Call for Proposals
2025 Planetary Mission Senior Review (PMSR25)

July 26, 2024

1. Overview

As required by Congress, NASA's Planetary Science Division (PSD) conducts periodic review of missions approaching the end of their authorized funding (End-of-Mission, EOM) to assess the opportunity and value of funding additional operations. The normal cadence for mission reviews is every three years.

PSD will hold its next Planetary Mission Senior Review (PMSR) in early 2025 to evaluate proposals requesting extended operations for FY26 through FY28. PSD missions that will reach the end of their current Prime Mission or Extended Mission (EM) operations by the end of FY25 will be reviewed at this PMSR.

The following missions are invited to submit proposals to be reviewed at the 2025 PMSR:

Mission	**Current EOM (EM#)**
Lunar Reconnaissance Orbiter (LRO)	September 2025 (EM5)
Mars Odyssey (ODY)	September 2025 (EM9)
Mars Reconnaissance Orbiter (MRO)	September 2025 (EM6)
Mars Science Laboratory (MSL)	September 2025 (EM4)
Mars Atmosphere and Volatile EvolutioN (MAVEN)	September 2025 (EM5)
Juno	2025 (EM1)

2. Proposal Overview

Missions should prepare a proposal which lays out clear prioritized science goals for the EM, and describes a plan to achieve those goals. Proposals may additionally describe data to be acquired and archived, but not analyzed by the team. Proposals may also describe programmatic activities to be performed during the EM.

3. Proposal Contents

i. Title Page (not in page limit)
ii. Table of Contents (not in page limit)

1. Executive Summary
2. Current Mission Status
3. Accomplishments During Current Cycle
    - The proposal should list the science objectives proposed for the current mission phase in the previous PMSR, and progress toward meeting those objectives (c.f. Table 1, Appendix A, plus any narrative).
    - For missions with an active Program Level Requirements Appendix (PLRA) in place for the current EM phase, the table should instead list those requirements, rather than the science objectives from the current phase.
4. Prioritized Extended Mission Science Objectives
    - Science Traceability Matrix (c.f. Table 2, Appendix A, plus any narrative)
        - The STM should link the goals and questions in the Decadal Survey to the goals, science objectives, and measurements to be taken during the EM.
5. Proposed Extended Mission Programmatic Objectives (optional)
    - This may include activities such as data relay for other NASA or international missions; science which advances the goals of NASA directorates beyond SMD; international cooperation; or other significant non-science activities.
6. Extended Mission Operational Plan
    - Proposal should present a plan to conduct the Extended Mission.
7. Mission Health and Risks
    - Proposals should clearly describe the health of the spacecraft and its possible degradation during the EM, as well as the impact of degradation on planning, operations, and science. Health factors to be considered include consumables (fuel, battery cycles, thruster pulses), power, radiation damage, and electronic or mechanical degradation.
8. Management Plan
    - Project organization and roles and capabilities of key personnel
        - Key personnel include PI / Project Scientist, Deputy PI / Deputy Project Scientist, Project Manager, and Science Team Leads / Investigation PIs.
9. Professional Development Plan (PDP)
    - Plan should describe progress toward meeting the goals of the current mission phase's PDP, and present a PDP for the proposed EM.
10. Data Archiving
    - Summary of archiving with the PDS during the current EM, including a description of any delays or variances from the PDMP.
    - The PDS will provide each review panel and mission with uniform metrics about PDS archiving; it is not necessary that the proposal replicate this information.

- Optional: Additional archiving or distribution via any public non-PDS archive may also be described.

11. Budget
    - Budget should include a table by WBS Level II per FY, and should include the previous three years (FY23/24/25) and the EM (c.f. Table 3, Appendix A). Any reserves should be listed and justified.
12. Overguide (OG) Requests (optional; up to 4 pages; does not count against page limit)

An appendix (no page limit) should be included, consisting of:

A1. Acronym List
A2. References
A3. Publications
- *Team Publications***.** List of relevant journal publications where the primary author is or was on the team when the work was performed, with summary table listing total publication counts per year.
- *External Publications***.** List of relevant journal publications where the primary author is not or was not on the team, with summary table listing total publication counts per year.
- Publications should include only peer-reviewed science journal articles and book chapters. Conference proceedings, general-audience articles, and engineering papers should not be included.
- Publications should include only those which are directly dependent upon mission data or results.

A4. Science Team
- Name, role, affiliation, and FTE of each science team member, with very brief descriptions of their science focus during the EM (*e.g.*, “Martian atmospheric chemistry”). Proposals should identify team members at or above the level of postdoc. Individuals not yet identified may be listed generally (*e.g.* “1 postdoc - aeronomy”).
- FTEs should be listed in fractions of a work year. The FTE level for each team member should be listed as the effort directly funded by the EM, plus any effort funded at no cost to NASA by institutions or other partners (*e.g.*, “0.5 + 0.25”). Individuals with total funded + unfunded effort < 0.03 FTE should not be listed.
- Members at international partner institutions should be included only if at the level of Co-I (or equivalent) and above; it is optional to list their FTE level(s).

A5. Project Data Management Plan (PDMP).
~~A6. Project Inclusion Plan (PIP).~~

No additional appendices or attachments are allowed.

4. Proposal Content Notes

Professional Development Plan (PDP)

NASA has a strong interest in developing the leadership and management skills of scientists who aspire to serve in leadership roles on future missions. Given the long cadence of planetary missions, it is important that developmental activities for future leaders be incorporated into the planning and decision processes for extended missions. NASA encourages proposals to include plans for training the next generation of mission leaders, such as future PIs / Project Scientists, Instrument PIs / Leads, and Science Team leaders. The PDP should identify roles and mentors for individuals to be trained, and describe a plan to build their skills and experience.

Budget Guidelines and Overguides

Each mission will submit a proposal that assumes a Guideline budget, with optional Overguides. The budgets will be developed cooperatively between the mission and the mission's assigned eomProgram Executive (PE) and Program Scientist (PS).

Missions may optionally make the case for one or more overguide (OG) requests, which offer to perform additional activities at a budget above the Guideline budget. OG requests are optional and must be of exceptional merit. Multiple OG requests may be listed within this section; the proposal should make clear any interdependencies between them.

This OG section should clearly state the benefit to NASA of the OG(s), in terms of additional science, additional data, reduced risk, or other benefits. The main 40-page proposal must stand alone without the OG section; the main proposal may refer briefly to the OGs but not describe them in detail. The OG section should include a clear description of the budget of the OG(s), and a budget table in the same format as the main proposal for the years covered by the OG.

For missions that expect to terminate during the EM timeframe, missions should assume six months of funding for science evaluation and closeout. The budget to support this closeout should be included and described in the proposal.

For missions that contain international contributions funded by non-NASA sources (e.g., instrument operations or science analysis), the proposal should describe clearly the contribution which any foreign partners will commit to the EM.

Project Data Management Plan (PDMP)

Each mission must describe a plan to archive all science data to NASA's Planetary Data System (PDS). Science data includes information that leads to scientific publication, and/or are reflective of

the data sets used by the mission team. Examples of science data include calibration data, derived data products, mission planning documents, user guides, navigation and pointing kernels, and ancillary data used for science investigations, in addition to observational data from science instruments.

The PDMP may follow the same format as each mission's current PDMP. The PDMP should be updated to reflect each mission's current status and practices, and describe data management through proposed mission closeout.

All data acquired during the proposed EM must be archived to the PDS in PDS4 format. If the mission is not currently delivering data in PDS4 format, the mission must include a clear timeline and plan for how it will transition to delivering data in this format during the EM. This plan should be coordinated with the lead PDS node(s) for the mission, and the mission's budget should include any costs associated with PDS4 deliveries of new data. Missions that are transitioning to PDS4 may initially archive data in PDS3 format, as long as all data from the EM is delivered in PDS4 format by the end of the EM. Missions may optionally deliver new data products in PDS3 format concurrent with PDS4, in order to support existing users.

Missions that have not done so already are encouraged, but not required, to develop a plan to deliver previous mission data, originally submitted in PDS3 format, to the PDS in PDS4 format. Funding for this optional component may be included as a budget OG.

NASA's 2021 *Science Information Policy for the Science Mission Directorate* ("SPD-41") provides details on requirements and best practices for archiving mission data. The PDMP must justify the reason for any variances from SPD-41.

NASA's 2022 *Science Information Policy for the Science Mission Directorate* ("SPD-41a") provides guidance regarding NASA's transition to "Open Science," including open sharing of data, publications, and software. Although compliance with SPD-41a is not required for PMSR25, missions may optionally choose to be compliant with any or all SPD-41a, and are encouraged to do so. Any additional cost for compliance with SPD-41a over SPD-41 may be included as a budget OG.

~~***Project Inclusion Plan (PIP)***~~

~~Inclusion is a core NASA value, as described in the NASA Administrator's policy statement on Diversity, Equity, Inclusion, and Accessibility (DEIA). NASA's Strategy 4.1 from Science 2020-2024: A Vision for Scientific Excellence states: "Increase the diversity of thought and backgrounds represented across the entire SMD portfolio through a more inclusive environment."~~

~~Proposals to PMSR25 should include a PIP which demonstrates a commitment to creating and sustaining a culture where DEIA principles are fundamental ways of working and being. Inclusion is~~

~~defined here as the full participation, belonging, and contribution of organizations and individuals. Inclusion is distinct and different from diversity. Inclusion requires that all individuals can participate fully, regardless of the diversity dimension, do their best work, advance their career, and feel welcomed, valued, connected, engaged, and supported to reach their full potential.~~

~~Missions should tailor their PIP specifically to the mission team, rather than to generic issues in the broader STEM community surrounding inclusion. If volunteers/citizen scientists are among the proposed investigators, the PIP should apply to those members as well. Activities within the PIP should be distinct from, and not solely focus on, public engagement efforts.~~

~~Missions are encouraged to leverage institutional resources when available. However, the plan should not include a restatement of policies of the institution; rather, it should provide a clear discussion of how these policies connect to the proposed investigation and team.~~

~~The PIP should:~~

- ~~Clearly state the goals for creating and sustaining a positive and inclusive working environment for the investigation team and describe activities to achieve such an environment;~~
- ~~Identify barriers to creating a positive and inclusive working environment that are specific to the team carrying out the proposed investigation;~~
- ~~Address ways in which the investigation team will work to attenuate or reduce these barriers;~~
- ~~Describe roles, responsibilities, and work efforts for PIP activities for team members with specific tasks in said activities;~~
- ~~Include a timeline for completing or carrying out proposed activities;~~
- ~~Contain a plan for evaluating progress towards achieving the proposed PIP activities or goals.~~

~~The assessment of the PIP will be based on these factors:~~

- ~~The extent to which the PIP provides appropriate processes and goals for both creating and sustaining a positive and inclusive working environment for the investigation team;~~
- ~~The extent to which the PIP demonstrates awareness of systemic barriers to creating inclusive working environments that are or may be specific to the proposal team;~~
- ~~The extent to which the PIP contains appropriate activities for equipping team members to build and maintain inclusive working environments;~~
- ~~The extent to which the roles and responsibilities for those participating in the proposed activities were well described and justified;~~
- ~~The reasonableness of the proposed timeline for the proposed PIP activities;~~
- ~~The extent to which the PIP provides reasonable and appropriate assessment mechanisms for measuring progress in and success of the proposed activities;~~
- ~~The reasonableness of the resources requested to execute the proposed activities and the quality and appropriateness of the justification for these resources.~~

~~Teams may request OG funding for expenses associated with the PIP, such as the hiring of experts and/or those familiar with inclusion best practices to advise on or oversee the proposed efforts. Any budget narrative should be presented within the PIP, and any budget details presented within the OG Requests section.~~

~~The PIP may be a maximum of 5 pages. The PIP will be assessed by individuals with practical and/or research expertise in DEIA topics. Feedback will be provided to the missions, but this assessment will not be a part of the mission's overall score for PMSR25, and will not affect the evaluation of the rest of the proposal.~~

~~Additional resources on DEIA initiatives are available from the Science Mission Directorate DEIA page, and recommendations from *Advancing Diversity, Equity, Inclusion, and Accessibility in the Leadership of Competed Space Missions*.~~

Exclusion: Communications Plans

Communications plans are not evaluated as part of the PMSR, and should not be included. Missions that are selected for extensions may be subject to a separate SMD communications review at a later date, as described in NASA's *Policy and Requirements for SMD Communications for Flight Missions* (SPD-26B). Although a communications plan is not being solicited for the PMSR, the proposed EM budget should include a communications budget based on activities described in each mission's existing communications plan and anticipated in the future EM.

5. Proposal Formatting

Each proposal is limited to 40 pages, 8.5" x 11" format, with 1" margins. Multiple-page foldouts are counted as multiple pages. Font for the main text and captions must be 12-point or larger. For text within figures and tables, the font size must be legible without magnification. Expository text necessary for the proposal may not be located solely in figures or tables, or their captions.

6. Proposal Submission

Proposals will be submitted through NASA's NSPIRES proposal system. Proposals will be submitted as a single PDF file containing all of the required components. No Notice-of-Intent (NOI) or Step-1 proposal is required. A redacted budget is not required.

7. Review Panel

NASA will assemble a review panel for each mission consisting of SMEs. The panel membership will consist of leading authorities with relevant expertise in science, engineering, mission operations

and data archiving drawn from government, academia, and/or industry. Each mission will be reviewed by a separate panel led by a Panel Chair; individual panelists may serve on one or more panels. Proposals will be evaluated on criteria related to scientific merit and technical capability by the review panels. Each mission will be evaluated independently, and missions will not be compared with each other by the review panels.

Two non-voting Review Chairs will oversee the review process, and produce a summary report which includes the full panel evaluations of each mission.

In advance of the review, the panels will give the mission teams written questions based on the proposals. The mission teams will answer these questions at the oral presentation.

Each mission may provide NASA with a list of suggested reviewers, and a list of up to three reviewers to be excluded. Suggested reviewers are most likely to be useful to NASA if they have minimal conflicts-of-interest with the missions under review during PMSR25.

In order to help NASA identify conflicted reviewers, each mission must provide NASA with a list of all science team members and their institutions at the level of Co-I and above, including those currently funded and those expected to be funded in the EM, before submission of the proposal (see Schedule).

8. Oral Presentation

Mission teams will make an oral presentation to the review panel. The presentation for each mission will be structured as follows:

- 15 minutes for EM proposal overview
- 5 minutes for updates since submission of the proposal
- 60 minutes to respond to panel's written questions
- 30 minutes for panel discussion (mission not present)
- 30 minutes for additional oral Q&A as needed

The review is not intended to provide a full oral presentation of the proposal contents. Presenters should assume the panel is familiar with the proposal, allowing the team and panel to focus on questions.

Each mission must supply NASA with a complete list of up to five presenters in advance of the presentation (see Schedule). No other team members may observe the presentation.

The role of the PE and PS at the panel will be limited to being present during panel discussions to answer programmatic questions posed by panelists.

9. Evaluation Criteria

Proposals will be evaluated based on factors related to both the proposed EM, and the performance of the mission and team in the current cycle. These criteria are classified as Primary and Secondary; the Primary criteria each carry a greater weight in the overall evaluation than the Secondary criteria. The evaluation criteria to be used are as follows.

Primary Criteria

- Intrinsic merit of the proposed science investigations to be undertaken during the EM.
- Responsiveness of the proposal to goals described in the Decadal Survey *Origins, Worlds, and Life: A Decadal Strategy for Planetary Science and Astrobiology 2023-2032*.
    - Missions may optionally also refer to goals in *Vision and Voyages for Planetary Science in the Decade 2013-2022* (2011), and/or *New Frontiers in the Solar System: An Integrated Exploration Strategy* (2003), depending on when the mission was originally proposed. The proposal should make clear from which Decadal Survey each goal is taken. Goals from later Decadal Surveys should be prioritized over earlier ones.
    - Proposals may mention goals from other Decadal Surveys (e.g., from other science divisions at NASA), but these will not contribute to the mission's evaluation.
- Capability of the spacecraft to achieve proposed science.
- Merit of any programmatic objectives.
- Scientific productivity of the mission team in the current phase.
- Performance of the mission team in archiving data to the PDS in the current phase.

Secondary Criteria

- Extent to which the science community beyond the mission science team utilizes data and conducts published research.
- Intrinsic merit of science data to be acquired and archived, but not analyzed.
- Demonstrated capabilities and expertise of key personnel.
- Expected effectiveness of the proposed PDP in training future mission leaders, and demonstrated progress toward the goals of the PDP in the current mission phase.
- Thoroughness and appropriateness of the PDMP, including any optional compliance with NASA's transition toward Open Science.

10. Review Findings and Notifications

A Final Report of all reviewed missions will be written by the Review Chairs. The Final Report and individual mission evaluations will be delivered to the NASA PSD Deputy Director. The Final Report will be posted publicly. The individual SME evaluations of each mission may be posted at the discretion of the Deputy Director. All missions will receive the Final Report and their panel evaluation in advance of their public release.

For missions that are selected for extensions, NASA will provide a Letter of Direction containing guidance for the EM.

11. Schedule

The following schedule is planned for PMSR25.

Draft Call for Proposals Issued to Missions	June 28, 2024
Draft Call Comment due	July 16, 2024
Final Call Released	July 26, 2024
Budget Assumptions to Missions	July 26, 2024
List of Science Team Members, Presenters, and Suggested + Excluded Reviewers, due to NASA (*)	September 6, 2024
Proposals Due	December 18, 2024
Questions to Missions (Panel Week 1)	January 17, 2025
Questions to Missions (Panel Week 2)	January 31, 2025
Panel Week 1: ODY / MSL / MRO	February 10, 2025
Panel Week 2: Juno / LRO / MAVEN	February 24, 2025
Panel Findings due to NASA	March 21, 2025
NASA Response and Direction to Missions	April 25, 2025

(*) To be submitted via email to PMSR Lead / Deputy Lead. List of presenters may be modified later with NASA concurrence.

12. Contact Information

For questions related to budget or planning, missions should contact their designated PS or PE at NASA HQ.

For questions related to the PMSR process or proposal format, please contact:

PMSR Lead Henry.Throop@nasa.gov
PMSR Deputy Lead David.J.Smith-3@nasa.gov

12. References

1. National Academy of Science (2023). *Origins, Worlds, and Life. A Decadal Strategy for Planetary Science and Astrobiology 2023-2032*.
2. National Academy of Sciences (2011). *Vision and Voyages for Planetary Science in the Decade 2013-2022*.
3. National Academy of Sciences (2003). *New Frontiers in the Solar System: An Integrated Exploration Strategy*.
4. NASA SMD (2020). *Policy and Requirements for SMD Communications for Flight Missions.* SPD-26b.
5. NASA SMD (2022). *Scientific Information Policy for the Science Mission Directorate, SPD-41a*.
6. NASA SMD (2021). *Science Information Policy for the Science Mission Directorate, SPD-41* [superseded by SPD-41a].
7. National Academy of Sciences (2022). *Advancing Diversity, Equity, Inclusion and Accessibility in the Leadership of Competed Space Missions.*

Appendix A. Templates

Table 1. Mission Accomplishments

#	Objective	Status	Comments
1		Completed; Not Completed; Expected to be Completed	
2			
3			

Table 2. Science Traceability Matrix

#	Decadal Survey Goal / Objective	Decadal Survey Question	EM Science Goal	EM Science Objective	Measurements	Instruments	Comments
1							
2							
3							

Table 3. Budget

	Current Phase [EM N]			Extended Phase [EM N+1]				
WBS Level II	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Delta**	**Comments [optional]**
01 - Project Management								
02 - System Engineering								
03 - Mission Assurance								
04 - Science								
05 - Payloads								
06 - Flight System								
07 - Mission Operations								
08 - Launch Vehicle / Services								
09 - Ground Data System								
10 - Integration and Testing								
11 - EPO / Comms								
PDS Costs								
Other NASA Costs								
Other #1								
Other #2								
UFE / Reserves								
Total NOA								
Guideline NOA								
Delta from Guideline								
Overguide #1								
Overguide #2								

- This template provides a framework to present the budget and may be modified as needed.
- All budget figures should be in terms of New Obligation Authority (NOA) for that fiscal year, in real-year $K.
- It is not necessary to split costs by NASA center vs. JPL, etc.
- Delta = (FY26 + FY27 + FY28) - (FY23 + FY24 + FY25)
- Empty rows [$0] may be deleted.

Change History

- **June 28, 2024** Draft Call released for comment
- **July 26, 2024** Final Call released
- **June 6, 2025** Text updated (strikethroughs) as Inclusion Plans were not evaluated