

Keynote Address by NASA Administrator Charles F. Bolden Jr.
American Astronomical Society Winter Meeting
January 5, 2010

Thank you for that introduction and a Happy New Year to everyone. It is a pleasure to be with all of you today at the start of a new year. The year ahead is likely to be filled with new achievements in space, new discoveries we can't yet imagine, and new opportunities. It will also be one of challenge and change for NASA.

The year just ended was a remarkable one for our agency. Let me mention some of the astrophysics highlights that you know so well. Kepler was launched last March to conduct a census of Earth-sized planets in our galaxy.

Just yesterday, the first Kepler discoveries of large planets were announced, and many more discoveries are anticipated during its three-and-a-half year mission.

The WISE mission was launched in December, our newest mission in the Explorer program. It will gather a treasure trove of new data on the entire infrared sky, going much deeper than previous surveys and with much better resolution.

Last week the protective cover was released and the first sky images were sent down. The first light images will be released at a press conference tomorrow, so stay tuned for that! The ESA/NASA Herschel and Planck missions were launched in May to study the far infrared universe and the cosmic microwave background with state-of-the-art instrumentation.

The Chandra X-ray observatory marked its 10th anniversary in July. SOFIA reached a milestone with its first open door flight test last month. The Fermi Gamma-ray Space Telescope completed its first year of science operations, revealing a new class of gamma-ray pulsars and giving us a glimpse of the nature of space-time.

The James Webb Space Telescope Program has made significant progress in building flight hardware, such as the primary mirror segments, observatory structure, science instruments and other subsystems.

Spitzer discovered the largest ring around Saturn. By combining data from Chandra and other optical and infrared telescopes, the most distant galaxy cluster ever found was discovered...

And then there was the final Hubble Space Telescope servicing mission, bringing new life to our old friend. I call Hubble a friend because I have a personal connection with this remarkable instrument.

Hubble's discoveries continue, with the first-ever image taken of an extra solar planet orbiting another star.

All together, NASA's Science Mission Directorate supports over 60 operating space missions. This year begins with 15 NASA or NASA-partnered space assets available to the astronomical community. Compare this with five in 1990 and nine operating missions in 2000. These missions are of great value to the nation and help us meet national needs in science, education, and technological innovation.

For both human and robotic missions of the future, one facet will be common to all: we must develop a stronger partnership with the international community. The cost and complexity of space programs require that both the achievements and the cost be shared among many nations, for no one nation can carry this burden alone. Whether it be future human voyages beyond Low Earth Orbit, or complex sample return missions from Mars or deep space objects, or building future large space telescopes, NASA must pursue a new era of international cooperation: a relationship where our partners are treated as equals.

Astronomy and science touches our communities in many other ways as well. Last fall, I joined President Obama and the First Family on the White House lawn to celebrate the International Year of Astronomy. The lawn was covered with telescopes, inflatable planetariums – and astronaut heroes such as Buzz Aldrin, Sally Ride, John Grunsfeld, and Mae Jemison. Present with us were 150 students from DC, Maryland and Virginia schools, who learned of crater formation on the moon, viewed Jupiter and its four Galilean moons, as well as distant stars and nebulae in our galaxy. The President and the First Lady joined in the fun, peering through some of the telescopes and mingling with the students.

With us that night was a West Virginia high-school student who had discovered a new astronomical object – a strange type of neutron star never discovered before. What's remarkable about Lucas Bolyard's discovery is that he made it after he had studied two thousand data points collected from the Robert Byrd Green Bank Telescope – and originally found nothing. But like young would-be astronomers, he was determined to scrutinize his data, looking for more. His discovery was almost overlooked in the radio interference streaming in from space. But he was persistent – he was dedicated. And as a result, he made history.

Also with us that night was Caroline Moore, a 14-year-old in love with science. She discovered a supernova. It wasn't your average supernova. This exploding star was so dim; it was 1,000 times dimmer than a typical supernova. Moore, a ninth-grader, won the distinction of being the youngest person ever to discover a supernova.

What I witnessed that night on the White House lawn served as a reminder that astronomy and science can inspire the next generation to study the Science, Technology, Engineering, and Math (STEM) subjects so critical to America's future workforce.

Of critical importance before we can inspire the rising generation is to expose them to your craft and the tools you use. You must become engaged with students as early as elementary school and help them learn who you are and what you do...why you're passionate about astronomy and astrophysics and the magic they've brought to your lives.

The years ahead promise a steady stream of new missions and new discoveries. This spring, the James Webb Space Telescope, our next astrophysics flagship mission to study the distant universe in the infrared, will go through its Critical Design Review, aiming for a 2014 launch.

SOFIA, the largest airborne observatory in the world that will study objects in the far infrared, will produce initial science this year as it moves towards full operational capability in 2014.

NuSTAR, the first focusing hard x-ray telescope mission to study black holes, supernova remnants, and the most extreme active galaxies will launch by early 2012.

The Gravity and Extreme Magnetism (Small Explorer Program – SMEX), or GEMS mission, is a new small Explorer x-ray mission, being prepared for launch in 2014.

And Astro-H, Japan's sixth x-ray astronomy mission in collaboration with NASA, is also being readied for launch in 2014.

And there will be more sounding rocket flights, and more long duration balloon missions.

But what of the discoveries we cannot predict as this New Year begins? Thus far, more than 400 extra-solar planets have been discovered orbiting other stars. Last month, a super-Earth was discovered that might be an all-water world. When will someone in this audience discover a Pandora? A real Pandora like the one in James Cameron's fabulous new movie? And will such a discovery open a positive Pandora's box – forever changing the way citizens of Earth view ourselves, and our place in the cosmos? Only time – and the best science – will tell.

These are exciting times to be astrophysicists, astronomers, grad students and researchers. It's a pretty exciting time to be NASA Administrator, too!

The scientific community and NASA have a relationship that dates back to the agency's earliest days. Yielding scientific discoveries is the bedrock of NASA's existence. As Administrator, I look upon it as a partnership. This partnership takes many forms: setting priorities, developing new technologies, building spacecraft and operating missions.

One of our biggest challenges is balancing resources between older facilities and enabling new missions and technologies. We must also continuously work to optimize the agency's fiscal management and I appreciate how your community has worked with us to improve our efficiency.

Many here are participating in the next decadal survey, identifying more promising areas of discovery in astronomy and astrophysics for the decade ahead, and designing a program to achieve it. This decadal process, first introduced in astronomy, has become a model to be followed in other disciplines. Some of you serve on NASA advisory committees; others participate in peer reviews to assure us of the best scientific return from these missions. I want to thank you all for your service; because of it NASA addresses the most compelling science of our time – a benchmark of excellence that is the model for the world.

Space science requires a healthy space program, and new ideas and innovative approaches. This can only be achieved from a trained and skilled workforce. To attract the best workers, NASA must continue to develop missions that inspire as well as educate us. So another big challenge is finding ways to share your discoveries with the public. It is critical that we do so effectively. And I know that this community has been very active in communicating with the public through press announcements, partnering with museums and planetariums, holding teacher workshops, and developing classroom materials for young students.

I'm sure all of you would like to know what direction President Obama will choose for the future of our space program. All I can say for now is that NASA is working closely with the Executive Office of the President in helping him determine the best path forward. What I know, however, is that science is important to the President, important to NASA, and crucial to whatever way forward we are to follow. I can make you this commitment: the future of human spaceflight will not be paid for out of the hide of our science budget.

Let me close with a story. Last summer, in honor of the 400th anniversary of Galileo's astronomical discoveries, and in commemoration of the International Year of Astronomy, one of Galileo's telescopes came to America for the public to see. For five months, the Franklin Institute in Philadelphia not only displayed the telescope, on loan from Italy, but also created an entire exhibit about Galileo and his age of discovery.

By our standards today, the telescope looked quite crude, only one of two original telescopes used by Galileo that survive today. But it helped spark a revolution in science whose consequences still echo across the centuries. If we continue to develop our partnerships, the day will come when the Hubble and Webb space telescopes will look just as primitive to our grandchildren, and future generations, as Galileo's look to us today.

So let us embrace our future together. Along with new science will come the excitement and turbulence that always follows new discoveries.

You and I together, along with our international partners, must forge ahead, mindful that our task remains to develop missions and programs that give value back to the taxpayer.

We must identify new ways to inspire the next generation of explorers. The nation and the international science community expect no less. With your partnership and cooperation NASA stands ready to deliver.

Thank you.