

## **Memorandum for the visits of all partners in the CRAICC project by the coordinator Michael Boy in April, May and June 2013**

General all partners seemed to be very happy about the initiative of the visits and this should be considered also in other projects. A special focus in all meetings was directed towards the low number of publications acknowledging CRAICC. Most partners agreed and promised to improve this in the future at their institutes. A second important issue in the meetings was the forthcoming mid-term review in late summer 2013. I tried to demonstrate the importance of this report and explained and tried to motivate the partners to reserve time for this activity.

It was mentioned at several partners that the information flow in the beginning of the project related to the available funding for each institute was very confusing. Many partners expected that the fellow ships would be covered beside the agreed 1 MNOK and that this was the reason why it took so long for several partners to get co-funding to cover the rest. This should be taken into account for the next new project and explained more carefully.

The current information flow to students and special the CRAICC fellows should be improved. Some of them are still not on the CRAICC-email list and we need to find a more practical way that this will not happen again.

The planning of workshops for all WPs was from all participants taken as a very good idea but should maybe already have been organized before the MTR.

### **Appendixes:**

- Appendix 1 – presentation given at all institutes by Michael Boy
- Appendix 2 – Stockholm University: presentations from several scientists involved in CRAICC at ITM and INK (nobody from MISU was present)
- Appendix 3 – University of Uppsala: presentation by Gesa Weyhenmeyer about the activities at the institute related to CRAICC
- Appendix 4 – University of Oslo: presentations by several scientists (people of CISERO and Norwegian Meteorological institute joined the meeting but nobody from NILU was present)
- Appendix 5 – Aarhus University: presentations about the activities at the University and from Merete Bilde who moved in January from Copenhagen to Aarhus
- Appendix 6 – DTU-Riso: presentations by several scientists from Aarhus University and DTU-Riso at the meeting in Roskilde
- Appendix 7 – Lund University: presentations by several scientists
- Appendix 8 – Gothenburg University: presentation by Erik Thomson
- Appendix 9 – University of Helsinki: presentations by each partner
- Appendix 10 – NTUT: presentation by Knut Alfredson
- Appendix 11 – NPI: presentation by different scientists

## Stockholm University

Partners at this institute: ITM, MISU, INK

Date: 22. April 13-16.30

People participated the meeting:

- Margareta Hansson
- Johan Ström
- Radovan Krejci (CRAICC-fellow at UHel)
- Matt Salter (CRAICC-fellow at ITM)
- Henrik Grythe (CRAICC-fellow at ITM)
- Ikumi Oyabu (CRAICC-fellow at INK)
- Maryam Daliriam (CRAICC-fellow at ITM)

- Ilona Riipinen could not participate because of a PEGASOS-TV meeting
- Annika Eckman was abroad at ETH Zürich

Stockholm University with three partners is one of the most active insitiute in the CRAICC consortium and with five fellowships currently the University also has a quite high number of students, post-docs and visiting scientists employed by CRAICC. The scientific topics covering a wide range and several WPs in our NCoE starting from sea spray aerosol emission, black carbon transport to the Arctic, aerosol-cloud-interactions up to sulphate salts during different climate conditions.

More detailed discussions issues during the meeting:

The potential change and increase of PM emissions by increasing ship traffic in the artic region in contrast to a global reduction of emission by decreased use of fuel is a very important topic. This should be included in the plans for the second part of the CRAICC-project as one major aim and combines WP4 and WP8. I will also discuss this in Oslo with Jon Egill and other ESModellers.

It was suggested that Maryam Dalirian should visit the lab of Merete. In this way the on-going activities in WP5 could be better combined. CRAICC will support this visits financial if needed.

It was further discussed to implement the new SSA-parameterization in a global model in cooperation with CICERO. It is important to test these new findings in the ESM and second investigate the reason for higher emissions of SSP under colder water temperatures. Jan Petterson from Gothenburg was conducted and cooperation is planned with financial support from CRAICC if needed (short term visit of Matt at Gothenburg).

Comments to Magaretta Hansson and Ikumi Oyabu:

The on-going work 'sulphate salts during different climate conditions' should be linked to activities in the past – maybe in combination with modellers.

## Uppsala University

Partners at this institute: Limnology group

Date: 23. April 13-16.20

People participated:

- Gesa Weyhenmeyer
- Hannah Chmiel
- Xavier Thibert-Plante
- Anne Kellerman
- Cristian Guoosz
- Birgit Koehler
- Silke Langenheder
- Claudia Bergin
- Francois Guillemette
- Omneya Ahmed

Blaize Denfield (CRAICC-fellow at Uppsala) joints the discussion at 3 pm because of a course she had to participate.

It was mentioned by Gesa that she is not sure in which WP her activities belong. In the beginning it was planned to be in WP2 but she realized that the coordination in WP2 was to some extent very chaotic and decided to move to WP3 which in her opinion would fit anyway better. This will be discussed with the two WP-leaders (Frank and Henrik) and decided.

Scientifically we realized that the fellowship-topic of Blaize (CRAICC-fellow at Uppsala) was until now strong directed towards CO<sub>2</sub>-emissions of lakes. This is somehow at the edge of CRAICC-activities and more related to DEFROST. In the second part of Blaize's fellowship she will investigate the possible relation between the emissions of CO<sub>2</sub>, methane other organic compounds.

Ville Kusurinen (CRAICC-fellow in Helsinki) was supposed to come to Uppsala and discuss about possible scientific cooperation. However, out of not clear reasons this never happened and needs to be clarified because both CRAICC-partners working on the same topic. We will try in the very near future to find a possible way to start this.

After the meeting in Helsinki (four weeks later) it was decided that Ville will visit Uppsala on his way back from Trondheim in August 2013.

Hannah Chiem a PhD-student working on sediments in lakes should meet and discuss with Meri Ruppel (CRAICC-fellow in Helsinki) who works on a similar topic. A short-term visit in this summer was considered and supported by CRAICC.

The first email contact was established after the meeting in Helsinki and a short discussion with Meri Ruppel to plan the visit.

## Oslo

Partners in Oslo: UoO, MetNo, CICERO and NILU

Date: 24. April 9.30-16.30

People participated the meeting:

- Jon Egill Kristjansen (UoO)
- Risto Makkonen (CRAICC-fellow at UoO)
- Maria San (UoO) – climate modelling -> black carbon and Arctic impact
- Kari Alterskjer (UoO) – climate modelling -> Arctic AIE and marine cloud geoengineering
- Terie Berntsen (CICERO and UoO)
- Björn H. Samset (CICERO) – aerosol modelling
- Øyvind Seland (MetNO) – climate and aerosol modelling
- Alf Kirkevåg (MetNo)

Andreas Stohl could not participate the meeting and no other person from NILU was present.

Oslo with the four partners provides the strongest power in the CRAICC-consortium for the Earth-System-Modelling activities. However, the modellers depend on the new findings from other work packages. It is very important that the activities in WP8 are more intensive in the second part of the project and that the information flows from WP2-WP7 into WP8 have to be increased. Jon and Michael will contact all WP-leaders to make sure that new results and also data will be available for the global modellers.

Jon also pointed out that he would join all workshops arranged for the single WPs. We decided to set up these individual meetings in agreement with the single WP-leaders in October. If possible we will try to arrange more WP-meetings at the same place on following days – to avoid extra travel for Jon and Michael.

In September a new post-doc fellowship will start at CISERO and concentrates on the modeling of high latitude forcing and climate impact of short-lived climate forcers.

Øyvind Seland will contact Ilona and discuss about the WP6 and the model activities promised in this work package.

Michael will contact Andreas Massling and ask if particle size distribution data from Station Nord are available for model evaluation.

After the discussion with Andreas at Roskilde it was decided that the data will be transferred to Oslo (Risto) as soon as a detailed quality check has been done.

## Aarhus

Partners in Aarhus: Department of Chemistry and since January Merete Bilde who moved from University of Copenhagen to Aarhus.

Date: 29. April 9.00-15.00

People participated the meeting:

- Merete Bilde (Dep. of Chemistry)
- Marianne Glasius (Dep. of Chemistry)
- Anne Maria Hansen (CRAICC fellow at Dep. of Chemistry)
- Quynh Nguyen (Dep. of Chemistry / Environmental Science)
- Kasper Kristensen (Dep. of Chemistry)
- Azimeh Zare (Dep. of Environm. Science and Dep. of Chemistry)
- Niels Pind (Dep. of Chemistry)

There was a specific discussion how to integrate the interesting findings by the groups from Marianne and Merete in the global and regional models so they will contribute to solve the aims in CRAICC. Merete will contact Jon Egil to discuss what results could be used. However, for certain topics like the identification of several organic acids in the particle phase at the Nordic stations it is maybe only possible to mention this as plans for the second part of the project because the current available ESMs are not able to include such detailed information.

Merete will contact all fellowships from CRAICC and ask them direct for results which could contribute to the MTR in her WP. This was already mentioned by the other WP-leaders and is an important step to combine work from different institutes.

In the second part of the meeting Marianne, Merete and I were discussing about the organisation of the next annual conference by CRAICC. Marianne mentioned that she would prefer to have longer breaks so there will be more time for discussion between the people. Merete argued that we should have the work-package-meetings already on Wednesday and to place the WP-leader presentations to Thursday. In this way it would still be possible that a discussion inside and across the WP is possible on Thursday evening. Marianne and I agreed and I will write the first version of the agenda in this way.

For the side-event at the meeting we decided to go for a sport-on-event with a barbeque following. A volleyball-tournament with teams representing the different Nordic countries was considered. In this way we will keep the group together and all people who want can do some sports while others may want only to support their favourite team.

We further decided to move the conference dinner to Wednesday so the sport-event and the barbeque could be placed on the same day.

## Roskilde

Partners in Roskilde: Aarhus University, Department of Environmental Science and DTU-Riso

Date: 30. April 9.00-14.00

People participated the meeting:

- Andreas Massling (AU, Environm. Science)
- Sven-Erik Grynning (DTU-Riso)
- Henrik Skov (AU, Environm. Science)
- Lotte Sørensen (AU, Environm. Science and ARC - DEFROST)
- Jesper Christensen (AU, Environm. Science)
- Jacob KLeno Nojgaard (AU, Environm. Science)

Henrik presented the current status and possible activities by CRAICC at Station Nord. He also gave an overview about what kind of instrumentation is planned. I pointed out that the installation of a CPC with low detection limit should be considered. Further a possible automatic sounding system was discussed. This would be important to achieve long-term trend of the meteorological parameters.

It is planned to have a CRAICC related field campaign at this field station in spring 2015. This will also include people from DEFROST and can be highlighted as a future common activity by the two NCoE and also include some long-term action over the end of the NCoE (data will be not ready when the projects end!)

There will also be a campaign in Greenland in spring and autumn 2013 with partners from both NCoE, which will show the cooperation of the two Centres. All this activities will be included in the MTR under an extra point cooperation between CRAICC and DEFROST.

Jesper Christensen is investigating the role of future ship emissions on the Arctic as other groups in CRAICC are doing. Michael will per email bring him and the group from Jon Egil and Henrik Grythe together so they hopefully can combine their work on this topic and set a stronger argument by including different models on this very interesting and important issue. Emails were sent out after the meeting in Helsinki to all people involved in this topic.

Andreas will send the measured size distribution data to Risto Makkonen for comparison with the NorESM as soon as the data are quality-controlled.

Sven-Erik showed that the WRF-model has strong problems reproducing the vertical structure of the lowest layers above Station Nord. The work by Sven-Erik and Ekaterina Batchvarova (CRAICC visiting scientist) need to be included in some larger-scale models and Michael will try to start a discussion with other people.

## **Lund**

Partners in Aarhus: Lund University, Department of Nuclear Physics

Date: 2. May 9.00-15.15

People participated the meeting:

- Brigitta Svenningsson
- Niku Kivekäs (CRAICC fellow)
- Erik Swietlicki
- Emilie Hermansson
- Moa Sporre
- Cerina Wittborn
- Pontus Roldin
- Göran Frank
- Adam Kristensson

The new SFCA (Scanning Flow CCN Analysis - fast CCN) developed in the group should be installed at several CRAICC-stations after the tests have been ended. This will be included in the MTR as an aspect of the CRAICC second part.

Moa Sporre is doing her PhD on satellite data on the focus of cloud properties. I suggested that she comes over to Helsinki, if needed supported by CRAICC, so she can work together with Gerrit and Ksenia. I promised to discuss this with Gerrit and we will arrange a possible visit in the autumn. An email was send out to Gerrit (UHel) and LU (Erik and Moa).

The meeting is now scheduled for 29<sup>th</sup> of August at the Finnish Meteorological Institute, Finland.

Niku (CRAICC-fellowship) and Adam working on a project to investigate the impact on ship-emissions on measured particle number concentrations. Jon Egil and Henrik Grythe will be contacted to receive a better update how we can combine our on-going activities in CRAICC on this topic.

The CRAICC summer school on Atmospheric Modelling and final logistic plans for this event were discussed.

## Gothenburg

Partners in Gothenburg: University of Gothenburg

Date: 3. May 8.00-10.30

People participated the meeting:

- Jan BC Pettersson
- Erik S.Thomson (CRAICC fellow)
- Xiangrui Kong
- Panos Papagiannakopoulos
- Samuel Gaita
- Ågot Watne
- Xiangyu Pei
- Johan Boman
- Ravi Pathak -- soot/SOA lab tour

First I have to mention that the meeting was too short in Gothenburg because I underestimated the travel time from Gothenburg back to Stockholm and had to leave the institute in a rush at 10.30. For this reason and the possibility to start a more scientific cooperation I will visit the institute again on Tuesday the 20<sup>th</sup> of August before the CRAICC-conference in Aarhus.

The group led by Jan Pettersson focus their CRAICC-activities on the development of an ice nucleation counter and the molecular level understanding of ice processes including nucleation, morphology, water uptake and surfactant behaviors.

Jan pointed out that more detailed small-scale-models, which could be used for a better understanding of processes are missing in the CRAICC-consortium. He mentioned that many results from his institute could not be directly implemented in meso-scale or global models and the bridge between novel instruments and global models is too long.

Concerning the deliverables, which are now produced by different partners, it was mentioned that the constructed WP-email-lists should be more intensively used.

There was a plan that Hanna Vehkamäki from the University of Helsinki will visit Gothenburg University one week per month for one year. Until now this activity has not been established because of lack of funding. Jan explained that Markku offered to cover half of the salary for Hannah but the other half should come from Gothenburg. I promised to start again the discussion with Hannah but also explained that although the topic would fit very well to CRAICC activities there is a very small possibility that this could be funded by CRAICC.

## Helsinki

Partners in Helsinki: University of Helsinki (Dep.: Physics, Geosciences and Geography, Environmental Sciences, Forest Sciences), FMI and UEF

Date: 7. May 9.15-12.00

People participated the meeting:

- Aki Virkkula (FMI)
- Ari Laaksonen (UEF)
- Antti Lauri (UHel, DP)
- Meri Ruppel (UHel, DE)
- Ella-Maria Kyrö (UHel, DP)
- Heikki Seppä (UHel, DG)
- Petri Vaattovaara (UEF)
- Hannele Hakola (FMI)
- Frank Berninger (UHel, DF)
- Atte Korhola (UHel, DE)
- Veli-Matti Kerminen (UHel, DP)
- Tuukka Petäjä (UHel, DP)
- Jonas Svensson (FMI)
- Maija Kajls (UHel, DP)
- Outi Meinander (FMI)
- Ksenia Atlaskian (UHel, DP)
- Hermanni Aaltonen (UHel, DF)
- Jaana Bäck (UHel, DF)
- Keyan Fang (UHel, DG)
- Joonas Merikanto (UHel, DP)
- Ville Kasurinen (UHel, DF)

At the meeting in Helsinki surprisingly nearly all PI's and WP-leaders from Finland participated (only Gerrit de Leeuw was missing). The partners presented their activities that are related to many scientific CRAICC-tasks and work packages. I pointed several times out that the next step in CRAICC must be to use the achieved information in our global modelling activities to answer the questions CRAICC promised. I motivated the partners to get in contact with Jon Egil and start a discussion if and how the modellers will use the results in their simulations.

## **Trondheim**

Partners in Trondheim: NTUT

Date: 14. May 9.00-15.00

People participated the meeting:

- Knut Alfredson
- Ville Kasurinen
- Netra Prasad Timalisne
- Solomon Gebre
- Priska Hiller
- Tor Haakon Bakken

After my presentation and a short description by Knut about the activities at NTUT a detailed discussion about the objectives in WP2 was done. We went through all points mentioned in the CRAICC-proposal in this work-package and it realized that many of the objectives are already investigated by NTUT or will be done in the second part of the project. For this reason I recommend that Knut will be included in the list of WP-co-leaders for WP2. Knut agreed and I will bring this up when I'm back in Helsinki to Frank (WP2-leader).

We further had a detailed discussion about the work, which should be done by Ville Kasurinen who will start a one year-visit at NTUT in August this year (CRAICC fellow). Ville joint me on the trip to Trondheim and will stay there for one week to make necessary local arrangements for him and his family. We decided that a strong cooperation between the groups from Knut , Gesa and Helsinki are very important for the success of his tasks and that Ville will visit Gesa's group asap.

Solomon Gebre a current PhD-student in the group of Knut is working on the climate related ice-cover-change on lakes in the Nordic countries. He has published or submitted two papers (with CRAICC-acknowledgement) which are high relevant for WP2. However, the contract from Solomon (not a CRAICC-fellow) will end in July and because of administrative rules it will not be possible to extend his PhD-contract at NTUT. For the reason that his work is very important to fulfil the objectives in WP2 it would be important to keep him in the CRAICC community. I promised to discuss his case with certain people and see if any possibilities exist to employ him over CRAICC.

It was also mentioned by Knut that in the planning of the project Matti Leppäranta was supposed to be a partner in the ice and snow climatology but it turned out that this cooperation never was established. I believe this would need some discussion also with Matti how we can improve the situation.

Most probably Knut Alfredson will not be able to join the CRAICC annual meeting in Aarhus but he will try to participate the WP2-workshop in October.

## **Tromsö**

Partners in Trondheim: Norwegian Polar Institute

Date: 15. May 9.00-13.00

People participated the meeting:

- Elisabeth Isaksson
- Jean-Chales Gallet (JC)
- Sebastian Gerland

Elisabeth pointed out that from the beginning of the project NPI was supposed to be active in four WP (2, 4, 5, 7). However, Johan Ström left the institute and also CRAICC and further Christina Pedersen went on maternity leave. So Elisabeth was the only active senior scientist related to CRAICC in Tromsö. But nevertheless the group can and will still contribute to at least WP2, 3 and 7.

JC a postdoc is active working on the effect of black carbon on the snow albedo related to another project LOTUS. His work is very important also to the CRAICC community and he is already in cooperation with Henrik Grythe and Jonas Svensson (both CRAICC-fellows) and will visit Stockholm during the summer. I also informed him about the CRAICC-conference in Aarhus and he will try to participate the meeting.

Elisabeth has already a strong connection to the group from Atte Korhola (Meri Ruppel was visiting NPI for several weeks) but not with the group of Margareta Hansson. There is maybe potential for a stronger cooperation and this will hopefully be established at the CRAICC-conference or at the WP-workshop.

At the end of the meeting we discussed how can the work from NPI be more integrate in CRAICC. The data should be very important for the modellers and I recommended that Elisabeth should get in touch with Jon Egil and others scientists from the different institutes in Oslo.

## **Iceland - Reykjavik**

Partners in Reykjavik: University of Iceland

Date: 4. June 14.00-16.30

People participated the meeting:

- Markku Kulmala (University of Helsinki)
- Tuukka Petäjä (University of Helsinki)
- Throstur Thorsteinsson (University of Iceland)
- Olafur Arnalds (University of Iceland)
- Pavla Dagsson Waldhauserova (University of Iceland)
- Ingibjörg Jónsdóttir (University of Iceland)
- Olafur Rögnvaldsson (Belgingur / Institute for Meteorological Research)
- Jon Olafsson (University of Iceland)

Our partner is Iceland had no CRAICC-fellowship started until now, but two projects that were already accepted by the CRAICC-SSC will begin soon. The first one is a two years post-doc fellowship on the variability of sea ice in the Arctic Ocean and the Greenland Sea and the second is a three year PhD fellowship on the sources and influence of aerosols in the Arctic on glacier energy balance. This two fellowship position with very important topics in the frame of CRAICC will increase the participation of our partner in Iceland in our NCoE.