

NASA Advisory Council Subcommittee Recommendation

Subcommittee Name: Planetary Science

Chair: Sean Solomon

Date of Public Deliberation: 9 January 2009

Date of Transmission to Science Committee: 21 January 2009

Short title of the proposed Recommendation

Cancellation of the Mars Science Laboratory mission is not warranted.

Short description of proposed Recommendation

The PSS is of the unanimous view that the option to cancel the Mars Science Laboratory (MSL) mission at this time is not warranted on either scientific or technical grounds.

Major reasons for proposing the Recommendation

The Mars Exploration Program has been very successful over the past decade with its strategic and competed missions designed under the theme of “Follow the Water.” The major reservoirs of near-surface water are now well delineated on a global scale. The interaction of water with the surface and interior is recorded in the mineralogy of water-bearing minerals that define the history of this interaction. Recent landed and orbital spacecraft have revealed over a dozen unique assemblages of geology and aqueous mineralogy that are highly promising targets to explore for habitability. The next steps in exploring Mars are to assess analytically the habitability of such promising sites.

MSL will carry ten instrument packages and has the overall science objective to explore and quantitatively assess a region of Mars as a potential habitat for life, past or present. The SkyCrane system provides mass savings that will enable a greater proportion of delivered mass to be devoted to instrument payload. With an instrument complement that will include the capability to detect and measure organic compounds, MSL will characterize the nature of current and ancient Martian environments and will constitute the first astrobiology mission since Viking.

Consequences of no action on the proposed Recommendation

In the absence of this recommendation, a decision to cancel the MSL mission in the near term, without additional consultation with the planetary science community, would be contrary to the most recent community recommendations. Such an action would gravely reduce the confidence within the science community in future commitments by the agency to proceed with any major space mission.