SIMULATION OF THE INFLUENCE OF VEGETATION IN URBAN MICROCLIMATE OF HEIGHT AND THERMAL COMFORT IN THE CITY OF AREQUIPA - PERU

Gamaliel Velarde Romero
Universidad Nacional de San Agustín de Arequipa

Abstract

Different simulations of urban microclimate were realized in: Germany, Bruce 1999, Stockholm Jansson 2006, Ghardaia Algeria Ali Toudert 2003, Thessaloniki, Northern Greece Chatzdimitriou 2003, Singapore Nyuk Hien 2004, River of Janeiro/Brasil Spangenberg 2007, Thessaloniki, Greece 2006; to a maximum height of 450 m.s.n.m. The microclimatic urban behavior is investigated in Arequipa, Peru; to a height of 2,328 m.s.n.m; if it obeys the same factors of development as a place in minor altitude. Monitoring the microclimate of a park, a street and urban cannon will be realized; creating a database of temperature of the air, relative moisture, solar radiation, superficial temperature, speed and direction of the wind. The effect of adding trees to the of a park, a street and urban cannon, will be simulated using the numerical model ENVI-MET. The simulations will have to show, if the incorporation of trees to the park, the street and in the urban cannon have refrigerating effect in the temperature of the air, a significant refrigeration of the surface of the street and reduction of radiant average temperature at a height of pedestrians. The trees will lower the wind speed, being the thermal comfort improved; when the physiologically equivalent temperature (PET) is limited.