

# Return of the extremely elongated cloud on Mars

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Credit: ESA/GCP/UPV/EHU Bilbao

A mysteriously long, thin cloud has again appeared over the 20-km-high Arsia Mons volcano on Mars.

[A recurrent feature](#), the cloud is made up of water ice, but despite appearances it is not a plume linked to volcanic activity. Instead, the curious stream forms as airflow is influenced by the volcano's 'leeward' slope – the side that does not face the wind.

These images of the cloud, which can reach up to 1800-km in length, were taken on 17 and 19 July by the Visual Monitoring Camera (VMC) on Mars Express, which has been studying the Red Planet from orbit for the past 16 years.

"We have been investigating this intriguing phenomenon and were expecting to see such a cloud form around now," explains Jorge Hernandez-Bernal, Ph.D. candidate at the University of the Basque Country (Spain) and lead author of the ongoing study.

"This elongated cloud forms every [martian year](#) during this season around the southern solstice, and repeats for 80 days or even more, following a

rapid daily cycle. However, we don't know yet if the [clouds](#) are always quite this impressive".

A martian day, or sol, is slightly longer than an Earth day at 24 hours, 39 minutes and 35 seconds long. A year at the Red Planet consists of 668 sols, approximately 687 days, so the seasons last for twice as long.

The southern solstice is the period of the year when the Sun is in the southernmost position in the martian skies, just like 21 December on Earth. In the early mornings during this period, this fleeting cloud grows for approximately three hours, quickly disappearing again just a few hours later.

Most spacecraft in orbit around the Red Planet tend to observe in the afternoon, however Mars Express is in a privileged position to gather and provide crucial information on this unique effect.

"The extent of this huge cloud can't be seen if your camera only has a narrow field of view, or if you're only observing in the afternoon," says Eleni Ravanis, a Young Graduate Trainee for the Mars Express mission who works specifically for the VMC instrument.

"Luckily for Mars Express, the highly elliptical orbit of the spacecraft, coupled with the wide field of view of the VMC instrument, lets us take pictures covering a wide area of the planet in the early morning. That means we can catch it!"

The Mars Express science team have now named the cloud the Arsia Mons Elongated Cloud, AMEC. So, for how long has it been disappearing and reappearing? Why does it only form in the early morning? Stay tuned as scientists continue to investigate, and we reveal more mysteries from Mars.

Provided by European Space Agency

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