# Non-hydrostatic Numerical Weather Prediction Models: NICAM and WRF
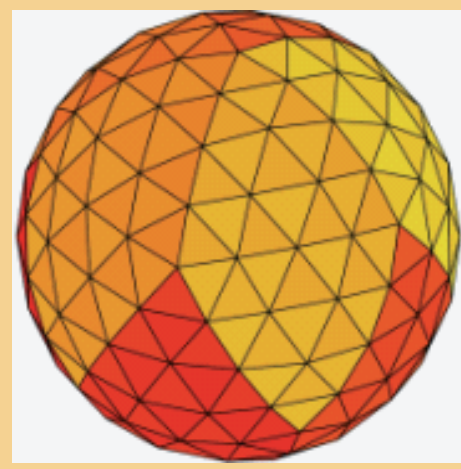
About the NICAM model

The NICAM is an icosahedral global-scale atmospheric model using the non-hydrostatic system. The original icosahedron consists of 20 triangles, which is called "glevel-0". By dividing each triangles into four small triangles recursively, one-higher resolution with "glevel-n" is obtained. The total number of grid point is $10 \times (2^n)^2 + 2$.
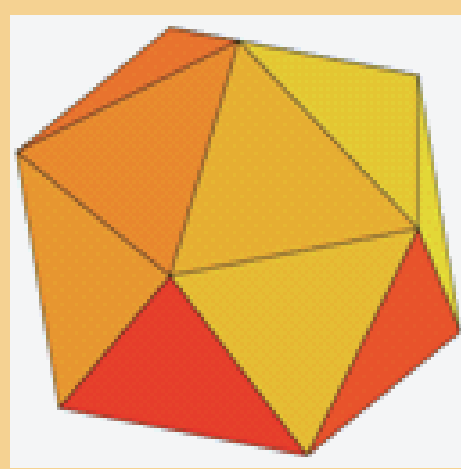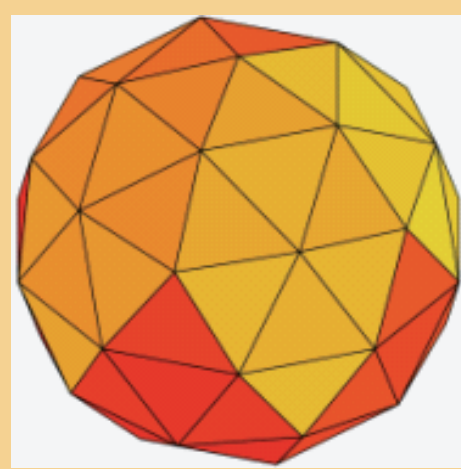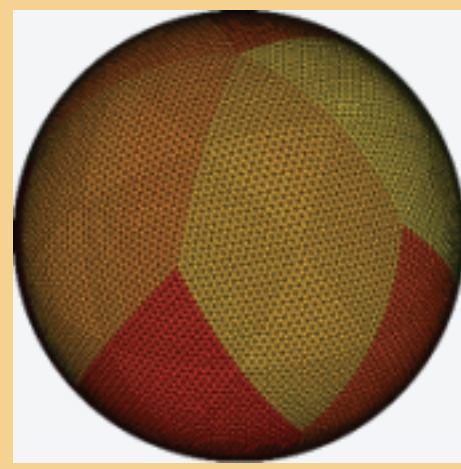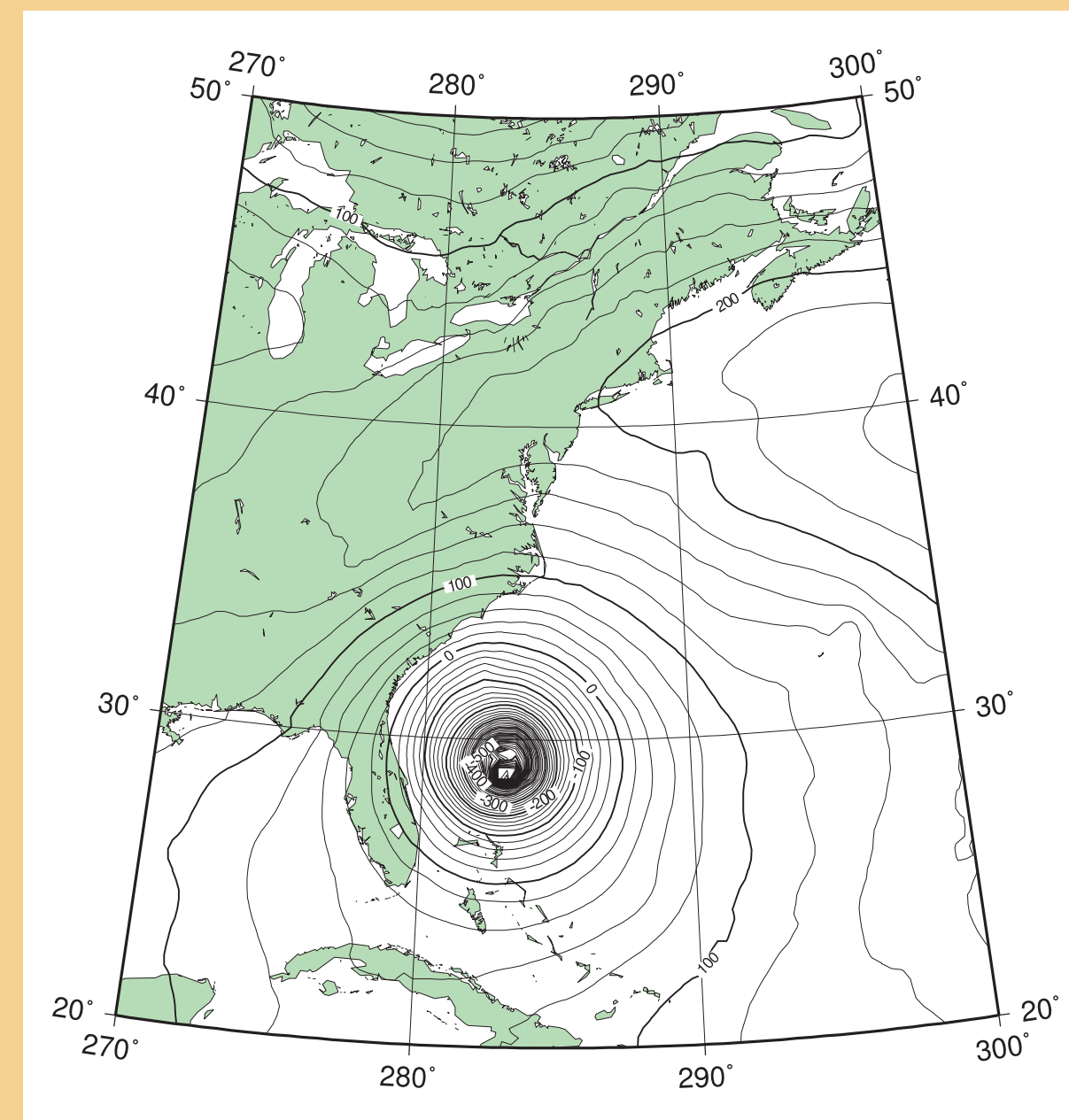

Glevel-0   Glevel-1

Glevel-2   Glevel-5

Hurricane simulation

The hurricane observed on 8 July 2008 is simulated using the NICAM model. We adopt glevel-8 (28km horizontal resolution) for the simulation.

1000 hPa Height from the simulation at 00 UTC on 21 June 2008.

About the WRF model

The Weather Research and Forecasting (WRF) model is a regional-scale numerical weather prediction and simulation. WRF is suitable for various phenomena whose scale ranges from tens of meters to thousands of kilometers.
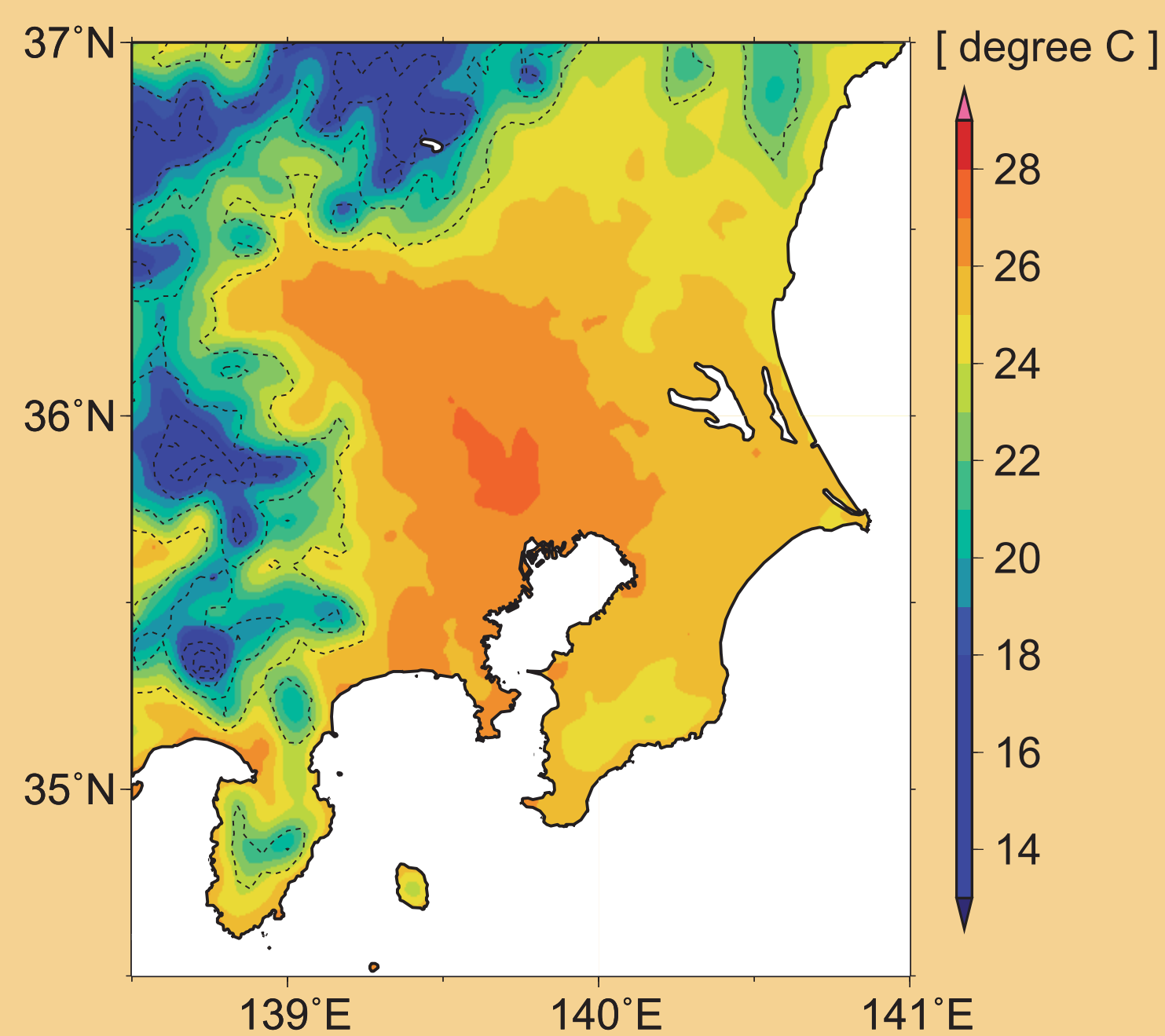
Simulated monthly mean 2-m temperature of the Tokyo metropolitan area in Japan August 2006.

Urban climate simulation

We have been conducting the urban climate prediction using the WRF model. The model successfully reproduces the temperature distribution with the horizontal resolution of 4 km. Temperature around Tokyo (139.7E, 35.8N) is warmer than the surroundings due to the urban heat island.
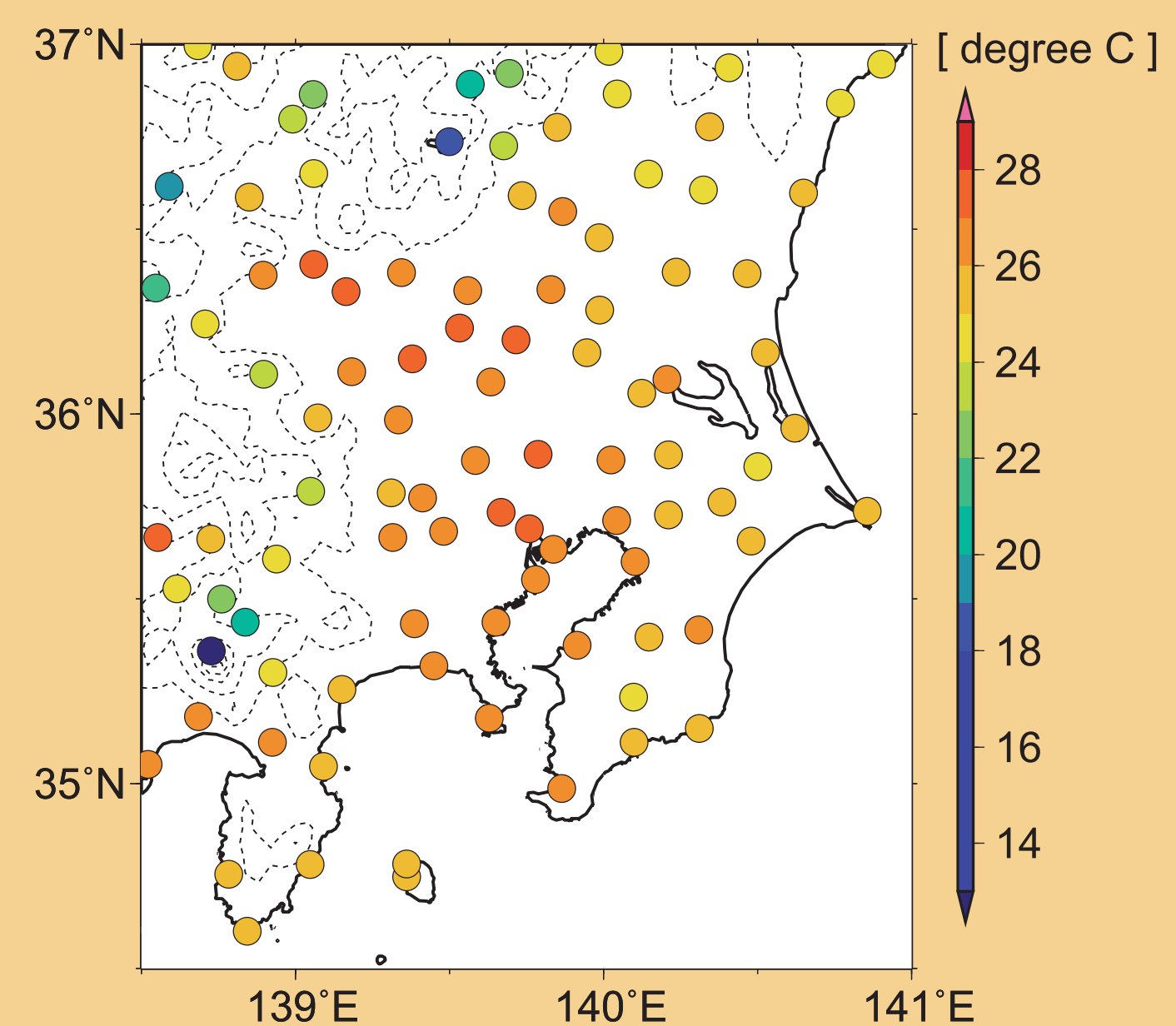
Observed monthly mean 2-m temperature of the Tokyo metropolitan area in Japan August 2006.