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Interactive
comment

*Interactive comment on* "Empirical high-resolution wind field and gust model in mountainous and hilly terrain based on the dense WegenerNet station networks" *by* C. Schlager et al.

C. Schlager et al.

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We would like to thank you again for your feedback to our manuscript and will implement your proposed changes.

Answerers to your specific comments: 1.) Page 1, lines 11-13. The authors should note that strong winds tend to have an almost constant direction, while weak winds are often characterized by variable directions. Therefore strong winds are relatively more easy to predict. Answer: Ok, we will improve the description to clarify that strong wind speeds are easier to model in the mountainous region of the Johnsbachtal. Also it has to be noted that the modeling performance shows opposite values for the hilly

Feldbach region, with somewhat better values for weak wind speed events than for strong wind speed events (Schlager et. al. 2017). Improved description: "The overall statistical agreement, estimated for the vector-mean wind speed, shows a reasonably good modeling performance. Due to the spatially more homogeneous wind speeds and directions for strong wind events in this mountainous region, the results show somewhat better performance for these events."

2.) Page 6, Lines 10-11: The sentence is not clear. Please reformulate. Answer: Ok, we will improve the description related to the estimation of the magnitude of wind speed of a pseudo station. Improved description: "The magnitude of wind speed of a pseudo station (vp) is estimated for the highest defined vertical height level (zmax), which corresponds to the highest ZFACE level (Table 2; 80 m). The estimation is based on a linear interpolation between neighbor station altitudes, except for pseudo station 5, which is located at somewhat lower altitude than its neighborhood stations. The wind speed is hence calculated by a slight downward extrapolation for this latter station."

3.) Page 6, equation 3: Note that there are more compact equations to get the wind direction starting from the wind components. See for example: https://www.researchgate.net/profile/Stuart_Grange2/publication/262766424_Technical_note_Averaging_wind_speeds_ar note-Averaging-wind-speeds-and-directions.pdf Answer: Thank you for this hint, we agree this is more compact and looks more elegant. We will therefore change to this formulation from your suggested paper.

4.) Figures 5 and 6: Text within figures is very small. Answer: Thank you, ok, we will further increase the font size of the text of Figure 5 and 6, especially in the in-panel legends at upper left in the panels of these figures (which we agree are a bit small).

Answer regarding technical corrections: 5.) Thank you for the care related to these remaining typos or spelling mistakes. We will account for these technical-editorial improvement suggestions that you listed.

Please also note the supplement to this comment:
https://www.atmos-meas-tech-discuss.net/amt-2018-31/amt-2018-31-AC1-
supplement.pdf

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