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# *Interactive comment on* "MODIS Collection 6 shortwave-derived cloud phase classification algorithm and comparisons with CALIOP" *by* B. Marchant et al.

## Anonymous Referee #2

Received and published: 8 January 2016

Review of "MODIS Collection 6 shortwave-derived cloud phase classification algorithm and comparisons with CALIOP" by B. Marchant, S. Platnick, K. Meyer, G.T. Arnold, and J. Riedi

The manuscript describes the new phase classification algorithm for MODIS. The algorithm and its improvements compared to the previous version are clearly explained and a comparison with CALIOP observations shows the advantages of the new method. The topic is relevant for the community since MODIS products are widely used. I suggest publication after consideration of my (very) minor comments below.

Title: I was a bit puzzled about the "shortwave-derived" since the algorithm combines

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shortwave and longwave (cloud top temperature, IR tests) channels.

pg, 11898, line 7 typo. "artcile"

pg. 11900, line 13, "in more arid atmospheres [...] optically thick low altitude liquid clouds may have a significant contribution." This might be a silly question: At a first glance it seems clear that arid atmospheres are drier and hence more transparent. Nevertheless, if there is a water cloud, the humidity in the cloud is 100%, irrespective of the fact if the region is arid or not. Probably one should talk about "subsidence zones" where the air above the inversion is usually very dry?

Electronic supplement: A caption would be helpful, explaining that this is the detailed new phase classification algorithm, reproduced from ...

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Interactive comment on Atmos. Meas. Tech. Discuss., 8, 11893, 2015.