

A MAGNETOTELLURIC STUDY TO DETERMINE CONDUCTIVE SALTY WATER STRUCTURES IN THE EAST OF ALAGOL LAKE, GOLESTAN PROVINCE, IRAN

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Determining the conductivity of subsurface salty water layers containing Iodine using magnetotelluric (MT) method is our aim. The salty water layers specially if contain minerals such as Iodine have high electric conductivity. This study includes investigation down to 1300 m in the east of Alagol lake, located in the north of Golestan province, Iran. The area, a part of Kopeh-Dagh sedimentary basin, has been formed by last orogeny phase of Alpine and following erosion. Topographic reliefs of the area consist of loesses occurring naturally by temperature contrast between the Alborz and Turkmenistan desert. The area formation is Quaternary which consists of jammed sediments in the torrential holes. According to 1D and 2D models, three conductive layers were distinguished at depth of 20 m to 90 m, 110 m to 500 m and about 1100 m . The last two layers are interpreted as the layers which consist of salty water and probably Iodine constructions. Also resistive bodies are monitored in the 4th and 5th profiles that are appeared irregularly. Isolated conductive bodies are detectable at some sites in more depths. To prove the correctness of the results the 1D model of the MT data are compared with the results of a log record that is located at 4 Km southwestern of station B51. One final conclusion is confirmed a 200 m thick conductor at the depth of 700 m.

magnetotelluric, Alagol, model

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