

Interactive comment on “A cautionary use of DCC as a solar calibration target: explaining the regional difference in DCC reflectivity” by M.-J. Choi and B. J. Sohn

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The reviewer raised important issues such as inconsistency between the title and content, sampling problems, and impact of diurnal variation on the results. We realized that some of those questions were caused by our incorrect description on how the MODIS-CloudSat collocation data were constructed.

In the revision, some major changes were made as follows: Title change: Being consistent with what we have conducted, the title has been changed into “Explaining darker deep convective clouds over the western Pacific than over tropical continental con-

C2428

vective regions.” Introduction and other related contents were changed. Authorships: Because of reprocessing of entire data sets, preparation of new figures, and rewriting with new materials we changed authorships into Sohn, Choi, and Ryu. Scopes: We focused mainly on explaining the contrasting features of reflectivity between tropical continental regions and the tropical western Pacific, instead of discussing on the use of DCCs for the solar channel calibration which was in fact a side issue. Data Sampling: The DCCs of interest in this study are defined as a single-layer cloud whose depth is greater than 15 km, and thus cirrus and anvil type clouds were effectively removed from the collocated data. In the revision, after making the parallax correction, 3x3 MODIS pixels surrounding the collocated CloudSat pixel were averaged, instead of the spatial homogeneity check using 9x9 pixels centered at a CloudSat pixel. In this new data processing, as the reviewer suggested, we further divided the western Pacific domain into its land and ocean regions (WP-land and WP-ocean). All results were based upon the analysis at these four domains.

Detailed responses and changes are shown in “Response to Review 2” given in Supplement

Please also note the supplement to this comment:

<http://www.atmos-meas-tech-discuss.net/8/C2428/2015/amtd-8-C2428-2015-supplement.pdf>

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 2409, 2015.

C2429