

Mars Exploration Program Analysis Group (MEPAG)

MEPAG Executive Committee¹ (MEPAG Chair: Jeffrey R. Johnson, JHU/APL)

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The MEPAG focus

The planetary science community is currently looking towards development of the next Decadal Survey, which will identify the top planetary science objectives for 2023-2032.

- In preparation for the last Decadal Survey [1], the community was asked for white papers detailing specific areas of scientific, programmatic, or strategic interest. Additionally, a limited number of mission concepts were studied in greater detail, with some including an independent cost analysis. These inputs were considered by the Decadal Survey committee when compiling their scientific objectives and mission priorities.

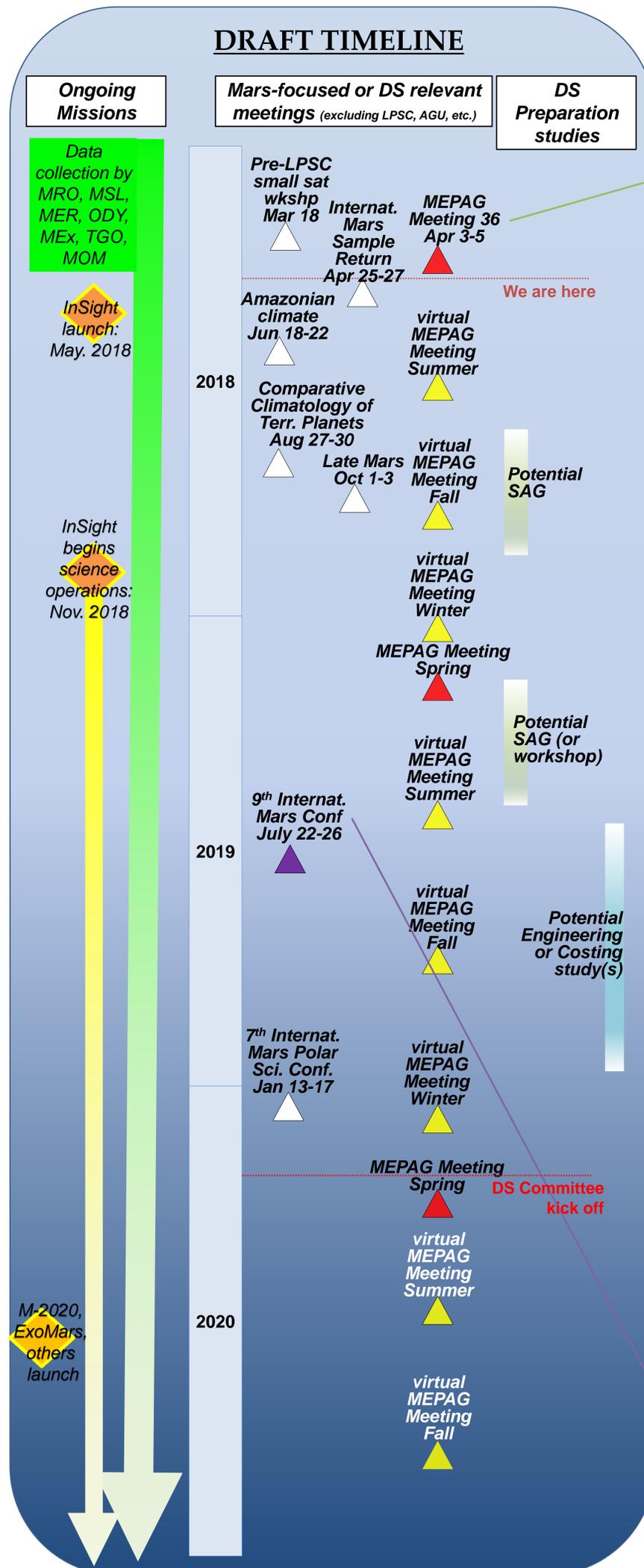
- From a MEPAG perspective, the return of samples to be prepared by NASA's Mars 2020 rover continues to be a priority. However, there is also a strong pool of concepts for (1) competed missions (including potential New Frontiers candidates), (2) small satellite missions enabled by strategic mission launch capabilities, and/or (3) follow-on flagship capabilities that build on the extraordinary discoveries of past and ongoing missions, as well as new technological developments. *This poster focuses on current plans with respect to these concepts, and potential MEPAG studies that could advance them.*

- In addition to the MEPAG efforts outlined here, MEPAG also aims to enable and facilitate community member discussion and collaboration, for individual-led efforts (such as white papers, should those again be requested).

How to learn more:

- Come to the Thursday lunch meet-and-greet with MEPAG leadership, at LPSC (Shenadoah room)! This is an opportunity to speak with MEPAG Executive and Goals Committee members, as well as Mars Program Office staff. Information about the general MEPAG structure and plans information will also be available.
- Check out mepag.jpl.nasa.gov for past MEPAG studies/documents, Committee membership, and the monthly newsletter.
- Sign up for the MEPAG email list via email: mepag-signup@jpl.nasa.gov.
- Community comments are always welcome and can be sent directly to a member of the MEPAG Committees [2] or to the Mars Program Office at MEPAGmeetingqs@jpl.nasa.gov.

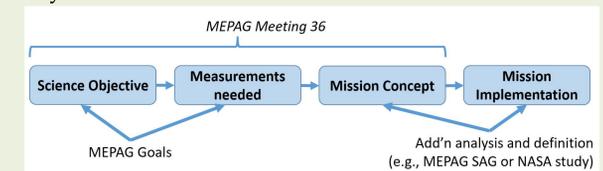
References: [1] 2013-2022 Decadal Survey. [2] MEPAG "About Us" webpage: <https://mepag.jpl.nasa.gov/about.cfm>. [3] MEPAG Meeting webpage: <https://mepag.jpl.nasa.gov/meetings.cfm>. [4] MEPAG (2015) Mars Scientific Goals, Objectives, Investigations, and Priorities: 2015, 74 p., <http://mepag.nasa.gov/reports.cfm>. [5] 8th International Conference on Mars program: <https://www.hou.usra.edu/meetings/8thmars2014> (in particular the Synthesis presentation under <https://www.hou.usra.edu/meetings/8thmars2014/presentations/>). [6] 9th International Conference on Mars website: <https://www.hou.usra.edu/meetings/ninthmars2019/>.



PRIME MEPAG EFFORTS

Identification of high-priority science concepts and questions that could be addressed in parallel with or after Mars sample return:

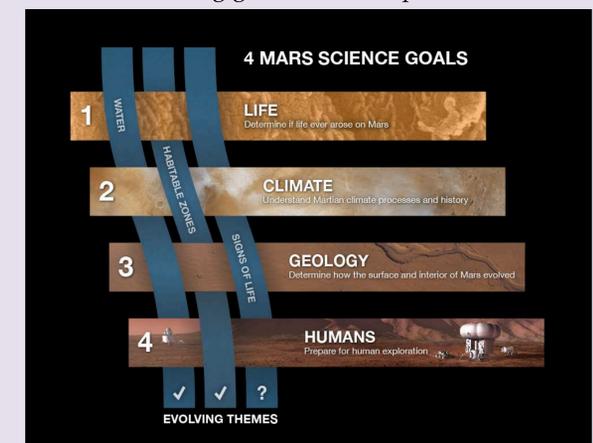
- The first event related to this aim will be a forum during the upcoming face-to-face MEPAG Meeting 36 (April 3-5, 2018) [3], where we aim to help the community discuss and identify mission objectives and concepts that address high-priority Mars science questions, with an emphasis on the science that can be achieved over the next two decades. In particular, we are interested in concepts that address high-priority science questions that could be addressed in parallel with or after Mars sample return. >20 concepts have been submitted by the community and will be discussed.



- Based on the MEPAG meeting 36 forum "community brainstorming session," other discussions, and Mars-relevant workshops, MEPAG could coordinate one-to-a few workshops, studies, or other steps (e.g., topical white papers) aimed at generating the depth and breadth of information needed for a concept to be considered by the next Decadal Survey committee. For example, this could include work to mature a specific mission or instrument concept in engineering and/or costing, or generation of the inputs needed for an engineering or costing study.
- These concepts could cover any mission class, from small sat/secondary payloads up to potential New Frontier candidates.

Goals Document revisions:

- MEPAG updates goals, objectives, investigations and required measurements for robotic and human exploration of Mars in response to new discoveries and directions on the basis of the widest possible community outreach. This information is recorded within the MEPAG Goals Document [4], which is compiled and periodically updated by the MEPAG Goals Committee that consists of representatives [2] covering the four overarching goals for the exploration of Mars and its moons:



- These updates are motivated by new science results/discoveries and new missions. The last revision resulted in the 2015 Goals Document [4], which was motivated by science results and discussion at the 8th International Conference on Mars in 2014 [5].
- Currently a revision is underway regarding how Mars Polar Science questions and priorities are reflected within the MEPAG Goals Documents (to be discussed at MEPAG Meeting 36 [3]).
- A full-document revision is planned for fall of 2019, following the 9th International Conference on Mars [6]. This revision would yield the MEPAG Goals Document delivered to the 2023-2032 Decadal Survey committee in spring 2020.