

## PALEOMETEOROLOGY OF DUST EVENTS

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16 long sediment cores from Eifel dry maar lakes have been drilled between 1999 and 2005 by the ELSA project (Eifel Laminated Sediment Archive) and document the last 0 - 140 ka. In this project we will evaluate in detail distinct dust layers, which can be correlated between the cores.

Dust phases (dry and cool winds > 5m/s) over the continent have been related to the cold events in the Greenland ice and North Atlantic sea surface temperature patterns (Seelos & Sirocko, 2006). A continuous dust stack (0-140 ka) for Central Europe is presented by Seelos & Sirocko (2007).

Grain size analysis of individual dust layers is done by the automated method of ultra high-resolution grain size measurements from thin sections, which was developed by Seelos & Sirocko (2005). The grain size composition of individual dust layers between MIS 5e and MIS 1 will be detected in all available cores and will be evaluated for 20 statistical grain size parameters. Gradients in layer thickness, mineralogy, geochemistry (measured by an EAGLE II  $\mu$ XRF) and the grain size composition is used to quantify the principle paleowind direction via the fingerprints of the sediment sources, which is a first indication about the meteorology that lead to the dust transport.

The further objectives of the project are the comparison of observed wind directions with existing model data for atmospheric circulation during MIS 5 to MIS 1. The comparison of the regional dust storms in the Eifel with the large scale patterns of dust transport in the northern

hemisphere, as documented in the North GRIP dust particle record (Ruth et al. 2003), should indicate if dust storms in the Eifel are associated with large hemispheric weather extremes (high pressure cells over eastern Europe and Siberia or storms in the west wind drift) and thus with a hemisphere wide forcing process or only local/regional weather anomalies in the Eifel.

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