

The spatial distribution of mountain permafrost in northern Tien Shan, Central Asia using DInSAR analysis

*Hideyuki Takadama¹, Chiyuki Narama², Tsutomu Yamanokuchi³, Takeo Tadono⁴

1. Graduate school of Science and Technology, Niigata university, 2. Department of Science, Niigata university, 3. RESTEC, 4. JAXA

In the northern Tien Shan located in semi-arid area, glacier and mountain permafrost are important water resources that supply water to the city and irrigation farmland. Although the current state of glacier and mountain permafrost should be clarified as important tasks (Sorg et al., 2012), information about the mountain permafrost is limited in Ili Range (Marchenko et al., 2007). We investigated the spatial distribution of mountain permafrost in the Teskey, Kungoy, ili Ranges, the northern Tien Shan, based on satellite data analysis and field observation. As a topographic indicator of mountain permafrost, we classified rock glaciers into active/inactive or fossil using DInSAR (Differential SAR Interferometry) analysis with ALOS-2/PALSAR2 data.

Keywords: mountain permafrost, rock glacier, DInSAR, UAV, Tien Shan