

## 城市住区绿化生态效益及其可控影响因素的量化分析

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Ecological benefits of greening and related controlling factors in urban residential areas of Hangzhou: A quantitative analysis.

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- 摘要
- 参考文献
- 相关文章

全文: PDF (2191 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

**摘要** 基于杭州城西2007年1 m×1 m高分辨率航空遥感图像和夏季30 m×30 m Landsat TM数据,应用GIS和遥感图像解译方法定量计算了代表杭州城西30个典型城市住区总体生态效益的归一化植被指数(NDVI),以及各样本住区6个可控生态效益的影响指标(复层结构高度、软硬比、绿化覆盖率、容积率、绿地面积、建筑密度),并采用多元线性回归和对应分析方法得出6个影响因素对绿化生态效益的贡献度排序,以及提升住区生态效益的措施,分析了城市住区生态效益与典型可控影响因素间的定量关系。结果表明:各影响因素对城市住区生态效益贡献度依次为复层结构高度>软硬比>绿化覆盖率>容积率>绿地面积>建筑密度;复层结构高度的贡献率远超过其他因素,建筑密度对住区生态效益的影响极微弱。利用对应分析法所得的各影响因素改进二维图,可方便地用来制定提升住区绿化生态效益的决策方案。

**关键词:** 城市住区 绿化生态效益 复层结构厚度 绿化覆盖率 容积率 建筑密度

**Abstract:** Based on the 1 m×1 m high resolution aerial images in 2007 and the 30 m×30 m Landsat 5 TM images in summer 2007, and with the help of GIS and remote sensing image interpretation, this paper calculated the normalized difference vegetation indices (NDVI) representing the overall ecological benefits of greening as well as the six controlling factors, *i.e.*, multilayer structure height, area ratio of softness to hardness, greening rate, floor area ratio, greening area, and building density, in 30 typical urban residential quarters of west Hangzhou. The contributions of the controlling factors to the ecological benefits of greening as well as the quantitative relationships between the overall ecological benefits and the six controlling factors were analyzed by multiple linear regression and correspondence analysis, and some advises were given for the improvement of the ecological benefits. The contribution rate of the six factors was in the order of multilayer structure height > area ratio of softness to hardness > greening rate > floor area ratio > greening area > building density, and the contribution of multilayer structure height was far greater than that of the others whereas building density had the weakest effect on the ecological benefits. Correspondence analysis was effective in simplifying a complex data table into an intuitive two-dimensional chart, and thus, a potential powerful tool in decision-making for the improvement of ecological benefits of greening in urban residential quarters.

**Key words:** urban residential area ecological benefits of greening multilayer structure height greening rate floor area ratio building density

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