

## Climate Projection in the Tokyo Metropolis in Summer and Impact Assessment to Human Health

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Urban heat island has a negative effect on residents health, thus national and local governments initiated mitigation plans. Urban climate projection is needed to mitigate the heat island from a long-term standpoint. Kusaka et al. (2012) performed urban climate projection by the dynamical downscaling method with WRF model under IPCC SRES A1b Scenario and predicted heat stress for the 2070s August for Tokyo, Osaka, and Nagoya Metropolises.

The present study conducts urban climate projection in 2030s, 2050s, and 2070s Augusts and evaluates the impact of urban planning on the urban temperature by the dynamical downscaling method. Furthermore, impact assessment to human health is performed. First, a hindcast experiment is conducted to assess the ability of WRF to reproduce the observed climatology for 2000s August. Next, climate change experiments are performed with dynamical downscale for 2030's, 2050s and 2070s. The future climate forcing is provided from several CMIP3 models with IPCC SRES A1B scenarios.

We present the predicted changes in duration (in hours per day) with WBGT exceeding 28 degree Celsius, and the number of nights with midnight temperature exceeding 26 degree Celsius. Finally, health impact of global warming is assessed using the midpoint-type impact assessment methodology. Detail results and discussion will be given.

Keywords: WRF, urban climate, regional climate projection, extreme high temperature event, heat stroke, sleep disorders