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Small Valleys and Colorful Bedrock in Terra Cimmeria

ESP_012853_1480 Science Theme: [Fluvial Processes](#)

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This image shows a network of small valleys in the Terra Cimmeria region of the Martian southern highlands. This location is approximately 1000 kilometers (600 miles) south of Gusev Crater, the landing site of the [Mars Exploration Rover Spirit](#).

The valleys in this image are carved into light-toned bedrock exhibiting a range of colors, which likely reflect a range of mineralogical compositions. The bedrock is pervasively fractured, and some of the fractures appear to be filled with material of a different color, possibly composed of minerals that crystallized or were cemented together when fluids (perhaps water) circulated through the fractures.

WALLPAPER

[1280](#)
[1920](#)
[2560](#)

HIFLYER

PDF (11 x 17)

bright ridge. If the valley was carved by liquid water, then this ridge may mark a former stream channel where coarse-grained sediment was deposited, which has survived erosion more effectively than the finer-grained sediment in the valley outside the channel.

Similar “inverted channel” deposits are visible elsewhere on Mars, and some examples in the southern highlands have been inferred to contain chloride salts (similar to table salt). The color and texture of the possible inverted channels in this image are similar to those inferred to contain chlorides, which may have been deposited when salty water evaporated.

Considered together, the features in this image attest to a history of water-related activity at this location on Mars.

Written by: James Wray (27 May 2009)

This is a stereo pair with [ESP_013354_1480](#).

Acquisition date 24 April 2009	JPEG Black and white map projected non-map	ANAGLYPHS Map-projected, reduced-resolution Full resolution JP2 download Anaglyph details page
Local Mars time 15:22	IRB color map projected non-map	ADDITIONAL INFORMATION B&W label Color label Merged IRB label Merged RGB label EDR products HiView
Latitude (centered) -31.503°	Merged IRB map projected	NB IRB: infrared-red-blue RGB: red-green-blue About color products (PDF)
Longitude (East) 175.682°	Merged RGB map projected	Black & white is 5 km across; enhanced color about 1 km For scale, use JPEG/JP2 black & white map-projected images
Spacecraft altitude 254.5 km (158.1 miles)	RGB color non-map projected	USAGE POLICY All of the images produced by
Original image scale range 51.2 cm/pixel (with 2 x 2 binning) so objects ~154 cm across are resolved	JP2 Black and white map-projected (320MB)	
Map projected scale 50 cm/pixel and North is up	IRB color map-projected (151MB)	
Map projection Equirectangular	JP2 EXTRAS Black and white	

6.1°

Phase angle

39.0°

Solar incidence angle

45°, with the Sun about 45° above the horizon

Solar longitude

252.7°, Northern Autumn

For non-map projected images

North azimuth: 97°

Sub-solar azimuth: 2.6°

IRB color

[map projected \(73MB\)](#)

[non-map \(187MB\)](#)

Merged IRB

[map projected \(339MB\)](#)

Merged RGB

[map-projected \(303MB\)](#)

RGB color

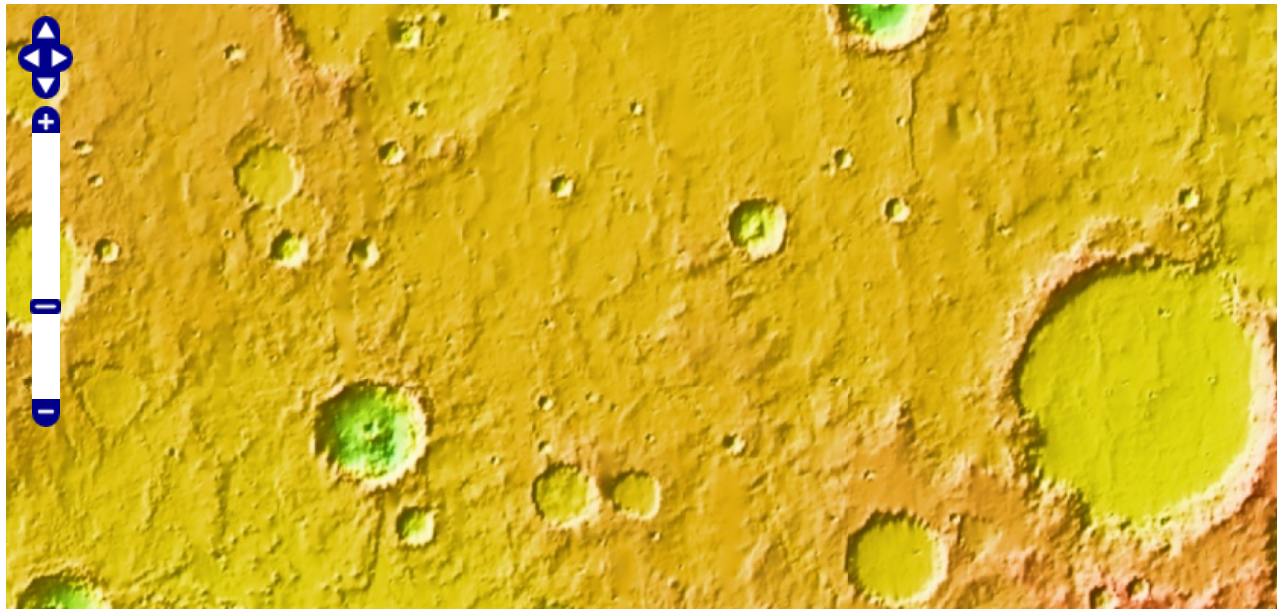
[non map \(164MB\)](#)

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POSTSCRIPT

NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, Calif., manages the Mars Reconnaissance Orbiter for NASA's Science Mission Directorate, Washington. The HiRISE camera was built by Ball Aerospace and Technology Corporation and is operated by the University of Arizona.



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