



## **Influence of orbitally–induced climate change on the occurrence of the Central Pacific El Niño**

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Climate models predict an increase in the occurrence of the Central Pacific El Niño (CP) in a future warmer climate (Yeh et al., 2009). Here we used a fully coupled atmosphere-ocean-sea ice model to investigate the sensitivity of the CP to changes in climate induced by variations in orbital parameters as occurred during the Holocene (9.5kyr BP - preindustrial) and the Eemian (126kyr -115kyr BP). Both periods undergo similar changes in the orbital parameters (obliquity, precession) but with more pronounced amplitude during the Eemian. The ratio (CP/EP) of the Central Pacific El Niño (CP) to the Eastern Pacific El Niño (EP) peaks in the middle of both periods (Mid-Holocene, Mid-Eemian). In contrast to Yeh et al. (2009), we find that a higher occurrence of the CP is manifested by increasing SST in the NINO4-box (160E:150W, 5N:5S) and a greater thermocline depth in the Warm Pacific Warm Pool (WPWP), resulting in a stronger east to west thermocline gradient. However, as the driving mechanisms for the CP are not very well understood, its relation to low frequency internal climate variability needs further investigation.