



The Planetary Society

A Better Path for NASA

**Statement to the
U.S. House of Representatives Committee on Science
February 16, 2006**

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The Bush Administration's proposed 5-year budget for NASA, just submitted to Congress, is an attack on science. The proposed budget directs three billion dollars (over five years) away from robotic exploration of the solar system to continue to operate the shuttle. Last year the Administrator said, "*not one thin dime*" would be so directed.¹ Now we learn it is 30 billion dimes.

Science missions are being cut out of the program or delayed. Among them:

- Rejection of a request from Congress for a new start for a mission to explore the ice-covered world of Jupiter's moon, Europa². Such a mission is the highest-priority objective outlined in the NRC/Planetary Science Community's most recent Decadal Survey³: The under-surface ocean on Europa could be a habitat for life;
- Delay of the Space Interferometry Mission – a key effort contributing to the understanding of the universe and the search for other planetary systems;
- Cancellation of the long-sought Terrestrial Planet Finder, a mission also supported in the original Vision for Space Exploration, to discover Earth-like planets and possible abodes for life around other stars;
- Cancellation of two Scout missions to Mars; and

¹ *Science* 23 September 2005: Vol. 309. no. 5743, p. 1975 report on NASA press conference.

² Fiscal Year 2006 Appropriations Bill, House Appropriations Committee Report

³ "New Frontiers in the Solar System: An Integrated Exploration Strategy," National Research Council, ISBN: 0-309-08495-4, 248 pp., 2003.

- Previously announced cancellation of precursor experiments and missions for human Mars exploration.⁴ The proposed budget continues to downplay Mars as a goal for human exploration.

In addition, a devastating 15% cut to science research funding—including likely cuts to some approved 2006 research programs—is being applied across all Earth and space science disciplines, and 50% is being cut from astrobiology research! This attack on basic science ironically comes at a time when the President announced in his State of the Union speech his intention “*to double the federal commitment to the most critical basic research programs in the physical sciences over the next 10 years.*” Apparently the physical sciences do not include either Earth or space sciences.

NASA has begun implementing these cuts immediately (fiscal year 2006) in anticipation of their 2007 budget request being granted. Since many of these actions directly contradict the wishes of Congress expressed in last year’s Authorization and Appropriation bills, we ask that the Committee request NASA to take no actions in fiscal year 2006 to cut science or delay the Europa mission consideration until Congress can act of the fiscal year 2007 budget request.

NASA has cited space science funding increases from 1992 to the present as a possible justification for now using space science funds to pay for the shuttle.⁵ But during that same time period space science has provided the overwhelming share of NASA successes and achievements – including the Hubble Space Telescope, Mars Exploration Rovers and Orbiters, and the Cassini/Huygens mission to Saturn. The value of space science to NASA, to the nation, and to the world during this time period has increased far more than its cost.

⁴ Some of these were in the Science program, and some were in the Exploration program, such as the liquid oxygen/methane engine in the new exploration transportation system.

⁵ Dean Acosta, Mary Cleave at NASA Press Conference, Feb 6, 2006.

We strongly believe the proposal to rob from science to pay for shuttle will undermine support for the Vision for Space Exploration policy and re-open the chasm between the science community and the human space flight advocates. Science was an essential component of the Vision when it was proposed two years ago.

For example the Vision stated that NASA should “conduct robotic exploration across the solar system for scientific purposes and to support human exploration. In particular, explore Jupiter’s moons, asteroids, and other bodies to search for evidence of life, to understand the history of the solar system, and to search for resources.”⁶ The proposed cancellation of Europa exploration undermines the Vision.

The proposed cancellation of Terrestrial Planet Finder contradicts another tenet in the Vision, “Conduct advanced telescope searches for Earth-like planets and habitable environments around other stars”⁷

But the biggest danger to the Vision for Space Exploration is not the removal of a few exploration missions from NASA’s budget, but the commitment made in the budget for 17 shuttle flights. The average number of shuttle launches per year of the space shuttle over its lifetime is less than five. This was with 4-5 orbiters. Now that the country is down to only three orbiters (and soon, just one launch pad) on a system with far more safety concerns and scrutiny, how can we expect the number to be larger? Three or four is a more reasonable expectation – meaning that if all goes well and there are no more accidents or gaps in readiness for flight, the 17 flights might be accomplished in 4 to 6 years.

⁶ “A Renewed Spirit of Discovery,” President George W. Bush, January 2004

⁷ Ibid

That takes us beyond 2010, and leads to more expenditures and hence more delays in the transition to new launch vehicles and a new human space flight program beyond Earth orbit. In fact we would predict that the likely outcome is another decade or more for humans stuck in low Earth orbit.

We don't have to cite our anxieties about the dangers of extending shuttle lifetime, and the delays of implementing the new Vision program. The proposed budget itself states that the CEV may not be ready until 2014, and that NASA is only hoping that some synergies and new providers will be found to enable readiness two years (not four) earlier. Hope is not a good planning tool.

Imagine this is 2010, and the CEV will not be ready until 2014. Will there be pressure to close the gap in US human launch capability? Of course there will – and the likely outcome is four more years of shuttle, and four more years of more costs leading to more delays of other parts of the program.

Continue imagining this is 2010. The shuttle has flown about 5-6 flights since mid-2006 and has still not delivered the European or Japanese modules. Will there be pressure for the US to “meet its international commitments” and continue the shuttle flying – even at the expense of delaying the now delayed CEV from 2014 to when? Will the Congress of 2010 say about the Congress of 2006: " glad they kept the shuttle flying so as to meet commitments and restore purpose to the human space flight program"? Or, will they wonder how this Congress could have had so little foresight about investing in the future, and why it chose to invest in the past?

We recognize that the 3.2% increase in the NASA budget is a positive statement of support for space exploration. We know it is not practical or reasonable to argue for more, and those who come to the Congress and say simply "add money to take care of my programs" are being disingenuous. We would like a

bigger budget for NASA but can we rely on Congress to simply add much into the already overloaded and deficit-burdened budget?

The Administrator's budget message said about the Vision, "we will go as we can afford to pay." But the Administration hasn't paid in this budget, and instead NASA is going forward even when they can't afford it – by raiding the budgets for basic science research and robotic exploration. Who will be left to march to the guillotine next year when development costs rise in human space flight or if the Shuttle suffers more problems?

If they do not want to go as they can afford to pay, then the NASA Administrator is right – tough choices have to be made. Deep science cuts for NASA were a tough choice. A different tough, but better, choice would be stopping the shuttle program now – recognizing that it embodies an intersection of cost and risk that cannot be avoided, and the roadblock it now creates on the pathway to space.

Domestic and international politics make this particular choice even tougher, which is why few even broach the option, let alone advocate it. Domestic politics allow vested interests and short-sighted job arguments to rule for continuing the shuttle. But with retirement of the shuttle within 3.5 years already announced, the ability to keep or attract good people to the program is small, and will get smaller. Ending it now, taking the cost savings and applying it to new programs can be a buoy for human space flight contractors, creating a new sense of purpose and a new set of jobs. Starting other programs earlier, such as the Mars-related heavy lift launch development can mitigate economic dislocations.

International politics force protocol to become the enemy of problem solving. The Planetary Society respects the expectations of international partners, and we as an organization strongly support and believe in the value of international cooperation in space. However, the shuttle-only architecture is an international

problem for all involved in the space station. It demands an international solution. American leadership is needed now to declare an emergency concerning the shuttle; it can no longer be relied upon for completing the International Space Station. Instead of the partners being asked to wring their hands and deplore American attitudes, let's ask them to join with us to develop international solutions and programs to advance our human space-flight ambitions, as well as their own. We suggest that such honesty will provide a solid foundation on which to build international partnerships for future exploration.

The Planetary Society supports space ventures. We have supported the shuttle: it has been a great technical achievement, unequalled on Earth. We have supported the International Space Station: it should be completed as a pathway for human expansion into the solar system. And, from the moment it was proposed, we have strongly supported the Vision for Space Exploration, a long overdue redirection of human space flight beyond Earth orbit.

But we cannot support a proposal that hobbles, or eventually destroys, the NASA science program. Science guides not just robots but also humans into space. Science guides the public in creating a rationale for a \$16 billion space program. Science guides exploration. And we ask, and hope, that support of science will guide you as you oversee the NASA program.

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THE PLANETARY SOCIETY:

The Planetary Society has inspired millions of people to explore other worlds and seek other life. Today, its international membership makes the non-governmental Planetary Society the largest space interest group in the world. Carl Sagan, Bruce Murray and Louis Friedman founded The Planetary Society in 1980.

<http://planetary.org>

