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Something in the Air? Service Warns Asthma Sufferers by Phone

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SOMETHING IN THE AIR? ESA SERVICE WARNS ASTHMA SUFFERERS BY MOBILE PHONE

We all wonder what is in the air for 2006—but for people with asthma and other breathing problems, advance knowledge of air pollution levels is very important. An ESA-backed project is forecasting daily forecasts via text message to selected individuals in parts of London and the London borough of Croydon.

As the video above recounts, the service anticipated especially high levels of air pollution during late June 2005, when a concentrated air pollution mass formed over central Europe. The winds carried that pollution to England, with ozone reaching harmful levels in London on 24 to 26 June.

However as part of a portfolio of services called PROMOTE, this development was predicted by the sophisticated French air quality modeling service PREV'AIR. Another PROMOTE service, YourAir, then included these inputs when modeling local air quality in the London borough of Croydon. Then, through a trial system called AirTEXT, a warning was sent via SMS text messages to around a thousand people with asthma or other vulnerable conditions, one day in advance of the elevated ozone levels.

The YourAir service combines regional air quality forecasts from PROMOTE partners with information on local road traffic patterns. The regional air quality information is important because not all pollution affecting a city actually originates there—studies show that up to half may originate elsewhere.

The forecasts include predictions of overall effects on health on an index from one to ten. The YourAir service resolves air pollution down to the scale of individual streets—highest levels are often found along routes with heavy traffic or other pollution sources, so information on street-by-street changes in pollution help vulnerable people make informed choices about their movements.

The prototype service covers Central London and Croydon in South London, which is one of the city's largest boroughs by area and the largest by population, with 330,000 inhabitants.

The pollution peak shown occurred in the summer, but air quality is a year-round problem. Some of the highest pollution events occur when the meteorological situation means local pollution remains trapped close to the ground to combine with drifting pollution from elsewhere. In London this can often happen during the winter.

Maria Ryan, a young mother of three, lives on the edge of Croydon. A mild asthmatic, she is participating in the AirTEXT project: "I'm living close to a main road, and though I don't know if it is connected or not, my asthma has got bad again during the last few years.

"I check the pollution levels in the newspaper but now I get a forecast by text message a day beforehand. I am glad to get it as a warning to be prepared and take my inhaler with me on a bad day. Going out without it would not be good!"

YourAir and AirTEXT are being developed by Cambridge Environmental Research Consultants (CERC) as demonstration services of ESA's PROMOTE consortium, intended to deliver atmospheric information to support informed decision making in this field and improve quality of life. CERC is also providing air quality forecasting coverage for the the London Borough of Camden, the City of York, the Avon Valley and the road network for South Wales.

PREV'AIR is coordinated by the French Ministry for Ecology and Sustainable Development. The French National Institute for Industrial Environment and Risks (INERIS) manages the computer system and website and issues daily air quality forecasts. The Pierre-Simon LaPlace Institute is in charge of the CHIMERE chemistry-transport model used for PREV'AIR forecasting, with a variety of other groups including Meteo France and the Agency for the Environment and Energy Management (ADEME) providing model input data.

PROMOTE is an ESA project that seeks to develop beneficial operational services for organizations and citizens that will use atmospheric data to address the concerns of both policymakers and individual citizens.

The four areas in which PROMOTE services are being developed are air quality, stratospheric ozone, UV exposure and climate change. Partners in the PROMOTE consortium include Meteo France, the Norwegian Institute for Air Research (NILU) and the Max Planck Institute in Germany.

The project is part of GMES Services—the initial Services Element of Global Monitoring for Environment and Security. This is a joint initiative of ESA and the European Commission to combine all available Earth- and space-based information sources in order to develop an environmental monitoring capability in support of European environment and security goals.

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