Urban Climate Change and Heat Islands

Characterization, Impacts, and Mitigation

Edited by
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Urban Climate Change and Heat Islands: Characterization, Impacts, and Mitigation serves as a go-to reference for a foundational understanding of the drivers and impacts of urban climate. Through the chapters the authors will help the readers to identify problems associated with urban climate change along with potential solutions. Global case studies are included and presented in a way in which they become globally relevant to any urban or intraurban environment. The authors call on their extensive experience to present and explore methodologies and approaches to quantifying the mitigation measures of urban heat in a clear manner, accessible to those new to the field and looking for a foundational understanding. Urban climate change and intraurban climate variability explores the present situation in these environments with a focus on heat islands, urban overheating, and effects on air quality.

Key features:

- Includes global case studies that demonstrate how to design and implement the mitigation measures of urban heat that are area-specific and effective, under both current climate and future conditions
- Provides an overview of urban parameterizations in models leading to an improved understating of intraurban climate variability drivers
- Assesses potential heat and air-quality health impacts of excessive heat events and changes in local urban climates

Riccardo Paolini by training is a building engineer, and he received a PhD in building systems engineering from Politecnico di Milano, Italy, in 2011. He joined UNSW Built Environment in 2017, where he is a senior lecturer in the high-performance architecture research cluster. Riccardo Paolini's primary research interests concern building physics and its applications to the design of building and urban envelopes, with a specific focus on the hygrothermal performance over time, namely, during the service life of built assets. Especially, he extensively researched the impact of ageing on the optical-radiative response of building skins. The other central research theme investigated by Riccardo is the mutual influence between buildings and their energy needs and the urban climate, and the performance of mitigation technologies in use conditions.

Matthaios Santamouris is a professor of high-performance architecture at UNSW, and professor in the University of Athens, Greece. He is also a visiting professor at Cyprus Institute, Metropolitan University London, Tokyo Polytechnic University, Bolzano University, Brunnel University, and National University of Singapore. He is a past president of the National Center of Renewable and Energy Savings of Greece, editor in chief of the Energy and Buildings Journal, past editor in chief of the Advances Building Energy Research, associate editor of the Solar Energy Journal, and member of the editorial board of 14 journals. In addition, he has been an editor and author of 14 international books, and 400 scientific articles published in journals as well as a reviewer of research projects in 29 countries, including the United States, United Kingdom, France, Germany, Canada, Sweden, etc.

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