

Microorganisms density changes during glacial-interglacial cycle in Dome Fuji ice core

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Ice core from polar regions contain microparticles (mineral particles, microorganisms) derived from land area in the past. These provide valuable information related to changes in land area environment and atmospheric circulation. Studies of isotopic composition of the ice-core dust indicate that the source area of continental dust deposited at both Vostok and Dome C sites during the glacial stages is South America. Similarly, microorganisms contained ice core have possibilities to be derived from land area. However, few studies focused on the microorganisms densities during glacial interglacial cycles (Abyzov et al. 1998), and microorganisms ice core will be a marker of a paleoclimate changes. In this study, we measure microorganisms densities in Dome Fuji ice core during last glacial interglacial cycle, and compare the relationship of particles.

Modern surface snow from antarctica ice sheet contain up to 700 cells/ml bacteria, which is lower than other environment. Furthermore, bacteria concentration of surface snow from Dome Fuji station is equal to control level, indicate almost no bacteria contained. Otherwise, ice core samples contained various organic materials, coccus bacteria, actinomycetes like- filamentous and spirochete organisms. Concentration of actinomycetes like organisms is partially very high level, more than modern concentration. These result suggest that in the past, more microorganisms had deposited on antarctica ice sheet, may be blown by wind.