

PMIP4 Papers

There are many researchers involved with PMIP4, so we expect that there will be many papers associated with it. There is no desire for PMIP to restrict or proscribe the manuscripts that researchers work upon. However there is clearly a role for some synthesis across various PMIP4 which may need a bit of coordination and support. Functionally we see that there is a pyramid of research activities with 3 different tiers of synthesis and coordination needed.

1. The lowest tier is individual authors or modelling research groups writing manuscripts focussing specifically on what interests them within particular model runs. Involvement from the wider PMIP4 community will probably only slow down the creation these manuscripts
2. The second tier consists of papers that look at aspects of climate across multiple models within a specific time period. The initial papers in this category are likely coordinated by the relevant working group - to ensure both that the whole community is involved and that the paper is completed fairly quickly.
3. The third tier is research that looks at multiple models across multiple time periods. The first one or two manuscripts at this level will be coordinated to provide an initial synthesis of PMIP4. Once all the data is uploaded onto the ESGF, we hope that further research teams self-organise around interesting topics. The PMIP4 leadership can assist with this, if the authors request help.

Note for proper assessment in IPCC AR6 papers should be submitted by September 2019, and certainly no later than the end of December 2019 to allow for citation in IPCC AR6.

Tier 2 & 3 Papers (as of May 2019)

| Subject | Experiment(s) | Contact | Working Group | Notes |
|---|--------------------|---|------------------------------------|--|
| Interglacial warmth | lig127k | Bette Otto-Bleisner | QUIGS | <i>meeting in July to write</i> |
| Large-scale features | midPliocene-eoi400 | Alan Haywood (Leeds) | PlioMIP | <i>1st from PlioMIP2 plans</i> |
| Vegetation/climate interactions | midPliocene-eoi400 | Qiong Zhang (Stockholm) | PlioMIP | <i>2nd from PlioMIP2 plans</i> |
| Global patterns and Benchmarking | lgm | Masa Kageyama & Sandy Harrison | | |
| ENSO data-model comparison | midHolocene | ? | Quaternary Interglacials or P2FVar | |

Planned P2FVar Analyses

There were several collaborations that emerged during the UCL Workshop (May 2019). Briefly these were:

1. How do monsoons change throughout the Holocene? This will mainly analyse Holocene

transient simulations coming out IPSL and MPI, and compare them to proxy records (mainly speleothems). A particular focus on South America emerged.

2. Methodological developments on the application of emergent constraints. This effort was spearheaded by Stockholm in combination with BlueSkiesResearch.
3. The role of circulation changes in controlling precipitation extremes.
4. Transient behaviour of AMOC. This group had two possible foci, the last millennium simulations or other Holocene transient runs. There is so far no multi-model paper focused on AMOC behaviour in all the past 1000 runs. Elements of this research have been published elsewhere though (say in single model papers), and there are data availability issues. A paper looking at transient runs performed outside of PMIP shall be worked on (led by UCL with MPI and IPSL involved).

Personal Contributions

Please add your interest in leading or contributing to research on individual topics relating to Past2Future and/or variability below...

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