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# Evaluating the streamflow simulation utility of PERSIANN-CDR daily rainfall product over a medium-sized humid basin

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**Abstract** This study aims to investigate the streamflow simulating utility of newly developed Precipitation Estimation from Remotely Sensed information using Artificial Neural Network-Climate Date Record (PERSIANN-CDR) product over a medium-sized humid basin in China. PERSIANN-CDR provides long term daily rainfall products at 0.25º temporal resolution from 1983 to now. The Grid-Xinanjiang model was firstly applied to simulate streamflow with PERSIANN-CDR, TRMM Multisatellite Precipitation Analysis (TMPA) and raingauge observations as forcing input for the year of 1998 to 2013, when the TMPA precipitation products are available. The streamflow simulation evaluation shows that PERSIANN-CDR-derived streamflow simulations are comparable with the TMPA-simulated streamflows in terms of relatively high Nash–Sutcliffe coefficients (NSEs), and low biases. Then we extended the streamflow simulation of PERSIANN-CDR and raingauge observations to the year of 1983 to 2013, where only PERSIANN-CDR rainfall products are available. The results show that PERSIANN-CDR-based streamflow simulations have acceptable precisions. This streamflow simulation utility evaluation partly indicates that the PERSIANN-CDR rainfall product has good potential to provide an alternative rainfall information for conducting long-term streamflow simulations and climate change studies for the past three decades.

**Key words** Satellite precipitation; PERSIANN-CDR; Hydrological modeling; Streamflow Simulation Utility