

Meteosat Third Generation

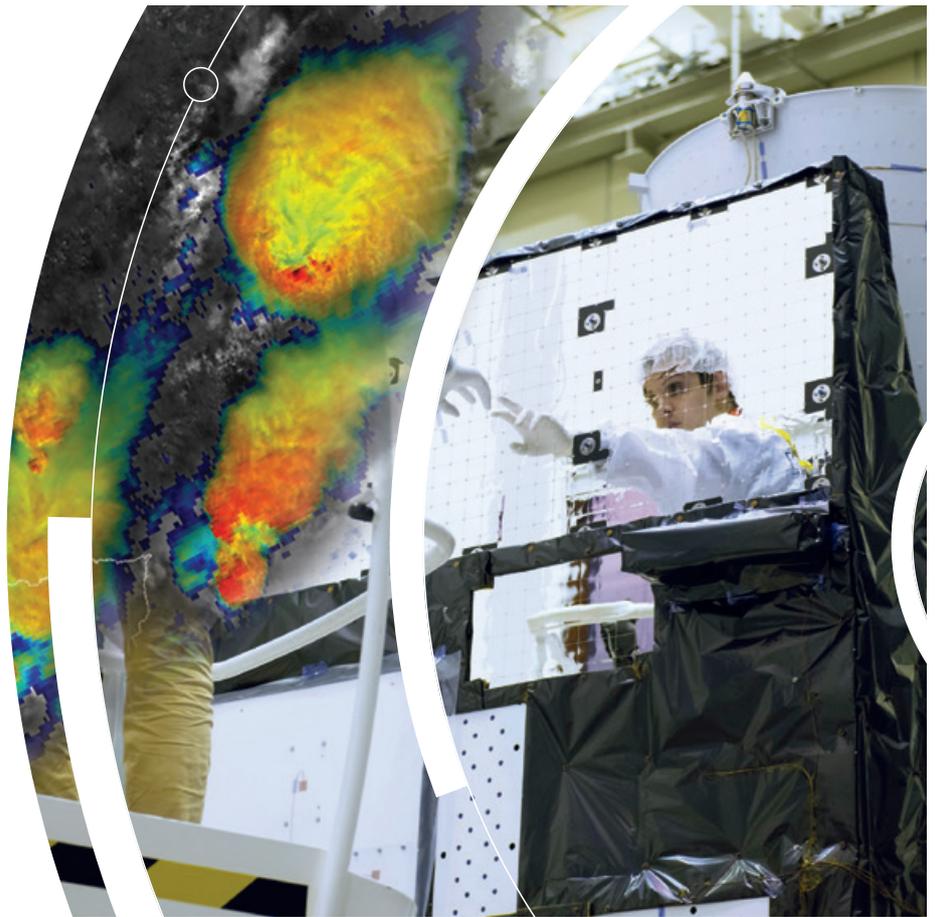
A highly innovative geostationary satellite system for Europe and Africa

EUMETSAT's next generation meteorological satellites are about to revolutionise weather forecasting in Europe and beyond.

The Meteosat Third Generation system is the most complex and innovative geostationary meteorological system ever built, with two different types of satellites delivering at least 50 times more data than Meteosat Second Generation.

The ground segment, used to control the spacecraft, acquire, process and archive the data and deliver data and products to users worldwide, faces a double challenge: more data being delivered more frequently. Therefore EUMETSAT will use the high-bandwidth Ka-band data frequency for the first time.

MTG is EUMETSAT's most advanced system yet.



Meteosat Second Generation (MSG) vs Meteosat Third Generation (MTG)

MSG

Fully operated from the control centre in EUMETSAT headquarters in Darmstadt, Germany

Geostationary orbit, 36,000km above the Earth

Two-satellite constellation, both satellites are imagers

Gyroscopic stabilisation with a rotating satellite, which views the Earth only 5% of the time

Images of Europe are delivered every 5 minutes
Images of Europe and Africa are delivered every 15 minutes

Spatial resolution of 1 to 3km, depending on the instrument

Full constellation distributes 2Mbps of data every day via EUMETCast Europe

No Lightning Imager

No Infrared Sounder

No Ultraviolet, Visible and Near-Infrared Sounder

MTG

Fully operated from the control centre in EUMETSAT headquarters in Darmstadt, Germany

Geostationary orbit, 36,000km above the Earth

Three-satellite constellation consisting of two imagers and, for the first time in geostationary orbit, an operational infrared sounding satellite.

Three-axis stabilisation: the satellite views the Earth 100% of the time

Images of Europe are delivered every 2.5 minutes
Images of Europe and Africa are delivered every 10 minutes

Spatial resolution of 0.5 to 2km, depending on the instrument

The full constellation distributes 110Mbps of data every day via EUMETCast Europe.

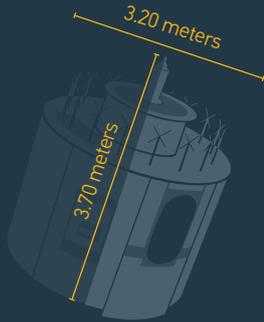
The Lightning Imager instrument provides data crucial for detecting and "nowcasting" storms, which is of significant benefit to the aviation industry, for example

The Infrared Sounder makes its world debut on an operational satellite mission. It will provide 3D-profiles of temperature and humidity over Europe every 30 minutes.

The Ultraviolet, Visible and Near-Infrared Sounder (the Copernicus Sentinel-4 mission) measures trace gases and aerosols over Europe every 60 minutes. This information will be used for monitoring and forecasting air quality.



Meteosat Second Generation



Dimensions

Height: 3.70m
Width: 3.20m

Mass

Without fuel: 1,070kg
In orbit: 2,000kg

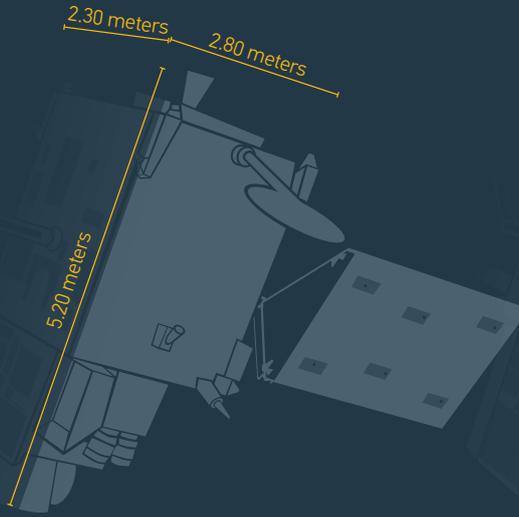
Power & stabilisation

600W / spinning at 100rpm

Payload instruments

Spinning Enhanced Visible and Infrared Imager
12-channel imager
Full Earth scan every 15 minutes
Rapid scan of Europe every 5 minutes

Meteosat Third Generation – Imager (MTG-I)



Dimensions

Length: 2.80m
Height: 2.30m
Width: 5.20m

Mass

Without fuel: 1,800kg
In orbit: 3,800kg

Power & stabilisation

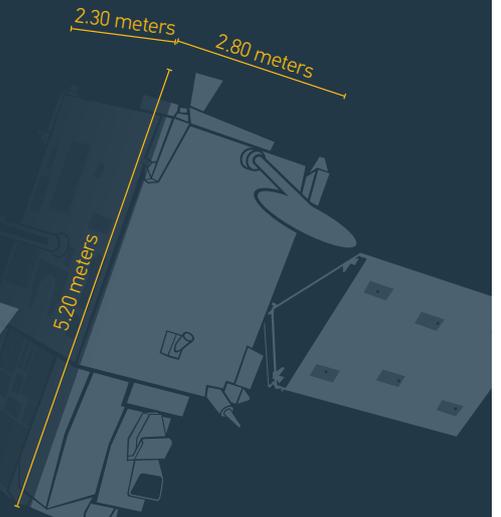
2,000W / three-axis stabilised

Payload instruments

Flexible Combined Imager
16-channel imager
Full Earth scan every 10 minutes
Rapid scan of Europe every 2.5 minutes

Lightning Imager
Continuous monitoring of lightning activity over full Earth disc

Meteosat Third Generation – Sounder (MTG-S)



Dimensions

Length: 2.80m
Height: 2.30m
Width: 5.20m

Mass

Without fuel: 1,800kg
In orbit: 3,800kg

Power & stabilisation

2,000W / three-axis stabilised

Payload instruments

Infrared Sounder
Vertical profile of temperature and moisture over Europe every 30 minutes

Sentinel-4 Ultraviolet and Near-Infrared Sounder
Measurements of aerosols, O₃, NO₂ and SO₂ over Europe and North Africa every 60 minutes

