

PRINT ONLY: MARS

Bibring J-P. Poulet F. Morbidelli A.

[*The Martian P/T Transition: Sounding Mars Early Evolution and Habitability*](#) [#2093]

Mars evolution can be traced by its surface mineralogy, as inferred from orbital (OMEGA/MEX and CRISM/MRO) data. The Noachian includes a diversity of eras with distinct environments, the Phyllosian/Theikian transition ending the habitability era.

Haltigin T. W. Pollard W. H. Osinski G. R. Dutilleul P.

[*Polygon Morphology Within Scalloped Depressions, Utopia Planitia, Mars*](#) [#2566]

This paper examines possible periglacial landforms in ice-rich sediments within Utopia Planitia, Mars, using an examination of HiRISE imagery to demonstrate that polygonal terrain morphology varies with the stage of scalloped depression development.

Heet T. Arvidson R. E. Mellon M. T. Phoenix Science Team

[*Regional Geology and Rock Distributions of the Mars Phoenix Landing Site*](#) [#1114]

A geologic map of the Phoenix Mars landing site is presented. Crater counts are used to date mapped units and rock distributions provide insight into the origin and alteration of surface materials.

Maxe L. P.

[*Martian Dust as an End-Member of Semi-Cosmic Weathering*](#) [#2020]

The martian dust is a compound close to terrestrial amorphous spinel's minerals such as Hercynite, spinel ferrites. The semi-cosmic weathering affects the mineral surface by both ways: reduction (in the top layer) and oxidation (in the deeper layer).

Molina A. de Pablo M. A. Ramos M.

[*Study of the Surface Temperature at Nili Fossae, Mars. Preliminary Results.*](#) [#1031]

Here we present our preliminary analysis of surface temperature from BTR THEMIS IR data focused on the study of a possible permafrost and active layer in Nili Fossae, Mars.

Nußbaumer J. W.

[*Liquid Water Formed Scroll Bars in River Meanders for Decades in Elysium Planitia, Mars*](#) [#1437]

HiRISE images show evidence for meandering channels with scroll bars in parts of southern Elysium, Mars. The river formed meanders during a wetter climate in the past and during long term wet conditions.

Petrowsky M. J. Jones R. Coleman N. M.

[*Structural Deformation and Surface Properties of a Martian Crater — Insights from THEMIS Infrared Images*](#) [#1213]

We use THEMIS infrared images to analyze the history and surface properties of a large crater on Mars. We take advantage of a special condition – that the crater floor was offset by faulting, revealing a cross-section of underlying strata.

Sprenke K. F.

[*Magnetic Anomalies Within the Elliptical Borealis Basin of Mars*](#) [#1140]

Significant magnetic anomalies exist within the proposed elliptical Borealis Basin of Mars. These anomalies raise questions about the actual shape of the mega-impact basin as well as timing of the core field relative to the purported single impact.

Thomas C. Picaud S. Mousis O. Ballenegger V.

[*A Theoretical Investigation of the Influence of Clathrate Hydrates on the Atmosphere of Mars*](#) [#1264]

Traces of methane have recently been evidenced in the martian atmosphere. Clathrate hydrates may be at the origin of the detected CH₄, if a primitive methane-rich atmosphere has existed or if a subsurface source of CH₄ has been (or is still) present.

Tichý M.

[*A Creeping Soil Field on Mars*](#) [#1190]

A creeping soil field exists on Mars. A mass of martian soil moves along rock outcrops, which get abraded, and as a result, strands of abraded material can be observed. Previously the phenomenon was explained as the result of wind streaks.

Valenciano A. de Pablo M. A. Pacifici A.

[*The Role of Water on the Evolution of the Nepenthes Mensae Region of Mars*](#) [#1052]

Here we show the preliminary results of a detailed search of water- and ice-related landforms in the Nepenthes Mensae region of Mars, what will be used in the future for a wide study of the evolution of water in this martian region.

Welty C. B. Crown D. A. Balme M. R.

[*Morphologic Properties of Martian Gully Systems*](#) [#2339]

From high-resolution Mars imagery, analyses of gully morphometric parameters, locations, and settings suggest a source volume dependency over gully length and that gully formation mechanisms are likely consistent across the martian surface.

Xiao L. Smith M. Huang J. He Q. Petford N. Williams D. A. Liu J. G. Greeley R.

[*Volcanic Features on the Syria-Thaumasia Block, Mars: Implications for Ancient Martian Volcanology*](#) [#1026]

This study provides new observations of various volcanic features in the Syria-Thaumasia block. Four types of volcanic features are recognized in the area.

de Pablo M. A. Pacifici A.

[*Chain of Depressions and the Watersheet Evolution in Nepenthes Mensae, Mars*](#) [#1095]

Our analysis of the MOLA-derived topographic map of the Nepenthes Mensae area, Mars, revealed the existence of different depressions near the highlands-lowlands boundary. We interpret the depressions such as a possible chain of lakes.