SPATIAL AND TEMPORAL CHARACTERISTICS OF AIR QUALITY IN TAIWAN

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Abstract: According to the Environment Protection Agency (EPA) in Taiwan, the air quality 2007 in Taiwan was better than the previous year. The air quality index PSI published by EPA in 2007 indicated the dominating air pollutants were ozone and Particulate Matter, which are harmful to human health and could cause upper respiratory diseases. To improve air quality, EPA collected Air pollution fees from 1995 to reduce the air quality impact on public health. In this study, the air quality monitoring data from 1994-2007 which include carbon oxide, nitrogen dioxide, sulfur dioxide, ozone and Particulate Matter (with aero dynamic diameter less than 10 μm) provided by EPA was used to perform statistical analyses, which include time series plot, box plot, and trend analysis. The spatial distribution of air quality was also analyzed using GIS. The results indicate the air quality in northern Taiwan had improved in the past decade. However, there is no significant improvement in central or south Taiwan in the past decade. In the trend analysis, ozone and PM concentrations were higher than the exposure standards regulated by EPA and exist trends from 1994-2007. Therefore, the ozone and PM concentrations should be regulated to prevent the impacts on the public health.

Keywords: air quality, trend, Particulate Matter, GIS