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# An investigation of groundwater condition by geoelectrical resistivity method: A case study in Korin aquifer, southeast Iran

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## Abstract

The Korin basin is located in Sistan and Baluchestan Province in the southeast of Iran. Rapid agricultural development in this basin has caused increase on demand for water supply. The basin is characterized by an arid climate with an average annual rainfall of 84 mm. The monitoring

of the groundwater level exhibits a decreasing trend of water level. The main reason for this decline in the groundwater table is that wells pumping from groundwater resource has exceeded natural recharge in the recent years. In this research the aquifer of this basin has been studied by the geoelectrical method. The need for this research is studying groundwater conditions for protecting groundwater supplies as a unique source of water for this area. A resistivity survey was carried out in order to study groundwater conditions in the shallow Korin aquifer such as depth, thickness and location of the aquifer and the type of water. Also zones with high yield potential have been determined based on the resistivity information. 596 vertical electrical soundings by Schlumberger array were conducted out at positions in 26 profiles. The resistivity Schlumberger sounding m was carried with half-spacing in the range of 200 m to 400. The resistivity data confirm that the Korin aquifer consists mainly of an alluvial aquifer. These data were used to determine the depth and nature of the alluvium and the boundaries of the aquifer with a reasonable accuracy. The high resistivity in the southeast and northwest of the aquifer is due to higher water quality and the existence of alluvial fan with coarse grain materials. The lower resistivity in the central and northern parts of the aquifer is due to finer materials.

## Keywords

Resistivity; groundwater; aquifer; electrical sounding; Iran

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