

## **Volcanic Activity and the Tokachi Plain**

The foundations for the Tokachi Plain were laid when the Eurasian and North American plates collided approximately 13 million years ago and formed the Hidaka Mountains. The plain subsequently took shape over many millions of years as a result of volcanic activity and other geological processes.

### *A supervolcano erupts*

Approximately one million years ago, a massive eruption occurred north of Shikaoi, in the northern part of what is now Daisetsuzan National Park. The eruption generated pyroclastic flows—dense, fast-moving masses of solidified lava fragments, volcanic ash, and hot gases. These carried volcanic debris south over the Tokachi region. The vast amount of debris from this, and other eruptions across Hokkaido, contributed to the formation of the wetlands which would eventually become the Tokachi Plain.

### *An indication of scale*

The scale of the eruption was 100 times that of Mt. Vesuvius which buried Pompeii, and the total amount of debris deposited would cover all of present-day Hokkaido in a 1-meter-thick layer of ash and rock fragments. The cataclysmic eruption changed the shape of the Tokachi region, and left a large caldera 10 by 14 kilometers where the volcano had erupted. The caldera formed after the eruption, as its pyroclastic flows drained out the volcano's reservoir of magma. As lava poured out of the volcano, its magma chamber emptied. The summit then collapsed into the vacated chamber below. The enormous size of the caldera is an indication of the scale of the eruption.

### *Pyroclastic flows*

Pyroclastic flows can carry volcanic debris over long distances at speeds of nearly 100 kilometers per hour, and they can reach temperatures up to 1,000 degrees Celsius. The Shikaribetsu River has exposed pyroclastic flow deposits in the Nishi-Urimaku district of Shikaoi, 45 kilometers from the Tokachi-Mitsumata Caldera. The outcrop is up to 30 meters high—evidence of the large volume of debris carried into the Tokachi region.