Hydrogeochemical analysis of the Zarrin district playa brines, Central Iran

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In order to study hydrogeochemical characteristics of the Zarrin playa, brine samples from two 3 m deep manually drilled boreholes and eleven surface sediment samples were analyzed. Sedimentological studies were carried out on both surface sediments of different sedimentological playa zones and two subsurface sections recorded from the drilled boreholes. The data obtained from a recent study on the same playa brine, including eight 0.5 - 1.0 m deep boreholes were statistically analyzed. The results show a high correlation between the concentrations of Cl– and Na+, Ca2+ and K+ in the brine samples. Hydrochemical characteristics of the brine suggest a non-marine (neutral meteoric) type for the Zarrin playa. Also shown is a meaningful correlation between source rock lithologies, sedimentological characteristics of the playa and brine evolution for the evaporite mineralogy of a restricted playa.