

Abstract

General environmental management, which involves monitoring and modeling, requires the information of the Land surface temperature (LST) status of area concerned. Land surface temperature has gained relevance recognition over the years and there is need to develop approaches that can determine LST using satellite images. This study was conducted in Akure which has experienced rapid urbanization in recent time. The study utilized Landsat data of 1984, 1990, 2000, 2003, 2014 and 2016. The temperature data were derived from Landsat images using remote sensing algorithms for assessing LST from thermal infrared (TIR) data (bands 6 and 10). These data were processed and analyzed using tools in Idrisi and ArcGIS software systems. Satellite-derived land surface temperatures were validated with in-situ temperature data. The results revealed parabolic increase in temperature over the years and the changing pattern was investigated by adopting existing ecological indexes. The validation operation revealed average bias value of between remote sensing- and ground-based data. This implies that remote sensing technique is reliable and therefore could be employed for large scale temperature mapping. The results could be used in mitigating urban heat island effects such as heat-related stress and ill-timed human deaths.

Keywords

General environmental management, monitoring and modeling, Land surface temperature (LST) status of area concerned, relevance recognition, over the years.