



Dust and climate: the DIRTMAP2 database

B.A. Maher (1)

Lancaster Environment Centre, Lancaster University, UK (b.maher@lancs.ac.uk / Fax: +44 1524 510269)

The influence of dust on climate, through changes in the radiative properties of the atmosphere and/or the CO₂ content of the oceans and atmosphere (through iron fertilisation of high nutrient, low chlorophyll, HNLC, regions of the world's oceans), remains a poorly quantified and actively changing element of the Earth's climate system. Dust-cycle models presently employ a relatively simple representation of dust properties; these simplifications may severely limit the realism of simulations of the impact of changes in dust loading on either or both radiative forcing and biogeochemical cycling. Recent international evaluation of the current DIRTMAP database indicates that a considerable amount of new (spatial and temporal) data exists which need to be incorporated to improve simulation and evaluation of dust-cycle models. An updated and expanded DIRTMAP2 database is under construction, which will be enhanced with: new data from e.g. South America, Eurasia and the Middle East, from ice cores, and from the Southern Hemisphere in the marine realm; with dust fluxes from time slices beyond the LGM and from higher resolution sediment sequences (e.g. at Dansgaard/Oeschger cycle resolution); with information regarding possible source, mineralogy (especially iron oxides, with regard both to radiative properties and bioavailability of iron), and clastic grain size.