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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Estimating cloud optical thickness and associated surface UV irradiance from SEVIRI by implementing a semi-analytical cloud retrieval algorithm" *by* P. Pandey et al.

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I have a question related to Fig.2. According to theoretical estimations the ratio of the diffused light transmitted through a cloud at the nadir illumination to that at the solar zenith angle (SZA) 60 degrees is about 1.5. Fig.2 suggests that this number is close to 1.0 at COT=20. Could you explain this discrepancy. I would suggest that instead of Eq.(6) the formula T=tK_0(mu_0) (see your Eqs. 3,4) is used. I do not believe that you can put b=0 in Eq. (6). There is indeed the dependence of T on SZA. You ignore it.

In addition, you may improve the retrieval algorithm, if you use IR channel to retrieve the effective radius, and, therefore, asymmetry parameter. The asymmetry parameter

of ice clouds is closer to 0.75 as demonstrated by in situ measurements.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 691, 2012.