Global HF Radar Network

# European Coordination for Coastal HF Radar: EuroGOOS HF Radar Task Team

EuroGOOS
European Global Ocean Observing System

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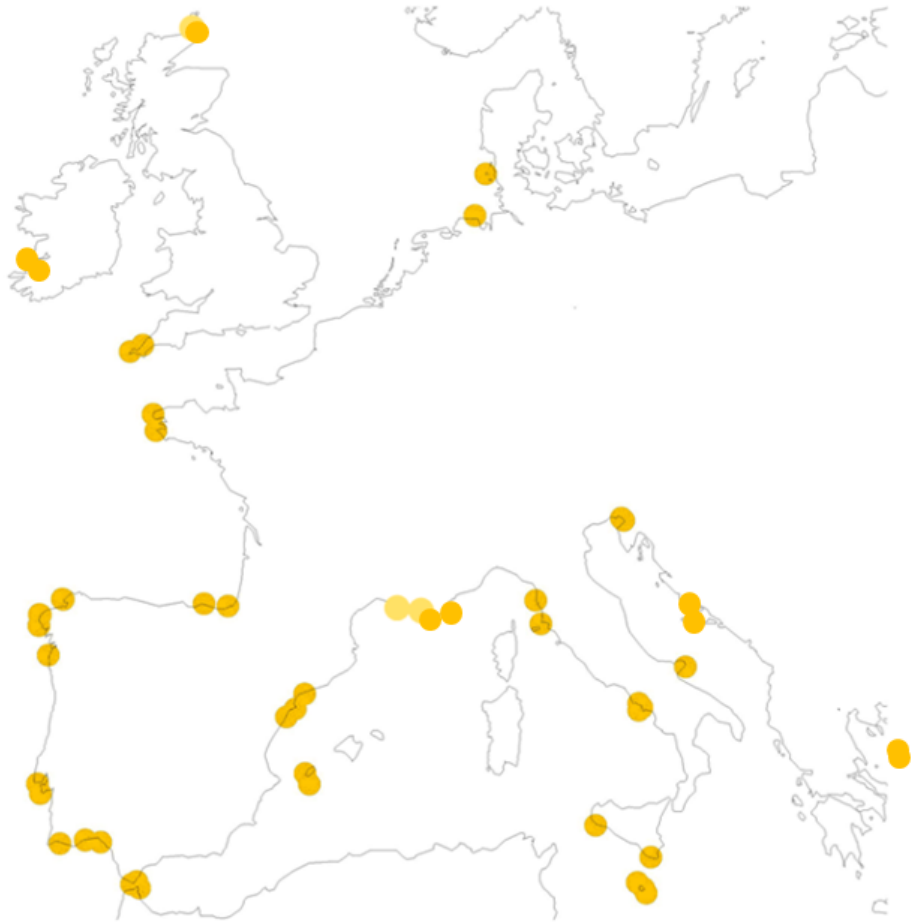
# Introducing EuroGOOS HF Radar Task Team



52 stations in the inventory

- **The European HF Radar systems are playing an increasing role in the overall operational oceanography marine services.**
- Direct products, based on the real-time 2D monitoring of shelf/slope surface circulation, are used for key issues in the coastal area. Moreover, the covered area allow a fundamental assessment in the buffer zone between Regional Marine Core services and downstream coastal tools.
- **Significant heterogeneity still exists in Europe** (concerning technological configurations, data processing, quality standards and data availability)
- **NETWORKING NEEDED TO ENSURE the accessibility to HF Radar data for a pan European use**

# Introducing EuroGOOS HF Radar Task Team

## *Need of European coordination and networking for coastal HF radar community*

*Meeting Lisboa 27th October 2014*
*Side event EuroGOOS conference*
*→ 54 participants*

EuroGOOS
European Global Ocean Observing System

**3. Towards setting up the HFR Task Team**

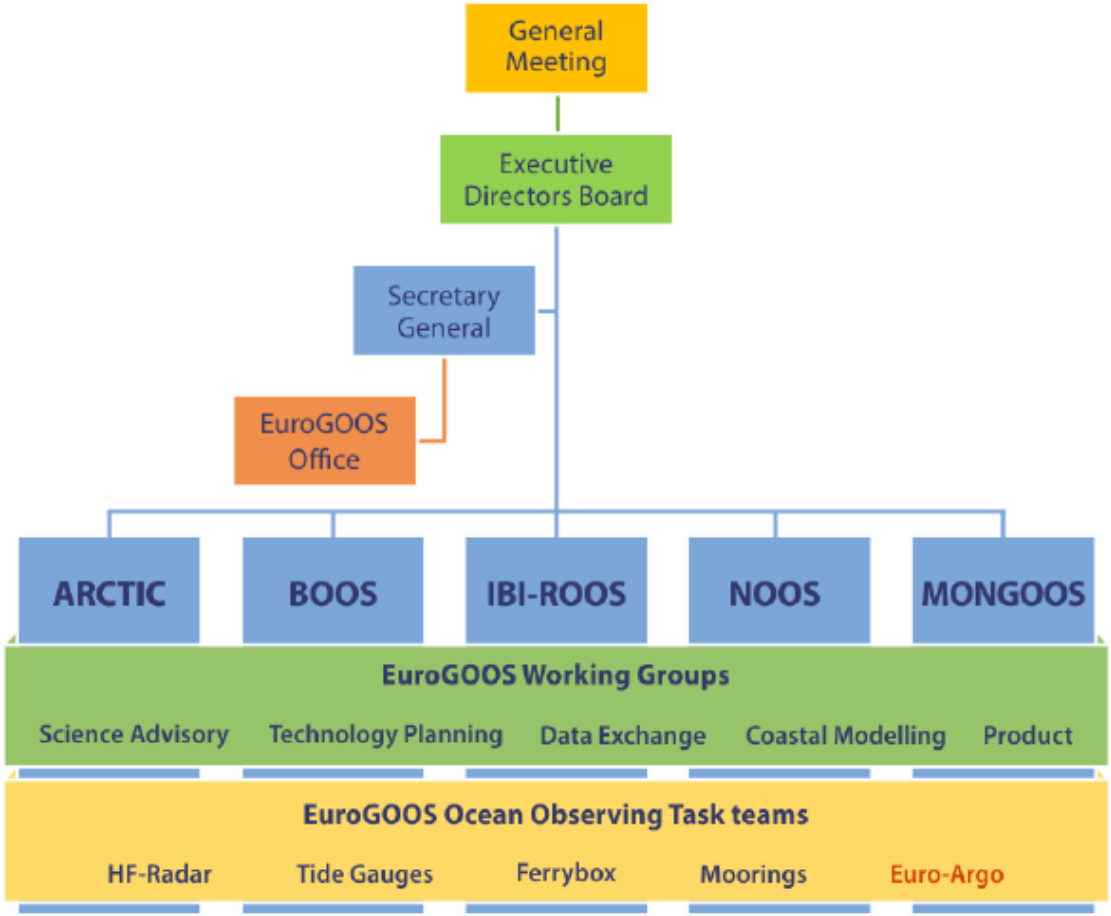
**2. Towards common European recommendations (from operators to end-users)**

**1. Towards providing a framework for European HFR users**

# Introducing EuroGOOS HF Radar Task Team

EuroGOOS
European Global Ocean Observing System

- ✓ Strategies and actions are decided by an General Assembly and the Executive Directors
- ✓ Actions are carried out by the EuroGOOS Office, the Board, the Chair and the members/partners.
- ✓ Development of O.O. systems is carried out by the Regional Systems
- ✓ Working groups produce strategies, priorities and standards for O.O.
- ✓ Ocean Observing Task Teams organizes and develops the individual observation communities and foster cooperation



# Introducing EuroGOOS HF Radar Task Team

## Benefits of a Task Team under EuroGOOS

- Become part of a bigger community
- Offers a permanent structure (not a project but will benefit from project funding)
- Helps to raise awareness of European HF Radar activities
- EuroGOOS Office assist in communication / coordination etc.
- Enable links to similar initiatives and activities on the local, regional and global scales **i.e. integration across networks/Task Teams**
- Attract funding –if well organized more likely to receive funding
- Website showing an organized community and giving access to data (via the ROOSs and hence to **EMODnet**)

**Common tasks -as a group- not individual institutes**

# SHORT HISTORY AND ACCOMPLISHMENTS

- 1st informal meeting as a side event at the **MyOAnnual Meeting** in Athens (27th March 2014) to discuss common issues, presentations from group members ~ 18 attendees
- Submitted a COST proposal (2014)
- 1st meeting in San Sebastian to establish a core group
- **Splinter session** with HF Rada presentations at **EGU**, April 2014, Vienna
- Introducing the group at the **EuroGOOS** Annual Meeting
- 2nd meeting in San Sebastian to agree on ToR, discuss the October meeting, funding opportunities, defining work plan….. September 2014
- Contribution in JERICO-NEXT proposal
- EuroGOOS Conference side event in Lisbon, **54 participants**, Monday 27thOctober
- Contribution for harmonizing in **EMODNET Physics** IBIROOS Task
- Presentation of the HFR TT in the HFR **Iberian Network**, Palma de Mallorca, 25th Feb 2015
- EuroGOOS Coordination meeting 4th March 2015
- HF radar session in EGU April 2015
- Submission of a COST Action proposal led by Lucy Wyatt: ROSOME "Radars for Operational Surface Ocean Mapping in Europe", September 2015

# Activities: Work Plan

AC: Achieved
IP : In progress
ST: Short term Actions (<1-2 years)
MT: Mid-term Actions (> 2 years)

HFRadar Task Team

EuroGOOS European Global Ocean Observing System

## Setting up /promotion of the HFR group

| Action | Term |
|---|---|
| ToR redaction | AC |
| Create LOGO | ST |
| Core group definition, adding strategic members | IP |
| Webpage V.0 - in the context of the EuroGOOS conference, made by ETT (EMODnet Physics) | AC |
| Involvement of the Task Team in the IBI-ROOS task on HFR data in the EMODnet Physics framework to use the experience as an example for other ROOSs in the future | IP |
| Seek funding for joint/coordination activities<br>-->Prepare a COST ACTION proposal | IP |
| Identify other funding possibilities for network activities → CRUSOE submitted | IP |

## Towards providing a framework to HFR users

| Action | Term |
|---|---|
| Create website for the group, in the EuroGOOS framework<br>Subtasks:<br>- organization of the information in the webpage (news, links with key webpages)<br>- define topics | ST |
| ResearchGate group/topic | ST |
| Involvement of European Group in a next ROW event in Europe | IP |
| Other participation in between (for example in EGU…); EGU 2015 session HFR and coastal processes http://meetingorganizer.copernicus.org/EGU2015/session/17342 | IP |
| HFR TT will try to be involved in one own event every two years; could be combined with ROW | IP |

# Activities: Work Plan

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HFRadar Task Team

EuroGOOS European Global Ocean Observing System

## Towards common European recommendations

| Action | Term |
|---|---|
| Create a template table of categories for organizing the inventory of the available information needed to perform the following actions. | ST |
| Reporting on existing European and national projects (work plan, results…) | ST |
| Identify existing initiatives in other countries | ST |
| Identify key research questions around the use of coastal HFR | ST |
| Complete the inventory (data management procedures, applications, stakeholders achieved, which kind of founding…) | ST |
| Identify specific added value HFR products that can be useful for specific stakeholders | ST |
| How to recover the need from the different kind of users (workshops…) – related to the format | ST |
| Harmonization, Best practices and recommendations | ST |

Chair: Julien Mader (AZTI)
Core group: Antonio Novellino (ETT), Annalisa Griffa (CNR-ISMAR), Johannes Schulz-Stellenfleth (HZG), Maribel Ruiz (Puertos del Estado), Lucy Wyatt (Univ. Sheffield), Céline Quentin (MIO-Toulon), Anna Rubio (AZTI), Carlo Mantovani (CNR-ISMAR), Pedro Montero (INTECMAR).

# HF Radar TT involvement in coordinating HFR Tasks in the H2020 project

# Future benefits for HF Radar Community

**CALL:** INTEGRATING AND OPENING RESEARCH INFRASTRUCTURES OF EUROPEAN INTEREST H2020-INFRAIA-2014-2015

***Title: Joint European Research Infrastructure network for Coastal Observatory – Novel European eXpertise for coastal observaTories***

→ ***HFR activities***

AZTI, CNR-ISMAR, HZG, MIO-CNRS, SOCIB, EuroGOOS, SMHI, OGS, HCMR, IMR, SMHI, DELTARES, NIVA, Ifremer, …

## WP2: Harmonisation of technologies and methodologies: technical strategy (NA)

**Task 2.3: Harmonizing new network systems**

***Objective:*** *Integrating HF-radar systems and cabled coastal observatories*

*2 workshops will be held to review the state of the art of the procedures and discuss Best Practices related to these systems.*

*2 deliverables:*

*D2.1: Status report on new technology - HF-radar systems and cabled coastal observatories*

*D2.4: Report on Best Practice for new technology - HF-radar systems and cabled coastal observatories.*

## WP3. JRA1- Innovations in Technology and Methodology

***Objective:*** *To improve the quality of current estimates and to integrate the surface information from HF radar with vertical information from the other components of the coastal observing system to improve 4D transport estimates.*

**Task 3.2 Developments on current observations from HF radars**

*1. New HF radar procedures for current retrievals and data quality*

*2. HF radar network developments*

*3. New products for 4D characterization of shelf/slope hydrodynamics and transport*

## WP4. JRA2- JERICO Valorisation through applied joint research

**Task 4.4: JRAP #4 (hydrography): 4D characterization of trans-boundary hydrography and transport**

## WP5: Data management

**Task 5.5: Coordinated implementation of Quality Assessment and Quality Control procedures for HF Radar data access**

## WP6: Virtual access

***Objective:*** *To provide free of charge "virtual access" to data and information that will enable scientists to carry out high quality research using data from a variety of coastal observation systems*

# European coordination for coastal HF radar in EMODnet Physics

The European Marine Observation and Data Network

EMODnet

**A coordinated action between EuroGOOS HF Radar Task Team and EMODnet Physics has been pushed to achieve a pilot integration of the data from existing HF radar systems, with the following operational objectives:**

- **a first step towards definition of needed metadata;**
- **standardization for data format and QC;**
- **recommendation for the implementation of HF radar data in Regional and European Portals.**

# European coordination for coastal HF radar in EMODnet Physics

The European Marine Observation and Data Network

EMODnet

**This work is performed in Phase 2 of EMODnet Physics, whose general objectives are:**

- Provide a single point of access to marine near real time and achieved data on physical conditions, as monitored by:
  - Fixed Stations[1], Ferrybox[1], Argo[2], Gliders[2], **HF Radars[2]**

  and parameters:
  - Sea Temperature[1], Sea Level[1], Sea Salinity[1], winds[1] , **Waves[1] ,Sea Currents[1]**, Light Attenuation[1],Ice Coverage[2], Sea Level trends[2]
- Build up on existing infrastructures by adding value – not complexity
- Ensure data access to any user
- Facilitate integration and interoperability with further systems (INSPIRE compliant, WMS, WFS, etc.)
- Bring together the main European Marine Observation and Data Communities (EuroGOOS ROOSs, MyOcean, SeaDataNet, etc)
- Attract new data and new data providers
- Attract new users and stakeholders
- Full engagement of the EuroGOOS ROOSs*

  (50% of the budget to empower ROOSs data interoperability infrastructure)

*[1]MARE/2010/06 (2011-2013)*
*[2]MARE/2012/10 Lot 6 (2013-2016*

# European coordination for coastal HF radar in EMODnet Physics

The European Marine Observation and Data Network

## Pilot implementation of HF Radar platforms (work led by INTECMAR, Galicia, Spain)

Catalog Services

oceandata.azti.es/thredds/RADAR_OO.html?dataset=/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc

Aplicaciones | Chrome | THREDDS | https://www.azti.es/... | INTRANET 2.0 :: Ko... | EMODnet Physics

**THREDDS Data Server**

### Catalog http://oceandata.azti.es/thredds/RADAR_OO.html

### Dataset: RADAR Data/HFR_TV_last5days_Basque_Country_6000m_hourly.nc

- *Data type:* GRID
- *Naming Authority:* Euskalmet, Basque Government
- *ID:* /RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc

**Documentation:**

- **Summary:** Surface ocean velocities estimated from HF-Radar are representative of the upper 0.3 - 2.5 meters of the ocean. The main objective of the near-real time processing is to produce the best product from available data at the time of processing. Radial velocity measurements are obtained from the individual radar sites of the Basque Country HF-Radar Network. Hourly radial data are processed by unweighted least-squares on a 5km resolution grid of the Basque Country Coast to produce near real-time surface currents maps.
- **Rights:** These data may contain inaccuracies or errors, thus we decline every responsibility for their use. These data have been generated from the Basque Country in-situ Operational Oceanography observational network; Their use have to be informed at resp-meteo@ej-gv.es and appropriate acknowledgment to Euskalmet, Basque Governement, given in any publications arising therefrom

**Access:**

1. **OPENDAP:** /thredds/dodsC/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc
2. **HTTPServer:** /thredds/fileServer/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc
3. **WCS:** /thredds/wcs/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc
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5. **NetcdfSubset:** /thredds/ncss/grid/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc
6. **ISO:** /thredds/iso/RADAR/HFR_TV_last5days_Basque_Country_6000m_hourly.nc

**Keywords:**

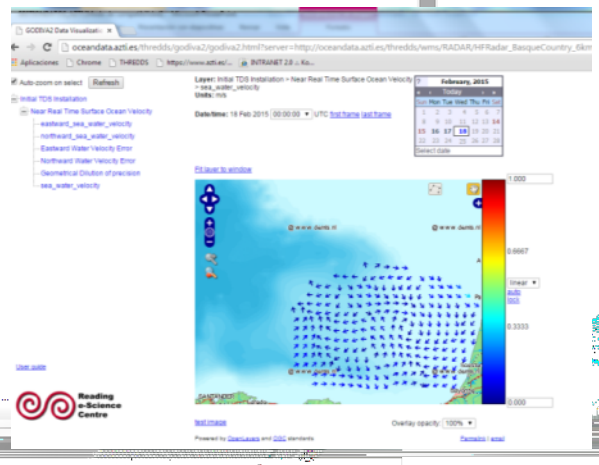
- HF Radar, Basque Country,SPAIN,Cantabrian coast,surface sea water velocity, near-real time

**Creators:**

- **Euskalmet, Basque Government,AZTI**
  - *email:* arubio@azti.es
  - *http://www.euskalmet.euskadi.net/,http://www.azti.es/*

Standardization HFNT EMODNET :

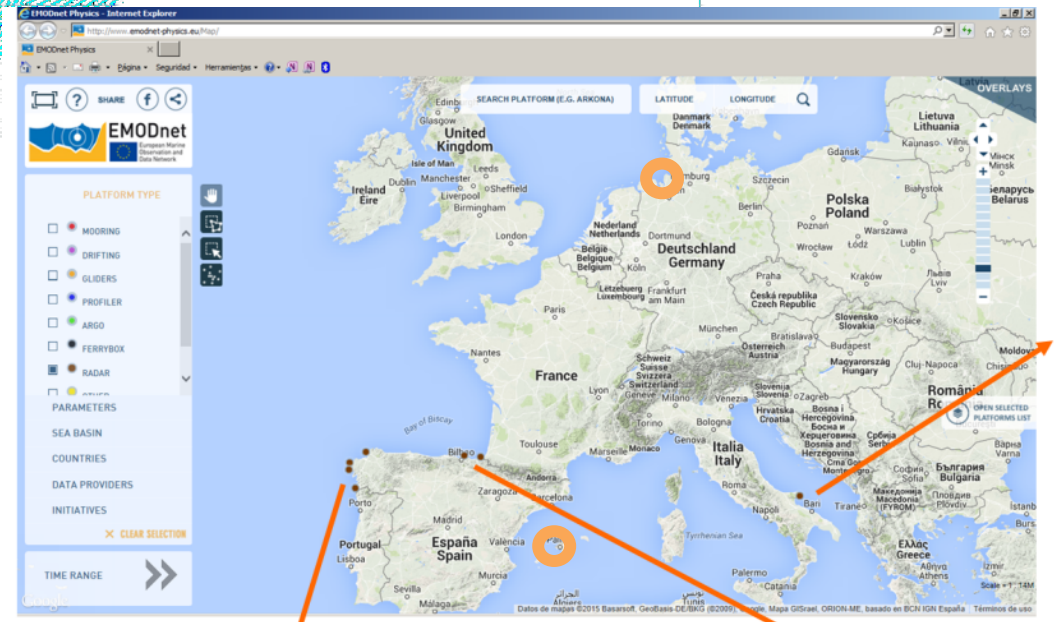
1. Metadata
2. Structure of Thredds catalogue
3. Netcdf files :variables and attributes

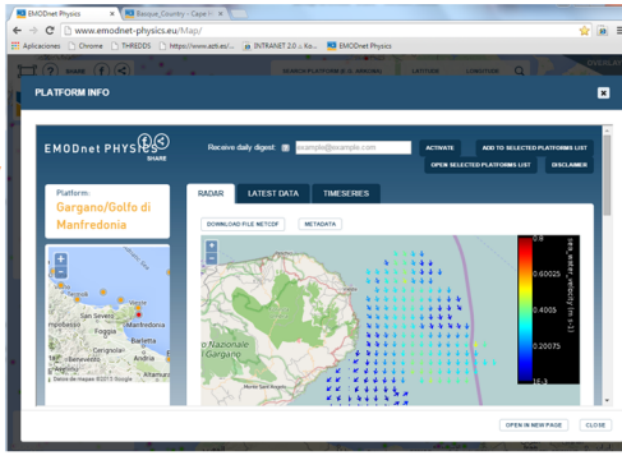


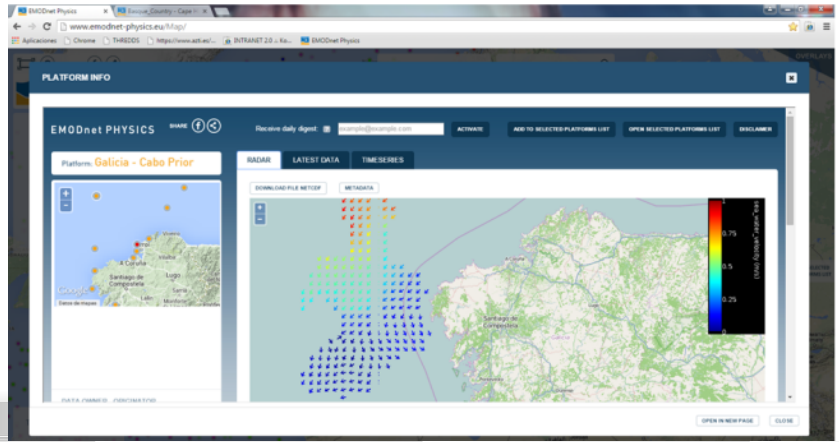
# European coordination for coastal HF radar in EMODnet Physics

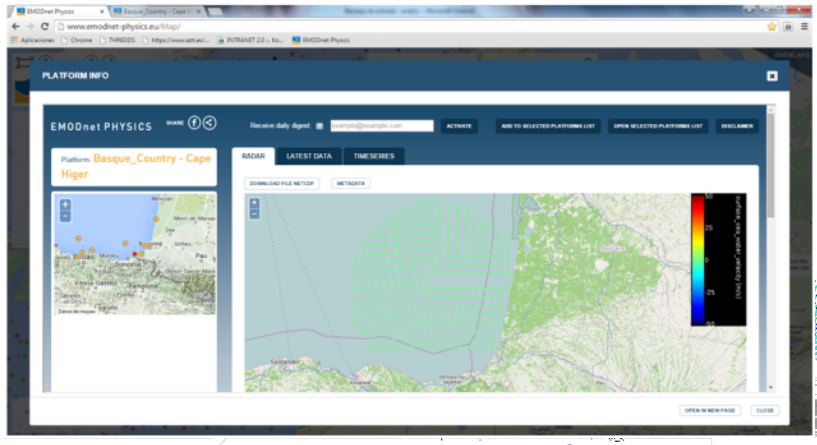
The European Marine Observation and Data Network

## Pilot implementation of HF Radar platforms

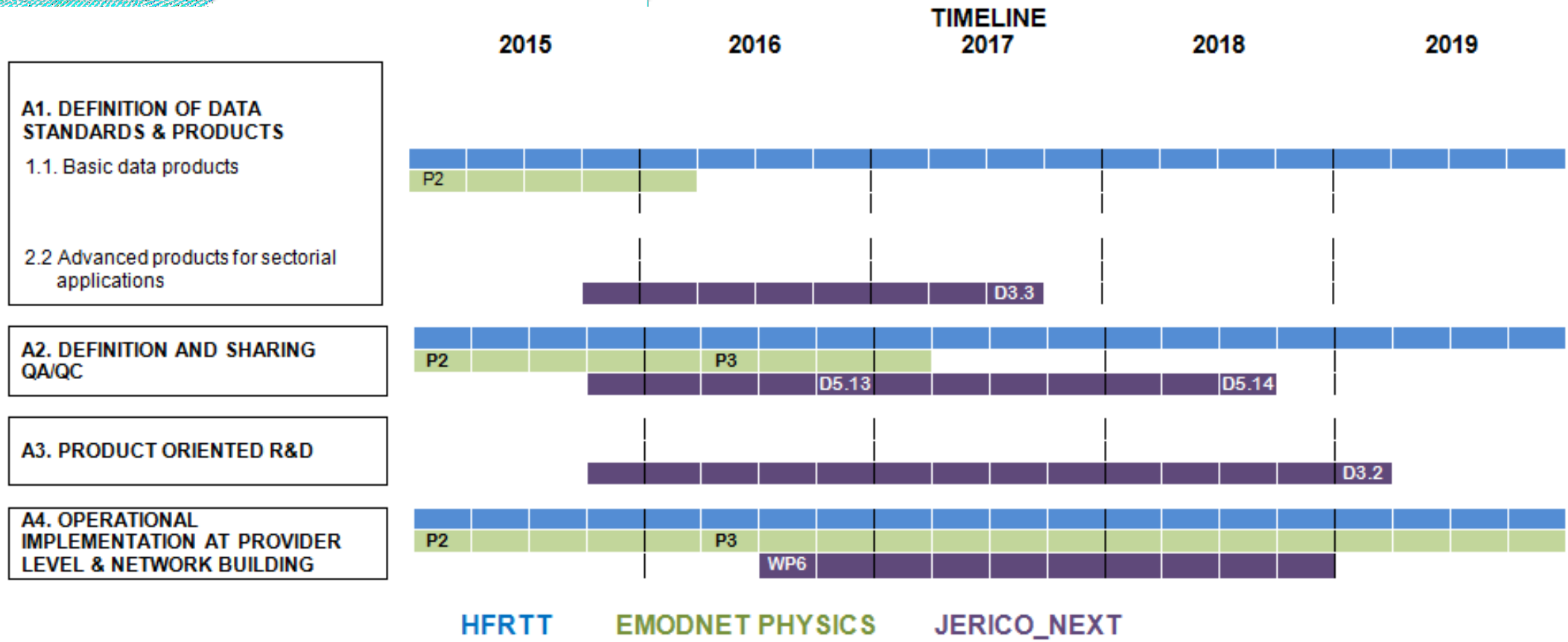


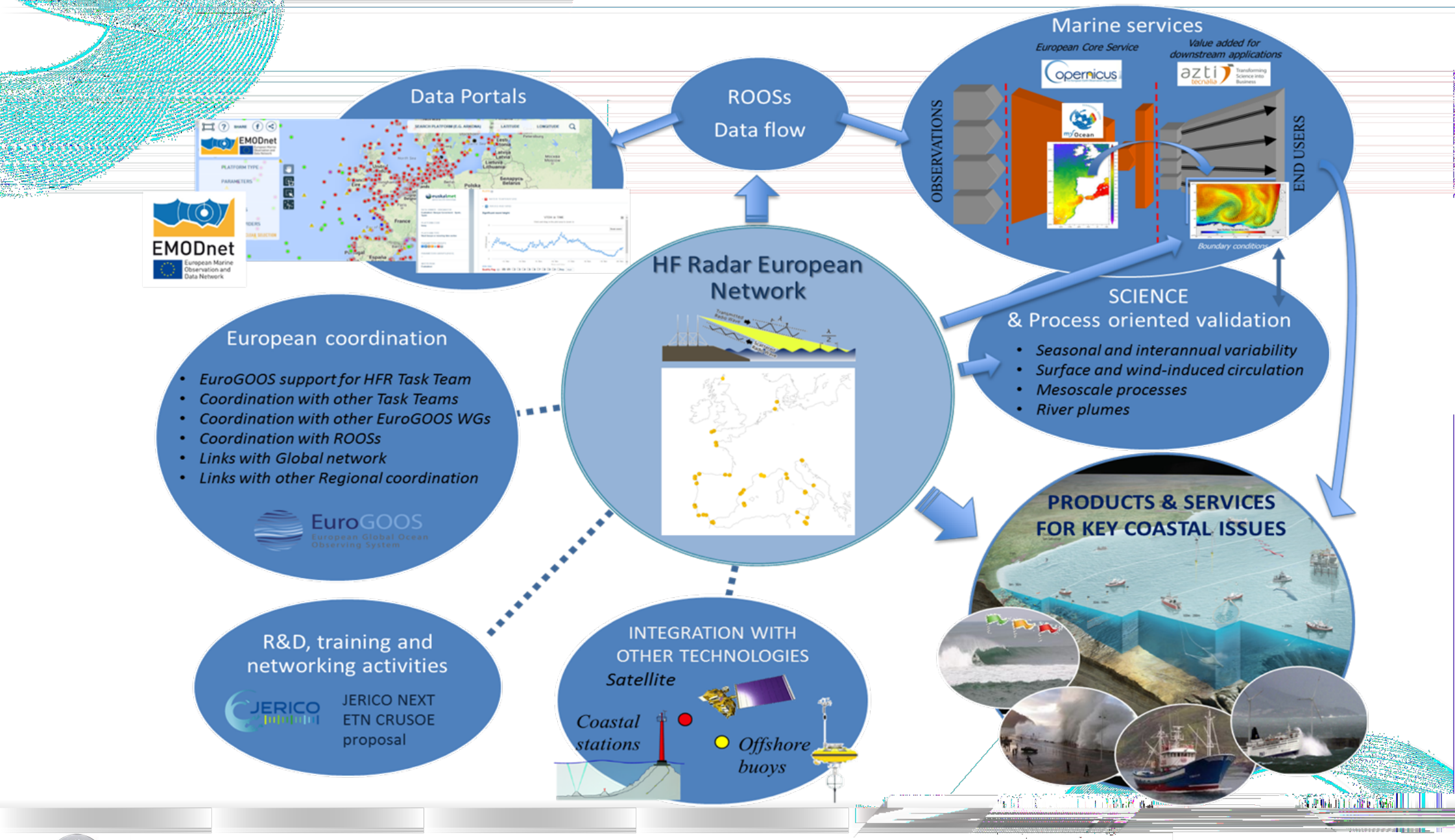



# Outputs from JERICO-NEXT and EMODnet



# European coordination for coastal HF radar



# HF Radar Task Team - TOR: links with Global

1. **To develop the European HF radar network and assist the standardization of HF radar operations, data and applications,** including:
   - All applications of HF radar (surface current, wave, target detection…)
   - Applications in integration with other technologies (e.g. satellite, X-band, fixed platforms, gliders, numerical models…)

2. **To contribute to the development of the European Ocean Observing System (EOOS)**

3. **To ensure the integration of HF radar networks in the European Coastal Marine Service**

4. **To act as the European component in the global HF radar community**

5. **To ensure data availability via the ROOS data portals**

6. **To provide recommendations** (from operators to end-users) on:
   - Data structure, format and dissemination
   - Quality control and validation
   - Technological solutions

7. **To be a framework** for:
   - Sharing success stories and difficulties
   - Improving administrative procedures, regulations at European level
   - Providing and exchanging tools (data analysis, applications…)
   - Promoting scientific synergies for key questions
   - Filling gaps and looking for complementarity with other technologies or modeling products
   - Promoting joint proposals through networking (e.g. create synergy amongst local consortia).

# *THANK YOU FOR YOUR ATTENTION!*