



## **Development of an Impact-Oriented Quantitative Coastal Inundation forecasting and early warning system with social and economic assessment**

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Coastal inundations are an increasing threat to the lives and livelihoods of people living in low-lying, highly-populated coastal areas. According to a World Bank Report in 2005, at least 2.6 million people may have drowned due to coastal inundation, particularly caused by storm surges, over the last 200 years. Forecasting and prediction of natural events, such as tropical and extra-tropical cyclones, inland flooding, and severe winter weather, provide critical guidance to emergency managers and decision-makers from the local to the national level, with the goal of minimizing both human and economic losses. This guidance is used to facilitate evacuation route planning, post-disaster response and resource deployment, and critical infrastructure protection and securing, and it must be available within a time window in which decision makers can take appropriate action. Recognizing this extreme vulnerability of coastal areas to inundation/flooding, and with a view to improve safety-related services for the community, research should strongly enhance today's forecasting, prediction and early warning capabilities in order to improve the assessment of coastal vulnerability and risks and develop adequate prevention, mitigation and preparedness measures. This paper tries to develop an impact-oriented quantitative coastal inundation forecasting and early warning system with social and economic assessment to address the challenges faced by coastal communities to enhance their safety and to support sustainable development, through the improvement of coastal inundation forecasting and warning systems.