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Nanedi Valles valley system on Mars

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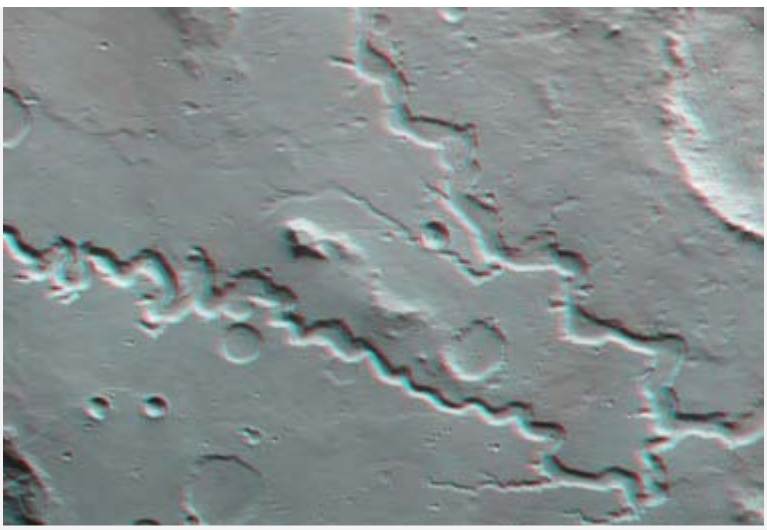
Nanedi Valles in the Xanthe highland region, colour image

These images, taken by the DLR-operated High Resolution Stereo Camera (HRSC) onboard ESA's Mars Express spacecraft, show the Nanedi Valles valley system, a steep-sided feature that may have been formed in part by free-flowing water.

The HRSC obtained these images during orbit 905 at a ground resolution of approximately 18 metres per pixel.



3D anaglyph view of the Nanedi Valles valley

They show the region of Nanedi Valles, a roughly 800-km valley extending southwest-northeast and lying at approximately 6.0° North and 312° East in the region of Xanthe Terra, southwest of Chryse Planitia.

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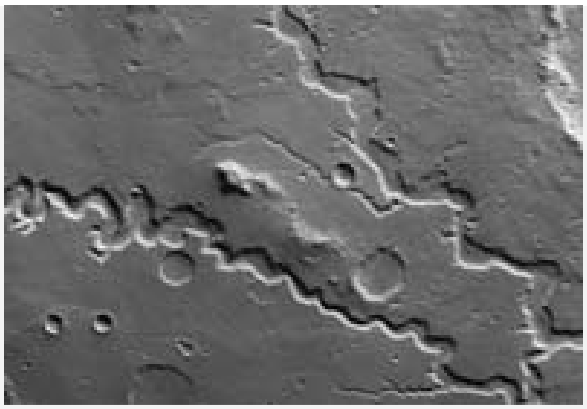
In the colour image, Nanedi Valles ranges from approximately 0.8- to 5.0-km wide and extends to a maximum of about 0.5 km below the surrounding plains. This valley is relatively flat-floored and steep-sloped, and exhibits meanders and a merging of two branches in the north.

The origin of these striking features remains heavily debated. Some researchers point to sapping (erosion caused by ground-water outflow), while others suggest that flow of liquid beneath an ice cover or collapse of the surface in association with liquid flow is responsible for the valley's formation. While the debate continues, it seems likely that some sort of continuous flow rather than a single flooding event created these features.

By studying Nanedi Valles, scientists hope to better understand the climatic evolution of the Red Planet. The stereo and colour capabilities of the HRSC camera enable scientists to study the planet's morphology, while researchers can analyse reflected light at different wavelengths to better recognize the various geologic units within a scene.

The colour images have been derived from the three HRSC colour channels and the nadir channel. The anaglyph image was calculated from the nadir and one stereo channel. For use on the Internet, image resolution has been decreased. All images have been rotated 90 degrees clockwise with respect to the context map, so that north is to the right.



Black and white nadir view of the Nanedi Valles valley

The HRSC on Mars Express was developed by DLR and built in cooperation with industrial partners (EADS Astrium, Lewicki Microelectronic GmbH and Jena-Optronik GmbH). The HRSC experiment on Mars Express is led by the Principal Investigator (PI) Prof. Dr Gerhard Neukum. The science team of the experiment consists of 45 Co-Investigators from 32 institutions and 10 nations.

This camera on Mars Express is operated by DLR's Institute of Planetary Research. The systematic processing of the HRSC image data is carried out at DLR and scene processing is carried out by the PI-group at the Institute for Geosciences of the Freie Universität (Free University) Berlin in cooperation with DLR's Institute of Planetary Research, Berlin.

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