Atmos. Chem. Phys. Discuss., 9, C3214–C3216, 2009
www.atmos-chem-phys-discuss.net/9/C3214/2009/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Retrieval of cloud liquid water distributions from a single scanning microwave radiometer aboard a moving platform – Part 1: Field trial results from the Wakasa Bay experiment" *by* D. Huang et al.

Anonymous Referee #1

Received and published: 24 July 2009

TECHNICAL COMMENTS

1. Abstract. P12028, L20-25. In addition to a flawed data collection geometry, possible reasons for the incorrect indication of high altitude clouds could be radiometric calibration, incorrect absorption model (either water vapor or cloud liquid), or both. In addition, I could not find in the manuscript, any mention of the absorption models used.

2. P12031-Data. I think that it would be helpful if a table containing all of the radiometric frequencies and other relevant parameters were inserted in this section.

3. P12030 and P12033. Fig. 1b depicts an upward viewing aircraft radiometer while Fig. 3 shows how the radiometers were deployed in a downward-viewing mode. Since the experiment was conducted following the outline of Fig. 3, I suggest modifying Fig. 1b.

4. P12034, L1. "...temperature to precise measurements of the external targets." Please quantify.

5. P12037, (1). Since x is a vector of absorption coefficients, both A and b must also be related to absorption. How was the transformation from Tb to absorption done? Furthermore, (4) contains the parameter ?, which must have the dimensions of absorption, not Tb. Does epsilon have an implicit dependence on Tb?

6. P12046. Retrieval using combined MIR and PSR data. The PSR retrievals were based on 37 GHz data while MIR used its 89 GHz channel. Since the PSR had a 89 GHz channel, why wasn't a direct comparison using common channels done?

7. P12048. Section 5.5. Again, when comparing measured vs. calculated Tb, the underlying models should be stated.

8. P12063. Fig. 10a. The MIR retrievals overestimate LWP (relative to the PSR) above about 450 gm-2, and underestimate below this value. Is due to scattering at 89 GHz at the higher LWPs? Do both the MIR and PSR retrievals use the same absorption models? It might be useful to produce a line of best fit with its associated statistics (slope, offset, and rms differences),

9. P12064. What do the various colors show?

GRAMMATICAL COMMENTS

1. P12028, L14. Replace "that" with "those".

2. P12032, L8. Should be "layers".

3. P12032, L24. Replace "imageries" by "images".

4. P12033, L18-19. Center for Environmental Technology" already mentioned. Please substitute an appropriate acronym.

5. P12033, L28. Change to "infrequently".

6. P12034, L15. Please change "that" to "in which".P12035, L27. Please replace "So" by "Thus".

7. P12040, L10. Suggest "problems".

8. P12040, L25. Replace "is" by are".

9. P12041, L5-8. Please rewrite the entire sentence and clarify.

10. P12041, L23. Should be "coefficients".

11. P12042, L5. Should be "dependent".

12. P12044, L2. Authors should provide relevant references after "Our previous studies show".

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 12027, 2009.