Hydrology in a Changing World: Environmental and Human Dimensions
Proceedings of FRIEND-Water 2014, Montpellier, France, October 2014 (IAHS Publ. 363, 48-53, 2014).

Climate change impact on flood generation process

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Abstract This study aims to assess the impact of climate change on flood frequency and severity in a meso-scale catchment in France. The research was conducted on the catchment of the Yzeron River in western Lyon. First statistical tests showed that both flood frequency and severity increased between the two distinct periods in the 1970s and 1990s. During the same period an increase in accumulated rainfall amount over several days and an increasing urbanisation from 20 to 35% of the catchment area was observed. In order to assess the influence of each change a diachronic approach was used with rainfall and land-use data from the two periods of the 1970s and 1990s. The data were used to calibrate a distributed hydrologic model. The simulations showed the respective effect of both, climate change (through rainfall regime change) and urban development on flood frequency and flood risk.

Key words climate change; simulation model; flood regime