# Mineralogy of dust and climate effect

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The mineralogical composition of dust plays an important role in determining how dust interacts with radiation and whether available nutrients can be deposited and used by terrestrial and marine ecosystems.

We will review the different factors that determines the minralogy of transported dust and show that they differ with particle size.

Clay particles show enrichment in iron compared to larger dust particles, which gives the aerosol its absorbing properties. The content in iron oxides of dust and the size of its particle limits the effect of these particles in the shortwave and we will compare dust radiative effects under very different assumptions.

More recently laboratory measurements of the longwave properties of dust were made on actual samples from very different provenance representing the major dust source areas of the world. Inferring the refractive index of dust from these samples points to a LW dust radiative effect that is substantially smaller than what has been modelled up to now. We will use radiative measurements from field campaigns to discuss critically in which constraints exist on this LW effect.