Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

URBAN HEAT ISLAND EFFECT OF CHENGGONG DISTRICT IN KUNMING, CHINA

Bai Yufu[1], Wang Zhihao[1*], Li Mingyan[1], Zhou Yi[1], Leng Tingting[2]

[1]Kunming University of Science and Technology, Faculty of Civil Engineering and Mechanics, Kunming 650500, China
[2]Kunming University of Science and Technology, Yunnan Key Laboratory of Disaster Reduction in Civil Engineering, Kunming 650500, China

Abstract

This paper measures the temperatures along a test route through Chenggong District, Kunming, by mobile measurement, and revises the measured data to 4 different time points of the test period, aiming to enhance the data utilization efficiency. The modified data were plotted into isotherm slices at the four time points, and the urban heat island (UHI) features, as well as its influencing factors were analysed on geographic information system (GIS) software. The results of the measurements showed that, high temperatures were measured in university district, residential area and government administrative area are the highest, reaching 19.94°C, 20.01°C, and 20.05°C, respectively, while the lowest temperature was observed at Guanshan Reservoir, which was only 17.64°C. The maximum UHI intensity stood at 2.41°C, which occurred at 19:30. In addition, cooling effect of local water bodies depends on the size of the water body and the distance from the living area.

Key words: geographic information system (GIS), isotherm, mobile measurement, urban heat island (UHI)

Received: January, 2019; Revised final: April, 2019; Accepted: May, 2019

[*]Author to whom all correspondence should be addressed: e-mail: wangzhihao@kmust.edu.cn; Phone: +86 13618719155; Fax: +86 871-67550635