

Seasonal changes in the oxygen isotopic composition of planktonic foraminifera (*Neogloboquadrina pachyderma*) in the North Pacific

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Planktonic foraminifera provide a record of the upper ocean environment through their species assemblage and individual tests. To investigate the relationship between isotopic composition of subpolar species *Neogloboquadrina pachyderma* (sinistral) and oceanographic conditions, we analyzed seasonal variation in oxygen isotope ratio of *N. pachyderma* in the northwestern North Pacific by using sediment trap samples collected biweekly at Site 50N (50°01'N, 165°02'E) from 1998 to 2001. We also focused on the differences in isotopic record between small (125-180 μm) and large (180-250 μm) shell of foraminifera.

Oxygen isotopes of both size decreased in summer and increased in winter, and the difference of oxygen isotopic composition between small and large shell increased in summer (August to October) under a well-developed stratification of water column. The maximum difference value between both sizes was 0.6 permil in summer, corresponding to a 2.7 degree difference in water temperature. Seasonal profile of oxygen isotope of *N. pachyderma* was almost consistent with that of sea surface temperature (SST), however summer peaks in SST were not recorded in isotopic ratio. It would be caused by the sub-surface habitat of *N. pachyderma*.