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SPATIAL PATTERN OF TEMPORAL TREND OF CROP PHENOLOGY MATRICES OVER INDIA USING TIMESERIES GIMMS NDVI DATA (19826ndash;2006)

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Abstract. NOAA-AVHRR bi-monthly NDVI data of 8 × 8 km for the period of 1982 – 2006 were used to analyze the trend of crop phenology matrices over Indian region. Time series principal component analysis of NDVI was performed to produce six calibration zones for fitting equations of temporal NDVI profile. Savitzky-Golay filter with different seasonality parameters, adaptation strengths and window sizes for different calibration zones were use to smoothen the NDVI profile. Three crop phenology matrices i.e. start of the growing season (SGS), Seasonal NDVI amplitude (AMP), Seasonally Integrated NDVI (SiNDVI) were extracted using TIMESAT software. Direction and magnitude of trends of these crop phenology matrices were analyzed at pixel level using Mann-Kendall test. Further the trends was assessed at meteorological subdivisional level using "Field significance test". Significant advancement of SGS was observed over Punjab, Haryana, Marathwada, Vidarbha and Madhya Maharashtra where as delay was found over Rayalaseema, Coastal Andhra Pradesh, Bihar, Gangetic West Bengal and Sub-Himalayan West Bengal. North, West and central India covering Punjab, Haryana, West & East Uttar Pradesh, West & East Rajasthan, West & East Madhya Pradesh, Sourastra & Kutch, Rayalaseema, Marathwada, Vidarbha, Bihar and Sub-Himalayan West Bengal showed significant greening trend of kharif season. Most of the southern and eastern part of India covering Tamilnadu, South Interior Karnataka, Coastal Andhra Pradesh, Madhya Maharashtra, Gujarat region, Chhattisgarh, Jharkhand and Gangetic West Bengal showed significant browning trend during kharif season.

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