EARTH EXPLORER MISSIONS

As we are challenged by cutting-edge scientific questions, ESA's Earth Explorer satellites pioneer new space technology and observe our planet to reveal crucial information about Earth's system.

Earth is a dynamic, interactive system that involves significant natural variability. Human activity is leaving its mark on these natural processes and changing the interactions in Earth's system. Understanding Earth's changing system is also essential as we tackle the scientific challenges of climate change.

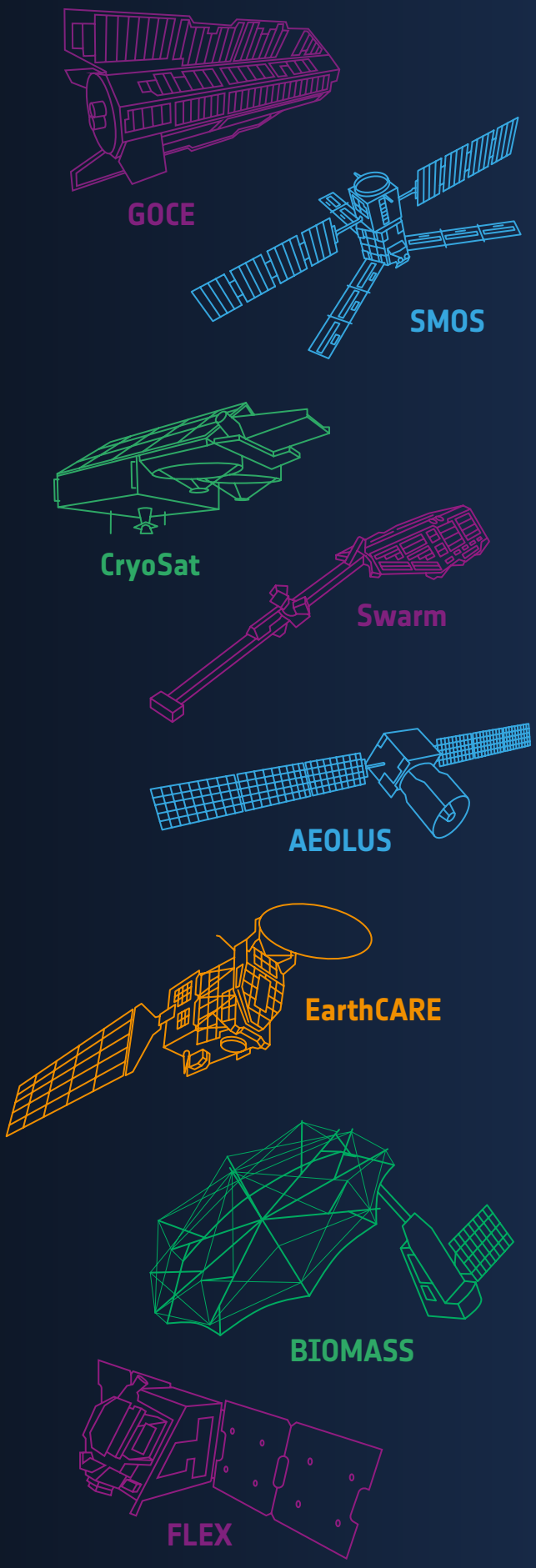
The main purpose of **Earth Explorer missions is to advance Earth science by providing answers to key scientific questions**. This family of research missions provide essential information about Earth's interior, cryosphere, hydrosphere, atmosphere, ionosphere and land surface. Using innovative space technology, they support the quest to understand Earth as a system and the complex interactions within it.

The first Earth Explorer, **GOCE**, which completed its mission in 2013, mapped, in unprecedented detail, variations in Earth's gravity.

The four missions currently in operation are **SMOS, CryoSat, Swarm** and **Aeolus**. These satellites provide key measurements about soil moisture and ocean salinity, variations in Earth's cryosphere, the magnetic field and atmospheric circulation.

The next Earth Explorers leverage pioneering space technology to expand further our knowledge on Earth's system. **EarthCARE** will advance our understanding of the role that clouds and aerosols play in reflecting and trapping Earth's radiation, while **Biomass** will measure global forest carbon to increase knowledge about the role of forests in the carbon cycle. The **FLEX** mission will provide information about photosynthetic activity, to shed light on the functioning of Earth's vegetation.

As part of ESA's continuing commitment to advance our scientific understanding of Earth, this family of extraordinary satellite missions will continue to grow as candidate mission concepts are selected to be developed and built.



READ OUR SUCCESS STORIES

Askos campaign validates Aeolus data
READ MORE

Retrieving Snow Depth Over Sea Ice Using Dual-Frequency Altimetric Measurements
READ MORE

CryoSat's Swath Processing Technique
READ MORE

Swarm's orbital dance: counter-rotating and closer, for the benefit of science
READ MORE

ESA's open source computing project for the Biomass mission goes live
READ MORE

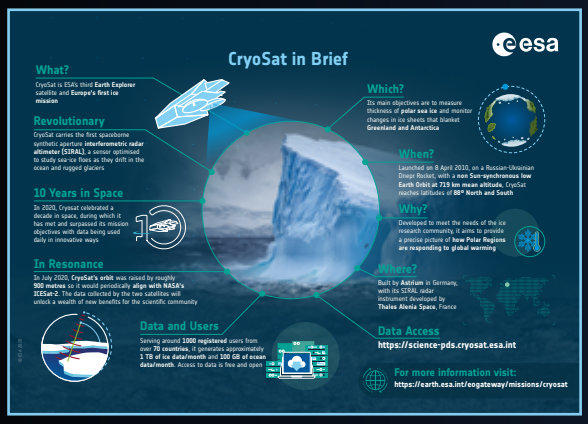
Aerosol light absorption campaign validates Aeolus data
READ MORE

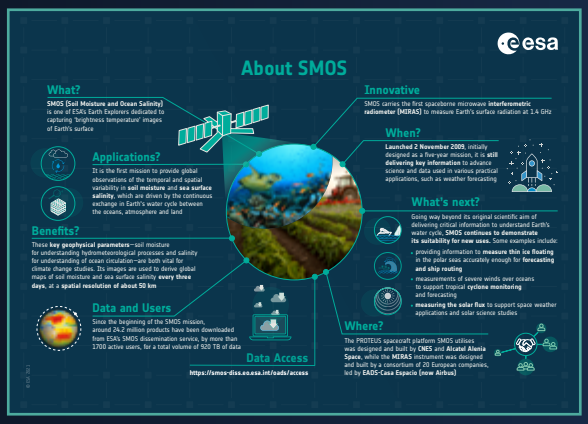
Drone-based Laser Scanning of Tropical Forests for Biomass Cal/Val
READ MORE

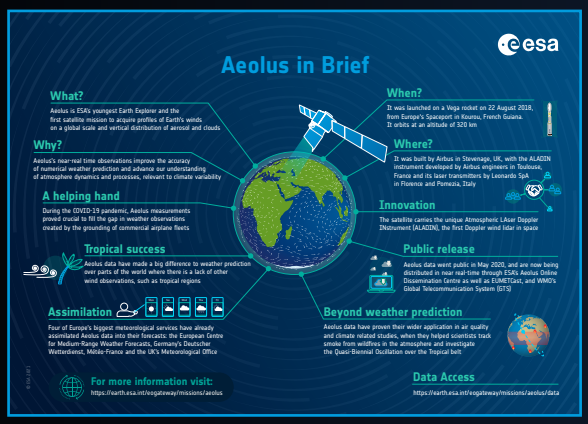
LEARN MORE ABOUT OUR MISSIONS

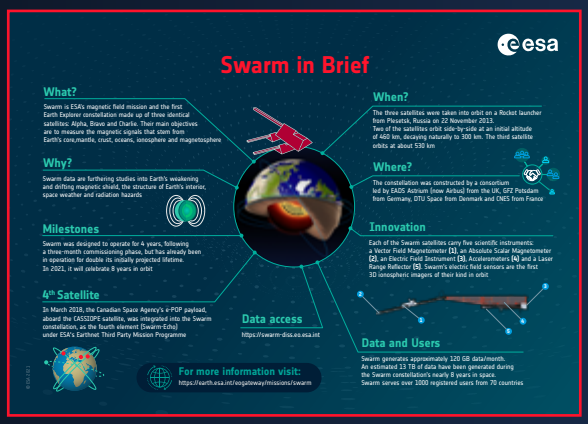
These infographics provide an introduction to the four Earth Explorer missions currently in operation: CryoSat, SMOS, Aeolus and Swarm.

They highlight the different capabilities of the missions and their many achievements.









LEARN MORE ABOUT **EARTH EXPLORERS**

earth.esa.int/eogateway/missions/earth-explorers

EARTH.ESA.INT

Contact us

IF YOU WANT TO CONTACT OUR EDITORIAL TEAM, PLEASE EMAIL US AT
contentmatters4earthonline@ejr-quartz.com