

Meteosat Second Generation (MSG) : New Horizons for

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MSG-1 in the Integration hall in Kourou, French Guiana

On the evening of 28 August 2002, Ariane-5 flight 155 lifted off from Europe's launch site in French Guiana carrying the MSG-1 satellite. Separation of satellite and launcher occurred 36 minutes later and ESA's European Space Operations Centre (ESOC), in Darmstadt, Germany, working on behalf of Eumetsat, began operations to move the spacecraft from the geostationary transfer orbit (GTO) that it had just entered, to its final geostationary operating orbit 36 000 km above the Earth's equator.

For Europe's citizens, few projects have made the benefits of space flight so obvious as the European Meteosat programme. Every TV channel shows daily sequences of Meteosat pictures taken from space and weather forecasters would not want to do without the information that Meteosat provides.

Twenty-five years ago, Meteosat-1 was ESA's very first Earth-observation satellite. From its geostationary orbit over the Gulf of Guinea, Meteosat-1 overlooked almost half of the globe, including more than 100 countries in Europe and Africa, as well as the Atlantic ocean and parts of the Indian ocean. To date, seven Meteosat satellites have been launched and, since 1981, at any given moment one is operational and one is in standby orbit in order to guarantee an uninterrupted flow of meteorological data.

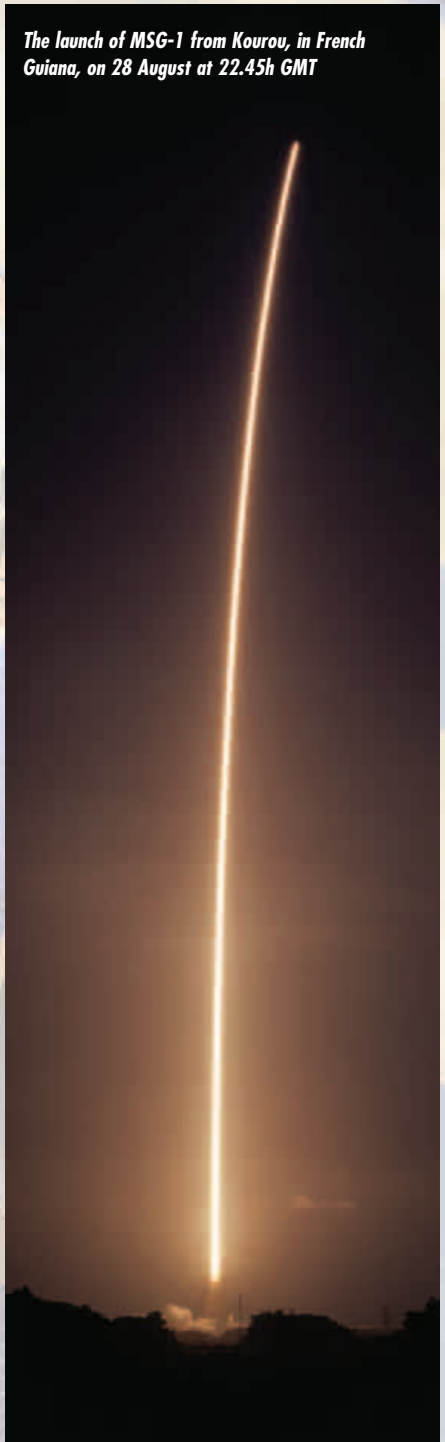
ESA itself ran the Meteosat programme until 1987, a few months after the foundation of Eumetsat, which is an intergovernmental organisation with 18 member states at present. In December 1995, it took over the full operation of the Meteosat system.

In the early 1980s ESA, together with

Weather and Climate



The launch of MSG-1 from Kourou, in French Guiana, on 28 August at 22.45h GMT



European scientists and engineers, initiated the next step in the technological development of meteorological satellites. As a result and in co-operation with Eumetsat, in 1994 European industry, led by Alcatel-ESpace (F) under contract to ESA, began working on the Meteosat Second Generation, involving more than 50 European sub-contractors. MSG will soon begin to replace the previous Meteosat satellites.

MSG is equipped with a 12-channel imaging radiometer that delivers one complete picture in scanning mode every 15 minutes in high resolution (1 km in the visible band). It will provide meteorologists with new insights into the atmosphere (particularly clouds), land and ocean surfaces, contributing significantly to the accuracy of both now-casting and medium-range weather forecasts.

Its data-relay function has been upgraded from an analogue to a digital concept, providing a ten-fold increase in transmission capacity. MSG also carries a system to collect and transmit

environmental data from remote platforms, a search-and-rescue transponder for humanitarian purposes, and the Geostationary Earth Radiation Budget instrument (GERB) for climate monitoring. GERB will measure the Earth's radiation budget at the top of the atmosphere for the first time from geostationary orbit.

With a seven-year design lifetime and at least three satellites to be launched, MSG will carry on Europe's meteorological space programme for the next decade. MSG is fully operated by Eumetsat, while ESA has developed the technology and is responsible for procuring the next 2 or 3 identical satellites.

With its ongoing and future space programmes to monitor the Earth, Europe is becoming a leader in climate science and weather data applications from space. It is the shared aim of ESA and Eumetsat to continue this success well into the future.

