Archaeological Sites
An Irreplaceable Record of the Past

Archaeological sites contain irreplaceable records of the complex histories of the many societies that have inhabited the circumpolar North over the past millennia. Along with associated paleoecological deposits they provide powerful proxy evidence for paleoclimate and ecosystem structure and function, and direct evidence of species diversity, distributions and genetic variability (Deeley and Flessa 2011. Murray 2008).

Both provide a wide range of data which allow the understanding of human ecodynamics in a broad spatial and temporal perspective (Amorosi et al. 1996, Buddland et al. 2011, Redman 1999). Such an understanding is vital as modern societies seek to support sustainability and increased resilience in indigenous and ecologically sensitive systems in the face of inevitable environmental changes.

However, archaeological sources of environmental, social and cultural data are frequently overlooked in broad arctic science initiatives, including those that have an applied component, despite the fact that many recent national and international science plans and initiatives have identified the long term human dimension as critical for developing accurate projections of future changes and for managing and adapting to change (cf. SEARCH 2005).

The Polar Archaeology Network
Global Climate Change and the Polar Archaeological Record

In response, a workshop on “Global Climate Change and the Polar Archaeological Record” was held February 15-16, 2011 at the Institute of Archaeology and Social Anthropology, University of Tromsø, Norway. The workshop focused on identification of global climate-related threats to archaeological sites across the Arctic and way to mitigate these, either proposed or currently in use.

Workshop attendees identified a number of wide-spread global climate-related threats, including:

1. Thawing of permafrost, increased depth of active-layer—complete decay of organic materials, more frequent freeze-thaw leading to destruction of stratigraphic integrity of deposits.
2. Coastal sites are under threat from sea ice retreat, increased storminess and rising sea level; rapid and ongoing erosion
3. Expansion, then drainage, of lakes perched on permafrost surface. Drying out of organic sediments—reciprocal immediately slows blow away.
4. Increased fire—higher number and intensity of tundra and taiga fires, increased probability of deep peat fires.
5. More vigorous plant growth leading to site destruction.
6. The increased productivity of a warmer Arctic will lead to additional threats to sites from...
7. Changes in land use due to industrial development, increased tourism, agriculture (both pastoral and cultivation), wild animals

The increased productivity of a warmer Arctic will lead to additional threats to sites from.

Archaeological Sites

Arctic Change and Data Loss

Recently, archaeologists working at sites across the North have been seeing increasing damage to sites from environmental factors that are related to global change (Blanchfield 2009). Currently accepted climate models indicate that the threats that this situation poses to the archaeological landscapes of Arctic and the rest of the circumarctic north is immense and growing.

Several attendees presented information on efforts to develop threat assessment matrices (mostly focused on coastal erosion) through survey and modeling, and on various preliminary attempts at preservation and mitigation. Possible changes to cultural resource management priorities and procedures, needs for sample archiving, prioritization of research locations, and international collaboration within and beyond the archaeological and paleoecological research communities were also discussed.

Attendees are now working on a white paper for public distribution. The objective is to further detail issues relating to global climate change and the Polar archaeological record, and to provide a framework for wide discussion of needs for monitoring, data rescue and data archive of threatened samples.

The Polar Archaeology Network

• Building and maintenance of an international circumpolar archaeological observing network.
• Identification and rescue of threatened data sets, including site deposits.
• Identification and synthesis of existing retrospective datasets.
• Integration of diverse data streams.
• Integration of relevant archaeological data and archaeological approaches into larger Arctic Change research programs.
• Collection of new circumpolar-scale time series on arctic environmental change, especially change among the marine, terrestrial, and human components of the arctic system.
• Collection and development of proxies for past climate and environmental change episodes.

The Polar Archaeological Network (PAN) (http://polararchaeologynetwork.blogspot.com/) formed in the spring of 2007 in response to a need for better engagement with broader initiatives in polar science, a desire for stronger international collaborations in discipline-based and interdisciplinary science initiatives, a desire to grow polar archaeological research capacity through scholar development and post-graduate educational activities, the wish to develop more advanced field and analytical methods particular to polar archaeology, and to ensure continued access to potential datasets that may be environmentally and/or politically sensitive in the context of a changing arctic.

PAN is endorsed by the International Arctic Science Committee (IASC) (http://www.arcticportal.org/iasc/) as an IASC Network. IASC provided partial support for this workshop.

References

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References