

# REMARKS FOR ACTING ADMINISTRATOR LIGHTFOOT

*As Prepared*

**NATIONAL SPACE CLUB, HUNTSVILLE**

**Feb. 17, 2017**

It's great to be here with all of you to talk about our work together to advance our nation's space program from the local and national levels.

Our space program and the critical components of it being constructed and managed here in Alabama at the Marshall Space Flight Center are strong. At NASA, we look forward to continuing our strong collaboration with all of you and the entire space community throughout this great space state, which is building an enduring legacy for the nation.

Before we get started, I want to send a shout out to our friends and colleagues at the Michoud Assembly Facility. I salute their

resiliency in recovering from the tornado that swept through the New Orleans area last week. The NASA Family pulls together, and it's been heartening to see.

We were fortunate to get through this without game changing damage or, more importantly, serious injuries. It was my honor to visit Michoud on Monday to see first-hand how it's going.

It was fantastic to see the big hardware and how they're pressing forward. The Space Launch System and Orion teams are back at work building key hardware for America's space program.

I want to thank everyone working on the SLS and Orion for your continued work and the milestones we continue to make.

- The Boeing team at Michoud is in the process of outfitting both the flight articles for the first mission and the structural test articles. This is the first time a complex stage of this size has ever been manufactured. We are laying the foundation for future production of this powerful rocket.

- The first structural test article, an engine section, is scheduled to be shipped on the Pegasus barge from Michoud to Marshall this spring.
- The Interim Cryogenic Propulsion Stage (ICPS) and adapter hardware that are located on top of the rocket represent North Alabama's fingerprints on the Space Launch System's first flight.
- The ICPS system will provide the thrust needed to send the Orion spacecraft and 13 secondary payloads out beyond the moon before it returns to Earth on Exploration Mission-1 in late 2018.
- This afternoon, over at the United Launch Alliance facility in Decatur, the ICPS is being readied for travel to Cape

Canaveral Air Force Station, where it will join the Orion spacecraft at Kennedy Space Center later in the year.

- This is the first integrated piece of SLS hardware to go to the Cape ahead of our first launch.
- At the same time flight production is underway at Marshall on the Orion Stage Adapter and Launch Vehicle Stage Adapter that will connect this piece of hardware to the Orion and Core Stage of the rocket.
- At Marshall, testing has begun on the test versions of this hardware, which makes up the top of the rocket. These tests will prove that the hardware meets requirements and performs the way it is designed to do. We want to test like we fly.

- The first SLS Integrated Structural Test of the ICPS and adapters kicked off earlier this month. This is the beginning of a large test campaign at Marshall to ensure the first flight of the SLS is successful.
- Engine testing will resume on the RS-25 development engine at Stennis Space Center in Mississippi later this month.
- Marshall's Payload Operations Integration Center continues to support around-the-clock science operations on the International Space Station.

That's a lot of work right here in Alabama!

I want to impress on everyone again that real flight hardware is in production for Orion's first integrated flight with SLS. In addition to the items I mentioned, Orion's crew module is already at Kennedy

for pressure proof testing in the Operations and Checkout Building. We even have some SLS parts in production for Exploration Mission-2. You all should be very proud of this work.

I also want to take a moment to address the elephant in the room. Earlier this week, I announced that I've asked Bill Gerstenmaier, head of our Human Exploration and Operations Mission Directorate, to initiate a study to assess the feasibility of adding a crew to Exploration Mission-1, the first integrated flight of SLS and Orion.

I know the challenges associated with such a proposition, like reviewing the technical feasibility, additional resources needed, and clearly the extra work would require a different launch date. That said, I also want to hear about the opportunities it could present to accelerate the effort of the first crewed flight and what it would take to accomplish that first step of pushing humans farther into space. The SLS and Orion missions, coupled with those

promised from record levels of private investment in space, will help put NASA and America in a position to unlock the mysteries of space and to ensure this nation's world preeminence in exploring the cosmos.

I know you're all going to want to know more about that, but that's about all we can say for now, so please just bear with us and let us get the study underway.

You know everything we do here in Alabama is near and dear to my heart, but I also want to remind everyone that the first letter of NASA stands for "national."

While 2017 is still a fresh year, I want to take a minute to remind you of just what an outstanding year 2016 was for NASA – in all our work across the nation and the world -- from the Juno spacecraft reaching Jupiter, to the rest of New Horizons' data arriving from Pluto, to the re-start of our work on experimental X-

Planes to the completion of a one-year mission aboard the International Space Station.

We also formally started the Wide Field Infrared Survey Telescope (WFIRST), which will be the follow-on the James Webb Space Telescope. JWST itself is undergoing its final tests and preparations at the Goddard Space Flight Center in Maryland for launch next year.

Kepler verified 1,284 new planets – the single largest finding of exoplanets to date -- more than doubling the number of confirmed planets from the mission.

We sent the four Magnetospheric Multiscale, or MMS, spacecraft through an invisible maelstrom in space.

Cassini began the end of its mission with a series of 20 weekly F-ring orbits, just past the outer edge of the planet's main rings. The end of mission in April is going to be pretty spectacular, too.

We launched Jason-3 with NOAA to continue nearly a quarter-century record of tracking global sea level rise. We also successfully launched for NOAA Geostationary Operational Environmental Satellite-R. GOES-R will boost the nation's weather observation capabilities, leading to more accurate and timely forecasts, watches and warnings.

We launched the Cyclone Global Navigation Satellite System (CYGNSS) mission to help improve hurricane intensity, track, and storm surge forecasts.

During four missions in 2016, NASA's commercial cargo partners Orbital ATK and SpaceX launched more than 24,000 pounds of material to the International Space Station, including crew

supplies and equipment to support hundreds of crucial science experiments and technology demonstrations. We plan to get the tenth SpaceX commercial cargo launch on its way to the station tomorrow.

While Commercial Crew Program development continues on Earth, important preparations are underway on the space station, including the delivery and installation of the first International Docking Adapter, which will enable future crews to arrive via Boeing's CST-100 Starliner and SpaceX's Crew Dragon spacecraft.

In addition to other work I mentioned, last year, workers at our Michoud Assembly Facility completed welding on the fuel tank for the SLS core stage, while we've successfully tested both the solid rocket booster and as I said, over at Stennis, the RS-25 engines that will power the rocket's journeys to space.

The Orion spacecraft has been put through its paces, with multiple splashdown tests, parachute tests, and a recovery test in the Pacific Ocean. In September, the heat shield that will protect Orion on its next flight arrived at Kennedy.

NASA's Space Technology Mission Directorate selected three companies for in-space robotic manufacturing and assembly projects that could advance the way we design and deploy spacecraft and large space structures in low-Earth orbit and beyond.

NASA's Solar Electric Propulsion project is developing critical technologies to enable safer and more cost-effective space travel to destinations such as Mars and asteroids.

So, back to the \$19 billion question, "What's next?" It's a little too soon for us to answer that with specificity. I can tell you the

transition is going well and the presidential appointees onsite are genuinely interested in NASA and advancing our work.

We're going to keep working on the many amazing projects we have been, from the next Mars, planetary and Earth observation missions, to the launch of the James Webb Space Telescope, and the Space Launch System and Orion. We have a strong record of success and bipartisan support for NASA and our current direction that will serve us well moving forward.

In the near term:

Aboard that SpaceX launch tomorrow will be two Earth-observing instruments to the International Space Station as part of the agency's ongoing use of the orbiting space laboratory to study our planet. The Stratospheric Aerosol and Gas Experiment III (SAGE III) will give us a new way to monitor Earth's protective ozone layer and document its ongoing recovery. The Lightning Imaging

Sensor (LIS) will observe lightning over much of the planet, data that will help improve our understanding of its connections to weather and related phenomena.

Astronaut candidates who will join future deep space missions will arrive at NASA in the summer of 2017 to begin their training, after their selection from an unprecedented pool of 18,300 applicants.

In 2017, more than 500 million people will be able to observe at least part of the Aug. 21 total solar eclipse. This is a golden opportunity to engage and educate diverse audiences in the U.S. and internationally with our unique assets.

As I alluded to, we are working with the presidential appointees to integrate the new folks into our team. They are extremely engaged and to a person excited to be part of this great agency.

These interactions have been excellent and I believe we are helping provide a deeper understanding of our current and future missions and how we operate. This team is genuinely interested in maintaining a smooth transition and are working with us to ensure that happens.

Many folks are asking about new initiatives and guidance, but at this point, there has been no new guidance on any of our current work, despite what you might have heard being speculated. We are executing the missions as defined under the current Continuing Resolution.

We are confident that our history of bi-partisan support and the strong foundation we've built for the journey to Mars and our other missions will serve us well going forward.

The bottom line is that our strategy and plans revolve around our enduring purpose to discover, explore, develop, and enable.

Over our entire history, we've essentially been working on these broad thrusts, which will continue:

- Fostering new discoveries and expanding human knowledge
- Global engagement and diplomacy
- Interactions with the nations' security and industrial base posture
- Economic development and growth
- Addressing societal challenges
- Leadership and inspiration

In our thinking, these are not politically driven priorities, they're overarching activities that bring a lot of good to the nation.

The International Space Station, for example, has been an amazing example of how diverse nations can work together peacefully for a greater good.

Our technologies developed for exploration improve life on Earth. If you look at the Spinoff 2017 publication that came out recently, you'll see how we've impacted everything from brain surgery to detecting CO2 emissions.

We've rewritten astrophysics textbooks with Hubble and other missions, just to name one area where we've had a huge impact.

And what we do is inspiring the next generation to join our journey of discovery. There are students around the world who are preparing right now to be the next exploration leaders, and the astronaut who will wear the first boots on Mars is sitting in a classroom somewhere right now.

I'm an optimist, and I think our best days are yet to come.

We look forward to working with you to make that a reality. The priorities I've just laid out are going to continue to unfold in our work no matter who is leading the agency, and I know that with your help, we will continue leading the world in space.

Thank you. I'm happy to take your questions.