

Interactive comment on “The shortwave radiative forcing bias of liquid and ice clouds from MODIS observations” by L. Oreopoulos et al.

Anonymous Referee #1

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I thought this was an interesting and thorough analysis of the shortwave cloud radiative forcing bias. I have just a few minor comments and questions for clarification. Some of these may just be a need for my own understanding – but perhaps they may trip up other readers as well.

In section 2, page 10342, line 7, you mention coefficients for each “SW infrared and near infrared spectral regions”. I’m missing something here. What is meant by SW infrared? There seems to be an error here somewhere or I have missed something.

In the second to last paragraph in section 3.1, you comment that the ice cloud delta-SWCRF is more spatially variable than that of liquid clouds and there is a slight but distinct tendency of greater dispersion for the vernal and autumnal months compared to the winter and summer months. Well – I see the spatial variability part – but I do

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not see what you mean by greater dispersion. Are you referring to the range of values exhibited by the three types of averaging?

In section 3.3, I found the discussion of the various statistical options (CF/no FO etc) to be somewhat confusing. For example, I believe, but am not certain that the default choice for the paper was “no CF/FO”. It may not seem that this has to be explicitly stated (the default choice is described but not named) but it would help given the various permutations. It might also help to have a table with a concise description of each to go along with Figure 3.

Section 3.5. You state in the first paragraph that liquid cloud biases are either near zero or are of opposite sign (January and October). In Figure 7, I see the opposite sign for January – but not for October.

Section 3.5 again. In the second paragraph, you describe the comparison of Terra and Aqua in Figure 8. The authors note that the two distributions are nearly identical for low biases. Is this because these represent relatively homogeneous clouds with little diurnal cycle?

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