

NASA Planetary Mission Senior Review – 2022

Terms of Reference

Background

NASA conducts regular reviews of its operating science missions in order to assess their continued science productivity and whether their operations should be continued through approval of a mission extension. The NASA Authorization Act of 2005 (P.L. 109-155) states that “The Administrator shall carry out biennial reviews within each of the Science divisions to assess the cost and benefits of extending the date of the termination of data collection for those missions that have exceeded their planned mission lifetime.” The NASA Transition Authorization Act of 2017 (P.L. 115-10) modified the cadence to be triennial reviews. These reviews of operating missions are NASA’s highest form of peer review, as the subject is not a single science investigation, or even a single space mission, but rather a portfolio of operating missions. The reviews of operating missions are referred to as “senior reviews,” in recognition of the high level of the peer review. Reviews of NASA operating planetary missions now occur on a three-year cadence.

The purpose and scope of Planetary Mission Senior Review (PMSR) is to provide an independent assessment of science return and cost reasonableness of extending NASA’s operating planetary science missions. This assessment will be used by the Planetary Science Division (PSD) along with other inputs to balance science value and budget availability of extended missions within the broader context of PSD priorities. For each mission, PSD may choose to extend the mission as proposed, extend in modified form, or terminate the mission.

Missions Under Review

In 2022, NASA’s Planetary Science Division (PSD) will conduct a Senior Review of seven operating missions.

Mission	Current End Date
InSight	December 2022
MAVEN	September 2022
Mars Odyssey (ODY)	September 2022
Mars Science Laboratory (MSL)	September 2022
Mars Reconnaissance Orbiter (MRO)	September 2022
Lunar Reconnaissance Orbiter (LRO)	September 2022
New Horizons (NH)	September 2022
OSIRIS-REx (OREx)	September 2023

The PMSR will cover the three-year period FY23 - FY25 for these missions. The OREx mission will be reviewed well ahead of its current end date in order to plan a new tour after its departure from asteroid Bennu.

Review Lead

The PMSR review will be assembled and conducted by NASA's contractor, Agile Decision Sciences (ADS), and run by a designated Lead. A Deputy Lead (who may be a civil servant, although not from PSD management) will assist, and act as Lead for any mission for which the Lead has a conflict of interest or bias.

Call for Proposals

The Call for Proposals will define the timeline of the review process, the format of the proposals, the format of the review, and the evaluation criteria. A draft version of the Call, developed in consultation with NASA PSD management, will be distributed to all mission teams under review. Comments from the draft Call will be used as input into the final Call. The final Call will be released to the mission teams at least 90 days in advance of the proposal deadline.

Panel Membership and Review Structure

Seven Subject Matter Expert (SME) panels -- one for each mission -- will be convened as part of the PMSR. The PMSR SME panels will have approximately 6-10 members each. The membership will consist of authorities with relevant expertise in science, engineering, mission operations and data archiving drawn from government, academia, and/or industry. Each SME may serve on one or multiple panels. Each panel will be led by a Panel Chair. One or two reviewer(s), who between them will be members of all of the SME panels, will serve as the Review Chair(s) for the PMSR.

The review will be based on proposals submitted by the mission teams via NSPIRES, and presentations to be given to the SME panels in late 2021 or early 2022. NRESS will coordinate the review logistics.

A Final Report will synthesize the findings of each individual panel. The Final Report will be led by the Review Chair(s), with input from each of the Panel Chairs.

Reporting

The Final Report will be delivered by the Panel Chair(s) to the PSD Division Director (DD), who will be responsible for developing an implementation strategy for the mission extensions under review. Upon determination of the strategy, the PSD DD will inform the SMD Associate Administrator, and the Planetary Science Advisory Committee (PAC).

Independence from NASA PSD Management

The Lead and Deputy Lead will be appointed by NASA. They will conduct the review, consistent with the general principles for peer review set out in NASA SPD-22. The review panel membership selection and the preparation of the evaluations and Final Report will occur independent of NASA PSD management input.

The Lead will report to PSD's Associate Director for Flight Projects any significant matters of concern during the review, such as issues related to the Terms of Reference or the Call for Proposals.

PSD personnel such as mission Program Executives and Program Scientists may attend the review, but may not advocate for any missions during the presentations or panel deliberations. They may answer questions asked by the SME panels, or provide general programmatic comments.

Termination

These Terms of Reference will be terminated at the discretion of the DD following consultation with the SMD Associate Administrator, or in one year, whichever comes first.

Dr. Lori Glaze
Director, Planetary Science Division
NASA Science Mission Directorate

Date