European FerryBox Database

Moving on

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Zentrum für Material- und Küstenforschung

Content

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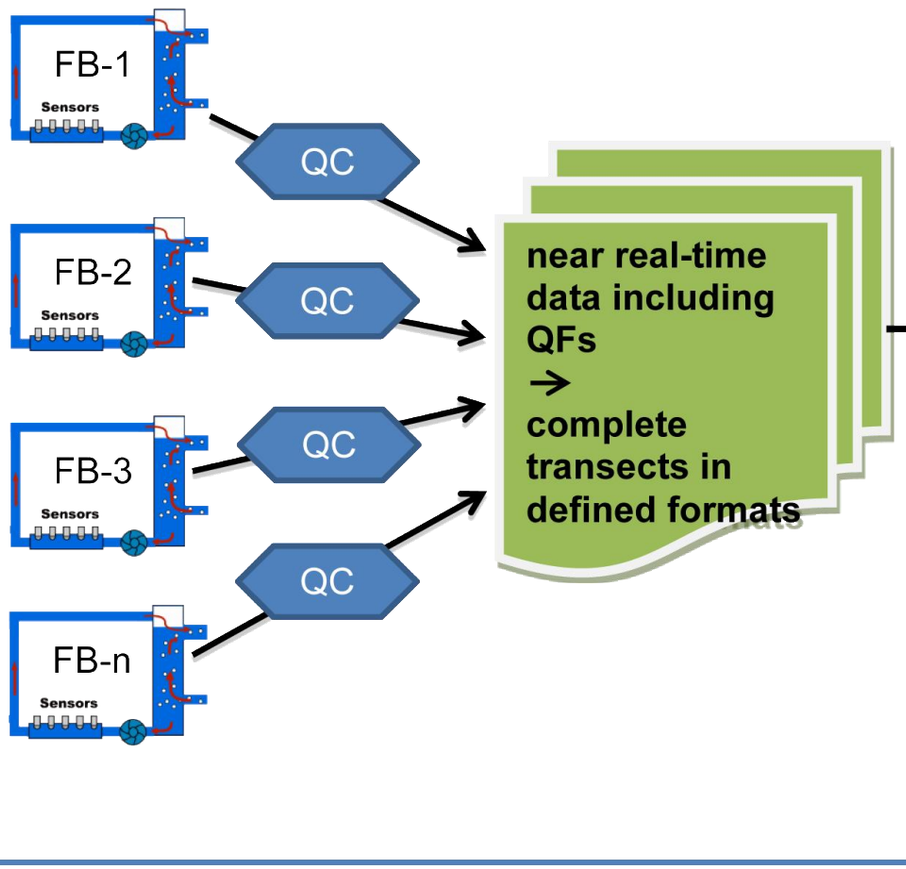
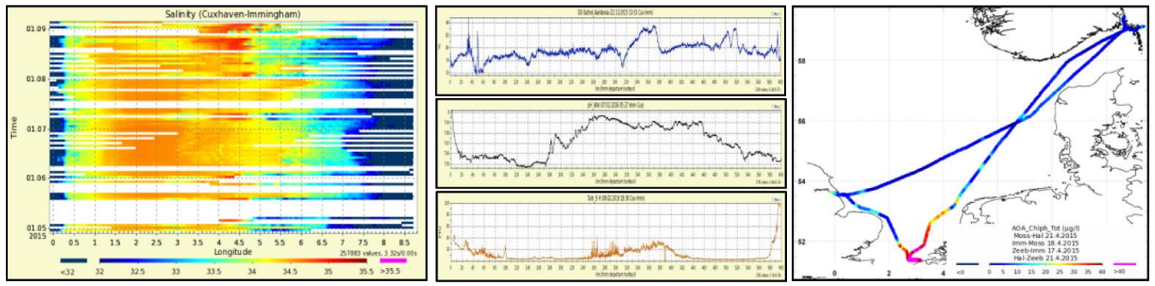
- Current state of the database
- Some gimmicks of the portal
- Possible enhanced usage of metadata
- Data assessment possibilities in the database
- Per reviewed data publication in ESSD

Common European FerryBox Database and Data Portal

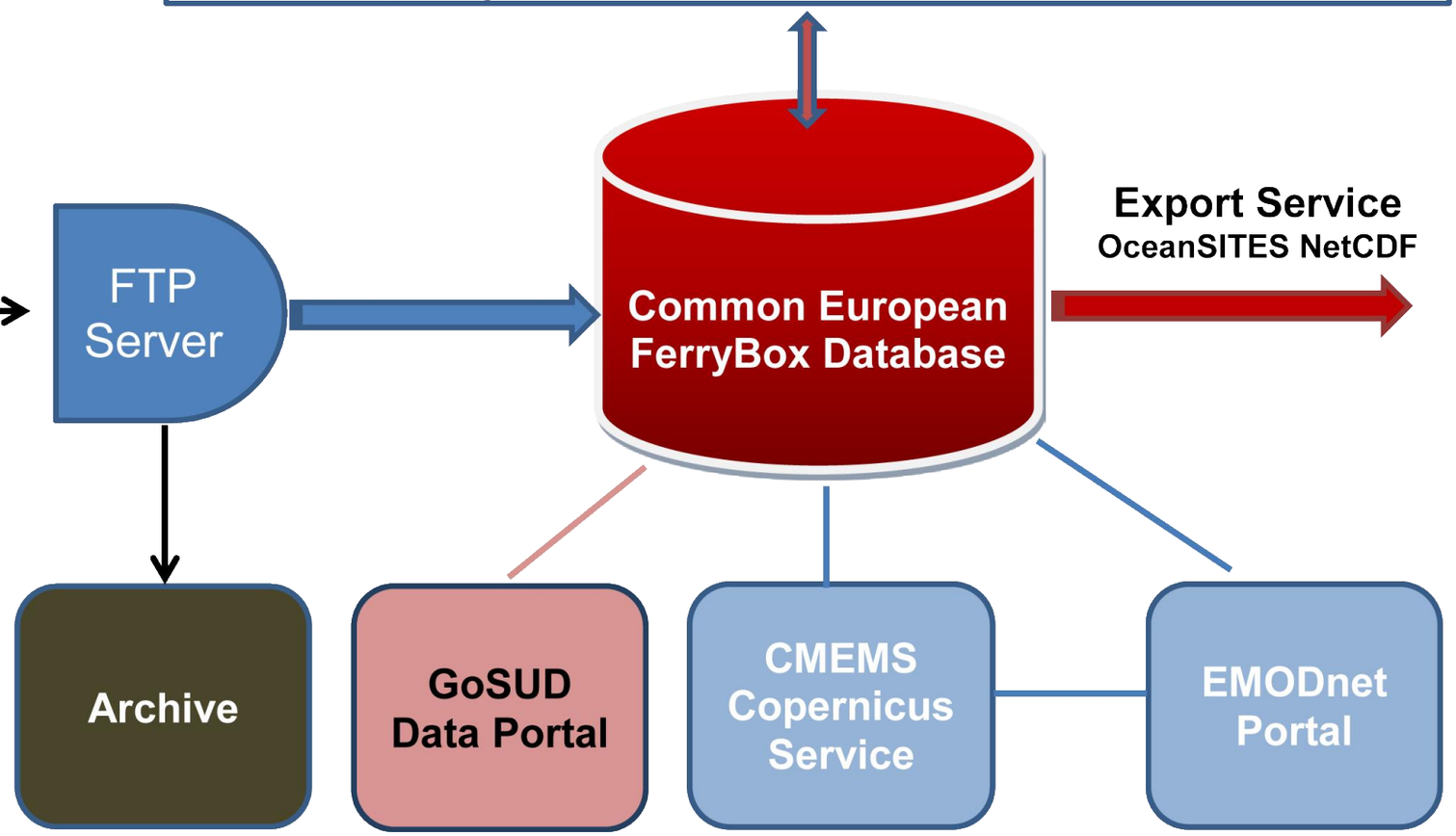
From Operator/Institute or via ROOSs



European FerryBox Data Portal



- DB is transect orientated
- web based tools for:
  - different kind of plots
  - export of selected transects and parameters
  - quality assurance



Latest route data inside database

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- HZG
  - Norway-Belgium_Netherlands-UK (15.04.2019)
  - Büsum-Helgoland (17.04.2019)
  - Cuxhaven-Helgoland (22.12.2018)
  - Cuxhaven-Immingham (re-start 2019)
- NIVA: Data import of NIVA's netCDF files
  - Oslo-Kiel (16.04.2019)
  - Hurtigruten (14.04.2019)
  - Tromso-Spitsbergen (04.04.2019)
- IMR Hurtigruten: Data import of IMR's ASCII files (14.03.2019)
- SYKE Helsinki-Travemünde: Data import in OceanSites format (14.04.2019)
- HCMR Peraues-Iraklion: Data import of ASCII files. Currently stopped due to a defect of the FerryBox PC (11.10.2018)

Export to CMEMS (OceanSites format)

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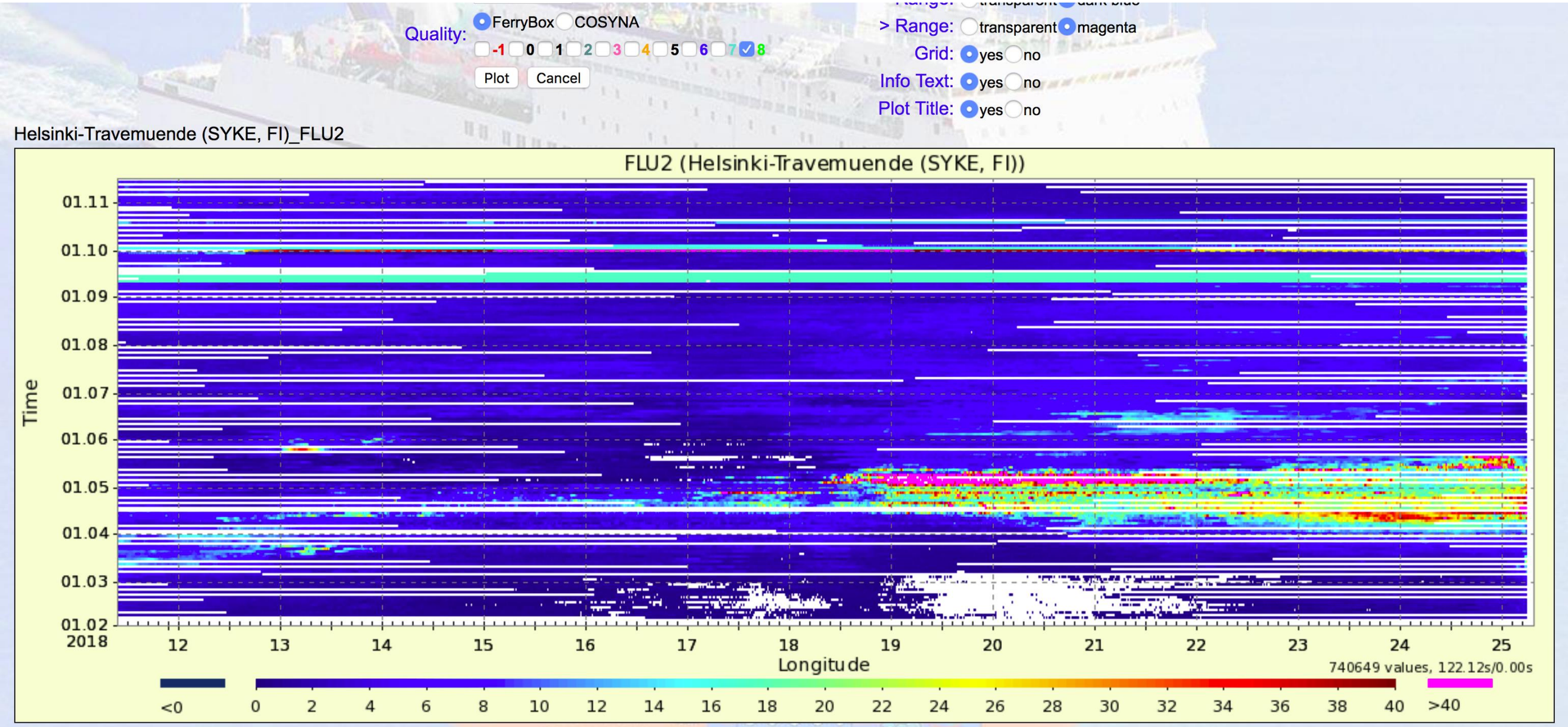
- Norway-Belgium_Netherlands-UK (accessible via opendap) √
- Büsum/Cuxhaven-Helgoland (accessible via opendap) √
- Cuxhaven-Immingham (accessible via opendap) √
- Oslo-Kiel (accessible via opendap) √
- Hurtigruten NIVA (accessible via opendap) √
- Tromso-Spitsbergen (accessible via opendap) √
- Hurtigruten IMR (accessible via opendap) √
- HCMR: Peraues-Iraklion (not yet) **X**

Examples

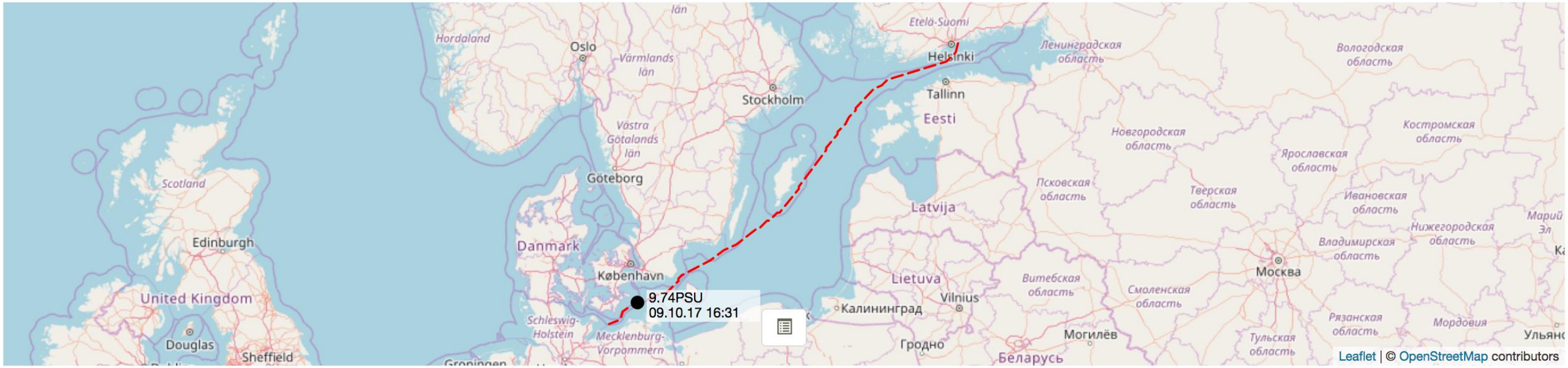
Helsinki-Travemuende by SYKE

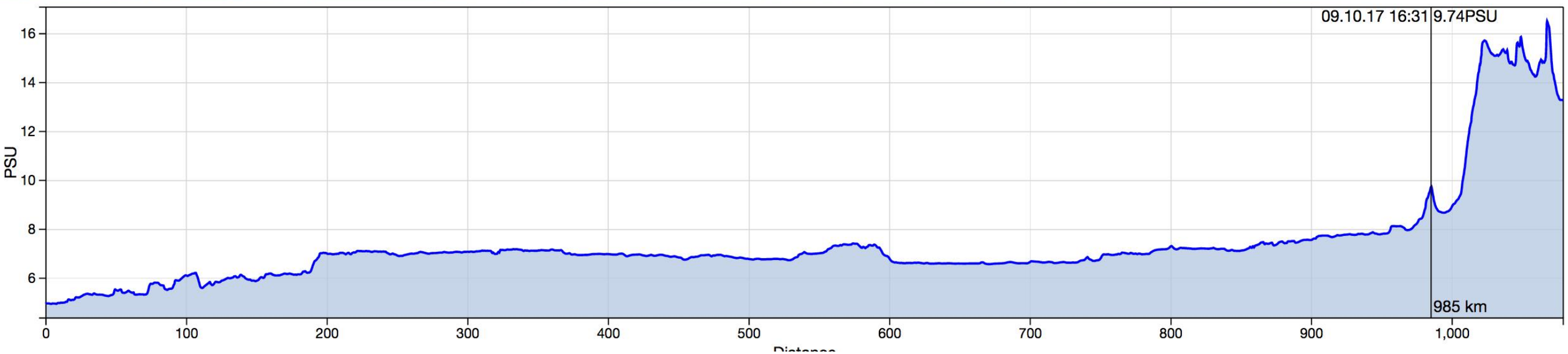
Import already in OceanSites format. No export necessary!

Quality flags done by SYKE



PSAL FerryBox, 2017-10-08T13:31:00Z Hel-Tra
PSAL (PSU)





[SOS V2 Link]

Metadata

- The FerryBox database contains only very few metadata, like start and stop time of every transect.
- It would be possible to create an ISO19115 and INSPIRE compliant metadata record for every transect.
- This could be done with the help of existing programed procedures to merge static metadata with the dynamic metadata from the database developed for COSYNA.
- Possible if the data provider wants me to do it. The platform name will include a „… provided by …“ then.
- Next slides show some examples what would be possible with the help of these metadata.
- These examples use the COSYNA data portal CODM.
- The searched parameter are proxies for Chlorophyl-a.

COSYNA Data Portal
Search for chlorophyll-a proxies for May 2015

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COSYNA

COSYNA data web portal (CODM)

Usage hint: 1. Select Parameter, Time and Area. 2. Select all datasets. 3. Create map, Create plots or Download

Get help
Activate context help
Feedback

Parameter category: Basic Parameters

Parameter: chlorophyll-a

Water depth: All water depths

From: 01.05.2015 (dd.mm.yyyy)

To: 31.05.2015 (dd.mm.yyyy)

Use CTRL+Pg up/Pg down and Pg up/Pg down to switch between years and months.

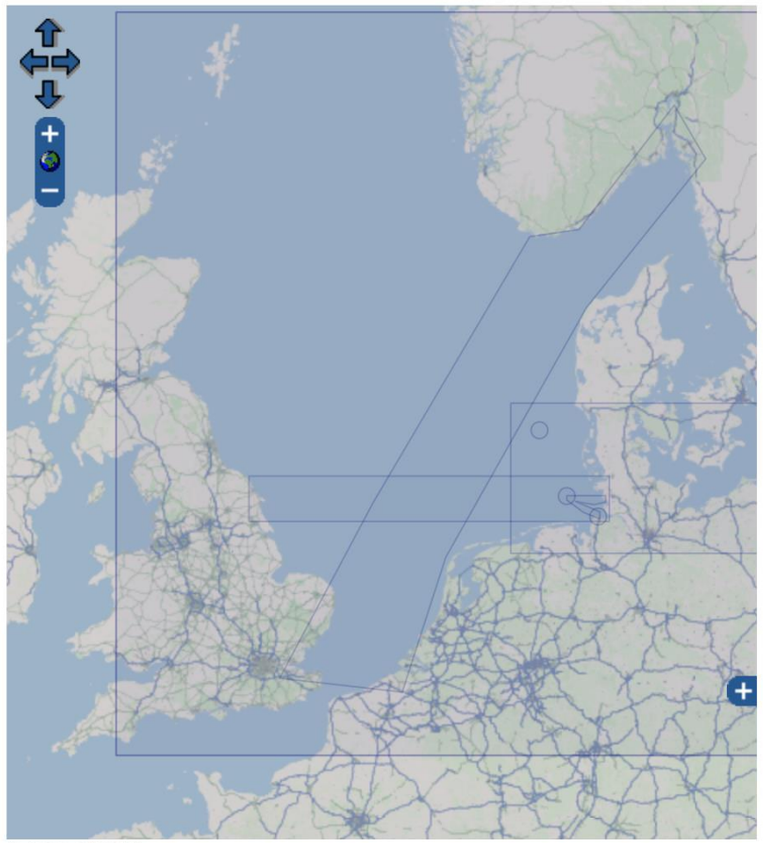
- [x] Remote sensing data
- [x] Insitu data
- [x] Model data

- Ocean Science paper about this portal
- Imprint/Disclaimer
- Data Protection

▸ **Direct access to data sources presented within the COSYNA portal**

▸ **Other Data sources**

Modify map size: − +
Pan: Click and drag or use arrows.
Zoom: <SHIFT>-click and drag or use map's +/- button.



12.58008, 61.08974

1. ?? OpenStreetMap and partners, License: CC BY-SA.
2. ImportXml script(s) provided for free by http://www.howtocreate.co.uk.

Select all datasets

List datasets Number of datasets per platform: 20

According to your search criteria, 14 platform(s) were found in this area.

	Num datasets (total / selected)
▸ Ferrybox at Cuxhaven	(1 / 1)
▸ Ferrybox at FINO3	(2 / 2)
▸ Ferrybox on FunnyGirl (to Helgoland)	(60 / 60)
▸ Ferrybox on Hafnia (Cuxhaven-Immingham)	(9 / 9)
▸ Ferrybox on Lysbris (Norw-Holl_Belg-Engl)	(19 / 19)
▸ Ferrybox on MeinSchiff3 provided by TUI and HZG	No datasets available!
▸ Ferrybox on RV Polarstern provided by AWI and HZG	(1 / 1)
▸ Glider amadeus	(1 / 1)
▸ Glider comet	(1 / 1)
▸ Glider sebastian	(1 / 1)
▸ Modis on Aqua or Terra	(31 / 31)
▸ Modis on Aqua or Terra - Monthly Mean	(1 / 1)
▸ Underwaternode Helgoland provided by AWI and HZG	(1 / 1)
▸ ship Ludwig Prandtl	No datasets available!

For selected data sources:

Create map Create plots Downloads

MOSES Modular Observation Solutions for Earth Systems

888888

EuroGOOS European Global Ocean Observing System

JERICO next

Proxies for Chlorophyll-a

Background: Modis monthly mean of every pixel
Different FerryBox transects on fixed lines (Cuxhaven-Immingham, Büsum-Helgoland, Lysbris)
FerryBox on Polarstern and glider.

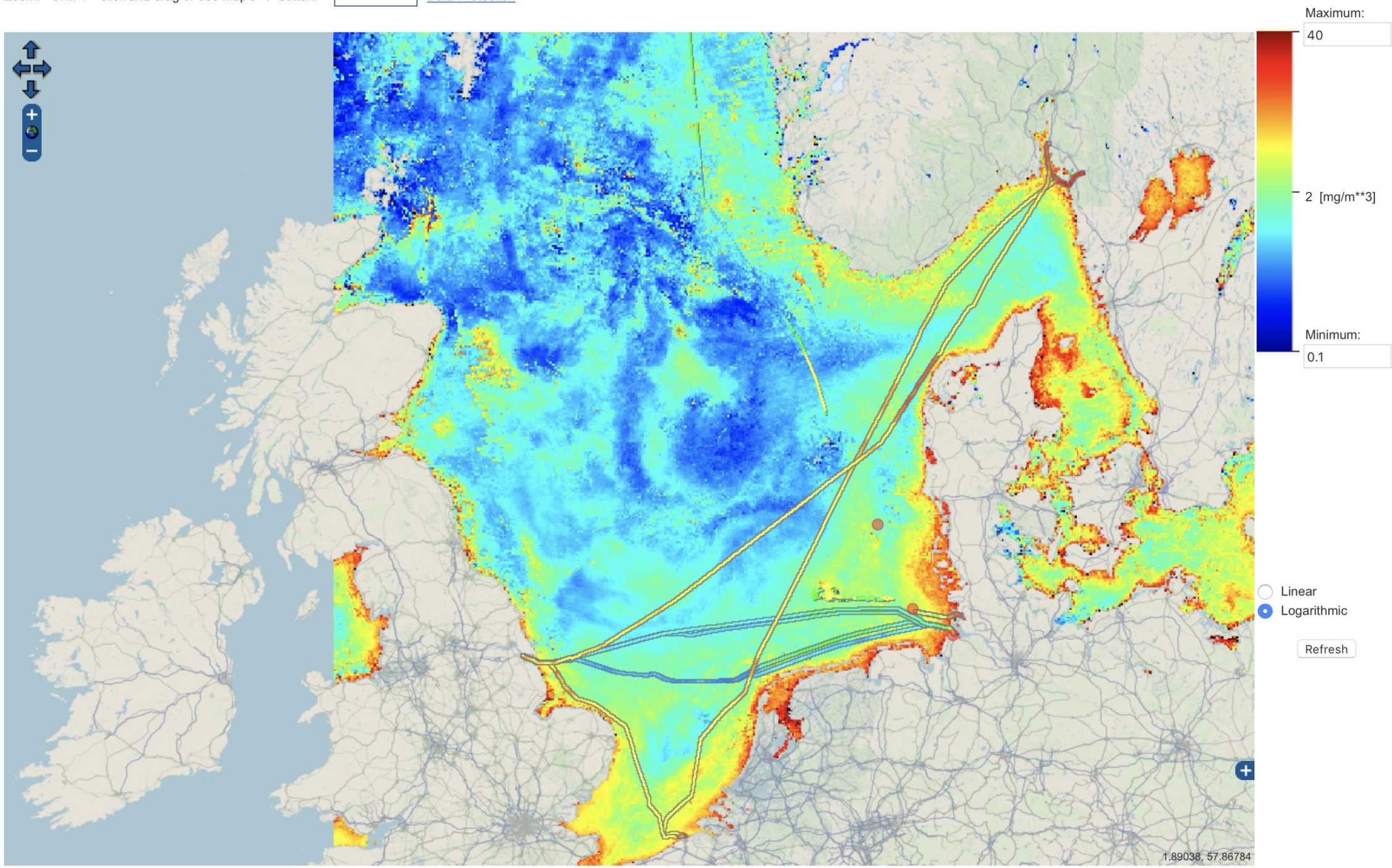
Maps for chlorophyll-a [mg/m**3]

Date range: 01.05.2015 - 31.05.2015

Modify size: − ✚ Pan: Click and drag or use arrows.
Zoom: <SHIFT>-click and drag or use map's +/- button.

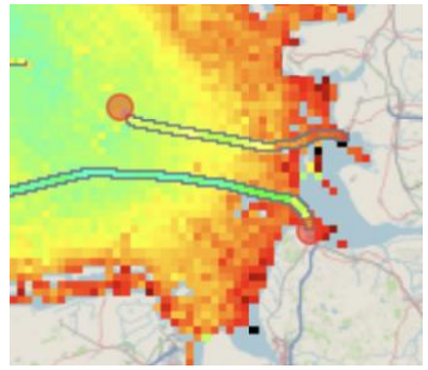
Get help

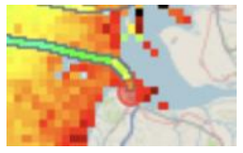
Activate context help
Data Protection

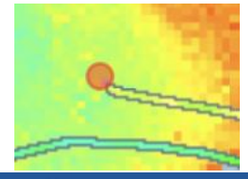


Show stations

Comparison of fluorescence data from two FerryBox lines with
a) FerryBox at Cuxhaven (left, location tolerance 5km, 50km)
b) Modis values at Helgoland (right, location tolerance 20km, 20km)







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COSYNA

XY timeseries plots for chlorophyll_concentration_in_sea_water [mg/m**3]

Get help | Activate context help | Data Protection

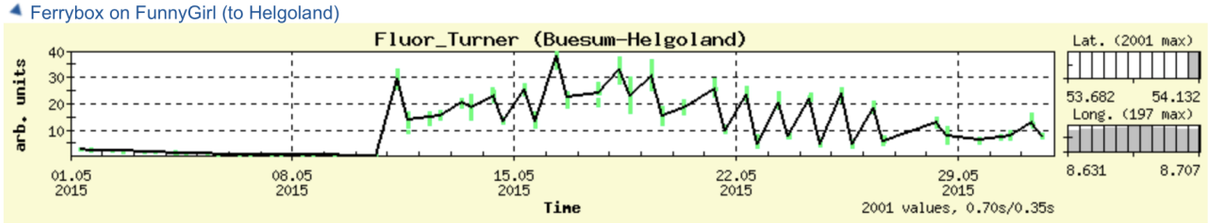
Plot data with quality flag(s): ☐ quality flag 0 ☐ quality flag 1 ☑ quality flag 2 ☐ quality flag 3 ☐ quality flag 4 (deselect all flags for plotting all data)

Y axis: Minimum: 0.1 Maximum: 40 **Position tolerance:** x-distance [km]: 5 y-distance [km]: 50

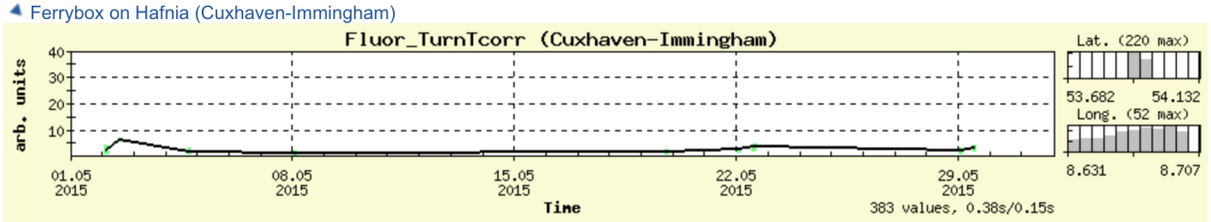
Reset Refresh

1. Selected Layers

▲ Ferrybox on FunnyGirl (to Helgoland)



▲ Ferrybox on Hafnia (Cuxhaven-Immingham)



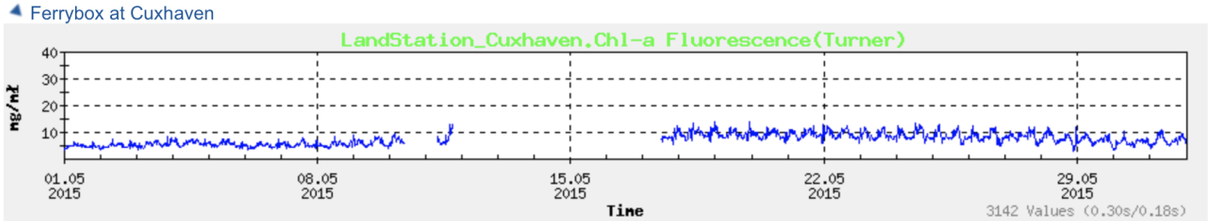
▶ Ferrybox on Lysbris (Norw-Holl_Belg-Engl)

▶ Modis on Aqua or Terra

▶ Modis on Aqua or Terra - Monthly Mean

2. Selected stations

▲ Ferrybox at Cuxhaven



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COSYNA

XY timeseries plots for chlorophyll_concentration_in_sea_water [mg/m**3]

Get help | Activate context help | Data Protection

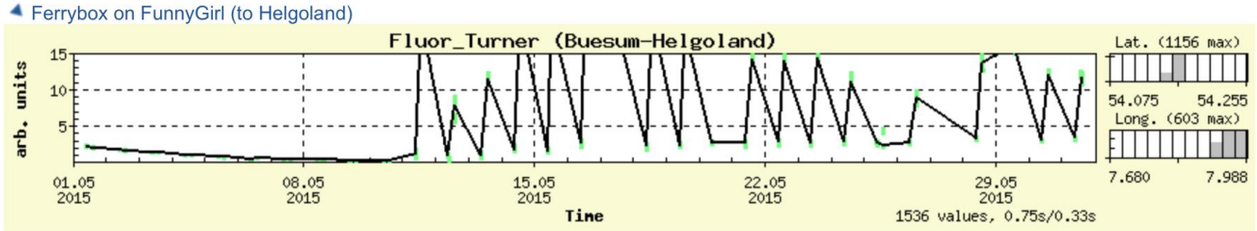
Plot data with quality flag(s): ☐ quality flag 0 ☐ quality flag 1 ☐ quality flag 2 ☐ quality flag 3 ☐ quality flag 4 (deselect all flags for plotting all data)

Y axis: Minimum: 0.1 Maximum: 15 **Position tolerance:** x-distance [km]: 20 y-distance [km]: 20

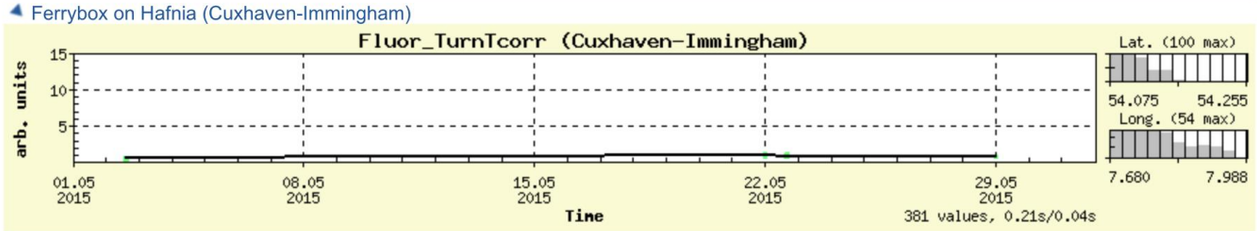
Reset Refresh

1. Selected Layers

▲ Ferrybox on FunnyGirl (to Helgoland)

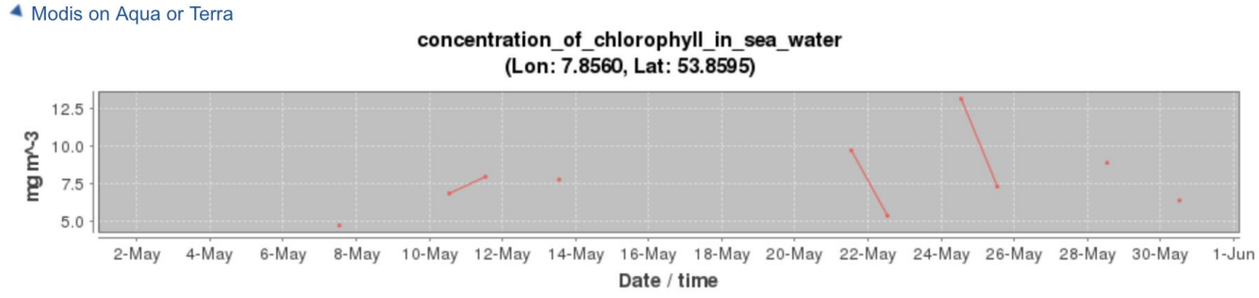


▲ Ferrybox on Hafnia (Cuxhaven-Immingham)

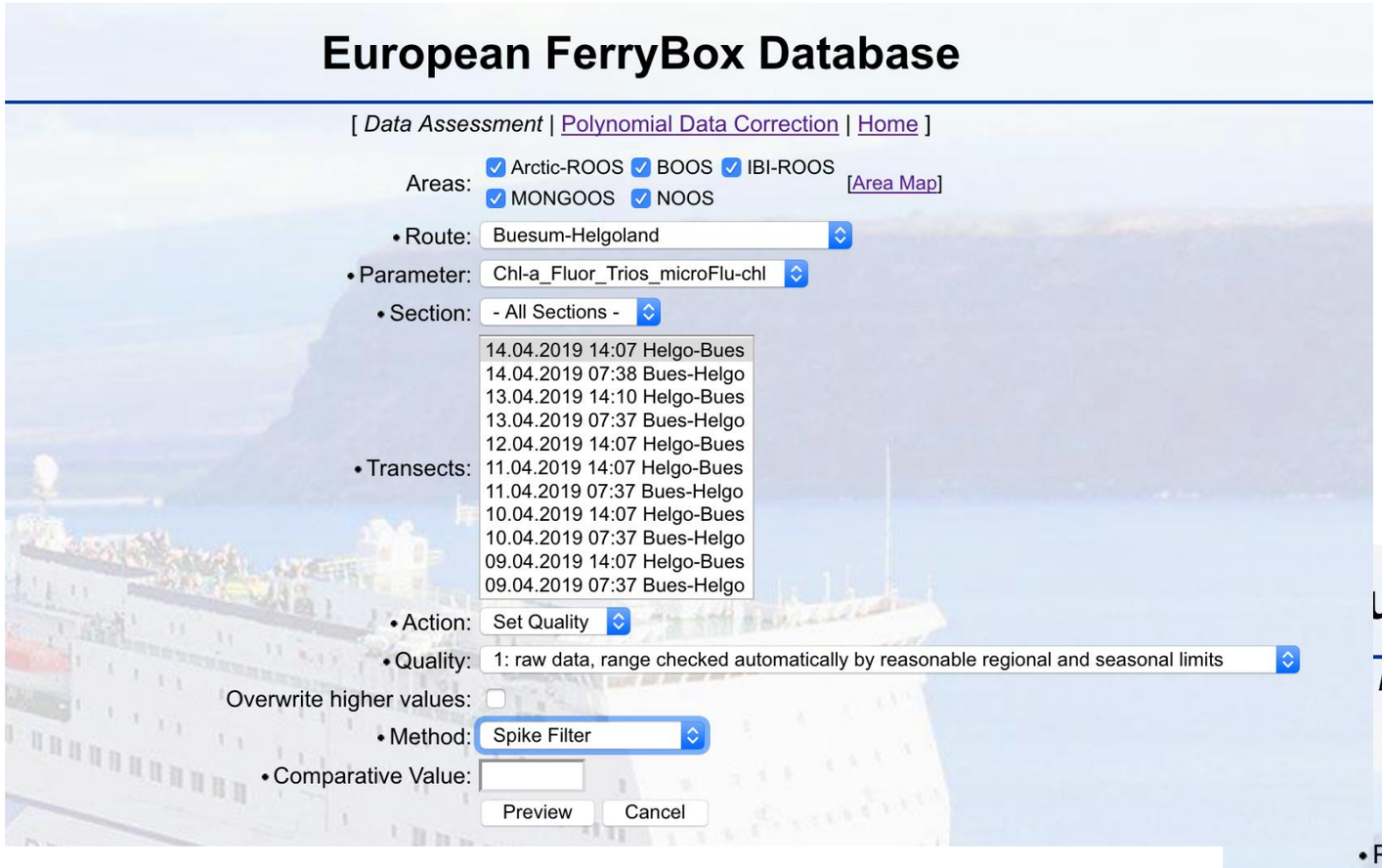


▶ Ferrybox on Lysbris (Norw-Holl_Belg-Engl)

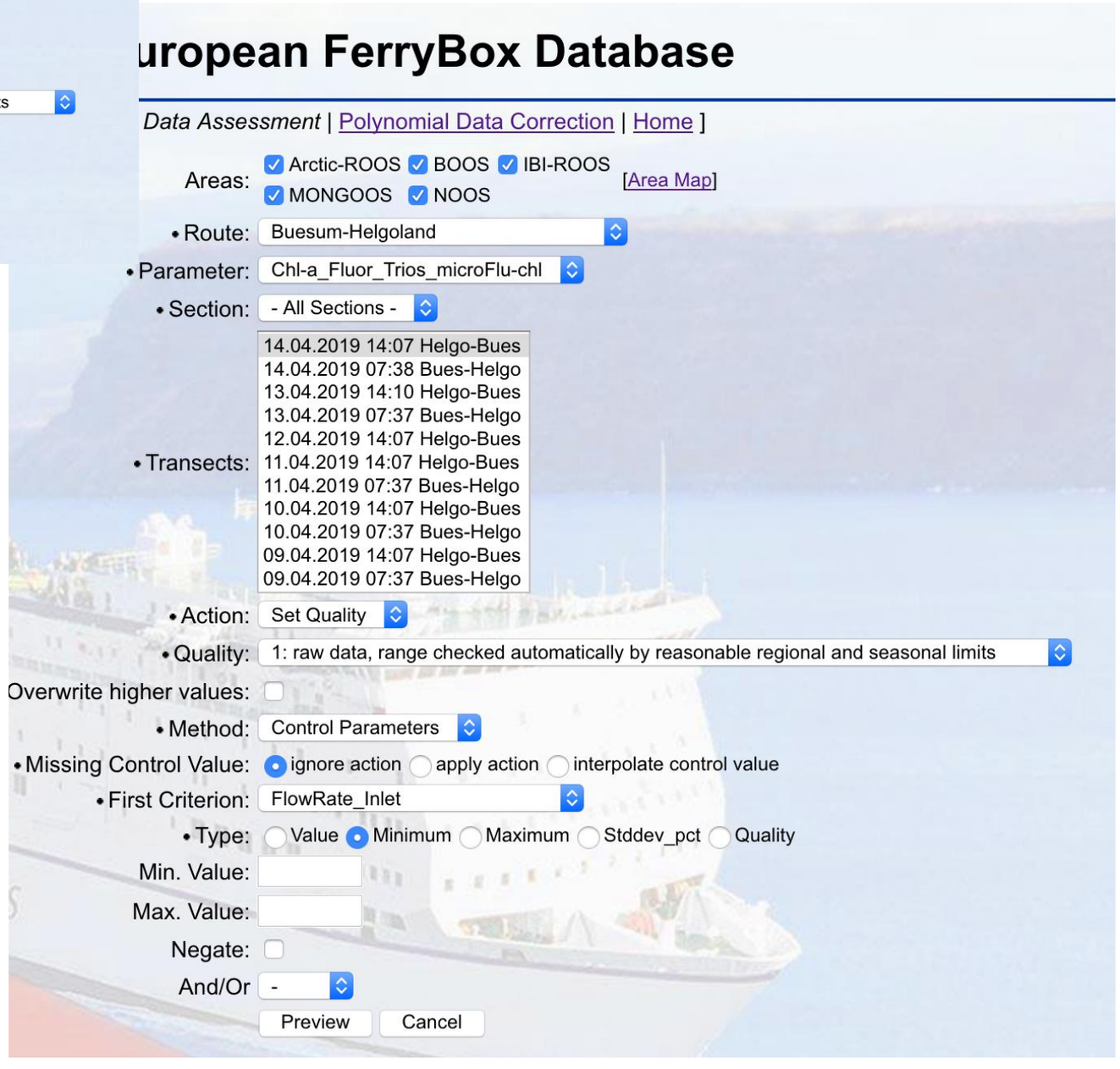
▲ Modis on Aqua or Terra



Data Assessment using database tools.



Set quality with the help of a spike filter
or based on control parameters like flow rate



Data publication

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- The data from Cuxhaven-Harwich (2002-2005) were published in PANGAEA (https://doi.org/10.1594/PANGAEA.883824)
- In addition the same data are published as an article in the Earth System Science Data journal (https://www.earth-syst-sci-data.net).
- The article is named „FerryBox data in the North Sea from 2002 to 2005“ (https://doi.org/10.5194/essd-10-1729-2018)

Earth Syst. Sci. Data, 10, 1729-1734, 2018
https://doi.org/10.5194/essd-10-1729-2018
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Volume 10, issue 3

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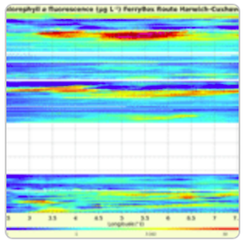
27 Sep 2018

FerryBox data in the North Sea from 2002 to 2005



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Received: 09 Feb 2018 – Discussion started: 03 Apr 2018 – Revised: 26 Jul 2018 – Accepted: 06 Aug 2018 – Published: 27 Sep 2018

Abstract. From 2002 to 2005 a FerryBox system was installed aboard two different ferries travelling between Cuxhaven (Germany) and Harwich (UK) on a daily basis. The FerryBox system is an automated flow-through monitoring system for measuring oceanographic and biogeochemical parameters installed on ships of opportunity. The variables were recorded in a time interval of 10–20 s, corresponding to a spatial resolution of about 100 m. The data set provides the parameters water temperature, salinity, dissolved oxygen and chlorophyll *a* fluorescence. There is a longer data gap between November 2002 and August 2003 in the time series due to a change of the vessel in October 2002. The data are available at https://doi.org/10.1594/PANGAEA.883824 (Petersen et al., 2017) and as part of the COSYNA (Coastal Observing System for Northern and Arctic Seas) data portal CODM at http://codm.hzg.de/codm (last access: September 2018) or https://doi.org/10.17616/R3K02T (Breitbach, 2018).

How to cite: Petersen, W., Reinke, S., Breitbach, G., Petschatnikov, M., Wehde, H., and Thomas, H.: FerryBox data in the North Sea from 2002 to 2005, Earth Syst. Sci. Data, 10, 1729-1734, https://doi.org/10.5194/essd-10-1729-2018, 2018.

To dos and outlook

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- Adapt HZG opendap export to new OceanSites format together with BSH.
- More usage of quality assurance tools of the database.
- Enhanced FerryBox metadata usage is possible.
- Import of additional routes (SMHI, AWI, …)
- HZG will bundle the various data from COSYNA (Coastal Observing SYstem for Northern and Arctic seas), coastmap (water and sediment samples, model visualization tools from an array database) and coastdat (50 year reanalysis data for the North Sea) into a common Helmholtz Coastal Data Center (HCDC).
- Together with OSIS (Geomar) and O2A (AWI) HCDC will build up the Data Mare Hub the core of the coming NFDI4EARTH in Germany.

Thank you