Recent volcanic history of Ontake Volcano, central Japan

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The recent eruptive history of the Ontake Volcano, central Japan, has been revealed by tephrostratigraphy as well as radiocarbon dating. We identified Holocene tephra layers from the Ontake Volcano around the Tanohara, Nyonindo and Nakanoyu aria, which is the southeast to east flank of Mt. Ontake-san. The most of tephra layers are very poorly sorted and mainly composed of altered fine-grained ash including lithic fragment; however two tephra layers are juvenile scoriaceous lapilli with subordinate volcanic sand. On the basis of radiocarbon dating and stratigraphical relation, the frequency of phreatic-eruptions during the past 6000 years is estimated to over 1-2 times/ky. On the other hand, based on previous study and this study, the frequency of magmatic eruptions during the past 10,000 years is estimated to over 0.3 times/ky. The activity of Ontake volcano during the past 10,000 years is same as the average activity of the Japanese andesitic active volcanoes.

Previous study pointed out that there were historical eruption records of Ontake Volcano in 774 AD and 1892 AD; however, there were no description of the eruptions in the original records. Therefore, the historical eruption records of Ontake Volcano before 1979 AD phreatic eruption are undiscovered now. Probably, the Ontake Volcano did not erupt from the 18th century to 1979 eruption; however the fumarolic activities in the Jigokudani at the summit area have existed since the middle of 18th century. After 1979 eruption, the fumarolic activities are recognized in Jigokudani and Hachotarumi, which is the summit area of Ontake Volcano. In 1991 and 2007 AD, there was emission of the volcanic ash from the fumaroles in Hachotarumi. The volcanic activity of Ontake volcano after 1979 eruption is the most active in 250 years recently.