

DAILY SCIENCE

DÉCOUVREZ LA SCIENCE, LA RECHERCHE ET L'INNOVATION "MADE IN BELGIUM"

EUMETSAT has its eyes on “New Space”

by Christian Du Brulle

Hundreds of climate and meteorology specialists have just met in Brussels. At [EUMETSAT's annual data users' meeting](#), they discussed at length the satellites of the [MTG \(Meteosat third generation\) programme](#). These new geostationary satellites, built by [Thales Alenia Space](#) in Cannes, under the supervision of the [ESA](#), will very soon provide them with a host of useful new data.

“With the MTG, the meteorological services of our member states will benefit from 50 times more information than they currently receive with the second generation Meteosat (MSG)” says EUMETSAT Director General, Phil Evans. “This will improve the quality and speed of the weather forecasts for Europeans. And will try to minimise the costs that may be incurred by some foreseeable disasters such as flooding following storms or heavy rainfall, through early warnings to the population and emergency services.

Benefits for “nowcasting”

“The MTG data will significantly improve the quality of nowcasting, very short-term but also ultra-localised forecasts,” says Paolo Ruti, EUMETSAT's Chief Scientist. “This will give an early warning of an impending major problem, two hours before it happens.”

“The concern is not trivial. From an economic point of view, losses due to extreme weather events are estimated to be between 450 and 520 billion euros for the period from 1980 to 2020,” says Paul Counet, Strategy Director at EUMETSAT. “At the same time, the human cost was also high. “Between 85,000 and 145,000 people are estimated to have died prematurely.”

As Phil Evans sums up with regard to the MTG, “With this most complex and most innovative geostationary satellite system ever built, the aim is to provide more relevant data to the weather services of the member states to enable them to save lives, property and infrastructure.”

Future constellation

While the first of the six satellites of the MTG programme is in the starting blocks for launch by the end of the year on an Ariane 5 rocket, EUMETSAT and the European meteorological community are already looking far beyond that.

The European Meteorological Satellite Agency, which since its creation in 1986 has been used to working on long-term programmes with large budgets (more than 4 billion euros for the MTG) now has its eyes on “New Space”. This is the new way of exploiting space with mass-produced satellites and launches so they are faster and cheaper to produce.

Among its plans for the future, EUMETSAT proposes to develop a constellation of small polar satellites observing the Earth and its atmosphere in the microwave range.

Microwaves would enable this constellation to better penetrate the vertical structure of the atmosphere in cloudy regions. This will further improve nowcasting and numerical weather prediction systems at what are described as modest costs. We are talking here about a programme costing a few hundred million euros for satellites weighing just over 100 kilos (compared with the 4 tonnes of the largest MTG).

This constellation would be composed of small recurring satellites from the [ESA's AWS \(Arctic Weather Satellite\) prototype](#) .

Called EPS-Sterna, this programme would comprise six satellites working together, on three different planes. They would be launched and replaced in orbit by small space launchers and not behemoths like Ariane 5 (and soon Ariane 6) and would have an initial lifespan of 5 years.

“Although we will not be able to do without large geostationary satellite in the future, this type of programme would allow us to be more agile in meeting the demands of our users,” comments Phil Evans, Director General of EUMETSAT.

The first examples of this constellation could take off as early as 2029. At least if this programme, estimated to cost some 677 million euros, gets the backing of its funders: the EUMETSAT member states and the ESA. The European Space Agency's financial resources will become clearer after the next ministerial meeting of its Member States scheduled for November.