

EO4GEO- Skills development in Earth Observation and Copernicus User Uptake

Employers' challenges to find the right EO/GI profile in the coastal/maritime sector





EO4GEO Workshop, July 2nd



Co-funded by the Erasmus+ Programme of the European Union

VISION

- International, distributed and collaborative network institution
- To foster job creation and knowledge driven economic development in Atlantic regions
- Based in scientific excellence and providing services to the scientific community
- To monitor and decisively contribute to reach the UN sustainable development goals, summarized in 3 main global challenges:
 - Climate Change
 - Digital transformation
 - Income inequalities and population dynamics





Offices









Thematic Missions



Clean and productive bays and estuaries

To promote the ecosystem-based approach for the integrated management of bays and estuarine areas and foster the comparative assessment and action research for the preservation, restoration and sustainable development of several key locations around the Atlantic Ocean



Resilience to coastal natural hazards

To stimulate collaborative research on coastal resilience (with emphasis on floods, sea level rise, extreme weather, and coastal erosion) and promote the development multihazard early warning systems to prevent loss of life and reduce the economic and material impacts of hazardous events



Sustainable food production

To promote the development of new technologies and innovative decision support tools for the sustainable food supply and it will also partner with local communities to preserve sustainable traditional fishing practices and document relevant indigenous knowledge.



Improved management of marine and coastal resources

To build capacity for evidence-based governance of marine and coastal resources and raise awareness of local communities and decision makers on the economic value of marine spatial planning for sustainable development and preservation of marine and coastal ecosystems and biodiversity.



Improved environmental and maritime monitoring

To foster the development of impactful, affordable and collaborative data collection infrastructures and data visualization tools supported by satellite data, in-situ observations, assimilative modelling and artificial intelligence and will stimulate the deployment of collaborative nanosatellite constellations, marine robotics, oceanographic vessels, and autonomous systems to collect, store and share open data.













EARTH OBSERVATION LAB OVERVIEW

- The Earth Observation Lab, located in the TERINOV Technological Park (Terceira island, Azores) is established as:
 - ESA_LAB@Azores, a laboratory to set-up an institutional link between research entities, Portugal Space and the European Space Agency to explore innovative applications of space technologies of EO observation in the Atlantic area
 - GEO Blue Planet Thematic and regional Node
 - GEO MBON Secretariat
- Thematic mission oriented, tackling end-user needs and real problems



EARTH OBSERVATION LAB

ESA_LAB@AZORES ACTIVITIES

- Maximize integration of a distributed space ecosystem into European society
- Extend the use of space technologies and application to support societal challenges, public demands and policies in the Atlantic
- Test procedures and methods to involve and connect Azores regions into a globally competitive European space sector
- Attract, educate young and talented people to get involved in accelerated space for creation, innovation and joint ventures
- Contribute to the European Autonomy in accessing and using space in a safe and secure environment
- Inspire and open new interest in space and make space EO4GEO Workshop, July 2nd



- Multidisciplinary team of 11 staff, 4 PhD
 - Ongoing internship and PhD program for young professionals
 - Total of 35 proposals submitted with partners since Oct 2019
 - 5 organisations involved in E related projects
- Regular meetings with regional and international stakeholders public and private (tourism, energy, agriculture, forests, education)
- Regular organization of several key events





Earth Observation Lab WORK METHODOLOGY







EARTH OBSERVATION LAB

EARTH OBSERVATION CHALLENGES – HUMAN RESOURCES

- Job post writing
 - Emphasis on the project and organization
 - Balance between required skills
- EO related Skills
 - Biodiversity from space, subsidence, land classification, water and air quality, machine learning, bathymetry, marine litter, aquaculture
 - Programming skills and tools
- Careful selection and interviewing process
- Training on specific EO topics related to ongoing/priority projects





EARTH OBSERVATION CHALLENGES – BARRIERS TO ENTRY

Availability: a lack of EO at sufficient temporal, spatial and spectral resolution, and at appropriate cost, to address challenges in developing countries.

Accessibility: complexity of accessing, storing and manipulating EO for non-experts, due to the technical skills and computing infrastructure required.

Awareness: lack of understanding of what types of EO can be produced and what are the benefits of its use.

Acceptance: lack of experience of how to use this source of information and a 'champion' to promote its use.

Adoption: lack of the capabilities existing locally in the developing countries to produce & amp deliver these types of information operationally from EO, and support users in its uptake.











Ongoing Project Example



≋₩ PortXXI

- Identify and evaluate the deployment of transformative environmental monitoring and management services;
- Help ports minimize their environmental impact, while keeping operational costs contained;
- Use EO, SATCOM and SATNAV infrastructures in combination with CCTV, in-situ and mobile sensors, data repositories and autonomous robotic solutions;
- Incorporate Big Data and AI techniques for automatic knowledge extraction.

Project developed by:







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Opernicus SENTINE

2019-12-14, Sentinel-1 AWS (S1-AWS-IW-VVVH), VV - decibel gamma0 - orthorectified



THANK YOU!

Copernicus Sentinel 1 data (2019)





Credit: European Union, contains modified Copernicus Sentinel data 2020, processed with EO Brows

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