



## **Karst landforms as possible lithological marker within a crater in northern Sinus Meridiani, Mars**

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Sinus Meridiani is part of the large area known as Terra Meridiani, located near the south-western margin of Arabia Terra in the equatorial region of Mars. We have identified a crater in northern Sinus Meridiani, Mars (centered at 4°.45 N; 3°.31 W), where crater-floor light toned deposits (LTDs) display traits that are consistent with formation by karst-driven processes. The mineralogical composition of light-toned deposits (LTDs) within this crater is unknown.

We performed morphologic and morphometric analyses of the surfaces of these LTDs through an integrated study of images available through the Reconnaissance Mars Orbiter High-Resolution Imaging Science Experiment.

Our analysis suggest that the depressions observed are dolines, karstic features formed polygenetically by corrosion and solution-related intra-crater processes; we also demonstrate why the formation of the depressions by aeolian, periglacial, volcanic or impact-related processes seems less plausible by karst-related ones.

Moreover, the doline landforms observed are considered diagnostic of the presence of karst processes and therefore they allow us to presume that they represent a clear sign of the presence of soluble rocks.