

Climate Change Institute: Climate Issues Seminar Series; INT500
Global and Regional Agriculture and Climate; Past, Present and Future.

In this autumn's series of three mini-symposia, we are exploring issues from the early emergence of agriculture, through modern regional responses to an evolving climate, leading to discussion of climate-related challenges facing agriculture and society in the next 50 years. Symposia will be held in 57 Stoddard Hall. Public is invited.

Seminar 1 Emergence of Agriculture in a Changing Climate

November 5, 2012 4:00pm, 57 Stoddard Hall

Keynote Speakers: *Dr. Melinda Zeder* - Director of the Archeobiology, Smithsonian Institute.

Dr. Bruce Smith - Curator of North American Archaeology, Smithsonian Institute.

Dr. Andrew Moore - Dean of Graduate Studies at the Rochester Inst. of Technology.

Discussion Panel includes: *Kristin Sobolik*, (U Maine, Anthropology, CCI), *Kirk Maasch*, *George Denton* (U Maine, CCI, School of Earth and Climate Sciences)

Seminar 2 Weather and Climate in Agriculture: Annual to Decadal

November 7, 2012 5:00pm, 57 Stoddard Hall

Keynote Speakers: *Dr. Timothy Griffin*- Friedman School of Nutrition Science and Policy; Tufts University

Dr. George Jacobson- University of Maine, Climate Change Institute

Discussion Panel members: *David Yarborough* (U Maine, Plant Soil and Environmental Sciences), *John Jemison* (U Maine, Cooperative Extension: Maine Agricultural Center), *Glen Koehler* (U Maine, Cooperative Extension: Insect Pests & Plant Diseases), *Rick Kersbergen*, (U Maine, Cooperative Extension: Agriculture), *Bill Malay* (*Cherryfield Foods*).

Seminar 3 Feeding 9 Billion People in a Future Changing Climate

November 12, 2012 4:00pm, 57 Stoddard Hall

Keynote Speakers: *Dr. R. W. Kates*- UMaine, Presidential Professor of Sustainability Science

Discussion Panel includes: *Paul Mayewski*, (U Maine, CCI Director), *Bruce Segee* (U Maine, Supercomputer Director, ECE), *Kathleen Bell* (U Maine, School of Economics, SSI), *Paul Roscoe*, (U Maine, Anthropology, CCI)

**Climate Change Institute: Climate Issues Seminar Series; INT500
*Global and Regional Agriculture and Climate; Past, Present and Future.***

In this autumn's series of three mini-symposia, we are exploring issues from the early emergence of agriculture, through modern regional responses to an evolving climate, leading to discussion of climate-related challenges facing agriculture and society in the next 50 years. Public is invited.

**Seminar 1: Emergence of Agriculture in a Changing Climate
*November 5, 2012 - 4:00pm - 57 Stodder Hall***

Faculty Coordinator: Dr. Daniel Sandweiss

Keynote Speakers:

Dr. Andrew Moore- Archaeological Institute of America (First Vice President), Rochester Institute of Technology (Dean of Graduate Studies Emeritus)

Dr. Bruce Smith- National Museum of Natural History (Dept. Of Anthropology, Program of Human Ecology and Archaeobiology, Curator of North American Archaeology) & University of Maine (Climate Change Institute, Dept. of Anthropology)

Dr. Melinda Zeder- National Museum of Natural History (Dept. Of Anthropology, Director of Archaeobiology, Sr. Research Scientist, Curator of Old World Archaeology & Archaeozoology) & University of Maine (Climate Change Institute, Dept. of Anthropology)

Panel Members:

Dr. George Denton- University of Maine (Climate Change Institute, Dept. of Earth Sciences)

Dr. Eric Gallandt- University of Maine (Chair of the Plant, Soil, and Environmental Science Dept.)

Dr. Kirk Maasch- University of Maine (Climate Change Institute, Dept. of Earth Sciences)

Seminar Summary:

The climate change affecting our planet is an urgent topic in the modern world. In order to prepare for the imminent challenges we will face it is essential to understand the past, present and future of Earth's climate and its relationship to the human species. Agriculture, both on a regional and global scale, is an integral part of this relationship, and one of the key issues for humans' ability to survive in an ever-changing climate.

The initial emergence and spread of agriculture had profound consequences on human/environment interactions. Not only did the changing climate strongly influence the domestication of plants and animals, but the widespread reliance on agriculture has certainly had significant effects on the global climate. For this seminar the distinguished speakers and panel members will discuss the relationship between historical trajectories as seen through interdisciplinary research by archaeologists and climate scientists.

Schedule:

- 4:00 - 4:10 Introduction: Dr. Daniel Sandweiss
- 4:10 - 5:00 Keynote Speaker: Dr. Bruce Smith
- 5:00 - 6:00 Keynote Speaker: Dr. Melinda Zeder
- 6:00 - 6:30 Dinner
- 6:30 - 7:30 Keynote Speaker: Dr. Andrew Moore
- 7:30 - 8:30 Panel Discussion
 - 7:30 - 7:45 Panelist Introductions
 - 7:45 - 8:30 Discussion with Panel

Possible Discussion Topics:

- Interpretations of the emergence of agriculture
- Paleoclimate and archaeological records
- Abrupt climate change impacts on society, specifically agriculture

Direct any questions to: Walter Beckwith, walter.beckwith@umit.maine.edu.

Reference literature available upon request.

**Feeding 9 Billion People in a Changing Climate: Decadal to Centennial
INT 500 Seminar 3**

November 12, 4:00 PM, 57 Stodder Hall

Keynote Speaker: Dr. Robert Kates, Presidential Professor of Sustainability Science, University of Maine

Discussion Panel: *Paul Mayewski* (Director of the Climate Change Institute; School of Earth and Climate Sciences, University of Maine), *Kathleen Bell* (School of Economics, University of Maine), *Jim Roscoe* (Department of Anthropology, University of Maine), *Bruce Segee* (Department of Electrical and Computer Engineering, University of Maine) *Sean Birkel* (Climate Change Institute, University of Maine), *Ivan Fernandez* (School of Forest Resources and Climate Change Institute, University of Maine).

Schedule:

- 4:05-4:10 Peter Koons - Introduction
- 4:10-5:00 Keynote speaker: Robert Kates
- 5:00-6:00 Panelist introductions
- 6:00-6:40 Dinner
- 6:40-8:00 Panelist discussion
- 6:40-7:20 Panelist comments
- 7:20-8:00 Discussion with panel

Seminar Focus:

Earth is projected to host at least 9 billion people by 2050 in the midst of rising global temperatures. Increased population growth, greater affluence, and changing diets demand an equivalent growth in food production amid global increases in the frequency and severity of drought, flood, and disease. The impacts of climate change on agriculture are quite complex, improving production in some places, and reducing it in many others. Anthropogenic forcing of nutrient fluxes integral to agriculture ensures that they are currently unsustainable and some are projected to become exhausted within decades. Changing climate, lack of food, and exhaustion of once easily attained natural resources already contribute to moments of localized cultural unrest which may become more frequent and widespread if conditions worsen. The health of current global cultures in the face of warmer temperatures, unpredictable weather, and unfavorable soil conditions will depend on innovations in climate prediction modeling, education, efficient nutrient allocation and recycling, and a drastic increase in food production that may require embracing genetic modification. Improvements in the temporal accuracy and range of regional to global climate model predictions will allow farmers to make well-informed decisions over relevant time scales, but evaluations of model accuracy and their ability to adapt to environmental changes are crucial. Farmers already adapt to weather variations, but greatly increased warming will require transformational adaptations well beyond the incremental ones used today.

Keynote speaker Robert Kates and panel members will discuss the various challenges and potential solutions apparent within decadal to centennial projections of global climate, food productivity, and population growth. Please contact samuel.g.roy@umit.maine.edu for information on the seminar or for a list of suggested literature.