

MAX PLANCK INSTITUTE FOR METEOROLOGY
HAMBURG, GERMANY
SOFTWARE LICENCE AGREEMENT MPI-ESM-Software

Preamble

Since its inception, the Max Planck Institute for Meteorology (MPI-M) has sought to understand Earth's climate system, using as its principal tool comprehensive Earth system modelling. The MPI-M is committed to developing comprehensive Earth System Models, like MPI-ESM, in which the physical aspects of the climate system are coupled with biogeochemical cycles. More on the institute website. MPI-M makes MPI-ESM available to the scientific community.

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It is also important to provide feedback to the model developers, to report about errors and to suggest improvements of the code. MPI-M must also ensure that the MPI-M Software is protected from misuse and false statements about its characteristics and performance (see 5.).

The MPI-ESM-Software collection includes a copy of this Software License Agreement with the source code containing a reference to it.

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- Make your code available free of charge for research purposes.
- You grant a right of use that gives the same permissions as No. 4 and 5 of this agreement

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13. Controlling Law and Severability

This licence shall be governed by the laws of the Federal Republic of Germany and the court of jurisdiction is Hamburg. If for any reason a court of competent jurisdiction finds any provision, or portion thereof, to be unenforceable, the remainder of this licence shall continue in full force and effect.

Final Remarks

This licence constitutes the entire agreement between the parties with respect to the use of the “Software” and supersedes all prior or contemporaneous understandings regarding such subject matter.

APPENDIX

A current set of reference publications, as of November 2006, is listed below, and will be amended where necessary:

ECHAM5:

Roeckner E., *et al.*, The atmospheric general circulation model ECHAM 5. PART I: Model description, MPI-Report 349, 127 pp, 2003.

Roeckner, E., R. Brokopf, M. Esch, M. Giorgetta, S. Hagemann, L. Kornblueh, E. Manzini, U. Schlese, and U. Schulzweida, Sensitivity of simulated climate to horizontal and vertical resolution in the ECHAM5 atmosphere model, *J. Climate*, **19**, 3771-3791, 2006.

MAECHAM5 (Middle Atmosphere configuration of ECHAM5):

Manzini, E., M.A. Giorgetta, M. Esch, L. Kornblueh, and E. Roeckner, The influence of sea surface temperatures on the northern winter stratosphere: ensemble simulations with the MAECHAM5 model, *J. Climate*, **19**, 3863-3881, 2006.

Giorgetta, M. A., E. Manzini, E. Roeckner, M. Esch, and L. Bengtsson, Climatology and forcing of the quasi-biennial oscillation in the MAECHAM5 model, *J. Climate*, **19**, 3882-3901, 2006.

ECHAM5-HAM:

Stier, P., *et al.*, The aerosol-climate model ECHAM5-HAM, *Atmos. Chem. Phys.*, **5**, 1125-1156, 2005.

MPIOM:

Marsland, S. J., H. Haak, J.H. Jungclaus, M. Latif, and F. Roeske, The Max-Planck-Institute global ocean/sea ice model with orthogonal curvilinear coordinates, *Ocean Modelling*, **5**, 91-127, 2003.

Jungclaus, J.H., H. Haak, M. Latif, and U. Mikolajewicz, 2005: Arctic-North Atlantic interactions and multidecadal variability of the meridional overturning circulation, *J. Climate*, **18**, 4013–4031, 2005.

MPIOM-HAMOCC:

Wetzel, P., A. Winguth, and E. Maier-Reimer, Sea-to-air CO₂ flux from 1948 to 2003: A model study, *Global Biogeochem. Cycles*, **19**, GB2005, doi:10.1029/2004GB002339, 2005.

ECHAM5/MPIOM:

Jungclaus, J.H. , N. Keenlyside, M. Botzet, H. Haak, J.-J. Luo, M. Latif, J. Marotzke, U. Mikolajewicz, and E. Roeckner, Ocean circulation and tropical variability in the coupled model ECHAM5/MPI-OM, *J. Climate*, **19**, 3952-3972, 2006.

HD:

Hagemann, S., and L. Dümenil, A parameterization of the lateral waterflow for the global scale. *Clim. Dyn.*, **14**, 17-31, 1998.

Hagemann, S., L. Dümenil, Validation of the hydrological cycle of ECMWF and NCEP reanalyses using the MPI hydrological discharge model. *J. Geophys. Res.*, **106**, 1503-1510, 2001.

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