

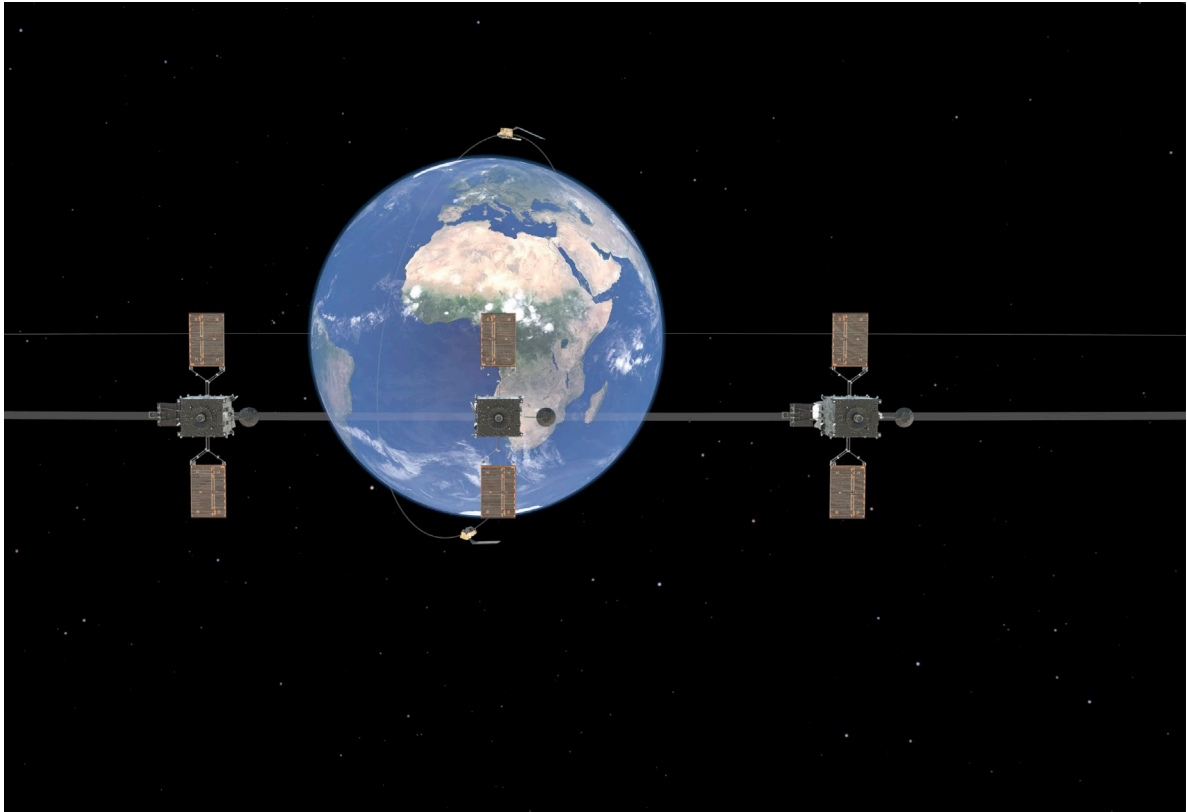


Schweizerische Eidgenossenschaft
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Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Office of Meteorology and Climatology MeteoSwiss

MeteoSwiss

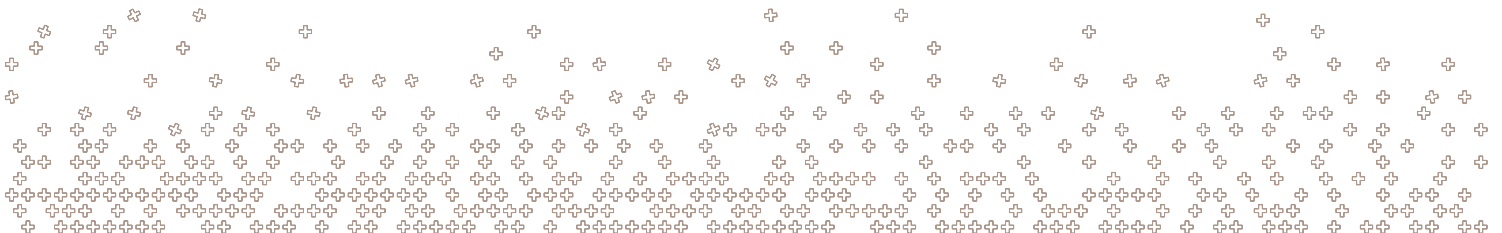


Factsheet

EUMETSAT



European cooperation on meteorological satellites



EUMETSAT – an overview

Operating weather satellites is technologically demanding, very complex and extremely expensive. For this reason, 18 European countries came together in 1986 to establish the **European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)**, based in Darmstadt, Germany. EUMETSAT now provides images and data to 30 member states. Switzerland is a founding member and is represented by the Federal Office of Meteorology and Climatology (MeteoSwiss). Switzerland's membership means that it can reap 100% of the benefits while only shouldering just over 3.5% of the costs. This shows how valuable such technical and scientific international cooperation actually is.

What are EUMETSAT's main tasks?

- EUMETSAT operates Europe's meteorological satellites on behalf of its member states. The organisation supplies all members with observational data and services that are essential for reliable weather forecasting and timely severe weather warnings, and for studying climate change.
- As well as operating existing satellites, EUMETSAT strives to further develop its services and thus increase the benefits for member states. This entails surveying its members' needs on an ongoing basis and proposing new generations of satellites accordingly. Following the first (1977–2017) and second generations (since 2002) of geostationary satellites, the third generation, i.e. the Meteosat Third Generation (MTG) weather satellites, will be coming on stream soon. The first satellite in this series is scheduled to be launched into space at the end of 2022.
- This process takes place in close cooperation with the European Space Agency (ESA), which develops EUMETSAT's weather satellites. Financing is split between ESA and EUMETSAT, with ESA supplying the majority of the funding for the development of the prototype satellite (i.e. the first satellite of the next generation) and EUMETSAT fully financing the other next-generation satellites.

Switzerland's role – specific expertise and interests of an Alpine nation

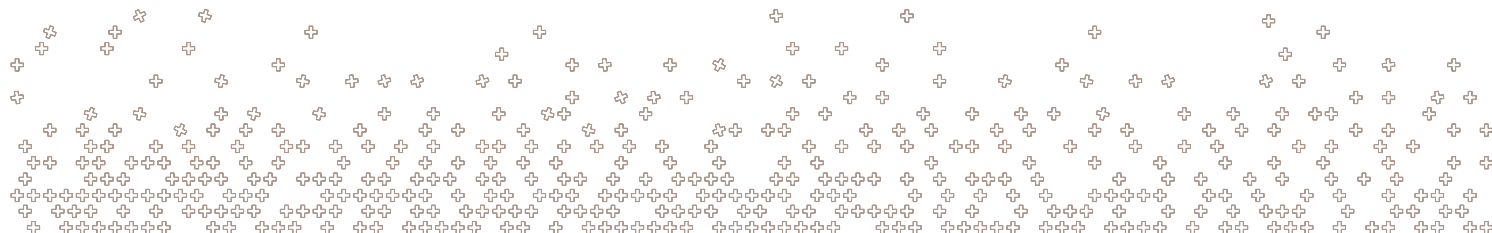
MeteoSwiss contributes expertise in the development of forecasting and analysis methods, used to integrate the satellite data with other data from ground stations, radar and models (see the information about fellowships and CM SAF). MeteoSwiss also shares its knowledge, methods and products with the EUMETSAT community. As the national weather and climate service of an Alpine nation, MeteoSwiss – for reasons of orography – is particularly interested in a very high spatial resolution and therefore also develops its own methods tailored to specific orographic requirements.

Switzerland's interests in ESA are represented by the Swiss Space Office of the State Secretariat for Education, Research and Innovation (SERI). The relevant SERI and MeteoSwiss offices liaise very closely to ensure consistency in their respective involvement in the two organisations.

Two specific examples of MeteoSwiss's project and research activities related to weather satellites

- **EUMETSAT's Satellite Application Facility on Climate Monitoring**
MeteoSwiss has been a partner in the Satellite Application Facility on Climate Monitoring (**CM SAF**) project since 2004. As such, it has climate data records for various atmospheric weather parameters (clouds, solar radiation and surface radiation balance) stretching back almost 40 years, derived from satellite data from EUMETSAT's Meteosat geostationary satellites.

One **example** of an area in which MeteoSwiss uses such satellite data is the energy transition, specifically **solar power**. MeteoSwiss develops climatological data series on the spatial and temporal variability of solar radiation from satellite, modelling and ground measurement data. This has enabled it, together with the Federal Office of Energy and the Federal Office of Topography, to set up an open-access platform offering assistance with the planning and design of solar installations and energy-efficient buildings (www.sonnendach.ch).



- **EUMETSAT fellowships**
EUMETSAT awards fellowships for the development of algorithms making innovative use of satellite data. MeteoSwiss has taken on the scientific management of a fellowship on short-range thunderstorm forecasting (or 'nowcasting', covering up to six hours ahead). The resulting algorithm evaluates observations from weather radar, satellites and lightning sensors as well as weather modelling forecasts every five minutes using state-of-the-art machine-learning techniques. The results move seamlessly from [nowcasting](#) into medium-range forecasting. The algorithm can be easily tailored to future MTG observations. MeteoSwiss expects these developments to deliver a significant improvement in the quality of thunderstorm warnings.

Further information

- [The socio-economic benefits of meteorological satellites – Summary](#)
- [Background information on the Meteosat satellites](#)
- [EUMETSAT's next-generation satellite system](#)
- [Meteosat Third Generation – Overview animation](#)

Image on first page: MTG satellites in orbit (artist's impression); EUMETSAT

