Geoscientific
Model Development
Discussions

Interactive comment on "EcoGEnIE 0.1: Plankton Ecology in the cGENIE Earth system model" *by* Ben A. Ward et al.

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In your section 4.2 (observations) you state that you use DIC and alkalinity data from the Global Ocean Data Analysis Project (GLODAP). No reference is given to these data, and I am uncertain which observational data have actually been used. There are currently two versions of GLODAP: GLODAPv1.1 is the original, published in 2004 and referenced as Key et al (2004); GLODAPv2 is the updated version, published in 2016 and referenced as either Olsen et al (2016) if you used the discrete data or Lauvset et al (2016) if you used the mapped/gridded data. All references are given below. Given that in your Figure 3 it looks like there are no DIC and alkalinity data in the Arctic Ocean, I assume that you have used the original GLODAP (Key et al, 2014) which had no data in that ocean region. Regardless of which observational data are used you have to

add the correct reference and preferrably also link to the actual data. I would, however, strongly encourage you to use the updated GLODAPv2 as it has far more data and underwent improved data quality control measures. It is an improved observational data product and therefore more appropriate for your model-data comparison. GLODAPv2 can be downloaded here: https://www.nodc.noaa.gov/ocads/oceans/GLODAPv2/, and you will also find links to the publications describing the data at that site. I also notice that there is no proper reference to the WOA data used. Appropriate references can be found here: https://www.nodc.noaa.gov/OC5/indprod.html

References: Lauvset, S. K., et al. (2016), A new global interior ocean mapped climatology: the 1×1 GLODAP version 2, Earth Syst. Sci. Data, 8(2), 325-340, doi:10.5194/essd-8-325-2016.

Olsen, A., et al. (2016), The Global Ocean Data Analysis Project version 2 (GLODAPv2) – an internally consistent data product for the world ocean, Earth Syst. Sci. Data, 8(2), 297-323, doi:10.5194/essd-8-297-2016.

Key, R. M., A. Kozyr, C. L. Sabine, K. Lee, R. Wanninkhof, J. L. Bullister, R. A. Feely, F. J. Millero, C. Mordy, and T. H. Peng (2004), A global ocean carbon climatology: Results from Global Data Analysis Project (GLODAP), Global Biogeochemical Cycles, 18(4), doi:Artn Gb4031 10.1029/2004gb002247.

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