

Discovery of the Holocene tephra sourced from the Hachimantai Volcano

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The Hachimantai Volcano is categorized as Active volcano, although that have never reported any volcanic activity after human historical age. However, there are the typical craters named of the Pond Megane and the Pond Gama, and the chain of five or six craters like the Pond Hachiman runs from east to west. These craters could be formed by later eruption relatively, judging from the shape of crater and the erosion of its wall (Doi, 1997).

We were surveyed the field in order to understand the latest volcanic activity, and found the three new layers of tephra that sourced from the Hachimantai Volcano. There upper tephra, the Hachimantai A tephra (the tentative name) confirming relatively wide distribution area, was solidified fine ash with light yellowish brown and poor sorting. We found the volcanic breccia formed bomb sag structure near the Pond Gama and the Pond Hachiman. Below the Hachimantai A tephra, the two clayish volcanic ash, the tentative name of the Hachimantai B and C tephra, was found. But the distribution of the two units could not become clear in this study.

These three tephra could be thought as phreatic eruption, because the deposits have not contained the essential fragments like volcanic glass. The peat below the Hachimantai A tephra were measured by radiocarbon dating, these age is 6,220-6,330 yr BP, and the peat at the below this A unit have 5,230-5,290 yr BP. A very thin volcanic glass layer was found in the peat at the under the Hachimantai A tephra. The volcanic glass was determined as the Kikai-Akahoya tephra, because of the age of peat and the shape of that glass, the reflective index and the chemical composition of the glass by EPMA analysis. Judging from these observations and measurements, we thought that the Hachimantai A tephra was erupted about 6,000 yr BP.

There is a peat unit including the Kikai-Akahoya tephra above the Hachimantai B tephra, and another peat unit that age is 8,860±120 yr BP below this tephra. There is the Hachimantai C tephra below the peat unit that is below the Hachimantai B.

Therefore, it is thought that the Hachimantai B tephra was erupted in about 7,000-9,000 yr BP and that the Hachimantai C tephra was erupted before about 9,000 yr BP.

This study is a very important that we examine the volcanic disaster prevention measures about the Hachimantai Volcano in the future. We expect the possibility of finding more deposits of small eruption sourced from the Hachimantai Volcano, except for these three tephra. It is necessary to investigate the detail of distribution erupted these tephra containing area of volcanic bombs, eruption age and structure of the craters.

Also, it is hope to investigate the Holocene tephra at the Quaternary volcanoes in the other Hachimantai Volcanoes.

This study was used the report from investigation of the history at the Hachimantai Volcano, investigation and planning of disaster prevention measures in the area around River Kakkonda, Iwate Work Office, Tohoku Regional Bureau, Ministry of Land, Infrastructure and Transport.

Reference

Nobuo Doi (1997) Hachimantai Towada-Hachimantai National Park, The new beautiful natural park No.14, Natural Parks Beautification & Management Foundation.