

The Chinese University of Hong Kong Earth System Science Programme

Towards Urban Sustainability under a Changing Climate

Dr. Dan Ll

Program of Atmospheric and Oceanic Sciences, Princeton University NOAA/Geophysical Fluid Dynamics Laboratory, Princeton

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Abstract

Cities are emerging as the nexus of water, energy, and health challenges facing humanity in this century and climate change adds another dimension of complexity to achieving urban sustainability. How to adapt built and social systems to climate change and how to mitigate the adverse impacts of extreme weather and natural disasters in cities are becoming increasingly important. In this presentation, a series of numerical studies that focus on various urban environmental issues such as the urban heat island effect will be discussed. Results indicate that cities are particularly vulnerable to heat waves because of synergistic interactions between heat waves and the urban heat island effect. Under such conditions, mitigation strategies aiming to reduce heat stresses in cities are strongly needed. New models are developed to assess the effectiveness of different mitigation strategies such as the use of green roofs and white roofs at the city scale.

