

Reviews corresponding to the article: "Europe's offshore winds assessed from SAR, ASCAT and WRF"

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This paper is an important contribution to the wind energy community. Large amounts of data showing the wind resources in Europe's offshore regions is gathered and is compared to each other, making the advantages and disadvantages of each dataset clear. Finally, a case study is presented, indicating the spatial strength of SAR data and the advantages of WRF compared to ERA5. I recommend publication after the consideration of some minor comments!

General comment:

Case studies: You mentioned on P18L58, that stability can be crucial as well but that information about stability is not available. However, you could at least give some information according to the model whether the SST was much warmer than the 2-Temperature given in the ERA5 data or WRF model. Especially during northerly winds, it could be that the 2-Temperature is lower than the SST on the northern side of Crete but warmer on the southern side due to adiabatic warming. Additionally, it would be interesting to know, how compares the case study with northerly winds with a case study characterized by westerly winds in terms of SST – air temperature gradient.

Specific comments:

P1L14, space is missing: has 12.5 km and SAR has 2km → has 12.5 km and SAR has 2km

P6 Table 2: great job

P7L177-179: A reference to Fig. 1 would help a lot.

P7 Section 3.3: Mesoscale Modelling: Could mention the spacing of the vertical levels in the area of interest i.e. at common rotor height?

P7L178 "and later merged provide one unified atlas" → the reviewer suggests: „and later merged to provide one unified atlas"

P8 Fig. 2: The subplots are different in size

P12L258 A short note should be given here, that an example for a coastal atmospheric flow phenomenon will be investigated in section 5.

P14 Fig. 7: How was the distribution normalized; or what is the y-axis showing? It cannot be a probability in the classical sense as there are values greater than 1.

P16L321, P21393-394: Use a protected space between Figure and number of Figure

P18L349: What do you mean by wave maxima? Do you mean the hydrostatic jump, the location of wave breaking? Please be more precise, an annotation in Fig. 12 could help.

P21L393-395: The reviewer suggests to add: “than those identified in Figure 5” → “than those identified in Figure 5 and Figure 7”