

GEOGRAPHISCHES KOLLOQUIUM

Wintersemester 2022/2023

Einladung zum Vortrag am

Dienstag, 6.12.2022, 16:15 Uhr, Kl. Hörsaal MN 09

Mateusz Krupski PhD

**Institute of Soil Science, Plant Nutrition and Environmental Protection,
Wroclaw University of Environmental and Life Sciences**

„Soil transformations in the Silesian loess zone (SW Poland) – evidence of environmental change and human activity in the Holocene“

Soils hold a record of natural and anthropogenic formation factors. This makes them a source of information in paleoenvironmental research, especially when preserved prehistoric soils are studied. In Central Europe such paleosols may be found beneath barrows (kurgans), which had been built during several periods in the Holocene. This gives the possibility to investigate soils buried at different times. Comparing their properties with the material building the mounds and the present-day reference profiles, allows to detect environmental (and cultural) change at the level of individual sites and in timescales spanning thousands of years. Comparisons between several sites within a region, have wider geographical significance. If the dating of the barrows is known (e.g. Neolithic, Bronze Age, early medieval, etc.), then the soil evolution can be placed in a chronological timeframe. Ongoing, multi-proxy pedo-archaeological research on prehistoric paleosols conducted in the loess zone in Silesia (SW Poland) indicates:

- 1) a widespread presence of chernozemic soils, which dominated in the open, forest-steppe landscape at the onset of the Neolithic (late 6th millennium BC) and persisted well into the Late Holocene.
- 2) that human activity played a prominent role in maintaining the “openness” of the landscape. Proxy data suggesting Neolithic agricultural practices (crop growing pre-dating the construction of the barrow mounds), were also discovered in situ, in the buried soils.
- 3) a transformation of chernozemic soils into clay illuvial soils (Luvisols/Retisols), that occurred in vast areas of the Silesian loess zone sometime during the Subboreal or Subatlantic. The driving factors of this major alteration were more humid climatic conditions and the spread of close-canopy, beech-dominant forests. The latter was especially likely during periods of settlement decline and land abandonment (e.g. the Migration Period). On the other hand, patches of chernozemic soils have persisted through the Late Holocene until the present-day in those places, where deforestation has been sustained by continuous human activity (e.g. due to agricultural needs).

Analogous soil transformations were also identified in other areas of the Central European loess zone (in Saxony and Moravia), suggesting a regional significance of the described phenomenon and a similar pattern of shifts between formation of natural and creation of cultural landscapes.

Im Namen des Vorstandes des Geographischen Institutes lade ich Sie herzlich zu den
Vorträgen des Geographischen Kolloquiums ein.

gez. Prof. Dr. Daniela Sauer