

Dear Colleague:

This is the fifth newsletter to the community regarding SolarSystem2012, the planetary science decadal survey. The key points in this newsletter are these:

1. Assessment by the panels of the key science goals for the coming decade is nearing completion.
2. The Steering Group has identified and focused on several important crosscutting issues, including launch vehicle costs, availability of plutonium-238, and mission-related technology development.
3. Our studies of candidate missions are proceeding well. Several recent changes to the list of studies have been made.
4. Decadal survey sessions are planned for the upcoming LPSC and AbSciCon meetings.
5. More information is available on the SolarSystem2012 web site:  
[http://sites.nationalacademies.org/SSB/CurrentProjects/ssb\\_052412](http://sites.nationalacademies.org/SSB/CurrentProjects/ssb_052412)

A major recent focus for the panels has been assessing the current state of knowledge in planetary science and identifying the most important science goals for the coming decade. The white papers from the community have provided the primary input to this process. The assessment is nearing completion, and draft text for our final report is being written. The science goals that have been identified will be used by the panels and the Steering Group to establish priorities among the many mission candidates under consideration.

As I noted in my last newsletter, the Steering Group met on November 16-18 in Irvine, CA. A major outcome of this meeting was the recognition that the escalating costs of launch vehicles and the impending shortage of plutonium-238 for space power systems both pose significant threats to the future of planetary exploration. We are writing text for our final report concerning these threats and how they might be overcome. We have also identified development of technology for future missions as another critical issue, because of both its importance for mission success and its cost. Technology development will be a central focus of the next Steering Group meeting to be held on February 22-24 in Irvine.

We have made great progress on our studies of candidate missions, with twenty-one different studies currently in work. APL, Goddard, and JPL have all done excellent work on these studies. Several studies are nearly complete, and many others are nearing completion.

Since my last newsletter, we have made several changes to the list of mission studies:

- 1) We have temporarily ended study of the Mars Trace Gas Orbiter mission, because of the impending release of the Announcement of Opportunity for that mission. The study will be completed after the payload has been selected. If we need a cost estimate for that mission between now and payload selection, we will use numbers provided to us by NASA Headquarters.
- 2) NASA has recently selected three New Frontiers mission candidates for in-depth study. These are SAGE (a Venus lander), Moonrise (a South Pole-Aitken Basin lunar sample return), and OSIRIS-REX (an asteroid sample return). We will not conduct studies of any of these mission concepts. Instead, we will treat NASA's selection of these mission candidates as validation that all of them can be conducted within the New Frontiers cost cap.
- 3) We have begun a new study of a Venus Tessera Lander mission. This mission is distinct from any other Venus lander missions now under consideration because of the unique challenges involved in landing in Venus' very rugged tessera terrain.

An important note: Although we are conducting studies of many possible missions, not all of them will ultimately be selected for independent cost estimates. Also, undergoing an independent cost estimate is necessary but not sufficient to assure inclusion in the final report.

Finally, we are continuing to organize a number of sessions at major scientific conferences where discussion of the decadal survey among the community will take place. Upcoming sessions are planned for both LPSC and AbSciCon.

As always, more details, including archived webcasts of meetings, agendas for past and future meetings, and materials presented to the Steering Group and panels, are available at the SolarSystem2012 web site:  
[http://sites.nationalacademies.org/SSB/CurrentProjects/ssb\\_052412](http://sites.nationalacademies.org/SSB/CurrentProjects/ssb_052412)

Best wishes,

Steve Squyres

SolarSystem2012 Chair