



## **Enigmatic characteristics of a crater in Arabia Terra, Mars**

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This study discusses the characteristics of an enigmatic  $\sim 25$  km crater, located at  $36,0N/351,8E^\circ$ , in Arabia Terra. It is  $\sim 700$  m high and has roughly circular shape and exhibits almost no raised rim or ejecta field. The crater walls are layered. However, only one layer is observed to be continuous around the crater (except in E). It is darker than the under- and overlying layers, and is the source of numerous gullies. Layering is observed in several but not all craters in the region. Two channels (mouth width  $< 1$  km) cut through the wall, but there is no sign of delta formation or clear terraces within the crater.

HRSC, THEMIS, MOC and MOLA data tells of intense crater floor deformation. It is divided into four sections: 1) Flat material (in W and S); probably sedimentary materials accumulated and partly eroded after crater formation. 2) A smooth-floored depression ( $d=11$  km,  $h=50$  m) occupies the crater center, 3) surrounded by fractured (partly chaotic) terrain. 4) Two bulges (A:  $h=300$  m,  $V=6$  km<sup>3</sup>; B:  $h=70$  m,  $V=0.04$  km<sup>3</sup>) with dark albedo occur on the depression floor. The dark material covering the bulges extends to the surrounding low area. The bulges lack the characteristics of a central peak, dune field and/or sedimentary (now exhumed) remnants. They are here interpreted to be of volcanic origin.