

Mass balance of the McCall glacier

Ryo KUSAKA[1]; Shuhei Takahashi[2]

[1] KIT; [2] Kitami Institute of Technology

McCall glacier is located in Brooks Range, Alaska, the United States(69N,143W). Snout of McCall glacier is retreating about 1 km in the last 50 years. It's watched as an index of global warming. It is important to know amount of mass increase and decrease in order to measure global warming. The mass income is caused by precipitation (snow fall), refreezing water and small avalanches. I experimented on mass increase caused by refreezing water.

13 thermometers were installed in the glacier every depth 10cm from -10cm to 100cm and -50cm. (established by Dr. Takahashi) We took temperature of the glacier 1year from 09 Aug 2003 every 1hour.

I estimated the snow surface level and movement of melt water by temperature.

I saw we can estimate snow surface level from temperature easily in snow fall season. Water sank into the ice at a speed of 5-10cm/hour. Refreezing speed was also 5-10cm/hour. Remelting water sank at a speed of 10-30cm/hour.