

Topography and Geology of the Minami Alps

Growing and shrinking at the same time

Tectonic forces driving in from the east and west pushed the Minami Alps up from the bottom of the sea around one million years ago. This process is still ongoing today, and the mountains continue to rise 3 to 4 millimeters per year, the fastest rate of uplift anywhere in Japan and one equal to that of the Himalayas.

Because the mountains rose so rapidly, the ridges and hillsides of the Minami Alps tend to be unstable and prone to collapse. This results in frequent landslides, a tendency that is only exacerbated by the abundant rainfall. Denudation—the geological process by which moving water erodes the Earth's surface—causes the mountains of the Minami Alps to shrink slightly in volume every year, even while they gain in height.

Glaciers carved out U-shaped valleys across the Minami Alps during the last Ice Age, 20,000 years ago. River erosion caused by heavy rainfall over the millennia has made these valleys steeply V-shaped, but the mountains still retain many remarkable glacial features. These include cirques, the concave, steep-walled depressions that glaciers carve into mountains at high altitudes; moraines, the mounds of earth and stones that glaciers leave as they retreat down the mountain; and periglacial features such as patterned grounds, intriguing arrangements of rocks and stones caused by repeated freezing and thawing. The Minami Alps are still the site of Japan's southernmost glacier.