

Nonlin. Processes Geophys. Discuss., referee comment RC1  
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## **Comment on npg-2021-37**

Anonymous Referee #1

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Referee comment on "Empirical adaptive wavelet decomposition (EAWD): an adaptive decomposition for the variability analysis of observation time series in atmospheric science" by Olivier Delage et al., Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2021-37-RC1>, 2022

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The manuscript is very difficult to read, with serious grammar and spelling issues from the abstract on. While some of these can be taken care of during the editorial process, many were extremely distracting from the message of the manuscript, and the vast majority should have been corrected prior to submission. The errors in language were compounded by some strange typesetting, including changes of font in mid sentence, and mathematical equations that were mixed between in the text and as separate equations. If it needs a superscript.subscript combination it belongs on its own line. I did not get the sense that the latex template provided by NPG was used to produce the manuscript, but perhaps it is just a different flavour from the one I use.

The manuscript is heavily reliant on acronyms, and while some of this is ameliorated by the algorithms in Figures 1-3 (these are probably the strongest point of the manuscript), it is very difficult to imagine readers not already invested in the method using the manuscript to learn and implement the method.

The methods discussed are applied to a single time series (ozone) and presented in figures that show decompositions and the derived trend. There is repetition between the figures, but over all they are of good quality. I was surprised that only a single time series was used, since presumably it takes very little time to produce the type of results shown. In my own work on developing data centric methods we typically applied our methods to three case studies. This is not a hard and fast formula, but a single, rather

simple, time series seems like not enough to convince the reader. An example for which traditional methods fail, and the new method succeeds seems to me like a reasonable requirement. Many standard mathematical software packages have a wavelet package (e.g. Matlab) and apply it to geophysical data. A reader shopping for new methods should clearly see why they should be adopting the present method.

A discussion of the consistency of the method with atmospheric variability, using a single table, is provided. It is reasonable, if somewhat uninspired.

I was very surprised that there was no discussion of code availability. I think this is a must in modern methods papers.

I am thus left to conclude that the manuscript makes a contribution to a detailed area of study, and will perhaps find an audience in this area. It is so poorly presented that there is very little chance that the ideas will penetrate beyond this small audience. Were I to be writing a traditional review, I would have no choice but to suggest that the manuscript be rejected. Given the nature of the peer review for NPG, I will leave it to the authors to try to improve the manuscript via what I see as rather fundamental revisions.