

NASA Lunar and Planetary Mapping and Modeling

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NASA's Lunar and Planetary Mapping and Modeling Portals provide web-based suites of interactive visualization and analysis tools to enable mission planners, planetary scientists, students, and the general public to access mapped lunar data products from past and current missions for the Moon (<http://moontrek.jpl.nasa.gov>), Mars (<http://marstrek.jpl.nasa.gov>), and Vesta (<http://vestatrek.jpl.nasa.gov>). New portals for additional planetary bodies are being planned, including a new Phobos Trek portal currently in development. This presentation will recap some of the enhancements to these products during the past year and look forward to the results of the exciting work currently being undertaken.

Additional data products continue to be added to the Moon Trek portal. These include both generalized products as well as polar data products specifically targeting potential sites for the Resource Prospector (RP) mission. Note that these RP-targeted areas are also of significant interest to a number of planned and potential missions looking at the abundance and sequestration of lunar volatiles. New enhancements are being made to Moon Trek's crater analysis tool. A new path tool for traverse planning is in the works and a surface potential analysis tool is being planned. Current development work on Moon Trek also includes facilitating mission planning and data management for lunar CubeSat missions. In terms of data management, Moon Trek can provide an especially attractive option for missions being developed under newer very low-cost constraints. Looking ahead, Moon Trek will partner with the NASA Astromaterials Acquisition and Curation Office to integrate with their Lunar Apollo Sample database in order to help better visualize the geographic contexts from which samples were retrieved.

Mars Trek, the project's Mars portal, has now been assigned by NASA's Planetary Science Division to support site selection and analysis for the Mars 2020 Rover mission as well as for the Mars Human Landing Exploration Zone Sites. This effort is concentrating on enhancing Mars Trek with data products and analysis tools specifically requested by the proposing teams for the various sites. Also being given very high priority by NASA Headquarters is Mars Trek's use as a means to directly involve the public in these upcoming missions, letting them explore the areas the agency is focusing upon, understand what makes these sites so fascinating, follow the selection process, and get caught up in the excitement of exploring Mars.

The project is currently working with the International Phobos/Deimos Landing Site Working Group and other potential partners to produce a Phobos Trek portal with site selection for the MMX mission being a major driver. Initial implementation will draw from existing data products from missions ranging from Viking to MEX. As the International Phobos/Deimos Landing Site Working Group produces new map gridded global UV, visual, color, IR, temperature, hazard, etc. products, we will make the Phobos Trek portal ready for quick ingestion, visualization, and dissemination of this new data.

The portals also serve as outstanding resources for education and outreach. As such, they have been designated by NASA's Science Mission Directorate as key supporting infrastructure for the new education programs selected through the division's recent CAN. The presentation will provide an overview of the current status of these products and solicit input for future development.

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