



Smithsonian
National Air and Space Museum

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Dr. Michael Meyer
Mars Program Scientist
NASA Headquarters
300 E Street SW
Washington, DC 20546

Dr. John Grotzinger
Project Scientist
Mars Science Laboratory Mission
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109

Dear Michael and John:

The MSL Landing Site Steering Committee met on Friday, December 11, 2009, to discuss seven additional candidate landing sites for MSL that were submitted in response to our recent call. Of the 16 members of the Steering Committee, 14 were able to participate in the teleconference or to vote their preferences *in abstentia*. The additional candidate sites are: 1) Nili Carbonate outcrops (21.7N, 78.8E), 2) a diverse assemblage of minerals straddling the Noachian-Hesperian boundary in NE Syrtis (16.7N, 76.9E), 3) a delta deposit in a crater in Xanthe Terra (2.3N, 309E), 4) chloride and phyllosilicate deposits in east Margaritifer Terra (5.6S, 353.5E) and 5) Ladon basin (18.8S, 332.5E), 6) ice within a crater in Vastitas Borealis (70.5N, 103E), and 7) the floor of Valles Marineris (3.8S, 324.6E).

The objective of the Steering Committee meeting was to evaluate these new sites relative to the four existing sites (Eberswalde, Gale, Holden, and Mawrth). A key aspect of this process was to have the Steering Committee assess whether any of the new sites are as or more compelling scientifically and as safe as the four existing sites. This was interpreted by the Committee to mean sites had to be *potentially* as or more compelling due to varying existing coverage of high spatial and spectral resolution data sets available for their evaluation. The highest merit sites are recommended by the Committee for additional targeting by Mars Reconnaissance Orbiter (MRO) and Odyssey (ODY). Sites passing the initial evaluation will be subject to a more comprehensive evaluation that will include interpretation of new orbital data collected between now and May or June, 2010. At that time, the Steering Committee will recommend whether one additional site may be added to the list of four landing sites currently being considered for MSL.

The teleconference on December 11th included briefings by MSL project science and engineering personnel and emphasized discussion of the science merit of the sites. There

was also considerable discussion of landing site safety based initial evaluation of thermal inertia, slopes, and other first order safety parameters. Two of the sites, Vastitas Borealis and the floor of Valles Marineris were declared outside the bounds of existing safety requirements for MSL because of far northern latitude and planetary protection issues related to access to ice for Vastitas Borealis and for concerns about slope winds near the wall of Valles Marineris, a paucity of mineralogical indicators, and the length of the proposed traverse in Valles Marineris.

There was good discussion of each of the remaining five additional candidate sites and there was a clear consensus that the NE Syrtis and East Margaritifer chloride were the top ranked sites for most of the Steering Committee. When asked which, if any, were potentially as or more compelling than the existing four sites when information on science and safety were convolved, the NE Syrtis site received eight votes and the eastern Margaritifer Terra chloride received five votes. For those individuals feeling two sites met the criteria to advance, these same two sites represented all of the second place votes. The Nili Carbonate site was also viewed to be interesting, but not as intriguing as the nearby NE Syrtis site, especially when concerns about widespread eolian bedforms within the ellipse were considered. Several members of the Steering Committee felt that although the new sites were interesting, none were as or more compelling than the existing sites with existing data. It should be noted that one of the first place votes and one second place vote for the East Margaritifer chloride site was contingent on the site being non “go to”, which appears feasible with existing data.

Because there was a strong consensus on the NE Syrtis and East Margaritifer chloride sites, the Steering Committee recommends that both go forward for additional imaging by MRO and ODY so that a more comprehensive assessment of their merits relative to the existing sites can be made in May or June of 2010. The other sites, while scientifically interesting, are not recommended for additional imaging as candidate landing sites.

Please let us know if you have any questions regarding these recommendations.

On behalf of the MSL Landing Site Steering Committee,



John Grant



Matt Golombek