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STS-115 POST-LANDING NEWS CONFERENCE

SPEAKERS:
MICHAEL GRIFFIN, Administrator, NASA
LYNN CLINE, Deputy Associate Administrator, Space Operations
LeROY CAIN, Space Shuttle Launch Integration Manager
MIKE LEINBACH, NASA Launch Director

[Moderated by Dean Acosta, NASA Press Secretary]

8:30 a.m. through 9:15 a.m., EST
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NASA Kennedy Space Center

[TRANSCRIPT PREPARED FROM A WEBCAST RECORDING.]
MR. ACOSTA: Good morning, and welcome to the post landing of STS-115. I am your moderator, Dean Acosta.

To my left, we have NASA Administrator Michael Griffin; to his left, Lynn Cline, the Deputy Associate Administrator for Space Operations. To her left, we have LeRoy Cain, Space Shuttle Launch Integration Manager, and to his left, Mike Leinbach, NASA Launch Director.

We will start off with some opening remarks, and then we will go to your questions and answers. We will have time to get to everybody in the room. So feel free to do that. Also, please identify yourself and your affiliation before asking your question.

All right. I will turn it over to the NASA Administrator Michael Griffin.

ADMINISTRATOR GRIFFIN: Thanks, Dean.

I am glad to be here with all of you on obviously a really great day with only one dark spot on it, and we will be soon through that.

[Laughter.]

ADMINISTRATOR GRIFFIN: The teams did a wonderful job, the flight directors, the whole team. You have seen a
great effort on NASA's part by a truly great team of people.

I think it is obvious to me and I hope it is obvious to you that we are rebuilding the kind of momentum that we have had in the past and that we need if we are going to finish the Space Station because we have an awesome task ahead of us. The Space Station is half-built. We have half to go. When we are all done, it weighs nearly a million pounds for humanity's first really long-term outpost in space, and we are halfway there, but I think we are going to make it.

It is a great day. Thanks.

MR. ACOSTA: Lynn?

MS. CLINE: Good morning. It is a pleasure to be here.

When the President announced the Vision for Space Exploration, he said we would do this using our current vehicles, one mission, one voyage, and one landing at a time. So you can see, we are very much on plan for that.

As Mike said, we have a very capable team, both on orbit and on the ground, and this was particularly complex because we had to orchestrate a lot of things
across both the Station and the Shuttle Program. Putting in this new power system required the entire team to be involved in that, and as you know, we have a lot of people on orbit this last week. In addition to STS-115 completing its mission this morning, on orbit right now we have Expedition 13 handing off to Expedition 14.

You will also see from the crew that we have had up there the last week, exercise of our international partnership and how important that is to us with a Russian, European, and American crew on the Station and a Canadian-American crew on the Shuttle.

All of these things help us learn to live and work in space and do it on an international basis, and it is a great foundation for our future exploration.

Thank you.

MR. ACOSTA: Well said. Thanks, Lynn.

LeRoy?

MR. CAIN: Okay. Well, good morning. It is really great to be here with you again this morning. I was kind of thinking on the way over here, I didn't have much to tell you in the way of opening remarks.

What I would tell you, though, is that it is pretty hard
to come close to having a day as good or better than the
day where you have a safe and successful launch of the
Space Shuttle, but, of course, a day like today where we
have a safe and successful landing is right up there next
to it. Of course, that is what we did today, and we are
very happy to say that Atlantis is back home.

The entry and landing were right by the numbers.

I spoke with our colleagues in Mission Control before I
came over here to talk to you, and they really didn't have
any problems to work during landing. It was really right
down the middle, and, of course, Brent Jett and his crew
just performed outstandingly, as they have done for the
entire mission.

It is really a great accomplishment for us and
for the whole team, and so we are ready to turn Atlantis
over to Mike and his team and get her ready to fly again
next year.

We will look forward here to our next mission.
We will review all the data from this mission as we do with
every mission that we fly, and we will continue to follow
the data wherever it leads us, but preliminarily, the
vehicle just looks extraordinarily clean. We are just real
happy about a safe landing and a completion of an extremely successful Space Shuttle mission.

So I will turn it over to Mike.


Atlantis is home, and it feels good to have her back at the Kennedy Space Center after an outstanding mission.

Out at the mid-field park site this morning for landing, we had some of the current leadership of the Atlantis team as well as some of the previous leadership of the team who had been working on this ship for over 4 years to prepare her for this mission, and it really showed. Atlantis looks terrific out there on the runway.

So it will make the turnaround job that much easier for us from a qualitative sense. Of course, we do a very detailed inspection of the ship, but from a qualitative sense, she looks as good or better than Discovery did after her last mission.

So it is outstanding to have her on the runway, have her back home. We will get back into processing this afternoon and turnaround for a flight in February. So it is good to have her home.
MR. ACOSTA: All right. Thanks, Mike.

Now we will open it up to questions, and as I said, please identify yourself and who your question is for.

Let's start on the end right there with Jay.

QUESTIONER: Jay Barberi with NBC.

Mike, yesterday Wayne said that he hoped to be able to get the next mission off as early as December 7th. Do you have any problems doing that, and is there any hope that you will ever pay me the dinner you owe me?

[Laughter.]

ADMINISTRATOR GRIFFIN: Certainly not on that last one.

[Laughter.]

MR. LEINBACH: I make good on all bets I made, but we didn't shake on that one, Jay.

[Laughter.]

MR. LEINBACH: We will make good on it. I promise you.

Turning around and getting Discovery ready about a week early, we are assessing that right now. It is really going to be paced by the external tank that you know
arrived a day or so ago. The tank is being lifted today
into the checkout cell. So that is really the pacing ops,
not Discovery herself. So we will assess that over the
next week or so and report to LeRoy and the rest of the
program if we think we can make it.

First blush is we are going to give it a good
shot and probably have a shot at it, but we need to go
through all the data.

MR. ACOSTA: All right. Let’s stay on the front
row with John.

QUESTIONER: John Johnson, Los Angeles Times.

You accomplished everything on this mission and
more than you started out hoping you would, but if there
was one minor issue on the other side, it would be, I
guess, this litter problem.

Yesterday, Wayne Hale talked about we have a
little more work to do in that area, and I just wonder can
you talk about specifics to prevent things that happened in
this mission in the future.

MR. ACOSTA: Do you want to take that, Mike?

ADMINISTRATOR GRIFFIN: Oh, I will take it from
the top, and if you have anything to follow up.
I mean, I appreciate the question. I have been asked this recently, and I am going to give a somewhat similar answer.

Guys, it is a cargo bay. Okay? Our object in life is to make sure -- and we do that -- that there is nothing dangerous in it, and we certainly don't want any debris at all, but humans are not perfect and they are not perfectible. For the 25 years that we have been flying the Shuttle, guys have been coming back and saying, "When I opened the payload bay, this or that came out," and it is nothing that we ever intend to be there, but it would cost us an awful lot of money and an awful lot of extra effort and an awful lot of extra operations to make absolutely certain that this cargo bay was pristine. Frankly, I am not sure that that is where we want to put our resources.

The guys here do a superb job for all the work that goes into processing a Shuttle and getting a payload in it, and all the operations we have to do in the cargo bay, they do an incredible job.

It is not a perfect job, and in Zero-G, you know, everything that wasn't perfect comes out, but they do an awesome job. I would not want one or two pieces of litter,
as it was called, to be the focus, or maybe I would.

Actually, if our missions get so good that you guys in the media can focus on that, then we are doing pretty well.

MR. ACOSTA: All right. Let's go back along the wall. Let's go with Mike Cabbage.

QUESTIONER: Mike Cabbage with the Orlando Sentinel for Mike Griffin.

I know you are supposed to make a decision next month on whether or not to fly the Hubble Mission, and it would seem that there were a couple of developments on this flight that would, I guess, weigh in favor of doing that, the fact that for the second straight mission, the tank performed pretty well, and also the apparently increasing confidence and efficiency with which the on-orbit inspections and things like that are going.

I know there are other factors out there, like the availability of CSCS and the lack of safe haven and that sort of stuff, but could you talk about how this mission, that what happened during this mission, how it might affect that decision and whether those things like the tank's performance and the inspections and how that went, how that might factor in?
ADMINISTRATOR GRIFFIN: Well, as a first, I mean, you have almost made the points yourself. I can review them, but you know, I think, the issues, Mike, as well as I do and as well as this team does.

There are certainly people at this table who have seen more orbiters than I have come back, but I have seen a good number and over two different eras, the early 90s and then now today. The differences are night and day.

This group of people was walking around a half-an-hour ago underneath the orbiter looking for dings. They are hard to find. I got up to a half-a-dozen, and they were the size of my thumbnail, and they didn't have any penetration to them. They were skin stuff only.

We have the orbital imagery that we will be able to look at and determine, in fact, whether all of the dings that we saw were even caused by ascent. Some of them could have been debris kicked up on landing, but we will be able to know that because we have the orbital data.

So the first and most important thing about a Hubble decision is, of course, when we launch an orbiter and can't do CSCS, as we cannot for Hubble, then we want to know that we are going to have a clean bird.
We are now two flights along, two very clean orbiters, Discovery and Atlantis, and I think most of us would say Atlantis was even cleaner. It sure looked that way on first blush. So that is great.

So the tank is performing well. Gap fillers are staying in. Really, that part is all looking good.

Inspection is going quickly and efficiently, and you are right. That is a key part of it. Our object in a Hubble servicing mission, if we are able to make that decision, is to service Hubble. It is not to go up and inspect. So the orbital inspection needs to be quick and efficient and positive.

We need to know that we have at least some repair capability should we need it, and the last mission gave us some excellent experimental evidence in that regard.

We won't have CSCS, and so we have to review our launch-on-need posture, is that something we really want to try to do, because for Hubble we would have to have a bird on the other pad, and that has implications. I don't know where we are on that yet. As I said fairly recently, if we had already decided, we wouldn't be having a decision meeting, but around the end of October, we are going to
have an agency decision meeting, and all the people who
need to be there to play in that discussion will be there,
folks far more expert than myself. In the end, it will be
my decision, but it is input from all corners of the
agency.

I have outlined some of the considerations that
go into it, and there are others. So, when we can let you
know, we will. We really will.

MR. ACOSTA: All right. Thanks.

Let's go to the second row right there. Holly?


This mission went very well, and the astronauts
were so efficient that they were able to get to some
get-ahead tasks and accomplish even more than what was on
paper, a very busy mission.

How confident are you with your packed schedule
through 2010 that other teams and crews who don't have four
years to prepare will be able to accomplish those things in
the same way and that you will be able to make all of those
missions by 2010?

ADMINISTRATOR GRIFFIN: Well, I am very confident
in our teams. I think this team did have four and a half years to train, both the ground and the flight crew, but, you know, they didn't need four and a half years to train. The last mission, I would remind you, went extremely well, and the one before that went extremely well. The folks know how to step up, and that is what you are seeing. We are back into more of a normal operational tempo now. We have data that we never had before. We understand the tank and its issues and its performance better than we ever have before.

I am very confident that we will complete the assembly of the Space Station on schedule by 2010.

MR. ACOSTA: All right. First row, let's go to Tom.


The success of this mission and the previous mission, does it in any way lead you to believe that you may not have to do the thorough inspection of the RCC and the tiles at any point down the road? Might you back off of that inspection, or is that going to be standard for the next 14 or so missions?
MR. ACOSTA: LeRoy, why don't you take that.

MR. CAIN: Okay. Yes, sure. I will take that one.

Our plan right now is to inspect every mission, and, of course, as with everything we do, we will continue to evaluate that and tune it, but the intent right now and what we have put into our flight plans for every one of the upcoming missions is that we will do the inspection of the heat shield before we clear the vehicle for entry.

You may see some differences along the way if we find some efficiencies or, as I say, if we learn more from subsequent missions as we go down the road here. You may see some subtle changes or maybe some not-so-subtle changes about how we do that as far as techniques and tools and those kinds of things, but our intent is to inspect the vehicle before entry.

MR. ACOSTA: All right. Let's go to the second row. Mike?

QUESTIONER: Hi. Mike Schneider, Associated Press.

I guess my question is for Mike Leinbach. Since the external tank has been redesigned with the PAL ramp
removed, I know that there are plans underway right now for further redesigns in the tank, but given that you have had two launches where the foam loss has been relatively benign, do you think that you have a design right now that you could live with?

I guess as an addendum to that question, how has the performances of the past two tanks that have been launched compare to the tanks that you have had in either redesigns, trials in the wind tunnel tests?

ADMINISTRATOR GRIFFIN: I am actually going to take that one because it gets a little more cross-agency. First of all, I think in prior press conferences, what you have actually heard me say is that we would do one of two things. Either we would have a new ice/frost ramp design that we liked and that we knew why we liked it or we would find a way to get comfortable with this ice/frost ramp design because, in light of the flights we have done and the data that we have taken, we would understand it better. Because we have said all along that in flight the ice/frost ramp actually appears to perform better than the analysis would tell you that it does. That, of course, is an indication that there are some things going on that we
don't understand.

In that particular case, the lack of understanding has been in a good direction. It performs better than we had analyzed.

The ice/frost ramps have clearly performed very well on the last two missions. So we don't need to make changes that we don't need to make. So we are going to be looking very carefully at whether we do or don't need to make a change. It is not a settled issue.

The guys, the teams are working vigorously on a new ice/frost ramp design, one that they like, one that we think can do the job, and in the light of these last two missions, we will also be examining the technical data from the performance of these tanks very, very carefully in trying to determine which is the best path for us.

We are prepared to go down either path. We simply want to go down the best path based on the data that we acquire, and that is what we will do. That is in no way a done deal in either direction yet.

MR. ACOSTA: All right. Let's switch sides of the room. Let's go over here.

QUESTIONER: Hi. Eliot Kleinberg from the Palm
Beach Post.

Foam, lightning, hurricanes, fuel cells, fuel sensors, and space debris, you had some great practice in dealing with adversity, but all things being equal, you probably would have done without the hassles?

ADMINISTRATOR GRIFFIN: Well, anything that doesn't have to happen to you is good.

MR. LEINBACH: We could list another thousand things or ten thousand things that didn't go wrong, if that helps you.

QUESTIONER: What is the value of all this adversity?

ADMINISTRATOR GRIFFIN: Well, this is just routine life in the space business. I mean, at least for my 35 years of it. I mean, maybe we had a couple more things on this mission that we haven't had on some others, but, Mike?

MR. LEINBACH: We use the word in Shuttle processing "flexibility" quite a bit, and this processing and launch and mission demonstrated that -- that we are flexible. We can deal with issues as they come up and get to the right engineering solution when we get there. So it
is what we do for a living. I don't see this as adversity. I see this as a group of professionals responding to issues as they come up and resolving them, and this time, it led to a launch and a great mission and a great landing, so not adverse at all. It is what we do for a living.

ADMINISTRATOR GRIFFIN: I am going to jump back in because these two guys right here, LeRoy Cain and Mike Leinbach, are the guys who led the team in the discussion. You mentioned the hurricane. A couple of weeks ago, a few weeks ago, we had a hurricane bearing down on this area or what was then a hurricane, and they were leading the discussion, but I was in the weather briefing at 7:00 a.m. on the day that we decided to roll back. If you heard the weather briefing at 7:00 a.m. and didn't decide to roll back, you were an idiot. Okay?

So they decided to roll back and they got halfway through it, and we got another weather briefing which had completely changed.

Now, I know that you are shocked that the weather in central Florida can change, but, you know, this time, it did. Considering all of those factors, these guys then made the very gutsy call, which saved this launch window,
to turn around and go back to the pad because the forecast winds had dropped to well below tropical storm strength. That is the kind of flexibility that Mike Leinbach was just alluding to, and it is another example of following the data and being driven by the data that I keep saying is what we need to do and what we do do at this agency. So we saved the taxpayers millions of dollars for delays and turnarounds and all that kind of thing that didn't have to happen because people were on the top of their game. There were many other people who contributed, but these were the guys leading the team that were on top of their game. I am proud to be associated with them.

MR. ACOSTA: Good example.

All right. Let's go back along the wall. Let's go to Todd.

QUESTIONER: Todd Halvorson of Florida Today for anybody who wants to take it.

I am wondering if you guys are ready to lift the daylight launch restrictions at this time, and could you discuss the importance of actually lifting those constraints to the completion of the Station on time?

MR. CAIN: Let's see, Todd. I will try to answer
your question.

As you know, we are talking about the lighting constraints and the self-imposed constraints that we have, and we are reviewing those constraints. We are soon going to make a decision.

I expect that we will, in all likelihood, be able to launch at night as early as STS-116, but we are going to go pound that flat and make sure that we are not missing anything and talk to the team and see what they have to offer.

It is extremely important to us, and we will, if not on 116, get back to being able to launch without lighted conditions at some point here because we have to, and we have known that for some time, in order to complete the Space Station assembly.

If you look at the launch periods and the launch window capability that we have, being constrained by daylight for launches were always daylight at ET separation throughout the calendar year, it is repeatable, as you might guess, and it is not very plentiful. So it is extremely important to us. We are looking at it very hard to see if we can get there, if we are ready to step up on
STS-116.

My personal expectation is that we probably are, and if not then, it will be soon after that, but the answer is going to come soon, and we are reviewing it as we speak.

MR. ACOSTA: All right. Go ahead.

QUESTIONER: Just a quick follow-up. If you did not lift the restrictions for 116, would you have to push that mission back into February? What are your other options?

MR. CAIN: No. I expect us to be able to launch in December, STS-116, daylight or not, and we have got a launch date that we are working toward. We will just have to see if we can expand it a little bit as to whether or not we have capability on either side of the window with respect to lighting. I see nothing in front of us right now that will prevent us from being able to get ready to fly in December.

MR. ACOSTA: Let's stay along the wall. Tariq?

QUESTIONER: Thank you. Tariq Malik with Space.com and Spacenews.

I think for Lynn, this mission was not only challenging from a station construction to flight, but also
a spacecraft wrangling. You had the Soyuz, the Station, and the Atlantis there. I was just kind of curious how that experience, as well as construction, kind of, I guess, enhanced the team's preparation just for ISS assembly and even, I guess, post-Shuttle operational.

MS. CLINE: Okay. I was wondering at one point if we needed to install a traffic light on one of our EVAs.

We did have a lot of vehicles, and basically, we took it one step at a time. We had a set of constraints that we were working to, to try to have the maximum time for the crew on orbit on Station in between the visiting vehicles, and we carefully looked at each of those as we came up to a decision point and worked our way through what was the right answer to go forward. As we said before, this is a team that can be flexible, and we figured out what were hard constraints and where we had some room to maneuver.

This international partnership has worked extremely well over the years. It is a good framework, and we worked very well together across the different countries. So this is more part of our learning experience, and it will serve us well as we go forward.
because, as you know, in the future, we have other visiting vehicles that we will be working with, with the automated transfer vehicle from Europe and the HTV from Japan and our own commercial orbital transportation services that we are looking at post-Shuttle for cargo. So this is a lesson we need to learn, how to have multiple visiting vehicles and what are the constraints, and so this was a very helpful experience for us in that regard.

MR. ACOSTA: All right. We will come back to this side of the room, and then we will go back to the wall.

QUESTIONER: Stefano Coledan.

I was wondering, as far as the debris problem, could that have been caused by the prolonged stay of the truss at the Space Station processing facility? I mean, it has been there for four years, I think. So could that have been a contributing factor?

MR. CAIN: You know, Stefano, I would tell you that it is not impossible, but that wouldn't be my expectation. I don't think the time that the cargo spends here in terms of wait time are dwelled on would lend to anything additional more or less with regard to that kind
of propensity. So I don't expect that to be the case.

Mike, you may want to add to that.

MR. LEINBACH: Yes. I would just add that the
folks that process the payloads here have the same
intensity in their work and practices in their work that we
have in the Shuttle processing. So not knowing what the
debris was, it is impossible to say if that was a
possibility or not. It is certainly a possibility, but
probably very remote. Those guys over in the Space Station
processing facility do a tremendous job on the payloads.

So could it have been? Yes. Was it? We don't know.

MR. ACOSTA: Let's go back along the wall.

QUESTIONER: Pat Duggins, WMFE and National
Public Radio.

Probably for LeRoy, but anybody who wants to jump
in. I wanted to do a comparison on complexity with the
upcoming Discovery mission. P3/P4 installed by the arm and
the Spacewalkers did their support EVAs. Now you have the
rewiring of the Space Station on the next mission. Would
that make it more complex, the Discovery flight, or less
complex or just different or what?

MR. CAIN: Well, I wouldn't say it would make it
any more or less complex.

   The complexities will just be different kinds of complexities. We had, of course, the intense robotic operations on this mission that you just saw, and coupled with the EVAs and the associated choreography that is necessary. The upcoming mission will have less of that, but it will have more of interaction potentially with the ground and the crew on board in terms of doing the choreography associated with the power downs and the power ups and the revectoring, if you will, of all the necessary power equipment and the power transfer capability.

   So I would tell you, it is different kinds of complexities. I consider them both to be very complex and challenging. We will be doing some things on this next mission for sure that we have not done before, and just as we did on this mission, we executed some tasks between the ground and the flight crew that we had not done before, and I am certainly confident that we are capable of doing those things, but I wouldn't consider them to be any less complex than what we just executed.

   MR. ACOSTA: All right. Let's come back to the third row.
QUESTIONER: Phil Long, Miami Herald.

Administrator Griffin, going back to this issue of kind of regenerating the momentum, were there any specifics, any threshold points, any kind of "aha" moments that you saw that really have you this feeling of confidence that things are really picking up again? Just kind of some specifics of what you were talking about earlier, if there are some.

ADMINISTRATOR GRIFFIN: I wouldn't have said there was a specific moment. I would have just said that watching this whole mission unfold with the professionalism that it did would, I hope, give folks who watch what we do the same impression I have, which is that the teams are back. They are used to flying again, and they are flying well.


I realize this is a technical question, but I thought maybe LeRoy might know the answer.

[Laughter.]

QUESTIONER: We noticed that the air data to nav
wasn't incorporated in the past and the BFS. Do you know the reason for that?

    MR. CAIN: Yes. I actually talked with our colleagues in Mission Control before I came over here, and I have a little background on that because that is the area that I came from. I grew up in the GN&C flight control area and worked on the GPS system for a very long time. So I am personally very satisfied and gratified that we actually were able to incorporate the global positioning system data into the primary software system today for the first time during entry in ops three for entry and landing. That is really an important milestone for us.

    The way the on-board navigation system works is the sensors are weighted as you come down through entry. You are familiar with TAC [inaudible] navigation sensor that we use and have used for years -- it is a military application -- and still use it, and so you heard that the team incorporated TAC today to navigation, and that worked normally, the way it always does, and performed fine.

    As was the plan, they then incorporated GPS to the primary software system, the pass navigation as well. Subsequent to that, we deployed the air data probes. The
principal function of those probes is to be able to
incorporate the higher accuracy air data into the guidance
and control system, the flight control system, because it
gives you higher accuracy for mach alpha airspeed and
Q-bar, so that you can set the gains in the flight control
system more accurately.

Normally, what we do, in addition to taking air
data to guidance and control, is we then incorporate air
data to the navigation system in both the primary and the
backup system. Where air data to the navigation system
comes into play, really it only updates the altitude
channel of navigation, what we call the "baro," if you
will, barometric measurement.

As it turns out, it looks like that the GPS
performance was so good that the GPS, even the altitude
measurement, which if you are familiar with GPS --

ADMINISTRATOR GRIFFIN: It is not normally good.
MR. CAIN: -- it is not normally as good an
altitude channel as it is in the other channels, but the
performance was such that the altitude was better than what
the air data altitude performance was. So, rather than
incorporate the air data baro measurement to navigation in
the past and the backup system like we normally would do, the team on the ground assessed the data, as they always do, and they decided that the navigation performance was going to be better, more pristine and more accurate overall, if they did not incorporate the air data to navigation.

Now, that is preliminary, and they will go back, and they will reconstruct the trajectory with the navigation in the best-estimate trajectory, and they will look at all the parameters again. This may be a learning point from this mission, but the short answer is it looks initially like the navigation residuals were such that the GPS performance was actually better in the altitude channel than what air data would have given the system, and so they elected not to incorporate the navigation, but they did incorporate it to guidance and control, which is the normal and the principal function, if you will, the more important one for the air data system.

MR. ACOSTA: You weren't kidding about a technical question, were you?

[Laughter.]

MR. ACOSTA: All right. Who hasn't asked a
Okay. Let's go to the first row.


With the completion of this mission, you are closer to the goal of completing the International Space Station. I wonder how you would characterize how close you are to that goal now or how far from that goal and the challenge of completing that goal.

ADMINISTRATOR GRIFFIN: Well, in terms of the mass on orbit, it is almost precisely half done.

MR. ACOSTA: So there you go.

[Laughter.]

QUESTIONER: How big of a challenge is it to complete this goal?

ADMINISTRATOR GRIFFIN: Well, it is a huge challenge. We have -- not counting exactly -- about 15 or 16 flights to do. Every flight depends on the flight before it having gone well or there winds up being makeup work to do.

I have in the past characterized it as keeping our eye on the ball here. Whatever else the Space Station
is, it is one of the most amazing construction projects
that human beings have ever undertaken.

It is maybe a little simpler than trying to build
an aircraft while you fly it, but not a lot.

[Laughter.]

ADMINISTRATOR GRIFFIN: So I am pretty proud of
the team for how far they have gotten. They are halfway
done, and, of course, we lost several years with a major
accident.

We have a number of very challenging flights and
very challenging missions left to go, but I know they are
going to make it.

MR. ACOSTA: Anybody that hasn't been able to ask
a question that wants to ask one?

Okay. Let's go to the third row, and then we
will come back to you, Holly.

QUESTIONER: Steven Young with
Spaceflightnow.com.

For Mike Griffin, I just wanted to revisit the
Hubble servicing. Could you talk a little bit about the
importance of that mission to the agency and where it fits
in with your other priorities?
ADMINISTRATOR GRIFFIN: Well, I think Hubble is important. You know, we talk about international partners and international programs. The Hubble is an international program. I mean, there have been European instruments on Hubble since day one.

I worked on Hubble when I was maybe not a kid, but a lot younger than I am now.

Hubble is one of the great observatories. It has revealed fundamental things about the universe of which we had no idea and would have had no idea without that mission. It is one of the great scientific instruments of all time.

It is not outmoded. It needs some refurbishment and repair, but its contributions and its capability to contribute remain quite robust. So, if we can do it safely, we want to do it. I have said that now for 17 months. I think the first time I was asked that question in public was at my confirmation hearing, and that was the earliest possible date.

So we want to do it, but we have new constraints on the Space Shuttle program and the Space Shuttle system. We have a new understanding of its fragility and
vulnerability. So, if we are going to do Hubble, we want to do it safely, and we want to do it well. That is what our data-gathering has focused on, and that is what this decision meeting toward the end of October will focus on. If we think we can do it safely and well, then we will.

Now, the implications on other programs, obviously that is a flight that we are doing that is not a Station assembly flight. We need to do the Hubble mission, if we are going to be able to do it at all, in a certain window because the Hubble is fragile itself and has suffered some deterioration or else we wouldn't be doing a servicing mission. So we need to do it fairly soon. We are targeting early 2008, and other missions, Space Station assembly, will have to flow around that, and they will.

I am confident that our international partners understand because, as I said earlier, Hubble itself has had international participation, and its contributions to the advancement of scientific knowledge have been international in nature.

MR. ACOSTA: All right. Everybody get a chance to ask a question before we go round two?

All right. Let's go with Holly.

I want to go back to the camp-out procedures. I know you are going to be debriefing the astronauts today, but from the ground, does it look like doing the pre-EVA camp-outs in the airlock is something you will do again? Also, are there any other sort of innovations that you might try in the future missions?

MR. CAIN: Yes. By all initial indications, the camp-out worked very well. We got positive feedback from the crew. Of course, we will get more feedback now that they are on the ground, and we will have some up-close and personal debriefs on it.

As you know, we do have other EVA protocols, pre-brief protocols, that we can and do exercise, and so I expect that we will take advantage of the camp-out capability as we go forward on one or more of the future missions.

I also expect that we will continue to utilize our other de-nitrogenization capabilities, just as we have in the past.

Early indications are that it was successful,
and, of course, as you know, it saves us about an hour in
the timeline, and that is really the fundamental benefit of
doing it.

So we will continue to look at it. I expect we
will continue to use it, just as we do the other protocols.

MR. ACOSTA: All right. Any more questions?

Stay on the wall. Tariq?

QUESTIONER: Thank you. Tariq Malik with
Space.com and Spacenews again.

Just a short follow-up for Mike Leinbach. You
mentioned, of course, that the tank right now is kind of
the long pull for a December flight, and I am also curious,
I guess, if that is the case with Atlantis to support
either that flight or else a February flight. What are
those challenges for that flow?

MR. LEINBACH: Turnaround Atlantis, originally we
had about 110 days in the flow for Atlantis, and given the
late launch date and a day delay on landing, we are down in
the mid nineties or upper nineties or something like that.

That is an achievable schedule. It is more aggressive
than we have done since Return to Flight. It will be the
most aggressive turnaround since Return to Flight, but the
team is up for that.

LeRoy, the external tanks, I believe, probably pace several of our missions coming up. Is that fair?

MR. CAIN: Yes. I would say that is a fair statement.

As Mike mentioned earlier, we just had the arrival of ET 123 for 116, but the subsequent missions, STS-117 and -18, the tank for the near term is certainly our pacing item in terms of being able to get the tanks completed and shipped and here at the Kennedy Space Center.

So we will continue to work on finding efficiencies. Certainly, whether we do or don't do ice/frost ramp modifications or other modifications will ultimately play into where we end up as far as tank processing and tank delivery, but we will continue to work those things as we go. Certainly, the tank is the pacing item for the out flights.

ADMINISTRATOR GRIFFIN: I am going to jump in here and add that the only reason we are getting tanks at all, of course, let me remind you, is we had a record hurricane 13 months ago, and the only reason we are getting tanks at all is because of the dedication of the folks down
at Michoud to keeping that facility alive when everything around it was flooded. I mean everything. If you haven't been down there to see it, it is a sobering experience. So they kept the place alive during the hurricane, and they came to work right after that to start cleaning up.

They saved a whole bunch of flight hardware, and now they are producing more flight hardware, despite the fact that a goodly fraction of them still don't have homes or their homes are trailers in a parking lot. So the dedication of folks who work on the NASA team in the nation's space program, this is one of those cases where it is literally true that you just have to see it to believe it, and even after you see it, you are not sure you can believe it. So that is, when we talk about tanks being the pacing item, the other way to look at that is we got tanks.

MR. ACOSTA: All right. Stay along the wall.

QUESTIONER: Pat Duggins again, WMFE and NPR, for anybody who wants to take it.

I don't want to beat the litter issue to death here, but it caused some interest on our parts, and obviously, you all seem to be interested in it too. Has any talk been made at all about having high-resolution
cameras available at the [inaudible], so if there is something out there, a quick picture, make sure it is benign, and then you just go on with whatever you are doing?

ADMINISTRATOR GRIFFIN: I haven't talked about it.

MR. CAIN: You know, we do have that capability on board. The crew has a lot of high-resolution, highly capable cameras as well as highly trained people to operate those instruments.

Frequently, they do take pictures of things that are interesting. They do normal earth observation photography anyway, but if the crew sees something that is unusual or interesting or might be, they will normally get out the cameras and start taking pictures.

I would remind you that in this case, we just happened to be looking around with the cameras out in the cargo bay while the crew was off doing their normal thing, after, of course, sleep and getting to the end of the day, and typically, as is normal in the Mission Control Center, the instrumentation and communication officer, the INCO, will take control of the cameras, and it is one of the
things that they do and they enjoy doing, frankly, throughout the nighttime, especially as they have control of the cameras. They look all around, and they will scan everything that they can.

This is not the first time. This one has gotten a lot of press for some reason, but this is not the first time that we have seen something interesting out in the cargo bay or on the ship or in our vicinity.

Then the last thing I would say about the debris item is we always have circumstances where we have little pieces of ice coming off of the vehicle, all the way from the time we do ET separation, and we have oodles and gobs of photography of ET separation photos where we have ice coming off the vehicle in different little nooks and crannies of the orbiter and the various interfaces. That continues to happen throughout the mission, as long as the ice is able to survive.

So, again, we have gotten a lot of attention and focus on this, and we were very interested in looking and obviously for good reason, but I would just tell you that it is not unusual for us to see things out the window that are interesting and be able to grab a camera and take
pictures of it. So I don't know that we will do anything a
whole lot different in the future, but we will probably
still talk about it.

MR. ACOSTA: Well, great. That will wrap up
today's press briefing.

For more information on today's landing and
mission, please go to www.nasa.gov.

That concludes today's briefing. Thank you very
much.

[End of STS-115 Post-Landing News Conference.]