

Geosci. Model Dev. Discuss., referee comment RC1
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Comment on gmd-2022-217

Anonymous Referee #1

Referee comment on "Reproducible and relocatable regional ocean modelling: fundamentals and practices" by Jeff Polton et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-217-RC1>, 2022

In the first part of the paper, the authors make the case for reproducible science and present a set of good practices for regional ocean modeling and present relevant software stacks. The second part goes over a comprehensive list of topics related to the setup of regional NEMO configurations (grid, bathymetry, open boundaries,...).

One could not argue against the need for more reproducibility in regional ocean models and science in general. However one important part has been overlooked and that is the reproducibility of the model solution itself. Some models (e.g. MOM6) are tested for their capabilities to reproduce answers regardless of processor layout, grid orientation, restarts and code changes. It would be interesting to detail what aspects of reproducibility are checked in the NEMO test suite and identify weaknesses, if any.

The second part details many issues that arise from setting up a regional configuration and how to handle them more or less gracefully. The authors mentioned a list of configurations previously developed and linked in the manuscript but their use in the manuscript is extremely limited, when they could have provided very valuable examples of how specific issues occur in regional domains and how they were dealt with.

Finally, the article is very NEMO focused and contains a lot of NEMO jargon that may not be obvious to the larger user community so the title should reflect that most of the content is aimed at an audience working with or interested in NEMO specifically.

Minor points:

* "bespoke" and "worked examples" are repeated many times throughout the text