

Responses to final comments from the Associated Editor

Dear Editor-in-Chief Dr Julia Gottschall and Associate Editor Dr Etienne Cheynet,

Thank you very much for your positive feedback on our research.

Below we respond to the points raised by the Associate Editor with technical corrections in blue, which are very useful for the final refinement of our work.

Technical corrections:

- Regarding “instantaneous values” in lines 120–127: Wind data from reanalysis products (e.g., ERA5) represent mean values from a Reynolds-averaged model, not true instantaneous winds. Although some variables are labelled “instantaneous,” turbulence has already been parameterized, so I am afraid that describing them as instantaneous can be misleading.

Thank you for pointing this out. We have corrected section 2. Data in lines 120 and 121 of the file with tracked changes to incorporate this important methodological clarification.

- For spectral analysis, it is advisable to remove both the mean and the linear trend from the time series. Detrending helps prevent spectral leakage and distortion in the low-frequency range, which can occur if only the mean is removed.

Thank you for pointing this out. We have taken this comment into account and applied the *signal.detrend* function in Python to remove the linear trend from the data already centred on the mean. We have also specified this in line 134. We have noted that, in our case, this trend is not significant, as the spectra are identical to how they were before. To confirm, we plotted the trend lines of the time series, which are practically horizontal with a slope of zero.

- A LaTeX reference appears to be broken on line 27 (“(?)”).

Thank you, the broken reference symbol (?) that appeared in the previous change tracking file is no longer in the clean version of the manuscript.

Many thanks again to the Associate Editor for his detailed review of our work; his comments have improved our work.