GEOGRAPHY 8960
Environmental Variability and Human Migration. From Out of Africa to climate refugees in the 21st century

Days & times: Fridays 10:00 to 12:45 PM
Room: DB 1116
Instructor: Alvaro Montenegro
Contact: Office: 1152 Derby Hall.
Email: montenegro.8@osu.edu Phone: 688-5451

Objectives
The seminar will approach the theme of human migration through the lenses of Geography, taking into consideration the spatial, social and environmental aspects of the process but focusing on the role of environmental variability. We will start with an overview of theories that propose to explain why and how people migrate. This will be followed by a series of case studies where several past migration events will be described and analyzed in the context of the theoretical framework discussed in the first portion of the seminar. Given the seminar’s emphasis, a general description of the environmental setting in which the migration took place will accompany each case study. Lastly, we will look into the potential role of anthropogenic global warming as driver of future human migrations.

Expected learning outcomes include:
   a) Basic understanding of theories explaining human migration.
   b) Familiarity with the general aspects of several important large-scale migration events in human history and pre-history.
   c) The ability to relate theory to observations in the context of the migratory events analyzed.
   d) Understanding of the main processes controlling environmental variability at the temporal and spatial scales pertinent to human migrations.

Course format:
While some of our meetings will follow a standard presentation-by-the-instructor format, most will be based on in-class discussion by students of assigned readings with the instructor as facilitator. The course is originally designed with at least one “free slot” for the study of a migration event/type to be selected by the students, but this number might increase depending on student interest.

Evaluation:
Value in parenthesis represents weight of item on final grade. All items refer to individual efforts
   1. Brief – 2 to 3 minute - introduction to particular readings. (15%) 
   2. Term paper (4000-6000 words) where students attempt to gauge the importance of environmental factors in influencing a migration event not discussed in class or another event in human history. (65%) 
   3. A 15 to 20-minute oral presentation of the term paper for the class. (20%) 

Course Material:
Unless otherwise noted, readings below will be made available by the instructor. Readings might change during the course according to student interest.
The books below provide more than one reading:


Readings:

1. **Migration theory: why and how people migrate**


   McLeman, Robert, Climate and Human Migration, Chapter 2. Cambridge University Press

   Hunter et al., Environmental Dimensions of Migration, 2015, Annu. Rev. Sociol, 41

2. **Case studies**

   2.1 *Glacial cycles and movement out of Africa*


   DeMenocal & Stringer, Climate and peopling of the world, 2016, Nature, 538

   Stewart & Stringer, 2012, Human Evolution out of Africa: The role of refugia and climate change, Science, 335

   Carto et al., 2009, Out of Africa and into an ice age: on the role of global climate change in the late Pleistocene migration of early modern humans out of Africa.

   Kim et al, 2014, Khosian hunter-gatherers have been the largest population throughout most of modern-human demographic history, Nature communications

   2.2 *Peopling of the Americas*


Montenegro et al, 2006, Parasites, paleoclimate and the peopling of the Americas: using the hookworm to time to Clovis migration, Current Anthropology, 47

2.3 Settlement of Polynesia

Avis et al., 2007, The Discovery of Western Oceania: A new perspective. Journal of Island and Coastal Archaeology, 2.

Montenegro et al., 2016, Using seafaring simulations and shortest-hop trajectories to model prehistoric colonization in Remote Oceania, PNAS, doi/10.1073/pnas.1612426113

2.4 Drought
McLeman, 2014, ch.2

MacLeman et al, 2013, What we learned from the Dust Bowl: lessons in science, policy and adaptation. Population and Environment, 35

Hodell et al., 2005, Terminal Classic drought in northern Maya lowlands inferred from multiple sediment cores in Lake Chichancanab (Mexico), Quaternary Science Reviews, 24

Medina-Elizalde & Rohling, 2012, Collapse of Maya Civilization Related to Modest Reduction in Precipitation, Science, 335

Carleton et al., 2014, A reassessment of the impact of drought cycles on the Classic Maya, Quaternary Science Reviews, 105.

2.5 Recent Migration into the US
Feng et al., 2010, Linkages among climate change, crop yields and Mexico-US cross-border migration, PNAS, 107, 14257-14262

Baker and Tsuda, 2015, ch.8

Hunter et al., 2013, Rainfall Patterns and US Migration from Rural Mexico, International Migration Review, 4.

2.6 Future Climate Change
Hastrup and Olwig, 2012, Introduction and ch. 2

McLeman, 2014, ch.7

2.7 Extreme events
McLeman, 2014, ch.4

Guimire et al, 2014, Flood induced displacement and civil conflict, World Development, 55
### Schedule*

<table>
<thead>
<tr>
<th>DATE</th>
<th>THEME</th>
<th>READINGS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 13</td>
<td>Theory I: Definitions and limitations</td>
<td>McLeman, Dingle; Wolper; Arango</td>
<td></td>
</tr>
<tr>
<td>Jan 20</td>
<td>Theory II Migration as disruptions and the role of the environment</td>
<td>Black et al.; Baker and Tsuda ch. 1 and 13; Hunter et al.</td>
<td></td>
</tr>
<tr>
<td>Jan 27</td>
<td>Catching up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb 3</td>
<td>Millennial time scale climate variability</td>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td>Feb 10</td>
<td>Glacial cycles and movement out of Africa</td>
<td>Timmermann &amp; Friedich; DeMenocal &amp; Stringer; Carto et al; Kim et al; Stewart and Stringer</td>
<td></td>
</tr>
<tr>
<td>Feb 24</td>
<td>ENSO Variability and the settlement of Polynesia</td>
<td>Kirch_2010, Avis et al, 2007; Montenegro 2016;</td>
<td></td>
</tr>
<tr>
<td>Mar 3</td>
<td>Drought: urban abandonment in Mesoamerica and the Dust Bowl,</td>
<td>McLeman, ch.2; McLeman 2013; Carleton 2014; Hodell 2005; Medina-Elizalde, 2012</td>
<td></td>
</tr>
<tr>
<td>Mar 10</td>
<td>Recent migration flows into the US</td>
<td>Baker and Tsuda, ch.8; Feng et al.; Hunter et al.</td>
<td></td>
</tr>
<tr>
<td>Mar 24</td>
<td>Anthropogenic climate change and future migration</td>
<td>Hastrup and Olwig: Intro, ch. 2; McLeman, ch.7</td>
<td></td>
</tr>
<tr>
<td>Mar 31</td>
<td>Extreme weather events and migration</td>
<td>McLeman, ch. 4; Guimire et al.</td>
<td></td>
</tr>
<tr>
<td>Apr 7</td>
<td>Student selected migration event/type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr 14</td>
<td><strong>Presentations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 21</td>
<td>Final discussion: the role of environmental variability in human migration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This is a tentative and flexible schedule. Specific readings and sequence of presentation might change according to class interest or other constraints. The date of the presentations is fixed. These will take place on April 14 no matter what changes might have occurred.*