



New results in the Waste Site characterization using Tau-transformation of Time-Domain IP Data

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The induced polarization method is an effective geophysical method of ore exploration (*Wait, 1959; Keller and Frischknecht, 1966; Sumner, 1976*). It is well known that both the time-domain and frequency-domain IP measurements are capable to detect even small amounts of the metallic minerals. On the other hand, the metallic content is not the only factor resulting in polarizability of the medium; filtration- and membrane effects as well as electrochemical (redox) properties can also lead to similar phenomena. Induced Polarization is a very useful geophysical method also in the detection and characterization of environmental spots mainly waste sites. In this paper the generalization of the TAU-transform method introduced by TURAI (1985) is presented. Combining the TAU transform method and the tools of inverse problem theory a general algorithm for the determination of the time-constant spectrum of the polarizability data (deduced from time-domain IP measurements) is available for the general case of continuous spectra. Some results of the interpretation of field data collected over Hungarian waste sites (Nyékládháza – 1997-2004, Ráckeve – 1997, Kecskemét – 1997, Győröcske – 1999, Pásztó – 2000, Tokaj – 2001, Balmazújváros – 2002 and Tiszaújváros – 2004) are presented and – based on the time-constant spectra – the characterization of the main components of the contaminating material is given.

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