This author thanks Reviewer 2 for their time and constructive comments (repeated below *in italic font)*. I reply to each separately, using the reviewer's respective comment numbers.

"*1) Research objective needs to be clarified in more clear way. Research gap and motivation were unclear because of the structure in abstract and introduction.*"

As mentioned in the abstract, motivations and objectives (which align with the development and results) include: calculation of a more robust flow statistic for loads, which allows accomodation for different turbines and controllers; solves the de-trending issue; permits (implicitly incorporates) description of significant fluctuations beyond just idealized turbulence, without making assumptions about spectra or PDF forms, accommodating atmospheric phenomena arising at heights far above the surface layer; it further facilitates identification of where IEC design-load case (e.g., EOG) prescriptions can be under-predicting (un-conservative, as cited/seen in application of this work). The motivation regarding the IEC 61400 standards is also re-stressed in more detail in the final paragraph of §2.0 (now lines 188–198).

"*2) For determination method of the wind acceleration in Section2, the author examined appropriate ways for the calculation by comparing the methods discretizing the wind speed numerically and based on power spectral density. However, Eq. (1) is not precisely correct because F[ds/dt] = (2πf)F[s], but not* $(2\pi f)^2 S_{ss}$*. Please explain why the inverse Fourier transform of the power spectral density corresponds to the wind speed acceleration.*"

The power spectral density (PSD) of wind speed (S_{ss}) is the Fourier transform of its autocovariance, thus the PSD of acceleration is $S_{\dot{s}\dot{s}} = \omega^2 S_{ss}$; eq.(1) was written in terms of PSD, since PSD of acceleration is plotted. However, your first statement is correct in the sense that the right-hand side of (1) is actually giving the autocovariance of acceleration. For the article and plots, I actually used the direct (simpler) calculation $\mathcal{F}^{-1}[-2i\pi f\mathcal{F}[s(t)]]$ but wished to avoid complications around programming language-dependent aspects of inverse FFT's, i.e., to "keep it simple" and streamlined.

I have now corrected (1), also to show what is directly calculated, and added a footnote in the text following it for caution, clarity, and repeatability.

"*3) In Section 2.1 and Figure 2, the authors showed the effect of the filter on the max and top percentiles; however, the decrease of the values by increasing the cut-off filter time scale is very natural consequences. This reviewer could not follow the physical meaning to show these results as the preliminary demonstration.*"

As written, increasing the filter timescale (reducing f_c) reduces the acceleration level for a given exceedance probability. The 'physical' meaning is that lower f_c means filtering out more of the fluctuations, i.e. at timescales smaller than $1/f_c$. I add a sentence along these lines now just before Figure 2. Further, Appendix B includes information about this.

"*4) As for Figure 4, the top 1-10 values are explained, but they are unclear in Figure 4. From the cumulative density in the vertical axis, it is unclear which values correspond to certain percentiles.*"

The minimum SF is noted, so the top 10 values follow as 1-10 times that; Figure 4 would be too busy if every point was plotted separately, given its logarithmic scale.

"*5) Figure 6 and 7 are very interesting to see the relationship between the acceleration and statistics. The results are clearly presented to clarify the linear relationship between the acceleration and standard deviation. This reviewer recommends adding the physical.*"

It is not clear what is meant by the recommendation of "adding the physical". Some interpretation is given for the speed dependence in the text, for the most common values of $\dot{s}_{99}|S$ and $\dot{s}_{99}|\sigma_S$. However, physical interpretation of the largest $\dot{s}_{99}$ is not straightforward, as large $\dot{s}_{99}$ arise due to a number of different mechanisms; this is noted and discussed in the sections afterward.