

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-05
Project Title:	Flood prevention standards in Hong Kong under climate change – Non-stationarity and joint behavior of rainfall and sea level
Principal Investigator:	Dr Li Jianfeng, Department of Geography, Hong Kong Baptist University
Total Approved Grant:	\$712,000
Duration:	1/10/2022 to 31/3/2025
Project Status/Remarks:	On-going
Project Scope:	<p>Flood prevention standards are crucial references for the planning and design of urban stormwater drainage systems. The flood prevention standards in Hong Kong consider the conjunction of heavy rainstorm and high sea level, e.g., 200-year rainfall with 10-year sea level. A comprehensive investigation of the joint behavior of rainfall and sea level will be a crucial scientific basis to formulate cost-efficient flood prevention standards. The current frequency analysis in flood prevention standards is based on the stationary assumption in which the climate is assumed to remain unchanged over time. However, under the impact of climate change, this assumption is obsolete. Incorporating the non-stationarity and uncertainty of future climate change in flood prevention standards is needed to improve the capacity and cost efficiency of flood protection strategies in Hong Kong against future climate extremes.</p> <p>This study aims to assess the joint behaviors of rainfall and sea level, evaluate the non-stationarity of floods in Hong Kong under the past and future climate, and explore how to incorporate non-stationarity and uncertainties of future climate change in flood prevention standards. The results will contribute to improve the cost efficiency and performance of flood adaptation and resilience measures of Hong Kong under climate change.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project