ACTA FACULTATIS ECOLOGIAE, 14, Suppl. 1: 33–36 Zvolen (Slovakia), 2006
The VIIIth Banská Štiavnica Days 2006

MAGNETIC SUSCEPTIBILITY MAPPING OF SOIL POLLUTION

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ABSTRACT

Fast and cost-effective detection of industrial pollution can significantly promote its ecological, economic and social assesment. A magnetometric method, used for qualitative determination of anthropogenic contamination, meets these requirements but needs further development in more quantitative terms. It could be used successfully in numerous cases when heavy metals coexists with strongly magnetic iron oxide particles in the source dust.

We presented a magnetic study which examines the utility of magnetometric techniques for rapid, qualitative detection of metallic pollutants in soils. In the present paper we tested the use of rock-magnetic method designed to access the degree of pollution of soil taken from Nováky situated in the south-western of Slovakia. The aim was to identify magnetic particles and to link magnetic pollution, to trace distribution and concentration of contaminants in soil. About 40 years the rainwater overflow the dump and flooded out the ash waste from the brown coal power plant in Nováky. Soil samples have been taken from 3 horizons (20, 40 and 60 cm) and measured by KLY– kappabridge in the Slovak Academy of Sciences, in Geophysical Institute in Bratislava.

Our results clearly demonstrate that magnetic anomalies can be explained by human activity.

Key words: heavy metals, magnetic susceptibility, pollution