

PAC August 17-18, 2020 Virtual Meeting Findings

Finding: Equity, Diversity, Inclusiveness, and Accessibility (EDIA)

The PAC commends NASA's Planetary Science Division (PSD) for creating a statement of task for the Planetary Science and Astrobiology Decadal Survey that requested a detailed assessment of the state of the profession and actionable recommendations on improving equitable, diverse, and accessible representation in planetary science and astrobiology. The PAC is pleased to hear that NASA's Science Mission Directorate (SMD) is sponsoring two additional National Academies of Sciences Engineering and Medicine (NASEM) studies on equity, diversity, inclusiveness, and accessibility (EDIA), and the PAC encourages these studies to similarly include experts in these areas. The PAC notes that holding all of these concurrently (and with the final stages of the Astronomy and Astrophysics Decadal Survey) may put increased pressure on EDIA experts associated with the Planetary Science community. At the August 2020 PAC meeting, many of the Advisory and Assessment Group (AG) reports referenced ongoing EDIA efforts, including those coordinated by the cross-AG EDIA working group, highlighting the importance of these concerns. The PAC appreciated the PSD's report on EDIA and looks forward to hearing updates on progress on this topic in future PAC meetings. The PAC would appreciate receiving regular reports from the cross-AG EDIA working group at its future meetings.

Finding: No Due Dates (NoDD)

While there are many challenges for NASA's peer review process due to the current situation with COVID-19, there are also opportunities to re-think and re-engineer established policies and procedures with an eye to improvement. The PAC appreciated PSD's report on their efforts in this area. The PAC views the flexibility in the face of unexpected developments offered to proposers by a No Due Date (NoDD) submission policy for R&A proposals as potentially advantageous. However, there are risks of negative consequences that must be managed or eliminated during implementation. The PAC finds that PSD should continue to develop detailed implementation plans for NoDD, with feedback from a range of stakeholders, and then proceed with a judicious pilot effort. The PAC would appreciate a detailed report on PSD's NoDD implementation plans at a future meeting.

Finding: Participating Scientist Programs

Participating Scientist Programs (PSPs) maximize scientific return from missions and broaden community involvement in missions. The upcoming Juno extended mission would provide an excellent opportunity for new scientists from the outer planets community to join the team, in particular those who study surface processes or satellites, since the primary mission had no such science goals. The PAC encourages continued support for PSP programs, and specifically encourages a PSP program for the Juno extended mission.

Finding: PDCO Budget & NEOSM Mission

The PAC has maintained unwavering support for the continuation of the Near-Earth Object Surveillance Mission (NEOSM), as well as for keeping its science team intact who have developed the concept and lead the project forward to selection. The President's FY21 budget request is not sufficient to move the NEOSM mission towards construction. The NEOSM mission is responsive to key goals of NASA's Congressionally-mandated program for planetary

defense. Thus, the PAC supports funding the NEOSM Mission at the level that maintains its intact science leadership team and moves this critical mission towards implementation.

Finding: Transparency of the Mars Ice Mapper Mission

The PAC is concerned that the process by which the Mars Ice Mapper (MIM) mission appeared in the Mars mission portfolio, its scope, and the plans for its funding were unclear. The PAC encourages greater transparency and community involvement in the formulation of this concept, in keeping with recommendations by MEPAG-sponsored science analysis groups and the Vision and Voyages document. In particular, the similarities between the MIM and a proposed Discovery concept are alarming since the proposing science team is not engaged in the MIM planning process, which sets a dangerous precedent. Consequently, the PAC finds that PSD/MEP should form a Mission Design Team (MDT), including scientists from the participating international partners and specialists from HEO, to review the M2M campaign requirements and to define appropriate instrumentation for the ice-as-a-resource mapper. To address the ice science objectives formulated by MEPAG through its science analysis groups (e.g., Ice and Climate Evolution Science Analysis Group [ICE-SAG], 2019) would require additional measurements (beyond the proposed SAR). The MDT could consider what additional instrumentation would be needed to realistically address the remaining ice science objectives. Should such objectives be included, the PAC would find that the instruments to meet those objectives be competed.

Finding: Prominence of Astrobiology in Future PAC Meetings

The PAC noted that the tasking for the next Decadal Plan included an increased focus on astrobiology. In parallel, PAC noted that the presentations from both MEPAG and OPAG indicated that increased interest in astrobiology is also reflected across the national research community (>25% of DS white papers noted by MEPAG were for Goal 1, Life studies at Mars; >30% of white papers noted by OPAG were for studies of Ocean Worlds). By contrast, much less than 25-30% of the time available at the latest PAC meeting was dedicated to astrobiology discussions. Since NASA's Astrobiology program "resides" within PSD, PSD should consider how to redress this imbalance between community activity and discussions at future PAC meetings.

Two suggested actions are:

- a) PSD to include a presentation from NASA's Astrobiology Program at each meeting.
- b) All AG chairs be requested to include discussion of astrobiology in each AG report. One possible "model" setting could be to recommend that AG chairs assign their allotted 20 min time-slots as: 10 min planetary science, 5 min astrobiology, 5 min preserved for Q&A.

R&A: Finding on Impact(s) of Selection Rates Below 20%

The past several years have seen progress towards unsustainably low selection rates in R&A programs, including SSW and PSTAR. As missions end, a greater fraction of the science community relies on R&A programs for support. Low R&A selection rates place early career scientists in jeopardy. The impact of the practice of placing liens on future years and augmentations from COVID have both contributed to this issue. Every effort should be made to return all programs to healthy selection rates above 20%, with a target of 35%, maintaining

annual calls for all programs including PSTAR and Habitable Worlds. Where funding shortfalls are anticipated to preclude >20% success rates, PSD should devise an equitable and transparent mechanism for deciding which programs to prioritize over others to ensure a balanced R&A program in terms of both research and community participation across the highest priority themes identified in the Planetary & Astrobiology Decadal Survey. The PAC finds that NASA PSD should redirect at least \$10M to R&A programs from other programs that are lower priority in the Decadal Survey.