

Next Generation European Research Vessels: Current Status and Foreseeable Evolution

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The Future of Europe's Research Vessel Fleet – Joint EMB & EurOcean Open Session

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European
MARINE BOARD
Advancing Seas & Ocean Science

ervo
european research
vessel operators

EMB Working Group on Research Vessels

- European Marine Board (EMB) in collaboration with European Research Vessel Operators (ERVO)
- Kicked off May 2018, Position Paper 25 launched 6 November 2019
- Main Objectives:
 - Review the current status of European Research Vessels and related equipment;
 - Identify the progress made since the previous EMB Position Paper 10 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.

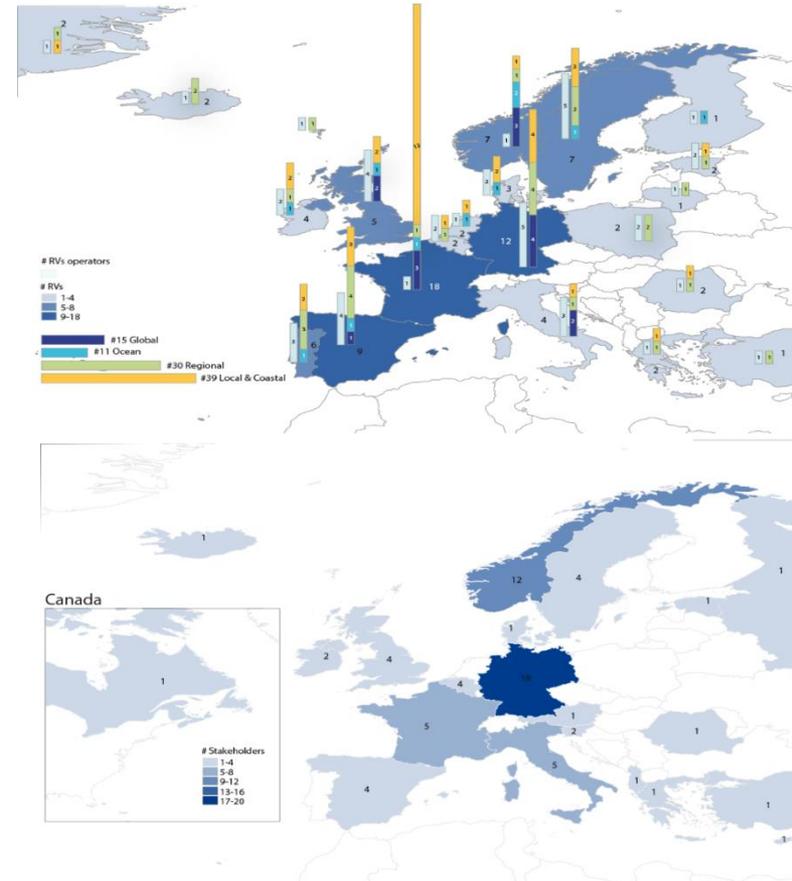
Working Group Members

- **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 Danobeitia**, European Multidisciplinary Seafloor and Water-Column Observatory (EMSO), Italy
- **Colin Day**, National Oceanographic Centre (NOC), UK
- **Aodhan Fitzgerald**, Marine Institute (MI), Ireland
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- **Jose Ignacio Diaz**, Spanish Institute of Oceanography (IEO), Spain
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- **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
- **Christian Betzler**, University of Hamburg, Germany



Consulting with Stakeholders

- Survey sent to research vessel operators in Summer 2018
 - 45 responses covering 104 vessels from 22 countries
 - Collected 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
 - Collected information regarding Research Vessels and their use in Europe, and the perspectives of different stakeholder groups including research institutions, funding agencies, industry and technology developers
- The working group and its activities have also been presented and discussed at a number of conferences, meetings and events



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



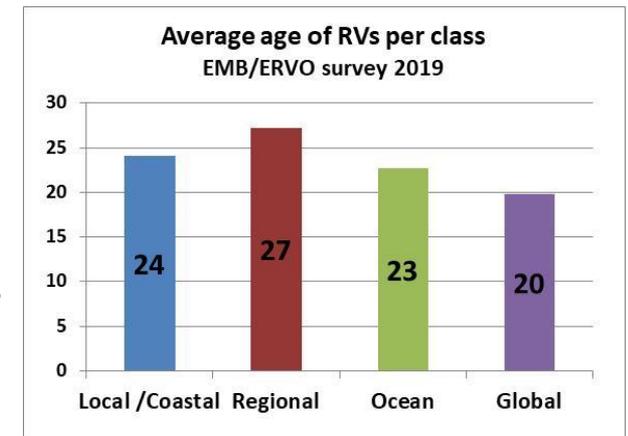
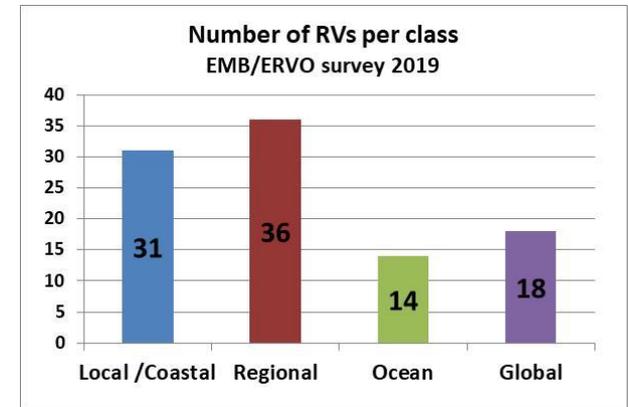
RV L'Atalante and ROV Victor 6000 © Ifremer, S. Lesbats



RV Kronprins Haakon © Norwegian Polar Institute, Ø. Mikelborg

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 25 years
- The **capabilities of the fleet have increased dramatically since 2007, especially in terms of the equipment and Large EXchangeable Instruments (LEXI)**, and in keeping up with new technological developments



Main Messages (2)

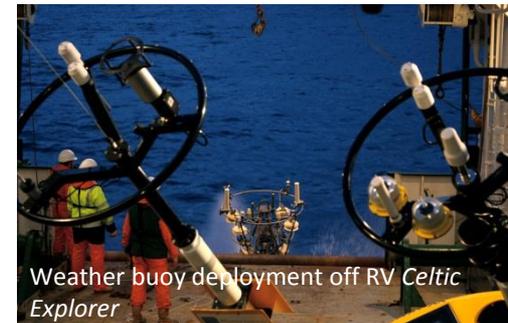
- The European Research Vessel fleet comprises:
 - **16 deep sea capable RVs, but only 8** with acoustics capabilities, winches and A-frames capable to operate at 6000 m water depth, deploy large equipment, and with at least 30 berths for scientists and technicians
 - **24 ice-strengthened RVs, but only 9 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 (autonomous, 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 of 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 trendse.g using the EurOcean Research Infrastructure Database (RID), www.rid.eurocean.org
- **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)

- **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 on a national level**, by creating national pools of equipment, instruments and maritime crew
 - **Appropriate training** for all parties involved in research vessel activities
- ERVO should take an active role in **promoting activities for training** of instrument technicians, crew and shore-base staff, and should seek partnerships (IOC, OTGA) to develop courses on all aspects of vessel operations.
- **Transnational Access (TA) mechanisms based on excellent science** should be further developed to give access to European Research Vessels and enlarge the community of users, in particular for deep-sea and polar Research Vessels which exist in a limited number.

More information available online:

<http://www.marineboard.eu/european-research-vessels>





Thank you

www.marineboard.eu | www.ervo-group.eu