

***Interactive comment on* “Observation of sensible and latent heat flux profiles with lidar” by A. Behrendt et al.**

Anonymous Referee #3

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This study presents one case study of measurement of sensible (H) and latent (L) heat flux profiles during the HOPE campaign, using a Raman lidar with a Doppler wind lidar (for H profiles) and a water-vapor differential absorption lidar with a Doppler wind lidar (for L profiles). The methodology is clearly presented and the study fits in the scope of AMT.

I recommend the paper for publication in AMT with minor revisions.

Minor revision suggested:

Since this study presents the results from one case study only, I think this needs to be clarified in the manuscript, probably in the Abstract is OK.

Page 4, lines 98-99: "An overview of the instruments and methodology is given in

Section 2. The results are presented and discussed in section 3. Finally, a summary and an outlook are given." I think there is something wrong here as the Methodology is not in Section 2, but in Section 3; the Results are presented in Section 4 and not in Section 3; the Summary is in Section 5.

Page 5, Section 3. Do you also need a subsection for the Latent heat flux analysis?

Page 5, lines 130-131: You sometimes refer to the water-vapor differential absorption lidar as to WVDIAL (here for instance) and some other times as to DIAL. Please be consistent thorough the manuscript.

Fig 5) The tick and thin error bars are difficult to differentiate, both on the screen and when printing out the page. Please find another way to present them.

Label of Fig. 5) "Sensible heat flux H and the latent heat flux L derived from the lidar data." I would clarify in the caption of the figure what combination of instrument was used to compute H and L profiles.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-305, 2019.

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Discussion paper

