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Interactive comment on “A combined quality-control methodology in Ebro Delta (NE Spain) high frequency radar system” by P. Lorente et al.

Anonymous Referee #2

Received and published: 12 October 2015

This work presents a quality control methodology for HF radars applied to observations in the area of Ebro Delta. This is a useful study, which could be beneficial for future use of HF radar data. However the paper is too long; it presents a lot of well-known details of HF radars from other papers. It has to be substantially shortened, particularly the first part. Furthermore, the geophysical relevance is not well explored and the presentation is sometimes misleading (difficult to differentiate between what authors and others have done).

Specific comments:

Caption Fig. 2. Please don't repeat here what you say in text.

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The presentation of section 4.2, as it is now, is too technical. Much of what is shown in this section can be considered as the same information presented in a different way. I wonder if Taylor diagram is not sufficient to explain most of what has been found. Perhaps the rest can be briefly summarized in text.

The discussion of results is a complex mixture of results from other authors and present study. One example is in p. 1930 “The jet is intensified in October as a result of the increase of the mesoscale activity (Font et al., 1995), reaching ultimately a peak strength in December”. I would suggest that you tell “your story” as seen in your results and then say what agrees and disagrees with previous studies. More important is however to say what is the new finding originating from this new data set.

Section 4.3.2 You say “The buoyancy input introduced by large estuarine outflows, together with topographic effects, lead to the development of the aforementioned anticyclonic coastal eddy on the southern side of the delta.” Can you decipher this from the HFR observations? Please, concentrate your presentation on what you find in your observations and tell us what new we learn from them.

“Temporal variation in the strength of these three EOF modes is represented by their corresponding time coefficients”. Better use the accepted name for these coefficients.

In this part I wonder what would be the result (% of variance) if you work with filtered data and compare with, say MyOcean/Copernicus product.

Because CODAR is not the only HF radar system I wonder whether the proposed methodology is applicable or not applicable to WERA. Lots of literature on some quality control issues for WERA were recently presented by Stanev et al. (2015). I mention this work because error estimates (statistics) are very important for data assimilation, and perhaps you have to mention this useful aspect of your research in your revised manuscript.

Page 1914, Line 10: “The main goal of this work is to present a combined QC method-

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ology for the specific case of Ebro HF radar (although easily expandable to the rest of PdE radar systems)”. Related to the previous comment, I wonder how applicable the method is to tidally-dominated environments.

Page 1919, Line 20: “representative of current velocities in the upper first meter of the water column”. Please specify under which conditions this 1m is valid.

Page 1920 , Line 20: “current velocity vectors at a nominal depth of three meters” How well this combines with 1m mentioned above?

Section 3.3 can be substantially shortened and integrated with Section 4.

Literature

E. V. Stanev, F. Ziemer, J. Schulz-Stellenfleth, J. Seemann, J. Staneva, and K.-W. Gurgel, 2015: Blending Surface Currents from HF Radar Observations and Numerical Modeling: Tidal Hindcasts and Forecasts. *J. Atmos. Oceanic Technol.*, 32, 256–281.

[Interactive comment on Ocean Sci. Discuss.](#), 12, 1913, 2015.

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