Flood risk analysis in the area with rapid urban development

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This paper presents a study that aims to evaluate the impact of urban development on the flood regime of a small river. This research was conducted on the catchment of the Yzeron River in western Lyon. The Yzeron catchment is mid-size (130 square kilometres), characterized by a rapidly expanding, scattered periurban development. Statistical tests showed that both flood frequency and severity have increased in this catchment, between two distinct periods: the 1970s and the 1990s. Evaluation of the specific impact of urban development on the flood regimes requires paying attention to all possible contributing factors. For that purpose, a diachronic approach was used, with hydrologic and land-use data from the two periods. The data were used to calibrate a distributed hydrologic model and then to simulate the urban, periurban, and rural hydrologic contributions. Also, it was compared the flood vulnerability amount with the flood hazard increase between the two periods to assess what components mainly affect the flood risk during this land use evolution. Key Words: peri-urban, runoff, simulation model, flood regime