Impact Craters on Mars

FAULKES TELESCOPE

Asteroids, Comets and NEOs

Impact Craters on Mars

(Answers)

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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?

There are many more impact craters on Mars compared to Earth as seen on Google Mars. Older impact craters on Earth have been eroded away, but this has not happened on Mars. Also, Earth has a relatively dense atmosphere, so meteorites which could form craters have been broken up by the atmosphere, and therefore prevented from creating these craters.

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

Shield volcanoes can be seen on Mars - these are volcanoes with gradual, rather than steep slopes. There are also canyons, gullies, channels and dunes on the surface.

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

Yes there is evidence for plate tectonics on Mars - Valles Marineris is a large rift on the planet's crust about 3000km (2000 miles long). It is thought to have formed by the separation of plates.

The Tharsis volcanoes to the West of Valles Marineris are thought to have formed by magma from below the surface pushing upwards. This also pushed the plates apart, causing rifts.

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

There are many canyons and gullies on the surface of Mars which may have been formed by water. Some of the channels connected to the giant rift, Valled Marineris, are thought to have been formed by water.

More information on features on Mars can be found on the website for the Mars thermal emission imaging system project:

http://themis.asu.edu/