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遥感应用

# 吉林省西部区域蒸散时空变化分析

摘要：

基于地表能量平衡理论，利用NOAA/AVHRR数据，采用SEBS模型，计算了研究区15年地表蒸散量，从年、季度和月等三个时间尺度对其进行时空变化分析。结果显示：（1）各年平均蒸散量相差较大，最大的是1988年，最小的是1996年；月平均蒸散量最大值出现在5月，最小值出现在12月，形成一单峰型曲线；第二季度平均蒸散量最大，第四季度最小，其分布曲线也为单峰型。（2）多年平均蒸散量的空间分布东半部明显大于西半部，最大的是扶余县，最小的是通榆县；各市县的月平均蒸散量分布仍为单峰型曲线，在5月达到最大值，12月最小，与全区的月平均蒸散量分布曲线一致；各市县第一季度和第四季度平均蒸散量相差不大，第二和第三季度相差较大，但总体分布趋势与全区一致，仍为单峰型曲线。以上结果表明：研究区区域蒸散时空分布极不均匀，强烈的蒸散作用为研究区生态环境恶化提供了有利条件。

关键词： 区域蒸散 生态环境 地表能量平衡 吉林省西部 NOAA/AVHRR

# Spatio temporal Change Analysis of Regional Evapotranspiration in the West of Jilin Province

Abstract:

The deterioration problems of ecological environment such as desertification of land，salinization and grassland degeneration in the west of Jilin province are serious，which restrict the sustainable development of society and economy.In order to study the relationship between environment change and regional evapotranspiration，and to reveal the mechanism and driving forces in environment deterioration from the view of the water balance，we calculated the surface land evapotranspiration of the western Jilin province from 1986 to 2003 year except 1989，1990 and 2002 with NOAA/AVHRR data using surface energy balance system.The temporal and spatial distribution of evapotranspiration is analyzed at three time scales，i.e.，year，quarter and month，respectively.The primary results show:（1）The difference among annual average evapotranspiration（AAE）is large.The maximum AAE is in 1988，and the minimum is in 1996.The maximum monthly average evapotranspiration（MAE）is in May，and the minimum is in December.The distribution of MAE forms a curve that has only one peak.The average evapotranspiration（AE）of the second quarter reaches maximum，and the fourth quarter AE is minimum.Its distribution curve is the same as that of MAE.（2）The multi year AE of the east part is larger than that of the western part.The multi year AE of Fuyu County has the maximum value.The multi year AE of Tongyu County is minimum.The MAE distribution curve of every county in the study area has the same shape that has only one peak.It reaches the maximum in May and the minimum in December.Its distribution status is the same as that of the entire area.The evapotranspiration difference between the first quarter and the fourth quarter average evapotranspiration of every county is small，but that of the second quarter and the third quarter is large.The distribution curve of every county is the same as that of the entire area，which has only one peak.It is concluded that the temporal and spatial distribution of evapotranspiration in the area is heterogeneous，and the strong transpiration provides advantageous conditions to the deterioration of ecological environment.

Keywords: regional evapotranspiration environment land surface energy balance the west of Jilin province NOAA/AVHRR

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