

## **Magnetic properties of sediment cores from Anthemountas basin (N. Greece) and their significance to the environmental history of the area**

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**Abstract:** In the present study a broad area of Anthemountas basin in the southeast part of Thessaloniki city has been examined. In total 77 profiles up to 70cm depth have been sampled. Magnetic susceptibility of 500 obtained samples was measured in two different frequencies (0.47 and 4.7 KHz) and the percentage of frequency dependence was calculated. Following the spatial distribution of the magnetic susceptibility, our study was focused in two areas: west where the airport and an urban area are located and east outside of the urban net, both with enhanced susceptibility values. A more detailed magnetic analysis (IRM, hysteresis parameters) was performed in order to identify the magnetic properties of these sediments. The results revealed that samples from the 2 areas are clearly differentiated according to their magnetic properties. The western area seems to be affected mainly from the anthropogenic activity while the eastern part is influenced from the enhanced geological background. Additionally Scanning Electron Microscopy (SEM) has been performed in selected samples and confirmed the above results. Magnetic properties proved to be successful in the discrimination of different sources which cause the enhancement of magnetic susceptibility.

**Keywords:** (Magnetic susceptibility, remanence parameters, pollution, Greece)