

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Open Space: Participatory Space Education and Outreach (8)

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PUBLIC OUTREACH WITH NASA LUNAR AND PLANETARY MAPPING AND MODELING

Abstract

The Lunar and Planetary Mapping and Modeling Program produces a suite of interactive visualization and analysis tools. The program is managed by NASA's Solar System Exploration Research Virtual Institute and developed at NASA's Jet Propulsion Laboratory. These tools enable mission planners, planetary scientists, and engineers to access mapped data products from a wide range of instruments aboard a variety of past and current missions, for a growing number of planetary bodies. While originally initiated for mission planning and science, this technology has demonstrated great benefits for public outreach. As a component of NASA's Science Outreach and Education Infrastructure, they are available as resources for NASA Outreach and Science Education programs, and to the greater outreach and education community. As new missions are being planned to a variety of planetary bodies, these tools are facilitating the public's understanding of the missions and engaging the public in the process of identifying and selecting where these missions will land.

There are currently three web portals in the program available to the public: the Lunar Mapping and Modeling Portal or LMMP (<http://lmmp.nasa.gov>), Vesta Trek (<http://vestatrek.jpl.nasa.gov>), and Mars Trek (<http://marstrek.jpl.nasa.gov>). More portals for additional planetary bodies are in the works. As web-based toolsets, the portals do not require users to purchase or install any software beyond current standard web browsers. All of the portals provide analysis tools that facilitate the measurement and study of planetary terrain. They allow data products to be layered and adjusted to optimize data visualization. Visualizations can easily be stored and shared. The portals each provide for 3D visualization as well as provide users with the ability to draw bounding boxes around any desired terrain for generation of STL files that can be directed to 3D printers. Such 3D prints are valuable tools in museums, public exhibitions, and classrooms – notably including opportunities for the visually impaired. The data visualization capabilities of the portals provide easy access to data from NASA and other agencies, allowing the public to personally explore these destination worlds, and become directly engaged in current missions as well as plans for future exploration.

Along with the web portals, the program supports additional clients, web services, and APIs that facilitate dissemination of planetary data to a range of external applications and venues. NASA challenges and hackathons are also providing members of the software development community opportunities to participate in tool development and leverage data from the portals.