

Interactive comment on “Description and evaluation of the Diat-HadOCC model v1.0: the ocean biogeochemical component of HadGEM2-ES” by Ian Totterdell

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I would like to comment on some statements made in the manuscript regarding observations of ocean dissolved inorganic carbon (DIC) and total alkalinity (TALK). On page 17, lines 1-4 it is stated that gridded DIC and TALK are available from GLODAP (Sabine et al., 2005; Key et al., 2004) but that these fields are based on much fewer data than the nutrient fields available in World Ocean Atlas (WOA). While this is still true, there is now an updated data product with ocean DIC and TALK - GLODAPv2 (Lauvset et al., 2016; Olsen et al., 2016) - which is based on many more observations. On page 22, lines 12-13 it is stated that the GLODAP field of DIC ends at 70N. This

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is true for the original data product, but the updated version includes the Arctic Ocean. I do understand that these model simulations were started quite some time ago and it then made sense to compare to the original GLODAP data product. I would recommend to now compare, at least in Figure 15, the model output with GLODAPv2. At the very least, a note should be made that an updated version of the observational data now exists, which also includes the Arctic. GLODAPv2 can be downloaded here: <https://www.nodc.noaa.gov/ocads/oceans/GLODAPv2/>, and links to the publications are also available from that site. Also, on page 22, line 7 a link is given to the GLODAP data. This link is no longer correct since CDIAC no longer exists. The link to the original GLODAP is this: <https://www.nodc.noaa.gov/ocads/oceans/glodap/>

References: Lauvset, S. K., et al. (2016), A new global interior ocean mapped climatology: the 1x1 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.

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