DOTTORATO DI RICERCA INTERATENEO

"GESTIONE SOSTENIBILE DEL TERRITORIO"

Ciclo XXXVII

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Titolo del Progetto di ricerca	Urban forests as Nature-Based-Solution for mitigating urban heat island
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Riassunto del Progetto di ricerca

Along with urbanization，industrialization, and climate warming, urban thermal environment has deteriorated significantly. Urban heat islands (UHI) increase energy consumption, aggravate the diffusion of urban air pollutants by affecting heat exchange and airflow, affecting human health and urban economic development. It has been regarded as one of the significant environmental problems in the 21st century. Nature-Based Solutions (NBS) are considered as sustainable, cost-effective and multi-purpose solutions to these problems. The urban forest can contribute to climate mitigation and adaptation through a range of provisioning, regulating, and cultural ecosystem services thus serving as NBS. Adequate understanding pertaining to the coupling relationship between urban forest's canopy structure and thermal effect can help to optimize urban forest so as to effectively mitigate Urban Heat Island (UHI) effect. Choosing appropriate urban forest structure indicators and establishing a meaningful relationship between urban forest structure and the intensity of cooling and humidification are essential for designing and implementing this NBS. This study aims to characterize UHI intensity and urban forests based on remote sensing data and associate UHI intensity with urban forest characteristics to unveil how urban forests mitigate UHI. The research findings can inform the optimization of urban forest structure and improvement of urban forest planning.

References

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