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ANALYSIS OF SEASONAL AND ANNUAL CHANGE OF VEGETATION IN THE INDIAN THAR DESERT USING MODIS DATA

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Abstract. The western part of India, specifically the dry region, will play an important role in determining the Indian monsoon and even global climate patterns. Drastically change in land use pattern of the region has been observed during last few decades. In this paper, an effort was made to track the seasonal as well as annual changes of vegetation pattern in Jaisalmer district using MODIS normalized difference vegetation index (NDVI) products. Apart from this, ground data on vegetation were also collected under vegetation carbon pool assessment programme of ISRO-IGBP. It was found that during the hot summer month of May, the area under NDVI class 0 – 0.1 is reduced from 98% during 2003 to 95% during 2009 with a simultaneous increase in area under NDVI class 0.1 – 0.2 from 2 to 5%. During the month of September, area under NDVI class 0.2 – 0.3 increased from almost negligible during May to 34 – 39% during normal or surplus rainfall year but only to 3% during a deficit year. From the ground data on vegetation biomass, it was found that *Prosopis juliflora* and *Acacia senegal* are the most abundant trees in Jaisalmer region of the desert. The sites with NDVI value $\geqslant$ 0.2 were mostly found with *Prosopis juliflora* tree. Among shrubs, the most abundant species was *Calotropis procera* and *Zizyphus numularia*. From this study, it has been found that MODIS NDVI products may be used to quickly assess the vegetation changes in response to rainfall as well as due to anthroprogenic interventions in desert.

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