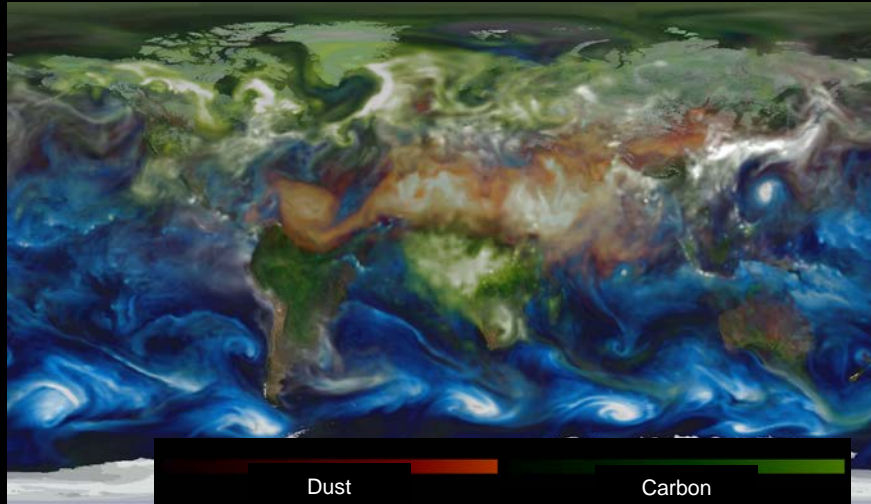




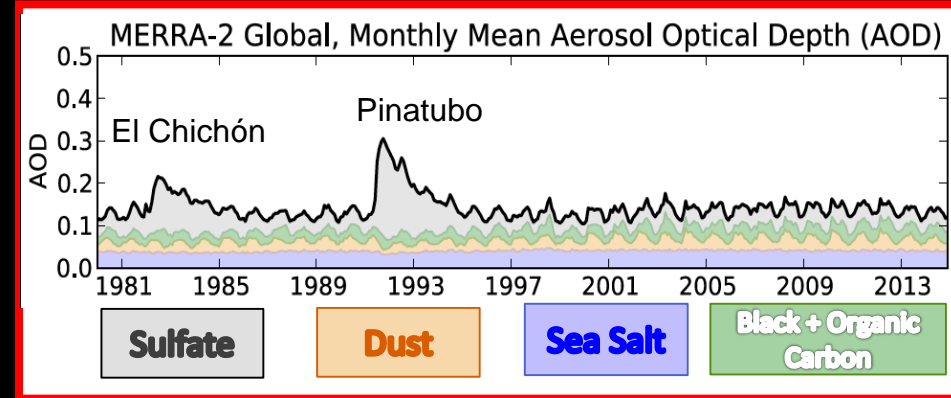
MERRA-2: Global Aerosol Distributions

MERRA-2 Aerosol Analysis 10 July 2013 1200UTC



Dust Carbon
Salt Sulfate

- **Black and organic carbon**, **dust**, **sea salt**, sulfates
- Actively assimilated AOD from bias-corrected AVHRR and MODIS, MISR over bright surfaces, and AERONET
- Aerosols are radiatively coupled with the atmospheric model dynamics



Monthly mean time series of globally averaged aerosol optical depth (AOD; black line) is dominated by sulfate (grey) after major volcanic eruptions (e.g. El Chichón, Pinatubo). Seasonal and inter-annual variability is generally largest for dust (orange) and carbonaceous (green; black plus organic carbon) aerosols, the latter of which is due to primarily to biomass burning. Globally, sea salt aerosol (blue) contributes to the AOD over the oceans, with a seasonal cycle more apparent over regions impacted by storm tracks (not shown).