

Food Diversity, Climate Change and the Resilience of Subsistence-Settlement Systems: A Case Study from the Jomon Period

*Junko Habu¹

1. Research Institute for Humanity and Nature

Archaeologists have long been interested in the study of the mechanisms of long-term culture change. Factors that involve specialization and centralization, such as domestication of plants, technological developments and social competitions, have been proposed as prime movers for the "development" of human societies. Contrary to these interpretations, this presentation proposes a hypothesis that diversity and decentralization may be critical for maintaining long-term sustainability of human societies in the order of hundreds to tens of thousands of years. Using the research outcomes of a Full Research Project "Long-term Sustainability through Place-based, Small-scale Economies: Approaches from Historical Ecology" at the Research Institute for Humanity and Nature, Kyoto, this presentation aims at testing the hypothesis described above and examining the long-term impacts of the loss of subsistence/food diversity in relation to other environmental and cultural factors. The theoretical genesis of this project is the approach of historical ecology, which conducts comprehensive research on long-term culture change while emphasizing the impact of human activities on the environment.

Results of lithic assemblage analysis, residue analysis on pottery, starch grains analysis on stone tools, stable isotope analysis of skeletal remains and faunal remains, and AMS radiocarbon dating of skeletal remains are used to understand changes through time in food and subsistence diversity and other cultural factors. These results are compared against the patterns and timings of climate change identified through pollen analysis and alkenone sea surface temperature analysis. In addition, GIS analyses are conducted to understand changes in settlement size and site distribution patterns. Simulation studies of population dynamics of the Early to Late Jomon periods using SPD (summed probability distribution) analysis are also conducted.

Keywords: Food diversity, Climate change, Resilience, Jomon, Subsistence-settlement systems