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www.atmos-meas-tech-discuss.net/6/C1777/2013/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Characterization of the planetary boundary layer height and structure by Raman lidar: comparison of different approaches" *by* D. Summa et al.

Anonymous Referee #1

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My recommendation is to reject the manuscript in its present form.

Results of two lidar techniques for estimating the height of the atmospheric boundary layer are presented and compared with radiosonde measurements.

The first technique uses the derivative of the elastic backscatter signal. This technique is already described in many papers and has even been extended within many studies since. Many of these references to previous work, however, are missing. This manuscript shows nothing new in this context.

The second lidar technique uses a range-corrected rotational Raman signal. But it

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remains unclear on which atmospheric characteristics this technique is based. Are gradients in the particle extinction profile identified? Or in the total extinction profile? I cannot see why this should be better than using the backscatter coefficient which is the basis for the first technique with the elastic signal. Or is this rotational signal sensitive to the temperature gradient at the boundary layer top? If so, how sensitive? But why don't you use the measured temperature gradient itself then?

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 5195, 2013.