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Reconstructions of past cyanobacteria flora 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 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 of ice cores is still highly limited. The ice core samples collected on Gregoriev Glacier, Kyrgyz Tienshan were melted using a device that enabled us to obtain water only from the inner portion of the cores. Complete separation of the inner and outer cores is required to avoid contamination microorganisms such as bacteria and fungi that can adhere to the cores during drilling and storage. We report results of cyanobacterial species and their evolution by molecular DNA analysis collected from the ice core sample (about 8,000 and 12,500 years old). We also attempted to reconstruct the organisms and their interactions within the community and with the environment on the sampled sites. The results implied genomic information used as an environmental marker for past environmental studies.