

Hydrological trend analysis due to land use changes at Langat River Basin.

ABSTRACT

This present study was carried out to detect the spatial and temporal change (1974-2000) in hydrological trend and its relationship to land use changes in the Langat River Basin. To obtain a clear picture of the hydrological parameters during the study period, rainfall data were analyzed. With the help of GIS and non-parametric Mann-Kendall (MK) statistical test the significance of trend in hydrological and land use time series was measured. Trend analyses indicated that a relationship between hydrological parameters namely discharge and direct runoff and land use types namely agriculture, forest, urban, waterbody and others was evident. This analysis indicates that rainfall intensity does not play an important role as a pollutant contributor via the rainfall runoff process nor does it directly influence the peak discharges. Land use shows tremendous changes in trend surrounding Dengkil station compared a little changes surrounding Lui station. Mann-Kendall test of trend shows an increasing trend ($p\text{-value} < 0.01$) of annual maximum-minimum ratio for Dengkil station, while no significant trend is observed for Lui station. There is evidence that regional variability in discharge behaviour is strongly related to land use or land cover changes along the river basin.

Keyword: Trend analysis; Temporal change; Mann-Kendall; Land use; Hydrological.