

# **15<sup>th</sup> ITEX Workshop: *ITEX during the International Polar Year***

**Reykjavik, Iceland, 10-12 October 2008**

## **Workshop Report**

The 15<sup>th</sup> ITEX Workshop was held at the Agricultural University of Iceland, in Reykjavik, from 10 to 12 October 2008. Thirty-four people from nine countries participated in presentations and discussions of the newest results from the ITEX network and the plans for the next three to five years. The Workshop was a wonderful example of the camaraderie that has become the hallmark of ITEX, which was a testament to our Icelandic hosts. It is clear that ITEX is still vital and growing, and has a very exciting future. This short report is meant to provide a succinct description of the Workshop, highlighting the decisions that were made regarding the next meetings.

The Workshop began with a day of presentations from the various research groups active in the International Polar Year (IPY). There were 17 research presentations through the day roughly grouped into process-based studies, examining carbon fluxes and soil processes, and plant response studies. It was very interesting to see the increased number of process studies using the ITEX network to understand effects of elevated temperature on carbon and nutrient dynamics. Posters were presented during the second morning and included a number of studies directly and indirectly linked to ITEX. The program with abstracts of the presentations will be available on the ITEX web site:

[www.geog.ubc.ca/itex](http://www.geog.ubc.ca/itex).

### **International Polar Year research and syntheses**

Four synthesis studies were proposed for the IPY using the ITEX network. These syntheses will build on the previous synthetic publications (e.g. Henry 1997; Arft et al. 1999; Walker et al. 2006; Oberbauer et al. 2007) and involve new variables.

#### ***Synthesis of ecosystem response indicators***

Steve Oberbauer described the work that he, Jeff Welker and others are leading on a cross-site comparison of ecosystem process indicators. Leaf samples from warming experiments across the ITEX network are being analyzed for C:N and isotope composition in Jeff's lab to provide a sense of how warming has affected the ecophysiology of the plants. Part of the work involves a collection of leaves of important species through the growing season, including fresh litter at the end of the season. Collections at some sites will be conducted during the 2009 field season. Robert Pattison, a post doc at University of Alaska Anchorage, is leading the synthesis. No workshop is planned for this synthesis

#### ***Synthesis of changes in plant traits***

Steve also described the plant trait synthesis that will build on the work in Arft et al. (1999). The idea will be to examine phenology, growth and reproductive variables of the major species at each ITEX site and to use meta-analysis to determine the effects of the warming experiments. Control-plot data will also be analyzed for changes in plant traits that may correspond to changes in climate over the 10+ years at most ITEX sites. Tiffany Troxler, a post doc in Steve Oberbauer's group at Florida

International University, will lead this synthesis. It was agreed that we will hold a plant trait synthesis workshop in October 2009 and that Steve will look into holding the workshop at a research station in Costa Rica. Instructions for submission of data and attendance at the workshop will be forwarded from Tiffany in the coming weeks.

### ***Plant community change synthesis***

Sarah Elmendorf, a post doc with Greg Henry at the University of British Columbia, is leading the synthesis of the plant community data, which will consist of two parts: 1) an examination of the control plots over time; and 2) a repeat of the Walker et al. (2006) meta-analysis of the responses to the warming experiments. Data will also be collected from other related experiments, such as warming combined with snow depth manipulations or fertilization. Sarah presented some preliminary analyses of the plant community data submitted thus far that will allow an examination of changes in control plots over the last 10-20 years. Sarah showed that there has been noticeable change in the control plots at some of the sites and that the changes were generally similar to those in the OTCs: increased cover of graminoids and shrubs. However, there are many more data to add to the study and much more analysis. It was proposed that we hold a plant community change synthesis workshop in the spring of 2010. Provisionally, we decided that the workshop should be held in Europe, and Phil Wookey will look into holding the workshop at the University of Stirling, in Scotland.

### ***Soil properties synthesis***

As part of the Canadian IPY project, funds are available for a synthesis of the effects of long-term warming on soil properties; in particular, total carbon and nitrogen concentrations and nutrient availability. Sarah Elmendorf organized the collection of soil samples from OTCs and control plots from ITEX sites and also arranged for ion exchange membranes (IEMs) to be sent to participating sites and placed in the soils for a minimum length of time during the 2008 season. Participants are either having their samples analyzed and will provide data or have sent soil samples to Sarah in Vancouver for analysis at a Canadian soils lab. The IEMs are provided by a commercial lab in Canada and they will be sent to them for analysis. We have asked to have inorganic and organic N analyzed. Sarah will provide a first set of analyses of these data, and they may be included in the ecosystem indicators synthesis.

### **ITEX Business**

The Steering Committee members at the Workshop (Greg Henry, Inga Svala Jónsdóttir, Steve Oberbauer, Ørian Totland, and Phil Wookey) met during the third day to go over the planning for the next meetings and to discuss the process for changing the Chair. Greg Henry has served as Chair of ITEX since 2003, and is now into his 6<sup>th</sup> year. The bylaws of ITEX state that the Chair should not serve for more than four years, although all former Chairs have held the office for at least 6 years. As there had not been sufficient time to consult with potential new Chair candidates before and during the meeting, the Steering Committee recommended that Greg continue to hold the Chair for one more year, and that candidates would be sought in order to hold an election at the next ITEX Workshop. Greg has agreed to this, but will step down at the next Workshop, which is tentatively scheduled to coincide with the plant trait synthesis workshop in Costa Rica in October 2009. ITEX participants are encouraged to nominate potential candidates or to come forward as candidates to take over the reigns in 2009. Nominations can be sent to Phil Wookey or Greg Henry.

### **ITEX Web site update**

The ITEX web site ([www.geog.ubc.ca/itex](http://www.geog.ubc.ca/itex)) has been languishing somewhat over the past year. The original web site had been designed and maintained by a group linked to ARCUS in Fairbanks, Alaska, funded by NSF. In 2005, the funding ran out and the site was transferred to Greg Henry. The original site had to be translated and re-programmed to work on the Unix servers at University of British Columbia. A basic translation was eventually finished in 2006, although some of the interactive features and the data base structure required more work. Greg is happy to report that the final updates are being tested and the new site will be up and running in November 2008. All participants will then be able to access and update their own information. We will welcome any comments and suggestions to improve the site. Look for an announcement in November.

### **ITEX logo**

It was generally agreed that we would adopt a new logo for ITEX, as the current logo has “borrowed elements”, and does not accurately reflect the research activities in ITEX. One possibility shown by Bob Hollister's group, would be to re-adopt the old ITEX logo without the MAB symbol (Man and the Biosphere, a UN program, was one of the original sponsors of ITEX). We will compile a few options and ask for input from ITEXers over the coming weeks.

### **ITEX XX – 20<sup>th</sup> Anniversary Conference**

In 2010, ITEX will be 20 years old! It will also be one year after the (official) end of the IPY. We will celebrate both of these events with a conference in the autumn of 2010 that will feature the long-term results from ITEX research, including the syntheses described above. However, we will also incorporate other research on tundra ecosystems around the world. Greg Henry has agreed to organize the 20<sup>th</sup> Anniversary in Canada – likely at a suitable venue on Vancouver Island, British Columbia. We will move ahead with this event over the next few months and will let ITEXers know as early as possible so plans can be made. In the meantime, Greg welcomes any and all ideas for the conference. This will be an important event for ITEX!

### **ITEX in Iceland – excursion and banquet**

Our hosts organized a wonderful excursion on Saturday afternoon (October 11) to see some of the spectacular landscapes and history of Iceland. One of the many highlights was a visit to Þingvellir, where the general assembly or Althing of the Icelandic chieftains took place each summer from 930 to 1798. The site is a UNESCO World Heritage site. It is also a wonderful place to see the fact that Iceland straddles the mid-Atlantic ridge and the tectonic plates are pulling apart. We also visited the ITEX site near the Þingvellir National Park, where over a decade of warming has caused very little response – due to the dominant moss cover (*Racomitrium lanuginosum*). The banquet was held at an excellent seafood restaurant in the village of Stokkseryri SE of Reykjavik. The night ended with a spectacular display of the Northern Lights (Aurora Borealis).

Thank you again to the Organizing Committee for an excellent ITEX Workshop.

### **References**

- Arft, A. M. et al. 1999. Ecological Monographs 69: 491-511.
- Henry, G. H. R. (ed.) 1997. Global Change Biology 3 (Suppl. 1).
- Oberbauer, S. F. et al. 2007. Ecological Monographs 77: 221-238
- Walker, M. D., et al. 2006. PNAS 103: 1342-1346.