Mars Express reveals wind-blown deposits on Mars

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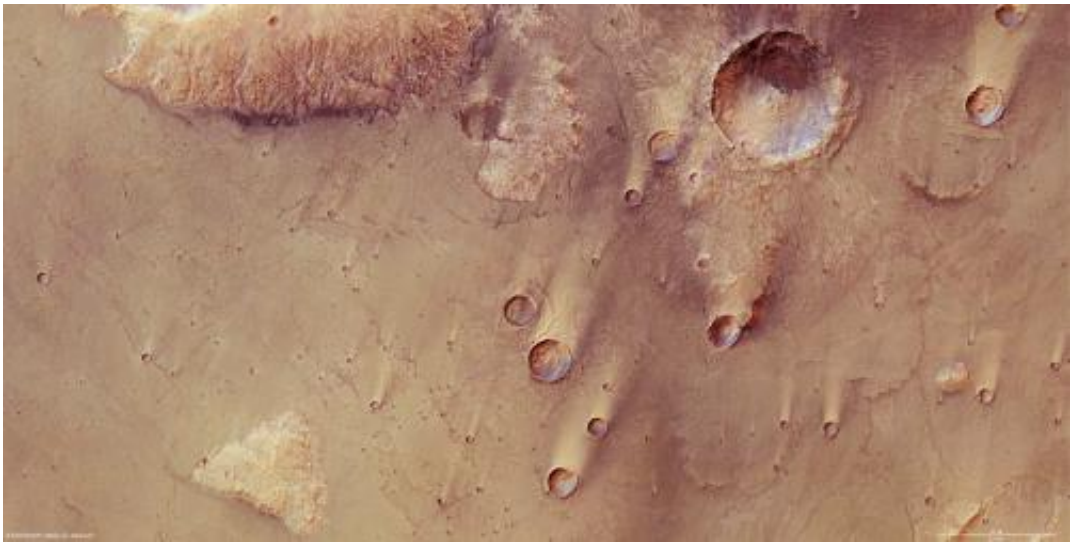


Syrtis Major, discovered in 1659 by Christaan Huygens, is a volcanic province on Mars. The image is centred on approximately 16°N/73°E. The High-Resolution Stereo Camera (HRSC) on ESA's Mars Express collected the data for this image on 8 June 2011 during orbit 9487. The image has a ground resolution of approximately 19 m per pixel. The image size is approximately 90x180 km. Credits: ESA/DLR/FU Berlin (G. Neukum)

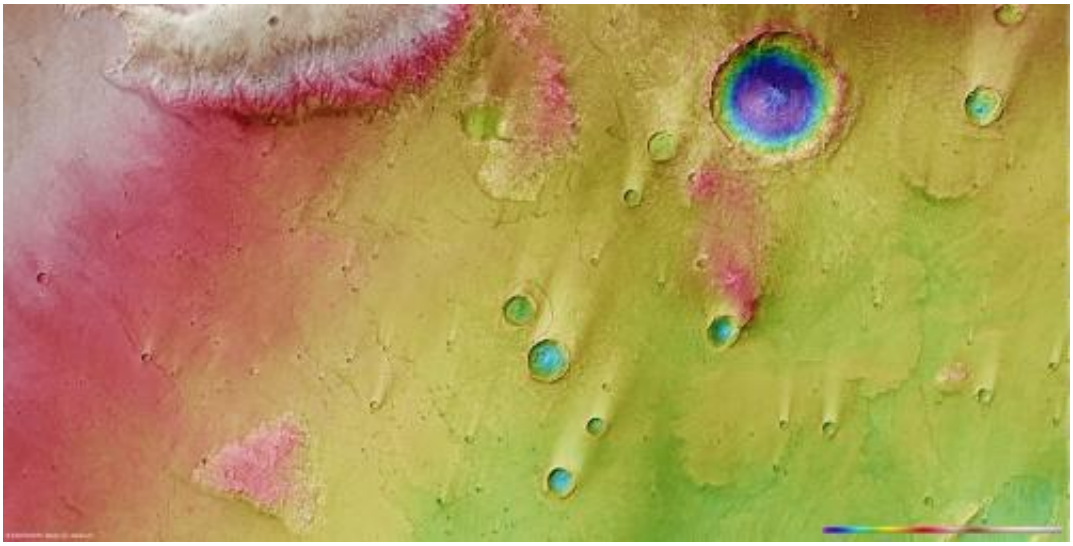
(PhysOrg.com) -- New images from ESA's Mars Express show the Syrtis Major region on Mars. Once thought to be a sea of water, the region is now known to be a volcanic province dating back billions of years.

Syrtis Major can be spotted from Earth even with relatively small

telescopes – the near-circular dark area on the planet stretches over 1300 x 1500 km.

Christiaan Huygens discovered this area in 1659 and by repeated observations he used it to time the length of day on Mars.

Early ideas held that it was a sea with a water level that rose and fell, causing the markings to change.



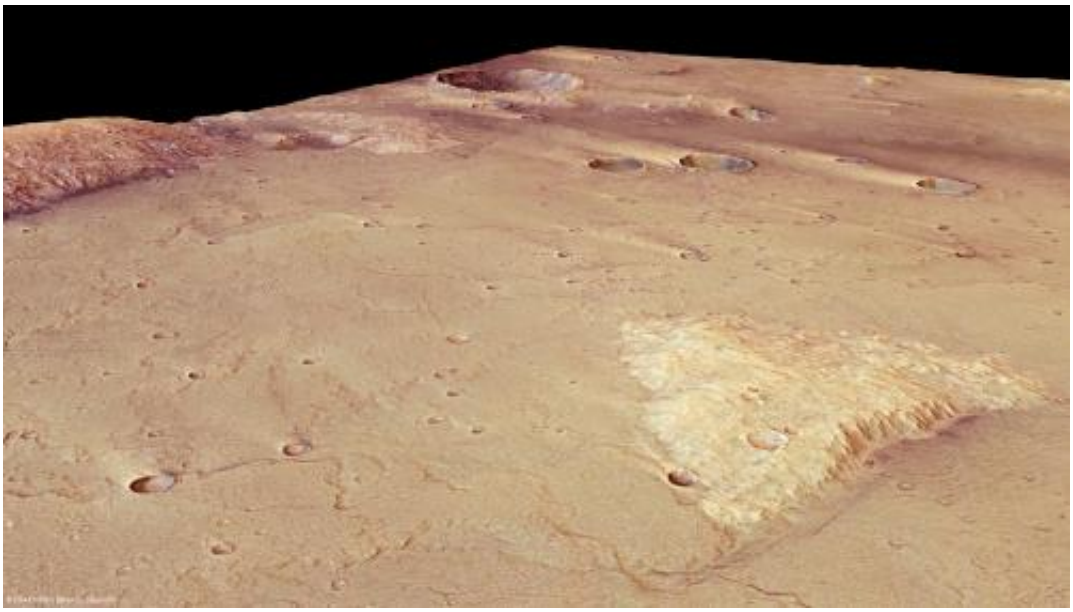
Syrtis Major, discovered in 1659 by Christaan Huygens, is a volcanic province on Mars. The image is centred on approximately 16°N/73°E. The image was created using a Digital Terrain Model (DTM) obtained from the High-Resolution Stereo Camera on ESA's Mars Express spacecraft. Elevation data from the DTM is colour coded: purple indicates the lowest-lying regions and grey the highest. The scale is in metres. The data for these images were collected on 8 June 2011 during orbit 9487. The images have a ground resolution of approximately 19 m per pixel. Credits: ESA/DLR/FU Berlin (G. Neukum)

Now, however, we know that the region is volcanic in origin, devoid of

water and that the changes in its shape are due to dust and sand being blown around in the wind.

Newly released images of a part of Syrtis Major seen from ESA's Mars Express orbiter show lava flows that flooded the older highland material, leaving behind buttes – isolated hills with steep sides that were too high to be affected.

They can be identified by their lighter colours and their eroded state, and some even show ancient valleys on their flanks.



Syrtis Major, discovered in 1659 by Christaan Huygens, is a volcanic province on Mars. The image is centred on approximately 16°N/73°E. The High-Resolution Stereo Camera on ESA's Mars Express collected the data for these images on 8 June 2011 during orbit 9487. The images have a ground resolution of approximately 19 m per pixel. This perspective view has been calculated from the Digital Terrain Model derived from the stereo channels. Some ancient lava flow fronts are seen in the foreground and a lighter-toned butte is emerging on the right. Credits: ESA/DLR/FU Berlin (G. Neukum)

Individual lava flows, filled craters and partly-filled craters can be made out in the images. The prevailing wind direction can be seen from the dispersal of the lighter-toned dust and darker-toned sand in and around the craters and buttes. The smaller craters illustrate this clearly.

The largest crater in the pictures has a small central peak and contains a small dune field of darker-toned dunes to the east of its floor.

The number and size of craters can be used to date surfaces in the Solar System because craters slowly accumulate as impacts occur over time. This information can be used to date the volcanic province and suggests an age of over 3 billion years.

Provided by European Space Agency