Comment on egusphere-2022-186
Takaya Uchida (Referee)

Referee comment on "NeverWorld2: An idealized model hierarchy to investigate ocean mesoscale eddies across resolutions" by Gustavo Marques et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-186-RC2, 2022

Marques et al. introduce a new purely adiabatic primitive equation model which is computationally cheap and easy to run. As they note, a cheap and versatile model to test mesoscale eddy parametrizations has indeed long been a needed tool for the ocean modeling community and their configuration would be a great resource for the community. NeverWorld2 (NW2) being part of the MOM6 module also provides confidence in the stability of their model. The manuscript is well written and I only provide minor points listed below.

- Some discussion regarding how computationally cheap NW2 is compared to a non-adiabatic, isopycnal primitive equation model where the equation of state for density is linear (e.g. the density linearly depending only on temperature without salinity) would be nice to have. While I understand the adiabatic nature of NW2 allows the user to focus on the dynamics and isolate mesoscale processes, a non-adiabatic isopycnal model is closer to reality, also allowing for a surface mixed layer.
- Figure 13: Is any tapering applied prior to taking the Fourier transform to make the data periodic?