

Changes in the statistics of daily surface temperature and precipitation connected with modifications of ENSO properties in global change conditions

W. CabosNarvaez, F. Alvarez-Garcia, M. J. OrtizBevia

Departamento de Fisica, Universidad de Alcala (franciscoj.alvarez@uah.es, +34 91 885 49 42)

A control (preindustrial conditions) and a scenario (A2) climate simulations performed with the GFDL coupled model are analyzed in this work. As a first step, ENSO properties are investigated by means of a clustering technique which identifies different types of ENSO behaviour. Two kinds of ENSO episodes are found in the control as well as in the scenario simulation using this tool. The relative abundance and amplitude of either of these two classes varies, though, from the control to the scenario run, revealing a modification of ENSO properties under global warming conditions. The statistics of global daily surface temperature and precipitation associated with the different ENSO classes are examined next. Attention is mainly focused on the upper percentiles of those statistical distributions, in an attempt to understand how extreme episodes are connected with different ENSO characteristics, how this association is modified under global warming conditions and which changes can be attributed to variations of ENSO properties.