

研究论文

# 长江流域1961—2000年蒸发量变化趋势研究

王艳君, 姜彤, 许崇育, 施雅风

中国科学院 南京地理与湖泊研究所

收稿日期 2005-5-10 修回日期 2005-6-16 网络版发布日期:

**摘要** 利用长江流域115个气象站点1961-2000年的观测数据, 计算了各站点的参照蒸发量和实际蒸发量, 并进行了20 cm蒸发皿蒸发量、参照蒸发量和实际蒸发量时空变化趋势分析。结果表明, 近40 a来, 长江流域蒸发皿蒸发量、参照蒸发量和实际蒸发量的年平均变化均呈现显著下降趋势。就季节平均变化而言, 春季和秋季, 三者的变化趋势都不明显, 而夏季三者均具有显著的下降趋势, 冬季蒸发皿蒸发量和参照蒸发量均显著下降, 实际蒸发量却明显上升。蒸发量的变化趋势具有空间分布差异, 长江流域中下游地区蒸发量的变化趋势明显比上游地区显著, 尤其表现在夏季。尽管近20余年长江流域气温不断升高, 但太阳净辐射和风速的显著下降, 可能是导致蒸发量持续降低的主要原因。

**关键词** [蒸发量, 时空分布, 长江流域](#)

分类号

## Trends of Evapotranspiration in the Yangtze River Basin in 1961-2000

..

中国科学院 南京地理与湖泊研究所

**Abstract** Based on the measuring data from 115 meteorological stations between 1961 and 2000 in the Yangtze River Basin, pan evaporation (PE), reference evapotranspiration (ET<sub>r</sub>) and actual evapotranspiration (ET<sub>a</sub>) as well as their trends are calculated and analyzed. The results indicate that significant decreasing trends of PE, ET<sub>r</sub> and ET<sub>a</sub> are detected in the upper, middle and lower as well as the whole Yangtze River Basin, especially in summer. No significant trends for PE, ET<sub>r</sub> and ET<sub>a</sub> are detected in spring and autumn. PE and ET<sub>r</sub> in winter show significant negative trends, while ET<sub>a</sub> shows a significant positive trend in winter. The spatial distribution of this kind of negative trends over the middle and lower reaches of the Yangtze River is more significant than that over the upper reaches. However, at the same time the air temperature shows a significantly increasing trend, which will increase evapotranspiration. A thorough investigation shows that the significant decrease exists in net radiation and wind speed over the Basin, which, in turn, may cause the decrease in evapotranspiration after compensating the increase in air temperature.

**Key words** [pan evaporation, reference evapotranspiration, actual evapotranspiration, spatial and temporal distribution](#)

DOI

通讯作者 王艳君 [yjwang78@163.com](mailto:yjwang78@163.com)

### 扩展功能

#### 本文信息

- ▶ [Supporting info](#)
- ▶ [\[PDF全文\]\(4692KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

#### 服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

#### 相关信息

- ▶ [本刊中 包含“蒸发量, 时空分布, 长江流域” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [王艳君](#)
- [姜彤](#)
- [许崇育](#)
- [施雅风](#)