

Ocean Data Interoperability Platform (ODIP)

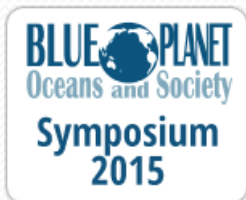
Towards a common framework for marine data management on a global scale

Roger Proctor¹,

Helen Graves², Dick Schaap², Bob Arko³ & Karen Stocks³

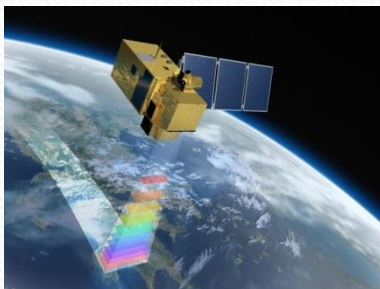
¹Australia, ²EU, ³USA

Blue Planet Symposium 2015



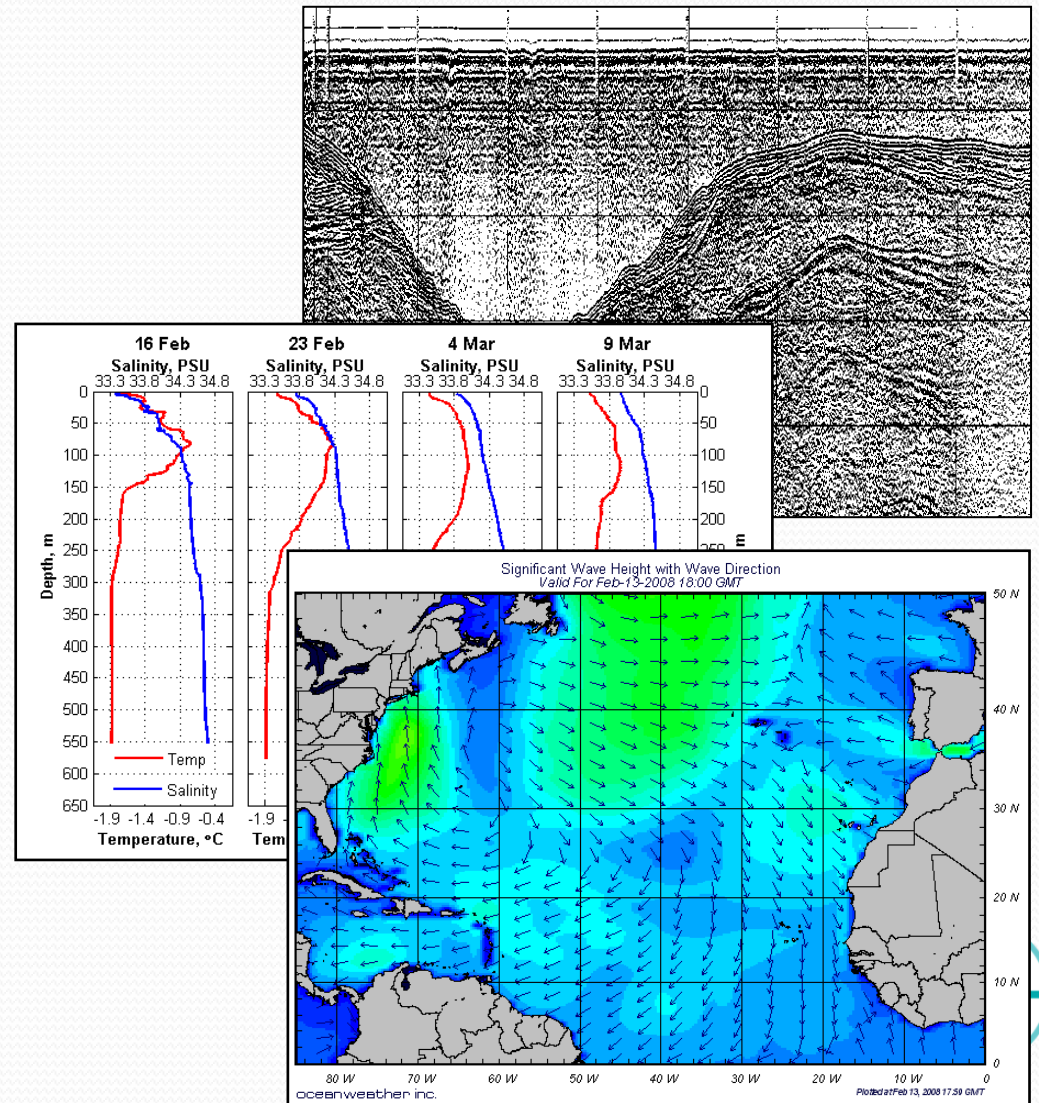
Oceanographic data – we've all got some

- * Wide range of measurements and variables
- * Collected by multitude of research institutes, governmental organisations and private companies
- * Derived from broad spectrum of multidisciplinary projects/programmes
- * Using various sensors on a range of platforms to measure physical, chemical, biological, geological and geophysical parameters



Barriers to re-using data

- * Use of different
 - * Formats
 - * Standards
 - * Best practice
 - * Co-ordinate systems
 - * Technologies
- * National and organisational data access policies



Regional data infrastructures

- * A number of regional initiatives have developed marine data management infrastructures
- * Promoted and supported by international organizations - UNESCO's Intergovernmental Oceanographic Commission (IOC), GEO etc.

BUT

Implemented according to regional requirements and priorities



Australia



Europe



USA





Ocean Data Interoperability Platform (ODIP)

EU-US-Australia collaborative project

Funded in parallel by European Commission, National Science Foundation (NSF) and Australian Government

ODIP October 2012 – October 2015

Promoting the development of a common global framework
for marine data management

ODIP: Objectives

- * Development of a common approach to marine data management that can be extended to other regions and organisations beyond the participating geographical regions
- * Establish a European - USA - Australia co-ordination platform to support development of interoperability between existing marine data management infrastructures
- * Development of prototype interoperability solutions to demonstrate this coordinated approach

Who's in ODIP?

EU



USA



AUS



AND



European partners



USA partners



Australian partners



How ODIP is achieving its objectives?

- * Developing a collaboration platform for organised dialogue between partners
- * Creating and publishing inventories of existing standards and policies

- * Regular joint workshops to develop interoperability solutions and/or agree on common standards



3rd ODIP workshop
Townsville, Australia
5 – 8 August 2014

4th ODIP workshop
Liverpool, UK
20-23 April 2015



How ODIP is achieving its objectives?

- * Development of prototypes for testing and evaluating potential interoperability solutions

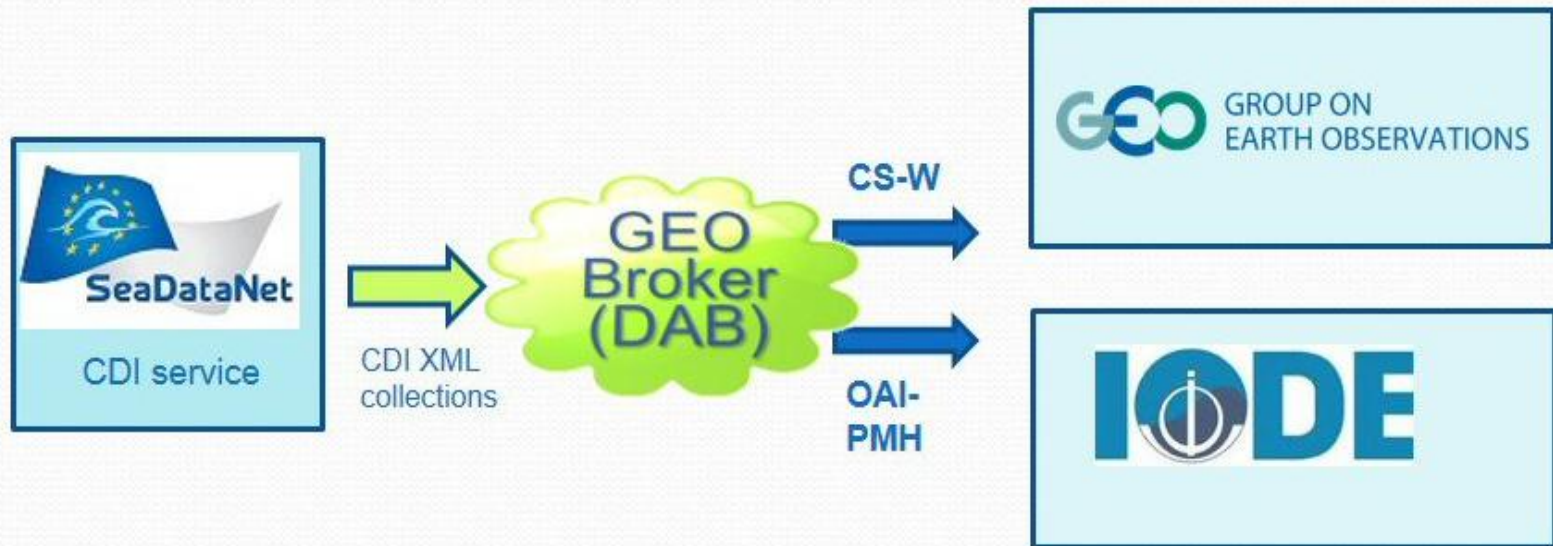
Prototypes: 'win-win' activities

- * 1 - Establishing interoperability between the SeaDataNet, IMOS and US-NODC data discovery and access services [using (EuroGEOSS) GEO-DAB brokering services] — lead by EU
- * 2 - Establishing interoperability between Cruise Summary Reporting (CSR) systems in Europe, the USA and Australia — lead by USA
- * 3- Establishing a Sensor Observation Service (SOS) for selected sensors installed on vessels and in real-time monitoring systems — lead by Australia

Prototype supporting activities

- * Controlled Vocabularies
 - * Creation, management, publication, governance
 - * Semantics & Ontologies
- * Data publication and persistent identifiers
 - * Data sets – DOI ... dynamic data (RDA WG)
 - * People – ORCID

1 - Establishing interoperability between data discovery and access services using (EuroGEOSS) GEO-DAB brokering services



SDN data COLLECTIONS (480) now visible via web services
- In process of linking IMOS (110) & NODC (27,000) collections

2 - Establishing interoperability between cruise summary reporting systems in Europe (Eurofleets), USA (R2R) and Australia (Marine National Facility)

- * Improvement of delivery and exchange of cruise summary information through the use of common formats and vocabularies (common adoption of the ISO 19139 compliant SeaDataNet Cruise Summary Report (CSR) Schema and its vocabularies)
- * Use of GeoNetWork catalogues for routine harvesting of cruise data for delivery via the Partnership for Observation of Global Oceans (POGO) portal - <http://www.pogo-oceancruises.org/>

<http://catalog.rvdata.us/geonetwork>

<http://www.ifremer.fr/geonetwork-sdn>

<http://www.cmar.csiro.au/geonetwork>

- * DOI with linked data



3- Establishing a Sensor Observation Service (SOS) for selected sensors installed on vessels and in real-time monitoring systems

- * Coordinate regional progress towards the adoption of sensor web enablement (SWE) allowing direct standardised access to the data from operational sensor systems

- * **atomic data services** - small granularity and little discoverability capacity e.g. ncSOS and THREDDS (IOOS, IMEDEA)

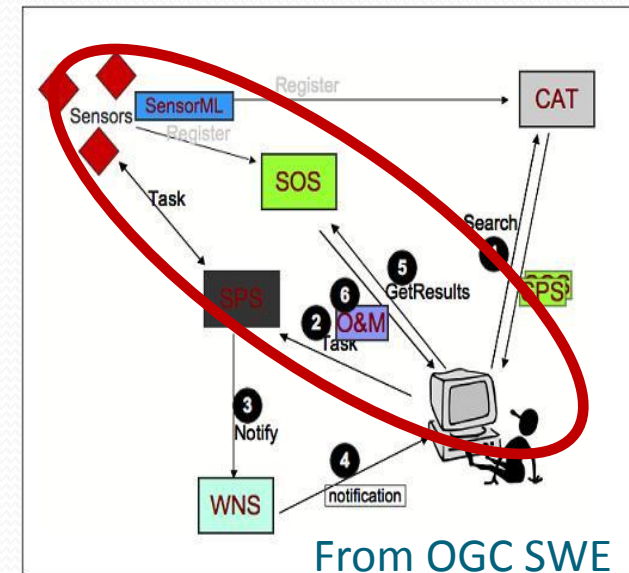
- * **collection data services** - whole collections of observations with discovery functions e.g. OGC Filter encoding (Oceanotron , IMOS)

- * GitHub collaborative tool - <https://github.com/aodn/ODIP>

- * Convergence on 52N SOS (vessels, moorings, legacy data) + hybrid

- * Development of SWE starter kits (Ritmare GET-IT)

- * Comparative work on SensorML and O&M templates



What next?

- * Continued development of the prototype interoperability solutions
- * Formulation and development of additional prototypes
- * Expanding the ODIP community
 - * Promotion of the prototype interoperability solutions
 - * Encouraging adoption and future participation by organisations in other geographical regions beyond the current initiative

ODIP II: 3 years, started 1 April 2015

- * Enlarged membership – expanding the dialogue

EU – AWI, BSH, Uni-HB, SOCIB, CSIC, VLIZ, RIHMI-WDC, 52N, IEEE

USA – MMI, ESRI

Australia – NCI, ANDS

International – POGO, ICSU

**We welcome additional members – Asia-Pacific?? L America??
and funds ...**

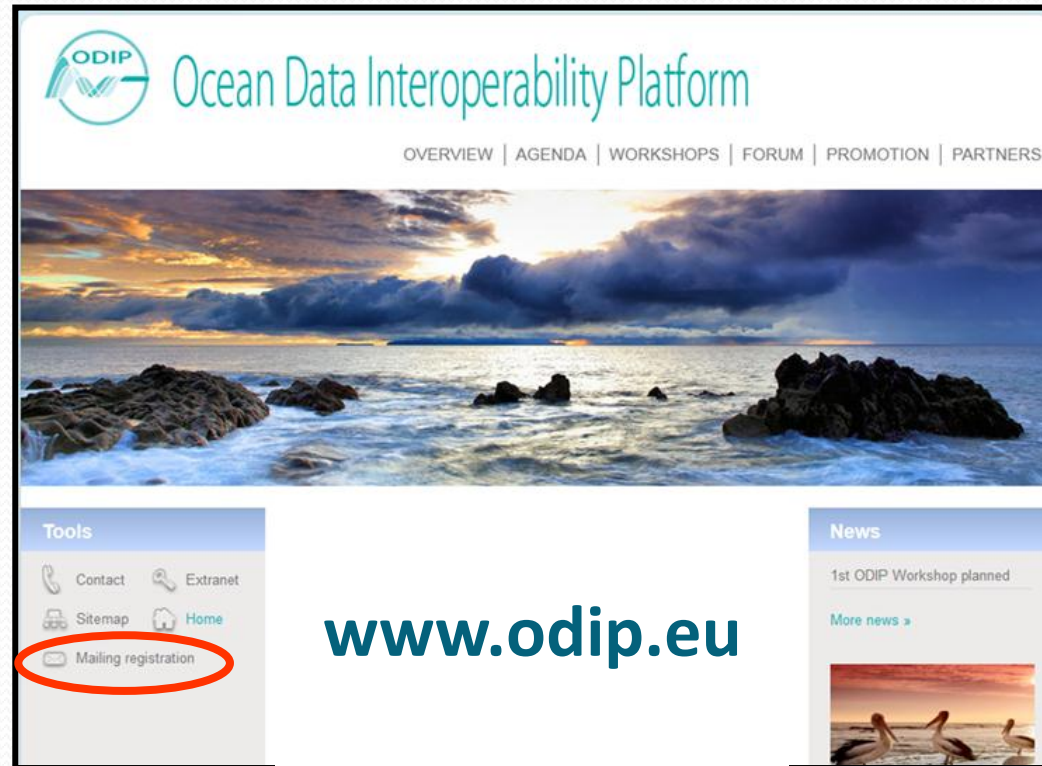
- * Convert prototypes into ‘operational’ systems
 - * Brokering ... move from metadata to data
 - * CSRs ... more comprehensive, e.g. event logging + more agencies
 - * SWE ... move to common SensorML, O&M profiles
- * New prototypes e.g. integration of data services with modeling

- * Increased focus on vocabularies, ontologies, publication
- * Become multi-disciplinary – e.g. biological data
- * Engagement with sensor projects / manufacturers and OGC



Find out more

- * Project website
 - * Join the ODIP community
 - * Contact us
- * Social media
- * International conferences
- * Other related initiatives
 - * BCube (NSF)
 - * Research Data Alliance
 - * Belmont Forum



Thank You for listening, Join us!

roger.proctor@utas.edu.au

Helen Graves – hmg@bgs.ac.uk

Dick Schaap – dick@maris.nl

Bob Arko – arko@Ideo.columbia.edu

Karen Stocks – kstocks@ucsd.edu

www.odip.eu

