ODP Interoperability Package

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Interoperability

“Interoperability – ability of two and more systems or components to exchange information and to use information that has been exchanged”

IEEE Computer Dictionary
Interoperability categories

- **Semantic**: allowing to access similar classes of objects and services across multiple sites, with multilinguality of content as one specific aspect.
- **Functional / Pragmatic**: based on a common set of functional primitives or on a common set of service definitions.
- **Syntactic**: allowing the interchange of metadata and protocol elements.
- **Technical / Basic**: common tools, interfaces and infrastructure providing uniformity for navigation and access.
Semantic interoperability

- **Common parameters dictionary**
  
  Systems uses different naming and other characteristics of parameters. Controlled name, description, unit of measure, method and reflection of other properties of parameters need to be adopted.

- **Common vocabularies/ontologies**
  
  Controlled keywords

- **Other common dictionaries**
  
  Organizations, projects, platforms, instruments, etc.
Semantic interoperability

- Data identification
- Metadata identification
- Data granularity

*Systems usually using different data model and rules to aggregate data for exchange!*

- Metadata attributes

  *There is a number of metadata attributes (classes) from ISO 19115/19139 when value of them can be assigned in various way: bounding boxes, temporal extent, etc*
Syntactic interoperability

- **Metadata**

  *IODE distributed system based on ODP is based on metadata-driven approach*

- **Data delivery formats**

  *It is required to use agreed data model (NetCDF, ASCII, etc.)*
Cooperation with other projects, programmes and initiatives

a) Metadata exchange
b) Data discovery
c) Data access and delivery to users
d) System monitoring and report
Cooperation with SeaDataNet

Tasks for the implementation phase include:

- common vocabularies adoption
- discovery metadata harmonization for ODP-SDN exchange
- harmonization of user identification and role between systems
- technical procedures and tools for ODP-SDN interaction
Cooperation with SeaDataNet

Technical scenarios. Scenario 1: Metadata and unrestricted data set exchange
Cooperation with SeaDataNet

Technical scenarios. Scenario 2: **Metadata and data exchange**

- **User** initiates a data request through the **Ocean Data Portal**.
- **Integration Server** processes the request and exchanges data and metadata with the **SeaDataNet Portal**.
- The **SeaDataNet Portal** uses the **SDN CAS** and **SDN RSM** for authentication and authorization.
- Metadata and data are exchanged via the **CDI WS**.
- The **Metadata Catalogue** is updated with relevant information.

Diagram shows the flow of data and metadata between various components.
Cooperation with OBIS

Initial proposal is to arrange discussion platform with OBIS and ODP on following items:

- Metadata compatibility and interoperability;
- Code lists and vocabularies;
- Potential service-to-service interaction scheme;
- ODP V2 toolkit and OBIS software harmonization issues (maps, etc.).
Cooperation with WIS

ODP contributes to the WMO Information System (WIS) as one of the WIS components, which ensures the operation of the JCOMM Data Collection and Processing Centre (DCPC Oceanography) of the WMO Information System.
Cooperation with WIS

- Metadata compatibility is provided by an ODP-WMO conversion service library.
- Data access regulations are avoided as all provided data has open access.
- Service interaction level is presented by GeoNetwork as a publicly available metadata catalogue and service for transferring accompanied data files to the GISC FTP.
Cooperation with GEOSS

Cooperation with GEOSS within the EuroGEOSS (http://www.eurogeoss.eu) broker system includes metadata exchange via CSW.

The ODP provided metadata is required to have URL on data.

Results of the interoperability tests can be found on http://www.eurogeoss-broker.eu
## ODP Communication Registry

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<tr>
<th>Program ID</th>
<th>Program Name</th>
<th>Program Acronym (if applicable)</th>
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Conclusions

ODP has means of connecting and providing an access to IODE metadata (ISO 19115/19139 based) and data from related projects, programmes and initiatives

- GeoNetwork software (harvesting and catalogue services);
- ISO 19139 metadata services;

**ODP currently has providing access to 31000 datasets from other projects: SeaDataNet (around 390 datasets) and WIS (over 30000).**

[http://www.oceandataportal.net/portal/portal/odp-theme/data/relatedprojects](http://www.oceandataportal.net/portal/portal/odp-theme/data/relatedprojects)

**ODP metadata (selection) can be found in EuroGEOSS Brokering Service portal** - [http://www.eurogeoss.eu/broker/Pages/AbouttheEuroGEOSSBroker.aspx](http://www.eurogeoss.eu/broker/Pages/AbouttheEuroGEOSSBroker.aspx)