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STUDIES OF CLIMATE CHANGE IMPACTS ON VEGETATION INDEX OVER KACHCHH REGION OF WESTERN PENINSULAR INDIA: PERSPECTIVE OF IN SITU AND REMOTE SENSING SATELLITE OBSERVATIONS

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Climate change has impacts on entire ecosystem and affects most of activities of human life. In this study, an attempt has been made to address the issue of impacts of climate change on vegetation dynamics. In view of high spatial variability in most realistic and transparent way, remote sensing technique is extensively used in this study to integrate and interpret scientific data and thus function of climate change processes are better understood. Kachchh an arid region of Gujarat state of western peninsular India is chosen as the study area. To evaluate spatio-temporal patterns of climatic variables, meteorological data are collected from in situ meteorological observatories of India Meteorological Department (IMD). The study is undertaken for two climatic variables, i.e. daily temperatures and daily rainfall for thirty years period from 1989 to 2018 and latest climatological normal is computed. Second part of the study addresses vegetation dynamics. Normalized differential vegetation index (NDVI) is chosen as a representative element of spatio-temporal vegetation pattern. In this study, Advanced Very High Resolution Radiometer (AVHRR) and Moderate Resolution Imaging Spectroradiometer (MODIS); NDVI composite satellite images from 1989 to 2018 are used. Total 783 satellite images for last 30 years have been analyzed. The variation in annual mean maximum and minimum temperatures was found more than 2oC over the Kachchh region that can be considered as climate change indicator. Though being arid region, rainfall over the region having very high annual variability from 77.3mm to 1032.7mm and NDVI also has yearly fluctuations, both exhibit increasing trend during the study period. Thus overall outcome of the study suggests that there is obvious indication of climate change through variation in climatic variables and there exist interrelation between climate and vegetation index over the region. These results at regional level may prove an important key for global climate studies.

BIOGRAPHY

Parul C Trivedi is working with India Meteorological Department (IMD) at Ahmedabad, India for last 25 years. She is a Meteorologist and mainly undertakes multidisciplinary research on different aspect of Earth Sciences. She has participated in many national and international seminars and conferences and published many research papers. She is engaged with writing a book for Government Publication.

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