ABSTRACT

Based on the ambient air quality data from January 1997 – December 1998, for carbon monoxide, nitrogen dioxide, particulate matters, sulfur dioxide, and ozone concentrations from the Thai Pollution Control Department, factor analysis technique was used to identify important sources of air pollution for the Dindang district, Bangkok, Thailand. Varimax rotation technique was also applied to the extracted factor loadings to maximize interpretability of the factors. Attempts to identify three rotated factors with physical sources indicated that motor vehicle, diesel combustion for transportation, and ozone-related sources were largely responsible for the Dindang site's air quality. These three factors accounted for about 92.79 percent of the total variance in the data set. Time series decomposition technique was applied to obtain critical time periods and additional influences from other factors. The results showed that seasonal and meteorological conditions are the vital factors impacting the air quality. The worst case for air quality occured during cold season from November to January. The accumulation of vehicles during the rush hour periods from 7 to 9 am and from 7 to 9 pm was seen as an important factor impacting air quality of the site.