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Global warming and paleoceanographic changes in the western Arctic Ocean

Seung-Il Nam[1], Ruediger Stein[2], Jens Matthiessen[2], A. Mackensen[2]

[1]*Korea Polar Research Institute, 406-840 Incheon, Korea*

[2]*Alfred-Wegener-Institute for Polar & Marine Research, 47568 Bremerhaven, Germany*

18 surface sediment cores were collected using the GKG (Giant Box Corer) along two transects from the Canada Basin across the Central Mendeleev Ridge towards the Makarov Basin and the Lomonosov Ridge in the Eurasian Arctic (northern transect along 80°30'N, southern one along 77°30'N) during the ARK23/3 Expedition (2008) with the German icebreaker *RV* "Polarstern". Here, we present first results of multi-proxy data (TOC, TN, $CaCO_3$, $\delta^{13}C_{org}$ and $\delta^{15}N_{bulk\ \&\ org}$, biogenic Opal, $\delta^{18}O$ and $\delta^{13}C$ of planktonic foraminifer *N. pachyderma* sin.) analyzed from the surface sediments. The main objectives of this research were to understand recent environmental changes (such as sea-ice extent and/or melting) related to global warming in the western Arctic Ocean, and to delineate associated paleoceanographic changes during the late Holocene.

In general, multi-proxy data estimated from the 18 surface sediments clearly showed different regional pattern in terms of the oceanographic conditions. In particular, organic carbon contents, C_{org}/N_{org} ratio, and $\delta^{13}C_{org}$ and $\delta^{15}N_{org}$ values together with biogenic opal contents might reflect changes in surface water productivity, sea-ice coverage and /or melting, and supply of terrigenous organic matter to the Arctic sediments.

AMS ^{14}C ages for the 3 surface sediments (0 to 1 cm thick) collected along the northern transect didn't represent nearly recent ages, and were dated at about 5.80 - 6.57 to 10.67 ^{14}C ka BP. A much large range of ages are comparable to those obtained from the Antarctic glaciomarine surface sediments. These large overestimated AMS ^{14}C ages are probably due to strong bioturbation within the surface sediment, the reservoir effect, sediment reworking and/or low sedimentation rate through times. Thus, the correctly proven age dating for the surface sediments should be first established to better understanding of recent global warming and its impact on environmental changes in the western Arctic Ocean.