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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The influence of cloud top variability from radar measurements on 3-D radiative transfer" *by* F. Richter et al.

Anonymous Referee #2

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General comments.

This paper studies the variability of cloud top geometry received from high-resolution radar measurements and the influence of heterogeneous cloud top on radiation transfer. A spectral analysis of the cloud top measurements has been done. Albedo and reflectance of homogeneous and heterogeneous cloud tops are calculated and compared. The results of measurements and calculations are presented by many figures and tables. The paper could be published with minor revisions.

Specific comments.

1. The three types of cloud top geometry are considered in the paper. It is not clear why the thin cloud with homogeneous top is not considered.

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2. The IAAFT algorithm is used to build 2D field cloud top from 1D data distribution. It is not obvious that time series measurements can be used to emulate 1D distribution. It seems that the time series of cloud top measurements depends on underlying surface and radar location. Which duration of radar measurements time series is used?

Technical corrections.

1. The formula for non-adiabatic LWC is not presented explicitly.

2. The value of power spectra slope -5/3 (-1.8 and -2.0) is written without sign "-" in the paper text.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 8087, 2007.