

## Surface mass balance of Potanin Glacier, Mongolian Altai, since 2005

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The Mongolian Altai area has undergone few glaciological surveys and glacier balance studies. In this study, stake observations and pollen analysis with pit observations were used for the estimation of the surface mass balance of the Potanin glacier in the Mongolian Altai. The mass balance was estimated to be -0.58 and -1.03 and -0.17 m w.e. for the mass balance years of 2005, 2008 and 2009. The observed less negative mass balance in 2005 and 2009 and more negative mass balance in 2008 were due to higher solid precipitation in 2004-2005 and 2008-2009 than in 2007-2008 and high summer temperatures in 2008 than in 2005 and 2009. A comparison with Maliy Aktru Glacier in the Russian Altai demonstrated that the two glaciers share the same tendency in mass balance fluctuation from 2005 to 2009. Potanin Glacier has a smaller accumulation area ratio (AAR) and higher equilibrium line altitude (ELA) than Maliy Aktru Glacier. We concluded that the higher negative mass balance at Potanin Glacier compared to Maliy Aktru glacier is due to 1) small AAR due to higher ELA against glacier-existing altitude range, 2) drier and warmer climate of the region and 3) the longer response time to climate change.

Keywords: glacier, mass balance, Altai