

Interactive comment on “Winter measurements of biogeochemical parameters in the Rockall Trough (2009–2012)” by T. McGrath et al.

Anonymous Referee #3

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The manuscript describes the methods employed to measure dissolved inorganic carbon, total alkalinity, salinity, nutrients, and dissolved oxygen during four cruises conducted in the Rockall Trough between 2009 and 2012. The overall quality is good, including the description of the individual measurements. The data are unique and a valuable addition to the global data sets. However, the whole data set is incomplete, as not all data are accessible, it should not be accepted in the present form.

General comments:

section 4: "The 2011 and 2012 datasets are currently being quality checked and will be submitted to CDIAC once this is completed". comment: ESSD states quite clearly in the information about the journal, and the rationale behind it having been established:

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"The peer-review secures that the data sets: ... are open accessible (toll free), well annotated by standard metadata (e.g., ISO 19115) and available from a certified data center/repository; ...". As the 2011 and 2012 data sets are not available, yet, the manuscript does not comply with the journal's instructions at this stage, and data cannot be peer reviewed, so that the manuscript should not be published until the 2011 and 2012 are fully quality controlled and available. Additionally, quality control results outlined in the manuscript might change during the quality control process, e.g. table 4.

Cross-over analysis: this 2nd level quality control of DIC and TA should be performed for all data sets. It is standard procedure initiated during GLODAP, further developed during CARINA and PACIFICA, and used now during GLODAP2. It is definitely not scientific interpretation or comparison with other methods - it is pre-science, the standard quality control of today.

Specific comments:

page 393 line 3: The Mintrop et al. (2000) reference is only valid for TA, as it describes the intercomparison of 3 alkalinity measurement techniques. VINDTA is mentioned in Mintrop et al. (2000) as it was one of the instruments used in the intercomparison, but that is hardly sufficient as a reference for DIC.

page 394, DIC and TA storage experiment: it was previously stated that DIC samples were also taken in amber glass bottles, and TA in high-density polyethylene bottles (page 392, lines 24 to 25). Yet in the storage experiment, only a very short mention is made of the results of DIC samples, and TA storage in plastic bottles is missing completely. These results should be mentioned in numerical detail, as the Guide to Best Practice states the use of borosilicate glass bottles for both DIC and TA (Dickson et al., 2007, SOP 1).

page 399, section 3.5.1: essential sampling details are measured here, e.g. that samples for DO were drawn first, and always starting at the deepest niskin. Such details,

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the order of samples drawn and the vertical direction, should be stated much earlier, in e.g the first section of Methods (section 3).

page 403, table 2: add expo codes for last two cruises once complete.

Acknowledgement: Personell at Scipps Institution of Oceanography (SIO) contributed to the data quality reported here, through the intercomparison, but neither SIO itself nor any personell involved are acknowledged. This should be corrected.

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