Network

The newsletter for the UK Air Quality Monitoring Network Issue 5

Sponsored by the Department for Environment, Food & Rural Affairs, The Scottish Executive, The National Assembly for Wales and the Department of the Environment (Northern Ireland)

Dissemination of Information

National Air Quality Information Archive – Updates on Site Structure and LAQM Home Page

The National Air Quality Information Archive web site provides on-line public access to a wide range of air quality information, including up-to-date measurements from the UKś monitoring networks, air quality forecasts, UK emissions data and active maps of estimated pollution concentrations in the UK. Recentl y, a new feature was launched to include information on Local Air Quality Management (LAQM).

Over the last two years local authorities in the UK have been undertaking review and assessment of the current and likely future air quality in their areas. Where a local authority considers that one or more of the air quality objectives are unlikely to be met, it has declared an air quality management area (AQMA), covering the area where the problem is expected. So far over 70% of authorities have completed their review and assessment reports and indications are that more than 80 AQMAs may be designated. The new LAQM web site provides a map of the UK showing the local authorities that have designated an AQMA, or the stage that they are at in the process (see Figure 1).

continued on page 2

Figure 1

IN THIS ISSUE

National Air Quality Information Archive

continued from page 1

Facilities to check whether a particular local authority has completed the review and assessment process, as well as contact details of local authority officers and links to the local authority's own web site are also provided.

In addition to the new LAQM web page, the Archive has undergone extensive revisions to produce a much more 'user-friendly' site. For example, the pages now contain a Site Map (see Figure 2) which highlights the various elements of the Archive for both experts and non-experts alike.

The Archive can be found at www.aeat.co.uk/netcen/airqual/home.html.

For further information contact Emma Linehan at AEA Technology Tel 01235 463674 aqinfo@aeat.co.uk

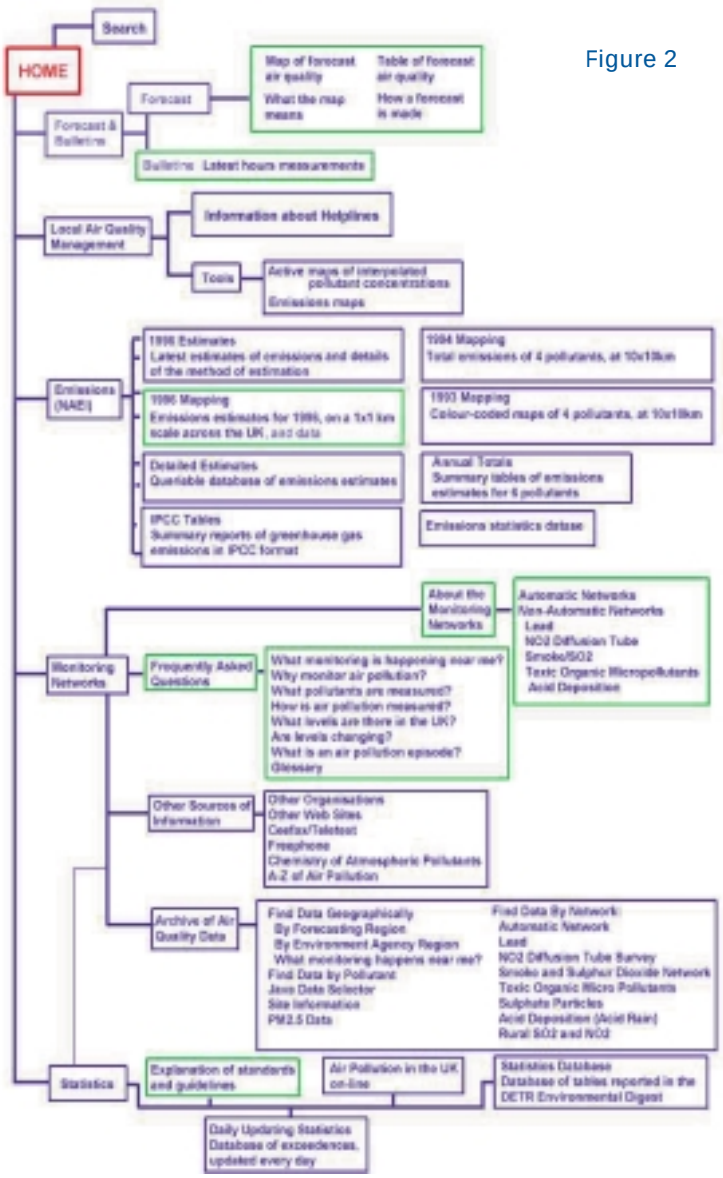

Figure 2

Progress on $PM_{2.5}$ definition

Emerging evidence suggests that health effects of particles may be due principally to fine particles ($PM_{2.5}$). The Government's Expert Panel on Air Quality Standards (EPAQS) is currently considering the most appropriate particle fraction on which to develop air quality standards. It has affirmed its recent stance that the PM_{10} standard in current existence provides an appropriate level of protection for human health. However, the Panel does recognize that $PM_{2.5}$ might better represent the toxic fraction of PM_{10}.

Dr Stephanie Coster highlighted the DETR and Devolved Administrations' current strategy for undertaking $PM_{2.5}$ monitoring at the recent Annual Review Meeting which includes monitoring of $PM_{2.5}$ using Rupprecht & Patashnick Partisol Plus 2025 samplers fitted with a Sharp Cut Cyclone (SCC). Monitoring is currently being undertaken at Belfast Centre, Birmingham Centre, Glasgow Centre, Harwell, London North Kensington, Marylebone Road and Port Talbot. A further site has been identified at Manchester Piccadilly, envisaged to come on-line in May 2001. Centered largely on sites located in areas of population the information will provide further evidence to epidemiological studies.

One of the many difficulties associated with $PM_{2.5}$ measurements is that there is not yet a standard European reference method. In principle this would provide definitive measurements, and could either be used on Member States' networks directly, or used to compare with other monitoring methods. The European standardization body CEN is actively working on this, and has the benefit of knowing that more parameters need to be pinned down than were recognized at the time of developing the PM_{10} reference method EN 12341. At the core of the work is a two year of field study due to start in February 2001. The reference method will again be a manual gravimetric one – TEOM methods would be too commercially restricted to be declared a European reference method, while beta attenuation and optical methods have been deemed too indirect. The field studies will contain about 18 instruments monitoring in parallel, with a variety of inlet heads and sample line cooling for the manual methods, several automatic instruments (including TEOM and beta attenuation), and a nitrate monitor. The US standard WINS inlet is also included. The results concerning filter conditioning and weighing are likely to feed through to revisions of the PM_{10} standard.

Contact: Paul Quincey at NPL (Tel: 020 2943 6232) for further details on the emerging $PM_{2.5}$ standard and Richard Maggs at Stanger Science and Environment (Tel: 020 7902 6158) for details on current UK $PM_{2.5}$ monitoring.

Ozone trials across Europe

In the last edition of 'Network' we highlighted the EU funded HAMAQ programme undertaking inter-comparisons for a range of 'primary' methods used to certify gas mixtures. Through the EUROMET programme, NPL have recently undertaken a similar task for ozone photometers. Evident largely at the rural sites of the AURN, the ozone photometers need to have the best possible comparability to assist large-scale modelling. In order to achieve this, all UK photometers, including QA/QC Unit and ESU instruments, have very short calibration chains to NPL's national primary photometer. This has been compared to similar instruments around Europe in recent months by driving NPL's travelling standard on a series of European tours, as part of the EUROMET project. The results have been very encouraging for Europe-wide comparability, with agreement between countries of typically 2%.

News update

Electronic Calibration Sheet

The new Electronic Calibration Sheet was demonstrated at the Annual Review Meeting. Those who attended saw calibration details being entered into the computer program. Many of the suggestions raised from the discussion session from those who had not seen the system before have now been incorporated into the design of the sheet.

The new computer program is designed to replace the traditional paper forms used during routine LSO calibrations and is freely available for use in the AURN. Most LSOs now have access to a Windows PC and have the ability to email data. This has allowed the AURN to develop in recent years to make the best use of electronic methods of data handling and replace hand-written paper forms. The process has the advantage of overcoming many of the difficulties associated with paper forms, which include incorrect site names, inconsistent use of decimal places, uncertain cylinder identification, and unreadable faxes.

Most LSOs now have a copy of the program. Calibration data are now emailed to NETCEN, CMCU and NPL rather than faxed. All the information, including the many diagnostic checks, is quickly scanned for problems. This allows call-outs and further investigation to be actioned at the first sign of a developing fault leading to higher data capture and tighter quality control.

Contact: Geoff Broughton at AEA Technology (Tel: 01235 463072 or email: Geoff.Broughton@aeat.co.uk) for further details of the Electronic Calibration Sheet

The Annual Review Meeting in Birmingham, held at the height of the train chaos last year, presented a problem in time management for many attendees. The NEC is normally proud of its connections to public transport and accessibility. However, on this occasion many attendees found themselves having a story to tell on arrival, ranging from valiant endeavors ('planes, trains and automobiles') to downright despair (5 hours!). Congratulations to all those that made it.

The success of the Review Meeting is attributed to the large number of participants (LSOs, ESUs, CMCU, QA/QC and DETR and DA representatives) at the single location. In particular, the 'Question and Answer' session provides a forum for questions (with added anonymity if required) surrounding issues of accountability for the every-day operations of the network as well as any proposed future developments. This year, the issue of public dissemination of information, and particularly the issue of relevant AQS statistics (for use in local authority Review and Assessment) from the Archive (see lead article) were raised, alongside any moves to consider sampling for $PM_{2.5}$ (update in this issue).

Issues surrounding the occurrence of particles are ones that encourage considerable debate (has any other pollutant received so much attention?). The recent review by EPAQS highlights that whilst PM_{10} is stringent enough to protect human health, another metric (such a $PM_{2.5}$) may better represent the toxic component of PM_{10}. Evidence to date is small and sometimes conflicting. It is therefore inevitable that further resources will be required in order that rigorous scientific evidence can be obtained surrounding the occurrence of particulate pollution.

Richard Maggs
Editor
Tel: 020 7902 6158
email: maggs.richard@stanger.co.uk

Acknowledgment:
Many thanks to the following people who have contributed to this edition of *Network*:
Paul Quincey, Jane Vallance-Plews, Emma Linehan, Steve Moorcroft, Geoff Broughton

News update

Equipment Support Unit (ESU) – Co-ordination of Contracts and Contract Specifications

Under the current system of operation, the CMCU has only direct responsibility for the ESU service and maintenance contracts related to the DETR-funded sites. In the case of affiliate sites, this duty lies with the affiliate organization. Whilst the system generally works well there are a number of potential benefits that could be gained from central management of the ESU contract: 1.) CMCU could ensure uniformity of contract and procedures, 2.) ESUs would have a direct contractual obligation to the CMCU, which could assist in the overall management of the AURN, and 3.) cost savings may result from an 'economy of scale'.

CMCU has previously indicated a willingness to manage ESU contract on behalf of affiliate organizations. It is intended that CMCU would let and manage the ESU contract on their behalf with the affiliate organization reimbursing CMCU for the cost. It is recognized that this may not be a straightforward issue in all cases and existing contractual obligations with ESUs would need to be considered. It is emphasized that there is no obligation upon affiliate organizations to change their existing ESU arrangements unless they desire to do so, and how such an arrangement might work is open to discussion.

For those affiliate organisations appointing and managing there own equipment support and maintenance contract, information can now be found in the 'ESU contract specifications' section of Local Site Operator's Manual.

This information can be found on the UK National Air Quality Information Archive web site (www.aeat.co.uk/netcen/airqual/home.html). Select: Main Archive Sections > Research Reports > Local Authority Guidance > UK Automatic Network Site Operator's Manual > ESU Contract Specifications.

Affiliate organizations who are interested in CMCU co-ordination of contracts are invited (without obligation) to contact CMCU. It would be helpful if brief details of the existing ESU contract could be provided (ESU organization, type of contract and call-out arrangement, expiry date, etc.).

Contact: Jeff Booker (Tel: 020 7902 6156 or email: booker.jeff@stanger.co.uk)

WHO'S WHO?

Stanger Science & Environment
Tel: 020 7902 6100
Project Manager:
Jeff Booker Tel: 020 7902 6156
Network Managers:
Ray Evans Tel: 020 7902 6172
Duncan Pritchard-Davies
Tel: 020 7902 6173
Nick Phillips Tel: 020 7902 6174
data acquisition and dissemination
Jeff Booker
TEOM archive

QA/QC Urban
NETCEN
Head of QA/QC
Ken Stevenson
Field Operations Manager
Brian Stacey Tel: 01235 463177
calibrations and audits
Geoff Broughton Tel: 01235 463072
Paul WIllis Tel: 01235 463191
data handling
Jane Vallance-Plews
Tel: 01235 463182
data ratification

QA/QC Rural
National Physical Laboratory
Project Manager
Paul Quincey
Field Operations Manager
Bryan Sweeney
David Butterfield
Alan Woolley
Tel: 020 8943 6232
intercalibrations, cylinder supplies

Who does what in the AURN?

The successful operation of the AURN is dependent on the commitment and dedication from a large number of organisations, and the individuals within them.

A brief reminder of who does what:

Central Management & Co-ordination Unit (CMCU):
Responsible for setting up new sites within the Network (including site selection and procurement of equipment); Network operation (appointment of ESUs and LSOs, co-ordination of equipment calibration and servicing); data collection and validation; data reporting.

Quality Assurance/Quality Control (QA/QC) Units:
Responsible for providing independent QA/QC checks on Network operations. This includes routine inter-calibration audits and data ratification. The QA/QC Units also provide advice on operation issues to the CMCU.

Equipment Service Units (ESUs):
Responsible for the routine and emergency servicing of analysers and ancillary equipment.

Local Site Operators (LSOs):
Responsible for undertaking routine site calibrations. The LSOs also provide invaluable information and feedback on site performance to both CMCU and QA/QC Units, and undertake initial investigations of site problems.

For further information please contact:

Stanger Science and Environment
Great Guildford House,
30 Great Guildford Street,
Southwark, London SE1 0ES.
Telephone: 020 7902 6100
Fax: 020 7902 6149

Stanger
Science and Environment