Simulation of 1997/98 El-Nino event using RegCM3 model

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El Nino is the invasion which occurs from time to time in tropical Pacific Ocean due to abnormal high sea surface temperature. Even if this happens far away from Sri Lanka this formulates abnormal weather conditions over the country. The major El-Nino events occurred in 1957/58, 1965/66, 1972/73, 1982/83, 1986/87, 1991/92. The recent El Nino was experienced in 1997/98.

According to the past experiences in the 'El Nino' years, the precipitation over Sri Lanka is enhanced from October to December in the preceding year. In addition, the Northeast monsoon (December to February) and first inter-monsoon (March to April) has high probability of failing during the following year.

Since Sri Lanka is an agricultural country, a changes in rainy seasons have adverse effects on the economy of the country. Therefore El-Nino can cause significant effect on our crop productivity. Similarly El-Nino gives negative influence on Hydro-power productivity which in turn affects the industry sector in the country.

The effect of the recent El-Nino is simulated for Sri Lanka using RegCM3. RegCM is a regional climate model widely used in many long-term studies of climate. The National Centre of Environmental Prediction (NCEP) reanalyzed data for 1997and 1998 are used for this simulation. The horizontal resolution is set as 90 km for model running.

The results revealed that drought conditions prevailed during the first few months in 1998 except for isolated showers in a few places. No significant precipitation was observed till May when the Southwest monsoon was established. These results are in agreement with the observed data during the same period except for some shifting of a few rainfall patterns.
El-Nino is not a cyclic phenomenon, thus it is difficult to predict the occurrences of these events. Since the simulation of the El-Nino is considerably represented with the real situation, if the data which represent the future is available then forecasting of such events can be done accurately. The future prediction of major climate events like El-Nino has economical value because it helps to get pre- decision for adapting to adverse effects associated with these extremes.