



## **Estimating yield of fractured aquifers from surface geoelectrical measurements**

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Twenty-four Direct Current Resistivity (DCR) soundings have been conducted to examine the relation between aquifer yield and electrical properties of the aquifer in granitic hard rock terrain of India. The thicknesses and resistivities of the aquifer, and overlying layer are estimated from inversion of DCR data and then correlation analysis of the yield and geoelectric parameters is performed. This analysis reveals some significant results that the yield of the fractured aquifers increases linearly with increase in resistivity of the overlying layer and thickness of the aquifer; however, yield is linearly correlated with longitudinal conductance and transverse resistance, and nonlinearly with transmissivity and permeability. This study suggests that the potential sites for groundwater exploitations should be thick and permeable, and should not underlie considerably thick and high resistive layers. The presence of highly resistive/less permeable layer just above the aquifer causes inadequate recharge and therefore, at such locations initially high yielding bore wells are found dried. This study suggests that the potential sites for groundwater exploitations should be thick and permeable, and should not underlie considerably thick and high resistive layers.

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