>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Title	Assessing The Potential Of Four Near Real-Time Satellite-Based Precipitation Products For Streamflow Simulation In A Mountainous Catchment.
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Abstract

Satellite-based precipitation products (SPPs) with high spatio-temporal resolution have become critical data sources for streamflow simulation in recent years. Their short latency (time lag), global and temporal coverage perfectly match many hydroclimatic studies requirements. However, the detailed evaluation of near real-time SPPs is essential before they become operational. Therefore, this study aims to evaluate the spatio-temporal consistency and hydrological utility of four SPPs (IMERGHHEv06, TMPA-3B42RTv7, PERSIANN-CCS, and PERSIANN) over a mountainous test basin (Karasu) in the eastern Turkey. The accuracy of selected SPPs compared to observed precipitation is expressed in the form of Kling-Gupta Efficiency (KGE) and Hanssen-Kuiper (HK) skill score is exploited to address the detectability strength of selected SPPs for five different precipitation intensities. Moreover, the hydrological utility of SPPs is evaluated using a conceptual hydrologic model under Nash-Sutcliffe Efficiency (NSE) and KGE indicators. Overall, IMERHHEv06 shows the highest performance (median KGE of 0.11) for the direct comparison with observed precipitation followed by PERSIANN (median KGE of 0.06), where TMPA-3B42RTv7 and PERSIANN-CCS show low performance (median KGE less than zero) comparatively. Furthermore, all SPPs show higher ability for streamflow simulation (KGE; 0.28–0.79) when the model is calibrated by each SPPs individually.

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