Ocean Data Interoperability Platform (ODIP) I & II

Collaborative project between Europe, USA, and Australia

FP7 Grant Number: 312492
1 October 2012 – 30 September 2015
FP7 Grant Number: 654310
1 April 2015 – 31 March 2018

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Marine Data infrastructures

- A number of regional initiatives have made significant progress in addressing discovery, access, and long term stewardship of ocean and marine data on a regional basis.

- ODIP is a community lead initiative to overcome barriers by exploring common standards and interoperability solutions for improving exchange between regional infrastructures and towards global infrastructures such as GEOSS, IODE – ODP, and POGO.
Europe: 19 EU-funded partners (9 countries)

NERC-BGS/BODC, MARIS, OGS, IFREMER, HCMR, ENEA, ULG, CNR, RBINS, TNO, AWI, BSH, RIHMI-WDC, VLIZ, UniHB, CSIC, 52°North, IEEE, SOCIB
Contributors

USA

- Scripps Institution of Oceanography (SIO)
- Woods Hole Oceanographic Institute (WHOI)
- Lamont-Doherty Earth Observatory (LDEO),
- Florida State University (FSU): Center for Ocean-Atmospheric Prediction Studies
- ESRI
- NOAA - NCEI
- US-IOOS
- UNIDATA
- MMI
**Contributors**

**Australia:**
- University of Tasmania (IMOS)
- CSIRO
- Geoscience Australia (GA)
- NCI
- ANDS

**International:**
- UNESCO IOC-IODE
- POGO
- ICSU – WDS
- GEO/GEOSS

**Canada**
- Ocean Networks Canada
Objectives

- To provide a coordination platform to facilitate the establishment of interoperability between regional data infrastructures in Europe, USA and Australia and also with global systems e.g. IODE Ocean Data Portal, GEOSS, POGO

- To demonstrate this co-ordination through the development of several joint prototype projects that allow effective sharing of marine and ocean data

- To develop these prototype projects by largely leveraging on existing and ongoing regional projects and initiatives

- To promote and disseminate ODIP approach and results widely for further uptake and feedback
ODIP prototype 1+ results:

- Brokerage between SeaDataNet CDI, AODN, and US NODC catalogue services, using GEODAB brokerage service, feeding into GEOSS and ODP
- New: refinement of common metadata model, providing more detail and supported by semantic translator, ‘Rosetta Stone’, between the different vocabs for parameters, instruments, and platforms
- Prototype ODIP User Interface which can be adopted for SeaDataNet to support providing discovery and access to international data systems
- Potential for adoption by IODE for global expansion

- Lead by MARIS
Brokering Prototype: Discovery & Evaluation architecture

ODIP prototype 1+ results:

- Geo Group on Earth Observations (GEO)
- GeoExtension (ISO Core)
- OpenSearch
- ODIP Broker (GEO DAB)
- HTTP (ISO CDI)
- SeaDataNet CDI service
- USA NCEI (NODC) service
- CSW (ISO NCEI)
- CSW (ISO MCP)
- IMOS AODN service
- SPARQL/SKOS
- OAI-PMH (ISO Core)
- CKAN
- ODIP Test portal
- IODE portal
- GEOSS portal
- OpenSearch GeoExtension (ISO Core)
- ODIP II workshop
- Marine Institute, Galway, Ireland
- Rosetta Stone Translation Service
- stefano.nativi@cnr.it
ODIP prototype 2+ results:

- Cruise Summary Report (CSR) adopted by USA (R2R = Rolling Deck to Repository) and Australia
- Already many CSR entries (> 750) harvested from USA and a few from Australia
- SeaDataNet CSR vocabs and EDMO further populated by USA and Australia
- Entries included in SeaDataNet CSR portal and in POGO portal (only ships > 60 meter)
- Plans for adoption of ORCID for scientists and DOIs for Cruise IDs
- Links with Eurofleets CSR on board developments and SeaDataCloud SPARQL developments
- Potential for adoption by IODE for global expansion
- Lead by BSH
ODIP prototype 3+ progress:

- Developing marine SWE profiles (syntax and semantics) in concertation with many projects and interacting with INSPIRE and OGC
- Building an overview directory of SOS servers
- Demonstrating interoperability by integrating SOS servers into a common demo server
- Metadata/SensorML Editors → Synchronise the efforts
- Analyse handling large, heterogeneous observation data sets

- Lead by 52North
ODIP Prototype 4 development underway

- Exploring and analyzing set up of a ‘digital playground’ or Virtual Research Environment considering standard solutions for:
  - discovery and retrieval of data from data archives and SensorWeb systems
  - processing and product generation using workflow management systems (e.g. Kepler or Taverna), standard OGC interfacing and various tools
  - visualisation and publishing (incl metadata and DOIs) of created data products
  - Focus on methodology, not on completeness of data

Lead: CSIRO + MARIS
ODIP Prototype 5 development underway

- Integration of data management for biological and physico-chemical marine data
  - To analyse the usability of the MEOP database ("Marine Mammals Exploring the Oceans Pole to Pole") within the context of the OBIS-ENV-DATA scheme
  - To assess if both data schemes can match in order to exchange information between the physical environment and the occurrence of a certain species between both data systems.
  - The MEOP consortium brings together several national programmes to produce a comprehensive quality-controlled database of oceanographic data obtained in Polar Regions from instrumented marine mammals. The MEOP database also should contain very valuable information on the occurrence, behavior and migration of the tagged animals.

- Lead by VLIZ and OBIS
ODIP II: Cross-cutting topics

- Data citation and publication
- Persistent identifiers: DOIs, ORCiDs etc.
- Vocabularies: RDF, SPARQL endpoints, mappings etc.
- Big data and model workflows
Planning ODIP III project

- Lobby at EU for funding opportunity
- Continuation of approach with Workshops and Prototypes
- Global expansion with China, Japan, and others, also together and in support of IODE
Welcome

The **Ocean Data Interoperability Platform (ODIP)** contributes to the removal of barriers hindering the effective sharing of data across scientific domains and international boundaries. ODIP includes all the major organisations engaged in ocean data management in EU, US, and Australia. ODIP is also supported by the ICC/IODE who participates in its implementation and operation, closely linking this activity with its ODSBP project.

The ODIP platform organises international workshops to foster the development of common standards and develop prototypes to evaluate and test selected