



## **Late Pleistocene to early Holocene glacial landforms of Yushan area, Taiwan**

Jianwei Lin (1), Shihjieng Chyi (1), Lide Ho (1), Shanshan Chang (1), Chen Chu (2), Huayu Lu (2), and Shuangwen Yi (2)

(1) Department of Geography, Kaoshiung Normal University, Kaoshiung, Taiwan (r94228018@ntu.edu.tw), (2) School of Geographic and Oceanographic Science, Nanjing University, Nanjing, China

The peak of Yushan (also Mount Yu, 120°57'E, 23°29'N) is the highest in Taiwan (3952 m). The glacial landforms, such as cirques, U-shaped valley, lateral moraines, glacio-fluvial fan and glacial-dammed lake, can be observed from ridge to downstream valley in this area. Grain size distribution of two samples collected in the depth of 80 cm and 150 cm from the glacio-fluvial fan surface is similar to those deposited by glacio-fluvial process elsewhere, and the OSL dates of two samples are  $8.71 \pm 2.09$  ka BP and  $11.7 \pm 1.10$  ka BP, respectively. On the other side of the U-shaped valley, we found a sedimentary outcrop (4.5m height) composed of dammed lake deposit, glacio-fluvial deposit, and DMM from the top to the bottom. C14 age of the dammed lake deposit is 4250 cal. yr BP (charcoal) and OSL age of the glacio-fluvial deposit is  $15.92 \pm 0.95$  ka BP. Based on the glacial landforms and geochronological data, we propose a concept model of glacial landsystem development in the Yushan area. During the LGM, the front of glacier may extend along the valley and formed the glacio-fluvial fan located at Batonguna (2800m). The ELA of Yushan area was about 3200-3300m at the same time. Followed by the continuing retreat of glacier, a series of lateral moraines were formed on the U-shaped valley slope. Finally, before the glaciers disappeared completely, several cirques and small glacial-erosion basins formed near the ridge from 3500 m to 3800 m. Based on the C14 age and an OSL date from the Chiaming Lake (3300m) in the southern Taiwan, we propose that during the early Holocene, glaciers may distribute in the high mountain area of Taiwan, and their development time corresponded to the regional cold events. The glaciers may progressively retreat and completely disappeared till  $6.47 \pm 0.93$  ka BP (OSL date from Chiaming Lake).