

Interactive comment on “Biological production in the Bellingshausen Sea from oxygen-to-argon ratios and oxygen triple isotopes” by K. Castro-Morales et al.

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This is a very short review and I apologise for being so slow. My background is such that I cannot give authoritative comment of the methodology – however I would note that it seems to me a remarkable piece of work. I spotted a small inconsistency in the equations – it may be intended and accepted by specialists. In the equations #1, #2, #3, #4 and #8 C_q is used, whereas in the text it seems to me that the same property is referred to as C_{eq} . A similar apparent inconsistency is seen in the case of the delta values in Eq #8.

In the section Comparison with Previous Marine Production Estimates in the Discuss-
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sion, the authors make comparisons with in vitro measurements of photosynthetic production – based on ^{14}C observations. With the ^{14}C technique, there are errors of interpretation associated with the use the isotope as well as potential errors due to containment. The in vitro measurement of N (their terminology) only should incur an in vitro error, and it would have been interesting to see how the in vitro and in situ N measurements compared.

Maybe, and understandably, the authors feel the paper is full enough already; if so, and I would argue in any event, the full data set should be made available as it will be a valuable resource to other workers who may want to make their own particular analysis. The fieldwork was carried out in 2007, so sufficient time has elapsed to justify the data being in the public domain. There is in fact a requirement set by the NERC: “The NERC Data Policy requires all research publications that arise from NERC funding to include a statement on how the supporting data and any other relevant research materials can be accessed.”

In summary the submitted article strikes me as a exceedingly thorough and valuable piece of work and I have no hesitation its publication, whilst stressing that I am unable to assess the technical side of the work.

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