عنوان مقاله:

A pseudo-distributed deterministic geomorpho-climatic Instantaneous unit hydrograph approach

محل انتشار:

ششمین کنفرانس بین المللی مهندسی عمران (سال: 1382)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

A pseudo-distributed Gamma type geomorpho-climatic instantaneous unit hydrograph (GcIUH) method is presented as a physically based technique for modeling of basin runoff. The proposed approach is an out-growth of the research on geomorphological instantaneous unit hydrograph (GIUH), GcIUH and also the effect of path type on distributed runoff generation (Jin model). Velocity effects are virtually eliminated in the proposed approach, incorporating GcIUH and the Gamma function. Green-Ampt infiltration theory is used for a more proper treatment of soil physical behavior to separate excess rainfall values. A representative basin in northern I.R. Iran is selected for actual evaluation of the proposed methodology. The results of the proposed model along with the original GcIUH and both original and modified Jin model are compared with the observed hydrograph data. In all cases the proposed approach has provided peak discharge, time to peak, and volume of surface runoff with higher accuracy. For a number of sub-basins, multi-peaked outflow hydrographs are developed, indicating the effect of individual surface responses with different lag times. The proposed pseudo-distributed approach is a major departure from the lumped nature of the unit hydrograph towards a distributed one

کلمات کلیدی:

Pseudo-distributed model, GIUH, GcIUH, Velocity analysis

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