

A Review of

”Development of a semi-Lagrangian advection scheme for the NEMO ocean model (3.1)“ (Revision 1)

by C. Subich, P. Pellerin, G. Smith, and F. Dupont

I am satisfied with the modifications brought to the manuscript and I thank the authors for answering with care to my remarks. Besides the minor comments given below, I consider the manuscript ready for publication.

Minor comments :

- **p. 2, l. 27-28:** "Courant-Frederichs-Lwey" → "Courant-Friedrichs-Lewy"
- **p. 2, l. 29-31:** while the Euler equations are indeed an hyperbolic system, a consequence of the hydrostatic assumption is however that the primitive equations (solved by NEMO) are no longer hyperbolic. It is just that for your study you consider only the hyperbolic part of the primitive equations system.
- **p. 2, l. 38:** it is not the hydrostatic assumption that eliminate sound waves but the Boussinesq assumption.
- **p. 5, l. 97-99:** I don't think the discussion about the z-tilde (\tilde{z}) coordinate is essential for your paper. I would suggest to remove the paragraph starting l. 95. I make this suggestion mostly because I don't understand your remark about the fact that the \tilde{z} -coordinate will increase the maximum Courant number in the vertical. From my understanding it is the other way around, because of the ALE treatment, part of the vertical velocity will be treated in a Lagrangian way and thus won't be subject to stability criteria. The residual will be treated in an Eulerian way but this residual is expected to be smaller than the full vertical velocity handled with a quasi-Eulerian coordinate like z^* .