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Atmospheric Measurement Techniques Discussions

Interactive comment on "A generalized method for discriminating thermodynamic phase and retrieving cloud optical thickness and effective radius using transmitted shortwave radiance spectra" *by* S. E. LeBlanc et al.

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Response to Anonymous Referree #3: Review of the Manuscript by LeBlanc et al. (2014):

Minor comments:

- Calibration error is not random and thus cannot be simply treated as an uncertainty, thus, implicitly assuming being random and non-biased.

A more extensive analysis of uncertainty sources will be presented in the following paper using an optimal estimation method. For now, a note on the possible biases when using calibration uncertainty as measurement uncertainty will be added to Section 5.

- It could be useful if reference and discussion of Figure 5 includes mentioning that it is the zenith radiance. It would make easier to understand this Figure.

  Modified line 7 p. 5304 to read "[...] in magnitude of the **zenith** radiance spectra [...]"

- p. 11 line 22 It must be reference to Fig 5 not to Fig. 4.

  Fixed in the revised manuscript.

- Fig 12. It would be useful to put error bars to the compared optical thickness and effective radiuses. Even for selected points. Additionally, it looks like that the linear regression relating results obtained by different methods includes non-zero biases which have to be discussed.

  A few error bars were added in light colors in order to not overwhelm the figure. Include small discussion of biases in Section 5.2.4 in tandem with discussion of differing slopes.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 5293, 2014.