

Proceedings of the Third Air Pollution Forecasting Seminar  
Thursday 6th May 2004  
Culham, Oxfordshire

The Third Air Pollution Forecasting Seminar was hosted by the National Environmental Technology Centre (**netcen**) on behalf of the Department for the Environment, Food and Rural Affairs (**defra**) and the Devolved Administrations on Thursday 6<sup>th</sup> May 2004 at the **netcen** offices at Culham.

The seminar was one of an ongoing series of events, hosted by the Met Office and **netcen** to report on improvements to the air-quality forecasting service commissioned by **defra** and the Devolved Administrations.

The air-quality forecasting service has a number of aims:

- To issue timely air quality forecast information to government departments, local authorities, media groups, health services and the general public.
- To give prior notice to groups sensitive to high levels of pollution so that they can take action to reduce any risk.
- To encourage members of the public to be more environmentally friendly, particularly during periods of poor air quality.
- To provide advance warning of the length and severity of pollution episodes to the Government and health services.

The information is made as widely accessible as possible through national media weather bulletins as well as:

- The Air Pollution Bulletin Service on freephone 0800 556677
- The Air Quality Archive on "[www.airquality.co.uk](http://www.airquality.co.uk)"
- Ceefax page 417
- Teletext 156

More than 60 delegates and speakers attended the event. These included delegates from medical and health organisations, local authorities, scientific officers, environmental health and pollution control academics, consultants, representatives from **defra** and the devolved administrations and the Environment Agency. The full list of delegates and speakers is at the end of this document.

The seminar provided a forum for organisations to present their latest research and to highlight any services which they provide in the field of air quality forecasting, air monitoring and modelling technology and health issues relating to air pollution. These presentations provoked much useful and informative discussion.

**In particular, the following topics were aired during the question and answer sessions:**

The success and accuracy rates of the national air pollution forecasts were discussed. Whilst there were some difficulties understanding the definitions of these measures, 2003 was reported by netcen to have been typical in terms of the success and accuracy rates achieved. This was despite the relatively higher levels of summer ozone in 2003.

Discussion of the factors affecting the accuracy of the air quality forecasts was wide-ranging and covered:

- Weather forecasts.
- Local pollution sources.
- Unusual trans-boundary PM<sub>10</sub> events (Saharan dust, forest fires, volcanic eruptions etc.)
- Emissions inventories.

It was reported that the UK is the only European country currently publishing the success rates of air pollution forecasting, based on "actual" reported data and forecast meteorology. By taking out unusual events and using analysis met. data it is possible to improve the reported performance of forecasting models.

It was reported that there are several joint European initiatives to improve and co-ordinate air quality forecasts. These currently involve netcen, the Met Office and Defra:

- Smog Warners co-ordinated by netcen since 1997 – see [www.aeat.com/netcen/airqual/forecast/smogwarners](http://www.aeat.com/netcen/airqual/forecast/smogwarners)
- Ozone Web operated as part of the EC's Clean Air for Europe (CAFE) programme- see [http://ozone.eionet.eu.int/index.jsv?pk\\_lang=20](http://ozone.eionet.eu.int/index.jsv?pk_lang=20)
- A proposal from the Network of European Meteorological Services (EUMETNET) see [www.eumetnet.eu.org](http://www.eumetnet.eu.org)

Further interest was shown in the percentage of UK air pollution attributable to sources from continental Europe. The models currently used in the UK forecasting project can be run in "analysis mode" to identify the sources of long-range pollution, in particular the sources of emissions which result in ozone pollution. This analysis can give us an average percentage contribution for each year from which we can see changes in the pattern. It was however noted that the contribution to ozone pollution from UK and Europe changes between sites and episodes so the answer is not always definitive. When comparing, for example, the pollution years of 2002 and 2003 it can be concluded in general that more pollution came from Europe in 2003 than 2002. This information is then used by Defra and the Devolved Administrations to help explain trends in pollution episodes and to feed into policy making decisions.

The effects of air pollution on health and mortality rates encouraged much discussion and re-enforced the importance of monitoring and forecasting air pollution levels. While other factors such as smoking, diet and exercise were reported to have a more direct effect on serious health conditions the secondary effect of air pollution was clear. Peaks due to air pollution episodes can be picked out in epidemiology studies from other more constant day-to-day health related factors. By comparing peaks in hospital admission and mortality rates with episodes of high air pollution it was reported that patients with some conditions were put at much higher risk of premature death when air quality was poor. By reviewing the data from different years the connection between air pollution and mortality rates can be confirmed. Published research into the numbers of increased deaths per ppb or  $\mu\text{g m}^{-3}$  of pollution gives us a guide to the scale of the risks and confirms the value of this area of work. Further work needs to be done to confirm that temperature alone is not a confounding factor when carrying out air pollution epidemiology studies.

### **Other Information:**

The full agenda for the day's proceedings and the list of delegates and speakers are listed below along with details of other websites and papers relating to the topics discussed.

Copies of the presentations from the seminar are provided on the Research Information section of the Air Quality Archive ([www.airquality.co.uk](http://www.airquality.co.uk)) in pdf format. For further information on the air quality forecasting service please contact [paul.willis@aeat.co.uk](mailto:paul.willis@aeat.co.uk).

### **For further information please see:**

ISB home site        [www.isb.gov.uk](http://www.isb.gov.uk)  
Project Site         [www.aqf.qinetiq.com](http://www.aqf.qinetiq.com)  
Visualisation Site   <http://prswwww.essex.ac.uk/lidar>

Stedman, J R (2004) The predicted number of air pollution related deaths in the UK during the August 2003 heatwave. *Atmospheric Environment*, 38, 1087-1090

Fischer, PH, Brunekreef, B and Lebret, E (2004) Air Pollution related deaths during the 2003 heat wave in the Netherlands. *Atmospheric Environment*, 38, 1083-1085

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	<b>Timetable</b>
10:00-10:30	Coffee & Registration
10:30-10:45	Introduction from Dr. Geoff Dollard - <b>netcen</b>
10:45-11:15	Dr. Janet Dixon - <b>Defra</b>  Air Quality Overview
11:15-11:45	Paul Willis - <b>netcen</b>  Air Quality Forecasting in the UK
11:45-12:15	David Thomson - The Meteorological Office  The NAME Project - History, Current Position and Future Plans
12:15-12:30	Discussion hosted by Dr. Geoff Dollard - <b>netcen</b>
12:30-13:30	Lunch
13:30-14:00	Rob Young - Qinetiq  The ISB-52 Project - Improving Air Quality Forecasting
14:00-14:30	Prof. Bernard Fisher - The Environment Agency  Applications of Fuzzy Based Approaches to Environmental Regulation under Uncertainty
14:30-15:00	Tea
15:00-15:30	Richard Atkinson - St. George's Hospital Medical School  Outdoor Air Pollution and Health - An Overview
15:30-16:00	Jaume Targa - <b>netcen</b>  Air Pollution Episodes and Mortality rates
16:00-16:30	Open Forum  Close of Business

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 Delegates and Speakers

<b>Name</b>	<b>Company</b>
J Amoah	Nottingham City Council
Richard Atkinson	St. George's Hospital Medical School
Jonathan Baker	Met Office
Elizabeth Bates	City of York Council
Jon Bower	Netcen
Bernard Fisher	Environment Agency
Yvonne Buchanan	Hull City Council
Susan Bulpitt	Leicester City Council
David Carruthers	Cambridge Environmental Research Consultants Ltd
Al Charlton	Netcen
Gordon Clamp	Coventry City Council
Neil Cooper	Leicester City Council
Julie Corden	Midlands Asthma & Allergy Research Association
Neil Crook	Milton Keynes Council
Richard Digby-Taylor	Nottingham City Council
Janet Dixon	Department for Environment Food & Rural Affairs
Claire Dodd	Scottish Executive
Geoff Dollard	Netcen
Graham Earl	BAA
James Ellison	Leicester City Council
Victor Evershed	Gosport Borough Council
John Finnan	Environmental Protection Agency
Andrew Gillah	City of York Council
Ron Gloster	Met Office
Joanne Green	TRL Limited
Michele Hackman	Highways Agency
John Hawes	Hastings Borough Council
Garry Hayman	Netcen
Leon Hibbs	Reigate & Banstead Borough Council
Nick Hodges	Leicester City Council
David Holmes	South Shropshire District Council
Stephen Hoskin	Enviro Technology Services plc

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<b>Name</b>	<b>Company</b>
Rachel Hughes	New Forest District Council
Andrew Kent	Netcen
Phil Kershaw	Solihull Metropolitan Borough Council
Christine Kneller	Hastings Borough Council
Alison Loader	Netcen
Richard Marshall	Torfaen County Borough Council
Jim McGinlay	Netcen
Andrew Mirza	Met Office
Noel Nelson	Department for Environment Food & Rural Affairs
Peter Oates	Torfaen County Borough Council
David Palmer	Gosport Borough Council
Jack Pease	Air Quality Management
Fabia Pollard	Medway Council
Paul Quincey	National Physical Laboratory
Jon Rollinson	Solihull Metropolitan Borough Council
Anna Savage	London Borough of Camden
Brian Stacey	Netcen
Ken Stevenson	Netcen
Amy Stidworthy	Cambridge Environmental Research Consultants Ltd
Jim Storey	Environment Agency
Jaume Targa	Netcen
Grant Taylor	Carmarthenshire County Council
David Thomson	Met Office
Philip Turner	Royal Borough of Windsor and Maidenhead
Keith Vincent	Netcen
C Washington	Nottingham City Council
Malcom Webb	Sevenoaks District Council
David White	Hull City Council
Alan Wilkins	Liverpool City Council
Derek Williams	Preston City Council
Paul Willis	Netcen
Julie Winfield	Ipswich Borough Council
Xingyu Xiao	Netcen
Rob Young	Qinetiq

Apologies for absence received from delegates where highlighted