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Fifteen year time-series of radiolarian fluxes and environmental conditions in the Bering Sea and the subarctic Pacific

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In order to examine the radiolarian fluxes and evaluate their relationships to the environmental conditions, the fifteen year long time-series observation on radiolarian fluxes were conducted using the sediment trap materials collected at the Bering Sea Station AB (53.5N, 177W) and the central subarctic Pacific Station SA (49N, 174W) during 1990 to 2005. Encountered radiolarian assemblages include 124 taxa at Station AB and 110 taxa at Station SA. In general, total radiolarian fluxes of the coarse fraction (0.063mm-1mm) at Station AB (mean: 7,788 shells m-2 d-1) were greater than those at Station SA (mean: 6,667 shells m-2 d-1), mainly attributing to the difference in physical conditions. Flux patterns of radiolarians were variable for each species during the study period. As a result of R-mode cluster analysis, five cluster groups were distinguished at Station AB, and seven groups at Station SA. Marked changes in the relative contribution of each of the cluster groups to the radiolarian assemblages were apparent. Around 1 990, 1995, 2000 and 2004 when notably high maxima of total radiolaran fluxes were observed the radiolarian assemblages were dominated by certain cluster groups at both stations. These inter-annual variations in their faunal assemblages were the reflection of the large scale climatic shift such as the Pacific Decadal Oscillation and the Arctic Oscillation occurred in the Bering Sea and the central subarctic Pacific.

Keywords: Radiolaria, Sediment trap, Bering Sea, subarctic Pacific, Station AB, Staton SA