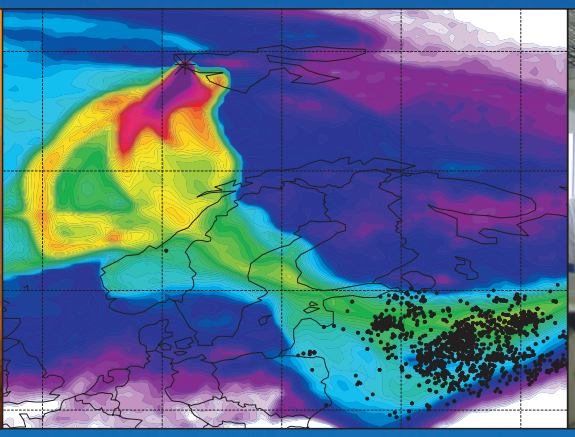
annual report 2007



NILU Norwegian Institute for Air Research

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Communication Manager
Editor

Anne Nyeggen

NILU

Vision

NILU promotes sustainable development and a better quality of life through world class research and science based support within climate change, air quality and hazardous substances.

Values

We emphasize integrity and independence. Our competence is a key driver in achieving results, and through our curiosity and commitment we find solutions that make a difference for the environment.

Company idea

Based upon the statutes of the institute, NILUs company idea is:

1. To utilize research to increase the understanding of processes and effects of climate change, of the composition of the atmosphere, of air quality and of hazardous substances
2. To market integrated services and products within analysis, monitoring and consulting. NILUs research activity shall benefit from this activity both in terms of funding and of experience.
3. Based on research and knowledge, to inform, increase awareness and provide advice to the society about climate change and environmental pollution and the consequences thereof.

Climate Change
— a global and local issue

In 2007, climate change received more attention than ever before. The IPCC 4th Assessment Report was released and created a tremendous increase in awareness. This was further reinforced by the Nobel Peace Price being awarded to former Vice-President Al Gore and the IPCC in the late fall. However, NILU stresses that the fight against global climate change should be performed in tandem with the abatement of local air pollution emission.

It is an important fact that climate change and conventional air pollution are often interconnected. NILU has traditionally performed a wide variety of research and monitoring activities that can be related to mitigation of both local air pollution and global climate changes. Local sources of pollution will for example often emit various components of which some influence the local air quality and others the global climate. It is also frequently neglected that conventional regional and local air pollutants (like ozone and particulate matter) are significantly influencing climate change and are in addition the origin to some of the most significant uncertainties in climate modelling and forecasting. This shows that combined research on climate change and air quality management can produce co-benefits and increased accuracy in climate modelling.

Another important aspect is the fact that climate change in itself will influence local air quality. It is not well established how changes in temperature, precipitation and wind patterns will affect the behaviour of air pollutants. Increased temperature also contributed to the reactivation and consequent long distance transportation of persistent organic pollutants and heavy metals. Change in the climate will in addition affect the deterioration of our cultural heritage artefacts, another important research area at NILU.

Climate change impacts are initially most visible in polar areas where the temperature rise will be faster and with greater extremes. NILU is actively participating in monitoring and research on these effects, particularly at the Zeppelin observatory at Spitsbergen and the Troll observatory in Antarctica. Many of NILUs polar related projects are part of the International Polar Year (IPY). Research on climate forcing agents like methane, ozone and fine particulates is an important activity in the IPY projects. These components have a shorter life time in the atmosphere than CO_2. While reductions of CO_2 are the backbone of any effort to mitigate climate forcing, addressing the short-lived agents as well will lead to a faster reduction of the total content of climate forcing agents. A reduction of particulate matter will in addition have a direct effect on the melting of the Arctic ice. Now is the time for immediate action to reduce the emissions of these components.

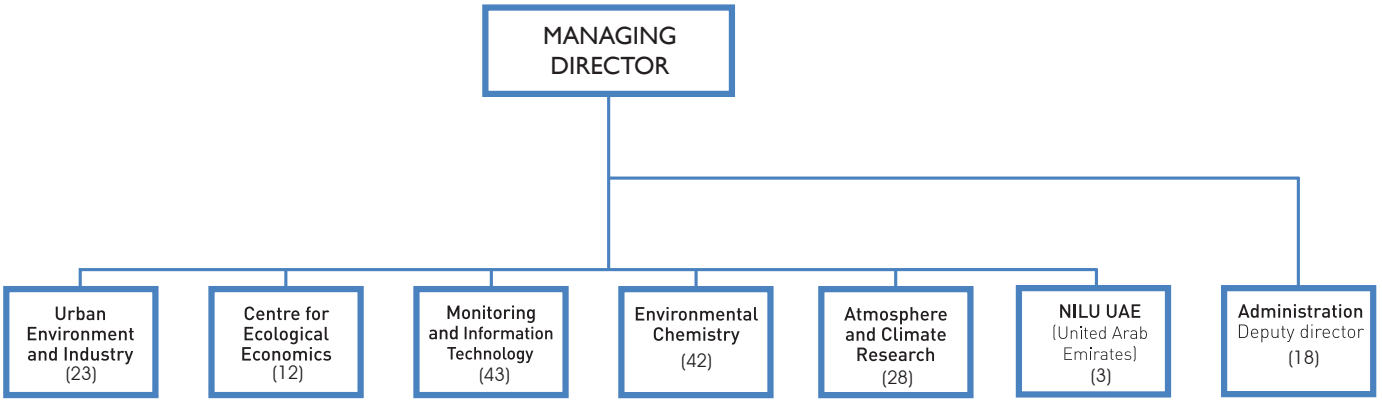
NILU is also actively engaged abroad in both climate change issues and local air quality management. In this regard, an important event took place in 2007, when NILU signed a prestigious contract with Environment Agency of Abu Dhabi on the establishment of Abu Dhabi Air and Climate Institute (ADACI). It gives NILU a central position in the development of climate change abatement strategies and air quality management in the area. This is in addition to NILUs former establishment in Poland and a new company in the Republic of South Africa where NILU has joined forces with three South African scientists for the establishment of uMoya-NILU Consulting. The company has projects in several countries in the region and is expanding its staff.

NILU is in a period of growth and has now reached a multi-diverse staff of 160 people in Norway. With its solid expertise, advanced laboratories and prominent observatories, the institute has an optimistic view of successfully addressing future climate and environmental issues.

Gunnar Jordfald

Managing Director NILU

Organisation



(x) = Number of employees

NILU topics

- Atmospheric composition change and climate
- Particulate matter in air
- Surface ozone
- Changes in the ozone layer and ultra violet radiation
- Environmental fate of environmental toxins
- New, emerging environmental toxins
- Environmental influence on cultural heritage and building materials
- Air Quality Management Systems for cities, companies and authorities
- Assessment of industrial-, urban- and traffic pollution
- Coastal zone management
- Eutrophication and acid rain
- Satellite validation and databases
- Distribution of environmental data
- Standardization of monitoring methods

NILU departments

Department for Atmospheric and Climate Research

- Air pollution on the regional (European) and global scale, with particular emphasis on aerosols, acid deposition, photo-oxidants, toxic compounds, stratospheric- and ground level ozone and climate change. Research is focused on physio-chemical processes and transport mechanisms relevant for the understanding of atmospheric composition including climate forcing.

Department for Urban Environment and Industry

- Emissions from industry, energy production and traffic in urban and residential areas.
- Measurements, modelling, consequence analyses, environmental impact assessment and abatement strategy planning.
- Estimation of pollution and climate change effects on the cultural hertage and built environment.

Department for Environmental Chemistry

- Determination of a wide range of inorganic and organic compounds in samples of air, water, sediments and biological material.
- Accredited in accordance with NS-EN ISO/IEC 17025.

Centre for Ecological Economics (CEE)

- Cost-benefit analyses and socio-economic studies of the impact of pollution on the environment and human health.
- Support of authorities in developing environmental policies.

Department for Monitoring- and Information Technology

- Development and operation of instruments for measuring air quality, meteorology and radioactivity.
- Accredited in accordance with NS-EN ISO/IEC 17025.


Director **Kjetil Tørseth**


Director **Elin Marie Dahlin**

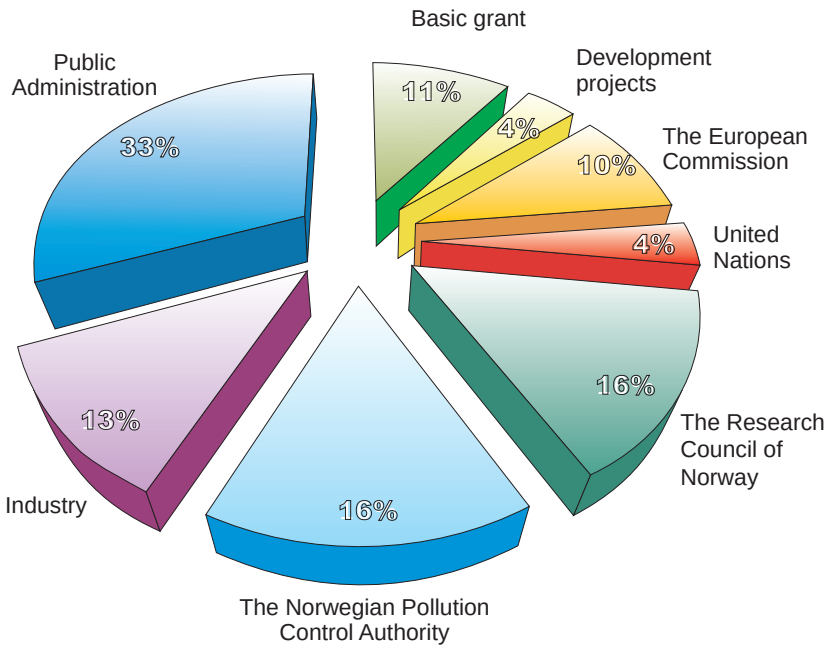

Director **Ole-Anders Braathen**


Director **Jozef Pacyna**


Director **Magne Birger Osmundsen**

Key figures

Operating Revenue 2007



Operating revenue	133.3 MNOK
Operating profit	2.4 MNOK
Project income	115.2 MNOK
Basic grant	14.7 MNOK
Domestic projects	60 %
International projects	40 %
Number of employees	159
Number of Phd's	45

Department of Administration

- Accounts group (included purchase)
- Archive
- Human Resources
- Communication
- Library
- Printing

NILU Products AS

- Manages all the commercial aspects of manufacturing, marketing and sales of products developed at NILU.

Director Paal Berg

NILU in the Polar Environmental Centre, Tromsø

- Arctic related matters
- Laboratory

NILU Polska Sp.zo.o

- Air quality and air quality management
- Projects in renewable energy technologies.
- Participation in EU research projects, andnational projects in Poland.

uMoya-NILU

- A cooperation between NILU and South African experts Provision of services related to air quality management such as planning and implementation, specialist studies, emission reduction planning and inventories, ambient monitoring, calibration services, air quality analytical services and training courses.

NILU UAE (United Arab Emirates)

- Selected partner for the environment authorities in Abu Dhabi
- Adviser to the authorities in Abu Dhabi on air quality management and monitoring, strategy implementation and legislation
- Establishment of quality routines for ambient monitoring networks
- •Standardisation unit for calibration of monitors and presentation of data


Director
Paal Berg


Communication Manager
Anne Nyeggen


Personnel Manager
Arnhild Sundset


Manager
Torkjel M. Sandanger


Director
Jozef Pacyna


National Director
Robert Piatek

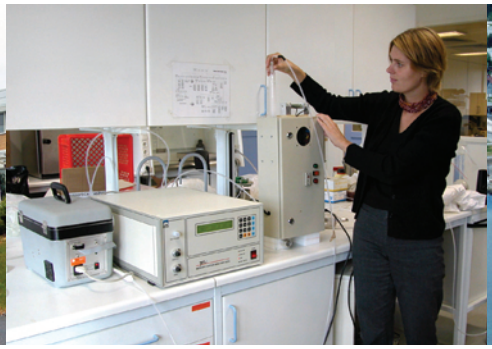

NILU Coordinator
Svein Knutsen


Director
Mark Zunckel


Director
Trond Bøhler


Deputy Regional Manager
Naser A. Tibi

NILU's head office at Kjeller



NILU's advanced chemical laboratory

NILU's at the Polar Environmental Centre, Tromsø

About NILU

NILU is an independent research foundation established in 1969. The staff, consisting of 160 scientists, engineers and technicians, carries out approximately 200 projects annually for national and international research councils, industries, authorities and organizations.

NILU's head office is located at Kjeller outside Oslo. A specialized office for Arctic related matters is an integral part of the Polar Environmental Centre in Tromsø. NILU also has a subsidiary company in Poland, a branch office in the United Arab Emirates and a representation in Republic of South Africa. NILU is member of Oslo Centre for Interdisciplinary Environmental and Social Research Centre (CIENS).

International activities

NILU works worldwide on projects related to air pollution and climate change on a global and regional scale:

One example is the Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollution in Europe (EMEP), in which NILU assumes the task as the Chemical Co-ordinating Centre (CCC). Another important engagement is the EEA Topic Centre on Air quality where NILU is one of four core research institutes.

NILU is also a leading international centre for the collection, storage and transfer of atmospheric and air quality data, providing information to international bodies like the World Meteorological Organization, the Paris and Oslo Commission, the Helsinki Commission and the Arctic Monitoring and Assessment Program.

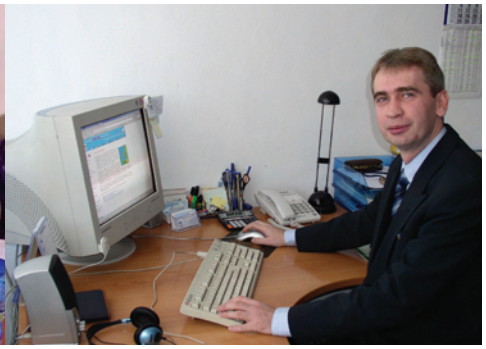
For almost 20 years NILU has participated in the EU framework programmes for research and technological development, and during 2007 NILU was engaged in almost 30 projects. One of these projects is a Network of Excellence; ACCENT – Atmospheric Composition Change: a European Network.

In autumn 2007, the Environment Agency – Abu Dhabi (EAD) decided to engage NILU as strategic partner for all issues related to air and noise in the Emirate. NILU was then awarded a five years contract for the outsourcing of air quality, climate Change and noise control activities in Abu Dhabi starting January 2008.

Norwegian Institute for Air Research

NILU UAE (United Arab Emirates)

uMoya-NILU



NILU Polska Sp.zo.o

Participating in IPY

NILU is strongly engaged in the activities under the International Polar Year (IPY) 2007-2009. One of the core projects, POLARCAT, is co-coordinated by NILU. In addition NILU participates in four other IPY-projects.

NILU observatories – global watchtowers

NILU is monitoring global air quality and air pollution transport pathways through observatories in Norway (Birkenes and ALOMAR), Antarctica (Troll) and in the Arctic (Zeppelin). Our observatories are also supplying researchers all over the world with important data regarding climate change.

Laboratories

NILU's chemical laboratories are among the most advanced in Europe. The laboratories have state-of-the-art analytical equipment, including several high-resolution mass spectrometers to determine a broad range of organic and inorganic pollutants. The staff is highly competent both in chemical analysis and in evaluating environmental impacts.

NILU's instrument laboratories have extensive experience in sampling and analysis, based upon advanced scientific equipment. The laboratories focus on continuous development of new instruments and analytical techniques, such as the comprehensive Quality Assurance and Quality Control (QA/QC) system for the operational level of air quality programs.

Development projects

Transfer of know-how through development aid is of great importance, and NILU shares its experience in ongoing projects in Bangladesh, South Africa, Senegal, China, India and Vietnam.

Interdisciplinary research institute

Climate research has received worldwide attention in recent years. Our knowledge is growing, but there is still a need for better understanding of the many interacting and feedback mechanisms in the climate system. To address the Climate Change challenge, an interdisciplinary approach is needed. NILU is well experienced in the field, as well as in practical multidisciplinary co-operation with other institutes, e.g. in the Polar Environmental Centre in Tromsø and in many EU projects. The co-operation within the Oslo Centre for Interdisciplinary Environmental and Social Research Centre (CIENS) will further extend this expertise.

Accreditations

NILU's instrument laboratories and chemical laboratories are accredited to internationally accepted quality standards. NILU was among the first European laboratories to be accredited according to EN-ISO/IEC 17025. In 2006 NILU as a whole became certified according to NS-EN ISO 9001:2000.

NILU also represents Norway's national reference laboratory for air pollution and ozone.

NILU tools

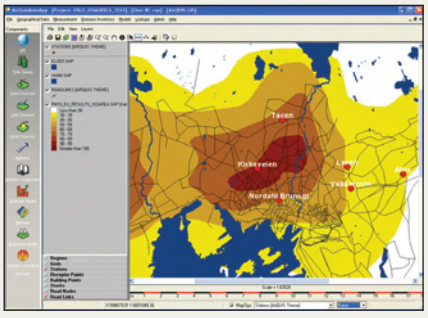
Air quality management

NILU has developed an Air Quality Management System (AQMS) that identifies the most cost-effective measures to reduce the impact of air pollution.

Air quality monitoring

The NILU-developed system for air pollution surveillance is named "AirQUIS". AirQUIS is a planning tool for optimal abatement and air quality improvement.

It is one of the most advanced and flexible surveillance and planning tools available. Measurements, modelling, environmental impact assessment and abatement strategy planning are all parts of the system.



Melting ice in Antartica

Jutulhogget peak, Antartica

Jan Henrik Wasseng at work at Troll station

From Pole to Pole

Since early 2007 NILU is one of the few institutes world-wide with continuous research and monitoring in both polar regions. By implementing a monitoring program as similar as possible at both stations, NILU hopes to find new information about the transport pathways of pollution into the polar areas and the possible contribution of pollutants to the climate challenge.

After a short assembly period at NILU's main office in Summer/Autumn 2006, the two containers constituting Troll Atmospheric Station were shipped to Troll Station via Cape Town. After some hectic weeks of construction, a complete measurement program was operative from the station as of mid February. One year later, NILU is happy to confirm that the new station, with its instrumentation, is in excellent condition, the extreme weather conditions not having caused any damage to infrastructure nor instrumentation.

With the establishment of Troll station, located at 72.0º S, in January 2007 NILU has two fully operational atmospheric monitoring stations in both polar regions; the station on the Zeppelin Mountain in Ny-Ålesund (79.9º N) has been operational since the early 1990s. The focus of operations is on a wide spectrum of pollutants: eutrophying compounds, ozone, heavy metals, persistent organic pollutants, particulate matter and volatile organic compounds (VOC).

The poles, a sink for pollutants

The polar regions are known to be the deposition and biological accumulation areas for pollution from remote sources at lower latitudes. With the monitoring of programs at both stations, NILU is looking for the transport pathways of pollutants which are far from fully explained today. The processes are expected to change as a consequence of climate change, but in which direction and to what degree is yet to be quantified and assessed.

In the Arctic, not only the atmosphere and the ocean, but also land cover/vegetation, rivers and sea ice are suspected to play a significant role. However, their relative share in the process is still unknown.

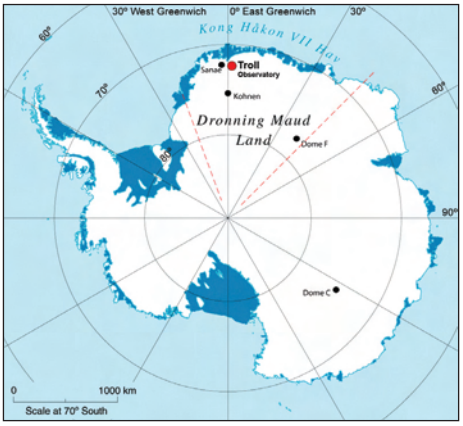
Norbert Schmidbauer and Jan Henrik Wasseng watching the Troll Observatory from above

Georg H. Hansen

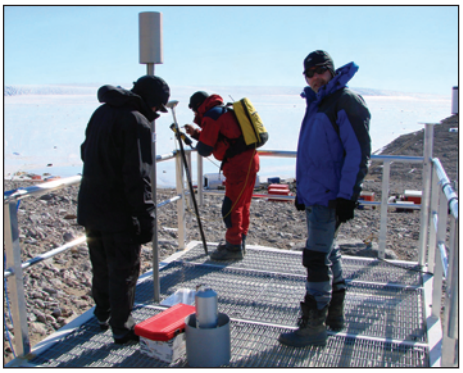
Senior Scientist
NILU

Norwegian Institute for Air Research

The polar project POLARCAT in the Artic



The Troll Observatory in Antarctica is located 1250 m above sea level and about 250 km from the sea.



Keeping the instruments at the Troll Observatory in Antarctica up to date.

From sampling to impact studies

The extent of NILU's competence in this field is unique. The institute covers the whole spectrum from state-of-the-art sampling and optical/physical measurements, chemical analysis, transport and deposition modeling, to health and ecosystem impact studies.

Combining all these tools, NILU expects to make significant progress in explaining current and predicting future pollution levels in the polar regions. This is of great interest for national authorities and international control bodies, e.g., the Arctic Monitoring and Assessment Programme (AMAP), to which NILU contributes in a number of ways.

Northern areas
— attractive and vulnerable

The International Polar Year is an important catalyst for renewed activity in the field of polar pollution and climate change and the mutual influence of these two challenges. NILU contributes to these efforts via several projects: POLARCAT, COPOL and Atmo-Troll. In addition, NILU is taking an active part in scientific cooperation at the Polar Environmental Centre, Tromsø. The new cooperation umbrella is "Human impact on the polar environment", its major projects so far being impacts on the pollution situation and the marine environment and influence on the Arctic terrestrial environment. The projects are intended to combine the project activities from IPY and national projects, and to develop them beyond the time frame of IPY.

NILU also participates in two new national programs: the *Integrated Management of the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands*, and the

The view from the top of the Zeppelin Observatory is spectacular.

Norwegian follow-up programs of the Arctic Climate Impact Assessment (ACIA), *NorACIA*. Both programs have a strong focus on surveying the pollution situation in the Norwegian Arctic areas, especially the Barents Sea, and investigate possible changes due to the climate changes.

Until now, Zeppelin Observatory is the only station in the North providing comprehensive atmospheric data. Efforts are made to establish a new station in the region to complement the Zeppelin Observatory.

Kongsfjorden with the Kongsbreen glacier, Ny-Ålesund, Svalbard.

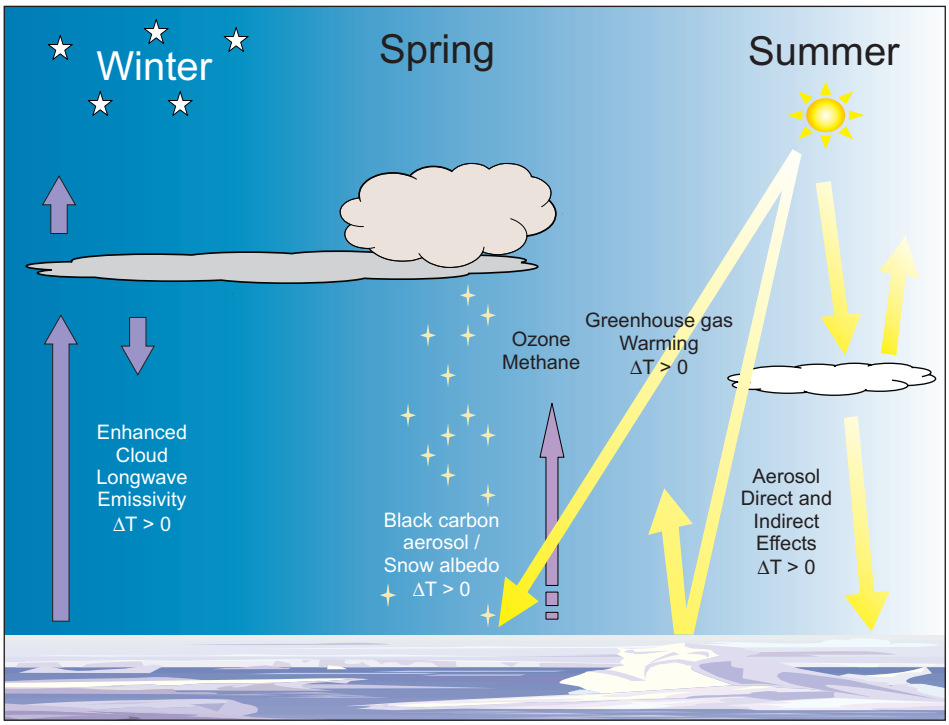
Biomass burning on the northern hemisphere may speed up the meltdown of the Arctic

Short-lived pollutants contribute to Arctic melt down

Arctic temperatures have increased at almost twice the global average rate over the past 100 years. This has been associated with an earlier spring melt and a decrease in the Arctic sea ice cover. Whereas carbon dioxide (CO_2) is the main source for the climate forcing, shorther-lived substances such as methane, tropospheric ozone and aerosols are also playing a role and their importance is disproportionately large in the Arctic. The agents were in focus at a NILU-led international workshop in Oslo in November 2007, during which the scientists agreed on immediate measures that should be taken to combat Arctic climate change.

Since Arctic warming proceeds more rapidly than warming at other locations, there is an urgent need to act quickly as otherwise the summer sea ice may be lost to the warming entirely within a few decades. Unfortunately, it is unlikely that large enough reductions in the growth rates of atmospheric CO_2 levels can be achieved in time to avoid such dangerous climate change. As such, it is also sensible to address short-lived climate forcing agents which have a negative impact on the Arctic climate.

One of the main shorter-lived climate agents is methane, which has a lifetime of about 10 years. It is a potent greenhouse gas itself but also leads to the formation of ozone, another effective greenhouse gas; ozone, with a lifetime of the order of weeks to months and which is formed from precursor substances (nitrogen oxides, carbon monoxide and volatile organic compounds); and tropospheric aerosols, with a lifetime of the order of a week. The substances stem, to a large part, from anthropogenic sources such as transportation, industry and agricultural fires. A reduction of these substances in the Arctic will, due to their short lifetime, have an immediate impact on the Arctic climate.



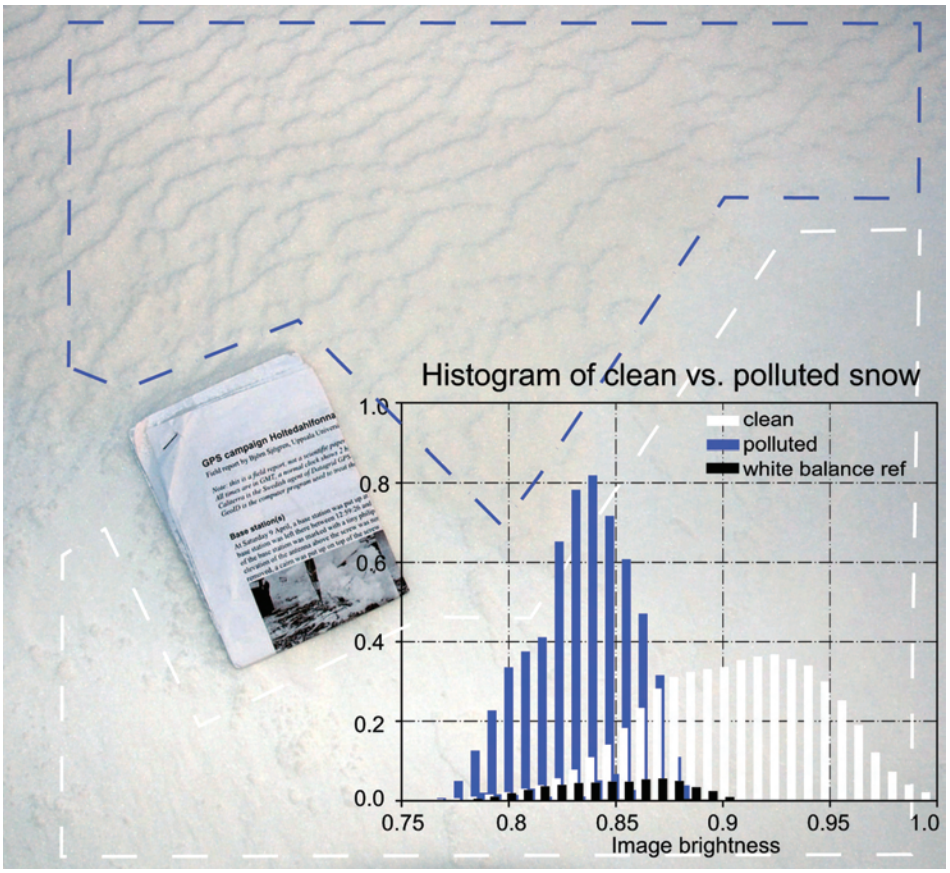
Forcing mechanisms in the Arctic environment resulting from the poleward transport of middle latitude gas and particulate phase pollutants. Season of maximum forcing at the surface (FS) is indicated for each forcing agent. ΔT indicates the direction of the surface temperature response. From *Quinn et al. (2008)*

Andreas Stohl

Senior Scientist
NILU

Norwegian Institute for Air Research

POLARCAT project expedition in the Arctic



Discolored snow caused by deposition of aerosols during the severe air pollution event affecting the European Arctic in April and May 2006.

During 2007, two international workshops were held on short-lived pollutants and Arctic climate change. The first one at NASA's Goddard Institute for Space Sciences (GISS) in New York, the second workshop being organized by NILU in Oslo. The Oslo workshop concluded, after three days of work and discussions, with the following statements for immediate measures to combat Arctic climate change:

- Reduce methane emissions globally.
- Implement a northern hemisphere tropospheric ozone reduction strategy targeting methane, non-methane volatile organic compounds and with an emphasis on reductions at higher latitudes.
- Due to their impact on climate, emissions of short-lived pollutants within the Arctic should be minimized.
- Implement a black carbon (BC) reduction strategy in the northern hemisphere with an emphasis on BC sources that result in deposition within the Arctic – particularly during winter and spring.

At the same time it was also emphasized that in the long run reducing the emissions of long-lived greenhouse gases is essential for any successful strategy of mitigating Arctic climate change.

The workshop was part of NILU's activity in POLARCAT, a project within the International Polar Year.

Aerosol and its influence on temperature

Aerosols are defined as liquid or solid particles suspended in air. Particles are formed both naturally (desert dust, sea salt) and by human activity, mainly industry, transport, fossil and biomass (forest, agricultural) burning.

Aerosols can perturb the radiation balance of the earth-atmosphere system in a number of ways:

A scattering aerosol over a low albedo surface will reflect incoming solar radiation, resulting in a cooling of the surface as well as of the surface-atmosphere-aerosol column.

An absorbing aerosol containing soot, over a highly reflective surface, will result in a warming of the haze layer and, instantaneously, in a reduction of solar energy at the surface. The added atmospheric heating will, however, subsequently increase the downward long-wave radiation to the surface, thus warming the surface.

Aerosols also affect the transmission of long-wave radiation in the Arctic, and they influence the way clouds are forming, which also influences the radiation budget. Soot has an additional forcing mechanism when it is deposited on snow and ice surfaces. Such deposition enhances the absorption of solar radiation at the surface which again can warm the lower atmosphere and induce snow and ice melting. The sources of the various pollutants are reasonably well understood *(Law and Stohl, 2007)*.

The various forcing mechanisms vary in magnitude and even in sign with the time of year.

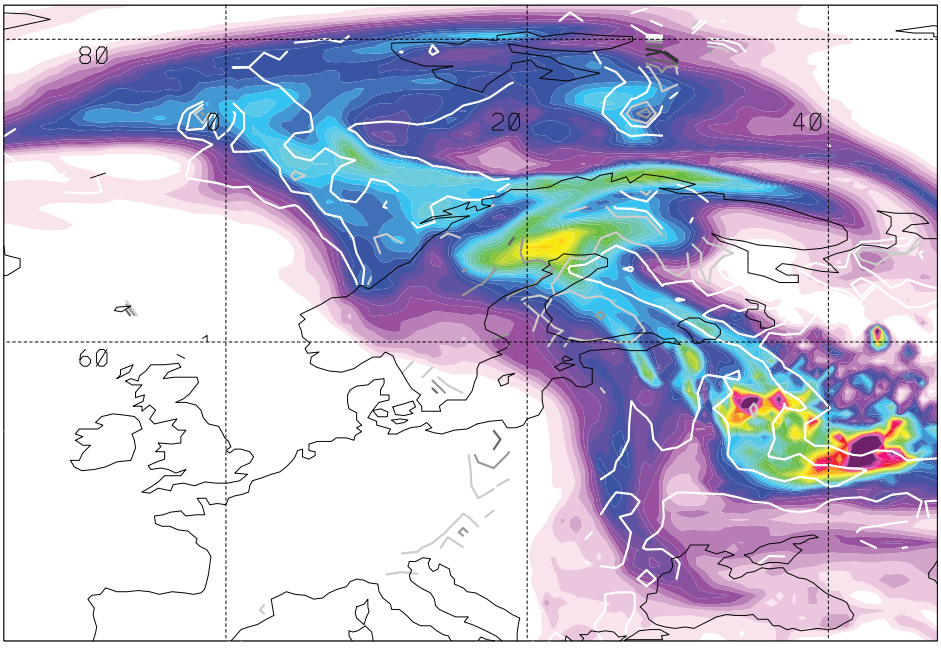
Biomass burning
— a "new" source of PCBs in the Arctic

NILU researchers have identified an entirely new secondary source of PCBs. The Zeppelin observatory on Svalbard was affected by pollution plumes from North America and Eastern Europe. The levels of many pollutants were enhanced at the station during these two episodes. A closer study of the plumes also showed, surprisingly, strongly enhanced concentrations of several PCBs. Secondary PCB emissions may increase in the future, due to rice in temperature and consequently forest fires.

In fact, for some PCBs (e.g., PCB 28) the concentrations measured were among the highest ever observed at the Zeppelin station.

While it was somewhat unexpected that biomass burning plumes can affect the Arctic so strongly, the fact that many pollutants showed enhanced concentrations in such a plume was to be expected, as incomplete combustion creates many trace gases and aerosols. The high levels of PCBs puzzled however the scientists at NILU.

PCBs (Polychlorinated Biphenyls) are not expected to be extensively produced by the biomass burning itself. Instead, it is known that PCBs, which are industrial chemicals produced in substantial amounts between 1929 and 1993, have been accumulating in vegetation and soils over many years. When the organic matter burns and the soils are heated (and partly burned, too), the PCBs are released once again to the atmosphere. PCBs can survive fairly high temperatures (hence their key use in electrical equipment such as transformers and capacitors), so such an emission scenario is thought to be possible.



Artic Smoke: Pollution from biomass burning clouds on its way to the Arctic. Total columns of the FLEXPART biomass burning CO tracer at 09:00-12:00 UTC for 2 May 2006.

The production of many persistent organic pollutants has been stopped because of concerns about their environmental consequences. However, because of the long lifetime of these substances, large reservoirs still exist in the soils and vegetation. The results of Eckhardt et al. (2007) show that PCBs and possibly other persistent organic pollutants (POPs) can be mobilized and released to the atmosphere again when the vegetation burns, thus constituting a substantial secondary source of these pollutants which again may mitigate the effect of ongoing efforts to reduce primary emissions under existing international agreements.

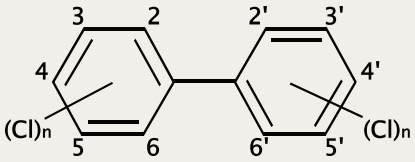
Agricultural fires are started by humans and therefore emissions can in principle be controlled by restricting agricultural burning. However, fires in the boreal forests are often caused by lightning and are mostly uncontrollable. The areas burned by boreal forest fires show a positive trend during recent decades – a consequence of increasing temperatures due to climate change. As these fires become more frequent, secondary PCB and other POP emissions by the fires may also become more important in the future.

Sabine Eckhardt

Scientist
NILU

What is PCB

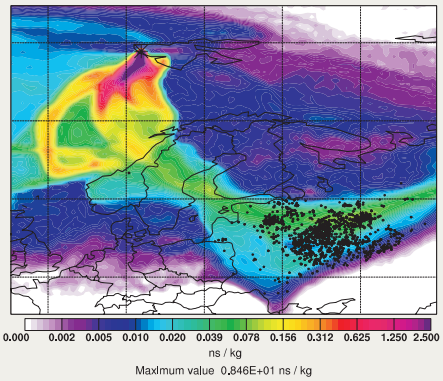
Polychlorinated biphenyls (PCBs) are intentionally produced organo-chlorine chemicals, assumed to have no significant natural sources.



PCBs are of environmental concern because of their toxicities, persistencies, bioaccumulative properties and potential for long-range atmospheric transport (LRAT) to remote areas, such as the Arctic. Primary emissions of PCBs into the atmosphere have been estimated to occur mainly in the industrialized regions of the middle latitudes.

PCBs can undergo reversible atmospheric deposition with terrestrial and aquatic environments through a temperature-dependent exchange process commonly termed grasshopping. Still, the release of PCBs from aquatic and terrestrial media into the atmosphere is expected to be rather slow at typical ambient temperatures.

However, the significantly enhanced temperatures that are experienced during biomass burning may "boost" re-emissions from terrestrial storage reservoirs.



Potential emission sensitivity (PES) footprint map (0-100 m) for air arriving at Zeppelin between 1 May 2006 at 10:14 UTC and 3 May 2006 at 8:38 UTC 2006. Black dots show MODIS fire detections on days when the footprint emission sensitivity in the corresponding grid cell on that day exceeded 2 ps kg-1.

Reference:

1) Eckhardt, S., K. Breivik, S. Manø, and A. Stohl (2007): Record high peaks in PCB concentrations in the Arctic atmosphere due to long-range transport of biomass burning emissions. Atmos. Chem. Phys. 7, 4527-4536.

NILU developed UV gas camera measures atmospheric gases

Sample from monitoring industrial emission in Norway.

NILU has succeeded in the development of a camera to detect gaseous emissions from industrial and natural sources.

The advanced ultra-violet (UV) imaging camera will be highly useful for monitoring gaseous emissions from industrial and natural sources and is already planned for use in the quantification of SO_2 emissions from volcanoes.

The NILU UVgasCam has the ability to quantify several polluting gases and image plumes at very high sampling rates (up to 30 Hz) and will be used in several projects, including two EU projects to quantify SO_2 emissions from volcanoes in Indonesia, the Philippines and Chile.

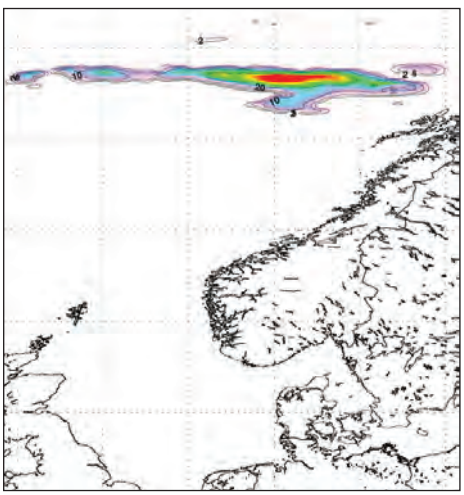
The camera can be compared to a normal digital camera except that it has been designed to operate in the UV part of the spectrum. The camera uses quartz optical glass, a special filter and a highly sensitive CCD optimised to work between 280–320 nm, and can be operated from a standard laptop.

It has been tested in Norway at an industrial plant (Leca) as well as in South Africa to monitor emissions from several industrial stacks in one place.

The volcano Villarica in Chile.

Fred Prata

Senior Scientist
NILU



SO_2 cloud moving towards northern Norway from the eruption of Grimsvotn volcano in Iceland on 2 November 2004.

COPOL
— an International Polar Year project

How does climate affect exposure, uptake and effects of human-made contaminants in the Arctic marine food web?

The IPY project COPOL is looking for answers. Organic contaminants are stored in the fat deposits of animals. Being transferred from prey to predator they end up with the highest contaminant levels in animals at the top of the food chain. Changes in air- and ocean temperature may lead to increased transport of contaminants to the Arctic, and thereby alter the levels of contaminants in animals and subsequently cause effects in wildlife.

COPOL is an IPY project aiming to study and compare uptake and transfer of contaminants in food chains representing different water masses in the Arctic and Atlantic. NILU at the Polar Environmental Centre is coordinating the chemical analysis of Work Package 3 with a post doctoral position in a central role, and is hosting several students from the other collaborative institutes. The Norwegian part of COPOL is a collaboration between research institutes associated with the Polar Environmental Centre (POMI), Oslo Centre for Interdisciplinary Environmental and Social Research (CIENS) and the Norwegian University of Science and Technology (NTNU).

The project will increase our understanding of how contaminants are transported and taken up in polar marine food chains. Knowledge from COPOL will also contribute to document effects of contaminants on wildlife in a changing environment.

COPOL focuses mainly on Kongsfjorden, but also on Rijpfjorden, Svalbard, the two fjords representing two different climate conditions: Kongsfjorden with influence from Atlantic water and Arctic water in Rijpfjorden. In collaboration with an ongoing project on climate and ecology (MariClim), three

Kongsfjorden as seen from Blomstrandhalvøya, Svalbard.

field sampling periods (May, July and October) were carried out in 2007. These will be followed by further sampling over the next two years. NILU started the laboratory activity with the clean-up of several hundred samples of benthic and pelagic organisms in October 2007. Several Master and Ph.D. students have been working at NILU's laboratory with extraction and clean-up of the samples under the supervision of NILU Post.doc. Nicholas Warner and several NILU scientists.

Eldbjørg S. Heimstad

Senior Scientist
NILU

Reference:

- *http://www.copol.net/*
- *http://sustain.no/projects/globalpop*

Global POP
— Education in the International Polar Year

A global network of schools investigating environmental pollutants in fish from the Arctic and worldwide.

Engaging young people in scientific work and methods.

Engaging young people in environmental research activities is a core activity for NILU. The IPY project Global POP aims to engage youth in the complex problem of persistent organic pollutants (POPs) in polar regions and on a global scale.

The NILU coordinated project "Global POP" is one of the few national projects under the Education umbrella in the International Polar Year (IPY). Specifically, schools take part in an international school campaign where fish from various regions are sampled and analyzed for organic pollutants, thus linking "hands-on" school activities and scientific research on environmental toxic chemicals. Active partners are Sustain.no, Norwegian Centre for Science Education, Norwegian Directorate for Education and Training, GLOBE Norway and GLOBE Europe.

The schools gain insight into correct scientific sampling of fish, sample preparation, collecting important metadata and how to ship samples to the research institute for analysis. The results will be provided to the schools through a web interface and the students will evaluate the results specifically on the levels of toxic chemicals in fish. They will examine how their local levels compare with other regions in the world, such as the Arctic.

Reducing uncertainties in climate change prediction

Global climate change is widely regarded as the greatest challenge to mankind. Addressing this challenge requires accurate and realistic climate models. Data assimilation, a tool used in Weather Forecasting for many years, is increasingly recognised as a powerful method to reduce uncertainties and improve climate modelling. NILU takes an active part in methodology development for this purpose.

Data assimilation is an objective way of testing whether the information from a model is consistent with the observations. This allows models to be tested and improved.

Focus on the interactions between components of the climate system

To improve the climate model methodology, scientists are increasingly focussing on how the different components of the climate system interact, for example, land and atmosphere processes, and chemistry processes and climate. The idea behind this approach is that by improved understanding of the climate system components, the climate models themselves are improved.

To quantify global climate change we need to quantify and evaluate the performance of climate models. The advantages of using data assimilation for this work are several: the method is based on mathematical principles, which makes it objective; the results are repeatable, codable, reliable and quantifiable; and a broad range of information types can be handled.

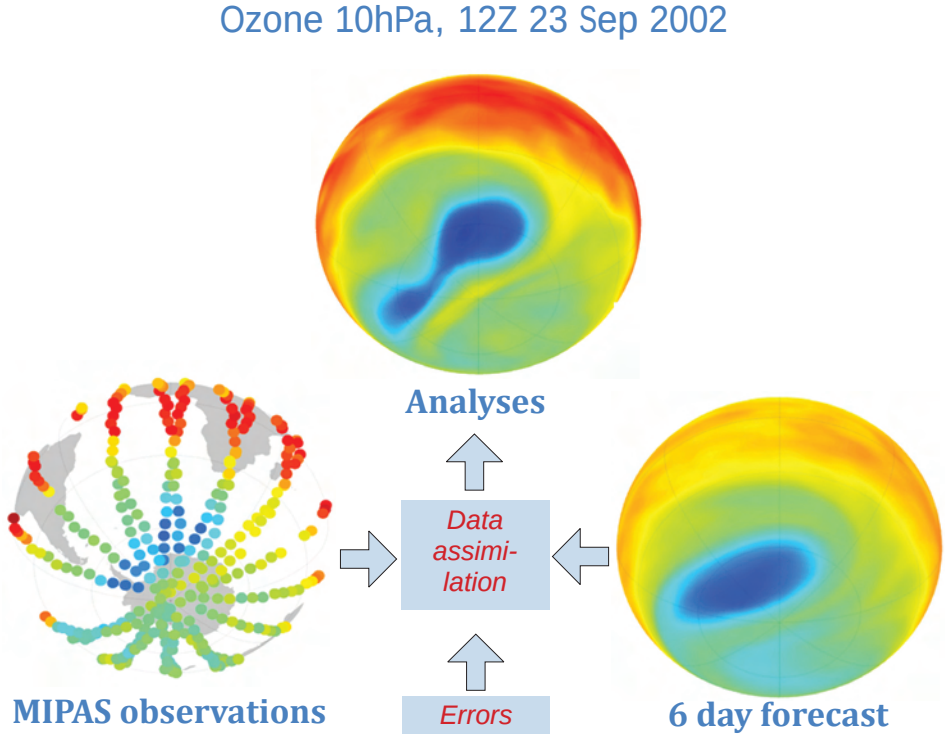
Data assimilation has a strong heritage in weather forecasting, where there have been major improvements over the last 20 years. For example, today's 5-day forecast is as accurate as the 3-day forecast of 20 years ago (*Simmons and Hollingsworth, 2002*). It is natural to apply data assimilation ideas that have been successful in weather forecasting to improve climate models.

NILU is currently building capability to use data assimilation to evaluate land surface schemes and chemistry modules by developing data assimilation systems. The activities build on a five year data assimilation Strategic Institute Programme (SIP) that began in 2006. As part of these data assimilation activities, NILU is establishing collaborations with weather forecasting and climate modelling groups in Norway and elsewhere.

Exciting times ahead!

William A. Lahoz

Senior Scientist
NILU



Schematic of how data assimilation works and adds value. The data are for ozone at 10 hPa (~30 km in height) from the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) instrument onboard ESA's Envisat satellite, at 12Z on 23 September 2002. The data assimilation method combines the MIPAS observations with a model forecast (in this case 6 hours), including their errors to produce an ozone analysis.

Global vs local challenges:

Demand for co-benefit concern

During recent years focus has shifted from local air pollution and its threat to health and environment, toward global threats due to greenhouse gas (GHG) emissions and their impact on climate. As global warming has recently taken most of the focus in the political decision processes, local and regional challenges seem to have been set aside. NILU recommends that decision makers take a balanced view, since it is possible to reduce both GHG emission and local pollution simultaneously.

International experience shows that climate change mitigation can result in a simultaneous reduction in air pollution. IPCC states in its fourth assessment report that "integrating air pollution abatement and climate change mitigation policies offers potentially large cost reductions compared to treating those policies in isolation".

One-sided focus may cause side effects

To focus solely on GHG emissions may cause unwanted side effects. One of the first steps taken by the Norwegian government to cut back domestic CO_2 emissions is likely to fall into this category: The decision to reduce taxes on the purchase of diesel cars as they emit less CO_2 than fuel cars proved to be a success. In one year, the market share of diesel cars increased from 48.3% in 2006 to a substantial 74.3% in 2007. However, the downside of the "success" may be a substantial increase in local air pollution, with a subsequent damaging effect on human health. Recent research has shown that the pollution will continue even with the introduction of filter fittings, as the filter itself contributes to an increase in the damaging NO_2 emissions.

Bjarne Sivertsen

Director
NILU

Local air pollution is a global challenge

Local air pollution is a growing challenge in the rapid growth cities, especially in the developing countries.

The economic development and urbanization has resulted in challenges concerning both energy supply and environmental stress. Air quality levels in many of the mega-cities of the world are by far falling short of air quality standards. NILU is presently engaged in two international projects studying the impact of the mega-cities on the environment.

Carbon capture

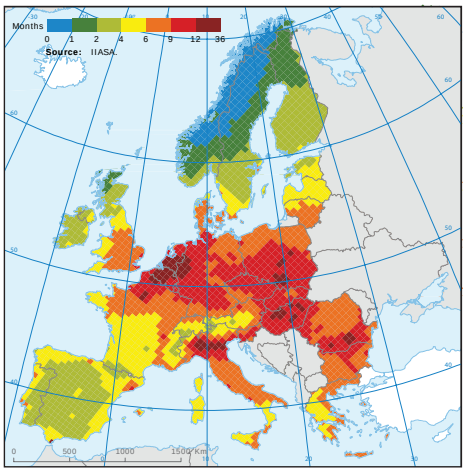
Another issue in the race for reduced GHG emissions is that methodologies to capture CO_2 emissions may be presented without an adequate assessment of the impacts of alternative emissions into the environment. One example is the possible environmental impact of amine emissions, projected to be used in the CO_2 capture process. The effects of these amines on the environment are presently unknown. In order to investigate and avoid any unexpected effects, NILU participates in a Norwegian multi discipline project to study the use of amines in the process.

IPCC recommendation on co-benefit measures

As previously mentioned, the IPCC recommends a co-benefit thinking in the climate change mitigation. To support this argument, a number of technologies and measures in the energy supply, transport, building and industry sector have been identified to also help abate urban air pollution.

Focusing on co-benefit actions is and will be in the future, an important part of NILU's research both in the local and regional air quality management planning. It is also necessary in the study of climate change, including the study of mitigation steps and their effects.

Urbanisation causes increased population exposure and health effects, and China's cities are among the most polluted in the world.



Estimated losses in life expectancy attributable to exposure to fine particulate matter ($PM_{2.5}$) from anthropogenic emissions for 2000. Source: IIASA.

Megacities:

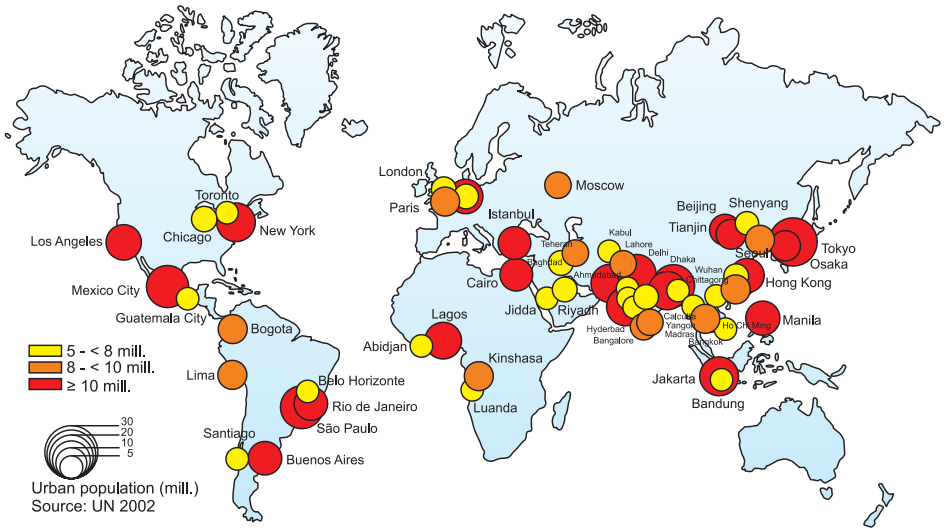
Hotbeds for air pollution and green house gas emissions

The world is experiencing a strong urbanization trend with about 50% of the world population presently living in cities. The urban population is projected to grow from 2.8 billion today to about 4.9 billion in 2030, while the rural population will decrease to 3.3 billion towards 2030. The cities are hotspots for substantial environmental challenges of both air pollution and green house gas emissions. NILU is engaged in two EU research projects studying the air pollution in megacities, their global scale impacts and their interaction with climate change.

Presently, about 20 megacities in the world are defined as highly urbanized regions with more than 10 million people. Tokyo is by far the biggest with 28 million, followed by Mexico City and Mumbai with approximately18 million each.

The percentage of urban dwellers in the Western world is already high, generally above 70%, while the increase is less than 1% annually. However, where the present urbanization rate is slow for Europe and North America, it is very high (2-4%) in Africa, South East Asia and China. In developing countries the urban percentage of the population is generally below 40%, but projected to reach more than 50% in 2030. The world's fastest growing cities such as Mumbai, Shanghai, Delhi and Dhaka are all situated in developing countries.

Megacities are industrial and economic hotspots, representing a major component of energy and resource utilization, production and mobility. The cities are also responsible for a large part of the global greenhouse gas (GHG) emissions, making the cities an important arena for GHG mitigation and policy development.



According to the United Nations Population Fund, roughly 2.8 billion people live already in cities and by 2015, that number will have risen to 3.9 billion.

Local air pollution takes lives

Many of the megacities also represent hotspots in terms of air pollution, causing health risks for their citizens. Even in Europe, it is estimated that exposure to polluting particles (PM) in the air, has led to a reduction in average life expectancy of more than one year in larger parts of Europe, and up to three years in the most affected areas. The most serious challenge for local air pollution is nevertheless to be found in developing countries such as China and India. 700,000 people in China are estimated to suffer an early death due to air pollution annually, the total economic impact of health effects due to air pollution in China being estimated to represent 1.2 to 3.8% of the country's Gross Domestic Product (GDP).

Steinar Larssen

Director
NILU

Research and abatement strategies

Consequently, the study of air pollution dynamics in large urban areas and cost-effectiveness of the various abatement options needed is becoming an even more important field of research. Effective air pollution control depends upon the geographical location of the cities, their development state and their economic and industrial basis. NILU is involved in two new research projects under the EU's 7th Framework program on research, the MEGAPOLI and CITIZEN projects. The main objective of the projects is to investigate how the megacities, their air pollution and climates interact, as a basis for better health effects assessments and abatement policies.

Co-control

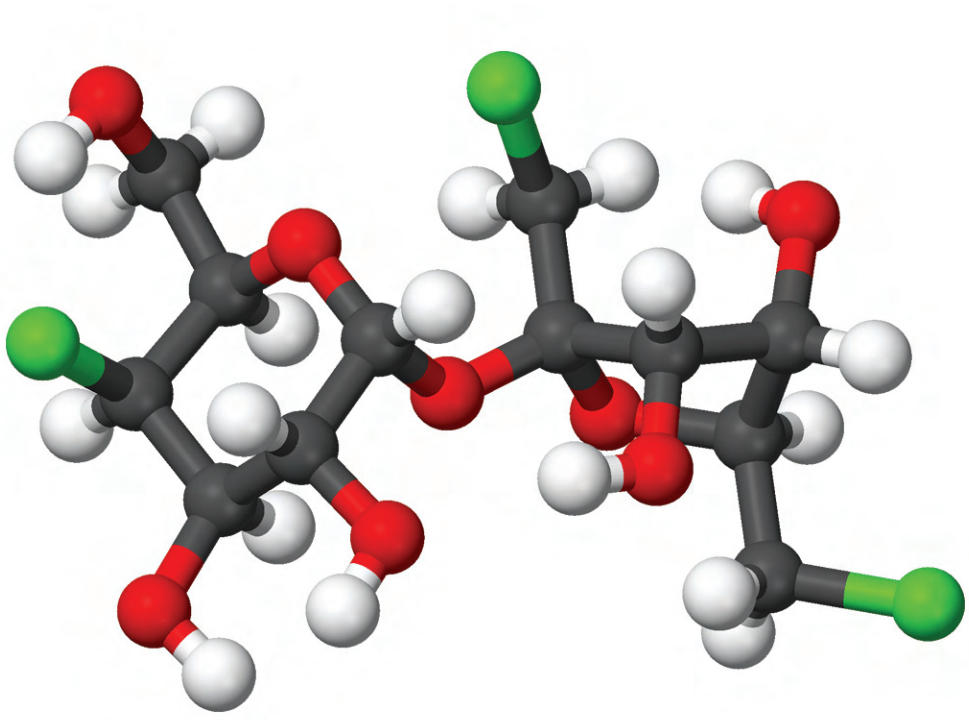
NILU has a long history of studies in several large cities in China, Vietnam, India and many other countries, where the objective has been to develop action plans for cost-effective air pollution control. The control plans are now considering both GHG emissions and local air pollution reductions in an integrated, so-called "co-control" strategy.

Emerging Environmental Pollutants

The number of chemicals in active use is high and the environmental impact of many of them has not been thoroughly evaluated. The scientific community is continuously discovering new threatening pollutants with a subsequent need for environmental data. NILU is taking an active part in the hunt. In 2007 the institute became the first in the world to develop methods for the detection and study of sucralose in the environment.

Environmental data is limited or non-existent for a large number of chemicals in current use. This includes chemicals used in pharmaceuticals and personal care products, as well as additives to food and other products, and for a wide variety of other purposes. Experience indicates that a number of these chemicals will be identified as environmental problems once the necessary research has been performed and their effects established.

Participation in this field is a core activity at NILU. Over the last few years, NILU has contributed substantially to the establishment of data sets and knowledge of pollutants such as triclosan, siloxanes, polychlorinated alkanes, brominated flame retardants and polyfluorinated alkyl substances. The most recent example is sucralose which NILU, in cooperation with IVL (Swedish Environmental Research Institute Ltd.) in Sweden, was the first to trace in the environment.



Sucralose was discovered in 1976 and is an artificial sweetener originally sold under the trade name Splenda, but now also supplied by a variety of manufacturers under various brand names. The molecular formula is $C_{12}H_{19}Cl_3O_8$.

Sucralose is an artificial sweetener that has recently been put into use in Norway. It is about 600 times sweeter than sugar and takes five to ten years before it disappears from waters and lakes. Sucralose is used in a wide range of products such as soft drinks of the “light”-type, different kinds of ketchup, yoghurts and directly as a sweetener (Splenda®).

The yearly emissions from wastewater treatment plants in Norway are roughly estimated to be between six and seven metric tons as a constant flux to the environment. Effects of these emissions on ecosystems in lakes, rivers and marine

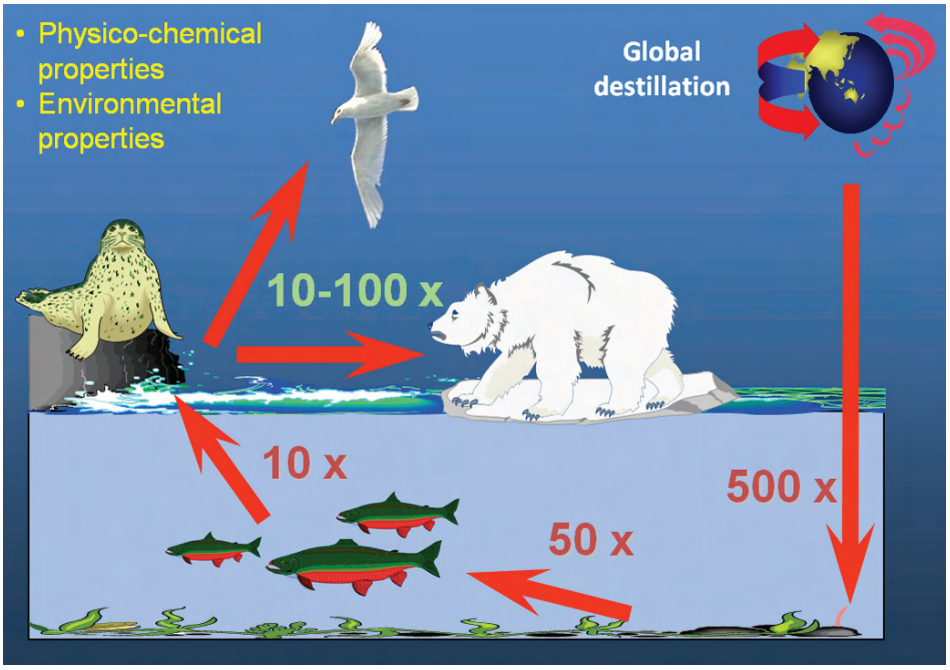
Ole-Anders Braathen

Director
NILU

An increasingly number of food products are marked as sugar free. Instead they are artificially sweetened with chemicals such as sukralose which scientists at NILU fear might be harmful to the environment.

waters have not been studied.

As the first institute in the world, NILU has developed a dedicated sampling and chemical analysis method for the study of sucralose in the environment The method is based on separation and quantification with liquid chromatography combined with high resolution mass spectrometry (LC/MS-TOF). Researchers from NILU have made use of this method to measure concentrations of sucralose in wastewater and sludge from Norway and Sweden and in marine waters on several locations in Norway. Sucralose was detected in all of the samples. The measurements clearly indicate that wastewater treatment plants are not able to remove sucralose from the wastewater.



Distribution and fate in the environment of new environmental pollutants.

Are there any effects in the environment?

Sucralose inhibits the transport of sucrose in sugar cane. No other environmental effects are known, but it should be noted that sucralose has at least one biological effect: Sweetness. Several functions in the aquatic environment depend on taste, e.g. orientation, finding a mate, finding food. Will these functions be affected by sucralose?

What if sucralose:

- is triggering undue feeding behaviour in, e.g., zooplakton?
- impacts the carbon cycle?
- affects signals between symbionts?
- affects orientation in migrating salmonids?

Chemical methods used:

- Solid phase sample extraction
- Two-step clean-up of the sample extract
- Chemical analysis by high performance liquid chromatography (HPLC) combined with high resolution mass spectrometry (HRMS)

Environment and health:

Focus on exposure

In the pursuit of technological advancement, man has been continuously altering the chemical properties of the environment. Our awareness of the consequences of these changes has been heightened in the last decades, bringing about the need for a deeper understanding of the mechanisms. An evaluation of environmental and health consequences is today a must for any actions with potential to further alter the environment. Through its research, NILU contributes to the development of methods and tools.

NILU participates in a number of research projects co-funded by the 6th Framework Program of the EU. The projects are particularly focusing on the development of methodology for quantification of pollution exposure and its impact on human health, both on an individual and population level.

One of the projects, DROPS (*Development of macro- and sectoral economic models aiming to evaluate the role of public health externalities on society*), has brought together seven partners in the pursuit of a unified methodology for assessment of persistent organic pollutants, selected heavy metals, ozone and indoor air.

Current and future emissions were estimated for their health and economic effects, taking into account transport and fate processes, exposures and health effects. The project evaluated the micro- and macroeconomic consequences of changes in emission in four future scenarios in Norway, Poland, Czech Republic and Germany.

The project will be completed at the beginning of 2008.

The HENVINET Project (Health and Environment Network) has it's web site at *www.henvinet.eu*.

Impact on human health

Other EU projects for the quantification of environmental impact on human health:

INTARESE(IP): Integrated assessment of health risks of environmental stressors in Europe. Coordinated from Imperial College, UK; Health impact assessment methodology and toolbox development.

HEIMTSA(IP): Health and Environment Integrated Methodology and Toolbox Development for Scenario Assessment, coordinated from the Institute of Occupational Medicine, UK; An assessment framework for over 50 environmental stressors

ENVIRISK (STREP): Assessing the risks of environmental stressors: contributing to development of integrating methodology", focusing on exposure assessment and health risk for PCBs and PAHs in two areas with well described environmental and health status over the last 15-20 years.

HENVINET: Health and Environment Network (CSACA), NILU and partners are documenting the causal framework and developing methods for knowledge evaluation of environmental health problems.

The consequences of exposure to pollutants in Dakar in Africa.

Alena Bartonova

Senior Scientist
NILU

Climate effects on Cultural Heritage

Scientists fear dramatic effects from the climate changes on the cultural heritage in Europe. Applying results from the EU project "NOAH's ARK", NILU has produced exposure risk assessments for the maintenance and conservation of cultural heritage property in Norwegian municipalities.

The data will be used for the production of guidelines for vulnerability assessment and adaptation policies.

Over the last ten years NILU has participated in numerous European and Norwegian projects regarding the understanding and measurement of degradation effects of air pollution and climate change on materials and cultural heritage. Lately the focus has shifted more towards the prediction of climate change effects on the cultural heritage.

Increased risks of extreme events and degradation rate

The climate changes are predicted to increase both the precipitation and temperature in Europe, thus causing increased degradation of the cultural heritage in many locations in Europe. Northern parts of Europe and Norway will most probably experience both more precipitation, especially in the winter, and higher mean temperature. This will increase both the risks for extreme events like flooding and landslide and the rate of many degradation processes.

The EU project "Global Climate Change Impact on Built Heritage and Cultural Landscapes", NOAH'S ARK, in which NILU has taken an active part, has deduced a range of climate heritage parameters important for heritage degradation. Both a short and long term climate scenario for Europe are now mapped out. As part of this work, NILU has produced European maps for future predicted high wind speeds. NILU also used the model for the mapping of predicted sea salt deposition along the European coastline.

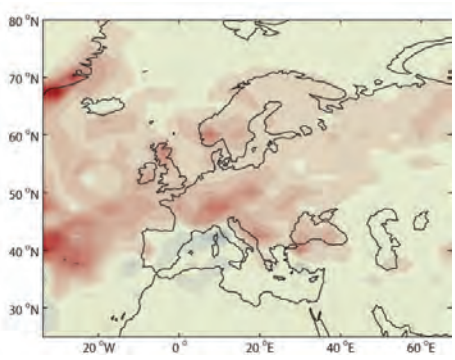
Useful tools for cultural heritage conservation

The extensive mapping was published in a Vulnerability Atlas. By the end of 2006 NILU was engaged in a Norwegian Strategic Institute Programme, applying the results from NOAH's ARK and other studies as scientific input to the production of guidelines for vulnerability assessment and adaptation policies for the maintenance and conservation of Cultural Heritage property in Norwegian municipalities.

The Guidelines will be structured to assist policy makers and managers in their evaluation of the best (most cost effective) administrative and technical adaptation measures for the protection of the specific cultural heritage objects they are responsible for. The whole range of risks from probabilities of extreme hazards, such as floods or landslides, to the gradually increasing effects of frost / thaw cycles and wood rot is being considered.

The work is expected to continue in new projects in 2008.

Increased risks on cultural heritage:
A warmer and wetter climate will increase the deterioration of valuable wooden buildings, such as the Gol stavkirke (stave church).



Increased risk of landslides due to changes in precipitation untill the end of 21th century:
Red colours means increased risk for landslides, blue means less risk. Topography is not part of the model. Source: *EU project NOAH's ARK*.

Terje Grøntoft

Senior Scientist
NILU

Reference:
NOAH's ARK:
http://noahsark.isac.cnr.it

Coastal ecosystems at risk

Change of the chemical composition of the atmosphere due to human activities will directly and indirectly alter the biogeochemical cycling of chemicals in the environment. Aquatic and terrestrial ecosystem structures, functioning and service provision will react to such alterations.

Coastal areas subject to sharp changes in material fluxes.

The study of the coastal zone, where air, water and land meet, and where almost half of the human population resides today is of particular interest for NILU and its new department, Center of Ecologic Economy.

Abrupt conjuncture between land, air and sea

Europe has an overtly coastal environment, and Norway's position is unique both in terms of geography and physics. The abrupt conjuncture between terrestrial, atmospheric and aquatic systems at the coast leads to sharp changes in material fluxes, underlining the biogeochemical interest in this region.

Human activity

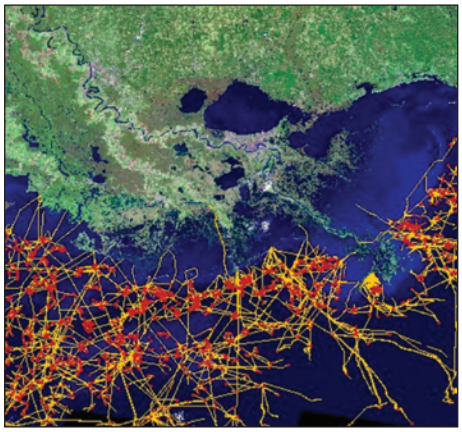
Throughout history people have settled near the coast. Traditionally, the seas supplied food and ways of transport, trade and contact with other people. Today, the inertia of coastal agglomerations around the world, typically located where major rivers discharge, is a strong additional driver behind anticipated continued future growth.

The extent to which coastal developments and other anthropogenic changes in river basins will influence and alter the costal conditions remains to be studied. Several processes depend upon the development. The alteration of fluxes of nutrients and pollutants, the sea-air exchange and the capacity of coastal waters to provide a sink for pollutants transported from afar, the balance with coastal waters acting as sources of re-emission of contaminants to the atmosphere, including climate gases. There are all questions with consequences for ecosystem functioning, including the modification or loss of habitats.

The role of coastal ecosystems in global climate change

NILU contributes to addressing these questions through several international projects:

- *IGBP/IHDP[1] Land Ocean Interactions in the Coastal Zone (LOICZ):* The project has been assessing the global drivers and pressures behind changes in the biogeochemical fluxes into, and within, coastal regions for the last 15 years, as well as the major natural and socio-economic impacts of these changes. Progress has been made in understanding the changes in the Earth System and the role of coastal ecosystems in global change. This includes identifying proxies that describe the state of coastal ecosystems and existing conditions and change scenarios.
- *CLICOAST;* The assessment of information available on climate change and its role in the coastal ecosystems changes in Northern Europe with the focus on three major questions:
  1. What are the implications of ecological and economic change for patterns of land and sea use in Northern Europe related to climate change?
  2. What are the effects of changes to the flow of freshwater and materials to estuaries and shelf seas?
  3. How can comparative analysis inform the improvement of the governance of human activities in changing coastal ecosystems? The project has been carried out with the support of the Research Council of Norway.
- The EU project CARBOCEAN aiming at the scientific assessment of the marine carbon sources and sinks within space and time. The project focuses on the Atlantic and Southern Oceans and a time interval of – 200 to + 200 years from now.



The mouth of the Mississippi River, USA, has a maze of (mostly subsurface) oil platforms (red) and pipelines (yellow), without knowledge of which the economic and environmental issues of the region would be difficult to understand.

Jozef M. Pacyna

Director
NILU

Norwegian Institute for Air Research

Reference:

1) International Geosphere-Biosphere Programme (IGBP) and International Human Dimension Programme on Global Environmental Change (IHDP)

Establishing rural monitoring sites in Eastern Europe, Caucasus and Central Asia

NILU is establishing rural monitoring sites in Kazakhstan, Moldova, Armenia and Georgia, in the framework of the Convention for Long-Range Transport of Air Pollution - CLRTAP. The convention now has 51 parties covering most of Europe, Central Asia and North America. Efforts nevertheless need to be made to assist new countries in their ratification and implementation of the Convention and its protocols, especially concerning countries in the EECCA region where there are hardly any rural monitoring sites today.

The region is important due to its huge size and high emissions of air pollutants. More monitoring is needed to better quantify the air quality in the region and to understand the hemispheric transport in Asia and Europe.

The EECCA region covers Eastern Europe, the Caucasus and Central Asia. Also included in the ratification of the Convention is the participation in the European Monitoring and Evaluation Programme called EMEP.

Good quality basic monitoring

NILU has selected one representative site in each country, on which field and lab equipment has been installed. At present the focus has been on the establishment of good quality basic monitoring of pollutants which are important for acidification, eutrophication, photochemistry and particulate matter. There are furthermore plans to include measurements of environmental pollutants like POPs and heavy metals. More knowledge about these pollutants is needed, as continuous monitoring of the compounds is only being done in North and central Europe and very little is known about sources and distribution in other parts of Europe.

Kazakhstan

Kazakhstan

Armenia

Growing awareness?

The EECCA region is in focus also on the political level. At the Sixth Ministerial Conference “Environment for Europe” convened in Belgrade, Serbia, in October 2007, a special session on capacity building and environment strategy for EECCA countries was discussed. Expectedly, the awareness for environmental issues as well as capacity building will continue to grow in this region in the years to come.

NILUs activities in the region are supported by the Norwegian Ministry of Foreign Affairs and UN’s Economic Commission for Europe, UNECE.

Wenche Aas

Senior Scientist
NILU

NILU establishes an air quality institute in Abu Dhabi

The Environment Agency – Abu Dhabi (EAD) decided autumn 2007 to engage NILU as strategic partner for all issues related to air. NILU has been awarded a five years contract for the outsourcing of air quality and noise control activities in Abu Dhabi starting January 2008.

"This initiative is a continuation of our work to secure a safe environment for future generations. It is a special challenge for EAD due to the fast economic, social and technological development taken place in Abu Dhabi Emirate", said Mr. Majid Al Mansouri, Secretary General Environment Agency, in his speech during the signing ceremony.

NILU shall during the project period establish an air quality institute similar to NILU to be named: "Abu Dhabi Air and Climate Institute (ADACI)". The institute shall be manned with experts from the Abu Dhabi region and will deal with issues like:

- Ambient and Indoor air quality
- Noise quality
- Clean Development Mechanism (CDM)
- Emissions of pollutants
- Greener fuels
- Green Building Guidelines
- Renewable Energy

The task focuses on the following areas:

The introduction of new regulatory procedures for control of sources of emissions, including the integration of noise and air quality issues into the wider land use planning.

The establishment of a national standardization unit. This unit will maintain the national reference calibration standards – representing the highest level of calibration in the measurement network. The unit will also host and operate the national central database for all official validated ambient air quality time series. A web portal will also be set up for dissemination of measurements and information related to air quality.

As of January 2009 NILU will take over the network operation, containing 12 stations, 10 fixed and 2 mobile units. This covers all parts of the operation, such as maintenance of instruments, inspections of stations and data validation and reporting.

To obtain scientific sustainability, NILU will hire nationals for relevant positions and use experienced NILU personnel to supervise them. By the end of the five year period about 25 % of the staff should be Emirati nationals. NILU will also evaluate economic mechanisms to secure funds for the operation of the unit after the five year contract period. Examples of income will be the hosting of the national standardization unit, the auditing of external networks, the issuing of different certificates related to air quality activities and the hosting of national databases, among other things.

NILU will hire approx. 20 employees with competence in the fields related to noise and air pollution.

Trond Bøhler

Director
NILU

Mr. Talal Daair, Managing Director, Dome Oilfield Engineering & Services LLC, speaking at the opening of NILU's office.

From left, NILU's Director Gunnar Jordfald; the Ambassador of Norway, Anne Rikter-Svendsen; Director of Environment Agency – Abu Dhabi (EAD) Majid Al Mansouri; and Paal Berg, Deputy Director at NILU.

Gunnar Jordfald, Director of NILU and Majid Al Mansouri, Secretary General of Environment Agency – Abu Dhabi.

NILU Polska
— exploring the biogas technology

NILU Polska aims at contributing to sustainable development in Poland through two paths: air quality issues based on NILU's vast experience and assessment of environmental technologies focusing on biomass based energy conversion technologies.

The approach is to be an independent consultant supporting investors interested in implementing less known technologies in Poland, like biogas plants.

In 2007 NILU Polska started cooperation with Agriculture Farm Wenecja II on development conception for 1 MW biogas plant implementation. All necessary permissions have been given and construction works is expected to start in 2008. The planned biogas plant will be fed with the farm's own raw materials like cattle manure and energy crops as well as with external residues from poultry processing factories.

Presently there are only two agricultural biogas plants in operation (760 and 330 kW, pigs slurry based) in Poland, so Wenecja II is still on forefront of such solutions.

MSc. Karol Kuc at NILU Polska.

uMoya-NILU
— bringing air quality to South Africa

uMoya-NILU is a Durban-based air quality consulting company that brings the benefits of strong South African expertise and experience together with the vast resources offered by the Norwegian Institute for Air Research (NILU) to address Air Quality Management challenges facing a range of stakeholders in southern Africa.

With strong ethics and values, uMoya-NILU's mission is to provide clients with Air Quality Management Solutions that are well researched, appropriate, and sustainable.

uMoya-NILU is a truly South African company with bona fide Broad Based BEE credentials, with a non-white South African director on the board who hold 40% of the company's shares.

Air quality challenges for uMoya-NILU.

The experience residing in uMoya-NILU has been developed through their involvement in operational air quality management and in consulting and research projects over a collective period of more than 25 years.

uMoya-NILU's diverse and experienced team offers services in the following fields relating to air quality management:

Air Quality Management planning and implementation

- Specialist Studies
- Emission Reduction Planning
- Emission Inventories
- Ambient Monitoring
- Calibration Services
- Air Quality Analytical Services
- Training Courses

facts & figures

Photo: Harald Sodemann, NILU

From Greenland Inland Ice

Report from the board of directors 2007

Air quality measurement station in United Arab Emirates.

The foundation Norwegian Institute for Air Research (NILU) conducts research and assessment of technical, economic and other environmental issues related to air pollution and environmental toxins.

Domestic projects represent 70% of the turnover in 2007, while the remaining 30% show a significant international orientation.

NILUs main activities are run from Kjeller in the municipality of Skedsmo, Norway. NILU also has offices at the Polar Environmental Centre in Tromsø, at the Oslo Centre for Interdisciplinary Environmental and Social Research (CIENS) in Oslo, and in Abu Dhabi, the United Arab Emirates.

Major tasks in 2007

NILU experienced a good income increase in 2007 and most areas have improved during the year. The basic funding from the Research Council of Norway (RCN) represents 11% of the turnover. From this one third is assigned to Strategic Institute Programmes (SIPs). NILU's SIPs are directed to future fields of research, partly in cooperation with institutions of other disciplines:

- 'New' organic environmental toxic compounds
- Development and use of data assimilation in atmospheric chemistry
- Metal speciation in studies of the status of nature
- Studies of local climatic effects caused by extreme weather phenomena
- Studies of the water cycle
- Nature and cultural heritage scenarios of future impact from eco systems
- Presence of pharmaceuticals and personal health care products in sewage and how to handle it

NILU has been successful in many applications from the RCN. One result of this has been participation in several International Polar Year (IPY) projects, one of them a large consortium lead by NILU, the POLARCAT project (Polar Study using Aircraft, Remote Sensing, Surface Measurements and Models, of Climate, Chemistry, Aerosols, and Transport).

The main activities of the Tromsø office involve chemical analysis of biological material , earth observation, climate, ozone and ultraviolet radiation. There is a tight collaboration with the other institutes at the Polar Environmental Centre through the common centre programmes as well as close ties to the scientific environment at NILU's head office.

Development and use of the integrated environmental management system AirQUIS, which integrates measurement, data handling, geographic information systems (GIS), calculation and presentation of air quality, and is the main component in many projects, both domestic and abroad. NILU will continue developing and applying AirQUIS. The Norwegian Meteorological Institute (Met.no) and NILU are co-operating in forecasting the air pollution in Oslo and several other cities in Norway by means of AirQUIS.

The measurements from the Zeppelin observatory in Ny-Ålesund, Svalbard, are of great scientific value because of the observatory's unique situation with respect to lack of local pollution. It is however an economic challenge to conduct these measurements, which in spite of good infrastructure and communications are more expensive than at the mainland. NILU has not been successful in improving the funding for this activity, which has been run at a loss in recent years. The Zeppelin observatory is the most important place in Norway for monitoring green house gases and long range transport, and one of a few globally.

A new, well-equipped observatory has been built at the Troll station, a Norwegian, manned all year research station in the Antarctic, and has had its first operational year. Instruments were installed and measurements started in January 2007.

In order to make the observatory at Birkenes in Aust-Agder county, a so-called 'supersite' by European standards, an upgrading process has been started. The observatory will gain a bet-

ter infrastructure and more advanced instrumentation. The funding is based on EU projects and own investments. With this upgrading NILU will have the disposal of four strategically placed observatories in background areas: Ny-Ålesund, Andøya, Birkenes and the Antarctic.

Monitoring of long-range transport of air pollutants and green house gases is still a very important task. The Norwegian Pollution Control Authority (SFT) has contracted NILU to act as a national reference laboratory for air quality measurements. NILU has for many years been accredited to do air quality and meteorological measurements and relevant chemical analyses. The chemical laboratory of NILU is among the leading in Europe regarding analysis of super low concentrations in air and most other substances.

NILU conducts several large and long term measurement projects for the Norwegian industry.

In co-operation with the innovation company Campus Kjeller AS, NILU has received several grants for innovation projects from the Research Council of Norway (RCN).

NILU has been certified according to ISO 9001:2000 for its contract research.

International activities

NILU plays a significant role in many European activities regarding air pollution, of which one is participation in the European Topic Centre on Air and Climate Change (ETC-ACC) under the European Environment Agency (EEA), where Met.no is also one of the members.

NILU has for almost 20 years participated in the EU's Framework Programmes (FP) for RTD. In 2007 only, NILU has a role in 25 EU projects under FP6. The main themes are ozone depletion, changes in ultraviolet radiation, air pollution and climate change, satellite data validation, changes in atmospheric chemistry, particulate matter in air, regional and global dispersion of environmental toxins, standardization of measurement methods, electronic distribution of environmental data and effects of environment on health and materials. The first 'call' in FP7 came in 2007 and resulted in 10 new projects, of which one of them is to be coordinated by NILU. These projects will start in 2008.

In the FP6 NILU is a central partner in a Network of Excellence within air pollution, started 1 March 2004. This network is called Atmospheric Composition Change: a European Network (ACCENT). In 2002, NILU was appointed as partner in a Nordic Centre of Excellence (NCoE) for excellent research in the fields of biosphere, aerosols, cloud and climate interactions. The main objective is to study the importance of aerosol particles on climate change and human health.

NILU develops and manages several international databases, mainly with a scientific purpose. They can be divided into three main groups: databases linked up to international emission conventions, satellite data and measurements from EU projects.

Transfer of competence through development aid is of great importance, through projects in South Africa, Senegal, India, Vietnam and Bangladesh. The major topics are to establish infrastructure to map air quality and to prepare action plans, including transfer of knowledge and competence.

NILU Polska has five employees and focuses primarily on renewable energy and air quality management systems (AQMS).

In 2005 NILU launched a branch office in Abu Dhabi in the United Arab Emirates on the basis of contract work for local authorities and oil based industry. The main activities are institutional building within AQMS, analysis of the air quality status in the region, measurements, various consultative services and transfer of competence. In 2007 the environmental authorities in Abu Dhabi awarded NILU a major 5-year contract in this field.

Result for the year

The annual accounts for 2007 show a profit of MNOK 2.0 for the group as for the parent company, NILU. The operating profit for the group is just under

The NILU main office at winter time.

MNOK 2.8, but exceeds MNOK 2.8 in the parent company since the operating profit is MNOK -0,06 in the wholly owned subsidiary, NILU Products AS (NP). The profit improvement is MNOK 1 in the parent company as for the group. The financial items are weaker than in 2006.

The operating revenue for the group was MNOK 133.4 (126.8) including MNOK 1.9 (2.2) in NP. The numbers in parentheses are from previous year.

NP, founded in 1996, has as its main purpose to manage the parent company's strategic ownerships in other companies and to create commercial activity based on systems and products developed by NILU. NILU Polska sp. z.o.o. was established in 2001 by NP buying 90% of the stock. In 2006 NP participated in establishing EIFair AS, and owns 40.2% of the shares. NP also owns 34% of the shares in uMoya-NILU Consulting (Pty.) Ltd. in South Africa, a company established in 2007.

Future operations

The terms for continued operations are present and the annual accounts for

2007 are based on this.

The prospects for continued operations seem sound and are based on a satisfactory contract reserve at the end of the year, in addition to the basic funding and reasonable expectations for new contracts in 2008.

Gender issues

NILU emphasises a balanced gender composition of the employees. This also applies to the Board of Directors. The directives, salary system and NILU regulations are gender neutral. There are 65 women and 94 men out of a total staff of 159 employees. Of seven department directors there is one woman. The Board of Directors is composed of four women and three men.

Work environment

The institute has procedures for its work on health, safety and environment (HSE), and revisions have been conducted according to 'Rules on internal control – health and safety'.

Accidents resulting in absence from work have not occurred during 2007. The total time of absence due to illness increased from 3.5% to 4.4% in 2007.

The increase is evenly distributed on short and long time absence.

External environment

NILU emits insignificant amounts of pollution to the ambient environment. Ordinary waste is sorted, while special waste is delivered to approved receivers.

Trond Iversen
Chairperson

Suzanne Lacasse

Signe Nåmdal

Peringe Grennfeldt

Erik Solhjell

Gunnar Jordfald
Director

Cristina Guerreiro

Mona Johnsrud

Kjeller, 21 April 2008
The Board of Directors
for Norwegian Institute for Air Research

Auditors Report 2007

I have audited the financial statements of the Norwegian Institute for Air Research for the financial year 2007, showing a profit of NOK 1.978.540 both for the parent company and the group. I have also audited the information in the Board of Director's report concerning the financial statements, the concern assumption of continued operations, and the proposal for the allocation of the profit. The financial statements comprise the balance sheet, the statements of income and cash flows, the accompanying notes and the group accounts. These financial statements are the responsibility of the company's Board of Directors and Managing Director. My responsibility is to express an opinion on these financial statements and on the other information according to the requirements of the Norwegian Act on Auditing and Auditors.

I have conducted my audit in accordance with the Norwegian Act on Auditing and Auditors and good auditing practice. Good auditing practice requires that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall financial statement presentation. To the extent required by law and good auditing practice an audit also comprises a review of the management of the company's financial affairs and its accounting and internal control system.

I believe that my audit provides a reasonable basis for my opinion.

In my opinion

The financial statements are prepared in accordance with the law and regulations and present the financial position of the company as of 31 December 2007, and the results of its operations, in accordance with good accounting practice.

The company's management has fulfilled its duty to produce a proper and clearly set out registration and documentation of accounting information in accordance with the law and good accounting practice.

The information in the Board of Director's report concerning the going concern assumption, and the proposal for the allocation of profit is consistent with the financial statements and comply with the law and regulations.

Oslo, 21 April 2008

Helge Thorvik
State Authorised Public
Accountant (Norway)

Note: The translation into English has been prepared for information purposes only.

Profit and Loss Account

(all amounts in NOK)		The Group		Parent Company	
OPERATING REVENUE	NOTE	**2007**	**2006**	**2007**	**2006**
Project income	1	115 243 389	110 225 748	115 243 389	110 225 748
Basic grant	2	14 687 000	14 097 000	14 687 000	14 097 000
Production income		1 865 540	2 237 867	0	0
Sale tangible fixed assets		817 555	0	817 555	0
Sundry income		783 463	241 627	783 463	241 627
Operating revenue		**133 396 947**	**126 802 243**	**131 531 407**	**124 564 376**
OPERATING EXPENSES					
Payroll and sosial costs	3	-83 977 062	-78 177 669	-83 337 101	-77 448 109
Direct project expenses	1	-19 846 252	-18 617 805	-19 846 252	-18 617 805
Changes to project in progress		3 851 189	-2 733 601	3 851 189	-2 733 601
Direct production costs/cost of materials		-749 784	-873 669	0	0
Rent lightning, heating etc.		-4 598 562	-4 009 381	-4 598 562	-4 009 381
Consumables, operation and maintenance		-13 880 886	-11 459 779	-13 728 349	-11 321 731
Travels and meetings		-2 386 088	-1 803 218	-2 386 088	-1 803 218
General office expenses		-3 242 133	-2 543 770	-3 242 133	-2 543 770
Other expenses	4	-201 464	-4 970	-201 464	-4 970
Depreciation	5	-5 610 544	-5 386 694	-5 228 544	-5 004 694
Operating expenses		**-130 641 586**	**-125 610 556**	**-128 717 304**	**-123 487 279**
OPERATING PROFIT		**2 755 361**	**1 191 686**	**2 814 103**	**1 077 096**
FINANCIAL INCOME AND FINANCIAL EXPENSES					
Income from investments in subsidiary company				-353 563	27 013
Income from investments in affiliated companies	8	-311 072	-84 464		
Dividends received		719 177	539 049	706 077	533 924
Other financial income		91 414	139 736	83 924	119 215
Interest expenses	6	-331 097	-574 223	-329 920	-574 079
Other financial expenses		-603 294	-307 969	-603 294	-307 969
Net profit/loss financial items		**-434 872**	**-287 871**	**-496 776**	**-201 896**
ORDINARY PROFIT BEFORE TAX CHANGES		**2 320 489**	**903 815**	**2 317 327**	**875 200**
Tax expenses on ordinary profit	7	-341 949	-28 615	-338 787	0
PROFIT OF THE YEAR		1 978 540	875 200	1 978 540	875 200
Appropriation and distribution of profit/loss					
Allocated to other equity capital	12	1 978 540	875 200	1 978 540	875 200

Balance

(all amounts in NOK)		The Group		Parent Company	
Assets	**Note**	**31.12.2007**	**31.12.2006**	**31.12.2007**	**31.12.2006**
Fixed assets					
Immaterial assets					
Activated research and development costs		183 000	552 000		
Tangible fixed assets					
Building Kjeller	5	17 865 000	18 530 000	17 865 000	18 530 000
Building engineering	5	612 000	344 000	612 000	344 000
New Birkenes	5	288 000	0	288 000	0
Instruments/field equipment	5	9 305 900	9 172 900	9 305 900	9 172 900
Computer equipment	5	1 041 400	881 100	1 041 400	881 100
Fixtures and fittings	5	174 600	258 250	174 600	258 250
Tangible fixed assets, NILU Products	5	32 500	45 500	0	0
Total tangible fixed assets		**29 319 400**	**29 231 750**	**29 286 900**	**29 186 250**
Financial fixed assets					
Net pension commitments	13	1 116 573	96 449	1 013 507	0
Investments in subsidiary company	8	50 342	93 448	1 595 900	1 949 463
Loan to subsidiary company	9	0	0	2 140 000	1 690 000
Investments in CIENS building, Oslo	8	9 889 281	10 402 521	9 889 281	10 402 521
Investments in affiliated companies	8	1 604 824	1 289 773		
Investments in shares	8	1 647 022	1 647 022	1 647 022	1 647 022
Deposit/other holdings		90 844	78 844	90 844	78 844
Total financial fixed assets		**14 398 886**	**13 608 057**	**16 376 554**	**15 767 850**
Total fixed assets		**43 901 286**	**43 391 807**	**45 663 454**	**44 954 100**
CURRENT ASSETS					
Stocks, NILU Products	10	1 872 100	1 219 100	0	0
Work in progress	10	11 033 290	7 182 101	11 033 290	7 182 101
Debtors		12 383 680	14 046 167	12 318 702	13 699 583
Claims on the group		0	0	722 944	733 584
Other short-term claims		1 892 674	1 764 970	1 795 061	1 692 123
Cash and bank	11	25 070 416	26 519 713	24 867 129	26 032 806
Total current assets		**52 252 160**	**50 732 051**	**50 737 126**	**49 340 197**
Total assets		**96 153 446**	**94 123 858**	**96 400 580**	**94 294 297**
EQUITY AND LIABILITIES					
Lock-up capital					
Capital stock		10 000 000	10 000 000	10 000 000	10 000 000
Equity capital income					
Other equity capital	12	47 674 228	40 421 885	47 674 228	40 421 885
Total equity capital		**57 674 228**	**50 421 885**	**57 674 228**	**50 421 885**
LIABILITIES					
Provisions made for liabilities					
Pension commitments	13	0	4 591 898	0	4 591 898
Other long-term debt					
Mortgage	14	5 557 500	6 412 500	5 557 500	6 412 500
Total long-term liabilities		**5 557 500**	**11 004 398**	**5 557 500**	**11 004 398**
CURRENT LIABILITIES					
Creditors		4 598 168	6 706 091	4 449 422	6 617 355
Debt to subsidiary company		0	0	558 861	541 128
Advances from clients		10 816 163	8 938 324	10 816 163	8 878 009
Advances relating to management projects	1	115 335	1 827 494	115 335	1 827 494
Tax payable	7	673 551	28 615	670 389	0
Unpaid government charges and special taxes		6 371 461	6 561 990	6 296 230	6 450 748
Unpaid accumulated holiday payroll/wages		7 834 193	8 217 842	7 771 284	8 157 807
Other short-term liabilities		2 512 848	417 219	2 491 168	395 473
Total short-term liabilities		**32 921 719**	**32 697 575**	**33 168 852**	**32 868 014**
Total liability		**38 479 219**	**43 701 973**	**38 726 352**	**43 872 412**
TOTAL EQUITY AND LIABILITIES		**96 153 447**	**94 123 858**	**96 400 580**	**94 294 297**

Cash Flow Analysis

(all amounts in NOK)		The Group		Parent Company	
OPERATING ACTIVITIES		**2007**	**2006**	**2007**	**2006**
Profit before taxes		2 320 489	875 200	2 317 327	875 200
Tax paid for the period		-28 615	-12 753	0	0
Corrections made for dead stocks		54 786	-21 462	0	0
Ordinary depreciation		5 610 543	5 386 694	5 228 543	5 004 694
Income in connection with writing the equity methods for shares		311 072	113 079	353 563	-27 013
Exchange rate correction of foreign shares		-4 137			
Accountancy values of tangible fixed assets		182 444	8 633	182 444	8 633
Changes in stocks		-4 332 980	-2 987 491	-3 625 194	-3 114 553
Changes in debtors		1 673 127	-1 199 136	1 391 521	-1 242 208
Changes in creditors		-2 090 190	2 588 949	-2 150 200	2 623 225
Changes in pension commitments		-6 617	542 431	0	547 740
Changes in other accruals		1 273 844	622 569	1 451 717	1 581 357
Net cash flow from operating activities	**A**	4 963 766	5 916 713	5 149 722	6 257 075
INVESTMENTS ACTIVITIES					
Purchase of shares in CIENS		513 240	-10 355 292	513 240	-10 355 292
Purchase of operating assets		-12 000	-3 000	-12 000	-3 000
Purchase of shares		-578 880	-185 000	0	0
Payment of tangible fixed assets		-5 511 638	-8 843 689	-5 511 638	-8 843 689
Net cash flow from investment activities	B	-5 589 278	-19 386 981	-5 010 398	-19 201 981
FINANCING					
Long-term liabilities repaid		-855 000	-855 000	-855 000	-855 000
Increased debt to subsidiary		31 215	126 140	-450 000	
Net cash flow from financing activities	C	-823 785	-728 860	-1 305 000	-855 000
Net changes in cash and bank throughout the year	A+B+C	-1 449 297	-14 199 128	-1 165 676	-13 799 906
Cash and bank deposits as at 1 January		**26 519 713**	**40 718 841**	**26 032 805**	**39 832 711**
Cash and bank deposits at 31 December		**25 070 416**	**26 519 713**	**24 867 129**	**26 032 805**

Notes to the Accounts 2007

The consolidation accounts comprise the parent company NILU and the wholly owned subsidiary NILU Products AS. The shareholdings in the subsidiary and all internal transactions have been eliminated.

Trade debtors and other receivables are recorded at face value after deducting provisions for bad debts. Provisions for bad debts are made on the basis of an individual valuation of the various receivables. In addition, an unspecified provision for debtors is made in order to cover the assumed loss.

NOTE 1 PROJECT INCOME

In order to show the actual turnover, as in previous years, management projects have not been included in the profit and loss account. In 2007, management costs amounted to NOK 15,4 million and for 2006 NOK 5.2 million. Equivalent amounts are deducted from direct project costs. Advance payment for the management projects has been entered as a separate item in the balance for 2007 amounting to NOK 115 335 and for 2006 to NOK 1 827 494.

NOTE 2 BASIC GRANT/INSTITUTE PROGRAMME

		2007	2006	2005	2004
Basic grant	Chapter 1410	9 690 000	9 450 000	8 576 000	8 564 000
Institute programme	Chapter 1410	4 997 000	4 647 000	3 547 000	3 300 000
Total		**14 687 000**	**14 097 000**	**12 123 000**	**11 864 000**

NOTE 3 EMPLOYEES, REMUNERATION ETC.

Labour costs	2007	2006	2007	2006
	The Group	The Group	Parent Company	Parent Company
Salaries	66 994 228	60 161 836	66 483 769	59 616 549
Salaries clearing NILU Products	-177 366	-97 323	-177 366	-97 323
Expense for social taxes	9 821 099	8 637 510	9 742 920	8 549 868
Norwegian Public Service Pension Fund (SPK)	5 642 005	7 408 410	5 594 741	7 336 148
Assistance from the group	6 648	26 510		
Change in pension commitments	-6 617	542 431	0	547 740
Other labour costs	1 697 065	1 498 295	1 693 037	1 495 127
Total labour costs	83 977 062	78 177 669	83 337 101	77 448 109

The Institute Director received remuneration amounting to:	853 312
Remuneration paid to members of the Board of directors:	243 000
Average number of employees:	152
Auditor's fee (auditing only) NILU & NP:	103 600

NOTE 4: OPERATING GRANT TO NILU PRODUCTS

NILU Products have received NOK 200 000 in operating grant from parent company in 2007 and NOK 0 in 2006.

NOTE 5: TANGIBLE FIXED ASSETS

Tangible fixed assets	Building NILU	Building engineering NILU	Birkenes NILU	Instruments NILU	Data equipments NILU	Office equipments NILU	Total Parent Company	R&D costs NILU Products.	Instruments NILU Products	Total The Group
Original cost 01.01.2007	73 229 570	382 395	0	66 101 846	14 005 350	5 230 986	158 950 147	1 843 388	325 661	161 119 196
Addition during the year	68 000	339 877	320 754	4 040 080	742 927	0	5 511 638	0	0	5 511 638
Disposal during the year				- 182 445			- 182 445			- 182 445
Original cost 31.12.2007	73 297 570	722 272	320 754	69 959 481	14 748 277	5 230 986	164 279 340	1 843 388	325 661	166 448 389
Accu. depreciation 01.01.2007	54 699 570	38 395	0	56 928 946	13 124 250	4 972 736	129 763 897	1 291 388	280 161	131 335 446
Ord. depreciation for the year	733 000	71 877	32 754	3 724 635	582 627	83 650	5 228 543	369 000	13 000	5 610 543
Depreciation written back							0			0
Accu.depreciation 31.12.2007	55 432 570	110 272	32 754	60 653 581	13 706 877	5 056 386	134 992 440	1 660 388	293 161	136 945 989
Book value 31.12.2007	17 865 000	612 000	288 000	9 305 900	1 041 400	174 600	29 286 900	183 000	32 500	29 502 400
Depreciation rate, linear	1,0%	10,0%	10,0%	20,0%	25,0%	12,5%		20,0%	20,0%	

NOTE 6: INTEREST EXPENSES

The interest expenses are mainly connected with interest on the mortgage.

NOTE 7: TAXES

In 2007, NILU was together with other research institutes instructed to make tax return from 2006 indusive. Tax return is delivered for 2006 and 2007, but this no accept from the company is in business. Regarding taxation of the possessions to market price, NILU har per 31.12.07 a tax assessment value in minus to pay forward in NOK 12 430 678,-.

Payable tax in the balance consist of:

Capital tax for 2006 – booked against the equity capital, see note 12	331 602
Capital tax for 2007 – cost keept	338 787
Tax dept to NILU	670 389
Tax cost to NILU Products AS	3 162
Tax dept to the group	673 551

Tax cost in the Profit and Loss account consist of:

Parent company – net wealth tax for 2007	338 787
NILU Products AS	3 162
Tax const in the group accounting	341 949

To be cautious, deferred tax profit is not calculated.

NOTE 8: SHARES

NILU Products AS is wholly owned with a share capital of NOK 750,000.

As at 31.12.2007 NILU is shareholder in the following companies

Company	Share capital	Number of shares owned	Nominal value epr share	Book value
Campus Kjeller AS	8 830 399	32 856	100	1 602 216
Miljøalliansen AS	150 000	30	1 000	30 000
Sundry stocks				14 806
Total				1 647 022

Stocks/shares and demands in construction of CIENS which is taken care by BSA Capital AS: Paid to the CIENS building, Blindern (stocks/shares/loan) come to NOK 9 889 281, to NOK 10 402 521 in 2006.

NILU Products AS, as of 31.12.2007 owns shares in the following companies:

Afflicted companies are	Acquistion time	Business location	Stake in	Voting share
NILU Polska Ltd.	2001	Polen	90,0 %	90,0 %
Unilab Analyse AS	1998	Tromsø	49,0 %	49,0 %
EIFair AS	2006	Oslo	40,2 %	40,2 %

From 1999, the companies are booked according to the equity method, see table below:

	NILU Polska Ltd.	Unilab Analyse AS	EIFair AS	Total
Original cost	96 011	1 500 000	763 880	2 359 891
Equity at time of purchase as entered on balance sheet	96 011	1 048 078	763 880	1 907 969
Goodwill		451 922		451 922
Opening balance 1.1.2007	93 448	1 104 564	185 209	1 383 221
Proportion of profit/loss for the year	4 137			4 137
Purchased in 2007	0	0	578 880	578 880
Total loss for 2007	-47 243	-259 369	-4 460	-311 072
Closing statement on balance sheet as at 31.12.2007	50 342	845 195	759 629	1 655 166

NOTE 9: LOAN TO SUBSIDIARY

NILU Products AS has borrowed NOK 2 140 000 from the parent company in connection with purchase of shares and operations.

NOTE 10: WORK IN PROGRESS AND STOCK

The value of work in progress is the project work carried out which has not yet been invoiced. As in previous years, the invoice value has been written down by 20% en bloc. In addition, write-downs have been assessed for each project relative to the risk of overrun involved. As a result, such provisions may vary somewhat from one year to the next, also in terms of percentage.

As of 31.12.2007 this provision of 41% is slightly lower than previous year. This provision is deemed sufficient following an assessment of the invoice value of each individual assignment.

Work in progress parent company	31.12.2007	31.12.2006	31.12.2005	31.12.2004
Invoice value	18 737 612	13 177 626	16 594 627	19 621 991
Provision	-7 704 322	-5 995 525	-6 678 925	-8 004 398
Total work in progress	11 033 290	7 182 101	9 915 702	11 617 593
Provision in % av of invoice value	41%	45%	40%	41%

The stock in the subsidiary are estimated at original cost.

NOTE 11: LOCKED-UP CAPITAL

NOK 3 472 528 of the bank deposit is locked-up as withholding tax funds, NOK 3 429 2642 of which is in the parent company.

NOTE 12: OTHER EQUITY CAPITAL

	The Group	Parent Company
Other equity consist of:		
Other equity capital as at 1.1.2007	40 421 885	40 421 885
Alteration in calculation from the SPK insurance	5 605 405	5 605 405
Allocated tax expenses for 2006	-331 602	-331 602
Profit of the year	1 978 540	1 978 540
Other equity capital as at 31.12.2007	**47 674 228**	**47 674 228**

NOTE 13: PENSION COMMITMENTS

The company's pension commitments are covered via the Norwegian Public Service Pension Fund (SPK), of which all employees are members.

In connection with the new accounting law being introduced, the company has calculated its net pension commitment according to the new Norwegian accounting standards. The actual calculation has been carried out by SPK and is based on an expected return of 5,5%, a discount interest of 5,5%, an annual salary growth of 4.5% and an annual "G" adjustment of 3,5%.

	The Group	Parent Company	Nilu Products
The 2007 pension commitment taken to expenses is made up of:			
Net changes in the pension commitment	-6 617	0	-6 617
Pension premium paid	6 731 019	6 688 377	42 642
Premium paid to AFP	478 706	474 084	4 622
Allocated future pension premium	-1 567 721	- 1 567 721	0
Total	**5 635 388**	**5 594 741**	**40 647**

NOTE 14: ASSETS HELD AS SECURITY – LOAN PAYMENT

Of the company's total liabilities, NOK 5 557 000 is a mortgage with the building as security. As per 31.12.2007 this building had a book value of NOK 17 865 000. For the remaining loan half-yearly payments will be made up to 30.06.2014.

Reports, Scientific Papers and Lectures

Scientific papers

Aas, W., Schaug, J. and Hanssen, J.E.
Field intercomparison of main components in air in EMEP.
Water, Air, Soil Pollut.: Focus, 7, 25-31 (2007).

Aas, W., Shao, M., Jin, L., Larssen, T., Zhao, D., Xiang, R., Zhang, J., Xiao, J. and Duan, L.
Air concentrations and wet deposition of major inorganic ions at five non-urban sites in China, 2001–2003.
Atmos. Environ., 41, 1706-1716 (2007).

Anda, E.E, Nieboer, E., Dudarev, A.A., Sandanger, T.M. and Odland, J.Ø.
Intra- and intercompartmental associations between levels of organochlorines in maternal plasma, cord plasma and breast milk, and lead and cadmium in whole blood, for indigenous peoples of Chukotka, Russia.
J. Environ. Monit., 9, 884-893 (2007).

Aspmo, K.
Spring campaign 2007 - Mercury monitoring.
Ny-Ålesund Newsletter, 20th ed. June 2007.
URL: http://www.npolar.no/nys-mac/Newsletter-20-Ed.htm

Avey, L., Garrett, T.J. and Stohl, A.
Evaluation of the aerosol indirect effect using satellite, tracer transport model, and aircraft data from the International Consortium for Atmospheric Research on Transport and Transformation.
J. Geophys. Res., 112, D10S33, doi:10.1029/2006JD007581 (2007).

Baklanov, A., Hänninen, O., Slørdal, L.H., Kukkonen, J., Bjergene, N., Fay, B., Finardi, S., Hoe, S.C., Jantunen, M., Karppinen, A., Rasmussen, A., Skouloudis, A., Sokhi, R.S., Sørensen, J.H. and Ødegaard, V.
Integrated systems for forecasting urban meteorology, air pollution and population exposure.
Atmos. Chem. Phys., 7, 855-874 (2007).

Barber, J.L., Berger, U., Chaemfa, C., Huber, S., Jahnke, A., Temme, C. and Jones, K.C.
Analysis of per- and polyfluorinated alkyl substances in air samples from Northwest Europe.
J. Environ. Monit., 9, 530-541 (2007).

Bengtsson, S., Berglöf, T. and Kylin, H.
Near infrared reflectance spectroscopy (NIR) as a tool to predict pesticide sorption in soil.
Bull. Environ. Contam. Toxicol., 78, 295-298 (2007).

Bidleman, T.F., Jantunen, L.M., Kylin, H., Helm, P.A. and MacDonald, R.W.
Hexachlorocyclohexanes trace pathways and processes in the Canadian archipelago.
Geochim. Cosmochim. Acta, 71, Suppl. S, A90-A90 (2007).

Bidleman, T.F., Kylin, H., Jantunen, L.M., Helm, P.A. and Macdonald, R.W.
Hexachlorocyclohexanes in the Canadian Archipelago. 1. Spatial distribution and pathways of alpha-, beta-, and gamma-HCHs in surface water.
Environ. Sci. Technol., 41, 2688-2695 (2007).

Bluth, G.J.S., Shannon, J.M., Watson, I.M., Prata, A.J. and Realmuto, V.J.
Development of an ultra-violet digital camera for volcanic SO_2 imaging.
J. Volcanol. Geotherm. Res., 161, 47-56 (2007).

Breivik, K., Sweetman, A., Pacyna, J.M. and Jones, K.C.
Towards a global historical emission inventory for selected PCB congeners - a mass balance approach. 3. An update.
Sci. Total Environ., 377, 296-307 (2007).

Brioude, J., Cooper, O.R., Trainer, M., Ryerson, T.B., Holloway, J.S., Baynard, T., Peischl, J., Warneke, C., Neuman, J.A., De Gouw, J., Stohl, A., Eckhardt, S., Frost, G.J., McKeen, S.A., Hsie, E.-Y., Fehsenfeld, F.C. and Nédélec, P.
Mixing between a stratospheric intrusion and a biomass burning plume.
Atmos. Chem. Phys. Discuss., 7, 8017-8033 (2007).

Brustad, M., Edvardsen, K., Wilsgaard, T., Engelsen, O., Aksnes, L. and Lund, E.
Seasonality of UV-radiation and vitamin D status at 69 degrees north.
Photochem. Photobiol. Sci., 6, 903-8 (2007).

Brustad, M., Sandanger, T.M., Andersen, V. and Lund, E.
POP exposure from fish liver consumption and risk of cancer – the Norwegian women and cancer study.
J. Environ. Monit., 9, 682-686 (2007).

Brändli, R.C., Kupper, T., Bucheli, T.D., Zennegg, M., Huber, S., Ortelli, D., Müller, J., Schaffner, C., Iozza, S., Schmid, P., Berger, U., Edder, P., Oehme, M., Stadelmann, F.X. and Tarradellas, J.
Organic pollutants in compost and digestate. Part 2. Polychlorinated dibenzo-p-dioxins, and -furans, dioxin-like polychlorinated biphenyls, brominated flame retardants, perfluorinated alkyl substances, pesticides, and other compounds.
J. Environ. Monit., 9, 465-472 (2007).

Chen, G., Huey, L.G., Crawford, J.H., Olson, J.R., Hutterli, M.A., Sjostedt, S., Tanner, D., Dibb, J., Lefer, B., Blake, N., Davis, D. and Stohl, A.
An assessment of the polar HO_x photochemical budget based on 2003 Summit Greenland field observations.
Atmos. Environ., 41, 7806-7820 (2007).

Cooper, O. R., Trainer, M., Thompson, A.M., Oltmans, S.J., Tarasick, D.W., Witte, J.C., Stohl, A., Eckhardt, S., Lelieveld, J., Newchurch, M.J., Johnson, B.J., Kalnajs, L., Dubey, M.K., Leblanc, T., McDermid, I.S., Forbes, G., Wolfe, D., Carey-Smith, T., Morris, G.A., Lefer, B., Rappenglück, B., Joseph, E., Schmidlin, F., Meagher, J., Fehsenfeld, F.C., Keating, T.J., Van Curen, R.A. and Minschwaner, K.
Evidence for a recurring eastern North America upper tropospheric ozone maximum during summer.
J. Geophys. Res., 112, D23304, doi:10.1029/2007JD008710 (2007).

Cuvelier, C., Thunis, P., Vautard, R., Amann, M., Bessagnet, B., Bedogni, M., Berkowicz, R., Brandt, J., Brocheton, F., Builtjes, P., Carnavale, C., Denby, B., Douros, J., Graf, A., Hellmuth, O., Hodzic, A., Honoré, C., Jonson, J., Kerschbaumer, A., de Leeuw, F., Minguzzi, E., Moussiopoulos, N., Pertot, C., Peuch, V.H., Pirovano, G., Rouil, L., Sauter, F., Schaap, M., Stern, R., Tarrason, L., Vignati, E., Volta, M., White, L., Wind, P. and Zuber, A.
CityDelta: A model intercomparison study to explore the impact of emission reductions in European cities in 2010.
Atmos. Environ., 41, 1, 189-207 (2007).

De Wit, H., Mulder, J., Hindar, A. and Hole, L.
Long-term increase in dissolved organic carbon in streamwaters in Norway is response to reduced acid deposition.
Environ. Sci. Technol., 41, 7706-7713 (2007).

Duck, T.J., Firanski, B.J., Millet, D.B., Goldstein, A.H., Allen, J., Holzinger, R., Worsnop, D.R., White, A.B., Stohl, A., Dickinson, C.S. and van Donkelaar, A.
Transport of forest fire emissions from Alaska and the Yukon Territory to Nova Scotia during summer 2004.
J. Geophys. Res., 112, D10S44, doi:10.1029/2006JD007716 (2007).

Eckhardt, S., Breivik, K., Manø, S. and Stohl, A.
Record high peaks in PCB concentrations in the Arctic atmosphere due to long-range transport of biomass burning emissions.
Atmos. Chem. Phys., 7, 4527 (2007).

Edvardsen, K., Brustad, M., Engelsen, O. and Aksnes, L.
The solar UV radiation level needed for cutaneous production of vitamin D3 in the face. A study conducted among subjects living at a high latitude (68° N).
Photochem. Photobiol. Sci., 6, 57-62 (2007).

Eneroth, K., Holmén, K., Berg, T., Schmidbauer, N. and Solberg, S.
Springtime depletion of tropospheric ozone, gaseous elemental mercury and non-methane hydrocarbons in the European Arctic, and its relation to atmospheric transport.
Atmos. Environ., 41, 8511-8526 (2007).

Engvall, A.-C., Krejci, R., Ström, J., Treffeisen, R., Scheele, R., Hermansen, O. and Paatero, J.
Change in aerosol properties during spring-summer period in the Arctic troposphere.
Atmos. Chem. Phys. Discuss., 7, 1215-1260 (2007).

Evenset, A., Carroll, J., Christensen, Kallenborn, R., Gregor, D. and Gabrielsen, G.W.
Seabird guano is an efficient conveyer of persistent organic pollutants (POPs) to Arctic lake ecosystems.
Environ. Sci. Technol., 41, 1173-1179 (2007).

Evenset, A., Christensen, G.N., Carroll, J., Zaborska, A., Berger, U., Herzke, D. and Gregor, D.
Historical trends in persistent organic pollutants and metals recorded in sediment from Lake Ellasjøen, Bjørnøya, Norwegian Arctic.
Environ. Pollut., 146, 196-205 (2007).

Fjæraa, A.M.
Greenhouse gases at Zeppelin - increasing and decreasing.
Ny-Ålesund Newsletter, 20th ed. June 2007.
URL: http://www.npolar.no/nys-mac/Newsletter-20-Ed.htm

Forster, C., Stohl, A., and Seibert, P.
Parameterization of convective transport in a Lagrangian particle dispersion model and its evaluation.
J. Appl. Meteorol. Climatol., 46, 403-422 (2007).

Greally, B.R., Manning, A.J., Reimann, S., McCulloch, A., Huang, J., Dunse, B.L., Simmonds, P.G., Prinn, R.G., Fraser, P.J., Cunnold, D.M., O'Doherty, S., Porter,L.W., Stemmler, K., Vollmer, M.K., Lunder, C.R., Schmidbauer, N., Hermansen, O., Arduini, J., Salameh, P.K., Krummel, P.B., Wang, R.H.J., Folini, D., Weiss, R.F., Maione, M., Nickless, G., Stordal, F. and Derwent, R.G.
Observations of 1,1-difluoroethane (HFC-152a) at AGAGE and SOGE monitoring stations in 1994–2004 and derived global and regional emission estimates.
J. Geophys. Res., 112, D06308, doi:10.1029/2006JD007527 (2007).

Grøntoft, T.
Effekter av klimaendringer på norsk kulturarv.
Fortidsvern, årg. 32, nr. 4, s. 4-7 (2007).

Harju, M., Hamers, T., Kamstra, J.H., Sonneveld, E., Boon, J.P., Tysklind, M. and Andersson, P.L.
Quantitative structure-activity relationship modeling on in vitro endocrine effects and metabolic stability involving 26 selected brominated flame retardants.
Environ. Toxicol. Chem., 26, 816-826 (2007).

Haukås, M., Berger, U., Hop, H., Gulliksen, B. and Gabrielsen, G.W.
Bioaccumulation of per- and polyfluorinated alkyl substances (PFAS) in selected species from the Barents Sea food web.
Environ. Pollut., 148, 360-371 (2007).

Huntrieser, H., Schlager, H., Roiger, A., Lichtenstern, M., Schumann, U., Kurz, C., Brunner, D., Schwierz, C., Richter, A. and Stohl, A.
Lightning-produced NO_x over Brazil during TROCCINOX: airborne measurements in tropical and subtropical thunderstorms and the importance of mesoscale convective systems.
Atmos. Chem. Phys., 7, 2987-3013 (2007).

Iapaolo, M.,Godin-Beekmann, S. Del Frate, F., Casadio, S., Petitdidier, M., McDermid, I.S., Leblanc, T., Swart, D., Meijer, Y. Hansen, G. and Stebel, K.
Gome ozone profiles retrieved by neural network techniques:
A global validation with lidar measurements
J. Quant. Spectrosc. Radiat. Transfer, 107, 105-119 (2007).

Jaensson, A., Scott, A.P., Moore, A., Kylin, H. and Olsén, K.H.
Effects of a pyrethroid pesticide on endocrine responses to female odours and reproductive behaviour in male parr of brown trout (Salmo trutta L.)
Aquat. Toxicol., 81, 1-9 (2007).

Jahnke, A., Ahrens, L., Ebinghaus, R., Berger, U., Barber, J.L. and Temme, C.
An improved method for the analysis of volatile polyfluorinated alkyl substances in environmental air samples.
Anal. Bioanal. Chem., 387, 965-975 (2007).

Jahnke, A., Berger, U., Ebinghaus, R. and Temme, C.
Latitudinal gradient of airborne polyfluorinated alkyl substances in the marine atmosphere between Germany and South Africa (53° N-33° S).
Environ. Sci. Technol., 41, 3055-3061 (2007).

Jahnke, A., Huber, S., Temme, C., Kylin, H. and Berger, U.
Development and application of a simplified sampling method for volatile polyfluorinated alkyl substances in indoor and environmental air.
J. Chromatogr. A, 1164, 1-9 (2007).

Kallenborn, R., Christensen, G., Evenset, A., Schlabach, M. and Stohl, A.
Atmospheric transport of persistent organic pollutants (POPs) to Bjørnøya (Bear Island).
J. Environ. Monit., 9, 1082-1091 (2007).

Kazimirova, A., Barancokova, Wsolova, L. and Dusinska, M.
Cytogenetic analysis of lymphocytes of workers occupationally exposed to rockwool and glass fibres. Molecular-epidemiologic study.
Chem. Listy, 101, s192-s193 (2007).

Knudsen, L.B., Borgå, K., Jørgensen, E.H., van Bavel, B., Schlabach, M., Verreault, J. and Gabrielsen, G.W.
Halogenated organic contaminants and mercury in northern fulmars (Fulmarus glacialis): levels, relationships to dietary descriptors and blood to liver comparison.
Environ. Pollut., 146, 25-33 (2007).

Kylin, H.
Sucralos finns i vattendrag.
Kemivärlden Biotech med Kemisk-tidskrift, nr. 4, s. 7 (2007).
URL: http://www.e-magin.se/v5/viewer/files/default.aspx?paper=134033061118.03511&startpage=1

Kylin, H., Torstensson, L., Ramberg, Å., Volkova, L. and Sundin, P.
Crop damage may occur after herbicide disposal in manure:
a preliminary study.
Acta Agric. Scand. B, Soil Plant Sci., 57, 243-247 (2007).

Lahoz, W., Geer, A.J. and Orsolini, Y.J.
Northern Hemisphere stratospheric summer from MIPAS observations.
Q. J. R. Meteorol. Soc., 133, 197-211 (2007).

Lahoz, W.A., Geer, A.J., Bekki, S., Bormann, N., Ceccherini, S., Elbern, H., Errera, Q., Eskes, H.J., Fonteyn, D., Jackson, D.R., Khattatov, B., Marchand, M., Massart, S., Peuch, V.-H., Rharmili, S., Ridolfi, M., Segers, A., Talagrand, O., Thornton, H.E., Vik, A.F. and von Clarmann, T.
The Assimilation of Envisat data (ASSET) project.
Atmos. Chem. Phys, 7, 1773-1796 (2007).

Lahoz, W.A., Buehler, S.A. and Legras, B.
The COST 723 Action.
Q. J. R. Meteorol. Soc., 133, S2, 99-108 (2007).

Lahoz, W.A., Geer, A.J. and Orsolini, Y.J.
Editoral: The COST 723 Action.
Q. J. R. Metoeorl. Soc., 133, S2, 97 (2007).

Langlois, I., Berger, U., Zencak, Z. and Oehme, M.
Mass spectral studies of perfluorooctane sulfonate derivatives separated by high-resolution gas chromatography.
Rapid Commun. Mass Spectrom., 21, 3547-3553 (2007).

Law, K.S. and Stohl, A.
Arctic air pollution: origin and impacts.
Science, 315, 1537-1540 (2007).

Lindskog, A., Karlsson, P.-E., Grenfelt, P., Solberg, S. and Forster, C.
An exceptional ozone episode in northern Fennoscandia.
Atmos. Environ., vol.41, 950–958 (2007).

Liu, L., Andreani-Aksoyoglu, S., Keller, J., Ordonez, C., Junkermann, W., Hak, C., Braathen, G. O., Reimann, S., Astorga-Llorens, C., Schultz, M., Prevot, A.S.H. and Isaksen, I.S.A.
A photochemical modelling study of ozone and formaldehyde generation and budget in the Po basin.
J. Geophys. Res., 112, D23303, doi:10.1029/2006JD008172 (2007).

Liu, L., Flatøy, F., Ordóñez, C., Braathen, G.O., Hak, C., Junkermann, W., Andreani-Aksoyoglu, S., Mellqvist, J., Galle, B., Prévôt, A.S.H. and Isaksen, I.S.A.
Photochemical modelling in the Po basin with focus on formaldehyde and ozone.
Atmos. Chem. Phys., 7, 121-137 (2007).

Lohmann, R., Breivik, K., Dachs, J. and Muir, D.
Global fate of POPs: Current and future research directions.
Environ. Pollut., 150, 150-165 (2007).

Myhre, C.L., Toledano, C., Myhre, G., Stebel, K., Yttri, K.E., Aaltonen, V., Johnsrud, M., Frioud, M., Cachorro, V., de Frutos, A., Lihavainen, H., Campell, J.R., Chaikovsky, A.P., Shiobara, M., Welton, E.J. and Tørseth, K.
Regional aerosol optical properties and radiative impact of the extreme smoke event in the European Arctic in spring 2006.
Atmos. Chem. Phys., 7, 5899-5915 (2007).

Myhre, G., Bellouin, N., Berglen, T.F., Berntsen, T.K., Boucher, O., Grini, A., Isaksen, I.A., Johnsrud, M., Mishchenko, M.I., Stordal, F. and Tanré, D.
Comparison of the radiative properties and direct radiative effect of aerosols from a global aerosol model and remote sensing data over ocean.
Tellus B, 59, 115-129 (2007).

Myhre, G., Stordal, F., Johnsrud, M., Kaufman, Y.J., Rosenfeld, D., Storelvmo, T., Kristjansson, J.E., Berntsen, T.K., Myhre, A. and Isaksen, I.S.A.
Aerosol-cloud interaction inferred from MODIS satellite data and global aerosol models.
Atmos. Chem. Phys., 7, 3081-3101 (2007).

Orsolini, Y., Kvamstø, N. and Kindem, I.
The Aleutian-Icelandic seesaw in ensemble GCM simulations.
Geophys. Res. Abstr., 9, 04337 (2007).

Orsolini, Y.J., Karpechko, A. and Nikulin, G.
Climate patterns and the forcing of the polar stratosphere in winter.
Geophys. Res. Abstr., 9, 03474 (2007).

Oxizidis, S., Dudek, A.V. and Aquilina, N.
Typical weather years and the effect of urban microclimate on the energy behaviour of buildings and HVAC systems.
Adv. Bldg. Energy Res., 1, 89–103 (2007).

Pacyna, E.G., Pacyna, J.M., Fudala, J., Strzelecka-Jastrzab, E., Hlawiczka, S., Panasiuk, D., Nitter, S., Pregger, T., Pfeiffer, H. and Friedrich, R.
Current and future emissions of selected heavy metals to the atmosphere from anthropogenic sources in Europe.
Atmos. Environ., 41, 8557-8566 (2007).

Parrish D.D., Stohl, A. , Forster, C., Atlas, E.L., Blake, D.R., Goldan, P.D., Kuster, W.C. and de Gouw, J.A.
Effects of mixing on evolution of hydrocarbon ratios in the troposphere.
J. Geophys. Res., 112, D10S34, doi:10.1029/2006JD007583 (2007).

Penkett, S.A., Burgess, R.A., Coe, H., Coll, I., Hov, Ø., Lindskog, A., Schmidbauer, N., Solberg, S., Roemer, M., Thijsse, T., Beck, J. and Reeves, C.E.
Evidence for large average concentrations of the nitrate radical (NO_3) in Western Europe from the HANSA hydrocarbon database.
Atmos. Environ., 41, 3465-3478 (2007).

Petzold, A., Weinzierl, B., Huntrieser, H., Stohl, A., Real, E., Cozic, J., Fiebig, M., Hendricks, J., Lauer, A., Law, K., Roiger, A., Schlager, H. and Weingartner, E.
Perturbation of the European free troposphere aerosol by North American forest fire plumes during the ICARTT-ITOP Experiment in summer 2004.
Atmos. Chem. Phys., 7, 5105-5127 (2007).

Prata, A.J. and Bernardo, C.
Retrieval of volcanic SO_2 column abundance from atmospheric infrared sounder data.
J. Geophys. Res., 112, D20204, doi:10.1029/2006JD007955 (2007).

Prata, A.J. and Kerkman, J.
Simultaneous retrieval of volcanic ash and SO_2 using MSG-SEVIRI measurements.
Geophys. Res. Lett., 34, L05813, doi:10.1029/2006GL028691 (2007).

Prata, A.J., Carn, S.A., Stohl, A. and Kerkmann, J.
Long range transport and fate of a stratospheric volcanic cloud from Soufrière Hills volcano, Montserrat.
Atmos. Chem. Phys., 7, 5093-5103 (2007).

Rakkestad, K.E., Dye, C.J., Yttri, K.E., Holme, J.A. Hongslo, J.K., Schwarze, P.E. and Becher, R.
Phthalate levels in Norwegian indoor air related to particle size fraction.
J. Environ. Monit., 9, 1419-1425 (2007).

Real, E., Law, K.S., Weinzier, B., Fiebig, M., Petzold, A., Wild, O., Methven, J., Arnold, S., Stohl, A., Huntrieser, H., Roiger, A., Schlager, H., Stewart, D., Avery, M., Sachse, G., Browell, E., Ferrare, R. and Blake, D.
Processes influencing ozone levels in Alaskan forest fire plumes during long-range transport over the North Atlantic.
J. Geophys. Res., 112, D10S41, doi:10.1029/2006JD007576 (2007).

Reistad, T., Mariussen, E., Ring, A. and Fonnum, F.
In vitro toxicity of tetrabromobisphenol-A on cerebellar granule cells: cell death, free radical formation, calcium influx and extracellular glutamate.
Toxicol. Sci., 96, 268-278 (2007).

Ryaboshapko, A., Bullock Jr., O.R., Christensen, J., Cohen, M., Dastoor, A., Ilyin, I., Petersen, G., Syrakov, D., Travnikov, O., Artz, R.S., Davignon, D., Draxler, R.R., Munthe, J. and Pacyna, J.
Intercomparison study of atmospheric mercury models: 2. Modelling results vs. long-term observations and comparison of country deposition budgets.
Sci. Tot. Environ., 377, 319-333 (2007).

Sandanger, T., Sinotte, M., Dumas, P., Marchand, M., Sandau, C.D., Pereg, D., Berube, S., Brisson, J. and Ayotte, P.
Plasma concentrations of selected organobromine compounds and polychlorinated biphenyls in post-menopausal women of Québec, Canada.
Environ. Health Perspect., 115, 1429-1434 (2007).

Schoeberl, M.R., Ziemke, J.R., Bojkov, B., Livesey, N., Duncan, B., Strahan, S., Froidevaux, L., Kulawik, S., Bhartia, P.K., Chandra, S., Levelt, P.F., Witte, J.C., Thompson, A.M., Cuevas, E., Redondas, A., Tarasick, D.W., Davies, J., Bodeker, G., Hansen, G. et al.
A trajectory-based estimate of the tropospheric ozone column using the residual method.
J. Geophys. Res., 112, D24S49, doi:10.1029/2007JD008773 (2007).

Schultz, M., Stohl, A. and Vogel, B.
Transportprozesse in der Atmosphäre.
Chemie in Unserer Zeit, 41, 266-274 (2007).

Simpson, D., Yttri, K.E., Klimont, Z., Kupiainen, K., Caseiro, A., Gelencsér, A., Pio, C., Puxbaum, H. and Legrand, M.
Modeling carbonaceous aerosol over Europe: Analysis of the CARBOSOL and EMEP EC/OC campaigns.
J. Geophys. Res., 112, D23S14, doi:10.1029/2006JD008158 (2007).

Sjostedt, S.J., Huey, L.G., Tanner, D.J., Peischl, J., Chen, G., Dibb, J.E., Lefer, B., Hutterli, M.A., Beyersdorf, A.J., Blake, N.J., Blake, D.R., Sueper, D., Ryerson, T., Burkhart, J. and Stohl, A.
Observations of hydroxyl and the sum of peroxy radicals at Summit, Greenland during summer 2003.
Atmos. Environ., 41, 5122-5137 (2007).

Sjøeng, A.M.S., Kaste, Ø., Tørseth, K. and Mulder, J.
N leaching from small upland headwater catchments in south-western Norway.
Water, Air Soil Pollut., 179, 323-340 (2007).

Slyskova, J., Dusinska, M., Kuricova, M., Soucek, P., Vodickova, L., Susova, S., Naccarati, A., Tulupova, E. and Vodicka, P.
Relationship between the capacity to repair 8-oxoguanine, biomarkers of genotoxicity and individual susceptibility in styrene-exposed workers.
Mutat. Res., 634, 101-111 (2007).

Smith A.M., Keene, W.C., Maben, J.R., Pszenny, A.A.P., Fischer, E. and Stohl, A.
Ammonia sources, transport, transformation, and deposition in coastal New England during summer.
J. Geophys. Res., 112, D10S08, doi:10.1029/2006JD007574 (2007).

Sommar, J., Wängberg, I., Berg, T., Gårdfeldt, K., Munthe, J., Richter, A., Urba, A., Wittrock, F. and Schroeder, W.H.
Circumpolar transport and air-surface exchange of atmospheric mercury at Ny-Ålesund (79° N), Svalbard, spring 2002.
Atmos. Chem. Phys., 7, 151-166 (2007)

Speidel, M., Nau, R., Arnold, F., Schlager, H. and Stohl, A.
Sulfur dioxide measurements in the lower, middle and upper troposphere: Deployment of an aircraft-based chemical ionization mass spectrometer with permanent in-flight calibration.
Atmos. Environ., 41, 2427–2437 (2007).

Staruchova, M., Volkovova, K., Mislanova, C., Kovacikova, Z., Wsolova, L., Collins, A.R., Staruch, L. and Dusinska, M.
Oxidative damage and antioxidant defence in the plasma of people exposed to mineral fibres.
Chem. Listy, 101, s273-s274 (2007).

Steck, T., von Clarmann, T., Fischer, H., Funke, B., Glatthor, N., Grabowski, U., Höpfner, M., Kellmann, S., Kiefer, M., Linden, A., Milz, M., Stiller, G.P., Wang, D.Y., Allaart, M., Blumenstock, Th., von der Gathen, P., Hansen, G., Hase, F., Hochschild, G., Kopp, G., Kyrö, E., Oelhaf, H., Raffalski, U., Redondas Marrero, A., Remsberg, E., Russell III, J., Stebel, K., Steinbrecht, W., Wetzel, G., Yela, M. and Zhang, G.
Bias determination and precision validation of ozone profiles from MIPAS-Envisat retrieved with the IMK-IAA processor.
Atmos. Chem. Phys., 7, 3639–3662 (2007).

Steffen, A., Douglas, T., Amyot, M., Ariya, P., Aspmo, K., Berg, T., Bottenheim, J., Brooks, S., Cobbett, F, Dastoor, A., Dommergue, A., Ebinghaus, R., Ferrari, C., K. Gardfeldt, M.E., Goodsite, E., Lean, D., Poulain, A. Scherz, C., Skov, H., Sommar J. and Temme, C.
A synthesis of atmospheric mercury depletion event chemistry linking atmosphere, snow and water.
Atmos. Chem. Phys. Discuss., 7, 10837-10931 (2007).

Stohl, A., Berg, T., Breivik, K., Burkhart, J.F., Eckhardt, S., Fjæraa, A., Forster, C., Herber, A., Lunder, C., McMillan, W.W., Manø, S., Oltmans, S., Shiobara, M., Stebel, K., Hirdman, D., Stroem, J., Tørseth, K., Treffeisen, R., Virkkunen, K., Yttri, K.E., Andrews, E., Kowal, D., Mefford, T., Ogren, J.A., Sharma, S., Spichtinger, N., Stone, R., Hoch, S. and Wehrli, C.
Long-range transport of air pollution into the Arctic.
Eos Trans. AGU, 86(52), Fall Meet. Suppl., A44C-01 Invited.

Stohl, A., Berg, T., Burkhart, J.F., Fjæraa, A.M., Forster, C., Herber, A., Hov, Ø., Lunder, C., McMillan, W.W., Oltmans, S., Shiobara, M., Simpson, D., Solberg, S., Stebel, K., Ström, J., Tørseth, K., Treffeisen, R., Virkkunen, K. and Yttri, K.E.
Arctic smoke – record high air pollution levels in the European Arctic due to agricultural fires in Eastern Europe.
Atmos. Chem. Phys., 7, 511-534 (2007).

Stohl, A., Forster, C. and Sodemann, H.
Remote sources of water vapor forming precipitation on the Norwegian west coast at 60°N – a tale of hurricanes and an atmospheric river.
Eos Trans. AGU, 86(52), Fall Meet. Suppl., GC11A-0124.

Stohl, A., Forster, C., Huntrieser, H., Mannstein, H., McMillian, W.W., Petzold, A., Schlager, H. and Weinzierl, B.
Aircraft measurements over Europe of an air pollution plume from Southeast Asia – aerosol and chemical characterization.
Atmos. Chem. Phys., 7, 913-937 (2007).

Swain, E.B., Jakus, P.M., Rice, G., Lupi, F., Maxson, P.A., Pacyna, J.M., Penn, A., Spiegel, S.J. and Veiga, M.M.
Socioeconomic consequences of mercury use and pollution.
Ambio, 36, 45-61 (2007).

Thiel, S., Ammannato, L., Bais, A., Bandy, B., Blumthaler, M., Bohn, B., Engelsen, O., Gobbi, G.P., Gröbner, J., Jäkel, E., Junkermann, W., Kazadzis, S., Kift, R., Kjeldstad, B., Kouremeti, N., Kylling, A., Mayer, B., Monks, P.S., Reeves, C.E., Schallhart, B., Scheirer, R., Schmidt, S., Schmitt, R., Schreder, J., Silbernagl, R., Topaloglou, C., Thorseth, T.M., Webb, A.R., Wendisch, M. and Werle, P.
Influence of clouds on the spectral actinic flux density in the lower troposphere (INSPECTRO): overview of the field campaigns.
Atmos. Chem. Phys. Discuss., 7, 13417-13473 (2007).

Thomas, K.V., Dye, C., Schlabach, M. and Langford, K.H.
Source to sink tracking of selected human pharmaceuticals from two Oslo city hospitals and a wastewater treatment works.
J. Environ. Monit., 9, 1410-1418 (2007).

Tomasi, C., Vitale, V., Lupi, A., Di Carmine, C., Campanelli, M., Herber, A., Treffeisen, R., Stone, R.S., Andrews, E., Sharma, S., Radionov, V., von Hoyningen-Huene, W., Stebel, K., Hansen, G.H., Myhre, C.L., Wehrli, C., Aaltonen, V., Lihavainen, H., Virkkula, A., Hillamo, R., Ström, J., Toledano, C., Cachorro, V.E., Ortiz, P., de Frutos, A.M., Blindheim, S., Frioud, M., Gausa, M., Zielinski, T., Petelski, T. and Yamanouchi, T.
Aerosols in polar regions: A historical overview based on optical depth and in situ observations.
J. Geophys. Res., 112, D16205, doi:10.1029/2007JD008432 (2007).

Treffeisen, R., Tunved, P., Ström, J., Herber, A., Bareiss, J., Helbig, A., Stone, R.S., Hoyningen-Huene, W., Krejci, R., Stohl, A. and Neuber, R.
Arctic smoke – aerosol characteristics during a record smoke event in the European Arctic and its radiative impact.
Atmos. Chem. Phys., 7, 3035-3053 (2007).

Trukhin, A., Kruchkov, F., Hansen, L.K., Kallenborn, R., Kiprianova, A. and Nikiforov, V.
Toxaphene chemistry: Separation and characterisation of selected enantiomers of the Polychloropinene mixtures.
Chemosphere, 67, 1695-1700 (2007).

Tsyro, S., Simpson, D., Tarrasón, L., Klimont, Z., Kupiainen, K., Pio, C. and Yttri, K.E.
Modeling of elemental carbon over Europe.
J. Geophys. Res., 112, D23S19, doi:10.1029/2006JD008164 (2007).

Tupper, A., Itikarai, I., Richards, M.S., Prata, F., Carn, S. and Rosenfeld, D.
Facing the challenges of the International Airways Volcano Watch: the 2004/05 eruptions of Manam, Papua New Guinea.
Weather Forecasting, 22, 175-191 (2007).

van der Mei, I.A.F., Ponsonby, A.-L., Engelsen, O., Pasco, J.A., McGrath, J.J., Eyles, D.W., Blizzard, L., Dwyer, T., Lucas, R. and Jones, G.
The high prevalence of vitamin D insufficiency across Australian populations is only partly explained by season and latitude.
Environ. Health. Perspect., 115, 1132-1139 (2007).

Verreault, J., Berger, U. and Gabrielsen, G.W.
Trends of perfluorinated alkyl substances in herring gull eggs from two coastal colonies in Northern Norway: 1983 - 2003.
Environ. Sci. Technol., 41, 6671-6677 (2007).

Vetter, W., von der Recke, R., Herzke, D. and Nygård, T.
Natural and man-made organobromine compounds in marine biota from Central Norway.
Environ. Internat., 33, 17-26 (2007).

Werner, R., Stebel, K., Hansen, G.H., Blum, U., Hoppe,U.-P., Gausa, M. and Fricke, K.-H.
Application of wavelet transformation to determine wavelengths and phase velocities of gravity waves observed by lidar measurements.
J. Atmos. Solar-Terrest. Phys., 69, 2249-2256 (2007).

Williams, J., Gros, V., Atlas, E., Maciejczyk, K., Batsaikhan, A., Schöler, H.F., Forster, C., Quack, B., Yassaa, N., Sander, R. and Van Dingenen, R.
Possible evidence for a connection between methyl iodide emissions and Saharan dust.
J. Geophys. Res., 112, D07302, doi:10.1029/2005JD006702 (2007).

Wängberg, I., Munthe, J., Berg, T., Ebinghaus, R., Kock, H.H., Temme, C., Bieber, E., Spain, T.G. and Stolk, A.
Trends in air concentration and deposition of mercury in the coastal environment of the North Sea.
Atmos. Environ., 41, 2612-2619 (2007).

Yttri, K. E., Aas, W., Bjerke, A., Cape, J. N., Cavalli, F., Ceburnis, D., Dye, C., Emblico, L., Facchini, M. C., Forster, C., Hanssen, J. E., Hansson, H. C., Jennings, S. G., Maenhaut, W., Putaud, J. P. and Tørseth, K.
Elemental and organic carbon in PM_{10}: A one year measurement campaign within the European Monitoring and Evaluation Programme EMEP.
Atmos. Chem. Phys., 7, 5711-5725 (2007).

Yttri, K.E., Dye, C. and Kiss, G.
Ambient aerosol concentrations of sugars and sugar-alcohols at four different sites in Norway.
Atmos. Chem. Phys., 7, 4267-4279 (2007).

Scientific reports

Knudsen, S., Mc. Innes, H., Løken, T., Larssen, T. and Høgåsen, T.
EIF-Air. Emissions from four different sources in the North Sea and the Norwegian Sea.
OR 01/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a heating plant at Moss. (N)
OR 02/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a heating plant at Ranheim. (N)
OR 03/2007.

Marsteen, L., Guerreiro, C. and Sivertsen, B.
Technical specification for estab-

lishing the Monitoring Network and Calibration Laboratory in Dakar.
OR 04/2007.

Jablonska, H.B.
Quarterly report 1 August 2006 – 31 October 2006. Environmental surveillance of emissions to air from Snøhvit-Hammerfest LNG. (N)
OR 05/2007.

Larssen, S.
Air quality management for Chittagong. Final report.
OR 06/2007.

Haugsbakk, I. and Tønnesen, D.
Dispersion calculations from 'Vormedal' heating plant. (N)
OR 07/2007.

Laupsa, H., Denby, B., Larssen, S. and Schaug, J.
Source apportionment of particulate matter using dispersion and receptor modelling. A case study for Oslo.
OR 08/2007.

Innset, B., Tønnesen, D., Johnsrud, M., Iden, K.A. and Kolstad, E.
Investigation of precipitation and weather forecasting in Norway. Research campaign for lower graduate students and the general public. (N)
OR 09/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a heating plant at Alta. (N)
OR 10/2007.

Heimstad, E.S., Dahl-Hansen, G.A.P., Schlabach, M. and Enge, E.K.
Dioxins in freshwater fish and soil from Lenvik municipality, Troms county. (N)
OR 11/2007.

Walker, S.-E.
Calculation of weighted daily mean values of NO_2, PM_{10} and $PM_{2.5}$ during maternities in Oslo in the period 1992-2002. Methodological description. (N)
OR 12/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a garbage fuelled heating plant at Karmøy. (N)
OR 13/2007.

Sivertsen, B., Legendre, B. et Guerreiro, C.
Structure de Gestion de la Qualité de l'air à Dakar.
OR 14/2007.

Jablonska, H.B.
Quarterly report 1 November 2006 – 31 January 2007. Environmental surveillance of emissions to air from Snøhvit-Hammerfest LNG. (N)
OR 15/2007.

Barrett, K.
Pollutant deposits and air quality around the North Sea and the North-East Atlantic in 2005.
OR 16/2007.

Tønnesen, D.
Dispersion calculations of emissions from a lime kiln in Verdal. (N)
OR 17/2007.

Sivertsen, B., Legendre, B. and Guerreiro, C.
Air quality management structure for Dakar.
OR 18/2007.

Tønnesen, D.
Dispersion calculations for nitrogen oxides and vapor for a reserve power plant at Nyhamna. (N)
OR 19/2007.

Manø, S. and Aspmo, K.
Data from long range transported polluted air and deposition. (N)
OR 20/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a gas turbine at Tjeldbergodden. (N)
OR 21/2007.

Aas, W., Solberg, S., Manø, S. and Yttri, K.E.
Monitoring of long-range transboundary air pollutants, annual report for 2006. (N)
OR 22/2007.

Tønnesen, D.
Dust emissions at the coke plant, Statoil Mongstad. Deposition measurements and dispersion calculations. (N)
OR 23/2007.

Tønnesen, D.
Increased production at Elkem Aluminium Mojsøen. (N)
OR 24/2007.

Haugsbakk, I and Tønnesen, D.
Dispersion calculation from "Vormedal" heating plant, revised edition. (N)
OR 25/2007.

Grøntoft, T., Arnesen, K. and Ferm, M.
International co-operative programme on materials, including historic and cultural monuments. Trend exposure programme 2005-2006. Environmental data report October 2005 – December 2006.
OR 26/2007.

Schlabach, M., Andersen, M.S., Green, N., Schøyen, M. and Kaj, L.
Siloxanes in the environment of the inner Oslofjord.
OR 27/2007.

Myhre, C.L., Edvardsen, K., Stebel, K., Svendby, T.M., Hansen, G.H. and Dahlback, A.
Monitoring of the atmospheric ozone layer and natural ultraviolet radiation. Annual report 2006.
OR 28/2007.

Jablonska, H.
Status report. 1 February 2007 – 30 June 2007. Environmental surveillance of emissions to air from Snøhvit-Hammerfest LNG. (N)
OR 29/2007.

Denby, B., Kahnert, M., Brandt, J., Frydendall, J. and Zlatev, Z.
Development and application of data assimilation in regional scale atmospheric chemistry models.
OR 30/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a gas incinerator at Tjeldbergodden. (N)
OR 31/2007.

Hermansen, O., Schmidbauer, N., Lunder, C., Fjæraa, A.M., Myhre, C.L. and Ström, J.
Greenhouse gas monitoring at the Zeppelin station. Annual report 2005.
OR 32/2007.

Hermansen, O., Schmidbauer, N., Lunder, C., Fjæraa, A.M., Myhre, C.L. and Ström, J.
Greenhouse gas monitoring at the Zeppelin station. Annual report 2006.
OR 33/2007

Haugsbakk, I.
Dispersion calculations from a heating plant at Håvik, Karmøy. (N)
OR 34/2007.

Laupsa, H., Tønnesen, D. and Lützenkirchen, S.
Dispersion calculations - Alnabru. (N)
OR 35/2007.

Bøhler, T., Naser, T. and Weholt, Ø.
Screening of healthcare waste incinerators.
OR 36/2007.

Innset, B.
Investigation of work environment indoor air quality at Invitrogen Dynal AS, Lillestrøm, Norway. (N)
OR 37/2007.

Innset, B.
Investigation of indoor air in a new apartment in Pilestredet Park, Oslo. (N)
OR 38/2007.

Mc Innes, H.
Calculation of NO_x concentations for emission from Slagentangen refinery. (N)
OR 39/2007.

Tønnesen, D.
Measurement of suspended particles in Moss. (N)
OR 40/2007.

Marsteen, L. and Schaug, J.
A PM_{10} intercomparison exercise in Norway.
OR 41/2007.

Gjerstad, K.I., Golmen, L.G., Johnsen, T.M., Sundfjord, A., Høgåsen, T., Wathne, B.M., Aarrestad, P.A. and Reitan, O.
Environmental impact assessment for gas power plant by BKK located at Mongstad. (N)
OR 42/2007.

Mc Innes, H., Sivertsen, B. and Arnesen, K.
Air quality monitoring in the border areas of Norway and Russia: Progress report April 2006-March 2007. (N)
OR 43/2007.

Ofstad, T. and Grøntoft, T.
Corrosion measurements 2004-2006. (N)
OR 44/2007.

Schlabach, M., Manø, S. and Eckhardt, S.
Measurement of endosulfan, dieldrin and endrin in Norwegian air and sediment samples.
OR 45/2007.

Marsteen, L. et Dauge, F.
Evaluation des résultats de l'appel d'offres pour la fourniture au CETUD (Dakar, Sénégal) d'Instruments de mesure de la Qualité de l'Air Ambiant.
OR 46/2007.

Barrett, K.
Initial overview of the preliminary assessments of air quality reported in respect of Directive 2004/107/EC relating to arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons.
OR 47/2007.

Haugsbakk, I.
Air pollution from Rv 580, Fritz C. Riebers vei, Bergen. (N)
OR 48/2007.

Haugsbakk, I and Tønnesen, D.
Dispersion calculations of NO_2 emissions from a heating plant in Skedsmo. (N)
OR 49/2007.

Haugsbakk, I. and Krognes, T.
Calculating air quality at Økernveien 11-13, Oslo. (N)
OR 50/2007.

Berg, T. and Aas, W.
AMAP datareport: Atmospheric subprogramme. Report no. 4.
OR 51/2007.

Sivertsen, B.
AQA AQMP project. Air quality management plan. Draft implementation manual.
OR 52/2007.

Haugsbakk, I.
Dispersion calculations of NO_2 emissions from a heating plant at Ranheim. (N)
OR 53/2007.

Tønnesen, D.
Data report . April 2006 – June 2007. Environmental surveillance of emissions to air from Snøhvit-Hammerfest LNG. (N)
OR 54/2007.

Tønnesen, D. and Haugsbakk, I.
Dispersion calculations of dust emissions at Espern, Hamar. (N)
OR 55/2007.

Laupsa, H., Slørdal, L.H., Krognes, T. and Tønnesen, D.
Baseline dispersion and exposure calculations of PM_{10} and NO_2 for 2010, 2015, and 2020 for Oslo.
OR 56/2007.

Slørdal, L.H., Laupsa, H. and Krognes, T.
Air Quality Planning Guidelines: Concentration Maps. (N)
OR 57/2007.

Slørdal, L.H., Laupsa, H., Krognes, T. and Berglen, T.F.
Air Quality Planning Guidelines: Concentration Maps. (N)
OR 58/2007.

Technical reports

Marsteen, L. and Danielsen, T.
Development of a new micro controller and data logger – Final report. (N)
TR 01/2007.

Høiskar, B. A. K., Tørnkvist, K. K. and Rosland, P.
Air quality in Norwegian cities. Manual for web solution at www.luftkvalitet.info. Version February 2007. (N)
TR 02/2007.

Laupsa, H., Denby, B., Larssen, S. and Schaug, J.
Source apportionment of particulate matter ($PM_{2.5}$ and PM_{10}) using dispersion and receptor modelling. A case study for Oslo.
TR 03/2007.

Brunner, S.H. and Hole, L.R.
Ozone deposition in Hurdal 2004-2006: Data analysis and testing of parameterisations.
TR 04/2007.

Brunner, S.H. and Hole, L.R.
Analysis of dry deposition measurements in Storgama: The CoTAG method compared with wet deposition fluxes and modelled estimates.
TR 05/2007.

Bøhler, T., Thanh, T.N., Krognes, T. and Ødegård, R.
Evaluation of AirQUIS platform.
TR 06/2007.

Hansen, G., Aspmo, K., Berg, T., Edvardsen, K., Fiebig, M., Kallenborn, R., Lunder, C., Nilsen, T., Schmidbauer, N., Solberg, S., Stebel, K., Wasseng, J. and Yttri, K.E.
Atmospheric research and monitoring at Troll; a long-term observational program. Phase 1 (2005/06) NFR/NARE project 168908/S.30. (N)
TR 07/2007.

EMEP reports

Hjellbrekke, A.-G. and Fjæraa, A.M.
Data report 2005. Acidifying and eutrophying compounds and particulate matter.
CCC 01/2007.

Fjæraa, A.M. and Hjellbrekke, A.-G.
Ozone measurements 2005.
CCC 02/2007.

Aas, W.
Data quality 2005, quality assurance and field comparisons.
CCC 03/2007

Aas, W. and Breivik, K.
Heavy metals and POP measurements, 2005.
CCC 06/2007

Solberg, S.
VOC measurements 2005.
CCC 07/2007

Aas, W., Bruckmann, P., Derwent, R., Poisson, N., Putaud, J.-P., Rouil, L., Vidic, S. and Yttri, K.E. (eds.)
EMEP particulate matter assessment report.
CCC 08/2007)

External reports

Adams, M., Barrett, K., van het Bolscher, Larssen, S., de Leeuw, F., Pulles, T., van Loon, M., van Pul, A. and Swart, R.
Air pollution in Europe 1990-2004. Copenhagen, European Environment Agency (EEA report no. 2/2007).

Denby, B. (ed.)
Final recommendation documents. Air4EU - Air Quality Assessment for Europe: from local to continental scale. Air4EU-D6.2.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/AIR-4EU_Recommendations_D6.2_Part_1%20.pdf

Denby, B. (ed.)
Case study overview. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.2.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Casestudy_overview_final_D7.2.pdf

Denby, B. (ed.)
Individual case study report: 6: Basic data assimilation: application to the urban scale. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1 Part 6.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_D7.1.6_Prague.pdf

Denby, B. (ed.)
Individual case study report: 13. Basic data assimilation: application to the European scale. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1 Part 13.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_D7.1.13_EuropeII.pdf

Dudek, A. and Denby, B. (ed.)
Air4EU mapping tool: description and user guide. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.3.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_D7.3_Mapping_tool_description.pdf

Endregard, G., Karatzas, K., Carlsen, K.H., Fløisand, I., Skaanes, B.I. and Larssen, S.
EEA air quality web dissemination solution – recommendations for further development. European Topic Centre on Air and Climate Change (ETC/ACC Technical Paper 2006/9).

Guastella, L. and Knudsen, S.
South Durban Basin multi-point plan. Case study report. Pretoria, Department of Environmental Affairs and Tourism (A Governance Information Publication, Series C, Book 12).

Gusev, A., Mantseva, E., Rozovskaya, O., Shatalov, V., Vulykh, N., Aas, W. and Breivik, K.
Persistent organic pollutants in the environment. Moscow/Kjeller, Meteorological Synthesizing Centre – East/Chemical Coordinating Centre, 2007 (EMEP Status Report 3/2007).

Hellsten, S., van Loon, M., Tarrason, L., Vestreng, V., Tørseth, K., Kindbom, K. and Aas, W.
Base cations deposition in Europe. Stockholm, IVL Swedish Environmental Research Institute, 2007 (IVL Report B1722).

Herzke, D., Schlabach, M., Mariussen, E., Uggerud, H. and Heimstad, E.
A literature survey on selected chemical compounds. Literature survey of polyfluorinated organic compounds, phosphor containing flame retardants, 3-nitrobenzanthrone, organic tin compounds, platinum and silver. Oslo, Statens forurensningstilsyn, 2007 (Statlig program for forurensningsovervåking) (TA-2238/2007).

Horálek, J., Denby, B., de Smet, P., de Leeuw, F., Kurfürst, P., Swart, R. and van Noije, T.
Spatial mapping of air quality for European scale assessment. European Topic Centre on Air and Climate Change (ETC/ACC Technical Paper 2006/6).

Ilyin, I., Rozovskaya, O., Travnikov, O. and Aas, W.
Heavy metals: transboundary pollution of the environment. Moscow/Kjeller, Meteorological Synthesizing Centre – East/Chemical Coordinating Centre (EMEP Status Report 2/2007).

Kaj, L., Ekheden, Y., Dusan, B., Hansson, K., Cousins, A.P., Remberger, M., Brorström-Lundén, E. and Schlabach, M.
Screening 2004 – uppföljningsprojekt. Analys av oktaklorstyren, flyktiga metylsiloxaner, vissa fenoler och endosulfan. Stockholm, IVL Svenska Miljöinstitutet (IVL Rapport, B1745).

Keuken, M., Denby, B. and Roemer, M. (eds.)
Individual case study report: 1. Trend analysis of NO_2 / NO_x and PM_{10} exceedance of daily limit values in Rotterdam. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1.1.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_D7.1.1_Rotterdam.pdf

Laupsa, H. (ed.)

Individual case study report: 5. Source apportionment of particulate matter using dispersion and receptor modelling. Air4EU - Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1 Part 5.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_D7.1.5_Oslo.pdf

Monsen, B.L. (red.) Aas, W., Manø, S., Solberg, S. and Yttri, K.E.
Monitoring long-range transboundary air pollution 2006. Summary report. Oslo, NIVA (Statlig program for forurensningsovervåking. SFT-rapport 988/2007). (TA-2274/2007). (NIVA-rapport OR-5442-2007).

Posner, S., Herzke, D., Poulsen, P.B. and Jensen, A.A.
PFOA in Norway. Survey of national sources, 2007. Oslo, Statens forurensningstilsyn (TA-2354/2007).

Stebel, K., Christensen, G., Derome, J. and Grekelä, I. (eds.)
State of the environment in the Norwegian, Finnish and Russian border area. Rovaniemi, Lapland Regional Environment Centre, 2007 (The Finnish environment 6/2007).

Steinnes, E., Berg, T., Uggerud, H. and Vadset, M.
Atmospheric deposition of heavy metals in Norway. Nationwide survey 2005. Trondheim, NTNU (Statlig program for forurensningsovervåking. Rapport 980/2007). (TA-2241/2007).

Steinnes, E., Berg, T., Uggerud, H. and Vadset, M.
Atmospheric deposition of heavy metals in the areas surrounding manufacturing plants. Utilising the moss technique. Trondheim, NTNU (Statlig program for forurensningsovervåking. Rapport 979/2007). (TA-2240/2007).

Tarrasón, L., Fagerli, H., Jonson, J.E., Simpson, D., Benedictow, A., Klein, H., Vestreng, V., Aas, W. and Hjellbrekke, A.-G.
Transboundary acidification, eutrophication and ground level ozone in Europe in 2005. EMEP status report 1/2007. Oslo, Norwegian Meteorological Institute, 2007 (EMEP report 1/2007).

Walker, S.E. (ed.)
Individual case study report: 3. Model and observation uncertainty analysis towards data assimilation on the urban scale. Air4EU - Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1. Part 3.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_%20D7.1.3_Oslo.pdf

Walker, S.E. (ed.)
Individual case study report: 4. Data assimilation in open road line source modelling. Air4EU – Air Quality Assessment for Europe: from local to continental scale. Air4EU-D7.1 Part 4.
URL: http://www.air4eu.nl/PDF/aanvullingenapril2007/Air4EU_casestudy_D7.1.4_Oslo.pdf

Woldegeorgis, A., Green, J., Remberger, M., Kaj, L., Brorström-Lundén, E., Dye, C. and Schlabach, M.
Results from the Swedish screening 2006. Subreport 4: Pharmaceuticals. Stockholm, IVL Swedish Environmental Research Institute (IVL Report B1751).

Woldegeorgis, A., Remberger, M., Kaj, L., Green, J., Ekheden, Y., Cousins, A.P., Brorström-Lundén, E., Aspmo, K., Uggerud, H.T., Vadset, M. and Schlabach, M.
Results from the Swedish screening programme 2006. Subreport 5: Hexavalent chromium, Cr(VI). Stockholm, IVL Swedish Environmental Research Institute (IVL Report B1762).

Woldegeorgis, A., Remberger, M., Kaj, L., Green, J., Ekheden, Y., Cousins, A.P., Brorström-Lundén, E., Dye, C., Aspmo, K., Vadset, M., Schlabach, M. and Langford, K.
Results from the Swedish screening programme 2006. Subreport 3: Zinc pyrithone and irgarol 1051. Stockholm, IVL Swedish Environmental Research Institute (IVL Report B1764).

Yttri, K.E., Aas, W., Tarrasón, L., Vestreng, V., Tsyro, S., Simpson, D., Putaud, J.P. and Cavalli, F.
Transboundary particulate matter in Europe: Status report 4/2007. Joint CCC & MSC-W Report 2007. Kjeller/Oslo, Norwegian Institute for Air Research, Norwegian Meteorological Institute (EMEP report 4/2007).

Books

Orbaek, J.B., Kallenborn, R., Tombre, I., Hegseth, E.N., Falk-Petersen, S. and Hoel, A.H. (Eds.)
Arctic alpine ecosystems and people in a changing environment. Berlin, Springer, 2007.

Electronic publications

Heimstad, E.S. and Mariussen, E.
International School Education Protocol: DIOXINs in local fish. Fall 2007. Fish sampling protocol for the school project Global POP, The International Polar Year. [Version: 10/3/2007 4:13:00 PM]
URL: http://sustain.no/projects/globalpop/docs/The%20IPY%20project%20Global%20POP-Phasel-sampling-021007.pdf

Mariussen, E. and Heimstad, E.S.
International School Education Protocol: DIOXINs in local fish. Fall 2007. Phase II-IV. Sample preparation; Evaluation of bioassay results; Writing report. Sample preparation protocol, the school project Global POP, The International Polar Year. [Version: 16.08.2007 10:41]
URL: http://sustain.no/projects/globalpop/docs/Global%20POP-Phase%20II-IV.pdf

Pacyna, J.M., Pacyna, E.G., Steenhuisen, F. and Wilson, S. (Lead authors); Zaikowski, L. (Topic editor).
Global anthropogenic emissions of mercury to the atmosphere. Kjeller In: *Encyclopedia of Earth*. Ed. by: Cleveland, C.J. Washington, D.C., Environmental Information Coalition, National Council for Science and the Environment. [First published April
29, 2007; Last revised May 7, 2007; Retrieved May 7, 2007].
URL: http://www.eoearth.org/article/Global_anthropogenic_emissions_of_mercury_to_the_atmosphere

Lectures

Myhre, C.L.
Air pollution Monitoring. Forelesning UMB, Ås 23. januar 2007.
F 01/2007.

Tørseth, K.
In-situ observations; status and challenges towards developing an adequat monitoring capacity. EMEP-HTAP workshop, Geneva 24-26 January 2007.
F 02/2007.

Bastidas, Á., Rodríguez, E., Frioud, M., Gausa, M., Stebel, K., Prats, N., Mogo, S., Torres, B., Toledano, C., Berjón, A., Cachorro, V. and de Frutos, Á.M.
Aerosol optical properties from tropospheric lidar and sun photometer during the GOA Aerosol Arctic Campaigns 2005 and 2006 at ALOMAR. Poster presentation. 87th AMS Annual Meeting, Third symposium on lidar atmospheric applications,San Antonio, TX, 14 –18 January 2007.
F 03/2007.

Pappalardo, G., Bösenberg, J., Amodeo, A., Ansmann, A., Apituley, A., Arboledas, L.A., Balis, D., Böckmann, C., Chaikovsky, A., Comeron, A., Freudenthaler, V., Hansen, G., Mitev, V., Nicolae, D., Papayannis, A., Perrone, M.R., Pietruczuk, A., Pujadas, M., Putaud, J.P., Ravetta, F., Rizi, V., Simeonov, V., Spinelli, N., Stoyanov, D., Trickl, T. and Wiegner, M.
EARLINET-ASOS: European Aerosol Research Lidar Network-Advanced Sustainable Observation System. 87th AMS Annual Meeting, Third symposium on lidar atmospheric applications,San Antonio, TX, 14–18 January 2007.
F 04/2007.

Dye, C., Kylin, H. and Schlabach, M.
Sucralose – a new persistent pollutant in the environment? Presented at 2nd EMCO workshop on emerging contaminants in wastewaters: monitoring tools and treatment technologies. Belgrade, Serbia, 26-27 April 2007.
F 05/2007.

Jackson, D. and Orsolini, Y.J.
An estimation of Arctic ozone loss in the winter 2004/05 based on assimilation of EOS/MLS observations. Presented at the third SCOUT-03 Annual Meeting, Heraklion, Crete, Greece, 7-11 May 2007.
F 06/2007.

Dye, C., Kylin, H. and Schlabach, M.
Sucralose – a new persistent pollutant in the environment? Stockholm, Naturvårdsverket 3/8-2007.
F 08/2007.

Yttri, K.E.
Addressing emissions of PM from residential wood burning using levoglucosan as a tracer. SRIMPART (NMR-Prosjekt møte) 16/2-2007.
F 09/2007.

Yttri, K.E.
Chemical Characterization of Carbonaceous Aerosols. Powerpoint presentation. Kick-off meeting (Praguepart 2006), Praha 18-19 April, 2007.
F 10/2007.

Yttri, K.E.
EMEP intensive measurements, June 2006 and Jan. 2007. Powerpoint presentation. Taskforce on measurement and modelling (TFMM) 2007, Dessau 22-23 April, 2007.
F 11/2007.

Yttri, K.E.
Carbonaceous aerosols – a great challenge. Workshop (We-BIOPATR), Beograd 21 – 22 May, 2007.
F 12/2007.

Yttri, K.E.
SORGA-Secondary Organic Aerosols in Urban areas. Seminar om partikler sammen med Nasjonalt folkehelseinstitutt. Kjeller 7. juni 2007.
F 13/2007.

Bartonova, A.
Exposure modelling related to outdoor air. Presented at: The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
F 14/2007.

Bartonova, A.
Selected studies of integrated assessment of PM. Presented at: The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
F 15/2007.

Yttri, K.E.
A study of carbonaceous aerosols in the Norwegian environment, focusing on the water-soluble organic carbon fraction (The short version). Seminar om partikler (Statoil/Folkehelsa/NILU). Nasjonalt Folkehelse Institutt, 14. juni 2007.
F 16/2007.

Hole, L. and Enghardt, M.
Will future climate change affect nitrogen deposition in Northern Europe? MATCH model runs based on global ECHAM4/OPYC3. Powerpoint presentation. CLUE/BNW Prosjektmøte. Sem gjestegård 31. jan - 1. feb 2007.
F 18/2007.

Kylin, H., Dye, C. and Schlabach, M.
Sucralose – a new persistent pollutant in the environment? Abstract. Polarmiljøsentrets økotoksikologiske lunsjseminar, 3. mars 2007.
F 19/2007.

Sivertsen, B. and Dudek, A.
Integrated air quality management in urban areas: simplified methods. Presented at: The 18th IUAPPA World Clean Air and Environmental Protection Congress in Brisbane, Australia, 9-13 September 2007.
F 20/2007.

Laupsa, H., Denby, B., Larssen, S. and Schaug, J.
Source apportionment of particulate matter ($PM_{2.5}$) using dispersion and receptor modelling - a case study for Oslo. Powerpoint presentation. 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.
F 21/2007.

Guerreiro, C., Laupsa, H. and Sivertsen, B.
Ambient air quality measurements in Dakar, Senegal. Powerpoint presentation. 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.
F 22/2007.

Dudek, A., Logna, R. and Denby, B.
A web based mapping tool for the harmonised intercomparison of air quality maps. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 23/2007.

Denby, B., Costa, A.M., Monteiro, A., Dudek, A., Walker, S.E., van den Elshout, S. and Fisher, B.
Uncertainty mapping for air quality modelling and data assimilation. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 24/2007.

Sivertsen, B., Dudek, A. and Guerreiro, C.
Simplified models for integrated air quality management in urban areas. Presented at: 29th ITM Meeting, Aveiro, Portugal. September 24-28, 2007.
F 25/2007.

Denby, B., Larssen, S., Builtjes, P., Keuken, M., Sokhi, R., Moussiopoulos, N., Douros, J., Borrego, C., Costa, A.M. and Pregger, T.
Recommendations on spatial assessment of air quality resulting from the FP6 EU project AIR4EU. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 26/2007.

Berger, J., Walker, S.E., Denby, B., Berkowicz, R., Løfstrøm, P., Ketzel, M. and Kukkonen, J.
Evaluation and inter-comparison of open road line source (ORLS) models currently being used in the Nordic countries. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 27/2007.

Moussiopoulos, N., Douros, I., Kalognomou, E.-A., Fragkou, E., Denby, B., Larssen, S., Dudek, A., Fiala, J., Culevier, C. and Dilara, P.
Towards a modelling network in support of the new air quality directive. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 28/2007.

Slini, T., Walker, S.E. and Moussiopoulos, N.
Data assimilation within the Air4EU project: the Athens case. Powerpoint presentation. 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
F 29/2007.

Guerreiro, C., Laupsa, H., Ødegård, R. and Gjerstad, K.I.
Emissions inventorying as an integrated part of the state of the art air quality management system, AirQUIS. 16th Annual International Emission Inventory Conference. Raleigh, NC, USA, May 15-17, 2007.
F 30/2007.

Kylin, H., Dye, C. and Schlabach, M.
Is the new sweetener sucralose of environmental concern in aquatic ecosystems? Abstract. SETAC Europe 17th Annual Meeting, 20-24 May 2007 Porto, Portugal.
F 31/2007.

Mwevura, H., Amir, O., Hellström, A., Kishimba, M. and Kylin, H.
Persistent organic contaminants in the blubber of indo-pacific bottlenose dolphin (Tursiops aduncus) and spinner dolphin (Stenella longirostris) from the coastal waters of Zanzibar. Abstract. SETAC Europe 17th Annual Meeting, 20-24 May 2007 Porto, Portugal.
F 32/2007.

Bouwman, H., Sereda, B., Kylin, H. and Meinhardt, R.
DDT and pyrethroids in breast milk from KwaZulu-Natal, South Africa. Abstract. SETAC Europe 17th Annual Meeting, 20-24 May 2007 Porto, Portugal.
F 33/2007.

Nieuwoudt, C., Bouwman, H., Kylin, H. and Pieters, R.
Characterizing the levels of persistent organic substances in soils from the Vaal Triangle area, South Africa. Abstract.
The 33rd bi-annual Conference of the Zoological Society of Southern Africa: The sixth extinction – conserving zoological biodiversity. North-West University, Potchefstroom, South Africa, 9-11 July 2007.
F 34/2007.

Quinn, L., Pieters, R., Kylin, H. and Bouwman, H.
Determining the background levels of dioxin-like chemicals in central South Africa. Abstract. The 33rd bi-annual Conference of the Zoological Society of Southern Africa: The sixth extinction – conserving zoological biodiversity. North-West University, Potchefstroom, South Africa, 9-11 July 2007.
F 35/2007.

Kylin, H., Bouwman, H. and Evans, S.
Is air pollution a threat to the Blue Swallow (Hirundo atrocaeruelea)? Abstract. The 33rd bi-annual Conference of the Zoological Society of Southern Africa: The sixth extinction – conserving zoological biodiversity. North-West University, Potchefstroom, South Africa, 9-11 July 2007.
F 36/2007.

Bouwman, H., Sereda, B., Meinhardt, R. and Kylin, H.
DDT and pyrethroid residues in human breast milk from KwaZulu-Natal, South Africa. Abstract. Second SEANAC Conference – Chemistry for Health. Gaborone, Botswana 15-18 July 2007.
F 37/2007.

Mwevura, H., Kishimba, M. and Kylin, H.
Levels and composition of pesticide residues in fish, prawns and crabs from the Rufiji Delta estuarine area, Tanzania. Abstract. Second SEANAC Conference – Chemistry for Health. Gaborone, Botswana 15-18 July 2007.
F 38/2007.

Sivertsen, B.
How the Scandinavian air pollution research institutes can improve air quality in growing urban spheres in the developing countries. Danish Development Research Network Workshop on Urban Environmental Management and Air Quality in Less Developed Countries. Copenhagen, 30 November 2007.
F 39/2007.

Nieuwoudt, C., Bouwman, H., Quinn, L., Kylin, H. and Pieters, R.
Persistent organic substances in soils from the Vaal Triangle Area. Abstract. Environmin Conference 2007: Environmental and Health Aspects of Mining, Refining and Related Industries. Pilanesburg, South Africa, 22-26 July 2007.
F 40/2007.

Marsteen, L., Thanh, T.N. and Ødegård, R.
Development of data dissemination systems. IMERA meeting, SP, Borås, Sweden, 18 October 2007.
F 42/2007.

Denby, B., Schaap, M., Segers, A., Builtjes, P. and Horálek, J.
Comparison of data assimilation methods for assessing PM_{10} exceedances on the European scale. Powerpoint presentation. The 29'th NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application. Aveiro, Portugal, 24-28 September, 2007.
F 43/2007.

Breivik, K., Aas, W. and Eckhardt, S.
Monitoring POPs in air under the UN/ECE EMEP programme. ROG Inception Workshop in the Central and Eastern Europe under the Stockholm POPs Convention. Prague, 15-17 October, 2007.
F 44/2007.

Marsteen, L.
Quality system at ADWEA. ADWEA Office, Abu Dhabi, 16 September 2007.
F 45/2007.

Quinn, L., Nieuwoudt, C., Pieters, R., Kylin, H. and Bouwman, H.
Determining the levels of persistent organic substances in soils from central South Africa. Polarmiljøsenterets økotoksikologiske lunsjseminar, 18. september 2007.
F 46/2007.

Kylin, H., Dye, C. and Schlabach, M.
Sucralose: Do current toxicity tests of chemicals cover all ecosystem risks? Regulating Chemical Risks: Science, Politics and the Media. Stockholm, 16-17 August 2007.
F 47/2007.

Sivertsen, B. and Dam, V.T.
Emission inventory and air quality modelling in Ho Chi Minh City, Vietnam. International conference on air quality management in South East Asia, Ho Chi Minh City, 21-23 November 2007.
F 48/2007.

Kallenborn, R., Manø, S. and Aas, W.
Atmospheric transport of persistent organic pollutants to Ny-Ålesund (Zeppelin mountain atmospheric research station). NySMAC seminar 2007, Cambridge, UK, 16-18 October 2007.
F 50/2007.

Kallenborn, R.
Atmospheric long range transport of persistent organic pollutants: A circum-arctic review. 2. Internationales Georg von Neumayer Symposium, Bad Dürkheim/Weinstrasse, Germany, 20-23 September 2007.
F 51/2007.

Becker, S., Halsall, C.J., Thych, W., Hung, H., Su, Y., Kallenborn, R. and Schlabach, M.
Tales from the Arctic: Long-term trends in atmospheric alfa- and gamma-HCH and their feedback on pollutant legislation and climatic influences. Young researchers meeting on environmental contaminants, Central Science Laboratory, York, UK, 24 September 2007.
F 52/2007.

Innset, B.
Air quality management and approaches to environmental health. ACCENT T&E training workshop, Riga, 1-8 June 2007.
F 57/2007.

Sivertsen, B.
Application of urban air quality management tools in World Bank projects: Lessons from more than a decade of Norwegian experience. World Bank, Washington, 16 April 2007 (Air Quality Thematic Group BBL Series).
F 60/2007.

Sivertsen, B. and Marsteen, L.
Quality assurance and the use of a reference laboratory. The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
F 61/2007.

Sivertsen, B.
Monitoring air quality, objectives and design. The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
F 62/2007.

Sivertsen, B.
Air quality management and abatement strategy planning. The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
F 63/2007.

Sivertsen, B.
Air quality management plan. Draft implementation manual. Presented at workshop in Durban, 22-24 October 2007.
F 64/2007.

Engelsen, O.
The relationship between exposure of ultraviolet radiation and vitamin D status. 12th Congress of the European Society for Photobiology, University of Bath, U.K., September 1-6, 2007.
F 66/2007.

Engelsen, O., Sorensen, K. and Hokedal, J.
Aerosol measurements and atmospheric correction at high northern latitudes: a comparison of MERIS data. Abstract. IV International Conference on "Current Problems in Optics of Natural Waters, Nizhny Novgorod, Russia, September 11-15, 2007.
F 67/2007.

Engelsen, O.
The relationship between exposure of ultraviolet radiation and vitamin D status. A UV Conference celebrating One century of UV Radiation Research, 18 - 20 September 2007, Davos, Switzerland.
F 68/2007.

Engelsen, O.
The FastRT UV simulation tool: recent updates, spin-offs and applications. Poster presentation. A UV Conference celebrating One century of UV Radiation Research, 18 - 20 September 2007, Davos, Switzerland.
F 69/2007.

Yttri, K.E., Aas, W., Dye, C., Myhre, C.L., Schmidbauer, N.J., Simpson, D., Slørdal, L.H. and Svendby, T.M.
SORGA (Secondary organic aerosols in the urban environment) - Modelling and measurement of carbonaceous aerosols at a rural and urban site in Norway. NOSA Aerosol symposium, Helsingör, Denmark, 8-9 November 2007.
F 76/2007.

Yttri, K.E.
Carbonaceous aerosols in the Norwegian environment. NMR workshop 'Organic particles in Nordic urban areas'. Helsingör, Denmark, 7 November 2007.
F 77/2007.

Aas, W.
Uncertainties in atmospheric observations. Powerpoint presentation. Workshop in the Task Force of measurement and modeling (TFMM) 22-23 October, Dublin, Ireland.
F 79/2007.

Aas, W.
The evaluation of atmospheric pollution in Europe, The EMEP Programme. Powerpoint presentation. 35 años de protección del ambiente atmosférico en España". 25th September 2007, Madrid, Spain.
F 80/2007.

Aas, W., Alfarra, R., Bieber, E., Ceburnis, D., Ellermann, T., Ferm, M., Frölich, M., Gehrig, R., Hansson, H.C., Kiss, H., Makkonen, U., Mihalopoulos, N., Nemitz, E., Otjes, R.P., Perez, N., Perrino, C., Putaud, J.P., Plass-Duelmer, C., Spindler, G., Tsyro, S., Vana, M. and Yttri, K.E.
Intensive measurements and modelling of size segregated chemical composition of aerosols in June 2006 and January 2007 in EMEP. Powerpoint presentation. European Aerosol Conference (EAC) 2007. 9-14 September 2007, Salzburg, Austria.
F 81/2007.

Aas, W.
Relevant activities in EMEP: EMEP Monitoring programme, Expansion to the EECCA region, HTAP, QA/QC, Utilizing passive sampler. Powerpoint presentation. EANET Eighth Senior Technical Managers' Meeting 1-3 August 2007, Bogor, Indonesia.
F 82/2007.

Aas, W.
EMEP Monitoring Strategy 2004-2009, Where are we, and how well will we succeed? Powerpoint presentation. 8th meeting of the Task Force of measurement and modelling (TFMM) 25-27 April 2007 in Dessau, Germany.
F 83/2007.

Aas, W. and Artz, R.
WMO GAW Precipitation Chemistry Science Advisory Group Activities. OPAG-EPAC Joint Scientific Steering Committee. April 11-12, 2007 Geneva, Switzerland.
F 84/2007.

Stohl, A., Berg, T., Breivik, K., Burkhart, J.F., Eckhardt, S., Fjæraa, A., Forster, C., Herber, A., Lunder, C., McMillan, W.W., Manø, S., Oltmans, S., Shiobara, M., Stebel, K., Hirdman, D., Stroem, J., Tørseth, K., Treffeisen, R., Virkkunen, K., Yttri, K.E., Andrews, E., Kowal, D., Mefford, T., Ogren, J.A., Sharma, S., Spichtinger, N., Stone, R., Hoch, S. and Wehrli, C.
Long-range transport of air pollution into the Arctic. AGU fall meeting. San Francisco, 10-14 December 2007.
F 85/2007.

Dusinska, M.
Is the Comet assay an acceptable method for the risk assessment? INTARESE and ENVIRISK workshop: The use of biomarkers for risk assessment. Prague, 19 November 2007.
F 86/2007.

Fløisand, I. and Jablonska, H.T.B.
Health and Environment Network (HENVINET) - Project presentation. 14th International symposium on environmental pollution and its impact on life in the Mediterranean region, Sevilla, 10-14 October 2007.
F 87/2007.

Nemitz, E., Thomas, R., di Marco, C., Phillips, G., Aas, W., Alfarra, R., Baltensperger, U., Otjes, R., Erisman, J.W., Laaksonen, A., Rautiainen, J. and Poulain, L.
Highly time resolved measurements of inorganic reactive gases and aerosols across Europe during the EMEP Intensive measurements Campaigns 2006/07. Poster presentation. The second ACCENT Symposium, Urbino, Italy, 23-27 July 2007.
F 88/2007.

Dickhutt, R. and Kylin, H.
Persistent organic pollutants in Antarctica. SWEDARP 2007-08 science lecture series, Icebreaker Oden, 3 December 2007.
F 89/2007.

Posters

Engelsen, O. and Hansen, G.H.
UV/visible radiation climate variability on a decadal scale at Svalbard. Presented at Arctic Frontiers Conference, Tromsø, 21-26 January, 2007.
PP 01/2007.

Orsolini, Y.J., Karpechko, A. and Nikulin, G.
Climate patterns and the forcing of the polar stratosphere in winter. Presented at the European Geophysical Union General Assembly, Vienna, April 17-21, 2007, and at the third SCOUT-03 Annual Meeting, Heraklion, Crete, Greece, 7-11 May 2007.
PP 02/2007.

Berger, J., Walker, S.E., Denby, B., Løfstrøm, P., Ketzel, M. and Berkowicz, R.
Evaluation and inter-comparison of open road line source models currently being used in the nordic countries: a NORPAC project. Presented at the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.
PP 03/2007.

Walker, S.E. and Berger, J.
Application of data assimilation in open road line source modelling. Case study Oslo II. 6th International Urban Air Quality Conference, Cyprus, 27-29 March 2007.
PP 04/2007.

Dudek, A.V.
Air quality information for Cyprus. Presented at the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.
PP 05/2007.

Breivik, K.
POPs measurements at the Zeppelin station. Permanent poster at the Zeppelin station.
PP 06/2007.

Fjæraa, A.M., Hermansen, O., Lunder, C. and Schmidbauer, N.
Trends of halocarbons observed in Ny-Ålesund. Presented at the 2nd Ny-Ålesund – Pallas – Sodankylä Atmospheric Research Workshop, Ny-Ålesund, 16-18 April 2007.
PP 07/2007.

Dye, C., Kylin, H. and Schlabach, M.
Sucralose – a new persistent pollutant in the environment? Presented at 2nd EMCO workshop on emerging contaminants in wastewaters: monitoring tools and treatment technologies. Belgrade, Serbia, 26-27 April 2007.
PP 08/2007.

Stebel, K., Friod, M., Myhre, C.L., Toledano, C., Hansen, G., Gausa, M., Mogo, S., Rodriguez, E., de Frutos, A., Cachorro, V. and Kristjansson, J.E.
Aerosol optical properties obtained from tropospheric lidar and sun photometer measurements in 2005 and 2006 at ALOMAR (69°N, 16°E). Presented at the EarthCARE workshop, ESA-ESTEC, Noordwijk, The Netherlands, 7-9 May 2007.
PP 09/2007.

Grøntoft, T., Dahlin, E., Odlyha, M., Scharff, M., Andrade, G., Mottner, P., Czop, J. and Colombini, P.
Improved protection of paintings during exhibition, storage and transit – PROPAINT. Presented at Conservation Science 2007, Milan, Italy, 10-11 May 2007.
PP 10/2007.

Laupsa, H., Guerreiro, C.B. and Sivertsen, B.
Ambient PM_{10} and $PM_{2.5}$ measurements in Dakar, Senegal. Presented at: The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.
PP 11/2007.

Walker, S.E.
Quantification of uncertainties associated with an integrated Gaussian line source model using ensembles. Presented at: 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.
PP 12/2007.

Innset, B. and Sandås, A.
Active learning for a better school environment – a Norwegian pilot project. The second ACCENT Symposium 23-27 July 2007, Urbino, Italy.
PP 13/2007.

Myhre, C.L., Toledano, C., Myhre, G., Stebel, K., Frioud, M., Yttri, K.E. and Johnsrud, M.
Aerosol optical properties and distribution during the extreme Arctic pollution event in spring 2006. The second ACCENT Symposium 23-27 July 2007, Urbino, Italy.
PP 14/2007.

Aas, W., Fölich, M., Gehrig, R., Pérez, N., Perrino, C., Putaud, J.P., Spindler, G., Tsyro, S. and Yttri, K.E.
Size segregated chemical composition of aerosols, EMEP intensive measurements 06/07. The second ACCENT Symposium 23-27 July 2007, Urbino, Italy.
PP 15/2007.

Kobernus, M., Aarflot, A. and Schuepbach, E.
Training and education. Emergent technologies. The second ACCENT Symposium, Urbino, Italy, 23-27 July 2007.
PP 16/2007.

Enge, E.K., Manø, S., Mariussen, E. and Tharaldsen, A.
PAHs in Norwegian smoked food. 21st International Symposium for Polycyclic Aromatic Compounds (ISPAC 21), Trondheim, 5-10 August 2007.
PP 17/2007.

Eckhardt, S., Breivik, K., Manø, S. and Stohl, A.
Record high peaks in PCB concentrations in the Arctic atmosphere due to long-range transport of biomass burning emissions. DIOXIN 2007, 27th International symposium on halogenated persistent organic pollutants, Tokyo, 2-7 September 2007.
PP 18/2007.

Hole, L.R. and Christensen, J.
Trends in nitrogen and sulphur compounds in the Arctic: past and future. Polar Dynamics Conference. Bergen, 29-31 August 2007.
PP 19/2007.

Aspmo, K., Uggerud, H., Vadset, M., Brorström-Lundén, E., Kaj, L. and Woldegiorgis, A.
Chromium (VI) speciation through the environment. TraceSpec 2007, Münster, Germany, 4-7 September 2007.
PP 20/2007.

Sivertsen, B., Dudek, A. and Guerreiro, C.
Simplified models for integrated air quality management in urban areas. Presented at: 29th ITM Meeting, Aveiro, Portugal. September 24-28, 2007.
PP 21/2007.

Fløisand, I., McInnes, H., Broday, D., Lützenkirchen, S., Holländer, W., Bartonova, A. and Jablonska, H.T.B.
Exposure of children and adults to particulate matter in urban areas - model calculations. 14th International symposium on environmental pollution and its impact on life in the Mediterranean region, Sevilla, 10-14 October 2007.
PP 22/2007.

Prata, F.
Infrared retrieval of SO_2 using high spectral resolution satellite data. 1st IASI International Conference, Anglet, France, 13-16 November 2007.
PP 23/2007.

Stohl, A., Forster, C. and Sodemann, H.
Remote sources of water vapor forming precipitation on the Norwegian west coast at 60°N – a tale of hurricanes and an atmospheric river. AGU fall meeting. San Francisco, 10-14 December 2007.
PP 24/2007.

Bartonova, A.
DROPS : development of macro and sectoral economic models to evaluate the role of public health externalities on society. INTARESE project conference, Prague, CZ, 21. November 2007.
PP 25/2007.

Bartonova, A.
HENVINET. Environment and Health Network. INTARESE project conference, Prague, CZ, 21. November 2007.
PP 26/2007.

Parts of books/reports

Aas, W., Schaug, J. and Hanssen, J.E.
Field intercomparison of main components in air in EMEP. In: *Acid rain – deposition to recovery.* Ed. by: P. Brimblecombe, H. Hara, D. Houle and M. Novak. Dordrecht,Springer, 2007.

Bartonova, A.
Selected studies of integrated assessment of PM. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007*. Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 13-15.

Bartonova, A. and Laupsa, H.
Exposure modelling related to outdoor air. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007*. Book of extended abstracts. Belgrade, VINCA Institute of Nuclear
Sciences, 2007. pp. 54-55.

Berger, J., Berkowicz, R., Walker, S.E., Denby, B., Løfstrøm, P., Ketzel, M. and Kukkonen, J.
Evaluation and inter-comparison of open road line source models currently being used in the nordic countries: a NORPAC project. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007. pp. 119-123.*
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op119-123.pdf

Berger, J., Walker, S.E., Denby, B., Løfstrøm, P., Ketzel, M. and Berkowicz, R.
Evaluation and inter-comparison of open road line source models currently being used in the Nordic countries: a NORPAC project. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007. Ed. by R.S. Sokhi and M.* Neophytou. Hatfield, University of Hertfordshire, 2007. (CD-ROM).

Breivik, K., Vestreng, V., Rozovskaya, O., Pacyna, J.M.
Sources of POPs to the European atmosphere – an initial evaluation of available emission data. In: *Persistent organic pollutants (POPs) in the European atmosphere: An updated overview.* Castro-Jiménez, J., Eisenreich, S.J., Vives, I. (eds.). Joint Research Centre, Institute for the Environment and Sustainability. Luxembourg, Office for Official Publications of the European Communities, 2007. (EUR 22876 EN), pp. 4-11.

de Smet, P.A.M., Horálek, J. and Denby, B.
European air quality mapping through interpolation with application to exposure and impact assessment. In: *The geospatial web – how geobrowsers, social software and the web 2.0 are shaping the network society.* Ed. by Arno Scharl and Klaus Tochtermann. New York/ London, Springer, 2007. Chapter 19, pp. 201-208.

Denby, B. and Pochmann, M.
Basic data assimilation methods for use in urban air quality assessment. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.* Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire, 2007. (CD-ROM).

Denby, B., Costa, A.M., Monteiro, A., Dudek, A., Walker, S.E., van den Elshout, S. and Fisher, B.
Uncertainty mapping for air quality modelling and data assimilation. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007. pp. 21-25.*
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op021-025.pdf

Denby, B., Larssen, S., Builtjes, P., Keuken, M., Sokhi, R., Moussiopoulos, N., Douros, J., Borrego, C., Costa, A.M. and Pregger, T.
Recommendations on spatial assessment of air quality resulting from the FP6 EU project AIR4EU. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.* pp. 149-153.
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op149-153.pdf

Denby, B., Schaap, M., Segers, A., Builtjes, P. and Horálek, J.
Comparison of data assimilation methods for assessing PM_{10} exceedances on the European scale. In: *Proceedings of the 29'th NATO/ SPS International Technical Meeting on Air Pollution Modelling and its Application. Aveiro, Portugal, 24-28 September, 2007.*

Dudek, A., Logna, R. and Denby, B.
A web based mapping tool for the harmonised intercomparison of air quality maps. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.* Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire(CD-ROM).

Dudek, A., Logna, R. and Denby, B.
A web based mapping tool for the harmonised intercomparison of air quality maps. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.* pp. 76-80.
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op076-080.pdf

Dye, C., Kylin, H. and Schlabach, M.
Sucralose – a new persistent pollutant in the environment? In: *2nd EMCO workshop on emerging contaminants in wastewaters: monitoring tools and treatment technologies. 26-27 April 2007, Belgrade, Serbia. Book of abstracts.* p. 119.

Engelsen, O.
The FastRT UV simulation tool: recent updates, spin-offs and applications. In: *Proceedings of the UV conference "One century of UV radiation research" 18-20 September 2007, Davos, Switzerland. Ed. by J. Gröbner. Davos, Physikalisch-Meteorologisches Observatorium Davos, Weltstrahlungszentrum, 2007.* pp. 169-170.

Engelsen, O.
The relationship between exposure of ultraviolet radiation and vitamin D status. In: *ESP 2007 12th Congress of the European Society for Photobiology.* Programme and book of abstracts. Bath, U.K., September 1-6, 2007.

Engelsen, O. and Webb, A.R.
Review: The relationship between UV exposure and vitamin D status. In: *Proceedings of the UV conference "One century of UV radiation research" 18-20 September 2007, Davos, Switzerland.* Ed. by J. Gröbner. Davos, Physikalisch-Meteorologisches Observatorium Davos, Weltstrahlungszentrum, 2007. pp. 123-124.

Engelsen, O., Sorensen, K. and Hokedal, J.
Aerosol measurements and atmospheric correction at high northern latitudes: a comparison of MERIS data. In: *IV International Conference on "Current Problems in Optics of Natural Waters, ONW'2007, Nizhny Novgorod, Russia, September 11-15, 2007. Proceedings.* pp. 209-212.

Fløisand, I., Laupsa, H., Broday, D., Bøhler, T., Holländer, W., Lützenkirchen, S., Housiadas, C., Stubos, T. and Mc Innes, H.
Calculations of personal exposure to particulate matter in urban areas. In: *Air pollution modeling and its application XVIII.* Ed. by Carlos Borrego and Eberhard Renner. Amsterdam, Elsevier, 2007. (Developments in environmental science, 6) pp. 679-688.

Gjerstad, K.I., Ødegaard, V. and Jablonska, H.T.B.
The urban air quality forecast system for Norway. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007. Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007.* pp. 103-106.

Grøntoft, T., Dahlin, E., Henriksen, J.F., Rentmeister, S., Hanko, M., Heinze, J., Taylor, J., Blades, N. and Cassar, M.
An early warning system for organic materials in museums, historic buildings and archives. In: *Safeguarded cultural heritage : understanding and viability for the enlarged Europe : proceedings of the 7th European Conference "Sauveur", 31st May – 3rd June 2006, Prague, Czech Republic.* Ed. by Milos Drdácký, Michel Chapuis ; co-editors: May Cassar, Elin Dahlin ... [et al.]. – Praha : ITAM, c2007. pp. 41-50.

Guerreiro, C., Laupsa, H., Ødegård, R. and Gjerstad, K.I.
Emissions inventorying as an integrated part of the state of the art air quality management system, AirQUIS. In: *Proceedings from the 16th Annual International Emission Inventory Conference. Raleigh, NC, USA, May 15-17, 2007.*
URL: http://www.epa.gov/ttn/chief/conference/ei16/session8/guerreiro.pdf

Guerreiro, C.B., Laupsa, H. and Sivertsen, B.
Ambient PM_{10} and $PM_{2.5}$ measurements in Dakar, Senegal. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 107-108.

Guerreiro, C.B.G., Laupsa, H. and Sivertsen, B.
Ambient air quality measurements in Dakar, Senegal. In: *Proceedings of the 6th International Conference on Urban Air Quality.* Limassol, Cyprus, 27-29 March 2007. Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire (CD-ROM).

Jin, L., Shaoi, M., Aas, W., Duan, L., Vogt, R.D., Zhao, D., Xiang, J. Zhang, J. and Xiao, J.
Total deposition of major inorganic ions at non-urban sites in China, 2001-2003. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 56-58.

Jovasevic-Stojanovic, M. and Bartonova, A.
Information about WeBIOPATR project and workshop. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 10-12.

Laupsa, H., Denby, B., Larssen, S. and Schaug, J.
Source apportionment of particulate matter ($PM_{2.5}$) using dispersion and receptor modelling – a case study for Oslo. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.* Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire(CD-ROM).

Laupsa, H., Denby, B., Larssen, S. and Schaug, J.
Source apportionment of particulate matter ($PM_{2.5}$) using dispersion and receptor modelling – a case study for Oslo. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 42-44.

Laupsa, H., Denby, B., Slørdal, L.H. and Tønnesen, D.
Model calculations to estimate urban levels of particulate matter in Oslo. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 45-49.

Lazaridis, M., Voulgarakis, A., Glytsos, T., Kopanakis, I., Latos, M., Katsivela, E., Hov, Ø., Grennfelt, P., Kulmala, M. and Tørseth, K.
Particulate matter measurements at the Akrotiri research station. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 59-63.

Liu, L., Andreani-Aksoyoglu, S., Keller, J., Braathen, G. O., Schultz, M., Prévôt, A.S.H. and Isaksen, I.S.A.
A photochemical modelling study of ozone and formaldehyde generation and budget in the Po basin. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.* Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire(CD-ROM).

Lunder, C., Tunved, P., Ström, J.
Boundary layer aerosol size distribution data from Birkenes, Norway. In: T*he first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007.pp. 109-114.

Moussiopoulos, N., Douros, I., Kalognomou, E.-A., Fragkou, E., Denby, B., Larssen, S., Dudek, A. and Fiala, J.
Towards a modelling network in support of the new air quality directive. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.* pp. 144-148.
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op144-148.pdf

Orsolini, Y. and Solberg, S.
Use of satellite data for atmospheric pollution and greenhouse gas monitoring. A contribution to ACCENT-TROPOSAT-2, task group 3. In: *Measuring tropospheric trace constituents from space. ACCENT-TROPOSAT-2 in 2005-6.* Ed. by J. Burrows and P. Borrell. Urbino (ACCENT reports ; 1.2007) p.288.

Sivertsen, B.
Quality assurance and the use of a reference laboratory. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 78-79.

Sivertsen, B.
Monitoring air quality, objectives and design. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 89-94.

Sivertsen, B.
Air quality management and abatement strategy planning. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007.pp. 85-88.

Sivertsen, B. and Dam, V.T.
Emission inventory and air quality modeling in Ho Chi Minh City, Vietnam. In: *Abstracts of the International conference on air quality management in Southeast Asia. Ho Chi Minh City, Vietnam, November 21-23, 2007.* Pathumthani, Asian Institute of Technology, p. 25.

Slini, T., Walker, S.E. and Moussiopoulos, N.
Data assimilation within the Air4EU project: the Athens case. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.* pp. 259-263.
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Op259-263.pdf

Slørdal, L.H., McInnes, H. and Krognes, T.
The Air Quality Management System AirQUIS. In: *Information technologies in environmental engineering. ITEE 2007 – Third international ICSC symposium, Oldenburg 2007*. Ed. by J.M. Gomez et al. Berlin, Springer, 2007. pp. 21-33.

Svendby, T.M. and Lazaridis, M.
Modelling of secondary biogenic aerosols. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 64-66.

Visschedijk, A., Pacyna, J., Pulles, T., Zandveld, P. and Denier van der Gon, H.
Coordinated European Particulate Matter Emission Inventory Program (CEPMEIP). In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007.pp. 35-41.

Walker, S.E.
Quantification of uncertainties associated with an integrated Gaussian line source model using ensembles. In: *Proceedings of the 11th International conference on harmonisation within atmospheric dispersion modelling for regulatory purposes, Cambridge, UK, July 2-5, 2007.* pp. 26-30.
URL: http://harmo.org/conferences/Proceedings/_Cambridge/publishedSections/Pp026-030.pdf

Walker, S.E. and Berger, J.
Application of data assimilation in open road line source modelling. In: *Proceedings of the 6th International Conference on Urban Air Quality. Limassol, Cyprus, 27-29 March 2007.* Ed. by R.S. Sokhi and M. Neophytou. Hatfield, University of Hertfordshire(CD-ROM).

Webb, A.R. and Engelsen, O.
Ultraviolet exposure scenarios: risks of erythema from recommendations on cutaneous vitamin D synthesis. In: Sunlight, Vitamin D and Skin Cancer. Ed. by J. Reichrath. Austin, TX., Landes Bioscience, 2007.

Woldegiorgis, A., Andersson, J., Brorström-Lundén, E., Kaj, L., Remberger, M., Ekheden, Y., Dusan, B., Svensson, A., Dye, C. and Schlabach, M.
Screening of selected pharmaceuticals in Sweden. In: *2nd EMCO workshop on emerging contaminants in wastewaters: monitoring tools and treatment technologies. 26-27 April 2007, Belgrade, Serbia.* Book of abstracts. p. 64.

Yttri, K.E.
Carbonaceous particulate matter – a great challenge. In: *The first international WeBIOPATR workshop, Belgrade, 20-22 May 2007.* Book of extended abstracts. Belgrade, VINCA Institute of Nuclear Sciences, 2007. pp. 16-18.

Yttri, K.E.
Carbonaceous aerosols in the Norwegian environment. In: *Proceedings of the NMR workshop 'Organic particles in Nordic urban areas' / NOSA Aerosol symposium. Helsingör, Denmark, 7-9 November 2007.* pp. 114-115 (2007).

Yttri, K.E., Aas, W., Dye, C., Myhre, C.L., Schmidbauer, N.J., Simpson, D., Slørdal, L.H. and Svendby, T.M.
SORGA (Secondary organic aerosols in the urban environment) – Modelling and measurement of carbonaceous aerosols at a rural and urban site in Norway. In: *Conference proceedings of the NOSA Aerosol symposium, Helsingör, Denmark, 8-9 November 2007.* pp. 112-113.

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