

Interactive comment on “Evaluation of the Aqua MODIS Collection 6.1 multilayer cloud detection algorithm through comparisons with CloudSat CPR and CALIPSO CALIOP products” by Benjamin Marchant et al.

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Marchant et al. present a comprehensive evaluation on the performance of MODIS C6.1 multilayer cloud detection product using active observations. The evaluation is really helpful for better understanding and detecting multilayer clouds using passive instruments, and the manuscript is well organized and written. I have a minor suggestion that may be considered by the authors.

Multilayer cloud fraction may be one of the simplest and most important outputs for

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the multilayer cloud product, while its accuracy is not directly compared with active observations. Our recent study (<https://doi.org/10.1016/j.rse.2019.02.024>) develops a multilayer cloud detection algorithm for VIIRS with the short infrared channels considered. Although the algorithm cannot be directly applied for MODIS due to the missing of the 2.25 micron channel, our discussion may be helpful to extend this work. In our study, we evaluated not only our results but also MODIS results. We found that the MODIS C6.1 can only detects slightly over 60% multilayer clouds (see Figure 9 of our work), and is this consistent with your conclusion? Thus, I suggest to present an evaluation of hit rate similar to Wang et al. (2019). Of course, this is optional considering that the results presented in this study have already been quite interesting and useful.

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