

## Use of local statistics to reveal hidden information of pollution hotspots in urban soil geochemistry

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The identification of pollution hotspots is an important approach for a better understanding of spatial distribution patterns and the exploration for their influencing factors in environmental studies. One of the most often asked questions in an environmental investigation is: Where are the pollution hotspots? This presentation explains one of the popularly used methodologies called local index of spatial association (LISA) and its applications in urban geochemical studies in Galway, Ireland and London of the UK. The LISA is a useful tool for identifying pollution hotspots and classifying them into spatial clusters and spatial outliers. The results were affected by the definition of weight function, data transformation and existence of extreme values, and it is suggested that all these influencing factors should be considered until reasonable and reliable results are obtained. This method has been applied to identify Pb pollution in Galway, polluted areas in bonfires sites, elevated P and REE concentrations in London. Hotspots in identified in urban soils are related to locations of high road density, traditional festival bonfires, industries and other human activities. The results of hotspots analysis provide useful information for the management of urban soils.