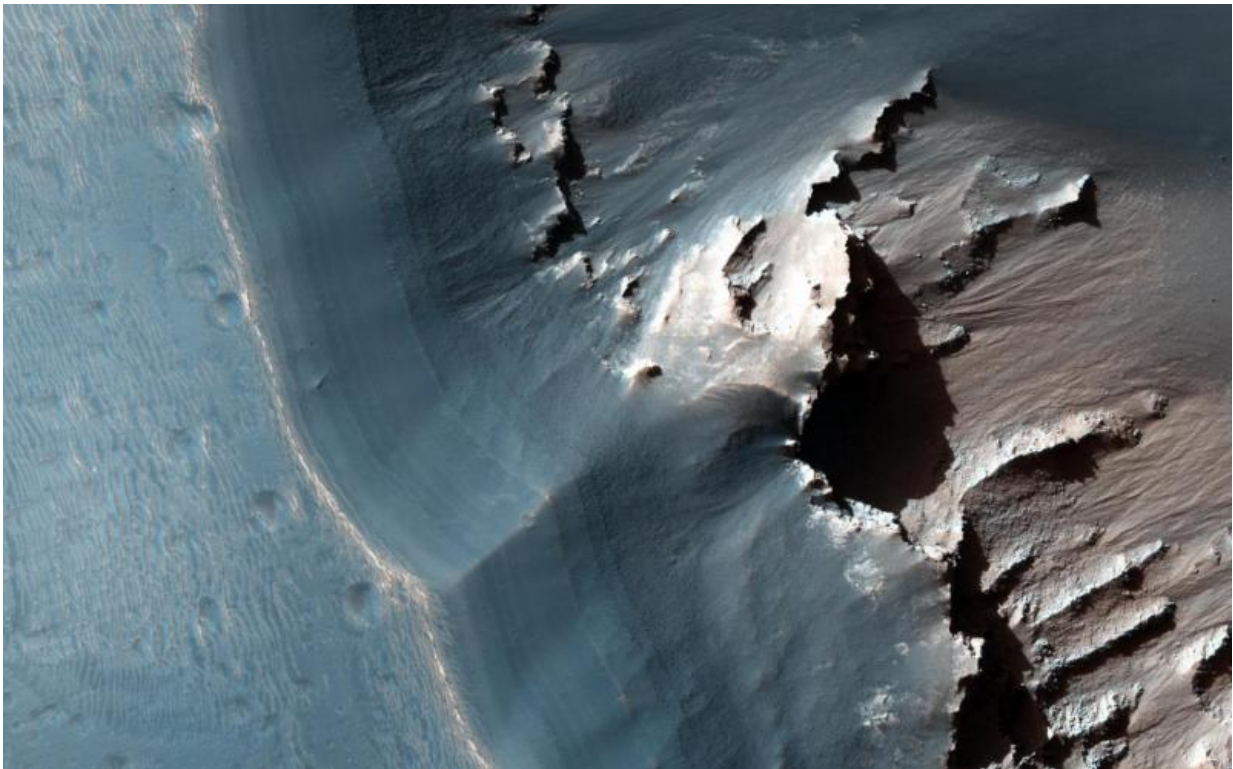


# Image: Jarosite in the Noctis Labyrinthus Region of Mars

February 22 2016, by Cathy Weitz

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Credit: NASA/JPL-Caltech/Univ. of Arizona

This image, acquired on Nov. 24, 2015 by the High Resolution Imaging Science Experiment (HiRISE) camera aboard NASA's Mars Reconnaissance Orbiter, shows the western side of an elongated pit depression in the eastern Noctis Labyrinthus region of Mars. Along the

pit's upper wall is a light-toned layered deposit. Noctis Labyrinthus is a huge region of tectonically controlled valleys located at the western end of the Valles Marineris canyon system.

Spectra extracted from the light-toned deposit by the spacecraft's Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) instrument are consistent with the mineral jarosite, which is a potassium and iron hydrous sulfate. On Earth, jarosite can form in ore deposits or from alteration near volcanic vents, and indicates an oxidizing and acidic environment. The Opportunity rover discovered jarosite at the Meridiani Planum landing site, and jarosite has been found at several other locations on Mars, indicating that it is a common mineral on the Red Planet.

The jarosite-bearing deposit observed here could indicate acidic aqueous conditions within a volcanic system in Noctis Labyrinthus. Above the light-toned jarosite deposit is a mantle of finely layered darker-toned material. CRISM spectra do not indicate this upper darker-toned mantle is hydrated. The deposit appears to drape over the pre-existing topography, suggesting it represents an airfall deposit from either atmospheric dust or volcanic ash.

Provided by NASA

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