Analysis of Ceramics from Kuril Islands, Russian Far East

Erik W. Giesfeldt, Department of Anthropology, University of Washington

**Research Themes**

This paper presents exploratory research on the hunter-gatherer ceramics of the Kuril Islands, Russian Far East. The purpose of this research is to understand basic questions about the ceramics of the region including manufacture, use, and transportation of vessels and technologies.

**Pottery Manufacture**

Given the physical environment of the Kuril Islands, pottery manufacture may be seen as a costly technology to develop and maintain. This is due to the patchy distribution of ceramic manufacturing materials (clay and wood), the poor quality of the most common clay resources found in swamp/land areas due to poor crystalline structure and lower organic content.

**Pottery Use**

The functional use of ceramics in the Kuril Islands is not specifically known. However, based upon the heavy marine economy of the past cultures (Yamaura 1998, Okada 1998, Hudson 2004) ceramics were likely used for cooking and rendering of marine mammal products.

**Results:**

- **Epi-Jomon:**
  - Mean Apparent Porosity: 21.17%
  - Mean Base Thickness: 7.35 mm
  - Mean Organic Content (LOI): 12.80%
- **Okhotsk:**
  - Mean Apparent Porosity: 30.00%
  - Mean Base Thickness: 14.48 mm
  - Mean Organic Content (LOI): 10.83%

**Exploring Raw Material Procurement:**

- **XRF Analysis:**
  - TGA Analysis of Ceramics from the Vodopodnaya 2 and Ainu Creek Sites

**Exploring Clay Source Variability using pXRF**

- **Research Question:** Does the variation in elemental concentrations of the most local or imported ceramic production at the Vodopodnaya 2 and Ainu Creek sites suggest the use of local clays? Does the use of local clays suggest the use of local raw clay samples?

**Regional Chronology**

- **Ainu Creek Profile**
- **Okhotsk Profile**
- **Map of Kuril Islands showing major straits (1. Bussol and 2. Kruzenstern) and geographical groupings of islands. Map created by Adam Freyburg**

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**Physical Environment**

The Kuril Islands are a directional archipelago running south-to-north from the Japanese island of Hokkaido to the Russian Kamchatka peninsula. The island chain is composed of approximately 32 islands stretching for 1200 km and varying in size from 5 km² to 3,200 km². In general, the islands become more biogeographically isolated toward the center of the island chain with the northern and southern islands substantially larger than those in the central region (Falupport et al. 2004). Two major strata separate the island chain into three geographical groupings, the southern, central, and northern islands. Key features of the physical environment of the Kuril Islands are the frequency of catastrophic events (volcanic eruptions, earthquakes and tsunamis), variability in seasonal climatic conditions and the patchy distribution of resources between islands.

**Ceramics of the Kuril Islands**

**Typical Features of Epi-Jomon Ceramics**
- **Surface Treatment:** Cord-marked
- **Major Decoration:** Cord
- **Material Decorations:** Pinkish Rims, Appliquéd
- **Shape:** Conical tall bowl with flat bottom and maximum diameter at mid-
- **Mean Wall Thickness:** 7.4 mm
- **Distribution:** Southern, Central

**Proposed Function:** Cooking (Direct Heating)

**Typical Epi-Jomon Profiles**

**Typical Features of Okhotsk Ceramics**
- **Surface Treatment:** None (Possibly Oiled Treatment)
- **Major Decoration:** None
- **Material Decorations:** Stamps, Appliqués, Incisions
- **Shape:** Bowl with the bottom with convex collar or upper body and expanding rim
- **Mean Wall Thickness:** 9.0 mm
- **Distribution:** Southern, Central, Northern

**Proposed Function:** Cooking (flat Stone boiling)

**Exploring Clay Source Variability using pXRF**

**Research Question:** Does the variation in elemental concentrations of the most local or imported ceramic production at the Vodopodnaya 2 and Ainu Creek sites suggest the use of local raw clay samples? Does the use of local clays suggest the use of local raw clay samples?

**Method:** pXRF a using Bruker Tracer III with a 45 (12 mm), Cu (60 mm) and Ti (1) mm filter, calibrated with powdered USGS standards and Bruker SICAl Process software.

**Results:** Elemental analysis of powdered sherd and one raw clay sample (MillBay) from Vodopodnaya 2 site (top) suggest partial source groups (based upon 1 SD). However, with the exception of Group 5 (C5) overall variation suggests a local (same island) origin of most ceramics. The Ainu Creek site (bottom) shows slight different results with low Zr variation but high Sr variation. Possible interpretations of this pattern could be the use of local clays formed from variable water flows and ph level (i.e. swamp/clay).