Special Issue

Exploring the Urban Heat Island and Its Mechanisms Based on Satellite and Al

Message from the Guest Editors

Urban Heat Island (UHI) effects, i.e., where urban areas experience significantly higher temperatures than their rural surroundings, pose serious challenges to public health, energy consumption, and urban sustainability. With rapid urbanization and climate change intensifying these effects, understanding the spatial and temporal dynamics of UHI has become a critical research priority. Remote sensing technologies, particularly satellitebased observations, offer powerful tools for monitoring land surface temperatures, vegetation cover, and urban morphology. Meanwhile, artificial intelligence (AI) and machine learning techniques are revolutionizing the analysis of complex geospatial data, enabling the more accurate modeling and prediction of UHI phenomena. This Special Issue aims to collate cutting-edge research that leverages satellite remote sensing and Al to explore the mechanisms, impacts, and mitigation strategies of Urban Heat Islands. It aligns closely with the scope of Remote Sensing, emphasizing the integration of advanced Earth observation technologies with intelligent data analytics to address pressing environmental and urban challenges.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Climate (ISSN 2225-1154) was established in 2013 to provide an open-access outlet for innovative research, review articles, new direction papers, and short communications relevant to all disciplines related to climate at all scales. The journal encourages papers ranging from climate change detection and attribution and Earth system modeling to ecosystem, hydrologic, and socioeconomic impacts and climate mitigation and adaptation measures. The influence of Climate is strong and growing (IF 3.2 in 2024, CiteScore 5.7 in 2024).

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