

Volcanic structure and tephrostratigraphy of the Iwate volcano clarified by the determination of collapse source of debris avalanches

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There are seven debris avalanche deposits (DADs) on the foot of Iwate volcano (Doi, 1991). They are Ippongihara DAD (AD915-1686), Hiragasa DAD (ca. 6.7ka), Yamagozawa DAD (ca. 30ka), Koiwai-Oishiwatari DAD (ca. 120ka), Shizukuishi DAD, Aoyamacho DAD (ca. 150ka), and Gohyakumori DAD (ca. 190ka) in descending order. The lower four DADs are in the horizon of Sotoyama Volcanic Ash. The source amphitheater (Amp) of upper three DADs were specified in the Higashi-iwate volcano, and the source of Koiwai-Oishiwatari DAD and Shizukuishi DAD were specified in the Nishi-iwate volcano (Doi, 2000, 2019).

In this study, the source of Aoyamacho DAD, which is newly named as Byobuone Amp, has been discovered in the Nishi-iwate volcano. Three volcanos such as Onimata, Sainokamisawa, and newly named Kometsuka volcano grew up in the Onimata Amp, Sainokamisawa Amp, and Byobuone Amp respectively. The Dogasawa volcano covers the east of Kometsuka volcano, and Kurokura volcano covers the west of Nishi-iwate main volcano. These volcanoes indicate that the Nishi-iwate volcano is composed of several volcanic edifices in the horizon of Sotoyama Volcanic Ash. The Dogasawa volcano erupted the Kaganai scoria falls (ca. 50-60ka) in the lower Shibutami Volcanic Ash. The Nishi-iwate caldera, which was formed by pyroclastic flow eruptions (ca. 30-45ka) at the summit of Nishi-iwate volcano, has a crater ca. 0.7-km in diameter at the center of caldera floor. The postcaldera Onawashiro volcano grew up at the western side in the crater. The crater may show us the mechanism of the summit caldera formation.

Keywords: debris avalanche deposit, amphitheater, Iwate volcano, volcanic structure, tephrostratigraphy