

NMR project: *NORPAC - Validated models describing Nordic urban and regional concentration of particles and OC/EC*

Minutes of the 4th Workshop, Wednesday, November 2, 2005, 16:00,
Chemistry Department, Gothenburg University.

List of Participants:

FMI: Mervi, Veli-Matti
SMHI: -
METNO: Dave, Svetlana
LU: Erik, Andreas
DMU: Matthias
ITM: HC
UH: Tareq, Kaarle, Timo
NILU: -
GU: (Mattias, Sara Janhall)
KU: -

Agenda / Discussion

- * progress in the different working activities short report 5-10 min by the leader (see table) below
- * planning of activities (e.g. DMPS inter-calibration, regional modelling)
- * publications, reporting
- * budget 2006 / billing 2005
- * date and topics for the next meeting(s)

Progress:

During the meeting discussed the status of the different working activities a summary is given in the table at the end of the document.

Presentations given at the meeting are available from the NORPAC webpage

[http://norpac.dmu.dk#meet:](http://norpac.dmu.dk#meet)

- by Andreas on DMPS intercalibration
- by Mervi on the regional modelling activities at FMI
- by Svetlana on the EC modelling within the EMEP model.

1: DMPS Intercomparison (Andreas).

6 systems are calibrated now four from Lund and one from DMU and KU for particle size. The calibration for particle number concentrations is more difficult to continue since the CPC is needed for other projects. All systems seem to underestimate at 100 and 277 nm while all overestimate at 420 nm. So far no good explanation for this behaviour was found. The production tolerance of the PSL spheres is much better than the observed deviations.

The intercomparison continues with the groups GU, ITM, NILU and UH.

2: Soot photometers (HC / Matthias)

The systems are running in Stockholm and Copenhagen, first data are presented in a poster at NOSA. Prototypes for automated filter change are under construction at ITM. One soot photometer will be sent by ITM to a calibration workshop at the IfT in Leipzig 14.-18. Nov. 2005

and a DMU/ITM calibration workshop will be done the following week 21.-25. Nov. 2005 in Stockholm. Absorption coefficients will be estimated and several of the self-constructed instruments will be run side by side and also be compared with commercially available instruments.

3: Database

The dataset from NILU is now uploaded. By now data are available from Stockholm, Copenhagen, Helsinki and Oslo.

4: Local modelling exercise

NILU/ Dag takes the lead for further actions.

5: Aerosol modelling exercise

The UHMA model has been used for a highway case in Helsinki.

UH (Tareq) and Matthias will start a co-operation on comparing the UHMA and the DMU/MAT model for an urban case (Copenhagen). The idea is to modify the indoor model developed by Tareq to develop a simple model of the vertical structure (1D column) of the atmosphere and run it as trajectory model.

6: Emission factors

The workshop in Norrköping has been a success and a summary was prepared. Matthias gave a brief overview on the results.

During the GÖTE campaign some flux measurements have been performed that could be used for deriving emission factors.

7: OC / EC parameterisation, implementation into the EMEP model

This regional modelling activity is good on track, main actors are listed in the table below.

The CARBOSOL project shows that is very hard to derive the anthropogenic / biogenic contributions to EC/OC. Further analysis has to be done. SOA (secondary organic aerosol) is very sensitive.

The EMEP model underestimates EC by ca. 40% even after introducing new emissions based on the IIASA data, although this discrepancy is within the range of uncertainty of EC measurements. The spatial correlation for EC is quite good (0.90). More problematic is the low temporal correlation for EC at some sites. NORPAC should help EMEP to revise their emissions on EC. Furthermore, expertise within NORPAC could be used to revise the size distribution of PM emissions currently used in the EMEP model. For example, for particle number some ratios to NO_x could be used for traffic related emissions.

Publications / reporting:

The midterm report was now accepted by NMR. All groups are asked to refer to NORPAC and NMR in their common publications. At the end of 2005 a status report has to be sent to NMR. The final report will be prepared after completing the final year. We will consider a web-publication.

Budget 2006 / billing 2005:

NMR will fund our project with 500 kDKK during 2006, meaning a 17% reduction from the original 600 kDKK we applied for. Matthias will prepare a budget for 2006 and circulate to the scientist in charge. The bills for the work done in 2005 have to be sent by mid of December to NERI in order to be able to give a status report to NMR.

Next meetings:

Next big group meetings in 2006 were decided, **please reserve these dates:**

- **Monday, May 8th 2006, in Copenhagen**, 1 day meeting near the airport
- **8th Nov. 2006**, day before the next NOSA symposium in Helsinki

Summary Working activities and status

This table is meant to structure the work within NORPAC, **please, check and comment.**

The names of persons involved in the activities are added

The underlined group/person is leading the activity.

Activity	Participants	Status
DMPS inter-calibration	<u>LU (Erik, Andreas)</u> DMU (Peter, Matthias), KU(Adam, Elisa, Merete), ITM (H.C.), NILU (Chris), UH (Kaarle), GU*(Mattias)	Design and manufacturing of the aerosol generator by fall 2004. Tests and inter-comparison in 2005, LU, DMU and KU completed, GU is under progress. Next groups will follow soon ITM, NILU, UH.
Soot photometer	<u>ITM (H.C., Johan Ström, Christer)</u> DMU (Matthias,), UH , NILU	ca. 6 soot photometers are built and are be placed at stations in Stockholm and Copenhagen, automated filter changes and more photometers to be build during 2005, Data collection under progress. Intercalibration workshops in Leipzig and Stockholm Nov. 2005
Particle database NORDIC	<u>SMHI (Lars)</u> DMU (Matthias), FMI (Mervi), NILU (Dag); UH (?)	Database installed, data from Stockholm, Copenhagen, Helsinki and Oslo are loaded, all groups have access.
Local modelling exercise (Case 1: Hornsgatan)	<u>NILU (Dag)</u> DMU (Ruwim/Matthias), SMHI (Lars)	start with setting up the test case (Hornsgatan) based on SIMAir data.
Aerosol dynamics modelling exercise	<u>DMU (Matthias)</u> FMI (Mia, Liisa), UH(Tareq, Hannele)	started August 2004 with a short working meeting DMU/FMI, workshop held on 21. April 2005
Emission factors UFP, PM (incl. resuspension)	<u>SMHI (Gunnar)</u> DMU (Ruwim/Matthias), NILU (Dag), FMI (Mervi, Jari) GU (Mattias, Sara) ITM (Christer)	started October 2004 with collection and comparison of available measuring data and emission factor estimates separate workshop at SMHI was held at October 4. - 5., 2005
OC/EC parameterisation	<u>METNO (Dave, Svetlana)</u> ITM (HC, Peter Tunved), UH/FMI (Markku, Hannele), GU(Mattias)	started in 2005
Implementation in EMEP model	<u>METNO (Dave, Svetlana, Leonor)</u>	started in late 2005, Workshop is planned early 2006 focussing on improvements in -wet deposition - mass of OC/EC/SOA - number modelling

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