Ocean Data Interoperability Platform: developing a global framework for marine data management

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Drivers for sharing of marine data: policy/best practice

Policy

- Marine Strategy Framework Directive (2008)
- INSPIRE Directive
- Marine Knowledge 2020
- Blue Growth Strategy
- Galway Statement on Atlantic Ocean Cooperation

Best practice

- FAIR data sharing principles
- RDA recommendations

Drivers for sharing of marine data: scientific and economic

- Improved understanding of marine ecosystems
- Assessment of health of marine environments
- Modelling and forecasting of potential future changes
- Sustainable exploitation of the oceans
  - Maximisation of ecosystem services
  - Minimisation of human impact

THE GREAT BARRIER REEF GENERATES

US$5.7 billion/year

AND

69,000 JOBS

Marine e-infrastructures

- Regional e-infrastructures
  - Address specific ‘local’ requirements for data discovery and access
  - Developed in response to needs of the user community and funding agency policy and guidelines
  - Created in isolation to those in other regions
- Global e-infrastructures
  - Domain specific e.g. IODE – ODP
  - Multidisciplinary e.g. GEOSS

Global framework for marine data management

- Support sharing of marine data across regional and global systems
- Deliver interoperable data
- Utilise common standards, best practice
- Implementation requires:
  - Approach based on existing marine data systems
  - Cultural change
  - Benefits that outweigh potential impact/cost

Ocean Data Interoperability Platform (ODIP/ODIP II)

Collaborative project:

- Europe
- USA
- Australia
- Canada

ODIP: October 2012 – September 2015

ODIP II: April 2015 – March 2018



ODIP II Objectives

- Promote development of a common global framework for marine data management
- Create a European - USA - Australia-Canada co-ordination platform to promote dialogue between regional marine data infrastructures
- Further develop a series of prototype interoperability solutions demonstrating coordinated approach to marine data management on a global scale

ODIP 1+: Discovery and access of marine data

Establishing horizontal interoperability between regional marine data discovery and access services :

- SeaDataNet, (Europe)
- AODN (Australia)
- US NODC/NCEI (USA)

Further develop interoperability with global systems

- IODE Ocean Data Portal (ODP)
- GEOSS portal

ODIP 2+: Cruise summary reports (CSR)

- Establishing interoperability:
  - regional cruise summary reporting (CSR) systems
  - global cruise catalogue (POGO)
- Unified system for cruise discovery
  - Common formats, standards and vocabularies
  - CSR schema upgraded for linked data and associated web technologies
  - SPARQL endpoint for CSR services
  - Automated generation of CSRs from shipboard systems

ODIP 3+: Sensor web enablement

- Ocean sensors discoverable/accessible via web technologies
- Existing standards e.g. OGC
  - Domain independent
  - High degree of flexibility
  - Divergent implementations
- Common SWE profile for marine sensors
- Community of practice

ODIP 4: creating a 'digital playground'

- Explore standardised solutions for:
  - Discovery/retrieval of data from repositories and sensor web systems
  - Processing/product generation using workflow management environment e.g. Keplar, Taverna
  - Visualising and publishing data products

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

- Supporting development of a common global framework for marine data management
- Promoting adoption of agreed standards, best practices and technologies
- Leveraging on-going activities of regional and global marine data infrastructures
- Demonstrating international coordinated approach through series interoperability solutions