



**Impact Craters
on Mars**



FAULKES TELESCOPE

Asteroids, Comets and NEOs

Impact Craters on Mars

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Introduction

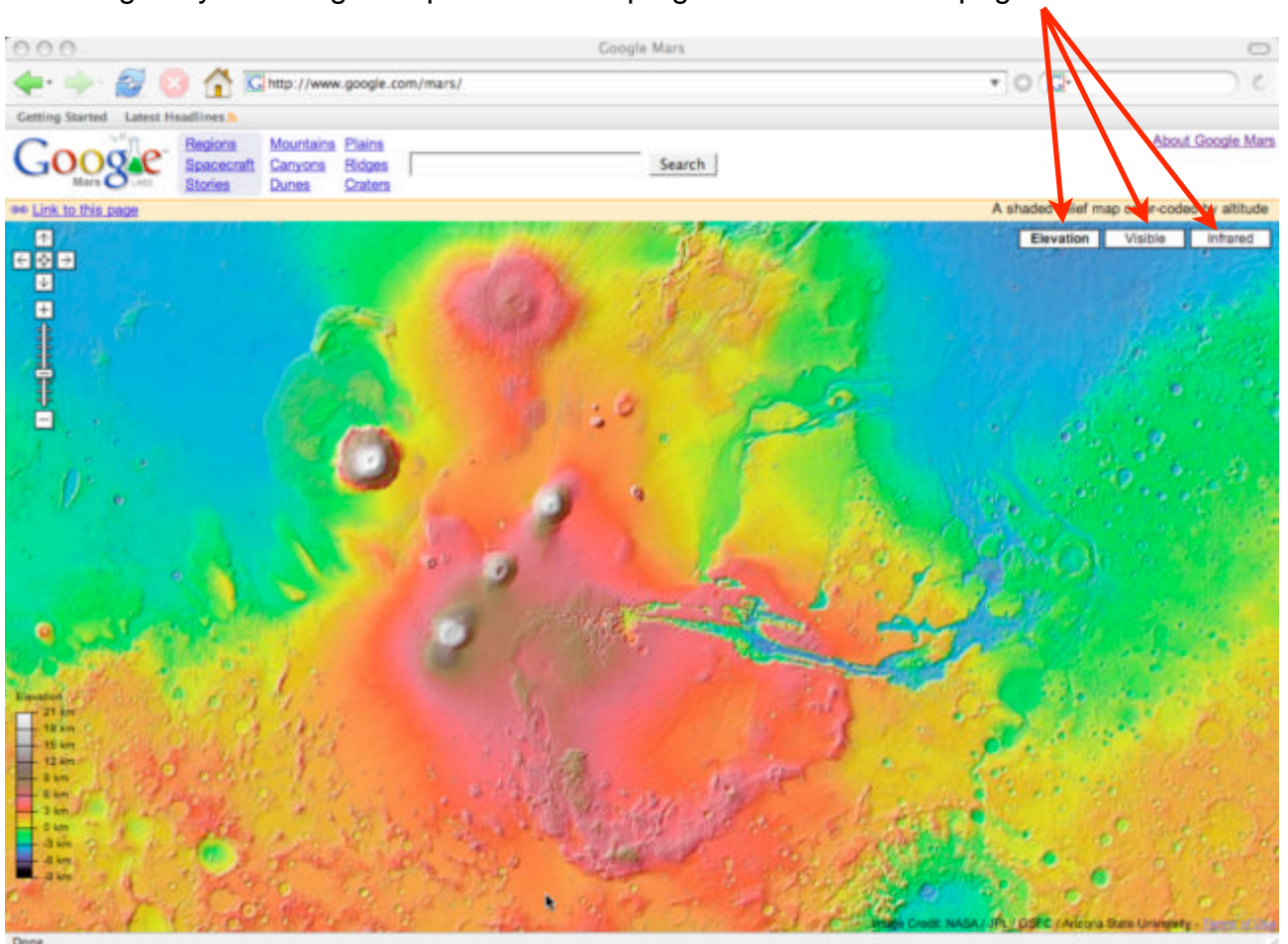
In this activity, Google Mars will be used to observe some real impact craters on the surface of Mars. Like the impact craters on Earth, these craters vary in size from small (a few hundred metres) to very large (over 100km). It is suggested that you work through the activity, 'Measuring impact craters on the Earth' before looking at craters on Mars, so comparisons can be made between the impact craters on these two planets.

Google Mars

Google Mars is a freely available website which allows you to look at images of any region on Mars' surface. The image that is seen however is not a 3D globe of Mars, as can be seen in Google Earth, but rather it is a flattened view of the planet's surface. Google Mars can be accessed via:

<http://www.google.com/mars/>

There are 3 different ways of viewing the surface of Mars using Google Mars. These can be changed by selecting the option on the top right hand side of the page.



The choices of viewing are:

Elevation - this shows a map of Mars which is colour-coded according to the elevation. The key to the elevation colours can be seen in the bottom left hand side of the window.

Visible - this shows a map of Mars in the visible. The data was taken by the Mars Orbiter Camera on NASA's Mars Global Surveyor.

Infrared - this shows Map in the infrared. The data was taken by the Thermal Emission Imaging System on NASA's Mars Odyssey. The brighter regions show the warmer areas, whereas the darker regions are cooler.

More information on Google Mars can be found at:

<http://www.google.com/mars/about.html>

Finding Impact Craters

In order to find craters in Google Mars, you can either search for a particular crater using the search box, or you can flag all the named craters on the map by selecting the 'craters' option at the top of the page. You can zoom in or out of the image by using the controls, and you can drag the image by using either the controls or your mouse.

To help familiarise yourself with Google Mars, try the following exercise:

1. Zoom out of Google Mars so you can see the whole image strip.
2. Find the position of the 'Hellas' crater on Mars by using the search box. Zoom in on this area once it has been pinpointed. You will see a number of markers in this crater - each one marks the point of different features in the crater. A green marker points to a feature which has a slightly more detailed image. This can be read by clicking on the marker and following the link.
3. Select the central red marker in the Hellas crater. A speech bubble will appear with details of the feature. Click on the type to see a description of the feature.
4. Now highlight all the named craters on the Mars image by clicking on 'craters' at the top of the page. Select the crater named 'Odd Crater' by clicking on the link on the left hand side. Zoom in on this crater - why do you think it is called 'Odd Crater'?

Comparing the impact craters with those on Earth

1. Zoom in/out of Google Mars until your window is filled with a Google Mars image. Look at the distribution of impact craters in this image. How does it compare to a similar image on Google Earth? Are there similar numbers of craters? Are there less/more? What factors would affect the number of craters that we can see both on Mars and Earth?

2. What other features can be seen on the surface of Mars?

3. Do you see any evidence for plate tectonics on Mars?

4. Do you see any evidence for water on Mars?
