



Spatial analysis of groundwater electrical conductivity using ordinary kriging and artificial intelligence methods (Case study: Maharlu-Bakhtegan and Tashk salt lakes basin, Iran)

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The main resources of fresh water are the groundwater. In Iran, the quality and quantity of groundwater is affected significantly by rapid population growth and unsustainable water management in the agricultural and industrial sectors.

in Maharlu-Bakhtegan and Tashk salt lakes basin, the overexploitation of groundwater for irrigation purpose caused the salt water intrusion from the lakes to the area's aquifers, moreover, the basin is located in south of Iran with semiarid climate, faces a significant decline in rainfall. All these reasons cause the degradation of ground water quality. For this study, geographical coordinates of 406 observation wells will be defined as inputs and groundwater electrical conductivities (EC) will be set as output. Ordinary kriging (OK) and artificial neural networks (ANN) will be investigated for modeling groundwater salinity. Eighty percent of data will be randomly selected to train and develop mentioned models and twenty percent of data will be used for testing and validating. Finally, the outputs of models will be compared with the corresponding measured values in observation wells.