Erratum to

Chapter 2
Urban Heat Island Gold Standard and Urban Heat Island Atlas

Gold Standard for UHI Measurements and Introduction of The Central-European Urban Heat Island Atlas

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Chapter 2 in the original version of this book was inadvertently published without its original publication being cited throughout. The original publication and Publisher, Stewart and Oke (2012), has been cited at various instances as well as added in the *References* list in the correct version of this chapter, as given below:

Typically, a "three-step process" is suggested by Stewart and Oke (2012) "to users when classifying field sites into LCZs" (p. 1889):

"Step 1: Collect site metadata. Users must collect appropriate site metadata to quantify the surface properties of the source area (as defined in Step 2) for a temperature sensor. This is best done by a visit to the field sites in person to survey and assess the local horizon, building geometry, land cover, surface wetness, surface relief, traffic flow, and population density […]. If a field visit is not possible, secondary sources of site metadata include aerial photographs, land cover/land use maps, satellite images (e.g., Google Earth©), and published tables of property values (e.g., Davenport terrain roughness lengths)" (Stewart and Oke, 2012, pp. 1889–1890).

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"Step 2: Define the thermal source area. The thermal source area for a temperature measurement is the total surface area «seen» by the sensor […]." (Stewart and Oke, 2012, p. 1890) "Sources will include upwind buildings, the walls and floor of an upwind street, and perhaps a branching network of more distant street canyons" (p. 1890).

"Quantifying the surface properties for field sites and source areas located on or near the border of two (or more) zones is problematic. If the location of the sensor can be moved, it should be placed where it samples from a single LCZ. […]. If the location of the sensor cannot be moved, temperature data retrieved from that site should be stratified first according to wind direction, then to LCZ. […] A site with a split classification is less ideal for heat island studies because changes in airflow and stability conditions interfere confuse the relation between surface form/cover and air temperature. It is recommended that transitional areas be avoided when siting meteorological instruments" (Stewart and Oke, 2012, p. 1891).

"Step 3: Select the local climate zone. Metadata collected in Step 1 should lead users to the best, not necessarily exact, match of their field sites with LCZ classes. Metadata are unlikely to match perfectly with the surface property values of one LCZ class. If the measured or estimated values align poorly with those in the LCZ datasheets, the process of selecting a best-fit class becomes one of interpolation rather than straight matching. Users should first look to the surface cover fractions of the site to guide this process. If a suitable match still cannot be found, users should acknowledge this fact and highlight the main difference(s) between their site and its nearest equivalent LCZ" (Stewart and Oke, 2012, p. 1891).

Stewart and Oke (2012) note that "updating LCZ designations is crucial for all sites, particularly those used in long-term temperature studies" (p. 1893). They add that "sites located on the edges of cities where urban growth and environmental change are rapid, or in the cores of cities where land redevelopment and large-scale greening projects are taking place, should be surveyed and classified annually. For sites used in mobile or short-term stationary surveys, the frequency of updates is dictated largely by day-to-day variations in weather and soil moisture […]" (p. 1893).

Reference

Stewart, I. D., & Oke, T. (2012). "Local Climate Zones" for urban temperature studies. *Bulletin of the American Meteorological Society, 93*, 1879–1900.