



Lifting and Transport of Saharan Dust

J. R. Banks (1), R. G. Grainger (1), and M. N. Jukes (2)

(1) Department of Atmospheric, Oceanic, and Planetary Physics, University of Oxford, (2) British Atmospheric Data Centre, Rutherford Appleton Laboratory

Tropospheric aerosols have a significant influence on climate and have been recognised by the Intergovernmental Panel on Climate Change as the biggest source of uncertainty in understanding future climate, yet the factors controlling their spatial distribution remain unclear. Despite new observations from the UK ATSR instruments and the NASA instruments MODIS and MISR, there are still open questions about aerosol sources, sinks, microphysical properties and the aerosol vertical distribution.

A three-dimensional mineral dust lifting and transport model, using meteorological fields from ECMWF analyses, is used to compare predicted dust loading over the Sahara with observations from AERONET, SEVIRI, AATSR, and MISR. The model will be used to investigate the sensitivity of the predicted aerosol profiles to variations in model parameters. Processes included in the model include emission, advection, diffusion, gravitational settling, and turbulent deposition.