

Urban stormwater services: assessment and management of urban resilience

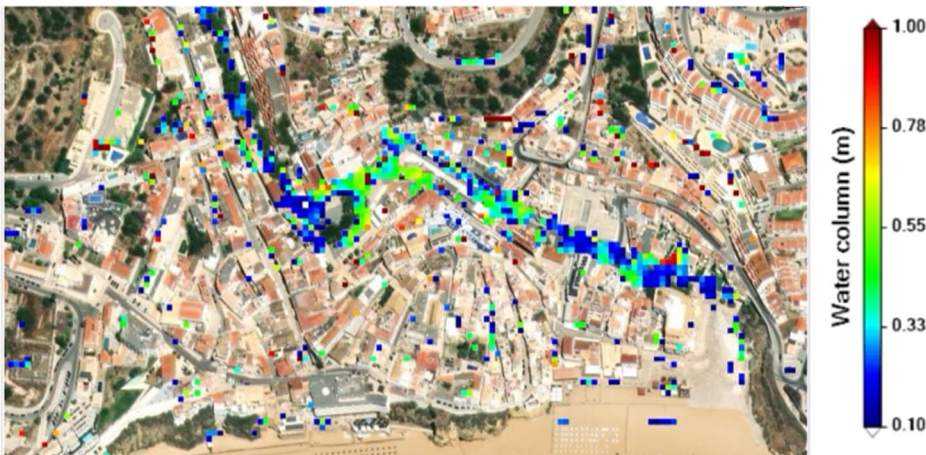
Summary

The growing demands placed on the performance of urban systems, namely regarding the quality and continuity of the services, increase the needs for information enabling better management by water utilities. Additionally, the simultaneity of increasingly uncertain urban challenges and risks, such as extreme rainfall events, place urban resilience management at the top of political agendas. Such approach allows a holistic analysis of the performance of urban systems. The lack of mechanisms to meet these needs provides a research opportunity on the field of assessment and management of urban resilience.

The strategic objective of the thesis is the proposal of a methodology to assess and manage urban stormwater services' resilience, based on 1D/2D hydrodynamic modeling and composed by a set of measurable indicators. The work developed aims to contribute to a better management of this urban service, including the evaluation of measures and strategies for adaptation to climate change considering the increase of the sea level and of the intensity and frequency of extreme rainfall events. Thus, the proposed methodology aims to be an instrument to support decision-making for the sustainable and resilient development of cities. This methodology will be tested and validated with its application to the study of the cases of Baixa de Alcântara area, in Lisbon, and the urban center of Albufeira.

Keywords

Climate change, urban stormwater services, 1D/2D modeling, urban resilience.



Preliminary results obtained for the simulation of a synthetic rainfall of 10-year return period in the study of the case of Baixa de Alcântara.



PhD student

João Pedro Lopes Barreiro

PhD program

Environmental Engineering (IST, University of Lisbon)

Supervisor

Jose Saldanha Matos (CERIS, IST, University of Lisbon)

Co-supervisor

Filipa Ferreira (CERIS, IST, University of Lisbon)

Period

2019-2024

Funding

FCT scholarship