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THE SPATIAL DISTRIBUTION CHANGE OF OBSIDIANS FROM KŌZUSHIMA (JAPAN) IN THE YAYOI PERIOD

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INTRODUCTION

This report sums up the research I have conducted in the Izu Islands (Jap. Izu shotō 伊豆諸島), located off the coast of Honshū 本州 in the south-eastern part of Japan. My study focuses on the communities that lived on the islands and the distribution of obsidian during the Yayoi 弥生 period.

The Izu Islands lie in the Japan Current of the Pacific Ocean, about 100 kilometres from Tōkyō (Fig. 1). They are comprised of seven islands, including Kōzu-



Fig. 1: Location of Izu islands and area of obsidian distribution.

shima 神津島, which was an obsidian production area in the Yayoi period. Obsidian from Kōzushima was in use as far back as the Palaeolithic period, which suggests that already in that era there were groups of people with nautical skills. We know that obsidian from Kōzushima was distributed in the Kantō 関東 and Tōkai 東海 regions of mainland Japan during the Palaeolithic,

Jōmon 縄文 and Yayoi periods. We moreover know that obsidian from the Shinshū 信州 region was also distributed in the Kantō and Tōkai regions. My report will concentrate on Yayoi-era settlements on Miyakejima 三宅島, an island to the east of Kōzushima. I believe that Miyakejima served as a distribution centre for obsidian during the Yayoi period, and that it was instrumental in distributing the resources found in the Izu Islands to the Kantō and Tōkai regions.

OBSIDIAN DISTRIBUTION AND SETTLEMENT PATTERNS IN THE IZU ISLANDS

The graph (Fig. 2) shows the results of the X-ray analysis determining the localities of some 2,300 specimens of obsidian unearthed at archaeological sites in the Kantō and Tōkai regions and dating from the late Jōmon through the Yayoi period (SUGIYAMA and IKEYA 2006)¹. Site names are indicated on the left and corresponding periods are noted on the right. The blue bars indicate the proportion of obsidian from Kōzushima. Shinshū, indicated by the orange bars, with other production sites by other colours, accounted for most of the obsidian from the late Jōmon to the early stage of the middle Yayoi period. A drastic change in distribution patterns, however, occurred in the middle stage of the middle Yayoi period with almost all obsidian production shifting to Kōzushima.

¹ The analysis of obsidian source was done by X-ray analyses, and operated by Dr. IKEYA Nobuyuki (refer to SUGIYAMA and IKEYA 2006).

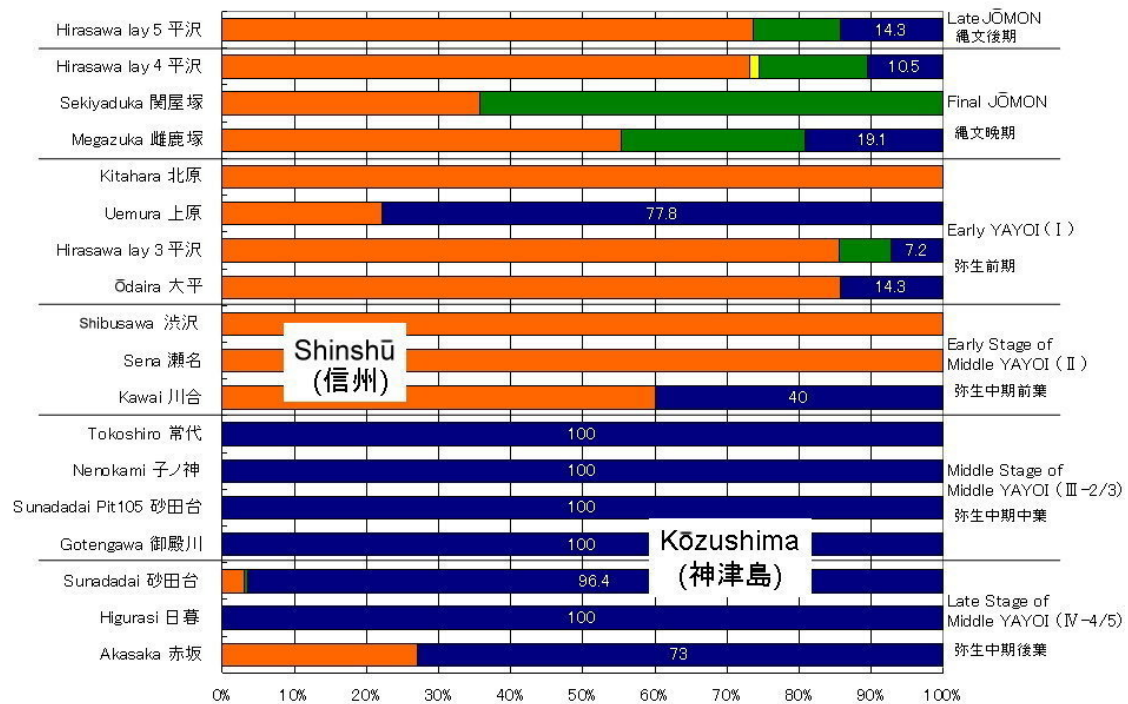


Fig. 2: Change in obsidian distribution.

The distribution structure of obsidian seems to correlate with changes in settlements located in the Izu Islands. The red dots on the map indicate village sites (Fig. 3). Map A shows the locations of villages from the late Jōmon period through the early stage of the middle Yayoi period, thus covering a particularly long period of time. Settlements were apparently scattered in various locations in the Izu Islands. Even if we employ finer temporal partitions, communities seem to have existed continuously on most of the islands during the period under discussion. However, in the middle stage of the middle Yayoi period, just at the time that obsidian distribution patterns changed, village distribution on the islands changed significantly as well. Map B (Fig. 3) shows that settlements of this phase concentrated on Ōshima 大島 and Miyakejima, with no confirmed sites on the other islands. The sites marked for Ōshima have not yet been excavated, so we do not know any details. The sites on Miyakejima, however, have been excavated and studied (SUGIHARA 1934; ŌTSUKA 1958; SERIZAWA 1958; ŌTSUKA 1965; HASHIGUCHI 1975, 1983; AOKI et al. 1996). We have found large amounts of obsidian there as well as pottery from various regions, leading to the conclusion that Miyakejima virtually had the monopoly on the distribution of obsidian originating from Kōzushima.

Following this phase, a change in the distribution of villages occurred. As Map C (Fig. 3) indicates, Miyakejima and the rest of the Izu Islands became uninhabited after the Ozato 大里 and Bōta 坊田 sites were abandoned. While it is certainly possible that sites have been buried by the ash and lava generated by the volcanic activity that affects all of the islands, the fact remains that, at least up to the present time, we have no

examples of Yayoi pottery dating from the time in question. This hiatus stretches to the end of the middle Yayoi period. Artefacts stemming from various sites of that period confirm that people had returned to both Ōshima and Miyakejima. Subsequently, although it is not shown on these maps, evidence of human habitation vanishes again from all of the islands during the middle stage of the late Yayoi period and does not reappear until the tumulus period.

SITES IN MIYAKEJIMA

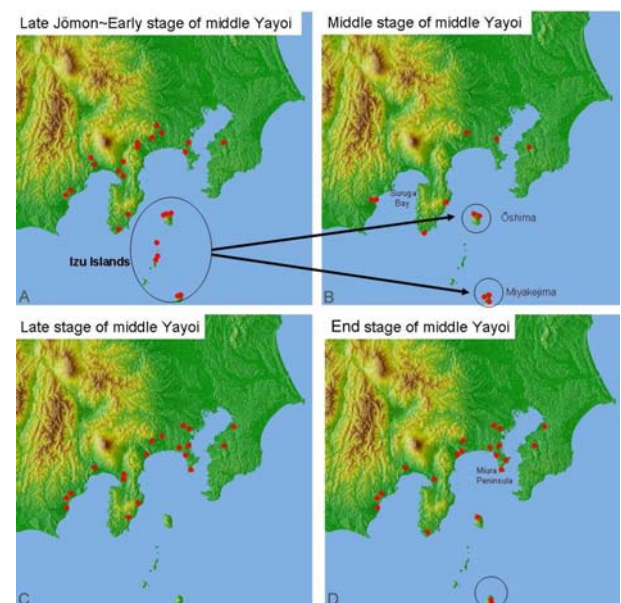


Fig. 3: Distribution of settlements in Izu islands.

There are numerous settlement sites in Miyakejima; almost all of them are located on the north-west or south-east part of Miyakejima. I will concentrate on three sites in this paper, Ozato, Bōta, and Kokoma ココマ (Fig. 4). We have found more than 10,000 obsidian specimens at the Ozato site. The Bōta site dates a little later, but we still have found obsidian there as well, though in lesser quantities. People living in Ozato and Bōta were apparently engaged in the distribution of obsidian. Both sites also yielded large amounts of pottery, all in fragments. Most of the pottery closely resemble specimens found around Suruga 駿河 Bay, which seems to indicate that the people who settled on Miyakejima came from Suruga Bay in search of obsidian.

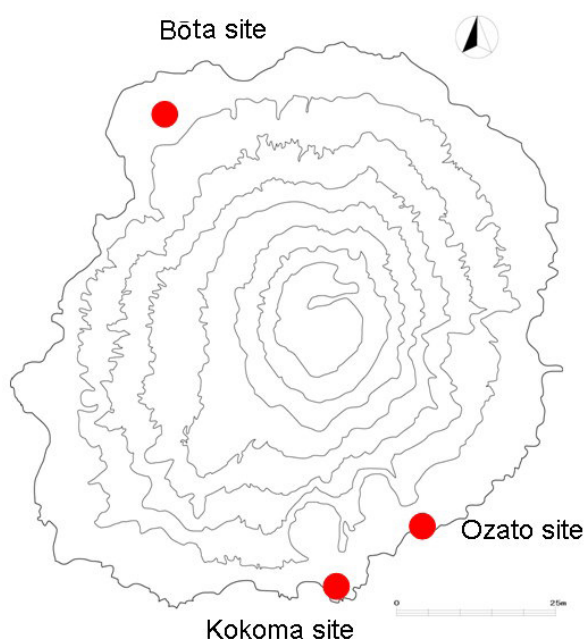


Fig. 4: Location of sites in Miyakejima.

The Kokoma site, dating back to the end stage of the middle Yayoi period, is situated beneath a cliff on the shore, with strata containing pottery fragments and bones. Our excavations have shown that the site was primarily a production centre for shell bracelets (SUGIYAMA et al. 2008; OSHIZAWA 2008). The Yayoi pottery unearthed here is similar in pattern, shape, and clay to specimens from the Miura 三浦 Peninsula (IKEYA et al. 2008). There obviously is a difference in pottery production between the middle and end stages of the middle Yayoi period.

VILLAGES AND VOLCANIC ERUPTION

We are then left with the question why communities disappeared not only from Bōta and Kokoma on Miyakejima but from the Izu Islands in general. One possible explanation is that volcanic activity influenced the living environment. The Izu Islands are home to many active volcanoes. Miyakejima is particularly active in this regard; the island is affected by eruptions or other volcanic events an average of once every twenty years.

In order to test this hypothesis, we have started a joint research project last year (2007), bringing together archaeologists and volcanologists.

Bōta site has been excavated only in May 2008 (NIIHORI et al. 2008). We have found a pit that – after my analyses – was filled with pyroclastic flow and volcanic ash (Fig. 5). Inside the pit I discovered red discolorations, which probably were caused by the high heat of the pyroclastic flow. In other words, a volcano apparently erupted on Miyakejima when people were living in Bōta. The residents must have taken their intact pottery and stone vessels with them when they evacuated. This is why nothing but broken pottery shards has been unearthed at the site.



Fig. 5: Bōta site pit.

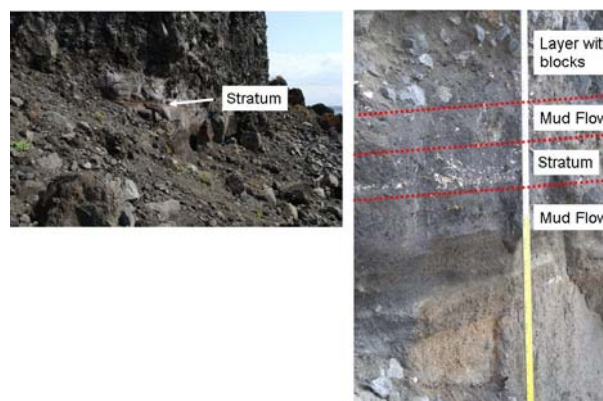


Fig. 6: Kokoma site strata.

We excavated Kokoma last year (2007) (Fig. 6).² This site was also affected by a volcanic eruption. Above a stratum that contains pottery and other artefacts we identified a stratum of mud flow. On top of that, measuring about 50 meters in height, lies a stratum created by a phreatic explosion (NIIHORI et al. 2007). This leads to the conclusion that both the Bōta and Kokoma sites were affected by volcanic activity.

CONCLUSION

After summarising the results of our excavation project at Miyakejima, the question arises, why people came to live on the island during the middle Yayoi period. First, it seems that they came to find marine-based resources such as obsidian and shells. They collected these materials, processed them on the island, and then distributed them in the Kantō and Tōkai regions on the Japanese main islands. However, people did not live on

² The excavation report of Kokoma site will be published in spring 2009.

Miyakejima very long, as I can tell from the limited types of Yayoi pottery that can be found at archaeological sites there. Considering this situation, I came to the conclusion that the only reason people came to live on the island was to obtain resources. When volcanic activity led to a dramatic change of the environment, settlers must have given up the idea of living on the island; instead they took their belongings and left. The ability of early people to live continuously on the islands was determined by their respective environment. I suppose that Miyakejima had a reputation as a sort of 'treasure island' for natural resources among the people of the period. This would help to explain why people at different times and from different regions came to the island and established settlements such as those at the Bōta and Kokoma sites. The settlement structures of this period are of course very different from the way of life found on the islands today. In the Yayoi period, places were occupied simply because people could obtain resources there. At some later date, however, people began to live permanently on the islands. Determining just when and why this change occurred is important if we are to understand the history and culture of the Izu Islands.

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