

Potential Effects of Climate Change on Streamflow, Based on the Occurrence of Severe Floods in Kelantan, East Coasts of Peninsular Malaysia River Basin

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Abstract : Malaysia is a country in Southeast Asia that constantly exposed to flooding and landslide. The disaster has caused some troubles such loss of property, loss of life and discomfort of people involved. This problem occurs as a result of climate change leading to increased stream flow rate as a result of disruption to regional hydrological cycles. The aim of the study is to determine hydrologic processes in the east coasts of Peninsular Malaysia, especially in Kelantan Basin. Parameterized to account for the spatial and temporal variability of basin characteristics and their responses to climate variability. For hydrological modeling of the basin, the Soil and Water Assessment Tool (SWAT) model such as relief, soil type, and its use, and historical daily time series of climate and river flow rates are studied. The interpretation of Landsat map/land uses will be applied in this study. The combined of SWAT and climate models, the system will be predicted an increase in future scenario climate precipitation, increase in surface runoff, increase in recharge and increase in the total water yield. As a result, this model has successfully developed the basin analysis by demonstrating analyzing hydrographs visually, good estimates of minimum and maximum flows and severe floods observed during calibration and validation periods.

Keywords : east coasts of Peninsular Malaysia, Kelantan river basin, minimum and maximum flows, severe floods, SWAT model

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