

**International Space Exploration Forum
Session I: National Policies and Public Support for Space Exploration
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**As Prepared Remarks by
John P. Holdren
Assistant to the President for Science and Technology
and
Director, White House Office of Science and Technology Policy**

Distinguished Colleagues!

On behalf of President Obama as well as myself, let me welcome particularly our international guests who traveled here to engage in what I know is going to be a fascinating meeting. I also want to thank the organizers of this event—as well as the co-moderators of this panel, Mauro Dell’Ambrogio and Ma Xinmin, who will lead this session after my remarks here.

I’m sorry that my schedule will not allow me to stay for that discussion, but I can assure you that my close and the leader of the U.S. space program, NASA Administrator Charlie Bolden, will remain here, with his deputies and mine and our colleagues from the State Department, to represent the Administration in this important and timely dialogue.

In the short time I have here, I want to make a few important points about the US commitment to space exploration generally and to international cooperation in space in particular.

First, you should know that as someone who spent the first part of his professional career immersed in aerospace engineering and rocket science, I stand before you not just as President Obama’s science and technology advisor but as someone who is personally passionate about space exploration.

More important, you should know that the President shares that passion. I don’t think he was making mini solid-rocket motors out of his mother’s empty lipstick tubes as a kid, as I was. But I do know that he was inspired by the space program from a very young age and that he cares intensely today about the challenges and rewards of reaching beyond the confines of our planet.

And while the United States, like other nations, needs to temper its ambitions with budgetary realities, we should all be encouraged by the steadfast commitment that this President has shown when it comes to supporting the full range of space-related missions, including human and robotic exploration, Earth observation, technology development, and planetary and space science.

These various missions were not progressing in a balanced way during the last Administration. So one of the first things the President did when he came into office was to start a process to put NASA on a more balanced and sustainable course.

Together we made tough choices, canceling some over-budget projects in 2010 and replacing them with a bold but affordable program that included extension of the International Space Station—the pinnacle of international cooperation in space to date—until at least 2020.

In addition:

- we have been nurturing a new and promising commercial transport enterprise to deliver cargo and soon US crews to low-Earth-orbit;
- we have been investing in a heavy-lift launch vehicle and increasing our investments in transformative technologies critical to human missions to deep-space;
- we have been refocusing our Earth-observation capabilities — including on the ISS —to understand and appropriately respond to climate change and other environmental challenges;
- we have been maintaining our commitment to vigorous programs of planetary science and astrophysics based on robotic missions and space telescopes;
- and, most recently, we began work on an exciting and technologically ground-breaking mission to send U.S. astronauts to an asteroid, as a stepping stone toward sending astronauts to Mars in the 2030s.

Now I want to spend a few minutes elaborating on that 2010 decision to extend the life of the International Space Station—that most remarkable living laboratory above the Earth, which has been inhabited continuously for more than 13 years now.

The Station is proving to be an amazingly flexible laboratory and invaluable technology testbed for a range of potential solutions to the challenges of human space exploration.

Indeed, NASA estimates that Station-based research will be necessary to mitigate 21 of the 32 most significant human health risks identified as barriers to long-duration exploration missions. For example, fluid and air revitalization systems can require microgravity testing to reveal defects that may not be noticeable when tested in Earthbound labs.

And helping us prepare for long-duration space travel is just the tip of the orbital iceberg when it comes to advances that the ISS promises to accelerate. To name just a few, research conducted on the Station has already generated:

- promising leads toward the development of new vaccines for Salmonella and antibiotic-resistant bacteria;

- new techniques for microencapsulation of cancer drugs, which can improve the targeting of tumor cells while sparing healthy tissues;
- novel robotic surgical techniques that may allow the successful removal of tumors previously thought to be inoperable;
- and a water treatment capability that is already helping to deliver potable water to economically struggling countries ravaged by natural disasters.

In light of all these and many other scientific advances, and of course the great cultural and inspirational value of the international partnership that has supported this most ambitious and inherently optimistic of international enterprises, I am pleased indeed to note that we announced yesterday the Obama Administration's commitment to yet another extension of the space station – this time to at least the year 2024. This decision follows a rigorous review of the safety aspects and expected benefits of extended operations.

Our intention in making this announcement so far in advance is to give our partners the time to weigh fully and carefully the case for extension, which we hope will lead to all of them joining us to ensure the continuation of this unprecedented international effort further into the 21st century.

I believe that outcome would instill in the scientific community the confidence that this singular platform will be available for the innovative, long-term research that the community has wanted to conduct but has been hesitant to reach for. And I have high expectations discoveries that we will make—*that we will make together*—on this unique, Earth-orbiting platform, and the economic growth and other contributions to human well-being that it will foster.

Finally, let me remind you of what I think is an equally exciting and enormously promising exploratory mission that this Administration is working to accomplish: that of sending astronauts beyond the moon—further than humans have ever gone—to visit and study an asteroid.

The mission is to identify and capture a suitable asteroid, redirect it to a stable orbit beyond the moon, and then conduct one or more visits to that location—an unprecedented technological achievement that would integrate the best of NASA's science, technology, and human-exploration capabilities and draw upon the innovative prowess of some of our brightest scientists and engineers.

This mission will significantly raise the bar of what humans can do in space and will provide a practice platform for numerous technologies and activities that will have practical applications here on Earth and will also be critical to the success of our plans for sending astronauts to Mars.

It will use current and developing capabilities to detect both large asteroids that pose a hazard to Earth and smaller asteroids that would be appropriate candidates for capture and redirection.

It will accelerate the development of advanced in-space propulsion technology and take advantage of NASA's development of a new heavy-lift rocket and crew capsule.

And it will, for the first time, involve human operations in space at a location beyond the Moon, at a logical destination on the path extending the reach of humans toward Mars.

I hope this mission inspires you as it does us, and I know that as NASA finalizes next steps towards its implementation that Administrator Bolden would be happy to hear from people in this room about ways that your governments or home industries may want to play a role. That is because we here in the United States understand that to accomplish any major project in space, whether it's a space station, deep-space asteroid mission, or eventually sending humans to Mars, it can be to everyone's benefit to work together.

We may have different flags patched to our space suits, and different cultures, traditions, and political systems. But as the success of the ISS has shown, we can transcend these differences in space.

It is this spirit of shared exploration and discovery that we are here to celebrate and cultivate together. Of course, our nations all have a wide range of pressing priorities and at times it can seem to some that adventures in space are a luxury and should be put off until another day.

We in this room know better. We know from our experience that the time is always now, and that with collective action and partnership we can not just reach for, but can actually reach, the stars.

Thank you for your work, your commitment to space, and your service in the limitless realms of peaceful cooperation.