178

DIFFUSION TUBE SAMPLING STRATEGIES IN TWO UK BOROUGHS

M.S. Lythe, E.E. Hellawell
Civil Engineering, School of Engineering, University of Surrey, Guildford, UK

Much of the effort towards monitoring nitrogen dioxide (NO2) air pollution in the UK is designed around passive diffusion monitoring. This technique is relatively inexpensive and allows many more locations to be assessed than by using more expensive methods. The locations of individual tubes are generally selected on individual merit, therefore the potential for spatial interpretation of the measurements is limited due to the resulting skewed distribution of monitoring sites. Monitoring points are often grouped together, dictated by the location of urban centres within an area, with sparse sampling towards the edges of a region due to geopolitical constraints. This paper compares the measurement strategies from two UK boroughs; one selecting its discrete monitoring sites by individual merit, and one deploying them to conform to a regular grid. The potential for spatial interpretations of the two data sets is assessed, and a comparison of the relative strengths of the two strategies is presented. The data are analysed within a GIS, which enables comparative mapping and statistical analyses to be performed. A direct comparison of the two sampling strategies demonstrates clear differences, especially in regions where the discrete sites have large distances between them. The differences are smaller in urban areas, where the discrete sites have a greater density of points, but overall there is still a positive bias towards the grid technique.