

Assessing Air Quality in Jeddah by Modeling Suspended PM₁₀ Concentration

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Abstract: Poor air quality, particularly during the dry months, causes adverse health effects from exposure to carbon monoxide, ozone and suspended particles. Particulate matter with aero-dynamic diameters of less than 10 μm (PM₁₀) was measured over 24-h intervals at four core stations in and around Jeddah City, Saudi Arabia. The sampling zones were located to Abhor, Industrial area, Bani Malek and Stadium regions of the city. The atmospheric elements in the total suspended particulates (TSP), the PM₁₀ fractions came from different emission sources, such as soil, traffic, industry and suspended particles. The gases and particulate matters data were collected from Saudi Presidency of meteorology and environment center for the periods between; January 2009 an April 2002. Hence, the complete set includes 769 data for this study. The aim of this study is to analyze the main mechanisms of dust in Jeddah as well as the PM₁₀ concentration, and mainly draw attention to the complexity of dust behavior and uncertainties by trend analysis and stochastic time series. Moreover, Krosskall-Wallis test will be applied to determine the relations of particulate matters measured by four different stations.

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