



EGUsphere, referee comment RC2
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Comment on egusphere-2022-315

Anonymous Referee #2

Referee comment on "Retrievals of Precipitable Water Vapor and Aerosol Optical Depth from direct sun measurements with EKO MS711 and MS712 Spectroradiometers" by Congcong Qiao et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-315-RC2>, 2022

The authors provide us a physical algorithm based on radiative transfer to derive the Precipitable Water Vapor (PWV) and Aerosols Optical Depth (AOD) from a pair of ground-based spectroradiometers, EKO MS711 and MS712. In their algorithm the water vapor band near water vapor band near 1370 nm as well as near 940 were also used to derive the PWV, this is very important for dry atmosphere, e.g. for very cold area such as Tibeat or other high altitude plateau.

All my questions and concerns in my first review has been answered, and a new revised manuscript was submitted, I have no more concerns for this revised version except a few typo mistakes and language sentences. I agree it publishing in AMT after the revision.

Minor concerns:

- Line 31-33, "MWPS measures the radiation emitted from the atmosphere by microwaves, yields a vertical profile of water vapor, which can then be integrated to give PWV, where aerosols have little effect, but this measurement is very expensive (Güldner and Spänkuch, 2001; J. and Güldner, 2013)." should be rewritten as: "MWPS measures the radiation emitted from the atmosphere by microwaves, yields a vertical profile of water vapor, which can then be integrated to give PWV (Güldner and

Spänkuch, 2001; J. and Güldner, 2013). The advantages of using microwave for PWV is that aerosols have little effect, but the disadvantage is that this kind of instruments is generally is very expensive"

- Line 39, the short name "PHOTOS" should be clearly mentioned the first time.
- Line 89, it's better to replace "based on this" as "therefore"
- Line 114-116 "When simulating spectral curves, the US standard atmospheric model was selected, regardless of clouds and aerosols, randomly inputted PWV of 0-0.5 cm and solar zenith angle of 10°-45°, and superimposed -1 %--+1 % noise on the simulated curves." Should be rewritten to make it clear, maybe better written as: "In spectral simulations, the US standard atmospheric model was used with random PWV between 0-0.5 cm, and solar zenith angle of 10°-45°, regardless of clouds and aerosols. The simulated spectral plus +/-1% was used for retrieval."