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Development of uncertainty reduction method for climate change impact assessment on high dam inflow

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Water availability in a region is one of the most important factors to determine the quality of human life and the availability can be changed spatially and temporally due to the impact of climate change. Therefore, the quantitative assessment of change in water availability and appropriate water resources management measures are needed for corresponding adaptation strategies. However, there are high uncertainties in climate change impact assessment on water resources. In this reason, the development of technology to evaluate and reduce the uncertainties quantitatively is required. The objectives of this study are to develop the uncertainty reduction method for climate change impact assessment and to access the uncertainties of future projection for dam inflow in Chungju dam basin in South Korea. The 5 RCMs (HadGEM3-RA, RegCM4, MM5, WRF, and RSM), 5 statistical post-processing methods (SPP) and 2 hydrological models (HYM) were used in this study. As results, the RCMs with relatively lower simulation ability in past historical observation events had the higher uncertainty in future projection results. Therefore, RCMs with lower historical simulation ability and higher uncertainty should be excluded for the evaluation of future projections. Also, the statistical post-processing methods that cause higher uncertainty should be excluded because these methods distort the original climate change information. Through this research, the guidelines for constituting the modules for GCM downscaling and hydrologic model are supplied for the reliable climate change impact assessment and the study results in the application area are provided in this study.

Biography

Moon-Hwan Lee has completed his Ph.D at the age of 33 years from Sejong University, Seoul, Korea. He is Post-doctoral researcher in Sejong University. He has published 2 SCI papers and various Korean journal papers related to climate change and water resources area.

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