

# Flood risk assessment arising from the joint occurrence of extreme precipitation, sea level rise and storm surge. The case study of Lisbon

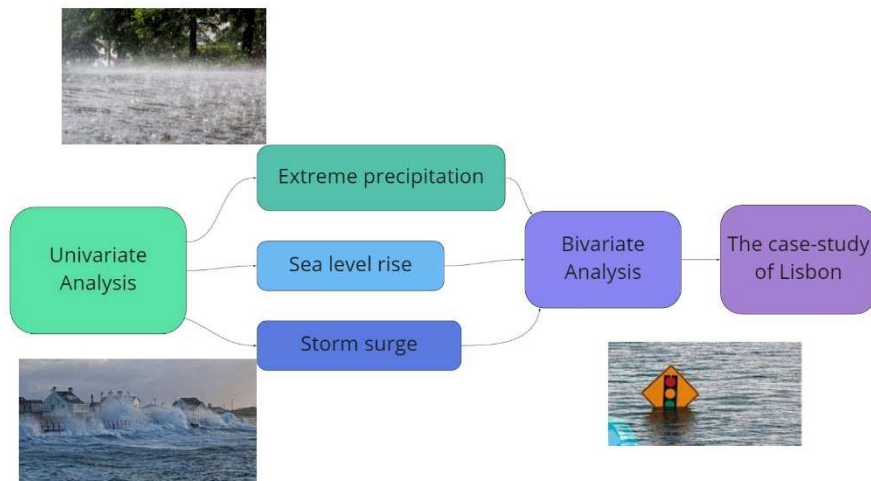
## Summary

The purpose of this PhD thesis is to assess the flood risk resulting from the joint occurrence of extreme precipitation, sea level rise, high tides, and storm surge events, in mainland Portugal, for new climate scenarios. Firstly, a univariate analysis of the climate scenarios for each phenomenon will be performed, distinguishing their random and deterministic components. A multivariate analysis will follow to estimate the probability of joint events and to assess how will it change with climate change.

The research will focus on the case-study of the city of Lisbon, analysing the most vulnerable areas and their associated risks. This work will improve the flooding risk assessment and contribute to enhanced public policies that will make coastal cities better prepared and more resilient to a changing climate.

## Keywords

Climate change, extreme precipitation, sea level rise, storm surge, compound events.



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