
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

**Pliocene planktic foraminifer census data from the
North Atlantic region**

PRISM Project Members
US Geological Survey, Reston, VA 20192



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INTRODUCTION

The U.S. Geological Survey is conducting a long-term study of the climatic and oceanographic conditions of the Pliocene known as PRISM (Pliocene Research, Interpretation, and Synoptic Mapping). One of the major elements of the study involves the use of quantitative composition of planktic foraminifer assemblages to estimate sea-surface temperatures and identify major oceanographic boundaries and water masses (Dowsett, 1991; Dowsett and Poore, 1991; Dowsett et al., 1992; Dowsett et al., 1994). We have analyzed more than 900 samples from 19 core sites in the North Atlantic Basin (Fig. 1) resulting in a large volume of raw census data. These data are presented here together to facilitate comparison of North Atlantic faunal assemblages.

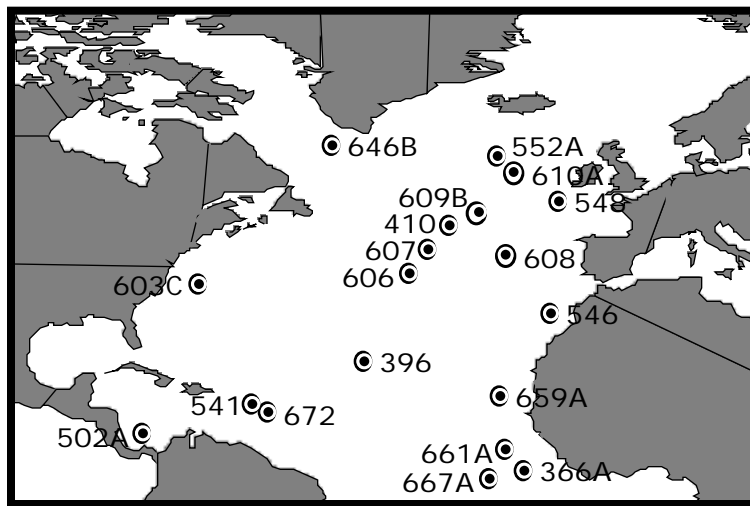


Figure 1. Location of sites discussed in text.

Latitude, longitude, water depth, source of faunal data and source of data used to construct age model (or publication from which age model was taken) are provided for each locality in Table 1. All ages refer to the geomagnetic polarity time scale of Berggren et al. (1985). Counts of species tabulated in each sample are given in Tables 2-20. DSDP and ODP sample designations are abbreviated in Tables 2-20 as core-section, depth within section in centimeters (eg. 10-5, 34 = core 10, section 5, 34 cm below top of section 5).

Table 1. Location and water depth of sites included in this report, original sources of faunal data, and reference for age models included with faunal data sets.

Site	Latitude	Longitude	Water depth (m)	Original faunal data source	Age model
366A	5.68	-19.85	2860	Dowsett et al., 1988	Cepek et al., 1978
396	22.90	-43.50	4450	Wiggs & Dowsett, 1992	Bukry, 1978
410	45.51	-29.48	2975	Dowsett et al., 1988	Poore, 1978
502A	11.49	-79.38	3051	Wiggs & Poore, 1991	Dowsett, 1989
541	15.50	-58.73	4940	Dowsett & Polanco, 1992	Wilson, 1984
546	33.80	-9.60	3958	Dowsett & Polanco, 1992	Hinz et al., 1984
548	48.50	-12.00	1251	Loubere & Moss, 1986	Dowsett & Loubere, 1992
552A	56.04	-23.23	2301	Dowsett & Poore, 1990	Dowsett & Poore, 1990
603C	35.49	-70.03	4633	Poore, 1991	Canninga et al., 1986
606	37.34	-35.50	3007	Dowsett et al., 1988	Dowsett, 1989
607	41.00	-32.96	3427	Dowsett & West, 1992	Baldauf et al., 1986
608	42.90	-23.10	3526	This paper	Baldauf et al., 1986
609B	49.88	-24.24	3883	This paper	Baldauf et al., 1986
610A	53.22	-18.89	2417	This paper	Baldauf et al., 1986
646B	58.25	-48.33	3451	Dowsett et al., 1988	Baldauf et al., 1989
659A	18.00	-21.10	3070	Foley & Dowsett, 1992	Weaver et al., 1989
661A*	9.45	-19.39	4006	Dowsett & West, 1992	Weaver et al., 1989
667A	4.55	-21.90	3529	Foley and Dowsett, 1992	Weaver et al., 1989
672A	15.50	-58.50	4975	Wiggs and Dowsett, 1992	Moore, Mascle, et al., 1988

*R.Z. Poore responsible for faunal data

METHODS

The samples used in this study were processed using low temperature (isotopic) techniques. This includes sample disaggregation in water, drying at 50°C, and sieving into 63 µm - 149 µm and 149 µm size fractions. Following standard procedures, some samples required additional treatment with Calgon or H₂O₂ added to the wash to obtain clean specimens.

A split of 300-350 planktic foraminifer specimens was obtained from the 149 µm size fraction using a Carpc sample splitter. Specimens were identified, sorted, and fixed to a standard 60-square micropaleontological slide.

COUNTING CATEGORIES

Taxa included in Tables 2-20 are summarized in a comprehensive list below. In general, our taxonomic concepts follow Parker (1962; 1967) and Blow (1969); exceptions to their practices are noted below.

Candeina nitida d'Orbigny

Dentoglobigerina altispira (Cushman and Jarvis)

Globoquadrina venezuelana (Hedberg)

Globigerina bulloides (d'Orbigny)
We include *Globigerina praebulloides* Blow in this category.

Globigerina calida Parker
Globigerina conglomerata (Schwager)

Globigerina decoraperta Takayanagi and Saito

Globigerina digitata Brady

Globigerina eamesi Blow

Globigerina falconensis Blow

Globigerina incisa (Bronnimann and Resig)

Globigerina nepenthes Todd

Globigerina praedigitata Parker

Globigerina pseudobesa (Salvatorini)

Globigerina pseudobulloides (Plummer)

Globigerina sp. 1

Taxon resembles *G. falconensis* but has reticulate surface texture similar to *G. woodi* group.

Globigerina woodi Jenkins

We include specimens of *Globigerina apertura* Cushman in this category.

Globigerinella aequilateralis (Brady)

Globigerinella siphonifera (d'Orbigny)

Globigerinita glutinata (Egger)

Globigerinoides conglobatus (Brady)

Globigerinoides obliquus Bolli

We include *G. extremus* Bolli and Bermudez in this category.

Globigerinoides ruber (d'Orbigny)

Globigerinoides sacculifer (Brady) s.l.

This category includes *G. quadrilobatus* (d'Orbigny) and *G. trilobus* (Reuss).

Globigerinoides spp.

Representatives of *Globigerinoides* (usually small) that could not be confidently assigned to *G. ruber*, *G.*

obliquus (s.l.) or *G. conglobatus* are included in this category.

Globorotalia cibaoensis Bermudez

Globorotalia conomiozea Kennett

Globorotalia crassaformis (Galloway and Wissler) For the purpose of this report we have combined the census data of a number of taxa including *G. ronda* Blow, *G. oceanica* Cushman and Bermudez, *G. viola* Blow, and *G. crassula* Blow into this category.

Globorotalia hirsuta (d'Orbigny)

Globorotalia margaritae Bolli and Bermudez

Globorotalia menardii (Parker, Jones, and Brady) This category includes various members of the *G. menardii* lineage such as *G. limbata* (Fornasini) and *G. miocenica* Palmer.

Globorotalia praepumilio (Parker)

Globorotalia pumilio Parker

This category includes small forms with 5-7 chambers in the ultimate whorl that are similar to *Globorotalia pumilio* Parker, *G. praepumilio* (Parker) and *G. pseudopumilio* Bronnimann and Resig.

Globorotalia puncticulata (Deshayes) s.l.

This category includes *G. inflata* (d'Orbigny).

Globorotalia scitula (Brady) s.l.

This category includes various members of the *G. scitula* group, for example *G. subscitula* Conato.

Globorotalia spp.

This category includes rare *Globorotalia* not assigned to the other taxa listed here.

Globorotalia tosaensis Takayanagi and Saito We include occurrences of

Globorotalia truncatulinoides
(d'Orbigny) in this category.

Globorotalia tumida (Brady) s.l.
This category includes *G. plesiotumida*
Blow and Banner.

Globorotaloides hexagona (Natland)

Neogloboquadrina acostaensis (Blow)
We include *N. continuosa* (Blow) in this
category.

Neogloboquadrina atlantica (Berggren)
We separate sinistral and dextral coiled
specimens. See Poore and Berggren
(1975) for discussion of this highly
variable taxon.

Neogloboquadrina humerosa
(Takayanagi and Saito)

Neogloboquadrina pachyderma
(Ehrenberg) Sinistral variety includes
relatively small, compact
Neogloboquadrina with 4-5 chambers in
the ultimate whorl, kummerform ultimate
chamber, and a slightly to distinct oval
equatorial outline. Separating small
sinistral *N. atlantica* from large sinistral
N. pachyderma is arbitrary in many
North Atlantic high-latitude sites. Dextral
variety is confined to 4 chambers in the
final whorl. Dextral coiled specimens
with 4 1/2 chambers in the final whorl are
tabulated in a "dupac" category.

Neogloboquadrina spp.
This category includes
Neogloboquadrina that were not
identified to specific level but generally
does not include representatives of *N.*
atlantica.

Orbulina universa d'Orbigny

Pulleniatina obliquiloculata (Parker and
Jones)

Sphaeroidinellopsis spp.
This category includes members of the
genera *Sphaeroidinella* and
Sphaeroidinellopsis.

Turborotalita quinqueloba (Natland)

OTHER

This category includes unidentified
specimens and taxa that are rare within
assemblages from the cores.

TOTAL PLANKTICS

Total number of planktic forams in the
counting split

FRAGMENTS

Fragments of planktic foraminifers

BENTHICS

Number of benthic foraminifers in
planktic counting split

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For more information, contact:

Harry Dowsett
U.S.G.S.
955 National Center
Reston, VA 20192
(703) 648-5282
hdowsett@geochange.er.usgs.gov

Dick Poore
U.S.G.S.
955 National Center
Reston, VA 20192
(703) 648-5270
rpoore@geochange.er.usgs.gov