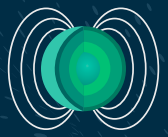
Swarm in Brief

What?

Swarm is ESA's magnetic field mission and the first Earth Explorer constellation made up of three identical satellites: Alpha, Bravo and Charlie. Their main objectives are to measure the magnetic signals that stem from Earth's core,mantle, crust, oceans, ionosphere and magnetosphere

Why?

Swarm data are furthering studies into Earth's weakening and drifting magnetic shield, the structure of Earth's interior, space weather and radiation hazards

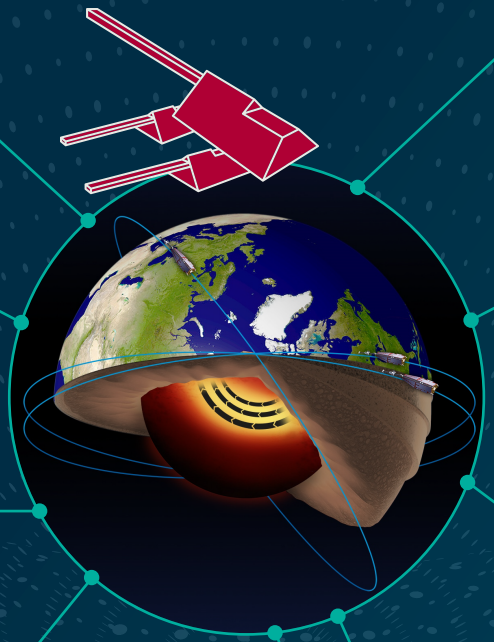


Milestones

Swarm was designed to operate for 4 years, following a three-month commissioning phase, but has already been in operation for double its initially projected lifetime. In 2021, it will celebrate 8 years in orbit

4th Satellite

In March 2018, the Canadian Space Agency's e-POP payload, aboard the CASSIOPE satellite, was integrated into the Swarm constellation, as the fourth element (Swarm-Echo) under ESA's Earthnet Third Party Mission Programme



When?

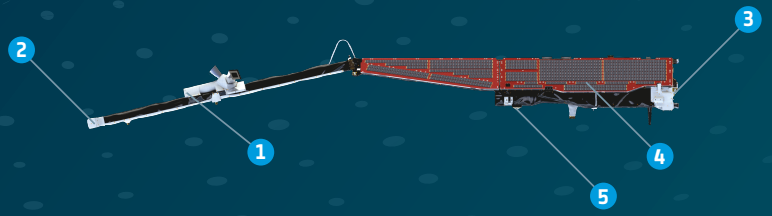
The three satellites were taken into orbit on a Rockot launcher from Plesetsk, Russia on 22 November 2013.
Two of the satellites orbit side-by-side at an initial altitude of 460 km, decaying naturally to 300 km. The third satellite orbits at about 530 km

Where?

The constellation was constructed by a consortium led by EADS Astrium (now Airbus) from the UK, GFZ Potsdam from Germany, DTU Space from Denmark and CNES from France

Innovation

Each of the Swarm satellites carry five scientific instruments: a Vector Field Magnetometer **(1)**, an Absolute Scalar Magnetometer **(2)**, an Electric Field Instrument **(3)**, Accelerometers **(4)** and a Laser Range Reflector **(5)**. Swarm's electric field sensors are the first 3D ionospheric imagers of their kind in orbit



Data access

https://swarm-diss.eo.esa.int

Data and Users

Swarm generates approximately 120 GB data/month.
An estimated 13 TB of data have been generated during the Swarm constellation's nearly 8 years in space.
Swarm serves over 1000 registered users from 70 countries

For more information visit:
https://earth.esa.int/eogateway/missions/swarm