

## Database of altitudinal distribution of mountain glacier in high Asian mountains

NUIMURA, Takayuki<sup>1\*</sup>, SAKAI, Akiko<sup>1</sup>, FUJITA, Koji<sup>1</sup>, NAGAI, Hiroto<sup>1</sup>, TANIGUCHI, Keisuke<sup>1</sup>, TSUTAKI, Shun<sup>1</sup>, OKAMOTO, Sachiko<sup>1</sup>, HOSHINA, Yu<sup>1</sup>

<sup>1</sup>Nagoya University

Shrinkage of mountain glaciers associated with recent global warming are observed in many part of the world. Its influence on scarce water resources and sea level rising is one of key issue in environmental studies. Both horizontal and altitudinal distribution of glaciers are inevitable for estimating glacial variation. However, previous database of glaciers (e.g. GLIMS, WGMS) include only spatial extent and statistic summary of elevation. Therefore, estimation of glacier variation based on such a database assumed altitudinal distribution of glacier. And it caused large error in the result. In this project (Glacier Area Mapping for Discharging in Asian Mountains: GAMDAM, Feb. 2011–Mar. 2014), we develop database of glacial distribution with elevation information for evaluating glacier contribution to discharge.

Although many of studies tried automation of glacier mapping, automation of debris-covered glacier, main type of glaciers in Himalayas, is still challenging task. Therefore, we digitized glacier extent manually. For digitization, Landsat ETM+ SLC-on (1999-2003) are used mainly. In the case of poor-quality Landsat image due to cloud or seasonal snow, ASTER Level 3A used as alternative image. Elevation information are derived from CGIAR-CSI SRTM version 4.1. In this presentation, we introduce about the scheme of glacier digitization and the progress of glacier database development.

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