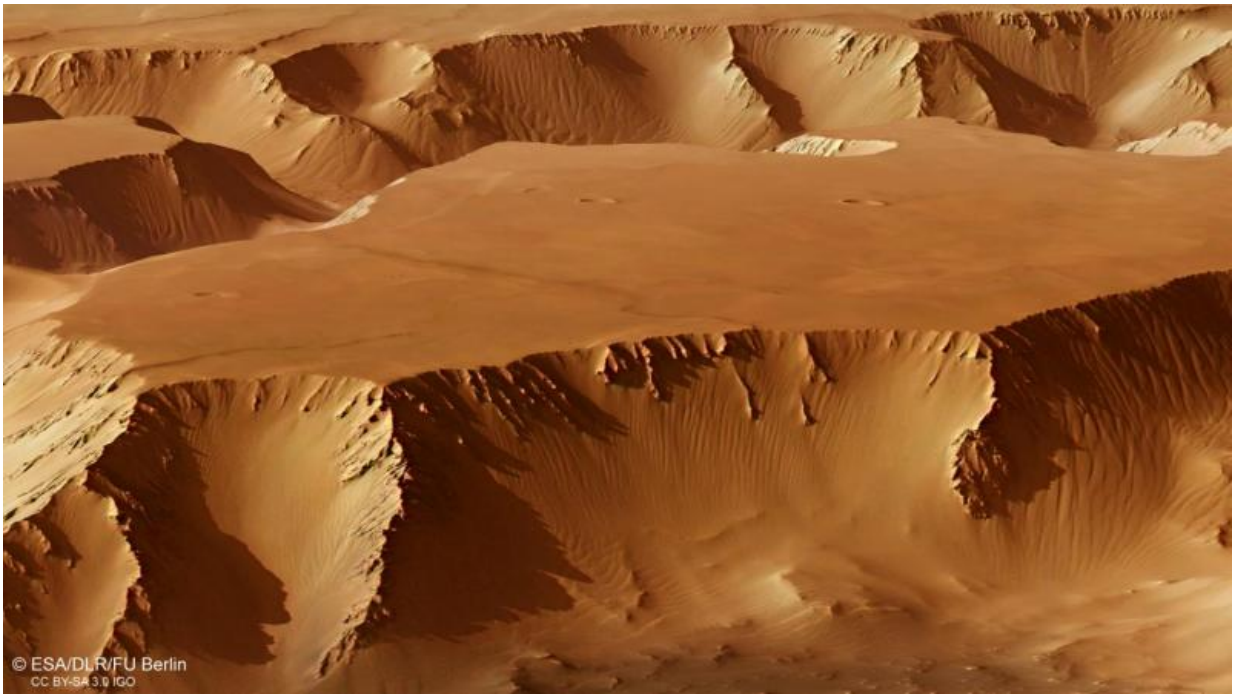
# ESA image: Martian labyrinth

January 29 2016




This perspective view in Noctis Labyrinthus was generated from the main camera's stereo channels on ESA's Mars Express. It shows the beautiful details of landslides in the steep-sided walls of the flat-topped graben in the foreground, and in the valley walls in the background. The scene is part of region imaged by the High Resolution Stereo Camera on Mars Express on 15 July 2015 during orbit 14632. The image is centred on 6°S / 265°E; the ground resolution is about 16 m per pixel. Credit: ESA/DLR/FU Berlin, CC BY-SA 3.0 IGO

This block of martian terrain, etched with an intricate pattern of landslides and wind-blown dunes, is a small segment of a vast labyrinth

of valleys, fractures and plateaus.

The region, known as Noctis Labyrinthus – the "labyrinth of the night" – lies on the western edge of Valles Marineris, the grand canyon of the Solar System. It was imaged by ESA's Mars Express on 15 July 2015.

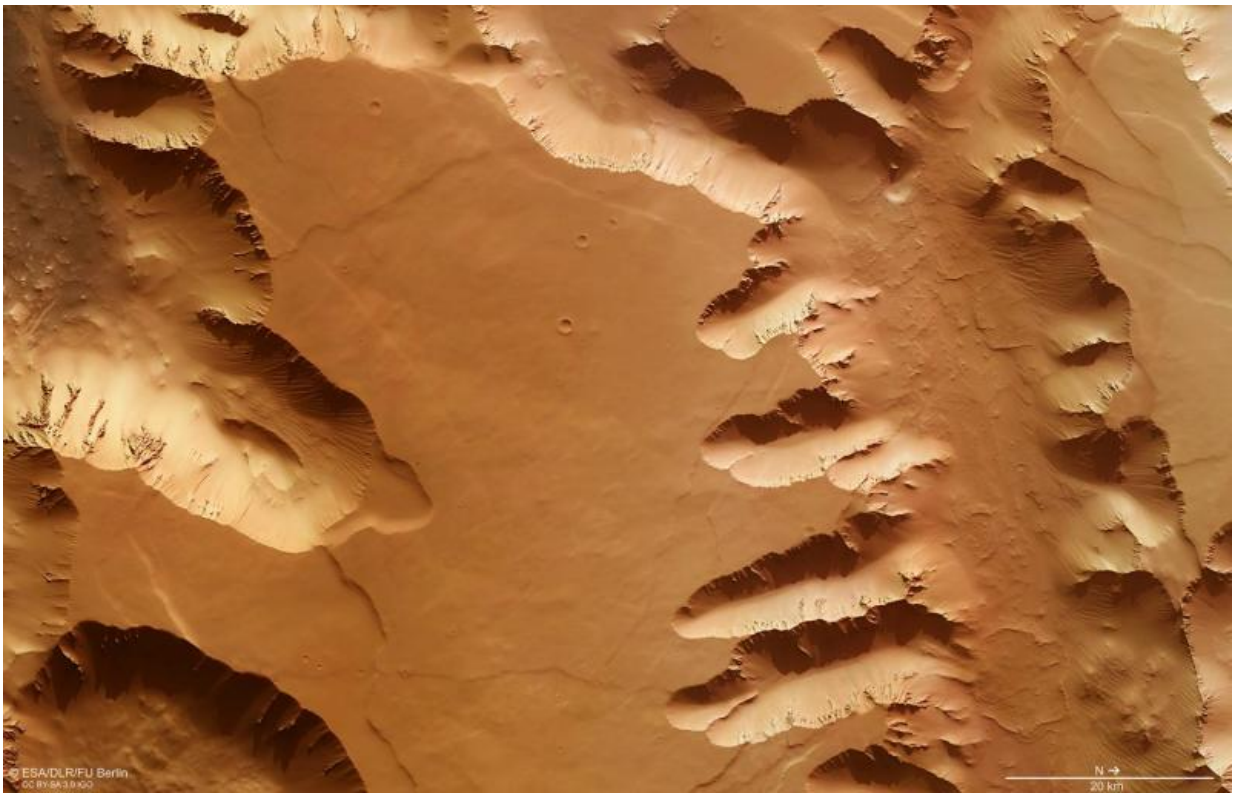
It is part of a complex feature whose origin lies in the swelling of the crust owing to tectonic and volcanic activity in the Tharsis region, home to Olympus Mons and other large volcanoes.

As the crust bulged in the Tharsis province it stretched apart the surrounding terrain, ripping fractures several kilometres deep and leaving blocks – graben – stranded within the resulting trenches.

The entire network of graben and fractures spans some 1200 km, about the equivalent length of the river Rhine from the Alps to the North Sea.

The segment presented here captures a roughly 120 km-wide portion of that network, with one large, flat-topped block taking centre stage.

Landslides are seen in extraordinary detail in the flanks of this unit and along the valley walls (most notable in the perspective view, top), with eroded debris lying at the base of the steep walls.

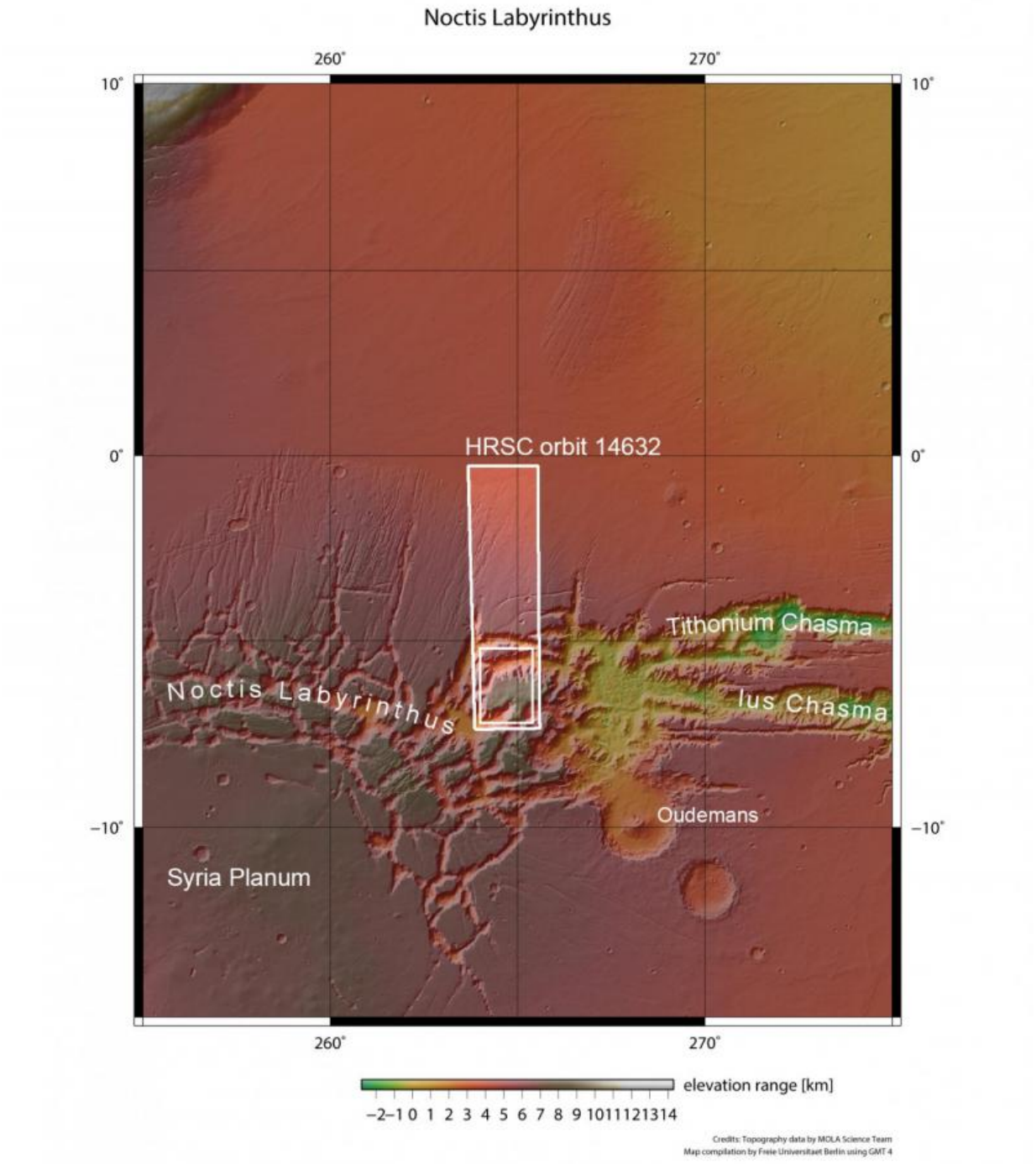



A small portion of the vast Noctis Labyrinthus region, part of a complex graben system relating to volcanic activity in the Tharsis region. As the crust bulged it stretched apart nearby terrain, ripping fractures several kilometres deep and leaving blocks – graben – stranded within the resulting trenches. This particular scene focuses on one such flat-topped graben etched with landslides, and on the wind-blown dunes in the floor of the surrounding trench and valley walls. The flanks of the graben and valleys appear to be covered by thick dust deposits. In the lower right part of the image wind has accumulated the dust into dune fields, partly lifting them onto the plateau. The region was imaged by the High Resolution Stereo Camera on Mars Express on 15 July 2015 during orbit 14632. The image is centred on 6°S / 265°E; the ground resolution is about 16 m per pixel. Credit: ESA/DLR/FU Berlin, CC BY-SA 3.0 IGO

In some places, particularly notable in the lower-right corner of the plan view image (above), wind has drawn the dust into dune fields that extend

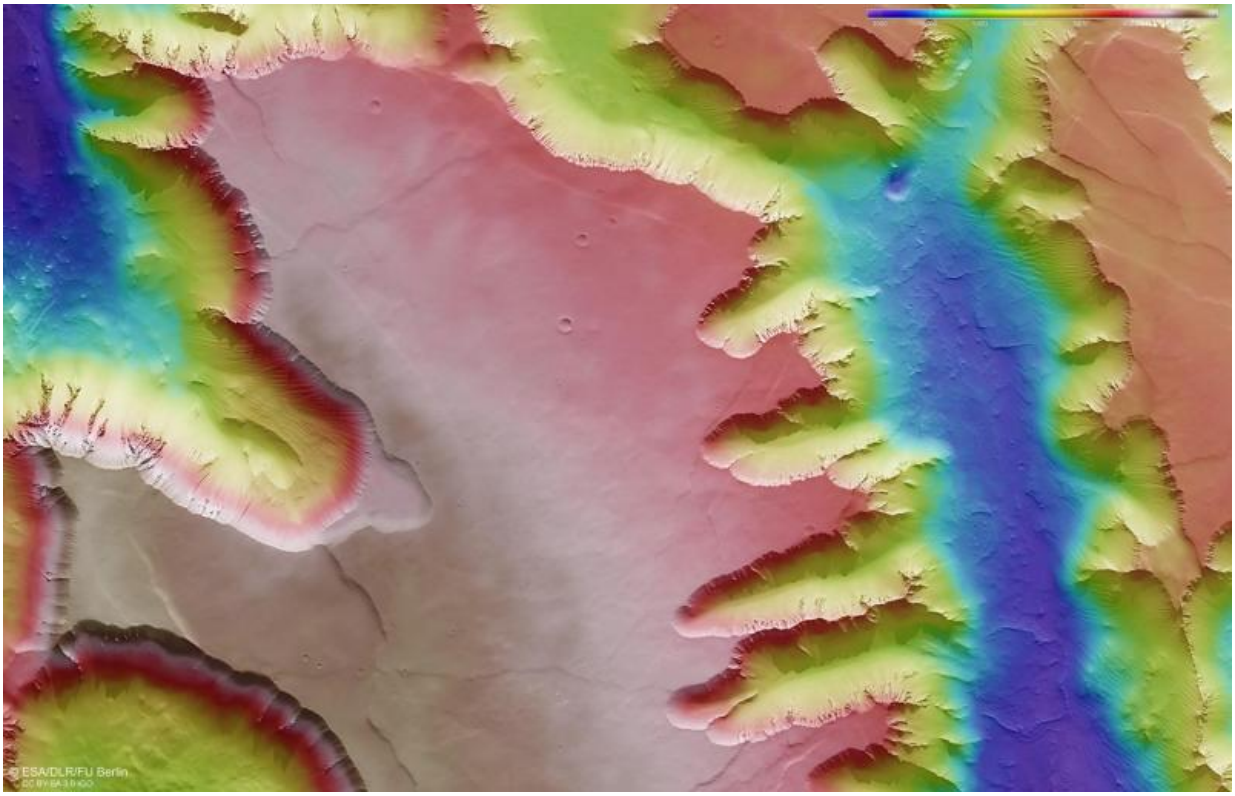
up onto the surrounding plateaus.

Near-linear features are also visible on the flat elevated surfaces: fault lines crossing each other in different directions, suggesting many episodes of tectonic stretching in the complex history of this region.




This context image shows part of the Noctis Labyrinthus region of Mars that was imaged by the High Resolution Stereo Camera on ESA's Mars Express on 15 July 2015 during orbit 14632 (outlined by the large white box). The region outlined by the inner white box provides the focus of an associated image

release. Credit: NASA MGS MOLA Science Team




The colour-coded topographic view shows relative heights and depths of terrain in the Noctis Labyrinthus region on Mars. Red/white represents the highest terrain, and blues and purples show lower terrain (see key). The image is based on a digital terrain model of the region, from which the topography of the landscape can be derived. The region was imaged by the High Resolution Stereo Camera on Mars Express on 15 July 2015 during orbit 14632. The image is centred on 6°S / 265°E; the ground resolution is about 16 m per pixel. Credit: ESA/DLR/FU Berlin, CC BY-SA 3.0 IGO

Provided by European Space Agency