

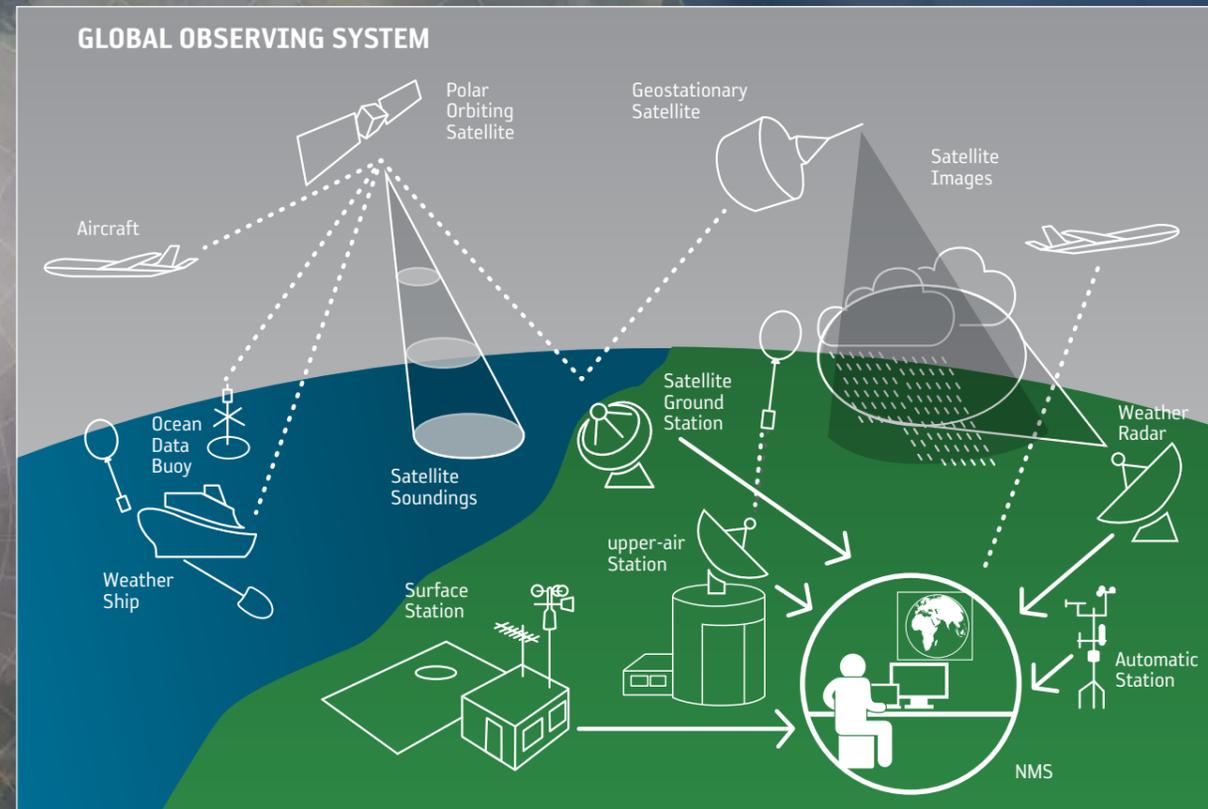
Monitoring Risk – Weather Hazards

The Global Observing System

A large portion of disasters – over 90% by some assessments – are linked to hydrometeorological hazards. Climate change is expected to lead to an increase in the intensity and frequency of some of these hazards.

Satellites operated by the world's space and meteorological agencies underpin the space segment of the Global Observing System (GOS), which is coordinated by the WMO. These satellites provide unique meteorological and environmental observations that enable warnings of extreme weather events on a global scale.

The established dissemination channels of the GOS provide information to decision makers at the local level and serve as a useful model for the timely transmission of disaster information.

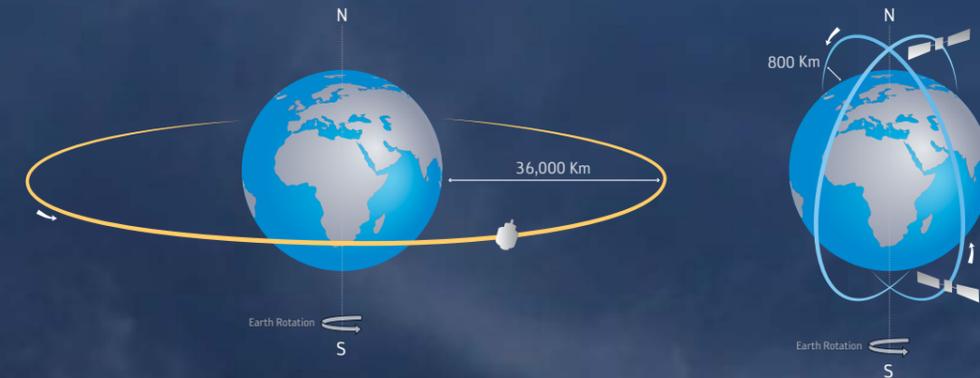


Space-Based GOS

Satellite observations from the GOS space segment provide unique global weather data that cannot be gathered from terrestrial sources. These observations greatly improve extreme weather forecast accuracy, coverage, and range, including tropical storms such as hurricanes, typhoons and cyclones, severe rain and storm activity, and tornadoes.

Forecasts of these extreme weather events allow authorities to issue warnings, coordinate evacuations, and manage the response to major incidents. In the aftermath of major incidents, satellite observations support timely damage assessments and the monitoring of resulting hazards such as flooding.

A new generation of geostationary satellites, the first of which was launched in 2014, is expected to further improve the quality and timeliness of data, producing more than 50 times the information provided by the current systems. This will include a wider variety of unique observations of the environment, with particular emphasis on hazardous weather, and will be able to provide tropical storm-scale regional observations every 2.5 minutes.



Space Data Capabilities

Operational Polar Satellites	Temperature, humidity, water vapour, wind speed, and direction	Enhanced weather forecast skill – out to 5 days with reliability
Operational Geostationary Satellites	Near real-time tropical storm imagery	Today's 48-hour forecast is as accurate as those issued for a 24-hour prediction of 10 years ago
Next-generation Operational Geostationary Satellites	Improved accuracy and expansion of application areas with advanced sensors	High frequency (every 2.5 minutes) regional tracking of tropical storms, active fire detection
Research and Development Capabilities	Measurement of physical storm intensity markers	Direct measurement of precipitation type and volume, lightning strikes



Image credit: NOAA/National Hurricane Center



Example of Proposed new Storm Surge and Hurricane Warnings