

Determination of the Intensity-Frequency Curves (IDF) for the city of Cartagena de Indias in Colombia During the Period Between 1970 and 2014

Perez Marquez, Fabio; Gutierrez Jaraba, Johon

Researchers, Fundación Tecnológica Antonio de Arévalo -TECNAR, Colombia,
johon.gutierrez@tecnar.edu.co, fabio.perez@tecnar.edu.co

The analysis of rainfall behavior in a geographic hollow is of interest for meteorological, edaphological, hydrological and hydraulic reasons, since it provides indexes that allow flood studies or the elaboration of precipitation-runoff models for an adequate design and sizing of works Civilians. Additionally they allow the interpretation of some variations related to the climatic change in a certain afferent zone.

Due to the above and given that in some cases, they do not have flow records updated or because they do not have sufficient duration to perform the required frequency analyzes, rainfall data should be used to estimate floods of a certain frequency. In that sense, when using the information of records of rainfall or rainfall stations, it is necessary to translate it into forms expressed in intensity curves in such a way that they remain in function of the duration and the frequency, thus allowing to contribute behavioral patterns of the Rains in such a way as to provide reliable and effective designs for hydraulic engineering by engineers and trained technical personnel, with the IDF curves becoming a tool for analysis in the short, medium and long term.

The present work shows the process of elaboration of the Intensity-Duration-Frequency (IDF) curves between the years 1970 and 2014 for the city of Cartagena de Indias in Colombia, based on precipitation patterns measurement reports of the Rafael Núñez Airport synoptic station, Code IDEAM 1401502 located at the coordinates $10^{\circ} 26'9''N$ and $75^{\circ} 31'1''W$ of the Colombian Caribbean coast at an altitude of 2 meters.