

# NASA Facts

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## **STS-107 Mission Management Team Telecon January 30, 2003, 8 a.m. CST**

Weather Office is here.

Voice 1: OSF Action Center?

Yes, we're on thank you.

Voice 1: Alex McCool?

A. McCool: Right here.

Voice 1: Colonel Jim Halsell

Col. J. Halsell: We're here.

Voice 1: LCC?

LCC: LCC's here.

Voice 1: EMSR?

EMSR: We're on.

Voice 1: Mike Keys?

M. Keys: Mike Keys here.

Voice 1: Jon Cowart? Do we have Jon Cowart on line? We are showing that line connected. We will check that line.

Mike Fuller?

M. Fuller: Loud and clear.

Voice 1: Scott Southwell...we are still receiving his emails.  
Jack Keifenheim

J. Keifenheim: Here.

Voice 1: Chris Hassellbreen?

C. Hassellbreen: Loud and clear.  
Voice 1: Joe d'Agostino?

J. d'Agostino: Dryden's on.

Voice 1: Thank you and Linda Ham?

L. Ham: Yeah, we're here.

Voice 1: Thank you. I'd just like to inform all parties that today's call is being recorded at the request of NASA. Thank you and you may now begin.

L. Ham: Good morning and welcome to the last 107 MMT. We'll go through the normal standard briefing and then we'll do the weather and entry briefing. Phil, how are doing?

Phil: Alright. Crew still is doing well on the timeline...I think we are keeping up with all the science which Vanessa will go back and recap shortly. The last couple of things we were working before the end of mission ATL {attitude time line} for the thermal, for the tires, and the water and everything up to end of mission we've got that all squared away. Everybody's happy. We got a couple of +XVV sessions scheduled in there to get everybody happy with thermal. We've scheduled the minimum Hab water clean-up IFM with the vacuum cleaners as you requested. I think that is about noon today local time or so.

L. Ham: Alright. And really what they are going to do, right, is...stacked...if nothing they're done...if there's something, they vacuum?

Phil: I think they are going to go ahead and stick the vacuum down there in one of the holes and try draw anything out that they might not be able to see...

L. Ham: Okay.

Phil: But we're not taking any covers other than getting under floor, we're not taking the cover off...

L. Ham: Alright, I believe the cabin fans are back there by that box so could look under the floor. It'd be good to make sure there's no water anywhere.

Phil: The crew has been doing periodic inspections back there and hasn't seen any accumulation of water.

L. Ham: Under the floor?

Phil: Yes.

L. Ham: Alright. Okay. Good.

Phil: Couple of things...I guess...the prop margins have pretty much held steady with what we were reporting before about 500 in the forward and about 900 pounds in the aft. Cryo margins running about 2 days 13 hours at nominal mission usage or 2 days 23 for wave off days in group C.

L. Ham: Okay

Phil: They are working the post wave off ATL {attitude time line} still to try to make sure that we balance water and thermal and cabin temperatures and all that sort of thing. There's a meeting at 3:00 this afternoon in the MER to hash out some details on that.

L. Ham: Alrighty, so we got through Wednesday for sure EOM +4

Phil: ...I think it's just a question of balancing how many attempts you got or whether we can make enough water to add another attempt to Leroy's list but he'll go through all of that part and like I said, \_\_he's balancing cabin temperatures against that sort of thing. End of mission down weight, just to give you an update since I know you want to talk about the waiver here...our best estimate right now is 234,011.

L. Ham: ...that waiver signed, signed it yesterday.

Phil: Okay, then I guess we're done.

L. Ham: Up to the limits everyone evaluated. Alright we're done. What's that number again?

Vanessa Elerbe: 234,011..

Phil: 234,011, we're barely of 234. Probably...we're probably not smart enough to be that accurate....to within 11 pounds.

L. Ham: So that's even more heavy.

Vanessa: Right.

Phil: We came out slightly heavier, again this goes back to the as we started turning off more and more rotating equipment, I think the Cryo margins kind of increased and you've seen this go up now here 2 days 13 hours (?).

Vanessa: Okay. So, what we'll have to do is get Systems Integration to look at the Cargo Integration process because they went to 233.7 and ...no 234.

Phil: They went to 234.

Vanessa: Just 11 pounds over but we just need the nozzle Guy, but they already said....

L Ham: Well, the Navguy we don't need to worry about because at the post mission inspection we're going to get whatever we get.

Vanessa: Exactly.

Vanessa: Cargo Integration piece ... that's just 11 pounds over.

Vanessa: Right

Phil: The nozzle guys went to 234.8.

L. Ham: Yeah, everyone else went...so...Don are you on?

Dave: This is Dave and we got the action.

L. Ham: Yeah, but you're probably okay with 11 pounds over what/where you looked at.

Dave: Yeah, I assume we are, but I need to ask a question.

L. Ham: Let's just turn something on. I'm serious.

Phil: That's one of the answers to the water thing making more opportunity. You got 19 or 20 or 23 hours of Cryo above the +2 +2, then there's 19 hours of Cryo that you can turn into water to make more landing opportunities or less weight or whatever you want to do . . . see if we can get rid of 11 pounds.

L. Ham: Okay.

Phil: That's all I've got except Leroy's stuff.

L. Ham: Okay, MER?

MER/Don McCormack: Linda, earlier in the mission we got a problem with ICOM B and we had the crew go back and check that again and apparently it worked fine. Apparently it is a configuration problem we think earlier. Like Phil mentioned our guys are working with the MOD guys working for the end-of-mission attitude extension attitude for water production for main landing gear tires. Other than that we're in great shape; we're not working anything else.

L. Ham: Good. Vanessa.

Vanessa: Okay, Linda, for the SpaceHAB subsystems...they are tracking the water pump package has been showing a little bit more degradation as we've been going along here. What they are now looking at now is the flow rate for the pump, nominal it should be 500 pounds per hour and currently it's at 390. The delta P has been degrading a little more faster than we predicted or said on Monday. So what they are going to do is keep monitoring the flow rate. There's a flight rule currently on the books that says that if we go below 140 that we consider the system failed however, the SpaceHAB guys are reporting that the transducer on that system is biased by about 60 pounds so that if it's 140 what it's showing is actually at 200. So we are going to put a CHIT into the system to identify that we do have an error.

L. Ham: More than one flow meter? Or is there only one?

Vanessa: There's two.

? \_\_\_\_

L. Ham: Are they both biased?

Vanessa: Just the total flow is biased.

L. Ham: Okay. So you probably know what you have based on the other one too. Okay. Alright.

Unidentified Voice: What was the answer to that?

L. Ham: There are two; one is total flow and one is payload heat exchanger...

Vanessa: Payload heat exchanger

L. Ham: Payload heat exchange and only one is biased—the total flow.

Vanessa: But the flow that we are looking at per this flight rule also what they are looking at is the total flow.

L. Ham: Right, but they will still have a good handle on how much flow they are really getting because they do have another ducer {transducer} and they also think that this one is biased since pre-launch.

Vanessa: Right and the flight rule is also written for a higher heat load than we actually running at in the module so we'll just put a CHiT into the system to explain the instrumentation error and also to look at the heat load in terms of declaring that system to be failed.

L. Ham: Okay, so we think the limit will be lower than 140 pounds per hour before we declare it failed and SpaceHAB is going to document it through the CSR and the CHiT and MOD folks. That way we can update the rule or whatever we need to do. We said nominal flow is 500 pounds an hour, this flow is 390.

Vanessa: It's at 390.

L. Ham: Okay, loop 1 that we switched the other day, the one that was degraded is at 320.

Vanessa: Right.

L. Ham: So they are both degraded.

Vanessa: Right. So, right now we have 3 days to go, think we are going to be good, but we'll make sure, we'll stay on top of it and make sure the rest of the team is aware of what is going on.

L. Ham: Right, and keep me apprised; if we get the point where we switch back to the other loop then we ought to talk about how many days we want to keep extending. You'll lose a bunch of science if we lose both water loops?

Vanessa: Absolutely, yes. The BDS {Bioreactor Development System}{(?) as everybody knows has been doing great science and EORF {Enhanced Orbiter Refrigerator/Freezer} and all of the samples we collected back there so want to make sure we keep the system viable so we can get the samples back home. Other things with regards to the payloads themselves, they all are still operating nominally. CM2 on its activation day had some problems with initial setup. IFMs were run yesterday and the runs have been successful since then. They are catching up on their runs. One of the actual samples is an atomizer itself. They don't think they will be able to run that sample again. That was the one they had problems with on the initial setup, but, however they are getting very good science and FREESTAR has captured dust over the Atlantic and they very pleased with that. So all in all, payloads is still doing very well. ...to come home safely.

L. Ham: Thanks. Okay. Bob?

FCOD/Bob Cabana: No issues, Linda.

L. Ham: Okay. Sam?

Sam: The crew is healthy and we're not working any issues.

L. Ham: Integration?

Integration: Yeah, we're working a few things. One of the things that we're working—SpaceHAB's inverter, due to the moisture content—they're just looking, again, just looking/preparing in case we get a case because of the moisture to pull from breakers as a back-up plan. Right now everything is okay and nominal but they are just working some contingency issues.

L. Ham: ?

Integration: And we'll go back and take a look at the down weight.

L. Ham: Okay. Anything else? ?

Integration: Yeah, nothing else.

L. Ham: Loren?

Loren: Nothing else from us.

L. Ham: Shuttle Processing?

Shuttle Processing: Nothing to report, thank you.

L. Ham: Launch Integration?

Launch Integration: Nothing from here, Linda.

L. Ham: Marshall Projects?

Marshall Projects: Nothing today.

L. Ham: Safety?

Safety: Nothing.

L. Ham: Okay, I have one...I did get email from Jolynn? talking about getting the cameras out on the run-way and planning to get them shipped to JSC and she had asked, FCOD has asked, whether we want to hold the STA {Shuttle Training

Aircraft} and try to get the cameras on the STA to get them back here and I did talk to the people out at Ellington about that and we would like them to hold the STA and get the cameras on. We think we can meet your 3:00 wheels up time, Bob, and that's a crew length of day issue. So we think we can get you the camera if we land on the first rev in time to get that back here at JSC. I think Building 44 got some kind of power outage on Sunday so, or Saturday, once they get back open on Sunday we'll get the film developed into Marshall by Monday. I think there is also some film that ends up getting developed at the Cape but the plan looks like it's coming together to get Marshall those views, so Bob we appreciate you support at FCOD.

Bob. Page/KSC Photo Analysis Team: Linda, this is Bob Page, we would also like to get the crew hand-held film on the STA, and that means getting it out of the bag of film so I hope the crew put in a separate bag like it's supposed to happen but sometimes it doesn't.

L. Ham: That's standard ops? Because we have not asked them any special procedure.

B. Page: It's standard ops that they are suppose to put that film from the ET in its own bag and then put that in the bag with the rest of the film so it's easy to find so we can process it first and the crew here on the ground would like to pull it out of the bag and get it on the STA with the rest...with that camera.

B. Cabana: Linda, normally all the film ends up in a bag on the middeck for getting it off easy. It's just a matter of looking in that bag for that film and it should be labeled.

L. Ham: ...don't want...the crew to do anything special because it will be in that bag and it should be labeled.

Marsha Ivans: The film comes off the orbiter on the runway and its processed.

L. Ham: It actually get's developed at the Cape?

Marsha Ivans: No, no. \_\_\_\_\_?

L. Ham: Okay, and we're hearing from Marshall that does come off on the runway, Bob, you probably know that and you guys just need to make sure you get your hands on it.

B. Page: That's correct.

L. Ham: Okay. Anything else today? Okay, let's go on with weather and entry brief.

Weather: Good morning. The...currently, if you look at the video you see a low pressure system up there over Georgia with a front trailing across New Orleans, that low will be moving off to the northeast and dragging that front across the Florida panhandle today. By tomorrow, that front will be dissipating somewhere over Florida with the high pressure that's now over Texas will be building eastward bringing dryer air and light winds into Florida for Saturday's landing opportunities. With that, we can start with landing opportunities for Saturday. You can see it's pretty much a ridge of high pressure over Florida with really no frontal systems anywhere in the vicinity, just the one down over the Bahamas and the one up in the Tennessee Valley. So with that, let's look at the forecast for Saturday's landing opportunities.

L. Ham: So your not thinking about any fog for Saturday?

Weather: It may be a good time to discuss the fog situation, I know we've had some questions about it. You'll notice I did not put fog in the forecast for Saturday for two reasons. Number one, with the dryer air pushing into Florida and then I'm expecting the winds aloft to be between 8 and 12 knots in the lower thousand feet and that should provide enough turbulent mixing to preclude the development of fog. However, the down side to that would be, if the winds are lighter than what I'm expecting in the lower thousand feet, let's say less than 10 knots and fog should form, then the good side of that is we'll see it form before we have to make a de-orbit decision because we are de-orbiting, our landing time is like 2 hours after sunrise and so that way we'd be de-orbiting well after the fog would form. So we'd see it. There is no way that the fog is going to form after we de-orbit. So, the only bad part to that would be if it did form, we might have to wait another opportunity because the flight rules says that you have to be go-observed at the same time. But I'm not expecting that because of the winds and dryer air, I'm really not expecting it. And even if it did form, it would burn off by landing time since we've got 2 hours of sunrise, of heating before our touch-down for that first opportunity. Therefore, I didn't really mention fog. Questions?

L. Ham: No.

Weather: So it looks, for the first opportunity on Saturday at KSC, just a few clouds at 3500 feet and scattered clouds to 25000, winds from 300 degrees at 6 peaking to 9 knots. The second opportunity is about the same, maybe a slight increase in wind but really no significant difference. Both Edwards and White Sands have acceptable weather for Saturday. Any questions for Saturday?

L. Ham: No questions.

Weather: For Sunday, in the event of a wave off, the change there at KSC would be that the winds coming around to the northeast would, may bring some of the low clouds offshore close to the landing facility so for that we've put in a slight chance of broken clouds at 3500 feet, winds out of the northeast at 7 peaking to 10 knots. Out at Edwards, we may start to get some Santa Anna wind conditions

out there so we've got northeast 30 degrees at the 13 knots peaking to 23. No wind violations at Edwards. White Sands is going to be getting a lot of wind out there particularly in the afternoon hours, so we've got crosswind and headwind violations out there with a chance of 4 miles and blowing dust, visibility is reduced out there due to the strong winds. So we've got 2 20 at 18 peaking to 30 at White Sands. So that's the situation for Sunday in the event of a wave off. Any questions?

L. Ham: No questions.

Weather: Okay, for Monday, EOM+2, the only difference there going from Sunday to Monday at the Cape, would be mainly the winds swinging around from northeast to southeast and generally that's a little more favorable for not having ceiling violations so we didn't put any violations for Monday's forecast in there, just scattered low clouds, broken high clouds, and southeast winds at 7 peaking to 10 knots pretty close to the run-way configuration there. Edwards and White Sands both look good for Monday with winds at Edwards about 10 to 18 knots out of the northeast and clear skies at White Sands with light northwesterly winds. So the bottom line is things look real good for Saturday and in the event of a wave off, still looking pretty good for both wave off days at both KSC and Edwards.

L. Ham: Okay, any questions for Weather? Alright. Leroy?

Leroy Cain: Okay, good morning, you should have the deorbit entry planning briefing, two charts. I'm not going to tell you much, Linda, that you don't already know. We have plenty of consumables and plenty of deorbit opportunities on all the out days. Just to go over it briefly, we do have EOM+4 which is a landing on Wednesday and LiOH is still the limiting consumable there. As far as propellant, we have plenty of propellant to support 2 opportunities on each one of those days. I made a note we could probably get 3 opportunities on one or more of those days is what it looks like but we don't have enough yet to get another day. I anticipate that might even change. Supply water is the same storage we usually have. We have 6 to 7 opportunities for the first 3 days and then it will just depend on how early we wave off on those first few days, those first opportunities, how we manage the water and we'll do that as we normally do. Cryo is the same story as prop. And I've already mentioned the LiOH. As far as the trajectory, we do have 2 opportunities to both sites on end-of-mission day. Same thing on EOM+1. The first day, there's overlap but it's not going to come into play.

L. Ham: Yeah, but for the first rev even if we want to land in the dark at Edwards?

Leroy: Yes, but I'm not considering that for these purposes.

L. Ham: We don't need it.

Leroy: Yeah, right. The comment was just that Edwards really does have an overlap opportunity the first day but it's dark and obviously we wouldn't even consider that so I didn't put it on here. As far as the daylight opportunities go for KSC, we do have two opportunities everyday except the last day on EOM+4, we just have one. At Edwards, we have two daylight opportunities the first two days and then one the remaining days. And Northrup..

L. Ham: And these are just lit ? 2 2 1 1 1 at Edwards is just lit?

Leroy: Just the daylight.

L. Ham: We have more if you count the dark ones.

Leroy: Exactly. On the Edwards discussion, of course we're not planning to activate for end of mission. My recommendation is that we shouldn't need it through EOM+2 and so if we happen to still be on orbit after the weekend, after an end of mission+2 wave off, we could have a discussion as we look at the weather and determine whether or not if we want to bring it up.

L. Ham: I agree unless something happens with the SpaceHAB and the water loops that we don't need to activate Edwards through Monday inclusive and then Tuesday would be pretty much pick'um day.

Leroy: Correct.

L. Ham: As we gain another \_\_\_\_\_ Tuesday we'd call up Dryden.

Leroy: Yes, and I think from propellant and Cryo there's a good chance that we could manage it such that we get to that point we could actually get another day but the LiOH is where we'd have to get creative.

L. Ham: Right, and we don't need it.

Leroy: And we certainly don't need it. The APU plan is our standard plan. On the second page, there's some details of the de-orbit opportunities in particular for the first couple of days. I just put the KSC opportunities on here. The timeline summary has the summary for today. Tomorrow and end of mission -1 as far as when the crew gets up and where we come in, I'll come on with the entry team at 1:30 in the morning and then we'll get into our standard preparation for L-1 day FCS {flight control system} checkout, etc. We come in the same time Saturday morning with the first weather briefing being just after 3:00. TIG for the KSC opportunity on Saturday, the first opportunity is 7:18 with the landing at 8:16. Those are central times. And then I've got the times on there for the backup opportunities. So you already heard the weather story and it sounds very

good and we obviously have plenty of consumables and plenty of opportunities, so we're not working any issues.

L. Ham: Great. Any questions for Leroy? Alright, so the plan is to just use KSC for Saturday and hopefully we get landed and we don't even need to think about Sunday or Monday. But, alright, any other discussion for today. Thank you.

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