

Wasabi Production linked to Geology and Climate of the Izu Peninsula and its Use in Geopark Activities

*Keiko Sasaki¹

1. Izu Peninsula Geopark and Tourism Bureau

The Izu Peninsula juts out approximately 60 kilometers south from the eastern tip of Shizuoka Prefecture. It was originally a group of undersea volcanoes formed on the Philippine Sea Plate far south of Mainland Japan. Repeating eruptions while moving northward with the Philippine Sea Plate, it collided with the mainland about one million years ago, becoming the peninsula we see today. Volcanic activities and crustal movements have continued on land ever since.

Wasabi, a specialty product of the Izu Peninsula, is deeply connected to the climate and the geological formation described above. First, the Kuroshio Current, which flows along the Pacific coast of the Japanese archipelago, brings moist air to the peninsula, causing heavy rainfall of more than 4,000 mm annually in the Amagi Mountains, whose peaks exceed 1,000 meters in elevation. The Amagi Mountains are a group of large terrestrial volcanoes formed after the collision of Izu and Mainland Japan, and they are composed of porous volcanic rock. The abundant rain brought by the Kuroshio Current flows through cracks in the lava and is stored underground. It forms aquifers along older, less permeable strata. Eventually, abundant spring water emerges at the mountain foothills. This constant supply of water, maintained at a temperature of around 14 degrees Celsius and free from organic matter or soil, enables the thriving production of high quality wasabi at the base of the Amagi Mountains.

The terraced wasabi fields of Izu are constructed using the Tatamiishi method, developed in Izu by Kumataro Hirai in 1892. Each individual wasabi field is built by gradually stacking large stones, smaller stones, and sand from the lower to the upper layers, allowing water to flow both on the surface and within the layers. This terraced structure supplies water of stable temperature and rich in oxygen from the upper tiers to the lower ones, enabling the growth of high quality wasabi. Furthermore, since wasabi suffers from autotoxicity, the constant supply of fresh water prevents growth inhibition and root rot. The availability of abundant stones was likely one reason the Tatamiishi method was developed in Izu.

Cultivation methods for water grown wasabi, including the Tatamiishi method, have been recognized for their global value as practices that should be passed down to future generations. In 2018, they were designated as a Globally Important Agricultural Heritage System by the Food and Agriculture Organization of the United Nations. Around the same time in 2018, the Izu Peninsula was also designated a UNESCO Global Geopark, leading to collaborative activities such as the creation of joint interpretive panels with GIAHS. Furthermore, wasabi is utilized for Geopark tourism and Geopark's product certification system. We aim to continue leveraging wasabi, cultivated through adaptation to the Izu Peninsula's natural conditions including its topography and geology, as a communication tool to promote sustainable regional development.

Keywords: Izu Peninsula Geopark, Volcanic Activities, Kuroshio Current, Globally Important Agricultural Heritage Systems, Traditional Wasabi Cultivation, Tourism

