

Geological identification of ash-fall particles of the Tenmei eruption of Asama volcano in distant area: An attempt at Abiko, Chiba

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Volcanic ash-fall can reach a distant area and has great adverse effects on human health and society. Therefore, it is important to investigate properties of volcanic ash-fall of past eruption in extensive area for volcanic hazard assessment. However, thin ash-fall deposit in a distant point is not preserved as a visible layer. Instead, particles of ash-fall are mixed in topsoil. In order to examine whether ash-fall particles are detected by analysis for topsoil at a distant point, we investigate forest topsoil sampled at Abiko, Chiba. Old documents describing ash-fall phenomena in the Tenmei eruption of Asama volcano located ca. 150 km from Abiko are found in the Abiko and neighboring areas (Tsukui, 2011). In this paper, we report identification of ash-fall particles of the Tenmei eruption of Asama volcano, based on chemical analysis of glass composition. The particles of Tenmei ash-fall are free crystal (plagioclase, orthopyroxene and clinopyroxene) with fresh glass attached on the surface. The compositions of attached glass are consistent with those of groundmass glass in pumice lapilli sampled in proximal area. This feature is useful for identification and investigation on the properties of Tenmei ash fall, especially particle size, in extensive area.

Keywords: volcanic ash-fall, Asama volcano, volcanic glass