Reinvestigation of the eruptive history of Me-akan volcano, eastern Hokkaido, using trench survey

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Me-akan volcano is an active volcano located in the Akan Volcano area in the eastern part of Hokkaido. It is located on the southwest wall of the Akan Caldera as one of the caldera volcanoes after the Akan caldera (Furebetsu, Fuppushi, O-akan, and Me-akan) grown. It is believed that the eruption activity of Me-akan volcano started from tens of thousands of years, after which it repeatedly erupted from at least eight craters and reached the present appearance.

The eruptive history of Me-akan volcano after 12000 years ago is shown by Wada et al. (1997). They presented the three pyroclastic flows (Nakamachineshiri I: about 12000 years ago, Nakamachineshiri II: about 9000 years ago, and Nakamachineshiri III: about 5000 to 6000 years ago) with the Nakamachineshiri crater. Among them, the Nakamachineshiri I, 12000 years ago, is the largest, and it has been revealed that it flowed out in all directions from the crater. The Nakamachineshiri II and III are confirmed only at the western foot of the Me-akan volcano. For several thousand years ago, the activities such as flowing out lavas and descending pyroclasts occurred in each mountain body of Ponmachineshiri, Kitayama, Nishiyama and Akanfuji. Since about 1000 years ago, eruption activity has been intermittently occurring in Ponmachineshiri.

We have been conducting a trench survey since 2018, in order to clarify the eruption history of Me-akan volcano since 12000 years ago. In 2018, we conducted a trench survey of nine points at the eastern foot of the Me-akan volcano. In this study, we carried out reinvestigation of the eruption history of Me-akan volcano using the trench survey and the ^{14}C ages, and reported the results.

In the trench survey, the pyroclastic flow deposit was confirmed at the lowest position. From the characteristics of deposit and the age value of 12000 ±40 yrBP (13991calBP-13745calBP) from the carbonized wood contained in the deposit, this pyroclastic flow deposit can be compared with Nakamachineshiri I (Wada et al., 1997). Several pyroclastic surge deposit could be confirmed on the pyroclastic flow deposit through the soil. 6410 ±30 yrBP (7420calBP-7277calBP (95.4%)) from the soil immediately under the lowest pyroclastic surge deposit, and 2710 ±20 yrBP (2855calBP-2761calBP (95.4%)) from the soil directly above the uppermost pyroclastic surge deposit. The age value of the lower pyroclastic surge deposit is comparable to Nakamachineshiri III (Wada et al., 1997). Therefore, Nakamachineshiri III may be distributed not only at the foot of western foot but also at the eastern foot as a pyroclastic surge. In addition, the Nakamachineshiri III not only occurred at about 6000 years ago, but also the possibility of having flowed out several times as a pyroclastic surge by 2800 years ago. At the top of the pyroclastic surge deposit, there were at least 13 scoria fall deposits of Akanfuji. They were sandwiched between volcanic ash soils of several mm to several cm. The age value of 2430 ±20 yrBP (2694calBP-2635calBP (16.7%), 2614calBP-2593calBP (4.7%), 2502calBP-2355calBP (74.0%)) was obtained from the soil directly beneath the lowest deposit of Akanfuji. Therefore, the activity of Akanfuji began around 2700 years ago. This result is consistent with the age of activity of Akanfuji indicated by

Sato and Wada (2017). At the top of the deposit of Akanfuji, there were three volcanic ashes derived from the Ponmachineshiri through thin soil. The lowest volcanic ash layer (Pon-1, Minami et al., 2019) contains wide spread volcanic ash (Ma-b: about 1000 years ago) from Mashu volcano in patch shape. Therefore, the activities of Akanfuji have been completed about 1,000 years ago, and about 1,000 years ago erupted simultaneously at Ponmachineshiri and Mashu volcano.

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