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## Data-driven modeling decadal-to-centennial ENSO variability and its response to external forcing

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We investigate the decadal-to-centennial ENSO variability based on nonlinear data-driven stochastic modeling. We construct data-driven model of yearly Niño-3.4 indices reconstructed from paleoclimate proxies based on three different sea-surface temperature (SST) databases at the time interval from 1150 to 1995 [1]. The data-driven model is forced by the solar activity and CO<sub>2</sub> concentration signals. We find the persistent antiphasing relationship between the solar forcing and Niño-3.4 SST on the bicentennial time scale. The dynamical mechanism of such a response is discussed.

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1. Emile-Geay, J., Cobb, K. M., Mann, M. E., & Wittenberg, A. T. (2013). Estimating Central Equatorial Pacific SST Variability over the Past Millennium. Part II: Reconstructions and Implications, *Journal of Climate*, 26(7), 2329-2352.