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|  | <p>Pan-Eurasian Experiment (PEEX) PEEX-3 meeting in Hyytiälä, Finland, 26-28. Aug. 2013 MEMO</p> | <p>REF : PEEX MM ISSUE : 0.5 DATE 04.SEP.2013 PAGE : 1</p> |
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3RD PEEX-3 MEETING IN HYYTIÄLÄ (SMEAR-II STATION), FINLAND - MEMO

Time : 26-28.Aug.2013
Place : 3rd PEEX-3 meeting in Hyytiälä (SMEAR-II station), Finland
Chairs : Markku Kulmala Univ.Helsinki, Sergej Zilitinkevich FMI
Minutes : Hanna Lappalainen, Tuukka Petäjä Univ.Helsinki
APPENDIX-1 Agenda
APPENDIX-2 Participant list
MEETING PRESENTATIONS <http://www.atm.helsinki.fi/peex/index.php/intranet>

1. AIM OF THE WORKSHOP

Aim of the workshop was

- Finalization of PEEX science plan
- Transforming science plan towards implementation
- Facilitating work towards joint proposals
- Building PEEX community - networking
- Initiating new connections between Scientific communities & Existing observational networks and organizations

This memo is a summary of discussion and presentations during the workshop.

2. FINALIZATION OF PEEX SCIENCE PLAN (SP) (WG 1 & 3)

WG-1 Research and WG-3 Society Dimension were especially focused on commenting PEEX Science Plan v0.5.

WG-1 highlighted the following aspects:

- Connections to iLEAPS / IGBP, Future Earth: iLeaps similar to PEEX but global; iLEAPS is willing to support PEEX
- Current ESMs need proper initial data and large part of PEEX domain lacks such data
- Research Questions; Current version is focused on science questions, some restructuring needed (socioeconomic side)
- More clear summary needed; executive or for policymakers, separate or in the beginning of section

WG-3 highlighted the following aspects:

- Regional focus in analysis
- Entry point to the policy making is different between regions
- Social systems have regional characteristics
- Development of new tools for analysis
- Invite more soft scientists to participate
- Public, stakeholders and policy makers should take part of the "Society dimension" section development
- Sustainability indices – develop a system for monitoring
- Develop an instrument to measure the success of PEEX sustainability strategy

It was agreed that PEEX Coordinator M. Kulmala reviews the current version (v.0.5 Aug.2013). Project Office will edit the next version based on Kulmala's remarks including the comments received by the WGs 1 & 3 during the Hyytiälä meeting and specific remarks by a group of scientist. For example, a group of scientist

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|---|--|--|

reviewing Chapter- 5 could be: 5.2 (Ari Laaksonen), 5.3.1 (Sergey Zilyitinkevich), 5.3.2 (Ignatio Pisso), 5.6 (Ilmo Kukkonen), 5.1.2 (Eugene Mikhailov).

The pre-final version will be released in January - February 2014. The final version of PEEX Science Plan will be ready in spring 2014 and will be published in English, Russian and in Chinese.

3. TRANSFORMING SCIENCE PLAN TOWARDS IMPLEMENTATION

PEEX Implementation Plan will consist of three components (C):

- C-1 Coordination and facilitation of existing activities (projects, infrastructures, education)
- C-2 Establishing new PEEX activities; new research project
- C-3 Collaboration with international organization and networks

Part of C-1 Coordination and facilitation of existing activities the first two activities will be

- A. Establishing the process towards **Pan-Eurasian Observation Networks** based on SMEAR-typed integrated land-atmosphere observation system.
- B. Establishing the **PEEX Education Programme** including first PEEX education courses and web based education module part of the PEEX www pages.

A: STEPS TOWARDS PANEURASIAN OBSERVATION NETWORKS (WG-2)

Tuukka Petäjä will establish a PEEX-Observation Network- Working Group for defining a roadmap towards a coordinated SMEAR-typed observation network. WG Core Group taking part of the PEEX-roadmap writing process are: Tuukka Petäjä, Alfred Wiedensohler, Sergej Zilitinkevich, Aijun Ding, Yong Xue, Paulo Laj, Valerii Bondur, Gerrit de Leeuw, Yong Xue, Nina Zaitseva and Hanna Lappalainen. This group including the contact persons of PEEX stations (see the list below) and members added subsequently are working towards the PEEX Observation Network Roadmap.

The PEEX-Observation Network Roadmap includes descriptions of

- existing measurements and stations
- funding possibilities for infrastructure
- integration between different communities and projects
- detailed parameter lists in coordination with the contributing networks and modelers
- contribution networks responsible for harmonization of measurements and data analysis (QA/QC)
- use of existing recommendations and calibration centers of different networks such as GAW and ACTRIS
- Organization of specific capacity building organized by contributing networks
- Socio-economic data collection, data archives

Preliminary list of PEEX Observation network sites/stations (Fig.1) and contact persons per site/stations was set out: WMO/GAW collaboration Oksana Tarasova, China ecosystem network (CERN) Zheng, Yakutsk, Nizni Novgorod-Moscow-Borok (Evgeni Mareev), Tomsk (Mihail Arshinov), Kola Arctic / White Sea (Schevchenko), Tiksi (Makstas, Laurila, Lihavainen), Novosibirsk (Sergej Dubtsov), Zotino (Institute of Forest, Krasnojarsk, MPI Jena), Tjumin (Vladimir Melnikov), Baikal - Irkutsk – Ulan Ude region (Eugene Mikhailov).

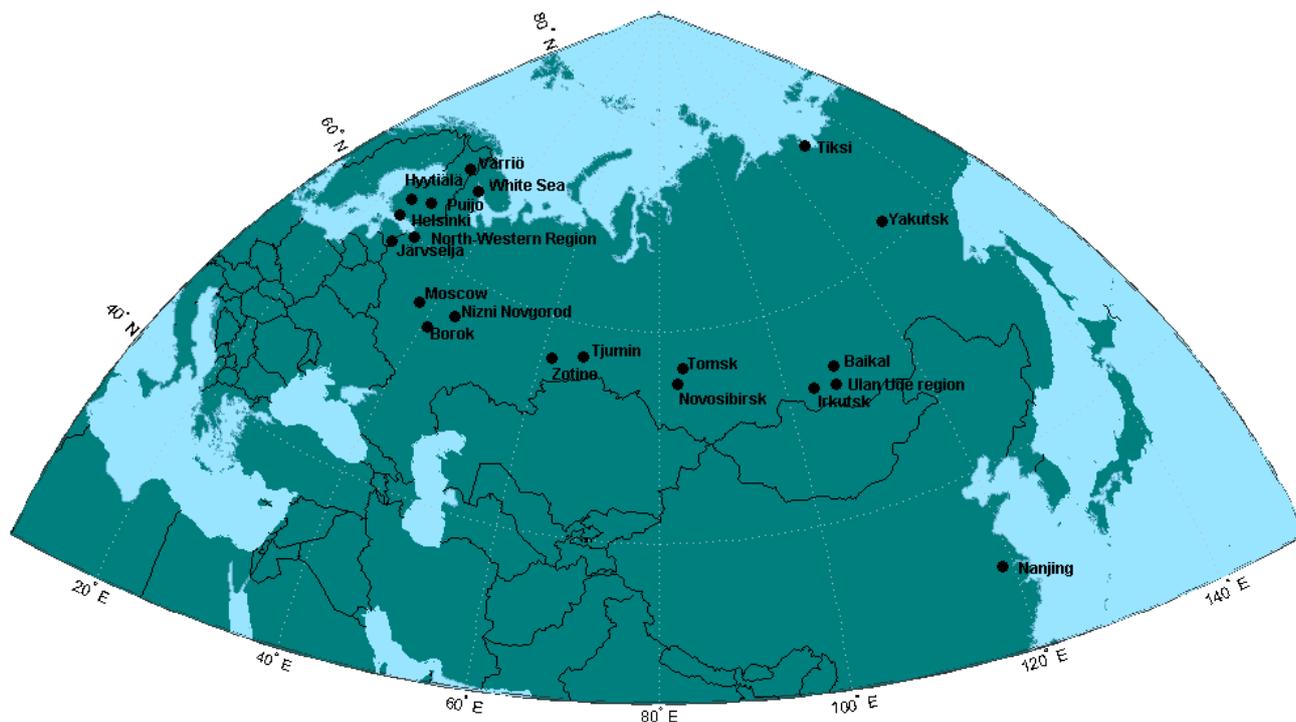


Fig. Preliminary list of PEEX Observation network sites/stations.

PEEX ground based network will include a strong remote sensing / satellite component. Remote Sensing Group taking part of the PEEX Roadmap are: Valerii Bondur, Gerrit de Leeuw, Yong Xue. This group and members added subsequently are working towards the PEEX Observation Network Roadmap.

The PEEX-Observation Network Roadmap will include an inventory of satellites and their products:

- **UV/VIS, infrared, radar, hyperspectral, pol& multiview**
- **Atmosphere:** Aerosol properties, Trace gases, GHG, Cloud properties, UV & other radiation fields
- **Land:** Sfc reflectance, Land cover, Vegetation, Snow cover, Forest fires and dispersion of smoke, biomass
- **Water:** Pollution, Ice cover, water ways
- **Data availability:** Open access vs 'commercial', restricted, Data exchange (as part of project), Data transparency, Real time, NRT, off-line
- **Satellites vs ground based:** Synergy, complementarity, Ground truth, accurate, precise, calibration, high quality and confidence, Spatial coverage vs few supersites
- **Synergy satellites & ground based & models:** Interpretation, parameters needed for models, constraints (data ass.), inverse modeling, Data management for satellites & ground, models

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|---|--|---|

B: FIRST STEPS TOWARDS PEEEX EDUCATION PROGRAMME (WG-4)

The first steps towards PEEEX Education programme is to set up a web based education portal as a part of the PEEEX webpages (<http://www.atm.helsinki.fi/peex/>). In the first phase this portal is offering information on already existing courses for PEEEX members. The new portal will be opened within next two weeks.

The PEEEX Education Contact Board (PEEX-ECB) was established.

PEEX Education contact board:

Europe –Taina Ruuskanen taina.ruuskanen@helsinki.fi ; main contact point for the EX-ECB.

China and UK – Yong Xue yxue@irsa.ac.cn

Russia – Natalia Dubazova natalia.dubarova@gmail.com, Dmitry Subetto subetto@mail.ru

PEEX-ECB will be collaborating with the EGU - outreach and communication to public and WMO – technical experts education.

4. FACILITATING WORK TOWARDS JOINT PROPOSALS

Part of the PEEEX implementation will be new PEEEX actions / projects, which will apply to be funded via national/bilateral, Nordic and EU (Horizon 2020, JPI-Climate) together with Russian and China funding agencies. The most important becoming opportunities are an open / opening calls by (i) Nordforsk and (ii) EU-JPI-Climate (ref. presentation by Sanna Sorvari FMI).

Nordforsk call for Nordic – Russian collaboration; status: Prof. Kulmala as CRAICC coordinator has submitted a Letter of Intent titled “Joint CRAICC - PEEEX research and educational activity” in February. We are currently waiting for the response from Nordforsk in order to proceed for the full proposal. In the letter of intent 6 CRAICC-PEEX Pilot-projects were proposed. Furthermore, the proposal includes educational program, which is built on the joint CRAICC-PEEX pilot projects. Each pilot runs an education activity of exchanging of undergraduate, graduate, and postgraduate students between the CRAICC institutes and Russian institutes representing PEEEX initiative.

JPI-CLIMATE Call preproposal deadline is on 29.Nov.2013. The following calls are open

- Topic 1: Societal Transformation in the face of Climate Change.

proposals should address:

- The normative and social justice dimensions of climate change
- The role of knowledge and risk perception in climate-related policie
- The societal capacity and governance to respond to climate change
- The role of economy and finance in societal transformation
- Integrative studies on societal transformation, visions and pathways under climate change

Consortia must include partners from at least three of the European countries participating in the call (see budget table below). Involvement of partners from civil society, policy makers, public administration or industry for co-designing research questions and co-production of knowledge is encouraged.

- Topic 2: Russian Arctic & Boreal Systems: The call aims to improve the fundamental understanding of key biological and physical drivers and feedbacks in Russian Arctic/Boreal system (tundra-taiga-coastal region) to enable better representation of these processes in climate models. In particular, proposals should address the following issues:

1. Improving the understanding and the modelling of permafrost and its impact on the capture, storage and release of GHG's

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|---|--|--|
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|---|--|--|

- The dynamics and drivers of climatically relevant gases in the terrestrial, freshwater and coastal environments

Consortia must consist of at least **one Russian** partner based in an eligible institution, providing the project with matching funds, and partners from at least **two of the European countries** participating in the call

It was discussed potential proposal coordinators, for example: topic-1 Sirkku Juhola Univ.Helsinki and topic-2a Torben Christianssen Univ.Lund and Topic-2b Alexander Baklanov DMI.

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| <i>JPI-Climate CALL - Important dates</i> | |
| Announcement | 2 September, 2013 |
| Pre-proposal call opening | 30 September, 2013 |
| Pre-proposal deadline | 29 November, 2013, noon CET |
| Invitation to submit full proposals | 3 February, 2014 |
| Full proposal deadline: | 28 March, 2014, noon CET |
| Funding decision announced | Summer 2014 |
| Start of projects | Fall 2014 |

5. BUILDING PEEX COMMUNITY – NETWORKING

As a part of the PEEX visibility and promotion there has been requests on the status of PEEX contributing institutes. In order to formalize the list of PEEX contributing institutes, which in practice allows the use of institute logo in PEEX Science Plan and the PEEX overview presentations to be presented in different international forums and conferences, PEEX Office will send out a request to sign a PEEX Support Letter to all currently contributing institutes.

6. INITIATING CONNECTIONS BETWEEN SCIENTIFIC COMMUNITIES AND EXISTING OBSERVATIONAL NETWORKS AND ORGANIZATIONS

Three opportunities to strengthen PEEX initiative were presented:

- The Pan-Eurasian Experiment – an Arctic and boreal regional node for Future Earth***
ref. presentation by Tanja Suni Univ. Helsinki
 - PEEX: could apply a regional node for Future Earth in the Arctic and boreal zone
- Building on Global Earth Observation System and Systems (GEOSS): GEO Cold Regions The potential interactions with PEEX GEO*** ref. presentation by Yubao Qiu GEO Secteteriat
 - PEEX to be part of international programs: the Enhance the Arctic Data/Information coordination for Cold Regions by international programs (SAON, SIOS, PEEX, INTERACT, ABDS-ABA/CAFF, Cryoclim)
- The role of the Pan-Eurasian initiative in the global framework of the Global Atmosphere Watch Programme*** ref. presentation by O. Tarasova WMO
 - Establish the collaboration with “non-atmospheric” domains on a regional level (e.g. with biospheric community) to better evaluate feedbacks in the Earth system (e.g. connections between climate change and atmospheric composition)
 - Extension of the atmospheric observational network in PEEX region using GAW QA principles
 - Involvement of GAW experts from non-PEEX geographical domain

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|---|--|--|
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|---|--|--|

- Involvement of academic research in GAW activities
- Opportunities for specialized training, capacity building and outreach

PEEX Project Office will enhance (i) PEEX to apply an Arctic and boreal regional node for Future Earth, (ii) PEEX to solidify its status as a project part of the GEO- the Arctic Data/Information coordination for Cold Regions and (iii) collaboration between PEEX and the global framework of the Global Atmosphere Watch Programme.

7. NEXT MEETING – 4th PEEX Meeting

4th PEEX meeting will take place in St. Petersburg, Russia on 3-7. March. 2014; a 3 day meeting + traveling.

APPENDIX-1 PEEX-3 Agenda

3RD MEETING ON PAN-EURASIAN EXPERIMENT (PEEX)

HYTTIÄLÄ, 26-28 AUGUST, 2013

HYTTIÄLÄ FORESTRY FIELD STATION , HYTTIÄLÄNTIE 12, FIN-35500 KORKEAKOSKI, FINLAND

SUNDAY 25. AUGUST (arrival to Hotel Orivesi)

MONDAY 26. AUGUST

- 09:30 Registration - Institute building
- 10:00 Introduction to SMEAR science concept, M. Kulmala
- 11:00 Lunch
- 12:00 Visit to SMEAR II station, M. Kulmala, T. Petäjä, J. Bäck, T. Vesala
- 13:30 Coffee break
- 14:00 Presentations – Introduction to
 - aerosol measurements, T. Petäjä
 - flux measurements & ICOS, T. Vesala
 - radar measurements, D. Moiseev
 - ecological measurements, J. Bäck
 - soil measurements, J. Pumpanen
 - urban SMEAR, L. Järvi
- 15:15-16:00 Dinner (Cafeteria, Hyttiälä)
- 16:00 OPENING OF 3RD PEEX WORKSHOP, Markku Kulmala , Univ. Helsinki
 - aim of this workshop
 - Introduction of participants
 - PEEX Vision & large scale research questions, M. Kulmala Univ. Helsinki
 - Introductory words and satellite remote sensing in PEEX, Valerii Bondur, AEROCOSMOS
 - PEEX initiative overview – Science Plan status, Hanna.K. Lappalainen and Tuukka Petäjä, Univ. Helsinki
- 17:15 SESSION FOCUS AREA -1: PEEX RESEARCH AGENDA, chair Sergej Zilitinkevich FMI
 - Atmosphere –terrestrial biosphere interaction, Timo Vesala Univ. Helsinki
 - Nex It-Ru project relevant to PEEX, Francesco Tampieri Univ. Bologna
 - Application of remote sensing methods for monitoring inland water bodies, Yuliya Troitskaya Nizhny Novgorod
- 18:00 short coffee break
 - On lake and inland water problems in PEEX, Dmitry Subetto and Arkady Terzhevik, Northern Water Problems Institute, Karelian Research Centre, RAS



- Stable atmospheric boundary layer, Sergej Zilitinkevich Finnish Met. Inst.
 - Electromagnetic weather, Evgeny Mareev, Inst. Applied Physics, RAS
 - Urban aerosol pollution over Moscow, Natalia Chubarova, Moscow State University
 - Atmospheric black carbon, Olga Popovicheva, Institute of Nuclear Physics, Moscow State University
 - In monitoring of atmospheric aerosols and gas components, Sergey Dubtsov, Institute of chemical kinetics and combustion SB RAS
- 20- Bus back to Hotel Orivesi
20- Sauna
21- Evening snacks (Cabinet)
22- Bus back to Hotel Orivesi

TUESDAY 27. AUGUST

08:00 Bus leaves from Hotel Orivesi

08:30 SESSION FOCUS AREA -2: PEEX RESEARCH INFRASTRUCTURE, chair T. Petäjä

- Inventory of RAS observational stations over Siberia & International Polar Year 2007-2008, Nina Zaytseva, Dept. of Earth Sciences, RAS
- Tomsk observation programme and research within the PEEX research agenda, Egor Dyukarev, Institute of Monitoring of Climatic and Ecological Systems SB RAS
- The Status of Research on Aerosol Property Retrieval from Satellite Data in China, Yong Xue, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
- The PEEX Research Proposal from the China Science Center of IEAS/Chinese Academy of Sciences, Zhang Jiahua, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

09:50 SESSION FOCUS AREA -3: PEEX SOCIETY DIMENSION, chair Anatoly Shvidenko

- Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia, Alexander Baklanov, DMI
- Development of a unified information background for the PEEX domain & Development of an Integrated Land Information System for the PEEX domain, A. Shvidenko IIASA
- Mitigation and adaptation within the PEEX research agenda Sirkku Juhola, Department of Environmental Sciences Univ. Helsinki

10:50- SESSION FOCUS AREA -4: PEEX KNOWLEDGE TRANSFER, chair H. Lappalainen

- Introduction to CBACCI; ABS, CRAICC workshop & summer/winters school, Taina Ruuskanen Univ. Helsinki
Discussion

11:15- SESSION INTERNATIONAL NETWORKS, chair Hanna Lappalainen

- Building on Global Earth Observation System and Systems: GEO Cold Regions Initiative ---- the potential interactions with PEEX, Yubao Qiu, Group on Earth Observations (GEO9 Secretariat)

11:30-12:30 Lunch

12:30- SESSION INTERNATIONAL NETWORKS continues, chair T. Petäjä

- The role of the Pan-Eurasian initiative in the global framework of GAW, O. Tarasova WMO
- Development of Integrated Observation Platforms (IOP) in critical regions of climate system: Three cases in China Aijun Ding, Institute for Climate and Global Change Research, Nanjing University
- Introduction to the European Strategy Forum on Research Infrastructures (ESFRI) – Sanna Sorvari, FMI
- Future Earth – Tanja Suni, University of Helsinki/iLEAPS



13:30- SESSION POTENTIAL SUPPORTING MECHANISMS AND INSTRUMENTS, chair M. Kulmala

- European Union - JPI- Climate call, Sanna Sorvari FMI
- Discussion

14:00-14:30 Coffee break

14.30 Transforming PEEX Science plan into Implementation Plan, T. Petäjä, H.K. Lappalainen

- Introduction to Implementation Plan

14:50 PARALLEL SESSIONS OF WORKING GROUPS (1-4) WITH A FOCUS ON PRACTICAL IMPLEMENTATION

All WGs:

- Comments to science plan on topical balance
- Any missing components / topics?

WG-1 Research

- Comments on large scale research questions
- Connections to existing research programs

WG-2 Infra

- Comments on existing collaborative networks
- Most potential candidates for site upgrades: existing infra + geographical representativeness
- Satellite observations
- Initial drafting of PEEX Infrastructure Program

WG-3 Society

- What are the key connections between the society and potential outcomes from the PEEX research?
- Connections to PEEX research infrastructures

WG-4 Knowledge transfer

- Updated education collaborations
- Practical suggestions for PEEX courses with tentative schedule
- Initial drafting of PEEX education Program

17:00-18:00 Presentations from Working Groups, Rapporteurs

WG-1: Research agenda chair S. Zilitinkevich FMI

- Reporters: NN, NN, NN; VM. Kerminen

WG-2: Infrastructures chair T. Petäjä

- Reporters: P. Laj, A. Wiedensohler, H. Lihavainen

WG-3: Society Dimension, chair A. Shvidenko

- Reporters: NN, J. Kujansuu

WG-4: Knowledge Transfer & International Networks chair H. Lappalainen

- Reporters: NN, T. Ruuskanen

- Summary of the day, M. Kulmala

18:30 - Boreal Dinner

20:00 - Sauna

24:00- Bus to Hotel Orivesi

WEDNESDAY 28. AUGUST

08:30 bus from hotel Orivesi to Hyytiälä

09:00-11:00 Next steps

o PEEX Science Plan

o Implementation Plan

o Funding applications

o Next meeting

11:00-12:00 Lunch

Closing of the Workshop



Transport to airport / Helsinki from Hyttiälä at 12:30

APPENDIX-2 Participant list

| | | | |
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PAN EURASIAN EXPERIMENT (PEEX)
 — SPANISH-A NEW MULTINATIONAL, MULTIDISCIPLINARY
 CLIMATE, AIR QUALITY AND ENVIRONMENT
 RESEARCH EFFORT IN ARCTIC AND BOREAL
 PAN-EURASIAN REGIONS

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 MEMO

REF : PEEX MM
 ISSUE : 0.5
 DATE 04.SEP.2013
 PAGE : 10

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