Design for the LGM run

You will find on this page information about the experiment design for the PMIP4 Last Glacial Maximum experiment.

Please make sure to read the Associated publications before setting up your experiments or using the output data, and read any *how-to* sections associated with specific boundary conditions.

Get in touch with the following people if you have questions:

Masa Kageyama	Scientific questions
Jean-Yves Peterschmitt	Technical questions or missing data

Associated publication

The PMIP4 contribution to CMIP6 – Part 4: Scientific objectives and experimental design of the PMIP4-CMIP6 Last Glacial Maximum experiments and PMIP4 sensitivity experiments, Kageyama, M., Albani, S., Braconnot, P., Harrison, S. P., Hopcroft, P. O., Ivanovic, R. F., Lambert, F., Marti, O., Peltier, W. R., Peterschmitt, J.-Y., Roche, D. M., Tarasov, L., Zhang, X., Brady, E. C., Haywood, A. M., LeGrande, A. N., Lunt, D. J., Mahowald, N. M., Mikolajewicz, U., Nisancioglu, K. H., Otto-Bliesner, B. L., Renssen, H., Tomas, R. A., Zhang, Q., Abe-Ouchi, A., Bartlein, P. J., Cao, J., Li, Q., Lohmann, G., Ohgaito, R., Shi, X., Volodin, E., Yoshida, K., Zhang, X., and Zheng, W., Geosci. Model Dev., 10, 4035-4055, doi:10.5194/gmd-10-4035-2017, 2017.

[Supplementary material]

Specifications

	PMIP4-CMIP6 specifications
PMIP4-CMIP6 name	lgm
Astronomical parameters	**eccentricity** = 0.018994 **obliquity** = 22.949° **perihelion-180°** = 114.42° **Date of vernal equinox** : March 21 at noon
Trace gases	**CO_2** = 190 ppm **CH_4** = 375 ppb **N_2O** = 200 ppb **CFC** = 0 **O_3** = same as in CMIP6 piControl
Solar activity	Same as in CMIP6 piControl
Ice sheets	Modified Access to data
Topography and coastlines	Modified Access to data
Volcanic activity	Same as in CMIP6 piControl

	PMIP4-CMIP6 specifications
Aerosols	Modified sources, atmospheric concentrations or radiative forcing, depending on model complexity and model configuration used for DECK and historical experiments cf. documenting papers: Kageyama et al, in prep and Kageyama et al, subm. Access to data
Vegetation	Depending on model complexity and model configuration used for DECK and historical experiments: Interactive vegetation **or** Interactive carbon cycle (LAI) **or** Prescribed to present-day values or mid-Holocene values computed from off-line vegetation model The methodology to represent vegetation should be the same as for the CMIP6 piControl simulation cf. documenting papers: Kageyama et al, in prep and Kageyama et al, subm.

Supplementary material

The scripts used for generating the LGM boundary conditions for the IPSL model, following the steps detailed in the *Kageyama et al* paper, can be dowloaded from LSCE. Get in touch with Jean-Yves Peterschmitt if you need to access this material.

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