# AGENDA WP4 meeting

*January 14 – 15 2014, Park Inn by Radisson CPH airport*

This WP4 meeting should be more of a discussion forum on what has been done in our WP and on the links with other WPs, namely modelling and policymaking part. This CRAICC session in Copenhagen includes also WP3 and WP5 meetings, closest to WP4 with respect to objectives and interactions between WPs and I hope that this will help us to find a right focus for the rest of the project to benefit the most to common goals.

***14 January 2014***

***12.00-13.00: Lunch at the hotel***

***13:00*: Welcome and agenda summary (R. Krejci)**

***13:15 – 13:30*: Summary of WP4 where we are, what have been done and what should be done (R. Krejci)**

Based on the participants list, there are 8 groups present. Each of them has 15 minutes to summarize what has been done and what are their plans for rest of the CRAICC

*13:30* SU

*13:45* UHEL

*14:00* University of Oslo

*14:15* Aarhus

*14:30* Lund

*14:45* FMI

*15:00* University of Iceland

*15:15* NILU

***15:30 – 16:00*** **Coffee break**

*16:00 - 17:00* CRAICC WP 4 objectives

- To characterize the spatial and temporal variability of Arctic short-lived pollutants (BC, OC, inorganic aerosol species, and ozone) and to investigate their trends
- To quantify the importance of source regions and source types for the Arctic concentrations of anthropogenic aerosols and to determine their transport pathways
- To calculate the direct radiative forcing of these SLCFs in the Arctic
- To estimate the albedo effect of BC on snow and ice
- To identify the role of bacteria and algae, carried by and deposited with aerosols, in snow

*17:00 – 18:00* Deliverables and WP4 contribution

***19:00*** **Dinner**

**<u>15 January 2014</u>**

*09:00 - 10:30* – Future work within WP4, interactions with other WPs namely WP3 and WP5, measurements and modelling (input for modelers and model validation), input to policy making WPs

***10:30 – 11:00*** **Coffee break**

*11:00* Continuation, round up of tasks for rest of CRAICC related to WP4

**12:00-13.00: Lunch at the hotel and end of the meeting**

## List of participants

1. Jon Egill Kristjansson, University of Oslo
2. Michael Boy, University of Helsinki
3. Sven-Erik Gryning, Technical University of Denmark
4. Henrik Skov, Aarhus University
5. Quynh Nguyen, Stockholm University
6. Adam Kristensson, Lund University
7. Andreas Massling, Aarhus University
8. Marianne Glasius, Aarhus University
9. Ella-Maria Kyrö, University of Helsinki
10. Aki Virkkula, Finnish Meteorological Institute
11. Andreas Stohl, NILU
12. Throstur Thorsteinsson, University of Iceland

# Meeting notes

Summary of the objectives and what has been done

Lund (Adam Kristensson) – ship emissions studied in Denmark. How we can extend it to a larger scale for the Arctic using realistic scenarios. Large uncertainty in future shipping estimates for the Arctic exists. Climate impact studies tend to highly overestimate realistic shipping scenarios.

FMI (Aki Virkulla) – soot on snow controlled experiments in Finland and CHINARE-5 icebreaker expeditions in the Arctic. Jonas Svensson looking on BC in snow in northern Scandinavia using OC/EC and SP2. M Graupel long term trends in BC from Svalbard ice-cores. Mercury speciation measurements in northern Finland (Pallas). Calculations of BC forcing over the spring-summer period using ECHAM5-HAM: Results already available.

Station Nord (A. Massling): 3 years of aerosol microphysics and lot of chemistry measurements; analysis in early stages. Plenty of new measurements to start from 2015 onwards. COPREM source receptor modeling. Source types are analyzed, but links to air mass history and source regions is not done yet.

Aarhus (M. Glasius) - aerosol organic chemistry with special focus on organosulphates and organic aerosol from station Nord and Ny Ålesund. OC/EC speciation of for Nordic stations using C isotopes (analysis ongoing). Quite high relative contribution of primary organic aerosol (20 – 30% by mass).

2015 Campaign at station Nord – April 2014. Dates and place will be fixed and announced later

UHEL (M. Boy) – cluster-aerosol growth rate dependence on aerosol size.

Uni. Oslo – modeling results done by M. Sand. Arctic surface temperature changes to emissions of black carbon. Work driven by earlier estimate of climate sensitivity to BC in the arctic to be negative (Shindell et al, Nat Geosci, 2009). Emissions emitted at lower lat get lofted above polar dome. Emissions from within the Arctic stays at low altitudes. BC within Arctic (60 – 90 N) has fivefold stronger influence on surface temperature increase compared to sources outside the Arctic.

Iceland – volcanic dust and dust storms on the Icelandic glaciers

NILU – PMA (H. Grythe work) summary. Local ship emissions on Zeppelin record (S. Eckhard et al, ACP).

Jan Egil – Introduction to NorESM and parameterizations

ADCHEM modeling of the Arctic ship emissions (Lund) unlikely to happen

SNICAR simulations of the snow albedo changes due to BC – done and will be published

GLOMAP and Arctic & Antarctica – ongoing

BC removal studies using FLEXPART – will take part during 2014 and parameterization similar to PMA will be hopefully one of the outputs (H. Grythe)

NorESM and PMA: testing the new parameterization (Grythe, 2014) in NorESM against Mårtenssson parameterization. Also new parameterization based on tank experiments will be available (M. Salter). Including to NorESM (A. Ekman, M. Salter, J.-E. Kristiansson). Possible runs for Southern Ocean ???? Not clear who will do the test and simulations.