

## Re-evaluation of summer temperature reconstruction by melt features in Belukha ice cores, Russian Altai

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In mid- and low- latitude, the relation between stable isotope ratio in an ice core and air temperature is not necessarily established. There was no significant relation between oxygen isotope ratio and air temperature in Belukha ice core. In this research, instead of oxygen isotope ratio, we reconstructed summer temperature by melt features in Belukha ice core and re-evaluated methods in the previous studies. In addition, new method by mass balance model (Fujita and Ageta, 2000) was suggested. In 2001, a 140 m ice core was drilled by Swiss group. We compare accumulation and melt feature percentage (MFP) in two ice cores drilled at neighboring site of Belukha Glacier.

There were significant correlations between annual melt feature thickness and summer temperature at Akkem meteorological station ( $r=0.31$ ,  $P=0.05$ ) and between MFPs in two ice cores ( $r=0.47$ ,  $P=0.001$ ). It was found that melt features have past summer temperature information. We used following three reconstruction methods and re-evaluated. 1. Regression formula between summer temperature and ice layer thickness. 2. Multi-regression formula among summer temperature, ice layer thickness and annual accumulation. 3. The relation among ice layer thickness, ablation and summer temperature. The result of 2 is the best correlation. But these methods based on empirical knowledge and need long-term meteorological data. We examined method based on mass balance model.