

A satellite in orbit over Earth, showing solar panels and a white thermal blanket. The satellite is oriented diagonally across the frame, with its long solar panel arrays extending outwards. The central body of the satellite is covered in a white thermal blanket. The Earth's surface is visible below, showing a mix of green land and blue oceans with white clouds. The horizon of the Earth is visible in the background.

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ESA's *Aeolus* satellite has been orbiting Earth for nearly five years. Its mission: test new technologies, studying the winds around our planet and sending data to meteorologists, improving weather forecasts for the entire planet!

Aeolus was a pioneering satellite able to measure global winds from space using a laser. The data collected were able to reach weather forecasters within three hours, making it a brilliant tool for major weather forecasting services across the world including the European Centre for Medium-Range Weather Forecasts and the UK's Met Office. Aeolus has also been used in learning about volcanic plumes, understanding Saharan dust, and even studying ocean biochemistry!

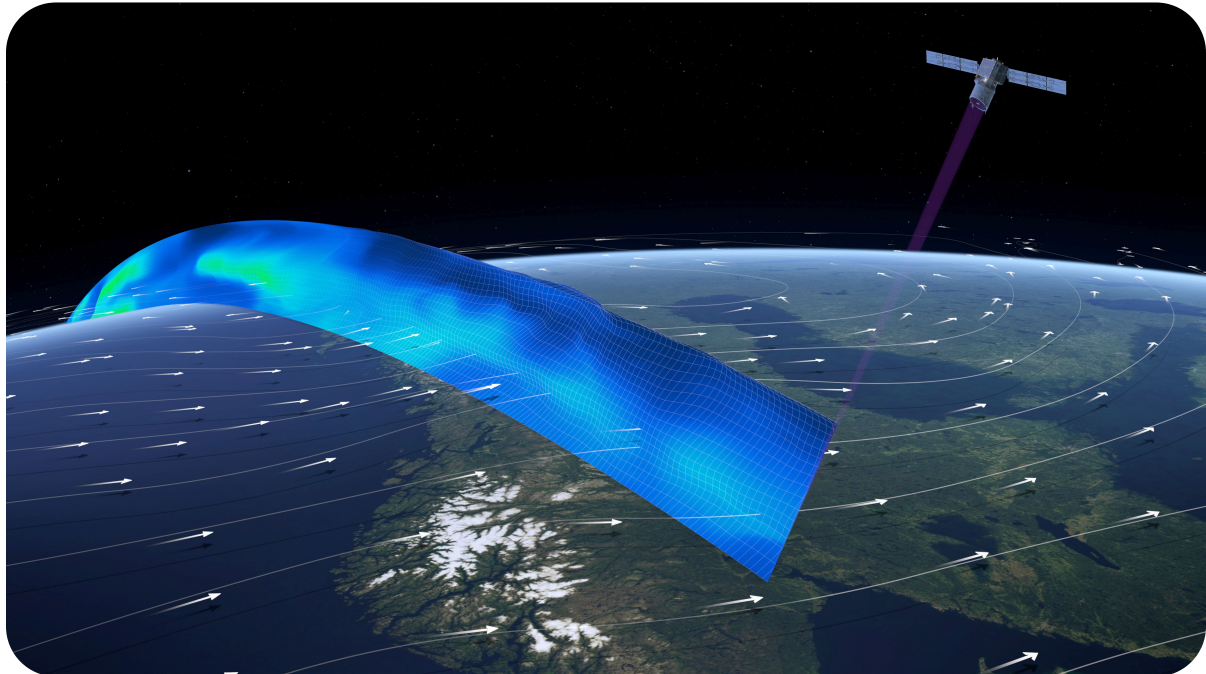
Now its fuel supply is almost empty, and the mission must come to an end. Aeolus was designed to orbit 320km above Earth's surface, but it is now slowly getting lower by around 1km every day. Mission engineers always knew this time would come, so they had planned for Aeolus to naturally fall back to Earth and burn up in the atmosphere. However, ESA's spacecraft engineers have decided to attempt a first of its kind assisted reentry!

Sending signals from [ESA's Space Operations Centre in Germany](#), the Flight Control Team will use what little fuel Aeolus has left to steer the satellite during its return to Earth. Most of the satellite will burn up when it is around 80km above Earth's surface. By then, Aeolus will have been positioned over a stretch of ocean as far away from land as possible, so if any pieces of the satellite do make it down to the surface, it is very unlikely that any people will be in danger.

Tim Flohrer, Head of ESA's Space Debris Office, explains: *"This assisted reentry attempt goes above and beyond safety regulations for the mission, which was planned and designed in the late 1990s. Should all go to plan, Aeolus would be in line with current safety regulations for missions being designed today."*

If successful, this method of assisted reentry could be used to help other older satellites to enter Earth's atmosphere, ending their missions in the safest way possible!

*Cool fact: Five years is far longer than Aeolus was planned to be in orbit. During this time, its **Aladin** instrument has beamed down seven billion pulses of ultraviolet light to study Earth's wind!*



[Access the image](#)