



## Lithology, event and marker layers of late Pleistocene dry maar lakes, Eifel Germany

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Twenty four sediment cores of the ELSA Archive (*Eifel Laminated Sediment Archive*) from 12 Eifel dry maar lakes and one modern lake have been stratigraphically correlated to obtain a continuous record of the history of sedimentation during the last climatic cycle from today back to 140 000 years ago. The stratigraphy is based on 64 AMS  $^{14}\text{C}$  dates, 4 luminescence dates and the occurrence of a few distinct tephra and sedimentological marker layers. Greyscale variations in the sections of the last glacial show a stadial/interstadial succession, which is highly similar to the Greenland ice core NorthGRIP, which allows high precision tuning of the stratigraphy, and document also the tight link between the North Atlantic/Greenland climate and central Europe (SIROCKO ET AL., 2005). The sediments of the cores reveal 3 different lithotypes which are synthesized into a general lithological profile (SCHABER & SIROCKO 2005), and about 10 types of marker and event layers. One of the most distinguished tephra markers is the phonolithic Dümpehmaar tephra (DMT), which is found immediately above the annually laminated sections of the last interglacial. Accordingly, the last interglacial sediments are always fine grained laminae which allow varve counting in a few cases. A short episode of strong seismic activity after the last interglacial caused seismites in the center of the lakes and slumps around the flanks. Early Weichselian sediments are still organic rich, but with much more clastic input than during the interglacial. Massive slumps indicate a lake level regression during the beginning of MIS4, which is then dominated by eolian sediments. The early interstadials of MIS3 are again rich in organic carbon, stadials reveal abundant loess, which becomes dominating during the last glacial maximum. The phonolithic tephra of the Laacher See eruption is another distinct chronological marker immediately above a fast transition to high organic carbon contents at the beginning of the Holocene. This

succession of sedimentation is typical for all Eifel maar lakes and clearly reflects the climate evolution of the last glacial cycle.