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GeoDay Abstract

### Simulating Changes in ENSO with Global Warming

We apply GENMOM to simulate multi-decadal and multi-centennial ENSO variability. GENMOM is a non-flux corrected A/OGCM comprised of the GENESIS V3.0 atmospheric model and the MOM V2.0 ocean model. The model produces realistic ENSO variability comparable with similar models used in the 2007 IPCC assessment. Long integrations of the model yield significant changes in the frequency and amplitude of ENSO on decadal and centennial time scales. A suite of equilibrium simulations in which atmospheric CO<sub>2</sub> levels were prescribed at LGM (180 ppmV), present (355 ppmV), doubled and quadrupled values display differing characteristics of ENSO variability. Wavelet analysis of the present forcing shows significances at both 12 – 30 years multi-decadal range and 70 – 100 year centennial scale range. Initial results show that only slight changes in ENSO variability and amplitude between simulation when using long datasets. However, subsampling at the decadal and centennial scale shows large changes, indicating a low frequency pattern in the ENSO signal.