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THE SPACE SCIENCE DECADAL SURVEYS: LESSONS LEARNED AND BEST PRACTICES

**Abstract**

Decadal surveys are a signature product of the U.S. Space Studies Board and provide community-consensus science priorities and recommendations for space and Earth science, to NASA and other government bodies. The surveys have a reputation as providing credible and unbiased science assessments and prioritization. Decadal surveys are carried out with a cadence of approximately 10 years for each discipline and involve a steering committee and panels, drawn from the broad community. Eleven decadal surveys have been published; the last four between 2007 and 2013. In 2014 the Committee on Survey of Surveys: Lessons Learned from the Decadal Survey Process was appointed with the task of: (1) providing a handbook to guide the organizers of future surveys and (2) identifying lessons learned from prior surveys and best practices. This paper will summarize the resulting report "The Space Science Decadal Surveys: Lessons Learned and Best Practices". The report identifies valuable aspects of decadal surveys, as well as some challenges future surveys are likely to face in searching for the richest areas of scientific endeavor, seeking community consensus of where to go next, and planning how to get there. Some of the highlights of the report are: There is no "one-size-fits-all" approach to a decadal survey; each discipline has heritage and science goals that cannot be directly mapped to any other group. However, there is also much in common. All surveys need to demonstrate that science is the prime motivator and develop a prioritization methodology that identifies the most important science areas where substantial progress can be made, which also means demonstrating to skeptics and partisans that favored activities or highly lobbied missions do not drive the survey's recommendations. Although the decadal surveys' record concerning issues relating to international collaboration and cooperation is good, this paper will summarize the steps the report notes could be taken to improve communication before and during a decadal survey. With increasing dependence on international cooperation, activities before a survey begins that facilitate interactions with international groups can be used to better coordinate discussions of shared science goals that can, and should, be pursued through international collaboration. The committee's report concludes that the decadal survey process has been very successful. Indeed, decadal surveys set a standard of excellence that encourages the hope that similar processes could be applied more widely across other science programs. While it has no major flaws the survey process can and should improve and evolve.