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SPATIOTEMPORAL VARIATION OF VEGETATION COVERAGE AND ITS RESPONSE TO CLIMATIC FACTORS FROM 2001 TO 2015: A CASE STUDY IN ANHUI, CHINA

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Abstract

As a robust indicator of terrestrial vegetation productivity, Normalized Difference Vegetation Index (NDVI) is strongly driven by precipitation and temperature among climatic factors. Based on the Moderate Resolution Imaging Spectroradiometer (MODIS) 13A1 remote sensing data, meteorological data during 2001-2015 and land use data in 2005 from Anhui Province, temporal and spatial characteristics of vegetation cover and its response to climate factors in Anhui Province were analyzed by ArcGIS correlation technology, trend analysis method and correlation analysis method. Between 2001 and 2015, the vegetation NDVI in Anhui Province showed a downward trend, and the degradation rate was faster than the growth rate with a wider range. The significant decrease areas of vegetation NDVI were mainly distributed in coastal areas, Huaibei plain areas, southern Anhui mountainous areas and Dabie mountainous areas. From 2001 to 2015, the annual change of vegetation NDVI in Anhui Province was bimodal with the highest peak in August and the second highest peak in April. In Anhui Province, NDVI was positively correlated with precipitation and temperature (R=0.065; R=0.356), the sensitivity of temperature on vegetation growth is greater than that of precipitation. The correlation degree between NDVI and climate factors in different land types was different in Anhui Province during different growing seasons, however there was no significant difference. In general, temperature was a key climatic factor influencing vegetation growth in the study area.

Keywords: climatic factors, response characteristics, spatiotemporal variation, vegetation coverage

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