

Raya Sookseangchai 2014: Study of Changing in Rainfall-Runoff Parameters of HEC-HMS Model for the Eastern Basin. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Mr. Nat Marjang, Ph.D. 131 pages.

The study aims to calibrate mathematical model HEC-HMS, which is located in the study area in the eastern basins consists Prachin Buri River Basin, Bang Pakong River Basin, Tonle Sap River Basin, and East-Coast Gulf River Basin. 10-gauging station data were calibrated and verified by compare the changes in the parameters of flooding in the past to the present. The land use maps of 1992 and 2008 were used to represent the past and the present land use conditions, respectively. By studying their relationship with land use changes, the parameters are calibrated with eight parameters and the parameters can be grouped significantly to be : 1) parameters significantly change by land use, including Initial loss increased 16.67%, constant loss rate increased 22.72% and %impervious increased 34.40% and 2) the parameters that are significant to the hydrograph include snyder standard lag (t_p) which is unchanged, Snyder Peaking Coefficient (c_p) increased 19.01%, ratio to peak increased 42.22% and recession constant increased 24.20%. Initial Q and parameters configured by default parameters of the calibration events. The accuracy of calibrations and verifications are with the Correlation Coefficient (r) between 0.74 to 0.98 and the Efficiency index (EI) between 68 to 98%, which is within the acceptable limits. The results of calculated flood hydrographs for the return period of 2-100 years show that the maximum runoff volume decreased from 1992 to 2008 according to land use change from forest area to be agricultural area.

Student's signature

Thesis Advisor's signature