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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Cloud's center of gravity – a compact approach to analyze convective cloud development" *by* I. Koren et al.

Anonymous Referee #2

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General comments

The paper presents a novel method for the analysis of convective cloud data. Its purpose is to reduce large amounts of model output or observational data of convective clouds while keeping or even emphasising the essential characteristics or attributes of the clouds. The method consists of the well-known physical concept of the centre of gravity (or centre of mass) and an additional statistical measure, the standard deviation. In its combination of concepts and its application to cloud analysis, this method is surely a novel idea. It is a very interesting alternative to commonly used techniques and might proof to be a valuable tool to analyse convective clouds.

The paper is very well written and excellently structured. The method is clearly pre-

sented but not to long and the accompanying example is quite illustrative. Besides minor points discussed in the next section I find this paper fully acceptable in its current form for publication in ACP.

Specifc and technical comments

p. 14093, l.10 and l. 15: If instead of "drops"; the word droplets would be used, confusion with raindrops could be avoided.

p. 14093, l.16: Is the unit of CDNC really 1/kg? And if that is so, what mass does it refer to, since for neither the mass of water nor the mass of air the amount of droplets seem to be reasonable.

p. 14099, figure 1a: The label of the x-axis should read "max updraft".

p. 14101, figure 3: The letters of the sub-numbering (a, b) are missing, even though it is referred to in the text.

p. 14101, figure 3: The magnitude of the horizontal spread seems too low. A magnitude of just a few meters of horizontal spread would suggest that the horizontal extension or radius of the cloud is also in the order of meters.

p. 14102, figure 4: The letters of the sub-numbering (a, b, c,d) are missing.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 14087, 2008.