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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Diurnal variation of upper tropospheric humidity and its relations to convective activities over tropical Africa" *by* E. S. Chung et al.

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This paper adresses a very important subject : the relationship between convective activity in the tropics and the water vapour content of the upper troposphere. Indeed, this is a mechanism which can affect largely climate feedbacks, as discussed by many authors before. The importance of the anvil cirrus is also recognized. The paper adresses this subject from the point of view of the diurnal cycle, and the phasing of the cycle of different parameters, as a rain index, anvil cirrus, and Upper Tropospheric Humidity. These parameters, derived from the SEVIRI instrument of MSG, are carefully described. The conclusions are drawn seriously.

I would like to adress a particular point, the link between CAC and UTH :

These quantities are derived in boxes of 2.5 x 2.5 degrees in the Eulerian approach, 400 x 400 km in the Lagrangian one. When the cirrus cloud cover reaches a maximum, the mean UTH, on cloud free pixels, is computed on a restricted number of pixels. These pixels are in the average closer of the cloud systems than when the cloud cover is smaller. This effect is likely to produce larger UTH when the cloud systems are the larger. Is this "geometrical effect" of importance for the conclusions drawn ?

Another point deserves attention. UTH is computed when cloud top heights are roughly below 800 hPa. It would be of interest to precise the method which allows to separate "cloud free" from cloud contaminated areas.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 351, 2007.