

## *Future change analysis of extreme floods using large ensemble climate simulation data*

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### **Abstract**

Future change analysis of extreme floods in Japan using large ensemble climate simulation data is discussed. At first, a change of the magnitudes of probable largest-class floods caused by a historical typhoon is analyzed using typhoon track ensemble simulations combined with a pseudo-global warming experiment. Then, to estimate a change of probability distributions of extreme rainfall and floods, simulated river discharge using “Database for Policy Decision-Making for Future Climate Change, d4PDF” is analyzed. The d4PDF consists of large ensemble members of climate simulations for the 60-years historical simulations with 50 ensemble members and 60-years future simulations with 90 ensemble members. The magnitude of a largest-class floods equivalent to a 900-years flood is also analyzed. The study basins are the Ara River basin (2940km<sup>2</sup>) in the Tokyo metropolitan area, the Shonai River basin (1010km<sup>2</sup>) in the Nagoya area, and the Yodo River basin (8240km<sup>2</sup>) in the Osaka and Kyoto area in Japan. The results reveal the clear increase of the magnitude of extreme rainfall and floods.

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