

Abstract

Current rapid deterioration of air quality in most urban can be majorly attributed to ongoing urbanization. This study simulates air pollutant dispersal over Nairobi city using Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) model, considering a case for emission of Total Suspended Particles (TSP) into the environment. The wind climatology was established using Wind Rose Plot (WRPlot) view. The predominant wind speed over the city is 4-6 knots and the wind direction is easterly. The forward trajectory of a pollutant released in the city is generally observed to flow to the western side of the city. The pollutant is observed to be dispersed beyond 100 km from the city reducing the concentration of the same in the city. The study recommends for a consultative planning process of the city that factors in the wind characteristics over the city; most industrial activities should be located to the extreme western side of the city to minimize concentration of pollutants over the city. The study further recommends research to be carried out for a longer period of time to ascertain the quality of rain water during the long rain season. This calls for accurate observation and monitoring of pollution levels over the city and other cities in the country.