

Dear Dr. David:

We begin by thanking you and your colleagues, Dr. Owen Garriot and Dr. Alan Stern, for your willingness to serve on the Science Committee. We are look forward to working with you in the coming years.

We also thank Charles Kennel, Wes Huntress, and Eugene Levy for their service on the NAC.

We congratulate John Mather (one of our subcommittee members), George Smoot, and the entire COBE team for the very well deserved 2006 Nobel Prize in physics for “the discovery of the blackbody form and anisotropy of the cosmic microwave background radiation.” This prize is yet another reminder of the many wonderful things that NASA has done and can continue doing!

The Astrophysics Subcommittee met on September 14-15, 2006 in Washington, DC. This report summarizes our findings and recommendations for the meeting. We attach an agenda for the meeting at the end of this report.

#### *Science Plan*

The subcommittee reviewed NASA's science plan. We are concerned that the draft document did not reflect budget realities and was not consistent with the President's budget and proposed changes. For example, the document described all five of the potential Beyond Einstein missions, but did not make clear that the current budget can only support completing one of the five missions in the coming decade and starting construction on the second mission. The document also described both SIM and SOFIA, which was not consistent with Dr. Griffin's statements on his plan to support only SOFIA.

The science document should be more closely tied to the “Report on the Implementation of the President's Vision” and should emphasize links between the science plan, the NAS recommendations and the Report on the Implementation of the VSE. In particular, the Implementation Report advocates a science research agenda organized around the broad themes of origin, evolution and the fate of the universe. The science research agenda outlined on page 40 of the report aligns well with the science plan. The committee is NOT recommending changes in the priorities in the document, but does want to encourage stronger linkage to stated Presidential priorities and NAS recommendations in the document.

#### *Community-Headquarters relations*

The Subcommittee notes with pleasure the excellent representation of Headquarters staff at this meeting. There was a consensus feeling that communication channels between HQ staff and the Subcommittee, as representatives of the community, have been steadily improving with each Subcommittee meeting.

Members of the subcommittee wish to reiterate that reviews managed by the National Research Council remain the best way to obtain expert and unbiased advice about priorities for science and technology research in the service of the nation. That is why it consistently advises NASA to seek their advice and attempts to follow that advice consistently in making its own recommendations.

We are all committed to providing NASA with the best assessment of the current and future state of astronomy and astrophysics research, and from that, to develop plans for the most effective and efficient use of its resources.

#### *Astronomy Enabled by the Lunar Program*

Mario Livio reported on planning for the workshop on “Astrophysics Enabled by the Return to the Moon” at STScI. The subcommittee discussed plans for the workshop at STScI and the February 26 – March 1 meeting on Lunar Science. We recommend that a representative from the STScI workshop attend the February meeting and present its conclusions. The subcommittee would like to review proposed lunar projects in advance of the February meeting. *We again stress the importance of National Academy evaluations of any lunar astronomy research in the context of other priorities for space science.*

#### *James Webb Space Telescope*

Phil Sabelhaus briefed the subcommittee on the status of the James Webb Space Telescope. JWST is the flagship mission for astrophysics and the top recommendation of the NAS astrophysics decadal report. We were pleased to see that the JWST project will likely complete all of its technical goals within the next several months.

#### *Hubble Space Telescope*

Preston Burch and Dave Leckrone briefed the subcommittee on the status of the Hubble Space Telescope. They report that they are on-schedule for SM4 servicing and are ready to carry out the full servicing mission. If the schedule for SM4 slips, this will increase the risk to HST and add additional costs to the astrophysics program. *The subcommittee encourages NASA to try to avoid further slips in the SM4 mission to mitigate the risks to the telescope and to avoid burdening SMD unnecessarily with non-science costs.*

In accordance with the decadal review recommendations, *the subcommittee recommends that the HST project begin development of a lean operations mode for post-SM4 operations.*

#### *Education and Public Outreach*

Min-Ying Wei briefed the subcommittee on EPO efforts within SMD and the recent changes in EPO support. Given the importance of NASA's efforts in Education and Public Outreach to develop the future workforce, and given that this area is undergoing

many changes within NASA and SMD, *the subcommittee recommends that a working group for EPO be established that includes, but is not limited to, representatives from each SMD division.*

### *SOFIA*

The subcommittee is concerned about the delays in science operations for SOFIA. In his briefing, Rick Howard reported that the current plan is to begin science operations in 2010 after a 3-4 year extended testing period. *The subcommittee encourages NASA to begin preliminary science operations as soon as possible during the testing phase. This is standard procedure at most observatories, and is often called "shared risk" observations.*

### *Senior Review for Extended Operations*

HST, Chandra and Spitzer telescopes will all hopefully continue operations past their planned mission lifetimes. While none of these large missions need to be evaluated in the near future, it would be useful to establish a fair and open process well in advance of these decisions. *The subcommittee encourages NASA to develop a process for evaluating the science return of extended flagship missions in a fashion similar to the senior review used for evaluating smaller missions.*

Sincerely yours,

David Spergel for the Astrophysics Subcommittee