Relation of Surface Fluxes over Indian and Pacific Ocean during El Nino 2009 and its Effect on Indian Summer Monsoon

M.V. Subrahmanyam[1], P.V.S. Raju[2], Dongxiao Wang[1] and K.P.R. Vittal Murthy[3]
[1]*LED, South China Sea Institute of Oceanology, Chinese Academy of Science, Guangzhou, 510301, China.*
[2]*Regional Integrated Multi-hazard Early warning System, Asian Disaster Preparedness Center, AIT Campus, Klong Luang, Pathumthani-12120, Thailand*
[3] *Andhra University, Visakhapatnam 530003, India*

The oceanic surface fluxes play an important role in fluctuating climatic behavior over various parts around the globe. Both Indian Ocean and Pacific Ocean are known to strongly influences the intensity of rainfall over India during summer monsoon. In this paper, the National Center for Environmental Prediction (NCEP) global analysis data set and TRMM/TMI rainfall data are used to investigate the role of surface parameters on Indian summer monsoon rainfall during the El Nino event of 2009. Also, a comparison is made in this study with other major El Nino events.

The results indicate that there is significant variation in the Latent Heat Flux (LHF), Outgoing Long-wave Radiation (OLR), Sea Surface Temperature (SST) and wind in El Nino 2009 event as compared with the other El Nino events. The weak LHF observed during July 2008 and gradually increasing up to June 2009. However, the other El Nino events the intensity of LHF is increasing from previous year July to the June month of El Nino year. OLR showing the lower intensities along the Somali coast and extending towards the Indian subcontinent except in June, whereas, the lower intensities shifted to Arabian Sea and the Indian subcontinent during July to September. SST decreases and extends towards the west Pacific from September 2008 to January 2009. However, the lower SSTs are observed till October 2009 over the Somali coast. There is a lag of LHF, OLR, and SST during the 2009 El Nino event. The variation of rainfall during summer monsoon of 2009 shows there is a lag of rainfall to mid of July and extended up to end of September. This has profound influence on the economy in other words in agriculture of the Indian sub-continent.