Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2022-14

Frank Beyrich (Referee)

Referee comment on "Atmospheric boundary layer height from ground-based remote sensing: a review of capabilities and limitations" by Simone Kotthaus et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2022-14-RC1, 2022

The paper represents a comprehensive review of the current state-of-the-art of boundary-layer height estimation based on data from measurements with ground-based remote sensing systems. It can be considered as a very timely initiative since publication of the last comparable review paper dates back for about ten years, and there has been considerable and significant development both in instrument technology as well as in data analysis and algorithm improvement during the last decade. The paper is very well written and clearly structured. The text is the result of an enormous effort to collect and assess the relevant literature published in the field. As typical for a review paper, it does not contain really new results, however, it successfully integrates and evaluates the findings from a large number of original contributions. I therefore fully support publication of the manuscript. However, I see quite a number of weaknesses which I would like to invite the authors to work on before the material gets finally published. These are specified in the attached report.

Please also note the supplement to this comment:
https://amt.copernicus.org/preprints/amt-2022-14/amt-2022-14-RC1-supplement.pdf