

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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ACC029-08

Room:102

Time:May 26 15:00-15:15

## Reconstruction of summer temperature by Aurora Peak ice core, Alaska Range

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In May and June 2008, a 180 m long ice core was obtained at Aurora Peak, Alaska Range. The age scale was derived from the seasonal variation of hydrogen isotope ratio and melt feature percentage (MFP) which means the percentage of melt layers relative to annual layer. The ice core is considered to cover the period from 1734 to 2008.

This study focuses on melt features in the ice core. In the previous studies, past summer temperatures were reconstructed from melt features. We evaluated the climatic representativeness of melt features in Aurora Peak ice core by comparing to summer temperature at Gulkana Glacier, located 60 km southeast of Aurora Peak. The U.S. Geological Survey (USGS) operates a long-term program to monitor this glacier and meteorological data are available. We confirmed that estimated summer temperature by air temperature at Gulkana Glacier has remained almost below zero. The distribution of melt feature thickness shows that most are less than 2 cm (although there exist melt feature greater than 5 cm). These results suggest that little meltwater would percolate to the layer of the previous year.

We examined the relation between annual melt feature thickness and summer temperature at Gulkana Glacier and it showed significant correlation ( $r = 0.94$ ,  $p < 0.001$ ). It means that melt features reflect summer temperature histories.

Keywords: Ice core, summer temperature, Melt feature