

National Aeronautics and Space Administration

**Headquarters**

Washington, DC 20546-0001

September 13, 2018

Reply to Attn of: SMD/Director, Planetary Science Division

**MEMORANDUM FOR THE RECORD: PLAN FOR THE 2019 PLANETARY MISSION SENIOR REVIEW**

This memo documents the plan for the 2019 Planetary Science Senior Review of Operating Missions, consistent with Section 5.8.1.1 of the SMD Management Handbook. This memorandum has been updated for schedule due to the Federal government shutdown, the loss of operations of the Opportunity rover, and subject matter panel construction to avoid Mars community conflicts of interest.

**1. Missions in the 2019 Planetary Science Senior Review**

This plan covers all missions that will be operational but beyond their prime mission at any time during the upcoming 5-year PPBE period (FY20-FY24). There are seven missions that are subject to the 2019 Planetary Mission Senior Review (PMSR)<sup>1</sup>. In alphabetical order, these are the:

- Lunar Reconnaissance Orbiter (LRO)
- Mars Atmosphere and Volatile Evolution (MAVEN)
- Mars Exploration Rover (MER - Opportunity) – terminated due to spacecraft battery failure
- Mars Express (MEX)
- Mars Odyssey (MO)
- Mars Reconnaissance Orbiter (MRO)
- Mars Science Laboratory (MSL - Curiosity)

There are four missions that are not subject to the 2019 PMSR. In alphabetical order, these missions (and the end of their prime mission) are:

- InSight – Prime mission extends to December 2020. A special Senior Review will be conducted in spring/summer of 2020 to align Juno with the 2022 PMSR.
- Juno – New prime mission approved in April 2018 ends at the beginning of 2022 [spacecraft slated for disposition in July 2021]. Juno will participate in the special Senior

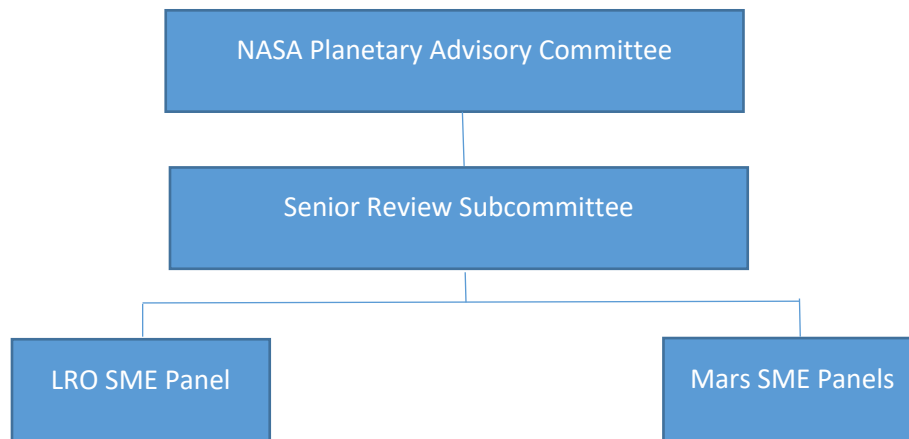
Review conducted in spring/summer of 2020, along with Insight and New Horizons, to align with the 2022 PMSR.

1 – MER/Opportunity was exempted from this review after its battery discharged, resulting in termination of the mission.

- New Horizons – Extended Mission – 1 ends at the end of 2021 [spacecraft science ops run through April 2021 when the s/c reaches 50 AU]. New Horizons will participate in the special Senior Review conducted in spring/summer of 2020, along with Insight and Juno, to align with the 2022 PMSR.
- OSIRIS-REx –Prime mission ends late 2023 with sample return to Earth; potentially subject to 2022 PMSR depending on spacecraft bus and instrument health after sample return capsule release.

## 2. Panel Composition and Scope

The 2019 Planetary Mission Senior Review will adopt a hybrid structure (see figure), in which multiple individual panels report to a Senior Review Subcommittee, which will be established under the Planetary Advisory Committee, compliant with FACA. NASA has subcontracted the assembly and conduct of the individual Subject Matter Expert (SME) panels to Arctic Slope Technical Services (ASTS).



### 2.1 The LRO Panel

There will be an individual panel for LRO, separate from the Mars Panels, because of the differences in scope and complexity of their operations. LRO will be reviewed in a single panel that will be charged with evaluating it on the basis of its scientific merit, its value to the Lunar Discovery and Exploration Program/NASA's Lunar Exploration campaign, its relevance and responsiveness to the Division's and Agency's strategic goals, and its technical capability and cost reasonableness.

Panel

### 2.2 The Mars Panels

Chandra Panel Hubble Panel SOFIA Panel

The remaining missions (MAVEN, MEX, MO, MRO and MSL) are all part of the Mars Exploration Program, and will be reviewed in individual panels that will be charged with evaluating them on the basis of their scientific merit, their value to the Mars Exploration Program, and their relevance and responsiveness to the Division's and Agency's strategic goals, and their technical capability and cost reasonableness. The individual panels are necessary to allow for conflict-free panel membership due to the tight programmatic coupling of all Mars missions.

### **2.3 The Senior Review Subcommittee**

The Senior Review Subcommittee will be established under the Planetary Advisory Committee (PAC), and will operate in compliance with FACA. Its principal role is to merge the findings from each of the individual panels, and to rank those missions which were evaluated on the basis of their scientific merit, their value to the relevant Program, their relevance and responsiveness to the division's and Agency's strategic goals, their technical capability, and cost reasonableness. The Senior Review Subcommittee will provide a series of findings to assist with the Planetary Science implementation strategy for FY20-FY24, including an appropriate mix of:

- Continuation of projects at their in-guide level up to end of FY22 max, with up to six months of science close-out;
- Continuation of projects with enhancements/reductions to their in-guide budgets;
- Mission extensions beyond the prime mission phase; and/or,
- Termination of projects.

The membership of the Senior Review Subcommittee will be drawn from the Planetary Science community. It will report to the PAC, and will not provide advice or work products directly to NASA. It will also avoid influencing, in any way, the individual SME panels during the conduct of the review and the SME deliberations. The Subcommittee Chair will report on the Subcommittee's recommendations and findings, as well as its work products, for public deliberation by the PAC. The final report of the Senior Review Subcommittee is a deliverable to the PAC.

### **2.4 The NASA Planetary Advisory Committee (PAC)**

The PAC is responsible for approving the Terms of Reference (TOR) for the Senior Review Subcommittee. After public deliberation of the Senior Review Report delivered to it by the Senior Review Subcommittee, the PAC will deliver a final report to NASA reflecting its formal recommendations to NASA, as well as append an unedited copy of the Senior Review Subcommittee's report.

### **3. Schedule**

The notional schedule is as follows:

September 2018:	PAC approves Terms of Reference for the Senior Review Subcommittee
October 2018:	Establish Senior Review Subcommittee, including appointment of subcommittee members compliant with FACA
October 2018:	Draft call for proposals issued
January 2019:	Final call for proposals issued
March 2019:	Senior Review proposals due
May 2019:	SME Panels meet
May 2019:	Reports from panels due to Senior Review Subcommittee
May 2019:	Senior Review Subcommittee meets and reports to PAC
June 2019:	PAC delivers formal recommendations to NASA

### **4. Communications Plan**

This memorandum, the Senior Review Subcommittee TOR, and the entire call for proposals will be posted on the PAC website hosted by the Lunar and Planetary Institute .

All decisions will be briefed to the SMD Associate Administrator and others, as appropriate based on the decisions made, before direction is provided to missions.

The Planetary Science Division Director will issue direction to each mission. For those missions that are granted mission extensions, a plan and budget will be approved for FY20-22, with preliminary direction for FY23-24. The missions will be provided with a Letter of Direction containing decisions and directions. The Senior Review Subcommittee report and relevant Panel report will be attached.

The PAC report, Senior Review Subcommittee report, and all final Panel reports will be posted on the PAC website hosted by the Lunar and Planetary Institute.

The Planetary Science Division Director will approve a white paper on "NASA's Response to the 2019 Planetary Mission Senior Review." The NASA response will be posted on the PAC website hosted by the Lunar and Planetary Institute.

If any missions are proposed for termination, a communication plan will be established with Agency leadership, the Office of Communications, the Office of Legislative Affairs, and other stakeholders.

Submitted

---

Lori Glaze  
Director, Planetary Science Division

---

Date

Concurred by the SMD Science Management Council on September 13, 2018.

Approved

---

Thomas Zurbuchen  
Associate Administrator, SMD

---

Date