

The magnetic susceptibility of soils in Kraków, southern Poland

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Abstract

Studies into the magnetic susceptibility have been used to assess the soils contamination in the Kraków area. The results of topsoil (over a 2×2 km grid), subsoil (37 shallow holes) and soil samples (112) measurements were presented as maps of soil magnetic susceptibility (both volume and mass) illustrating the distribution of parameters in topsoil horizon (0–10 cm) and differential magnetic susceptibility maps between topsoil horizon and subsoil (40–60 cm). All evidence leads to the finding that the highest values of magnetic susceptibility of soil are found exclusively in industrial areas. Taking into consideration the type of land use, the high median value ($89.8 \times 10^{-8} \text{ m}^3\text{kg}^{-1}$) was obtained for samples of cultivated soils and is likely to be connected with occurrence of fertile soil (chernozem). Moreover, enrichment of soils with Pb and Zn accompanies magnetic susceptibility anomalies in the vicinity of the high roads and in the steelworks area, respectively.

Key words: magnetic susceptibility, soil pollution, Kraków.

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