

# PMIP2020 Conference

Jian Liu<sup>1</sup>, M. Yan<sup>1</sup>, L. Ning<sup>1</sup>, P. Braconnot<sup>2</sup> and S.P. Harrison<sup>3</sup>

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The Paleoclimate Modelling Intercomparison Project 2020 Conference ([pastglobalchanges.org/calendar/2020/127-pages/1947](https://pastglobalchanges.org/calendar/2020/127-pages/1947)), conducted in a hybrid format at Nanjing Normal University and by Zoom, was the 11th event of the PMIP workshop series initiated in 1991 in Collonges-la-Rouge, France. The major aim of the PMIP2020 Conference was to bring the whole community together once again to discuss progress during the fourth phase of PMIP (PMIP4) since the last meeting in Stockholm in 2017.

Major foci of this meeting were the first results from PMIP4/CMIP6 model evaluations, new ideas on the use of proxy system modeling in PMIP, and reviewing new approaches to reconstruct climate quantitatively for comparison with model simulations. Time was also allotted to other PMIP4 activities, including but not limited to climate transitions, abrupt events, climate variability, and their linkages with changes in climate mean states.

About 300 participants from more than 20 countries attended the conference, with more than 130 presentations (for a selection of results, see Fig. 1). A PMIP overview highlighted new results from PMIP working groups on climate sensitivity, monsoons, sea ice, and ENSO. These studies used results from the Pliocene Model Intercomparison Project (PlioMIP), the Last Interglacial (LIG), the Last Glacial Maximum (LGM), the mid-Holocene, and model-data comparisons.

Four scientific sessions were organized to provide complementary views from all PMIP activities on monsoons, climate sensitivity, transient experiments, and ocean and internal variability. Online discussions of posters and comments on different analyses were designed to identify new results that could fuel new collaborations and feed into the PMIP joint special issue of *Global Model Development and Climate of the Past* ([pmip.lsce.ipsl.fr/outcome/special\\_issue](https://pmip.lsce.ipsl.fr/outcome/special_issue)). Three keynote speakers (Dr. Yongjin Wang from Nanjing Normal University, China; Dr. Steven Sherwood from University of New South Wales, Australia; and Dr. Marie Kapsch from Max Planck Institute for Meteorology, Germany) gave talks in the monsoon session, climate sensitivity and feedbacks session, and transient session, respectively. The keynote speakers highlighted new scientific advances that should be considered as part of the PMIP4 analysis plan. A discussion of new paleoclimate results that would be relevant to consider in the ongoing IPCC report was also organized with some of the IPCC WG1 lead and contributing authors.

On the final day of discussions, the eight PMIP working group leaders summarized the progress, major findings, and potential future research topics based on the presentations and discussions from the four sessions. Several grand challenges were also proposed by the Chinese paleoclimate modeling community, including (1) glacial ocean tracer modeling, (2) possible changes in

equilibrium climate sensitivity with different background climate, (3) evolution of glaciers over the Tibetan Plateau during the glaciation, (4) global climate responses to land-use and cover change (LUCC) since 21 kyr BP, and (5) multiscale climate variability driven by different forcings during the Holocene.

It was suggested that a new working group (named paleo-monsoon) should be initiated, based on wide research interests on paleo-monsoon variability and new research directions made possible by long transient simulations. Some of the scientific goals of the paleo-monsoon working group would be to: improve the understanding of physical processes within global and regional monsoon systems during the past periods (e.g. the last 2 kyr, Holocene, LGM, LIG); differentiate between the contributions from internal variability and external forcings on multi-timescale variabilities of global monsoon systems; and strengthen model-data comparisons on paleo-monsoon systems. This paleo-monsoon working group would be led by Jian Liu, and will help to facilitate collaborations with other MIPs, especially the Global Monsoons Model Intercomparison Project (GMMIP), which focuses on modern and future monsoon variability. Also, the paleo-monsoon working group will help to improve communications between the modeling and observational communities.

## ACKNOWLEDGEMENTS

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## AFFILIATIONS

<sup>1</sup>School of Geography, Nanjing Normal University, China  
<sup>2</sup>LSCE/IPSL, CEA-CNRS-UVSQ, University Paris-Saclay, France  
<sup>3</sup>School of Archaeology, Geography and Environmental Science, University of Reading, UK

## CONTACT

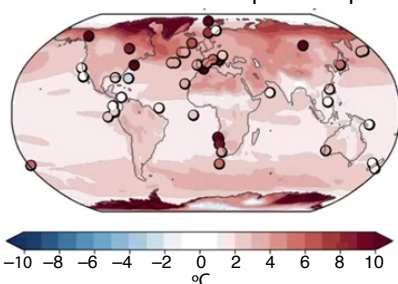
Jian Liu: [jliu@njnu.edu.cn](mailto:jliu@njnu.edu.cn)

## REFERENCES

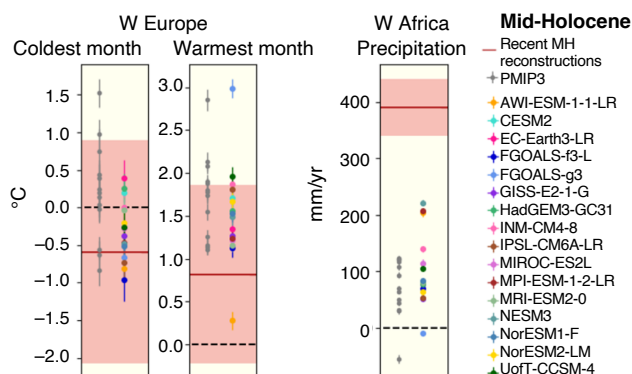
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## Pliocene: 3.205 Myr BP

Air temperature difference compared to preindustrial



## PMIP3-CMIP5 vs. PMIP4-CMIP6



**Figure 1:** Example of new results from some of the PMIP4-CMIP6 publications for PlioMIP (Haywood et al. 2020; Brierley et al 2020). For more examples, see the PMIP special issue (GMD topical editors 2021).