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FREQUENCY ANALYSIS OF RAINFALL IN THE AL-QUWAYYAH AREA, SAUDI ARABIA

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Frequency Analysis of Rainfall in the Al-Quwayiyah Area Saudi Arabia

Abstracts. Irrigated traditional agriculture is one of the main activities of the population in the Arabian Shield of the Al-Quwayiyah Area. Agriculture in the Shield area is mainly dependent on groundwater of the shallow alluvial aquifers along wadi systems sometimes underlaid by weathered bed rocks. These aquifers are mainly recharged by local rain water. Because of the relatively high intensity of rainfall and due to the fact that the Shield area is mainly hilly, direct recharge is minor and runoff recharge is the most common in the region. Therefore, the objective of this study is to obtain the frequency of total annual rainfall and the annual maximum of one-day-duration rainfall. To achieve this goal the frequency of rainfall has been discussed in terms of probability and return period. Whereas, the depth-frequency relationships have been derived using the Extreme Value Type 1 probability distribution (EV1). The derived EV1 distributions have been found to fit at a significance level greater than 0.10, implying a satisfactory fit.