

Interactive
Comment

Interactive comment on “Intercomparison of aerosol optical depth from Brewer ozone spectrophotometers and CIMEL sunphotometers measurements” by A. Cheymol et al.

A. Cheymol et al.

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Dear Reviewer,

Thanks again for your feedback. After your comments, we did more test to understand the discrepancy between the AOD from Brewer and CIMEL especially at Rome and at El Arenosillo.

First, we apply the Angstrom’s law on the AOD from CIMEL to shift the AOD to 320nm. Doing that, we removed the wavelength effect on AOD: the results are better now. We used also the bootstrap method [Efron and Tibshirani, 1986] to evaluate more precisely the parameters of the regression line. The absolute linear regression is used in order to the least mean square method as it is less sensitive to outliers. The outliers are

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selected manually in looking at the plot at Rome (45 outliers) and at El Arenosillo (11 outliers) and then we calculated (for El Arenosillo and Rome especially) the new correlation coefficient, and the parameters of the regression lines.

At El Arenosillo, there are 11 outliers on 7386 data, which is not much. In removing these points, the intercomparisons is clearly improved: the correlation coefficient, the slope and the intercept of the regression line are 0.95, 0.95 and -0.002, respectively. Of course we think that some further investigation is needed to understand this discrepancy but we think that it will be a purpose for another article.

At Rome, there are more outliers ((45 on 3385) but there are still negligible compared to the total number of data compared. What we saw is that these outliers are mostly in 2003. We didn't find the explanation for them. Even if we apply the Angstrom's law, the intercomparison is not so good than in Toronto, Uccle, Norrkoping or El Arenosillo. It is probably due to the distance between the 2 instruments (15 km far from each other).

Best regards

Anne

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 11997, 2008.

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