

Towards the development of an overarching Marine Research Infrastructures information system

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Background

The development, update and maintenance of comprehensive publicly-available online inventories of a wide array of marine research infrastructures is one of EurOcean's core tasks. Such information has been collected and stored in a number of InfoBases developed in recent years taking advantage of various opportunities and projects, and is an important source of information for the research and operational oceanographic community. The currently active databases are:

- InfoBase on the European Research Vessels - EurOcean_RV.
- InfoBase on Aquaculture Experimental and Research Facilities – EurOcean_AF.
- InfoBase on the Large Exchangeable Instruments - EurOcean_LEXI.
- Marine Research Infrastructures InfoBase - EurOcean_RID.

These InfoBases gather information on over 900 unique pieces of infrastructure, primarily located in Europe. A key objective of EurOcean is to leverage the value of this information by creating synergies with ongoing initiatives and projects. For example, the EurOcean_RV and the EurOcean_LEXI are seamlessly linked to the Virtual Infrastructure in Ocean Research (EVIOR), as part of the FP7 Eurofleets project; the EurOcean_RV is linked directly to the Partnership for Observation of the Global Oceans (POGO) website and the EurOcean_RID is the source of information on Ocean Research Infrastructures for the JPI (Joint Programming Initiative) Oceans.

Opportunity for Rationalisation

Nevertheless the maintenance of separate databases, with slightly varying and sometimes overlapping information became more difficult over time and also as the quantity of information grew. Therefore the challenge was to develop an integrated system in order to harmonise the above four Infrastructure InfoBases, to be compatible with standards and vocabularies deployed by oceanographic organisations, to streamline the update process, to improve the filtering and the displaying functions and to allow for easier evolution of the whole information system. This led to a development of one reference InfoBase, designed as a modular system which is also more coherent in terms of accessibility for all stakeholders in the marine sciences community.

The New database – RID 2.0

The new database is being developed upon the existing Marine Research Infrastructures InfoBase. The upgraded InfoBase provides a dynamic structure with a core module and additional specialised modules associated with the existing databases. For the first stage three modules are foreseen, for the EurOcean_RV, EurOcean_AF and EurOcean_LEXI integration. The attributes of the objects to be available within any new future modules will be proposed by experts and will be deployed to the database model when required.

Other user-friendly capacities are being incorporated in the new database such as:

- Simplification of the categories of infrastructures: this will make it more intuitive and easier to search for users.
- Real-time location for Research Vessels: such live-feeds are appealing and can be very helpful to keep up to date on the status and cruises of the vessels.

- Compatibility with standards, protocols and vocabularies: this will facilitate machine to machine communications and simplify integration and seamless sharing of information with other initiatives.
- Real-time statistics: For a visual insight of the information available in the database (e.g. age of research vessels, operating depths of underwater vehicles)

The data model used for the new InfoBase is being upgraded to ensure coherence of data and compatibility with ISO and other standards being used by the oceanographic community. Reduced redundancy of data across modules and reference to the vocabularies provided by SeaDataNet reduce resources required for the Infobase management and enhances the overall quality of information provided to users.



Figure 1: EurOcean Marine Research Infrastructures Database Interface [EurOcean_RID V1.0]

The challenge ahead towards a RID 3.0

The new database is conceived to be part of an evolving system. The subsequent steps for the development are expected to contain more user-friendly assets that will improve not only the usability of the database but also, the available content. The next set of upgrades will focus on:

- Inclusion of more specialised modules in connection with other European initiatives;
- Generation of tailored reports in accordance with the search made by the user;
- Natural language search.

Conclusion

The streamlining of one of Europe's premier sources of information on European marine research infrastructures will facilitate the management and future development of the system while simplifying the potential for sharing and synergistic use of its content with current and new initiatives requiring access to comprehensive marine infrastructural information.