JMARS 5: A Modernized Interface for Planetary Exploration Analysis

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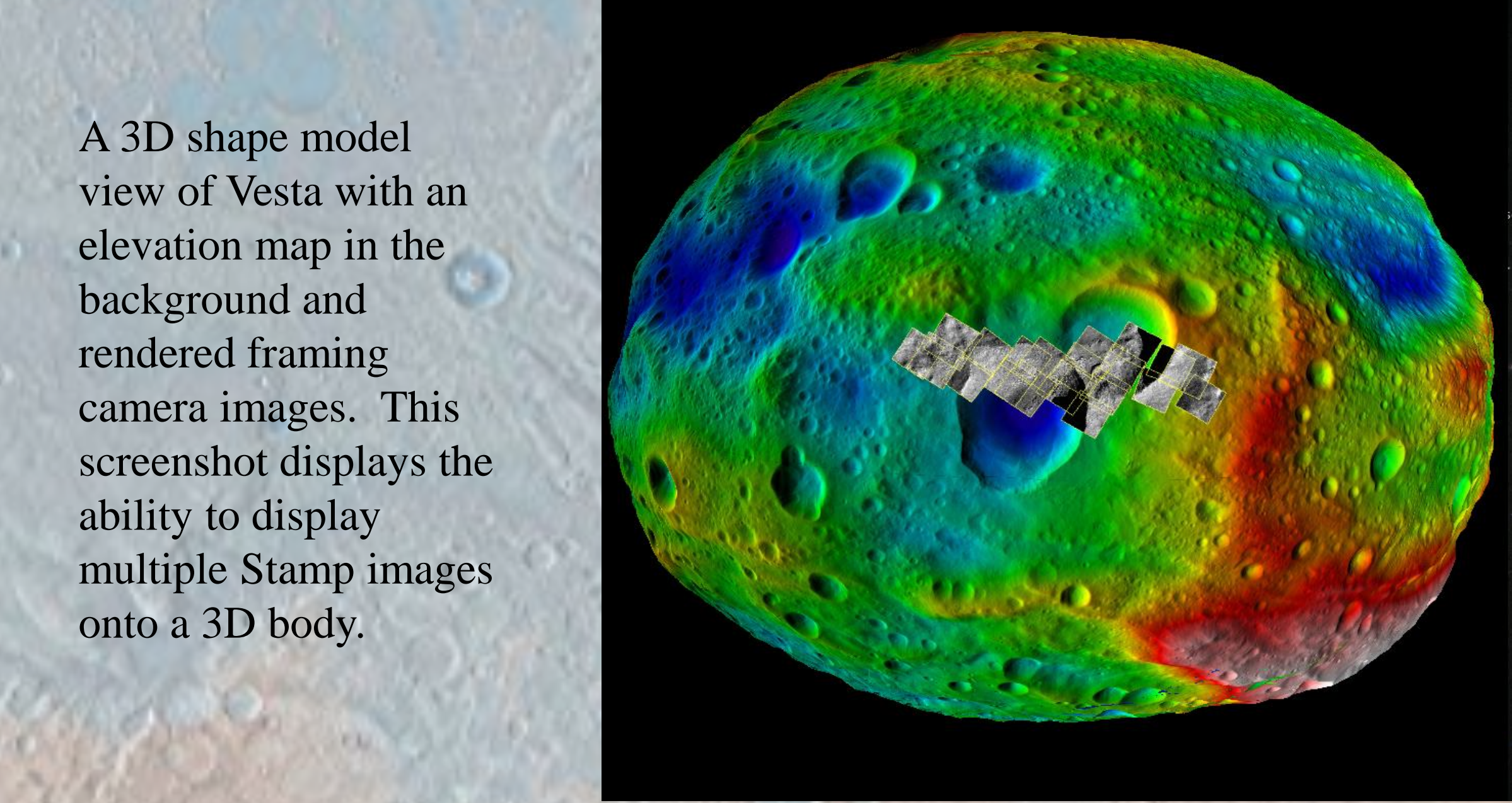
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Introduction

JMARS (Java Mission-planning for Analysis and Remote Sensing) is a planetary Geographic Information System that was developed by Arizona State University's Mars Space Flight Facility. JMARS was developed as a mission planning and data analysis tool for NASA orbiters, researchers, students of all ages, and the public.
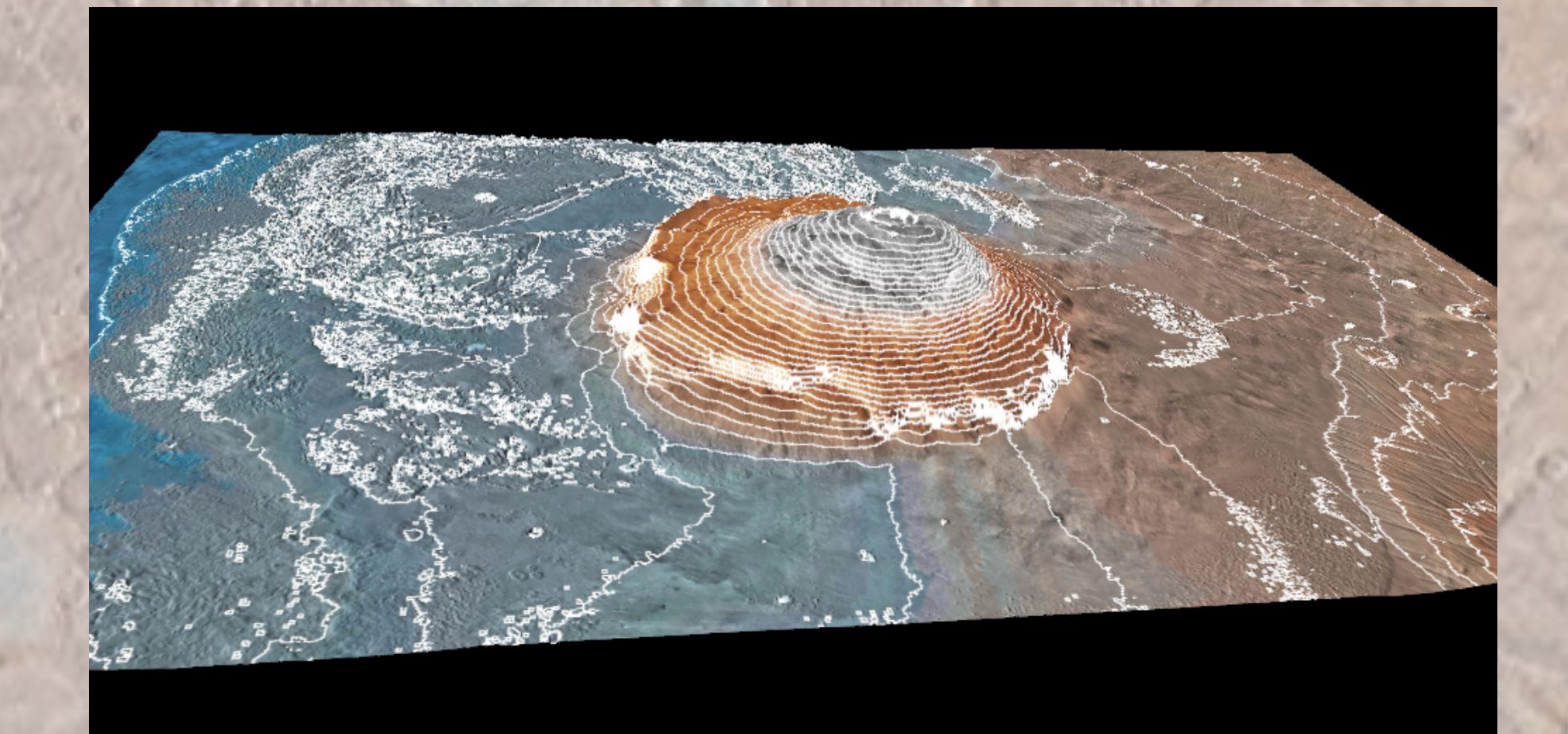
JMARS provides functionality to view 2D and 3D planetary data for Mars, the Moon, Vesta, Ceres, Mercury, Earth, Pluto, Europa, Phobos, Deimos, and many of the outer planet moons and asteroids. Supported datasets include thousands of global maps and millions of individual images collected from various NASA instruments including THEMIS, HiRISE, CTX, CRISM, and SHARAD. JMARS comes preloaded with and offers quick access to thousands of maps and millions of individual images and vector (shape) datasets collected from planetary missions. These data can be easily located by geographic area or filtered based on any number of scientific parameters.

Recent upgrades to the JMARS user interface have focused on creating an improved user experience. The implementation of a modern theme, with a focus on quick access to common features, has allowed JMARS to have a more intuitive interface without sacrificing advanced features. The JMARS Team continues to improve usability for features throughout the application. User suggestions are welcome and often lead to improvements.

3D Visualization

A 3D shape model view of Vesta with an elevation map in the background and rendered framing camera images. This screenshot displays the ability to display multiple Stamp images onto a 3D body.
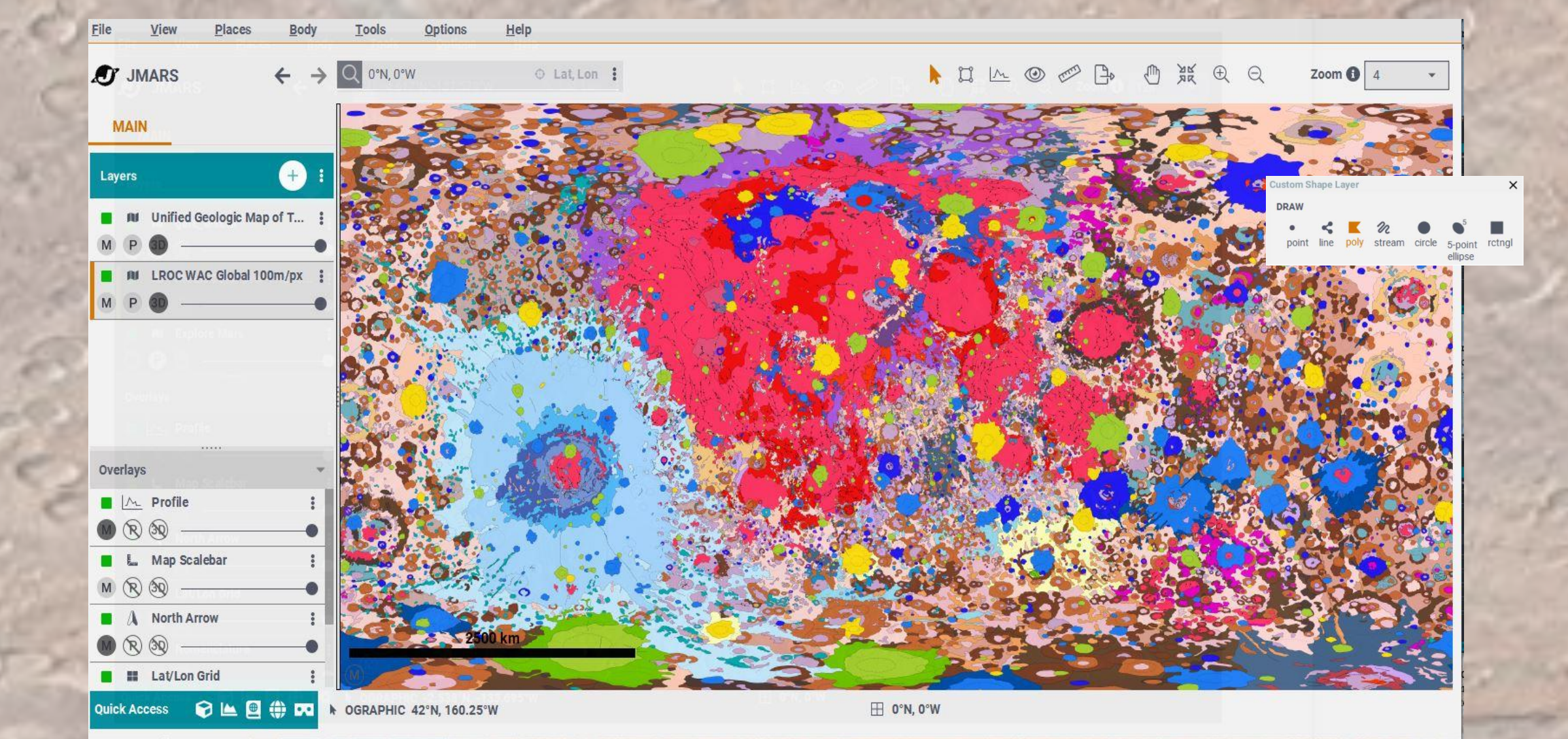
3D Layer

Along with 3D shape models, users can visualize the individual layers in 3D. This easy-to-use layer allows users to visualize their Main View. Here, you can see contour lines were added to help visualize the landscape. The map is THEMIS Day IR with ASU Color Scheme (J.Hill, P.Christensen 2017).

Drawing Shapes

Draw shapes, lines, polygons and more in JMARS. You can import and export the layer as a shapefile (SHP), CSV, ASCII, KML and GML file. The image above shows the Unified Geologic Map of the Moon (USGS: Trent Hare).
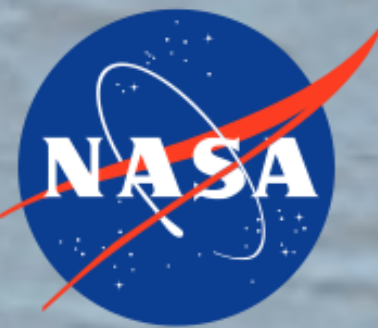
Analyzing Planetary Data?

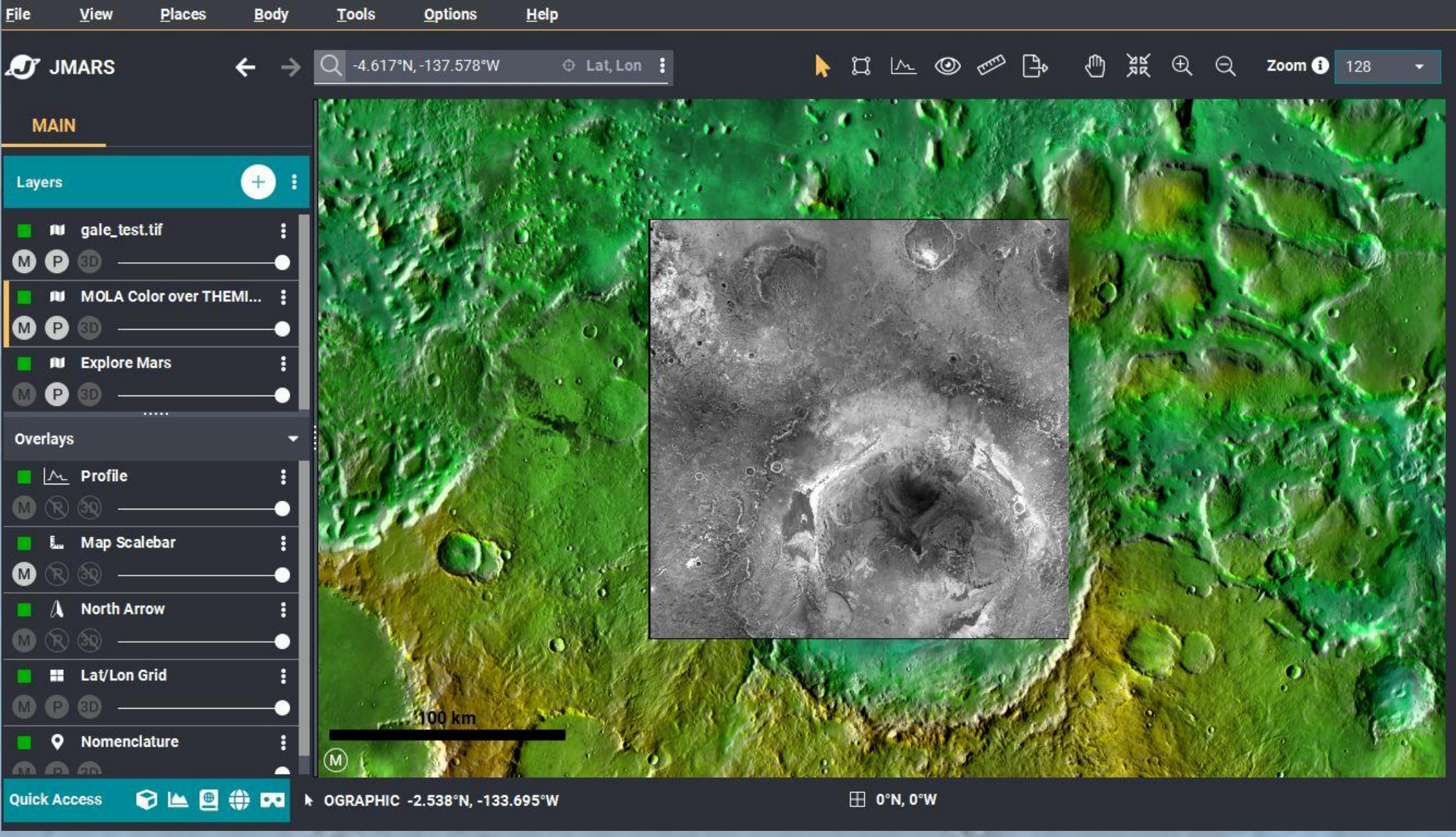## If you are not using JMARS

you are working too hard
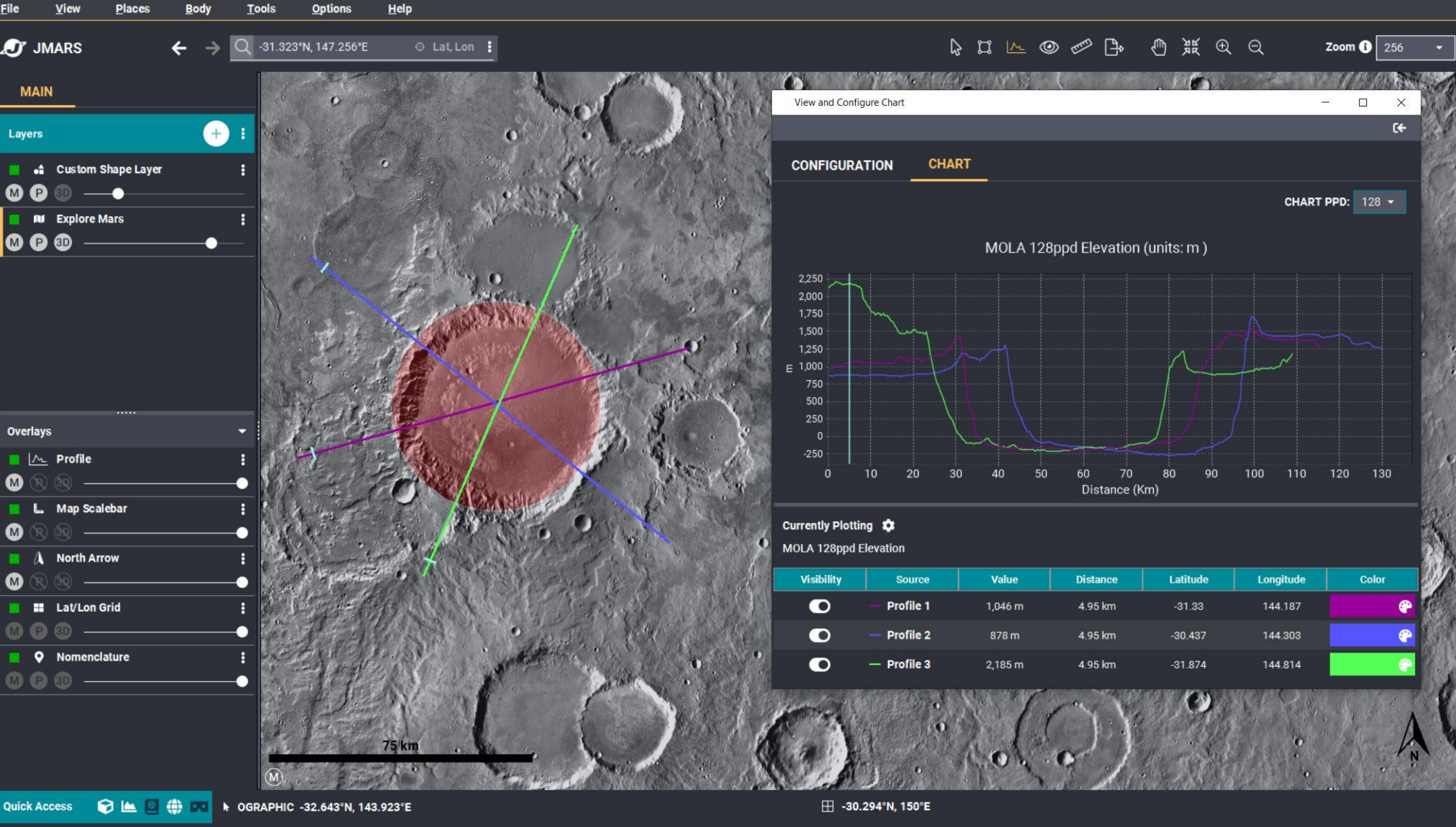
SCAN ME

Custom Map

Load your own map into JMARS using the Custom Map Manager. The custom map tool can import images with or without geospatial information and convert the projection information on the fly. The custom map tool allows users to easily share maps between other JMARS users as well.

Profile Lines

Create multiple profile lines to compare against each other Or compare your profile against multiple numeric sources. This image shows three profile lines being compared with elevation data. However, the data source can be easily changed to use custom data or other map sources in JMARS.

Crater Counting Layer
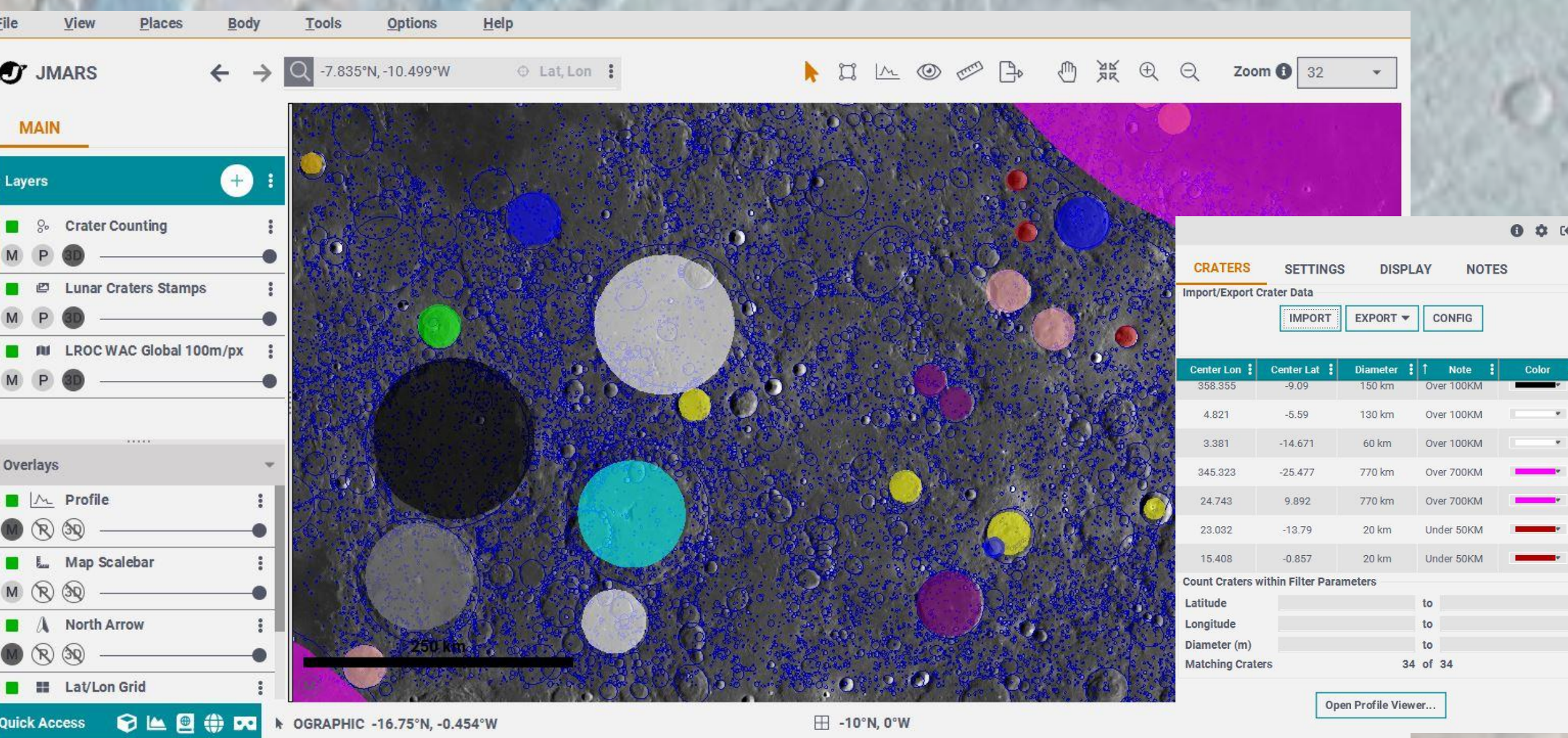
Mark, analyze, and export craters easily. The crater counting layer allows users to make a tedious task easier. The above dataset is using the Lunar Craters Database (USGS: S.J.Robbins 2018) with the crater counting layer to draw and categorize craters on the moon.

Virtual Reality
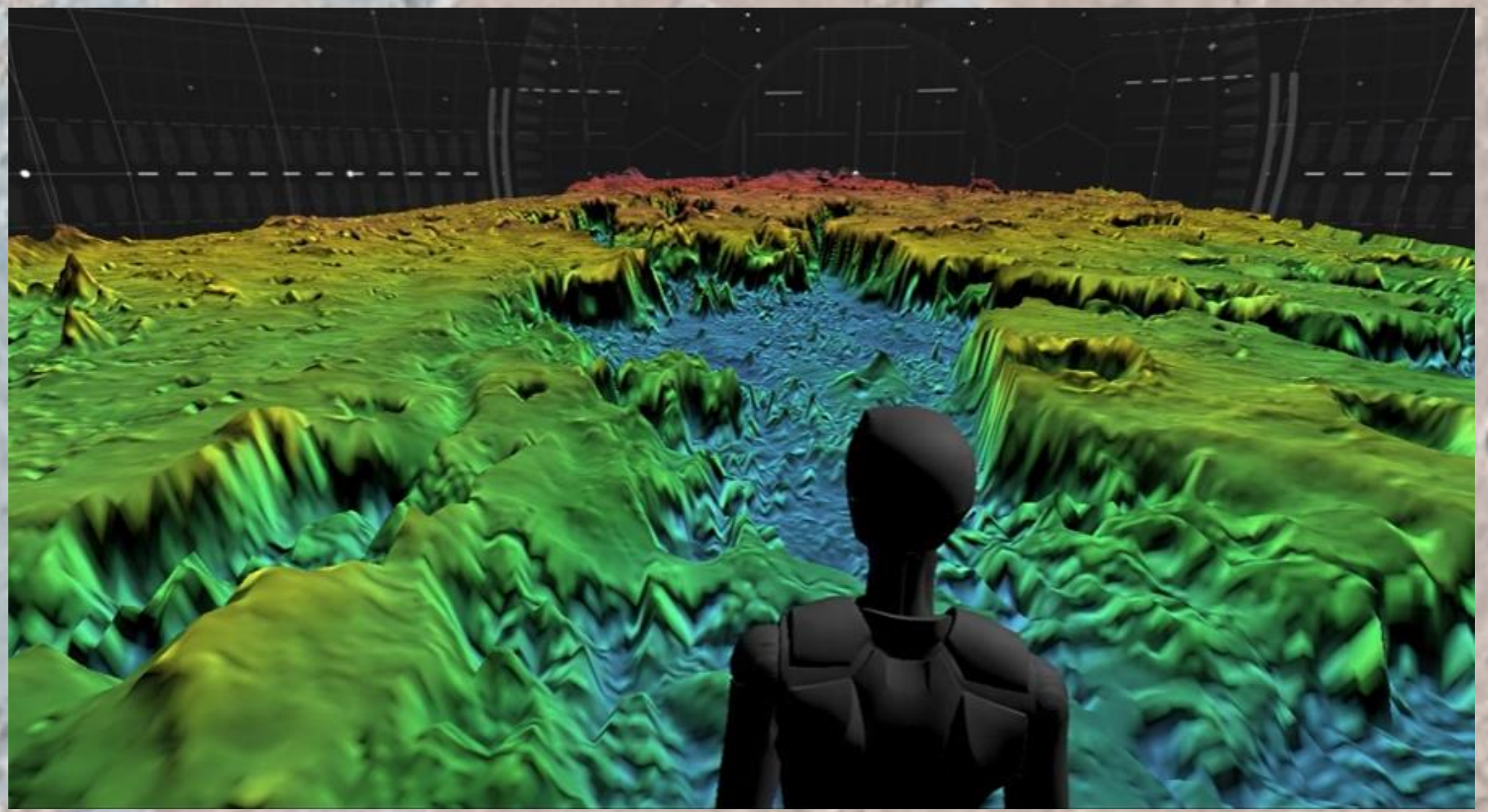
Export JMARS scenes to be loaded into the ASU Meteor Studio virtual reality environment.

Have a question regarding JMARS?

Feel free to email our team anytime at **help@jmars.asu.edu**
Presenter's Email: meburris@mars.asu.edu