

Video: Mars 360: The North Pole

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Enjoy views of the martian north pole from all angles in this new animation from ESA's Mars Express.

The ice cap has a diameter of about 1000 km and consists of many thin layers of ice mixed with dust that extend to a depth of around 2 km below the cap. The prominent gap in the ice cap is a 318 km-long, 2 km-deep chasm called Chasma Boreale.

The layers result from variations in the orbit and rotation of Mars that affect the amount of sunlight received at the poles, and thus the amount of melting and deposition of materials over time. Meanwhile, strong prevailing winds are thought to be responsible for shaping the spiral troughs.

The polar [ice cap](#) in this movie was constructed using data provided by the Mars Advanced Radar for Subsurface and Ionospheric Sounding instrument, MARSIS.

Low-frequency radio waves beamed towards the surface are reflected back to Mars Express from the planet's surface and from interfaces between layers of different materials underground.

The strength and timing of the radar echoes are a gauge of the depths of different types of interfaces, such as between rock, water or ice. This information can then be translated into 3D views, as seen in this movie.

Provided by European Space Agency

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