Geoscientific

Model Development

Discussions

GMDD

Interactive
comment

Interactive comment on "Ocean carbon and nitrogen isotopes in CSIRO Mk3L-COAL version 1.0: A tool for palaeoceanographic research" *by* Pearse J. Buchanan et al.

Pearse J. Buchanan et al.

pearse.buchanan@utas.edu.au

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Further responses to two comments made by Reviewer 2 (1st and last):

— Page 7, lines 9-13: Biological carbon fractionation. There should be more discussion justifying why you only account for a species effect and not aqueous CO_2 concentration (Popp et al., 1989; Rau et al., 1989) and/or phytoplankton growth rate (Laws et al., 1995). There are of course large uncertainties, but there seems to be some general relationship with aqueous CO_2 so I am surprised that this in not included in a model designed for palaeoceanography. — Our first response was: We have implemented this functionality and we are currently running experiments to quantify the effect of a

"variable" fractionation factor (Laws 1995 relationship) versus fixed at 21 per mille. We expect these experiments to come to equilibrium state within a month.

We wish to also state that the implementation of this functionality is new, and that we could either discuss in the text about how this functionality will be explored in future or wait until these experiments are complete and include there effects.

— Page 37: Acknowledgements. Will your published code and model output be accessible to the public. —

Our first response was: Yes. The code is already accessible. The data is being placed in an online repository for public access on the National Computational Infrastructure in Australia, which will be minted with its own doi.

We also wish to state where exactly the code is available: https://www.tpac.org.au/csiro-mk3l-access-request/

Interactive comment on Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2018-225, 2018.