

# Charter

## For the Planetary Science Technology Evaluation & Implementation Panel

The Planetary Science Division (PSD) within the Science Mission Directorate (SMD) at NASA HQ desires to review its existing instrument and technology programs with respect to their effectiveness in leading to flight systems and reducing mission implementation risk. To this end, the PSD is forming an internal panel of experts to assist in this process and provide PSD with recommendations that could be implemented within existing resources and in line with the Planetary Science Decadal. The panel will engage the science and technology community and seek inputs from industry, universities, and other organizations with a diverse set of backgrounds and perspectives. The panel also may seek opinions and analysis from consultants and contractors as needed to achieve its objectives.

### **Objectives**

**The primary objective of this panel is to assist PSD in developing a coordinated and integrated technology management plan that will better utilize technology resources.**

There are also several specific supporting objectives to be addressed. These have been identified and phased below.

#### Phase 1 (Assessment)

- 1) Assess current and past PSD technology development programs, activities, and practices identifying what worked and didn't. Also review technology development efforts both internal to PSD as well as outside of PSD and NASA looking for other approaches and best practices.
- 2) Assess the current review/oversight processes used by the various PSD technology programs and provide suggestions to consider where modifications may be beneficial
- 3) Consider prior reviews of the PSD and other applicable technology development efforts, e.g NRC's Solar System Exploration Midterm Review in 2008, and ensure that recommendations address the weaknesses identified by this and other sanctioned community reports or reviews

#### Phase 2 (Formulation)

- 4) Engage the science and technology community in the panel's thinking and planning process and communicate to them the status and plans

- 5) Recommend an integrated and coordinated plan that addresses the whole of PSD technology development needs including but not limited to instrumentation and sensors, spacecraft systems (such as power, communication, and propulsion), planetary protection, sample curation, field testing, and flight demonstration missions as required. Recommend approaches to improve technology maturation through the higher Technology Readiness Levels (TRL's)
- 6) Align the PSD technology development plan to address the decadal technology recommendations. The panel should consider how to manage technology needs beyond the decadal horizon
- 7) Endow the recommended plan with flexibility to take advantage of domestic or foreign missions of opportunity (MOO's) or other partnering opportunities as applicable to technology development or maturation
- 8) Recommend modifications to current processes to assess performance in order to be transparent to PSD, the planetary science community, missions, and other stakeholders. Recommend technology development metrics for PSD to consider

### Phase 3 (Documenting Findings and Products)

- 9) Generate a final report that outlines findings and a recommended plan. Also develop two notional technology development roadmaps grounded in current decadal recommendations, identifying key opportunities or needs and utilizing realistic costs for the technology developments. The two roadmaps should reflect two different funding levels, a) current PSD technology budget predictions and b) a budget that supports all the required technologies

### **Duration of Activity**

The effort will begin in early 2010 and is planned to take 12-15 months to complete although adjustments may be required based on decadal progress and information release.

### **Deliverables**

Deliverables include: a) final report describing findings and recommendations, factors considered, top risks and watch items, and a list of community town hall meetings conducted and the associated notes from those meetings, b) the notional roadmaps, and c) presentations at appropriate meetings such as the PSS, AGU, DPS, and LPSC and assessment groups to communicate status and plans

### **Panel Chair**

Dr. Tibor Kremic has been selected as the chair

### **Panel Membership**

Panel members will be Federal government civil servants and will be jointly selected by the panel chair and Dr. James Green, Director of NASA's Planetary Science Division. This process will also be used to replace a member if, during the period of performance, it becomes necessary to do so for any reason.

### **Consultants, Advisors, and Contractor Support**

Integral to the objectives of the panel is engagement with and seeking input from the science and technical community. The panel may choose to engage the science community in a variety of ways, including seeking information through workshops that involve relevant industry representatives. The panel also may seek consultation, advice, studies, and reports from universities and contractors. The panel, however, will retain responsibilities for the forming recommendations. The role of any individuals or parties supporting this activity who are not Federal civil servant employees will be limited to providing individual input and may not participate in any consensus-building process that results in decisions or recommendations. Moreover, consultants and advisors who provide input or advice for consideration by the panel should be mindful about potential future organizational conflicts of interest and should promptly communicate the possibility to the panel so that appropriate action may be taken to prevent or mitigate such conflicts.

### **Costs/Expenses**

The costs for panel members to support this activity will be paid by the Planetary Science Division. Costs may include travel expenses and the cost of contractor support.

Commissioned this day by Dr. James Green, Director Planetary Science Division, NASA HQ.



Date: 2/25/2010