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Discussions

Interactive comment on "The land-sea coastal border: A quantitative definition" *by* Agustín Sánchez-Arcilla et al.

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The authors present a methodology for determining the land-sea transitional area based on the empirical distribution of anisotropy in meteorological and ocean processes. This is an interesting article, however it will be beneficial for the audience if the authors could provide some feedback on the following matters:

1 Definition of anisotropy

In [Chorti et.al., 2008] a non-parametric estimator of statistical anisotropy was proposed, for which an approximate estimate of the anisotropy statistics distribution was

provided in [Petrakis et.al., 2017]. While the authors cite [Chorti et.al., 2008], from the rest of the references it is not clear if anisotropy is defined as in geostatistics (statistical anisotropy: directional dependence of correlation functions) or as in (geo)physics (directional variation of a physical property, e.g., elasticity, permittivity). Also it is not clear how anisotropy is estimated. The authors should clarify, by providing the definition of anisotropy and the estimator they use.

2 Spatial resolution of wind and wave fields

For both fields there are sub-domains with anisotropy ratio estimates of $R \approx 100$ or more. Therefore, the largest correlation length within such sub-domains is larger by two orders of magnitude compared to the smallest correlation length over the perpendicular principal axis. Assuming stationarity, for an accurate estimation of anisotropy a field should be sampled at a sufficiently large domain, to satisfy ergodicity, and at a high resolution, in order to capture the spatial variability at length scales below the smallest correlation length. The authors estimate anisotropy over circular sub-domains of 5km radius. Some representative field maps would be useful to justify that the sub-domains are sufficiently large and contain an adequate number of measurement samples for the fulfillment of the aforementioned requirements.

References

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