

# Formation of modern oceanographic conditions around Hokkaido, NW Pacific

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Marine core analyses indicated the changes of oceanographic conditions around Hokkaido, NW Pacific, at 3-3.5 ka. Decrease of cold and oxygenated dense subsurface water and increase of oceanic surface water in the Sea of Okhotsk was found in radiolarian and diatom records. After the same time, bottom sediments in the Oyashio region became more diatomaceous and had less foraminiferal tests indicating lower carbonate preservation potential and more warm-water radiolaria. In the northern Japan Sea, much more warm-water diatoms occurred after the period. Shift of position of the Aleutian Low (AL) is thought to be most probable reason of the oceanographic changes. When the AL located at north, strong NE wind over the Sea of Okhotsk produced much brine water at the sea-ice formation area. Large amount of brine water permitted the expansion of dense cold water with high oxygen concentration in the southwestern Sea of Okhotsk. Under the southern position of the AL, E wind prevailed over the Sea, and deduced the production of brine water, and enhanced the intrusion of oceanic surface water from the Pacific. Stronger Oyashio Current under the southern position of the AL supported higher surface production of diatom. Higher supply of organic carbon to the sea bottom made higher carbonate dissolution at the sea bottom. Change of surface wind over the northern Japan Sea permitted the expansion of surface warm water. Therefore, the Holocene oceanographic conditions of NW Pacific and its marginal seas have not been stable, and major change occurred at 3-3.5 ka according to the shift of the position of AL.