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Atmospheric Measurement Techniques Discussions

Interactive comment on "Aerosol absorption retrieval at ultraviolet wavelengths in a complex environment" *by* S. Kazadzis et al.

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This is a short comment prior to the detailed answer to the reviewer . Concerns a basic discussion argument posed by the reviewer and I felt that it has to be clarified, right away.

The reviewer #1 objections on the UVMFR calibration are based on the fact that Vo for UVMFR are derived by transferring the CIMEL calibration (through AOD) to the UVMFR. This is not the way the calibration is preformed. Reading the submitted document's calibration paragraph again now, i think that the erroneous use of the phrase "based on the Krotkov method", lead to this misunderstanding.

What it was performed was a Langley calibration for all cloudless (half) days. Due to the obvious reason that Athens environment is not adequate for using this (Langley) calibration factors without further evaluation, we have chosen only days with very low AOD (thus constant too) throughout the (half) day (based on just looking at the CIMEL measurements). Since this was only few half days concentrated at a small period (during spring), we tried to answer the question: if this ETC calculated from a small period of time could be used for the whole period of the analysis. Then we used the Krotkov approach (reversed) in order to see if that assumption is correct. The approach was to calculate the AOD from the UVMFR based on this ETC and compare CIMEL and UVMFR derived AOD's (with the restrictions mentioned in the text). Which is the same as calculating UVMFR Vo's based on CIMEL-AODs and investigate if this is constant through the whole period.

This way if the ETC was not representative for the whole period, AOD comparison would fail. (e.g. plotting AOD (UVMFR-CIMEL) differences as a function of time). In addition, if there was an error in the calibration factor AOD differences comparison would fail plotted as a function of solar zenith angle. Since none of the above happened we assumed that the ETC used was adequate for the whole 10 month period.

Of course I agree that it would be obviously a vicious circle using CIMEL based Vo's to calculate UVMFR-AOD's and then compare them with the CIMEL AOD's again, but this is not the case here.

I guess the paragraph has to be clarified and re-written in more detail. Unfortunately figure 2b helped in this misunderstanding too, as even if it is obvious from the data that the slope is 1 the text in the figure is wrong.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 6991, 2012.