



## Water resources planning under climate change with uncertainty

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Climate change in water resources planning is an important issue around the world. Even the impacts of climate change on water resources still exit lots of uncertainties, including predictions, downscaling, parameters and hydrological models. These uncertainties should be classified and qualified, and applied in water resources systems. In this study, the outputs of the nearest grids among GCMs and downscaling methods are discussion for a water resources system in Taiwan. The paper provides a procedure to present all uncertainties to decision makers from scenarios, models and parameters. And making the information of uncertainties is useful in water resources management. Interval numbers of stream flow and fuzzy sets of uncertainties are used in this study. The results showed annual stream flow present lower uncertainties under climate change, but stream flow within seasonal showed high uncertainties. The results of single GCM may lead different impacts of climate change from the results of several GCMs' predictions. Changes in uncertainty magnitude may affect decisions made by risk managers.