Reply on RC6

Baylor Fox-Kemper (Referee)

Referee comment on "The interpretation of temperature and salinity variables in numerical ocean model output and the calculation of heat fluxes and heat content" by Trevor J. McDougall et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2020-426-RC7, 2021

Not quite, Prof. Tailleux. The point is that whatever was requested in Griffies et al. 2016, in practice it has not occurred. Thus, the CMIP6 ensemble has a hodge-podge of models with a hodge-podge of variables uploaded. The vast majority use EOS-80 and a few use TEOS-10. But, as for which data were actually archived, as opposed to what one might have hoped for, does not include Absolute Salinity (even when the models used TEOS-10) and rarely Conservative Temperature (only CSIRO, CNRM, IPSL, and EC-Earth so far).

So, what to do? That is the point I think this paper helps address. Most importantly, it is providing some quantitative information on what the two options they propose imply in terms of accuracy.