DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Planktic foraminifer census data from Northwind Ridge Core 5, Arctic Ocean

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U.S. Geological Survey, Reston, VA. 22092

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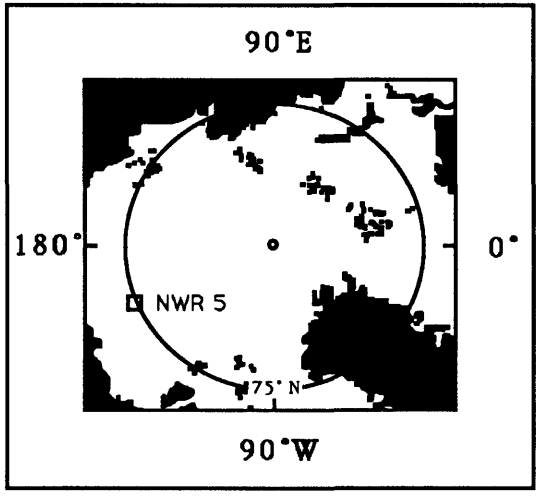
INTRODUCTION

The U. S. Geological Survey recovered 9 piston cores from the Northwind Ridge in the Canada Basin of the Arctic Ocean from the USCGC Polar Star during 1988 and 1989. Preliminary analysis of the cores suggests sediments deposited on Northwind Ridge preserve a detailed record of glacial and interglacial cycles for the last few hundred thousand to million years. This report includes quantitative data on planktic foraminifers and selected sediment size-fraction data in 130 samples from the Northwind Ridge Core 5. These foraminifer data will be the basis for future interpretive studies.

METHODS

Samples numbered 1 through 88 are 10cc. samples obtained for lithostatigraphy and biostratigraphy. Samples numbered 89 through 131 are cuttings obtainedwhen paleomagnetics samples were taken and are approximately 10cc.



Location of Northwind ridge Core 5

The samples were washed in distilled water, wet sieved to three size fractions; <.062 mm., .062 - 2.0 mm. and > 2.0 mm., dried and each size fraction weighed. The .062 - 2.0 mm. and the > 2.0 mm. fractions were combined after weighing. The > .062 mm. fraction was sieved at 150μm and counting splits of 300 - 350 planktic foraminifers were obtained from the ≥ 150μm fraction using a Carpco sample splitter. Planktic foraminifers were identified, sorted and glued to standard 60 square micropaleontological slides. Benthic foraminifers were also counted. All planktic foraminifers were removed from samples containing insufficient specimens for a counting split.

Table 1 - Latitude, longitude and water depth for Northwind Ridge Core 5.

Core	Latitude	Longitude	Depth
5	74° 37.35'N	157° 53.04'W	1089 M

COUNTING CATEGORIES

Taxa included in the counting categories are summarized below. In general, our taxonomic concepts follow Parker (1967, 1962).

bform benthic foraminifers

dpach *Neogloboquadrina pachyderma* (Ehrenberg) right-coiling. This

category is restricted to specimens with 4 chambers in the ultimate whorl. Right -coiling specimens that have more than 4 chambers in the ultimate whorl are tabulated as "dupac".

dupac This category is used for specimens of right-coiling *Neoglobo - quadrina* with more than 4 chambers in the ultimate whorl.

other deformed planktic specimens and specimens resembling *Turborotalita quinqueloba.*

spach *Neogloboquadrina pachyderma* (Ehrenberg) left coiling.

TOTAL Total number of planktic forams
PLANK in the counting split.

ACKNOWLEDGEMENTS

We thank Larry Phillips for providing the washed residues and sedimentological data from the core 5 samples.

REFERENCES

Parker, F. L., 1962, Planktonic foraminiferal species in Pacific sediments, Micropaleontology, v. 8, p. 219-254.

_____, 1967, Late Tertiary biostratigraphy (Planktonic Foraminifera) of tropical Indo-Pacific deep- sea cores: Bulletins of American Paleontology, v. 52, p.115-208.

Table 2 For samples 1- 88 **depth 1** indicates the depth of the top of the sample interval and **depth 2** indicates the bottom of the interval. For samples 89-131 **depth 1** indicates the depth of the midpoint of the sampled interval. All depths are in centimeters below the top of the core. **wt.<.062** is the weight in grams of the <.062mm. size fraction. **wt.%<.062** is the percentage of the total sample weight represented by the <.062 mm. size fraction. **wt. .062-2.0** is the weight in grams of the .062 - 2.0 mm. size fraction. **wt.%.062-2.0** is the percentage of the total sample weight represented by the .062-2.0 mm. size fraction. **wt.>2.0** is the weight in grams of the >2.0mm size fraction. **wt.%>2.0** is the percent of the total sample weight represented by the >2.0 mm. size fraction. **plank/sample ≥150μm** is the number of planktic foraminifers ≥ 150 μm found in the counting split divided by the fraction of the sample that the counting split represents. **plank/sample≥150μm** is the total number of planktic foraminifers ≥ 150μm in the sample divided by the weight of the sample in grams. **% dextral** is the percentage of right-coiling *Neogloboquadrina pachyderma*.

sample #	depth1 cm.	depth2 cm.	wt. <.062	wt. % <.062	wt. .062-2	wt. % .062-2	wt. >2.0	wt. % >2.0	total wt.	spach	dpach	dupac	other	TOTAL PLANK	bform	plank/ sample ≥150μm	plank/ gram ≥150μm	% dextral
88	0.0	2.0	8.30	91.0	0.82	9.0	0.00	0.00	9.12	322	4	15	2	343	16	43904	4814	1.17
87	3.0	5.0	8.13	87.3	1.04	11.2	0.14	1.50	9.31	307	5	13	0	325	39	10400	1117	1.54
86	6.0	8.0	9.52	89.1	1.17	10.9	0.00	0.00	10.69	297	7	8	0	312	37	4992	467	2.24
107	9.0		9.25	89.3	1.11	10.7	0.00	0.00	10.36	17	0	1	0	18	0	18	2	0.00
84	9.0	11.0	9.64	91.3	0.92	8.7	0.00	0.00	10.56	2	0	0	0	2	0	2	<1	0.00
108	12.0		12.92	90.9	1.24	8.7	0.05	0.35	14.21	45	1	1	0	47	0	47	3	2.13
83	13.0	15.0	8.77	92.0	0.76	8.0	0.00	0.00	9.53	0	0	0	0	0	0	0	0	0.00
82	17.1	19.1	7.71	80.1	1.33	13.8	0.59	6.13	9.63	12	1	0	0	13	0	13	1	7.69
81	21.0	23.0	7.03	84.6	1.28	15.4	0.00	0.00	8.31	0	0	0	0	0	0	0	0	0.00
80	26.0	28.0	8.48	97.5	0.22	2.5	0.00	0.00	8.70	1	0	0	0	1	1	1	<1	0.00
79	29.2	31.2	10.30	89.3	1.24	10.7	0.00	0.00	11.54	0	0	0	0	0	0	0	0	0.00
78	32.0	34.0	10.37	80.8	1.21	9.4	1.26	9.81	12.84	0	0	0	0	0	0	0	0	0.00
77	35.0	37.0	11.04	96.3	0.24	2.1	0.19	1.66	11.47	12	0	0	0	12	36	12	1	0.00
109	39.0		19.25	82.8	2.4	10.3	1.59	6.84	23.24	289	5	8	0	302	28	9664	416	1.66
76	40.0	42.0	8.60	89.1	0.92	9.5	0.13	1.35	9.65	304	6	11	1	322	25	2576	267	1.86
75	44.0	46.0	8.75	95.9	0.29	3.2	0.08	0.88	9.12	308	5	10	0	323	11	1292	142	1.55
74	47.6	49.6	9.17	85.6	1.50	14.0	0.04	0.37	10.71	322	4	14	0	340	14	10880	1016	1.18
73	50.8	52.8	8.94	86.8	1.34	13.0	0.02	0.19	10.30	302	3	10	0	315	13	10080	979	0.95
72	54.5	56.4	8.99	89.3	1.04	10.3	0.04	0.40	10.07	345	4	13	0	362	11	23168	2301	1.10
71	59.0	61.0	8.68	99.2	0.07	0.8	0.00	0.00	8.75	294	3	9	0	306	12	1224	140	0.98
110	65.0		20.28	100.0	0.01	0.0	0.00	0.00	20.29	18	0	0	0	18	0	18	1	0.00
70	69.0	71.0	8.51	99.9	0.01	0.1	0.00	0.00	8.52	0	0	0	0	0	0	0	0	0.00

sample #	depth1 cm.	depth2 cm.	wt. <.062	wt. % <.062	wt. .062-2	wt. % .062-2	wt. >2.0	wt. % >2.0	total wt.	spach	dpach	dupac	other	TOTAL PLANK	bform	plank/ sample ≥150µm	plank/ gram ≥150µm	% dextral
111	73.0		13.39	99.4	0.08	0.6	0.00	0.00	13.47	34	0	0	0	34	0	34	3	0.00
69	75.4	77.4	11.02	97.3	0.24	2.1	0.06	0.53	11.32	49	0	0	0	49	32	49	4	0.00
112	78.0		13.16	94.0	0.84	6.0	0.00	0.00	14.00	304	3	7	1	315	0	5040	360	0.95
89	79.0		19.08	95.6	0.87	4.4	0.01	0.05	19.96	314	5	8	0	327	94	1308	66	1.53
68	81.0	83.0	10.76	98.6	0.15	1.4	0.00	0.00	10.91	296	5	8	0	309	47	1236	113	1.62
113	82.0		11.73	98.2	0.21	1.8	0.00	0.00	11.94	309	5	9	6	329	0	1316	110	1.52
67	87.0	89.0	8.36	86.5	0.56	5.8	0.75	7.76	9.67	304	5	21	0	330	18	21120	2184	1.52
90	89.0		18.36	88.9	2.23	10.8	0.07	0.34	20.66	320	6	13	0	339	18	43392	2100	1.77
66	94.4	96.4	8.74	76.9	2.26	19.9	0.37	3.25	11.37	325	2	9	0	336	34	21504	1891	0.60
65	98.0	100.0	11.37	75.6	3.26	21.7	0.40	2.66	15.03	302	4	9	0	315	28	5040	335	1.27
64	101.0	103.0	10.57	61.8	5.34	31.2	1.19	6.96	17.10	327	7	10	3	347	48	2776	162	2.02
114	103.0		6.97	81.6	1.52	17.8	0.05	0.59	8.54	321	3	9	0	333	106	1332	156	0.90
63	104.0	106.0	10.51	78.9	2.19	16.4	0.62	4.65	13.32	295	5	8	0	308	75	2464	185	1.62
62	107.0	109.0	10.06	85.2	1.66	14.1	0.09	0.76	11.81	72	2	0	0	74	64	74	6	2.70
61	110.0	112.0	7.90	95.9	0.34	4.1	0.00	0.00	8.24	43	1	0	0	44	62	44	5	2.27
60	113.4	115.4	10.09	99.2	0.08	0.8	0.00	0.00	10.17	63	1	0	0	64	88	64	6	1.56
59	118.0	120.0	13.77	99.9	0.02	0.1	0.00	0.00	13.79	11	0	0	0	11	2	11	1	0.00
91	120.0		21.81	99.4	0.13	0.6	0.00	0.00	21.94	73	1	1	0	75	0	75	3	1.33
58	121.4	123.4	10.66	98.8	0.13	1.2	0.00	0.00	10.79	315	0	3	0	318	24	1272	118	0.00
115	124.0		4.48	83.6	0.88	16.4	0.00	0.00	5.36	320	3	11	0	334	0	21376	3988	0.90
57	124.0	126.0	8.32	85.3	1.43	14.7	0.00	0.00	9.75	338	1	5	1	345	11	22080	2265	0.29
56	127.2	129.2	9.76	83.0	2.00	17.0	0.00	0.00	11.76	318	4	15	1	338	17	10816	920	1.18
55	130.2	132.2	9.71	91.8	0.87	8.2	0.00	0.00	10.58	189	5	5	0	199	8	199	19	2.51
54	136.0	138.0	9.75	100.0	0.00	0.0	0.00	0.00	9.75	0	0	0	0	0	0	0	0	0.00
116	140.0		16.24	96.9	0.52	3.1	0.00	0.00	16.76	27	0	0	0	27	0	27	2	0.00
53	141.2	143.2	9.24	97.4	0.25	2.6	0.00	0.00	9.49	10	0	0	0	10	0	10	1	0.00
52	146.0	148.0	9.43	95.8	0.39	4.0	0.02	0.20	9.84	0	0	0	0	0	0	0	0	0.00
51	151.0	153.0	8.87	91.9	0.78	8.1	0.00	0.00	9.65	0	0	0	0	0	0	0	0	0.00
50	155.3	157.3	8.64	94.0	0.55	6.0	0.00	0.00	9.19	0	0	0	0	0	0	0	0	0.00
49	160.0	162.0	9.67	94.3	0.58	5.7	0.00	0.00	10.25	1	0	0	0	1	0	1	<1	0.00
92	161.0		20.09	96.3	0.78	3.7	0.00	0.00	20.87	1	0	0	0	1	0	1	<1	0.00
48	163.2	165.2	11.34	98.4	0.18	1.6	0.00	0.00	11.52	0	0	0	0	0	0	0	0	0.00
47	167.0	169.0	11.13	98.3	0.19	1.7	0.00	0.00	11.32	66	1	0	0	67	3	67	6	1.49
46	171.0	173.0	10.90	97.2	0.31	2.8	0.00	0.00	11.21	70	0	1	0	71	1	71	6	0.00
45	174.4	176.4	9.20	88.3	1.01	9.7	0.21	2.02	10.42	304	2	9	0	315	3	10080	967	0.63
93A	177.0		12.66	82.9	2.04	13.4	0.57	3.73	15.27	302	6	5	0	313	3	40064	2624	1.92

Table 2 - Northwind Ridge Core 5 continued

sample #	depth1 cm.	depth2 cm.	wt. <.062	wt. % <.062	wt. .062-2	wt. % .062-2	wt. >2.0	wt. % >2.0	total wt.	spach	dpach	dupac	other	TOTAL PLANK	bform	plank/ sample ≥150μm	plank/ gram ≥150μm	% dextral
93B	177.0		11.20	99.9	0.01	0.1	0.00	0.00	11.21	0	0	0	0	0	0	0	0	0.00
44	179.0	181.0	8.79	73.1	1.91	15.9	1.33	11.06	12.03	334	5	7	0	346	5	88576	7363	1.45
43	183.0	185.0	12.20	30.2	3.92	9.7	24.30	60.12	40.42	304	2	5	0	311	8	9952	246	0.64
42	185.0	187.0	9.31	35.3	1.69	6.4	15.40	58.33	26.40	323	4	4	0	331	3	5296	201	1.21
40	187.5	189.5	5.80	79.9	1.20	16.5	0.26	3.58	7.26	316	3	6	0	325	7	5200	716	0.92
39	190.0	192.0	8.67	87.8	1.14	11.5	0.07	0.71	9.88	308	3	8	0	319	2	20416	2066	0.94
117	192.0		11.27	87.3	1.64	12.7	0.00	0.00	12.91	331	4	9	0	344	13	22016	1705	1.16
38	195.5	197.5	9.74	90.6	1.01	9.4	0.00	0.00	10.75	305	1	7	0	313	14	10016	932	0.32
37	201.5	203.5	13.32	79.1	3.44	20.4	0.07	0.42	16.83	1	0	0	0	1	3	1	<1	0.00
118	205.0		18.30	72.6	5.38	21.3	1.52	6.03	25.20	1	0	0	0	1	0	1	<1	0.00
36	208.5	210.5	13.74	75.1	4.29	23.5	0.26	1.42	18.29	7	0	0	0	7	3	7	<1	0.00
94	211.0		25.96	72.0	8.91	24.7	1.19	3.30	36.06	0	0	0	0	0	0	0	0	0.00
35	217.0	219.0	10.21	71.9	3.71	26.1	0.29	2.04	14.21	9	1	0	0	10	1	10	1	10.00
34	221.0	223.0	8.25	100.0	0.00	0.0	0.00	0.00	8.25	298	4	13	0	315	7	315	38	1.27
33	226.4	228.4	9.15	90.8	0.93	9.2	0.00	0.00	10.08	305	3	19	0	327	10	10464	1038	0.92
95	230.0		8.13	89.1	0.99	10.9	0.00	0.00	9.12	309	2	10	0	321	3	20544	2253	0.62
32	232.5	234.5	9.99	88.7	1.27	11.3	0.00	0.00	11.26	315	5	11	0	331	3	21184	1881	1.51
96	236.0		17.83	84.3	3.16	14.9	0.16	0.76	21.15	284	5	18	0	307	19	19648	929	1.63
31	239.0	241.0	8.80	93.8	0.52	5.5	0.06	0.64	9.38	312	7	21	0	340	11	340	36	2.06
119	244.0		21.21	99.2	0.17	0.8	0.00	0.00	21.38	175	1	5	0	181	0	181	8	0.55
30	244.0	246.0	9.74	99.9	0.01	0.1	0.00	0.00	9.75	0	0	0	0	0	0	0	0	0.00
120	247.0		15.05	99.5	0.08	0.5	0.00	0.00	15.13	194	4	9	0	207	0	207	14	1.93
29	247.3	249.3	9.42	99.9	0.01	0.1	0.00	0.00	9.43	0	0	0	0	0	0	0	0	0.00
121	251.0		11.58	99.9	0.01	0.1	0.00	0.00	11.59	0	0	0	0	0	0	0	0	0.00
122	253.0		13.47	99.9	0.02	0.1	0.00	0.00	13.49	23	0	1	0	24	0	24	2	0.00
28	255.0	257.0	10.80	99.9	0.01	0.1	0.00	0.00	10.81	0	0	0	0	0	0	0	0	0.00
123	257.0		13.39	99.9	0.01	0.1	0.00	0.00	13.40	3	0	0	0	3	0	3	<1	0.00
27	262.0	264.0	9.46	90.4	1.01	9.6	0.00	0.00	10.47	1	0	0	0	1	0	1	<1	0.00
26	267.0	269.0	8.89	99.8	0.02	0.2	0.00	0.00	8.91	2	0	0	0	2	0	2	<1	0.00
124	270.0		14.21	99.3	0.1	0.7	0.00	0.00	14.31	30	1	3	0	34	0	34	2	2.94
25	274.0	276.0	9.51	88.9	0.88	8.2	0.31	2.90	10.70	8	0	0	0	8	2	8	1	0.00
24	279.0	281.0	7.75	96.3	0.30	3.7	0.00	0.00	8.05	2	0	0	0	2	0	2	<1	0.00
23	283.0	285.0	11.17	99.8	0.02	0.2	0.00	0.00	11.19	1	0	0	0	1	0	1	<1	0.00
97	286.0		12.35	99.5	0.06	0.5	0.00	0.00	12.41	2	0	0	0	2	0	2	<1	0.00
125	287.0		14.60	99.7	0.04	0.3	0.00	0.00	14.64	0	0	0	0	0	0	0	0	0.00
22	290.0	292.0	10.10	98.6	0.14	1.4	0.00	0.00	10.24	1	0	0	0	1	1	1	<1	0.00

Table 2 - Northwind Ridge Core 5 continued

sample #	depth1 cm.	depth2 cm.	wt. <.062	wt. % <.062	wt. .062-2	wt. % .062-2	wt. >2.0	wt. % >2.0	total wt.	spach	dpach	dupac	other	TOTAL PLANK	bform	plank/ sample ≥150µm	plank/ gram ≥150µm	% dextral
98	292.0		12.05	97.4	0.32	2.6	0.00	0.00	12.37	0	0	0	0	0	0	0	0	0.00
21	297.0	299.0	8.07	91.2	0.78	8.8	0.00	0.00	8.85	0	0	0	0	0	0	0	0	0.00
20	302.0	304.0	9.19	94.4	0.55	5.6	0.00	0.00	9.74	10	0	0	0	10	0	10	<1	0.00
19	304.0	306.0	8.67	99.0	0.09	1.0	0.00	0.00	8.76	2	0	0	0	2	0	2	<1	0.00
18	308.0	310.0	7.38	96.9	0.24	3.1	0.00	0.00	7.62	22	2	1	0	25	0	25	3	8.00
99	311.0		12.93	94.9	0.63	4.6	0.07	0.51	13.63	300	11	13	0	324	6	5184	380	3.40
17	317.0	319.0	6.36	89.6	0.74	10.4	0.00	0.00	7.10	330	7	6	0	343	8	21952	3092	2.04
16	327.0	329.0	12.63	77.0	1.75	10.7	2.02	12.32	16.40	306	3	4	0	313	6	20032	1221	0.96
100	332.0		19.02	80.5	3.05	12.9	1.55	6.56	23.62	301	2	7	0	310	2	39680	1680	0.65
15	335.0	337.0	13.43	81.5	2.85	17.3	0.19	1.15	16.47	340	6	10	0	356	5	11392	692	1.69
126	339.0		16.00	94.3	0.96	5.7	0.00	0.00	16.96	308	8	15	0	331	14	5296	312	2.42
14	341.6	342.6	12.16	98.1	0.23	1.9	0.00	0.00	12.39	295	7	5	0	307	24	614	50	2.28
13	348.8	350.8	10.46	93.7	0.70	6.3	0.00	0.00	11.16	295	8	4	0	307	13	9824	880	2.61
127	352.0		15.22	93.0	1.14	7.0	0.00	0.00	16.36	294	5	12	0	311	13	9952	608	1.61
101	356.0		14.10	90.7	1.44	9.3	0.00	0.00	15.54	296	8	8	1	313	5	20032	1289	2.56
12	364.0	366.0	10.55	89.6	1.02	8.7	0.21	1.78	11.78	280	19	5	0	304	8	9728	826	6.25
102	372.0		17.02	93.6	1.17	6.4	0.00	0.00	18.19	309	9	21	0	339	4	1356	75	2.65
11	375.5	377.8	11.22	61.5	3.63	19.9	3.39	18.59	18.24	43	1	1	0	45	1	45	2	2.22
10	383.0	385.0	12.45	88.3	1.33	9.4	0.32	2.27	14.10	35	1	0	0	36	18	36	3	2.78
128	389.0		13.32	91.3	1.27	8.7	0.00	0.00	14.59	0	0	0	0	0	0	0	0	0.00
9	392.0	394.0	11.30	95.4	0.55	4.6	0.00	0.00	11.85	4	0	0	0	4	1	4	0	0.00
103	395.0		22.07	87.9	3.02	12.0	0.02	0.08	25.11	0	0	0	0	0	0	0	0	0.00
8	399.0	401.0	10.15	65.4	4.61	29.7	0.77	4.96	15.53	1	0	0	0	1	1	1	<1	0.00
7	403.2	405.2	13.57	74.3	3.28	18.0	1.41	7.72	18.26	70	1	1	0	72	4	72	4	1.39
129	404.0		14.42	84.0	2.75	16.0	0.00	0.00	17.17	0	0	0	0	0	0	0	0	0.00
130	414.0		11.34	87.8	1.58	12.2	0.00	0.00	12.92	2	0	0	0	2	0	2	<1	0.00
6	415.4	417.4	12.67	92.5	1.03	7.5	0.00	0.00	13.70	0	0	0	0	0	10	0	0	0.00
104	420.0		17.52	84.3	3.25	15.6	0.02	0.10	20.79	0	0	0	0	0	0	0	0	0.00
5	424.0	426.0	13.25	84.8	2.01	12.9	0.37	2.37	15.63	11	1	0	0	12	78	12	1	8.33
4	428.8	430.8	12.92	98.6	0.18	1.4	0.00	0.00	13.10	0	0	0	0	0	6	0	0	0.00
105	434.0		15.90	97.8	0.36	2.2	0.00	0.00	16.26	0	0	0	0	0	0	0	0	0.00
3	439.6	441.6	10.32	96.3	0.40	3.7	0.00	0.00	10.72	0	0	0	0	0	44	0	0	0.00
131	447.0		17.35	94.6	0.99	5.4	0.00	0.00	18.34	0	0	0	0	0	0	0	0	0.00
2	449.8	451.8	9.42	93.8	0.62	6.2	0.00	0.00	10.04	0	0	0	0	0	3	0	0	0.00
106	460.0		18.63	93.0	1.25	6.2	0.16	0.80	20.04	5	0	1	0	6	0	6	<1	0.00
1	465.7	467.7	12.19	93.0	0.85	6.5	0.07	0.53	13.11	59	3	3	0	65	6	65	5	4.62
41	NO SAMPLE																	

Table 2 - Northwind Ridge Core 5 continued