



# Update from NASA Astrobiology Program

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Senior Scientist for Astrobiology  
CAPS Meeting  
Washington, DC 03/31/2015

# NASA Science Mission Directorate

## Astrobiology Program





# Astrobiology in R&A

## Roses 2014

Program	Due Date	Sel. Rate
Exo/Evo	6/20/2014	20%
PSTAR	9/26/2014	18%
Hab Worlds	1/23/2015	TBD

The header features a silhouette of a human head in profile, looking towards a starry space background. To the left of the head, several celestial bodies are depicted, including Saturn with its rings, Jupiter, and the Moon. A bright star is visible in the upper left corner of the space scene.

# Astrobiology in R&A

Roses 2015

Program

Step 1

Step 2

Exo/Evo

4/10/2015

6/12/2015

PSTAR

7/24/2015

9/25/2015

Hab Worlds

11/20/2015

1/22/16

MSL-PSP

5/06/2015

6/03/2015



**NExSS:  
NASA Exoplanet System Science  
Research Coordination Network**

A Cross-division Initiative

# Implementation

## Astrophysics

Exoplanet Detection  
Star Characterization  
Existing Mission Data  
Analysis  
JWST

## PSD Astrobiology

Comparative Planetology  
Planetary atmospheres  
Exoplanet Detection  
Biosignatures  
Habitability

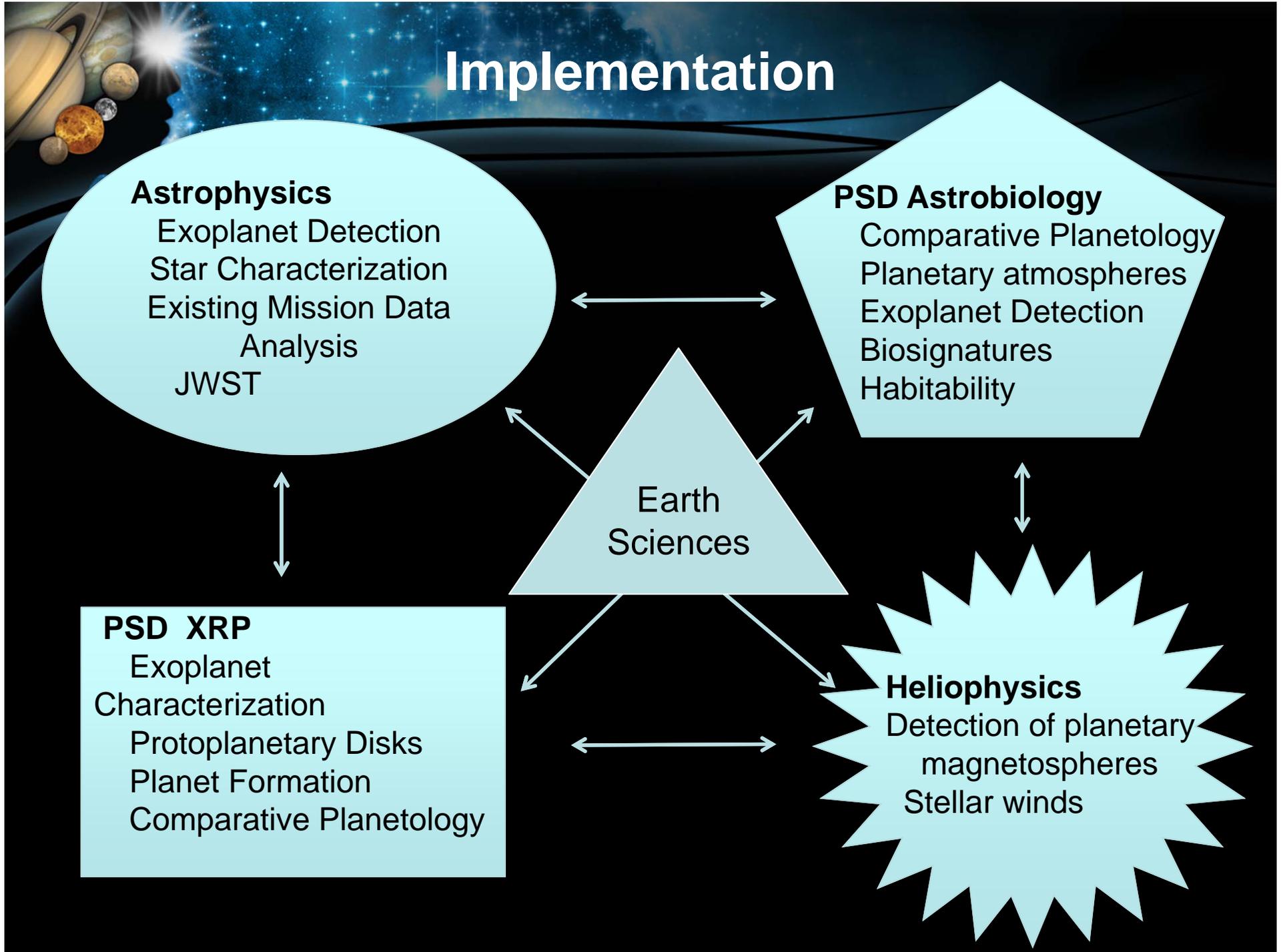
Earth  
Sciences

## PSD XRP

Exoplanet  
Characterization  
Protoplanetary Disks  
Planet Formation  
Comparative Planetology

## Heliophysics

Detection of planetary  
magnetospheres  
Stellar winds



# Kickoff Workshop

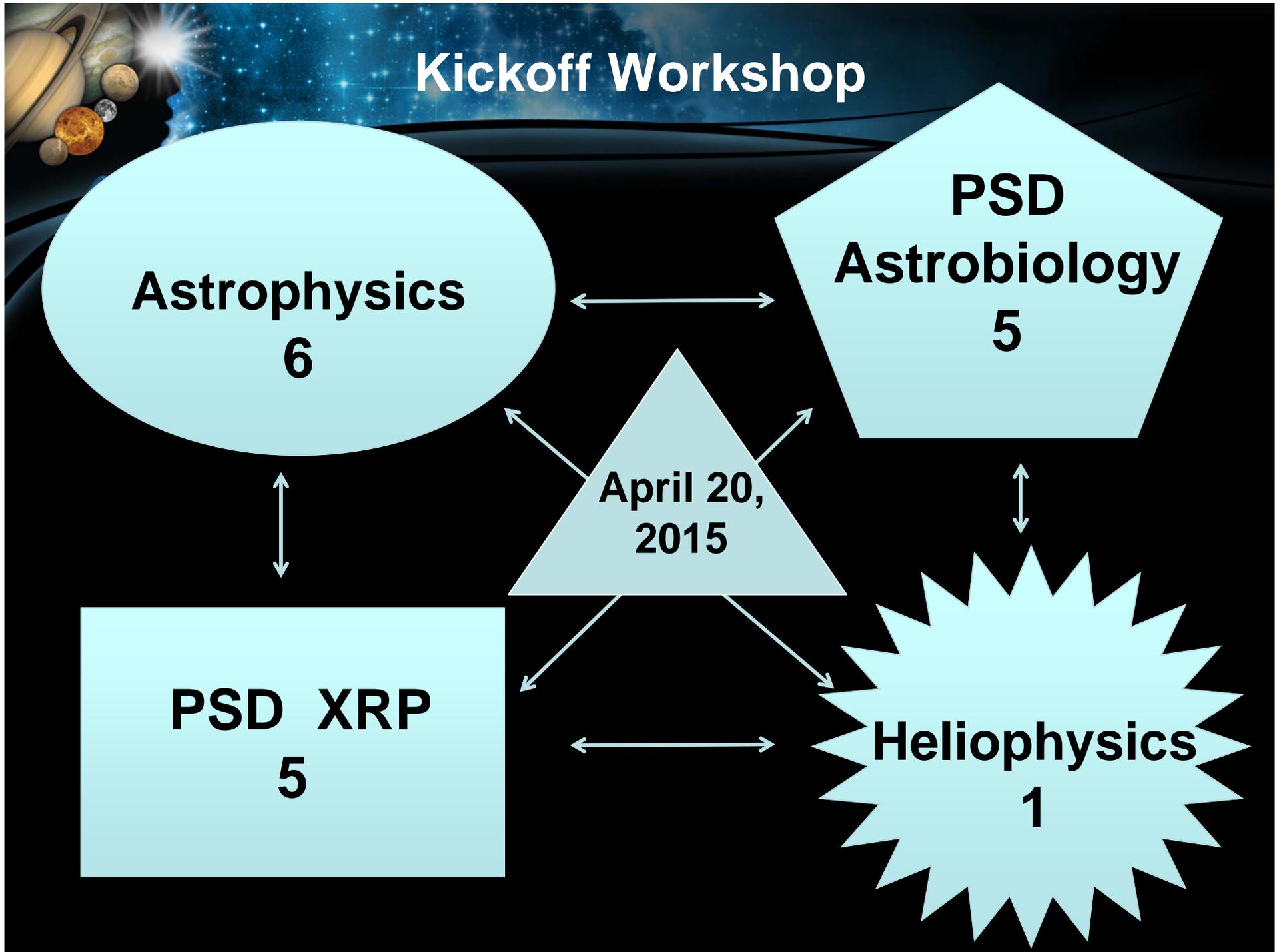
**Astrophysics**  
6

**PSD  
Astrobiology**  
5

**April 20,  
2015**

**PSD XRP**  
5

**Heliophysics**  
1





# Astrobiology and Society

## Library of Congress

## Baruch Blumberg Chair in Astrobiology TBA

## Blumberg Dialogues (3 scheduled)

Dialogue #1 -- March 18-19

Dialogue #2 -- May 27-28

Dialogue #3 -- August 5-6

## Astrobiology Collegiate Debates

Resolved: an ethical obligation to protect and preserve extraterrestrial microbial-life and ecosystems should be incorporated into international law.



**First Dialogue:  
Focus on Astrobiology and Religion**  
March 18-19 at the John W. Kluge Center

Steven Benner, Distinguished Fellow, Westheimer Institute of Science and Technology

Susannah Heschel, Eli Black Professor of Jewish Studies, Dartmouth College

John Hart, Professor of Christian Ethics, Boston University

Pamela Klassen, Professor of Religion, University of Toronto

Donald Lopez, A. E. Link Distinguished University Professor of Buddhist Studies,  
University of Michigan

Jonathan Lunine, David C. Duncan Professor in the Physical Sciences, Cornell  
University

Ebrahim Moosa, Professor of Islamic Studies, University of Notre Dame

# Center of Theological Inquiry

making an impact on global concerns

## **OUR MISSION:**

We convene leading thinkers in an interdisciplinary research environment where theology makes an impact on global concerns, and we share those discoveries to change the way people think and act.



# Interdisciplinary

*McCord Fellows welcome dialogue between  
theology, the sciences and humanities*





# **Development of the new Astrobiology Strategy: An Update**



# Outline of Strategy

- I. Title Page
- II. Executive Summary
- III. Introduction to the Science Strategy
- IV. Abiotic Sources of Organic Compounds
- V. Synthesis and Function of Macromolecules in the Origin of Life
- VI. Early Life and Increasing Complexity
- VII. Co-Evolution of Life and the Physical Environment
- VIII. Constructing Habitable Worlds
- IX. Identifying, Exploring, and Characterizing Habitable Environments
- X. Issues, Challenges, and Opportunities
- XI. Conclusion
- XII. Appendices
  1. How this Strategy Came to Be
  2. Astrobiology Issues and the Humanities
  3. Issues in the use of language in this document
  4. Glossary
  5. List of Authors and Participants

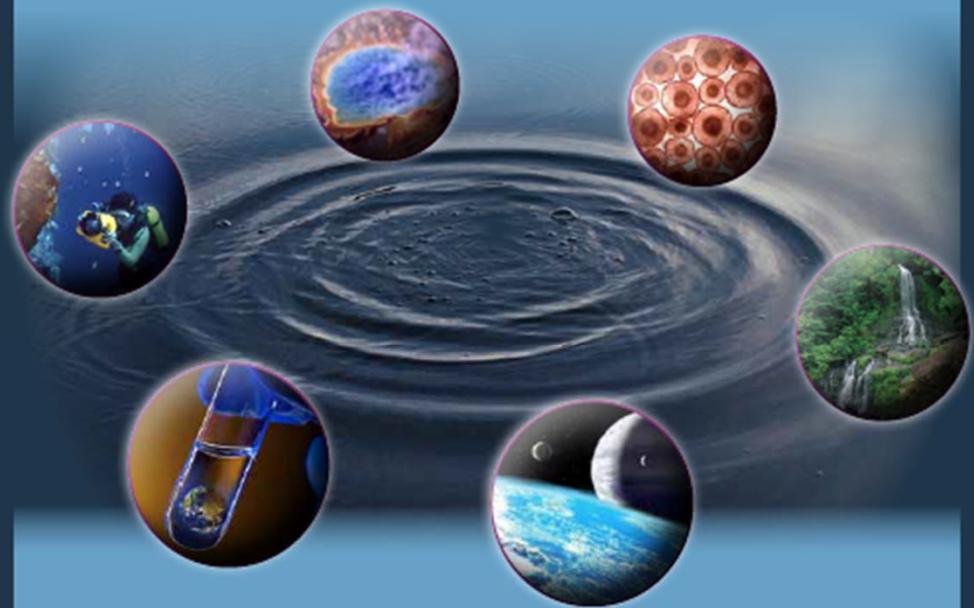


**Workshop Report  
Hosted by NSF and  
NASA**

**Chairs: David Lynn,  
Cynthia Burrows,  
Ginger Armbrust**

Alternative  
Chemistries  
of Life

*Empirical Approaches*



# *Alternative Chemistries of Life*

*Alternative partners and  
pathways for Energy  
transduction*

*Elements*

*Metabolism*

*How  
and  
Where  
To Look*

*Biopolymers*

*Structural and Functional  
Analogues of  
nucleic acids,  
peptides, lipids  
sugars*

*Self-organizing systems,  
Protocells, and  
Communities*



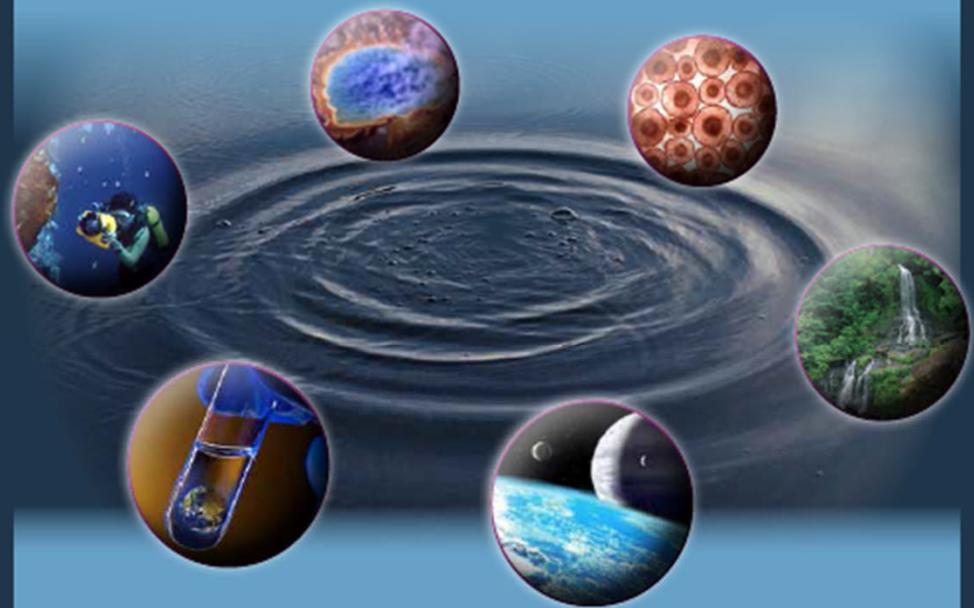


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Alternative  
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*Empirical Approaches*



# Ancient Earth, Alien Earths



# AbSciCon Update



MEETING PLANNING SERVICES

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Meeting Portal Login

AbSciCon2015

## Astrobiology Science Conference 2015 Habitability, Habitable Worlds, and Life June 15-19, 2015 • Chicago, Illinois



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ABOUT ABSCICON

PROGRAM AND ABSTRACTS

E/PO AND  
HIGHLIGHTED EVENTS

REGISTRATION

ACCOMMODATIONS

TRAVEL AND  
TRANSPORTATION

MEDIA

KEY DATES

The Astrobiology Science Conference 2015 (AbSciCon2015) will be held at the [Hilton Chicago](#) in downtown Chicago, Illinois, on June 15–19, 2015.

AbSciCon2015 is the next in a series of conferences organized by the astrobiology community. The conference will convene scientists from all over the world who work in the interdisciplinary field of astrobiology — the study of the origin, evolution, distribution, and future of life in the universe — to report on research findings and plan future endeavors.

The theme for AbSciCon2015 is "Habitability, Habitable Worlds, and Life." For more information on the purpose and scope of the conference, [click here](#).

#abscicon



**LPImeetings** @lpimeetings

23h

Found out how your organization can interact with astrobiology experts at [#AbSciCon](#). Sponsorships are available. [ow.ly/Ahr8u](http://ow.ly/Ahr8u)



**Michael Ferrari** @MichaelRFerrari

22 Aug

Astrobiology Science Conference 2015 [bit.ly/1rqc7Hg](http://bit.ly/1rqc7Hg) Chicago [#AbSciCon](#)



**Blue Marble Space** @BlueMarbleSpace

22 Aug

[#AbSciCon](#) now has a Facebook page, see you in Chicago next summer! [facebook.com/pages/Astrobio...](http://facebook.com/pages/Astrobio...)



# Carl Pilcher can't Stay Forever !

**Candidates sought for  
NASA NAI Director**

**Ad closes May 1, 2015**

