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# Microphysical and Optical Properties of Saharan Dust from Airborne Measurements during the Fennec 2011 Campaign

CL Ryder (1), EJ Highwood (1), P Rosenberg (2), J Trembath (3), M Bart (2), J Brooke (2), J Dorsey (4), K Turnbull (5), A Dean (3), I Crawford (4), R Cotton (5), J McQuaid (2), and R Washington (6)

(1) Department of Meteorology, University of Reading, Reading, UK, (2) SEES, University of Leeds, Leeds, UK, (3) Facility for Atmospheric Airborne Measurements, Cranfield, UK, (4) SEAES, University of Manchester, Manchester, UK, (5) Met Office, Exeter, UK, (6) University of Oxford, Oxford, UK

Measurements of Saharan dust from recent airborne campaigns have found variations in size distributions and optical properties across Saharan and sub-Saharan Africa. These variations have an impact on radiation and thus weather and climate, and are important to characterise and understand.

New airborne measurements of Saharan dust from remote parts of northern Mauritania and Mali from the FAAM BAe146 aircraft of Saharan dust from the Fennec project in June 2011 will be presented. Emphasis will be placed on results from new instrumentation implemented and designed to allow a better understanding of coarse particles present in mineral dust. This includes several instruments covering the coarse mode size range (up to a maximum of 200 microns diameter), a Low Turbulent Inlet to allow better characterised sampling of larger particles inside the aircraft, and two nephelometers separated by an impactor in order to separate the sub-micron scattering fraction.

Size distributions from the different instruments measuring the size distribution will be compared, as will the optical properties resulting from the different size distributions. Size distributions measured behind two different inlets will be used to better understand optical properties of absorption and scattering measured by a PSAP and nephelometer on the BAe146 aircraft, and extrapolate these findings to previous measurements of single scattering albedo of dust from past aircraft campaigns. Refractive indices of mineral dust derived through Mie scattering closure will be presented.