



The development of a continuous dust / loess stack (0-140 ka) for Central Europe by using the particle analysis and detection system RADIUS on ELSA sediment cores (Eifel, Germany)

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A comparison of a last interglacial, annually laminated and varve counted maar lake record from the Eifel / Germany, with a laminated lake sediment record from Northern Germany shows, that high resolution cores can be correlated across central Europe by dust / loess content, if the resolution of grain size data is on the order of decades / centuries. Phases of widespread dust dispersal are the same as the cold events in the Greenland ice and North Atlantic sea surface temperature patterns (Seelos & Sirocko, 2006). The first occurrence of dust in Northern Germany and in the Eifel is during the Late Eemian Aridity Pulse (LEAP, Sirocko et al. 2005) which is called C26 in ocean records. Based on these results we developed a long dust / loess time series for the Eifel region, Germany. The complete stack (0-140 ka) is a compilation of four different sediment cores (HL2 - dry maar west of Hoher List; De3 - Dehner Maar; OW1 - Oberwinkler Maar; SM3 - Schalkenmehrer Maar). We use the particle analysis module RADIUS (Rapid Particle Analysis of digital Images by ultra-high-resolution scanning of thin sections, Seelos & Sirocko, 2005) to analyse and identify the different sediment structures of all ELSA stack cores. The application allows the detection of climate controlled sedimentation processes like storm events under cool and dry conditions or fine laminated sequences during warm periods and spontaneous events like volcanic eruptions, slumps and turbidites.

We will show, that the stack is characterised by a high variability of different dust sequences during the whole period. Especially the transition into cool event C24, 111 ka ago, is dominated by a series of single storm events. Otherwise, the loess like sediments of MIS 4 are very homogeneous and unstructured.

References

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