Topography of Daisen and Hiruzen

The peaks surrounding the Hiruzen Highlands are part of a chain of stratovolcanoes stretching southeast from Mt. Daisen (1,729 m) in Tottori Prefecture. Between 1 million and 500,000 years ago, repeated eruptions formed the Hiruzen peaks of Mt. Zōyama (1,085 m), Mt. Giboshiyama (1,110 m), Mt. Futamatayama (1,083 m), and Mt. Minagasen (1,159 m), as well as the trio of peaks collectively called the Hiruzen Sanza, or "Three Peaks of Hiruzen": Mt. Kami-Hiruzen (1,202 m), Mt. Naka-Hiruzen (1,123 m), and Mt. Shimo-Hiruzen (1,100 m).

Most of the Hiruzen peaks were created by slow-moving, viscous lava flows. Like Mt. Daisen, the Hiruzen mountains are composed mostly of dacite and andesite, volcanic rocks formed from hardened lava that are prone to erosion.

The ridgeline of the Hiruzen Sanza peaks forms the boundary between Okayama and Tottori Prefectures. On their southern side, at an elevation of about 600 meters, the steep slopes flatten out into a wide, gently sloping skirt known as the Hiruzen Highlands. The region contains broad swathes of grassland that provided locals with fodder for livestock, fertilizer for fields, and thatch for housing until the mid-twentieth century. Today, the grasslands are also recognized as a crucial habitat for several endemic and endangered species. Every spring, the ground cover is cleared with the age-old tradition of controlled burns (*yamayaki*). The burns stimulate the germination of native grasses and prevent the landscape from reverting to forest.

South of the sloping highlands lies a wide alluvial plain known as the Hiruzen Basin. Around 350,000 years ago, an avalanche of volcanic ash and debris flowed into a river channel and dammed it. The area flooded, creating a huge lake. During that time, tiny single-celled algae called diatoms lived in the waters. Their skeletons were made of silica (a form of silicon). When the diatoms died, they drifted to the lake bottom to form a layer of silica-rich sediment that in places is nearly 100 meters thick. Called diatomaceous earth or diatomite, this sediment's light weight, abrasiveness, and porousness make it useful in applications ranging from filtering beer to making dynamite. Hiruzen is one of Japan's key regions for silica mining.

Ongoing volcanic activity on Mt. Daisen eventually caused the western part of the Hiruzen Basin lake to fill with volcanic debris. At the same time, the eastern shore of the lake began to erode into the Asahi River system to the south. Once the lake had fully drained, the newly revealed lowland flats became prime land for settlement—and now are home to the modern-day city of Maniwa.