

INTERANNUAL MATERIAL FLUXES UNDER SEASONAL SEA ICE IN THE OKHOTSK SEA  
NORTH OF HOKKAIDO, JAPAN

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The spatial and temporal fluctuations of lithogenic and biogenic fluxes, particularly fluxes of opal and organic material, in relation to sea ice behavior were documented during the pack-ice season using a time-series sediment trap installed at an offshore site in the Okhotsk Sea north of Hokkaido (about 14 km off the Mombetsu coast, water depth of 60 m) from January to March 2005 and 2006. Satellite images showed that the sea ice in 2005 behaved in an ordinary way. On the contrary, the sea ice in 2006 retreated one-month earlier than the corresponding period of 2005. Total mass fluxes during the period in which sea ice drifted ashore and increased in extent, from January to early February in both years were greater than those in other. Organic matter as fecal pellets of zooplankton was abundant during the period of full sea ice coverage from February to early March 2005. Microscopic observations revealed that fecal pellets were largely diatom frustules, suggesting that zooplankton actively grazed on ice algae during the period of 2005. On the contrary, fecal pellets were quite few during the period of sea ice season of 2006. It suggests that the disappearance of fresh ice algae beneath the sea ice would not induce the active grazing and egestion of zooplankton because the sea ice rapidly retreated.