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Nonlinear Processes in Geophysics
Discussions
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Interactive comment on "Ocean–atmosphere–wave characterization of a wind jet (Ebro shelf, NW Mediterranean Sea)" *by* M. Grifoll et al.

Anonymous Referee #1

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The present paper describes the effect of a coupled ocean-atmosphere-wave modeling system on the simulation of a wind jet in Ebro river shelf. The results of the study are interesting and suitable for publication in Nonlinear Processes in Geophysics; however, some improvements in the analysis and in the presentation of the results are needed. Also, English language is poor and requires a deep revision.

Minor points:

It is not the task of the Reviewer to make a grammar revision of the text, however some points are addressed here: - P2L26-27: rephrase in this way "these regions are preferential sites for the installation of offshore wind farms (Nunalee and Basu, 2013). In case of coastal regions, the resultant . . ." - P2L29: "Despite the relatively limited

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Discussion paper

. . .” - P3L9: “allowed the . . .” - P4L1: “in an orographically complex region” - P4L2-3: “the feedback relative to the air-sea momentum transfer . . .” - P4L8: “comparing them with . . .” - P5L20: “for the assessment of offshore wind energy potential, . . .” - P6L27: “. . .large enough to . . .” - P7L29, P16L22: what do you mean with “typical value for rapidly seas”? - P8L16: “remain strong . . .” - P11L2: “joint occurrence. . .” - P11L27: “who note . . .” - P12L27: “As a consequence. . .” - P12L32-33: “. . . due to the spatial wind variability . . .” - P13L6: “in the region” - P13L20-21: “due to the increasing wave-induced ocean bottom roughness” - P14L15: “persistence . . .” - P22L2: “. . . the mesh name in Fig. 1 is shown”

The analysis of the results should be improved: - P8L29-30: This is true for the high wind speed. For example the mode and the low wind speed regime is reproduced worse in COAWST runs. - P9L2: here and elsewhere, I understand you use a reference run: which is the implementation of COAWST you choose among the ones you mention? - P9L6, P9L12, P10L14: add some comments to Table 2; - P11L9-10: which days are included in Table 3? it is really OOST better? It does not seem it is the case; - P12L2-9: please can you provide some quantitive indications on the improvement due to the change in the whitecapping dissipation?

Other points: - P2L12: “wave climate . . .”: climate is not appropriate in this context; use for example pattern; - P3L22: remove “induced by the lee of the Pyrenees mountains”: the mechanisms are more complex than simply described here; - P6L13: remove “boundary layer physics schemes and . . .”: they are part of the parameterization schemes mentioned afterwards; - P6L16-18: how frequent are the data exchanges between the different models? - P8L25: This scatterometer product is different from that mentioned at page 5; - P9L1: this is mainly an effect of the horizontal resolution; - P11L20: which reanalysis? - P12L1-2: please make clearer this sentence; - P13L29-31, P14L15-16: please refer to Ricchi et al. (2016) Ricchi A., M. M. Miglietta, P. P. Falco, A. Bergamasco, A. Benetazzo, D. Bonaldo, M. Sclavo, S. Carniel, On the use of a coupled ocean-atmosphere-wave model during an extreme Cold Air Outbreak over

the Adriatic Sea, Atmospheric Research 172–173, 48–65, 2016;

Talbes and Figures: Table 2: results for V are not shown Table 3: which days are considered? Figure 2: the arrow length-scale is missing; also, use “hPa” instead of “HPa” Figure 3: caption: rephrase: “results obtained for COAWST at mesh M3 are plotted”. Figure 4 caption: “. . . the entire 12 months analysed”. Figure 5: which model run do you show? why do you show the results at that date? Figure 6: I cannot see the blue line Figure 7: I understand the two panels are inverted with respect to the caption; Figure 8: units are missing

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