



CRAICC WP6/WP8 meeting 20 – 21 January 2014 at Hotel Sofia in Helsinki

List of participants:

1. Frank Berninger, University of Helsinki
2. Jaana Bäck, University of Helsinki
3. Jon Egill Kristjansson, University of Oslo
4. Michael Boy, University of Helsinki
5. Sven-Erik Gryning, Technical University of Denmark
6. Gerrit de Leeuw, FMI & Univ. Helsinki
7. Hannele Korhonen, FMI
8. Ilona Riipinen, Stockholm University
9. Øyvind Seland, MET Norway
10. Risto Makkonen, University of Helsinki
11. Terje Berntsen, University of Oslo / CICERO
12. Trond Iversen, MET Norway / University of Oslo
13. Veli-Matti Kerminen, University of Helsinki
14. Hanna Lappalainen, University of Helsinki
15. Markku Kulmala, University of Helsinki

Monday 20.1.2014

13.00-15.30:

a) Welcome, WP status and workshop objective, lead: Ilona and Jon Egill

- Markku:
 - Evaluation reports: Improvements needed, vs. SVALI handbook etc.
 - What is needed in WPs 6 and 8 from the other WPs?
 - Extra CRAICC funding available for 3-12 months for special assignments
 - **Top priority: Address interaction figure; quantify feedback loops, even though the uncertainty may be large**
- Ilona: Synergies with eSTICC
- Jon-Egill:
 - Goal: Set up a list of planned CRAICC simulations and allocate resources to do them

- Pilot study on sea ice cover extent feedbacks
- We need to specifically decide what experiments to run, and who will do it

b) 20 minutes presentations by

- Øyvind Seland
 - Work of Vidya Varma on the effect of sulphate reductions on Arctic climate; a bit limited by storage space – Ilona: talk to Annica
 - Temperature evolution (transient runs); 0.5C cooling due to sulfate since 1850, slight warming due to BC since 1850
 - Sulfate 1850 – 2000 suppresses precipitation by 0.045 mm/day; but spatially there is little statistical significance
 - How much of this is due to clouds?
- Risto Makkonen
 - Improved aerosol scheme in NorESM
 - Nucleation
 - SOA, including BVOC contribution
 - Collaboration with Almut Arneth – links to BACCHUS project
- Jon Egill Kristjansson
 - Stjern et al., ACP 2011: Effects of reduced pollution in Central Europe
 - Ongoing work by Stjern et al.: Effects of changing sulphate emissions on from the Black Triangle on precipitation
- Trond Iversen
 - Maria Sand's work on abrupt change in CO2 and BC (same TOA forcing; very different temperature responses)
- Terje Berntsen
 - Sand et al., JGR 2013: Effects of BC emissions on Arctic climate
 - Comparing two alternative ship routes (one through north sea and the traditional southern route) in 2030 and 2050 -> WP6
- Frank Berninger: Possible links to CRAICC WP2
 - Lake ice and ice constraints on hydropower use (Matti Leppäranta and Knut Alfredsson) -> WP6
 - Interaction between WP8 on lake ice?
- Hanna Lappalainen: PEEX
 - Currently in a phase of consolidation; already an iLEAPS Pan-Eurasian Regional node

- Six Nordic-Russian workshops will be organized focusing on specific pilot themes in 2014-2015

15.30---16.00: Coffee break

16.00---19.00: Discussion on

- What has been achieved in the work packages 6 and 8 until now?
- How do the results differ from the project plan?
- What is still missing to complete the WP-tasks and how are we going to achieve it in the available time?
- Deciding on the most important topics to cover on Tuesday

19.00: Dinner

Tuesday 21.1.2014

9.00---10.30: Discussion

- How are we doing on answering the main research questions of CRAICC?
 - How we can integrate our results in the main research questions from CRAICC with a special focus on the ESMs?
 - Concrete steps to facilitate information flow between WP8 and the other WPs
 - Concrete plans for studies to address the main research questions
 - Other topics brought up on Monday
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- Jon-Egill led discussion on how to address the CRAICC arrows and feedback loops
 - The effects of cryospheric changes on society and human activities need to be included
 - Collaboration with DEFROST on methane?
 - Loop 1: A-B-C-A (e.g. snow/ice albedo feedback)
 - Loop 2: C-D-A-B-C (e.g. future Arctic cryosphere changes and oil exploitation)
 - Loop 3: D-A-B(-C)-D (e.g. changes in sulfur emissions late 20th century; future emission scenarios)
 - Loop 4: A-B-(C)E-A (e.g. changes in BVOC emissions in a warming climate)
 - Idea: **Defining a set of dedicated experiments that address the loops in such a manner that the results are comparable → high-level publication?**

| Project | Responsible people | Part of CRAICC feedback loop that could be looked at | Comments |
|--|-------------------------|--|------------------|
| Effects of sulphate emission reductions on Arctic climate | Vidya | A-B-C-A A-B(-C) (D-)A-B-C-A(-D) | The arrows to D? |
| Effects of sulphate reductions on precipitation | Maria, Jon-Egill et al. | (D-)A-B-C-A(-D) | |
| Effects of changing Arctic climate on forest emissions on aerosol loadings and climate | Juan, Risto, Dirk | A-B-C-E-A | |
| Effects of changing shipping routes on climate and economy | Terje, Maria et al. | C-D-A-B-C | |
| Changing natural sea salt emissions | Struthers et al. | A-B-C-E-A | |
| Effects of permafrost changes on biogenic emissions | Makkonen et al. | A-B-C-E-A | |

10.30--- 11.00: Coffee break

11.00--- 12.00 Action plan and distribution of tasks based on the discussion in the morning

12.00--- 13.00: Lunch

13.00--- 15.30: Discussion continues

15.30--- 16.00: Coffee break and end of the meeting