Study of electrical resistivity of porous media in dry as well as saturated conditions

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Abstract: Surface electrical resistivity methods are used in ground water exploration, subsurface lithology studies, delineation of freshwater – saltwater zones, identification ore deposits etc. In the present study resistivity measurements were carried out in four different types of soil systems in laboratory tank model with Wenner electrode configuration. The resistivity measurements were carried out in dry as well as saturated states with fresh water and aqueous solutions of Nacl of five different concentrations. The resistivity sounding data were interpreted using Resist 87 computer software to obtain the true resistivity values of the different layers of soil systems. The variation of true resistivity values of three layers of soil systems with level of saturation and concentration of the electrolyte were plotted. The roles of porous media, level of saturation and electrolytes were analysed.

Keywords: Resistivity, Wenner electrode configuration, level of saturation, concentration of electrolytes.

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