Indian Ocean Circulation and Climate Variability

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As recently as 10 years ago, the Indian Ocean (IO) was viewed as a slave to ENSO, with no known impacts of IO SST anomalies on climate. The 1997-98 ENSO/IOD event was the trigger that broke this view. Since that time, it is remarkable how rapidly our understanding of the impact of the IO has advanced. For example, a key region of air-sea coupling, unknown 10 years ago, now appears to be the 5-10ºS band in the western IO, where the thermocline rises near the surface. In this talk, I review climate phenomena and processes in which the IO is, or appears to be, actively involved, considering phenomena at intraseasonal, interannual, and longer time scales. The main part of my talk addresses the two important types of interannual variability in the IO, ENSO and the recently identified Indian Ocean Dipole (IOD). IOD events are often triggered by ENSO, but can also occur independently. The talk is based on material contained in Schott, Xie, and McCreary [1], but also includes recent work on the impact of SST anomalies in the 5-10ºS band on the monsoon.

References

[1] Schott, F. A., S.-P. Xie, and J. P. McCreary Jr., 2009, Indian Ocean circulation and climate variability, *Rev. Geophys.*, **47**, doi:10.1029/2007RG000245.