

Abstract

The objective of the study was to investigate the possible effect of urbanization on rainfall variability over Nairobi City, Kenya. The daily rainfall and wind datasets for last 30 years were sourced from Kenya Meteorological Department while the monthly land albedo was obtained from Moderate-resolution Imaging Spectrometer (MODIS). The data was subjected to homogeneity test by using Short-Cut Bartlett test. Wind variation, rainfall trend and spatial distribution of rainfall were performed by using Wind Rose Plot (WRPLOT) View software, Mann-Kendall test and surfer respectively in the study. The results show that the dominant winds over the study area are easterlies. Higher rainfall is experienced on the western part of area as compared to the eastern side of the city. The reducing albedo over the city is a good indicator that the city is getting urbanized. The intensity of wet events is higher than dry events, characterized by high positive anomaly values. The number of rainy days is decreasing while the total rainfall is increasing in the study area. The study also reveals an increase in total rainfall with decrease in the number of rainy days. Land albedo can only explain less than 10 percent change in rainfall over the city. There remains need for further research employing higher resolution and long time data sets to ascertain the causes of the observed changes of rainfall over the city.