

研究论文

# 城市不同绿地垂直热力效应比较

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收稿日期 2006-8-3 修回日期 2007-1-9 网络版发布日期: 2007-2-25

**摘要** 城市绿地改变了城市地表面的辐射状况以及近地面大气的辐射状况, 使绿地附近大气热力特性发生变化, 产生绿地与非绿地之间的温度差异, 形成局地小气候环流。不同类型城市绿地热力效应不同, 产生的局地环流强度也存在差异, 对城市生态环境的改善效果也各不相同。研究不同类型城市绿地热力特征, 揭示不同类型城市绿地的小气候效应差异, 将有助于城市园林绿地规划与管理, 有助于改善城市生态环境。试验者在太原市区选择了3种不同的城市绿地——城市森林、灌丛、草坪。在氢气球上悬挂测绳, 利用测绳上系有的温湿度记录仪对不同绿地周边温度时、空变化进行测试。通过对所得试验数据分析, 得出昼间不同绿地热力变化规律以及14:00~15:30不同绿地空间温度场分布特点。结果表明: 不同绿地周边都存在明显的热力效应; 森林周边热力效应较其它绿地更明显, 14:00~15:30冷源效应在1.5、3m高度可影响到距林缘14m处, 17:00~18:30森林有明显的热源效应; 灌丛和草坪的冷热源效应较森林明显减弱, 影响的高度和距离也明显减小; 14:00~15:30, 不同绿地周边气温垂直结构中都有一个高温中心和低温中心, 说明绿地与非绿地之间应该存在着局地小气候环流。这些研究结果为进一步研究不同城市绿地小气候环流提供了依据。

关键词 [城市绿地](#) [温度](#) [热力效应](#)

分类号 [Q948](#), [S718](#)

## Vertical thermal characteristics analysis between different urban green land

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**Abstract** Because of significant difference of the radiant intensity and atmosphere between green land and non-green land, and variation in the different temperature, microclimate circumfluence can form. The thermal characteristics and the intensity of microclimate circumfluence are different between the various kinds of landscapes. The different environment effects are experienced by different city landscapes which have different green distributions. Study on the thermal characteristics of different green distribute landscapes in the city will help to improve the management and maintenance of city environment, and keep it at a high level. Three kinds of different green-covered land (city forest, shrubbery and lawn) were selected in Taiyuan city to carry out this experiment. The temperature was recorded by thermometer attached to a hydrogen balloon. A conclusion was reached by analyzing the survey data, using thermal characteristics during the day and the spatial characteristics of the temperature fields in the afternoon. All these kinds of green land have obvious thermal characteristics. Especially the thermal characteristics in forest are much more in evidence than the other two green-covered lands. The cool-edge influence was up to 14 meters from the edge of the forest in height and from 1.5 meters to 3 meters in diameter. The influence could increase the temperature at dusk. The effect of shrubbery and the lawn on decreasing or increasing the temperature was weaker than the forest and the effective height and distance are also much shorter than the forest. All the spatial temperature fields of different green lands have both high temperature and low temperature centers. All this provides strong evidence of the existence of microclimate circumfluence between different green lands and this will help in further study on microclimate circumfluence formed between different urban green lands.

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**Key words** [urban green land](#) [temperature](#) [thermal characteristics](#)

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