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Assessing Effect of Climate Changes on Inundation in the Keelung River

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In recent years, the trend having more frequent extreme weather can be observed in Taiwan. The inundations caused by extreme climate make serious damage in the lowlands along the Keelung river. For evaluating the effects on inundations due to climate changes and sea level rising resulted from global warming, this study derived short-term (2010∼2039 year), middle-term (2040∼2069), and the long-period (2070∼2099) climate scenarios based on the HADCM3 transition experiment of SRES (Special Report on Emissions Scenarios). Then, a 2D inundation model is applied to perform flooding simulations for producing the different period inundation maps in the Keelung river basin located in northern Taiwan. The results show that the peak rainfall increases, which causes increasing peak river discharge. Therefore, the flooding depth increases significantly from the short-term to long-term inundations.