

Interactive comment on “Column water vapor determination in night period with a lunar photometer prototype” by A. Barreto et al.

Anonymous Referee #1

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Column water vapor determination in night period with a lunar photometer prototype by A. Barreto, E. Cuevas, B. Damiri, P. M. Romero, and F. Almansa

This paper discusses lunar photometry's use in retrieving water vapor. A modified CIMEL sunphotometer is used for these measurements. This would appear to be especially difficult since the extraterrestrial source is variable, but apparently predictable. I find the paper sound for the most part, but would like to see some issues addressed (see below). One thing that should be clarified is how a modified Langley was performed with a single night's data and an uncertainty estimated.

Lines 7-9 Did you compare nighttime with daytime PWV? Using 'quasi-simultaneous' for describing the daytime comparisons and not using 'quasi-simultaneous' for the nighttime comparisons suggested to me that you were comparing daytime and night-

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time measurements of water vapor, which does not seem to be a good idea since water vapor is highly variable in a very short time. Please make what you did clear. For example, were you trying to demonstrate that the lunar retrievals and solar retrievals are comparable in accuracy?

You have clearly demonstrated the benefits of a filter in the water band that does not have significant wings beyond the water band for this retrieval.

The grammar could be improved, but my understanding of the text was acceptable as it is.

Are you concluding that lunar retrievals of water vapor are much more accurate than GPS. Otherwise, why use lunar retrievals? Are they better than radiosondes in dry conditions? State the benefits of lunar retrievals of water vapor in the conclusions.

Most importantly, was the extraterrestrial calibration performed using only one night's data? Do you not need multiple measurements to establish an uncertainty for this? This is not how calibrations of sun photometers is usually done even on Mauna Loa.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 767, 2013.