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DEVELOPING FLOOD INDEX FROM PAST FLOOD HYDROGRAPHS AND USING IT AS A TOOL TO CHARACTERIZE FLOOD SEVERITY

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Abstract

The paper presents the development of a Flood Index (FI) based on the flood hydrograph characteristics, namely flood magnitude ratio, rising curve gradient and time to peak. These characteristic values are normalized to their respective values corresponding to a 100-year flood. The methodology developed to compute FI is applied to three case studies; Kentucky in USA, Oc-gok in the Republic of Korea and Haor in Bangladesh. The obtained results show advantages of the presented methodology over the existing ones. The computed FIs at different locations of the catchment corresponding to different exceedance probabilities provide the summarized understanding of the flooding characteristics of the catchment. The spatial and temporal variation of FI presents a snapshot of flood risk in a catchment and can be used in strategic decision making in flood risk management, for example, in spatial planning, flood zoning and flood event management. The developed methodology can be easily applied to poorly gauged catchments where it is difficult to build accurate flood forecasting models.

Key words: Flood Index, flood risk management, Haor, Kentucky, Oc-gok

Received: February, 2016; Revised final: October, 2016; Accepted: December, 2016; Published in final edited form: May 2019

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