# A Leap into the Future:
# The 5th Anniversary of President Obama's Speech at the Kennedy Space Center

**SPACE SYMPOSIUM CORPORATE PARTNERSHIP DINNER**
*Remarks for Administrator Bolden as prepared*
April 14, 2015

It's always great to be "a mile closer to space" with all of you at the Space Symposium.

Let me begin by thanking you all for the work you are doing – and I mean this in terms of both the science and benefit to society. I say this because, in addition to making some incredible technological advances, you're also creating jobs; you're fueling economic growth; and you're helping cast the public's eye on the promise, possibility and potential that flow from aerospace.

With this in mind, it's fitting that this great event is held here in Colorado. You see, Colorado has experienced a 17% increase in space-related employment over the last decade – you don't see

that kind of growth in very many sectors, no matter where you are.

With more than 400 aerospace companies and suppliers and nearly 163,000 people employed in space-related jobs, the Rocky Mountain State illustrates that – yes – space exploration is about unlocking the mysteries of the universe … but it's also about unlocking our own economic potential here on the best planet I know of … Earth.

It's also fitting that we're gathered here in April. You see, April is a month of big anniversaries.

On April 24th, we'll mark the 25th anniversary of the launch of the Hubble Space Telescope. Now this is a bittersweet anniversary for me. It's bitter because 25 years is a long time and I hate to admit I'm that old. It's sweet because of all that Hubble has allowed humanity to see and learn over this past quarter century.

I was assigned as the pilot of that mission (NASA speak for co-pilot) – which was the easy job. Loren Shriver was our Commander with responsibility for maneuvering *Discovery* throughout the deploy evolutions and Dr. Steve Hawley was the one with his hands on the controls of the remote manipulator system (RMS) tasked with getting the telescope out of the payload bay of Space Shuttle *Discovery* and released at the appropriate time. Because of the problems we had experienced with getting the solar arrays deployed earlier on deploy day, Dr. Kathy Sullivan and Bruce McCandless had been suited up for a possible contingency space walk or EVA and where they had been taken to vacuum in the airlock – where they were prepared to conduct the EVA and manually deploy the arrays. Fortunately the flight control team was able to resolve the problem from the ground and the deploy was completed without further difficulty.

All of us on the crew had a sense that *Hubble* was going to be special, we just didn't know how special. More than a million observations later, it has now re-written the astrophysics and planetary science textbooks.

Each and every year, it generates 10 terabytes of new data and discovery. Just to give you an idea of how much data that is – 10 terabytes is roughly the size of the entire printed collection of the Library of Congress – and *Hubble* is producing that much data every year!

Now I mention this *Hubble* anniversary because I think it says something about another anniversary I want to talk about today … both are about *vision* …

Five years ago tomorrow, President Barack Obama came to the Kennedy Space Center in Florida – and I had the honor to be there with him.

He visited Launch Complex 40 and launch pads 39A and 39B. He checked out the SpaceX Falcon 9 rocket and during a visit to the Operations & Checkout Building – where he stood in front of a mockup of the *Orion* spacecraft – he laid out what I believe is a very bold vision for American space exploration. It included what he called a "transformative" agenda for NASA.

The President talked about his childhood memories of sitting on his grandpa's shoulders and waving at astronauts arriving in Hawaii. And he said that – and I quote – *"space exploration is not a luxury, it's not an afterthought in America's quest for a brighter future – it is an essential part of that quest."*

Five years after the President laid out his vision, we're seeing it come to fruition and, much like the images being beamed to Earth by *Hubble*, what we're seeing is marvelous.

**JOURNEY TO MARS**

The centerpiece of the President's vision is a Journey to Mars that will bring American astronauts to the Red Planet in the 2030s.

Today, NASA, our country – and really all of humankind – are firmly on this journey. And we're closer than at any point in the history of human civilization.

When the President spoke in front of that mock-up of *Orion* I mentioned, he pledged that the spacecraft would be readied for flight in the years ahead. Today, after its December test flight – *Orion* has flown farther into space than any spacecraft built for human passengers has flown in more than four decades and it's brought critical data home with it that we'll be able to use as we plan future crewed missions to deep space.

Meanwhile, the Space Launch System – or SLS – rocket that will someday carry American astronauts to deep space has moved from concept to development and it's hitting critical benchmarks.

We're also moving forward with an Asteroid Redirect Mission that will test new capabilities – like advanced propulsion systems – that will be needed for future human expeditions to Mars.

The President also called for new scouting missions to the Red Planet. Our latest Mars spacecraft, *MAVEN*, arrived last September to study its upper atmosphere – and in so doing, *MAVEN* joined a fleet of orbiters and rovers on the surface, building on America's 40-year legacy of advanced robotic exploration of that planet.

As you may know, America is still the only nation to successfully land a spacecraft on Mars and this is a legacy we intend to continue.

Next year, we will send the *InSight* lander to study the planet's core and in 2020, a new rover, building on the incredible success of *Curiosity*, will help us prepare for human arrival at Mars and, for the first time ever, it will cache a sample for later return to Earth.

I should add that Mars is one of many destinations. We're also ramping up exploration of the solar system. This includes the sun, which is a key to unlocking mysteries about stars, the Milky Way galaxy, and the universe itself.

**INTERNATIONAL SPACE STATION**

One of our most important resources for moving our Journey forward is the International Space Station (ISS). In 2010, the President called for extending its life for five years. We've now extended it for ten.

I recently attended the launch of American astronaut Scott Kelly and his Russian cosmonaut counterpart, Mikhail Kornienko, into space from Baikonur, Kazakhstan. As we speak, they're working together on the ISS, the place they'll call home for the next year. For more than 14 years now, humans have lived and worked continuously in space aboard the ISS, an unprecedented feat in human history.

It's the first time an American astronaut will live and work in space for an entire year. It's an important stepping-stone on our journey to Mars, because it allows us to test and improve our capabilities in space as well as to study how the human body responds to extended periods of time off our planet.

Speaking of the ISS … something else that President Obama spoke about was accelerating the pace of private-sector innovation. Our American industry partners are now launching cargo missions to the ISS – and they're doing it from U.S. soil.

Last September we announced the selection of Boeing and SpaceX to transport our astronaut crews to the Station, bringing those launches back to America in 2017 and ending our sole reliance on the Russians to get into space.

## TECHNOLOGY DRIVES EXPLORATION

Technology drives exploration, and we're getting closer to remarkable new technological breakthroughs; advances like Low Density Supersonic Decelerators that will allow heavier spacecraft to land safely on places like Mars.

These are all part of the President's plan to invest in new, advanced technologies that will not only take Americans farther into space than ever before, but will provide spin-off benefits and create high-paying jobs here on Earth.

## STUDYING EARTH

President Obama also reaffirmed the value of increasing Earth-based observation so that we can improve our understanding of – among other things – our climate and how it's changing.

Show of hands, how many parents do we have in the room with us tonight?  And how many of you are, like me, grandparents?

Anyone who's looked into the eyes of their child or grandchild wants to make sure we leave them with a better, healthier world. Gaining a better understanding of our climate and of our planet is critically important to doing just that.

## JAMES WEBB SPACE TELESCOPE

I have one more area I want to talk about – and it's actually something I opened with: the Hubble Space Telescope.

The President called for us to succeed *Hubble* with an advanced telescope that will allow us to peer deeper into the universe than ever before.

When it launches in 2018, the James Webb Space Telescope will allow us to do just that. It will be placed in orbit about a million miles from Earth, and it will allow us to observe the most distant objects in the universe … and to see unexplored planets around distant stars.

**CONCLUSION**

Taken together, I'd say that's a heck of five years, isn't it? And really, our journey of discovery is just beginning.

I want to leave you today with a few final words from that speech at the Kennedy Space Center, because I think they really do shed some light on what this work means not just for us today, but for our children and grandchildren tomorrow …

Quote: "*We will not only extend humanity's reach in space -- we will strengthen America's leadership here on Earth … For pennies on the dollar, the space program has improved our lives, advanced our society, strengthened our economy, and inspired generations of Americans … the question for us now is whether that was the beginning of something or the end of something. I choose to believe it was only the beginning." - Unquote.*

Like President Obama, I also choose to believe that our achievements to date are only the beginning. And I would wager that so do all of you.

Five years later, the progress is tangible, the promise is real, and possibility is endless. We are leaping into the future and turning

the one-time dreams of science fiction into science fact.  At NASA, we continue to make the impossible possible and I hope you will choose to remain partnered with us on this incredible journey.

Thank you again for what you are doing to advance the cause of exploration, discovery, and human progress.