

## ***Interactive comment on “The motion of trees in the wind: a data synthesis” by Toby D. Jackson et al.***

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Thanks for your input and your favourable comments about our research.

I agree that, while we have collected together lots of data, we have not covered the full range of tree morphology. The largest data gaps are for tropical forests, we currently have only 19 trees in Malaysia and 19 trees in Brazil. We are also missing data for open-grown conifers and conifers above 30 m tall. More data for these groups would certainly improve our analysis and we encourage future studies to focus on these ecosystems (I also intend to collect more tropical forest data myself).

On a related subject, you stated that we do not include all tree motion data. If you know of any other data sets not included here, please let us know. A secondary purpose of this paper is to describe and collate all available tree motion data sets and deposit them online for future studies. I am currently working on the data repository which

C1

will be published alongside this paper. I would note that we are aware of one other data set which is private and therefore couldn't be included, and the text therefore says 'all available data'. Nevertheless, we would be happy to change this phrasing in the manuscript.

Thanks for your comments on down-sampling all time series to 4Hz. However, I believe this was a necessary precaution for this type of analysis. Many of the time series features are sensitive to the sampling frequency, and therefore may distinguish between tree motion time series based on this, rather than the characteristics of the tree motion. Down-sampling inevitably results in loss of information, but I do not think this is too severe. Figure 2a shows that only four of the trees used in our analysis have a fundamental frequency above 1 Hz and the majority of trees have a fundamental frequency under 0.5 Hz. This means that all but four trees have >4 samples per oscillation, while most trees have >8 samples per oscillation. We believe this is sufficient for the current analysis, and preferable to including different sampling frequencies. I would note that the data will be deposited online in the original sampling frequencies so that future studies can decide whether or not to harmonize in this way.

Thanks for your correction on the definition of a cantilever beam, I will correct this.

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C2