Urban and peri-urban flood impact change: the case of the Metropolitan Area of Barcelona

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Abstract

Climate change is expected to affect flooding in many urban areas. This study analyzes the impact of floods in the AMB (Barcelona Metropolitan Area) during the period 2000–2015. The relationship between precipitation, flood events, and their impacts is modeled. Data from the local observatories is used to analyze the geographical and temporal changes of flood events. The flood impact index (FI) is applied to assess the impact of flood events on the AMB. The spatial distribution of flood events is evaluated using a geographical information system. Results indicate an increase in the number of flood events, with a significant increase in the number of events in recent years. The areas most affected are the central and metropolitan regions. The analysis shows that the impact of flood events has increased in recent years, mainly due to an increase in the number of events. The results are discussed in the context of climate change and urbanization.

Keywords

Floods, urban areas, climate change, flood impact, geographical information system.