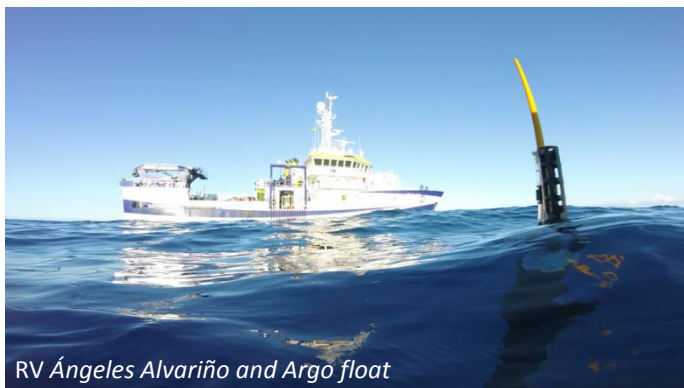


Next Generation European Research Vessels: Current Status and Foreseeable Evolution

Valérie Mazauric, Ifremer, EMB Working Group co-Chair



RV Ángeles Alvariño and Argo float



RV Celtic Explorer © Marine Institute

Research Vessels in the European Ocean Observation landscape

11th June 2019

EuroOCEAN 2019, Paris, France

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 due Autumn 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.

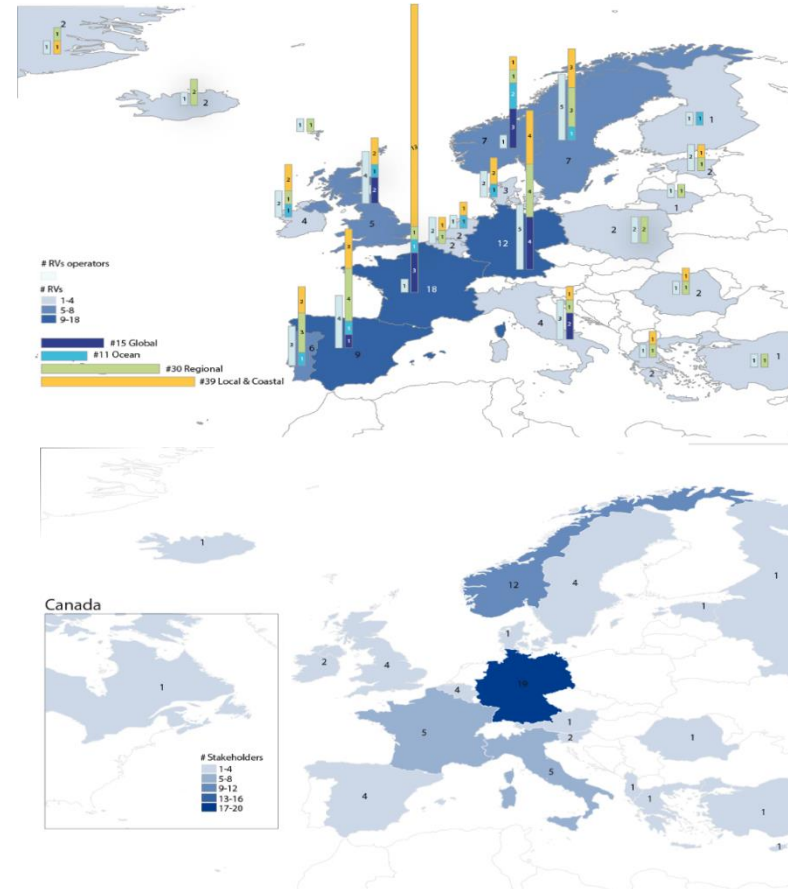
Working Group Members

- **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
- **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
- **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



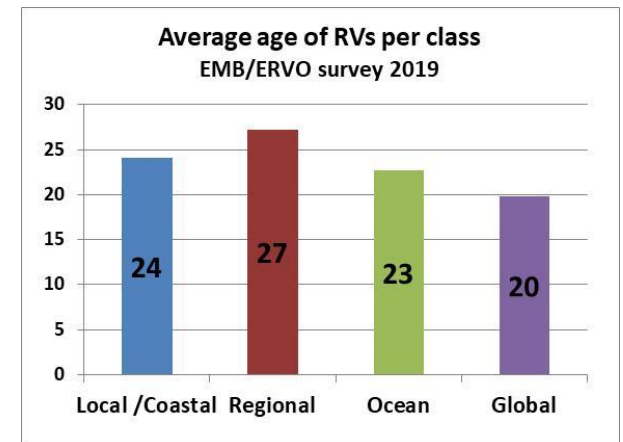
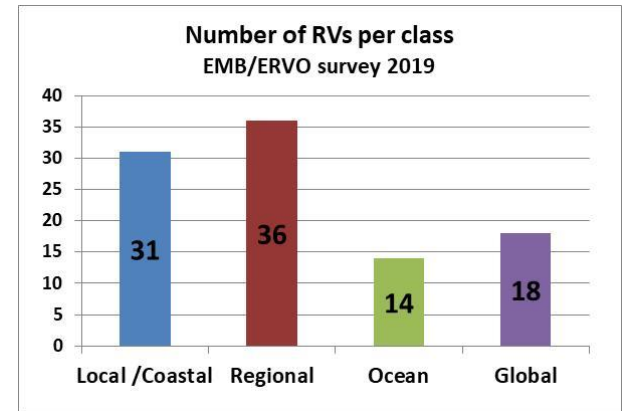
RV L'Atalante and ROV Victor 6000 © Ifremer, S. Lesbats



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 24 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:
 - **19 deep sea capable RVs, but only 7** 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 (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>



Credit: Kerstin Nightingale, GEOMAR. RV Meteor



Thank you

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