



## **PYRN Newsletter**

**September-October 2013**

Dear PYRN-members,

Welcome back from a great field season (lab season/computer season?!). This newsletter will bring you up to date on what has happened in the permafrost community over the summer, including upcoming conferences, new reports, and opportunities for funding. We are coming up on a number of exciting conferences and meetings in the next few months and hope to see many of you there!

Sincerely,  
The PYRN Executive Committee

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## **Announcements**

### **New knowledge about permafrost improving climate models**

New findings from the Centre for Permafrost, CENPERM, document that permafrost during thawing may result in a substantial release of carbon dioxide into the atmosphere, and that the future water content primarily controlled by the permafrost ice content is crucial to predict the effect of permafrost thawing. The findings may lead to more accurate climate models in the future.

The research results, from an international team coordinated from the Centre for Permafrost, CENPERM, at the Department of Geosciences and Natural Resource Management, University of Copenhagen, were published Sunday 28 July in Nature Climate Change.

The new studies are mainly conducted at the Zackenberg research station in North-East Greenland, but permafrost samples from four other locations in Svalbard and in Canada have also been included and they show a surprising similarity in the loss of carbon over time. The knowledge available so far has primarily been based on measurements of the release of carbon dioxide in short-term studies of up to 3-4 months. The new findings are based on measurements carried out over a 12-year period. Studies from different landforms with different permafrost ice content producing different water content have also been conducted.

The new findings also show that the future water content in the soil is a decisive factor for being able to correctly predict the effect of permafrost thawing. If the permafrost remains water-saturated after thawing, the carbon decomposition rate will be very low, and the release of carbon dioxide will take place over several hundred years, in addition to methane that is produced in waterlogged conditions. The findings can be used directly to improve existing climate models.

Read the Nature Climate Change abstract here:

<http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1955.html>

More info:

[http://www.unis.no/60\\_NEWS/6085\\_Archive\\_2013/n\\_13\\_07\\_30\\_permafrost/new\\_knowledge\\_news\\_30072013.htm](http://www.unis.no/60_NEWS/6085_Archive_2013/n_13_07_30_permafrost/new_knowledge_news_30072013.htm)

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## New book on the eddy covariance method

Dear IPA members:

This e-mail primarily concerns the members of the Permafrost and Climate Group interested in CH<sub>4</sub> and CO<sub>2</sub> release rates from thawing permafrost, and the potential effects on global climate change.

I would like to bring your attention to a new book, which presents guidelines for the micrometeorological techniques of high-speed area-integrated emission measurements of CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>O other gases, heat, and momentum within the atmospheric boundary layer.

This technique, known as the eddy covariance method, has been widely used by micrometeorologists all over the globe since 1980s. World-wide and regional flux networks (e.g., Fluxnet, ICOS, CarboEurope, AmeriFlux, Fluxnet-Canada, AsiaFlux, NEON, etc.) are set up to accumulate/share flux and auxiliary weather the data.

Some members of IPA Permafrost and Climate Group are renown experts in this method, however a number of scientists from related disciplines outside of micrometeorology may not have been exposed to the information about this method.

With this in mind, enclosed please find information on a book titled "Eddy Covariance Method for Scientific, Industrial, Agricultural and Regulatory Applications: a Field Book on Measuring Ecosystem Gas Exchange and Areal Emission Rates".

The book emphasizes general principles, requirements, applications, and processing steps of the eddy covariance method – from planning the experiment, to deploying the equipment, through data processing. It is intended to assist readers in further understanding the method through more advanced references such as other textbooks, network guidelines and journal papers. It is also intended to help technicians, students and new researchers in the field deployment of the eddy covariance method.

The layout is essentially a step-by-step process of planning and execution of eddy covariance experiment, from setting general goals to processing the data. Numerous examples and case studies provided. Book uses non-technical language to be of practical use to those new to this field.

We hope this book would be useful material for lectures, handouts, teaching students or field training of new personnel. There are two formats for the book: (1) PDF Electronic Book (Free); (2) Softbound Hardcopy in full color.

Sincerely,  
George Burba.

Access to the book: [www.licor.com/ec-book](http://www.licor.com/ec-book)

Citation: Burba, G., 2013. Eddy Covariance Method for Scientific, Industrial, Agricultural and Regulatory Applications: a Field Book on Measuring Ecosystem Gas Exchange and Areal Emission Rates. LI-COR Biosciences, Lincoln, USA, Hard- and Softbound, 331 pp.

ISBN: 978-0-61576827-4

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## Reports

### 8th IAG International Conference of Geomorphology

The 8th International Conference on Geomorphology of the International Association of Geomorphologists (IAG) took place from August 27 to 31, 2013 in Paris/France. A session on "Permafrost and periglacial geomorphology" chaired by F. Costard and H. Lantuit was organized in cooperation with the International Permafrost Association (IPA), but quite a few contributions from permafrost and periglacial researchers were also presented in other sessions. Therefore, you might want to check out the website of the conference at <http://www.geomorphology-iag-paris2013.com/>.

## PYRN Bip update

The PYRN ExCom is starting to work on updating the [PYRN Bip](#). Agnès Rivière from the PYRN Council has volunteered to update the PYRN Bip. We encourage all PYRN members to help on this task by sending to Agnès ([agnes.riviere1@gmail.com](mailto:agnes.riviere1@gmail.com)) references of Permafrost related theses, reports and papers!

## Young Researchers meeting in Abisko, Sweden

On the 20 of September members from PYRN, APECS, ADPAT and PAGE21 had a meeting in Abisko, Sweden to organize the details of the Permafrost Young Researchers Workshop that will be held during EUCOP4 in Evora, Portugal.

The workshop will involve approximately 75 to 90 participants all of them are early career scientists. A peer-reviewed application process for receiving funds will be conducted by the workshop organizers. The workshop will have a social event the night before to welcome the participants. The day of the workshop there will be inspirational key-notes and several break-out sessions. At the end of the day there will be a meeting with all participants to discuss topics for future research avenues

More information: [Here](#)



## Earth Cryology: XXI century

About 150 participants from all over the world came to Puschino in the end of September to take part in the International Conference "Earth Cryology: XXI century". Full-size

natural carcass of Late Pleistocene mammoth called "Vasya" friendly provided by theatre-museum "Ice Age" greeted guests of the Institute of Physico-chemical and Biological Problems in Soil Science RAS. Four days of scientific reports, equipment presentations, hot discussions and round tables made the week. More than 25 young scientists took part in PYRN meeting at the local pub where they could discuss scientific and career issues in informal atmosphere. After the conference participants visited country-house estate of Leo Tolstoi in Yasnaya Polyana. All of the guests noted high scientific and organizational level of the event and the quiet beauty of Puschino in autumn. Alexey Lupachev.



Video: [Here](#)

## IPCC's Summary for Policymakers

IPCC's Summary for Policymakers (SPM) for the fifth assessment report for the physical science basis of climate change was approved during a meeting of working group one of the IPCC in Stockholm September 23-26. APECS Sweden was there with 8 volunteers who helped out during the conference, night and day for the four days of the meeting. The Summary for Policymakers was approved sentence by sentence, figure by figure and table by table by 252 delegates from 110 countries. APECS Sweden's volunteers helped out on the floor in the conference hall and got to hear all the negotiations. One of them was PYRN member Ylva Sjöberg.



- I was very impressed by how smooth and constructive the negotiations were. Even though so many delegates from different countries and with different views on climate change got to speak their opinions all of the text had to be approved in consensus and the chairs did an amazing job to make this happen. No one got a lot of sleep this week but there was still a very good atmosphere in the conference hall during the entire meeting.

The new SPM generally shows a greater certainty in the anthropogenic causes and the effects of climate change since the last report from 2007, with great improvements in the sections about projected sea level rise, to name one example.

APECS Sweden would definitely recommend young researchers in other countries to contact the organizers of IPCC conferences about volunteering (for example the coming IPCC conferences in Yokohama, Berlin and Copenhagen). It is a great learning experience about one of the most important issues of our time.

Read the full summary for policymakers [Here](#)

Figure caption: Four of our volunteers together with the staff from the Swedish environmental protection agency and IPCC Chair Rajendra Pachauri. Photo: Kerstin Jansbo.

## APECS Annual Report 2012-2013 released

All highlights can be found in the 2012-2013 APECS Annual Report summarized by the outgoing 2012-2013 APECS Executive Committee: [Here](#)



Check out the PYRN contribution on page 98: [Here](#)

## Upcoming Meetings



### AGU travel grants

The U.S. Permafrost Association will provide travel grants for U.S.-based students and post-graduate researchers (within six years of their terminal degree) to attend the AGU fall meeting this December. Successful applicants will receive \$500.

Go to [uspermafrost.org](http://uspermafrost.org) for more information on deadlines and application details. Contact Gerald Frost ([gvf5y@virginia.edu](mailto:gvf5y@virginia.edu)) with any questions.



### AGU 2013 - Permafrost session

At the AGU (9-13 December, 2013), the session B071 deals with **Vulnerability of Permafrost Carbon to Climate Change**.

Permafrost zone soils contain 1670 Pg of carbon (C). Permafrost degradation can change ecosystem C storage by enhancing microbial activity and ecosystem respiration, but can also stimulate plant growth and increase C stored in vegetation and surface soil. This session invites papers that examine factors causing losses and gains in ecosystem C storage that relate to the question: What is the magnitude, timing and form of C release from permafrost zone ecosystems to the atmosphere in a changing climate? Papers may address any aspect of this topic from microbial communities to the global scale, using a range of measurements or modeling to detect and forecast permafrost thaw and the influence on the C cycle and future climate.

Early [registration](#) rates apply until 8 November 2013, 11:59 P.M. EST.

Please find additional information [here](#).

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## EGU General Assembly 2014

The EGU General Assembly will take place from 27 April – 02 May 2014 in Vienna, Austria.

Check the schedule for deadlines and milestones [here](#). The call for papers starts at 10 October, the application for support ends at 29 November 2013.

More information: <http://www.equ2014.eu/>



## 4th European Conference on Permafrost (EUCOP4)

Time flies - particularly in summer! The [online registration](#) for EUCOP 4 is now open! The preliminary program and additional information is now available [here](#).

### The registration fee includes:

- Conference documentation;
- Lunches and coffee-breaks during the conference;
- Ice-breaker (18 June);
- Dinners (19 and 20 June);
- Half-day sightseeing excursion (20 June).

**A Permafrost Young Researchers Workshop** will be hosted in the context of the conference. This workshop will be organized in a joint effort of PYRN (Permafrost Young Researchers Network), APECS (Association of Polar Early Career Scientists) and the young researcher representatives of the two projects PAGE21 (Changing Permafrost in the Arctic and its Global Effects in the 21st Century) and ADAPT (Arctic Development and Adaptation to Permafrost in Transition).

Find out more about the workshop on the conference website: <http://www.eucop4.org/permafrost-young-researchers-workshop.html>

### Abstract submission for oral and poster sessions

Deadline for submitting your abstracts: 15 December 2013.

Information on abstract acceptance: 30 January 2014.

Further information [here](#).

# Permafrost Young Researchers Workshop 2014



## Adapt Early Career Researchers Association

### Intensive permafrost sampling and monitoring in Canada's Arctic, summer 2013

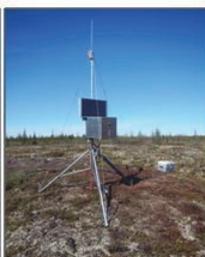


ADAPT, Arctic Development and Adaptation to Permafrost in Transition, has developed standard protocols to coordinate and increase common fieldwork sampling and recording efforts in northern Canada. The aim is to optimize intersite comparisons to maximize exchange and use of data and information between national and international researchers.

The following standard protocols have been developed:



1. Permafrost drilling with core recovery



2. Active layer and borehole monitoring



3. Active layer sampling



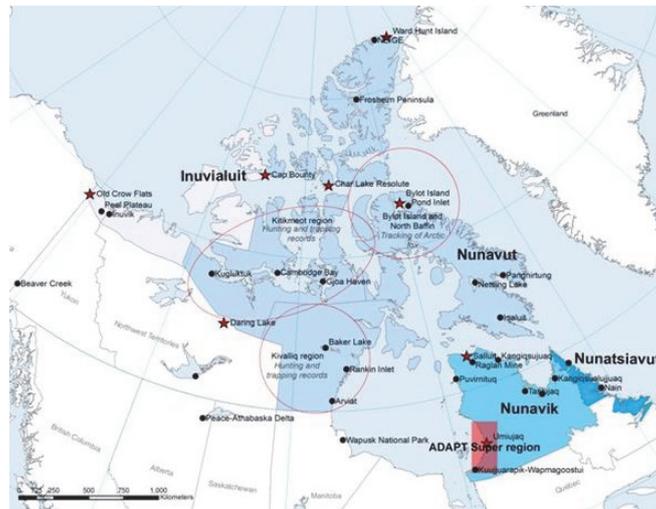
4. Vegetation description



5. Organic layer sampling for C14 and C13 determination

More information about these standard sampling protocols is available at:  
<http://www.cen.ulaval.ca/adapt/protocols/adapt.php>

The ADAPT protocols have been applied to 12 different sites during the 2013 field season: Ward Hunt, Bylot, Iqaluit, Beaver Creek, Peel Plateau, Daring Lake, Churchill, Lac-à-l'Eau-Claire (Clear Water Lake), Cape Bounty, Kuujuarapik (Palsa Valley), Umiujaq (Vallée des Trois) and Umiujaq (Shelfrake River).



All data recorded and produced with these ADAPT standard protocols will be published on the Nordicana D database ([www.cen.ulaval.ca/nordicanad/](http://www.cen.ulaval.ca/nordicanad/)) and the metadata will also be available on the Polar Data Catalogue portal ([www.polardata.ca](http://www.polardata.ca)).

## **PYRN Russia meeting**

**"Microbes in the permafrost of volcanoes: Life on the Edge".  
Vasily Mironov, PhD in Biology, Soil Cryology Laboratory,  
Institute of Physicochemical and biological problems in Soil  
Science of Russian Academy of Sciences.**

24/10/2013, 6.30 p.m. (Moscow time).

Any questions to Julia Stanilovskaya [stanik85@mail.ru](mailto:stanik85@mail.ru)

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