

Sedimentary facies changes of lahar deposits in distal area, Chokai volcano, NE Japan

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Chokai volcano is an andesitic stratovolcano in northeast Japan. The sector collapse of the volcano occurred about 2,500 years ago. The Kusakata debris avalanche deposit was formed by the collapse to the northern foot of Chokai volcano (Ohsawa *et al.*, 1982). The post-collapse fan (partly volcanoclastic apron) deposits, largely distributed in the northern foot of the volcano, overlies the Kusakata debris avalanche deposit. From geological survey in the proximal area, Minami *et al.* (2015) reported that the post-collapse fan deposits accumulated by a series of debris flows and hyperconcentrated flows, and then concluded that the deposits are originated from several lahar events. However, change in sedimentary facies in the distal area was not well studied. Furthermore the depositional processes changes between the proximal and distal areas of these lahar deposits have not been well understood. This study aims to understand transition of depositional processes with distance, and relationship between geomorphology formed by these lahar deposits and their depositional processes. The volcanic fan can be topographically subdivided into four areas; the steeply-sloping area, the moderately-sloping area, the gently-sloping area, and the very-gently-sloping area. We trenched and cored (by handy geoslicer; Takada *et al.*, 2002) in the distal of volcanic fan (gently sloping area, and very gently sloping area) at a total of 12 sites. Each set of trench and core by the depth of one to two meters from the surface were observed. In the distal area, the lahar deposits are composed of debris flow, hyperconcentrated flow and streamflow facies. These flows are mostly originated from lahar events. The facies variation with distance implies that lahars flowed down as debris flows in proximal areas. Then, they transformed into hyperconcentrated and stream flows, although some reached to the distal area as debris flow. Some lahar reached to the coastline that is 20 km distant from the volcanic edifice as stream flow, where highly populated towns are distributed.

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