Overview of Recent CAPS Meetings

An assessment by

J. Greg Ferry and Philip Christensen
CAPS Co-chairs

SSB Meeting April 4, 2014

Committee on Astrobiology and Planetary Science

- Philip Christensen, ASU, Co-Chair
- J. Greg Ferry, Penn State University, Co-Chair
- Sushil Atreya, U. Michigan
- Amy Barr, Brown University
- Richard Binzel, MIT
- Ronald Breaker, Yale
- John Clarke, Boston University
- Geoffrey Collins, Wheaton College
- Pascale Ehrenfreund, George Washington University
- Lindy Elkins-Tanton, Carnegie Institution
- Laurie Leshin, WPI
- Steven Mackwell, LPI
- Norman Pace, U. Colorado
- Gary Ruvkun, Harvard Medical School
- Mark Saunders
- Gerald Schubert, UCLA
- Norman Sleep, Stanford University
- Cristina Takacs-Vesbach, U. New Mexico
- Roger Yelle, U. Arizona

Recent CAPS Activities:

CAPS meeting on March 3-5, 2014

- Extensive discussion of:
  - Planetary science status
    - HQ status report from Jim Green
  - Astrobiology status
    - Updates from Michael New and Mary Voytek
  - Mars Program status
    - Mars 2020 and Mars Exploration updates from Ken Farley and Lisa Pratt
  - Europa mission studies
    - Europa Clipper Study Group update from Robert Pappalardo and Barry Goldstein
  - Radioisotope program status from Ralph McNutt and Leonard Dudzinski
  - Issues facing planetary science and astrobiology

Astrobiology Status

- Mike Meyer appointed interim director of NAI
- Status of CAN-7
  - Down selection process
  - Full proposals delayed to end of April
  - E/PO process
- Status of Astrobiology in the new R&A structure
  - Core research programs
    - Emerging Worlds*
    - Solar Systems Workings
    - Habitable worlds*
    - Exobiology*
    - Solar System Observations
  - ASTEP diverted to PSTAR

Key Concerns:

1. Planetary Science budget reduction to $1.25B in FY15
   - Budget remains ~$250M below the preceding 10-year (FY03-FY12) average level, with minimal growth over next 5 years
2. Europa mission
   - Science value of a possible low-cost ($1B) mission to replace Decadal Survey recommended science goals
   - FY15 budget contains continued study funding but no funding for a new mission start
3. Next medium-class mission (New Frontiers), an essential Decadal Survey element, is omitted from the FY15 budget 5-year plan
4. Potential descope of sample caching from the Mars 2020 rover mission
5. Uncertainty in E/PO programs within NASA and Planetary Science
6. Planetary protection policies and their implementation

Europa Mission

- The Europa Study Team has developed an excellent flyby concept ("Clipper") that is robust and feasible
  - Responsive to the Decadal Survey in science scope and cost (~$2B)
  - Key Europa questions very well addressed
  - Mission length is reasonable (32 Europa flybys) with the potential for extension
  - Radiation issues have been well addressed.
- High resolution imaging would provide necessary "feed forward" to a future lander mission, which is the logical next step in Europa exploration
- OMB-desired lower cost (~$1B) mission concepts currently requested through an RFI must be carefully evaluated against the Decadal Survey recommended science goals and measurement requirements
  - Does this mission achieve the preponderance of the Decadal Survey science goals, and suffice as the precursor to a potential future landed mission?

New Frontiers Missions

- Decadal Survey recommendations focused on balance in mission types as well as destinations (inner ss, outer ss, and primitive bodies
  - Mars Program proceeding on track with Decadal recommendations
  - Discovery (~$500M-class) mission development proceeding with an AO expected in Fall 2014
  - Europa mission continues to receive study funding
- The Decadal Survey recommended two new New Frontiers (~$1B-class) missions in this decade
  - No new New Frontier mission will be possible given the President's FY15 5-year budget plan. (Speculation that OMB will cancel next New Frontiers solicitation and substitute a $1B Europa mission)
  - Except for Mars, the pipeline of new missions to meet the science objectives outlined in the Decadal Survey is empty
  - The New Frontiers program provides a crucial means to maintain the vitality and diversity of the planetary science community

Mars Program

- The first element of the Mars sample return campaign has been initiated with the Mars 2020 mission
  - This MSL-clone rover that includes sample caching and in situ science
  - Provides a clear path forward for the Mars Program
- It is critical that sample caching remain on this mission
  - Without sample caching, this mission would not meet the recommendations and findings for Mars exploration that were stated in detail in the Decadal Survey report

Education

- Uncertainty remains in plans for E/PO funding within NASA
  - The President's FY14 proposal to transfer E/PO funds out of NASA has created uncertainty that has not been fully resolved
  - The best of NASA's educational programs have clearly demonstrated success in reaching and motivating students.
  - These programs are at risk if concrete plans are not implemented soon to maintain funding and direction
    - Transfer of education funds from the Science Directorates would make it difficult to continue the existing direct connections between scientists and education professionals