



Karstic terrain in the equatorial layered deposits within a crater in northern Sinus Meridiani, Mars.

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This work investigates the equatorial layered deposits (ELDs) located within a crater located in northern Sinus Meridiani, Mars (4.430 N, 3.320 W), which display traits that are consistent with formation by karst-driven processes. Here, shallow depressions showing a variety of plan forms ranging from rounded, circular, elongated, polygonal and drop-like to elliptical can be observed.

The morphologic and morphometric analyses performed, highlight that these depressions display strong morphometric (sizes) and morphologic (shapes, bottoms, walls) similarities with the karst depressions that are common on limestone and evaporite terrains on the Earth and other regions on Mars.

On the basis of the characteristics of the investigated landforms and the similarities of features on Earth and Mars, and after discarding other possible origins such as, aeolian, periglacial, volcanic or impact related processes, it has been inferred that the depressions are karstic dolines formed polygenetically by corrosion and solution-related intra-crater processes.