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El Nino/Southern Oscillation Simulation at the Mid-Holocene:Effect of Flux Adjustment

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Effect of flux adjustment on the simulation of El Nino at the Mid-Holocene (6ka: 6,000 years before present) is investigated with a coupled ocean-atmosphere general circulation model. The model is integrated for 300 years with the 6ka and the present (0ka) insolation, both with and without flux adjustment. El Nino variability in 6ka does not change much from that in 0ka with flux adjusted experiments. On the other hand, El Nino variability in 6ka becomes weaker from that in 0ka without flux adjustment. Atmospheric sensitivity in 6ka is larger than that in 0ka due to increased trade winds, while oceanic sensitivity in 6ka is weaker than that in 0ka due to destabilization of upper ocean, both in flux adjusted and non-flux adjusted experiments. Different mean climate between flux adjusted and non-flux adjusted experiments is responsible to different sensitivity strength and El Nino behavior.