Moisture Flux Transported to Indian subcontinent and rainfall during El-Nino and La-Nina years

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Water vapour transport from oceans has been done long back on global (Peixoto et al, 1970) and regional (Benton and Estoque, 1954) spatial scales. In India, the main focus was on the water vapor transport related to the Indian monsoon. The lower tropospheric westerly flow laiden with moisture crosses the west coast and enters the peninsular India. Saha and Bavadekar (1977) computed the horizontal water vapour fluxes across the west coast of India for different years and correlated with the seasonal average rainfall along the west coast of India and also to that of the western peninsular India. Since then several such attempts has been made to establish the relationship between inter hemispheric moisture transport and the continental rainfall. We have made an attempt to study the inter hemispheric transport and its relationship with the amount of moisture trapped within the peninsular India by making use of 30 years of data during the post regime shift period (1978 to 2008). We have categorized the years into various combinations of El-Nino, La-Nina, and IOD and prepared a composite and computed the moisture transport along with net rainfall to understand the inter relationship. We got interesting patterns of active and break spells during these designated years. Being IOD-La-Nina years, 2007 and 2008 have exhibited five active spells three in July and two in August that includes an intense transport of more than 9×10^{10} tons/day (Fig.1). It is also planned to study the periodicity of these transports by subjecting it to wavelet analysis.

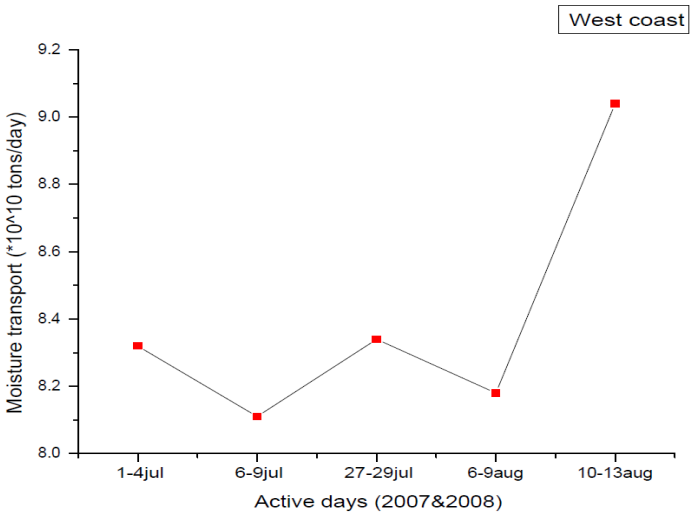

Fig1.Moisture transport across westcoast

Key words:Moisture transport, rainfall, monsoon

References:

[1] S.N.BAVADEKAR and D.A.MOOLEY, *Tellus*, 30,537-541(1978)

Fig. 1. Moisture transport across the west coast during active days