

## Projection of the change in future weather extremes

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Outline and preliminary results of the project Projection of the change in future weather extremes using super-high-resolution atmospheric models under the KAKUSHIN Program are shown. We perform climate projections in the near future and at the end of the 21st century with unprecedented very high-resolution atmospheric models. We use global 20-km and 60-km mesh atmospheric general circulation models for climate change studies with emphasis on various extreme events including tropical cyclones and heavy precipitation during the East Asian summer monsoon season. Furthermore, focusing on the local climate change over Japan, 5-km, 2-km and 1-km mesh regional atmospheric models embedded in the global model are utilized to investigate the frequency change of heavy precipitation. Uncertainty of projected climate change are evaluated and quantified with multiple sets of ensemble experiments to provide information on reliability for the users of simulated results. With the output data from model projections, changes of disaster environment, such as landslide, debris flow, flood, draught, storm surge and strong wind, will be evaluated.