

Future risk assessment of two types of climate-related disasters: fluvial flood risk and tropical cyclone risk in Asia

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This presentation will consist of two parts. Both are recent attempts on large-scale risk assessment of climate-related disasters particularly in Asia. This presentation will be done on behalf of many other collaborators.

Firstly, we estimated future changes in tropical cyclone risk in the Western North Pacific using a Stochastic Typhoon Model (STM). Information derived from CMIP3-based four AOGCM outputs was introduced into the STM. The STM was used to generate typhoons for two sets of hypothetical 1000 years (possibly 10000 years); one is under the current climate condition and the other is under a future climate condition. This kind of simple stochastic modeling framework is useful for risk assessment of extremes like tropical cyclone because such a risk assessment should be probabilistic in its nature. The changes in exposure to tropical cyclones in coastal areas of WNP countries will be presented.

Secondary, we computed future changes in flood risk at the global scale, using daily river discharge derived from 11 AOGCMs forced by the CMIP5 future scenarios. We also computed the future time series of global exposure to flooding that is global population potentially affected by inundation. Projected future risk is very remarkable in Asia.

These attempts will provide us indispensable information for the adaptation to the impact of future climate change. In addition, these attempts would be useful to set a mitigation target.

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