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Atmospheric Measurement Techniques Discussions

Interactive comment on "Cloud liquid water path in the sub-Arctic region of Europe as derived from ground-based and space-borne remote observations" *by* Vladimir S. Kostsov et al.

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This comparative evaluation of liquid water path (LWP) measured by satellite and ground based radiometers is a very well conceived and executed analysis that takes the reader step by step through the process of reconciling differences in an important property of clouds. The authors have carefully covered most of the important aspects of of such ana analysis that are needed to identify the differences and the potential sources that underlie the discrepancies.

I think that the intrinsic differences in measurement techniques, a detailed uncertainty analysis and the presentation of plausible reasons has been sufficiently provided, along

with a broad assortment of graphical representations that highlight the differences.

My only disappointment came when I was expecting to find the analysis put into the context of how important these differences are with respect to how they impact climate models since they begin the analysis by talking of the urgency of understanding how the lack of understanding clouds in this region is a major problem. When they began using the reanalysis data to look at diurnal cycles, I thought they would take the next logical step and either use a simple climate model to demonstrate the sensitivity of radiative forcing to differences in LWP, or at the least, test the statistical significance of the differences.

The lack of such a final analysis will not prevent me from recommending publication; however, providing some type of final analysis, either statistical testing or sensitivity analysis, I think would increase the scientific value of this paper.

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