AgriHUB: Satellite technology as a tool to shape agricultural policy and ensure food security

The AgriHUB system of services, exploits EO with state-of-the-art AI to monitor crops and food production, assess the good agricultural practices, and provides early assessments and warning on Climate Change impact in yield. It also supports decisions in relation to framers' compliance with CAP.

DustHUB: Desert Dust Monitoring Service

The DustHUB system of EO services provides a three-day forecast of desert dust concentrations and dispersion over EU, N. Africa, Middle East, Balkans, and Black Sea. It informs on dust particle concentrations at all heights of the atmosphere, as well as dry and wet depositions of dust on the surface.

EarlY WArning System for Mosquito-borne Diseases (EYWA)

EYWA system of EO services forecasts and informs on the entomological and epidemiological risk for Mosquito-Borne Diseases (Malaria, West Nile Virus, Dengue Fever, Yellow Fever, Zika, Chikungunya) and supports the public health authorities to prevent the spread of diseases in thousands of settlements in Europe, Africa, and Asia continents.

EMS Activations Copernicus Risk & Recovery Mapping

The infrastructure and excellence developed in the BEYOND Centre are actively involved in the provision of Copernicus EMS Risk and Recovery Mapping which consists of the on-demand provision of geospatial information in support of Emergency Management activities related to Emergency Support. This applies to activities dealing with prevention, preparedness, disaster risk reduction and recovery phases. There are three broad product categories: Reference Maps, Pre-disaster Situation Maps and Post-disaster Situation Maps.

EU SST: Space Surveillance and Tracking

Beyond Centre is the home of the SST Greek National Operations Center (GR-NOC), responsible for the coordination of the Greek sensors, processing of observations, and interfacing with the European Union's Space Surveillance and Tracking (EU SST) database, network, and services, as well as the needs of satellite operators directly. These activities are complemented by state of the art research in Artificial Intelligence aimed at enhancing the security and sustainability of human activities in Space.

Imagination takes us BEYOND our limits

www.beyond-eocenter.eu

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BEYOND

Centre of Earth Observation Research & Satellite Remote Sensing

Dedicated to generate significant services with a social impact, leveraging cutting edge remote sensing technology

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IAASARS

What inspires us

"Turning Earth Observation into actionable knowledge that safeguards people, supports sustainability, and drives innovation for a resilient future"

The BEYOND Centre of EO Research and Satellite Remote Sensing of IAASARS/NOA develops cutting-edge research while providing services in critical areas of economic development and citizen protection. These include disaster management, space safety and security, energy, health and epidemiology, agriculture, ecosystems and environment. As a "living" organization, BEYOND continuously evolves its services, with Earth Observation at its core. It plays a leading role in the technological paradigm shift driven by Big Data and the unprecedented penetration of Information and Communication Technologies (ICT) into the Earth Observation domain. It acts as a pioneer in the field, actively engaging in European projects that exploit cutting-edge technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Distributed Computing (DC).

BEYOND in Figures

- 14 service platforms open to the global public | stakeholders
- More than 100 risk and recovery activations at national level
- Regional, European and International Collaborations
  - UN-SPIDER Regional Support Office Greece
  - Coordinator of the GEO-GRADLE GEO Initiative
  - Member of the CEOS Working Group on Disasters
  - Member of the GEO Disaster Risk Reduction Working Group
  - Member of the GEO Capacity Development Working Group
  - Member of the International Union of Geodesy and Geophysics
  - Partner at the Caroline Herschel Framework Partnership Agreement on Copernicus User Uptake Consortium
  - Partner of Region of Attica
  - Principal of GRSS GEO
  - Delegate of EU SST STC
- Partnerships with Private Sector | Industries (Disasters, Climate, Energy, Health, Agriculture, Insurance, Epidemics, Soil/Biodiversity, Education)
- Research record ≈727 papers | 6,667 citations
- Human resources: 63 key personnel (PhD, MSc, other research staff)
- 9 disciplines (AI/ML, Data Analytics, EO, Mathematics, Atmospheric Physics, Engineering, Communication)
- 2 Worldwide distinctions | Awards
  - 1st Prizes: FireHUB, EYWA - 5M Euros Award
  - 1 European distinction: MyEUSpace Best IDEA Award EUSPA

Winner of the first "EIC Horizon Prize on Early Warning for Epidemics"

European Commission

Indicative Services of BEYOND Centre for Civil-Sector Resilience

FireHUB: Forest fire monitoring and management service based on satellite remote sensing

The FireHUB system of EO services predicts, detects and monitors in real time the evolution of wildfires in Greece while it simultaneously models the smoke dispersion. It generates daily active fires and burnt areas in Europe, N. Africa, Middle East, Balkans, and Black Sea countries. Through Copernicus CEMS and third party activations, FireHUB delivers fire risk and historical fire regime assessments worldwide.

FloodHUB: Flood monitoring service

The FloodHUB system of EO services is activated as soon as a major flood event occurs and gives a near real-time operational picture of the disaster using hydrological and hydraulic modeling. It dynamically leverages satellite remote sensing observations, crowdsourcing and in-situ sensor data.

GeoHUB: Geohazards monitoring service using satellite radar interferometry

GeoHUB system of EO services exploits primarily SAR imagery and employs interferometric techniques to assess ground deformation. It generates products for diachronic monitoring of earthquakes, volcanoes, landslides and urban subsidence. The GeObservatory is activated for any earthquake and/or a volcanic eruption over the world.

SolarHUB: Nowcasting Solar energy continuous monitoring service

The SolarHUB system of EO services, SENSE and nextSENSE, exploits daily acquisitions of big satellite data with AI techniques and provides now-casting and short-term forecasting surface solar radiation and energy assessments over Europe, N. Africa, Middle East, Balkans, and Black Sea.