

EMODnet Chemistry 3 Kick-off

Improving the performance, maps and graphics of the viewing services

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GHER-ULg
Deltares



DIVA: Data Interpolating Variational Analysis

Objective: derive gridded fields from in situ observations

Method: variational inverse method: derive continuous field

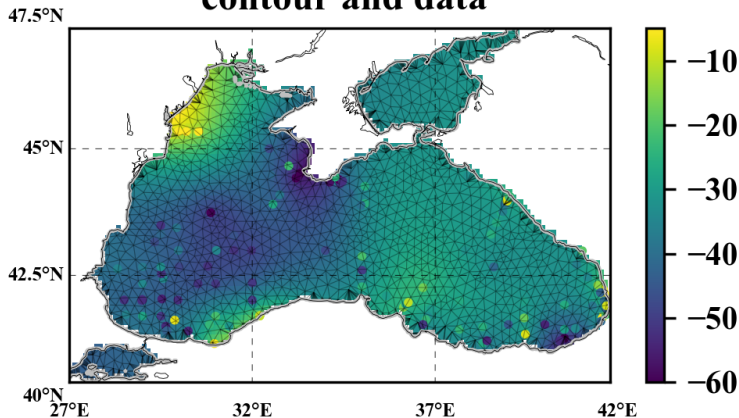
Solver: finite-element mesh

Code: switched from SVN to github:

www.github.com/gher-ulg/DIVA (+ DOI for each release)

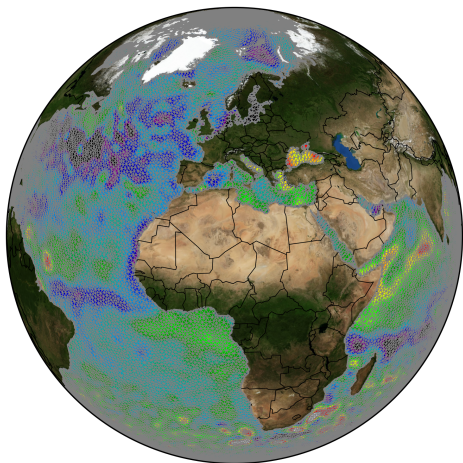
DIVA: Data Interpolating Variational Analysis

Analyzed field, mesh, contour and data



close to the observations
smooth / regular

DIVA: Data Interpolating Variational Analysis



- ✓ basin decoupling
- ✓ ocean currents considered
- ✓ trends detection
- ✓ outliers removal
- ✓ consistent error variance estimation

OceanBrowser: a web-interface to visualize gridded products

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EMODnet portal:

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- ▶ Horizontal and vertical sections
- ▶ Scalar and vector fields

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Uses:

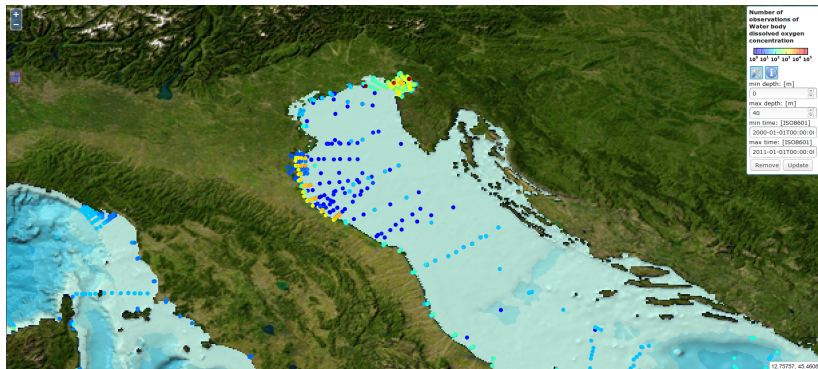
Visualisation of DIVA products in:

- ▶ SeaDataNet - SeaDataCloud
- ▶ EMODnet Chemistry

Observation location: WFS / WPS

Web Feature/ Processing Service

Deltares

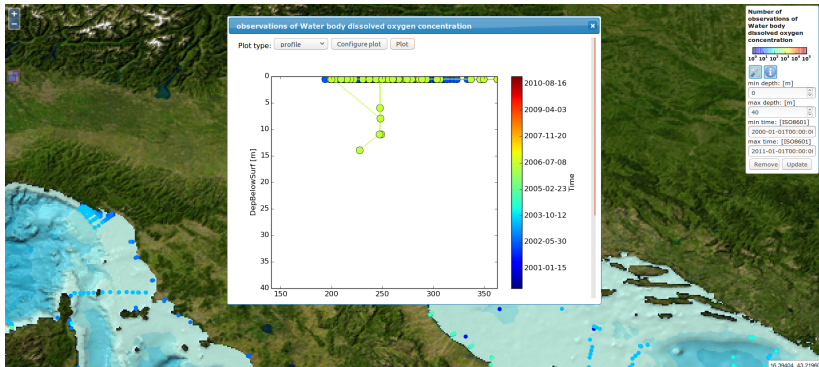


Before: **WFS** → location of every observation $(10^4 - 10^5)$

Now: **WPS** → image with the observation location

Dynamic plots

Profiles



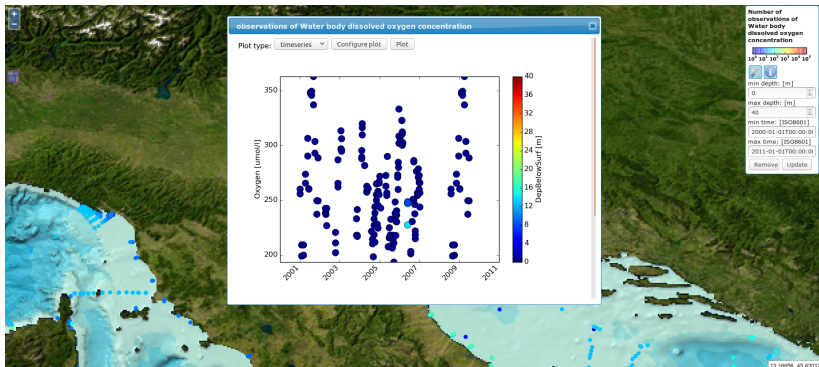
x: field value

y: depth

color: time

Dynamic plots

Time series



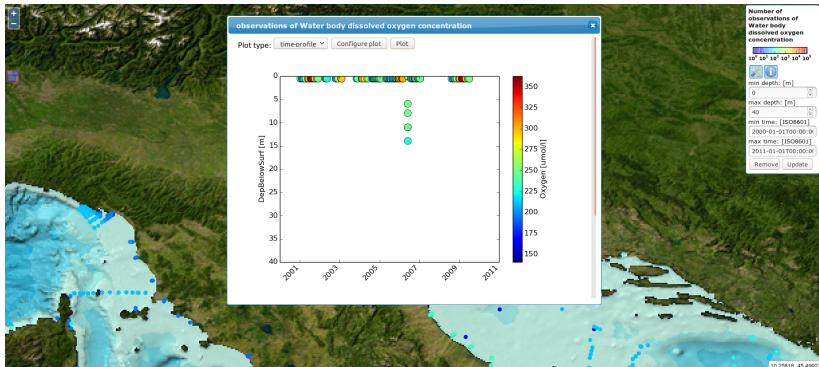
x: time

y: field value

color: depth

Dynamic plots

Time section



x: time

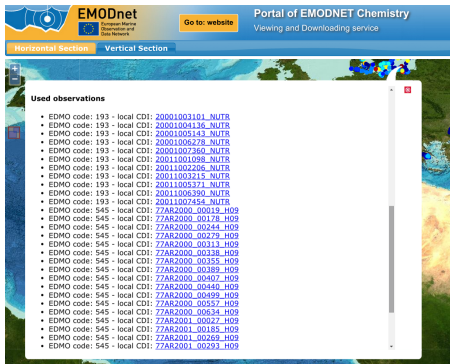
y: depth

color: field value

List of all observations

Observations in SeaData{Net,Cloud} and EMODnet Chemistry identified by:

- ▶ EDMO code: institution
- ▶ CDI: identifier
- ▶ For each plot: list of all used observations + link to central repository



The screenshot shows the EMODnet Portal of EMODNET Chemistry interface. The header includes the EMODnet logo, the text "EMODnet European Marine Observation and Data Network", a "Go to: website" button, and the title "Portal of EMODNET Chemistry" with the subtitle "Viewing and Downloading service". Below the header are two tabs: "Horizontal Section" and "Vertical Section". The main content area displays a map of the Mediterranean Sea with a data overlay. A white box titled "Used observations" is overlaid on the map, containing a list of 30 entries. Each entry consists of an EDMO code, a local code, and a CDI identifier, followed by a link to the central repository.

Used observations

- EDMO code: 193 - local CDI: [20001003101_NUTR](#)
- EDMO code: 193 - local CDI: [200010041136_NUTR](#)
- EDMO code: 193 - local CDI: [20001005143_NUTR](#)
- EDMO code: 193 - local CDI: [20001006278_NUTR](#)
- EDMO code: 193 - local CDI: [20001007360_NUTR](#)
- EDMO code: 193 - local CDI: [20011001098_NUTR](#)
- EDMO code: 193 - local CDI: [20011002206_NUTR](#)
- EDMO code: 193 - local CDI: [20011003215_NUTR](#)
- EDMO code: 193 - local CDI: [20011005371_NUTR](#)
- EDMO code: 193 - local CDI: [20011006390_NUTR](#)
- EDMO code: 193 - local CDI: [20011007454_NUTR](#)
- EDMO code: 545 - local CDI: [77AR2000_00019_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00178_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00244_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00279_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00313_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00338_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00355_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00389_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00407_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00440_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00499_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00557_HO9](#)
- EDMO code: 545 - local CDI: [77AR2000_00634_HO9](#)
- EDMO code: 545 - local CDI: [77AR2001_00077_HO9](#)
- EDMO code: 545 - local CDI: [77AR2001_00185_HO9](#)
- EDMO code: 545 - local CDI: [77AR2001_00269_HO9](#)
- EDMO code: 545 - local CDI: [77AR2001_00293_HO9](#)

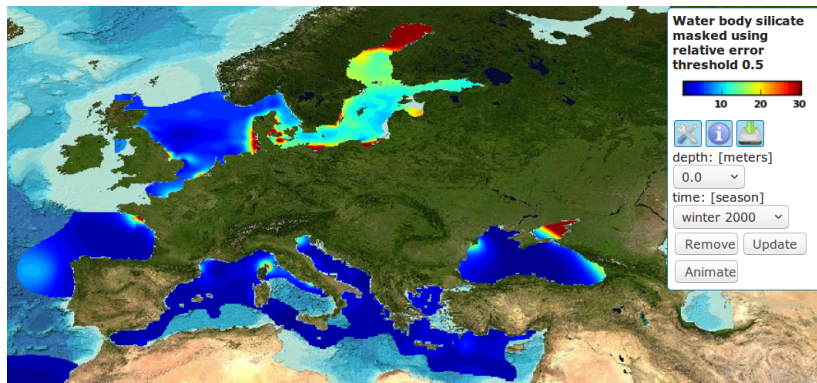
Recent developments

Combined European product

Origin: analyses performed by EMODnet partners

Features: all seasons, several depths, 5 variables

Boundaries: smooth filter to ensure continuity



Summary & conclusions

1. **Visualization** of gridded data sets:

along a horizontal section

along a vertical section

(given time and depth)

(e.g. at a fixed distance from coast)

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Subset via OPeNDAP
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(for a specified depth and time range)

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6. **Innovative** developments in spatial interpolation methods