Table S1. Planktic foraminiferal oxygen isotope data of core NGC104.

Depth (cm)	$\delta^{18}O$ (‰)
1	0.4365
5	0.5165
9	0.2475
13	1.2025
17	0.5515
21	0.5035
25	1.0825
29	1.8885
33	1.8491
37	1.841
42	1.765
50	1.756
57.5	1.626
66	1.4605
74	1.4295
82	1.2795
90	1.135
94	1.3105
98	1.6205
106.5	1.2485
115	1.0645
123	0.9235
131	0.7775
139	1.1225
147	0.4885
156.5	0.8585
166	1.4297
174	1.3537
182	1.2587
191	1.4877
199	1.5657
207	1.659
215	1.4227
221.5	1.0527
230	1.0755
238	1.3165
246	1.5295
253	1.6105
261	1.574
269	1.5897
277	1.3117
285	1.0167
293	1.2027
301	1.0887
309	1.4277
317	1.7577
325	1.9657
333	1.6837
341	1.7727
347	1.2097
355	1.2397
363	1.5067
371	1.8977
379	1.8357
387	1.8737

Table S2. Age-depth model of core NGC 104. This core was used for ostracod analysis.

Depth (cm)	Age (ka)	Sedimentation rate (cm/kyr)
0	0	2.33
21	9	0.89
29	18	10.50
50	20	0.65
90	82	1.60
98	87	3.67
131	96	0.62
139	109	0.57
147	123	1.58
166	135	8.20
207	140	0.25
221.5	199	4.25
230	201	5.75
253	205	8.00
269	207	5.33
285	210	2.67
293	213	2.00
301	217	4.00
325	223	1.33
333	229	8.00
341	230	0.86
347	237	4.00
355	239	1.23
371	252	NA

Table S3. Age-depth model of core NGC 102. Foraminiferal data are from this core.

Depth (cm)	Age (ka)	Sedimentation rate (cm/kyr)
0	0	0.78
7	9	2.67
31	18	12.00
55	20	0.26
71	82	3.20
87	87	0.44
91	96	1.33
103	105	1.00
107	109	1.14
123	123	0.67
131	135	8.00
171	140	0.14
179	199	6.00
191	201	6.00
215	205	1.00
227	217	2.00
239	223	0.25
243	239	1.71
255	246	4.00
279	252	0.79
294	271	1.33
310	283	NA

Table S4. Age-depth model of core TR163-31P. Bottom water temperature data are from this core.

Depth (cm)	Age (ka)	Depth (cm)	Age (ka)
0	0	858	135
5	5	898	140
28	9	902	142
112	18	928	144
125	20	942	145
192	26	958	148
212	30	982	153
235	33	989	154
242	34	992	155
262	36	1005	156
285	38	1028	163
352	44	1035	165
358	45	1042	167
378	49	1062	171
402	52	1122	174
425	53	1132	177
432	55	1138	179
498	60	1144	180
502	61	1149	182
515	62	1155	183
542	66	1158	185
632	75	1165	187
638	76	1172	188
642	79	1225	192
648	82	1232	193
652	84	1235	200
682	87	1238	201
705	96	1245	203
728	99	1255	205
738	102	1285	210
748	105	1288	213
758	109	1292	217
775	112	1352	223
785	120	1368	229
798	123	1398	232
808	124	1408	239
815	125		

Table S5. NGC 104 ostracod data and interpolated values. The number of specimens refers to valves.

Depth (cm)	Age (ka)	$E(S_{100})$	BOAR	Krithe (%)	Henryhowella (%)	BWT	MAR C_{org}	Phytodetritus spp. (%)
6	2.57	7.00	0.83	34.00	32.00	1.71	2.22	36.29
10	4.29	7.43	1.21	21.64	40.30	1.59	2.46	33.14
14	6.00	6.62	1.79	23.24	40.14	1.63	2.67	30.00
18	7.71	7.83	1.11	21.55	40.52	1.91	4.41	26.86
25	13.50	NA	0.33	33.33	36.23	1.10	12.14	21.80
33	18.38	NA	3.11	26.15	53.85	0.76	33.54	31.41
42	19.24	NA	4.34	22.58	51.61	0.99	31.84	37.20
50	20.00	6.26	4.44	28.93	40.25	1.13	29.78	50.50
61.5	37.83	5.82	1.60	30.33	28.28	0.58	0.76	57.17
74	57.20	5.88	1.13	36.51	24.01	0.89	0.76	63.34
82	69.60	6.74	1.04	38.17	20.19	-0.76	0.79	65.82
90	82.00	7.27	1.18	43.15	17.43	0.76	0.49	68.30
98	87.00	7.40	0.71	34.31	18.63	-0.41	7.61	75.30
106.5	89.32	6.40	3.19	32.17	20.28	-0.12	5.84	75.07
115	91.64	6.56	2.03	30.20	18.12	0.06	4.06	74.84
123	93.82	6.90	1.49	35.45	16.36	0.21	2.40	74.62
131	96.00	NA	1.21	30.21	17.71	0.14	0.73	74.40
139	109.00	NA	0.16	21.31	36.07	-0.52	1.66	67.50
147	123.00	8.54	0.10	36.43	31.01	1.38	1.42	36.40
156.5	129.00	7.38	1.44	52.44	17.33	1.36	0.85	27.65
174	135.98	7.07	16.63	52.37	16.35	1.51	24.09	23.58
186.5	137.50	6.87	26.93	55.58	13.79	1.18	17.04	59.05
199	139.02	6.94	11.94	54.11	17.58	1.19	20.95	68.61
215	172.55	7.52	0.15	55.03	21.38	-0.31	8.19	57.28
230	201.00	7.63	3.54	53.56	20.60	0.73	11.23	65.10
246	203.78	8.08	5.97	43.26	21.28	0.56	10.97	53.98
256.5	205.44	9.25	5.69	37.94	17.00	0.61	7.85	44.05
261	206.00	9.59	3.79	31.58	19.47	0.66	7.38	43.74
277	208.50	8.57	0.67	33.62	22.41	0.59	5.32	42.33
285	210.00	NA	2.01	35.62	28.77	0.58	4.09	41.49
301	217.00	NA	0.67	30.00	31.25	1.20	2.78	56.00
317	221.00	5.83	2.01	34.17	17.50	0.15	3.02	49.00
333	229.00	5.75	2.19	44.78	14.93	-0.35	2.73	28.99
347	237.00	5.72	0.34	49.28	17.39	NA	2.77	22.45
355	239.00	NA	1.99	48.15	29.63	NA	2.79	20.81
371	252.00	NA	0.37	30.77	37.18	NA	9.07	42.00

Table S6. NGC 102 foraminiferal data and interpolated values. BFAR was calculated based on the new age model.

Depth (cm)	Age (ka)	$E(S_{200})$	BFAR	Phytodetritus spp. (%)	BWT	MAR C_{org}
0	0.00	34.54	829.90	41.00	2.04	NA
7	9.00	32.34	519.00	24.50	2.13	4.18
15	12.00	36.77	3029.33	17.00	1.55	10.03
23	15.00	34.26	3092.32	26.60	0.68	12.32
31	18.00	33.54	1440.05	24.50	0.66	8.76
39	18.67	31.27	14426.88	36.60	0.84	38.35
47	19.33	33.53	14555.52	37.30	1.02	32.83
55	20.00	27.19	11020.08	50.50	1.13	29.78
63	51.00	25.94	294.29	62.10	0.60	0.68
71	82.00	24.01	244.35	68.30	0.76	0.49
79	84.50	19.41	5468.70	75.10	0.03	8.50
87	87.00	21.06	9233.86	75.30	-0.41	7.61
91	96.00	23.02	840.41	74.40	0.14	0.73
99	102.00	24.76	1972.27	64.00	-0.61	1.95
107	109.00	23.45	1634.27	67.50	-0.52	1.66
115	116.00	28.27	1409.01	67.80	0.80	1.71
123	123.00	39.42	715.22	36.40	1.38	1.42
131	135.00	29.07	972.36	18.90	1.52	13.95
139	136.00	27.35	14688.00	23.70	1.51	23.94
147	137.00	18.37	8132.80	60.50	1.32	18.50
155	138.00	20.23	7787.28	57.60	1.11	21.58
163	139.00	17.21	8985.76	69.00	1.19	21.02
171	140.00	23.31	9335.04	53.20	1.33	17.95
179	199.00	19.89	100.23	60.60	0.84	0.25
187	200.33	22.42	5014.02	66.10	0.78	11.50
191	201.00	21.91	5012.28	65.10	0.73	11.23
199	202.33	23.38	4999.68	67.40	0.63	8.06
207	203.67	25.76	4310.28	54.90	0.56	11.23
215	205.00	28.39	2397.60	44.30	0.58	8.21
223	213.00	34.81	545.93	39.80	0.90	1.62
231	219.00	23.55	1836.80	64.10	0.86	3.36
239	223.00	32.07	1355.76	33.90	-0.20	2.69
247	241.33	37.89	429.02	18.90	NA	2.80
255	246.00	34.77	1482.89	9.00	NA	5.08
263	248.00	27.17	4187.52	34.00	NA	8.06
271	250.00	28.03	3163.16	52.90	NA	8.93
279	252.00	28.04	2517.48	42.00	NA	9.07
287	262.13	33.79	344.90	40.30	NA	1.43
294	271.00	30.00	301.86	33.90	NA	1.62
302	277.00	26.94	532.41	53.90	NA	2.34
310	283.00	27.98	482.43	39.20	NA	1.69

Table S7 Number of benthic foraminiferal specimens (n) per gram of dry sediment (BO), sediment bulk dry density (DBD), linear sedimentation rate (LSR), and BFAR in core NGC 102. BF and DBD from Ohkushi et al. (2000).

Depth (cm)	Age (ka)	BF (n g^{-1})	DBD (g cm^{-3})	LSR (cm kyr^{-1})	BFAR (n cm^{-2} kyr^{-1})
0	0.0	1721.000	0.620	0.778	829.904
7	9.0	878.000	0.760	0.778	518.996
15	12.0	1600.000	0.710	2.667	3029.333
23	15.0	1757.000	0.660	2.667	3092.320
31	18.0	871.000	0.620	2.667	1440.053
39	18.7	1768.000	0.680	12.000	14426.880
47	19.3	1596.000	0.760	12.000	14555.520
55	20.0	1258.000	0.730	12.000	11020.080
63	51.0	1462.000	0.780	0.258	294.286
71	82.0	1101.000	0.860	0.258	244.351
79	84.5	2059.000	0.830	3.200	5468.704
87	87.0	3519.000	0.820	3.200	9233.856
91	96.0	2306.000	0.820	0.444	840.409
99	102.0	1720.000	0.860	1.333	1972.267
107	109.0	1969.000	0.830	1.000	1634.270
115	116.0	1401.000	0.880	1.143	1409.006
123	123.0	754.000	0.830	1.143	715.223
131	135.0	1998.000	0.730	0.667	972.360
139	136.0	2700.000	0.680	8.000	14688.000
147	137.0	1495.000	0.680	8.000	8132.800
155	138.0	1371.000	0.710	8.000	7787.280
163	139.0	1582.000	0.710	8.000	8985.760
171	140.0	1716.000	0.680	8.000	9335.040
179	199.0	1155.000	0.640	0.136	100.231
187	200.3	1177.000	0.710	6.000	5014.020
191	201.0	1071.000	0.780	6.000	5012.280
199	202.3	992.000	0.840	6.000	4999.680
207	203.7	921.000	0.780	6.000	4310.280
215	205.0	555.000	0.720	6.000	2397.600
223	213.0	709.000	0.770	1.000	545.930
231	219.0	1148.000	0.800	2.000	1836.800
239	223.0	807.000	0.840	2.000	1355.760
247	241.3	291.000	0.860	1.714	429.017
255	246.0	1109.000	0.780	1.714	1482.891
263	248.0	1454.000	0.720	4.000	4187.520
271	250.0	1027.000	0.770	4.000	3163.160
279	252.0	777.000	0.810	4.000	2517.480
287	262.1	553.000	0.790	0.789	344.897
294	271.0	484.000	0.790	0.789	301.863

302	277.0	547.000	0.730	1.333	532.413
310	283.0	458.000	0.790	1.333	482.427

Table S8 Number of benthic ostracod specimens (n) per gram of dry sediment (BO), sediment bulk dry density (DBD), linear sedimentation rate (LSR), and BOAR in core NGC 104. DBD was interpolated from NGC 102 based on the new age model.

Depth (cm)	Age (ka)	BO (n g^{-1})	DBD (g cm^{-3})	LSR (cm kyr^{-1})	BOAR (n cm^{-2} kyr^{-1})
6	2.6	0.538	0.660	2.333	0.829
10	4.3	0.757	0.687	2.333	1.212
14	6.0	1.078	0.713	2.333	1.795
18	7.7	0.642	0.740	2.333	1.108
25	13.5	0.544	0.685	0.889	0.332
33	18.4	0.453	0.654	10.500	3.110
42	19.2	0.552	0.749	10.500	4.339
50	20.0	0.579	0.730	10.500	4.438
61.5	37.8	3.265	0.759	0.645	1.598
74	57.2	2.192	0.796	0.645	1.126
82	69.6	1.954	0.828	0.645	1.044
90	82.0	2.122	0.860	0.645	1.177
98	87.0	0.544	0.820	1.600	0.714
106.5	89.3	1.061	0.820	3.667	3.189
115	91.6	0.674	0.820	3.667	2.026
123	93.8	0.497	0.820	3.667	1.494
131	96.0	0.401	0.820	3.667	1.206
139	109.0	0.315	0.830	0.615	0.161
147	123.0	0.213	0.830	0.571	0.101
156.5	129.0	1.163	0.780	1.583	1.436
174	136.0	2.978	0.681	8.200	16.634
186.5	137.5	4.725	0.695	8.200	26.926
199	139.0	2.052	0.709	8.200	11.937
215	172.6	0.926	0.658	0.246	0.150
230	201.0	1.069	0.780	4.250	3.544
246	203.8	1.340	0.775	5.750	5.968
256.5	205.4	0.985	0.723	8.000	5.694
261	206.0	0.652	0.726	8.000	3.790
277	208.5	0.170	0.742	5.333	0.672
285	210.0	0.502	0.751	5.333	2.013
301	217.0	0.422	0.790	2.000	0.666
317	221.0	0.612	0.820	4.000	2.008
333	229.0	1.938	0.847	1.333	2.187
347	237.0	0.465	0.855	0.857	0.341
355	239.0	0.579	0.857	4.000	1.987
371	252.0	0.375	0.810	1.231	0.374

Table S9. Modern coretop (=Holocene) ostracod species diversity E(S_{100}) of North Atlantic and Arctic deep-sea sites (>1000 m water depth). A few samples were lumped for E(S_{100}) calculation if single samples included <100 specimens.

Site	ODP925	ODP1055	Chain82-24	ODP980	ODP982	PS1243	PS2163-1	PS2170-4
Modern E(S_{100})	32.7	24.8	16.0	19.5	12.6	5.0	4.7	4.0
No. samples lumped	1	8	2	2	2	12	1	2
Latitude (ºN)	4.2	32.8	41.7	55.5	57.5	69.4	86.2	87.6
Water depth (m)	3040	1798	3427	2179	1145	2715	3040	4083
References	*1*	*2*	*3*	*1*	*1*	*4*	*5*	*5*

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