

**JMARS – Easy Visualization and Analysis of Planetary Remote Sensing Data.** S. Dickenshied<sup>1</sup>, S. Anwar<sup>1</sup>, D. Noss<sup>1</sup>, W. Hagee<sup>1</sup>, S. Carter<sup>1</sup>, K. Rios<sup>1</sup>, P. Wren<sup>1</sup>, M. Burris<sup>1</sup>, Z. Anderson<sup>1</sup>, <sup>1</sup>Mars Space Flight Facility, 201 E Orange Mall, Arizona State University, Tempe, AZ 85287 USA

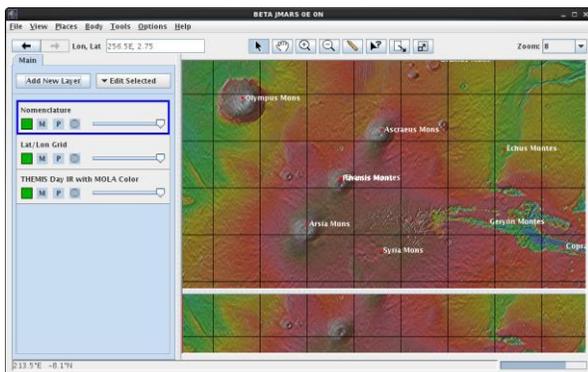
**Introduction:** JMARS is a free geospatial information system developed by ASU's Mars Space Flight Facility to provide mission planning and data-analysis tools for NASA orbiters, instrument team members, students of all ages, and the general public. Originally written as a mission planning tool for the THEMIS instrument onboard Mars Odyssey, JMARS has since been released to the science community and the general public as a tool to quickly locate and view planetary data for Mars, the Moon, Vesta, Ceres, Mercury, Earth, and many other planetary bodies.

With thousands of global maps and millions of individual images, JMARS makes it easy for new and experienced users to find, view, and analyze a wide range of planetary data. Data can be easily located by geographic area or filtered down based on any number of scientific parameters, then viewed in situ without excessively large downloads or extensive knowledge of planetary data formats.

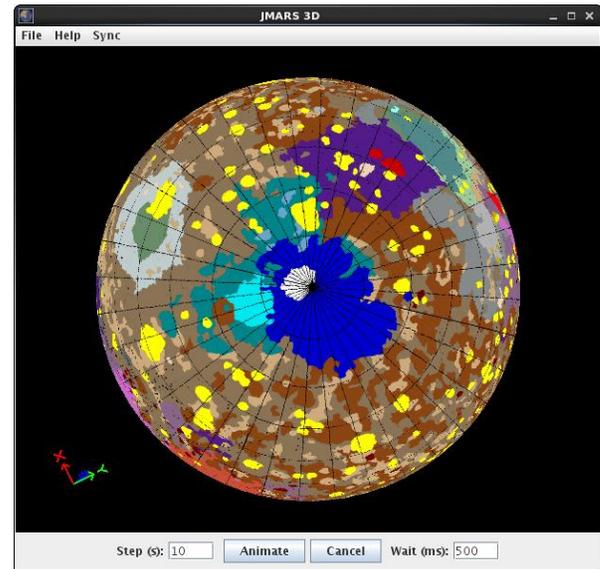
Users can readily view color or grayscale data as well as access numeric data such as elevation, mineral abundances, or temperature data. Data can be marked in a shape layer with points, lines, circles, ellipses, or polygons, and those shapes can be used to query numeric datasets for values at those locations. Shapes can also be imported or exported into CSV or ArcGIS compatible formats.

Recent work has involved porting functionality developed for the OSIRIS-REx mission in J-Asteroid back into the public version of JMARS. In addition to a variety of new features related to spectral data, the ability to view any dataset draped onto a spherical or non-spherical 3-D shape model has been enhanced significantly.

**Figures:** JMARS 2-D view with USGS Nomenclature data shown over the THEMIS Day IR global mosaic [2] merged with MOLA Colorized elevation



Updated 3-D view showing Tanaka's USGS 3292[3] geologic map of Mars from a south polar view point.



**References:** [1] Christensen, P.R.; Engle, E.; Anwar, S.; Dickenshied, S.; Noss, D.; Gorelick, N.; Weiss-Malik, M.; JMARS – A Planetary GIS, AGU 2009, Abstract IN22A-06 [2] Hill, J. R., and P. R. Christensen (2017), Well-preserved low thermal inertia ejecta deposits surrounding young secondary impact craters on Mars, *J. Geophys. Res. Planets*, 122, 1276-1299, doi: 10.1002/2016JE005210 [3] Tanaka, K.L., Skinner, J.A., Jr., Dohm, J.M., Irwin, R.P., III, Kolb, E.J., Fortezzo, C.M., Platz, T., Michael, G.G., and Hare, T.M., 2014, Geologic map of Mars: U.S. Geological Survey Scientific Investigations Map 3292, scale 1:20,000,000, pamphlet 43 p., <https://dx.doi.org/10.3133/sim3292>.

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