

# Mudflow deposits on the eastern foot of Iwate Volcano, northeast Honshu, Japan

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## 1. Introduction

Many mudflow deposits distribute on the eastern foot of Iwate Volcano, northeast Honshu, Japan. The study is aimed at revealing the age, distribution and lithological characteristics of each mudflow. And we will discuss the origin or flow mechanism of some mudflow deposits. The geological survey was performed in artificially excavated trench, with the cooperation of Japan Ground Self-Defence Force. The younger horizons than ca. 6000 years before present were investigated, because at that time, a large part of the mountain collapsed and the horseshoe-shaped caldera had formed.

## 2. Distribution, age and lithology of mudflow deposits

More than twenty-three mudflow deposits were found in the study. Most of them distribute around Koborizawa stream, the headstream of which is situated on the outer rim of the caldera.

We estimate the ages of these mudflow deposits, on the basis of the stratigraphic relationship between the deposits and tephra whose ages have already established. Consequently, it is estimated that, around the stream, four mudflows occurred before ca. 4800 y. B. P., three from ca. 4800 to 3600 y. B. P., ten from ca. 3600 y. B. P. to 915 A.D., and seven from 915 A. D. to present. One of the recent seven mudflow-deposits had been regarded as a debris avalanche deposit, because it contains such soft blocks as unconsolidated black soils and scoria layers. But since laminated structure is developed in its main part and a relatively well-sorted sand layer is often recognized at its basal part, we conclude that it originated from mudflow rather than debris avalanche.

## 3. 1686 mudflow deposit

This deposit distributes around Ohorizawa stream, to the north of Koborizawa stream. The 14-C ages of most black buried soils strongly suggest that this deposit was formed with 1686 eruption of Iwate Volcano (Table 1). The deposit contains volcanic bombs with rapidly cooling structure, which are very irregularly shaped and have fractures like onion-structure. From these characteristics, it is concluded that this deposit were resulted from the melting of snow due to high temperature volcanic bomb fall.

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Table 1 List of  $^{14}\text{C}$  age

No.	sample name	Measured $^{14}\text{C}$ age(y.B.P)	$\delta^{13}\text{C}(\%)$	Conventional $^{14}\text{C}$ age(y.B.P)	Material	Lab. No.
1	(20834) 020917-02	330 $\pm$ 40	-23.0	360 $\pm$ 40	soil	Beta-171076
2	(20833) 020917-03	320 $\pm$ 40	-23.1	350 $\pm$ 40	soil	Beta-171075
3	(20835) 020917-11	270 $\pm$ 60	-19.3	360 $\pm$ 60	soil	Beta-171077
4	(20836) 020917-12	300 $\pm$ 50	-19.1	390 $\pm$ 50	soil	Beta-171078
5	(20837) 020917-14	260 $\pm$ 60	-20.0	350 $\pm$ 60	soil	Beta-171079
6	(20832) 020918-15	50 $\pm$ 50	-18.1	160 $\pm$ 50	soil	Beta-171074
7	(20831) 020918-16	230 $\pm$ 60	-18.2	340 $\pm$ 60	soil	Beta-171073
8	(21665) 020918-23	400 $\pm$ 60	-19.0	500 $\pm$ 60	soil	Beta-174459