

REMARKS FOR ADMINISTRATOR BOLDEN
WORLD AFFAIRS COUNCIL - DC
DISTINGUISHED SPEAKERS SERIES LUNCHEON

Sept. 18, 2012

Thank you for inviting me to speak here today. As a longtime supporter and board member of the Houston World Affairs Council, it's always good to reconnect with this wonderful organization.

As most of you know, NASA has a long history of international cooperation, across a wide variety of space activities. In fact, “cooperation with other nations and groups of nations” in the peaceful exploration of space was envisioned as a key element in the legislation that created NASA back in 1958.

We're proud of NASA's global leadership and also mindful that the scientific and human space flight achievements of the past half-century would not have been possible without international cooperation.

Last week we memorialized and lay to rest a true American hero, Neil Armstrong. The inspiring memorial service at the National Cathedral was held on the day after we marked the 50th anniversary of President Kennedy's "Address at Rice University on the Nation's Space Effort," that galvanized our nation to reach for the moon and fueled the vision and the work we are still doing to reach farther into the solar system.

Right now we're working on the heavy-lift rocket, the Space Launch System (SLS) and the multi-purpose crew vehicle (MPCV) that will take Americans to deep space again – to an asteroid and Mars – likely even back to the Moon. The MPCV,

named *Orion*, is being tested right now; in parachute and water drop tests.

The *Orion* vehicle that will undergo a test flight in 2014 to simulate re-entry from a deep space mission is at the Kennedy Space Center *Orion* right now. If you happen to be near Stennis, Mississippi on the right day, you're liable to hear the test firings of the rocket engine that will power the SLS upper stage. That rocket will launch an uncrewed flight around the moon in 2017 and a crewed mission by 2021.

This is all going on while we open up a new segment of the economy to commercial space. Next month SpaceX begins its commercial resupply missions to the International Space Station (ISS) after its historic demonstration mission last May with the safe in tact return of its *Dragon* space capsule. The company also is working toward the capability to transport crews to the Station.

Orbital Sciences Corporation will follow shortly with its cargo demonstration mission to the ISS while Boeing and Sierra Nevada do their own work on commercial crew transportation systems. Many other commercial partners are developing new technologies that are going to help us transform access to low Earth orbit and allow NASA to focus on the farther destinations. This work brings back to America a crucial capability to launch astronauts from our soil using the systems of American companies.

I want to correct a misconception about NASA's direction. Some have claimed that we are adrift with no clear human spaceflight destinations and no plans for the future. Nothing could be further from the truth, and those who perpetuate that myth only hurt the space program -- a national priority with bipartisan agreement -- and a program that generates jobs and pushes the envelope of human achievement. Such talk undermines our nation's goals at a critical time.

The truth is, we have an ambitious series of deep space destinations we plan to explore, and are hard at work developing the hardware – and the technologies – to get us there.

We've had international crews of six, aboard the Space Station 24/7 for nearly 12 years now. We have robotic missions speeding to Jupiter and Pluto; the James Webb Space Telescope being assembled right now for a 2018 launch as Hubble's successor; and new astronauts in training for ISS and future exploration missions. The milestones we've recently achieved in commercial space and the many capabilities on which our Space Technology Program is working – all this demonstrates that a new era of exploration has already begun. We are in it right now.

Since NASA was founded 52 years ago, international cooperation has been one of our cornerstones. We have entered into about 4000 international agreements in that time, with more than 120 nations, and touching almost every aspect of NASA's activities.

Right now we have 567 active international agreements, conducting some form of ground-based or space-based research linked to every continent and working with nations around the world to develop and implement the next generation of space exploration missions as well as contribute to the faithful stewardship of our home planet, Earth.

This cooperation represents a win/win for NASA and our partners, bringing multiple benefits to everyone involved.

We have numerous demonstrations of this right now, from the International Space Station, to the SERVIR program, where scientists around the world use space data and their own ground-based observations to help us better understand the increasing demands upon our planet's resources as well as to predict Earth's accompanying changes.

Everywhere I go, I see the fire in the eyes of students who are just learning how important science, technology, engineering and mathematics are to understanding our world, and how they can make a real difference by pursuing those career paths.

We look forward to continuing America's space exploration leadership in the global community, building on the strong relationships we have now and engaging with more “non-traditional” partners in the future. These are the countries with whom we haven’t worked a lot in the past, or maybe not at all. In some cases they may not even have their own space programs.

I experienced the power of international cooperation firsthand when I commanded NASA’s first space shuttle “mission to planet Earth”, STS-45, ATLAS-1, 20 years ago with Belgium’s first-ever astronaut, Dirk Frimout. We operated 13 international experiments designed to study our Sun and Earth’s middle atmosphere in ways never before accomplished.

It was displayed again two years later when I was privileged to command the first joint Russian-American Space Shuttle mission with a Russian Cosmonaut, my friend Sergei Krikalev, as one of our Mission Specialist crewmembers.

The relationships we developed on those missions and others served as precursors, first to our extremely successful cooperation on the Russian Space Station, *Mir*, and ultimately on the International Space Station.

I am truly proud that NASA's work stretches far beyond America's borders and has a positive impact on people's lives in places far from our shores. I believe that space exploration is good for the world, and I see America continuing to lead global exploration efforts and helping to foster government-to-government relationships that might otherwise be difficult to continue to improve.

Nations that have common interests in science and technology have a basis for common understanding and agreement.

There are a lot of frontiers within the broad scope of space exploration, and as such, there is likely something exciting going on right now in some part of the world that may someday help us to push back those frontiers. Because we all inherently share a need to explore, I firmly believe that individuals and nations will continue to be drawn together by the promise of space exploration.

In proclaiming, "We choose to go to the moon," President Kennedy propelled our space program to the forefront of American culture and consciousness, galvanizing an historic effort on which we continue to build today. Accomplishing Kennedy's goals -- both tangible and intangible -- we have taken on his vision to create new challenges and reach now toward new capabilities and destinations.

Neil Armstrong first left humanity's footprint on the moon, and more importantly helped raise the "banner of freedom and peace," fulfilling Kennedy's vow to "not see [space] governed by a hostile flag of conquest."

We now stand on Armstrong's shoulders to create a sustainable vision for the future exploration of space. Much like the first Apollo missions cleared the path for Apollo 11 and Armstrong to land on the moon, our *Curiosity* rover on Mars is clearing the path for humans to land on Mars.

Our Space Technology Program is developing new technologies that make human expansion into the solar system a reality. Ideas such as solar-electric propulsion and lightweight cryogenic propellant tanks are technologies to which we have recently directed our resources, just to name a few.

Our current budget provides for this type of work as well as projects like the three technology demonstration mission proposals we selected this past year to transform space laser communications, deep space navigation using atomic clocks, and in-space propulsion capabilities, including solar sails. Many more are in our pipeline at various stages of technological readiness.

Investments in our space program have created a global enterprise that continues to advance our nation and our world. It creates jobs and creates technologies that spin off into the private sector to benefit every citizen -- from aviation breakthroughs to cutting edge medical devices to products that make our lives safer and more productive. Exploration unifies us all in the pursuit of a shared endeavor of grand proportions.

No one of the millions around the world who held their breath as *Curiosity* descended to the surface of Mars last month through "seven minutes of terror" is likely to forget the excitement, or the

exhilaration, when the flight director announced at last, "Touchdown confirmed. We are safe on Mars." At that moment, the imaginations of thousands of future scientists, engineers and astronauts from around the world were sparked, just as they were at all the major milestones of our space program in the past -- from the early successes of Mercury, Gemini and Apollo, to the space shuttle and the science missions that over the decades in partnership with other nations have returned to us stunning images of other planets and other solar systems.

There are many more such moments ahead for our nation's space program when we'll hold our breath in collective awe as humans do something we never have before.

These will be the moments when boldness and a passion to expand our human experience combine to achieve new knowledge; when technology enables new destinations to come within our reach; and when we turn back to the Earth to see not

how small our place is in space, but how rich is our destiny in the cosmos.

America stands ready to lead this next era of space exploration, and welcomes the support and participation of our international partners in achieving these ambitious goals.

Thank you so much for allowing me to join you today. I look forward to hearing your thoughts and ideas about how the frontiers of our ever-changing world may develop in the coming years.