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The integration platform of Roshydromet for data exchange within Russian and international projects

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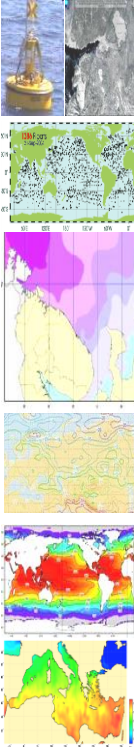
Partnership Centre for the IODE Ocean Data Portal
(RIHMI-WDC/Russian NODC, Obninsk, Russia)

Introduction

Every day we receive and process great amount of hydrometeorological data. Ocean related data is used in different spheres of human activities. Many organizations handle collection, storage, accumulation, processing, and dissemination of information of regional and global scale.

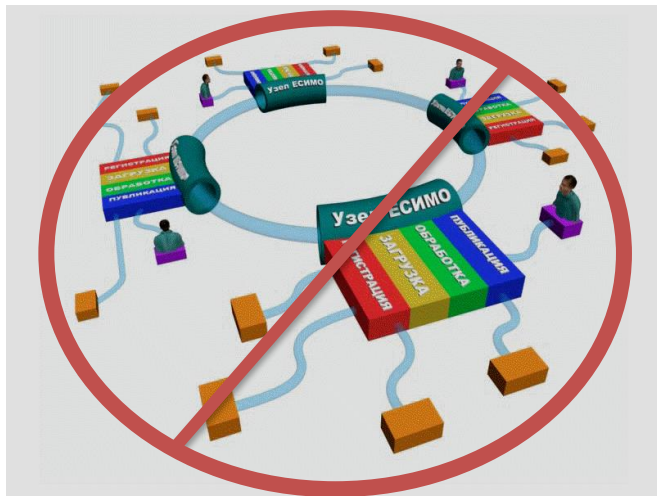


Various options of registration and formalization of data and metadata



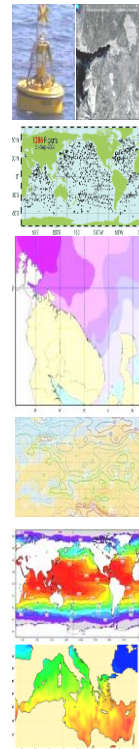
Problem

Re-usage of the information resources within other systems is limited due to - **different** and **incompatible** technical implementations, metadata standards, data formats, controlled code lists and vocabularies



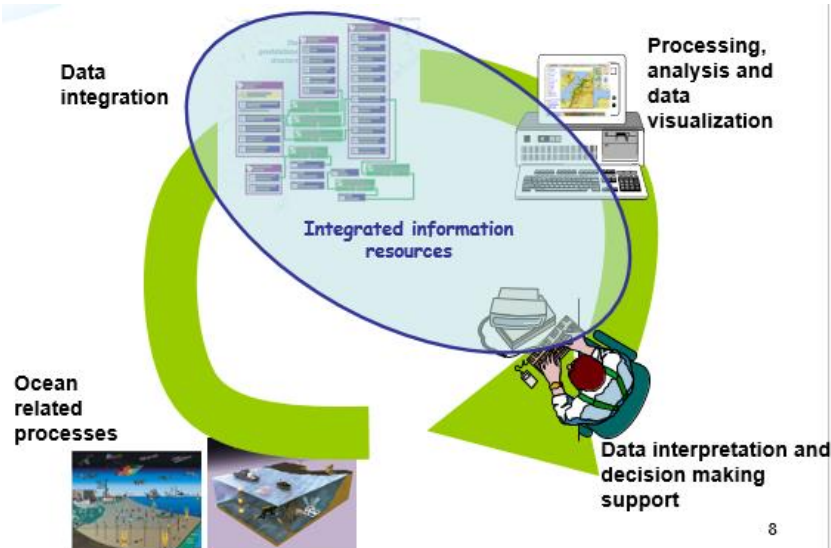
Possible solution – custom adapters

- Economically unprofitable -
N systems = N adaptors
- Resource-intensive –
developers always busy...
- Inexpedient



Solution

Integration platform – supported technology stack (set of various components) for data discovery (metadata), retrieval (protocols and APIs) and access (services)



Improved visibility of data and web services

Metadata always corresponds to data

Improved interoperability with other data systems

Integration Platform of Roshydromet



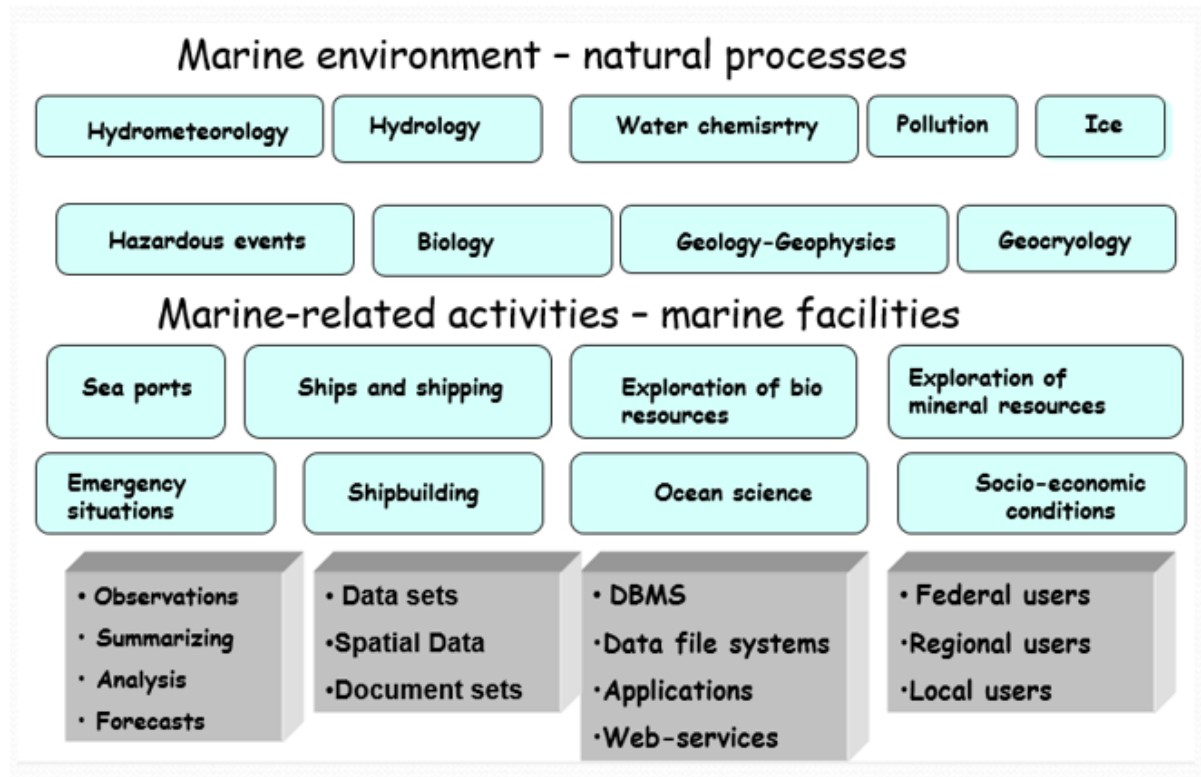
Unified State System of Information on the World Ocean – ESIMO (Russia) – www.esimo.ru

- ❑ Officially started in 1998
- ❑ Data network launched in 2003
- ❑ Received federal status in 2005
- ❑ Operational since 2013
- ❑ Developed, maintained and supported by Roshydromet



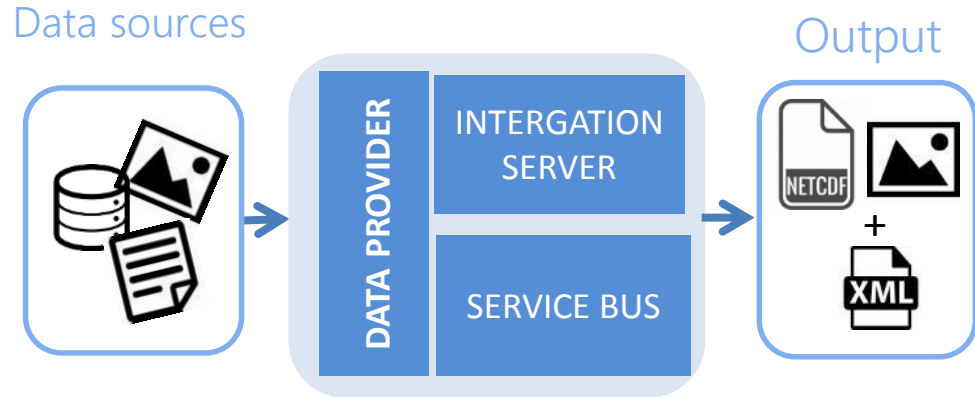
Integration Platform of Roshydromet

Information domain within ESIMO



Integration platform of Roshydromet

The integration platform is a set of **three** major components. It solves **interoperability** problems between systems by the **unification** of stylistic and structural representation of **heterogeneous** information and provides the **transmission** of data from data source to the delivery system



Provides:

- ✓ Transformation of input data stream to common transport format
- ✓ Semi-automatic metadata creation
- ✓ Customizable data granularity
- ✓ Data delivery and dissemination

Capabilities of the Integration Platform



Actuality

of data and metadata



Standards

ISO-19115, ISO-19139
WMO Core Profile



Parameter
vocabulary
of Roshydromet



Input formats

represented by many
types of data

Light Data Provider

virtual access to the Data
Provider



Export data

ASCII, NetCDF, JSON,
XML

Adaptation for Russian and International projects

WMO Information
System

Adaptation of WMO Core Profile
metadata and WMO file name convention

Ocean Data
Portal

Adaptation of ISO 19139, OGC-services,
netCDF4 format

GeoITS

Support of geophysics, high-speed data
processing from GTS

IITS

Connection to the State Fund of
Roshydromet

Improvements

- Greater performance of data processing

- Broader support of internationally endorsed standards

- Extensible number of machine-2-machine services (REST, SOAP, APIs)

- WMO-compatible naming and dissemination procedures

Perspectives

- NetCDF4 CF-compliant data
- ISO 19115-2 and ISO 19115-3 support
- Implication of LinkedData and Semantic Web technologies
- Use of integration platform within Russian segment of Integrated Arctic Observation System (INTAROS project)



Conclusion

- ✓ Fusion of data, metadata and services
- ✓ Several use-cases of the developed integration platform
- ✓ Scalable environment to support data providers
- ✓ Reusability of the current solution is cost-efficient and allows to concentrate on task-oriented problems and user needs
- ✓ Integration platform will become the basis for future projects



Questions?