

# Japan Geoscience Union Meeting 2011

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

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ACC029-06

Room:102

Time:May 26 14:30-14:45

## Reconstructions of past flora using DNA analysis from ice core samples on Gregoriev Glacier, Kyrgyz Tienshan

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Analyses of ice cores have often been used as a means to reconstruct past environments. The species composition of the organism such as microorganism and plant in the ice cores could reflect the environmental condition at that time. Thus, organisms in ice cores could be useful to reconstruct past environments. However, analysis of the biological contents in ice cores is still very limited. In this study, we examined DNA from ice core sample (about 7,500, 8,000 and 12,500 years old) collected on the Gregoriev Glacier, Kyrgyz Tienshan. We extracted inner part of ice core samples by melting device. Genes of microorganisms and plant were subjected to PCR amplification and nucleotide sequencing. We also showed phylogenetic diversity of a microbial flora and metagenomic survey of the metabolic potential. Our results implied that DNA from preserved organisms could be recovered from the ice core samples, leading reconstructions of past flora. Biological information could be used as an environmental marker for past environmental studies.