Volcanic sediments distributed around Nakanoyu route, southern foot of Yakedake volcano

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Yakedake volcano, located in the southern part of the Northern Japan Alps, is one of the most active volcanoes in Japan. Recent activities are characterized by repeated phreatic eruptions after the last magmatic eruption about 2400 years ago. Along the mountain trail at the northeastern foot (Kamikochi trail), 11 volcanic ash layers including a vitric ash layer (Ykd-TNkb) has been identified (Oikawa et al., 2002). However, there are few reports about volcanic ash layers in the southern foot of the volcano. In this study, we investigated volcanic materials along the Nakanoyu trail at the southern foot.

Along the Nakanoyu trail, ten volcanic ash layers (named as YKD-1 to YKD-10 in ascending order) and one massive volcaniclastic deposits (YKD-f1) were observed. Two ash layers (YKD-1 and YKD-2) contain about 20~30% of volcanic glass, indicating that the deposits were derived from magmatic eruption. The radiocarbon age of paleosol intercalated between YKD-1 and YKD-2 is 2339 - 2459 cal BP, suggesting that YKD-2 is correlated with Ykd-TNkb. YKD-1 indicates another magmatic eruption occurred about 2,400 years ago. YKD-10 distributed at the western slope of the Shogaike crater contains smectite and pyrite, suggesting YKD-10 is derived from the 1962-63 eruption according to Ossaka (2003). The radiocarbon age of paleosol immediately below the YKD-f1 is 32 - 74 cal BP. In the early twentieth century, phreatic eruptions repeatedly occurred and lahars were generated to the southern slope of the volcano, probably resulted in YKD-f1 deposits.

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