TOPIC:

Using of digitized watershed characteristics to model precipitation-runoff relation toenhance sustainability on Nzoia River Basin.

Abstract: A hydrologic model is a simplification of a real-world system that aids in understanding, predicting and managing water resources. Runoff models visual what occurs in water system due to changes in previous surface, vegetation and meteorological events. runoff models by definition are set of equations that aid in the estimation of the amount of rainfall that turns into runoff as a function of various parameters used to describe the watershed. Though they are number of rainfall-runoff models, these models often lack an analytical expression for converting storm event rainfall into runoff. This paper intends to use catchment scenario generated from the geographic wizard of the Digital Elevation Model (DEM) data on the characteristics of the watersheds within Nzoia River Basin to derive an equation for modelling precipitation- runoff relation. Graphically, this expression is a curve and the shape of this curve is controlled by one water storage parameter that is refenced with a curve number (CN) index. Runoff CNs are based on watershed characteristics such as soil type, land use, topography, slope, and size. Use of digitized data improves the efficiency of the model and allowscontinuous real - time modeling to provide information on planning, designing, managing and development of water resources to enhance sustainability.