



Welcome to the #5 European HF Radar Task Team Newsletter

The European HF Radar Task Team helps coordinate the activities around the development and use of this coastal technology ([more info here](#)).

We are happy to share with you the latest news and events since February 2022.

Sustainability

Currently, only ~ 30% of in situ ocean observations have sustained funding, against the 72% of atmospheric observations which are supported by core institutional funding, and there are limited mechanisms available to access medium (3-5 years) to long (6-10) term funding.

(Buch et al. 2019)

Happy stories

- 😊 **PhD THESIS DEFENCE** of Jaime Hernández-Lasheras (SOCIB) on the 27th of April 2022. Thesis entitled 'Impact of the assimilation of coastal observations on high resolution ocean model forecasts', including HFRs. Felicidades Jaime!
- 😊 **PhD THESIS DEFENCE** of Irene Rodríguez Alegre (University of California Santa Cruz). Thesis entitled 'Determining First-Order Boundaries In High-Frequency Radar Sensing Of Ocean Surface Currents: A Proposed Method Using Bayesian Estimation' (available here). Felicidades Irene!
- 😊 **NEWS FROM ACROSS THE POND** (IOOS Bi-weekly):
 - Updated Manual for real-time QC of HFR surface currents.
 - Updated Global HFR network's interactive site.
 - Successful FCC Part 90 Certification Testing of the HFRs in Hawai'i. Congratulations!
- 😊 **FINALISATION OF THE 3-YEARS MANDATE** of the MONGOOS-HFR co-chairs last April. Summary of all tasks undertaken, chairman's terms of reference and recommendations are available in this link.
- 😊 **NEW NOMINATION** of Julien Mader (AZTI) as European co-chair of the HFR Global network. Felicidades!
- 😊 **NEW DOI** for the Copernicus Marine In Situ - Global Ocean-Delayed Mode in situ Observations of surface (drifters, HFR) and sub-surface (vessel-mounted ADCPs) water velocity for Copernicus Marine in situ TAC (2022).
- 😊 **NEW NAMING CONVENTION**: for near real-time [NRT] and reprocessed products [MY] of currents and HFR (total and radial) datasets in the Nov'22 release of the Copernicus Marine Service. New names:
 - INSITU_GLO_PHY_UV_DISCRETE_MY_013_044
 - INSITU_GLO_PHY_UV_DISCRETE_NRT_013_048
- 😊 **NEW HFR SITE** will be installed in Fedje, on the West Coast of Norway as announced by the Norwegian Meteorological Institute. Stay tuned!
- 😊 **10YRS OF HFR-IBIZA**: Last 1st of June SOCIB celebrated the first decade of operation of the HFR network of the Ibiza Channel.
- 🙌 **HFR RAIA Vigo** has returned to work with the recently calibrated CIES and TORA antennas. Real-time data will be available soon.

Open and forthcoming calls

- **EMFAF-2022-PIA-WBE**: Women in the Blue Economy. **Deadline: 22/09/2022.**
- **HORIZON-MISS-2022-OCEAN-01-06**: Lighthouse in the Baltic and the North Sea basins – bringing sustainable algae-based products and solutions to the market. **Deadline: 27/09/2022.**
- **HORIZON-MISS-2022-OCEAN-01-03**: Mediterranean sea basin lighthouse - Actions to prevent, minimise and remediate chemical pollution. **Deadline: 27/09/2022.**
- **HORIZON-MISS-2022-OCEAN-01-05**: Marine litter and pollution – Smart and low environmental impact fishing gears. **Deadline: 27/09/2022.**

- **HORIZON-MISS-2022-OCEAN-01-02:** Danube river basin lighthouse – Protection and restoration of wetlands, flood plains, coastal wetlands and salt marshes and their biodiversity. **Deadline: 27/09/2022.**
- **HORIZON-MISS-2022-OCEAN-01-04:** Prevent and eliminate litter, plastics and microplastics: Innovative solutions for waste-free European rivers. **Deadline: 27/09/2022**
- **HORIZON-MISS-2022-OCEAN-01-01:** European Blue Parks – Protection and restoration solutions for degraded coastal and marine habitats. **Deadline: 27/09/2022**
- **COST Action** proposals: Next collection date: 20/10/2022 at 12:00 noon (CET). Instructions here
- **HORIZON-MSCA-2022-COFUND-01-01:** MSCA Cofund Doctoral and Postdoctoral programme 2022. **Deadline: 09/02/2023.**
- **HORIZON-MSCA-2022-SE-01-01:** MSCA Staff Exchanges 2022. **Deadline: 08/03/2023.**

Job & internship opportunities

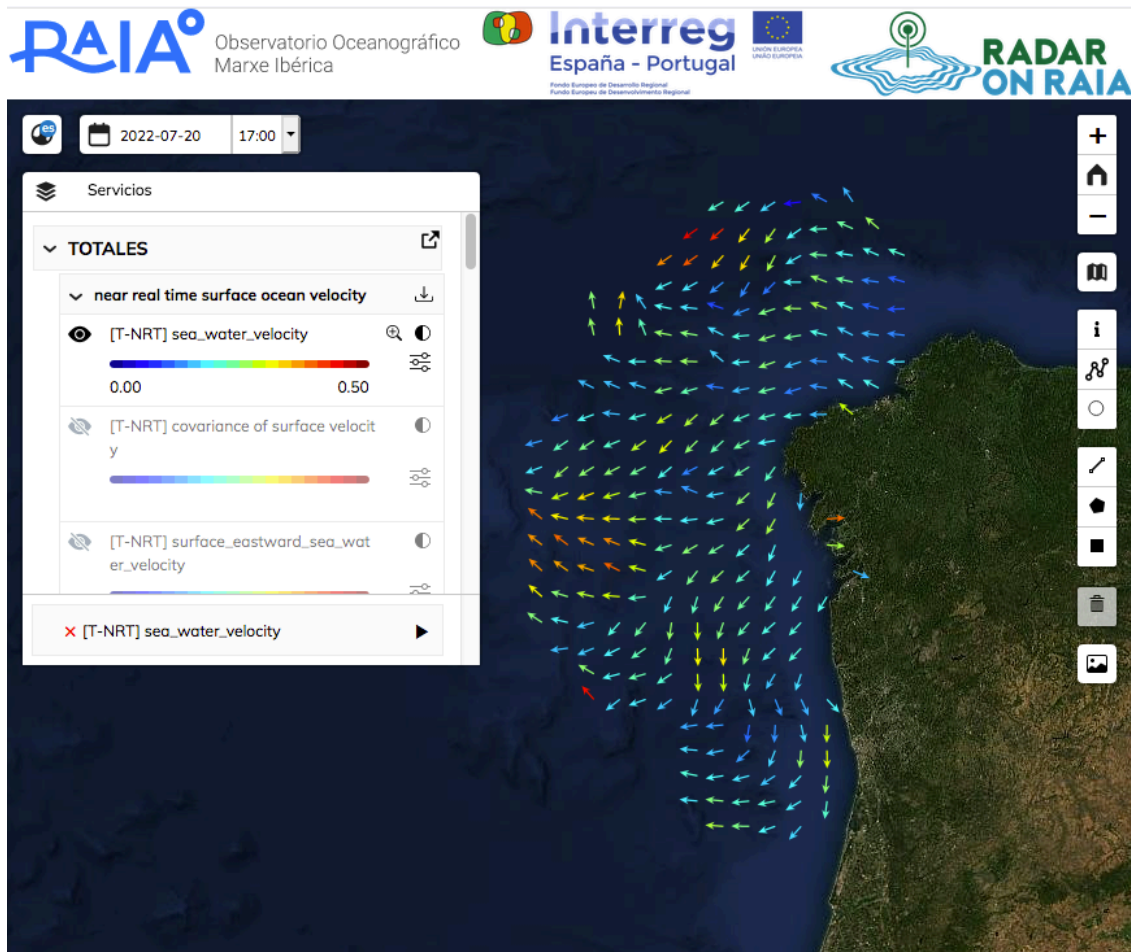
- **OPEN POSITION** in wafer level packaging technologies with a focus on mm-wave and sub-terahertz applications in IMEC-Belgium. **Deadline: 29/08/2022**
- **PhD POSITION** in in-situ sensors in oceanography fields at the Middle East Technical University - Turkey. **Deadline: 30/08/2022**
- **PhD POSITION** in Physical modelling of EM-scattering and SAR-imaging at the UiT, The Arctic University of Norway. **Deadline: 31/08/2022**
- **PHYSICAL OCEANOGRAPHER:** Senior Research Scientist at the National Oceanography Centre from the UK. **Deadline: 31/08/2022**
- **PHYSICAL RESEARCH SCIENTIST** (Oceans and Climate): at the National Oceanography Centre from the UK. **Deadline: 31/08/2022**
- **PhD POSITION** in Physics-Climate Dynamics at the UiT The Arctic University of Norway. **Deadline: 31/08/2022**
- **PhD POSITION** in Oceanography: Small-scale dynamics of convection at the sea surface at the University of Oldenburg - Germany. **Deadline: 31/08/2022**
- **OPEN POSITION:** Head, Ocean Technology and Engineering Group at the National Oceanography Centre in the UK. **Deadline: 31/08/2022**
- **POSTDOCTORAL/RESEARCH SCIENTIST** on generating a conceptual framework of the AMOC in the Max Planck Institute for Meteorology. **Deadline: 31/08/2022**
- **PhD POSITION** in the area of marine science and climate change at the Helmholtz-Zentrum Hereon -Germany. **Deadline: 11/09/2022**
- **OPEN POSITION:** Station leader for the German-French Arctic station AWIPEC. **Deadline: 29/09/2022**
- **OPEN POSITION:** Scientific-Administrative EU Project Manager at the Alfred Wegener Institute - Germany. **Deadline: 29/09/2022**
- **OPEN POSITION:** Scientist for the analyses of shear waves from OBS records at GEOMAR - Germany. **Deadline: 29/09/2022**
- **MSCA SEAS POSTDOCTORAL** research fellow in air-sea interaction at the University of Bergen - Norway. **Deadline: 31/10/2022**
- **PhD POSITION** in statistical signal processing methods for wireless communications in sub-THx and THz frequency bands in Centrale-Supélec - France. **Deadline: 31/10/2022**
- **JOB OPPORTUNITY:** Coastal wave modeler within EMC/NCEP/NOAA.

Products and Services

UN's Decade Objective 3: "Increase the use of ocean knowledge and understanding and develop capacity to contribute to sustainable development solutions"

Basic products

- **DEVELOPMENT OF A COASTAL UPWELLING INDEX** based on HFR hourly surface currents, successfully adopted in the North-Western Iberia area and tested in the Bay of Biscay.
- **RAIA MAP VIEWER:** with several functionalities (video, HFR data temporal evolution, time series and custom downloads, *.csv and *.nc formats)



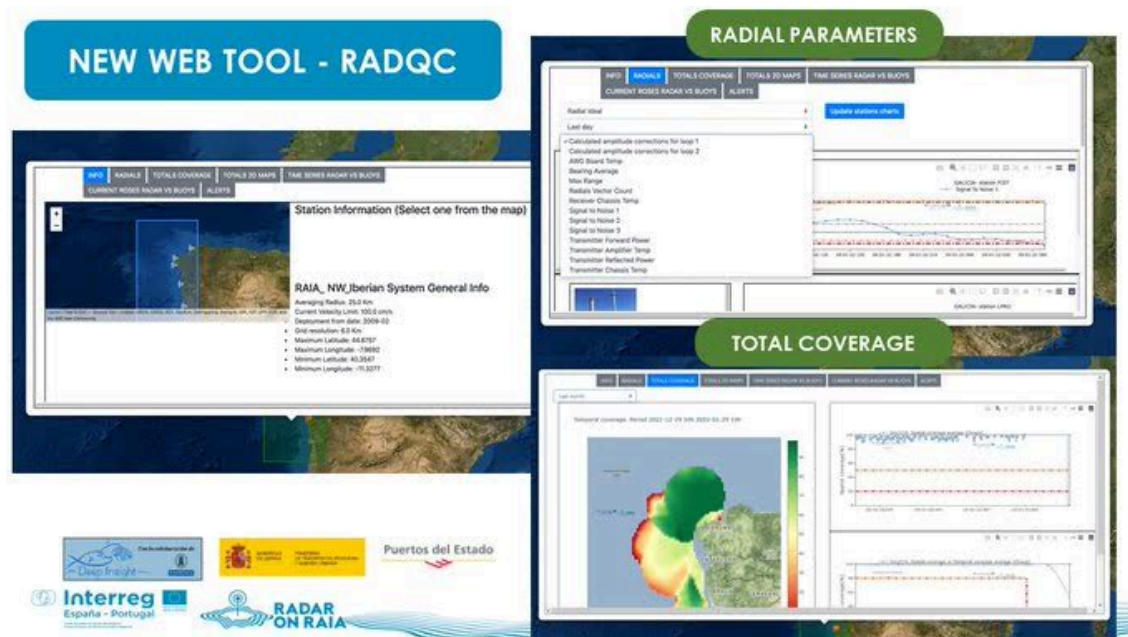
Screenshot of the RAIA Map viewer showing the surface current vectors of the HFR-Galicia. Source: <http://marnaraia.org/visor/>

- **WEBINAR** on “Ocean currents prediction”, including HFR data assimilation, among other observations. Spanish version [here](#).
- **PODCAST “Voces, CSIC Balears”** on “HF radar applications and joint contributions”. Spanish version [here](#).

Advanced products

- **RADAR-ON-RAIA:**
 - **RADQC WEB TOOL** for NRT quality control, management and visualisation of radial and total current with specific section of alerts implemented for Galicia-North Portugal and Vigo HFR Systems.
 - **WAVES WEB APPLICATION** from HFR stations (VILA and SILL radial sites).
 - **OPERATIONAL MAPS OF UPWELLING INDEX** derived by the HFR along with other indices (based on Lorente et al., 2020 - more info in newsletter#2-).

- **SOS VIEWER FOR RADIALS AND TOTALS:** Two demo websites for exploration and download.



RADQC: New QA/QC diagnostic tool of HFR systems from RadarOnRaia project.

- **European HFR Node:**
 - **NEW URL** of the **webform**: webform.hfrnode.eu.
 - **NEW URL** of the **THREDDS** Data Server providing discovery and access to HFR datasets via OpenDAP, WMS, WCS, NetCDFSubset services is now operational at thredds.hfrnode.eu
- **ADVANCED SPATIO-TEMPORAL INTERPOLATION TECHNIQUES** on high-frequency radar radial velocities for the reconstruction of surface velocity fields in different European coastal regions (read more).

Ongoing Research and Opportunities

“If I have seen further it is by standing on the shoulders of giants”

(Isaac Newton)

By standing on the shoulders of giants, we gain access to exponentially more doors than we could ever hope to develop on our own.
Feel part of the team!

HFR recent/new publications

- **Huang, W. and Gill, E. W.**, Eds.: Ocean Remote Sensing Technologies: High frequency, marine and GNSS-based radar, Institution of Engineering and Technology., <https://doi.org/10.1049/SBRA537E>, 2021.
- **Kokoszka, F., Saviano, S., Botte, V., Iudicone, D., Zambianchi, E. and Cianelli, D.**: Gulf of Naples Advanced Model (GNAM): A Multiannual Comparison with Coastal HF Radar Data and Hydrological Measurements in a Coastal Tyrrhenian Basin, *J. Mar. Sci. Eng.*, 10(8), <https://doi.org/10.3390/jmse10081044>, 2022.
- **Lorente, P., Aguiar, E., Bondoni, M., Berta, M., Brandini, C., Cáceres-Euse, A., Capodici, F., Cianelli, D., Ciraolo, G., Corgnati, L., Dadić, V., Doronzo, B., Drago, A., Dumas, D., Falco, P., Fattorini, M., Gauci, A., Gómez, R., Griffa, A., Guérin, C.-A., Hernández-Carrasco, I., Hernández-Lasheras, J., Ličer, M., Magaldi, M. G., Mantovani, C., Mihanović, H., Molcard, A., Mourre, B., Orfila, A., Révelard, A., Reyes, E., Sánchez, J., Saviano, S., Sciascia, R., Taddei, S., Tintoré, J., Toledo, Y., Ursella, L., Uttieri, M., Vilibić, I., Zambianchi, E. and Cardin, V.**: Coastal high-frequency radars in the Mediterranean - Part 1: Status of operations and a framework for future development, *Ocean Sci.*, 18(3), 761–795, <https://doi.org/10.5194/os-18-761-2022>, 2022.
- **Reyes, E., Aguiar, E., Bondoni, M., Berta, M., Brandini, C., Cáceres-Euse, A., Capodici, F., Cardin, V., Cianelli, D., Ciraolo, G., Corgnati, L., Dadić, V., Doronzo, B., Drago, A., Dumas, D., Falco, P., Fattorini, M., Fernandes, M. J., Gauci, A., Gómez, R., Griffa, A., Guérin, C.-A., Hernández-Carrasco, I., Hernández-Lasheras, J., Ličer, M., Lorente, P., Magaldi, M. G., Mantovani, C., Mihanović, H., Molcard, A., Mourre, B., Révelard, A., Reyes-Suárez, C., Saviano, S., Sciascia, R., Taddei, S., Tintoré, J., Toledo, Y., Uttieri, M., Vilibić, I., Zambianchi, E. and Orfila, A.**: Coastal high-frequency radars in the Mediterranean - Part 2: Applications in support of science priorities and societal needs, *Ocean Sci.*, 18(3), 797–837, <https://doi.org/10.5194/os-18-797-2022>, 2022.
- **Saviano, S., Biancardi, A. A., Uttieri, M., Zambianchi, E., Cusati, L. A., Pedroncini, A., Contento, G. and Cianelli, D.**: Sea Storm Analysis: Evaluation of Multiannual Wave Parameters Retrieved from HF Radar and Wave Model, *Remote Sens.*, 14(7), <https://doi.org/10.3390/rs14071696>, 2022.
- **Solabarrieta, L., Delpy, M., Rubio, A., Caballero, A., Liria, P., Fernandes-Salvador, J. A., Carrasco-Álvarez, R., Somdecoste, T., Mader, J., Horstmann, J., and Clot, A.**: A multiplatform data experiment to characterize waves and currents in front of Biarritz main beach, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-7223, <https://doi.org/10.5194/egusphere-egu22-7223>, 2022
- **Troupin, C., Barth, A., Alba, M., and Novellino, A.**: Gridding of high-frequency radar velocities using the Data-Interpolation Variational Analysis in n dimensions (DIVAnd), EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-2371, <https://doi.org/10.5194/egusphere-egu22-2371>, 2022.

- **U.S. Integrated Ocean Observing System** (2022). Manual for Real-Time Quality Control of High Frequency Radar Surface Currents Data: A Guide to Quality Control and Quality Assurance of High Frequency Radar Surface Currents Data Observations. 57pp. [Available online, https://cdn.ioos.noaa.gov/media/2022/07/HFR_QARTOD_Manual_Update_Final-1b.pdf]
- **Wyatt, L. R.**: Progress towards an HF Radar Wind Speed Measurement Method Using Machine Learning, Remote Sens., 14(9), <https://doi.org/10.3390/rs14092098>, 2022.

For a complete list of publications of the **European HFR** community please visit our ZOTERO Community Library

Ongoing projects

- **RADAR-ON-RAIA**: The project celebrated its final event. Several deliverables are available online. Check the website.
- **MYCOAST**: project has been granted extension by the third call of Interreg Atlantic. Its main aim is to enhance the capability of risk management systems in the Atlantic region.
- **i-waveNET & PI-BREAK**: websites already available. Keep updated about their objectives, actions, progress and results.
- **EuroSea**:
 - Lorente et al. have already submitted the manuscript entitled “High Frequency radar-derived coastal upwelling index” for the 7th edition of the Copernicus Marine Service Ocean State Report.
 - HOORT: The HFR Outage Online Reporting Tool is being developed by the European HFR Node with the support of MARACOOS.
- **JERICO S3**: forthcoming HFR deliverables focus on:
 - Best practices for implementing and operating HFR and other mature platforms.
 - Data management best practices for mature platforms.

Past events since the Newsletter#4

- **RadarOnRAIA COURSE**: on Environmental information and Marine data management. INESC TEC (Porto, 26-27/04/2022).
- **EuroSea ANNUAL MEETING**: celebrated in Cádiz, 9-13 May, 2022. HFR Highlights:
 - HFR data for validating Sentinel 3A&B in the Gulf of Biscay.
 - HFR data assimilation for regional model improvement.
 - HFR current governance & issues encountered.
 - Visit this link for further information.
- **JERICO-DAYS** took place in Lisbon, 28-30 June, 2022. HFR Highlights:

- Presentation of Key Platform Performance Indicators (KPPIs) and Key Integration Performance Indicators (KIPIs) for HFRs and other mature platforms.
- **EuroSea/OceanPredict workshop:** on “Ocean Prediction and Observing System Design” celebrated from 29 June to 1 July, 2022, Exeter (UK). Read more.
 - The value of the HFR data for model assessment and improvement through data assimilation was presented, showcasing the two operational models that are currently assimilating European HFR data (WMOP and COSYNA).
 - Sessions recording available here.
- **VII EOF (Expanding Ocean Frontiers) CONFERENCE**, 6-8 July, 2022 (hybrid event). Abstract book available here. HFR related presentations:
 - Martínez-Fernández et al. HF radar lagrangian validations with GPRS and SPOT buoys.
 - Bolado-Penagos et al. How do wind conditions affect the surface circulation and transport of properties through the Strait of Gibraltar?
 - Manso-Narvarte et al. Simulating anchovy eggs and larvae advection in the SE-BOB.
 - Rubio et al. Lagrangian observations of marine litter aggregations in the coastal area of the southeast Bay of Biscay.
 - Román-Cascón et al. Coastal-breeze simulation with the WRF model: analysing the sensitivity to land/sea surface temperature changes.
- **RadarOnRAIA FINAL CROSS-BORDER EVENT** celebrated last June, 2022, organised by CETMAR (Vigo). Presentations and video available here.



Video of the Radar on RAIA project final cross-border event.

Upcoming events & opportunities

- **SAVE THE DATE:** ECSA 59 SYMPOSIUM, 5-8 September, 2022 in San Sebastian (Spain).
- **SAVE THE DATE:** Sea Tech Week® 2022, 26-30 September 2022, Brest Expo (France)
- **SAVE THE DATE:** SHAREMED International Workshop, 13-14 September, 2022, Malta.
- **PROPOSE YOUR SESSION FOR EGU2023:** Public call for session proposals. Deadline: 19/09/2022.
- **SAVE THE DATE:** European Research & Innovation Days 2022, 28-29 September. Registration open.
- **SAVE THE DATE:** Ocean Best Practices workshop VI, 5-19 October, 2022. Registration open.
- **SAVE THE DATE:** Jerico-DS General Assembly 2022, 25-27 October, Delf (Netherlands)
- **SAVE THE DATE:** 12th ROWG Meeting, hybrid, 2-3 November, 2022. Registration is open until 15 SEP. Radar Manufacturer Day, November 4.
- **SAVE THE DATE:** IBIROOS and MyCOAST-2 meeting. From November 29 until December 1, Santiago de Compostela (Spain).
- **STAY TUNED:** Next European HFR Community workshop in November 2022.
- **STAY TUNED:** European Maritime Day 2023. May 24-25, in Brest (France)
- **STAY TUNED:** Annual Science Conference (ASC). September 11-15, 2023 in Bilbao (Spain).
- **STAY TUNED:** EuroSea high-level conference 2023. September 19-21, 2023.
- **SPECIAL ISSUE** in Remote Sensing "HF Surface Wave Radar: Improving Performance and Extending Capabilities". Deadline: 30/11/2022
- **SPECIAL ISSUE** in the Journal of Marine Science and Engineering: "Advanced Studies in Coastal Ocean Observation". Deadline: 05/12/2022
- **SPECIAL ISSUE** in Remote Sensing: "Sustained Ocean Surface Observation Using HF Radar: from Data to Societal Applications". Deadline: 31/12/2022

Memory Corner

Please remember our 10 important "HOW-TO"

Do you want to...?

1. **ACCESS the CMEMS product** containing **Near real time in-situ** observations of surface ocean currents (drifters and HFR) for the Global Ocean? [Click here](#)
2. **ACCESS the CMEMS product** containing **Delayed Mode in-situ** Observations of surface (drifters and HFR) and sub-surface (vessel-mounted ADCPs) ocean currents for the Global Ocean? [Click here](#)
3. **ACCESS the EMODnet Physics** ERDDAP HFR catalog? [Click here](#)
4. **SYNCHRONIZE your HFR** data with the EU HFR Node? [Learn here how to do it!](#)
5. **SHARE your historical** HFR data? Contact Us: euhrnode@azti.es
6. **USE standard templates** for maintenance and for monitoring your HFR site? [Access to the document available in the Ocean Best Practices repository.](#)
7. **CONTRIBUTE** to the forthcoming **newsletters**? Contact Us: euhrnode@azti.es and help us to populate them.
8. **BE PART** of effective **consortium**? Fulfill the European HFR Competence Matrix.
9. **CONTRIBUTE** to the HFR **stakeholder engagement** strategy? Please, take a look at the list of existing and potential users of HFR data and help us to identify the main stakeholders in your region.
10. **INCLUDE** your **publications and projects** in the European HFR Task Team ZOTERO Community Library? Contact Us: euhrnode@azti.es

Snapshot Stories

Hello HFR community!

Let's celebrate one of the most lovely times of the year with one of our summer essentials: our newsletter!

This newsletter brings together the progress from several research projects and their results, publications, joint research initiatives and past conferences and workshops from the last semester. You will also be able to find current and upcoming funding opportunities for your research, jobs and fellowships as well as upcoming events, opportunities and new HFR installations.

In this issue, our snapshot stories will help you to discover more about the HFR

In addition, on behalf of the European HFR community, I would like to congratulate the new Doctors on achieving their PhD degrees and Daisy Pemba García, on winning the "Modesto Vigueras 2022 Price" second place.

Since our last newsletter#4 in February, the HFR community has been very active, participating in many events and contributing with several research publications. For more detailed information, please read the specific sections of this newsletter.

Last but not least, I am glad to announce that we will have the chance to meet in person in November this year to review

network for mainland Portugal, many of the outcomes of the successful Radar On RAIA project, whose final meeting was celebrated last June, and the two companion papers developed in the context of MONGOOS-HFR.

the progress of the European HFR community. Stay tuned!

Your contributions, testimonies and stories are very important to engage with our users and to keep the HFR community updated and informed on a regular basis. Many thanks to all our contributors!

Wishing you a great vacation and waiting to see you soon!

Julien Mader (chair of the EuroGOOS HFR Task Team)

National High Frequency Radar network of continental Portugal

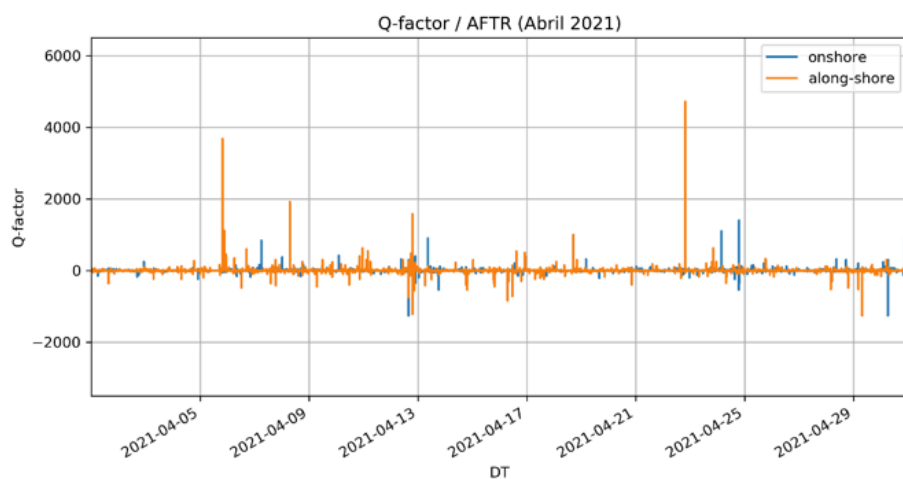
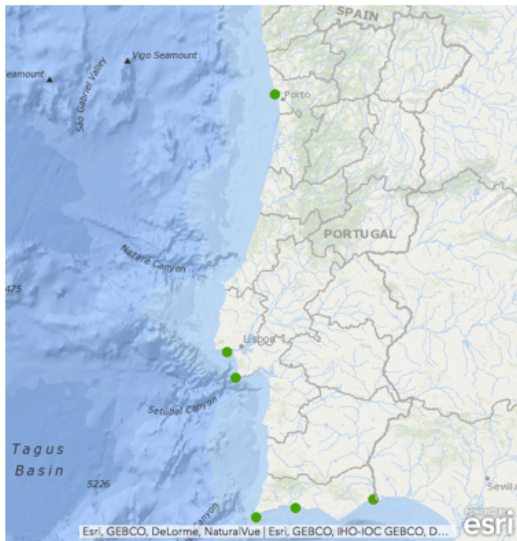
The National high frequency (HF) radar network of Continental Portugal is operated by the Hydrographic Institute, an agency of the Portuguese Navy and a State Laboratory. Currently, this comprises 6 CODAR SeaSonde HF radars sites (Figure-left panel) distributed along the more than 940 km of continental coastline: Leça da Palmeira (the northernmost site), São Julião and Cabo Espichel (covering the Lisbon area), and Sagres, Alanzina (Figure-right panel) and Vila Real de Santo António, (covering the whole Algarve coastline).

In recent years, the Portuguese HF radar network has been expanded in the framework of the projects MyCoast, RADAR-ON-RAIA and OCASO, by also establishing a cross-border collaboration with many Spanish institutions. With the purpose of supporting the existing Portuguese national tsunami early warning system (NTEWS), a tsunami detection software was installed at the Sagres HF radar station, in the framework of OCASO. This location was chosen due to the tsunamigenic zone proximity (i.e. Africa-Eurasia plate boundary). The tsunami detection software displays the so-called Qfactor parameter (figure - bottom panel), which is a probabilistic index of tsunami occurrence that derived from the Doppler spectra collected every 2 minutes by the module and quantifies the presence of a tsunami wave (Roarty et al, 2019). The software operated at Sagres from September 2018 to January 2020, being transferred to Alanzina afterwards, due to the complexity of the ocean dynamics at the tip of Sagres, which consequently generated many false alerts. The Alanzina HF radar station, currently operational, is the only HF radar station performing tsunami detection patterns in the Iberian Peninsula. In the framework of the RADAR-ON-RAIA, a 13.5 MHz HF radar station was installed at Leça da Palmeira, in the north of Portugal, in July 2020, contributing to the HFR-Galicia network.

In addition to tsunami detection, HFRs from the Continental Portugal network are being used to support maritime operations, such as search and rescue actions, maritime traffic and fishing activities, academic research, etc.

Standard files of ocean current data from the National HF radar network of Portugal are made continuously available through the European HFR Node. Read more in this link.

Vânia Lima (Hydrographic Institute, Division of Oceanography, IHPT-OC, Portugal)



Top-Left: National HF Radar Network managed by the Hydrographic Institute. From north to south and west to east: Leça da Palmeira, São Julião, Cabo Espichel, Sagres, Alfanzina, Vila Real de Santo António (Source: <https://eurogoos.eu/high-frequency-radar-task-team/>). Top-Right: Photo of Alfanzina HF radar station. Bottom: Real-time visualisation of tsunami alert parameter Q-factor at Alfanzina HF Radar station, during April 2021 (source: Hydrographic Institute, 2022).

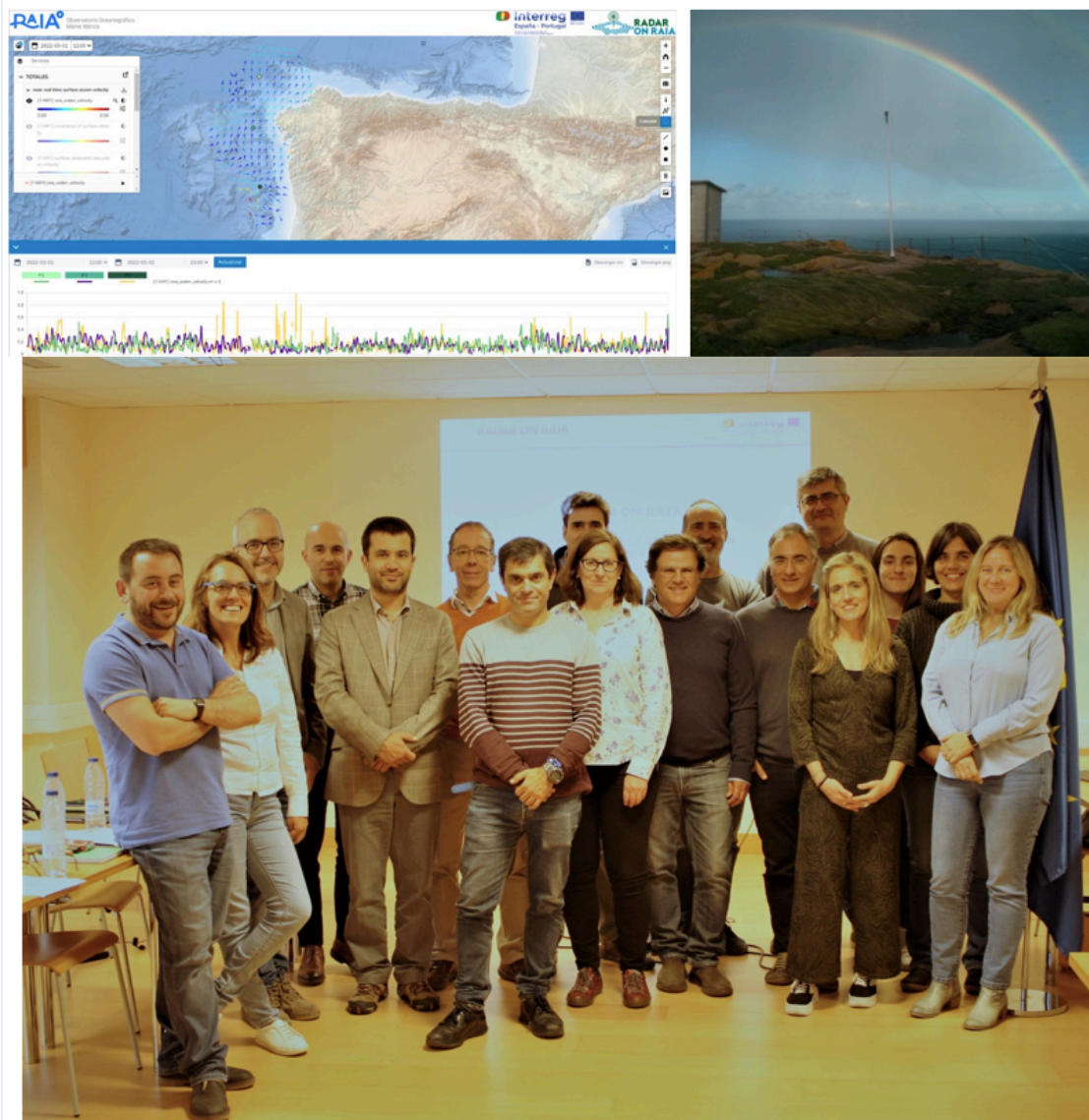
Radar on Raia: sending the pulse beyond the Galician-Portuguese 'raia' (i.e. border)

The RADAR ON RAIA project has contributed along 3 years to extending the HFR-Galicia network with the installation of a new HFR site in Leça da Palmeira (Portugal) in July 2020 (read the Snapshot story about its installation in the previous news#2) by establishing a cross-border collaboration with Portuguese institutions.

In addition to that, the main outcomes of the project have been: 1) the development of maintenance Best Practices; 2) the development of new products (HF radar viewer for the RAIA Observatory, web application for waves from the HFR stations, operational maps of upwelling index derived by the HFR; 3) the performance of validation exercises using Lagrangian and Eulerian methodologies (RADQC web tool for NRT quality control has been developed); 4) the improvement of joint data and metadata processing and the launching of THREDDS and Geo-catalogue and new viewer to disseminate elaborated data using SOS protocol (Radial, Totals); 5) the engagement with end users (Gardacostas de Galicia, Portuguese Marine Corps, SASEMAR and Harbour Authorities).

The project has benefited the territorial planning of the Galician-North Portugal region through Interreg VA Spain-Portugal (POCTEP) Programme. Although the Final Cross-border Event of Radar on Raia was celebrated last June, the project finished in July. However, the collaboration will continue in the framework of RAIA Observatory.

Silvia Piedracoba Varela (Centro Tecnológico del Mar - Fundación CETMAR, Spain)



Top-Left: HF radar viewer (Source: <http://marnaraia.org/visor/>). Top-Right: Photo of Vilán HF radar station.

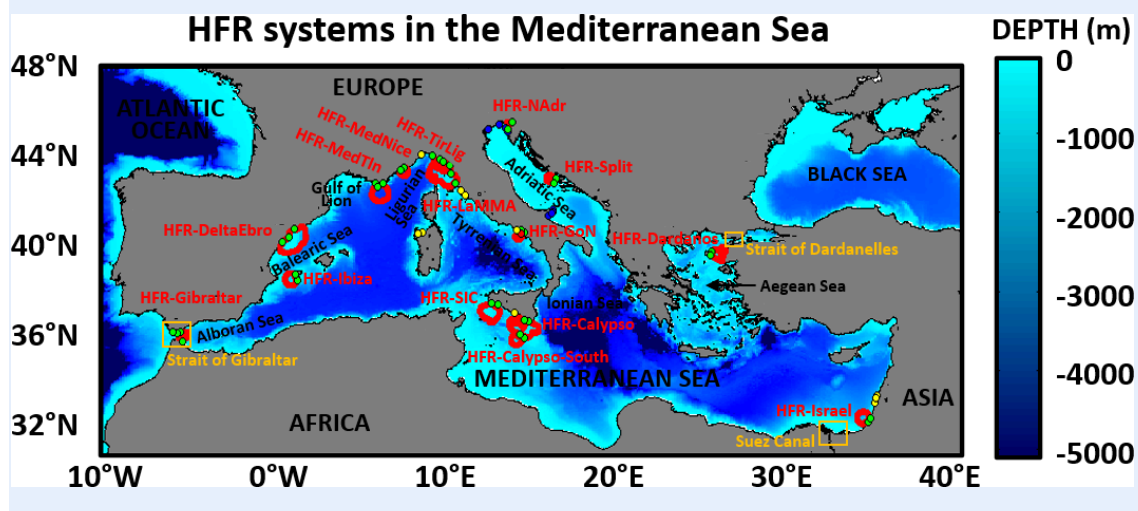
Bottom: Photo of the Radar on Raia project team.

Coastal high-frequency radars in the Mediterranean Sea

Collaborative research led by Puertos del Estado and the Balearic Islands Coastal Observing and Forecasting System (SOCIB), within the framework of the Mediterranean Operational Network for the Global Ocean Observing System (MONGOOS) HFR task team, has assessed the status of operations, framework for future development, and applications in support of science priorities and societal needs of the Mediterranean HFR network. Published in the journal *Ocean Science* (Special Issue: Advances in interdisciplinary studies at multiple scales in the Mediterranean Sea) as two companion papers (Lorente et al., 2022, Reyes et al., 2022), this work has involved the participation of a multidisciplinary and intersectoral group of 42 scientists, HFR operators, and manufacturers from 22 institutions, which together operate 15 HFR systems in the coastal areas of Croatia, France, Israel, Italy, Malta, Slovenia, and Spain.

Main authors would like to express their gratitude to all co-authors, internal and external reviewers and the HFR community in general for bringing this long-standing contribution (of almost 2 years) towards a successful outcome. More information available in this link.

Pablo Lorente (PUERTOS DEL ESTADO, Spain) and Emma Reyes (SOCIB, Spain)



Map of the Mediterranean Sea showing the location and coverage of the HFR sites (Lorente et al., 2022).

Daisy Pemba García awarded “Modesto Vigueras 2022 Price” second place

The Technical Association of Ports and Coasts (ATPyC) has awarded Daisy Pemba García Steinebronn (Degree in Marine Sciences from the University of Cadiz) with the second “Modesto Vigueras 2022 Price” for her work entitled “Particle retention processes at the NW coastal margin of the Strait of Gibraltar using HFR measurements”.

The awarded work, developed during her internship at SOCIB, co-supervised by the University, has contributed to enhance the understanding of the different dynamic conditions that favour the particles retention on the north-western coastal margin of the Strait of Gibraltar.

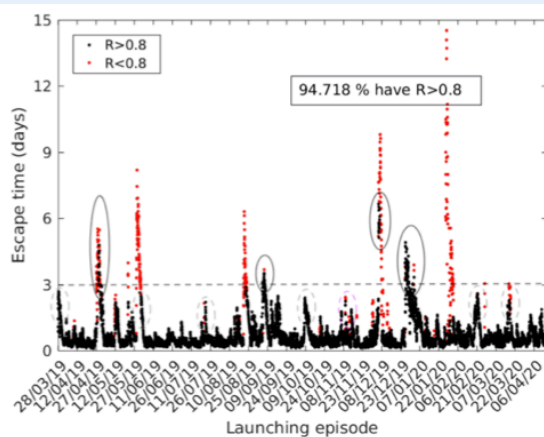
In her study, Daisy has estimated the escape times of virtual particles from the reconstructed current measurements provided by the high-frequency radar network (HFR) of the Strait of Gibraltar (HFR-Gibraltar), which operates Puertos del Estado.

The highest escape times (i.e. time taken by the particles from the north-western margin of the Strait until they leave the defined domain) correspond to two scenarios: i) under easterly wind and neap tide conditions, due to a general water retention in the western side of the Strait and ii) under westerly wind and spring tide conditions, due to the generation of coastal cyclonic vortices.

It is worth highlighting that the methodology of estimation of the escape times of the present work, described by Rubio et al., (2020) has direct and multiple applications to the preservation of coastal and port water quality. For more information, please read this news.

The European HFR community extends warm congratulations to Daisy!

Emma Reyes (SOCIB, Spain)



Top-Left: Escape time (days) for particles launched hourly with $R > 0.8$ (black dots) and $R < 0.8$ (red dots).

Bottom-Left: Photo from Daisy Pemba García Steinebronn. Bottom-Right: Manuscript cover of the awarded work.



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