

Overview of Recent CAPS Meeting

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CAPS Co-chairs

SSB Meeting May 2, 2016

Committee on Astrobiology and Planetary Science

- *Bill McKinnon*, Wash. U.,
Planetary Science, Co-Chair
- *Christopher House*, PSU,
Astrobiology, Co-Chair
- *Erik Asphaug*, ASU
- *Sushil Atreya*, U. Michigan
- *Ronald Breaker*, Yale U.
- *John Clarke*, Boston U.
- *Bethany Ehlmann*, Cal Tech
- *Alexander Hayes*, Cornell
- *Sarah Horst*, Johns Hopkins U
- *James Kasting*, PSU
- *Edwin Kite*, U. of Chicago
- *Alyssa Rhoden*, ASU
- *Nita Sahai*, U. of Akron
- *Mark Saunders*, NASA rtd.
- *David Stevenson*, Cal Tech
- *Sarah Steward*, UC Davis
- *Astrobiologist*, TBD

Recent Status Presentations

- Mars Program James Watzin, NASA/PSD
- Astrobiology Program Mary Voytek, NASA/PSD
- Planetary Science Division James Green, NASA/PSD
- Planetary Science Vision 2050 Stephen Mackwell, USRA
- Ice Giant Mission Sci. Definition Team Amy Simon, NASA/GSFC
- Europa Clipper Mission Bob Pappalardo, NASA/JPL
& Barry Goldstein, NASA/JPL
- Europa Lander Sci. Definition Team Kevin Hand & Barry Goldstein
NASA/JPL
- Workshop Report: James Kasting, Penn State U
Searching for Life Across Space and Time
- Joint session with CAA (Exoplanet Strategy and follow-on Life Detection)
- General discussion and deliberations relating to meeting report:
Preparing for the Next Planetary Science Decadal Survey"

Ongoing Studies Relevant to CAPS

- Decadal Midterm Review (first meeting this week)
- Planetary Protection Policy Development Review
(first meeting 7-9 March, interim report in review)
- Review of Sample Science Facilities (being appointed)
- New study on Open Code (being appointed)
- Meeting of Experts on Organic Contamination Issues for
Sample-Return Missions (31 July-2 August 2017)

New Studies Relevant to CAPS

- New study on Life Detection* (proposal in preparation)
- Exoplanet Exploration Strategy* (proposal in preparation)
- Mars Architecture Review* folded into decadal midterm-review (new members added)
- Martian Moons Planetary Protection Review (request from NASA soon? To be conducted jointly with ESF?)

* Studies mandated by Congress

Planetary Science Status I

Overall, the Planetary Science Division is on track:

- PSD FY17 budget \$1.846 billion
- Mars 2020 sample caching mission continues development
- Europa Clipper mission now in Phase B (design phase)
- Two Discovery missions selected (Psyche, M-type asteroid orbiter and Lucy, multi-Trojan asteroid flyby), one in extended Phase A (NEOCam)
- Next New Frontiers mission proposals submitted April 28th
- Ocean Worlds program is part of the recent Presidential budget request

Planetary Science Status II

Discussion points to further consider:

- All of these program developments are highly responsive to the Decadal Survey
- Last year, NASA was directed to launch Clipper on SLS and add a lander. Lander is not in the President's budget, but included in Congress' recently agreed upon FY17 budget
- Maintaining a balanced exploration program is a challenge
- Uncertainty over new SMD priorities

Astrobiology Status I

- Interesting new opportunities are positive developments
 - NASA Astrobiology Institute CAN 8 - Step 2 are due July 6th
 - NASA/NSF Ideas Lab on the Origin of Life (Fall 2016) resulted in 5 teams being funded

1. Becoming Biotic, PI: Laurie Barge (JPL)
2. Evolvable surface-associated interacting molecular ensembles, PI: David Baum (U Wisconsin)
3. Understanding Translation through Experimental Evolution, PI: Michael Travisano (U Minnesota)
4. Life Out of Water - Possibility of Evolution in Non-Aqueous Environments, PI: Loren Williams (GA Tech)
5. Biochemical, Genetic, Metabolic and Isotopic Constraints on an Ancient Thiobiosphere, PI: Boswell Wing (U Colorado, Boulder)

Astrobiology Status II

Healthy integration of astrobiology with NASA missions

- MSL (Curiosity) and 2020 Rover
- Psyche and Lucy (understanding planet formation and building organic-rich planetary bodies, respectively)
- Europa Clipper (and lander)
- Inclusion of Ocean Worlds in New Frontiers 4