

# Northern Great Plains Regional Workshop on the Impacts of Climate Change and Climate Variability

## TABLE OF CONTENTS

Workshop Steering Committee .....	1
Workshop Agenda .....	2
<b>Executive Summary</b>	
by George A. Seielstad .....	4
<b>Information Circulated in Advance</b>	
Impact of Climate Change and Climate Variability on the Northern Great Plains by Carl A. Fox and Carl A. Seielstad .....	12
Global Greenhouse Gases: Implications for North American Agriculture by Bill Griffith .....	22
<b>Introduction</b>	
Introduction to the Northern Great Plains Workshop on Climate Change and Climate Variability by George A. Seielstad .....	36
<b>Science and Policy of Climate Change</b>	
Current State of Climate Change Science by John Firor .....	42
A Method for Deriving Phenological Metrics from Satellite Data by Bradley C. Reed .....	47
A Method for Deriving Phenological Metrics from Satellite Data, Colorado 1991-1995 by Bradley C. Reed .....	49
Policy Assessment on Climate Change by Everett Sondreal .....	56
<b>Agriculture</b>	
Agriculture vs. Global Warming by Gary Wagner .....	66
Agriculture: Optimizing Opportunities and Minimizing Risks by Kenneth S. Junkert .....	70
“Crop Agriculture” of the Northern Great Plains by Hayden Ferguson .....	74
Rangeland Use and Management: The Impact of Climate and Other Factors on Livestock Grazing Operations by Jim Foreman .....	77

**Managed Lands**

Northern Great Plains National Parks in a World of Changing Climate  
by Rich Klukas ..... 84

Comments on Climate Changes Initiatives and Indian Tribes  
by Robert Gough ..... 88

**Adaptive Responses**

Local/Regional Government Adaptive Responses to Climate Change and Variability  
by Wilson W. Orr ..... 94

Educating for a Sustainable Future  
by Bryan L. Aivazian ..... 96

**Reports from Breakout Groups**

Agriculture  
by Carl Fox ..... 102

Forests and Rangelands  
by Pat Zimmerman ..... 105

Extreme Weather Events  
by Jeff Stith and Bruce Boe ..... 109

Indian Nations, Parks, Public and Protected Lands  
by Joe Satrom ..... 113

Education and Communication  
by Patricia A. McClurg ..... 117

Human Dimensions and Community Services  
by Joanne Irene Gabrynowicz and Lenora Bohren ..... 121

**Appendix**

List of Participants ..... 128

Survey Results ..... 130