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Activity of Koshikidake volcano in Kirishima volcanic complex

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The Kirishima volcanic complex has over 20 craters within a 25 km WNW-ESE and 15 km NNE-SSW expanse. It is known that volcanic activity in this complex predates the K-Ah tephra reported by Inoue (1988) and Imura (1992). The Kirishima volcanic complex consists of some types of volcanoes: those that eject lava, for example, Takachihonimine, and those that exhibit plinian eruptions, for example, Karakunidake. To clarify the differences between these types of volcanoes, we studied the Koshikidake volcano, one of the volcanoes in the Kirishima volcanic complex, that is of the type that ejects lava. We found approximately ten different tephra layers, collectively called the Koshikidake tephra, around this volcano. The first-stage tephra was indicative of five small vulcanian and scoria fall eruptions. Charcoal wood bottom of the Koshikidake tephra was dated to be 19,000 years BP. The sixth scoria fall was the largest tephra among all. In this case, over 1 to 2 km³ of lava flowed down the northern part of the volcano. Subsequent, recent stages were again indicative of repeated vulcanian and scoria fall eruptions. Traces of the largest vulcanian eruptions were observed in the recent tephra. Over the last 30,000 years, the Koshikidake volcano has ejected the greatest volume of products in the Kirishima volcanic complex. We estimated the activity period of Koshikidake volcano using the depositional rate of Ushinosune ash fall reported by Inoue (1988). The activity period and eruption volume are similar to those of the Takachihonimine volcano between 7600 and 7300 years ago.

Keywords: Kirishima volcano, Koshikidake, volcanic activity, age, volume of eruption