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Ocean Science
Discussions

Interactive comment on "Coastal sea responses to atmospheric forcings at two different resolutions" *by* Z. B. Klaić et al.

Anonymous Referee #1

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The authors use two atmospheric models with different resolutions to force the ocean model. They apply this approach to 3 multi-day episodes. They conclude that the finer-resolution model provided better results in resolving complex small-scale circulations around the islands.

This is a well-written and valuable study. I recommend minor revisions including the need for few clarifications prior to publishing:

- 1. Please explain and verify the success of the dynamically-adapted winds from 8 to 2 km. What were the relevant parameters for this adaptation over the sea? Is there any verifications using measurements that this technique is better than e.g., interpolation, especially over the ocean?

- 2. Sec. 2.1 – Why didn't you consider the TOGA-COARE algorithms (Fairall et al.)?

- 3. Sec. 2.2 – What were the relevant physical parameterizations in each model? For example, PBL schemes are crucial to the treatment of air-sea interaction and model coupling. Also, how were boundary conditions handled in ALADIN?

- 4. Sec. 2.2 – l.15: How was ALADIN adjusted to fit?

- 5. Sec. 3 – l. 10: What were the favorable pressure fields?

- 6. Sec. 4.1 and after: I am not sure that the pseudo-stress is the best parameter to analyze. I would recommend the actual stress, which can be directly compared with other studies worldwide. Note that all models provide sufficient input parameters for computing the actual stress using either bulk calculation of the drag coefficient or turbulence schemes.

- 7. P. 809 – bottom and in general: It can be expected that finer flow details can be seen in higher-resolution outputs; however, a question remains how realistic they are. Only comparison with measurements can confirm the benefit of higher-resolution fields.

- 8. It would be useful to discuss the modeled surface fluxes of sensible and latent heat.

- 9. P. 811 – l. 10-15: What were the SST input fields in ECMWF and ALADIN? How do they differ from the POM SST?

- 10. P. 812 – top: Some details are needed to clarify how upwelling was recognized.

- 11. Throughout the manuscript: Specify "surface temperature" either as SST or surface air temperature.

- 12. Colors are helpful, but most of the vector plots are hard to read (too many vectors). Hope this will show better in the final print.