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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Global retrieval of ATSR cloud parameters and evaluation (GRAPE): dataset assessment" *by* A. M. Sayer et al.

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The paper is aimed at the evaluation of the cloud properties as derived from ATSR-2 and AATSR instruments. The instruments are almost identical. However, they have different calibration accuracy and performance. The paper is of high quality and can be published in ACP after minor corrections.

Comments

p.25628, please, do not use log(tau) on this page (and also on p.25632) but just tau itself. It could be useful to give also CTHs ranges (not just CTP ranges). You upper border for the effective radius of water clouds must be increased and the borders for the effective radius of crystals must be widen (see MODIS ATBD and results of retrievals).

p.25639, is it really that oblique observation conditions (large values of VZA) lead to an increased path length through clouds? It is expected that photons need a lot of time (and path) to return back to outer space for the nadir illumination and observation conditions (due to predominanetly forward scattering by droplets and crystals). Please, give more details on this issue and make references.

Tables 4-6. I advice to include also average heights and other parameters and also coefficients of variances (stdv/average) in these table (or, please, create additional tables). Please, use not only CTP but also CTH in the tables.

Fig.2. Any idea why you have the yellow colour left of Africa and S. America in the last figure in the row (large failing to converge)?

Fig.3. I think, you need to give an equation for the normalized difference in the caption to Fig.3. What are units? I think that the much better representation is the stdv(in microns for CER) or coefficient of variance (stdv/average) and not the representation selected by you.

Fig.8. I think, this figure needs more explanations. For instance, for ice clouds, ratio of COT in the IR range to that in the visible is almost 1.0 being a little bit larger for smaller particles. It is really so for the red line in Fig.8. It is not the case for the black line (water clouds). I would suggest that you just plot the ratio of extinction coefficients at the wavelength 1.6micron to that at 0.67 micron in the spectral range 1-50 microns. So your black curve must be continued or extrapolated to 1.0 at 50microns.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 25619, 2010.