

Tuesday, March 13, 2007
POSTER SESSION I: MARS GULLIES
6:30 p.m. Fitness Center

Fassett C. I. Head J. W. III Dickson J. L.

Gullies with Changing Appearance on Mars: Regional Characteristics and Geological Setting [#1658]

Two gullies that brightened between observations were recently discovered using MOC. In Terra Sirenum, the surface atmospheric pressure is too low for H₂O melting; in the Centauri Montes, higher pressure and temperature make melting plausible today.

Cedillo-Flores Y. Durand-Manterola H. J.

Formation of Martian Gullies: Mechanism Suggested [#1862]

Theories have been proposed to try to explain the origin of martian gullies, to involve either liquid H₂O, liquid CO₂ or dry granular material flows. We present a new model of fluidification gases of CO₂.

Burt D. M. Knauth L. P.

Impacts, Salts, and Ice on Mars: How Brine Flow in Young Gullies and Elsewhere Could be Related to Impact Cratering [#2054]

If impact cratering has excavated chloride salts from beneath a layer of ground ice, and tossed them onto the surface, eutectic melting involving slow frost condensation could explain the formation of recent gullies. Similar phenomena on a cold early Mars could account for larger brine flows.

Crown D. A. Berman D. C. Bleamaster L. F. III

Contemporary Gully Activity on Mars: Insights from Regional Geology [#1726]

Analyses of the geologic settings of the gully systems that show recent surface changes place the compelling discoveries of contemporary activity into their regional geologic contexts.

Williams R. M. E.

A Reassessment of the Spatial Orientation of Gullies in the Martian Mid-Latitudes [#1739]

Examination of THEMIS VIS images of gully sites within mid-latitude craters shows that pole-facing orientations are observed only in a specific latitude band (30°–50° S); outside of this region, there is no observed preference to gully orientation.

Gilmore M. S. Lanza N. L. Vasavada A. R.

Comparison of Irradiance Received on Gullied and Nongullied Slopes in the Northern Hemisphere of Mars: A Three Bears Scenario? [#2263]

Gullied slopes receive a more limited range of irradiance than nongullied slopes.

Kochel R. C. Trop J. M.

Icy Debris Fans and Flows in Alaska: Earth Analog for Recent Mars Flows [#1813]

Icy debris fans in Alaska have striking morphological similarities to recent flows on Mars. A cirque headwall contains three fans formed by rockfall, debris flow, and ice/snow avalanche. Fans display meandering channels, levees, and terminate in several digitate lobes, like on Mars.

Head J. W. III Marchant D. R. Dickson J. L. Levy J. S. Morgan G. A.

Mars Gully Analogs in the Antarctic Dry Valleys: Geological Setting and Processes [#1617]

Gully analogs (Antarctic Dry Valleys) show that top-down melting of snow and ice is important in gully formation/evolution and that shallow subsurface water transport is of major importance; this insight may help explain recent Mars gully activity.

Morgan G. A. Head J. W. III Marchant D. R. Dickson J. L. Levy J. S.

Gully Formation on Mars: Testing the Snowpack Hypothesis from Analysis of Analogs in the Antarctic Dry Valleys [#1656]

Gully analogs (Antarctic Dry Valleys) show that trapped windblown snow (in alcoves, depressions and channels) is an important factor water source for gully formation; this supports a top-down (rather than deep groundwater) origin of Mars gullies.

Dickson J. L. Head J. W. III Marchant D. R. Morgan G. A. Levy J. S.

Recent Gully Activity on Mars: Clues from Late-Stage Water Flow in Gully Systems and Channels in the Antarctic Dry Valleys [#1678]

Gully analogs (Antarctic Dry Valleys) show that windblown snow is an important factor in extending gully evolution by providing candidate meltwater in the gully channel; this may help explain recent Mars gully activity.

Alexander E. C. Jr. Alexander S. C. Hanson A. E. Pinta S. M. Boston P. J. Gralnick J. A.

The Soudan Mine, Minnesota: A Hydrochemical Analog for Rimstone Dams on the Martian Surface [#1758]

Sinuuous linear features associated with martian gullies may be rimstone dams. In the Soudan Mine, Minnesota, smaller-scale, jarosite-bearing rimstone dams are growing rapidly from CaCl_2 brines.

Reiss D. Jaumann R. Kereszturi A. Sik A. Neukum G.

Gullies and Avalanche Scars on Martian Dark Dunes [#1993]

We classified mass movement features on dark dunes based on their morphology and analyzed them with respect to their distribution, slope angle, orientation and seasonal climatic conditions to constrain the possible formation process causing their different morphologies.