

Development of Lake Shibire and its geomorphological relationship with landslides in Misaka Mountains, central Japan

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Geomorphological classification mapping and geological investigation were carried out to reconstruct the development of Lake Shibire (890 m ASL, max depth 9.5 m, perimeter 1.2 km) in Yamanashi Prefecture. Lake Shibire was formed on a closed depression of the hilly mound with antislopes that was produced by landslide on the steep slopes adjacent to the lake. Other smaller landslide bodies were also identified next to Lake Shibire. Lacustrine deposits with plant macro fossils and a thin vitric ash layer (Aira-Tanzawa, 30 cal ka) were discovered from the side slope of a small channel close to Lake Shibire. Radiocarbon age of a plant macro fossil sampled from the bottom of the lacustrine deposits was 47-46 cal ka. The paleo Lake Shibire was likely to consist of independent two or more basins in the late Pleistocene and only one basin has survived to the present-day Lake Shibire. It is also likely that a single basin was decoupled into two or more basins due to occupation of landslide masses caused by secondary landslide activities adjacent to the basins, and only the certain basin linked to the present-day Lake Shibire has endured.

Keywords: landslide, lacustrine deposit, Aira-Tanzawa tephra, 14C dating, late Pleistocene