

## Ice thickness and flow of the Karamatsuzawa glacier in the northern Japanese Alps

\*Kenshiro Arie<sup>1</sup>, Chiyuki Narama<sup>1</sup>, Kotaro FUKUI<sup>2</sup>, Hajime IIDA<sup>2</sup>, Kazunori Takahashi<sup>3</sup>

1. Niigata University, 2. Tateyama Caldera Sabo Museum, 3. Oyo Corporation

We performed ground penetrating radar and global navigation satellite system surveys to investigate the ice thickness and flow of the Karamatsuzawa perennial snow patch, at the village of Hakuba, Nagano Prefecture. The field survey showed that the perennial snow patch contained an ice mass with a thickness greater than 30 m and the ice flowed in the slope direction at a rate of 250 mm over a 29-day period in the late snow-melting season in 2018. Based on the observed ice thickness and motion, the Karamatsuzawa perennial snow patch was recognised as an active glacier. The observed ice motion was significantly greater than the internal ice deformation estimated using Glen's Flow Law. This implies that basal sliding contributes to the motion of the Karamatsuzawa perennial snow patch.

Keywords: Glacier, Glacier flow

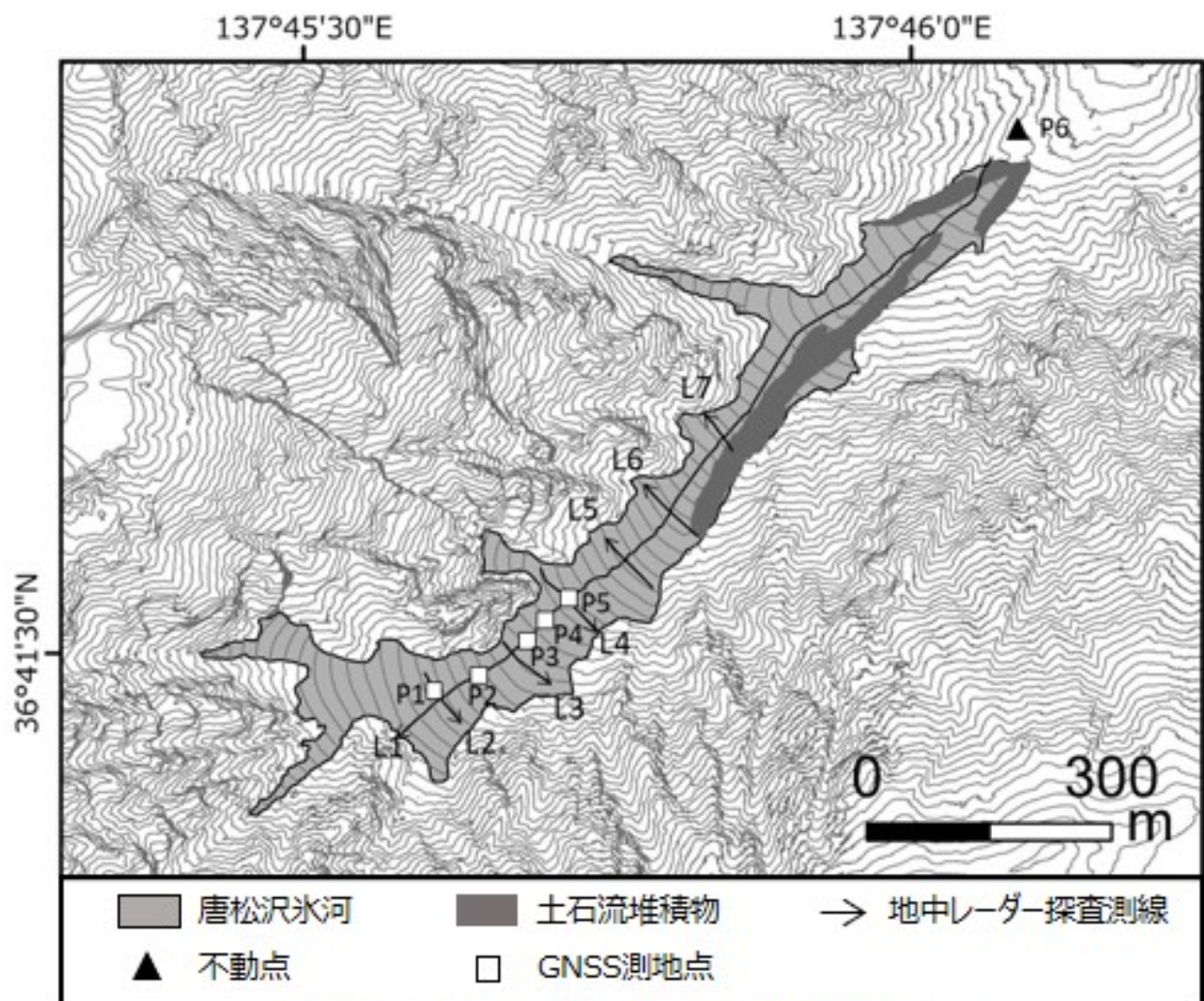


図1 地中レーダー測線とGNSS測地点  
10m等高線図は国土地理院の航空レーザー測量データから作成.