

Providing metadata and visualization for 20 years of hydrodynamic model data for the German Bight



Background

Structured information for the uniform description of resources (metadata) is an unpopular topic but without metadata, information, data and services are neither searchable nor usable. The consistent usage of metadata allows to supply data with significant information from start to publication.

The metadata file is generated at the start of each new model run. The structure is based on ISO 19115, 19157, INSPIRE, GDI-DE and GovData.

Simulations

- 3D hydrodynamic numerical model of the North Sea
- Focus area: German Bight
- Unstructured grid resolution 30 – 2000 m
- Variable subgrid modelling with annual bathymetries
- 20 years of hindcast simulation as netCDF files

70 TB
data

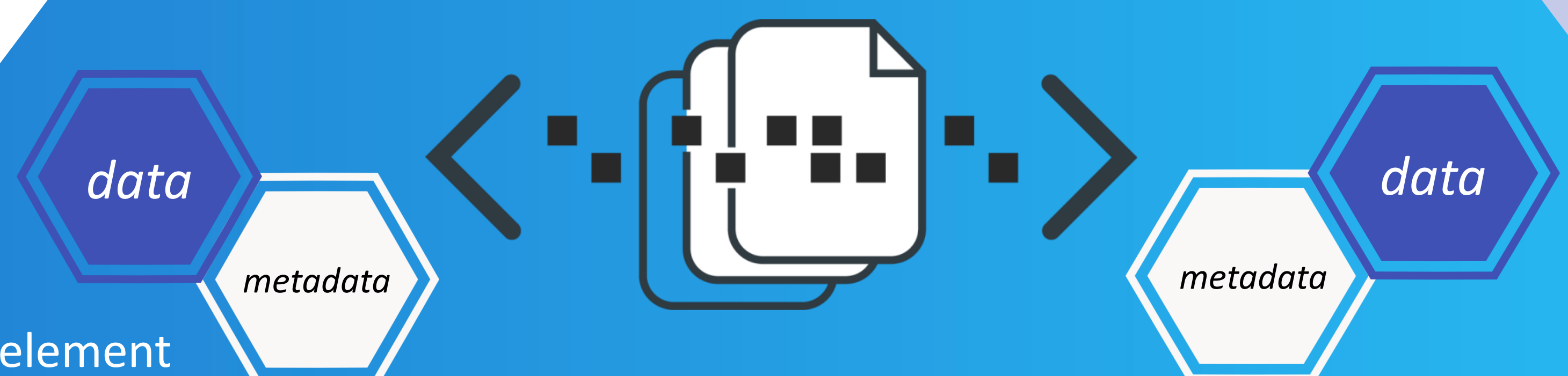
Analysis

- Focus area: German Bight
- Generic analysis tools for Big Data
- Specialized analysis tools for coastal engineering applications e. g. tidal characteristics for water level, current etc.

40 TB
data

What happened with the metadata in the meantime?

- Automatically updated for each new model run and version
- Continuous control, validation and maintenance
- Data metadata are generated and stored
- Process steps in the analysis are automatically saved in lineage element



Publication

Model data

A raster tool realigns synoptic data-sets for 1000 m dx resolution

1.5 TB

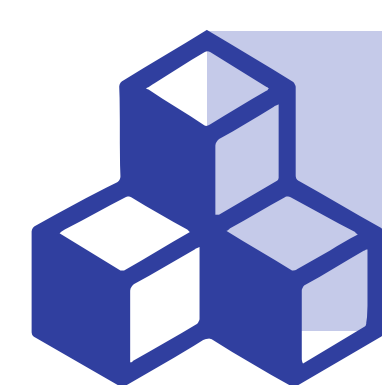
Analysis data

Selected characteristic values prepared as GIS data

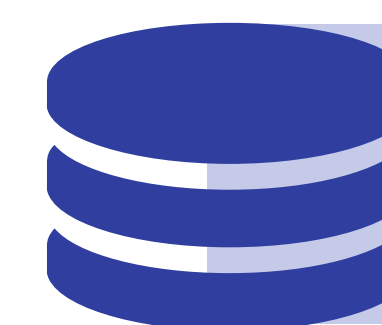
90 GB

quality and metadata control

Data storage



THREDDS data server



PostgreSQL database



Metadata repository

Services



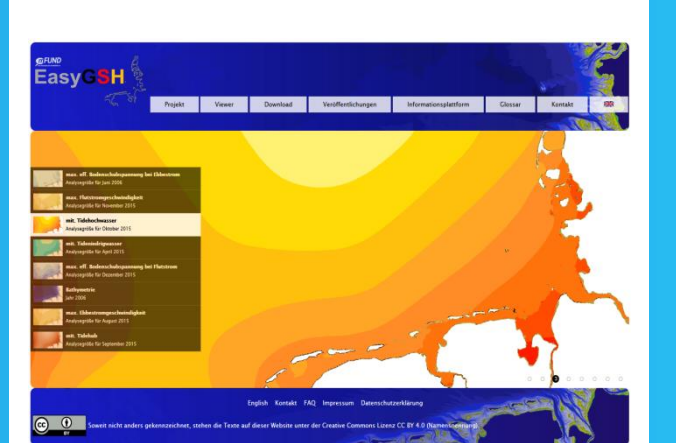
Access

WCS

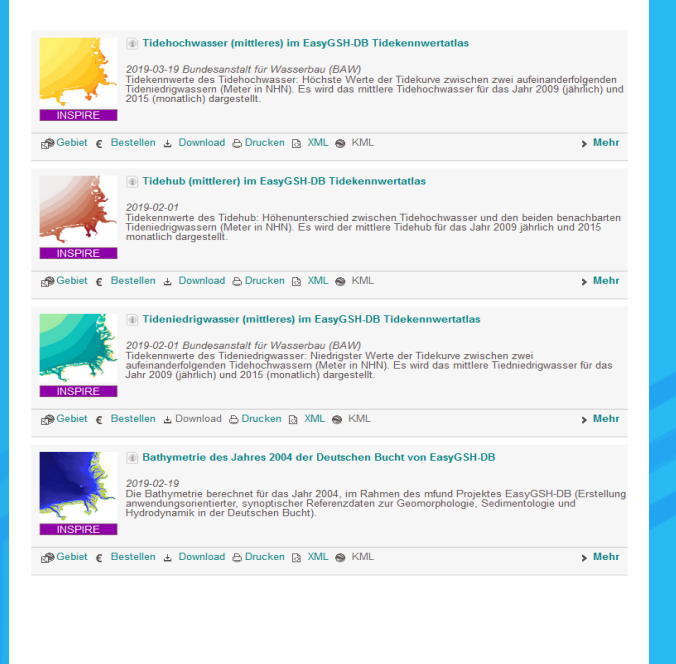
WMS

WFS

CSW



- Discovery
- Visualization
- Download



Data products

- Annual bathymetries (1996-2015)
- 20 years of tidal characteristics, e.g. tidal range, currents, bottom shear stress
- Morphodynamic parameters, e.g. morphological space and activities
- Sediment distribution

and more as OPEN DATA

