

Physical Characterization of a Watershed for Correlation with Parameters of Thomas Hydrological Model and Its Application in Iber Hidrodinamic Model

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Abstract : This study determined the relationship between basic geo-technical parameters and parameters of the hydro logical model Thomas for water balance of rural watersheds, as a methodological calibration application, applicable in distributed models as IBER model, which represents a distributed system simulation models for unsteady flow numerical free surface. There was an exploration in 25 points (on 15 sub) basin of Rio Piedras (Boy.) obtaining soil samples, to which geo-technical characterization was performed by laboratory tests. Thomas model has a physical characterization of the input area by only four parameters (a, b, c, d). Achieve measurable relationship between geo technical parameters and 4 values of hydro logical parameters helps to determine subsurface, underground and surface flow more agile manner. It is intended in this way to reach some solutions regarding limits initial model parameters on the basis of Thomas geo-technical characterization. In hydro geological models of rural watersheds, calibration is an important process in the characterization of the study area. This step can require a significant computational cost and time, especially if the initial values or parameters before calibration are outside of the geo-technical reality. A better approach in these initial values means optimization of these process through a geo-technical materials area, where is obtained an important approach to the study as in the starting range of variation for the calibration parameters.

Keywords : distributed hydrology, hydrological and geotechnical characterization, Iber model

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