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WATER STRUCTURE IN KONGSFJORDEN, SPITSBERGEN IN 1991–1993 (ABSTRACT)

Shuki USHIO, Sakae KUDOH, Hajime ITO and Nobuo ONO

National Institute of Polar Research, 9–10, Kaga 1-chome, Itabashi-ku, Tokyo 173

Oceanographic observations in Kongsfjorden(79°N, 12°E), Spitsbergen and in the neighboring seas have been conducted since 1991. This study aims to reveal water exchange processes including exchange; between the North Atlantic Ocean and the Arctic Ocean, and glacier-ocean interaction. Temperature and salinity profiles in the fjord were measured using a conductivity-temperature-depth recorder (CTD). CTD casts were taken three times: autumn 1991, early summer 1992 and late spring 1993. Though the water column was stratified by density, temperature profiles were very complicated. The hydrographic characteristics of the surface layer can be affected by the atmospheric condition and by fresh-water influx from the surrounding glaciers. In summer the surface temperature increased, but melting of many growlers decreased the temperature and salinity. The salinity decrease of the surface layer was remarkable in June 1992. Both temperature and salinity in the bottom layer increased with time in June 1993. Such variation is considered to be due to intrusion of the warm-saline water from the open sea, where the West Spitsbergen Current flows north. In the future detailed in-situ observations will be planned to understand oceanic phenomena in the fjords and in the Greenland Sea.

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