

## ***Interactive comment on “Performance of offline passive tracer advection in ROMS (v3.6, revision 904)” by Kristen M. Thyng et al.***

### **Anonymous Referee #1**

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This paper mentions a methodology that was applied to a commonly used ocean model ROMS for running it offline in order to save computational time. The results of the study are somewhat intuitive i.e. a frequency of output that corresponds with a time step that can resolve advection time scales, forcing realistically and using double precision would help in the most accurate solution. It is unclear that it would add significant scientific value to the existing literature although it could be a good case study for folks trying to model similarly. It would then require that the authors discuss another example, perhaps something more application oriented besides the test case mentioned in the paper. That would also prove the repeatability of some of the key conclusions. It would be also good to add the equations that are solved via a schematic or a written description when the model is simulated in an offline manner. That would help modelers

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using other type of models get ideas from the paper to broaden its appeal to a wider audience.

Some minor corrections 1. page 1Line 15-> change time savings to improved computational efficiency 2. page 2 line 22-> "showed good accuracy by hill et al." Is there a specific result that Hill showed that can be summarized here. 3. Besides the 84 proc to 28 proc change, not sure the rest of the paragraph is needed. 4. Figure 4 is hard to interpret. what is the significance of y axis representing storage . the x axis should be computational time.

good job with the appendices

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-221>, 2020.

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