



Nordic Centre of Excellence CRYOSPHERE-ATMOSPHERE INTERACTIONS IN A CHANGING ARCTIC CLIMATE (CRAICC)

**Part of the Top-level Research Initiative on Climate, Energy and Environmental (TRI),
Sub-programme
Interaction between Climate Change and the Cryosphere (ICCC)**

**Project Handbook
(Version 1.0, 27.4.2012)**

Title	CRAICC Project Handbook
Version No.	2.0
Date of issue	1.11.2012
Editor	Michael Boy, Magdalena Brus

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Introduction

The objective of this handbook is to provide guidelines to the partners in the CRAICC consortium about common practices to be employed in the daily operations of the project. The aim is to maintain the Project Handbook as a collection of various project policies, working procedures, forms and guidelines needed to create and maintain an efficient project structure and a visible joint presence in the scientific fields addressed by the consortium.

The handbook is a living document and will be updated regularly throughout the lifetime of the project reflecting the changes in and evolution of the project. Therefore users should always check the website for an up-to-date version of the document. The history of the updates and changes will be visible in Table 1.

Table 1: Project Handbook Issue History

Version number	Date of Issue	Changes from last version
1.0	1. June 2012	none
1.1	1 Sept 2012	Changed typos, corrected Partner list, corrected contents in Project planning and reporting / JB
2.0	1. November 2012	All comments from SSC included

The Project Handbook is based on the goals and formal agreements of CRAICC defined in the *TRI Grant Agreement*, *The CRAICC Consortium Agreement* and *Research Program*, *TRI NCoE CRAICC Accession Agreement* (including the Action Plan) and *NordForsk's Standard Terms and Conditions of Contract*.

These primary documents should be considered in case more detailed information is needed. Also, in case of possible discrepancies or doubt of correct understanding, the above mentioned documents shall have priority.

The CRAICC Consortium

Cryosphere - Atmosphere interactions in changing Arctic climate (CRAICC): a Nordic Centre of Excellence

The cryosphere is the common term for those areas of the Earth where the water is in the solid form. That is sea and freshwater ice, river ice, snow cover, glaciers, permafrost and ice caps. The direct impact of the cryosphere on society and industry in the Nordic region and the geographical proximity of the Nordic region to the Arctic as well as the long historical connection to this area, make the Nordic countries especially suitable for accomplishing joint research programmes within this topic.

The knowledge produced by Top-level Research Initiative (TRI) sub-programme “Interaction between Climate Change and the Cryosphere” (ICCC) is relevant not only for the Nordic region, but also in a global perspective. The climate changes are experienced early and most intensively in the Polar Regions, and provide an early indication of the impact of global warming on the environment and society.

The Nordic Centre of Excellence (NCoE) CRAICC will significantly address, and contribute to meet the objectives of the programme which are to reinforce Arctic research cooperation in the Nordic region and internationally, to improve modelling of the climate change interactions with the cryosphere, and to provide results for infrastructure risk assessments and possibilities.

The centre is established in the context of the Top-level Research Initiative but the participants consider it a long-term collaboration for academic research and research training that is intended to be continued beyond the 5-year TRI funding period.

The CRAICC brings together prominent research groups from all Nordic countries in order to strengthen and increase the quality of their research, to create a Nordic platform for joint process studies, analyses, sharing of methods, researcher training and outreach activities at the Nordic, European and international level.

The collaboration is based on three general scientific objectives:

1. to identify and quantify the major processes controlling Arctic warming and related feedback mechanisms
2. to outline strategies to mitigate Arctic warming
3. to develop Nordic Earth System modelling

CRAICC is formed of 8 work packages, involving 23 research groups (list of partners in appendix 1) in all Nordic countries. The core permanent research infrastructures are the

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18 well established field stations (list of all stations below), covering ecosystems from arctic to boreal locations, where continuous measurements and intensive campaigns are performed. CRAICC will establish a Nordic staff exchange scheme available for all career levels, which will be complemented by summer and winter schools, joint field campaigns and scientific workshops.

The field stations involved are:

1. Troll station, Antarctica
2. Vavihill, S-Sweden
3. Birkenes, S-Norway
4. Lille Valby, Denmark
5. Vindeby, Denmark
6. Sorø, Denmark
7. Aspvreten, central Sweden
8. SMEAR III, S-Finland
9. SMEAR II, central Finland
10. SMEAR IV, Kuopio, central Finland
11. Sodankylä, N-Finland
12. SMEAR I, Värriö, N-Finland
13. Abisko, N-Sweden
14. Pallas GAW station, N-Finland
15. Tiksi, Siberia
16. Daneborg and Zackenberg, Greenland
17. Ny-Ålesund, Spitzbergen
18. Station Nord, Greenland

Project Management

In this section the overall structure and governance organization of CRAICC is summarised defining the project structure, and the role of each Consortium Body in the project. Furthermore the main operational procedures are described.

The organizational hierarchy of the CRAICC is kept relatively slim, yet effective to ensure optimal management of the Centre of Excellent.

CRAICC NCoE has two organizational bodies:

1. Scientific Steering Committee (SSC), which is responsible for NCoE's scientific management
2. Coordinating Office (CO), which is in charge of daily administration and management of the NCoE

Figure 3 outlines the overall management structure of the NCoE. Through these organizational bodies, CRAICC will have an appropriate management framework, linking together all the NCoE partners and maintaining fluent communications with the Program Committee (PC) and with their Scientific Advisory Board (SAB).

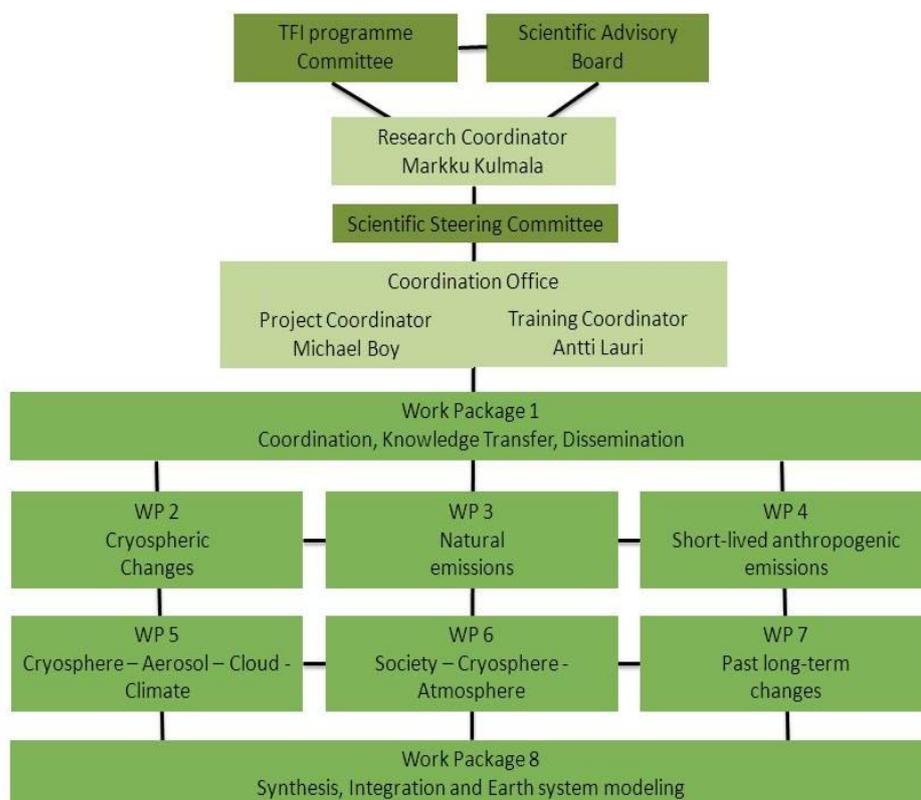


Figure 1: The management structure of CRAICC.

Project Governance

The Project Manager

The Project Manager, the University of Helsinki (UHEL), is the legal entity responsible for the overall management of CRAICC and liaison with the TRI Research Initiative Office on behalf of the consortium, and is the financially responsible body that receives all grant payments from the TRI / NordForsk. The Project Manager shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the TRI-GA and the Consortium Agreement. The Project Manager has appointed Markku Kulmala, professor, UHEL, as Project Leader (PL), also called Research Coordinator. The Research Coordinator is responsible for the implementation of the Project in accordance with Attachment 1 of the Grant Agreement with NordForsk. Specifically, the Research Coordinator is responsible for:

- Overseeing contract negotiations with NordForsk and contracts with partners.
- Representing the CRAICC consortium externally.
- Chairing meetings of the Scientific Steering Committee (SSC) and General Assembly (GA)
- Overseeing the annual updating of the Consortium Plan and the CRAICC budget.

Scientific Steering committee (SSC)

The Scientific Steering committee (SSC) of CRAICC consists of the Research Coordinator and one member per partner country as well as the training coordinator, and the project coordinator. The SSC oversees the integration and completion of the NCoE objectives, tasks, and is responsible for:

1. Defining, dividing and developing the tasks of work packages
2. Supervising the progress of the work
3. Coordinating the research teams
4. Coordinating the preparation of the reports (technical, financial, etc.)
5. Advising and directing the partners on the developments necessary for the project
6. Facilitating exchange of information between the partners.

The work of the SSC is frequently translated into daily management and representation duties for Coordinating Office. The SSC has face-to-face meetings annually and tele/video meetings bi-monthly.

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Members of the Scientific Steering Committee (SSC)

Prof Markku Kulmala, University of Helsinki, Finland

Prof Andreas Stohl, Norwegian Institute for Air Research, Norway

Prof Margareta Hansson, Stockholm University, Sweden

Prof Merete Bilde, University of Copenhagen, Denmark

Prof Ingibjörg Jónsdóttir, University of Iceland, Reykjavik, Iceland

Dr Jaana Bäck, project coordinator, University of Helsinki, Finland (until 02/2012)

Dr Michael Boy, project coordinator, University of Helsinki, Finland (start 03/2012)

Research Coordinator

The Research Coordinator of the NCoE is responsible for the overall coordination and performance of the Centre. CRAICC Research Coordinator is Prof Markku Kulmala. Kulmala leads the Finnish Centre of Excellence in Physics, Chemistry, Biology and Meteorology of Atmospheric Composition and Climate Change. The FCoE consists of over one hundred scientists. M. Kulmala has also been the head of one Nordic Centre of Excellence BACCI (Research Unit on Biosphere – Aerosol – Cloud – Climate Interactions) and the corresponding NordForsk Graduate School CBACCI (Carbon - Biosphere – Aerosol – Cloud – Climate Interactions) as well as coordinator of EUCAARI EU Integrated Project 2007-2010.

Coordination Office

The Coordination Office is placed at the University of Helsinki in order to ensure the constant information flow between Research Coordinator and Coordination office. The Coordination Office is responsible for overall financial and administrative management of the NCoE; coordination of fellowship grants and visits, network meetings, seminars and workshops; training (organization and coordination of courses); knowledge exchange between partners; and dissemination and outreach of the CRAICC activities and results. A full-time Project Coordinator, Dr Jaana Bäck (until 02/2012) and Dr Michael Boy (starting 03/2012), at the Coordination Office is responsible for day-to-day administrative management of the NCoE.

The CRAICC coordination office is supported by the experts of the Research Affairs Unit of the University of Helsinki. The Research Affairs Unit provides centralized research administration and management services for the researchers at the university.

Coordination Office has a Training Coordinator, Dr Antti Lauri, who is responsible for designing and coordinating the CRAICC training program that includes both master and doctoral level studies.

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The contact addresses of the persons at the coordination office are:

Dr Michael Boy - michael.boy@helsinki.fi

Dr Jaana Bäck – jaana.back@helsinki.fi

Dr Antti Lauri – antti.lauri@helsinki.fi

The **administration strategy** aims to keep all the CRAICC partners fully informed about the status of the research program, the planning issues and all other issues which are important to partners in order to obtain maximum transparency for all involved and to increase the synergy of the cooperation. To reach optimal communication within the CRAICC community, day-to-day progress of the CRAICC is monitored through frequent communication via Internet (e-mails and CRAICC web pages), telephone, informal and formal meetings, and mail. In addition, CRAICC organizes regularly general information, discussion and planning meetings for the staff as well as smaller meetings (5-10 persons) in individual research themes and WPs.

Scientific Advisory Board (SAB)

NordForsk has established an international scientific advisory board covering all three NCoEs in the TRI/ICCC. The SAB includes internationally distinguished scientists and will give advice on the scientific direction and is responsible for an external evaluation of the project. The SAB proposes improvements in the activities of the TRI/ICCC NCoEs (new approaches, new methods etc.), in order to further strengthen their scientific excellence and international visibility. The SAB will have regular meetings with the NCoEs and the centres are obliged to adhere to and take into account the instructions and advices provided by the SAB, but the SAB does not have a decision-making mandate. The SAB members, or when appropriate, external experts, perform the Midterm Evaluation.

Project Organization

WP1 Coordination, knowledge transfer and dissemination/Bäck, Boy, Lauri
WP2 Cryosphere changes/ Berninger, de Leeuw, Ström, Leppäranta
WP3 Natural emissions, their fate in the atmosphere and their relation to warming and cryospheric changes/Skov, Nilsson Nikinmaa
WP4 SLCF and cryosphere/Krejci, Stohl, Massling
WP5 Cryosphere-aerosol-cloud-climate interactions/Bilde, Svenningsson, Swietlicki
WP6 Atmosphere-cryosphere-societal interactions/ H-C Hansson, Hov, Iversen, Riipinen
WP7 Past long term changes in the Arctic/Seppä, M. Hansson, Isaksson Korhola
WP8: Synthesis, Integration and Earth System modelling/Kristjansson, Laaksonen, Kerminen

Work Package Leaders

Work Package (WP) Leaders are appointed for each work package to ensure the flow of information between the different work packages, and for day-to-day management of the groups that contribute to each WP. WP leaders represent the different aspects in each WP to ensure that multidisciplinary is efficiently present in all WP actions. Teleconferences, videoconferences and regular emailing are used to communicate between WP leaders and research groups; to check the progress of the work; to coordinate the preparation of the reports and whenever it is necessary to advise and direct the partners on the developments relevant for the NCoE. Special emphasis is put on the rapid communication and progress monitoring in CRAICC. The communication is implemented through the regular meetings and by establishing of a website. Overall progress of the CRAICC WPs is monitored against the mutually agreed milestones by the SSC.

Research groups participating in CRAICC (leader in parenthesis) and their tasks

1. University of Helsinki

a) Department of Physics (Kulmala)

Research Coordinator of CRAICC Markku Kulmala, responsible for WP1 (Coordination, co-chairs Bäck, Boy and Lauri), and participating actively in most WPs. Co-chair in WP2 (Leppäranta)

b) Department of Forest Sciences (Nikinmaa)

Co-chair in WP3 (Nikinmaa).

c) Department of Geosciences and Geography (Seppä)

Co-chair in WP7, engaged in work of WP3

d) Department of Environmental Sciences (ECRU) (Korhola)

Co-chair in WP7, engaged in work of WP3

2. Finnish Meteorological Institute (de Leeuw)

Co-chair in WP2 (de Leeuw) and in WP8 (Kerminen), and participates in WP3, WP4, WP5 and WP6.

3. University of Eastern Finland (Laaksonen)

Co-chair in WP8, involved in work of WP3, WP4, WP5.

4. University of Aarhus

a) Department of Atmospheric Environment (NERI) (Skov, Massling)

Co-chair in WP3 (Skov) and in WP4 (Massling) and contributes to work in WP3-5 as well as WP 6 and WP7.

b) Department of Chemistry (Glasius)

Engaged in work of WP3

5. University of Copenhagen (Bilde)

Co-chair WP5 (Bilde), involved in WP3.

6. Technical University of Denmark (Gryning)

Involved in WP2, WP4, and WP5.

7. Norwegian Polar Institute (Isaksson)

Contributes to work in WP2, WP4, and WP5 and co-chair in WP7 (Isaksson).

8. Norwegian Institute for Air Research (NILU) (Stohl)

Co-chair in WP4 (Stohl) and contributes also to WP2, WP6, WP7 and WP8.

9. University of Oslo (Kristjánsson)

Co-chair in WP8 (Kristjánsson) and contributes to work in WP4, WP5 and WP6.

10. Norwegian University of Science and Technology (Alfredsen)

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Involved in WP2 and WP6.

11. Norwegian Meteorological Institute (Iversen)

Involved in most WPs.

12. Centre for International Climate and Environmental Research (CICERO) (Myhre)

Contributes to WP4

13. Lund University (Swietlicki)

Co-chair in WP5 (Swietlicki) and contributes to work in WP 3, WP4 and WP8.

14. Stockholm University

a) Dept. of Physical Geography and Quaternary Geology (M. Hansson)

Co-chair in WP7 (M Hansson), participates in WP2

b) Institute of Applied Environmental Research (HC Hansson)

Co-chair in WP3 (Nilsson), in WP6 (HC Hansson) and in WP4 (Krejci), participates in most WPs

c) Department of Meteorology (Leck)

Participates in most WPs

15. Uppsala University (Weyhenmeyer)

Participates in WP2

16. University of Gothenburg (Pettersson)

Participates in most WPs

17. University of Iceland (Jónsdóttir)

Participates in WP2, WP3 and WP7.

General Assembly

The General Assembly (GA) is the ultimate decision-making body of the Project and it sees to the overall coordination and operation of the Project, and is responsible for making the decisions necessary in this regard. The General Assembly of the Project consists of one representative from each Party. Each member of the General Assembly presented at the meeting has one vote. The Research Coordinator acts as the chairperson of the General Assembly.

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Members of the GA

At the Effective Date the General Assembly consists of the following members:

Prof Markku Kulmala, University of Helsinki, Finland
Prof Gerrit de Leeuw, Finnish Meteorological Institute, Helsinki, Finland
Prof Ari Laaksonen, University of Eastern Finland, Kuopio, Finland
Dr Henrik Skov, Aarhus University, Denmark
Prof Merete Bilde, University of Copenhagen, Denmark
Dr Sven-Erik Gryning, Risø National Laboratory, Denmark
Dr Elisabeth Isaksson, Norwegian Polar Institute, Tromsø, Norway
Prof Andreas Stohl, Norwegian Institute for Air Research, Norway
Prof Jon Egill Kristjánsson, University of Oslo, Norway
Dr Knut Alfredsen, Norwegian University of Science and Technology, Trondheim, Norway
Prof Trond Iversen, Norwegian Meteorological Institute, Oslo, Norway
Dr Gunnar Myhre, Centre for International Climate and Environmental Research, Oslo, Norway
Prof Erik Swietlicki, Lund University, Sweden
Prof Gesa Weyhenmeyer, Uppsala University, Sweden
Prof Margareta Hansson, University of Stockholm, Sweden
Prof Jan Pettersson, University of Göteborg, Sweden
Prof Ingibjörg Jonsdóttir, University of Iceland, Iceland

General Assembly meetings are held in connection with each Annual meeting and whenever necessary otherwise. The Consortium Agreement specifies the details on how the General Assembly is convened.

General Assemblies have been held in:

Helsinki in 3rd of February 2011

Hotel Ranga, Iceland 12th of October 2011

Oslo 28th of September 2012

Decision Making

An attempt shall be made to address any problems that may rise at the lowest level possible. If consensus is not reached immediately, the Research Coordinator should be contacted and decision taken on ways to proceed. If consensus is not reached at the WP level, the GA and SSC may address the issue in voting.

Attendance at meetings by two thirds of Consortium Body members and majority of two-thirds of votes are needed for validity of decisions at meetings. Furthermore, decisions will only be binding once the minutes of the meeting have been accepted.

The General Assembly can be convened on 14 (fourteen) days notice. Notice of the meeting must be accompanied by an agenda and the documentation necessary for addressing the items on the agenda. The General Assembly shall not deliberate and decide validly unless two-thirds (2/3) of its members are present or represented (quorum).

The General Assembly adopts its resolutions unanimously. However, in ongoing matters that do not alter the rights of a Party under the Consortium Agreement or the Contract, the General Assembly may adopt its resolutions by a majority of 2/3 of the votes.

A Party which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of the General Assembly may exercise a veto at the General Assembly meeting with respect to the corresponding decision or relevant part of the decision.

In case of exercise of veto, the members of the related General Assembly shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all its members.

A Party may not veto decisions relating to its identification as a defaulting Party. The defaulting Party may not veto decisions relating to its participation and termination in the consortium or the consequences of them.

A Party requesting to leave the consortium may not veto decisions relating thereto. The Scientific Steering Committee shall not deliberate and decide validly unless two-thirds (2/3) of its members are present or represented (quorum). The decisions of the Scientific Steering Committee shall be made unanimously.

Meetings

This section summarises the governance and procedures for CRAICC meetings.

SSC meetings

The Scientific Steering Committee has face-to-face meetings annually and tele/video-meetings bi-monthly. Other meetings of Consortium Bodies may be held in person, by teleconference or other telecommunication means.

Unless otherwise agreed between the members of the Scientific Steering Committee, the Scientific Steering Committee can be convened on a 5 (five) days' notice. Notice of the meeting must be accompanied by an agenda and the documentation necessary for addressing the items on the agenda.

General Assembly meetings

The General Assembly can be convened on 14 (fourteen) days' notice. Notice of the meeting must be accompanied by an agenda and the documentation necessary for addressing the items on the agenda.

Annual meetings

The CRAICC meetings are held annually in all countries involved in project. Students and scientists present CRAICC data and results at the annual meeting and the Coordinator and Work Package leaders give overviews over the status of the project and the project plan. Stakeholders and key data-user groups will also be invited to some CRAICC meetings.

List of Annual Meetings:

1. Kick-off meeting, Helsinki, Finland, 1-3. Feb, 2011
2. First Annual Meeting, Hotel Ranga, Iceland 10-13 Oct, 2011
3. Second Annual Meeting, Oslo, Norway, 26-29 Sep, 2012

Work Package meetings/workshops

Work Package leaders can organise workshops and meetings among students and researchers working on CRAICC task as appropriate to execute the planned activities. WP leaders plan such meetings in consultation the Coordinator and SSC, in order to derive a budget that is the basis for the distribution of travel and mobility funds to CRAICC partners.

Review meetings

Meetings with the SAB: The TRI/ICCC Scientific Advisory Board meets once a year with the TRI/ICCC Programme Committee (PK2) in connection with the annual meeting of the Top-level Research Initiative. At this meeting, the SAB meets with the project leaders and representatives from key partners of each NCoE; a total of 10–16 persons from each NCoE. The purpose of this meeting is to provide the SAB with information about the status and progress of the project and up-to-date information on the project plan.

Midterm Review: A midterm evaluation of the project will be performed approximately 2.5–3 years into the project period by members of the SAB, or when appropriate, external experts (see the TRI-GA and Attachment 2 to the TRI-GA). The Project Manager will prepare a complementary and elaborate report of the project plans for the second half of the project period together with a status report of the first half of the project period including a self-evaluation report. The outcome of the Midterm evaluation determines the continuation of funding for the last two years of the project period. A meeting of the SAB with the TRI/ICCC project leaders and representatives of key partners of each NCoE will be organized in connection with the midterm evaluation which is currently scheduled to take place in May/June 2013.

Project Planning

Project calendar

The Coordination Office maintains a project calendar on the project website, containing all relevant events (e.g. open calls, workshops, and courses). All partners are responsible for keeping the calendar up-to-date and shall inform the Coordination Office on events of their responsibility.

Action / Progress Plan and reporting

A draft Action Plan was presented with the Grant Agreement. The Action Plan is a living plan throughout the project period and be updated in relation to the annual meetings. By the end of each project year the WP leaders, in consultation with each partner, prepare a list of planned activities and deliverables (if applicable) to be completed by the partners in the following year. The activities shall be formulated in a manner facilitating the judgement of progress in the next year's Partner Activity. The list will form the basis for the annual revision of the Action Plan.

The Research Coordinator is obligated to keep the Parties up-to-date regarding any additions to the Contract.

The Parties shall, meeting the requested annual reporting deadline each year of the Project Period, prepare and submit all necessary information and reports to the Coordination office. The Coordination office shall prepare and submit Progress Reports to NordForsk.

Budget

A Budget was presented with the Grant Application and Grant Agreement. The obligations of the Parties with respect to finances are regulated by the Contract. The budget breakdown includes 8 budget items with defined amounts for each of the five project years. Distribution of funds to the partners and the corresponding number of man-months has been fixed for the salary category where the salary rates applied are based on national research council rates in each partner country in 2010 and 2.5% annual increase for the subsequent years.

The Project Manager is responsible for the coordination and contacts with NordForsk regarding technical and financial reporting to NordForsk. The Parties must submit accounts for their portions of the Project without delay, as well as all Project Results,

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reports, etc. which the Project Manager may need to discharge its responsibilities to NordForsk.

The Project Manager is responsible for seeing to it that funds disbursed by NordForsk are administered in accordance with the Contract. The Project Manager shall be obliged to distribute the funds it receives from NordForsk to the Parties in accordance with the Contract and without an undue delay.

Fellowships are the principal use for the CRAICC funds. Funds are distributed to Partners based on their proven activity in the project, i.e. accepted and ongoing fellowships. Funds are transferred annually to Partners without subsequent billing after the first one, which is accepted by the Project Coordinator. Distribution of funds in other categories has not been fully settled and will be scheduled annually reflecting the development of the project. WP leaders can propose priorities for travel, mobility and workshops in consultation with the relevant partners. The proposals are evaluated and approved by the SSC.

The Parties are aware of the terms in the Standard Terms and Conditions of the Contract regarding grants. According to these terms, funds shall under certain circumstances be repaid. A repaying Party shall transfer the refund to the Project Manager upon request.

The Parties shall produce receipts, calculation and other relevant documentary in such manner that the Project Manager can fulfil its obligations at an inspection.

Travel cost administration

Allocation of funds for other costs than fellowships (cost of research training, workshops, travel, etc.) will be decided for each case by the Coordinator, in consultation with the Scientific Steering Committee, through a plan for each year made by the WP Leaders in cooperation with the Coordinator and the Coordination Office. This plan will be based on the following “guidelines”.

- Each person in a CRAICC fellowship position should be able to attend summer schools/longer workshops during the course of his/her studies/employment.
- The travel cost of the Research Coordinator, employers of the Coordination Office and the Training Coordinator to CRAICC meetings and workshops are covered from the general CRAICC budget.
- The Annual meeting organization and overall costs are paid by the Coordination Office (e.g. rents for lecture rooms, meals, transportation at the site), however each CRAICC fellow and the senior scientists that are involved/active in the

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project are funded for traveling to the Annual meeting from the responsible Partner Budget

- Travel cost of PhDs or Post-docs that are not CRAICC employees but working on projects related to CRAICC work packages and tasks can be paid in rare cases. This will be decided on a case-by-case basis by the Coordinator in consultation with the Scientific Steering Committee.

The mobility funding (fellowship of visiting professors) is spent mainly on two activities: (1) longer stays of researchers at institutes other than their home institute doing CRAICC related work (the research training budget item might cover corresponding visits by PhD students) (2) costs of external supervisors of PhD students/postdocs, who need to visit the respective university to participate in the research and supervision of the student.

Travel costs in CRAICC are invoiced according to rules and agreements about travel costs and per-diem costs of each partner. It is expected that economy class air fare is used when available. Per diem cost is paid for travel days and days used for meetings and other work if this cost is not covered by course fees or paid for by other sources.

In case suggestions for travel and mobility funding from partners are in excess of their annual CRAICC budget, the Coordinator decides on the necessary prioritization to keep the total cost within the limits of the budget. Such prioritization takes into account the relative share of CRAICC funds of different partners, different level of travel cost for different partners, while at the same time activities that are considered particularly important for meeting CRAICC goals and commitments have a special priority.

Administrative Reports

The progress in the implementation of the project is reported to NordForsk annually upon request by 1 October. The first reporting period is 1 October 2010 to 31 August 2011. The reporting period for the subsequent years is 1 September to 31 August, except for the final project year which includes September 2015.

Annual Activity and Progress Reporting

The Parties shall, prior to the NordForsk reporting period each year of the Project Period, prepare and submit all necessary information and reports to the Project Manager. A signed hard copy of the report shall also be sent to the Coordination Office.

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Annual Financial Reporting

Partners shall submit an annual report on finance/ statement of expenditure by the time requested by NordForsk in each project year.

The report lists detailed information on partner's planned and actual expenses for each item in the CRAICC budget.

The Coordination Office will prepare the reports for each partner and pre-fill information on the planned budget and prepayments in the report forms. The prefilled forms will then be sent to partners for review through the internal web for verification of the prefilled amounts and filling in amounts on the actual expenses (yellow cells in the form). A signed hard copy of the report shall also be sent to the Coordination Office.

The currency in CRAICC is Norwegian Kroners (NOK) and all amounts in other currencies must be converted to NOK using the average month rate for the last month of the reporting period. Norway's central bank exchange rates shall be used and can be accessed on the official website:

<http://www.norges-bank.no/no/prisstabilitet/valutakurser/>

Information on salary rates shall be inserted on the first page in the report form. The salary rates used in CRAICC vary between countries. The rates are based on national research council rates in 2010 for the first project year and 2.5% annual increase in the subsequent years.

The finance report/statement of expenditure shall be signed by a duly authorized person for the respective institute. Partners shall keep record of all transactions, invoices, receipts and other relevant documents for costs directly related to implementation of the project. These documents need not be submitted with the annual reports unless specially requested by the Research Coordinator. The Partners shall be prepared to present these documents at any time during and up to three years after the termination of the project upon request by the Project Manager.

Annual Management Reports

The Project Manager is responsible for reporting on financial and activity progress of the project work to NordForsk by 1 October each year. The report will also explain potential deviations to the current activity plan and budget and comprise any revisions that may be deemed appropriate for the following period. The management reports are compiled by the Research Coordinator in cooperation with the Coordination Office and WP Leaders.

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Mid-Term Review Report

The Project Manager shall prepare a complementary and elaborate report of the second half of the project period together with a status report for the first half of the project period, including a self-evaluation report (approximately 2.5–3 years into the project period). The outcome of the evaluation will determine the continuation of funding for the two last project years. The mid-term review will be during the third annual CRAICC-meeting in Aarhus, Denmark on the 21st to 23rd of August 2013.

Final Report

The Project Manager shall prepare a final report with project accounts, duly signed by a certified auditor. The final report shall be submitted to NordForsk no later than 3 months after the completion of the project. NordForsk will respond to the report no later than two months after submission.

Communication and Dissemination Mechanisms

Public project website

A CRAICC website has been launched and will serve as the main platform for communication with the public describing the vision of the project activities and outputs (<http://www.atm.helsinki.fi/craicc/>). The constantly updated website enables colleagues, end-users and the general public to follow the outcomes of the research.

The site will be continuously updated throughout the project lifetime under the coordination of Michael Boy.

Dissemination and publications

The main philosophy of CRAICC is to support and promote creative thinking and research. This will be done by supporting creative ideas and aims by accepting risk of failure as well. Creative and innovative research needs strong international collaboration and communication. Distributing of novel scientific ideas and results to the international science community is an important part of the CRAICC activities.

All the scientific results will be published in international peer-reviewed journals. The focus of the scientific publications is on one hand in integrated synthesis papers and perspective papers (e.g. in papers combining several methodological approaches, temporal and spatial scales) and on the other hand in publishing novel specific research findings.

In addition to international peer-reviewed journals, scientific results will be published in various reports, newsletters, conferences, and meeting publications in order to reach wider scientific audience. Shorter popular scientific articles will also be published, aiming at reaching the National Environmental Agencies and international programs like UNEP-Chemical Branch.

CRAICC researchers will actively participate in national and international conferences, meetings and workshops to present CRAICC data and results. A central part of the dissemination of the research findings and activities is a CRAICC webpage and databank linked to the web pages.

In order to disseminate the knowledge obtained in CRAICC not only to the science community representatives from the various international organisations will be invited to the yearly workshops. Constant knowledge transfer between CRAICC and science community outside the Centre will be done via participating actively

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- in national, European and global research networks
- National and international graduate schools, international master programs, summer/winter schools and other training activities

In addition, CRAICC will design and organize courses, seminars and workshops for promoting knowledge transfer in partners 'home countries as well in international arenas.

CRAICC will also organize cryosphere-atmosphere related science sessions e.g. in European Geosciences Union and American Geosciences Union meetings. These meetings gather annually thousands of Earth scientists to discuss the state-of-the-art research findings and scientific questions. Among other activities, these sessions will ensure high international visibility for Nordic researchers and will effectively distribute CRAICC results.

Several CRAICC researchers are members in international research programs (e.g. IGBP: iLEAPS, PAGES, WCRP: CliC, AMAP), EC-Earth (European Centre Earth system model) and in other international efforts, such as IPY (e.g. POLARCAT, OASIS). Via these activities CRAICC results are directly distributed and utilized in global science community across the disciplines and continents. Memberships and leading roles in above mentioned international research efforts result in great visibility for Nordic research.

Dissemination of CRAICC activities and results to public

The CRAICC research contributes directly to current debate on climate change by delivering valuable state-of-the-art data for science policy and policy making processes, especially related to climate adaptation strategies and mitigation decisions. CRAICC will contribute its science findings to international assessments, such as IPCC assessment reports, Arctic Monitoring and Assessment Program (AMAP), Arctic Climate Impact Assessment (ACIA).

The results of WP6 modelling activities and the implications concerning future climate and development plans for mitigation of climate change will be summarized in a report for policymakers and presented in relevant national and international bodies.

CRAICC results can be applied in European environmental policy such as in formulating national and EU-wide air pollution directives and in negotiating the climate policy for EU. CRAICC findings are relevant for example to the Kyoto protocol, the Vienna Convention on the Protection of the Ozone Layer and the Convention of Long-range transport of Air Pollutants.

In addition to assessment reports, the non-scientific end-users of the data are informed using distributed written material and press conferences, which generates interviews and articles in popular science magazines and in domestic and international newspapers as well as in the television and radio. Stakeholders and key data-user groups will also be invited to some CRAICC meetings. At the beginning and the end of the project end-user

workshops will be organised. Many partners are presently working also in close co-operation with elementary as well as high schools to familiarize pupils and students with simple analyses of environmental data and the scientific world, and by means of generating improved awareness of environmental awareness and issues.

The co-operation with several industrial enterprises already exists. This cooperation will be continued and enhanced further. Especially relevant collaboration for CRAICC has been joint developing activities of Neutral cluster and Air Ion Spectrometer, NAIS, by manufacturer AIREL (<http://www.arel.ee/>) to studying the role of rain, snow, and ice crystals in ion formation of aerosol particles. The spin-off company AirModus Inc. was established in the last years providing new instrumentation to investigate the nucleation mechanisms in the troposphere.

Data archiving

NCoE CRAICC data are those data generated during the duration of the project period (October 2010 – September 2015) through work packages that are organised as part of the project.

In order to maximise the benefit of data gathered under CRAICC, it is required that the data are made available fully, freely, openly, and on the shortest feasible timescale. The only exceptions to this policy of full, free, and open access are where legitimate obligations, for example related to contracts of earlier projects or national laws and regulations restrict data access.

All data must be archived in their simplest, useful form and be accompanied by a complete metadata description to ensure and long-term preservation and sustained access to data.

The metadata must be in an internationally recognised, standard format to an appropriate catalogue or registry.

Ownership to Project Results

Project results are the sole property of the Party carrying out the work generating that Project result.

Where several Parties have jointly carried out the work generating Project Results and where their respective share of the work cannot be ascertained, they shall have joint ownership of such Project Results. The joint owners shall establish an agreement regarding the allocation and terms of exercising that joint ownership.

However, where no agreement on joint ownership has yet been concluded, each of the joint owners are entitled to use their jointly owned Project Results on a royalty-free

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basis, and without requiring the prior consent of the other joint owner(s), and each of the joint owners are entitled to grant non-exclusive licenses to third parties, without any right to sub-license, subject to the following conditions:

- a) at least 45 days prior notice must be given to the other joint owner(s); and
 - b) a fair and reasonable compensation must be provided to the other joint owner(s).
- Each Party may transfer ownership of its Project Results. The transferring Party shall, however, ensure that the rights of the other Parties will not be affected by such transfer.

CRAICC policies

CRAICC Data Policy

The TRI/ICCC Data Policy, which applies to the CRAICC NCoE as well as to other TRI/ICCC NCoE, is based on the existing “International Polar Year Data Policy”. The aim of the data policy, as for the IPY policy, is to provide a framework for data to be handled in a consistent manner, and to strike a balance between the rights of investigators and the need for widespread access through the free and unrestricted sharing and exchange of both data and metadata. The policy is compatible with the data principles of the Top-level Research Initiative (TRI, “<http://www.toppforskningsinitiativet.org/en>”)

The data policy is reviewed annually by the Scientific Steering Committee and any updates will be formally signed by the Project Leader to record their formal adoption and for issue controlling

CRAICC Gender Policy

Although the number of female scientists engaged in climate change and cryosphere research has steadily increased over the past decades, their number in high level positions is still low. Our objective is to increase the number of women aiming at a professional career in cryosphere research. Special attention is paid to recruitment, division of labour within the research project, provision of equal working conditions and to principles of equal pay for equal work. The SSC will take all the necessary actions to ensure that at least 40% of the participating researchers are women. In the beginning of the project, 26% of the WP leaders and half of the steering committee members are female.

We’ll increase equal opportunities by the following actions:

- an annual action plan specifying the measures to be implemented and resources required will be created, and the equality measures will be followed up in the SSC meetings
- Female PhD students and researchers will be encouraged to apply for grants and participate in the network activities
- Part of the program in summer and winter schools is dedicated to gender equality and ethics in science. Mentoring and career discussions will be promoted at all levels during the annual workshops and other activities
- Participation in the Earth System Women Network actions (ESWN; <http://eswn.aos.wisc.edu/>) and the Association of Polar Early Career Scientists (APECS <http://www.apecs.is/>) for mentoring and assistance in career-related issues will be encouraged

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- Where possible, women and men shall be equally represented among lecturers and participants at events, seminars, conferences, exploratory workshops and science reviews
- The problems related to combining family life and work will be actively discussed and dealt with at all levels (MSc students, doctoral students, post-docs and senior scientists). This discussion will involve, naturally, both male and female scientists
- Results of the working group 'Gender Equality' (led by Prof Hanna Vehkamäki, UHEL) are utilized in the summer schools and workshops
- Parental leaves are taken into account in strategic planning of the group actions. Maternity or other forms of parental leave for younger principal investigators becomes less challenging when being partner in a NCoE; since during times of leave collaborative scientific projects can (at least in part) be carried forward by the Nordic colleagues, and students and post docs of the PI on leave have a supportive and highly qualified network among NCoE partners

Advertisements and descriptions for PhD and Postdoctoral positions

CRAICC PhD and Postdoctoral positions are announced internationally by open calls using the project website and other relevant fora. An important element of the TRI programme is to enhance mobility of scientists within the Nordic countries and internationally. When candidates are regarded as having similar scientific qualifications, the candidate from another country than the institution making the call will be given priority.

Appendix

1. List of Partners

Professor

Markku Kulmala

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University of Helsinki

Department of Physics

Professor

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Department of Geosciences and Geography



Professor

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Professor

Gerrit de Leeuw

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Finnish Meteorological Institute

Climate Change Unit



FINNISH METEOROLOGICAL INSTITUTE

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Geology

Professor
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Department of Applied Environmental Science

Dr
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Stockholm University



Professor
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Professor
Jan Pettersson
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Lund University

Physics Department



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Department of Chemistry



Professor

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Dr Andreas Massling

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Department of Environmental Science

Associate Professor

Marianne Glasius

glasius@chem.au.dk

Department of Chemistry

University of Aarhus



Professor

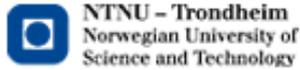
Jón Egill Kristjánsson

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Norwegian University of Science
and Technology



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Norwegian Polar Institute



Dr

Øyvind Seland

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Norwegian Meteorological Institute



Dr

Andreas Stohl

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Norwegian Institute for Air Research
(NILU)



Professor

Gunnar Myhre

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Centre for International Climate and
Environmental Research (CICERO)

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Professor

Ingibjörg Jónsdóttir

ij@hi.is

University of Iceland

Institute of Earth Sciences

2. CRAICC logo



3. CRAICC Research Program

[http://www.atm.helsinki.fi/craicc/images/stories/tfi/CRAICC Research program 120210.pdf](http://www.atm.helsinki.fi/craicc/images/stories/tfi/CRAICC%20Research%20program%20120210.pdf)

4. NordForsk Standard Terms and conditions of Contract

<http://www.nordforsk.org/files/standard-terms-and-conditions>

5. Consortium Agreement

CONSORTIUM AGREEMENT

**CRYOSPHERE-ATMOSPHEREINTERACTIONS
IN A CHANGING ARCTIC CLIMATE
(CRAICC)**

This consortium agreement (hereinafter referred to as “Consortium Agreement”) is concluded between

**Helsingin yliopisto,
Business ID FI03134717 (hereinafter “the Project Manager”)**

and

The co-operating partners

**Finnish Meteorological Institute, Finland
organization number FI02446647
address Erik Palménin aukio 1, PL 503, 00101 HELSINKI, Finland**

**University of Eastern Finland, Finland
organization number 2285733-9
address: Yliopistonranta 1 E, 70211 Kuopio, Finland**

**Aarhus University, Denmark
organization number 31119103
address Nordre Ringgade 1, 8000 C Aarhus, Denmark**

**University of Copenhagen, Denmark
organization number 29979812
address University of Copenhagen, Noerregade 10, 1017 Copenhagen K, Denmark**

**Risø National Laboratory/DTU, Roskilde, Denmark
organization number 30060946**

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**address Wind Energy Division, Risø National Laboratory for Sustainable Energy,
Technical University of Denmark Frederiksborgvej 399, 4000 Roskilde, Denmark**

Norwegian Polar Institute, Norway

organization number: 971 022 264

address: Hjalmar Johansens gate 14 Framsenetret 9007 TROMSØ

Norwegian Institute for Air Research (NILU), Norway

organization number: 941705561

address: Instituttveien 18, N-2007 Kjeller, Norway

University of Oslo, Norway

Organization number: 971035854

address: P.O.Box 1022 Blindern, N-0315 OSLO, Norway

Norwegian University of Science and Technology, Norway

Organization number : 974 767 880

Address: NO-7491 Trondheim, Norway

Norwegian Meteorological Institute, Norway

organization number : NO 971 274 042

address: PO Box 43 Blindern, NO-0313 Oslo, Norway

Center for International Climate and Environmental Research, Norway

organization number 971 274 190

address: CICERO, P.O. Box. 1129 Blindern, N-0318 Oslo, NORWAY

Uppsala University, Sweden

organization number: 202100-2932

address: Dept. of Ecology and Genetics/Limnology, Norbyvägen 18D, 752 36

Uppsala, Sweden

Stockholms universitet, Sweden

organization number 202100-3062

address: Stockholms universitet, SE-106 91 Stockholm, Sweden.

University of Gothenburg, Sweden

organization number 202100-3153

address: Box 100, 405 30 Göteborg

University of Iceland, Iceland

organization number 600169-2039

address: Sturlugata 7 - Askja, 101 Reykjavík, Iceland

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Each also referred to individually as “Co-operating Partner” and together as “Co-operating Partners”.

Project Manager and Co-operating Partners are hereinafter also referred to individually as “Party” and together as “Parties”.

WHEREAS

- The Parties have applied for a project within the NordForsk Top-Level Research Initiative (hereinafter “TFI”) sub-programme Interaction between Climate and Change and the Cryosphere called “**Cryosphere-Atmosphere Interactions in a Changing Arctic Climate**”, acronym CRAICC, (hereinafter “the Project”);
- NordForsk has favourably evaluated the Project and entered into an agreement with Helsingin yliopisto as the Project Manager (see Attachment 1) (hereinafter “the Contract”);
- The Parties now will enter into a Consortium Agreement specifying their rights and obligation in relation to the Project.

NOW THEREFORE, the Parties agree as follows:

1. THE AGREEMENT

This Consortium Agreement is an agreement between the Parties in the NordForsk programme within the TFI sub-programme Climate and Change and the Cryosphere called “Cryosphere-Atmosphere Interactions in a Changing Arctic Climate (CRAICC)” described in Project Description (hereinafter “the Project”) for which the Parties have received funding from NordForsk. The Consortium Agreement is also an attachment (Attachment 6) to the Contract between NordForsk and the Project Manager.

The parameters of the Project – including but not limited to the terms and conditions for NordForsk funding, the aim of the Project, the Progress Plan, the Project Description and the funding plan – are stated in the Contract between NordForsk and the Project Manager. The Contract is an integral part of this Consortium Agreement.

The following attached documents shall also be part of the Consortium Agreement:

- Attachment 1: Contract between the Project Manager and NordForsk
- Attachment 2: Background included in the project

Each of the Parties undertakes to contribute to the execution of the Project and the fulfilment of the Contract in accordance with the tasks and obligations set out in the Contract and this Consortium Agreement.

In the case the wording of this Consortium Agreement should be in contradiction to the provisions of the Contract, the wording of the latter shall prevail.

2. DEFINITIONS

Terms defined in the Contract, shall have the same meaning in this Consortium Agreement. Terms defined in the Contract or this Consortium Agreement are capitalised.

Access Rights shall mean licenses and user rights to Project Results or Background;

The Agreement shall mean the document signed and executed by and on behalf of NordForsk and by and on behalf of the Project Manager, providing the detailed regulations and further definitions of the Project;

Background shall mean information listed in Appendix 2 which is held by the Parties prior to their accession to this Consortiums Agreement, as well as copyrights or other intellectual property rights pertaining to such information, the application for which has been filed before their accession to this Consortium Agreement, and which is needed for carrying out the Project or for using the Project Results

Confidential Information shall mean such information provided by a Party (“Disclosing Party”) to another Party during the Project which is clearly marked “confidential”, or, if disclosed orally, is characterised as confidential at the time of disclosure and has been confirmed and designated in writing within 15 days from oral disclosure at the latest as confidential information by the Disclosing Party.

The Contract shall mean the Agreement with any attachments thereto, together with NordForsk’s Standard Terms and Conditions of Contract;

Fair and Reasonable Conditions shall mean appropriate conditions including possible financial terms taking into account the specific circumstances of the request for access, for example the actual or potential value of the Project Results or Background to which access is requested and/or the scope, duration or other characteristics of the *use* envisaged;

Needed shall mean

For the implementation of the Project:

Access Rights are Needed if, without the grant of such Access Rights, carrying out the tasks assigned to the recipient Party would be impossible, significantly delayed, or require significant additional financial or human resources.

For Use of own Project Results:

Access Rights are Needed if, without the grant of such Access Rights, the Use of own Project Results would be technically or legally impossible.

Project Results shall mean all results produced or achieved in connection with the Project, including intellectual property rights, regardless of whether or not the results are protected by law.

Use shall mean the direct or indirect utilisation of Project Results in further research activities other than those covered by the Project, or for developing, creating and marketing a product or process, or for creating and providing a service.

3. ORGANISATION

3.1 Project Manager

The Project Manager (referred to as the Coordinating Office in the Project Description) is responsible for the day-to-day management of the Project, and has entered into the Contract with NordForsk. The Project Manager shall adhere and take into account the instructions and advices provided by the Scientific Advisory Board appointed by the Programme Committee within TFI NCoE Programme (see the section 3.0 of the Contract).

3.2 Project Leader

The day-to-day management of the Project is carried out by the Project Leader on behalf of the Project Manager in accordance with the Contract. The Project Leader is responsible for the professional progress, implementation and completion of the Project in behalf of the Project Manager. The Project Manager has appointed Prof. Markku Kulmala (Univeristy of Helsinki) to act as the Project Leader and Prof. Andreas Stohl (Norwegian Institute for Air Research) to act as the Deputy Project Leader.

3.3 General Assembly

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The General Assembly is the ultimate decision-making body of the Project and it sees to the overall coordination and operation of the Project, and is responsible for making the decisions necessary in this regard. The General Assembly of the Project shall consist of one representative from each Party. Each member of the General Assembly presented at the meeting shall have one vote. The Project Leader shall act as the chairperson of the General Assembly.

The General Assembly can be convened on 14 (fourteen) days notice. Notice of the meeting must be accompanied by an agenda and the documentation necessary for addressing the items on the agenda.

The General Assembly shall not deliberate and decide validly unless two-thirds (2/3) of its members are present or represented (quorum).

The General Assembly adopts its resolutions unanimously. However, in ongoing matters that do not alter the rights of a Party under the Consortium Agreement or the Contract, the General Assembly may adopt its resolutions by a majority of 2/3 of the votes.

A Party which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of the General Assembly may exercise a veto at the General Assembly meeting with respect to the corresponding decision or relevant part of the decision.

In case of exercise of veto, the members of the related General Assembly shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all its members.

A Party may not veto decisions relating to its identification as a defaulting Party. The defaulting Party may not veto decisions relating to its participation and termination in the consortium or the consequences of them.

A Party requesting to leave the consortium may not veto decisions relating thereto.

At the Effective Date the General Assembly consists of the following members:

Prof. Markku Kulmala, University of Helsinki, Finland
Prof. Gerrit de Leeuw, Finnish Meteorological Institute, Helsinki, Finland
Prof. Ari Laaksonen, University of Eastern Finland, Kuopio, Finland
Dr. Henrik Skov, Aarhus University, Denmark
Prof. Merete Bilde, University of Copenhagen, Denmark
Dr. Sven-Erik Gryning, Risø National Laboratory, Denmark
Dr. Elisabeth Isaksson, Norwegian Polar Institute, Tromsø, Norway
Prof. Andreas Stohl, Norwegian Institute for Air Research, Norway

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Prof. Jon Egill Kristjánsson, University of Oslo, Norway
Dr. Knut Alfredsen, Norwegian University of Science and Technology, Trondheim, Norway
Prof. Trond Iversen, Norwegian Meteorological Institute, Oslo, Norway
Dr. Gunnar Myhre, Center for International Climate and Environmental Research, Oslo, Norway
Prof. Erik Swietlicki, Lund University, Sweden
Prof. Gesa Weyhenmeyer, Uppsala University, Sweden
Prof. Margareta Hansson, University of Stockholm, Sweden
Prof. Jan Pettersson, University of Göteborg, Sweden
Prof. Ingibjörg Jónsdóttir, University of Iceland, Iceland

3.4 Scientific Steering Committee

The Project shall have a Scientific Steering Committee that is responsible for the scientific management of the Project as described in the Project Description (Attachment 1 to the Agreement).

The membership of the Scientific Steering Committee has been designated to the Parties below, and at the Effective Date the Scientific Steering Committee members shall be the following representatives of the Parties:

Project Leader – Markku Kulmala (Project Manager), University of Helsinki, Finland
Prof. Andreas Stohl, Norwegian Institute for Air Research, Norway
Prof. Margareta Hansson, Stockholm University, Sweden
Prof. Merete Bilde, University of Copenhagen, Denmark
Prof. Ingibjörg Jónsdóttir, University of Iceland, Reykjavik, Iceland
Dr. Michael Boy, project coordinator (start 3/2012), University of Helsinki, Finland
Dr. Jaana Bäck, project coordinator (until 2/2012), University of Helsinki, Finland

Unless otherwise agreed between the members of the Scientific Steering Committee, the Scientific Steering Committee can be convened on a 5 (five) days notice. Notice of the meeting must be accompanied by an agenda and the documentation necessary for addressing the items on the agenda.

The Scientific Steering Committee shall not deliberate and decide validly unless two-thirds (2/3) of its members are present or represented (quorum).

The decisions of the Scientific Steering Committee shall be made unanimously.

4. PERFORMANCE OF THE PARTIES

4.1 **Action / Progress Plan and reporting**

The Project Manager shall be obligated to keep the Parties up-to-date regarding any additions to the Contract.

The performance of each individual Party and the deadlines applicable thereto are set out in the Contract (Attachment 3 to the Agreement; Action / Progress Plan).

The Parties shall, prior to the 1st September each year of the Project Period, prepare and submit all necessary information and reports to the Project Manager. The Project Manager shall, in accordance with section 6.0 of the Agreement, prepare and submit Progress Reports to NordForsk pursuant to article 4.1 of the Standard Terms and Conditions of Contract, the Action / Progress Plan (Attachment 3 to the Agreement) and the Revised budget (Attachment 4 to the Agreement).

4.2 **Project deliverables**

The obligations of the Parties with regard to project deliverables are set out in the Contract (Attachment 1 to the Agreement; Project Description), and in subsequent NordForsk -approved supplemental agreements accepting changes therein. The Project Manager shall be obligated to keep the Parties informed regarding any such additions to the Contract.

4.3 **Finances**

The obligations of the Parties with respect to finances are regulated by the Contract (Attachment 4 to the Agreement; Revised budget).

The Project Manager is responsible for the coordination of and contacts with NordForsk regarding technical and financial reporting to NordForsk. The Parties must submit accounts for their portions of the Project without delay, as well as all Project Results, reports, etc. which the Project Manager may need to discharge its responsibilities to NordForsk.

The Project Manager is responsible for seeing to it that funds disbursed by NordForsk are administered in accordance with the Contract. The Project Manager shall be obliged to distribute the funds it receives from NordForsk to the Parties in accordance with the Contract (Attachment 4 to the Agreement; Revised budget) and without an undue delay.

The Parties are aware of the terms in the Standard Terms and Conditions of the Contract regarding grants (section 2 of the Standard Terms and Conditions of the Contract).

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According to these terms, funds shall under certain circumstances be repaid. A repaying Party shall transfer the refund to the Project Manager upon request.

The Parties shall produce receipts, time sheets, calculation and other relevant documentary in such manner that the Project Manager can fulfil its obligations at an inspection (section 3 of the Standard Terms and Conditions of the Contract).

5. OWNERSHIP AND ACCESS RIGHTS

5.1 Background

This Consortium Agreement shall have no effect on the ownership of Background.

The Parties shall identify in Attachment 2 the Background to which they are ready to grant Access Rights, subject to the provisions of this Consortium Agreement. The owning Party may add further Background to Attachment 2 during the Project by a written notice. However, only the General Assembly can permit a Party to withdraw any of its Background from Attachment 2.

The Parties agree that all Background not listed in Attachment 2 shall be explicitly excluded from Access Rights. They agree, however, to negotiate in good faith for additions to Attachment 2 if a Party asks them to do so and those are needed.

For the avoidance of doubt, the owner is under no obligation to agree to the additions of his Background to Appendix 2.

5.2 Ownership to Project Results

Project results shall be the sole property of the Party carrying out the work generating that Project result.

Where several Parties have jointly carried out the work generating Project Results and where their respective share of the work cannot be ascertained, they shall have joint ownership of such Project Results. The joint owners shall establish an agreement regarding the allocation and terms of exercising that joint ownership.

However, where no agreement on joint ownership has yet been concluded, each of the joint owners shall be entitled to Use their jointly owned Project Results on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and each of the joint

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owners shall be entitled to grant non-exclusive licenses to third parties, without any right to sub-license, subject to the following conditions:

- a) at least 45 days prior notice must be given to the other joint owner(s); and
- b) a fair and reasonable compensation must be provided to the other joint owner(s).

Each Party may transfer ownership of its Project Results. The transferring Party shall, however, ensure that the rights of the other Parties will not be affected by such transfer.

5.3 Access Rights

All requests for Access Rights shall be made in writing.

Access Rights to Project Results and Background Needed for the execution of own work of a Party under the Project shall be granted on a royalty-free basis, unless otherwise agreed prior to start of the Project.

The requesting Party must show that the Access Rights are Needed.

Any Access Rights granted expressly exclude any right to sub-license unless expressly stated otherwise.

Access Rights shall be free of any administrative transfer costs.

Access Rights are granted on a non-exclusive basis, if not otherwise agreed in writing by all the Parties.

Access Rights to Project Results if Needed for Use of Party's own Project Results shall be granted on Fair and Reasonable Conditions.

Access rights to Project Results for research activities shall be granted on a royalty-free basis.

Access Rights to Background if Needed for Use of a Party's own Project Results shall be granted on Fair and Reasonable Conditions.

Access Rights granted to a defaulting Party and such Party's right to request Access Rights shall cease immediately upon receipt by the defaulting Party of the formal notice of the decision of the General Assembly to terminate its participation in the consortium.

For the avoidance of doubt, the general provisions for Access Rights provided for in this paragraph are applicable also to software.

Parties' Access Rights to software do not include any right to receive source code or object code ported to a certain hardware platform or any right to receive respective software documentation in any particular form or detail, but only as available from the Party granting the Access Rights.

6. CONFIDENTIALITY

The Parties agree to maintain confidentiality in accordance with this Consortium Agreement for the term of the Consortium Agreement and for three (3) years after thereafter. However, the obligation of confidentiality shall in no case exceed ten (10) years from the time of receiving the Confidential Information.

The Parties agree not to disclose Confidential Information to any third party. The Parties agree not to use Confidential Information for any purpose other than as set out in this Consortium Agreement without the prior written consent of the disclosing Party in each specific case.

The receiving Party must take all reasonable measures to ensure that Confidential Information is kept confidential. The receiving Party may only reveal Confidential Information on a need-to-know basis to employees and other persons engaged by that Party for the execution of the Project. The receiving Party ensures that employees or other persons to whom Confidential Information is disclosed will observe confidentiality in accordance with the provisions of this Agreement.

Confidentiality, shall not apply to information that:

- was in the public domain at the time of disclosure or that has come into the public domain thereafter through other means than a breach of this Consortium Agreement;
- the receiving Party can show was already known to that Party at the time of disclosure;
- has been legitimately disclosed to a Party by another source than, and independently of, a Party to this Consortium Agreement;
- was, at any time, developed by the receiving Party completely independently of any such disclosure by the disclosing Party; and/or
- a Party is required to disclose according to law or a court order.

7. PUBLICATION

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The obligations of the Parties with respect to the publication of Project Results are set out in section 6 of the Standard Terms and Conditions of the Contract. Project Results shall be made public in accordance with good international manner of publishing research results.

No later than thirty (30) days before publication, the publishing Party must submit a copy of the planned publication to the other Parties for review. The reviewing Party may object the publication within the 30 day period, if

- (a) the objecting Party's Confidential Information would be revealed; or
- (b) the protection of the objecting Party's Project Results or Background would be adversely affected.

The objection has to include a precise request for necessary modifications.

For the avoidance of doubt, a Party shall not publish Project Results or Background of another Party, even if such Project Results or Background is amalgamated with the Party's Project Results, without the other Party's prior written approval. For the avoidance of doubt, the mere absence of an objection according to this Article is not considered as an approval.

Publication may be delayed until an application for intellectual property rights protection for Project Results or Background, which would have been jeopardised by the intended publication, has been submitted or the objecting Party's Confidential Information has been removed from the intended publication, but in no case for a longer period of time than ninety (90) days from the date when the objection was made. Thereafter, a Party is always entitled to publish its own Project Result.

All theses created in the Project shall become public in accordance with the applicable national legislation.

All publications shall include an acknowledgement of the contribution by NordForsk and/or other Joint Financing Bodies in the Project in accordance with possible detailed instructions by NordForsk.

8. LIABILITY

Each party shall be solely liable for any losses or damages that may arise as a result of its actions or omissions, unless otherwise agreed in this Consortium Agreement.

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In respect of any information, materials or Access Rights supplied by one Party to another Party in accordance with this Consortium Agreement, no warranty or representation of any kind is made, given or implied neither to the sufficiency or fitness for any purpose nor as to the absence of any infringement of any proprietary rights of third parties. The receiving Party shall in all cases be entirely and solely liable for the use to which it puts such information, materials and/or Background and/or Project Results to which it has received Access Rights.

Neither Party shall be responsible to the other Party for punitive damages, indirect or consequential loss or similar damage such as, but not limited to, loss of profit, loss of revenue or loss of contracts. A Party's aggregate liability towards the other Party shall be limited to that Party's share of the total costs of the Project as identified in the Contract (Attachment 4 to the Agreement; Revised budget).

The exclusions and limitations of liability stated above shall not apply in the case of damage caused by a wilful act or gross negligence.

Each Party shall be solely liable for any loss, damage or injury to third parties resulting from the performance of said Party's obligations under this Consortium Agreement.

9. FORCE MAJEURE

Neither Party shall be considered to be in breach of this Consortium Agreement if such breach is caused by force majeure, i.e. a non-predictable and non-preventable event or circumstances outside of the Parties' reasonable control, the effects of which cannot be avoided or overcome within a reasonable time period and/or with reasonable efforts. Each Party will notify the other Parties of any force majeure as soon as it occurs.

10. DURATION

Following its signature by the Parties, this Consortium Agreement shall be deemed to have come into force as of the date of signature of the Contract and shall continue in full force and effect until complete discharge of all obligations undertaken by the Parties under the Contract and this Consortium Agreement.

No Party is entitled to withdraw from this Consortium Agreement unless that Party has obtained the prior written consent of the other Parties (such consent not to be unreasonably withheld) and NordForsk.

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If the General Assembly unanimously finds a Party to be fundamentally breaching its obligations under this Consortium Agreement and the breaching Party fails to remedy its breaching behavior within thirty (30) days from receiving a written notice from the Project Manager, the General Assembly may by a unanimous decision terminate the participation of the breaching Party. To become effective the termination must be approved by NordForsk.

Any rights granted to a defaulting Party under this Agreement prior to the termination shall cease immediately upon termination. The said Party shall return to the supplying Party all Background, Project Results and Confidential Information received pursuant to this Consortium Agreement. Any rights granted to the non-defaulting Parties by the defaulting Party under this Consortium Agreement shall remain in force regardless of termination of this Consortium Agreement to the extent such rights are Needed for the performance of the Project or for the use of Project Results.

11. LANGUAGE

This Consortium Agreement is drawn up in English and all documents, notices, meetings etc. for its execution, amendment and / or extension shall be in English.

12. ASSIGNMENT

Neither Party is permitted to assign, sub-contract or otherwise allow any third party to exercise rights under this Consortium Agreement without the prior written consent of the other Parties.

13. CHANGES AND AMENDMENTS

Any changes or amendments to this Consortium Agreement and its appendices shall be agreed in writing by the Parties.

14. ACQUIREMENT OF RIGHTS

The Parties shall be liable to acquire, at their own expense, the adequate rights to their Background and Project Results from their employees, subcontractors or other third

parties as required for the Parties to be able to fulfil their obligations under this Consortium Agreement.

15. MANDATORY STATUTORY LAW

Nothing in this Consortium Agreement shall be deemed to require a Party to breach any mandatory statutory law under which the Party is operating.

16. MISCELLANEOUS

Should any provision of this Consortium Agreement become invalid, illegal or unenforceable, it shall not affect the validity of the remaining provisions of this Consortium Agreement. In such a case, the Parties concerned shall be entitled to request that a valid and practicable provision be negotiated which fulfils the purpose of the original provision.

17. GOVERNING LAW

This Consortium Agreement shall be governed by the substantive laws of Norway.

18. DISPUTE RESOLUTION

Any dispute, controversy or claim arising out of or in connection with this Consortium Agreement, or the breach, termination or invalidity thereof, to which no amicable settlement has been found, shall be finally resolved by arbitration in accordance with the current applicable Norwegian legislation on arbitration (The Arbitration Act of 14th May 2005).

The seat of arbitration shall be Oslo, Norway, unless otherwise agreed by the disputing Parties.

The language to be used in the arbitral proceedings shall be English.

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6. CRAICC Revised budget

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CRAICC BUDGET SPECIFICATION

10.02.2011

Of the annual budget 7.2 MNoK, 4.6 MNoK will be distributed directly to partners according to the following table, 200 000 NoK (ca. 25 300 EUR) each. The remaining of the annual, 2.6 MNoK, will stay in Helsinki University and is used in coordination, networking, travel and training events. Total sum for partners in five years is 1 MNoK/each (ca. 126 000 EUR).

country	no of groups	annual grant sum
Sweden	6	1 200 000
Norway	6	1 200 000
Denmark	4	800 000
Finland	6	1 200 000
Iceland	1	200 000
sum	23	4 600 000

country	group no	PI	Institution	2011	2012	2013	2014	2015	total NoK
FINLAND	1	Kulmala	Univ of Helsinki, Dept of Physics	200 000	200 000	200 000	200 000	200 000	1000000
FINLAND	1	Nikinmaa	Univ of Helsinki, Dept of Forest Sci	200 000	200 000	200 000	200 000	200 000	1000000
FINLAND	1	Seppä	Univ of Helsinki, Dept of Geosci	200 000	200 000	200 000	200 000	200 000	1000000
FINLAND	1	Korhola	Univ of Helsinki, Dept of Env Sci	200 000	200 000	200 000	200 000	200 000	1000000
FINLAND	2	de Leeuw	Finnish Meteorological Institute	200 000	200 000	200 000	200 000	200 000	1000000
FINLAND	3	Laaksonen	Univ of Eastern Finland	200 000	200 000	200 000	200 000	200 000	1000000
DENMARK	4	Skov	Aarhus University, NERI	200 000	200 000	200 000	200 000	200 000	1000000
DENMARK	4	Glasius	Aarhus University, Dept of Chemistry	200 000	200 000	200 000	200 000	200 000	1000000
DENMARK	5	Bilde	Univ of Copenhagen	200 000	200 000	200 000	200 000	200 000	1000000
DENMARK	6	Gryning	Risoe Nat Lab	200 000	200 000	200 000	200 000	200 000	1000000
NORWAY	7	Isaksson	Norwegian Polar Inst	200 000	200 000	200 000	200 000	200 000	1000000
NORWAY	8	Stohl	Norwegian Inst for Air Res	200 000	200 000	200 000	200 000	200 000	1000000
NORWAY	9	Kristjansson	Univ of Oslo	200 000	200 000	200 000	200 000	200 000	1000000
NORWAY	10	Alfredsen	Norwegian University of Science and Technology	200 000	200 000	200 000	200 000	200 000	1000000
NORWAY	11	Iversen	Norwegian Meteorological Institute	200 000	200 000	200 000	200 000	200 000	1000000

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NORWAY	12	Myhre	CICERO	200 000	200 000	200 000	200 000	200 000	1000000
SWEDEN	13	Swietlicki	Univ of Lund	200 000	200 000	200 000	200 000	200 000	1000000
			Stockholm University, Dept. of Physical Geogr.&						
SWEDEN	14	Hansson M	Quatern Geol	200 000	200 000	200 000	200 000	200 000	1000000
SWEDEN	14	Hansson HC	Stockholm University, ITM	200 000	200 000	200 000	200 000	200 000	1000000
			Stockholm University, Dept. of Meteorology						
SWEDEN	14	Leck		200 000	200 000	200 000	200 000	200 000	1000000
SWEDEN	15	Weyhenmeyer	Uppsala University	200 000	200 000	200 000	200 000	200 000	1000000
SWEDEN	16	Pettersson	Univ of Gothenburg	200 000	200 000	200 000	200 000	200 000	1000000
ICELAND	17	Jonsdottir	Univ of Iceland	200 000	200 000	200 000	200 000	200 000	1000000
				4600000	4600000	4600000	4600000	4600000	23 000 000