



**Interoperability of Marine Observatories in Europe:
how to achieve
technical and data harmonisation?**

16.9.2010



The data management of oceanographic data is very easy!



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HYDROGRAPHIE

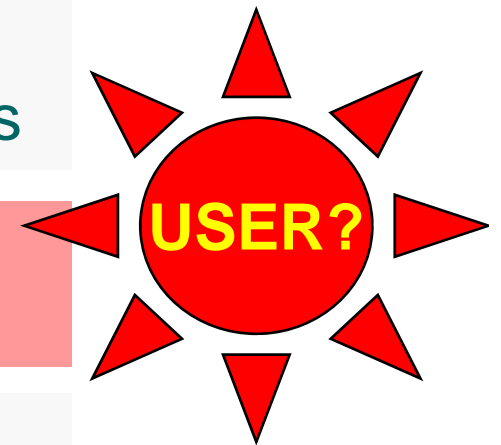
- carefully collect and archive
- fast and secure exchange and dissemination
- easy to handle
- easy to use

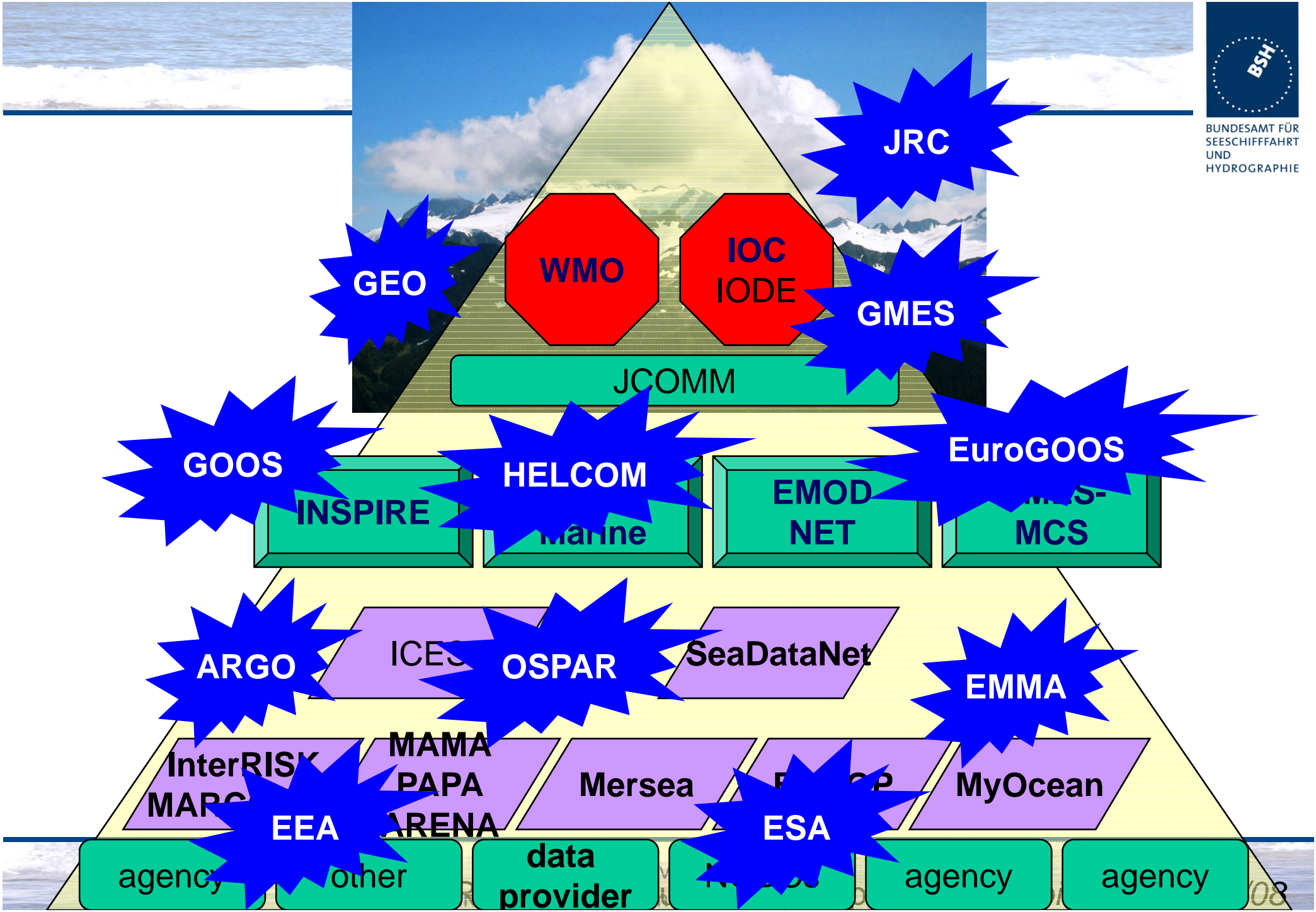
data managers

**Different languages - different thinking -
different “weltanschauung”**

- trivial, marginal,
- only a technical problem,
- boring at least ,
- an (un)necessary evil,
- at low priority.

researchers







Oops!

bottom up

→ **Data policy - *different stages***

- data provider, agencies (*how can we earn money?*)
- projects - exchange among partners
- regional OOS - exchange among members
- science and research - *very special*

top down

- WMO
- IOC
- INSPIRE, EMODNET, WISE-Marine, EuroGOOS, ...

Science

Different interests -

but

same kind of data

for the most part

Operational
oceanography

**Different look on
data**



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Parameter

Sea Surface Temp (SST) ▾

Geographical domain

North West European Shelf Sea ▾

Time step

Today ▾

Time stepping

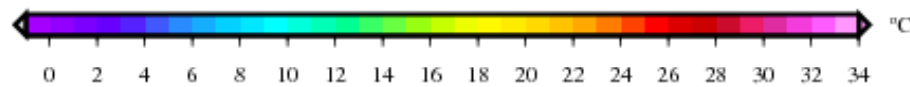
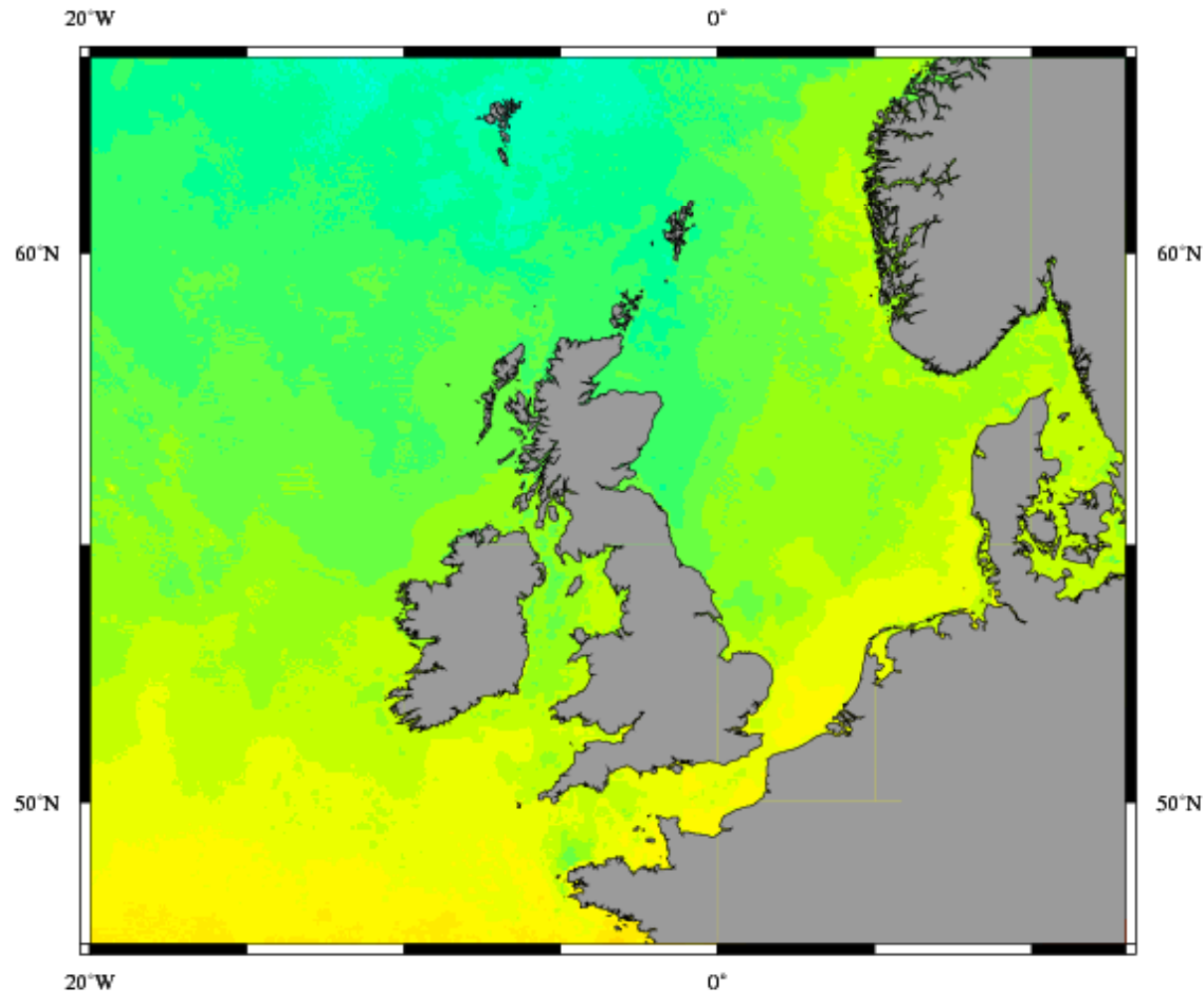
|<< < > >>|

Animation

play loop stop

slower faster

Save my settings

[howto](#)[data/method](#)[mail us](#)

May be they want something like that:

**„I want to have the data from
research cruise METEOR 63.3 and PELAGIA 47.11,
with an DOI (data object identifier)
that I can use it for my publication“**

**„I will publish my data set with an DOI, so everyone can
use it for own ublication“** *(and everyone knows who did that extraordinary
complicated task)*

**„Where is the climatology from the west part of
whatsoever-sea in netCDF (oceansites‘ version)“**

The data management of oceanographic data is very easy!



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Data or a **data set** must have a

- well defined format description (reduce the „quasi“-standards)
- well defined parameter description (SeaDataNet, BODC, ICES, INSPIRE, ...
- **reduce it**)
- well defined quality information for every single datum
- „common“ tools to read the data must exist

*The data management of oceanographic data is
very easy!*

Data or a **data set** has to be accompanied by information about the data („data about data“)

Class of geospatial **metadata** history back to 1994

description of geographic objects:

- datasets,
- maps,
- features, or
- simply documents with a geospatial component)

Metadata is the basis for searching and harvesting data

*The data management of oceanographic data is
very easy!*



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Geospatial metadata

- ISO 19115: international metadata standard for geographic information
- ISO 19139: Geographic information Metadata XML schema implementation

„This International Standard provides information about

- the identification,
- the extent,
- the quality,
- the spatial and temporal schema,
- spatial reference, and
- distribution of digital geographic data.“

The data management of oceanographic data is prop. not very easy!



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Metadata

CDI (Common data Index)
- xml

Index-file (ASCII)

SeaDataNet
ECOOP

ECOOP

myOcean

ICES

EEA - Wise
Marine

data

ODV (Ocean Data View - ASCII)

netCDF (OpeNDAP - Dapper)

netCDF (oceanSites)

ERF 3.2 (Environmental
Reporting Format) - metadata incl.

The data management of oceanographic data is not at all easy!



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INSPIRE

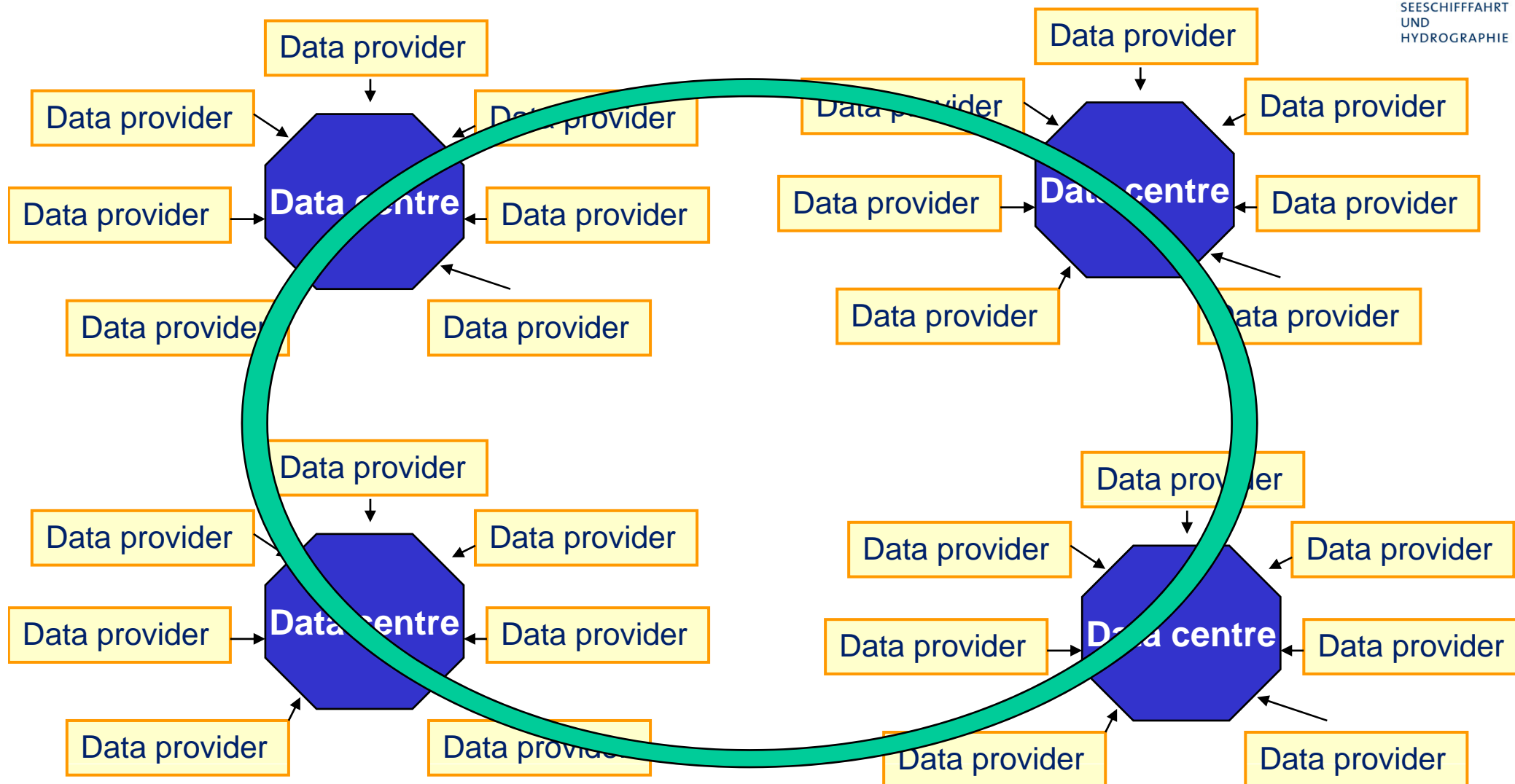
- Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) (14.03.2007)
- INSPIRE Metadata Regulation (03.12.2008)
- Commission Decision regarding INSPIRE monitoring and reporting (05.06.2009)
- Regulation on INSPIRE Network Services (19.10.2009) - Not later than 9 May 2011, Member States shall provide the **Discovery and View Services** with initial operating capability.
- Regulation on INSPIRE Data and Service Sharing (29.03.2010) - This Regulation establishes harmonised conditions of access to spatial data sets and services in accordance with Article 17 of Directive 2007/2/EC.

Open Geospatial Consortium (OGC)

About 30 „standards“ for handling geospatial data

- WMS - Web Map Service: provides map images
- WFS - Web Feature Service: for retrieving or altering feature descriptions
- WCS - Web Coverage Service: provides coverage objects from a specified region
- CSW - Web Catalog Service: access to catalog information
- SOS - Sensor Observation Service
- *KML - Keyhole Markup Language: XML-based language schema for expressing geographic annotation and visualization on existing (or future) Web-based, two-dimensional maps and three-dimensional Earth browsers*

Oceanographic data management - the pragmatic way



Tasks data centre

- harvest and get the metadata and data

build a portal with the OGC-services:

- search and discover
- WMS, WFS services aso.
- download service

Use the same standards

All data centres are linked
and can search and
download all data

No central marine / oceanographic data centre - no
„Swiss army knife“ - build up a network

Co-operative efforts

- INSPIRE directive
- existing networks in the regions (ROOSes)
- SeaDataNet
- myOcean I
- EMODNET