

Answer to reviewers

Dear Sir/Madam,

We thank the reviewer for the feedback on our manuscript. Below is our answer to the reviewer.

Reviewer 2

Reviewer summary and replies:

The changes applied by the authors have significantly improved the manuscript and also changed the central results in the sense that the decay of coherence does now not change very much with distance from the coast as it did in the original version. In light of that big change I would encourage the authors to consider the flooring changes:

Q 2.1 *In the abstract is says ".. document the variation of the lateral coherence with the distance from the coast" but that is not a main point any longer. Looking at fig 17 top one could attribute the rather limited change of coherence with distance simply as a slight increase of coherence with height. This is an expected results and that would fitter better into the abstract.*

Reply: We agree with the reviewer. We have added the following sentences in the abstract:

“The preliminary results show limited variations of the lateral coherence with the scanning distance. A slight increase of the identified Davenport decay coefficient with the height is partly due to the limited pointing accuracy of the instruments. These results underline the importance of achieving pointing errors under 0.1° to study properly the lateral coherence of turbulence at scanning distances of several kilometres.”.

Q 2.2 *Given the work behind figure 2 in the response to my comments, it could maybe be useful to state an estimate of the uncertainty of C_y in the conclusion. Would you say it is ± 2 , or so?*

Reply: We also agree with the suggestion. We have added the following sentence in line 591 of the conclusion:

“The uncertainties associated with the pointing error suggest that the average Davenport decay coefficient for the lateral coherence studied in section 4.3 is 10 ± 2 , where \pm encompasses the 10-90 percentile range.”