E1 – 11

Indian ocean warm pools and outgoing longwave radiation over Sri Lanka

It has been established that in the Indian Ocean, convective cloudiness forms, if the "sea surface temperature" (SST) exceeds 28 ^{o}C. The oceanic "warm pool" (WP) is identified as the region whose surface temperatures exceed 28.8 ^{o}C. In the Indian Ocean, regions that were above this threshold formed two contiguous warm pools to the East and West of 80^{o}E. The SST for the region between 20 ^{o}S and 20 ^{o}N in the Indian Ocean for the years 1974 to 1997 was considered in this analysis.

Both Western and eastern Wp's are located in the Southern Indian Ocean during the Northern Hemisphere winter and in the Northern Indian Ocean Wp's show comparable variability in SST as those of the Pacific Ocean. During El Nino events, both Indian Ocean warm pools are about 25% larger than in a normal year. During La nina years, the pool is smaller by 25%.

The latitudes of the WP centroids are negatively correlated with the magnitude of the Outgoing Long wave Radiation (OLR) over Sri Lanka OLR is a proxy for cloudiness. The closer the latitudes of either WP to that of Sri Lanka, the higher the cloudiness was over Sri Lanka. This relationship was stronger for the Eastern WP than for the Western WP. This relationship was more clear-cut during the First-Inter-Monsoon and South-West-Monsoon rather than during the Second-Inter-Monsoon or North-East Monsoon. However, during the South-West monsoon, if the western WP is further South, then the cloudiness over Sri Lanka is higher.