Langley Research Center

National Aeronautics and
Space Administration

The DAAC at Atmospheric Science Data Center (ASDC)

Radiation Budget, Clouds, Aerosols, Tropospheric Chemistry

The ASDC is in the Science Directorate at NASA Langley Research Center, in Hampton, VA. The Science Directorate's Climate Science Branch, Atmospheric Composition Branch, and Chemistry and Dynamics Branch work with the ASDC to study changes in the Earth and its atmosphere. Data products translate those findings into meaningful knowledge that inspires action by scientists, educators, decision makers, and the public.

John M. Kusterer, DAAC Manager

- Data from spaceborne instruments including CERES, MISR, CALIPSO, ISCCP, SAGE III, MOPITT, TES and from field campaigns including DISCOVER/AQ, AirMISR, INTEX-A&B
- Processes production science data products for CERES and MISR science teams
- Provides sensor-specific search tools as well as more general tools and services such as atmosphere product subsetting

| 16 | 121 | 225 | 330 | 435 | 540 | 644 | 749 | 854 | 958 | 1063 |

Watts per square meter
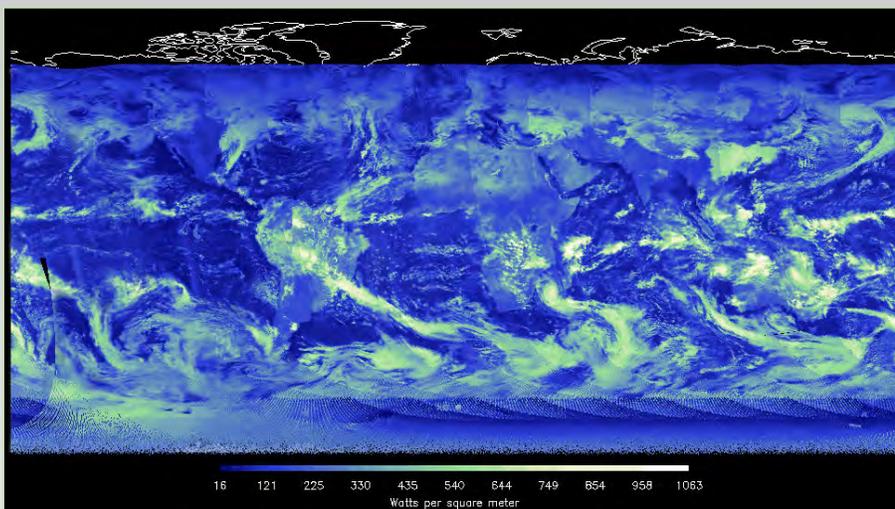
First Light incoming solar radiation from CERES on NPP Suomi

Distributed more than 700 unique data products during FY2013
More than 600 terabytes of data were distributed to over 142,000 customers during FY2013
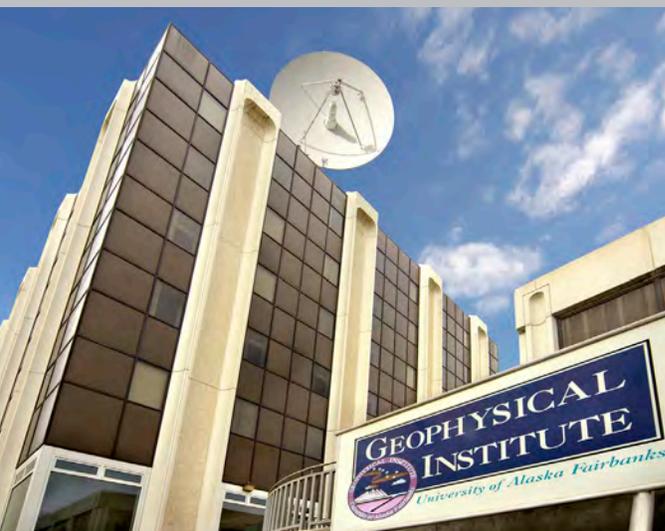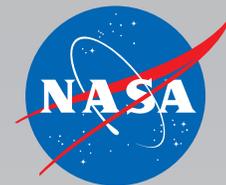**Nearly 3 petabytes of data were in the archive at the end of FY2013**

Langley Research Center
2 South Wright Street
Building 1268C, Mail Stop 157D
Hampton, VA, 23681-2199
757-864-8656
https://eosweb.larc.nasa.gov

Atmospheric Science Data Center

www.nasa.gov

The 10-meter dish is one of three dishes for capturing satellite data.

Alaska Satellite Facility Synthetic Aperture Radar (ASF SAR) DAAC

SAR Products, Sea Ice, Polar Processes, Geophysics

©Lester Lefkowitz

The ASF SAR DAAC is located at the Geophysical Institute at the University of Alaska, Fairbanks. Established in 1946 by an Act of Congress, the Geophysical Institute has expertise in studying Earth and its physical environments at high latitudes. ASF DAAC has been under contract with NASA since 1991 to support the U.S. SAR community with access to foreign and domestic SAR data.

Dr. Nettie La Belle-Hamer, ASF Director, DAAC Manager
Scott Arko, ASF Deputy Director

- Web-based data discovery and access
- Satellite data:
    Seasat
    RADARSAT-1
    Advanced Land Observing Satellite (ALOS) PALSAR
    European Remote Sensing Satellite-1, -2 (ERS-1 and -2)
    Japanese Earth Resources Satellite-1 (JERS-1)
- Airborne mission data:
    AirborneSAR (AIRSAR)
    Jet Propulsion Laboratory Uninhabited Aerial Vehicle SAR (UAVSAR)
- Satellite tracking and ground station capability
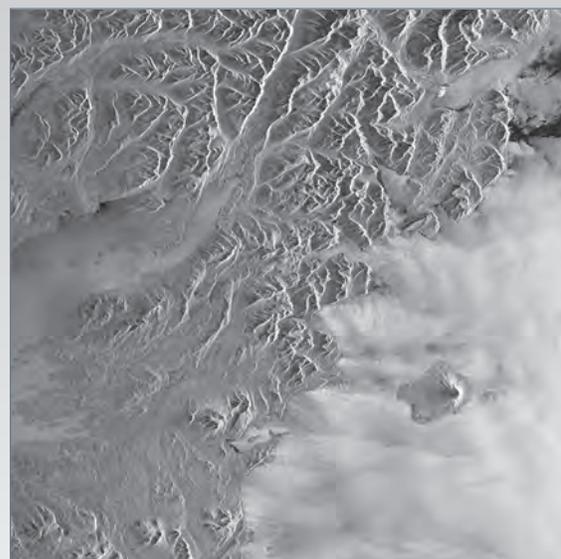
The above ERS-2 view of the Alaska Peninsula and Augustine Volcano was part of the first ERS-2 data received at ASF. © ESA 1995

More than 1.5 petabytes of data were in the archive at the end of FY2013
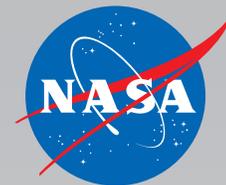**More than 600,000 data products were distributed during FY2013**

Alaska Satellite Facility
Geophysical Institute
903 Koyukuk Drive
Fairbanks, AK 99775-7320
907-474-6166
https://www.asf.alaska.edu

UAF Alaska Satellite Facility

National Aeronautics and
Space Administration

The DAAC at Crustal Dynamics Data Information System (CDDIS)

Space Geodesy, Solid Earth

The CDDIS DAAC is part of the Solar System Exploration Division at NASA Goddard Space Flight Center in Greenbelt, MD. CDDIS has served as the data system supporting the international space geodesy community since 1982. CDDIS joined the EOSDIS DAACs in 2007.

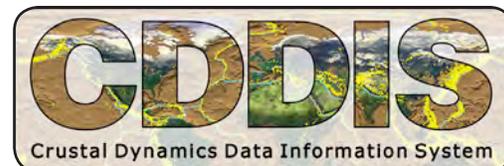*Carey Noll, Manager*
Patrick Michael, Deputy DAAC Manager
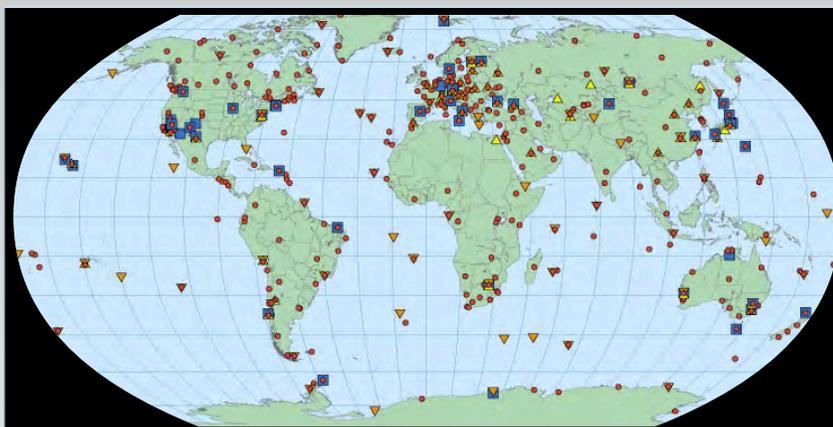
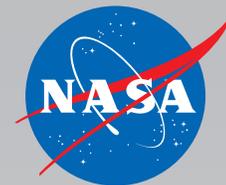*Global networks of Space Geodetic Sites*

- NASA's data archive and information service supporting the international space geodesy community for over 30 years.
- Data and derived products from a global network of observing stations equipped with one or more of the following measurement techniques:
    - Satellite Laser Ranging (SLR) and Lunar Laser Ranging (LLR)
    - Very Long Baseline Interferometry (VLBI)
    - Global Navigation Satellite System (GNSS)
    - Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS)

More than 110 million files in the CDDIS archive at the end of FY2013
More than 120 million products (48 terabytes of data) distributed during FY2013

Code 690.1
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771
301-614-6542
http://cddis.gsfc.nasa.gov

www.nasa.gov

GES DISC is located in Building 32 at Goddard Space Flight Center.

National Aeronautics and
Space Administration

Goddard Earth Sciences Data and Information Services Center (GES DISC)

Atmospheric Composition and Dynamics, Global Precipitation, Water and Energy Cycle, Solar Irradiance, Global Modeling

Since 1991, this DAAC has continuously served NASA data to Earth science research and applications communities focused on Atmospheric Composition, Climate Variability, Water & Energy Cycle, Health and Air Quality, and Agriculture.
GES DISC is part of the Global Change Data Center at NASA Goddard Space Flight Center in Greenbelt, MD.

Steven J. Kempler, Manager
Gary Alcott, Operations Manager
Chris Lynnes, Chief Engineer
Gilberto Vicente, Science Data Manager
Bruce Vollmer, Mission Support Manager

- Data management, archive, access, and services for:
    Satellite Data: AIRS, MLS, OMI, HIRDLS, SORCE, TRMM, UARS, TOMS, TOVS, ACOS; Starting in FY14: OCO-2, GPM
    Model Data: GMAO, GDAS, GOCART
- Data management, archive, access services: Giovanni interactive web-based visualization/analysis tool; Mirador data search; Subsetting; Format conversion; data quality screening, Web-based OpenSearch services.
- Services made reusable (distributed for reuse)
- Multi-sensor data management: A-Train Data Depot (8 data sources), Hurricane Portal (TRMM, QuikSCAT), MAIRS, NEESPI, Air Quality
- Near real-time data from AIRS and MLS
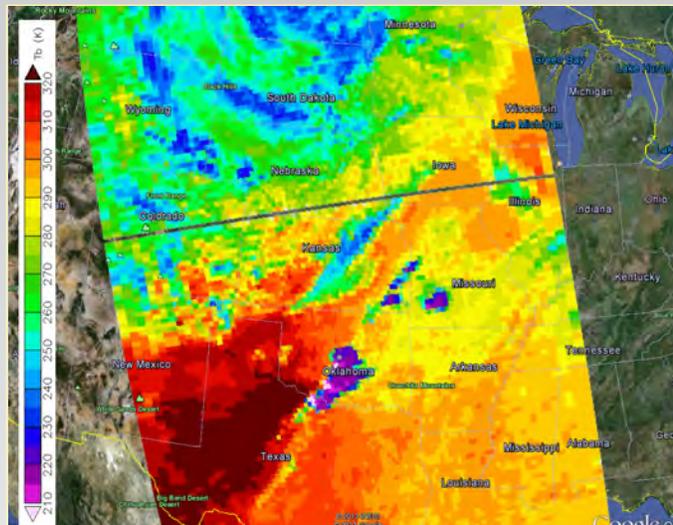
*Oklahoma tornado, May 20, 2013 - AIRS infrared brightness temperatures show very cold cloud tops in the storm (violet), indicating extremely strong convection.*

More than 110 thousand unique users in FY2013
More than 200 million products delivered during FY2013

Goddard Earth Sciences Data and Information Services Center
NASA Goddard Space Flight Center
Greenbelt, Maryland
301-614-5224
http://disc.gsfc.nasa.gov

National Aeronautics and
Space Administration
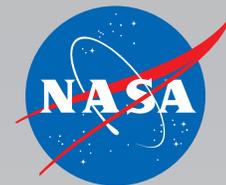
The DAAC at Global Hydrology Resource Center (GHRC)

Hydrologic Cycle, Severe Weather Interactions, Lightning, Atmospheric Convection

GHRC is a joint venture of NASA's Marshall Space Flight Center and the Information Technology and Systems Center (ITSC) located within the University of Alabama in Huntsville. GHRC was established in 1991 and is located at the National Space Science and Technology Center on the UAH campus. GHRC joined the EOSDIS DAACs in 2008.

Dr. Rahul Ramachandran, DAAC Manager
Helen Conover, DAAC Operations Manager

- Manages space-based lightning data from nine instruments: 7 DMSP Operational Linescan System (OLS) instruments, the Optical Transient Detector (OTD) on Microlab-1, and TRMM Lightning Imaging Sensor (LIS). In addition, GHRC holds ancillary data from ground-based lightning sensors.
- MEaSUREs Program datasets
- Airborne: EV-1 HS3
- Manages field campaign data from the GPM Ground Validation Program and the Hurricane Science Research Program including the Hurricane and Severe Storm Sentinel Venture mission, as well as satellite passive microwave data for analysis of our climate and the water and energy cycle.
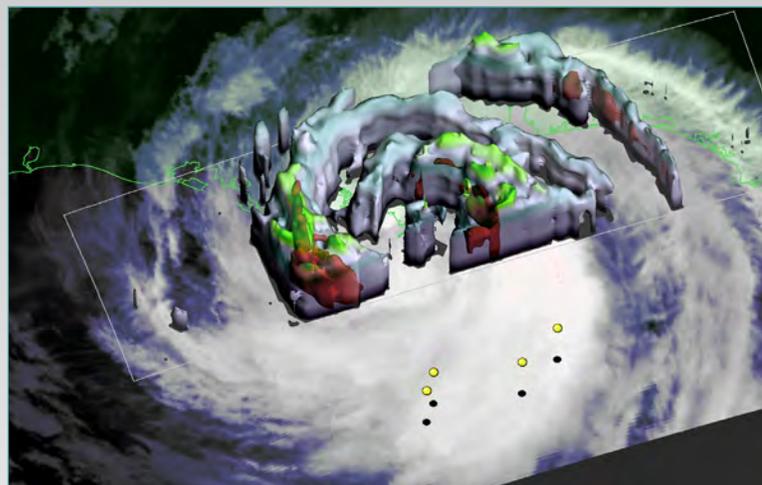
Internal structure of Hurricane Isaac depicting precipitation intensity and lightning from LIS.
Photo courtesy: Owen Kelley

National archive for satellite lightning data
35 years of passive microwave data supporting research on the global hydrological cycle

Global Hydrology Resource Center (GHRC)
National Space Science and Technology Center
320 Sparkman Drive, Huntsville, AL 35805
256-961-7932
http://ghrc.nsstc.nasa.gov

GHRC
Global Hydrology Resource Center

itsc
THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

National Aeronautics and
Space Administration

Land Processes DAAC (LP DAAC)

Surface Reflectance, Radiance, & Temperature; Topography; Radiation Budget; Ecosystem Variables; Land Cover; Vegetation Indices

The LP DAAC is located at the U.S. Department of the Interior, U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center in Sioux Falls, SD. The LP DAAC was established in 1990 to process NASA land processes data products and provide vital contributions to inter-disciplinary studies of the integrated Earth system.

Tom Sohre, DAAC Manager
Chris Doescher, DAAC Mission Manager

ASTER, San Diego, CA

- Processes, archives, and distributes Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) from Terra
- Archives and distributes Moderate-resolution Imaging Spectroradiometer (MODIS) from Terra & Aqua
- Distributes NASA Making Earth System Data Records for Use In Research Environments (MEaSUREs) Collaborations
  - Global Forest Cover Change (GFCC)
  - Web-Enabled Landsat Data (WELD)
  - Shuttle Radar Topography Mission (SRTM)
  - Vegetation Index & Phenology (VIP)
- Provides tools and services for discovery and analysis of NASA's land cover and land use data.

More than 60 million files (more than a petabyte of data) in the archive by the end of FY2013
Nearly 1.5 petabytes of data distributed during FY2013

Land Processes Distributed Active Archive Center (LP DAAC)
US Geological Survey – Earth Resources Observation and Science (EROS) Center
47914 252nd Street
Sioux Falls, SD 57198-0001
605-594-6116, 1-866-573-3222 (toll-free)
https:// lpdaac.usgs.gov

www.nasa.gov

MODIS LAADS is located in Building 32, Goddard Space Flight Center

National Aeronautics and
Space Administration

# MODIS Level 1 and Atmosphere Archive and Distribution System (LAADS)

MODIS Radiance and Atmosphere

As a DAAC, MODIS LAADS is part of the Terrestrial Information Systems Laboratory at NASA Goddard Space Flight Center in Greenbelt, MD. It is collocated with the MODIS Adaptive Processing System (MODAPS). MODIS LAADS joined the EOSDIS DAACs in 2007.

Edward Masuoka, DAAC Manager
Dr. William Ridgway, Atmosphere Science Lead
Robert Wolfe, Level 1 and Land Science Lead
Dr. Sadashiva Devadiga, Quality Assessment Lead

- MODIS LAADS receives data processed by MODAPS
- Archives and distributes MODIS products from both the Terra and Aqua platforms: Level 1 products (calibrated radiances and geolocation) and Level 2 and 3 Atmosphere and Land products
- Offers three visual browsers of data – global, granule, and tile – to enable users to search and determine the desired data
- Provides access to tools such as subsetting, subsampling, reprojecting, and mosaicing.
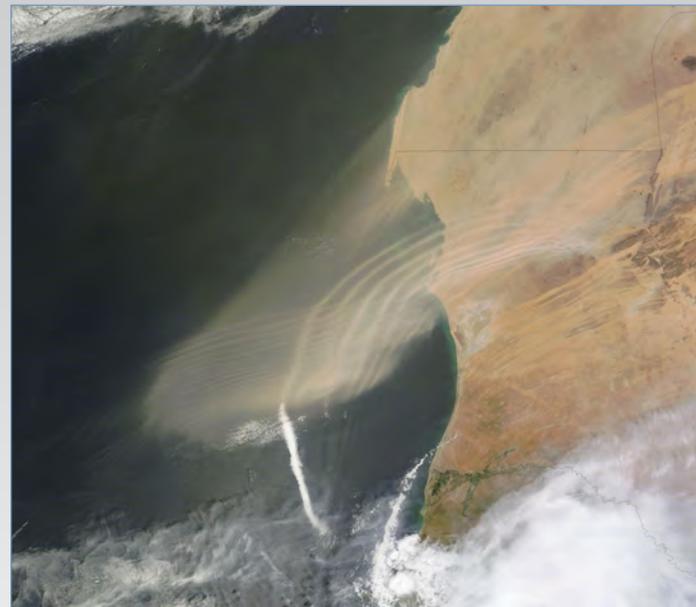
MODIS - Dust plumes off the west coast of Africa September 2011

More than 600 million files in the archive at the end of FY2013
On average more than 600,000 files (nearly 7 terabytes of data)
**were distributed each day during FY2013**

Code 619
NASA Goddard Space Flight CenterGreenbelt, Maryland, 20771
301-731-2917, 1 866-506-6347 (Toll Free)
http://ladsweb.nascom.nasa.gov

www.nasa.gov

A rooftop solar array is part of NSIDC's innovative Green Data Center, which slashed energy consumption for cooling by more than 90 percent

National Aeronautics and
Space Administration
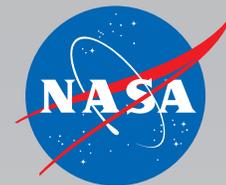
The DAAC at National Snow and Ice Data Center (NSIDC)

Snow, Sea Ice, Glaciers, Ice Sheets, Frozen Ground, Soil Moisture, and Cryosphere

The NSIDC DAAC is located in Boulder, CO at the NSIDC. NSIDC has served at the forefront of cryospheric data management practices since 1976. NSIDC is part of the Cooperative Institute for Research in Environmental Sciences, a joint institute of University of Colorado Boulder and the National Oceanic and Atmospheric Administration. The NSIDC DAAC has been contractually supported by NASA since 1993.

Mark Serreze, NSIDC Director
Ron Weaver, DAAC Manager
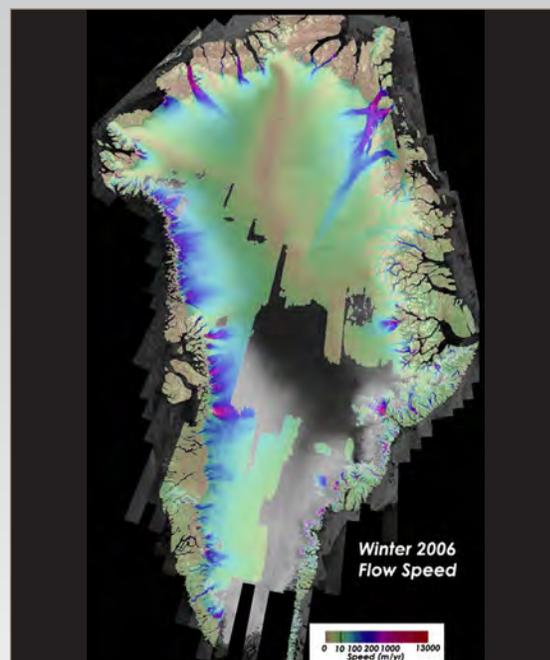*Amanda Leon, Deputy DAAC Manager*

Satellites/Sensors
- AMSR-E, AVHRR, ICESat/GLAS, MODIS, Nimbus, TOVS

Missions/Projects:
- Operation IceBridge, MEaSUREs, field campaigns supporting satellites

News and Analysis
- Arctic Sea Ice News and Analysis
- Greenland Ice Sheet Today

Ice Velocity derived from IceBridge and other data (MEaSURES Program, I. Joughin)

More than 100 terabytes of data in the archive at the end of FY2013
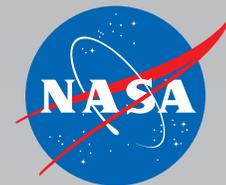**More than 500,000 visits to the web site during FY2013**

National Snow and Ice Data Center
University of Colorado Boulder
Boulder, Colorado 303-492-6199
http://nsidc.org/daac

University of Colorado
Boulder

National Aeronautics and
Space Administration

The DAAC at Ocean Biology Processing Group (OBPG)

Ocean Biology and Sea Surface Temperature

OBPG is part of the Global Change Data Center at NASA Goddard Space Flight Center in Greenbelt, MD. OBPG processes, archives and distributes data for EOSDIS. OBPG joined the EOSDIS DAACs in 2006.

Dr. Gene Feldman, Manager

Ocean Data Processing System
- End-to-End data acquisition, processing, archive and distribution

Missions Supported
- VIIRS/NPP: 2011-present
- MODIS/Aqua: 2002-present
- MODIS/Terra: 1999-present
- SeaWiFS/OV-2: 1997-2010
- CZCS/NIMBUS-7: 1978-1986
- Aquarius / SAC-D : 2011-present
- HICO/ISS: 2009 -present
- MERIS/Envisat: 2002-2012
- OCM-2/Oceansat-2: 2009-present
- MOS/IRS-P3: 1996-2004
- OCTS/ADEOS: 1996-1997
- GOCI/COMS:2010-present
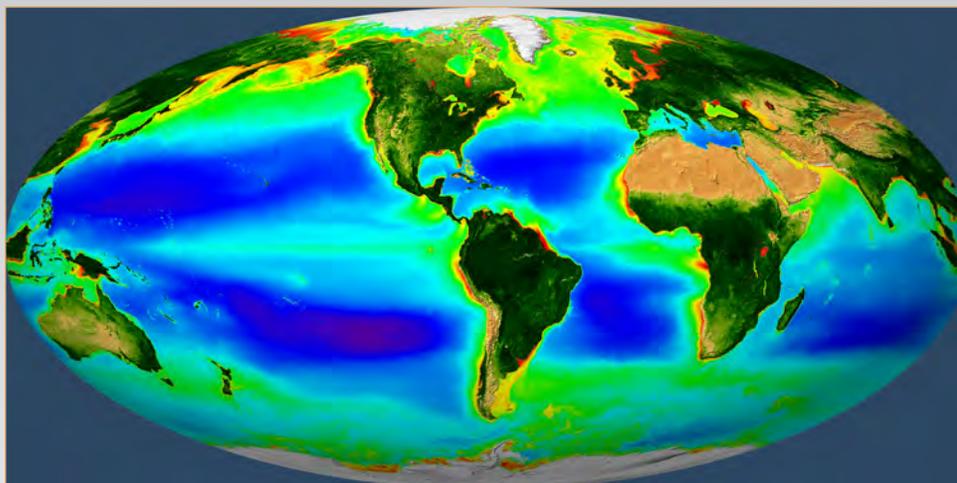
GLOBAL BIOSPHERE, our living planet as represented by the ocean's long-term average phytoplankton chlorophyll concentration acquired from September 1997 through December 2010 combined with the SeaWiFS-derived Normalized Difference Vegetation Index over land.

Primary Focus on Ocean Color
- Sensor calibration/characterization
- Algorithm development (NOMAD)
- Processing software & algorithms
- User processing and display (SeaDAS)
- Product validation (SeaBASS)
- User support (Ocean Color Forum)

More than 500 terabytes of data distributed during FY2013
More than 30,000 distinct data users in FY2013

Ocean Biology Processing Group
GSFC Code 614.8
NASA Goddard Space Flight Center
Greenbelt, Maryland, 20771
http://oceancolor.gsfc.nasa.gov

www.nasa.gov

Entrance sign of the Oak Ridge National Laboratory

National Aeronautics and
Space Administration

Oak Ridge National Laboratory (ORNL) DAAC

## *Biogeochemical Dynamics, Ecological Data, Environmental Processes*

The ORNL DAAC is located at the Oak Ridge National Laboratory. The ORNL DAAC was established in 1993 and is under an interagency agreement between NASA and the Department of Energy.

Suresh K.S. Vannan, Manager
Tammy Beaty, Deputy Manager
Robert Cook, Chief Scientist

ORNL DAAC serves as the primary active archive for biogeochemical dynamics data
- Field campaigns: Terrestrial Ecology intensive campaigns to address key scientific questions
- Land validation: provides field data to assess the accuracy and uncertainty of NASA's remote sensing products
- Model Archive: source code, input data, and output results for terrestrial biogeochemical models
- Regional and global data: Collections of data for Climate, Vegetation, Soil and other environmental variables

Data Tools and Services: Spatial Data Access Tool, WebGIS, and MODIS Land Product Subsets
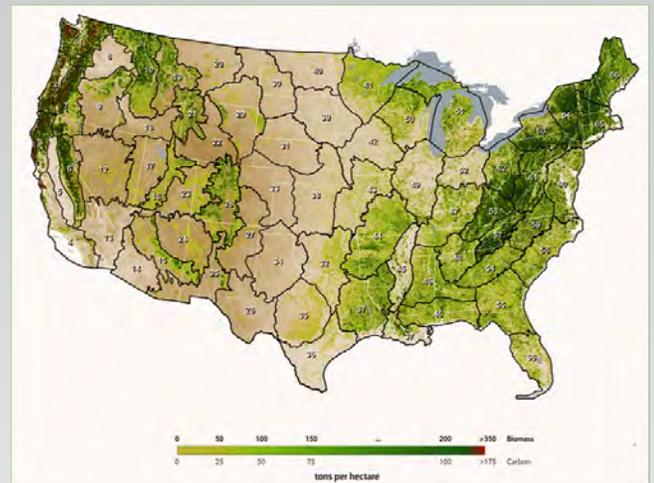
Mosaic image of biomass for conterminous United States. North American Carbon Program (NACP) Aboveground Biomass and Carbon Baseline Data

**More than a 1,000 data products
Nearly 6 million data products distributed during
FY2013 to more than 35,000 unique users**

Oak Ridge National Laboratory DAAC (ORNL DAAC)
PO Box 6301
Oak Ridge, TN 37831
865-241-3952
http://daac.ornl.gov

OAK RIDGE National Laboratory
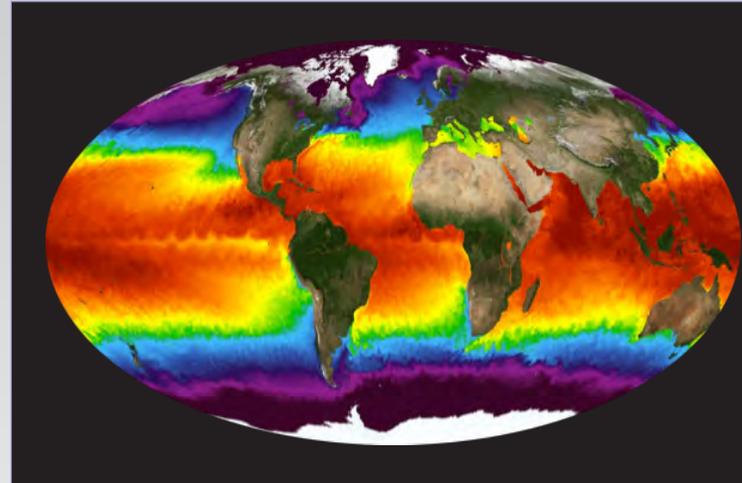
National Aeronautics and
Space Administration

Physical Oceanography
(PO.DAAC)

*Gravity, Sea Surface Temperature, Sea
Surface Salinity, Ocean Winds, Ocean Surface
Topography, and Ocean Currents and Circulation*

The Physical Oceanography Distributed Active Archive
Center (PO.DAAC) is located at NASA's Jet Propulsion
Laboratory in Pasadena, CA. It is tasked with managing data
to enable understanding of the world's oceans.

Robert Toaz, DAAC Manager

Multi-scale Ultra-high Resolution Sea Surface Temperature

- PO.DAAC archives, distributes, and provides science
  information services for NASA's satellite oceanographic
  data. The data support a broad range of applications
  including weather prediction, climate studies, and the
  stewardship of ocean data resources.
- Provides data on physical processes and conditions of
  the global oceans, such as ocean winds, temperature,
  topography, salinity, and ocean circulation and currents.
- Repository of past and present missions and projects,
  including Aquarius, GRACE, NSCAT, QuikSCAT, Jason-1,
  TOPEX/POSEIDON, GHRSST, and MEaSUREs.
- Variety of data access services, such as FTP, THREDDS, and OPeNDAP.
- Variety of tools that provide subsetting, extraction, and visualization capabilities,
  including HITIDE, Live Access Server (LAS), and State of the Ocean (SOTO).

Nearly 90 million products were in the archive at the end of FY2013
More than 230 terabytes of data were distributed during FY2013

Physical Oceanography DAAC (PO.DAAC)
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
http://podaac.jpl.nasa.gov

Aerial view of Columbia University in Manhattan.© 2013 Trustees of Columbia University in the City of New York

National Aeronautics and
Space Administration

# Socioeconomic Data and Applications Center (SEDAC)

Human Interactions, Land Use, Environmental Sustainability, Geospatial Data

SEDAC is operated by the Center for International Earth Science Information Network (CIESIN), a unit of the Earth Institute at Columbia University based at the Lamont campus in Palisades, NY. SEDAC was originally established in 1993 in Michigan and relocated to New York in 1998.

Dr. Robert Chen, CIESIN Director, DAAC Manager
Alex de Sherbinin, Deputy Manager

SEDAC efforts include:
- Human population distribution on a latitude-longitude grid (U.S. and global)
- Human settlements and infrastructure, including roads, reservoirs, and dams
- Ecosystem, agriculture, and wetlands data
- Intergovernmental Panel on Climate Change (IPCC) socioeconomic scenarios
- Environmental treaty status and texts
- Environmental sustainability indicators
- Global data on natural hazards, poverty, and air and water pollution
- Map gallery and online mapping and query tools for key datasets

Population Density 2010
Persons per km^2

0	26–250
1–5	251–1,000
6–25	> 1,000

Storm Surge Extent
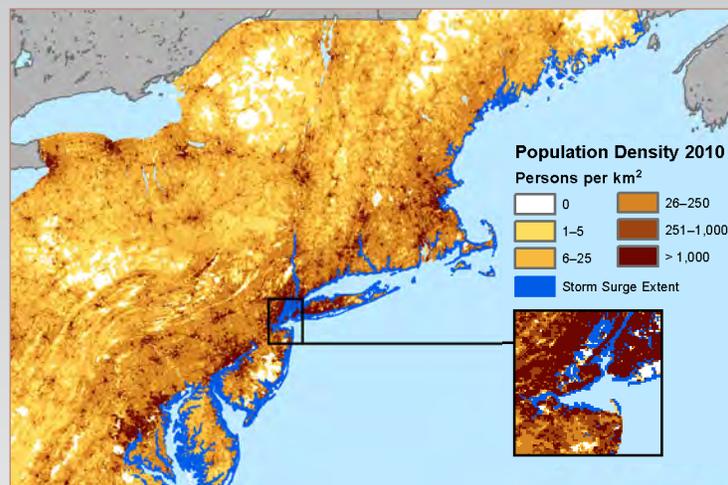
This map shows the storm surge from Hurricane Sandy in October 2012, as estimated by the Federal Emergency Management Agency, coupled with SEDAC population density data for 2010.

**SEDAC data have been cited in more than 2,400 peer-reviewed articles
More than 320,000 distinct data users downloaded data during FY2013**

Socioeconomic Data and Applications Center (SEDAC)
CIESIN, Columbia University
PO Box 1000, 61 Route 9W
Palisades, NY 10964
Phone: +1 845-365-8988
http://sedac.ciesin.columbia.edu

Center for International Earth
Science Information Network
EARTH INSTITUTE | COLUMBIA UNIVERSITY

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

www.nasa.gov