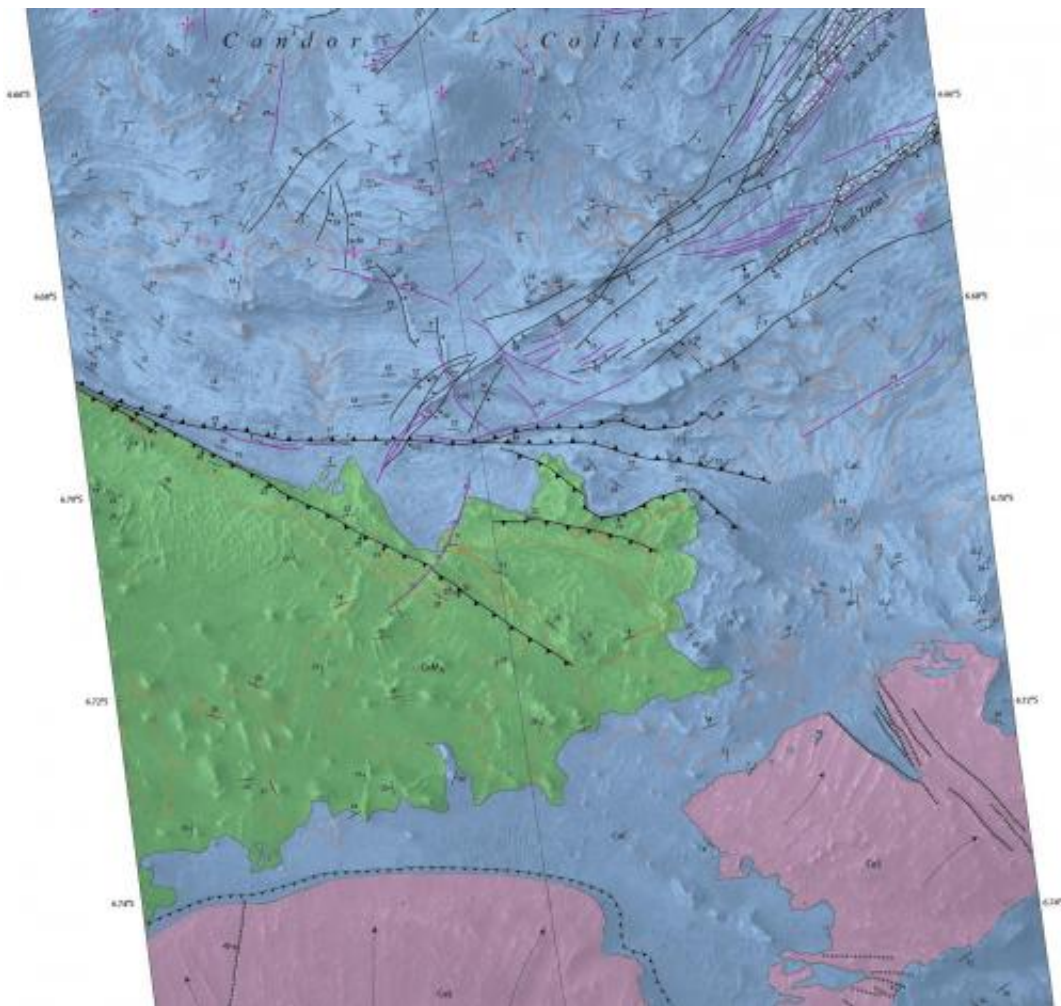


Signs of ancient Mars lakes and quakes seen in new map

December 15 2014, by Guy Webster



Details of hilly terrain within a large Martian canyon are shown on a geological map based on observations from NASA's Mars Reconnaissance Orbiter and produced by the U.S. Geological Survey Astrogeology Science Center, Flagstaff, Arizona. The map shows the structure and geology of a western portion of Mars' Candor Chasma, one of the largest canyons within the longest canyon system in

the solar system, Valles Marineris. Landforms in the upper portion of this excerpt from the full map include a series of hills called Candor Colles.

Long ago, in the largest canyon system in our solar system, vibrations from "marsquakes" shook soft sediments that had accumulated in Martian lakes.

The shaken sediments formed features that now appear as a series of low hills apparent in a geological [map](#) based on NASA images. The map was released today by the U.S. Geological Survey (USGS).

This map of the western Candor Chasma canyon within Mars' Valles Marineris is the highest-resolution Martian geological map ever released by USGS. It is derived from images taken by the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter, which reveal details smaller than a desk. The map is available for download at: pubs.usgs.gov/sim/3309/ . Additional information about the map is available at: www.usgs.gov/blogs/features/us...st-detailed-one-yet/ .

"This new map shows that at the time these sediments were deposited, a part of west Candor Chasma, specifically Condor Colles, contained numerous shallow, spring-fed lakes," said map author Chris Okubo of the USGS Astrogeology Science Center, Flagstaff, Arizona. "These lakes helped to trap wind-blown sand and dust, which accumulated over time and formed the extensive [sedimentary deposits](#) we see today."

The wet sediments experienced seismic shaking in "marsquakes" related to movement along several large geological faults in the area. A series of low hills resulted.

Valles Marineris is more than 2,500 miles (4,000 kilometers) long. The conditions under which sedimentary deposits in it formed have been an open issue for decades. Possibilities proposed have included accumulation in lakebeds, volcanic eruptions under glaciers within the canyons, and acculation of wind-blown sand and dust.

Provided by NASA

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