

London Earth 2010 update

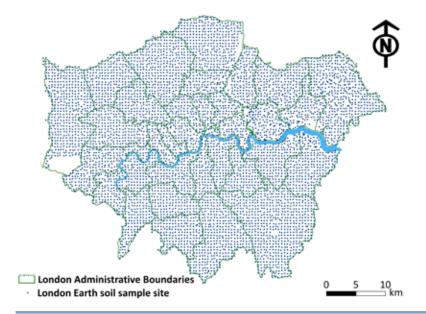


The British Geological Survey (BGS) has recently completed a geochemical survey of Greater London and surrounding areas. The project, known as 'London Earth', will provide information on the chemistry of the surface environment of the most heavily populated area of the UK. The data from this survey— due later this year— will be available under licence from the BGS.

The purpose

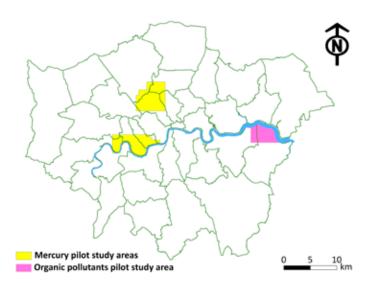
The results from this study will provide unique information on soil chemistry in the urban environment which will be of direct relevance to land-use planning and development, urban regeneration and contaminated land assessment. Characterising the soil quality of London will enhance our understanding of interactions between people and ecosystems, and of water resource protection.

London Earth is part of a national programme to measure and map the chemical status of the UK surface environment—the Geochemical Baseline Survey of the Environment (G-BASE). Through this survey, the BGS provides national capability in quantifying the geochemical variation of the 'shallow subsurface'—including the soils beneath our cities. Comparison of soil data from London with those from adjacent rural areas will allow identification of impacts on the environment brought about by urbanisation and industrial activities. The BGS also holds urban soil chemical data for 25 other major population centres in the UK allowing us to compare soil quality in London with these other cities.













The survey

As part of the *London Earth* project, 6600 soil samples were collected across the Greater London area during 2008 and 2009 (see map overleaf). Samples were normally taken from open ground, such as parks, playing fields, gardens and roadside verges. Work is currently underway at the BGS laboratories near Nottingham to measure the concentrations of over 50 different chemical elements in these soils, including potentially harmful elements such as arsenic, lead and nickel.

Outside Greater London, in addition to soil samples, stream sediment and stream water data have been generated from samples collected across rural and urbanised land. This wider dataset allows a unique opportunity for land quality comparisons across the region, particularly the contrasts between urban and rural environments.

Applications

The Thames region is currently the focus for a range of BGS geoscientific research. As part of these integrated studies, information from the *London Earth* project can be directly applied to investigations of contaminated land, water resource management, sustainable development and urban regeneration, medical geology, environmental change and ecosystem protection.

New initiatives

As part of the BGS' development of capability programme, new sampling techniques have been applied during the *London Earth* survey, allowing us to analyse the concentrations of mercury and of persistent organic contaminants in soil (such as PAHs, PCBs and TPHs) which are potentially harmful to ecosystems and human health. Both of these pilot studies were carried out in selected areas of London, shown in the map above. However, the BGS keeps an archive of all sampled materials that are collected from systematic surveys—this allows for future local and regional investigations, for example further mercury analysis for other areas of Greater London.

What next?

The field survey is now complete, chemical analysis will be completed during 2010 and the data will be publicly available by late 2010. A workshop will be held in spring 2011 to present the initial findings of the survey to the user community.

For more information please contact

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