

## 三峡库区降雨侵蚀力时空分布特征

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## Spatiotemporal distribution characteristics of rainfall erosivity in Three Gorges Reservoir Area.

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## 摘要

基于1976—2005年三峡库区及周边25个气象站点的日雨量资料,对三峡库区降雨侵蚀力( $R$ )值的时空分布特征进行了研究,并重点分析了库区境内7个主要站点降雨侵蚀力的年内分配及年际变化规律.结果表明:1976—2005年,三峡库区年均 $R$ 值在4389.0~8021.0  $\text{MJ} \cdot \text{mm} \cdot \text{hm}^{-2} \cdot \text{h}^{-1} \cdot \text{a}^{-1}$ ,从库区东北向西南方向, $R$ 值先是逐渐递增,至库区中部达最大值后又开始递减;三峡库区7个主要站点的年内降雨侵蚀力主要集中在4—10月, $R$ 值从4月开始逐步增大,一般在6、7月出现最大值后又逐渐减小,其中连续3个月的最大累计降雨侵蚀力值占年值的54.2%~60.7%;研究期间,三峡库区7个主要站点年降雨侵蚀力的变异系数在0.278~0.387,属中等程度变异,倾向率的变化范围在-431.1~263.5  $\text{MJ} \cdot \text{mm} \cdot \text{hm}^{-2} \cdot \text{h}^{-1} \cdot (10 \text{ a})^{-1}$ ,但趋势系数均没通过0.05显著水平的信度检验,年降雨侵蚀力变化存在一定随机波动性;月降雨侵蚀力的变异程度明显大于年降雨侵蚀力,但也仅是部分站点的少数月份存在显著气候趋势.

关键词: 降雨侵蚀力 日雨量 时空分布 土壤侵蚀 三峡库区

## Abstract:

Based on the 1976-2005 daily rainfall records from 25 weather stations in the Three Gorges Reservoir Area and its surrounding regions, this paper studied the spatiotemporal distribution characteristics of rainfall erosivity in the Area, with the focus on the annual and inter-annual trends of the rainfall erosivity around seven main weather stations. In 1976-2005, the average annual rainfall erosivity ( $R$ ) in the Area was from 4389.0 to 8021.0  $\text{MJ} \cdot \text{mm} \cdot \text{hm}^{-2} \cdot \text{h}^{-1} \cdot \text{a}^{-1}$ , being increased first from the northeast to the southwest, reached the peak in the central, and then decreased. The annual rainfall erosivity around the seven main weather stations mostly concentrated in the period from April to October, with the  $R$  value increased first from April, reached the highest in June or July, and then decreased. The maximum rainfall erosivity in consecutive three months around each of the seven weather stations accounted for 54.2%-60.7% of the total annual rainfall erosivity. In the study period, the coefficients of variation of the annual rainfall erosivity around the seven main weather stations varied moderately from 0.278 to 0.387, and the tendency rate ranged from -431.1 to 263.5  $\text{MJ} \cdot \text{mm} \cdot \text{hm}^{-2} \cdot \text{h}^{-1} \cdot (10 \text{ a})^{-1}$ . However, the coefficients of tendency did not pass the confidence test with 5% level of significance, and the changes of annual rainfall erosivity showed random fluctuation. The variation degree of monthly rainfall erosivity was larger than the variation of annual rainfall erosivity, but only showed an obvious climate trend in a few months around parts of the weather stations.

Key words: rainfall erosivity daily rainfall spatiotemporal distribution soil erosion Three Gorges Reservoir Area

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