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THE NEED FOR INTERNATIONAL PLANETARY CARTOGRAPHY PLANNING AND COOPERATION

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Cartography is fundamental to planetary science and as such, a lack of appropriate consideration of this foundation can have and has had serious and expensive consequences to both the scientific return from planetary missions and the safety of future lander missions. In this abstract we highlight the need for, and recommend cooperative planning of, such cartographic work at the national and international level.

In an effort to support the planetary exploration initiatives of the various spacefaring nations, we detail specific negative consequences of not properly accounting for cartographic constraints during mission planning and execution. We will also pose several unanswered questions that must be addressed before new exploration efforts should commence.

To assure the best possible return on space exploration investments, we recommend that the following planetary cartographic issues be considered: 1. Adequate resources for mapping at all stages from mission design through calibration, operations, development of processing algorithms and software, and processing to archiving; 2. Easy access to data sets and metadata from all nations; consistent (or at least well-documented) data formats; consistent cartographic standards; 3. Cooperation and support leading to the joint analysis of data sets from many nations, in turn leading to integration in a single cartographic coordinate framework at known accuracy levels, and the ability to leverage the powerful synergistic value of multiple data sets. Possible actions that could be taken to achieve these goals will also be presented.