Atmos. Chem. Phys. Discuss., 9, S725–S726, 2009
www.atmos-chem-phys-discuss.net/9/S725/2009/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Taklimakan dust aerosol radiative heating derived from CALIPSO observations using the Fu-Liou radiation model with CERES constraints" *by* J. Huang et al.

Anonymous Referee #2

Received and published: 10 March 2009

The authors of this manuscript estimates dust radiative heating rate and radiative effect using a radiative transfer model, which is an important topic in climate studies. The data, methods, and physical models used in this work are reliable. The conclusions are reasonably derived out from results. This reviewer recommends this paper to be published in ACP after the following mandatory minor revisions

specific comments:

1. The extinction coefficient used in this work is from lidar single wavelength. The authors must clearly show how this extinction coefficient is applied to other wavelengths in the Fu-Liou model. Since extinction is wavelength-dependent, the authors must

justify their treatment on this aspect.

2.In Introduction, how do physical properties and chemical composition of aerosols exert cooling or warming effect on climate? To this reviewer, the optical properties (determined by physical properties and chemical composition) are enough for these effects.

3.In Introduction, the authors list imaginary part of the refractive index as a variable to affect the net radiative effect. How about the real part of the refractive index? No effect?

4.In Introduction, the authors should consider to remove some unnecessary citations and only cite the most representative references.

5. The authors should consider if Fig1 and relative text are necessary.

6. The authors should consider moving the 1st paragraph of text in Section 7 to the Introduction part and remove the 3rd and 4th paragraphs.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 5967, 2009.

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9, S725–S726, 2009

Interactive Comment