

ESS 306 Lab – Gale Crater Exploration

Opening JMARS

- Double-click the JMARS icon on your desktop to open JMARS.
- Enter your JMARS user name and password. If you do not have a user name and password, follow the instruction under the appropriate "Getting Started" link on the Main Page.

Navigating to Gale Crater *(or any other location)*

- In the Layer Manager window, click “Add New Layer”, then select the Nomenclature layer (in the “Home” Category).
- Go back to the “Main” tab in the Layer Manager and double click on the Nomenclature layer. Select the “Adjustments” tab at the bottom, then under “Selected Landmarks Types” select “Crater”, and in the “Landmark” menu select “Gale”. (If you start typing the letters of the name it will go to that part of the list). Now click “Goto”.
- NOTE: Another way to navigate to a chosen location is to just type in the longitude and latitude coordinates in the box at the upper left of the main JMars window. If you don’t know the coordinates already, an easy way to get them is using Google Mars (<http://www.google.com/mars>). Note that the direction of the longitude you’re using must be indicated with an “E” for East or “W” for West. JMars’ default is East longitude, so if you type a West longitude value (i.e. “222.189W”) it will automatically convert it to East when you hit enter. The latitude value must be entered with a minus sign for South latitudes.
- NOTE: The “Places” menu in the main JMars window keeps track of your recent locations so you can always get back to them easily if you need to.

- Set zoom level to 256 ppd, centered on Gale Crater

Load the THEMIS Day IR global mosaic:

Add Layer, Category=Instrument, Global Mosaic, Day IR 100m v11.5

Load the THEMIS VIS mosaic of Gale Crater:

Add Layer, Category=Rover, Subcategory=MSL, Gale Crater (Vis)

Question: Switch back and forth between the THEMIS IR and VIS mosaics and notice where you see changes in surface “brightness”. What is causing this change?

Load the THEMIS Night IR mosaic of Gale Crater

Add Layer, Category=Rover, Subcategory=MSL, Gale Crater (Night IR)

- This image shows the nighttime surface temperatures (bright=warm, dark=cold).

Quesiton: How does this map help explain the previous question?

3-D view

Add Layer, Category=Home, 3D Layer

Enlarge window that opens up

Double-click on 3-D viewer layer in Layer Manager and click bottom tab for “Controls”

This explains how to use the mouse to maneuver the 3D image

- Try different settings for the Vertical Exaggeration to get a better feel for the topography of Gale

