

林学—研究报告

中国东部南北样带植被绿度期变化与降水关系研究

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摘要:

为了探索陆地生态系统如何响应全球气候变化,基于植物物候遥感监测的原理和特点,笔者应用野外物候观测数据和植物物候遥感监测相结合的方法,采用中国国家气象局355个站点1951—2004年观测的相关资料,以及美国地球资源观测系统数据中心的探路者数据集中的NOAA/AVHRR NDVI数据,构建Logistic模型。将其应用于中国东部南北样带上以物候为指示的植被格局动态与气候变化研究之中,分析1982—2003年样带植被绿度期参量与降水相关关系。在全球气候变暖的情况下,植被绿度初期提前趋势明显,特别是在20世纪90年代中后期,平均绿度初期提前8天左右;样带北部温度升高、降水减少,特别是春季降水减少,会使温带荒漠地区荒漠化趋势加重。

关键词: 降水变化

The Relationship of Vegetation Greenness Period and Climate Precipitation Change in the North-South Transect of Eastern China

Abstract:

In order to explore additional distribution patterns of global change to terrestrial ecosystems, phenology refers to seasonal biological life stages driven by environmental factors, and is considered to be a sensitive and precise indicator of climate change. Therefore, the author developed a ‘bottom-up’ method for first determining the phenological growing season at sample stations, and based on NOAA/AVHRR, meteorological data, ground phenology observation data, vegetation category data, and so on. The author built a Logistic fitting model on cumulative frequency of NDVI to determine length of greenness period since 1982, then analyzed correlation between NDVI and precipitation, primarily revealed the dynamic mechanism of climate on vegetation. The spatial pattern of average turning green and wilting dates of the growing season correlated significantly with the spatial pattern of average temperatures in spring and winter across the north south transect of eastern China during 1982 to 2003; the growing season extended on average by 5 to 8 days. Temperate desert regions had the trend of increase of desertification.

Keywords: climate precipitation change

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