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Curve Flow-duration-Frequency. The flood modelling regime of the Wadi Mazafran catchment in the north of Algeria

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Abstract : Synthetic modelling of the flood regime is based on the overall knowledge of the hydrological regime in a catchment. The Flow-duration-Frequency (QdF) modelling is used to combine three parameters characterising flood with its mean or exceeded flow, its characteristic duration, and occurrence frequency. Which of these can be established locally at the extreme mean volume flow rates of a catchment reference hydrometric station? The determination of the reference QdF model in mean (volume) and exceeded flows requires two characteristics reflecting the flood regime in a catchment. The first is the characteristic flood duration and the second is the 10-year quantile of the annual maximum instantaneous flow. The comparison of the local situation to the reference QdF models enables to develop the final QdF model of the catchment and therefore the baseline QdF for exceeded and synthetic mono-frequency hydrographs. These are essential components in the study of flood risk mapping and the estimation of the instantaneous peak distribution from mean daily streamflow series.

KEYWORDS : Rating curve uncertainty ; BaRatin analysis ; HEC-HMS ; Auto calibration ; Nelder and mead algorithm (NM) ; Flood forecasting

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