**Earth System
Dynamics
Discussions**

# *Interactive comment on* "On the determination of the global cloud feedback from satellite measurements" *by* T. Masters

**T. Masters**

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I am happy to hear that Reviewer 3 considers M12 "a useful and necessary assessment". Here I will address the minor revisions suggested by the reviewer:

"1. For use of CERES, an attempt to resolve the spectral darkening problem may be necessary by multiplying SW flux by the scale factor (up to 1.011) from Matthews et al. (2005)."

Per Loeb et al. (2012, Surveys in Geophysics), it appears the corrections to CERES version 2.5 (M12 uses SSF1DegLite 2.6) and later eliminates the need for this user adjustment.

"2. The more recent paper on CERES data also needs to be cited: Wielicki, B.A, and

Coauthors, 1998: Clouds and the Earth's Radiant Energy System (CERES): Algorithm overview. IEEE Trans. Geosci. Remote. Sens., 36, 1127-1141."

Thank you, I have updated the citation in the revised manuscript.

"3. Rcloud is not defined within the manuscript. Is this an upward or downward flux? 4. In association with the above question, there is some confusion on the definition of CRF. The author (as well as Dessler, 2010) stated that CRF is determined by sub-stracting Rall-sky from Rclear, but the figure implies the opposite, ie. Rall-sky minus Rclear. If Rcloud is a downward flux, perhaps the latter is correct."

I agree that this is confusing, and have added clarification to the revised manuscript. As both Rall-sky and Rclear-sky are defined as downward fluxes, CRF (and r_cloud) is also a downward flux and results from Rall-sky minus Rclear-sky, which yields a net negative CRF (negative SW, positive LW). This is so that dCRF/dT will yield a neg-ative (positive) estimate in the case of the traditionally understood negative (positive) feedback.

"5. p.80, L4: WMGHG is not defined within the manuscript. Is this warming greenhouse gas? What is the unit of 0.16?"

Yes, WMGHG is the Well-mixed Greenhouse grass forcing, which I have updated to be explicity defined in the revised paper. 0.16 is a unitless factor: (WMGHG_forcing_clr - WMGHG_forcing_all)/WMGHG_forcing_all.

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Interactive comment on Earth Syst. Dynam. Discuss., 3, 73, 2012.