



The United States Planetary Science Decadal Survey 2009-11: Mission Studies

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The United States National Research Council (NRC, the working arm of the National Academies) is currently conducting, at the request of the National Aeronautics and Space Administration (NASA), a “Decadal Survey” of the planetary sciences. One of the tasks for the Survey committee and panels is to provide “A prioritized list of major flight investigations in the New Frontiers and larger classes recommended for initiation over the decade 2013-2022.”[1] To ensure credibility of the flight missions on this list, NASA is funding panel-requested mission studies of various types to generate accurate descriptions of the missions, which are then sent to an independent institution for generation of cost estimates.

The approach to mission studies taken by the previous and the current Planetary Science Decadal Surveys are somewhat different. Mission studies in support of the previous Planetary Science Decadal Survey [2] were almost exclusively “point design” studies, appropriate when a mission’s science priorities and most effective implementation approach are well defined and understood. The current decadal survey is placing more emphasis on establishing, when needed, that understanding and definition before undertaking point design studies. In some cases, only a limited number of aspects of a mission concept are not sufficiently well defined, so a full point design study is not warranted; instead, detailed study of the less mature aspects is a better approach. The recognition that a point design study is not the answer to every request for information about a mission concept motivated the current survey to consider multiple types of mission concept studies. The three primary types now being used include architectural-level studies, point design studies, and detailed studies.

The purpose of this paper is to provide a brief general description of the different types of mission studies being conducted in support of the 2009-11 US NRC Planetary Science Decadal Survey, and to describe their roles in the context of the overall survey effort. Because studies, discussions, etc. arising from the decadal survey are considered preliminary until publication of the survey’s final report, this paper will not discuss status or results of particular studies.

References

[1] NRC Space Studies Board, http://sites.nationalacademies.org/SSB/CurrentProjects/ssb_052412

[2] NRC Space Studies Board (2003), *New Frontiers in the Solar System: An Integrated Exploration Strategy* (first Decadal Survey Report), National Academic Press, Washington, DC.