

Paleo-environmental changes at Richardson Lakes in Antarctica presumed by diatom analysis

Kaoru Kashima[1]

[1] Earth and Planetary Sci., Kyushu Univ.

<http://oaleobio.geo.kyushu-u.ac.jp/kashima/kashima.html>

Diatoms are single-celled microscopic plants belonging to the algal Class Bacillariophyceae. They have narrow optima and tolerances for many environmental variables that make them exceptionally useful in quantifying environmental characteristics to a high degree of certainty.

In the Japanese Antarctic Research Expedition (JARE), over twenty papers about fresh water diatoms were presented since late 1950's(ex. Fukushima 1959a, 1959b). Most of them described biological and taxonomic characteristics of diatom floras from ponds and wet soils near Showa Station, Ongul Island (ex. Fukushima 1959a, 1959b).

In this paper, we described assemblages of freshwater diatoms, taken from lake sediments in the Richardson lake area, where located about 600 km north east of the Showa Station (Takada et al., 1998 and Zwartz et al., 1998). The large part of Richardson lakes are covered by ice throughout a year. This allows to reduce light penetration, to develops stable water columns and to limit of photosynthesis (Spaulding and McKnight, 1999). Diatoms, called freshwater ice diatoms, which adapted to take habitats below or among ice that covers a lake surface, are dominated in the lakes. This is the first report of freshwater ice diatoms in JARE project, and we make clear that they are very useful indicators to discuss Quaternary lake environment.