

Shaped by the Cold

Snow and ice affect all aspects of the geopark, from its landforms and ecosystems to the lives of the people that live in Shikaoi. Windholes, a unique feature of the park, help to preserve patches of permafrost in the mountains around Lake Shikaribetsu. The permafrost in Tokachi Shikaoi Geopark is some of the southernmost in the Northern Hemisphere and is found at relatively low elevations, where it is uncommon outside of the Arctic.

Block slopes and windholes

Large, angular rock fragments of almost uniform size cover the slopes of many of the Shikaribetsu lava domes that were active during the last ice age (80,000–10,000 BP). The rocky slopes, or “block slopes,” are the result of the lava cooling process and ongoing freeze-thaw weathering. Networks of windholes have formed on these frost-shattered slopes, creating a natural cooling system that regulates the climate of the slopes and allows them to support species typically limited to sites farther north or at higher elevations. Hikes through the mountains of Shikaribetsu offer views of these vast slopes. The approach to the summit of the tallest of the Shikaribetsu lava domes, Higashi-Nupukaushinupuri (1,252 m), passes clusters of windholes.

Preserving permafrost

The windholes in the mountains around Lake Shikaribetsu play an active role in preserving permafrost. From autumn through winter, freezing cold air enters the windholes and becomes trapped in the spaces between rock fragments. This has a cooling effect on the already frozen ground, keeping it almost entirely frozen through spring and summer. In spring, meltwater seeps into the windholes, where it freezes and adds to the ice stores within the windhole chambers. Warm air infiltrates the windholes in summer, but the replenished ice stores and super-chilled ground cool the air and prevent extensive permafrost thawing. Researchers studying the permafrost preserved by windholes have discovered 4,000-year-old ice, the oldest found in Japan to date.

Winter spectacles

Snow covers the ground in the Shikaribetsu area throughout much of winter. Lake Shikaribetsu freezes over in December and remains fully frozen until around mid-April. Each winter, the Shikaribetsuko-Kotan igloo village is created on the frozen lake, featuring attractions such as an ice bar, an ice chapel for weddings, an ice hall for

concerts, ice lodges, and an open-air hot spring. Winter in Tokachi Shikaoi Geopark also features other seasonal events and activities, such as snowshoeing and wildlife watching.