NASA Mars Architecture Strategy Working Group (MASWG) Status

Bruce Jakosky (MASWG Chair)
Presentation to MEPAG Virtual Meeting
17 April 2020

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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 feedback, 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