Diurnal Variation in Summer Monsoon Precipitation During Active and Break Periods Over Central India and Southern Himalayan Foothills

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The diurnal variations of summer precipitation over central India and the southern Himalayan foothills are investigated using Tropical Rainfall Measuring Mission (TRMM) data during July-August for 1998-2007. The TRMM Precipitation Radar (PR) and Lightning Imaging Sensor (LIS) data are used to understand characteristics of precipitation. Daily data of TRMM/3B42 are used to determine active and break periods in central India on the basis of rainfall characteristics. Diurnal variation in rain rate, frequency of rain, conditional rain rate, storm height and occurrence of convective rain are analyzed using TRMM/PR data (0.1° x 0.1° resolution). Diurnal variation in total lightning flashes is analyzed using TRMM/LIS data.

The precipitation over central India during wet periods is characterized by a large amount of rainfall with high frequency of rain and a secondary morning peak. The precipitation in dry periods is characterized by a strong diurnal variation with convective rainfall and enhanced electrical activity over central India. Characteristics of wet and dry periods over central India are generally supported over the southern Himalayan foothills.