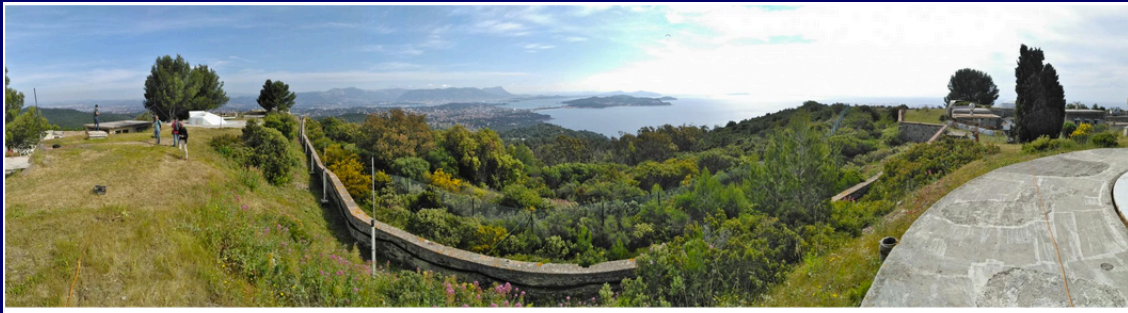




Welcome to the #3 European HF Radar Task Team Newsletter

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

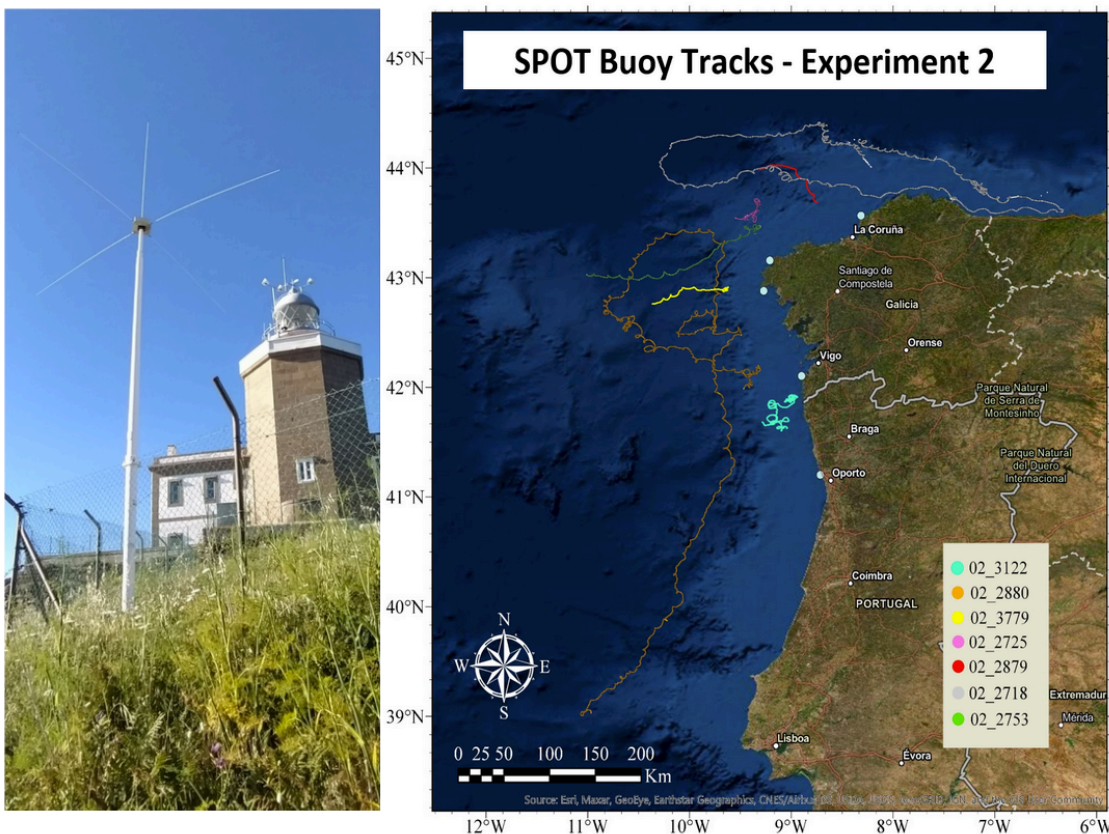
We are happy to share with you the latest news and events since February 2021.

Sustainability

The definition of the European HFR governance structure will contribute to ensure long-term sustainability. Find out more about it in the Snapshot Stories at the end of this newsletter.

Happy stories

- 😊 **UPDATED MAP of HFR** locations from the EuroGOOS HFR Task Team: 109 HFR sites, 68 ongoing (March 2021).
- 😊 **RADIAL DATA** from the European HFR network are now available in the NEW RELEASE of the CMEMS delayed-mode product dedicated to in-situ observations of surface (drifters and HFR) and sub-surface (vessel-mounted ADCPs) water velocity,
- 😊 **CoastPredict** - Observing and Predicting the Global Coastal Ocean - selected as a Programme for the UN Decade of Ocean Science. Congrats!
- 😊 **PUBLIC THESIS DEFENSE** of Ana Basañez on the “Acquisition, assessment and application of the Galician HFR-derived wave data”, on the 15th of July 2021 (temporary link to the Spanish version). Congrats Ana!!!
- 😊 **HFR ANTENNA FROM FINISTERRE (FIST)** is already configured since April 2021. Once its APM has been performed, the HFR derived surface currents from the NW Iberian Peninsula will be combined from the radials of 5 HFR sites (PRIO, VILA, FIST, SILL and LPRO)
- 😊 **HFR VALIDATION EXERCISE** of the systems located in the NW Iberian Peninsula in March 2021, with the deployment of 5 IIM_CSIC drifters in the Galician coast during the Pelacus Campaign (on board of the R/V miguel Oliver), led by IEO Vigo, in collaboration with RADAR ON RAIA project.



Picture of the HFR antenna from Finisterre (FIST) from the Galician HFR network -left panel- and map of the NW Iberian Peninsula showing the trajectories of five IIM_CSIC drifters deployed during the Pelacus Campaign -right panel-

Do you want to...?

- **ACCESS the CMEMS product** containing **Near real time in-situ** observations of surface ocean currents (drifters and HFR) for the Global Ocean? [Click here](#)
- **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](#)
- **ACCESS the EMODnet Physics** ERDDAP HFR catalog? [Click here](#)
- **SYNCHRONIZE your HFR** data with the EU HFR Node? [Learn here how to do it!](#)
- **SHARE your historical** HFR data? Contact Us: euhrfnode@azti.es
- **USE standard templates** for maintenance and for monitoring your HFR site? Access to the document available in the Ocean Best Practices repository.
- **CONTRIBUTE** to the forthcoming **newsletters**? Contact Us: euhrfnode@azti.es and help us to populate them.
- **BE PART** of effective **consortium**? Fulfill the European HFR Competence Matrix.
- **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.
- **INCLUDE** your **publications and projects** in the European HFR Task Team ZOTERO Community Library? Contact Us: euhrfnode@azti.es

Open and forthcoming calls

- **COST Action** proposals: Next collection date: 29/10/2021 at 12:00 noon (CET). Video: [What do you need to apply?](#)
- **HORIZON-CL6-2022-BIODIV-01-01**: Observing and mapping biodiversity and ecosystems, with particular focus on coastal and marine ecosystems. Deadline: 15/02/2022
- **HORIZON-CL6-2022-CLIMATE-01-01**: Climate sensitive water allocation systems and economic instruments. Deadline: 15/02/2022
- **HORIZON-CL6-2022-CLIMATE-01-02**: Understanding the oceanic carbon cycle. Deadline: 15/02/2022
- **HORIZON-CL6-2022-GOVERNANCE-01-02**: European Partnership for a climate neutral, sustainable and productive Blue Economy. Deadline: 15/02/2022
- **HORIZON-CL6-2022-GOVERNANCE-01-06**: New technologies for acquiring in-situ observation datasets to address climate change effects. Deadline: 15/02/2022

Job & internship opportunities

- **JUNIOR FELLOWSHIP** in the field of “Study of the evolution of chlorophyll fronts through high resolution models, HF radars and data assimilation”. Publication period: 03/06/2021-31/12/2021
- **POST-DOCTORAL position in HFR-** derived surface currents observations and applications - Marine Science Institute, UCSB. Application deadline: 31/10/2021
- **POST-DOCTORAL position in Electrical Engineering**: Microwave Resonator for Securized Space Communication (R2CS2). NEW Application deadline: 30/09/2021
- **LECTURER / ASSOCIATE PROFESSOR** in Marine Geospatial Science at the University College London. Application deadline: 05/08/2021 21:00 - Europe/Brussels
- **ELECTROMAGNETICS EXPERT** position in Belgium. Application deadline: 05/08/2021 21:00 - Europe/Brussels
- **PhD position** on the “Advanced characterization of HEMT transistor interfaces for power electronics: correlation between chemical, structural and electrical properties” in France. Application deadline: 29/07/2021 23:59 - Europe/Brussels

- **MARINE SCIENTIST** position in Spain. Application deadline: 01/09/2021 00:00 - Europe/London
 - **EURO-ARGO PARTNERSHIP RELATION OFFICER** in France. Application deadline: 08/08/2021 23:00 - Europe/Brussels
 - **ASSOCIATE PROFESSOR in offshore wind energy and sustainability** in Norway. Application deadline: 22/08/2021 23:00 - Europe/Brussels
 - **POSTDOCTORAL POSITION - Sea Ice Drift Forecasting** in Germany. Application deadline: 28/07/2021 09:14 - Europe/Brussels
 - **SCIENTIFIC position in European Ocean Observing – gap identification** in Germany. Application deadline: 15/08/2021
-

Products and Services

“The Actions of the UN Decade focus on advancing and applying knowledge to support the development of sustainable solutions”

(UNESCO Director-General Audrey Azoulay)

Basic products

- **INTEGRATION OF THE HFR-NAdr network**, jointly managed by OGS (Italy) and NIB (Slovenia), in the EU HFR NODE workflow for NRT data. Data access [here](#)
 - **UPDATED VERSION OF JRADAR JAVA TOOL** for an easy conversion of HFR radial and total CODAR files into compliant HFR standard netcdf files. The code and the information document are available at <https://github.com/Fundacion-AZTI/JRadar> (registering DOI)
 - **HFR DATA VISUALIZATION** routines in python published and shared through Seanoë and github in the frame of the SICOMAR+ Summer School.
 - **WEBINAR** about the “Argonautica educational program: in partnership with scientists and professionals of the sea” provided by CLS and CNES, organized by SASEMAR and SOCIB. English version with subtitles available [here](#).
-

Ongoing Research and Opportunities

"To improve our understanding of the natural processes that occur in coastal areas, knowledge has to be managed and coordinated internationally"

(Rafael González-Quirós, member of the Spanish Institute of Oceanography, IEO-CSIC, and Spanish delegate in IOC-UNESCO)

HFR recent/new publications

- **Basañez, A., & Pérez-Muñuzuri, V. (2021).** HF Radars for Wave Energy Resource Assessment Offshore NW Spain. In Remote Sensing (Vol. 13, Issue 11). <https://doi.org/10.3390/rs13112070>
- **Bourg, N., & Molcard, A. (2021).** Northern boundary current variability and mesoscale dynamics: a long-term HF RADAR monitoring in the North-Western Mediterranean Sea. Ocean Dynamics. <https://doi.org/10.1007/s10236-021-01466-9>
- **Davila, X., Rubio, A., Artigas, L. F., Puillat, I., Manso-Narvarte, I., Lazure, P., & Caballero, A. (2021).** Coastal submesoscale processes and their effect on phytoplankton distribution in the southeastern Bay of Biscay. Ocean Sci., 17(3), 849–870. <https://doi.org/10.5194/os-17-849-2021>
- **Gommenginger, C., Martin, A. C. H., Jacob, B., and Staneva, J.:** Multi-year assessment of ocean surface currents from Copernicus Sentinel-1 and HF radar in the German Bight, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-15280. <https://doi.org/10.5194/egusphere-egu21-15280>, 2021
- **Hernandez-Lasheras, J., Mourre, B., Orfila, A., Santana, A., Reyes, E., & Tintoré, J. (2021, preprint).** Evaluating High-Frequency radar data assimilation impact in coastal ocean operational modelling. Ocean Science Discussions, 2021, 1–29. <https://doi.org/10.5194/os-2021-34>. Currently under review (discussion: closed, 2 comments)
- **Huang W. and Gill E. W. (2021, in press),** "Ocean Remote Sensing Technologies: High Frequency, Marine and GNSS-Based Radar," IET Books. ISBN: 9781839531613
- **Lorente, P., Lin-Ye, J., García-León, M., Reyes, E., Fernandes, M., Sotillo, M. G., Espino, M., Ruiz, M. I., Gracia, V., Perez, S., Aznar, R., Alonso-Martirena, A., & Álvarez-Fanjul, E. (2021).** On the Performance of High Frequency Radar in the Western Mediterranean During the Record-Breaking Storm Gloria. In Frontiers in Marine Science (Vol. 8, p. 205). <https://doi.org/10.3389/fmars.2021.645762>
- **Mundaca-Moraga, V., Abarca-del-Rio, R., Figueroa, D., & Morales, J. (2021).** A Preliminary Study of Wave Energy Resource Using an HF Marine Radar, Application to an Eastern Southern Pacific Location: Advantages and Opportunities. In Remote Sensing (Vol. 13, Issue 2). <https://doi.org/10.3390/rs13020203>
- **Solabarrieta, L., Hernández-Carrasco, I., Rubio, A., Campbell, M., Esnaola, G., Mader, J., Jones, B. H., & Orfila, A. (2021).** A new Lagrangian-based short-term prediction methodology for high-frequency (HF) radar currents. Ocean Sci., 17(3), 755–768. <https://doi.org/10.5194/os-17-755-2021>
- **Sotillo, M. G., Mourre, B., Mestres, M., Lorente, P., Aznar, R., García-León, M., Liste, M., Santana, A., Espino, M., & Álvarez, E. (2021).** Evaluation of the Operational CMEMS and Coastal Downstream Ocean Forecasting Services During the Storm Gloria (January 2020). In Frontiers in Marine Science (Vol. 8, p. 300). <https://doi.org/10.3389/fmars.2021.644525>

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

Ongoing projects

Latest news & videos since the Newsletter#2

- **i-waveNET**: focused on the implementation of an innovative system for monitoring the state of the sea in climate change scenarios. Expected results: 3,000 sq km of area covered by the implemented measurement networks; 5,000 sq km of area covered by the integrated monitoring system; 5,000 sq km of domain area of the Decisions Supporting System (DSS) system, which can be consulted by the territorial authorities via web-gis interface.
- **MyCOAST**: Final Workshop on “Coastal marine services for tackling coastal risks in the Atlantic”, 16-17 June and a new HFR station already installed. Final project Brochure
- **EuroSea**: European HFR network governance structure already designed. Take a look at the Deliverable 3.4
- **CALYPSO South**: Installation of a new HFR site at the port of Licata (Malta) that expands the coverage of the “Calypso-South” network.
- **CALYPSO South**: drifter experiment was completed on 13th June for validating the sea surface currents provided by the HFR network at the south of the Maltese Islands.
- **SICOMAR plus**: Find out more about the Summer School in the Snapshot stories below.
- **RADAR-ON-RAIA**: New automatic weather stations installed at Port of Leixões and Port of Aveiro and ongoing since April and May, respectively. Forthcoming classroom course (see details in the Upcoming events)

Past events since the Newsletter#2

- **JOINT WORKSHOP on High Frequency Radar and Ferrybox**
 - link to workshop material (presentations & prerecorded talks)
- **Sicomar+ SUMMER SCHOOL** on oceanographic HF radars
 - link to presentations, screenshots and pictures.
- **9th EuroGOOS International Conference**
 - link to the EuroGOOS 2030 Strategy
 - link to key takeaways
- **EuroGOOS HFR Task Team Progress Meeting**
 - link to the presentation of the task leaders
 - link to the minutes

Upcoming events & opportunities

- **RadarOnRAIA CLASSROOM COURSE** on discovering, accessing and processing tools of the oceanography data in the RAIA area (Galicia - North Portugal). The goal of the course is to bring the non-specific user closer to oceanographic data from its precise definition to its reading and processing. Faculty of Science – Vigo, University of Vigo, 19-23/07/2021. Poster and registration.
- **WACOMA INTERNATIONAL CONFERENCE** on Water and Coastal Management, 19-21/07/2021. Registration open.
- **COURSE on Marine Data Management, Governance and MEDIN** (Marine Environmental Data and Information Network) toolset. Dates: 5 days from 13-17/09/2021. Registration open
- **SPECIAL ISSUE in Remote Sensing**: “Sustained Ocean Surface Observation Using HF Radar: from Data to Societal Applications”. Deadline: 31/03/2022
- **SPECIAL ISSUE in Remote Sensing**: “Observing the Flow of Ocean Currents and Circulation Using Remote Sensing”. NEW Deadline: 31/01/2022
- **SPECIAL ISSUE in Ocean Science**: “Advances in interdisciplinary studies at multiple scales in the Mediterranean Sea”. NEW Deadline: 31/01/2022

- **SPECIAL ISSUE in Continental Shelf Research:** “Education, Outreach and Citizen Science Initiatives underpinned by coastal and shelf process research”. Deadline: 15/12/2021
- **5th Annual OBPS Community Workshop**, “An Ocean of Values”. Date: 20/09/2021 24/09/2021. Pre-registration open [here](#)

Snapshot Stories

Hello HFR community!

Time flies and summer is coming as well as our #3 newsletter!

Let's recap quickly just before we enjoy our worthwhile vacation.

During the last six months, we have joined many of the events announced in our previous Newsletter#2 and significant progress has been achieved on several joint projects and initiatives.

Since last February, a broad representation of the HFR community has participated in the EuroGOOS FerryBox and High Frequency Radar joint workshop (17-18 March), in IMDIS (12-14 April), in the vEGU21 (19-30 April), in the EuroGOOS 9th International Conference (3-5 May), in the SICOMAR+ Summer School (26-28 May), in the EuroGOOS General Assembly (27-28 May) and, very recently, in the EuroGOOS HFR Task Team Assembly Progress Meeting (13 July).

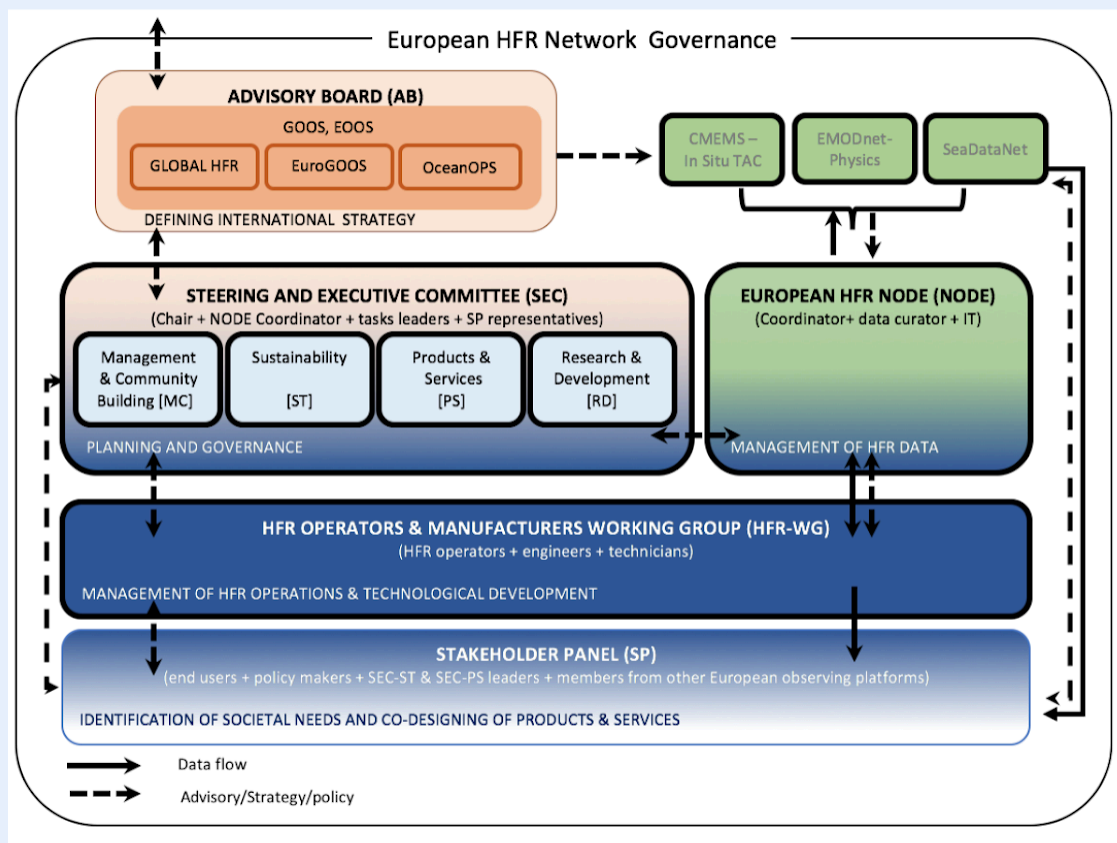
Furthermore, the HFR network has kept growing with new installations in Malta, Sicily and France and the community has continued working on joint projects, initiatives and increasing the publication records. In addition, standardized real-time and historical HFR data have been kept updated in the Copernicus Marine Service with several releases. Last but not least, an approach for developing a European HFR network governance, based on the requirements of the community, has been presented in the context of the EuroSea project.

I now invite you to learn more about the above-mentioned events, new HFR sites and our governance structure in the following stories.

Thank you very much for your involvement and commitment towards building a mature European HFR network, which aims to have a leading role in the European ocean observing system landscape!

Enjoy your well-deserved summer break!

Julien Mader (chair of the EuroGOOS HFR Task Team)



European HFR network Governance

A robust and sustained European HFR network governance structure has been designed, considering the global, European and regional landscape of ocean observational networks, built from elements that are already and partially in place and based on the requirements of the HFR community.

The proposed governance will enhance the current potential of the EU HFR systems and plan the future by: i) enabling broad international collaboration (OceanOPS, GOOS, Global HFR network); ii) fostering the integration with the different marine data aggregators; iii) promoting the development, sharing and usage of best practices from the Ocean Best Practices repository; iv) achieving more impact and gain visibility; v) boosting stakeholder engagement.enhancing the current potential of the EU systems and planning the future,

As you can see in the figure above, the structure includes 5 main components, divided in 4 tiers and different possibilities for its implementation are discussed in the EuroSea deliverable 3.4.

You are all kindly invited to review the proposed governance structure and to send your comments and/or suggestions by email (euhrnode@azti.es)

Anna Rubio (AZTI) & Emma Reyes (SOCIB)



New High Frequency Radar in Mimizan (France)

New High Frequency Radar LERA (developed by Pierre Flament at the University of Hawaii) has been deployed by IFREMER in Mimizan (France, 44.24°N, 1.29°W) to monitor the regional dynamics of the southeastern Bay of Biscay, in the context of the MyCoast EU Interreg Atlantic Area transnational cooperation programme.

The installation of the new site is currently being finalized, and the radial current data are expected to be available in late 2021. Together with the Higer and Matxitxako HFR-EUSKOOS sites, operated by AZTI and owned by Euskalmet, these sites will form a three-site system to monitor the regional dynamics of surface currents in the Southeastern Bay of Biscay.

Louis Marié (IFREMER/LOPS) & Guillaume Charria (IFREMER/LOPS)



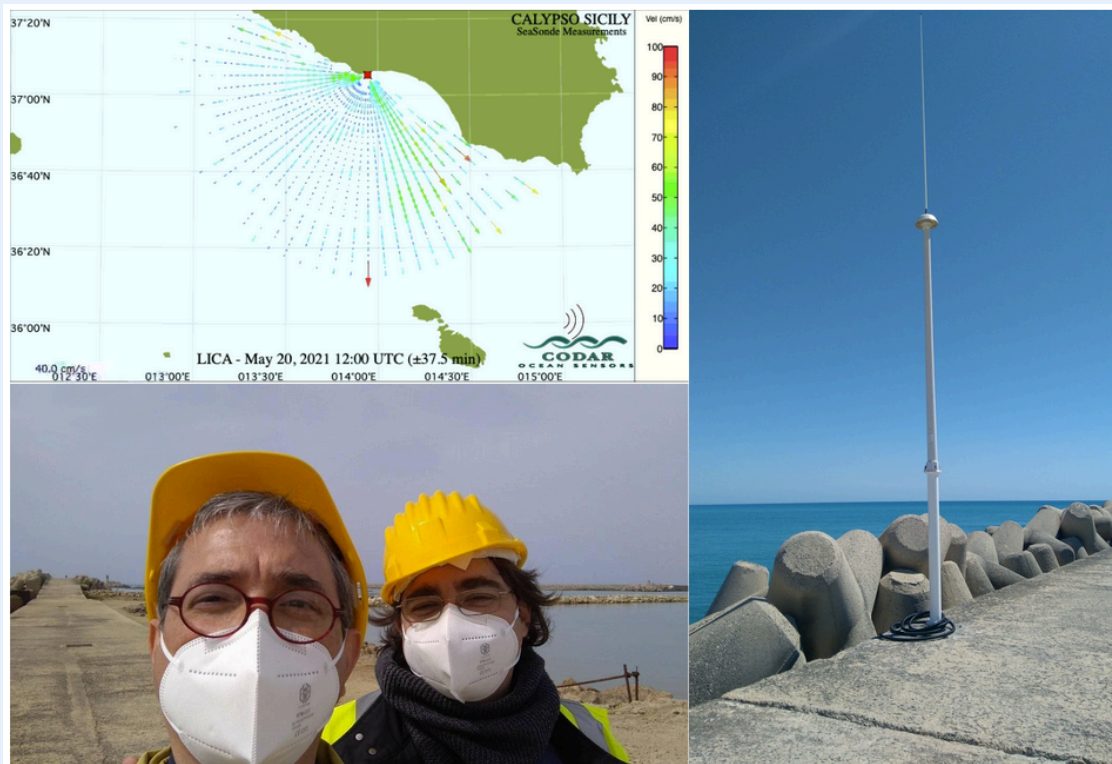
SICOMAR+ HFR Summer School

The SICOMAR+ HFR Summer School on “Oceanographic radars for marine current monitoring” focused on HF radar techniques and applications was organized and held by the University of Toulon and the Mediterranean Institute of Oceanography (MIO) last May.

Almost 70 participants (with 35% of attendees in the room) from 11 countries (i.e. France, Spain, Italy, Israel, Malta, Germany, USA, UK, Australia, Nigeria and Canada) addressed together scientific, technical and operational aspects of radio-oceanography along one and half days of oral sessions and two afternoons of practical sessions.

This event was scheduled in the framework of the Sicomar+ EU Interreg Marittimo project devoted to maritime security and sea surface monitoring, which has made significant investment in observing networks in the Northwestern-Mediterranean. Just take a look at the coverage of the SICOMAR+ HFR network (available in the last page of the Summer School program).

Charles-Antoine Guérin & Anne Molcard (MIO)



New High Frequency Radar in Licata - Sicily (Italy) deployed by the Università degli Studi di Palermo

A new High Frequency Radar (HFR) was installed in the Licata (Italy) last 21st May to support safety & security, search and rescue operations, to study the intense marine circulation dynamics in the Malta-Sicily-Channel and to support stakeholders in fighting against oil spills and marine pollution, by the Università degli Studi di Palermo, in cooperation with University of Malta (Prof. Aldo Drago), Transport Malta, Civil Protection Department (Malta), ARPA-Sicilia, CNR-IAS and Università di Catania (CUTGANA) in the context of the project "CALYPSO-SOUTH" (Interreg V-A, Italy-Malta 2014-2020).

The new site has been operating since June'21 being part of the HFR-CALYPSO network, which already operates 7 HFR sites, deployed along the Malta-Sicily-Channel area. Read more in this link <https://www.calypsosouth.eu>

Fulvio Cappocicci and Giuseppe Ciraolo (Università degli Studi di Palermo)

What are, in your view, the main **STRENGTHS** of the HF network? (one word by entry)

Mentimeter



EuroGOOS FerryBox and High-Frequency Radar Workshop

The EuroGOOS FerryBox -FB- and High-Frequency Radar -HFR- online workshop took place in March, 17-18. FB and HFR communities joined the welcome and closing sessions (with almost 145 attendees), while specific sessions for each platform were carried out in parallel.

During the first day of the HFR session, pre-recorded 3-min presentations showed: i) the growing from different HFR networks (e.g. Malta, Tuscany region); ii) new installations (HFR in the NW of the Iberian Peninsula; an X-Band radar in the Bay of Biscay, a LERA HFR in the South-West of France) and re-installations (Vigo, Cíes Islands); iii) new research outcomes (use of DIVAnd for HFR gap-filling, HFR waves and currents characterization under extreme events); emerging products (waves mapping, upwelling index) and promising projects (i-waveNet); iv) latest upgrades in technology (e.g new software upgrades for direction finding and phase array)

During the second day, the progress on the different actions of the EuroGOOS HFR Task Team were presented by the task leaders.

1) Management and community building: TEAMS environment for meetings, sharing documentation and monitoring the workplan, projects mapping and roadmap development, biannual newsletter (#1, #2), quarterly progress meetings.

2) Sustainability: stakeholders engagement strategy (> 140 stakeholders identified), endorsement for supporting HFR operators; new opportunities for joint proposals (common competence matrix).

3) Products & services: HFR data gap filling and waves data – need of consensus on the methodology, on the QC tests to be applied and on the definition of the common data & metadata standard model.

4) Research & development: creation of a community-built inventory in Zotero (EuroGOOS_HFRadar_taskteam) with more than 200 items on HFR and ongoing joint contributions.

Additionally, the main actions of the European HF radar node were presented: in terms of NRT and REP data management and the next steps to harmonize HFR sites outage reporting.

Finally, the [interactive session](#) was proposed to all the participants allowing to receive feedback on the ongoing actions and initiatives of the HFR Task Team.

Julien Mader (AZTI)



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Would you like to contribute to the next newsletter?

Please, contribute to our biannual survey, which is launched one or two months in advance. For providing further details, please, include links (to videos, images, pictures, papers, documents) to third-party websites. Thanks a lot for your contributions!

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