Interactive comment on “Diurnal evolution of cloud base heights in convective cloud fields from MSG/SEVIRI data” by R. Meerkötter and L. Bugliaro

Anonymous Referee #1

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Meerkötter and Bugliaro adapt and apply a previously published method for the remote sensing of the base heights of liquid broken convective clouds from spaceborne radiometer retrievals to MSG/SEVIRI data. The main novelty of the study is the adaptation and application of the existing method to a new sensor, and the evaluation of the results to a few case studies.

Since the geostationary data offers good temporal resolution, the study may be nevertheless of importance to establish a large-scale continuous dataset of the diurnal evolution of cloud base heights for convective liquid water clouds.
The manuscript is well written. The main concern is that the sensitivity of the results to some parameter choices in the retrieval scheme should be explored. The follow-up studies evaluating the method in other situations (p18954 l11) should be a prerequisite to using the data.

Remarks

p18938 l20: The macroscopical structures are no doubt more important than the microphysical properties.
p18939 l9: Several of the cited studies do not quite address the cloud base issue (however, the cloud geometrical thickness).
p18939 l29: Which ones would you have in mind? p18943 l7: By how much would this 3 K temperature mismatch vary if you varied the temperature profile and the assumed cloud top in the radiative transfer computation (or, how is the estimate on p18952 computed?)?
p18945 l9: The COT range seems quite unmotivated. How would the results change if this range was altered? In particular, which results for the cloud base height would be obtained for the AVHRR COT range of $5 \leq \text{COT} \leq 7$?
p18947 l19: satellite
p18948 l13: How different is CTH_max from the average CTH?
p18950 l11: an LCL
p18950 l14: dependent
p18952 l16: advantage for the method
p18952 l27: CTH and CBH estimate, respectively.