

The e-shape project: Earth Observation based solution with and for the users. Hands-on the e-shape pilots services

EGU22

26 May 2022, 10h20-11h50 am CEST

Room 2.83

Outline

Background

Earth Observation data and information play an essential role in monitoring and assessing the status and changes in the natural environment landscape. From agriculture to climate and water resources sectors, among others, space-based technology provides to industry, research community and technology suppliers, from governmental to local/regional/national level and policy makers, access to the best information possible to make informed decisions.

The use of Sentinel data can be integrated through services for early warning solutions, in the context of smart farming, monitoring and control and efficient management of resources. Copernicus Sentinel data provide an effective and convenient support to various agricultural applications, from yield prediction, soil erosion; in the context of climate change, monitoring the estimation of carbon emission impacts and in the water resources management hydro-climatic information, critical for flooding and hydrological hazards.

These sectors have extended the circle of the stakeholders involved to include not only the civil society, civil protection authorities, or government institutes, but also private actors representing commercial sectors and different industries. In this context, the pilot projects developed within the e-shape [H2020 project](#) represent concrete examples to that effect, as they have been conceived with the vision of an “umbrella” of services helping authorities, but also enabling a commercial application.

The [e-shape](#) project develops and promotes European Earth Observation capabilities with and for the users. Driven by the need to develop operational EO services with and for the users, e-shape is federating communities to increase the knowledge and the awareness of European EO capabilities and new approaches.

During this workshop, we will present some specific applications being developed in the e-shape project to bring the aforementioned benefits to the scientific and research community active in the agriculture, climate and water management sector.

From the agriculture showcase, the [pilot “ReSAgri - Resilient & Sustainable ecosystems including Agriculture & food”](#) integrate an advanced hazard forecasting system to explore the links between heatwaves, wildfires, and floods in synergy with the other pilots of the

disaster showcase concerning the development of an innovative meteo modelling solution in higher grid resolution and with EO based assimilation process.

From the water showcase, the [pilot “Improved historical water availability and quality information](#), integrates EO data into continental and global scale hydrological models in order to assess water quality and availability, providing accurate and reliable historical records of hydro-climatic information, critical for flooding, drought and water resources management. In the climate showcase, the [pilot “Forestry conditions - climate service”](#) is offering a trafficability and forest information service for better harvesting operation planning , raising awareness and train foresters regarding their carbon footprint and motivate them to climate smart harvesting.

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estimates carbon emission impacts of harvesting with several different management options, raising awareness and train foresters regarding their carbon footprint and motivate them to adopt low carbon, climate smart harvesting.

Webinar and format

The workshop will revolve around the presentation of the coordinated approach to support research communities demonstrating and bringing their EO-based solutions to serve policy makers, civil society, civil protection mechanisms and private users, boosting innovation in the field of Sustainable Development Goals and in the agriculture policies.

The workshop will introduce EO-based applications in the agriculture, climate and water resources sector developed within the e-shape project and exemplify solutions that not only can support disaster resilience, raise awareness and risk response capability at the EU level, but can be integrated into users' daily workflows.

The aim is to bring together research and scientist communities to discuss about opportunities and challenges, reaching new community of users, and injecting knowledge exchanges on co-design methodologies to develop the operational uptake of mature EO-based services.

Draft agenda

Francesca Piatto, Project Officer, European Association of Remote Sensing Companies (EARSC)- Introductory words

Dr. Ilias Pechlivanidis - FIRE Forum EO Evangelist: *“Earth Observations as a driving force to co-evolve the agriculture sector”*

Dr. Niko Bartsotas - National Observatory of Athens (Beyond center of Earth Observational Research and Remote Sensing), *ResAgri*

Dipl.Met. Miriam Kosmale- Finnish Metereological Institute (FMI), *Harvester Seasons: a service supporting Finnish forestry sector.*

Dr. Ilias Pechlivanidis - Swedish Meteorological and Hydrological Institute (SMHI):
Towards EO-tailored services to provide improved historical water availability and quality information

Q&A Moderator: Francesca Piatto

Speakers:

Francesca Piatto is project officer at the European Association of Remote Sensing Companies (EARSC), a membership-based, not for profit organisation which coordinates and promotes the activities of European companies engaged in delivering Earth observation-derived geo-information services. She is currently the e-shape project coordinator, a European project that develops and promotes European Earth Observation capabilities with and for the users. Prior to this role, she collaborated with the Italian Chamber of Commerce in Rosario (Argentina) assisting with EU projects, and Business Bridge Europe, where she worked for the annual EU Space Conference. Francesca holds a MA in EU external relations and international migration from the University of Kent's Brussels School of International Studies.

Dr Ilias Pechlivanidis is a Senior Researcher, past Scientific Leader, in hydrology and water resources at SMHI and the Project Manager of the Analytics and Dissemination Centre for the Copernicus Emergency Management Service - Floods. He has been the principal investigator focusing on hydrometeorological forecasting, environmental change impacts, science communication, cross-cutting applications of earth observations, early warning and user-tailored water and climate services. He has been coordinating operational (sub-)seasonal forecasting services over Europe and the globe. He is a Member of the World Meteorological Organization (WMO) Research Board, the Co-Chair of the Hydrologic Ensemble Prediction Experiment (HEPEX) scientific initiative, the Chair of the EGU Hydrological Forecasting sub-division, a Reference Member at the Centre of Natural Hazards and Disaster Science (CNDS), and the first Earth Observation Evangelist for the agriculture sector of the FIRE forum.

Dr. Nikos Bartsotas is a Post-Doc Researcher in Atmospheric Physics and Numerical Weather Prediction in the National Observatory of Athens (Beyond center of Earth Observational Research and Remote Sensing) and the National Academy of Athens. His research interests include the study of flash-flood inducing heavy precipitation events over complex terrain areas as well as the effective fusion of NWP with available EO datasets and ground observations towards a more accurate monitoring of precipitation. He has been actively involved in the implementation of operational forecasting platforms and staff training in agencies such as Qatar Meteorology Department (QMD) and Saudi Aramco as well as providing tailored high-resolution wind forecasts for sailing contests (Volvo Race, America's Cup). In the e-shape project he is the pilot leader of ResAGRI, a newly developed platform that provides precision agriculture services both to the agro-insurance companies as well as a broad spectrum of end users in the broader Agricultural sector.

Dr. Miriam Kosma received her master's degree in meteorology, computer science and physics from Ludwig-Maximilians Universität Munich, Germany. She has over 15 years' experience in atmospheric science and satellite remote sensing. Before joining FMI she was working many years at German Centre for Remote Sensing, DLR with focus on aerosol remote sensing, air quality and its applications. Since 2019 Miriam is working as remote sensing scientist and project manager at the Arctic Space Centre within Finnish Meteorological Institute, where she is involved in projects concerning snow remote sensing, user interaction and service implementation. She is involved in e-shape, climate showcase 7 as pilot leader for pilot 3 on forestry conditions.

e-shape pilots' description:

The e-shape project

e-shape, is a 48-month project under the framework of Horizon 2020 and constituted by a pan-European team of academic, industrial, institutional and user communities. It is a unique initiative that brings together decades of public investment in Earth Observation and in cloud capabilities into services for the decision-makers, the citizens, the industry and the researchers. It allows Europe to position itself as a global force in Earth observation through by leveraging Copernicus, making use of existing European capacities and improving user uptake of the data from GEO assets, opening new opportunities and expand its use, through the existing European capacities, as well as developing research to business activities.

e-shape raises visibility and increase understanding of the EO market and user's benefits across a wide range of applications represented by 32 pilots grouped into 7 showcases (food security and agriculture, health, renewable energy, ecosystem, water resources, disasters, and climate, in alignment to the three main priorities of GEO (SDGs, Paris Agreement and Sendai Framework), and how these solutions can support disaster resilience, raise awareness and risk response capability at EU level and be integrated into users' daily workflows.