Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02475, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02475
EGU General Assembly 2008


# Morphology of a sulphate dome in eastern Tithonium Chasma, Mars: analogies with Earth domes.

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Tithonium Chasma is the northern trench of the western troughs of Valle Marineris (Mars).

In the eastern part of the canyon system is located an elevated body that display a dome shape morphology. According to OMEGA mineralogical data (OMEGA data orbit 531_3) the body appears to be constituted by magnesium sulphate (kieserite). The main features of the dome have been investigated in detail using HRSC, MOC and THEMIS data. The dome displays some variation in its morphology that seems to not be related to spatial heterogeneity in the proprieties of the body material. The different features seems more due to the intensity of erosive processes related to other factor such as different tectonic movements or to some catastrophic flood discharge or landslide event that have locally destroyed or full-filled a part of the previous existing gully morphology that now is buried. Several of the morphologies characterising the surface of the dome such as gully excavation and gelifluction lobes probably are connected to a slow flowage motion caused by the partial melting of interstitial ice in a periglacial environment or permafrost rich soil. Tectonic influence and related morphology can also be observed along the flanks dissected by gully with v-shaped cross profile and at the flank bases where is clearly evident that faults border the body of the dome. Analysis of the dome surface also highlights the occurrence of some pseudo-karst landforms. The morphology characteristics of the Martian dome shows similar features to some domes studied on the Earth.