

## ***Interactive comment on “Optical and microphysical characterization of aerosol layers over South Africa by means of multi-wavelength depolarization and Raman lidar measurements” by E. Giannakaki et al.***

**Anonymous Referee #2**

Received and published: 29 February 2016

Main comment The manuscript presents an interesting study of the atmospheric aerosol features in South Africa. The study area deserves some attention due to the variety of aerosols that affect the region. The approach used implies the processing of backscattering and absorption coefficients derived from Raman lidar processing. The presentation of the study is appropriate; the description of the analyses includes the estimation of uncertainties. The discussion of the results has been done with a good review of previous works in the field. The manuscript is suitable for publication after minor revisions.

C12842

Particular comments. The study includes the statistical analyses in order to characterize the properties associated to different aerosol types. A study case is selected to illustrate one of the categories of aerosols considered in the classification. In this sense, I would ask the authors why they did not include study cases illustrating the two other categories? Among the variables used for the characterization of the aerosol types it is included the linear particle depolarization ratio. The authors quote the uncertainty of this uncertainty in a relatively small value. I guess would be this quotation just in case the considered papers would be used for the quotation of the linear particle depolarization ratio? A final point is concerned with the size of some figures that are really small and difficult to interpret due to the size of the letter. This is the case for figure 5 but specially for figure 8. Another issue, related to Figure 8, is that in their use in the discussion of results the authors did not include any particular comments on some of the cases displayed.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 35237, 2015.

C12843