Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2017-370-RC1, 2017

Atmospheric Measurement Techniques Discussions

Interactive comment on "Water Vapor Retrieval using the Precision Solar Spectroradiometer" *by* Panagiotis-Ioannis Raptis et al.

Anonymous Referee #3

Received and published: 24 November 2017

The paper written by Panagiotis-Ioannis et al. entitled "Water vapor retrieval using the Precision Solar Spectroradiometer (PSR)" shows the ability of the PSR to retrieve Integrated Water Vapor (IWV) by means of two different approaches: monochromatic and integrated spectral windows. The results have been validated against reference instruments and well-established methodologies such as Global Positioning System (GPS), Microwave Radiometer, radiosondes and sun photometry, showing excellent correlations between them.

The authors performed a detailed explanation of the two methodologies for PSR IWV calculation as well as a precise description of the different techniques used in the validation analysis.

The paper is well written and the results are relevant to be published in AMT. There are

only a few minor remarks:

P3, l. 15: Actually, AERONET has more than four hundred sites around the world.

P3, l. 26: "Izaña Atmospheric Observatory, Tenerife, Spain" seems to be in different font type.

P4, l. 16: Add space after (MOL-RAO).

P5, l. 23: Cimel performs measurements at nine bandpass filters, and retrieves AOD at eight nominal wavelengths (340-1640nm with the exception of 940nm).

P5, l. 23: 1064nm $>$ 1640nm

P5, l.27: Please clarify what you mean by "retrieve it" in this sentence.

P6, l. 25: Add space after 2.4.

P8, l. 3: quaiity $>$ quality

P8, l.19: Section 3.2.

P10, l. 10: The authors stated they used mid-latitude atmosphere to model T_w. What season have you selected for your simulations? Do you expect a change in three wavelength dependent coefficients (a, b and c) as a result of the seasonal change in T_w, as was found by Campanelli et al. (2014) or Schmid et al. (1996)?

P18, l. 6: The reference Smirnov et al. (2000) should be used in the next sentence, where the AERONET cloud screening is presented.

P19, l. 6: Figure 8 $>$ Figure 9

P20, l. 9: statics $>$ statistics

P20, l. 14: Is sigma defined as the standard deviation somewhere in the text?

P21, l. 18: figure 11 $>$ Figure 11