

Interactive comment on “Remote sensing of cloud top pressure/height from SEVIRI: analysis of ten current retrieval algorithms” by U. Hamann et al.

U. Hamann et al.

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Dear Anonymous Referee 1,
thanks a lot for all comments.

"In the algorithm description section no reference is made to the surface parameterisations (albedo/brdf) used over land or sea. The sensitivity to thin cloud can be sensitive to this parametrisation so it would be useful to know if there are any differences between the algorithms in this respect."

Most of the algorithms use the MODIS albedo product, but some algorithms use different datasets for the description of the surface. We will add a paragraph to summarize the used albedo datasets.

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"It would be desirable to have a short more physical explanation of the difference between the CPR and CALIOP data sets and what the implications are on the results i.e. is one algorithm more/less sensitive to large particles/ice/water/ thin clouds etc."
We will add the lidar and radar equations to the description of the sensors and discuss the implication to the sensitivity to particle size and phase.

"P403 l21 CHT=CTH

P405 l13 nighttime night time

P406 l17 IR (infra red)

P415 l18 what are the 'essential observable properties'

P419 l4 'A large of these' ! A large percentage of these

P419 l12 Cannot begin a sentence with Thereby- rephrase

P423 l11 exceptions should also include UKM algorithm

P436 l9 understanding! understanding of

P436 l15 is !are

P436 l24 Cannot begin a sentence with also

P437 l6 focus ! to focus

P438 l5 route! root

P438 l16 'probably' is a big vague I suspect 'are required' more appropriate.

P439 l4 subject ! the subject

P439 l8 is !are

P439 l24 over! of"

corrected in the paper.

"P434 What does the author mean by a general temperature bias in the lower part of the atmosphere, that there is an uncertainty on the NWP temperature profile that is large in this part of the atmosphere?"

We wanted to illustrate two simple ways how to modify the temperature profile in order to be in accordance to the CALIOP observation (CTH=1.3km) and SEVIRI observation (CTT=281K). One possibility to create this CTH/CTT point is by raising the boundary

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layer top by from 1km to 1.3km with a similar temperature gradient as in the boundary layer. Another way to “create” this point is to subtract a height independent bias of around 4K from the temperature profile. We will try to formulate this in a better way.

best regards, Ulrich Hamann and the co-authors of the publication

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 401, 2014.