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Interactive comment on “Aerosol light-scattering enhancement due to water uptake during TCAP campaign” by G. Titos et al.

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Titos et al. have analyzed a large set of data with respect to humidity growth. The work horse for this investigation are two nephelometers operating at <40% RH and at high relative humidity. As can be seen from figure 7 there is a slight decrease in scattering coefficient for humidity below 40%, thus a precise value of the reference humidity is needed. I miss a description of the method. If the low humidity is achieved by temperature increase some volatile parts of the aerosol particles might disappear, which on the other hand are included in the wet nephelometer. If diffusion drying is used, the same argument applies. So a description of the drying process and a discussion of possible effects of artefacts is needed. (page 3366 lines 6 to 7)

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The scattering enhancement factor with respect to wind speed is indirectly biased by the direction, since in this investigation lower wind speed also means winds from the West, which is evident in figure 6. So I suggest to omit the right part of figure 5, since the better information is given in figure 6.

It is difficult to guess the humidity growth with only one information on the aerosol (the single scattering albedo). The authors are aware of this and the large error bars on the first constant in equation 4 and 5 demonstrate this, which even make it likely that no increase in scattering coefficient can occur. This relation obtained by the authors mainly has been found since only two types of aerosols are “competing”: Sea salt particles on the one hand, and the high influence of the anthropogenic aerosols on the other hand. If a third component, e.g. desert aerosol particles could also occur, this formula may fail.

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