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Effect of Atmospheric Parameters on Vegetation Index over a Indo Gangetic West Bengal

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Vegetation index reflects the agricultural activity over a location. Agriculture is the main source of income over a country like India. Normalized difference vegetation index (NDVI) is a commonly used satellite-based vegetation index for monitoring vegetation changes and its relationship with various weather parameters. In this paper, an attempt has been made to investigate the relationship between NDVI with other atmospheric parameters like, rainfall, temperature and evatranspiration over Indo-Gangetic West Bengal using 8 years data. The Gridded monthly precipitation and temperature data is obtained from Global Precipitation and Climate Centre (GPCC V7). Normalized Difference Vegetation Index (NDVI) has been derived from National Oceanic and Atmospheric Administration-Advanced Very High-Resolution Radiometer (NOAA-AVHRR). The evatranspiration data has been obtained from land surface parameters simulated from the Noah 3.6.1 model in the Famine Early Warning Systems Network (FEWS NET) Land Data Assimilation System (FLDAS). High vegetation density has been observed in monsoon and post monsoon period. A good periodic inter annual variability has been observed for NDVI, rainfall and evatranspiration. Monthly variation of NDVI shows higher value in the month of September. NDVI shows good positive correlation with evatranspiration (0.66) and rainfall (0.6). A weak correlation has been observed between NDVI and temperature data.
A further and elaborate study has been planned to reveal a firm scenario with more data over a wider region to understand the control of atmospheric parameters on the vegetation in this part of globe.