We would like to thank the Editor for his comments and suggestions. Please find below our replies and changes to the manuscript marked in blue.

The paper concludes that δ355 provides sufficient information for a 3+2+X dust retrieval when using the Dubovik model, but no explanation is provided on why this happens. Gasteiger et al. (2011) discuss the possibility that for larger size parameters δ is similar for spheroids and irregularly-shaped particles. This may be a possible explanation: δ532 and δ1064 refer to smaller size parameters than δ355, thus their values for spheroid particles are not similar to their values for irregular-shaped (more realistic) particles. This may be the reason that δ532 and δ1064 do not provide good retrievals when the spheroid model (of Dubovik et al. (2006)) is used, whereas δ355 does. Please include this discussion in the paper.

We would like to thank the Editor for this valuable addition to the discussion of our findings. We have added the following statement to the discussion section: *"Furthermore, Gasteiger et al (2011) have discussed the possibility that δ becomes similar for spheroids and irregularly-shaped particles for larger size parameters. For the larger size parameters equivalent to measurements at 355 nm, it might therefore be that δ_{355} as obtained for spheroid particles is similar to that of more realistic, irregular-shaped particles. As δ_{532} and δ_{1064} refer to smaller size parameters, it would consequently be more likely that spheroids fail to properly describe light-scattering properties at these wavelengths."*

Page 4, lines 13-14, "i.e. δ=0 for spherical particles (or those that appear spherical with respect to the considered wavelength) and increases with particle non-sphericity": This is not always true. As shown in Mishchenko and Hovenier (1995) there is no systematic dependence of particle asphericity with the light depolarization, with cases presented therein of strongly aspherical particles producing depolarization values close to zero. Please rephrase accordingly.

Thank you for this comment. We have refined the statement to: *"…increases with particle non-sphericity for the particle shapes commonly found for atmospheric aerosols and ice crystals."*

Page 5, lines 26-27, "In both cases… below 0.01": This is the conclusion of Mishchenko et al. (2016) but not of Gialitaki et al. (2019). Please rephrase accordingly.

The statement has been revised to: *"In the studies of Bi et al. (2018) and Mishchenko et al. (2016), the model particles…"*

Page 8, lines 6-9, "For the measurements… (Set I)": This paragraph is repeated in lines 26-29.

We have deleted the repetition of this paragraph.

Page 10, lines 17-18, "This indicates… the retrieval.": I think you should provide more info/examples to justify this statement, or avoid making it.

The statement has been removed from the manuscript.

Page 11, lines 33-34, "(ii) the data sets… to the obtained dust ratio,": Fig. 7a shows that the input of δ355+δ532+δ1064 and of δ355+δ1064 provide good comparisons with the dust ratio. Please rephrase.

The Editor is correct. The statement has been changed to *"the data sets without δ_{355}"*

References
Mishchenko, M. I., and Hovenier, J. W.: Depolarization of light backscattered by randomly oriented nonspherical particles. Opt. Lett. 20, 1356–1358, 1995.