The manuscript entitled *"A Correction Algorithm for Rotor-Induced Airflow and Flight Attitude Changes during Three-Dimensional Wind Speed Measurements Made from a Rotary Unmanned Aerial Vehicle"* presents a novel algorithm designed to improve UAV-based wind measurements obtained through direct techniques using flow sensors. This topic is of high scientific relevance, as drone-based wind measurements can help address observational gaps within the planetary boundary layer. Furthermore, the manuscript aligns well with the scope of *Atmospheric Measurement Techniques*. However, I believe the manuscript requires further revisions before it is suitable for publication. Below, I have outlined my specific comments and suggestions for improvement.

Reviewer Comments:

In line 57, the manuscript states that indirect wind velocity estimates do not reflect flight conditions. Given extensive research on improving these methods, clarifying their specific drawbacks compared to direct measurements with airflow sensors would benefit readers.

In line 85, the manuscript notes that wind tunnel tests can improve the accuracy of airspeed-UAV motion relationships but are limited by high costs and errors from airflow reflections. However, it lacks references supporting evidence of these errors. Please include any relevant references.

In line 169, the manuscript mentions simulation parameters but does not specify the CFD framework beyond stating it is a built-in SolidWorks simulation. Clarifying the CFD framework and comparing its advantages and disadvantages in performance when compared to alternatives like Ansys Fluent would benefit the reader.

In line 181, the manuscript models the fluid as air with both turbulent and laminar flow, assuming a turbulence intensity of 0.1% and a length scale of 0.012 m. Given that atmospheric turbulence intensity ranges from 1% to 20% and length scales vary from sub-centimeter to kilometers, clarifying these assumptions would help the reader understand the limitations of the simulation results.

In line 236, the manuscript states that the wind speed at the anemometer location is minimally influenced by the UAV rotos. However, the results in Figure 9 show a significant change in measurements of wind speed and direction when the correction derived from simulation results is applied to field measurements. In fact, this change is greater than the change observed when correcting aircraft motion alone. The manuscript should address this discrepancy in results.

In line 236, the manuscript asserts that the wind speed at the anemometer location is minimally affected by the UAV rotors. However, the results presented in Figure 9 show a noticeable alteration in both wind speed and direction when the correction derived from simulation results is applied to the field measurements. Notably, this change is more pronounced than the adjustment observed when only correcting for aircraft motion. The manuscript should thoroughly address this discrepancy and provide a clearer explanation for the observed differences in the results.

In the caption of Figure 9, it is mentioned that UAV measurements were first averaged using a 10-second sliding window before calculating 5-second averages. However, the rationale for applying a 10-second sliding average prior to computing the 5-second average is unclear. Given that moving averages can smooth out real wind fluctuations, further clarification on the necessity and impact of this approach would be beneficial to the reader.

In line 393, it is mentioned that a UAV was flown around a meteorological tower in a box pattern. However, the manuscript does not provide any information on the commanded flight speed during these experiments. Including this detail would be highly valuable for the reader, as the UAV's operating speed is a crucial parameter for understanding the validation results.

The validation results presented in Figure 9 show large errors in wind speed and wind direction estimates while operating in low wind conditions. A more thorough discussion of these errors would strengthen the contribution of this manuscript. Moreover, understanding the limitations of the presented algorithms would help the growing community of scientists using UAV-based algorithms for wind sensing assess the impact of this algorithm.

The validation results presented in Figure 9 reveal significant errors in wind speed and direction estimates, particularly under low wind conditions. A more comprehensive discussion of these errors would strengthen the manuscript by offering deeper insights into the algorithm's performance. For instance, exploring the correlation between V_O , V_R, and V_T could provide valuable context, especially given the critical role of accurate wind fluctuation estimates in turbulence measurements. Furthermore, a clearer examination of the algorithm's limitations would greatly benefit the growing community of scientists employing UAV-based wind sensing algorithms, helping them better evaluate its potential impact and applicability.