

Interactive comment on “Results from the 4th WMO Filter Radiometer Comparison for aerosol optical depth measurements” by Stelios Kazadzis et al.

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We thank the reviewer for his/her comments.

Regarding the Figure 2, I was wondering that it would be perhaps interesting to focus on and discuss the diurnal patterns a bit more. For instance, POM_JP shows a diurnal pattern that is likely solely related to the calibration (as discussed in Cachorro et al. 2004). Or what do you think? Of course this would be more obvious to see and confirm, if the time in x-axis was a local solar time (instead of UTC time) and if similar plot would show the average hourly pattern (mean or median in each hour of local solar time). If this particular effect (of calibration) could be isolated with the help of diurnal

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plot, then it would give, at least in a rough sense, also a better quantitative idea about the role of the other sources causing the differences between different measurements.

We added the following paragraph: Looking at possible diurnal patterns of the AOD differences shown in figure 2, most of the instruments show relatively constant differences over time (and air mass). One example of a possible diurnal pattern on the AOD differences that can be linked with the instrument calibration (as discussed in Cachorro et al., 2004) is the POM_JP instrument. There, differences are proportional to the $1/m$ and are up to 0.01 for high air masses. In this case if the calibration effect is isolated, the error on the instrument calibration (assuming the PFR triad calibration as ideal) is in the order of 1.6%.

By the way, in this figure the labels are not visible in the paper version, only if heavily zoomed in in the pdf-version (but this particular case seemed to be POM_JP). And the very small font size seemed to be a problem with the other figures as well.

Font sizes have been improved.

Line 48: I did not find these references as best suited here, for satellite-based AOD. Would some latest references for MODIS, MISR AOD algorithms and product perhaps be better fitted here?

References removed and added: Levy, 2013, Sayer et al., 2012; Kahn et al., 2005; Li et al., 2014 Toledano et al., 2011

Line 65: This sentence, regarding the references, was not immediately clear. What Neckel and Labs refers to, if given separately at the end of the sentence and other references earlier referring to the uncertainty estimate of 1%.

Corrected.

Line 429: "18% in common ...", should this be 0.8%?

It is actually 18% because it is the sum three percentages (POM vs any of the other 3

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instruments).

Figure 9: Include the label for x-axis in this plot.

Corrected

Line 531 (also in the line 38). I was thinking whether the word "sensitivity" is the best one here to give surely the right idea, idea being that the uncertainty in AE increases with decreasing AOD. Could one say that the sensitivity of AE to AOD then decreases as well? If so, is there a danger that one could misunderstand a statement like "sensitivity of this parameter at low AOD conditions".

Changed to: This was largely related to the uncertainty of this parameter that is linked with very low AOD uncertainties, at low AOD conditions. âĀĀ

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