Poster Abstracts

Arctic Social Sciences Workshop

Wilderness in Alaska: The Need for Cross-Cultural Understanding of Meanings and Values

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Wilderness means many things to many people and this is partly influenced by legislation, agency policy, changing societal values, human perception inherent in culture and regional definition. In the U.S., the Wilderness Act of 1964 culminated a romantic legacy established by historically recent figures such as John Muir and Aldo Leopold. Subsequently, this has led to confusion among groups of people regarding the nature and value of "wilderness" at a time when scientists, communities, policy makers and resource managers are being confronted with issues that revolve around how "wilderness" should be utilized and, ultimately, viewed as a component of the local, regional and global culture. In Alaska, this is complicated by the fact that a number of factors which created and protected wilderness in the contiguous U.S. are incompatible with circumpolar regions. We propose that, in order for a cohesive and useful body of knowledge to develop, the following approaches should be adopted in order to better understand the process of wilderness perception and valuation in Alaska: (a) cultural differences in the uses of the word (concept) "wilderness" in primary literature and in society requires clarification and agreement; (b) critical research to further our understanding of the role of wilderness meanings and values in society, science and politics and the forces that threaten these meanings and values needs to be identified; and (c) methodologies that will allow us to collect meaningful data and develop a critical mass of research such that an ongoing body of knowledge can be built need to be developed.

The Arctic System Science Data Coordination Center (ADCC)

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The ARCSS Data Coordination Center (ADCC) at the National Snow and Ice Data Center (NSIDC), University of Colorado at Boulder, is the permanent data archive for all components of the ARCSS Program. Funded by the National Science Foundation's Office of Polar Programs, our focus is to archive and provide access to ARCSS-funded data and information. The concept of System Science depends on the accessibility and exchange of data and information within the scientific community. The ADCC strives to be a catalyst to facilitate that accessibility and cooperation.

A major concern of the research community is the availability of reliable data for research. Working with ARCSS investigators, the ARCSS Committee and NSF, the ADCC is continually acquiring data and developing data products appropriate and useful for the research community. Integration of the data and information from ARCSS projects described on this poster is a high priority at the ADCC. We also work with other national and international data centers to provide optimum accessibility to data and information from the ARCSS archive.

The ADCC strives to provide the most contemporary means of data accessibility to the scientific community. We have developed ingest procedures to assist ARCSS researchers in data and information submittal to the long-term archive. The ADCC home page (http://arcss.colorado.edu/) has become an important tool for data accessibility and integration within ARCSS. Data and information are also distributed on other media (CD-ROMs, disks, data catalogs, etc.) when appropriate. The ADCC maintains a complete backup of the ARCSS archive to ensure data and information collected from the program are available on a long-term basis.

Political Traditions for the Future

Stephanie Fox, PhD Student, University of Cambridge, England

The Deh Cho region is located southwest of Yellowknife, Northwest Territories, Canada, and encompasses 13 Slavey (Dene) communities. The First Nations are united under the Deh Cho First Nations (DCFN), which is located in Fort Simpson. The DCFN has been engaged in negotiations with the federal government for several years; most of that time has been spent working out a process for the negotiations. The Deh Cho is reknowned as the only group of First Nations in the Northwest Territories committed to determining its own process based on traditional Deh Cho principles, beliefs, and values. This has resulted in the "Deh Cho Process," which will be a negotiation about how Deh Cho and non-Deh Cho peoples will share and manage the region's land and resources; it will also include talks on Deh Cho government. This poster describes the Deh Cho region and people, their negotiating process, and the work I will be doing researching political traditions and customs beginning in July 2001. As the work has not yet begun, it will highlight some issues and challenges that I expect to encounter during the research process.

Oxygen Isotope Composition of Human Dental Enamel as a Record of Climate Change

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The d18O value of human tooth enamel (d18Op) can be used to infer the value of ingested local meteoric water (d18Ow). d18Ow is in turn a reflection of local climate variables such as temperature and humidity. Human remains found in archaeological sites then provide a possible continental record of climate change. In the first such study, the analyses of Greenland Norse and Eskimo teeth validate the relation between d18Op and temperature. The spread in d18Op values between the most northern and southern sites is similar to the spread of values for modern-day meteoric waters. A 3≈ decrease in d18Op from sites in Greenland dating from AD 1400 to 1700 implies rapid cooling during the so-called Little Ice Age.

Early Holocene Maritime Adaptations on the Northwest Coast of North America: Excavations at 49-PET-408.

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Human remains of an adult male dated to 9,880 +/- 50 BP delta 13C -12.1 o/oo (CAMS-32038) (pelvis) and 9,730 +/- 60 BP delta 13C -12.5 o/oo (CAMS-29873) (mandible) have been excavated from 49-PET-408 (On Your Knees Cave), an archeological and paleontological site on Prince of Wales Island, Southeast Alaska (Dixon et al. 1997, Dixon 1999). AMS 14C results indicate these are oldest reliably dated human remains yet recovered in Alaska and Canada. Delta 13C values demonstrate a diet based on marine foods, and the 14C age should be adjusted to c 9,200 based on the regional marine carbon reservoir extrapolated from the Queen Charlotte Islands (Fedje et al. 1996). The human remains appear to be contemporary with a cultural occupation dated by three 14C AMS dates on charcoal (8,760 +/- 50 BP (CAMS-43991), 9210 +/- 50 BP (CAMS-43990) and CAMS-439899, 9,150 +/- 50). Obsidian, microblades, bifaces, and other tools have been recovered from this statigraphic unit. An undated underlying stratigraphic unit contains bone fragments, charcoal and lithic flakes; possible evidence of an earlier human occupation. Bone and shell tools from different chambers of the cave are 14C AMS dated to 10,300 +/- 50 BP (CAMS-42381), 5780 +/- 40 (CAMS-42382), and 1,760 +/- 40 BP (CAMS-64540) suggesting several periods of use/occupation of the cave. These data indicate that by c 9,200 BP, humans along the Northwest Coast of North America were coastal navigators with an economy based on maritime subsistence and established trade networks for obsidian. Trace element analysis documents at least two sources for the obsidian, Mount Edziza on the British Columbia mainland and Sumez Island in Southeast Alaska. These data suggest earlier human occupation in order to establish this broad regional adaptation by 9,200 BP and strengthen the theory that humans may have first entered the Americas using watercraft along the Northwest Coast of North America during the late Pleistocene (Fladmark 1979).

References Cited

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The International Kuril Island Project: Archaeological Perspectives on Island Biogeography, Quaternary Geology, and Maritime Settlement of Southern Beringia

By Ben Fitzhugh, Scotty Moore, Christopher Lockwood, Cristie Boone, Yoshihiro Ishizuka, Carole Mandryk, Valerii Shubin, Kaoru Tezuka, and Theodore Pietsch

In the summer of 2000, the NSF-funded International Kuril Island Project (IKIP) united American, Russian, and Japanese archaeologists, ethnohistorians, biologists, and geologists in a quest to understand the biogeographical consequences of Quaternary processes in the remote and almost unknown Kuril Islands (south from Kamchatka). IKIP biologists have now completed surveying the contemporary biodiversity of the Kuril chain. Ongoing archaeological and related research seeks to bring archaeological, ethnohistorical, paleoecological, and geological data into this picture to build an understanding of (1) the evolution of Kuril biodiversity and biogeography and the human role in this evolution and (2) the human maritime migration and settlement history of Beringia and the Northwest Pacific (possibly as far back as the late Pleistocene). This poster presents the preliminary results of the prehistoric/historic research and the future goals of an expanded project, including a web-based data sharing system now under development and a larger multi-year field project beginning in 2002.

Population Replacement in Human Prehistory as Assessed by Ancient mtDNA

M. Geoffrey Hayes and Dennis H. O'Rourke Anthropology, University of Utah

Sharp transitions in the archaeological record are often postulated to represent either population replacement or cultural diffusion events. We have studied the genetics of two such transitions in the North American Arctic which provide contrasting results. In the Eastern Canadian Arctic a transition occurs approximately 1000 years ago with the replacement of the Dorset culture by the Thule culture. These two cultural complexes are substantially different in terms of their material remains, but not in their craniometrics. The opposite pattern characterizes a transition that occurs at approximately the same time in the Aleutian Islands. Here, there is good evidence for cultural continuity over the last 4000 years, and instead the transition is delineated by a brachycranic population (Neo-Aleut) replacing a dolichocranic population (Paleo-Aleut).

To assess the genetic relationships of pre- and post-transition populations, ancient DNA was analyzed from relevant archaeologically recovered individuals. Four restriction site or length polymorphisms, which define a minimum of four ubiquitous Native American mitochondrial haplogroups (A through D), were amplified and electrophoretically scored for the presence or absence of the marker. In the Eastern Canadian Arctic, >25 individuals have been analyzed and the haplogroup frequency distributions of the Dorset (33% A, 67% not A) and Thule (100% A) are statistically significantly different from one another ($p = 0.025$, Fisher's exact test). In the Aleutian Islands, >35 individuals have been analyzed and the haplogroup frequency distributions of the Paleo-Aleut (50% A, 50% D) and Neo-Aleut (31% A, 59% D) are not statistically significantly different from one another ($p = 0.428$, Fisher's exact test). These results preliminarily suggest population replacement in the Eastern Canadian Arctic and population continuity in the Aleutian Islands. The inclusion of additional samples and the examination of HVR I sequences are currently underway to further investigate this phenomenon.

Bowhead Whale and Gray Whale Selection by Prehistoric and Early Historic Alaskan Whaling Societies

Allen McCartney and James Savelle

In 1996 and 1998, we carried out zooarchaeological field investigations at a number of archaeological sites in the vicinity of Barrow, Point Hope, Cape Krusenstern, Wales, and Gambell. These investigations focused on the examination of exposed cetacean remains to determine the species represented, intraspecific size selection, and bone elements use within an architectural context. This poster summarizes regional variation in (a) relative abundance of bowhead and gray whales, and (b) intraspecific size selection within these two species.

Teachers Experiencing Antarctica and the Arctic: TEA Bringing Research into Classrooms

Debra Meese, Cold Regions Research and Engineering Laboratory

The centerpiece of the Teachers Experiencing Antarctica and the Arctic (TEA) Program is a research experience in which a K-12 teacher participates in a polar expedition. The TEA teacher works closely with scientists, participates in cutting-edge research, and is immersed in the process of science. Enveloping this field experience is a diversity of professional development opportunities through which TEA teachers increase content knowledge, enhance teaching skills, transfer the experience to the classroom, assume leadership roles, and collaborate with a network of researchers and education colleagues. TEA is a partnership between teachers, researchers, students, the school district, and the community.

Arctic Social Sciences Research: Two Examples from the North Bering Sea

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Arctic social sciences research reaches across the divide which often separates the researcher-outsider from local communities. In so doing, it opens up research to issues which concern local families and their larger communities. In the two research projects illustrated in this presentation, the first deals with the critical roles played by Yupik women as teachers, parents and community workers. In the second, whaling in all of its aspects is the subject in the two traditional whaling communities of Gambell, St. Lawrence Island, Alaska, and Ingaliq, Little Diomede Island, Alaska.