

ABSTRACTS AND SUMMARIES

GEOPHYSICAL METHODS AND MONITORING¹

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The purpose of this lecture is to review the basic methods of exploration geophysics with particular emphasis on their applicability in foundation engineering and geohydrology.

The seismic-reflection method enables the detection of even relatively thin layers at large depths and associated geological irregularities. For engineering purposes the method is presently gaining attractivity when used together with seismogram stacking, which is processed instantly at the site.

Refraction measurements are well recommended for the investigation of velocities and thicknesses of near-surface layers where the method is by far superior to reflection techniques.

For the evaluation of dynamic properties in situ, borehole transmission (crosshole, uphole, downhole) is an economic and fast procedure, which can be carried out parallel to standard penetration tests and geologic and hydrologic probings.

Application of acoustic well logging provides a quick high-resolution velocity/depth profile, which can even be improved considerably by the use of synthetic sonic logs and acoustic impedance logs.

The density and porosity of the formation are recorded by the gamma-gamma-log consisting of a ray source and a detector for the backscattered rays. Electric direct resistivity laterologs and induction well logs provide valuable informations on ground layering, water saturation, etc. for engineering-hydrology purposes.

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