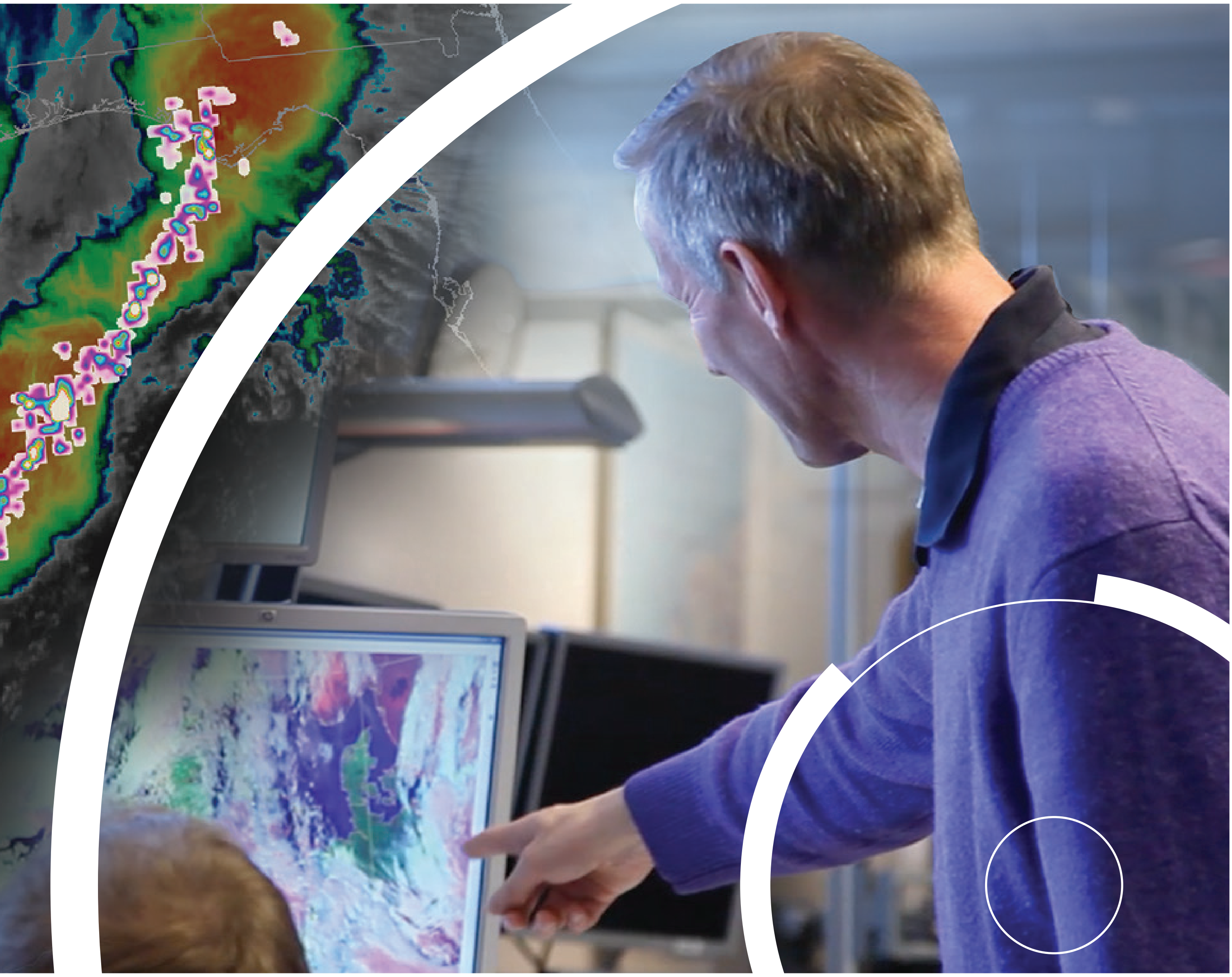
EUMETSAT

Meteosat Third Generation

Weather and climate monitoring like never before

Monitoring weather and climate from space



Between 1970 and 2019, weather-, climate-, and water-related disasters were responsible for more than 11,000 hazards, over two million deaths, and more than €3 trillion in losses[1].

Introducing the revolutionary fleet of Meteosat Third Generation satellites: monitoring weather, climate, and the environment from space like never before.

1: World Meteorological Organization (WMO) Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970-2019) (Geneva: World Meteorological Organization, 2021)

Right: Convective storm clouds over Central Europe, as seen from current Meteosat Second Generation imagery (top) compared to imagery simulating the higher-resolution future MTG imaging mission (bottom). The MTG imagery will enable a better view of cloud top details and, thus, more accurate assessments of storm intensity.

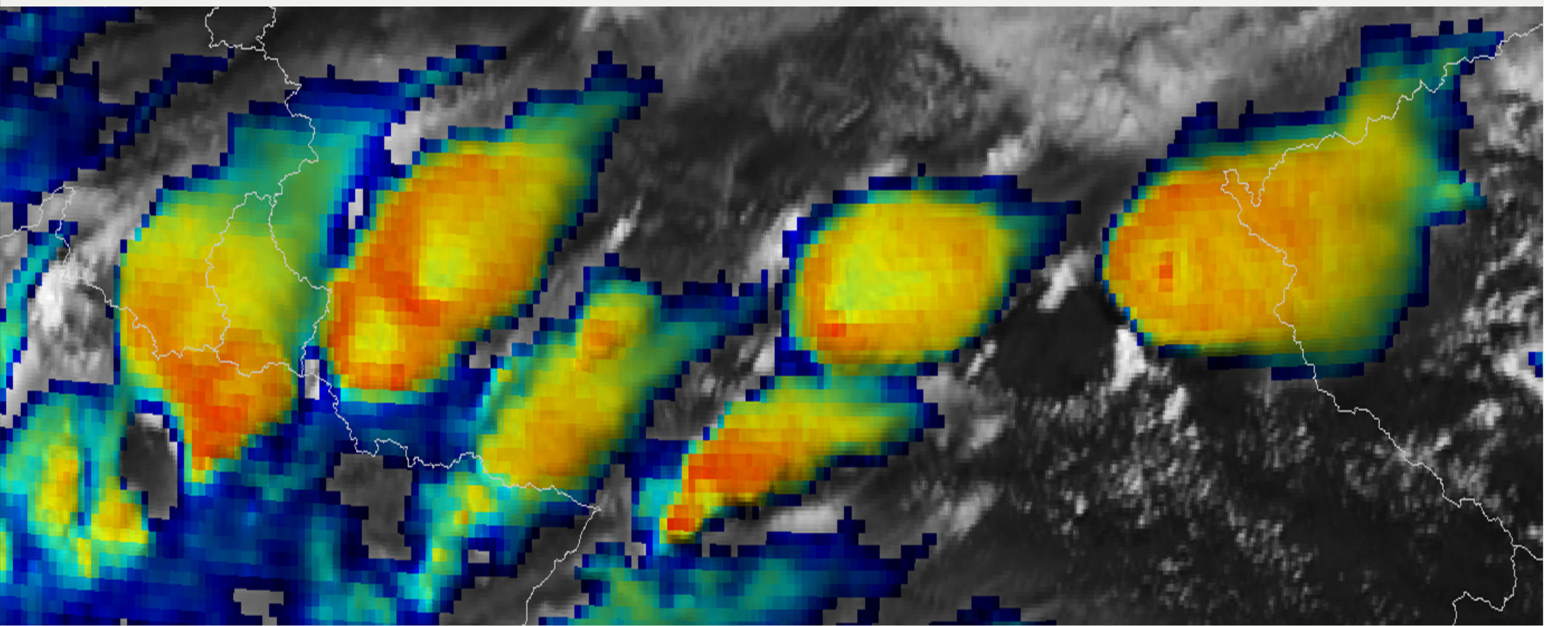
Meteosat Third Generation (MTG) is a new system of geostationary satellites operated by EUMETSAT, Europe's meteorological satellite agency.

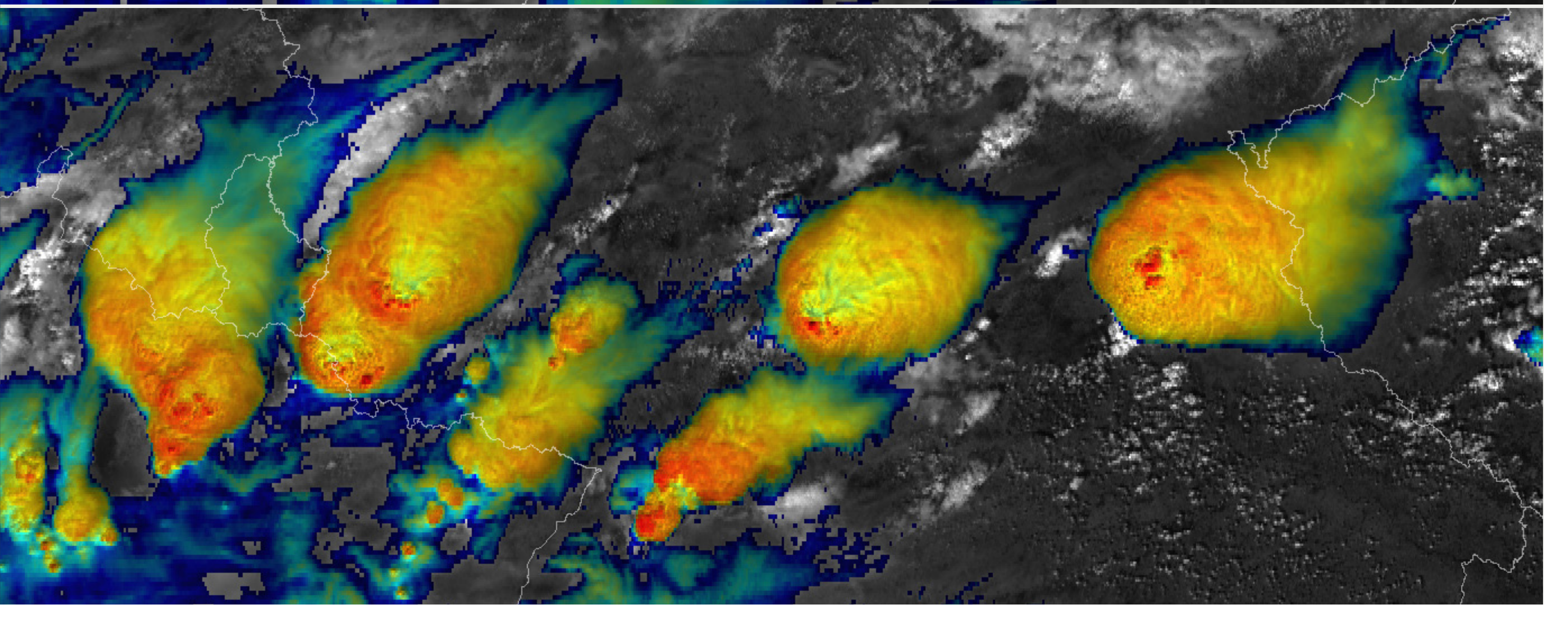
EUMETSAT is an intergovernmental organisation, whose goal is to provide accurate and reliable satellite data on weather, climate, and the environment around the clock, in response to requirements from its user communities. These data are delivered in near-real time to member states, international partners, and people who use the data worldwide.

MTG's range of groundbreaking instruments will provide meteorologists with a continuous stream of data from the land, ocean, and atmosphere for Europe, Africa, and beyond.

Building on the decades-long legacy of Meteosat's first and second generation satellites, MTG will revolutionise storm prediction, enhance weather forecasts, extend climate records, and provide a wide range of essential observations. These measurements will underpin services, support livelihoods, and help save lives.

MTG brings together a wide range of international partners – including the European Union's Copernicus Earth observation programme – hosting instruments such as the Copernicus Sentinel-4 Ultraviolet, Visible and Near-Infrared Sounder.





Meteosat Third Generation impacts

Revolution, not evolution

"Today's seven-day forecasts are more accurate than any of the one-day forecasts in 1970. Nevertheless, the precise warning of small-scale, localised weather hazards poses a significant challenge to forecasters. Rather than an evolution, MTG will provide a revolution in nowcasting at a time when climate change is making extreme weather more likely."

Dr Gerhard Adrian
President of the Deutscher Wetterdienst and
President of the World Meteorological Organization

It's a fact

A report by the World Meteorological Organization (2015) found that national meteorological and hydrological services (NMHS) are key providers of information for reducing economic risks associated with extreme weather and natural disasters. The return on investment in national weather services has been estimated at often between five and tenfold – or even more.

Source: Valuing Weather and Climate: Economic Assessment of Meteorological and Hydrological Services (2015), World Meteorological Organization.

From nowcasting to monitoring severe weather events, MTG will support a wide range of critical applications

MTG will provide near-real-time snapshots of atmospheric humidity, temperature, and dynamic behaviour. One of the biggest benefits from these observations will be improvements to nowcasting, enabling forecasters to track the development of storms in near-real time. MTG will also provide essential data that can support experts in pinpointing fire hotspots, making numerical weather predictions, and guiding responses to severe weather events.

Nowcasting

Providing a large diversity of observations in near-real time, in particular higher-frequency and resolution imagery, MTG will create an immense resource for making more accurate nowcasts. These very short-range forecasts can predict how fast developing, and highly dangerous weather events such as storms will evolve in the very near future, enabling authorities to issue alerts that will save lives and protect property and infrastructure.

Numerical Weather Prediction models

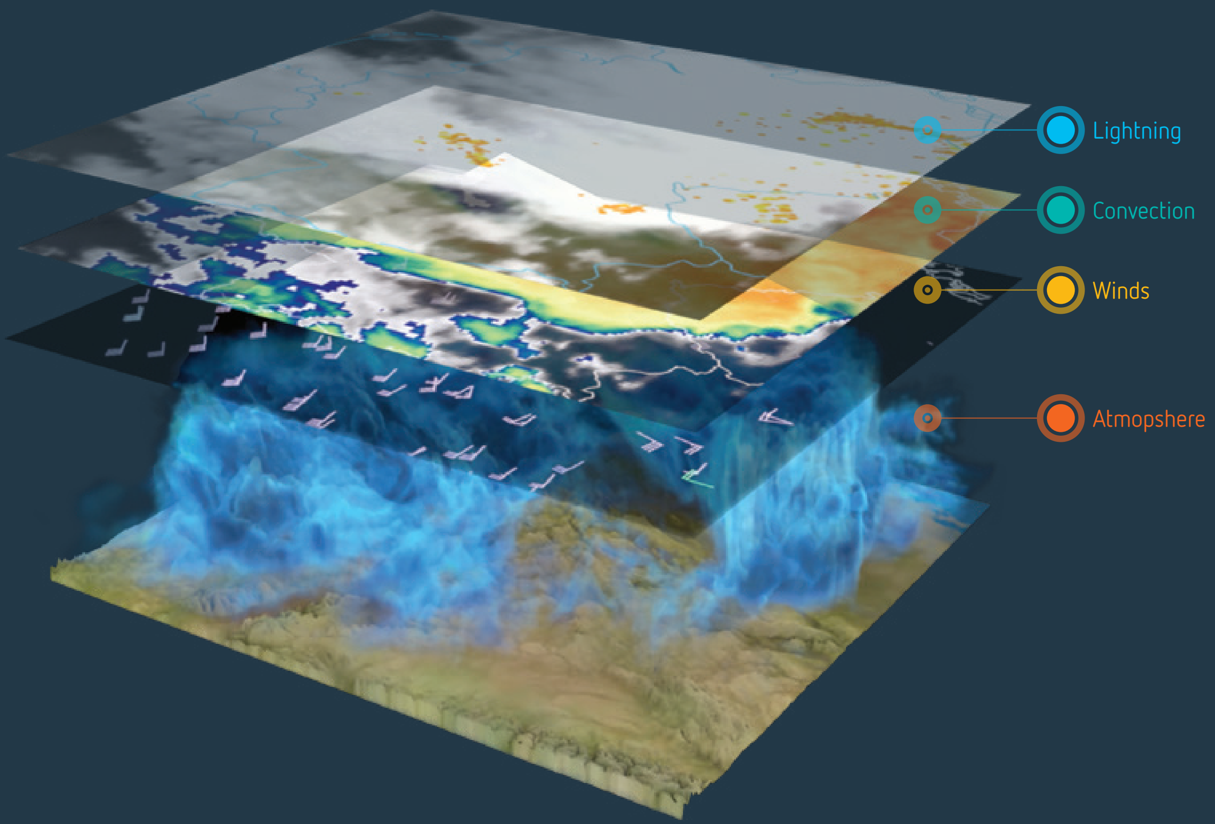
By providing more detail about how the weather is now, MTG will help improve the accuracy of forecasts further into the future. Regular atmospheric soundings, more information channels, and a higher sensitivity will provide invaluable information about developing weather patterns for numerical weather prediction models. These models take in observations of the atmosphere such as temperature, pressure, and water vapour, and run intricate calculations to predict the weather over the coming hours and days.

Climate records

MTG's decades-long mission guarantees a continuity of geostationary data, building on the legacy provided by its predecessors. The long-term, consistent, extensive, and directly comparable datasets provided are invaluable to climate studies. Once MTG satellites reach the end of their mission, EUMETSAT will have amassed more than 60 years of comparative observations.

Other essential products and services

Observations taken by MTG satellites will support the development of products and services that can provide major contributions to firefighting, air quality forecasts, air traffic control, search and rescue missions, disaster risk reduction, agricultural productivity, marine and coastal management, sustainable energy production, and much more.



Above: MTG's scientific instrumentation will enable meteorologists to simultaneously track phenomena such as convection, winds, and lightning activity in space and time. This will support national meteorological and hydrological services in early detection of rapidly developing, high-impact weather events such as severe storms from the first signs of a convection cell to the first lightning. This artist's impression depicting a 4D weather cube provides a snapshot of how a diversity of observations are brought together to probe the atmosphere in near-real time with a high repeat cycle.

Europe's most advanced geostationary meteorological satellites

When the first Meteosat geostationary weather satellite was launched in 1977, it marked the beginning of a new era in making Earth observations from space for meteorology and climate monitoring.

Meteosat satellites are perfectly positioned in a geostationary orbit, 36,000 kilometres above the Earth's surface. At this distance, satellites rotate around the Earth at the same speed the Earth rotates about its axis. This enables continuous observations of around one-third of the World's surface.

Europe, Africa, and part of the Indian Ocean sit in Meteosat's field of view, which captures the full Earth disc.

Weather forecasts and environmental information derived from Meteosat observations inform storm predictions, guide transport planning, underpin air quality monitoring, and provide firefighting support information – amongst many others.

During the past four decades, Meteosat's first and second generation satellites have provided a comprehensive record of everything from cloud movement and fast-developing weather patterns, to dust storms and volcanic ash.

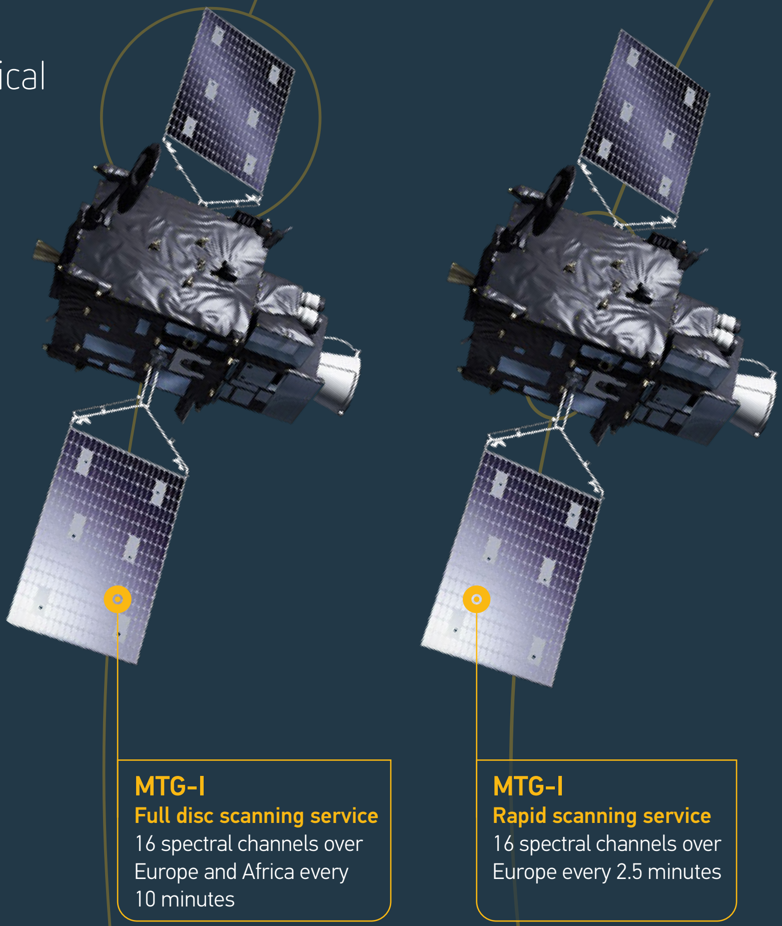
These data have contributed to very short-term forecasting and helped meteorologists predict weather phenomena with more accuracy.

Now a new generation of Meteosat satellites is set to take to the skies. Meteosat Third Generation's fleet will be made up of a satellite constellation of two imagers and one sounder. They will deliver Earth observations of unprecedented range, resolution, and frequency.

MTG is the result of the vision, creativity, and persistence of large international teams. They have pushed technological boundaries to their limits, while setting new standards for European collaboration.

The future in focus

Meteosat Third Generation is one of the most complex and innovative meteorological geostationary satellite systems ever built



A complete constellation of MTG satellites consists of three satellites: two imaging satellites and one sounding satellite.

Meteosat Third Generation imagers

Two satellites working in tandem provide MTG's revolutionary imaging service

Flexible Combined Imager

The Flexible Combined Imager builds a picture of fast evolving meteorological systems and environmental events, using two scanning services. Through the full disc scanning service, the imager systematically scans its field of view – the entire Earth disc – every ten minutes. Through the rapid scanning service, the imager scans the upper quarter of the disc – covering Europe and northern Africa – every two and a half minutes.

Data is acquired across 16 different spectral bands, providing precise information about everything from clouds, to water vapour, to the oceans, to localised fires. This instrument can also measure critical features spanning vegetation, snow, ocean colour, and aerosols such as dust and volcanic ash. The images produced will enable earlier prediction of severe weather events, improvements to forecasts, and enhancements of essential meteorological products that support everything from air quality monitoring, to air traffic control, to fighting wildfires.

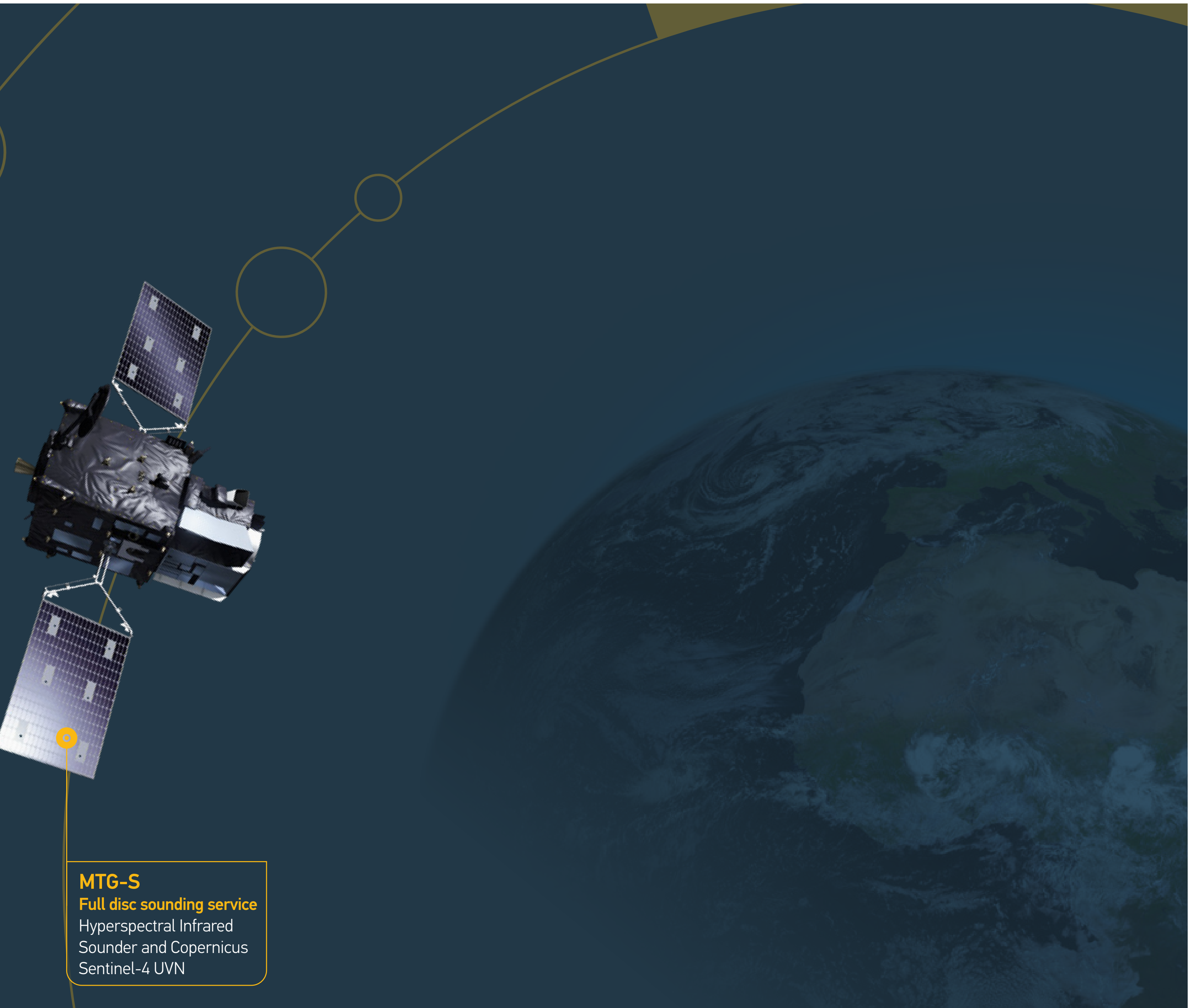
Lightning Imager

MTG's Lightning Imager will provide continuous, near-real time data that can be used to detect, monitor, and track lightning. Four cameras cover more than 86% of the Earth disc visible from the satellite and detect lightning including cloud-to-cloud, cloud-to-ground, and intracloud flashes.

This is the first time a geostationary weather satellite will have the capability to detect lightning data across a broad area over Europe, Africa, and the surrounding waters. The data will provide a major boost to both very short-term nowcasting as well as numerical weather prediction models, which support longer-term forecasts.

And more...

In addition, the imager satellites will also carry three more instruments: the GEOSAR search and rescue relay, the Data Collection and Distribution Service, and the Radiation Monitoring Unit.



Meteosat Third Generation sounder

A groundbreaking sounder satellite, hosting instruments that can provide vertical profiles of temperature, moisture, and aerosols in the atmosphere

Infrared Sounder

Scanning a quarter of the Earth disc every fifteen minutes and taking around 2000 infrared images in the process, this instrument detects wavelengths of light beyond the visible spectrum. This enables experts to generate temperature and humidity maps that will significantly improve precipitation forecasts.

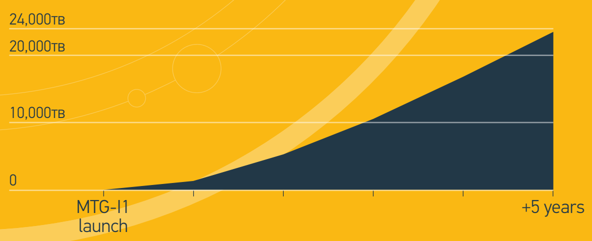
Copernicus Sentinel-4 Ultraviolet, Visible and Near-Infrared Sounder

Through hourly scans of Europe and the North Atlantic, this instrument monitors air quality and pollution, which impacts human health. Measurements are processed to provide estimates of the level of trace gases such as ozone, sulphur dioxide, and nitrogen dioxide in the atmosphere, as well as the amount of aerosols such as soot, dust, and ash.

It's a fact

The fully deployed and operational configuration of MTG is expected to produce at least 50 times as much near-real time data as Meteosat Second Generation satellites. These data will be disseminated to users around the world by multicast service initiatives such as EUMETCast. Users will be able to easily visualise the data collected using online map services such as EUMETView.

Estimated MTG mission data (in addition to current mission data)



Source: EUMETSAT

Meteosat Third Generation in action

New lightning sensing capabilities could help save lives

"This will be the first time lightning imaging technology has been carried by geostationary satellites over Europe. The products that we are developing will be particularly useful in informing nowcasting forecasts. Lightning patterns, for instance, can provide clues as to how storms may develop in the near future. The data provided by MTG satellites could help save lives and livelihoods."

Dr. Elena Mateescu
Director General of Romania's National Meteorological Administration (NMA)

It's a fact

Severe convective storms are some of the most dangerous weather-related events in Europe. From 2007 to 2017, the financial losses from convective storms in Western Europe alone amounted to about €35 billion.

Source: "NatCatService: Natural Catastrophe Statistics Online", Munich Re, accessed 2019, https://www.munichre.com/en/reinsurance/business/non-life/natcatservice/index.html

Meteosat Third Generation: the eyes on a storm

Severe thunderstorms are one of the most destructive weather phenomenon in Europe. Yet despite advances in forecasting, it is still very difficult to predict storms, especially at a local level.

Observations of lightning taken by MTG's Infrared Sounder, Lightning Imager, and Flexible Combined Imager will provide essential information for very short-term nowcasting of thunderstorms, as well as numerical prediction models used to make longer-term weather predictions.

The Flexible Combined Imager will enable forecasters to gain a better view of cloud-top details – as well as inside-cloud, vertical atmospheric column, and surface information – and more accurately assess storm intensity. It will provide imagery at much higher spatial resolution than is available from current satellites.

MTG's Infrared Sounder instrument will provide measurements that will help meteorologists spot the tell-tale signs of atmospheric instability, a precursor of convective storms.

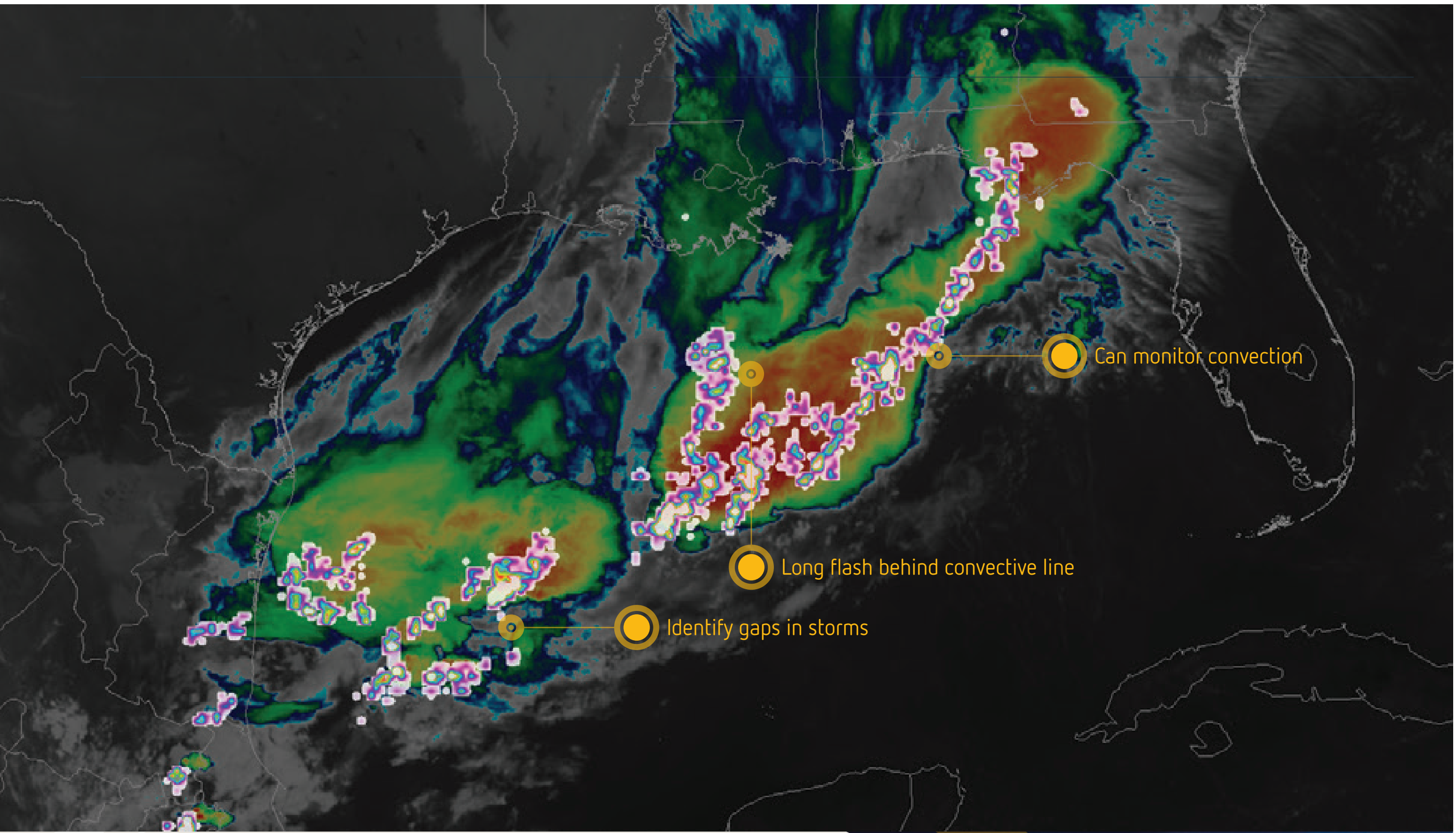
The Lightning Imager will enable meteorologists to detect all types of lightning and provide an advantage over ground-based lightning detection networks, especially in remote regions and over the oceans.

Combining these images and soundings has great potential for improving forecasts and supporting timely severe storm warnings.

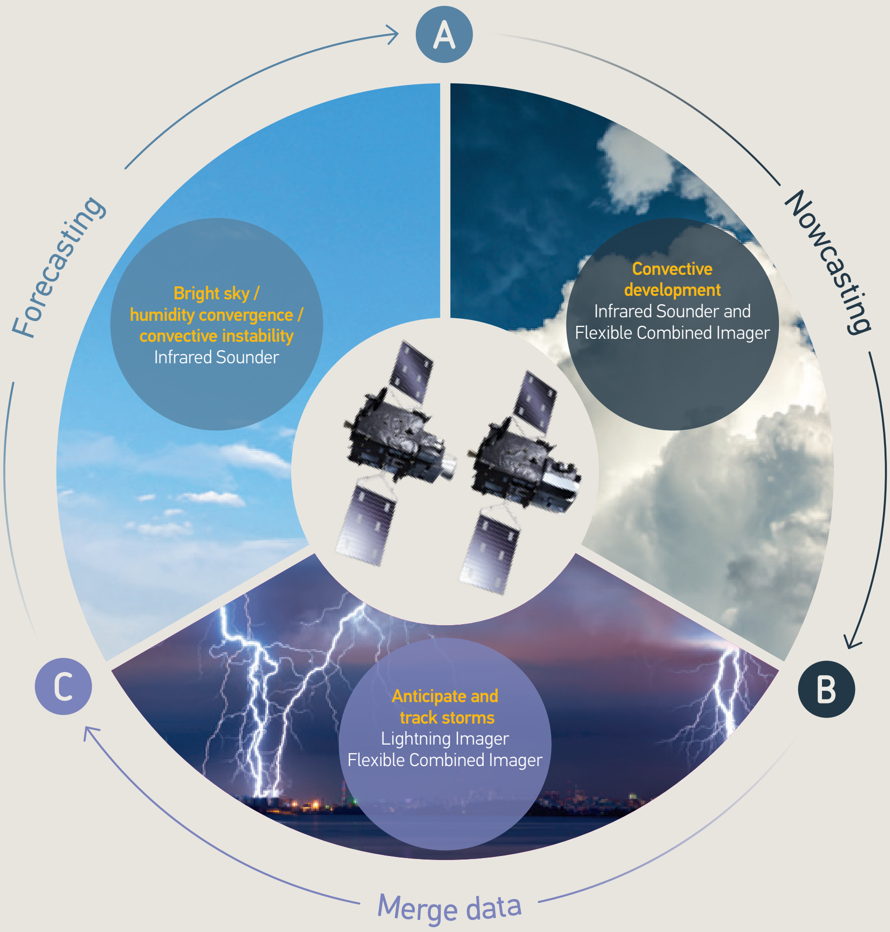
"There's no thunder without lightning, and we can use lightning observations to track thunderstorms and identify areas of deep convection – highly organised updrafts that twist, tilt, and create menacing-looking cumulonimbus clouds," says Dr Felix Erdmann, a postdoctoral researcher at the Royal Meteorological Institute of Belgium (RMI), who aims to develop an automated severe weather warning tool.

"Convection currents can, under certain circumstances, result in very severe storms lasting several hours, and my work aims to understand correlations between the evolution of these cells and lightning patterns," says Erdmann, who is a EUMETSAT fellow.

"We will be able to use MTG data to understand and track current thunderstorms, wherever they are. Weather services will be able to use that information to make better predictions about their course."



The image above, taken by the US GOES Geostationary Lightning Mapper (GLM) instrument, shows lightning activity in white-blue-magenta colours along a convective storm line (yellow-orange-red shades) over the Gulf of Mexico. The GOES GLM is a precursor to the MTG Lightning Instrument. (Credit: NOAA)



Meteosat Third Generation in action

Fighting wildfires in Tanzania

"One of the big challenges we face in Tanzania is that vast landscapes and forests are vulnerable to the threat of major wildfires. MTG satellites will provide higher resolution data on wildfire location, intensity, and burnt area. It will boost the way that we manage land, tackle fires, develop fire management plans, assess damage, and ultimately enable us to reduce the damaging effects of wildfires across our country."

Kekilia Kabalimu
Senior Cartographer, Ministry of Natural Resources and Tourism, Tanzania

Fire detection and monitoring

In 2017, Portugal suffered some of the worst fire-related tragedies in its history, with major events occurring before and after what would have previously been considered a 'normal' fire season. Fanned by a combination of prolonged droughts and strong winds, fires spread like they would over paper. More than 100 people were killed, many more were injured.

"There is a clear trend for fire risk to increase with climate change, not just within the fire season but the season itself is becoming wider and larger within the year," says Dr Isabel Trigo, Head of the Earth Observation Unit at the Portuguese Institute for Sea and Atmosphere (IPMA), based in Lisbon and scientific coordinator for the EUMETSAT Satellite Applications Facility on Land Surface Analysis (LSA-SAF).

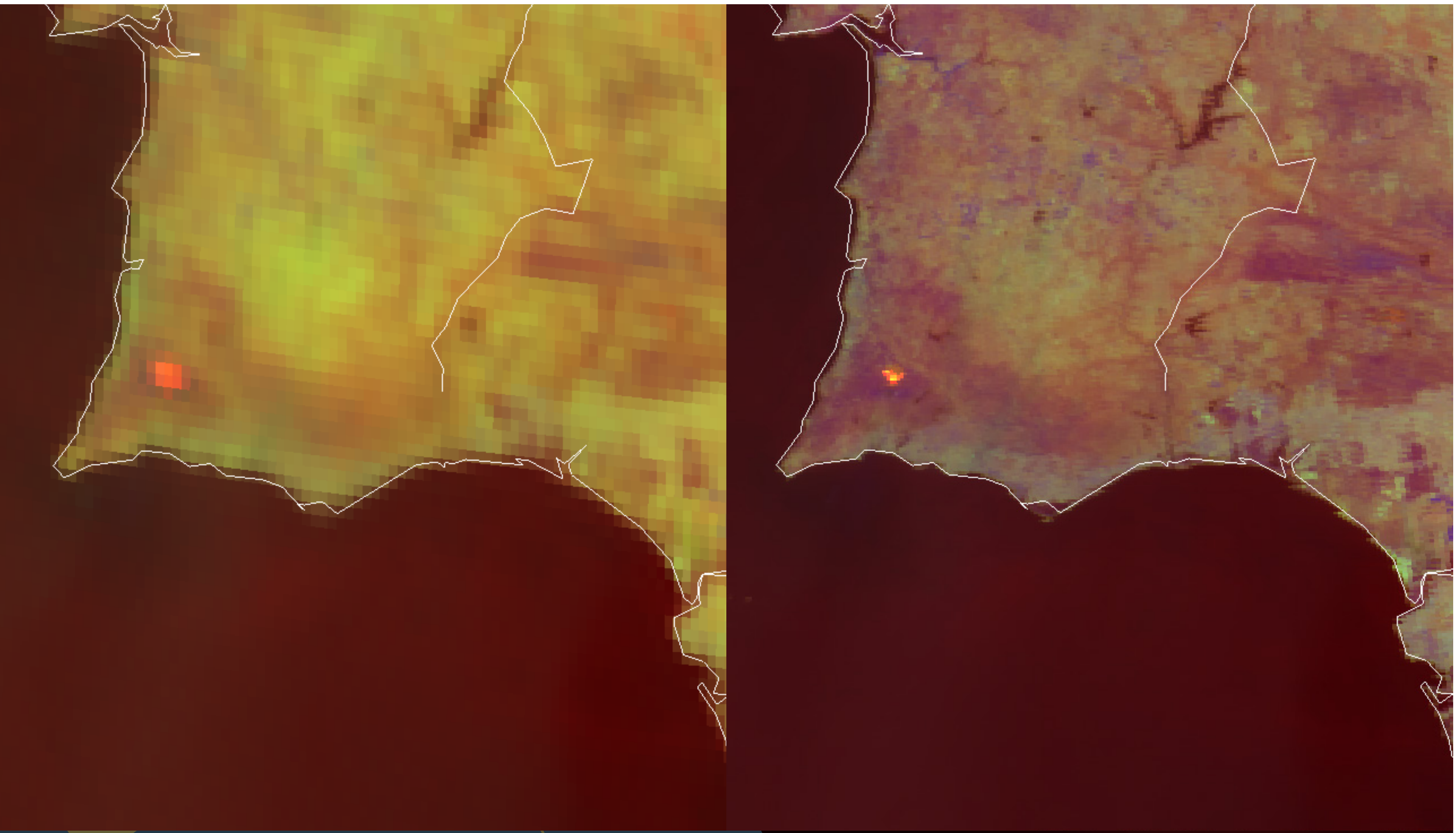
Satellite data are essential in firefighting and mitigation strategies. Trigo points to MTG satellites as providing an opportunity to revolutionise approaches on the ground. This she says includes aspects such as identifying fire hotspots, fire emissions, and developing mitigation approaches.

Furthermore, when combined with the second generation of EUMETSAT's Metop polar orbiting satellites, MTG observations will also help experts to monitor burnt areas and support vegetation recovery.

The image on the opposite page from fires in Portugal in 2018 showcases the future capability of MTG's Flexible Combined Imager. In addition, the Infrared Sounder instrument will enable vastly improved fire detection capabilities through the tracking of fire emissions such as sulphur dioxide and carbon monoxide, while also providing essential data for predictive models.

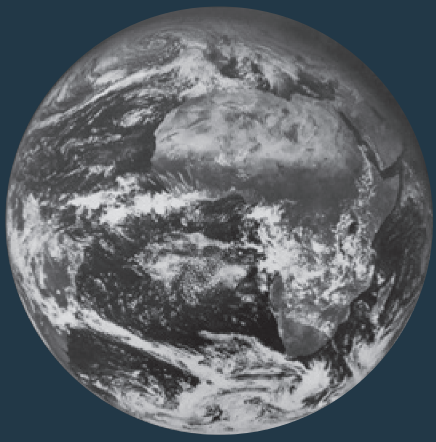
"There will be some massive improvements," Trigo says. "Our work is heading in the direction of developing simulations of the fires that can predict their evolution in a relatively short time window.

"For firefighters this will be very, very useful because they have to make decisions in a split second. This additional information could make all the difference."

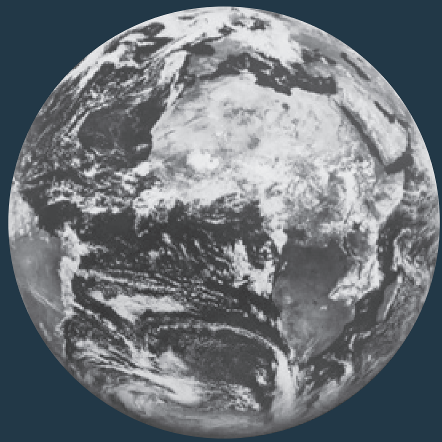


Satellite:	Metosat-11
Location:	Portugal
Date:	August 2018

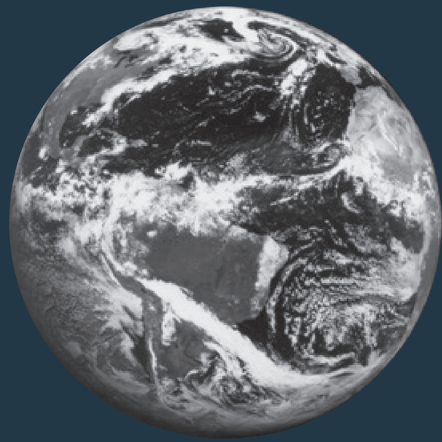
August 2018 fires in Portugal mapped with current Meteosat Second Generation imagery (left) and with proxy data simulating imagery from the future MTG (right)



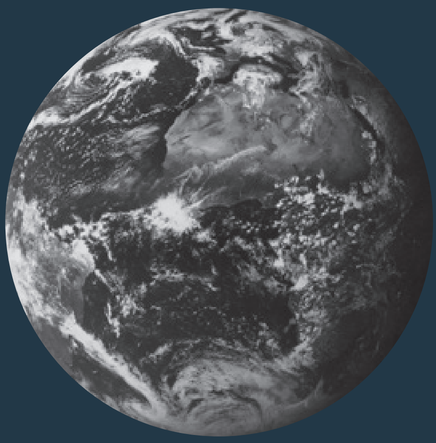
Meteosat-1, 9 December 1977



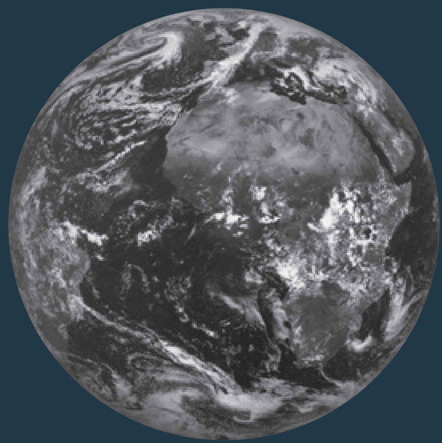
Meteosat-2, 28 July 1981



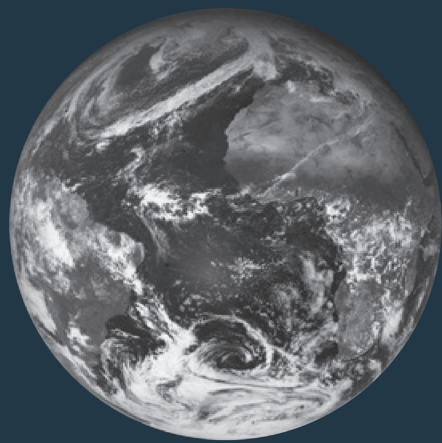
Meteosat-3, 29 June 1988



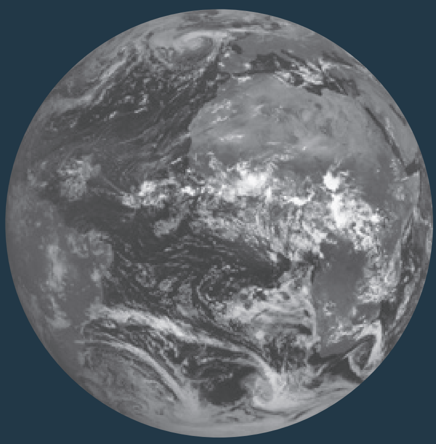
Meteosat-4, 19 April 1989



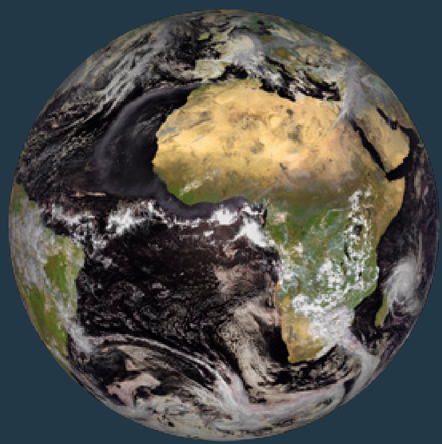
Meteosat-5, 3 April 1991



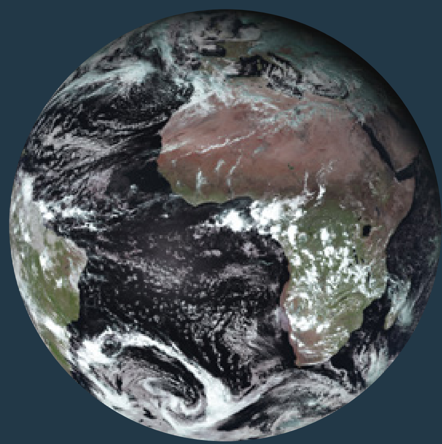
Meteosat-6, 29 November 1993



Meteosat-7, 18 September 1997

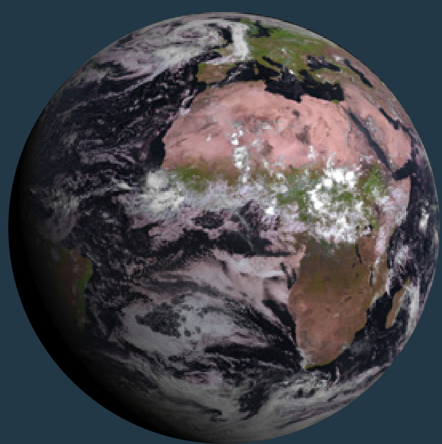


Meteosat-8, 28 November 2002



Meteosat-9, 24 January 2006

Meteosat-10, 7 August 2012



Meteosat-11, 4 August 2015

An invaluable legacy for mapping climate change

Successive Meteosat missions have had eyes on the Earth for more than four decades, providing information of tremendous importance for climate studies

Geostationary satellites have the unique capability of measuring the same location at frequent intervals, which is necessary for tracking variations in atmospheric properties throughout the day. Obtaining better information about these and other variations substantially improves the understanding of seasonal cycles. This is, in turn, crucial for a deeper understanding of the climate.

Data collected by Meteosat satellites is stored in EUMETSAT's long-term data preservation facility in Darmstadt, Germany. This includes essential information about clouds, solar radiation at the Earth's surface, sunshine duration, precipitation, surface temperature, aerosols, wildfires, droughts, upper air winds, the life cycles of tropical storms, and much more.

This information is then used in initiatives to create and maintain long-term records of climate variables such as the EUMETSAT Satellite Application Facility Network data sets, the International Satellite Cloud Climatology Project, the Global Precipitation Climatology Project, and other global precipitation data sets.

Meteosat data also play a key role in important climate reports such as the Sixth Assessment Report in 2021 issued by the United Nation's Intergovernmental Panel on Climate Change as well as the annual European State of the Climate compiled by the Copernicus Climate Change Service.

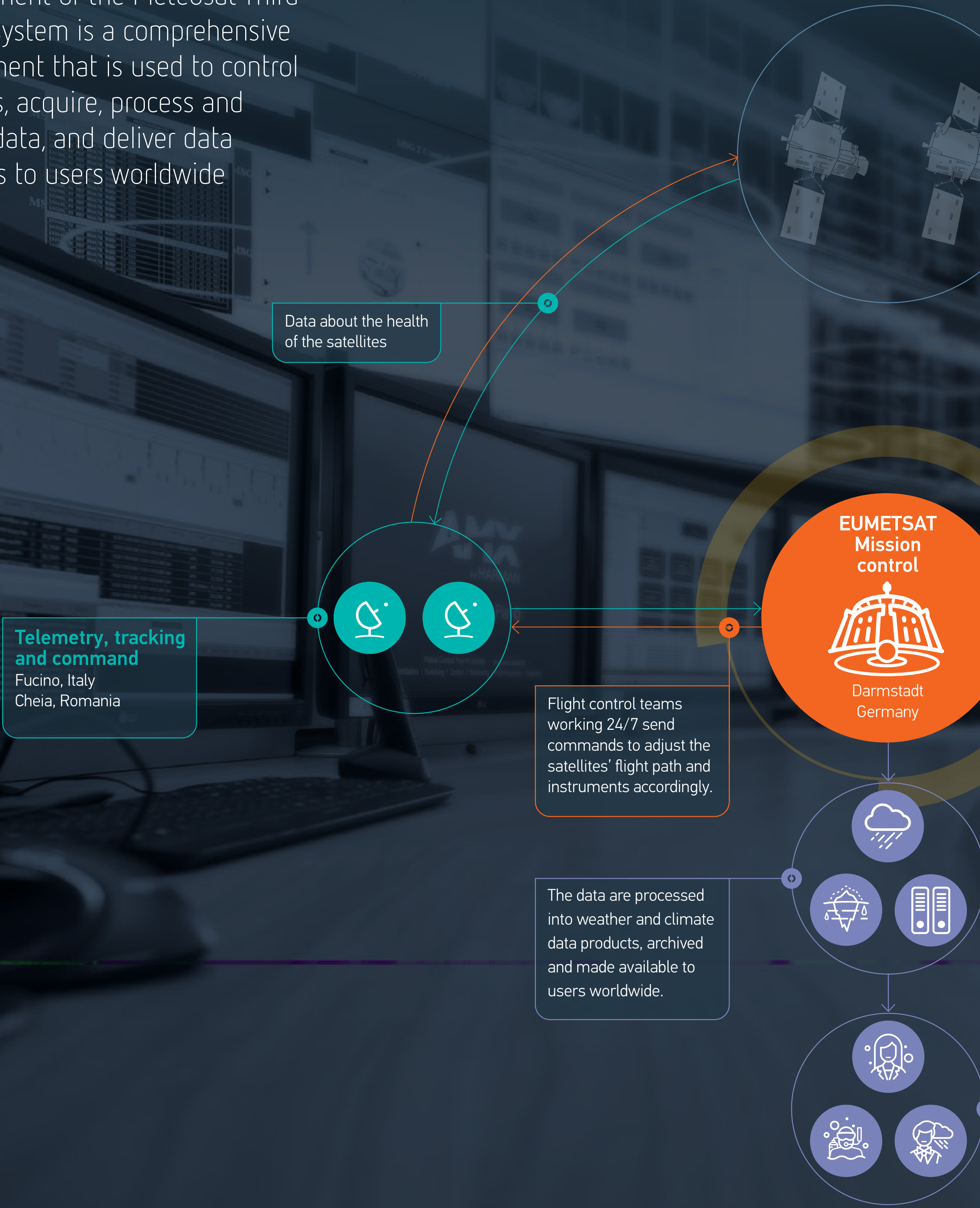
Once MTG satellites reach the end of their mission, EUMETSAT will have amassed more than six decades of comparative observations with continuously improving spectral, temporal and spatial resolution. These datasets are invaluable for providing robust information about changes in the environment on a continental scale that support the development of climate models.

These models are essential for understanding and reacting to the impact of climate change such as increasingly frequent and intense severe weather events.

Left: the first images of Meteosat

What happens on the ground

In addition to the spacecraft, the other main component of the Meteosat Third Generation system is a comprehensive ground segment that is used to control the satellites, acquire, process and archive the data, and deliver data and products to users worldwide



Meteosat Third Generation satellites will provide at least 50 times more data than the previous generation of satellites. This is why EUMETSAT chose to use the Ka-band, a radio frequency band that supports this data rate, a first for EUMETSAT.

Mission data acquisition

Lario, Italy
Leuk, Switzerland

EUMETSAT is committed to such a high degree of continuity that a maximum of only eight seconds of data per day can be lost – which amounts to the loss of just a single hour of data per year. Therefore the continuous delivery of data from MTG satellites is essential. As the Ka-band frequency is vulnerable to disruption by heavy rain, both mission data acquisition stations are strategically located on opposite sides of the Wasenhorn mountain in the Alps. Although relatively close, the locations generally experience differing weather conditions. In fine weather, both receiving stations send their data to the control centre. In the event of heavy rain or severe weather at one station, the other will still be able to send its data.

At the control centre, the data packets received from both stations are consolidated to ensure that the data streams are complete with no gaps. This will enable EUMETSAT to continue to uphold its commitment to provide users with nearly continuous data, while making it possible for MTG satellites to deliver a significantly higher volume of data than ever before.

User community

Worldwide

Users' needs come first

Work on Meteosat Third Generation satellites began in the early 2000s when experts from across EUMETSAT's member states and beyond began to imagine how a new fleet of meteorological satellites could best serve the needs of people who forecast the weather and issue life-saving severe weather warnings

Europe's most technologically advanced meteorological satellites have evolved from these early meetings of minds. At every stage of development – from conception, to design, to operation – MTG satellites have drawn on the essential contributions of end users. During this initial stage, the users consulted included those who provide weather, climate, hydrological, and oceanographic services to their countries.

Those in mountainous areas, for instance, wanted more frequent, pinpointed data that could more accurately predict the weather in narrow valleys. Some in the Mediterranean region requested instruments that could allow them to better predict and respond to a range of extreme weather events spanning floods, fires, and heat waves.

Others asked for instruments that could better measure temperature and humidity in the atmosphere, or to measure features above, within, and beneath clouds. Or when a volcano erupted, they wanted to be able to better track the movement of toxic gases and ash. And they wanted more information about atmospheric conditions in order to better forecast and monitor thunderstorms from the moment they begin to form.

Coastal management authorities, dealing with storm surge, would benefit from knowing more about winds along coasts, while people in aviation could use data to model turbulence and visibility in three dimensions.

Many of the ideas imagined in those early days have made their way into instruments aboard MTG. From detecting lightning, to monitoring wildfires, to mapping atmospheric changes in real-time, the instruments on board this revolutionary satellite fleet have the potential to transform weather forecasting, climate monitoring, and environmental observations.

And now, as member states prepare for the new bounties of data, end users continue to sit centre stage in the development of products and services that will ensure that the huge potential of MTG plays out in reality.

Arial photograph of the Milbitz suburb of Gera, Germany, following severe flooding in June 2013 (credit: Adobe Stock)

Users' needs come first

Massive potential for weather and climate services

"The MTG mission has massive potential to improve our weather and climate services. We intend to leverage MTG data to improve our situational awareness, to enhance our numerical weather prediction capability and to extend into the future our ability to monitor changes to our environment."

Simon Keogh
Met Office

An end-to-end user-driven programme

On 24 December 1963, Météo-France's Satellite Centre for Meteorology (CEMS) received a Christmas present forecasters had long been dreaming of: the first weather satellite image ever processed by a European centre.

Fast-forward nearly six decades and meteorologists are eagerly awaiting the next big moment in European weather forecasting history – the arrival of the first image from MTG's inaugural imager satellite. But this time it will be a moment shared across the continent and beyond.

"It's been a long time in the making, and it will be really exciting to see the first images beamed back to Earth," says Sylvain Le Moal, Head of Satellite Applications, Imagery, and Innovation at Météo-France's Satellite Meteorology Centre (CMS).

"When I arrived at CMS two decades ago, Meteosat Second Generation's first satellite had just become operational, but planning for the third generation satellites had already begun in earnest," recalls Le Moal, who is also France's MTG User Preparation Project (MTGUP) representative and serves as an MTGUP advisory board member.

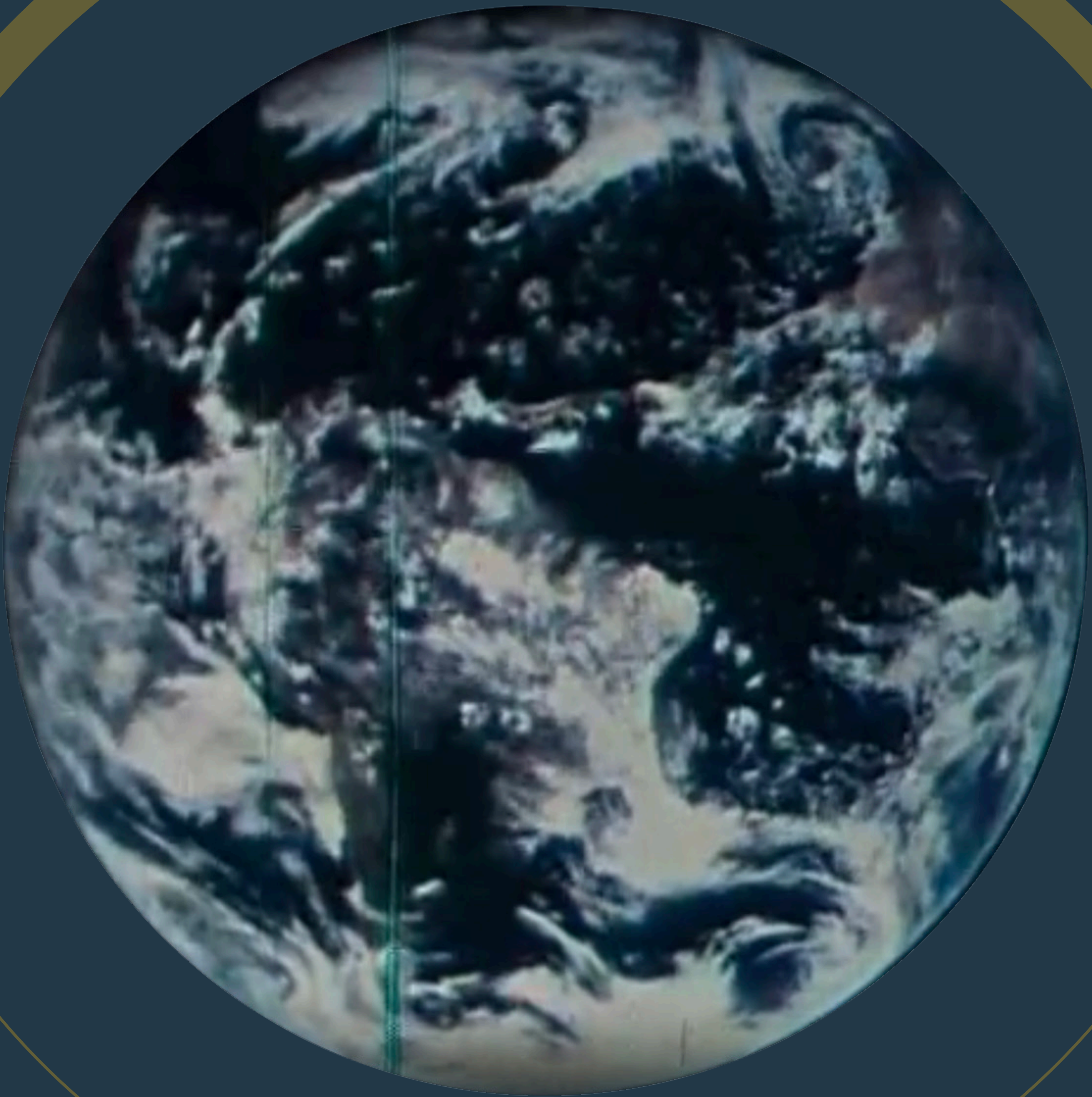
"Since then, member states have taken part in a wide range of initiatives and workshops that have allowed us to account for the needs of users such as national weather centres, forecasters, researchers, and the media. End users such as meteorologists, national weather centres, scientific researchers, and the media have been informing the design and development of MTG every step of the way."

MTG is not just providing lots of new data, the satellites are also home to revolutionary new instruments. "The satellites will provide data that has never been available over Europe before," Le Moal says. "To make sure we're ready, we've needed to enhance our telecommunications lines, build antennas, and process algorithms to account for new information types such as lightning data.

"We've also been developing specialised training courses so that end users are ready to hit the ground running as soon as MTG goes live. All of this has been done in collaboration with EUMETSAT and its member states – it's a truly international endeavour."

Météo-France already has experience processing data for French overseas territories from next-generation satellites currently in operation, such as Japan's Himawari 8 and United States' GOES-R series. Le Moal says this has given a tantalising taste of what is to come.

"MTG observations will enrich the information available for forecasters to make numerical weather predictions, which are invaluable for international weather models," he says. "They will also provide a huge boost to everything from nowcasting of severe thunderstorms, to tracking sandstorms, to observing and responding to wildfires. I'm sure it's going to be great."



A still from the first video showing a full day of weather in colour, captured by the ATS-III synchronous satellite on 18 November 1967 (credit: NASA and ESSA)

Meteosat: a triumph of European collaboration

The story of Meteosat is a story of European cooperation.

Now recognised in the Space Strategy for Europe, Meteosat began in 1972 as a programme of the European Space Research Organisation (the ESRO), the European Space Agency's predecessor.

The goal was to better serve the needs of European meteorologists by providing satellite data that could enable them to more accurately provide warnings for extreme weather events such as storms, floods, and avalanches, to improve longer term forecasts, and to track the changing climate.

Meteosat First Generation

This came to fruition in 1977 with the launch of Meteosat-1, which provided full disc images of the Earth from its vantage point 36,000 kilometres above the spot off the coast of West Africa where the prime meridian meets the equator.

This endeavour marked a number of firsts for Europe: it was the continent's first meteorological satellite as well as its first geostationary satellite, providing continuous coverage of weather patterns in one area by rotating along with the turning Earth.

In 1987, just six months after its founding, EUMETSAT entered into an agreement with the European Space Agency (ESA) to take over the operations for the Meteosat programme. Over the next 20 years, six more Meteosat First Generation satellites took flight, transmitting images every 30 minutes. These satellites collected important information about clouds, sea ice, and volcanic ash.

Beginning in 1991, the Indian Ocean data coverage service was introduced: after the satellites finished their service in their original position, they began the second essential part of their service and were repositioned over the Indian Ocean in order to provide crucial coverage of severe weather events.

Meteosat Second Generation

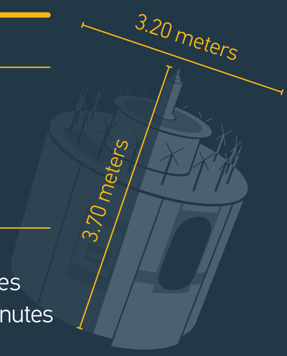
Then, with the launch of the first Meteosat Second Generation satellite in 2002, came the ability to collect even more types of essential Earth observation data. Unlike satellites in the previous generation, these satellites could detect and monitor fires, identify the size of water drop suspended in clouds, and detect toxic sulphur dioxide emitted by erupting volcanoes. Importantly, they could also transmit images twice as fast as satellites from the previous generation – every 15 minutes, down from 30.

Meteosat First Generation

Height:	3.195 meters
Width:	2.10 meters
Mass:	320kg in orbit
Power:	200W / spinning at 100rpm
Instrument:	MVIRI 3-channel imager Full Earth scan every 30 minutes

Meteosat Second Generation

Height:	3.70 meters
Width:	3.20 meters
Mass:	2,000kg in orbit
Power:	600W / spinning at 100rpm
Instrument:	SEVIRI 12-channel imager Full Earth scan every 15 minutes Rapid scan of Europe every 5 minutes



A test model of the MTG Flexible Combined Imager (FCI) in ESA's satellite testing facilities in the Netherlands in 2018 (credit: ESA, G. Porter)

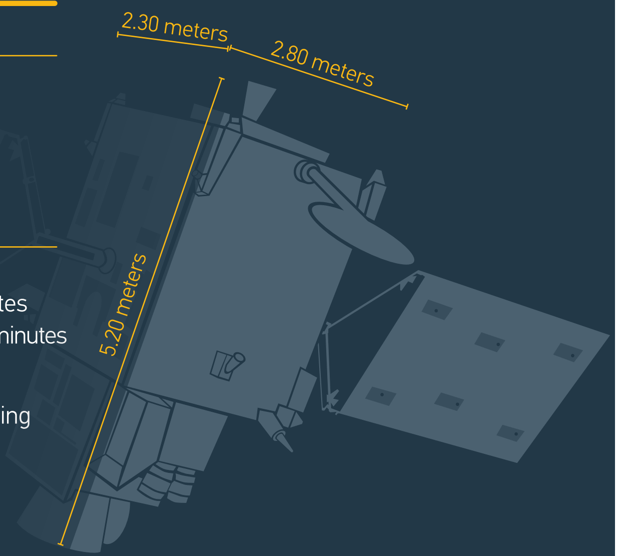
Meteosat Third Generation

With Meteosat's third generation of satellites, the multinational collaboration between EUMETSAT and its partner organisations continues. ESA contracted a European consortium led by Thales Alenia Space and OHB System to develop the spacecraft. EUMETSAT develops the ground segment and has contracted Thales Alenia Space, Thales Services Numeriques, Telespazio, and GMV who developed the cutting-edge ground segment facilities.

In addition, EUMETSAT is proud to partner with the European Union on their Earth observation programme, Copernicus, to carry one of its instruments on the MTG Sounder satellites. The Copernicus Sentinel-4 Ultraviolet, Visible, and Near-Infrared Sounder will provide key data that can be used to monitor and forecast air quality over Europe.

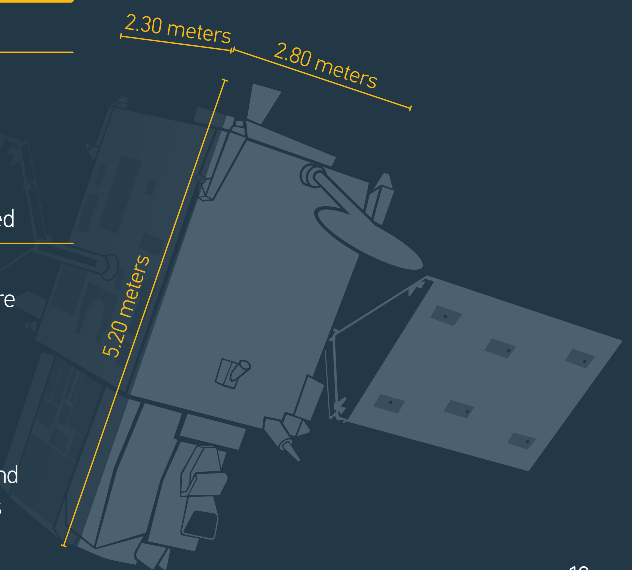
Meteosat Third Generation – MTG-I

Length:	2.80 meters
Height:	2.30 meters
Width:	5.20 meters
Mass:	3,800kg in orbit
Power:	2,000W / three-axis stabilised
Instruments:	FCI 16-channel imager Full Earth scan every 10 minutes Rapid scan of Europe every 2.5 minutes
	Lightning Imager Full Earth monitoring of lightning activity continuously



Meteosat Third Generation – MTG-S

Length:	2.80 meters
Height:	2.30 meters
Width:	5.20 meters
Mass:	3,800kg in orbit
Power:	2,000W / three-axis stabilised
Instruments:	Infrared Sounder Vertical profile of temperature and moisture over Europe every 30 minutes
	Sentinel-4 UVN Measurements of aerosols, O_3, NO_2 and SO_2 over Europe and North Africa every 60 minutes



The people who make it happen

From the initial plan for a satellite to supporting its daily operations, the whole of EUMETSAT has been involved in ensuring the success of the Meteosat Third Generation mission

A grand team effort

"Launching and operating a new fleet of state-of-the-art satellites 36,000 kilometres above the Earth is no easy feat. The success of this mission is only possible thanks to countless people's hard work. From engineers to remote sensing scientists to training officers, it's the people that make it happen. I, for one, couldn't be prouder to be part of such an outstanding collaboration."

Alexander Schmid
MTG Programme Manager at EUMETSAT

Some of EUMETSAT's staff and contractors pose for group photo to mark the organisation's 30th anniversary in 2016

The Directorate defines the EUMETSAT strategy and listens to user requirements in order to ensure that MTG satellites best meet users' needs.

The Administration Department is responsible for preparing the legal and contractual framework, including negotiating agreements with the European Space Agency and Satellite Application Facilities where experts in areas such as climate monitoring, sea ice, and atmospheric composition process satellite data.

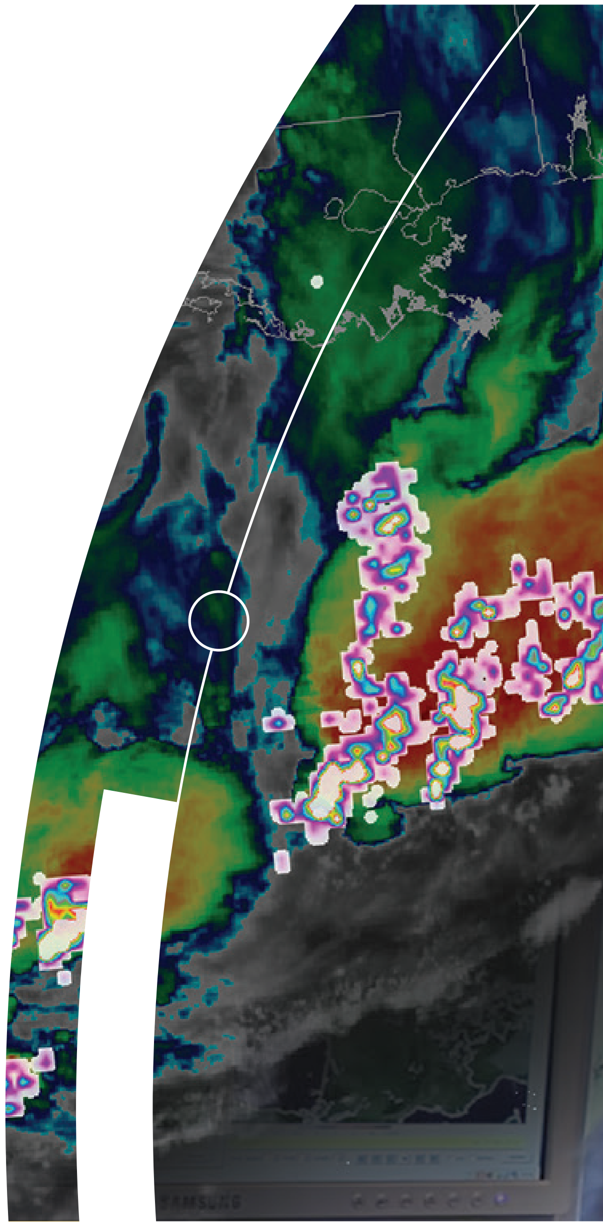
The Programme Preparation and Development Department designs and establishes cost effective operational satellite systems, prepares and manages the development of MTG, and manages the cooperation with partner agencies.

The Technical and Scientific Support Department's work is widespread; from supporting the ground segment development to creating and implementing products that best serve users, this department provides diverse expertise and support.

The Operations and Services to Users Department plans the mission and then, once the satellite is launched and in the correct orbit, operates it, which involves ensuring that the satellite flies safely. These are also the people who support and train users, including national meteorological, hydrological and oceanographic services, universities, and other organisations and individuals with an interest in weather and climate.

EUMETSAT

Eumetsat-Allee 1
64295 Darmstadt
Germany
Tel: +49 6151 807 3660/3770
Email: press@eumetsat.int
www.eumetsat.int



Brochure: PRG.01, V4