

Analysing Impact of Climate Change on Hydrological Trend in Kelantan River Basin Using HEC-HMS Coupled with SDSM

Abstract

Climate change dramatically alters many hydrologic systems, which affects the availability of water and leads to runoff and river discharge. This study assessed the effects of the future scenario of climate change on the monthly river discharge of the Kelantan River Basin, Malaysia. Statistical DownScaling model (SDSM) was used to downscale the rainfall from large climate variables of the second-generation Canadian Earth System Model (CanESM2) under the Representative Concentration Pathways of 8.5 (RCP 8.5) and project future river discharge using the Hydrologic Modeling System (HEC-HMS). From this study, the monthly rainfall and river discharge over the Kelantan River basin will be significantly reduced in the future by 30 and 50% compared to the current period.

Keywords

CanESM2; HEC-HMS; Hydrology; Kelantan River Basin; Rainfall; Statistical downscaling model