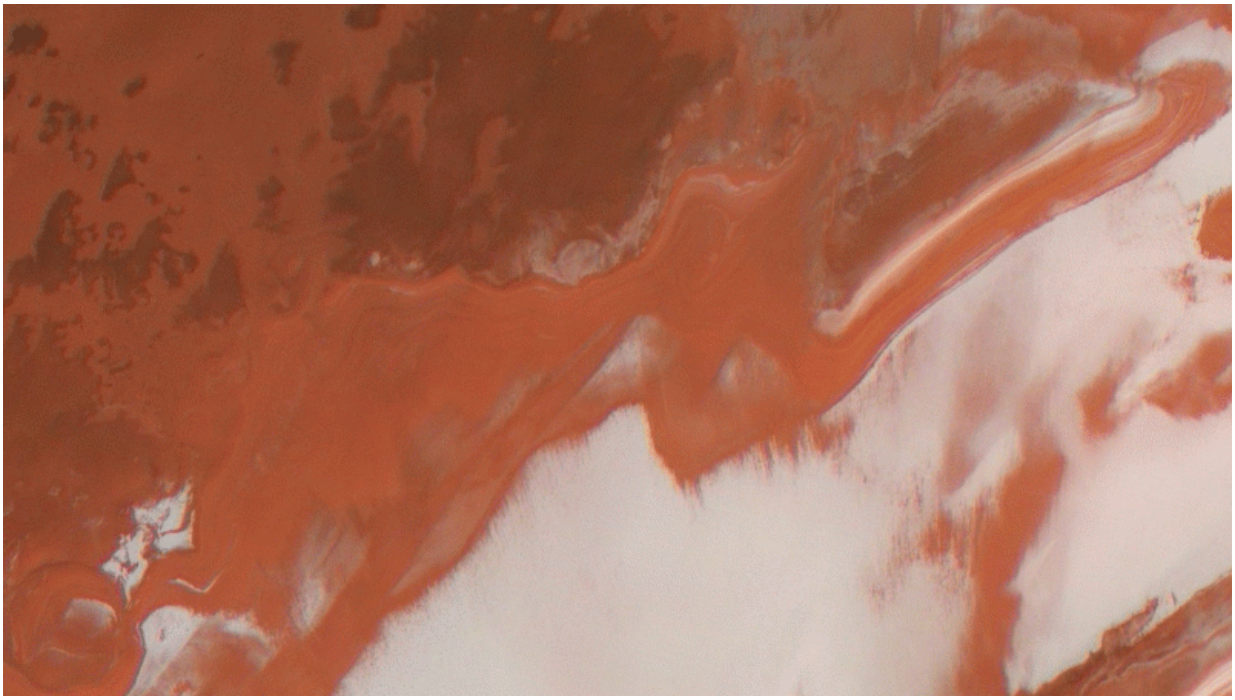
Image: Frost build-up near Mars north pole

January 23 2017



Credit: ESA/Mars Express – CC BY-SA 3.0 IGO

This animated gif shows the build up of frosts in a 73 x 41 km section of the north polar ice cap of Mars between November and December 2004.

The images were taken by the High Resolution Stereo Camera on ESA's Mars Express during its first year at the Red Planet. It has been orbiting Mars for over 13 years.

The first image was taken on 23 November 2004 during orbit 1087, and the second of the same area on 30 December 2004, during orbit 1219. The images are centred at 79.94ºN / 44.11ºE. The interleaving frames in the gif are interpolated to give a smooth appearance.

The north polar icecap comprises layers of water-ice that extend to a depth of around 2 km. The layers result from seasonal melting and deposition of ice mixed with dust.

During winter the water-ice is covered by a thin layer of carbon dioxide ice that is a few centimetres to around a metre thick.

During the warmer summer months, most of the carbon dioxide ice turns directly into vapour and escapes into the atmosphere, leaving behind the water-ice layers.

But when the seasons start to change again, a thin veneer of solid carbon dioxide begins to encroach, as seen in these images, which captures subtle changes between summer and autumn.

Provided by European Space Agency

Citation: Image: Frost build-up near Mars north pole (2017, January 23) retrieved 25 April 2024 from https://phys.org/news/2017-01-image-frost-build-up-mars-north.html