

Remarks at 3rd Annual Space Exploration Conference
The Honorable Shana Dale
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National Aeronautics and Space Administration
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Thank you Bob (Bob Dickman, AIAA) for that very warm introduction and good afternoon ladies and gentlemen. I'd especially like to thank you and your AIAA team led by Meagan Scheidt for their great work in setting up this 3rd Annual Space Exploration Conference. Of course, I'd also like to acknowledge and thank Lieutenant Governor Barbara O'Brien for her continued support and for hosting us in her great state of Colorado. The Lieutenant Governor serves as Chair of the Education Committee for the Aerospace States Association, an organization made up of Lieutenant Governors throughout the nation to promote the burgeoning Space Economy, and as Co-Chair of the Colorado Space Coalition. And she does great work with both organizations. Finally, I'd like to welcome all of you to this 3rd Annual Space Exploration Conference.

Having the conference in Denver is most fitting as the Mile High City is the setting of many important events this year that will attract national attention. Soon, the Pepsi Center in town will host an event that will feature charges and counter charges, raucous crowds, and some brutal hard hitting action before the television cameras. I am referring of course, to the NCAA Hockey Tournament in April, not the political convention that will come later.

In the spirit of bi-partisanship, I mention the upcoming convention because this is an election year and elections are all about citizens making choices about the future of our country. With respect to maintaining and enhancing America's essential leadership role in the exploration of space, some very important decisions were made in the past four years, first by the administration I serve, and then by strong bi-partisan majorities in both houses of Congress. Those decisions were to move forward beyond low earth orbit, and conduct long-term extensive exploration and scientific activities on the Moon, as soon as 2020, thus beginning to expand the burgeoning Space Economy to our closest celestial body, and to prepare the way for the human exploration of Mars. I cannot imagine a more exciting future for our space program.

It is my sincere hope that we will not turn our back on this decision and abandon the promise that our next great leap out into the cosmos holds for our citizens. And you are the people in the best position to tell your friends and neighbors about the potential benefits of this program, so I hope you come out of Denver, not only better informed about our exploration plans for the future, but also reenergized in your commitment to this great program we work on. America needs to make leadership in space and all that this entails for our economy, technology development and scientific advancement, a key component of our leadership in the world.

The bold goals of the space exploration program NASA is carrying out for the country are consistent with Colorado's great heritage of exploration and discovery. This tradition began with the early exploration missions of Zebulon Pike and Stephen H. Long into the Rocky Mountains, followed by the state's rapid settlement due to the discovery of gold and silver, and extended into the space age, with people like Mercury Astronaut, Scott Carpenter, a favorite son of Boulder; Apollo 13 hero, Denver's Jack Swigert; and many others who proudly carry the hopes and dreams of the Centennial State into space.

2008, our agency's 50th anniversary year, marks a transitional moment in human spaceflight, a year in which we'll take definitive steps as we move outward to the Moon, Mars and beyond. It is worth remembering that only a few years ago, many were saying that NASA had lost its direction, its sense of purpose. A *Popular Science* cover story in 2002 pleaded, "Go somewhere, NASA!" We're now engaged in a multi-decade commitment to expand the presence of our civilization and our economic sphere throughout the inner solar system with the support of the President and the Congress.

So let me make this point clear. There's more than a vision at NASA. There's a program, a plan, and a clear direction for the future. Today, NASA is well engaged with the work to build the spacecraft, launch vehicles and space systems, and define the exploration strategy that will enable the establishment of a lunar outpost in the 2020s. We will honor our commitment to our partners and finish assembly of the International Space Station with the Space Shuttle fleet, while building a 21st century space transportation system for humans, the Orion crew exploration vehicle, that will make its first flight to the space station by 2015 and first mission to the Moon by 2020.

The lunar outpost and lunar surface operations plans are taking shape. The Orion crew exploration vehicle, and Ares I, the rocket that will launch them, already are

under contract. NASA will distinguish our 50th year by finalizing Orion's design, conducting the first tests of Orion's launch abort safety systems and Ares I's rocket engine, and launching the first mission of the modern Moon program. That's right: the first steps to returning to the Moon will begin this year with the launch of the Lunar Reconnaissance Orbiter and LCROSS, to map the Moon's surface and help further the search for possible water.

We should all be pleased with this tangible progress, but there is much more. Orion and Ares components, such as landing systems and thermal protection materials, are undergoing tests in vacuum chambers and wind tunnels and on proving grounds across the country. The tests will lead to refined designs that will improve the spacecraft's performance. Last month marked the start of testing on the power pack, or fuel pumps, of the J-2X engine that will help power Ares I into orbit.

Next fall, we will see the first in a series of tests of Orion's launch abort system at NASA's White Sands Test Facility in New Mexico. And we are now almost a year away from the first flight test from the Kennedy Space Center of Ares I, called Ares 1-X, with a dummy upper stage and dummy crew module.

So, as you can see, we are making tangible progress. Of course, to achieve such progress over the course of decades, we must engage the public so that they better understand the challenges and opportunities that lie ahead. Because I am typically out talking to non-traditional audiences now, this conference provides me an opportunity to speak directly to the aerospace community about what we're doing—to reach a broader swath of the American public on what I perceive to be working and what some of the messages are.

Effort is not about support for more money, rather it is to fulfill the mandate of the Space Act: To broadly disseminate information about America's space program. So our goal is to reach grassroots—the broad American public—and grasstops—specific industries or groups.

Based on previous market research, we know Americans like NASA but they don't know what we're doing beyond "space." Americans get excited about NASA but they don't see much relevance to life here on Earth. That market research showed that introduction of specific technologies that derive from NASA—spin-offs—increases our relevance to people from the 50th percentile to 90th percentile. And the combination of the inspirational and relevance message is deeply powerful. All

we're doing is talking about what we do at NASA, but we're doing it in a way that people see a connection to themselves.

I have received many questions about the Future Forums, one of our activities to reach grassroots and grassroots. So let me explain what they represent. They are a celebration of NASA's 50th anniversary with appropriate appreciation of past achievements and an eye to the future—the exciting missions that we are just embarking upon. So, we're going beyond the traditional stomping grounds. January was Seattle, Washington. February, last week, was Columbus, Ohio. March is St. Louis, Missouri. April is Miami, Florida. May is San Jose, California. There is a break in the summer and then we pick up with Chicago and Boston.

We're connecting with science museums and science centers to host the all-day events and these communities are excited about NASA rolling into town. The goal is to talk about what the Space Economy means for that local, state, and regional community.

Many of you have heard either Mike Griffin or me talk about the Space Economy. It is defined as the full range of activities that create and provide value to human beings in the course of exploring, understanding, and utilizing space. At the Future Forums, I kick off the meeting with a keynote. The Columbus meeting was the first one where we rolled out a video that tries to capture visually what we're doing with Constellation.

We're learning from each Future Forum; what is working and what needs to be changed. The keynote and video are followed by an astronaut presentation and then a Constellation briefing. Carl Walz did both of these in Columbus and is on the road show for the remaining Future Forums. Press is a key component. After this part of the morning, Carl and I attend a press meeting/conference. I have done live shots for TV channels in the morning and editorial boards in the afternoon.

The rest of the day is divided into 3 panels that represent 3 themes: Inspiration – primarily education and how we inspire kids to go into science, engineering, and math; Innovation – how what NASA does is important to technology advancement and U.S. economic competitiveness; and Discovery – how NASA's missions lead to discoveries in aeronautics, human space exploration, and Earth and space science. The panels consist of local experts from the education community; local business leaders, especially those who have a tie to aerospace; and local university/academic types.

Education is an issue that resonates everywhere we go. STEM education is an issue that everyone is concerned about and it stimulates a lot of discussion.

My innovation message goes along the following lines: NASA drives innovation by tackling hard, complex problems and overcoming seemingly insurmountable obstacles. Since our mission requires us to put humans and robots into harsh, extreme environments, we must reach into the unknown to achieve our goals. This is where we are challenged to push the very limits of technology and where we realize the greatest innovations. At this point, I typically tie in specific NASA-derived technologies: advanced breast cancer imaging, enabled by Hubble; and robots that clear caves and cross minefields, in Iraq and Afghanistan, thanks to all of our robotic exploration; and compact water filtration systems that help poor, remote regions of the world, where drinking water can mean the difference between life and death. This compact system is thanks to the International Space Station.

For discovery, I talk about how NASA's pursuit of discovery pushes the extremes of science to answer fundamental questions about who we are and where we come from, to achieve a greater understanding of the universe, and to determine what is happening to the Earth's climate and why. I also go into more detail about how sustainability of the Earth and its natural resources permeate NASA's missions.

Inspiration, innovation, and discovery: each is interdependent and through a virtuous circle of renewal, they combine to create a formula for future growth, prosperity, and an improved quality of life. These form the essence of the Space Economy and it is through them that NASA makes its most fundamental contributions to life here on Earth.

For the luncheon keynote, the Lieutenant Governor in Washington State and the Governor in Ohio both touched on themes of how NASA is relevant to so many other fields and so important to everyone's life. The message is resonating.

You've heard me talk about what we're doing and what some of the messages are. So what do I perceive to be working? A message that I hit hard in the Future Forums and other venues like the recent speech I gave to the National Association of Women Business Owners of Silicon Valley was that NASA's budget is 6/10 of 1% of the federal budget. That means that we accomplish all of our exciting missions: aeronautics research, ISS, Shuttle, Earth and space science, and future human exploration on a budget that is 6/10 of 1% of the federal budget.

I tell them that not to garner support for more money, but to bring home the point: NASA has a phenomenal return on investment. After they've heard about all we do, people shake their heads in the affirmative. People don't know that we're stuck in low-Earth orbit and they don't know what LEO is. I asked Carl and Derek Wang to put together a graphic for Carl's presentation to visually show where LEO is and then how far away the Moon and Mars are. It's a great graphic and I plan to use it in the future.

Another message that blows people away is that we retired the capability to get to the Moon after the Apollo program and we don't currently have that capability. After my talk to the women business owners, many came up separately and talked about how they love the inspirational message and are excited about what we're doing in the future. They had no idea that we were so relevant to medical, robotic and environmental technologies, and on and on.

So, that is a small taste of what we're doing to reach out more broadly and for all of you in the aerospace community, I want you to take it home with you, think about it and how you can spread the message to your neighbors, loved ones, and strangers that you meet on the plane. If we are going to make it beyond low-Earth orbit in our lifetime and become a spacefaring civilization, everyone has to take an active role.

Now, I would like to show you a new website that NASA is releasing today.

Thank you.