



The relationship between ENSO and the Indian Monsoon in a changing climate

B. Knopf (1), K. Zickfeld (2), V. Petoukhov (1)

(1) Potsdam Institute for Climate Impact Research (PIK), PO Box 60 12 03, 14412 Potsdam, Germany, (2) School of Earth and Ocean Sciences, UVIC, Canada
(Brigitte.Knopf@pik-potsdam.de)

The Indian summer monsoon is an important weather phenomenon, which undergoes strong irregular variations on intra-seasonal, inter-annual and inter-decadal timescales and interacts with other global Earth's climate system phenomena, such as El Niño / Southern Oscillation (ENSO). A significant decrease in the correlation of the Indian monsoon with ENSO has been noticed in recent years.

We investigate the future relationship between the Indian summer monsoon and ENSO by using SRES scenario runs from ECHAM5 / MPI-OM and other GCMs. We find that despite an increasing Niño index the mean rainfall over India remains more or less the same under enhanced greenhouse gas emissions. This indicates that the decreasing relationship evident in the data may continue into the future.

We implement a box model of the Indian monsoon to investigate the reasons for this change in ENSO-monsoon relationship and identify increasing temperatures over the Indian Ocean and the Tibetan Plateau as the main factors.