

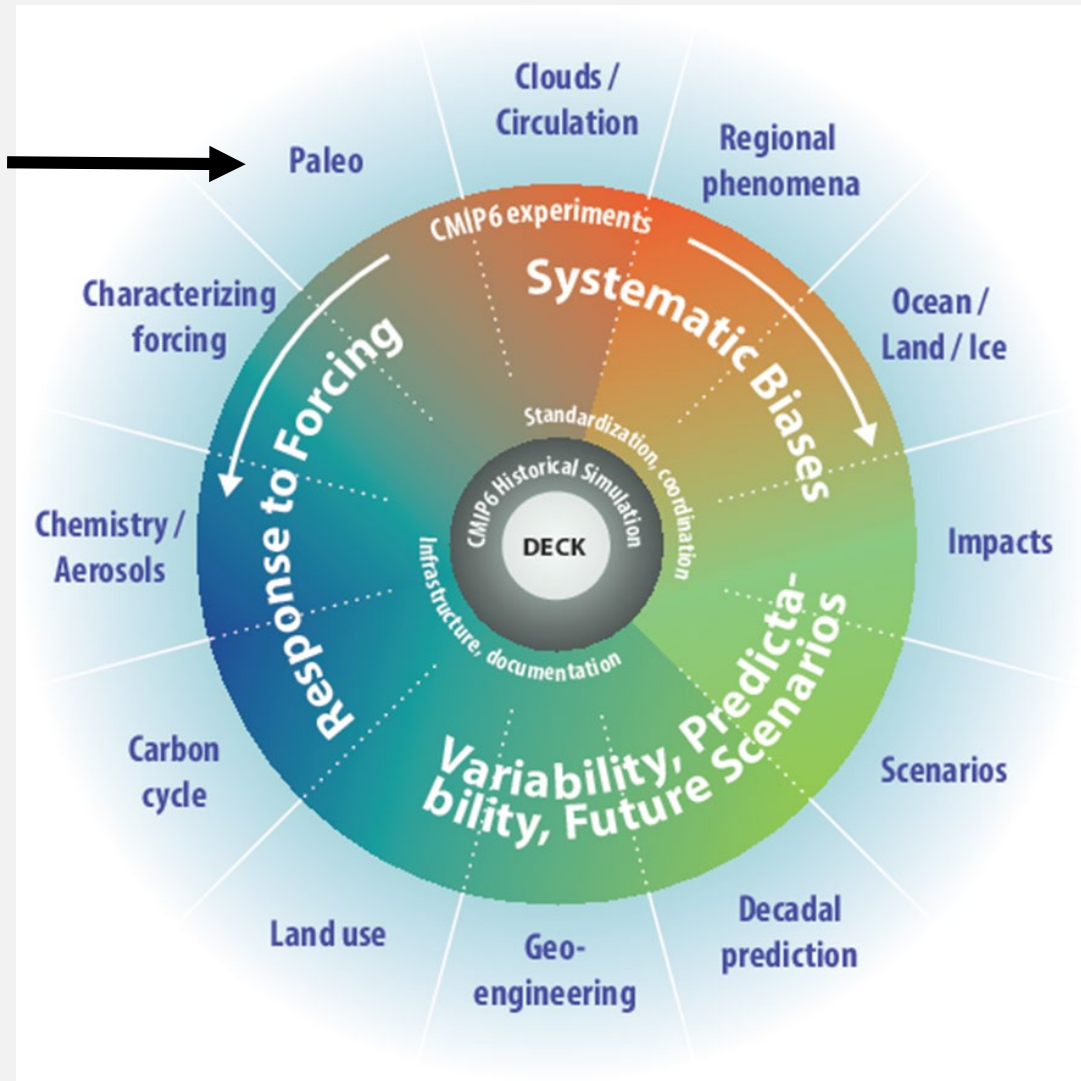
Paleoclimate simulations for CMIP6 and PMIP4

Bette Otto-Bliesner

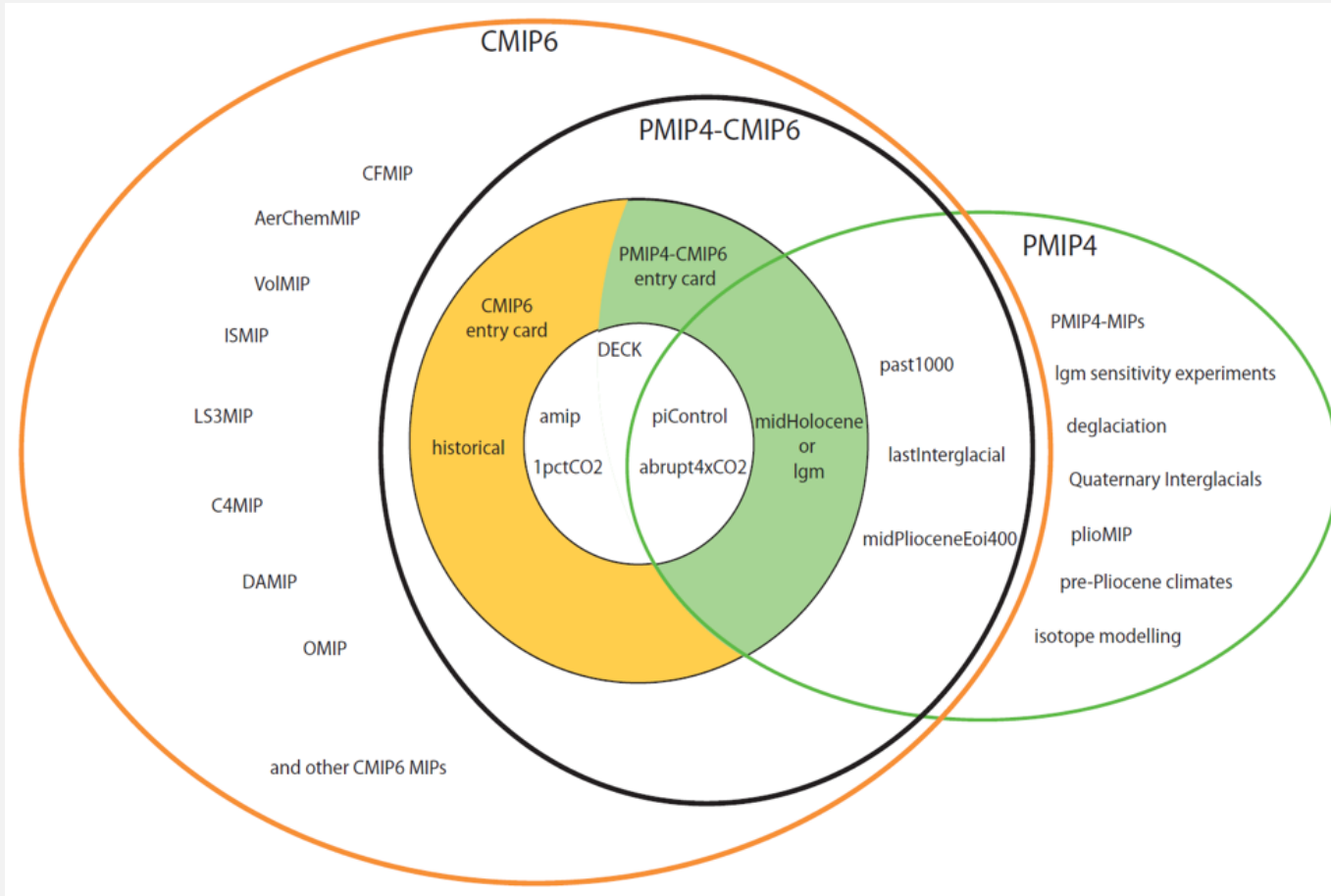
NCAR/Climate and Global Dynamics Lab/Paleo and Polar Climate



PMIP4 contribution to CMIP6



PMIP4-CMIP6 Experiments



Objectives

- > Understand responses to different climate forcings for paleoclimate states very different from present
- > Provide evaluation of ESMs' ability to simulate climate change for out-of-sample climate conditions in comparison to documented paleoclimate evidence.

<https://pmip4.lsce.ipsl.fr/doku.php/index>

[Geosci. Model Dev. Special Issues](#)

CMIP6 Experimental Design and Organization
Paleoclimate Modeling Intercomparison Project

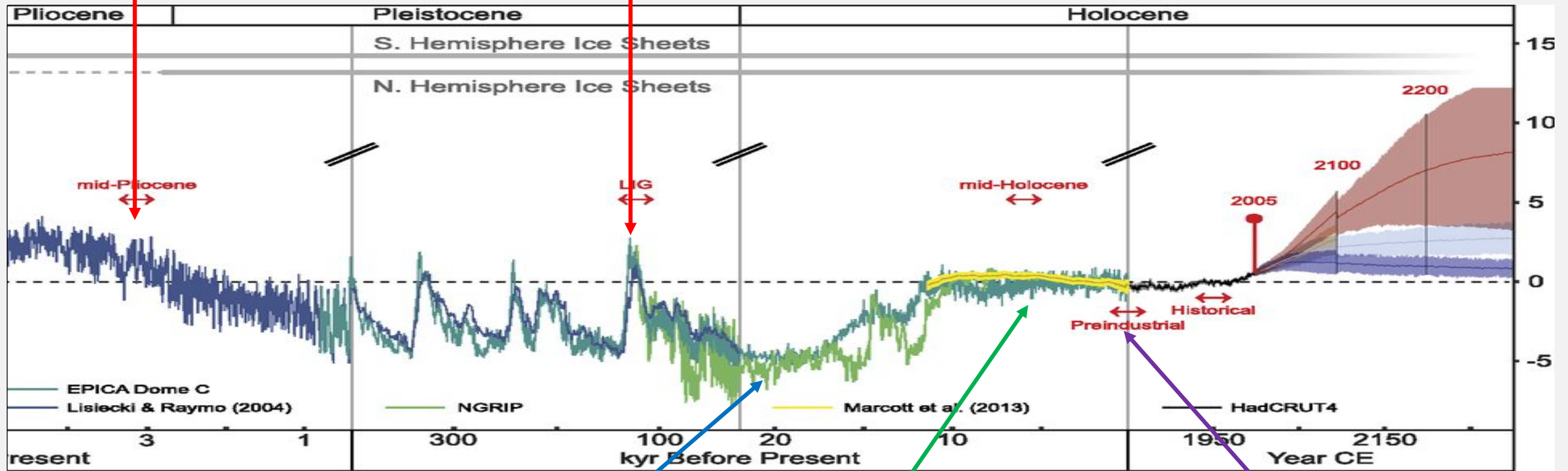


CESM2.1 [FV1x1] CMIP6 paleo-simulations

Simulations versus Reconstructions

Mid-Pliocene (3.205 Ma)

Last interglacial (127 ka)



LGM (21ka)

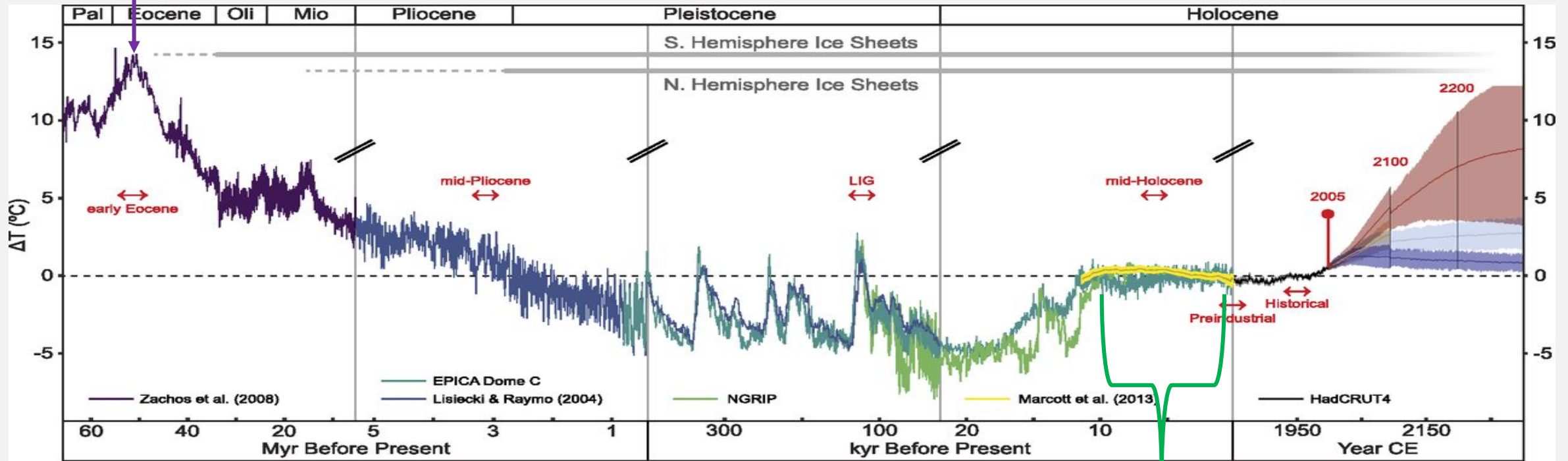
Mid-Holocene (6ka)

Last Millennium (850-Present)



CESM2.1 PMIP4 paleo-simulations

Early Eocene (~53-51 Ma)



Tier 2: LGM, Mid-Holocene, Last Millennium, Last Interglacial, Pliocene

Transient Holocene
(9 ka – 850 CE)

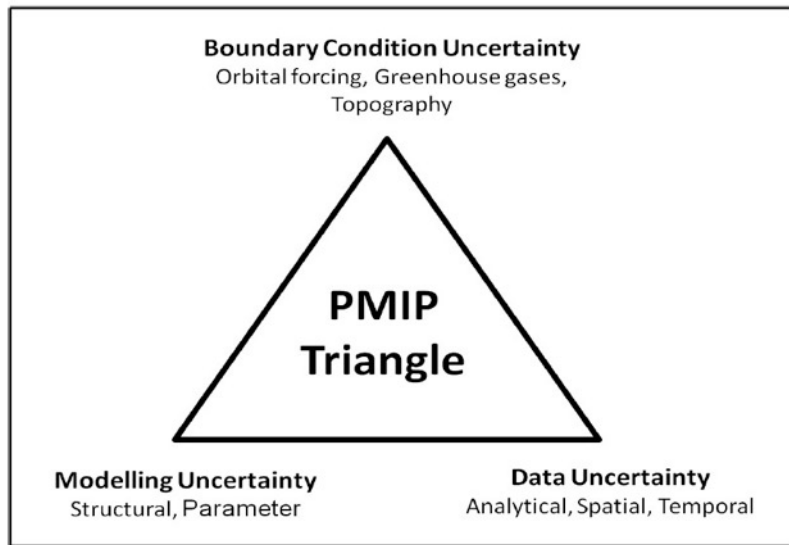




NCAR is sponsored by
National Science Foundation



1) Data-Model Comparison



2) Paleoclimate simulations using comprehensive ESMs have extra challenges:

- often require long spinups to get deep ocean close to equilibrium
- take a lot of 'wall clock' time to complete long multi-millennial transient runs,
- generate a LOT of output, ~hundreds of Terabytes, and require many processor hours.

