



COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Lamar Smith, Chairman

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Statement of Space Subcommittee Chairman Brian Babin (R-Texas)
Astronomy, Astrophysics, and Astrobiology

Chairman Babin: The science of astronomy, astrophysics and astrobiology expands mankind's understanding of the Universe. It seeks to answer fundamental questions as to the nature of our Universe, our place within it, and whether there is life beyond Earth.

NASA has a long history of space-based astrophysics and astronomical science. Since the 1960s, NASA has operated space-based observatories. Among the most famous of these are the Hubble Space Telescope, which has produced some of the clearest images of the Universe to date. The Hubble Space Telescope became the first of NASA's four Great Observatories, which aimed to observe the Universe over the entire electromagnetic spectrum and would go on to include the Compton Gamma Ray Observatory, the Chandra X-ray Observatory, and the Spitzer Space Telescope.

Looking to the future, the James Webb Space Telescope (JWST), set to launch in 2018, will be the most powerful space-based observatory to date and will be used to search for planets outside our Solar System that could harbor life.

In my own district, at Johnson Space Center, NASA's historic "Chamber A" thermal vacuum testing chamber will be used for end-to-end testing of JWST's optics in a simulated cryo-temperature and vacuum space environment. I'm proud to represent the hard working men and women at Johnson Space Center contributing to JWST, our nation's next great space-based observatory.

In fiscal year 2016, NASA was appropriated approximately \$1.35 billion dollars for astrophysics and astronomy. This investment of our tax dollars funds the operation and development of NASA's space-based observatories and the science produced.

While I believe that this is a worthwhile investment, I also have an obligation to ensure NASA's programs are administered wisely. To that end, this Committee continues to closely monitor major NASA programs, such as JWST and the Transiting Exoplanet Survey Satellite (TESS). As JWST and TESS progress through the critical integration and testing phase this year and next, I expect regular updates from NASA on progress made and information about any potential issues well in advance.

The science priorities for NASA's astronomy and astrophysics activities are strongly informed by the National Academy of Sciences Decadal Surveys. The priorities selected for the decade of 2012 to 2021, as outlined in the *New Worlds, New Horizons in Astronomy and Astrophysics* decadal survey, were to search for the first celestial bodies created in the Universe, seek out nearby Earth-like planets suitable for habitation, and advance our understanding of astrophysics and the laws by which the Universe operates. We are roughly halfway into the prescribed decadal and look forward to hearing about the progress we've made toward achieving these goals.

Since the 2012 decadal, there have also been numerous scientific achievements that continue to inform NASA's astrophysics and astronomy programs.

Perhaps one of the most remarkable achievements in the last several years is the discovery of Earth-like exoplanets orbiting distant suns. A little over two decades ago, the only planets known to mankind were those within our solar system. In the past decade, scientists confirmed the existence of nearly 3,000 exoplanets throughout the universe, with at least eight of these exoplanets being roughly the size of Earth and residing in a habitable range of their stars.

This hearing also allows us an opportunity to inform the next decadal survey for Astronomy and Astrophysics for which NASA has already initiated studies. Outside organizations have already begun to discuss possibilities as well. With the aforementioned discoveries of exoplanets, and likely operation of JWST in the coming years, there appears to be many new areas ripe for future investigation.

It is also important to acknowledge the numerous scientific contributions made by private citizens, amateur astronomers, and non-government organizations. Citizen scientists conduct observations and analysis of vast astronomical data sets. This is a good thing because citizen science enhances public engagement and helps inspire the next generation of young students to pursue careers in astronomy, astrophysics and astrobiology.

I thank today's witnesses for joining us as we discuss these important issues and I look forward to hearing your testimony.

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