

## Penman-Monteith与Penman修正式计算塔里木盆地参考作物潜在腾发量比较

### Comparison of the reference crop evapotranspiration estimated by the Penman-Monteith and Penman methods in Tarim River Basin

投稿时间: 2004-9-3 最后修改时间: 2005-3-5

稿件编号: 20050607

中文关键词: Penman-Monteith公式; Penman修正式; 参考作物潜在腾发量

英文关键词: Penman-Monteith equation; Modified Penman equation; Reference Evapotranspiration

基金项目: 国家自然科学基金(40471020); 863计划(2002AA2Z4201); 国家科技攻关计划(2002BA901A36); 中国科学院“西部之光”项目

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中文摘要:

利用1989~1996年阿克苏水平衡试验站的气象资料, 对Penman-Monteith公式和Penman修正式计算的参考作物潜在腾发量进行了比较。Penman修正式计算的参考作物潜在腾发量年值略大于Penman-Monteith公式计算的年值, 绝对偏差为42~128 mm, 相对偏差为3.3~9.8%, 且年际间变化不大。各月的参考作物潜在腾发量变化较大, 绝对偏差可正可负, 1、2、12月小于0, 3~10月大于0, 相对误差1、12月较大, 2、11月较小, 其它月份变化不大。导致计算偏差的原因在于两种公式采用了不同的辐射项和空气动力项计算公式和参数。两种公式计算的参考作物潜在腾发量具有显著的线性相关性。

英文摘要:

Based on the daily meteorological data in Aksu water balance experimental station in Tarim River Basin from 1989 to 1996, the reference evapotranspirations ( $ET_0$ ) calculated by the Penman-Monteith and Penman methods were compared. The results showed that the annual  $ET_0$  calculated by Penman method was a little higher than that obtained by Penman-Monteith method. The absolute deviation of yearly  $ET_0$  between the two methods was 42~128 mm, the yearly relative deviation was 3.3~9.8%. The difference of monthly  $ET_0$  was smaller. The absolute deviation of monthly  $ET_0$  between two methods was above zero in January, February and December, and was below zero from March to November. The relative deviation of monthly  $ET_0$  was bigger in January and December, was smaller in February and November, the variation of the relative deviation of monthly  $ET_0$  was small in other months. The main cause of the deviation of  $ET_0$  was that different equations and parameters were used to calculate the radiation item and aerodynamic term in the equations. The correlation between  $ET_0$  calculated by two methods had linear relationship.

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