

Newsletter

July 2026

We're delighted to launch the 2026 edition of the OceanPredict/ForeSea newsletter and to reconnect with our community for another exciting year ahead. Since our last issue, OceanPredict has continued to strengthen international collaboration, advance key initiatives, and contribute to the goals of the UN Decade of Ocean Science for Sustainable Development through the ForeSea Programme.

As we move forward, our community is also embarking on the development of the OceanPredict Implementation Plan. Built around 17 strategic objectives, this collaborative effort will define our priorities for the next five years while shaping a shared vision for ocean prediction beyond the Ocean Decade.

In this edition, we highlight recent achievements across the OceanPredict community, share updates from the OceanPredict's Task Teams and ForeSea's activities through its endorsed projects, and showcase ongoing efforts to advance a more integrated and impactful global ocean information system. By strengthening connections across the operational oceanography value chain, enhancing ocean prediction capabilities, we continue working together to deliver greater societal benefits through ocean science.

In this issue

OP Implementation Plan ...	2
OPST-12 Meeting.....	4
OP updates	5
ForeSea activities	6
MER-EP	8
SEAPOD	10
SEACLIM	12
SOCAT	15
SynObs	16
OP Task Teams activities..	18
OSEval-TT	18
IV-TT	18
OPOS-WG	20
CP-TT	22
DA-TT	23
MEAP- TT	25
COSS-TT	26
AI- TT	27
General News	30
Upcoming events	32



OceanPredict

5-yr Implementation Plan & Strategy



OceanPredict

Advancing the science of ocean prediction

OceanPredict is entering a new chapter. Over the past years, our community has built remarkable momentum towards a shared vision for the future of ocean prediction, one that extends beyond scientific excellence to embrace stronger international. Building on the outstanding scientific success of the **OceanPredict'24 Symposium**, discussions extended well beyond scientific advances to emphasize the critical role of international collaboration, partnerships and community coordination in addressing future societal needs. These outcomes provided the foundation for the ***Call for International Mobilization to Advance Ocean Prediction Capabilities***, officially launched during the Third United Nations Ocean Conference (UNOC3) in Nice and endorsed by more than 900 signatories. The Call united leading international organizations, including IOC-UNESCO, GOOS, Mercator Ocean International, the European Commission, space agencies, the OceanPrediction Decade Collaborative Centre and other UN Ocean Decade programmes, around a shared commitment to advance ocean observing, prediction and digital innovation for the benefit of society. To translate this momentum into concrete actions, OceanPredict has further engaged its community through a **broad community consultation** to identify the priorities that will shape the future of ocean prediction. As a starting point, a dedicated **survey** and interactive breakout sessions during the **OPST12** in Montreal (Figure 1) gathered valuable input around **17 strategic objectives grouped under four overarching priorities** building on [OP Strategy 2021-2030](#):

1. **Building the ocean prediction capacity of the future**
2. **Strengthening engagement with the international ocean science community**
3. **Co-design and co-develop ocean prediction and ocean observing systems**
4. **Increasing societal impact of ocean prediction**

Together, these contributions are now guiding the development of an ambitious five-year Implementation Plan (2026-2031) that will be available in the coming months, while building the foundations for a longer-term vision that will sustain and strengthen international ocean prediction capabilities well beyond the UN Ocean Decade.

While the Implementation Plan is still under development, we are pleased to share its main directions.

OceanPredict's strategy aims to strengthen global ocean prediction science and operational capabilities to deliver greater societal, economic, and environmental benefits. Central to this vision is a stronger, more integrated ocean prediction value chain, spanning observations, modelling, forecasting, services, and users, while supporting the goals of the UN Ocean Decade and ensuring sustainability beyond 2030.

Over the next five years, OceanPredict will focus on operationalising advances in data assimilation, modelling, verification, and observing system evaluation. Key priorities include integrating new observing technologies such as SWOT and BGC Argo, advancing coupled and ensemble forecasting systems, and implementing practical, standardised evaluation frameworks. Artificial intelligence and machine learning will be progressively incorporated through hybrid AI-physics approaches, supported by transparent benchmarking and robust governance, while maintaining strong reliance on high-quality observing systems.

A major objective is to accelerate the transition of research innovations into operational services through shared architectures, interoperability standards, and Operational Readiness Level frameworks. OceanPredict will also strengthen observing system evaluation capabilities to better quantify the impact of observations on

forecast performance and user applications, supporting evidence-based investment in observing networks.

The strategy places increased emphasis on user-centred impact, moving beyond traditional forecast skill metrics to evaluate how predictions support real-world decisions in areas such as marine safety, coastal resilience, and sustainable resource management. Closer engagement with governments, industry, and service providers will ensure products are relevant, accessible, and actionable.

As a global coordination platform, OceanPredict will expand partnerships, capacity development, and training

initiatives, particularly in emerging regions, while fostering long-term communities of practice. By 2031–2040, the vision is for a fully integrated, adaptive, and impact-driven ocean prediction ecosystem featuring seamless Earth system coupling, routine assessment of forecast and observation value, widespread adoption of AI-enhanced prediction systems, and strong user feedback mechanisms. Through this role, OceanPredict will continue to serve as the scientific integrator and coordination hub for advancing global ocean prediction and delivering tangible societal benefits.









Actionable tasks for two future timescales:

- **5-Year Implementation Plan for 2026-2031** (Short-term actions) – focusing on practical, achievable priorities that can be delivered with available resources.
- **New OceanPredict Strategy for 2031-2040** (Long-term actions) – by identifying high-impact opportunities and longer-term actions.

OPST12. Photo credits: OceanPredict



Figure 1: OPST12 Breakout sessions, Montreal, Canada, April 2026

OPST12 Meeting

Montreal, Canada, 15-17 April 2026

OPST-12: Shaping the Next Phase of OceanPredict

From 15–17 April 2026, the **OceanPredict Science Team (OPST-12)** met in Montreal, Canada, bringing together members of the OceanPredict Science Team and Advisory Board, Task Team and OPOS Working Group co-chairs, and invited experts. The meeting provided a unique opportunity to review scientific progress, strengthen coordination across OceanPredict activities, and define priorities for the years ahead.

Over three days of discussions, participants reviewed the achievements of the Task Teams and Working Groups, explored emerging scientific and technological developments, and reinforced collaborations with key international partners, including the OceanPrediction Decade Collaborative Centre (OceanPrediction DCC). A major focus of the meeting was the co-development of OceanPredict's 2026–2031 Implementation Plan, building on the outcomes of the OceanPredict'24 Symposium, the community survey and breakout sessions. OPST-12 Meeting reaffirmed the community's shared commitment to advancing ocean prediction through international collaboration, innovation, and stronger connections between research, operations and societal applications.

The OceanPredict Science Team (OPST) meeting highlighted significant progress across the international ocean forecasting community and identified priorities for the next five years. Across all operational centres, common themes included increased use of coupled Earth-system models, ensemble prediction, advanced data assimilation, higher-resolution coastal and regional systems, and the growing integration of artificial intelligence (AI).

Major centres—including the UK Met Office, Mercator Ocean, NOAA, ECMWF, CONCEPTS (Canada), JMA, the Australian Bureau of Meteorology, and Korea—reported ongoing upgrades to forecasting systems, expanded use of SWOT observations, improved sea-ice prediction, enhanced reanalyses, and growing interest in subseasonal-to-seasonal forecasting. Several centres are also developing hybrid AI-physics forecasting approaches and exploring AI applications in modelling, observations, and forecasting workflows.

Discussions focused on OceanPredict's future role as a global coordination platform linking observations, modelling, forecasting, verification, and user services. Key priorities include improving interoperability, strengthening collaboration between task teams, developing common verification and benchmarking frameworks, expanding training opportunities, and increasing engagement with Early Career Ocean Professionals (ECOPs).

Observations and observing-system impact remain central priorities. Participants stressed the need to sustain critical observing programmes such as Argo, improve feedback to observing communities, and explore new data sources including autonomous platforms, low-cost sensors, industry observations, and commercial satellite missions.

There was also strong emphasis on user engagement and societal relevance. Participants advocated earlier involvement of users through co-design and co-development of services, supported by flagship applications such as marine hazards, search and rescue, coastal flooding, and ecosystem management.

Looking beyond 2030, the meeting concluded that OceanPredict should continue evolving as the international framework connecting ocean observations, operational forecasting, research, and emerging technologies such as AI and Digital Twin Oceans. Training, outreach, communication, and workforce development were identified as essential to maintaining a vibrant global community capable of delivering increasingly accurate, reliable, and societally relevant ocean prediction services.



OPST-12 Group photo in Montreal (People standing from left: Jae Il Kwon, Nam-Hoon Kim, Pierre-Yves Le Traon, Isabelle Gaboury, Fraser Davidson, Elisabeth Remy (in front), David Ford (behind), Stefano Ciavatta, Yosuke Fujii, Yann Drillet, Francois Roy, Simon van Gennip, Rachel Furner, Andrew Petersen, Kristian Mogensen, Greg Smith, Mikhail Entel. Sitting from left: Fabrice Hernandez, Anass El Aouni, Chunxue Yang, Joanna Staneva, Marie Drevillon, Andy Moore, Kirsten Wilmer-Becker, Eric Chassignet, Alexander Kurapov)

OPST-12 Report will be available soon. Stay tuned for updates on the [OceanPredict website](#).

OceanPredict Community Updates

Membership update - Advisory & Sponsor Board (OPAS)

OceanPredict warmly thanks **Eric Bayler** for his outstanding service as **NOAA representative and Co-Chair of the OceanPredict Advisory Board**. Through his leadership, commitment and strategic guidance, he has played a key role in shaping the programme over the years. We are pleased to welcome **Marie-Hélène Rio** as the new **ESA representative**, and **Yannice Faugère** as the new **CNES representative**, succeeding G rald Dibarboure. We look forward to their expertise and contributions as OceanPredict continues to evolve.



Eric Bayler

Eric Bayler – Outgoing NOAA Representative and OPAS Co-Chair



Marie-H  l  ne Rio

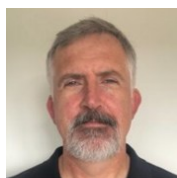
ESA representative



Yannice Faug  re

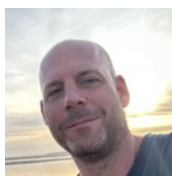
CNES representative

New experts from Australia, Korea, China and Brazil



Gary Brassington

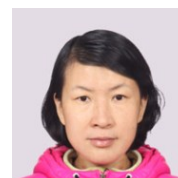
Senior principal research scientist, Science and Innovation Group, Bureau of Meteorology - AUSTRALIA



Frank Colberg

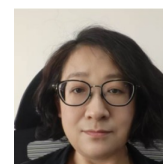
Senior Research Scientist leading the Ocean Modelling Team at the Bureau of Meteorology, Australia

OceanPredict sincerely thanks the experts stepping down from their current roles for their dedication and invaluable contributions to the programme. We look forward to their continued involvement in the OceanPredict community and warmly welcome the experts joining the programme as we continue to shape the future of OceanPredict together.



Guimei Liu

Deputy Director of the Marine Environmental Forecasting Division at NMEFC - CHINA



Liying Wan

Director, Division of Ocean Data Fusion and Assimilation, NMEFC



Do-Seong Byun

Senior researcher at the Korea Hydrographic and Oceanographic Agency - SOUTH KOREA



Jae-Il Kwon

Principal Research Scientist at the Marine Disaster Research Center, Korea Institute of Ocean Science & Technology (KIOST)



Clemente Tanajura

Professor, Physics Institute, Federal University of Bahia (UFBA) - BRAZIL



Vinicius Santos Pessanha

Brazilian Navy Hydrography Center (CHM)

OceanPredict Coordinator is leaving



Stephanie Cuven (MOI), who has been an invaluable member of the OceanPredict Programme Office over the past three years, will be stepping back her support to OceanPredict. Throughout her time with us, Stephanie made outstanding contributions to the programme, playing a pivotal role in the organisation of the OceanPredict'24 Symposium and serving as our key focal point for collaborations with UN Decade groups and programmes. As she embarks on an exciting new chapter, we would like to thank her sincerely for her dedication, expertise, and commitment, and we wish her every success and happiness in the future.

ForeSea strategy

1. Development of the **foundations** for a global ocean information delivery system
2. **Integration of ocean forecasting/prediction** efforts with other affiliated efforts and other components of the operational oceanography value chain.
3. Development of **improved assessments and prediction** of the ocean system
4. Implementation of coordinated **capacity building**
5. Improvement of **ocean modeling capacity** (numerical algorithms, parameterizations, resolution, etc.)



Learn more about the ForeSea Programme

- [Ocean Decade Programme page](#)
- [OceanPredict ForeSea page](#)

ForeSea: Building a connected community of endorsed projects

ForeSea continues to strengthen its role as a collaborative framework bringing together UN Ocean Decade endorsed projects that advance ocean prediction science and services. Through ongoing exchanges with the OceanPrediction Decade Collaborative Centre (Ocean Prediction DCC) and the wider Ocean Decade community, ForeSea is helping to foster synergies, share knowledge and promote greater coordination across initiatives.

Following the latest Ocean Decade Call for Decade Actions, the ForeSea portfolio has grown to **11 endorsed projects**, reflecting the increasing engagement of the global community in advancing ocean prediction science and services.

In this edition, we are pleased to introduce the growing portfolio of endorsed projects (Table 1) and to spotlight several of their latest achievements and activities. These projects are driving innovation across the ocean prediction value chain, and their collective contributions are helping to shape a more connected and impactful global community. Featured in this issue are SynObs, MER-EP, SEAPOD and SEACLIM projects. We also encourage all endorsed projects to continue sharing their news, milestones and upcoming events, so that together we can showcase the breadth and strength of the ForeSea network.

Project title	Lead institution	Leader/ contacts	Dates	Abstract
Synergistic Observing Network for Ocean Prediction (SynObs)	Meteorological Research Institute/Japan Meteorological Agency	Yosuke Fujii Elisabeth Rémy	01/07/2022 - 30/06/2026	SynObs is being proposed as a common comprehensive Decade Project to the three Decade Programmes, ForeSea, CoastPredict, and Observing System Co-Design. SynObs will seek to extract maximum benefit from combining various observation platform measurements, typically satellite and in situ observation data, or combinations of coastal and open ocean platforms for ocean/coastal predictions.
Subseasonal to Seasonal North Pacific Prediction	KIOST (Korea Institute of Ocean Science and Technology) – Republic of Korea	Young-Gyu Park	01/01/2020 - 31/12/2028	To understand the governing dynamics of extreme ocean events such as marine heat waves and cold water surges, we analyze atmospheric and oceanographic data and measure air-sea interactions over the Bering Sea and tropical western Pacific using a buoy, wave gliders and research vessels. To make ~10 days prediction, we build a high resolution regional air-sea coupled climate prediction system over the North Pacific. In addition, we are to build a seasonal ocean prediction system using an earth system model and machine learning techniques.



UN Ocean Decade challenges addressed by ForeSea:

UN Ocean Decade Challenge 6:

Enhance multi-hazard early warning services for all geophysical, ecological, biological, weather, climate and anthropogenic related ocean and coastal hazards, and mainstream community preparedness and resilience.

UN Ocean Decade Challenge 7:

Ensure a sustainable and sustained ocean observing system across all ocean basins that delivers accessible, timely and actionable data and information to all users.

UN Ocean Decade Challenge 8:

Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean, including a dynamic ocean map, which provides free and open access for exploring, discovering, and visualizing past, current, and future ocean conditions in a manner relevant to diverse stakeholders.

UN Ocean Decade Challenge 9:

Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.



Project title	Lead institution	Leader/ contacts	Dates	Abstract
<u>TAC Ocean Observing and Forecasting System</u>	University of the Virgin Islands – USA	Douglas Wilson	01/06/2022 - 31/12/2030	co-design and operation of a sustained integrated ocean observation and forecasting system for the region that will provide essential information for the sustainable development, well-being, prosperity and safety of the region's oceans. = connecting observations through data management for use in analyses and models to create applications.
<u>Sistema de Información Oceanográfica CHONOS (CHONOS)</u>	Instituto de Fomento Pesquero (IFOP) – Chile	Gonzalo Pereira	08/01/2018 - 31/12/2030	CHONOS is an oceanographic web platform funded by the Chilean Ministry of Economy, Development, and Tourism, through aquaculture-related consultancy projects executed by IFOP and mandated by SUBPESCA.
<u>Sistema de Alerta, Predicción y Observación</u>	Environmental Defense Fund – Chile	Jaime Letelier	01/06/2018 - 31/12/2030	The project advances IPCC goals and UNODS challenges by expanding ocean observation to monitor climate impacts, providing data to boost coastal resilience and ocean stewardship.
<u>Making Oceanography Data Available to All</u>	Institut Català de Recerca per a la Governança del Mar (ICATMAR) – Government of Catalonia, Spain	Antoni Espanya	01/10/2023 - 30/09/2029	The main objective of the ICATMAR's SOCAT Service is to deliver reliable and up-to-date information about the marine environment.
<u>Marine Environment Reanalyses Evaluation Project (MER-EP)</u>	Mercator Ocean International – France	Marie Drevillon	01/01/2025 - 31/12/2028	The primary objective of MER-EP is to improve our knowledge of the ocean by understanding and ultimately improving the reliability and usability of global and regional ocean reanalyses, including physics, waves, biogeochemistry, and sea ice, based on representative and high-priority use cases identified after extensive discussions with scientific and private ocean reanalyses users.
<u>Ocean Prediction for Costa Rica (OP4CR)</u>	Mercator Ocean International – France	Valentina Giunta / Enrique Alvarez	01/01/2025 - 31/12/2026	The overall objective of OP4CR is to strengthen Costa Rica's scientific and technical capacities related to the Digital Ocean and Ocean Prediction to sustainably manage a healthy and resilient ocean, based on the best available science and technology.
<u>South East Pacific Ocean Digital Twin (SEAPOD)</u>	Permanent Commission for the Southeast Pacific - CPPS / Intergovernmental organization	Edwin Pinto	01/02/2026 - 31/12/2030	SEAPOD is a regional initiative to develop an integrated ocean-climate information platform for the Southeast Pacific.
<u>Regional ocean modeling and future climate impact (SEACLIM)</u>	Mercator Ocean International – France	Angélique Melet	01/01/2025 - 31/12/2028	SEACLIM (European SEAs CLIMate impact prediction through regional models) is a four-year Horizon Europe project advancing high-resolution decadal to multidecadal predictions of the marine environment to support climate resilience, ocean governance, and the blue economy.
<u>Ocean Data Liberation Project</u>	DeepOcean / Private - Norway	Al Rumson	02/10/2023 - 01/10/2030	DeepOcean is advancing a data liberation project with Akvaplan niva and the UK Met Office, addressing Ocean Decade Challenges 7 and 8. The project promotes collaboration to improve ocean models, reuses non-sensitive commercial data, and enhances ocean condition predictions.

Table 1: Projects endorsed by ForeSea Programme

MER-EP (Marine Environment Reanalyses Evaluation Project)



The primary objective of MER-EP is to improve our knowledge of the ocean by understanding and ultimately improving the reliability and usability of global and regional ocean reanalyses, including physics, waves, biogeochemistry, and sea ice, based on representative and high-priority use cases identified after extensive discussions with scientific and private ocean reanalyses users (Figure 2).

The Marine Environment Reanalysis Evaluation Project (MER-EP) is an endorsed action of the UN Decade of Ocean Science for Sustainable Development and contributes to the OceanPredict/FORESEA programme. It is also supported by international initiatives including CLIVAR GSOP. MER-EP aims to strengthen the scientific basis and practical use of ocean reanalyses, which are key components of modern ocean monitoring, forecasting systems, and climate services. This project also supports the growing need for high-quality historical datasets used to train, validate, and benchmark emerging artificial intelligence and machine-learning ocean prediction systems. Indeed, ocean reanalyses combine numerical ocean models with observations using data assimilation techniques to reconstruct the past ocean state in a physically consistent way. Unlike observational datasets, which are often sparse in space and time, reanalyses provide continuous three-dimensional descriptions of the ocean over long periods. Unlike free-running models, they are regularly constrained by observations, reducing biases and improving realism. They therefore offer a unique, coherent view of ocean variability and change.

Launched at the Third United Nations Ocean Conference (UNOC3) in June 2025, MER-EP is a four-year international effort (2025–2029) bringing together operational forecasting centres, research institutes, universities, environmental agencies, and international organisations. It aims to establish a globally coordinated framework to assess, improve, and promote the use of ocean reanalysis products for both scientific and societal applications. MER-EP builds on the scientific legacy

of the international Ocean Reanalysis Intercomparison Project (ORA-IP) while extending its scope to reflect major advances in the field, including higher-resolution models, improved observational networks, enhanced atmospheric forcing, and more advanced data assimilation methods. At the same time, the user feedback information gathered by the European Copernicus Marine Service (Yang et al. 2025) tell us that applications have expanded beyond physical oceanography to include biogeochemistry, ecosystems, and polar processes.

MER-EP evaluates reanalyses across three interconnected domains: the “Blue Ocean” (physical ocean circulation), the “White Ocean” (polar regions and sea ice), and the “Green Ocean” (biogeochemistry and ecosystems). Its objective is not only to compare products but also to assess their suitability for specific scientific, operational, and societal uses, thereby linking evaluation directly to user needs. The overarching goal of MER-EP is to improve understanding of the reliability, consistency, uncertainty, and usability of ocean reanalyses. To achieve this, the project will: assess global and regional reanalyses across key variables and timescales; quantify uncertainties through multi-system comparisons; identify strengths and limitations of existing products; promote common evaluation methodologies; strengthen interactions between producers and users; and provide recommendations for future system development.

MER-EP adopts a two-stage evaluation framework. The first stage focuses on scientific validation using esta-

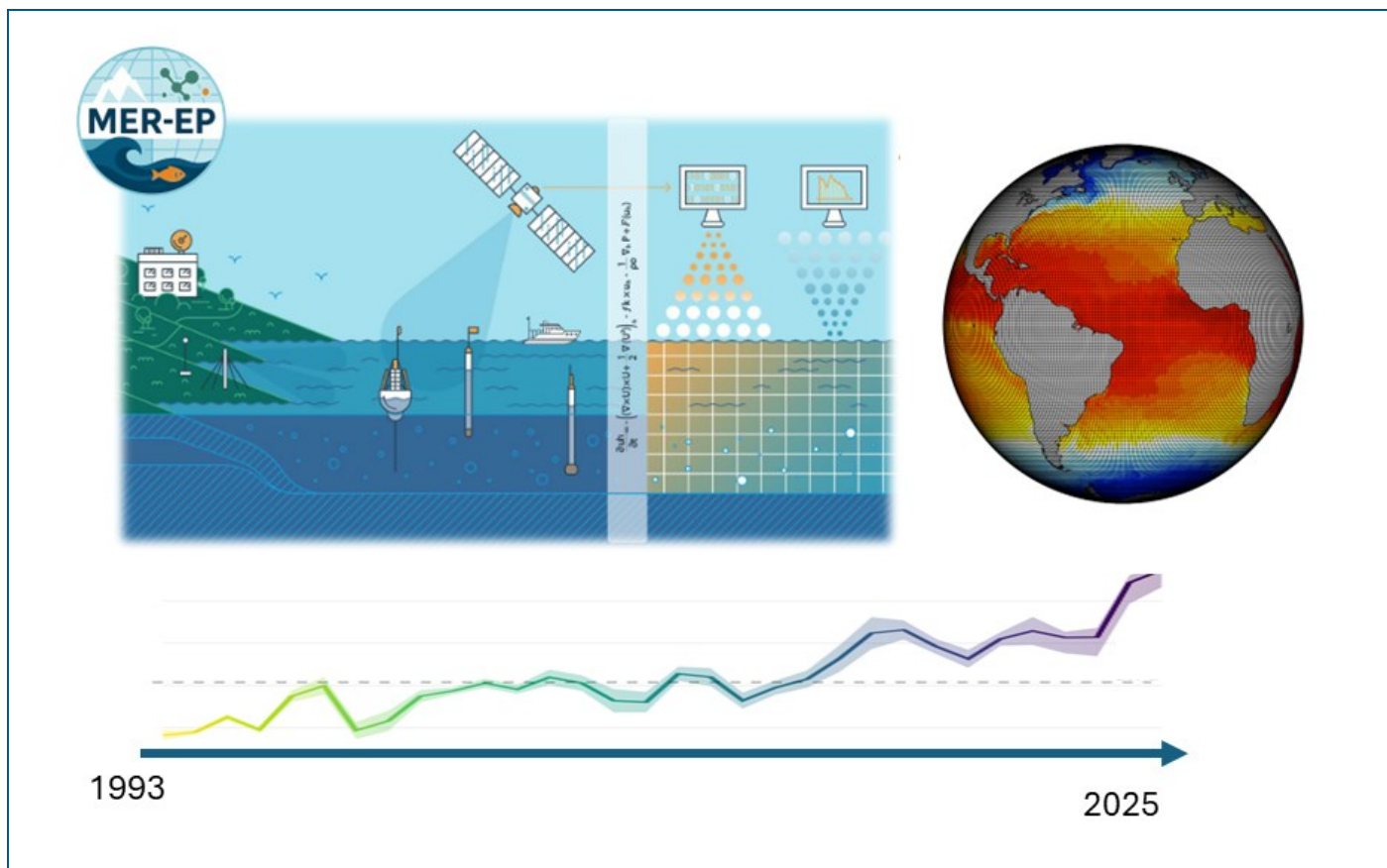


Figure 2: MER-EP is endorsed under the **ForeSea** and **DITTO** programmes of the **United Nations Decade of Ocean Science for Sustainable Development (2021-2030) – Ocean Decade**.

blished diagnostics and peer-reviewed analyses to assess product quality and uncertainty. The second stage focuses on user-oriented evaluation, where products are tested within real-world application contexts co-designed with end users. This includes operational services, climate studies, environmental monitoring, and other downstream applications. This approach ensures a direct connection between scientific performance and practical relevance.

Overall, MER-EP will deliver a more robust and comprehensive assessment of ocean reanalyses, improve the characterization of uncertainties, and enhance user confidence in their applications. It will also foster stronger collaboration between data producers and users, support the development of shared datasets and evaluation tools and promote community standards and

best practices. As part of the UN Ocean Decade Ocean-Predict/FORESEA and OceanPrediction Decade Collaborative Center framework, MER-EP will contribute to strengthening the foundations of future ocean prediction systems and maximizing the value of ocean information for science, forecasting, climate services, and sustainable ocean management.

References:

Yang, C., Bourdallé-Badie, R., Drévilion, M., et al. (2025): *Gathering Users and Developers to Shape Together the Next-Generation Ocean Reanalyses: Ocean Reanalyses Workshop of the European Copernicus Marine Service*. *Bulletin of the American Meteorological Society*, 106 (2).



SEAPOD (South East Pacific Ocean Digital Twin)



SEAPOD is a regional initiative to develop an integrated ocean-climate information platform for the Southeast Pacific (Figure 3).

The South East Pacific Ocean Digital Twin (SEAPOD) is an endorsed UN Ocean Decade Project led by the Permanent Commission for the South Pacific (CPPS) to transform decades of regional ocean-climate cooperation into an operational digital platform for science, prediction and decision-making. The project has received official endorsement from the UN Decade of Ocean Science for Sustainable Development as Decade Project No. 49.9 and is attached to ForeSea – The Ocean Prediction Capacity of the Future. This endorsement provides an important international framework to connect SEAPOD with global ocean prediction, digital ocean and data initiatives.

SEAPOD's purpose is to integrate oceanographic, meteorological, biological and fisheries information from Chile, Colombia, Ecuador and Peru into a regional digital twin that can support climate preparedness, marine resource management, coastal resilience and evidence-based ocean governance.

SEAPOD is not starting from zero. It builds on one of the most mature regional cooperation mechanisms in the Pacific: the CPPS framework and the ERFEN Programme, established in the 1970s and institutionally consolidated through the 1992 ERFEN Protocol. Through this mechanism, the four CPPS Member States have maintained sustained scientific collaboration for decades. The Regional Scientific Committee, the Regional Oceanographic Cruises Coordination Committee, the Specialized Data Working Group, the Climate Alert Bulletin and the CPPS GRASP Committee, as the regional mechanism connected to sustained ocean observing, already provide an institutional architecture for coordinated monitoring, data exchange, scientific assessment, ocean observation and communication to decision makers.

A central asset of this cooperation is the annual Regional Oceanographic Cruise, through which the four countries

deploy their research vessels in a coordinated manner to observe oceanographic, meteorological and biological-fisheries conditions in the Southeast Pacific. These cruises, together with coastal stations, national observing systems, GRASP-related ocean observation efforts, satellite data and modelling products, provide a unique regional foundation for SEAPOD. The project will allow this information to be better organized, visualized, analyzed and connected with international digital ocean initiatives.

An important first step has already been identified: an initial visualization platform for regional information. In the coming months, oceanographic and meteorological data generated by the region will begin to be incorporated into this system and displayed through CPPS institutional channels. This gives SEAPOD an immediate operational basis: an existing, functional visualization environment that can evolve progressively into a broader digital twin for the Southeast Pacific.

SEAPOD's approach is based on regional ownership and international technical cooperation. The digital twin will be developed by technical staff from the technical institutions of CPPS Member States, ensuring that the knowledge, tools and operational capacity remain in the region. At the same time, the process will be guided by experts from countries and institutions that have already developed advanced digital ocean tools. This model is essential: rather than importing a finished system, SEAPOD seeks to build long-term regional capacity through co-design, co-development and applied training.

Initial support is therefore needed primarily for capacity development and technical training. This includes expert mentoring, workshops, hands-on development sessions, data management guidance, interoperability standards, quality control procedures, digital twin architecture, modelling workflows and visualization tools. Once this

foundation is established, the project will seek additional support to strengthen regional computational capacity, including cloud services, data infrastructure and processing capabilities. In a later phase, SEAPOD will require investment to improve observing capacity and modelling capabilities across the region, including better integration of in situ observations, remote sensing, reanalysis of products and forecasting systems.

For potential donors, SEAPOD offers a high-impact opportunity. It connects an existing intergovernmental platform, long-term regional data, operational scientific committees and national technical institutions with the emerging global agenda on digital ocean systems. Supporting SEAPOD would not only help the Southeast Pacific strengthen its ability to anticipate climate variability, El Niño impacts and ocean change; it would also

contribute valuable regional knowledge and data to the global ocean intelligence ecosystem. In doing so, SEAPOD can become a practical bridge between European and global digital ocean innovation and the urgent needs of a highly climate-sensitive region.

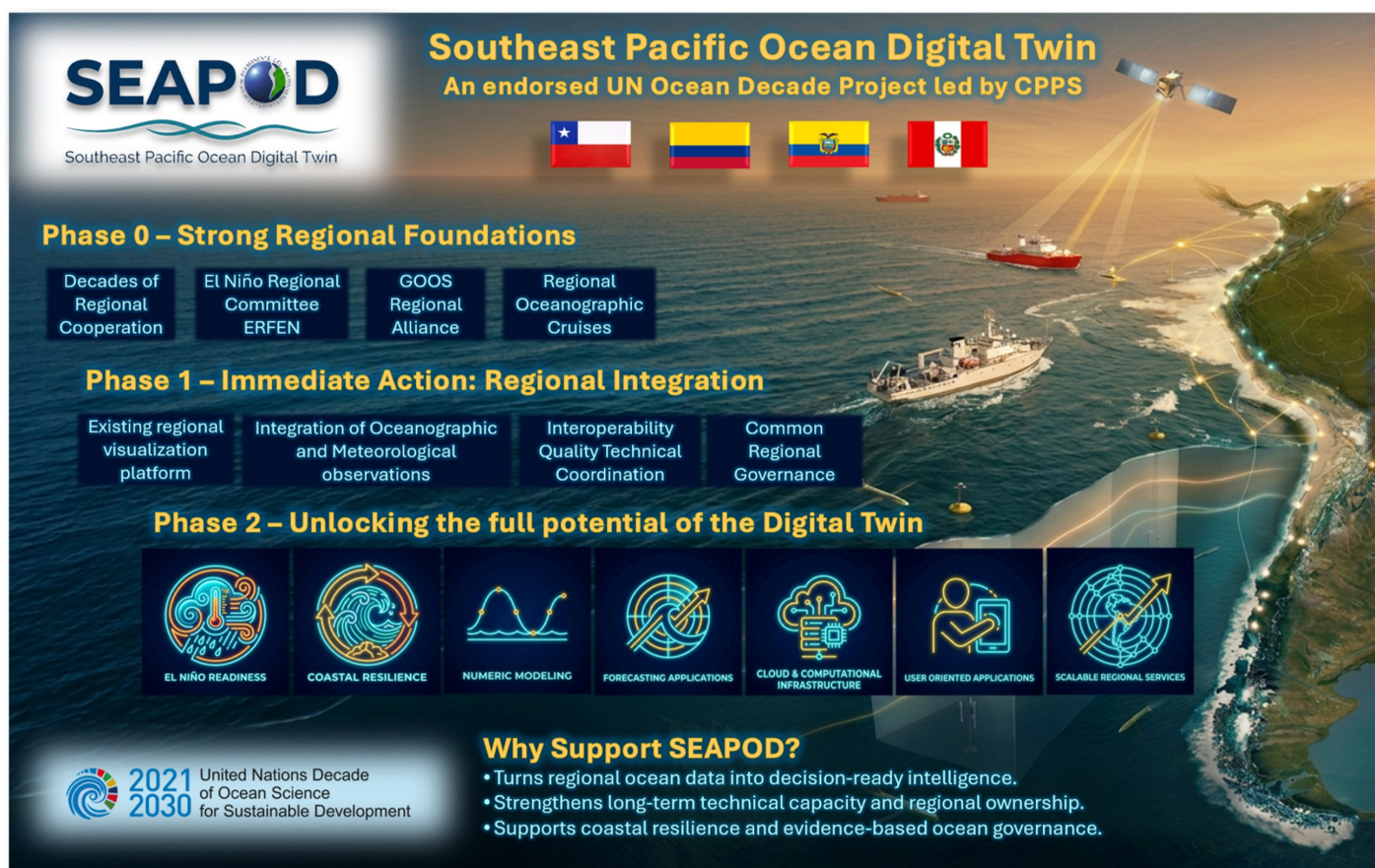


Figure 3: SEAPOD is endorsed under the [ForeSea](#) programme of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) – [Ocean Decade](#).

SEACLIM (Regional ocean modeling and future climate impact)



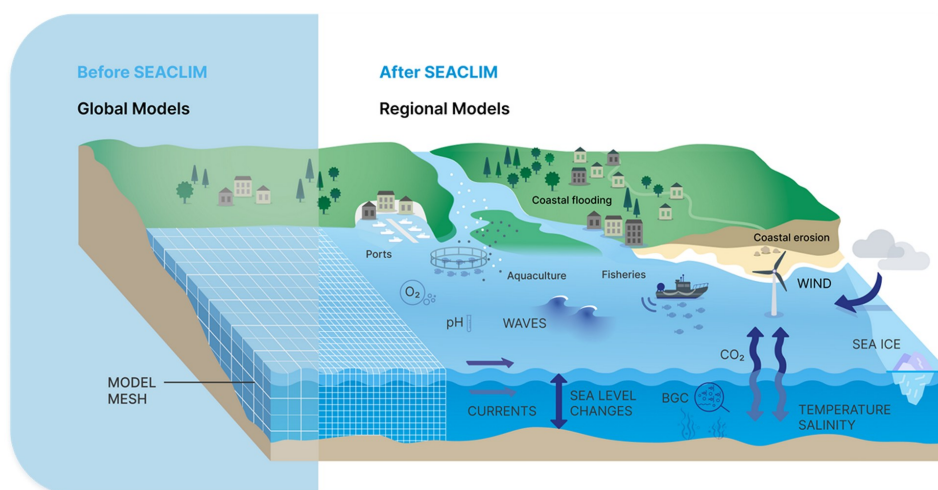
SEACLIM (European SEAs CLIMate impact prediction through regional models) is a four-year Horizon Europe project advancing high-resolution decadal to multidecadal predictions of the marine environment to support climate resilience, ocean governance, and the blue economy.

ADVANCING REGIONAL DECADAL TO MULTIDECADAL PREDICTIONS OF THE MARINE ENVIRONMENT TO SUPPORT CLIMATE RESILIENCE, OCEAN GOVERNANCE, AND THE BLUE ECONOMY

Angélique Melet ¹, Karen Guihou ¹, Mary Malicet ¹, Annette Samuelsen ², Sara Filippa Krusmynta Fransner ³, Begoña Pérez Gómez ⁴, Verónica Morales Márquez ⁴, Joanna Staneva ⁵, Carolina Gramscianinov ⁵, Geir Ottersen ⁶, Marcos Sotillo ⁷, Pasha Karami ⁸, Tiago Garcia ⁹, Paula Salge ⁹, Afonso Lourenço ⁹

Mercator Ocean International, France ¹ | National Energy Research Scientific Computing Center, Norway ² | University of Bergen, Norway ³ | Puertos del Estado, Spain ⁴ | Helmholtz-Zentrum Hereon, Germany ⁵ | Institute of Marine Research, Norway ⁶ | NOW Systems, Spain ⁷ | Swedish Meteorological and Hydrological Institute, Sweden ⁸ | ATLANTIC CoLAB, Portugal ⁹

WHY DO WE NEED REGIONAL CLIMATE SIMULATIONS FOR EUROPEAN SEAS?



Motivation

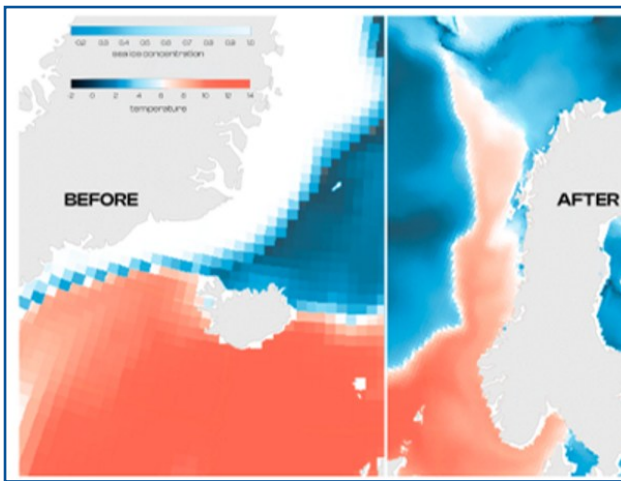
- Climate change is strongly altering marine environments.
- More regional-to-local ocean information on multiannual to multidecadal timescales are critical for planning, policy, and adaptation.
- Global models (CMIP6) lack regional resolution, processes and can have large biases.
- SEACLIM contributes to fill the gap through regional ocean modelling.

Overall Concept

Ocean Regional Decadal predictions and Multi-year projections through downscaling using Copernicus Marine Service data and models.

Development of ocean climate indicators for assessing ocean state changes, and Coastal and Ocean Climate Services Demonstrations through further downscaling for different purposes.

Development of a coordinated framework for regional ocean climate projections and decadal predictions through dynamical downscaling of global models in relationship with the CLIVAR-OMDP CORDEX SAT joint working group on regional ocean climate projections.



Climate Services Demonstrations

SEACLIM will develop four Climate Services Demonstrations to support ports, coastal adaptation, fisheries, and the blue economy. These services, co-designed with stakeholders, will generate tailored indicators and downscaled data to assess climate risks and adaptation strategies. Outcomes will inform guidelines for future coastal climate services across European regions.

Climate Service for the Blue Economy:

- Primary production
- Turbidity
- Functional group distribution
- Healthy oxygen levels
- Nutrients



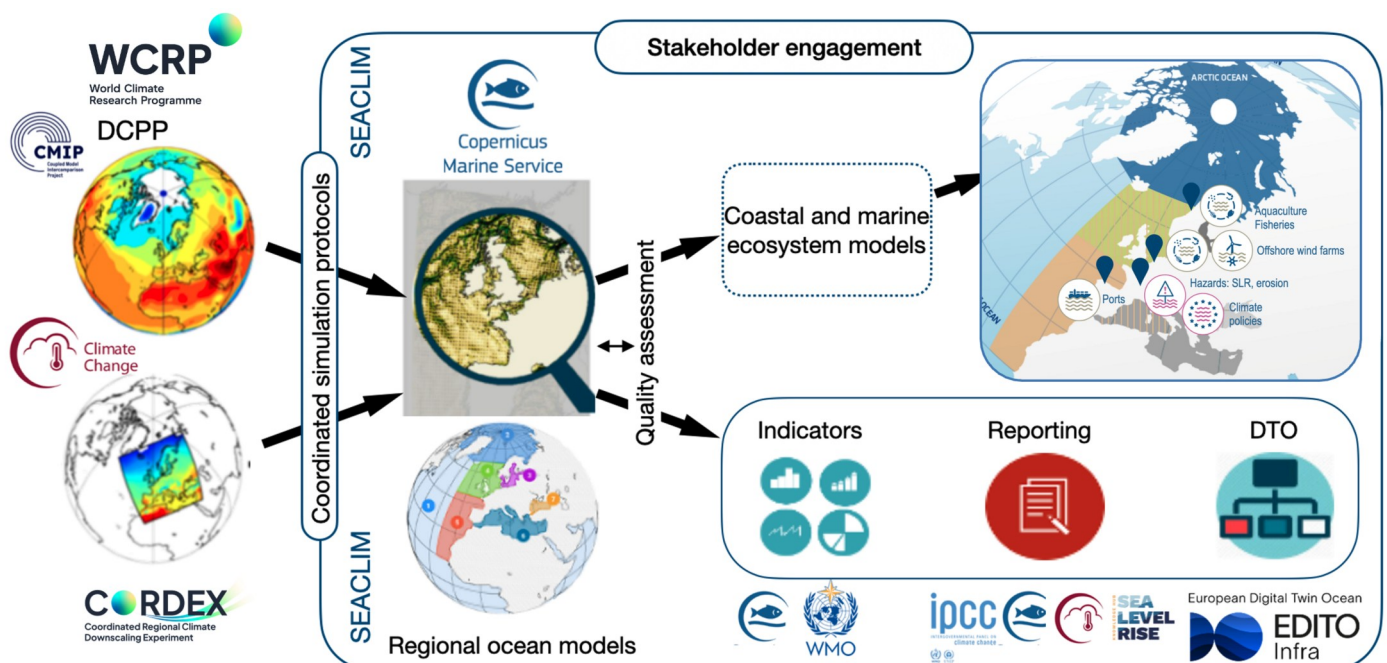
Climate Service for Coastal Risk:

- Storm surge
- Extreme waves
- Sea level rise
- Erosion



Uptake through Ocean & Climate initiatives

By integrating best practices and contributing high-resolution regional modelling datasets, SEACLIM enhances the interoperability and effectiveness of existing European and global ocean-climate initiatives. Its contributions support the European Digital Twin Ocean offering data-driven What-if Scenarios, a future potential new Copernicus Marine Service line on regional ocean climate projections, and policy-driven climate adaptation efforts.



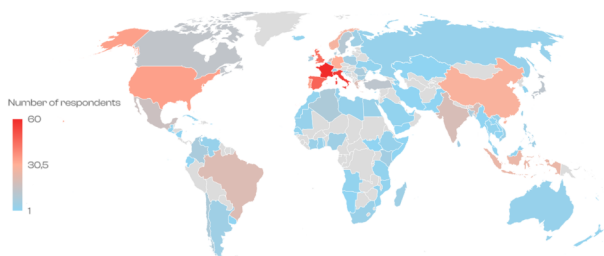
SEACLIM ...

Maximising Impact Through Engagement

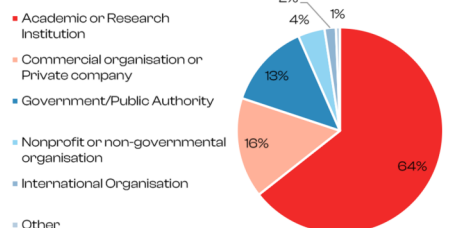
SEACLIM ensures broad uptake of its outcomes by fostering active stakeholder participation in co-design, testing, and validation. Through multiple engagement activities, SEACLIM drives long-term adoption of its climate services and strengthening Europe's capacity for informed ocean-climate decision-making. SEACLIM launched a stakeholder survey in 2025 to better understand user needs for regional ocean decadal predictions and climate projections. The survey gathered 789 responses across countries and sectors, supporting the development and validation of SEACLIM products and services for Europe's seas and coasts.

Stakeholder survey from Horizon Europe (n=789 answers)

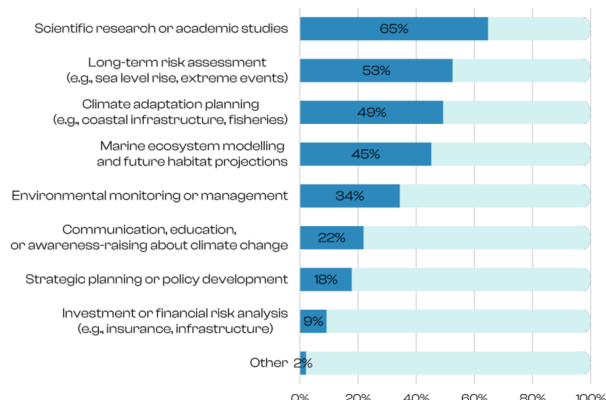
A) Number of respondents per country (n=789)



B) Respondents' profiles (n=789)



C) Respondents' main purpose of using climate projections (n=369)



D) Users' preferred spatial resolution for each variable domain (n=789)

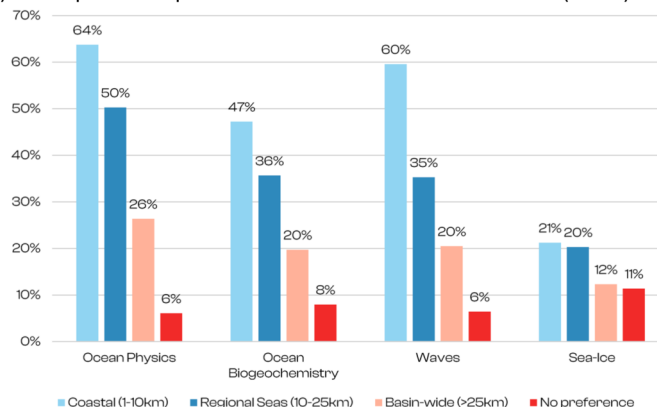


Figure 4: SEACLIM survey on stakeholder needs on regional ocean climate projections and decadal predictions. SEACLIM project funded by the European Union's Horizon Europe programme under Grant Agreement No 101180125

Learn more about the SEACLIM project: [SEACLIM](#)





SOCAT Service (Making Oceanography Data Available to All)

The main objective of the ICATMAR's SOCAT Service is to deliver reliable and up-to-date information about the marine environment. As such, it will contribute to the monitoring of climate change at sea, bolster maritime security, and aid to the management of the marine ecosystem.



**icat
mar**

**Institut Català de
Recerca per a la
Governança del Mar**

The Catalan Institute for the Governance of the Sea (ICATMAR) is a joint initiative of the Government of Catalonia and the Institute of Marine Sciences (ICM-CSIC). Its mission is to transfer scientific knowledge to support regional decision-making, foster collaboration, and promote research in marine sciences, with a focus on the Catalan coast in the Northwestern Mediterranean. ICATMAR combines fisheries monitoring with cutting-edge operational oceanography. It has strengthened the coastal observing system through a network of five moored observatories measuring wind, waves, temperature, salinity, and velocity profiles, and seven HF radars tracking surface currents. In addition, ICATMAR regularly

deploys surface and ARGO drifters in partnership with international programs. Forecasting capabilities rely on high-resolution hydrodynamic models coupled with wave models, providing accurate predictions for ocean conditions. All data generated by ICATMAR are freely available and adhere to FAIR principles—Findable, Accessible, Interoperable, and Reusable—ensuring transparency and usability for research, management, and operational needs. To make this information accessible, ICATMAR offers interactive viewers for both oceanographic and fisheries data, supporting stakeholders in maritime safety, resource management, and climate monitoring.



Learn more about the SOCAT project: [SOCAT Service](#)

SynObs (Synergistic Observing Network for Ocean Prediction)



SynObs is being proposed as a common comprehensive Decade Project to the three Decade Programmes, ForeSea, CoastPredict, and Observing System Co-Design. SynObs will seek to extract maximum benefit from combining various observation platform measurements, typically satellite and in situ observation data, or combinations of coastal and open ocean platforms for ocean/coastal predictions.

International SynObs Project Advances Global Assessment of Ocean Observing Networks for Prediction

The UN Ocean Decade project SynObs, endorsed under the ForeSea programme, has reached an important stage in its international effort to quantify how different ocean observing systems contribute to ocean monitoring and prediction.

SynObs—Synergistic Observing Network for Ocean Prediction—aims to identify the role of individual ocean observing systems and their combined value for ocean/weather/climate monitoring and forecasting. The project brings together ocean prediction centres worldwide to assess how ocean observing systems such as, satellite altimetry, sea-surface temperature, Argo profiling floats, tropical mooring reduce uncertainty in ocean analyses predictions and coupled ocean-atmosphere predictions.

A multi-system database for robust observing-system evaluation

To achieve the goals above, several OceanPredict centres have conducted coordinated Observing System Evaluation experiments (OSEs), known as SynObs flagship OSEs. These experiments have been contributed by partners including the UK Met Office, Environment and Climate Change Canada, JAMSTEC, the Japan Meteorological Agency/Meteorological Research Institute, Pukyong National University, the European Centre for Medium-Range Weather Forecasts, and NOAA's National Centers for Environmental Prediction. The OSE results are, then, collected and compiled as a multi-system OSE database.

The database includes global and regional simulations at different based on different model configurations, data assimilation schemes, atmospheric forcing products, ... In each individual experiment, one observing network is withheld from the analysis. The ensemble of

simulations makes possible to estimate how much each individual observing network contributes to reducing uncertainty in ocean analyses, ocean and coupled short-term forecasts, and coupled seasonal forecasts, based on the ensemble spread analysis.

Because the same evaluation framework is applied across multiple prediction systems, the database provides a stronger basis for assessing the sensitivity of ocean predictions to observations. This ensemble approach helps distinguish robust signals from system-specific behaviour and supports more reliable conclusions on the value of individual observing networks and their synergies.

First results highlight the value of sustained observations

Initial analyses show that observations play a clear role in reducing uncertainty for key ocean quantities of societal and scientific interest (Figure 5). These include indicators relevant to marine heatwaves, tropical cyclone heat potential, ocean heat content, warm-water volume, and other diagnostics that inform downstream applications such as weather forecasting, climate services, marine risk assessment, and decision-making. Figure 5 illustrates the strong contribution of Argo observations in reducing uncertainty on the TCHP estimate across a broad region south of Japan.

The contribution of each observing network depends on

the physical process of interest, the region and time scale considered. Satellite observations, Argo profiles, and other in situ systems provide complementary infor-

mation, and their combined use is essential to constraining the ocean state and improving forecast reliability.

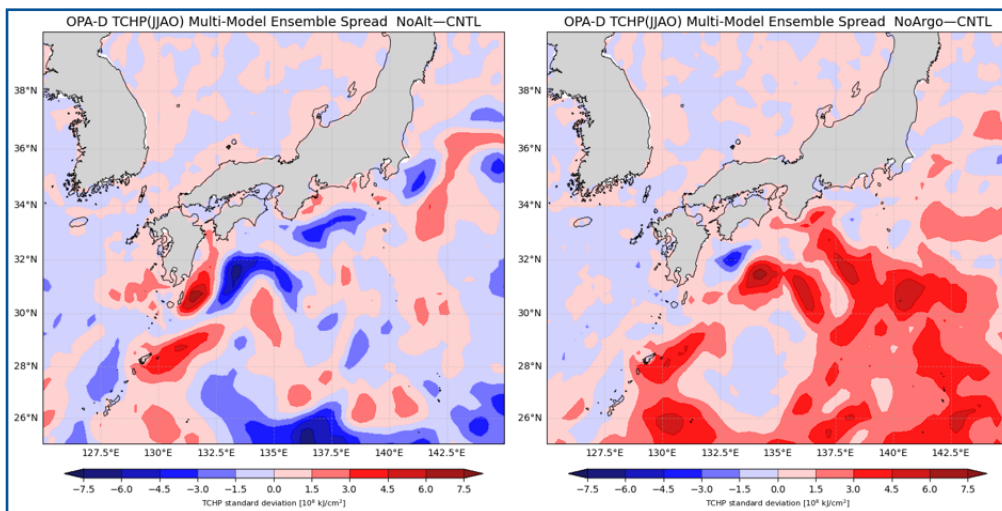


Figure 5: Ensemble spread changes in Tropical Cyclone Heat Potential (TCHP, units: 10^6 kJ/cm²) for June–October 2020–2022, estimated from SynObs Observing System Evaluation experiments due to Altimetry and Argo. Comparison is made against the control experiments assimilating at least Argo, other in situ observations, sea-surface temperature, and sea-level anomaly data. Red indicates a reduction in ensemble spread, while blue indicates an increase (courtesy of R. Sekigushi (Tsukuba University)).

Next step: an international workshop in Mutsu, Japan

A joint **international workshop of the SynObs and Ocean Observing Co-Design initiatives** will take place from **24 to 29 August 2026 in Mutsu, Japan**. The workshop will bring together experts working across the full ocean observing value chain, from observations and data management to modelling, data assimilation, impact evaluation, and societal applications.

By linking observing-system co-design with model-based evaluation, synthesis techniques, including emerging artificial intelligence and machine-learning approaches, and societal impact assessment, the workshop aims to strengthen the feedback loop between observations and models. This integrated perspective is essential for guiding the design, optimisation, and sustainability of future ocean observing networks and for ensuring that observations deliver maximum benefit to science, services, and society. [More infos](#)

About SynObs: SynObs is an international UN Ocean Decade project that maximizes the value of ocean observations for prediction by assessing the individual values of observing systems and combined impact as a unified of observing networks. It is implemented in close connection with three UN Decade programmes: ForeSea, dedicated to the ocean prediction capacity of the future; Ocean Observing Co-Design; and CoastPredict, focused on observing and predicting the global coastal ocean. This framework links the ocean prediction community, coordinated through OceanPredict, with the broader ocean observing community led by the Global Ocean Observing System (GOOS) under the UNESCO Intergovernmental Oceanographic Commission and the World Meteorological Organization.

SynObs also provides a basis for collaboration with related UN Ocean Decade initiatives, including Digital Twins of the Ocean and OneArgo, helping to connect observing-system design, prediction capability, and future digital ocean infrastructure. By strengthening these links, the project supports a more integrated international approach to ocean monitoring, forecasting, and service delivery.

Learn more about the SynObs Project

- [Ocean Decade Programme page](#)
- [OceanPredict SynObs page](#)

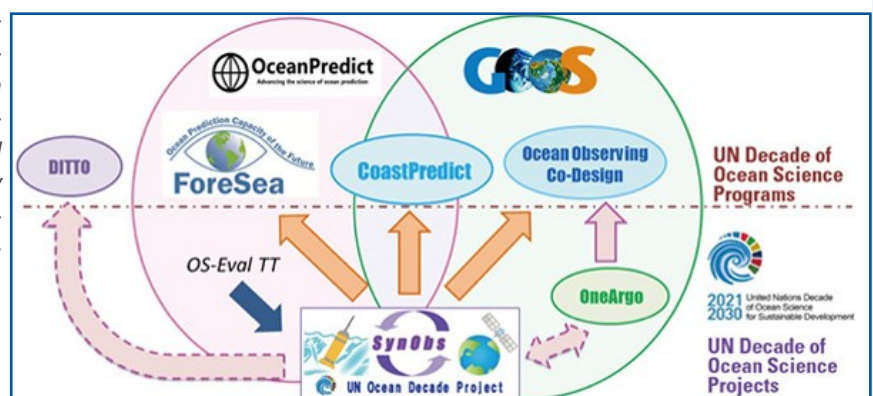


Figure 6: SynObs and Related International Research Organizations

Observing System Evaluation (OS-Eval-TT)

OS-Eval TT supports observational communities by giving recommendation on observation system evolution from the OceanPredict perspective. The TT promotes studies assessing the observation data impacts in OceanPredict systems.

It also supports improvements for exploiting observational information more effectively and developments for assimilating new-type observation into OceanPredict systems. Thus, OS-Eval TT aims to create a positive feedback cycle between observational communities and OceanPredict centers to reinforce the value chain between the observations and the monitoring and forecasting systems based on data assimilation.

More info: [Observing System Evaluation \(OS-Eval TT\) - Ocean Predict](#)



OSEval-TT (Observing System Evaluation)

The OSEval Task Team is currently focusing its efforts on the organization of the **SynObs & Ocean Observing Co-Design Joint International Workshop**, which will take place in **Mutsu, Japan, 24 to 29 August 2026**. Bringing together experts from the ocean observing and prediction communities, the workshop aims to strengthen collaboration on observing system evaluation and the co-design of future observing networks to enhance ocean prediction capabilities. More information about the workshop is available [here](#).

SynObs & Ocean Observing Co-Design, Joint International Workshop

Workshop

24 Aug 2026 – 29 Aug 2026, Mutsu, Japan (Shimokita Culture Hall)



IV-TT (Intercomparison and Validation)

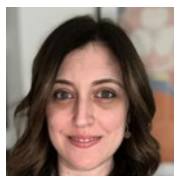


Since June 2026, the IV-TT has welcomed its **new co-chairs**: **Stefania Ciliberti** (Now Systems, Spain), **Chunxue Yang** (CNR-ISMAR, Italy), and **Babette Christelle Tchouang** (Early Career Scientist, NOAA, USA) (Figure 7). The new chairs will build on the strong foundation established by the task team and use their scientific expertise to advance the activities of the IV-TT, particularly in response to the rapidly evolving landscape of ocean forecasting and the validation of emerging AI-based forecast systems. Following the successful leadership of the task team over the past decade, **Fabrice Hernandez** (IRD) and **Greg Smith** (ECCC) will continue to support the IV-TT by providing advice, comments, and strategic guidance.



Gregory Smith

Research scientist at
Environment and
Climate Change Canada -
CANADA



Stefania Ciliberti - IV-TT

Senior Scientist at
NowSystems, Spain



Fabrice Hernandez - IV-TT

Senior Researcher at
IRD/LEGOS and MOI,
Toulouse, FRANCE



Chunxue Yang - IV-TT

Senior Research Scientist
at CNR-ISMAR (Rome,
Italy)



**Babette C
Tchonang - IV-TT
ECOP co-chair**

Figure 7: Following the dedicated leadership of Fabrice Hernandez (IRD) and Greg Smith (ECCC), the OSEval Task Team welcomes its new Co-Chairs: Stefania Ciliberti (Now Systems, Spain), Chunxue Yang (CNR-ISMAR, Italy), and Babette Christelle Tchonang (Early Career Scientist, NOAA, USA)

Intercomparison and Validation (IV-TT)

The IV-TT designs, tests, and publishes advanced methods for verifying and validating the quality of operational ocean products with the aim to determine skills, strengths and weaknesses of ocean analysis and forecasting systems. The team coordinates and promotes scientific validation and intercomparison activities among operational centres, with the objective to establish best practices. As a legacy of GODAE projects, it pursues inter-comparisons projects, where new methods are routinely proposed and tested.

More info: [Intercomparison and Validation \(IV-TT\) - Ocean Predict](#)



IV-TT WORKSHOP: The IV-TT is organizing a **workshop on Intercomparison and Validation of Ocean Forecasts and Predictions at Global and Regional Scales**, to be held in Shanghai, China, from 11–13 November 2026. The workshop will bring together the ocean forecasting and prediction community to discuss current practices, challenges, and future developments in forecast validation and verification. Abstract submission is now open. More information is available at: <https://oceanpredict.org/events/intercomparison-and-validation-of-ocean-forecasts-and-predictions-at-global-and-regional-scales/#event-home>

REGISTRATION OPEN SOON (3 August 2026)

IV-TT meeting: Intercomparison and Validation of Ocean Forecasts and Predictions at Global and Regional Scales

Task Team meeting

11 Nov 2026 – 13 Nov 2026, Shanghai, China



ONLINE SEMINARS: In parallel, the IV-TT, together with the OP Operational Systems Working Group (OPOS-WG), is organizing a **series of online seminars starting in July 2026**. These seminars invite operational forecasting centres to present their validation and verification activities, helping the community better understand existing approaches, share best practices, and identify future priorities for ocean forecast evaluation.

Further details on the Joint OPOS-WG and IV-TT seminar series on operational validation and verification will be announced soon. Stay tuned for updates on the OceanPredict website [here](#).

Operational Systems Working Group (OPOS-WG)

The Operational Systems Working Group provides a platform for exchange and interaction for all the operational ocean forecasting systems represented in OceanPredict

More info: [Operational Systems Working Group \(OPOS-WG\) - Ocean Predict](#)



OPOS-WG (Operational Systems Working Group)

The OPOS Working Group is strengthening collaboration across the ocean prediction community through closer links with the Intercomparison and Validation Task Team (IVTT), including a proposed seminar series where OceanPredict centres will share their operational forecasting and validation activities. The group is also working with the Ocean Prediction Decade Collaborative Centre (OP-DCC) and the Ocean Best Practices System (OBPS), contributing to the development of the Operational Readiness Level (ORL) framework to assess forecasting system maturity in a consistent way. Another priority is modernising OceanPredict system reporting by integrating information from the Ocean Forecasting Atlas and ORL framework, reducing duplication while improving the accessibility and usefulness of system descriptions, validation results, and observation-use statistics. The OPOS-WG is also in support of aligning OceanPredict with WMO operational frameworks without creating parallel certification processes. Overall, enhanced reporting, readiness assessments, and validation activities are expected to benefit forecasting centres, WMO, observing-system operators, funders, and the wider ocean prediction community. One example of a recent system development is GLO 12.

As part of the Copernicus Marine Service, user feedback and requirements have been taken into account over recent years to address key issues and continuously improve system's performance. Since November 2022, Mercator Ocean has been delivering real-time products (weekly analyses and daily 10-day forecasts) based on an updated version of the global high-resolution 1/12° system, known as GLO12.

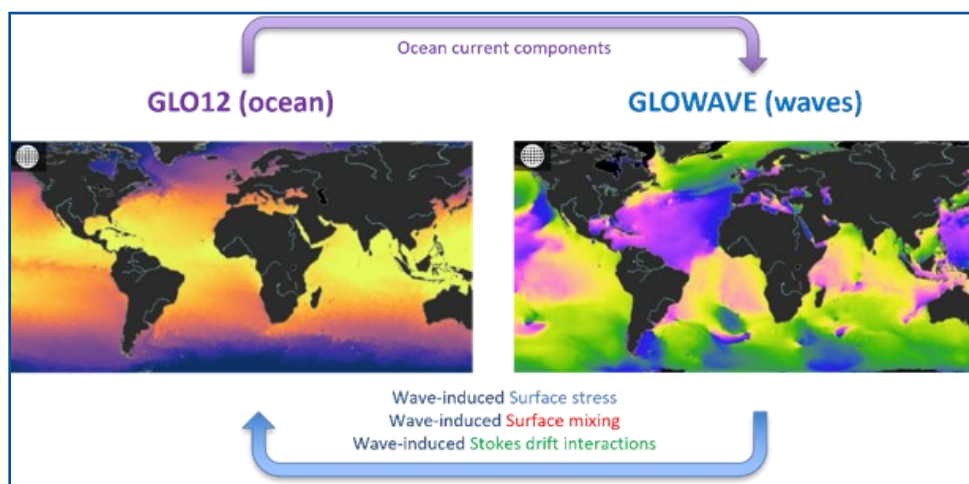


Figure 7: Illustration of the implementation of wave forcing in the GLO12 ocean system (blue arrow). Three families of wave–ocean interaction processes are involved: (i) net ocean surface stress corrected by the wave budget; (ii) surface turbulence driven by wave breaking; and (iii) interactions between ocean dynamics and Stokes currents.

In this context, since March 2026, the GLO12 system has been forced using wave model data from Meteo-France. This two-way interaction between the systems

reflects a long-standing collaboration between the two institutions on ocean-wave coupling and contributes to improving ocean dynamics and system performance within the mixed layer (Figure 7).

Another major change to GLO12, scheduled for integration into the operational suite by late 2026 or early 2027, is the transition from weekly to daily analyses. Under the current configuration, the GLO12 system performs data assimilation every Wednesday and produces two analyses. Between these analyses, the system runs daily without data assimilation, providing 10-day forecasts. As a result, the forecast issued on Wednesday does not benefit from analyses for an entire week.

In the new configuration, an analysis will be performed every day, allowing each 10-day forecast to be initialized from an optimal ocean state that is as close as possible to observations. The figure 8 illustrates the improvements achieved through daily analyses (shown in red) by comparing model outputs with available observations and presenting RMSD and bias for the best analysis, as well as forecasts at 1, 3, 5, 7, and 9 days. Key ocean variables include sea level anomaly, sea surface temperature, currents at 15 meters depth, and temperature and salinity within the upper 100 meters.

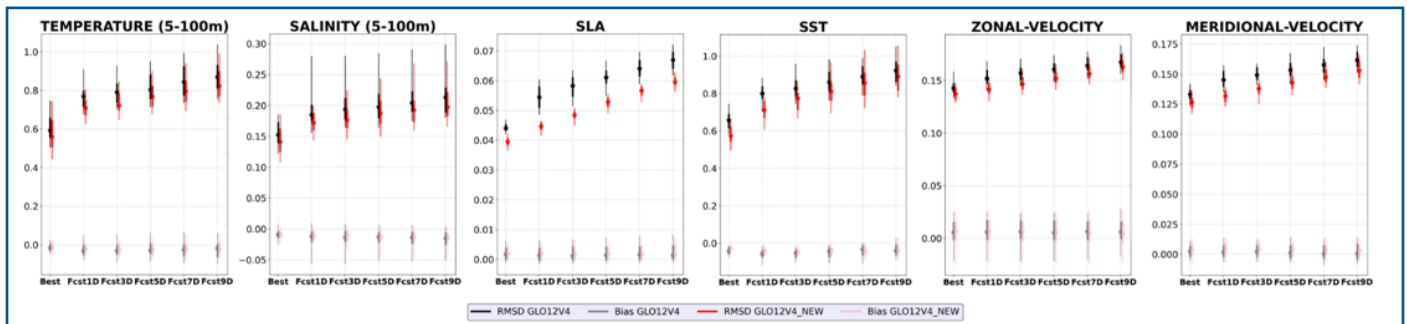


Figure 8: Statistics errors (RMSD and bias) for the best analysis, as well as forecasts at 1, 3, 5, 7, and 9 days. Key ocean variables include sea level anomaly (m), sea surface temperature (°C), currents at 15 meters depth (m/s), and temperature (°C) and salinity (psu) within the upper 100 meters.

The final upgrade concerns the assimilation of SWOT swath data in addition to nadir observations, which will also be integrated into the operational suite by late 2026 or early 2027. The seven-month evolution of sea level error variance across the global ocean, evaluated against independent Saral/AltiKa observations (which are not assimilated), shows that assimilating SWOT data reduces errors by approximately 18% for analyses and 15% for forecasts, improving the representation of both sea level and surface currents (Figure 9).

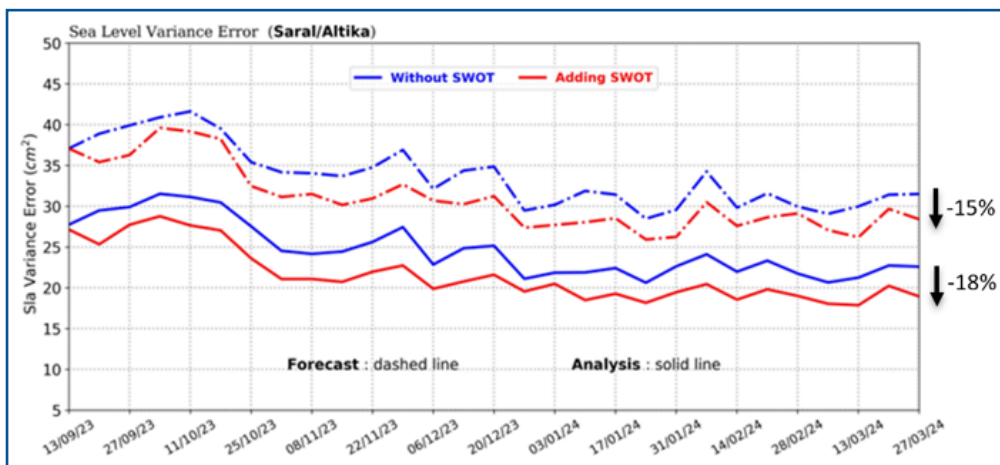


Figure 9: (from Benkiran et al., <https://doi.org/10.1029/2025GL115016>): Time evolution of sea level variance error (in cm², over 7 months) for the analysis (solid lines) and forecast (dotted lines). Blue lines are for the assimilation experiment without SWOT and red lines for the assimilation experiment with SWOT. Errors are calculated with respect to Saral/AltiKa (not assimilated).

SEMINARS: OPOS-WG, together with the IV-TT, is organizing a **series of online seminars, starting in July 2026.**

These seminars invite operational forecasting centres to present their validation and verification activities, helping the community better understand existing approaches, share best practices, and identify future priorities for ocean forecast evaluation.

Further details on the Joint OPOS-WG and IV-TT seminar series on operational validation and verification will be announced soon. Stay tuned for updates on the OceanPredict website [here](#).



CP-TT (Coupled Prediction)

Coupled Prediction (CP-TT)

The High-Resolution Coupled Prediction Task Team brings together the ocean prediction and seasonal forecasting communities to advance high-resolution coupled prediction systems. Its goal is to develop a coordinated roadmap, strengthen collaboration across disciplines, and support the integration of high-resolution ocean prediction into weather and seasonal forecasting systems.

More info: [Coupled Prediction \(CP-TT\) - OceanPredict](#)

The **Coupled Prediction-Task Team (CP-TT)** is engaged in the development and advancement of earth system coupled models to improve predictions across a range of time-scales. Particular focus is on the role of the ocean in coupled models, their initialization and predictions and how the ocean influences other components (e.g., atmosphere, land, sea ice, waves, bio-geo-chemistry, etc).

➔ **CP/DA TT WORKSHOP:** CP-TT, together with the Data Assimilation Task Team (DA-TT), is organizing a joint workshop on “**Advances in coupled modeling, data assimilation, and predictions**”, to be held at **ECMWF, Reading (UK)** during the week commencing **26 October 2026**. This 4–5 day event will bring together scientists and experts in coupled prediction and data assimilation to discuss recent progress, key challenges, and future directions in these rapidly evolving fields. [More info](#).

Joint CP-TT/DA-TT Workshop

Joint Task Team event

26 Oct 2026 – 30 Oct 2026, ECMWF, Reading, UK



OBJECTIVES: Advances in coupled modeling, data assimilation, and predictions to

- foster development and evaluation of coupled and ocean DA systems
- develop and advance Earth system coupled models and prediction
- develop and advance cross-cutting themes (DA, coupled modeling, initialization, AI/ML)

This meeting aims to bring together experts in the field of ocean, coupled data assimilation (DA) and coupled modeling and forecasting to discuss the latest progress and challenges in the field, and to share experiences in the development of ocean/coupled DA and predictions from the underlying algorithms to the details of implementation in operational forecasting systems.

A short “white” paper covering the issues and recommendations will be submitted for publication following the meeting.

THEMES: The workshop covers themes in the areas of the OceanPredict Task Teams CP-TT (coupled prediction) and DA-TT (data assimilation) and also cross-cutting aspects.

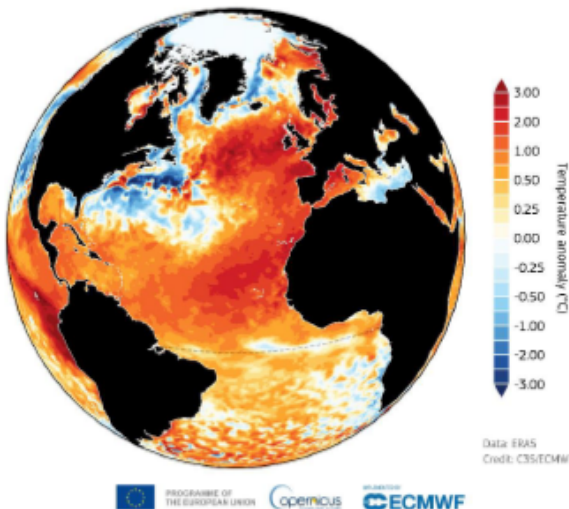
REGISTRATION OPEN (deadline 11 September 2026) - [More info](#)

Advances in Coupled Ocean Modeling, Data Assimilation and Predictions

26-30 October 2026 (4 or 5 days, TBD)

Joint CP-TT/DA-TT Workshop (of OceanPredict)

SEA SURFACE TEMPERATURE ANOMALY • JUNE 2023
relative to June average for 1991–2020



The OceanPredict task teams for Coupled Prediction (CP-TT) and Data Assimilation (DA-TT) in collaboration with the European Centre for Medium Range Weather Forecast (ECMWF) invite you to a 4/5-day workshop to bring together experts in the fields of data assimilation, modelling and forecasting for ocean and coupled systems to discuss the latest progress and challenges in the field, and to share experiences in the development of ocean/coupled DA and predictions from the underlying algorithms to the details of implementation in operational forecasting systems.

Foster development and evaluation of coupled and ocean DA systems

Develop and advance Earth system coupled models and prediction

Develop and advance cross-cutting themes (DA, coupled modeling, initialization, AI/ML)

Organized by



Hosted by



Shinfield Rd,
Reading
RG2 9AX
United Kingdom

Figure 11: Joint CP/DA-TT Workshop Flyer . [More info.](#)



DA-TT (Data Assimilation)



CP/DA TT WORKSHOP: The Data Assimilation-Task Team (DA-

TT) fosters the development and evaluation of data assimilation systems relevant to OceanPredict to support the coordination of the fundamental and challenging issues in the ocean forecasting process, of which data assimilation is a significant part.

DA-TT, together with the Coupled Prediction Task Team (CP-TT), is organizing the joint workshop on “Advances in coupled modeling, data assimilation, and predictions”, to be held at **ECMWF, Reading (UK)** starting on **26 October 2026**. (See details in CP-TT section above. [More info.](#)

Data Assimilation (DA-TT)

The DA-TT promotes capacity building in several areas, including: the development of modelling, assimilation, and forecasting approaches and components; demonstrations of accuracy and utility; research value; and intellectual capacity building. The DA-TT also provides a conduit to the broader WMO data assimilation and prediction community.

More info: [Data Assimilation \(DA-TT\)](#) - OceanPredict

DA-TT (Data Assimilation) *Follow up*

➞ New Co-chairs

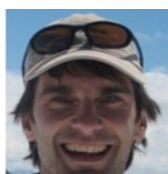
The Data Assimilation Task Team (DA-TT) has welcomed its new co-chairs: **Marcin Chrust (ECMWF, UK)** and **Anthony Weaver (CERFACS, France)**. The new chairs will build on the strong foundation established by the task team and use their scientific expertise to further advance DA-TT activities, in particular in the context of rapidly evolving approaches to data assimilation for coupled Earth system prediction.

The task team warmly thanks **Ann-Kristin Sperrevik (Met Norway)** and **Sergey Frolov (CIRES NOAA/PSL, USA)** for their successful leadership and valuable contributions as co-chairs.



Ann Kristin Sperrevik - DA-TT

Senior Scientist in the Ocean and Ice division of Met Norway



Sergey Frolov - DA-TT

CIRES researcher at NOAA/PSL



Marcin Chrust - DA-TT

Senior scientist in the Earth System Assimilation Section at ECMWF - UK/Europe



Anthony Weaver - DA-TT

Senior Research Scientist

➞ News about COMEDI Horizon Europe project

In connection with ongoing activities within the Data Assimilation Task Team (DA-TT), it is worth highlighting the upcoming COMEDI Horizon Europe project, which will bring together leading European ocean data assimilation actors to advance the field, with a kick-off planned for September. Many of the project partners are also members of the DA-TT, and its main research themes are closely aligned with the task team's priorities and are expected to contribute to shaping future directions in ocean data assimilation.



COMEDI: A new Horizon Europe initiative to advance operational ocean data assimilation

The Horizon Europe project *COMEDI* (COpernicus Marine services with Enhanced Data assimilation and improved Interoperability) has recently been signed and will officially kick off later this year. Coordinated by NERSC, COMEDI brings together a broad consortium of leading European organisations active in ocean data assimilation, including AWI, CERFACS, CMCC, CNR, ECMWF, Mercator Ocean, MET Norway, the UK Met Office, OGS, and



COMEDI is funded by the European Union under the Horizon Europe research and innovation programme.

ULiège. The project addresses several major limitations in current operational ocean data assimilation, where existing methods often lag behind recent research advances and developments remain fragmented across centres. COMEDI will tackle these challenges by developing advanced data assimilation methodologies, including multi-scale, non-Gaussian and AI-based approaches, to enhance the use of new satellite observations and improve interoperability between forecasting systems.

A central objective is to harmonise data assimilation practices across Copernicus Marine Monitoring and Forecasting Centres, enabling more efficient exchange of methods and faster integration of innovations into operational workflows. This transition to joint development and shared tools allows scientific innovations to move rapidly into operation, maximising their impact and ensuring a broader reach to users who rely on ocean forecasts.

Given the strong overlap between the COMEDI consortium and the OceanPredict community, the project represents an important step towards shaping the future of ocean data assimilation at European and international levels.



MEAP-TT (Marine Ecosystem Analysis and Prediction)

The MEAP-TT has been actively working to strengthen engagement and expand collaboration within the ocean forecasting community.

➡ 1. Member engagement survey and discussion

To better understand how to enhance participation and tailor activities to member needs, MEAP-TT conducted a **survey** among its members. The results will co-develop strategies for future team activities and collaborations.

➡ 2. Session at the 2026 Ocean Sciences Meeting (OSM)

MEAP-TT, in partnership with the **EU NECCTON project**, successfully convened Session OB002: "Advancing Marine Ecosystem Modeling for a Predictable and Sustainable Ocean" at the Ocean Sciences Meeting in Glasgow (February 22–27, 2026). The session brought together advances in marine ecosystem modeling, from novel data integration (e.g., BGC-Argo, genomics) to the use of machine learning and digital twins.

➡ 3. Planned sessions at XMAS 2027

MEAP-TT members, collaborating with colleagues from Xiamen University and Aarhus University, are co-convening two sessions at the 8th Xiamen Symposium on Marine Environmental Sciences (XMAS 2027, <https://mel-xmas.net/>), to be held in Xiamen, China, from January 12–15, 2027:

- Session 10: "Advancing marine ecosystem modeling for a predictable and sustainable ocean"
- Session 20: "New Data and Technologies Driven Insights into Aquatic Organic Matter Cycling"

Abstract submission is open until June 30, 2026. We warmly welcome contributions from the OceanPredict community and beyond.

➡ 4. Contribution to the WavyOcean Digital Twin

MEAP-TT member Liuqian Yu serves as a Co-I on a large-scale research project led by Jianping Gan (HKUST; also a member of COSS-TT). The project, in collaboration with the Center for Ocean and Hong Kong, is launching the WavyOcean Digital Twin Earth System (<https://wavyocean.hkust.edu.hk>; under continuous development). **WavyOcean** aims to support scientific research, marine economic development, ecological protection, policy-making, and public services.

Marine Ecosystem Analysis and Prediction (MEAPTT)

Develop the underpinning science and tools that will further the integration of biogeochemical and ecosystem models into existing ocean operational systems. The area of biogeochemical and ecosystem prediction is of significant societal relevance, supports the [UN Sustainable Development Goals](#) 13 (climate change) and 14 (life below water), and supports Blue Growth.

More info: [Marine Ecosystem Analysis and Prediction \(MEAP-TT\) - Ocean Predict](#)

Coastal Ocean and Shelf Seas (COSS-TT)

“The main goal and central mission of the COSS-TT is to work within OceanPredict towards the provision of a sound scientific and expert basis for sustainable multidisciplinary downscaling and forecasting activities in the world’s regional and coastal oceans. The strategic goal of the COSS-TT is to help achieve a truly seamless framework from the global to the coastal/littoral scale. A major contribution is to address the particular challenges on monitoring and forecasting in coastal areas and regional seas, where the majority of human marine activities take place. As these are also the areas of enhanced exploitation of marine resources, the COSS-TT has a mission well aligned with society’s needs and benefits.”

The main disciplines considered within the TT are coastal ocean physics and interactions between physical and biogeochemical processes. The COSS-TT and its community meet approximately every 18 months. Meetings aim to bridge several communities and subcultures by addressing their specific questions together, as reflected by the target attendees

More info: [Coastal Ocean and Shelf Seas \(COSS-TT\) - Ocean Predict](#)



COSS-TT (Coastal Ocean and Shelf Seas)

➔ **TOPICAL COLLECTION:** Following the **COSS-TT meeting held in June 2025**, a **Topical Collection in *Ocean Dynamics*** was launched six months ago, dedicated to recent advances in coastal and shelf sea forecasting. This special publication will bring together contributions from across the community, highlighting current research and operational developments, and will conclude with an editorial synthesizing the collection’s key scientific outcomes.

The most recent [COSS-TT science and coordination meeting](#) took place at Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) in Plouzané (near Brest), France, 17-20 June 2025. Scientific discussions were organized around the following 7 themes:

- 1** The observing infrastructure in the coastal seas, its integration with ocean model, prediction and forecast systems
- 2** Ocean modelling at the regional and shelf sea spatial scales and seamless integration with larger-scale estimates
- 3** The land-ocean continuum: integration of models for coastal ocean and estuaries/deltas/wetlands, including effects on urban built environments/coastal cities
- 4** Coastal projections and scenarios, coastal vulnerability, wave and storm surge impacts in the coastal zone
- 5** AI/ML applications in the coastal ocean
- 6** User applications and decision tools in the coastal ocean (including Digital Twins)
- 7** The role of COSS-TT in the United Nations Ocean Decade and beyond.

Submit your intent here!

As planned, the new topical collection of scientific papers at the [Ocean Dynamics](#) journal will be organized around these same themes, reflecting the key scientific priorities and discussions of the 2025 COSS-TT meeting.

Guest Editors:

- Alexander Kurapov – National Oceanic and Atmospheric Administration (NOAA), USA
- Joanna Staneva – Helmholtz-Zentrum Hereon, Germany
- Mauro Cirano – Federal University of Rio de Janeiro (UFRJ), Brazil
- Tomasz Dabrowski – Foras na Mara Marine Institute, Ireland
- Pierre De Mey-Frémaux – CNRS/LEGOS
- Guillaume Charria – Ifremer

Call for submissions of Topical Collection manuscripts for publication in Ocean Dynamics

OceanPredict Coastal Oceans and Shelf Seas Task Team (COSS-TT)

1 Dec. 2025 – 30 June 2026

Submission period to Ocean Dynamics

The Topical Collection submission of papers has been **extended** to **31 Dec 2026**. Please find further information on the OP website at <https://oceanpredict.org/science/task-team-activities/coastal-ocean-and-shelf-seas/#section-topical-collections>.

⇒ COSS-TT and DECADE ACTIONS

(COSS-TT) are actively involved in the Ocean Decade initiatives, including the Decade **Collaborative Centre for Coastal Resilience (DCC-CR)** and the **CoastPredict** programme. We invite you to explore the latest news and developments from these initiatives



For more information about the DCC-CR, [visit the DCC-CR website](#)

[DCC-CR Newsletter June 2026](#)



For more information about the CoastPredict Programme, [visit the CoastPredict website](#)

CoastPredict General Assembly 2026 in Mexico & online (21–24 April 2026).

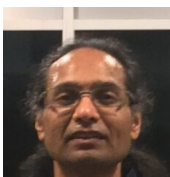
CoastPredict is delighted to announce that the **CoastPredict General Assembly 2026** will take place on **21–24 April 2026**, hosted by Cinvestav in **Mérida, Mexico**. The Assembly will bring together the CoastPredict community to exchange knowledge, share progress, and shape the next steps of our collective work towards resilient coasts worldwide. [More info.](#)



AI-TT (Artificial Intelligence Task Team)

⇒ NEW CO-CHAIRS

The AI Task Team (AI-TT) has welcomed its new co-chairs: Anass El Aouni (Mercator Ocean International) and Rachel Furner (ECMWF). The task team warmly thanks Santha Akella (NOAA) and Kristian Mogensen (ECMWF) for their leadership and valuable contributions in establishing the AI-TT and guiding its successful launch during its initial phase.



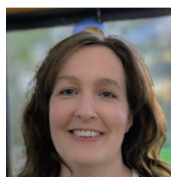
Santha Akella – CP-TT & AI-TT

Physical Scientist at NOAA EMC



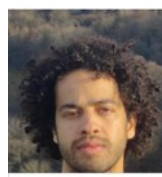
Kristian Mogensen – CP-TT & AI-TT

Senior scientist in the earth system modelling section at ECMWF - UK/Europe



Rachel Furner – AI-TT

Research scientist, Ocean modelling team, ECMWF



Anass El Aouni – AI-TT

Research Scientist at Mercator Ocean International

Artificial Intelligence (AI-TT)

Recent developments in artificial intelligence (AI) capabilities (including neural network approaches, machine learning and deep learning related tools) have demonstrated the potential to provide accurate forecasts in weather and environmental forecasting. The OceanPredict Artificial Intelligence Task Team aims to create a forum to discuss recent developments in the application of AI to ocean forecasting, to share best practices and explore areas for future development.

[More info: Artificial Intelligence \(AI-TT\) - Ocean Predict](#)

AI-TT *Follow up*

⇒ SEMINARS

The first AI-TT seminar was held on December 2025. Ina **Kristine Berentsen Kullman, MetNo**, presented « **Developing data-driven ocean models for the Norwegian coast and fjords** ». A second AI-TT seminar was held on March 2025, Julien Brajard from NERSC presented « **End-to-end forecast of the Arctic sea ice initialised directly from observations** ». These seminars drew a large audience. **Recording** can be found at <https://oceanpredict.org/science/task-team-activities/artificial-intelligence-ai-tt/#section-seminars>. Future seminars are planned for 2026, with details available soon via the **AI-TT website**, and **AI-TT mailing list** and the newly created **AI-TT community mailing list**

AI-TT community mailing list sign-up

Sign up to the AI-TT community mailing list and get information on AI-TT activities, events and seminars.

CONTACT US TO JOIN ➤

⇒ **SIGN UP to AI-TT community mailing list** will be used to publicise AI-TT seminars, workshops, and other AI-TT relevant activities. For anyone interested in joining this mailing list, please [sign up on the AI-TT webpage](#).

⇒ AI-TT WORKSHOP

The AI task-team has organized the first **AI-TT workshop**, to be held in **Montreal on the 13th and 14th April 2026**, <https://oceanpredict.org/events/ai-tt-workshop/#event-overview>. The event included presentations on subjects spanning the full breadth of **ocean prediction applications**, as well as discussions on some of the **remaining challenges**.

Objectives and Outcomes:

- Create a forum to share progress and experience in the application of AI methods to Ocean Forecasting
- Provide networking opportunities promoting future collaborations and partnerships
- Enable breakout discussions on challenges in this field, including best practices in the evaluation methodology used to understand the added value of AI based forecast (improved performance on which variables, physical consistency, etc....)
- Identify areas for future work and development

This first in-person meeting of the OceanPredict **Artificial Intelligence Task Team (AI-TT)** under the co-chairmanship of Rachel Furner (ECMWF) and Anass El Aouni (Mercator Ocean International) brought together researchers, operational centres, and technology developers to assess recent advances in artificial intelli-

gence (AI) for ocean prediction. The workshop provided a forum to share progress, identify challenges, and discuss priorities for future research and operational implementation.

A central theme throughout the workshop was that AI methods are rapidly transitioning from proof-of-concept studies to operationally relevant ocean forecasting applications, mirroring developments previously seen in weather prediction. Participants presented advances across ocean emulation, data assimilation, environmental reconstruction, downscaling, uncertainty estimation, forecasting, and benchmarking. At the same time, discussions repeatedly emphasized the importance of maintaining physical consistency, robust evaluation practices, and transparency in AI-based systems.

The workshop demonstrated that AI is becoming an increasingly important component of ocean prediction science. Significant advances are being made in forecasting, state reconstruction, downscaling, environmental monitoring, and Earth-system emulation. AI methods already offer substantial computational advantages and, in many cases, skill comparable to traditional approaches.

However, the meeting also highlighted a clear consensus that future progress requires more than predictive accuracy alone. Physical consistency, interpretability, uncertainty estimation, and rigorous evaluation must remain central research priorities. The emergence of OceanBench provides a critical foundation for community-wide assessment and comparison of future systems.

Overall, participants concluded that the most promising path forward lies not in replacing physics-based modelling, but in developing hybrid AI-physics approaches that combine the strengths of both paradigms to improve the accuracy, efficiency, and scalability of future ocean forecasting systems.

AI-TT Workshop Report will be available soon. Stay tuned for updates on the [OceanPredict website](#).



AI-TT Workshop Group photo in UQAM, Montreal, CANADA, April 13-14, 2026.

General News relevant for OceanPredict and ForeSea



CALL FOR DECADE ACTION

DEADLINE APPROACHING! Don't miss your chance to contribute to the **Ocean Decade!**

The **Call for Decade Actions No. 11/2026** is now open and focused on addressing **priority needs from the [Barcelona Statement](#)** and galvanising new contributions and new projects to support and strengthen existing Decade Actions and coordination structures.

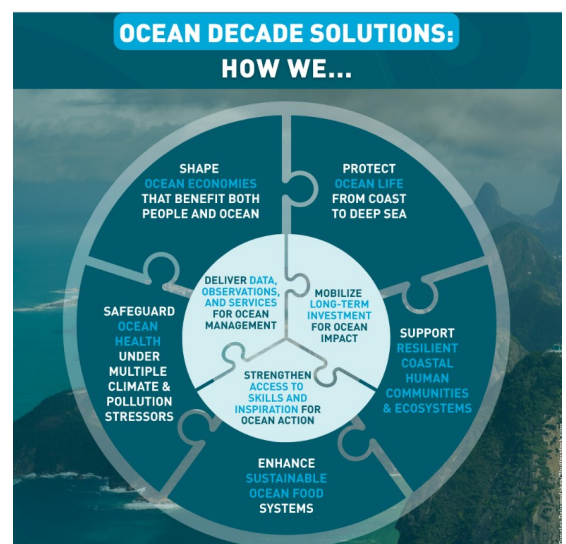
- Submit your **[DECADE PROJECT](#)** proposal to be endorsed by ForeSea **by 31 August 2026**.
- Submit your **[DECADE CONTRIBUTION](#)** proposal to be endorsed by ForeSea **by 31 August 2026**

More infos: [DEADLINE APPROACHING! Take part in the Call for Decade Actions No. 09/2025](#) / [Call for Decade Actions No. 09/2025 - Ocean Decade](#)



2027 OCEAN DECADE CONFERENCE

Following the 2024 Ocean Decade Conference in Barcelona, which focused on assessing progress and defining priorities for the Decade, the **2027 Conference in Rio de Janeiro (7-9 April 2027)** marks a shift toward implementation. The emphasis is now on **[Ocean Decade Solutions framework](#)** — translating scientific knowledge into practical actions, policies, investments, and partnerships to accelerate progress toward the 2030 goals.



LEAD A SPECIAL EVENT AT OCEAN DECADE WEEK 2027— CALL OPEN

The IOC-UNESCO has launched a global call for institutions to lead Special Events during **Ocean Decade Week 2027 (5–6 April 2027)**, ahead of the Ocean Decade Conference in Rio de Janeiro. Organizations from across sectors are invited to propose full-day thematic or regional events that will contribute directly to the Conference outcomes.

WHO: Applications are invited from governments, UN entities, intergovernmental organizations, Ocean Decade Actions, research institutions, non-governmental organizations, foundations, regional organizations, private sector entities, and multi-stakeholder partnerships. Joint applications are strongly encouraged.

Applications will be assessed on their contribution to the objectives of the 2027 Ocean Decade Conference, alignment with [Ocean Decade Solutions framework](#), organized across thematic, regional, and cross-cutting streams.

More infos: [Call for Special Events at the Decade week 2027](#)

Deadline: Submit your applications: [online portal](#) **by 31 August 2026**



DITTO SUMMIT 2026

Building on the in-person summits in London (2022) and Xiamen (2023), as well as the online event in January 2026, the 2026 DITTO Summit in Japan brings together developers, scientists, operational agencies, policymakers, and industry leaders to advance the science, technology, and application of ocean digital twins.

Submit your abstract by July 20, 26 at 23:59 (JST) [here](#)

More info: [DITTO Summit 2026](#)



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News to share?

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Upcoming events

- **SynObs & Ocean Observing Co-Design, Joint International Workshop 2026** in Mustu, Japan, 24-28 May 2026
Link : [SynObs & Ocean ObsCoDe Workshop 2026](#)
Registration is open until early August 2026
- **CP/DA TT joint Workshop** in ECMWF, Reading, UK, 26-30 October 2026
Link : [Joint CP-TT/DA-TT Workshop - Ocean Predict](#)
Registration is open until September 11, 2026
- **IV-TT Meeting** in Shanghai, China, 11-13 Nov 2026
Link : [IV-TT meeting: Intercomparison and Validation of Ocean Forecasts and Predictions at Global and Regional Scales - Ocean Predict](#)
Call for Abstracts deadline: **July 29, 2026**
Registration: Aug 3 to Sept 14, 2026
- **COSS-TT Meeting**, in Rio, Brazil, dates tbc (week before the Ocean Decade Conference)
- **Ocean Decade Conference 2027** in Rio, Brazil, 7-9 April 2027 & Ocean Decade Week, April 5-6, 2027
* More info on the Ocean Decade Conference: [Events - Ocean Decade](#) / Further information on registration and the Conference programme will be available soon
* More info on the Ocean Decade Week: [Call for Special Events at the Decade week 2027](#). Submit your applications: [online portal](#) by **31 August 2026**
- **DITTO SUMMIT 2026**, in Japan, 11-13 Nov 2026
Link: [DITTO Summit 2026](#)
Call for Abstracts deadline: **July 20, 26 at 23:59 (JST) here**
- **AGU26 Annual Meeting** in San Francisco, CA, USA, 7-11 December 2026
Link: [AGU26 Annual Meeting | AGU](#)
Submit your abstract: [Abstract | AGU26](#) by **August 5, 2026 (23:59 EDT / 03:59 UTC)**
More infos: [Abstract Submission AGU26](#) / Important Dates and Deadlines: Mid-June - Abstract submissions open. Session proposal acceptance notification emails sent / 5 August - Abstract submissions close / Mid-August - Attendee registration and housing opens
- **OceanPredict Summer School**, INCOIS, Hyderabad, India, June 26—July 18 (TBC)
- **OPST-14**, Met Office, Exeter, UK, Late 2027 (TBC)

