

## INTERSITE CLIMATE ACTIVITIES

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#### INTRODUCTION

Following the initial establishment of the Long Term Ecological Program (LTER) a Meteorological Committee was organized under the co-chairpersonship of Dr. Harvey L. Ragsdale and Dr. Lloyd W. Swift of the Coweeta LTER site. In 1985, the committee was re-established by the central coordinating committee of LTER as a climate committee whose tasks were to complete a document for standardization of meteorological measurements made at LTER sites and to prepare a climatic description of the sites. Both of these tasks are now finished. In this report the end products are described along with some plans for future work.

#### STANDARDIZED METEOROLOGICAL MEASUREMENTS FOR LTER RESEARCH SITES

This document was completed and disseminated in the summer of 1986. Four hardbound, looseleaf copies were sent to each site. Fifty softbound copies were also made and later distributed on request. The existence of the document was reported in the Bulletin of the Ecological Society of America (Greenland, 1986), the Bulletin of the American Meteorological Society, the Newsletter of the Association of American Geographers, and the Transactions of the American Geophysical Union (EOS).

The document is the LTER guide for assembling meteorological data. It defines, for the LTER program, the measurement and reporting standards for meteorological data. Standards are based on LTER documents, the needs at existing LTER sites, other standards existing in the literature, and the substantial experience of current LTER scientists.

The objectives of standardized meteorological measurements are:

- 1) establish baseline meteorological measurements to characterize each LTER site and enable intersite comparisons,
- 2) document for LTER objectives both cyclic and long-term changes in the physical environment,
- 3) provide a detailed climatic history for each site's core research program to correlate with bio-ecological phenomena and to provide data for modeling,
- 4) provide a basis for coordinating specialized or short-term meteorological measurements at two or more sites when such measurements are required for specific research problems.

The Climate Committee believes that these objectives were met by the document and that it will serve the LTER program in

the years to come. Appendix 1 lists the contents of the document and Appendix 2 lists the 39 individuals, agencies and institutions that have requested copies of the document.

## THE CLIMATES OF THE LONG-TERM ECOLOGICAL RESEARCH SITES

This monograph which is shortly to be published as an INSTAAR Occasional Paper analyses the monthly mean temperature and precipitation values for the standard period 1951-80 for the eleven LTER sites. One chapter is devoted to each site and includes a site description, two photos of the site, an account of the major vegetation communities, an explanation of the synoptic climatology at the site, the water balance, and the climatic factors affecting the flora and fauna. Each chapter concludes with tables and diagrams of the climate statistics precipitation data for the period 1951-80. Some sites have additional climatic data. The study begins with a chapter on the LTER climate program and considerations necessary to present the data and it ends with a chapter comparing the climate of the eleven sites in various ways. Examples of the climate comparisons are given in Figures 1 and 2.

## FUTURE WORK

It is planned to develop a new proposal to the Intersite Coordination Grant this summer for further activities of the Climate Committee.

Although there are many potential areas of future research in LTER bioclimatology, one that seems to have interest to many members is to investigate climatic change at the LTER sites. Some members have already expressed an interest in this topic which is clearly appropriate for long-term research. Within the next few weeks a letter will be mailed to the committee members to better gauge the interest in this topic. At this time it is anticipated that there would be a two day workshop in the summer of 1988 held at the Mountain Research Station of the Niwot Ridge / Green Lakes Valley site where each member would give a paper addressing the topic of climate change at their site. Such questions as what constitutes a climate change at the site, how is it defined, what effect does it have on the ecosystem, would be investigated. The papers given would be collected and published in a volume. Especially important in this volume would be a chapter identifying similarities and dissimilarities in climate change and variation across the LTER network arising from the individual studies.

## ACKNOWLEDGEMENT

The work of the Climate Committee could not have been achieved without the help of all the individuals of the committee who freely devoted their time to the projects. The people on the current committee who have helped in so many ways are listed in Appendix 3.

REFERENCE

Greenland, D. 1986. Standardized Meteorological Measurements for Long-Term Ecological Research Sites. Bulletin of the Ecological Society of America 67(4)275-277.

APPENDIX 1

STANDARDIZED METEOROLOGICAL MEASUREMENTS FOR LTER RESEARCH SITES

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APPENDIX 3.

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FIGS 1 and 2.

### MOISTURE RELATIONS BETWEEN SITES

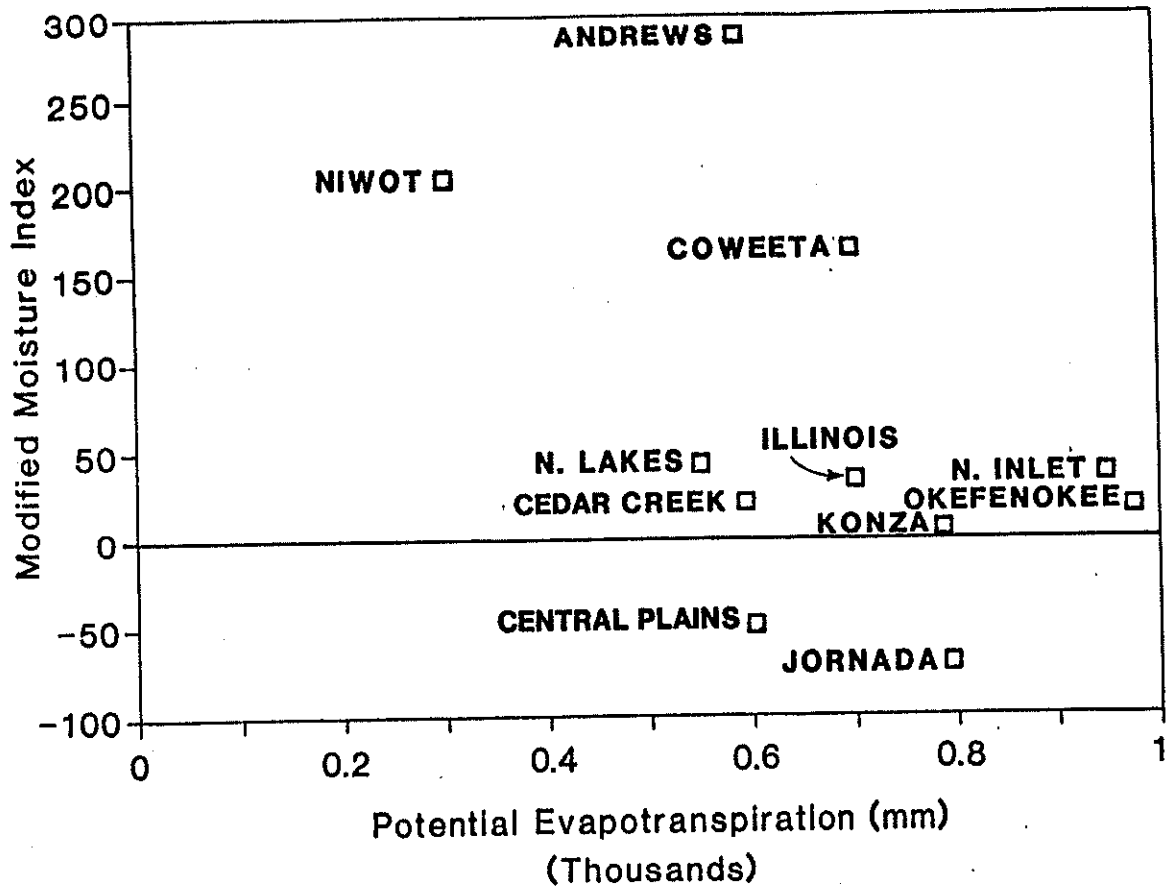


FIG 1

### ANNUAL TEMPERATURE AND PRECIPITATION CLUSTERS

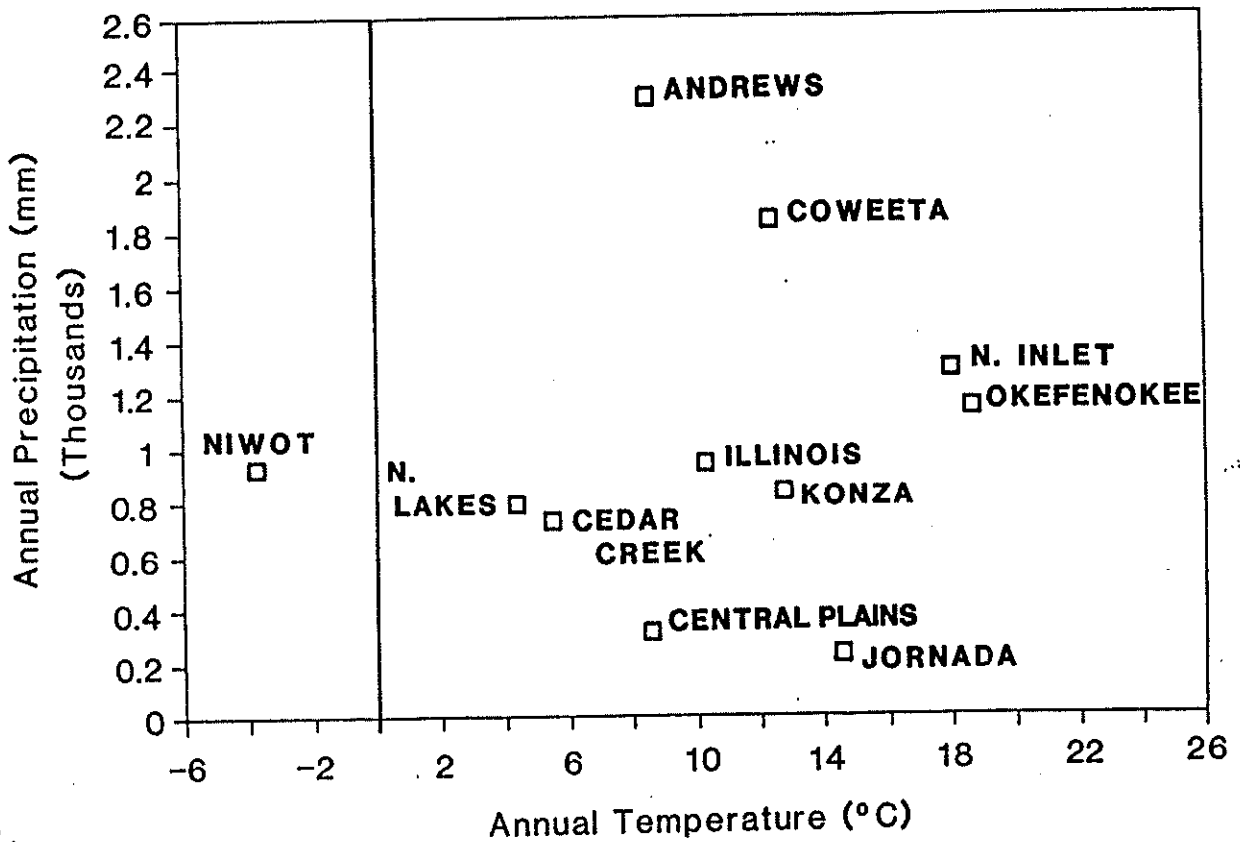


FIG 2.