



Risk analysis for the flood control capacity of dikes under climate change

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Climate change is the major reason for many extreme disaster events. In recent years, scientists have revealed many findings and most of them agree that the frequency of extreme weather and its corresponding hydrological impact will increase due to climate change. In such situation, the current hydrologic designs based upon historical observation, which could be changed, are necessary to review again under the scenario of climate change.

It is for this reason that this study uses Kao-Ping River Basin as an example, using high resolution dynamical downscaling data (base period, near future, and end of the century) to simulate changes in hourly flow rate of typhoon events in each of the three 25-year periods. Results are further compared with the design flow rate announced by the competent authority of water resources, as well as recorded river water levels of the most severe typhoon event in history and risk analysis basic on factors, to evaluate the risk and impact of river flooding under climate change. From the simulation results, the frequency of exceeding design discharge in Kao-ping river catchment will increase in the end of century. The water level at these LI-LIN BRIDGE and SAN-TI-MEN gauges could be obviously influenced due to the extreme rainfall events, so that their flood control capacity should be assessed and improved.