Instrumental Neutron Activation Analysis for the Source Estimation of Obsidian Samples from the Site of Hamanaka2, Rebun Island, Hokkaido

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Obsidian samples from the site of Hamanaka2, Rebun island in the north end of Hokkaido were studied by instrumental neutron activation analysis (INAA) to identify their source by minor elemental concentrations and to clarify the cultural exchange, racial migration or trading routes in ancient Hokkaido.

Nine elements (Sc, Fe, Rb, La, Ce, Sm, Hf, Th and V) were determined by INAA for obsidian samples of known origin in Hokkaido and Aomori prefecture and excavated at the site of Hamanaka2, the determination was carried out by comparison with reference standard rock samples from geological survey of Japan.

The origin of excavated obridians was able to be estimated using the Log-Log plot of concentration ratios of Fe/Th and Sm/Th.

The obsidians excavated from the lowest layer corresponding to the latter stage of the Jomon period were mostly from Akaigawa locating the south-west of Hokkaido and being near the Sea of Japan.

This fact supports that the Jomon people in the south Hokkaido come to Rebun island by boat. At the last stage of Jomon period, the origin of obridians was from not only Akaigawa but also central parts in Hokkaido such as oketo and Shirataki. At the Epi-Jomon, the cultural exchange was known to be active between Rebun Island and the central Hokkaido from the fact that the weight of Akaigawa extremely decreased and that of Oketo increased.