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The Sea of Japan is a marginal sea that connects with North Pacific and adjacent marginal seas by four shallow straits. Because water depth of the deepest straits today is ~130 m (Tsushima Strait and Tsugaru Strait), environments of Sea of Japan have been strongly affected by sea level fluctuations related to the glacial-interglacial cycles. Previous studies report that foraminiferal oxygen isotope variation from Sea of Japan is distinct from that commonly seen in seas of the world. Since Sea of Japan is nearly isolated from adjacent seas during the glacial maxima, salinity of surface water significantly decreases, and therefore foraminiferal isotopes show the lowest values due to the unique fresh water balance. The peak value of oxygen isotope is ~0.5 per mil at the last glacial maximum, which is ~2.5 per mil lighter than at 30 ka. We review literature data and present new results of two sediment cores from northeastern and southern part of Sea of Japan. The new data from southern core has ~70-yr resolution and shows abrupt shift that may correspond to abrupt climate change reported from the Greenland ice core and Asian monsoon proxy data of Chinese Cave and Loess. The new results suggest that the surface environment of Sea of Japan is sensitive to eustatic sea level change as well as abrupt climate changes.

Keywords: Sea of Japan, oxygen isotope, planktonic foraminifer