

authors working on cross-disciplinary topics or reaching outside their own research fields to ensure that they use basic terminology accurately. We also encourage reviewers and editors of scientific journals receiving manuscripts to be more rigorous in following up on the use of appropriate scientific terminology for basic physical processes.

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MEETING

New Concepts and Tools for Geological Mapping of Mars

Geological Mapping of Mars: A Workshop on New Concepts and Tools; Tuscany, Italy, 12–14 October 2009

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Geological mapping is a key tool for understanding the evolution of any planetary surface. The availability of ever growing data sets (e.g., multispectral and hyperspectral imaging and subsurface radar sounding) requires increasing effort in analyzing, integrating, and exploiting them for mapping purposes.

To discuss these issues, about 80 planetary geoscientists gathered in Italy at a workshop co-organized by the Italian Space Agency (ASI), the International Research School of Planetary Sciences (IRSPS), and the U.S. Geological Survey (USGS). The workshop focused on both data and concepts and covered a range of scientific and technical topics.

At the workshop, the importance of new data sets acquired by recent and currently orbiting Mars missions as the basis for revising previous geological mapping was

stressed. Participants agreed that new mapping should involve the use and integration of hyperspectrally based surface compositional data, radar sounding-based subsurface data, topography, and imagery at multiple resolutions for describing and defining mappable geological units and other features and their relations in space and time.

Participants also pointed out that methodology, standards, and symbolization should be periodically updated to match the scientific and technical state of the art, keeping in balance standardization and scientific freedom and flexibility in mapping. Moreover, the long-standing issue of geomorphic versus geologic mapping should be tackled: How much geomorphology should be allowed in planetary maps and in the definition of geological units?

Geological mapping also provides important information for landing-site selection and characterization for current and future missions. Participants noted that diverse

data sets can be integrated via thorough mapping, providing constraints on landing-site settings and potential risks. The importance of terrestrial analog mapping (from the scientific, technical, engineering, and procedural points of view) was also pointed out during the workshop.

Finally, a strong recommendation of the workshop is the need for coordination between current and future USGS mapping programs and newly emerging European geological mapping efforts, such as the ongoing Planetary Geographic Information System (PAGIS) program of the Italian Space Agency. The creation, implementation, and availability of mapping infrastructures and services can greatly improve the scientific exploitation of mission data. Participants noted several areas that would benefit by coordinated work, including cartographic and technical standards, symbology, and scientific outcome. Renewed efforts in geological mapping using state-of-the-art data sets, tools, and concepts will constitute the foundation for future international exploration of Mars.

A more extended summary of the plenary discussion, compiled by chairpersons, along with a list of sessions and session chairs, is available on the workshop wiki (<http://www.irspis.unich.it/education/mapping09/wiki>).

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