HF Radars to Improve Maritime Emergency Management

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Hello

I am Alex

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Brief Summary

1. What is RADAR ON RAIA
2. Principles for Data Sharing
3. Spatial Data Infrastructure
4. Case Study
5. Conclusions
1. What is RADAR on RAIA
What is RADAR ON RAIA?

◎ Cross-border ecosystem of High-Frequency Radar arrays;
◎ Spatial Data Infrastructure (SDI) for oceanographic data;
◎ Interoperable platform for disseminating data collected by several real-time sources.
The purpose of RADAR ON RAIA

Marine emergency management
Ensure responsiveness to emergencies, disasters and environmental hazards.

Resource Characterization
Characterize marine energy resources.

Maritime traffic management
Support authorities, shipping industries and providers to ensure the safety of maritime traffic.

Mitigate threads to the coastal zone
Marine waste management and observe coastal risks.
2. Principles for Data Sharing
FAIR principles

- FAIR — Data has to be Findable, Accessible, Interoperable, Reusable;
- Open Geospatial Consortium (OGC) standards and the INSPIRE Directive;
Principles for Data Sharing

- Define data exchange standards and make systems interoperable;
- “System of systems”;
- Sensor Web Enablement (SWE);
System architecture perspective

- **CLIENTS**: Client software is used to find, query and portray data.
- **SERVICES**: Standard interfaces used to find and serve data.
- **DATA SOURCES**: Each provider stores and maintains its own data.
- **SENSORS**: Near-real time data, campaign data and other kinds of file based data.
What is the best gift for a data scientist?

A Puppy?
A Pretty Flower?
A Large Properly Formatted Data File?
Standards

OGC SensorThings API
- Historical & live data
- REST API/JSON Encoded
- URL patterns and query options

OGC Sensor Observation Service (SOS)
- SWE Standards
- XML Encoded
- SOAP bindings

NetCDF
- Metadata
- Portable
- Easy to share
- Appendable
- Archivable

WFS

WMS
3. Spatial Data Infrastructure
Main Features and applications

**Timeseries**

Data values based on a time domain, representing a sequence of discrete time data.
Main Features and applications

Data Quality
Provides the quality of acquired measurements, along with the availability of the sensing platforms.
Main Features and applications

**Thematic Data**

Data supported by georeferentiation, including meshes, layers, 2D or 3D models
Main Features and applications

Indicators

Extract indicators for observable and measurable characteristics. Erosion, sea level progress, pollution…
4.

Case Study

Application in the Northwestern Iberian Peninsula
Case Study, Northwestern Iberian Peninsula

Update and extend an HF radar network beyond the Galician border and North of Portugal
How RADAR ON RAIA publishes Data

- Publishing thematic data (mostly based on NetCDF)
- Cataloging sensing platforms and data sources
- Observations & Measurements, Time Series
Practical data acquisition and representation example
Radial Sea Water Velocity (m/s)
Conclusions

◎ Cross-border ecosystem of High-Frequency Radar arrays;

◎ Spatial Data Infrastructure (SDI) supporting FAIR principles of data sharing;
Acknowledgements

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Thank You

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http://radaronraia.eu/

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