ABSTRACT

THE INFLUENCE OF LA NIÑA ON SRI LANKA RAINFALL

Preethika Madhawee Jayakody   Adviser: Gay Jane Perez, PhD
University of the Philippines, 2013   Reader: Leoncio A. Amadore, PhD

This study established the relationship between La Niña events and the corresponding rainfall anomalies observed in the 25 districts of Sri Lanka in the last sixty years. Two kinds of ENS (El Niño Southern Oscillation Index) indices were used for the analysis, which are highly related with atmospheric and ocean conditions during the La Niña episodes. These are the Southern Oscillation Index (SOI) and NINO 3.4 index – Sea Surface Temperature (SST) anomaly in the NINO 3.4 region. These indices were analyzed together with Sri Lanka districts' monthly rainfall anomaly and seasonal rainfall anomaly during the 1951-2011 period. Results show that La Niña has a stronger influence on the seasonal rainfall anomalies than monthly rainfall anomalies, particularly those La Niña events that started in April or May. The impact of La Niña is strongest during the first North East Monsoon (NEM) where all the 25 districts show positive rainfall anomalies. For the South West Monsoon (SWM) the influence is limited to the wet zone only. This relationship, however, it is only apparent when the SOI is greater than 8 for at least 5 consecutive months. Some districts in the dry zone and all districts in intermediate zone, except the Monaragala district are similarly influenced by La Niña during the SWM period. On the other hand, negative rainfall anomalies were observed during the second Intermonsoon (SIM) for districts within the dry zone during La Niña active period. There is no clear relationship between the rainfall anomalies and La Niña during the First Intermonsoon (FIM).Overall, La Niña shows a strong influence on Sri Lanka seasonal rainfall when SOI monthly value is higher than 8 for at least five consecutive months and that is started in April or May.