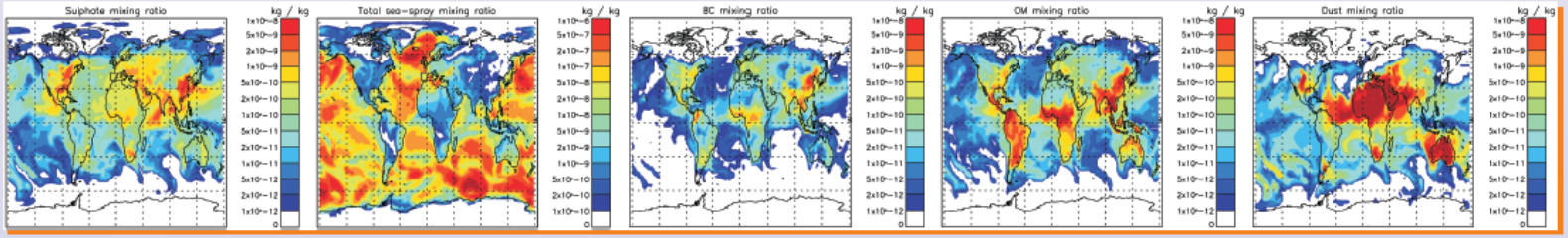
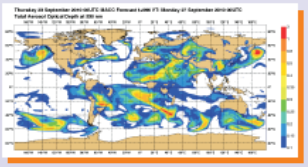
A microphysical aerosol module in the ECMWF Integrated Forecasting System

Matt Woodhouse (m.woodhouse@see.leeds.ac.uk), Graham Mann, Ken Carslaw (University of Leeds)
Jean-Jacques Morcrette (European Centre for Medium-range Weather Forecasts)
Olivier Boucher (UK Met Office)

4 Current aerosol scheme: GEMS aerosol (analysis for 1200 on 1st Feb 2003)



And a forecast...

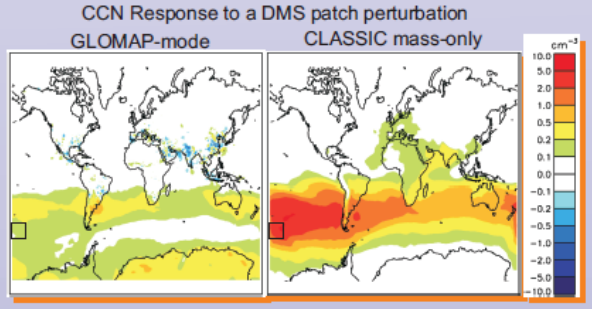


5 New aerosol scheme: GLOMAP-mode in IFS

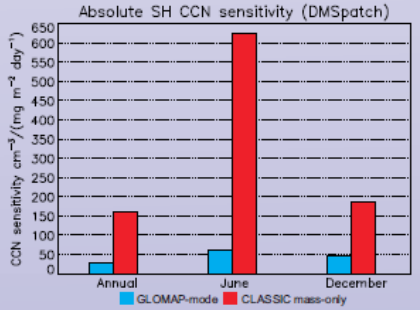
Watch this space

6 Recent work has already highlighted differences between GLOMAP and mass-only aerosol schemes

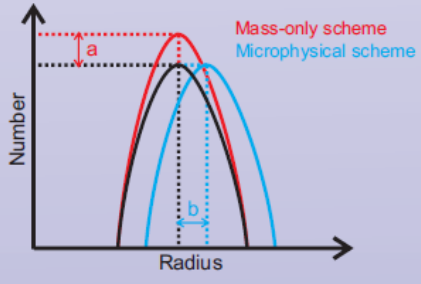
Two aerosol schemes in same model framework are perturbed with a patch of increased oceanic DMS emission. Results explored in terms of ΔCCN and ΔCCN/ΔFlux(DMS).



CCN response to DMS patch from GLOMAP and mass-only scheme differ in magnitude and space.



CCN sensitivities are vastly different; mass-only scheme predicts much higher CCN sensitivity.



This can be explained by how GLOMAP and mass-only scheme treat increase in mass.