

Indian Monsoon Rainfall and its relationship with El-Nino/Southern Oscillation Index over India during 1940-2000.

C.V.Singh

I.I.T., New delhi (cvsingh2@rediffmail.com)

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By C.V. Singh* Department of Management Studies Indian Institute of Technology New Delhi - 110 016, (INDIA) *E-mail : cvsingh@cas.iitd.ernet.in

Abstract

The interannual fluctuations in the Southern Oscillation Index (SOI) and their relationship to the Indian monsoon rainfall (June-September) have been studied for the period 1940-2000 covering 340 stations all over India (Figure 1. each station contains the seasonal average rainfall of five neighboring stations). The monsoon rainfall is significantly correlated with the southern oscillation index (June-September) 0.65. The large positive southern oscillation indexes are positively correlated with the flood years, while the negative southern oscillation indexes are correlated with the drought years. In this study, we have taken the flood/drought and El-Nino years separately and find their relationship with SOI. It has been observed that mostly drought occurs, when Southern Oscillation Index value is negative. It has also been noticed that there is a good correlation with El-Nino and drought years (57%). The Spectrum analysis is also carried out on monsoon rainfall and Southern Oscillation Index separately (SOI) and it is concluded that they are highly correlated in the period range 2-2.5 years to 4-6 years and 5.5-6.0 years respectively. It has also been observed that the climatic anomalies such as drought in India and El-Nino off the coast of Peru are linked with the Southern Oscillation (Walker circulation)

Key Words: (Monsoon rainfall, Southern Oscillation Index, El-Nino Climatic fluctuations)

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