**HYDROLOGICAL RESPONSES TO LAND COVER CHANGES**

**IN A TROPICAL CATCHMENT AREA**

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**ABSTRACT:** The changes in land use/cover at particular area has a negative impact on hydrological response. Extreme weather-related hazards such as flood, drought, extreme precipitation will be more frequent under a nonstationary condition. This study was undertaken the use of remote sensing data with the aid of geography information system to assess the hydrological response due to the land use/cover changes at tropical catchment area. The focus of hydrological response in this study are rainfall, evapotranspiration, discharge. The study in Bekok catchment area in the state of Johor, Peninsular Malaysia. This area has experienced extensive land use/cover changes, particularly in the past 10 years due to the development of agriculture activities such as oil palm. Total of 5 Landsat TM imagery were used to determine the changes of land use/cover in surrounding Bekok catchment area. Canopy fractional cover was used an approach to extract absolute evapotranspiration with the aid of TRMM-derived evapotranspiration product. Rainfall data was extracted from TRMM 3B24 product. Both estimates absolute evapotranspiration and rainfall data were showed good correlation with ground truth data. The results showed that the changes in hydrological elements is influenced by the change of the land cover during the study period.

**Keyword:** Remote sensing, Geography Information System, hydrologic response, nonstationary