

Federal Waterways Engineering and Research Institute (BAW)
smile consult GmbH
planGIS GmbH

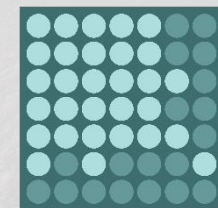
TrilaWatt

Digital hydro-morphological twin of the Trilateral Wadden Sea

A web-based coastal information system

Hendrik Aue (planGIS)

06. February 2025



TrilaWatt



Federal Ministry
for Digital
and Transport

- **Data Viewer**

- Data Catalog
- Data products
- Metadata
- Data comparison
- Layer Style
- Data Import

- **Web Processing Service (WPS)**

- “FAIR” web Infrastructure
- WPS Workflow
- Process chains

- **Analysis Tools**

- Clip Geodata / Data export
- Cross section calculation
- Time series data handling
- Diagram creation
- Difference calculation
- Parameter Intersection / process chains

Data Catalog

BAW CIS Coastal Information System

Search for locations

Explore map data Upload

DATA SETS (1) Remove All Collapse All

Topography_2020_ger

IDEAL ZOOM ABOUT DATA

Opacity: 80 %

topography
in mNHN
> -100 - -39.75
> -39.75 - -39.25
> -39.25 - -38.75
> -38.75 - -38.25
> -38.25 - -37.75
> -37.75 - -37.25
> -37.25 - -36.75
> -36.75 - -36.25
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> -31.25 - -30.75
> -30.75 - -30.25
> -30.25 - -29.75
> -29.75 - -29.25
> -29.25 - -28.75

https://mdi-dienste.baw.de/viewer

Hydraulic Engineering in Coastal Areas Analysis Tools (BETA) My Data Done

Search whole catalogue

Geomorphology

Topography

2020-2022

2022

2021

2020

Topography_2020_dk

Topography_2020_ger

Topography_2020_nl

2010-2019

2000-2009

1996-1999

Topography > 2020-2022 > 2020 > Topography_2020_ger

1 dataset enabled on map

Leaflet | Legal notice | Privacy policy | Source: Basemap

DATA PREVIEW

Remove from the map

Topography_2020_ger

Please contact the provider of this data for more information, including information about usage rights and constraints.

Metadata Links

<https://registry.gdi-de.org/id/de.bund.baw/F4E04DD6-531E-439E-82DC-366EAB3640C8>

Web Map Service Layer Description

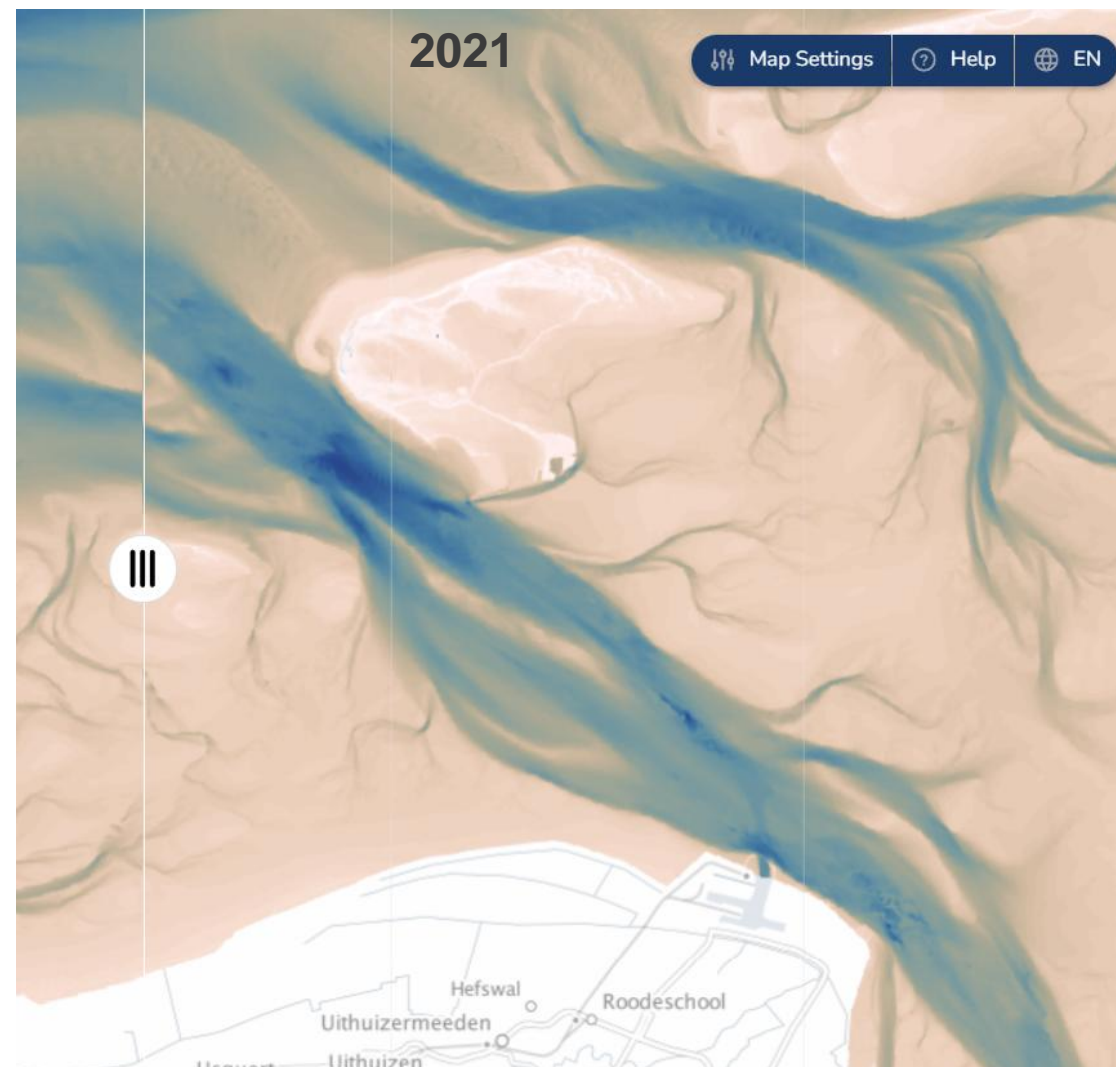
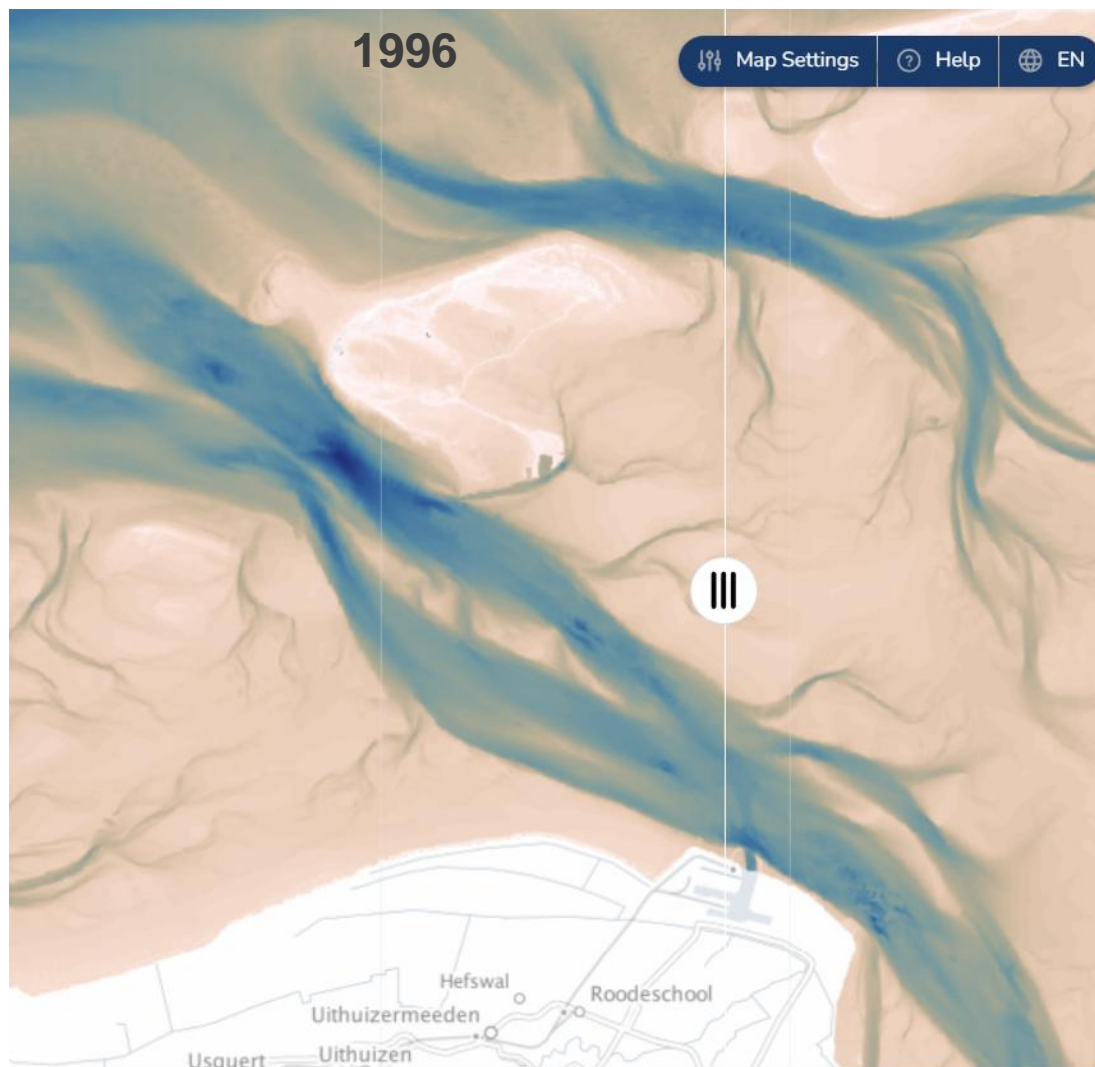
Data download (GeoTiff): [Topographie Rasterdaten](#)

Data source (Shapefiles): [Datenquellenkarten](#)

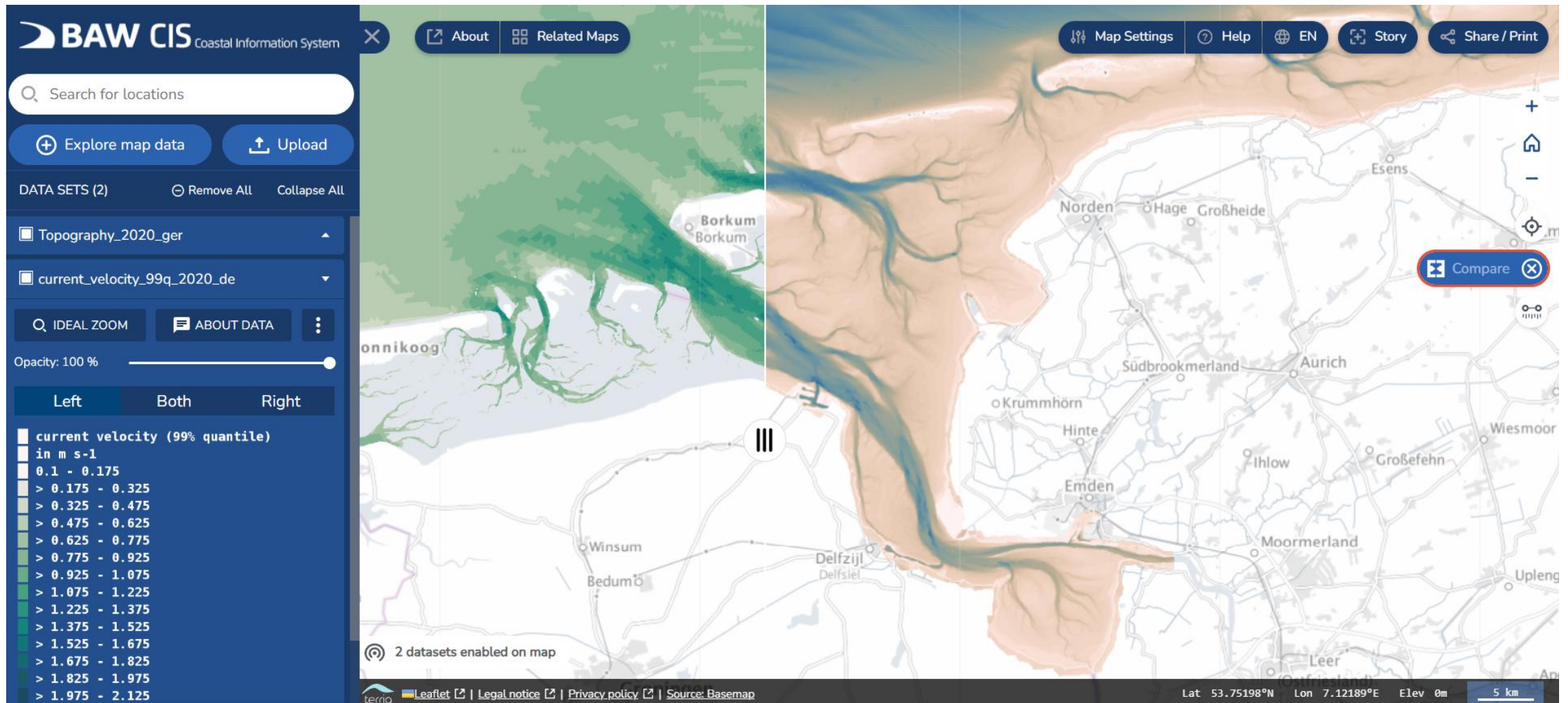
Definition: In den Geowissenschaften beschreibt eine Topographie die Erdoberfläche. In aquatischen Systemen wird der Begriff oft synonym zum Begriff "Bathymetrie" für die Höhenlage der Gewässersohle verwendet. Im Forschungsprojekt TrilaWatt bezeichnen topographische Daten die subtidale, intertidale und

Lat: 54.13817°N Lon: 0.53838°E Elev: 0m 50 km

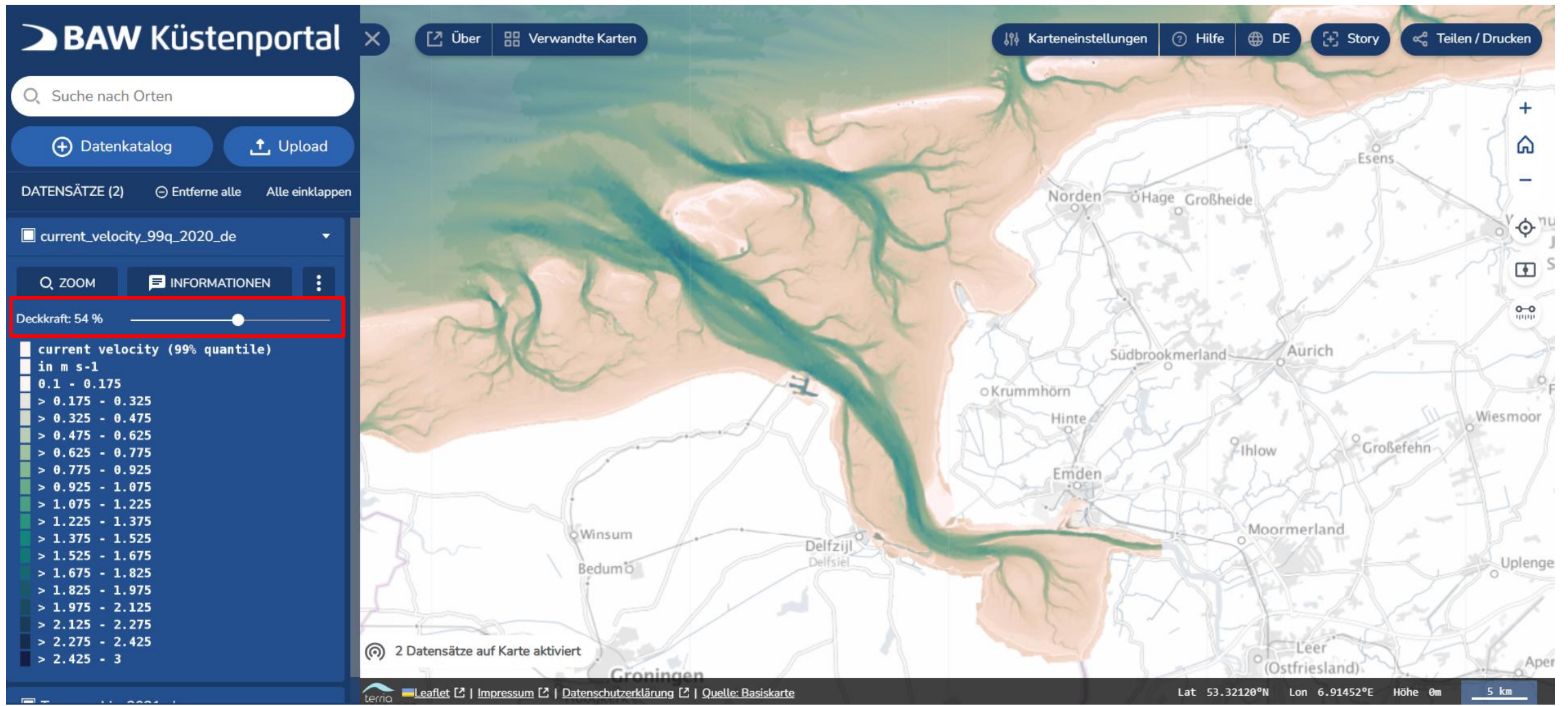
Layer comparison (time slices)



Layer comparison (data categories)



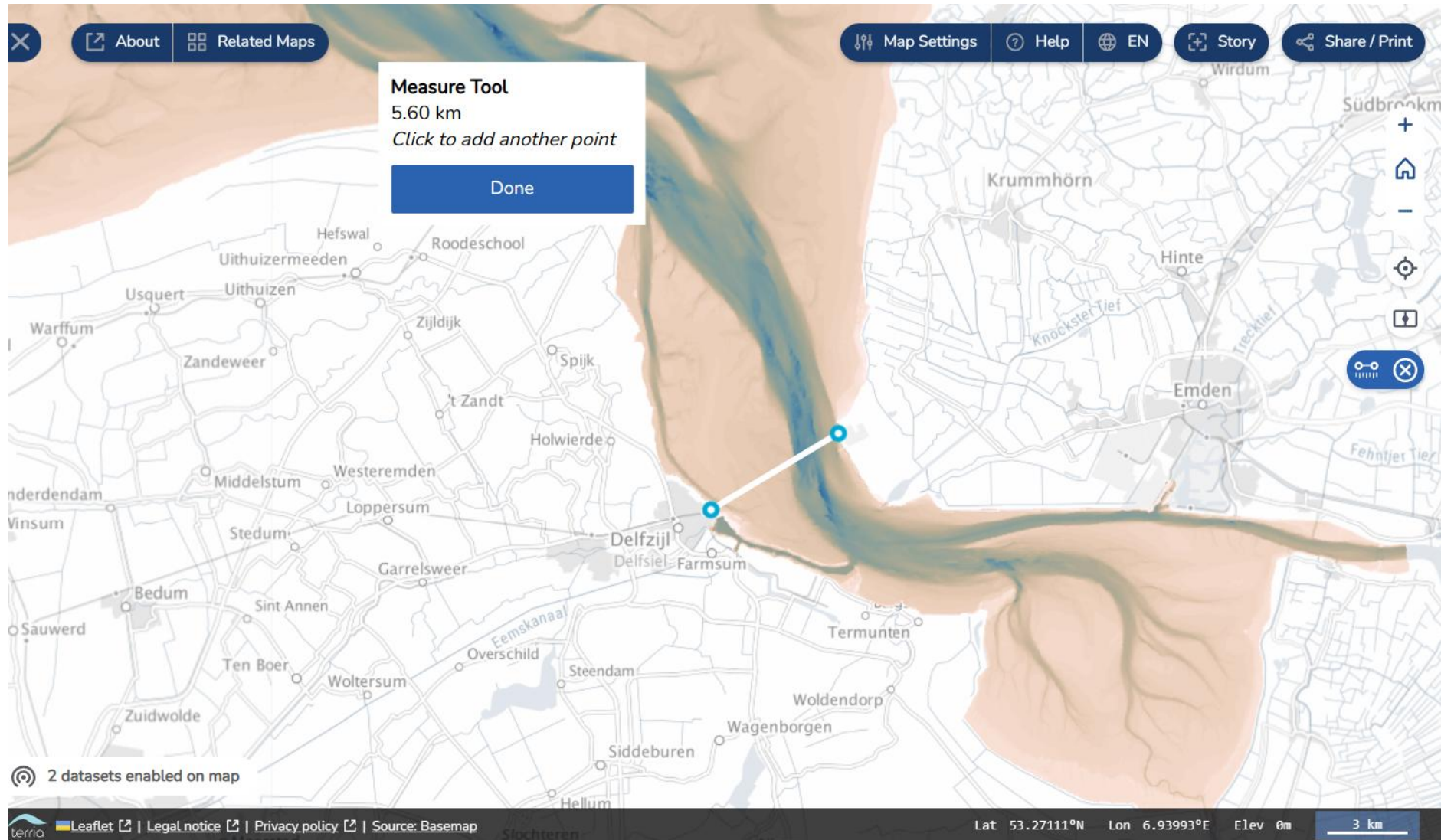
Transparency (current velocity over topography)



Import data

The screenshot displays the BAW CIS Coastal Information System interface. The top navigation bar includes 'About', 'Related Maps', 'Map Settings', 'Help', 'EN', 'Story', and 'Share / Print'. A search bar is located below the navigation bar. The main menu on the left contains 'Explore map data' and 'Upload', with the 'Upload' button highlighted in red. Below the menu, there are options for 'DATA SETS (2)', 'Remove All', and 'Collapse All'. A dropdown menu is open, showing 'name_service' highlighted in red. The map area shows a coastal region with various locations labeled, including 'Goldsackplate', 'Ballonplate', 'Borkum', 'Königsplate', 'Alte Ems', 'Hund', 'Paapsand', 'Ems', 'Hoogsand', 'Groningen', 'Winsum', 'Bedum', 'Delfzijl', 'Delfsiel', 'Campen', 'Larrelt', 'Emden', 'Hinte', 'Hieve', 'Ostfriesland', 'Pewsum', 'Krummhörn', 'Grimersum', 'brookmerian', 'Moordorf', 'Aurich', 'Holtrop', 'Wiesmoor', 'Wiesmoor', 'Friedeb', 'Marx', 'Timmel', 'Warsingsfehn', 'Remels', 'Hausen', 'Ihausen', 'Leer', 'Nortmoor', 'Bingum', 'Ostfriesland', 'Dafum', 'Apen', and 'We'. The map also shows '2 datasets enabled on map' and a scale bar at the bottom right indicating 5 km. The footer contains 'Leaflet', 'Legal notice', 'Privacy policy', 'Source: Basemap', and coordinates: 'Lat 53.29495°N Lon 6.81564°E Elev 0m'.

Distance measurement



Web infrastructure - according to the **FAIR*** [principles](#)

▪ Findable*

- Data products are described with **standardized (ISO) metadata**
 - Platforms: BAW-Datenrepository, MDI-DE, mobilthek, GOVDATA, GDI-DE, EU INSPIRE

▪ Accessible

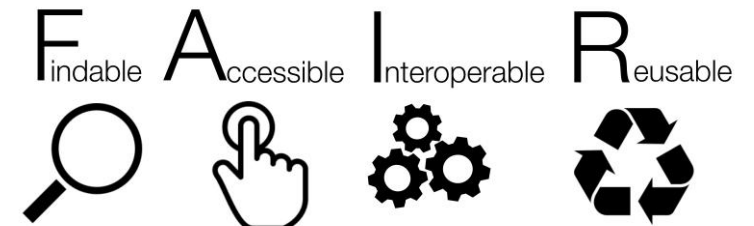
- Data can be **viewed and downloaded** with a [data viewer](#), the BAW Coastal information system: <https://mdi-dienste.baw.de/viewer>
- **OGC** compliant **web services**: [WMS](#), [WFS](#), [WCS](#)

▪ Interoperable

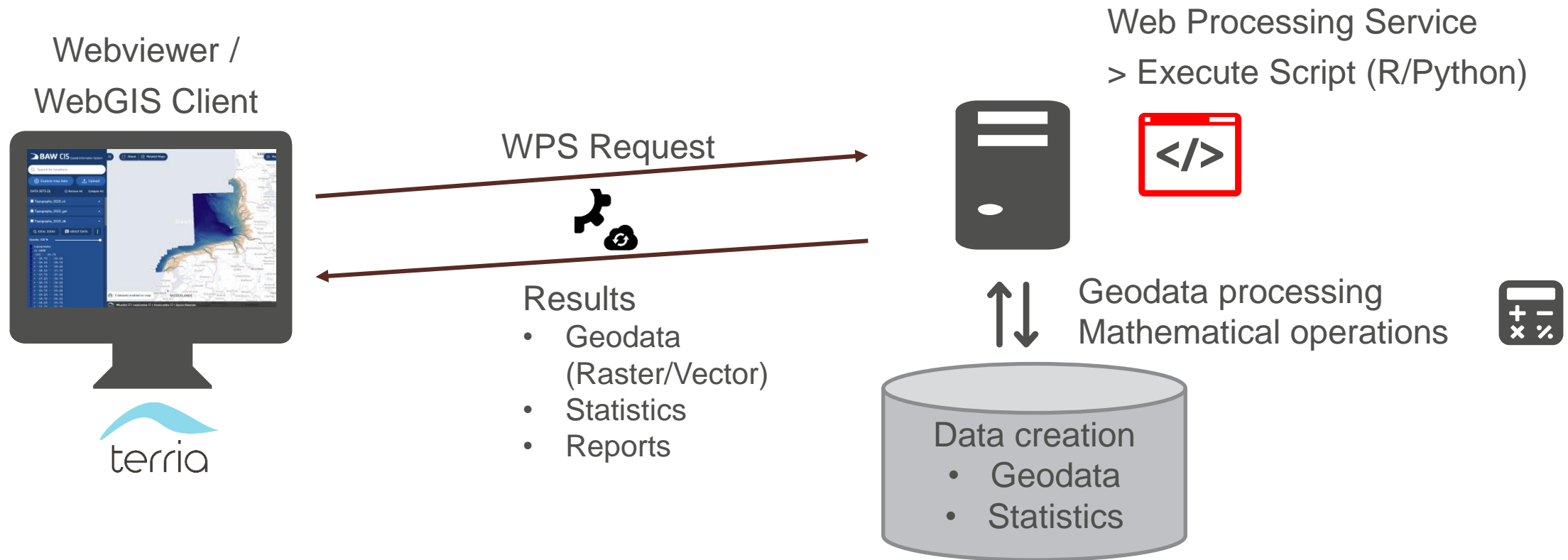
- Assistance system enables **web processing methods (WPS)**
 - Results: geodata, charts, statistics, reports

▪ Re-usable

- **well-described** and **long-term stored data** ensures various re-use possibilities
 - Examples: data combination and re-calculation



Web Processing Service (WPS) - Workflow



Interactive Web Applications (Process chains)

Parameter ANd Data Analyzer
Generates a geoJSON from given parameters and thresholds.

name (required) ⓘ

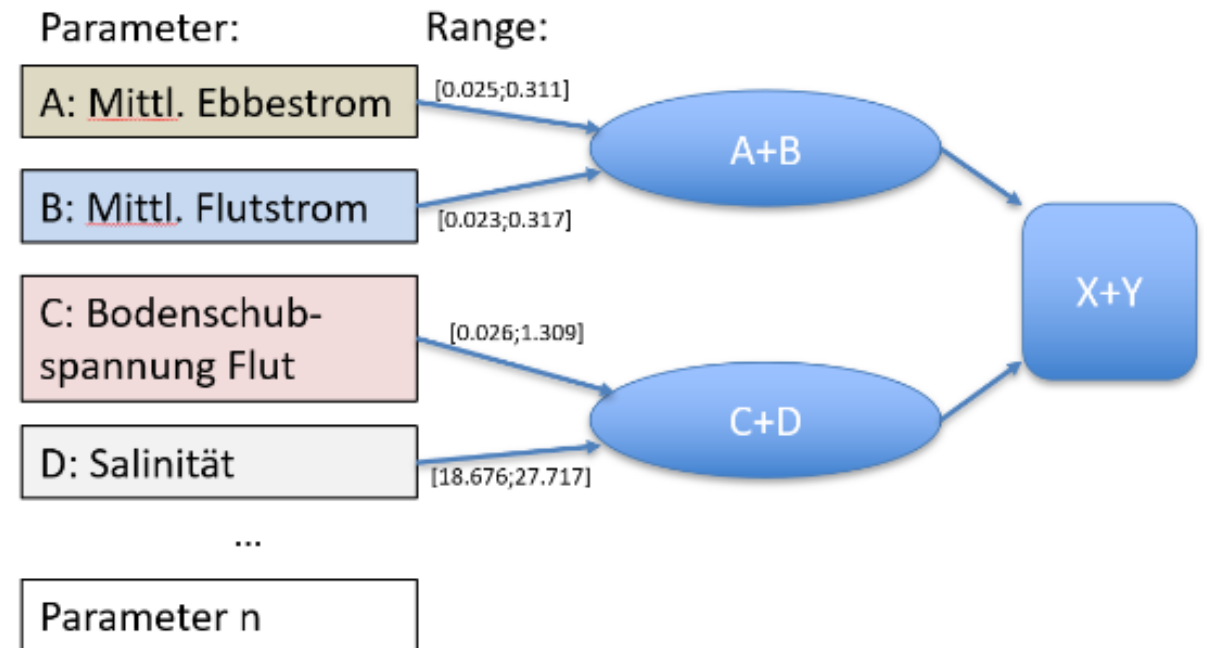
Select a reference year (required) ⓘ

Bedshearstress flood [N m-2] ⓘ
0.0014 — 0.521 — 1.973 — 2.769

Bedshearstress ebb [N m-2] ⓘ
0.0012 — 0.457 — 2.698 — 3.38

Salinity [g/kg] ⓘ
10.22 — 14.911 — 28.32 — 35.03

Sediment size [mm] ⓘ
0.0035 — 1.839 — 7.955 — 8.78



Clip and export Geodata

Click two points to draw a rectangle extent.
Klicken Sie auf einen anderen Punkt, um das Rechteck neu zu zeichnen

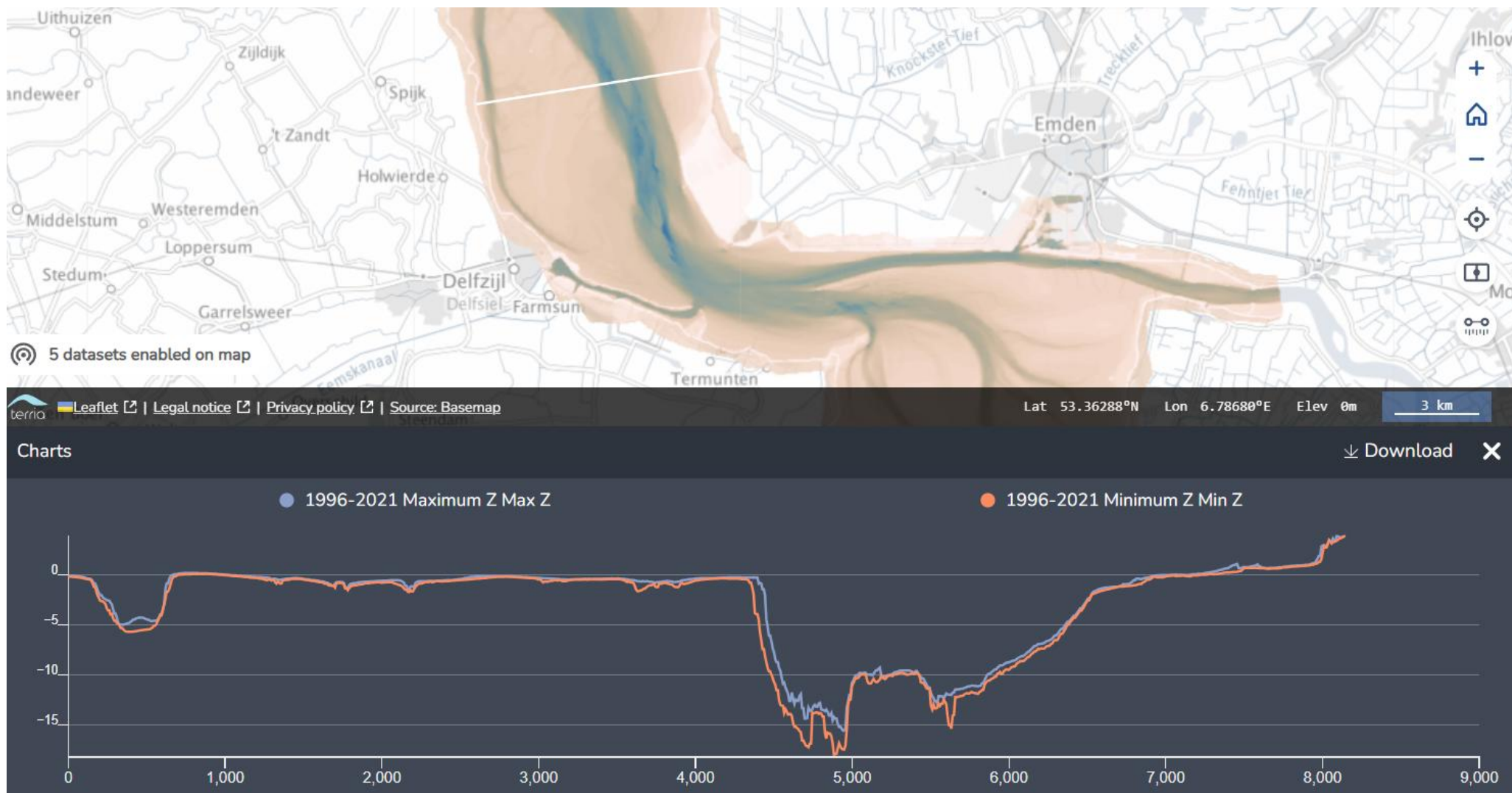
Download Extent

GIS

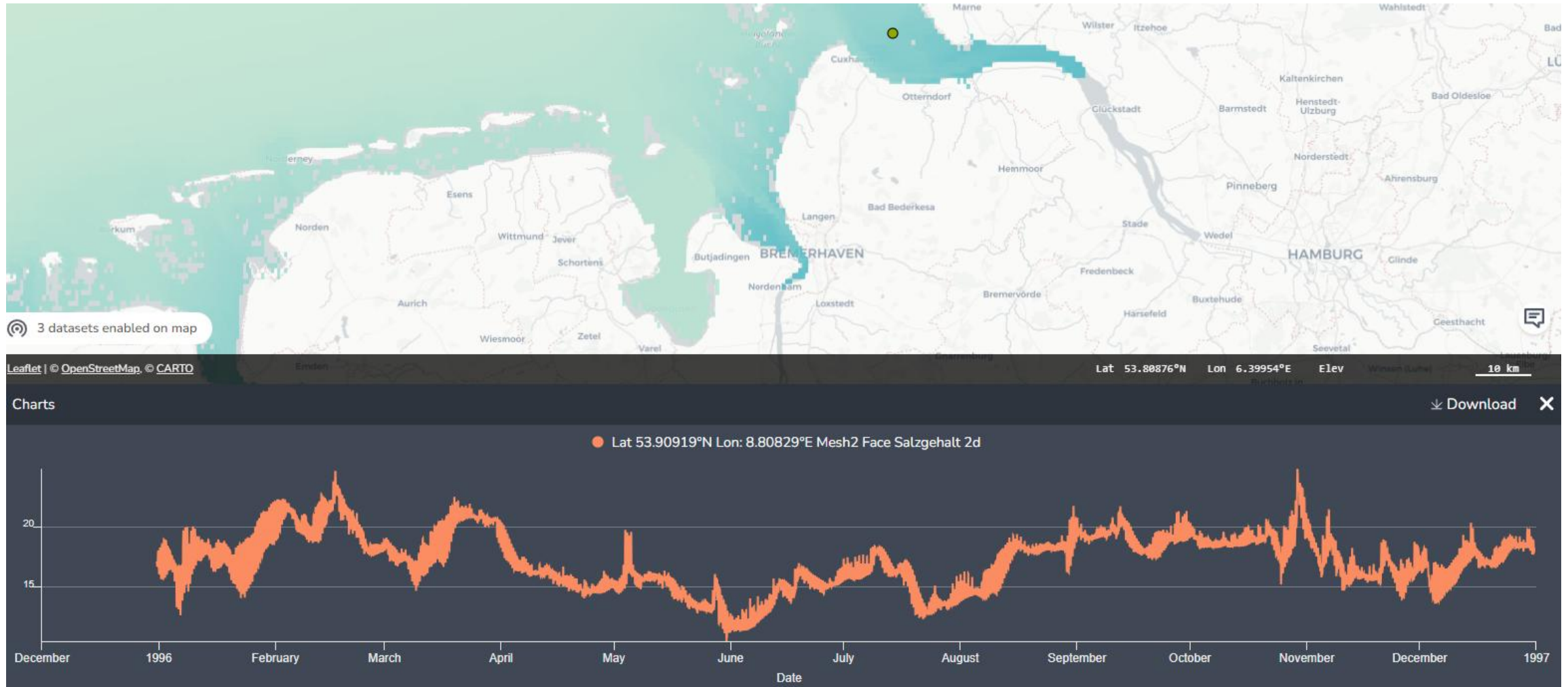
Ruhezone I/5
Ruhezone I/6
Ruhezone I/7

topography
in m/ft
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> -20.75 - -20.25

Cross section calculation



Time series data diagram calculation (salinity)



Difference calculation

The screenshot displays the BAW CIS Coastal Information System interface. On the left, a search bar contains 'salini'. Below it, there are buttons for 'Explore map data' and 'Upload'. A 'DATA SETS (6)' section lists 'WPS: Export and visualize salinity time series data result 2025-02-...' and '2016-2022'. A legend for 'bathymetry difference' shows color-coded ranges in meters (m): -20 to -15 (dark blue), -15 to -10 (medium blue), -10 to -5 (light blue), -5 to -1 (very light blue), -0.5 to 0.5 (white), 1 to 5 (light green), 5 to 10 (medium green), 10 to 15 (dark green), and > 15 (dark green). The main map area shows a coastal region with bathymetric data overlaid in various shades of blue and green. On the right, a configuration panel for 'Bathymetric difference analysis' is visible. It includes a search bar, a list of tools, and a configuration section with 'Output Name (required)' set to '2016-2022' and 'Time slices' set to '2016'. A dropdown menu for selecting years is open, showing options from 2017 to 2022, with 2022 selected. The interface also includes navigation and utility buttons at the top and bottom.

Parameter Intersection calculation

BAW CIS Coastal Information System

salini

Explore map data Upload

DATA SETS (8) Remove All Collapse All

WPS: Parameter AND Data Analyzer result 2025-02-06T07:27:23.854Z

IDEAL ZOOM ABOUT DATA

Job is finished

Processing messages: PANDA successfully finished processing!

WPS: Visualize minimum and maximum bathymetric profile lines result 2025-02-...

Parameter Intersection analysis 2010

IDEAL ZOOM ABOUT DATA

Opacity: 80 %

- 1 Occurrence
- 2 Occurrence
- 3 Occurrence
- 4 Occurrence

Sea_water_salinity_99q_2015_ger

Topography_2015_ger

Topography_1996_nl

2016-2022

Lat 53.78929°N Lon: 6.64398°E

3 datasets enabled on map

Leaflet | Legal notice | Privacy policy | Source: Basemap

Parameter AND Data Analyzer

Generates a geoJSON from given parameters and thresholds.

name (required) ?

Parameter Intersection

Select a reference year (required) ?

2015

Bedshearstress flood [N m-2] ?

0.0014 0.521 1.973 2.769

Bedshearstress ebb [N m-2] ?

0.0012 0.457 2.698 3.38

Salinity [g/kg] ?

10.22 14.911 28.32 35.03

Sediment size [mm] ?

0.0035 1.839 7.955 8.78

Run Analysis



Langeness (2019)

Visit us online for more information:

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<https://trilawatt.eu>

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