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EUMETSAT in action eyes to check the pulse of Earth

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Increasing society's resilience to high-impact natural events and climate change requires coordinated research and new investments in earth observation and prediction. EUMETSAT (The European Organisation for the Exploitation of Meteorological Satellites), together with its international partners provides the backbone of the global meteorological space based observing system.

At the end of this year Meteosat Third Generation first satellite will be launched. Additionally, in the next five years, EUMETSAT will launch the new generation of its polar systems as well as several new missions of the Copernicus Programme on behalf of the European Union, meeting the requirements for a vast set of applications, including global and regional numerical weather prediction, nowcasting, atmospheric composition and ocean monitoring as well as climate.

Those systems will bring an unprecedented observational capacity benefiting the full weather/climate value chain. We would present an overview of the main applications to key sectors, ranging from nowcasting to long term climate record and CO2 monitoring.

In the near future, additional polar missions could complement the mandatory programs with specific focus on wind measurements and microwave soundings. Socio-economic impact assessment could be presented as a guidance for future studies and programmes.

At the same time earth observations are increasingly becoming a big data problem—a new AI/machine learning frontier bridging outputs and services. This requires a paradigm shift in scientific and technical methodologies, a strengthening of collaboration across sectors and resources to meet future requirements. An important European initiative, Destination Earth, will significantly contribute to integrate satellite observations into a high precision digital model of the Earth.