

RCEMIP MODEL DOCUMENTATION FORM

Please fill out the below with the relevant information for the model simulations you are submitting to RCEMIP. If you are submitting multiple sets of simulations from multiple versions or configurations of a model, please fill out a documentation form for each.

Your information

Your Name: Tomoki Ohno

Your Institution: Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

Your Email: t-ohno@jamstec.go.jp

Model information

Model Name/Version: NICAM.16.3

Model Name Abbreviation (\$MDL used in upload to DKRZ Cloud): NICAM

Citation for model: Satoh, M., H. Tomita, H. Yashiro, H. Miura, C. Kodama, T. Seiki, A. T. Noda, Y. Yamada, D. Goto, M. Sawada, T. Miyoshi, Y. Niwa, M. Hara, T. Ohno, S.-i. Iga, T. Arakawa, T. Inoue, and H. Kubokawa (2014), The Non-hydrostatic Icosahedral Atmospheric Model: description and development, Progress in Earth and Planetary Science, 1(1), 18, doi:10.1186/s40645-014-0018-1.

Model dynamical core

Type of grid (cartesian, spherical): spherical

Dynamical core (e.g. finite volume): full compressible equations, A-type grid

Time step: <8s for dynamics, <30s for the cloud microphysics, 300s for the radiation scheme

Grid information

RCE_small, number of grid points: 1,916,928 (128x128x117)

RCE_small, horizontal grid spacing: 1 km

RCE_large, number of grid points: 306,708,714 ((49x10+2)x117)

RCE_large, horizontal grid spacing: 3.5 km

Number of vertical levels: 117 (model top at 33 km)

Vertical levels: stretch, 200-m depth in free atmosphere

Sponge layer: Newtonian damping of momenta and internal energy above 20-km height

Physics packages (fill out all applicable)

Radiation scheme: mstrnX

Microphysics scheme: NDW6 (NICAM double moment microphysics)

Boundary layer scheme: Mellor-Yamada-Nakanishi-Niino lv. 2 scheme

Convection scheme: none

Sub-grid scale turbulence scheme: none

Other:

Other model-specific settings or parameters (beyond the specified RCEMIP parameters):