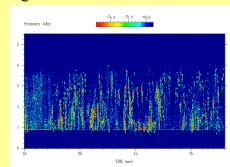


# Exoplanet Activity of the Planetary Society

## From Conjecture to Reality: An Event That May Change Our Lives

For many decades scientists have *believed* that star formation must often lead to forming planets. Now they *know* that it often does. This is the kind of event that can happen only once in a scientific quest. In this case it is far more important than most people realize, because of its implications for a possible next step; namely, the discovery of habitable planets in the habitable zones of stars -- an indication that life may be common in the cosmos.

This next step is now just beyond our instrumental reach, but already we are at its threshold. Soon we shall *know*. Not only will we count these habitable worlds; we will begin to characterize them and seek the signatures of life.



Earth auroral kilometric radiation.  
Graph: From Sounds of Space by Don Curran, University of Iowa.

Earth's surface life is shielded, by our magnetosphere and ozone layer, from the ionizing radiation that sterilizes the surface of Mars. Is planetary magnetism essential for surface life, and if so, is a magnetosphere a life marker? Beyond that, is surface life essential for the rise and evolution of civilizations? Detecting radio emissions analogous to those from the Jovian system could be a first step toward answering this question.

One purpose of the Planetary Society is to bring these questions, and in due time their answers, if answers there may be, into the consciousness of the people of Earth.

## Objectives

For 30 years, the Planetary Society has excited people around the world about planetary science and the search for extraterrestrial life. This interest often translates to a willingness to help fund projects. A campaign, incorporating information and a call to action, can generate donations for exoplanet searches, public education and scientific investigations of discovered worlds.

We are already supporting some exoplanets investigations, and with the recent discovery of thousands more such objects, there is an opportunity for more diverse and innovative Planetary Society initiatives.

## Methods

We educate, with initiatives for children, young adults and professionals.

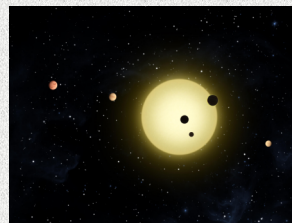
We stage contests for children, such as naming the Mars Rovers, *Spirit* and *Opportunity*. *The Planetary Report* features in-depth articles.

*Planetary Radio* is on the air, on the web and available as a podcast.

A blog about discoveries and missions, with staff and guest writers, is on the web.

Members send letters and questions that we engage experts to answer.

Members funded the *Catalog of Exoplanets* on our website. It is continuously updated. Anyone can access it.



The six planet system at *Kepler 11*. Image: NASA/Tim Pyle

The Planetary Society blog highlights discoveries as they happen, often calling in guest bloggers or citing current accounts. In a recent post, Emily Lakdawalla cited Amir Alexander's article on our website, "*Kepler Discoveries Suggest a Galaxy Rich in Life*" excerpted below:

"The search for distant Earths in the depths of space took a giant leap forward with the discovery of five

Earth-size planet candidates orbiting in the habitable zone -- the region around a star where liquid water is stable. If follow-up observations confirm the discovery, the five planets would be among the first ever detected which could have water on their surface, and possibly -- life."



An artist's impression of hot Jupiter HD 189733b.  
Image: ESA, NASA and UC Irvine (University College London, UK & USA)

People worldwide supported the Planetary Society's campaign to provide seed funding for the FINES Exo-Earths project. This instrument, installed on the 3-meter telescope at the Lick Observatory, is helping increase discoveries of smaller exoplanets and is verifying Earth-sized planet candidates from the *Kepler* planet-hunter mission.



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## What We Do

Planetary Society Executive Director Bill Nye (the Science Guy®) and members, in more than 100 countries, are shaping our future in space. Tens of thousands more people visit our website to find out how they can be involved in deep space exploration.

The Planetary Society partners with space agencies and science teams to push education initiatives out to the world. You can fly your name to another world on a space mission, enter a contest to design a mission to an asteroid, or study newly discovered exoplanets.

Planetary Society members are building *LightSail-1*, a solar sail project using the only known propulsion technology that can take us to the stars. Science fiction can become science fact.

Visit us on Facebook. Follow us on Twitter. Listen weekly to scientists, engineers, educators and artists on *Planetary Radio* or read our daily blog or our magazine, *The Planetary Report*. The Planetary Society helps you understand and appreciate your place in deep space.

## References

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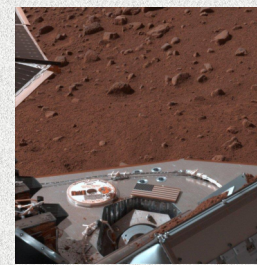
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Artist's rendition of *LightSail-1*. Image: David Johnston, Stellar Exploration



*The Planetary Report*. Cat's Eye nebula (NGC 6543). Hubble Image: NASA, ESA, HST and the Hubble Heritage Team (STScI / AURA / R. Carroll and G. Tavakoli)



The *Phoenix* DVD, now on Mars, contains 250,000 names and a library of science fiction and art. It is one of many *Messages from Earth* that the Planetary Society has sent on missions throughout our solar system and beyond. Two *Pioneers* and two *Voyagers*, bearing messages from Earth, are outbound to interstellar space. Image: NASA

## Conclusions

The Planetary Society is well placed, in this atmosphere of exoplanet discovery, to generate public awareness of the fundamental importance of what is going on, and to interest and excite people around the world in this bold endeavor. The answers we find might change our whole civilization.

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