Monitoring: the AQUILA experience

Green Week 2013

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On behalf AQUILA Network
Framework: EU Ambient Air Quality Legislation (2 legal drivers) for Community strategy which notably aims to assess AAQ in Member States on the basis of common methods and criteria

- Data need to be representative (for covered space and time)
- Data need to be “accurate”
- Data need to be comparable throughout EU

⇒ Directives specify for each pollutant, Data Quality Objectives (DQO’s):
  - Maximum measurement uncertainty (example for NO\textsubscript{2}: 15 %)
  - Minimum time coverage (example for NO\textsubscript{2}: 100% continuous measurements)
  - Minimum data completeness (example for NO\textsubscript{2}: 90%)
Implied needs?

⇒ Use of properly validated measurement, modelling and estimation methods under appropriate regimes of QA/QC

⇒ Requires full traceability of results to accepted standards!!

Traceability = “property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty”

⇒ ability to find the history, implementation or location of what is considered

⇒ Proof of trueness + accuracy & sign of quality!
The role of the Comité Européen de Normalisation (CEN) ?

CEN standards are defined as reference methods in AQD
- Reference method not necessarily method of highest metrological value, but fit for purpose
- Full validation of methods under laboratory and field conditions
- Include type approval and the uncertainty budget
But end-users are spoilt for choice…

⇒ major need for harmonisation (practices, procedures…) and for cooperation (exchange of informations / feedback from users)
the Member States shall designate at the appropriate levels the competent authorities and bodies responsible for implementing Directives towards:

• **Assessment of ambient air quality,**
• **Approval of measurement systems (methods, equipment, networks, laboratories),**
• **Ensuring accuracy of measurements,**
• **Analysis of assessment methods,**
• **Coordination on their territory of Community-wide quality assurance programmes organized by the Commission,**
• **Cooperation with other MS and the EC.**

Where relevant, competent authorities & bodies shall also comply with Section C of Annex I: QA/QC at national and EU level, traceability, accreditation according to EN/ISO 17025
What is AQUILA?

AQUILA is a network of 37 Air Quality Reference Laboratories from the 27 EU Member States + CH, IS, and NO.

Observers: Turkey, Croatia, Macedonia, Serbia

Associated Members: WHO CC, EEA & ETC/ACM

These NRL’s are legally responsible for assuring the quality of air pollutant measurements in their country, which implies:

- the organisation of their own national QA/QC programmes,
- the participation in European QA/QC programmes


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JRC - AQUILA examples of harmonisation activities

➢ JRC Intercomparison Exercises / Round Robin Tests (inorganic gases, VOCs, Heavy Metals) / PM QA-QC campaigns
⇒ “blind test” as check of reliability and comparability of data
Main topics: measurement strategy & metrological aspects aiming harmonisation / optimisation

- review & comments on EN ambient-air standards (current & forthcoming)
- feedback on EC “Guidance on the demonstration of equivalence of ambient-air measurements methods”,
- focused discussions on measurements by reference / equivalent methods (manual sequential samplers, automatic monitors) in different countries:
  - how to improve validity & comparability of results,
  - Interface between end-user and manufacturers.

⇒ On-going need for harmonised approach
⇒ Growing need for accurate “calibration tools” and for “validated new devices”
Requirements of AQ Directives and related EN standards will impact more heavily on the Member States in the future (in current scope – outdoor, emissions – and certainly more in the near future – indoor)

Combination (measurement/modelling) will probably be the major tool for assessing AQ (→ major challenge for the future)

In collaboration with other actors (such as FAIRMODE), AQUILA will play an active role for ensuring quality of results from this “new approach”

This will reinforce the involvement of MS and increase the importance of poles of expertise (⇒ more demands on them to provide technical & scientific support across EU and associated countries)