

***Interactive comment on* “Evaluation of CALIOP 532 nm AOD over opaque water clouds” by Z. Liu et al.**

Z. Liu et al.

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Dear Ulla Thank you for your clarification of the method you proposed to correct the multiple scattering possibly contained in the CALIOP extinction retrieval. We really appreciate it very much. We made changes in the revised manuscript “Wandinger et al. (2010), Amiridis et al. (2013), and Tesche et al. (2013) found that the CALIOP retrieved dust backscatter is in good agreement with the ground-based measurements near the source and in Europe but the retrieved dust extinction is underestimated. These authors have suggested using a dust lidar ratio of 56–58 sr, along with the appropriate correction for multiple scattering in order to produce an extinction retrieval which would provide the best match to the AERONET and/or ground-based lidar measurements

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in selected spatial domains. In this section we show that, because of the nonlinear dependence of the AOD retrieval on lidar ratio (Winker et al., 2009 and Young et al., 2013), an increase of $\sim 10\%$ in the lidar ratio will increase the retrieved AOD by $\sim 26\%$ and thus match the derived OWC AOD.”

Please also see our response to the comment by Reviewer #1 regarding our multiple scattering simulations.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 23583, 2014.

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