

Rediscovery of the Higuruma Debris Avalanche Deposit in Asama-Kurofu Volcano

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Asama-Kurofu volcano experienced a large-scale sector collapse in its later stage indicated by a horse-shoe shaped caldera and debris avalanche deposit in the distal flank. The area immediately east of the collapsed caldera is occupied by younger volcanic edifices of Hotokeiwa and Maekake. The medial area that is a flank slope of the former Kurofu is thickly covered with the younger deposits from Hotokeiwa and Maekake. Therefore, few information was available for the distribution and thickness of the debris avalanche deposit. Hummocky topography develops on the eastern area of Maekake and Hotokeiwa volcanoes. Geological survey especially in the valley bottom in the hummocky area in the Gunma Prefecture Asama Dairy Farm, the Nagakurayama National Forest, and its vicinity was carried out in this study. Outcrops of the deposits those occurrences were typical of debris avalanche were occasionally found in the valley bottom. In addition, 50-meter deep borehole core sample was taken on the ENE flank slope of Maekake volcano. This is a part of the “integrated program for next generation volcano research and human resource development” supported by ministry of education, culture, sports, science and technology, Japan. Thick debris avalanche deposit of 27 meters was recognized in the lower half of the borehole core sample. That is, weakly stratified and partly solidified tuff breccia that is characterized by heterogeneous matrix and occasional mega-blocks is observed. Whole-rock chemical analyses of the blocks from these deposits show that they are the same as those of the Asama-Kurofu and Asama-Sennin volcanoes. The distribution of “Higuruma debris avalanche” was shown on Yagi (1936) ‘s geologic map but few descriptions were made about it. The deposit confirmed in this study corresponds to the Higuruma debris avalanche and the description including thickness will be a clue for understanding the scale of the sector collapse.

Keywords: Asama volcano, debris avalanche deposit, sector collapse