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ANALYSIS OF MULTI-TEMPORAL SATELLITE DATA FOR FOREST FIRE CHARACTERISATION OVER CENTRAL INDIAN REGION − A CLIMATE CHANGE PERSPECTIVE

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Keywords: Forest fires, Climate, Vegetation, Temperature, GIS

Abstract. Globally, forest fires are considered as one of the major drivers of climate change, altering the terrestria
ecosystems and radiation balance of the earth-atmospheric system through high carbon emissions, emissions of tra
gases, aerosols and black carbon into the atmosphere (Balch et al. 2010). The current study presents the impact of
temperature variation on forest fire occurrences in Central Indian region during 2003− 2010. The decadal (2001− 20
fire events in Central India were analysed in relation to Moderate Resolution Imaging Spectrometer (MODIS) deriv
Enhanced Vegetation Index (EVI) and Land Surface Temperature (LST) and interpolated air temperature data from
Indian Meteorological Department (IMD) to characterise the regional impact of climate on fire occurrences. The stu
shows the exponential relation of fire with LST and rise in air temperature. There exists an inverse relation betwee
spatial patterns of fire and EVI, which represents the intra-annual variability in fire incidences during the summer sea
in Central Indian region. Majority of the fire incidences are recoded in the March month of every year with highest rar
the year 2009. The linear regression relation of forest fire density and decadal mean temperature has been applied
simulate the probable fire vulnerable zones for the 2020s decade using projected temperature spatial layer from IF
HaDCM3 (Hadley Centre Coupled Model, version 3) data.

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