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**Pliocene planktic foraminifer census data
from DSDP Site 592, Southwest Pacific Ocean**

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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. One of the major elements of the study involves the use of quantitative composition 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 in the Pacific Ocean region. We have decided to make the raw census data available in a series of open-file reports that will provide basic data for future work. In this report we present raw census data for planktic foraminifer assemblages from DSDP Site 592 (Fig. 1).

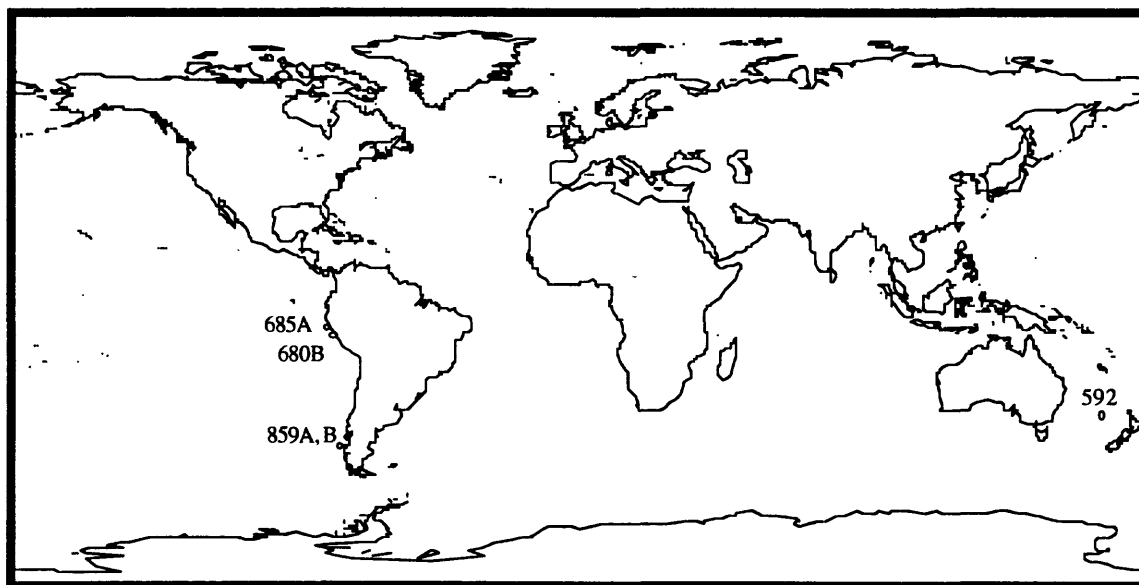


FIGURE 1. Location of sites discussed in text.

A variety of statistical techniques are being developed to transform census data of foraminifers in Pliocene deep-sea cores into quantitative estimates of Pliocene sea-surface temperatures. Details of statistical techniques, taxonomic groupings, and oceanographic interpretations are presented in more formal publications (e.g. Dowsett and Poore, 1990, 1991; Dowsett, 1991, Dowsett and Loubere, 1992; Dowsett et al., 1994, 1996).

Latitude, longitude, and water depth for each locality are in Table 1. Counts of species tabulated in each sample from Site 592 are

given in Table 2. Table 3 lists samples processed and analyzed from Sites 680, 685, and 859 (all were found to be barren or have very low absolute numbers of planktic foraminifers precluding further analysis). These data and this report are available from <URL:<http://geochange.er.usgs.gov/pub/prism/>>

TABLE 1. Localities discussed in text

| Hole | Lat. | Lon. | Depth |
|------|--------|---------|----------|
| 592 | 36.47S | 165.44E | 1088.0 m |
| 680B | 11.07S | 78.08W | 252.5 m |
| 685A | 9.11S | 80.58W | 5070.8 m |
| 859A | 45.90S | 75.85W | 2741.2 m |
| 859B | 45.90S | 75.86W | 2748.9 m |

METHODS

The samples used in this study were processed using low temperature (isotopic) techniques. Samples were dried in an oven at $\leq 50^{\circ}\text{C}$. The dried bulk sample was disaggregated in a beaker filled with a dilute Calgon solution (5 g Calgon to 1 liter water). Samples were washed through a $149\text{ }\mu\text{m}$ sieve using a fine spray and oven dried at $\leq 50^{\circ}\text{C}$.

A split of 300-350 planktic foraminifer specimens was obtained from the $\geq 149\text{ }\mu\text{m}$ size fraction using a Carpc sample splitter. Specimens were identified, sorted, and glued to a standard 60-square micropaleontological slide.

COUNTING CATEGORIES

Taxa included in counting categories and codes used in some PRISM documents 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.

DSDP and ODP sample designations are abbreviated in Tables 2-3 as core-section, depth within section in centimeters (eg. 10-5, 34 = core 10, section 5, 34 cm below top of section 5). The depth column lists depth of sample below sea floor in meters.

Code Taxon (taxa) comments

Cande *Candeina*

bulls *Globigerina bulloides* (d'Orbigny) and *G. praebulloides* Blow

falco *Globigerina falconensis* Blow

pseud *Globigerina pseudobesa* (Salvatorini)

incis *Globigerina incisa* (Bronnimann and Resig)

praed *Globigerina praedigitata* Parker

woodi *Globigerina woodi* Jenkins and *G. apertura* Cushman

decor *Globigerina decoraperta* Takayanagi and Saito

nepen *Globigerina nepenthes* Todd

sp. 1 *Globigerina* sp. 1. Taxon resembles *G. falconensis* but has reticulate surface texture similar to *G. woodi* group.

aequi *Globigerinella aequilateralis* (Brady)

gluti *Globigerinita glutinata* (Egger) s.l.

congl *Globigerinoides conglobatus* (Brady)

obliq *Globigerinoides obliquus* Bolli and *G. extremus* Bolli and Bermudez

ruber *Globigerinoides ruber* (d'Orbigny)

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

Gnoid *Globigerinoides* spp. Representatives of *Globigerinoides* (usually small) that could not be confidently assigned to *G. ruber*, *G. obliquus* (s.l.) or *G. conglobatus*.

altis *Globoquadrina altispira* (Cushman and Jarvis)

venez *Globoquadrina venezuelana* (Hedberg)

cibao *Globorotalia cibaoensis* Bermudez
conom *Globorotalia conomiozea* Kennett

crass *Globorotalia crassaformis* (Galloway and Wissler). This category includes *G. ronda* Blow and *G. oceanica* Cushman and Bermudez. Specimens with a distinct keel on the entire ultimate whorl are tabulated separately under "kcras".

kcras This category includes *G. crassaformis* with fully keeled ultimate whorl.

viola *Globorotalia viola* Blow. Both encrusted (*G. crassula* of Blow, 1969) and non-encrusted specimens are included.

hirsu *Globorotalia hirsuta* (d'Orbigny)

plata *Globorotalia inflata* (d'Orbigny) and *G. punctulata* (Deshayes)

| | | |
|-------|--|---|
| marga | <i>Globorotalia margaritae</i> Bolli and Bermudez | is restricted to specimens with 4 chambers in the ultimate whorl. Right-coiling specimens close to <i>N. pachyderma</i> that have more than 4 chambers in the ultimate whorl are tabulated as "dupac". |
| menar | <i>Globorotalia menardii</i> (Parker, Jones, and Brady) s.l. This category includes various members of the <i>G. menardii</i> lineage such as <i>G. limbata</i> (Fornasini) and <i>G. miocenica</i> Palmer. | |
| pumil | This category includes small forms with 5-7 chambers in the ultimate whorl that are similar to <i>Globorotalia pumilio</i> Parker, <i>G. praepumilio</i> (Parker) and <i>G. pseudopumilio</i> Bronnimann and Resig. | dupac This category is used for specimens of right-coiling <i>Neogloboquadrina</i> with more than four chambers in the ultimate whorl that are transitional between <i>N. pachyderma</i> and <i>N. acostaensis</i> or <i>N. atlantica</i> . |
| scitu | <i>Globorotalia scitula</i> (Brady) s.l. This category includes various members of the <i>G. scitula</i> group, for example <i>G. subscitula</i> Conato. | Neogl This category includes <i>Neogloboquadrina</i> that were not identified to specific level but generally does not include representatives of <i>N. atlantica</i> . |
| tocat | <i>Globorotalia tosaensis</i> Takayanagi and Saito and <i>G. truncatulinoides</i> (d'Orbigny) | Orbul <i>Orbulina universa</i> d'Orbigny |
| tumid | <i>Globorotalia tumida</i> (Brady) s.l. This category includes <i>G. plesiotumida</i> Blow and Banner. | Sphae <i>Sphaeroidinella</i> and <i>Sphaeroidinellopsis</i> |
| hexag | <i>Globorotaloides hexagona</i> (Natland) | quinq <i>Turborotalita quinqueloba</i> (Natland) |
| acost | <i>Neogloboquadrina acostaensis</i> (Blow) and <i>N. continuosa</i> (Blow) | OTHER This category includes unidentified specimens and taxa that are rare within assemblages from the cores. |
| satca | <i>Neogloboquadrina atlantica</i> (Berggren) left-coiling. See Poore and Berggren, 1975 for discussion of this highly variable taxon. | TOTAL PLANK Total number of planktic forams in the counting split. |
| datca | <i>Neogloboquadrina atlantica</i> (Berggren) right-coiling | frags fragments of planktic foraminifers |
| humer | <i>Neogloboquadrina humerosa</i> (Takayanagi and Saito) | bform benthic foraminifers |
| spach | <i>Neogloboquadrina pachyderma</i> (Ehrenberg) left-coiling. Relatively small, compact <i>Neogloboquadrina</i> with 4-5 chambers in the ultimate whorl, kummerform ultimate chamber, and a slightly to distinct oval equatorial outline are included here. Separating small left-coiling <i>N. atlantica</i> from large left-coiling <i>N. pachyderma</i> is arbitrary in many North Atlantic high-latitude sites. | |
| dpach | <i>Neogloboquadrina pachyderma</i> (Ehrenberg) right-coiling. This category | |

ACKNOWLEDGEMENTS

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Table 3. Samples processed but barren.

| Hole | Sample | Analysis | Hole | Sample | Analysis |
|------|-------------------|----------|------|-------------------|----------|
| 680B | 5H - 7 , 49-51 | + | 859A | 3H - 2 , 29-31 | + |
| 680B | 5H - CC , 89-91 | | 859A | 4H - 4 , 124-126 | + |
| 680B | 6H - 1 , 114-116 | | 859A | 5H - 2 , 89-91 | + |
| 680B | 6H - 2 , 102-104 | | 859A | 6X - 2 , 54-56 | + |
| 680B | 6H - 3 , 74-76 | | 859A | 14X - 1 , 114-116 | + |
| 680B | 6H - 4 , 84-86 | | 859B | 1R - 1 , 64-66 | + |
| 680B | 6H - 5 , 69-71 | | 859B | 2R - 2 , 49-51 | + |
| 680B | 6H - 6 , 104-106 | + | 859B | 3R - 5 , 99-101 | + |
| 680B | 6H - 7 , 49-51 | | 859B | 29R - 1 , 36-38 | + |
| 680B | 6H - CC , 79-81 | | 859B | 29R - 1 , 59-61 | + |
| 680B | 7H - 1 , 76-78 | | 859B | 29R - 1 , 84-86 | + |
| 680B | 7H - 2 , 46-48 | | 859B | 29R - 1 , 109-111 | + |
| 680B | 7H - 3 , 32-34 | | 859B | 29R - 1 , 144-146 | + |
| 680B | 7H - 4 , 34-36 | | 859B | 29R - 2 , 54-56 | + |
| 680B | 7H - 5 , 29-31 | + | 859B | 29R - 2 , 79-81 | + |
| 680B | 7H - 6 , 49-51 | | 859B | 29R - 2 , 99-101 | + |
| 680B | 7H - 7 , 09-11 | | 859B | 29R - 2 , 119-121 | + |
| 680B | 7H - CC , 72-74 | | 859B | 29R - 2 , 144-146 | + |
| 680B | 8H - 1 , 49-51 | | 859B | 29R - 3 , 09-11 | + |
| 680B | 8H - 2 , 59-61 | | 859B | 29R - 3 , 29-31 | + |
| 680B | 8H - 3 , 111-113 | | 859B | 29R - 3 , 54-56 | + |
| 680B | 8H - 4 , 44-46 | + | 859B | 29R - 3 , 89-91 | + |
| 680B | 8H - 5 , 119-121 | | 859B | 29R - 3 , 129-131 | + |
| 680B | 8H - 6 , 44-46 | | 859B | 29R - 4 , 19-21 | + |
| 680B | 8H - 7 , 29-31 | | 859B | 29R - 4 , 44-46 | + |
| 680B | 8H - CC , 76-78 | | 859B | 29R - 4 , 69-71 | + |
| 680B | 9H - 1 , 64-66 | | 859B | 29R - 4 , 94-96 | + |
| 680B | 9H - 2 , 24-26 | | 859B | 29R - 4 , 122-124 | + |
| 680B | 9H - 3 , 59-61 | + | 859B | 29R - 5 , 09-11 | + |
| 680B | 9H - 4 , 24-26 | | 859B | 29R - 5 , 24-26 | + |
| 680B | 9H - 5 , 34-36 | | 859B | 29R - CC , 04-06 | |
| 680B | 9H - 6 , 94-96 | | 859B | 30R - 1 , 44-46 | + |
| 680B | 9H - 7 , 09-11 | | 859B | 30R - 1 , 64-66 | |
| 680B | 9H - CC , 44-46 | | 859B | 30R - 1 , 94-96 | + |
| 680B | 10H - 1 , 79-81 | | 859B | 30R - 1 , 114-116 | |
| 680B | 10H - 2 , 29-31 | + | 859B | 30R - 1 , 139-141 | + |
| 680B | 10H - 3 , 54-56 | | 859B | 30R - 2 , 19-21 | |
| 680B | 10H - 4 , 139-141 | | 859B | 30R - 2 , 44-46 | + |
| 680B | 10H - 5 , 89-91 | | 859B | 30R - 2 , 62-64 | |
| 680B | 10H - 6 , 39-41 | | 859B | 30R - 3 , 54-56 | + |
| 680B | 10H - 7 , 09-11 | | 859B | 30R - 3 , 84-86 | + |
| 680B | 10H - CC , 39-41 | | 859B | 30R - 3 , 104-106 | + |
| 685A | 21X - 1 , 69-71 | + | 859B | 30R - 3 , 124-126 | + |
| 685A | 21X - 2 , 64-66 | + | 859B | 30R - 3 , 144-146 | + |
| 685A | 21X - 3 , 69-71 | + | 859B | 30R - 4 , 22-24 | |
| 685A | 21X - 4 , 19-21 | + | 859B | 30R - 4 , 54-56 | + |
| 685A | 21X - 5 , 66-68 | + | 859B | 30R - 4 , 74-76 | + |
| 685A | 21X - 6 , 119-121 | + | 859B | 30R - 4 , 109-111 | |
| 685A | 21X - 7 , 124-126 | + | 859B | 30R - 4 , 139-141 | + |
| 685A | 21X - CC , 59-61 | + | 859B | 30R - 5 , 19-21 | + |
| 685A | 22X - 1 , 44-46 | + | 859B | 30R - 5 , 49-51 | + |
| 685A | 22X - 2 , 94-96 | + | 859B | 30R - 5 , 89-91 | + |
| 685A | 22X - 3 , 74-76 | + | 859B | 30R - 5 , 114-116 | + |
| 685A | 22X - 4 , 114-116 | + | 859B | 30R - 5 , 144-146 | |
| 685A | 22X - CC , 11-13 | + | 859B | 30R - 6 , 19-21 | + |
| 685A | 23X - CC , 09-11 | + | 859B | 30R - 6 , 36-38 | |
| | | | 859B | 30R - 6 , 56-58 | + |
| | | | 859B | 30R - CC , 06-08 | |

+ Indicates sample analysed for foraminifers