

Interactive comment on “Development and testing of a desert dust module in a regional climate model” by A. S. Zakey et al.

Anonymous Referee #1

Received and published: 25 April 2006

Review of paper ‘Development and testing of a desert dust module in a regional climate model’ by A. S. Zakey, F. Solmon, F. Giorgi. A desert dust module is included in a regional climate model. Evaluations are performed for two dust events and a seasonal simulation with dust emissions from the Sahara desert. Mineral dust from Sahara has a strong radiative effect and human impact on the emissions is still under investigations. Further, other aerosol types and chemical constituents may react onto mineral dust particles. Large campaigns are taken place this year to investigate mineral dust from Sahara.

I find the study by Zakey et al. of interest and recommend publication after taking the following comments into account.

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1) Give some reasoning for the values chosen for the fraction of aerosol assumed to be incorporated in cloud droplet in Table 3 2) I agree with the comment by F. Dulac that it is strange to use different size of the aerosols in the emissions and the aerosol optical depth calculations. This point must be improved and made clearer than in the AC by F. Solmon. 3) What is the source for the surface pressure data in Figure 1? 4) On page 1769 I would recommend in the comparison of AOD between the MISR and the model to use a screening for the model that is similar to the MISR data. Due to small swath width in the MISR data the data coverage for each day is rather small. 5) I would liked to see a comparison of AOD between the model and AERONET for the 3 month period for Cape Verde, since mineral dust is strongly dominating the AOD at Cape Verde during this time period. 6) The land contours are difficult to see in some of the figures, especially in Figure 2 7) In Figure 8 add dates on the x-axis for better readability

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 1749, 2006.

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