

An evaluation of intra-urban variability of near-surface urban air temperatures and humidity in Hong Kong

Melissa Hart*, David J. Sailor, Chien Tat Low.

*University of Hong Kong,

Abstract

Hong Kong is a densely populated Asian city with a monsoon-influenced humid subtropical climate that experiences a pronounced urban heat island (UHI). Summertime conditions in Hong Kong are generally hot and humid and can get quite oppressive.

Whilst the general causes of the UHI are well known, it is not well understood how different urbanization characteristics (e.g. land-use, vegetation coverage) affect the intensity of the UHI. To investigate the UHI in Hong Kong, vehicle based temperature and relative humidity traverses were used to determine spatial differences in summertime near-surface air temperature and humidity across the city. A total of 29 vehicles traverses were undertaken during the coolest and/or hottest part of the day across eight days during May-June 2008. Geographical information system (GIS) resources were used to identify land-use and surface characteristics associated with peaks in the UHI. Preliminary results indicate that the most important urban characteristic separating warmer from cooler regions of the urban area were measures of road and building density. These results will be compared and contrasted with findings from a previous application of our methods in a temperate US city, Portland, Oregon, where we found tree canopy cover to have the greatest influence on urban climate.