Ocean Data Interoperability Platform (ODIP) I & II

Collaborative project between Europe, USA, and Australia

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By Dick M.A. Schaap – MARIS (NL), technical coordinator

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

ODIP

AODN

Australia

IMOS

Europe

SeaDataNet

EMODnet

IOOS® INTEGRATED OCEAN OBSERVING SYSTEM

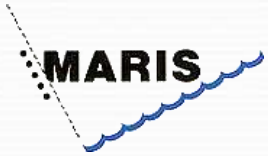
USA

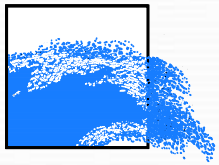
rvdata.us

Partners

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^{O}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

IOOS® INTEGRATED OCEAN OBSERVING SYSTEM

Contributors

Australia:

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

International:

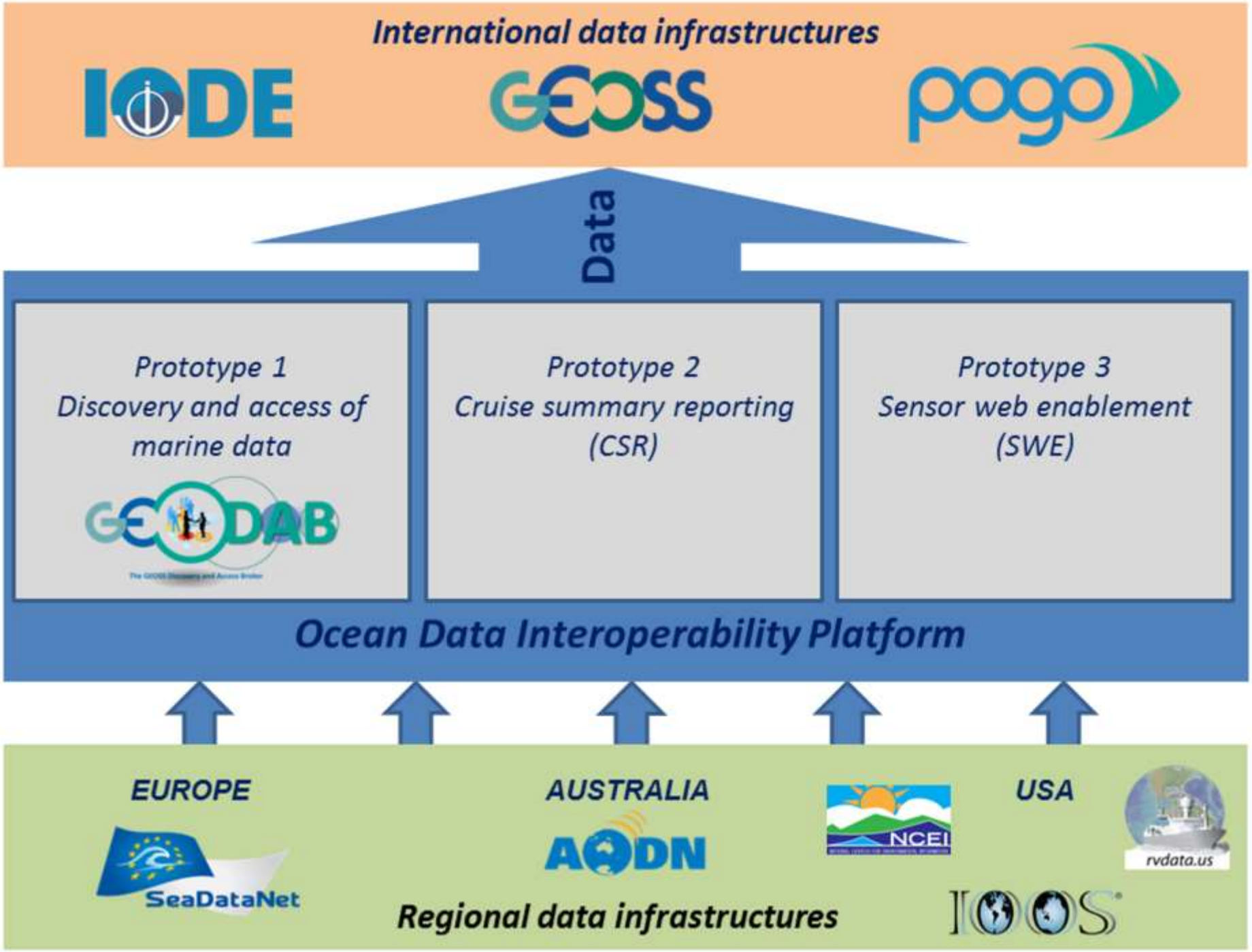
- UNESCO IOC-IODE
- POGO
- ICSU – WDS
- GEO/GEOSS

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

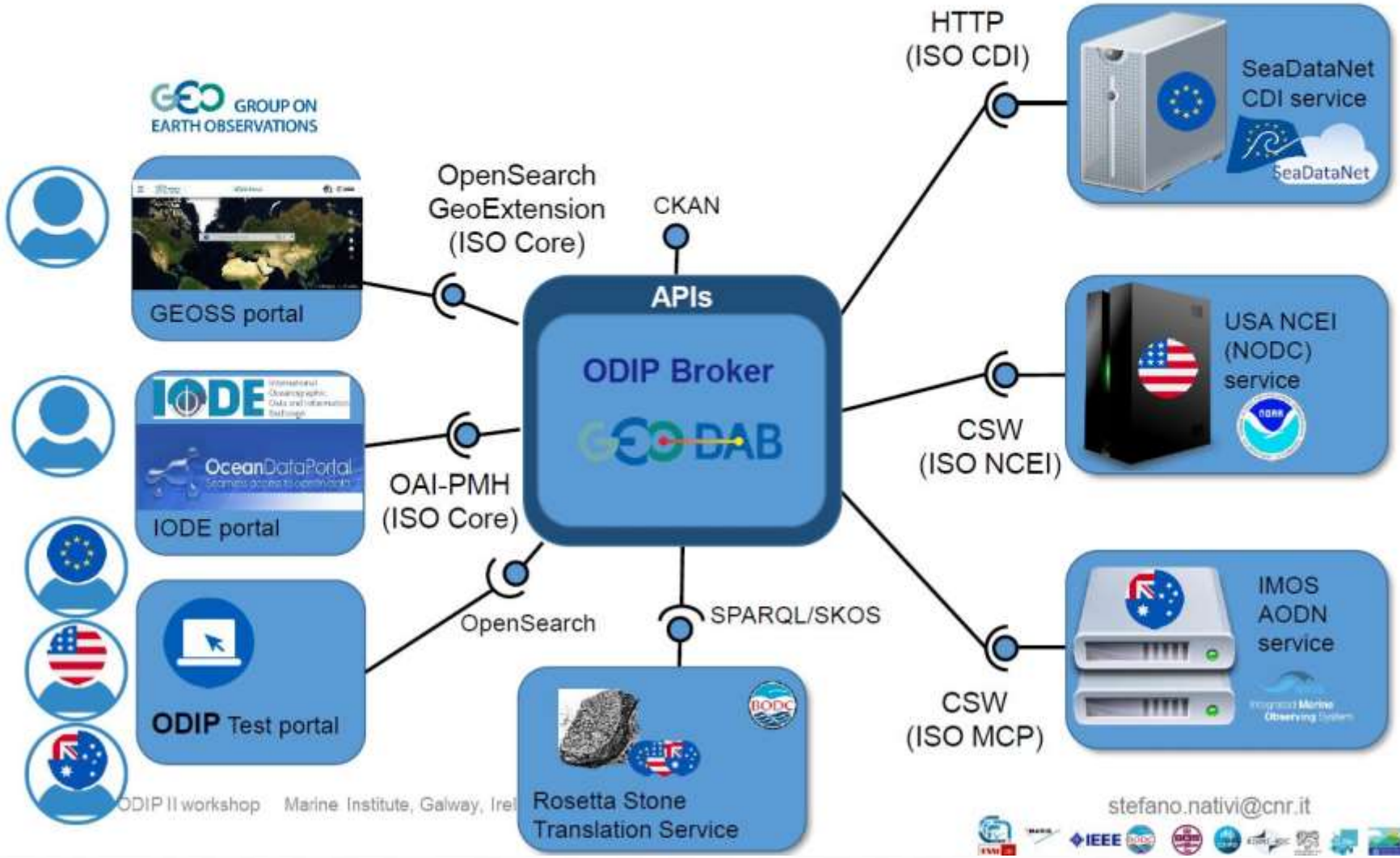

International data infrastructures
IODE
GEOSS
pogo
Data
Prototype 1
Discovery and access of marine data
GEODAB
Prototype 2
Cruise summary reporting (CSR)
Prototype 3
Sensor web enablement (SWE)
Ocean Data Interoperability Platform
EUROPE
SeaDataNet
AUSTRALIA
AODN
NCEI
USA
rvdata.us
IOOS
Regional data infrastructures

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



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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

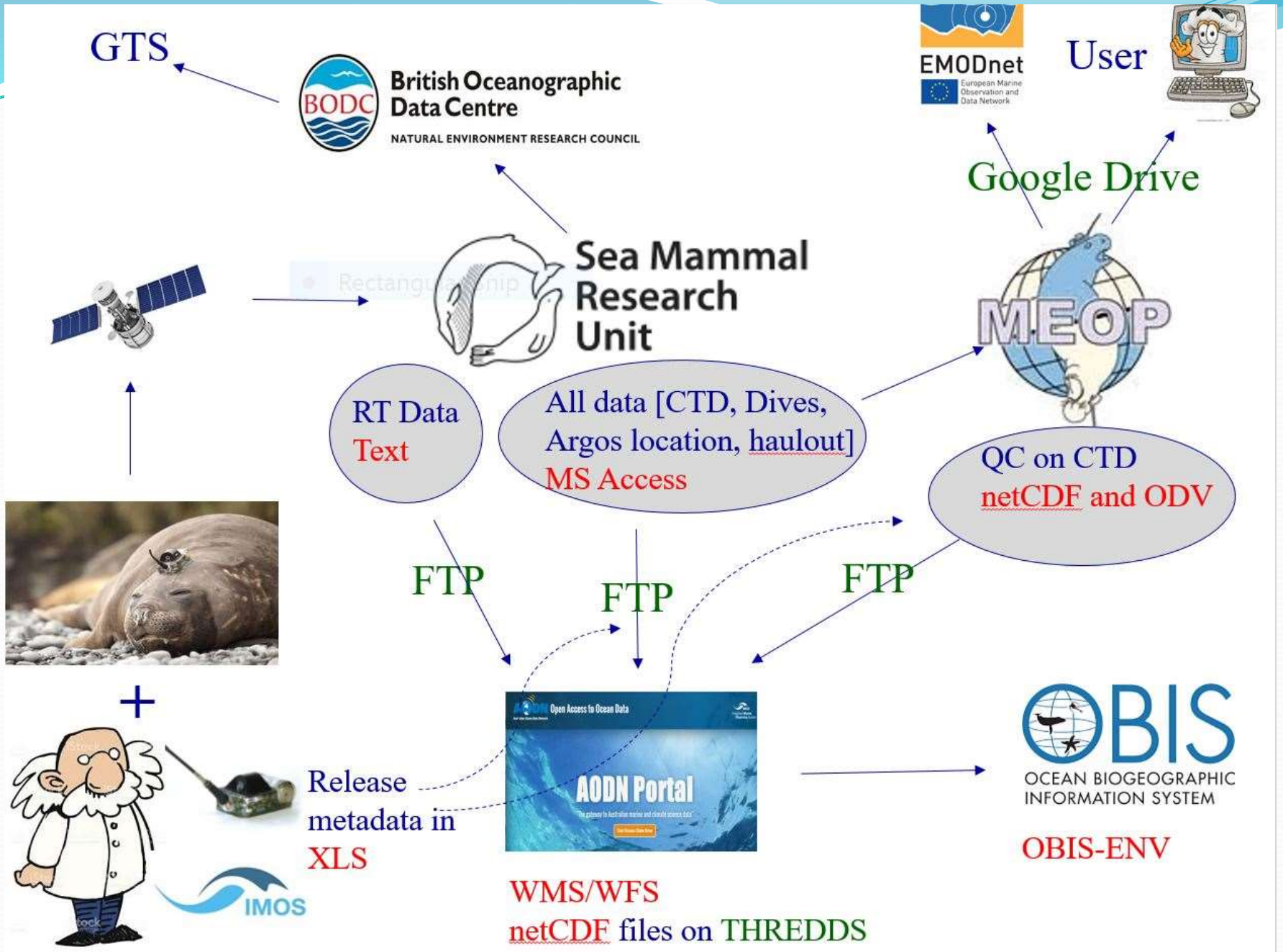
- Exploring and analyzing set up of a '**digital playground**' or Virtual Research Environment considering standard solutions for:
  - discovery and retrieval of data from data archives and SensorWeb systems
  - processing and product generation using workflow management systems (e.g. Kepler or Taverna), 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


GTS
BODC
British Oceanographic Data Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL
EMODnet
European Marine Observation and Data Network
User
Google Drive
Sea Mammal Research Unit
MEOP
RT Data
Text
All data [CTD, Dives, Argos location, haulout]
MS Access
QC on CTD
netCDF and ODV
FTP
FTP
FTP
+
Release metadata in XLS
IMOS
Open Access to Ocean Data
AODN Portal
WMS/WFS
netCDF files on THREDDS
OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM
OBIS-ENV

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

Ocean Data Interoperability Platform

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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 IOC/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

News

ODIP presented at the EGU 2017 conference

Successful 7th Workshop

ODIP presented at IMDIS 2016 Conference

ODIP presented at the Oceans

www.odip.org