

## ***Interactive comment on “The Finite-volume Sea ice–Ocean Model (FESOM2)” by Sergey Danilov et al.***

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### General comments

This paper is essentially a detailed user manual for the new version of global ocean-ice model FESOM2, now based on a Finite-Volume method. The paper is generally well written and the level of detail is adequate for average users (although a bit hard to read in a few places). I fully concur with the main conclusion that ‘FESOM2.0 provides a major step forward in establishing unstructured-mesh models as valuable tools in climate research’. I also appreciate authors’ honest account of aspects of model details, and therefore think it’d be a great contribution to GMDD.

### Specific comments

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I give some minor comments and suggestions below

1. Near line 35: I’d think the change from tetrahedra to triangular prisms and also new ALE requires some new learning from users?
2. It’d be beneficial to users if the authors clearly list out the main differences from other models, especially those using similar gridding strategy (line 65);
3. What is used to solve Eq. (11)? It’d be nice to number all equations for easy referencing.

### Technical corrections

Editorial corrections: ‘looking’->‘look’ (line 120); what’s ‘()’ near line 190? ‘??’ near line 350 needs to be specified. ‘described’->‘description’ (line 440). ‘surface’->‘subsurface’ (line 610).

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