Review of *R2: Effect of different source terms and inflow direction in atmospheric boundary modeling over the complex terrain site of Perdigao* by K. Venkatraman et al.

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September 26, 2022

I would like to thanks the authors for their answers and corrections. It is nice that you have added the different wind direction results; it highlights the challenge of complex terrain modeling and validation with measurements that include a varying inflow direction.

Unfortunately, the revised grid refinement study is not properly performed. As this already the third round of review I would suggest to either add a proper grid refinement study or simply remove the grid refinement study and write that a proper grid refinement study is future work, and that the results presented could change if a finer resolution is used. Hereby some more detailed info:

Main comments

1. The revised grid refinement study uses a grid size that hardly changes, namely, $N_x = 550, 600, 650$, which is a refinement ratio of 1.08-1.09; the previous study used $N_x = 227, 332, 469$. This revised grid refinement study uses far too small refinement ratios and it is likely that you get similar results between the different grids as you also find; you write at Line 109: *The results obtained with 3 different meshes of increasing resolution show negligible sensitivity on the wind profiles at three different towers on the ridges and inside the valley.* In this case, you cannot conclude to get grid independent results. You need to have at least a grid refinement ratio of $\sqrt{2}$, similar to what you used in R1 (personally I always use a factor 2). You mention that you are limited to memory requirements, but you can always add results of coarser grids, for example you could use something as $N_x = 300, 450, 675$ using a refinement ratio of 1.5. If the grid results indicate that the error due to grid resolution is not converging then you would need to go finer. If you are limited to memory to do so, then you could also change to a higher order numerical scheme to reduce the grid resolution errors or simply run on a high performance computer cluster, which I believe the von Karman institute has access to (https://www.vki.ac.be/index.php/facilities-other-menu-148/hpc-cluster)

   There is also a choice made in the revised grid refinement study that I would have done differently, which I would like to share for food for thought. When I perform a grid refinement study then I would not change the inflow profile per grid size because it would mean that you would model a different case per grid size. I do understand your choice because you focus on validation and are trying to mimic the inflow conditions of the measurements. However, for a more fair grid refinement study it would be better to not change the inflow parameters in my opinion and separate the model verification (grid refinement study) from the model validation (comparison with measurements). For example, you could have chosen to use the inflow profile based on the finest grid and use this inflow for all other grid sizes. Furthermore, the results of a grid refinement does not have to be compared with measurements as the reader could then be tempted to pick a grid result that is closest to the measurements, instead of taking the grid size that has negligible numerical errors due to grid resolution; the latter is the purpose of a grid refinement study.