

LSU Atlantic Studies MHI seeks Paleoclimatologist.

(LSU's "Atlantic Studies" is better understood by the full title of the proposal that received MHI funding from the university: "Environments, Histories, Cultures: The South, Caribbean, West African, and Atlantic Maritime Worlds.")

The LSU MHI concept creates multidisciplinary "working groups" that combine specialists for research on questions (problems) that cannot be answered (solved) by using the tools and knowledge of any single discipline or scholar. Specifically, we would like to develop a reconstruction of the spatiotemporal environmental history of the Gulf-Caribbean basin during the last 500-1000 years as part of a larger project to re-examine topics such as settlement histories, the spread of old world flora and fauna, crop yields, disease outbreaks, and the human cost of disasters such as hurricanes. Historians and cultural studies scholars (and certain schools of geography as well) generally have not incorporated climate and, more broadly, environmental variability into earlier or most current studies of the human experience in our geographic area of interest. Turning the proposition on its head, we believe that historical data can be used to refine a reconstruction developed from proxy data and backcasting from the instrumented period.

The inspiration for this idea comes from the work of Stahle and Cleaveland with the dendroclimatalogical data of the Georgia – Carolinas area (Stahle and Cleaveland 1992, 1994, and Stahle, Cleaveland, Blanton, Therrell, Gray 1998). They were able to show that the founding of Spanish Santa Elena (on modern Parris Island, 1566), the "lost" Roanoke Colony (1587-89) and Jamestown (1607) took place during periods of unusually dry weather, with consequences that can be documented in the histories of those colonies. Hoffman, one of the PIs of the LSU AS-MHI, found additional correspondences between the Stahle-Cleaveland data and documented food shortages at St. Augustine in the 16th and 17th centuries (Hoffman 2000). We understand that recent analyses of drought cycles for the Arkansas area have suggested that drought, not Old World diseases, may account for the abandonment of Native American sites that were flourishing when Hernando de Soto was there (1540) but had been abandoned by the time La Salle (1682) and others explored that region.

We are aware that dendroclimatalogical and other proxy data and current limitations in what is known about the interrelationships of various macro weather phenomena (e.g., changes in water temperature in the Pacific, the movements of the Bermuda High, etc.) present numerous challenges to reconstructing climate variability and involve considerations of world-wide atmospheric and oceanic physics, not just those of our immediate "neighborhood." In particular, it appears that few proxy series exist for the Gulf-Caribbean area, although work to develop more are, we understand, underway. Too, backcasting from short runs of instrumented data and present conditions of global warming also raises theoretical issues. Still, we think the effort worthwhile. If the answers were easy, where would the challenge be? LSU has supercomputing resources that can be used for this project. LSU also has on campus or nearby direct historical data for Louisiana from ca. 1700 to the present. We expect to explore similar data for some of the Circum-Caribbean settlements as part of our larger project.

An example of how this reconstruction might be used is the following:

At the end of the 16th and first decade of the 17th centuries, the Spanish colonies in the Gulf-Caribbean basin were part of a larger "crisis" in that empire and, perhaps, in the Atlantic World. Something is known of the Spanish empire's economic and political problems at that time and events in the wider Atlantic world. Too, we know that in about 1620, the long "A" phase expansion that began in the early 15th century ended and Europe's general economic conditions shifted into a "B" phase of slower or even, in places, negative economic change. This shift is identified by some authors with a temporary secession of sun spots and a cooler phase within the "Little Ice Age." Were there climatic fluctuations in the three decades before 1620 that played a role in the Spanish Empire's troubles? For the Gulf-Caribbean basin, next to nothing is known about how environmental change, especially climate fluctuations, might have been involved in the Spanish

empire's internal crisis prior to ca. 1620, much less the larger general shift after that date. A reconstruction of climate variability from proxy data and by backcasting could produce a better understanding of economic and other data that are conventionally seen as *the* ingredients in such general crises of empire. For example, Hoffman has the materials for a time series of sugar production on Hispaniola from 1580 to 1635 (with some figures from before 1580) that may contain climate variability information as well as the effects of prices, international competition, war and other "historical" factors. If this hypothesis about the content of this series is correct, climate variability (and other environmental changes?) should show up as a residual after more traditional explanations of output variability (prices, etc) have been factored into a multivariate equation. A parallel reconstruction of climate variability, if fine grained enough to cover the half century in question, should show a similar pattern of general climatic variability. That pattern could then be compared to the results of the historical analysis and, perhaps, refined because of the year specificity of the historical record. Or, if the historical analysis is inconclusive, the reconstructed climate data could be used to provide context and thus raise additional questions for historical investigation (i.e., why is climatic variability not reflected in the "residual" of the time series of sugar production?)

A second research project we are considering involves the history of old world cattle (and associated grasses and weeds, viewed as "invasive species") in the new world and the various ways they have interacted with environments, histories and cultures and that their keeping has been influenced by the same. Sluyter's previous work on the cattle industry around Veracruz, Mexico in the colonial era is a starting point for this project (Sluyter 2002). Reconstructed climate variability will be an important part of this project. As with the sugar time series, its effects were/are subtle, but should be detectable.

Bibliography

Hoffman, Paul E. 2000. *Florida's Frontiers*. Bloomington: University of Indiana Press.

Sluyter, Andrew. 2002. *Colonialism and Landscape: Postcolonial Theory and Applications*. Lanham, MD: Rowman and Littlefield.

Stahle, David W. and Malcolm K. Cleaveland. 1992. Reconstruction and analysis of spring rainfall over the southeastern U.S.A. for the past 1000 years. *Bulletin of the American Meteorological Society* 73:1947-1961.

_____. 1994. Tree-ring reconstructed rainfall over the Southeastern U.S.A. during the medieval warm period and little ice age. *Climate Change* 26:199-212.

Stahle, David W, Malcolm K. Cleaveland, Dennis B. Blanton, M.D. Therrell, D.A. Gray. 1998. The lost colony and Jamestown droughts. *Science* 280:564-67.

The Position

The Atlantic Studies Multidisciplinary Hiring Initiative at Louisiana State University is seeking a paleoclimatologist interested in joining a multidisciplinary working group of specialists in the humanities and social and natural sciences in reconstructing climate variability over the last 500-1000 years in the Gulf-Caribbean-South Atlantic-West African area. This is part of a larger project to re-examine human experiences in that area as a product of the interactions of environments,

histories and cultures. A detailed discussion of the Atlantic Studies MHI and this project can be found at www.mhi.LSU.edu/atlanticstudies/news/.

The position is 50% teaching (2 courses per semester), 50% research, tenure track. Departmental / disciplinary home, rank, salary and tenure status will depend on the individual's qualifications. Joint departmental appointments will be arranged if desired and feasible. A start up package can be negotiated.

Candidates must possess an earned doctorate. Preference will be given to individuals with a record of collaborative research and publication. Applications, which may be emailed, should include a current curriculum vita, a statement of intent (i.e., how the applicant envisions working with and furthering the goals of the initiative), a separate list of publications deemed relevant to the position, and a list of five potential referees. Application deadline is May 15, 2008 or until the position is filled. An offer of employment is contingent on a satisfactory pre-employment background check.

Letters of interest or nomination and applications should be sent to Dr. Kent Mathewson, Department of Geography, Louisiana State University, Baton Rouge, LA 70803. email: kentm@lsu.edu
