

Center for Great Plains Studies  
1213 Oldfather Hall  
Lincoln, NE 68588-0314



# climate change on the great plains

**LOOKING BACK  
FROM THE  
TWENTY-FIRST CENTURY:  
IMPACTS OF CLIMATE CHANGE  
ON THE GREAT PLAINS**

**14th Annual Symposium**  
Sponsored by the  
**CENTER FOR GREAT PLAINS STUDIES**  
University of Nebraska-Lincoln

5-7 April 1990  
Lincoln Hilton  
9th and P Streets  
Lincoln, Nebraska

Non-Profit Org.  
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**PAID**  
Lincoln, Nebraska  
Permit No. 46

## 14th ANNUAL SYMPOSIUM

THURSDAY 5 APRIL 1990 *evening*

7:30 P.M. OPENING, Love Library Auditorium  
13th & R Streets, University of Nebraska-Lincoln campus  
WELCOME

**John Wunder**, Director, Center for Great Plains Studies  
University of Nebraska-Lincoln  
**Martin Massengale**, Interim President, University of  
Nebraska; Chancellor, University of Nebraska-Lincoln

### INTRODUCTION

1. GREAT PLAINS CLIMATE CHANGE IN  
PERSPECTIVE  
**Kenneth Dewey**, Chair of symposium committee, Geography,  
University of Nebraska-Lincoln

### KEYNOTE ADDRESS

■ *Global Climate Change and the Great Plains*  
**Thomas R. Karl**, Climate Perspectives Branch, National  
Climatic Data Center, NOAA, Asheville, North Carolina

CHANCELLOR'S RECEPTION *following*  
Center for Great Plains Studies Art Collection  
205 Love Library

FRIDAY 6 APRIL 1990 *morning*

8:00 A.M. REGISTRATION, Lincoln Hilton Hotel

8:30 A.M. PLENARY SESSION

2. CULTURAL RESPONSE TO CLIMATE CHANGE  
Chair: **Jeanne Kay**, Geography, University of Nebraska-  
Lincoln  
■ *Social Adaptation to Rapid Climate Change*  
**William Riebsame**, Natural Hazards Research & Applications  
Information Center, University of Colorado  
■ *"April is the Cruellest Month": The Meanings of Drought in  
Great Plains Fiction*  
**Reginald Dyck**, English, University of Washington  
■ *Lowering Real Interest Rates Could Slow Greenhouse Warming*  
**Craig S. Marxsen**, Economics, Kearney State College

10:00 A.M. BREAK

10:30 A.M.

3.A. CLIMATE CHANGE DATA AND ANALYSIS  
Chair: **Blaine Blad**, Agricultural Meteorology, University of  
Nebraska-Lincoln  
■ *A Search for Sub-Regional Scenarios of Climate Change Within  
the Great Plains*  
**Michael Glantz**, Environmental and Societal Impacts Group,  
NCAR, Boulder, Colorado  
■ *Observed Variations in Seasonal Temperatures at Selected High  
Plains Locations During the Past Century*  
**Thomas B. McKee** and **Nolan J. Doesken**, Atmospheric  
Science, Colorado State University

3.B. VARIATIONS IN WIND EROSION & DEPOSITION  
Chair: **William Wayne**, Geology, University of Nebraska-  
Lincoln

■ *The Geologic Record of Wind Erosion, Eolian Deposition, and  
Aridity on the Southern High Plains*  
**Vance Holliday**, Geography, University of Wisconsin-Madison  
■ *The Changing Dust Levels in the Atmosphere of the North  
American Central Plains*  
**Steve LaDochy**, Geography & Urban Analysis, California  
State University, Los Angeles

12:00 NOON LUNCHEON

4. CLIMATE AND ART  
Presiding: **Norman A. Geske**, Director emeritus  
Sheldon Art Gallery  
■ *The Landscape Painter as Natural Scientist*  
**Jon Nelson**, Curator  
Center for Great Plains Studies Art Collection

FRIDAY 6 APRIL 1990 *afternoon*

1:30 P.M.

5.A. VEGETATIONAL CHANGE AND CLIMATE  
Chair: **Douglas Bamforth**, Anthropology, University of  
Nebraska-Lincoln  
■ *Climate and Vegetation in the Mid-Continent: Natural Patterns  
and Human Alterations*  
**John A. Harrington, Jr.**, Geography/Geology, Indiana State  
University  
**Jay R. Harman**, Geography, Michigan State University  
■ *Monitoring of Bioclimatology in the Great Plains with Satellite-  
Derived Vegetation Indices*  
**Kevin P. Gallo**, Science & Applications Branch, EROS Data  
Center, NOAA, Sioux Falls, South Dakota.  
**Jesslyn F. Brown**, Geography, University of Nebraska-Lincoln

5.B. CLIMATE CHANGE INFLUENCES ON NATIONAL  
PARKS

Chair: **Paul Kay**, Geography, University of Nebraska-Lincoln  
■ *Impacts of Climate Change on Small Prairie Parks in the Great  
Plains*  
**Gary Willson**, Midwest Region, National Park Service,  
Omaha, Nebraska  
■ *The Implications of Climate Change at a National Park: Prince  
Albert National Park, A Case Study*  
**Paul Galbraith** and **Merv Syroteuk**, Prince Albert National  
Park, Saskatchewan

2:30 P.M. BREAK

3:00 P.M. PLENARY SESSION

6. CLIMATE CHANGE MODELS, DO THEY WORK?  
Chair: **James McCrorie**, Director, Canadian Plains Research  
Center, University of Regina  
■ *A Decision Theoretic Model of the Agricultural Adjustment to  
Climatic Change on the Great Plains*  
**Kent M. McGregor**, Geography, University of North Texas

- *Modeling Future Climates on the American Great Plains: What Do We Really Know?*  
Michael A. Palecki, Geography, State University of New York at Buffalo
- *Climate Change and Agricultural Crop Patterns for Selected U.S. Crops*  
Francisco Flores Mendoza, Kenneth G. Hubbard and Donald A. Wilhite, Agricultural Meteorology, University of Nebraska-Lincoln
- *Dust Bowl Return? Climate Change and Great Plains Agriculture*  
Cynthia Rosenzweig, Geography, Columbia University, NASA/Goddard Institute for Space Studies

FRIDAY 6 APRIL 1990 evening

- 8:00 P.M.  
7. POETRY, ART, AND CLIMATE CHANGE  
Center for Great Plains Studies Art Collection  
205 Love Library  
Presiding: Frances W. Kaye, English, University of Nebraska-Lincoln
- A POETRY READING:  
William Kloefkorn, English, Nebraska Wesleyan University, Nebraska State Poet  
Robert Kroetsch, English, University of Manitoba
- OPENING: *Of the Sky*, art exhibition  
Skyscapes by Great Plains artists
- RECEPTION following: Sponsored by Consulate General of Canada, Minneapolis, Minnesota

SATURDAY 7 APRIL 1990 morning, Lincoln Hilton Hotel

- 8:30 A.M.  
8.A. INTERNATIONAL COMPARISONS OF PLAINS CLIMATE  
Chair: Mark Anderson, Geography, University of Nebraska-Lincoln
- *Interbasin Transfer from Canada as One Alternative in Meeting Increased Water Needs in the Lower Western Interior Plains*  
Arleigh H. Laycock, Geography, University of Alberta
- *"My Antonia" and "Exotic Pleasures": Weather and Environment in American and Australian Literature*  
Diana Abu-Jaber, English, Iowa State University
- *Impacts of Climate Change on North China "Great Plains"*  
Niu Wen-yuan, Research Center for Eco-environmental Sciences, Academia Sinica, Beijing

- 8.B. AGRICULTURAL ADAPTATION TO CLIMATE CHANGE  
Chair: Gary Moulton, History, University of Nebraska-Lincoln
- *Potential Agricultural Adaptation to Climate Change on the Canadian Prairies*  
Louise M. Arthur, Agricultural Economics, University of Manitoba

- *Preliminary Evaluation of the Effect of Climate Change on Rangeland Livestock Production*  
Hanson, Jon D. and B.B. Baker, USDA-ARS, Great Plains Systems Research, Fort Collins, Colorado
- *Impact of Technical Change on the Vulnerability of Great Plains Agriculture to Weather*  
Glenn A. Helmers and Maurice Baker, Agricultural Economics, University of Nebraska-Lincoln

10:00 A.M. BREAK

10:30 A.M.

- 9.A. PRECIPITATION ADAPTATIONS  
Chair: Clinton Rowe, Geography, University of Nebraska-Lincoln
- *Drought Experience and Perception of Climate Change Among Great Plains Farmers*  
David M. Diggs, Natural Hazards Research and Applications Information Center, University of Colorado
- *Hydroclimatic Variability on the Great Plains*  
Michael J. Keables, Geography, University of Denver

9.B. MONITORING CLIMATE CHANGE

- Chair: Shashi Verma, Agricultural Meteorology, University of Nebraska-Lincoln
- *Climatic Fluctuations in the Great Plains During the 19th and 20th Centuries*  
Richard R. Heim, Jr., National Climatic Data Center, NOAA, Asheville, North Carolina
- *Low-Frequency Atmospheric Variations and Great Plains Climate: Interannual to Interdecadal Associations*  
Daniel J. Leathers, Geography, University of Nebraska-Lincoln

12:00 NOON LUNCHEON

10. POLITICS AND CLIMATE CHANGE  
Presiding: John Peters, Political Science, Dean, College of Arts and Sciences, University of Nebraska-Lincoln
- *Climate and Climate Change Legislation in Congress*  
The Honorable Douglas Bereuter, Representative, First Congressional District, Nebraska

SATURDAY 7 APRIL 1990 afternoon

1:30 P.M.

- 11.A. PRECIPITATION AND CLIMATE VARIABILITY ON THE GREAT PLAINS  
Chair: Peter Longo, Political Science, Kearney State College
- *Precipitation Fluctuations in the Great Plains During the Late 19th Century*  
Cary J. Mock, Geography, University of Nebraska-Lincoln
- *Snow Cover and Climate Change on the Great Plains*  
David A. Robinson, Geography, Rutgers University

11.B. GEOLOGIC ASPECTS OF CLIMATE CHANGE ON THE GREAT PLAINS

- Chair: John F. Shroder, Jr., Geography/Geology, University of Nebraska at Omaha
- *External and Regional Events Affecting the Geologic History of the Great Plains During the Period from 37 to 1.6 Million Years Ago*  
Robert F. Diffendal, Conservation and Survey Division, University of Nebraska-Lincoln
- *Holocene Climates of the Great Plains: Evidence from the Sand Hills*  
James B. Swinehart, Conservation and Survey Division, University of Nebraska-Lincoln

3:00 P.M. BREAK

3:30 P.M. PLENARY SESSION

12. POLICY MAKERS AND CLIMATE CHANGE ON THE GREAT PLAINS  
Chair: Merlin Lawson, Geography, Associate Dean Graduate Studies, Assistant Vice-Chancellor for Research, University of Nebraska-Lincoln
- *A Panel Discussion:*  
Karen L. Barclay, Director, Department of Natural Resources and Conservation, State of Montana  
Gary K. Hulett, Special Assistant for Health and Environment, Office of the Governor, State of Kansas  
J. Michael Jess, Director, Department of Water Resources, State of Nebraska

SATURDAY 7 APRIL 1990 evening, Kimball Recital Hall  
11th & R Streets, University of Nebraska-Lincoln campus

7:30 P.M.

13. LAND OF SKY AND EARTH  
Presiding: Frederick C. Luebke, History, University of Nebraska-Lincoln
- A New Yorker Views the Great Plains*
- Ian Frazier, author of *Great Plains*

Symposium sponsored in part by grants from the U.S. Environmental Protection Agency and Canada Council.

1991 SYMPOSIUM

"Law, The Bill of Rights, and the Great Plains." The bicentennial of the Bill of Rights and the degree to which the Great Plains has provided a setting for the definition and expansion of law and the Bill of Rights will be the theme of the 15th annual symposium, to be held 6-9 March 1991. Topics will include, but are not limited to, legal philosophy, legal history, constitutional law and civil liberties, legal anthropology, law and plains literature, and comparative law. Inquiries about the 1991 conference should be directed to Professor John R. Wunder, Center for Great Plains Studies, 1213 Oldfather Hall, Lincoln, NE 68588-0314.

The topic for the 1992 symposium is "Exploration and the Great Plains."

Hotel:

A block of guest rooms has been reserved for your convenience. Double rooms are \$50 (please indicate roommate preference), single rooms are \$40. These rooms will be held until 22 March 1990, after which time they will be released on a first-come, first-serve basis. Please make your room reservations by contacting the LINCOLN HILTON HOTEL reservation desk at 402/475-4011, 141 North 9th Street, Lincoln, NE 68508.

CENTER FOR GREAT PLAINS STUDIES

The Center for Great Plains Studies is an interdisciplinary intercollegiate program administered in the College of Arts and Sciences of the University of Nebraska-Lincoln. Its goal is to foster the study of human cultural development in the sparsely populated environment of the Great Plains. A region with highly variable weather set against grassy, rolling land, the Great Plains stretches westward from the Missouri River at Omaha and Kansas City to the Rocky Mountains, and northward from the Texas panhandle into the Canadian prairie provinces. The region invites inquiry into the relationships between the environment and the culture brought to it by its various inhabitants, and into the implications of these relationships for the future of the region.

The Center was established by the University of Nebraska in 1976. The purpose of the Center is to promote a greater understanding of the people, culture, history, and environment of the Great Plains through a variety of research, teaching, and outreach programs. To achieve this broad objective, the Center encompasses four divisions: administration and programs, the Center for Great Plains Studies Art Collection, the *Great Plains Quarterly*, and *Journals of the Lewis and Clark Expedition* editing project.

Administration and programs encourages research through sponsored seminars, lectures, symposia, grant proposals and publications. The Center for Great Plains Studies Art Collection, located in Love Library on the University of Nebraska-Lincoln campus, consists of the Christlieb Collection of western art, other paintings and sculpture, and the Lane Collection of western fiction and non-fiction. The curator of the collection is Jon Nelson. The *Great Plains Quarterly* is a scholarly journal which specializes in articles and reviews pertaining to Great Plains subjects. This interdisciplinary journal is edited by Frances W. Kaye, Associate Professor of English. One issue per year is devoted to papers selected from those presented at the annual symposium. The Center will also begin publishing a new journal in 1991 devoted to the social and natural sciences of the Great Plains. It, too, will include papers presented at the annual symposium. The *Journals of the Lewis and Clark Expedition* editing project, headed by Gary E. Moulton, Professor of History, is jointly sponsored by NEH and the Center. Six volumes of the eleven-volume series have been completed and published by the University of Nebraska Press. The Center is directed by John R. Wunder, Professor of History.

Conference Registration Fee: \$50.00 Make checks payable to:  
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1213 Oldfather Hall  
University of Nebraska-Lincoln  
Lincoln, NE 68588-0314  
402/472-3082