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# SEADATANET: A Pan-European Infrastructure for Ocean and Marine Data Management

Life began in the oceans and slowly migrated onto earth. The particular environmental conditions of both land and sea are of fundamental importance for life to continue to exist, but the often extreme conditions of the oceans pose a real challenge for research infrastructures in marine sciences. For effective marine monitoring, distributed infrastructures in terms of networks of sensors and stations, together with modern communication technology, are a prerequisite not only for basic research and environmental concerns, but also for civil protection and disaster preparedness. The marine observing system is highly distributed as hundreds of parameters are measured by hundreds of laboratories using sensors installed on the research fleet and other platforms. To handle this large volume of heterogeneous data and ensure access to it, the SEADATANET consortium is developing a unique virtual marine data management system. With the help of an €8.75 million EU grant, it is building up a virtual data centre bringing together the major marine institutes of 35 countries bordering the North-East Atlantic, the Baltic, the Mediterranean and the Black Sea, as well as satellite data centres, modelling centres and two international organisations.

## ● AN OCEAN OF INFORMATION

In 35 countries bordering the European seas, more than 600 scientific laboratories from governmental organisations and private industry collect data by using various sensors on board research vessels, submarines, fixed and drifting platforms, aircraft and satellites to measure physical, geophysical, geological, biological and chemical parameters and biological species, etc. It is vitally important for marine scientists to have reliable information at their fingertips, but that old research infrastructure handicap of fragmented, not-easily accessible data affects this sector, too. SEADATANET has thrown them a lifeline with its plan to develop an efficient distributed Pan-European Marine Data Management

Infrastructure capable of handling huge and diverse data sets.

At an estimated cost of about €10.5 million over 5 years, this Integrated Infrastructure Initiative brings together some 50 partners from 35 Euro-Mediterranean countries' oceanographic institutes - all experienced in data management and product preparation through projects like MEDAR/MEDATLAS, SEARESEARCH and other joint projects with the Intergovernmental Oceanographic Commission and the International Council for the Exploitation of the Sea - to produce integrated databases of standardised quality on-line.

## ● ALL-IN DATA CRUISES

The SEADATANET concept of a semi-distributed model embraces common standards based on ISO19115 and Marine XML and seeks to develop standardised interfaces with other related networks (like the Black Sea Scientific Network also funded under the EU's Research Infrastructures programme, and the US ocean data system DMAC), as well as with other environmental networks (atmospheric, geographical, land and river networks).

communication standards and adapted technology will ensure these data management platforms' interoperability. This Joint Research Activity will be developed to gradually connect all the other data centres to the interoperable system.

Access to in-situ and remote-sensing data, meta-data and products will be provided through a unique portal interconnecting, in the first phase, 11 node platforms from Norrköping to Anavyssos, Toulouse to Trieste. The development and adoption of common

The quality, compatibility and coherence of data emanating from so many sources will be ensured by adopting standardised methodologies for data-checking, by dedicating part of the activities to training and by preparing synthesised regional and global statistical gridded products from the most comprehensive in-situ and remote-sensing data sets made available by the project partners.

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These products, easier to interpret for non-specialist users, will be used first of all to check the data and the system operability, and further to market SEADATANET and to serve a wider range of uses than raw data, such as model initialisation, industrial projects and teaching.

The sheer scale of the SEADATANET Virtual Data Centre presents several technical and organisational challenges to get a fully operational system, which will be met through the network of national multidisciplinary data centres and links with other major data sources and other project activities such as a training and

capacity-building programme, a project office with call desk and a tracking system to ensure the operability of the system and get feedback from users. Other Joint Research Activities involving scientists from several high-level institutes concentrate on preparing integrated data products and drawing up new methodologies to improve the system.

SEADATANET's value-added information products and indicators will be highly useful tools not only for marine scientists, but also for environment, climate change and natural resources management researchers and even biochemists.

## ● A PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN AND MARINE DATA MANAGEMENT IN SUMMARY

**Project acronym:** SEADATANET

**Funding scheme (FP6):** Integrated Infrastructure Initiative (I3)

**EU financial contribution:** €8.75 million

**EU project officer:** Lorenza Saracco

**Duration:** 60 months

**Start date:** 1 April 2006

**Completion date:** 31 March 2011

**Project webpage:** [www.seadatanet.org](http://www.seadatanet.org)

**Coordinator:** Gilbert Maudire, Institut Français de Recherche pour l'Exploitation de la Mer, [gilbert.maudire@ifremer.fr](mailto:gilbert.maudire@ifremer.fr)

**Partners:** Institut français de recherche pour l'exploitation de la mer (FR), Marine Information Service (NL), Natural Environment Research Council (UK), Bundesamt für Seeschifffahrt und Hydrographie (DE), Swedish Meteorological and Hydrological Institute (SE), Instituto Espanol de Oceanografía (ES), Hellenic Centre for Marine Research (EL), Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (IT), All Russian Research Institute of Hydrometeorological Information – World Data Centre (RU), Intergovernmental Oceanographic Commission of UNESCO (INO), Ente per le Nuove Tecnologie l'Energia e l'Ambiente (IT), Istituto Nazionale di Geofisica e Vulcanologia (IT), Institute of Marine Sciences of Middle East Technical University (TR), Collecte

Localisation Satellite (FR), Alfred Wegener Institute für Polar und Meeresforschung (DE), University of Liège (BE), Institute of Marine Research (NO), National Environmental Research Institute (DK), International Council for the Exploitation of the Sea (INO), JRC-Ispra (EC), Marine Institute (IE), Instituto Hidrografico (PT), National Institute for Coastal and Marine Management (NL), Royal Belgian Institute of Natural Sciences (BE), Vlaams Instituut voor de Zee Vzw (BE), Marine Research Institute (IS), Finnish Institute of Marine Research (FI), Instytut Meteorologii i Gospodarki Wodnej (PL), Marine System Institute (EE), Institute of Aquatic Ecology University of Latvia (LV), Centre of Marine Research (LT), Shirshov Institute of Oceanology (RU), Marine Hydrophysical Institute (UA), Institute of Oceanology (BG), National Institute for Marine Research and Development (RO), Tbilisi State University (GE), Institut National de Recherche Halieutique (MA), Institute of Oceanography & Fisheries (HR), Polytechnic University (AL), National Institute of Biology (SI), University of Malta (MT), University of Cyprus (CY), Israel Oceanographic & Limnological Research (IL), National Council for Scientific Research (LB), National Research Council Atmosphere and Climate Sciences Institute (IT), Institut des Sciences de la Mer et de l'Aménagement du Littoral (AL), Institut National des Sciences et Technologies de la Mer (TN)