

**North American glaciations and Pacific inputs in the Nd and Sr isotope Pleistocene record from the western Arctic Ocean**

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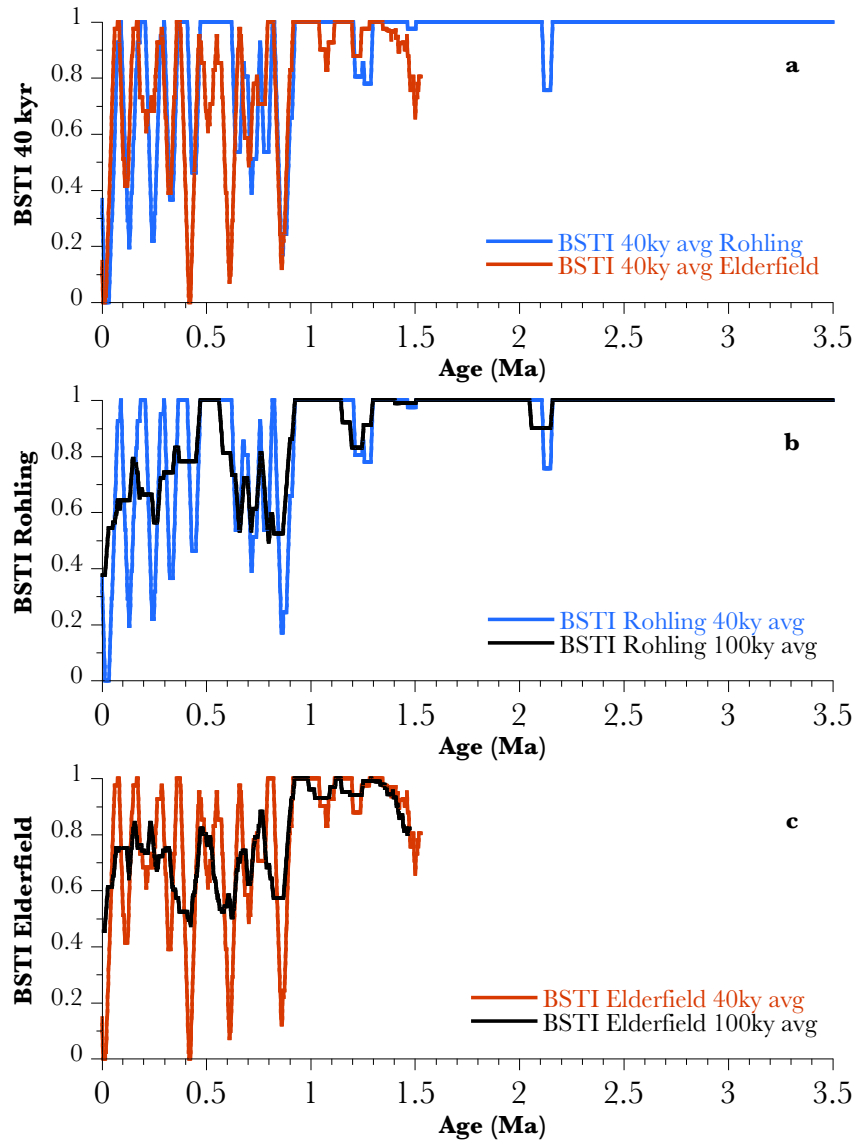
Figure S1  
Tables S1 and S3  
Captions for Tables S1 to S3

**Additional Supporting Information (Files uploaded separately)**

Table S2

**Introduction**

Supporting Information includes 1 figure and 3 tables. The figure shows the Bering Strait Flowthrough Index (BSTI) on the obliquity orbital cycle (40ky running mean), as well as comparisons of the two orbital windows (40ky and 100ky) for each of the referenced sea level records. Table S1 includes the age points considered for the age model of core 93-P23. Table S2 (uploaded separately) has the calculated BSTI values for both orbital windows, and Table S3 is a compilation of strontium and neodymium isotope values for source regions used in Figure 4.



**Figure S1.** Bering Strait Throughflow Index (BSTI) calculated from the sea level records of (Rohling et al., 2014) and (Elderfield et al., 2012). Sill depth of -50m was used to determine open/closed state of Bering Strait. (a) BSTI, 40-ky averages. (b) BSTI from record of Rohling et al. (2014), 40-ky and 100-ky averages. (c) BSTI from record of Elderfield et al. (2012), 40-ky and 100-ky averages.

<b>Event</b>	<b>Depth (cm)</b>	<b>Age (Ma)</b>	<b>Source</b>
Peak of <i>B. aculeata</i> , MIS 5a	0	0.1	1
Carbonate layer PW2, MIS 5d	5	0.12	2
Paleomag. Incl. drop, MIS 7	40	0.22	1
Carbonate layer PW1, MIS 8/7	50	0.27	2
Peak of <i>T. egelida</i> , MIS 11	65	0.4	1

<b>MIS (onset)</b>	<b>Depth (cm)</b>	<b>Age (Ma)</b>	<b>Source</b>
4	4.5	0.071	1
5	21	0.130	1
6	26	0.191	1
7	37	0.243	1
8	48	0.300	1
9	54	0.337	1
10	59	0.374	1
11	80	0.424	1
12	82	0.478	1
13	101	0.533	1
14	107	0.563	1
15	115	0.621	1
16	133	0.676	1
17	140	0.712	1
18	146	0.761	1
19	156	0.790	1
20	162	0.814	1
21	178	0.866	1
22	191	0.900	1

<b>SIS Ages</b>	<b>Depth (cm)</b>	<b>Age (Ma)</b>	<b>Source</b>
	71	0.650	(not used) 3
	166	0.500	(not used) 3
	166	0.700	3
	181	1.150	This study
	228.5	1.500	This study
	251.5	1.550	This study
	281.5	1.050	(not used) 3
	281.5	0.950	(not used) 3
	313.5	1.900	This study
	335.5	2.100	3
	335.5	2.400	(not used) 3
	378.8	2.100	3
	400.5	2.400	This study
	429.5	2.600	3
	464.5	4.050	(not used) This study
	477.5	3.850	(not used) 3
	477.5	3.050	3

**Table S1.** Tie points considered for age model in core P23. Age points not used for the age model are indicated. Data sources: (1) (Polyak et al., 2013), (2) (Wang et al., 2018), (3) (Dipre et al., 2018).

**Table S2.** Bering Strait Throughflow Index (BSTI) calculation. For each time point a State is determined where relative sea level (rsl)  $\leq -50 = 0$  (closed), rsl  $> -50 = 1$  (open). BSTI at each time point is the average of the previous 40 or 100 values for the state. Sea level data from (Elderfield et al., 2012; Rohling et al., 2014).

<i>Region</i>	<i><math>^{87}\text{Sr}/^{86}\text{Sr}</math></i>	<i><math>\epsilon_{\text{Nd}}</math></i>	<i>Source</i>
Bering Sea S	0.704548	3.04	1
Bering Sea SE	0.707056	-4.60	1
Bering Sea NW	0.709106	-7.23	1
Yukon River	0.708685	-8.30	1
Yenisei River	0.711995	-7.13	2
Ob' River	0.712393	-7.85	2
Laptev Sea	0.716199	-12.6	3
East Siberian Sea	0.711646	-8.2	3
Chukchi Sea W	0.710873	-7.1	3
Chukchi Sea E	0.712066	-9.2	1
CAA shelf	0.723694	-13.3	3
CAA strait	0.738823	-15.2	3
Mackenzie River	0.731742	-14.2	1

**Table S3.** Strontium and Nd isotopic values from Arctic and North Pacific sediment source regions (Figure 4). CAA – Canadian Arctic Archipelago. Data sources: (1) (Asahara et al., 2012), (2) (Xiao et al., 2021), (3) (Maccali et al., 2018).