



The decadal variability of the South Asian Monsoon and ENSO relationship: The role of the ocean subsurface

A. Bracco (1) , F. Kucharski (2) and F. Molteni (2)

1. W.H.O.I., Woods Hole, USA (abracco@whoi.edu)
2. ICTP, Trieste, Italy

The processes that regulate the interannual variability of the ENSO-South Asian Monsoon relationship are investigated using observational data, proxy data and ensemble experiments with a coupled general circulation model.

Our analysis demonstrate that the ENSO- monsoon relationship implies both an atmospheric and an oceanic teleconnection, with the intensity of the latter varying on decadal scales as a function of the ENSO mode, and modulated by the baroclinic component of the Indonesian Throughflow. The ocean subsurface dynamics controls the stability of the ENSO-monsoon relationship.

Changes in the ocean subsurface associated with a shift of the ENSO mode in the late '70s explain the lost of stability in the ENSO-monsoon relationship during the last two decades of the XX century (Kumar et al., 1999). Proxy data from sclerosponges collected at the Indonesia Throughflow region (Moore et al, 2000) and coral records dating back to the Holocene period (Abram et al., 2003) support the interpretation of the model results.