OCEANOPS UPDATE: COORDINATION OF THE INTEGRATED OCEAN OBSERVING SYSTEM

Focus RVs, from national to European to global scale, and across networks

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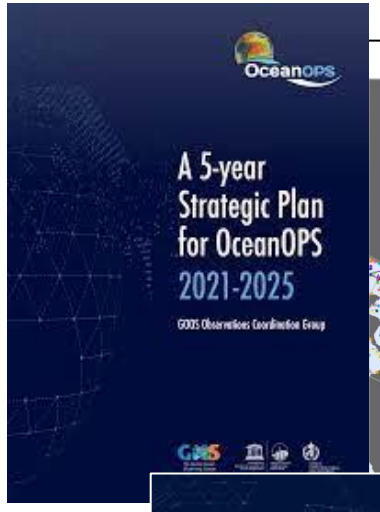
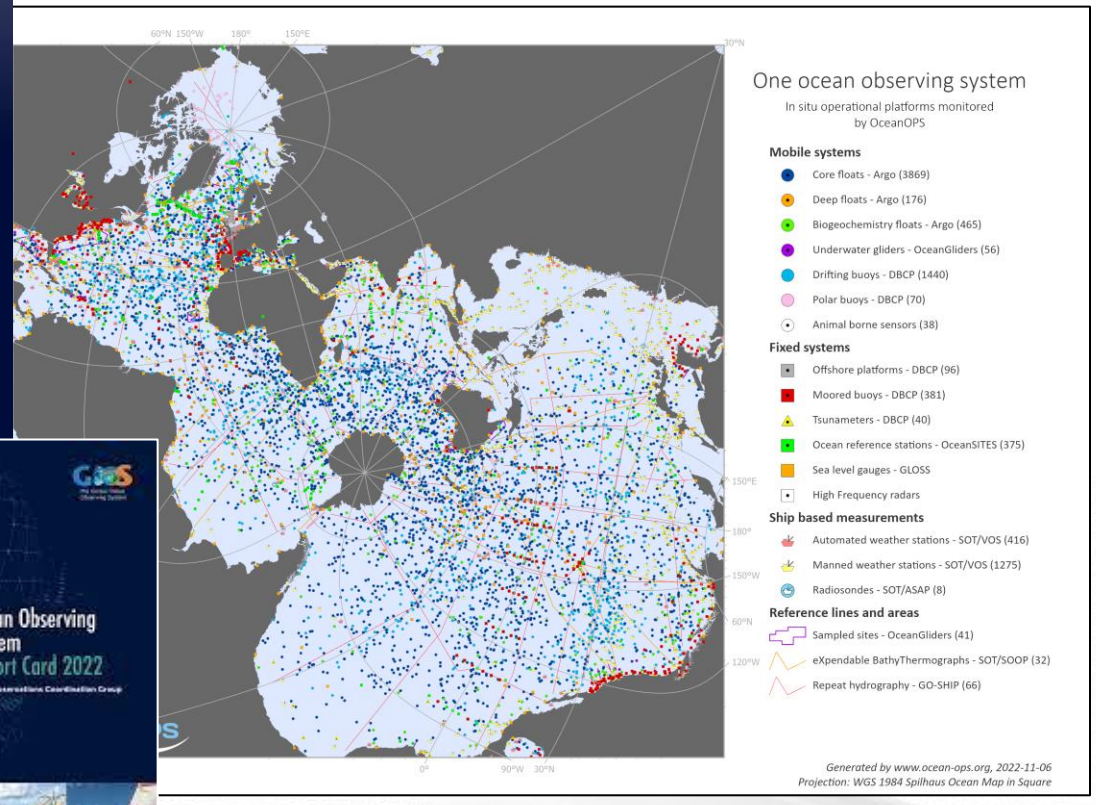
INTEGRATED INFORMATION, MAPS AND TOOLS TO HELP COORDINATE AND MONITOR GLOBAL OCEAN OBSERVATION EFFORTS

- Jointly run by WMO & IOC
- ~8000 GOOS platforms
- Coordination & Integration
- Metadata Management
- ID Allocation for GOOS
  - →GOOS Passports
- Implementation Support
- Monitoring & Notification
- Performance Measurement
- Report Card & Communication



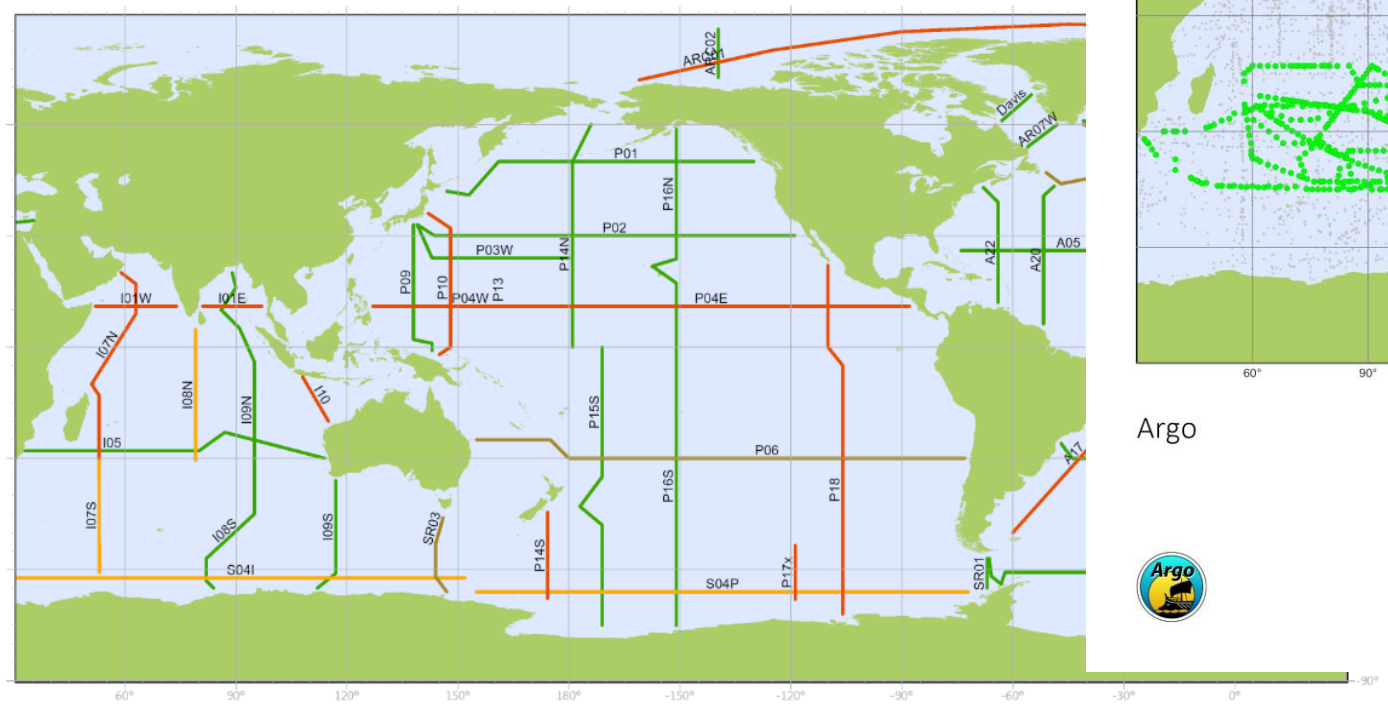


www.ocean-ops.org/reportcard

GOOS *in situ* networks [1]	Implementation	Data & metadata			Best practices [6]	GOOS delivery areas [7]		
	Status [2]	Real time [3]	Archived high quality [4]	Metadata [5]		Operational services	Climate	Ocean Health
Ship based meteorological – SOT	★★☆	★★☆	★★☆	★★☆	★★☆			
Ship based oceanographic – SOT	★★☆	★★½	★★★	★½☆	★★☆			
Repeated transects - GO-SHIP	★★½	Not applicable	★★★	½☆☆	★★★			
Sea level gauges - GLOSS	★★½	★★☆	★★★	★☆☆	★★☆			
Time series sites - OceanSITES	★★☆	Not applicable	★★½	★★☆	★★☆			
Moored buoys – DBCP	★★½	★★★	★★★	★★☆	★★½			
Tsunami buoys - DBCP	★★☆	★★★	★★★	½☆☆	★★★			
HF radars	★½☆ Emerging	★½☆	½☆☆	★☆☆	★★★			
Drifting buoys - DBCP	★★★	★★½	★★½	★½☆	★★★			
Profiling floats - Argo	★★★	★★★	★★★	★★★	★★☆			
Deep & biogeochemistry floats - Argo	★☆☆ Emerging	★★½	★★½	★★★	★★☆			
OceanGliders	½☆☆ Emerging	★★☆	★☆☆	★½☆	★★☆			
Animal borne sensors - AniBOS	½☆☆ Emerging	★☆☆	★★☆	½☆☆	★★☆			

Click on network names for links to each network. Click on implementation stars to view related KPIs. More information on networks status & indicators definitions HERE

SAMPLE STATIC MAPS



GO-SHIP

Floating status of GO-SHIP (52 Core Lines)

April 2025

- Occupied: sampled in last 5 years, or confirmed in next 4 years (30)
- Securing: sampled between 5 and 7 years ago, with planned but unconfirmed cruise in next 4 years (0)
- Watching: sampled between 5 and 7 years ago, with nothing planned in next 4 years (5)
- At risk: Not sampled for more than 7 years, with planned but unconfirmed cruise in next 4 years (4)
- Alarm: Not sampled for more than 7 years, and nothing planned in next 4 years (12)

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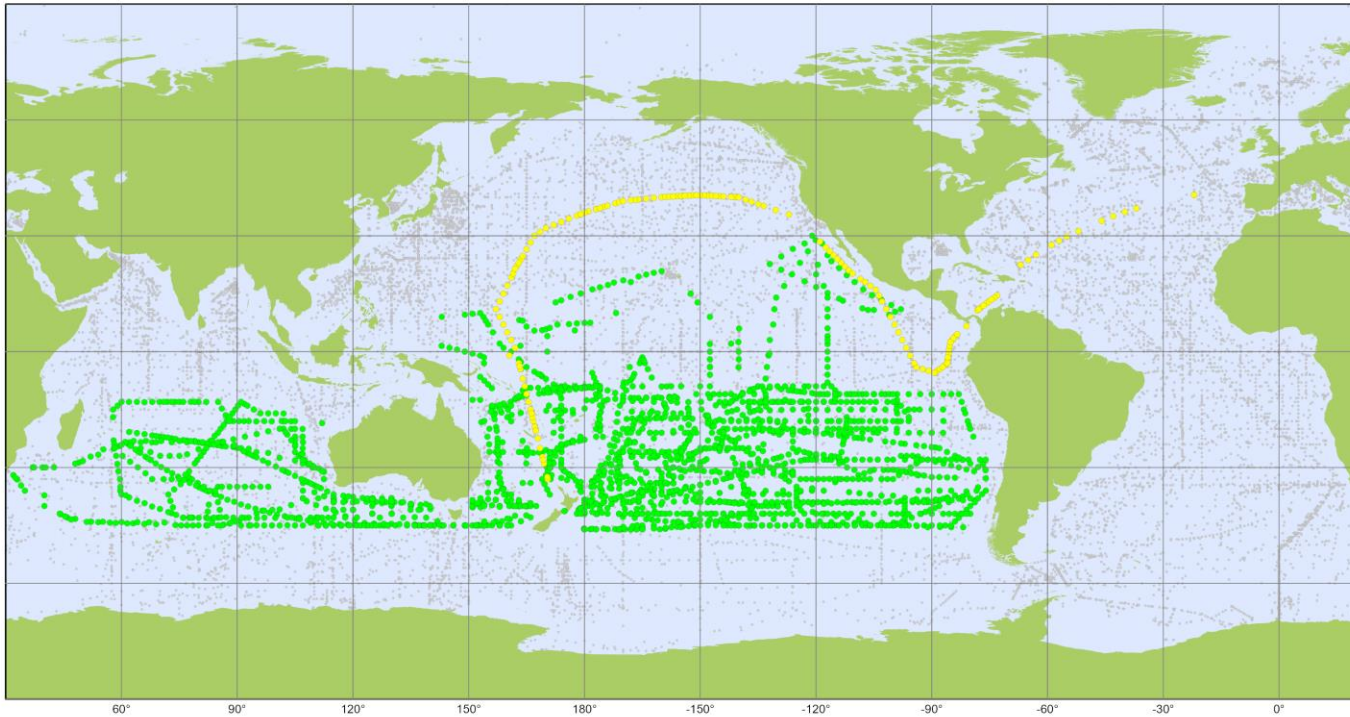
Projection: Plate Carree (-150.0000)



Argo

Kaharoa's Deployments

September 2(

- Planning (152)
- Kaharoa deployments (2171)
- Kaharoa II deployments (0)
- Other deployments (17085)

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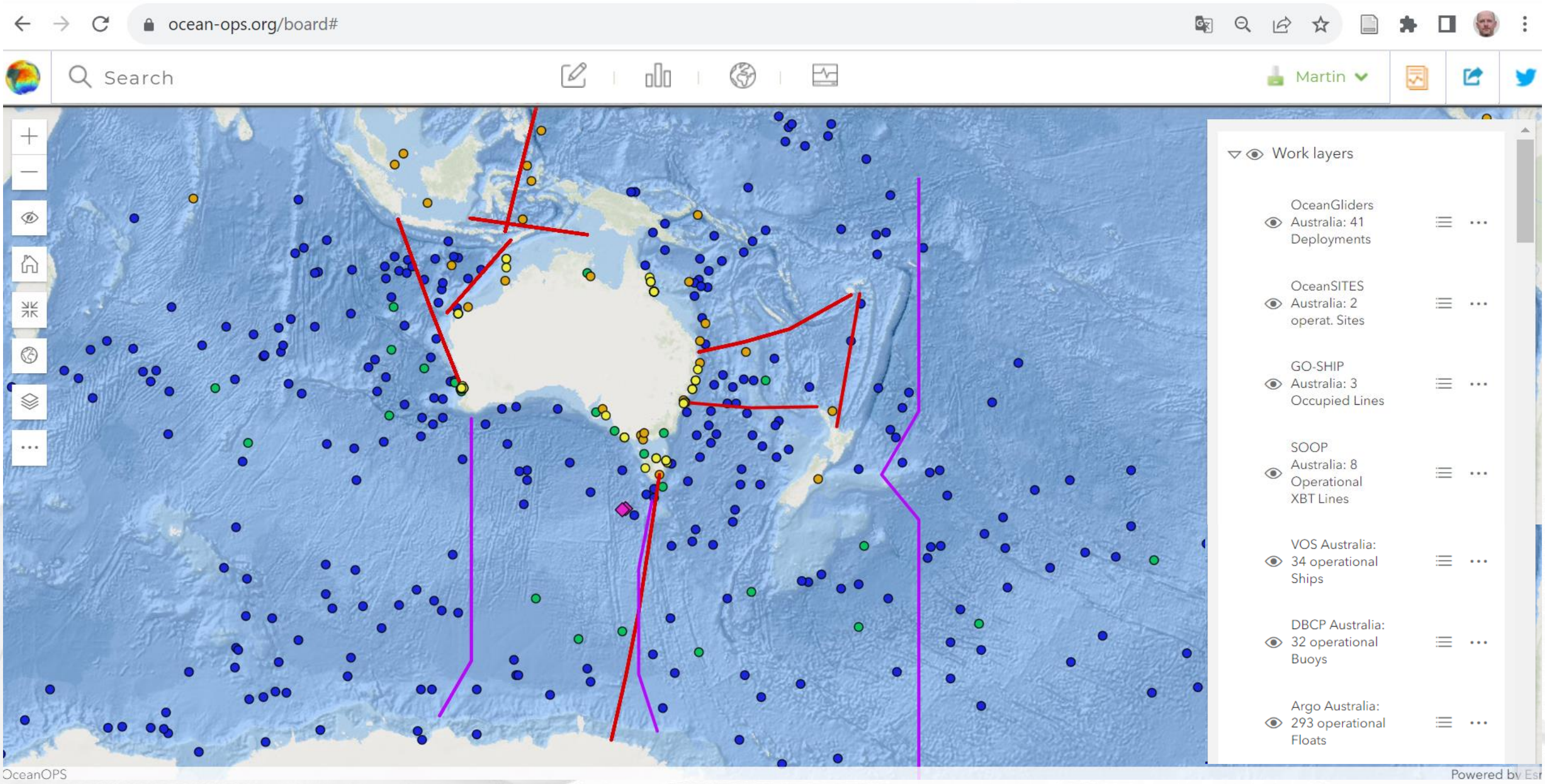
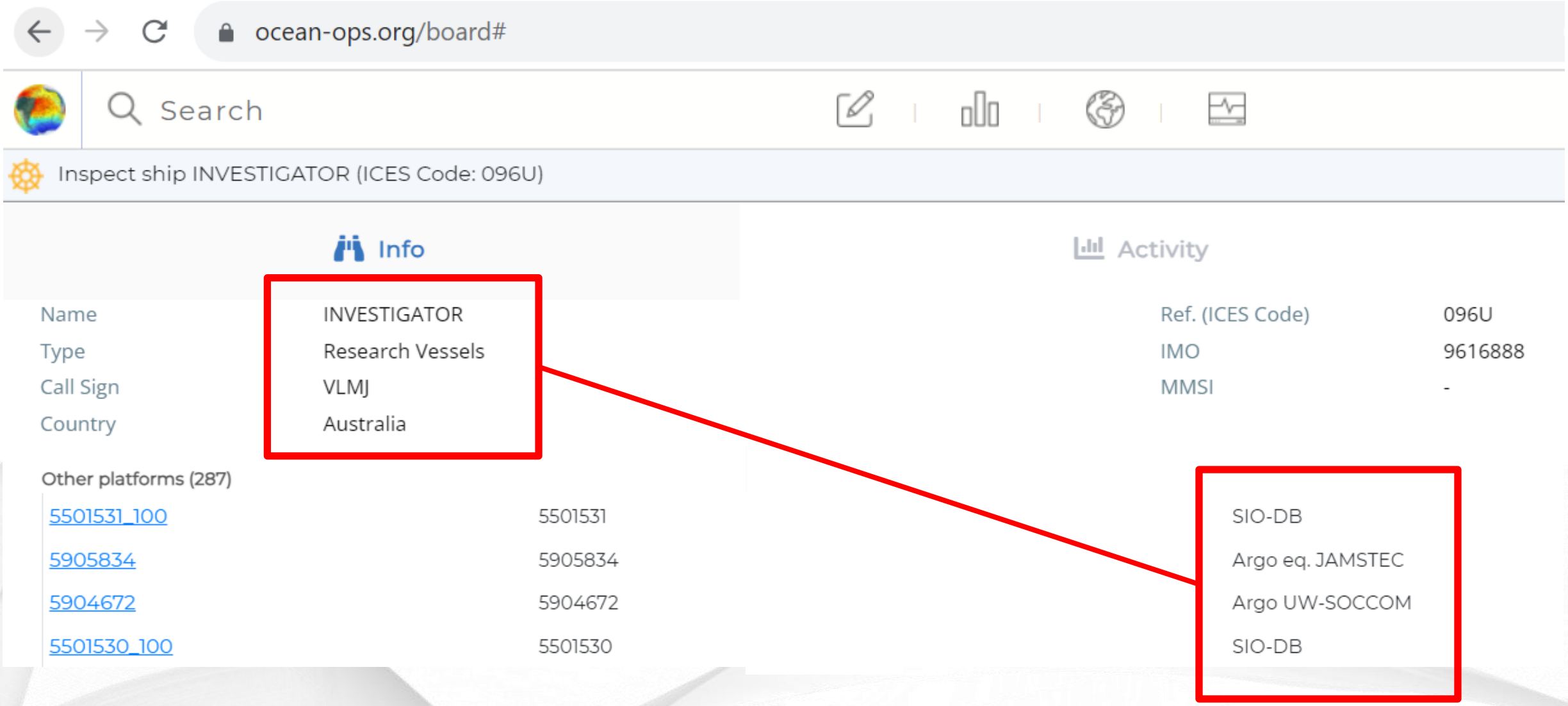
Projection: Plate Carree (-150

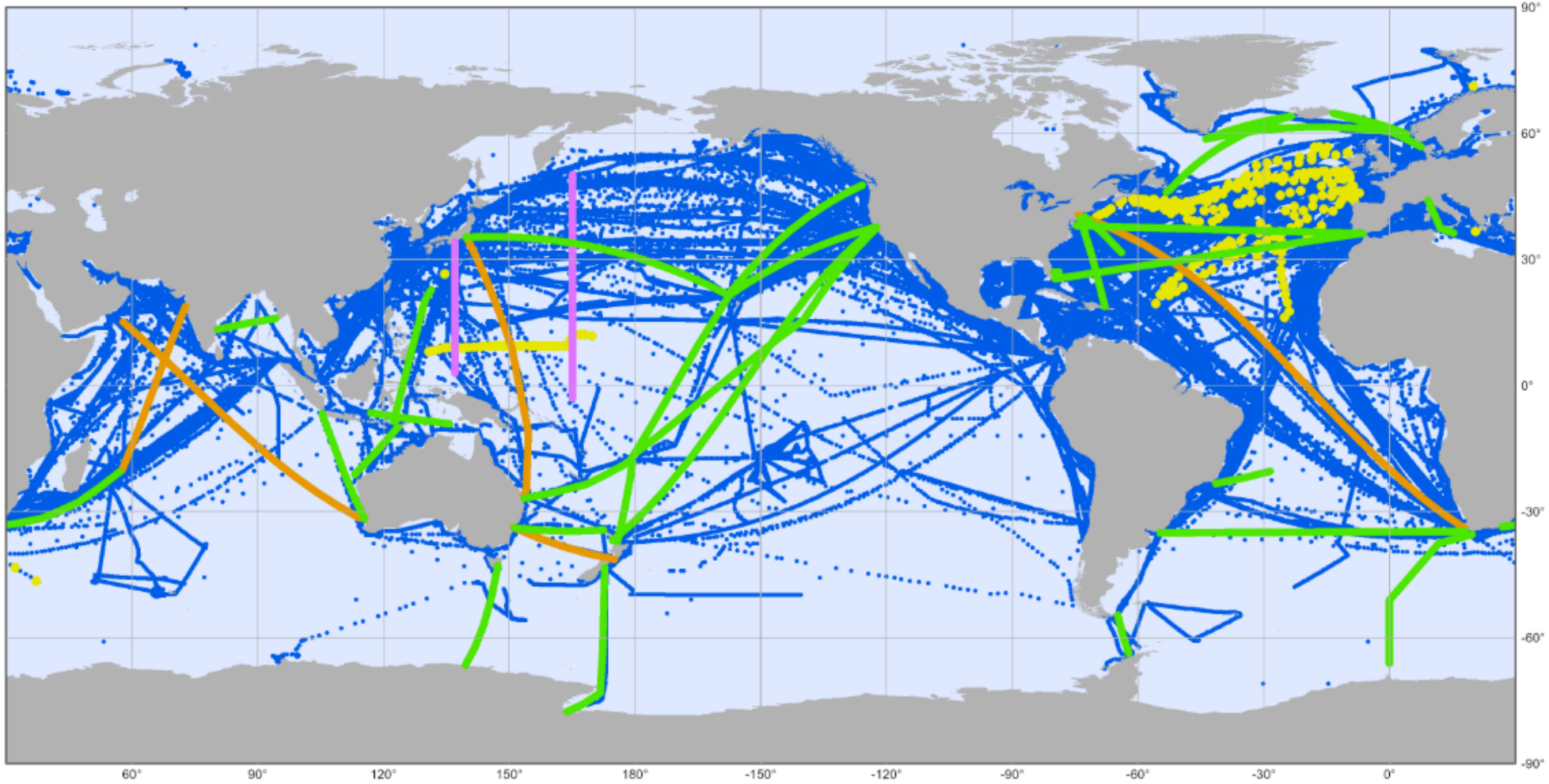
LIMITED RV VISIBILITY

Monitoring national Contributions to GOOS with OceanOPS: Showcase Australia



Monitoring piggy-back Operations with OceanOPS: Float/Drifter Deployments





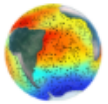
Ship Observations Team

Network Status

Voluntary Observing Ships, Automated Shipboard Aerological Programme
and Ship-of-Opportunity Programme

April 2025

- VOS monthly observations (409728)
- ASAP monthly launches (277)
- Active SOOP-XBT line
- Active CTD line (former XBT line)
- SOOP line not funded or no ships



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Projection: Plate Carree (-150.0000)

UNITED NATIONS OCEAN CONFERENCE NICE, FRANCE 2025

SAVE THE DATE

UNOC Side Event

10 000 SHIPS FOR THE OCEAN

Partnering with the shipping industry to scale-up global ocean observations

13th June 2025

12:15-13:30

Blue Zone, Room 3

WORLD METEOROLOGICAL ORGANIZATION · unesco · 2021 2030 United Nations Decade of Ocean Science for Sustainable Development · IMO INTERNATIONAL MARITIME ORGANIZATION · GOOS Global Ocean Observing System · OceanOPS

JOIN THE FLEET FOR THE FUTURE

The ocean is changing fast – warming, rising, acidifying, and becoming less predictable. For global shipping, that means growing risks, operational uncertainty, and rising costs. For society, it threatens prosperity and security, and has major implications for our climate.
Real-time ocean and weather data have never been more valuable – enabling safe navigation, efficient routing, and smarter decisions at sea and beyond.

Yet, of the tens of thousands of commercial ships crossing the ocean, only a small fraction contributes data. This must change.
Your fleet can deliver business value and global impact by helping close the ocean data gap.
Whether you're a shipowner, operator, or logistics partner, join a global coalition advancing maritime safety, ocean intelligence, and environmental stewardship.

"Be a leader in the fleet for the future. Be a steward of our ocean. Be part of a global mission."

GOOS | OceanOPS

10 000 SHIPS FOR THE OCEAN

Partnering with the shipping industry to scale-up global ocean observations

LET'S BUILD THE LARGEST OCEAN OBSERVING NETWORK THE WORLD NEEDS.

ocean-ops.org/unoc

THE VISION: 10 000 SHIPS BY 2035

For over 150 years, ships at sea have been essential in observing the ocean and atmosphere, contributing to safety, science, and maritime operations. The 10 000 Ships for the Ocean initiative builds on this legacy with the goal of creating a modern, coordinated global fleet of 10 000 commercial vessels, equipped to collect and share real-time ocean and weather data by 2035. This initiative is **a bold step towards a sustainable future, shaped by those who navigate the seas, and builds on decades of expertise and a network of 2 000 ships.**

VOLUNTARY OCEAN COMMITMENT

"By 2035, the initiative aims to increase commercial ships participation in the Global Ocean Observing System, reaching 10 000 vessels providing real-time weather and surface ocean data."
By joining this effort, shipping companies and beyond are invited to express their support for enhanced global ocean observations. Participating organizations will contribute data, innovation, and leadership, showcasing their environmental stewardship while unlocking operational insights and strategic value for their business.

WHY THIS MATTERS

Expanding ship-based observations isn't just a scientific priority but also a shared global responsibility.
Here's why stepping up now makes a difference:

Improved forecasting
Real-time met-ocean data improves short-to-long-range ocean and weather forecasting, supports early warnings, and helps optimize ship routing, safety, and fuel efficiency – serving global public good and private-sector needs alike.

No ocean observing without ships
The ocean is vast, and effective observation relies on the availability of vessels. The shipping industry is uniquely positioned to support a large-scale infrastructure for ocean monitoring.

A mutually beneficial public-private partnership
Shipping is both a major user and potential provider of ocean data. Co-designing the system ensures it serves both science and operations.

Environmental stewardship
Participating companies lead in sustainability, champion the Blue Economy, and uphold their responsibility to the ocean and future generations.

Strategic resilience in a changing digital world
As public ocean science funding tightens, a diversified and resilient investment model is critical. Private-sector leadership will shape the future of ocean intelligence.

THE WAY FORWARD

Engage and build industry commitments (2025)
Initiative launched at the UN Ocean Conference in Nice, with initial industry commitments, strengthened progressively through 2025, as key shipping and maritime partners come on board.

Launch a global pilot program (2025-2026)
Work with committed companies to co-develop the implementation plan, build capacity, and equip an initial fleet.

Co-develop a scalable value model (2025-2027)
Develop a cost-effective approach built on economies of scale, streamlined processes, global collaboration and international coordination.

10 000 ships by 2035
Deploy met-ocean systems across 10 000 commercial vessels under a fully integrated global observing infrastructure.

EXPANDING THE SOT (AND SOCONET): RVs SHOULD BE « PRIMARY TARGET »

- RVs certainly collect meteorological data: Sharing them as VOS on the WMO Data System (WIS) should be low hanging fruit nowadays
- Likewise, RVs also collect sea surface/underway data. Which are the obstacles why « basic » meta/data are not properly shared?
- With reference to SOCONET presentation: Where sea surface data are NOT collected, is lacking equipment, or lacking know-how, or lacking clearance the issue?

→How can we help?

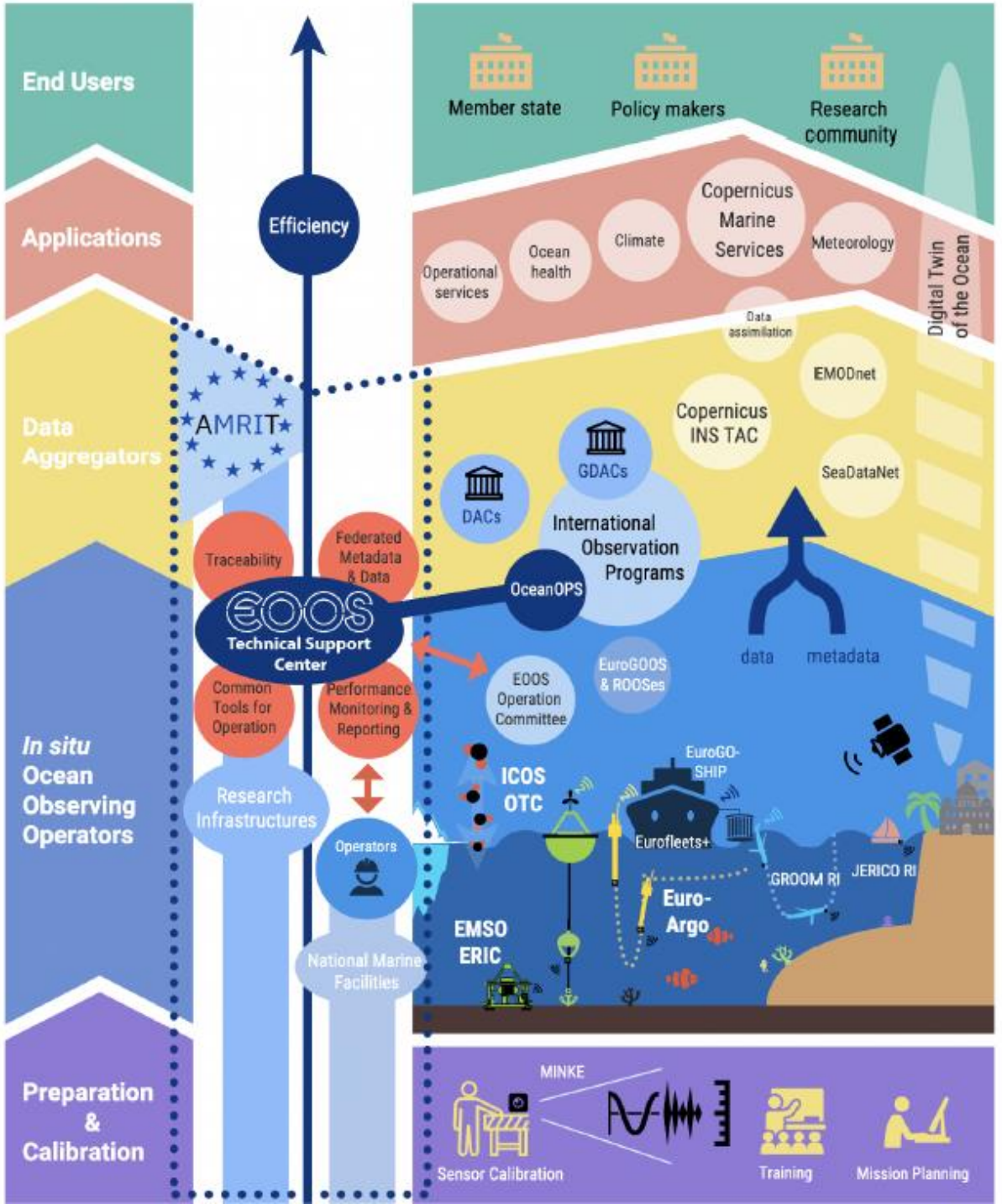
EU HORIZON PROJECT **AMRIT:** ADVANCE MARINE RESEARCH INFRASTRUCTURES TOGETHER

26 Partners, including ERICs (Euro-Argo, ICOS, EMSO) and MRIs like JERICO, Eurofleets+, GROOM, and later EUMR2, MINKE and EuroGO-SHIP; WMO/OceanOPS

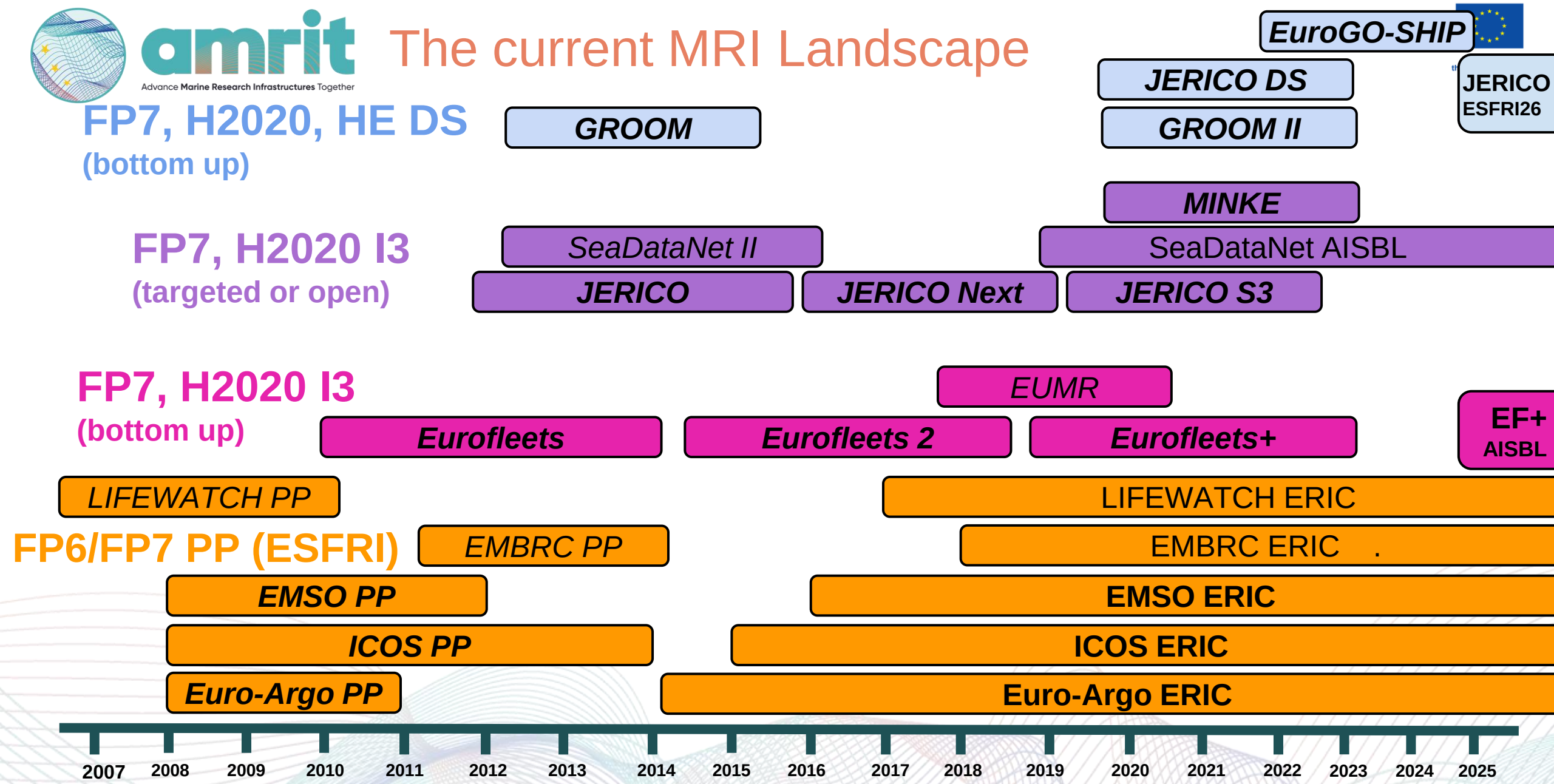
1. better support research with an improved flux of ocean data;

2. function as truly integrated components of EOOS and, ultimately, GOOS;

3. better support the Copernicus Marine Service.

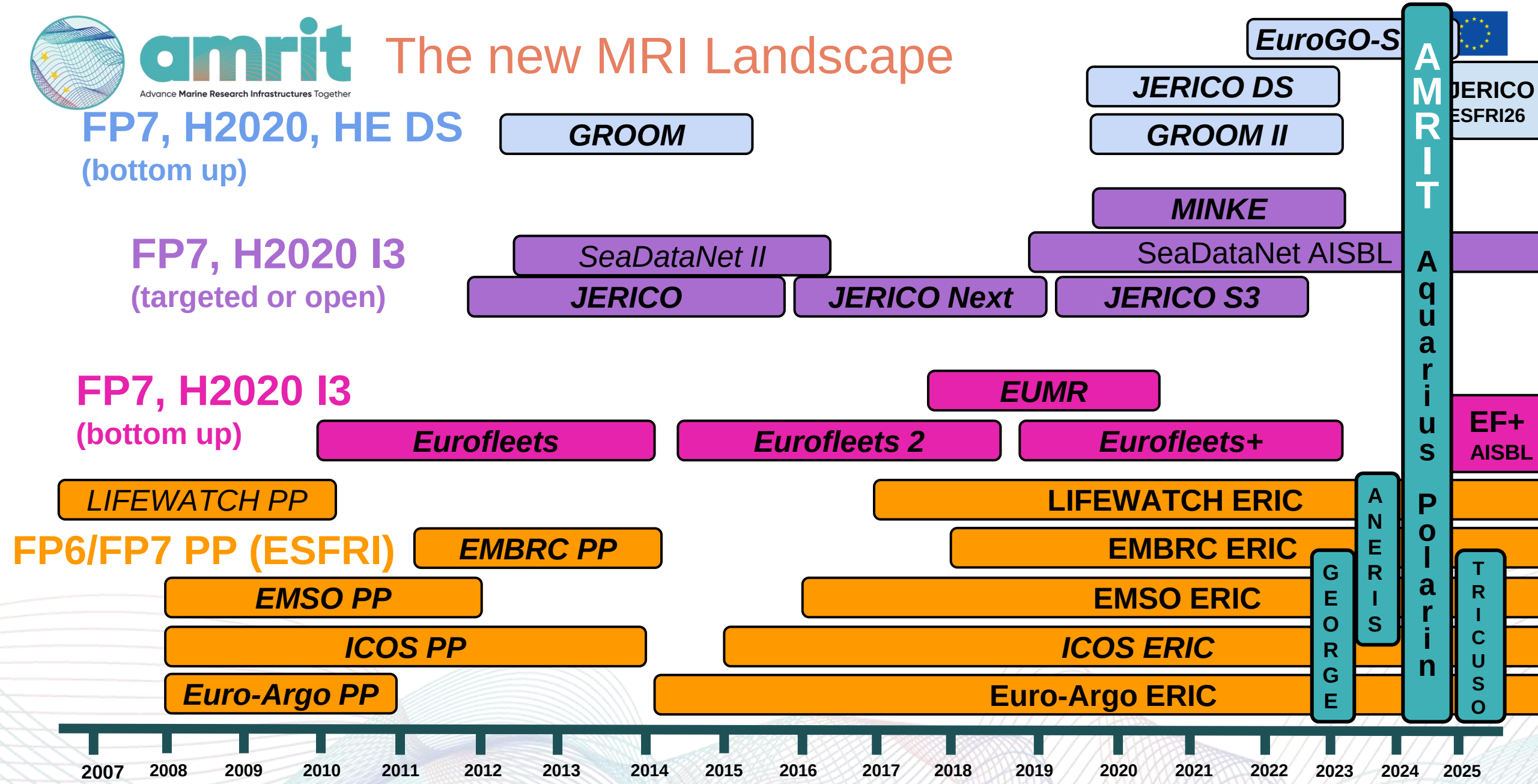


The current MRI Landscape



Adapted from "Reasons for the EU to optimize / integrate its research infrastructures in marine sciences?" *Hervé Péro, INFRA / DGRI / EC, 2011*

The new MRI Landscape



Adapted from "Reasons for the EU to optimize / integrate its research infrastructures in marine sciences?" *Hervé Péro, INFRA / DGRI / EC, 2011*

SHARING CRUISE PLANS WITH TECHNICAL SUPPORT CENTRE, MACHINE-2-MACHINE

- Since IRSO 2019 (Hobart) ongoing effort, with successful prototype implementation through MFP

- With EU AMRIT project a mandatory partner requirement

→ MFP is a solution with proof of concept, but still requires

i) green light for API access from various MFP users

ii) some IT development regarding the mapping of cruise IDs

→Other solutions are welcome; which is yours, who in charge?

amrit
Advance Marine Research Infrastructures Together

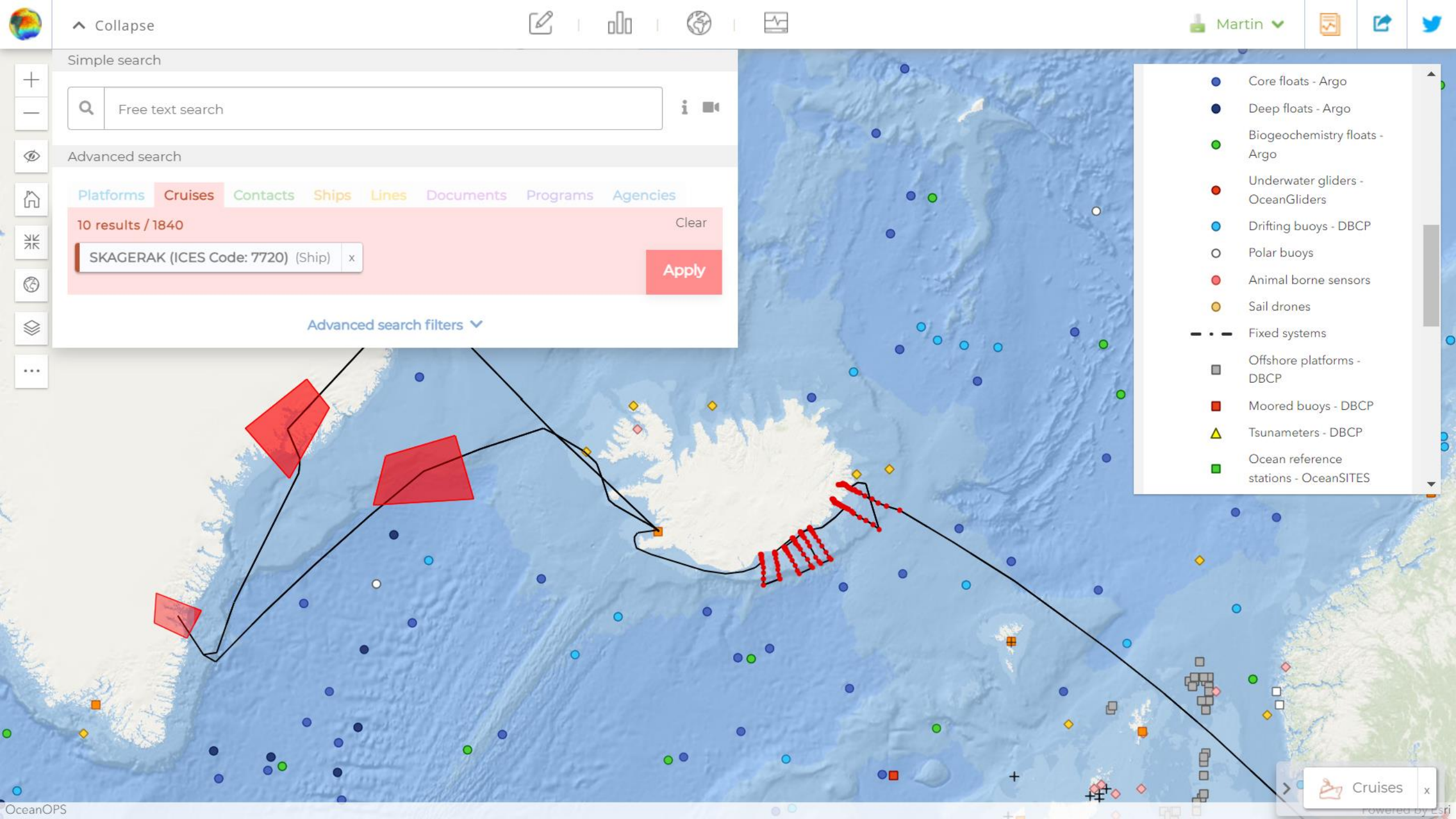
Funded by the European Union

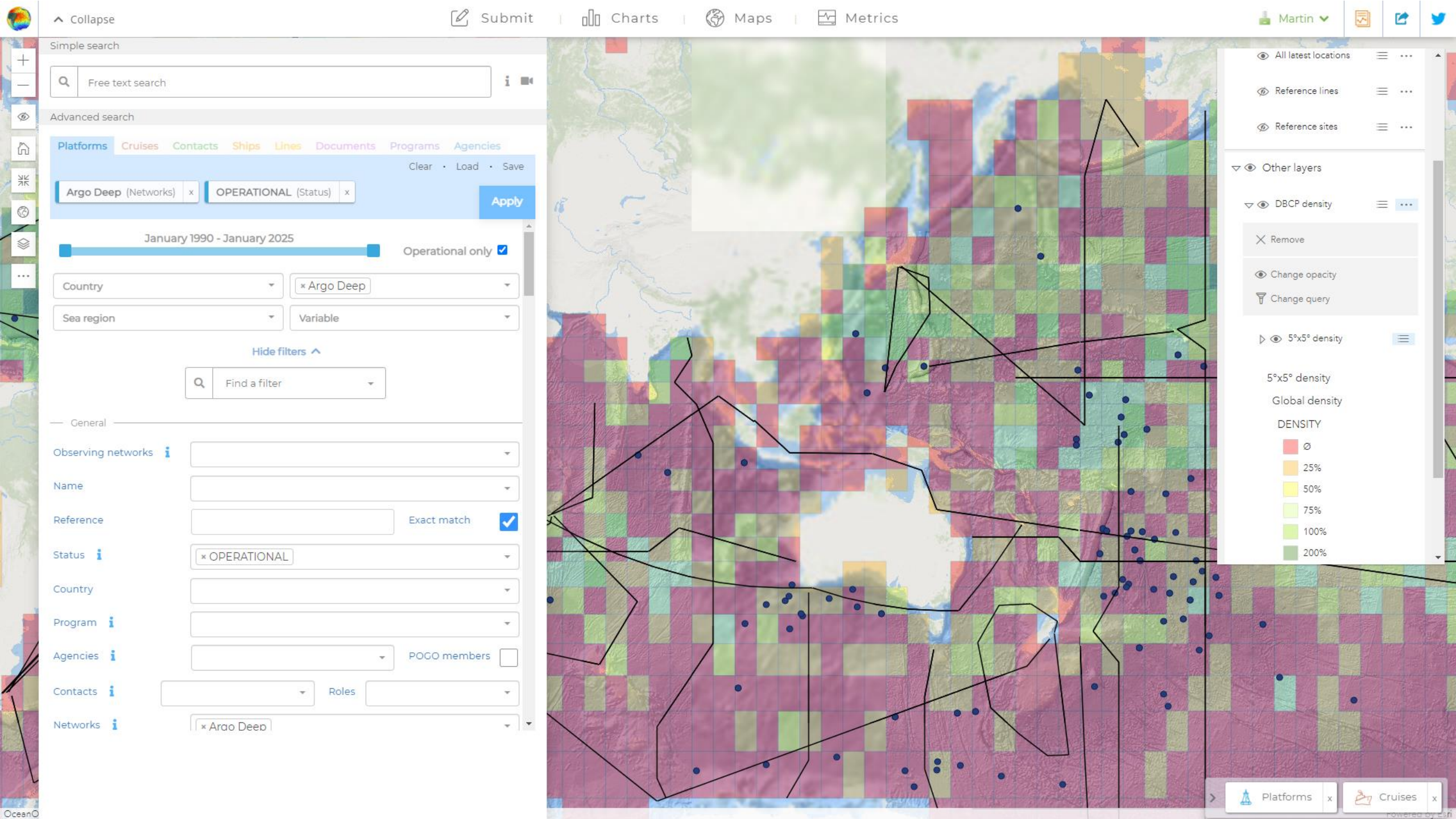
WP8 - Task 8.3

Connect R/V national fleet schedules, and management metadata to the central system (M0-M24)

Lead: WMO; Partners: CNR, CSIC, Ifremer, KDM, MI, NIOZ, NOC

The **national R/V information nodes** will develop and **implement APIs**, following the overarching API design recommendations, to connect to the federated metadata system (D8.3, M24) or adapt their current management system (**e.g., Marine Facility Planning, MFP**) as needed. Particular attention will be given to the **geographical information of the planned cruise tracks** through Open Geospatial Consortium (OGC) standards and **introduction of PIDs for cruises**. Existing and under development requirements, tools and services of EuroFleets+, SeaDataNet (e.g., **Cruise Summary Reports, CSR**) and EuroGOOS will be considered to ease the work and **avoid duplication**. R/V and other ships (e.g., via AIS subscription) will be **tracked in real-time to enable responsive opportunities** (e.g., to recover a platform), identify issues with real-time data streams, and identify ships regularly operating in targeted areas (to install instruments for specific observations and EOVs).


Collapse
Martin
Simple search
Free text search
Advanced search
Platforms
Cruises
Contacts
Ships
Lines
Documents
Programs
Agencies
10 results / 1840
Clear
SKAGERAK (ICES Code: 7720) (Ship)
Apply
Advanced search filters
Core floats - Argo
Deep floats - Argo
Biogeochemistry floats - Argo
Underwater gliders - OceanGliders
Drifting buoys - DBCP
Polar buoys
Animal borne sensors
Sail drones
Fixed systems
Offshore platforms - DBCP
Moored buoys - DBCP
Tsunameters - DBCP
Ocean reference stations - OceanSITES
Cruises
OceanOPS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Advanced search
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Contacts
Ships
Lines
Documents
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Clear • Load • Save
Argo Deep (Networks)
OPERATIONAL (Status)
Apply
January 1990 - January 2025
Operational only
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Variable
Hide filters
Find a filter
General
Observing networks
Name
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Exact match
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Contacts
Roles
Networks
Argo Deep
All latest locations
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Other layers
DBCP density
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Change opacity
Change query
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5°x5° density
Global density
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100%
200%
Platforms
Cruises
OceanO

CONCLUDING…

- Make RVs full contributors to SOT (and SOCONET)
- Increase visibility of RVs in GOOS
- Implement PID for cruises / passport
- Share cruise plans with OceanOPS

Goal beyond « FAIR » Data:

Show full scope/performance of a cruise (incl. piggybacks), exploit maximum of synergies, share (environmenta) costs

THANKS!

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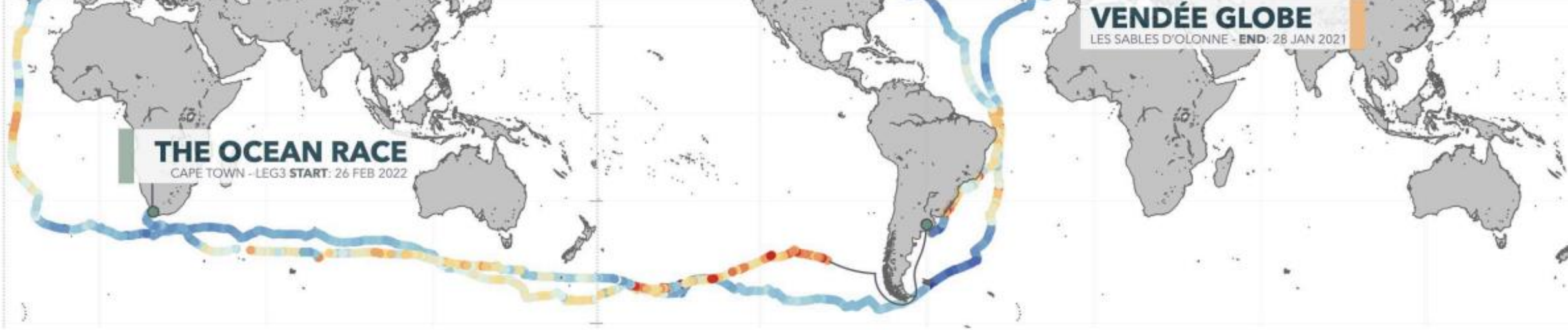

RACING FOR SCIENCE SINCE 2018

Team Malizia races in the world's toughest ocean competitions, using the platform to inspire climate action and collect vital ocean data. Aboard Malizia – Seaexplorer, the team has gathered high-quality CO_2 measurements in remote regions, contributing to key global climate research, such as the global carbon budget. Led by skipper Boris Herrmann, they use their visibility to give the ocean a voice, an effort now expanded with the launch of Malizia Explorer, a vessel dedicated to science and sustainability.

GLOBAL CARBON BUDGET

WITH IMMEDIATE MEDIA IMPACT


Hamburger Abendblatt

Boris Herrmann stellt überraschend neue Jacht vor

Herrmann stellt Malizia Explorer vor - Ein Segelboot für die Klimaforschung

AN EXCITING ANNOUNCEMENT

Malizia Explorer was officially unveiled to the public on May 6th 2025 at the National Ocean Conference in Berlin, with the support from leading voices in the ocean science and policy community.


Kieler Nachrichten

Weltumsegler Boris Herrmann stellt neues Forschungsschiff vor

Neue Malizia-Mission – Boris Herrmann stellt Forschungsschiff vor