Levy J. S., Head J. W.

Evidence of Low Northern Midlatitude (~33°N) Valley Glacier Deposits Along the Dichotomy Boundary: Nilosyrtis Mensae, Mars [#1244]

New observations in the Nilosyrtis Mensae region of Mars detail: the transition from LDA to LVF in small alcove valleys, the processes involved LVF tributary confluence, and the development of LDA and LVF at low latitudes.

Levy J. S., Head J. W.

Lineated Valley Fill Surface Textures, Nilosyrtis Mensae, Mars: Comparison with Analogous Glacier Surface Textures in the Antarctic Dry Valleys [#1245]

We compare the lobate LVF feature observed in Nilosyrtis Mensae with the Mullins Valley debris-covered glacier, located in the Antarctic Dry Valleys. Cold-based glaciers in the hyper-arid, cold environments of the ADV are considered to be physical analogs for martian valley-glacial processes.

Head J. W. III, Marchant D. R.


Modification of the walls of a Noachian-aged crater in northern Arabia Terra shows that lobate debris aprons and lineated valley fill form in intimate association as deposits of debris-covered glaciers during the Amazonian.

Marchant D. R., Head J. W. III

Glacial Landsystems on Mars: Integrating Landform Assemblages, Glaciations, and Climate Cycles [#1422]

The distribution of glaciers and deposits formed during build up, maturation, and sublimation of Miocene-age cold-based glaciers (Antarctic Dry Valleys) provides insight into the nature and origin of deposits thought to be of glacial origin on Mars.

Marchant D. R., Head J. W. III, Kreslavsky M. A.

Mid-Latitude Glacial Modification of Moreux Crater (44°E, 42°N; 135 km): Evidence for Polythermal Glaciation Related to Impact-induced Enhanced Thermal Gradients [#1425]

Most northern mid-latitude glacial deposits are cold based. Wet-based glacial features are observed in Moreux crater, interpreted as a local thermal anomaly in the northern mid-latitude Amazonian cold polar desert thermal environment.

Head J. W. III, Marchant D. R.

Evidence for Global-Scale Northern Mid-Latitude Glaciation in the Amazonian Period of Mars: Debris-covered Glacier and Valley Glacier Deposits in the 30°–50° N Latitude Band [#1127]

Analysis of the northern mid-latitudes (30°–50°N) reveals widespread lobate debris aprons and lineated valley fill that form as deposits of debris-covered glaciers and valley glaciers in the Amazonian during high-obliquity conditions.

Aittola M., Korteniemi J., Öhman T., Törmänen T., Raitala J.

Geology of Central Noachis Terra, Mars [#1654]

According to the preliminary study, Noachis Terra has been modified by several processes, which have characterized the unforeseeably varied geological history of the region.

Williams K. E., Toon O. B.

Stability of Mid-Latitude Snowpacks on Mars [#1201]

Mid-latitude snowpacks on Mars would have difficulty surviving from the last obliquity cycle. We have modeled the lifetime of a mid-latitude snowpack on a poleward slope and found that it will completely sublime in 5–20 years without melting.
Edlund S. J. Heldmann J. L.
Correlation of Subsurface Ice Content and Gully Locations on Mars: Testing the Shallow Aquifer Theory of Gully Formation [2049]
We test the shallow aquifer theory of gully formation by calculating the temperature and pressure of the martian subsurface at the measured alcove base depths using measured GRS ice contents to determine if liquid water can exist at these locations.

Dickson J. L. Head J. W. Kreslavsky M. A. Marchant D. R.
Linear Lobate Debris Aprons, Piedmont-like Lobes, andCrater Fill in the Acheron Fossae Graben Region, Mars: Evidence forDebris-covered Glacier Formation and Flow [1321]
The graben of Acheron Fossae contain linear lobate debris aprons (LDA) where slopes are low and lineated valley fill (LVF) and piedmont-like lobes on steeper slopes; post-graben craters host LDAs on pole-facing slopes.

Dickson J. Head J. W. Marchant D. R.
Linear lobate debris aprons (LDAs) form in Coloe Fossae, creating central breached folds; LDA/LVF transitions are common at the dichotomy boundary, supporting the presence of an integrated Amazonian glacial landsystem for this area.

Johnston J. G. Boston P. J. Stafford K. W.
Assessment of Karst Landform Potential on Mars [1980]
A variety of possible Earth analogs are considered in the development of a new model of martian speleogenesis, and the conditions under which martian karst landforms might occur are discussed.

Wan Bun Tseung J-M. Soare R. J.
Thermokarst and Related Landforms in Western Utopia Planitia, Mars: Implications for Near-Surface Excess Ice [1414]
We have identified polygon pits in western Utopia Planitia suggestive of terrestrial thermokarst landforms. We argue that the polygon pits are the result of periglacial processes and imply the presence of excess near-surface ice on Mars.

Williams R. M. E.
Latitude-dependence of Meter-Scale Surface Textures in Deuteronilus Mensae, Mars [1445]
Meter-scale surface textures on lobate aprons and valley floors within the study region exhibit latitude dependence: knobby transitions to pitted terrain at higher latitudes. Observations suggest recent surface mantle degradation via ice sublimation.

Li H. Robinson M. S. Jurdy D. M.
Martian Southern Hemisphere Debris Aprons [2390]
We surveyed the southern debris aprons near eastern Hellas region to understand their topographic and morphometric nature. By comparing the topographic characteristics of the southern and northern aprons, we seek to understand their development mechanisms.

van Gasselt S. Hauber E. Neukum G. HRSC Co-Investigator Team
Origin and Nature of a Debris-Tongue in Hellas Montes, Mars [2417]
We here report on an investigation and new interpretation of a landform in Hellas Montes formerly described as avalanche deposit which has a more complex history than thought before and is connected to a newly discovered volcanic feature in the Hellas vicinity.