

Commercial Trials of Airborne Air Quality Mapper



Aerial mapping company Bluesky, UK, is launching a service to map air quality across towns and cities. After having completed a project to map air pollution in the city of Leicester, Bluesky is now seeking new sites in the UK to trial its survey technology. Using a spectrometer, developed by scientists at the University of Leicester, mounted on an aerial survey plane the system can accurately record levels of nitrogen dioxide across entire cities. The colour-coded air pollution maps can be overlaid on digital maps or online mapping systems such as Google Earth.

Air pollution is a real and present environmental threat to public health in the UK, commented Bluesky's technical director James Eddy, who is also industrial associate at the University of Leicester. Having successfully deployed the Airborne Air Quality Mapper

for the first time over the skies of Leicester they are keen to trial the system in other UK cities and locations to obtain comparative datasets.

In the World Health Organisation European Region, exposure to air pollution is said to decrease the life expectancy of every person by an average of one year. While this is lower than in other parts of the world, a recent study saw this figure rise to 22 months in at least 25 European Cities. Defra (Department for Environment, Farming and Rural Affairs) estimates that air pollution reduces average life expectancy in the UK by 7-8 months, costing the UK GBP20bn per annum.

The significance and potential impact of air pollution is well understood, continued Eddy. It is also accepted that exposure to air pollutants is largely beyond the control of individuals and therefore requires action by public authorities at the local, national, regional and even international levels. By capturing accurate, reliable and up to date information that can be easily understood and communicated Bluesky is trying to arm those responsible for managing their cities and protecting their health with the data they need to make informed decisions.

Spectrometer

The Airborne Air Quality Mapper (AQM) trials will utilise the University of Leicester's Compact Air Quality Spectrometer, mounted on a dedicated aerial survey aircraft. The device monitors visible light and measures how much light is lost at specific wavelengths absorbed by NO₂. The technology has previously been used as part the CityScan project with devices mounted on tall buildings in Leicester, Bologna and London during the Olympics to build 3D maps of pollution across the cities.

Nitrogen dioxide (NO₂) is part of a group of highly reactive gasses known as nitrogen oxides. NO₂ forms quickly when fossil fuels are burned for example petrol or diesel in a car or natural gas in a domestic boiler or power station. There is clear evidence that high levels of NO₂ are linked to adverse effects on health including increased risk of respiratory illnesses such as bronchitis and even heart attacks and World Health Organisation statistics show 1.3 million deaths worldwide result from outdoor air pollution.