

NASA Mars Architecture Strategy Working Group (MASWG) Status

Bruce Jakosky (MASWG Chair)

Presentation to MEPAG Virtual Meeting

17 April 2020

Community Perspective, Issues, And Concerns Relevant To MASWG

- Currently no Mars missions approved beyond Mars 2020
 - Completion of Mars Sample Return anticipated to happen this decade
 - NSYT in primary mission; ODY, MRO, MVN, MSL all in extended mission and providing valuable science and programmatic support
 - Valuable synergies with MEx, TGO, ExoMars, EMM
 - Obvious budget issues
- Recognition that MSR will provide in-depth look at many issues, at a single location
 - There is a need to extrapolate to global properties and history to put results in context
 - Many important scientific questions not addressed by MSR
- At risk of losing benefits of having an integrated, coherent program
 - Mars Program is broader than just individual missions – examples include technology feed forward, synergies between missions, comm relay, landing-site analysis
 - Mars exploration has benefitted tremendously from taking the long view, as captured in Goals/Objectives document, easily understood overarching science objectives, synergistic science goals
- MASWG is looking at non-MSR science justification, concepts for missions in different size classes that can address that science, and the roles of a Program in doing so
 - Input to be provided to NASA HQ, Decadal Survey
 - Not within our purview but asked by the broader planetary community – what is justification for Mars having a dedicated program?

MASWG Next Steps

MASWG Meeting April 20-22

- Subgroups have been drafting findings on particular topics
- Draft findings to be discussed and consensus achieved on major items
- Follow-up writing and augmentation as needed.

Anticipated Vetting of Results

- Preliminary report (ppt version) to be released for input and feedback
 - External review by selected members of the Mars community (science, programmatic, engineering/technology)
 - Brief to Mars program at NASA HQ and JPL
 - Brief to MEPAG (probably via a virtual meeting + web mechanism to allow written feedback)
- Will provide results to Planetary Decadal Survey Steering Committee and relevant sub-committees

MASWG Charter

The tasks to be addressed are:

- Determine what could and should be done beyond (i.e., in addition to or after) the Mars Sample Return campaign.
- Survey the compelling science addressable by various classes of missions during the period 2020-2035, building on the science goals outlined in *Vision & Voyages* and updated in the *MEPAG Goals Document*.
- Define mission candidates in various mission classes to guide future MEP planning including, but not necessarily restricted to, missions in the small-spacecraft, Discovery, and New Frontiers categories, which may also be considered by the upcoming Planetary Decadal Survey (2023-2032).
- Define strategic technologies, infrastructure, and partnerships (international and commercial) that can enable compelling science in the specified time horizon, showing their programmatic linkage.

MASWG Membership

- Bruce Jakosky, CU/LASP (chair)
- Shane Byrne, U. Arizona
- Wendy Calvin, U. Nevada Reno
- Shannon Curry, UC Berkeley
- Bethany Ehlmann, Caltech
- Jen Eigenbrode, NASA/GSFC
- Tori Hoehler, NASA/Ames
- Briony Horgan, Purdue
- Scott Hubbard, Stanford
- Tom McCollom, CU/LASP

- Jack Mustard, Brown U.
- Than Putzig, PSI
- Michelle Rucker, NASA/JSC
- Michael Wolff, Space Science Inst.
- Robin Wordsworth, Harvard U.

Ex Officio:

- Michael Meyer, NASA HQ
- Rich Zurek, Mars Program Office, JPL

Schedule and Status

- Overall schedule
 - Planning meeting, 21-23 October 2019
 - First in-person meeting, 28-30 January 2020 (delayed due to contract execution issues)
 - Second (virtual) meeting, planned 20-22 April 2020
 - Powerpoint presentation of preliminary results, expected May/June 2020
 - Full written version of final report, expected August 2020
- Status
 - “One-pagers” on mission concepts submitted at end of November 2019; ~50 were submitted and discussed in detail at January meeting
 - Received briefings on key programmatic, technology, mission, science issues