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Created by ice - the Deuteronilus Mensae region on Mars

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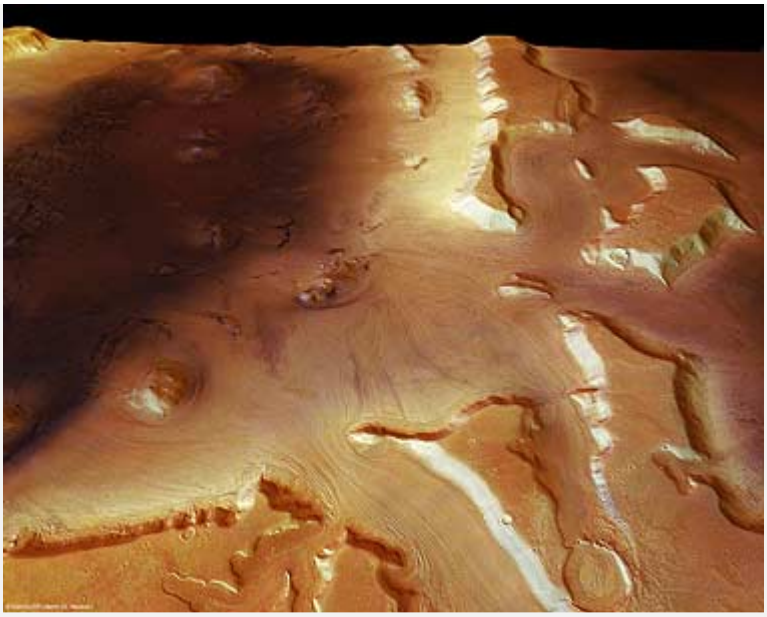
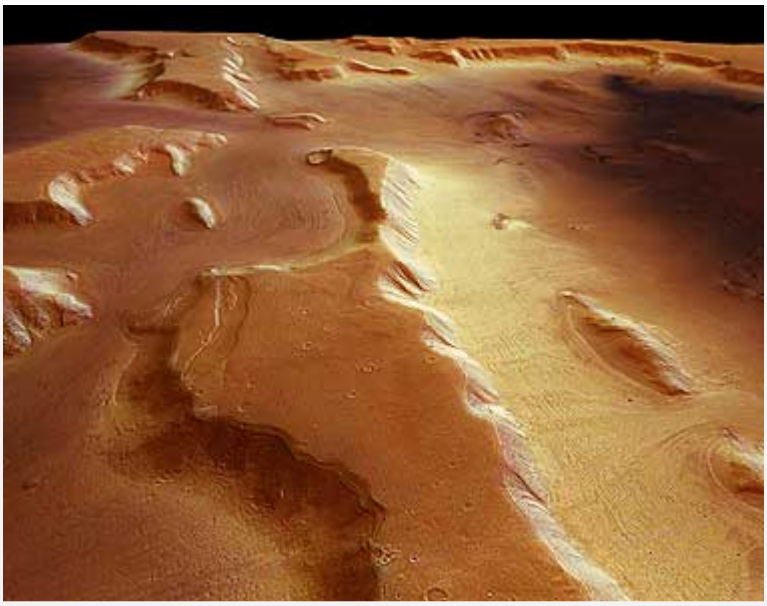
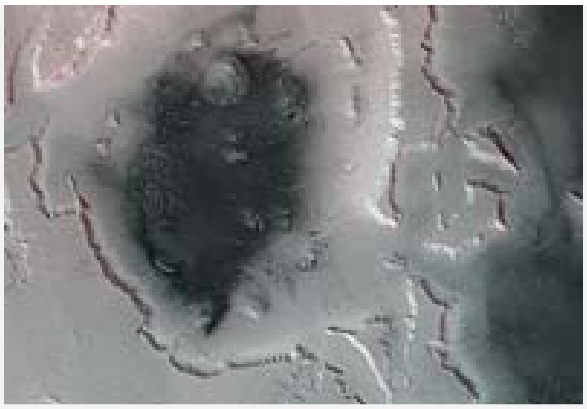


Perspective view of Deuteronilus Mensa running from east to west



Another perspective view of Deuteronilus Mensa - viewed from the west



Anaglyph view of Deuteronilus Mensae

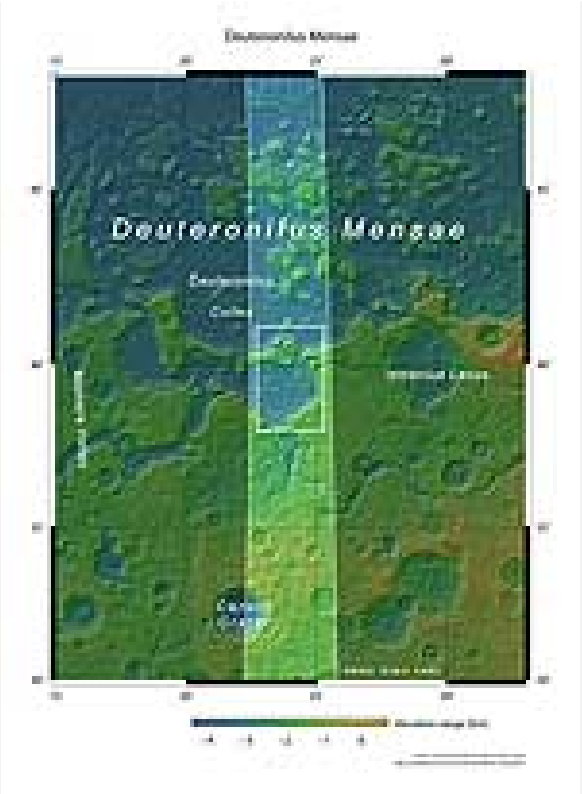
On 14 March 2005, the DLR-operated High Resolution Stereo Camera (HRSC) onboard ESA's Mars Express spacecraft obtained images of the Deuteronilus Mensae region on Mars.

The images were acquired in orbit 1483 with a ground resolution of approximately 29 metres per pixel, and show the region of Deuteronilus Mensae, at approximately 39° North and 23° East. The Sun illuminates the scene from the South-West (from bottom left in the image).

The scene is dominated by a depression measuring approximately 2000 metres deep and 110 kilometres in diameter, north to south.

Visible in the centre of the colour image, the interior of the depression is characterised by dark material, differing from the light-toned surrounding plains. Deeply incised valleys with a depth ranging from 800m to 1200m are clearly identifiable in the northern part of the scene.

Deuteronilus Mensae - colour view



Deuteronilus Mensae seen in context

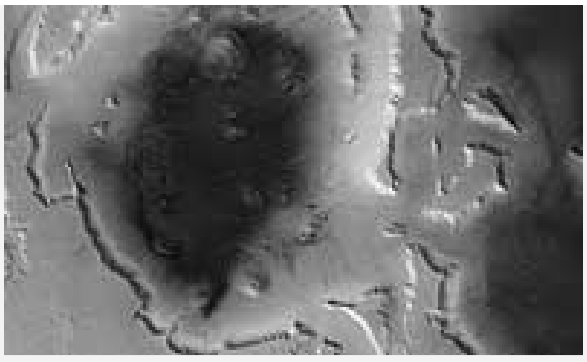
One of the most striking features of Mars is the dichotomy between the southern highlands and the up-to-3km-lower northern plains. The boundary between these two regions is marked by a transition characterised by an intact highland zone and areas with remnant mesas and isolated eroded knobs.

The images of Deuteronilus Mensae depict different stages of highland degradation in this zone. Numerous flow patterns in wide valleys and along ridges and scarps indicate movement of debris material mixed with ice towards the surrounding areas.

Since the discovery of these structures, scientists assume that the mixture of debris and ice genetically resembles rock glaciers which are commonly found in cold-climate areas on Earth.

Like on Earth, these landscapes are climate indicators and scientists are working to determine whether ice could be still present in the pore space of the Martian features and to what extent these landforms might still be active today.

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 detail of all channels.



Black and white view of Deuteronilus Mensae

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 of 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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