

## Glacial to deglacial productivity and ventilation changes in the southern Okhotsk Sea

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The Okhotsk Sea plays an important role in the ventilation of the North Pacific as a source region of the North Pacific Intermediate Water. Glacial to Holocene Delta 14C records of benthic foraminiferal shells suggested enhanced ventilation in the Okhotsk Sea during the early deglacial period corresponding to the Heinrich event 1 (H1) and the Holocene. CaCO<sub>3</sub> preservation events and productivity change appears to be more associated with the ventilation history of the Okhotsk Sea than surface production by coccolithophore and foraminifera. CaCO<sub>3</sub> preservation started to become better during H1 and pronounced %CaCO<sub>3</sub> peaks were coincident with the Bolling-Allerod and Preboreal. Diatom and coccolithophore productivity had kept low throughout the glacial to deglacial periods, which was different from that of the open subarctic Pacific where high productivity observed during BA. After the deglaciation, biogenic opal and decrease in Delta 15N gradually increased throughout the Holocene. The Holocene Okhotsk Sea is characterized by enhanced productivity with relaxation of nitrate limitation.

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