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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aerosol optical properties in the southeastern United States in summer – Part 2: Sensitivity of aerosol optical depth to relative humidity and aerosol parameters" *by* C. A. Brock et al.

Anonymous Referee #2

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The manuscript analyses the sensitivity of aerosol optical depth to relative humidity and to different aerosol parameters. The work uses the parameterization of hygroscopic growth developed in the companion paper (Aerosol optical properties in the southeastern United States in summer – Part 1: Hygroscopic growth). The paper is well written and the results are appropriately discussed. In this sense, the manuscript is suitable for publication in ACP provided that the companion paper is accepted and after minor revisions suggested bellow.

Along the manuscript, the authors present some numerical results with an excessive

number of significant figures. See for example the comment on AOD at pager 31487 lines 1-2. This fact reflects the need of strengthen the discussion on the uncertainties of the derived variables, having in mind that the experimental measurements and the models developed present uncertainties that in some way affect the result of the study.

The description on determining ambient extinction must be improved (refer to page 31480 lines 2-6). Although the procedure for deriving f(RH) is described in the companion paper, the wording of these sentences on two of the higroscopic growth models considered must be improved. In its present form is a little bit confusing, please state first that you derive the model and then that you apply it to the ambient conditions during the experimental campaign.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 31471, 2015.