

## ***Interactive comment on “Atmospheric radiative effects of an in-situ measured Saharan dust plume and the role of large particles” by S. Otto et al.***

**Anonymous Referee #2**

Received and published: 18 July 2007

Review of the paper ACPD-2007-0160

The authors present very interesting profiles of the vertical distribution of microphysical properties of Saharan dust particles based on in situ measurements and then they estimate the radiative effects of these particles giving emphasis on the role of big particles. The paper is well written and the results and conclusions are clear and justified. I recommend to publish the paper in ACP after considering some minor remarks which follow:

a. In the introduction no reference is given in recent studies that measured optical and microphysical properties of desert dust using lidars. I think that the authors should add a small paragraph in order to inform the reader that there also different approaches for

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retrieving such properties that can give vertical profiles.

b. A map of the flight tracks would help the reader to have a better overview of the measurements

c. The sentence that “the current knowledge about the optical properties of Saharan dust is limited (Sokolik and Toon, 1999” can be misleading. First since 1999 there are numerous studies on the optical properties of dust both from sunphotometers and lidars and second it leaves the impression that these properties are mostly unknown. I would suggest to remove this sentence and maybe provide a small overview from recent studies instead.

d. Page 3, 1st column, Replace Ffigure 2 with Figure

e. Page 5, Please make clear how many streams did you use for the radiative transfer calculations in DISORT

f. Page 5, 2nd column. The authors mention that there is no information about refractive index. Are there no estimates of nearby AERONET stations?

g. Page 6, 2nd column, The description of the scenarios should be more clear and simple since as it is can be confusing (especially for 1 and 2).

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Interactive comment on Atmos. Chem. Phys. Discuss., 7, 7767, 2007.

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