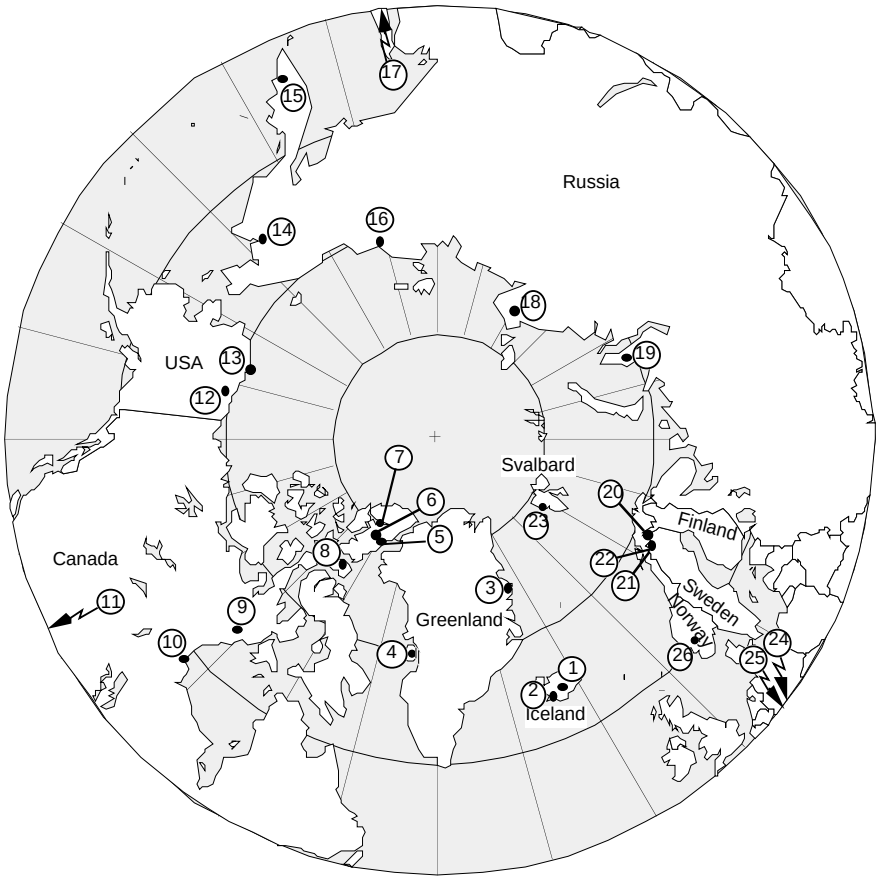
International Tundra Experiment

ITEX
Manual

Second Edition



Edited by
Ulf Molau & Per Mølgaard

Danish Polar Center
June 1996

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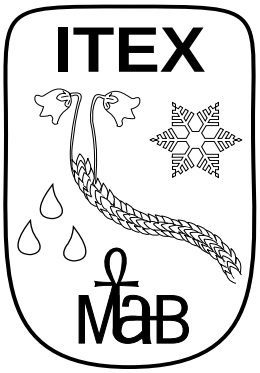

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Content

APPENDICES: Tables and Protocols

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FOREWORD

Since the publication of the first edition of the ITEX Manual in 1993, amendments, improved protocols, and entire new chapters have accumulated. Taking the current rapid development within ITEX into account, an improved version of the Manual is an absolute need. A common manual is crucial for co-ordination and conformity in an international program of this size and complexity, comprising about thirty different field sites and research parties in thirteen different countries. The original decision to prepare an ITEX Manual was taken during the Third ITEX Workshop at Boulder, Colorado, March, 1992. A preliminary version was circulated in May, 1992. The manual was critically tested during the summer, and evaluated and revised during the Fourth ITEX Workshop at Oulu, Finland, December, 1992. In the first edition of the ITEX Manual, published by the Danish Polar Center in 1993, the temperature enhancement manipulation was finally standardised, data gathering facilitated, and report forms for all climate measures and plant response variables provided.

In this second edition, the Manual covers not only the basic monitoring and temperature manipulation experiment (ITEX "Level 1"), but also documentation processes, statistical analysis, higher-level studies such as "seed flux", and an introduction to permafrost monitoring. The latter is an outcome of the close and prosperous collaboration between ITEX and the International Permafrost Association (IPA). The basic chapters on climate stations (Molau), experimental designs (Marion), and plant response variables (Molau & Edlund) are only slightly modified from the first edition, and are compulsory for all sites, normative for ITEX from 1993 on. Besides of setting the standards, each of these chapters provides opportunities for modifications and adaptation of ITEX to various kinds of sites (e.g., various chamber sizes, addition of ITEX Corners, a menu of ITEX species to select suitable plants from, etc.). Hopefully, the simplicity will enable implementation and maintenance of the basic program at most of the identified sites. The chapters dealing with permafrost monitoring (Nelson et al.) and monitoring of snow and lake ice (Molau) are optional, but highly recommended to be included in the monitoring at as many sites as possible, since such data provides valuable climatic information. This edition also includes chapters on pollination and insect herbivory (Böcher; Mølgaard and Morewood), which expand the ITEX activities into the arctic fauna as another dependent variable in a changing climate.

As we learned from the latest workshop in Copenhagen May 1996, new chapters are still to be added. Therefore we have decided not to bind this hard copy of the ITEX Manual to make it easier to include additional material. Revision of the Manual and new chapters will automatically be released to the mailing list on the net. However, it is still possible to receive the Manual in print on request to the Danish Polar Center.

We wish to thank the contributing authors of this second edition of the ITEX Manual, as well as all those who have critically read and commented on earlier versions and drafts.

Copenhagen, June 1996

Ulf Molau
Chairman

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