

Victoria Elsbernd, Outgoing Director
David Chenette, Incoming Director
Heliophysics Division
NASA Headquarters
300 E. Street, SW
Washington, DC 20546

August 30, 2013

Dear Vicki and Dave,

Thank you Vicki for your outstanding service to the Heliophysics Division over the past year, and congratulations Dave on your appointment as the new Director. The Solar and Heliospheric Management Operations Working Group (SH-MOWG) looks forward to working with you to advance Heliophysics as an exciting and important discipline. We have much to offer the nation, both in terms of inspiration (attracting young people into STEM fields) and application (providing the scientific foundations for understanding and predicting space weather).

The SH-MOWG held a telecon meeting on August 7 and 8, and discussed a number of important topics. Our thoughts are formally compiled in the six paragraphs below. We hope that you find them useful. Please feel free to call on us at any time if you would like to discuss these or any other topics.

On behalf of the SH-MOWG,
Sincerely,

Jim

James A. Klimchuk, Chair

SH-MOWG members:

Doug Braun
Alan Cummings
Marc DeRosa
Jim Drake
Heather Elliott
Justin Kasper
Jim Klimchuk
Kuen Ko
David McKenzie
Matt Penn
Tom Woods

cc: Maura Hagan, Chair, Heliophysics Subcommittee

SOLAR AND HELIOSPHERIC MANAGEMENT OPERATIONS WORKING GROUP

Outcomes of the August 7&8, 2013 Meeting

1. Implementing the Recommendations of the Decadal Survey

The Decadal Survey on Solar and Space Physics has charted an exciting course for the next ten years. Unfortunately, the NASA budget is now projected to be much less than anticipated by the Decadal Committee. We applaud NASA and the Roadmap Committee for making realistic plans based on the new fiscal situation. This will help to avoid major problems down the road, of the type associated with the James Webb Space Telescope, for example. We strongly support NASA's use of the decision rules prescribed in the Decadal Survey for constrained budget situations. After completion of the ongoing flight projects, the top priority is the DRIVE initiative, including increased support for research and analysis. This is followed by expansion of the Explorer Program, to provide more rapid access to space and to take advantage of leveraging offered by international and domestic partnerships. While we fully support this realistic planning approach, we strongly encourage efforts to grow the budget so that all of the Decadal recommendations can be achieved. Maintaining the current funding profile will extend the 10-year plan to 20 years, with significant long term damage to the health of the Heliophysics community.

2. Importance of the Guest Investigator Program

The transformation of data from NASA satellites into scientific knowledge takes place through careful analysis of the data and comparison with physical models based on theory and/or computer simulations. It is this development of new scientific knowledge that is ultimately the primary goal of the Heliophysics research program. During the prime phase of each mission, designated science teams are provided support for mission operations and scientific data analysis that aim to achieve the proposed science goals. Once missions transition to the extended phase, instrument-team support for basic science becomes more limited. Complementing the efforts of the instrument science teams, funding from the Guest Investigator (GI) program enables the broader scientific community to access and analyze these data throughout the course of each mission. Consequently, the recent Solar and Space Physics Decadal Survey stressed the importance of the GI program and recommended that 2% of total mission costs be set aside to fund this key component of all new satellite missions. Because it is the scientific knowledge gained through the analysis of data, and not simply the operation of satellites and archiving of data, that is the goal of the Heliophysics Division, the general GI program remains an essential component of NASA's research enterprise. Therefore, consistent with the high priority assigned

to the DRIVE initiative in the Decadal Survey, the SH-MOWG urges the Heliophysics Division to do what it can to boost the funding for the general GI program as a component of the MO&DA funding portfolio. Such a funding increase, however, should be a real augmentation and not be at the expense of other R&A programs or of the existing MO&DA budget.

3. Research and Analysis Programs: Directed and Undirected Research

Research and analysis is crucial for maintaining scientific vitality in the Heliophysics Division. The SH-MOWG understands the value of specific directed research topics, but believes that the current proportion of directed research funding is sufficient. We support keeping the major fraction of funding open for undirected research. Since it is the members of the community who are actively engaged in the research, they collectively are best able to judge which research directions are most promising (are important and have a likelihood of success). They make these judgments known through the proposals they submit in open competitions. The current undirected funding opportunities have enabled and continue to enable many types of critical research successes. We see no need for a major set-aside for systems science. Systems science tends to involve larger efforts, and those efforts will be pursued naturally by the community if there are large grant opportunities. Therefore, we support having a mix of small, medium, and large grants, including longer durations.

4. CubeSats

The SH-MOWG embraces the new \$5M CubeSat line item in the President's FY14 budget to address some of NASA's science objectives and to train the next generation of scientists and engineers for space missions. The technology and capabilities for micro satellites have quickly grown over the past few years, so it is of no surprise that the Decadal Survey on Solar and Space Physics has recommended the addition of micro satellites for NASA research programs. We encourage the Heliophysics Division to investigate optimal ways to execute a new CubeSat program that can involve NASA centers, universities, and other institutions and to become the new leader in defining standards for larger, more capable, series of micro satellites, e.g., 6U and 12U CubeSats (U = Unit that is 10cm cube).

5. Partnership Missions

International and multi-agency partnerships create opportunities for achieving ambitious science goals in Heliosphysics that are otherwise unavailable if supported by one single agency. Combining resources and expertise through such partnerships is particularly sensible and

strategically wise in times of budgetary restrictions. Examples such as Yohkoh, SOHO, Hinode, Cluster, and Solar Orbiter demonstrate that by collaboratively developing and supporting missions with other agencies that share similar scientific and/or operational interests, NASA reaps the benefits of larger, more costly missions, and enables greater science return than would be possible with the same investment in a NASA-only mission. The Decadal Survey acknowledges and encourages opportunities facilitated by international and multi-agency partnerships and provides examples such as a NASA-JAXA Solar-C partnership, a US-Taiwan FORMOSAT-3/COSMIC microsatellite collaboration, and a multi-agency partnership for solar and solar wind observations. The SH-MOWG echoes the Survey in strongly encouraging NASA to continue seeking ways and opportunities for realizing partnerships such as these.

6. Education and Public Outreach

The SH-MOWG recognizes that the NASA Advisory Council has issued Recommendations regarding Education and Public Outreach (E/PO) related to NASA-specific science and NASA missions, and that NASA did not concur with these recommendations. Insofar as NASA has not verbalized a plan for maintaining E/PO activities, nor for coordinating E/PO activities with other agencies, in a way that preserves access to NASA mission findings and STEM education opportunities by communities that are not directly served by the National Science Foundation, the Smithsonian Institution, and the Department of Education—especially geographically isolated and other underserved communities—the SH-MOWG emphasizes its support for the NAC Recommendation that FY 2014 be planned as a transitional year for NASA E/PO programs. Such a transition year would allow continuity and time for re-planning/re-evaluating ongoing E/PO programs, which cost significant time, effort, and funding to set up and initialize, while NASA’s Office of Education develops its plan for consolidating E/PO programs. Specifically, the SH-MOWG supports, “Rather than halting nearly all NASA Education and Public Outreach programs immediately, fund and recast FY 2014 as a transitional year where existing programs can be evaluated, and slated for shutdown, transfer to other agencies, or continuance in an orderly fashion. In particular, the Agency should fight for continuance of E/PO activities that are enabled by capabilities that are uniquely NASA’s.”