

Interactive comment on “On the use of satellite remote sensing based approach for determining aerosol direct radiative effect over land: a case study over China” by A.-M. Sundström et al.

Anonymous Referee #2

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The paper presents a satellite approach to derive the aerosol direct short wave radiative effect. The main part of the paper focuses on the methodology and its applicability. A case study over China has been chosen, due to the prevailing highly variable aerosol conditions. Although the methodology applied has been used in several studies related to radiative forcing little attention has been given in the details of the methodology and the authors aim to fill in this gap, using a short time period as the case study. The paper is suitable for ACP and should be considered for publication after improving certain parts of the manuscript related to the description of the methodology.

Comments:

C6213

Page 15114, Abstract. The abstract does not really reflect the content of the paper. It summarizes the application of the methodology on the selected case study rather than summarizing the discussion on the methodology. The authors should consider revising this.

Page 15119, Discussion on Figure 2: What is the relevance of Figure 2 at this point of the text? To demonstrate the variable aerosol type conditions over the area? Since this paragraph is in a section named “Reference data” the reader gets the impression that these data are part of the methodology. Is this the case? If yes please be more specific where these are used in the methodology. As it is structured it is confusing.

Page 15120. Line 8. The authors have used LibRadtran to simulate TOA-fluxes for different scenarios. It would be good to give brief summary of these (e.g. range of input values, which combinations have been selected etc)

Section 4. This section is hard to read. It would be very useful if the authors introduce in the beginning the steps applied (using eventually a block diagram) and then discussing each one in more detail. As it is written, although the information is there, it is confusing.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 15113, 2014.

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