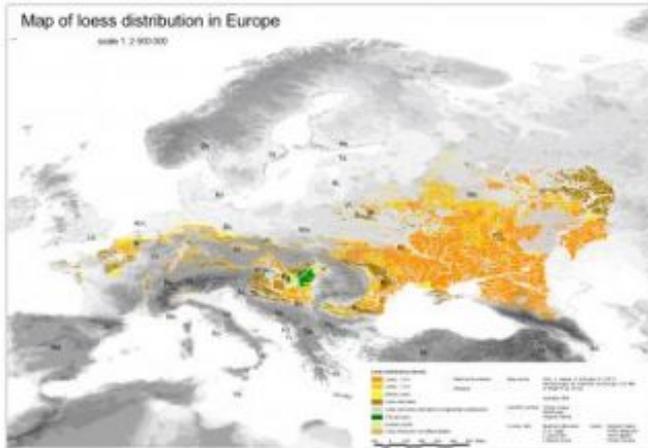


New European loess map

15 November 2007



European Loess Map from 2007. Credit: Source: Dagmar Haase/UFZ

A new map showing the distribution of loess sediments in Europe has been published for the first time in 75 years, in digital format. With this map, Dagmar Haase, a geographer at the Helmholtz Centre for Environmental Research (UFZ), has completed the work of various researchers who had begun as far back as the 1970s and 80s to revise the last comprehensive inventory produced by Rudolf Grahmann, which appeared in *Mitteilungen der Gesellschaft für Erdkunde* in Leipzig in 1932.

Haase and her colleagues have produced the new map with a scale of 1:2,500,000 with the help of modern digital information systems.

Whether they are lime-grey or dark black, loess sediments and the soils derived from them are of special importance for agriculture worldwide because they are some of the most fertile soils there are. In Germany, soil quality is given a rating using an index. The maximum value of 100 was attributed to the loess soil at Eickendorf in the Magdeburger Börde plains.

Loess sediments and their soils cover around one-tenth of the earth. In Europe, loess is a powdery product of glaciations during the Ice Age. During those cold periods, this very fine, light material was swept from bare regions on the edges of the glaciers and deposited in regions with denser vegetation. Loess consists largely of quartz grains and lime. The very fine grains ensure good aeration, water storage and mineral levels. This means that soils derived from loess are very fertile, like the black earth of the Börde plains, but are also particularly susceptible to erosion. It is therefore important to know where exactly these fertile soils so worthy of protection are to be found.

As far back as 1966 the then Loess Commission of the International Union for Quaternary Research (INQUA) decided to draw up a European loess map. Although this resulted in intensive research and new findings in various European countries, a new map for the whole of Europe was never produced and the already outdated map of 1932 remained the only standard work. In 2003, a group of Leipzig-based scientists resumed work on the European loess map, the plans for which had been developed in the 1980s. For this it was necessary to find standardised definitions for the various types of loess sediments.

The idea for the European loess map was born back in 1966. Over the following two decades the analogue dispersal data for loess and loess sediments throughout Europe were collated through collaboration between scientists in Eastern and Western Europe. After the fall of Communism in 1990, the project was put on hold for a few years because of the 'restructuring' in Central Eastern Europe. The rich fund of map material from all over Europe and the former Soviet Union that had been collected by about 2000 was then used at the UFZ to produce the European Loess Map 1:2,500,000 using modern GIS technology.

The new European Loess Map is a modern digital information system that links coordinates and factual information. It can be used all over the world

and is already in high demand from all parts of the world. "We hope that with this fundamental work we have provided a basis for future landscape models that could help us to take timely action to combat the global problem of soil erosion," says Dagmar Haase. "Our data are also important for the reconstruction of climate history in Europe."

In total, loess soils cover around one fifth of Europe: especially in the Eastern European lowlands, in a belt north of the low mountain range, in the foothills of the Alps and the Danube basin and in various other river basins. The publication of the map in *Quaternary Science Reviews* marks the completion of a project on which geographers and soil scientists have been working for decades.

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