Geophysical Research Abstracts, Vol. 9, 06661, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06661

Characteristics of atmospheric noise related to ENSO.

S.Y. Philip (1) and **G.J. van Oldenborgh** (1)
(1) KNMI (philip@knmi.nl;oldenborgh@knmi.nl)

ENSO properties depend on, among others, the conditions of the equatorial Pacific atmosphere. Atmospheric noise is very important in the development of an El Niño. We define noise as the observed wind stress minus a statistical atmosphere signal that depends on the SST anomaly. In this study we investigate which properties of this noise are important in the ENSO cycle.

With a linear statistical atmosphere model, the nonlinear part of the ENSO response will be classified as noise. In order to assess the importance of this fraction, we start with the comparison between a linear and a nonlinear statistical atmosphere. Next the dependence of these noise characteristics on the background temperature is investigated: in which way is the noise different during El Niño, neutral and La Niña conditions? Furthermore we discuss the number of parameters required to describe these noise characteristics.

Now we have different descriptions of the noise: depending on the background state or not, and with a linear or a nonlinear statistical atmosphere. These different possibilities are used as input noise in an Intermediate Complexity Model tuned to be close to reality. We show that a relatively simple description of noise is sufficient for an ICM to manifest realistic ENSO properties.