

ODATIS: cluster for French marine data management

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Context

The ocean is the largest compartment on Earth, and the current and expected consequences of global changes are multiple. The recent decades have seen a significative increase in the number of marine and coastal observations, both for *in situ* and remote sensing measurements. The number and variety of acquisitions now require effective tools to make such large amounts of data available to the research community. These observations must also be accessible to a wide public, from scientists to managers and citizens. The implementation of such an approach must be coordinated at least at the national level to achieve an adequate level of interoperability.

The Ocean cluster of the French national initiative for Earth observation data

DATA TERRA is the French research infrastructure for the management and processing of Earth observation data. The data produced by the national research infrastructures using satellites and terrestrial, coastal and marine observatories, are handled by four thematic clusters: AERIS (Atmosphere), ODATIS (Ocean), THEIA (Continental Surfaces) and FORM@TER (Solid Earth).

The aim of DATA TERRA, through its clusters, is to provide wide access to georeferenced data, products, software, tools and/or services on the Earth system produced by the French scientific community.

The ODATIS (Ocean DATA Information and Services) cluster, entry point to all French marine data, has the ambition to become an essential tool for the community to describe, quantify and understand the global ocean and its evolution across disciplines: physics, chemistry, biogeochemical cycles, marine ecosystems. The data managed include variables from all disciplines whatever the measurement platform used (satellites, *in situ* observatories, field campaigns, research cruises, laboratory analyses). ODATIS is therefore in charge of marine observation data and the associated elaborated data, from the coastline to the open sea and from the sea surface to the sea bottom. There are many interfaces with other domains - land/sea on the coastline, ocean/atmosphere, ocean/sub-ocean floor - and observation means are jointly shared.

The four main objectives of ODATIS are (figure 1) : (1) *in situ* and satellite data assembling; (2) data management and processing; (3) dissemination, promotion and support for data usage; (4) scientific expertise

To achieve those objectives, the ODATIS cluster relies on a network of Assembling Centers and Data and Service Centers (DCS) that carry out data management activities from data collection to data processing and that provide data services. It brings together six organizations: CNES, CNRS, Ifremer, IRD, Shom, as well as the network of Marine Universities. ODATIS is also part of European and international initiatives such as Copernicus, SeaDataCloud and EMODnet.

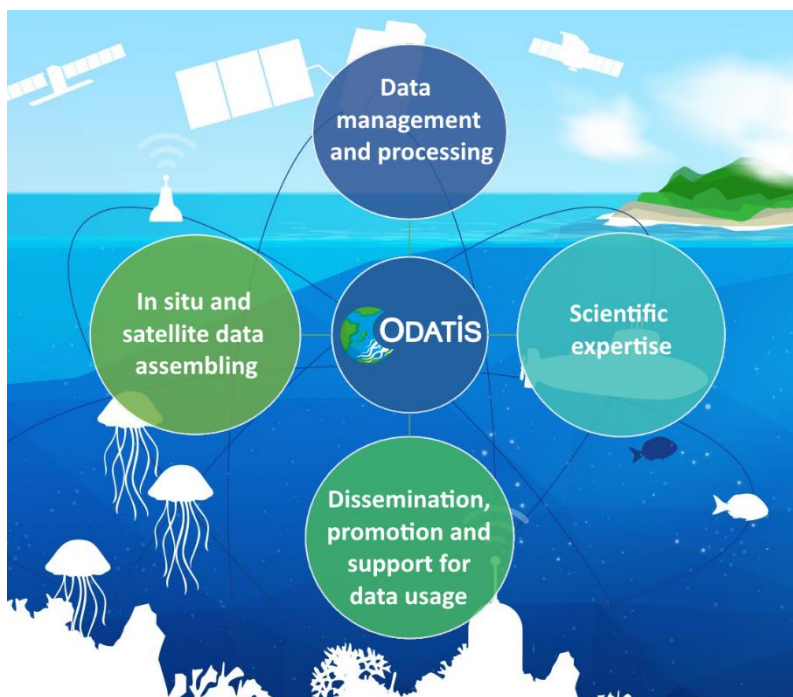


Figure 1: the objectives of ODATIS cluster

To promote and facilitate the use of ocean observations, ODATIS catalogs and facilitates access to all the data collections through its Web portal (www.odatis-ocean.fr/en). The ODATIS catalogue service provides users with several data access tools: search with selection filters, data description, viewing, and downloading (directly or via the local partner portal). As the data managed are geo-referenced by nature, the provisions and protocols relating to this type of data apply (Inspire directive, ISO 19115 family metadata, OGC interoperability protocols). The second task is to develop processing tools for handling such large amounts of data, and to generate products from observations for policy-makers, practitioners and academics.

Moreover, to define the technical orientations of the cluster, every year several technical workshops are organised (www.odatis-ocean.fr/en/activities/technical-workshops), gathering partners around presentations and round tables. Also trainings are proposed on data visualisation, analysis and processing software packages.

Finally, ODATIS relies on Scientific Expertise Consortia (www.odatis-ocean.fr/en/activities/scientific-expertise-consortium), in order to promote and develop innovative processing methods and products for space, airborne or insitu observation of the ocean and its interfaces (atmosphere, coastline and seabed) with the other DATA TERRA clusters (AERIS, THEIA and FORM@TER).

Towards data FAIRness

The ocean is an evolving environment in a context of global changes. Each observation is valuable because it is non-reproducible: it shows a state at a specific moment and allows the constitution of time series characterizing trends and allowing to model them and understand the evolution of the ocean. Scientists must tackle these challenges in a spirit of ethics, transparency and reproducibility of results. In this context, the application of FAIR principles to Earth observation data is a top priority for ODATIS. The FAIR principles (Findable, Accessible, Interoperable, Reusable) aim at making data discoverable, accessible, interoperable and reusable. Harmonizing data management procedures, in application of the FAIR principles, is an ambition shared by all the RI DATA TERRA thematic clusters, in order to access in a transparent way to all the data of the Earth system, and in particular to those at the interfaces, such as Ocean/Atmosphere, Earth/Sea Continuum.