Geoelectrical Resistivity Imaging in Environmental Studies

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Abstract The presence of contaminants in the environment requires a precise characterization of the nature and extent of contamination for effective remediation. Conventional environmental monitoring has focused largely on point sampling, which involves intrusive processes such as grid drilling. This approach is expensive and provides information only on effects at the sample sites, and hence may not be a true representation of the complex and subtle subsurface geology associated with environmental investigations. Alternative methods that have been used in environmental studies are geophysical methods such as geoelectrical resistivity techniques. Geoelectrical resistivity imaging is used in estimating the resistivity distributions of the subsurface based on several measurements of discrete voltage and current. This paper evaluates the effectiveness of geoelectrical resistivity imaging in environmental applications.

Keywords Environmental studies · non-invasive techniques · geoelectrical imaging · resistivity

1 Introduction

The presence of contaminants in the environment requires precise characterization of the nature and extent of contamination for effective remediation. Conventional environmental monitoring has focused largely on point sampling, which usually

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