

引用本文:

朱坚, 黄丹青, 钱永甫, 林惠娟. 梅雨期江淮地区极端高温事件的非均匀性特征及其与环流系统的配置[J]. 地球物理学报, 2010, V53(10): 2310-2320, DOI: 10.3969/j.issn.0001-5733.2010.10.005

ZHU Jian, HUANG Dan-Qing, QIAN Yong-Fu, LIN Hui-Juan. Uneven characteristics of warm extremes during Meiyu period over Yangtze-Huaihe region and its configuration with circulation systems. Chinese J. Geophys. (in Chinese), 2010, V53(10): 2310-2320, DOI: 10.3969/j.issn.0001-5733.2010.10.005

梅雨期江淮地区极端高温事件的非均匀性特征及其与环流系统的配置

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Uneven characteristics of warm extremes during Meiyu period over Yangtze-Huaihe region and its configuration with circulation systems

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摘要

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摘要 本文基于集中度和集中期的定义方法,利用1960~2007年的48年江淮地区站点的日平均温度资料和累积频率的阈值统计方法,分析梅雨期江淮地区极端高温事件的非均匀分布特征.结果表明,集中度和集中期的方法能够定量地表征梅雨期江淮地区极端高温事件的非均匀分布特征.集中期的异常型为全场一致和南北异常型,集中度的异常分布主要为南北异常和东西异常.进一步比较集中度和集中期异常与同期环流系统的配置关系得知,当集中期南北异常变化时,在高纬度的北太平洋区域出现一对正负的异常模态,且随高度增加而增强,为相当正压结构.海温的异常集中在北太平洋的北美沿岸的显著负异常中心.当集中度为东西异常时,主要环流异常型为约在160°W左右出现 "+ - + -" 的200 hPa纬向西风异常波列形式从低纬度到高纬度地区传播以及与ENSO的显著负相关.

关键词: 极端高温事件 集中度和集中期 江淮地区 环流系统

Abstract: Based on the definition of concentration density (CD) and concentration period (CP), uneven distribution characteristics of warm extremes during Meiyu period over Yangtze-Huaihe region are analyzed by using data of daily averaged temperature from 1960 to 2007 and method of cumulating frequency threshold. Results show that the definition of CD and CP can do a quantitative description of the uneven distribution characteristics. The anomaly pattern of CP is uniformly south-north anomalies, while the pattern of CD is south-north and west-east anomalies. Furthermore, a comparison of configuration between the circulation and CP and CD anomalies shows that when the south-north anomaly of CP occurs, a "+ -" anomaly mode appears over north Pacific. In addition, the intensity increases with the altitude, that leads to an equivalent barotropic structure. The sea temperature anomaly is located at the significantly negative center on the coast of North America in the north Pacific. When the west-east anomaly of CD happens, there is an unusual westerly wave at 200 hPa with the pattern of "+ - + -" around 160°W transferring from low latitude to high latitude. More importantly, the circulation pattern has a significantly negative correlation with ENSO.

Keywords: Warm extremes Concentration degree and concentration period Yangtze-Huaihe region Circulation system

Received 2009-12-08;

Fund:

国家自然科学基金面上项目"我国气温和降水极端事件及其与全球不均匀增暖的联系"(40675042)、国家自然科学基金青年项目(40901016,40805041)和浙江省科技厅面上社会发展项目(2008C23014)联合资助。

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