

## REPORT OF THE HELIOPHYSICS SUBCOMMITTEE

The May 3-4 meeting of the Science Subcommittees was a useful introduction to the problems we will all face in the coming few years. Because of the limited time for internal discussion the committee was only able to focus on the most pressing issues that required immediate action. However, we did come to some conclusions on our short-term goals and developed at least a few items that should be further investigated.

Our initial conclusion is that the Heliophysics program (the bottom to paths in the attached summary sheet from that report) defined in the recent roadmap can be carried out with the current funding profile. We recognize that the program is fragile, and that the loss of any single missions would result in substantial damage to the systems approach to understanding the connections among the existing systems in the Heliosphere. This situation could be ameliorated by increased international collaborations in the form of contributed instruments or focused missions that allow a mission mix that is closer to the optimal program (the top three paths on the attached summary) indicated by the roadmap.

### Immediate Action Recommendations

*The R&A budget shortfall, though harmful to the vitality of the Heliophysics (HP) program, does not appear to be sufficiently severe to require significant restructuring of the FY2007 budget at this time.*

- 1) The existence of R&A funding within other program lines (for example, LWS TR&T and the GI programs) makes it difficult to assess the actual level of total available funding for competitive grants. The budgetary study by Dr. Paul Hertz indicates that the impacts maybe less severe than initially thought. However, it is essential that more detailed budgetary information be compiled to clarify the competitive grant opportunities that are and will be available to the community during the current five year planning schedule.
- 2) Reprogramming money from missions back into R&A would ultimately result in mission delays that will amplify the shortfall of funds within the discipline budgets. Nevertheless every avenue should be investigated to correct the budget shortfall in the R&A budget.
- 3) Further, the overall level of R&A depends strongly on a healthy suite of missions delivered on time and within budget.

### Concerns

We are concerned with the growing costs of NASA missions. Cost growth limits mission opportunities. For that reason the committee would appreciate a report on progress on full cost accounting and an assessment of impacts of future restructuring of these accounting processes.

A significant factor in cost growth is the combination of processes developed to reduce risk and create uniform processes across the agency-“One NASA.” One of the consequences has been multiple independent reviews, which for the smaller programs has a significant impact on key personnel. While any given process may provide some value, the cumulative effect is increasing costs, overstressing the capabilities of the experiment teams, and may even be increasing risks. The committee would appreciate briefings on these three topics by appropriate NASA personnel.

Explorer missions are a key component of the Heliophysics strategy. The decrease in flight opportunities for SMEX and MIDEX class missions is especially damaging for university participation in space missions. The decrease in small missions is a restriction in the pipeline for the next generation of experimental scientists and engineers.

A major problem for a vital Explorer program is reasonably priced access to space. The committee would appreciate a briefing on launcher costs with particular focus on possible partnering activities with the DoD.

We are concerned and surprised that NASA is not one of the agencies included in the Presidents competitiveness initiative. Exploration of the the Sun, the Earth, the Solar System, and the Universe has been a magnet that has drawn young men and women in to engineering and science.

## **Opportunities**

The HP roadmap is constructed to create a Great Observatory from an ensemble of moderate and small missions. The moderate missions create an observational database necessary to address critical questions, whereas most of the small missions are focused on narrower questions. Other small missions provide opportunities to follow up upon unanticipated discoveries. This flexible structure provides the opportunity for international partners to develop complete small missions that enhance the Great Observatory as well as the more traditional contribution of instruments on a NASA payload. The open data policy that has now worked successfully for more than a decade insures that international partners are full participants in the Great Observatory System.

The committee was excited by the opportunity of lunar experiments. A list of experiments and abstracts for the October meeting will be provided at the July meeting.

Respectfully,

Alan Title, Chair



Low- to Mid-Cost, Multi-Objective Missions, Strategically Planned for Fundamental Space Physics and Space Weather Investigations

Recommended Program Supports One STP Launch Every 2-3 Years to Meet NASA Objectives

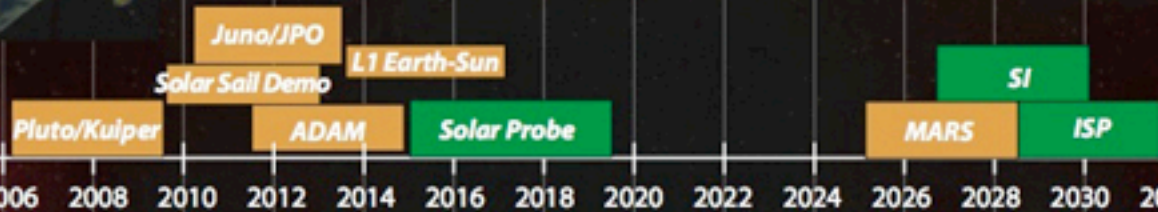


Low- to Mid-Cost, Multi-Objective Missions, Strategically Targeted to Understand How the Space Environment Affects Life and Society

Recommended Program Multiplies Science Return Through Increased Mission Synergy



Flagship and Partnership Missions



Low- to Mid-Cost, Multi-Objective Missions, Strategically Planned to Investigate Fundamental Space Physics and the Sun-Solar System Connection

Current Funding Supports One STP Launch Every Five Years



Low- to Mid-Cost, Multi-Objective Missions, Strategically Targeted to Understand How the Space Environment Affects Life and Society

Currently Funded Program Schedule



Legend: In Development (blue), Recommended (green), Partnership (orange)