Selecting the best intensity-duration-frequency model by using the multifractal approach

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The Intensity-Duration-Frequency (IDF) curves can be obtained by analysing extreme rainfall data for a certain place. They are widely used when designing artificial drainage systems or engineering woks that interfere with natural river networks. There are many analytical expressions for the IDF curves that are characterized by a variable number of parameters, typically from 2 to 4. A proper choice of the IDF model may improve the estimations significantly.

The objective of the present work is the use of the multifractal properties of rainfall for selecting the most appropriate IDF model in Malaga, at the south of Spain. Four analytical formulations for the IDF curves have been analysed. The scaling properties of the IDF models have been derived permitting the detection of the best model to be used in the chosen place. The selected equation is widely used in Spain for many hydrologic studies.