
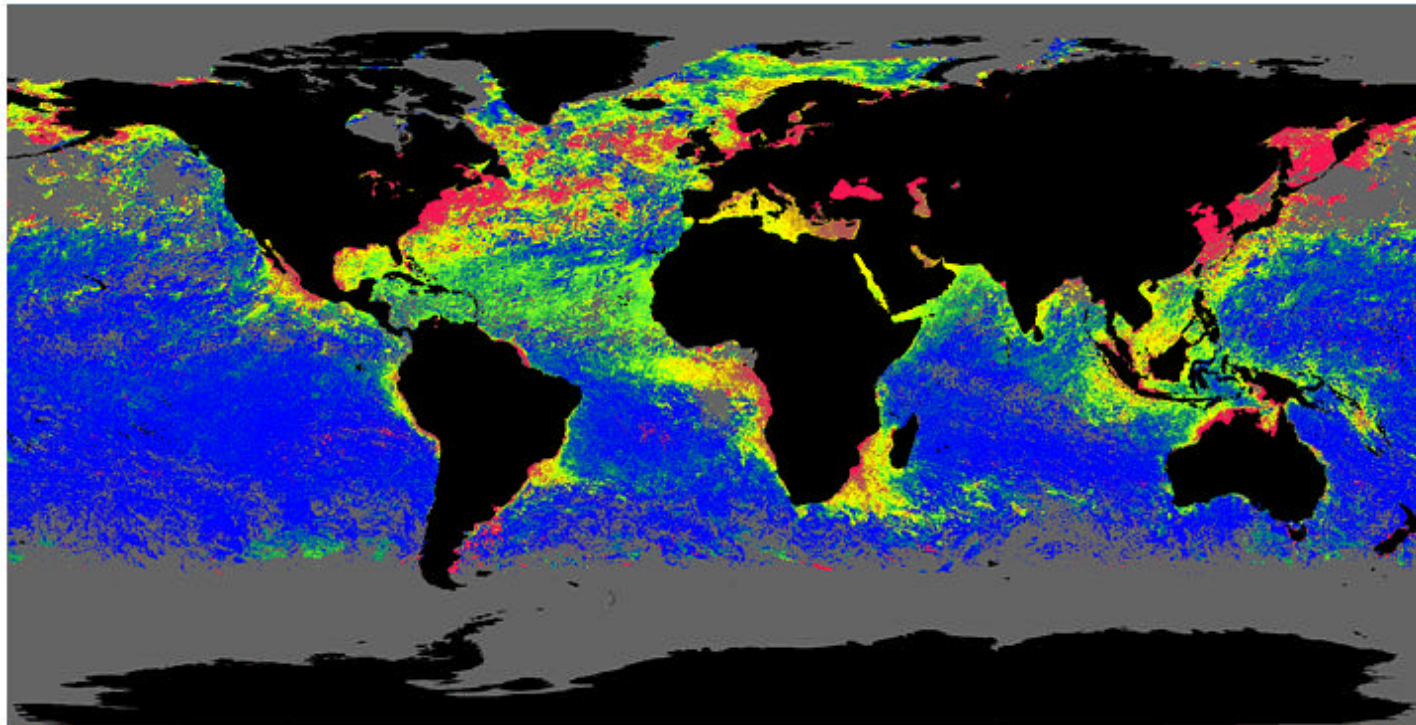
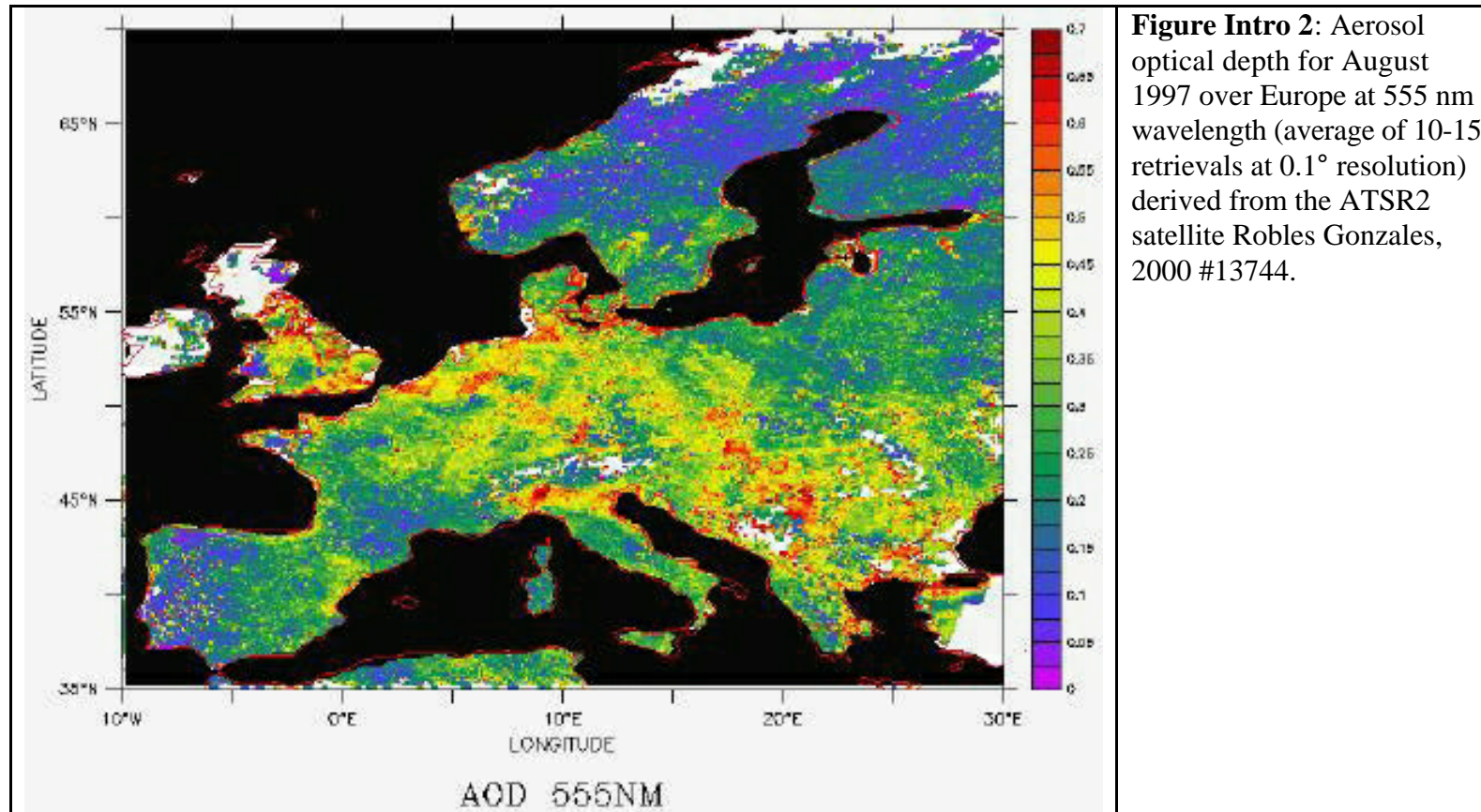


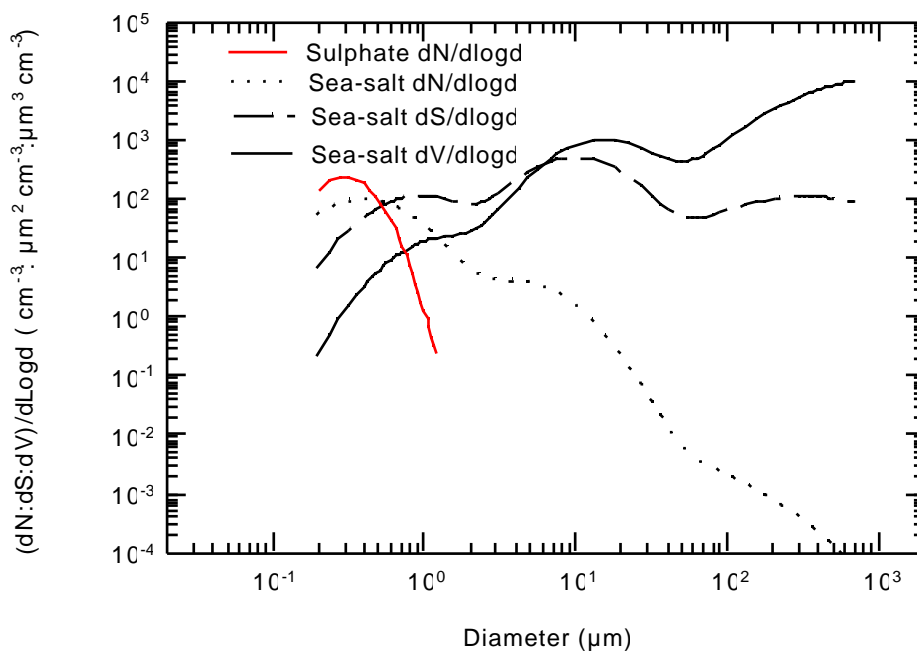
0.0  0.5  
Optical Thickness at 865 nm



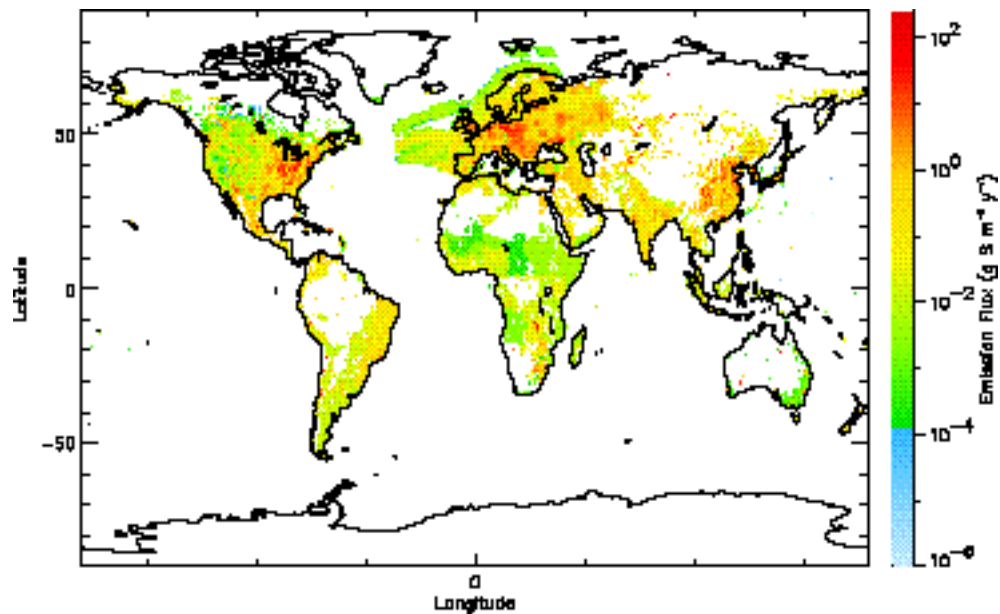
**Figure Intro 1: Top:** Global map at 18 km resolution showing monthly average aerosol optical thickness at 865 nm over water surfaces for June, 1997, derived from radiance measurements by the POLDER (POLARization and Directionality of the Earth's Reflectance) radiometer aboard the ADEOS (ADvanced Earth Observing Satellite) platform. Reproduced with permission of Laboratoire d'Optique Atmosphérique (LOA), Lille, FR; Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Gif sur Yvette, FR; Centre National d'études Spatiales (CNES), Toulouse, FR; and National Space Development Agency (NASDA), Japan. **Bottom:** Ångström exponent of the aerosol optical depth derived from channels 670 and 865 nm of the same data set. For further information see <http://earth-ciencs.cnes.fr:8060/polder/Mission.html>.



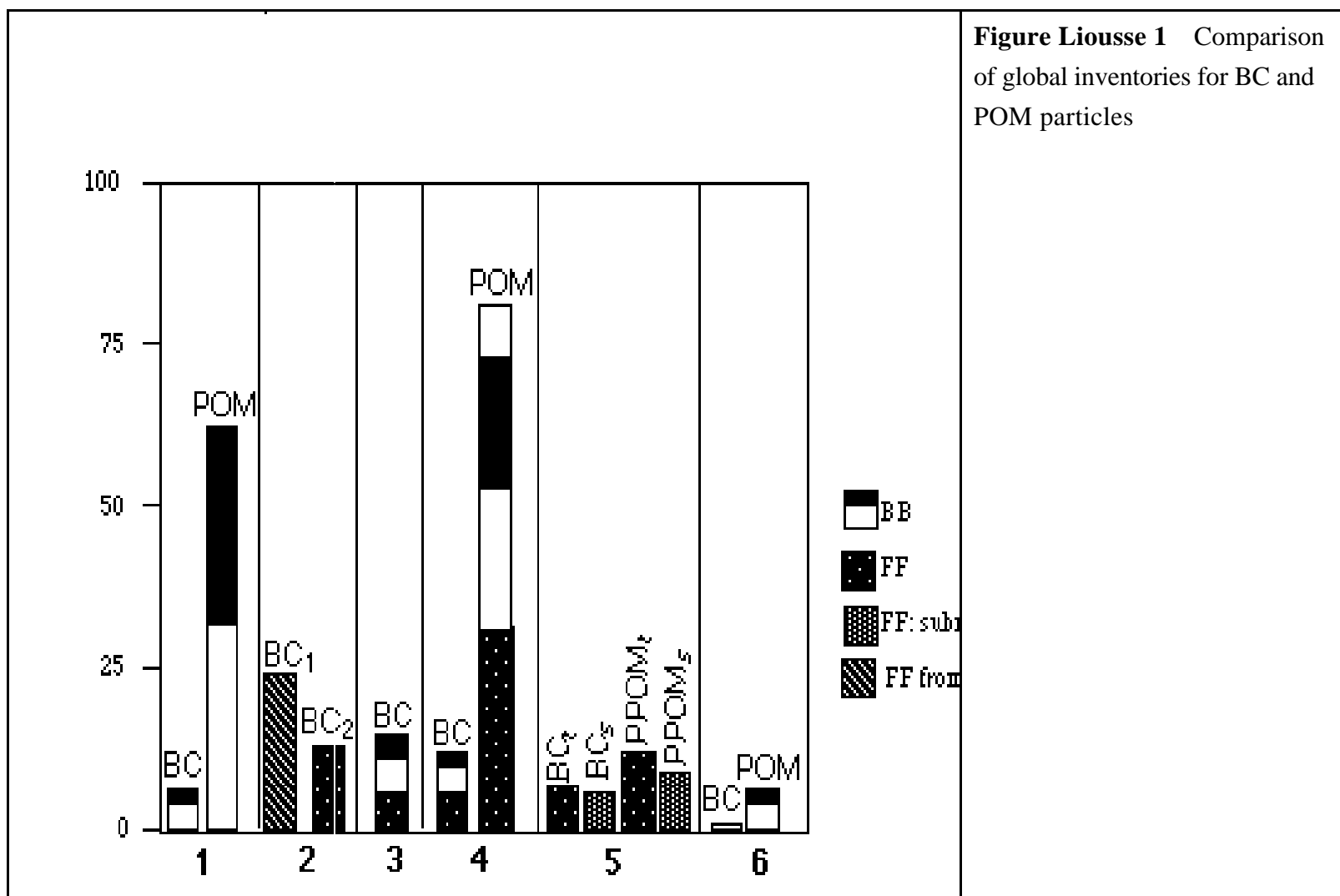
**Figure Intro 3:** Schematic picture of the microphysical processes that influence the size distribution and chemical composition of the atmospheric aerosol



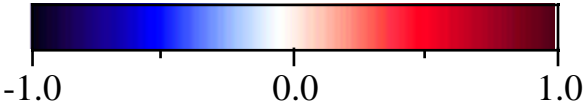
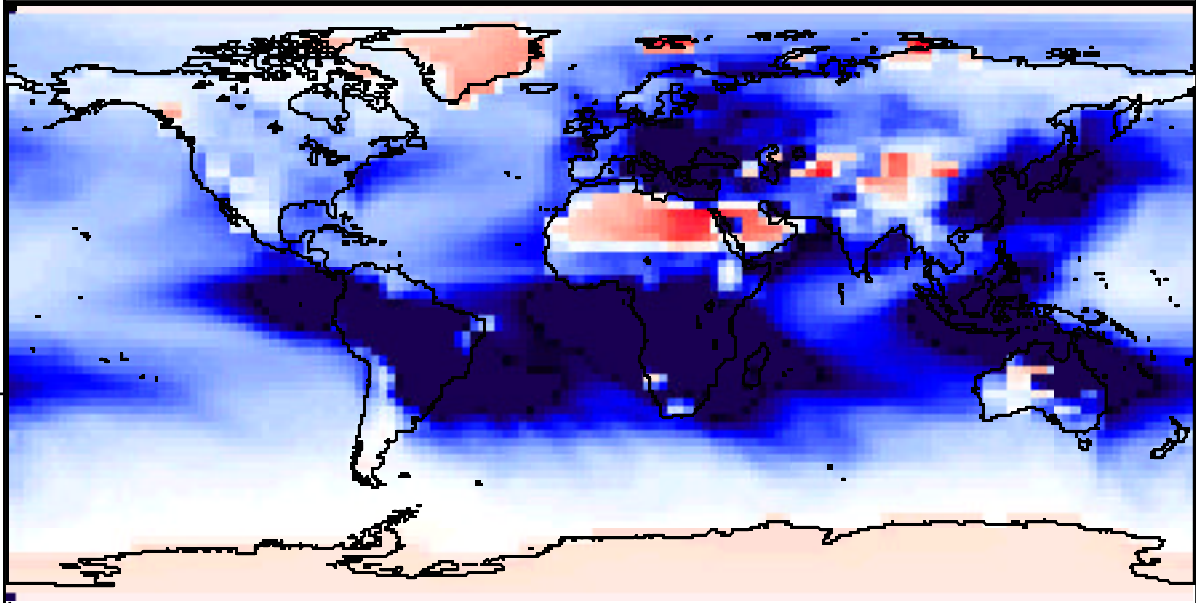
**Figure O'Dowd 1:** Sea-salt number, surface and volume size distributions (for relative humidity 80%) for conditions typical of  $17 \text{ m s}^{-1}$  wind speeds ( $N = 70 \text{ cm}^{-3}$ ). Also shown is a typical accumulation mode sulphate number distribution for  $N = 100 \text{ cm}^{-3}$  O'Dowd, 1997 #9702.



**Plate Benkovitz 1:** Geographic distribution of anthropogenic sulfur emission flux. Shipping emissions over the northeastern Atlantic Ocean, the Baltic Sea, and the North Sea in the Cooperative Program for Monitoring and Evaluation of Long Range Transmission of Air Pollutants in Europe (EMEP) inventories for Europe were assigned to the appropriate shipping routes. Other shipping emissions have been assigned to port areas. From Benkovitz, 1996 #13251







DRF due to BC and POM for July (in  $W m^{-2}$ )

**Plate Liousse 1:** Direct radiative forcing (DRF) due to Black Carbon (BC) and Particulate Organic Matter (POM) for July.