2nd Review of "Simulation performance of planetary boundary layer schemes in WRFV4.3.1 for near-surface wind over the western Sichuan Basin: a single site assessment" by Want et. al.

Major comments

1. What insights does the distribution plot (Figure 5) offer? This figure is intended to evaluate the distribution of simulated wind speeds. However, it doesn't yet provide conclusive information. At first glance, results from the four PBL schemes appear generally misaligned with observations, especially regarding the λ (scale) values. The conclusion primarily relies on the k (shape) parameter, which shows that all models appear reasonably close to the observed values. However, it remains unconvincing that QNES aligns most closely with observations. Line 495 suggests that the models tend to overestimate the occurrence of high values, underestimate low values, and match observations for values in the mid-range. Isn't this expected from the distribution plot? For instance, one can expect this conclusion from a uniform distribution.
2. Regarding the initial results (sections 3.3 and 3.4), the discussion seems to suggest that QNES outperforms the other models; however, this is not immediately evident. Aside from the distribution plot discussed above, it's unclear how the conclusion that QNES performs best at noon was reached. If my conversion is correct, at 4 UTC (corresponding to local noon), QNES does not appear to show the smallest bias.
3. I still have concern on the K-means clustering, even more confused after reading the response.
    a. In the manuscript, the authors state: *Previous studies have indicated that the simulation of meteorological elements within the boundary layer is influenced by meteorological conditions such as circulation patterns*. This statement sets the expectation that the following analysis will focus on how various meteorological conditions impact the performance of each PBL scheme. To achieve this, clustering should ideally be based on weather conditions rather than model errors, as this would more directly assess the influence of different meteorological scenarios on each scheme.
    b. The manuscript at Line 658 suggests the clustering is based on COR and RMSE, however, the response to my previous comment states the clustering is based on more other variables. If other variables are utilized, please specify. The COR and RMSE of which PBL scheme result are used?
    c. In the response, the authors state: *Additionally, it's important to note that the centroids themselves are calculated based on the mean position of all points within each cluster, and slight overlaps or close proximities between clusters can occur, especially if the clusters are not well-separated*. Based on my understanding, a k-means clustering model reaches convergence when the centroid of each cluster aligns with the center of the points assigned to it. The assignment of points to a specific centroid is determined by the minimum distance to that centroid.
    d. The discussion on three classes is actually rooted in the difference in weather conditions.

Specific comments

1. When discuss on the diurnal variation, please include the conversion between local time and UTC.

2. Line 562, PBL scheme?
3. Figure 9, why do the QNES results generally align with the COR gradient, except on 2022-04-14? Again, could you clarify how the k-means clustering was calculated in this context?