

MEETING REPORT
of the
Planetary Sciences Subcommittee (PSS)
NASA Advisory Council Science Committee
NASA Headquarters
12 July 2010

The next meeting of the PSS is a telecon 7 Sept '10 2-4 EDT; the R&A Study Working group will meet 7 Sept '10 9-noon EDT at NASA HQ

Introduction

The Planetary Science Subcommittee (PSS) of the NAC Science Committee met for one day at NASA HQ 12 July 2010. The meeting opened with welcoming remarks by Jim Green (Director, Planetary Science Division (PSD) and Ron Greeley (PSS Chair). Agenda and presentation materials with detail are available on the informal PSS web site (<http://lpi.usra.edu/pss>).

SMD-ESMD interactions

1. Jim Green discussed possible partnerships between PSD and the ESMD. With the potential goal of sending humans to an asteroid, PSS member Mark Sykes (Chair of the Small Bodies Analysis Group, or SBAG) suggested that the Group could be co-chartered by both Directorates, following the model of the Lunar Exploration Analysis Group. There was general agreement on this recommendation, which was then carried forward to the Science Committee (which met 13-14 July), where the recommendation was placed "on hold" until the general manned program is better defined.

2. Jim Green discussed the plans for the formulation of the next "CAN" for the NASA Lunar Science Institute (NLSI); the NLSI follows the general model of the Astrobiology Institute, which includes drawing together multiple disciplines; the NLSI is co-sponsored by SMD and ESMD. Because the role of the Moon and the potential focus on human exploration of asteroids is unclear, the PSS recommended that the CAN be deferred one year until there is clarity in ESMD's programs; for example, the next CAN could incorporate asteroid science in the general goals. Because of the schedules/timing involved, it was suggested that a fifth-year augmentation could be made for the current eight "nodes," which would provide continuity and transition to potential new nodes.

Plutonium 238

Jim Green noted that while the NASA support for restarting the plutonium production line is "on track," there is some concern about DOE's support (in the current plan, NASA and DOE share the cost). This issue needs to be followed carefully in the coming months.

PSD R&A Study

Following last year's discussions in PSS and prompted by the NRC report "An Enabling Foundation for NASA's Earth and Space Science Missions" (www.nap.edu), the subcommittee "kicked-off" a study of the PSD Research and Analysis programs and related activities. Jim Green outlined the general terms of reference for the study and Michael New provided information on resources available for the study.

A Working Group to be chaired by Mark Sykes (who was a member of the NRC study) was identified consisting of Limaye, Wadhwa, Bell, Sumner, and Cravens, with Greeley, *ex officio*. A new person will be added to the HO PSD staff responsible for the R&A program, and this person should be the "point of contact" for the study along with New, and participate in the study activities. The study will have four phases: 1) study formulation and work plan, 2) data collection, 3) data synthesis and analysis, 4) recommendations to PSD. Data will be solicited from all PSS members, the various Planetary Analysis Groups, the general planetary community, and relevant NASA personnel. The approach and "metrics" outlined in the NRC report will be followed, including "traceability" from the top-down; i.e., PSD goals and objectives through to specific R&A activities. Assessments will include balance and relevance to the current high-level objectives of the Division, as well as workloads on the science community (e.g., proposal preparation, processing, and reviewing) and NASA Program Officers. The schedule calls for completion of the study in the early spring 2011.

Fran Bagenal (via phone) suggested that the study should also assess the balance between data analysis and mission-supporting resources based on previous missions.

Activities of the Working Group for 2010 include:

- a. Announcement of the Study and work plan to the general community ASAP
- b. WG meeting at HQ 7 September, which will include discussions with HQ Program Officers
- c. Town Hall to be organized at DPS in October (*tentatively scheduled Monday 4 October noon-1:30 in ballroom B/C*)
- d. Town Hall to be organized at AGU in December

PSD Technology Panel

Tibor Kremic presented the status of the PSD Study Team charged with assessing the current and future technology needs for Planetary Science. Each of the PAGs was requested to forward their recommendations to Tibor relevant to their planetary objects. "Findings" and an interim report from Tibor's panel will be available late summer 2010.

PSD Annual Performance Report (GPRA)

Phil Crane led the discussion regarding the federally-mandated annual GPRA of the Division; PSS voted that progress on the four principal PSD objectives are "green;" however, several areas

of the progress report needed attention, including the additional of some key publications, and PSS members took action items to provide the material to Phil. Most of this input was made during the meeting, but some outstanding items for PSS members are noted in the Action Item list below.

International Space Station

Ron Greeley presented the results from the previous PSS discussion of potential planetary-related activities on the International Space Station (ISS) and requested if there were any additional input; none was proffered for discussion, but Marl Sykes subsequently suggested that experiments could be conducted regarding ISRU from asteroids. Such experiments could be proposed through the ISRU program. It was agreed that the topics discussed could have merit, but would need to be peer-reviewed and a careful cost-benefit analysis performed. Within the framework of current PSD and technology programs, individuals can propose the use of ISS if warranted. The list and the conclusions were presented at the NAC Science Committee meeting 14 July in response to the action levied on each of the NAC Science Committee subcommittees.

Planetary Analysis Group (PAG) Reports

Each PAG chair gave brief reports on the activities of their group, noted up-coming events, and presented some new science highlights. Some key items include:

- a) LEAG plans to update their "Roadmap" this summer
- b) MEPAG change of chair is awaiting "release" of members of the NRC Decadal Study.
- c) SBAG will initiate generation of a "Roadmap" this late summer
- d) CAPTEM noted the need to form a working group dealing with lunar simulants as a joint activity with LEAG
- e) OPAG noted the Outer Planet exhibit in Rayburn Congressional Office Building 15 July (which was subsequently held successfully), and plans for an instrument workshop related to the Europa mission "feeding" into an anticipated 2-step AO process next year.
- f) VEXAG reviewed current and proposed Venus missions by various space agencies, including the successful launch of the Venus Climate Orbiter by JAXA, scheduled to arrive December 2010. *Jim Green requested information on the status of Venus Express data archiving before the forthcoming NASA-ESA bilateral meeting.*

Other Business

Will Grundy noted that scientific journal "open access" of publications from research supported by federal funds is an on-going issue that HQ is currently working.

ACTION ITEMS

1. SYKES: Derive a list of specific R&A items and issues that will be requested from the community for the study. **Due July 28.**
2. WADHWA work with Neal to identify the Working Group regarding lunar simulants. **Due date July 28.**
3. ALL PAG CHAIRS include an item for the next meeting to discuss TECHNOLOGY NEEDS and forward results to Tibor Kremic (with copy to Greeley) as appropriate (some PAGs have already done this).
4. ALL PAG CHAIRS include an agenda item at their next meeting to discuss input to the R&A study and forward results to Sykes (with copy to Greeley).
5. SYKES arrange a "Town Hall" meeting regarding the R&A study for community input at DPS. **Due in time for DPS scheduling.**
6. CRAVEN arrange a "Town Hall" meeting regarding the R&A study for community input at AGU. **Due in time for AGU scheduling.**
7. LIMAYE determine the status of Venus express archival data and provide information to Jim Green. **Due August 13.**
7. ALL PSS MEMBER provide edits/corrections to Phil Crane for the GPRA report to provide balance and up-dated publications. **Due July 28.**

The next meeting of PSS will be a telecon 7 September 2010 2-4 PM EDT.

The R&A STUDY TEAM will meet 7 September 2010 at HQ (Room MIC-3A) 9-12-noon EDT.

FINDINGS AND RECOMMENDATIONS

For the NAC Science Committee

Finding: There is the potential for human exploration of an asteroid(s) in the future. The planetary science community engaged in asteroid research is relatively small with most individuals having expertise participating in the *Small Bodies Analysis Group*.

Recommendation: *should ESMD move forward with human exploration of asteroid(s), consideration should be given to co-chartering of SABAG by SMD and ESMD, following the model of the Lunar Exploration Analysis Group.*

For the PSD Director, Jim Green

Finding: The "CAN" for the next round of proposals for the lunar Science Institute is currently in preparation. However, the future of lunar exploration in the near term is unclear, as is the role of human exploration of asteroids. Until there is greater clarity, the scope of the objectives given in the next "CAN" is uncertain.

Recommendation: *defer the next "CAN" for one year or until the above issues are resolved. Extend the current NLSI "nodes" by augmenting the current contracts in order to provide continuity and transition to the next phase of the Institute.*