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Atmospheric Measurement Techniques Discussions

Interactive comment on "Profiling water vapor mixing ratios in Finland by means of a Raman lidar, a satellite and a model" *by* Maria Filioglou et al.

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General Comments

As the article title suggests, the author presents water vapor mixing ratio (WVMR) profiles in Finland, while at the same time, the LiDAR calibration factor for the WVMR is calculated, utilizing three (3) different benchmarks: i) satellite retrievals, ii) radiosondes, and iii) model data. Despite the similar studies that have been conducted in the recent past regarding the calibration factor (e.g. Mamouri, R.E., et al., 2007 | Bhawar, R., et al., 2011), it is important to constantly assess the available tools for optimal LiDAR WVMR retrievals.

Specific Comments

The LiDAR retrievals of WVMR require a priori knowledge of the molecular number density. The source of this knowledge has to be clearly mentioned in the article, since it may have an influence on the final comparison. What is the effect on the LiDAR-derived WVMR, the extraction of temperature/pressure (molecular density) profiles from: i) the AIRS instrument, ii) the radiosonde, and iii) the model?

Technical Corrections

Page 2, Line 1: "therefore" can be omitted. Page 2, Line 10: "to" can be omitted. Page 2, Line 28: "set up" is a verb, while "set-up" or "setup" is the noun. Page 3, Line 14: "where three" → "where the three" Page 7, Line 24: fluctuated Page 7, Line 31: channels

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