RCEMIP-II MODEL DOCUMENTATION FORM

Please fill out the below with the relevant information for the model simulations you are submitting to RCEMIP-II. 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

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Model information

Model Name/Version: Simple Convection Resolving E3SM Atmosphere Model (SCREAM) verison 0

Model Name Abbreviation ($MDL used in upload to DKRZ Cloud): SCREAMv0

Citation for model: Caldwell et al. (2021); Bogenschutz et al. (2023)

Model dynamical core

Type of grid (cartesian, spherical): cartesian

Dynamical core (e.g. finite volume): spectral element (HOMME-NH)

Time step: 100 s (physics time step); 8.3333333333 (dynamics time step)

Grid information

number of grid points: 1998 x 132

horizontal grid spacing: 3 km

Number of vertical levels: 128

Vertical levels: Stretched (see figure 1 from Caldwell et al. 2021)

Sponge layer: Yes, top 12 levels (see figure 1 from Caldwell et al. 2021)

Physics packages (fill out all applicable)

Radiation scheme: RRTMGP

Microphysics scheme: P3

Boundary layer scheme: SHOC

Convection scheme: no deep convection; SHOC for shallow convection

Sub-grid scale turbulence scheme: SHOC

Other: note that SHOC is a unified turbulence, shallow convection, and macrophysics scheme

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

note that P3 includes suspended and precipitating ice as one species; in our output all precipitating ice is set to zero.