ICESM Abstracts,
Vol. 1, ICESM2007-A-00183, 2007
Second International Conference on Earth System Modelling (ICESM)

Nonlinear interaction between global teleconnection patterns

O.Khetselius (1), A**.** Glushkov (1), V. Khokhlov (1), A.Svinarenko (1)
(1) EU University of Odessa, Ukraine (glushkov@paco.net / Fax: +380 482-637227)

The chaotic behavior of evolution of the global climate system of the Earth and the nonlinear interaction between some teleconnection patterns during different epochs of the twenty century are studied. We use the cross-redundancy and Granger causality, which main advantage, in contrast to other chaotic analysis, is relatively short time series used as input parameters for these approach. To study the influence of low frequency variations, the wavelet decomposition is applied. By assuming that the non-decimated wavelet transform extract the "pure" low frequency variations, the interaction at the intra- and inter-decadal time scales is considered. It is shown that the aforementioned methods allow to display well-known mechanisms and feedbacks. This is first related to the feedbacks between the Arctic Oscillation and the Antarctic Oscillation, as well as the fact that the Arctic Oscillation can be the Granger cause of Southern Oscillation.

References:

A.Glushkov, N.Loboda, V.Khokhlov, *Atmospheric Research.* **77**, 100 (2005).

A. Glushkov, V. Khokhlov, I. Tsenenko, *Nonlinear Processes in Geophys.* **11**, 285 (2004).

A.Glushkov, N.Loboda, V.Khokhlov, *Q. J. R. Meteorol. Soc.* , **13**2, 447–465 (2006)

N.Loboda, A.Glushkov, V.Khokhlov, L.Lovett, *Journ. of Hydrology.* **322**, 14 (2006).