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(KWPA CO.)
Application Research Department

Title:

Assessment of the Effects of Structural Factors on Discharge and Water Quality of Springs and Wells in Hard Rocks (Karstic Formations) of Payun, Kamardraz and Shavish-Tanush anticlines

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Abstract

The study area is part of the Izah faulted zone that is located between latitude ٣١٬ ٤٢٬٬ and longitude ٣٢٬, ٣٢٬٬. According to Stocklin (١٩٦٨) division, the area geologically belongs to Zagros folded (external Zagros and according to Berberian (١٩٩٥) belongs to Zagros simply folded belt. Kamar-Draz anticline in Ghaleh-Helaeijan, Shavish-Tanush in north Izeh (north of the Kamar-Draz anticline) Chal-Khoshk anticline (continuation of Tanush anticline) in the west of Izeh city, Payun anticline in the east of Izeh city and Naleh-Asbi Syncline in the north east of Izeh city are important structural features that are affected by Izeh system fault. To evaluate the use of structural and geological factors on discharge and water quality of springs and water wells in hard rock folded formation in the field area, we used geophysical data, water level fluctuations in piezometers installed in Karstified hard rock formation and adjacent alluvial, quantitative and qualitative information about exploration, extracted wells and springs in the study area, surveying joints and fractures in selected stations and evidence received from field works. The results show that karstification in the folded structure in the study area is well developed and kartic features such as Miangaran and Bondan Poljes, Salman, Kahbad, and Gav caves, karstic straits such as Kord straits …, karstic doline and springs such as Siahchal and spring Shemi, and so on are seen in the study area. Evaluations show that role of Izeh shear zone and related faulting and fracturing is important in karstification in the study area. However, role of faults and fractures of different formation is not the same in karstification. As a result, mentioned faults and fractures have led to excessive lowering of water level in Shavish-Tanush anticlines and on the contrary, have led to increase of storage capacity and increase of discharge of wells and springs (Siahchal and Shemi spring in Payun anticline) as a result of hydraulic connectivity of Payun, Kamar-Draz anticline and Naleh-Asbi and Nashnil-Helaeijan Syncline with adjacent anticlines and alluvial aquifers. Of course, in addition to faults and fractures, such as slope of bedding and topographic slopes, especially the location of anticline noses, also have an important role in water storage capacity and the emergence of springs, locations of exploration wells and water extraction. Water quality results show that because of the concentration of fractures and faults in folded karstic structures and development of conduit flow, karstic aquifers such as Shemi and Siahchal springs, quality of water is better that of karstic aquifer that have diffused flow.