Geoscientific Model Development Discussions

Geosci. Model Dev. Discuss., referee comment RC2
https://doi.org/10.5194/gmd-2021-155-RC2, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on gmd-2021-155

Anonymous Referee #2

Referee comment on "Performance of the Adriatic Sea and Coast (AdriSC) climate component – a COAWST V3.3-based one-way coupled atmosphere–ocean modelling suite: ocean results" by Petra Pranić et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2021-155-RC2, 2021

The authors developed a coupled atmosphere-ocean model system in the Adriatic Sea. They evaluated the ocean part performance of the coupled model in this manuscript (MS).

It is challenging to develop an ocean model in a dynamic region with complex bathymetry and applied it to a long-term simulation. In MS, the authors implemented the coupled model system for a 31-year simulation. Model simulated SSH, SST, temperature, salinity, as well as current, were validated by the satellite measurements and in-situ observations. Methods they chose for the validation, such as Taylor diagram, MAD, T-S diagrams and so on, are widely used in skill assessment. As the result, the model can reproduce dynamical properties and the general pattern of the variations.

Here are comments and suggestions:

- Line 90: Liu et al. (2021) wasn't listed in the "References".
- Section 2.1: Is the nesting 2-way or 1-way?
- Section 3.1.1: Looks like there is a conspicuous difference in the EOF1 amplitude. Did the authors calculate correlation coefficients between the amplitude of observation and amplitude of the model?

- Section 3.1.2: Comparing to the reference, the standard deviation of salinity is quite low (~0.25, Figure 6b). This should be mentioned in MS.

- Section 3.2.1: Median temperature bias reaches almost four degrees in the subsurface (30m, Figure 8d). Can the authors explain why the model has such a large bias in the subsurface?

- Section 3.3.1: The correlation coefficient of direction looks very poor in the Taylor diagram. However, in the Q-Q plot, the modeled direction matches observation very well. Can the author explain it?