Dissolved oxygen: seafloor and water column data, from sensor to users

Data management: Dissolved oxygen data in the Coriolis Data center

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What is Coriolis?
7 French institutes contributing to the French operational oceanography program for the in-situ observations.

- Organize and maintain data acquisition in real-time and delayed mode of in-situ measurements necessary for operational oceanography.
- Manage and distribute data from the main global ocean observing networks as well as from agencies operating observing systems in Europe → http://marine.copernicus.eu/(www.marine/insitu.eu)
- Contribute to develop and improve the quality of the NRT and Delayed mode QC procedure

Coriolis Data Center

In situ Coriolis data is essential for reducing error in data assimilation

Turpin et al., Ocean Sci. 2016
Dissolved oxygen data in the Coriolis Data Center

"DOXY (DOX) and DOX1 are all oxygen concentrations in different units. DOX1 can be converted to DOXY knowing that 1 µmol of oxygen is equal to 0.02391 mg. DOX2 can also be converted using knowledge of density."

Example for CTD platform with more than one oxygen variable

\[
\text{DOXY} \text{ (µmol/L)} = 44.6596 \times \text{DOX1} \text{ (µmol/L)} \\
\text{DOX2} \text{ (µmol/kg)} = \frac{\text{DOXY} \text{ (µmol/L)}}{\text{ref. salinity (µmol/kg)}}
\]

On going WORK

- Work to improve NRT-REP procedure (spike test, Global – Regional – Local range test, objective analysis)
- A delayed mode (REP) oxygen product will be released in April 2019 with only 1 units (µmol/L or µmol/kg)

Recommandation – Best practice

- Apply good QC
- Provide oxygen with one units
- Use SCOR [142] recommendation for conversion
- Provide informations used for oxygen conversion (T,S,P)
- Provide informations from sensor – calibration ...

CMEMS INSTACT meeting 9-11 October 2018
From R. Bahurel – Mercator Ocean
- Need more biogeochemistry
- Need better integration with models...and better quality for real time and reanalysis