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"Gheorghe Asachi" Technical University of Iasi, Romania

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

Biswa Bhattacharya[1*], Asadusjjaman Suman[2], Dimitri Solomatine[1,3]

[1]UNESCO-IHE Institute for Water Education, Delft, The Netherlands
[2]Institute for Applied Ecology, Faculty of ESTeM, University of Canberra, Australia
[3]Water Resources Section, Delft University of Technology

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 normalised 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 summarised 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

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[*]Author to whom all correspondence should be addressed: e-mail: b.bhattacharya@unesco-ihe.org