

eosc

Blue-Cloud2026



Blue-Cloud 2026 workbenches for Essential Ocean Variables:

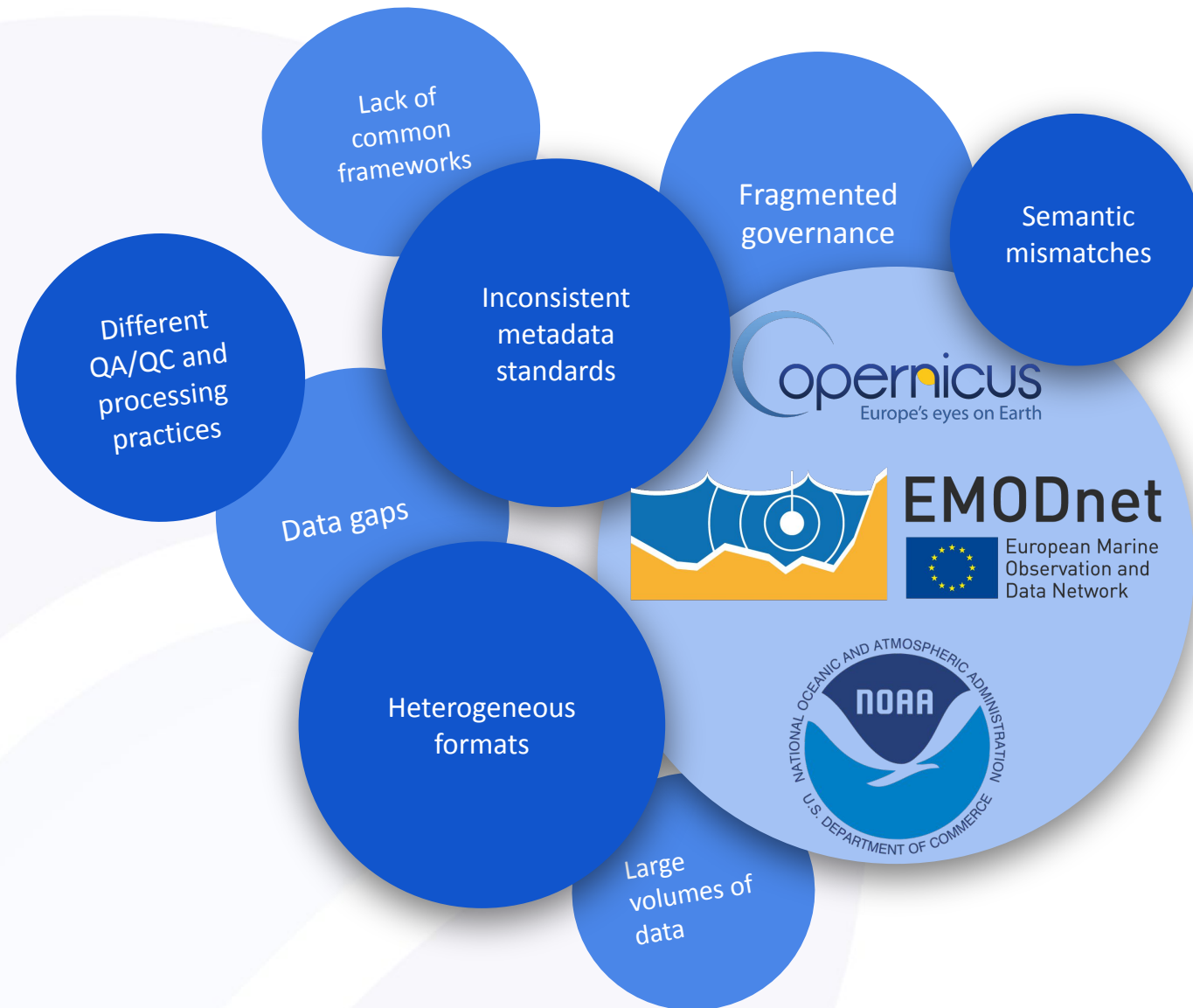
Advancing harmonisation and big-data workflows for eutrophication in marine science

Nydia Catalina Reyes Suarez, et al.
OGS – National Institute of Oceanography and Applied Geophysics and eutrophication workbench Blue-Cloud2026 partners.

*7 May 2026
EGU26, Vienna (AT)*

Integrating in-situ data from different marine data infrastructures presents several major challenges. EOVs are critical for Ocean monitoring, MSFD descriptors, SDG 14 assessment and other global initiatives. Despite the availability in major data infrastructures, their fragmentation creates barriers to interoperability and reuse.

Blue-Cloud 2026 proposes a virtual laboratory with the **open science backbone** needed to solve this.



Essential Ocean Variables Workbenches

Blue-Cloud 2026 is working on three big data processing workbenches (WB). These will facilitate the generation of **validated and harmonized data collections for a selection of Essential Ocean Variables (EOVs) in physics, chemistry and ecosystems** filling the existing gaps by integrating several datasets from different EU and non-EU Blue Data Infrastructures (BDIs) and providing EOVs datasets and workflows to EU operational services and the Digital Twin of the Ocean (DTO).



Eutrophication Workbench (EWB): chlorophyll, nutrients, and dissolved oxygen

An efficient workflow for merging data from Copernicus Marine, EMODnet Chemistry, and the World Ocean Database to produce high-quality EOv datasets for eutrophication assessments.

Built on the D4Science e-Infrastructure, the **eutrophication workbench virtual laboratory (EWB VLab)** enables:

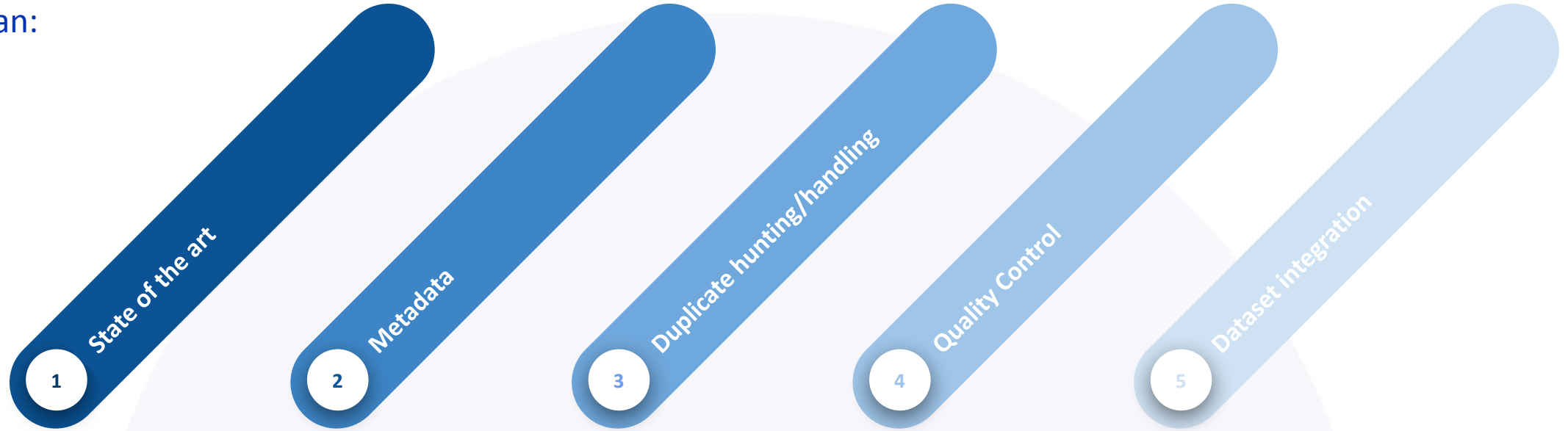
- Seamless data access
- Reproducible workflows
- Cross-infrastructure data harmonisation and standardisation



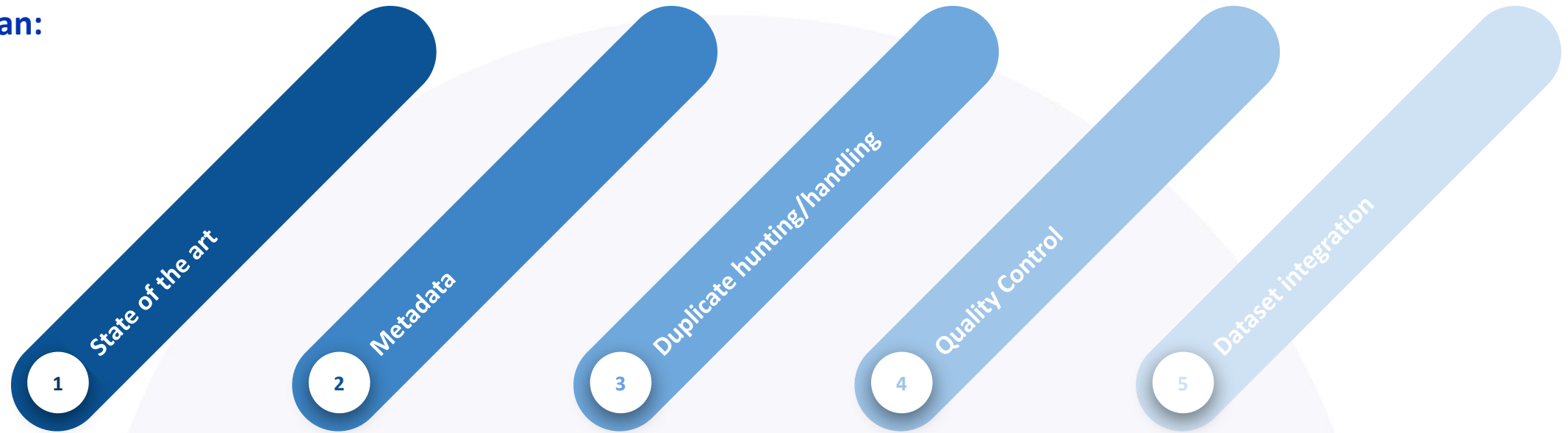
Eutrophication Workbench (EWB): chlorophyll, nutrients, and dissolved oxygen

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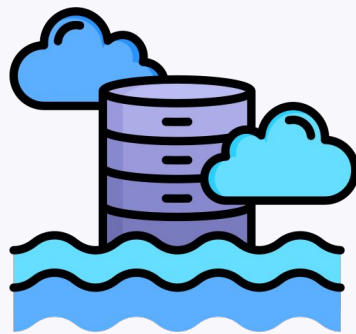
The plan:



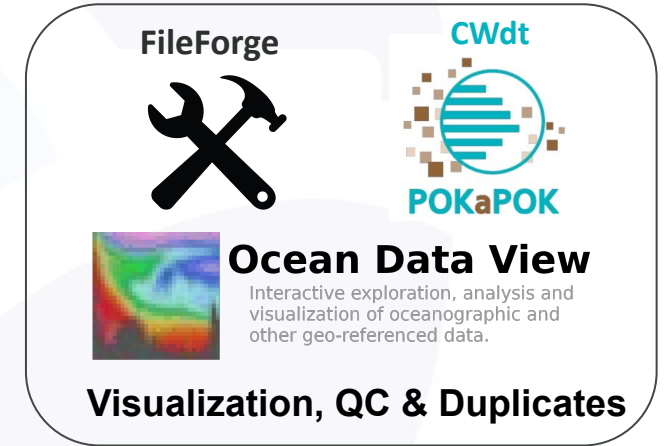
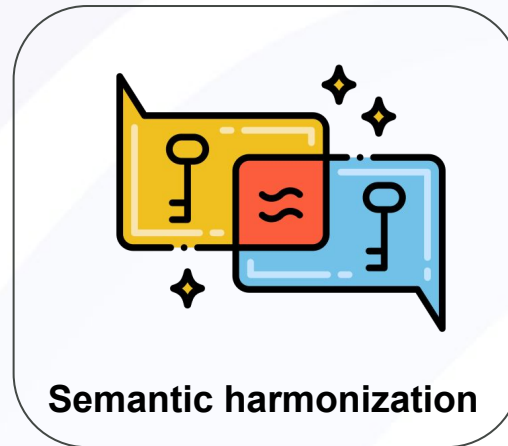
The plan:



The tools:



Beacon datalake

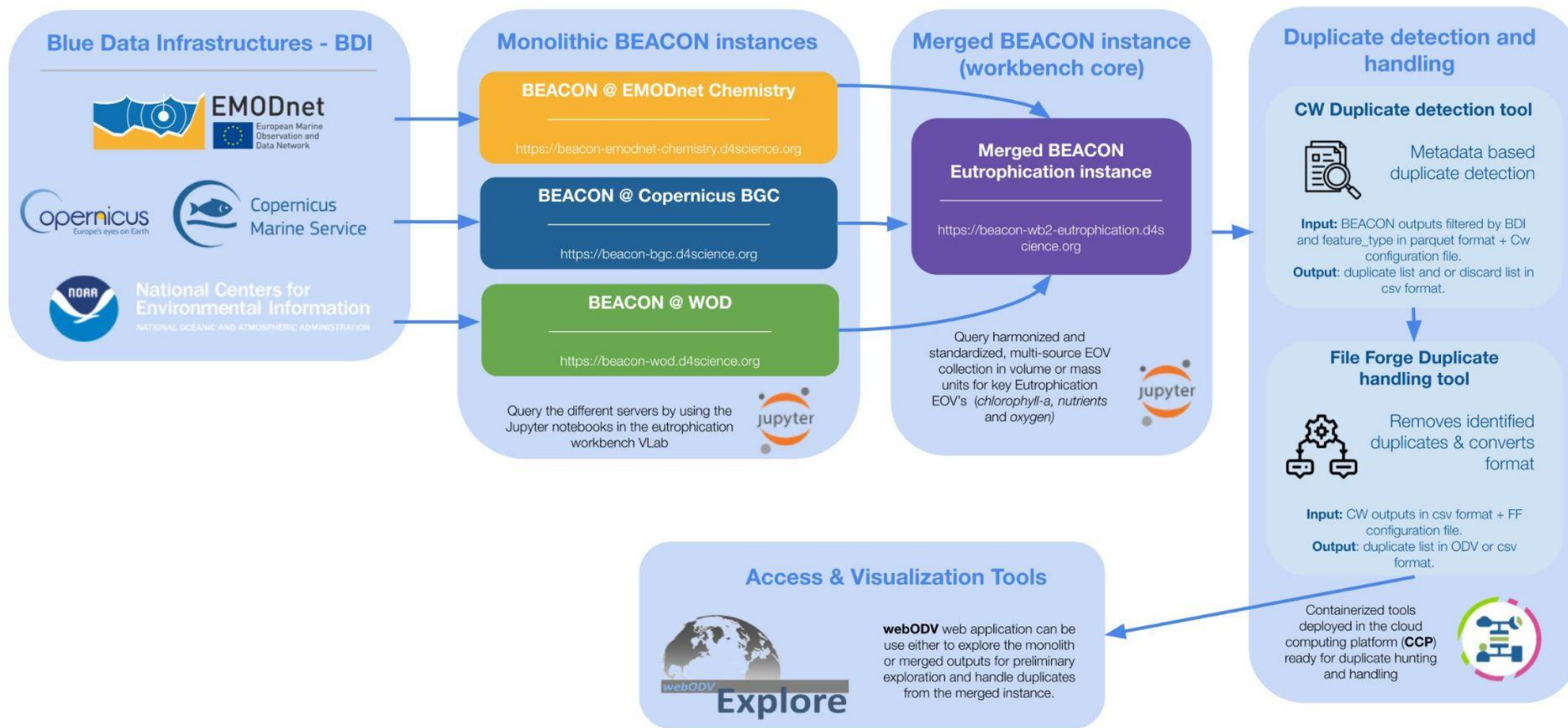


Beacon alias	P01 & P06 per volume	P01 & P06 per mass
COMMON_CHLOROPHYLL	SDN:P01::CHLTVOLU & SDN:P06::UMMC	
COMMON_OXYGEN	SDN:P01::DOXYZZXX & SDN:P06::KGUM	SDN:P01::DOXMZZXX & SDN:P06::KGUM
COMMON_NITRATE	SDN:P01::NTRAZZXX & SDN:P06::KGUM	SDN:P01::MDMAP005 & SDN:P06::KGUM
COMMON_NITRATE+NITRITE	SDN:P01::NTRZZZXX & SDN:P06::KGUM	SDN:P01::MDMAP006 & SDN:P06::KGUM
COMMON_AMMONIUM	SDN:P01::AMONZZXX & SDN:P06::KGUM	SDN:P01::MDMAP004 & SDN:P06::KGUM
COMMON_PHOSPHATE	SDN:P01::PHOSZZXX & SDN:P06::KGUM	SDN:P01::MDMAP906 & SDN:P06::KGUM
COMMON_SILICATE	SDN:P01::SLCAZZXX & SDN:P06::KGUM	SDN:P01::MDMAP012 & SDN:P06::KGUM
COMMON_SALINITY	SDN:P01::PSLTZZ01 & SDN:P06::UUUU	
COMMON_TEMPERATURE	SDN:P01::TEMPPR01 & SDN:P06::UPAA	
COMMON_DEPTH	SDN:P01::ADEPZZ01 & SDN:P06::ULAA	

Reference: Essential Ocean Variables – Global Ocean Observing System

Eutrophication Workbench Virtual Lab Workflow

https://data.d4science.org/ctlg/Eutrophication-Workbench/eutrophication_workbench_vlab



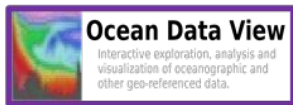


STAY TUNED

- The **Eutrophication Workbench (EWB)** developed within Blue-Cloud2026 is evolving into a **thematic node** within the **EOSC Node | European Digital Twin of the Ocean** ensuring long-term integration and reuse of eutrophication EOVI products.
- Final release of the aggregated and harmonised EOVI datasets is forthcoming



Scan to access the
Eutrophication workbench
VLab (upon registration)



Alessandra Giorgetti



Robin Kooyman



Julie Gatti



Sissy Iona



Sebastian Mieruch



Catalina Reyes



Virginie Racape



Marine Vernet



Gwenaelle Moncoiffe



Karin Wessler



Delphine Leroy



Megan Anne French

WP Leader, EWB partners,
BEACON, CW, FF & webODV.

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[blue-cloud org](https://www.linkedin.com/company/blue-cloud-org)



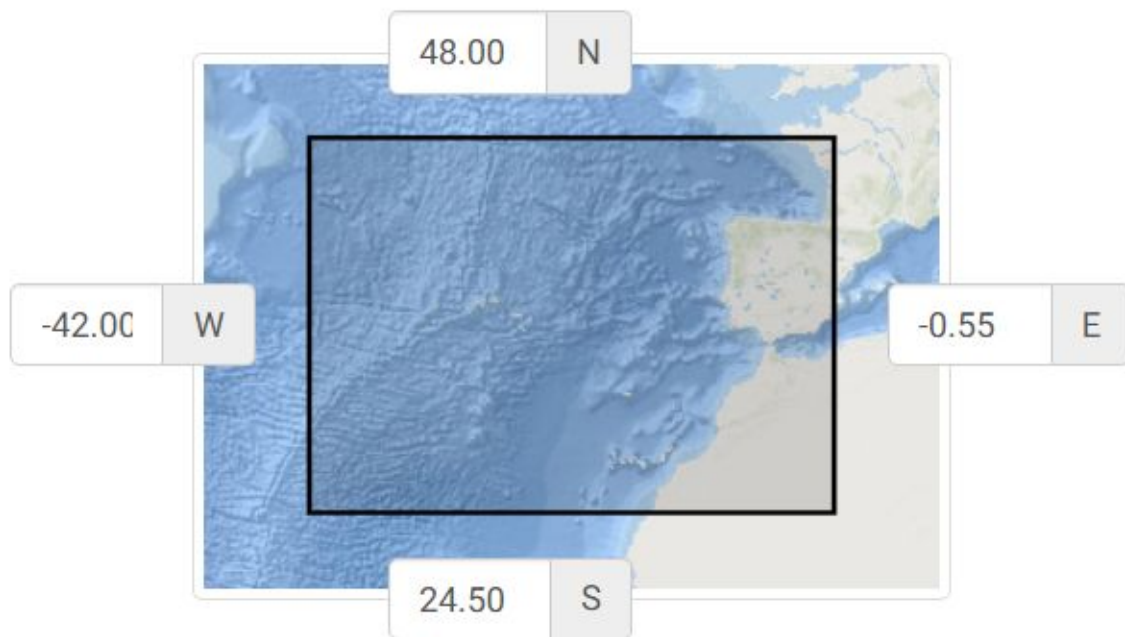
Funded by
the European Union

Backup slides



Blue-Cloud2026

[Blue-Cloud Gateway - D4Science Infrastructure Gateway](#)



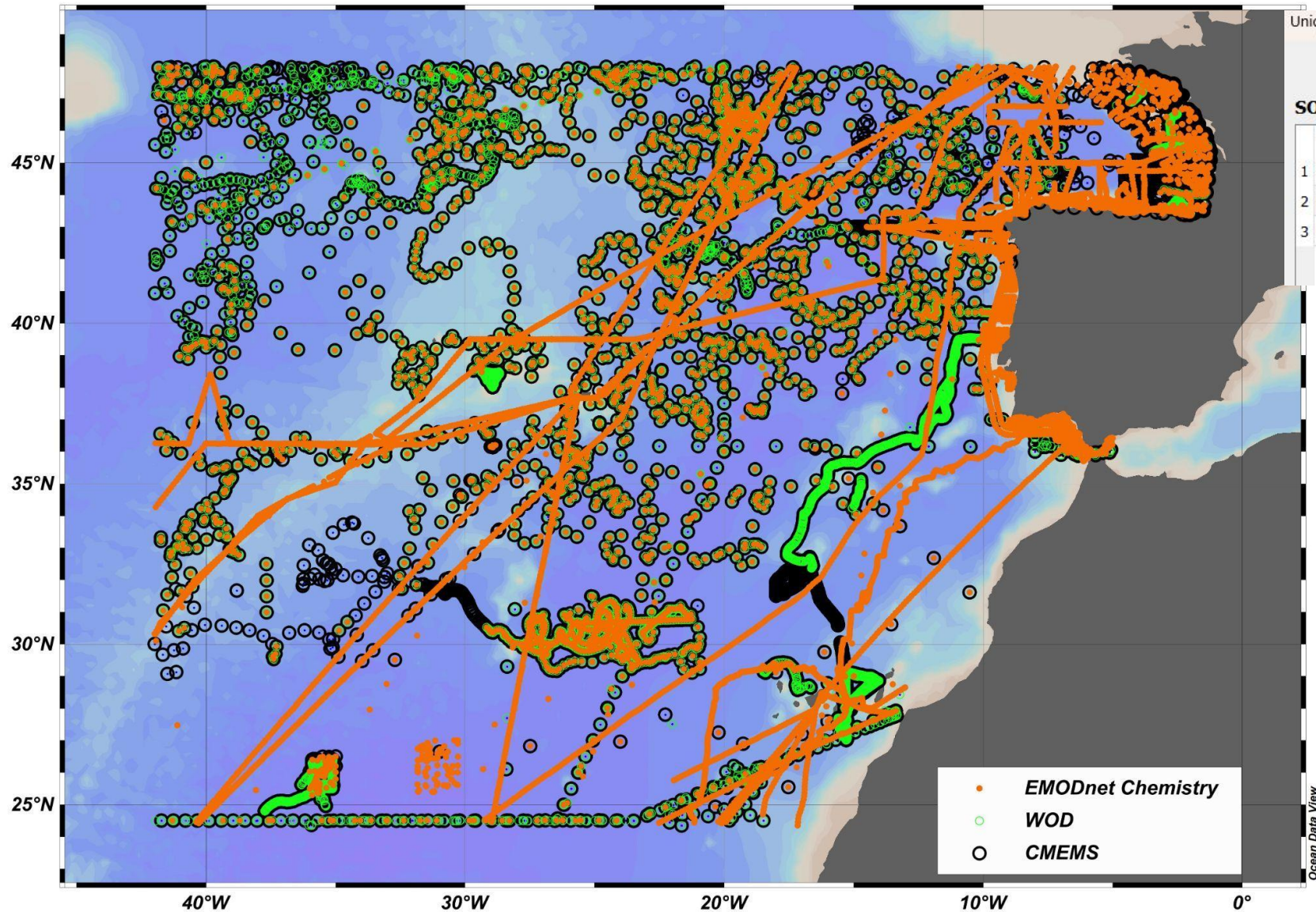
North East Atlantic Ocean:

<https://sextant.ifremer.fr/geonetwork/srv/eng/catalog.search#/metadata/7aa27f48-c63d-417c-ac82-f18fd33782a4>

TIME RANGE: 2010-2020

DEPTH: 0-10 Km

For EOVs in chemistry.



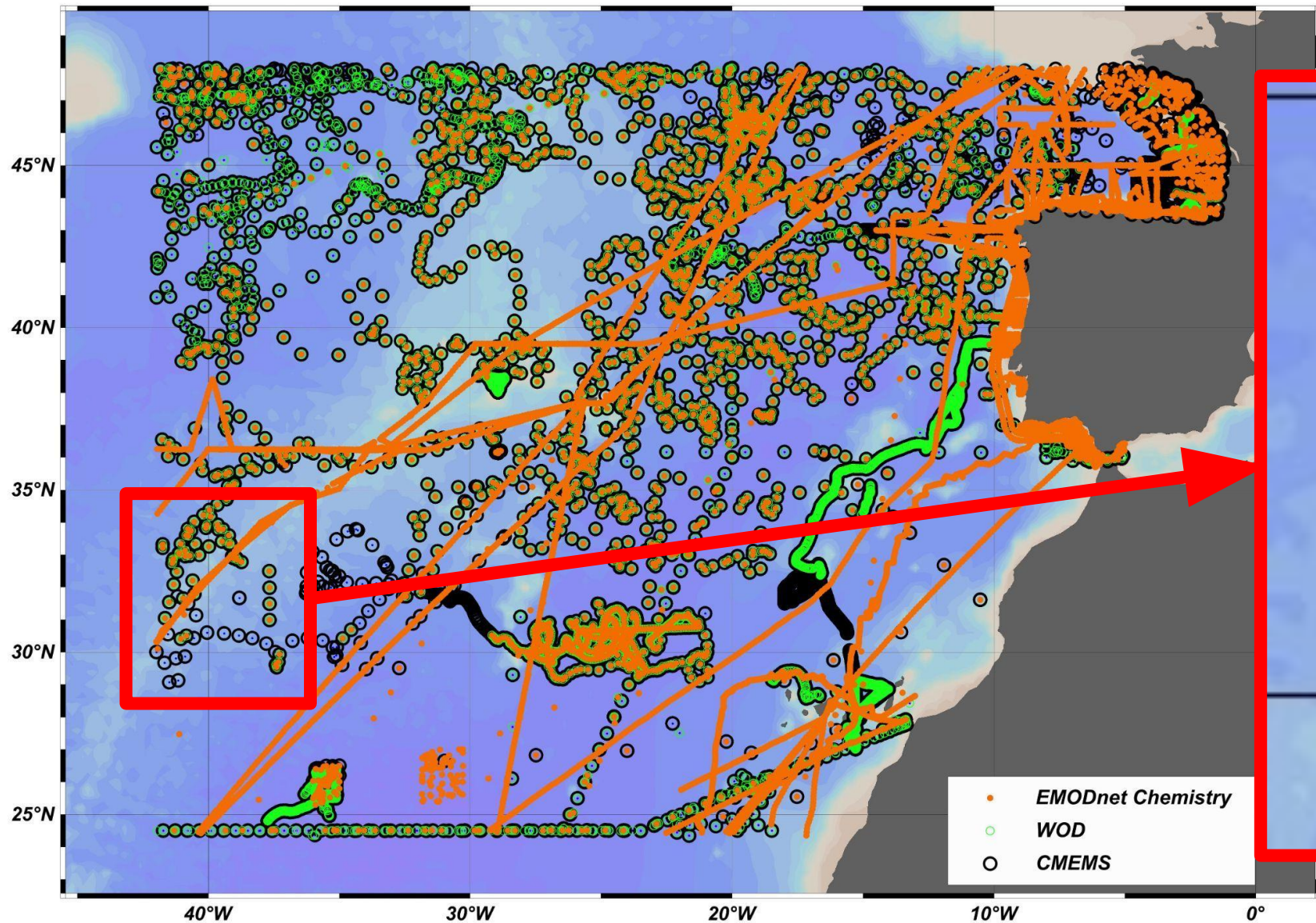
Unique Values

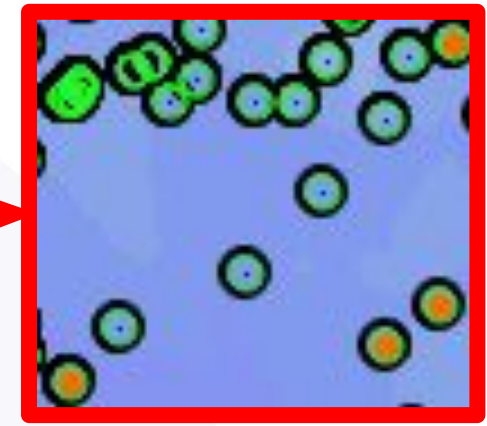
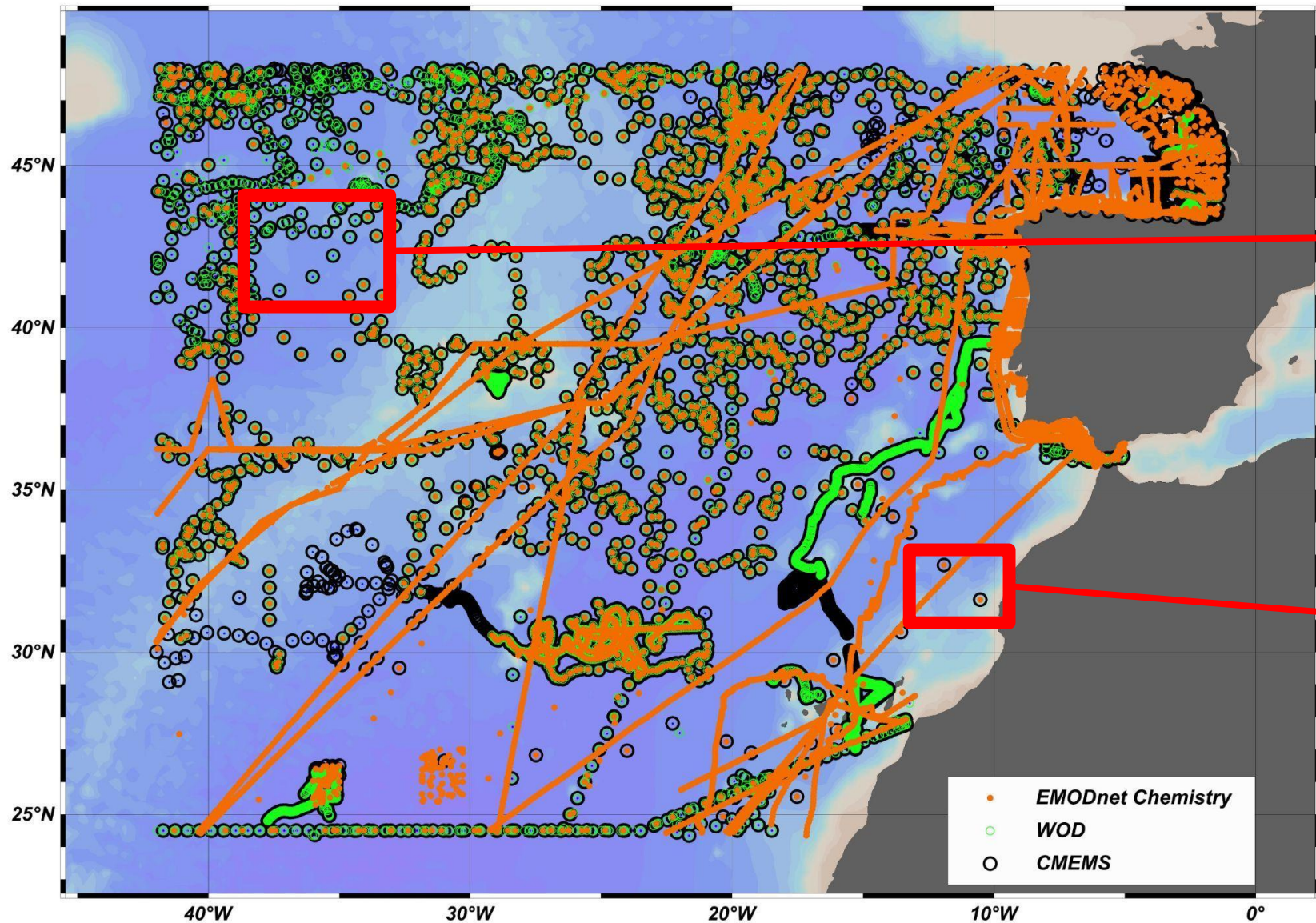
search...

SOURCE_BDI: 3 unique values found.

Values	Counts
1 BEACON_CMEMS_BGC	160239
2 BEACON_EMODNET_CHEMISTRY	15068
3 BEACON_WOD	18654

Ocean Data View





Duplicates between 2 BDIs



An other more complex duplicates