

# **ESA EO Atlantic Regional Initiative**

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## **ESA** Vision for EO





## **Feeling the Pulse of our Planet**

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## ESA-DEVELOPED EARTH OBSERVATION MISSIONS



Satellites



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## Earth Explorers – frontiering new Science & Tech





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## **Copernicus – continue global leadership in EO**



> 195.000
registered users
= tip of the iceberg



( 150 TB satellite data distributed per day

full, free & open data policy



## **Operational EO: Copernicus 2.0**



## **6 High Priority Candidate Missions**







Monitor causes of Climate Change  $(CO_2 \text{ emissions})$ 

Monitor effects of Climate Change (Arctic/Polar ice volume)

Sea Ice Conc. & SST (Arctic sit. awareness)



Agriculture & Water Productivity



Food Security, Soil & Minerals, Forestry, Biodiversity

Soil Moisture, Vegetation & Ground Motion

### eo science for society





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### Atlantic from Space workshop 2019

About

Summary report

Background

Keynotes

Posters

Presentations

23-25 January 2019, National Oceanography Centre, Southampton, UK - Programme, presentations and final report





### Atlantic regional initiative stakeholders

An initial group of key stakeholders for the Atlantic Regional Initiative have been identified and engaged by the EO team, in order to identify user needs, priorities and synergies among the many actors which are involved in the sustainable socio-economic development of the Atlantic region.

<pre>@esa</pre>	European Space Agency Read more on the ESA Atlantic regional initiative
UK SPACE	UK Space Agency Find out how they envisage their contribution to the ESA Atlantic regional initiative
Motional Cocaregraphy Control	National Oceanographic Center Find out how they envisage their contribution to the ESA Atlantic regional initiative (1) Find out how they envisage their contribution to the ESA Atlantic regional initiative (2)
eur@cean	Eurocean Find out how they envisage their contribution to the ESA Atlantic regional initiative
OECD	Organisation for Economic Co-operation and Development (OECO) Find out how they envisage their contribution to the ESA Atlantic regional initiative
LEGOS	Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS) Find out how they envisage their contribution to the ESA Atlantic regional initiative
PML Database	Plymouth Maritime Laboratory (PML) Find out how they envisage their contribution to the ESA Atlantic regional initiative (1) Find out how they envisage their contribution to the ESA Atlantic regional initiative (2)
nereur	NEREUS Find out how they envisage their contribution to the ESA Atlantic regional initiative
MERCATOR OCEAN OCEAN	Mercetor Ocean Find out how they envisage their contribution to the ESA Atlantic regional initiative
An operation for register,	World Ocean Council (WOC) Find out how they envisage their contribution to the ESA Atlantic regional initiative
₹ FLYMOUTH	Uni Plymouth Find out how they envisage their contribution to the ESA Atlantic regional initiative
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Long Long Long Long Long Long Long Long	Europeen Commission Find out how they envisage their contribution to the ESA Atlantic regional initiative

	Observation Exploitation Platform.
https:/	/eo4society.esa.int/regional-initiatives/atlantic/

Description

information services:

Observation may contribute;

context of the ESA EO Atlantic Regional Initiative.

needs for science, applications and future information services;

The main workshop objectives have been:

The Atlantic from Space Workshop 2019 assessed opportunities for EO research and development,

The challenges and opportunities emerged at the workshop, have been framed to foster emerging

research in Earth science, develop novel EO applications, test innovative information services and implement upgrades to existing capabilities to manage and manipulate large data volumes.

1. To review the main requirements from geo-information in the Atlantic region from science to

2. To review the main activities, projects and initiatives taking place in the region where Earth

3. To assess the potential of the increasing observation capacity offered by satellites to address the

4. To characterise *gaps and identify high-level requirements* and associated solutions for support ICT infrastructure in the Atlantic region, including the basis for developing an Atlantic Regional Earth

downstream activities and ICT evolution, with a specific focus on the Atlantic region, which will be the basis for future ESA investments, addressing key information needs of this important area in the

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## Maritime Transport and autonomous shipping



Opportunity for **wider uptake of EO** derived information:

- Development of fleet and integrated bridge management systems
- Longer term developments for autonomous vessels:
  - optimizing vessel route to minimize exposure to cross swell
  - reduce fuel consumption and increase sustainability (carbon emissions)

### How can we better cooperate with private sector vessel operators?

- Provision of customized information services to the vessels, and vessels may act as in-situ data collection platforms
- ESA and EC considering additional missions (eg hyperspectral, L-band SAR, Thermal IR, SMOS/Cryosat follow-on)
- Atlantic/Arctic is increasingly crowded and maritime space faces growing problems in safety/SAR, including the issue of operations in ice infested waters
- Vessel detection enhanced for smaller (~20m) vessels with SLC data
- Artificial Intellingence and Machine Learning using co/cross-polarization

## **Atlantic regional initiative applications**

The aim of Atlantic EO applications development is to **embed EO-derived information into pre-operational regional monitoring, assessment and planning activities** (e.g. enhanced environmental monitoring and assessment, improved management of natural resources in the region, support to regional programmes in the fields of economic development, civil security and climate resilience).

The scope of these developments is to:

1. Bridge **EU policies**, ESA programs and **Atlantic strategies**, to better anchor space uses to the needs of territories and industries, fully exploiting the potential of EO applications for better-informed decision-making and innovation processes

Blue economy: Innovation Clusters, Atlantic Natural Resources Management and Maritime Spatial Planning

2. Build **international partnerships** and mobilize initiatives that enhance **cross-sectorial exchanges** amongst actors and investments

Renewable Energy: Off-shore Wind

3. Integrate the EO dimension in **regional innovation** and SME programs, strengthening and developing local communities by raising the profile of EO capabilities towards **new actors** *Atlantic cities: Smart, Sustainable and Secure Ports and Protecting the Ocean* 

An Invitation to Tender to develop those applications will soon be issued on **EMITS**.





# Thank you

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