

Atmos. Chem. Phys. Discuss., referee comment RC1
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Comment on acp-2022-256

Anonymous Referee #2

Referee comment on "A meteorological overview of the ORACLES (ObseRvations of Aerosols above CLouds and their intEractionS) campaign over the southeastern Atlantic during 2016–2018: Part 2 – Daily and synoptic characteristics" by Ju-Mee Ryoo et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-256-RC1>, 2022

This is a detailed study involving black carbon aerosol interactions with clouds in the tropical Southern Atlantic ocean off the coast of west Africa. The study is exhaustive in that it addresses aircraft measurements and meteorology to explain the seasonality of aerosol and moisture transport and their relation to cloud fraction. Though the dataset is small (2016–2017), the study uses reanalysis climatology data to point out any climate anomalies during this period which is a good idea.

I have concerns over the constant supposition that the African continent can be a moisture "source". It is not correct to assume this even though the study shows moisture transport (via elevated relative humidity values) advecting off of the continent due to moist deep convection. It may be more correct to say something to the effect that 'parcels with elevated relative humidity, possibly due to evaporation of rain drops from the moist deep convection, are being transported along with the smoke/black carbon'. The study seems to imply some kind of "green ocean" or "brown ocean" effect going on, but does not explicitly say it. It is confusing to imply that a continent can be a source of moisture that rivals the neighboring marine region. This needs to be cleared up as it may take away from the general merits of the study.

Further comments/suggestions are in the enclosed PDF.

Please also note the supplement to this comment:

<https://acp.copernicus.org/preprints/acp-2022-256/acp-2022-256-RC1-supplement.pdf>