

# Mitigation effect of cooling roof on urban heat island in China

## 冷却屋顶对中国城市热岛的缓解效应研究

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当前至2050年，中国面临着大规模的城市土地扩张，在土地利用大规模变化之前评估其引起的环境影响，研究减缓城市热岛负面影响的措施非常重要，有助于确立城市生态环境可持续化发展的正确途径。本项目拟采用WRF/NOAH3.7开展2005-2015年冷却屋顶缓解中国城市热岛的效应的研究。目标在于（1）探讨近10年中国城市的扩张对热岛及高温的影响；（2）研究绿色屋顶以及高反照率冷屋顶等不同技术对减缓中国城市热岛效应所起的作用，不同的城市冷屋顶方案对于中国气候带及城市集中扩张带高温的减缓能力及适应性；（3）分析城市冷屋顶方案对于气候变化存在的影响。以期该研究为气候变化，可持续发展，城市生态恢复力，城市规划建设政策的制定提供理论依据。

China has and will be undergoing large scale urban sprawl from now to 2050. so it is of great importance now to evaluate its environmental effect and study the mitigation measures before it reaches climax. This can enlighten an effective way of sustainable development for urban environment. We plan to apply WRF/NOAH3.7 to the study on mitigation effect brought by cooling roof on urban heat island (UHI) in China. The objectives are as follows:(1) Investigate the effect of urbanization on UHI and high temperature in China in the last decade;(2) Explore the mitigation effect of green roof and high albedo roof on UHI and their ability and adaptability of mitigating high temperature for different climate zones and urban clusters;(3) Further explore the cooling roof influence on climate change. This study is expected to provide theoretical evidence for global climate change, sustainable development, recovery of urban ecosystem and urban planning policy.