

Geophysical Research Abstracts,  
Vol. 10, EGU2008-A-00791, 2008  
SRef-ID: 1607-7962/gra/EGU2008-A-00791  
EGU General Assembly 2008  
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## **The Application of magnetic susceptibility in determination of the fly-ash pollution of soils around Qarun Lake, El Fayoum: a case study in Egypt.**

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Qarun Lake (El Fayoum City) considers the most industry polluted area of Egypt due mainly to its location near from Industry city. 30 soil profiles using a field probe (of length 40 cm) have been collected from the study area. Low-field magnetic susceptibility values for every 1 cm of all the cores have been measured in the laboratory using MS2 instrument. Thermo magnetic analysis, acquisition of remanent magnetization, alternating-field demagnetization of saturation remanence and frequency dependent magnetic susceptibility were measured in Laboratory samples from individual soil horizons as well as on their magnetic extracts, X-ray diffraction and SEM were used to identify ferromagnetic fractions. The uppermost layer, which is dominated by magnetically soft magnetite of presumably anthropogenic origin, can be reliably identified in soil profiles over the whole region of concern. Subsoil horizons are characterized by significantly different magnetic properties. Results will be presented