

Response to Referee #2

Main comment:

The description of the general circulation of the northern area of the Gulf of Cadiz has been described based on data from the cross-border radar network in Spain and Portugal. The study is well founded, various methodologies have been applied and the analysis of the results reaches conclusions consistent with the literature. I strongly recommend the publication of the paper.

Reply: We very much appreciate the positive evaluation of our work and have replied to all the Reviewer's comments below (in blue). The revised text is indicated in italic and in between quotes. The line numbers correspond to the revised manuscript.

Minor comments:

- The surface current velocity is not the same for drifters, ADCPs and HF radars. Considering also that the surface boundary layer varies greatly in the first meters, which water parcel is measured by each instrument must be described, as well as an explanation of the possible discrepancies between one method of measurement and another.

Reply: We agree with the Reviewer. This point – and other causes of mismatch between HFR and ADCP or drifter velocities - was already mentioned in the original MS (Lines 218-220 and 231-233).

For clarity, the general depth of the near surface ADCP velocity is now indicated

Lines 157-158

"For this study, only validated near surface cells (generally within the first 2-4 m from the surface) were considered."

- The drifters measurements do not provide much information to the study even in the validation phase. I would advise removing them from it.

Reply: We believe that this analysis should be included in the MS as the drifter dataset is the only one available offshore for comparison with HFR data. The general skill scores are within the range of values presented in the literature and support the good quality of HFR data.

- The text alludes to the low eccentricity of the STD ellipses when the radars are aligned. However, very close to the coast, the high eccentricity is recovered despite continuing with a high GDOP. Any explanation?

Reply: High eccentricity values (about 1) are observed when the antennas are aligned (L 260-262). See also the reply to next comment.

Typos:

Line 260, '... of low eccentricity' must say 'high eccentricity'.

Reply: Corrected (L 259). We are thankful to the Reviewer for spotting this typo and associated confusion about high/low eccentricity (e.g. previous comment).

Figure 7, caption: '...temporal modes 1 (b: amplitude, c: phase)' must say '(c: amplitude, d: phase)'.

Reply: Corrected (Lines 303-304)