

Seasonal and interannual variations of precipitation systems in Bangladesh

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Seasonal and interannual variations of precipitation systems are studied to understand monsoonal rainfall in Bangladesh. In this study Bangladesh Meteorological Department S-band weather radar plan position indicator scans data and National Centers for Environmental Prediction reanalysis data are used. Precipitation systems are divided into arc-, line and scattered-type according to their shape. Arc-type systems dominate in the pre-monsoon period while scattered-type systems dominate in the monsoon period. Arc- and Scattered-type systems contribute to the pre-monsoon and monsoon rainfall in Bangladesh, respectively. In the pre-monsoon period, arc-type systems may develop through the interaction of different air masses and orographic effects in the presence of strong vertical wind shear between the 925 and 500 hPa levels. In monsoon period, scattered-type systems may be developed due to plenty of moisture supplied by low-level monsoon winds from the Bay of Bengal and orographic effects in the presence of little or no remarkable vertical wind shear between the 925 and 500 hPa levels. The interannual variation of precipitation systems depends on the intraseasonal variation of precipitation systems and also some global scale modes such as ENSO, ocean-atmosphere interaction, sea-surface temperature variation, Eurasian snow coverage, etc.