

HYDROLOGICAL RESPONSES TO LAND COVER CHANGES IN A TROPICAL CATCHMENT AREA

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ABSTRACT: The main focus of this study is to assess the hydrological response due to the land cover change through satellite remote sensing, TRMM 3B42 V7 TOVAS rainfall data, GLDAS evapotranspiration data and Geographic Information System (GIS). The study is carried out in Bekok catchment area in the state of Johor, Peninsular Malaysia. This area has experienced extensive land use changes, particularly in the past 10 years due to the development of agriculture activities. A series of Landsat 5 images were used to extract land use/cover information for the purpose of detecting land use/cover changes in the study area. An analysis of TRMM data and recorded ground-based rainfall station has shown that these two sources of data are highly correlated with maximum and minimum r value of 0.962 and 0.783, respectively. The results show that the changes in hydrological elements could be relayed to the change of the land cover during the studied period.

Keyword: Remote sensing, Geography Information System, TRMM 3B42 V7 TOVAS, GLDAS