An Intensity - Duration - Frequency Model For Design Storms In Venezuela

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Abstract. Hydrologic design methods of small hydraulic structures use Intensity - Duration - Frequency Analysis (IDF - Analysis) of storms. In countries as Venezuela with poor information, engineers process the scarce available data to estimate the design parameters. This investigation deals with the development of a useful model to estimate maximum rainfall intensities for any duration and frequency in Venezuela on the basis of the General Equation for Hydrologic Frequency Analysis (GEHFA). Extreme rainfall data of 162 rain recorders spread all over the country were used for the analysis in conjunction with a transform function that linearize the mass curve of the accumulated rainfall amounts and the method of minimum squares to estimate the parameters of the GEHFA. The results are presented as isolines of μ and s over a map of the country. Based on the high magnitude of he correlation coefficients, always over 0.99, one can conclude that the developed model will constitute a reliable and useful tool for the estimation of the rainfall design parameters for small structures in Venezuela.