



## **A historical perspective in climate and flood variability in Mexico City**

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This study investigates the historical variability in rainfall-runoff processes across different small watersheds throughout the urban conglomeration of Mexico City. The main hypothesis is that changes in high flows and extreme floods can be attributed to changes in the land cover, although not measurable during the whole study period.

It is assumed that historical trends in precipitation and streamflow individual events are representative of watershed land use and cover changes. On the other side, rainfall-runoff relationships over longer periods, for instance, monthly runoff coefficients are not considered to be necessarily correlated to land use changes as they may depend on climatic variability. The available hydroclimatic records involve 70 years of data, starting in 1942. Similar climatic deviations, expressed as anomalies were found among different variables that control the water balance such as precipitation, temperature and relative humidity.

Also, it was found that the lag time in most of the analyzed watersheds had decreased over time. This can be explained by river modification during urbanization processes. These results are in agreement with many studies claiming that flood variability over time is the consequence of land cover alteration rather than climate trends.