HF Radar + AI User Workshop at ICM-CSIC

5 - 8 OCT 2026

BARCELONA

OBJECTIVE OF THE WORKSHOP

An international meeting organized by ICATMAR/ICM-CSIC, CODAR and QUALITAS, with the **participation of leading scientific and operational institutions worldwide**. The workshop brings together experts in **ocean observation, coastal management, maritime intelligence, and emerging technologies** to share advances, experiences, and challenges in the use of **SeaSonde HF radar** and its new synergies with artificial intelligence.

A MEETING POINT FOR COLLABORATION AND NEW IDEAS

The workshop includes dedicated spaces for small-group meetings, institutional exchanges, and networking activities. It is an opportunity to build partnerships, share challenges, and co-design the next steps in the evolution of coastal observation systems. A visit to a SeaSonde HF Radar site will be offerred to the interested.

Language of the workshop: English
Venue: ICM-CSIC, Pg. Marítim de la Barceloneta 37–49, 08003 Barcelona

PARTNERS

Institut de Ciències del Mar 75
icatmar
CODAR OCEAN SENSORS
qualitas

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MONDAY, 5th OF OCTOBER | NETWORKING & CULTURAL ACTIVITY IN BARCELONA

Optional cultural visit to registered participants focused on El Born and Barcelona's Gothic Quarter

TUESDAY, 6th OF OCTOBER | MAIN CONFERENCE PRESENTATIONS & DISCUSSIONS (DAY 1)

HF Radar: Innovation driving coastal insight

After welcome by ICM-CSIC Director, the first part of the workshop offers a forward-looking view of the global evolution of HF radar technology. Experts from Europe, Asia, Africa, America and Oceania share emerging trends, operational experiences, and new deployment strategies that are transforming coastal observation.

→ Strategic perspectives from leading institutions on the role of HF radar in modern ocean monitoring.
→ Global innovation highlights showcasing new approaches and technological advances.
→ Operational fisheries management, with real examples of data-driven decision-making.
→ Marine protected areas and coastal governance, where science, observation and policy converge.
→ From research to user needs: key to address the sustainable future of HF radar networks.

This block is designed to participants seeking a clear understanding of where the technology is heading and how it can contribute to a sustainable coastal and ocean management.

WEDNESDAY, 7th OF OCTOBER | MAIN CONFERENCE PRESENTATIONS & DISCUSSIONS (DAY 2)

Maritime intelligence and modeling: the ocean in real time

The second part focuses on the powerful combination of HF radar, artificial intelligence, and numerical modeling. Leading institutions demonstrate how these technologies enhance prediction, situational awareness, and operational efficiency.

→ Advanced martime intelligence, integrating HF radar, AIS data and AI-vision systems.
→ HF radar data assimilation into ocean models, improving forecast and operational decision making, ocean 3D data blending, ocean-atmosphere interface exchanges.
→ AI-driven innovation, from inference mitigation to coastal space governance.
→ Opportunities and challenges for enhancing the value of ocean & vessel information related to the S-100 standards.

This block offers a clear view of how cutting-edge technology is reshaping maritime surveillance, safety and coastal resilience connected with societal needs.

THURSDAY, 8th OF OCTOBER | OPTIONAL HF RADAR SITE TOUR IN CATALUNYA REGION

Optional visit of the Arenys de Mar HF radar station to registered participants.

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OFFICIAL AGENDA

MONDAY, 5th October 2026 – Arrival of participants
Cultural visit to El Born and Barcelona's Gothic Quarter (2h) followed by a tapas icebreaker:.

TUESDAY, 6th October 2026 – Workshop Day 1 (09:00 – 16:00)
HF Radar + AI: State of the Art & Operational Uses

Registration: 08:00 - 09:00 h
Participants are advised to arrive early, as a security ID check is required to issue the access badge.

FIRST BLOCK: Introduction, Strategy, priorities, new wave in HF radar / 09:00 - 11:00 (Chair: Mr José María "Txema" Fernández)

1. Welcome address ICM-CSIC, Director of the Institut de Ciencies del Mar (ICM-CSIC) / Dr. Jordi Isern-Fontanet / 10 min
2. Welcome words / Codar Ocean Sensors / Ms Laura Pederson / 10 min
3. Welcome words / Qualitas / Mr Andres Alonso-Martirena / 10 min
4. What's new in European HF Radar? Strategy, priorities, latest activities & next steps / European HF radar task team leader, Director of Marine Technologies at AZTI, Mr Julien Mader / 15 min + 5 min Q&A
5. What's new in USA HF Radar? Strategy, priorities, latest activities, & next steps / Mr. Brian Zelenke, National Oceanic & Atmospheric Administration (NOAA), U.S. Integrated Ocean Observing System (IOOS) Office, Surface Currents Program Manager / 15 min + 5 min Q&A
6. Beyond Research Grants: How NCRIS and IMOS Sustain National Ocean Observations / Dr. Simone Cosoli, University of Western Australia, IMOS Integrated Observing System / 15 min + 5 min Q&A
7. The HF radar network of Catalonia, a strategic maritime observation infrastructure, a vision for the future and opportunity for regional collaboration / Mr Joan Ylla Boix, Deputy Director General of Maritime Policy Generalitat de Catalunya / 10 min + 5 min Q&A
8. Expanding Coastal Observation in Italy: The ISPRA HF Radar Network in the Framework of PNRR MER Project / Dr. Arianna Orasi, Institute for Environmental Protection and Research (ISPRA) / 10 min + 5 min Q&A

COFFEE BREAK (30 min) / 11:00 - 11:30

SECOND BLOCK: National HF radar networks + AI, existing and plans forward / 11:30 - 13:25 (Chair: Dr. Lorenzo Corgnati)

9. The HF radar network of Saudi Arabia: Providing services to science and operational stakeholders / Mr Younus Habib, CTO of the National Center of Meteorology / 15 min + 5 min Q&A
10. The HF radar network of Thailand: GISTDA's work and experience in Earth observation, geospatial technologies, environmental monitoring and maritime applications / Dr. Siriluk Prukpitiul, Deputy Executive Director of GISTDA / 15 min
11. Marine Geospatial Platform Implementation / Mr. Nuttorn Kaewpoo, Senior Specialist of GISTDA / 15 min + 5 min Q&A
12. The HF Radar Network of Korea: HF Radar Applications for Coastal Ocean Monitoring in Korea / Mr. Da Woon Jung, Korea Institute of Ocean Science and Technology (KIOST) / 15 min + 5 min Q&A
13. The MARACOOS HF radar network: Experience, present work and next steps in support of maritime safety and security / Dr. Hugh Roarty, Center of Ocean Observing Leadership of Rutgers University / 15 min + 5 min Q&A
14. Applying artificial intelligence to maritime surveillance in protected natural areas: A case study of Cap de Creus Natural Park HF radar station utility / Ms Dèlia Serra, Head of the Technical and Communications Area of the Catalunya Agents Rurals Department / 15 min + 5 min Q&A

NETWORKING STANDING LUNCH (65 min) / 13:25 - 14:30

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THIRD BLOCK: HF radar + AI, societal utility and new developments / 14:30 - 15:30 (Chair: Dr. Guiomar López)

15 SeaSonde HF radar, new capabilities and present work / Mr Chad Whelan, Codar Ocean Sensors / 20 min + 10 min Q&A

16 Enhanced maritime intelligence along a "Smart Coast" – AIMI + SCS / Mr José María "Txema" Fernández, Qualitas / 20 min + 10 min Q&A

ROUND TABLE: Discussion & additional questions: HF radar + AI technology / 15:30 - 16:00 (Coordination: Mr. Andrés Alonso-Martirena)

17 Open agenda, expressions of interest, questions to the speakers and the community, closure of the first day (Mr. Julien Mader, Dr. Hugh Roarty, Mr. Brian Zelenke), limited to 30 min

Wrap up of the first day. The main meeting room will remain available until 17:00. A limited number of small group meeting rooms in ICATMAR building for follow up discussions can be made available to the interested participants.

WEDNESDAY, 7th October 2026 – Workshop Day 2 (09:00 – 16:20)

HF Radar + AI: Science and challenges in response to societal needs

FOURTH BLOCK: HF radar + AI, ocean forecasting, data assimilation and image processing / 09:00 - 11:00 (Chair: Dr. Hugh Roarty)

18 From Data to Decisions: Cross Sector Multi Platform HF Radar Applications in the SE Bay of Biscay / Head of the Coastal Engineering and Operational Oceanography Group at AZTI, Dr. Anna Rubio / 15 min + 5 min Q&A

19 Where do the algae go? Operational Harmful Algal Bloom forecasts from blended satellite-HFR-model solutions / Director Southern California Coastal Ocean Observing System (SCCOOS), Dr. Clarissa Anderson / 15 min + 5 min Q&A

20 Norwegian coastal HF radar network: Direct use of radials through variational data assimilation and data-driven inference / Norwegian Meteorological Institute, PhD Candidate Edel Rikardsen and Head of Division for Ocean and Ice Dr. Johannes Röhrs / 15 min + 5 min Q&A

21 Operational HF Radar Networks in Support of Ports and Coastal Management / Dr. Pablo Lorente, Head of the Ocean Observing Networks at Puertos del Estado / 15 min + 5 min Q&A

22 Mapping fisheries hotspots and HF radar data in the Catalan Sea / ICATMAR/ICM-CSIC, Head of Operational Oceanography Dr. Jordi Isern-Fontanet / 15 min + 5 min Q&A

23 Advanced real-time image processing for coastal monitoring applications – SCS & CD / Las Palmas of Gran Canaria University & Imaging Technology Center CTIM and QAISC R+D Director / Dr. Nelson Monzón / 15 min + 5 min Q&A

COFFEE BREAK (30 min) / 11:00 - 11:30

FIFTH BLOCK: HF radar + AI, ocean forecasting & data fusion / 11:30 - 13:10 (Coordination: Dr. Dale Trockel)

24 Ocean Current Forecast System Based on High Frequency Radar Data and Artificial Intelligence / Instituto Hidrografico of Portugal, Dr. Luisa Lamas / 15 min + 5 min Q&A

25 Maximizing HFR Value at SOCIB via Data Assimilation and Artificial Intelligence for Wave Quality Control / Head of HF radar facility at SOCIB, Dr. Guiomar Lopez, Cuong Tran and Camilo Melo, 15 min + 5 min Q&A

26 Machine learning modeling approach combining seismic, buoy and HF radar information to predict nearshore wave conditions / Department of Geosciences of Malta University, Professor Adam Gauci / 15 min + 5 min Q&A

27 Optimizing and Expanding HF Radar Capabilities for Coastal Ocean Observing Systems / UCSB Marine Science Institute, Dr. Brian Emery / 15 min + 5 min Q&A

28 New approaches to monitor HF radar measurements / ICATMAR/ICM-CSIC Head of Operational Oceanography Dr. Jordi Isern-Fontanet / 15 min + 5 min Q&A

NETWORKING STANDING LUNCH (80 min) / 13:10 - 14:30

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SIXTH BLOCK: HF radar + AI, QA/QC and data broadcast / 14:30 - 15:50

29 Developing AI-Enabled QC Indicators for Operational HF Radar Surface Current Products: a Copernicus Marine Service In Situ TAC Service Evolution project / Institute of Marine Science (ISMAR) of the National Research Council of Italy CNR, Dr Lorenzo Corgnati / 15 min + 5 min Q&A

30 Enhancing HF Radar Data Quality: Interference Analysis & data Gap Filling / Department of Engineering at the University of Palermo in Italy, Professor Giuseppe Ciraolo / 15 min + 5 min Q&A

31 New AI methods towards an enhanced HF radar data quality / Principal Scientist at CODAR Ocean Sensors., Dr. Dale Trockel / 15 min + 5 min Q&A

32 HFR data surface currents implementation in S-111 for marine navigation / CEO at Qualitas, Ismael López / 15 min + 5 min Q&A

ROUND TABLE: Discussion & additional questions: HF radar + AI technology / 15:50 - 16:20 (Coordination: Mr. Andrés Alonso-Martirena)

33 Open agenda, expressions of interest, questions to the speakers and the community, closure of the second day (Dr. Clarissa Anderson, Professor Giuseppe Ciraolo, Dr. Johannes Röhrs and PhD Candidate Edel Rikardsen), limited to 20 min

34 Logistics for day 3 field visit and closure of the second day / 10 min

Wrap up of the second day. The main meeting room will remain available until 17:00. A limited number of small group meeting rooms in ICATMAR building for follow up discussions can be made available to the interested participants.

THURSDAY, 8th October 2026 – Field Visit

Arenys de Mar HF radar field visit

Morning: transfer Barcelona ⟶ Arenys de Mar + site visit + practical session

Midday: lunch

Afternoon: return to Barcelona (arrival early afternoon)

Notes

Working language: English

Venue (Days 6–7): ICATMAR, Pg. Marítim de la Barceloneta 37–49, 08003 Barcelona

Session **timings are indicative** and will be refined once speakers confirmed

Scientific committee

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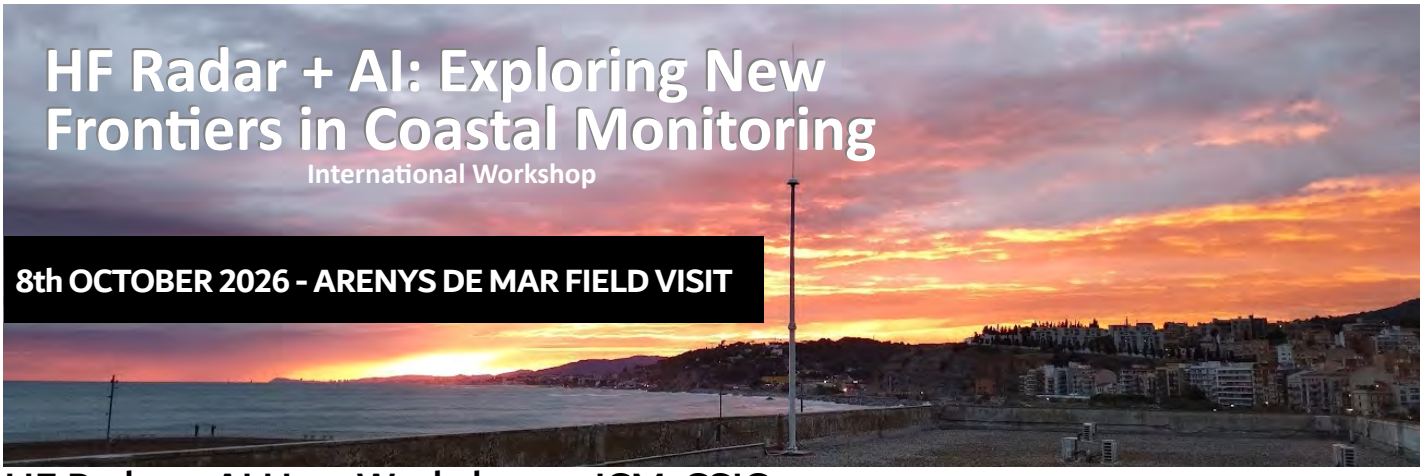

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LOCATION AND TIME OF MEETING

Date: Thursday, 8th October 2026

Time: 09h00 local time (UTC+2) at meeting point

Location: Av. del Litoral, 34, Sant Martí, 08005 Barcelona (5 minutes walk from ICATMAR)

PROGRAM

09h00 Departure from Av. del Litoral, 34 (Barcelona, 5 minutes walk from ICATMAR; by coach)

10h15 Arrival to Arenys de Mar Port - Visit to HF radar station

12h00 Lunch (outdoors) at a historic Catalan masia (farmhouse) - Mas Taxonera

14h15 Departure from Arenys de Mar (by coach)

15h15 Arrival to Barcelona (Av. del Litoral, 34, Sant Martí, 08005 Barcelona, 5 minutes walk to ICATMAR)

KEY INFORMATION

Arenys de Mar

Arenys de Mar is a Mediterranean seaside town with roots that trace back to the 16th century, when fishing families settled near its natural harbor. Over time, its port became one of the most active on the north coast of Barcelona, shaping the town's character and daily life. Today, visitors enjoy its beaches, maritime atmosphere, and the charm of a historic fishing community.

Port of Arenys de Mar

Arenys de Mar's fishing port has roots in early coastal settlements and grew steadily from the 16th century onward, when local boatbuilding and Mediterranean trade flourished. By the 18th and 19th centuries, Arenys was a regional maritime hub, with active shipyards and a fleet dedicated to coastal and offshore fishing. Traditional techniques targeted species such as prawns, squid, and assorted Mediterranean fish, still prized today. After the modern port was built between 1922 and 1961, fishing became a central economic activity, evolving into a vibrant industry that continues to shape the town's identity.

Masía Taxonera (traditional farmhouse)

Built in the 16th century, the Masia of Arenys de Mar is considered the town's first house and a symbol of its early settlement. Dating from 1570, it features Renaissance and Gothic architectural details and a warm interior of stone and wood. Over time, it became a refuge for coastal families who moved down from Arenys de Munt as pirate threats faded. Converted into a restaurant in 1950, the masia has preserved its historic charm and remains a landmark that connects local heritage, tradition, and nature.

Expected weather

October typically brings mild autumn conditions in Arenys de Mar.

Daytime temperatures are usually around 73°F / 23°C, with nighttime lows near 64°F / 18°C.

Skies often range from sunny to partly cloudy, and light rain is possible.

Humidity tends to be moderate to high, and winds are usually light to moderate, around 10–15 km/h. (6 to 10 mph).

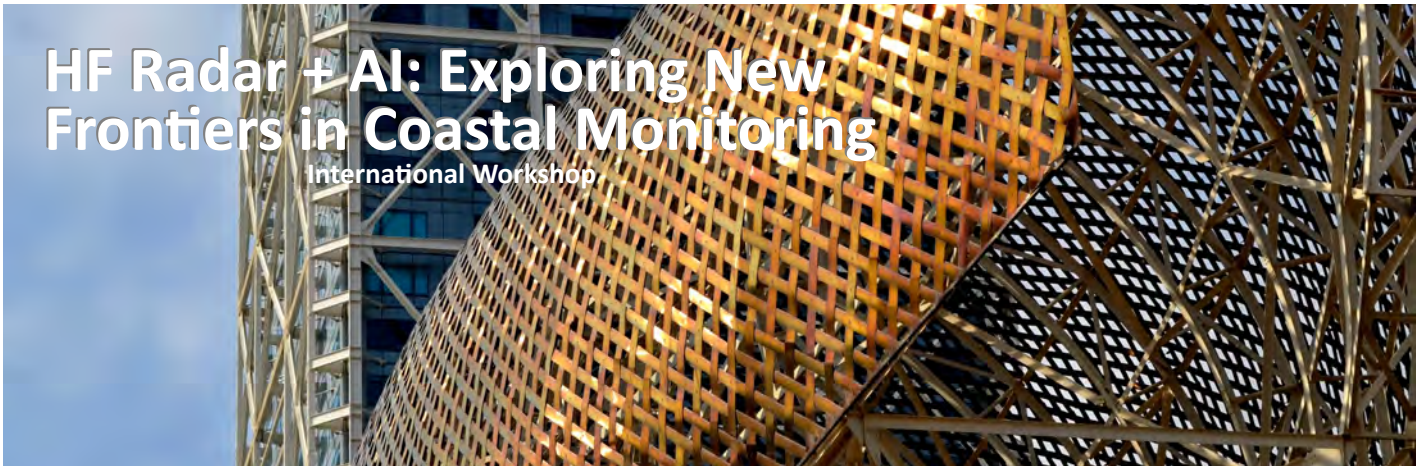
Clothing recommendations

A light jacket is recommended for cooler mornings.

A small umbrella or raincoat is advisable due to occasional showers.

Comfortable clothing is suitable, as temperatures remain pleasant.

Comfortable walking shoes are suitable for the visit.



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LOGISTICS FROM THE AIRPORT TO YOUR HOTEL

Train, Metro, Bus, Taxi & Ride-Sharing

Barcelona airport is well connected to the city center having public transport (train, aerobus, metro), taxi and private services such as Uber, Cabify and Bolt are available.

→ A ride with Ride-Sharing services from the airport to the city center may take around 30' and cost in the order of 40 to 50 euros.
→ Reach to the city center through metro or train (RENFE - Rodalies) may take around 20 to 45' with a cost between 5 and 6 euros.
→ Regular bus service is also available (Aerobus) from the airport to the city center (Plaça Catalunya) may take 35' with a cost of 7.75 euros.

RECOMMENDED HOTEL LIST

Plenty of Choices

Barcelona offers an extensive selection of hotels across the city, with many excellent options available in the approximate range of €140–250 per night (plus applicable taxes and fees). For workshop participants, we suggest considering one of the following two accommodation areas, both of which provide convenient access to the workshop activities. The workshop venue and the suggested hotels are shown on the **accompanying map**.

Accommodation Area A – Workshop Venue District (Poblenou / Olympic Village)
Provides walking access to the technical sessions and nearby waterfront hotels. Suggested hotel options:
→ Hotel SB Icaria
→ Hotel 4 Barcelona
→ Acta Voraport
→ Ibis Style Barcelona City Bogatell

Accommodation Area B – Central Barcelona (Passeig de Gràcia / Eixample):
Approximately 10–15 minutes from the workshop venue by taxi or ride-sharing service and convenient for the workshop's planned evening activities. Suggested hotel options:
→ Hotel Ilunion Auditori
→ Hotel Ónix Rambla
→ Hotel NH Barcelona Eixample
→ Hotel Sercotel Caspe
→ Hotel Catalonia Gracia

⚠ ***Note**: Hotel rates may vary substantially as the event approaches.

CONTACT FOR QUESTIONS & INQUIRIES

Mail or Phone

If you have any questions, feel free to get in touch either through mail or phone with the **organizing committee**:

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