

Wind Energ. Sci. Discuss., referee comment RC1  
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## **Comment on wes-2021-44**

Anonymous Referee #1

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Referee comment on "On the measurement of stability parameter over complex mountainous terrain" by Elena Cantero et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-44-RC1>, 2021

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### General comments

The paper addresses an interesting topic for the wind energy community. In general, it is well written and structured. The objective of the study is clear.

### Specific comments

Interesting to note that unstable situations are found in the 330°-350° direction sector, which is a predominant one (page 8). If possible, please add a possible explanation for that.

At page 10, please clarify that the bulk Richardson number is also calculated on a 10-min interval, i.e. the same period used for the calculation of the Obukhov length.

As stated in the paper, sonic anemometers are not commonly used in the wind industry, so the Bulk Richardson number method would be of great interest for the industry. As the author mentions, one of the problems here for using that method is that the mast does not have a surface temperature sensor. It would be very useful if the authors can give their opinion on whether having the surface temperature sensor would improve the accuracy of the Bulk Richardson number method and thus the consistency between the 2 analyzed methods. If possible, please also give some guidance for future studies to estimate atmospheric stability using the Bulk Richardson number.

### Corrections

There is typo in table 1 and table 2 first line.

The vertical axis title of figure 6 is incorrect. Please check vertical axis titles in other figures.

The acknowledgements section is incomplete.