

Introduction of the Shirataki Geopark of Obsidian and Archaeological Sites

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The Shirataki Geopark Project Promotion Council, Engaru town, started in 2006 for the purpose of affiliation with Japanese Geopark Network. All of the important geological, archaeological, and ecological elements required for the formation of Geopark exist in abundance in Engaru town area. The main objectives of the Shirataki Geopark project are the continued conservation and research of these assets, while supporting sustainable development through education and tourism. We reach Japanese Geopark Network application again in 2010. The main theme of the Shirataki Geopark of Obsidian and Archaeological Sites is a harmony of earth science and history of people, and we can deeply imagine unique volcanic activity that formed obsidian and prehistoric people that survived the last glacial maximum at the deep forest in the Shirataki Geopark area.

The Shirataki Geopark of Obsidian and Archaeological Sites is characterized by some complete exposures of the compact obsidian layers, which are always developed at outer part of single rhyolite lava. The Shirataki obsidian was formed by quenching of aphyric rhyolite magmas at least 10 lava units within Horoka-yubetsu caldera at about 2.2 Ma ago (Wada, 2009). The Shirataki obsidian in Monbetsu-Kamishihoro graben (Yahata, 1997) was probably formed in the tensional field of the crust. The aphyric rhyolite magmas are divided into two magma series; one is Tokachi-ishizawa magma and the other is Akaishiyama magma. We can see the internal-structure section of single rhyolite lava with the clastic surface zone, outer compact obsidian zone, vesiculated obsidian zone, and central thick rhyolite zone. The outer compact obsidian zone makes remarkably fresh obsidian with one of the best quality and quantity in Japan.

Shirataki obsidian is the most important source of stone artifacts in Hokkaido. Stone tools made from Shirataki obsidian have been excavated from various prehistoric sites in Hokkaido. They have even been found as far away as Sakhalin, northern Tohoku and Kurile Islands (Kimura, 2005; Kuzmin et al., 2002; Phillips and Speakman, 2009), suggesting an extensive prehistoric distribution network of obsidian. In addition, there are large-scale Paleolithic sites where the obsidian was processed to make microblades by Yubetsu technique in Shirataki area (Kimura, 1995). The Shirataki sites are designated as a national historical heritage due to the number of objects found there.

Keywords: Shirataki, obsidian, Geopark, rhyolite magma, Paleolithic site, glacial age