

The world's OLDEST pottery and stone arrowheads appeared in the cOLD est climate in the cOLD area in Japan

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The first emergence and development of pottery is an important archaeological research topic. Climate change and the associated ecological changes likely promoted the development of pottery. However, little is known about these environmental factors at regional scale. Sedimentary core MD01-2409 collected off the coast of northern Honshu, Japan, provided a good opportunity to quantitatively estimate paleo-temperatures using the alkenone proxy because of the positive correlation between atmospheric and sea surface temperatures. The earliest pottery found in Japan was excavated at the Odai-Yamamoto I site and its age was approximately 15.5-16.5 thousand calendar years before present (cal. kyr BP), when the climate on the island was the coldest one which the Jomon people had experienced due to weakened the Asian Summer Monsoon influenced by one of the global effects of Heinrich Event I. The atmospheric temperature was approximately 7~11°C lower than it is currently, which was a little colder than those at present-day Nemuro and/or Nosappu cities in Hokkaido. Subsistence in a terrestrial environment and plentiful marine products such as fishes and shells are consistent with the evidence that the earliest pottery was predominantly used for cooking marine and freshwater resources and increased diversification in the range of aquatic products used. Although the relationship between climate and the appearance of pottery in Japan may not be direct, the earliest pottery and projectile points (stone arrows) in the world are associated with the coldest period that Homo sapiens experienced since arrive in very cold region of the Japanese archipelago.

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