

Interactive comment on “X-band COSMO-SkyMed wind field retrieval, with application to coastal circulation modeling” by A. Montuori et al.

Anonymous Referee #1

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General comments: The authors investigated about two key questions: the capabilities of X-band COSMO-SkyMed SAR data for sea surface wind vector field retrieval purposes and the potential application of wind field retrieval to coastal circulation modelling. They retrieved the "wind speed" and the "wind direction" independently with Azimuth cut-off procedure and Discrete Wavelet Transform Multi-Resolution Analysis respectively. The results show that X-band COSMO-SkyMed SAR data can improve the simulation of wind driven in coastal circulation processes.

Specific comment: In wind direction retrieval the authors have used the Discrete Wavelet Transform Multi-Resolution Analysis. The question is: Was the wind direction ambiguity completely solved with this technique or there are more solutions to be taken into account?

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I suggest to check the discussion related to the methodology that has been used, i.e. How many steps are they using? twice "first step" and twice "second step"?

pp 3260 line 16-26: I suggest to rearrange the discussion regarding the retrieval results: "Since both ..."

Technical corrections: pp 3260 line 15 and pp 3265 line 5: 0.2° or $1/5^\circ$?

pp 3260 line 15: Change or add the ECMWF resolution in km x km

pp 3263 line 3-21: I suggest to rearrange the results from 1 to 6 in a table.

pp 3264 line 21: "OPA-INGV" only acronym?

pp 3272-4: Comparing Figs. 2-4 it seems that the wind direction difference in some data SAR-based - ASCAT, SAR-based-ECMWF and ASCAT-ECMWF is $> 30^\circ$, but this is not clear in Fig 4. To make it clearer, the same step for Xtick and Ytick should be set in Fig 4;

pp 3277 replace "ECMWF D forcing" with "ECMWF forcing";

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