

# **"BURST" OF THE NORTHEAST MONSOON SEASON IN SRI LANKA**

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The sudden increase in winds strength and rainfall has led to the term 'burst'. Low pressure waves gave rise to monsoon 'burst' during the recent northeast monsoon in Sri Lanka which occurred from December 2010 to February 2011. Unceasing monsoon rains have exacerbated the crisis facing more than a million people affected by Sri Lanka's deadly floods. As rains continued after a brief lull, the government reported that more than 20 per cent of the country's rice crops had been destroyed, created problems for Sri Lanka's longer-term food security

Rainfall is the most important climatic factor of weather and climate in Sri Lanka. Based on the relative dominance of the causative factors, the rainfall year in Sri Lanka (March to February) can be divided in to four seasons.

- (1) First Inter-monsoon season (March to mid May)
- (2) Southwest monsoon season (Mid May to September)
- (3) Second Inter-monsoon season (October and November)
- (4) Northeast monsoon season (December to February)

The distribution pattern of rainfall in Sri Lanka within an average year which reflects this seasonality can be quantified following Domroes (1974): first inter-monsoon season, 21%; southwest monsoon season, 38%; second inter-monsoon season, 16%; and northeast monsoon season, 25%. The two monsoons, therefore account for a little less than two-thirds of the total annual rainfall.

As interesting feature, arising out of the orographic effect of the central highlands due to the reversal of direction of the two air streams is the change of the windward and leeward sides according to the rhythm of the monsoon change. However the windward-leeward difference is much less evident during the northeast monsoon due to the difference in the nature of the slopes and the structure of the two monsoon air streams. During this season the surface pressure and circulation patterns experience a complete reversal from that of the southwest monsoon

season. . The northern easterlies, or north-easterlies, on reaching the Sri Lanka region as northeast monsoons, gives heavy rainfall predominantly to the north and northeastern parts of the country and the eastern slopes of the central highlands. But no parts of the country can be considered to be free of the rains during this season. When compared with the total space-averaged rainfall amount yielded by the southwest monsoon, that due to the northeast monsoon is normally relatively less. This can be attributed to the nature and structure of the northeast monsoon air streams, which can be relatively less moist, stable air-flows of less vertical extent. But the northeast monsoon rains are more widespread over the country than the southwest monsoon rains, of the condition of lesser effectiveness of the northern and northeastern slopes of the central highlands as an orographic barrier compared with the southwest 'slopes' on the southwest monsoon. Often, the northeast monsoons are accompanied by tropical disturbance mostly of the depressional type, which have little or no regard for the physiography of the country. A 'burst' of the monsoon occur over the country such a disturbance develop very close to the country.

With this brief preamble, the present study is aims, to answer for two research questions. The First question is that can be identified significant changes of rainfall totals in the recent past northeast monsoon season?. The second one is what are the reasons for the significant changes of rainfall totals?. Analysis methods used for the answer of first question are; percentages of total monthly rainfall and rainfall dispersion calculated using micro soft excel. Geographic information system (GIS) used for mapping the spatial distribution. These analysis methods are used for three time frames: 1971-2000 a

30-year averaging period, from 2009 December to 2010 February and from 2010 December to 2011 February. Firstly, aims to compare the first and the third time frames and secondly, the second and the third time frames. Rainfall data were obtained from the Department of Meteorology, Sri Lanka for 21 meteorological stations which are located throughout the country. Monthly rainfall totals were collected for the months of December, January and February. Theoretical subject knowledge and the information gather from the Department of Meteorology, Sri Lanka were used to answer for the second question.

The Conclusions of the present study are that all the selected meteorological stations recorded higher monthly rainfall totals during the recent past northeast monsoon season, when compare with the monthly rainfall totals for the 30-year averaging period and the previous northeast monsoon season. It can be said that Baticaloa meteorological station shows the highest differences. Also it is evident that La-nina phenomenon is the key factor of these significant changes.