

Interactive comment on “Seasonality of archaeal lipid flux and GDGT-based thermometry in sinking particles of high latitude oceans: Fram Strait (79° N) and Antarctic Polar Front (50° S)” by Eunmi Park et al.

Anonymous Referee #2

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The manuscript by Park et al. reports on seasonality of archaeal fluxes and GDGT-based thermometry in sinking particles based on two case studies in high latitudes. The study is based on material collected in sediment traps at different depths. This approach is complementary to the collection of surface sediments and offers the opportunity to study processes and mechanisms lying to the signal acquisition in the sediments. An interesting point is made on depths of production of OH-GDGTs. and the consequences on RI-OH thermometers. To conclude this manuscript address important issues in the paleo-proxy community and the new set of data presented is

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interesting. I therefore recommend the publication of this manuscript with minor revisions detailed below: 1. A more throughout presentation of the errors associated with the temperature reconstruction based on the different indices and different calibrations should be discussed and provided. 2. Different processes of the production as well as the export of GDGTs are investigated in in two settings, even if the figures are already numerous, it would be interesting to provide the reader with a figure/sketch summarizing the mechanisms of production (seasonality/community or depth changes) and export (type of ballasts or timing) in the two settings.

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