PROCEEDINGS

Tenth EIONET Workshop on Air Quality Management and Assessment Vilnius 17-18 October 2005

ETC/ACC Technical paper 2005/9
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The European Topic Centre on Air and Climate Change (ETC/ACC)
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Front page picture: Skyline of Vilnius as seen from the office of the Lithuanian Environmental Protection Agency. In the foreground the St. Raphael's church, the stack at the background is the Vilnius Combined Heat and Power Plant (CHP-3). Photograph by Juozas Molis.

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SUMMARY

From 17-18 October 2005, the 10th EIONET workshop on air quality assessment and management took place in Vilnius, Lithuania. There were more than 60 participants from 30 countries and from a number of international organisations. The meeting was co-chaired by the EEA (Jaroslav Fiala) and the ETC/ACC (Steinar Larssen, Rob Swart and Frank de Leeuw). The workshop covered a broad range of issues as reflected in the agenda.
The sessions of the first day covered air quality data exchange and reporting under EU Directives and the new CAFE thematic strategy. A proposal for the implementing provisions on reporting will be drafted by the Data Exchange Group, an expert group under CAFE. This document will complement the proposed Air Quality Directive merging the Framework Directive, the first three daughter directives and the Exchange of Information decision by providing a new reporting structure.
Streamlining of the data flows is needed as two presentations showed; comparisons between the EoI submissions and the responses of the member countries to the FWD/DD questionnaire showed significant discrepancies. One of the key issues in data exchange is the data quality and QA/QC procedures applied by the countries.
The cooperation between the EEA & ETC/ACC and JRC, in particular the AQUILA workgroup should be strengthened.
During the second day, discussion were on the near-real time exchange of information on air quality and on recent EEA/ETC assessment reports.

On both days national contributions have been presented highlighting the situation in the various member countries.

This report gives abstracts for each of the presentations, and summarises the discussions. For most of the presentations, one or two slides have been selected and presented in the report, to add flavour and give an immediate impression for the reader the topic it concerns. A direct web link to the full presentation is given in each abstract.

Contents

Participants of the 10th EIONET workshop on Air Quality Management and Assessment, Vilnius, 17-18 October 2005 (Photo: Mindaugas Bernatonis).

INTRODUCTION

The presentations and background documents at the workshop can be found at this link: http://air-climate.eionet.eu.int/meetings/past_html . The presentations have been summarised in the sections below; please consult the slides in the web link above for details of the presentations.
Discussions, questions and answers are also summarised. (Questions and discussions related to clarifications of certain points in the presentations are not included in this summary).

Opening of the meeting

Rob Swart (ETC/ACC)

After welcoming the participants, Rob looked back at the recommendations made during the previous workshop. Looking at the agenda of this workshop, two of the recommendations have been met: there are more presentations from the Member States describing their national situation and there is a better split between topics related to data exchanges and to assessment.

Rob briefly summarised the major achievements of the Topic Centre in 2005. The finalization of a number of reports and products (a.o the summer 2004 ozone report, the CLRTAP emission inventory and CKRTAP/NEC inventory review, input to the EEA core set of indicators and to the Eurostat Structural indicators, several technical papers related to AIRBASE). Some tasks still have to be finalized this year (the 2005 ozone summer report, the work on the State of the Environment and Outlook reports, technical papers on air quality monitoring networks and on spatial air quality reporting).

The future is less clear. In September 2005 the ETC/ACC has been reviewed. Main conclusion was to keep a joint ETC/ACC and to focus on a data centre role. However, the discussion on splitting the ETC in a Climate Change and Air Quality parts has emerged again. The EEA Management Board will make a decision and in spring 2006 the tendering procedure for the period 2007-2010 will start.

Welcome, scope and goal of the meeting

Jaroslav Fiala (EEA)

Participants were welcomed to the 10th EIONET Workshop on Air Quality Management and Assessment. At this 10th 'anniversary' workshop, we have an opportunity to take stock, to briefly look at the results of our past efforts, and look ahead towards the next period. The Thematic Strategy of the CAFE programme provides the background for updated policies on Air Quality in Europe, which will also affect the way we monitor, assess and report air quality. It seems clear that the new 'paradigma' in AQ work will involve the more active use of internet for near-real-time reporting and forecasting of air pollution, as well as to get the information out to the public users more effectively.

Based on a strategic agreement with the member countries, European parliament, DG Env, ESTAT and JRC EEA consolidates resources to take the lead in five thematic areas: **air quality, climate change, water, biodiversity and land use.** EEA provide support for the services of a data centre in five thematic areas, development and streamlining of data flows, establishment (where required) and running of QA/QC procedures, development and support of indicators, production of policy-relevant information and communications with a wide variety of audiences. Sectoral

analyses would be embedded in the work in the five major areas, where there would also be a specific focus on policy effectiveness and integrated assessments.

This refocusing of EEA's work resulted in the formation of two new groups relevant for the ETC/ACC: "Climate change and energy" with Andre Jol as group leader and "Air and transport" with Aphrodite Mourelatou as group leader. Main objective of the air and transport group is to provide support for the development, implementation and evaluation of EU policies in the fields of air pollution and air quality, and to provide information and assessments on the impacts of transport on the environment.

SESSION 1A: AIR QUALITY DATA EXCHANGE

The 2003 data reporting cycle (incl. QA/QC of AIRBASE data) and AIRBASE/AIRVIEW/DEM development 2004/2005.

Patrick van Hooydonk and Wim Mol (ETC/ACC))

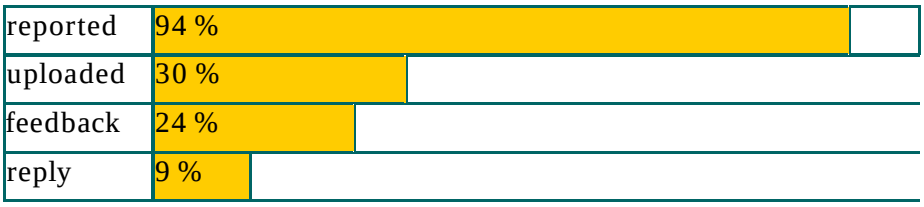
In 2005 the DEMv8.0 and the patches DEMv8.1 and DEMv8.2 are released. Most important new functionality is the possibility to export all meta information loaded in the DEM into an Excel file. This file can be used as import DEM meta info file in which the meta information can be modified and deleted and new meta information can be added. The workshop at 9-10 June at EEA has been found to be very successful both to the participants and to the ETC/ACC. A technical report on the QA/QC activities (procedures and results) in 2004/2005 has been made available. The possible future developments of AIRBASE are also described in a technical report. Items in this report are:

- Improving quality: outlier checks before 2002 and time gap filling of time series
- Accessibility: EEA will implement a new AIRBASE dissemination and visualization system instead of AirView with at least the same functionality as AirView. This system will be operational in 2008.
- Completeness: PM10 correction factors in AIRBASE, also extension with 4DD components.
- Central database for AQ meta information: extend AIRBASE with information on zones and agglomerations.
- Coupling with geographical data: new NUTS codes (LAU1 and LAU2 instead of Nuts4 and Nuts5 codes).
- Accelerating data transmission cycle: Now the cycle to upload the delivered EoI data, to give feedback, to process the answers, to calculate the statistics and to generate the XML dumps takes 6 months (1 April available). In the EoI2005 this period will be shortened to 4 months because of more efficient processing of the feedback reports. A 3-month period (new EoI data available on 1 January) is possible on condition that the MS deliver feedback within a month and all MS deliver the data in a standardized way using the DEM. The EoI data can be made available even earlier in the year if the DEM is released earlier in the year (April/May), the MS deliver the DEM as soon as the national validated data are available and if the 1 October dead line date is advanced.

Two weeks after the 1st October deadline 94 percent of the reports are delivered. Eight member states have received a country feedback and three member states already have given their reply. To fasten the process the structure of the country feedback report is altered in an attempt to come to a general procedure for processing the replies.

The end of the reporting cycle is planned for 1st February 2006, two months earlier than last year. Halfway through the process on 15 December the uploaded results will be made available through AirView. For the results who have reached the final state, the statistics also will be available.

Progress of the EoI2005 data exchange cycle; status of 14 October 2005. In total 33 country reports are expected.



Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/01_02_WMol_PvHooydonk_EIONET_AQ10_051017.pps

Discussion

Q.: There is an inconsistency in the country feedback forms; why is asked at one hand for a confirmation of stations to be deleted and on the other hand for the same stations missing meta-information requested?
A.: The ETC/ACC tries to accelerate the upload process and therefore the production of the feedback reports and the processing of the replies is made automatically. This kind of inconsistencies can not always be excluded.

Q.: In the DEM and therewith in AIRBASE only the most recent measuring method is included. Especially for PM10 it is important to have a better documentation on measuring history.
A.: The history of the measurement configuration can be stored in AIRBASE. In the DEM it is possible to introduce a new measuring method by closing the current measurement configuration and defining a new measuring configuration. In this way two distinct time series are inserted in AIRBASE. In preparing a status report on the use of correction factor in the PM10 monitoring in 2003, the ETC/ACC is working on an overview of correction factors applied to all the PM10 data stored in AIRBASE.

Q.: When countries submit information on exceedances, are these then reported in AIRBASE?
A.: No, in order to have a consistent, harmonised set of data, all statistical parameters and exceedances presented by AIRBASE have been recalculated by the ETC/ACC. The original information submitted by a country is archived but not accessible for the public.

Q.: Most of the e-mails related to data exchange processes are addressed to EIONET roles. This hampers the internal communication as it is now not possible to see whom of my colleagues has receive this mail. Is it possible to list all the addressees?
A.: This is related to the CIRCA-protocols; it might be difficult to change it but EEA will examine it.

Role of AQUILA in QA/QC of European air quality data[1]

Annette Borowiak (JRC)

With the introduction of the recent European Air Quality Directives the importance of the National Air Quality Reference Laboratories (NRL's) has grown significantly. Their activity had been acknowledged since a long time and their role has been formally established with the Air Quality Framework Directive: they are responsible for quality assurance of air pollution measurements in their Member State, which implies the organisation of national QA/QC programmes and the participation to European QA/QC programmes. In addition they may be actively involved in standardisation activities, in the validation of measurement methods and the type approval of instruments.

It has been felt that the National Reference Laboratories could strengthen their role and increase the effectiveness of their work, if they would join forces. The objectives of such a co-operation are primarily to develop together harmonised procedures, to exchange information and to foster collaboration. This collaboration also leads to a better visibility and credibility of the reference laboratories activities and to a stronger involvement in European decisions and policy.

A constitutive meeting of the NRL's took place in December 2001 in Ispra and showed a strong agreement on the setting up of a formal network, with the aim to provide expert judgement, to promote the harmonisation of air quality measurements among EU, EFTA and Accession Countries, to co-ordinate QA/QC activities, method development and validation, to participate in standardisation activities, to develop common research projects/pilot studies and to offer a forum for information exchange in form of training courses, workshops and conferences.

The structure of the AQUILA network is as follows: A chair person and a vice-chair person are elected by all members on a two-yearly basis. A senior advisor, a co-chair from DG ENV and a co-chair from DG JRC are on the steering committee as well. The secretariat of AQUILA is hold by JRC. The EEA and the WHO are represented among the members of AQUILA.

Up to mid 2005 the AQUILA network had 6 meetings. The meetings are composed of information exchange concerning new political developments, air quality assessment methods or other projects of interest. The network is discussing and taking position to important aspects like the accreditation of NRL's or the revision of Air Quality Directives. Common projects are developed for example in the field of PM equivalence testing or the development of reference materials. JRC training courses or workshops are co-organised with AQUILA, as well as QA/QC programmes among the EU and WHO MS.

Link to presentation:
http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/03_ABorowiak_AQUILA_AQ_WS051017.pdf

Discussion

Q.: How is your proposal for a collaboration between JRC and EEA, supported by AQUILA, related to the Data Quality Objectives as laid down in the AQ directives?
A:. There is no direct link. What we propose is to document the quality actions at a network level. This might be a first guess for the quality of the measurements.

[1] See, for further information on AQUILA the website:
http://ies.jrc.cec.eu.int/Units/eh/Projects/Aquila

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	Oberösterreichische Landesregierung		Umweltbundesamt	Slovenia	Environmental Agency of the Republic of Slovenia
Belgium	IRCEL/CELINE	Hungary	Institute for Environmental Protection	Spain	ISCIII
Czech Republic	Czech Hydrometeorological Institute	Ireland	EPA	Sweden	IVL
Cyprus	Ministry of Labour and Social Insurance	Italy	CNR		ITM
Denmark	NERI		ISPESL	The Netherlands	RIVM
Estonia	Estonian Environmental Research Centre	Latvia	Latvian Hydrometeorological Agency	United Kingdom	AEAT
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	LCSQA-INERIS	Malta	Malta Environment & Planning Authority	Switzerland	EMPA
	LCSQA-LNE	Poland	Chief Inspectorate for Environmental Protection		BUWAL

Update from the Data Exchange Group (DEG)

Andrej Kobe (DGEnvironment)

The presentation gave an outline of current activities of the Data Exchange Group (DEG), an expert group of representatives from the Member States, EEA and its ETC-ACC. DEG has been set up by the Commission for assistance in all technical issues related to reporting to the Commission in the field of air pollution.

DEG had its second meeting on September 30th in Bruxelles, at which time a specific workplan and roadmap had been discussed to help the Commission draft a proposal for the Implementing Provisions on Reporting. This document will complement the proposed Air Quality Directive merging Framework Directive, 1-3 Daughter Directives and the Exchange of Information Decision by providing a new reporting structure.

A schedule has been presented, aiming to have a zero-draft ready by the end of the year, while the final version should be available by mid-2006. While the Commission has presented its objectives and the main concepts upon which the new reporting scheme should function, much is counted on the DEG experts especially from the Member States to provide good, detailed resource-effective solutions and an instant feedback on the implications in the actual implementation.

Initial concept of several data flows: ad-hoc reporting on zones, annual reporting on monitoring data and the annual GIS based assessment reporting has been very briefly

presented. Subgroups of DEG are currently working on particular flows and on the general electronic reporting process description. The work aims to provide a qualitative step towards the implementation of the Shared Information System, a concept proposed by DG ENV and endorsed by EEA and the Member States through the Environmental Policy Review Group. The system relies heavily on the implementation of INSPIRE. DEG as the Spatial Data Interest Community within INSPIRE has been nominated as the drafting group for the INSPIRE Implementing Rules for the air quality theme.

The contact person to obtain additional information on DEG is Andrej Kobe from DG ENV.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/04_AKobe_EIONETAQ_DEG_051017.pps

Discussion

Q.: What is the current status of INSPIRE and the proposed Air Quality Directive
A.: The European Parliament adopted its first reading opinion on the proposed INSPIRE Directive on 7 June 2005. Some amendments were proposed, focusing on various technical clarifications and extra safeguards for public data providers in relation to public access to the spatial data and sharing between public authorities. The Council, while agreeing on most technical improvements, further stressed the need to protect intellectual property rights held by public data providers. The Council reached a political agreement on an amended version of the INSPIRE proposal on the 24th of June 2005. This position is expected to be formally adopted by the Council in the coming months.
The timing of the new AQD is less certain. We expect a similar time frame. There is no direct linking between the two; if there is any delay in the adaptation of the one this will not influence the timing of the other.

General discussion

Q.: My impression is that the data flow processes are very complex. There are a lot of players, at the Commission, at EEA, at the national level. Sometime I have the feeling that there is room for improving the communications between all these groups.
A.: Reportnet might be an option as exchange platform but there might be some technical problems. This suggestion has to be discussed further in/by the Agency.

Q.: From the presentation of Andrej it is not clear what the consequences are for the data suppliers.
A.: Yes, you are fully right. At this stage it is all still a bit vague. The drafting of the new reporting provisions will be done within the DEG, that is in close cooperation with the MS. A special point is the reporting on geographical information like the assessment in a territory. Discussions how this should be dome have just started.

Q.: While revising the reporting provisions, I propose to reconsider the requested and status (mandatory or voluntary) meta-information.
A.: Yes, that will be considered by the DEG.

Author comment:
Merging the data flows from Questionnaire and EoI may have organisation aspects. Different institutes or persons might now be responsible for the two types of reporting. Implementing the new provisions may therefore need institutional changes in the MS. None of the MS marked this as a serious problem.

Ideas for the revised Air Quality Information System

Sheila Cryan (EEA), Frank de Leeuw (ETC/ACC)

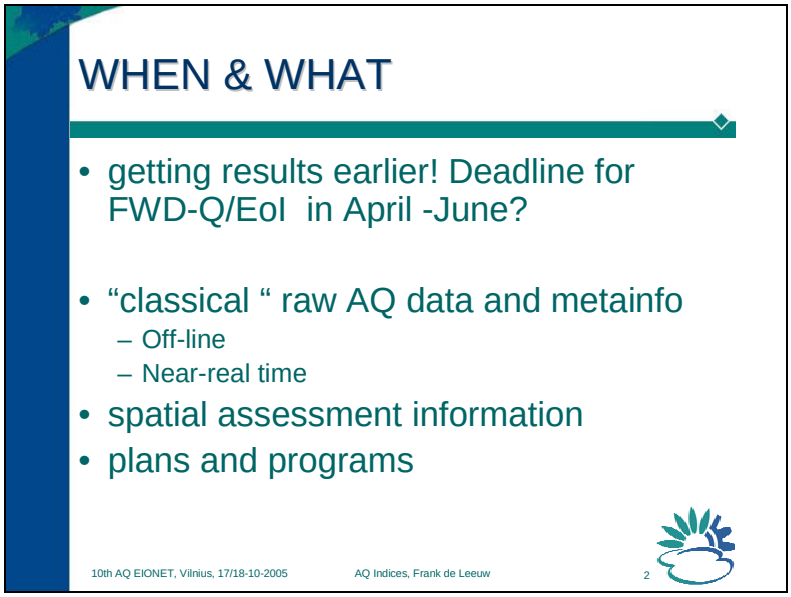
The first part of this item has been presented by Wim Mol (ETC/ACC) on behalf of Sheila Cryan (EEA). Because of the new thematic strategy of the Commission and the EEA strategy on a SIS (Shared environmental Information System) the current system have to be revised. A system consists of the elements of data, infrastructure and people. Air data are derived from the DIPSIR chain e.g. emissions, monitoring data, assessments. The infrastructure consists of tools, guidelines and provisions for e.g. data collection, quality assurance, dissemination. Involved people are the MS, EU, EEA, ETC, scientific bodies and the public. The air information system has relations with other systems such as EMEP, WHO, EUROSTAT, INSPIRE and the SIS process will aid future interchange.

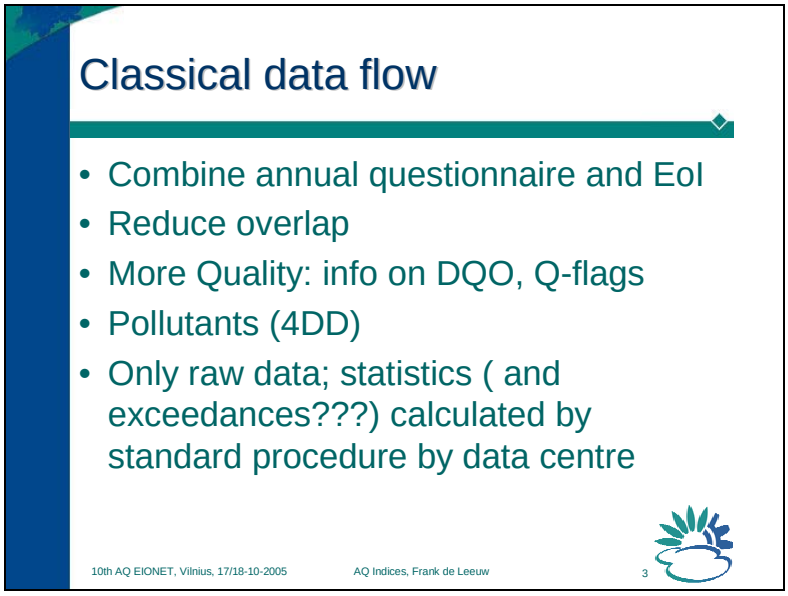
In the second part, Frank de Leeuw discussed in more detail the consequences for the reporting of AQ data Main objective of the new reporting structure is a further streamlining of the data flows by combining the annual questionnaire under the Framework Directive and the Exchange of Information decision. The current requirements on meta information and air quality data will be reviewed by the Data Exchange Group. Increasing attention will be given to the quality assurance of the data.

Links to presentations:

http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/05a_SCryan_revAQ_Info_Syst_EIONETAQ_051017.pps

http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/05b_FdLeeuw_revAQ_Info_Syst_EIONETAQ_051017.pps





Discussion

Q.: During the 9th workshop it has been noted that there are clear gaps in time in the time series stored in AIRBASE. Will this point be taken up in the review of the reporting provision?
A.: No, the ETC/ACC will not take any specific action to identify the largest gaps and to request the countries to submit the missing data. However, we invite the Member States to make their own assessment on the availability of their national data in AIRBASE. When gaps are noted, the historical data can always be submitted in the regular EoI data exchange.

Q.: Do you consider a complete revision of the meta data? In my opinion the classification of stations needs to be revised.
A.: The meta data as now defined in the EoI will be reviewed by the Data Exchange Group. It will be brought in line with the criteria in the new Air Quality Directive. The station classification is one of the topics to be considered; the classification scheme in EoI and ozone directive needs to be harmonised.

Q.: What is the reason that nitrogen monoxide, NO, is not included in the tables in the technical report on EoI meta information?
A.: This is explained in the report (see note 2 in Annex D). In most networks NO and NO2 are measured simultaneously. Tables of NO should therefore be almost the same as the table for NO2. However, we have noted that not all countries submit both NO2 and NO (or NOx). We regret this as this seriously hampers a number of assessments, for example when looking to possible trends in emissions and concentrations of NOx.

Contributions from Member Countries

The route to accreditation at Lithuanian Air Monitoring Network

Juozas Molis, head of automatic measurement systems department, Lithuanian EPA

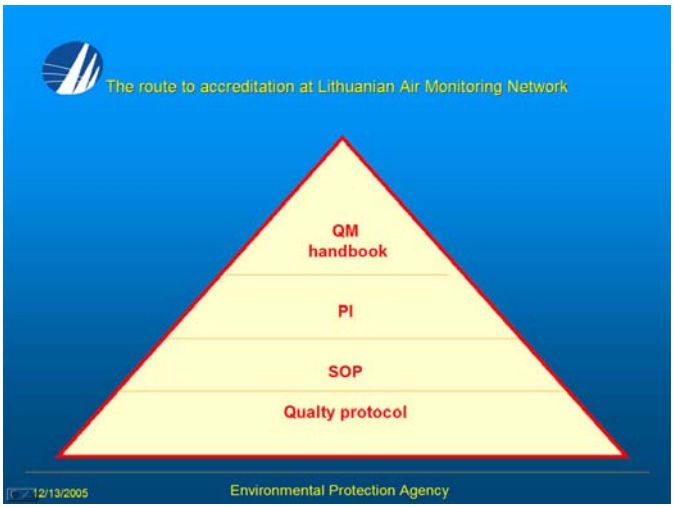
Lithuanian Environment Protection Agency (EPA) specializes in the ambient air monitoring measurements to contractual requirements of the Ministry of Environment. The prime objective of EPA is to provide Lithuanian public and Government, EU Commission and citizens with the measurement data to a level of quality that consistently conforms to EU directives requirements. In order to effectively maintain the quality assurance and quality control procedures EPA decided to achieve accreditation for the air monitoring network, which is based on the ISO 17025:2000 International Quality Standard.

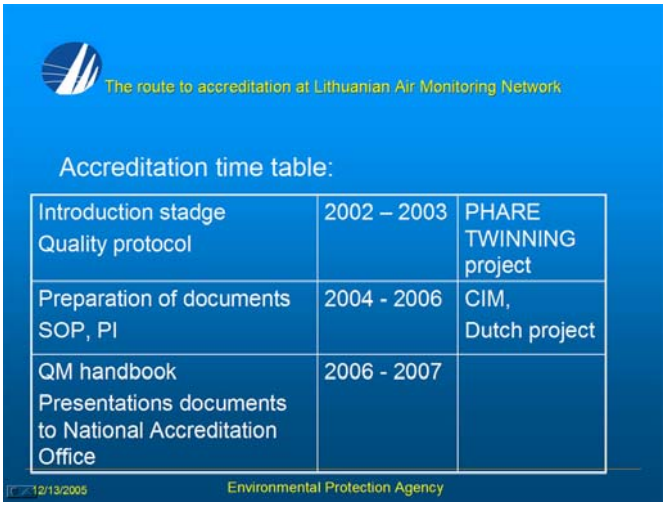
To reach this goal it is needed that performance standards which are valid for NO/ NO_2, SO_2, CO, O_3, PM10 & PM2.5, Pb and other metals, benzene, PAHs measurements meet the requirements of the Air Quality Daughter Directives.

The preparation for accreditation process in Lithuanian EPA was started in 2002 and the biggest part of the work (quality protocols, Standard Operations Procedures (SOPs) and Instructions of procedures) have been implemented. Now the EPA is working on the preparation of the Quality Handbook. It is planned to finalize the accreditation process is year 2007.

The calibration laboratory, which is approved as the Lithuanian reference laboratory for ambient air, plays a very important role in the measurement data quality and accreditation. National NO/NO_2, SO_2, CO, and O_3 transfer standards are periodically tested by participation in international intercomparison campaigns every one to two years.

Ambient air quality monitoring system launched today is upgrade with new software which gives possibility to get measurement data online from any place where Internet access is possible, and it has remote control access to the analyzers, which makes it easier to detect technical hardware and software problems.





Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/05b_FdLeeuw_revAQ_Info_Syst_EIONETAQ_051017.pps

Discussion
Q.: When is the data available?
A.: The data is on-line available and are daily published on internet, see http://aaa.am.lt/rubric.php3?rubric_id=1246

Quality assurance of air quality assessment in the Czech Republic

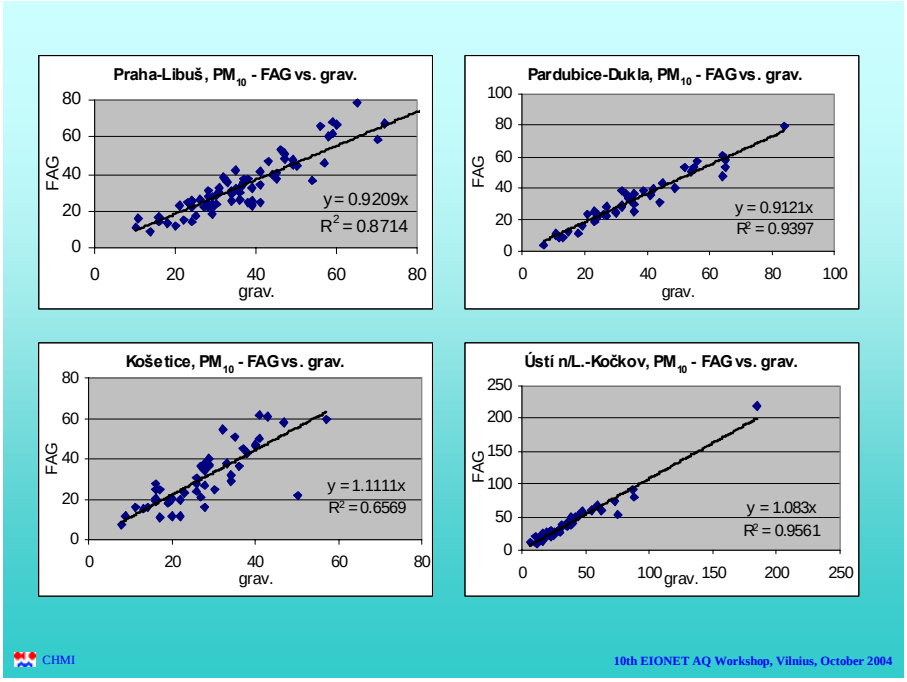
Jan Horalek (CHMI)

Quality assurance of air quality data plays a great role at the Czech Hydrometeorological Institute, which is responsible for air quality monitoring and assessment in the Czech Republic. In guarantying the quality of the data, several topics needs to be considered.

- the monitoring network: the quality of the resulting air quality assessment depends on the representativity of the monitoring network. The network consists of 70 automatic stations and additionally about 40 manual operated stations. Not at all stations all FWD pollutants are measured. In the presentation maps of the monitoring stations within the National Air Pollution Network operated by CHMI are shown for individual pollutants.
- quality assurance of air quality data is dealt with, both for analysers for continuous measurement as well as for manual sampling methods. Central Air Pollution Laboratory (part of CHMI) participates as the national reference laboratory in the AQUILA-network. It also participates in interlaboratory tests organized by WHO, as well as by EMEP. This summer CHMI was accredited according ISO/IEC 17025.
- Data control and validation is executed at two levels. Monthly control is the responsibility of the regional network administrator, while quarterly control is implemented in the central database. This quarterly control is automatic (based on statistical methods); detected suspicious values are verified by an expert. The procedure followed in this automatic validation step is discussed (see the PowerPoint presentation for further details).
- Finally, the equivalence of automated ß-ray method and PM_{10} reference sampler is treated. The comparison was made at six PM_{10} stations with parallel measurements of these two methods. The intercomparison is based on the material “Demonstration of Equivalence of Ambient Air Monitoring Methods” (by an EC Working group).

The purpose of quality assurance of air quality assessment is to provide reliable information for state administration and public.

Example of data quality assurance at CHMI: Studies of equivalence of the FAG PM10 sampler at 4 locations in the Czech Republic:



Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/07_JHoralek_CZ_QAinAQ_assessment.pps

Discussion

Q.: The maps which you showed us contain only the station operated by CHMI. From my own experience I know that additional data from stations operated by public health institutes is available. Are you responsible for submitting the combined data set to EEA?

A.: There is a good cooperation between CHMI and the public health institutes. They are measuring mostly in the cities; these stations are nowadays taken over by CHMI. The public health institutes focus more on chemicals like HM and B(a)P. These measurements are used by CHMI for indicative purposes.

General discussion

On the submission deadline (30 September/ 1 October) different opinions exist. Some countries did not expect any problems when the deadline is advanced. Others stressed that when data has to be collected from a (large) number of local networks it is almost impossible to advance the deadline to an earlier data on a voluntary basis. The data supplier has no possibilities to force the local network manager to deliver his data earlier.

A possible change in deadline will be considered while preparing the reporting provisions. It will be clear that the (electronic) tools needed for submission must be available in time.

Summary of session 1A:

The EoI data exchange, largely made by using the DEM, is running well. There is a general agreement that the reporting cycle should be shortened. This is difficult, but modern technique might be helpful to speed-up the process. Emphasis is – and will be - on the data quality. Streamlining the two flows from FWD-questionnaire and from EoI will require a revision of the reporting provisions. There is a need for more spatial reporting.

SESSION 1B: REPORTING UNDER THE AQ DIRECTIVES, CAFE AND THEMATIC STRATEGY ON AIR POLLUTION

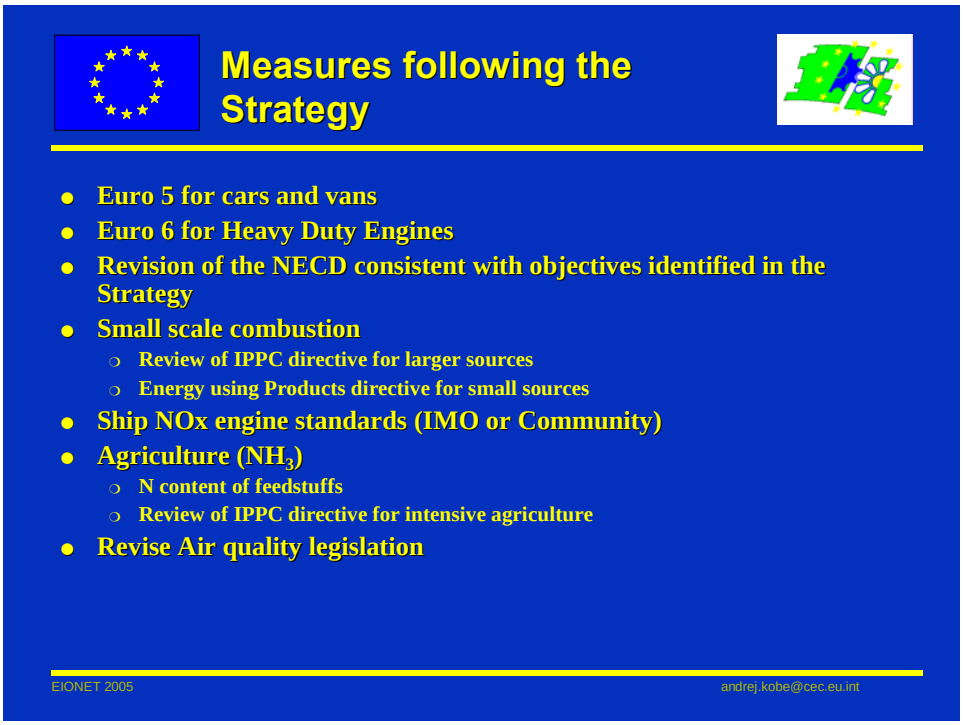
EU Thematic Strategy on Air Pollution

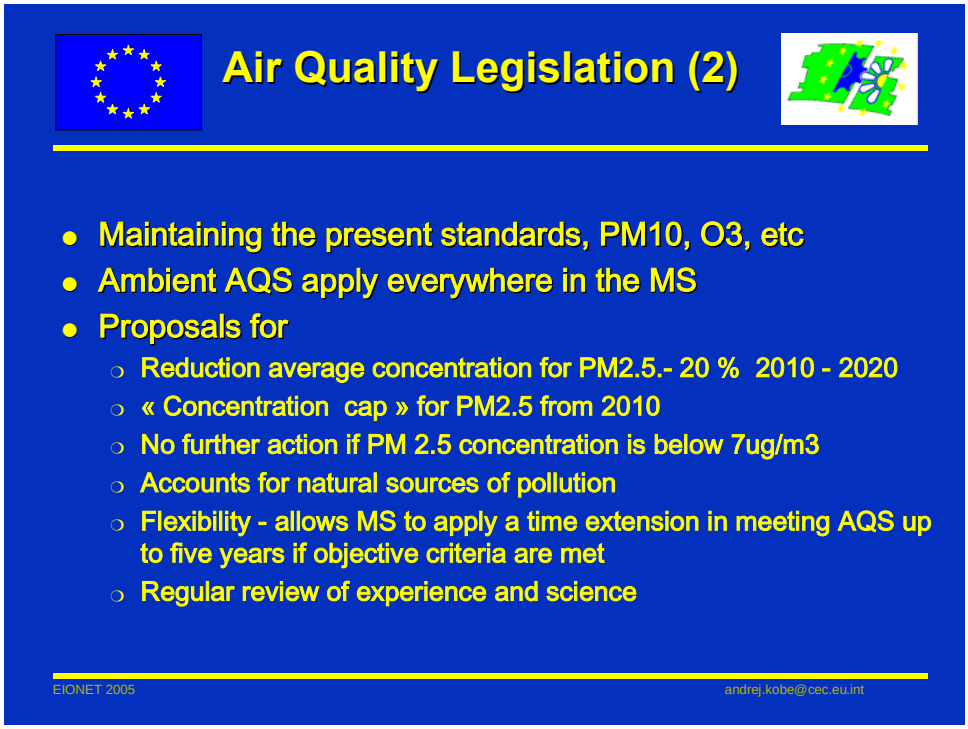
Andrej Kobe (DGEnvironment)

The presentation gave an outline of the Clean Air for Europe (CAFE) process, initiated by the Community's 6th Environmental Action plan. Its main deliverable, the Thematic Strategy on Air Pollution has been adopted by the Commission on 21 September 2005. It is defining the intermediate air quality objectives for the Community until 2020, based on the evaluation of potential for air pollution abatement, its costs and the benefits in terms of public health and ecosystems improvement. Particulate matter and ozone are the pollutants principally targeted. Though current legislation is already delivering a lot of benefits and will continue to do so in the near future, it is estimated that in 2020 270.000 EU citizens would still be annually prematurely dying due to fine particles, if nothing further is done.

Some measures are listed in the strategy which will have to be taken, most notably the adoption of new EURO norms for vehicle emissions and the revision of national emission ceilings directive. The strategy also identifies a number of important sources which will have to be specifically addressed, such as small scale combustion installations and shipping.

Another measure which has been already proposed in parallel with the strategy is the revision of the Air Quality Framework Directive, 1-3 Daughter Directives and the Exchange of Information Decision. In the proposal all are merged into one directive, with an additional piece containing implementing provisions for reporting. This document is currently under preparation by the Commission, assisted by the Data Exchange Group.





The proposal retains all existing monitoring provisions as well as the limit value. The indicative PM_{10} limit value is replaced by a proposal for a $PM_{2.5}$ concentration cap of 25 µg/m^3 and a target of 10-year 20% reduction of exposure to fine particles in the Member State, as assessed by the concentrations at urban background locations. Specific $PM_{2.5}$ monitoring provisions are prescribed in the proposal, as well as provisions to account for natural contribution and/or apply for possible time extension on the attainability of the limit value for up to five years, based on specific conditions.

The strategy, directive proposal and a number of accompanying reference documents, such as the WHO advice to CAFE, impact assessment and the cost-benefit analysis can be found at http://europa.eu.int/comm/environment/air/cafe/index.htm.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/09_AKobe_ThematicStrategy_EIONET_AQ_051017.pps

Reporting by Member States under the Directives, status and results

Dick van den Hout (TNO)

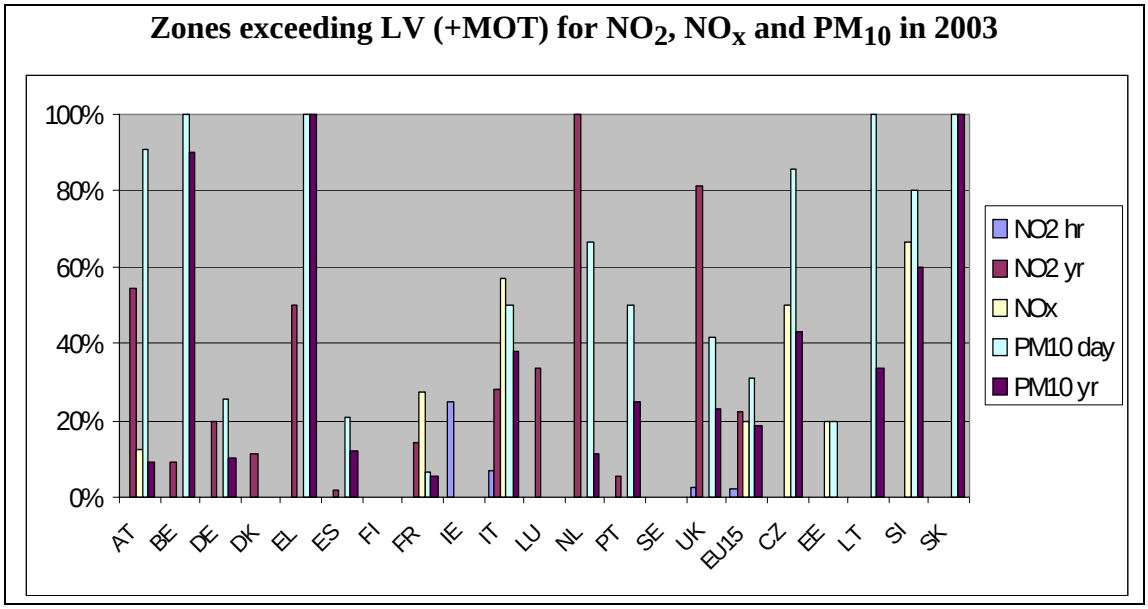
In parallel to the reporting under the Exchange of Information Decision, quite familiar to the EIONET community, Member States are also sending annual reports under the Air Quality Framework Directive and Daughter Directives. One of these report is on air quality assessment, air quality zones, exceedances of limit values and additional supporting information. Apart from mandatory reports, many Member States have also submitted reports on items that were not yet mandatory. The reports are submitted using an Excel template provided by the Commission. Many of the reports were found to be far from perfect, with numerous small mistakes and a substantial number of more serious errors.

In EU15 plus the 5 new Member States that reported voluntarily, the total number of zones varies between 400 and 700, depending on the pollutant. The zone sizes vary

widely, both in area and population. Zone maps were received, but it is not yet possible to construct a European map of zones. For the limit values for ecosystems and vegetation – these are already in force – several zones were reported to be in exceedance, mostly for the NO_x limit value. More exceedances were found for the two limit values for PM_{10} and the annual average NO_2 limit value; these are not yet in force. The daily PM_{10} limit value was the most stringent one, with exceedance in 50% of the zones. Over the period that is currently available, 2001-2003, trends in overall exceedance rates were not strong. For SO_2, the exceedances often related to local industry and power generation, for NO_2 and NO_x local traffic was the most prevalent reason for exceedance. For PM_{10} traffic was also important, but many other reasons were reported as well.

When exceedance of the limit value plus the margin of tolerance is observed, Member States have to submit, within two years, a summary of a plan or programme to bring the levels in time below the limit value. All but one EU15 Member States have by now sent this for the years 2001 and 2002, resulting in about 120 reports. The Commission is preparing an in depth analysis of these reports and the underlying plans and programmes.

Figure: Example of summary from the MS' reporting: Fraction of zones in each MS with exceedance of LVs:



Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/08_DvdHout_ReportDirs_EIONET_AQ_051017%20.pps

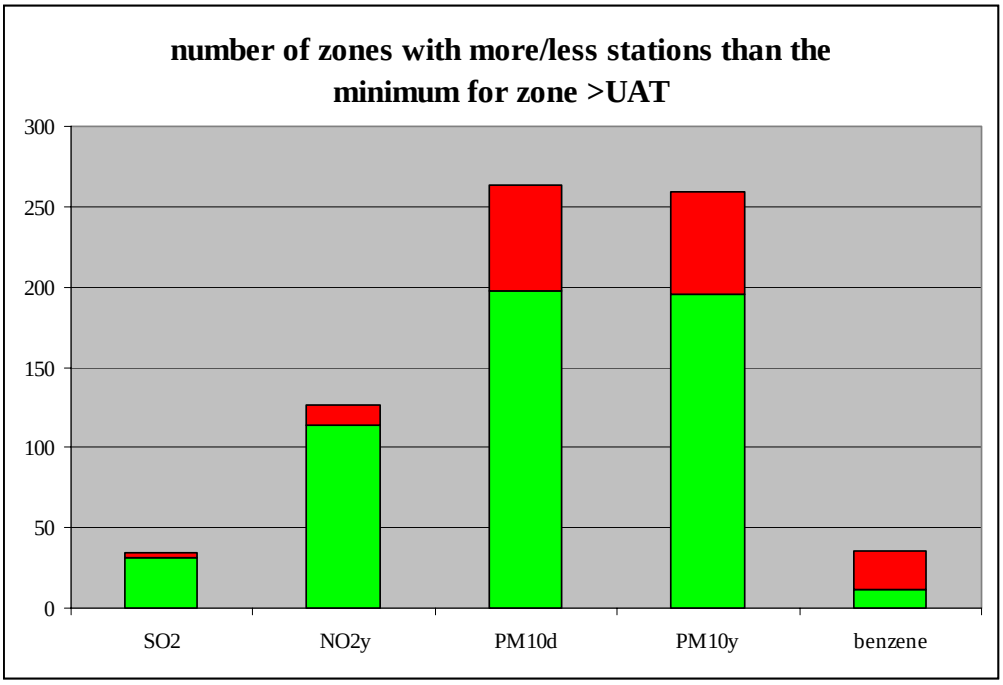
Analysis of Air Quality monitoring networks under EoI and AQ FWD

Frank de Leeuw (MNP-ETC/ACC)

Information from the questionnaire for the Framework Directive and from AIRBASE has been linked in order to analyze the compliance of current networks with the requirements given in the Framework and related directives. The Exchange of information states that all station sused under the FWD have to be reported.

However, not all stations listed in the FWD questionnaire could be linked to stations in AIRBASE. Reasons might be simple mistakes and or the reporting of mobile stations and of indicative measurements which are not included in AIRBASE.
In the daughter directives data quality objectives, criteria for macro and micro siting and on the number of stations in each zone or agglomerations have been defined. These requirements could no all be checked as some of the needed information is reported on a voluntary basis and therefore not available for all MS.
The criteria fro data coverage have been met for almost all stations. With a few exceptions, the reference measurement methods is in use for SO2, NO2 and ozone. For PM10 on about 15% gravimetry is in use; for the stations measuring PM10 with TEOM (37%) or beta absorption (47%) the applied correction factor is not always given. In 90% (in case of NO2) or 80% of the zones/agglomeration the number of stations exceeds the required minimum.

Figure: Number of monitoring stations in zones in Europe relative to the requirements in the Directives. Green: Sufficient number / Red: Too few stations.



Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/10_FdLeeuw_network_analyse_EIONET_AQ_051017.pps

Contributions from Member Countries

Preliminary assessment of AQ in Cyprus: Certain aspects

Savvas Kleanthous, Department of Labour Inspection

The main objectives of the project were to assess the air quality, to designate air quality zones and agglomerations in Cyprus according to the European Directive, to collect the essential information needed for air quality management policy planning, to optimise the national air quality monitoring network and to inform and make the public aware of air pollution problems.

The fieldwork of the project started in December 2001 and finished in December 2003 while the results were officially presented to the public on the 21st of December

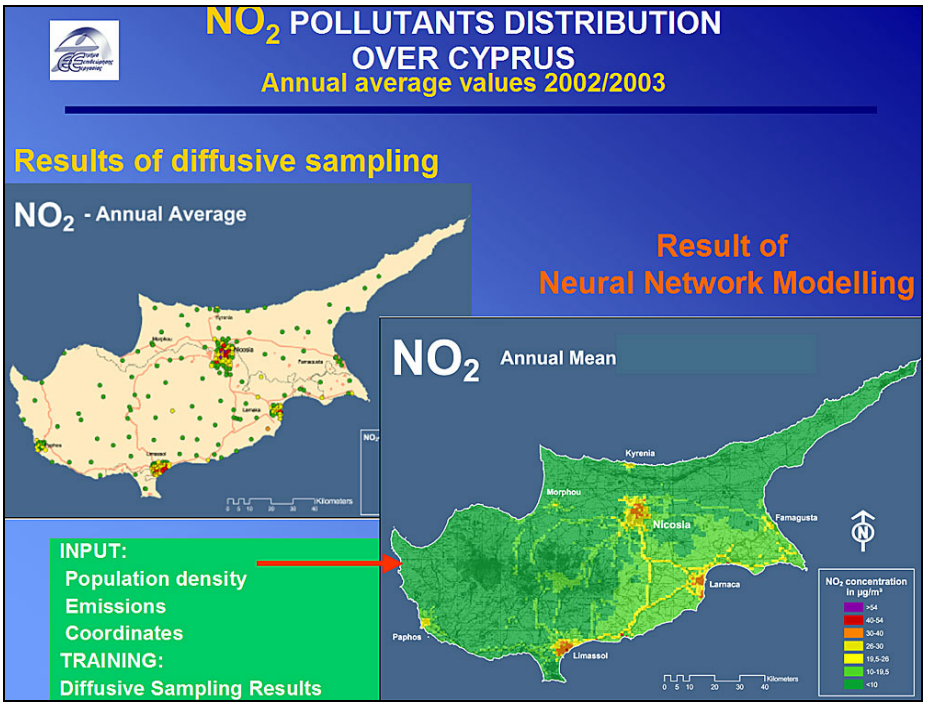
2004. During the same period an emission inventory was created. The fieldwork consisted of sampling with passive samplers and continuous measurements over the whole island with automatic instruments. It also included winter and summer campaigns with a tethered balloon to determine the vertical structure of the pollutant plume in the central area of Nicosia and in the coastal area of Limassol.

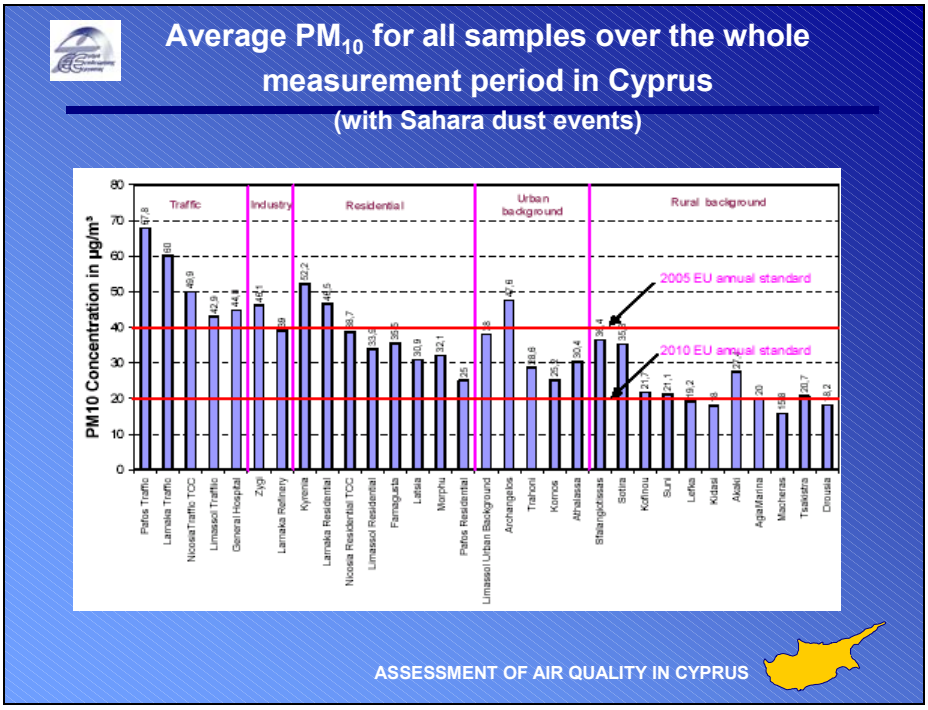
The spatial distribution of the pollutants was derived by using passive samplers at 250 points in all areas of the island. With the application of neural network modelling air quality maps were created. The gravimetric method was used for Particulate Matter (PM_{10} and $PM_{2,5}$) at 31 points over the island. The temporal variation of air quality was measured at 13 points using automatic instruments.

The exceedances of limit values observed for NO_2 and benzene are mostly due to traffic and are expected to decrease since the percentage of cars equipped with catalytic converters is increasing continuously due to government measures. The exceedances of PM_{10} are more difficult to reduce although plans are made concerning the contribution from anthropogenic sources. Due to the influence of natural events like the transport of sea salt and of dust from North Africa the PM_{10} one-hour concentration may approach 7000 µg/m3, as measured with the TEOM method.

The assessment identified problematic areas like high traffic zones in cities, other badly ventilated city areas influenced by traffic, residential areas influenced by traffic zones close by as well as areas surrounding power and cement plants, neighbourhoods of quarries and sites affected by uncontrolled burning.

The results of the assessment will also help in locating the additional 5 mobile units as well as the new measuring ozone stations, which are expected to start operating in the spring of 2006.





Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/11_SKleanthous_CY_AQasess_EIONET_AQ_051017.pps

Discussion:

Q.: Could you, based on the parallel measurements of PM10, say something more on the PM10 correction factors?

A.: The comparison is not yet finalized. A preliminary analysis indicates that for Cyprus the correction factors will be around 1.1.

Q.: Is PM2.5 measured?

A.: It is included in the intercomparison. This summer combined $PM_{10}/PM_{2,5}$ measurements have started in each of the cities.

The PM_{10} situation in Norway and the system of reporting to EU

Roar Gammelsaeter, Norwegian Pollution Control Authority

Compliance with the EU limit values for PM10 is, as in most European countries, problematic in Norway. Four of seven zones had more than 35 exceedances of the 24 hour limit value in 2004, of these were two agglomerates. The highest numbers of exceedances were in Oslo and Rana. The main causes for the exceedances are resuspension of road dust and ferrosilicon industry. Domestic wood burning seems to be an important source in areas with inland climatic condition. So far in 2005 three zones are in infringement with the first daughter directive.

More than 60 % of the total PM emissions in Norway are caused by domestic wood burning, and roughly 10 % is caused by road traffic. However, these figures are encumbered with uncertainties, and do not reflect the contribution to the exceedances of the limit values. Reliable source apportionments are thus essential inputs to the abatement planning. The Norwegian Institute for Air Research (NILU) has carry out two studies which includes source apportionment. Both studies are from Oslo and are representative for traffic-oriented conditions. The source apportionment is based on a combination of measurements and chemical analysis of the composition of PM-samples where levoglucosan was used as a tracer for wood

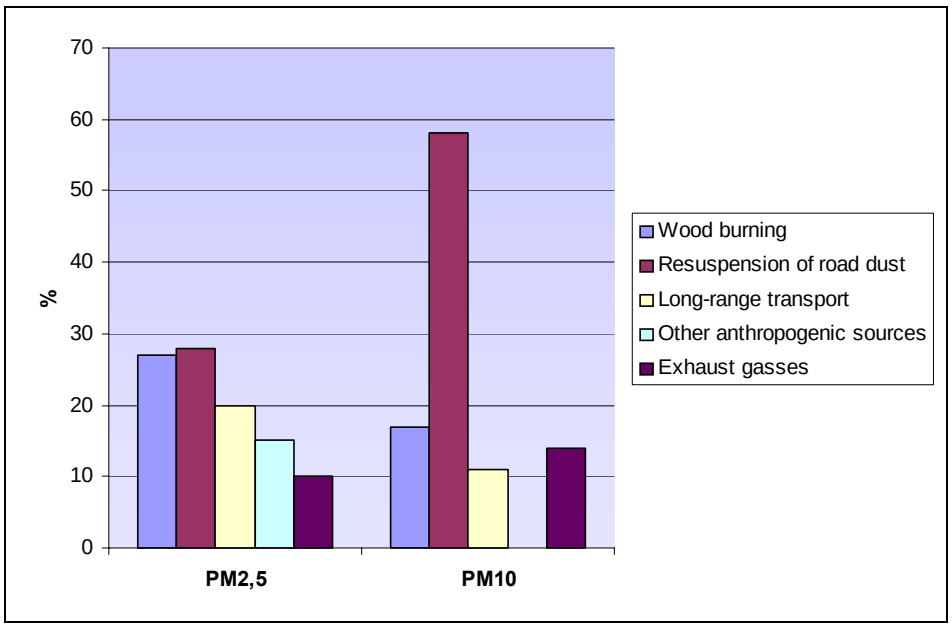
burning. Further analysis with receptor models were used to determine the contribution from different sources. The results indicate that resuspension of road dust is the principal source for PM10. The situation for PM2.5 is more complex where wood burning, resuspension of road dust, regional background and exhaust gasses can all be major contributors.

The measurements and analysis were elements in a testing of reduced speed limit as a mitigation measure to reduce PM10 concentrations along a national highway with 50,000 vehicles per day. The speed limit was reduced from 80 kph to 60 kph. The real reduction was measured to be from 77 to 67 kph. Still the results were positive. The number of exceedances of the PM10 limit value was reduced by more than 30 percent. The changes in PM2.5 levels were insignificant.

The Norwegian reporting system is based on a web solution and a central database where all air quality data is stored. A comprehensive QA/QC system has been developed and implemented as part of the system. Basically all municipalities that have responsibilities for measuring stations are obliged to perform monthly reporting of quality assured data to the central database. This is done by the use of an internal web application which is a part of the national web site (www.luftkvalitet.info) for air quality information. Further reporting to the EU is done by extracting data from the database using templates identical to questionnaire in Commission Decision 2004/461/EC.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/12_RGammelsaeter_PM10_and_reporting_NO_EIONET_AQ_051017.pps

Figure: Relative contributions to PM concentrations near a national highway in Oslo, winter average



Discussion

Q.: Are studded tyres still in use?
A.: Yes, they form one of the main sources of road dust. Since a fee has been introduced for driving with study tyres, their number is strongly reduced.

Q.: Wood burning is not only an important PM2.5 source but also for PAH like B(a)P.

A.: PAH measurements are not available; B(a)P is assumed not to be a problem in Norway.
Comment.: Tentative measurements of B(a)P showed that wood burning causes serious problems in Austria.
Comment.: A similar situation is seen in Northern Italy and Switzerland. Are there any plans for regulation of wood burning?
A.: It has been suggested to restrict the use of wood in certain areas and/or periods. If, however, this results in a strongly increasing electricity demand, problems may arise at the power stations. Another option is to subsidise more efficient and cleaner stoves.
Comment: In the thematic strategy wood burning has also been recognized as an important source.

Investigation of PM10 limit value exceedances in Austria

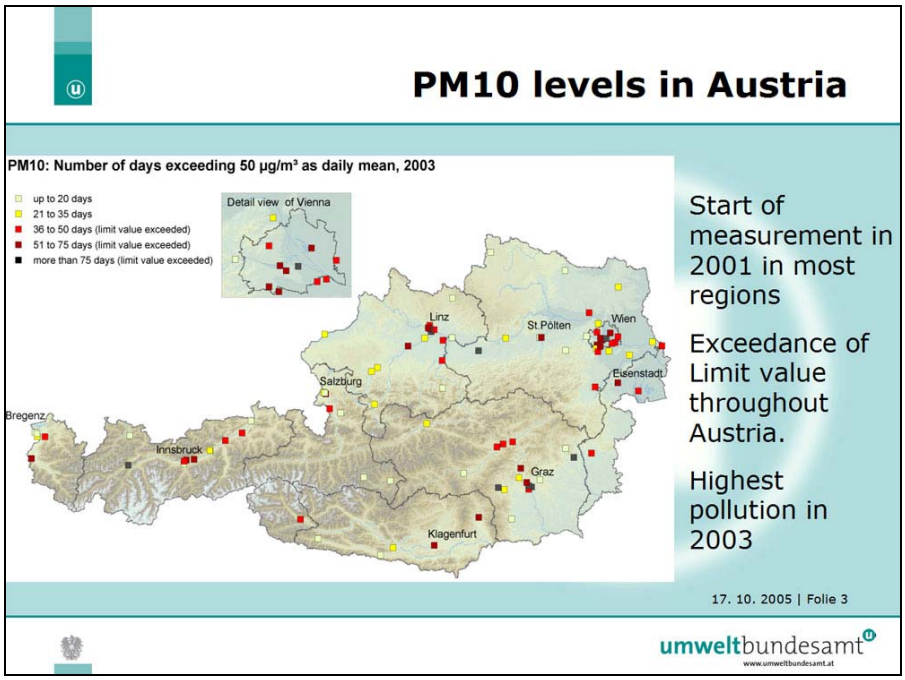
Wolfgang Spangl, Umwelbundesamt, Vienna

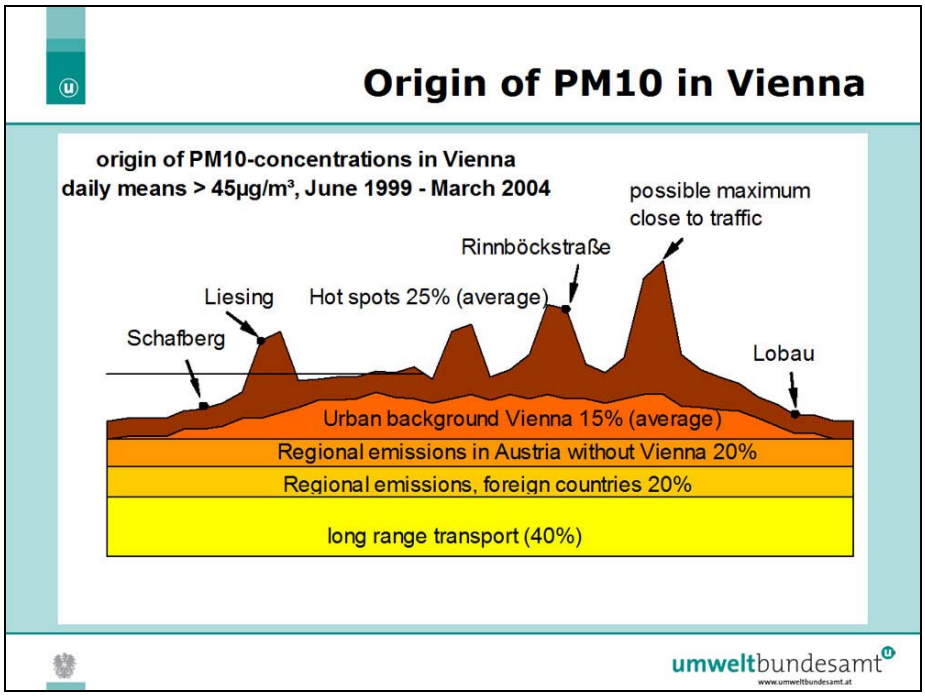
PM10 measurements have started in Austria in 1999 and cover most of the territory since 2001. Exceedances of the daily limit value have been observed in all parts of the country except at higher altitudes; the highest polluted year was 2003.

"Hot spots" of PM10 concentrations are urban traffic locations, the highest concentrations being observed in Graz, with about 150 daily mean values above 50 µg/m³ in 2003 at the monitoring station Graz Don Bosco (traffic site).

Topographic and meteorological circumstances play a key role for elevated PM10 levels. Alpine basins and valley, but also the south-eastern rim of the Alps (Styria) are affected by adverse dispersion conditions especially during winter. But also in extra-alpine lowlands, adverse dispersion conditions play an important role for large-scale high PM10 levels in winter, most common associated with high-pressure systems and advection of cold, continental air masses from the east.

The contribution of various sources of PM10 varies largely throughout Austria. Local and regional PM10 emissions from domestic heating and road transport determine elevated PM10 levels most in alpine valleys and basins, whereas in extra-alpine lowlands long-range transport and regional emissions on a scale of some 100 km contribute large proportions.





Secondary pollutants can contribute up to 50% of the PM10 concentration (mainly sulphate) at extra-alpine background locations.

Investigations based upon backward trajectories, calculated by the Central Institute for Meteorology and Geodynamics, Vienna, from ECMWF wind data, have shown that in north-eastern Austria long-range transport originates mainly from Romania, Serbia, Hungary, Southern Poland and Moravia. EMEP emission data reveal large point sources both of PM and SO_2 in the respective regions, the latter contributing to a large share to sulphate.

Link to presentation:
http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/13_Spangl_AT_PM10_LVExc_EIONET_AQ_051017.pps

Discussion

Q.: In one of your slide you showed that in Vienna the traffic contribution to PM10 levels is about 5%; is that not relatively low?
A.: The contribution from traffic depends on the location. The graph which I showed is more illustrative than that it reflects the measurements.

Air quality in Tirana, Albania 2001-2005

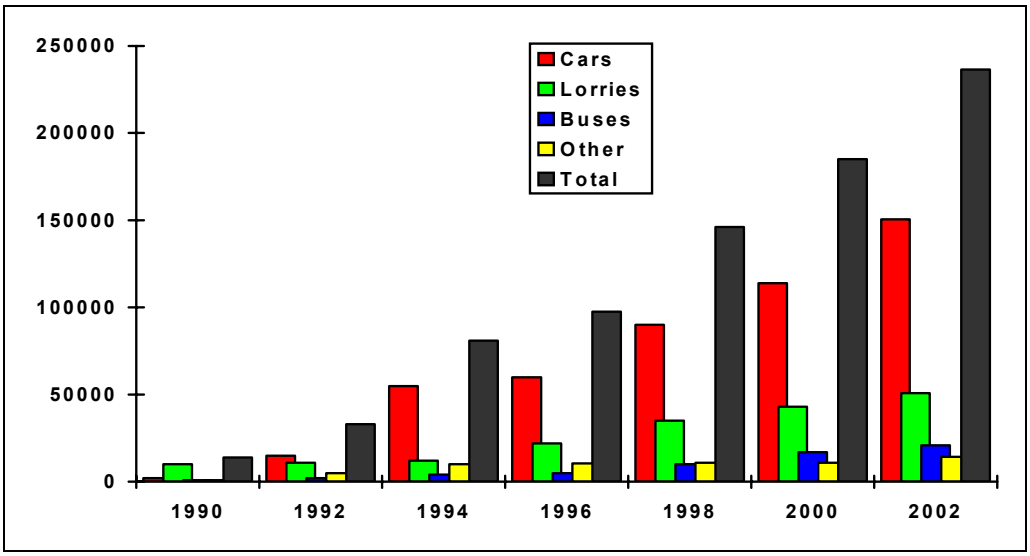
Agron Delieu, Institute of Public Health – Tirana

In the "Report on Air Quality in Albania, 2001-2004" total emissions of the main pollutants are presented for the period 1970-1998.. The increasing share of traffic emissions over the last decade - resulting from a dramatic increase in vehicle fleet numbers (from *c.* 14 thousand in 1989 to *c.* 257 thousand in 2002 - is clearly visible; The report presents traffic emissions (in tonne/year and in tonne/capita) fro the years 1990, 1994, 1998, and 2002.

PM_{10} concentrations in the main towns and cities of the country for period 2000-2004 are presented. It is estimated that more then 80-90 percent of the urban population in the main cities are exposed to much higher PM_{10} concentrations than the Albanian limit values (annual mean of 60 µg/m^3) and the WHO-1987 guideline values (annual mean of 50 µg/m^3) The high concentrations are, to a large extent, caused by the fact that *c.* 80 percent of Albanian car fleet consists of old aged diesel vehicles.

Policies and institutions responsible for air quality are given in a separate section of the report. In the conclusions, legislation and deficiencies in financial structure and technical skills for proper monitoring of urban air quality are discussed.

Figure: Increase in vehicle fleet numbers in Albania, period 1990-2002:



Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/14_ADelieu_AQinTirana_EIONET_AQ_051017.pps

Discussion

Q.: Are there any health effects seen due to the high levels of air pollution?
A.: We expect health effects but no epidemiological study has performed yet.

General discussion

Q.: Has data on B(a)P and other PAH submitted to AIRBASE?
A.: There is hardly any information on B(a)P in AIRBASE. I have to admit that some of the received data looks suspicious; there is a clear need for improvement here.

SESSION 2A: EXCHANGE OF UP-TO-DATE INFORMATION ON AIR QUALITY IN EUROPE

Strategy for an Implementation Framework to set up a European Network of Air Quality Forecasting and Information Systems

Mikhail Sofiev (FMI)

The EUMETNET Working group for Environment (WG-Env) has developed a *Strategy for an Implementation Framework to set up a European Network of Air Quality Forecasting and Information Systems* with the following goals:

- To open the dialogue with National Environmental Agencies (NEAs) and Research Centres on Air Quality forecasting
- To guide, streamline and provide clear objectives to WG-Env activities in AQ forecasting => **Positioning** with respect to other players.
- Serving as Reference document for the EUMETNET Council and NMSs (National Meteorological Services) (+ EEA)

Scope: General strategy for establishing a comprehensive, coordinated and overarching System of European Air Quality Forecasting and Information Systems.

- Main principle: a system of systems
- To be edited as the networking will evolve and activities will concretise.

Recent EUMETNET Council tasked the WG-Env to work in close cooperation with existing activities such as GEMS, in order to develop the strategy and organise the contribution of NMSs and EUMETNET to AQ forecasting.

Strategic Plan towards an ENAQFIS

- Existing activities: GEMS, PROMOTE, EIONET,...: development and evaluation of the real-time AQ products, forecasting experience, methodologies and tools
  - strong and focused efforts building the blocks of the system
  - but, limited number of partners, sometimes limited time frame (project)
- Needs: a complementary forum that
  - promotes the contacts and discussion between **all** players in the area, first of all, NEAs and NMSs, as well as EEA, EUMETNET, etc.
  - supports the above focused activities, and helps to shape-up the network
- A possibility: ***COST-AQFIS Action*** to specify the envisaged system: formalise dialogue, assess situation and needs, lay the coordination basis for data exchange
  - Why COST? Suitably neutral to involve all actors, + flexible forum able to lever other needed activities
  - Comparatively weak and not well-structured but it may serve as a good complementary activity for focused actions and projects
  - Status: the action proposal has been submitted to COST TC, got generally positive feedback and a list of comments, to be taken into account by the next TC meeting in March 2006 (proposal re-evaluation is then expected)
- In parallel, complement GEMS and PROMOTE results with specific aspects and issues through relevant ***FP7-project(s)*** + GEMS follow-up (fast-track, pilot services) + EUMETSAT Satellite Application Facilities (SAFs) + (ECMWF Prediction Application Facilities PAFs).
-

Main groups of topics to be covered
WG1: Input Data and data exchange
WG2: AQ Forecasting, multi-model approach, boundary data
WG3: Visualisation & Dissemination

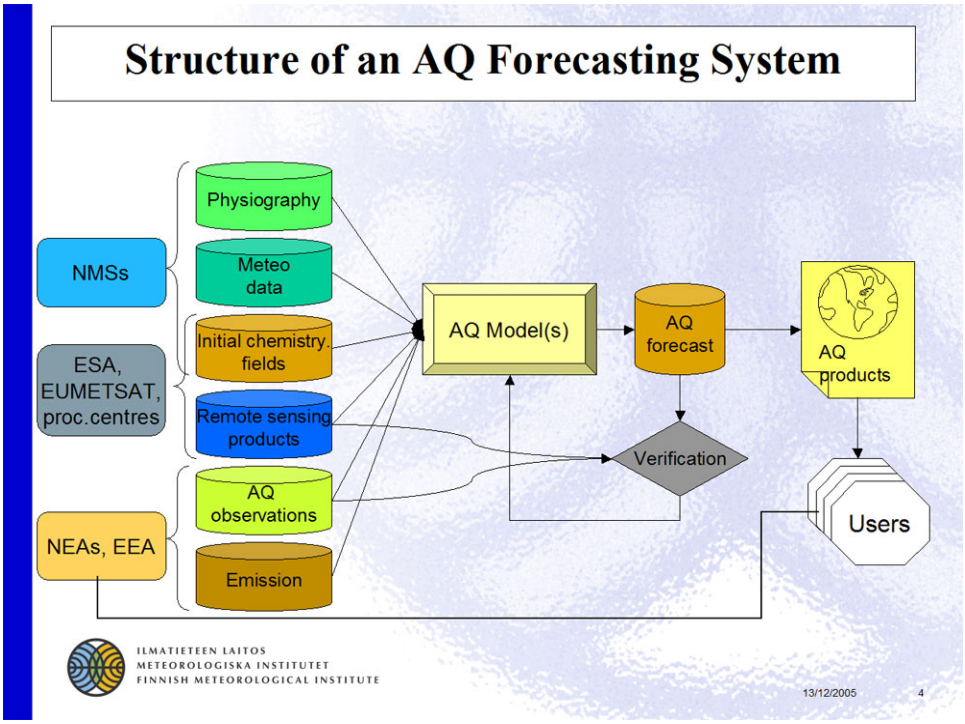
Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/16_MSofiev_ENAQFIS_EIONET_AQ_051017.pps

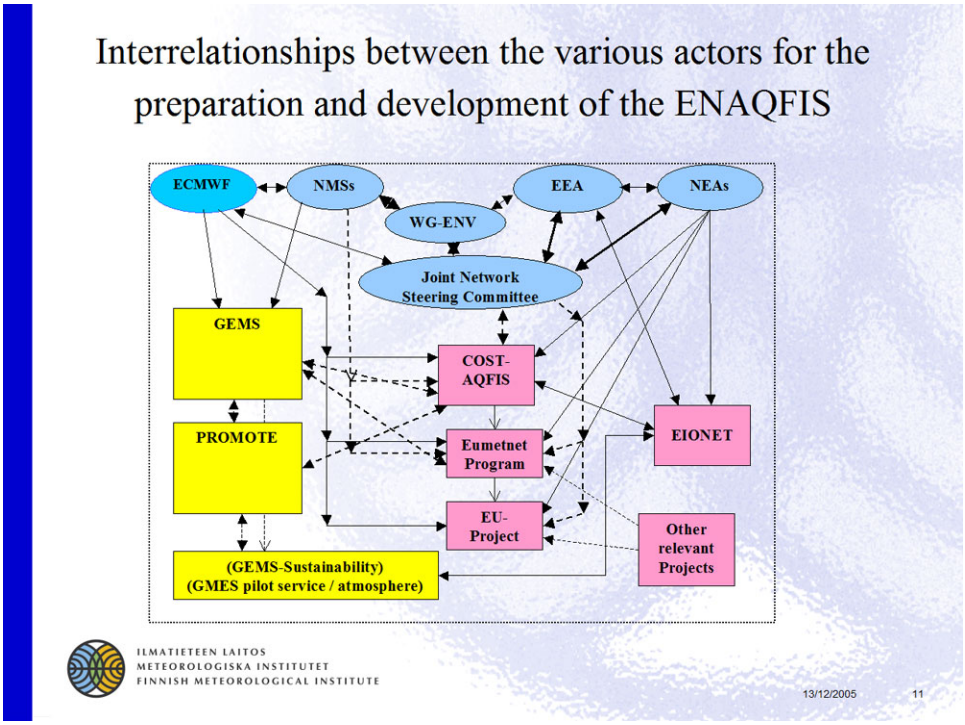
Discussion
Q.: How fits this into the processes on a hemispheric scale?
A.: This project focus more on the regional scale, GEMS more on the global scale. The local scale is not well represented in the project, to improve this is one of the challenges of the project.

Comment: The role of the national environment agencies needs to be better reflected in the proposal. The main mandate of the EEA is to disseminate environmental information, so its role in the project should be more than only coordinating.

Q.: The objective is to develop a system of systems. Does that imply that on the long term there will be one centre for air quality forecasting?
A.: Looking at all the different scales, I do not think that that will be possible. At the global scale there might be one centre but the variability of conditions at the local scale will require the application of dedicated models by local meteorological or environmental agencies.

Q.: Is there a web site where we can follow the progress of this project?
A.: Information is available from the EUMETNET website (http://www.eumetnet.eu.org/) ; The COST action will prepare a web site when the project starts.





Global Earth-system Monitoring using satellite and in-situ data: The GEMS project

Tony Hollingsworth, ECMWF

GEMS (Global and regional Earth-system Monitoring using Satellite and in-situ data) is an European Union funded Integrated Project (IP) within the Sixth Framework Programme. The project will create a new European system for operational global monitoring of atmospheric chemistry and dynamics and an operational system to produce improved medium-range and short-range air-chemistry forecasts, through much improved exploitation of satellite data.

The GEMS consortium comprises more than ten leading research labs with capabilities and models on all aspects of atmospheric chemistry, ECMWF with global operational weather capabilities, three environmental agencies, and ten regional centres, most with operational responsibilities for regional air-quality forecasting,

The research teams and ECMWF will develop a global operational medium-range forecast / assimilation capability for dynamics and composition, exploiting all available satellite data.

The integrated forecast / assimilation capability will provide a powerful monitoring capability for greenhouse gases, reactive gases and aerosols. Sophisticated new inversion methods will be developed to infer surface fluxes of CO2 and other species through use of the surface flask data with the girded atmospheric fields on transport and composition. The GEMS project will produce global retrospective analyses of the atmospheric dynamics and composition for the troposphere and stratosphere, and will be able to assess the impact of changes both on global and regional scale, examining extremes as well as means.

The global forecasts will provide key information on long-range transport of air pollutants to the regional forecast models, through the forecast boundary conditions used by the regional systems. The improved regional forecasts will be used by air-quality authorities at city level, in dozens of cities across Europe.

The real-time and retrospective GEMS data products will provide valuable new analysis and forecast products for regional and local users, and for the GMES Service Element. The powerful monitoring capabilities will serve policy users in the area of treaty validation (Kyoto, Montreal, CLRTAP) and science users.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/17_THollingsworth_GEMS_EIONET_AQ_051017.pps

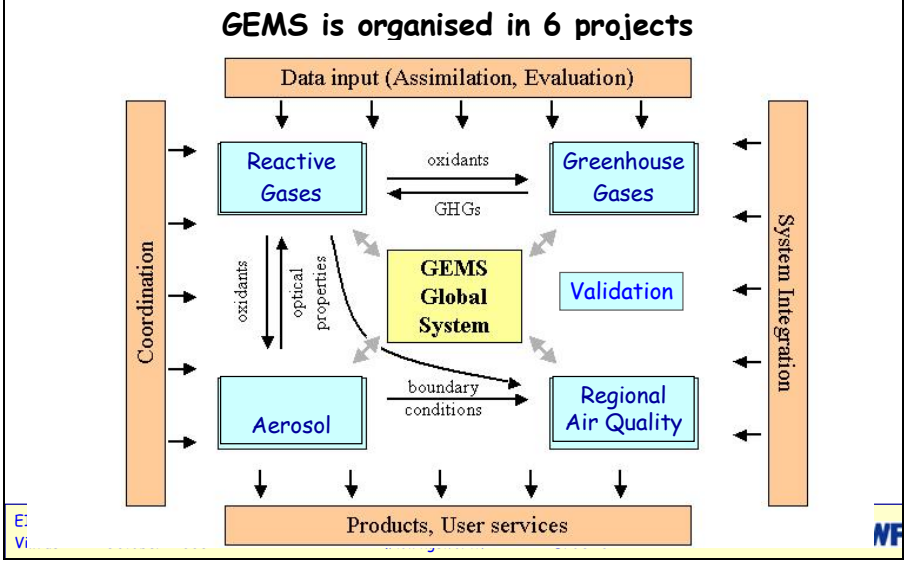
For further information see:
http://www.ecmwf.int/research/EU_projects/GEMS/index.html

Schedule of GEMS work at ECMWF

Year 1 May 2005+12mo	· Build and validate 3 separate assimilation systems for Greenhouse gases, Reactive gases, Aerosol. · Acquire data; build web-site
Year 2 May 2006+12mo	· Produce 3 different reanalyses for GHG, GRG, Aerosol · Make reanalyses available for validation by all partners · Provide feedback to data providers
Year 2-2.5 May 2007 +6mo	· Merge the 3 assimilation systems into a unified system; · Upgrade the models and algorithms based on experience
Year 2.5-3.5 Nov 2007+12mo	· Build operational system, & interfaces to partners · Produce unified reanalyses for GHG, GRG, Aerosol
Year 3.5 - 4 Nov 2008+ 6mo	· Final pre-operational trials · Documentation & Scientific papers

EIONET Workshop, Vilnius October 2005 — GEMS; www.ecmwf.int/research/EU_projects/GEMS — A.Hollingsworth — Slide 18 — ECMWF

GEMS organisation



The EEA 'In your Neighbourhood' project.

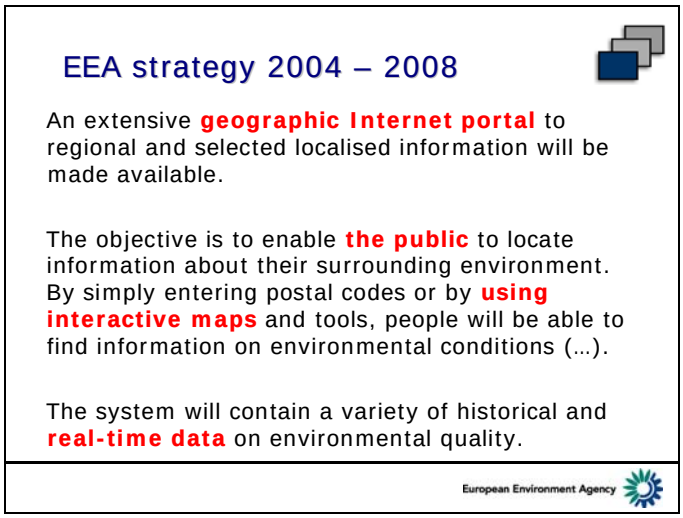
Tim Haigh (EEA)

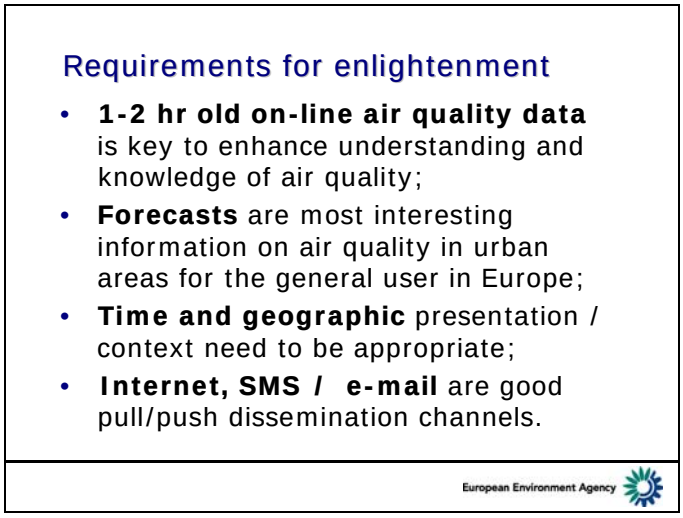
The purpose of the near real-time project is to build a public website based around ozone data and air quality information within the EEA's spatial data infrastructure. The website will be published within the EEA main site and will offering a web service linking back to data providers. The website will be designed to be further extended to include other air quality parameters, other languages and make links to health impacts.

The purpose of Ozoneweb is to inform about ground level ozone in Europe for current and recent situations on an hourly basis as well as to provide background information on specific pollutants. Ozoneweb is planned to be ready for summer 2006.

Through links with national and regional ozone websites, the website will give easy access to more local information.

Ozoneweb will be designed in such manner that it will both serve the needs of the general public and air pollution experts. For the broad public, the website will display measured ozone levels in a map interface and provide background information on ozone and its health impact. For air quality experts, the website will provide functionalities for accessing and downloading ozone data. The data will be available through maps, graphs and tables. Map viewers will be provided as a web service for data suppliers for use in their own websites.





Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/17_THollingsworth_GEMS_EIONET_AQ_051017.pps

Discussion

Q.: Will the air quality data be available for other users such as GEMS?
A.: In principle there are no objections to provide the data to other users, however, permission from the data providers (and data owners) will be needed.

Interpolation of real-time ozone measurements in Europe - Results of a feasibility exercise for the Neighbourhood project

Bill Oates (Atkins)

Under the EEA's neighbourhood project, the communication of air pollution information has been identified as a priority area for action. Building on the existing Ozoneweb system, the overall objective is to convey, in real-time, the concentration levels of key pollutants to citizens across the entire EU. A significant consideration in the system is the use of an interpolated concentration map: the objective being that the user can identify the likely concentration value not just in the vicinity of a monitoring station, but also at distances from the monitoring station.

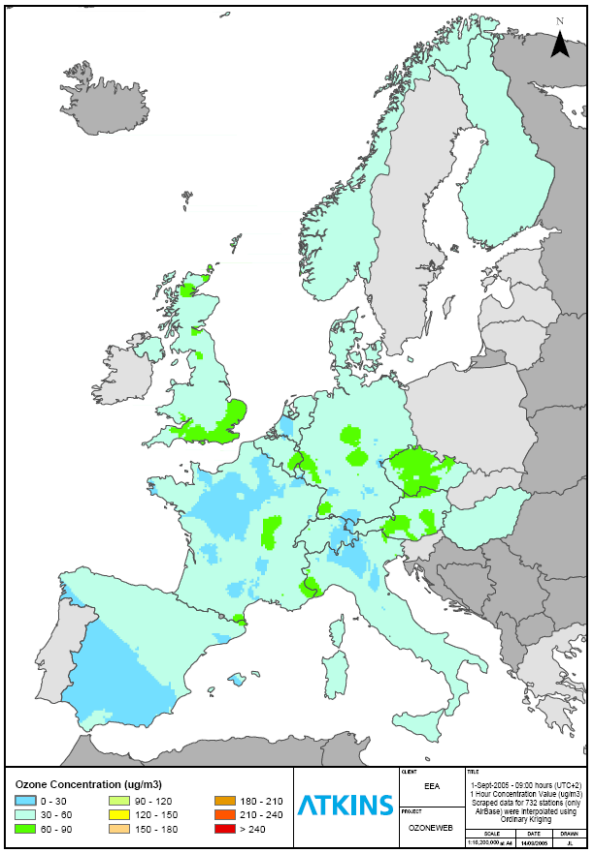
Focussing specifically on Ozone, this preparation study tests how such an interpolated map could be produced within the neighbourhood project IT platform, how many results would be needed for realistic interpolation, and what levels of accuracy could be expected.

Phase 1: Testing with historic data

Ozone data for two 24-hour periods was obtained from AIRBASE: 12th August 2003 (a day experiencing high concentration); and 1st April 2003 (a contrasting, lower concentration day). Concentration values from 14h00 and 02h00 from these days were used to investigate the:

- most appropriate interpolation method;
- optimal station-types;
- impact of using different station densities;
- resolution in the output results;

The results were tested by obtaining from each test the Root Mean Square Error (RMSE) value, using both jack-knife tests (where one station is excluded at a time, and tested against the remainder) and by random selection of approximately 10% of the values to exclude from the interpolation and to use as a test dataset.



Nearest Neighbour techniques produced the lowest accuracy results (best RMSE value = 45 µg/m3), kriging methods the highest accuracy (best RMSE = 16.3 µg/m3). However, the trends in all the other parameters – density and type of site used was completely masked by the variation exhibited between the different hours of the day.

Phase 2: Testing with real-time data

The objectives of this phase of the work were to explore:

- real-time data availability;
- how this data would look when presented as an interpolated map
- how this could be achieved using the technology platform selected for Neighbourhood project;
- what accuracy results can be expected

The required data was obtained by "scraping" real-time hourly ozone concentration data from national and regional websites. Three days were tested: 14th July, 2nd August and 1st September 2005. In total, usable real-time data from 985 stations, representing 14 countries were incorporated into the results.

Based on the earlier work, kriging was selected as the most appropriate interpolation method. The variability of the values and patterns of observed concentration proved too great to allow selection of any single (or set of) semivariogram(s). Accordingly the kriging was undertaken by allowing the software (ArcGIS Spatial Analyst) to self-optimise the majority of the parameters. The parameters that were hard-coded were:

- ordinary kriging with a spherical semivariogram
- variable search radius with 12 points and no maximum search distance
- lag size of 50,000m

For all interpolations, a 10km grid size was utilised.

For the 1st September results, the interpolation was restricted to AIRBASE stations. This allowed the accuracy tests to use the station type and station area parameters to create different sets of test datasets. The tests were designed to reveal what bearing the type of station used for interpolation has on the overall accuracy figures. In all cases only background sites were used – i.e. roadside and industry sites were excluded. 10 hours of data was tested: 08h00 to 18h00 and the interpolation conducted using all sites, rural and rural plus suburban. In each case, the test datasets included all types of sites, rural, suburban and urban. To summarise the accuracy, the average of the RMSE values was obtained for each combination.

Interp. Sites	*Test Sites*			
	All	Rural	Sub.	Urban
All	16.3	16.4	17.1	16.5
Rural	-	15.7	20.5	23.0
Rural/ Sub.	-	18.3	17.6	16.0

Table : Average RMSE values (µg/m³), 08h00 – 18h00, 1/9/2005. Sub. = Suburban

The least accurate results are the urban sites tested when the interpolation is conducted only with the rural sites. This can be mitigated for by including suburban sites in additional to the rural sites. This does however slightly decrease the accuracy for the rural sites themselves. A similar pattern emerges from the maximum residual values. In this case it is the sum of the maximum residuals across all 10 hours.

Conclusion

The study has proven that interpolation of real-time Ozone concentration data, even from a relatively small number of monitoring stations, is feasible. Results of

acceptable accuracy can readily be generated using the standard interpolation techniques found within the ESRI software selected for the neighbourhood project.

Links to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/19_BOates_Real-timeO3_interpol_Europe_EIONET_AQ_051017.pps

http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/19_BOates_O3animations/ozoneanimations.htm

Discussion
Q.: Why did you use a 50 km resolution; in this way only the regional impact can be seen.
A.: In next stages we will try to improve the resolution.
A.: In the In Your Neighbourhood project no definitions of scales is made; the scale is depending on what you are aiming at.

Q.: Ozone, being a secondary pollutant, is relatively easy to interpolate. For other pollutants (like noise) a higher resolution is needed. There will be not enough monitoring information for interpolation and the combination with other techniques like modelling will be needed.
A.: Yes.

Spatial AQ analysis and assessment in Europe - methodologies
Jan Horalek (ETC/ACC)

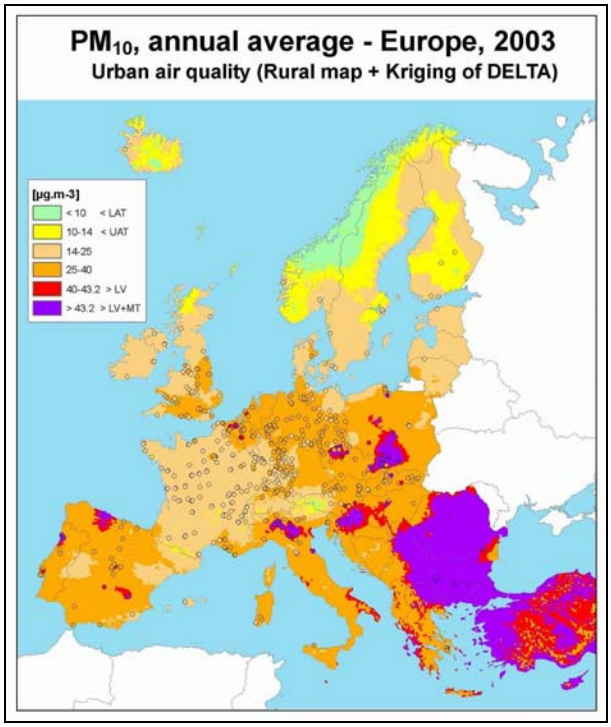
Among the activities of Task 1.4.1.2 "Technical paper spatial air quality information" as described in the ETC/ACC's Implementation plan for 2005, emphasis is on the development of interpolation methodologies for O_3 and PM_{10}, as well as on the preparation of high resolution air quality maps. Air quality data selected from AIRBASE for the years 2000-2003 has been interpolated by combining it with different sources of supplementary data available for the whole of Europe. The project focused on the mapping of health- and vegetation related ozone parameters (SOMO00, SOMO35, AOT40), and on PM_{10} parameters (annual average, max 36th daily value), The urban and rural air quality was dealt with separately; the final maps were created by merging the rural and the urban maps.

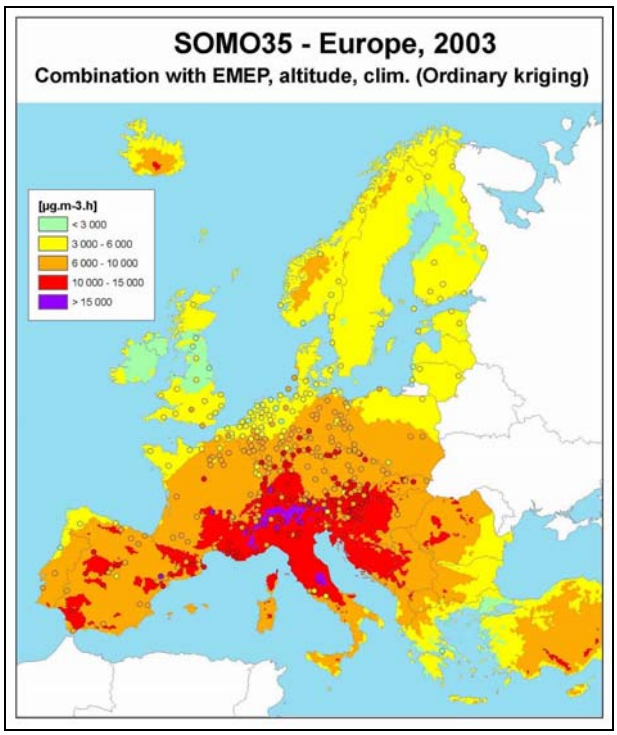
Several mapping technologies were compared:
- interpolation of measured air quality data only (inversed distance weighting (IDW), different types of kriging),
- the combination of measured air quality data with the results of a dispersion model and
- the combination of measured air quality data with different supplementary data, such as climatological parameters, station altitude, population density)

In order to find out which supplementary data are the best to use, the relations of concentrations with supplementary data were examined. Significant relations were found both for rural ozone and PM_{10} pollution with the results of the EMEP model, altitude and sunshine; for ozone also a significant relation with relative humidity was observed. These relations were utilized in the mapping technology.

For all the years, pollutants and examined parameters rural maps have been by several methodologies. The quality of these maps was compared using cross-validation and RMSE. The best results are given by the combination of measurement data with EMEP model results, altitude and sunshine. The other findings are that the kriging gives better results than IDW and that the use of logarithmic transformation gives more precise results for PM_{10}.

Special attention was given to mapping of urban air quality, especially for those urban agglomerations for which no measurements are available. Several possibilities have been considered. The best option turned out to be by using so-called Deltas, i.e. the differences between the urban and the rural background air pollution. These values are interpolated across the border of the cities. Thus, the map of European urban air quality is obtained. Finally, the rural and the urban maps are merged together with the help of population density map.





The final maps will be further used to estimate potential exposure of "stock at risk": the maps of AOT40 will be used by the combination with land cover data in order to provide information on the ozone exposure of crops. The final maps of O_3 and PM_{10}

can be used by the combination with the population density for estimation on the ”population at risk”.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/20_JHoralek_SpatialAQanalysis_EIONET_AQ_051017.pps

Discussion

Q.: What is the reason to map SOMO35 concentrations in stead of ozone exceedances?
A.: When looking at health impacts, SOMO35 is a better descriptor than the number of exceedances.

Q.: Mapping of air quality in the most eastern parts is questionable due to the lack of monitoring data.
A.: That is correct, In the final maps we will exclude those areas where the number of stations is low.

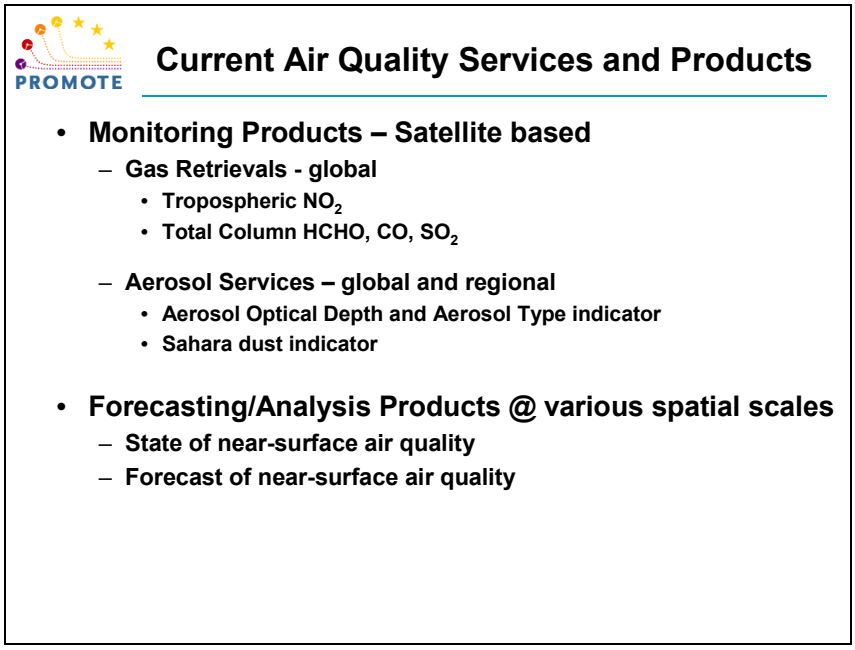
Provision of daily operational spatial air quality data from the ESA Project: PROMOTE

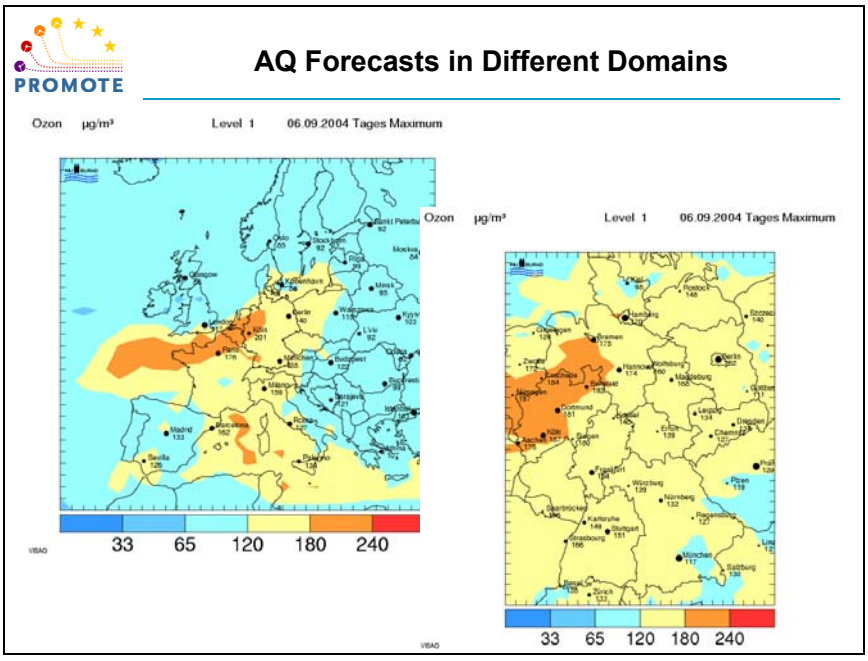
Eleni Paliouras

The PROMOTE project aims to deliver the atmosphere GMES service element by constructing and delivering a sustainable and reliable operational service to support informed decisions on atmospheric policy issues. The four themes covered, based on user requirements and maturity of satellite and ground-based observations, are stratospheric ozone, surface UV radiation, air quality and greenhouse gases and aerosols.

In this presentation the PROMOTE Air Quality (AQ) service, which covers both monitoring and forecasting, is described. The monitoring portion of the service is based on retrieval of information on gas concentrations (e.g., tropospheric nitrogen dioxide, sulphur dioxide, formaldehyde) and aerosol properties from satellite data, and surface level AQ state resulting from chemical transport models. The PROMOTE air quality forecasting services are based on nested models providing information on scales ranging from global and regional to local and city.

One important aspect of the project, and all GMES Service Elements, is the involvement of Core Users. Within the PROMOTE consortium are representatives of international, national, and regional governmental and non-governmental organizations.
More information is available at: www.gse-promote.org.





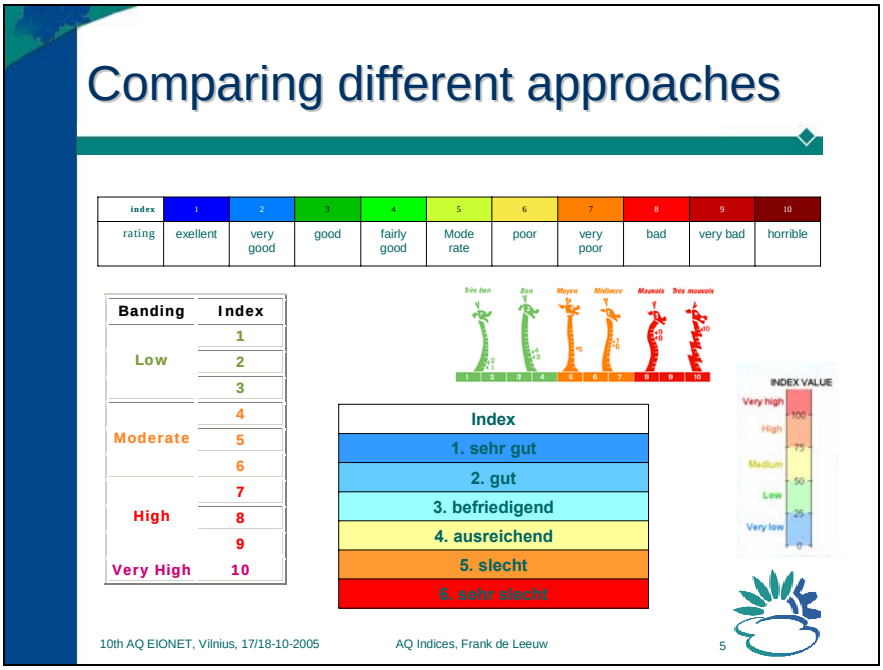
Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/21_EPaliouras_PROMOTE_EIONET_AQ_051017.pps

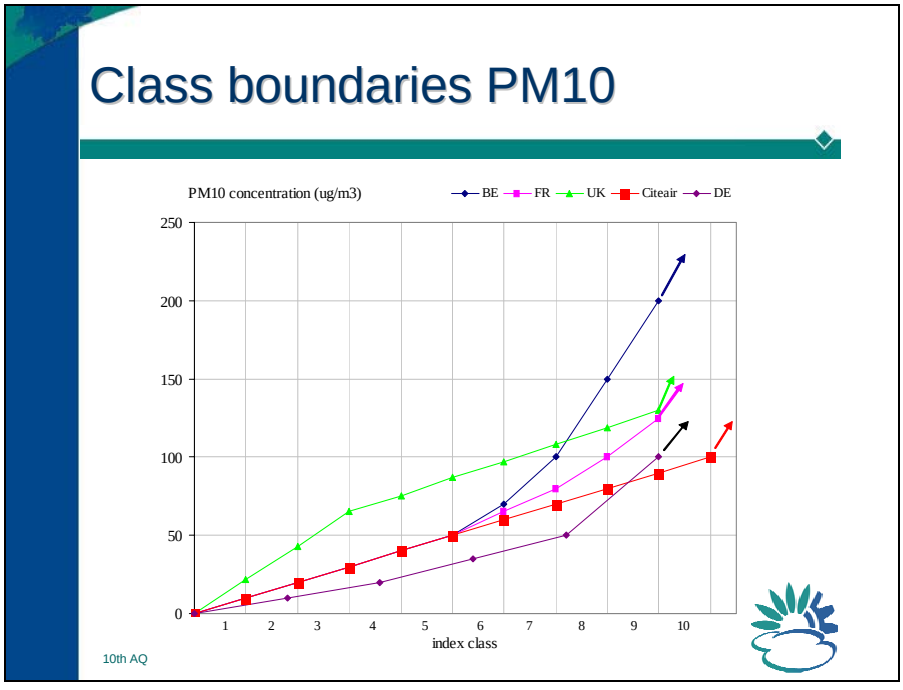
European AQ indices: similarities and discrepancies

Frank de Leeuw (ETC/ACC))

The Air Quality Index (AQI) is a widely used concept to communicate with the public on air quality. A growing number of national and local environment agencies use the AQI for (near) real-time dissemination of air quality information. A survey of five different AQI operational in four countries showed a common concept behind the AQI but a strongly different practical implementation. Using actual concentration

data from 10 stations over Europe, it is shown that, although there is a reasonable correlation between the five AQIs, both the classification of the air pollution situation as well as the determining pollutant is different in the various AQI.
The EEA is extending the current OzoneWeb towards a more full grown exchange platform of (near real-time) air pollution information. It has been suggested to present the information by means of an AQI. Doing this both at the European and at the local level by using different AQI approaches, this might result in conflicting or, at least, confusing messages to the public. Harmonisation of AQI will be needed.
The report is available at:
http://air-climate.eionet.eu.int/reports/ETCACC_TechnPaper_2005_5_AQ_Indices.





Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/22_FdLeeuw_AQI_EIONET_AQ_051017.pps

Discussion

Q.: The use of an Air Quality index has been extensively discussed with German Länder. No consensus has been reached and therefore there is no "German AQI"
A.: Correct, the index discussed is not a national index but it is in use in Niedersachsen.
Comment: The situation in Austria is similar. There no common index at the federal level.
Comment: in Belgium different indices are in use in the three regions.

Contributions from Member Countries

PREVAIR – an operational AQ forecasting system

Joelle Colosio (Ademe)

The French Ministry for Ecology and Sustainable Development (MEDD) coordinates the PREV'AIR project (http://www.prevair.org). Under the aegis of MEDD, INERIS, CNRS, ADEME, and Météo France are developing and implementing technologies required to compile relevant information on air quality, published everyday on the Internet and filed in a database.

In addition to its aim of informing the public, anticipating atmospheric pollution events and preparing the affected population, its main objective is to develop national expertise in the field of atmospheric pollution and to actively participate in drawing up effective, relevant control policies.

The PREV'AIR system was implemented in 2003 and generate three types of information:

1. Forecasts: maps that represent average concentrations and maximum daily figures of each of these pollutants are drawn up every morning for the same day, the following day and the day after that, on different spatial scales.
2. Near Real Time maps: a national map is published everyday showing the NRT measurements carried out in France by the AASQA[2] and compiled by ADEME. This map, updated every hour, shows hourly maximum concentrations, as well as observed daily mean concentrations.
3. "Analysed" ozone maps: ozone simulations in Europe and France are subsequently readjusted in accordance with observation data available from bodies responsible for air quality monitoring. Therefore, a map is published everyday in the early afternoon, derived from a simulation and corrected with the ozone levels observed in the late morning. This map is then updated once again at the end of the afternoon (usually more often in the event of a pollution incident) in order to include the maximum number of observations and thus improve the reliability of the cartographic representation.

The air quality forecasts and maps published every day are the result of numerical simulations conducted with the help of chemistry-transport models that allow the calculation of the evolution of photochemical pollution in the lower layer of the atmosphere on different spatial scales (global, European and France).

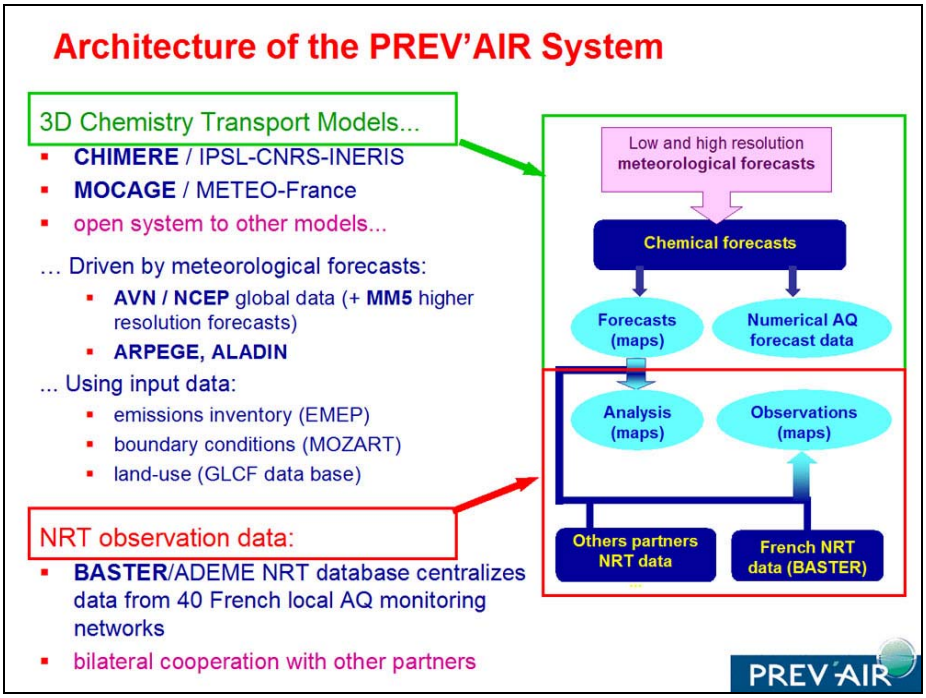
These are deterministic three-dimensional models: the evolution of pollutant concentrations over time is linked to physical-chemical processes, represented (or

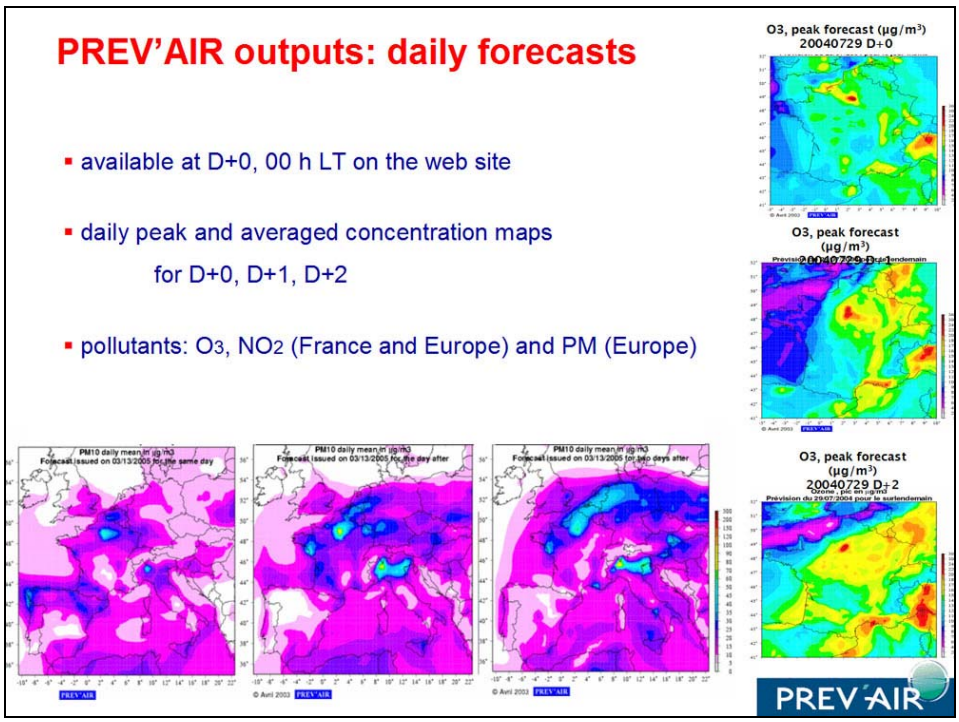
[2] Air Quality Monitoring networks

"modelled") by mathematical equations resolved numerically at each node of a three-dimensional grid that covers the lower layer of the atmosphere above the area being studied. The spatial resolution varies in accordance with the geographical extension of the area:

- Simulations on a global scale are carried out with a resolution of 4° x 4°,
- Simulations on a European scale are carried out with a resolution of 0.5° x 0.5°,
- Simulations over France are conducted with a resolution of 0.15° x 0.1°.

A certain amount of input data, specifically meteorological and pollutant-emission data must be entered into the PREV'AIR system in order to calculate pollutant production or loss flows linked to these physical-chemical processes.





PREV'AIR is the result of cooperation between several partners:

- INERIS[3] is responsible for drawing up, publishing, providing and filing daily air quality forecasts. ADEME[4] is in charge of gathering the measurements published by AASQA into the BASTER near real-time (NRT) database, transferring the measurements to maps and making all these data available to the PREV'AIR system.
- The Pierre-Simon Laplace Institute (CNRS) is in charge of developing, validating and updating the CHIMERE chemistry-transport model.
- Météo France provides the weather forecasts required for the system to run correctly, develops the MOCAGE chemistry-transport model and provides its operational implementation for the needs of PREV'AIR

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/23_JColosio_FR_PREVAIR_EIONET_AQ_051017.pps

Air Quality Transfer in Germany

Wolfgang Bräuniger (UBA-Berlin)

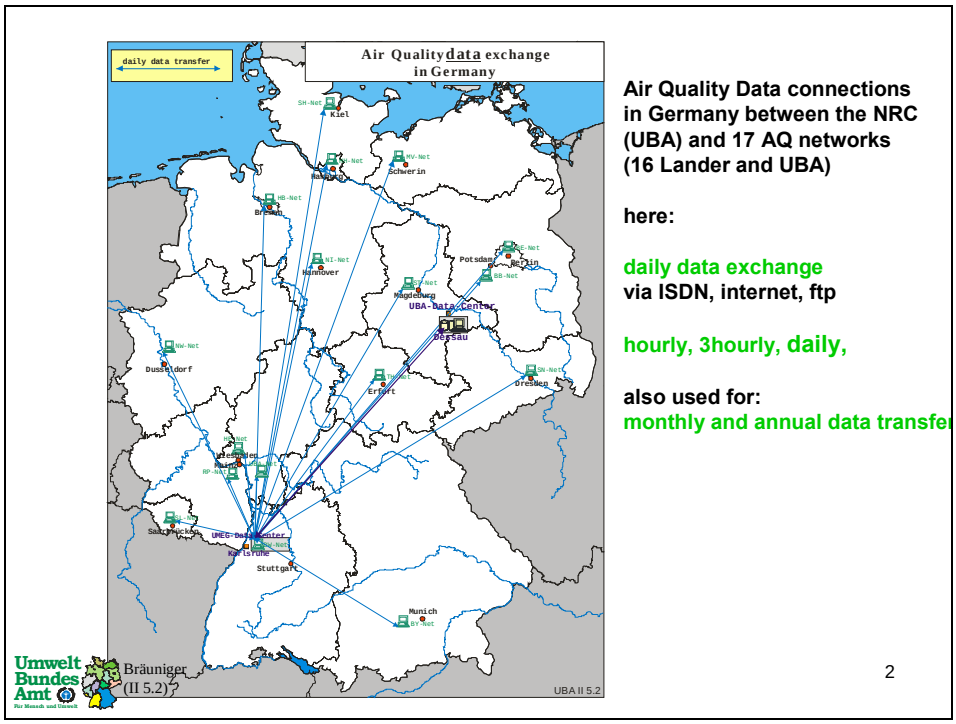
Because of the German federal system, the German network consists of 16 networks (Bundesländer) plus the Umwelt-bundesamt (UBA) network as rural background network. Each of the 16 Bundesländer is responsible for the Air Quality (AQ) data of their own territory. Still there is a demand (public, German- and EU-laws) on AQ information for the entire German territory. To fulfil this obligation we installed in 1996 in cooperation with Lander authorities, a new AQ data exchange. For technical reasons, the data centre to collect and disseminate the raw AQ data (later also annual data) was installed at the network UMEG in Baden-Wurttemberg. The UBA as federal agency has the task to calculate, with all collected AQ data, maps and exceedances for the actual AQ situation in Germany. Parallel to this we implemented an ozone forecast system, based on the same collected data. First, all data were transmitted via ISDN and later via internet. This system can manage the daily and annual data exchange. Currently it is used for hourly (Near Real Time), daily, monthly and annual data.

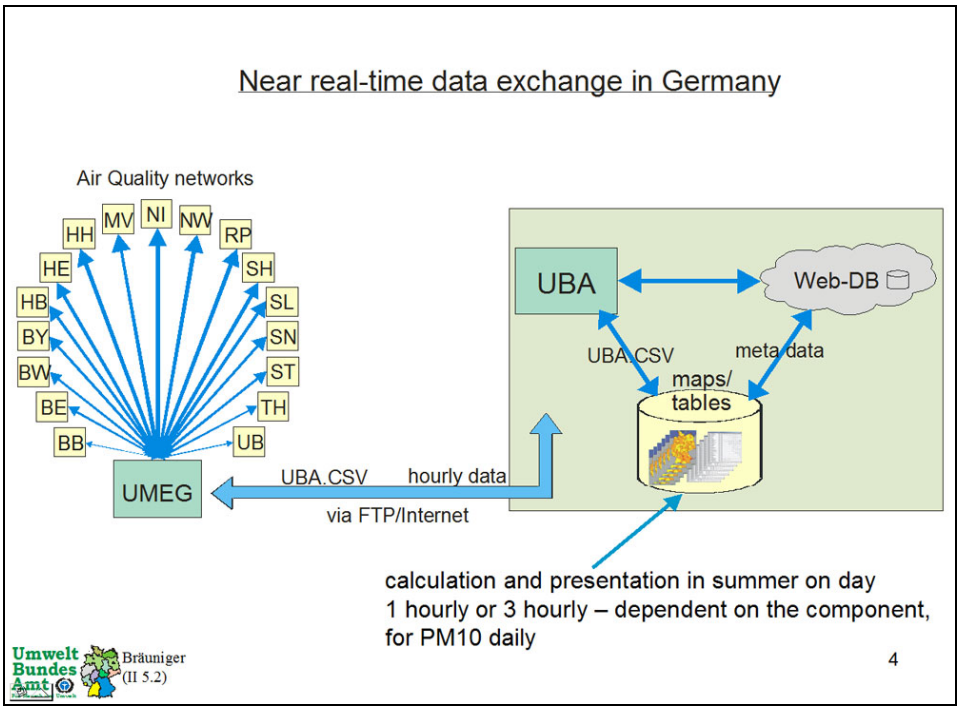
The presentation[5] consists of 3 parts:

1. daily data exchange
2. meta data exchange
3. description of the data exchange format

Slide 2 shows the geographically dissemination of the 17 AQ data centres with the main data centres UMEG and UBA. This map shows the way of the AQ data from the sub centres (16 Länder+UBA-network) to the UMEG and the way of all collected data from the UMEG to the UBA headquarters. This system is working with half hourly data in hourly time scale in summer (NRT). Slide 3 shows the meta data exchange via WEB-DB between the Lander and UBA. For this meta data exchange the networks as data supplier need only a WEB-Access to fill the meta DB (input only by password for each network). All meta information is readable for the public. Via download button for the public a meta data file with a selection of the major meta parameter can be downloaded (brand -new). Slide 4 shows the data streams in overview.

[3] French National Institute for Industrial Environment and Risks
[4] Agency for the Environment and Energy Management
[5] see http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/24_WBrauniger_DE_UBA-exchange_EIONET_AQ_051017.pps





Slide 5 describes the contents of the raw data format. All data files (hourly, daily, monthly, yearly) are based on a simple text/ASCII format with the extension '.CSV'. CSV means Comma Separated Values, but in our case we use a ';'(semicolon) for data separation. The advantage is that it is readable from any editor, word processor and any computer system. The internal parameters like rows, columns, number of signs and information for the file format were arranged and confirmed in 1996 and are still used today (about 10 years). During this time the format has never changed, it was only extended for new components (e.g. PM2.5, PM1). Slide 6 and 7 shows the NRT data access via WEB with password as a hierarchic file system (arranged by time).

Slide 6 shows an overview of the German data transfer and slide 7 shows the real layout image. Because of the temporary state of the unvalidated raw data we prefer an access via password to ensure that this data will only be used for temporary purposes.

Our goal is: AQ data that we have anybody can have too, but this transfer should be possible without additional resources.

The next slides 8-13 are showing the variety of the use of different data aggregation (half hour, 1hour, daily). It is not shown here that we use the same file format also for the monthly and annual data transfer. The structure is always the same. Each row contains data from 1 day plus 3 other parameter (for identification). The first 3 columns contain the station code (shown EoI-Guidance report), component name and date. The next 48 columns contain the values. Are there 1hour, 3hour, 8hour or daily values delivered, the gaps between will be filled with the special missing value '-111'. For normal missing value we use '-999'. The slide 8 and 9 (example 1) shows the near real-time data exchange for half hour values. For example on 11.10.2005 the data file delivered in the morning contains data from 0.30 to 7.00. The rest of the column fields are filled up with '-111'. Every 1hour/3hour (depends on the summer or winter season) the columns will be filled up with the next values and replace the '-111'. The example 2 (slide 10 and 11) shows the same structure for 1 hour values. Every second column is a 1hour value and the gaps between this value will be filled up with '-111'. The example 3 shows the same procedure as before with daily values.

The file format for the German NRT data exchange is also used for the monthly and annual data transfer. The only difference between NRT and annual data exchange is, for hourly data the stations are mixed in the data file, arranged by the time of data delivery.

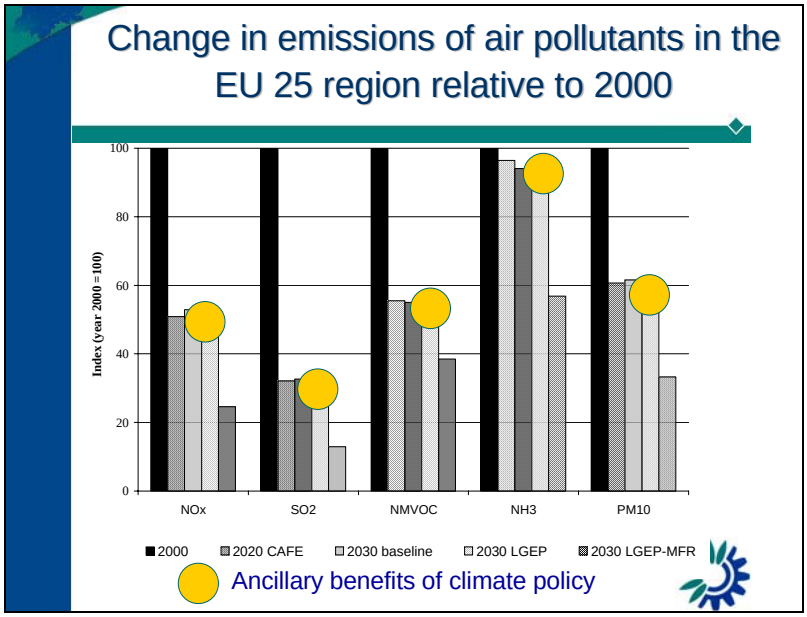
Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/24_WBraunieger_DE_UBA-exchange_EIONET_AQ_051017.pps

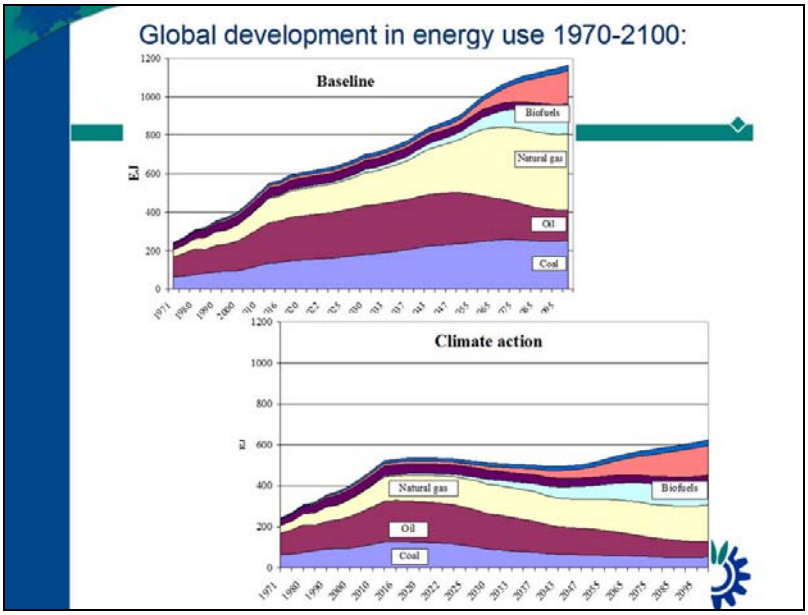
SESSION 2B: UPDATE ON EEA AND ETC/ACC ASSESSMENT OUTPUTS

State of the Environment and Outlook (SoEOR) 2005 reports

Rob Swart (ETC/ACC)

ETC/ACC is contributing to the 2005 State-of-the-Environment and Outlook Report series in various ways. The main contribution so far was through the scenario analysis and the drafting of the report "Climate Change and a European low-carbon energy system" (http://reports.eea.eu.int/eea_report_2005_1/en/Climate_change-FINAL-web.pdf) and contributing air and climate change analyses to the "European Environmental Outlook" (http://reports.eea.eu.int/eea_report_2005_4/en/outlook_web.pdf). Currently some additional analysis takes place to be worked into a third special SoEOR report on (ancillary benefits of climate policy for) air quality. A reference scenario based on CAFE is compared with a climate action scenario and various variants (low economic growth, high/low nuclear variants, renewables variant). The Climate Action scenario assumes GHG emissions to be reduced by 15-30 [main case 20] % below 1990 levels by 2020 and 60-80 [main case 65] % by 2050. The analyses suggest that 40 % of the reductions could be achieved cost-effectively by actions outside the EU and that no fundamental transition in Europe's energy system is needed. The domestic actions have significant ancillary benefits for air quality, but to meet AQ objectives, (additional) air pollution policies remain necessary.





Air pollutant land-abatement cost;
baseline compared to Climate action

EU 25 — costs in billion €/year

Pollutant	2000	2020	2030		
		CLE	baseline	Climate action	Climate action-MFR
SO2	11,4	12,9	16,0	12	15
NOx	2	2,4	3,1	2	7,9
VOC	0,4	1,7	1,8	1,8	4
NH3	2	2,2	2,2	2,1	17,6
PM 10	6,4	6,5	7,4	5,5	17,6
Mobile	7,7	40,2	50,5	47,7	61,4
Total	30	66	81	71	123

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/25_RSwart_SoEOR2005_EIONET_AQ_051017.pps

From the 'Air Pollution 2006 report' (2003 data): Development in PM10 and NO2 emissions and concentrations – Europe and country-wise

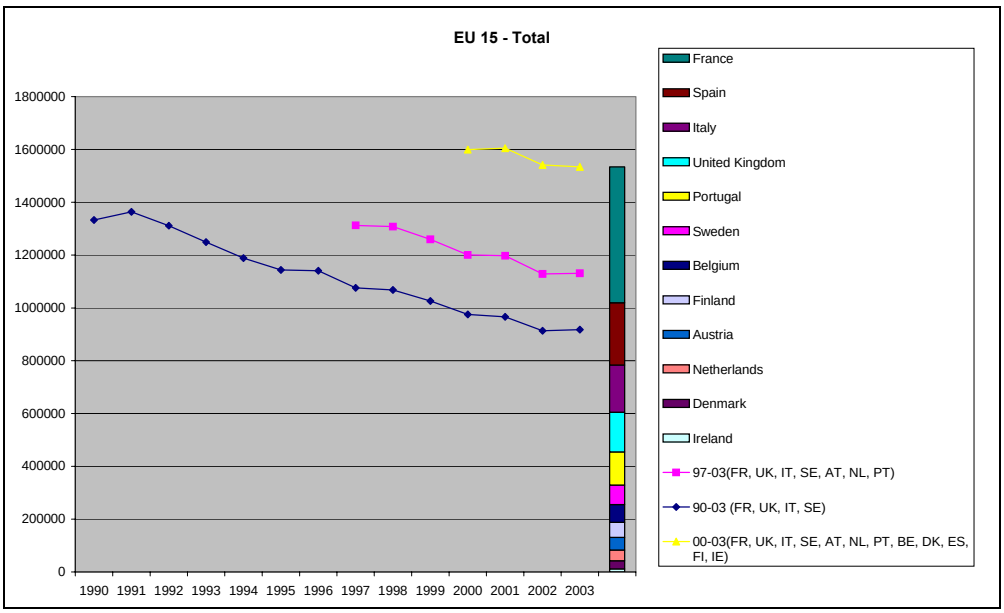
Steinar Larssen (ETC/ACC)

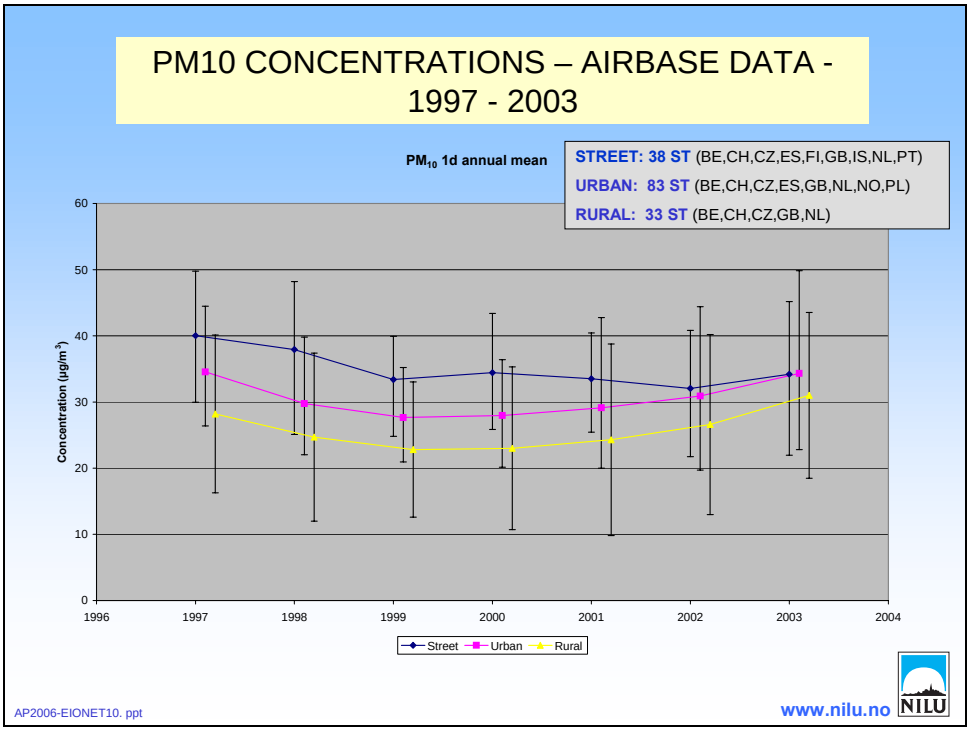
The developments in emissions of PM10 and NOx has been compared with the developments in concentrations, for Europe and for some example countries. The period looked at is 1996-2003.

The development in PM10 concentrations in Europe has been reducing concentrations towards 1999-2000, and increasing concentrations since then, for many countries. This tendency is steered by the rural concentrations, which have been increasing since 2000 in central-eastern areas in Europe, as well as in Sweden. In western and north-western areas, rural concentrations have been constant or decreasing since 2000, and this shows up in the data for e.g. Belgium, France, UK (and also for Spain). At the same time, the reported PM10 emissions in Europe are decreasing in most countries, except in Austria and Sweden, were a slight increase in emissions are reported since 2000. This seeming discrepancy between concentrations and emission developments in some areas in Europe was pointed out. Further work on the Air Pollution 2006 Report will look closer into this situation, and especially study the possible effects of the meteorological variability between years on the rural PM10 concentrations.

For NO2, there is fair agreement between concentration trends and trends in NOx emissions.

Figure: PM10 emissions for groups of EU15 countries, 1990-2003, various periods:





Link to presentation:
http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/26_SLarssen_AP2006_Rep_EIONET_AQ_051017.pps

Discussion

Q/A: The issue of countries not necessarily reporting all sector emissions was raised, as well as whether they report suspension emissions connected to road traffic. This is a relevant point, when comparing between countries. Detailed information about this is available for all countries in the emission data base, and will be accounted for in the report.
Q: Is there a seeming decoupling between emissions and concentrations, for PM_{10}?
A: At this stage the increased concentrations since 1999-2000 cannot be explained by the reported trends in emissions. The effect of meteorological variability between years will now be looked into.

The 'Street emissions ceiling' (SEC) project. Final results

Jaroslav Fiala (EEA)

Traffic-related air pollution is one of the most pressing problems in urban areas. Evidence of the adverse health effects of fine particulate matter is continuously emerging. Most of the traffic-related emissions are in the fine particulates range (<PM2.5). Human exposure to increased pollutant concentrations in densely populated urban areas is high. Limit values of NO_2, PM_{10} currently frequently exceeded namely at urban/traffic hotspots.

This study analyses the increased air pollution levels at traffic hotspot areas in 20 European cities, compared to the urban background concentrations for NO_2, NO_x, PM_{10} and $PM_{2.5}$. Base on the request of DG Environment the current situation (reference year 2000) and two scenarios aimed at 2030 (Current Legislation, CLE, and Maximum Feasible Reductions, MFR) were considered, in order to analyse and project air quality.

The methodology applied for the needs of the present report was developed in the ETC/ACC "Street Emission Ceiling (SEC)"[6] project aiming to determine what local emission reductions are needed in streets in order to reach certain air quality thresholds.

Urban background concentrations were calculated for the selected cities with the urban scale model OFIS on the basis of regional background levels derived from EMEP model results. For the reference year, the results of OFIS agree fairly well with corresponding AIRBASE measurement data.

Street increments (differences between street and urban background concentrations) were calculated with the street scale model OSPM. Street level concentrations were calculated for three hypothetical street canyon configurations (wide, square and narrow) considered representing a reasonable range of the street canyon types existing across Europe.

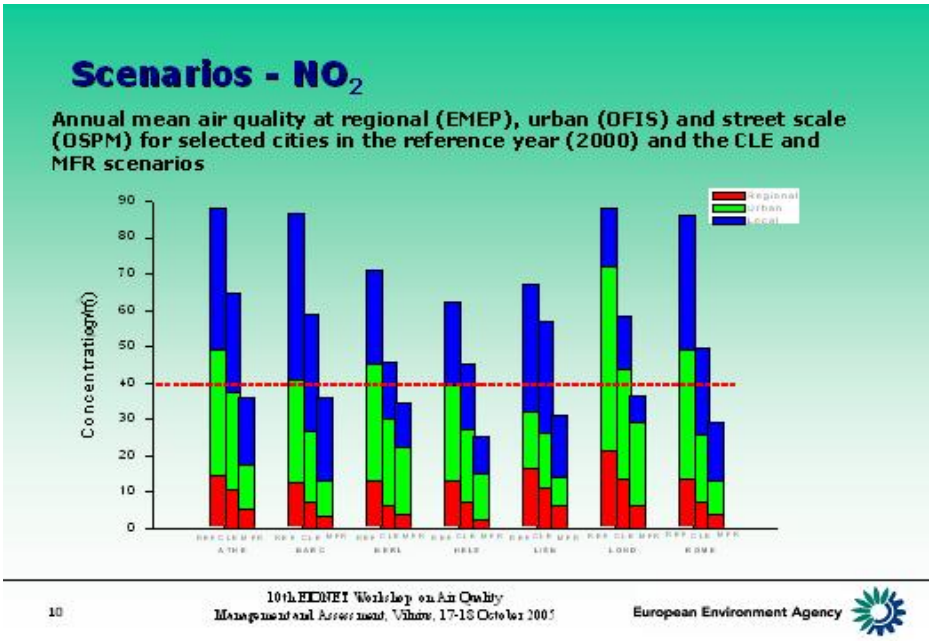
OFIS and OSPM model results were further analysed to discuss air quality limit value exceedances in the 20 European cities considered. Overall, the picture resulting for the narrow canyon situation in the reference year 2000 is found in reasonable agreement with the observations of both NO_2 and PM_{10}.

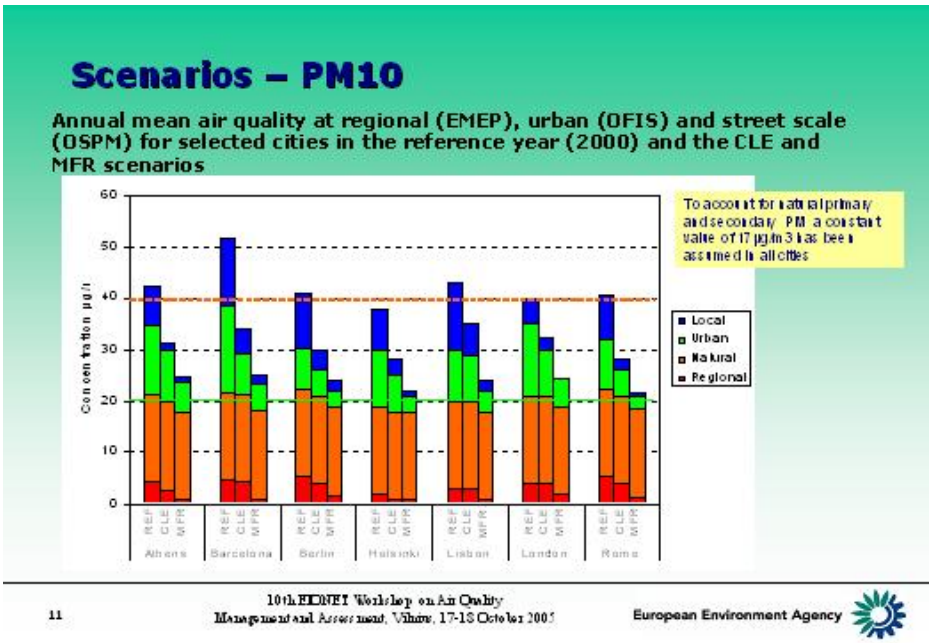
Concerning the air quality projection in the year 2030, the model results imply that at street level and for a narrow canyon, the annual limit value for NO_2 will be met in only very few cases in the CLE scenario and in most cases in the MFR scenario, whereas the indicative limit value for PM_{10} is not expected to be met even in the MFR scenario. The allowed number of exceedances according to the 2010 limit value is expected to be met for NO_2 in all cities for the narrow canyon case even in the CLE scenario, though exceedances of the PM_{10} indicative limit value are observed in certain cases even for the MFR scenario. For $PM_{2.5}$ the reduction is in line with the significant reductions in the urban and in street scale PM emissions attributed to the introduction of EURO 5 and EURO 6 compliant vehicles.

Overall, the model results compare well with measurements. However, in particular unfavourable cases in certain cities recorded exceptionally high concentrations are difficult to model unless the specific street characteristics are known in detail. Detailed local traffic data combined with air quality measurements and data on the specific street are required. The urban background concentrations produced with the available top-down emission inventories should be compared against up to date bottom-up local emission inventories, upon which local city development scenarios can also be evaluated. Finally, reliable vehicle fleets for new and non EU MS are required to obtain accurate street level air quality projections for these cities.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/27_JFiala_APatHotSpots_EIONET_AQ_051017.pps

[6] See: http://air-climate.eionet.eu.int/reports/ETCACC_TechnPaper_2004_5_SEC_Phase2Rep





Air pollution by ozone in Europe in Summer 2005 – preliminary results

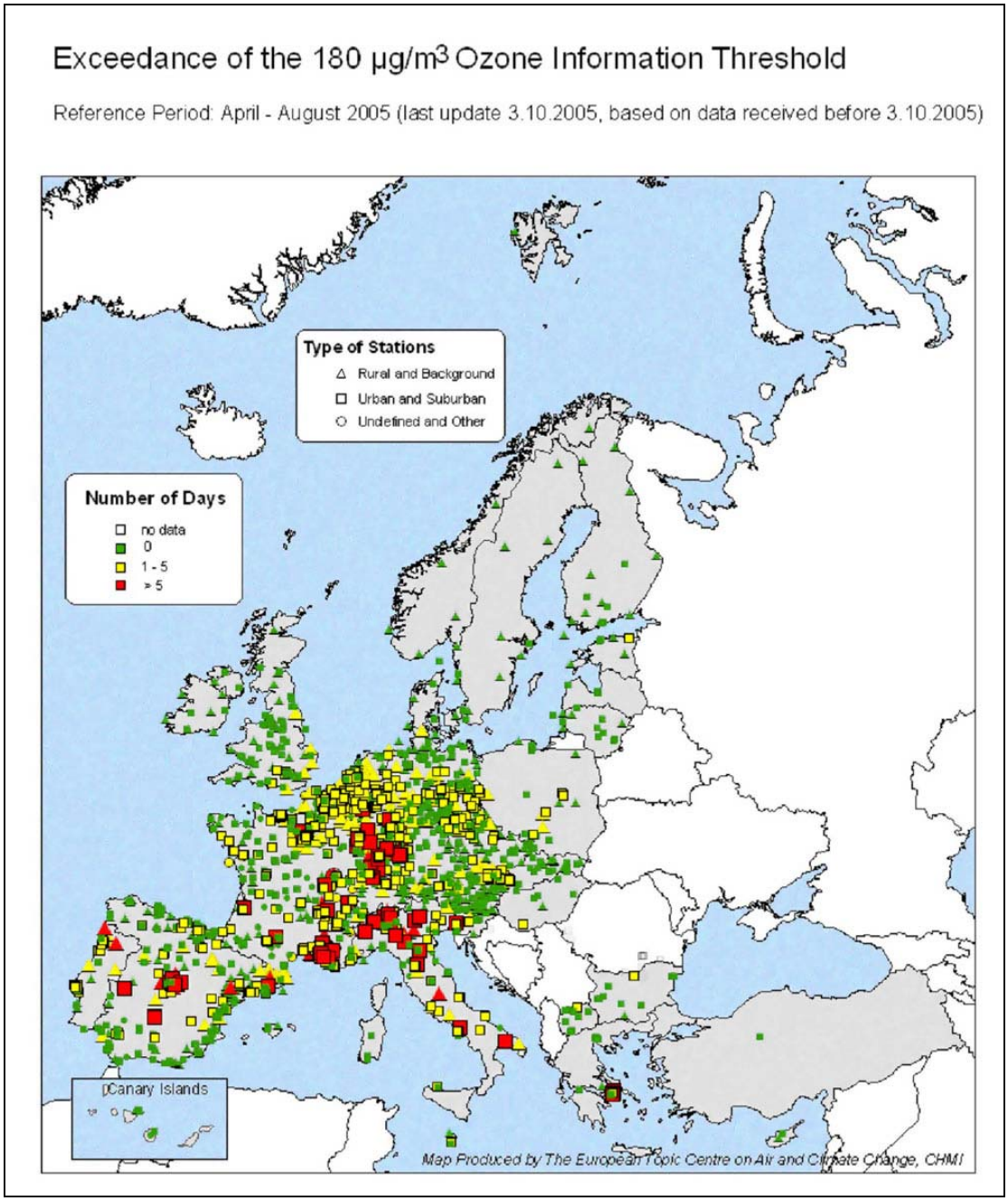
Libor Cernikovski (ETC/ACC)

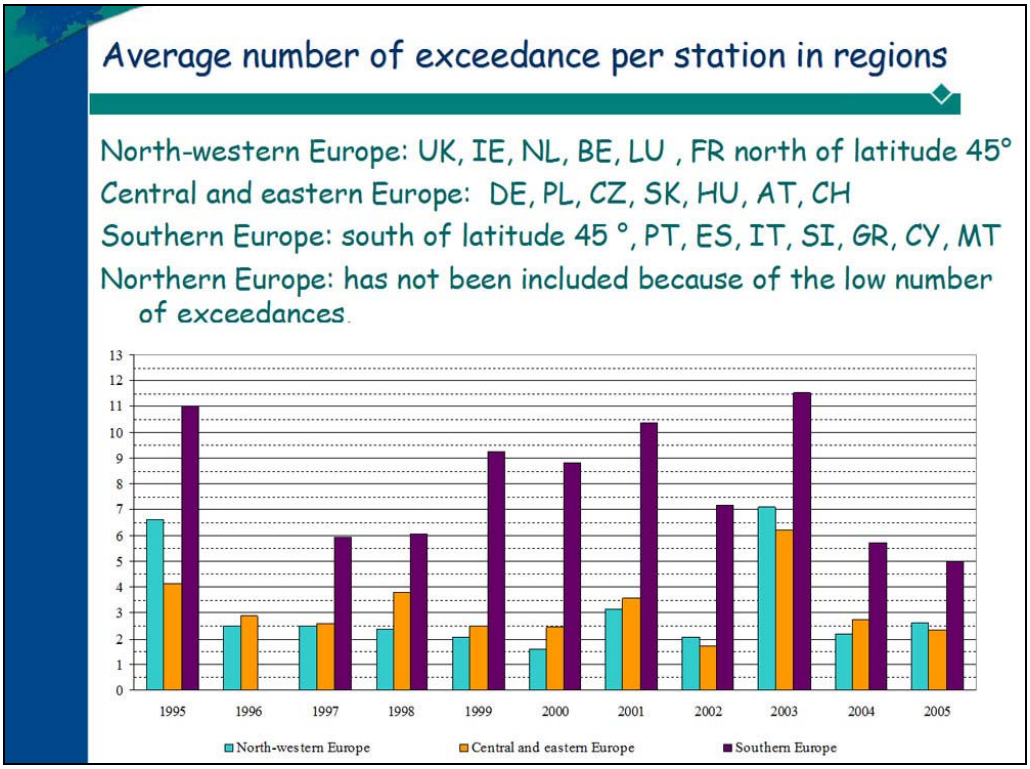
According to the Directive 2002/3/EC, EU Member States have to inform the public when hourly average ozone concentrations exceed the information threshold of 180 µg/m3 and the alert threshold of 240 µg/m3 to enable the population concerned to take all appropriate preventive protective actions.

The Member States also have to provide information on airborne ozone concentrations in their territory for the summer and on an annual basis to the European Commission.

Additionally, monthly exceedances of the information and alert threshold values must be reported to the Commission before the end of the month following an occurrence during period April - September. The data exchange is mandatory for the Member States, but several other European Environment Agency member and collaborating countries participate on voluntary basis, too.

Link to presentation: http://air-climate.eionet.eu.int/docs/meetings/051017_10th_EIONET_AQ_WS/28_LCernikovsky_SummerO3_2005_EIONET_AQ_051017.pps





(Details can be found at Summer season exceedances (http://air-climate.eionet.eu.int/databases/o3excess)).

ETC/ACC compiles monthly received information and the summary is published on its web site at Ozone exceedances in summer season 2005 (http://air-climate.eionet.eu.int/databases/o3excess/o3_excess2005.html)

The summary summer report will be prepared in November; reports from previous years are available at http://reports.eea.eu.int/search_results?SearchTitle=ozone

Based on available 2005 data, preliminary results and comparison with previous years were be presented.

WRAP-UP AND CONCLUDING REMARKS

Summarising from the chair:
Looking back to the past two days, it is clear that last year's recommendation to avoid an overloaded program has not been realised. This shortcoming is, however, compensated by the very interesting program.

At this moment we are in a transition in the air quality reporting process. The merging of the dataflow in the FWD Questionnaire and in EoI enables a revision of the reporting requirements. Streamlining the data flows will require a close cooperation between DG Environment, the Member States and the EIONET community. In the revision, the inconsistencies between the two data flows can be removed. The data requests needs to be revised in order to optimize their use in air quality assessments. To improve the quality of the data, it is recommended to strengthen the relation between AQUILA and EIONET.

There is a need to extend the spatial reporting of including the spatial variations better in air quality data reporting and assessments. Procedures to exchange geographical information are not yet well established. The preparatory work on reporting provisions needs to be started as soon as possible by the Data Exchange Group.

The time lags in data reporting needs to be shortened. Today there is a delay of about 12-13 months between the last measurements and the moment that the data is publicly available. Shortening the delay will require common efforts, both by member states and the data centre. Additionally there is a clear need for an on-line data exchange. Ozone Web provides now results for a number of countries. Extension to a real pan-European map is recommended.

ANNEX 1. WORKSHOP AGENDA

1st day: Monday 17 October

09:00-09:20	Welcome, scope and goal of the workshop (ETC, EEA) Follow-up 9th AQ workshop	Rob Swart, Jaroslav Fiala
Session 1A: AQ data exchange		
09:20-09:40	The 2003 data reporting cycle and AIRBASE/AirView/DEM development 2004/2005	Patrick van Hooydonk / Wim Mol
09:40-10:00	QA/QC of AIRBASE data	Wim Mol
10:00-10:20	Role of AQUILA in QA/QC of European air quality data	Annette Borowiak
10:20-10:40	Update from the Data exchange group	Andrej Kobe
10:40-11:10	**Discussion** - related to data exchange, data quality, technical issues.	
11:10-11:30	*Coffee*	
11:30-11:45	Ideas for the revised Air Quality Information System	Sheila Cryan / Frank de Leeuw
	Member State contributions	
11:45-12:00	Lithuania: The route to accreditation at Lithuanian Air Monitoring Network	Juozas Molis
12:00-12:15	Quality assurance of air quality assessment in the Czech Republic	Jan Horalek
12:15 -12:30	**Discussion**	
12:30-13:40	*Lunch*	

1st day: Monday 17 October (continued)

Session 1B: Reporting under directives, CAFE and Thematic Strategy on Air Pollution		
13:40-14:00	MSs' reporting under the Directives, status and results	Dick van den Hout
14:00-14:30	EU Thematic strategy on Air Pollution, incl.: - Revision of monitoring, reporting and assessment requirements. - Status on revision of AQ Directives	Andrej Kobe
14:30-14:45	Analysis of AQ monitoring networks under EoI and AQ FWD	Frank de Leeuw
14:45-15:30	**Discussion**	
15:30-15:50	*Coffee*	
	Member State contributions	
15:50-16:05	Preliminary assessment of AQ in Cyprus: Certain aspects	Savvas Kleanthous
16:05-16:20	The PM10 situation in Norway and the system of reporting to EU.	Roar Gammelsaeter
16:20-16:35	Investigation of PM_{10} limit value exceedances in Austria	Wolfgang Spangl
16:35-16:50	Air quality in Tirana, Albania 2001-2005	Agron Delieu
16:50-17:05	Air quality management trends in Turkey	CANCELED
17:05-17:30	**Discussion**	
19:00	*Dinner*	

2nd day: Tuesday 18 October

Session 2A: Exchange of up-to-date information on air quality in Europe		
08:30-09:00	Strategy for an Implementation Framework to set up a European Network of Air Quality Forecasting and Information Systems	Mikhail Sofiev WG ENV of EUMETNET
09:00-09:30	Global Earth-system Monitoring using satellite and in-situ data: The GEMS project	Tony Hollingsworth
09:30-10:10	The EEA 'In your Neighborhood' project. Interpolation of real-time ozone measurements in Europe - Results of a feasibility exercise for the Neighbourhood project	Tim Haigh Bill Oates
10:10-10:30	**Discussion**	
10:30-10:50	*Coffee*	
10:50-11:10	Spatial AQ analysis and assessment in Europe - methodologies (ETC/ACC, IP Task 1.4.1.2)	Jan Horalek
	Provision of daily operational spatial air quality data from the ESA Project: PROMOTE	E. Paliouras
11:10-11:30	European AQ indices: similarities and discrepancies	Frank de Leeuw
	Member State contributions	
11:30-11.45	PREVAIR – an operational AQ forecasting system	Joëlle Colosio
	Air Quality Transfer in Germany	Wolfgang Brauniger
11:45-12:00	**Discussion**	
12:00-13:00	*Lunch*	
Session 2B: Update on EEA/ETC-ACC assessment outputs		
13:00-13:20	State of the Environment and Outlook (SoEOR) 2005 reports	Rob Swart
13:20-13:35	Air Pollution 2006 report (2003 data)	Steinar Larssen
13:35-13:50	The 'Street emissions ceiling' (SEC) project. Final results	Jaroslav Fiala
13:50-14:10	Air pollution by ozone in Europe in Summer 2005 – preliminary results	Libor Cernikovski
14:10-15:00	**Discussions, conclusions & closure**	

ANNEX 2. LIST OF PARTICIPANTS

List of Participants

10th EIONET Workshop on Air Quality Monitoring and Assessment
Hotel Holiday Inn, Vilnius, Lithuania, 17-18 October 2005

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