

Interactive comment on “Quality assessment of Izaña’s upper-air water vapour measurement techniques: FTIR, Cimel, MFRSR, GPS, and Vaisala RS92” by M. Schneider et al.

Anonymous Referee #2

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Initial General Comments

The article is well written and the authors articulate in their presentation. The article compares several techniques that measure water vapour in the troposphere over the 4 year period from 2005 through the beginning of 2009.

Although the article is an empirical assessment focusing on the scatter among PWV measurements a table showing the expected precision for each technique from the data provider would help the reader know the data quality at the onset.

Specific Science Comments

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Introduction line 25: The following sentence appears out of place in this article, adds nothing to the scientific arguments put forth in the work and should be either excluded all together or re-focused to be accurate and speak to scientific issues only. "In contradiction to the importance of the tropics and subtropics, the most advanced and best quality measurements of tropospheric water vapour amounts are mainly performed at mid- and high-latitudes in countries which dispose of the necessary resources for implementing and maintaining the required sophisticated instrumentation (e.g. high resolution spectrometers) and for contracting trained personnel."

Figure 1 : It would benefit the reader to know the details of the spectrum: day and time of observation, solar zenith angle, resolution or optical path difference and number of scans or integration time.

Sec 2 Although references are given a short discussion of the expected precisions for each technique should be given.

Sec 3.2 lines 18-23: some general observations on the GPS data are given. Although they are stated within the context of the data used in this paper are they of wider applicability (and need further explanation) or are they known (and need a reference).

Conclusion line 3 (next page) Which "real" values are the authors referring to?

References: Romero 2009 is an important reference for a previous intercomparison, it would aid a wider audience if a version in English were referenced

Specific Technical Comments

Abstract line 10: "quality assessment for the different water vapour dataset" is not complete

Introduction line 15: "key player" change to "key factor"

Introduction line 16: "prime greenhouse gas" is not descriptive in this context

Introduction line 18: (<ie> a rising...

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Introduction line 19 "on its part" change to "in turn"

Introduction line 16 (next page): "as geenhouse gas" change to "as a geenhouse gas"

Sec 2.1 line 18 (<eg> compare...

Sec 2.1 lines 6&7 (next page): this last sentence is awkward and not clear what the authors mean to say.

Sec 2.2 line 11: 940 micron or nanometer?

Sec 2.4 line 18: "At CIAI we apply a Leica..." change to "Stationed at CIAI is a Leica..."

Sec 2.4 line 20: instrument is <the> property...

Sec 3 line 17 RS80 as <the> operational...

Sec 3.2 line 6: "adequate" change to "appropriate"

Sec 3.2 line 8: "get along with" change to "compare given"

Sec 3.2 line 9: "range of atmospheric water vapour amounts" change to "range in atmospheric water vapour amount"

Sec 3.3 line 14 the FTIR spectrum is not a radiance measurement

Sec 3.3 line 18 (next page) "is expectable" change to "may be expected"

Sec 5 line 20: site<s>

Sec 5 line 20 (next page): "a 8 months" change to "an 8 month"

Figure 1 caption: Zoomed "out" change to "in"

Figure 5 has a reference to "top panels" where there are none

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