

This revised version of the paper is in good shape by and large. I have only two substantial comments.

First, the abstract would be much better in all the acronyms were removed and some terminology converted to plain language (main example: at an intersection-over-union threshold of 0.5 (mAP@50) above 85 % for both the bounding box and mask outputs). Overall, I think that the whole text would benefit from a greatly reduced use of acronyms.

Thank you for this comment. We revised the abstract to remove and simplify the acronyms and convert the terminology into plainer language. Overall, we reduced the unnecessary acronyms used more generally. However, acronyms that are used frequently and are widely recognized in the field such as MP as microplastic, TWP as tyre wear particles etc. were retained for clarity, whereas less essential acronyms were replaced with full meaning where appropriate.

Second, I think it should be made clear very early in the paper that the set-up used is idealised and that the results may have little practical significance. The real problem takes place on a very heterogeneous surface where suspension might well be driven not by the wind but by vehicle movement. The value of the work needs to be explained against this background. This argument is made at the very end of the paper, rather than associated with the objectives.

Thank you for this important comment. We clarified and revised both the abstract and the introduction to capture these important points and stated more explicitly the value of the study, which lies in providing a controlled mechanistic baseline rather than a directly transferable field threshold.

Line 43 – some reference to vehicle movements should be included.

We now added a brief statement to clarify that in real road environments, particles can be mobilized by a combination of different forcings.

Line 103. “CNN-based architectures have ...”

Text Corrected.

Delete lines 110-114.

We deleted this text as suggested

Lines 130-134 are not sufficiently critical in my view.

The text was revised to be clearer and to justify the need for the study.

Line 216. “In this study, instance segmentation ...”

Corrected.

Line 219. Yolo.

Corrected

Lines 234-235. “... equal vertical and horizontal strides, sub-images producing eight sub images from each original image ...” needs to be rewritten more clearly.

We simplified the sentence and corrected the typo accordingly.

Line 273. “... selected image size, independent validation datasets were evaluated ...”

Corrected.

Line 288. A perfect circle?

We changed the sphere to a “circle” as suggested.

Line 377. “... the entire”

Corrected.

Line 379. If the length scale is fixed, then the time scale varies with reference speed.

The text was revised and clarified accordingly, including the Appendix to state explicitly that the spectral quantities reported here are referenced to the highest velocity stage cited in the study

Figure 8. The choice of colours isn’t ideal. Particularly in the legend. Here and elsewhere, would it not be better to quote reference speed rather than “Stage”?

We slightly adjusted the colour scheme to improve the visual distinction between the profiles and also replaced the stage labels with the corresponding reference free-stream wind speeds. The same adjustment was also applied consistently to the related figures in the Appendix.

Line 389. For some reason, I had imagined the slides to have the long side aligned with the flow.

The slide orientation was indeed positioned such that the long side was perpendicular to the streamwise flow direction and the short side aligned parallel to it.

Line 398. Well, not ‘identical’.

The word was changed to ‘prescribed’

Line 425. Temporal?

We slightly revised the text for clarity. The reported values are bin-averaged quantities obtained across the replicate data, rather than temporal mean.

Lines 488-489, What was done to avoid errors arising from this initial jump?

No separate correction was applied to remove the initial jump. We interpreted this early response as part of the physical detachment process.

Lines 512, 513 ... circular ...

Corrected.

Line 538. Is the lift force not relevant?

Lift was acknowledged as suggested.

Line 545. ... and lift ...

Corrected.

Figure C3. This is poorly plotted and fails to show the structure of the spectra. It needs stretching. The major issue may be that it doesn’t extend to low enough frequency, where $f.E \sim f$.

Thank you for the comment. We adjusted the FFT settings so that the spectra and co-spectra can be replotted to extend further into the low-frequency range. The figure was split into two to separate the spectra (uu, vv, ww) from the co-spectra (uw, vw), and the appropriate inertial-subrange reference slopes were included to improve clarity. The revised spectra are shown for a single measurement point at one selected height and for the highest wind speed stage.