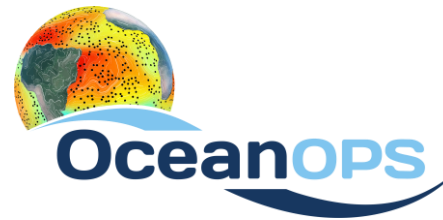


# OCEANOPS UPDATE: COORDINATION OF THE INTEGRATED OCEAN OBSERVING SYSTEM

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



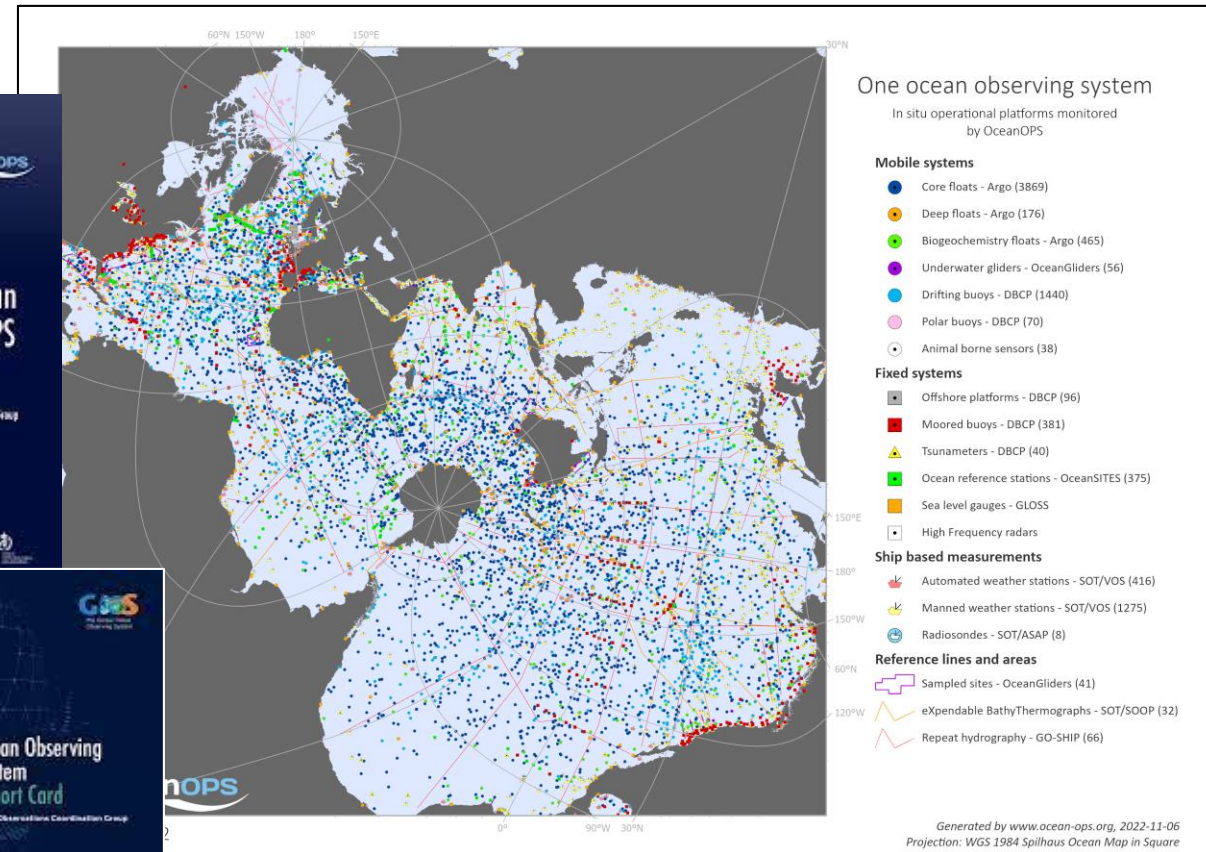
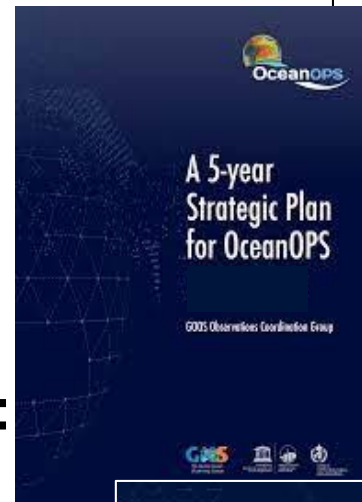
Martin Kramp  
Technical Coordinator  
[mkramp@wmo.int](mailto:mkramp@wmo.int)

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

- GOOS Support Office
- Jointly run by WMO & IOC
- Hosted by Ifremer in France, since mid-2024 including IT

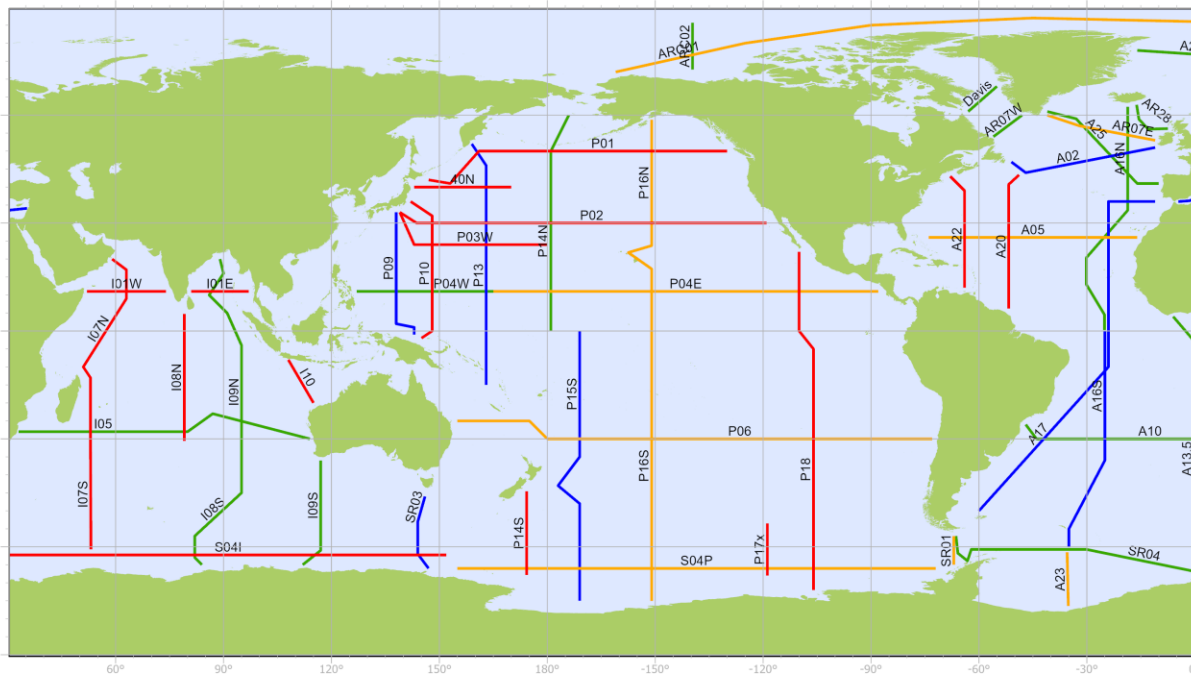
**~8000 platforms/~20 networks:**

- (Cross-) Network Coordination
- Metadata Management
- Monitoring & Notification
- Performance Measurement
- ID Allocation for GOOS  
→ GOOS Passports



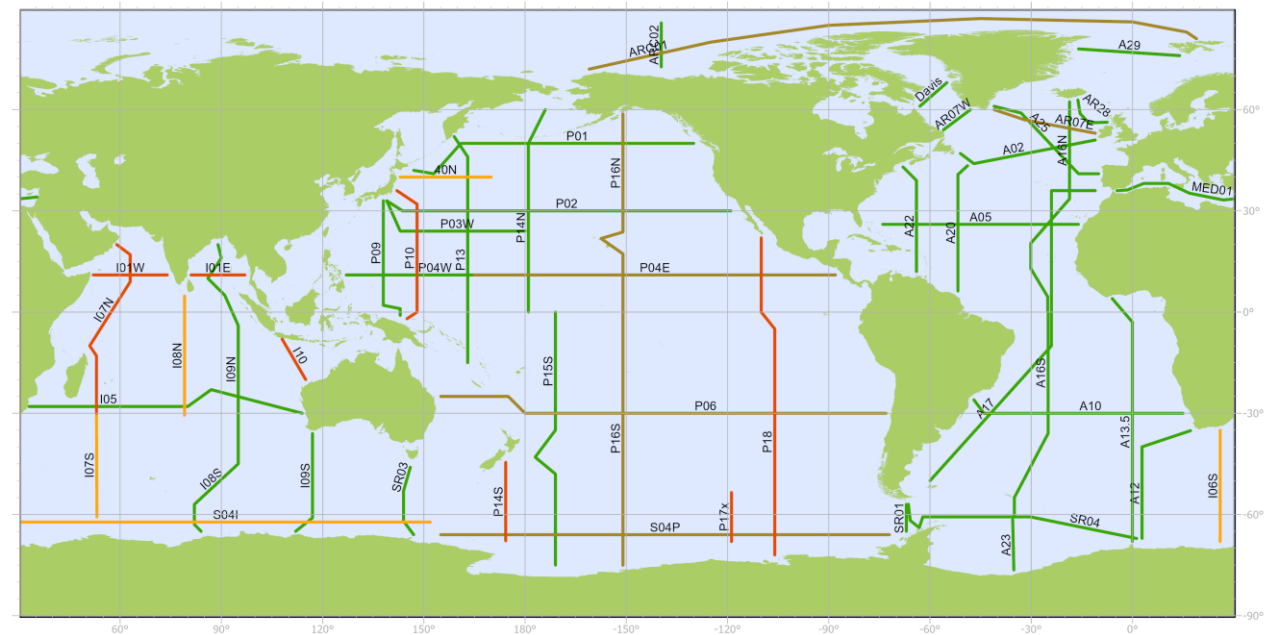
**Where are your RVs?**

# GO-SHIP REPEAT HYDROGRAPHY CRUISES: KEY GOOS CONTRIBUTION FROM RESEARCH SHIPS



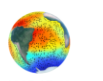
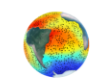
GO-SHIP Status of 2023-2034 Survey (53 Core Lines)

- completed (17)
- at sea (0)
- funded (8)
- planned (10)
- not planned yet (18)

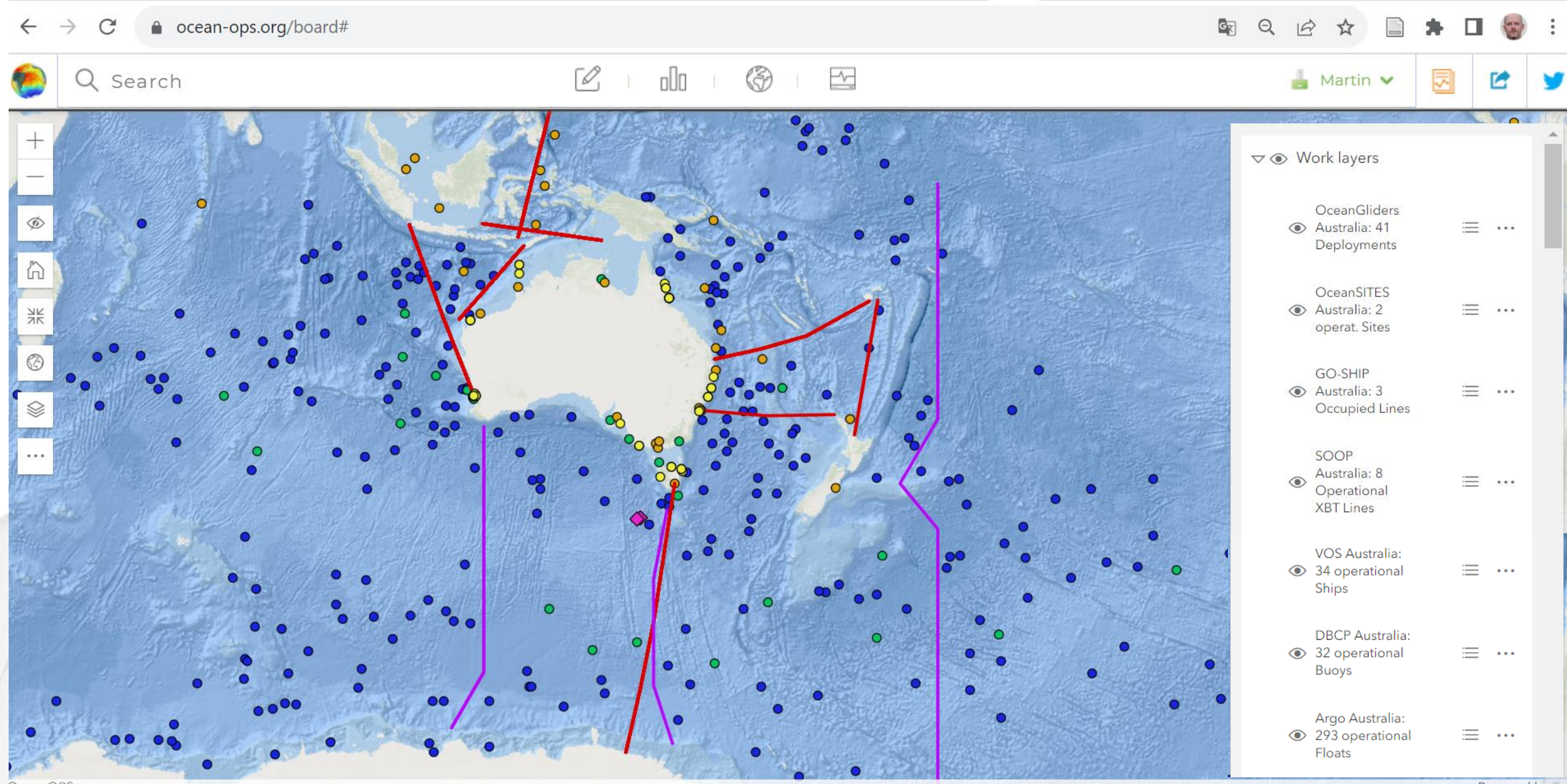


GO-SHIP Floating status of GO-SHIP (53 Core Lines) June 2025

- Occupied: sampled in last 5 years, or confirmed in next 4 years (33)
- 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 (7)
- Alarm: Not sampled for more than 7 years, and nothing planned in next 4 years (8)



# Monitoring national Contributions to GOOS with OceanOPS: Showcase Australia



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

← → ↻ ocean-ops.org/board#

🌐 Search

📄 | 📊 | 🌐 | 📈

⚙️ Inspect ship INVESTIGATOR (ICES Code: 096U)

### Info

Name	INVESTIGATOR	Ref. (ICES Code)	096U
Type	Research Vessels	IMO	9616888
Call Sign	VLMJ	MMSI	-
Country	Australia		

### Activity

SIO-DB
Argo eq. JAMSTEC
Argo UW-SOCCOM
SIO-DB

Other platforms (287)

<a href="#">5501531_100</a>	5501531
<a href="#">5905834</a>	5905834
<a href="#">5904672</a>	5904672
<a href="#">5501530_100</a>	5501530



^ Collapse

Submit

Charts

Maps

Metrics

Martin



Simple search

Free text search

Advanced search

Platforms Cruises Contacts Ships Lines Documents Programs Agencies

Clear · Load · Save

Argo Deep (Networks) x OPERATIONAL (Status) x **Apply**

January 1990 - January 2025 **Operational only**

Country

Sea region

Hide filters ^

Find a filter

General

Observing networks

Name

Reference  Exact match

Status

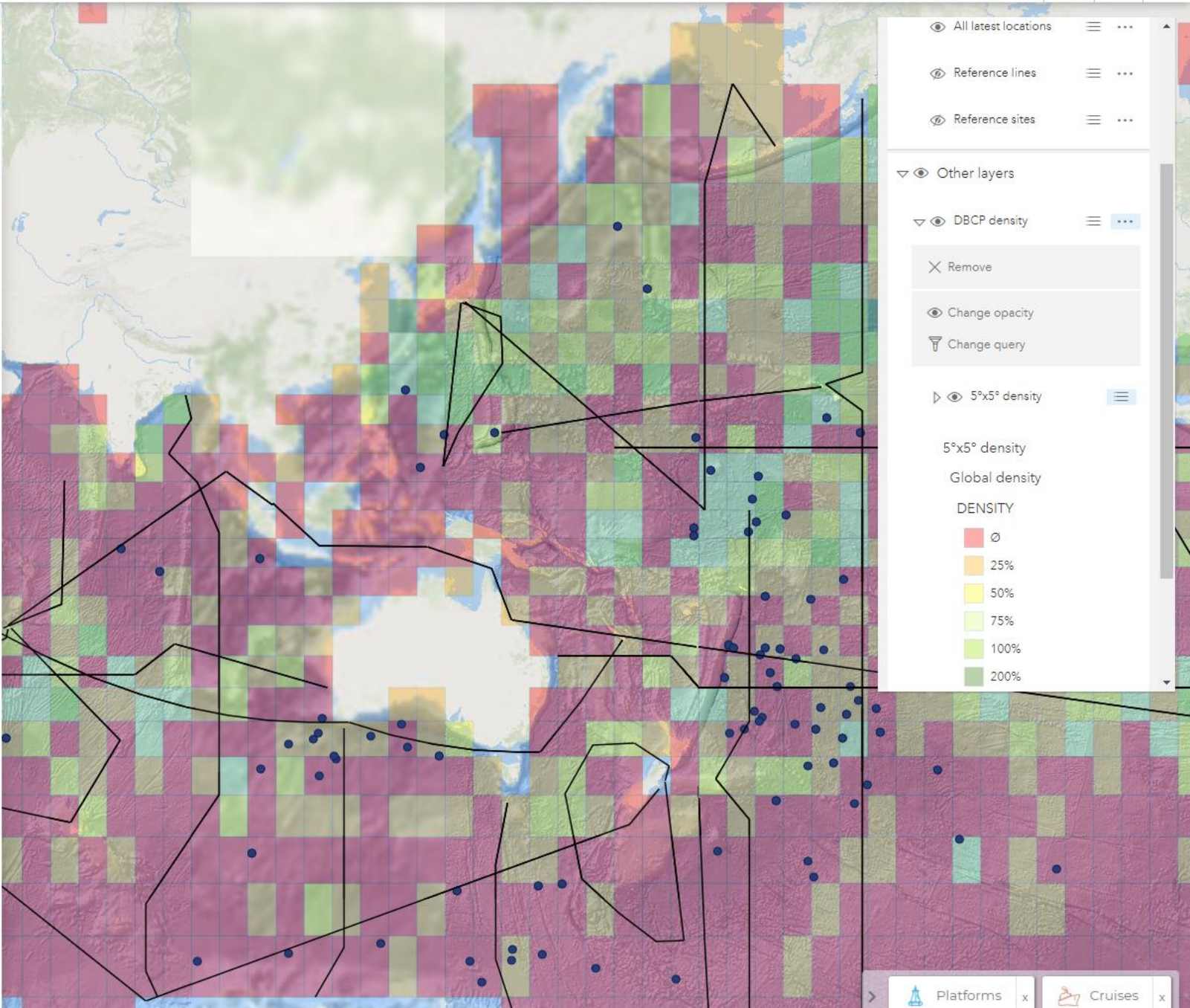
Country

Program

Agencies  POGO members

Contacts  Roles

Networks



All latest locations

Reference lines

Reference sites

Other layers

DBCPC density

Remove

Change opacity

Change query

5x5° density

5x5° density

Global density

DENSITY

- 0%
- 25%
- 50%
- 75%
- 100%
- 200%



## Requirement #251

### Values

For variable: [Air pressure \(near surface\)](#)

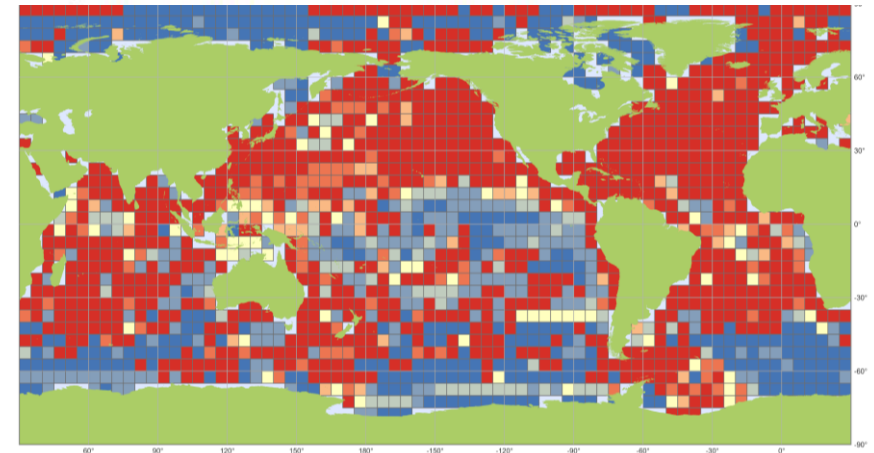
In application: [2.1 Global Numerical Weather Prediction and Real-time Monitoring](#)

Application-dependent Technical Priority: 0.0

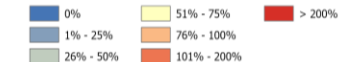
	Goal	Breakthrough	Threshold	Priority
Uncertainty	0.5 hPa	1 hPa	1 hPa	
Layer/s Quality				
Coverage Quality				
Stability/decade (if applicable)				
Horizontal Resolution	15 km	100 km	500 km	
Vertical Resolution				
Observing Cycle	60 min	6 h	12 h	
Timeliness	6 min	30 min	6 h	

### Specifications

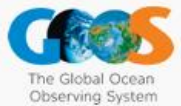
- └ Domain: Atmosphere
  - └ Subdomain: Basic atmospheric
    - └ Variable: [Air pressure \(near surface\)](#)
      - └ Applicable (vertical) layers:
        - └ Near Surface
      - └ Horizontal Coverage: Global ocean



Sea Level Air Pressure Coverage February 2025  
 Across all platforms of the Ship Observations Team (SOT) and the Data Buoy Cooperation Panel (DBCP)  
 Targets per OSCAR requirement 251 (Threshold) in 5°\*5° grid



## GOOS PUBLICATION



### GOOS Observations Coordination Group Cross-Network Data Implementation Strategy

EDITORS: KEVIN O'BRIEN, EMMA HESLOP,  
MATHIEU BELBEOCH, THE OCG EXECUTIVE TEAM



MARCH 2024  
REPORT NO.: GOOS-296

## GOOS mandatory!



- Platform ID
- Affiliation
- Data
- Operations
- Hardware
- Status

Coming soon: Cruises

**OceanOPS passport**

Mandatory metadata  
Computed metadata  
Nice to have metadata

(\*) Reference table

**Platform identification**  
WIGOS ID: 0-22000-0-1901730  
Subsurface Profiler - Float

**Affiliation**  
Program: Argo WHOI  
Country: UNITED STATES  
Lead agency/organization: WHOI  
GOOS network: Argo  
Observatories (if applicable):  
Tags (other networks): Argo Core, Argo Global, AtlantOS

**Data**  
[DAC]: AOML  
[GDAC]: Coriolis, NDBC  
Link to the data: <https://data-argo.ifremer.fr/dac/aoml/1901730>  
GDAC ID/GTS ID: 1901730

<b>Operations</b>	
Deployment/Launch date: 2014-09-18T21:34:00	Ending date: N/A
Deployment/Launch latitude: 24.9435	Ending latitude: N/A
Deployment/Launch longitude: -46.83	Ending longitude: N/A
Deployment ship (if applicable): MAERSK VILNIUS	Recovery ship: N/A
Deployment/Launch cruise: AX08	Ending cause: N/A
	Recovery cruise: N/A

**Hardware**  
Platform model: S2A  
Platform manufacturer: MRV Systems  
Serial number: 7202  
[Sensor models]: SEABIRD\_SBE41CP, DRUCK\_2900PSIA  
[Sensor manufacturers]: Sea-Bird Electronics, Inc., DRUCK  
[Variables]: [Ocean salinity, Ocean Temperature, Pressure], [Pressure]  
[Sensor serials]: 4881, 3590569  
[Sensor heights/depths] (if applicable): N/A  
[Sensor start dates]: N/A  
[Sensor end dates]: N/A  
[Sensor providers] (if applicable): N/A

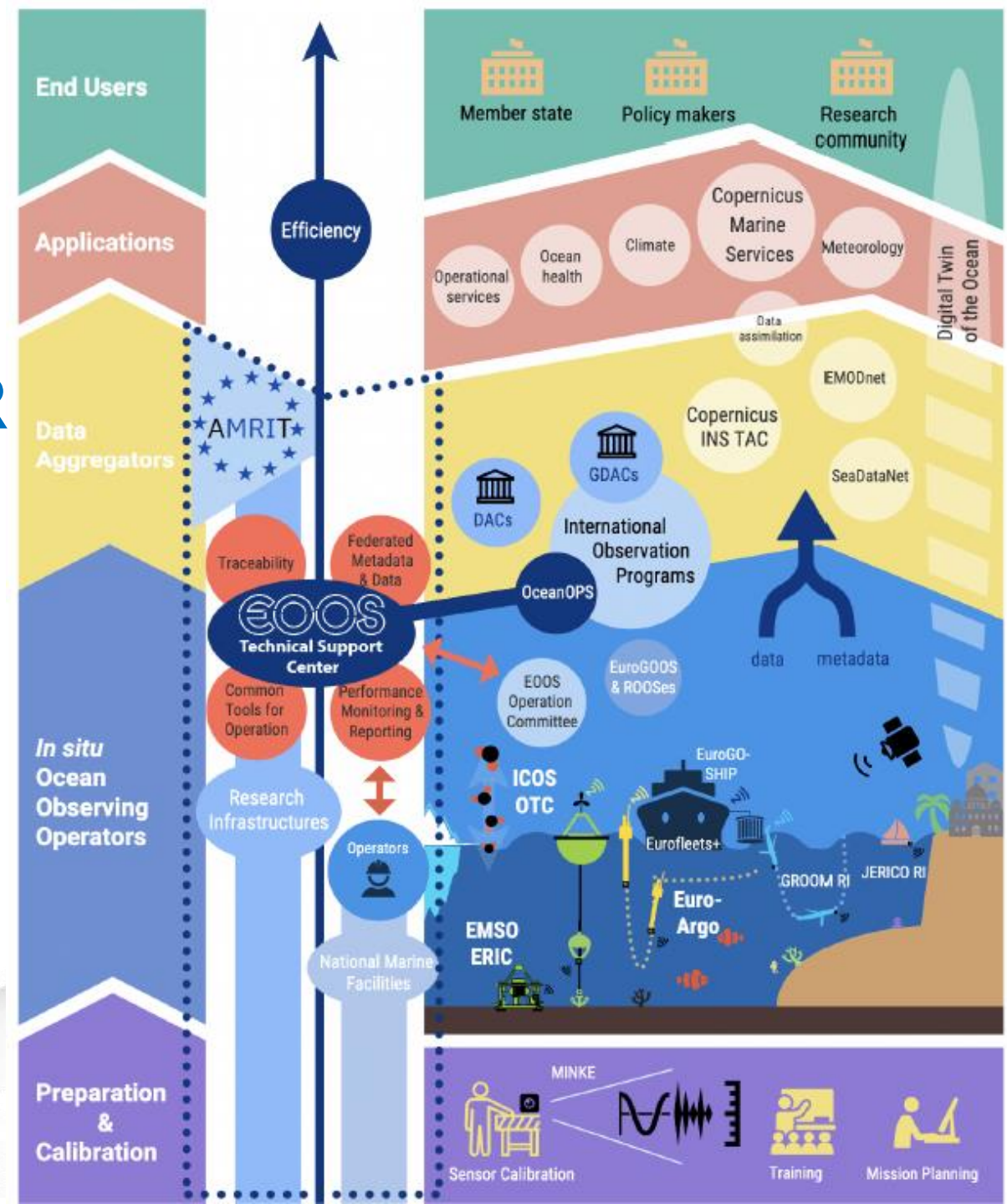
**Status**

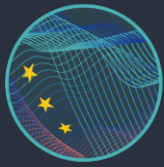
Status: OPERATIONAL	Latest observation date: 2025-01-25T09:12:50
Data quality flag: A	Latest observation latitude: 26.966
	Latest observation longitude: -27.035

# 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.





## 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).

# SHARING CRUISE PLANS WITH OCEANOPS, MACHINE-2-MACHINE MUCH APPRECIATED

- 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 some MFP users
    - ii) some IT development regarding the mapping of cruise IDs
  - Other solutions are welcome; AMRIT delivery deadline upcoming!



^ Collapse



Martin ✓



Simple search

Free text search

Advanced search

Platforms Cruises Contacts Ships Lines Documents Programs Agencies

10 results / 1840

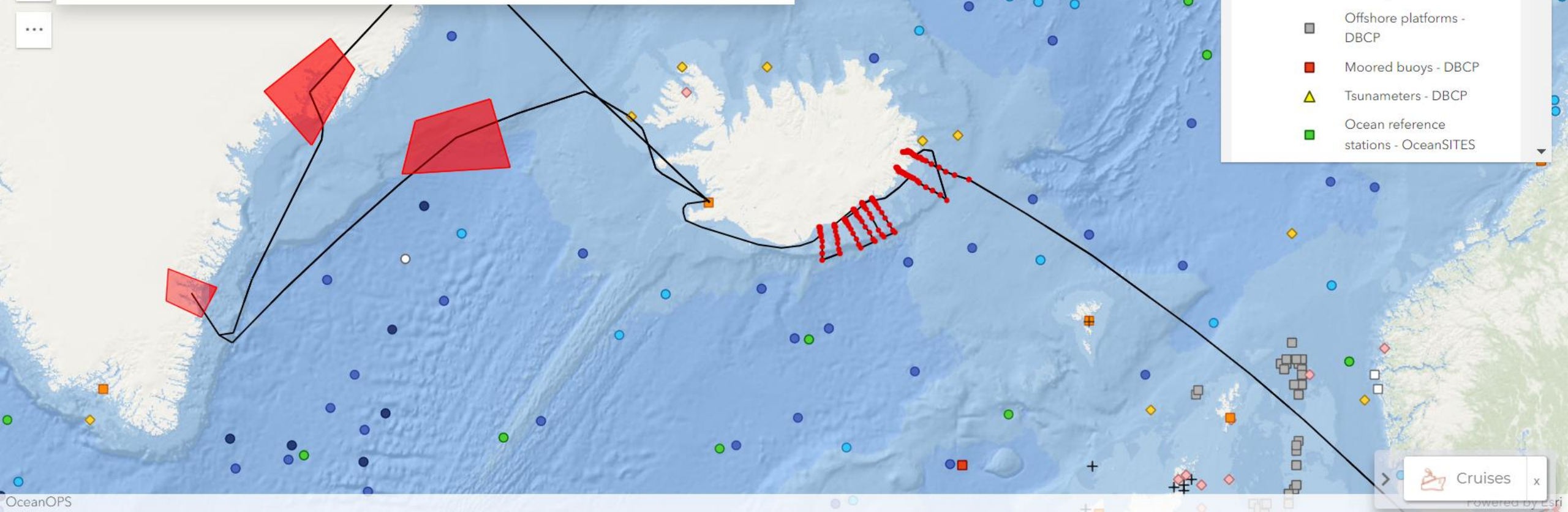
Clear

SKAGERAK (ICES Code: 7720) (Ship) x

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





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



# www.10000ships.org

## 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.

## 10 000 SHIPS FOR THE OCEAN



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

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.

## 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.

## VOLUNTARY OCEAN COMMITMENT

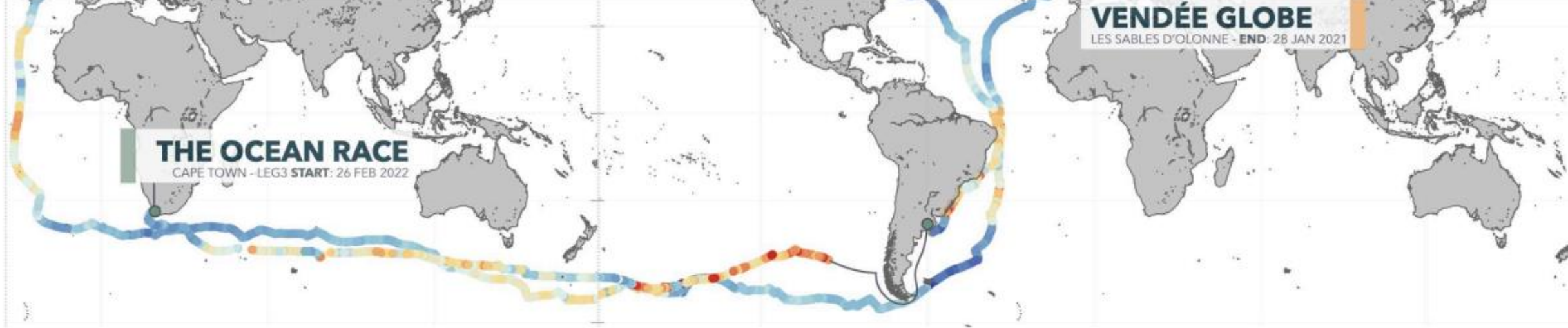
"By 2035, the initiative aims to increase commercial ships participation in the Global Ocean Observing System, reaching 10 000 vessels providing real-time weather and surface ocean data."

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.

## THE WAY FORWARD





# 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<sub>2</sub> 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.





## WITH IMMEDIATE MEDIA IMPACT

### Hamburger Abendblatt

#### Boris Herrmann stellt überraschend neue Jacht vor



#### Herrmann stellt Malizia Explorer vor - Ein Segelboot für die Klimaforschung

Segelbooter Herrmann stellt das neue für Boris Herrmann und sein Team Malizia, die Klimaforschung der Jahre 2025 für die Weltumsegler aus Hamburg vor. Malizia Explorer

### Kieler Nachrichten

Weltumsegler Boris Herrmann stellt neues Forschungsschiff vor



### Neue Malizia-Mission - Boris Herrmann stellt Forschungsschiff vor



# AN EXCITING ANNOUNCEMENT

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

# CONCLUDING...

- Make RVs full contributors to SOT (and SOCONET; more to come)
- 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 (environmental) costs

**THANKS!**  
**MKRAMP@WMO.INT**