

Interactive comment on “Estimation of mineral dust longwave radiative forcing: sensitivity study to particle properties and application to real cases over Barcelona” by M. Sicard et al.

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Answer to RC C1624

The changes in the revised manuscript (posted soon) will be indicated in bolt font.

1) I completely agree with the 1st reviewer (Dr. Otto) as he points out in page 8535, lines 6-11: "I think the opposite is the case: The most crucial point for aerosol radiative transfer calculations is the complex refractive index. In particular, for dust

C2506

such data are mainly given in the thermal spectral range as Otto et al. (2009, 2011) explicitly point out.". Please re-arrange your text accordingly.

REPLY: This part of the manuscript has been changed in the revised manuscript according to this comment and that from S. Otto (referee). Please see also answers to S. Otto (referee).

2) p. 8534 (line 20,22). The term "opposite sign" is obscure in this context. Please re-phrase to provide your idea more clearly.

REPLY: Would the referee prefer "in absolute value"? If yes, the authors will change the text accordingly even though they prefer the original writing "with opposite sign" since it conveys the additional information on the sign of the SW forcing.

3) p. 8535, l.28, replace "those' by "these".

REPLY: Corrected.

4) p. 8536, l. 2, replace "development" by "data set"; l. 6, replace "properties' by "physical"; l. 7, replace "aerosol layer" by "geometrical".

REPLY: Corrected.

5) p. 8540, l. 24, replace "the ground and 100 km" by "ground and 100 km height".

REPLY: Corrected.

6) p. 8545, l. 29, replace "Those" by "These".

REPLY: Corrected.

7) p. 8546, l. 20, the "omega zero" is not defined?

REPLY: omega zero is defined p. 8540, l. 11.

C2507

8) p. 8551, l. 15, replace "AOT" by "in terms of AOT"

REPLY: Corrected.

9) P. 8552, L. 21, REPLACE " AND" BY "WHILE"

REPLY: Corrected.

GENERAL COMMENTS: Please correct your references according to ACP format (e.g the Journal names should be given in abbreviation, p. 8556, l. 8-9, "J. Clim. Meteor."

REPLY: Corrected.

Provide citations from SAMUM I, II campaigns regarding radiative forcing of dust particles.

REPLY: Citations from SAMUM I and II campaigns have been added. Please see also answers to S. Otto (referee) and to Referee 3.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 8533, 2014.