

Review of the revised version of Janosi et al., “Passive tracer advection in the equatorial Pacific region: statistics, correlations, and a model of fractional Brownian motion”, submitted to OS.

The authors have thoroughly responded to the majority of my comments by revising text passages and figures. There are a few comments that the authors have not reacted to (listed at the end of this document). Even if the authors do not see any need for modifications in the manuscript, I would be interested to receive their response. I have also listed some minor points that need further revision. After incorporating these minor revisions, I can suggest publication.

Author’s response to my original general comments 1 and 2: Thank you for the clear explanation. This is exactly what I was missing in the first version of the manuscript.

Author’s response to my original general comment 5: I understand that the analysis has been done for the Northern and Southern hemisphere separately, as the results were now known a priori. However, if your analysis reveals that there is no big difference between NH and SH, I do not think that for the publication it is necessary in each figure to show the same plot for NH and SH if they are the more or less same, i.e., if no distinct conclusions are drawn for a specific hemisphere. It would be sufficient to just mention in the text that this analysis has been repeated for both hemispheres and that the results are largely the same. If there is one aspect that clearly differs between the two hemispheres, it would be enough to show the respective plots just for this one figure.

Author’s response to my original specific comment on Figure 6: Still not convinced that this figure is needed. Regarding the two positive peaks, I would not consider correlations below 0.2 physically meaningful, no matter if they are mathematically significant or not.

Author’s response to my original specific comment on lines 149-156: I still recommend to remove this paragraph as it clearly draws the reader’s attention away from the present study. There is an abundant amount of scientific and plain-language literature about ENSO and its historical evolution for interested readers.

Original reviewer comments that have not been responded to (note that the line number corresponds to the first version of the manuscript):

lines 72-73: It would be nice to motivate this sentence.

line 73: Using “ensemble mean” and “total mean” might be misleading here. Is there a sub-ensemble of all trajectories? I would assume the mean is in both cases taken over all trajectories. In this case, it would be clearer to refer to the “ensemble mean westward distance” and the “ensemble mean total trajectory length”.

Eq.2: Not sure if this equation is really needed as it is widely known.