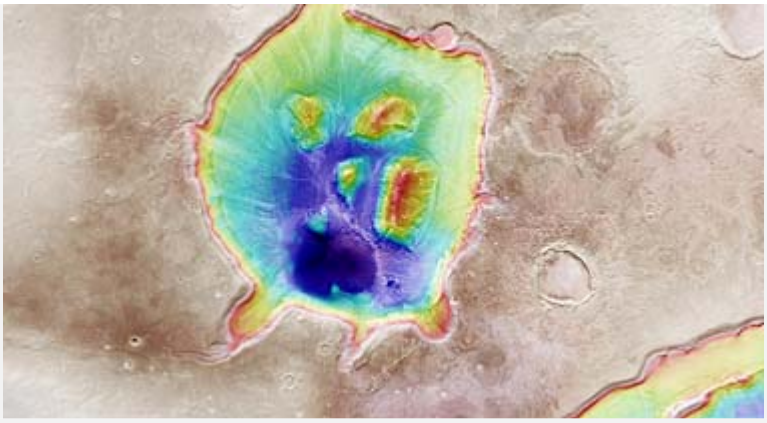
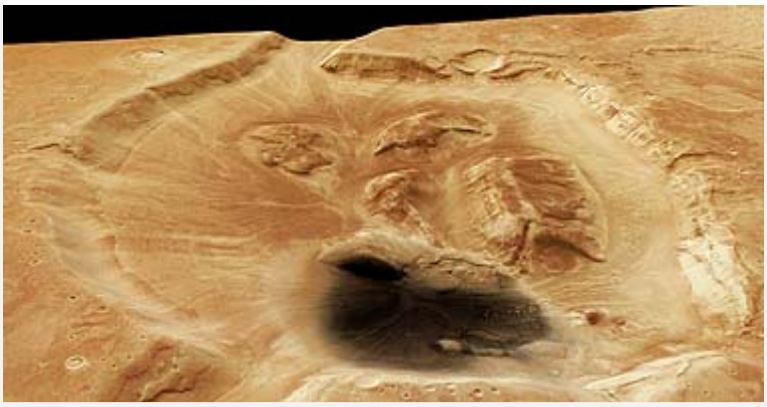
News Archive 2008

Crater in martian valley Mamers Valles

16 May 2008



Mamers Valles colour-coded elevation model



Perspective view of Mamers Valles

Crater in Mamers Valles

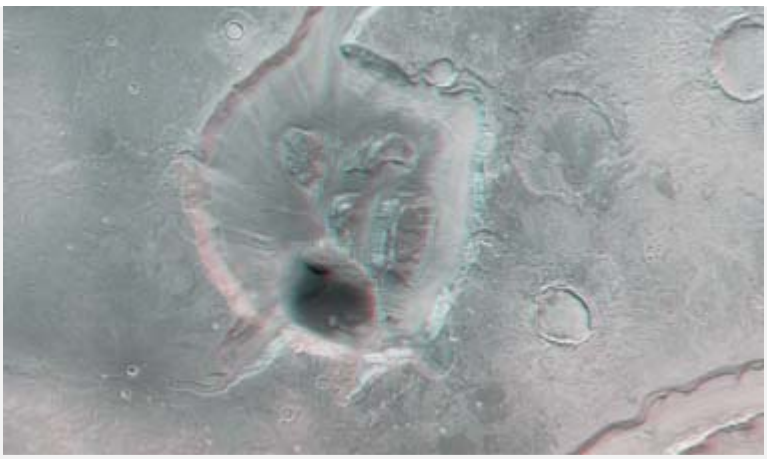
The DLR-operated High-Resolution Stereo Camera (HRSC) on the ESA spacecraft Mars Express obtained images focusing on a depression that displays a crater at the end of the long, winding valley, Mamers Valles.

The data was obtained on 5 August 2006 with a ground resolution of approximately 14 metres per pixel. The images are centred at approximately 39° north and 17° east on the planet.

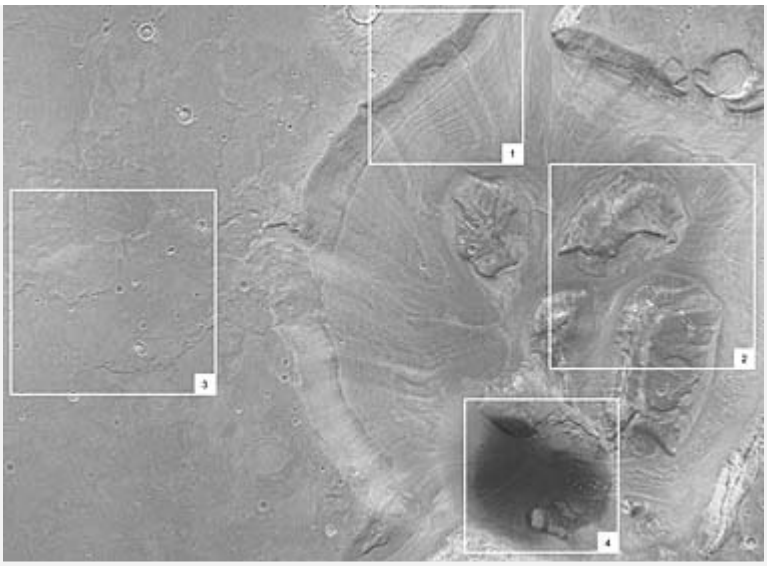
The circular depression seen in the images is approximately 30 km wide and 1400 m deep, lying at the south-eastern end of Mamers Valles.

The valley of Mamers Valles is approximately 1000 km long, running along the boundary between the northern lowlands and southern highlands in the region of Deuteronilus Mensae.

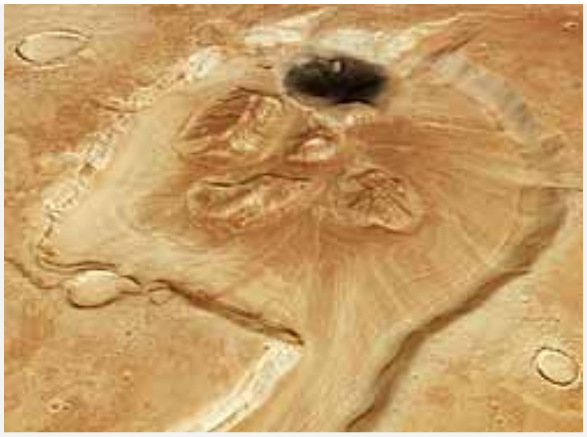
Scientists term a region such as Mamers Valles 'fretted terrain' because it shows numerous deep and wide labyrinth-like valleys and circular depressions which often shows structures formed by flowing liquid on their even floors.



Mamers Valles, 3D view



Mamers Valles, annotated nadir view



Perspective view of part of the southern area of Mamers Valles

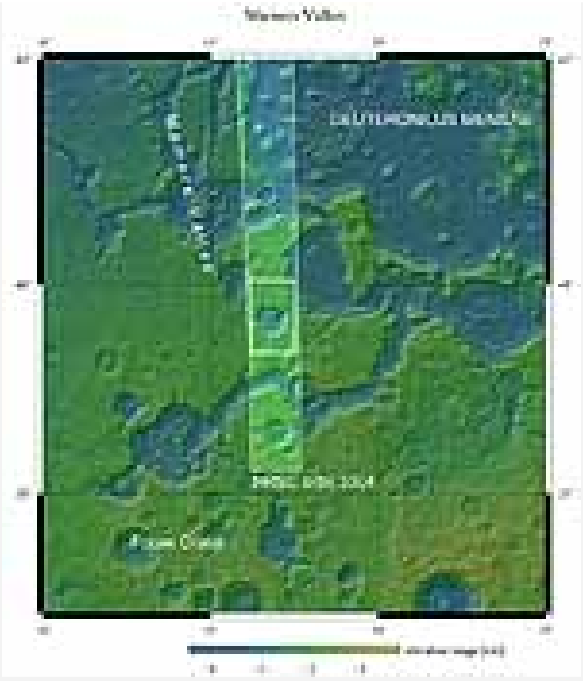
The structures formed by the flows (1) are thought to be ice-rich debris flows and show some resemblance to block glaciers known on Earth. The patches of rock at the centre of the depression are thought to be remnants of rock detached from the flanks of the depression and transported into its centre (2).

The wrinkle ridges (3), as the name indicates, are formed by compressive forces acting on the surface. The dark coloured material inside the crater (4) could have formed formed in-situ or was transported by the wind.

The colour scenes have been derived from the three HRSC-colour channels and the nadir channel. The perspective views have been calculated from the Digital Terrain Model derived from the stereo channels.

The anaglyph image was calculated from the nadir and one stereo channel. The black and white high-resolution images were derived form the nadir channel which provides the highest level of detail.

Nadir view of Mamers Valles



Mamers Valles context map

The High Resolution Stereo Camera (HRSC) experiment on the ESA Mars Express Mission is led by the Principal Investigator (PI) Prof. Dr Gerhard Neukum who also designed the camera technically.

The science team for the experiment consists of 45 Co-Investigators from 32 institutions and 10 nations. The camera was developed at the German Aerospace Center (DLR) under the leadership of the PI G. Neukum and built in cooperation with industrial partners (EADS Astrium, Lewicki Microelectronic GmbH and Jena-Optronik GmbH). The experiment on Mars Express is operated by the DLR Institute of Planetary Research, through ESA/ESOC. The systematic processing of the HRSC image data is carried out at DLR.

The scenes shown here were processed by the PI-group at the Institute for Geosciences of the Freie Universitaet Berlin in cooperation with the German Aerospace Center (DLR), Institute of Planetary Research, Berlin.

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