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Advancement of Urban Heat Island Studies

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Message from the Guest Editors

This special issue will be devoted to the urban meteorology as an important and contemporary scientific direction.

Usually data of weather stations are used for studying of the UHI long-term dynamics. Mobile experiments using sensors installed at trains, cars, etc., as well as temporary increased station networks are usually episodic and short in time but their results are more detailed and allow studying of the UHI spatial fine- structure. One more way is use of satellite data about so-called 'Surface Urban Heat Islands' (SUHI) which are both regular and detailed.

In hot climates UHI is negative phenomenon which increases thermal stress for people. On the contrary, at high latitudes (e.g., in Arctic) UHI is rather positive phenomenon which prevents urban population from strong frosts and reduces the urban heating cost. Besides air temperature, cities usually influence on the spatial fields of other parameters such as humidity, precipitation, solar radiation, concentrations of aerosol particles, and so on. Thus, specific phenomena like 'Urban Dry Island', 'Urban Pollution Island' and others are important objects of studying as well.

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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

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