



Sources of dust in Dronning Maud Land, Antarctica, during the last Glacial and the deglaciation derived by Rare Earth Element measurements in the EPICA-DML ice core

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Mineral dust analysed in ice cores from Antarctica provides unique information about climate variability in the past more than 800 000 years. Higher dust load of the atmosphere during glacial times is attributed to higher aridity in the source and higher storminess during colder climate. For the interpretation of dust ice core records it is of importance to know the provenance of the dust. A new method is presented using Rare Earth Element (REE) fingerprints analysed by inductively coupled plasma mass spectroscopy (ICP-MS) to define dust provenances in ice cores. This method needs less than 10 ml of ice sample volume. Within the European Project for ice coring in Antarctica (EPICA) two deep ice cores were drilled, one of them in Dronning Maud Land (DML), an area of relatively high accumulation (recent accumulation rate: 64 kg/(m²year)). A quasi - continuous REE record is presented from the EPICA-DML ice core, from the Atlantic sector of the East Antarctic Plateau. The record covers the last Glacial and the following deglaciation (500 - 1100 m depth). A comparison with REE fingerprints in the potential source areas reveals South America as the source for glacial dust. During warmer climate other sources become more important.