

HEARINGS

U.S. SENATE COMMERCE COMMITTEE SUBCOMMITTEE ON AVIATION AND SPACE NASA EXPLORATION: WHERE WE'VE BEEN AND WHERE WE'RE GOING

Tuesday, July 9, 2019 3:00 – 5:00 pm

Dr. Christine M. Darden
Retired, NASA Langley Research Center

Mr. Chairman, Members of the Senate Commerce Committee, and Members of the Subcommittee on Aviation and Space, I am very honored to be present today to participate in your Committee Hearing. I am here as a child of the Space Race. I remember May 22, 1961, when President John Kennedy issued the challenge that we would put a man on the moon and safely bring him back before the end of the decade.

WHERE WE HAVE BEEN.

It is the response to that challenge with Apollo that makes NASA and all of us so very proud. At that time, NASA Langley Research Center had existed as the National Advisory Committee for Aeronautics (NACA) for 40 years, and had spent countless hours thinking about how to leverage our aeronautics expertise to address the challenges of spaceflight. NASA Langley had begun Project Mercury and trained its seven Mercury Astronauts to fly in space. The Gemini Program focused on rendezvous, docking and long-term space flight.

The Apollo Program captured the world's attention and demonstrated the power of America's vision and technology to inspire great achievements. On July 16, 1969, though it was the NASA Space Centers that were visible to the public as the Saturn V set poised for lift off, many workers from the Research Centers were now several years removed from the simulators they built for training the astronauts, the wind tunnel tests that validated the configuration and re-entry safety, and the discussions that led to decisions on how we would get to the moon. But Apollo was in their hearts and Apollo was supported by this Country. After 11.5 years Apollo ended, having spent a record \$23.5B, having placed on the

moon and safely returned 12 men, and having inspired thousands of young engineers and space enthusiasts.

WHERE WE GO FROM HERE!

NASA is now poised to return to the Moon in the next 5 years. This time the plan is to return to the moon as a pathway to further exploration but not alone, rather with government, industry and international partners in a global effort to build and test the systems needed.

Artemis is the program to prove technologies, capabilities and new business approaches for future missions to Mars. NASA has begun the next era of exploration and discovery! The plan is to return American astronauts to the lunar surface by 2024 as part of our broader Moon to Mars exploration approach. The first American woman and next American man will set foot on and explore the South Pole of the Moon, where no human has ever been before.

The first Artemis flight will be a test of the Space Launch System (SLS) rocket and Orion spacecraft as an integrated system. The second Artemis flight will ferry the crew to the Moon aboard SLS and Orion. The third Artemis flight will deliver the crew to the lunar surface. Through Artemis, NASA will establish a sustainable human presence on the Moon by 2028,

INSPIRING THE ARTEMIS GENERATION!

A thriving, visible Artemis Program will do much to inspire the next generation to pursue STEM careers. This lunar effort will engage the entire nation and the world—uniting the brightest minds of academia, industry and communities of all sizes and types, from early career professionals to our international partners. Just think about it. The Artemis generation will push the boundaries of human knowledge. They will dream about and eventually pave the way for reaching new worlds and unlocking the mysteries of the universe. They will pursue groundbreaking research to understand how to live and work on

another planet. This research will expand our knowledge of human anatomy, solar propulsion, biofuels, geology, astrophysics, and lunar and planetary science.

Since retiring from NASA, I have remained an advocate for the Agency and our work in aeronautics and exploration. I wish to thank the Committee Members for your continued support of NASA and for the important work you are doing to pass a NASA Authorization bill this Congress. NASA really needs an Authorization Bill that supports our Nation's plans for the Artemis Program and the overall approach for Moon to Mars.

In summary, this lunar destination is promoting sustainability, a proving ground for Mars, a strategic presence for our nation, and a foundation for building international and commercial partnerships while also inspiring the next generation to be prepared for the excitement of new opportunities.

Thank you.