

# Next Generation of European Research Vessels: Current Status and Plausible Evolution

Juanjo Dañobeitia –  
on behalf of EMB Working Group



## EMSO ERIC Workshop on Sea Operations for Ocean Observatories

Session 4B – Mutualisation of heavy means for servicing observatories

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Toulon, France

European  
**MARINE BOARD**  
Advancing Seas & Ocean Science

emso  
**ERIC**  
EUROPEAN RESEARCH INFRASTRUCTURE CONSORTIUM

**ervo**  
european research  
vessel operators

# EMB Working Group on Research Vessels

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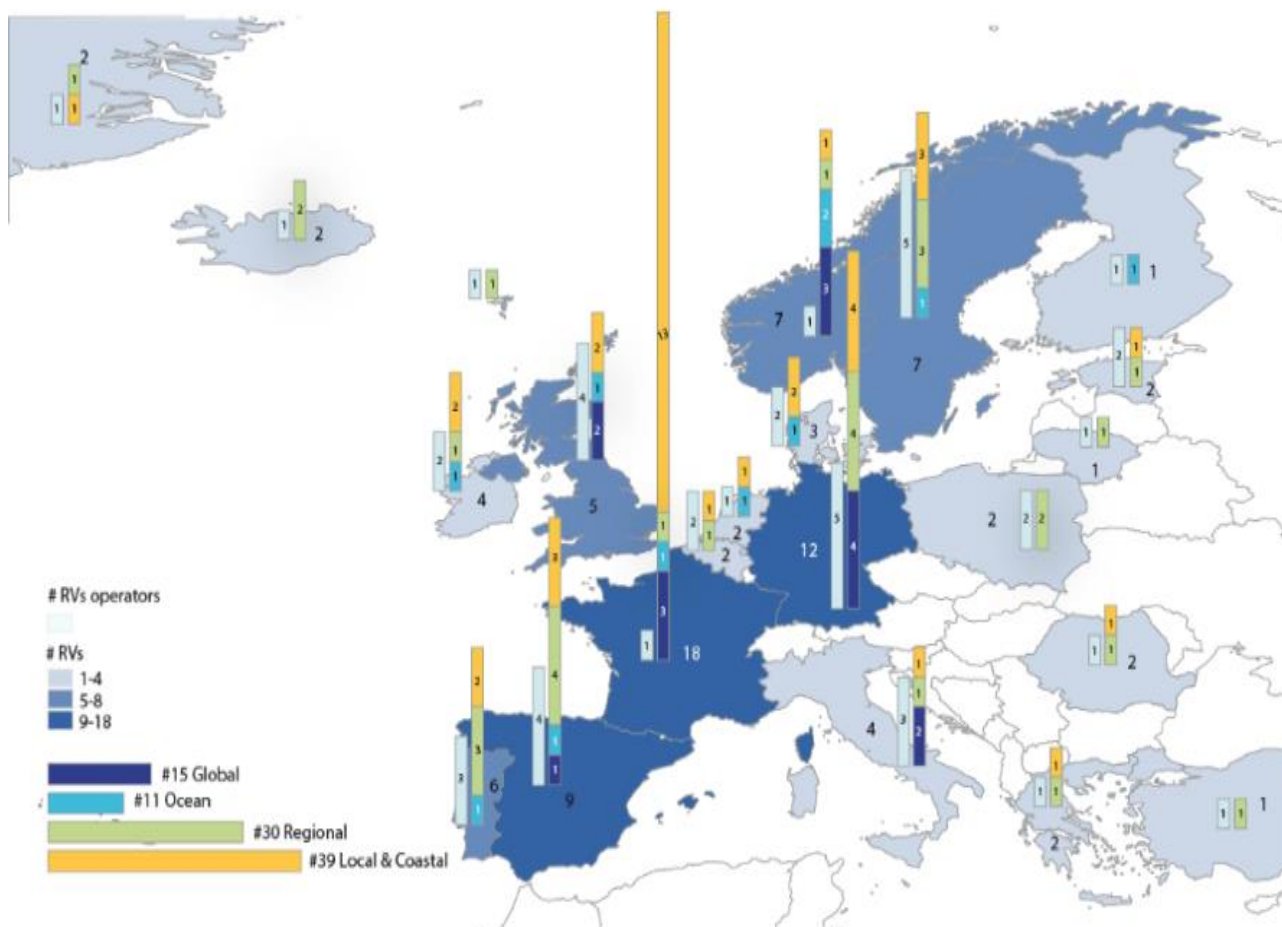
- Kicked off May 2018, Position Paper due next Autumn 2019
- European Marine Board (EMB) in collaboration with European Research Vessel Operators (ERVO)
- Main Objectives:
  - **Review the current status of European Research Vessels and related equipment;**
  - Identify the progress made since the previous EMB Position Paper in 2007;
  - Assess the role of Research Vessels as part of the wider European Ocean Observing System (EOOS) and within the scope of advancing marine and ocean science research;
  - Explore options for future management of the fleet within Europe, exploring wider-ranging collaborations, co-ownership, chartering, training at sea opportunities etc.;
  - Explore options for enhancing the European Research Vessel Fleet capability as a world-class infrastructure resource for the international marine research community and finding ways to further enhance existing collaboration between projects, networks and nations to enhance access, training and interoperability opportunities, and hence cost-efficient use of these valuable resources.

## Working Group Membership

- **Chair - Per Nieuwejaar**, Institute of Marine Research (IMR), Norway
- **Co-chair - Valérie Mazauric**, Ifremer, France
- **Mafalda Carapuço**, Instituto Português do Mar e da Atmosfera (IPMA), Portugal
- **André Cattrijsse**, Flanders Marine Institute (VLIZ), Belgium
- **Franco Coren**, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Italy
- **Juanjo Dañobeitia**, European Multidisciplinary Seafloor and Water-Column Observatory (EMSO), Italy
- **Colin Day**, National Oceanographic Centre (NOC), UK
- **Aodhan Fitzgerald**, Marine Institute (MI), Ireland
- **Stefan Florescu**, GeoEcoMar, Romania
- **Jose Ignacio Diaz**, Spanish Institute of Oceanography (IEO), Spain
- **Michael Klages**, Alfred Wegener Institute (AWI), Germany
- **Erica Koning**, Netherlands Institute for the Sea (NIOZ-NMF), Netherlands
- **Olivier Lefort**, Ifremer, France
- **Giuseppe Magnifico**, Italian National Research Council (CNR), Italy
- **Øystein Mikelborg**, Norwegian Polar Institute (NPI), Norway
- **Lieven Naudts**, Royal Belgian Institute of Natural Sciences (RBINS - OD Nature), Belgium



# Consulting with Stakeholders



Survey sent to research vessel operators in Summer 2018

**45 responses covering 104 vessels from 22 countries**

Collect information on the national management of the European research vessel fleets, including funding mechanisms, investment plans, collaborations and partnerships, and training opportunities

Survey sent to research vessel stakeholders in Summer 2018

**Over 70 responses from 23 countries**

Collect information regarding RV's and their use in Europe, and the perspectives of different stakeholder groups including research, funders, industry and technology developers

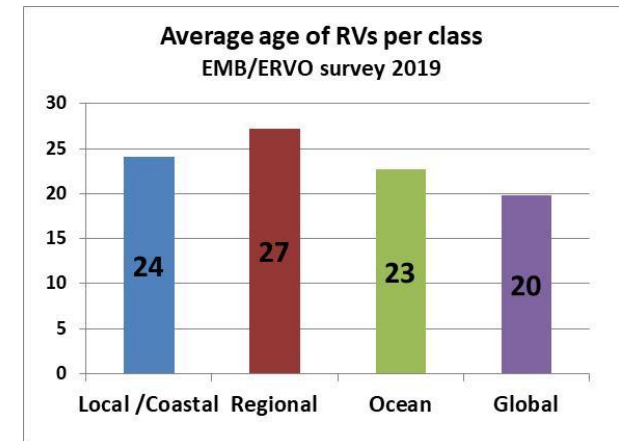
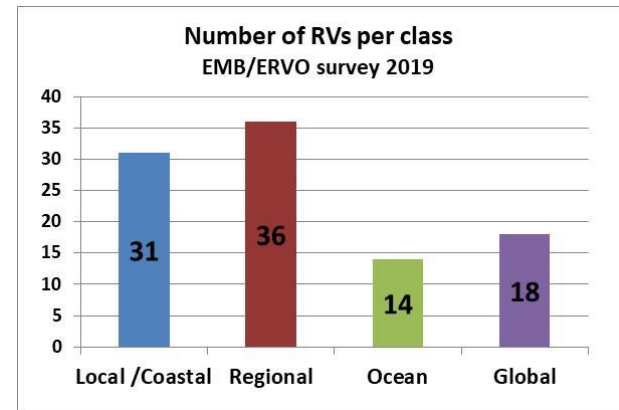
# Position Paper Content

- The position paper includes the following main chapters:
  - Research vessels as a platform and interface for ocean technology
  - Deep sea
  - Polar regions
  - Towards an end-to-end European Ocean Observing System (EOOS):  
A research vessel perspective
  - Training the next generation of professionals
  - Management processes in the countries and partnerships developed in Europe



# Main Messages (1)

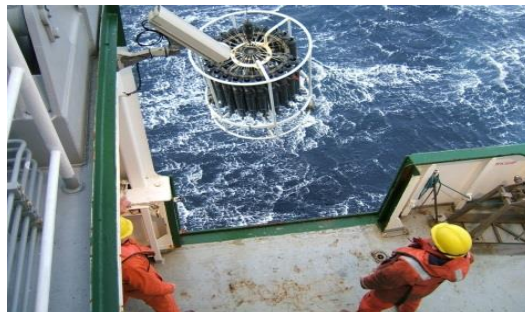
- Europe currently has **99 research vessels from 23 countries** that are:
  - openly available for public research
  - able to operate at least on a regional scale
  - equipped with a minimum set of basic capabilities to conduct standard research
- Europe currently has a **highly capable but aging** Research Vessel fleet, with a current average age of 24 years
- The **capabilities of the fleet have increased dramatically since 2007, especially in terms of the equipment and Large EXchangeable Instruments (LEXI)** they have and deploy, and in keeping up with new technological developments



## Main Messages (2)

- The European Research Vessel fleet comprises:
  - **19 deep sea capable RVs but only 7 in Category A** with acoustics capabilities, winches and A-frames capable to operate at 6000 m water depth, deploy large equipment, and with at least 30 berths for scientists and technicians
  - **19 ice-strengthened RVs but only 5 ice-going/ice-breaking RVs** capable of year-round operations under various ice conditions
- Research Vessels are **essential in Ocean Observation** and have **a dual role** by providing the facility services for in-situ data collection and by deploying or servicing many types of EOOS components (stationary and mobile platforms).

A close communication between EOOs and the research vessel operator community is needed to make sure that Research Vessels are fit for purpose.



# Main Messages (3)

- There is **a huge diversity across Europe** in terms of:
  - capabilities and equipment
  - management structures and processes
  - training possibilities (vessel crew, instruments technicians and land-based staff)
  - approaches for granting and funding vessel access and ship-time
- It is **not possible or appropriate to highlight one “correct” approach**, but options do exist for improving efficiency and collaboration in several aspects of research vessel use and management such as:
  - **pooling and sharing** of equipment
  - exploring possibilities in training and pooling crew
  - projects and/or initiatives for **increasing ship access for all researchers**





# Main Recommendations (1)

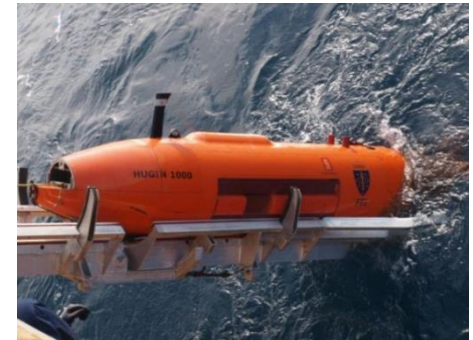
- Ensure **periodic collection and updating of information** (to be made publicly available) **to keep funding agencies and decision makers informed** about status and trends on:
  - European research vessel fleet
  - **research vessel fleet capabilities**
  - **available Large EXchangeable Instruments (LEXI) and other equipment**
  - **vessel operation and management trends**
- **The European RV fleet is ageing and should continue to be modernized and renewed** to ensure it can still support science needs of today and in the foreseeable future in terms of both quantity and capabilities.



## Main Recommendations (2)

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- **The research vessel community should look towards future requirements,** including being able to support the next big technological and digital developments such as:
  - demand for near real-time data delivery
  - SMART sensors
  - increasing autonomy and interaction of autonomous equipment
- The essence of Research Vessels in the EOOS should be consolidated through the **establishment of a prominent role of the RV operator networks in the EOOS management.**



## Main Recommendations (3)

- **The research vessel community should continue on its path towards greater collaboration** in order to aim for:
  - **more effective and efficient use of resources and equipment:** cooperation already exists for Global and Ocean Class vessels, but collaboration on a regional level is limited
  - **Sharing resources is also efficient on a national level**, by creating national pools of equipment, instruments and maritime crew
  - **appropriate training** for all parties involved in research vessel activities

**Transnational Access (TA) based on excellent science** should be developed to get access to European RV's and enlarge the community of users, in particular **for deep-sea** and polar RV's which exist in a limited number.

# “POTENTIAL SUPPLY” OF THE EUROPEAN RESEARCH FLEETS TO LOGISTICS AND MAINTENANCE OF EMSO ERIC REGIONAL FACILITIES



**RV CELTIC EXPLORER**



**RRS JAMES COOK**



**RV L'ATALANTE**



**RRS DISCOVERY**



**RV GO SARS**



Nor-EMSO

**RV MARIA S. MERIAN**



Smartbay

Porcupine Abyssal Plain

Molène Island

Ligurian Sea

U. Sea

Black Sea

Azores Islands

Iberian Margin

Western Ionian Sea

Hellenic Arc

Canary Islands

**RV POSEIDON**



**RV ALVARIÑO**



**RV MARE NIGRUM**



**RV AEGEAO**



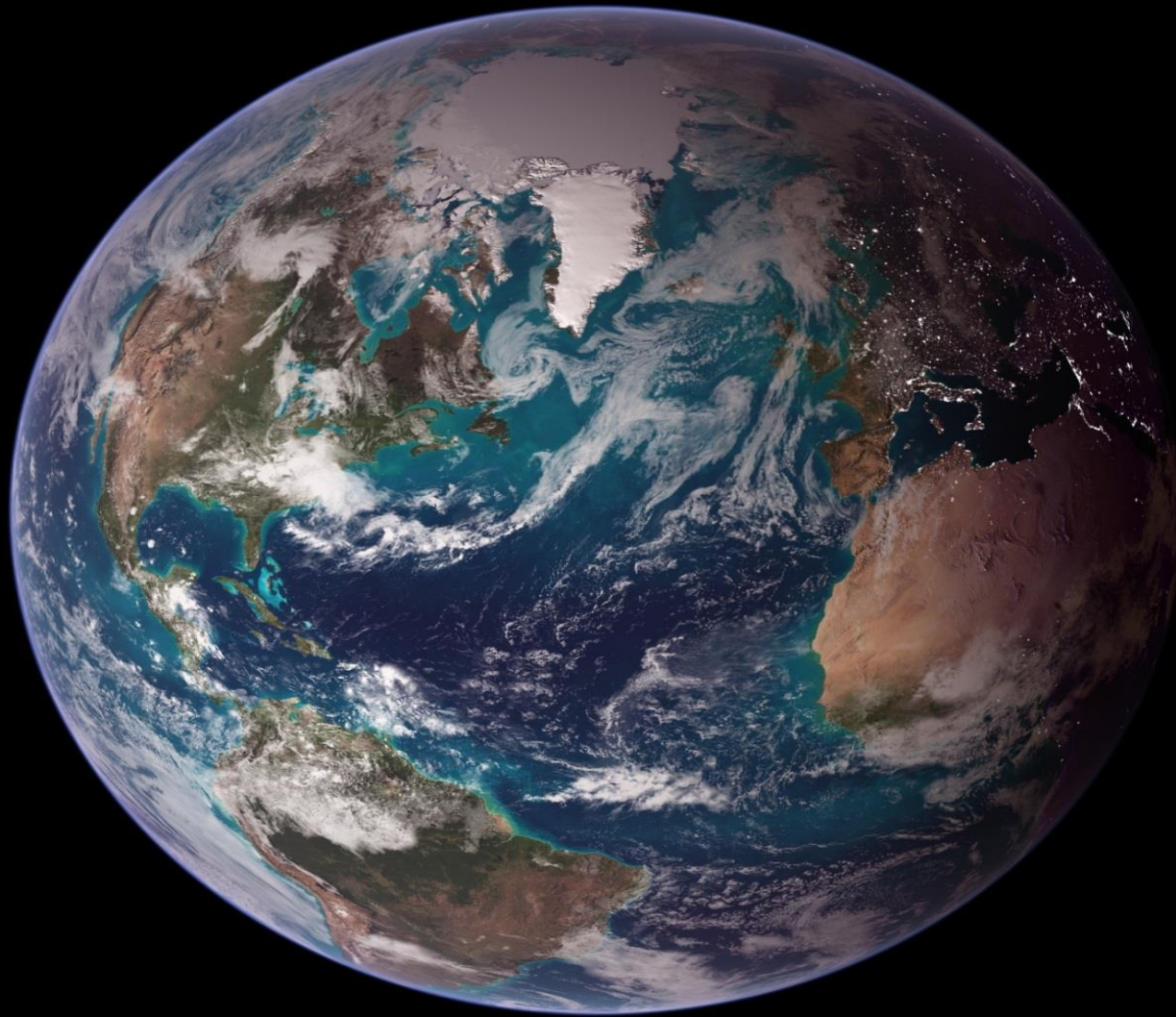
**RV DALLAPORTA**



**RV SARMIENTO DE GAMBOA**



**ADDED VALUE**  
Enhance value of Scientific recordings, increasing efficiency at National & EU marine science activities



**Thank you**  
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