Flooding simulation

This sub-model simulates the number of yearly events of flooding in each neighborhood, given a probability. Three initial prototypes have been explored so far to obtain these probabilities: 1) a contingency Bayesian matrix approach based on calculating the partial probabilities of the number of events, given the amount of rainfall. The second model uses the same Bayesian contingency table approach, but divides the city in terms of age and defines contingency tables for an older city and a newer city. Instead of rainfall, these tables use the capacity of the sewer system as a predictor. In this case the model calculates the partial probability that a census block will have a number of events in intervals, conditional on the capacity of the sewer system. Both variables show a relationship, and therefore a new model that combines the effect of all variables was also included. This model is a regression of the form

These models were derived from observed frequencies of total precipitation events, the capacity of the sewer, and the average age of the city. This information was obtained from the water system of Mexico City (metadata of age layer).

A new model that combines all of the above information in a single unified model is currently under development.