Geophysical Research Abstracts, Vol. 8, 09281, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09281

Magnetic and geochemical measurements on top soil and street dust in Baia Mare town (Romania)

C.G. Panaiotu (1), L. Dumitrescu (2), L. Bilal (3)

(1) (1) University of Bucharest, Paleomagnetism Laboratory, Bucharest, Romania (panaiotu@geo.edu.ro), (2) (2) University of Bucharest, Faculty of Geology and Geophysics, Bucharest, Romania, (3) (3) Ecole Superieur des Mines, Saint Etienne, France

The present work concerns the application of rockmagnetic measurements as a proxy for heavy metals pollution of top soils and street dust in the Baia Marea town (Romania). Baia Mare town is located in the north-western part of Romania. The nonferrous metallurgy factories of the town connected with the very important mining activity in the neighboring Oas-Ignis volcanic mountains is a well know pollution source with heavy metals. We colleted 59 dust samples and 67 top soil samples. For all samples several magnetic properties (magnetic susceptibility, ARM, IRM, coercivity of the remanence, frequency dependence) were measured. The same set was subjected to geochemical analysis. Most of the dust and top soil samples are dominated by large grains of low coercivity minerals. Increase content in heavy metals is statistically linked with enhanced magnetic susceptibility. Maximum values for both heavy metals and magnetic susceptibility were found in the vicinity of pollution sources (eastern industrial area of the Baia Mare town). In this area, both top soil and dust samples have similar magnetic susceptibility and heavy metal values. In the residential area magnetic susceptibility and heavy metals values are lower, but the content of heavy metals is higher in the soil than in the dust at similar magnetic susceptibility values. This result suggests an accumulation process of heavy metals in soil which is not reflected in the magnetic parameters.