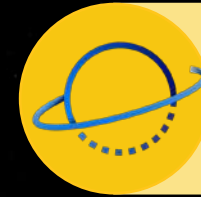


# Sentinel Benefits Study Workshop

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June, 13 | Brussels



SPACEAZORES



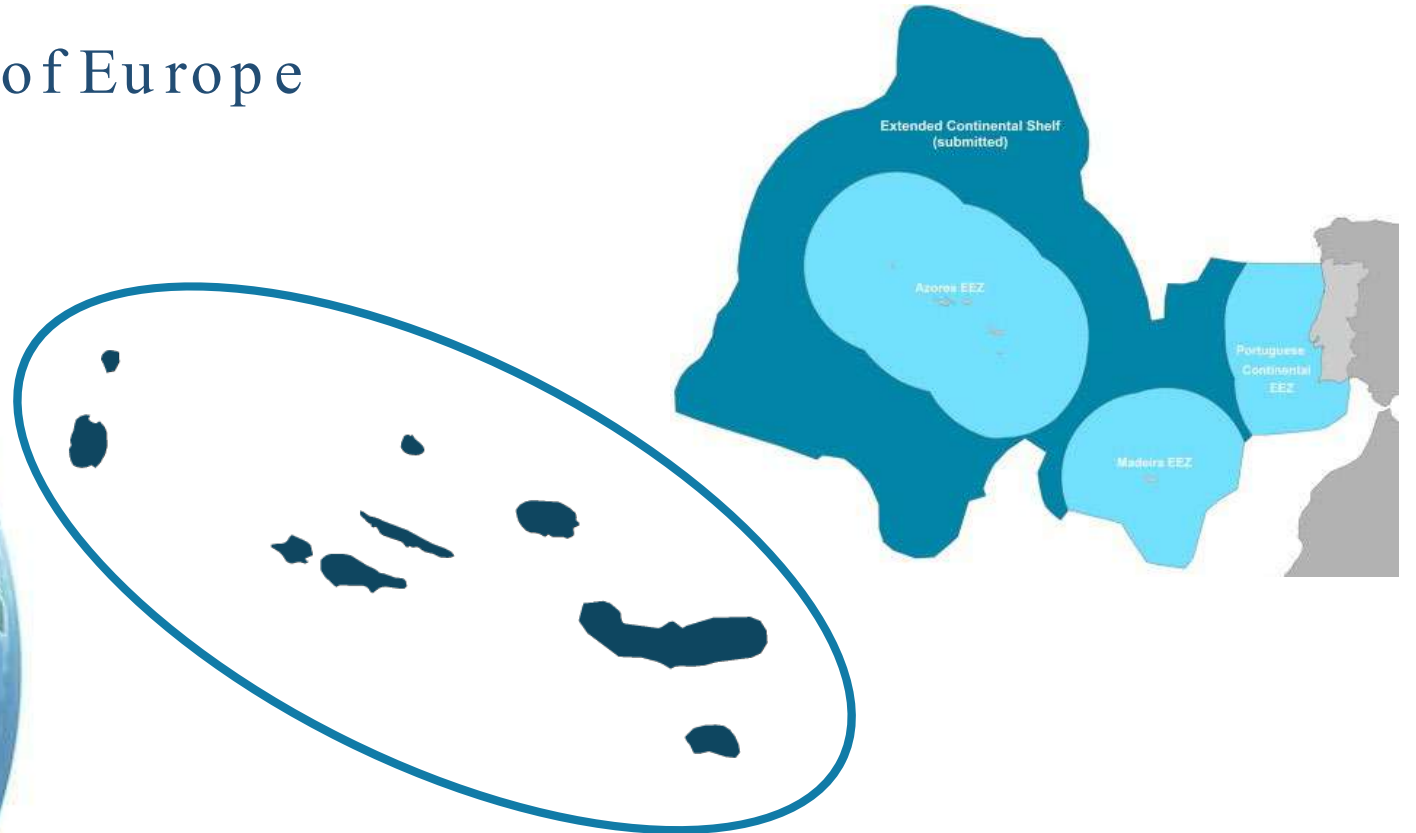
GOVERNO  
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The Public Authority  
uptake perspective

EO in the Azores region: an Atlantic perspective

Duarte Cota | Azores Mission Structure for Space

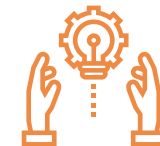
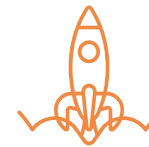
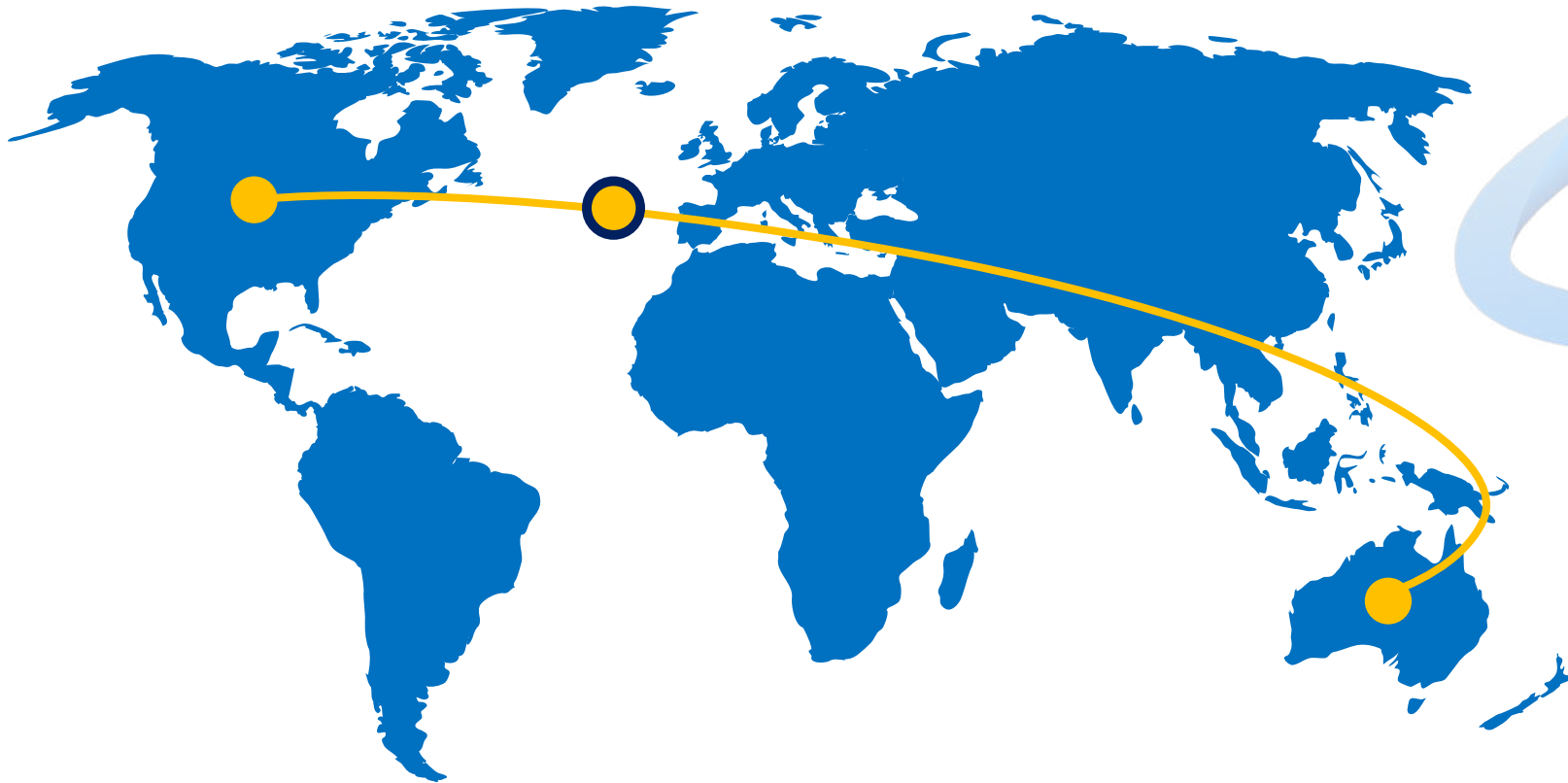
# Azores: The Atlantic centrality of Europe



- Economic Exclusive Zone of ~ 960Km<sup>2</sup> (~ 17% of EU EEZ)
- ~ 237K inhabitants across 9 islands

- Annual GDP of ~ 5.000M€
- Main economic sectors: Agriculture, fishery, and tourism

# “Azores, the Atlantic hub for space”



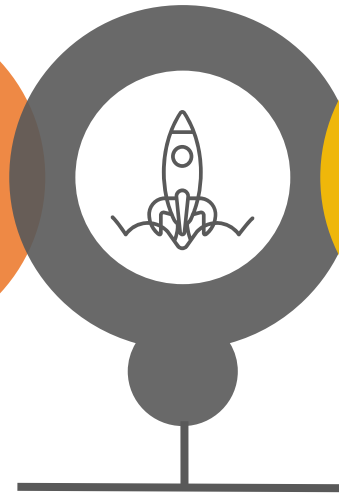
# Priority Areas



Development of the downstream sector - applications based on space data.



Installation of test sites for space technologies and integration of in-situ networks.



Promotion of access, and return from space.



Fostering research, development, and innovation in space.

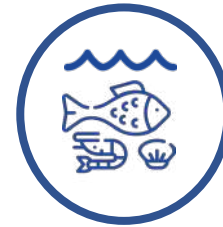


Dissemination, education, and scientific culture for space.





## EO application sectors



Sea & Fishery



Renewable Energy



Agriculture and Forestry



Sustainable Tourism



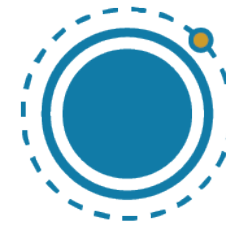
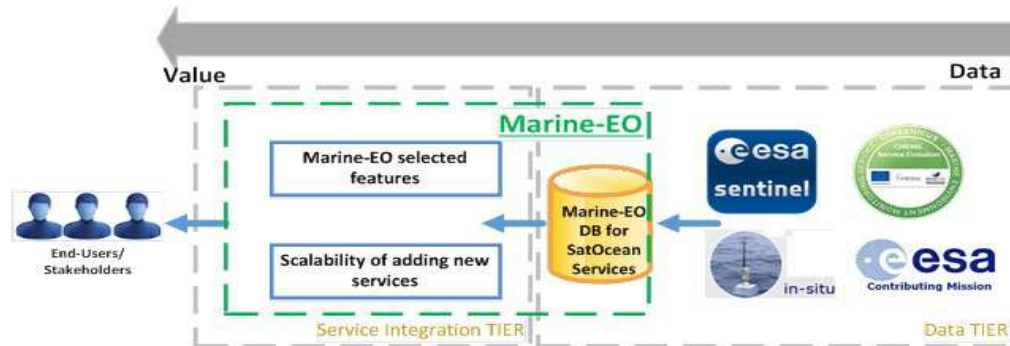
Risk management

# EO in the Azores - examples

## How Pre-Commercial Procurement Can Boost Innovation in Earth Observation Applications?

### SATOCEAN Services

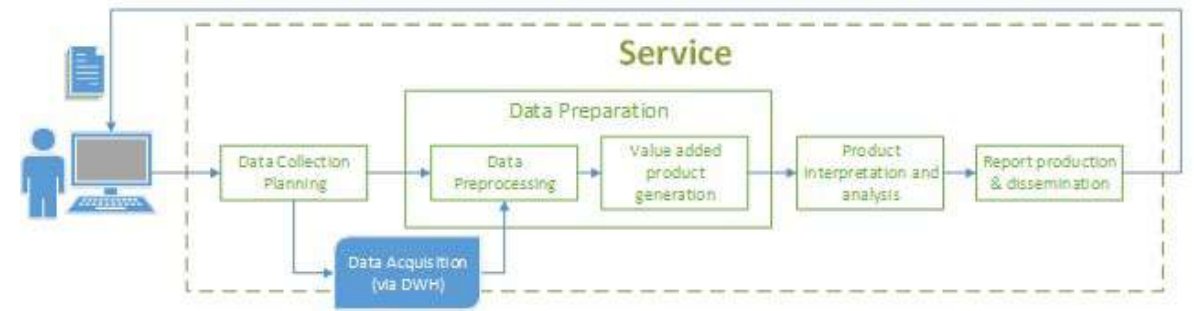
- Marine environmental status in hot spots
- Detection of fish farms threats.
- Detection of vessels and icebergs in Arctic areas



# Marine-EO

### SATSURVEILLANCE Services

- Unusual/Irregular activity monitoring around a critical infrastructure
- Enhanced change detection

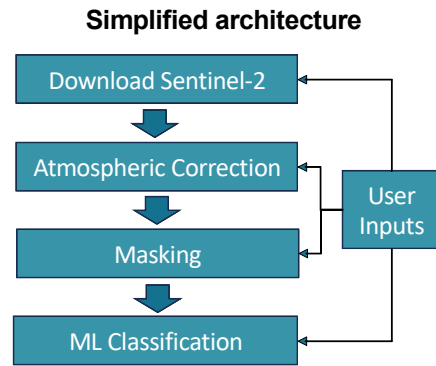


# EO in the Azores - examples

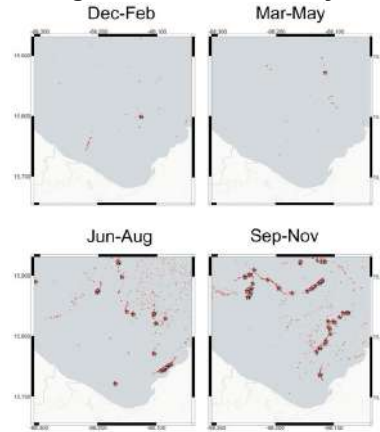
## Marine Debris Monitoring



**Sentinel-2A & B**  
 2015-Present  
 290km swath @ 10, 20 & 60m  
 4-5 days' revisit  
 13 bands (R,G,NIR)

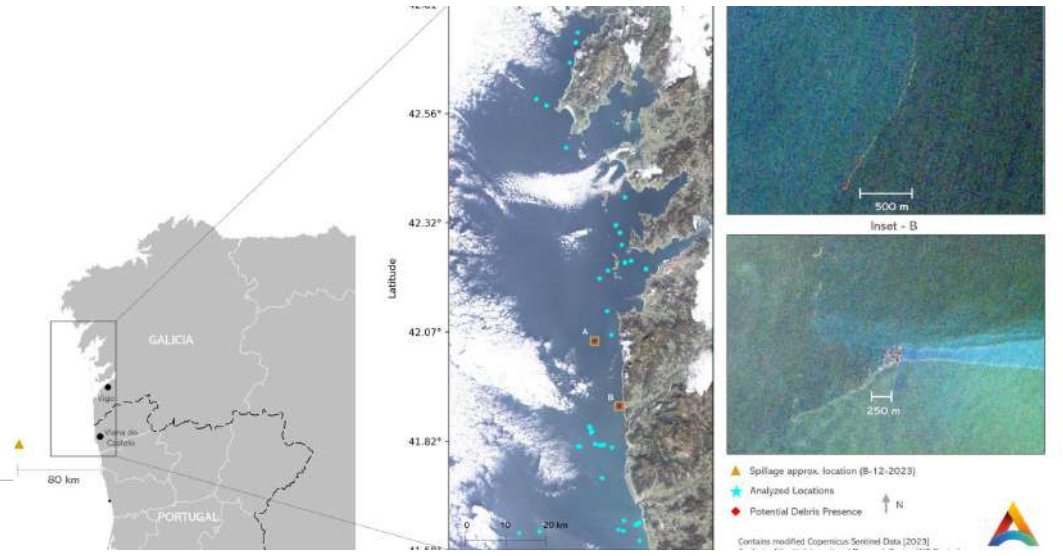


### Long-term seasonal analysis



*Honduras Gulf 2020*

POS2IDON was developed as part of LabPlas (H2020) and applied during Azores EcoBlue (EEAGrants) projects.



**Azores EcoBlue**

# EO in the Azores - examples



## Sentinel-2A & B

2015-Present  
 290km swath @ 10, 20 & 60m  
 4-5 days' revisit  
 13 bands (R,G,NIR)

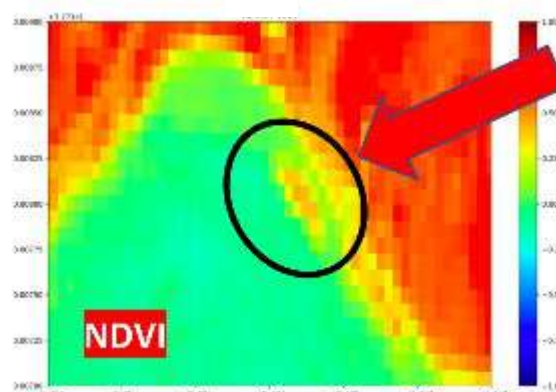


Figura 2.  
 Acumulações de *Rugulopteryx okamurae*  
 na costa sul de São Miguel (Abril 2021).

## Environmental Monitoring of Invasive Algae



Praia Pequena de Água d'Alto for 2021-04-25.



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## *Rugulopteryx okamurae*

It is a species of brown seaweed native to the Pacific Ocean that mainly inhabits the coasts of Japan, China and Korea.

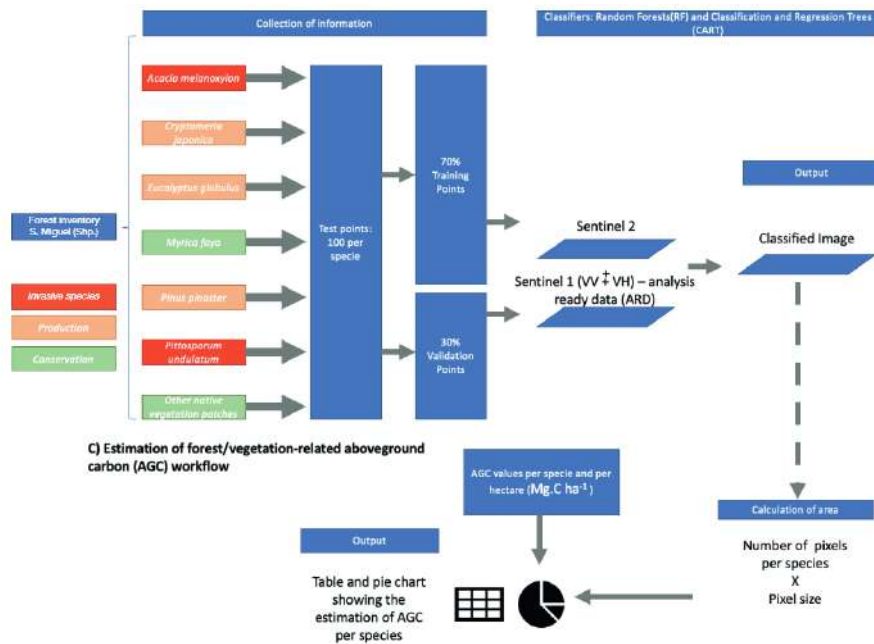
It was first discovered in 2002 in the Mediterranean Sea in the Thau coastal lagoon (Occitania, France) and then again in 2015 along the southern side of the Strait of Gibraltar, where it was assigned with invasive status.

# EO in the Azores - examples

## ForestAz - Sentinel data for forest monitoring in the Azores Islands



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Earth Engine Apps

2020-10-23

Cloud cover

10

Filter to map center

Apply filters

Time-series line-plots

Show line-plot

Select an image

20200714T124039\_20200714T124041\_T26SPG

Vegetation Assessment (São Miguel Island)

RGB (B4,B3,B2)

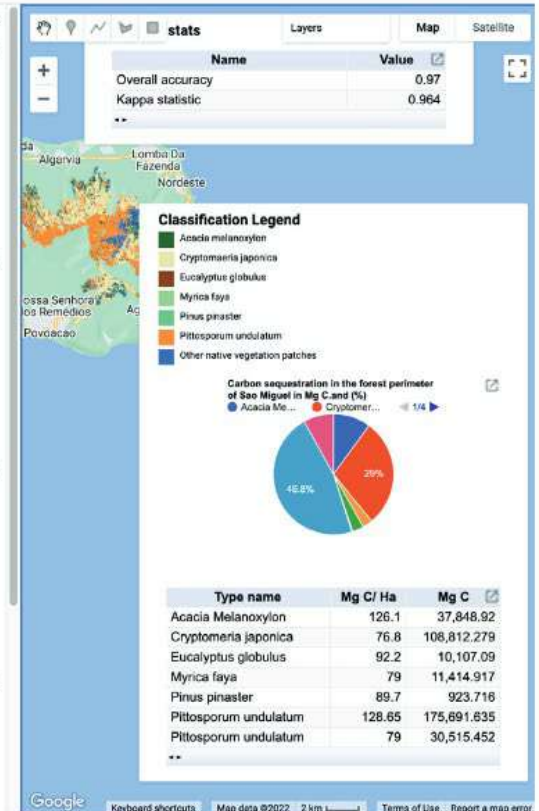
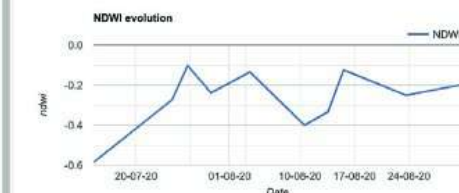
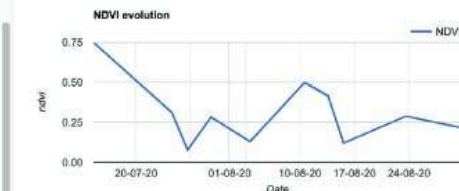
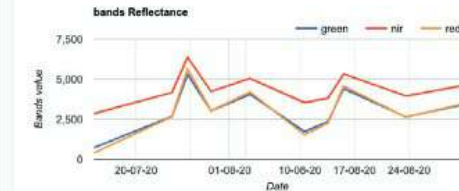
Red, Green and Blue composition

Mapping (Public Forest Perimeter of São Miguel Island)





Mapping with CART

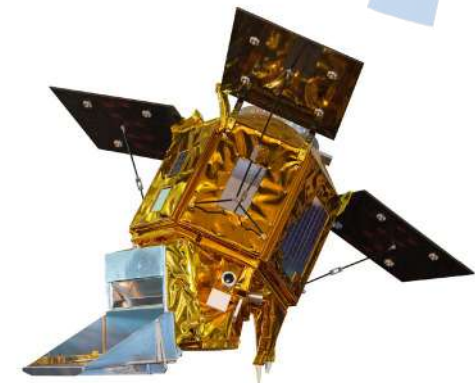
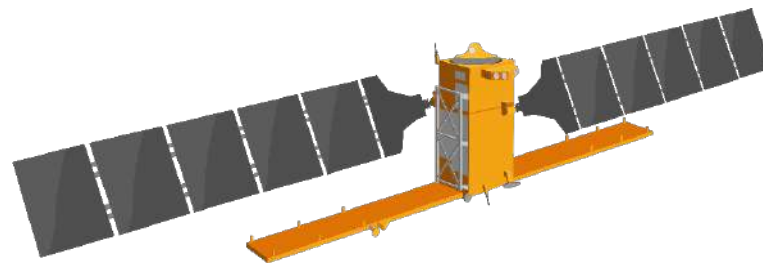
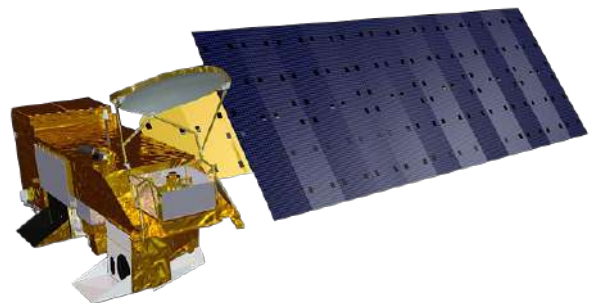
Mapping with RF

Time-Series analysis of all images between start and end date of official forest area



# EO in the Azores public services

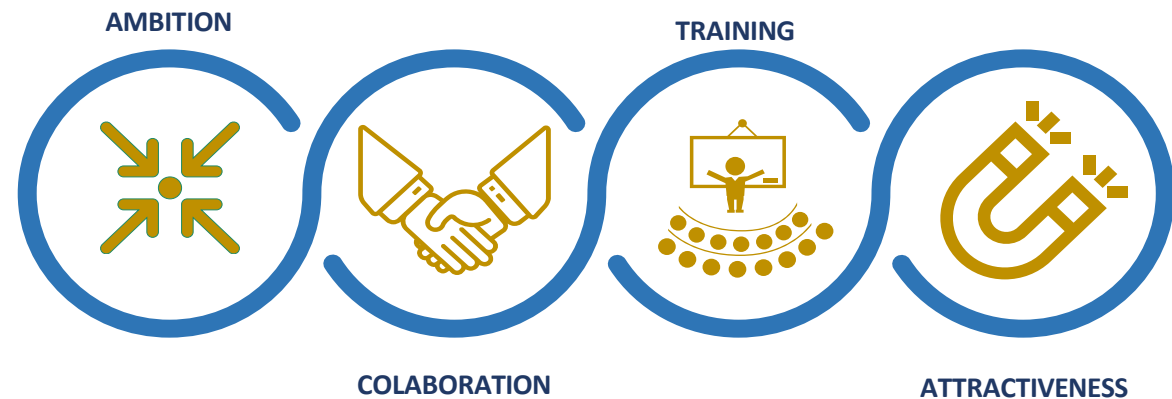
-  Lack of expertise, and resource constraints.
-  Low technical capacity and skills within the public administration for effectively utilizing satellite data, including data analysis, interpretation, and integration into decision-making processes.
-  Despite the existence of R&D capabilities, there has been no significant leverage of the pilot solutions developed.
-  Inexistent plan or specific strategy to improve communication and cooperation between the government departments.



# Challenges and strategy

Advisory Working Group for EO: AZ-EO Working Group

- Needs assessment and stakeholder engagement
- Capacity building and training
- Infrastructure and technology enhancement
- Integration of satellite data into decision-making processes
- Public awareness and engagement
- Collaboration and partnerships
- Policy and regulatory framework
- Monitoring and evaluation



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by the 2023 World Travel Awards**

**Thank you very much!**  
duarte.nd.cota@azores.gov.pt



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