

Interactive comment on “AERONET and ESR sun direct products comparison performed on Cimel CE318 and Prede POM01 solar radiometers” by V. Estellés et al.

Anonymous Referee #2

Received and published: 15 March 2012

General comment:

The authors are preparing software that calculates aerosol properties: the aerosol optical depth, Angstrom exponent and columnar water vapor content. The software will be open source. The software is developed on the basis of the algorithm used in AERONET. The authors use the direct sun measurements and extract part of the code of the software used in SKYNET. This software is designed to process data from CIMEL and POM radiometers. One of the objectives of the paper is to perform synergistic studies with both networks and instruments. However, the aim has not been achieved. The authors give a few examples from the literature that show the differences between

C613

the measurements of the two sun-photometers. The differences of the simultaneous measurement series, which operate according to different algorithms, are not analyzed here. CIMEL and POM instruments are calibrated in a different way. CIMEL calibration is based on comparison with the reference radiometer, while SKYIL method is used to calibrate the POM. The authors wrote that ESR network does not have any instrument as a reference while the entire paper is based on calibration coefficients taken from AERONET. By transferring these coefficients match between CIMEL radiometer and POM is forced. Therefore, I see no point in comparing data from the CIMEL with data from sun-photometer POM prepared in this way. Additionally, the authors use a special version of POM, where 400nm channel was replaced to 440nm, so that these instruments were the most similar. What should be the calibration coefficients to use the software developed for radiometer POM, where there is no CIMEL calibrated at the station? The authors have put great effort to program the AERONET algorithm, almost from the ground. The question arises whether the use of software for POM radiometers was really necessary and whether the analysis of data from POM brought something new. Do the authors suggest transferring calibration coefficients taken from reference CIMEL to any POM radiometer on ESR network and generally on SKYNET, instead of the original SKYIL method?

Specific comments :

- 1.[P4347, L8] and [P4347, L9] How do the authors understand the term 'stable days'? How the stable days are selected?
- 2.Information on the adjustment of the Sun - Earth distance [P4351, L12] is omitted in the earlier description [P4347, L17]
- 3.[P4353, L11] Could the authors further explain the reasons for greater differences in the UV?
- 4.[P4350;L21] Is the equation for thermal corrections really necessary?

C614

5.Fig.1 Does this plot brings something important to the paper? Description of the calibration procedure should be sufficient.

6.Fig.2 Instead of presenting a series of AOD it would be better to make histograms of the differences. This would help to analyze the differences contained in the Tab 3, 4 and 5.

7.Tab 3, 4 and 5. Following the aerosol optical depth for each wavelength, AE and CWV should be separated.

8.Tab 3, 4 and 5. No information on the wavelengths used for calculation of the Angstrom exponent.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 4341, 2012.