

COMMITTEE ON
**SCIENCE, SPACE, AND
TECHNOLOGY**
CHAIRMAN LAMAR SMITH



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**Statement of Space Subcommittee Chairman Steven Palazzo (R-Miss.)
Hearing on “Exoplanet Discoveries: Have We Found Other Earths?”**

Chairman Palazzo: Good morning, and welcome to this hearing. I would like to thank our witnesses for being here today to testify about exoplanet research and to share information with us about the recent discoveries made by NASA’s Kepler mission.

I would also like to commend NASA and NSF for working to meet our Committee’s testimony deadlines. I understand that their testimony was late because the Office of Management and Budget failed to manage their time and resources wisely. In this case, I do not want to hold NASA or NSF responsible for problems in other areas of the Administration.

Today’s hearing topic is an exciting one. As of May 2013, scientists had identified roughly 900 confirmed “exoplanets” – planets beyond our solar system- and more than 2,700 planet candidates. Last month, NASA’s Kepler mission announced that it had found three super-Earth sized planets in the “habitable zone” of two stars in our galaxy. The “habitable zone” refers the region around stars where planets could support liquid water. This discovery has broad implications not only for the scientific community, but for all mankind. This research will provide us with a better understanding of the universe and inspire the next generation of scientists and engineers.

NASA’s Fiscal Year (FY) 2013 budget allocates roughly \$41million for exoplanet research, while the FY 2014 budget request is \$55 million. This amount includes funding for the extension of the Kepler mission and NASA’s partnership with the Keck Observatory used for all NASA astrophysics science programs.

According to Dr. Laurance Doyle, one of our witnesses today, exoplanet research was not as popular when he entered the field 30 years ago as it is today. Now there are at least several thousand astronomers and astrophysicists around the world applying the transit method, like the one used by the Kepler mission, to detect and study extra-solar planets. In addition to the Kepler mission, the agency is planning to use future missions to further exoplanet research, including the James Webb Space Telescope, the Wide-Field Infrared Survey Telescope, and the newly announced Transiting Exoplanet Survey Satellite (TESS), which is expected to study the nearest bright stars and potentially discover thousands of new planets.

I look forward to hearing about NASA and NSF’s plan for continuing exoplanet research using these unique capabilities. Additional discoveries will no doubt accompany the development of these capabilities, which will in turn inspire new astronomers and astrophysicists.

I am also interested in understanding how the government can increase cooperation to further leverage our investments. The Astronomy and Astrophysics Advisory Committee’s (AAAC) Exoplanet Task Force and the National Academies have issued recommendations and roadmaps to guide future

investigations. As the Academies notes in their recent decadal survey, “[t]he search for exoplanets is one of the most exciting subjects in all of astronomy...” The report went on to recommend “a program to explore the diversity and properties of planetary systems around other stars, and to prepare for the long-term goal of discovering and investigating nearby, habitable planets.”

The AAAC’s Exoplanet Task Force issued a report in 2008 that posed the following questions regarding exoplanets: Do Earth-like planets exist; are they common; and do they show signs of habitability or biosignatures? These are complex questions that the National Academies’ decadal survey argues will ultimately require a dedicated space mission to answer. However, that same decadal survey went on to state that “it is too early to determine what the design of that space mission should be, or even which planet-detection techniques should be employed. It is not even clear whether searches are best carried out at infrared, optical, or even ultraviolet wavelengths.”

As we strive to do more with less, I hope we will get a better understanding of how exoplanet research should adapt to the fiscal realities we face today. Is the current portfolio of missions and research still the ideal path under constrained budgets? How can we build upon recent inspirational discoveries in the most efficient manner? These are key questions we must answer as we work to draft a NASA Authorization Bill and a Reauthorization of COMPETES Act.

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