

## ***Interactive comment on “Marine boundary layer cloud property retrievals from high-resolution ASTER observations: Case studies and comparison with Terra-MODIS” by Frank Werner et al.***

### **Anonymous Referee #2**

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\* Overall comment This paper is a technical report that discusses retrievals of cloud properties obtained from ASTER (new generating) and MODIS C6 (existing). The significance of this paper is that this paper reveals bias and differences between ASTER and MODIS products. However, discussion is too long comparing with the volume of contents and a little bit dull. I recommend to authors to refine this manuscript e.g. shorten the paragraphs and focus on a few topics that authors like to emphasize the most.

\* Questions and minor correction Line 74: The sentence “there remains no cloud prop-

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erty retrieval algorithm for ASTER” contradicts to the sentence “(Line 66) Zhao and Di and Dey et al. use the high-resolution ASTER reflectance measurements at the  $\lambda=0.86\mu\text{m}$  band to derive a statistical description of the macrophysical properties of trade wind clouds”. Please clarify this point.

Line 106 and Line 485, Line 723 etc.: I don’t understand the meaning of symbol “delta” in  $dA(\Delta\lambda)$ .

Line 180: Is it reasonable to use the thresholds of 0.03 and 0.065 that obtained from MODIS algorithm to ASTER analysis?

In Fig 3 :  $0.80 > r_1 < 1.75$  seems an error. Please correct it.

Line 204: Is it reasonable to use the thresholds of 0.065, 0.02, 0.80, 1.75 that obtained from MODIS algorithm to ASTER analysis?

Line 215: How to obtain the values of 33.4egs, 63.2degs, and aerosol optical thickness of (0.04-1.49) ? Please clarify this point.

Lin 230: How to scale up the TB11? Please clarify this point.

Line 244: What does “a single case-by-case threshold for  $\gamma_{0.86A}$ ” mean?

Line 255:  $-0.04 > \Delta CA < 0.04$  seems an error. Please correct it.

Line 296: Why do you use such a complex method such as “If the calculated cloud top pressure is larger than 650mb the operational MODIS C6 IR window retrieval algorithm is used to calculate the final value of cloud top pressure” ? Please clarify this point.

Line 337 and Line 326: There are two similar sentences to explain the Cox and Munk (1954a, b). Could you unify these two sentences into one?

Line 348: How to scale up SWIR (30m) in to 15m spatial resolution?

Line 370- and Eq (4): I cannot understand significance of examining the scale factor  $f_{0.86m}$  LUT, because you have set up ASTER LUT and MODIS LUT, individually. There

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are no mean to examine ratio (scale factor) of LUT values. Please clarify this point.

Line 406: It is difficult to understand “124 ASTER scenes” and “48 MBL cloud case”.

Line 412: 48 MBL cloud cases were sampled between 05/2003 and 07/2007. However, in line 123, it is mentioned that “the SWIR signal started to suffer from anomalous striping and saturation of values due to an increase in the SWIR detector starting in May 2007”. Is it unreasonable to use 05/2007 to 07/2007 data for the cloud retrieval?

Line 416: How to eliminate overlying cirrus scenes and complex multi-layered cloud system?

Line 457: Why there appeared cloud holes in MODIS than ASTER?

Line 468: It is difficult to identify “visible striping in the reff, M results in this figure.

Line 497: what does 4400 and 1100 pixels mean in this sentence.

Line 549: It is difficult to identify black circles and gray circles in the Fig.11 because the figure size is too small. It may be a technical problem but significant to audiences. Please improve Fig. 11.

Line 573: I cannot find “-12.36um” of  $r_{eff}$ , AaM-  $r_{eff,M}$  in the figure 11.

Line 663: What does “ $\tau_M$ ,  $\tau_{AaM}=0.17-24.92$ .” mean? I cannot find that range of values of  $\tau$  between 0.17 to 24.92 in Fig. 14(b).

Line 668: What does “ $r_{eff,M}$ ,  $r_{eff}$ , AaM = 4.76um”? I cannot find that 4.76um will have a specific values in Fig. 14 (c).

Line 672:  $10.00\mu m > r_{eff,M}$ ,  $r_{eff,AaM} < 20.00\mu m$  will be an error.

Line 679:  $0 > \tau_{AaM}$ ,  $\tau_M < 5$  will be an error.

Line 710: Where does “15% to 30%” come from. Can you add some references?

Line 749: I cannot identify visible striping in Fig 8(b) and 8(d).

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That's all of my comments and questions.

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