Geophysical Research Abstracts, Vol. 7, 04439, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04439

A stochastically forced ENSO delay oscillator

J. Saynisch (1), D. Maraun (1) and J. Kurths (1)

Physics Institute, Potsdam University, Am Neuen Palais 10, 14469 Potsdam, Germany (maraun@agnld.uni-potsdam.de)

The effect of stochastic forcing on ENSO is still a matter of debate. We examined the influence of stochastic equatorial winds on ENSO using a simple conceptual model. For this purpose, we extended the delay oscillator of Galanti and Tziperman by additive noise, ranging from isolated impulses simulating occasional windbursts to noise reproducing the whole spectrum of equatorial wind. Furthermore the influence of seasonal varying stochastic forcing was studied. The effects of these forcings were analysed by estimating the power spectrum, the largest Lyapunov exponent, and the correlation dimension. We found an advanced model that reproduces the spectrum and the amplitude period relation of the NINO3 timeseries much better than conceptual models without stochastic forcing.