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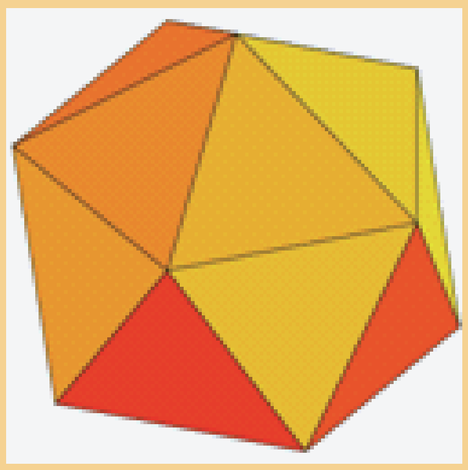
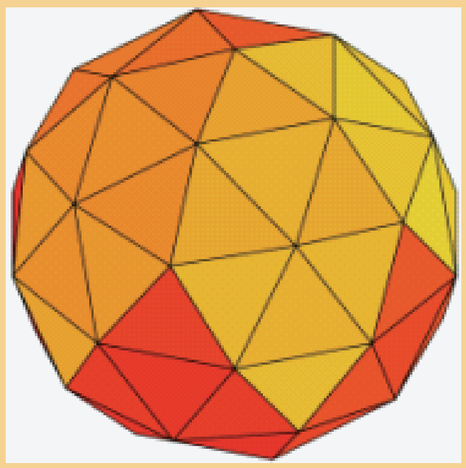
Non-hydrostatic Numerical Weather Prediction Models: NICAM and WRF

About the NICAM model

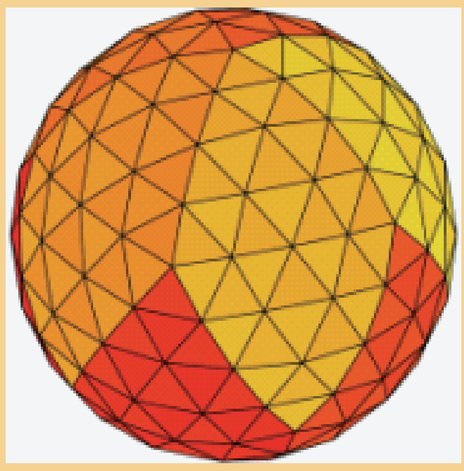
The NICAM is an icosahedral global-scale atmospheric model using the non-hydrostatic system. The original icosahedron consists of 20 triangles, which is called “glevel-0”. By dividing each triangles into four small triangles recursively, one-higher resolution with “glevel-n” is obtained. The total number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



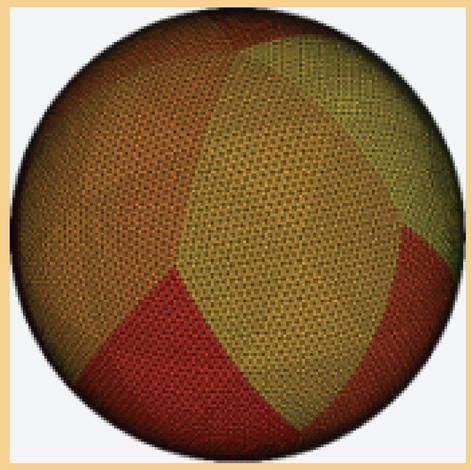
Glevel-0



Glevel-1



Glevel-2

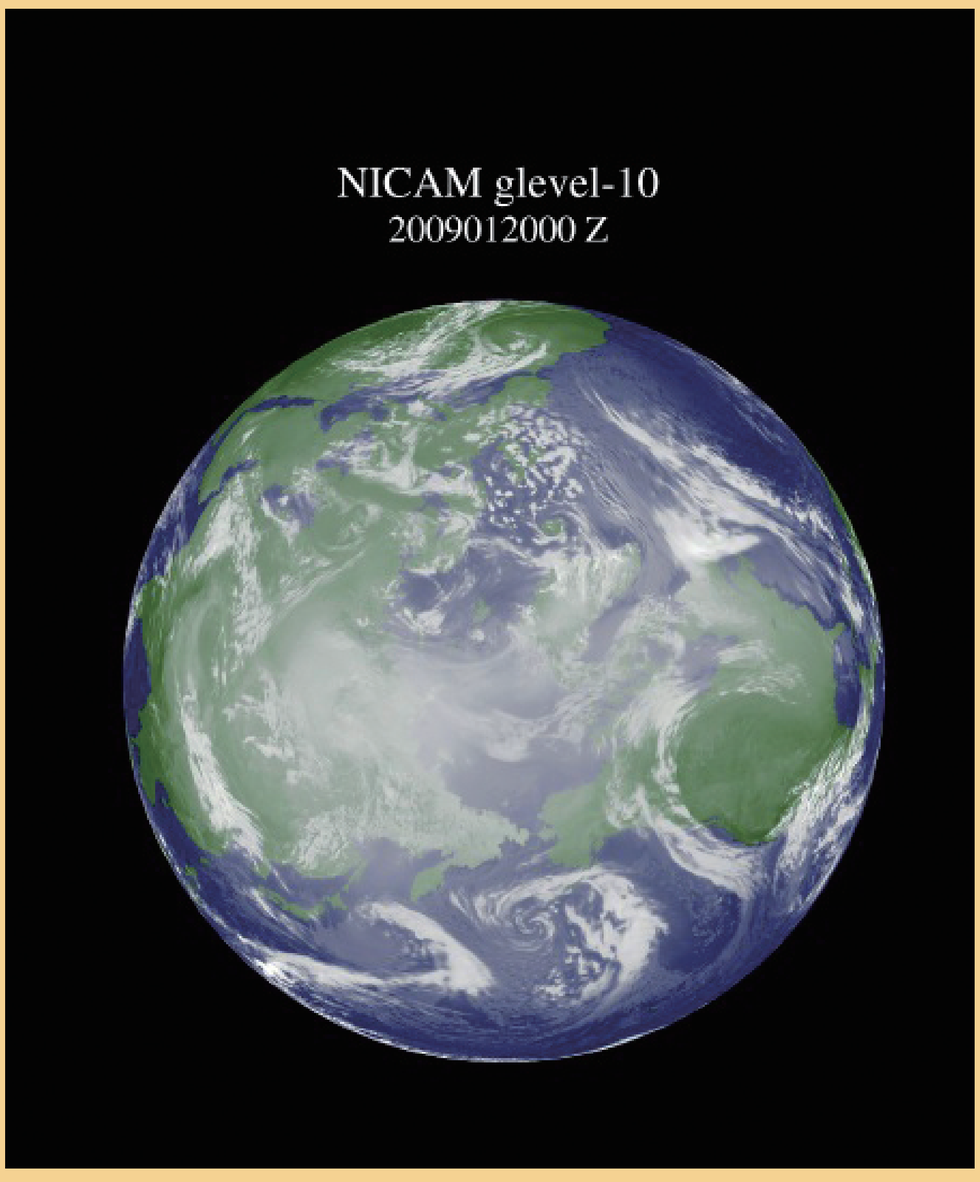


Glevel-5

Simulation of Arctic cyclone by Global Cloud Resolving Model, NICAM

The Arctic cyclone was simulated by cloud resolving model NICAM in the Arctic with glevel-10 (7-km horizontal resolution).

The simulated Arctic cyclone was located over the center of the Arctic sea.



About the Weather Research and Forecasting model

The Weather Research and Forecasting (WRF) model is a regional-scale numerical weather prediction and simulation model. WRF is suitable for various phenomena whose scale ranges from tens meters to thousands kilometers.

Numerical Simulation of the Explosive Mid-latitude Cyclone around Japan Island on 8 January 2007.