JEP> Vol.1 No.3, September 2010

OPEN ACCESS

Spatial and Temporal Variation of Urban Air Quality: A GIS Approach

PDF (Size:2059KB) PP. 264-277 DOI: 10.4236/jep.2010.13032

Author(s)

Subrata Chattopadhyay, Srimanta Gupta, Raj Narayan Saha

ABSTRACT

This study investigated the seasonal variation of ambient air quality status of Burdwan town using GIS approach. Concentration of SOR2R (sulphur dioxide), NOR2R (nitrogen dioxide) and RSPM (respiratory suspended particulate matter) were measured once a week for 24 hour in both premonsoon and postmonsoon season. The seasonal average concentration of the RSPM, SOR2R and NOR2R in premonsoon season was observed to be 188.56 ± 88.63, 5.12 ± 6.27 and 92.51 ± 64.78 mg/mP3P respectively whereas in postmonsoon it was 53.03 ± 38.27, 8.51 ± 7.11 and 162.85 ± 184.80 mg/mP3P respectively. Statistical analysis showed the significant monsoonal effect on mean difference of RSPM, SOR2R and NOR2R concentration. Postmonsoon concentration of ambient SOR2R and NOR2R were observed to be higher than premonsoon, suggesting longer residence times of these pollutants in the atmosphere due to stagnant conditions and low mixing height. Spatial distribution of pollutants throughout the town in both the season was represented by digital elevation model (DEM). On the basis of Air Quality Index (AQI) a GIS based air pollution surface models were generated in both the seasons by means of Inverse Distance Interpolation (IDINT) technique. From the output surface model it was found that in comparison to premonsoon there was a significant increase of clean and fairly clean area and decrease of moderately polluted area of the town during postmonsoon.

KEYWORDS

Ambient Air Quality, Seasonal Variation, Air Quality Index (AQI), Geographic Information System (GIS)

Cite this paper

S. Chattopadhyay, S. Gupta and R. Saha, "Spatial and Temporal Variation of Urban Air Quality: A GIS Approach," *Journal of Environmental Protection*, Vol. 1 No. 3, 2010, pp. 264-277. doi: 10.4236/jep.2010.13032.

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