

Interactive comment on “FESOM-C: coastal dynamics on hybrid unstructured meshes” by Alexey Androsov et al.

Anonymous Referee #1

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Report: FESOM-C: coastal dynamics on hybrid unstructured meshes

General comments

This paper is a description of the coastal component of global ocean model FESOM2. I appreciate authors' honest account of aspects of model details, and think it'd be a great contribution to GMDD.

Specific comments

I give some minor comments and suggestions below

1. Eq. (7): the advection part seems missing; why?
2. Pg 5, the formula for C_d should have an exponent of '-2'. More importantly, why is H

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used instead of the bottom cell size? This is inconsistent with the bottom B.C. on line 25;

3. Eq. (10): if $S_w=0$ in most cases, this becomes no flux condition, and is independent of E/P values, so the model will not see their effects;

4. Section 5: all tests use only a few tidal constituents. Why not use the full tides so the model results can be compared easily with observation? Without this, I don't see how tracers can be compared for the Elbe station;

5. Fig. 11: indicate tides are not filtered out in (b)? Fig. 13: show legend for each color;

6. Pg. 17, ln 5: what's 'antiphase'?

Technical corrections

Editorial corrections: 'ofexisting' (pg 2, ln 25); Eq. (4) did not use the flux form (but the latter is used later in numerical method); Eq. (8): i should be 'j'; divergence operator should have a '.' (pg 9 ln 30), similarly on ln 25, pg. 10; far-reaching (pg 12, ln 5); (pg 12, ln 25): what's 'bathymetric land height'? pg 13, ln 10: where-> were. Fig. 5: does '1/h' mean hour⁻¹? Pg. 15, ln 10: daily; pg. 16, ln 20: '13% larger on '-> 'than'?

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C2