



## **Change in Tropical Biennial Oscillation (TBO) in IPCC AR4 scenarios and its linkage to Indian Summer Monsoon**

**R S Nanjundiah** (1), V Vidyunmala (1), and J Srinivasan (1)

Centre for Atmospheric & Oceanic Sciences, Indian Institute of Science, Bangalore, India

We have analysed Tropical Biennial Oscillation over the Indo-Pacific region in coupled model simulations of SRES A1B (720 ppm stabilised) and Pre-Industrial (PI) scenarios. SST and precipitation increase over the Indo-Pacific from PI to SRES-A1B in all the models. Response however varies across models with some showing larger increases. There is no direct relationship between increase in SST and increase in rainfall.

Spectral Analysis of simulated Australian and Indian rainfall shows that more models simulate TBO as primary mode (i.e. mode with highest energy) in SRES-A1B. However, Indian Ocean SST shows an opposite trend. More models simulate TBO in rainfall spectra over Nino3.4 in SRES-A1B; however number of model simulating TBO in Nino3.4 SST remains unchanged but more models simulate this as the primary mode in SRES A1B. Thus the higher variability in biennial mode over Pacific in SRES A1B could be the cause of higher variability in the Indian rainfall. Thus changes in Walker circulation rather than local forcing over the Indian region could be the cause of increase in TBO in this region. Wavelet analysis shows that TBO occurs in 'epochs' rather than being continuous.