



## **On ENSO suppression during the mid-Holocene in PMIP3**

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Using the Paleoclimate Modeling Inter-comparison Project Phase 3 (PMIP3), we investigated change in characteristics of the El Niño-Southern Oscillation (ENSO) during the mid-Holocene period (6,000 years before present; 6ka run) compared to pre-industrial period (0ka run). In 6ka run, the overall cooling over tropical Pacific and the suppressed convection were observed, and the enhanced hemispheric discrepancy in the tropical Pacific surface temperature intensified the cross-equatorial surface winds.

The multi-model ensemble of PMIP3 models showed that the ENSO activity in the 6ka run was slightly reduced. In particular, in 6ka run in PMIP3, the intensified damping by the mean currents primarily works for the reduction of ENSO activity, while the thermodynamical damping actually was reduced in 6ka run. Therefore, the two opposite effects are slightly compensated for by each other, which results in a small reduction in the ENSO activity during the 6ka in the PMIP3. Furthermore, details in the feedback processes are addressed as well.