

(1) CESM – Community Earth System Model

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(3) Available modes for the model runs: Research

(4) Components & processes: Atmosphere, Hydrosphere, Pedosphere, Biosphere & Physical, Chemical, Biological

(5) Brief model description

The Community Earth System Model is a fully coupled, global climate model that provides state-of-the-art computer simulations of the Earth's past, present, and future climate states (Hurrell *et al.*, 2013). It is developed by the National Center for Atmospheric Research (NCAR; <http://www.cesm.ucar.edu/models/cesm1.2>), USA and includes a number of components, such as Community Atmospheric Model (CAM5), Community Land Model (CLM4.5), Community Ice CodE (CICE) and Parallel Ocean Program (POP2). The atmospheric, ocean and land model components include comprehensive mechanisms for ecosystem and biogeochemistry simulations. Each CESM model component is fully customizable with respect to selection of various parameterizations, grid resolutions and input datasets and are coupled together with the Community Coupler (CPL7). The coupler controls the dataflow and fluxes exchange between the various model components and ensure their consistency, while performing the execution and time evolution of the complete Earth system.

References:

Hurrell, James W.; M. M. Holland; P. R. Gent (2013). "The Community Earth System Model: A Framework for Collaborative Research". *Bulletin of the American Meteorological Society*. 94 (9): 1339–60. Bibcode:2013BAMS...94.1339H. doi:10.1175/BAMS-D-12-00121.1