

NASA HEADQUARTERS

2007 BUDGET BRIEFING

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DEPUTY ADMINISTRATOR DALE: I'm NASA Deputy Administration Shana Dale and I would like to thank you for coming today for our budget briefing on the fiscal year 2007 NASA budget request.

This budget reflects the president's strong commitment to the vision for space exploration, including assembly and use of the international space station and fulfilling commitments to our international partners.

2006 has already been off to an exciting start. We've seen the successful return of Stardust, the launch of New Horizons to Pluto, and also Friday's spacewalk by the Expedition 12 crew.

Again, thank you for coming today, we appreciate your interest, look forward to your questions, and at this point I have the distinct honor of introducing the administrator of NASA, Mike Griffin. Thank you.

ADMINISTRATOR GRIFFIN: Good afternoon. I have a brief statement and then we'll open up for questions.

This morning, the president announced the fiscal year 2007 budget request for the entire Federal Government.

This includes a \$16.8 billion request for NASA, a 3.2 percent increase over the 2006 budget appropriated for NASA and not counting our emergency supplemental needed to recover from Hurricane Katrina.

This budget, with an increase over last year's appropriation, demonstrates the president's commitment to carrying out the vision for space exploration which he articulated from this stage just over two years ago.

And especially so in view of all the other pressures on the Federal Government in the wake of the greatest natural disaster our nation has yet faced in the war on terrorism.

However, let me put our budget in overall perspective. NASA's budget is roughly 0.7 percent of the overall federal budget. This is a modest investment to extend the frontiers of space exploration, scientific discovery and aeronautics research.

With it, we enhance American leadership, our safety and security and our global economic competitiveness through the technological innovations stemming from our space and aeronautics research programs.

As we look forward to the events that will define this century and beyond, I have no doubt that the expansion of human presence into space will be among the greatest of our achievements.

I am proud that America, through NASA, leads the way. But leadership means setting priorities of time, energy and resources, and leadership means making difficult decisions based on the best facts and analysis available.

And one plain fact is that NASA simply cannot afford to do everything that our many

constituencies would like us to do. We must set priorities and we must adjust our spending to match those priorities.

Setting these priorities and formulating the budget to reflect them is, in many respects, the foremost policy decision a NASA administrator makes in the course of working with the White House and Congress.

Our democracy demands a healthy debate on such funding priorities and I believe that this budget provides a balanced approach in setting them.

NASA is implementing the priorities set by the president and the Congress within the resources provided. This budget demonstrates our national commitment to implementing the vision for exploration, it balances NASA's mission to complete the assembly of the international space station and fulfill our international partner commitments, while using the minimum number of shuttle flights to do so.

It supports our goal of bringing the crew exploration vehicle online no later than 2014, and potentially much sooner.

It provides over \$5.3 billion in funding for NASA's science missions and over 724 million for aeronautics research.

The FY07 budget also provides almost \$500 million for cross-agency support programs such as science and math education, innovative partnerships for NASA to leverage commercial industry, and development of the unified agency wide management systems necessary to get NASA's finances in better order.

NASA must be a good steward of the taxpayer's money and we must change the way we have done business in the past in order to achieve this goal.

We must seek innovative ways to leverage to the maximum extent practicable the investments being made by commercial industry and through international partnerships. We must plan executable

programs with priority given to the required timing and affordability of needed capabilities.

As I have testified previously to the Congress, we will go as we can afford to pay, and we will set priorities for our time, resources and energy.

For example, NASA's exploration architecture cannot afford the robust space nuclear R&D program that was previously planned.

Thus, rather than engaging in them halfway, we've cut back those efforts. But it is important in the long run, we will seek to leverage the work of other nations which have developed small nuclear reactors that could be applied to space.

Following congressional direction to strive to bring the CEV online as soon as possible after 2010, and as part of a balanced exploration program, NASA is cutting back on space station research in order to allocate funding to the CEV.

However, as designated by the NASA authorization act, international space station is a national laboratory. Therefore NASA seeks

partnerships with other government agencies and the commercial sector to conduct research on board the ISS.

So let me now address NASA's plans within the five-year budget horizon to carry out the task of assembling the international space station with the fewest possible shuttle flights and then to retire the shuttle in 2010.

As I testified before Congress la--before Congress last November, we were working through the problem of a 3- to \$5 billion shortfall for FY 06 to 10 to carry out these ISS assembly missions.

In previous years, NASA's shuttle budget had assumed certain placeholder numbers in the out years that were clearly insufficient to complete the mission.

We have solved this problem with the shuttle funding shortfall in the 2007 to 11 budget, again consistent with the policy direction provided by the president and Congress.

We still have challenges in implementing this plan, so let me delve into it a bit.

When I presented NASA's exploration architecture to the public and Congress last September, the budget profile for that architecture was simply the FY 2006 budget run out identified for exploration systems, not, and not other parts of the NASA budget.

That view of the exploration budget did not account for other problems with the space shuttle budget in the out years.

We've worked hard to address the problem more holistically in the FY 2007-to-11 budget formulation, and we also are delving more deeply into the strategic implications of using shuttle-derived launch systems for the crew launch vehicle and heavy lift launch vehicle.

We believe that significant synergies and contract efficiencies between subsystems, personnel resources and infrastructure can be found.

Thus we are applying some funds from the exploration budget profile between now and 2010 to the space shuttle's budget line, to ensure that shuttle and station programs have the resources

necessary to carry out the first steps of the vision for space exploration.

The greatest management challenge that the agency faces over the next five years is the transition from retiring the space shuttle to bringing the CEV online.

The implications of this program and budget synergy between the shuttle and CEV launch vehicle programs are the following.

The budget is sufficient to bring the CEV online by 2014 at the latest and possibly much sooner.

NASA has asked industry for proposals to bring the CEV online as close to 2010 as possible, and not later than 2012. In the months ahead, we will receive those industry proposals, evaluate them for technical and cost viability and define savings from these integrated shuttle and exploration budget profiles.

The bottom line is this. NASA's plans are to bring the CEV online as close to 2010 as possible; not later than 2014.

Given the analysis we have today, we cannot set a more definitive target date for the CEV to our stakeholders in the White House and Congress.

But I believe that with the budget proposed today, NASA and industry have a real opportunity to make the CEV operational much sooner than 2014.

The transition between shuttle retirement and bringing the CEV online requires NASA and industry to work as a team in the months and years ahead.

NASA is in source selection with the CEV procurement and I will not go beyond my comments here.

I will now turn to NASA's space science portfolio which remains one of the nation's crown jewels.

The agency's budget for space and earth science has seen significant budget increases for over a decade, far surpassing any growth in NASA's top line budgets during those years.

For FY 2007 to 11, we cannot afford such growth for science within the context of a top line

budget that is growing at essentially the rate of inflation.

Thus NASA's science budget will grow by 1.5 percent in fiscal 07 and 1 percent thereafter between 08 and 11.

As we work closely with our international partners in the science community, NASA's science mission director remains a world leader, currently operating 56 space missions with an annual budget of over \$5.3 billion per year.

The fiscal 07 budget provides funds for an armada of satellite missions to make scientific measurements of changes in the salinity of our oceans and land resource uses, test instruments for the next generation of polar-orbiting weather satellites, monitor solar flare impacts on the Earth's magnetosphere, landing the next generation of Rovers on Mars to search for water and possible life forms and peering into the farthest reaches of the universe with the Hubble and James Webb space telescopes.

Turning now to aeronautics research, the \$724.4 million allocation in the president's budget will begin the process of reestablishing NASA's dedication to the mastery of our core competencies in subsonic, supersonic and hypersonic flight.

We've begun the development of aeronautics research programs that are focused, relevant and of interest to a broad research community in government, industry and academia.

While I am concerned that our nation's aviation industry not lose market share to global competitors, NASA's aeronautics research cannot and will not directly subsidize work to specific corporate interests.

Rather, our R&D must benefit the American public by supporting the broader community of aeronautics researchers.

There are fundamental questions in aeronautics research needing to be answered and NASA will focus its aeronautics research money on those issues.

By refocusing our efforts on fundamental issues, we can best serve the longer-term needs of our industry.

Beyond the purely budgetary perspective, I would now like to discuss NASA's most important resource, our people.

The NASA management team has been working on the issues and means to rebuild NASA so as to have ten healthy centers known for technical greatness.

We continue to define program management and research goals and responsibilities for each center in carrying out NASA's missions of space exploration, scientific discovery, and aeronautics research.

I will ensure that all of our centers contribute to NASA's primary mission of space exploration and discovery.

We are beginning the process of assigning specific research programs and projects to appropriate NASA centers.

We are not done but we are taking steps
AUDIO FEED DROP.

MR. ACOSTA: --and do the representing
before asking a question and please direct your
question to an individual. If it's to the
administrator, please say that it is.

And also limit to one follow-up. We should
have plenty of time to get around to everybody's
questions.

All right. With that, we'll open it up to
questions now. Right up front.

QUESTION: Tammy Little [ph] from the
Orlando Sentinel.

Can you break down for us a little bit more
the top line number? You've billed it as a 3.2
percent increase but if you factor in what NASA
actually got last year, including the hurricane
money, it's only about one percent.

Is that enough to keep the agency even up
with inflation and what do you see in terms of the
out years, whether there's enough money in this
budget for everything that NASA wants to do?

ADMINISTRATOR GRIFFIN: Well, the second part is the easiest. There's never enough money for everything that NASA wants to do, so let's not be silly. There is enough money in the budget to support the president's priorities as they have been stated, and to carry out the directions of our authorization act as they've been stated.

The comparison of one percent growth I think is unfair because the hurricane damage supplemental is intended to address damage. It's not a, we devoutly hope, not a yearly event.

The correct comparison is the president's budget submission contrasted with the FY 06 appropriation and that growth is as I stated.

MR. ACOSTA: Right here. Keith.

QUESTION: Keith Cowing, NASAWatch.com, for Mr. Gerstenmaier.

In Orlando, last December, there were several questions about the international space station and what it would look like when it was complete. Several mentions have been made here about honoring commitments, and so forth. Specific

numbers of shuttle flights apparently have been set in place.

You weren't able, at that point, to specifically say what, quote, unquote, assembly complete was. As a matter of fact, I don't think you actually liked that term.

Can you now show us what the configuration looks like or are you still in negotiations with your international partners and is that part of this ongoing effort by Dr. Lock [?] and several others, to sort of painting [?] them as to what changes they would be amenable to in the overall end configuration?

DEPUTY ADMINISTRATOR DALE [?]: In terms of the end configuration, we met with the partners this morning, is we're heading towards the heads of agency meeting in March and we have a pretty good agreement across all the partnership of what the end configuration is and we're making good progress towards that. It's pretty much what we've all been talking about and showing you in the past. There's no major changes.

You won't see any major differences there. The partners have a good agreement on where we are with the overall end configuration.

We're discussing with them the sequence of the flights. They'd like to fly some of their modules earlier in the sequence and they currently show up in our baseline sequence, and we're discussing that with the partners, the advantages and disadvantages of moving those forward or changing around the order of the sequence of the flights.

But I think we have good progress with the partners. We're moving forward, we're heading towards a configuration we all know and this budget supports that. So we're in good shape.

QUESTION: Can I have a follow-up?

MR. ACOSTA: Sure.

QUESTION: Dr. Griffin, you said that you've had to cut back some of the utilization of station in order to pay for other things and yet you reference the authorization bill which says that you

need to be doing non-human exploration stuff, and that you're out looking for partners.

I guess the question I have is if you're-- why are you cutting stuff and looking for new work at the same time? Shouldn't you be looking at retaining the work you were doing, or is the work that you're cutting not germane to what you think the authorization language addresses?

ADMINISTRATOR GRIFFIN: Well, we certainly will comply with the authorization language, both with the requirement to look beyond NASA for partners in this national laboratory and with the requirement to meet certain research goals. So we will of course comply. What we are trying to do is prioritize our money. In our judgment, before we can effectively utilize space station we have to get it built.

We have only a--we have a reasonably limited number of space shuttle flights with which to do that.

We think the number of flights we have available is sufficient to accomplish the completion

of space station but not if we stick with the earlier plan that was in place a year ago today, of having 28 flights that mixed assembly, utilization and logistics.

So for logistics we will be relying on commercial services which we hope to help bring into being. We will rely on international partner contributions. We believe that will be sufficient.

For assembly, we rely on the space shuttle because only the space shuttle can accomplish it. For utilization of the space station, we will--we, at NASA, will essentially defer major utilization of the station until after assembly is complete. That's where we are.

MR. ACOSTA: Let's go to guy.

QUESTION: Guy Gugliatta, the Washington Post. For Administrator Griffin or Assistant Administrator Cleave.

The science budget is being held below 2 percent expansion this year and it's going to be one percent next year. That, given inflation is kind of a squeeze, and this was one of the things that many

of the stakeholders were fearing would happen, that you're borrowing from science to pay for exploration.

Is this what's happening and could you outline some of the programs that are gonna be curtailed or gotten away with or finished off altogether. Thanks.

ADMINISTRATOR GRIFFIN: That's not how I would characterize it. I would say that in a fiscal environment where domestic non-defense discretionary spending is decreasing at one-half percent, that NASA's overall increase of 3.2 percent is very welcome, frankly.

It does not buy all of the things that were on NASA's plate when I took this office and in my first statements from this position I have said that, and I have said nothing else, except that we will make the hard choices necessary to get our desires for the space agency to be consistent with our funding.

We of course would like to be able to grow science for the next few years at a higher level than one percent. Of course.

But we are in a very difficult posture right now in the space agency. We are still recovering from the loss of Columbia. We have to deal with that. The human space program part of our portfolio was seen, very clearly, after the loss of Columbia, to be suffering from a lack of strategic direction, a lack of clear goals, things that, and issues that were brought out in fullness by the Columbia accident investigation board and that I will not go into again, except in order to remind you that those issue did exist and do exist.

This team has been brought in to address those issues. It's not easy. We don't apologize for that. We are having to make some very difficult choices across the agency in order to be able to fix problems that have now been laid clearly before us and we will do that.

I really can't offer you more, guy. It's a tough environment. NASA has been favored by the

administration but it's still a tough environment and we will make the choices we need to make in order to get the priorities in line.

With regard to is science paying for exploration, I would say no.

Science and exploration are each paying to help complete our preexisting obligations to the space station and the space shuttle and when those obligations are completed, the other major pieces of our portfolio will be able to do better.

[tape change.]

DEPUTY ADMINISTRATOR DALE [?]: Adjusting the science budget, we tried to develop an executable program that was a good mix of early development and missions in development, and we tried to spread the approach evenly across all divisions. There was no favored division.

However, we did maintain the rebalancing that we were doing previously, of trying to move some of the investment back into the portfolios that they were removed from to build a Mars wedge. So

the rebalancing you saw start earlier is ongoing with this 07 budget.

MR. ACOSTA: Frank.

QUESTION: Frank Moring [ph], Aviation Week. For Administrator Griffin.

What are you looking for in STS 121 that will guide your decision to conduct or not conduct a Hubble mission?

ADMINISTRATOR GRIFFIN: Well, I've, and for the past nine and a half months now, I've leaned about as far forward in the cockpit as is possible to do, to say that if we can get past our return to flight sequence, which has always been two flights, that if we can get past that successfully, that we want to do a Hubble servicing mission.

Careful analysis has not shown any significant increment of risk to go to Hubble versus to go to station, and so we would like to do it.

So what am I looking for? As much Bill as myself. I mean, this is not a decision that either of us would make if the other was unhappy with it.

But what we will be looking for is a successful 121 flight where foam loss is contained, where the system functions normally, and where we get a very good handle on the orbit operations timelines necessary to inspect the Orbiter's outer surface and verify that, you know, everything is okay.

Because those inspection timelines strongly drive the time available for our crew to have left over to do the Hubble servicing, if you will, and if we're not convinced that we can do an adequate job servicing Hubble, given everything else that is necessary for the shuttle to do on orbit, then we would not start down that path. And Bill, anything you care to add?

MR. GERSTENMAIER: No. I think the thing we'll look at is essentially the timeline it takes to do the inspection of the Orbiter essentially without a space station. Today, we get some a that inspection as we come up to a space station for free when we do the pitch maneuver and get a chance to take pictures of the bottom of the Orbiter.

On Hubble mission we're going to have to do some more self-inspection with the shuttle before we do that.

We need to look at that from an overall timeline standpoint and then see how much time's available to do the science mission that Hubble really needs and needs to put in place.

So we'll get a chance, just like we've said all along, we needed two flights to kind a understand how to fly in this new environment with inspections and how the system works overall before we commit back to station assembly, and in the same manner we're going to use those same two flights to assess how we can go then support Hubble servicing mission.

So we'll use the same kind a data we're gathering for station to get back into station assembly to do this Hubble servicing.

So that's the kind a stuff we're looking at.

MR. ACOSTA: Warren.

QUESTION: I'm Warren [inaudible], New York Times. To Administrator Griffin. You mentioned that you wanted to have all the centers contribute to exploration and I'm wondering how that might affect personnel at those centers, how, in terms of a reduction in overall NASA personnel and will it come from some centers more than other centers?

ADMINISTRATOR GRIFFIN: Well, our goal is not to have all centers of the same size, nor to have all centers doing the same things, but to have each center at least at critical mass, you know, when you look at overhead and fixed costs of operations, and things like that.

And doing work that the agency and that the nation care about. If you look at our center distribution that we, that this team has inherited from history, 40 percent of our centers are dedicated to aeronautics and research, if you allow me to combine those two things. We in fact call them the research centers of the aeronautics centers, almost interchangeably, and four of the ten are historically aligned along that path.

But if you look at our budget, if you look at our fiscal 06 budget, already appropriated by Congress or this budget recommended by the president, 16/17ths, in rough terms, of our budget is for space-oriented activities, whether scientific, robotic space flight missions of human space flight missions.

This is, by and large, what NASA is being paid, if you will, by the Congress and the American people to do.

So it is a challenge for this management team to get the skill [unclear] of our centers in line with what it is that NASA is being asked to do.

Now that's not something we can do in six months or a year, or two or three years. It is a path down which we can start.

That start has been much delayed. NASA centers will still be doing research, they still will be doing aeronautics, but we have to get the workforce in alignment with over the years, the years to come. We have to get the NASA workforce in alignment with what our budget is telling us to do.

MR. ACOSTA: All right. Let's go to the next question. Warren, did you have a follow-up?

QUESTION: Is that a way of saying that the traditional research centers, those four of the ten, will see more significant staff reductions and perhaps you might have some staff build-ups in some of the other centers?

ADMINISTRATOR GRIFFIN: On the contrary. We are not allowing staff build-up at some of the traditional space operation centers and we are working very vigorously, as we speak, because we're defining, as we speak, because we're defining as we speak the new constellation program, we're looking at how work can be placed in the constellation program at some of the centers which have traditionally been more aligned with aeronautics or space technology research.

MR. ACOSTA: All right. Let's stay on that side.

QUESTION: Roger Mullah [ph], Aviation International News.

Administrator, there's a mention in the section on aeronautics research about activities that are more appropriate for industry or for other agencies. I wonder if you can give me some more insight as to how that will be determined, if it's more appropriate for industry.

ADMINISTRATOR GRIFFIN: I don't think I really understand your question. Can you try again.

QUESTION: Is there a simpler definition of a program that might be more appropriate for industry than for NASA to undertake, a research program?

ADMINISTRATOR GRIFFIN: I don't have one.

QUESTION: In aeronautics.

ADMINISTRATOR GRIFFIN: Well, I understand in aeronautics. I'm sorry, no, I don't have a flow chart for you on that. Lisa, do you want to make a comment?

LISA: Sure. The question I think you're asking is how we determine what is appropriate for NASA to conduct. Is that your question?

We're working--that comment goes to both industry and other government partners, and we're working with our other government partners to ensure that we don't duplicate work that's more appropriately conducted in those agencies, while still working to make sure that we work together and leverage each other's strengths.

In the industry sector, what we're doing is we're moving away from near-term incremental research and ensuring that instead we pursue the cutting edge and make sure that our industries benefit from a broad commitment to the cutting edge across our core disciplines.

MR. ACOSTA: All right. Let's go back to this side of the room. Up front. Everybody's bashful today. All right. We'll stay on the other side of the room.

QUESTION: Thank you. Marsha Freeman with 21st Century magazine. You threw out a very intriguing idea in terms of working with other countries who have done work in space nuclear power, rather than us having a separate program. The

only country I can think of that's ever done that of course is Russia. The administration today is also announcing, or announced over at the Department of Energy a global nuclear energy partnership, basically with Russia, looking at various next-generation technologies.

So it's coherent with that. But I was wondering if you could give a little bit more information or an example of what you might be looking at.

ADMINISTRATOR GRIFFIN: I mean, I can expand just briefly. It may well be true that only Russia and the United States have ever done anything with space nuclear power.

But today, France, for example, generates a significant amount of its internal energy with nuclear power and Japan is making interesting inroads in the development of small nuclear reactors.

It isn't necessarily just the space part of the technology that's relevant to us. One eventually needs, in that world, one needs to

combine space technology with nuclear reactor technology to yield a useful product, and we would be interested, as part of our overall vision for space exploration, to work with any nation that would share similar goals and might be able to bring that part of the puzzle to the table.

MR. ACOSTA: Right here.

QUESTION: Robert Boyd from Knight-Ridder.

Mr. Griffin, Dr. Griffin, it's not clear to me how you say you have made up the 3.2 billion shortfall that was detected last fall in the exploration program.

How do you cover that gap?

ADMINISTRATOR GRIFFIN: Well, over the--the gap beginning referred, the funding gap being referred to was over the five year run-out and we took a couple a billion out of science and a billion and a half out of the exploration line and made up what we needed to make up. It's not, it wasn't that--there wasn't any real subtlety there.

QUESTION: So that's where it came from, partly from science, partly from exploration?

ADMINISTRATOR GRIFFIN: Exactly right.

QUESTION: Nell Boyce [ph], National Public Radio.

So I had read that last September, Dr. Griffin, you said that not one thin dime would be taken away from the science programs for human space flight and exploration.

Is what you've just said, that that's exactly what has been done, not just one thin dime but \$2 billion taken away from space science to complete the ISS?

ADMINISTRATOR GRIFFIN: Yup; that's right. I wish we hadn't had to do it. I didn't want to, but that's what we needed to do.

MR. ACOSTA: All right. Up front. Let's go to Brian Burger [ph].

QUESTION: I think we're stunned silent by that straight answer on that.

[Laughter.]

ADMINISTRATOR GRIFFIN: Just a minute. When, in the name--in the ten months since my

nomination was announced, have I not given a straight answer to any question?

QUESTION: I wasn't saying it was out of characteristic--

ADMINISTRATOR GRIFFIN: Name the time.

QUESTION: --out of character for you but--

ADMINISTRATOR GRIFFIN: Name the time, Brian.

QUESTION: Just the setting; just the setting. It's not what you expect during budget briefings.

But I wanted to ask, I guess part of the space station plan at this point is to possibly get rid of one or two of the logistics flights.

So you go back to a 16 flight manifest. I'm wondering if along with that we're going to see an increase in the amount a money you're going to put toward the ISS commercial crew cargo program, either an increase in the total amount you plan to spend or bring some a that money forward into the early years of the program?

ADMINISTRATOR GRIFFIN: I guess that's for Scott or for you, whoever's got the details on that.

MR. : Well, the question about the funding for commercial crew cargo is set. I mean, we have these--you know, we have a line there right now that protects the money that we're putting to commercial crew cargo. Right now, of course, you know, we had the announcement here in early January and we're waiting for the responses here in early March, and based on what we get back from industry in those responses, we'll first of all lay out our milestone payments that we plan to make. But that budget line isn't gonna change for now.

When we see the proposals and see the progress they make, then we'll have to revisit our, you know, what are we gonna spend on commercial crew cargo? It depends on what they can deliver.

Until we know what it can deliver, we don't know exactly, you know, how much money's gonna go towards commercial crew cargo because we're gonna buy a product. They have to deliver the product before we can buy it. So to speculate exactly what

we're gonna spend in the out years on that, we don't know yet. I don't know if that answers your question.

QUESTION: [inaudible] I thought there was \$500 million in the line over five years, and I'm wondering if that remains the amount that's in that line.

MR. : Yes, that is, that's the amount in the line and that is for milestone payments for them to demonstrate a capability. At the end of that time, we have to reevaluate, did they demonstrate a capability and what are we willing to buy as a commercial service. But we don't know what that is yet.

ADMINISTRATOR GRIFFIN: Commercial crew cargo is, I'm tempted to say, an experiment. It's never been--something like this has never been done in government before, or if it has, it has been a long time ago and in other fields.

We are trying to help bring into being a capability that does not today exist. What we have today in commercial space flight capability is

mostly viewgraphs, mostly talk. We're risking a substantial portion of budget that we would like, we certainly could use in other areas to help bring this about because it's important to us.

MR. ACOSTA: All right. Before we start going back to reporters, is there anybody that didn't get a chance to ask a question that wants to ask a question?

All right. Let's go right here in the middle.

MR. : We can always leave early [inaudible].

MR. ACOSTA: I know, Mike, after your quote earlier, we probably could.

QUESTION: Hi. Johanna Newman from the Los Angeles Times. It's probably a softball but if Congress were in the mood to give you a extra appropriation here or there, where would you like them to put it?

ADMINISTRATOR GRIFFIN: We do not ask the Congress to give us extra appropriations here, there or anywhere. The budget for NASA that has been

recommended by the president is the one that I defend and the only one that I can defend.

MR. ACOSTA: All right. Let's start going back to reporters. We'll go to NPR.

QUESTION: Since you're so frank about the hard choices that have been made in moving money away from the science program, could you talk specifically about how those choices were made, what criteria were used. Has it been decided which science programs will continue and which will not and could you give us some examples of some that will and some that will not.

ADMINISTRATOR GRIFFIN: I've got several other people up here, so I wouldn't have to be the only one getting questions. I'm going to aim that one at Mary.

DR. CLEAVE: Thank you. As I mentioned before, our overarching principle was trying to develop an executable program that was balanced, rebalancing the Mars. We were using strategic goals as set by the National Academy to get plans to help

us prioritize. We were trying to keep a balance between small, medium and large programs.

Some programs that had definite programmatic challenges like Sophia will be going into review, as earlier, we put Dawn into review because of programmatic issues; okay.

Because we have to keep control of these programs. We can't let one program get outta control and hurt anybody else. So that was the biggest thing on our mind.

We tried to delay the start of some programs where we could delay them when they weren't in development. It's usually easier to defer in that way, and so that was the other option.

MR. ACOSTA: You know, Mary, one a the points you made, the other day, to me, too, was the size of the science portfolio, 10-15 years ago, as compared to now. I think science is what? 31 percent--

DR. CLEAVE: Yes [inaudible] being about a quarter, to up to 31 percent. We're holding the 31 percent, so, you know, we're pleased we're holding

the 31 percent, and that we have grown significantly.

MR. ACOSTA: It's a good point to get across. Okay. Thanks. Let's go back around to Warren.

QUESTION: Warren [inaudible], New York Times. I guess the CEV question at the end of the table. The change in the CEV requirement about using methane fuel, was that truly a budgetary issue or is that completely off the table? Just what happened with that?

MR. : Okay. The question is about the use of LOX/methane on the CEV. As you know, we started in different design cycles. We've got an architecture define based on the ESAS results, and the recommendation outta there was LOX/methane for the CEV.

As we went through the next design, announced the cycle, and there'll be several design analysis cycles as we go through this program, it's a very big complicated program, what we realized, without getting into all the technical difficulties,

is that some of the benefits in the near term for LOX/methane, especially when we looked at the ascent module coming from the moon, back off the moon, that the gain was probably not worth the investment at this time.

LOX/methane is still part of our research development program and we're still very interested in it because it is most likely the key to getting on to Mars, which of course we're interested in the long term.

It's just in the short term we looked at all of our propulsion needs and the ability to do a cost-effective run-out of our launch vehicles to support the lunar and then eventually the Mars programs and so in that cost and benefit trade, and technical trades, we came upon some trades that said we were going to delay LOX/methane on the CEV until a later time.

[tape change.]

MR. ACOSTA: All right. Let's come back around over here. Guy.

QUESTION: Guy Gugliatta from the Washington Post. Probably for Bill Gerstenmaier.

The program now, 17 flights for the space shuttle, is there any wiggle room if you have further delays because of further foam problems, or other problems?

MR. GERSTENMAIER: I guess in terms of number of flights, you know, we're still going to honor the September 30th, 2010 date of ending the shuttle program. So we have a little bit of flexibility with that schedule based on our historic flight rate, to get the flights.

We should be able to easily get to 17 flights if we get back flying again here this year and get back in a regular routine of flight, like we've done historically. So that should be fine.

In terms of if something happens on station and there's a major reconfiguration or major contingency, we have some ability to potentially put maybe another flight in, even if it fits before the calendar date, to deal with that contingency and see where are.

So we have a little bit of margin, overall, from an overall standpoint.

Again, the goal is to minimize the number of flights associated with the assembly and we're going to continue to do that, we're going to try to figure out the most efficient way to put the space station together, to use a minimum number of flights.

But if something unforeseen were to happen, it's a major event, we do have some flexibility to accommodate that in the sequence.

MR. ACOSTA: Frank.

QUESTION: Frank Moring. On the same topic, what are the issues going into this heads of agency, beyond just the generic sequence? Is there one or two flights that are in particular dispute?

And also what's your end? Does the end state also include the same crew size or is that in flux right now?

MR. GERSTENMAIER: We're still planning on increasing the crew size to six as we've been all along in about the same timeframe as we had before.

In fact you'll see that we're flying the oxygen generation system on the next flight, on the STS 121. We're doing that essentially to get some additional run time on that equipment. We know that oxygen generation systems historically have a lot of problems during start-up.

You can see the electron use that we've had over the past couple years and the problems with that system, and that's been a system that's been around for a long time.

So I think we'll have some problems with our oxygen generation system, so we want to fly it early, so we get a chance to work those problems out before it's needed for the additional crew members.

So we still plan on increasing the crew size.

In terms of the kinds of things we're looking at for heads of agency, I think we have good agreement, like I said, on the final configuration, and what we're discussing now is the right order to fly the sequence.

In other words, the partners would like to move some of their modules up in front of some of the infrastructure that we think is necessary to be on board space station, and what we're trying to do is work with the partners and show them that we want to build a robust sequence.

You don't want to build a sequence that sits there with the module at the earliest possible date, if everything occurs exactly right, and then as soon as something goes wrong, then that module flight now moves multiple months to the right, or maybe even half a year to the right.

So you want a sequence that's robust but you don't want to optimize the sequence so much that it falls apart when the first little hiccup comes, and that's a discussion we're having with the partners, of that robustness versus the perfectness of a sequence that gets them there at the earliest possible date.

And it's not a controversy at all with the partners. We're actually having a very nice technical discussion with them. We're laying out

the issues. They're showing us their data, back and forth, and we're having a very good discussion and we're making good progress.

So we're just refining that a little bit. I don't anticipate any major issues. The partnership's strong, we're working great as a team, and we'll have a good story, come March.

QUESTION: Do you or Mike expect the heads of agency to look forward beyond station complete to exploration and possible international cooperation there?

ADMINISTRATOR GRIFFIN: Shana, you just did a week of visiting over to Europe and of course ESA just finished its ministerial in 05, and so they're not going to have major decisions till 08.

Would you care to characterize how they view things.

DEPUTY ADMINISTRATOR DALE: As Mike mentioned, I was in Europe recently to start introductory meetings between me and the international partners, and that was also the initiation of dialogue in terms of human and robotic

exploration of moon and Mars and that will be an ongoing theme with us.

We're planning on conducting a workshop later this year to start dialoguing, not only with our international partners but also the academic community and commercial industry.

So I would expect that to be part of the agenda as well with heads of agencies. Again, we are in the very preliminary phases of discussion, but I can say that the people that I met with, heads of agencies for the Italian space agency, French space agency, and German space agency, invited the dialogue and they were interested in, obviously, further discussion.

MR. ACOSTA: Thank you. Let's go back up front here on the right, to Keith.

QUESTION: Keith [inaudible] Watchdog [?].com. For Dr. Horowitz. The president stood over there two years ago and subsequent the documents that came out from the White House talked about going back to the moon as a way to prepare to go to Mars, and in reading--and I actually have read

it, the ESAS--well, I went through it--the ESAS report. It's a marvelous compilation of all kinds of stuff, lunar bases and so forth, but Mars is almost only an afterthought. I guess a two-part question.

Of that ESAS report, and I don't want a specific numerical guess, but how much of that ESAS report is covered by the \$104 billion? How much is not notional but sitting on the other end, unpaid for?

And second of all, are you a little concerned, perhaps, that if it's all about the moon, that Congress, the American public, and even future administrations may lose interest in the other destination that was mentioned, i.e. Mars?

Are we too moonocentric at this point?

DR. HOROWITZ: Well, Keith, there's a lot of questions in your question, so I'll just cut to the chase. Am I worried about Mars not being covered? and the answer is absolutely not. Again, ESAS is, was a first study in a series of studies to answer some basic questions.

The focus was on the moon because that's the near-term problem. The nearest-term problem of course is just getting back to low Earth orbit after we retire the shuttle. The next goal of course is getting on to the moon, and as Division states, we're preparing to go on to Mars.

The biggest indicator of how the ESAS approached the problem with Mars is just look at the number one recommendation which was the launch vehicles.

You don't need a heavy lift launch vehicle as large as the one they decided on to go to the moon. You can do it with a much smaller vehicle.

That alone should tell you that they were thinking really heavily upon Mars and so the vehicle you see there, which is the biggest thing we're going to build here in the near term, is sized to go on to Mars.

So of course they were thinking about Mars.

Also the whole concept of using LOX/methane. You know, LOX/methane is not critical to the moon but it is preparing to go to Mars.

So to answer the basic question is we are thinking about going to Mars, everyone that's working on this is thinking about going to Mars, but we have to bite off one piece at a time and right now, it's a pretty big job getting ready to go to the moon in order to prepare to go to Mars. Hopefully that answers your question.

QUESTION: Just a follow-up You are backing off from the methane for the time-being. But now I understand the CEV is shrinking. Now you need a big space ship to go back to the moon. I don't know. I've never flown in a space ship. But do you need a larger one to go to Mars? One would think it almost looks as if--are you going to build two totally different size CEVs to go, one to the moon, one to Mars or--

DR. HOROWITZ: What you're referring to is the CEV, you brought up the particular mention of the CEV diameter. We looked at 5.5 meters. We're looking at 5 meters or 16 and a quarter feet.

Remember what the CEV's job is, in particular the command module part where the crew

lives. Its basic job is the first fifty and the last fifty miles, and the amount of time the crew spends in there is about the same for a moon and a Mars mission.

In fact it may actually be less for a Mars mission than a lunar mission. You spend, may spend more time in that.

So the vehicle now that we build to handle a moon mission may actually, in some ways, have more capabilities than a Mars mission, for example, crew volume.

Now to think that that vehicle's going to stay exactly the same for 20 or 30 years is just not true.

QUESTION: [inaudible].

DR. HOROWITZ: Right. And that's not what we're going to do in this program. This program, we're going to develop this vehicle and we're going to have to have--and some people will refer to it as block-up grades, or whatever you want to call it, but we are obviously going to have to plan into this vehicle upgrades. At a minimum, just the thermal

protection system, for example, to come back from the moon, is going to be a different beast than the thermal protection system to come back from Mars.

That's just one of many, many examples. So we do not plan this program for that vehicle to become more capable and to accept upgrades.

You know, one of the mistakes we made in the current program is it's very hard to upgrade this vehicle.

But we make the same mistake. If I put avionics in this vehicle today, not thinking about that they might change in 20 years, I mean, you know, avionics might get smaller in 20 years it could happen, then we've made a huge mistake, and so that these are the lessons we've learned from our current programs that we're incorporating into the design of this new vehicle.

So it'll be very interesting to watch the evolution as we go through the design cycles. Again, we are looking at Mars, we're solving the moon problem first, and there's a huge number of trades. So the next set of studies are going to

concentrate--last year was on how to get there, this year is on what we do when we get there, and there'll be a large emphasis on looking at what we--when we get there includes what we do when we get to Mars as well as the moon, because that has a lot of impact on how we lay out these missions to prove what technologies and operational plans we have in order to go on to Mars.

So I think you'll be seeing that in the study that Shana referred to, that Doug Cook is leading this spring.

DEPUTY ADMINISTRATOR DALE: If I could add, too, that we do have a robust Mars program. Every other year we're going to be launching to Mars, and there will be flights of opportunity available for exploration instruments.

So it's not like we're not doing Mars. We're doing substantial Mars.

MR. ACOSTA: And we'll remind people that we have two Mars Rovers on the surface right now.

Okay. Any other questions up front?

All right. We're running out of time on questions. This is your time, so--all right. Frank? We have about five more minutes.

QUESTION: Mike, you mentioned that managing the transition between shuttle and the next vehicle is going to be a big problem.

Do you have any first principles, going in, as to how you're going to do that?

And also I know you said you wouldn't go any further, but I don't really understand where you're going to find--how you're going to look for these synergies between shuttle and what comes next.

Is this a discriminator in the bidding on the launch vehicles? How does that work?

ADMINISTRATOR GRIFFIN: Well, I don't know that it's a discriminator because we've pretty well outlined what the shape of our launch architecture is.

It uses the solid rocket booster technology, the external tank technology, the engine technology that the United States has already bought and paid for, as opposed to doing what every

engineer would like to do, which is to start every new project with a clean sheet of paper.

We just can't afford to do it and we aren't.

So we know what the launch architecture largely consists of. Now when we talk about looking for synergies, how do we--I could come up with a bunch of examples.

How do we handle the launch pads? Okay. We will be--I think, Gerst, you're shortly about to go down to one pad on shuttle, right?

MR. GERSTENMAIER: Uh-huh.

ADMINISTRATOR GRIFFIN: And so as we reconfig--do we reconfigure the other pads at complex 39 for the CLV, or is it better to, after shrinking down to one pad at complex 39, to build a clean pad somewhere else?

We're looking actively right now at those trades. Scotty talked about how the heavy lift vehicle, clearly, if we're going back to the moon we're using two vehicles. We could have made them two of the same size.

We could have made one big one and one small one. We made a big one and a small one so we would have a lead behind for Mars.

The big one has substantial synergy with shuttle. So we have excess labor on the shuttle program that can, over the next few years, begin to work issues associated with the heavy lifter, or even with the crew launch vehicle?

The answer is we believe so. Now it's our job to put all that into practice and that's what we intend to try to do.

MR. ACOSTA: Bill, did you want to follow that?

MR. GERSTENMAIER: I guess I'd give a couple specific examples. We're still looking at the launch pad trade or when the right time is to essentially turn the pad over to exploration to begin modification for their needs, and we're going to figure out the right time to go do that.

Another concrete example is like the aluminum lithium that we purchased for our external tanks.

We had a buy-out there for about 60 ship sets of aluminum lithium, so we're going to go ahead and continue with that buy and that will provide enough second stage material for Scott to essentially get 18 CLV upper stages out of that original shuttle buy of aluminum lithium. We had to change the way we're rolling the ingots, so we roll 'em to the right dimension, crude dimensions that Scott can use in his second stage. So again we're looking out across all these things.

We're looking at subcontractors, individual hardware, individual personnel and we're looking at the right time that we're going to essentially turn down the shuttle side and when can we turn that into some needs for exploration?

If there's something we no longer need, how can we access that at the appropriate time?

But we're making sure that everything we've got in the shuttle program that has application into exploration, we're going to make sure it flows through and transitions in.

So we talk about synergy but it's just as much transition as it is synergy. So when I think of this, I think of as more how we build a transition plan that smoothly flows from where we're doing, what we're doing today with shuttle and station and then flows into exploration.

MR. : What we don't want is to repeat the experience that, as a younger engineer, you know, I lived through and watched, which is we ceased doing Saturn/Apollo and started up finally six year later with a completely different system, lost just a huge number of very experienced people in aerospace who didn't come back, by and large, they went elsewhere and did other things, lost a lot of experience, did not have a good transition plan, and you simply cannot find anyone, you know, of our age, who was in the business in that timeframe, who looks back on it and says, yeah, that went well.

So we're just going to try not to do that again. And the devil is in the details. For example, right now, not that it's the only possible candidate but for the base stage of the heavy

lifter, we're looking at a production version of the shuttle main engine that would be designed to be not reused but expended after each flight and hopefully would be cheaper.

But it's a different engine. So what in terms of synergies between shuttle and exploration, you know, how can we multiplex the same group of people to do both jobs over the next few years?

These are the things that we believe essentially we're being chartered by the Congress, the administration, the taxpayers to do, is to accomplish the most with the least expenditure of resources.

MR. ACOSTA: All right. We have time for just one more question. Let's go up front here with Brian.

QUESTION: Brian Burger with Space News and Space.com for Dr. Mary Cleave.

You mentioned that some programs will be subject to review for termination and you said some programs will get a later start, programs that aren't in development yet.

Could you give us some examples of programs that will get a later start.

DR. CLEAVE: Sure. The terrestrial plant finder, SIM [ph], GPM [ph], SDO. We, you know, we tried to have this happen evenly across the board with everybody. We didn't try to pick on any one group.

We have some programs that will not be confirmed, like New Star. I think that's pretty good.

QUESTION: [inaudible].

DR. CLEAVE: There are others too, but, for instance, I mean, some people will see hydros and are not doing hydros, as being a budget impact. It really was selected as a backup mission.

And we did confirm Aquarius and OCO [ph], so therefore we will not be doing hydros. It will go back into the queue cause it was a backup.

MR. ACOSTA: All right. That is going to close out today's press briefing. Just a reminder that the budget and the strategic plan are now accessible through www.nasa.gov, and also the

administrator's speech that was given earlier, there will be copies as you exit. They will also be posted on our Web site. That concludes today's press briefing. Have a nice afternoon.

[END OF TAPED RECORDING.]

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