Archaeological Perspectives on Climate Change

This session focuses on archaeological perspectives on climate change. In which ways can the archaeological record, together with other types of data, be used to inform on prehistoric climate change? How should we approach the relation between changes in climate and changes in human culture – an old enigma discussed already in the 1950's by, for example, the anthropologist Julian Steward.

In times of global heating and warnings for dramatic changes in the global climate, is the time ripe for a renewed archaeological discussion of the relationship between prehistoric climate and cultural changes?

We would therefore like to invite archaeological scholars that deals with this or related topics (from theoretical, historical, analytical, or other perspectives) to present papers in this session. Both interdisciplinary and multidisciplinary approaches are of course welcome.

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Human, Moose and Climate Change in Northern Sweden, 4000–3800 BP

The abrupt climate change that occurred around 4000 BP, coincides in an intriguing way with a major societal change among the hunting societies of northern Fennoscandia. The distinct period 4200-3800 BP marks the very end of a more that two millennia long economic and cultural relationship between moose and man. It is the termination of this bond and its potential cause that is the focus in this presentation.

We present a casual, plausible, relationship linking climate change, a key resource and human culture. Climate rapidly deteriorated during the centuries around 4000 BP. Simultaneously human cultures witnessed the disappearance of s of large amounts of moose bones, moose symbolism in human society and a decrease in the use of hunting pitfalls. We

suggest that moose had become very rare due to climate change and that the northern Fennoscandian hunting culture had no choice but to change their subsistence pattern and, perhaps, change their general way of life, as a response to the altered situation.

We speculate if climate change as the primary driver, together with human harvest as the secondary, can result in fast extinction of a key species.

We will illustrate the research issue with several archaeological examples, for example a recent archaeological excavation of a semi-subterranean structures with a surrounding embankment (Sw. *boplatsvall*) at Bastuloken Angermanland, an excavation below a rock painting at Korpberget in Lycksele, Västerbotten, and other archaeological examples.

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Finds From a Frozen Past: Climate- and Cultural History in South Norway

In 2006 there was a dramatic ablation of ice-and snowpatches in the alpine areas of South Norway. Various archaeological artefacts like shafted arrowheads, remains of “scare-sticks” organized in lines to direct the movement of reindeers, and other organic material associated with ancient hunting strategies were recovered on the sites of ablated ice-and snowpatches. Hitherto (January 2012) ca. 1600 artefacts have been collected, handed in to, and registered by the Museum of Cultural History (MCH), University of Oslo. This material constitutes a unique data set to study environmental change and human long term exploitation of alpine resources in South Norway and South Sápmi. Organic material dated to e.g. AD 500 like shafts and ”scare-sticks” melting out of the ice, are well preserved, and this indicates that the ice- and snow patches have been stable and on the spot for 1500 years. The archaeological material will also constitute a new basis for the study of Iron Age and Middle Age subsistence economy, e.g. hunting and trapping techniques, resource exploitation, exchange and consumption.

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Holocene Maritime and Marine Relations in the Baltic

The first pioneers on Gotland c. 9400 years exhibit one of the earliest maritime adaptations in the Baltic area. Throughout Holocene seals were important prey but hunting patterns developed and changed through time. Our ambition is to investigate whether changes and trends in marine mammal hunting strategies through time on Gotland were a consequence of hunting techniques, a changing environment or of a combination of both. Gotland is an ideal place to conduct a study of this kind; information on the environmental history of the Island is available and Gotland's chalk-rich bedrock preserves faunal remains making it possible to reconstruct the choices of the hunters with a high degree of precision. Furthermore, well preserved industries in bone, stone and flint make it possible to discuss different foraging techniques. Our aim is to closely integrate analyses of lithics and faunal remains. It is important to consider not only the external impact of the environment but also to discuss the degree to which cultural and economic practices themselves affected the environment. The most important site studied will be the cave site Stora Förvar on the Island of Stora Karlsö.

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Climate, human population size and cultural change

The Quaternary period has experienced a myriad of long and short term climate changes that have inevitably had an impact on modern and earlier species of humans. Here I will focus on one possible causal pathway leading from climate to cultural change. This pathway goes through the human population size that is increasingly recognized as an important factor affecting cultural variability and change. In cases where population size has an effect on culture, the ultimate reason for cultural change has to be sought among the factors that affect population size. Using theoretical knowledge and empirical examples I try to show that the climate, by affecting bioproductivity and, consequently, human food availability, has a strong influence on human population size. Therefore, I argue that even the most humanistically inclined archaeologists cannot totally ignore climate change when looking for the ultimate causes of cultural change.

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Finnish prehistory in global change archaeology

In this paper I discuss the significance of archaeological models on the socio-ecological evolution during prehistory for our understanding of current global change. Global change archaeology seeks to document and apply our knowledge of past human-environmental interactions to the understanding of contemporary environmental problems and management and planning for future sustainability. Global change topics include population growth, resource depletion, global warming etc. Introducing archaeological knowledge in the study of present day research on global change needs to be carried out in two steps. First of all we need to introduce the social into ecological studies. And secondly we need to convince global change scholars about the necessity of the long term perspective from archaeology for our understanding of present and future socio-ecological change. Archaeologists are in the best position to discuss socio-ecological evolution across temporal, social and spatial scales.

In this paper I use recent research done on human-environmental interactions during prehistory in northern coastal Finland to illustrate this two step model. This research has produced socio-ecological models across time and space which can also be tested in a modern contexts.

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A presentable explanation? Considerations on relating climate change and archaeological evidence

The role of climate – and consequentially environmental – change in archaeological explanation swung from the early “catastrophe models” to environmental determinism to an almost complete disregard during the 20th century. The present awareness of the threats of climatic change caused by global warming has once again made climate change and climatic catastrophes a presentable explanation for changes observed in past societies by archaeologists.

I do not intend to discuss a specific phase of prehistory or a particular geographical area, but to consider questions that I feel are relevant for any attempt at reconstructing the potential influence of climatic change on past human societies, regardless of the temporal or geographical setting. First, I would like to address the problems of scale and timing in relating past human activity (archaeological evidence) and climatic change (various terrestrial and marine records informative of past climates). Second, I would like to discuss some considerations

regarding the responses of past human societies to climatic change. Finally, I hope to raise discussion on how we are to produce a more informed interpretation of the interaction between climatic change and past societies, one that might avoid the simplifications of environmental determinism as well as what I see as a western omnipotence fallacy that environment is always subordinate to human culture.

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