Mass balance of Potanin glacier, Mongolian Altai

In order to understand global climate change, it is necessary to extend the observation network of the mass balance of as many as glaciers in the world. It has been reported that Potanin glacier in western Mongolia is shrinking. However, mass balance research is not sufficiently done.

Potanin glacier (49°09’N, 87°55’E) in Mongolian Altai is 10.44 km in length, 2 km in width and ranges from 4373 to 2900 m a.s.l. and the area was 24.34 km² in 2003. Precipitation is remarkably large and summer (JJA) mean temperature is positive.

Stakes measurements are done with 14 stakes in June and September in 2004, 2005, 2007 and 2008 in ablation area. For accumulation area, pit observation and pollen analysis were done at the altitude of 3752 m and 3890 m in September 2008. Betulaceae, Pinus and Artemisia are used as seasonal indicators.

Mass balance of Potanin glacier in the mass balance year of 2007/08 and 2004/2005 was estimated to -1.03 and -0.58 m w.e. which is extensive negative mass balance compared to Maliy Aktru glacier in Russian Altai. Mass balance of Potanin glacier show more beegative than Maliy Aktru glacier although both showed decreasing tendency. The difference is due to topography and climate of the regions. It is probable that precipitation as snow or rain had an influence on mass balance. Mass balance of glaciers in Altai may continue decreasing in future.