

Project: ECHAM6 MPI-M Atmosphere Model Version 6 initial and boundary condition data

Project acronym for link in /pool/data: ECHAM6

Principal investigator (long-term responsible contact): Michael Botzet

Applicant (if not the same as above): Reinhard Budich

Allocation period: 12/2021 - 2026-12-31

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Volume	4 TB
Expected Volume Change	~1 TB
License allows usage on DKRZ resources	yes

Project overview

This project comprises the input and model state data required for common ECHAM6 setups and intercomparison projects, created and compiled by different ECHAM6 developers and users.

Data generated by MPI-M is provided under the CC-BY-4.0 license (<https://creativecommons.org/licenses/by/4.0>). Their usage is restricted accordingly.

There is no specific citation available for this data set. Individual subsets (such as CMIP6 data) come under their own citation, detailed in the files' metadata.

Details of the ECHAM6 model are described as part of

Mauritsen, T. et al. (2019), Developments in the MPI-M Earth System Model version 1.2 (MPI-ESM1.2) and Its Response to Increasing CO₂, J. Adv. Model. Earth Syst., 11, 998-1038, doi:10.1029/2018MS001400

Data content

ECHAM6 data is provided as climatology or time-series, either globally/zonally uniform or as spatial distribution data, in different horizontal (T31, T63, T127 and T255) and vertical or spectral-band resolutions. It also contains instructions and scripts for generating ECHAM6 compatible data from source input (SOURCE directory).

Boundary data for time-dependent quantities (historical and scenario) is available for at least 1850 - 2100. Several subsets (e.g. solar radiation) comprise additional periods. Currently, 4 scenarios are stored

Data is provided in NetCDF format, except for the scripts and some text files (e.g. Land Cover Types, Measuring Station Lists). Contents (variable selection) and format (gridding) of the data files is specific to ECHAM6 requirements,

Range of planned scientific data usage

Access to this data is essential for all users of ECHAM6 in the versions provided by MPI-M.

Though ECHAM6 applications will increasingly be ported to ICON, for the upcoming years many institutions associated with DKRZ will depend on it (see <https://mpimet.mpg.de/en/science/models/mpi-esm/echam>)

Model use requires consent to our software license agreement

(https://mpimet.mpg.de/fileadmin/projekte/ICON-ESM/mpi-m_sla_201202.pdf)

Data Storage Usage Plan

The current data volume is 2.7 TB. There is some data scheduled for addition that has so far been used and provided in dedicated project storage, but is of common interest: an additional scenario (110 GB) and data for CO₂ emission. Extension of the time-series data needs to be considered (update of historical data with information from recent observation or re-analysis). So

we estimate something like 4 TB in the future.