



Hurricane-driven floods in Mexico City

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Over thousands of years, floods have globally been the main cause of natural disasters. Over the last century, the impact of floods has been increased due to several factors as the rise in human population, settlements in risk prone areas, land use and cover changes and, the intensification of the hydrological cycle. Currently, disaster management must be carried out with the support of multidisciplinary teams that combine hydrologic and hydraulic studies with socio-economic assessments.

We provide an example from the metropolitan area of Mexico City. Previously located in an endorheic basin, its current location lies over several lakes that were intensively managed since the 17th century. Although regular floods have been a characteristic of the region, it is since the 17th century that major sewage works were built in order to mitigate the impact of floods on the urban area. Nowadays, the basin has four artificial outlets that drain the urban runoff and wastewater though only one outlet is gravity-based whereas the remaining three need pumping to work properly. Hence, a hypothetical failure in the drainage system during a major storm event could trigger a flood-related catastrophe. The occurrence of such catastrophe could be driven by precipitation systems derived from the incidence of hurricanes along the Gulf of Mexico. This work analyzes the failure of the gates in the sewage system that provoked a substantial urban inundation in the northern part of Mexico City.