

DRAFT — Presented for Discussion

OPAG Potential Findings 2011 Planetary Decadal Survey Planetary Science R & A and Infrastructure

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Answers to questions provided by Amy Simon-Miller from DS Steering Committee

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One or more of these findings may be submitted to the Planetary Science Subcommittee

- 1) OPAG strongly endorses the Decadal Survey (DS) committee recommendation that NASA increase the research and analysis budget for planetary science by 5 percent above the total finally approved FY2011 expenditures in the first year of the coming decade, and increase the budget by 1.5 percent above the inflation level for each successive year of the decade.
- 2) OPAG strongly encourages NASA to find ways (e.g., by merging related research programs and lengthening award periods) to increase average grant sizes and reduce the number of proposals that must be written, submitted, and reviewed by the outer planets research community.
- 3) OPAG strongly agrees that, for all future outer planets missions with durations longer than 5 years (beyond cruise phase), that there should be mechanisms, such as interdisciplinary scientist (IDS) or participating scientist (PS) competitions after instrument selection, to allow the most qualified scientists to be part of the mission even if they are not members of a selected instrument team. Particular attention should be paid to providing onramps (e.g., multiple PS calls) for including scientists that have completed their PhD during or after mission team selection on long duration missions.
- 4) OPAG agrees that it is crucial that NASA maintain the capabilities of the Planetary Data System (PDS). This is required both to provide a permanent archive of planetary data, and to provide a means of distributing and increasing usability of those data to the world at large. Furthermore, for future missions, Announcements of Opportunity (AOs) should mandate that instrument teams propose, be funded to generate, and deliver to the PDS derived products before missions have completed Phase E.
- 5) OPAG strongly endorses the Decadal Survey recommendations that all three DSN complexes should maintain high power uplink capability in X and Ka-band, and downlink capability in S, Ka, and X-bands. NASA should expand DSN capacities to meet the navigation and communication requirements of missions recommended by this decadal survey, with adequate margins. Furthermore, OPAG strongly encourages development of new high data rate communications technologies for outer planets exploration.
- 6) OPAG agrees that NASA must continue to play a major role in the support and use of Earth-based telescopes for outer planet studies. In particular, the following instruments and systems have been important for ongoing outer planet studies: the NASA Infrared Telescope Facility, the W.M. Keck Observatory, and the Goldstone, Greenbank, Arecibo, and the VLBA facilities. NASA should continue to provide support for the planetary observations that take place at these facilities and others as they come on-line (e.g., ALMA).

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- 7) OPAG agrees with Decadal Survey recommendations that additional funds to maintain and upgrade large, centralized supercomputing facilities at NASA centers will be required in the coming decade to support future outer planets missions.
- 8) OPAG agrees that NASA should begin supporting the Stratospheric Observatory for Infrared Astronomy (SOFIA) for outer planet studies, continue supporting the Hubble Space Telescope for outer planet studies, and continue to support the development of the James Webb Space Telescope so that it can support outer planet studies.
- 9) OPAG agrees with DS findings regarding NSF support for astronomy and astrophysics programs that potentially could support studies of objects in the outer solar system, particularly by the NOAO and Gemini Observatories. Additionally, OPAG supports the timely completion of the LSST, and supports the use of the LSST, Pan-STARRS, and future Extremely Large Telescopes (ELTs) for studies of the solar system, and the preservation of the capability of observing planetary objects by these instruments.
- 10) A vigorous program of education and public outreach is required to excite the world about outer planet exploration. Thus, OPAG strongly endorses NASA's informal guideline that a minimum of 1 percent (perhaps even more) of the cost of each mission be set aside from the project budget for education and public outreach activities.
- 11) OPAG recognizes the importance of theoretical modeling & laboratory studies to understand and interpret data from outer planets missions, and endorses Decadal Survey recommendations for continued R&A support for these studies through the Planetary Major Equipment Program, and the Outer Planets Research and other programs.
- 12) OPAG endorses establishment of a funding line to promote further use of suborbital observing platforms (e.g., balloons) for planetary observations (these would complement and reduce the load on the already over-subscribed Planetary Astronomy Program)
- 13) OPAG agrees with DS findings that recommend the expansion of NSF funding for the support of planetary science in existing laboratories, and the establishment of new laboratories as needs develop. This expansion would create a new avenue of much-needed additional support for laboratory-based planetary scientists.

NOTES to Bill McKinnon:

A) Here is a concern that one of the authors had, for your attention:

Hi Dave,

I still worry about a NASA-established group coming up with findings related to NSF. Although these findings are for NASA, the OPAG reports are posted online for all to see. I am worried that it will appear to NSF that a NASA-established group is trying to determine what NSF should do, and including findings about NSF might do more harm than good.

Kelly

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B) Here is another comment regarding point #6 and the inclusion of “Greenbank”:

“Greenbank” telescope is a NSF-funded facility. If included here, it must be for use in a NASA-funded, outer planets-related scientific study. I think Jean-Luc Margot’s proposed research qualifies as this, but you should make a judgement.