

In this document, the editor's comments are in black, the authors' responses are in red.

We thank the editor for her thoughtful and productive comments.

I recommend accepting with technical corrections. Although the scope is narrow and the results have limited novelty, the study is valuable for its addition to existing knowledge and for highlighting two sites that are important for the ongoing development of wind energy. I think the authors have sufficiently addressed the issues raised by the referees and editor. Some language and technical issues persist and should be fixed before publishing (see below). The most critical problem is that Fig. 11 was not rendered correctly in the "Author's tracked changes" PDF, which made it impossible to see all the details of the figure correctly.

Specific comments

P1-P2 "Dataset" and "data sets" are used, perhaps "datasets" would be more consistent with "dataset" or vice versa? **We have fixed this issue.**

P8L157 wind resource → wind resources **Changed.**

P9L164 use → used **See our answer below.**

General language comment: mix of past and present tense **We have revised this. In general, we now use present tense to describe our work, and past tense to describe work done by others in the past.**

P12L227: ERA's → ERA-5's **Changed.**

P17L300: consistently → consistent? **Changed to "which is consistent".**

Fig. 11 is not rendered correctly in the PDF, so I cannot fully review it **Sorry about this, the figure now appears in the latest version of the manuscript.**

P20L299-L300: Two sentences start with "On the other hand" **We changed one of the two sentences as suggested by the other reviewer.**

"On the other hand" and "slight/slightly" are used frequently. Using more variation in the language could benefit the text. Just a suggestion. **Thanks for this. We have revised a few sentences. "On the other hand" is now used 5 times throughout the paper. "slight/slightly" is now used 7 times.**

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We thank the editor for her thoughtful and productive comments.

I am satisfied with the revisions and responses to my first set of comments.

However, in the latest version where the surface heat fluxes have been introduced I have some further comments.

Comments

Section 2: Since you now also include observational data of sensible and latent heat fluxes you need to present the instrumentation and methods used here as well.

We have added the following sentence, which includes two references with details on the specific instrument and approach used to retrieve fluxes: “Finally, we consider measurements of sensible and latent heat fluxes from a flux station at the C1 site, which includes a sonic anemometer and an infrared gas analyzer, at 4 m AGL. Details on the calculation of the fluxes from these instruments are described in Fischer (2004), and follow the correction proposed in Webb et al. (1980).”

L304: I think you also need to introduce a motivation here to why soil moisture needs to be accurately represented in WRF in order to correctly model the diurnal cycle of the wind speed. Otherwise, this reasoning seems a bit out of context.

We have added the following sentence: “The ability of WTK-LED of accurately representing soil moisture could also contribute explaining the overestimation of the diurnal cycle at SGP, as the variability of surface fluxes can change atmospheric turbulence and, as a consequence, drag (Geernaert, 1990).”

L309-310: Not sure I quite follow this. You state that WTK-LED's slightly underpredicts the hub height winds, but previous results all show a positive bias. Please elaborate on what you mean here.

We have specified “... is consistent with the WTK-LED's slight underprediction in the mean diurnal cycle of hub-height wind speed between 16-23 UTC”

L329 Sentence starting with “On the other hand, the WTK-LED negative bias...”. I suggest replacing with “Additionally, the WTK-LED negative bias...”

Changed.