عنوان مقاله:

The relationship between discharge rates and dimensional parameters and classification of Qanats, in Fars Province, Iran

محل انتشار:

همایش بین المللی دانش سنتی مدیریت منابع آب (سال: 1390)

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خلاصه مقاله:

To classify the Qanats in Fars province and to determine the relation between the dimensional parameters and the discharge rates in Qanats, multivariate analysis and regression were conducted on the given parameters. The dimensional parameters are tunnel length, wet part length, tunnel slope, mother well depth, elevation of mother well and outlet water temperature, cultivated area and chloride concentration of water. K-means analysis on dimensional parameters shows that the Qanats can be divided to five classes including three classes in northern parts, one class in south western and one class in central part. In northern parts the Qnatas with lower elevations has more discharge rates and longer tunnel and mainly dug in alluvium and coarse alluvium. Qanats in south western parts are mainly dug in hard rocks, they have smallest discharge rates and their discharge rates are inversely proportional to their tunnel length and water temperature. The regression analysis shows that the best relationships are between the discharge rates and the dimensional parameters are in alluvium. The regression coefficients show that in alluvial Qanats the discharge rate from Qanats are proportional to mother well and outlet elevation, length of the tunnel and its wet part, chloride concentration and tunnel gradient and inversely proportional to water temperature

کلمات کلیدی:

Qanat, Discharge rate, Mother well depth, wet part length, Regression analysis, K means

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