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# What model runs might be relevant

There are a lot of different model runs available as part of PMIP. In fact the amount of output can be a bit overwhelming at first. One important distinction is the difference between *\*transient\** and *\*equilibrium\** simulations. All climate models are run forwards in time and write output every month/day. So this distinction really relates to the forcing inputs, and the climate response to them. From a practical perspective, you should be looking at the long-term statistics of the equilibrium simulations, and the temporal variations in the transient simulations. There are more details and links below, but a quick division of the experiments is...

## • Equilibrium Simulations

- **piControl** (Preindustrial): *The control run that all the climate changes can be calculated from*
- **abrupt4xCO2** (Instantaneous quadrupling of carbon dioxide): *An idealized global warming experiment (primarily included for calculating the climate sensitivity)*
- **midHolocene** (6,000 yrs ago): *Useful for identifying impacts of orbital forcing*
- **lgm** (The last glacial maximum at 21,000 yrs ago): *The archetypal cold climate state*
- **lig127k** (Last Interglacial, 127,000 yrs ago): *Peak of the warm period prior to last glaciation*
- **Eoi400** (Pliocene, 3,205,000 years ago): *warm conditions before any Northern Hemisphere glaciation (minimal continental drift)*
- **DeepMIP** (Eocene & Paleocene, 50-60 million yrs ago): *Warm climates with carbon dioxide concentrations similar to end of century projections (continents drifted, PMIP-only)*

## • Transient Simulations

- **1pctCO2** (Carbon dioxide concentrations increase by 1% per year): *An idealized global warming experiment (primarily included for calculating the transient climate response)*
- **historical** (1850CE onwards): *Free-running simulations of industrial era (so climate variability's phase/sign does not match observations, but its statistics should)*
- **past1000** (last millennium, 850CE onwards): *Free-running simulations seeing 1000+ years of climate forcings*
- **LDv1** (last deglaciation, 21,000 years ago to present): *Very-long simulation that encompasses all forcings (PMIP-only)*

# PMIP4/CMIP6 Information

Several different experiments are being performed in PMIP4.

## Last Millennium

Experimental design: <http://www.geosci-model-dev-discuss.net/gmd-2016-278/>

PMIP4 website: [https://pmip4.lsce.ipsl.fr/doku.php/exp\\_design:lm](https://pmip4.lsce.ipsl.fr/doku.php/exp_design:lm)

Database: ESGF

Variables:

## Mid Holocene

Experimental design: <http://www.geosci-model-dev-discuss.net/gmd-2016-279/>

PMIP4 website: [https://pmip4.lsce.ipsl.fr/doku.php/exp\\_design:mh](https://pmip4.lsce.ipsl.fr/doku.php/exp_design:mh)

Database: ESGF

Variables:

## Last Glacial Maximum

Experimental design: <http://www.geosci-model-dev-discuss.net/gmd-2017-18/>

PMIP4 website: [https://pmip4.lsce.ipsl.fr/doku.php/exp\\_design:lgm](https://pmip4.lsce.ipsl.fr/doku.php/exp_design:lgm)

Database: ESGF

Variables:

## Last Deglaciation (21-9ka)

Experimental design: <http://www.geosci-model-dev.net/9/2563/2016/>

PMIP4 website: [https://pmip4.lsce.ipsl.fr/doku.php/exp\\_design:index](https://pmip4.lsce.ipsl.fr/doku.php/exp_design:index)

Database: Model output mostly to be made available directly from the institutes performing the runs

Variables: ?

## Eemian - Last Interglacial

Experimental design: <http://www.geosci-model-dev-discuss.net/gmd-2016-279/>

PMIP4 website: [https://pmip4.lsce.ipsl.fr/doku.php/exp\\_design:lig127](https://pmip4.lsce.ipsl.fr/doku.php/exp_design:lig127)

Database: ESGF

Variables:

## Pliocene

Experimental design: <http://www.clim-past.net/12/663/2016/>

USGS Website: [http://geology.er.usgs.gov/egpsc/prism/7\\_pliomip2.html](http://geology.er.usgs.gov/egpsc/prism/7_pliomip2.html)

Database: ESGF

Variables: [http://geology.er.usgs.gov/egpsc/prism/7\\_pliomip2.html](http://geology.er.usgs.gov/egpsc/prism/7_pliomip2.html)

## Eocene

EEOC, PETM and pre-PETM

Experimental design: <http://www.geosci-model-dev-discuss.net/gmd-2016-127/>

Website: <http://www.deepmip.org> Database: ESGF, or DeepMIP database

Variables: Outlined in Appendix A of the Experimental Design paper.

# PMIP3/CMIP5 Information

## PMIP Last Millenium, mid-Holocene, and LGM

The majority of PMIP model output is held in the PMIP database.

This includes model output for the three 'Tier 1' PMIP time slices: Last Millenium, mid-Holocene, and LGM.

In order to access it, contact Jean-Yves [[jean-yves.peterschmitt@lsce.ipsl.fr](mailto:jean-yves.peterschmitt@lsce.ipsl.fr)], or see the instructions here: [database](#).

The current status of the database is here: [status](#).

## PlioMIP mid-Pliocene

The PlioMIP data is held on a (password protected) ftp repository in Bristol.

This includes model output for the mid-Pliocene time slab.

In order to access the full outputs, contact Alan Haywood [[a.m.haywood@leeds.ac.uk](mailto:a.m.haywood@leeds.ac.uk)].

You can access a limited amount of output (monthly 2m air temperatures from each model, and ensemble and zonal means) from the Supplementary information of this paper:

<http://www.clim-past.net/9/191/2013/cp-9-191-2013.html>

## LIGMIP last Interglaci[al/ation]

You can access a limited amount of output (monthly 2m air temperatures) from the Supplementary information of this paper: <http://www.clim-past.net/9/699/2013/cp-9-699-2013.html>

In order to access more data, you would have to contact the groups individually, or contact Dan Lunt [[d.j.lunt@bristol.ac.uk](mailto:d.j.lunt@bristol.ac.uk)] for an email list.

Bette Otto-Bliesner is currently collating precipitation data, so you could contact her [[ottobli@ucar.edu](mailto:ottobli@ucar.edu)] if you want that.

## EoMIP Eocene

You can access a limited amount of output (monthly 2m air temperatures from each model, and ensemble and zonal means) from the Supplementary information of this paper:

<http://www.clim-past.net/8/1717/2012/cp-8-1717-2012.html>

In order to access more data, you would have to contact the groups individually, or contact Dan Lunt

[[d.j.lunt@bristol.ac.uk](mailto:d.j.lunt@bristol.ac.uk)] for an email list.

## Other stuff

Some groups have their own online databases of model simulations:

### University of Bristol BRIDGE repository:

<http://www.bridge.bris.ac.uk/resources/simulations>

If you click on 'Access simulations', you can gain access (netcdf and plots) to model data from a selection of published papers. In addition, you may be able to have access to other simulations, on request [to [d.j.lunt@bristol.ac.uk](mailto:d.j.lunt@bristol.ac.uk) or [p.j.valdes@bristol.ac.uk](mailto:p.j.valdes@bristol.ac.uk)]. A list of currently available groups of simulations is here:

[http://www.paleo.bris.ac.uk/ummodel/list\\_of\\_simulations.html](http://www.paleo.bris.ac.uk/ummodel/list_of_simulations.html)

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