

# Impact of climate change and reservoir operation on discharge in the Kiso River Basin

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The frequency and intensity of heavy precipitation events over land will likely increase in the future, as mentioned in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. The increasing number of extreme events severely challenges existing disaster defence structures, which have exhibited their vulnerability in some extreme events, e.g. the heavy rainfall in the central Japan in July 2018. Hence, there exists an urgent need to assess the possible impacts of climate change according to regional characteristics and provide effective and proactive water resource management adaptation measures for the local government to mitigate these impacts.

Consequently, innovative reliable technologies are needed in predicting the precise impacts of climate change and evaluate the effectiveness of adaptation measures. Therefore, an integrated water resources management model for climate change impact assessment and effectiveness evaluation of countermeasures at river basin and urban scales was developed. By using this model, the impact of climate

change and a series of reservoir operations have been discussed in the Kamo River basin. The near future (2031-2050) and future (2079-2098) changes of water resources and river discharge are assessed by using several high-resolution climate data.

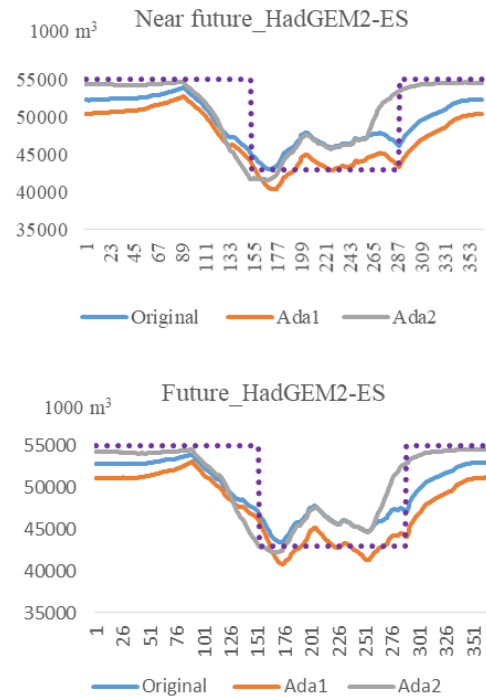


Figure 1 Annual average daily water volume of Misogawa Dam (HadGEM2-ES model)

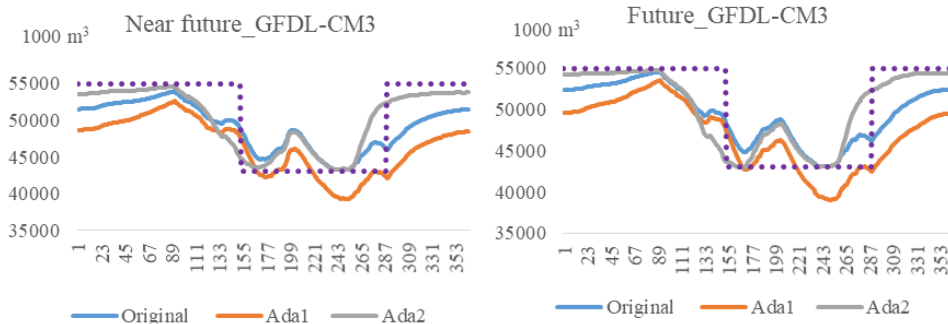


Figure 2 Annual average daily water volume of Misogawa Dam (GFDL-CM3 model)