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**How can streamflow and climate-landscape data be used to estimate baseflow mean response time?**

Runrun Zhang<sup>a,b</sup>, Xi Chen<sup>a,b\*</sup>, Zhicai Zhang<sup>a,b</sup>, Chris Soulsby<sup>c</sup>, Man Gao<sup>a,b</sup>

<sup>a</sup> *State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering*

*Hohai University, Nanjing 210098, China*

<sup>b</sup> *College of Hydrology and Water Resources, Hohai University, Nanjing 210098,*

*China*

<sup>c</sup> *School of Geosciences, University of Aberdeen, Aberdeen AB24 3UF, United*

*Kingdom*

\*Corresponding author      E-mail: xichen@hhu.edu.cn

**Abstract:** Mean response time (*MRT*) is a metric describing the propagation of catchment hydraulic behavior that reflects both hydro-climatic conditions and catchment characteristics. To provide a comprehensive understanding of catchment response over a longer-time scale for hydraulic processes, the *MRT* function for baseflow generation was derived using an instantaneous unit hydrograph (IUH) model that describes the subsurface response to effective rainfall inputs. IUH parameters were estimated based on the “match test” between the autocorrelation function (ACFs) derived from the filtered base flow time series and from the IUH parameters, under the GLUE framework. Regionalization of *MRT* was conducted using estimates and hydroclimate-landscape indices in 22 sub-basins of the Jinghe

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