

Committee on Astrobiology and Planetary Science Fall Meeting Discussion with the PSD Director

Summary by
Martha S. Gilmore and Karyn L. Rogers
CAPS Co-Chairs

January 20 2026



Committee Membership

Co-Chairs

- **MARTHA S. GILMORE**, Wesleyan University
- **KARYN L. ROGERS****, Rensselaer Polytechnic Institute

Members

- **BEAU BIERHAUS**, Lockheed Martin Space Systems
- **WILLIAM F. BOTTKE***, Southwest Research Institute
- **CAROLYN CROW**, University of Colorado, Boulder
- **ORLANDO FIGUEROA***, Orlando Leadership Enterprise
- **ABIGAIL FRAEMAN**, Jet Propulsion Laboratory
- **TIMOTHY L. GROVE*** NAS, Massachusetts Institute of Technology
- **BRANDON JOHNSON**, Purdue University
- **EMILY S. MARTIN***, Smithsonian Institution
- **JOSEPH G. O'ROURKE***, Arizona State University
- **EDGARD G. RIVERA-VALENTÍN***, JHU Applied Physics Laboratory
- **FRANK ROSENZWEIG**, Georgia Institute of Technology
- **ORENTHAL J. TUCKER**, Hampton University
- **AMY J. WILLIAMS***, University of Florida

* Planetary decadal survey member

** Astrobiology Strategy for the Search for Life in the Universe member

[New members joining us for the Fall 2025 meeting](#)



The Year for CAPS

- February 2025
 - Committee released its latest report:
“Proposed Science Themes for NASA's Fifth New Frontiers Mission”
- Spring Meeting March 2025, Space Science Week
 - CBPSS-CAPS Joint Session on Decadal-Level Science Priorities on the Moon
- Fall Meeting, October 2025, Irvine
 - Committee discussed status of NASA’s extended missions
 - Committee held a Special Session on NASA Astrobiology



CAPS Meeting October 7-9, 2025, Irvine –Extended Mission Highlights

OSIRIS APEX – Dr. Daniella Della Guistina, PI

- All consumables except fuel @ >60% after EOM
- Exoplanet data collected Fall 25
- Model of Early Career Professional Development
 - ~10 people trained in next 1.5 years
 - Calibrations, observations, pipelines, navigation, requirements

MSL – Dr. Ashwin Vasavada, PS

- 13th year at Mars, EM #5
- Tour up the mountain included wet dry intervals, sulfates and carbonates
- Long chain hydrocarbons enabled by years of understanding the environment and the SAM instrument on Mars
- ~80 students/postdocs every year
- 7 years of climate and radiation data over complete solar cycle critical for humans to Mars, Helio
- [List of papers](#) from this extended mission is long



CAPS Meeting October 7-9, 2025, Irvine –Extended Mission Highlights

New Horizons – Dr. Kelsi Singer, DPI

- Currently in EM#2 (FY'23-'29), headed toward termination shock
- In hibernation mode, transition to Voyager-like team.
- Student dust Counter, PhD student lead. 11 mentored early career people for roles as PI, PM, PS, IS

Juno – Dr. Scott Bolton, PI

- In EM#1
- Observations of Io gravity that preclude a shallow magma ocean
- JunoCam observes several Ionian vents erupting simultaneously
- Microwave sounding constrains Europa ice shell to 29 ± 10 km thick
- EM#2 if approved to explore rings and inner moons.



CAPS Meeting October 7-9, 2025, Irvine –Extended Mission Key Takeaways

- New discoveries, new targets (e.g., Apophis, Io).

Extended missions provide low cost decadal level science.

- MSL 13 years at Mars (EM#5) yields climate radiation data over solar cycle.

Long term data sets in real environments essential for H2M.

- All rovers rely on HiRise (in EM since 2010) for targeting. Juno data of Io/Europa supports outer solar system.

Extended missions provide target selection and observations for subsequent missions, driving down risk.

Odyssey, MRO, TGO, MAVEN, all in extended mission, provide critical infrastructure for comms for all surface assets at Mars significantly enhancing science return.

Extended missions are an unparalleled training ground for new PIs.

- Extended missions provide broad, low-cost, relatively low risk PI training across PSD.
- Nimble, reactive, adaptive nature of extended mission teams make expenditures invaluable for science and training.
- Development and maintenance of expertise and long-term continuity of the workforce, from undergrads to astronauts. This workforce significantly reduces risk for future missions.
- There is no other program that can train this many people in a wide variety of mission roles, spacecraft and environments.



CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

CAPS Special Session on NASA Astrobiology

Key Focus: What does the astrobiology community need from NASA to continue making significant advances? What can the astrobiology community at large do to assist NASA in ensuring astrobiology research progress?

- 1. Astrobiology Program Research Coordination Networks (RCNs)**
- 2. Planetary Protection Research in Astrobiology**
- 3. Astrobiology in *Origins, Worlds and Life* and the Decadal Process**
- 4. NASA Astrobiology Research & Exploration Strategy (DARES)**

CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

1. Astrobiology Program Research Coordination Networks (RCNs)

Synopsis of session

- Presentations from 4 of 5 RCN leads
- Broad and diverse activities across groups: community building/coordination, workshops, science working groups, model intercomparisons, best practices

Overall Committee Impressions

- Transition to RCNs was meant to democratize/expand Astrobiology ****MISSION ACCOMPLISHED!****
- Broad scope of participation across the communities, and all RCNs have robust ECRs
- Personnel infrastructure (Willow Houck) is critical and a very smart addition by HQ
- The RCNs are functioning as Astrobiology AGs

RCNs are doing an impressive and laudable amount of work for NASA HQ/AB Program and the entire AB community; the minimal financial support that NASA has committed to support these efforts is well worth it.

Outstanding Issues to keep in mind

- Only one RCN has been evaluated to date (NEXSS); HQ needs to clearly communicate metrics of success, the timing and process of review, and should be cognizant of time-consuming reporting activities.

Is the future of NASA Astrobiology the RCNs? Where does it fit into PSD, AB@HQ, AB Federation, Decadal (including midterm), DARES, R&A, and AbSciCon?

CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

2. Planetary Protection Research in Astrobiology

Synopsis of session

- Dr. Doran reviewed the history of both law and policy on PP; Outer Space Treaty, COSPAR, etc.
- Current role of Astrobiology research in PP
- COSPAR policy on PP is a living document

Overall Committee Impressions

- Astrobiology has been critical for driving planetary protection policy; AB relative to PP is “Applied Astrobiology”
- Humans to Mars stands in contrast/conflict? to Planetary Protection: keep it pristine for observations, biosignature detection
- Which COSPAR committees are thinking about ethics, mining, etc.?
- How are COSPAR policies on PP adapting to privatization of space? Who’s working on it? How is it governed?

Outstanding Issues to keep in mind

- What is required for COSPAR and the PPO to adjust to the Moon2Mars efforts?
- What is the relationship between COSPAR and the PPO to the private sector?

CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

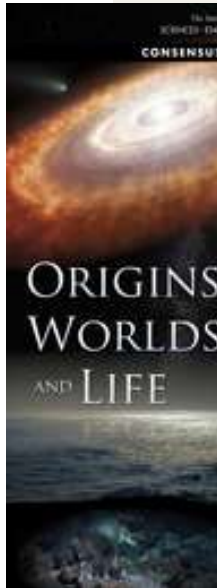
3. Astrobiology in *Origins, Worlds and Life* & the Decadal Process

Synopsis of session

- OWL co-chairs Canup and Christiansen gave overview of Decadal Process re Astrobiology
- 2023 Decadal was the first SoT to explicitly and intentionally incorporate Astrobiology across the document
 - Astrobiology was prominent on several panels (Venus, Mars, Ocean Worlds); central to Qs: 9, 10 and 11
 - Decadal Qs came from PSD AGs, but AB has no AG; RCNs did not play this role, but could
- The value of the long-term perspective of the Planetary Science & Astrobiology Decadal was emphasized

Overall Committee Impressions

- Astrobiology and Planetary Science are closely intertwined in OWL: on panels, in research, in planetary protection
- Astrobiology is prominent in OWL recommendations: MSR; Mars Life Explorer; Enceladus Orbi-Lander; Earth panel
- The intention of the OWL SoT is to have the Planetary Science and Astrobiology Decadal be the consensus document for both the AB and Planetary communities, but because of historical precedents, AB community does not have this perspective.
- Is OWL indeed the Decadal survey for Astrobiology?



CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

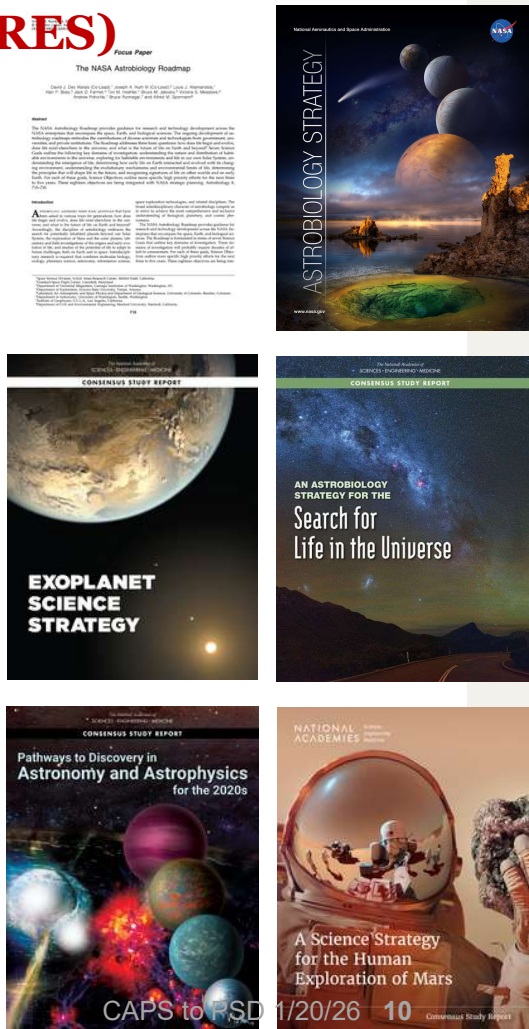
4. NASA Astrobiology Research & Exploration Strategy (DARES)

Synopsis of session

- DARES follows the AB Roadmap tempo ~10 yrs, out of phase with OWL
- There is a large ecosystem of NAS and NASA roadmaps, strategies, etc.
- RFI#1 came with 9 HQ-prescribed topics
- TF1 synthesized white papers and set up TF2 topics
- TF2 Responsibilities:
 - *“Writing, refining, and finalizing the NASA-DARES Strategy; [...]synthesize the state of the field and highlight outstanding technical gaps and scientific questions”*
 - Traceability to OWL, 2015 AB Strategy, 2019 NAS Search for Life, 2018 NAS Exoplanets, 2020s NAS Astro Decadal

Overall Committee Impressions

- DARES relevance to ROSES calls is unclear
- DARES: approved by SMAC, so lack of clarity if it is “in” PSD
- DARES representation, management and review is run by AB@HQ, unlike NAS Studies or community-driven Roadmaps



CAPS Meeting October 7-9, 2025, Irvine – Astrobiology Day

Special Session on NASA Astrobiology - Takeaways

DARES

- DARES does not follow the NASEM process of public comment prior to committee work starting and of agency independence.
- The link between RCNs and DARES is unclear
- Is DARES meant to be a guiding ‘relevance’ document for ROSES proposals?

DARES & OWL

- AB Roadmap & Decadal are historically out of phase; the inclusion of AB in OWL requires reconciliation and alignment is necessary for future success for AB, PSD, CAPS
- *OWL Preface: “PSD is the primary source of funding for planetary science, astrobiology science, and planetary defense” and “The Decadal surveys are the primary vehicles for the provision of strategic advice to NASA”*
- CAPS monitors the progress of the Decadal; A Planetary Science AND Astrobiology decadal together with competing/ discordant AB strategies creates a conflict in hierarchy. What is the role of CAPS with respect to DARES?
- Incorporating DARES as input to mid-decadal could be a long-term solution to discordance

AB, HQ, PSD

- AB across NASA HQ Divisions also creates a conflict in hierarchy for CAPS
- M2M (cross-divisional) could be a model for cross-divisional Astrobiology Program, with a single Division (PSD) providing direction, authority and accountability

How does NASA Astrobiology cohere with the RCNs, PSD, AB@HQ, AB Federation, OWL, DARES, R&A, and AbSciCon?

CAPS Meeting October 7-9, 2025, Irvine

Updates on Latest Science from NASA's Currently Operating and Extended Missions

10:00 AM	Welcome	Dr. Martha Gilmore, CAPS Co-Chair / Dr. Karyn Rogers, CAPS Co-Chair
10:05 AM	Origins, Spectral Interpretation, Resource Identification and Security – Apophis Explorer (OSIRIS-ApEx) Extended Mission (25-minute presentation and 20-minute discussion)	Dr. Daniella Della Guistina, Principal Investigator, OSIRIS-APEX
10:50 AM	Extended Mission of Mars Science Laboratory (MSL) (25-minute presentation and 20-minute discussion)	Dr. Ashwin Vasavada, Project Scientist, MSL
2:05 PM	Extended Mission of New Horizons Spacecraft (25-minute presentation and 20-minute discussion)	Dr. Kelsi Singer, Deputy Principal Investigator New Horizons Mission
2:50 PM	Extended Mission of Juno Spacecraft (25-minute presentation and 20-minute discussion)	Dr. Scott Bolton, Principal Investigator, Juno Mission



CAPS Meeting October 7-9, 2025, Irvine

Special Session on NASA Astrobiology

Key Focus of the Session:

What does the astrobiology community need from NASA to continue making significant advances? What can the astrobiology community at large do to assist NASA in ensuring astrobiology research progress?

9:45 AM

Welcome

**Dr. Martha Gilmore, CAPS Co-Chair /
Dr. Karyn Rogers, CAPS Co-Chair**

9:50 AM

Panel of Research Coordination Network (RCN) Leaders on State of Astrobiology

(7-minute presentations and 40-minute discussion)

Panel Focus:

- *What are your RCN's current activities and member statistics?*
- *What are the RCN's challenges in terms of supporting astrobiology?*
- *What can NASA do to better support astrobiology research?*
- *What actions can the RCNs undertake to help NASA support astrobiology research?*

Participants

**Dr. Mary Droser, Representative, LIFE RCN
Dr. Heather Graham, Representative, NfoLD RCN
Dr. Timothy Lyons, Representative PCE3 RCN
Dr. Alison Murray, Representative, NOW RCN
Dr. Linda Sohl, Representative, NExSS RCN**

11:20 AM

Planetary Protection Research and Astrobiology

(25-minute presentation and 20-minute discussion)

**Dr. Peter Doran, Professor,
Geology and Geophysics,
Louisiana State U.**



CAPS Meeting October 7-9, 2025, Irvine

1:05 PM

**Astrobiology in *Origins, Worlds, and*
and the Decadal Process**
(20-minute discussion)

**Dr. Robin Canup /
Dr. Phil Christensen,
Decadal Co-Chairs**

1:25 PM

Panel Discussion on Astrobiology in the 2023 Decadal
(45-minute discussion)

Panel Focus:

- How can NASA Astrobiology better align with the 2023 Decadal Survey?
- How can we improve astrobiology's integration into future planetary science and astrobiology decadal processes?

Participants

**Dr. Robin Canup, Decadal Co-Chair
Dr. Phil Christensen, Decadal Co-Chair
Dr. Barbara Sherwood Lollar, Professor, Earth Sciences, U. of Toronto**

2:25 PM

**NASA Decadal Astrobiology Research and
Exploration Strategy (DARES)**
(25-minute presentation and 20-minute discussion)

**Dr. Rachel Harris, NASA
Postdoctoral Management
Fellow, NASA Astrobiology**

3:10 PM

NASA DARES Task Force 1 Group Leader Discussion
(25-minute presentation and 20-minute discussion)

**Dr. Steven Vance,
Group Leader, Task Force 1,
NASA DARES**

5:00 PM

**Feedback Discussion with NASA DARES
Leadership**
(45-minute discussion)

**Dr. Rachel Harris, NASA
Postdoctoral Management
Fellow, NASA Astrobiology**

