COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
CHAIRMAN LAMAR SMITH

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Statement of Chairman Lamar Smith (R-Texas)

Searching for the Origins of the Universe: An Update on the Progress of the James Webb Space Telescope

Chairman Smith: Space exploration is an investment in our future – often the distant future. It encourages innovation and improves Americans' quality of life. It inspires the next generation to pursue careers in math, engineering, science, and technology.

The James Webb Space Telescope, or JWST, is an example of such an investment.

The astrophysics community identified the program as the top priority in 2001. The telescope will far surpass in size, power, and capability any previous space-based observatory launched by NASA.

JWST is set to orbit nearly one million miles from Earth in the Earth-Sun Lagrange point. It is expected to observe the origin of the galaxies, provide insights into the early formation of stars and planets, and characterize exoplanets.

The search for exoplanets and Earth-like planets is a relatively new but inspiring area of space exploration. Scientists have discovered hundreds of planets and solar systems in our own galaxy that we never knew existed.

By developing and using new telescopes in conjunction with JWST, we may find biosignatures of life on other planets.

For example, when examined from a distance, Earth's atmosphere contains large amounts of oxygen. When looked at through a large infrared telescope, like JWST, this biosignature would be detectable.

The Transiting Exoplanet Survey Satellite, or TESS, is currently on track to launch in 2017. This telescope will survey the brightest stars close to Earth to find exoplanets. The survey will provide prime targets for JWST and future ground-based and space-based telescopes.

TESS has a two year planned mission life. It is critical to launch JWST in 2018, so enough overlap exists with the telescopes to maximize the scientific return.

As the top priority mission in the 2010 astrophysics survey, the Wide-Field Infrared Survey Telescope, or WFIRST, will also contribute to the characterization of exoplanets.

If funded properly, it could launch in time to significantly overlap with JWST. This would maximize the scientific return of both telescopes. Each is designed to view different but complimentary parts of the infrared spectrum needed to determine the composition of the atmosphere of exoplanets.

WFIRST could also have a coronagraph for direct imaging capabilities. This means the telescope will be able to help determine the chemical composition of a planet.

The potential science to be gained from the combined use of these telescopes illustrates why it is important JWST be completed and launched in 2018.

However, just as important to being launched on time, JWST must be completed within the congressionally mandated spending caps for the program. If JWST is unable to do this, it affects the ability to build future telescopes, like WFIRST.

I look forward to hearing how development of the James Webb Space Telescope is progressing.

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