

Introducing the Scottish Air Quality Database and Website- www.scottishairquality.co.uk



Scottish Executive

Jon Bower, March 2006

netcen



Topics covered in this talk

- Technical objectives and broader aspirations
- Drivers, end-users and usage
- About the consultation process
- What's going to be in the archive
- Web functionalities- demonstration
- Conclusions

Context – The Scottish AQ Website will part of a family of UK on-line resources...

The UK
website

The
Welsh
website

The NI
website

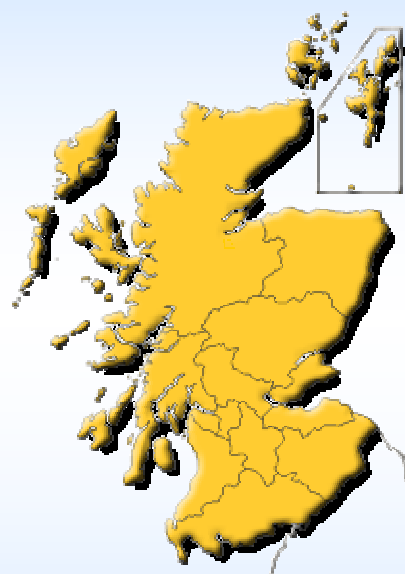


This Scottish website project will be characterised by:

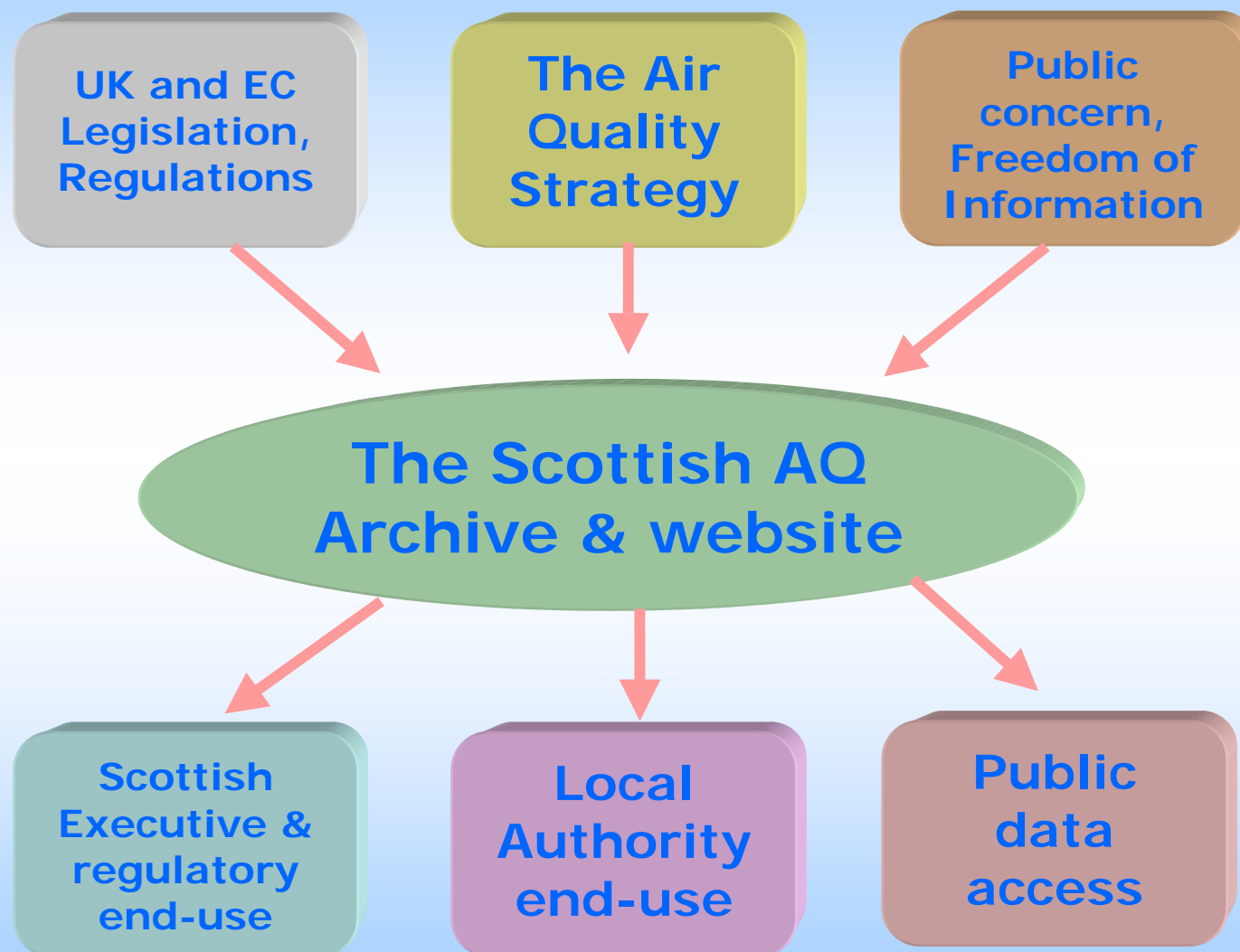
- Variety of tasks involved- air quality science, IT, database and web development
- Diversity of policy drivers and objectives
- Wide range of data users and air quality stakeholders

Drivers and stakeholders...

Drivers



Users



Major long-term aspirations of the project

- Fulfilling long-established Scottish Executive policy
- Informing citizens about the quality of the air we all breathe
- Complying with several European Directives & UK Regs
- Providing information to local government
- Fostering and progressing open E-government





To be achieved by...

1. Designing and populating a pilot air quality database for Scotland
2. Assessing the quality, variety and compatibility of air quality data collected across Scotland
3. Trialling Web Logger technology at six suitable local authority sites.
4. Liaising with stakeholders and gaining their views on requirements of the database
5. Developing tools to map air quality across Scotland and ensuring trends are accessible from the air quality archive
6. To be creative in designing a website which enables easy access to air quality data for a wide variety of potential users

Scottish air quality stakeholders and data users



- Some of these...
 - Scottish Executive (policy development and monitoring)
 - SEPA (Regulatory)
 - Local government (planning, LAQM, review and assessment, Action Plans)
 - Industry
 - Air Quality Scientists (research)
 - Doctors and epidemiologists (health impact assessment)
 - The European Commission (statutory/compliance reporting)
 - The general public (welfare, social amenity, responsible behavioural change)
 - Students/educational community
 - NGOs and special interest groups
- Each requires rapid and efficient access to data and information in formats meeting their needs...



That's one of the reasons why consultation is so important...

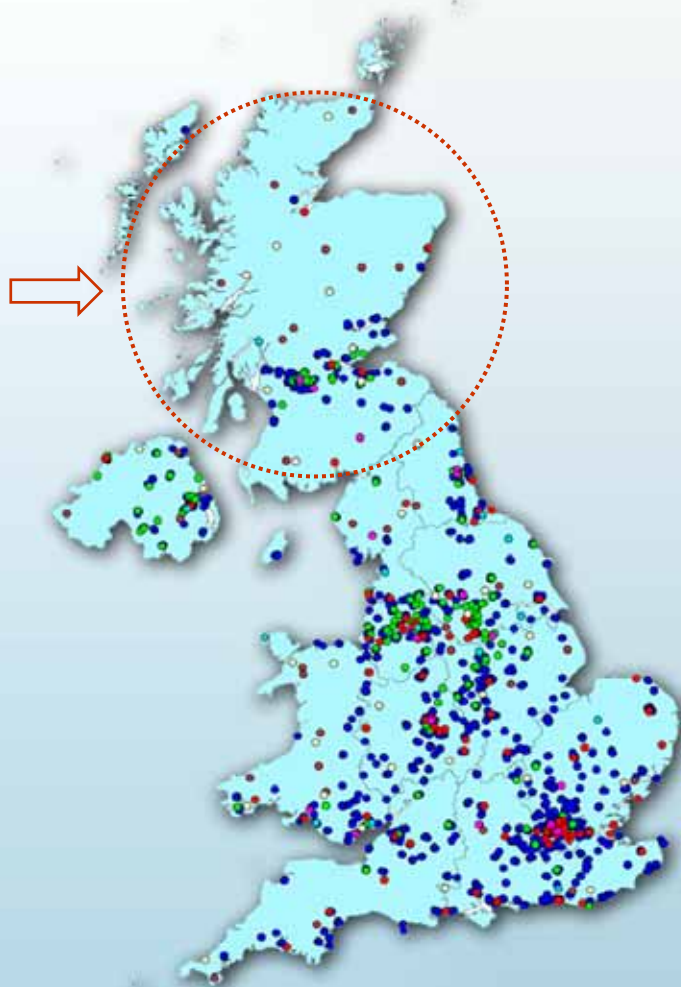
■ This is a pilot website, and this meeting is an important stage in the process of ensuring all users and stakeholders get what they want through. Other stages will include...

- ◆ Pre-assessment by stakeholders when URL first activated (password protected)
- ◆ Feedback on questionnaire placed on live website (used for other Government/DA sites)
- ◆ Seminar in Sept 2006 to present findings of pilot study



So, what's going to be in the Database and website?

- Current and historic hourly PM10, NO2, CO, SO2, O3, VOC data from automatic air quality monitoring stations (currently 13 AURN/ HC and 9 Local Authority/Calibration Club) *collected automatically by telemetry*
- For six automatic sites, the Web logger system is being trialled
- Daily or monthly data from > 150 sampler monitoring stations (NO2, SO2, O3 diffusion tube, HC samplers, Smoke/SO2 bubblers etc) *collected mainly by email/web form*
- Plus lots more cool stuff including derived AQ analyses and information, forecasts, monitoring information, links and so on
- More on this later in the talk..



Netcen is already heavily involved in monitoring in Scotland..

Network	Auto or Sampler?	No of Sites
The Automatic Urban and Rural Network (AURN)	A	11
The non automatic network for smoke, SO ₂ and NO ₂	S	14 (SO ₂) 13 Smoke 121 (NO ₂)
Rural acid deposition, gases and particles	S	11 (acid deposition) 11 (SO ₂)
Automatic Hydrocarbon	A	1
Polycyclic Aromatic Hydrocarbons (PAHs)	S	3
UK Heavy Metals Monitoring Network (previously the Lead, Multi-element and Industrial Metals Networks)	S	3
Rural metal deposition network	S	1 Rain collection 2 particle smpl & rain 1 cloud, rain collection
Benzene and 1,3-butadiene	S	2 benzene 1 1,3_butadiene
Ammonia Network	S	26
Nitric Acid	S	4

■ National networks we manage and quality assure

■ The Calibration Club

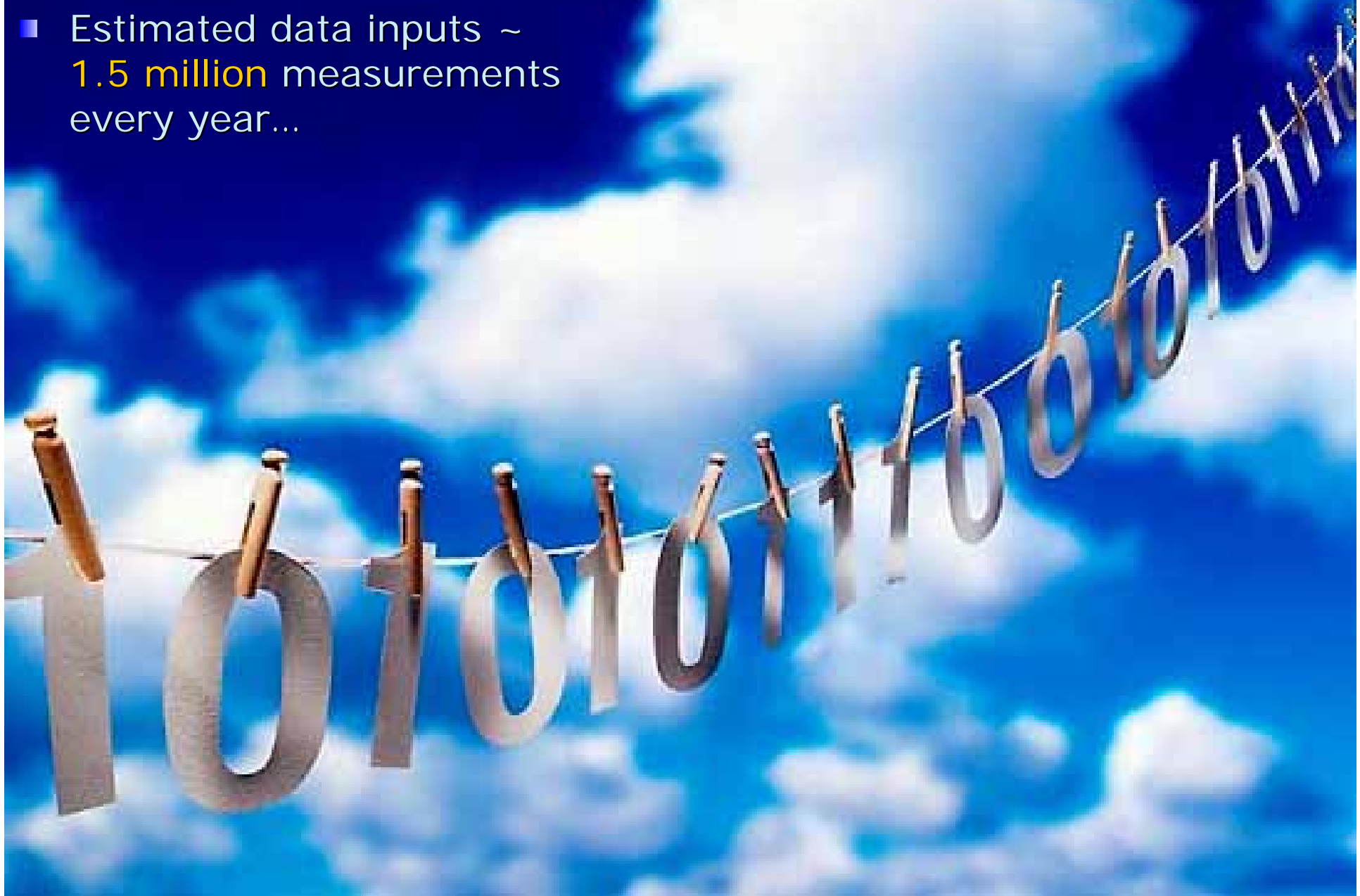
■ Datasets we already collect and quality assure

■ The many Local Authorities with which we have long-running contacts



How much data ?

- Estimated data inputs ~
1.5 million measurements
every year...



A word about all that data...



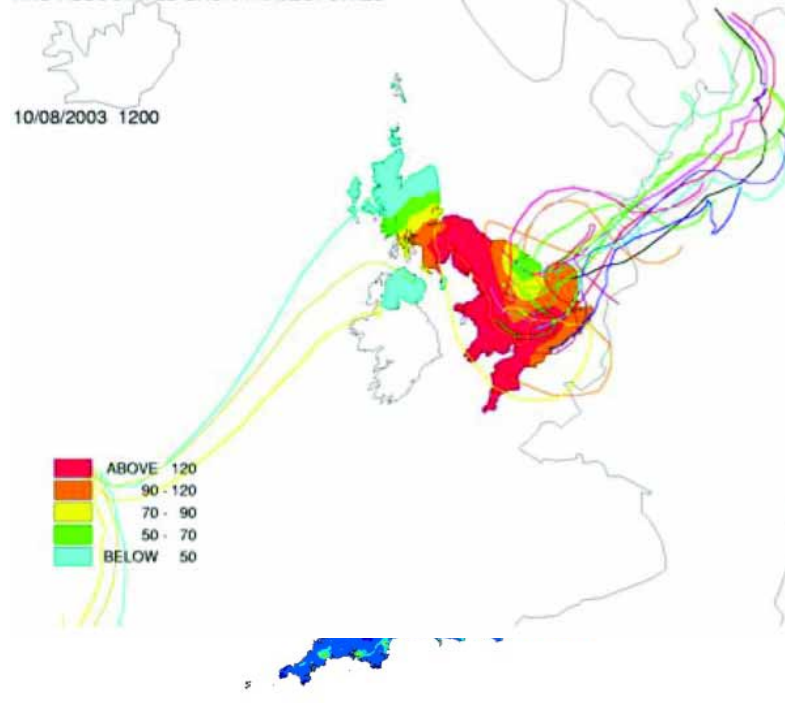
- Measurements databased and web-enabled must be reliable and compatible to be of use...
- So Netcen will assess quality and harmonisation of the data
- Netcen already provides QA/QC services to AURN and Calibration Club monitoring sites in Scotland
- These include:
 - Regular site audits
 - Calibration with Netcen primary and transfer gas standards
 - Comprehensive instrument checks
 - Data ratification
- This puts us in an ideal position to maximises data quality, capture rates and harmonisation



Adding value to the Archive through analysis and interpretation



FORECAST OZONE CONCENTRATIONS (PPB)
AND ASSOCIATED BACK TRAJECTORIES



- Raw measurement data are not always particularly useful
- They must be turned into *useful information* to meet most end-user needs
- Many techniques for this:
 - *Analysis over time...*
 - *Long-term trends*
 - *Spatial variation- mapping*
 - *Comparison with standards*
 - *Forecasts derived through modelling*



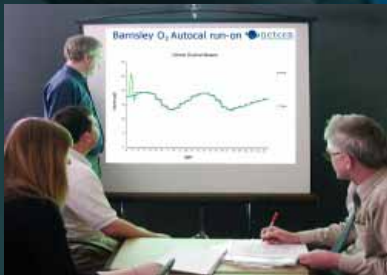
The whole process- *turning air quality data into information*



Step 1: Measurement- collect data



Step 2: QA/QC- data validation



Step 3: Analysis & interpretation



Step 4: Reporting & dissemination

Raw Data

Reliable Database

Information

Use

The Scottish Database and Website is being designed to:



- Maximise user-friendliness
- Enable easy navigation
- Meet needs of widest range of public, technical and government end-users
- Maximise accessibility, operability and compliance with E-Government standards
- Be flexible, allowing easy upgrade, refinement over time
- Be reliable, available & secure at all times!

Demonstration of web services and resources

- 1) Preview screenshot of work under development for the Scottish Website
- 2) A review of the existing Welsh website



Scotland Air Quality

Current Air Pollution Levels in Scotland



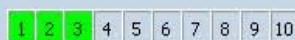
Key

Click here for more information about Air Pollution Index and Bandings

- Low - Index 1 to 3
- Moderate - Index 4 to 6
- High - Index 7 to 9
- Very High - Index 10
- ⊗ No Data

Air Pollution Summary

Air Pollution in Scotland is currently: LOW



Air Pollution Bulletin

[Current Levels](#), [24hr Summary](#)

Air Pollution Forecast

[North Wales](#), [South Wales](#)

Latest News

[...view all](#)

September Newsletter

01/09/2005

This newsletter covers information on the latest regional emission inventories for Wales; some recent work under taken by Netcen in Gibraltar; and the recent major AQEG report on particles. [more...](#)

June Newsletter

24/05/2005

Air pollution and climate change is the main topic of this issue. It is also discussed that the latest issue of ecosystem impacts of air pollution, especially in Wales. Useful information on how to bias-adjust the measurements from these widely used NO2 samplers is also included. [more...](#)

2003 Air Quality Report

24/05/2005

The latest annual air quality report for 2003 has just been released. It provides a comprehensive summary of air pollution trends, episodes, spatial variations and compliance against air quality standards during the eventful heat wave year. The report is in an all-new

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RSS

Key Welsh web resources


- Home
- Graphed data
- Monitoring info
- Download data
- Forecasts
- Air Quality info
- Reports
- Links
- WAQF area
- More...



Air Quality in Wales

Web Site of the Welsh Air Quality Forum


Home About Air Quality Data News & Reports Links Members

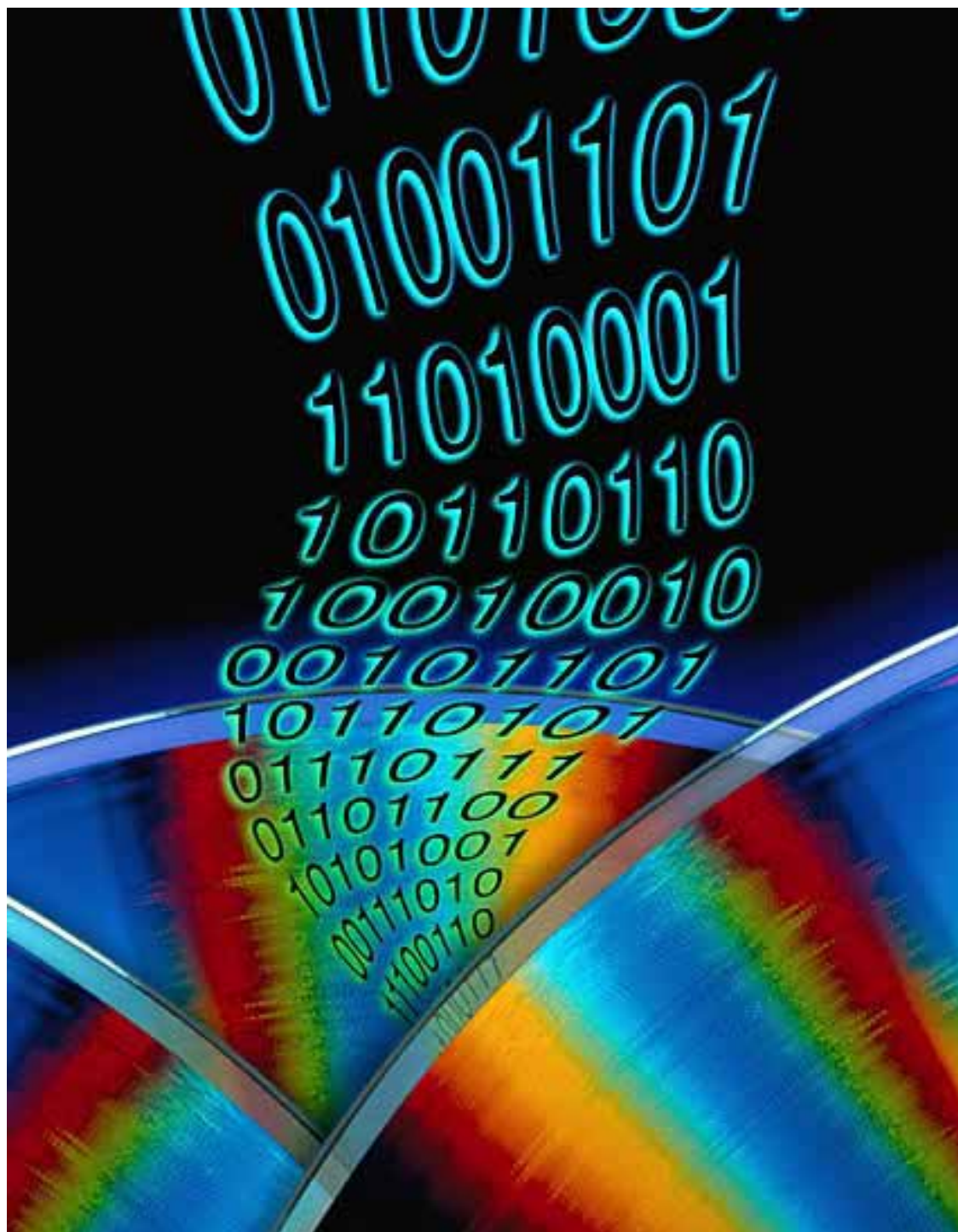
Home > WAQF Members Fersiwn Gymraeg >> 

WAQF Members

To view additional information for members (password is needed), click [here](#)

Blaenau Gwent County Borough Council	Bridgend County Borough Council
Caerphilly County Borough Council	Cardiff County Council
Carmarthenshire County Council	Ceredigion County Council
City and County of Swansea	Conwy County Borough Council
Denbighshire County Council	Environment Agency Wales
Flintshire County Council	Gwynedd Council
Isle of Anglesey County Council	Merthyr Tydfil County Borough Council
Monmouthshire County Council	National Assembly for Wales
Neath Port Talbot County Borough Council	Newport County Borough Council
Pembrokeshire County Council	Powys County Council
Rhondda Cynon Taff Co Borough Council	Torfaen County Borough Council
Vale of Glamorgan Council	
Wrexham County Borough Council	





To summarise...

- A pilot AQ website for Scotland is being developed
- Lots of air quality data will be collected..
 - > 150 Sampler sites
 - ~ 22 Automatic Sites
- ~ 1,500,000 measurements every year
- All reviewed and checked
- Air Quality database will start with several million historic records
- Lots of value-added information will be derived and presented in a user-friendly form
- Data, analyses, statistics forecasts will be web-available from 24/7
- Result- An invaluable Air Quality resource for the Executive, LAs and the Public at large

**Thank you-
any questions?**

