

## Interactive comment on "Characterizing ERA-interim and ERA5 surface wind biases using ASCAT" by Maria Belmonte Rivas and Ad Stoffelen

## Anonymous Referee #1

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he investigation of the quality and accuracy of numerical model (NWP) wind estimates is highly required by the oceanic and atmospheric community. ERA Interim is one the most used model for forcing and air-sea interaction process. ERA-5 is a new ECMWF re-analysis assumed improving ERA Interim data, including surface parameter estimates. In this paper, the authors investigate the comparison of both model winds, and the related variables, to ASCAT L3 product. Although, several papers and studies (some are referenced in this paper) came out with results aiming at the characterization of difference between NWP (including ERA Interim) and scatterometer wind products (L2 trough L4) at various space and temporal scales, this study is relevant and useful for the scientific community, especially interested in using ERA5 data. Throughout the paper, the authors use ASCAT L3 data as reference over global oceans. Such as-

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sumption should be better addressed in the revision version. The latter would include the impact of ASCAT L3 sampling on the comparison of wind and of the derivative data (divergence and curl). Even though the determination of wind divergence and stress curl accuracy is quite hard task, it would be interesting to assess the patterns of theses parameters through comparisons with those obtained from independent remotely sources (e.g. QuikSCAT along common period (2007 – 2009)). I think the work deserves its publication after minor revisions. $\hat{A}$ 

## Specific comments

aĂć Page 2; Equation (1): I would say that few papers dealing with the calibration and validation of surface winds do use such kind of metric. It is quite common to estimate separately zonal and meridional RMS metrics. aAć Page 3; 2nd paragraph (Lines 6 -8): One may understand that upwelling dynamic relies mainly on the annual (steady) wind component. This is completely wrong. aAc Page 3; Eq (6): Obviously RMS1 is different of RMS2 in sense that the former only deals with one component (zonal in this case), while the latter aims at the characterization of difference based on the use of the two wind components. aĂć Page 5; Lines 23 - 25: The calculation of the inter-annual variability from 2016 collocated data is not clear. âĂć Page 7; Last paragraph: did the author investigate the impact of ASCAT sampling on eddy patterns shown in Figure 6. aĂć Page 7; Lines 21 - 23: The figure 7 should be improved. The result mentioned by the authors and dealing with the underrepresentation of the equatorial stress curl is not clear, at least the difference is very small and somehow not significant. Please clarify. âAć Page 8; Figure 9 labelling requires improvement. Thanks. âAć Page 9; Lines7 – 8: The CMEMS correction for ocean surface velocity requires details. For instance, the authors should clarify the spatial and temporal scales of correction. aÅć Page 9; Figure 12 exhibits interesting pattern along equator. Positive and negative zonal difference are found along the Atlantic and pacific equator zones, respectively. These pattern enhance the difference shown in Figure 5. Any explanations?

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