

Interactive comment on “MOSAIC (Modern Ocean Sediment Archive and Inventory of Carbon): A (radio)carbon-centric database for seafloor surficial sediments” by Tessa Sophia van der Voort et al.

Paula Reimer (Referee)

p.j.reimer@qub.ac.uk

Received and published: 7 January 2021

The MOSAIC database will be an extremely valuable tool for research in marine carbon storage. It is easily used and expandable. I am not an expert in marine sediments but I was glad to see the authors are thinking about adding on ^{14}C of sediment fraction from density separations or thermal decomposition which can contribute important information on carbon source which of course would require fields for the density or temperatures used for each ^{14}C measurement. I found the examples useful though obviously more data is needed. I definitely support publication of the MOSAIC article

C1

in ESSD after minor revisions.

I have only a few very minor comments/corrections: Line 73: Why reference Reimer et al. 2009 when the ^{14}C archives have been updated in Reimer et al 2020 (doi: 10.1017/RDC.2020.41)? Line 159-161: ‘Sediment depth profile data primarily used to examine diagenetic profiles, and to constrain sedimentation rates, mixed layer depths, redox gradients, as well as to determine carbon fluxes and inventories’. This is an incomplete sentence. Line 176-177: ‘and the stable carbon isotopic composition ($\delta^{13}\text{C}$ and ^{14}C values) of OC’. Delete ‘stable’ since ^{14}C is not stable. Line 199: Presumably $\Delta^{14}\text{C}$ is not age corrected but, in any case, the date of the ^{14}C measurement would be needed to convert to Fm. If it is age corrected then the year of collection is also needed. Line 327: ‘coupled the application...’ Presumably this should be ‘coupled with’ Line 345: ‘ ^{14}C ’ should have a superscript ^{14}C .

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-199>, 2020.

C2