

Interactive comment on “Observations of the spectral dependence of particle depolarization ratio of aerosols using NASA Langley airborne High Spectral Resolution Lidar” by S. P. Burton et al.

Anonymous Referee #2

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I don't have any results for realistic smoke particles. My comment about other possible explanations came because

a) I was not convinced by your discussion and the referenced studies with bare carbon aggregates (Sorensen, 2001; Bescond et al., 2013) that you have taken the complete range of possibilities of soot particle types into account and

b) using spheroids (which admittedly can be a bad approximation for the particle shape) and high refractive index values one can obtain depolarization ratios that (almost) can

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reproduce your linear depolarization measurements.

Response by authors:

We have no objection to making the suggested change in the abstract. As a side note, we would be interested to learn more specifics about the other explanations the reviewer has in mind, perhaps in another comment in this discussion forum. This manuscript is part of a learning process for us and we are very open to learning more about possible explanations for depolarization in smoke measurements.

Original reviewer's comment:

The abstract (p24753 l18) says "... is inferred to be ...": In my view, "coated soot aggregates" are one possible explanation for the smoke measurements, but there are certainly other types of soot-like particles that would explain these measurements. Thus, I suggest to write "... can be explained ..." or something similar.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 24751, 2015.