to a few thousand model runs might be enough.
>> b) can the PPE approach help the climate community develop more rigorous climate observing system requirements? this is a science question relevant to nasa observing priorities. we currently have no climate OSSE (Observing System Simulation Experiment) capability. this is more about analyzing what PPE experiments can tell us is key in testing the accuracy of climate prediction. the primary reason we might want to do our own is to allow control of the model output metrics being tested. but this could wait while we build up the ability to analyze the UK PPE runs being done at Oxford and UKMO. If DOE, NOAA, or NCAR are already planning on trying item a), then nasa efforts might be better focused on b).

In a minimalist world with tight budgets, we could look first for early success in analysis of the UKMO and Oxford results to attack item b): Yong Hu is already being funded on his NRA proposal to do this, and early results look encouraging.

I'm assuming the "Toy" comment comes from how far you push this into the education arena, and basically making it a SimEarth sort of climate exploration. In that venue it would be an educational toy. A useful educational tool, but still would "look" like a toy.

We only grow an initial modest effort if it proves successful and useful. And the education aspect is much less critical than the science rationale.
My own view remains that the PPE approach is the ONLY way we will ever get observation requirements and priorities that are based in a physical hypothesis: a fully coupled climate model. Everything else we use is individual intuition, committee intuition, politics, or more commonly the hot button of the day. It is basically analogous to a random walk to climate change observing requirements. Not very
> rigorous and won't stand scrutiny. When we walk into OMB or decide how much is needed in a decadal study we do one of three things:
>

a) we need it all (bretherton report in the 1980s that started EOS, which was then downsized 3 separate times by roughly 30% each time)

b) we have a budget reduction of X%, so change what you will do by X% (EOS rebaselines in 1990s)

c) we think we can convince congress to give us X dollars, so we ask for X (recent nrc decadal study)

These are weak arguments to base a global climate observing system on. Thats why they don't hold up over time. There are no requirements, only wishes and votes.

In the simplest sense, there are 1000s of climate metrics (model vs observations) in the climate journals. They almost all invalidate the models. But which ones matter most for predicting a given climate change variable? When is a model accurate enough? These are fundamental climate prediction science questions that the PPE approach may well be the only way to address. It was one of three major approaches to evaluation of climate prediction uncertainty used in the new IPCC AR4 draft. Yet little to nothing on this appears to be going on in the U.S. climate model research community. Have I missed it?

If there is a better or more promising approach to develop a Climate OSSE capability for NASA and NOAA long term climate observations, I'd love to hear/read about it. Climate models are our hypothesis on the physics of the climate system. Embedded in them and their uncertain physics are the hypothesis tests we need to make. Whether PPE or some other approach, we need to tie our observing system requirements to physical hypothesis not to intuition.

I understand the skepticism and the tight budgets. When in doubt go slow and prototype/test in small chunks. Build if successful. Eliminate if not. Save education for later if funding is so tight you can barely start the science. Or NSF might want to tackle that one.
cheers
bruce

At 10:23 AM -0500 2/6/07, Donald Anderson wrote:

> I am getting significant feedback that looks at all this as a bit of
> a toy, and of limited value to climate science.
> In particular, why bother with such a complex effort to address
> science questions, when we can got to, e.g. DOE machines and get
> thousands of processors to do an arbitrary number of ensemble
> members?
> DOE and NSF have plans for, or have on the floor, machines with in
> excess of 150,000 processors. Accessing any one of those for say a
> month might be a much simpler solution.
>
> The discussion in this email is not about E&O at all, just do we
> need it for the science?
> Unless we can make a compelling case for a scientific advantage to
> the overhead required to 'manage' thousands of as available
> machines, this won't happen in MAP.
>
> My 'global' interest in this remains, but I'm not sure we have a
> science driver yet for proceeding with this approach.
> I am fairly confident that at least episodically I can find
> resources at the 100,000+ processor level to attack a specific short
> list of high priority questions.
>
> Note that for the MAP Science Team Meeting, CPDN is being removed
> from the agenda. The original idea has been submerged by the
> changed due date of Senior Review proposals.
> So bringing this together before the meeting is not necessary, or
> possible.
>
> What Mark has done helps us think about some of the practical
> issues, and SIVO should continue to assist in getting us to a
> preliminary strawman, but anything beyond that may require setting
> up a workshop to specifically discuss the science return on
> investment with this approach. And a strawman design/estimate would
> help frame that discussion.
>
> Don
>
>
> On 2/5/07 6:03 PM, "Bruce A. Wielicki" <b.a.wielicki@nasa.gov>
> wrote:
> Mike and Mark:
> > I'm also glad to see the level of interest. I like Mark's
> > initial schematic to help in the thought process. Some
> points I'll chime in from our discussions last fall with the
> > Oxford climateprediction.net group:
> > I The major challenges
> > a) quality control of the submitted runs (weeding out
> things that went wrong)
> > b) data storage of the results: the logistics blue and
> pink box in the middle marked
> "primary server"
> > II The major things that helped
> > a) BOINC (they initially did their own but decided in
> the end it was better to use BOINC)
> > > III The challenges clarified by the new
schematic
> > a) What is the process we use to define the major
> experiments?
> > b) What is the process we use to define the output
data
> saved from the model runs?
> this will to a great degree focus and limit the

> studies and visualization that can be
> done. For example, my own interests in using
> this as a tool to develop objective
> Climate OSSEs: analysis to prioritize climate
> observations and to set their
> requirements (variable, time/space scales,
> absolute accuracy, stability)
> > c) the data storage in the primary server (central box)
> will be driven by answers to
> questions a) and b).
> > cheers
> bruce
> > > > At 8:16 AM -0500 2/5/07, Michael Seablom wrote:
> Mark,
> > Thanks for your enthusiastic response... John
> Dorband is going to be the point of contact at this
> end regarding the use of the BOINC infrastructure,
> and also setting up a ModelE prototype. I say that
> with the assumption we'll use BOINC, I consider it a
> likely option but John is going to investigate other
> options, as you suggest, with cost-effectiveness in
> mind. You also raise some good questions regarding
> the management of the project, the proposal process,
> data distribution, etc., that I'm assuming NASA
> Headquarters will attend. Setting up the prototype
> infrastructure, I believe, can and should go forward
> as those questions are addressed.
> Best,
> Mike
> > > Michael Seablom
> > Head, Software Integration & Visualization Office,
> Code 610.3
> NASA Goddard Space Flight Center
> > Office/ Secretary: +1-301-286-8580
> eFax: +1-202-318-2386
> > > > On Feb 4, 2007, at 19:26 , Mark Chandler wrote:
> Hi all,
> > We've spent some time this week considering
> the design of a
> Climate@Home, which would produce PPE
> modeling capabilities (perturbed
> physical ensembles, as discussed in Bruce
> Wielicki's email of
> 11/26/06) similar to those of
> climateprediction.net. Don Anderson's
> charge was that we, additionally, consider
> ways to improve on the CPDN
> design by creating a system that would allow
> > users to design, create
> and run their own experiments. In this way
> the huge numbers of CPU
> > contributors could really participate and
> learn from the experiments
> that they were running on their computers.
> Such
> contributor/participants fall into (at

> least) three categories: 1)
> individuals who simply want to learn more
> about climate modeling and
> climate science by running experiments of
> their own design on their
> own computers, 2) the community of
> scientists who would propose
> experiments to use the distributed network
> (probably via a formal
> proposal and review process handled by MAP)
> and 3) educational
> institutions seeking to participate in large
> experiments while also
> providing training and education to students
> and the general public
> (schools, museums, etc.).
> > I've included a schematic design of such a
> network, which is a straw
> man for comment and discussion. "Model E"
> and "EdGCM" are labeled
> explicitly, but they are simply
> representative of the two sides of the
> same software coin - one which provides the
> scientific modeling
> capability, the other which provides users
> with the option to interact
> with climate models, and learn about climate
> science topics. The BOINC
> software layer is labeled as well, since it
> seems logical that we
> would collaborate with CPDN to leverage what
> they've already learned
> about how to create the distributed network
> to run PPE climate model
> experiments. In about two weeks, we are
> going to begin setting up a
> small BOINC network using our local EdGCM
> client/server network, just
> so we understand what we're dealing with.
> However, Mike Seablom, David
> Herring and crew at GSFC, together with
> Gavin at GISS, will need to
> discuss if BOINC is the most logical option
> for distributed computing
> with Model E. I've already heard from David
> Rind regarding numerous
> possible PPE experiments that would be of
> interest, including PPEs
> related to aerosol, sea ice, ocean and cloud
> parameterizations.
> Certainly Gavin and Jim will have ideas and
> priorities as well, and
> they can all be discussed at GISS model
> meetings. Ultimately it would
> be a group of scientists at GISS, GSFC,
> Langley etc. who would design
> and approve the initial experiments.
> However, Don indicated that the
> goal is to design a Cimate@Home network that
> > could eventually be made
> available to others as well. I believe the

> > procedure for this type of
> "availability" would be through
> Announcements of Opportunity (AO),
> which could be used to direct experiments
> toward specific goals.
> > The schematic diagram also makes note of the
> fact that some
> Institutional Clients, such as universities
> and other "big-hardware"
> participants, probably have enough
> distributed resources of their own
> that they may wish to design experiments or
> educational exercises (for
> courses) that utilize "EdGCM-like"
> capabilities to create and run
> simulations, without necessarily vetting
> everything through a
> proposal/review process. In the EdGCM
> project we've certainly had
> requests for such a capability from large
> universities, but haven't
> yet provided this. Individual departments
> often have their own
> clusters that they want students and
> professors to be able to take
> advantage of and it's preferable that such
> clients use their own
> resources when possible, as opposed to
> having to vet every experiment
> idea through a central system. The central
> system and the associated
> large distributed network would then be
> reserved for AO-level
> experiments vetted through NASA MAP.
> > Finally, all participants, whether they be
> Individual Clients,
> Institutional Clients, or Proposing
> Scientists, would have access to
> their own results (thus, the two way arrows
> everywhere on the
> diagram). However, one last group of
> potential users are those who did
> not participate in experiment design,
> creation or running, but would
> like to view and analyze the results. You'll
> see that the diagram has
> two sets of participants labeled "Scientific
> Community". The first
> group consists of users who proposed
> experiments, probably in response
> to an Announcement of Opportunity, to run on
> the Climiate@Home
> distributed network. The other group, which
> we haven't discussed,
> would be those users who request access to
> the results of experiments
> that they themselves didn't design or
> create. How would such requests
> be handled? Would the results be openly
> available to the community?

> Would they be available only to those who
> wrote formal proposals to
> use the data? Would they be available to
> educators in a form that they
> > could use? Would there be a waiting period
> for others while the chief
> > scientists on a project had "first crack" at
> the results? I suppose
> NASA has formal standards in place for such
> requests, science space
> missions must have to deal with this all the
> time, but it is an issue
> to consider for the Climate@Home project as
> well.
> > Feedback and discussion are
welcome and
> please let me know if I've
> left people off this mailing list that
> should be included.
> > Regards, Mark
> > p.s. I included this email
in the pdf that I
> attached since it
> contains a lot of explanation of the
> diagram. I also attached a second
> pdf showing a schematic of the BOINC network
> layer.
> > ----
> Mark A. Chandler
> Columbia University - CCSR/GISS
> 2880 Broadway, New York, NY 10025
> phone: NY (212) 678-5644
> WI (608) 270-9645
> >
<Climate@Home_Schematic.pdf>
> <BOINClayer.pdf>
>
>
> _____
> Don Anderson
> 3G84
> Modeling, Analysis and Prediction (MAP)
> Earth Science Division
> Science Mission Directorate
> NASA HQ
> Washington, DC, 20546-0001
> 202-358-1432 Fax: x2770
> email: Donald.Anderson-1@nasa.gov
>

--
Bruce A. Wielicki
Mail Stop 420
NASA Langley Research Center
Hampton, VA 23681-2199

Phone: (757) 864-5683
FAX: (757) 864-7996

--
Bruce A. Wielicki
Mail Stop 420

NASA Langley Research Center
Hampton, VA 23681-2199

Phone: (757) 864-5683
FAX: (757) 864-7996

Subject: Fwd: Climate news and blog thoughts
From: Erik Noble <enoble@giss.nasa.gov>
Date: Thu, 15 Mar 2007 13:14:09 -0400
To: gschmidt@giss.nasa.gov

These were my thoughts for a blog. My earlier file was an old version.
-Erik

Begin forwarded message:

From: Erik Noble <enoble@giss.nasa.gov>
Date: March 15, 2007 1:03:24 PM EDT
To: gschmidt@giss.nasa.gov
Subject: Climate news and blog thoughts

Dear Dr. Schmitt,

I apologize for stopping you in the hallway while you busy. Yesterday, I read the news email that Leslie McCarthy sent out to everyone and became interested in the fact that the UK has proposed another policy that strictly deals with Climate Change.

I even wrote a small piece that might be fitting for a blog (attached). In your opinion, would it be appropiate for a site such as RealClimate.org?
Even though I want to focus 100% of all my attention at studying climate change in the global sense with the models here, I still feel the pull and attraction for science policy discussions wrapped in climate change.

Privately, I am looking to explore discussions branching apart from the connections I have through CU Boulder to establish my own foundation
in the arena of climate science and decision making.

May I drop by in your spare time?
Thank you for your time and consideration.
Sincerely,
Erik Noble

Begin forwarded message:

From: Leslie McCarthy <lnolan@giss.nasa.gov>
Date: March 14, 2007 10:22:56 AM EDT
To: giss-people-l@giss.nasa.gov
Cc: mark.s.hess@nasa.gov, Franco.Einaudi@nasa.gov, robert.j.gutro@nasa.gov, mbettwy@aol.com, lychand@pop100.gsfc.nasa.gov, david.d.herring@nasa.gov, cookander@gmail.com, scole@pop600.gsfc.nasa.gov, dorothy.j.zukor@nasa.gov, michon@nsidc.org, eoeditor@yahoo.com, dwayne.c.brown@nasa.gov, edward.s.campion@nasa.gov, sdewitt@pop100.gsfc.nasa.gov, "Wade E. Sisler" <Wade.E.Sisler@nasa.gov>, tabatha.thompson-1@nasa.gov, cynthia.m.ocarroll@nasa.gov, grey.hautaluoma-1@nasa.gov, coh@ei.columbia.edu
Subject: NASA/climate news stories

Britain aims for CO2-limit target dates

By JENNIFER QUINN, Associated Press Writer
Wed Mar 14, 12:02 AM ET

LONDON - The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions a move it hopes will prompt the United States, China and India to follow suit.
ADVERTISEMENT

The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050.

http://news.yahoo.com
/s/ap/britain_climate_change;_ylt=At5nXihBW3rIzvTxUf3C43NrAlMA

Democrats in Congress Push Measures To Curb Global Warming

Legislative strategies aim for support from private sector, White House

By Andrzej Zwaniecki
USINFO Staff Writer (US State Department)
March 13, 2007

Washington – Congressional Democrats are pressing ahead with legislation to address global warming despite uncertainty over where the White House stands on specific issues.

A draft bill that would set limits on greenhouse gas (GHG) emissions could be "put forward" as soon as April, according to Senator Jeff Bingaman, chairman of the Senate Committee on Energy and Natural Resources. In the House of Representatives, Speaker Nancy Pelosi has asked her Democratic colleagues to have their version of climate-change legislation ready for floor action before July, according to news reports.

http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2007&m=March&x=20070313161124saikceinawz1.445949e-03

The New Scientist (about J. Hansen)

Chris Mooney
Seed Magazine
Posted March 11, 2007 11:49 AM

"They would have been better off if they'd just ignored me, rather than trying to shut me up. They brought the publicity about themselves."

James Hansen is sitting in his cluttered corner office on the seventh floor of the NASA Goddard Institute for Space Studies, just blocks from the Columbia University campus in upper Manhattan, and upstairs from Tom's Restaurant (of *Seinfeld* fame). A wiry scientist who looks young for his 65 years, Hansen speaks with a distinct Midwestern accent; as he talks, he gazes off into space, as if scrutinizing an invisible PowerPoint presentation. If he has a lot on his mind, it's no surprise: Hansen is the number one scientist in America and perhaps the world who has been publicly speaking out about our looming climate catastrophe. And in so doing, he has shattered some long-held convictions in the scientific community, ones overdue for a challenge.

http://www.seedmagazine.com/news/2007/03/the_new_scientist.php

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From a Rapt Audience, a Call to Cool the Hype

William J. Broad, New York Times
Published: March 13, 2007

Hollywood has a thing for Al Gore and his three-alarm film on global warming, "An Inconvenient Truth," which won an Academy Award for best documentary. So do many environmentalists, who praise him as a visionary, and many scientists, who laud him for raising public awareness of climate change.

But part of his scientific audience is uneasy. In talks, articles and blog entries that have appeared since his film and accompanying book came out last year, these scientists argue that some of Mr. Gore's central points are exaggerated and erroneous. They are alarmed, some say, at what they call his alarmism.

http://www.nytimes.com/2007/03/13/science/13gore.html?8dpc

THINKING GREEN AND ACTING LOCALLY

Brigid Bergin
City Limits
March 12, 2007

A scientific group recommends making environmental change on the neighborhood level.

If a NASA scientist and her colleagues have their way, Chinatown, the Lower East Side and the East Village could soon become the greenest part of New York City.

Cynthia Rosenzweig, who heads the Climate Impacts Group at the Goddard Institute for Space Studies at Columbia University, presented a study to leaders from those neighborhoods describing how to lower the temperature and reduce energy demand. The results ranked the effectiveness of specific strategies for certain areas, one of which was theirs – "Lower Manhattan East."

http://www.citylimits.org/content/articles/viewarticle.cfm?article_id=3290&content_type=1&media_type=4

Scientists Debate Sun's Role in Global Warming (D. Rind mentioned)

Tuesday, March 13, 2007
By Ker Than
Live Science.com

Earth is heating up lately, but so are Mars, Pluto and other worlds in our solar system, leading some scientists to speculate that a change in the sun's activity is the common thread linking all these baking events.

Others argue that such claims are misleading and create the false impression that rapid **global warming**, such as Earth is experiencing, is a natural phenomenon.

http://www.livescience.com/environment/070312_solarsys_warming.html

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Pelosi Reveals Who's Who On Global Warming Panel

Monday, March 12, 2007; Page A11

The best-kept secret on the Hill -- the full membership of the new committee on global warming -- is no longer secret. House SpeakerNancy Pelosi (D-Calif.) has announced the 15 members of the committee, formally known as the Select Committee on Energy Independence and Global Warming.

http://www.washingtonpost.com/wp-dyn/content/article/2007/03/11/AR2007031101044.html

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Arctic impact on global warming lures scientists

By Deborah Zabarenko, Environment Correspondent
Wednesday, March 14, 8:30 am

HANOVER, New Hampshire (Reuters) - A polar bear swimming amid melting Arctic sea ice may be one image of global warming's impact. But it could just as well be a California wildfire, a European heat wave or a Caribbean hurricane.

That's because the consequences of climate change at the poles affect the whole world, said Ross Virginia, professor of environmental studies at New Hampshire's Dartmouth College and one of the organizers of a summit on Arctic science this week that will focus on global warming.

http://news.yahoo.com/s/nm/20070314/sc_nm
/arctic_globalwarming_dc_1;_ylt=Ah_upem4ize3mMFgeCes7B1rAlMA

U.S. bars talk of climate change effects on bears
Memos set strict limits on what officials can say abroad

Seattle Post-Intelligencer staff and news services
Last updated March 8, 2007 10:40 p.m. PT

The Bush administration is ordering federal wildlife officials headed for international meetings on polar bears not to talk about how climate change and melting ice are affecting the imperiled

animals.

It is the latest in a string of cases in which the administration has carefully controlled or even banned government employees' public speech about global warming.

This latest chapter involves two memorandums written in late February that put strict limits on what U.S. Fish and Wildlife Service employees could discuss at meetings in Norway and Russia.

http://seattlepi.nwsource.com/national/306820_bears09.html?source=mypi

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Part 1.1.1.3

Part 1.1.1.3	**Content-Type:** text/html **Content-Encoding:** 8bit

Thoughts_for_ a_Blog.rtf

Thoughts_for_ a_Blog.rtf	**Content-Type:** text/rtf **Content-Encoding:** 8bit

Part 1.1.1.5

Part 1.1.1.5	**Content-Type:** text/html **Content-Encoding:** 8bit

Title: UK's Limits on Carbon Emissions: Votes, Please!

Jennifer Quinn's press release * yesterday in the Associated Press highlights the UK's policy proposal for a legislative initiative for mandatory CO2 limits. The first two paragraphs of the release says:

"The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions a move it hopes will prompt the United States, China and India to follow suit."

"The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050."

Its too early to tell whether good policy options will result from the British government's push for a carbon tax. Prime Minister Tony Blair sums up the symbolic action:
"This is a revolutionary step in confronting the threat of climate change," Prime Minister Tony Blair said. "It sets an example to the rest of the world.

Is this window-dressing for emotional appeal or an implementation of action? Only the votes will tell.

-Erik Noble

*

http://hosted.ap.org/dynamic/stories/B/BRITAIN_CLIMATE_CHANGE?SITE=ALTAL&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2007-03-14-00-02-59

or

http://news.yahoo.com/s/ap/britain_climate_change;_ylt=At5nXihBW3rIzvTxUf3C43NrAIMA

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http://hosted.ap.org/dynamic/stories/B/BRITAIN_CLIMATE_CHANGE?SITE=ALTAL&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2007-03-14-00-02-59

or

http://news.yahoo.com/s/ap/britain_climate_change;_ylt=At5nXihBW3rlzvTxUf3C43NrAIMA

**

http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001091postipcc_political_.html

Subject: [Fwd: Fwd: Question]
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Thu, 09 Aug 2007 19:12:08 -0400
To: gavin@giss.nasa.gov

Gavin,

Jim gets many of these kinds of responses - a change whose effect we described as well within the margin of error has become an "astonishing change".

I guess the best thing is to ignore it and - if at all - set matters straight in a place like RealClimate .

Reto

-------- Forwarded Message --------
From: James Hansen <jhansen@giss.nasa.gov>
To: rruedy@giss.nasa.gov, makis@giss.nasa.gov
Subject: Fwd: Question
Date: Thu, 09 Aug 2007 18:13:23 -0400

DomainKey-Signature: a=rsa-sha1; q=dns; c=nofws; s=s1024;
d=yahoo.com;
h=Received:X-YMail-OSG:From:To:Subject:Date:Message-ID:MIME-Version:Content-Type:X-Mailer:Thread-Index:X-MimeOLE:Disposition-Notification-To;
b=ffkH2tg2tl5Z4nC6MwTIbe8N2agSXyOS+Mr4wPMswbQJdfchkU+64OU3se8vtx+Di6KFgNc1dgwzzbp5PDkotaOObRYkc+Usn1/0ugGm7gw8KnFEjITxLy9cc1DAIhnq4sSMIZyOjf0
;
X-YMail-OSG:
kEot1KsVM111f1VC31qkqzwt1okpR3HYVAPxQCuUAnoXdfzY1j2A3q7Zk.gU1cYAwj5E.mbIWXbc97AenQB33NLMIg0vLabH2jPKs5nRtcb6PiL2mA--
From: @yahoo.com>
To: <James.E.Hansen@nasa.gov>
Subject: Question
Date: Thu, 9 Aug 2007 18:55:53 -0300
X-Mailer: Microsoft Office Outlook 11
Thread-Index: Acfaz/NMEFUhL8W1T7+QO5t4TLtH8Q==

Dr. Hansen,

Below is a link to a posting today that I was hoping you could comment on.

It is dispiriting that questions regarding climate change have been politicized, but I was hoping you could shed some light on this posting.

http://www.dailytech.com/Blogger+finds+Y2K+bug+in+NASA+Climate+Data/article8383.htm

Thank you very much for any clarification you can provide.

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Reto Ruedy <rruedy@giss.nasa.gov>
Date: Fri, 17 Aug 2007 19:28:04 -0400
To: James Hansen <jhansen@giss.nasa.gov>
CC: Gavin Schmidt <gschmidt@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>

I understand, that was just meant as a suggestion to bring up on Gavin's RealClimate site, if he needs to counter requests for our "fixing" code.

Reto

On Fri, 2007-08-17 at 19:06 -0400, James Hansen wrote:
> Technical arguments with a jackass or a jester, which most observers not wanting to understand the details, can appear to lower one to a comparable level. Better not argue with him about whether we fix data; we do an urban adjustment, for example. Jim
>
> On 8/17/07, Reto Ruedy <rruedy@giss.nasa.gov> wrote:
>> TOBS does not have the station history adjustment (SHAP) - FILIN has it
>> and is the last stage before their urban adjustment. I can run with or
>> without the filled-in data (filling in added .05C/century to the US mean
>> trend in our analysis).
>>
>> Once the new USHCN data are reformatted, it's just a question of what to
>> do with years 2006 and 2007. Otherwise it's simply switching an input
>> file.
>>
>> I still think, Steve (in the Town Hall interview below and when he talks
>> to anybody but us) mixes us up with Tom Karl's group - they "fix"
>> station data, we don't. If we get this misunderstanding out in the open,
>> it might die down as well.
>>
>> Reto
>>
>> On Fri, 2007-08-17 at 16:23 -0400, Gavin Schmidt wrote:
>> > I didn't suggest using their urban adjustment, but that the most
>> > up-to-date USHCN data may have more in the way of documented station
>> > adjustments and more data earlier on. The FILIN data do not include
>> > their urban adjustment as far as I can tell. I get the impression from
>> > the USHCN web site that you should be able to extract just the TOBS
>> > corrected data without the FILIN.
>> >
>> > The point is to make sure that the difference between the earlier USHCN
>> > data set we were using and the latest version does not make a

> significant difference to the results. Since any independent replication
> of the GISS procedure will use the currently available data set (not the
> one we are using), we should probably be ahead of the game in
> understanding what impact it has.
>
> As is usual in these cases, the smarter of the court jesters have
> already stopped talking about 1934 and are now pushing the transparency
> 'meme'. That has a lot more resonance....
>
> Gavin
>
> On Fri, 2007-08-17 at 16:10, James Hansen wrote:
> > What is the matter with the way that we do it? Among other things, we
> > have a more realistic urban adjustment. Changing has various
> > drawbacks. Jim
> >
> > On 8/17/07, Reto Ruedy < rruedy@giss.nasa.gov> wrote:
> > Jim,
> >
> > Gavin suggested some time ago that we should do the analysis
> > with the
> > current USHCN.
> >
> > I downloaded the "FILIN" USHCN data; the filled-in numbers are
> > marked.
> > So I can use or ignore them. I have to write a program anyway
> > to
> > reformat this file to the format used by GHCN. This includes
> > the easy
> > conversion from F to C, but they also use a different set of
> > ID-numbers
> > to characterize the station. So first, I'll have to construct
> > and check
> > a conversion table to identify the stations properly.
> >
> > Reto
> >
> > On Fri, 2007-08-17 at 11:44 -0400, Reto Ruedy wrote:
> > > What I wrote was true last week - today it says that monthly
> > data are
> > > available from 1900-2005. They must have updated it in the
> > last few
> > > days.
> > >
> > > Reto
> > >

```
> >          > On Fri, 2007-08-17 at 11:35 -0400, Reto Ruedy
wrote:
> >          > > Jim,
> >          > >
> >          > > On the USHCN site it says that the data
available from
> >          their web site go
> >          > > to 2002. I never downloaded them since the
stage we use is
> >          not stored at
> >          > > that site - we would have to make a special
request.
> >          > >
> >          > > Reto
> >          > >
> >          > > On Fri, 2007-08-17 at 11:18 -0400, James
Hansen wrote:
> >          > > > Mc claims that USHCN data is actually
available
> >          up-to-date.  Is that
> >          > > > right? Jim
> >          > > >
> >          > > > On 8/17/07, lesgiss@verizon.net
<lesgiss@verizon.net>
> >          wrote:
> >          > > >          Good morning:
> >          > > >
> >          > > >          Here is the Town Hall story entitled
"NASA
> >          Blocked Climate
> >          > > >          Change Blogger
> >          > > >          from Data"...
> >          > > >
> >          > > >
> >
http://www.townhall.com/Columnists/AmandaCarpenter/2007/08
/17/nasa_blocked_c
> >          > > >
> >
limate_change_blogger_from_data?page=full&comments=true
> >          > > >
> >          > > >          Leslie
> >          > > >
> >          > > >
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> >
-----------------------------------------------------------------
> >          > > >          mail2web.com - Microsoft® Exchange
solutions
> >          from a leading
> >          > > >          provider -
> >          > > >
http://link.mail2web.com/Business/Exchange
> >          > > >
> >          > > >
> >          > > >
> >          > > >
> >          --
> >          Reto Ruedy < rruedy@giss.nasa.gov>
> >
--
Reto Ruedy <rruedy@giss.nasa.gov>
```

--
Reto Ruedy <rruedy@giss.nasa.gov>

Subject: heads up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: Mon, 31 Mar 2008 11:17:48 -0500 (EST)
CC: Group RealClimate <group@realclimate.org>

Nature Geoscience will have two commentaries this month - one by me on why blogging is a useful activity (but with no direct reference to RealClimate), and an opposing one from Myles Allen - where he tries to make the point that there is a tension between responding in the peer-reviewed literature and on a blog, and therefore to save peer-review, one can't ever say anything informally. In making this point however, he quite specifically singles out our (well, my) treatment of the Stainforth et al paper and the subsequent controversy (How not to write a press release) as the example of how unfair commenting on blogs is and how we were out to 'get' him.

I reviewed those two pieces and apart from potentially one statement that Myles is obsessing over (whether the cluster of cpdn models with sensitivities around 2-4 deg C was an important result), I don't see anything wrong with what we said in either post. I have therefore put clearly marked updates in both posts to clarify one point of fact and to make it clear that I never accused Myles of deliberately trying to mislead anyone.

Nonetheless, when the pieces come out (sometime this week), some people will clearly see a personalised conflict between Myles and us (and James Annan who is obliquely mentioned as well). Once I see what was in the final version (I protested quite strongly and so it will hopefully not be inaccurate or personal as the earlier draft), I will put a short piece focussing on the real issue (i.e. how commentary on blogs and peer-review intersect) along with some links to the pieces Myles is protesting about.

However, I am not going to allow this to turn into a re-hash of the 11 deg climate sensitivity issue or the Stainforth paper or any me-vs.-Myles issue. So if you end up moderating any commments, please avoid letting in anything that will inflame the situation.

Myles and I have had a pretty frank email discussion (which has not been pleasant), but I'd rather not bring that out. His one constructive suggestion is that we should always send blog posts ahead of time to the original authors of any paper we comment on to ensure 'accuracy'. Since this is presumably only relevant if we are critical, that (it seems to me) to preclude us writing anything critical about anybody. However, he suggested I ask what you lot think, and so I will. What do you think?

Anyway, since this will be coming done the pipe soon, I thought I'd let you know.

Gavin

Gavin Schmidt	NASA/Goddard Institute for Space Studies
	2880 Broadway
Tel: (212) 678 5627	New York, NY 10025
gschmidt@giss.nasa.gov	http://www.giss.nasa.gov/~gavin

Subject: RE: rating notes
From: "Emily Michaud" <emichaud@giss.nasa.gov>
Date: Wed, 4 Jun 2008 12:14:47 -0400
To: "'Gavin Schmidt'" <gschmidt@giss.nasa.gov>

Thanks Gavin. I'll 'cut and paste' into your plan.

e

-----Original Message-----
From: Gavin Schmidt [mailto:gschmidt@giss.nasa.gov]
Sent: Tuesday, June 03, 2008 11:58 AM
To: Emily Michaud
Cc: Jim Hansen
Subject: rating notes

Emily, for some reason, the plan document kept crashing on me, so here are the main points for each of the four elements:

gavin

=======

1) Work results are measured through quality peer-reviewed publications and submitted or funded proposals.
Writes or contributes significantly as author or coauthor on the average of at least one paper per year that will be submitted to a refereed science or high quality technical journal. The paper(s) will be based on funded research relevant to NASA strategic goals. Present the results of this research at a national or international meeting.

In 2007 and 2008, Gavin Schmidt authored or co-authored 12 peer reviewed papers in the technical literature (including 3 "in press") (listed below). He has presented his research at the following meetings over the last year: Abrupt Climate Change workshop (Obergurgl, Austria, May 2007), the International Conference on Paleoceanography (Shanghai, China, 2007), SORCE Investigators Meeting (Santa Fe, Feb, 2008), Leverhulme Climate Symposium (Cambridge, UK, Mar 2008), Swiss Global Climate Day (Bern, Apr 2008).

LeGrande, A.N., and G.A. Schmidt, 2008: Ensemble, water-isotope enabled, coupled general circulation modeling insights into the 8.2-kyr event. Paleoceanography, in press, doi:10.1029/2008PA001610.

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Masson-Delmotte, V. et al, A Review of Antarctic Surface Snow Isotopic Composition: Observations, Atmospheric Circulation and Isotopic Modelling, 2008, J. Climate, (in press)

Hansen, J., et al, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., et al, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2) COLLABORATION AND TEAMWORK

Gavin Schmidt has co-authored with over 70 people in the journal articles listed above, from within NASA, across the US and internationally. He recently submitted a proposal for NASA NEWS in collaboration with investigators from JPL and the U. Colorado, and to NASA MAP with colleagues from GSFC and Columbia U. He is instrumental in coordinating overall model development strategy and the work being done at GISS on carbon cycling and interactive tracers (aerosols, chemistry, dust). He coordinates the input of the GSFC SIVO into GISS model development. He is the co-chair of the PAGES/CLIVAR Intersection Panel which tries to coordinate reasarch internationally that is of value for understanding both past and present climate variability. He successfully mentored Allegra LeGrande through her PhD and now works with here as a post-doc at GISS. He currently advises one Columbia graduate student.

He is active in looking at ways to expand collaboration and progress in the field of ice sheet modelling (see Little, C.M., et al, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002) and is actively collaborating with Bill Lipscomb at LLNL and Olga Sergienko, Portland State University).

3) COMMUNICATIONS

(This is a tough one since I'm not sure how you can show proof of any of this).

The quality of Gavin Schmidt's oral presentations are demonstrated by the frequent repeat invitations for talks and radio/television interviews and the positive feedback received from audiences. He has been frequently asked to write for popular audiences (Physics Today, Physics World, Nature Geoscience, blogs, the GISS Website). No article of his has been found to not meet NASA's prescribed standards.

4) Community and Academic Outreach

Contribute to community and student outreach. Whenever possible provide lay-person version of research on GISS web site

Gavin Schmidt is active in outreach to the wider academic community and to the public. He has given introductory talks on climate change science at the New York Academy of Science summer program (2007), American Museum of Natural History, Auburn Universtiy (Auburn AL, Feb 2008), the Brattleboro Art Museum (Vermont, Feb 2008), PITTCON 08 (New Orleans, Mar 2008), Bristol University (Mar, 2008).

He contributes to the RealClimate.org blog and has written a tutorial on climate modelling for Physics Today (Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.), and recently wrote a commentary for Nature Geoscience on outreach in the digital age (Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170).

He has edited a book on the science and photography of climate change for a lay audience (Schmidt, G and J. Wolfe, "Climate Change: A Look behind the science, W.W. Norton to be published spring 2009). He has contributed a chapter to the book New Questions in Science (edited by Max Brockman, Vintage Press, to be published spring 2009).

In the last 12 months, he has appeared on "This Week in Science" (NPR), "The Daily Show with Jon Stewart", "Pale Blue Dot" (radio show), "Greener Living" (radio show), Diane Rehm (NPR) as well as print newspapers such as the Washington Post, New York Times, and magazines such as New Scientist and Popular Mechanics in order to explain his research and provide context for other climate change stories in the media.

On Thu, 2007-02-22 at 14:18 -0500, Gavin Schmidt wrote:
Thanks again. A couple of anomalies though, I thought the error was in the erroneous overlap between CO2 and O3 when both were small (or is it just when CO2 is small?). Thus I think you missed a few that needed redoing. For instance, the clouds only run (g22) (and the CH4-only and CFC-only runs (g18 and g20). Depending on the nature of the error, I'm not sure if CO2 only needs redoing (g17).

To summarise, if the error only affects CO2 removal, then these need doing over: g18, g20, g22, g23, g24

If it affects calculations when O3 is zero too, then additionally: g06, g17.

I think you did g07 by mistake....

Gavin

On Wed, 2007-02-21 at 17:25, Reto Ruedy wrote:
Yes, they are done, forgot to let you know. The results are stored in halem:/giss3/giss/RADfrc/gavin_new . In only 3 cases were the results very different: no CO2, no GHG, H2O only; a few more cases were slightly affected.

Andy thinks that the adjusted forcings in the extreme cases are not too meaningful.

Reto

On Wed, 2007-02-21 at 16:09 -0500, Gavin Schmidt wrote:
Did these finish? Thanks

Gavin

On Wed, 2007-02-14 at 11:30, Reto Ruedy wrote:
Gavin,

Valdar just gave me a version of the radiation that should handle cases
in which water vapor or CO2 is missing in a more appropriate way. I am currently rerunning the 17 cases that are affected by the change.

Reto

On Fri, 2006-12-29 at 18:07 -0500, Gavin Schmidt wrote:
Thanks a bunch!

On Fri, 2006-12-29 at 18:04, Reto Ruedy wrote:
It seems you need the up rather than the net fluxes; most of the original files were created by the script "do_gavin_net" in /giss3/giss/RADfrc (then moved to the subdirectory gavin)

do_gavin_up created the corresponding files for the up (away from the
center of the earth) fluxes. (There is a corr. program for the down
fluxes)

If you only need the global means, something like
for x in *upthrmlij.tcp ; do /giss3/giss/exec/GM $x ; done
may be used to create the corresponding table.

The program(s) I used need some cleaning up before they can be added to
the repository. I'll get to it within the next few days.

Reto

On Fri, 2006-12-29 at 16:19, Gavin Schmidt wrote:
Thanks again. Looking at it, I think I'll need some extra diags, specifically the incident LW at the ground. This is because I want to
calculate the change in atmospheric absorption of LW - thus I need
LW_UP_AT_SURF and LW_OUT_AT_TOA. All I can see in the diags you summarised is LW_NET_AT_SURF and that is only half what's required for
the first term. This should be close to the net LW change at the tropopause in the adjusted cases, but I need to check.

I tried to use pdE on the acc files directly, but that doesn't work, so
you must have another program for extracting info right? (is this
something we can fix, ie. merging your extraction files directly into
the model?).

I also need the baseline levels of all these things in the base control
run g00, but I guess that is available from your program too?

Gavin

On Thu, 2006-12-28 at 15:39, Reto Ruedy wrote:
Hi Gavin,

Here is a summary of the results of the experiments you suggested:

dNet Radiation (W/m2)	annual global mean instantaneous at tropopause	adjusted in stratosphere
E2g01 - remove water vapor	-60.29	-59.61
E2g02 - remove CO2	-23.29	-20.40
E2g03 - remove CH4	-1.31	-1.37
E2g04 - remove N2O	-1.67	-1.68
E2g05 - remove CFC11/12	-0.13	-0.13
E2g06 - remove O3	1.02	-1.40
E2g07 - remove clouds	25.39	25.38
E2g08 - remove other CFCs	-0.03	-0.03
E2g09 - remove LW aerosol effects	-0.41	-0.41
E2g10 - remove all aerosol effects	2.67	2.61
E2g11 - remove water vapor and CO2	-95.05	-90.39
E2g12 - remove water vapor and clouds	-50.36	-48.96
E2g13 - remove water vapor,CO2,clouds	-91.65	-85.33
E2g14 - remove GHGs	-28.78	-29.99
E2g15 - remove all but GHGs	-41.49	-40.19
E2g16 - remove all but water vapor	2.43	1.37
E2g17 - remove all but CO2	-43.71	-45.85
E2g18 - remove all but CH4	-85.14	-85.13

E2g19 - remove all but N2O	-83.85	-83.06
E2g20 - remove all but CFC11/12	-87.33	-85.29
E2g21 - remove all but O3	-87.60	-80.72
E2g22 - remove all but clouds	-96.94	-97.83
E2g23 - remove all but other CFCs	-87.26	-85.05
E2g24 - remove all but aerosols	-96.72	-97.83
E2g25 - Doubling water vapor	12.29	11.97
E2g26 - Doubling CO2	4.54	4.16

The various output files were collected on halem:
/giss3/giss/RADfrc/gavin

The model used is on halem:/giss2/giss/RUNS/E050frc/modelE

Some of the combined results seem a little puzzling, but so far I could
not find any errors in the rundecks.

For the runs without O3, I had to limit the temperature changes such
that the resulting temperatures stayed within the 124-370K interval. I
extended those runs to a third year, since the forcing was not constant
throughout the stratosphere. However, the results did not change
significantly (see /giss3/giss/RADfrc/gavin/adj_table).

Reto

On Sat, 2006-12-23 at 15:13, Gavin Schmidt wrote:
> 1) The control doesn't matter as long as it's constant - 1980 is fine.
>
> 2) dust aerosols should be lumped in as well.
>
> 3) does it matter whether we do both SW + LW effects for aerosols? The
> LW calculation should be independent of the SW absorption no? Though now
> that I think about it, I could see that SW absorption increases LW
> emittance ... so let's do both. i.e. LW only and then SW+LW.
>
> 4) Those diags should be fine (as well as the tropopause numbers). I'll
> boil them down to percent change in LW absorption by the atmosphere and
> LW and SW forcing at the tropopause.
>
> Thanks a lot.
>
> Gavin
>
> On Sat, 2006-12-23 at 12:13, Reto Ruedy wrote:
> > Most of these factors are already available and the rest is easy enough
> > to add. A few questions:
> >
> > 1 - should all these cases be compared to the 1980 conditions
> > ? - if we remove aerosols, should that include desert

dust aerosols
3 - for aerosols, should both LW and SW effects be set to 0 (FS8OPX, too)
4 - what diagnostics do you need (I'm saving the SW and LW up and down fluxes at all LM+4 interfaces, so this can be decided later)

Reto

On Fri, 2006-12-22 at 16:33, Gavin Schmidt wrote:
Great. The experiments are as follows - the idea is to remove each LW absorber individually, and then only have that absorber (and a few interesting combinations). The ones I'm interested in are CO2, CH4, N2O, CFCs, O3, 'Others'(X), H2O, Clouds, and aerosols.

One absorber removed:

1) H2OX=0 (all radiative effects of water vapour zeroed out)
2) CO2X=0 (no CO2)
3) CH4X=0
4) N2OX=0
5) CFCX=0
6) O3X=0 (no ozone)
7) CLD=0 (no radiative effect from clouds)
8) X=0 (no 'other' GHGs)
9) AER=0 (no aerosols)

Combos:
1) H2OX=CO2X=0 (no water vapour or CO2)
2) H2OX=CLD=0 (no water vapour or clouds)
3) H2OX=CO2X=CLD=0 (no water vapour, clouds or CO2)
3) No GHGs (CO2X=CH4X=N2OX=CFCX=O3X=X=0)
4) Only GHGs (H2OX=AER=CLD=0)

Single absorbers

1) Only H2O
2) Only CO2 (no CO2)
3) Only CH4
4) Only N2O
5) Only CFC
6) Only O3
7) Only CLD
8) Only 'other' GHGs
9) Only aerosols

other comparisons:

1) 2xH2O
2) 2xCO2 (I think we might have done that one already)

If needed, I can put in some rundeck switches for all of these factors - currently, only a few are there...

Gavin

Re: 'total' forcing experiments

On Tue, 2006-12-19 at 17:15, Reto Ruedy wrote:
Hi Gavin,

That should easily be possible, I'll gladly set them up; do you have a
list of the approx. 25 experiments? Instantaneous forcings repeat after
a year, adjusted forcings stabilize after 1 year, so there we look at
year 2.

Reto

On Tue, 2006-12-19 at 16:16, Gavin Schmidt wrote:
Hi Reto, A while back I did some basic experiments with the GCM for the
blog where I selectively removed all of the individual absorbers and
combinations to see what contribution they had on the LW absorption. I
used a 'poor mans' calculation (instantaneous forcing at the tropopause
for one single calculation on the 1 JAN). I have since been asked lots
of times whether I was going to publish this. I didn't think it said
anything that people didn't already know, but as far as I can tell,
no-one has done this with a GCM - the usual reference is Ramanathan and
Coakley (1978) who used an radiative-convective model (which did give
very similar answers).

Anyway, it is something that might be worth doing properly. For that I'd
need to use the radiative forcing calculations you use - and calculate
the instant and adjusted forcings for each perturbation over a year or
so. There are about 25 experiments in total, most of which can be
controlled from the rundeck.

Depending on how straightforward this is, I could do it, or if you were
interested, I'd be happy to collaborate on it (i.e. you could do the
runs, and we could share the glory!). Let me know.

Gavin

Re: Fwd: Climate news and blog thoughts

Subject: Re: Fwd: Climate news and blog thoughts
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Mar 2007 18:04:33 -0500
To: Erik Noble <enoble@giss.nasa.gov>

Hi Eric, Sorry if I appeared a little brusque yesterday - I was quite stressed for various reasons. With your blog post, it's not really the kind of thing we post, but if you expanded in a bit more depth, you might send it over to climatepolicy.org - they've just started up and might be interested...

Gavin

On Thu, 2007-03-15 at 12:14, Erik Noble wrote:
These were my thoughts for a blog. My earlier file was an old version.
-Erik

Begin forwarded message:
From: Erik Noble [redacted]
Date: March 15, 2007 1:03:24 PM EDT
To: [redacted]
Subject: Climate news and blog thoughts

Dear Dr. Schmitt,

I apologize for stopping you in the hallway while you busy.
Yesterday, I read the news email that Leslie McCarthy sent out to everyone and became interested in the fact that the UK has proposed another policy that strictly deals with Climate Change.

I even wrote a small piece that might be fitting for a blog (attached). In your opinion, would it be appropiate for a site such as RealClimate.org?
Even though I want to focus 100% of all my attention at studying climate change in the global sense with the models here, I still feel the pull and attraction for science policy discussions wrapped in climate change.

Privately, I am looking to explore discussions branching apart from the connections I have through CU Boulder to establish my own foundation
in the arena of climate science and decision making.

May I drop by in your spare time?
Thank you for your time and consideration.
Sincerely,
Erik Noble

Begin forwarded message:
From: Leslie McCarthy <lmclan@giss.nasa.gov>
Date: March 14, 2007 10:22:56 AM EDT
To: giss-people-l@giss.nasa.gov
Cc: [redacted]
Subject: NASA/climate news stories

Britain aims for CO2-limit target dates
By JENNIFER QUINN, Associated Press Writer
Wed Mar 14, 12:02 AM ET

LONDON - The British government proposed bold new environmental legislation Tuesday that would set legally binding, long-term limits on carbon emissions - a move it hopes will prompt the United States, China and India to follow suit.
ADVERTISEMENT

The climate change bill would be the first legislation in an industrialized country to spell out such long-range goals, including a carbon budget set every five years that would cap CO2 levels and create an independent body to report on progress. The legislation also calls for binding targets, including an emissions reduction of 60 percent by 2050.

[redacted]

Re: Fwd: Climate news and blog thoughts

Democrats in Congress Push Measures To Curb Global Warming
Legislative strategies aim for support from private sector, White House

By Andrzej Zwaniecki
USINFO Staff Writer (US State Department)
March 13, 2007

Washington - Congressional Democrats are pressing ahead with legislation to address global warming despite uncertainty over where the White House stands on specific issues.

A draft bill that would set limits on greenhouse gas (GHG) emissions could be "put forward" as soon as April, according to Senator Jeff Bingaman, chairman of the Senate Committee on Energy and Natural Resources. In the House of Representatives, Speaker Nancy Pelosi has asked her Democratic colleagues to have their version of climate-change legislation ready for floor action before July, according to news reports.

http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2007&m=March&x=20070313161113lmaibohtua0.6455494

The New Scientist (about J. Hansen)
Chris Mooney
Seed Magazine
Posted March 11, 2007 11:49 AM

"They would have been better off if they'd just ignored me, rather than trying to shut me up. They brought the publicity about themselves."

James Hansen is sitting in his cluttered corner office on the seventh floor of the NASA Goddard Institute for Space Studies, just blocks from the Columbia University campus in upper Manhattan, and upstairs from Tom's Restaurant (of Seinfeld fame). A wiry scientist who looks young for his 65 years, Hansen speaks with a distinct Midwestern accent; as he talks, he gazes off into space, as if scrutinizing an invisible PowerPoint presentation. If he has a lot on his mind, it's no surprise: Hansen is the number one scientist in America and perhaps the world who has been publicly speaking out about our looming climate catastrophe. And in so doing, he has shattered some long-held convictions in the scientific community, ones overdue for a challenge.

http://www.seedmagazine.com/news/2007/03/the_new_scientist.php

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From a Rapt Audience, a Call to Cool the Hype

William J. Broad, New York Times
Published: March 13, 2007

Hollywood has a thing for Al Gore and his three-alarm film on global warming, "An Inconvenient Truth," which won an Academy Award for best documentary. So do many environmentalists, who praise him as a visionary, and many scientists, who laud him for raising public awareness of climate change.

But part of his scientific audience is uneasy. In talks, articles and blog entries that have appeared since his film and accompanying book came out last year, these scientists argue that some of Mr. Gore's central points are exaggerated and erroneous. They are alarmed, some say, at what they call his alarmism.

http://www.nytimes.com/2007/03/13/ [illegible] .html?hp

THINKING GREEN AND ACTING LOCALLY

Brigid Bergin
City Limits
March 12, 2007

A scientific group recommends making environmental change on the neighborhood level.

If a NASA scientist and her colleagues have their way, Chinatown, the Lower East Side and the East Village could soon become the greenest part of New York City.

Cynthia Rosenzweig, who heads the Climate Impacts Group at the Goddard Institute for Space Studies at Columbia University, presented a study to leaders from those neighborhoods describing how to lower the temperature and reduce energy demand. The results ranked the effectiveness of specific strategies for certain areas, one of which was theirs - "Lower Manhattan East."

http://www.[illegible]

Re: Fwd: Climate news and blog thoughts

Scientists Debate Sun's Role in Global Warming (D. Rind mentioned)
Tuesday, March 13, 2007
By Ker Than
Live Science.com

Earth is heating up lately, but so are Mars, Pluto and other worlds in our solar system, leading some scientists to speculate that a change in the sun's activity is the common thread linking all these baking events.

Others argue that such claims are misleading and create the false impression that rapid global warming, such as Earth is experiencing, is a natural phenomenon.

[illegible]

Pelosi Reveals Who's Who On Global Warming Panel
Monday, March 12, 2007; Page A11

The best-kept secret on the Hill -- the full membership of the new committee on global warming -- is no longer secret. House SpeakerNancy Pelosi (D-Calif.) has announced the 15 members of the committee, formally known as the Select Committee on Energy Independence and Global Warming.

http://www.washingtonpost.com/wp-dyn/content/article/2007/03/11/AR2007031101344.html

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Arctic impact on global warming lures scientists
By Deborah Zabarenko, Environment Correspondent
Wednesday, March 14, 8:30 am

HANOVER, New Hampshire (Reuters) - A polar bear swimming amid melting Arctic sea ice may be one image of global warming's impact. But it could just as well be a California wildfire, a European heat wave or a Caribbean hurricane.

That's because the consequences of climate change at the poles affect the whole world, said Ross Virginia, professor of environmental studies at New Hampshire's Dartmouth College and one of the organizers of a summit on Arctic science this week that will focus on global warming.

http://news.yahoo.com/s/nu/20070314/so_nm/arctic_globalwarming_de_1;_ylt_Ah_.pom4:ze3mMFgeCes7BlyAlMA

U.S. bars talk of climate change effects on bears
Memos set strict limits on what officials can say abroad

Seattle Post-Intelligencer staff and news services
Last updated March 8, 2007 10:40 p.m. PT

The Bush administration is ordering federal wildlife officials headed for international meetings on polar bears not to talk about how climate change and melting ice are affecting the imperiled animals.

It is the latest in a string of cases in which the administration has carefully controlled or even banned government employees' public speech about global warming.

This latest chapter involves two memorandums written in late February that put strict limits on what U.S. Fish and Wildlife Service employees could discuss at meetings in Norway and Russia.

http://[illegible]

Subject: Re: Lyman et al correction
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Apr 2007 19:59:40 -0400
To: Josh Willis <jwillis@pacific.jpl.nasa.gov>

Josh, thanks!

Hopefully now that these various issues have been identified (and may soon be corrected?) we can get a new synthesis of the long term changes relatively soon. One question is obviously how much impact the XBT issues have on the longer term changes....

Given the prominence of the OHC discussion in the whole GW debate, we'll have to blog about this once the correction is properly published. I anticipate it will cover the self correcting nature of science, and the unfortunate willingness of some (who probably won't remain nameless) to jump to extreme conclusions. Maybe I'll throw in some discussion of Bayesian priors as well...

However, if you were minded to write something on the situation and what it does or doesn't mean, we'd definitely put it up. Might save you some effort in explaining it to dozens of people separately...

Gavin

On Wed, 2007-04-11 at 17:54, Josh Willis wrote:

> Hi Gavin,
>
> Many thanks for your sentiments. I guess as they say, it's three steps foward, two steps back with these things... :)
>
> I actually sent out an email just today to a bunch of people containing our correction as it was when we submitted it to GRL this week. Sorry I didn't get your name on that original list. I did it in kind of a hurry this morning.
>
> Anyway, we now think that the cooling that we reported in the 2006 GRL paper was caused in part by bad Argo data, which was biased cold, and in part by XBT data which is biased warm. Most of the details are in the attached manuscript. Let me know if you have any comments or questions.
>
> Cheers, Josh

Subject: proxy server problem?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Apr 2007 20:10:33 -0400
To: csr@giss.nasa.gov

I've started to get a lot of these kinds of messages when accessing blog postings:

==========

Error 400
We're sorry, but we could not fulfill your request for */blog/2007/04/09/dissecting-the-proposed-bloggers-code-of-conduct/* on this server.

Your proxy server sent an invalid request. Please contact the proxy server administrator to have this problem fixed.

Your technical support key is: a99a-cc02-b783-0251

You can use this key to fix this problem yourself.

If you are unable to fix the problem yourself, please contact blog at tnl.net and be sure to provide the technical support key shown above.

==========

The 'fix the problem yourself' link is to:

http://www.ioerror.us/bb2-support-key?key=a99a-cc02-b783-0251

Technical Support
Your request was intercepted by security software which protects the Web site you visited from malicious activity, such as hackers, spam and viruses. We apologize for the inconvenience, but your request matched a profile of suspicious activity. This problem is usually quite easy to fix.

Your computer appears to have sent a request through a proxy server which corrupted the request. Uninstall the proxy server and try again. It is not normally enough to simply disable the proxy server. If you are required to use the proxy server, contact the proxy server administrator for assistance.

This problem may be caused by misconfigured or malfunctioning browser privacy software or personal firewall software. If you use this type of software, turn it off or reconfigure it and try again.

==========

can we fix something at our end to stop this happening? Thanks

gavin

Subject: [Fwd: realclimate saturation post? -PS]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Jun 2007 20:23:37 -0400
To: mann@psu.edu, steig@ess.washington.edu, d-archer@uchicago.edu, rahmstorf@ozean-klima.de, ammann@ucar.edu, wmconnolley@gmail.com, rasmus.benestad@met.no, garidel@cerege.fr, gschmidt@giss.nasa.gov, rbradley@geo.umass.edu, rtp1@geosci.uchicago.edu

A guest post from Spencer Weart?

Gavin

-----Forwarded Message-----

From: Spencer Weart <sweart@aip.org>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: realclimate saturation post? -PS
Date: 31 May 2007 11:06:21 -0400

Gavin,

As you may know, I have a feedback form on my history Website, which about 1 in 1000 visitors fill in (evidently the most dedicated and responsible readers!). In the last few months I've had an unusual number who say they arrived at my site because they were Googling queries about the saturation of CO2 radiation absorption -- apparently a contrarian argument. I haven't followed the blogs, but a Google search on [carbon AND dioxide AND "global warming" AND (saturated OR saturation OR saturate)] produces 324,000 hits, so it looks like a live argument.

I was going to suggest that realclimate respond, but in case it is helpful I have cut and pasted material from my site that you might want to consider as a post. Being a historian I naturally took a historical approach, which may not be appropriate, and if you reject it for whatever reason, I won't be offended... but if you find any flaw in the explanation please let me know so I can correct it on my site.

Best regards, keep up the good work,

Spencer

==========
Spencer Weart, Director
Center for History of Physics
American Institute of Physics
College Park, MD 20740 USA
(301) 209-3174 FAX -0882
See www.aip.org/history
==========

PS: I found one likely source of the "saturated" contrarian argument, http://www.junkscience.com/Greenhouse/

saturate.rtf	**Content-Type:** application/msword **Content-Encoding:** base64

A Saturated Gassy Argument

The greenhouse effect seems like simple physics, but simple thinking can lead you astray when you get to climate. Some people have been confused about whether humanity is really causing global warming, for doesn't simple physics show that there is already so much carbon dioxide in the atmosphere that its absorption of radiation is "saturated," so that adding more gas will absorb no more? And anyway isn't water vapor already blocking more radiation than carbon dioxide ever could?

The arguments sound so good that they suppressed research on the greenhouse effect for half a century. In 1900, shortly after Svante Arrhenius published his pathbreaking argument that our use of fossil fuels will eventually warm the planet, another scientist did a simple experiment. He sent infrared radiation through a tube filled with carbon dioxide, containing as much of the gas in total as would be found in a column of air reaching to the top of the atmosphere (that's not much, since the concentration in air is only a few hundred parts per million). When he doubled the amount of gas in the tube, the amount of radiation that got through scarcely changed. The reason was that the CO2 absorbs radiation extremely well. In the specific bands of the infrared spectrum that it blocks, it took only a trace of the gas to"saturate" the bands, making them so thoroughly opaque that more gas made little difference.

Still more persuasive to scientists of the day was the fact that water vapor, which is far more abundant in the air than carbon dioxide, also intercepts infrared radiation. In the spectrographs of the time, the bands of the two gases entirely overlapped one another. More CO2 could not affect radiation in bands of the spectrum that H2O (as well as CO2 itself) already entirely blocked. When these ideas were published, even scientists who had been enthusiastic about Arrhenius's work decided it was plainly in error. Work on the question stagnated If there was ever an "establishment" view about the greenhouse effect, it was confident that the CO2 emitted by humans could scarcely affect anything so grand as the Earth's climate.

But the early studies had an unsuspected logical flaw. They were looking at bands of the spectrum at sea-level pressure and temperature. When the coming of quantum mechanics allowed physicists in the 1930s to work up a theory of how absorption works, they realized that in the frigid and rarified upper atmosphere, where the crucial infrared absorption takes place, the nature of the absorption would change. New measurements made at low pressure backed that up. Suppose you isolated a single molecule of CO2 or H2O. It will absorb light only in a set of specific wavelengths, which show up as thin dark lines in a spectrum. But in a gas at sea-level temperature and pressure, the countless molecules colliding with one another at different velocities each absorb at slightly different wavelengths, so the lines are broadened and merge into the continuous bands that early scientists saw. At low pressure, each band resolves into a cluster of sharply defined lines, like a picket fence. There are gaps between the H2O lines where radiation can get through unless blocked by CO2. As for carbon dioxide by itself, high up where the molecules are cold and thinned out, if more gas is added, each individual line will get a bit more smeared out and able to block more radiation.

In 1952 the theoretical physicist Lewis D. Kaplan ground through numerical computations which

showed that in the upper atmosphere, the saturation of CO2 lines would be weak. Take a layer so high and thin that heat radiation from lower down would slip through, add more gas, and the layer would absorb some of the rays. Therefore the place from which heat energy finally left the Earth would shift to a higher layer. That would be a colder layer, unable to radiate heat so efficiently. So the planet as a whole would start to receive more energy than it radiated (which is in fact our current situation). The imbalance would cause all the lower levels to get warmer until the high levels became hot enough to radiate as much energy back out as the planet received. The effect had been neatly explained by John Tyndall back in 1862: "As a dam built across a river causes a local deepening of the stream, so our atmosphere, thrown as a barrier across the terrestrial [infrared] rays, produces a local heightening of the temperature at the Earth's surface."

Nobody could say anything specific without far more extensive computations. By 1956, these could be carried out thanks to the increasingly powerful new digital computers. The physicist Gilbert N. Plass took up the challenge. Calculating radiation and temperature layer by layer in the atmosphere and point by point in the spectrum, he showed that adding CO2 could affect the world's radiation balance enough to cause noticeable warming. To be sure, his calculation relied on unrealistic simplifications. Plass had to ignore such important effects as the way a rise of global temperature might cause the atmosphere to contain more water vapor and more clouds. It was not until the late 1960s that computer models got good enough to include all the essential factors and produce a reasonably good simulacrum of the real world's climate. Yet Plass's calculation already showed that the simple arguments about saturation just did not hold water. From that point scientists realized global warming was worth studying, and began to work on the difficult and complex calculations and measurements that would pin it down. (References and more history are <HREF="http://www.aip.org/history/climate/co2.htm>here</A> and <HREF="http://www.aip.org/history/climate/Radmath.htm>here</A> .)

Subject: [Fwd: BAMS Decision #2441]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Jun 2007 13:14:59 -0400
To: alacis@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>
CC: Drew Shindell <dshindell@giss.nasa.gov>

Hmmm... some reviews of our BAMS submission. Bottom line, nobody liked it!

There are some constructive suggestions and I would suggest revising and trying again.

Reviewer 2's comments about the NCAR website giving equivalent numbers is ironically simply a cut and paste from my original blog posting on the subject. I'm pretty sure Lindzen is reviewer 3, but his comments are mostly constructive although he does resort to some rhetorical excess at the end.

Any thoughts/comments welcome....

Gavin

-----Forwarded Message-----

From: Mark Baldwin <mark@nwra.com>
To: gschmidt@giss.nasa.gov
Cc: editorinchief <editorinchief@ametsoc.org>
Subject: BAMS Decision #2441
Date: 11 Jun 2007 14:50:28 +0100

Dear Dr. Schmidt,

I have received three reviews of your paper "Attribution of the present-day total greenhouse effect." All three reviewers recommend that the paper be rejected. Reviewer 3, in particular raises some deeper questions regarding the fundamental approach of the paper. Although the topic is certainly of interest to BAMS readers, this manuscript has problems serious enough that I cannot consider it for publication in BAMS.

If you choose to submit a new submission on this topic, please refer to #2441 and include a detailed letter responding to all the reviewer comments, and explaining why the new manuscript overcomes these issues. I would likely send the manuscript to the same reviewers, and possibly one additional person. Convincing the reviewers would likely be a challenge, but you have the option to try.

Best regards,

-Mark Baldwin

Reviewer #1

I was looking forward to reviewing this paper, as I know the authors produce excellent research papers. Regrettably, the paper fell far short of my expectations and I unambiguously recommend rejection on a number of grounds. I'm afraid that if (as stated at the end of

Section 1), the aim of this paper is to make "subsequent discussions … more informed", it will fail.

1. Language

BAMS articles are meant to appeal to the non-specialist, and junior undergraduates. This paper is full of "cryptic" remarks - in most (but not all!) cases, I understand what the authors are trying to say, having had almost 25 years in the subject, but I think any non-specialist would struggle. Here are some examples:

In the abstract: "Since water vapor and clouds are fast feedbacks in the climate system, their dominant contribution to the present day climate effect does not imply that the climate is insensitive to trace greenhouse gas changes."

In the introduction "The real question that underlies public concern is the uncertainty in climate sensitivity". Really?

The entire first sentence of Section 2. Baffling, unless you understand that a top of the atmosphere view is being taken, and as for "the absorbed solar irradiance due to the absorption of LW radiation" …

The discussion in Section 3 on "minimum" and "maximum" effects, when the meaning of this nomenclature appears only later in the paper.

The use, in section 5, of the union and intersection symbols

Section 6 "because efficacies are close to unity"

My overall impression is that I am not reading a polished paper, but reading an early draft - an impression that certainly isn't helped by the fact that one of the authors is acknowledged in the Acknowledgements (I apologise if, after all, there are two Ron Millers).

2. Prior literature

Had I been asked to refer a non-specialist to information on the contribution of different absorbers to the greenhouse effect, I would have referred them to Kiehl and Trenberth (1997), and even after reading this paper, I would still refer them to Kiehl and Trenberth. (The authors should note that I am not, nor have I ever been, Kiehl or Trenberth.) As it is, Kiehl and Trenberth's paper is only referred to in a rather cursory way on page 3, and is never referred thereafter - but their paper, and in particular Table 3 of their paper (and the accompanying discussion of other work) is absolutely central to the topic of this paper. To be sure, there are a number of shortcomings in Kiehl and Trenberth's work (e.g. use of a single not-even-global-mean profile) and some ambiguities in their methodology that keep me awake at night, but I would submit that it is the prime reference in this area, and the clearest discussion for the current intended audience.

3. Science

There are some clear and surprising misinterpretations of the calculations. In the first paragraph of Section 2, there is the statement that "the amount of long-wave radiation absorbed in the atmosphere … is 155 Wm-2". No it isn't! This is in a sense the net absorption, as the fact that the atmosphere emits, and therefore contributes to TOA radiation seems to have been forgotten. The actual amount absorbed is way more than 155 Wm-2. This isn't just careless

English, because the error is repeated, in starker form on page 6: "removing ozone actually ends up increasing LW absorption". No it doesn't! What I guess is happening is that the (real) decrease in absorption is being more than balanced by a decrease in emission by the ozone. Greenhouse sceptics would just love this! (In passing, I note that I am a bit surprised that ozone plays such a small role - K&T imply a much larger role, and closer to what I would expect.)

The reader will also end up seriously confused about the roles of cloud. 3 lines in on page 6, we are told that "for each absorber, both shortwave and long wave effects were used or removed" … but as far as I can tell, henceforth, only LW effects are presented, with a minor exception of the (not very helpful) discussion on adjusted forcings. The reader will be left with the overwhelming impression that clouds contribute to the warming of the climate system, because of their 26% contribution to the greenhouse effect whereas they actually cool the climate system because their shortwave effect dominates. But there is not a single mention of this extremely important fact. And, as above, this misinterpretation is cemented in Section 6, top of page 8, where a misguided attempt is made to derive the strength of climate feedbacks by looking at LW fluxes alone. Most feedbacks alter the SW radiation field too (and some, e.g. snow-albedo, do so exclusively).

Reviewer #2

This is a clearly written paper of interest to a general audience. It addresses a point of misunderstanding on the realclimate.org website. The authors make a compelling argument, which I read with interest. However, I think that the authors are not necessarily correct that these numbers are not in the science literature.

Firstly it could be argued that minimum effects are the correct way to look at this problem, as this is more akin to the radiative forcing concept. Therefore Ramanathan and Coakley (1978) would appear to be still valid, insofar as to make the broad "education" point of the paper - I use the R&C results at the start of my lecture course on climate change, for example.

Secondly, similar numbers are given or can easily be inferred from Kiehl and Trenberth, 1997 (Table 3) (they also discuss overlap) as well as Charnock, H., and K. P. Shine, 1993: (Physics Today, 46, December, 66.)
I would also encourage the authors to look in text books that I don't have access to in my hotel, so can't be certain. However, Danny Harvey, Liou, and Goody may well have similar numbers in their books. I also found the numbers on the ncar education website, these must have a source of somekind (which also include overalap effects)

http://www.windows.ucar.edu/tour/link=/earth/climate/greenhouse_effect_gases.html

The role of overlap (Table 1) and contribution of aerosols and CFCs appear original, but I don't think these are alone interesting enough for BAMS

I am happy to be argued against, as the article is informative to a BAMS audience and I'm all for explaining radiation to anyone who will listen. However, I think the paper should be recast as a review with an add-ons rather than original science. So in present form, I'm afraid that I advocate rejection due to lack of originality.

[Fwd: BAMS Decision #2441]

Other points that the authors may like to think about

1) I found framing the argument in terms of forcing and feedback/ sensitivity somewhat convoluted and I would suggest this is unnecessary. Making the argument that forcing and feedback mechanisms are inherently different, so not putting feedbacks into Table 3 plays right into nay-sayers hands. Surely the most appropriate way to frame the argument is in energy balance terms, so each constituent in today's atmosphere is essentially providing an energy balance change or a greenhouse forcing, to get you your 120Wm-2 or so needed to keep the Earth at it's present day equilibrium. Therefore I think feedbacks could go on Figure 3. If this makes CO2 look small, remember that it's lifetime is much longer than either clouds or water vapour….

2) With this in mind maybe table 1 should also present units of Wm-2?

3) Isn't the minimum more appropriate -as percentages add up to 100 and this is what you do when calculating a radiative forcing?

4) As interest, when I've tried to do similar calculations with GCM codes (ECHAM, UKMO and CCM3) they also appear to go wrong at small concentrations or even crash. So in fact these calculations are not as easy as they should be.

Reviewer #3 (attached .pdf)

Mark P. Baldwin
Editor, Climate Subject Matter
Bulletin of the American Meteorological Society

Northwest Research Associates
14508 NE 20th Street
Bellevue, WA 98007-3713 USA

+1 425.644.9660 ext. 323
(fax) +1 425.644.8422
mark@nwra.com

www.nwra.com/baldwin

Schmidt-etal-Review.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

Review: Attribution of the present-day total greenhouse effect by Schmidt et al

This a curious paper. Nominally, it plaintively (literally) aspires to dispel popular misunderstanding of the relative importance of various greenhouse gases in the present climate, while noting that the existing scientific literature has no clear reference on this matter. More explicitly, a popular question is what is the relative importance of CO_2 vis a vis other greenhouse substances – most notably water vapor and clouds. The primary reason for the lack of any straightforward reference for this question is simply that the question, itself, is ill posed. While the present authors touch on this matter, they fundamentally leave most misconceptions in place. As best I can tell, the popular question implicitly contains a number of important and incorrect assumptions:

1. The role of each greenhouse substance is independent of the presence of other greenhouse substances.

2. The role of each greenhouse substance is proportional to the amount of that substance and independent of its location.

The first assumption relates to the matter of spectral and physical overlap (the latter being especially important for clouds, but also important for the highly spatially heterogeneous water vapor). The present paper specifically discusses spectral overlap, noting quite correctly that the impact of any particular greenhouse substance depends on whether one is considering it present by itself or together with other substances. Their suggestion that one split the difference (as a matter of fairness no less), however, hardly clarifies anything.

The second assumption, which the present paper only implicitly and fleetingly mentions, is the more serious one. The reason I suppose that people are interested in the present day (or more accurately the preindustrial) importance of various greenhouse substances is the expectation that this will offer information as to the role of additional quantities of that substance. Thus, taking the present LW flux (as cited in the present paper) of 155 Wm^{-2}, and the present paper's claim that CO_2 contributes about 21% would lead to the impression that doubling CO_2 might contribute about 30 Wm^{-2}. Of course, the present authors say nothing of the sort, but they don't explain why they come up with a very different number. Thus, when they cite the Hansen result that removing all CO_2 reduces the equilibrium temperature by about 6.5K, they don't mention that the bulk of this decrease is due to the removal of the last 25 ppmv of the total 280 ppmv. Referring to this as the 'present day' contribution is formally correct, but clearly misleading. Beyond about 50 ppmv, one is well into the logarithmic regime for CO_2 where each doubling essentially increases forcing only about 2%.

In terms of popular understanding, it would probably be better to explain why the appropriate question for the public to ask might be how much would doubling CO_2 add to the preexisting greenhouse LW flux. The answer here is the relatively uncontroversial 2%. In this sense, the rather the formally incorrect claim of Lindzen 1991 is less misleading than the present paper.

Finally, the present paper makes the correct point that water vapor and clouds (although dominant for the preexisting greenhouse forcing) are primarily internally determined variables in

the climate system, and are thus properly considered feedbacks rather than forcings per se. This hardly serves to diminish their importance since without them the response to a 2% increase in long lived greenhouse substances would only provide about 1C warming, and these feedbacks are highly uncertain components of present models even where models agree among themselves.

Thus, this paper focuses on a poorly framed though common question, answering it in an ambiguous and confusing manner, while leaving essentially untouched the real problems with the question itself. As such, it is difficult to identify what useful contribution this paper makes, though it is clear that a paper that really attempted to clarify the confusion might well be helpful. Such a paper would, of necessity, focus more on the underlying physics and less on specific model realizations. It would certainly not be the present paper which I feel serves no useful purpose, offers no new information, and perpetuates unnecessary confusion.

Although the major problems with this paper have been addressed, the paper also has a number of technical problems. Thus, on page 5, the authors mention the use of experiments where stratospheric temperatures are allowed to respond without explaining why this is called for. On page 8, they confuse 'gain' with 'feedback factor.'

Subject: one further anomay
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Jul 2007 16:00:26 -0400
To: alacis@giss.nasa.gov

In the email below you sent, you give the conversion from radiative forcing to 'no-feedback' delta T as 3.36. Therefore a 7 deg 'no feedback' for removing CO2 should be equivalent to a 7*3.36 = 23.5 W/m2 forcing, and thus a 23.5/155 = 15% change in net absorbed LW.

This is clearly not the same as the change in upward LW at the surface given a change of temperature (sigma*288^4 - sigma*281^4 = 36.5 W/m2).

The first calculation is closer to what everyone else reports, but I can't quite see why the second one is not appropriate. I referenced the first one in the paper, but your correction is to the second.

Thanks

Gavin

-----Forwarded Message-----

From: alacis@giss.nasa.gov
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: Re: [Fwd: attribution of total present day greenhouse effect]
Date: 05 Jan 2007 22:54:53 +0000

Gavin,

The radiative forcing formulas in Hansen et al (JGR 93, 9341-9364., 1988) give about 7K of deltaTzero no-feedback forcing for 380ppm of CO2. This is relative to the total 33K of the terrestrial greenhouse effect. This is the radiative forcing that you would have if all of the atmospheric CO2 were removed.

The formula also gives about 1.2K for doubled CO2. The radiative forcing formulas are all calculated in the context of the terrestrial atmosphere and thus fully account for the radiative effects of overlapping absorption by other atmospheric absorbers.

To ascribe specific amounts of radiative forcing to changes in water vapor and clouds is more complicated since these radiative forcings depend in detail on cloud and water vapor amount, height, and latitudinal distribution. The cloud and water vapor radiative forcing contributions can be inferred from the feedback amplification that occurs for specified radiative forcings as described in Hansen et al (JGR 102, 6831-6864, 1997) for changes in solar, CO2, ozone, cloud and aerosol forcings. Hansen et al give tables for the instantaneous, adjusted and deltaTzero forcings, including fixed cloud and all-feedback responses.

The adjusted forcings W/m2, divided by 3.36, can be converted to deltaTzero equivalent radiative forcing expressed as a temperature change, which then can be compared on a fractional basis to the total 33K terrestrial greenhouse effect.

A more detailed evaluation of the radiative forcings is described in the Efficacy paper (Hansen et al, JGR 110, D18104, 2005). In all cases, the radiative effects of spectral and absorber overlap are

fully taken into account.

Andy

Andy, any comment? Thanks

Gavin

-----Forwarded Message-----

From: Gavin Schmidt <gschmidt@giss.nasa.gov>
To: alacis@giss.nasa.gov, Tony DelGenio <adelgenio@giss.nasa.gov>
Subject: attribution of total present day greenhouse effect
Date: 30 Dec 2006 17:10:53 -0500

Andy, Tony,

Just so that I don't completely waste my time, are either of you aware of a study that gives the portion of the total greenhouse effect for water vapour/clouds/CO2/aerosols etc... in a way that accounts for (or at least acknowledges) the overlaps, global distribution, seasonality etc? (I imagine either a GCM forcing study, or a LBL calculation using the re-analysis data?)

I can only find vague and unsourced numbers (with no context) with references that don't go any further than Ramanathan and Coakley (1979) or Manabe and Strickland (1964) - both of whom used rad-conv models. IPPC 1990 has a vague 60-70% water vapour, 25% CO2 (each acting alone, no ref) and TAR reuses RC79 to suggest 14% reduction if you remove CO2, and 36% reduction removing H2O.

I don't think this is a particularly important issue, but it does get raised a lot (thanks mainly to Lindzen's off hand statements on the topic - '98% due to water vapour and clouds' - which is clearly wrong). The lack of a clear reference clearly handicaps debunking of those kinds of arguments. I am actually finding that a piece I wrote on the blog is now being cited as the right answer - and that's not very satisfactory.

I'm thinking that unless I can find a good reference, I'll write something up myself, maybe for BAMS or EOS. So, if you know something, let me know, and it'll save me the bother.

Thanks

Gavin

Subject: Pielke Sr.
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Aug 2007 14:42:45 -0400
CC: Surabi Menon <SMenon@lbl.gov>, dkoch@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, James.E.Hansen@nasa.gov

To clarify, all I said was that you were working on climate impacts of aerosols. I made no representation that a) Matsui+Pielke's analysis was interesting (it might be, although I am sceptical), or b) that you would do any such similar analysis with the GISS efficacy results.

In fact, what I did suggest was that he download the files himself and do whatever he wanted,

If, of course, this is interesting to you, please feel free to reply to him.

Sorry for any possible confusion

Gavin

On Thu, 2007-08-02 at 15:29, Roger A. Pielke, Sr. wrote:

Hi All

As result of a discussion on my weblog Climate Science, Gavin gave me your e-mails to contact you on research you that you are doing that addresses the issue that we quantified in our paper

Matsui, T., and R.A. Pielke Sr., 2006: Measurement-based estimation of the spatial gradient of aerosol radiative forcing. Geophys. Res. Letts., 33, L11813, doi:10.1029/2006GL025974.
http://climatesci.colorado.edu/publications/pdf/R-312.pdf

This issue was also emphasized in

National Research Council, 2005: Radiative forcing of climate change: Expanding the concept and addressing uncertainties. Committee on Radiative Forcing Effects on Climate Change, Climate Research Committee, Board on Atmospheric Sciences and Climate, Division on Earth and Life Studies, The National Academies Press, Washington, D.C., 208 pp.
http://www.nap.edu/openbook/0309095069/html/

The fundamental hypothesis is that the more spatially heterogeneous human climate forcings, such as from land use/land cover change and aerosols, have as much, or more, of an effect in altering regional weather (and other aspects of climate), than does the more spatially homogenous effect of the radiative effect of added CO2 and other well-mixed greenhouse gases. This issue, which was reported in the 2005 NRC Report, was not explored by the 2007 IPCC Report in the format such as we present in the Matsui and Pielke paper, where it is the gradient of radiative forcing that needs to be quantified, in addition to the top-of-the-atmosphere radiative forcing.

This analysis, which you have data already available to assess, would significantly broaden the role of human climate forcings as they affect regional and global climate.

Sincerely

Roger A. Pielke Sr.
Senior Research Scientist at CIRES

University of Colorado at Boulder
Professor Emeritus at Colorado State University
pielkesr@cires.colorado.edu
http://cires.colorado.edu/science/groups/pielke/
http://climatesci.colorado.edu/

Re: [Fwd: Fwd: Question]

Subject: Re: [Fwd: Fwd: Question]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Aug 2007 19:24:22 -0400
To: rruedy@giss.nasa.gov

Agreed.

On Thu, 2007-08-09 at 19:12, Reto Ruedy wrote:

Gavin,

Jim gets many of these kinds of responses - a change whose effect we described as well within the margin of error has become an "astonishing change".

I guess the best thing is to ignore it and - if at all - set matters straight in a place like RealClimate .

Reto

-------- Forwarded Message --------
From: James Hansen [illegible]
To: [illegible]
Subject: Fwd: Question
Date: Thu, 09 Aug 2007 1[illegible]:13:22 -0400

DomainKey-Signature: a=rsa-sha1; q=dns; c=nofws; s=s1024;
d=yahoo.com;
h=Received:X-YMail-OSG:From:To:Subject:Date:Message-ID:MIME-Version:Content-Type:X-Mailer:Thread-Index:X-MimeOLE:Disposition-Notification-To;
b=ffkH2tq2tl5Z4nCfMwTIbe8N2agSXy0S+Mr4wPMswbQJdfchkU+64OU3se8vtx+DiCKFgNcldgwzzbp5PDkotaOObRYkc+Usnl/0ugGm7gw6KnFEjITxLy9cc1DAIhnq4sSMIZyOj[illegible]
;
X-YMail-OSG:
kEot1KsVM111f1VC31qkqzwt1okpR3HYVAPxQCuUAnoXdfzY1j2A3q7Zk.gU1cYAwj5E.mbIWXbc97AenQB33NLMIg0vLabH2jPKs5nRtcb6PiL2mA--
From: [illegible] @yahoo.com>
To: [illegible]
Subject: Question
Date: Thu, 9 Aug 2007 18:55:53 -0300
X-Mailer: Microsoft Office Outlook 11
Thread-Index: Acfaz/NMEFUhL8W1T7+QO5t4TLtH9Q==

Dr. Hansen,

Below is a link to a posting today that I was hoping you could comment on.

It is dispiriting that questions regarding climate change have been politicized, but I was hoping you could shed some light on this posting.

http://www.dailytech.com/Blogger+finds+YOU+bug+in+NASA-Climate+Data/article9383.htm

Thank you very much for any clarification you can provide.

Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 15:21:02 -0400
To: Stuart Gaffin <stuart.gaffin@gmail.com>
CC: hrh2103@columbia.edu, "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, Ron Miller <rmiller@giss.nasa.gov>, Cynthia Rosenzweig <crr2@columbia.edu>

Stuart, this is much ado about nothing, and the opinionator piece is mostly made up.

The issue is that McIntyre noticed an odd jump in some US stations at the switch between 1999 and 2000. He sent a letter pointing out the jump, the GISTEMP people looked into it, saw the problem, and fixed it in less than a day. No 'reverse engineering' nobody 'always puzzled by the gaps' and no 'havoc'.

The issue was that there was a transition between data sources at that point for the US stations which had been assumed to be continuous, but was in fact slightly offset. The fix just adjusted for the offset.

The difference it made? 0.15 deg C for 2000-2006 in the US numbers (since the problem was melding the US data with the global numbers) and some very minor adjustments down the line. The global mean change was zero (less than 0.01 C). 2005 is still the warmest year in the corrected GISS analysis, as it is with the NCDC analysis. Only CRU has 1998 as the warmest year, and that is not affected by anything that GISS does.

Still, some people want so desperately to believe it's all a mistake that they'll grasp at anything.

Gavin

On Fri, 2007-08-10 at 14:27, Stuart Gaffin wrote:
> Anyone heard about this, especially the claim "NASA has now silently released corrected figures ..." Was in today's NY Times Opinionator
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> August 10, 2007, 9:06 am
> 'Hottest Year' Data Meltdown
> By Tobin Harshaw
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> Tags: global warming
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> You just thought you were sweating? Among global warming Cassandras, the fact that 1998 was the "hottest year on record" has always been an article of faith. Stephen McIntyre, who runs the Climateaudit blog was always puzzled by some gaps he saw in the raw data provided by NASA that supported the claim (data compiled in part by James Hansen, the climate scientist who has long accused the Bush administration of trying to "silence" him). McIntyre says he has "reverse engineered" the data to find NASA's algorithm, discovered that a Y2K bug played havoc with some of the numbers, and notified the space agency.
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> Michael Asher at DailyTech explains the fallout:
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> > NASA has now silently released corrected figures, and the changes are truly astounding. The warmest year on record is now 1934. 1998 (long trumpeted by the media as recordbreaking) moves to second place. 1921 takes third. In fact, 5 of the 10

warmest years on record now all occur before World War II. Anthony Watts has put the new data in chart form, along with a more detailed summary of the events.

The effect of the correction on global temperatures is minor (some 1-2% less warming than originally thought), but the effect on the U.S. global warming propaganda machine could be huge.

Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 16:18:56 -0400
To: Stuart Gaffin <stuart.gaffin@gmail.com>
CC: "pneofotis@giss.nasa.gov" <pneofotis@giss.nasa.gov>, Ron Miller <rmiller@giss.nasa.gov>, Cynthia Rosenzweig <crr2@columbia.edu>, rhorton@giss.nasa.gov

It wasn't. The ranking were

Year anomaly:
1998 1.24
1934 1.23
2006 1.23
1921 1.12
1931 1.08

and now:

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the differences between 1998 and 1934 were statistically indistinguishable then, and they are now. The five year means however remain warmer now (0.8 above mean 2001-2006), compared to 1930-1934 0.63 above). That is much more apropos and significant.

Gavin

On Fri, 2007-08-10 at 16:11, Stuart Gaffin wrote:
> -- Should have added that I think someone should check on whether or not the pattern for the 10 warmest years or so for the continental US was dramatically changed by the corrections.
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> If so, then maybe that's a small news item.
>
> If not, then it's no news at all.
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> On 8/10/07, Stuart Gaffin <stuart.gaffin@gmail.com> wrote:
>> Gavin, Thanks for this useful information.
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>> The Times did not clarify that the changes refer to only the contiguous US, a very small percentage of globe of course ...
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>> Apropos of this, if someone had asked me for the 10 warmest years for the continental US, I would not have been able to say offhand, although I would expect them to be concentrated more towards the present ...
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>> If the corrections switched the bulk of the 10 warmest years to early in the century, that's somewhat surprising to me. Maybe the only newsworthy aspect.

Beware the Wall Street Journal abusing all of this of course !
Stuart

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Subject: Re: 1934 warmest ? ...
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Aug 2007 16:27:46 -0400
To: Cynthia Rosenzweig <crosenzweig@giss.nasa.gov>

US not Global.

On Fri, 2007-08-10 at 16:26, Cynthia Rosenzweig wrote:
Why is this different from the IPCC statement?

On 8/10/07, Stuart Gaffin <stuart.gaffin@gmail.com> wrote:
Nice to see ! So there's really 'nothing there' there ...

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It wasn't. The ranking were

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> >
>
>

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Dr. Cynthia Rosenzweig
Goddard Inst. for Space Studies
2880 Broadway
New York, NY 10025
tel. 212-678-5562
fax 212-678-5648

Subject: Re: [Fwd: RE: GISS Raw Data]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Aug 2007 21:19:46 -0400
To: rruedy@giss.nasa.gov

McIntyre is an ass - almost goes without saying. But be careful not to start to take this personally. While it is clear that the most appropriate thing for him to do would be to code the methodology himself from the descriptions in the papers, he is unlikely to do so while he gets so much attention with the 'NASA secret code' meme. You are also correct in thinking that he will not be satisfied with the gridding code or the raw data set, and so inevitably a line needs to be drawn. However, where that line should be is debatable.

Did you examine what differences you get if you download the very latest USHCN dataset and use that instead of the one we got in 2000? If he does end up coding things himself he'll see those differences easily, and it's best if we know what they are first.

Gavin

On Thu, 2007-08-16 at 19:43, Reto Ruedy wrote:

> He never asked for the urban adjustment code; the first request was for "the code that processes the GHCN data". In the interview and on his blog site he asks for the code that "fixes" bad station data - we never claimed to have anything like that. Below he asks essentially for the gridding program. If we relent, his requests will become more insane so that he will always be able to claim that we hide something.
>
> I still think our best defense is the fact that all our procedures are explicitly described and open to anyone who wants to code them in their favorite programming language. This is the proper way to audit our results (and that's what NOAA and other groups are doing).
>
> I was ready to respond to the email below, but before I got around to it he came out with his prank and I have no intention to ever respond to him again.
>
> Reto
>
> -------- Forwarded Message --------
> From: Steve McIntyre <stephen.mcintyre@utoronto.ca>
> To: rruedy@giss.nasa.gov
> Cc: James E. Hansen <jhansen@giss.nasa.gov>
> Subject: RE: GISS Raw Data
> Date: Wed, 8 Aug 2007 10:46:10 -0400
>
> Dear Dr Ruedy,
>
> Thank you for this information and for the courteous acknowledgement at your website. I can now see where your post-2000 data comes from, but I remain unable to identify a digital source for your data prior to 2000 from available information. I have compared GISS raw to all the archived USHCN versions and have been unable to find a match for US data. In some cases, the differences are substantial.
>
> Can you provide me with (1) a URL from which the U.S. data prior to 2000 (in the version that you used) can be downloaded. (2) If this is no longer possible due to the passage of time, could you please provide me with a copy of the data that you used (or upload it to an area of your FTP site) and also provide its provenance and date of acquisition?

Obviously mere print citations are inadequate for this purpose.

I would like to assess the impact of these modifications on the US and global averages for myself. I would appreciate a copy of the source code used for these calculations.

Regards, Steve McIntyre

-----Original Message-----
From: Reto Ruedy [mailto:rruedy@giss.nasa.gov]
Sent: Tuesday, August 07, 2007 5:33 PM
To: Steve McIntyre
Cc: James E. Hansen; gavin@giss.nasa.gov
Subject: Re: GISS Raw Data

Dear Sir,

As to the question about documentation, the basic "GISS Surface Temperature Analysis" page starts with a "Background" section whose first paragraph contains the sentence:"Input data for the analysis ,..., is the unadjusted data of GHCN, except that the USHCN station records were replaced by a later corrected version". A similar statement appears in the "Abstract" and the "Introduction" section of our 2001 paper (JGR Vol 106, pg 23,947-23,948). The Introduction explains the above statement in more detail.

In 2000, USHCN provided us with a file with corrections not contained in the GHCN data. Unlike the GHCN data, that product is not kept current on a regular basis. Hence we used (as you noticed) the GHCN data to extend those data in our further updates (2000-present).

I agree with you that this simple procedure creates an artificial step if some new corrections were applied to the newest data, rather than bringing the older data in sync with the latest measurements - as I naively assumed. Comparing the 1999 data in both data sets showed that in about half the cases where the 1999 data were changed, the GHCN data were higher than the USHCN data and in the other half it was the other way round with the plus-corrections slightly outweighing the minus-corrections.

Although trying to eliminate those steps should have little impact on the US temperature trend (much less the global trend), it seems a good idea to do so and I'd like to thank you for bringing this oversight to our attention.

When we did our monthly update this morning, an offset based on the last 10 years of overlap in the two data sets was applied and our on-line documentation was changed correspondingly with an acknowledgment of your contribution. This change and its effect will be noted in our next paper on temperature analysis and in our end-of-year temperature summary.

The effect on global means and all our tables was less than 0.01 C. In the display most sensitive to that change - the US-graph of annual means - the anomalies decreased by about 0.15 C in the years 2000-2006.

Respectfully,

Reto A Ruedy

On Sat, 2007-08-04 at 17:28 -0400, Steve McIntyre wrote:
Dear Sirs,

In your calculation of the GISS "raw" version of USHCN series, it appears to me that, for series after January 2000, you use the USHCN raw version whereas in the immediately prior period you used USHCN time-of-observation or adjusted version. In some cases, this introduces a seemingly unjustified step in January 2000.

I am unaware of any mention of this change in procedure in any published methodological descriptions and am puzzled as to its rationale. Can you clarify this for me?

In addition, could you provide me with any documentation (additional to already published material) providing information on the calculation of GISS raw and adjusted series from USHCN versions, including relevant source code. Thank you for your attention, Stephen McIntyre

Subject: Re: Town Hall Story on NASA blocking McIntyre access
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 17 Aug 2007 16:23:07 -0400
To: Jim Hansen <jhansen@giss.nasa.gov>
CC: rruedy@giss.nasa.gov, Reto Ruedy <cdrar@giss.nasa.gov>, Makiko Sato <makis@giss.nasa.gov>, gavin@giss.nasa.gov

I didn't suggest using their urban adjustment, but that the most up-to-date USHCN data may have more in the way of documented station adjustments and more data earlier on. The FILIN data do not include their urban adjustment as far as I can tell. I get the impression from the USHCN web site that you should be able to extract just the TOBS corrected data without the FILIN.

The point is to make sure that the difference between the earlier USHCN data set we were using and the latest version does not make a significant difference to the results. Since any independent replication of the GISS procedure will use the currently available data set (not the one we are using), we should probably be ahead of the game in understanding what impact it has.

As is usual in these cases, the smarter of the court jesters have already stopped talking about 1934 and are now pushing the transparency 'meme'. That has a lot more resonance....

Gavin

On Fri, 2007-08-17 at 16:10, James Hansen wrote:
> What is the matter with the way that we do it? Among other things, we have a more realistic urban adjustment. Changing has various drawbacks. Jim
>
> On 8/17/07, Reto Ruedy <rruedy@giss.nasa.gov> wrote:
>> Jim,
>>
>> Gavin suggested some time ago that we should do the analysis with the
>> current USHCN.
>>
>> I downloaded the "FILIN" USHCN data; the filled-in numbers are marked.
>> So I can use or ignore them. I have to write a program anyway to
>> reformat this file to the format used by GHCN. This includes the easy
>> conversion from F to C, but they also use a different set of ID-numbers
>> to characterize the station. So first, I'll have to construct and check
>> a conversion table to identify the stations properly.
>>
>> Reto
>>
>> On Fri, 2007-08-17 at 11:44 -0400, Reto Ruedy wrote:
>> > What I wrote was true last week - today it says that monthly data are
>> > available from 1900-2005. They must have updated it in the last few
>> > days.
>> >

> Reto
>
> On Fri, 2007-08-17 at 11:35 -0400, Reto Ruedy wrote:
> > Jim,
> >
> > On the USHCN site it says that the data available from their web site go
> > to 2002. I never downloaded them since the stage we use is not stored at
> > that site - we would have to make a special request.
> >
> > Reto
> >
> > On Fri, 2007-08-17 at 11:18 -0400, James Hansen wrote:
> > > Mc claims that USHCN data is actually available up-to-date. Is that
> > > right? Jim
> > >
> > > On 8/17/07, lesgiss@verizon.net <lesgiss@verizon.net> wrote:
> > > Good morning:
> > >
> > > Here is the Town Hall story entitled "NASA Blocked Climate
> > > Change Blogger
> > > from Data"...
> > >
> > >
> > > http://www.townhall.com/Columnists/AmandaCarpenter/2007/08/17/nasa_blocked_climate_change_blogger_from_data?page=full&comments=true
> > >
> > > Leslie
> > >
> > >
> > >
> > >
> > > ---
> > > mail2web.com - Microsoft® Exchange solutions from a leading
> > > provider -
> > > http://link.mail2web.com/Business/Exchange
> > >
> > >
> > >
> > >
> > --
> > Reto Ruedy <rruedy@giss.nasa.gov>

Subject: Re: ozone again
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 28 Sep 2007 14:38:51 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

thanks. I'll pass it by the others and probably post it tomorrow morning...

gavin

On Fri, 2007-09-28 at 14:25, Drew Shindell wrote:
Only a few minor changes, in CAPITALS.
Drew

On Sep 28, 2007, at 12:54 PM, Gavin Schmidt wrote:

I made some edits for clarity. DO you like this?

<small>Guest commentary by Drew Shindell</small>

The unique chemistry that causes dramatic ozone depletion in the polar springtime lower stratosphere has been studied intensely for the past 2-3 decades and much that was speculated about 30 years ago when the problem first emerged has been verified and made more coherent. However, a new reported concerning laboratory measurements of a key molecule involved in this chemistry have raised questions about current understanding. The results (Pope et al., J. Phys. Chem., 2007) suggest a reduced ability for sunlight to break apart the chlorine monoxide dimer (Cl2O2) and have already led to a great deal of debate about their implications. I'll try here to help assess what these new measurements really mean.
<!--more-->

The past decades of study have developed a comprehensive understanding of how polar ozone depletion (Ozone Holes) takes place. In brief, human-produced halocarbons (chlorofluorocarbons (CFCs) and a few other molecules like methyl bromide) are broken down by sunlight in the stratosphere, releasing chlorine and bromine. These highly reactive atoms mostly go into fairly long-lived molecules that are not very reactive and therefore act as reservoirs. There are two situations in which a substantial amount of chlorine, the more important of the two, can come out of the reservoirs in large enough amounts to destroy a substantial amount of ozone. One is in the upper stratosphere around 40-50 km altitude, where strong sunlight forms reactive molecules that frees the chlorine. The other is the polar springtime lower stratosphere, where extremely cold temperatures lead to unique chemistry on the surface of ice particles that again transforms chlorine from its reservoirs into more reactive forms.

ATMOSPHERIC observations show that in both these situations, there is indeed enhanced reactive chlorine and simultaneous depletion of ozone. Measurements from satellites, aircraft, and ground-based instruments all give independent, consistent information verifying

the links between cold temperatures in the polar springtime lower stratosphere and chlorine, and between chlorine and ozone. It's important to note that none of the laboratory data on the direct chemical reactions that destroy ozone have been questioned. What has now been questioned is not the link between the chlorine released from CFCs and ozone loss, but rather the rate at which the chlorine atoms can destroy ozone via a particular cycle involving the Cl2O2 molecule.

Measurements of this molecule are exceedingly difficult to make in the laboratory as it is highly unstable. Several earlier measurements of the relevant rate have shown variations of a factor of 3 or so, so that the uncertainty in the rate is not new. However, we have substantial auxiliary evidence for what the rates must be i.e. observations of chlorine in the atmosphere provide independent constraints on Cl2O2. Limited direct observations of Cl2O2, as well as many measurements of total chlorine and of chlorine monoxide (ClO), constrain the amount of Cl2O2 (which CANNOT be greater than the total minus the amount in the ClO molecule) are inconsistent with either the new measurements or even earlier reports of a reduced ability of sunlight to break up Cl2O2 (Shindell and de Zafra, GRL, 1995, 1996; Stachnik et al., GRL, 1999; Stimpfle et al., JGR, 2004). Thus although the current state of knowledge is that the laboratory measurements on the stability of the Cl2O2 molecule vary by roughly a factor of 10 (including the newly reported values), the independent measurements suggest strongly that the upper half of that range is more likely to be correct, not the lower.

Given the difficulty in making the laboratory measurements, it is quite possible that these are wrong, and confirmation of the new results is certainly needed. Should the results hold up, the chemistry involved in polar ozone loss may need to be re-evaluated. As there are other cycles that do not involve the Cl2O2 molecule but cause similar dramatic ozone depletion, such as cycles including both ClO and BrO (its bromine-containing analogue), any revision to current understanding would most likely simply shift the relative importance of the various ozone-destroying cycles. However, as noted, it is not clear how one would reconcile these NEW measurements with actual atmospheric observations, which are not consistent with a more stable Cl2O2 molecule.

A wealth of observational data supports the role of chlorine and bromine in polar ozone loss, and uncertainty in a single step of the relevant chemistry does not undermine the Montreal Protocol controlling substances that release these atoms into the stratosphere. It is important, however, that the new results be tested so that we can be confident we understand the potential effects of future changes in temperature on polar ozone loss (as different chemical reactions have different sensitivities to temperature). This will allow us to better understand the effects of climate change on the stratospheric ozone layer, and to verify the effectiveness of the Montreal Protocol, which HAS already SHOWN success in reducing the growth of atmospheric concentrations of CFCs, AND SEEMS TO HAVE LED TO AT LEAST A LEVELING OFF OF OZONE DEPLETION OVER MOST OF THE PLANET. Recovery is not expected for a few decades.

========

Gavin

Re: ozone again

Subject: Re: ozone again
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 28 Sep 2007 17:38:48 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

it's up. Feel free to comment if anyone says anything interesting!

http://www.realclimate.org/index.php/archives/2007/09/uncertainty-in-polar-ozone-depletion/

gavin

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Gavin

Re: ozone again

Subject: OISM
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Oct 2007 14:59:07 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

http://www.realclimate.org/index.php/archives/2007/10/oregon-institute-of-science-and-malarkey/

http://rabett.blogspot.com/2007/10/before-there-was-o-there-was-jpands.html

(incomplete, but worth a look)

http://www.realclimate.org/wiki/index.php?title=OISM

gavin

Subject: Re: List of earth science bloggers
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Nov 2007 15:57:52 -0500
To: Sarah Dewitt <Sarah.L.Dewitt@nasa.gov>

Hi Sarah,

well, the other opinion list on RC is probably a good start. Dot Earth (Andy Revkin), Michael Tobis, Atmoz (N. Johnson), Deltiod (Tim Lambert), OpenMind etc.

However, I would council you not to overdo any mass mailings to these people - bloggers tend to be a little more independent than normal journalists and aren't particularly disposed to reporting on press releases and the like.

Gavin

On Thu, 2007-11-15 at 15:51, Sarah Dewitt wrote:

> Hi Gavin,
>
> I'm an earth science media producer at Goddard and am starting a distribution list for top earth science and climate bloggers. I'm hoping you can help me kickstart the list with a few of your favorites. I read Real Climate when I can but I usually don't have time to follow any of the others out there, so any recommendations you can make are welcome. Once I have a short list I'll put some more development time into it and would be happy to share what I find.
>
> Thanks in advance,
> Sarah

Subject: Re: FW: EO Comment: Global Warming, RealClimate website.
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 02 Jan 2008 17:49:21 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

seems fine.

FWIW posts as on climateaudit.org

gavin

On Wed, 2008-01-02 at 17:33, David Herring wrote:
R,

Here is my proposed reply. We can fine-tune the wording so please review and let's discuss when you're ready...

Dear ,

Thank you for your note and for taking the time to express your concerns. My team and I are not in the habit of posting material on blog sites, nor do we respond to postings on external blog sites, so I won't comment on what is or is not on the sites you referenced. We do, however, respond as time permits to letters people send us directly. So while I have noted the source of your concerns, I am addressing my response specifically to you and to the particular concerns you raised in your letter.

Perhaps I should first elaborate on NASA's Earth sciences research to put the objectives of NASA's Earth Observatory into proper context. NASA is a world leader in Earth system science research -- in terms of our agency's current capacity for space-based observations and measurements of Earth's environment; in terms of the contributions made by scientists within our agency to the body of knowledge about our home planet; and in terms of improving the science community's ability to model and predict the workings of Earth's climate system. In addition to being tasked and funded by the President and by Congress to advance understanding about how our world works, NASA is also mandated to share that new knowledge with the public. NASA's Earth Observatory is an Internet publication by which we help to fulfill that mandate. The Earth Observatory is based at NASA's Goddard Space Flight Center, under my management. We have no other motive nor outside influence.

In your note, you stated that we linked to realclimate to answer a global warming question. Not true. Please visit our site for yourself, athttp://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/

...and there you will see that we provided clear, concise answers to each question, and then we provided links to a variety of places where people could go if they wanted to read more about the subject. There are no government policies prohibiting such links.

In your note, you pointed out the political nature of some aspects of climate science. My team and I are fully aware that global warming is controversial in political contexts. Indeed, I feel that the politics of the subject only ***heighten*** the need for good, effective science communication about Earth's current warming trend. We try to do so in a way that clarifies the science and makes the subject easy to understand. In short, I believe it is important to help people to become conversant in climate science. The Earth science articles

published on NASA's Earth Observatory are written and designed for that purpose. So too, I find, are the entries on RealClimate. So we provided links to that site for people who may be interested in further reading on the subject.

That said, I should point out that NASA's Earth Observatory confines the scope of its articles to science. I believe we have done a good job of presenting the science without deviating into policy advocacy. We do not advocate for or against a given policy, nor do we lobby anyone in any way. There is no formal relationship between the Earth Observatory and RealClimate. NASA does not provide funding nor manpower to RealClimate. In short, NASA does not "back" RealClimate, as you suggested. (Some NASA scientists do donate some of their own personal time and expertise to RealClimate, but of course they are free to do so.) With respect to RealClimate's funding, I have no idea where it comes from. What concerns me is whether they've gotten their climate science information right, and whether it is easy to understand.

You articulated a concern that NASA is "evading quality control." I assure you that we do not evade quality control. On the contrary, we embrace it and go to great lengths to ensure that all of the information that we publish, and that we link to, is of the highest quality. We employ multiple rounds of editorial review in our articles that include both our own internal team reviews as well as reviews by scientists not on our team but who have relevant expertise (both within and outside of NASA) before publication.

Regarding your concern about our link to the RealClimate site, there is no policy that I'm aware of that prohibits such a link. Nor is there a reason that I can see to remove the link. To paraphrase the policy governing Web links, we must take steps to ensure that the information we link to is relevant, accurate, timely, and complete. In my view, the RealClimate site meets these requirements. And, for the reasons stated above, I believe the RealClimate site is a healthy public forum in which citizens can interact firsthand with leading climate scientists from a variety of agencies and universities. Such interaction is, after, what democracies are all about. As such, it's a useful and recommended resource.

I hope I have adequately addressed the specific concerns you stated in your letter. With respect to the veracity of global warming, I refer you to a fairly recent press release issued by the White House's Office of Science and Technology Policy (dated Feb. 2, 2007, which you can find here:http://www.whitehouse.gov/news/releases/2007/02/20070202.html) in reference to the most recent IPCC Assessment Report, to which NASA and NOAA (and many others) contributed significantly:

"This Summary for Policymakers captures and summarizes the current state of climate science research and will serve as a valuable source of information for policymakers," said Dr. Sharon Hays, the leader of the U.S. delegation at the meeting and Associate Director/Deputy Director for Science at the White House Office of Science and Technology Policy. "It reflects the sizeable and robust body of knowledge regarding the physical science of climate change, including the finding that the Earth is warming and that human activities have very likely caused most of the warming of the last 50 years."

You can find the complete IPCC Climate Change Assessments, and summary reports, here: http://www.ipcc.ch/

With best regards,

David Herring
NASA Earth Observatory Project Manager

Here is the first of three messages we received about this issue. I have not
responded to any of them yet.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Friday, December 28, 2007 11:31 AM
To: eoeditor@yahoo.com
Subject: EO Comment: Global Warming, RealClimate website.

From:
l@earthlink.net

Topic: ContentFeedback
Subject: Global Warming, RealClimate website.

Comment/Question:
To the Director of NASA:

That NASA publicly links to "realclimate.org" for answers to global warming
question, in which realclimate.org has unknown sources of support and
funding, and takes very very specific positions on a very political issues
within their website dialog is very very outside the bounds of federal
policy. Outlined here: NASA Evasion of Quality Control Procedures
http://www.climateaudit.org/?p=2536. It is stunning actually. Why is this
happening?

As a citizen of this country and a wife of a working Earth Scientist myself,
I am stunned. I've been following the "realclimate" website for over a
year. Does NASA support all these other postings they make as well? Such
as:

http://www.realclimate.org/index.php/archives/2007/12/les-chevaliers-de-l%e2%80%99ordre-de-la-terre-plate-part-ii-courtillots-geomagnetic-excursion/
"Prelude: It's the physics, stupid"

you might want to read what others think about this here:
http://www.climateaudit.org/?p=2531#comment-163384

Is this what science has come to be with the help of people such as these,
backed by NASA?

Sincerely,

.e: FW: EO Comment: Global Warming, RealClimate website.

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: FW: EO Comment: Climate change
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Jan 2008 11:52:07 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

nice one. Note that I'm not an American citizen though...

On Thu, 2008-01-03 at 10:49, David Herring wrote:
Dear

Thank you for your letter, and for sharing your concerns. Taking your last point first, I can assure you that objectivity in the science conducted at NASA is paramount and remains intact.

It appears (by your question) that you may be misinformed. Please note that Gavin Schmidt is not "using" the Earth Observatory site as you said. Rather, we invited him to contribute to our update of a NASA overview article about Global Warming. Gavin was one of about 15 NASA scientists and communications personnel who contributed to our update of that article. We feel that our updated version of that article as well as the linked Question and Answer follow-up we published present a balanced, accurate, and up-to-date overview of global warming. I invite you to review the piece and see if you agree. In the article, we remain focused on the science and how we know what we know about global warming, its causes, and its consequences. You can review it here:
http://earthobservatory.nasa.gov/Library/GlobalWarmingUpdate/

and the Q&A is
here: http://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/

Please note: there is no NASA policy that prohibits our linking to the RealClimate site. We did so because clearly that site is relevant to our article about Global Warming, and because we find the site to be accurate and its authors to be knowledgeable and credible experts in the field, and because we feel the site represents a "best practice" in science communication with the public. That link was provided for folks who may want to read further about the subject beyond what we included in our own articles. Publication of clear, concise information firsthand from real climate scientists, with an opportunity to discuss and ask questions, seems to me to be an outstanding way to help people better understand climate science and to help them become conversant in the subject.

Regarding your questions about the legal implications of Gavin's contributions to RealClimate, please note that it is commonly known that Gavin donates his own time to posting information and answering questions on the RealClimate.org site. He is free to do so and there is nothing illegal, unethical, or unusual about it. Like all Americans, Gavin enjoys and exercises his freedom of speech. I'm sure we both agree that freedom of speech is a good thing.

I hope I've satisfactorily addressed your concerns.

Best regards,

David Herring
NASA Earth Observatory Project Manager

Re: FW: EO Comment: Climate change

Third of three messages about real climate.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Monday, December 31, 2007 1:54 PM
To: eoeditor@yahoo.com
Subject: EO Comment: Climate change

From:
.com

Topic: ContentFeedback
Subject: Climate change

Comment/Question:
Why is a Nasa employee (Gavin Schmidt, NASA Goddard Institute for Space
Studies)using the Nasa climate change website to reference his own real
climate website and blogging on his website during normal working hours? As
a tax payer, I find this highly irregular and bothersome and possibly
illegal. It also raises more important issues, such as the objective nature
of the science being done at NASA.

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: mysteries of the universe
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 07 Jan 2008 12:15:15 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

quite possibly. Plus it might endlessly be brought up in various blog postings (however, I have seen no evidence of that). However, you have to ask about the competition.....

Gavin

On Mon, 2008-01-07 at 12:11, Ron Miller wrote:

> How does this remain at the top of the list month after month? Has someone constructed an automated download program to guarantee a large number of hits?
>
> AMS Top 20
> Articles viewed Last Month.
> 1. Some Coolness Concerning Global Warming
> Bulletin of the American Meteorological Society Vol. 71 Iss. 3

Subject: [Fwd: Re: BAMS Decision #2539]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 07 Jan 2008 15:45:17 -0500
To: alacis@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>

more follow up....

-----Forwarded Message-----

From: Mark Baldwin <mark@nwra.com>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: Re: BAMS Decision #2539
Date: 07 Jan 2008 10:59:04 -0800

Hi Gavin,

My experience has been that papers that deal with misconceptions don't review well. The reviewers (of course) have no misconceptions. And if you cite papers with misconceptions, the authors will not be pleased. I once wrote a paper (GRL) about the misconceptions of statistical significance. It got rejected and is in one of my file cabinets.

Michael McIntyre is working on a paper that deals with statistical misconceptions. You might want to check his Web site.

You might consider ACPD, which is designed for discussions. ACP has a pretty high impact factor (above 4).

After the first round of reviews, I set the bar pretty high, since all 3 reviewers recommended rejection. One reviewer gave the paper a mild endorsement, put the other two did not. I noted that two reviewers had similar opinions (and mentioned KT97). The other reviewer's objections had little overlap with the first two.

I still think that the topic is a good one for BAMS. So I think that (as you suggested starting from scratch) the paper could be BAMS-worthy. If you do this, I suggest first soliciting the opinions of those who might be the most critical. I will not be the Editor at BAMS, since my term will be over by the time you submit a new paper. But I would be willing to ask the Chief Editor to look at it as a new manuscript (many manuscripts are turned down without being set to an Editor).

Please let me know what you plan to do.

Cheers,

-Mark

On Jan 3, 2008, at 1:10 PM, Gavin Schmidt wrote:

Mark, Thanks.

Disregarding Lindzen's nonsense, I get the impression that the reviewers
are not particularly impressed by the novelty here. That's fine since we
weren't going for novelty, but rather illustration. Mind you, we seem to failed there as well!

[Fwd: Re: BAMS Decision #2539]

However, don't you find this curious - one reviewer says there is no advance beyond KT97 and yet you think this is 'challenging' and that confusions remain? Partly that is related to (presumably) this specific
paper, but there are larger issues.

Where and how are clarifications of common misconceptions (even among scientists in the field) supposed to be published? Blogs are certainly not the place, the technical literature (QJ and J. Clim included) rightly demands novelty. All one is left with is EOS or BAMS or else the
non-peer reviewed pop. sci. publications (American Scientist etc). In this case EOS length constrictions are too onerous and peer review is absolutely necessary.

If we were starting from scratch, is there no conceivable form this discussion could take that would make it BAMS-worthy?

Gavin

On Thu, 2008-01-03 at 15:48, Mark Baldwin wrote:
Dear Dr. Schmidt,

In the decision letter for MS# 2441 I wrote: "I would likely send the manuscript to the same reviewers, and possibly one additional person. Convincing the reviewers would likely be a challenge, but you have the
option to try."

Unfortunately, the reviewer's opinions of the revised manuscript range
from marginal support to strongly negative. One of the reviewers feels
that the manuscript improved, and might be worthy of publication, but the other two reviewers again recommend rejection.

Although, as Reviewer 2 points out, the manuscript may be suitable for
another journal, I am rejecting it for publication in BAMS. The topic of this paper is very challenging, in part because even experts in the
field disagree regarding terminology. For BAMS readers I do not think that this paper would clarify the situation. Although Reviewer 1's critique is overly harsh, I do agree with the essential message that confusion over several issues remains.

Having been through two rounds of reviews with BAMS, I hope that the reviewers' comments are useful in revising the manuscript for submission to another journal, such as the QJ or Journal of Climate.

Best Regards,

-Mark

Mark P. Baldwin
Editor, Climate Subject Matter
Bulletin of the American Meteorological Society

Northwest Research Associates
4118 NE 148th Ave. NE
Redmond, WA 98052 USA

+1 425.556.9055 ext. 323
(fax) +1 425.556.9099
mark@nwra.com

www.nwra.com/baldwin

Reviewer #1 (attached)

Reviewer #2:

The reviewers of the first paper pointed out that the authors had failed to cite the KT97 paper which performed a very similar analysis.
This oversight has now been corrected and, although in my mind it doesn't give KT97 as much credit as it might, it points out how their results are different. They have also adequately addressed and/or responded to other reviewer comments.

The originality of revised Schmidt et al over KT97 is presenting results for all-sky cases - which are not in KT97, and updating results with newer and possibly better radiation schemes. They also use their paper as a framework to provide some interesting musings on the climate problem. However, I am afraid that I honestly can't see the major advance over KT97. The 'new' all sky case can be roughly worked out from KT97 Table 3 anyway and working out precise numbers do
not seem to be important for their arguments made in the discussion. I
would happily accept this paper for JGR but still argue against it's appearance in BAMS. As far as the BAMS readership is concerned this problem was more than adequately addressed by KT97 as does not require
revisiting.

Reviewer #3:

Review of BAMS2543 Schmidt et al

Without question, the revised version of this paper is considerably better than the original. I am still stuck though. In my original review, I noted that, if asked about the contribution of different absorbers to the greenhouse effect, I would have referred them to KT97. Even after reading the revised version of this paper, I still think I would refer readers, preferentially, to KT97. To be sure KT97 has its faults, but it also has useful additional information not found here. In a sense, the authors undermine their own case with the statement (page 7, 2-3 lines up) that "most of our results are within a couple of percent of all previously published estimates". So where has this paper got us?

I would have no great objection to seeing this paper published,

following some further modifications; it is largely incremental, and does not really present enough analysis to resolve some of the (interesting) differences between the results here and in KT97, but I think that I would probably refer to it quite frequently.

Major comments (in order of appearance, rather than importance)

1. Page 4, semantic confusion: Actually the semantic confusion on forcings versus feedbacks is deeper than indicated here and I think that IPCC AR4 have not helped the confusion. From the definition here,
changes to clouds and water vapour are not classed as forcings but as feedbacks. But then how do you class the indirect and semi-direct effects of clouds? Are these feedbacks or forcings? Arguments for both
exist in the literature, but I would maintain that any change in one of these prognostic variables that occurs in the absence of any surface temperature change is a forcing not a feedback and this is the
spirit of the definition of forcings discussed so extensively in Hansen et al. (2005). To argue that indirect forcings are a feedback appears bizarre to me, as in principal one could imagine getting a response without a forcing! And what about stratospheric water vapour changes as a result of methane oxidation? Surely this is a forcing?

2. Page 6, line 9: "the all-sky percent contributions cannot be calculated from the numbers presented [in KT97]" … I am not so sure; I
noted in my previous review that aspects of KT97 keep me awake at night and this is one of them. Their all-sky greenhouse effect is 155 Wm-2 and the contribution of all the gases in their table 3 is 86 Wm-2. So does this mean the actual contribution of clouds is 69 Wm-2? I think it probably does and they note in their text that clouds play a dual role in both absorbing radiation and shielding the role of other gases. So this would make the cloud contribution to be 45% and water vapor to be 32%, somewhat different to the numbers presented here, although the sum is almost identical. Can the authors resolve this (apparent) discrepancy? Maybe it is something to do with their use of a single "global-mean" profile?

3. Page 8, line 4: "larger role for water vapour" - KT97 are somewhat coy about what water vapor continuum they use (mind you, so are you!) and I suspect that they might be using the old Roberts continuum - this might be one explanation.

4. Page 9, 15 lines up: "is balanced by" … surely this is wrong? Shouldn't this be "consisting of" … i.e. the 20 is made up of an increase in surface emission of 15 and a decrease of TOA emission by 5. I think I had never properly thought about this number before, and it is quite interesting.

5. Table 3. This is confusing. The table itself says "TOA" while the caption says "tropopause" - I think it must be tropopause, otherwise I
cannot make sense of the fact that the SW contribution varies in sign between water vapor and the other gases. Also note that my reading of Collins et al is that the SW CH4 forcings is not so small - for the actual increases in methane and CO2 since pre-industrial times, the methane SW forcing is the larger of the two.

Minor comments

Page 4, line 7: "other minor contributors only make small

contributions" … a tautology?

Page 4, lines 9-10: Gases also have a significant SW effect.

Page 5, section 3, line 3: "Wetherald"

Page 7, line 10: "One detail worth noting …" - there are many details worth noting that you haven't noted, more important than this one. I would delete this, if the paper is published.

Page 8, line 10: Presumably these are annual mean values?

Mark P. Baldwin
Vice President & Senior Research Scientist
Northwest Research Associates

New address & phone as of 1 October:
4118 148th Ave. NE
Redmond, WA 98052 USA

phone +1 425.785.8751
(fax) +1 425.556.9099
mark@nwra.com

www.nwra.com/baldwin

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 11:35:18 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

you were just humouring me? how often does that happen?

On Wed, 2008-01-09 at 11:28, Ron Miller wrote:
> I have to confess that I misinterpreted all your 'saving the planet' joke's these past few days, until last night, when I read Andy Revkin's dot earth blog, and realized that I had overlooked your election to the Guardian's '50 People Who Could Save the Planet'. (That's what I get for visiting realclimate every day and not dot earth).
>
> So congratulations! Now get that cape back from the dry cleaner and get to work.
>
> Ron.

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 12:30:57 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

bast*d!

On Wed, 2008-01-09 at 12:19, Ron Miller wrote:
> I just assumed it was your usual grandiosity.
>
> PS, Paradoxically, I got some limited satisfaction from seeing Lomborg
> cited, if only because I could imagine Roger Pielke Jr. seething for
> having his pseudo-centrist mantle usurped.
>
> On 09 Jan 2008 11:35:18 -0500, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > you were just humouring me? how often does that happen?
> >
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> > > get to work.
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> > > Ron.

Subject: more middle muddle
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 13:07:33 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

http://initforthegold.blogspot.com/2007/12/on-compromise.html

Subject: Re: Your Reply to: GISS Temperature Correction Problem?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 19 Feb 2008 14:38:47 -0500
To: rruedy@giss.nasa.gov

I had a little look at the data, and this whole business seems to be related to the infilling of seasonal and annual means. There is no evidence for any step change in any of the individual months.

The only anomalous point (which matches nearby deltas) is for Sep 2005. Given the large amount of missing data in lampasas this gets propagated into the annual (D-N) mean - I think - with a little more weight than in nearby stations. The other factor might be that since lampasas is overall cooling, if we use climatology to infill in recent years, that might give a warm bias. But I'm not sure on how the filling-in happens.

Gavin

On Tue, 2008-02-19 at 13:46, Reto Ruedy wrote:

> Dear Forrest,
>
> Please look at
>
> http://data.giss.nasa.gov/gistemp/sources/cleaning.html
>
> which fully documents our "cleaning" and its effect; by no stretch of the imagination can this effect (and much less the addition or subtraction of a single US station) be called significant for our purposes.
>
> Our homogeneization causes the modified stations to have the same longterm trend as the neighboring non-modified stations; hence whether we keep or drop any or all modified stations has no effect on the global longterm trends. Since Lampasas is a modified station, its inclusion or exclusion is therefore not only insignificant, but totally irrelevant.
>
> By the way, the longterm trend based on non-homogenized data would actually increase (insignificantly) if we dropped Lampasas.
>
> Finally, Lampasas is a USHCN station; as soon as USHCN applies a correction to any of their stations, our fully disclosed analysis will automatically include such corrections. Our description explicitly states that we are not applying any cleaning to USHCN data; so the answer to your question can only be: as long as USHCN keeps Lampasas, it will be included in the GISS analysis.
>
> Best regards,
>
> Reto

On Mon, 2008-02-18 at 20:41 -0500, [redacted] wrote:

> Dear Reto,
>
> Thanks for your reply, which raises one final but significant question: Based on what you now know about Lampasas, will this data be kept or thrown away?

Re: Your Reply to: GISS Temperature Correction Problem?

I am very familiar with heat island articles at Wikipedia, NASA, HARC, EPA, etc., etc. I am also familiar with the scholarly literature. As for my question, I have compared carefully your reply to David Herring's interview with Jim Hansen on the GISS website (http://www.giss.nasa.gov/research/features/temptracker/page2.html) and also with the Watt's post about Lampasas, Texas at www.climateaudit.org. I found in the comments at the latter post a comparison by McIntyre with a site near Lampasas (Blanco) that clearly affirms the anomalously sharp warming that is absent at Blanco. Watt claims the Lampasas site was moved from a better site to downtown at the same time the show the strange upward spike occurred.

There is no similar temperature spike in the towns (San Antonio, New Braunfels and Seguin) I have studied for my newspaper columns on the UHI (one of which was published today in the SAN ANTONIO EXPRESS NEWS). I hope to visit Lampasas and Blanco during spring break so I can see for myself if the Watt's claim are valid or exaggerated.

Based on all this and David's interview with Jim, I assumed that this is a situation in which the temperature data are not used, but from your reply it is unclear if the Lampasas data are considered valid and usable for modeling purposes. Here is the relevant section of David's article on the GISS site:

++

Second, Hansen's team "cleans" the weather station data by finding and filtering out flawed data entries. Specifically, they apply a computer algorithm that checks each data point for temperature readings that are very significantly higher or lower than average for a given location at that time of year. Whenever such an anomaly is flagged, the algorithm compares those data to data from nearby stations to see if they show a similar anomaly. If so, then the data in question are kept; if not, or if there are no nearby stations for comparison, then the data are thrown away. [Bold added.]

His team also modifies the data from stations located in densely populated areas by removing the long-term bias of these "urban heat islands." The team uses satellite data to determine if a given station is in an urban or near-urban location. If so, then the team uses the nearest rural stations to determine the long-term trend at the urban site. If there are no rural neighbors, then Hansen's team throws out the urban station data.

++

So my question is this: Based on what you now know about Lampasas, will this data be kept or thrown away?

Thanks and best regards,

Forrest

Forrest M. Mims III
www.forrestmims.org
www.sunandsky.org
Geronimo Creek Observatory
Phone: 830-372-0548

In a message dated 2/18/2008 2:55:25 P.M. Central Standard Time, [redacted] writes:

FYI.

-----Forwarded Message-----

> From: Reto Ruedy <rruedy@giss.nasa.gov>
> Subject: Re: GISS Temperature Correction Problem? (fwd)
>
>
> As to the specifics:
> Our method to counteract any potential impact of the urban heat island
> effect is to adjust the longterm trend of a non-rural station so that it
> equals the mean trend of the neighboring rural stations while preserving
> the local short term variability. As far as global trends are concerned,
> this is equivalent to disregarding non-rural stations.
>
> A. Watts - in spite of our description - insists that our adjustment was
> designed to fix bad station data and exhibits examples of stations where
> that goal is not reached. In this sense, he does misrepresent our
> adjustment.
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> In addition, whenever he finds a station whose longterm trend after the
> adjustment shows more warming than before the adjustment, he calls it an
> "artificial warming trend" created by GISS.
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> The fact of the matter is, the impact of the urban heat island effect on
> longterm trends is real but much smaller than the impact of the natural
> variability at individual locations. This explains, why currently in 45%
> of the cases the adjustment increases the trend. But in the majority of
> the cases it decreases the trend - strangely enough, none of those cases
> ever show up on their blogs as examples of "artificial cooling trends"
> created by GISS.
>
> For information on urban heat island effect and its relation to global
> warming
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>
http://en.wikipedia.org/wiki/Urban_heat_island#Relation_to_global_warming
>
> might be a better source than climateaudit.
>
> Reto
>
> >
> > ---------- Forwarded message ----------
> > Date: Fri, 15 Feb 2008 14:16:04 EST
> > From: FMims@aol.com
> > To: Gavin.A.Schmidt@nasa.gov
> > Cc: forrest.mims@iece.org
> > Subject: GISS Temperature Correction Problem?
> >

Re:. Your Reply to: GISS Temperature Correction Problem?

> > Hi Gavin,
> >
> > I have completed a pair of installments for my weekly science column in the
> > SAN ANTONIO EXPRESS NEWS on temperature in South Texas since 1885 and am
> > writing the third installment on urban heat islands. So I went to
> > www.climate.org (http://www.climate.org) audit to see their take on this and the latest
> > post is by Anthony Watts about a rather bizarre GISS correction to data from
> > Lampasas, Texas.
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> > Did Watts misrepresent the GISS correction? If not, can you please explain
> > what's going on here?
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> > Thanks very much.
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> > Best regards,
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> > www.sunandsky.org
> > Geronimo Creek Observatory
> > Phone: 830-372-0548

Delicious ideas to please the pickiest eaters. Watch the video on AOL Living.

Subject: Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 19 Feb 2008 15:24:38 -0500
To: rruedy@giss.nasa.gov

I know. sorry about that.

As an aside, what is the formula for the in-filling for the seasonal and annual means?

Gavin

On Tue, 2008-02-19 at 15:06, Reto Ruedy wrote:

> I usually don't respond to people who preach to me in the thinly disguised form of asking a question - and I'm sorry I did not stick to that policy this time around.
>
> Reto
>
> -------- Forwarded Message --------
> From: FMims@aol.com
> To: rruedy@giss.nasa.gov
> Cc: gschmidt@giss.nasa.gov, forrest.mims@ieee.org
> Subject: Re: Your Reply to: GISS Temperature Correction Problem?
> Date: Tue, 19 Feb 2008 14:52:38 EST
>
> Dear Reto,
>
> The obvious flaw in the Lampasas temperature record may indeed be "totally irrelevant." The problem is that there are flaws in the records from apparently hundreds of stations. There are GLOBE schools that do much better.
>
> The bottom line is that the great majority of US surface stations reviewed and photographed by citizen volunteers fail to meet key WMO and NSW site guidelines. The warming trends shown by some of these stations is clearly influenced by their placement near or even on pavement or concrete and near buildings, air conditioning vents, vehicles, signs and so forth. I even found papers by Roger Pielke confirming this. At least one site shows a false cooling trend, apparently caused by nearby trees.
>
> I first became aware of this problem several years ago when Jim Hansen and I both spoke to NASA's Earth Explorer's Institute at the Baltimore Science Center. There is an official NWS station outside this center inside a fence of black painted iron or steel. Worse, there was a solid black metal plate lying on the ground directly under the temp sensors. I photographed it. Later I called the NWS, and they said they were unaware of this and that they would remove the plate. Even before checking, they told me the plate would have no impact on T measured at the site.
>
> Summarizing:
>
> My original question was, "Based on what you now know about Lampasas, will this data be kept or thrown away?"
>
> Your reply is that Lampasas is "totally irrelevant." In short, Lampasas, with it's obvious huge error, remains in the GISS dataset.
>
> But it's now quite clear that the problem goes far beyond Lampasas, Texas, and it's being exposed mainly by volunteers with no budget but their own. So I rephrase my question to read: Based on what is now

known about the numerous surface station flaws disclosed at www.surfacestations.org and in the papers by Pielke, et al., is it not time for GISS to work with NOAA to conduct a serious review of its methodology and then audit the data base and remove all data from suites that do not meet WMO and NWS site guidelines?

Frankly, I see no other options at this point, for accurate temperature records are crucially important if global warming is to be properly monitored and modeled.

Best regards,

Forrest

Forrest M. Mims III
www.forrestmims.org
www.sunandsky.org

In a message dated 2/19/2008 12:45:49 P.M. Central Standard Time, rruedy@giss.nasa.gov writes:

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> Forrest M. Mims III
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> > From: Reto Ruedy <rruedy@giss.nasa.gov>
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> >
> > Reto
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> > >
> > > ---------- Forwarded message ----------
> > > Date: Fri, 15 Feb 2008 14:16:04 EST

Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]

> > > From: FMims@aol.com
> > > To: Gavin.A.Schmidt@nasa.gov
> > > Cc: forrest.mims@ieee.org
> > > Subject: GISS Temperature Correction Problem?
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Subject: Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 19 Feb 2008 16:30:18 -0500
To: rruedy@giss.nasa.gov

On Tue, 2008-02-19 at 16:10, Reto Ruedy wrote:
> If at least 2 of the 3 months of a season are known, the mean of those months is the seasonal mean; after all seasonal means are found, the annual means are derived from those seasonal means: If at least 3 of the 4 seasons are known, their average is the annual mean.
>
> I think this is perfectly legitimate to use in the urban adjustment step where we deal with anomalies.

agreed

> However, Jay also used it in an earlier step (where we combine station data for the same location). In addition, it is used to create the tables and annual mean plots in the "Station Data" section of our web site, but those data are not used for anything.

these are the ones that puzzle me a little. They aren't the average of the two months with data. Thus I think some use of climatology or recent years must be used. Which program writes these out? I'll have a look.

However, the annual data that come from this is used in the figures that Watts is so fond of.

> In these cases we deal with absolute temperatures, and the technique obviously does not work too well if the hottest or coldest season is missing. I remember vaguely that we played with various ways of filling in the missing data rather than ignoring them, but Jay must have decided that in the average, the result were not substantially better.

that might be worth writing up a little more formally....

> Reto
>
> On Tue, 2008-02-19 at 15:24 -0500, Gavin Schmidt wrote:
> > I know. sorry about that.
> >
> > As an aside, what is the formula for the in-filling for the seasonal and annual means?
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Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]

Dear Reto,

The obvious flaw in the Lampasas temperature record may indeed be "totally irrelevant." The problem is that there are flaws in the records from apparently hundreds of stations. There are GLOBE schools that do much better.

The bottom line is that the great majority of US surface stations reviewed and photographed by citizen volunteers fail to meet key WMO and NSW site guidelines. The warming trends shown by some of these stations is clearly influenced by their placement near or even on pavement or concrete and near buildings, air conditioning vents, vehicles, signs and so forth. I even found papers by Roger Pielke confirming this. At least one site shows a false cooling trend, apparently caused by nearby trees.

I first became aware of this problem several years ago when Jim Hansen and I both spoke to NASA's Earth Explorer's Institute at the Baltimore Science Center. There is an official NWS station outside this center inside a fence of black painted iron or steel. Worse, there was a solid black metal plate lying on the ground directly under the temp sensors. I photographed it. Later I called the NWS, and they said they were unaware of this and that they would remove the plate. Even before checking, they told me the plate would have no impact on T measured at the site.

Summarizing:

My original question was, "Based on what you now know about Lampasas, will this data be kept or thrown away?"

Your reply is that Lampasas is "totally irrelevant." In short, Lampasas, with it's obvious huge error, remains in the GISS dataset.

But it's now quite clear that the problem goes far beyond Lampasas, Texas, and it's being exposed mainly by volunteers with no budget but their own. So I rephrase my question to read: Based on what is now known about the numerous surface station flaws disclosed at www.surfacestations.org and in the papers by Pielke, et al., is it not time for GISS to work with NOAA to conduct a serious review of its methodology and then audit the data base and remove all data from suites that do not meet WMO and NWS site guidelines?

Frankly, I see no other options at this point, for accurate temperature records are crucially important if global warming is to be properly monitored and modeled.

Best regards,

Forrest

Forrest M. Mims III
www.forrestmims.org
www.sunandsky.org

In a message dated 2/19/2008 12:45:49 P.M. Central Standard Time, rreudy@giss.nasa.gov writes:

> Dear Forrest,
>
> Please look at
>
> http://data.giss.nasa.gov/gistemp/sources/cleaning.html
>
> which fully documents our "cleaning" and its effect; by no stretch of

the imagination can this effect (and much less the addition or subtraction of a single US station) be called significant for our purposes.

Our homogeneization causes the modified stations to have the same longterm trend as the neighboring non-modified stations; hence whether we keep or drop any or all modified stations has no effect on the global longterm trends. Since Lampasas is a modified station, its inclusion or exclusion is therefore not only insignificant, but totally irrelevant.

By the way, the longterm trend based on non-homogenized data would actually increase (insignificantly) if we dropped Lampasas.

Finally, Lampasas is a USHCN station; as soon as USHCN applies a correction to any of their stations, our fully disclosed analysis will automatically include such corrections. Our description explicitly states that we are not applying any cleaning to USHCN data; so the answer to your question can only be: as long as USHCN keeps Lampasas, it will be included in the GISS analysis.

Best regards,

Reto

On Mon, 2008-02-18 at 20:41 -0500, FMims@aol.com wrote:
> Dear Reto,
>
> Thanks for your reply, which raises one final but significant
> question: Based on what you now know about Lampasas, will this data be
> kept or thrown away?
>
> I am very familiar with heat island articles at Wikipedia, NASA, HARC,
> EPA, etc., etc. I am also familiar with the scholarly literature. As
> for my question, I have compared carefully your reply to David
> Herring's interview with Jim Hansen on the GISS website
>
(http://www.giss.nasa.gov/research/features/temptracker/page2.html)
> and also with the Watt's post about Lampasas, Texas at
> www.climateaudit.org. I found in the comments at the latter post
> a comparison by McIntyre with a site near Lampasas (Blanco) that
> clearly affirms the anomalously sharp warming that is absent at
> Blanco. Watt claims the Lampasas site was moved from a better site
> to downtown at the same time the show the strange upward spike
> occurred.

Re: [Fwd: Re: Your Reply to: GISS Temperature Correction Problem?]

> There is no similar temperature spike in the towns (San Antonio, New
> Braunfels and Seguin) I have studied for my newspaper columns on the
> UHI (one of which was published today in the SAN ANTONIO EXPRESS
> NEWS). I hope to visit Lampasas and Blanco during spring break so I
> can see for myself if the Watt's claim are valid or exaggerated.
>
> Based on all this and David's interview with Jim, I assumed that this
> is a situation in which the temperature data are not used, but from
> your reply it is unclear if the Lampasas data are considered valid and
> usable for modeling purposes. Here is the relevant section of David's
> article on the GISS site:
>

++

> Second, Hansen's team "cleans" the weather station data by finding and
> filtering out flawed data entries. Specifically, they apply a computer
> algorithm that checks each data point for temperature readings that
> are very significantly higher or lower than average for a given
> location at that time of year. Whenever such an anomaly is flagged,
> the algorithm compares those data to data from nearby stations to see
> if they show a similar anomaly. If so, then the data in question are
> kept; if not, or if there are no nearby stations for comparison, then
> the data are thrown away. [Bold added.]
>
> His team also modifies the data from stations located in densely
> populated areas by removing the long-term bias of these "urban heat
> islands." The team uses satellite data to determine if a given station
> is in an urban or near-urban location. If so, then the team uses the
> nearest rural stations to determine the long-term trend at the urban
> site. If there are no rural neighbors, then Hansen's team throws out
> the urban station data.
>
>
>

++

>
> So my question is this: Based on what you now know about Lampasas,
> will this data be kept or thrown away?
>

> Thanks and best regards,
>
> Forrest
>
> Forrest M. Mims III
> www.forrestmims.org
> www.sunandsky.org
> Geronimo Creek Observatory
> Phone: 830-372-0548
>
>
> In a message dated 2/18/2008 2:55:25 P.M. Central Standard Time,
> gschmidt@giss.nasa.gov writes:
> FYI.
>
> -----Forwarded Message-----
>
> > From: Reto Ruedy <rruedy@giss.nasa.gov>
> > Subject: Re: GISS Temperature Correction Problem? (fwd)
> >
> >
> > As to the specifics:
> > Our method to counteract any potential impact of the urban
> heat island
> > effect is to adjust the longterm trend of a non-rural
> station so that it
> > equals the mean trend of the neighboring rural stations
> while preserving
> > the local short term variability. As far as global trends
> are concerned,
> > this is equivalent to disregarding non-rural stations.
> >
> > A. Watts - in spite of our description - insists that our
> adjustment was
> > designed to fix bad station data and exhibits examples of
> stations where
> > that goal is not reached. In this sense, he does
> misrepresent our
> > adjustment.
> >
> > In addition, whenever he finds a station whose longterm
> trend after the
> > adjustment shows more warming than before the adjustment, he
> calls it an
> > "artificial warming trend" created by GISS.
> >
> > The fact of the matter is, the impact of the urban heat
> island effect on
> > longterm trends is real but much smaller than the impact of
> the natural
> > variability at individual locations. This explains, why

> currently in 45%
> > of the cases the adjustment increases the trend. But in the
> majority of
> > the cases it decreases the trend - strangely enough, none of
> those cases
> > ever show up on their blogs as examples of "artificial
> cooling trends"
> > created by GISS.
> >
> > For information on urban heat island effect and its relation
> to global
> > warming
> >
> >
>
> http://en.wikipedia.org/wiki/Urban_heat_island#Relation_to_global_warming
> >
> > might be a better source than climateaudit.
> >
> > Reto
> >
> > >
> > > ---------- Forwarded message ----------
> > > Date: Fri, 15 Feb 2008 14:16:04 EST
> > > From: FMims@aol.com
> > > To: Gavin.A.Schmidt@nasa.gov
> > > Cc: forrest.mims@ieee.org
> > > Subject: GISS Temperature Correction Problem?
> > >
> > > Hi Gavin,
> > >
> > > I have completed a pair of installments for my weekly
> science column in the
> > > SAN ANTONIO EXPRESS NEWS on temperature in South Texas
> since 1885 and am
> > > writing the third installment on urban heat islands. So I
> went to
> > > www.climate.org (http://www.climate.org) audit to see
> their take on this and the latest
> > > post is by Anthony Watts about a rather bizarre GISS
> correction to data from
> > > Lampasas, Texas.
> > >
> > > Did Watts misrepresent the GISS correction? If not, can
> you please explain
> > > what's going on here?
> > >
> > > Thanks very much.
> > >
> > > Best regards,
> > >
> > > Forrest
> > >
> > > Forrest M. Mims III

Subject: RealClimate blocked by US military?
From: "Andy Ackerman" <andrew.ackerman@nasa.gov>
Date: Thu, 31 Jul 2008 11:21:29 -0400
To: "Gavin Schmidt" <gschmidt@giss.nasa.gov>

Hi Gavin,

An item on DailyKos today pointed to a blog indicating that the US military is now blocking RealClimate.org:

http://andysocial.livejournal.com/482164.html

Clearly your agenda is unpatriotic!

-Andy

Subject: Re: pine beetles and forest fire (fwd)
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Thu, 4 Jun 2009 16:31:17 -0400
To: gschmidt@giss.nasa.gov

You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.

I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.

Ron.

On Thu, Jun 4, 2009 at 12:10 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> Ron, some advice needed. Do I:
>
> 1) ignore
> 2) respond in rude manner:
> 2a) obviously: "Piss off"
> 2b) more subtly: "Perhaps you could let me know the psychic you are using to discern my opinions on the relative role of pine bark beetles vs. drought and temperature on widlfires?"
> 3) engage seriously as if Pielke was indeed terribly concerned about the issue.
> 4) wait until he misrepresents my statement and then put up a post on realclimate pointing out how many people he has misrepresented in the past.
>
> needless to say, 3 is off the table.
>
> gavin
>
> *----------*
> | Gavin Schmidt | NASA/Goddard Institute for Space Studies |
> | | 2880 Broadway |
> | Tel: (212) 678 5627 | New York, NY 10025 |
> | gschmidt@giss.nasa.gov | http://www.giss.nasa.gov/~gavin |
> *----------*
>
> ---------- Forwarded message ----------
> Date: Wed, 3 Jun 2009 23:31:30 -0600
> From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
> To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> Subject: pine beetles and forest fire
>
> Dear Gavin-
>
> You say in your Salon interview:
>
> "If you visit Colorado, behind the Front Range, you'll see whole hillsides devastated by these pine-bark beetles. In British Columbia and Alaska, it's huge thousand-mile tracts of forest. These changes have been leading to forest fires, because now you've got more fuel, which increases carbon emissions."

I had a student in my graduate seminar last semester submit an interesting final paper on how the association between the beetle infestation and forest fires is now generally dismissed by most ecologists. Here is a somewhat lengthy excerpt from his paper:

"Moreover, claims that beetle attacks necessarily increase fire risk are not supported by much scientific evidence. "A growing body of scientific research.shows that bark beetles have very little influence on forest fires," according to congressional testimony by Dominik Kulakowski (2006), a researcher at the University of Colorado-Boulder. "If the weather is dry enough, [high-elevation forests in Colorado] are likely to burn and if the weather is not dry enough, these forests are unlikely to burn, largely irrespective of the effect of beetles."

Kulakowski's testimony is generally in line with several recent reviews of research on fire-beetle interactions. In a 2006 report, the Colorado Forest Restoration Institute (CFRI) cast doubt on the notion that beetle attacks lead to severe wildfires. "The few scientific studies that support this idea report a very small effect, and other studies have found no relationship between insect outbreaks and subsequent fire activity" (Romme et al. 2006, p. 8). They contended instead that weather-related factors-specifically drought and high temperatures-have the greatest effects on fire risk. Under certain conditions, live trees can be nearly as flammable as dead ones, contrary to public perception that dead forests pose a significantly greater fire risk. The CFRI authors developed a theoretical model of fire risk, arguing that during the first two years after the tree's death, dead needles remaining on limbs may increase fire risk compared to the pre-attack baseline. Once those needles fall from the trees, however, that important fuel source is no longer present to contribute to the propagation of crown fires. Only decades later, after dead trees fall to the ground and young trees begin to grow taller, would the fire risk begin to approach or possibly exceed the pre-outbreak fire risk (Romme et al., 2006).

More recent reviews generally agree with the CFRI report. McHugh, Finney, and Hardy (2006) conclude that the lowered moisture content of dead needles would increase fire risk for the first fire season following a beetle attack. Over the longer term, however, needles falling from the canopy would discourage the spread of a catastrophic crown fire. Simard et al.'s review (2008) breaks out the findings based on different forest types. In spruce-fir forests, they conclude that spruce beetle outbreaks have no effect on either the occurrence or the severity of catastrophic wildfires. In lodgepole pine forests, the authors report that research results on the impacts of MPB attacks on fire occurrence and severity are unclear. Effects of insect attacks on fire regimes in pinyon-juniper, douglas fir, and ponderosa pine forests are unknown. Finally, Kaufmann et al. (2008) point out that the presence of dead needles could mean greater risk of crown fire in the short term. Over the long term, falling needles could reduce the risk of crown fire but increase the risk of severe surface fire.

These reviews were based on a number of empirical studies attempting to clarify the relationship between beetle attacks and fire. Two of those studies examined whether the famous 1988 fire in Yellowstone National Park was related to beetle outbreaks. Turner et al. (1999) found that areas with heavy beetle mortality were somewhat more likely to burn than unaffected areas, but areas with moderate mortality were no more likely to burn. Lynch (2006) found that forested areas killed by beetles in the early and mid-1970s were 11 percent more likely to burn than areas unaffected by the beetles, but that a more recent (1980-83) beetle outbreak was not a statistically significant factor. In spruce-fir forests in Colorado, however, Bebi et al. (2003) and Kulakowski et al. (2003) found no increase in fire density or occurrence following a massive spruce beetle outbreak during the 1940s. Bigler et al. (2005) found a small correlation between a 1940s beetle attack and wildfire in 2002 but concluded that local climatic

factors were much more relevant in predicting fire outbreak. Kulakowski and Veblen (2007) examined the legacy of another spruce beetle attack and found that it had no detectable effect on the likelihood of subsequent fire outbreak.

Finally, in an attempt to experimentally determine the effect of beetle attacks on fire risk, a group of Canadian researchers cut into the bark of trees to kill them in a manner similar to a bark beetle attack. One year after killing the trees, the researchers started fires in the treatment and control plots. Their results show that both stands quickly developed crown fires, implying that a beetle attack might make no difference in highly flammable forests (Schroeder and Mooney 2009)."

Before I blog on your assetion, I am writing to ask if you would like to clarify your assertion or otherwise support it via a guest post on our site.

By the way, your comments on framing made good sense.

All the best,

Roger

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550
Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: pine beetles and forest fire (fwd)
From: Ron Miller <rmiller@giss.nasa.gov>
Date: Thu, 4 Jun 2009 22:05:28 -0400
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

On Thu, Jun 4, 2009 at 4:40 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:

> yeah... but why do I have to play the game he has set up? You know there will be a "i gave gavin the chance to respond...." bullshit

True, but why spend much time in the game at all? He's the schoolyard bully. The community already recognizes this, and will be sympathetic to you, especially if you don't play along. Be bland in your response and he will get bored and move on.

Write a brief and polite explanation to Pielke how he has misinterpreted your comment, and make this point on his site if he goes ahead anyway. This way your comment is in the public record. You can stop there, or you can escalate down the road if necessary. (But I feel that an RC post on Pielke's deliberate misniterpretations will be perceived as a personal attack, which gives him an excuse to be indignant and present himself as the aggrieved.)

Ron.

> On Thu, 2009-06-04 at 16:31, Ron Miller wrote:
> > You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.
> >
> > I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.
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> >
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> >
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> >
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> >
> > gavin
> >
> > *----------*
> > | Gavin Schmidt NASA/Goddard Institute for Space Studies |

	2880 Broadway
Tel: (212) 678 5627	New York, NY 10025
gschmidt@giss.nasa.gov	http://www.giss.nasa.gov/~gavin

---------- Forwarded message ----------
Date: Wed, 3 Jun 2009 23:31:30 -0600
From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: pine beetles and forest fire

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effect on either the occurrence or the severity of catastrophic wildfires. In lodgepole pine forests, the authors report that research results on the impacts of MPB attacks on fire occurrence and severity are unclear. Effects of insect attacks on fire regimes in pinyon-juniper, douglas fir, and ponderosa pine forests are unknown. Finally, Kaufmann et al. (2008) point out that the presence of dead needles could mean greater risk of crown fire in the short term. Over the long term, falling needles could reduce the risk of crown fire but increase the risk of severe surface fire.

These reviews were based on a number of empirical studies attempting to clarify the relationship between beetle attacks and fire. Two of those studies examined whether the famous 1988 fire in Yellowstone National Park was related to beetle outbreaks. Turner et al. (1999) found that areas with heavy beetle mortality were somewhat more likely to burn than unaffected areas, but areas with moderate mortality were no more likely to burn. Lynch (2006) found that forested areas killed by beetles in the early and mid-1970s were 11 percent more likely to burn than areas unaffected by the beetles, but that a more recent (1980-83) beetle outbreak was not a statistically significant factor. In spruce-fir forests in Colorado, however, Bebi et al. (2003) and Kulakowski et al. (2003) found no increase in fire density or occurrence following a massive spruce beetle outbreak during the 1940s. Bigler et al. (2005) found a small correlation between a 1940s beetle attack and wildfire in 2002 but concluded that local climatic factors were much more relevant in predicting fire outbreak. Kulakowski and Veblen (2007) examined the legacy of another spruce beetle attack and found that it had no detectable effect on the likelihood of subsequent fire outbreak.

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By the way, your comments on framing made good sense.

All the best,

Roger

--
Ron Miller

NASA Goddard Institute for Space Studies
2880 Broadway
New York, NY 10025

Armstrong 550

Dept of Applied Physics and Applied Math
Columbia University
New York NY 10027

ph : (212) 678-5577
FAX: (212) 678-5552
email: rlm15@columbia.edu
rmiller@giss.nasa.gov

Subject: Re: see this?
From: Drew Shindell <dshindell@giss.nasa.gov>
Date: Fri, 3 Jul 2009 11:53:33 +0200
To: Gavin Schmidt <gschmidt@giss.nasa.gov>

Didn't see that exact piece, but Nature ran a news story on the new measurements also saying that the prior order of things was restored. I think that's what the RealClimate piece suggested was the most likely outcome, so score one for our predictive powers.

Any comments on the PI to PD forcing & GWP by species? Dorothy pointed out a couple minor things, otherwise I'm about ready to resubmit.

Salut,
Drew

On Jul 3, 2009, at 6:35 AM, RealClimate wrote:

> http://rabett.blogspot.com/2009/07/science-lurches-forward-about-two-years.html
>
> phew!
>
> gavin

over the shelf edge change to westerlies when the Amundsen Sea Low migrates west and south in winter/spring. This drives seasonal on-shelf flow, while inter-annual changes in the wind forcing lead to inflow variability on a decadal timescale. A modelled period of warming following low CDW influx in the late 1980's and early 1990's coincides with a period of observed thinning and acceleration of Pine Island Glacier.

The Antarctic deep sea gets COLDER - April 21, 2008
Excerpt: The Antarctic deep sea gets colder, which might stimulate the circulation of the oceanic water masses. This is the first result of the Polarstern expedition of the Alfred Wegener Institute for Polar and Marine Research in the Helmholtz Association that has just ended in Punta Arenas/Chile. At the same time satellite images from the Antarctic summer have shown the largest sea-ice extent on record. In the coming years autonomous measuring buoys will be used to find out whether the cold Antarctic summer induces a new trend or was only a "slip". The Polarstern expedition ANT-XXIV/3 was dedicated to examining the oceanic circulation and the oceanic cycles of materials that depend on it. Core themes were the projects CASO (Climate of Antarctica and the Southern Ocean) and GEOTRACES, two of the main projects in the Antarctic in the International Polar Year 2007/08. Under the direction of Dr Eberhard Fahrbach, Oceanographer at the Alfred Wegener Institute, 58 scientists from ten countries were on board the research vessel Polarstern in the Southern Ocean from 6 February until 16 April, 2008.

East Antarctica's Role in Global Sea Level Change 'will not result in any increase in sea level' - April 23, 2008
Excerpt: East Antarctica's Role in Global Sea Level Change - Reference: Mackintosh, A., White, D., Fink, D., Gore, D.B., Pickard, J. and Fanning, P.C. 2007. Exposure ages from mountain dipsticks in Mac. Robertson Land, East Antarctica, indicate little change in ice-sheet thickness since the Last Glacial Maximum. Geology 35: 551-554. What was done - The authors derived altitudinal transects of 10Be and 26Al exposure ages across the Framnes Mountains in Mac. Robertson Land that allowed them to calculate the magnitude and timing of East Antarctic Ice Sheet (EAIS) retreat following the Last Glacial Maximum.

Antarctic Glaciers Going To Sea At Faster Rate - Volcano -- NOT Global Warming to blame! - February 24, 2008
Excerpt: David Vaughan of the British Antarctic Survey said the team found new evidence from group of glaciers in West Antarctica which cover an area the size of Texas. […] He said the glaciers, particularly the Pine Island Glacier, has surged sharply in speed towards the ocean-- and it's not because of global warming. […]Scott's research revealed evidence of a volcano that erupted through the ice about 2,000 years ago. The whole region could be volcanically active and could possibly be releasing geothermal heat to melt the base of the ice and help its slide towards the sea. If the glacier continues to surge and discharge most of its ice into the sea, the Pine Island Glacier alone could raise global sea level by 25 centimeter. If the entire region were to lose its ice, the sea would rise by 1.5 meters worldwide.

Flashback: Alarmists Tactics Unmasked in Antarctica - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: Climate scientist Dr. Ben Herman, past director of the Institute of Atmospheric Physics and former Head of the Department of Atmospheric Sciences at the University of Arizona, stated, "It is interesting that all of the AGW (anthropogenic global warming)

stories concerning Antarctica are always about what's happening around the [western] peninsula, which seems to be the only place on Antarctica that has shown warming. How about the net 'no change' or 'cooling' over the rest of the continent, which is probably about 95% of the land mass, not to mention the record sea ice coverage recently."

Flashback: Media's biased Antarctic Reporting - - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Former Colorado State Climatologist Dr. Roger Pielke, Sr., presently senior scientist at the University of Colorado inBoulder, chastised the media's Antarctic reporting as "typical of the bias that many journalists have." Pielke wrote on March 25, "The media has ignored in their reporting the increase in Antarctic sea ice cover in recent years, with, at present, a coverage that is well one million square kilometers above average." Pielke added, "Unfortunately, it appears that most journalists just parrot the perspective of the first news release on these climate issues, without doing any further investigation. If this is inadvertent, they need to be educated in climate science. If deliberate bias, they are clearly advocates and the reporters should be clearly and publically identified as having such a bias. In either case, the public is being misinformed!"

Flashback: Former Virginia State Climatologist Dr. Patrick Michaels and Paul C. Knappenberger, a senior researcher with New Hope Environmental Services posted comments on Antarctica in February on their websiteWorldClimateReport.com. Michaels and Knappenberger wrote a February 27, 2008, article titled "Antarctica Ain't Cooperating": "Another major article on temperature trends in the Antarctic has appeared in a recent issue of the Journal of Geophysical Research by a team of scientists from Ohio State University, the University of Illinois, and the Goddard Space Flight Center; the research was funded by the National Science Foundation Office of Polar Programs Glaciology Program. [...] That is correct - despite all you have heard elsewhere on the subject, the South Pole has been cooling over the past half century. The previous research team also reported that any warming in Antarctica has slowed and the cooling has accelerated in the more recent three decades. According to Monaghan et al., yet another team previously examined Antarctic temperatures and "noted that prior to 1965 the continent-wide annual trends (through 2002) are slightly positive, but after 1965 they are mainly negative (despite warming over the Antarctic Peninsula)."

Flashback: "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier"
Excerpt: In addition, the media's reporting on the alleged "melting" of Antarctica fails to take into account other factors. "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier" read a headline in a January 21, 2008, article. The article read in part: Scientists have discovered a layer of volcanic ash and glass shards in Antarctica, evidence of an old eruption by a still active volcano that researchers believe may be contributing to the thinning of Antarctic glacial ice. Hugh F.J. Corr and David G. Vaughan, two scientists with the British Antarctic Survey, recently published their discovery of the volcanic layer in the journal Nature Geoscience. The discovery is unique, according to Dr. Vaughan. He said, "This is the first time we have seen a volcano beneath the ice sheet punch a hole through the ice sheet." The volcano's heat could possibly be melting and thinning the ice and raising the speed of the Pine Island Glacier in West Antarctica. (Other links on Antarctic Volcanoes: Map of volcanoes in Antarctica; and NASA Image of Antarctic Peninsula and pacific ring of fire groups of

volcanoes.)

Flashback: Another inconvenient fact that the media likes to avoid is Antarctica ice extent GREW to record levels in 2007. A September 11, 2007, article on IceCap.US explained: "While the news focus has been on the lowest ice extent since satellite monitoring began in 1979 for the Arctic, the Southern Hemisphere (Antarctica) has quietly set a new record for most ice extent since 1979. This can be seen on this graphic from this University of Illinois site, The Cryosphere Today, which updated snow and ice extent for both hemispheres daily. The Southern Hemispheric areal coverage is the highest in the satellite record, just beating out 1995, 2001, 2005 and 2006. Since 1979, the trend has been up for the total Antarctic ice extent."

Flashback: A January 12, 2008, peer-reviewed paper in AGU (American Geophysical Union) found "A doubling in snow accumulation in the western Antarctic Peninsula since 1850." The abstract of the paper by Thomas, E. R., G. J. Marshall, and J. R. McConnell, states: We present results from a new medium depth (136 metres) ice core drilled in a high accumulation site (73.59°S, 70.36°W) on the south-western Antarctic Peninsula during 2007. The Gomez record reveals a doubling of accumulation since the 1850s, from a decadal average of 0.49 mweq y-1 in 1855-1864 to 1.10 mweq y-1 in 1997-2006, with acceleration in recent decades. Comparison with published accumulation records indicates that this rapid increase is the largest observed across the region.

Flashback: UN scientist Dr. Madhav L. Khandekar, a retired Environment Canada scientist and an expert IPCC reviewer, noted in 2007 that the Southern Hemisphere is COOLING. Dr. Khandekar wrote on August 6, 2007: "In the Southern Hemisphere, the land-area mean temperature has slowly but surely declined in the last few years. The city ofBuenos Aires in Argentina received several centimeters of snowfall in early July, and the last time it snowed in Buenos Aires was in 1918! Most of Australia experienced one of its coldest months of June this year. Several other locations in the Southern Hemisphere have experienced lower temperatures in the last few years. Further, the sea surface temperatures over world oceans are slowly declining since mid-1998, according to a recent world-wide analysis of ocean surface temperatures."

Flashback: Ivy League Geologist Dr. Robert Giegengack, the chair of Department of Earth and Environmental Science at the University of Pennsylvania, explained that the Earth has been warming for about 20,000 years, and humans have only been collecting data for about 200 years. "For most of earth's history, the globe has been warmer than it has been for the last 200 years. It has only rarely been cooler," Giegengack said according to a February 2007 article. (LINK) Giegengack further explained that extremely long geologic timescales reveal that "only about 5% of that time has been characterized by conditions on Earth that were so cold that the poles could support masses of permanent ice."

Flashback: Dr. Duncan Wingham, Professor of Climate Physics at University College London and Director of the Centre for Polar Observation and Modeling, has presented evidence that Antarctic ice is growing. According to a December 15, 2006, article in Canada's National Post, "Early last year at a European Union Space Conference in Brussels, for example, Dr. Wingham revealed that data from a European Space Agency satellite showed Antarctic thinning was no more common than thickening, and concluded that the spectacular collapse of the ice shelves on the Antarctic Peninsula was much more

likely to have followed natural current fluctuations than global warming." "One cannot be certain, because packets of heat in the atmosphere do not come conveniently labeled 'the contribution of anthropogenic warming,' " Wingham said, noting that the evidence is not "favorable to the notion we are seeing the results of global warming." Wingham and his colleagues found that 72% of the ice sheet covering the entire land mass of Antarctica is growing at the rate of 5 millimeters per year. "That makes Antarctica a sink, not a source, of ocean water. According to their best estimates, Antarctica will 'lower global sea levels by 0.08 mm' per year" the National Post article reported.

Global warming may not affect sea levels, study finds - January 10, 2008
Excerpt: The most pessimistic predictions of sea level rises as ice sheets are melted by global warming may have to be scaled back as a result of an extraordinary discovery that ice persisted when the Earth was much hotter than today. Scientists have discovered that glaciers survived for hundreds of thousands of years during an extraordinary era when crocodiles roamed the Arctic and the tropical Atlantic Ocean was as warm as human blood. They had thought that Earth was ice free during the so-called Turonian period, a "super greenhouse world" between 93.5 million and 89.3 million years ago. But now evidence has been found of hothouse glaciers that persisted by studies of tiny plankton and other marine organisms. Large ice-sheets existed about 91 million years ago, during one of the warmest periods in the past 500 million years, an international team of scientists reports in Science.

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Michael E. Mann
Associate Professor
Director, Earth System Science Center (ESSC)

Department of Meteorology
503 Walker Building
The Pennsylvania State University
University Park, PA 16802-5013

Phone: (814) 863-4075
FAX: (814) 865-3663
email: mann@psu.edu

website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

Subject: Re: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 22 Jan 2009 15:15:04 -0500
To: Michael Mann <mann@meteo.psu.edu>
CC: Eric Steig <steig@ess.washington.edu>, Drew Shindell <dshindell@giss.nasa.gov>

that's just a blog or some kind of 'community' - it's not a newspaper or anything - so no 'good name' exists.

On Thu, 2009-01-22 at 15:15, Michael Mann wrote:

> yes, and we might need to mention this joker who gives the "Examiner" a truly bad name:
> http://www.examiner.com/x-219-Denver-Weather-Examiner~y2009m1d22-New-study-says-Antarctica-is-warming-like-the-rest-globe--or-is-it
> On Jan 22, 2009, at 2:37 PM, Eric Steig wrote:
>
> > Yes, please do that! Please include Peilke. Why oh why did I ever insist we keep him on our blogroll. Can we take him of now, please?
> >
> > Sadly, I've gotten serioius requests from non-contrarians asking me about volcanoes. People are really clueless out there.
> >
> > Eric
> >
> > Gavin Schmidt wrote:
> >
> > > indeed. They are really pulling out the stops. I think this just points
> > > to how much they really liked the 'antarctica is cooling' meme and how
> > > upset they are it's being taken away. Maybe we should do a follow-up
> > > piece on the contrarian meltdown? (throwing in a Pielke or two just for
> > > fun).
> > > I love the Christy headline "Dr. John Christy of the University of
> > > Alabama in Huntsville slams new Antarctic study for using "best estimate
> > > of the continents temperature" " - what would he have us use instead?
> > > The worst estimate?
> > > Oh and by the way, even if it is warming it's all caused by a volcano.
> > > This is verging on self-parody.
> > > Gavin
> > > On Thu, 2009-01-22 at 12:17, Michael Mann wrote:
> > >
> > > > in case you guys didn't see, we've made the radar screen of the chief
> > > > disinformer himself,
> > > > m
> > > > Begin forwarded message:
> > > >
> > > > From: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > > > Date: January 22, 2009 10:55:35 AM EST
> > > > To: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > > > Subject: Alert: Scientists, Data Challenge New Antarctic 'Warming'
> > > > Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
> > > > Excerpt: The media, led by Newsweek's woeful Sharon Begley,

were downright gleeful about the new Antarctic study. [..] The supposed cooling has delighted climate contrarians, such as the
prolific Senate staffer (to 'global warming is the biggest hoax'
Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media
hype, the vast majority ofAntarctica has cooled over the past 50
years.'" […] Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's
Trenberth critique and debunk this study. One new study that 'makes
data where none exist' and is contradicted by multiple previous
studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review
the latest science developments.
#
Web Posted on Senate EPW website:
http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=fc7db6ad-802a-23ad-43d1-2651eb2297d6
Scientists, Data Challenge New Antarctic 'Warming' Study
January 21, 2009
Posted By Marc Morano - 11:01 PM ET - Marc_Morano@EPW.Senate.Gov Scientists, Data Challenge New Antarctic 'Warming' Study 'It is hard to make data where none exist' Comprehensive Data Round Up Debunks New Antarctic 'Estimate of
Temperature Trends' Washington, DC: A new study on Antarctic temperatures - which is
contrary to the findings of multiple previous studies - claims "that
since 1957, the annual temperature for the entire continent of Antarctica has warmed by about 1 degree Fahrenheit, but still is
50 degrees below zero."
Despite the fact that the study was immediately viewed with major
skepticism by scientists who are not skeptical of anthropogenic
global warming claims, many in the media pounced on the study as a
chance to attacks those skeptical of man-made climate doom. According to the release of the study, "The researchers devised a statistical technique that uses data from satellites and
from Antarctic weather stations to make a new estimate of temperature trends. […] The scientists found temperature measurements from weather stations corresponded closely with satellite data for overlapping time periods. That allowed them to
use the satellite data as a guide to deduce temperatures in areas of
the continent without weather stations." (emphasis added)
Few media outlets noted that in 2007 Antarctic "sea ice coverage has
grown to record levels since satellite monitoring began in the 1979,

according to peer-reviewed studies and scientists who study the area." [See also other factors impacting Antarctica: "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier & The Antarctic deep sea gets COLDER - April 21, 2008 & A January 12, 2008, peer-reviewed paper in AGU (American Geophysical Union) found "A doubling in snow accumulation in the western Antarctic Peninsula since 1850."Map of Volcanoes - See comprehensive data round up below] The new Antarctic study was published in Thursday's issue of the journal Nature and the lead author of the study was Eric Steig, a University of Washington professor of Earth and Space Sciences.
Other co-authors include: David Schneider of the National Center for Atmospheric Research in Boulder, Colorado, a former student of Steig's; Scott Rutherford of Roger Williams University in Bristol, RI; and Michael Mann of Pennsylvania State University.
UN IPCC lead author, Dr. Kevin Trenberth, who is not in any way a climate change skeptic, said of the study, "I remain somewhat skeptical… It is hard to make data where none exist." Echoing Trenberth's analysis were several other scientists.
Climatologist Dr. John Christy of the University of Alabama in Huntsville questioned the study. "One must be very cautious with such results because they have no real way to be validated," Christy told the AP. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time," Christy added.
Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Bouldersaid the authors of the Antarctic study "overstated" their results. "In terms of the significance of their paper, it overstates what they have obtained from their analysis," Pielke told the AP. "In the abstract they write, for example, 'West Antarctic warming exceeds 0.1C per decade over the past 50 years.' However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why," Pielke wrote. Pielke also questioned how the authors "reconcile the

conclusions in their paper with the cooler than average long term
sea surface temperature anomalies off of the coast of Antarctica."
Pielke added, "These cool anomalies have been there for at least
several years. This cool region is also undoubtedly related to the
above average Antarctic sea ice areal coverage that has been monitored over recent years."
A critical analysis of the paper from December 21, 2008, accused the
authors of the Antarctic study of making questionable data "adjustments." (See: Scientist adjusts data -- presto, Antarctic
cooling disappears - December 21, 2008) The analysis concluded,
"Looks like [study author] Steig 'got rid of' Antarctic cooling the
same way [Michael] Mann got rid of medieval warming. Why not just
look at the station data instead of 'adjusting' it (graph above)? It
shows a 50-year cooling trend," the analysis concluded.
Alarmists Play Both Sides The BBC's Richard Black filed a report on the new study that
included this claim: "'It's hard to think of any situation where
increased greenhouse gases would not lead to warming in Antarctica,'
said Drew Shindell from Nasa's Goddard Institute for Space Studies
(GISS) in New York."
Sadly, Black of the BBC does not report that the promoters of man-made global warming fears had already concocted explanations
for the failure of Antarctica to warm as models predicted. [See: Antarctic temperatures disagree with climate model
predictions - February 15, 2007]
The warming partisans at RealClimate.org have claimed that a cooling Antarctica is just what the models predict! "A cold Antarctica is just what calculations predict," stated a February 12,
2008, post on Real Climate titled "Antarctica is Cold? Yeah, We Knew
That." The website claimed "Despite the recent announcement that the
discharge from some Antarctic glaciers is accelerating, we often
hear people remarking that parts of Antarctica are getting colder,
and indeed the ice pack in the Southern Ocean around Antarctica has
actually been getting bigger. Doesn't this contradict the calculations that greenhouse gases are warming the globe? Not at
all, because a cold Antarctica is just what calculations predict…
and have predicted for the past quarter century."
So which is it? Models predict Antarctic cooling or do they predict
warming? If Antarctica is now allegedly warming, why didn't

the
models predict that? The spin by Michael Mann of
RealClimate.org and
the media on this study is stunning.
'Tortured logic' Real Climate's logic was mocked by
Professor Roger Pielke, Jr.,
professor in the environmental studies program at
theUniversity of Colorado. "So a warming Antarctica and a
cooling Antarctica are both 'consistent with' model
projections of
global warming. Our foray into the tortured logic of
'consistent
with' in climate science raises the perennial question, what
observations of the climate system would be inconsistent with
the
model predictions?," Pielke Jr. wrote on January 21.
Begley of Newsweek Gleeful The media, led by Newsweek's
woeful Sharon Begley, were downright
gleeful about the new Antarctic study. Begley declared, "And
now the
last holdout has succumbed" to global warming. Begley -- who
has
been the subject of severalblunt but accurate Inhofe EPW Blog
critiques -- took a shot at the U.S. Senator and his aide.
Begley
wrote, "The supposed cooling has delighted climate
contrarians, such
as the prolific Senate staffer (to 'global warming is the
biggest
hoax' Sen. James Inhofe) Marc Morano, who has written,
'Contrary to
media hype, the vast majority of Antarctica has cooled over
the past
50 years.'"
Begley concluded, "I look forward to the climate contrarians'
arguments that this observed warming is a natural occurrence
and has
nothing to do with manmade greenhouse gases." [Response to
Begley:
"Actually Sharon, skeptics of man-made climate fears are going
to
let the scientists like the UN's Trenberth critique and debunk
this
study. One new study that 'makes data where none exist' and is
contradicted by multiple previous studies is hardly a reason
for you
(and your fellow warming partisans) to celebrate. Climate
crusaders
(masquerading as reporters) like yourself should take the time
necessary to review the latest science developments. How come
you
are not reporting on the slowdown in sea level rise? Or how
about
reporting on this: New Peer-Review study challenges 'notion
that
human emissions are responsible for global warming' or any of
the
following: The global tropical cyclone season of 2008 'close
to
lowest levels observed' in decades Global temperatures failing
to
warm; Peer-reviewed studies predicting a continued lack of
warming; a failed attempt to revive the discredited 'Hockey

Stick';inconvenient developments and studies regarding rising CO2; the Spotless Sun; Clouds; Antarctica; the Arctic;Greenland's ice; Mount Kilimanjaro; Global sea ice; Causes of Hurricanes; Extreme Storms; Extinctions; Floods;Droughts; Ocean Acidification; Polar Bears; Extreme weather deaths; Frogs; lack of atmospheric dust; Malaria;the failure of oceans to warm and rise as predicted." Sadly, Begley's attitude and reporting appears to be indicative of most of the mainstream media's shoddy climate reporting. Also See: Defense of Lou Dobbs & Climate Challenge to Andrew Revkin of NYT & U. S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims] Alex Morales of Bloomberg News cited the late author Michael Crichton's novel, State of Fear. "The findings may help puncture arguments by global-warming skeptics such as the late author Michael Crichton who have pointed to cooling in parts of Antarctica as an indicator that climate change is exaggerated." [Note: Kudos to AP's Seth Borenstein for writing the most balanced of all the media's articles about this new Antarctic study.]

Summary of Reactions to New Study and Peer-Reviewed Studies and Analyses Countering Study Michael "Hockey Stick" Mann Touts Study as a Way to Refute Skeptics

Excerpt: "Contrarians have sometime grabbed on to this idea that the entire continent of Antarctica is cooling, so how could we be talking about global warming," said study co-author Michael Mann, director of the Earth System ScienceCenter at Penn State University and Real Climate contributor. "Now we can say: no, it's not true ... It is not bucking the trend." [Note: For a reality check on Michael Mann's failed attempt to resurrect the "Hockey Stick," see this report.]

Meteorologist Anthony Watts who runs WattsUpWithThat.com also questioned Mann's involvement in the study. "Anytime Michael Mann gets involved in a paper and something is "deduced" it makes me wary of the veracity of the methodology. Why? Mann can't even correct simple faults like latitude-longitude errors in data used in previous papers he's written," Watts wrote on January 21.

Study claims large parts of Antarctica has been cooling from 1970s to 1990s

Excerpt: However, autumn temperatures in east Antarctica are cooling over the long term. And east Antarctica from the late 1970s through the 1990s, cooled slightly, Steig said.

Even Pro-AGW scientists wary of this new study! Kevin Trenberth says

'I remain somewhat skeptical… It is hard to make data where none exist.'
Excerpt: The researchers used satellite data and mathematical formulas to fill in missing information. That made outside scientists queasy about making large conclusions with such sparse information. "This looks like a pretty good analysis, but I have to say I remain somewhat skeptical," Kevin Trenberth, climate analysis chief at the National Center for Atmospheric Research, said in an e-mail. "It is hard to make data where none exist." Shindell said it was more comprehensive than past studies and jibed with computer models.
Alabama State Climatologist Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature"
Excerpt: Technique questioned: Researchers in this study developed a new technique that combined data from satellites and automated weather stations in Antarctica to make what they say is the best estimate of the continent's temperature so far. However, there are very few weather stations on Antarctica, and the satellite data have been available for only the past 25 years. This troubles some scientists. "One must be very cautious with such results because they have no real way to be validated," says atmospheric scientist John Christy of the University of Alabama-Huntsville, who was not part of the study. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time." Researchers had thought Antarctica was getting cooler in part because of the ozone hole over the South Pole. This break in the protective ozone layer brings cooling weather patterns across parts of Antarctica. Steig agrees that the ozone hole has contributed to cooling in East Antarctica. "However, it seems to have been assumed that the ozone hole was affecting the entire continent, when there wasn't any evidence to support that idea, or even any theory to support it," he adds.
Pielke Sr. Challenges New Antarctic Study - January 21, 2009
By Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Boulder
Excerpt: 3. How do the authors reconcile the conclusions in

their
paper with the cooler than average long term sea surface
temperature
anomalies off of the coast of Antarctica? [see:
http://www.osdpd.noaa.gov/PSB/EPS/SST/data/anomnight.1.15.2009.gif].
These cool anomalies have been there for at least several
years.
This cool region is also undoubtedly related to the above
average
Antarctic sea ice areal coverage that has been monitored over
recent
years;
seehttp://arctic.atmos.uiuc.edu/cryosphere/IMAGES
/current.anom.south.jpg]. 4. In Figure 2 of their paper, much of their analyzed warming took place prior to 1980. For East Antarctica, the trend is essentially flat since 1980. The use of a linear fit for the entire period of the record produces a larger trend than has been seen in more recent years. In terms of the significance of their paper, it overstates what they have obtained from their analysis. In the abstract they write, for example, "West Antarctic warming exceeds 0.1C per decade over the past 50 years". However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why.
Scientist adjusts data -- presto, Antarctic cooling disappears
-
December 21, 2008
Abstract excerpt: "We use statistical climate field
reconstruction
techniques to determine monthly temperature anomalies for the
near-surface of the Antarctic ice sheet since 1957. Two
independent
data sets are used to provide estimates of the spatial
covariance
patterns of temperature: automatic weather stations and
thermal
infrared satellite observations. Quality-controlled data from
occupied instrumental weather stations are used to determine
the
amplitude of changes in those covariance patterns through
time. We
use a modified principal component analysis technique (Steig
et al.,
in review, Nature) to optimize the combination of spatial and
temporal information. Verification statistics obtained from
subsets
of the data demonstrate the resulting reconstructions
represent
improvements relative to climatological mean values."
Mann's not the only one inventing his own "modified" PCA.
Looks like
Steig "got rid of" antarctic cooling the same way Mann got rid
of
medieval warming. Why not just look at the station data
instead of
"adjusting" it (graph above)? It shows a 50-year cooling
trend.
Antarctic Facts Debunk Alarmists - Comprehensive Report on
Antarctic Data & Studies - As of October 31, 2008 March 27,
2008 Senate Report: Media Hype on 'Melting' Antarctic
Ignores Record Ice Growth
Alarmists Try Again: Claim CO2 Causes 2% of Antarctic to Melt
&

Ozone Depletion Causes 98% to COOL! - October 30, 2008
Claim: CO2 causing Antarctic peninsula to warm; ozone depletion
caused the rest to cool - Data pins polar warming blame on humans -
CNN.com
Excerpt: The report may go some way towards silencing climate skeptics who point to evidence that most of Antarcticahas been cooling for some time. "There is strong warming in the Antarctic
Peninsula," Karpechko said. "But for several decades there has been
a slight cooling of the rest of the continent. This slight cooling
is due to circulation changes which are partly caused by ozone depletion. "This is why there has been a bit of confusion as to what
is happening in Antarctica. But we expect a recovery of the ozone
layer in the future. We may also expect that the Antarctic warming
trends will emerge more clearly." Commenting on the study conducted
by the UEA, Professor David Vaughan, a Glaciologist at the British
Antarctic Survey told CNN, "This is exactly the sort of study we
need. The poles are extremely important in the climate change debate
and the rapid warming in the Arctic is one of the icons." Professor
Vaughan, who is studying the patches of warming happening
in Antarctica, concedes that the cooling that's occurred in the past
30 to 50 years is "a little perplexing." But he agrees with Dr.
Karpechko over the effects of the ozone hole.
Reality Check: Climatologist John Christy Debunks Latest Claims on
Antarctica - October 30, 2008 (Kudos to Canadian Press for striving
for balance in a global warming article!)
Excerpt: The Canadian Press: John Christy, an atmospheric scientist
at the University of Alabama, has done studies on climate models and
says they are extremely limited tools in trying to mimic what happens in nature. He said they are unable to reproduce all of the
naturally occurring influences and, as a result, give a false picture of what might be causing changes in the environment. Clouds,
for example, can dampen warming in the real world, but he said models have been shown to amplify warming. "They overstate the confidence of what they have in that result because we have too many
examples of models that fail," Christy said from Huntsville. "We
have shown that climate models just don't have the variability that
nature provides to us." Christy too disputed whether the bulk of
continental Antarctica is warming, saying that it is, in fact,

cooling. The report looks largely at the Antarctic peninsula - which
makes up two per cent of the continent - and the eastern and western
coastal regions, where they have found warming. The report focuses
on temperature changes going back to 1900 and up to the present, but
doesn't include earlier periods when areas in the Arctic were
actually warmer than they are today and were not affected by
man-made greenhouse gases, said Christy. "Just 1,000 years ago
the Arctic was much warmer than it is today so it's interesting that
they would use the term conclusively," he said. "Natural variability
can account for warming since the Arctic has been warmer before."
Inconvenient Peer-Reviewed Study: East and West Antarctic ice sheets
have 'different climate histories' - 'a phenomenon that persists in
modern times' - May 30, 2008
Excerpt: There is an interesting News Focus story in this
week's Science journal, that helps to confirm the different climate
histories for the East and West Antarctic ice sheets - a phenomenon
that persists in modern times: ANTARCTICA: Freeze-Dried Findings
Support a Tale of Two Ancient Climates - A surprising cache of
ancient plant material adds evidence for divergent climate histories
of the East and West Antarctic ice sheets over the past 14 million
years. Excerpt: These findings appear to be contradictory at first
glance, but in fact they buttress an evolving view among scientists
that the two major features of the continent, the western and
eastern ice sheets, have experienced vastly different climate
histories. Data from the Dry Valleys reveals an East Antarctic Ice
Sheet that is high, dry, cold, and stable, at least in its central
area. And the ANDRILL cores suggest a more volatile West Antarctic
Ice Sheet that is subject to the changing temperatures of the sea in
which it wades. "It reaffirms the fragility of the West Antarctic
Ice Sheet [WAIS] and the stability of the central part of the East
Antarctic Ice Sheet," says Peter Barrett, a sedimentologist at the
Victoria University of Wellington (VUW) in New Zealand, who advised
the ANDRILL project.
We can't think of any other cause, it must be us - 'Prehistoric
civilization' blaming thunderstorms on upset gods - October 31, 2008
Claim: 'We could only explain the warming that's been observed if we

included human-climate influences' Excerpt: 'We can't think of any other cause, it must be us' - This is the depth to which scientific research into climate change has sunk, like a kind of prehistoric civilization that blames thunderstorms, earthquakes and volcanoes on humanity somehow having "upset the gods". A Canadian study has concluded that we must be causing climate change because nothing else can explain it. Under the triumphant headline "Study confirms human impact on climate change", The Age reports all this without any discrimination: "We found that we could only explain the warming that's been observed if we included human-climate influences, particularly greenhouse gases," the study's author, Nathan Gillett, told ABC Radio. "And we couldn't explain those changes [if there] were just natural influences on climate like volcanoes and changes in the brightness of the sun."
Excerpt: Arctic Reality Check: Why isn't the cooling Antarctic considered 'an indicator of what might happen to the rest of the world?' - By Climate Scientist Dr. Ben Herman.
Dr. Herman Excerpt: First of all, the Arctic sea ice is at its minimum in September, not October or November as the scientists in the McClatchy article states. As Arctic ice experts, they certainly should have known this. Another point is that the Arctic temperatures do not "naturally peak in October or November". They peak in mid Aug ust generally. Also the article states that since the world's climates are interconnected, what happens in the Arctic may be an indicator of what will happen in the rest of the world. How about what happens in the Antarctic then? Since its ice area has been increasing, is this also an indicator of what might happen in the rest of the world?
[Note: Alarmists up to same tricks alleging present climate only explainable by human activity. Even the partisans at Real Climate now appear to concede CO2 is not all powerful! 1) Oops! Propagandists at RealClimate.org Let Truth Slip Out! - 'The actual temperature rise is an emergent property resulting from interactions among hundreds of factors' - September 20, 2008 -
2) UK Scientist: - 'Climate change is governed by hundreds of factors, or variables' Not Just CO2! By UK Professor Emeritus of Biogeography Philip Stott of the University of London
-http://web.me.com/sinfonia1/Global_Warming_Politics/A_Hot_Topic_Blog/Entries/2008/8/27_Wot%21_No_Sunspots_At_All%21.html]

Flashback: A February 2007 study reveals Antarctica is not following
predicted global warming models - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: "A new report on climate over the world's southernmost
continent shows that temperatures during the late 20th century did
not climb as had been predicted by many global climate models." The
research was led by David Bromwich, professor of atmospheric sciences in the Department of Geography, and researcher with the Byrd PolarResearch Center at Ohio State University.
Not Global Warming: Winds are Dominant Cause of Greenland and West
Antarctic Ice Sheet Losses - October 3, 2008
Excerpt: Two new studies summarized in a news article in Science
magazine point to wind-induced circulation changes in the ocean as
the dominant cause of the recent ice losses through the glaciers
draining both the Greenland and West Antarctic ice sheets, not 'global warming.' The two studies referred to are: 1) 'Acceleration
of Jakobshavn Isbræ triggered by warm subsurface ocean waters' by
Holland et al, published in Nature Geoscience. The Abstract states:
Observations over the past decades show a rapid acceleration of
several outlet glaciers in Greenland andAntarctica. One of the largest changes is a sudden switch of Jakobshavn Isbræ, a large
outlet glacier feeding a deep-ocean fjord on Greenland's west coast,
from slow thickening to rapid thinning in 1997, associated with a
doubling in glacier velocity. Suggested explanations for the speed-up of Jakobshavn Isbræ include increased lubrication of the
ice-bedrock interface as more meltwater has drained to the glacier
bed during recent warmer summers and weakening and break-up of the
floating ice tongue that buttressed the glacier.
2) 'Modelling Circumpolar Deep Water intrusions on the Amundsen Sea
continental shelf, Antarctica' by Thoma et al, published in GRL.
The Abstract states:
Results are presented from an isopycnic coordinate model of ocean
circulation in the Amundsen Sea, focusing on the delivery of Circumpolar Deep Water (CDW) to the inner continental shelf around Pine Island Bay. The warmest waters to reach this region are
channeled through a submarine trough, accessed via bathymetric irregularities along the shelf break. Temporal variability in the
influx of CDW is related to regional wind forcing. Easterly winds
over the shelf edge change to westerlies when the Amundsen Sea

Low
migrates west and south in winter/spring. This drives seasonal
on-shelf flow, while inter-annual changes in the wind forcing
lead
to inflow variability on a decadal timescale. A modelled
period of
warming following low CDW influx in the late 1980's and early
1990's
coincides with a period of observed thinning and acceleration
of
Pine Island Glacier.
The Antarctic deep sea gets COLDER - April 21, 2008
Excerpt: The Antarctic deep sea gets colder, which might
stimulate
the circulation of the oceanic water masses. This is the first
result of the Polarstern expedition of the Alfred Wegener
Institute
for Polar and Marine Research in the Helmholtz Association
that has
just ended in Punta Arenas/Chile. At the same time satellite
images
from the Antarctic summer have shown the largest sea-ice
extent on
record. In the coming years autonomous measuring buoys will be
used
to find out whether the cold Antarctic summer induces a new
trend or
was only a "slip". The Polarstern expedition ANT-XXIV/3 was
dedicated to examining the oceanic circulation and the oceanic
cycles of materials that depend on it. Core themes were the
projects
CASO (Climate of Antarctica and the Southern Ocean) and
GEOTRACES,
two of the main projects in the Antarctic in the International
Polar
Year 2007/08. Under the direction of Dr Eberhard Fahrbach,
Oceanographer at the Alfred Wegener Institute, 58 scientists
from
ten countries were on board the research vessel Polarstern in
the
Southern Ocean from 6 February until 16 April, 2008.
East Antarctica's Role in Global Sea Level Change 'will not
result
in any increase in sea level' - April 23, 2008
Excerpt: East Antarctica's Role in Global Sea Level Change -
Reference: Mackintosh, A., White, D., Fink, D., Gore, D.B.,
Pickard,
J. and Fanning, P.C. 2007. Exposure ages from mountain
dipsticks in
Mac. Robertson Land, East Antarctica, indicate little change
in
ice-sheet thickness since the Last Glacial Maximum. Geology
35:
551-554. What was done - The authors derived altitudinal
transects
of 10Be and 26Al exposure ages across the Framnes Mountains in
Mac. Robertson Land that allowed them to calculate the
magnitude and
timing of East Antarctic Ice Sheet (EAIS) retreat following
the Last
Glacial Maximum. Antarctic Glaciers Going To Sea At Faster
Rate - Volcano -- NOT
Global Warming to blame! - February 24, 2008

Excerpt: David Vaughan of the British Antarctic Survey said the team found new evidence from group of glaciers in West Antarctica which cover an area the size of Texas. […] He said the glaciers, particularly the Pine Island Glacier, has surged sharply in speed towards the ocean-- and it's not because of global warming. […]Scott's research revealed evidence of a volcano that erupted through the ice about 2,000 years ago. The whole region could be volcanically active and could possibly be releasing geothermal heat to melt the base of the ice and help its slide towards the sea. If the glacier continues to surge and discharge most of its ice into the sea, the Pine Island Glacier alone could raise global sea level by 25 centimeter. If the entire region were to lose its ice, the sea would rise by 1.5 meters worldwide.
Flashback: Alarmists Tactics Unmasked in Antarctica - Senate Report:
Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: Climate scientist Dr. Ben Herman, past director of the Institute of Atmospheric Physics and former Head of the Department of Atmospheric Sciences at the University of Arizona, stated, "It is interesting that all of the AGW (anthropogenic global warming) stories concerning Antarctica are always about what's happening around the [western] peninsula, which seems to be the only place on Antarctica that has shown warming. How about the net 'no change' or 'cooling' over the rest of the continent, which is probably about 95% of the land mass, not to mention the record sea ice coverage recently." Flashback: Media's biased Antarctic Reporting - - Senate Report:
Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Former Colorado State Climatologist Dr. Roger Pielke, Sr., presently senior scientist at the University of Colorado inBoulder, chastised the media's Antarctic reporting as "typical of the bias that many journalists have." Pielke wrote on March 25, "The media has ignored in their reporting the increase in Antarctic sea ice cover in recent years, with, at present, a coverage that is well one million square kilometers above average." Pielke added, "Unfortunately, it

appears
that most journalists just parrot the perspective of the first news
release on these climate issues, without doing any further investigation. If this is inadvertent, they need to be educated in
climate science. If deliberate bias, they are clearly advocates and
the reporters should be clearly and publically identified as having
such a bias. In either case, the public is being misinformed!"
Flashback: Former Virginia State Climatologist Dr. Patrick Michaels
and Paul C. Knappenberger, a senior researcher with New Hope Environmental Services posted comments on Antarctica in February on
their websiteWorldClimateReport.com. Michaels and Knappenberger
wrote a February 27, 2008, article titled "Antarctica Ain't Cooperating": "Another major article on temperature trends in the
Antarctic has appeared in a recent issue of the Journal of Geophysical Research by a team of scientists from Ohio State University, the University of Illinois, and the Goddard Space Flight
Center; the research was funded by the National Science Foundation
Office of Polar Programs Glaciology Program. […] That is correct -
despite all you have heard elsewhere on the subject, the South Pole
has been cooling over the past half century. The previous research
team also reported that any warming in Antarctica has slowed and the
cooling has accelerated in the more recent three decades. According
to Monaghan et al., yet another team previously examined Antarctic
temperatures and "noted that prior to 1965 the continent-wide annual
trends (through 2002) are slightly positive, but after 1965 they are
mainly negative (despite warming over the Antarctic Peninsula)."
Flashback: "Volcano, Not Global Warming Effects, May be Melting an
Antarctic Glacier"
Excerpt: In addition, the media's reporting on the alleged "melting"
of Antarctica fails to take into account other factors. "Volcano,
Not Global Warming Effects, May be Melting an Antarctic Glacier"
read a headline in a January 21, 2008, article. The article read in
part: Scientists have discovered a layer of volcanic ash and glass
shards in Antarctica, evidence of an old eruption by a still active
volcano that researchers believe may be contributing to the thinning
of Antarctic glacial ice. Hugh F.J. Corr and David G. Vaughan,

two
scientists with the British Antarctic Survey, recently
published
their discovery of the volcanic layer in the journal Nature
Geoscience. The discovery is unique, according to Dr. Vaughan.
He
said, "This is the first time we have seen a volcano beneath
the ice
sheet punch a hole through the ice sheet." The volcano's heat
could
possibly be melting and thinning the ice and raising the speed
of
the Pine Island Glacier in West Antarctica. (Other links
on Antarctic Volcanoes: Map of volcanoes in Antarctica; and
NASA
Image of Antarctic Peninsula and pacific ring of fire groups
of
volcanoes.)
Flashback: Another inconvenient fact that the media likes to
avoid
is Antarctica ice extent GREW to record levels in 2007. A
September
11, 2007, article on IceCap.US explained: "While the news
focus has
been on the lowest ice extent since satellite monitoring began
in
1979 for the Arctic, the Southern Hemisphere (Antarctica) has
quietly set a new record for most ice extent since 1979. This
can be
seen on this graphic from this University of Illinois site,
The
Cryosphere Today, which updated snow and ice extent for both
hemispheres daily. The Southern Hemispheric areal coverage is
the
highest in the satellite record, just beating out 1995, 2001,
2005
and 2006. Since 1979, the trend has been up for the total
Antarctic
ice extent."
Flashback: A January 12, 2008, peer-reviewed paper in AGU
(American
Geophysical Union) found "A doubling in snow accumulation in
the
western Antarctic Peninsula since 1850." The abstract of the
paper
by Thomas, E. R., G. J. Marshall, and J. R. McConnell, states:
We
present results from a new medium depth (136 metres) ice core
drilled in a high accumulation site (73.59°S, 70.36°W) on the
south-western Antarctic Peninsula during 2007. The Gomez
record
reveals a doubling of accumulation since the 1850s, from a
decadal
average of 0.49 mweq y-1 in 1855-1864 to 1.10 mweq y-1 in
1997-2006,
with acceleration in recent decades. Comparison with published
accumulation records indicates that this rapid increase is the
largest observed across the region.
Flashback: UN scientist Dr. Madhav L. Khandekar, a retired
Environment Canada scientist and an expert IPCC reviewer,
noted in
2007 that the Southern Hemisphere is COOLING. Dr. Khandekar
wrote on

August 6, 2007: "In the Southern Hemisphere, the land-area mean temperature has slowly but surely declined in the last few years. The city ofBuenos Aires in Argentina received several centimeters of snowfall in early July, and the last time it snowed in Buenos Aires was in 1918! Most of Australia experienced one of its coldest months of June this year. Several other locations in the Southern Hemisphere have experienced lower temperatures in the last few years. Further, the sea surface temperatures over world oceans are slowly declining since mid-1998, according to a recent world-wide analysis of ocean surface temperatures."

Flashback: Ivy League Geologist Dr. Robert Giegengack, the chair of Department of Earth and Environmental Science at the University of Pennsylvania, explained that the Earth has been warming for about 20,000 years, and humans have only been collecting data for about 200 years. "For most of earth's history, the globe has been warmer than it has been for the last 200 years. It has only rarely been cooler," Giegengack said according to a February 2007 article. (LINK) Giegengack further explained that extremely long geologic timescales reveal that "only about 5% of that time has been characterized by conditions on Earth that were so cold that the poles could support masses of permanent ice."

Flashback: Dr. Duncan Wingham, Professor of Climate Physics at University College London and Director of the Centre for Polar Observation and Modeling, has presented evidence that Antarctic ice is growing. According to a December 15, 2006, article in Canada's National Post, "Early last year at a European Union Space Conference in Brussels, for example, Dr. Wingham revealed that data from a European Space Agency satellite showed Antarctic thinning was no more common than thickening, and concluded that the spectacular collapse of the ice shelves on the Antarctic Peninsula was much more likely to have followed natural current fluctuations than global warming." "One cannot be certain, because packets of heat in the atmosphere do not come conveniently labeled 'the contribution of anthropogenic warming,' " Wingham said, noting that the evidence is not "favorable to the notion we are seeing the results of global warming." Wingham and his colleagues found that 72% of the ice

sheet
covering the entire land mass of Antarctica is growing at the
rate
of 5 millimeters per year. "That makes Antarctica a sink, not
a
source, of ocean water. According to their best
estimates, Antarctica will 'lower global sea levels by 0.08
mm' per
year" the National Post article reported.
Global warming may not affect sea levels, study finds -
January 10,
2008
Excerpt: The most pessimistic predictions of sea level rises
as ice
sheets are melted by global warming may have to be scaled back
as a
result of an extraordinary discovery that ice persisted when
the
Earth was much hotter than today. Scientists have discovered
that
glaciers survived for hundreds of thousands of years during an
extraordinary era when crocodiles roamed the Arctic and the
tropical Atlantic Ocean was as warm as human blood. They had
thought
that Earth was ice free during the so called Turonian period,
a
"super greenhouse world" between 93.5 million and 89.3 million
years
ago. But now evidence has been found of hothouse glaciers that
persisted by studies of tiny plankton and other marine
organisms.
Large ice-sheets existed about 91 million years ago, during
one of
the warmest periods in the past 500 million years, an
international
team of scientists reports in Science.
# # #

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Michael E. Mann
Associate Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814)
865-3663
The Pennsylvania State University email: mann@psu.edu
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

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"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

Subject: [Fwd: Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 29 Jan 2009 11:17:23 -0500
To: Drew Shindell <dshindell@giss.nasa.gov>

-----Forwarded Message-----

From: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
To: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
Subject: Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009
Date: 29 Jan 2009 10:54:52 -0500

[Note: for more analysis of the warming partisans at Real Climate, see these links from Israeli Astrophysicist Nir Shaviv's website<http://www.sciencebits.com/RealClimateSlurs>: "The aim of RealClimate.org is not to engage a sincere scientific debate. Their aim is post a reply full of a straw man so their supporters can claim that your point 'has been refuted by real scientists at ReaClimate.org.'" Shaviv, who calls the website "Wishfulclimate.org" noted that the "writers (at RealClimaet.org) try again and again to concoct what appears to be deep critiques against skeptic arguments, but end up doing a very shallow job. All in the name of saving the world. How gallant of them." <http://www.sciencebits.com/RealClimateSlurs>]

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Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009
By Atmospheric scientist Dr. Hendrik Tennekes, a scientific pioneer in the development of numerical weather prediction and former director of research at The Netherlands' Royal National Meteorological Institute, and an internationally recognized expert in atmospheric boundary layer processes. Tennekes is featured in U.S. Senate Minority Report Update: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims<http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=2674e64f-802a-23ad-490b-bd9faf4dcdb7>
Excerpt: Roger Pielke Sr. has graciously invited me to add my perspective to his discussion with Gavin Schmidt at RealClimate. If this were not such a serious matter, I would have been amused by Gavin's lack of knowledge of the differences between weather models and climate models. As it stands, I am appalled. Back to graduate school, Gavin! [...] Gavin Schmidt is not the only meteorologist with an inadequate grasp of the role of the oceans in the climate system. In my weblog of June 24, 2008, I addressed the limited perception that at least one other climate modeler appears to have. A few lines from that essay deserve repeating here." [...] From my perspective it is not a little bit alarming that the current generation of climate models cannot simulate such fundamental phenomena as the Pacific Decadal Oscillation. I will not trust any climate model until and unless it can accurately represent the PDO and other slow features of the world ocean circulation. Even then, I would remain skeptical about the potential predictive skill of such a model many tens of years into the future.
http://climatesci.org/2009/01/29/real-climate-suffers-from-foggy-perception-by-henk-tennekes/

# #

Full Text:

January 29, 2009
Real Climate Suffers from Foggy Perception by Henk Tennekes<http://climatesci.org

/2009/01/29/real-climate-suffers-from-foggy-perception-by-henk-tennekes/>
Filed under: Guest Weblogs<http://climatesci.org/category/guest-editor-weblogs/>
- Roger Pielke Sr. @ 7:00 am

Roger Pielke Sr. has graciously invited me to add my perspective to his discussion with Gavin Schmidt at RealClimate. If this were not such a serious matter, I would have been amused by Gavin's lack of knowledge of the differences between weather models and climate models. As it stands, I am appalled. Back to graduate school, Gavin!

A weather model deals with the atmosphere. Slow processes in the oceans, the biosphere, and human activities can be ignored or crudely parameterized. This strategy has been very successful. The dominant fraternity in the meteorological modeling community has appropriated this advantage, and made itself the lead community for climate modeling. Backed by an observational system much more advanced than those in oceanography or other parts of the climate system, they have exploited their lead position for all they can. For them, it is a fortunate coincidence that the dominant synoptic systems in the atmosphere have scales on the order of many hundreds of kilometers, so that the shortcomings of the parameterizations and the observation network, including weather satellite coverage, do not prevent skillful predictions several days ahead.

A climate model, however, has to deal with the entire climate system, which does include the world's oceans. The oceans constitute a crucial slow component of the climate system. Crucial, because this is where most of the accessible heat in the system is stored. Meteorologists tend to forget that just a few meters of water contain as much heat as the entire atmosphere. Also, the oceans are the main source of the water vapor that makes atmospheric dynamics on our planet both interesting and exceedingly complicated. For these and other reasons, an explicit representation of the oceans should be the core of any self-respecting climate model.

However, the observational systems for the oceans are primitive in comparison with their atmospheric counterparts. Satellites that can keep track of what happens below the surface of the ocean have limited spatial and temporalresolution. Also, the scale of synoptic motions in the ocean is much smaller than that of cyclones in the atmosphere, requiring a spatial resolution in numerical models and in the observation network beyond the capabilities of present observational systems and supercomputers. We cannot observe, for example, the vertical and horizontal structure of temperature, salinity and motion of eddies in the Gulf Stream in real time with sufficient detail, and cannot model them at the detail that is needed because of computer limitations. How, for goodness' sake, can we then reliably compute their contribution to multi-decadal changes in the meridional transport of heat? Are the crude parameterizations used in practice up to the task of skillfully predicting the physical processes in the ocean several tens of years ahead? I submit they are not.

Since heat storage and heat transport in the oceans are crucial to the dynamics of the climate system, yet cannot be properly observed or modeled, one has to admit that claims about the predictive performance of climate models are built on quicksand. Climate modelers claiming predictive skill decades into the future operate in a fantasy world, where they have to fiddle with the numerous knobs of the parameterizations to produce results that have some semblance of veracity. Firm footing? Forget it!

Gavin Schmidt is not the only meteorologist with an inadequate grasp of the role of the oceans in the climate system. In my weblog of June 24, 2008,<http://climatesci.org/2008/06/24/seamless-prediction-systems-by-hendrik-tennekes/> I addressed the limited perception that at least one other climate modeler appears to have. A few lines from that essay deserve repeating here. In response to a paper by Tim Palmer of ECMWF, I wrote: "Palmer et al. seem to forget that, though weather forecasting is focused on the rapid succession of atmospheric events, climate forecasting has to focus on the slow evolution of the circulation in the world ocean and slow changes in land use and natural vegetation. In the evolution of the Slow Manifold (to borrow a term coined by Ed Lorenz) the atmosphere acts primarily as stochastic high-frequency noise. If I were still young, I would attempt to build a conceptual climate model based on a deterministic representation of the world ocean and a stochastic representation of synoptic activity in the atmosphere."

>From my perspective it is not a little bit alarming that the current generation of climate models cannot simulate such fundamental phenomena as the Pacific Decadal Oscillation. I will not trust any climate model until and unless it can accurately represent the PDO and other slow features of the world ocean circulation. Even then, I would remain skeptical about the potential predictive skill of such a model many tens of years into the future.

Marc Morano
Communications Director
Senate Environment and Public Works Committee (EPW) Inhofe Staff
202-224-5762
202-224-5167 (fax)
marc_morano@epw.senate.gov<mailto:marc_morano@epw.senate.gov>
www.epw.senate.gov<http://www.epw.senate.gov>

Subject: Re: bloggers?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Mar 2009 12:17:19 -0500
To: Leslie McCarthy <lnolan@giss.nasa.gov>

ummm.... that would be me, right?

gavin

On Fri, 2009-03-06 at 09:39, Leslie McCarthy wrote:

> Hi all:
>
> HQ is in the planning stages of beginning an Earth sciences blog. Trying to learn what experiences any GISS scientists might have in climate blogging??? If you are a blogger in this arena, please let me know.
>
> Thanks.
>
> Leslie McCarthy

Subject: Re: bloggers?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Mar 2009 12:42:46 -0500
To: Leslie McCarthy <lnolan@giss.nasa.gov>

sure, happy to advise....

On Fri, 2009-03-06 at 12:28, Leslie McCarthy wrote:
> I meant besides the obvious! Actually heard from a couple of
> others... `HQ is toying with the idea of an Earth science
> blog..would you be interested in participating? They are literally
> in the infancy stage of the process.
>
> Congrats on the book...is NASA involved at all??
>
>
> At 12:17 PM 3/5/2009, you wrote:
> > ummm.... that would be me, right?
> >
> > gavin
> >
> > On Fri, 2009-03-06 at 09:39, Leslie McCarthy wrote:
> > > Hi all:
> > >
> > > HQ is in the planning stages of beginning an Earth sciences
> > > blog. Trying to learn what experiences any GISS scientists might
> > > have in climate blogging??? If you are a blogger in this arena,
> > > please let me know.
> > >
> > > Thanks.
> > >
> > > Leslie McCarthy

Subject: Re: Fwd: bloggers?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Mar 2009 13:23:34 -0500
To: Dorothy Koch <dkoch@giss.nasa.gov>
CC: Drew Shindell <dshindell@giss.nasa.gov>

what is this 'blogging' that I keep hearing about? Kids today.....

On Thu, 2009-03-05 at 13:22, Dorothy Koch wrote:

I don't know of anyone like that at GISS...

----- Forwarded message from lnolan@giss.nasa.gov -----
Date: Fri, 06 Mar 2009 09:39:18 -0500
From: Leslie McCarthy <lnolan@giss.nasa.gov>
Reply-To: Leslie McCarthy <lnolan@giss.nasa.gov>
Subject: bloggers?
To: giss-people-l@giss.nasa.gov

Hi all:

HQ is in the planning stages of beginning an Earth sciences blog. Trying to learn what experiences any GISS scientists might have in climate blogging??? If you are a blogger in this arena, please let me know.

Thanks.

Leslie McCarthy

----- End forwarded message -----

Dorothy Koch
Research Scientist
Columbia University and
Goddard Institute for Space Studies
2880 Broadway, New York NY 10025

Subject: Re: few clarifications
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 Mar 2009 12:55:48 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

ok this is what I wanted to send....

> You appear to be confusing me with someone with whom you have cordial relations. Please update your contact list accordingly.

but you spoilt all my fun....

gavin

Subject: few clarifications
From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
Date: Tue, 10 Mar 2009 09:48:52 -0600
To: "Gavin Schmidt" <gschmidt@giss.nasa.gov>

Hi Gavin-

Just saw your post on blogging. Overall pretty thoughtful Here are a few quick thoughts:

1. "One can criticize George Will's or Alexander Cockburn's misuse of climate science without agreeing or disagreeing or even having looked at their public policy proposals. Of course, the corollary of this position, that any such criticism of your statements must itself be directed at supporting the opposite political action is very rarely appreciated."

This statement presumes that policy issues are dichotmous. Sometimes there are, but often they are not. Many policy issues have multiple positions. I try to deal with this by tryingto be very clear as to what my policy positions actually are. For some people, the idea that one can criticize Al Gore's presentations and also support action on climate change is imcompatible. It is not.

2. You will likely find yourself accused of 'stealth advocacy' i.e. of secretly agreeing with the misquoters.

I use the term "stealth advocacy" to refer to those who claim to be focused only on science but really have an agenda. the agenda need not be specific (such as support or opposition of a specific policy proposal). That agend amight simply be educating the reader that the author's position is authoritative and correct. Stealh advocacy is the inevitable result of entering public debate while at the same time claiming to be focused on a "pure information stream."

3. "This should go without saying, but trivially accusing scientists of dishonesty, theft, academic malpractice and fraud pretty much rules you out of serious conversation. Instead it will serve mainly to marginalize you - though you may gain a devoted following among a specific subset. Don't be surprised if as a consequence other people start to react negatively to your comments."

Apparently you've been reading Climate Audit Hopefully, this statemnt indicates some effort at a reconciliation with Steve M.

4. "If you get noticed by the propagandists, wear that attention like a badge of honor. "

Should I then be happy to see Joe Romm spreading lies?

Anyway, nice post ... All the best from Boulder,

Roger

few clarifications.eml	Content-Type: message/rfc822

Subject: few clarifications
From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
Date: Tue, 10 Mar 2009 09:48:52 -0600
To: "Gavin Schmidt" <gschmidt@giss.nasa.gov>

Hi Gavin-

Just saw your post on blogging. Overall pretty thoughtful Here are a few quick thoughts:

1. "One can criticize George Will's or Alexander Cockburn's misuse of climate science without agreeing or disagreeing or even having looked at their public policy proposals. Of course, the corollary of this position, that any such criticism of your statements must itself be directed at supporting the opposite political action is very rarely appreciated."

This statement presumes that policy issues are dichotmous. Sometimes there are, but often they are not. Many policy issues have multiple positions. I try to deal with this by tryingto be very clear as to what my policy positions actually are. For some people, the idea that one can criticize Al Gore's presentations and also support action on climate change is imcompatible. It is not.

2. You will likely find yourself accused of 'stealth advocacy' i.e. of secretly agreeing with the misquoters.

I use the term "stealth advocacy" to refer to those who claim to be focused only on science but really have an agenda. the agenda need not be specific (such as support or opposition of a specific policy proposal). That agend amight simply be educating the reader that the author's position is authoritative and correct. Stealh advocacy is the inevitable result of entering public debate while at the same time claiming to be focused on a "pure information stream."

3. "This should go without saying, but trivially accusing scientists of dishonesty, theft, academic malpractice and fraud pretty much rules you out of serious conversation. Instead it will serve mainly to marginalize you - though you may gain a devoted following among a specific subset. Don't be surprised if as a consequence other people start to react negatively to your comments."

Apparently you've been reading Climate Audit Hopefully, this statemnt indicates some effort at a reconciliation with Steve M.

4. "If you get noticed by the propagandists, wear that attention like a badge of honor. "

Should I then be happy to see Joe Romm spreading lies?

Anyway, nice post ... All the best from Boulder,

Roger

Subject: Re: [Fwd: Half of recent arctic warming may not be due to greenhouse gases]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Apr 2009 11:01:16 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

I can't be picking up after everybody,...

On Thu, 2009-04-09 at 10:23, Drew Shindell wrote:

> Want to have a guest RC post to explain?
>
> I thought that explaining the science to the general public/
> blogosphere was your job.
> Drew

Subject: of potential interest
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Apr 2009 14:36:40 -0400
To: Christy Field <cfield@giss.nasa.gov>

http://blogs.discovermagazine.com/intersection/2009/04/09/policy-fellowships-for-scientists-engineers/

Subject: Re: For RC
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 12 Apr 2009 19:15:30 -0400
To: Ken Mankoff <mankoff@giss.nasa.gov>

thanks. It's still a little dry... I'll do some editing and send you back a hopefully livelier version.

gavin

On Thu, 2009-03-26 at 21:45, Ken Mankoff wrote:
> Version Two. Probably closer to something that might show up on RC. I'm not much of a blogger though so I'd still appreciated feedback.
>
> -k.
>
> On Wed, 25 Mar 2009, Gavin Schmidt wrote:
>
> > Ken thanks. I would say a lot fewer technical details and more about why anyone would be interested in this. For instance, no-one is likely to care about how many CTDs you cast, but they would be interested in a discussion of the impact of potentially warmer water getting under the ice shelf. Or the importance of under-shelf process and the different ways we have of getting to them...
> >
> > I like the google earth stuff.
> >
> > gavin
> >
> > On Tue, 2009-03-24 at 22:40, Ken Mankoff wrote:
> > > Hi Gavin,
> > >
> > > Please DO NOT post. I'm just wondering if this is the type of write-up you'd like. Should I remove the links to the images? Add a paragraph about life-on-ship? Discuss more science? Let me know, then I'll send it to Stan Jacobs for review, then you can post.
> > >
> > > -k.

Subject: Re: For RC
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 13 Apr 2009 11:51:01 -0400
To: Ken Mankoff <mankoff@giss.nasa.gov>

ok. here is the rewritten first bit in case you want to incorporate it and get an idea of what I was looking for.

gavin

Postcard from the P.I.G.

On February 26, 2009, the Nathaniel B. Palmer (NBP) returned from 52 days at sea in the Southern Ocean. We had departed Punta Arenas, Chile on January 5th, 2009 and sailed directly to Pine Island Bay (PIB) at the terminus of the Pine Island Glacier (PIG) to investigate the ice shelf dynamics and ocean circulation at this key location (a few hundred kilometers south west of the Wilkins ice shelf).

Pine Island Bay is difficult to reach at the best of times as it is often blocked by sea ice even in the summer. However, with only some minimal ice breaking we were able to reach a large polynya (an expanse of open water behind surrounded by sea ice) and we stayed there for about 3 weeks. During that time we sampled the ocean, measured the sea ice, analysed the biology, studied the face of PIG, measured snowflakes, mapped the sea floor, observed calving events, and watched whales, seals and penguins go about their daily lives. One of the most interesting and ground-breaking activities was the testing of a small autonomous yellow submarine (Autosub III) that was designed to go under the ice shelf.

The main goals of the cruise were to study the role of the ocean in determining the stability of the West Antarctic ice sheet and to look much more closely at the ocean circulation and ice shelf melting under the PIG itself. As always in these kinds of cruises, multiple projects are ongoing at the same time (for instance, looking at the phytoplankton reaction to iron fertilisation in this region), and unusually, this was a joint US/UK project with lead researchers Lamont Doherty Earth Observatory at Columbia University and the British Antarctic Survey.

PIG is of particular interest in these issues because it is contributing more to sea level rise than any other single ice source and it drains approximately 10% of the whole West Antarctic Ice Sheet (WAIS). This ice sheet has enough mass to raise sea level by about 7m and so the speeding up of the PIG outflow in the past few decades is a source of some concern.

The PIG is a very wide ice stream flowing approximately 30m per year. Surrounding it is relatively slow moving ice which flows off the continent on the order of cm per year. The grounding line (the transition between the floating ice shelf and the grounded ice sheet) of PIG is approximately 50 km from the glacial terminus. That implies that the last 50 km of PIG are floating with Amundsen sea waters underneath. After the PIG ends there is a bay of a few hundred km diameter influencing local winds and water currents. Farther north is sea ice or open water depending on the season, with a shelf margin from 500 to 750 m deep, until the Antarctic continental shelf drops off to the deep ocean and one enters the Southern Ocean proper.

....

On Sun, 2009-04-12 at 19:30, Ken Mankoff wrote:

> Actually don't spend too much time on that version I've written some more with some comments from Stan and will send that soon.
>
> -k.
>
> On Apr 12, 2009, at 19:15, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
>
> > thanks. It's still a little dry... I'll do some editing and send you back a hopefully livelier version.
> >
> > gavin
> >
> > On Thu, 2009-03-26 at 21:45, Ken Mankoff wrote:
> >
> > > Version Two. Probably closer to something that might show up on RC. I'm not much of a blogger though so I'd still appreciated feedback.
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> > > -k.
> > >
> > > On Wed, 25 Mar 2009, Gavin Schmidt wrote:
> > >
> > > > Ken thanks. I would say a lot fewer technical details and more about why
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> > > > discussion of the impact of potentially warmer water getting under the
> > > > ice shelf. Or the importance of under-shelf process and the different
> > > > ways we have of getting to them...
> > > >
> > > > I like the google earth stuff.
> > > >
> > > > gavin
> > > >
> > > > On Tue, 2009-03-24 at 22:40, Ken Mankoff wrote:
> > > >
> > > > > Hi Gavin,
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> > > > > Please DO NOT post. I'm just wondering if this is the type of write-up you'd like. Should I remove the links to the images? Add a paragraph about life-on-ship? Discuss more science? Let me know, then I'll send it to Stan Jacobs for review, then you can post.
> > > > >
> > > > > -k.

Subject: Re: for RC
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Apr 2009 16:08:29 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

not bad. Do you want to add a paragraph dealing specifically with some of the blogosphere idiocy? (i.e. that apparently you now fear for your job in Hansen's lab...?)

On Wed, 2009-04-15 at 15:31, Drew Shindell wrote:

> What do you think of this?
> Drew

Subject: Re: real climate hurricane draft
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 13 May 2009 18:48:55 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

just send the jpg (or a link) separately in any case, and the text needs to be in ascii. I'll try and look at it tonight.

gavin

On Wed, 2009-05-13 at 18:42, Ron Miller wrote:

> Attached is a draft of the blog on Evan et al Sci 2009.
>
> It's a bit rough or else dull in spots, but it will give you the general outline of what I have to say. I haven't seen any other blog posts. We can discuss this tomorrow before final rewrites?
>
> Ron.
>
> (The pdf is missing a satellite image of dust streaming off Africa over the Atlantic. I haven't figured out how to incorporate jpg's in latex files. It is probably trivial albeit irrelevant since the tex file will be converted to html.)

Subject: Re: real climate hurricane draft
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 13 May 2009 18:54:30 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

maybe we could keep this as a stand alone piece, and have the blog post simply be a summary?

On Wed, 2009-05-13 at 18:56, Ron Miller wrote:
> How do I incorporate the equation, or is this a problem?
>
> (I suppose I could use the equation editor in powerpoint to create a jpg)
>
> Ron.
>
> On Wed, May 13, 2009 at 6:48 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > just send the jpg (or a link) separately in any case, and the text needs to be in ascii. I'll try and look at it tonight.
> >
> > gavin
> >
> > On Wed, 2009-05-13 at 18:42, Ron Miller wrote:
> > > Attached is a draft of the blog on Evan et al Sci 2009.
> > >
> > > It's a bit rough or else dull in spots, but it will give you the general outline of what I have to say. I haven't seen any other blog posts. We can discuss this tomorrow before final rewrites?
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> > > Ron.
> > >
> > > (The pdf is missing a satellite image of dust streaming off Africa over the Atlantic. I haven't figured out how to incorporate jpg's in latex files. It is probably trivial albeit irrelevant since the tex file will be converted to html.)

Subject: Re: revised hurricane draft
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 13 May 2009 18:59:29 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

holy moly - this is a book!

Good for a real paper, bad for a blog post. Let me have a look and I'll suggest a somewhat paired down version....

On Wed, 2009-05-13 at 18:52, Ron Miller wrote:
> Use this version. I forogt to add the punchline to the original.
>
> Ron.

Subject: Re: revised hurricane draft
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 13 May 2009 19:57:26 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

ok

On Wed, 2009-05-13 at 19:57, Ron Miller wrote:
> Why don't I spare you some time and try to cut the draft down to about
> 2-3 pages. We can talk in the afternoon...
>
> Ron.
>
> On Wed, May 13, 2009 at 7:11 PM, Ron Miller <rmiller@giss.nasa.gov> wrote:
> > On Wed, May 13, 2009 at 6:59 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > > holy moly - this is a book!
> > >
> > > Good for a real paper, bad for a blog post. Let me have a look and I'll
> > > suggest a somewhat paired down version....
> >
> > Actually, I'm one GCM calculation short of writing a (GRL?) article.
> > I'll stop by tomorrow and see what you recommend. (It doesn't seem
> > that much out of the range given that two pages are references, and
> > three are figures. The text is 'only' about 5 pages?)
> >
> > Ron.
> >
> > > On Wed, 2009-05-13 at 18:52, Ron Miller wrote:
> > > > Use this version. I forogt to add the punchline to the original.
> > > >
> > > > Ron.
> > >
> > >
> > >
> > > --
> > > Ron Miller
> > >
> > > NASA Goddard Institute for Space Studies
> > > 2880 Broadway
> > > New York, NY 10025
> > >
> > > Armstrong 550
> > > Dept of Applied Physics and Applied Math
> > > Columbia University
> > > New York NY 10027
> > >
> > > ph : (212) 678-5577
> > > FAX: (212) 678-5552
> > > email: rlm15@columbia.edu
> > > rmiller@giss.nasa.gov

Subject: Re: pine beetles and forest fire (fwd)
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 04 Jun 2009 16:40:38 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

yeah... but why do I have to play the game he has set up? You know there will be a "i gave gavin the chance to respond...." bullshit

On Thu, 2009-06-04 at 16:31, Ron Miller wrote:

> You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.
>
> I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.
>
> Ron.
>
> On Thu, Jun 4, 2009 at 12:10 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
>
> > Ron, some advice needed. Do I:
> >
> > 1) ignore
> > 2) respond in rude manner:
> > 2a) obviously: "Piss off"
> > 2b) more subtly: "Perhaps you could let me know the psychic you are using to discern my opinions on the relative role of pine bark beetles vs. drought and temperature on widlfires?"
> > 3) engage seriously as if Pielke was indeed terribly concerned about the issue.
> > 4) wait until he misrepresents my statement and then put up a post on realclimate pointing out how many people he has misrepresented in the past.
> >
> > needless to say, 3 is off the table.
> >
> > gavin
> >
> > *--*
> > | Gavin Schmidt NASA/Goddard Institute for Space Studies |
> > | 2880 Broadway |
> > | Tel: (212) 678 5627 New York, NY 10025 |
> > | |
> > | gschmidt@giss.nasa.gov http://www.giss.nasa.gov/~gavin |
> > *--*
> >
> > ---------- Forwarded message ----------
> > Date: Wed, 3 Jun 2009 23:31:30 -0600
> > From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
> > To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> > Subject: pine beetles and forest fire
> >
> > Dear Gavin-
> >
> > You say in your Salon interview:
> >
> > "If you visit Colorado, behind the Front Range, you'll see whole hillsides devastated by these pine-bark beetles. In British Columbia and Alaska, it's

huge thousand-mile tracts of forest. These changes have been leading to forest fires, because now you've got more fuel, which increases carbon emissions."

I had a student in my graduate seminar last semester submit an interesting final paper on how the association between the beetle infestation and forest fires is now generally dismissed by most ecologists. Here is a somewhat lengthy excerpt from his paper:

"Moreover, claims that beetle attacks necessarily increase fire risk are not supported by much scientific evidence. "A growing body of scientific research.shows that bark beetles have very little influence on forest fires," according to congressional testimony by Dominik Kulakowski (2006), a researcher at the University of Colorado-Boulder. "If the weather is dry enough, [high-elevation forests in Colorado] are likely to burn and if the weather is not dry enough, these forests are unlikely to burn, largely irrespective of the effect of beetles."

Kulakowski's testimony is generally in line with several recent reviews of research on fire-beetle interactions. In a 2006 report, the Colorado Forest Restoration Institute (CFRI) cast doubt on the notion that beetle attacks lead to severe wildfires. "The few scientific studies that support this idea report a very small effect, and other studies have found no relationship between insect outbreaks and subsequent fire activity" (Romme et al. 2006, p. 8). They contended instead that weather-related factors-specifically drought and high temperatures-have the greatest effects on fire risk. Under certain conditions, live trees can be nearly as flammable as dead ones, contrary to public perception that dead forests pose a significantly greater fire risk. The CFRI authors developed a theoretical model of fire risk, arguing that during the first two years after the tree's death, dead needles remaining on limbs may increase fire risk compared to the pre-attack baseline. Once those needles fall from the trees, however, that important fuel source is no longer present to contribute to the propagation of crown fires. Only decades later, after dead trees fall to the ground and young trees begin to grow taller, would the fire risk begin to approach or possibly exceed the pre-outbreak fire risk (Romme et al., 2006).

More recent reviews generally agree with the CFRI report. McHugh, Finney, and Hardy (2006) conclude that the lowered moisture content of dead needles would increase fire risk for the first fire season following a beetle attack. Over the longer term, however, needles falling from the canopy would discourage the spread of a catastrophic crown fire. Simard et al.'s review (2008) breaks out the findings based on different forest types. In spruce-fir forests, they conclude that spruce beetle outbreaks have no effect on either the occurrence or the severity of catastrophic wildfires. In lodgepole pine forests, the authors report that research results on the impacts of MPB attacks on fire occurrence and severity are unclear. Effects of insect attacks on fire regimes in pinyon-juniper, douglas fir, and ponderosa pine forests are unknown. Finally, Kaufmann et al. (2008) point out that the presence of dead needles could mean greater risk of crown fire in the short term. Over the long term, falling needles could reduce the risk of crown fire but increase the risk of severe surface fire.

These reviews were based on a number of empirical studies attempting to clarify the relationship between beetle attacks and fire. Two of those studies examined whether the famous 1988 fire in Yellowstone National Park was related to beetle outbreaks. Turner et al. (1999) found that areas with heavy beetle mortality were somewhat more likely to burn than unaffected areas, but areas with moderate mortality were no more likely to burn. Lynch (2006) found that forested areas killed by beetles in the early and mid-1970s were 11 percent more likely to burn than areas unaffected by the beetles, but that a more recent (1980-83) beetle outbreak was not a statistically significant factor. In spruce-fir forests in Colorado,

however, Bebi et al. (2003) and Kulakowski et al. (2003) found no increase in fire density or occurrence following a massive spruce beetle outbreak during the 1940s. Bigler et al. (2005) found a small correlation between a 1940s beetle attack and wildfire in 2002 but concluded that local climatic factors were much more relevant in predicting fire outbreak. Kulakowski and Veblen (2007) examined the legacy of another spruce beetle attack and found that it had no detectable effect on the likelihood of subsequent fire outbreak.

Finally, in an attempt to experimentally determine the effect of beetle attacks on fire risk, a group of Canadian researchers cut into the bark of trees to kill them in a manner similar to a bark beetle attack. One year after killing the trees, the researchers started fires in the treatment and control plots. Their results show that both stands quickly developed crown fires, implying that a beetle attack might make no difference in highly flammable forests (Schroeder and Mooney 2009)."

Before I blog on your assetion, I am writing to ask if you would like to clarify your assertion or otherwise support it via a guest post on our site.

By the way, your comments on framing made good sense.

All the best,

Roger

Subject: Re: Fwd: referred by Mike Mann
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Jul 2009 13:49:16 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

the novelty is the constraint from the lowering of the CCD gives on the total carbon. They come up with a much bigger number than we used (about twice as much), and while that gives about twice as large a CO2 spike, it still isn't big enough to match the (also increased) temperature estimates (now 5 to 9 deg C).

they dismiss the methane connection in one line and with a reference to Sloan et al 1992!

but even that would have been ok if it wasn't for the press release - that is way out to lunch.

http://www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=12794&SnID=1419357327
http://blogs.usatoday.com/sciencefair/2009/07/could-we-be-wrong-about-global-warming.html

an RC post is imminent!

gavin

PS. I emailed Jerry yesterday - no response.

On Thu, 2009-07-16 at 13:38, Drew Shindell wrote:

> Gavin - Did you see this? I can only get the abstract from here, but can they really have written a whole paper about their new discovery that CO2 alone won't account for the PETM and there must be something else without mentioning that we already wrote about that, and Zachos certainly knows it! Maybe they just acted like they were the first to ever have such a thought in their abstract in order to get it into Nature Geoscience? If you can get the whole thing, I'm curious to know.
> Drew
>
> http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo578.html

ngeo578.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

nature geoscience

LETTERS

PUBLISHED ONLINE: 13 JULY 2009 | DOI: 10.1038/NGEO578

Carbon dioxide forcing alone insufficient to explain Palaeocene–Eocene Thermal Maximum warming

Richard E. Zeebe[1]*, James C. Zachos[2] and Gerald R. Dickens[3]

The Palaeocene–Eocene Thermal Maximum (about 55 Myr ago) represents a possible analogue for the future and thus may provide insight into climate system sensitivity and feedbacks[1,2]. The key feature of this event is the release of a large mass of ^{13}C-depleted carbon into the carbon reservoirs at the Earth's surface, although the source remains an open issue[3,4]. Concurrently, global surface temperatures rose by 5–9 °C within a few thousand years[5–9]. Here we use published palaeorecords of deep-sea carbonate dissolution[10–14] and stable carbon isotope composition[10,15–17] along with a carbon cycle model to constrain the initial carbon pulse to a magnitude of 3,000 Pg C or less, with an isotopic composition lighter than −50‰. As a result, atmospheric carbon dioxide concentrations increased during the main event by less than about 70% compared with pre-event levels. At accepted values for the climate sensitivity to a doubling of the atmospheric CO_2 concentration[1], this rise in CO_2 can explain only between 1 and 3.5 °C of the warming inferred from proxy records. We conclude that in addition to direct CO_2 forcing, other processes and/or feedbacks that are hitherto unknown must have caused a substantial portion of the warming during the Palaeocene–Eocene Thermal Maximum. Once these processes have been identified, their potential effect on future climate change needs to be taken into account.

The magnitude of future global warming from anthropogenic CO_2 forcing remains unknown because of uncertainties in predicting climate system feedbacks[1]. Studying past episodes of global warming and rapid carbon release such as the Palaeocene–Eocene Thermal Maximum (PETM) may help to reduce those uncertainties or at least isolate the possible sources[2]. The onset of the PETM was marked by a global increase in surface temperatures by 5–9 °C within a few thousand years[5–9]. At nearly the same time, a substantial carbon release occurred, as demonstrated by a large drop in the $^{13}C/^{12}C$ ratio of surficial carbon reservoirs. The carbon release led to ocean acidification and widespread dissolution of deep-sea carbonates[10,18]. Different sources for the carbon input have been suggested, which has led to speculations concerning the mechanism. Some, such as volcanic intrusion, imply that the carbon drives the warming. Others, such as the destabilization of oceanic methane hydrates, imply that the carbon release is a feedback that can exacerbate warming[3,4,19]. Remarkably, however, even the lower estimates for the carbon release during the onset of the PETM ($\sim 1\ Pg\ C\ y^{-1}$) and over the past 50 years from anthropogenic sources seem to be of a similar order of magnitude (see the Methods section). The PETM may therefore serve as a case study for the consequences of the carbon dioxide released at present by human activities.

We have used deep-sea carbonate dissolution records[10–14] and stable carbon isotope records across the PETM (refs 10, 15–17) in combination with carbon cycle modelling[2,18,20] to constrain the mass of the PETM carbon input (Fig. 1). The observed drop in the stable carbon isotope composition ($\delta^{13}C$) of the surficial carbon reservoirs is about 3‰. However, the $\delta^{13}C$ signal alone is insufficient to determine the mass and $\delta^{13}C$ value of the carbon input. In this study, the input mass is estimated from carbonate dissolution records. The $\delta^{13}C$ composition of this carbon was then constrained by requiring the model outcome to match observed marine $\delta^{13}C$ records at the given input mass (see Supplementary Information). For our model simulations, we used the long-term ocean–atmosphere–sediment carbon cycle reservoir model LOSCAR (see refs 2, 18, 20 and Supplementary Information).

To simulate the observed time-dependent profile (that is, magnitude and duration) of the carbon isotope excursion (CIE) during the PETM main phase (Fig. 1b,c), we assumed a large initial input pulse followed by further smaller pulses and a low, continuous carbon release during the main event (Fig. 1a). Without the further release, the model was unable to reproduce the CIE duration because $\delta^{13}C$ values returned to pre-excursion values too quickly (Fig. 1b, dotted green line). A pulsed carbon release (rather than a single input peak) is consistent with $\delta^{13}C$ records from most marine and terrestrial sections[21,22].

The prolonged carbon release is also important to simulate the observed duration of deep-sea carbonate dissolution (Fig. 1d–f). For example, the carbonate records from Walvis Ridge in the Atlantic Ocean show that wt% $CaCO_3$ values at various palaeowater depths return to pre-excursion values only after more than 70 kyr (Fig. 1e). The extended duration of the dissolution event could not be reproduced in the model without the continued carbon release (Fig. 1d).

The size of the carbon input, on the other hand, is determined by the magnitude of $CaCO_3$ dissolution or shoaling of the calcite compensation depth (CCD) in the different ocean basins (Fig. 1f,g). Note that for the quantification of the carbon input, the position of the CCD before the event is as critical as the actual shoaling. For example, the late Palaeocene CCD was about 1–1.5 km shallower than today in all ocean basins, including the Pacific basin, which was much larger than today (see refs 23, 24 and references therein). Just before the event, Ocean Drilling Program core sites 1208 (Pacific Shatsky Rise) and 1221 (Equatorial Pacific) at 3,350 m and 3,200 m palaeowater depth, respectively, were located very close to the CCD, indicating a Pacific pre-event CCD shallower than 3,500 m. This depth is consistent with other reconstructions[11,23] (see Supplementary Fig. S5). In the late-Palaeocene Pacific basin, the erodible sediment $CaCO_3$ inventory in the depth range 3.5–4.5 km would have been ~2,000 Pg C, which has the capacity to neutralize ~2,200 Pg C of CO_2 (see the Methods section). Setting the pre-event CCD at a depth below that indicated by observations

[1]School of Ocean and Earth Science and Technology, Department of Oceanography, University of Hawaii at Manoa, 1000 Pope Road, MSB 504, Honolulu, Hawaii 96822, USA, [2]Earth and Planetary Sciences Department, University of California, Santa Cruz, California 95064, USA, [3]Department of Earth Sciences, Rice University, Houston, Texas 77005, USA. *e-mail: zeebe@soest.hawaii.edu.

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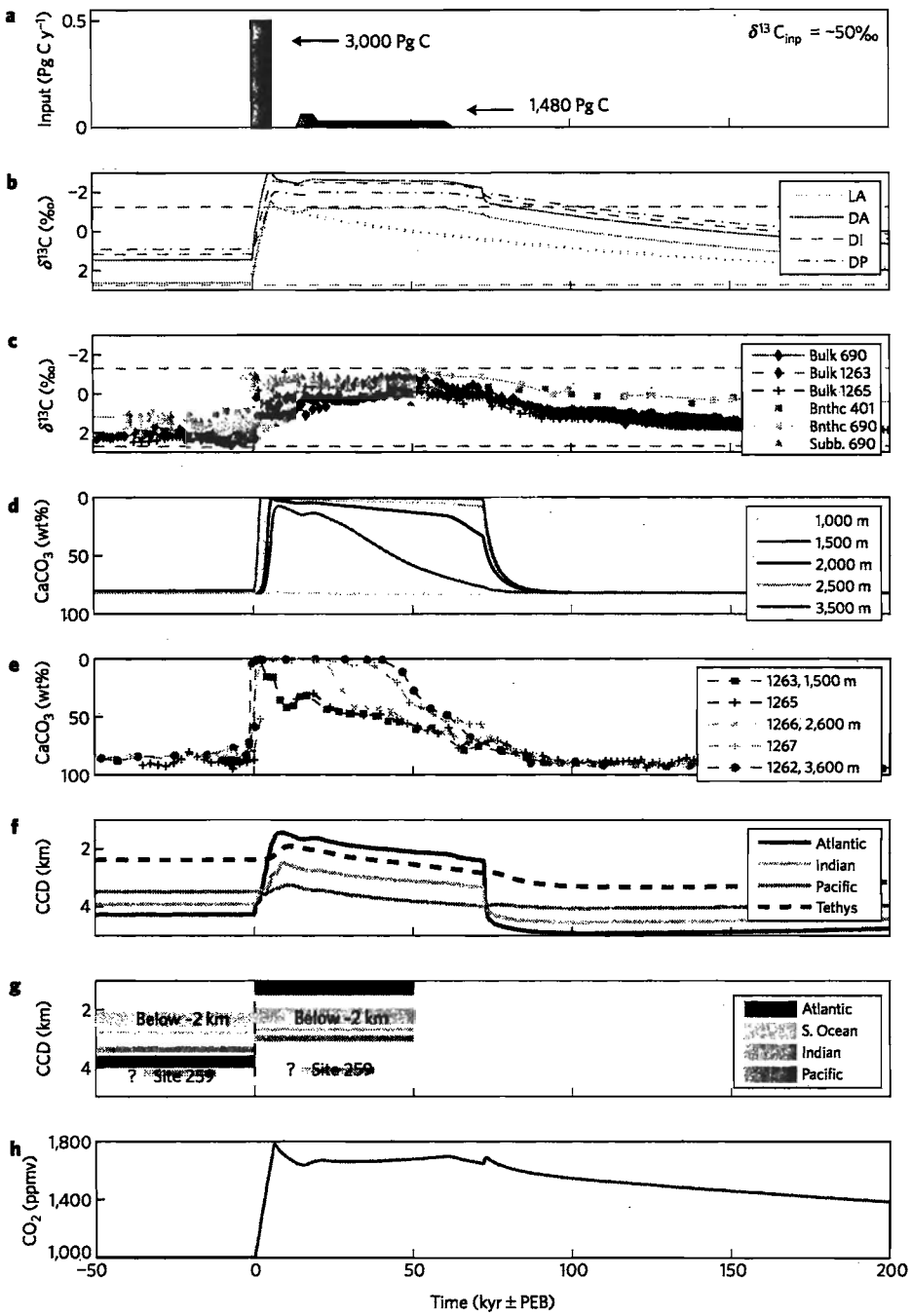

Figure 1 | PETM model simulations and palaeorecords. **a**, PETM carbon-release scenario (model input); $t = 0$ corresponds to the onset of the PETM. **b**, Simulated $\delta^{13}C$ of TCO_2 in the low-latitude surface Atlantic (LA), deep Atlantic, Indian and Pacific oceans (DA, DI, DP) using the carbon release shown in **a**, including the continuous release (solid green and red lines). In simulations without the continuous release (dotted green line), the duration of the $\delta^{13}C$ excursion was not captured in the model. **c**, Observed $\delta^{13}C$ in bulk $CaCO_3$, benthic and planktonic foraminifera[15–17]. **d**, Simulated wt% $CaCO_3$ at various depths in the deep Atlantic. **e**, Observed wt% $CaCO_3$ at Walvis Ridge, South Atlantic Ocean[10]. **f**, Simulated CCD in different basins. **g**, Observed CCD before and during the PETM main event (see Supplementary Information). **h**, Simulated atmospheric CO_2 (PEB: Palaeocene/Eocene boundary).

would therefore erroneously increase the available $CaCO_3$ for dissolution/erosion and lead to a significant overestimate of the carbon input[25]. During the event, the Atlantic CCD shoaled markedly by at least 2 km (Fig. 1e)[10], whereas the Pacific CCD shoaled by only a few hundred metres (see refs 11, 13, 14, 18 and Supplementary Information).

To simulate the profound differences in observed Atlantic and Pacific CCD changes, we made additional assumptions on the basis of earlier suggestions (the model sensitivity to these assumptions is examined in Fig. 2). First, we assumed a partial carbon injection directly into the deep Atlantic[3]. Second, we assumed a steady contribution of North Pacific Deep Water (NPDW) formation during the event[26], which makes Atlantic deep waters more corrosive[18] (the Southern Ocean source remains active but is reduced relative to its pre-event strength). Both processes enhance carbonate dissolution in the deep Atlantic. Without NPDW, the Atlantic CCD shoaling in the model is too small relative to observations, even at a total carbon input of 4,000 Pg C and

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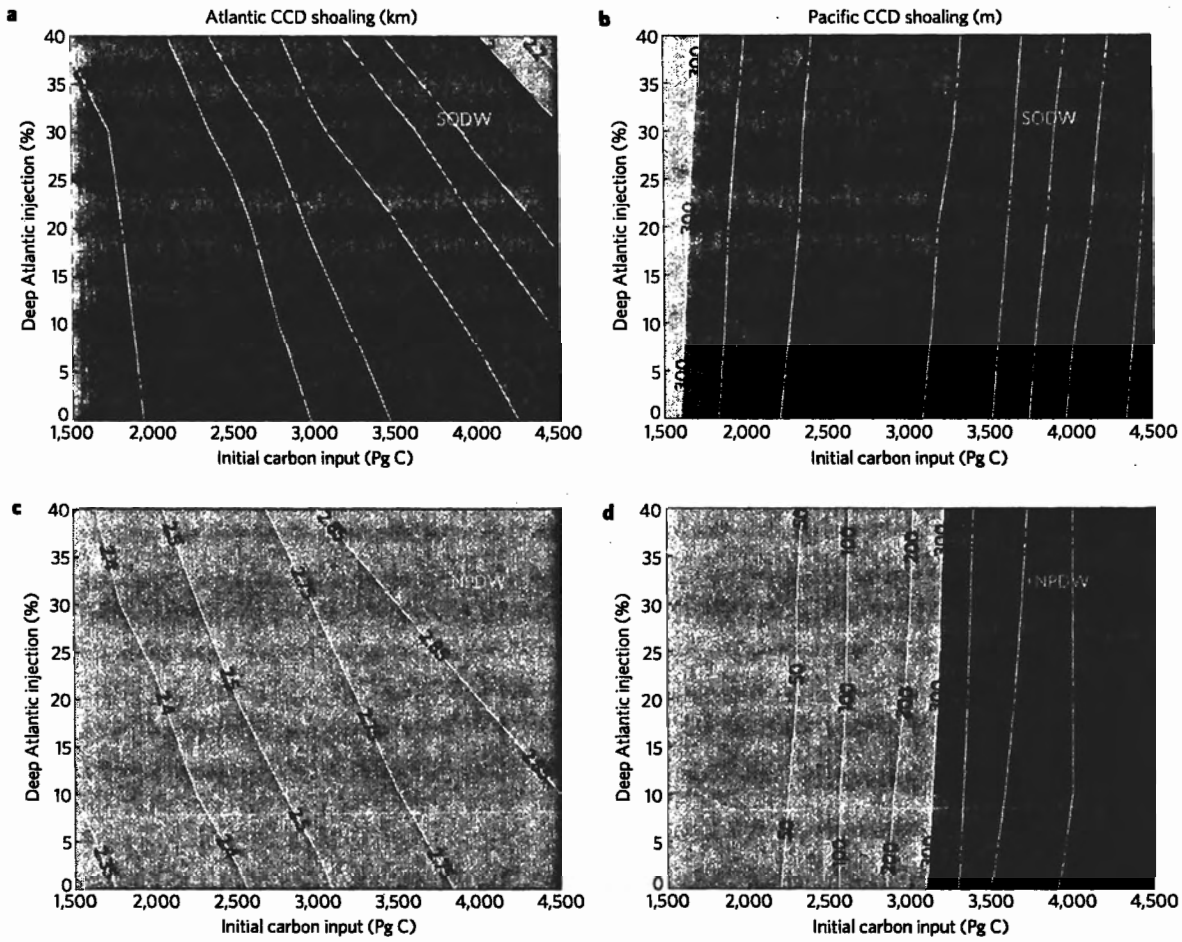

Figure 2 | Simulated CCD shoaling. CCD shoaling as a function of initial carbon input (see Fig. 1a) and %carbon injected into the deep Atlantic. The green and red areas indicate data compatibility and incompatibility, respectively. **a**, Atlantic CCD shoaling (in km) with a global Southern Ocean Deep Water (SODW) source. **b**, Pacific CCD shoaling (in m) with SODW alone. **c**, Atlantic CCD shoaling when a contribution of North Pacific Deep Water (NPDW) is included. **d**, Pacific CCD shoaling including NPDW.

40% direct injection into the deep Atlantic (Fig. 2a). To match observations, total input and/or direct injection into the deep Atlantic must be greater (green and red areas in Fig. 2 indicate data compatibility and incompatibility, respectively). However, such scenarios lead to excessive CCD shoaling in the Pacific (inconsistent with the data; red area in Fig. 2b). Alternatively, with NPDW, the simulated CCD shoaling in the Atlantic is consistent with observations for all input scenarios between 1,500 and 4,500 Pg C (Fig. 2c). The maximum initial input is constrained to ~3,000 Pg C by the observed CCD shoaling of less than ~300 m in the Pacific (green area in Fig. 2d). This estimate of the maximum initial carbon input is largely independent of its duration (see Supplementary Fig. S1).

An additional key model benchmark (in addition to simulating adequate $\delta^{13}C$ and CCD changes) is to replicate the reconstructed deep-sea $[CO_3^{2-}]$ gradient between the different ocean basins[18]. This basin gradient was reversed during the PETM relative to the modern. That is, during the PETM main phase, the most corrosive deep water resided in the Atlantic and not in the Pacific as today (Fig. 3a). Observations indicate that deep $[CO_3^{2-}]$ in the Pacific was about 1.5 times higher than in the South Atlantic. This ratio is reproduced by our model (Fig. 3b).

In summary, using the rate of carbon input shown in Fig. 1a and the input location and circulation changes discussed above, the model captures the essential features of the observed carbon isotope and deep-sea dissolution records. This constrains the initial PETM carbon input to less than 3,000 Pg C, as a larger input would lead to more intense dissolution, particularly in the Pacific, which is not supported by the data. The magnitude of the CIE then requires the isotopic composition of the carbon input to be lighter than −50‰, consistent with a highly ^{13}C-depleted source such as biogenic methane. (Note that methane would have been oxidized rapidly to CO_2 in the water column and/or the atmosphere[3].) The pattern of the carbon input scenario required by the model to match observations (Fig. 1a) seems to be consistent with carbon release from oceanic gas hydrate reservoirs. The pulsed input pattern could indicate carbon release from different ocean basins or depth horizons containing gas hydrate[21]. The continued release could be explained by non-steady-state fluxes from marine gas hydrate systems following the initial dissociation of gas hydrate[27] or fluxes from marine/terrestrial sedimentary reservoirs.

As a result of the carbon input, we calculate an increase in atmospheric CO_2 from a baseline of 1,000 ppmv to ~1,700 ppmv during the PETM main phase (Fig. 1h) (a baseline pCO_2 several times higher than the pre-industrial value is generally accepted as the PETM is superimposed on a much warmer climate[4,24]). Thus, if initiated at a baseline CO_2 of 1,000 ppmv, CO_2 increases by a factor of ~1.7. We found this factor to be largely independent of the assumed baseline CO_2, for instance, at 500, 1,000 or 1,500 ppmv.

At the accepted equilibrium climate sensitivities of 1.5–4.5 °C warming per doubling of CO_2 (ref. 1), our calculated 1.7-fold increase in CO_2 would at most have caused ~3.5 °C warming

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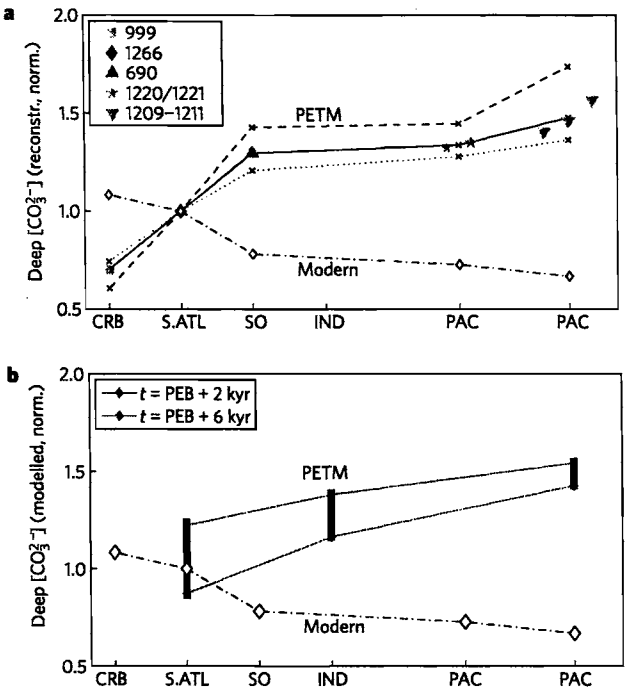

Figure 3 | Deep-sea carbonate ion basin gradient during the PETM. **a**, Reconstruction based on carbonate records from different sites (colour symbols, as indicated)[18]. **b**, Simulation from our carbon cycle model (blue and red lines) at 2 and 6 kyr after the onset of the PETM ($t = 0$). The black bars indicate the range of the simulated gradient at different times. The open diamonds in **a**,**b** show the corresponding gradient based on modern observations. Deep-sea $[CO_3^{2-}]$ concentrations are normalized to the concentration in the South Atlantic Ocean. CRB: Caribbean, S.ATL: South Atlantic Ocean, SO: Southern Ocean, IND: Indian Ocean, PAC: Pacific Ocean, PEB: Palaeocene/Eocene boundary.

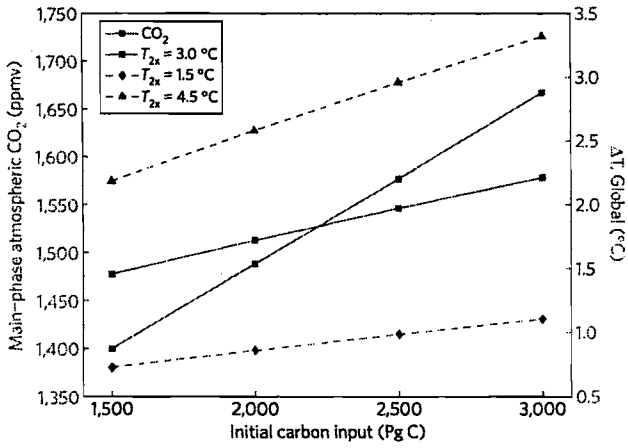

Figure 4 | Simulated atmospheric CO_2 during the main event. Average pCO_2 over 70 kyr (see Fig. 1h) as a function of initial carbon input (blue, left axis); pre-PETM CO_2 is 1,000 ppmv. The red graphs (right axis) show the calculated global temperature increase based on different climate sensitivities. Note that whereas peak atmospheric CO_2 is a nonlinear function of the carbon input, the '70 kyr-average' increase is nearly linear over the range shown. The percentage of deep Atlantic injection has little effect on the '70 kyr-average'.

during the PETM main phase (Fig. 4). This constitutes an enigma because proxy records globally indicate surface warming by 5–9 °C (refs 5–9). If the temperature reconstructions are correct, then feedbacks and/or forcings other than atmospheric CO_2 caused a major portion of the PETM warming. The origin of this additional warming is unknown at present. Possible causes of the excess warming include increased production and levels of trace greenhouse gases as a consequence of the climatic warming (such as CH_4; ref. 28). Regardless, this mismatch poses a challenge for our understanding of past episodes of strong and rapid global warming. Undoubtedly, the climatic boundary conditions before the PETM were different from today's—including different continental configuration, absence of continental ice and a different base climate, which limits the PETM's suitability as the perfect future analogue. Nevertheless, our results imply a fundamental gap in our understanding of the amplitude of global warming associated with large and abrupt climate perturbations. This gap needs to be filled to confidently predict future climate change.

Methods

The PETM carbon release rate was estimated using our initial carbon input of 3,000 Pg C and an input timescale of the order of 5,000 years (ref. 29), giving a rate of ~0.6 Pg C y^{-1}. The average carbon release rate from fossil-fuel burning and cement manufacturing from 1954–2004 is ~5 Pg C y^{-1} (ref. 30).

Given a Palaeocene/Eocene bathymetry[26], the Pacific seafloor area between 3.5 and 4.5 km depth can be estimated as $A_{\Delta z} = A_{oc} \cdot a_P \cdot a_{\Delta z} \simeq 5.5 \times 10^{13}$ m^2, where $A_{oc} \simeq 3.5 \times 10^{14}$ m^2 is the area of the ocean, $a_P \simeq 0.52$ is the Palaeocene/Eocene Pacific fraction and $a_{\Delta z} \simeq 0.30$ is the Pacific area fraction between 3.5 and 4.5 km depth. The calcite inventory in the top sediment layer of thickness h over this area is given by $M_{cal} = A_{\Delta z} h \rho f_c (1-\phi)$, where $\rho = 2{,}500$ kg m^{-3} is the sediment density, f_c is the calcite dry weight fraction and ϕ is the porosity. Using $f_c = 0.9$ and $\phi = 0.7$ and converting to carbon units, we have $M_C = M_{cal} \times 12/100 \simeq 440$ Pg C. The erodible calcite is larger than the surface inventory by a factor $[1 + r_\phi f_c/(1-f_c)]$, where $r_\phi \simeq 0.4$ (ref. 18). Thus, the erodible $CaCO_3$ inventory in the late Palaeocene Pacific in the depth range 3.5–4.5 km would have been about 2,000 Pg C.

Restoring the carbonate ion concentration (CO_2 neutralization) by deep-sea $CaCO_3$ dissolution in response to CO_2 acidification requires about 0.9 mol $CaCO_3$ dissolved per mol CO_2 added. For example, adding 100 μmol kg^{-1} CO_2 to a seawater sample at $[TCO_2, TA] = [2.3, 2.4]$ mmol kg^{-1} (T, S, P = 10 °C, 35, 350 bar), reduces $[CO_3^{2-}]$ from 84 to 42 μmol kg^{-1} (TCO_2: total dissolved inorganic carbon, TA: total alkalinity, T: temperature, S: salinity, P: pressure). Dissolution of 92 μmol kg^{-1} $CaCO_3$ restores $[CO_3^{2-}]$ back to 84 μmol kg^{-1}.

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Additional information

Supplementary information accompanies this paper on www.nature.com/naturegeoscience. Reprints and permissions information is available online at http://npg.nature.com/reprintsandpermissions. Correspondence and requests for materials should be addressed to R.E.Z.

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Subject: Re: idea for wednesday talks
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Sep 2009 21:01:51 -0400
To: bastiaan van Diedenhoven <bvandiedenhoven@giss.nasa.gov>
CC: Michael Way <michael.j.way@gmail.com>, Erik Noble <enoble@giss.nasa.gov>

it's being discussed here:

http://www.realclimate.org/index.php/archives/2009/09/communicating-science-not-just-talking-the-talk/

and there were a bunch of reviews on ScienceBlogs earlier this year. I'd just watch it if I was you.

gavin

On Wed, 2009-09-16 at 20:35, bastiaan van Diedenhoven wrote:

> Thanks Gavin. We'll keep this in mind. I'm curious to know what the global warming comedy is about!
>
> Bastiaan
>
> On Wed, Sep 16, 2009 at 6:17 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
>
> > I occasionally get DVDs of vaguely relevant documentaries that might be
> > of some interest. For instance, "Sizzle: A global warming comedy" and "A
> > Sea Change" (about overfishing and ocean acidification). They aren't
> > that long (80 mins or so), so a lunchtime screening could be doable if
> > you don't have anyone lined up.
> >
> > Gavin

--

Dr. Bastiaan van Diedenhoven
Columbia University Center for Climate Systems Research /
NASA Goddard Institute for Space Studies
2880 Broadway, Room 316C
New York, NY 10025
Phone: (212) 678 5512
Fax: (212) 678 5552
Email: bvandiedenhoven@giss.nasa.gov
URL: http://www.columbia.edu/~bv2154/

Subject: Re: BBC U-turn on climate
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 14 Oct 2009 18:21:07 -0400
To: Michael Mann <mann@meteo.psu.edu>
CC: Tom Wigley <wigley@ucar.edu>, Kevin Trenberth <trenbert@ucar.edu>, Stephen H Schneider <shs@stanford.edu>, Myles Allen <allen@atm.ox.ac.uk>, peter stott <peter.stott@metoffice.gov.uk>, "Philip D. Jones" <p.jones@uea.ac.uk>, Benjamin Santer <santer1@llnl.gov>, Thomas R Karl <Thomas.R.Karl@noaa.gov>, Jim Hansen <jhansen@giss.nasa.gov>, Michael Oppenheimer <omichael@Princeton.EDU>

Tom, with respect to the difference between the models and the data, the fundamental issue on short time scales is the magnitude of the internal variability. Using the full CMIP3 ensemble at least has multiple individual realisations of that internal variability and so is much more suited to a comparison with a short period of observations. MAGICC is great at the longer time scale, but its neglect of unforced variability does not make it useful for these kinds of comparison.

The kind of things we are hearing "no model showed a cooling", the "data is outside the range of the models" need to be addressed directly.

Gavin

On Wed, 2009-10-14 at 18:06, Michael Mann wrote:

> Hi Tom,
>
> thanks for the comments. well, ok. but this is the full CMIP3 ensemble, so at least the plot is sampling the range of choices regarding if and how indirect effects are represented, what the cloud radiative feedback & sensitivity is, etc. across the modeling community. I'm not saying that these things necessarily cancel out (after all, there is an interesting and perhaps somewhat disturbing compensation between indirect aerosol forcing and sensitivity across the CMIP3 models that defies the assumption of independence), but if showing the full spread from CMIP3 is deceptive, its hard to imagine what sort of comparison wouldn't be deceptive (your point re MAGICC notwithstanding),
>
> perhaps Gavin has some further comments on this (it is his plot after all),
>
> mike
>
> On Oct 14, 2009, at 5:57 PM, Tom Wigley wrote:
>
> > Mike,
> >
> > The Figure you sent is very deceptive. As an example, historical runs with PCM look as though they match observations -- but the match is a fluke. PCM has no indirect aerosol forcing and a low climate sensitivity -- compensating errors. In my (perhaps too harsh)
> > view, there have been a number of dishonest presentations of model results by individual authors and by IPCC. This is why I still use results from MAGICC to compare with observed temperatures. At least here I can assess how sensitive matches are to sensitivity and forcing assumptions/uncertainties.
> >
> > Tom.

++++++++++++++++++

Michael Mann wrote:

thanks Tom,
I've taken the liberty of attaching a figure that Gavin put together the other day (its an update from a similar figure he prepared for an earlier RealClimate post. see: http://www.realclimate.org/index.php/archives/2009/05/moncktons-deliberate-manipulation/). It is indeed worth a thousand words, and drives home Tom's point below. We're planning on doing a post on this shortly, but would be nice to see the Sep. HadCRU numbers first,
mike

On Oct 14, 2009, at 3:01 AM, Tom Wigley wrote:

Dear all,
At the risk of overload, here are some notes of mine on the recent
lack of warming. I look at this in two ways. The first is to look at
the difference between the observed and expected anthropogenic trend relative to the pdf for unforced variability. The second is to remove ENSO, volcanoes and TSI variations from the observed data.
Both methods show that what we are seeing is not unusual. The second
method leaves a significant warming over the past decade.
These sums complement Kevin's energy work.
Kevin says ... "The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't". I do not
agree with this.
Tom.

++++++++++++++++++++++

Kevin Trenberth wrote:

Hi all
Well I have my own article on where the heck is global warming? We are asking that here in Boulder where we have broken records the past two days for the coldest days on record. We had 4 inches of snow. The high the last 2 days was below 30F and the normal is 69F, and it smashed the previous records for these days by 10F. The low was about 18F and also a record low, well below the previous record low. This is January weather (see the Rockies baseball playoff game was canceled on saturday and then played last night in below freezing weather).
Trenberth, K. E., 2009: An imperative for climate change planning: tracking Earth's global energy. /Current Opinion in Environmental Sustainability/, *1*, 19-27, doi:10.1016/j.cosust.2009.06.001. [PDF] <http://www.cgd.ucar.edu/cas/Trenberth/trenberth.papers/EnergyDiagnostics09final.pdf> (A PDF of the published version can be obtained from the author.)
The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't. The CERES data published in the August BAMS 09 supplement on 2008 shows there should be even more warming: but the data are surely wrong. Our observing system is inadequate.
That said there is a LOT of nonsense about the PDO. People like CPC are tracking PDO on a monthly basis but it is highly correlated with ENSO. Most of what they are seeing is the change in ENSO not real PDO. It surely isn't decadal. The PDO is already reversing with the switch to El Nino. The PDO index became positive in September for first time since Sept

2007. see
http://www.cpc.ncep.noaa.gov/products/GODAS/ocean_briefing_gif/global_ocean_monitoring_current.ppt
Kevin
Michael Mann wrote:
extremely disappointing to see something like this appear on BBC. its particularly odd, since climate is usually Richard Black's beat at BBC (and he does a great job). from what I can tell, this guy was formerly a weather person at the Met Office.
We may do something about this on RealClimate, but meanwhile it might be appropriate for the Met Office to have a say about this, I might ask Richard Black what's up here?
mike
On Oct 12, 2009, at 2:32 AM, Stephen H Schneider wrote:
Hi all. Any of you want to explain decadal natural variability and signal to noise and sampling errors to this new "IPCC Lead Author" from the BBC? As we enter an El Nino year and as soon, as the sunspots get over their temporary--presumed--vacation worth a few tenths of a Watt per meter squared reduced forcing, there will likely be another dramatic upward spike like 1992-2000. I heard someone--Mike Schlesinger maybe??--was willing to bet alot of money on it happening in next 5 years?? Meanwhile the past 10 years of global mean temperature trend stasis still saw what, 9 of the warmest in reconstructed 1000 year record and Greenland and the sea ice of the North in big retreat?? Some of you observational folks probably do need to straighten this out as my student suggests below.
Such "fun", Cheers, Steve
Stephen H. Schneider
Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies,
Professor, Department of Biology and
Senior Fellow, Woods Institute for the Environment
Mailing address:
Yang & Yamazaki Environment & Energy Building - MC 4205
473 Via Ortega
Ph: 650 725 9978
F: 650 725 4387
Websites: climatechange.net
patientfromhell.org
----- Forwarded Message -----
From: "Narasimha D. Rao" <ndrao@stanford.edu <mailto:ndrao@stanford.edu>>
To: "Stephen H Schneider" <shs@stanford.edu <mailto:shs@stanford.edu>>
Sent: Sunday, October 11, 2009 10:25:53 AM GMT -08:00 US/Canada Pacific
Subject: BBC U-turn on climate
Steve,
You may be aware of this already. Paul Hudson, BBC's reporter on climate change, on Friday wrote that there's been no warming since 1998, and that pacific oscillations will force cooling for the next 20-30 years. It is not outrageously biased in presentation as are other skeptics' views.
http://news.bbc.co.uk/2/hi/science/nature/8299079.stm
http://blogs.telegraph.co.uk/news/damianthompson/100013173/the-bbcs-amazing-u-turn-on-climate-change/
BBC has significant influence on public opinion outside the US.

Do you think this merits an op-ed response in the BBC from
a scientist?
Narasimha

PhD Candidate,
Emmett Interdisciplinary Program in Environment and
Resources (E-IPER)
Stanford University
Tel: 415-812-7560
--
Michael E. Mann
Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814)
863-4075
503 Walker Building FAX:
(814) 865-3663
The Pennsylvania State University email: mann@psu.edu
<mailto:mann@psu.edu>
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
<http://www.meteo.psu.edu/%7Emann/Mann/index.html>
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html
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****
Kevin E. Trenberth e-mail: trenbert@ucar.edu
<mailto:trenbert@ucar.edu>
Climate Analysis Section,
www.cgd.ucar.edu/cas/trenbert.html
<http://www.cgd.ucar.edu/cas/trenbert.html>
NCAR
P. O. Box 3000, (303) 497 1318
Boulder, CO 80307 (303) 497 1333 (fax)
Street address: 1850 Table Mesa Drive, Boulder, CO 80305
<Wigley-RecentTemps.doc>
--
Michael E. Mann
Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814)
865-3663
The Pennsylvania State University email: mann@psu.edu
<mailto:mann@psu.edu>
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
<http://www.met.psu.edu/dept/faculty/mann.htm>
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

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Michael E. Mann
Professor
Director, Earth System Science Center (ESSC)

Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814) 865-3663
The Pennsylvania State University email: mann@psu.edu

University Park, PA 16802-5013

website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

Subject: Re: 20th century draft
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 30 Oct 2009 17:29:35 -0500
To: Drew Shindell <dshindell@giss.nasa.gov>

uh oh...we're in trouble now!

http://rogerpielkejr.blogspot.com/2009/10/roger-pielke-sr-is-sure-going-to-like.html

On Fri, 2009-10-30 at 14:37, Drew Shindell wrote:

> Hi Dorothy,
> Sorry it took a while but I did read your paper. Well, to be honest I read most of your paper but skimmed a few of the sections. It is indeed quite long... I'm cc-ing Gavin since most of my comments concern interpretation of the climate sensitivity/response (he can chime in if I'm wrong, or save himself the trouble of writing the same thing if he agrees). Hope the comments are useful.
>
> Happy Halloween and have fun trick-or-treating tomorrow,
> Drew
>
> Some comments:
> First on a technical note, I think there's some problem with your percent sign in latex and it's treating them as comment indicators instead of %. Every time you have what looks like somewhere one should be (e.g. second page of the abstract) there's instead a section of text missing. You have to declare it as a symbol in latex.
>
> Now for the main issues. The first thing is that I think it's not so clear that the increase in climate sensitivity you talk about is really due to the on-line coupling. It could be that, but if you're comparing with the offline results from Hansen et al then there are substantial differences in the basic climatology of ozone and aerosols since Jim's older runs used offline fields we made many years ago. I don't think it's possible to say how much of the increase from 2.7 to 3-3.4C sensitivity comes from on-line coupling vs how much comes from having a different distribution. You'd have to archive new fields and run a really analogous simulation to the on-line one to see, which is a fair bit of work. So maybe you should stick with the discussion of how the sensitivity varies due to inclusion of the AIE.
>
> The other main point is that I think there are some substantial complications in comparison of the GHG branch and the two aerosol branches. You have forcing of -0.9 for GHGs, -0.3 for BC and +0.4 for SO2. However, these aren't really comparing the same thing because when you cut out BC or SO2 emissions you got the -0.3 or +0.4 responses immediately and they were the same all 30 years. For GHGs, however, you stabilized them at 1970 values so the first year forcing was ~0.0 and it reached -0.9 relative to the control only after 30 years. Given that the climate takes a while to respond, you really have a response to some front-weighted average of the increasing GHG forcing during the 30 years while you have a constant for aerosols. This will account for at least a good bit of why your response per unit forcing is an order of magnitude smaller for GHGs than for aerosols. Given this, it might make sense to de-emphasize the GHG branch or drop it entirely from the discussion. The comparison between the response to BC and SO2 is quite interesting though, and given that it's a factor of 5 (5 times more response to S than BC) worth exploring more. I'm not convinced that your argument about inertia

being towards warming being the reason the response to SO2 is larger makes sense however (end of p 32). It seems to me that the control run and the branches should have the same inertia in them, so it shouldn't matter very much, but perhaps I'm not thinking about that correctly.

Otherwise I have only some specific minor suggestions.

Abstract: You say that the model 'does not warm as much as observed from the 1970s to the 1990s'. In fact, it cools, doesn't it (Figure 11)?

Abstract: The phrasing that the 'indirect effect cools 50% relative to simulations without it' is rather confusing. Both runs with and without are warming, so one warms less, making 50% cooling not easy to understand (50% of what?).

Section 8: Might be worth a comment that Figure 13's IE effect looks a lot like Figure 8's IE reduction in surface forcing. Presumably that's how the IE reduces snow/ice cover.

Section 12: On p 32, you state that this is the first IE online in a transient simulation. That should perhaps be refined a bit to distinguish from runs with IE online but done with offline aerosols (as we did in AR4 for example).

Figure 11: It'd be good to have both global and Arctic numbers for the observations as you do for the model (rather than just global).

Figure 13: The BC-albedo only results look a bit odd to me. Why would reduced albedo give you more snow over must of China outside the Himalaya/Tibet? Seems very strange. Can you see if the results are statistically significant?

Figure 14: I'd suggest making the central part of the color bar white, perhaps from -0.5 to 0.5%. This might help eliminate some of the noise and make it easier to see areas where there are substantial changes.

Figure 18: This might be clearer if you plotted differences relative to the control. As it is there are so many lines I find it very hard to read.

Figure 19: Could the strong feature in Antarctic sea ice in all these runs come from the control run? It seems odd to get this same response in all 3 runs.

On Oct 19, 2009, at 7:44 PM, Dorothy Koch wrote:

> Dear patient co-authors on the old-model-coupled-20th-century-experiments,
> I have finally completed many simulations, sensitivity studies, and written a manuscript draft, posted here:
>
> coupled_20th.pdf (9205608 bytes)
>
> To retrieve this file point your favorite web browser at the following link:
>
> ---
>
> https://transfer.med.yale.edu/upload/data/huW9jTQFmlpwKEiV1p2XySwc2Qpd355jKu2/index.php

---

(It is in latex, let me know if you want the .tex version.
Author order is not at all final ... actually haven't given this
much thought.)

Please read and comment before the end of October.
Two things I still need to do in the mean time: 1) make figures of
standard deviation among
the 5-member STD simulation enseble. 2) As suggested already by David,
I want to quantify differences in land-ocean warming trends for the
experiments.

If there are other things you think I should look at more carefully
let me know.
The paper is already kind of long, so substantial studies could be
done
seperately. For example I know Gavin wants to do more to understand
the change in climate sensitivity for these simulations.

(I also invite suggestions on where to submit this. I would send to
JClim
especially since this is sort of a part II of the Qflux equilibrium
experiments
published there earlier this year. But it is too long and I don't
know if they
would allow this much page excess.)

Thanks,
Dorothy

Subject: Re: Fwd: Climate news and blog thoughts
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Mar 2007 18:04:33 -0500
To: Erik Noble <enoble@giss.nasa.gov>

Hi Eric, Sorry if I appeared a little brusque yesterday - I was quite stressed for various reasons. With your blog post, it's not really the kind of thing we post, but if you expanded in a bit more depth, you might send it over to climatepolicy.org - they've just started up and might be interested...

Gavin

On Thu, 2007-03-15 at 12:14, Erik Noble wrote:

> These were my thoughts for a blog. My earlier file was an old version.
> -Erik
>
> ---
>
> Begin forwarded message:
> From: Erik Noble <enoble@giss.nasa.gov>
> Date: March 15, 2007 1:03:24 PM EDT
> To: gschmidt@giss.nasa.gov
> Subject: Climate news and blog thoughts
>
> Dear Dr. Schmitt,
>
> I apologize for stopping you in the hallway while you busy.
> Yesterday, I read the news email that Leslie McCarthy sent out to
> everyone and became interested in the fact that the UK has proposed
> another policy that strictly deals with Climate Change.
>
> I even wrote a small piece that might be fitting for a blog
> (attached). In your opinion, would it be appropiate for a site such
> as RealClimate.org?
> Even though I want to focus 100% of all my attention at studying
> climate change in the global sense with the models here, I still
> feel the pull and attraction for science policy discussions wrapped
> in climate change.
>
> Privately, I am looking to explore discussions branching apart from
> the connections I have through CU Boulder to establish my own
> foundation
> in the arena of climate science and decision making.
>
> May I drop by in your spare time?
> Thank you for your time and consideration.
> Sincerely,
> Erik Noble
>
> ---
>
> Begin forwarded message:
> From: Leslie McCarthy <lnolan@giss.nasa.gov>
> Date: March 14, 2007 10:22:56 AM EDT
> To: giss-people-l@giss.nasa.gov
> Cc: mark.s.hess@nasa.gov, Franco.Einaudi@nasa.gov,
> robert.j.gutro@nasa.gov, mbettwy@aol.com,
> lychand@pop100.gsfc.nasa.gov, david.d.herring@nasa.gov,
> ccokander@gmail.com, scole@pop600.gsfc.nasa.gov,
> dorothy.j.zukor@nasa.gov, michon@nsidc.org, eceditor@yahoo.com,
> dwayne.c.brown@nasa.gov, edward.s.campion@nasa.gov,
> sdewitt@pop100.gsfc.nasa.gov, "Wade E. Sisler"
> <Wade.E.Sisler@nasa.gov>, tabatha.thompson-1@nasa.gov,
> cynthia.a.ocarroll@nasa.gov, grey.hautaluoma-1@nasa.gov,
> cch@ei.columbia.edu
> Subject: NASA/climate news stories
>
> ---
>
> Britain aims for CO2-limit target dates
> By JENNIFER QUINN, Associated Press Writer
> Wed Mar 14, 12:02 AM ET
>
> LONDON - The British government proposed bold new environmental
> legislation Tuesday that would set legally binding, long-term
> limits on carbon emissions a move it hopes will prompt the United
> States, China and India to follow suit.
> ADVERTISEMENT
>
> The climate change bill would be the first legislation in an
> industrialized country to spell out such long-range goals,
> including a carbon budget set every five years that would cap CO2
> levels and create an independent body to report on progress. The
> legislation also calls for binding targets, including an emissions
> reduction of 60 percent by 2050.
>
> http://news.yahoo.com/s/ap/britain_climate_change;_ylt=Am5nYih2W3rIsvTxUf3C43NrAiMA
>
> ---

Democrats in Congress Push Measures To Curb Global Warming
Legislative strategies aim for support from private sector, White House

By Andrzej Zwaniecki
USINFO Staff Writer (US State Department)
March 13, 2007

Washington - Congressional Democrats are pressing ahead with legislation to address global warming despite uncertainty over where the White House stands on specific issues.

A draft bill that would set limits on greenhouse gas (GHG) emissions could be "put forward" as soon as April, according to Senator Jeff Bingaman, chairman of the Senate Committee on Energy and Natural Resources. In the House of Representatives, Speaker Nancy Pelosi has asked her Democratic colleagues to have their version of climate-change legislation ready for floor action before July, according to news reports.

http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2007&m=March&x=20070313161124eaikceinawzl.445940e-03

The New Scientist (about J. Hansen)
Chris Mooney
Seed Magazine
Posted March 11, 2007 11:49 AM

"They would have been better off if they'd just ignored me, rather than trying to shut me up. They brought the publicity about themselves."

James Hansen is sitting in his cluttered corner office on the seventh floor of the NASA Goddard Institute for Space Studies, just blocks from the Columbia University campus in upper Manhattan, and upstairs from Tom's Restaurant (of Seinfeld fame). A wiry scientist who looks young for his 65 years, Hansen speaks with a distinct Midwestern accent; as he talks, he gazes off into space, as if scrutinizing an invisible PowerPoint presentation. If he has a lot on his mind, it's no surprise: Hansen is the number one scientist in America and perhaps the world who has been publicly speaking out about our looming climate catastrophe. And in so doing, he has shattered some long-held convictions in the scientific community, ones overdue for a challenge.

http://www.seedmagazine.com/news/2007/03/the_new_scientist.php

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From a Rapt Audience, a Call to Cool the Hype

William J. Broad, New York Times
Published: March 13, 2007

Hollywood has a thing for Al Gore and his three-alarm film on global warming, "An Inconvenient Truth," which won an Academy Award for best documentary. So do many environmentalists, who praise him as a visionary, and many scientists, who laud him for raising public awareness of climate change.

But part of his scientific audience is uneasy. In talks, articles and blog entries that have appeared since his film and accompanying book came out last year, these scientists argue that some of Mr. Gore's central points are exaggerated and erroneous. They are alarmed, some say, at what they call his alarmism.

http://www.nytimes.com/2007/03/13/science/13gore.html?8dpc

THINKING GREEN AND ACTING LOCALLY

Brigid Bergin
City Limits
March 12, 2007

A scientific group recommends making environmental change on the neighborhood level.

If a NASA scientist and her colleagues have their way, Chinatown, the Lower East Side and the East Village could soon become the greenest part of New York City.

Cynthia Rosenzweig, who heads the Climate Impacts Group at the Goddard Institute for Space Studies at Columbia University, presented a study to leaders from those neighborhoods describing how to lower the temperature and reduce energy demand. The results ranked the effectiveness of specific strategies for certain areas, one of which was theirs - "Lower Manhattan East."

http://www.citylimits.org/content/articles/viewarticle.cfm?article_id=3290&current_type=1&media_type=4

Scientists Debate Sun's Role in Global Warming (D. Rind mentioned)
Tuesday, March 13, 2007
By Ker Than
Live Science.com

Earth is heating up lately, but so are Mars, Pluto and other worlds in our solar system, leading some scientists to speculate that a change in the sun's activity is the common thread linking all these baking events.

Others argue that such claims are misleading and create the false impression that rapid global warming, such as Earth is experiencing, is a natural phenomenon.

http://www.livescience.com/environment/070312_sclrsys_warming.html

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Pelosi Reveals Who's Who On Global Warming Panel
Monday, March 12, 2007; Page A11

The best-kept secret on the Hill -- the full membership of the new committee on global warming -- is no longer secret. House SpeakerNancy Pelosi (D-Calif.) has announced the 15 members of the committee, formally known as the Select Committee on Energy Independence and Global Warming.

http://www.washingtonpost.com/wp-dyn/content/article/2007/03/11/AR2007031101044.html

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Arctic impact on global warming lures scientists
By Deborah Zabarenko, Environment Correspondent
Wednesday, March 14, 8:30 am

HANOVER, New Hampshire (Reuters) - A polar bear swimming amid melting Arctic sea ice may be one image of global warming's impact. But it could just as well be a California wildfire, a European heat wave or a Caribbean hurricane.

That's because the consequences of climate change at the poles affect the whole world, said Ross Virginia, professor of environmental studies at New Hampshire's Dartmouth College and one of the organizers of a summit on Arctic science this week that will focus on global warming.

http://news.yahoo.com/s/nm/20070314/sc_nm/arctic_globalwarming_dc_1;_ylt=Ah_upem4ize3nMFgeCes7BlrAlMA

U.S. bars talk of climate change effects on bears
Memos set strict limits on what officials can say abroad

Seattle Post-Intelligencer staff and news services
Last updated March 8, 2007 10:40 p.m. PT

The Bush administration is ordering federal wildlife officials headed for international meetings on polar bears not to talk about how climate change and melting ice are affecting the imperiled animals.

It is the latest in a string of cases in which the administration has carefully controlled or even banned government employees' public speech about global warming.

This latest chapter involves two memorandums written in late February that put strict limits on what U.S. Fish and Wildlife Service employees could discuss at meetings in Norway and Russia.

http://seattlepi.nwsource.com/national/306820_bears09.html?source=mypi

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Subject: [Fwd: realclimate saturation post? -PS]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 05 Jun 2007 20:23:37 -0400
To: mann@psu.edu, steig@ess.washington.edu, d-archer@uchicago.edu, rahmstorf@ozean-klima.de, ammann@ucar.edu, wmconnolley@gmail.com, rasmus.benestad@met.no, garidel@cerege.fr, gschmidt@giss.nasa.gov, rbradley@geo.umass.edu, rtp1@geosci.uchicago.edu

A guest post from Spencer Weart?

Gavin

-----Forwarded Message-----

From: Spencer Weart <sweart@aip.org>
To: Gavin Schmidt <gschmidt@giss.nasa.gov>
Subject: realclimate saturation post? -PS
Date: 31 May 2007 11:06:21 -0400

Gavin,

As you may know, I have a feedback form on my history Website, which about 1 in 1000 visitors fill in (evidently the most dedicated and responsible readers!). In the last few months I've had an unusual number who say they arrived at my site because they were Googling queries about the saturation of CO2 radiation absorption -- apparently a contrarian argument. I haven't followed the blogs, but a Google search on [carbon AND dioxide AND "global warming" AND (saturated OR saturation OR saturate)] produces 324,000 hits, so it looks like a live argument.

I was going to suggest that realclimate respond, but in case it is helpful I have cut and pasted material from my site that you might want to consider as a post. Being a historian I naturally took a historical approach, which may not be appropriate, and if you reject it for whatever reason, I won't be offended... but if you find any flaw in the explanation please let me know so I can correct it on my site.

Best regards, keep up the good work,

Spencer

==========
Spencer Weart, Director
Center for History of Physics
American Institute of Physics
College Park, MD 20740 USA
(301) 209-3174 FAX -0882
See www.aip.org/history
==========

PS: I found one likely source of the "saturated" contrarian argument,
http://www.junkscience.com/Greenhouse/

saturate.rtf	**Content-Type:** application/msword **Content-Encoding:** base64

A Saturated Gassy Argument

The greenhouse effect seems like simple physics, but simple thinking can lead you astray when you get to climate. Some people have been confused about whether humanity is really causing global warming, for doesn't simple physics show that there is already so much carbon dioxide in the atmosphere that its absorption of radiation is "saturated," so that adding more gas will absorb no more? And anyway isn't water vapor already blocking more radiation than carbon dioxide ever could?

The arguments sound so good that they suppressed research on the greenhouse effect for half a century. In 1900, shortly after Svante Arrhenius published his pathbreaking argument that our use of fossil fuels will eventually warm the planet, another scientist did a simple experiment. He sent infrared radiation through a tube filled with carbon dioxide, containing as much of the gas in total as would be found in a column of air reaching to the top of the atmosphere (that's not much, since the concentration in air is only a few hundred parts per million). When he doubled the amount of gas in the tube, the amount of radiation that got through scarcely changed. The reason was that the CO2 absorbs radiation extremely well. In the specific bands of the infrared spectrum that it blocks, it took only a trace of the gas to"saturate" the bands, making them so thoroughly opaque that more gas made little difference.

Still more persuasive to scientists of the day was the fact that water vapor, which is far more abundant in the air than carbon dioxide, also intercepts infrared radiation. In the spectrographs of the time, the bands of the two gases entirely overlapped one another. More CO2 could not affect radiation in bands of the spectrum that H2O (as well as CO2 itself) already entirely blocked. When these ideas were published, even scientists who had been enthusiastic about Arrhenius's work decided it was plainly in error. Work on the question stagnated If there was ever an "establishment" view about the greenhouse effect, it was confident that the CO2 emitted by humans could scarcely affect anything so grand as the Earth's climate.

But the early studies had an unsuspected logical flaw. They were looking at bands of the spectrum at sea-level pressure and temperature. When the coming of quantum mechanics allowed physicists in the 1930s to work up a theory of how absorption works, they realized that in the frigid and rarified upper atmosphere, where the crucial infrared absorption takes place, the nature of the absorption would change. New measurements made at low pressure backed that up. Suppose you isolated a single molecule of CO2 or H2O. It will absorb light only in a set of specific wavelengths, which show up as thin dark lines in a spectrum. But in a gas at sea-level temperature and pressure, the countless molecules colliding with one another at different velocities each absorb at slightly different wavelengths, so the lines are broadened and merge into the continuous bands that early scientists saw. At low pressure, each band resolves into a cluster of sharply defined lines, like a picket fence. There are gaps between the H2O lines where radiation can get through unless blocked by CO2. As for carbon dioxide by itself, high up where the molecules are cold and thinned out, if more gas is added, each individual line will get a bit more smeared out and able to block more radiation.

In 1952 the theoretical physicist Lewis D. Kaplan ground through numerical computations which

showed that in the upper atmosphere, the saturation of CO2 lines would be weak. Take a layer so high and thin that heat radiation from lower down would slip through, add more gas, and the layer would absorb some of the rays. Therefore the place from which heat energy finally left the Earth would shift to a higher layer. That would be a colder layer, unable to radiate heat so efficiently. So the planet as a whole would start to receive more energy than it radiated (which is in fact our current situation). The imbalance would cause all the lower levels to get warmer until the high levels became hot enough to radiate as much energy back out as the planet received. The effect had been neatly explained by John Tyndall back in 1862: "As a dam built across a river causes a local deepening of the stream, so our atmosphere, thrown as a barrier across the terrestrial [infrared] rays, produces a local heightening of the temperature at the Earth's surface."

Nobody could say anything specific without far more extensive computations. By 1956, these could be carried out thanks to the increasingly powerful new digital computers. The physicist Gilbert N. Plass took up the challenge. Calculating radiation and temperature layer by layer in the atmosphere and point by point in the spectrum, he showed that adding CO2 could affect the world's radiation balance enough to cause noticeable warming. To be sure, his calculation relied on unrealistic simplifications. Plass had to ignore such important effects as the way a rise of global temperature might cause the atmosphere to contain more water vapor and more clouds. It was not until the late 1960s that computer models got good enough to include all the essential factors and produce a reasonably good simulacrum of the real world's climate. Yet Plass's calculation already showed that the simple arguments about saturation just did not hold water. From that point scientists realized global warming was worth studying, and began to work on the difficult and complex calculations and measurements that would pin it down. (References and more history are <HREF="http://www.aip.org/history/climate/co2.htm>here</A> and <HREF="http://www.aip.org/history/climate/Radmath.htm>here</A> .)

Subject: [Fwd: BAMS Decision #2441]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Jun 2007 13:14:59 -0400
To: alacis@giss.nasa.gov, Ron Miller <rmiller@giss.nasa.gov>, Reto Ruedy <cdrar@giss.nasa.gov>
CC: Drew Shindell <dshindell@giss.nasa.gov>

Hmmm... some reviews of our BAMS submission. Bottom line, nobody liked it!

There are some constructive suggestions and I would suggest revising and trying again.

Reviewer 2's comments about the NCAR website giving equivalent numbers is ironically simply a cut and paste from my original blog posting on the subject. I'm pretty sure Lindzen is reviewer 3, but his comments are mostly constructive although he does resort to some rhetorical excess at the end.

Any thoughts/comments welcome....

Gavin

-----Forwarded Message-----

From: Mark Baldwin <mark@nwra.com>
To: gschmidt@giss.nasa.gov
Cc: editorinchief <editorinchief@ametsoc.org>
Subject: BAMS Decision #2441
Date: 11 Jun 2007 14:50:28 +0100

Dear Dr. Schmidt,

I have received three reviews of your paper "Attribution of the present-day total greenhouse effect." All three reviewers recommend that the paper be rejected. Reviewer 3, in particular raises some deeper questions regarding the fundamental approach of the paper. Although the topic is certainly of interest to BAMS readers, this manuscript has problems serious enough that I cannot consider it for publication in BAMS.

If you choose to submit a new submission on this topic, please refer to #2441 and include a detailed letter responding to all the reviewer comments, and explaining why the new manuscript overcomes these issues. I would likely send the manuscript to the same reviewers, and possibly one additional person. Convincing the reviewers would likely be a challenge, but you have the option to try.

Best regards,

-Mark Baldwin

Reviewer #1

I was looking forward to reviewing this paper, as I know the authors produce excellent research papers. Regrettably, the paper fell far short of my expectations and I unambiguously recommend rejection on a number of grounds. I'm afraid that if (as stated at the end of

Section 1), the aim of this paper is to make "subsequent discussions … more informed", it will fail.

1. Language

BAMS articles are meant to appeal to the non-specialist, and junior undergraduates. This paper is full of "cryptic" remarks - in most (but not all!) cases, I understand what the authors are trying to say, having had almost 25 years in the subject, but I think any non-specialist would struggle. Here are some examples:

In the abstract: "Since water vapor and clouds are fast feedbacks in the climate system, their dominant contribution to the present day climate effect does not imply that the climate is insensitive to trace greenhouse gas changes."

In the introduction "The real question that underlies public concern is the uncertainty in climate sensitivity". Really?

The entire first sentence of Section 2. Baffling, unless you understand that a top of the atmosphere view is being taken, and as for "the absorbed solar irradiance due to the absorption of LW radiation" …

The discussion in Section 3 on "minimum" and "maximum" effects, when the meaning of this nomenclature appears only later in the paper.

The use, in section 5, of the union and intersection symbols

Section 6 "because efficacies are close to unity"

My overall impression is that I am not reading a polished paper, but reading an early draft - an impression that certainly isn't helped by the fact that one of the authors is acknowledged in the Acknowledgements (I apologise if, after all, there are two Ron Millers).

2. Prior literature

Had I been asked to refer a non-specialist to information on the contribution of different absorbers to the greenhouse effect, I would have referred them to Kiehl and Trenberth (1997), and even after reading this paper, I would still refer them to Kiehl and Trenberth. (The authors should note that I am not, nor have I ever been, Kiehl or Trenberth.) As it is, Kiehl and Trenberth's paper is only referred to in a rather cursory way on page 3, and is never referred thereafter - but their paper, and in particular Table 3 of their paper (and the accompanying discussion of other work) is absolutely central to the topic of this paper. To be sure, there are a number of shortcomings in Kiehl and Trenberth's work (e.g. use of a single not-even-global-mean profile) and some ambiguities in their methodology that keep me awake at night, but I would submit that it is the prime reference in this area, and the clearest discussion for the current intended audience.

3. Science

There are some clear and surprising misinterpretations of the calculations. In the first paragraph of Section 2, there is the statement that "the amount of long-wave radiation absorbed in the atmosphere … is 155 Wm-2". No it isn't! This is in a sense the net absorption, as the fact that the atmosphere emits, and therefore contributes to TOA radiation seems to have been forgotten. The actual amount absorbed is way more than 155 Wm-2. This isn't just careless

English, because the error is repeated, in starker form on page 6: "removing ozone actually ends up increasing LW absorption". No it doesn't! What I guess is happening is that the (real) decrease in absorption is being more than balanced by a decrease in emission by the ozone. Greenhouse sceptics would just love this! (In passing, I note that I am a bit surprised that ozone plays such a small role - K&T imply a much larger role, and closer to what I would expect.)

The reader will also end up seriously confused about the roles of cloud. 3 lines in on page 6, we are told that "for each absorber, both shortwave and long wave effects were used or removed" … but as far as I can tell, henceforth, only LW effects are presented, with a minor exception of the (not very helpful) discussion on adjusted forcings. The reader will be left with the overwhelming impression that clouds contribute to the warming of the climate system, because of their 26% contribution to the greenhouse effect whereas they actually cool the climate system because their shortwave effect dominates. But there is not a single mention of this extremely important fact. And, as above, this misinterpretation is cemented in Section 6, top of page 8, where a misguided attempt is made to derive the strength of climate feedbacks by looking at LW fluxes alone. Most feedbacks alter the SW radiation field too (and some, e.g. snow-albedo, do so exclusively).

Reviewer #2

This is a clearly written paper of interest to a general audience. It addresses a point of misunderstanding on the realclimate.org website. The authors make a compelling argument, which I read with interest. However, I think that the authors are not necessarily correct that these numbers are not in the science literature.

Firstly it could be argued that minimum effects are the correct way to look at this problem, as this is more akin to the radiative forcing concept. Therefore Ramanathan and Coakley (1978) would appear to be still valid, insofar as to make the broad "education" point of the paper - I use the R&C results at the start of my lecture course on climate change, for example.

Secondly, similar numbers are given or can easily be inferred from Kiehl and Trenberth, 1997 (Table 3) (they also discuss overlap) as well as Charnock, H., and K. P. Shine, 1993: (Physics Today, 46, December, 66.)
I would also encourage the authors to look in text books that I don't have access to in my hotel, so can't be certain. However, Danny Harvey, Liou, and Goody may well have similar numbers in their books. I also found the numbers on the ncar education website, these must have a source of somekind (which also include overalap effects)

http://www.windows.ucar.edu/tour/link=/earth/climate/greenhouse_effect_gases.html

The role of overlap (Table 1) and contribution of aerosols and CFCs appear original, but I don't think these are alone interesting enough for BAMS

I am happy to be argued against, as the article is informative to a BAMS audience and I'm all for explaining radiation to anyone who will listen. However, I think the paper should be recast as a review with an add-ons rather than original science. So in present form, I'm afraid that I advocate rejection due to lack of originality.

Other points that the authors may like to think about

1) I found framing the argument in terms of forcing and feedback/ sensitivity somewhat convoluted and I would suggest this is unnecessary. Making the argument that forcing and feedback mechanisms are inherently different, so not putting feedbacks into Table 3 plays right into nay-sayers hands. Surely the most appropriate way to frame the argument is in energy balance terms, so each constituent in today's atmosphere is essentially providing an energy balance change or a greenhouse forcing, to get you your 120Wm-2 or so needed to keep the Earth at it's present day equilibrium. Therefore I think feedbacks could go on Figure 3. If this makes CO2 look small, remember that it's lifetime is much longer than either clouds or water vapour….

2) With this in mind maybe table 1 should also present units of Wm-2?

3) Isn't the minimum more appropriate -as percentages add up to 100 and this is what you do when calculating a radiative forcing?

4) As interest, when I've tried to do similar calculations with GCM codes (ECHAM, UKMO and CCM3) they also appear to go wrong at small concentrations or even crash. So in fact these calculations are not as easy as they should be.

Reviewer #3 (attached .pdf)

Mark P. Baldwin
Editor, Climate Subject Matter
Bulletin of the American Meteorological Society

Northwest Research Associates
14508 NE 20th Street
Bellevue, WA 98007-3713 USA

+1 425.644.9660 ext. 323
(fax) +1 425.644.8422
mark@nwra.com

www.nwra.com/baldwin

Schmidt-etal-Review.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

Review: Attribution of the present-day total greenhouse effect by Schmidt et al

This a curious paper. Nominally, it plaintively (literally) aspires to dispel popular misunderstanding of the relative importance of various greenhouse gases in the present climate, while noting that the existing scientific literature has no clear reference on this matter. More explicitly, a popular question is what is the relative importance of CO_2 vis a vis other greenhouse substances – most notably water vapor and clouds. The primary reason for the lack of any straightforward reference for this question is simply that the question, itself, is ill posed. While the present authors touch on this matter, they fundamentally leave most misconceptions in place. As best I can tell, the popular question implicitly contains a number of important and incorrect assumptions:

1. The role of each greenhouse substance is independent of the presence of other greenhouse substances.

2. The role of each greenhouse substance is proportional to the amount of that substance and independent of its location.

The first assumption relates to the matter of spectral and physical overlap (the latter being especially important for clouds, but also important for the highly spatially heterogeneous water vapor). The present paper specifically discusses spectral overlap, noting quite correctly that the impact of any particular greenhouse substance depends on whether one is considering it present by itself or together with other substances. Their suggestion that one split the difference (as a matter of fairness no less), however, hardly clarifies anything.

The second assumption, which the present paper only implicitly and fleetingly mentions, is the more serious one. The reason I suppose that people are interested in the present day (or more accurately the preindustrial) importance of various greenhouse substances is the expectation that this will offer information as to the role of additional quantities of that substance. Thus, taking the present LW flux (as cited in the present paper) of 155 Wm^{-2}, and the present paper's claim that CO_2 contributes about 21% would lead to the impression that doubling CO_2 might contribute about 30 Wm^{-2}. Of course, the present authors say nothing of the sort, but they don't explain why they come up with a very different number. Thus, when they cite the Hansen result that removing all CO_2 reduces the equilibrium temperature by about 6.5K, they don't mention that the bulk of this decrease is due to the removal of the last 25 ppmv of the total 280 ppmv. Referring to this as the 'present day' contribution is formally correct, but clearly misleading. Beyond about 50 ppmv, one is well into the logarithmic regime for CO_2 where each doubling essentially increases forcing only about 2%.

In terms of popular understanding, it would probably be better to explain why the appropriate question for the public to ask might be how much would doubling CO_2 add to the preexisting greenhouse LW flux. The answer here is the relatively uncontroversial 2%. In this sense, the rather the formally incorrect claim of Lindzen 1991 is less misleading than the present paper.

Finally, the present paper makes the correct point that water vapor and clouds (although dominant for the preexisting greenhouse forcing) are primarily internally determined variables in

the climate system, and are thus properly considered feedbacks rather than forcings per se. This hardly serves to diminish their importance since without them the response to a 2% increase in long lived greenhouse substances would only provide about 1C warming, and these feedbacks are highly uncertain components of present models even where models agree among themselves.

Thus, this paper focuses on a poorly framed though common question, answering it in an ambiguous and confusing manner, while leaving essentially untouched the real problems with the question itself. As such, it is difficult to identify what useful contribution this paper makes, though it is clear that a paper that really attempted to clarify the confusion might well be helpful. Such a paper would, of necessity, focus more on the underlying physics and less on specific model realizations. It would certainly not be the present paper which I feel serves no useful purpose, offers no new information, and perpetuates unnecessary confusion.

Although the major problems with this paper have been addressed, the paper also has a number of technical problems. Thus, on page 5, the authors mention the use of experiments where stratospheric temperatures are allowed to respond without explaining why this is called for. On page 8, they confuse 'gain' with 'feedback factor.'

Subject: Re: [Fwd: Fwd: Question]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Aug 2007 19:24:22 -0400
To: rruedy@giss.nasa.gov

agreed.

On Thu, 2007-08-09 at 19:12, Reto Ruedy wrote:
> Gavin,
>
> Jim gets many of these kinds of responses - a change whose effect we
> described as well within the margin of error has become an "astonishing
> change".
>
> I guess the best thing is to ignore it and - if at all - set matters
> straight in a place like RealClimate .
>
> Reto
>
> -------- Forwarded Message --------
> From: James Hansen <jhansen@giss.nasa.gov>
> To: rruedy@giss.nasa.gov, makis@giss.nasa.gov
> Subject: Fwd: Question
> Date: Thu, 09 Aug 2007 18:13:23 -0400
>
> DomainKey-Signature: a=rsa-sha1; q=dns; c=nofws; s=s1024;
> d=yahoo.com;
> h=Received:X-YMail-OSG:From:To:Subject:Date:Message-ID:MIME-Version:Content-Type:X-Mailer:Thread-Index:X-MimeOLE:Disposition-
> Notification-To;
> b=ffkH2tg2t15Z4nC6MwTIbe8N2agSXy0S+Mr4wPMswbQJdfchkU+64OU3se8vtx+Di6KFgNc1dgwzzbp5PDkotaOObRYkc+Usnl/0ugGm7gw8KnFEjITxLy9cc1DAIhnq4sSMIZyOj
> ;
> X-YMail-OSG:
> kEot1KsVM111f1VC31qkqzwt1okpR3HYVAPxQCuUAnoXdfzY1j2A3q7Zk.gU1cYAwj5E.mbIWXbc97AenQB33NLMIg0vLabH2jPKs5nRtcb6PiL2mA--
> From: @yahoo.com>
> To: <James.E.Hansen@nasa.gov>
> Subject: Question
> Date: Thu, 9 Aug 2007 18:55:53 -0300
> X-Mailer: Microsoft Office Outlook 11
> Thread-Index: Acfaz/NMEFUhL8W1T7+QO5t4TLtH8Q==
>
> Dr. Hansen,
>
> Below is a link to a posting today that I was hoping you could comment
> on.
>
> It is dispiriting that questions regarding climate change have been
> politicized, but I was hoping you could shed some light on this
> posting.
>
> http://www.dailytech.com/Blogger+finds+Y2K+bug+in+NASA+Climate
> +Data/article8383.htm
>
> Thank you very much for any clarification you can provide.

Subject: Re: ozone again
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 28 Sep 2007 17:38:48 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

it's up. Feel free to comment if anyone says anything interesting!

http://www.realclimate.org/index.php/archives/2007/09/uncertainty-in-polar-ozone-depletion/

gavin

On Fri, 2007-09-28 at 14:25, Drew Shindell wrote:
> Only a few minor changes, in CAPITALS.
> Drew
>
> On Sep 28, 2007, at 12:54 PM, Gavin Schmidt wrote:
>
> I made some edits for clarity. DO you like this?
>
> <small>Guest commentary by Drew Shindell</small>
>
> The unique chemistry that causes dramatic ozone depletion in the polar springtime lower stratosphere has been studied intensely for the past 2-3 decades and much that was speculated about 30 years ago when the problem first emerged has been verified and made more coherent. However, a new reported concerning laboratory measurements of a key molecule involved in this chemistry have raised questions about current understanding. The results (Pope et al., J. Phys. Chem., 2007) suggest a reduced ability for sunlight to break apart the chlorine monoxide dimer (Cl2O2) and have already led to a great deal of debate about their implications. I'll try here to help assess what these new measurements really mean.
> <!--more-->
>
> The past decades of study have developed a comprehensive understanding of how polar ozone depletion (Ozone Holes) takes place. In brief, human-produced halocarbons (chlorofluorocarbons (CFCs) and a few other molecules like methyl bromide) are broken down by sunlight in the stratosphere, releasing chlorine and bromine. These highly reactive atoms mostly go into fairly long-lived molecules that are not very reactive and therefore act as reservoirs. There are two situations in which a substantial amount of chlorine, the more important of the two, can come out of the reservoirs in large enough amounts to destroy a substantial amount of ozone. One is in the upper stratosphere around 40-50 km altitude, where strong sunlight forms reactive molecules that frees the chlorine. The other is the polar springtime lower stratosphere, where extremely cold temperatures lead to unique chemistry on the surface of ice particles that again transforms chlorine from its reservoirs into more reactive forms.
>
> ATMOSPHERIC observations show that in both these situations, there is indeed enhanced reactive chlorine and simultaneous depletion of ozone. Measurements from satellites, aircraft, and ground-based

instruments all give independent, consistent information verifying the links between cold temperatures in the polar springtime lower stratosphere and chlorine, and between chlorine and ozone. It's important to note that none of the laboratory data on the direct chemical reactions that destroy ozone have been questioned. What has now been questioned is not the link between the chlorine released from CFCs and ozone loss, but rather the rate at which the chlorine atoms can destroy ozone via a particular cycle involving the Cl2O2 molecule.

Measurements of this molecule are exceedingly difficult to make in the laboratory as it is highly unstable. Several earlier measurements of the relevant rate have shown variations of a factor of 3 or so, so that the uncertainty in the rate is not new. However, we have substantial auxiliary evidence for what the rates must be i.e. observations of chlorine in the atmosphere provide independent constraints on Cl2O2. Limited direct observations of Cl2O2, as well as many measurements of total chlorine and of chlorine monoxide (ClO), constrain the amount of Cl2O2 (which CANNOT be greater than the total minus the amount in the ClO molecule) are inconsistent with either the new measurements or even earlier reports of a reduced ability of sunlight to break up Cl2O2 (Shindell and de Zafra, GRL, 1995, 1996; Stachnik et al., GRL, 1999; Stimpfle et al., JGR, 2004). Thus although the current state of knowledge is that the laboratory measurements on the stability of the Cl2O2 molecule vary by roughly a factor of 10 (including the newly reported values), the independent measurements suggest strongly that the upper half of that range is more likely to be correct, not the lower.

Given the difficulty in making the laboratory measurements, it is quite possible that these are wrong, and confirmation of the new results is certainly needed. Should the results hold up, the chemistry involved in polar ozone loss may need to be re-evaluated. As there are other cycles that do not involve the Cl2O2 molecule but cause similar dramatic ozone depletion, such as cycles including both ClO and BrO (its bromine-containing analogue), any revision to current understanding would most likely simply shift the relative importance of the various ozone-destroying cycles. However, as noted, it is not clear how one would reconcile these NEW measurements with actual atmospheric observations, which are not consistent with a more stable Cl2O2 molecule.

A wealth of observational data supports the role of chlorine and bromine in polar ozone loss, and uncertainty in a single step of the relevant chemistry does not undermine the Montreal Protocol controlling substances that release these atoms into the stratosphere. It is important, however, that the new results be tested so that we can be confident we understand the potential effects of future changes in temperature on polar ozone loss (as different chemical reactions have different sensitivities to temperature). This will allow us to better understand the effects of climate change on the stratospheric ozone layer, and to verify the effectiveness of the Montreal Protocol, which HAS already SHOWN success in reducing the growth of atmospheric concentrations of CFCs, AND SEEMS TO HAVE LED TO AT LEAST A LEVELING OFF OF OZONE DEPLETION OVER MOST OF THE PLANET. Recovery is not expected for a few decades.

========

Gavin

Subject: OISM
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 15 Oct 2007 14:59:07 -0400
To: Drew Shindell <dshindell@giss.nasa.gov>

http://www.realclimate.org/index.php/archives/2007/10/oregon-institute-of-science-and-malarkey/

http://rabett.blogspot.com/2007/10/before-there-was-e-there-was-jpands.html

(incomplete, but worth a look)

http://www.realclimate.org/wiki/index.php?title=OISM

gavin

Subject: Re: FW: EO Comment: Global Warming, RealClimate website.
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 02 Jan 2008 17:49:21 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

seems fine.

FWIW posts as on climateaudit.org

gavin

On Wed, 2008-01-02 at 17:33, David Herring wrote:

> R,
>
> Here is my proposed reply. We can fine-tune the wording so please review and let's discuss when you're ready...
>
> Dear
>
> Thank you for your note and for taking the time to express your concerns. My team and I are not in the habit of posting material on blog sites, nor do we respond to postings on external blog sites, so I won't comment on what is or is not on the sites you referenced. We do, however, respond as time permits to letters people send us directly. So while I have noted the source of your concerns, I am addressing my response specifically to you and to the particular concerns you raised in your letter.
>
> Perhaps I should first elaborate on NASA's Earth sciences research to put the objectives of NASA's Earth Observatory into proper context. NASA is a world leader in Earth system science research -- in terms of our agency's current capacity for space-based observations and measurements of Earth's environment; in terms of the contributions made by scientists within our agency to the body of knowledge about our home planet; and in terms of improving the science community's ability to model and predict the workings of Earth's climate system. In addition to being tasked and funded by the President and by Congress to advance understanding about how our world works, NASA is also mandated to share that new knowledge with the public. NASA's Earth Observatory is an Internet publication by which we help to fulfill that mandate. The Earth Observatory is based at NASA's Goddard Space Flight Center, under my management. We have no other motive nor outside influence.
>
> In your note, you stated that we linked to realclimate to answer a global warming question. Not true. Please visit our site for yourself, athttp://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/
>
> ...and there you will see that we provided clear, concise answers to each question, and then we provided links to a variety of places where people could go if they wanted to read more about the subject. There are no government policies prohibiting such links.
>
> In your note, you pointed out the political nature of some aspects of climate science. My team and I are fully aware that global warming is controversial in political contexts. Indeed, I feel that the politics of the subject only ***heighten*** the need for good, effective science communication about Earth's current warming trend. We try to do so in a way that clarifies the science and makes the subject easy to understand. In short, I believe it is important to help people to become conversant in climate science. The Earth science articles

published on NASA's Earth Observatory are written and designed for that purpose. So too, I find, are the entries on RealClimate. So we provided links to that site for people who may be interested in further reading on the subject.

That said, I should point out that NASA's Earth Observatory confines the scope of its articles to science. I believe we have done a good job of presenting the science without deviating into policy advocacy. We do not advocate for or against a given policy, nor do we lobby anyone in any way. There is no formal relationship between the Earth Observatory and RealClimate. NASA does not provide funding nor manpower to RealClimate. In short, NASA does not "back" RealClimate, as you suggested. (Some NASA scientists do donate some of their own personal time and expertise to RealClimate, but of course they are free to do so.) With respect to RealClimate's funding, I have no idea where it comes from. What concerns me is whether they've gotten their climate science information right, and whether it is easy to understand.

You articulated a concern that NASA is "evading quality control." I assure you that we do not evade quality control. On the contrary, we embrace it and go to great lengths to ensure that all of the information that we publish, and that we link to, is of the highest quality. We employ multiple rounds of editorial review in our articles that include both our own internal team reviews as well as reviews by scientists not on our team but who have relevant expertise (both within and outside of NASA) before publication.

Regarding your concern about our link to the RealClimate site, there is no policy that I'm aware of that prohibits such a link. Nor is there a reason that I can see to remove the link. To paraphrase the policy governing Web links, we must take steps to ensure that the information we link to is relevant, accurate, timely, and complete. In my view, the RealClimate site meets these requirements. And, for the reasons stated above, I believe the RealClimate site is a healthy public forum in which citizens can interact firsthand with leading climate scientists from a variety of agencies and universities. Such interaction is, after, what democracies are all about. As such, it's a useful and recommended resource.

I hope I have adequately addressed the specific concerns you stated in your letter. With respect to the veracity of global warming, I refer you to a fairly recent press release issued by the White House's Office of Science and Technology Policy (dated Feb. 2, 2007, which you can find here:http://www.whitehouse.gov/news/releases/2007/02/20070202.html) in reference to the most recent IPCC Assessment Report, to which NASA and NOAA (and many others) contributed significantly:

"This Summary for Policymakers captures and summarizes the current state of climate science research and will serve as a valuable source of information for policymakers," said Dr. Sharon Hays, the leader of the U.S. delegation at the meeting and Associate Director/Deputy Director for Science at the White House Office of Science and Technology Policy. "It reflects the sizeable and robust body of knowledge regarding the physical science of climate change, including the finding that the Earth is warming and that human activities have very likely caused most of the warming of the last 50 years."

You can find the complete IPCC Climate Change Assessments, and summary reports, here: http://www.ipcc.ch/

With best regards,

David Herring
NASA Earth Observatory Project Manager

Here is the first of three messages we received about this issue. I have not
responded to any of them yet.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Friday, December 28, 2007 11:31 AM
To: eoeditor@yahoo.com
Subject: EO Comment: Global Warming, RealClimate website.

From:
@earthlink.net

Topic: ContentFeedback
Subject: Global Warming, RealClimate website.

Comment/Question:
To the Director of NASA:

That NASA publicly links to "realclimate.org" for answers to global warming
question, in which realclimate.org has unknown sources of support and
funding, and takes very very specific positions on a very political issues
within their website dialog is very very outside the bounds of federal
policy. Outlined here: NASA Evasion of Quality Control Procedures
http://www.climateaudit.org/?p=2536. It is stunning actually. Why is this
happening?

As a citizen of this country and a wife of a working Earth Scientist myself,
I am stunned. I've been following the "realclimate" website for over a
year. Does NASA support all these other postings they make as well? Such
as:

http://www.realclimate.org/index.php/archives/2007/12/les-chevaliers-de-l%e2%80%99ordre-de-la-terre-plate-part-ii-courtillots-geomagnetic-excursion/
"Prelude: It's the physics, stupid"

you might want to read what others think about this here:
http://www.climateaudit.org/?p=2531#comment-183884

Is this what science has come to be with the help of people such as these,
backed by NASA?

Sincerely,

: FW: EO Comment: Global Warming, RealClimate website.

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: FW: EO Comment: Climate change
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Jan 2008 11:52:07 -0500
To: David Herring <dherring@climate.gsfc.nasa.gov>

nice one. Note that I'm not an American citizen though...

On Thu, 2008-01-03 at 10:49, David Herring wrote:

> Dear
>
> Thank you for your letter, and for sharing your concerns. Taking your last point first, I can assure you that objectivity in the science conducted at NASA is paramount and remains intact.
>
> It appears (by your question) that you may be misinformed. Please note that Gavin Schmidt is not "using" the Earth Observatory site as you said. Rather, we invited him to contribute to our update of a NASA overview article about Global Warming. Gavin was one of about 15 NASA scientists and communications personnel who contributed to our update of that article. We feel that our updated version of that article as well as the linked Question and Answer follow-up we published present a balanced, accurate, and up-to-date overview of global warming. I invite you to review the piece and see if you agree. In the article, we remain focused on the science and how we know what we know about global warming, its causes, and its consequences. You can review it here:
> http://earthobservatory.nasa.gov/Library/GlobalWarmingUpdate/
>
> and the Q&A is
> here: http://earthobservatory.nasa.gov/Study/GlobalWarmingQandA/
>
> Please note: there is no NASA policy that prohibits our linking to the RealClimate site. We did so because clearly that site is relevant to our article about Global Warming, and because we find the site to be accurate and its authors to be knowledgeable and credible experts in the field, and because we feel the site represents a "best practice" in science communication with the public. That link was provided for folks who may want to read further about the subject beyond what we included in our own articles. Publication of clear, concise information firsthand from real climate scientists, with an opportunity to discuss and ask questions, seems to me to be an outstanding way to help people better understand climate science and to help them become conversant in the subject.
>
> Regarding your questions about the legal implications of Gavin's contributions to RealClimate, please note that it is commonly known that Gavin donates his own time to posting information and answering questions on the RealClimate.org site. He is free to do so and there is nothing illegal, unethical, or unusual about it. Like all Americans, Gavin enjoys and exercises his freedom of speech. I'm sure we both agree that freedom of speech is a good thing.
>
> I hope I've satisfactorily addressed your concerns.
>
> Best regards,
>
> David Herring
> NASA Earth Observatory Project Manager

Third of three messages about real climate.

-----Original Message-----
From: noreply@ltpmail.gsfc.nasa.gov
[mailto:noreply@ltpmail.gsfc.nasa.gov]
Sent: Monday, December 31, 2007 1:54 PM
To: eoeditor@yahoo.com
Subject: EO Comment: Climate change

From:
@dvn.com

Topic: ContentFeedback
Subject: Climate change

Comment/Question:
Why is a Nasa employee (Gavin Schmidt, NASA Goddard Institute for Space
Studies)using the Nasa climate change website to reference his own real
climate website and blogging on his website during normal working hours? As
a tax payer, I find this highly irregular and bothersome and possibly
illegal. It also raises more important issues, such as the objective nature
of the science being done at NASA.

--
NASA Earth Observatory
*This is an automatically generated email.

--
David Herring
Project Manager for Education & Outreach
Earth Sciences Division, Code 610.3
NASA's Goddard Space Flight Center
Greenbelt, MD 20771
ph: 301-614-6219
fax: 301-614-6307
cell: 301-335-1448

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 11:35:18 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

you were just humouring me? how often does that happen?

On Wed, 2008-01-09 at 11:28, Ron Miller wrote:

> I have to confess that I misinterpreted all your 'saving the planet' joke's these past few days, until last night, when I read Andy Revkin's dot earth blog, and realized that I had overlooked your election to the Guardian's '50 People Who Could Save the Planet'. (That's what I get for visiting realclimate every day and not dot earth).
>
> So congratulations! Now get that cape back from the dry cleaner and get to work.
>
> Ron.

Subject: Re: Guardian
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 09 Jan 2008 12:30:57 -0500
To: Ron Miller <rmiller@giss.nasa.gov>

bast*d!

On Wed, 2008-01-09 at 12:19, Ron Miller wrote:
> I just assumed it was your usual grandiosity.
>
> PS, Paradoxically, I got some limited satisfaction from seeing Lomborg cited, if only because I could imagine Roger Pielke Jr. seething for having his pseudo-centrist mantle usurped.
>
> On 09 Jan 2008 11:35:18 -0500, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
> > you were just humouring me? how often does that happen?
> >
> > On Wed, 2008-01-09 at 11:28, Ron Miller wrote:
> > > I have to confess that I misinterpreted all your 'saving the planet' joke's these past few days, until last night, when I read Andy Revkin's dot earth blog, and realized that I had overlooked your election to the Guardian's '50 People Who Could Save the Planet'. (That's what I get for visiting realclimate every day and not dot earth).
> > >
> > > So congratulations! Now get that cape back from the dry cleaner and get to work.
> > >
> > > Ron.

Subject: Re: civil service ratings
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 10 May 2008 15:16:15 -0400
To: Jim Hansen <jhansen@giss.nasa.gov>

1. Research contributions, as evidenced by publications, etc. (2007+2008):

Comment on 'Heat Capacity, Time Constant, and Sensitivity of Earth's Climate System,' by S.E. Schwartz, Foster, G., J.D. Annan, G.A. Schmidt and M.E. Mann, J. Geophys. Res. (in press).

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., Mki. Sato, R. Ruedy, P. Kharecha, A. Lacis, R.L. Miller, L. Nazarenko, K. Lo, G.A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N.Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Little, C.M., M. Oppenheimer, R.B. Alley, V. Balaji, G.K.C. Clarke, T.L. Delworth, R. Hallberg, D.M. Holland, C.L. Hulbe, S. Jacobs, J.V. Johnson, H. Levy, W.H. Lipscomb, S.J. Marshall, B.R. Parizek, A.J. Payne, G.A. Schmidt, R.J. Stouffer, D.G. Vaughan, and M. Winton, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2. "Company (NASA, GISS) business" as evidenced by proposals, funding received, contributions to project team, etc.

Proposals:

Co-I on "NASA GISS Global Climate Model Development Proposal" with Jim Hansen (GISS) NASA MAP, FY2004--2009

PI on "Effects of Light Absorption by Ocean Phytoplankton on Ocean Circulation and Climate Predictions" $120,000 per/year, NASA MAP FY2006-2008

PI on "Water Isotope model-data comparison for Holocene climate variability". NSF $383.616, FY2006-2008

PI on "Satellite and model constraints on water cycling responses to ENSO and tropical storms using water isotopes" Requested $200,000 per year (pending). NASA NEWS.

Meetings and workshops:

SORCE annual meeting, Santa Fe, Feb 2008
State Department Climate Risks Workshop, Jun 2007
MAP Science Team Meeting, Adelphi Maryland, Mar 2007.

3. Outreach, evidenced, e.g., by education outreach, popular science, public speaking, IPCC contributions, etc.

Tutorials/Reviews/Commentary:

Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170.
Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.
Schmidt, G., 2007: Clouding the issue of climate. Phys. World, 20, no. 6 (June 2007), 44-45.
Contributions to RealClimate.org, The Bulletin of Atomic Scientists

Book:

Climate Change: A look behind the science, Eds. Gavin Schmidt and Joshua Wolfe, W. W. Norton, New York (to appear Mar 2009).

Public Speaking:

Columbia Journalism School, Panel on communicating climate change, May 2008
Rosenstiel School of Marine and Atmospheric Science, Miami, Panel on communicating uncertainties in climate science, May 2008
Swiss Global Climate Change Day, Bern, Apr. 2008
Bristol University, Mar 2008
The Royal Society, Leverhulme Climate Symposium, London, Mar 2008
2008 Pittcon, New Orleans, Mar 2008
Auburn University, Feb. 2008
Hofstra University, Jan 2008
New York Academy of Science,
American Museum of Natural History, Oct 2007
Rockefeller University, Panel on science communication, Nov 2007
New Jersey Institute of Technology, Climate Change Panel, Jul 2007
Intelligence Squared Debate, New York, Mar 2007.
Columbia Journalism School, Covering Globalization Conference, Mar 2007
Video Conference on Global Warming and Climate Change, US-UK High Schools, Feb 2007

Media:

Interviews for New York Times, Washington Post, The Guardian, Scientific American, New Scientist, BBC, Liberation, Newsweek, Nature, Science, NPR, WTIC, Air America, CNN, CBS, Bloomberg Television, Daily Show, Plenty Magazine, Globo Televison, NHK Japan, Chemistry and Engineering News, Geotimes, Readers Digest, among others.

Misc:

Advisory Board member for Popular Mechanics

IPCC Contributing author (Chapter 10, WGI), expert reviewer WGI and WGII

Co-chair PAGES/CLIVAR Intersection Panel

Associate Editor Journal of Climate

Subject: rating notes
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 03 Jun 2008 11:58:10 -0400
To: Emily Michaud <emichaud@giss.nasa.gov>
CC: Jim Hansen <jhansen@giss.nasa.gov>

Emily, for some reason, the plan document kept crashing on me, so here are the main points for each of the four elements:

gavin

=======

1) Work results are measured through quality peer-reviewed publications and submitted or funded proposals.
Writes or contributes significantly as author or coauthor on the average of at least one paper per year that will be submitted to a refereed science or high quality technical journal. The paper(s) will be based on funded research relevant to NASA strategic goals. Present the results of this research at a national or international meeting.

In 2007 and 2008, Gavin Schmidt authored or co-authored 12 peer reviewed papers in the technical literature (including 3 "in press") (listed below). He has presented his research at the following meetings over the last year: Abrupt Climate Change workshop (Obergurgl, Austria, May 2007), the International Conference on Paleoceanography (Shanghai, China, 2007), SORCE Investigators Meeting (Santa Fe, Feb, 2008), Leverhulme Climate Symposium (Cambridge, UK, Mar 2008), Swiss Global Climate Day (Bern, Apr 2008).

LeGrande, A.N., and G.A. Schmidt, 2008: Ensemble, water-isotope enabled, coupled general circulation modeling insights into the 8.2-kyr event. Paleoceanography, in press, doi:10.1029/2008PA001610.

Sud, Y.C., G.K. Walker, Y.P. Zhou, G.A. Schmidt, K.M. Lau, and R.F. Cahalan, 2008: Effects of doubled CO2 on tropical sea-surface temperatures (SSTs) for onset of deep convection and maximum SST - Simulations based inferences. Geophys. Res. Lett., in press, doi:10.1029/2008GL033872.

Masson-Delmotte, V. et al, A Review of Antarctic Surface Snow Isotopic Composition: Observations, Atmospheric Circulation and Isotopic Modelling, 2008, J. Climate, (in press)

Hansen, J., et al, 2007: Dangerous human-made interference with climate: A GISS modelE study. Atmos. Chem. Phys., 7, 2287-2312.

Hansen, J., et al, 2007: Climate simulations for 1880-2003 with GISS modelE. Clim. Dynam., 29, 661-696, doi:10.1007/s00382-007-0255-8.

Harder, S.L., D.T. Shindell, G.A. Schmidt, and E.J. Brook, 2007: A GCM study of CH4 emissions during the Holocene and glacial-interglacial transitions constrained by ice core data. Global Biogeochem. Cycles, 21, GB1011, doi:10.1029/2005GB002680.

Oppo, D.W., G.A. Schmidt, and A.N. LeGrande, 2007: Seawater isotope constraints on tropical hydrology during the Holocene. Geophys. Res. Lett., 34, L13701, doi:10.1029/2007GL030017.

Romanou, A., B. Liepert, G.A. Schmidt, W.B. Rossow, R.A. Ruedy, and

Y.-C. Zhang, 2007: 20th Century changes in surface solar irradiance in simulations and observations. Geophys. Res. Lett., 34, L05713, doi:10.1029/2006GL028356.

Schmidt, G.A., A.N. LeGrande, and G. Hoffmann, 2007: Water isotope expressions of intrinsic and forced variability in a coupled ocean-atmosphere model. J. Geophys. Res., 112, D10103, doi:10.1029/2006JD007781.

Schmidt, G.A., A. Romanou, and B. Liepert, 2007: Further comment on "A perspective on global warming, dimming, and brightening". Eos Trans. Amer. Geophys. U., 88, no. 45, 473.

Shindell, D.T., G. Faluvegi, S.E. Bauer, D. Koch, N. Unger, S. Menon, R.L. Miller, G.A. Schmidt, and D.G. Streets, 2007: Climate response to projected changes in short-lived species under the A1B scenario from 2000-2050 in the GISS climate model. J. Geophys. Res., 112, D20103, doi:10.1029/2007JD008753.

Tremblay, L.B., M.M. Holland, I.V. Gorodetskaya, and G.A. Schmidt, 2007: An ice-free Arctic? Opportunities for computational science. Comput. Sci. Eng., 9, no. 3, 65-74.

2) COLLABORATION AND TEAMWORK

Gavin Schmidt has co-authored with over 70 people in the journal articles listed above, from within NASA, across the US and internationally. He recently submitted a proposal for NASA NEWS in collaboration with investigators from JPL and the U. Colorado, and to NASA MAP with colleagues from GSFC and Columbia U. He is instrumental in coordinating overall model development strategy and the work being done at GISS on carbon cycling and interactive tracers (aerosols, chemistry, dust). He coordinates the input of the GSFC SIVO into GISS model development. He is the co-chair of the PAGES/CLIVAR Intersection Panel which tries to coordinate reasarch internationally that is of value for understanding both past and present climate variability. He successfully mentored Allegra LeGrande through her PhD and now works with here as a post-doc at GISS. He currently advises one Columbia graduate student.

He is active in looking at ways to expand collaboration and progress in the field of ice sheet modelling (see Little, C.M., et al, 2007: Toward a new generation of ice sheet models. Eos Trans. Amer. Geophys. U., 88, no. 52, 578-579, doi:10.1029/2007EO520002) and is actively collaborating with Bill Lipscomb at LLNL and Olga Sergienko, Portland State University).

3) COMMUNICATIONS

(This is a tough one since I'm not sure how you can show proof of any of this).

The quality of Gavin Schmidt's oral presentations are demonstrated by the frequent repeat invitations for talks and radio/television interviews and the positive feedback received from audiences. He has been frequently asked to write for popular audiences (Physics Today, Physics World, Nature Geoscience, blogs, the GISS Website). No article of his has been found to not meet NASA's prescribed standards.

4) Community and Academic Outreach

Contribute to community and student outreach. Whenever possible provide lay-person version of research on GISS web site

Gavin Schmidt is active in outreach to the wider academic community and to the public. He has given introductory talks on climate change science at the New York Academy of Science summer program (2007), American Museum of Natural History, Auburn Universtiy (Auburn AL, Feb 2008), the Brattleboro Art Museum (Vermont, Feb 2008), PITTCON 08 (New Orleans, Mar 2008), Bristol University (Mar, 2008).

He contributes to the RealClimate.org blog and has written a tutorial on climate modelling for Physics Today (Schmidt, G.A., 2007: The physics of climate modeling. Phys. Today, 60, no. 1, 72-73.), and recently wrote a commentary for Nature Geoscience on outreach in the digital age (Schmidt, G., 2008: Commentary: To blog or not to blog? Nature Geosci., 1, 208, doi:10.1038/ngeo170).

He has edited a book on the science and photography of climate change for a lay audience (Schmidt, G and J. Wolfe, "Climate Change: A Look behind the science, W.W. Norton to be published spring 2009). He has contributed a chapter to the book New Questions in Science (edited by Max Brockman, Vintage Press, to be published spring 2009).

In the last 12 months, he has appeared on "This Week in Science" (NPR), "The Daily Show with Jon Stewart", "Pale Blue Dot" (radio show), "Greener Living" (radio show), Diane Rehm (NPR) as well as print newspapers such as the Washington Post, New York Times, and magazines such as New Scientist and Popular Mechanics in order to explain his research and provide context for other climate change stories in the media.

Subject: Re: RealClimate blocked by US military?
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 31 Jul 2008 11:35:33 -0400
To: Andy Ackerman <andrew.ackerman@nasa.gov>

I know - I passed it on to them. I did think it weird.

Gavin

On Thu, 2008-07-31 at 11:21, Andy Ackerman wrote:

> Hi Gavin,
>
> An item on DailyKos today pointed to a blog indicating that the US military is now blocking RealClimate.org:
>
> http://andysocial.livejournal.com/482164.html
>
> Clearly your agenda is unpatriotic!
>
> -Andy

Subject: Re: update on Crichton comments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 11 Aug 2008 17:00:13 -0400
To: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>

On Fri, 2008-08-08 at 08:41, Nancy Y. Kiang wrote:
> Hi, Gavin -
>
> I was looking at your RealClimate thing on Michael Crichton's novel
> and couldn't figure out how to post a comment,

Hi Nancy, Good to know someone reads this stuff. Note that commenting goes off after a month to stop spam.

> so I thought I'd send
> you these additional notes about forest vs. crop cover impacts on
> climate. Switching from forest to crops:
> - changes albedo from darker to lighter, which is a negative feedback
> to warming

This is not a feedback (i.e. it isn't a response to climate change) - it is a different forcing (which, as you correctly state is towards cooling).

> - reduces standing biomass stock dramatically, releasing all that
> carbon to the atmosphere, which is a positive feedback to warming

yes. But this isn't an additional forcing (since deforestation is already included as an addition to anthropogenic carbon flux).

> - reduces soil carbon stock, since crop plowing and loss of
> litterfall inputs to the soil will cause loss of soil carbon

sure.

> - reduces root access to deeper soil moisture, which, in absence of
> irrigation, reduces transpiration to the atmosphere and often cloud
> cover, which is a positive feedback to warming.

Hmmm.... how well do we know that? What happens if you just change rooting depth but not albedo (or vice versa) - I think it would be hard to ambiguously determine this, and it may well be model dependent. What is the impact on water vapour for instance?

> In light of the controversy over biofuels and the cutting down of
> forests for biofuel crops, you might want to update your blog, since
> the switch from forest to crop cover probably is a worse positive
> feedback to warming than the negative feedback from higher albedo.

that's certainly something worth talking about - what is the net effect of chopping down forests? (you could add chemical emissions such as VOCs impact on methane/ozone as well). Caldiera wrote a paper on this a couple of years ago, and I think he concluded that it depended on where you were - tropical forests have a different impact than boreal ones).

But why don't you write something up? You can do your bit for outreach....

Gavin

Nancy

Subject: Re: Fwd: Re: update on Crichton comments
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 12 Aug 2008 16:37:19 -0400
To: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>

great!

On Tue, 2008-08-12 at 15:41, Nancy Y. Kiang wrote:

> Date: Tue, 12 Aug 2008 08:39:56 -0400
> To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> From: "Nancy Y. Kiang" <nkiang@giss.nasa.gov>
> Subject: Re: update on Crichton comments
> Cc:
> Bcc:
> X-Attachments:
>
> On Fri, 2008-08-08 at 08:41, Nancy Y. Kiang wrote:
>
> Hi, Gavin -
>
> I was looking at your RealClimate thing on Michael Crichton's novel
> and couldn't figure out how to post a comment,
>
> Hi Nancy, Good to know someone reads this stuff. Note that commenting
> goes off after a month to stop spam.
>
> so I thought I'd send
> you these additional notes about forest vs. crop cover impacts on
> climate. Switching from forest to crops:
> - changes albedo from darker to lighter, which is a negative feedback
> to warming
>
> This is not a feedback (i.e. it isn't a response to climate change) - it
> is a different forcing (which, as you correctly state is towards cooling).
>
> Ah, right, it's a forcing.
>
> - reduces standing biomass stock dramatically, releasing all that
> carbon to the atmosphere, which is a positive feedback to warming
>
> yes. But this isn't an additional forcing (since deforestation is
> already included as an addition to anthropogenic carbon flux).
>
> Not sure what you mean. The write-up didn't mention the release of carbon from switching from forest to grassland, or I missed it somewhere.
>
> - reduces soil carbon stock, since crop plowing and loss of
> litterfall inputs to the soil will cause loss of soil carbon
>
> sure.
>
> - reduces root access to deeper soil moisture, which, in absence of

> irrigation, reduces transpiration to the atmosphere and often cloud
> cover, which is a positive feedback to warming.

Hmmm.... how well do we know that? What happens if you just change rooting depth but not albedo (or vice versa) - I think it would be hard
to ambiguously determine this, and it may well be model dependent. What
is the impact on water vapour for instance?

There are several instances where cutting down trees led to boggy wet soil (logged temperate forest), or planting certain trees drastically lowered the water table (eucalyptus in Hawaii, in contrast to native sandalwood). The cloud cover difference can be seen at the Australian bunny fence, where it's clear and dry over the grazed area and cloudy over the ungrazed shrubby side. Of course, the effect is dependent on scale, and, except for the Hawaii example, these examples had changes in albedo, too. I suppose increasing water vapor from more transpiration could increase warming if it doesn't lead to more clouds.

> In light of the controversy over biofuels and the cutting down of
> forests for biofuel crops, you might want to update your blog, since
> the switch from forest to crop cover probably is a worse positive
> feedback to warming than the negative feedback from higher albedo.
>
> that's certainly something worth talking about - what is the net effect
> of chopping down forests? (you could add chemical emissions such as VOCs
> impact on methane/ozone as well). Caldiera wrote a paper on this a
> couple of years ago, and I think he concluded that it depended on where
> you were - tropical forests have a different impact than boreal ones).

Yes, with the biofuels, the problem is that the chopping down is happening in the tropics.

> But why don't you write something up? You can do your bit for
> outreach....

Okay, I'll try to get around to writing something...

Nancy

> Gavin
>
> Nancy
> --

--

Subject: Re: Fwd: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 22 Jan 2009 12:25:18 -0500
To: Michael Mann <mann@meteo.psu.edu>
CC: Drew Shindell <dshindell@giss.nasa.gov>, Eric Steig <steig@ess.washington.edu>

indeed. They are really pulling out the stops. I think this just points to how much they really liked the 'antarctica is cooling' meme and how upset they are it's being taken away. Maybe we should do a follow-up piece on the contrarian meltdown? (throwing in a Pielke or two just for fun).

I love the Christy headline "Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature" " - what would he have us use instead? The worst estimate?

Oh and by the way, even if it is warming it's all caused by a volcano. This is verging on self-parody.

Gavin

On Thu, 2009-01-22 at 12:17, Michael Mann wrote:

> in case you guys didn't see, we've made the radar screen of the chief disinformer himself,
>
> m
>
> Begin forwarded message:
>
> From: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> Date: January 22, 2009 10:55:35 AM EST
> To: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> Subject: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
>
> Excerpt: The media, led by Newsweek's woeful Sharon Begley, were downright gleeful about the new Antarctic study. [..] The supposed cooling has delighted climate contrarians, such as the prolific Senate staffer (to 'global warming is the biggest hoax' Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media hype, the vast majority ofAntarctica has cooled over the past 50 years.'" [...] Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's Trenberth critique and debunk this study. One new study that 'makes data where none exist' and is contradicted by multiple previous studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review the latest science developments.
> #
>
> Web Posted on Senate EPW
> website: http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=fc7db6ad-802a-23ad-43d1-2651eb2297d6

Scientists, Data Challenge New Antarctic 'Warming' Study
January 21, 2009

Posted By Marc Morano - 11:01 PM ET - Marc_Morano@EPW.Senate.Gov
Scientists, Data Challenge New Antarctic 'Warming' Study
'It is hard to make data where none exist'
Comprehensive Data Round Up Debunks New Antarctic 'Estimate of Temperature Trends'
Washington, DC: A new study on Antarctic temperatures - which is contrary to the findings of multiple previous studies - claims "that since 1957, the annual temperature for the entire continent of Antarctica has warmed by about 1 degree Fahrenheit, but still is 50 degrees below zero."
Despite the fact that the study was immediately viewed with major skepticism by scientists who are not skeptical of anthropogenic global warming claims, many in the media pounced on the study as a chance to attacks those skeptical of man-made climate doom. According to the release of the study, "The researchers devised a statistical technique that uses data from satellites and from Antarctic weather stations to make a new estimate of temperature trends. [...] The scientists found temperature measurements from weather stations corresponded closely with satellite data for overlapping time periods. That allowed them to use the satellite data as a guide to deduce temperatures in areas of the continent without weather stations." (emphasis added)
Few media outlets noted that in 2007 Antarctic "sea ice coverage has grown to record levels since satellite monitoring began in the 1979, according to peer-reviewed studies and scientists who study the area." [See also other factors impacting Antarctica: "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier & The Antarctic deep sea gets COLDER - April 21, 2008 & A January 12, 2008, peer-reviewed paper in AGU (American Geophysical Union) found "A doubling in snow accumulation in the western Antarctic Peninsula since 1850."Map of Volcanoes - See comprehensive data round up below]
The new Antarctic study was published in Thursday's issue of the journal Nature and the lead author of the study was Eric Steig, a University of Washington professor of Earth and Space Sciences. Other co-authors include: David Schneider of the National Center for Atmospheric Research in Boulder, Colorado, a former student of Steig's; Scott Rutherford
of Roger Williams University in Bristol, RI; and Michael Mann
of Pennsylvania State University.

UN IPCC lead author, Dr. Kevin Trenberth, who is not in any way a climate change skeptic, said of the study, "I remain somewhat skeptical... It is hard to make data where none exist." Echoing Trenberth's analysis were several other scientists.

Climatologist Dr. John Christy of
the University of Alabama in Huntsville questioned the study. "One must be very cautious with such results because they have no real way to be validated," Christy told the AP. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time," Christy added.

Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Bouldersaid the authors of the Antarctic study "overstated" their results. "In terms of the significance of their paper, it overstates what they have obtained from their analysis," Pielke told the AP. "In the abstract they write, for example, 'West Antarctic warming exceeds 0.1C per decade

over the past 50 years.' However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why," Pielke wrote. Pielke also questioned how the authors "reconcile the conclusions in their paper with the cooler than average long term sea surface temperature anomalies off of the coast of Antarctica." Pielke added, "These cool anomalies have been there for at least several years. This cool region is also undoubtedly related to the above average Antarctic sea ice areal coverage that has been monitored over recent years."

A critical analysis of the paper from December 21, 2008, accused the authors of the Antarctic study of making questionable data "adjustments." (See: Scientist adjusts data -- presto, Antarctic cooling disappears - December 21, 2008) The analysis concluded, "Looks like [study author] Steig 'got rid of' Antarctic cooling the same way [Michael] Mann got rid of medieval warming. Why not just look at the station data instead of 'adjusting' it (graph above)? It shows a 50-year cooling trend," the analysis concluded.

Alarmists Play Both Sides

The BBC's Richard Black filed a report on the new study that included this claim: "'It's hard to think of any situation where increased greenhouse gases would not lead to warming in Antarctica,' said Drew Shindell from Nasa's Goddard Institute for Space Studies (GISS) in New York."
Sadly, Black of the BBC does not report that the promoters of man-made global warming fears had already concocted explanations for the failure of Antarctica to warm as models predicted. [See: Antarctic temperatures disagree with climate model predictions - February 15, 2007]

The warming partisans at RealClimate.org have claimed that a cooling Antarctica is just what the models predict! "A cold Antarctica is just what calculations predict," stated a February 12, 2008, post on Real Climate titled "Antarctica is Cold? Yeah, We Knew That." The website claimed "Despite the recent announcement that the discharge from some Antarctic glaciers is accelerating, we often hear people remarking that parts of Antarctica are getting colder, and indeed the ice pack in the Southern Ocean around Antarctica has actually been getting bigger. Doesn't this contradict the calculations that greenhouse gases are warming the globe? Not at all, because a cold Antarctica is just what calculations predict… and have predicted for the past quarter century."

So which is it? Models predict Antarctic cooling or do they predict warming? If Antarctica is now allegedly warming, why didn't the models predict that? The spin by Michael Mann of RealClimate.org and the media on this study is stunning.

'Tortured logic'

Real Climate's logic was mocked by Professor Roger Pielke, Jr., professor in the environmental studies program at theUniversity of Colorado. "So a warming Antarctica and a cooling Antarctica are both 'consistent with' model projections of global warming. Our foray into the tortured logic of 'consistent with' in climate science raises the perennial question, what observations of the climate system would be inconsistent with the model predictions?," Pielke Jr. wrote on January 21.

Begley of Newsweek Gleeful
The media, led by Newsweek's woeful Sharon Begley, were downright gleeful about the new Antarctic study. Begley declared, "And now the last holdout has succumbed" to global warming. Begley -- who has been the subject of severalblunt but accurate Inhofe EPW Blog critiques -- took a shot at the U.S. Senator and his aide. Begley wrote, "The supposed cooling has delighted climate contrarians, such as the prolific Senate staffer (to 'global warming is the biggest hoax' Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media hype, the vast majority of Antarctica has cooled over the past 50 years.'"
Begley concluded, "I look forward to the climate contrarians' arguments that this observed warming is a natural occurrence and has nothing to do with manmade greenhouse gases." [Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's Trenberth critique and debunk this study. One new study that 'makes data where none exist' and is contradicted by multiple previous studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review the latest science developments. How come you are not reporting on the slowdown in sea level rise? Or how about reporting on this: New Peer-Review study challenges 'notion that human emissions are responsible for global warming' or any of the following: The global tropical cyclone season of 2008 'close to lowest levels observed' in decades Global temperatures failing to warm; Peer-reviewed studies predicting a continued lack of warming; a failed attempt to revive the discredited 'Hockey Stick';inconvenient developments and studies regarding rising CO2; the Spotless Sun; Clouds; Antarctica; the Arctic;Greenland's ice; Mount Kilimanjaro; Global sea ice; Causes of Hurricanes; Extreme Storms; Extinctions; Floods;Droughts; Ocean Acidification; Polar Bears; Extreme weather deaths; Frogs; lack of atmospheric dust; Malaria;the failure of oceans to warm and rise as predicted." Sadly, Begley's attitude and reporting appears to be indicative of most of the mainstream media's shoddy climate reporting. Also See: Defense of Lou Dobbs & Climate Challenge to Andrew Revkin of NYT & U. S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims]

Alex Morales of Bloomberg News cited the late author Michael Crichton's novel, State of Fear. "The findings may help puncture arguments by global-warming skeptics such as the late author Michael Crichton who have pointed to cooling in parts of Antarctica as an indicator that climate change is exaggerated." [Note: Kudos to AP's Seth Borenstein for writing the most balanced of all the media's articles about this new Antarctic study.]

Summary of Reactions to New Study and Peer-Reviewed Studies and Analyses Countering Study
Michael "Hockey Stick" Mann Touts Study as a Way to Refute Skeptics
Excerpt: "Contrarians have sometime grabbed on to this idea that the entire continent of Antarctica is cooling, so how could we be talking about global warming," said study co-author Michael Mann, director of
the Earth System ScienceCenter at Penn State University and Real Climate contributor. "Now we can say: no, it's not true ... It is not bucking the trend." [Note: For a reality check on Michael Mann's failed attempt to resurrect the "Hockey Stick," see this report.]
Meteorologist Anthony Watts who runs WattsUpWithThat.com also questioned Mann's involvement in the study. "Anytime Michael Mann gets involved in a paper and something is "deduced" it makes me wary of the veracity of the methodology. Why? Mann can't even correct simple faults like latitude-longitude errors in data used in

previous papers he's written," Watts wrote on January 21.

Study claims large parts of Antarctica has been cooling from 1970s to 1990s
Excerpt: However, autumn temperatures in east Antarctica are cooling over the long term. And east Antarctica from the late 1970s through the 1990s, cooled slightly, Steig said.

Even Pro-AGW scientists wary of this new study! Kevin Trenberth says 'I remain somewhat skeptical… It is hard to make data where none exist.'
Excerpt: The researchers used satellite data and mathematical formulas to fill in missing information. That made outside scientists queasy about making large conclusions with such sparse information. "This looks like a pretty good analysis, but I have to say I remain somewhat skeptical," Kevin Trenberth, climate analysis chief at the National Center for Atmospheric Research, said in an e-mail. "It is hard to make data where none exist." Shindell said it was more comprehensive than past studies and jibed with computer models.

Alabama State Climatologist Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature"
Excerpt: Technique questioned: Researchers in this study developed a new technique that combined data from satellites and automated weather stations in Antarctica to make what they say is the best estimate of the continent's temperature so far. However, there are very few weather stations on Antarctica, and the satellite data have been available for only the past 25 years. This troubles some scientists. "One must be very cautious with such results because they have no real way to be validated," says atmospheric scientist John Christy of the University of Alabama-Huntsville, who was not part of the study. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time." Researchers had thought Antarctica was getting cooler in part because of the ozone hole over the South Pole. This break in the protective ozone layer brings cooling weather patterns across parts of Antarctica. Steig agrees that the ozone hole has contributed to cooling in East Antarctica. "However, it seems to have been assumed that the ozone hole was affecting the entire continent, when there wasn't any evidence to support that idea, or even any theory to support it," he adds.

Pielke Sr. Challenges New Antarctic Study - January 21, 2009
By Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Boulder
Excerpt: 3. How do the authors reconcile the conclusions in their paper with the cooler than average long term sea surface temperature anomalies off of the coast of Antarctica? [see: http://www.osdpd.noaa.gov/PSB/EPS/SST/data/anomnight.1.15.2009.gif]. These cool anomalies have been there for at least several years. This cool region is also undoubtedly related to the above average Antarctic sea ice areal coverage that has been monitored over recent years;
seehttp://arctic.atmos.uiuc.edu/cryosphere/IMAGES/current.anom.south.jpg]. 4. In Figure 2 of their paper, much of their analyzed warming took place prior to 1980. For East Antarctica, the trend is essentially flat since 1980. The use of a linear fit for the entire period of the record produces a larger trend than has been seen in more recent years. In terms of the significance of their paper, it overstates what they have obtained from their analysis. In the abstract they write, for example, "West Antarctic warming exceeds 0.1C per

decade over the past 50 years". However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why.

Scientist adjusts data -- presto, Antarctic cooling disappears - December 21, 2008
Abstract excerpt: "We use statistical climate field reconstruction techniques to determine monthly temperature anomalies for the near-surface of the Antarctic ice sheet since 1957. Two independent data sets are used to provide estimates of the spatial covariance patterns of temperature: automatic weather stations and thermal infrared satellite observations. Quality-controlled data from occupied instrumental weather stations are used to determine the amplitude of changes in those covariance patterns through time. We use a modified principal component analysis technique (Steig et al., in review, Nature) to optimize the combination of spatial and temporal information. Verification statistics obtained from subsets of the data demonstrate the resulting reconstructions represent improvements relative to climatological mean values."
Mann's not the only one inventing his own "modified" PCA. Looks like Steig "got rid of" antarctic cooling the same way Mann got rid of medieval warming. Why not just look at the station data instead of "adjusting" it (graph above)? It shows a 50-year cooling trend.

Antarctic Facts Debunk Alarmists - Comprehensive Report on Antarctic Data & Studies - As of October 31, 2008
March 27, 2008 Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth

Alarmists Try Again: Claim CO2 Causes 2% of Antarctic to Melt & Ozone Depletion Causes 98% to COOL! - October 30, 2008
Claim: CO2 causing Antarctic peninsula to warm; ozone depletion caused the rest to cool - Data pins polar warming blame on humans - CNN.com
Excerpt: The report may go some way towards silencing climate skeptics who point to evidence that most of Antarcticahas been cooling for some time. "There is strong warming in the Antarctic Peninsula," Karpechko said. "But for several decades there has been a slight cooling of the rest of the continent. This slight cooling is due to circulation changes which are partly caused by ozone depletion. "This is why there has been a bit of confusion as to what is happening in Antarctica. But we expect a recovery of the ozone layer in the future. We may also expect that the Antarctic warming trends will emerge more clearly." Commenting on the study conducted by the UEA, Professor David Vaughan, a Glaciologist at the British Antarctic Survey told CNN, "This is exactly the sort of study we need. The poles are extremely important in the climate change debate and the rapid warming in the Arctic is one of the icons." Professor Vaughan, who is studying the patches of warming happening in Antarctica, concedes that the cooling that's occurred in the past 30 to 50 years is "a little perplexing." But he agrees with Dr. Karpechko over the effects of the ozone hole.

Reality Check: Climatologist John Christy Debunks Latest Claims on Antarctica - October 30, 2008 (Kudos to Canadian Press for striving for balance in a global warming article!)
Excerpt: The Canadian Press: John Christy, an atmospheric scientist at the University of Alabama, has done studies on climate models and says they are extremely limited tools in trying to mimic what happens in nature. He said they are unable to reproduce all of the naturally occurring influences and, as a result, give a false picture of what might be causing changes in the environment. Clouds,

for example, can dampen warming in the real world, but he said models have been shown to amplify warming. "They overstate the confidence of what they have in that result because we have too many examples of models that fail," Christy said from Huntsville. "We have shown that climate models just don't have the variability that nature provides to us." Christy too disputed whether the bulk of continental Antarctica is warming, saying that it is, in fact, cooling. The report looks largely at the Antarctic peninsula - which makes up two per cent of the continent - and the eastern and western coastal regions, where they have found warming. The report focuses on temperature changes going back to 1900 and up to the present, but doesn't include earlier periods when areas in the Arctic were actually warmer than they are today and were not affected by man-made greenhouse gases, said Christy. "Just 1,000 years ago the Arctic was much warmer than it is today so it's interesting that they would use the term conclusively," he said. "Natural variability can account for warming since the Arctic has been warmer before."

Inconvenient Peer-Reviewed Study: East and West Antarctic ice sheets have 'different climate histories' - 'a phenomenon that persists in modern times' - May 30, 2008
Excerpt: There is an interesting News Focus story in this week's Science journal, that helps to confirm the different climate histories for the East and West Antarctic ice sheets - a phenomenon that persists in modern times: ANTARCTICA: Freeze-Dried Findings Support a Tale of Two Ancient Climates - A surprising cache of ancient plant material adds evidence for divergent climate histories of the East and West Antarctic ice sheets over the past 14 million years. Excerpt: These findings appear to be contradictory at first glance, but in fact they buttress an evolving view among scientists that the two major features of the continent, the western and eastern ice sheets, have experienced vastly different climate histories. Data from the Dry Valleys reveals an East Antarctic Ice Sheet that is high, dry, cold, and stable, at least in its central area. And the ANDRILL cores suggest a more volatile West Antarctic Ice Sheet that is subject to the changing temperatures of the sea in which it wades. "It reaffirms the fragility of the West Antarctic Ice Sheet [WAIS] and the stability of the central part of the East Antarctic Ice Sheet," says Peter Barrett, a sedimentologist at the Victoria University of Wellington (VUW) in New Zealand, who advised the ANDRILL project.
We can't think of any other cause, it must be us - 'Prehistoric civilization' blaming thunderstorms on upset gods - October 31, 2008
Claim: 'We could only explain the warming that's been observed if we included human-climate influences'
Excerpt: 'We can't think of any other cause, it must be us' - This is the depth to which scientific research into climate change has sunk, like a kind of prehistoric civilization that blames thunderstorms, earthquakes and volcanoes on humanity somehow having "upset the gods". A Canadian study has concluded that we must be causing climate change because nothing else can explain it. Under the triumphant headline "Study confirms human impact on climate change", The Age reports all this without any discrimination: "We found that we could only explain the warming that's been observed if we included human-climate influences, particularly greenhouse gases," the study's author, Nathan Gillett, told ABC Radio. "And we couldn't explain those changes [if there] were just natural influences on climate like volcanoes and changes in the brightness of the sun."

Excerpt: Arctic Reality Check: Why isn't the cooling Antarctic considered 'an indicator of what might happen to the rest of the world?' - By Climate Scientist Dr. Ben Herman.

Dr. Herman Excerpt: First of all, the Arctic sea ice is at its minimum in September, not October or November as the scientists in the McClatchy article states. As Arctic ice experts, they certainly should have known this. Another point is that the Arctic temperatures do not "naturally peak in October or November". They peak in mid Aug ust generally. Also the article states that since the world's climates are interconnected, what happens in the Arctic may be an indicator of what will happen in the rest of the world. How about what happens in the Antarctic then? Since its ice area has been increasing, is this also an indicator of what might happen in the rest of the world?
[Note: Alarmists up to same tricks alleging present climate only explainable by human activity. Even the partisans at Real Climate now appear to concede CO2 is not all powerful! 1) Oops! Propagandists at RealClimate.org Let Truth Slip Out! - 'The actual temperature rise is an emergent property resulting from interactions among hundreds of factors' - September 20, 2008 -
2) UK Scientist: - 'Climate change is governed by hundreds of factors, or variables' Not Just CO2! By UK Professor Emeritus of Biogeography Philip Stott of
the University of London -http://web.me.com/sinfonia1/Global_Warming_Politics/A_Hot_Topic_Blog/Entries/2008/8/27_Wot%21_No_Sunspots_At_All%21.html]

Flashback: A February 2007 study reveals Antarctica is not following predicted global warming models - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: "A new report on climate over the world's southernmost continent shows that temperatures during the late 20th century did not climb as had been predicted by many global climate models." The research was led by David Bromwich, professor of atmospheric sciences in the Department of Geography, and researcher with the Byrd PolarResearch Center at Ohio State University.

Not Global Warming: Winds are Dominant Cause of Greenland and West Antarctic Ice Sheet Losses - October 3, 2008
Excerpt: Two new studies summarized in a news article in Science magazine point to wind-induced circulation changes in the ocean as the dominant cause of the recent ice losses through the glaciers draining both the Greenland and West Antarctic ice sheets, not 'global warming.' The two studies referred to are: 1) 'Acceleration of Jakobshavn Isbræ triggered by warm subsurface ocean waters' by Holland et al, published in Nature Geoscience. The Abstract states: Observations over the past decades show a rapid acceleration of several outlet glaciers in Greenland andAntarctica. One of the largest changes is a sudden switch of Jakobshavn Isbræ, a large outlet glacier feeding a deep-ocean fjord on Greenland's west coast, from slow thickening to rapid thinning in 1997, associated with a doubling in glacier velocity. Suggested explanations for the speed-up of Jakobshavn Isbræ include increased lubrication of the ice-bedrock interface as more meltwater has drained to the glacier bed during recent warmer summers and weakening and break-up of the floating ice tongue that buttressed the glacier.

2) 'Modelling Circumpolar Deep Water intrusions on the Amundsen Sea continental shelf, Antarctica' by Thoma et al, published in GRL. The Abstract states:
Results are presented from an isopycnic coordinate model of ocean circulation in the Amundsen Sea, focusing on the delivery of Circumpolar Deep Water (CDW) to the inner continental shelf around Pine Island Bay. The warmest waters to reach this region are channeled through a submarine trough, accessed via bathymetric irregularities along the shelf break. Temporal variability in the influx of CDW is related to regional wind forcing. Easterly winds

over the shelf edge change to westerlies when the Amundsen Sea Low migrates west and south in winter/spring. This drives seasonal on-shelf flow, while inter-annual changes in the wind forcing lead to inflow variability on a decadal timescale. A modelled period of warming following low CDW influx in the late 1980's and early 1990's coincides with a period of observed thinning and acceleration of Pine Island Glacier.

The Antarctic deep sea gets COLDER - April 21, 2008
Excerpt: The Antarctic deep sea gets colder, which might stimulate the circulation of the oceanic water masses. This is the first result of the Polarstern expedition of the Alfred Wegener Institute for Polar and Marine Research in the Helmholtz Association that has just ended in Punta Arenas/Chile. At the same time satellite images from the Antarctic summer have shown the largest sea-ice extent on record. In the coming years autonomous measuring buoys will be used to find out whether the cold Antarctic summer induces a new trend or was only a "slip". The Polarstern expedition ANT-XXIV/3 was dedicated to examining the oceanic circulation and the oceanic cycles of materials that depend on it. Core themes were the projects CASO (Climate of Antarctica and the Southern Ocean) and GEOTRACES, two of the main projects in the Antarctic in the International Polar Year 2007/08. Under the direction of Dr Eberhard Fahrbach, Oceanographer at the Alfred Wegener Institute, 58 scientists from ten countries were on board the research vessel Polarstern in the Southern Ocean from 6 February until 16 April, 2008.

East Antarctica's Role in Global Sea Level Change 'will not result in any increase in sea level' - April 23, 2008
Excerpt: East Antarctica's Role in Global Sea Level Change -
Reference: Mackintosh, A., White, D., Fink, D., Gore, D.B., Pickard, J. and Fanning, P.C. 2007. Exposure ages from mountain dipsticks in Mac. Robertson Land, East Antarctica, indicate little change in ice-sheet thickness since the Last Glacial Maximum. Geology 35: 551-554. What was done - The authors derived altitudinal transects of 10Be and 26Al exposure ages across the Framnes Mountains in Mac. Robertson Land that allowed them to calculate the magnitude and timing of East Antarctic Ice Sheet (EAIS) retreat following the Last Glacial Maximum.

Antarctic Glaciers Going To Sea At Faster Rate - Volcano -- NOT Global Warming to blame! - February 24, 2008
Excerpt: David Vaughan of the British Antarctic Survey said the team found new evidence from group of glaciers in West Antarctica which cover an area the size of Texas. [...] He said the glaciers, particularly the Pine Island Glacier, has surged sharply in speed towards the ocean-- and it's not because of global warming. [...]Scott's research revealed evidence of a volcano that erupted through the ice about 2,000 years ago. The whole region could be volcanically active and could possibly be releasing geothermal heat to melt the base of the ice and help its slide towards the sea. If the glacier continues to surge and discharge most of its ice into the sea, the Pine Island Glacier alone could raise global sea level by 25 centimeter. If the entire region were to lose its ice, the sea would rise by 1.5 meters worldwide.

Flashback: Alarmists Tactics Unmasked in Antarctica - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: Climate scientist Dr. Ben Herman, past director of the Institute of Atmospheric Physics and former Head of the Department of Atmospheric Sciences at the University of Arizona, stated, "It is interesting that all of the AGW (anthropogenic global warming)

stories concerning Antarctica are always about what's happening around the [western] peninsula, which seems to be the only place on Antarctica that has shown warming. How about the net 'no change' or 'cooling' over the rest of the continent, which is probably about 95% of the land mass, not to mention the record sea ice coverage recently."

Flashback: Media's biased Antarctic Reporting - - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Former Colorado State Climatologist Dr. Roger Pielke, Sr., presently senior scientist at the University of Colorado inBoulder, chastised the media's Antarctic reporting as "typical of the bias that many journalists have." Pielke wrote on March 25, "The media has ignored in their reporting the increase in Antarctic sea ice cover in recent years, with, at present, a coverage that is well one million square kilometers above average." Pielke added, "Unfortunately, it appears that most journalists just parrot the perspective of the first news release on these climate issues, without doing any further investigation. If this is inadvertent, they need to be educated in climate science. If deliberate bias, they are clearly advocates and the reporters should be clearly and publically identified as having such a bias. In either case, the public is being misinformed!"

Flashback: Former Virginia State Climatologist Dr. Patrick Michaels and Paul C. Knappenberger, a senior researcher with New Hope Environmental Services posted comments on Antarctica in February on their websiteWorldClimateReport.com. Michaels and Knappenberger wrote a February 27, 2008, article titled "Antarctica Ain't Cooperating": "Another major article on temperature trends in the Antarctic has appeared in a recent issue of the Journal of Geophysical Research by a team of scientists from Ohio State University, the University of Illinois, and the Goddard Space Flight Center; the research was funded by the National Science Foundation Office of Polar Programs Glaciology Program. [...] That is correct - despite all you have heard elsewhere on the subject, the South Pole has been cooling over the past half century. The previous research team also reported that any warming in Antarctica has slowed and the cooling has accelerated in the more recent three decades. According to Monaghan et al., yet another team previously examined Antarctic temperatures and "noted that prior to 1965 the continent-wide annual trends (through 2002) are slightly positive, but after 1965 they are mainly negative (despite warming over the Antarctic Peninsula)."

Flashback: "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier"
Excerpt: In addition, the media's reporting on the alleged "melting" of Antarctica fails to take into account other factors. "Volcano, Not Global Warming Effects, May be Melting an Antarctic Glacier" read a headline in a January 21, 2008, article. The article read in part: Scientists have discovered a layer of volcanic ash and glass shards in Antarctica, evidence of an old eruption by a still active volcano that researchers believe may be contributing to the thinning of Antarctic glacial ice. Hugh F.J. Corr and David G. Vaughan, two scientists with the British Antarctic Survey, recently published their discovery of the volcanic layer in the journal Nature Geoscience. The discovery is unique, according to Dr. Vaughan. He said, "This is the first time we have seen a volcano beneath the ice sheet punch a hole through the ice sheet." The volcano's heat could possibly be melting and thinning the ice and raising the speed of the Pine Island Glacier in West Antarctica. (Other links on Antarctic Volcanoes: Map of volcanoes in Antarctica; and NASA Image of Antarctic Peninsula and pacific ring of fire groups of

volcanoes.)

Flashback: Another inconvenient fact that the media likes to avoid is Antarctica ice extent GREW to record levels in 2007. A September 11, 2007, article on IceCap.US explained: "While the news focus has been on the lowest ice extent since satellite monitoring began in 1979 for the Arctic, the Southern Hemisphere (Antarctica) has quietly set a new record for most ice extent since 1979. This can be seen on this graphic from this University of Illinois site, The Cryosphere Today, which updated snow and ice extent for both hemispheres daily. The Southern Hemispheric areal coverage is the highest in the satellite record, just beating out 1995, 2001, 2005 and 2006. Since 1979, the trend has been up for the total Antarctic ice extent."

Flashback: A January 12, 2008, peer-reviewed paper in AGU (American Geophysical Union) found "A doubling in snow accumulation in the western Antarctic Peninsula since 1850." The abstract of the paper by Thomas, E. R., G. J. Marshall, and J. R. McConnell, states: We present results from a new medium depth (136 metres) ice core drilled in a high accumulation site (73.59°S, 70.36°W) on the south-western Antarctic Peninsula during 2007. The Gomez record reveals a doubling of accumulation since the 1850s, from a decadal average of 0.49 mweq y-1 in 1855-1864 to 1.10 mweq y-1 in 1997-2006, with acceleration in recent decades. Comparison with published accumulation records indicates that this rapid increase is the largest observed across the region.

Flashback: UN scientist Dr. Madhav L. Khandekar, a retired Environment Canada scientist and an expert IPCC reviewer, noted in 2007 that the Southern Hemisphere is COOLING. Dr. Khandekar wrote on August 6, 2007: "In the Southern Hemisphere, the land-area mean temperature has slowly but surely declined in the last few years. The city ofBuenos Aires in Argentina received several centimeters of snowfall in early July, and the last time it snowed in Buenos Aires was in 1918! Most of Australia experienced one of its coldest months of June this year. Several other locations in the Southern Hemisphere have experienced lower temperatures in the last few years. Further, the sea surface temperatures over world oceans are slowly declining since mid-1998, according to a recent world-wide analysis of ocean surface temperatures."

Flashback: Ivy League Geologist Dr. Robert Giegengack, the chair of Department of Earth and Environmental Science at the University of Pennsylvania, explained that the Earth has been warming for about 20,000 years, and humans have only been collecting data for about 200 years. "For most of earth's history, the globe has been warmer than it has been for the last 200 years. It has only rarely been cooler," Giegengack said according to a February 2007 article. (LINK) Giegengack further explained that extremely long geologic timescales reveal that "only about 5% of that time has been characterized by conditions on Earth that were so cold that the poles could support masses of permanent ice."

Flashback: Dr. Duncan Wingham, Professor of Climate Physics at University College London and Director of the Centre for Polar Observation and Modeling, has presented evidence that Antarctic ice is growing. According to a December 15, 2006, article in Canada's National Post, "Early last year at a European Union Space Conference in Brussels, for example, Dr. Wingham revealed that data from a European Space Agency satellite showed Antarctic thinning was no more common than thickening, and concluded that the spectacular collapse of the ice shelves on the Antarctic Peninsula was much more

likely to have followed natural current fluctuations than global warming." "One cannot be certain, because packets of heat in the atmosphere do not come conveniently labeled 'the contribution of anthropogenic warming,' " Wingham said, noting that the evidence is not "favorable to the notion we are seeing the results of global warming." Wingham and his colleagues found that 72% of the ice sheet covering the entire land mass of Antarctica is growing at the rate of 5 millimeters per year. "That makes Antarctica a sink, not a source, of ocean water. According to their best estimates, Antarctica will 'lower global sea levels by 0.08 mm' per year" the National Post article reported.

Global warming may not affect sea levels, study finds - January 10, 2008
Excerpt: The most pessimistic predictions of sea level rises as ice sheets are melted by global warming may have to be scaled back as a result of an extraordinary discovery that ice persisted when the Earth was much hotter than today. Scientists have discovered that glaciers survived for hundreds of thousands of years during an extraordinary era when crocodiles roamed the Arctic and the tropical Atlantic Ocean was as warm as human blood. They had thought that Earth was ice free during the so called Turonian period, a "super greenhouse world" between 93.5 million and 89.3 million years ago. But now evidence has been found of hothouse glaciers that persisted by studies of tiny plankton and other marine organisms. Large ice-sheets existed about 91 million years ago, during one of the warmest periods in the past 500 million years, an international team of scientists reports in Science.

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Michael E. Mann
Associate Professor
Director, Earth System Science Center (ESSC)

Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814) 865-3663
The Pennsylvania State University email: mann@psu.edu
University Park, PA 16802-5013

website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

Subject: Re: Alert: Scientists, Data Challenge New Antarctic 'Warming' Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 22 Jan 2009 15:15:04 -0500
To: Michael Mann <mann@meteo.psu.edu>
CC: Eric Steig <steig@ess.washington.edu>, Drew Shindell <dshindell@giss.nasa.gov>

that's just a blog or some kind of 'community' - it's not a newspaper or anything - so no 'good name' exists.

On Thu, 2009-01-22 at 15:15, Michael Mann wrote:

> yes, and we might need to mention this joker who gives the "Examiner" a truly bad name:
> http://www.examiner.com/x-219-Denver-Weather-Examiner~y2009m1d22-New-study-says-Antarctica-is-warming-like-the-rest-globe--or-is-it
> On Jan 22, 2009, at 2:37 PM, Eric Steig wrote:
>
> > Yes, please do that! Please include Peilke. Why oh why did I ever insist we keep him on our blogroll. Can we take him of now, please?
> >
> > Sadly, I've gotten serioius requests from non-contrarians asking me about volcanoes. People are really clueless out there.
> >
> > Eric
> >
> >
> > Gavin Schmidt wrote:
> >
> > > indeed. They are really pulling out the stops. I think this just points
> > > to how much they really liked the 'antarctica is cooling' meme and how
> > > upset they are it's being taken away. Maybe we should do a follow-up
> > > piece on the contrarian meltdown? (throwing in a Pielke or two just for
> > > fun).
> > > I love the Christy headline "Dr. John Christy of the University of
> > > Alabama in Huntsville slams new Antarctic study for using "best estimate
> > > of the continents temperature" " - what would he have us use instead?
> > > The worst estimate?
> > > Oh and by the way, even if it is warming it's all caused by a volcano.
> > > This is verging on self-parody.
> > > Gavin
> > > On Thu, 2009-01-22 at 12:17, Michael Mann wrote:
> > >
> > > > in case you guys didn't see, we've made the radar screen of the chief
> > > > disinformer himself,
> > > > m
> > > > Begin forwarded message:
> > > >
> > > > From: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > > > Date: January 22, 2009 10:55:35 AM EST
> > > > To: "Morano, Marc (EPW)" <Marc_Morano@epw.senate.gov>
> > > > Subject: Alert: Scientists, Data Challenge New Antarctic 'Warming'
> > > > Study - Debunks Temp 'Estimate' & Comprehensive Data Round Up
> > > > Excerpt: The media, led by Newsweek's woeful Sharon Begley,

were downright gleeful about the new Antarctic study. [..] The supposed cooling has delighted climate contrarians, such as the prolific Senate staffer (to 'global warming is the biggest hoax' Sen. James Inhofe) Marc Morano, who has written, 'Contrary to media hype, the vast majority ofAntarctica has cooled over the past 50 years.'" […] Response to Begley: "Actually Sharon, skeptics of man-made climate fears are going to let the scientists like the UN's Trenberth critique and debunk this study. One new study that 'makes data where none exist' and is contradicted by multiple previous studies is hardly a reason for you (and your fellow warming partisans) to celebrate. Climate crusaders (masquerading as reporters) like yourself should take the time necessary to review the latest science developments.

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Web Posted on Senate EPW website:
http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=fc7db6ad-802a-23ad-43d1-2651eb2297d6

Scientists, Data Challenge New Antarctic 'Warming' Study
January 21, 2009
Posted By Marc Morano - 11:01 PM ET - Marc_Morano@EPW.Senate.Gov Scientists, Data Challenge New Antarctic 'Warming' Study 'It is hard to make data where none exist' Comprehensive Data Round Up Debunks New Antarctic 'Estimate of Temperature Trends' Washington, DC: A new study on Antarctic temperatures - which is contrary to the findings of multiple previous studies - claims "that since 1957, the annual temperature for the entire continent of Antarctica has warmed by about 1 degree Fahrenheit, but still is 50 degrees below zero."

Despite the fact that the study was immediately viewed with major skepticism by scientists who are not skeptical of anthropogenic global warming claims, many in the media pounced on the study as a chance to attacks those skeptical of man-made climate doom. According to the release of the study, "The researchers devised a statistical technique that uses data from satellites and from Antarctic weather stations to make a new estimate of temperature trends. […] The scientists found temperature measurements from weather stations corresponded closely with satellite data for overlapping time periods. That allowed them to use the satellite data as a guide to deduce temperatures in areas of the continent without weather stations." (emphasis added)

Few media outlets noted that in 2007 Antarctic "sea ice coverage has grown to record levels since satellite monitoring began in the 1979,

according to peer-reviewed studies and scientists who study the
area." [See also other factors impacting Antarctica: "Volcano, Not
Global Warming Effects, May be Melting an Antarctic Glacier & The
Antarctic deep sea gets COLDER - April 21, 2008 & A January 12,
2008, peer-reviewed paper in AGU (American Geophysical Union) found
"A doubling in snow accumulation in the western Antarctic Peninsula
since 1850."Map of Volcanoes - See comprehensive data round up
below] The new Antarctic study was published in Thursday's issue of
the journal Nature and the lead author of the study was Eric Steig,
a University of Washington professor of Earth and Space Sciences.
Other co-authors include: David Schneider of the National Center for
Atmospheric Research in Boulder, Colorado, a former student of
Steig's; Scott Rutherford
of Roger Williams University in Bristol, RI; and Michael Mann
of Pennsylvania State University.
UN IPCC lead author, Dr. Kevin Trenberth, who is not in any way a
climate change skeptic, said of the study, "I remain somewhat
skeptical… It is hard to make data where none exist." Echoing
Trenberth's analysis were several other scientists.
Climatologist Dr. John Christy of
the University of Alabama in Huntsville questioned the study. "One
must be very cautious with such results because they have no real
way to be validated," Christy told the AP. "In other words, we will
never know what the temperature was over the very large missing
areas that this technique attempts to fill in so that it can be
tested back through time," Christy added.
Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior
scientist at the University of Colorado in Bouldersaid the authors
of the Antarctic study "overstated" their results. "In terms of the
significance of their paper, it overstates what they have obtained
from their analysis," Pielke told the AP. "In the abstract they
write, for example, 'West Antarctic warming exceeds 0.1C per decade
over the past 50 years.' However, even a cursory view of Figure 2
shows that since the late 1990s, the region has been cooling in
their analysis in this region. The paper would be more balanced if
they presented this result, even if they cannot explain why," Pielke
wrote. Pielke also questioned how the authors "reconcile the

conclusions in their paper with the cooler than average long term
sea surface temperature anomalies off of the coast of Antarctica."
Pielke added, "These cool anomalies have been there for at least
several years. This cool region is also undoubtedly related to the
above average Antarctic sea ice areal coverage that has been monitored over recent years."
A critical analysis of the paper from December 21, 2008, accused the
authors of the Antarctic study of making questionable data
"adjustments." (See: Scientist adjusts data -- presto, Antarctic
cooling disappears - December 21, 2008) The analysis concluded,
"Looks like [study author] Steig 'got rid of' Antarctic cooling the
same way [Michael] Mann got rid of medieval warming. Why not just
look at the station data instead of 'adjusting' it (graph above)? It
shows a 50-year cooling trend," the analysis concluded.
Alarmists Play Both Sides The BBC's Richard Black filed a report on the new study that
included this claim: "'It's hard to think of any situation where
increased greenhouse gases would not lead to warming in Antarctica,'
said Drew Shindell from Nasa's Goddard Institute for Space Studies
(GISS) in New York."
Sadly, Black of the BBC does not report that the promoters of
man-made global warming fears had already concocted explanations
for the failure of Antarctica to warm as models
predicted. [See: Antarctic temperatures disagree with climate model
predictions - February 15, 2007]
The warming partisans at RealClimate.org have claimed that a
cooling Antarctica is just what the models predict! "A cold
Antarctica is just what calculations predict," stated a February 12,
2008, post on Real Climate titled "Antarctica is Cold? Yeah, We Knew
That." The website claimed "Despite the recent announcement that the
discharge from some Antarctic glaciers is accelerating, we often
hear people remarking that parts of Antarctica are getting colder,
and indeed the ice pack in the Southern Ocean around Antarctica has
actually been getting bigger. Doesn't this contradict the
calculations that greenhouse gases are warming the globe? Not at
all, because a cold Antarctica is just what calculations predict…
and have predicted for the past quarter century."
So which is it? Models predict Antarctic cooling or do they predict
warming? If Antarctica is now allegedly warming, why didn't

the
models predict that? The spin by Michael Mann of
RealClimate.org and
the media on this study is stunning.
'Tortured logic' Real Climate's logic was mocked by
Professor Roger Pielke, Jr.,
professor in the environmental studies program at
theUniversity of Colorado. "So a warming Antarctica and a
cooling Antarctica are both 'consistent with' model
projections of
global warming. Our foray into the tortured logic of
'consistent
with' in climate science raises the perennial question, what
observations of the climate system would be inconsistent with
the
model predictions?," Pielke Jr. wrote on January 21.
Begley of Newsweek Gleeful The media, led by Newsweek's
woeful Sharon Begley, were downright
gleeful about the new Antarctic study. Begley declared, "And
now the
last holdout has succumbed" to global warming. Begley -- who
has
been the subject of severalblunt but accurate Inhofe EPW Blog
critiques -- took a shot at the U.S. Senator and his aide.
Begley
wrote, "The supposed cooling has delighted climate
contrarians, such
as the prolific Senate staffer (to 'global warming is the
biggest
hoax' Sen. James Inhofe) Marc Morano, who has written,
'Contrary to
media hype, the vast majority of Antarctica has cooled over
the past
50 years.'"
Begley concluded, "I look forward to the climate contrarians'
arguments that this observed warming is a natural occurrence
and has
nothing to do with manmade greenhouse gases." [Response to
Begley:
"Actually Sharon, skeptics of man-made climate fears are going
to
let the scientists like the UN's Trenberth critique and debunk
this
study. One new study that 'makes data where none exist' and is
contradicted by multiple previous studies is hardly a reason
for you
(and your fellow warming partisans) to celebrate. Climate
crusaders
(masquerading as reporters) like yourself should take the time
necessary to review the latest science developments. How come
you
are not reporting on the slowdown in sea level rise? Or how
about
reporting on this: New Peer-Review study challenges 'notion
that
human emissions are responsible for global warming' or any of
the
following: The global tropical cyclone season of 2008 'close
to
lowest levels observed' in decades Global temperatures failing
to
warm; Peer-reviewed studies predicting a continued lack of
warming; a failed attempt to revive the discredited 'Hockey

Stick';inconvenient developments and studies regarding rising CO2; the Spotless Sun; Clouds; Antarctica; the Arctic;Greenland's ice; Mount Kilimanjaro; Global sea ice; Causes of Hurricanes; Extreme Storms; Extinctions; Floods;Droughts; Ocean Acidification; Polar Bears; Extreme weather deaths; Frogs; lack of atmospheric dust; Malaria;the failure of oceans to warm and rise as predicted." Sadly, Begley's attitude and reporting appears to be indicative of most of the mainstream media's shoddy climate reporting. Also See: Defense of Lou Dobbs & Climate Challenge to Andrew Revkin of NYT & U. S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims] Alex Morales of Bloomberg News cited the late author Michael Crichton's novel, State of Fear. "The findings may help puncture arguments by global-warming skeptics such as the late author Michael Crichton who have pointed to cooling in parts of Antarctica as an indicator that climate change is exaggerated." [Note: Kudos to AP's Seth Borenstein for writing the most balanced of all the media's articles about this new Antarctic study.]

Summary of Reactions to New Study and Peer-Reviewed Studies and Analyses Countering Study Michael "Hockey Stick" Mann Touts Study as a Way to Refute Skeptics

Excerpt: "Contrarians have sometime grabbed on to this idea that the entire continent of Antarctica is cooling, so how could we be talking about global warming," said study co-author Michael Mann, director of the Earth System ScienceCenter at Penn State University and Real Climate contributor. "Now we can say: no, it's not true ... It is not bucking the trend." [Note: For a reality check on Michael Mann's failed attempt to resurrect the "Hockey Stick," see this report.]

Meteorologist Anthony Watts who runs WattsUpWithThat.com also questioned Mann's involvement in the study. "Anytime Michael Mann gets involved in a paper and something is "deduced" it makes me wary of the veracity of the methodology. Why? Mann can't even correct simple faults like latitude-longitude errors in data used in previous papers he's written," Watts wrote on January 21.

Study claims large parts of Antarctica has been cooling from 1970s to 1990s

Excerpt: However, autumn temperatures in east Antarctica are cooling over the long term. And east Antarctica from the late 1970s through the 1990s, cooled slightly, Steig said.

Even Pro-AGW scientists wary of this new study! Kevin Trenberth says

'I remain somewhat skeptical… It is hard to make data where none exist.'
Excerpt: The researchers used satellite data and mathematical formulas to fill in missing information. That made outside scientists queasy about making large conclusions with such sparse information. "This looks like a pretty good analysis, but I have to say I remain somewhat skeptical," Kevin Trenberth, climate analysis chief at the National Center for Atmospheric Research, said in an e-mail. "It is hard to make data where none exist." Shindell said it was more comprehensive than past studies and jibed with computer models.
Alabama State Climatologist Dr. John Christy of the University of Alabama in Huntsville slams new Antarctic study for using "best estimate of the continents temperature"
Excerpt: Technique questioned: Researchers in this study developed a new technique that combined data from satellites and automated weather stations in Antarctica to make what they say is the best estimate of the continent's temperature so far. However, there are very few weather stations on Antarctica, and the satellite data have been available for only the past 25 years. This troubles some scientists. "One must be very cautious with such results because they have no real way to be validated," says atmospheric scientist John Christy of the University of Alabama-Huntsville, who was not part of the study. "In other words, we will never know what the temperature was over the very large missing areas that this technique attempts to fill in so that it can be tested back through time." Researchers had thought Antarctica was getting cooler in part because of the ozone hole over the South Pole. This break in the protective ozone layer brings cooling weather patterns across parts of Antarctica. Steig agrees that the ozone hole has contributed to cooling in East Antarctica. "However, it seems to have been assumed that the ozone hole was affecting the entire continent, when there wasn't any evidence to support that idea, or even any theory to support it," he adds.
Pielke Sr. Challenges New Antarctic Study - January 21, 2009
By Former Colorado State Climatologist Dr. Roger Pielke, Sr., senior scientist at the University of Colorado in Boulder
Excerpt: 3. How do the authors reconcile the conclusions in

their
paper with the cooler than average long term sea surface
temperature
anomalies off of the coast of Antarctica? [see:
http://www.osdpd.noaa.gov/PSB/EPS/SST/data/anomnight.1.15.2009.gif].
These cool anomalies have been there for at least several
years.
This cool region is also undoubtedly related to the above
average
Antarctic sea ice areal coverage that has been monitored over
recent
years;
seehttp://arctic.atmos.uiuc.edu/cryosphere/IMAGES
/current.anom.south.jpg]. 4. In Figure 2 of their paper, much of their analyzed warming took place prior to 1980. For East Antarctica, the trend is essentially flat since 1980. The use of a linear fit for the entire period of the record produces a larger trend than has been seen in more recent years. In terms of the significance of their paper, it overstates what they have obtained from their analysis. In the abstract they write, for example, "West Antarctic warming exceeds 0.1C per decade over the past 50 years". However, even a cursory view of Figure 2 shows that since the late 1990s, the region has been cooling in their analysis in this region. The paper would be more balanced if they presented this result, even if they cannot explain why.
Scientist adjusts data -- presto, Antarctic cooling disappears
-
December 21, 2008
Abstract excerpt: "We use statistical climate field
reconstruction
techniques to determine monthly temperature anomalies for the
near-surface of the Antarctic ice sheet since 1957. Two
independent
data sets are used to provide estimates of the spatial
covariance
patterns of temperature: automatic weather stations and
thermal
infrared satellite observations. Quality-controlled data from
occupied instrumental weather stations are used to determine
the
amplitude of changes in those covariance patterns through
time. We
use a modified principal component analysis technique (Steig
et al.,
in review, Nature) to optimize the combination of spatial and
temporal information. Verification statistics obtained from
subsets
of the data demonstrate the resulting reconstructions
represent
improvements relative to climatological mean values."
Mann's not the only one inventing his own "modified" PCA.
Looks like
Steig "got rid of" antarctic cooling the same way Mann got rid
of
medieval warming. Why not just look at the station data
instead of
"adjusting" it (graph above)? It shows a 50-year cooling
trend.
Antarctic Facts Debunk Alarmists - Comprehensive Report on
Antarctic Data & Studies - As of October 31, 2008 March 27,
2008 Senate Report: Media Hype on 'Melting' Antarctic
Ignores Record Ice Growth
Alarmists Try Again: Claim CO2 Causes 2% of Antarctic to Melt
&

Ozone Depletion Causes 98% to COOL! - October 30, 2008
Claim: CO2 causing Antarctic peninsula to warm; ozone depletion
caused the rest to cool - Data pins polar warming blame on humans -
CNN.com
Excerpt: The report may go some way towards silencing climate skeptics who point to evidence that most of Antarcticahas been cooling for some time. "There is strong warming in the Antarctic
Peninsula," Karpechko said. "But for several decades there has been
a slight cooling of the rest of the continent. This slight cooling
is due to circulation changes which are partly caused by ozone depletion. "This is why there has been a bit of confusion as to what
is happening in Antarctica. But we expect a recovery of the ozone
layer in the future. We may also expect that the Antarctic warming
trends will emerge more clearly." Commenting on the study conducted
by the UEA, Professor David Vaughan, a Glaciologist at the British
Antarctic Survey told CNN, "This is exactly the sort of study we
need. The poles are extremely important in the climate change debate
and the rapid warming in the Arctic is one of the icons." Professor
Vaughan, who is studying the patches of warming happening in Antarctica, concedes that the cooling that's occurred in the past
30 to 50 years is "a little perplexing." But he agrees with Dr.
Karpechko over the effects of the ozone hole.
Reality Check: Climatologist John Christy Debunks Latest Claims on
Antarctica - October 30, 2008 (Kudos to Canadian Press for striving
for balance in a global warming article!)
Excerpt: The Canadian Press: John Christy, an atmospheric scientist
at the University of Alabama, has done studies on climate models and
says they are extremely limited tools in trying to mimic what happens in nature. He said they are unable to reproduce all of the
naturally occurring influences and, as a result, give a false picture of what might be causing changes in the environment. Clouds,
for example, can dampen warming in the real world, but he said models have been shown to amplify warming. "They overstate the confidence of what they have in that result because we have too many
examples of models that fail," Christy said from Huntsville. "We
have shown that climate models just don't have the variability that
nature provides to us." Christy too disputed whether the bulk of
continental Antarctica is warming, saying that it is, in fact,

cooling. The report looks largely at the Antarctic peninsula - which
makes up two per cent of the continent - and the eastern and western
coastal regions, where they have found warming. The report focuses
on temperature changes going back to 1900 and up to the present, but
doesn't include earlier periods when areas in the Arctic were
actually warmer than they are today and were not affected by
man-made greenhouse gases, said Christy. "Just 1,000 years ago
the Arctic was much warmer than it is today so it's interesting that
they would use the term conclusively," he said. "Natural variability
can account for warming since the Arctic has been warmer before."
Inconvenient Peer-Reviewed Study: East and West Antarctic ice sheets
have 'different climate histories' - 'a phenomenon that persists in
modern times' - May 30, 2008
Excerpt: There is an interesting News Focus story in this
week's Science journal, that helps to confirm the different climate
histories for the East and West Antarctic ice sheets - a phenomenon
that persists in modern times: ANTARCTICA: Freeze-Dried Findings
Support a Tale of Two Ancient Climates - A surprising cache of
ancient plant material adds evidence for divergent climate histories
of the East and West Antarctic ice sheets over the past 14 million
years. Excerpt: These findings appear to be contradictory at first
glance, but in fact they buttress an evolving view among scientists
that the two major features of the continent, the western and
eastern ice sheets, have experienced vastly different climate
histories. Data from the Dry Valleys reveals an East Antarctic Ice
Sheet that is high, dry, cold, and stable, at least in its central
area. And the ANDRILL cores suggest a more volatile West Antarctic
Ice Sheet that is subject to the changing temperatures of the sea in
which it wades. "It reaffirms the fragility of the West Antarctic
Ice Sheet [WAIS] and the stability of the central part of the East
Antarctic Ice Sheet," says Peter Barrett, a sedimentologist at the
Victoria University of Wellington (VUW) in New Zealand, who advised
the ANDRILL project.
We can't think of any other cause, it must be us - 'Prehistoric
civilization' blaming thunderstorms on upset gods - October 31, 2008
Claim: 'We could only explain the warming that's been observed if we

included human-climate influences' Excerpt: 'We can't think of any other cause, it must be us' - This is the depth to which scientific research into climate change has sunk, like a kind of prehistoric civilization that blames thunderstorms, earthquakes and volcanoes on humanity somehow having "upset the gods". A Canadian study has concluded that we must be causing climate change because nothing else can explain it. Under the triumphant headline "Study confirms human impact on climate change", The Age reports all this without any discrimination: "We found that we could only explain the warming that's been observed if we included human-climate influences, particularly greenhouse gases," the study's author, Nathan Gillett, told ABC Radio. "And we couldn't explain those changes [if there] were just natural influences on climate like volcanoes and changes in the brightness of the sun."
Excerpt: Arctic Reality Check: Why isn't the cooling Antarctic considered 'an indicator of what might happen to the rest of the world?' - By Climate Scientist Dr. Ben Herman.
Dr. Herman Excerpt: First of all, the Arctic sea ice is at its minimum in September, not October or November as the scientists in the McClatchy article states. As Arctic ice experts, they certainly should have known this. Another point is that the Arctic temperatures do not "naturally peak in October or November". They peak in mid Aug ust generally. Also the article states that since the world's climates are interconnected, what happens in the Arctic may be an indicator of what will happen in the rest of the world. How about what happens in the Antarctic then? Since its ice area has been increasing, is this also an indicator of what might happen in the rest of the world?
[Note: Alarmists up to same tricks alleging present climate only explainable by human activity. Even the partisans at Real Climate now appear to concede CO2 is not all powerful! 1) Oops! Propagandists at RealClimate.org Let Truth Slip Out! - 'The actual temperature rise is an emergent property resulting from interactions among hundreds of factors' - September 20, 2008 -
2) UK Scientist: - 'Climate change is governed by hundreds of factors, or variables' Not Just CO2! By UK Professor Emeritus of Biogeography Philip Stott of the University of London
-http://web.me.com/sinfonia1/Global_Warming_Politics/A_Hot_Topic_Blog/Entries/2008/8/27_Wot%21_No_Sunspots_At_All%21.html]

Flashback: A February 2007 study reveals Antarctica is not following
predicted global warming models - Senate Report: Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008
Excerpt: "A new report on climate over the world's southernmost
continent shows that temperatures during the late 20th century did
not climb as had been predicted by many global climate models." The
research was led by David Bromwich, professor of atmospheric sciences in the Department of Geography, and researcher with the Byrd PolarResearch Center at Ohio State University.
Not Global Warming: Winds are Dominant Cause of Greenland and West
Antarctic Ice Sheet Losses - October 3, 2008
Excerpt: Two new studies summarized in a news article in Science
magazine point to wind-induced circulation changes in the ocean as
the dominant cause of the recent ice losses through the glaciers
draining both the Greenland and West Antarctic ice sheets, not 'global warming.' The two studies referred to are: 1) 'Acceleration
of Jakobshavn Isbræ triggered by warm subsurface ocean waters' by
Holland et al, published in Nature Geoscience. The Abstract states:
Observations over the past decades show a rapid acceleration of
several outlet glaciers in Greenland andAntarctica. One of the largest changes is a sudden switch of Jakobshavn Isbræ, a large
outlet glacier feeding a deep-ocean fjord on Greenland's west coast,
from slow thickening to rapid thinning in 1997, associated with a
doubling in glacier velocity. Suggested explanations for the speed-up of Jakobshavn Isbræ include increased lubrication of the
ice-bedrock interface as more meltwater has drained to the glacier
bed during recent warmer summers and weakening and break-up of the
floating ice tongue that buttressed the glacier.
2) 'Modelling Circumpolar Deep Water intrusions on the Amundsen Sea
continental shelf, Antarctica' by Thoma et al, published in GRL.
The Abstract states:
Results are presented from an isopycnic coordinate model of ocean
circulation in the Amundsen Sea, focusing on the delivery of Circumpolar Deep Water (CDW) to the inner continental shelf around Pine Island Bay. The warmest waters to reach this region are
channeled through a submarine trough, accessed via bathymetric irregularities along the shelf break. Temporal variability in the
influx of CDW is related to regional wind forcing. Easterly winds
over the shelf edge change to westerlies when the Amundsen Sea

Low
migrates west and south in winter/spring. This drives seasonal
on-shelf flow, while inter-annual changes in the wind forcing
lead
to inflow variability on a decadal timescale. A modelled
period of
warming following low CDW influx in the late 1980's and early
1990's
coincides with a period of observed thinning and acceleration
of
Pine Island Glacier.
The Antarctic deep sea gets COLDER - April 21, 2008
Excerpt: The Antarctic deep sea gets colder, which might
stimulate
the circulation of the oceanic water masses. This is the first
result of the Polarstern expedition of the Alfred Wegener
Institute
for Polar and Marine Research in the Helmholtz Association
that has
just ended in Punta Arenas/Chile. At the same time satellite
images
from the Antarctic summer have shown the largest sea-ice
extent on
record. In the coming years autonomous measuring buoys will be
used
to find out whether the cold Antarctic summer induces a new
trend or
was only a "slip". The Polarstern expedition ANT-XXIV/3 was
dedicated to examining the oceanic circulation and the oceanic
cycles of materials that depend on it. Core themes were the
projects
CASO (Climate of Antarctica and the Southern Ocean) and
GEOTRACES,
two of the main projects in the Antarctic in the International
Polar
Year 2007/08. Under the direction of Dr Eberhard Fahrbach,
Oceanographer at the Alfred Wegener Institute, 58 scientists
from
ten countries were on board the research vessel Polarstern in
the
Southern Ocean from 6 February until 16 April, 2008.
East Antarctica's Role in Global Sea Level Change 'will not
result
in any increase in sea level' - April 23, 2008
Excerpt: East Antarctica's Role in Global Sea Level Change -
Reference: Mackintosh, A., White, D., Fink, D., Gore, D.B.,
Pickard,
J. and Fanning, P.C. 2007. Exposure ages from mountain
dipsticks in
Mac. Robertson Land, East Antarctica, indicate little change
in
ice-sheet thickness since the Last Glacial Maximum. Geology
35:
551-554. What was done - The authors derived altitudinal
transects
of 10Be and 26Al exposure ages across the Framnes Mountains in
Mac. Robertson Land that allowed them to calculate the
magnitude and
timing of East Antarctic Ice Sheet (EAIS) retreat following
the Last
Glacial Maximum. Antarctic Glaciers Going To Sea At Faster
Rate - Volcano -- NOT
Global Warming to blame! - February 24, 2008

Excerpt: David Vaughan of the British Antarctic Survey said the team found new evidence from group of glaciers in West Antarctica which cover an area the size of Texas. […] He said the glaciers, particularly the Pine Island Glacier, has surged sharply in speed towards the ocean-- and it's not because of global warming. […]Scott's research revealed evidence of a volcano that erupted through the ice about 2,000 years ago. The whole region could be volcanically active and could possibly be releasing geothermal heat to melt the base of the ice and help its slide towards the sea. If the glacier continues to surge and discharge most of its ice into the sea, the Pine Island Glacier alone could raise global sea level by 25 centimeter. If the entire region were to lose its ice, the sea would rise by 1.5 meters worldwide.

Flashback: Alarmists Tactics Unmasked in Antarctica - Senate Report:

Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008

Excerpt: Climate scientist Dr. Ben Herman, past director of the Institute of Atmospheric Physics and former Head of the Department of Atmospheric Sciences at the University of Arizona, stated, "It is interesting that all of the AGW (anthropogenic global warming) stories concerning Antarctica are always about what's happening around the [western] peninsula, which seems to be the only place on Antarctica that has shown warming. How about the net 'no change' or 'cooling' over the rest of the continent, which is probably about 95% of the land mass, not to mention the record sea ice coverage recently." Flashback: Media's biased Antarctic Reporting - - Senate Report:

Media Hype on 'Melting' Antarctic Ignores Record Ice Growth - March 27, 2008

Former Colorado State Climatologist Dr. Roger Pielke, Sr., presently senior scientist at the University of Colorado inBoulder, chastised the media's Antarctic reporting as "typical of the bias that many journalists have." Pielke wrote on March 25, "The media has ignored in their reporting the increase in Antarctic sea ice cover in recent years, with, at present, a coverage that is well one million square kilometers above average." Pielke added, "Unfortunately, it

appears
that most journalists just parrot the perspective of the first news
release on these climate issues, without doing any further investigation. If this is inadvertent, they need to be educated in
climate science. If deliberate bias, they are clearly advocates and
the reporters should be clearly and publically identified as having
such a bias. In either case, the public is being misinformed!"
Flashback: Former Virginia State Climatologist Dr. Patrick Michaels
and Paul C. Knappenberger, a senior researcher with New Hope Environmental Services posted comments on Antarctica in February on
their websiteWorldClimateReport.com. Michaels and Knappenberger
wrote a February 27, 2008, article titled "Antarctica Ain't Cooperating": "Another major article on temperature trends in the
Antarctic has appeared in a recent issue of the Journal of Geophysical Research by a team of scientists from Ohio State University, the University of Illinois, and the Goddard Space Flight
Center; the research was funded by the National Science Foundation
Office of Polar Programs Glaciology Program. […] That is correct -
despite all you have heard elsewhere on the subject, the South Pole
has been cooling over the past half century. The previous research
team also reported that any warming in Antarctica has slowed and the
cooling has accelerated in the more recent three decades. According
to Monaghan et al., yet another team previously examined Antarctic
temperatures and "noted that prior to 1965 the continent-wide annual
trends (through 2002) are slightly positive, but after 1965 they are
mainly negative (despite warming over the Antarctic Peninsula)."
Flashback: "Volcano, Not Global Warming Effects, May be Melting an
Antarctic Glacier"
Excerpt: In addition, the media's reporting on the alleged "melting"
of Antarctica fails to take into account other factors. "Volcano,
Not Global Warming Effects, May be Melting an Antarctic Glacier"
read a headline in a January 21, 2008, article. The article read in
part: Scientists have discovered a layer of volcanic ash and glass
shards in Antarctica, evidence of an old eruption by a still active
volcano that researchers believe may be contributing to the thinning
of Antarctic glacial ice. Hugh F.J. Corr and David G. Vaughan,

two
scientists with the British Antarctic Survey, recently
published
their discovery of the volcanic layer in the journal Nature
Geoscience. The discovery is unique, according to Dr. Vaughan.
He
said, "This is the first time we have seen a volcano beneath
the ice
sheet punch a hole through the ice sheet." The volcano's heat
could
possibly be melting and thinning the ice and raising the speed
of
the Pine Island Glacier in West Antarctica. (Other links
on Antarctic Volcanoes: Map of volcanoes in Antarctica; and
NASA
Image of Antarctic Peninsula and pacific ring of fire groups
of
volcanoes.)
Flashback: Another inconvenient fact that the media likes to
avoid
is Antarctica ice extent GREW to record levels in 2007. A
September
11, 2007, article on IceCap.US explained: "While the news
focus has
been on the lowest ice extent since satellite monitoring began
in
1979 for the Arctic, the Southern Hemisphere (Antarctica) has
quietly set a new record for most ice extent since 1979. This
can be
seen on this graphic from this University of Illinois site,
The
Cryosphere Today, which updated snow and ice extent for both
hemispheres daily. The Southern Hemispheric areal coverage is
the
highest in the satellite record, just beating out 1995, 2001,
2005
and 2006. Since 1979, the trend has been up for the total
Antarctic
ice extent."
Flashback: A January 12, 2008, peer-reviewed paper in AGU
(American
Geophysical Union) found "A doubling in snow accumulation in
the
western Antarctic Peninsula since 1850." The abstract of the
paper
by Thomas, E. R., G. J. Marshall, and J. R. McConnell, states:
We
present results from a new medium depth (136 metres) ice core
drilled in a high accumulation site (73.59°S, 70.36°W) on the
south-western Antarctic Peninsula during 2007. The Gomez
record
reveals a doubling of accumulation since the 1850s, from a
decadal
average of 0.49 mweq y-1 in 1855-1864 to 1.10 mweq y-1 in
1997-2006,
with acceleration in recent decades. Comparison with published
accumulation records indicates that this rapid increase is the
largest observed across the region.
Flashback: UN scientist Dr. Madhav L. Khandekar, a retired
Environment Canada scientist and an expert IPCC reviewer,
noted in
2007 that the Southern Hemisphere is COOLING. Dr. Khandekar
wrote on

August 6, 2007: "In the Southern Hemisphere, the land-area mean temperature has slowly but surely declined in the last few years. The city ofBuenos Aires in Argentina received several centimeters of snowfall in early July, and the last time it snowed in Buenos Aires was in 1918! Most of Australia experienced one of its coldest months of June this year. Several other locations in the Southern Hemisphere have experienced lower temperatures in the last few years. Further, the sea surface temperatures over world oceans are slowly declining since mid-1998, according to a recent world-wide analysis of ocean surface temperatures."

Flashback: Ivy League Geologist Dr. Robert Giegengack, the chair of Department of Earth and Environmental Science at the University of Pennsylvania, explained that the Earth has been warming for about 20,000 years, and humans have only been collecting data for about 200 years. "For most of earth's history, the globe has been warmer than it has been for the last 200 years. It has only rarely been cooler," Giegengack said according to a February 2007 article. (LINK) Giegengack further explained that extremely long geologic timescales reveal that "only about 5% of that time has been characterized by conditions on Earth that were so cold that the poles could support masses of permanent ice."

Flashback: Dr. Duncan Wingham, Professor of Climate Physics at University College London and Director of the Centre for Polar Observation and Modeling, has presented evidence that Antarctic ice is growing. According to a December 15, 2006, article in Canada's National Post, "Early last year at a European Union Space Conference in Brussels, for example, Dr. Wingham revealed that data from a European Space Agency satellite showed Antarctic thinning was no more common than thickening, and concluded that the spectacular collapse of the ice shelves on the Antarctic Peninsula was much more likely to have followed natural current fluctuations than global warming." "One cannot be certain, because packets of heat in the atmosphere do not come conveniently labeled 'the contribution of anthropogenic warming,' " Wingham said, noting that the evidence is not "favorable to the notion we are seeing the results of global warming." Wingham and his colleagues found that 72% of the ice

sheet
covering the entire land mass of Antarctica is growing at the
rate
of 5 millimeters per year. "That makes Antarctica a sink, not
a
source, of ocean water. According to their best
estimates, Antarctica will 'lower global sea levels by 0.08
mm' per
year" the National Post article reported.
Global warming may not affect sea levels, study finds -
January 10,
2008
Excerpt: The most pessimistic predictions of sea level rises
as ice
sheets are melted by global warming may have to be scaled back
as a
result of an extraordinary discovery that ice persisted when
the
Earth was much hotter than today. Scientists have discovered
that
glaciers survived for hundreds of thousands of years during an
extraordinary era when crocodiles roamed the Arctic and the
tropical Atlantic Ocean was as warm as human blood. They had
thought
that Earth was ice free during the so called Turonian period,
a
"super greenhouse world" between 93.5 million and 89.3 million
years
ago. But now evidence has been found of hothouse glaciers that
persisted by studies of tiny plankton and other marine
organisms.
Large ice-sheets existed about 91 million years ago, during
one of
the warmest periods in the past 500 million years, an
international
team of scientists reports in Science.
# # #

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Michael E. Mann
Associate Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814)
865-3663
The Pennsylvania State University email: mann@psu.edu
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

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Michael E. Mann
Associate Professor
Director, Earth System Science Center (ESSC)

Department of Meteorology Phone: (814) 863-4075

503 Walker Building FAX: (814) 865-3663
The Pennsylvania State University email: mann@psu.edu
University Park, PA 16802-5013

website: http://www.meteo.psu.edu/~mann/Mann/index.html
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

Subject: [Fwd: Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009]
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 29 Jan 2009 11:17:23 -0500
To: Drew Shindell <dshindell@giss.nasa.gov>

-----Forwarded Message-----

From: "Morano, Marc (EPW)" <Marc Morano@epw.senate.gov>
To: "Morano, Marc (EPW)" <Marc Morano@epw.senate.gov>
Subject: Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009
Date: 29 Jan 2009 10:54:52 -0500

[Note: for more analysis of the warming partisans at Real Climate, see these links from Israeli Astrophysicist Nir Shaviv's website<http://www.sciencebits.com/RealClimateSlurs>: "The aim of RealClimate.org is not to engage a sincere scientific debate. Their aim is post a reply full of a straw man so their supporters can claim that your point 'has been refuted by real scientists at ReaClimate.org.'" Shaviv, who calls the website "Wishfulclimate.org" noted that the "writers (at RealClimaet.org) try again and again to concoct what appears to be deep critiques against skeptic arguments, but end up doing a very shallow job. All in the name of saving the world. How gallant of them." <http://www.sciencebits.com/RealClimateSlurs>]

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Prominent Scientist 'Appalled' By Gavin Schmidt's 'lack of knowledge' - 'Back to graduate school, Gavin!' - Climate Science Blog - January 29, 2009
By Atmospheric scientist Dr. Hendrik Tennekes, a scientific pioneer in the development of numerical weather prediction and former director of research at The Netherlands' Royal National Meteorological Institute, and an internationally recognized expert in atmospheric boundary layer processes. Tennekes is featured in U.S. Senate Minority Report Update: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims<http://epw.senate.gov/public/index.cfm?FuseAction=Minority.Blogs&ContentRecord_id=2674e64f-802a-23ad-490b-bd9faf4dcdb7>
Excerpt: Roger Pielke Sr. has graciously invited me to add my perspective to his discussion with Gavin Schmidt at RealClimate. If this were not such a serious matter, I would have been amused by Gavin's lack of knowledge of the differences between weather models and climate models. As it stands, I am appalled. Back to graduate school, Gavin! [...] Gavin Schmidt is not the only meteorologist with an inadequate grasp of the role of the oceans in the climate system. In my weblog of June 24, 2008, I addressed the limited perception that at least one other climate modeler appears to have. A few lines from that essay deserve repeating here." [...] From my perspective it is not a little bit alarming that the current generation of climate models cannot simulate such fundamental phenomena as the Pacific Decadal Oscillation. I will not trust any climate model until and unless it can accurately represent the PDO and other slow features of the world ocean circulation. Even then, I would remain skeptical about the potential predictive skill of such a model many tens of years into the future.
http://climatesci.org/2009/01/29/real-climate-suffers-from-foggy-perception-by-henk-tennekes/

# #

Full Text:

January 29, 2009
Real Climate Suffers from Foggy Perception by Henk Tennekes<http://climatesci.org

/2009/01/29/real-climate-suffers-from-foggy-perception-by-henk-tennekes/>
Filed under: Guest Weblogs<http://climatesci.org/category/guest-editor-weblogs/>
- Roger Pielke Sr. @ 7:00 am

Roger Pielke Sr. has graciously invited me to add my perspective to his discussion with Gavin Schmidt at RealClimate. If this were not such a serious matter, I would have been amused by Gavin's lack of knowledge of the differences between weather models and climate models. As it stands, I am appalled. Back to graduate school, Gavin!

A weather model deals with the atmosphere. Slow processes in the oceans, the biosphere, and human activities can be ignored or crudely parameterized. This strategy has been very successful. The dominant fraternity in the meteorological modeling community has appropriated this advantage, and made itself the lead community for climate modeling. Backed by an observational system much more advanced than those in oceanography or other parts of the climate system, they have exploited their lead position for all they can. For them, it is a fortunate coincidence that the dominant synoptic systems in the atmosphere have scales on the order of many hundreds of kilometers, so that the shortcomings of the parameterizations and the observation network, including weather satellite coverage, do not prevent skillful predictions several days ahead.

A climate model, however, has to deal with the entire climate system, which does include the world's oceans. The oceans constitute a crucial slow component of the climate system. Crucial, because this is where most of the accessible heat in the system is stored. Meteorologists tend to forget that just a few meters of water contain as much heat as the entire atmosphere. Also, the oceans are the main source of the water vapor that makes atmospheric dynamics on our planet both interesting and exceedingly complicated. For these and other reasons, an explicit representation of the oceans should be the core of any self-respecting climate model.

However, the observational systems for the oceans are primitive in comparison with their atmospheric counterparts. Satellites that can keep track of what happens below the surface of the ocean have limited spatial and temporalresolution. Also, the scale of synoptic motions in the ocean is much smaller than that of cyclones in the atmosphere, requiring a spatial resolution in numerical models and in the observation network beyond the capabilities of present observational systems and supercomputers. We cannot observe, for example, the vertical and horizontal structure of temperature, salinity and motion of eddies in the Gulf Stream in real time with sufficient detail, and cannot model them at the detail that is needed because of computer limitations. How, for goodness' sake, can we then reliably compute their contribution to multi-decadal changes in the meridional transport of heat? Are the crude parameterizations used in practice up to the task of skillfully predicting the physical processes in the ocean several tens of years ahead? I submit they are not.

Since heat storage and heat transport in the oceans are crucial to the dynamics of the climate system, yet cannot be properly observed or modeled, one has to admit that claims about the predictive performance of climate models are built on quicksand. Climate modelers claiming predictive skill decades into the future operate in a fantasy world, where they have to fiddle with the numerous knobs of the parameterizations to produce results that have some semblance of veracity. Firm footing? Forget it!

Gavin Schmidt is not the only meteorologist with an inadequate grasp of the role of the oceans in the climate system. In my weblog of June 24, 2008,<http://climatesci.org/2008/06/24/seamless-prediction-systems-by-hendrik-tennekes/> I addressed the limited perception that at least one other climate modeler appears to have. A few lines from that essay deserve repeating here. In response to a paper by Tim Palmer of ECMWF, I wrote: "Palmer et al. seem to forget that, though weather forecasting is focused on the rapid succession of atmospheric events, climate forecasting has to focus on the slow evolution of the circulation in the world ocean and slow changes in land use and natural vegetation. In the evolution of the Slow Manifold (to borrow a term coined by Ed Lorenz) the atmosphere acts primarily as stochastic high-frequency noise. If I were still young, I would attempt to build a conceptual climate model based on a deterministic representation of the world ocean and a stochastic representation of synoptic activity in the atmosphere."

>From my perspective it is not a little bit alarming that the current generation of climate models cannot simulate such fundamental phenomena as the Pacific Decadal Oscillation. I will not trust any climate model until and unless it can accurately represent the PDO and other slow features of the world ocean circulation. Even then, I would remain skeptical about the potential predictive skill of such a model many tens of years into the future.

Marc Morano
Communications Director
Senate Environment and Public Works Committee (EPW) Inhofe Staff
202-224-5762
202-224-5167 (fax)
marc_morano@epw.senate.gov<mailto:marc_morano@epw.senate.gov>
www.epw.senate.gov<http://www.epw.senate.gov>

Subject: Re: pine beetles and forest fire (fwd)
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 04 Jun 2009 16:40:38 -0400
To: Ron Miller <rmiller@giss.nasa.gov>

yeah... but why do I have to play the game he has set up? You know there will be a "i gave gavin the chance to respond...." bullshit

On Thu, 2009-06-04 at 16:31, Ron Miller wrote:

> You don't want to waste too much time on it, and being preemptive simply provides him with free advertising.
>
> I suggest a more limited version of #4: respond to the post on his site to set the record straight. If this seems insufficient, you can write on realclimate, but in general, I would try not to give him the argument and attention he wants. The more attention (and realclimate readers) you draw to the subject, the more attention he gains.
>
> Ron.
>
> On Thu, Jun 4, 2009 at 12:10 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
>
> > Ron, some advice needed. Do I:
> >
> > 1) ignore
> > 2) respond in rude manner:
> > 2a) obviously: "Piss off"
> > 2b) more subtly: "Perhaps you could let me know the psychic you are using to discern my opinions on the relative role of pine bark beetles vs. drought and temperature on widlfires?"
> > 3) engage seriously as if Pielke was indeed terribly concerned about the issue.
> > 4) wait until he misrepresents my statement and then put up a post on realclimate pointing out how many people he has misrepresented in the past.
> >
> > needless to say, 3 is off the table.
> >
> > gavin
> >
> > *----------*
> > | Gavin Schmidt NASA/Goddard Institute for Space Studies |
> > | 2880 Broadway |
> > | Tel: (212) 678 5627 New York, NY 10025 |
> > | |
> > | gschmidt@giss.nasa.gov http://www.giss.nasa.gov/~gavin |
> > *----------*
> >
> > ---------- Forwarded message ----------
> > Date: Wed, 3 Jun 2009 23:31:30 -0600
> > From: "Roger Pielke, Jr." <rpielkejr@gmail.com>
> > To: Gavin Schmidt <gschmidt@giss.nasa.gov>
> > Subject: pine beetles and forest fire
> >
> > Dear Gavin-
> >
> > You say in your Salon interview:
> >
> > "If you visit Colorado, behind the Front Range, you'll see whole hillsides devastated by these pine-bark beetles. In British Columbia and Alaska, it's

huge thousand-mile tracts of forest. These changes have been leading to forest fires, because now you've got more fuel, which increases carbon emissions."

I had a student in my graduate seminar last semester submit an interesting final paper on how the association between the beetle infestation and forest fires is now generally dismissed by most ecologists. Here is a somewhat lengthy excerpt from his paper:

"Moreover, claims that beetle attacks necessarily increase fire risk are not supported by much scientific evidence. "A growing body of scientific research.shows that bark beetles have very little influence on forest fires," according to congressional testimony by Dominik Kulakowski (2006), a researcher at the University of Colorado-Boulder. "If the weather is dry enough, [high-elevation forests in Colorado] are likely to burn and if the weather is not dry enough, these forests are unlikely to burn, largely irrespective of the effect of beetles."

Kulakowski's testimony is generally in line with several recent reviews of research on fire-beetle interactions. In a 2006 report, the Colorado Forest Restoration Institute (CFRI) cast doubt on the notion that beetle attacks lead to severe wildfires. "The few scientific studies that support this idea report a very small effect, and other studies have found no relationship between insect outbreaks and subsequent fire activity" (Romme et al. 2006, p. 8). They contended instead that weather-related factors-specifically drought and high temperatures-have the greatest effects on fire risk. Under certain conditions, live trees can be nearly as flammable as dead ones, contrary to public perception that dead forests pose a significantly greater fire risk. The CFRI authors developed a theoretical model of fire risk, arguing that during the first two years after the tree's death, dead needles remaining on limbs may increase fire risk compared to the pre-attack baseline. Once those needles fall from the trees, however, that important fuel source is no longer present to contribute to the propagation of crown fires. Only decades later, after dead trees fall to the ground and young trees begin to grow taller, would the fire risk begin to approach or possibly exceed the pre-outbreak fire risk (Romme et al., 2006).

More recent reviews generally agree with the CFRI report. McHugh, Finney, and Hardy (2006) conclude that the lowered moisture content of dead needles would increase fire risk for the first fire season following a beetle attack. Over the longer term, however, needles falling from the canopy would discourage the spread of a catastrophic crown fire. Simard et al.'s review (2008) breaks out the findings based on different forest types. In spruce-fir forests, they conclude that spruce beetle outbreaks have no effect on either the occurrence or the severity of catastrophic wildfires. In lodgepole pine forests, the authors report that research results on the impacts of MPB attacks on fire occurrence and severity are unclear. Effects of insect attacks on fire regimes in pinyon-juniper, douglas fir, and ponderosa pine forests are unknown. Finally, Kaufmann et al. (2008) point out that the presence of dead needles could mean greater risk of crown fire in the short term. Over the long term, falling needles could reduce the risk of crown fire but increase the risk of severe surface fire.

These reviews were based on a number of empirical studies attempting to clarify the relationship between beetle attacks and fire. Two of those studies examined whether the famous 1988 fire in Yellowstone National Park was related to beetle outbreaks. Turner et al. (1999) found that areas with heavy beetle mortality were somewhat more likely to burn than unaffected areas, but areas with moderate mortality were no more likely to burn. Lynch (2006) found that forested areas killed by beetles in the early and mid-1970s were 11 percent more likely to burn than areas unaffected by the beetles, but that a more recent (1980-83) beetle outbreak was not a statistically significant factor. In spruce-fir forests in Colorado,

however, Bebi et al. (2003) and Kulakowski et al. (2003) found no increase in fire density or occurrence following a massive spruce beetle outbreak during the 1940s. Bigler et al. (2005) found a small correlation between a 1940s beetle attack and wildfire in 2002 but concluded that local climatic factors were much more relevant in predicting fire outbreak. Kulakowski and Veblen (2007) examined the legacy of another spruce beetle attack and found that it had no detectable effect on the likelihood of subsequent fire outbreak.

Finally, in an attempt to experimentally determine the effect of beetle attacks on fire risk, a group of Canadian researchers cut into the bark of trees to kill them in a manner similar to a bark beetle attack. One year after killing the trees, the researchers started fires in the treatment and control plots. Their results show that both stands quickly developed crown fires, implying that a beetle attack might make no difference in highly flammable forests (Schroeder and Mooney 2009)."

Before I blog on your assetion, I am writing to ask if you would like to clarify your assertion or otherwise support it via a guest post on our site.

By the way, your comments on framing made good sense.

All the best,

Roger

Subject: Re: idea for wednesday talks
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 16 Sep 2009 21:01:51 -0400
To: bastiaan van Diedenhoven <bvandiedenhoven@giss.nasa.gov>
CC: Michael Way <michael.j.way@gmail.com>, Erik Noble <enoble@giss.nasa.gov>

it's being discussed here:

http://www.realclimate.org/index.php/archives/2009/09/communicating-science-not-just-talking-the-talk/

and there were a bunch of reviews on ScienceBlogs earlier this year. I'd just watch it if I was you.

gavin

On Wed, 2009-09-16 at 20:35, bastiaan van Diedenhoven wrote:

> Thanks Gavin. We'll keep this in mind. I'm curious to know what the global warming comedy is about!
>
> Bastiaan
>
> On Wed, Sep 16, 2009 at 6:17 PM, Gavin Schmidt <gschmidt@giss.nasa.gov> wrote:
>
> > I occasionally get DVDs of vaguely relevant documentaries that might be
> > of some interest. For instance, "Sizzle: A global warming comedy" and "A
> > Sea Change" (about overfishing and ocean acidification). They aren't
> > that long (80 mins or so), so a lunchtime screening could be doable if
> > you don't have anyone lined up.
> >
> > Gavin
>
> --
> ----------
> Dr. Bastiaan van Diedenhoven
> Columbia University Center for Climate Systems Research /
> NASA Goddard Institute for Space Studies
> 2880 Broadway, Room 316C
> New York, NY 10025
> Phone: (212) 678 5512
> Fax: (212) 678 5552
> Email: bvandiedenhoven@giss.nasa.gov
> URL: http://www.columbia.edu/~bv2154/
> ----------

Subject: Re: BBC U-turn on climate
From: Gavin Schmidt <gschmidt@giss.nasa.gov>
Date: 14 Oct 2009 18:21:07 -0400
To: Michael Mann <mann@meteo.psu.edu>
CC: Tom Wigley <wigley@ucar.edu>, Kevin Trenberth <trenbert@ucar.edu>, Stephen H Schneider <shs@stanford.edu>, Myles Allen <allen@atm.ox.ac.uk>, peter stott <peter.stott@metoffice.gov.uk>, "Philip D. Jones" <p.jones@uea.ac.uk>, Benjamin Santer <santer1@llnl.gov>, Thomas R Karl <Thomas.R.Karl@noaa.gov>, Jim Hansen <jhansen@giss.nasa.gov>, Michael Oppenheimer <omichael@Princeton.EDU>

Tom, with respect to the difference between the models and the data, the fundamental issue on short time scales is the magnitude of the internal variability. Using the full CMIP3 ensemble at least has multiple individual realisations of that internal variability and so is much more suited to a comparison with a short period of observations. MAGICC is great at the longer time scale, but its neglect of unforced variability does not make it useful for these kinds of comparison.

The kind of things we are hearing "no model showed a cooling", the "data is outside the range of the models" need to be addressed directly.

Gavin

On Wed, 2009-10-14 at 18:06, Michael Mann wrote:

> Hi Tom,
>
> thanks for the comments. well, ok. but this is the full CMIP3 ensemble, so at least the plot is sampling the range of choices regarding if and how indirect effects are represented, what the cloud radiative feedback & sensitivity is, etc. across the modeling community. I'm not saying that these things necessarily cancel out (after all, there is an interesting and perhaps somewhat disturbing compensation between indirect aerosol forcing and sensitivity across the CMIP3 models that defies the assumption of independence), but if showing the full spread from CMIP3 is deceptive, its hard to imagine what sort of comparison wouldn't be deceptive (your point re MAGICC notwithstanding),
>
> perhaps Gavin has some further comments on this (it is his plot after all),
>
> mike
>
> On Oct 14, 2009, at 5:57 PM, Tom Wigley wrote:
>
> > Mike,
> >
> > The Figure you sent is very deceptive. As an example, historical runs with PCM look as though they match observations -- but the match is a fluke. PCM has no indirect aerosol forcing and a low climate sensitivity -- compensating errors. In my (perhaps too harsh)
> > view, there have been a number of dishonest presentations of model results by individual authors and by IPCC. This is why I still use results from MAGICC to compare with observed temperatures. At least here I can assess how sensitive matches are to sensitivity and forcing assumptions/uncertainties.
> >
> > Tom.

++++++++++++++++++

Michael Mann wrote:

thanks Tom,
I've taken the liberty of attaching a figure that Gavin put together the other day (its an update from a similar figure he prepared for an earlier RealClimate post. see: http://www.realclimate.org/index.php/archives/2009/05/moncktons-deliberate-manipulation/). It is indeed worth a thousand words, and drives home Tom's point below. We're planning on doing a post on this shortly, but would be nice to see the Sep. HadCRU numbers first,
mike
On Oct 14, 2009, at 3:01 AM, Tom Wigley wrote:

Dear all,
At the risk of overload, here are some notes of mine on the recent
lack of warming. I look at this in two ways. The first is to look at
the difference between the observed and expected anthropogenic trend relative to the pdf for unforced variability. The second is to remove ENSO, volcanoes and TSI variations from the observed data.
Both methods show that what we are seeing is not unusual. The second
method leaves a significant warming over the past decade.
These sums complement Kevin's energy work.
Kevin says ... "The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't". I do not
agree with this.
Tom.
++++++++++++++++++++++
Kevin Trenberth wrote:

Hi all
Well I have my own article on where the heck is global warming? We are asking that here in Boulder where we have broken records the past two days for the coldest days on record. We had 4 inches of snow. The high the last 2 days was below 30F and the normal is 69F, and it smashed the previous records for these days by 10F. The low was about 18F and also a record low, well below the previous record low. This is January weather (see the Rockies baseball playoff game was canceled on saturday and then played last night in below freezing weather).
Trenberth, K. E., 2009: An imperative for climate change planning: tracking Earth's global energy. /Current Opinion in Environmental Sustainability/, *1*, 19-27, doi:10.1016/j.cosust.2009.06.001. [PDF] <http://www.cgd.ucar.edu/cas/Trenberth/trenberth.papers/EnergyDiagnostics09final.pdf> (A PDF of the published version can be obtained from the author.)
The fact is that we can't account for the lack of warming at the moment and it is a travesty that we can't. The CERES data published in the August BAMS 09 supplement on 2008 shows there should be even more warming: but the data are surely wrong. Our observing system is inadequate.
That said there is a LOT of nonsense about the PDO. People like CPC are tracking PDO on a monthly basis but it is highly correlated with ENSO. Most of what they are seeing is the change in ENSO not real PDO. It surely isn't decadal. The PDO is already reversing with the switch to El Nino. The PDO index became positive in September for first time since Sept

2007. see
http://www.cpc.ncep.noaa.gov/products/GODAS/ocean_briefing_gif/global_ocean_monitoring_current.ppt
Kevin
Michael Mann wrote:
extremely disappointing to see something like this appear on BBC. its particularly odd, since climate is usually Richard Black's beat at BBC (and he does a great job). from what I can tell, this guy was formerly a weather person at the Met Office.
We may do something about this on RealClimate, but meanwhile it might be appropriate for the Met Office to have a say about this, I might ask Richard Black what's up here?
mike
On Oct 12, 2009, at 2:32 AM, Stephen H Schneider wrote:
Hi all. Any of you want to explain decadal natural variability and signal to noise and sampling errors to this new "IPCC Lead Author" from the BBC? As we enter an El Nino year and as soon, as the sunspots get over their temporary--presumed--vacation worth a few tenths of a Watt per meter squared reduced forcing, there will likely be another dramatic upward spike like 1992-2000. I heard someone--Mike Schlesinger maybe??--was willing to bet alot of money on it happening in next 5 years?? Meanwhile the past 10 years of global mean temperature trend stasis still saw what, 9 of the warmest in reconstructed 1000 year record and Greenland and the sea ice of the North in big retreat?? Some of you observational folks probably do need to straighten this out as my student suggests below.
Such "fun", Cheers, Steve
Stephen H. Schneider
Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies,
Professor, Department of Biology and
Senior Fellow, Woods Institute for the Environment
Mailing address:
Yang & Yamazaki Environment & Energy Building - MC 4205
473 Via Ortega
Ph: 650 725 9978
F: 650 725 4387
Websites: climatechange.net
patientfromhell.org
----- Forwarded Message -----
From: "Narasimha D. Rao" <ndrao@stanford.edu <mailto:ndrao@stanford.edu>>
To: "Stephen H Schneider" <shs@stanford.edu <mailto:shs@stanford.edu>>
Sent: Sunday, October 11, 2009 10:25:53 AM GMT -08:00 US/Canada Pacific
Subject: BBC U-turn on climate
Steve,
You may be aware of this already. Paul Hudson, BBC's reporter on climate change, on Friday wrote that there's been no warming since 1998, and that pacific oscillations will force cooling for the next 20-30 years. It is not outrageously biased in presentation as are other skeptics' views.
http://news.bbc.co.uk/2/hi/science/nature/8299079.stm
http://blogs.telegraph.co.uk/news/damianthompson/100013173/the-bbcs-amazing-u-turn-on-climate-change/
BBC has significant influence on public opinion outside the US.

Do you think this merits an op-ed response in the BBC from
a scientist?
Narasimha

PhD Candidate,
Emmett Interdisciplinary Program in Environment and
Resources (E-IPER)
Stanford University
Tel: 415-812-7560
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Michael E. Mann
Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814)
863-4075
503 Walker Building FAX:
(814) 865-3663
The Pennsylvania State University email: mann@psu.edu
<mailto:mann@psu.edu>
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
<http://www.meteo.psu.edu/%7Emann/Mann/index.html>
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html
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Kevin E. Trenberth e-mail: trenbert@ucar.edu
<mailto:trenbert@ucar.edu>
Climate Analysis Section,
www.cgd.ucar.edu/cas/trenbert.html
<http://www.cgd.ucar.edu/cas/trenbert.html>
NCAR
P. O. Box 3000, (303) 497 1318
Boulder, CO 80307 (303) 497 1333 (fax)
Street address: 1850 Table Mesa Drive, Boulder, CO 80305
<Wigley-RecentTemps.doc>
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Michael E. Mann
Professor
Director, Earth System Science Center (ESSC)
Department of Meteorology Phone: (814) 863-4075
503 Walker Building FAX: (814)
865-3663
The Pennsylvania State University email: mann@psu.edu
<mailto:mann@psu.edu>
University Park, PA 16802-5013
website: http://www.meteo.psu.edu/~mann/Mann/index.html
<http://www.met.psu.edu/dept/faculty/mann.htm>
"Dire Predictions" book site:
http://www.essc.psu.edu/essc_web/news/DirePredictions/index.html

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Michael E. Mann
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Department of Meteorology Phone: (814) 863-4075
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