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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

Abstract : Flood magnitude, frequency and intensity are bound to increase in many parts of the world due to global warming and its consequent effect as climate change impacts. The main purpose of this paper is to apply the classical probable maximum precipitation and probable maximum flood methodologies leading to a new concept of risk level charts, which provide hydrograph time to peak probable maximum discharge after the beginning of precipitation, base time and peak discharge values. Dimensionless hydrograph methodology is employed for flood hydrograph analysis. The applications of probable maximum precipitation and probable maximum flood methodologies are presented for Algerian meteorology stations' annual maximum daily precipitation amounts from 23 different locations at Hodna drainage basin in the north-eastern of Algeria. Classical probable maximum precipitation frequency factor is obtained for each meteorology station record, which are then converted to pointwise probable maximum flood amounts that are helpful to construct practically applicable flood charts. A new relationship is provided between probable maximum precipitation and the frequency factor for the study area. The efficiency factor is calculated for each station to understand whether there is a further possibility for extreme precipitation, and consequent flood occurrences.

Key words : Probable maximum ; Precipitation (PMP) ; Flood (PMF) ; Risk charts ; Hodna Basin ; Algeria

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