COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
UtahStateUniversity

NEWS RELEASE

CONTACT
Janelle Hyatt
Communications director
USU College of Humanities and Social Sciences
Telephone: 435-799-0289
janelle.hyatt@usu.edu
CHaSS.usu.edu

New published research on human energy consumption stretches back 10,000 years and across four continents

Scientists have long studied humans and their relationships with each other and their environments.

But for the first time ever, a group of anthropologists and sustainability scientists has, in a single effort, crunched data reaching back 10,000 years and over four continents.

The project began with a simple question: "Do human societies grow and decline at the same rate." Now, following two years of research by scientists in the United States and Chile, a peer-reviewed article in one of the world's most-cited and comprehensive multidisciplinary scientific journals reveals some conclusions.

"Synchronization of Energy Consumption by Human Societies Throughout the Holocene" has just been published in Proceedings of the National Academy of Sciences of the United States of America (PNAS). The Holocene epoch began 10,000 years ago following the earth's last Ice Age and continues today.

Lead author Dr. Jacob Freeman, a human ecologist and assistant anthropology professor at Utah State University, said the research pulls together radiocarbon dates analyzed in recent decades into a single model. The article hypothesizes, he says, that the process of societies creating connections and becoming interdependent affecting our modern world, known as globalization, also played out among human society millennia ago.

"If every culture was unique, you would expect to see no synchrony, or harmony, across human records of energy consumption," said Freeman. "That's not what we see. We can show over 10,000 years that the more interconnected societies become, their fates become more interconnected."

Primary authors are, in addition to Freeman, Jacopo Baggio, a sustainability and political scientist at the University of Central Florida, and Erick Robinson, an anthropologist at the University of Wyoming. This work was produced as part of PEOPLE 3000, an ongoing study of the long-term growth and synchronous collapse of human societies by an international team of scholars, including archaeologists David A. Byers and Judson Byrd Finley of Utah State University.

“This is a highly collaborative effort because we’re comparing so many different regions that allow us to do this kind of big global comparison,” said Freeman.

Freeman expects the article to be a springboard for future research. “We’re cracking the door” to allow scientists to look at societies in a new way, he said.

Ironically, the charred food and bone scraps that humans throughout the Holocene discarded as worthless are the foundation of this significant research. Garbage levels reveal a society’s energy consumption and whether it’s growing or shrinking, said Freeman. “The waste we produce is a function of us living and using resources and doing all the things that we do,” he said.

Freeman and his colleagues correlated some 50 years of radiocarbon dates on prehistoric garbage and other data. The knowledge base was largely gathered through federal Section 106 laws that since 1966 have required environmental and archaeological testing on many construction sites. The decades of data were synthesized over the last five years by the National Science Foundation-funded project *Populating a Radiocarbon Database for North America*, led by anthropologist Robert L. Kelly at the University of Wyoming.

The authors believe their research highlights the importance of long-term perspectives that can lead to novel insights for today’s societies and help prepare us for changing global environments. “One of the key things about our project is it’s built on really 50 years of public investment in archaeology,” said Freeman. “We’re just getting to the point where we can put these data sets together and ask big questions like, ‘Was the population in Chile between 10,000 and 400 years ago growing and declining the same way as populations in Utah?’

“We’re just now starting to ask those kinds of questions,” he said.