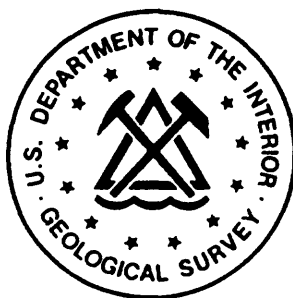


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**DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY**

**Planktic foraminifer census data from  
Sites V19-257 and RC17-44**

Marci M. Robinson  
US Geological Survey, Reston, VA 20192



Open-File Report 96-545

This report is preliminary and has not been reviewed for conformity with  
U.S. Geological Survey editorial standards.

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# Planktic foraminifer census data from Sites V19-257 and RC17-44

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US Geological Survey, Reston, VA 20192

## Introduction

The US Geological Survey is conducting a long-term study of paleoclimatic and paleoceanographic conditions. One of the major elements of the study involves the use of quantitative compositions of planktic foraminifer assemblages in conjunction with stable isotope analysis of planktic and benthic foraminifers to estimate sea-surface temperatures and identify major oceanographic boundaries and water masses. The raw census data is available in a series of open-file reports that provide basic data for future work. In this report, counting categories and raw census data for planktic foraminifer assemblages in 100 samples from V19-257 and RC17-44 are presented (Fig. 1).

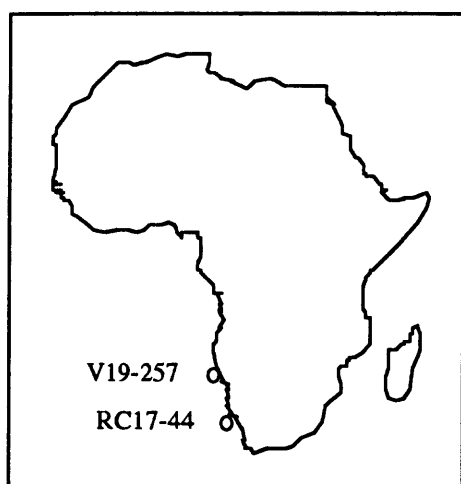


Figure 1. Location of Sites V19-257 and RC17-44.

A variety of statistical techniques is being developed to transform census data of foraminifers in deep-sea cores into quantitative estimates of sea-surface temperatures. Details of statistical techniques, details of taxonomic groupings and oceanographic interpretations are presented in more formal publications (Dowsett and Poore, 1990, 1991; Dowsett, 1991; Dowsett et al, 1994, 1996).

Latitude, longitude and water depth in meters for each locality are shown in Table 1. Counts of variables tabulated in each sample are given in Tables 2 and 3.

These data and this report are available through the USGS Global Change and Climate History Program Global Change Database. Use anonymous FTP to [geochange.er.usgs.gov](http://geochange.er.usgs.gov).

Table 1. Localities discussed in text.

Site	Latitude	Longitude	Depth
V19-257	20.98S	12.37E	740m
RC17-44	29.81S	15.03E	378m

## Methods

The samples studied were washed using low temperature (isotope) procedures. Sediment samples were dried in an oven at  $\leq 50^{\circ}\text{C}$ . The dried bulk sample was

disaggregated in a beaker with warm tap water and ~2ml of dilute calgon solution (5g calgon to 1L water). The beaker was agitated on a shaker/hot plate without heating. Samples were then washed through a 63 $\mu$ m sieve using a fine spray hose and dried in an oven at  $\leq 50^{\circ}\text{C}$ .

A split of 300-350 planktic foraminifer specimens was sought from the  $\geq 149\mu\text{m}$  size fraction using a Carpc sample microsplitter. Specimens were identified, sorted and glued to a 64 square micropaleontological slide.

### Counting Categories

Taxa included in counting categories and used for headings of Tables 2 and 3 are summarized below. In general, taxonomic concepts follow Parker (1962, 1967) and Blow (1969). Exceptions to their practices are noted.

*Candeina nitida* d'Orbigny

*Globigerina bulloides* (d'Orbigny)

*Globigerina calida* Parker

*Globigerina falconensis* Blow

*Globigerina rubescens* Hofker

*Globigerina umbilicata* Orr and Zaitzeff

*Globigerinella aequilateralis* (Brady)

*Globigerinita glutinata* (Egger)

*Globigerinoides conglobatus* (Brady)

*Globigerinoides obliquus* Bolli

*Globigerinoides ruber* (d'Orbigny)

*Globigerinoides sacculifer* (Brady) including *G. quadrilobatus* (d'Orbigny) and *G. trilobus* (Reuss)

*Globigerinoides tenellus* Parker

*Globorotalia crassaformis* (Galloway and Wissler)

*Globorotalia inflata* (d'Orbigny)

*Globorotalia menardii* (Parker, Jones and Brady)

*Globorotalia scitula* (Brady)

*Globorotalia truncatulinoides* (d'Orbigny)

*Globorotalia tumida tumida* (Brady) including *Gr. tumida flexuosa* (Koch)

*Globorotalia* includes *Globorotalia* that were not identified to specific level.

*Neogloboquadrina dutertrei* (d'Orbigny)

*Neogloboquadrina pachyderma* (Ehrenberg) left and right coiling

*Orbulina universa* d'Orbigny

*Turborotalita quinqueloba* (Natland)

### Acknowledgments

Special thanks goes to Harry Dowsett for reviewing this manuscript and to Emerson Polanco for his assistance with sample preparation. Support for the curating facilities of the Lamont-Doherty Earth Observatory Deep-Sea Sample Repository was provided by the National Science Foundation through Grant OCE91-01689 and the Office of Naval Research through Grant N00014-90-J-1060.

## References

- Blow, W. H., 1969. Late middle Eocene to Recent planktonic foraminiferal biostratigraphy. In Bronnimann, P. and Renz H. H., (eds.), *Proceedings of First Planktonic Conference*: Leiden (E. J. Brill), p. 199-422.
- Dowsett, H. J., 1991. The development of a long-range foraminifer transfer function and application to Late Pleistocene North Atlantic climatic extremes, *Paleoceanography*, v. 6, p. 259-273.
- Dowsett, H. J., Barron, J. A. and R. Z. Poore, 1996. Middle Pliocene sea surface temperatures: a global reconstruction, *Marine Micropaleontology*, v. 27, p. 13-25.
- Dowsett, H. J. and R. Z. Poore, 1990. A new planktic foraminifer transfer function for estimating Pliocene through Holocene sea surface temperatures, *Marine Micropaleontology*, v. 16, p. 1-23.
- Dowsett, H. J. and R. Z. Poore, 1991. Pliocene sea surface temperatures of the North Atlantic Ocean at 3.0 Ma, *Quaternary Science Reviews*, v. 10, p. 189-204.
- Dowsett, H. J., Thompson, R. S., Barron J. A., Cronin, T. M., Fleming, R. F., Ishman, S. E., Poore, R. Z., Willard, D. A. and T. R. Holtz, 1994. Joint investigations of the middle Pliocene climate I: PRISM paleo-environmental reconstructions, *Global and Planetary Change*, v. 9(4), p. 97-121.
- Parker, F. L., 1962. Planktonic foraminiferal species in Pacific sediments, *Micropaleontology*, v. 8, p. 219-254.
- Parker, F. L., 1967. Late Tertiary biostratigraphy (Planktonic Foraminiferal) of tropical Indo-Pacific deep-sea cores: *Bulletins of American Paleontology*, v. 52, p. 115-208.

Table 2. V 19-257 Planktic Foraminiferal Assemblages

depth (cm)	<i>Globigerina bulloides</i>	<i>Gg. falconensis</i>	<i>Gg. rubescens</i>	<i>Gg. umbilicata</i>	<i>Globigerinella asquilateralis</i>	<i>Globigerinita glutinata</i>	<i>Globigerinoides conglobatus</i>	<i>Gs. ruber</i>	<i>Gs. sacculifer</i>	<i>Gs. tenellus</i>	<i>Gr. crassaformis</i>	<i>Gr. inflata</i>	<i>Gr. scitula</i>	<i>Gr. truncatulinoides</i>	<i>Gr. tumida/menardii</i>	<i>Globorotalia</i>	<i>Neoglobobulimina dutertrei</i>	<i>N. pachyderma (d)</i>	<i>N. pachyderma (s)</i>	<i>Orbulina</i>	<i>Turborotalita quinqueloba</i>	Non ID	Total	Benthos
4.5	67	9	1	0	7	14	1	4	1	2	4	49	0	1	0	0	18	111	14	9	0	0	312	7
10	67	5	0	0	3	10	0	1	2	0	0	59	1	1	0	0	16	140	6	9	0	5	325	15
15	92	6	1	0	4	23	0	2	0	0	0	45	2	1	0	0	16	134	2	11	0	0	339	10
22	66	11	1	0	2	16	0	0	1	0	0	53	0	0	0	1	16	146	5	6	2	1	327	11
27	75	5	4	0	2	16	0	7	0	2	0	47	0	1	0	0	9	125	8	1	0	0	302	4
31	87	1	0	0	2	20	0	4	0	1	3	48	0	3	0	0	11	115	7	2	0	0	304	11
35	83	3	0	0	4	15	0	3	2	0	0	56	0	2	0	1	6	120	7	2	1	0	305	9
41	93	0	0	0	6	18	0	5	0	1	0	60	0	0	0	0	13	139	6	1	1	1	344	9
45	71	2	2	0	3	10	0	1	0	2	0	71	2	1	0	0	12	110	9	3	0	2	301	5
51	77	2	0	0	5	11	0	0	2	0	0	75	2	2	0	1	12	104	10	1	2	7	313	4
55	65	1	0	0	4	15	0	0	0	2	0	57	0	3	0	0	15	135	6	1	0	1	305	8
61	85	3	0	0	6	9	0	2	2	0	0	45	0	1	0	0	9	150	22	0	2	0	336	13
65	93	1	1	0	2	10	0	0	2	1	0	31	0	2	0	0	12	133	18	1	2	2	311	18
69	93	4	2	0	5	10	0	0	1	0	1	29	0	0	0	0	3	132	17	0	1	2	300	13
75	102	3	0	2	6	10	0	2	0	0	2	19	0	0	0	0	6	85	41	0	9	1	288	25
80	94	11	3	1	5	13	0	1	0	0	2	36	0	0	0	0	4	104	33	1	8	7	323	32
85	87	0	0	1	9	13	0	1	0	0	1	44	2	1	0	0	6	109	30	0	6	7	317	23
90	86	6	1	0	9	9	0	1	0	0	0	52	1	4	0	0	5	113	18	1	3	1	310	34
95	83	4	3	0	6	15	0	2	0	0	0	28	0	1	0	0	11	160	14	0	0	1	328	59
101	72	0	3	0	4	14	0	0	0	0	1	34	0	1	0	0	8	153	7	0	1	3	301	71
105	72	3	0	0	2	17	0	3	0	1	0	55	0	0	0	0	8	94	22	0	0	3	280	1
110	96	1	0	1	2	10	0	1	0	0	0	40	1	1	0	0	6	156	16	1	5	2	339	122
115	73	2	2	0	3	8	0	1	0	1	0	69	1	4	2	0	7	132	22	2	3	0	332	126
120	68	3	2	0	8	14	0	0	0	0	0	113	0	2	0	0	2	105	12	4	1	1	335	279
125	83	2	0	0	4	11	0	1	0	1	1	75	1	0	3	0	6	122	17	2	1	4	334	101
130	50	1	2	0	3	13	0	3	0	0	1	112	0	3	2	0	0	93	14	0	1	4	302	104
135	62	2	0	3	4	18	0	1	1	0	0	115	0	0	1	0	2	97	12	2	1	0	321	170
139.5	106	10	2	0	6	6	0	2	0	0	0	75	1	1	1	0	12	136	24	1	2	2	387	80
145	84	0	0	0	7	12	0	1	1	0	0	98	0	0	3	0	2	109	13	3	2	1	336	79
150	50	3	2	0	5	14	0	2	0	0	0	142	0	1	1	0	2	104	16	2	1	1	346	65
155	65	1	2	0	1	12	0	0	0	0	0	132	1	0	0	0	3	83	12	1	0	0	313	72
160	36	4	1	0	3	8	0	2	0	0	0	184	0	0	1	0	1	84	13	2	2	1	342	50
165	83	0	0	0	3	3	0	0	0	0	0	157	0	0	4	0	2	101	8	1	0	1	363	53
170	59	0	2	0	1	5	0	3	0	0	0	155	1	1	2	0	1	81	10	1	0	0	322	52
175	56	3	2	0	4	1	0	0	0	0	0	144	0	1	1	3	3	76	11	2	0	1	308	72
179	70	2	2	0	2	8	0	1	0	0	0	135	0	1	1	0	0	67	10	4	0	1	304	38
185	70	2	0	0	3	11	0	0	0	0	0	150	0	1	0	0	2	76	5	1	0	0	321	17
190	108	2	0	0	5	7	0	2	0	1	0	128	0	0	2	1	0	106	16	1	0	2	381	11
195	96	6	0	0	2	5	0	1	0	0	0	125	0	0	2	0	0	68	15	1	0	0	321	30
200	89	1	0	0	1	6	0	0	0	0	0	123	0	0	2	0	4	76	5	3	0	0	310	21
205	118	2	4	0	4	8	0	1	2	1	1	117	1	5	0	0	9	108	16	1	0	0	398	16
210	122	3	0	0	9	3	0	1	0	0	1	126	0	4	0	0	9	83	10	1	0	2	374	22
215	129	3	1	0	8	10	0	0	0	1	0	100	0	1	0	0	1	62	5	1	0	0	322	22
222	79	4	2	1	6	8	0	1	0	1	0	84	1	0	0	0	1	105	7	1	0	1	302	21
225	88	0	2	0	0	11	0	0	0	0	0	108	0	0	0	9	1	106	4	1	0	0	330	39
230	92	0	2	0	4	8	0	1	1	1	0	110	0	1	1	1	2	100	5	1	0	0	330	55
235	85	0	0	0	2	4	0	0	0	0	0	135	0	0	2	1	0	76	5	0	0	0	310	60
239	77	1	0	0	2	9	0	2	0	0	0	129	0	0	3	0	2	102	3	1	0	0	331	97
246	82	3	0	0	6	8	0	0	1	0	0	140	0	1	1	0	3	61	9	3	0	0	318	88
250	43	0	2	0	5	14	0	1	0	0	1	140	0	0	1	0	0	79	9	2	0	0	297	134
255	73	4	0	0	5	19	2	1	2	1	0	80	1	0	1	0	0	131	9	0	1	0	330	43
259	78	4	0	0	3	13	0	1	1	0	0	86	0	0	1	0	0	130	4	1	0	1	323	45
265	89	4	0	0	5	12	0	4	0	0	0	76	2	0	1	0	6	115	11	0	0	0	325	32
270	104	1	0	0	3	11	0	0	1	0	0	101	0	2	1	0	12	101	11	2	0	2	352	34
275	106	3	5	0	11	7	0	1	0	0	0	78	0	1	0	0	5	125	18	0	0	0	360	20
280	104	2	1	0	9	13	0	4	1	0	0	75	0	0	1	0	3	128	13	2	0	0	356	42
285	120	2	0	0	7	10	0	2	0	0	0	98	0	0	2	0	0	108	20	1	0	0	370	19
290	111	3	1	0	5	16	0	1	1	0	0	103	0	0	0	0	2	105	15	0	0	2	365	29
295	121	6	1	0	6	8	0	2	0	0	0	86	0	2	0	0	3	86	13	2	1	0	337	35
299.5	121	5	0	0	3	12	0	2	0	0	1	118	0	0	0	4	3	101	11	1	0	0	382	68

Table 3. RC 17-44 Planktic Foraminiferal Assemblages

depth (cm)	<i>Candulus nitida</i>	<i>Globigerina bulloides</i>	<i>Gg. calida</i>	<i>Gg. foliomanada</i>	<i>Gg. umbilicata</i>	<i>Globigerinella nequidivalvis</i>	<i>Globigerinita glutinosa</i>	<i>Globigerinoides obliquus</i>	<i>Ga. ruber</i>	<i>Ga. sacculifer</i>	<i>Ga. imitatus</i>	<i>Gr. crassaformis</i>	<i>Gr. hirsuta</i>	<i>Gr. inflata</i>	<i>Gr. menardii</i>	<i>Gr. actula</i>	<i>Gr. truncatulinoides</i>	<i>Gr. humida</i>	<i>Globorotalia</i>	<i>Neogloboquadrina dutertrei</i>	<i>N. pachyderma (A)</i>	<i>N. pachyderma (s)</i>	<i>Orbulina</i>	<i>Turborotalita quinqueloba</i>	Non ID	Total	Benthos
5	0	34	0	0	0	0	16	0	3	0	0	0	1	91	0	0	3	0	6	67	40	31	0	0	8	300	20
10	0	27	0	0	0	0	19	0	3	2	0	0	0	116	0	0	6	0	3	77	16	28	1	0	1	299	24
15	0	68	0	0	0	0	26	0	2	0	0	0	2	86	0	0	11	0	2	77	34	16	1	0	12	337	37
20	0	62	0	3	0	0	26	0	3	4	0	0	1	84	0	0	10	0	2	94	34	18	1	0	6	349	36
25	1	44	0	0	0	0	32	0	4	3	2	0	2	96	1	0	10	0	1	82	37	14	1	1	8	339	31
30	0	40	0	0	0	0	21	0	1	6	2	2	2	71	0	1	11	0	1	86	38	26	3	1	3	315	27
35	0	27	0	0	0	0	13	0	3	0	0	2	1	66	0	1	6	0	10	107	29	10	1	0	16	292	54
40	0	32	0	0	0	1	21	0	3	4	2	2	0	68	0	1	10	0	7	87	53	23	2	0	14	330	63
45	1	29	0	1	0	2	16	0	3	5	0	2	1	66	0	1	8	0	3	100	40	18	2	0	12	310	61
50	0	36	0	3	0	1	18	1	2	16	0	5	1	65	0	1	6	0	4	99	26	27	0	0	4	315	74
55	2	55	0	4	0	1	20	1	4	68	6	14	2	37	0	3	6	4	0	63	20	19	2	0	9	340	58
60	0	56	0	5	0	1	24	4	3	136	8	6	0	0	0	0	26	0	11	12	8	25	5	0	5	337	35
65	3	71	0	10	0	0	29	10	3	120	3	17	0	0	7	8	0	0	8	7	3	35	16	0	15	365	29
70	1	88	0	5	0	0	16	6	6	102	6	24	0	1	0	7	0	8	0	9	3	26	13	0	13	334	38
75	0	74	3	6	0	1	29	8	5	107	0	16	0	3	5	7	1	2	5	6	4	33	6	0	7	328	37
80	0	87	0	5	1	1	18	6	5	114	1	16	1	1	3	13	0	2	7	3	0	32	12	0	12	340	33
85	0	96	0	3	0	1	20	5	4	113	0	27	0	0	3	5	0	0	2	8	1	27	7	0	8	330	34
90	0	83	0	7	0	1	13	1	4	115	0	16	0	0	15	4	0	0	4	4	1	26	15	0	8	317	25
95	0	79	0	9	0	1	14	1	3	87	2	33	0	0	25	0	0	0	6	3	4	21	16	0	10	314	31
100	0	87	0	12	0	1	37	1	1	92	0	22	0	1	17	6	0	0	8	0	5	23	20	0	7	340	26
105	0	78	1	6	0	1	16	1	3	96	3	32	0	0	18	6	0	0	9	4	0	8	23	0	9	314	39
110	0	87	0	7	0	1	28	2	1	75	1	32	0	0	32	8	0	0	7	0	7	7	13	0	13	321	31
115	0	92	0	2	0	1	30	1	1	95	2	25	0	0	29	2	0	0	4	0	4	10	12	0	4	314	33
120	0	94	0	2	0	1	40	1	0	71	3	34	2	0	16	6	0	3	8	0	10	10	18	0	7	326	23
125	0	111	0	7	0	0	26	0	0	86	1	19	0	0	17	3	0	0	10	1	4	3	12	0	7	307	26
130	0	108	0	3	0	0	25	0	1	92	1	31	0	0	17	4	0	0	8	0	7	4	20	0	10	331	12
135	0	120	0	4	0	0	22	3	0	106	1	24	0	0	13	3	0	0	14	0	2	5	19	0	5	341	35
140	0	131	0	5	0	0	28	1	0	86	0	22	1	1	6	1	0	0	12	0	0	7	12	0	4	317	17
145	1	128	0	1	0	2	30	0	1	82	1	13	0	0	14	2	0	0	14	0	1	9	11	0	12	322	14
150	0	132	0	4	0	0	31	2	0	80	0	33	0	0	15	4	0	0	1	1	2	4	10	0	10	329	27
155	0	128	0	2	0	0	29	1	0	89	0	31	0	0	20	1	0	1	10	0	0	5	26	0	11	354	29
160	0	118	0	3	0	0	35	0	0	91	0	19	1	0	23	0	0	4	8	0	3	2	8	0	13	328	41
165	0	121	0	2	0	0	26	1	0	83	0	18	0	0	22	7	0	0	8	0	1	5	8	0	15	317	25
170	0	123	0	1	0	0	18	5	0	111	0	27	0	2	18	6	0	0	10	1	1	4	15	0	12	354	46
175	0	109	0	5	0	0	27	2	2	116	0	30	0	0	15	9	0	1	4	2	3	6	13	0	3	347	35
180	0	115	0	0	0	0	22	2	2	116	0	24	0	0	22	4	0	0	9	1	2	7	14	0	8	348	21
185	0	115	0	1	0	0	14	1	1	102	0	21	0	0	28	6	0	0	10	1	5	2	10	0	8	325	28
190	0	125	0	0	0	0	17	1	1	94	0	13	0	0	36	11	0	2	10	1	2	3	14	0	2	332	26
195	0	116	0	3	0	0	17	4	2	93	0	15	0	1	42	0	0	0	13	0	2	6	9	0	11	334	17
200	0	120	0	3	0	0	26	2	1	99	0	19	0	0	18	6	0	0	8	0	1	10	17	0	12	342	32