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Depth distribution of microorganisms in the surface pit from accumulation area in McCall Glacier, Alaska.

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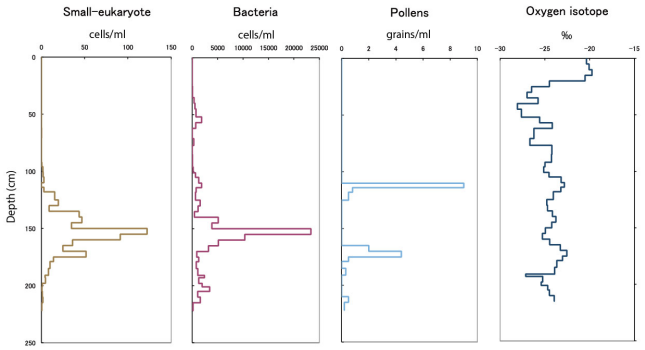
Cold environments, including glacier ice and snow, are known habitats for cold-adapted and psychrophilic microorganisms. Even in accumulation areas, microorganisms can multiply on glacier surfaces, if some melting occur during summer. Therefore, the depth distribution of photosynthesis eukaryote, which propagate on the surface, in an ice core show the location of summer layers and these act as annual markers for ice core dating. On the other hands, recent study show that non-photosynthesis eukaryote (e.g. yeast) also propagate under the snow surface without sunlight and show past melting condition on the glacier. However, ecological information of non-photosynthesis eukaryote is limited. In order to investigate the no photosynthesis eukaryote diversity and relation ship between bacteria in the accumulation area,, because the ecology of accumulation area is more simple than other glacial environment. We had analyzed microbial depth distribution and molecular diversity of microorganisms in surface snow pit in McCall Glacier, Alaska.

We found cercozoa-like small eukaryotes and bacteria are highly concentrated to snow layers from 1.50-1.6 m depth. This layers do not correspond to the summer layers which wind-blown particles (5 kinds of pollens and mineral particle) concentrated by surface melting. These result may indicate that microorganisms are not wind-blown, but also cold-adapted/ psychrophilic species. Furthermore, strong correlation between small eukaryotes and bacteria show that these are ecologically related in glacial habitat.



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