

## **Mt. Sanbe: Composition and Volcanic Deposits**

Mt. Sanbe sits on a base (or “basement”) of diorite and biotite granite that formed during the Paleogene period, between 66 million and 23 million years ago. When Sanbe first erupted 100,000 years ago, viscous lava and volcanic material flowed over this ancient bedrock. The lava cooled into amphibole biotite dacite, a volcanic rock with a unique mineral assemblage that is only found near Mt. Sanbe. During its second eruptive phase, Sanbe violently ejected ash and pumice, blanketing areas of the coast as far as 20 kilometers away. Sediment from this phase contains pieces of charred wood, indicating that the nearby forest was burned by the incredibly hot wave of ash and gases released by the eruption.

Like other composite volcanoes, Mt. Sanbe was formed as each new eruption deposited layers of lava, sediment, and ashfall. Excavations of these layers have generated a timeline of Sanbe’s eruptive history and provided clues about how the landscape has changed over time. Dating the layers is possible partly because of sediment deposited by other volcanoes. Some volcanoes with known eruption dates erupted strongly enough to deposit volcanic material on Mt. Sanbe, and those layers serve as reference points for dating the Sanbe deposits above and below them. Such events appear in the strata from 90,000 years, 30,000 years, and 7,300 years ago. Likewise, material ejected from Mt. Sanbe’s stronger eruptions has helped geologists and archaeologists date excavation sites as far away as Fukui Prefecture, northeast of Kyoto.

Today, most of the rock on Mt. Sanbe’s surface dates to the comparatively recent eruptions of Phases IV through VII. The peaks of Osanbe, Mesanbe, Kosanbe, and Magosanbe formed from lava domes and are made of dacite, while Taiheizan and the lower slopes of the mountain are composed of accumulated pumice and ash.