

## **PAC Virtual Meeting 15-16 November 2021 Draft Findings**

### **1. Funding for NASA Service Activities**

**Background:** NASA's Planetary Science Division (PSD) relies on the science community to perform a variety of service activities in order to support its portfolio of missions and research & analysis programs. These service activities support NASA's strategic goals of equity, diversity, and inclusion by drawing on the full breadth of talent available in the community and ensuring inclusive opportunities for community contribution. The PAC appreciates that NASA has provided clarification that funding for PAC or other NASA advisory committee memberships is governed by FACA rules, and ROSES panel reviews are generally limited to honoraria. But other service activities that have the potential to be funded may include NASA studies such as mission definition teams, facility reviews, "state of the community" studies, or Assessment group steering committee leadership. Additionally, contracts or other pathways may exist for supporting studies of the planetary science workforce (see [Rathbun et al., 2021](#)).

**Finding:** The PAC recommends that NASA should itemize its service activities performed by the community and delineate the potential for compensation for each, along with estimated costs.

### **2. Data Analysis Programs**

**Background:** As NASA's PSD undertakes new missions, the volume of data available in public archives and the number of investigations focused on analyzing that data have grown considerably. Mission-specific Data Analysis Programs (DAPs) have been instituted with dedicated funding to support these investigations, but the question was raised about how long those dedicated funds should be offered. A balance must be struck to support for studies using data from new missions with recognition that data from old missions can still yield new and significant science results.

**Finding:** The PAC finds that the PSD DAPs could be managed using several different options; consequently, the PAC requests that PSD should present information at a future meeting on the potential impacts of different programmatic strategies.

### **3. SIMPLEX, Discovery and New Frontiers schedule**

**Background:** Concerns have been raised about the community having enough time to prepare strong and compelling proposals, especially with the closeness of the expected Discovery call in 2023 and the NF-5 call in 2024, and the uncertainty in the date of the next SIMPLEX call's release.

**Finding:** The PAC finds that finalizing call dates and releasing draft AOs as early as possible is beneficial for both NASA and the community responding to these opportunities.

### **4. NASA EDIA efforts**

**Background:** The PAC appreciates the current efforts within NASA to improve diversity within the planetary science community, including efforts by the PSD R&A IDEA group and the SMD

IDEA working group, and new programs like Mentoring 365, the SMD Bridge Program, and the Here to Observe (H2O) Pilot Program. These new programs have the potential to improve the diversity of the pool of planetary scientists entering the field. However, the PAC notes that (1) current efforts focus primarily on students and/or early career scientists and towards potential future increases in planetary science community diversity, (2) that current discussions of diversity usually only focus on cis-gendered diversity and exclude mention of disability communities, and (3) most determinations of diversity are not based on careful collection of self-reported demographics data. It is important for the PSD R&A IDEA group and others in PSD working on EDIA progress to look for ways to broaden efforts beyond students and/or early career scientists and beyond cis-gender and ableist considerations.

**Finding:** The PAC requests that PSD provide regular updates on ongoing programs and should in particular provide an evaluation of the results of the H2O Pilot Program. The PAC requests regular updates on NASA SMD efforts to improve inclusion and equity within the present planetary science community, focused on mid-career scientists. In addition, PSD should work with NASA's Office of Diversity and Equal Opportunity to pursue demographic data collection efforts in order to enable assessments of inclusivity and diversity, including a broader range of underrepresented identities, and assessment of progress in the future.

## **5. Science-driven Leadership of Strategic SMD Missions**

**Background:** NASA's mission is achieved through a mix of competed and directed strategic missions. Maximizing the science return of both is only achievable through strong scientific leadership, which provides the necessary expertise, and peer review to ensure that mission architecture, instrumentation, and operations are optimized properly. The PAC appreciates the formation and public identification of the Mars Ice Mapper (MIM) Measurement Definition Team (MDT) and learning about the development of the Artemis and CLPS programs.

**Finding: (a)** The PAC finds that NASA should ensure that the scope of the MIM MDT is clearly shared with the community, that the MDT's inputs should carry significant weight in the development of the MIM, and that the final report should be released to the community as quickly as possible. **(b)** The PAC finds that NASA should develop a broad lunar science and exploration strategy with a clear set of scientific priorities and a scientific leadership structure with the authority to generate the science requirements for NASA's Artemis and CLPS programs. The lunar science leadership should be charged with driving a strategy for selecting CLPS science objectives, landing sites, and instrumentation.

## **6. Software/Data Management**

**Background:** The PAC appreciates efforts to improve accessibility to data and software. However, the new software and data management policies may have unintended consequences in that the burden of supporting the new software and data management will be placed on the community (from individual PIs to mission teams) without additional support provided for that work. The PAC notes that public comments on draft policy SPD41 are actively being solicited by NASA.

**Finding:** The PAC finds that NASA should carefully consider concerns expressed by the community so that the final policy is clear with respect to format, documentation, and maintenance of these archived products and avoids new burdens unless additional appropriate financial support can be made available. Legal implications of software licenses and liabilities should be clearly explained, and efforts should be made to minimize the burden on new proposers, those from groups that are underrepresented in planetary science, and those with less institutional support. The PAC recommends that NASA encourage all community Analysis/Assessment Groups (AGs) to include a data/software management representative in their steering committees, so that such a person can work with NASA and MAPSIT to be aware of resources, policies, and leading practices to better support their respective communities.

## **7. Sharing of Lunar Samples with China**

**Background:** Given the extreme rarity of lunar samples, the PAC notes that there is great scientific value in ability for the international community to share such samples. The PAC notes that exception to the Wolf Amendment that currently prohibits NASA's use of appropriated funds for bilateral cooperation with China may be possible if NASA certifies to Congress that the activity does not pose a risk of tech/data/info transfer to China with national security or economic security implications, and does not involve knowing interactions with officials determined to have direct involvement with human rights violations.

**Finding:** The PAC finds that NASA should explore paths to enable sharing of lunar samples between China and the US given the recent success of the Chang'E-5 sample return mission and the upcoming CLPS and Artemis missions.

## **8. NASA Request for Additional R&A Support**

**Background:** Given the broad congressional support for Planetary Science Division missions such as Mars Sample Return and Europa Clipper, the overall PSD budget has grown rapidly. However, while the R&A budget has grown significantly as well, it has not kept pace with the overall budget or with the volume of data and samples available.

**Finding:** The PAC recommends that PSD continue to work through the budget process to increase the overall funding for R&A programs.