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基于TRMM数据的山东省干旱监测及其可靠性检验

Drought monitoring based on TRMM data and its reliability validation in Shandong province

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中文关键词: [干旱](#), [监测](#), [遥感](#), [TRMM](#), [Z指数](#), [标准化降水指数 \(SPI\)](#)

英文关键词: [drought monitoring](#) [remote sensing](#) [TRMM](#) [Z-index](#) [standardized precipitation index \(SPI\)](#)

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中文摘要:

为了兼顾卫星遥感干旱监测的高时空覆盖性和气象站点干旱监测的普遍适应性,使用热带降水测量卫星(TRMM)3B43的逐月降水量资料和单站干旱监测Z指数方法,对区域干旱过程进行监测。研究以黄淮海平原冬小麦主产区的山东省为例,使用该方法对1998年1月—2010年12月间的逐月干旱情况进行了监测,并利用同期气象数据计算出来的标准化降水指数(SPI)对TRMM-Z指数进行了验证。结果表明TRMM-Z指数监测出的干旱发生、发展过程与实际相符,其监测结果与站点SPI相关系数为0.83,达极显著水平。该干旱监测方法在区域干旱监测与评估中具有很好的适用性和精度,为有效获取气象与农业旱情提供了一种新的思路。

英文摘要:

In order to give consideration to the high spatial and temporal observation ability of remotely sensed drought monitoring method and the universality of meteorological station based drought monitoring method, this paper constructed TRMM-Z index using 3B43 monthly precipitation data of Tropical Rainfall Measuring Mission (TRMM) and single station based Z index drought monitoring method to study the regional drought. Taking Shandong Province in the winter wheat main production area Huang-huai-hai plain as an example, monthly drought situation was monitored during the period from January 1998 to December 2010 and standardized precipitation index (SPI) calculated from station meteorological data over the same period was taken as validation of TRMM-Z. The results showed that TRMM-Z index could well reflect the occurring and developing process of regional drought and the monitoring results were accorded well with actual situation. The correlation coefficient of the average value of TRMM-Z index with the corresponding station based SPI value was 0.83, with a very significant level. The new method can be widely used in regional drought monitoring and it has a good applicability and accuracy, which can provide a new approach to monitoring meteorological and agricultural drought.

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