ClimEco kick-off meeting minutes

at the Finnish Meteorological Institute, Kumpula Campus, Helsinki, Finland

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KEY ACTION POINTS

1. Improving information flow by webpages (Alexander), data availability and agreements for data use, contact persons (active and in charge of research in Tyumen); coordination by Anni

2. Education team to plan intensive courses, autumn schools etc. (Alexander, Svyatoslav, Anni, Taina)

3. Planning joint work (research visits, field trips, data analysis etc.) between working groups and other projects by Sergej, Jaana, Slava, Anni

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Discussion on project outline and workflow

- There are two newly funded Russian projects, which are closely linked to research fields in ClimEco:
  - *'Physical models of marine weather extremes caused by the climate change in the Arctic in the first part of XXI century'* (2018-2021), Russian Foundation for Basic Research (RFBR) project 18-05-60299
  - *'Diagnosis and numerical simulation of the atmospheric boundary layer dynamics and the Arctic terrestrial ecosystems state under anthropogenic stress'* (2018-2021), Russian Foundation for Basic Research (RFBR) project 18-05-60126
  - All ClimEco partners should acknowledge these projects, whenever appropriate. The suggested wording is (*in italics*):
    - for the Russian parties: *...the authors acknowledge collaboration with the Academy of Finland project ClimEco No. 314 798/799 (2018-2020) and within international program Pan-Eurasian Experiment (PEEX)*
    - for the Finnish party: *...the authors acknowledge collaboration with the Russian Foundation for Basic Research (RFBR) projects: No. 18-05-60126 (2018-2020)* [indication of the project title, "Diagnosis and numerical simulation of the atmospheric boundary layer dynamics and the Arctic terrestrial ecosystems state under anthropogenic stress", and the host institution "Marchuk Institute of Numerical Mathematics of the Russian Academy of Sciences" is optional] *and No. 18-05-60299 (2018-2020)* [indication of the project title, "Физические модели морских экстремальных погодных явлений, обусловленных изменением климата арктической зоны в первой половине XXI века" = "Physical models of marine weather extremes caused by the climate change in the Arctic in the first part of XXI century" and the host institution "Institute of Applied Physics of the Russian Academy of Sciences" is optional].

- Permafrost data from Tyumen region is analysed this summer in Helsinki by a summer worker.
- The project has an external webpage (https://www.atm.helsinki.fi/peex/index.php/climeco) and an internal webpage will be created under PEEX sites to promote information flow.
- ClimEco project should be advertised in all meetings, papers, abstracts etc.
- Local communities in Tyumen (and elsewhere) should be involved in the project and informed of it: contacts to Yamal government, newspaper articles, interviews in local radio etc.
- Data management plan and data use agreements to be formulated and signed by all participating institutions. The agreement will include a remark that participating institutions may exchange instruments for scientific and educational use.

Education & research visits

- An intensive course on modelling mainly organized by Alexander Mahura. Likely taking place in June or September–November 2020, length about a week, probably in Moscow.
- Autumn School in Hyytiälä, October 2018: all teachers and students involved in ClimEco are most welcome to participate. Project may cover the participation costs, but feel free to apply for travel grants e.g. from Russian Foundation for Basic Research (RFBR). The details of the course will be advertised widely later.
- Autumn School autumn 2019: possibly in collaboration with NERSC? In Svalbard or Kirkenes? Project participants as teachers and assistants, arctic data in use. Needs to be planned together with the ATM-education programs
- Non-academia teachers could be invited to the courses as many students are very business-oriented (see their future jobs in industry).
- A research visitor to NERSC/Igor Ezau to work with satellite data, agreed with Oleg Sizov (TSU)
- Students from Finland could visit INM-RAS (few weeks if money available)
- Sergej plans to give 2–3 lectures in INAR seminar series during the project
- Group for education planning: Alexander Mahura, Svyatoslav Tyuryakov, Anni Vanhatalo, Taina Ruuskanen (INAR education expert). Group will continue planning future courses etc. as a part of ClimEco activities.

Meetings & expeditions

- The kick-off of the project was done in a sequential way, as by now there have been three meetings:
    - Unofficial kick-off in Helsinki 15th January 2018
    - Seminar in Moscow 27th–29th March 2018
    - Kick-off workshop in Helsinki 7th–8th June 2018
- The need of a mid-term meeting was discussed. It could take place in February 2019 in Moscow, possibly in collaboration with the other projects.
- Potentially a Skype meeting in September 2019, when the first datasets from field exist.
- The final meeting of ClimEco will be held in the end of 2020.
- The ARKTIKO program meetings organized by the Finnish Academy are important. The project was represented in the latest meeting at Lammi Biological Station, and will be represented in the next

meeting in November also. Annual activities will be reported to the Finnish Academy and everyone are welcome to contribute to the reports.

- WP2 plans fieldwork (expedition) for the summer 2019.
- Victor Stepanenkos's project will make a short expedition (7–10 days) in 2019 and longer one in 2020 in the surroundings of Nadym. Joining the expeditions could provide synergy for both projects.

Short summaries by WP leaders, focusing on data needs, dependencies from other WPs and major challenges

- Challenges in WP1: There is plenty of data, but is there enough of time for its analysis? Proper scale and accuracy are also challenges.
- Challenges in WP2: Study site selection, information and availability of existing data, links between the different scales.
- Challenges in WP3: Heat and mass transfer are the most challenging parts in modelling. Understanding convection is also a grand challenge. High risk, high gain.
- The vegetation temperature (heating in full sunlight) has linkages to modelling (boundary layer, turbulence near soil surface). The potential of heat cameras and/or drones will be considered.
- Master's students should be involved in the project, e.g. related to Michael Boy's PBL models. Training future experts is one of the key outcomes of the project.