

Wind Energ. Sci. Discuss., referee comment RC4
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Comment on wes-2021-109

Anonymous Referee #4

Referee comment on "Detecting and characterizing simulated sea breezes over the US northeastern coast with implications for offshore wind energy" by Geng Xia et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-109-RC4>, 2021

Review of :

WES-2021-109

Detecting and Characterizing Sea Breezes Over the U.S. Northeast Coast with Implication for Offshore Wind Energy by Xia et al. Description:

The study applies a new two-step classification method for sea breezes using simulations with the WRF regional model. The approach is used with a year of high resolution, 2 km, simulation over the area of New York. The method is used to identify pure, corkscrew, and backdoor breezes, analyze their statistics of occurrence and their impact on energy production.

General comment:

I think that the purpose of the paper is valuable. It is well written in structure and provides relevant results and discussion. I support

publication after the minor comments that follow below.

Specific comments

- SC1 Section 2.1. Experiment design. A ratio of 3:1 is most often used in the design of the model domains. I suggest the authors include some comments about the use of a 5:1 ratio. Some arguments on the final resolution selected would also be welcome. For instance, a downscaling enhancing the resolution from the ca. 27 Km of ERA5 to 9 and 3 km would be another possibility, even down to 1 km. Also, some arguments about the selection of parameterizations would be good, specifically the use of microphysics. Overall it would be good to include some rationale about the model configuration selected.
- SC2 This is not a model evaluation paper. However, it would be an asset that figures 6 and 7 of the composite averages would also show some observed values. This would allow for assessing consistency with observations. One single station would allow for verifying the wind rotation.

- MC7 Figure 3 caption. Alternative: '...prevailing wind where SLP conditions favor the development of: a) pure sea breeze; b) backdoor sea breeze; c) corkscrew sea breeze.'