



# International Tundra Experiment

## Update-February 1993 (No. 4)

*Ulf Molau, chair*

### ITEX consolidated

ITEX is now approaching its final shape. Field experiences of the various suggested methods and techniques were acquired during the summer of 1992 at many of the ITEX sites (see Update No. 3). With this firm empiric basis, the discussions during the Fourth ITEX Workshop in Oulu, Finland, in December 1992, became exceedingly substantial and rewarding (see report below). From a plethora of suggested methods, ITEX was trimmed to an adequate level with regard to simplicity and specifics. The resulting design is simple enough to enable the basic experiment to be implemented at all identified ITEX sites, at the same time as it allows among-site variation in technical and financial prerequisites.

Today's troublesome economical situation in Russia has drastically reduced the potential for experimental research for its scientists, and also affects their possibilities of implementation of ITEX. These matters were thoroughly considered at the Oulu meeting, and we identified many possible ways of international co-operation to eliminate the obstacles. I feel rather convinced that we will see a massive Russian ITEX participation in the near future, provided that we make use of ITEX's intrinsic properties as a vehicle for international research co-operation and maintain optimism and make an effort to realize our dream.

It is now time to raise the funds necessary for your country's share of the costs of administration at DPC (Danish Polar Center) in Copenhagen. According to the ITEX-DPC treaty, a total of 40,000 Danish crowns (approx. US\$ 6,000) are required for 1993. Since the ability to contribute varies among the participant countries, I urge all ITEX parties from countries with functioning MAB committees or corresponding boards to aim for a contribution in the range of \$1,500–2,000. Note that ITEX is now officially affiliated with IGBP-GCTE (see below), which may be important in fund-raising for DPC as well as for your national ITEX program, since IGBP is regarded a high-priority program by most national research councils.

### Report on the Fourth ITEX Workshop

The fourth ITEX Workshop was held at the University of Oulu, Finland, 9–11 December 1992. At this occasion about 25 ITEX members were gathered representing all participating countries but Iceland and UK. In particular, we want to thank Dr. Kari Laine and his Finnish associates for arranging a very nice and prosperous workshop. The first part of the meeting was devoted to presentation of progress from the field sites, methodology, preliminary results, and planned projects for the future. In accordance with the agenda the discussions led to the following set of agreements:

**1. Temperature enhancement devices:** As primary temperature enhancement device the hexangular open top chamber was chosen for experiments with whole plant communities and large plants. All participants are encouraged to erect these domes made of fiber-glass with the sides tied together so that the angle to the ground is 60°. Alternatively, ITEX Corners may be used in case it is impossible to establish open top chambers. Preferably both types of temperature enhancement devices should be used. In any case temperature measurements must be carried out in the device in use. It is recommended this be on or in the plants rather than on the ground or in the air.

**2. Revised ITEX MANUAL:** The next version of the ITEX MANUAL will be our final one. It must be issued in May 1993, well in advance of the field season. It should include protocols for all aspects of the ITEX cooperation, and presented in a uniform lay-out. Contributions must be at the Danish Polar Center not later than 20 March 1993. It will occur in Palatino, but any style and font may be accepted in the manuscripts. DPC takes care of the printing and distribution of the manual after final editing by Ulf Molau.

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**3. Response variables for the ITEX plants:** A set of species-specific variables were selected after discussion in plenum. A protocol for each of the eight selected group 1 ITEX plants will be included in the ITEX MANUAL. Sylvia Edlund kindly accepted to emend the first raw edition in agreement with the comments from the participants. Preferentially a one-page protocol for each ITEX species should be used, and high priority variables stressed.

**4. Contributed papers:** Contributed papers may be worked out for each of the eight group 1 ITEX species in conjunction with the next ITEX workshop. For each species a group of ITEXers compile the results based on the individual presentations at the next ITEX workshop. A chairman selected for each species is responsible for the co-operation within the group, and for the final presentation of the paper. Papers should be published in Arctic and Alpine Research, either as a separate volume or as part of a volume.

**5. Common garden experiment:** A common garden experiment will be established at the newly opened Botanical Garden at Tromsø University, Norway. Arve Elvebakk, the new ITEX representative from Norway, will solicit the receipt of seeds and plant parts for propagation of plants from any of the ITEX sites.

**6. Questionnaire:** The Finnish call for contributions to a catalogue of long time monitoring of plants, animals, or geological processes has resulted in a total of 42 responses. The results will be presented in a separate publication in the Arctic and Alpine Research by Kari Laine and Urban Nordenhäll.

**7. Next ITEX meeting:** The next ITEX workshop will be held in Russia in early 1994, probably in St. Petersburg or near Moscow.

*Reported by Per Mølgaard*

## Affiliation with IGBP

ITEX is now officially acknowledged by GCTE (Global Change & Terrestrial Ecosystems) of the IGBP. The Scientific Steering Committee (SSC) of GCTE considered the submissions of ITEX and other conceptually related projects during a meeting in Bayreuth, Germany, in late

October, 1992. Since the projects span a range of studies and levels of detail, they were only partly accepted as contributing to GCTE Core Research, but most components are regarded as contributions to GCTE Regional/National Research, Category 2. In the case of ITEX, the SSC identified two potential components, viz., a modelling group and experimental studies on the interactive effects of carbon dioxide and temperature, as contributing to the GCTE Core Research Programme, while the basic ITEX temperature enhancement project was classified as Category 2.

ITEX-related experimental studies on carbon dioxide flux and interaction with temperature will be performed at several ITEX sites in Alaska and Russia; these projects thus fulfil the requirements for GCTE Core Research. The subject was discussed at the Oulu meeting, and it was concluded that this kind of experimentation could be performed only at a few sites and should not be included in the basic ITEX design. It was also decided that the involvement of ITEX in GCTE's Long-term Ecological Modelling Activity (LEMA) should be as providers of parameters and input rather than modelling development *per se*. We will encourage carbon dioxide experiments and modellers to use our sites and data, but neither are principal goals of ITEX.

Finally, it was strongly endorsed by the SSC that GCTE should, as far as possible, establish collaboration with ITEX and use ITEX sites during the developments of the GCTE Core Research Programme in the arctic/boreal region. Possibly, more parts of ITEX will be entrained into the GCTE Core Research Programme as it develops.

This clear endorsement of ITEX by GCTE and the establishment of future collaboration will have several advantages for ITEX and its participating research groups. Not only can we expect a good support from the GCTE when approaching our national foundations for raising funds for ITEX research, but also we can pass our resulting data on to be used in modelling at the ecosystem level. We acknowledge the courtesy of GCTE Chairman Brian Walker and Core Project Officer Will Steffen for considering our affiliation with GCTE.

*Ulf Molau*

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## Announcement

The International Symposium on the Ecological Effects of Arctic Airborne Contaminants will be held in Reykjavik, Iceland, on October 4–8, 1993. Its purpose is to bring together Arctic researchers from throughout the world in a joint effort to document the current state of knowledge regarding the extent and magnitude of known and potential ecological effects of airborne contaminants in the Arctic. Technical sessions will focus on the following topic areas: pathways of contaminants in the arctic biosphere, distribution of contaminants in the arctic biosphere, human health issues, arctic ecosystem responses to atmospheric contaminants, contaminant relationships to climatic change, and information gaps and research needs. For further information and a copy of the abstract submittal form, please contact: Dr. Dixon Landers, U.S. EPA Environmental Research Laboratory, 200 SW 35th Street, Corvallis, OR 97333, U.S.A. Fax: (503) 754-4338. Internet: LANDERS@HEART.COR.EPA.GOV. Voice: (503) 754-4427.

## Other Meetings and News

20 - 22 May, 1993. Environmental Information Management and Analysis: Ecosystem to Global Scales. Albuquerque, New Mexico. Contact: James Brunt, Dept. of Biology, Univ. of New Mexico, Albuquerque, New Mexico 87196, USA; FAX (505) 277-0304.

23 - 27 August, 1993. Global Change and Terrestrial Arctic Ecosystems: An International Conference. Trondheim, Norway. Contact: Jarle Holten, NINA, Tungasletta 2, N-7004 Trondheim, Norway; FAX +47-7-915-433.

16 - 21 February, 1994. Circumpolar Ecosystems in Winter 3. Churchill, Manitoba, Canada, Contact: CEW-3, Churchill Northern Studies Centre, P.O. Box 610, Churchill, Manitoba, R0B 0E0, Canada.

22 - 25 March, 1994. Polar Tech '94. An international conference on development and commercial utilization of technologies in polar

regions. Luleå, Sweden. Contact: Lena Allheim Karbin, CENTEK, Luleå University of Technology, S-951 87 Luleå, Sweden.

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We will circulate the next update in October 1993. Please mail project updates, prospects for funding, notes on methods and field experiences, upcoming events and meetings, description of field sites, etc., to the ITEX secretariat, Danish Polar Center, Strandgade 100, Build.1, DK-1401 Copenhagen K, Denmark (FAX +45-32-880101), or directly to Ulf Molau, Dept. of Systematic Botany, Carl Skottsbergs Gata 22, S-413 19 Göteborg, Sweden (or FAX +46-31-823975)

Please share this bulletin with others and tell them that they may contact Danish Polar Center for information. ITEX encourages all tundra specialists and students to become involved.

