

Interactive comment on “Angular Scattering of the Sahara Dust Aerosol” by Helmuth Horvath et al.

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My comments to referee 2

Q: General comments - The introduction is extremely short. It should at least include information (scope instruments involved, locations, etc.) on the SLOPE campaign to which the measurements belong. A: The instruments are described in the revised version as well as the SLOPE campaign. The location (Albergue Universitario of the University of Granada, located in the Sierra Nevada at an elevation of 2505 m a.s.l. Its coordinates are 37° 5' 43.72"N, 3° 23' 12.57"W) is already described on page 4 of the paper under discussion.

Q: Also some annual statistic of Sahara sand dust storm over southern Europe would be appreciated. A: I have added the total days and the total number of Sahara dust events, from May to September 2016, as well as a reference in a footnote. Q: - In-

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formation and proper references are provided for the custom made polar nephelometer but no information at all is given for the (commercial?) integrating nephelometer. Please, include in section 3 (instrumentS and method) basic information for the integrating nephelometer. A: I have added three lines on the Integrating Nephelometer and a reference to the NOAA site. (Since NOAA uses this instrument since more than 20 years at their baseline stations, the instrument is thoroughly tested and competent instructions on calibration and evaluation can be found on the site)

Q: That would help in understanding e.g. the text in page 6, lines 5-10. How are BbsG and BsG defined? A: A definition is given towards the end of section 5.

Q: - As mentioned in the text the measurements are performed in a certain time period but not continuously. A: First an explanation for the discontinuity of the measurements: Computer failure (I/O error) stopped the measurement and it had to be started manually. Since I stayed at Granada and was brought to the measuring site, no data could be obtained until I returned to the site. From June 17 to 24, 2016 I had to be at the University of Vienna and no measurements could be performed. The Integrating Nephelometer less frequently failed to work.

Q: Please, provide a table with detailed information on the July 2016 Sierra Nevada campaign: instruments (nephelometer/integrating nephelometer), dates, sample time. A: This actually can be seen in figure 5 of the paper under discussion. The red line gives the data of the Integrating Nephelometer, one can see a few periods of failure. The black dots are the measurements of the polar nephelometer, So I do not think it is not necessary to add an extra table, which does not give more information.

Q: It would also be interesting to combine the time table of the measurements with the information on the back trajectories from NOAA (current Table 1). A: This actually was already done in figure 4: at the top of the figure the classifications can be found.

Q: Section 4. - Results: How are period 1, 2 and, 3 defined? A: The choice of the periods was accidentally, due to failure and absence (see above). Unexpectedly in

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these periods different aerosols dominated.

Q:- According to Figure 4 it seems like simultaneous measurements with the integrating and polar nephelometer are obtained. However, in Figure 5 the measured integrated volume scattering functions are obtained in narrower time periods. Please, clarify. A: Please note that in figure 4 the scale has two breaks in the x-axis, so periods, where no measurements with the polar nephelometer could be performed are not shown. I have used this representation in order to show more details.

Q:Minor comments: - Page 3, first paragraph, 2nd line: “alpha <-1” should be “alpha < 0”. A: Has been corrected Q:- Page 3, last paragraph, second line: “Using data given by given by” should be “given by” A: Has been corrected Q:- Page 5, line 29: “In figure 5..”do you mean in Figure 4? A:You are right this has been a mistake and is corrected.

I also upload the revised version of the paper as supplement

Please also note the supplement to this comment:

<https://www.atmos-chem-phys-discuss.net/acp-2018-464/acp-2018-464-AC1-supplement.pdf>

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-464>, 2018.

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