

**REMARKS FOR ADMINISTRATOR BOLDEN**  
**EISENHOWER INSTITUTE OF GETTYSBURG COLLEGE**  
**CAMPUS LECTURE SERIES**

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Thank you for inviting me to join you today. I've enjoyed my time on campus today. It's always refreshing to see the future of our nation reflected in the faces of students who are eager to do big things and bring about their own generational milestones.

Despite the challenges we have faced recently, it's an exciting time for NASA and the aerospace field in general. There's still great cause for optimism even in the face of temporary setbacks that have affected everyone in government. In exploration, our sights must always be on the long-term, even as we work toward steady and incremental progress to reach those larger goals.

I'm thrilled that this fall, Eisenhower Institute fellows will study space policy. It was our 34th president, Dwight D. Eisenhower, who oversaw the founding of NASA, after all. I trust that many of you here today share my belief in the power of exploration to shape our future. You believe in its potential to make tomorrow better and to improve lives and uncover the wonders of the universe for all of humanity.

I hope that many of you just starting your careers will be as fortunate as I have been to meet with colleagues around the world, especially students from other countries. In my travels, I've found that even in countries without a formal space agency, both our partners and the upcoming generation are very excited about the possibilities for our future in space.

You know, we can get a little complacent sometimes here in the United States as the world's leader in exploration.

We can get used to the amazing things we do and the high standards we set for ourselves. But to the rest of the world, especially to those who don't live and breathe aerospace every single day, NASA and our nation's aerospace community are doing incredible, nearly unbelievable things. I am happy to be part of this field and to lead the world's strongest space agency.

You may be aware of some of the amazing things that NASA continues to do. The things we've done in just the past few weeks include the launch of *LADEE*, the Lunar Atmosphere and Dust Environment Explorer, to the moon Sept. 6, and its orbital insertion a month later. Orbital Sciences last week completed its demonstration mission with its *Cygnus* cargo vehicle to the International Space Station (ISS), which means we now have two commercial partners who can resupply the Station with cargo, and we're on track for American companies to launch astronauts from American soil by 2017.

I also want to emphasize that we now have another active launch site for our nation. The Mid-Atlantic Regional Spaceport, or MARS, in Virginia has now launched its first mission to the ISS with the Orbital demo mission, and its first mission beyond Earth orbit with *LADEE*. It's a tangible sign that our launch capabilities and our commitment to exploration are continuing to grow.

NASA is hard at work meeting the challenges set forth by President Obama and the United States Congress for NASA to send humans to an asteroid by 2025 and to Mars in the 2030's. We are making steady progress in the development of the next generation deep space vehicles needed to achieve those goals.

At the Marshall Spaceflight Center in Alabama, work continues steadily on the Space Launch System (SLS) that in the coming years will launch astronauts once again to deep space.

Next year the *Orion* multipurpose crew vehicle will be test flown on a mission to simulate a return from lunar orbit. The spacecraft is currently undergoing preparations at the Kennedy Space Center in Florida. *Orion's* test flight will be followed by an uncrewed test flight of the joint SLS/*Orion* in 2017 and the first crewed test flight in 2021.

The SLS preliminary design review, a major milestone, is now complete. A complicated, high-altitude test recently demonstrated the *Orion* spacecraft could land safely even if one of its parachutes failed. These are real, tangible events demonstrating that every day we are pushing *Orion* and SLS closer to the launch pad.

We're exploring new and innovative ideas submitted through a request for information about our asteroid initiative.

This initiative – that includes the agency Grand Challenge to identify and characterize near Earth asteroids and know what to do about them, and a robotic mission to redirect an asteroid into lunar orbit so astronauts can visit it – has galvanized the public imagination around the world in a way that few things have in recent memory.

Perhaps our Mars rover *Curiosity* can be credited with helping to pave the way for this strong and renewed public interest in space. Millions around the world watched with bated breath last year as the “7 minutes of terror” -- as we called its dramatic Martian atmospheric entry and landing -- played out. They rooted for the little rover to reach its perilous destination and send us its first selfies.

*Curiosity* performed amazingly well! In the collective cheers in the control room at the Jet Propulsion Laboratory, you could almost hear the cheers around the world, where people on laptops in their kitchens in Middle America, or in auditoriums in foreign countries, or on the street in Times Square, were watching, and sharing the achievement. Around the world, we were unified in what we could achieve for humanity.

That's what motivates me – the hope for a bright future. I'm not unrealistic. I know that we won't necessarily always have the budget to do everything the way we want to and when we want to, but we'll still do great things.

I was so proud of our new astronaut candidates in the Astronaut Class of 2013 as they joined us in Houston recently to begin their training. These men and women -- yes -- half of them women, I know many of you may be aware of that fact, but I want to

emphasize it again -- are embarking on the journey of a lifetime, and they are doing it on behalf of the nation.

They're doing it on behalf of that young student I met in Cape Town at the International Astronautical Congress, who may barely be old enough to go to college but is fascinated by space.

They're doing it on behalf of the young women we brought to NASA Headquarters to meet the women profiled in the Women at NASA website. These young girls, barely into middle school, wanted to see how they could be part of the great exploration gambit.

Even though the government shut down for a little over two weeks, NASA is not shut down – not ever. The inspiration, the hope for a more vital future always continues. These are essential things we provide.

Maybe even more essential than *Curiosity* discovering that right where it landed is a geological treasure trove.

Those new astronauts will help NASA achieve its next generation exploration goals. They will be the ones to fly commercial spacecraft launched from American soil for the first time. Right now SpaceX, Boeing and Sierra Nevada are working on those systems, and I'm confident that as we have proven with commercial cargo, we will also be successful with commercial crew. I strongly believe in American innovation.

Those new astronauts also could be among the ones who fly the first crewed flight of *Orion* around the moon, launched aboard the Space Launch System in 2021. They could be the ones who head to an asteroid, probably one of the greatest human adventures ever undertaken, by 2025 and lead the way for those who will go to Mars in the 2030s.

I'm sure as the new Eisenhower Institute fellows explore space policy this fall, they'll hear from experts who can tell them in much greater detail than you'd want to hear from me about our commercial space ventures, about SLS and *Orion* and how science and policy intersect, among other topics.

But I hope what they'll hear, at the heart of everything they'll see and learn, is that beating heart of exploration. We were written off when the space shuttle retired. It was a bittersweet moment, no doubt. I flew the shuttle four times and I also shed tears with the workers and the astronauts for whom that flagship program had meant a tremendous amount.

But make no mistake. The shuttle's legacy lives on.

Just as the idea of a reusable spacecraft was revolutionary and controversial in the earliest days, we went on to use it to create an engineering marvel, the International Space Station, which has become our stepping-stone to the rest of the solar system. The station has united the world in a global exploration enterprise that demonstrates for us all what we can accomplish when we work together as one world with higher purpose.

The innovation, the audacity to reach higher in air and space, lives on at NASA, and in the work that today's educators and students and scientists and engineers perform every day across the full spectrum of what a space program requires.

The fact that we now have two viable commercial resuppliers of the International Space Station would barely have been conceivable when I joined the astronaut corps, but here we are.

That we would actively be working on solar electric propulsion and successfully tested a pressurized, large cryogenic propellant tank made of composite materials to improve future spacecraft would have been science fiction.

I was fortunate to have two parents who were educators, and their influence is still deeply felt in my life. We at NASA, and all of you who have made education the cornerstone of your lives and careers, are in the future business. We create it, because we believe in it. We cast our beliefs outward and our actions follow.

As the *New Horizons* spacecraft speeds toward Pluto and the *Juno* mission heads toward Jupiter, we, too, work daily, for years, for the big things, the hard things, that our nation expects of us, and which will leave new pathways to achievement for the following generation to meet and exceed. Because what we do will never be finished.

Our inspiration will continue to propagate and replicate. There will always be more places to visit, more questions to answer, more discoveries to make. That is the beauty of our field.

So I stand before you today, looking forward. With the mission formulation review of the asteroid mission complete, I look forward to integrating the most highly rated concepts into a mission baseline concept to further develop in 2014. I look forward to three new Earth science missions in fiscal year 2014, which I am calling the "Year of the Earth." Toward the launch of *MAVEN* to study the Martian atmosphere next month. Toward another rover going to Mars in 2020. Toward continued cutting-edge research on the International Space Station and the future generation coming up with its own dreams and destinations and the means to reach them.

Just as we are standing on the shoulders of giants, so, too, are we lifting those who follow. I think we're doing pretty well for a 55 year old. NASA just had a birthday Oct. 1, if you didn't know. The shareable on our website says it pretty well. Among many things we've done in that time, we've:

- Landed 12 astronauts on the moon
- Put 4 rovers and 4 landers on Mars
- Put one spacecraft in interstellar space
- Successfully completed 12 years of humans aboard the International Space Station (the 13<sup>th</sup> anniversary of the first Expedition's launch is Oct. 31)
- Flew the space shuttle for 30 years, including missions to build the station, deploy and service the Hubble Space Telescope and perform countless sciences experiments
- Developed 1,800 technologies to enable current and future missions and benefit life on Earth

- Put 16 satellites in orbit right now observing Earth
- Flew 20 experimental X-planes

Among the things I've already mentioned and other things yet to come are:

- Launch of the James Webb Space Telescope
- More commercial access to low-Earth orbit
- A new rocket and spacecraft to take astronauts farther than ever before
- Capturing and studying an asteroid
- Sending humans to Mars by the 2030s
- The missions I already mentioned such as *MAVEN*, *Juno* and *New Horizons*, as well as *OSIRIS-REx* to an asteroid
- Making air travel safer and greener... and much much more.

As always, NASA stands ready to again transform our nation's perspectives and expectations, and to use space to reach for our highest potential. We are absolutely following both the spirit and letter of the Space Act that created us under President Eisenhower – to benefit our nation, to make the most use of our emerging capabilities and develop new ones, in short to create a new world, and to be ready for the future we are already creating.

Thank you.