Nd-, Pb-, Sr-isotope signatures in Arctic sea-ice and marine sediments under present interglacial boundary conditions

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Ice rafting and oceanic currents are the most efficient mechanisms for the dispersal of sedimentary material over ridges and between deep basins of the Arctic Ocean. Under full glacial conditions, when the Laurentide and Eurasian ice sheets (LIS, EIS) were active, Nd, Pb and Sr isotope signatures in ridge sediments record supplies from the LIS-Canadian Arctic margin and/or from the Barents-Kara Sea EIS-margin [1]. Under modern conditions, the large continental shelves of the Arctic Ocean are the place where most of the sediments are deposited and incorporated into sea-ice to be redistributed over the Arctic basin with respect to the Beaufort Gyre and the Trans-Polar Drift.

Major "isotopic shelf provinces" have been characterized based on surface sediment data from the circum-Arctic shelves and are: the Arctic Canadian shelf (εNd ~ -13.6, $^{87}Sr/^{86}Sr$ ~0.727 and $^{206}Pb/^{204}Pb$ ~18.9) ; the Mackenzie-Beaufort Sea shelf area (εNd ~ -14.4, $^{87}Sr/^{86}Sr$ ~0.731 and $^{206}Pb/^{204}Pb$ ~19.5) ; the Bering Strait/ Chukchi Sea areas (εNd ~ -7.6, $^{87}Sr/^{86}Sr$ ~0.710 and $^{206}Pb/^{204}Pb$ ~19.2) ; the Laptev Sea (εNd ~ -12.8, $^{87}Sr/^{86}Sr$ ~0.716 and $^{206}Pb/^{204}Pb$ ~18.7). The Arctic Canadian shelf seems highly influenced by the Mackenzie river and, on the contrary, the Lena river influence seems to be diluted towards the outer Laptev Sea margin. The few available data on sea-ice sediments fall within these clusters, mostly from the Laptev Sea area.

[1] Maccali et al. (2013), *Quaternary Science Reviews*, **64**, 136-151