



Comparison of the effect of using different precipitation data sources on VIC-3L model calibration

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Macroscale hydrological models, due to their physically based structures and consideration of most crucial process in the energy and water balances, have a high potential for estimating the spatial distribution of soil moisture, soil temperature, evapotranspiration and stream flow. One of the most applicable models that have been considered in recent decades is the semi-distributed, and macro scale model called as Three-Layer Variable Infiltration Capacity model (VIC-3L). On the other hand, the number of different rainfall dataset has increased impressively over the past decades. Finding the most suitable rainfall dataset for achieving the most accurate rainfall-runoff simulations is one of the most critical issues in water resource management. The purpose of this study is to compare the impacts of using different rainfall datasets on runoff simulated by the VIC-3L hydrological model on the Qaresou catchment in the southwest of Iran. The following datasets are included: ECMWF (0.125 degree), CRU (0.5 degree), PERSIANN-CDR (0.25 degree) and TRMM (0.25 degree) on a daily basis for the period from 2010-2012. Doab-Marak Station runoff observations data were used to compare with VIC's simulated runoff under different rainfall datasets. The results showed that between all above-mentioned datasets, ECMWF has the most appropriate result with R², Nash, and RMSE of 0.85, 0.82 and 2.53 respectively.