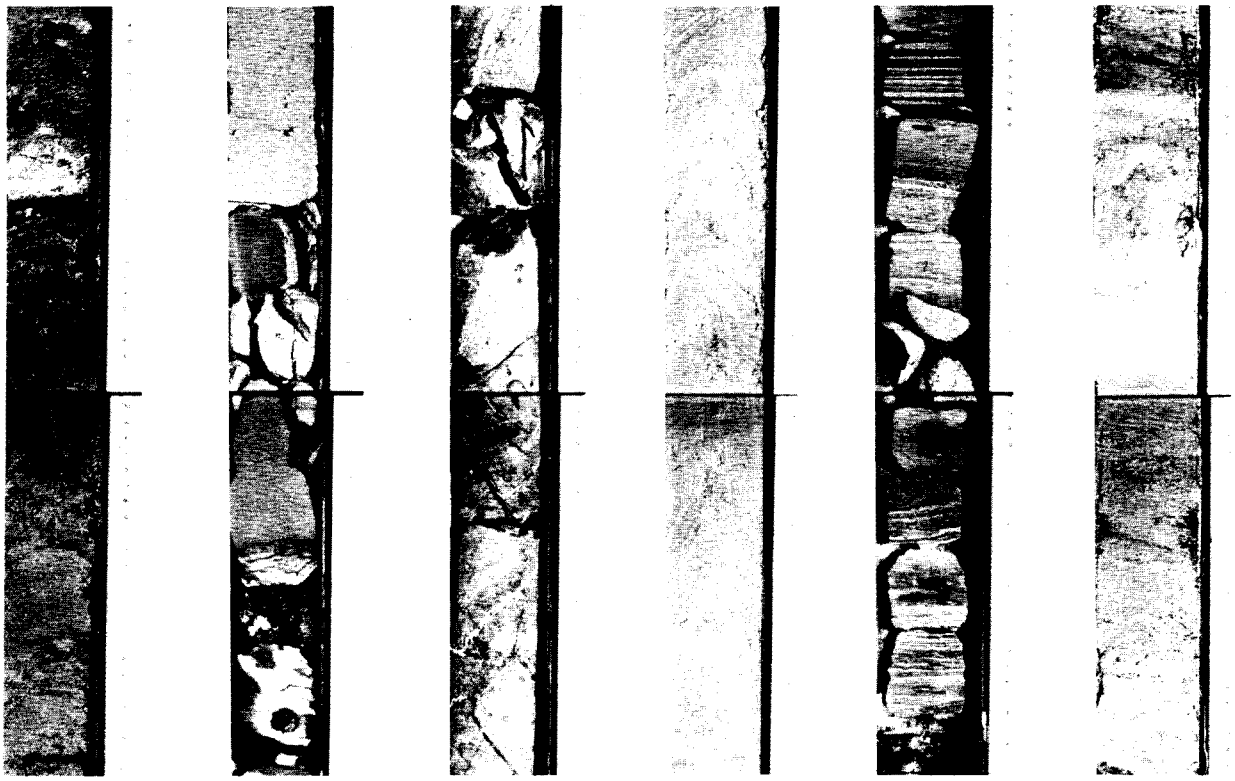
INITIAL CORE DESCRIPTIONS

DEEP SEA DRILLING PROJECT

LEG 37

MID-ATLANTIC RIDGE



Prepared for the
NATIONAL SCIENCE FOUNDATION
National Ocean Sediment Coring Program
Under Contract C-482
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UNIVERSITY OF CALIFORNIA
Scripps Institution of Oceanography
Prime Contractor for the Project

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Dear Colleague:

This document has been printed and distributed by the Deep Sea Drilling Project for the purpose of sample selection by interested earth scientists, sample requests being honored one year after completion of the cruise on which the samples were collected. It is an interim and informal document consisting of site data and sedimentologic and paleontologic data as known six (6) months post-cruise. These data, while completely adequate for almost all sample selection needs, will be subject to possible slight change by the time of issue of the formal cruise report, the corresponding volume of the Initial Reports of the Deep Sea Drilling Project.

The information contained herein is preliminary and privileged, consequently this document is not to be cited or used as the basis of other publications. Data cited or used in a manuscript will be considered a breach of professional ethics.

Thank you for your interest in the Deep Sea Drilling Project.

Sincerely,

N. Terence Edgar
Chief Scientist
Deep Sea Drilling Project

NTE:eb

INITIAL CORE DESCRIPTIONS
DEEP SEA DRILLING PROJECT
LEG 37
May 28, 1974 - July 29, 1974

A Project Planned by and Carried Out With the Advice of the
JOINT OCEANOGRAPHIC INSTITUTIONS FOR DEEP EARTH SAMPLING (JOIDES)

MEMBER ORGANIZATIONS

Lamont-Doherty Geological Observatory, Columbia University
Rosenstiel School of Marine and Atmospheric Science, University of Miami
Scripps Institution of Oceanography, University of California
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INITIAL CORE DESCRIPTIONS - LEG 37

INTRODUCTION

Leg 37 was the second of two "basement" legs of the Deep Sea Drilling Project. The primary objective was deep penetration of Layer 2 of the oceanic crust in order to determine:

1) The nature and mode of construction of Layers 2a and 2b and the relative proportions of sedimentary rocks, pillow basalts, massive basalts, and intrusive bodies in each.
2) The chemical composition of Layer 2 and indirectly the nature and composition of the upper mantle beneath ocean ridges.
3) The nature and origin of linear magnetic anomalies believed to be related to Layer 2a.
4) The seismic and physical properties of materials from Layers 2a and 2b.
5) Heat flow values and thermal conductivities of Layer 2.

The primary site selected for deep penetration of the crust was on the west flank of the Mid-Atlantic Ridge at latitude 37 degrees north adjacent to the FAMOUS (French-American Mid-Ocean Undersea Study) area.

During Leg 37 the GLOMAR CHALLENGER carried a variety of special equipment that enabled the shipboard party to obtain detailed information on the rocks recovered. This equipment included:

1) A complete laboratory for routine preparation of polished thin sections and both transmission and reflection microscopes with camera attachment.

2) A complete laboratory for routine chemical analysis by X-ray fluorescence methods.

3) A gas chromatograph for rapid determination of H_2O and CO_2 on rock powders.

4) A spinner magnetometer and AC demagnetization unit to permit determination of NRM characteristics of both igneous and sedimentary rocks.

5) A hydraulically operated pressure system to measure sonic velocities of specimens at pressures up to 2Kb.

6) Equipment for measurement of porosity, density, and electrical conductivity of both igneous and sedimentary rocks.

Much of the data obtained during the leg has been included on the core summary forms.

The GLOMAR CHALLENGER departed Recife, Brazil on May 28, 1974 and arrived at the first site on June 17, 1974. Six major holes were drilled at 4 sites located along a sea floor spreading flow line perpendicular to the ridge crest. The cruise ended in Dublin, Ireland on July 29, 1974. Figure 1 is a site map showing ships tracks, site locations, and major tectonic features of the FAMOUS area. Figure 2 shows the location of the drilling sites in relationship to sea floor topography and magnetic anomalies and Table 1 gives a drilling and coring summary. Composite stratigraphic sections for the major holes are given in Figure 3.

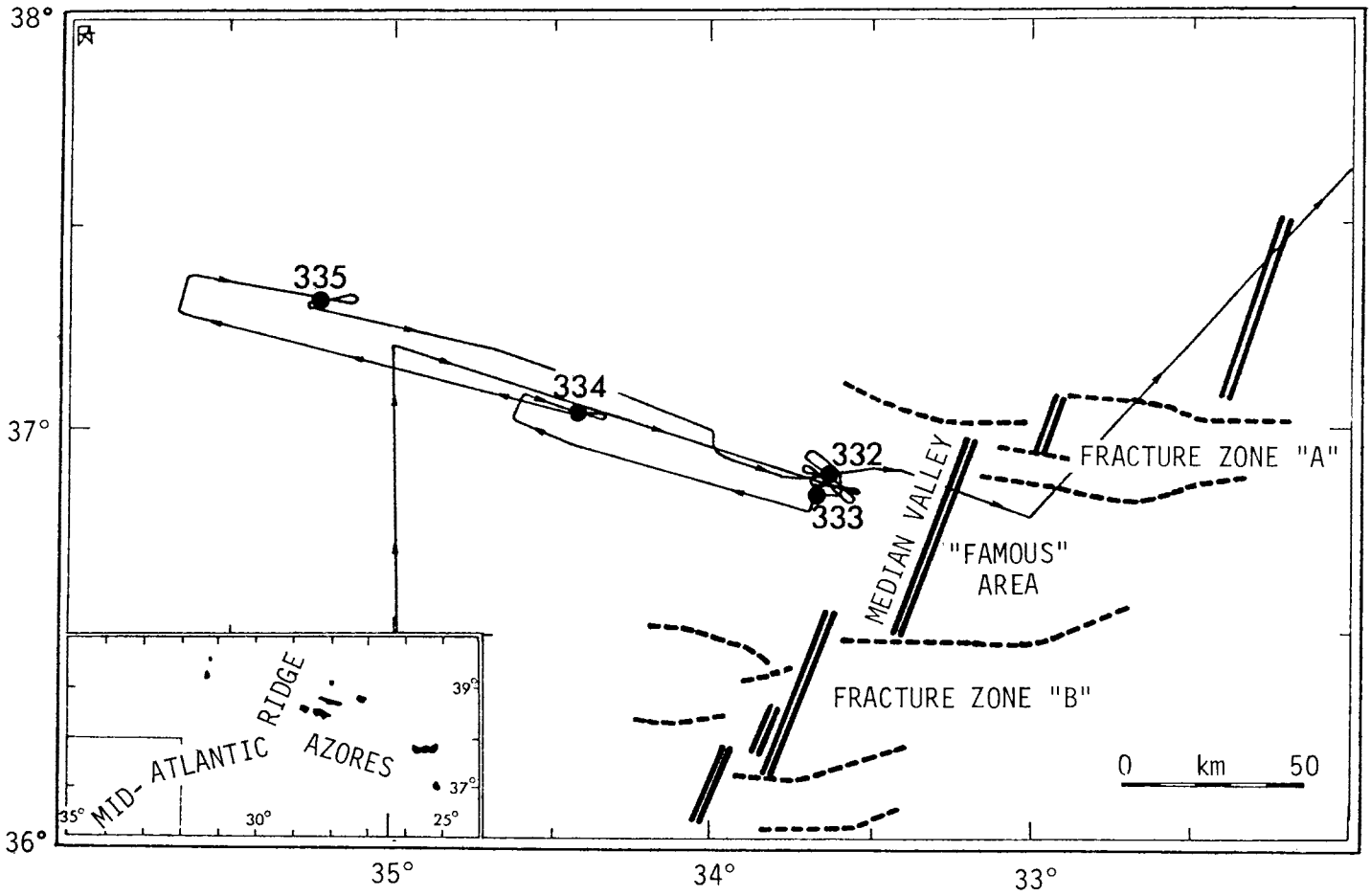

38°
37°
36°
35°
34°
33°
335
334
332
333
FRACTURE ZONE "A"
MEDIAN VALLEY
"FAMOUS"
AREA
FRACTURE ZONE "B"
0 km 50
MID-ATLANTIC RIDGE
AZORES
39°
37°
35°
30°
25°

FIGURE 1.

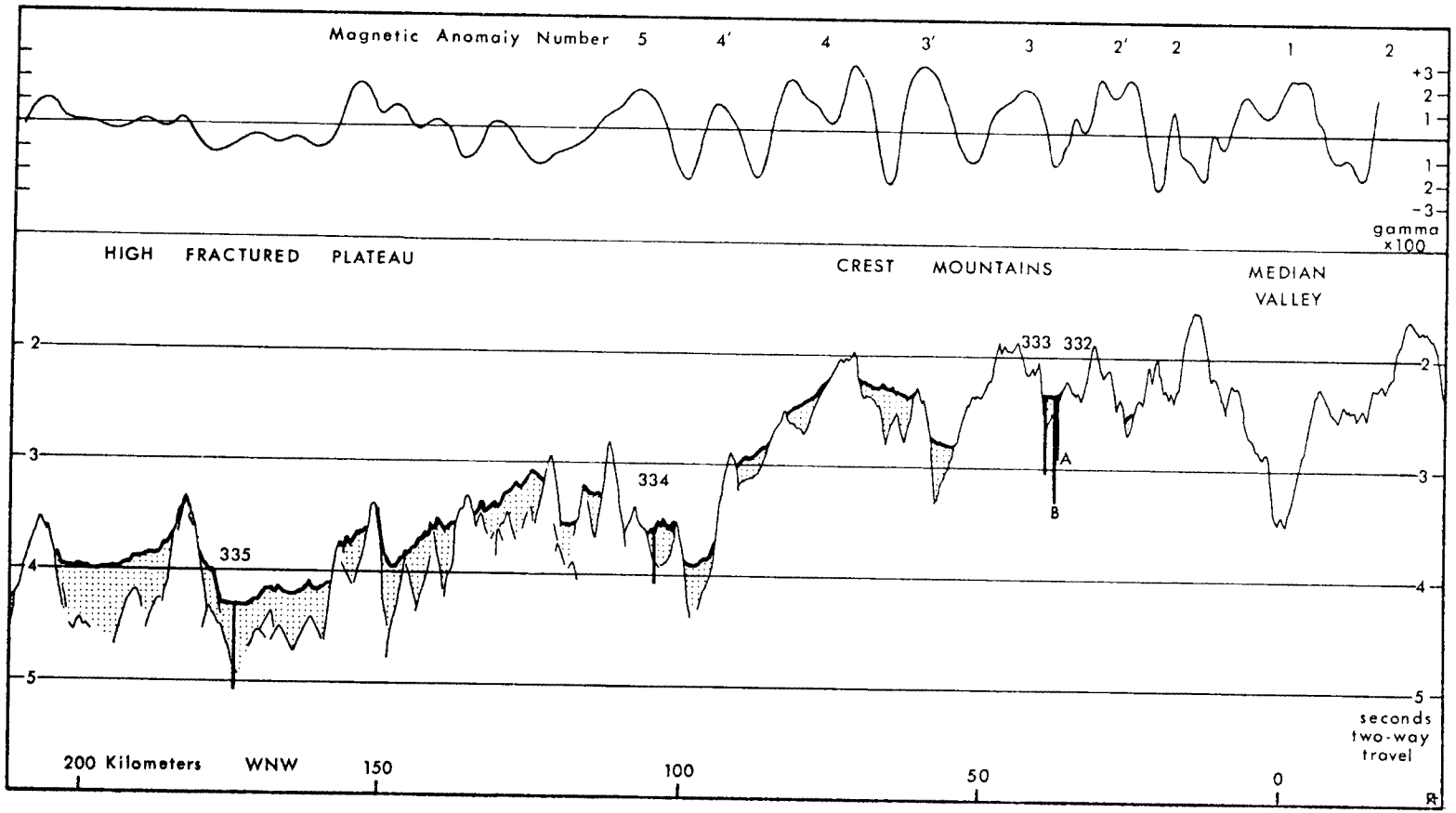

Magnetic Anomaly Number 5 4' 4 3' 3 2' 2 1 2
+3
2
1
1
2
-3
gamma x100
HIGH FRACTURED PLATEAU
CREST MOUNTAINS
MEDIAN VALLEY
333 332
334
335
A
B
2
3
4
5
seconds two-way travel
200 Kilometers WNW
150
100
50
0

FIGURE 2.

TABLE 1. Site Summary Data, Leg 37

Site No.	332	332	333	334	335	
Hole No.	332A	332B	333A	334	335	
Latitude	36°52.72'N	36°52.76'N	36°50.45'N	37°02.13'N	37°17.74'N	
Longitude	33°38.46'W	33°38.57'W	33°40.05'W	34°24.87'W	35°11.92'W	
Water Depth (m)	1818	1806	1665.8	2632	3198	
Total Penetration (m)	437	721.5	529	376.5	526	3063
Sediment Thickness (m)	104	142	219	259	454	11'78.0
Recovered Sediment (m) and Percent	26.9, 26%	9.5, 7%	38, 17%	75.4, 30%	17.8, 4%	167.60
Sub-acoustic Basement Penetration (m)	333	582.5	312	117.5	108	1453.00
Sub-acoustic Basement Recovery (m) and Percent	39.8, 12%	112, 19%	25.21, 8%	24.2, 21%	415, 38%	242.7
Magnetic Anomaly Age (m.y.)	3.5 ±0.1	3.5 ±0.1	3.5	8.9	16.5*	
Oldest Sediment (m.y.)**	3.3	3.0-3.3	3.3	9-10	10-11	
Distance from Median Valley (Km)	33.9	33.9	34.3	104.3	181.5	
Spreading Rate (distance/mag. anom. age)	1.17 ±0.5	1.17 ±0.5	1.17	1.17	-	

* Extrapolated age from spreading rates at 332, 333, and 334. Magnetic anomaly identification and precisely possible at this site.

** Time scale is from Berggren, 1972, Lethaxa, V. 5.

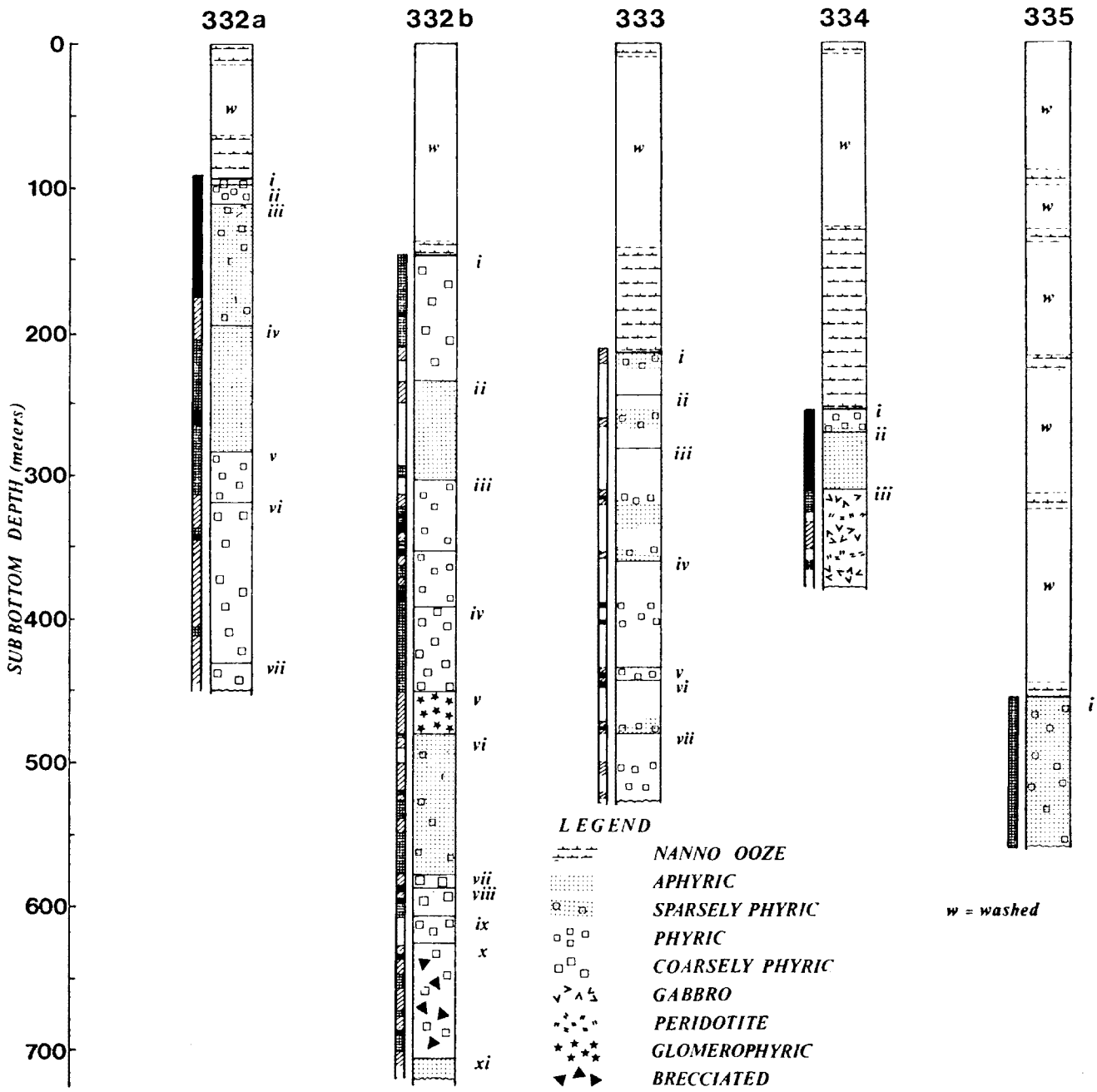

SITE NUMBERS
332a
332b
333
334
335
SUB BOTTOM DEPTH (meters)
0
100
200
300
400
500
600
700
w
i
ii
iii
iv
v
vi
vii
viii
ix
x
xi
LEGEND
NANNO OOZE
APHYRIC
SPARSELY PHYRIC
PHYRIC
COARSELY PHYRIC
GABBRO
PERIDOTITE
GLOMEROPHYRIC
BRECCIATED
w = washed

FIGURE 3.

EXPLANATORY NOTES

Introduction

The following material should aid in understanding the terminology, labeling, and numbering conventions in use at the Deep Sea Drilling Project. Also included are explanations of the core logs and of some of the data that have been assembled up to this time. The sediment classification used on Leg 37 and a sample distribution policy appears near the end of this section.

Numbering of Sites, Holes, Cores, Samples

Drill site numbers run consecutively from the first site drilled by GLOMAR CHALLENGER in 1968. The site number is unique; thus, use of a Leg number is optional. A site refers to the hole or holes drilled from one acoustic positioning beacon. Several holes may be drilled at a single locality by pulling the drill string above the sea floor ("mud line") and offsetting the ship some distance (usually 100 meters or more) from the previous hole.

Holes drilled at a site take the site number, and are distinguished by a letter suffix. The first hole has only the site number; the second has the site number with suffix A; the third has the site number with suffix B; and so forth. It is important, for sampling purposes, to distinguish the holes drilled at a site, since recovered sediments or rocks usually do not come from equivalent positions in the stratigraphic column at different holes.

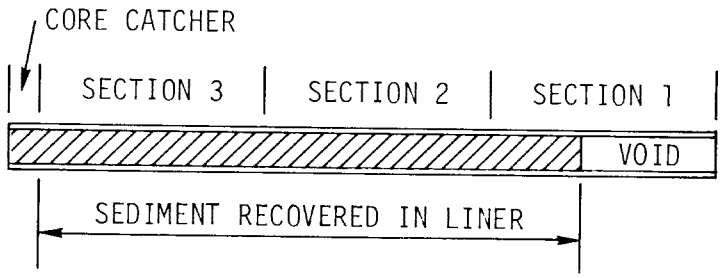
Cores are numbered sequentially from the top down. In the

ideal case, they consist of 9 meters of sediment or rock in a plastic liner of 6.6 cm diameter. In addition, a short sample is obtained from the core catcher (a multi-fingered device at the bottom of the core barrel which prevents cored materials from sliding out during core-barrel recovery). This usually amounts to about 20 cm of sediment which is stored separately. Basalt fragments contained in the core catcher are usually less than 20 cm in length and are normally added to the regular plastic liner because full recovery is rare in igneous rocks. The core catcher sample represents the lowest stratum recovered in the particular cored interval and is designated by CC (e.g., 333-4-CC = core catcher sample of the fourth core taken in the first hole at Site 333.

The cored interval is the interval in meters below the sea floor, measured from the point at which coring for a particular core was begun to the point at which it was terminated. This interval is generally 9.5 meters (nominal length of a core barrel), but may be shorter or longer if conditions dictate. Cores and cored intervals need not be contiguous. In soft sediments, the drill string can be "washed ahead" without recovering core by applying sufficiently high pump pressure to wash sediment out of the way of the bit. In a similar way, in hard rocks a center bit, which fills the opening in the bit face, can replace the core barrel if drilling ahead without coring is necessary (the latter, however, is seldom used).

When a core is brought aboard the GLOMAR CHALLENGER it is

labeled and the plastic liner and core cut into 1.5-meter sections. A full, 9-meter core thus consists of six sections, numbered from the top down, 1 to 6. (The discrepancy between the 9-meter core and 9.5-meter cored interval is discussed below.) Generally something less than 9 meters is recovered. In this case, the sections are still numbered starting with one at the top, but the number of sections is the number of 1.5-meter intervals needed to accommodate the length of core recovered; this is illustrated below:

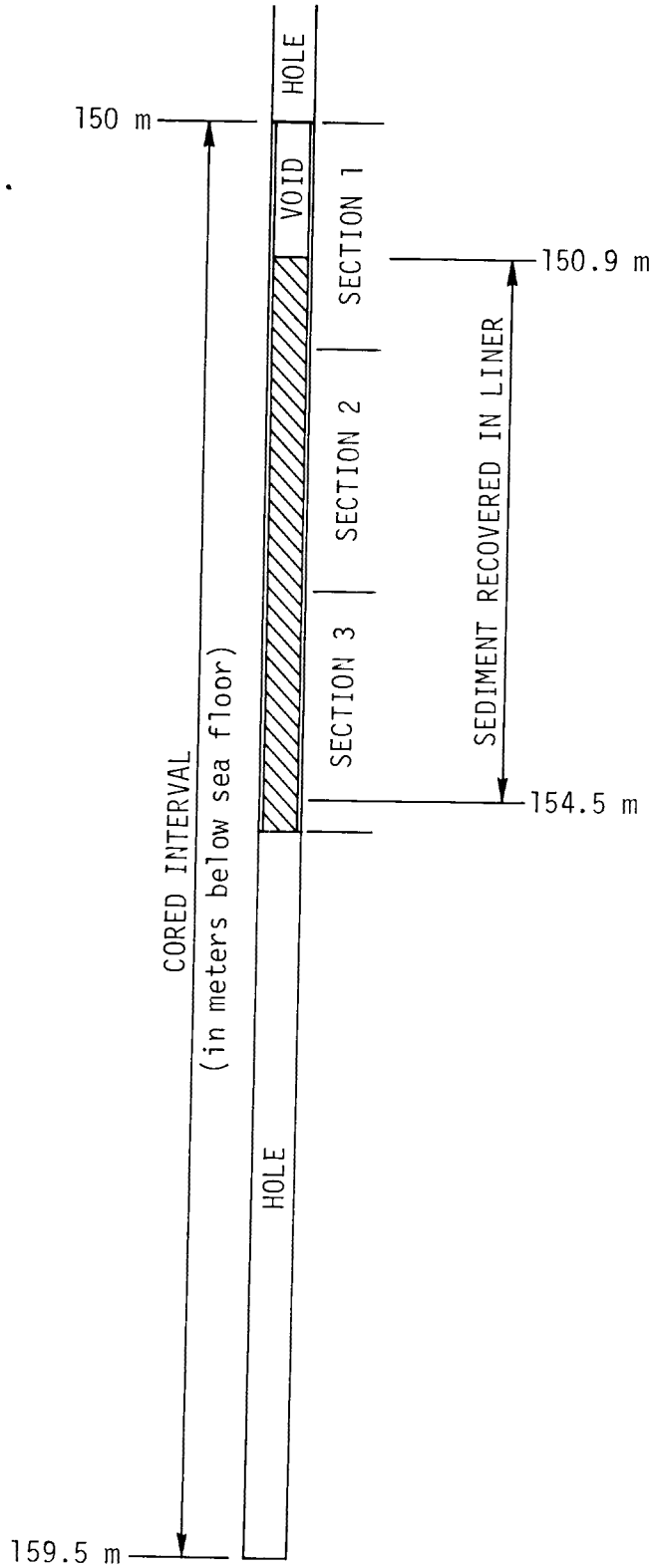


Thus, as shown, recovery of 3.6 meters of sediment results in a core with 3 sections, with a void of 0.9 meters at the top of the first section. By convention, and for convenience in routine data handling at the Deep Sea Drilling Project, if a core contains a length of material less than the length of the cored interval, the recovered material is placed in the top of the cored interval, with the top of Section 1, rather than the top of the sediment, equal to the top of the cored interval. This is shown below for the core in the above example.

Thus, the depth below the sea floor of the top of the sediment of this hypothetical core lies at 150.9 meters (not 150.0 m) and the bottom at 154.5 meters (the core catcher sample is regarded as being dimensionless).

It was noted above that a discrepancy exists between the usual coring interval of 9.5 meters and the 9-meter length of core recovered. The core liners used are actually 9.28 meters in length, and the core catcher accounts for another 0.2 meters. In cases where the core liner is recovered full to the top, the core is still cut into six 1.5-meter sections, measured from the bottom of the liner, and the extra 0.28-meter section at the top is designated Section 0, or the "zero section". The zero section is ignored in calculations of depth below the sea floor of cores or levels within cores.

In the core laboratory on the GLOMAR CHALLENGER, after some steps of routine processing, the 1.5-meter sections of sediment core and liner are split in half lengthwise. One half is designated the "archive" half, which is de-



scribed by the shipboard geologists, and photographed; and the other is the "working" half, which is sampled by the shipboard sedimentologists and paleontologists for further shipboard and shorebased analysis.

Most basalts were not split in this manner on Leg 37. Rather, small mini-cores were taken using a drill press and a small diamond-studded coring device. The mini-cores were subsequently divided for specific sampling needs. For additional details with regard to the shipboard handling of basalt, contact the Curator, Deep Sea Drilling Project.

Samples taken from core sections are designated by the interval in centimeters from the top of the core section from which the sample was extracted; sample size, in cc, is also given. Thus, a full sample designation would consist of the following information:

Leg (Optional)

Site (Hole, if other than first hole)

Core Number

Section Number

Interval in centimeters from top of section

567A-4-3, 122-124 cm (10cc) designates a 10cc sample taken from Section 3 of Core 4 from the second hole drilled at Site 567. The depth below the sea floor for this sample would then be the depth to the top of the cored interval - 150 meters in the example above - plus 3 meters for Sections 1 and 2, plus 122 cm (depth below the top of Section 3), or 154.2 meters. (Note, how-

ever, that sample requests should refer to a specific interval within a core section rather than level below sea floor.)

Core Disturbance

The rotary drill-coring technique quite often results in a high degree of disturbance of the cored sediments. This is especially true of the softer unconsolidated sediments. Core disturbance has been treated at great length in volumes of the Initial Reports of the Deep Sea Drilling Project, and will not be elaborated upon here. A qualitative estimate of the degree of deformation is given on the core logs.

Carbon-Carbonate

Sediment samples are analyzed on a Leco 70-Second Analyzer following procedures outlined in Volumes 9 and 18 of the Initial Reports of the Deep Sea Drilling Project. Accuracy and precision of the results are as follows:

Total carbon	±0.3% (absolute)
Organic carbon	±0.06% (absolute)
$CaCO_3$	±3% (absolute)

X-ray Mineralogy

Semiquantitative determinations of the mineral composition of bulk samples are tabulated on the core logs. In each listing the percentage of "amorphous scattering" (noncrystalline, unidentifiable material) is shown along with the crystalline, identified fraction. The percentages of identified minerals sum up to 100 percent. The analytical methods used are described in Volumes 1 and 2 of the

Initial Reports of the Deep Sea Drilling Project and in Appendix III of Volume 4.

Grain Size Analyses

The grain size analyses presented on the core logs are performed by standard sieve and pipette techniques, described in detail in Appendix III of Volume 4 of the Initial Reports (p. 745), with modified settling times as in Volume 9.

Sediment Classification

The sediment classification used here is similar to the one used in Volume 18 of the Initial Reports which was devised by O. E. Weser. A set of lithologic symbols used on Leg 37 are given in Figure 4. Most of these symbols and their method of employment has continued, with only minor modification, through all volumes subsequent to Volume 18. However, a number of additional symbols were devised on Leg 37 to portray the variety of igneous rocks recovered.

Smear slides are the basic means of mineral identification for sediments on shipboard although thin sections and mineral grain mounts were used in studies of basaltic rocks.

Smear slide estimates of mineral abundances were based on area of the smear slide covered by each component. Past experience has shown that accuracy may approach a percent or so for very distinctive minor constituents but that, for major constituents, accuracy of ±10 to 20% is considered very good.

The results of several random sieve analyses of samples for which smear slide percentages were estimated indicate that the

CLASSIFICATION AND NOMENCLATURE RULES

I. Rules for class limits and sequential listing of constituents in a sediment name

A. Major constituents

1. Sediment assumes name of those constituents present in major amounts (major defined as >25%). See example in rule IA3.
2. Where more than one major constituent is present, the one in greatest abundance is listed farthest to the right. In order of decreasing abundance, the remaining major constituents are listed progressively farther to the left.
3. Class limits when two or more major constituents are present in a sediment are based on 25% intervals, thusly: 0-25, 25-50, 50-75, 75-100.
   Example illustrating rules IA and IB and the resulting sediment names:

% Clay	% Nannos		
0-25	75-100	=	Nanno ooze
25-50	50-75	=	Clayey nanno ooze
50-75	25-50	=	Nanno clay
75-100	0-25	=	Clay

B. Minor constituents

1. At the discretion of the geologist, constituents present in amounts of 10-25% may be prefixed to the sediment name by the term **rich.**
   Example: 50% nannofossils, 30% radiolarians, 20% zeolites would be called a **zeolite-rich rad nanno ooze.**
2. At the discretion of the geologist, constituents present in amounts of 2-10% may be prefixed to the sediment name by the term **bearing.**
   Example: 50% nannofossils, 40% radiolarians, 10% zeolites would be called a **zeolite-bearing rad nanno ooze.**

C. Trace constituents. Constituents present in amounts of <2% may follow the sediment name with addition of the word **trace.** This again is at the discretion of the geologist.

II. Specific rules for calcareous and siliceous tests

A. Nannofossil is applied only to the calcareous tests of coccolithophorids, discoasters, etc.

B. The term **calcareous** or **siliceous**, depending on skeletal composition is applied where no attempt is made to distinguish fossils as to major subgroup. Thus, if no percent estimate is made, a mixture of radiolarians, diatoms, and silicoflagellates would be called **siliceous ooze.** Where this distinction is made, the appropriate fossil name is used.

C. Fossil tests are not qualified by a textural term unless very obviously redeposited.

D. Abbreviations, as nanno for nannofossil, rad for radiolarian, etc., may be used in the sediment name.

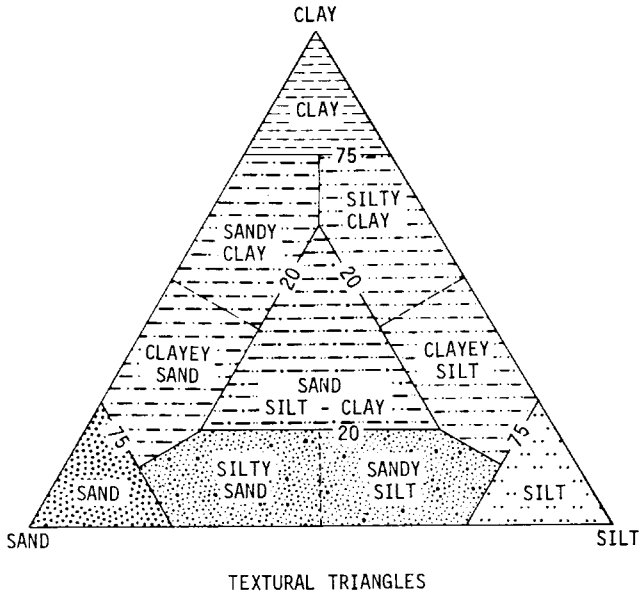
E. The term **ooze** follows a microfossil taxonomic group whenever it is the dominant sediment constituent.

F. Usage of the terms **marl** and **chalk** to designate amounts of microfossils, 30-60% and >60% respectively, as used by Olausson (1960) and others, is dropped. The term **chalk** is retained to designate a compacted calcareous ooze.

III. Clastic sediments

A. Clastic constituents, whether detrital, volcanic, biogenous or authigenic, are given a textural designation. When detrital[2] grains are the sole clastic constituents of a sediment, a simple textural term suffices for its name. The appropriate term is derived from Shepard's triangle diagram. The textural term can be preceded by a mineralogical term when this seems warranted. Such mineralogical terms are applied as per rules IA and B.

[2]Detrital = all clastic grains derived from the erosion of preexisting rocks except for those of biogenous, authigenic, or volcanic origin.



Textural classification of clastic sediments, after Shepard (1954).

B. When the tests of a fossil biocoenosis or authigenic and detrital grains occur together, the fossil or authigenic material is not given a textural designation (as per rule IIC). However, the detrital material is classified texturally by recalculating its size components to 100%. With the presence of other constituents in the sediment, the detrital fraction now requires a compositional term.

C. Clastic volcanics
Redeposited pyroclastics also become a clastic component. They are again recognized by the term **volcanic** and receive a textural term such as **gravel, sand, silt**, etc. It is particularly difficult at times to differentiate between **volcanic sand** (i.e., transported by tractive mechanisms) and **crystal ash** (i.e., direct outfall resulting from explosion of a volcano).

D. Clastic authigenic constituents
Where authigenic minerals are recognized as being a redeposited constituent, they are given a textural designation in addition to their mineral names.

IV. Volcanic and authigenic constituents

A. Volcanic constituents
Pyroclastics are given textural designations already established in the literature. Thus, **volcanic breccia** = >32 mm, **volcanic lapilli** = <32 mm to >4 mm, and **volcanic ash** = <4 mm. It is at times useful to further refine the textural designations by using such modifiers as **coarse** or **fine.** An ash wholly, or almost wholly, of glass shards is termed **vitric ash.**

B. Authigenic constituents

1. Authigenic minerals enter the sediment name in a fashion similar to that outlined under rules IA and B. Normally, as with a fossil biocoenosis, the authigenic minerals are not given a textural designation and texture.
2. The terms **ooze** and **chalk** are applied to carbonate minerals of all types using the same rules that apply to biogenous constituents.

V. Color

A. Color is not formally part of the sediment name. However, its employment for sediment description is important particularly as it provides one of the criteria used to distinguish **pelagic** and **terrigenous** sediments.

B. Common usage dictates that it is no longer expedient to employ the term **red** for sediments (*usually* pelagic) which are various shades of red, yellow, and brown. The proper color designation should be used.

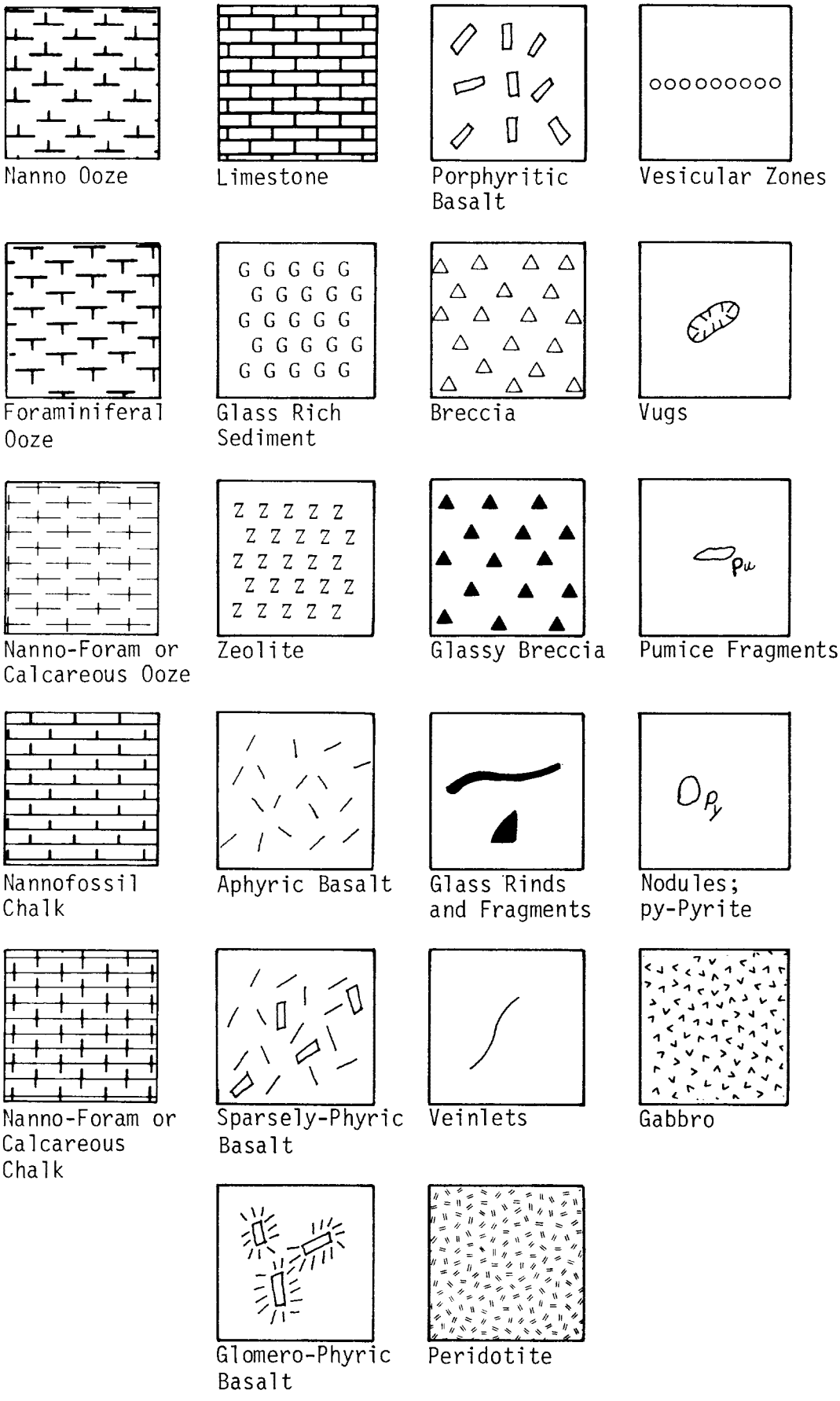


Figure 4. Symbols used on core summary forms.

percentage of nannos was frequently overestimated. This is attributed to the extreme thinness of many smears and to the fact that the people on board involved in making the smear slides had been instructed to make them thin permitting nannofossil identifications to be made. The resulting thinness of the slides made it appear that the fine-grained nannos made up a very high percentage when in fact their percentage was 10-30% lower; consequently, foram, volcanic glass, and other constituent percentages are correspondingly low. For example, volcanic glass percentages in cores 5-10, Hole 334, actually run as high as 20 percent of the sediment. Some samples may have even higher percentages.

Core Forms

The basic lithologic data are contained on core summary forms. As far as possible the following data are presented:

Sediment or rock name

Deformation

Color name and Munsell or GSA number

The reader is advised that colors recorded in core barrel summaries were determined during shipboard examination immediately after splitting core sections. Experience with carbonate sediments shows that many of the colors will fade or disappear with time after opening and storage. Colors particularly susceptible to rapid fading are purple, light and medium tints of blue, light bluish gray, dark greenish black, light tints of green, and pale tints of orange. These colors

change to white or yellowish white or pale tan.

Composition

Grain size, carbon-carbonate, and X-ray data

Many cores contain important minor lithologies as well as a basic lithology. The description of the basic lithology is so indicated in most cases, however, descriptive information for minor lithologies is included wherever possible. X-ray data are those collected by the DSDP X-ray mineralogy laboratory at the University of California, Riverside. Grain size and carbon-carbonate results are from the DSDP laboratory at Scripps.

A sample core form precedes the site-by-site presentation of the cores (Figure 5). On this sample core form is contained all legend and explanatory notes for an understanding of the core forms.

Biostratigraphy

As of this writing biostratigraphic studies of Leg 37 cores are still in progress. Consequently, biostratigraphic boundaries given in this report are necessarily tentative. Although no major changes in age assignments are anticipated, adjustments of some boundaries are likely to be made prior to issuing of the Initial Report Volume for Leg 37.

The following zonations were used in this report: planktonic foraminifera, Blow (1969); calcareous nannofossils, Martini and Worsley (1970); and Radiolaria, Riedel and Sanfilippo (1970, 1971).

Site Hole Core Cored Interval: Meters below sea floor.

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	FOSSIL CHARACTER: ABUND.	FOSSIL CHARACTER: PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE	LITHOLOGIC DESCRIPTION (General Design and Legend Information for Leg 37 Sediment Core Forms in Initial Core Descriptions.)
	Foraminifera Zones Nannofossil Zones Radiolaria Zones	F = Foraminifera; N = Nannofossils; R = Radiolaria	A = Abundant; C = Common; R = Rare	G = Good; M = Moderate	0 1 2 3 4 5 6 Core Catcher	0.5 1.0	Pu = Pumice; P = Pyrite; G = Volcanic glass rich Otherwise see Figure 4 - Lithologic Symbols p.	Drilling Breccia Intense Deformation (Soup) Moderate Deformation Slight Deformation	*Smear Slide depth in centimeters in a section.	Area of General Description: general lithology, colors, deformation, and specific characteristics. Smear Slide Descriptions: (Note: Nannofossils percentages are too high, see page) Lithology (major and minor included) Smear: by section and depth (cm) Composition in % Grain Size, Carbon-Carbonate, X-ray Analyses Grain Size: by section and depth (cm) Sand % Silt % Clay % Carbon-Carbonate: by section and depth (cm) Total Carbon %, Organic Carbon %, $CaCO_3$ % X-ray (Bulk): by section and depth (cm) Amorphous content %, Crystalline percentages (Calc-Calcite, Quar-Quartz, Phil-Phillipsite, Arag-Aragonite, Pyri-Pyrite, Plag-Plagioclase) X-ray (2-20μm): by section and depth (cm) Amor - Amorphous percentage Quar - Wuartz K-Fe - Potassium-Iron Plag - Plagioclase Kaol - Kaolinite Mica - Mica Chlo - Chlorite Mont - Montmorillonite Paly - Palygorskite Phil - Phillipsite Anal - Analcime Pyri - Pyrite Amph - Amphibole Augi - Augite Cris - Cristobalite (TR-Trace, Pres-Present)

Explanatory notes in Chapter 1

Figure 5. Sample Core Form and Legends for Sediment Cores.

sample-distribution policy

Distribution of Deep Sea Drilling samples will be undertaken in order to (1) provide supplementary data for inclusion in the appropriate Initial Report to support *Glomar Challenger* scientists in achieving the scientific objectives of their particular cruise, and (2) provide individual investigators with material to conduct detailed studies beyond the scope of the Initial Reports.

The National Science Foundation has established a Sample Distribution Panel to advise on distribution of core material. This panel is chosen in accordance with usual Foundation practices, in a manner that will assure advice in the various disciplines leading to a complete and adequate study of the core and related materials. Funding for the proposed research is handled separately by the investigator, not through the Deep Sea Drilling Project.

Distribution of samples for contributions to Initial Reports

Any investigator who wishes to contribute a paper to a given volume of the Initial Reports may write to the Curator, Deep Sea Drilling Project, Scripps Institution of Oceanography, University of California at San Diego, La Jolla, 92037, requesting samples from a forthcoming cruise. The request should include the nature of the study, and type, size, number of samples, particular sampling techniques or equipment that might be required, and an estimate of the time required to complete the study. The requests will be reviewed by shipboard scientists, and, if they are deemed suitable and pertinent to the objectives of the leg, and shipboard workload permits, the requested samples will be taken during the cruise (provided, of course, material suitable to the investigation is obtained during the drilling). In the case of multiple requests to perform the same investigation, selection of investigator will be made by the shipboard scientific party.

Proposals should be of a scope appropriate to complete the sampling and study in time for publication in the Initial Reports. Studies deemed acceptable will be referred to the Curator who will, with the consent of the NSF Sample Distribution Panel, authorize distribution of the samples. The Sample Distribution Panel and the Deep Sea Drilling Project will strive to ensure a reasonable degree of continuity in the investigations among the various cruises, that the studies are pertinent to goals of the cruise, and that they are consistent with the publication policy for the Initial Reports. Subject to these same provisions, the shipboard scientific party may elect to have special studies of selected core samples of its recently completed cruise made by other investigators.

Investigations not completed in time for inclusion in the Initial Report may not be published in other journals until publication of the Initial Report for which it was intended.

Distribution of samples for publication other than in Initial Reports

1. Researchers intending to request samples for studies beyond the scope of the Initial Reports should first obtain a sample request form from the Curator. Requests should specify the quantities and intervals of the core required, a statement of the proposed research, the possibility of returning residue to the Curator, the estimated time required to complete and publish the results, and the availability or need of funding and availability of equipment and space foreseen for the research.

In order to ensure that requests for highly desirable but limited samples can all be considered, approval of requests and distribution of samples will not be made prior to 12 months after date of completion of the cruise that collected the cores. Prior to publication of an Initial Report, requests for samples from a cruise can be based on the preliminary shipboard core logs. Copies of these logs will be kept on open file at Scripps and other designated institutions. The only exceptions will be for specific instances involving ephemeral properties.

Requests for samples from researchers in industrial laboratories will be handled in the same manner as those from academic organizations, and there will be the same obligation to publish results promptly. Requests from foreign scientists or organizations will also be considered.

2. The Curator has the responsibility for distributing samples, controlling quality of samples, and preserving core material. He also has the responsibility for maintaining a record of requests for samples that have been processed and filled indicating the investigator and subjects to be studied. This record will be available to investigators.

The distribution of samples will be made directly from the two repositories at Lamont-Doherty Geological Observatory and Scripps by the Curator or his designated representative.

3. (a) Samples up to 10 cc/m of core length can be automatically distributed by the Curator, Deep Sea Drilling Project or his authorized representative to any qualified investigator who requests them. The Curator will refrain from making automatic distribution of any parts of the cores which appear to be in particularly high demand, and any requests for these parts of the cores will be referred to the Sample Distribution Panel for review. Requests for samples from thin layers or important stratigraphic boundaries will generally require Panel review.

(b) All requests for samples in excess of 3(a) above will be referred to the Sample Distribution Panel.

(c) If, in the opinion of scientific investigators, certain properties they wish to study may deteriorate prior to the normal availability of the samples, such investigators may request that the normal waiting period not apply. All such requests must be approved by the Sample Distribution Panel.

4. Samples will not be provided prior to assurance that funding for sample studies either exists or is not needed. However, neither formal approval of sample requests nor distribution of samples will be made until the appropriate time (Item 1). If a sample request is dependent, either wholly or in part, on proposed funding, the Curator will provide to the organization to whom the funding proposal has been submitted any information on the availability (or potential availability) of samples that it may request.

5. Investigators receiving samples are responsible for:

i) promptly publishing significant results.

ii) acknowledging, in publications, that samples were supplied through the assistance of the National Science Foundation.

iii) submitting 4 copies of all reprints of published results to the Curator.

iv) notifying the Curator of any work done on the samples that is additional to that stated in the original request for samples.

v) returning, in good condition, the remainders of samples after termination of research, if requested by the Curator.

6. Cores will be made available at repositories for investigators to examine and specify exact samples in such instances as this may be necessary for the scientific purposes of the sampling, subject to the limitations of 3 (a), (b), (c), and 5, above, and with the specific permission of the Curator or his delegate.

7. Cores of igneous and metamorphic rocks will also remain at the repositories where they will be available for observation and description and where selected samples may be taken for thin-section preparation and other work.

8. The Deep Sea Drilling Project routinely processes by computer most of the quantitative data presented in the Initial Reports. Space limits in the Initial Reports preclude detailed presentation of all such data. However, copies of the computer readout are available for those who wish the data for further analysis or as an aid in selecting samples.

Magnetics, seismic-reflection and bathymetric data collected under way by the *Glomar Challenger* will also be available for distribution 12 months after completion of the cruise.

Requests for these data may be made to the Coordinating Staff Geologist of the Deep Sea Drilling Project, at Scripps.

A charge will be made to recover the expenses of responding to individual requests. Estimated charges can be furnished before the request is processed, if required.

9. This policy has the approval of the National Science Foundation and is designed to help ensure that the greatest possible scientific benefit is gained from the materials obtained, and that samples will be made widely available to interested geologists.

(Slightly condensed from the official sample distribution policy of the Deep Sea Drilling Project.)

REFERENCES

Blow, W. H., 1969. Late middle Eocene to Recent planktonic foraminiferal biostratigraphy: Intern. Conf. Planktonic Microfossils, Geneva.

Martini, E. and Worsley, T., 1970. Standard Neogene calcareous nannoplankton zonation: Nature, Volume 225 (5229).

Riedel, W. R. and Sanfilippo, A., 1970. Radiolaria, Leg 4, Deep Sea Drilling Project: In Bader, R. G., et al., 1970, Initial Reports of the Deep Sea Drilling Project, Volume 4, Washington (U. S. Government Printing Office), p. 503-575.

Riedel, W. R. and Sanfilippo, A., 1971. Cenozoic Radiolaria from the western tropical Pacific, Leg 7: In Winterer, E. L., Ewing, J. I., et al., Initial Reports of the Deep Sea Drilling Project, Volume 7, Washington (U. S. Government Printing Office), p. 1529-1672.

EXPLANATION FOR CORE SUMMARY FORMS FOR IGNEOUS ROCKS

A sample core summary form for igneous rocks is given in Figure 6.

Magnetic Data

Units - NRM intensity is in units of emu/cm^3 x 10^4;

- Polarity is given in four categories where known

N	Normal (I +20°)
ShN	Shallow normal (I = 0 to +20°)
ShR	Shallow reverse (I = 0 to -20°)
R	Reverse (I -20°)

NRM intensity is the value for the undermagnetized moment i.e. probably the value the sample had in situ, but polarity is the value after demagnetization except where this differs from the undermagnetized polarity. Here the following symbols are used N, R implying that the polarity in situ was N but that it change to R after partial demagnetization. The latter dates from the time of initial cooling of the unit and should be used in temperature studies.

Polarities marked "?" are likely but not certain to remain as designated after further demagnetization.

Chemical Data

Values given are the results of shipboard determinations by X-ray fluorescence for Al_2O_3, Fe_2O_3 (total iron expressed as Fe_2O_3), MgO, and K_2O. Values for H_2O and CO_2 are the result of shipboard determination with a CHN analyser.

Site Hole Core Cored Interval:

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER						SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
		Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2								
								0							
								1	0.5 1.0						
								2							
								3							
								4							
								5							
								6							
								Core Catcher							

Explanatory notes in Chapter 1

Figure 6. Sample Core Form for Igneous Rocks.

Lithology

See Figure 4 for lithologic symbols used on the core summary forms.

Samples

(A)(B) Minicores taken for shipboard study. Magnetic, chemical and petrographic analyses were conducted on "A" cores and physical property determinations and petrographic analyses were carried out on "B" cores.

T Thin section prepared on ship (these are in addition to those prepared from "A" and "B" cores).

C Chemical analysis completed on ship (these are in addition to those conducted on "A" cores).

Physical Properties

All values reported are from shipboard measurements.

D = Bulk density (g/cc)

V = Compressional velocity measured at laboratory temperature (20-25°C) and 0.5 Kb pressure.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 332 (HOLE 332)

SITE SUMMARY SHEET

POSITION: Latitude: 36°52.72'N Longitude: 33°38.45'W

Water depth (sea level): 1818 corrected meters, echo sounding

Bottom felt at: 1851 meters, drill pipe Penetration: 73.5 meters

Number of cores: 1 Total length of cored section: 7.0 meters

Total core recovered: 3.6 meters Percentage core recovery: 51%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 7.0 meters Nature: Nannofossil ooze

Age: Pleistocene

BASEMENT:

Depth subbottom: Basement not reached

PRINCIPAL RESULTS:

Mud line and general physical properties of upper sedimentary layer investigated in preparation for deeper penetration of Hole 332A and setting of cone and casing for Hole 332B.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 332 (HOLE 332A)

SITE SUMMARY SHEET

POSITION: Latitude: 36°52.72'N Longitude: 33°38.46'W

Water depth (sea level): 1818 corrected meters, echo sounding

Bottom felt at: 1851 meters, drill pipe Penetration: 437 meters

Number of cores: 40 Total length of cored section: 380.0 meters

Total core recovered: 66.70 meters Percentage core recovery: 18%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 104.5 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Pliocene

BASEMENT:

Depth subbottom: 104.5 meters Nature: Basalt with interlayered sediment

PRINCIPAL RESULTS:

Hole 332A was drilled as a test hole prior to deep drilling. Acoustic basement was found to be overlain by 104 meters of foram-bearing nanno ooze. Drilling continued through a 333-meter section of basalt interlayered with soft to lithified foram-bearing nanno ooze down to 437 meters below sea floor. The oldest datable sediment within the basalt sequence occurs between 254 and 263.5 meters and is late Pliocene. Lithologic breaks are common in the basaltic sequence, indicating that individual units are thin, possibly pillow lavas, flows or sheets. Five lithologic units can be recognized in the basalts.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 332 (HOLE 332B)

SITE SUMMARY SHEET

POSITION: Latitude: 36°52.72'N Longitude: 33°38.46'W

Water depth (sea level): 1806 corrected meters, echo sounding

Bottom felt at: 1841 meters, drill pipe Penetration: 721.5 meters

Number of cores: 48 Total length of cored section: 589.0 meters

Total core recovered: 121.51 meters Percentage core recovery: 21%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 148.5 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Pliocene

BASEMENT:

Depth subbottom: 148.5 meters Nature: Basalt with interlayered sediment

PRINCIPAL RESULTS:

Basement consists largely of extrusive basalts with massive to pillowed units interlayered with nannofossil ooze and rubble zones. The sedimentary interbeds and rubble zones are abundant in the upper part of the section with the percentage diminishing rapidly at 300 meters below basement; some baked chalk persists too at least 544 meters. Measured velocities, core sequence, and calculated effective velocities of the sequence suggest that seismic Layer 2A is locally only 300 meters thick, and that top of Layer 2B consists of more abundant massive units with rare sediments and rubble zones.

Some basalts have considerable evidence of halmyrolysis, especially in the lower cores around fractures and shear zones, but relatively fresh basalts occur down to the base of the hole. Fresh sideromelane occurs at least as deep as 573 meters below acoustic basement. The lowestmost unit is massive, medium-grained basalt with sealed joints and small shear zones coated with chlorite and sulfides. Lithologies cored include abundant highly plagioclase- and olivine-phyric basalt and less abundant aphyric basalt. The chemistry fits general definition of ocean ridge tholeiite but is variable with evidence of eruptive cycles, progressing from differentiated to less differentiated basalts in a given sequence. Correlation of such cycles with the sequence in

LEG 37 SITE 332 (HOLE 332B)
SITE SUMMARY SHEET, con't.

Hole 332A, 100 meters to the east, reveals considerable local variation in unit thickness. Differences in chemistry reflect fractional crystallization of the rising magmas in shallow storage reservoirs.

Maximum measured downhole temperature is 14.15 degrees centigrade at 541 meters. Magnetic stratigraphy includes normal, reversed, and transitional zones. Magnetic evidence suggests that thick sections of petrographically and geochemically similar units were erupted over short time intervals of 10 to 1000 years.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 332 (HOLE 332C)

SITE SUMMARY SHEET

POSITION: Latitude: 36°52.72'N Longitude: 33°38.46'W

Water depth (sea level): 1806 corrected meters, echo sounding

Bottom felt at: 1841 meters, drill pipe Penetration: 158.0 meters

Number of cores: 1 Total length of cored section: 9.5 meters

Total core recovered: 1.1 meters Percentage core recovery: 12%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 148.0 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Pliocene

BASEMENT:

Depth subbottom: 149.0 meters Nature: Plagioclase-phyric basalt

PRINCIPAL RESULTS:

Hole 332C was drilled accidentally while attempting to re-enter Hole 332B. Drilling ceased after one core was taken from acoustic basement. Basement consists of highly plagioclase-phyric basalt similar to that encountered in Hole 332B.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 332 (HOLE 332D)

SITE SUMMARY SHEET

POSITION: Latitude: 36°52.72'N Longitude: 33°38.46'W

Water depth (sea level): 1806 corrected meters, echo sounding

Bottom felt at: 1841 meters, drill pipe Penetration: 148.0 meters

Number of cores: 1 Total length of cored section: 6.0 meters

Total core recovered: 0.35 meters Percentage core recovery: 6%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 142.5 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Pliocene

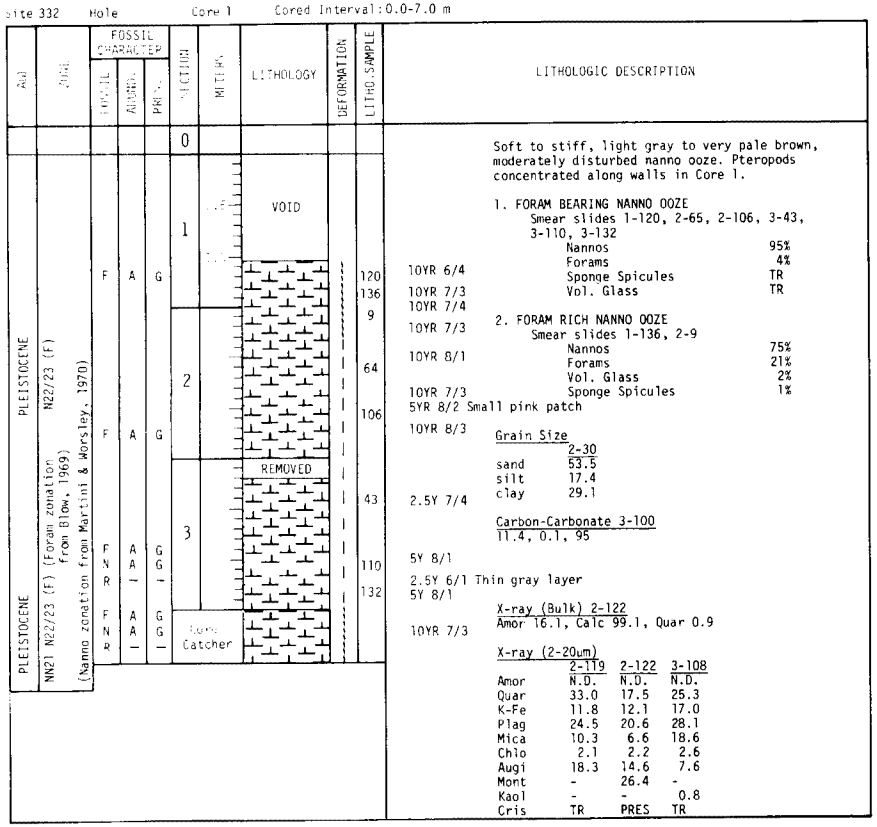
BASEMENT:

Depth subbottom: 142.5 meters Nature: Aphyric basalt

PRINCIPAL RESULTS:

Hole 332D was drilled accidentally while attempting to re-enter Hole 332B. Drilling ceased after one core was taken from acoustic basement. Basement consists of aphyric basalt with interlayered chalk.

Site 332 Hole Core 1 Cored Interval: 0.0-7.0 m



Soft to stiff, light gray to very pale brown, moderately disturbed nanno ooze. Pteropods concentrated along walls in Core 1.

1. FORAM BEARING NANNO OOZE
   Smear slides 1-120, 2-65, 2-106, 3-43, 3-110, 3-132

Nannos	95%
Forams	4%
Sponge Spicules	TR
Vol. Glass	TR

10YR 6/4 (120)
10YR 7/3 (136)
10YR 7/4

2. FORAM RICH NANNO OOZE
   Smear slides 1-136, 2-9

10YR 7/3 (9)

Nannos	75%
Forams	21%
Vol. Glass	2%
Sponge Spicules	1%

10YR 8/1 (64)
10YR 7/3
5YR 8/2 Small pink patch (106)
10YR 8/3

Grain Size

	2-30
sand	53.5
silt	17.4
clay	29.1

2.5Y 7/4 (43)

Carbon-Carbonate 3-100
11.4, 0.1, 95

5Y 8/1 (110)
2.5Y 6/1 Thin gray layer
5Y 8/1 (132)

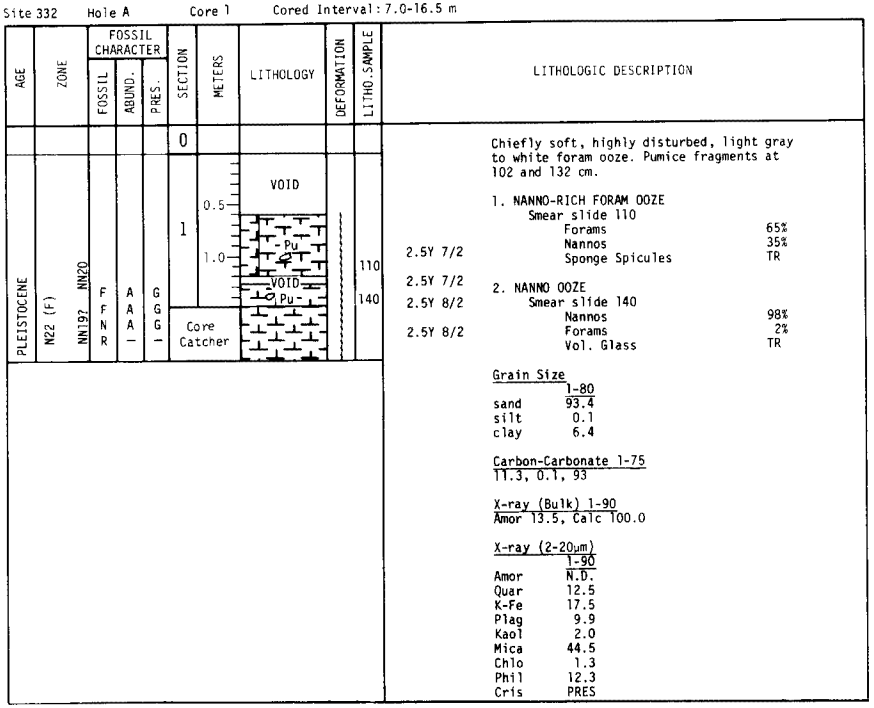
X-ray (Bulk) 2-122
Amor 16.1, Calc 99.1, Quar 0.9

10YR 7/3

X-ray (2-20μm)

	2-119	2-122	3-108
Amor	N.D.	N.D.	N.D.
Quar	33.0	17.5	25.3
K-Fe	11.8	12.1	17.0
Plag	24.5	20.6	28.1
Mica	10.3	6.6	18.6
Chlo	2.1	2.2	2.6
Augi	18.3	14.6	7.6
Mont	-	26.4	-
Kaol	-	-	0.8
Cris	TR	PRES	TR

Site 332 Hole A Core 1 Cored Interval: 7.0-16.5 m



Chiefly soft, highly disturbed, light gray to white foram ooze. Pumice fragments at 102 and 132 cm.

1. NANNO-RICH FORAM OOZE
   Smear slide 110

Forams	65%
Nannos	35%
Sponge Spicules	TR

2.5Y 7/2 (110)
2.5Y 7/2
2.5Y 8/2 (140)

2. NANNO OOZE
   Smear slide 140

Nannos	98%
Forams	2%
Vol. Glass	TR

2.5Y 8/2

Grain Size

	1-80
sand	93.4
silt	0.1
clay	6.4

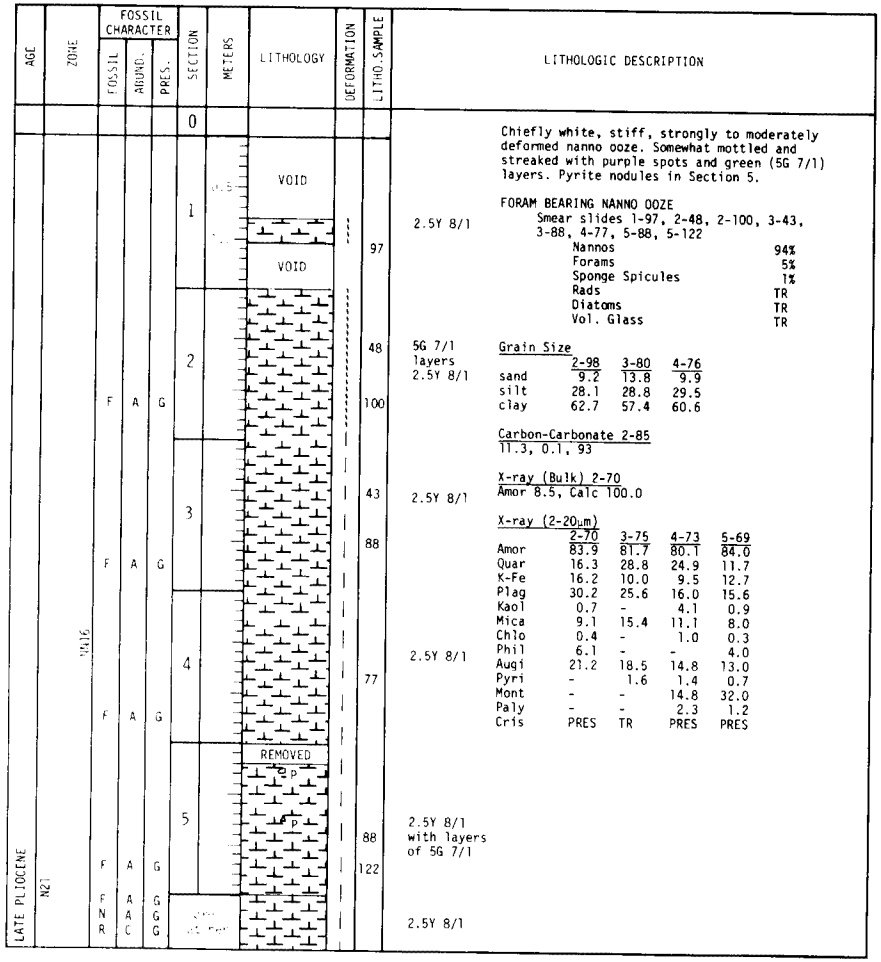
Carbon-Carbonate 1-75
11.3, 0.1, 93

X-ray (Bulk) 1-90
Amor 13.5, Calc 100.0

X-ray (2-20μm)

	1-90
Amor	N.D.
Quar	12.5
K-Fe	17.5
Plag	9.9
Kaol	2.0
Mica	44.5
Chlo	1.3
Phil	12.3
Cris	PRES

Site 332 Hole A Core 2 Cored Interval: 64.0-73.5 m



Chiefly white, stiff, strongly to moderately deformed nanno ooze. Somewhat mottled and streaked with purple spots and green (5G 7/1) layers. Pyrite nodules in Section 5.

FORAM BEARING NANNO OOZE
Smear slides 1-97, 2-48, 2-100, 3-43, 3-88, 4-77, 5-88, 5-122

Nannos	94%
Forams	5%
Sponge Spicules	1%
Rads	TR
Diatoms	TR
Vol. Glass	TR

Grain Size

	2-98	3-80	4-76
sand	9.2	13.8	9.9
silt	28.1	28.8	29.5
clay	62.7	57.4	60.6

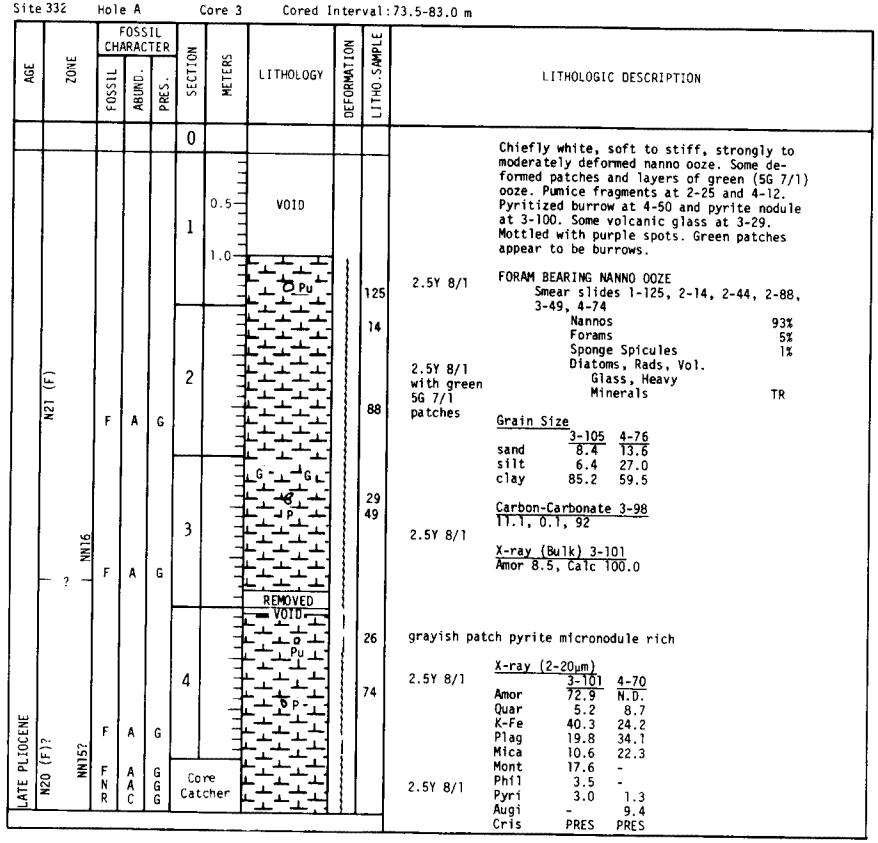
Carbon-Carbonate 2-85
11.3, 0.1, 93

X-ray (Bulk) 2-70
Amor 8.5, Calc 100.0

X-ray (2-20μm)

	2-70	3-75	4-73	5-69
Amor	83.9	81.7	80.1	84.0
Quar	16.3	28.8	24.9	11.7
K-Fe	16.2	10.0	9.5	12.7
Plag	30.2	25.6	16.0	15.6
Kaol	0.7	-	4.1	0.9
Mica	9.1	15.4	11.1	8.0
Chlo	0.4	-	1.0	0.3
Phil	6.1	-	-	4.0
Augi	21.2	18.5	14.8	13.0
Pyri	-	1.6	1.4	0.7
Mont	-	-	14.8	32.0
Paly	-	-	2.3	1.2
Cris	PRES	TR	PRES	PRES

Site 332 Hole A Core 3 Cored Interval: 73.5-83.0 m



Chiefly white, soft to stiff, strongly to moderately deformed nanno ooze. Some deformed patches and layers of green (5G 7/1) ooze. Pumice fragments at 2-25 and 4-12. Pyritized burrow at 4-50 and pyrite nodule at 3-100. Some volcanic glass at 3-29. Mottled with purple spots. Green patches appear to be burrows.

FORAM BEARING NANNO OOZE
Smear slides 1-125, 2-14, 2-44, 2-88, 3-49, 4-74

Nannos	93%
Forams	5%
Sponge Spicules	1%
Diatoms, Rads, Vol. Glass, Heavy Minerals	TR

Grain Size

	3-105	4-76
sand	8.4	13.6
silt	6.4	27.0
clay	85.2	59.5

Carbon-Carbonate 3-98
11.1, 0.1, 92

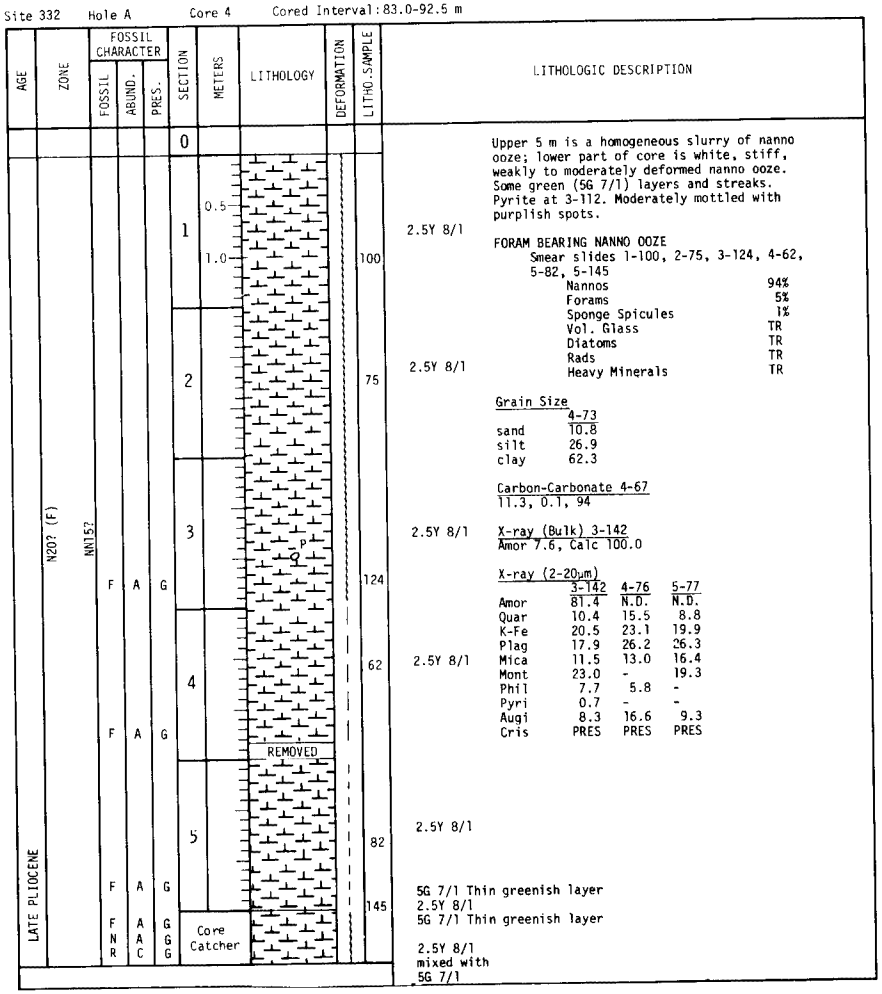
X-ray (Bulk) 3-101
Amor 8.5, Calc 100.0

grayish patch pyrite micronodule rich

X-ray (2-20μm)

	3-101	4-70
Amor	72.9	N.D.
Quar	5.2	8.7
K-Fe	40.3	24.2
Plag	19.8	34.1
Mica	10.6	22.3
Mont	17.6	-
Phil	3.5	-
Pyri	3.0	1.3
Augi	-	9.4
Cris	PRES	PRES

Site 332 Hole A Core 4 Cored Interval: 83.0-92.5 m



Upper 5 m is a homogeneous slurry of nanno ooze; lower part of core is white, stiff, weakly to moderately deformed nanno ooze. Some green (5G 7/1) layers and streaks. Pyrite at 3-112. Moderately mottled with purplish spots.

2.5Y 8/1

FORAM BEARING NANNO OOZE
Smear slides 1-100, 2-75, 3-124, 4-62, 5-82, 5-145

Nannos	94%
Forams	5%
Sponge Spicules	1%
Vol. Glass	TR
Diatoms	TR
Rads	TR
Heavy Minerals	TR

2.5Y 8/1

Grain Size

	4-73
sand	10.8
silt	26.9
clay	62.3

Carbon-Carbonate 4-67
11.3, 0.1, 94

2.5Y 8/1

X-ray (Bulk) 3-142
Amor 7.6, Calc 100.0

X-ray (2-20μm)

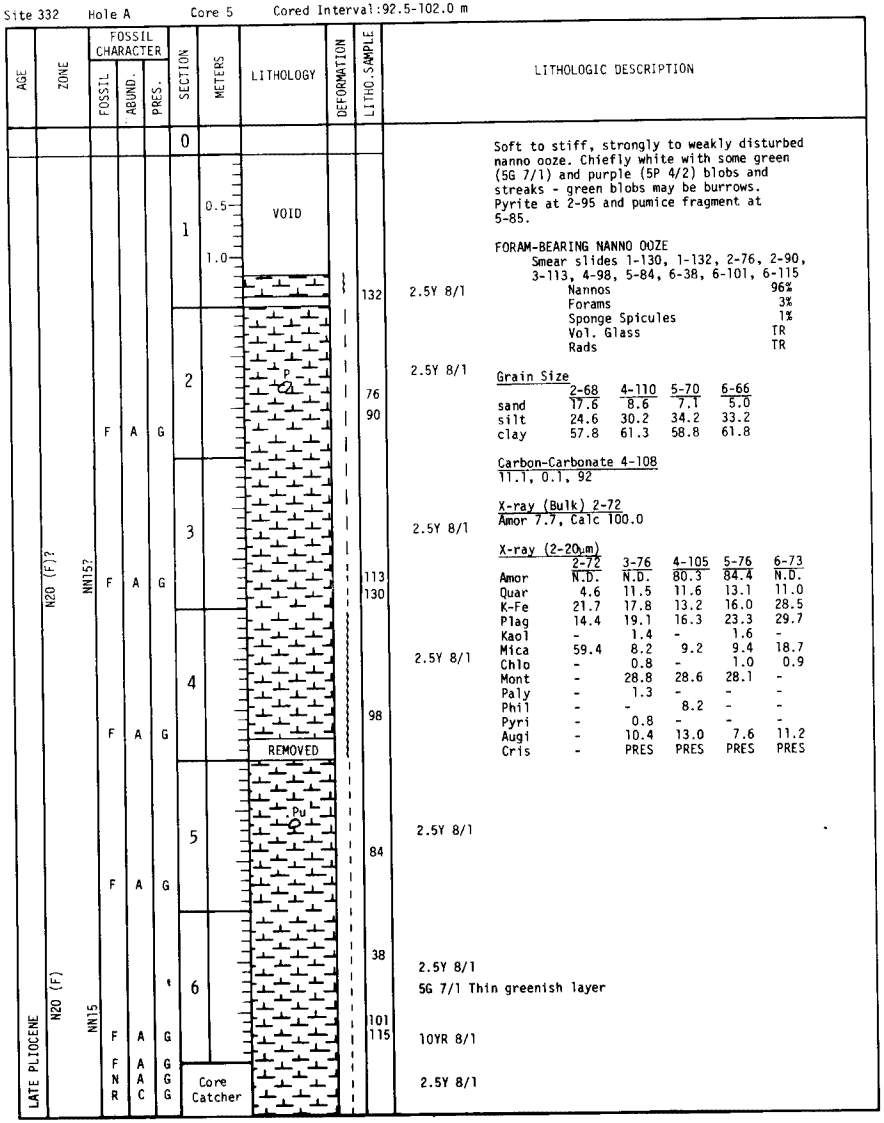
	3-142	4-76	5-77
Amor	81.4	N.D.	N.D.
Quar	10.4	15.5	8.8
K-Fe	20.5	23.1	19.9
Plag	17.9	26.2	26.3
Mica	11.5	13.0	16.4
Mont	23.0	-	19.3
Phil	7.7	5.8	-
Pyri	0.7	-	-
Augi	8.3	16.6	9.3
Cris	PRES	PRES	PRES

2.5Y 8/1

5G 7/1 Thin greenish layer
2.5Y 8/1
5G 7/1 Thin greenish layer

2.5Y 8/1
mixed with
5G 7/1

Site 332 Hole A Core 5 Cored Interval: 92.5-102.0 m



Soft to stiff, strongly to weakly disturbed nanno ooze. Chiefly white with some green (5G 7/1) and purple (5P 4/2) blobs and streaks - green blobs may be burrows. Pyrite at 2-95 and pumice fragment at 5-85.

2.5Y 8/1

FORAM-BEARING NANNO OOZE
Smear slides 1-130, 1-132, 2-76, 2-90, 3-113, 4-98, 5-84, 6-38, 6-101, 6-115

Nannos	96%
Forams	3%
Sponge Spicules	1%
Vol. Glass	TR
Rads	TR

2.5Y 8/1

Grain Size

	2-68	4-110	5-70	6-66
sand	17.6	8.6	7.1	5.0
silt	24.6	30.2	34.2	33.2
clay	57.8	61.3	58.8	61.8

Carbon-Carbonate 4-108
11.1, 0.1, 92

X-ray (Bulk) 2-72
Amor 7.7, Calc 100.0

2.5Y 8/1

X-ray (2-20μm)

	2-72	3-76	4-105	5-76	6-73
Amor	N.D.	N.D.	80.3	84.4	N.D.
Quar	4.6	11.5	11.6	13.1	11.0
K-Fe	21.7	17.8	13.2	16.0	28.5
Plag	14.4	19.1	16.3	23.3	29.7
Kaol	-	1.4	-	1.6	-
Mica	59.4	8.2	9.2	9.4	18.7
Chlo	-	0.8	-	1.0	0.9
Mont	-	28.8	28.6	28.1	-
Paly	-	1.3	-	-	-
Phil	-	-	8.2	-	-
Pyri	-	0.8	-	-	-
Augi	-	10.4	13.0	7.6	11.2
Cris	-	PRES	PRES	PRES	PRES

2.5Y 8/1

2.5Y 8/1

5G 7/1 Thin greenish layer

10YR 8/1

2.5Y 8/1

Site 332 Hole Core 6 Cored Interval: 102.0-111.5 m Sheet 1 of 2

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	FOSSIL CHARACTER: ABUND.	FOSSIL CHARACTER: PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
LATE PLIOCENE	N20 (F) NN15	F F N R	A A I	G G I	0				
					1	0.5 1.0	VOID		98
					2				60 104

LITHOLOGIC DESCRIPTION

Stiff, slightly deformed, white to very pale brown nanno ooze. Occasional 3-4 mm black chitinous shell fragments below 1-59 level. Slight pale brown (10YR 8/2) mottling.

10YR 8/1

FORAM BEARING NANNO OOZE
Smear slides 1-98, 2-60, 2-104

Nannos	97%
Forams	3%
Rads	TR
Vol. Glass	TR
Palagonite	TR

10YR 8/3

10YR 8/3

Grain Size

	1-102	2-76
sand	27.6	33.3
silt	22.4	20.3
clay	49.9	46.4

Carbon-Carbonate 1-99
11.3, 0.1, 94

X-ray (Bulk) 2-70
Amor 12.2, Calc 96.5, Quar 0.3, Phil 3.3

X-ray (2-20μm)

	1-95	2-70
Amor	N.D.	46.5
Quar	4.0	3.4
K-Fe	7.3	18.2
Plag	18.4	10.3
Mica	8.9	1.9
Paly	1.2	-
Phil	43.6	64.9

Site 332 Hole A Core 6 Cored Interval: 102.0-111.5 m Sheet 2 of 2

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
28.5 16.7 30.8	N N	23.1	5.04	5.7	0.17	0.45	0.12	1	0.5 1.0		TC A B	2.792	6.39	7.3
								2						

LITHOLOGIC DESCRIPTION

Upper part of core consists of nanno ooze (see sheet A). Original basalt recovery was 0.45 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. SPARSELY PHYRIC BASALT
T. S. 2-57
Aphyric intergranular texture with traces of plagioclase and augite microphenocrysts. Groundmass fresh, holocrystalline - composed of plagioclase, clinopyroxene, minor olivine and iron-oxides.

2. PLAGIOCLASE PHYRIC BASALT
T. S. 2-93, 2-118
Approximately 30-40% plagioclase phenocrysts ($\sim An_{70}$) up to 1 cm across in intergranular to intersertal groundmass of plagioclase, clinopyroxene, iron-oxides, olivine and altered glassy mesotasis. Some smectite replacing mesotasis. Slightly vesicular.

Interlayered sediments are white to brownish, limestones (micrites).

Site 332 Hole A Core 7 Cored Interval: 111.5-121.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
86.7	N	14.55	9.58	7.2	0.32	0.51	0.27				A			
44.1	N	21.15	5.69	5.7	0.22	0.30	0.38	1	0.5 1.0		A B	2.810	6.45	4.5
23.6	I										TC TC			
63.2	N	13.75	10.82	6.7	0.41	0.59	0.12				A			
64.5	N							2			B	2.811	5.66	8.9
26.8	N										T			

LITHOLOGIC DESCRIPTION

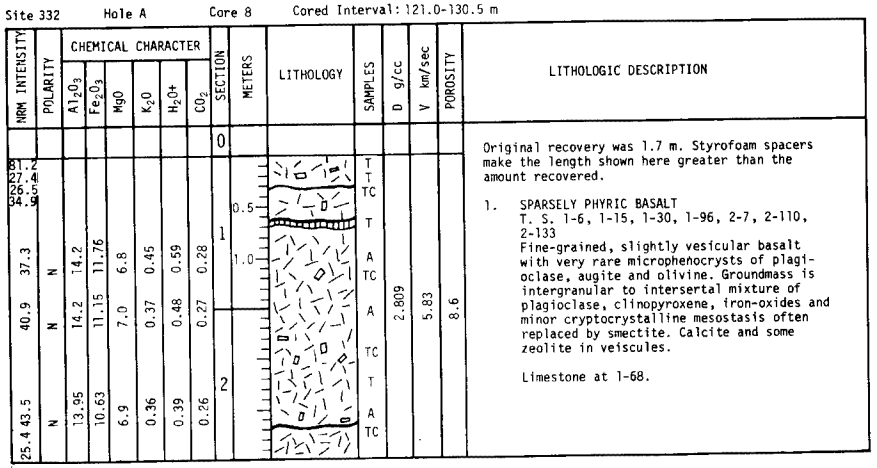
Original basalt recovery was 1.6 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. SPARSELY PHYRIC BASALT
T. S. 1-9, 1-113, 1-125, 2-9, 2-42
Fine-grained basalt with very sparse microphenocrysts of plagioclase. Intergranular to intersertal, slightly trachytic; slightly vesicular. Groundmass of plagioclase, clinopyroxene, iron-oxides and cryptocrystalline material. Glassy zones and sediment inclusions present. Smectite, carbonate and zeolites(?) in veins, vesicles and groundmass.

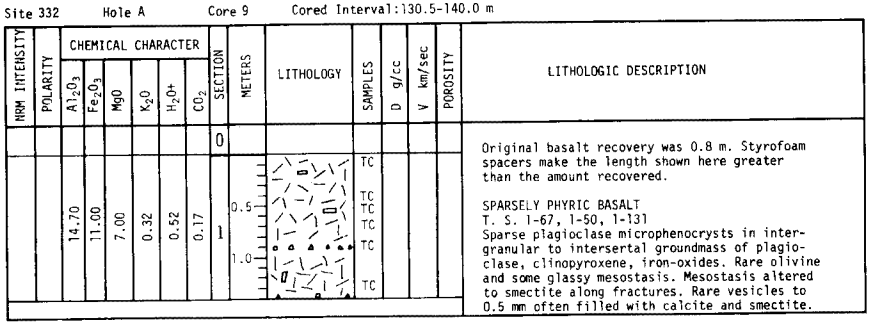
2. PLAGIOCLASE PHYRIC BASALT
T. S. 1-42, 1-67
Coarsely porphyritic with plagioclase to 12 mm. Groundmass intergranular, with plagioclase, clinopyroxene, iron-oxides, sparse olivine and cryptocrystalline material. Calcite, smectite, and zeolite in sparse vesicules. Some chlorophaeite in groundmass.

Sediment layers and inclusions are limestones (micrites).

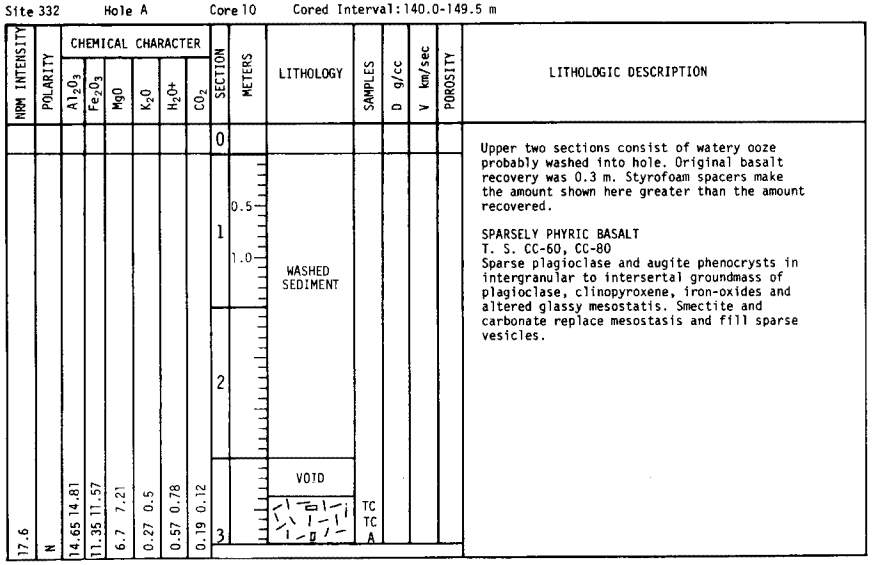
Site 332 Hole A Core 8 Cored Interval: 121.0-130.5 m



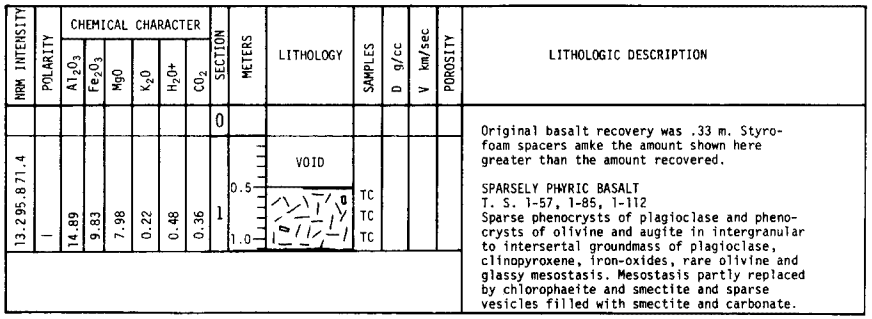
Site 332 Hole A Core 9 Cored Interval: 130.5-140.0 m



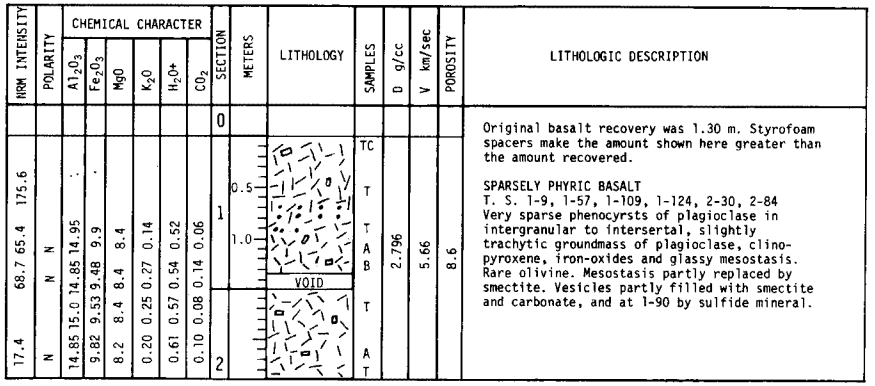
Site 332 Hole A Core 10 Cored Interval: 140.0-149.5 m



Site 332 Hole A Core 11 Cored Interval: 149.5-159.0 m



Site 332 Hole A Core 12 Cored Interval: 159.0-168.5 m



Site 332 Hole A Core 13 Cored Interval: 168.5-178.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
		14.8	10.34	7.42	0.28	0.58	0.09	1	0.5 1.0	TC T				

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.20 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-114, 1-144
Aphyric to very sparsely phyric basalt. Rare microphenocrysts of plagioclase, augite and olivine in intergranular to intersertal groundmass of plagioclase, clinopyroxene, iron-oxides, rare olivine and cryptocrystalline mesostasis. Some smectite after mesostasis and minor smectite and carbonate in sparse vesicles.

Interlayered sediment is foram-bearing nanno chalk. Correlated with Zone NN15.

Site 332 Hole A Core 14 Cored Interval: 178.0-187.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
6.21 11.9	?N Sh.R	14.1	10.4	7.2	0.45	0.56	0.13	1	0.5 1.0	VOID TC A T A				

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.77 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-125
Sparse phenocrysts of plagioclase and augite in intergranular to intersertal groundmass of plagioclase, clinopyroxene, iron-oxides and glassy mesostasis. Glassy material partly replaced by smectite which also partly fills sparse vesicles.

Site 332 Hole A Core 15 Cored Interval: 187.5-197.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
		14.95	10.11	7.66	0.32	0.48	0.09	1	0.5	TC T T TC				

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.20 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 15 CC
Sparse phenocrysts of plagioclase with rarer augite and olivine in intergranular groundmass of plagioclase, clinopyroxene, iron-oxide, and sparse olivine. Smectite partly replaces groundmass olivine and partly fills sparse vesicules. Some glassy breccia of same basalt in sharp contact with massive material.

Site 332 Hole A Core 16 Cored Interval: 197.0-206.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
27.1	SHN	14.7	10.12	7.34	0.25	0.54	0.10	1	0.5 1.0	TC	A	2.719	5.44	12.4

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.57 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-26, 1-35
Fine-grained intergranular to intersertal basalt composed of plagioclase, clinopyroxene, poorly formed iron-oxides and some glassy mesostasis. Rare microphenocrysts of plagioclase and augite. Smectite replaces some glass and partly fills sparse vesicles.

Site 332 Hole A Core 17 Cored Interval: 206.5-216.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
15.3	R	15.03	10.58	8.2	0.18	0.50	0.09	1	0.5 1.0		A TC TC			

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.55 m. Styrofoam spacers amke the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-43, 1-72
Dark gray fine-grained basalt with brown stained surfaces. Intergranular to intersertal groundmass of plagioclase, clinopyroxene, iron-oxides and minor interstitial glass. Some glass replaced by smectite. Sparse vesicles filled with glassy material containing abundant oxides.

Site 332 Hole A Core 18 Cored Interval: 216.0-225.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
		14.7	10.78	8.0	0.17	0.37	0.09	1	0.5 1.0	SLURRY OF BASALT CHIPS WITH SOME SEDIMENTARY MATERIAL. PROBABLY WASHED INTO HOLE FROM ABOVE.				

LITHOLOGIC DESCRIPTION

Site 332 Hole A Core 19 Cored Interval: 225.5-235.0 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
		14.2	10.62	7.2	0.34	0.71	0.20	0						
								1	0.5	VOID	TC TC T TC			

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.34 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-37, 1-56, 1-68, 1-87
Very fine-grained, often glassy basalt with intersertal, pilotaxitic texture. Groundmass fresh with plagioclase, clinopyroxene, iron-oxides and rare olivine. Glass often devitrified and sometimes replaced by smectite. Sparse vesicles and veins lined with smectite. Rare microphenocrysts of plagioclase.

Site 332 Hole A Core 20 Cored Interval: 235.0-244.5 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
35.2	R	14.81	10.2	8.02	0.20	0.65	0.06	0						
								1	0.5	VOID				
									1.0	NANNO OOZE SLURRY				
								2		VOID	T TC			

LITHOLOGIC DESCRIPTION

Nanno ooze in Section 1 probably slumped material. Original basalt recovery was 0.50 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 2-91, 2-112
Very fine-grained glassy basalt with rare plagioclase microphenocryst. Groundmass either cryptocrystalline material or fine mixture of plagioclase, clinopyroxene and iron-oxide. Fresh. Vesicles sparse except in zones indicated.

Site 332 Hole A Core 21 Cored Interval: 244.5-254.0 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
33.0	R	14.8	9.27	8.0	0.19	0.43	0.24	0						
21.3	R							1	0.5	VOID	A			
									1.0		A	2.810	6.05	7.2
										VOID				

LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.72 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-59
Dark gray, very fine-grained basalt with traces of plagioclase and augite microphenocrysts. Intergranular groundmass of plagioclase, clinopyroxene and iron-oxides. Minor interstitial smectite. Minor calcite in sparse vesicules.

Site 332 Hole A Core 22 Cored Interval: 254.0-263.5 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
6.3×10^{-6}	N							1	0.5		TC A			
3.8×10^{-6}	N	14.77	11.44	7.42	0.41	0.66	0.12		1.0		TC			

LITHOLOGIC DESCRIPTION

Original recovery was 1.10 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-10, 1-136
Dark gray very fine-grained basalt with intergranular to intersertal texture. Groundmass of plagioclase, clinopyroxene, iron-oxides and rare olivine. Some interstitial glass-devitrified. Sparse vesicules with smectite, calcite and some marginal glass. Rare microphenocrysts of plagioclase and augite.

FORAM BEARING NANNO CHALK
S. S. 1-40
White to light brown, indurated nanno chalk with fairly abundant chips and fragments of black glass and plagonite up to 3 cm. Chips embedded in chalk. Correlated with Zones N19 and NN15.

Site 332 Hole A Core 23 Cored Interval: 263.5-273.0 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
65.6	R	14.65	11.36	6.7	0.38	0.58	0.34	0						
								1	0.5	VOID	TC			
									1.0		TC A			

LITHOLOGIC DESCRIPTION

Original recovery was 0.90 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-40
Dark gray, fine-grained basalt with intersertal, trachytic texture. Groundmass of plagioclase, clinopyroxene, iron-oxides, rare olivine (?) and glassy mesostasis. Glass partly replaced by smectite. Sparse vesicules with smectite and some chlorophaeite. Rare microphenocrysts of plagioclase and augite.

LIMESTONE
Light brown limestone (micrite) with some embedded fragments of glass and palagonite.

Site 332 Hole A Core 24 Cored Interval: 273.0-282.5 m

NRM INTENSITY	POLARITY	Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
37.1	R	14.75	10.60	7.8	0.26	0.47	0.20	0						
								1	0.5	VOID	A			
									1.0					

LITHOLOGIC DESCRIPTION

Original recovery was 0.18 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT

Site 332 Hole A Core 25 Cored Interval: 282.5-292.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
		14.15	11.44	7.35	0.31	0.58	0.12	1	0.5 1.0	VOID	TC T A TC			

LITHOLOGIC DESCRIPTION

Original recovery was 0.87 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-36, 1-90, 1-129
Sparse phenocrysts of plagioclase, augite and olivine, often in clots. Groundmass intergranular to intersertal, slightly trachytic-composed of plagioclase, clinopyroxene, iron-oxides, common olivine and some glass. Smectite replaces some glass and fills sparse vesilces along with calcite and hematite. Small layers of nanno chalk with glass fragments intercalated with basalt. Correlated with NN15.

Site 332 Hole A Core 26 Cored Interval: 292.0-301.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
19.0	R	14.85	10.58	7.4	0.33	0.52	0.34	1	0.5 1.0	VOID	A T			
37.4	R							2		VOID	T T A T			

LITHOLOGIC DESCRIPTION

Original recovery was 1.38 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-80, 2-12, 2-38, 2-146
Sparse phenocrysts of plagioclase, augite and olivine often in clots. Groundmass intersertal, often variolitic with plagioclase, clinopyroxene, iron-oxides, some olivine and glassy mesostasis. Glass partly replaced by smectite and some calcite. Sparse to common vesicles partly filled with smectite and calcite.

NANNO CHALK - LIMESTONE
White chalk to light brown limestone with common embedded fragments of glass, palagonite and basalt.

Site 332 Hole A Core 27 Cored Interval: 301.5-311.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
15.3	R	14.85	11.37	7.74	0.6	0.47	0.17	1	0.5 1.0		TC TC TC	2.710	5.65	14.6

LITHOLOGIC DESCRIPTION

Original recovery was 1.18 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-35, 1-130, 1-139
Sparse phenocrysts of plagioclase and rare augite and olivine in variolitic to intersertal groundmass of plagioclase, clinopyroxene, iron-oxide, rare olivine and glassy mesostasis. Glass partly replaced by smectite and cryptocrystalline silica. Sparse vesicles partly filled with smectite and carbonate.

Site 332 Hole A Core 28 Cored Interval: 311.0-320.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
11.0	ShN	14.15	11.44	7.35	0.31	0.69	0.06	1	0.5 1.0	VOID	T B A T TC TC			
11.4	ShR							2		VOID	A A			
18.0	ShR	14.37	11.25	7.35	0.38	0.64	0.21	3		VOID	B	2.791	5.77	9.4
33.4	ShR	14.67	11.31	7.7	0.23	0.45	0.20	1	0.5 1.0	VOID	T B A T TC TC	2.790	5.76	9.9
11.8	Sh.R	16.83	9.57	7.56	0.33	0.61	0.19							

LITHOLOGIC DESCRIPTION

Original basalt recovery was 2.00 m styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-15, 1-85, 1-94, 2-60
Sparse phenocrysts of plagioclase, olivine and augite in variolitic intersertal groundmass of plagioclase, clinopyroxene, iron-oxides, sparse olivine and interstitial glass. Smectite replaces some glass and groundmass olivine and, with calcite, partly fills sparse vesicles.

Site 332 Hole A Core 29 Cored Interval: 320.5-330.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
9.75	ShR	15.29	11.36	7.1	0.25	0.48	0.71	1	0.5 1.0		T A B T A	2.846	6.14	4.9
28.8	?	16.2	9.16	6.7	0.36	0.46	0.14							
24.5	?													

LITHOLOGIC DESCRIPTION

Original recovery was 0.90 m. Styrofoam spacers make the amount shown here greater than the amount recovered. Mostly dark gray, medium-grained porphyritic basalt with minor included fragments of limestone. Basalt partly brecciated and glassy.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-35, 1-74, 1-105, 1-143
Fifteen to twenty percent plagioclase phenocrysts in medium-grained subophitic groundmass of plagioclase, clinopyroxene, iron-oxides and olivine with minor interstitial glass. Groundmass olivine and glass partly altered to smectite. Sparse vesicules sometimes lined with smectite.

SPARSELY PHYRIC BASALT
T. S. 1-13
Sparse phenocrysts of plagioclase, olivine and rare augite in fine-grained intersertal groundmass of plagioclase, clinopyroxene, iron-oxide, rare olivine and interstitial glass. Some smectite after glass and in sparse vesicles.

Site 332 Hole A Core 30 Cored Interval: 330.0-339.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
18.2 16.4 9.92	R Sh.R Sh.R	16.78 10.00	7.49	0.32	0.42	0.09		1 2	0.5 1.0	A T A B T T A TC T TC VOID		2.822	6.14	7.1

LITHOLOGIC DESCRIPTION

Original recovery was 1.60 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Dark gray, generally massive basalt with a few limestone inclusions. Scattered vesicle zones and calcite veinlets.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-68, 1-128, 1-134, 2-11, 2-61, 2-80, 2-100
Abundant plagioclase phenocrysts with rare olivine and augite in intersertal, often variolitic, to subophitic groundmass of plagioclase, clinopyroxene, iron-oxides, olivine and variable amounts of glass. Glass devitrified often and partly replaced by smectite. Smectite and calcite in vesicles.

Site 332 Hole A Core 31 Cored Interval: 339.5-349.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
3.86 7.79 29.4 20.6 11.7	N ?N ShR ? ShR	16.54	9.9	6.74	0.36	0.59	0.07	1 2 3	0.5 1.0	TC T B TC B T T A TC T A		2.732 2.780	5.73 5.80	12.0 8.0

LITHOLOGIC DESCRIPTION

Original recovery was 2.55 m. Styrofoam spacer make the amount shown here greater than the amount recovered.

Medium gray, compact basalt with a few vugs, calcite veins and vesicle zones. Abundantly porphyritic. Breccia zone from 2-95 to 2-118.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-23, 1-137, 2-34, 2-81, 3-15, 3-80
Abundant plagioclase phenocrysts with rare olivine. Groundmass intersertal to intergranular, often variolitic composed of plagioclase, clinopyroxene, iron-oxides, olivine and interstitial glass. Olivine and glass partly replaced by smectite and calcite. Sparse vesicles lined with calcite and smectite.

Site 332 Hole A Core 32 Cored Interval: 349.0-358.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
16.8	?ShR	15.4	10.8	7.76	0.37	0.57	0.05	1 2	0.5 1.0	VOID	A T			

LITHOLOGIC DESCRIPTION

Original recovery was 1.08 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, massive porphyritic basalt with sparse vesicles.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-110
Abundant plagioclase and rare olivine phenocrysts in intersertal, variolitic groundmass of plagioclase, clinopyroxene, iron-oxides, olivine and interstitial glass. Some smectite after glass.

Site 332 Hole A Core 33 Cored Interval: 358.5-368.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
16.9 155.2 46.1	R ShR ?ShR	14.7	9.10	7.1	0.13	0.68	0.15	1 2	0.5 1.0	VOID VOID	TC T A A B	2.855	6.18	4.7
		17.18	9.39	7.33	0.20	0.49	0.08					2.813	5.90	6.2

LITHOLOGIC DESCRIPTION

Original recovery was 1.20 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, massive, porphyritic basalt with scattered vesicle zones. Sparsely porphyritic from 2-90 to 2-116.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-115, 2-12
Abundant plagioclase and rare olivine phenocrysts. Groundmass intergranular to intersertal, often variolitic, composed of plagioclase, clinopyroxene. Iron-oxides, olivine and interstitial glass. Smectite and carbonate replace some glass and line vesicles.

Site 332 Hole A Core 34 Cored Interval: 368.0-377.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
3.38 14.9 6.98 9.84	N N ShN ShN	14.97	10.34	7.60	0.24	0.33	1.27	1 2	0.5 1.0	VOID	B A B A	2.816 2.810	6.09 5.78	7.3

LITHOLOGIC DESCRIPTION

Original recovery was 1.37 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, fine-grained, massive, porphyritic basalt with sparse vesicles.

PLAGIOCLASE PHYRIC BASALT

Site 332 Hole A Core 35 Cored Interval: 377.5-387.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
9.73	ShN							0 1	0.5 1.0		A			

LITHOLOGIC DESCRIPTION

Original recovery was 0.36 m. Styrofoam spacers make the amountshown here greater than the amount recovered.

Medium gray, massive, porphyritic basalt with ubiquitous small vesicles.

PLAGIOCLASE PHYRIC BASALT

Site 332 Hole A Core 36 Cored Interval: 387.0-396.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
9.37	ShN	17.1	9.62	7.18	0.26	0.65	0.09	0						
21.5	ShN							1 2	0.5 1.0		A B	2.827	6.24	

LITHOLOGIC DESCRIPTION

Original recovery was 1.55 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, porphyritic, massive basalt with ubiquitous small vesicles.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-60
Abundant plagioclase phenocrysts in intergranular groundmass of plagioclase, clinopyroxene, iron-oxides and minor interstitial glass. Some calcite in vesicles.

Site 332 Hole A Core 37 Cored Interval: 396.5-406.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
23.8 47.4	ShN ↓ ShR R	14.54	11.1	7.71	0.17	0.47	0.28	0 1	0.5 1.0	VOID	T T B A	2.818	5.91	

LITHOLOGIC DESCRIPTION

Original recovery was 0.50 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, porphyritic basalt with some glassy zones, ubiquitous small vesicles and some vesicle zones.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-78, 1-100, 1-142
Abundant plagioclase and rare augite and olivine phenocrysts in intergranular to subophitic groundmass, often variolitic, composed of plagioclase, clinopyroxene, iron-oxides, olivine and some interstitial glass. Glass partly replaced by smectite, calcite and zeolite(?). Carbonate and zeolite(?) also in vesicles.

Site 332 Hole A Core 38 Cored Interval: 406.0-415.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0 1	0.5 1.0		T T			

LITHOLOGIC DESCRIPTION

Original recovery was 0.24 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray, porphyritic basalt with minor glass and sparse vesicles.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-109, 1-132, 1-143
Abundant plagioclase and rare augite phenocrysts in fine-grained variolitic groundmass of plagioclase, clinopyroxene, iron-oxides, olivine and variable glass. Glass devitrified and partly replaced by smectite. Some smectite in vesicles.

Site 332 Hole A Core 39 Cored Interval: 415.5-425.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
24.4	ShN	16.2	9.9	7.0	0.23	0.56	0.11	0	0.5		A			

LITHOLOGIC DESCRIPTION

Original recovery was 0.30 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium gray porphyritic basalt with ubiquitous small vesicles.

PLAGIOCLASE PHYRIC BASALT
T. S. 1-40
Plagioclase and rare augite phenocrysts in intersertal to subophitic groundmass of plagioclase, clinopyroxene, iron-oxide and interstitial glass. Smectite replaces some glass and lines some vesicles.

Site 332 Hole A Core 40 Cored Interval: 425.0-434.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
9.49 7.07	ShR ShR	17.22	7.4	9.0	0.24	0.56	0.81	0						
		15.06	11.61	7.56	0.27	0.81	0.47	1	0.5 1.0	VOID	TC T A T			
No paleomag sample 9.21	ShR	14.68	11.92	7.46	0.3	0.72	0.33	2		VOID	A B TC	2.741	5.92	
No paleomag sample 4.10	?ShN	14.8	6.85	11.3	0.11	0.39	0.58	3		VOID	B A	2.861	6.49	

LITHOLOGIC DESCRIPTION

Original recovery was 2.90 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Medium to light gray, generally porphyritic basalt with some fine-grained sections. Glass rinds and glassy breccia common. Small vesicles ubiquitous - larger vesilces in scattered zones. Patch of limestone at 2-7.

1. PLAGIOCLASE PHYRIC BASALT
   T. S. 1-30
   Sparsely phyric basalt with plagioclase and rare augite in intergranular, trachytic groundmass of plagioclase, clinopyroxene, iron-oxide and minor interstitial glass. Smectite replaces some glass and lines vesicles and veinlets with carbonate.

2. PLAGIOCLASE-AUGITE PHYRIC BASALT
   T. S. 1-60, 1-121, 3-91
   Very porphyritic with abundant phenocrysts of plagioclase, augite and lesser olivine in intergranular to intersertal groundmass of plagioclase, clinopyroxene, iron-oxides, rare olivine and some interstitial glass. Olivine partly altered to iddingsite and carbonate. Glass replaced partly by smectite and carbonate.

Site 332 Hole B Core 1 Cored Interval: 142.0-151.5 m Sheet 1 of 2

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	FOSSIL CHARACTER: ABUND.	FOSSIL CHARACTER: PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE	LITHOLOGIC DESCRIPTION
					0					
LATE PLIOCENE	N21 (F) / NN16	F	A	G	1	0.5	VOID			Chiefly white, stiff, little deformed nanno ooze. Numerous slightly stiffer layers of green (close to 5G 7/1) ooze 0.2-1.0 cm thick. Purple spot mottling throughout. Some patches of yellowish white (5Y 8/2) ooze present. Volcanic glass rich layer at 1-65. Pyrite micronodules at 1-72.
		N	A	G					65	2.5Y 8/1
		R	C	G					72	5YR 2/1
						1.0			87	2.5Y 8/1
									106	
	N20 (F) / NN15	F	A	G	2					FORAM BEARING NANNO OOZE
		N	A	G					42	Smear slides 1-87, 1-106, 2-42, 2-102, 3-75, 4-76, 4-136, 5-28
		R	C	G						2.5Y 8/1
									102	Nannos 94%
										Forams 4%
										Sponge Spicules 1%
										Diatoms TR
										Rads TR
										Vol. Glass TR
										Heavy Minerals TR
					3				75	2.5Y 8/1
		F	A	G						
					4				76	2.5Y 8/1
		F	A	G					136	
		F	A	G					28	2.5Y 8/1

Grain Size

	1-75	2-81	3-76	4-76	5-30
sand	5.2	5.6	2.2	6.8	5.5
silt	30.3	29.8	28.0	27.4	33.9
clay	64.6	64.6	69.8	65.8	60.7

Carbon-Carbonate 1-76
11.3, 0.1, 94

X-ray (Bulk) 2-75
Amor 10.3, Calc 100.0

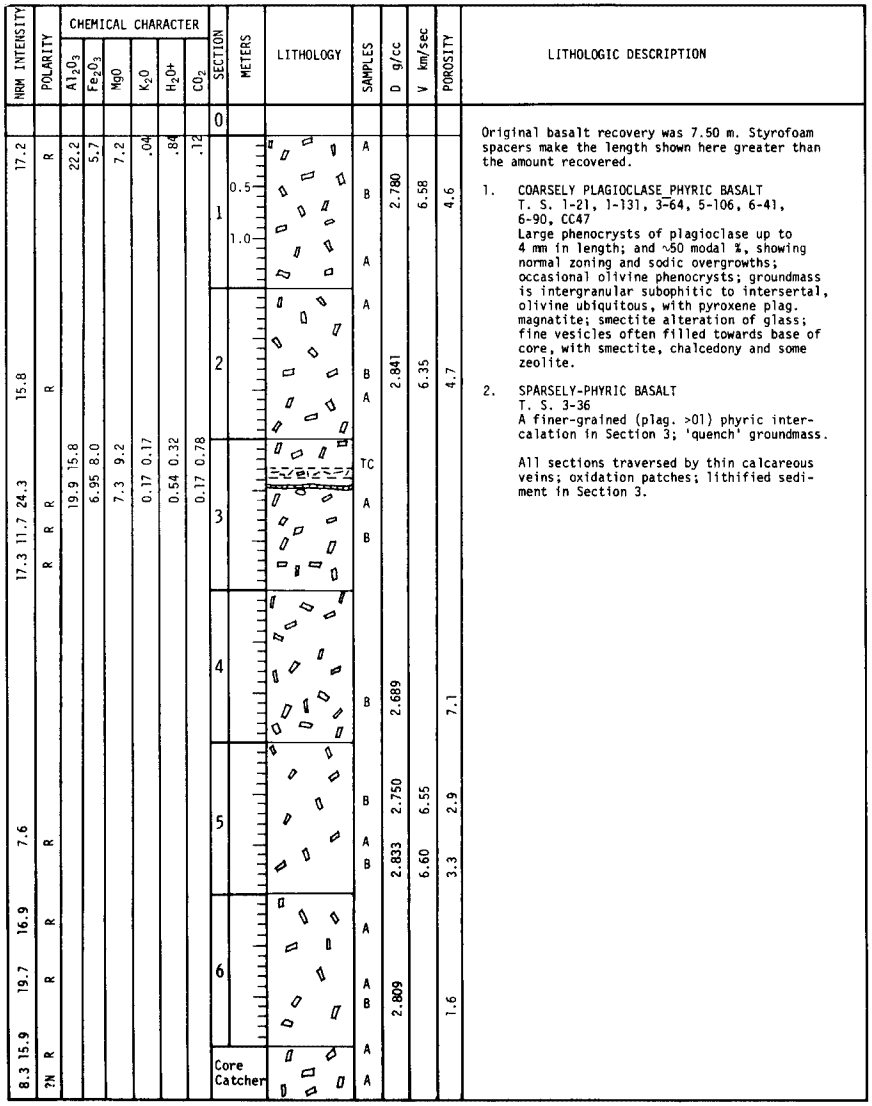
X-ray (2-20μm)

	1-73	2-75	3-70	4-70	5-25
Amor	N.D.	N.D.	81.0	N.D.	90.1
Quar	13.6	8.9	6.2	7.9	15.7
K-Fe	38.7	25.4	37.0	35.1	22.0
Plag	29.3	20.5	32.8	34.4	34.0
Mica	11.3	33.3	5.1	6.4	9.6
Chlo	-	-	0.8	-	-
Mont	-	-	16.2	-	-
Phil	-	-	-	-	6.4
Anal	-	-	-	2.2	-
Augi	7.1	12.0	1.9	14.1	12.2
Cris	PRES	PRES	PRES	TR	PRES

Site 332 Hole B Core 1 Cored Interval: 142.0-151.5 m Sheet 2 of 2

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original basalt recovery was 1.05 m. Styrofoam spacers make the length shown here greater than the amount recovered.
								1	0.5						PLAGIOCLASE PHYRIC BASALT
									1.0						T. S. 5-5, 5-110
								2							Large plagioclase crystals up to 5 mm across with sodic rims. Groundmass is intergranular to subophitic with plagioclase, augite olivine and iron-oxides with some interstitial glass; smectite fills sparse vesicles and replaces some glass.
								3							
								4							
20.6	SHR							5			A	2.81	6.23	6.7	
17.1	R										B				
15.6	R										A	2.79	6.36	4.9	

Site 332 Hole B Core 2 Cored Interval: 151.5-199.0 m



LITHOLOGIC DESCRIPTION

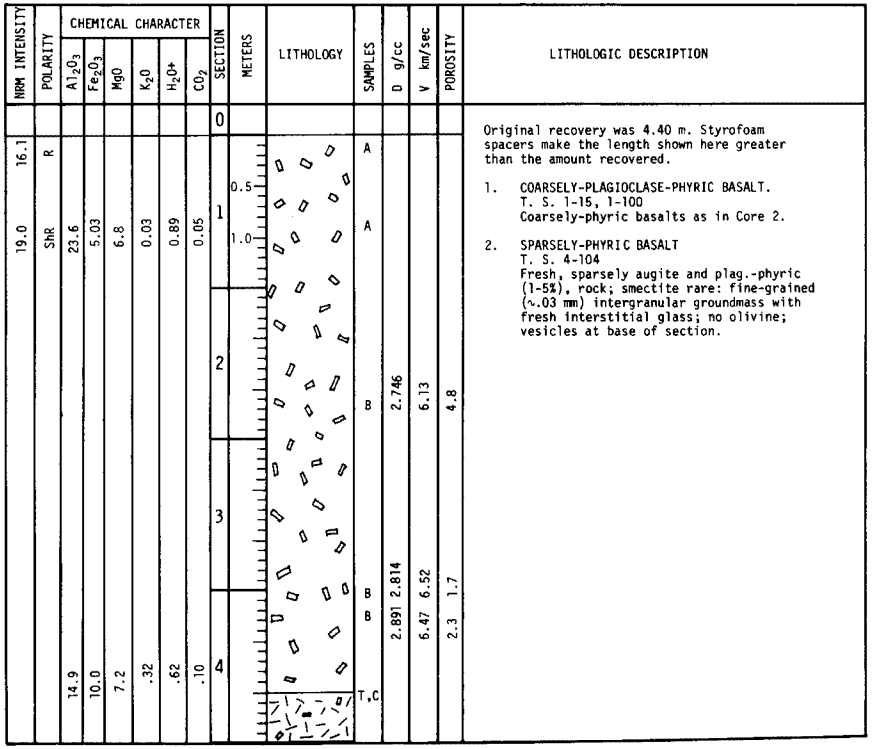
Original basalt recovery was 7.50 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. COARSELY PLAGIOCLASE PHYRIC BASALT
   T. S. 1-21, 1-131, 3-64, 5-106, 6-41, 6-90, CC47
   Large phenocrysts of plagioclase up to 4 mm in length; and ~50 modal %, showing normal zoning and sodic overgrowths; occasional olivine phenocrysts; groundmass is intergranular subophitic to intersertal, olivine ubiquitous, with pyroxene plag. magnatite; smectite alteration of glass; fine vesicles often filled towards base of core, with smectite, chalcedony and some zeolite.

2. SPARSELY-PHYRIC BASALT
   T. S. 3-36
   A finer-grained (plag. >01) phyric intercalation in Section 3; 'quench' groundmass.

All sections traversed by thin calcareous veins; oxidation patches; lithified sediment in Section 3.

Site 332 Hole B Core 3 Cored Interval: 199.0-227.5 m



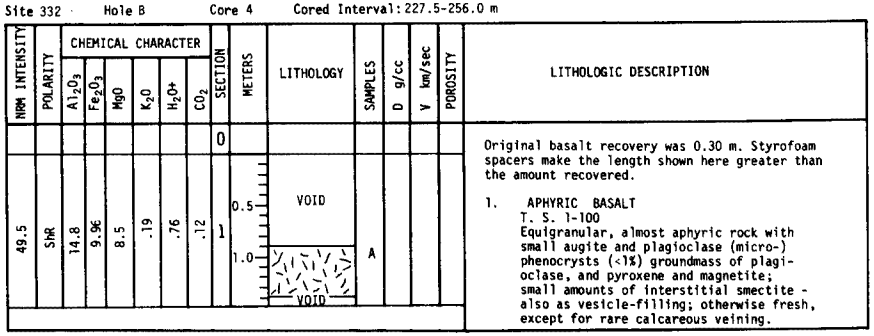
LITHOLOGIC DESCRIPTION

Original recovery was 4.40 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. COARSELY-PLAGIOCLASE-PHYRIC BASALT.
   T. S. 1-15, 1-100
   Coarsely-phyric basalts as in Core 2.

2. SPARSELY-PHYRIC BASALT
   T. S. 4-104
   Fresh, sparsely augite and plag.-phyric (1-5%), rock; smectite rare: fine-grained (~.03 mm) intergranular groundmass with fresh interstitial glass; no olivine; vesicles at base of section.

Site 332 Hole B Core 4 Cored Interval: 227.5-256.0 m



LITHOLOGIC DESCRIPTION

Original basalt recovery was 0.30 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. APHYRIC BASALT
   T. S. 1-100
   Equigranular, almost aphyric rock with small augite and plagioclase (micro-) phenocrysts (<1%) groundmass of plagioclase, and pyroxene and magnetite; small amounts of interstitial smectite - also as vesicle-filling; otherwise fresh, except for rare calcareous veining.

Site 332 Hole B Core 5 Cored Interval: 256.0-284.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
								1	0.5, 1.0	VOID; VOID				

Original basalt recovery was 0.11 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. APHYRIC BASALT
   As in Core 4.

Site 332 Hole B Core 6 Cored Interval: 284.5-313.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
18.2 43.9	R R	14.1 14.13	14.14 11.58	7.6 7.1	.32 .23	1.24 .55	.09 .23	1	0.5, 1.0	T,C	A B	2.843	5.99	6.3
			11.02	7.0	.40	.61	.20	2		B	A A B	2.659	5.52	12.9
								3		VOID; TC; VOID				

Original basalt recovery was 2.80 m. Styrofoam spacers make the length shown here greater than the amount recovered.

1. APHYRIC BASALT
   T. S. 1-18, 1-77, 2-122, 3-87
   As in Cores 4 and 5; olivine rarely present in groundmass; occasional microphenocrysts of clinopyroxene, (sometimes as aggregates) and plagioclase (<1%); relatively coarse-grained in 6-3; generally fresh; vesicles filled with smectite and occasional Fe-hydroxide and/or hematite; some calcite veining.

2. Foram bearing NANNO CHALK
   White to light brown, indurated nanno chalk with chips of black volcanic glass and palagonite up to 1.5 cm. Chips embedded in chalk. Glass layer at 2-10. Correlated with N20 and NN15.

Site 332 Hole B Core 7 Cored Interval: 313.0-322.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
								1	0.5, 1.0	VOID; VOID				

Original recovery was 0.30 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. COARSELY PLAGIOCLASE-PHYRIC BASALT.
   Phenocrysts, mostly plagioclase (4 mm), (also some olivine (1 mm); vesicles filled with calcite and zeolite; calcareous coatings and net-veining are common.

Site 332 Hole B Core 8 Cored Interval: 322.5-332.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
32.7 12.9	SHR SHR	16.4	9.55	7.2	.25	.82	0.10	1	0.5, 1.0		A A A			
4.8	SHR							2		TC	A	2.727	5.87	12.6
38.0	SHR							3		VOID	B			

Original recovery was 2.80 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. MODERATELY TO COARSELY PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-14, 2-75, 1-62, 3-7, 3-90
   Continuous from Core 7; plagioclase (glomer o-). Phenocrysts are 1-3 mm in size; occasional olivine, and green augite may be up to 1 mm; groundmass is fine-medium-grained intergranular and intersertal, always olivine-bearing; mostly, but not entirely, vesicular with smectite and carbonate infilling; slight alteration but mostly fresh.

Site 332 Hole B Core 9 Cored Interval: 332.0-351.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
24.5	R	16.4	9.63	7.3	.25	.61	.09	1	0.5, 1.0		A			
14.1	N										B	2.806	5.63	10.1
20.3	R							2			A			
23.3	N										B	2.796	5.60	9.7
9.6	N							3			A			
13.3	N									VOID	B	2.873	6.44	5.4

Original recovery was 3.00 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

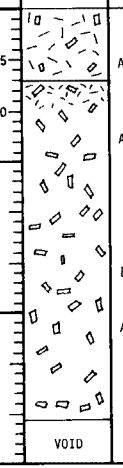
1. MODERATELY PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-18, 2-44, 3-45
   Continuous from Cores 8 and 7; olivine occurs as occasional microphenocrysts, and also in the groundmass; also plagioclase-pyroxene aggregates; texture of groundmass generally fine-grained intergranular-sometimes microdoleritte; glassy patches normally altered; much calcite veining, pipe vesicles, and amygdules mostly of chalcedony.

2. SPARSELY-PHYRIC BASALT
   Similar to above, but with definite crystals of olivine and green augite.

Site 332 Hole B Core 10 Cored Interval: 351.0-360.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2
16.2	ShR	15.6	10.18	7.2	1.05	.48	.22
19.2	R	15.7	10.22	7.0	.21	.55	2.34
22.4	ShR						
22.9	ShR						

SECTION | METERS | LITHOLOGY | SAMPLES | D g/cc | V km/sec | POROSITY



LITHOLOGIC DESCRIPTION

Original recovery was 3.14 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

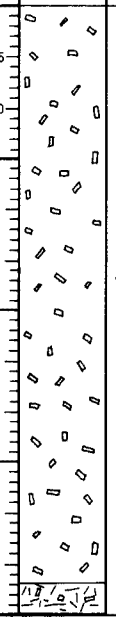
1. MODERATELY TO SPARSELY-PHYRIC BASALT
   Continues from Core 9.
   T. S. 1-62
   Phenocrysts of plagioclase (3 mm) and rare olivine and green pyroxene; aphanitic-variolitic groundmass; generally fresh and vesicular.

2. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-133, 3-20
   Plagioclase phenocrysts (up to ~3 mm) 15% modally; in coarse-grained doleritic groundmass of plag. clinopyroxene, olivine and magnetite; some deuteric alteration of plagioclase to sericite; some vesicles, filled with silica and calcite; sulphides along some veins and patches of ruddy oxidized aleration; olivine pseudomorphed by calcite.

Site 332 Hole B Core 11 Cored Interval: 360.5-370.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2
15.7	R	16.3	9.04	7.5	.19	.49	0.1
18.8	N						
3.7	ShR						
19.8	R						

SECTION | METERS | LITHOLOGY | SAMPLES | D g/cc | V km/sec | POROSITY



LITHOLOGIC DESCRIPTION

Original recovery was 5.27 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

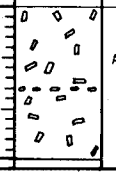
1. PLAGIOCLASE-PHYRIC BASALT
   Continues from Core 10.
   T. S. 1-39, 2-110, 3-40, 4-105
   Less olivine, but appearances of green augite; microdoleritic texture; silica and smectite in groundmass interstices - also in vesicles; strong zoning of plagioclase phenocrysts; much veining - both siliceous and calcareous and fairly intense alteration in parts.

2. SPARSELY-PHYRIC BASALT
   Fine-grained with occasional small phenocrysts of olivine and pyroxene.

Site 332 Hole B Core 12 Cored Interval: 370.0-379.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2
7.9	ShR	16.0	9.77	7.1	.28	.41	.07

SECTION | METERS | LITHOLOGY | SAMPLES | D g/cc | V km/sec | POROSITY



LITHOLOGIC DESCRIPTION

Original recovery was 1.00 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   Plagioclase>>olivine>green augite phenocrysts (plag. to 4 mm); olivine in groundmass; interstitial glass altered to smectite; abundant vesicles are present, - filled with smectite and calcite, probably defining flow-units.

Site 332 Hole B Core 13 Cored Interval: 379.5-389.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
80.7	R							1	0.5, 1.0	VOID	A			

LITHOLOGIC DESCRIPTION

Original recovery was 0.95 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-72
   Continuous from Core 12; abundant vesicles - arranged in distinct layers; several brecciated partings and veins. Plagioclase phenocrysts $\sim An_{45}$. Moderately coarse intergranular groundmass.

Site 332 Hole B Core 14 Cored Interval: 389.0-398.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
13.1 5.4 93.4	N R SHN							1	0.5, 1.0	VOID	A			
								2		VOID	A	2.693	5.52	14.5
											B			

LITHOLOGIC DESCRIPTION

Original recovery was 1.93 m. Styrofoam spacers make the amountshown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-142, 2-33
   Continuous from Core 13; olivine in groundmass, mostly very fresh, although patches of SiO_2 present in groundmass; alteration increases downwards. Large ophitic pyroxene in groundmass ($\sim$.4 mm); plag. phenocrysts form aggregates; abundant vesicles - often infilled by chalcedony.

Site 332 Hole B Core 15 Cored Interval: 398.5-408.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
36.3 51.3 17.4	R ? Horiz	16.5	9.38	7.0	.27	.74	0.20	1	0.5, 1.0		A			
								2		VOID	B	2.880	6.01	4.5
											A			

LITHOLOGIC DESCRIPTION

Original recovery was 1.89 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT. 1 (3-25), 1 (65-147) and 2 (16-147).
   T. S. 1-70, 2-83
   Plagioclase and olivine phenocrysts (1-5%) form aggregates; silica vesicle-filling; rare green augite; more olivine than above.

2. SPARSELY-PLAGIOCLASE-PHYRIC BASALT
   Plagioclase phenocrysts only; fine- to medium-grained groundmass.

   Vesicles ubiquitous; smectite and calcite infilling; chlorite veins.

Site 332 Hole B Core 16 Cored Interval: 408.0-417.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
108.7 84.5	R R	14.6	10.5	11.5	.13	.84	.19	1	0.5, 1.0		A			
								2		VOID	A			

LITHOLOGIC DESCRIPTION

Original recovery was 1.30 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   T. S. 1-112, 1-31
   Sparsely-phyric (olivine>plagioclase) 1-5% ubiquitous vesicles; fine-grained groundmass with small euhedral picotites; phenocryst distribution very irregular; flow-units marked by glassy rinds: Mn - incrustations common.

Site 332 Hole B Core 17 Cored Interval: 417.5-427.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								1	0.5, 1.0					
								2		VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 1.50 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   As in Core 16 - sparsely-phyric and becoming progressively more associated with breccia downwards; breccia of basalt and palagonite fragments with calcareous matrix.

2. SPARSELY TO MODERATELY OLIVINE-PHYRIC BASALT
   Similar to Core 16: many glassy rinds and calcite veins; ubiquitous small (<1 mm) vesicles; olivine phenocrysts to 5 mm; and occasional plagioclase to 2 mm; some palagonite breccia intermixed.

Site 332 Hole B Core 18 Cored Interval: 427.0-436.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
53.0	R	14.1	10.6	12.7	.18	.81	.37	1	0.5, 1.0	VOID	A			

LITHOLOGIC DESCRIPTION

Original recovery was 0.85 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. (COARSELY) OLIVINE-PHYRIC BASALT
   T. S. 1-43
   Sparse to abundant olivine phenocrysts reflecting crystal-settling units; v. scarce plag. coarsely-phyric rocks have abundant picotite; olivine phenocryst-up to 5 mm in size-are resorbed: fine calcareous veining is common; smectite alteration of interstitial glass-otherwise intergranular to intersertal texture; vesicles coated with smectite; tops of settling units are almost aphyric.

Site 332 Hole B Core 19 Cored Interval: 436.5-446.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
32.3 92.9 74.9	R R R							1	0.5, 1.0	VOID	A A B	2.871	5.82	6.9

LITHOLOGIC DESCRIPTION

Original recovery was 0.95 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. (COARSELY) OLIVINE-PHYRIC BASALT
   As in Core 18.
   T. S. 1-24, 1-68, 1-100
   Vesciles very small, sparse or absent. Picotite microphenocrysts; groundmass fine-grained to variolitic; carbonate and silica veins and vesicle-fillings - also smectite; olivine in groundmass; olivine phenocrysts up to ~15 modal % at base of "settling units;" plag. <5%. Several glassy rinds present.

Site 332 Hole B Core 20 Cored Interval: 446.0-455.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
53.1 97.9 125.5 96.4 51.1 62.7	R R R R R R							1	0.5, 1.0	VOID, VOID	A B A A	2.832	5.555	8.4
								2			A A A			

LITHOLOGIC DESCRIPTION

Original recovery was 1.90 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. (COARSELY-) OLIVINE-PHYRIC BASALT
   T. S. 1-51, 1-76
   As in Core 19.
   Olivine>>plagioclase (>>picotite). Quenched groundmass. Aragonite in vugs. Numerous glassy rinds.

Site 332 Hole B Core 21 Cored Interval: 455.5-465.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
67.2 97.4 93.5	R R R	14.0	10.2	14.0	.09	1.0	.15	1	0.5, 1.0	VOID	A A B A	2.900	5.83	5.3

LITHOLOGIC DESCRIPTION

Original recovery was 1.0 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   As in Core 20: (olivine>plagioclase) parting of basalt and palagonite breccia. Olivine settling units and glassy rinds evident.

Site 332 Hole B Core 22 Cored Interval: 465.0-474.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
53.2 36.7 12.9 92.1 91.0 41.8 30.2 38.6 85.7	R R ShR ShR ShR ShR ShR ShR ShR	13.4 16.2 15.8	11.0 10.7 10.6	15.0 8.9 8.6	.25 .11 .09	1.68 .63 .64	1.31 .49 .15	1 2 3 4	0.5, 1.0	VOID	A B A A A A A B A A	2.850 2.614 2.862 2.877	5.95 5.06 6.00 6.23	5.2 14.5 6.2 3.8

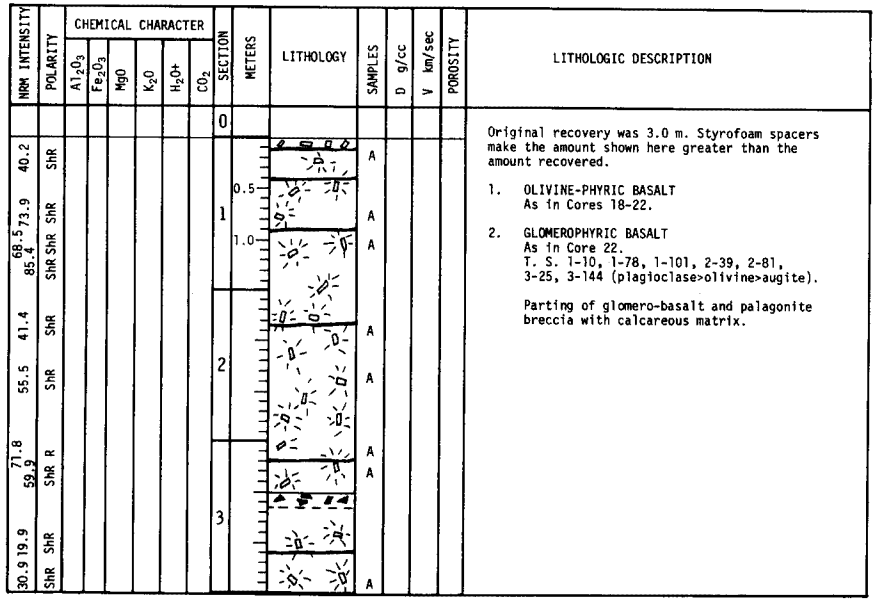
LITHOLOGIC DESCRIPTION

Original recovery was 5.1 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   T. S. 1-4
   Very coarsely phyric; prominent euhedral picotite microphenocrysts; olivines up to 4 mm.

2. GLOMEROPHYRIC BASALT
   T. S. 1-77, 2-10, 2-36, 2-43, 2-109, 3-3, 4-40, 4-98
   Euhedral/subhedral olivine phenocrysts with adhering aggregates of plagioclases; picotite inclusions in olivine sometimes present; groundmass mostly aphanitic-glassy areas being frequently altered to smectite; and groundmass olivine (always present) pseudomorphed by calcite; vesicle fillings are of both calcite and silica with some smectite lining cavity walls.

Site 332 Hole B Core 23 Cored Interval: 474.5-484.0 m



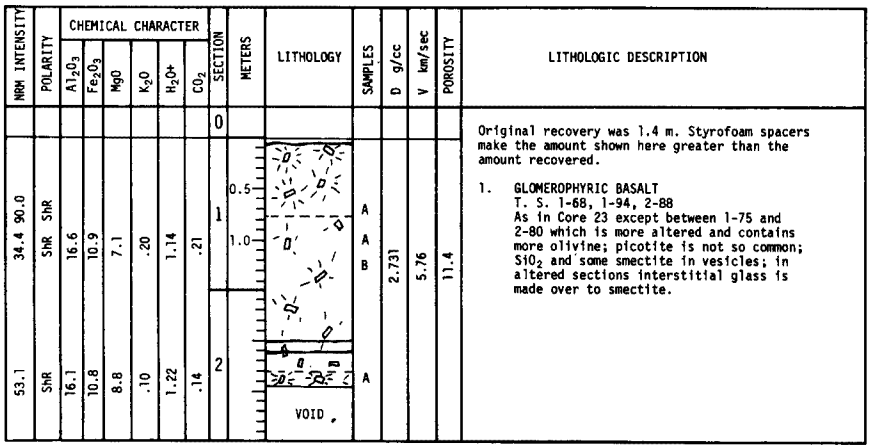
Original recovery was 3.0 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   As in Cores 18-22.

2. GLOMEROPHYRIC BASALT
   As in Core 22.
   T. S. 1-10, 1-78, 1-101, 2-39, 2-81, 3-25, 3-144 (plagioclase>olivine>augite).

   Parting of glomero-basalt and palagonite breccia with calcareous matrix.

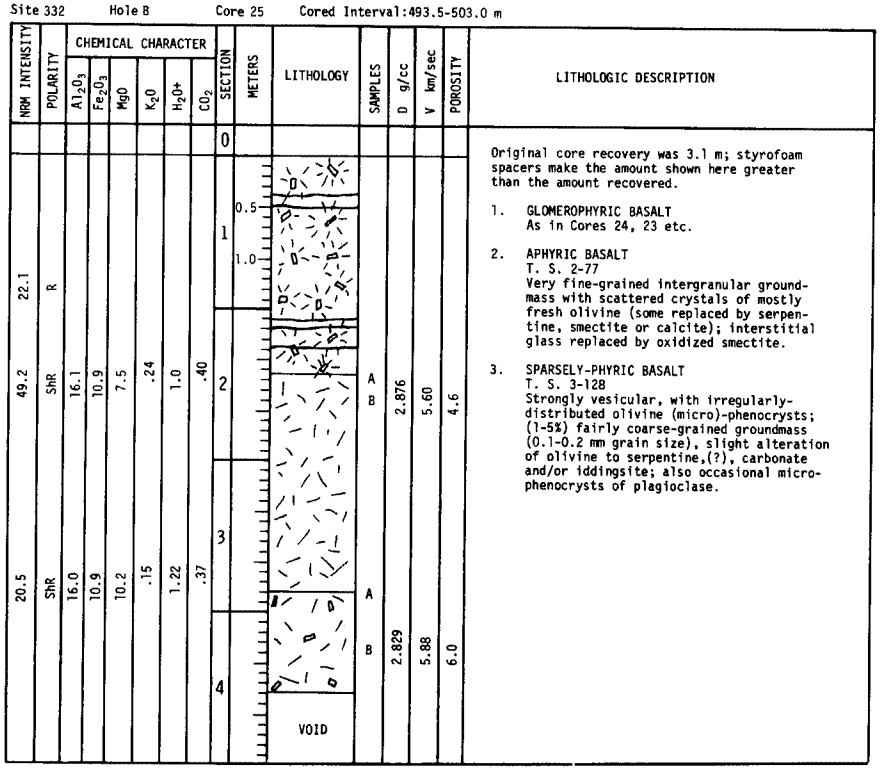
Site 332 Hole B Core 24 Cored Interval: 484.0-493.5 m



Original recovery was 1.4 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. GLOMEROPHYRIC BASALT
   T. S. 1-68, 1-94, 2-88
   As in Core 23 except between 1-75 and 2-80 which is more altered and contains more olivine; picotite is not so common; SiO_2 and some smectite in vesicles; in altered sections interstitial glass is made over to smectite.

Site 332 Hole B Core 25 Cored Interval: 493.5-503.0 m



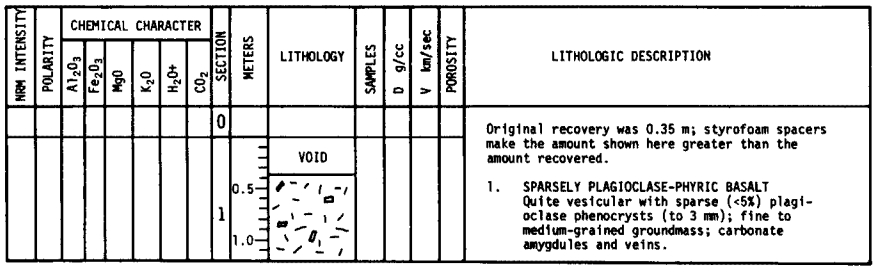
Original core recovery was 3.1 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. GLOMEROPHYRIC BASALT
   As in Cores 24, 23 etc.

2. APHYRIC BASALT
   T. S. 2-77
   Very fine-grained intergranular groundmass with scattered crystals of mostly fresh olivine (some replaced by serpentine, smectite or calcite); interstitial glass replaced by oxidized smectite.

3. SPARSELY-PHYRIC BASALT
   T. S. 3-128
   Strongly vesicular, with irregularly-distributed olivine (micro)-phenocrysts; (1-5%) fairly coarse-grained groundmass (0.1-0.2 mm grain size), slight alteration of olivine to serpentine,(?), carbonate and/or iddingsite; also occasional micro-phenocrysts of plagioclase.

Site 332 Hole B Core 26 Cored Interval: 503.0-512.5 m



Original recovery was 0.35 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY PLAGIOCLASE-PHYRIC BASALT
   Quite vesicular with sparse (<5%) plagioclase phenocrysts (to 3 mm); fine to medium-grained groundmass; carbonate amygdules and veins.

Site 332 Hole B Core 27 Cored Interval: 512.5-522.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
23.5	ShR	15.4	10.9	7.8	.27	.70	.13	1	0.5, 1.0		A			
35.0	ShR							2			A			
											B	2.841	6.05	5.0

LITHOLOGIC DESCRIPTION

Original recovery was 1.7 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY-PHYRIC BASALT
   T. S. 2-4
   As in Core 26.
   Sparse phenocrysts of plagioclase (<5%) (to 1-5 mm); and olivine (<1 mm); fine-grained aphanitic to intersertal groundmass with quite fresh glass; some smectite; and calcite pseudomorphing groundmass olivine; carbonate vesicle-fillings, and slight chloritization.

Site 332 Hole B Core 28 Cored Interval: 522.0-531.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
33.2	ShR	14.8	10.6	7.1	.25	.87	.27	1	0.5, 1.0		A	2.829	5.62	7.6
								2		VOID	B			

LITHOLOGIC DESCRIPTION

Original recovery was 1.3 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY-PHYRIC BASALT
   T. S. 2-3, similar to
   Similar to Core 27.
   Sparse phenocrysts, mainly of plagioclase (1-5%), up to 5 mm); also olivine (~1%, up to 1 mm) and augite (<1%).

   Fine intergranular-intersertal groundmass; also subophitic; interstitial glass replaced by silica and smectite; if olivine is present in groundmass it is totally replaced by calcite.

   Vesicles and carbonate amygdules ubiquitous; chloritized veins.

Site 332 Hole B Core 29 Cored Interval: 531.5-541.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
19.0	R	14.8	10.4	11.3	.26	1.43	4.34	1	0.5, 1.0		A	2.879	5.95	4.7
14.6	ShN										B			
23.7	ShR							2			A			
											A			

LITHOLOGIC DESCRIPTION

Original recovery was 1.8 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. (SPARSELY) OLIVINE-PHYRIC BASALT
   T. S. 1-51, 1-58
   Variable distribution of olivine phenocrysts (maybe 3-15%) and up to 5 mm in size; olivine is abundant in groundmass; subophitic/intergranular plagioclase and pyroxene.

   Groundmass and interstitial glass alteration to serpentine(?), smectite, iddingsite; also chlorophaeite; many calcite veinlets.

   Possible intercalation (one piece!) of plagioclase-phyric basalt?, 2-35 to 2-45.

Site 332 Hole B Core 30 Cored Interval: 541.0-550.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
45.4	R	15.1	10.6	7.2	.35	.75	2.25	1	0.5, 1.0		A			
18.3	R							2		VOID	A			
											A			

LITHOLOGIC DESCRIPTION

Original recovery was 1.4 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY-PHYRIC BASALT
   T. S. 1-51, 2-34
   Sparse to moderate contents of olivine (to 2 mm) and plagioclase phenocrysts (1-5%) (to 4 mm) with occasional picotite microcrysts: moderately coarse subophitic groundmass of clinopyroxene and plagioclase and abundant olivine (altered to iddingsite in some cases).

   Abundant vesicles and zeolitic amygdules; siliceous veining; also carbonate in groundmass.

Site 332 Hole B Core 31 Cored Interval: 550.5-560.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
45.5	ShR	15.1	11.3	6.6	.37	.86	2.76	1	0.5, 1.0	VOID	A	2.736	5.45	12.4
											B			

LITHOLOGIC DESCRIPTION

Original recovery was 0.77 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY-PHYRIC BASALT
   T. S. 1-73
   Similar to Core 30.
   Plagioclase phenocrysts (1-5%) up to 5 mm in size predominate over rare olivine (<1 mm); green augite (<1 mm) in Core 31 only. Fine intergranular to intersertal groundmass mostly; occasionally micro-doleritic; vesicles coated with smectite and/or chlorite(?) - filled by calcite and chalcedony.

   Alteration is slight to moderate.

Site 332 Hole B Core 32 Cored Interval: 560.0-569.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
36.5	R	14.6	11.0	7.2	.26	.94	.62	1	0.5, 1.0		A			
35.5	R													

LITHOLOGIC DESCRIPTION

Original recovery was 1.1 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-27, 1-113
   Sparse plagioclase-phenocrysts (1-5%, up to 5 mm); olivine micro-phenocrysts are very rare; groundmass varies between quenched variolitic and micro-doleritic; fresh olivine, and pyroxene, plagioclase and magnetite in groundmass.

   Vesicles filled by silica and carbonate.

Site 332 Hole B Core 33 Cored Interval: 569.5-579.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
14.7	R	15.8	10.6	6.6	.30	.79	3.43				A			
8.2	R							1	0.5		B	2.835	5.95	7.2
18.4	R	15.8	10.2	7.0	.18	.86	4.07		1.0		A			
12.7	R							2			A			
60.5	R									VOID				
31.8	R										A			
								3		VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 2.5 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. APHYRIC(?) BASALT
   T. S. 1-5, 1-100, 2-27
   Similar to Core 30.
   Medium-grained subophitic groundmass. Glass oxidized and replaced by smectite and carbonate; these phases and chlorite also in vesicles. Occasional plagioclase micro-phenocrysts.

2. (SPARSELY-) OLIVINE-PHYRIC BASALT
   T. S. 2-77
   Olivine phenocrysts up to 2 mm (>5%) and v. occasional plagioclase; micro-phenocrysts of picotite (~.4 mm) are common; groundmass is intergranular to ophanitic-plagioclase, pyroxene, magnetite and olivine; calcite infilling of veins and vesicles.

   Very oxidized and altered below 33-2-80; with much complex calcareous veining and abundant amygdules (decreasing downwards).

Site 332 Hole B Core 34 Cored Interval: 579.0-588.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
150.7	R	15.6	10.3	7.6	.29	.60	1.55				A			
8.0	R							1	0.5					
									1.0					
								2		VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 1.0 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY-PHYRIC BASALT
   T. S. 1-45, 1-129
   Continued from 33-3 and 33-2.
   Very sparse phenocrysts of olivine (1-5%) plagioclase (1-5%) ± augite (<1%) -olivine up to 3 mm; amygdules of calcite in parts; otherwise very massive basalt; chloritized in places - (substantial alteration).

Site 332 Hole B Core 35 Cored Interval: 588.5-598.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
								0						
13.6	R							1	0.5		A			
12.4	ShR	13.9	10.7	13.0	.20	.68	3.44		1.0		B	2.813	6.50	3.5
53.7	R							2		VOID	A			
								3			A			
											T,C			
								4		VOID				

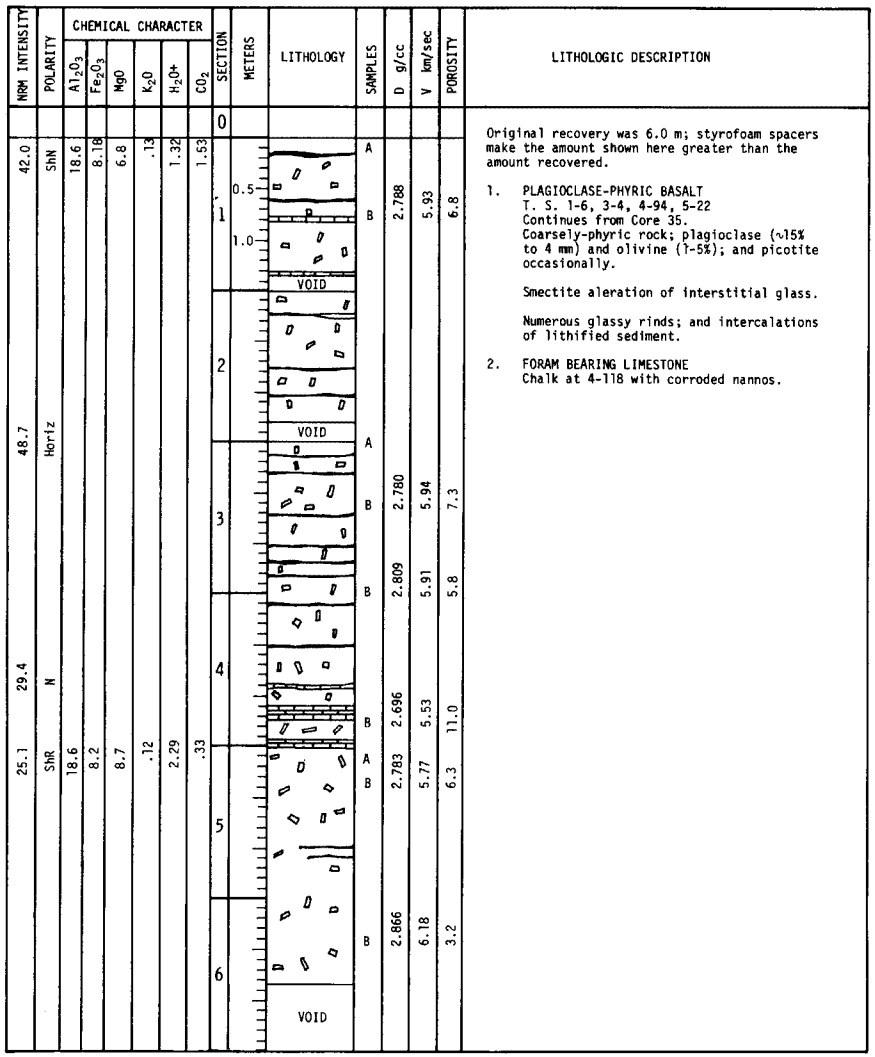
LITHOLOGIC DESCRIPTION

Original recovery was 4.0 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   T. S. 1-15, 2-66, 3-69
   Very coarsely-phyric; olivine (15-20%, to 5 mm); plagioclase <5% (to 1mm, or absent) ± take augite; phenocryst distribution becomes more irregular at base of unit; fresh euhedral picotite is common; groundmass is coarse-grained; plagioclase laths set in a finer matrix; much smectite, carbonate alteration; siliceous veins.

2. PLAGIOCLASE-PHYRIC BASALT
   Coarsely- to moderately-phyric (plagioclase>>olivine) basalt; fine-grained, with some glass. Becomes more coarsely-phyric (plagioclase ~20%, to ~5 mm) with depth in Sections 3 and 4.

Site 332 Hole B Core 36 Cored Interval: 598.0-607.5 m



LITHOLOGIC DESCRIPTION

Original recovery was 6.0 m; styrofoam spacers make the amount shown here greater than the amount recovered.

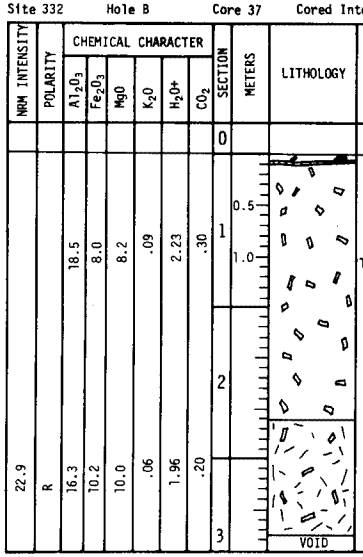
1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-6, 3-4, 4-94, 5-22
   Continues from Core 35.
   Coarsely-phyric rock; plagioclase (∿15% to 4 mm) and olivine (1-5%); and picotite occasionally.

   Smectite aleration of interstitial glass.

   Numerous glassy rinds; and intercalations of lithified sediment.

2. FORAM BEARING LIMESTONE
   Chalk at 4-118 with corroded nannos.

Site 332 Hole B Core 37 Cored Interval: 607.5-617.0 m



LITHOLOGIC DESCRIPTION

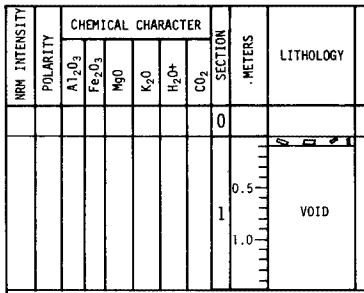
Original recovery was 2.5 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-113
   Continues from Cores 35 and 36.
   Veins of carbonate and zones of oxidized and chloritized palagonite; occasional (micro)-phenocrysts of olivine and picotite.

   Some smectite alteration of interstitial glass.

2. SPARSELY OLIVINE-PHYRIC BASALT
   Sparse phenocrysts of olivine (1-5%) and plagioclase (<1%); amygdules of smectite and carbonate.

Site 332 Hole B Core 38 Cored Interval: 617.0-626.5 m



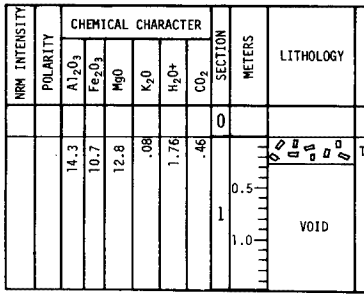
LITHOLOGIC DESCRIPTION

Original recovery was 0.06 m; styrofoam spacers make the amount shown here greater than the amount recovered.

This 1 piece is possibly accidental, but may represent a separate lithologic subunit.

1. OLIVINE AND PLAGIOCLASE-PHYRIC BASALT
   Olivine (∿5% to 3 mm) and plagioclase (∿5% to 7 mm) phenocrysts in a fine-grained groundmass - chloritized; possibly epidote on outside surface.

Site 332 Hole B Core 39 Cored Interval: 626.5-636.0 m



LITHOLOGIC DESCRIPTION

Original recovery was 0.15 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT (3 pieces)
   T. S. 1-2
   Phenocrysts of olivine (∿5%) and minor plagioclase and picotite. Fine-grained groundmass - olivine altered to iddingsite; vesicles filled with silica, possibly talc (?).

Site 332 Hole B Core 40 Cored Interval: 636.0-645.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
46.7	ShN	18.2	10.5	6.3	.50	2.22	.41	0						
101.8	N							1	0.5		A			
									1.0	VOID				
								2			A			
										VOID				
								3		VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 2.5 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   Continued from 39.

2. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-34
   Plagioclase phenocrysts (to 2 mm) >5% olivine (to 1 mm) <1%; plagioclase sericitized; quenched groundmass - small skeletal plagioclase in fibrous plag-pyroxene matrix; orange smectite as vesicle-filling; olivine possibly absent from groundmass.

   Much brecciated material (basalt, palagonite) and net-veining of calcite.

Site 332 Hole B Core 41 Cored Interval: 645.5-655.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
91.2	ShR	17.3	9.54	7.2	.15	1.13	.08	0						
41.0	ShR							1	0.5		A	2.521	5.22	20.5
									1.0		B			
								2			A			
										VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 1.9 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. OLIVINE-PHYRIC BASALT
   Olivine phenocrysts of ∿2 mm (∿5%) set in a fine-grained groundmass. This rock, associated with v. sparsely olivine-phyric material, and palagonite as brecciated zone 41-1 (3-80).

2. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-110, 2-42
   Plagioclase phenocryst (∿20%, and 3-4 mm) intersertal groundmass texture; no olivine (?). Glass oxidized and replaced by silica and chlorite; considerable alteration in sequence - associated with coarse breccia. Many calcite veins - also chlorite and hematite.

3. APHYRIC BASALT
   Brecciated and chloritized and traversed by glassy zone.

Site 332 Hole B Core 42 Cored Interval: 655.0-664.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
26.5	R	15.0	10.0	12.4	.09	1.48	.23	0						
15.1	R							1	0.5		A			
									1.0	VOID				
								2			A			
								3		VOID				

LITHOLOGIC DESCRIPTION

Original recovery was 2.3 m; styrofoam spacers make the amount shown here greater than the amount recovered.

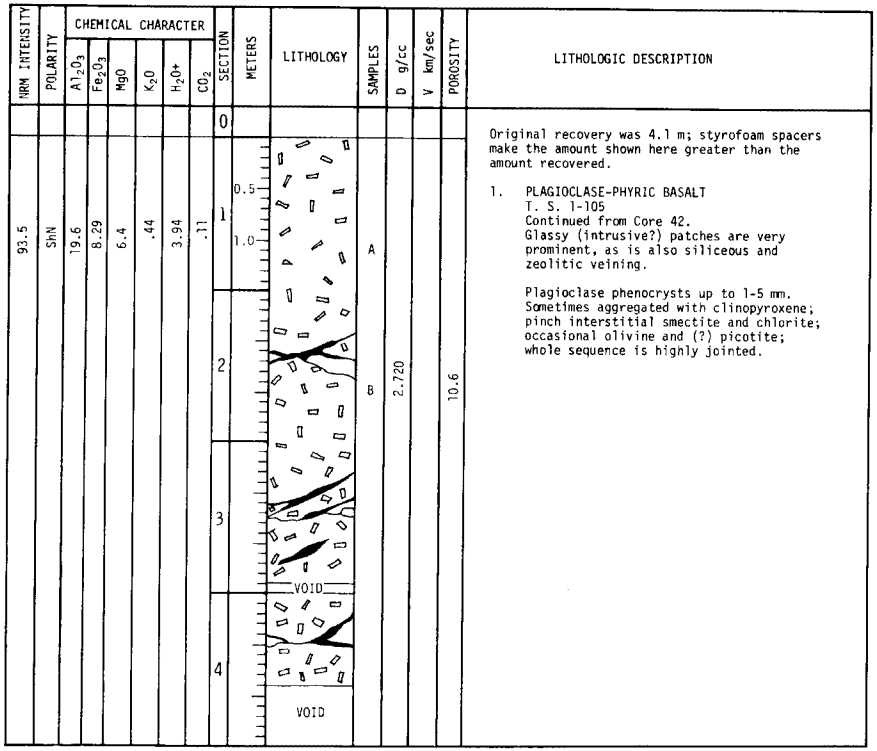
1. SPARSELY OLIVINE-PHYRIC BASALT
   T. S. 2-26
   Olivine phenocrysts to 2 mm but very sparse (<1%); subophitic groundmass; olivine iddingsitized; vesicles filled with chlorite and also silica and talc (?).

2. APHYRIC BASALT
   T. S. 1-59
   Abundant olivine in groundmass, also picotite; trencolite(?) in vein.

3. COARSELY OLIVINE-PHYRIC BASALT
   Olivine phenocrysts in 3 mm; abundant picotite.

4. PLAGIOCLASE-PHYRIC BASALT
   Plagioclase phenocrysts up to 4 mm; quite coarsely-phyric.

Site 332 Hole B Core 43 Cored Interval: 664.5-674.0 m



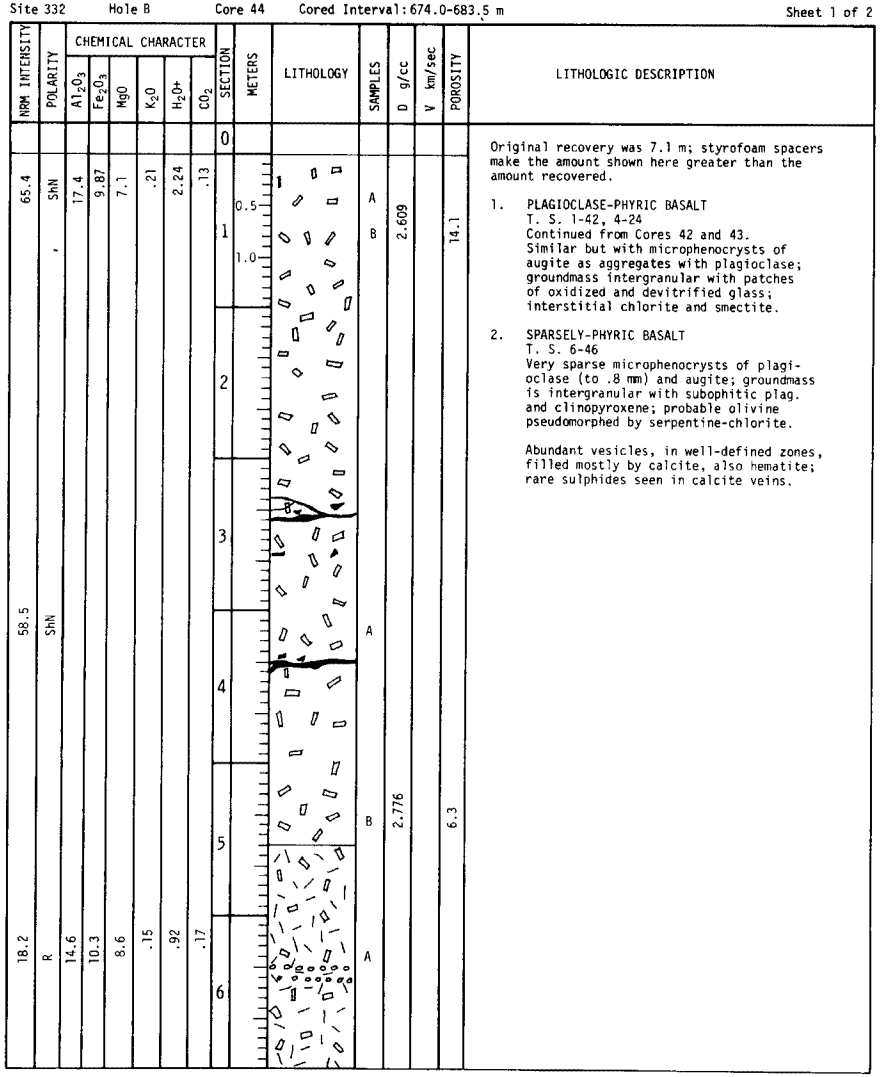
LITHOLOGIC DESCRIPTION

Original recovery was 4.1 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-105
   Continued from Core 42.
   Glassy (intrusive?) patches are very prominent, as is also siliceous and zeolitic veining.

   Plagioclase phenocrysts up to 1-5 mm. Sometimes aggregated with clinopyroxene; pinch interstitial smectite and chlorite; occasional olivine and (?) picotite; whole sequence is highly jointed.

Site 332 Hole B Core 44 Cored Interval: 674.0-683.5 m



LITHOLOGIC DESCRIPTION

Original recovery was 7.1 m; styrofoam spacers make the amount shown here greater than the amount recovered.

1. PLAGIOCLASE-PHYRIC BASALT
   T. S. 1-42, 4-24
   Continued from Cores 42 and 43.
   Similar but with microphenocrysts of augite as aggregates with plagioclase; groundmass intergranular with patches of oxidized and devitrified glass; interstitial chlorite and smectite.

2. SPARSELY-PHYRIC BASALT
   T. S. 6-46
   Very sparse microphenocrysts of plagioclase (to .8 mm) and augite; groundmass is intergranular with subophitic plag. and clinopyroxene; probable olivine pseudomorphed by serpentine-chlorite.

   Abundant vesicles, in well-defined zones, filled mostly by calcite, also hematite; rare sulphides seen in calcite veins.

Site 332 Hole B Core 44 Cored Interval: 674.0-683.5 m Sheet 2 of 2

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	FOSSIL CHARACTER: ABUND.	FOSSIL CHARACTER: PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE	LITHOLOGIC DESCRIPTION
					0					Sparsely-phyric basalt continued from Section 6, Sheet 1.
					1	0.5 1.0	VOID			

Site 332 Hole B Core 45 Cored Interval: 683.5-693.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 1.3 m; styrofoam spacers make the amount shown here greater than the amount recovered. 1. PLAGIOCLASE-PHYRIC BASALT As in Cores 42, 43 and 44. Much breccia associated with glassy (intrusive??) zones. Micro-glomerophyric plagioclase-pyroxene clots.
74.3	Horiz	18.0	11.2	8.3	.49	5.73	.35	1	0.5 1.0	T,C					

Site 332 Hole B Core 46 Cored Interval: 693.0-702.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 2.7 m; styrofoam spacers make the amount shown here greater than the amount recovered. 1. SPARSELY-PHYRIC BASALT T. S. 1-58 Very sparsely plagioclase-phyric; groundmass intergranular with subophitic patches; chlorite present interstitially and as vesicle-filling; considerable fracturing; alteration slight to moderate.
21.3	N	15.0	12.3	7.6	.16	.97	.19	1	0.5 1.0	VOID	A				
29.2	R							2		VOID					
								3		VOID					

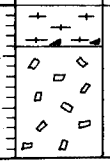
Site 332 Hole B Core 47 Cored Interval: 702.5-712.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 3.9 m; styrofoam spacers make the amount shown here greater than the amount recovered. 1. SPARSELY-PHYRIC BASALT T. S. 2-99 Continued from Core 46. Brecciated zone; fragments of basalt in fine chloritic matrix.
56.7	ShR	14.5	12.1	7.3	.07	.73	.11	1	0.5 1.0	VOID	A				
39.8	R							2			B	2.888	5.77	4.7	
								3							
								4		VOID					

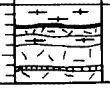
Site 332 Hole B Core 48 Cored Interval: 712.0-721.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 0.5 m; styrofoam spacers make the amount shown here greater than the amount recovered. 1. APHYRIC BASALT T. S. 1-146 Quenched groundmass; small plagioclase laths set in fine matrix of fibrous plagioclase and clinopyroxene. Vesicles partly filled with silica and zeolite(?); probably original microphenocrysts non-pseudomorphed by serpentine.
		15.4	10.1	8.4	.38	.91	.07	1	0.5 1.0		T,C T,C				

Site 332 Hole C Core 1 Cored Interval: 148.5-158.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER						SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
		Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2								
								0							Original recovery was 1.10 m. Styrofoam spacers make the amount shown here greater than the amount recovered. 1. PLAGIOCLASE-PHYRIC BASALT 2. NANNOFOSSIL CHALK
								1	0.5 1.0		B A				

Site 332 Hole D Core 1 Cored Interval: 142.0-148.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER						SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
		Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2								
								0							Original recovery was 0.35 m. Styrofoam spacers make the amount shown here greater than the amount recovered. 1. APHYRIC BASALT 2. NANNOFOSSIL CHALK
								1	0.5		A				

DEEP SEA DRILLING PROJECT

LEG 37 SITE 333 (HOLE 333)

SITE SUMMARY SHEET

POSITION: Latitude: 36°50.45'N Longitude: 33°40.05'W

Water depth (sea level): 1665.8 corrected meters, echo sounding

Bottom felt at: 1680.0 meters, drill pipe Penetration: 231.0 meters

Number of cores: 9 Total length of cored section: 69.5 meters

Total core recovered: 38.03 meters Percentage core recovery: 55%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 221.5 meters Nature: Foram-bearing nannofossil ooze

Age: Late early Pliocene

BASEMENT:

Depth subbottom: 221.5 meters Nature: Sparsely phyric basalt

PRINCIPAL RESULTS:

Site 333 was drilled in a postulated fault slope in the same basin as 332, but on the opposite (west) side. In Hole 333, nine cores were cut with a diamond bit. Drilling with this bit was slow, and when it was pulled it was found to have lost all of its surface diamonds. A total of 221.5 meters of Holocene to late early Pliocene nanno-foram ooze were penetrated. A few meters of basement were penetrated, but virtually no basalt was recovered.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 333 (HOLE 333A)

SITE SUMMARY SHEET

POSITION: Latitude: 36°50.45'N Longitude: 33°40.05'W

Water depth (sea level): 1665.8 corrected meters, echo sounding

Bottom felt at: 1680.0 meters, drill pipe Penetration: 529 meters

Number of cores: 11 Total length of cored section: 312 meters

Total core recovered: 25.2 meters Percentage core recovery: 8%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 219 meters Nature: Foram-bearing nannofossil ooze

Age: Late early Pliocene

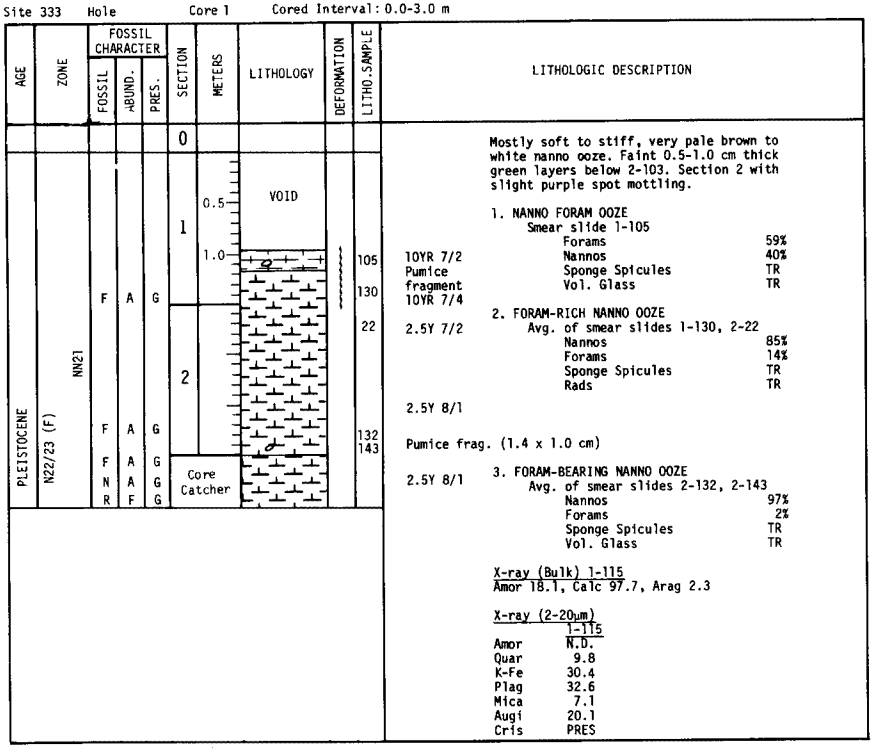
BASEMENT:

Depth subbottom: 219 meters Nature: Brecciated basalt

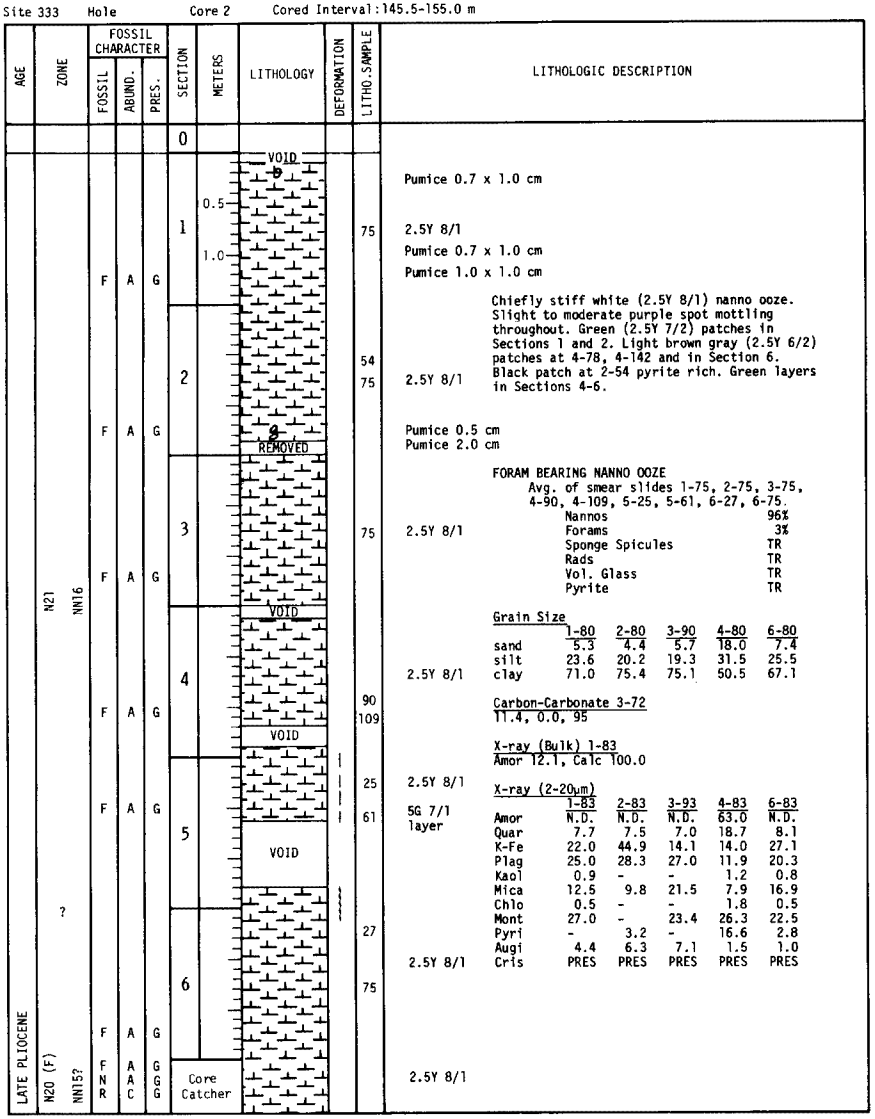
PRINCIPAL RESULTS:

Site 333 was drilled in postulated fault slope on opposite, west side, of basin from 332. Beneath 219 meters of Holocene to late early Pliocene nanno-foram ooze, 312 meters were drilled in acoustic basement, recovering 23.3 meters of heterogeneous, largely extrusive sequence of basalt, with considerable rubbly material, sedimentary breccias, and soft sediment interbeds. Basalts appear to correlate best with middle to lower basalt sequence in 332B. Core permitted on re-entry, but unstable hole conditions caused bit to stick irretrievably at 529 meters below mud line. Hole showed that deeper contact material is recoverable by drilling at the base of a fault scarp, but that drilling is more difficult.

Site 333 Hole Core 1 Cored Interval: 0.0-3.0 m



Site 333 Hole Core 2 Cored Interval: 145.5-155.0 m



Site 333 Hole Core 3 Cored Interval: 164.5-174.0 m

AGE: LATE PLIOCENE
ZONE: NN 15? ; N20 (F)

SECTION	FOSSIL	ABUND.	PRES.	LITHO. SAMPLE	COLOR
0					
1				75	2.5Y 8/1
2				62, 75	2.5Y 8/1
2	F	A	G		
3					2.5Y 8/1, 5G 7/1 layers, 2.5Y 8/1
3	F	A	G	75, 97, 102	
4				75	2.5Y 8/1
4	F	A	G		
5				75, 114	2.5Y 8/1, 5G 7/1 layers, 2.5Y 8/1, 5G 7/1 layers, 2.5Y 8/1, 5G 7/1 layers, 2.5Y 8/1
5	F	A	G		
6				75	2.5Y 8/1, 5G 7/1 layers, 2.5Y 8/1
6	F	A	G		
Core Catcher	F / N / R	A / A / F	G / G / G		2.5Y 8/1

METERS: 0.5, 1.0. LITHOLOGY: VOID (Section 6, base).

LITHOLOGIC DESCRIPTION

Stiff chiefly white (2.5Y 8/1) ooze with occasional green layers 0.5-1.0 cm thick. Slightly mottled throughout with purple spots. Light brown gray (2.5Y 6/2) patches (burrows?) in Sections 3-6. Greenish gray (2.5Y 7/2) patch at 2-96. Pyrite nodules at 2-48 and 5-68. Pyrite rich at 3-97.

FORAM-BEARING NANNO OOZE

Avg. of smear slides 1-75, 2-62, 2-75, 3-75, 3-102, 4-75, 5-75, 5-114, 6-75

Nannos	96%
Forams	2%
Sponge Spicules	1%
Rads	TR
Diatoms	TR
Vol. Glass	TR

Grain Size

	1-80	3-80	5-80
sand	6.6	6.9	5.5
silt	21.0	28.7	29.3
clay	72.5	64.4	65.2

Carbon-Carbonate 3-72
11.1, 0.1, 92

X-ray (Bulk) 1-83
Amor 10.3, calc 100.0

X-ray (2-20μm)

	1-83	2-83	3-83	4-66	5-83
Amor	N.D.	78.9	74.3	N.D.	80.5
Quar	8.3	11.1	20.0	6.3	8.3
K-Fe	25.7	9.2	14.2	17.2	9.7
Plag	31.2	23.3	13.7	21.6	26.4
Kaol	-	-	2.6	1.5	1.1
Mica	22.9	13.0	10.1	18.3	9.3
Chlo	-	1.5	1.2	0.5	1.2
Mont	-	29.7	34.5	23.4	27.2
Anal	-	-	-	1.1	0.8
Pyri	1.8	1.0	0.5	1.8	1.3
Amph	-	-	-	1.5	-
Augi	10.1	11.2	3.2	6.9	14.7
Cris	PRES	PRES	PRES	PRES	TR

Site 333 Hole Core 4 Cored Interval: 183.5-193.0 m

AGE: LATE PLIOCENE
ZONE: NN15 ; N20 (F)

SECTION	FOSSIL	ABUND.	PRES.	LITHO. SAMPLE	COLOR
0					
1				63, 75	2.5Y 8/1
1	F	A	G		
2				75	2.5Y 8/1
2	F	A	G		2.5Y 7/2 layers, 2.5Y 8/1
3				75	2.5Y 8/1
3	F	A	G		
4				75	2.5Y 8/1, 5G 7/1 layer
4	F	A	G		
5				75	2.5Y 8/1
5	F	A	G		
Core Catcher	F / N / R	A / A / R	G / G / G		2.5Y 8/1

METERS: 0.5, 1.0. LITHOLOGY: REMOVED (Section 4, base).

LITHOLOGIC DESCRIPTION

Stiff chiefly white (2.5Y 8/1) ooze with occasional green layers 0.5-1.0 cm thick. Slightly mottled throughout with purple spots. Purple patch at 1-63. Pyrite nodules at 1-143 and 2-45. Occasional light brown gray (2.5Y 6/2) patches may be filled burrows.

FORAM-BEARING NANNO OOZE

Avg. of smear slides 1-75, 2-75, 3-75, 4-75, 5-75

Nannos	96%
Forams	3%
Sponge SPicules	TR
Rads	TR
Pyrite	TR
Vol. Glass	TR

Grain Size

	1-80	3-80	5-80
sand	10.5	5.7	4.2
silt	38.2	50.3	31.7
clay	51.2	44.0	64.1

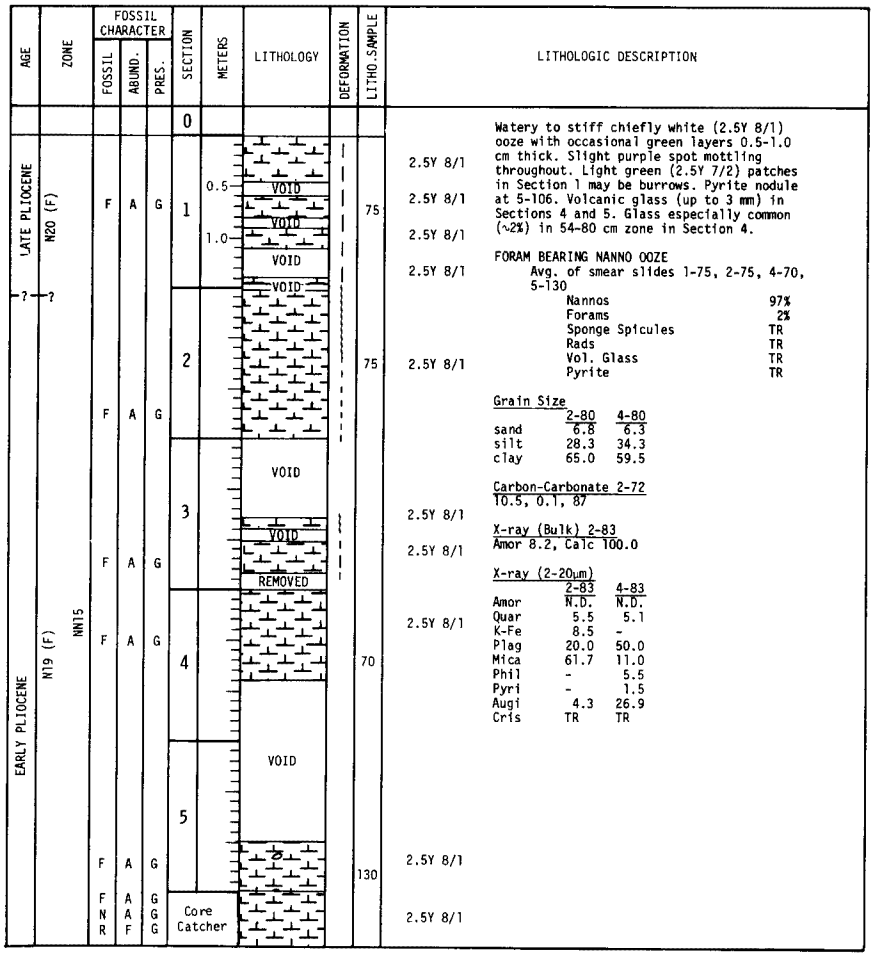
Carbon-Carbonate 3-72
11.5, 0.1, 95

X-ray (Bulk) 1-83
Amor 8.4, Calc 100.0

X-ray (2-20μm)

	1-83	2-83	3-83	4-83	5-83
Amor	N.D.	N.D.	N.D.	N.D.	N.D.
Quar	12.9	16.0	8.3	14.4	4.7
K-Fe	8.9	15.6	11.6	-	-
Plag	33.3	26.0	34.1	48.5	47.5
Kaol	-	-	-	2.7	-
Mica	23.4	12.0	37.4	14.3	11.1
Chlo	1.3	1.3	-	1.1	-
Phil	-	9.6	-	-	-
Pyri	2.2	0.4	1.5	-	1.6
Augi	18.1	18.9	7.1	19.0	35.2
Cris	TR	TR	TR	TR	-

Site 333 Hole Core 5 Cored Interval: 193.0-202.5 m



Watery to stiff chiefly white (2.5Y 8/1) ooze with occasional green layers 0.5-1.0 cm thick. Slight purple spot mottling throughout. Light green (2.5Y 7/2) patches in Section 1 may be burrows. Pyrite nodule at 5-106. Volcanic glass (up to 3 mm) in Sections 4 and 5. Glass especially common (~2%) in 54-80 cm zone in Section 4.

FORAM BEARING NANNO OOZE

Avg. of smear slides 1-75, 2-75, 4-70, 5-130

Nannos	97%
Forams	2%
Sponge Spicules	TR
Rads	TR
Vol. Glass	TR
Pyrite	TR

Grain Size

	2-80	4-80
sand	6.8	6.3
silt	28.3	34.3
clay	65.0	59.5

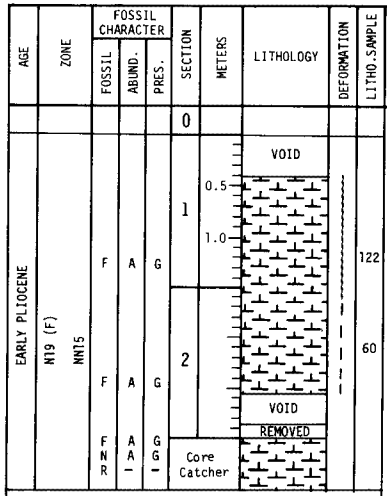
Carbon-Carbonate 2-72
10.5, 0.1, 87

X-ray (Bulk) 2-83
Amor 8.2, Calc 100.0

X-ray (2-20μm)

	2-83	4-83
Amor	N.D.	N.D.
Quar	5.5	5.1
K-Fe	8.5	-
Plag	20.0	50.0
Mica	61.7	11.0
Phil	-	5.5
Pyri	-	1.5
Augi	4.3	26.9
Cris	TR	TR

Site 333 Hole Core 6 Cored Interval: 202.5-212.0 m



Stiff chiefly white (2.5Y 8/1) nanno ooze with slight purple spot mottling. Green (5G 7/1) patches at 1-72 and 1-117 and from 69-87 in Section 2. Black volcanic glass specks (up to 3 mm) above 1-102 make up 2% of sediment.

2.5Y 8/1

FORAM-BEARING NANNO OOZE

Avg. of smear slides 1-122, 2-60

Nannos	97%
Forams	2%
Sponge SPicules	TR
Vol. Glass	TR
Pyrite	TR

2.5Y 8/1

Grain Size

	1-80	2-80
sand	6.0	3.9
silt	31.5	32.7
clay	62.5	63.4

Carbon-Carbonate 1-72
11.5, 0.1, 95

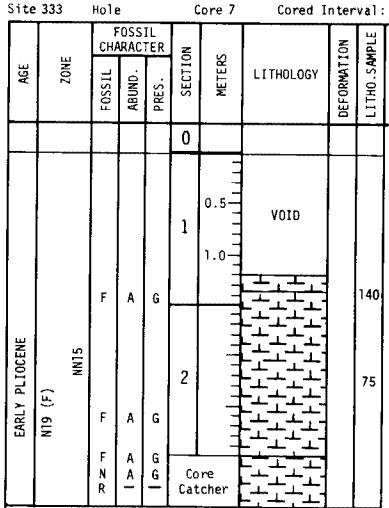
2.5Y 8/1

X-ray (Bulk) 1-83
Amor 6.9, Calc 100.0

X-ray (2-20μm)

	1-83	2-83
Amor	N.D.	N.D.
Quar	8.0	5.0
Plag	46.7	31.9
Mica	15.6	16.2
Mont	-	25.2
Phil	-	14.4
Pyri	-	1.3
Augi	29.7	6.0
Cris	PRES	-

Site 333 Hole Core 7 Cored Interval: 212.0-221.5 m



Watery to very stiff white (2.5Y 8/1 to 10YR 8/2) ooze with very slight purple spot mottling. Watery above contact at 1-133. Black specks of volcanic glass (up to 3 mm in size) in Section 1, 123-133, and Section 2, 51-64.

FORAM BEARING NANNO OOZE

Avg. of smear slides 1-140, 2-75

Nannos	96%
Forams	3%
Sponge Spicules	TR
Vol. Glass	TR

2.5Y 8/1
10YR 8/1

10YR 8/1

to

10YR 8/2

10YR 8/2

Grain Size

	2-1
sand	7.6
silt	33.1
clay	59.3

Carbon-Carbonate 2-72
11.1, 0.1, 92

X-ray (Bulk) 2-83
Amor 9.5, Calc 100.0

X-ray (2-20μm)

	2-83
Amor	49.1
Quar	3.0
Plag	17.8
Mica	3.4
Mont	19.2
Phil	35.7
Augi	20.9

Site 333 Hole Core 8 Cored Interval: 221.5-226.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 0.03 m; styrofoam spacers make the amount of basalt shown here greater than the amount recovered. SPARSELY PHYRIC BASALT

Site 333 Hole Core 9 Cored Interval: 226.5-231.0 m

AGE	ZONE	FOSSIL CHARACTER FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE	LITHOLOGIC DESCRIPTION
					0					Recovery was 0.00 percent.

Site 333 Hole A Core 1 Cored Interval: 217.0-225.0 m Sheet 1 of 2, sediment recovery.

AGE	ZONE	FOSSIL CHARACTER FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE	LITHOLOGIC DESCRIPTION
					0					
EARLY PLIOCENE	N19 (F) NN15	F R	A A C	G G G	1	0.5 1.0	VOID		80 146 27 40	Stiff chiefly white (2.5Y 8/1) ooze with moderate purple spot mottling. Approx. 15 light green layers in Section 1. Two thicker (2 cm) green layers in Section 2. Some light brown gray (2.5Y 6/2) patch mottling. 2.5Y 8/1 FORAM BEARING NANNO OOZE Avg. of Smear slides 1-80, 1-146, 2-27, 2-40 Nannos 95% Forams 4% Sponge SPicules TR Diatoms TR 2.5Y 8/1 Vol. Glass TR Pyrite TR Grain Size 1-80 sand 7.2 silt 32.8 clay 60.0 Carbon-Carbonate 1-72 11.3, 0.1, 93 X-ray (Bulk) 1-83 Amor 6.4, Calc 100.0

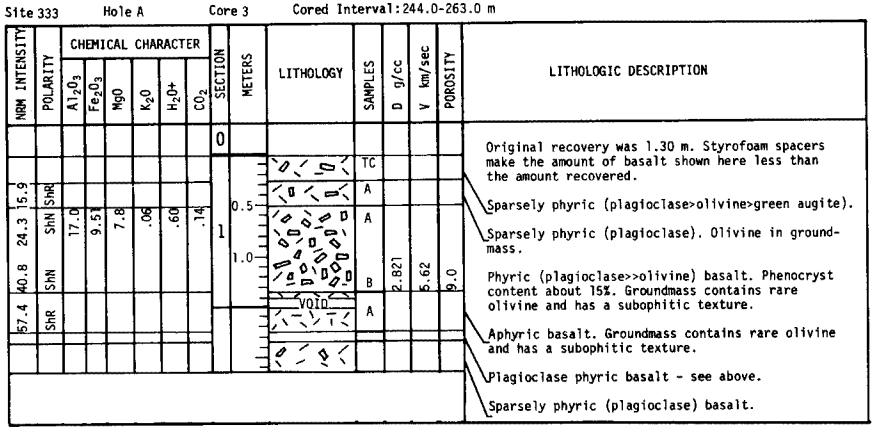
Site 333 Hole A Core 1 Cored Interval: 217.0-225.0 m Sheet 2 of 2, hard rock recovery.

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Sediment - see Sheet 1
								1	0.5 1.0						Baked carbonate. Sparsely olivine-phyric basalt. Most phenocrysts <1 mm. Groundmass is rapidly quenched with skeletal plagioclase and fibrous pyroxene. Olivine in groundmass.
								2							Breccia: polymict with clasts of aphyric and ol-plag phyric basalt as well as olivine phyric basalt. Carbonate with glass and paragonite clasts. Sparsely olivine-phyric.
31.2 56.6	ShN ShR	14.8	9.5	10.0	.10	1.08	.13	3			A B	2.849	5.40	7.0	
								Core Catcher							

Site 333 Hole A Core 2 Cored Interval: 225.0-244.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 1.10 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered. Breccia: carbonate and (glass)-palagonite. Sparsely olivine phyric basalt. Groundmass has abundant olivine and a quench texture (see Core 1).
25.8 36.9	ShN N							1	0.5 1.0		B A	2.830	5.89	8.1	
26.4	ShR									VOID	A				

Site 333 Hole A Core 3 Cored Interval: 244.0-263.0 m



LITHOLOGIC DESCRIPTION

Original recovery was 1.30 m. Styrofoam spacers make the amount of basalt shown here less than the amount recovered.

Sparsely phyric (plagioclase>olivine>green augite).

Sparsely phyric (plagioclase). Olivine in groundmass.

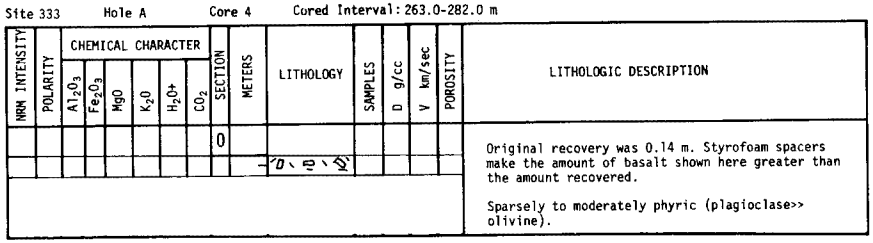
Phyric (plagioclase>>olivine) basalt. Phenocryst content about 15%. Groundmass contains rare olivine and has a subophitic texture.

Aphyric basalt. Groundmass contains rare olivine and has a subophitic texture.

Plagioclase phyric basalt - see above.

Sparsely phyric (plagioclase) basalt.

Site 333 Hole A Core 4 Cored Interval: 263.0-282.0 m

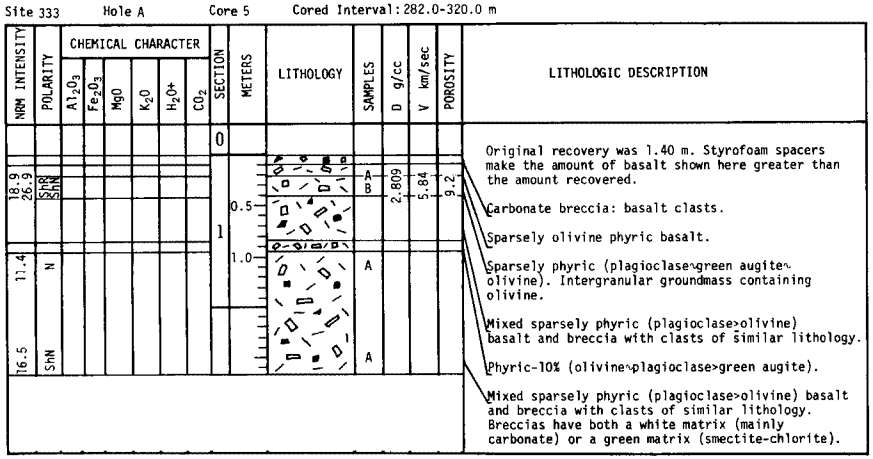


LITHOLOGIC DESCRIPTION

Original recovery was 0.14 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered.

Sparsely to moderately phyric (plagioclase>> olivine).

Site 333 Hole A Core 5 Cored Interval: 282.0-320.0 m



LITHOLOGIC DESCRIPTION

Original recovery was 1.40 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered.

Carbonate breccia: basalt clasts.

Sparsely olivine phyric basalt.

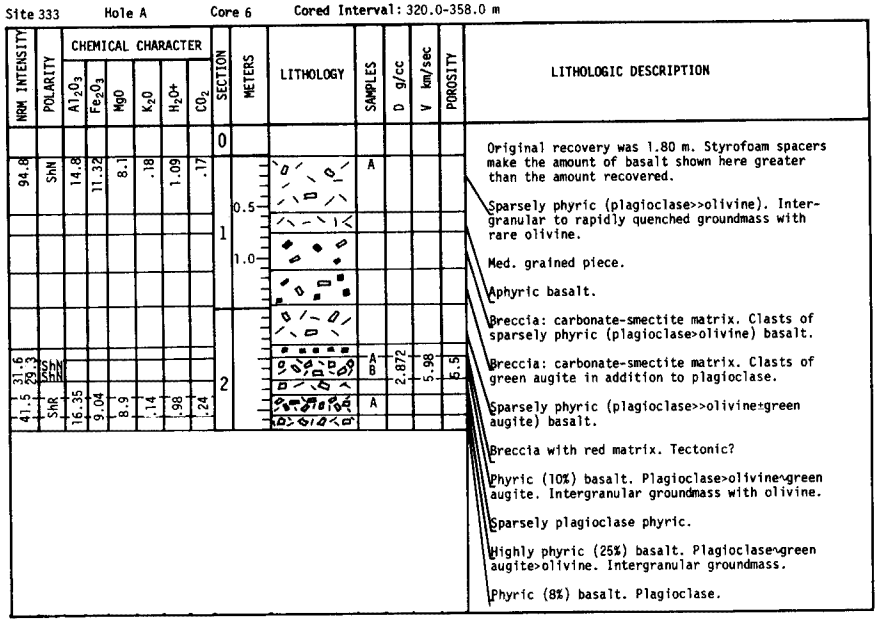
Sparsely phyric (plagioclase>green augite>olivine). Intergranular groundmass containing olivine.

Mixed sparsely phyric (plagioclase>olivine) basalt and breccia with clasts of similar lithology.

Phyric-10% (olivine>plagioclase>green augite).

Mixed sparsely phyric (plagioclase>olivine) basalt and breccia with clasts of similar lithology. Breccias have both a white matrix (mainly carbonate) or a green matrix (smectite-chlorite).

Site 333 Hole A Core 6 Cored Interval: 320.0-358.0 m



LITHOLOGIC DESCRIPTION

Original recovery was 1.80 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered.

Sparsely phyric (plagioclase>>olivine). Intergranular to rapidly quenched groundmass with rare olivine.

Med. grained piece.

Aphyric basalt.

Breccia: carbonate-smectite matrix. Clasts of sparsely phyric (plagioclase>olivine) basalt.

Breccia: carbonate-smectite matrix. Clasts of green augite in addition to plagioclase.

Sparsely phyric (plagioclase>>olivine±green augite) basalt.

Breccia with red matrix. Tectonic?

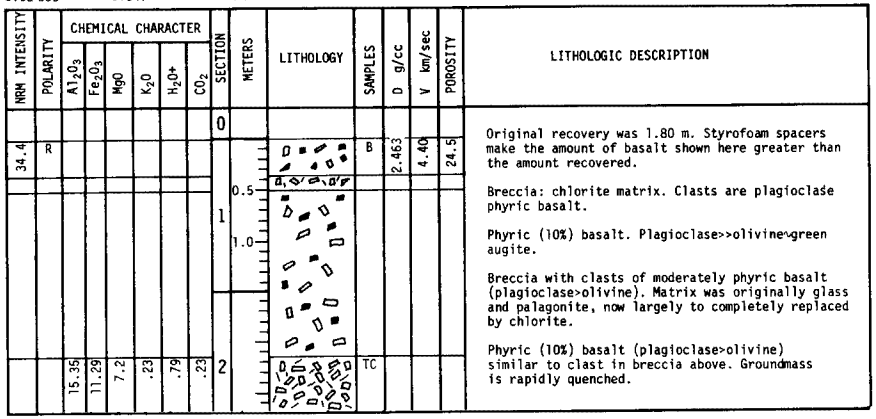
Phyric (10%) basalt. Plagioclase>olivine>green augite. Intergranular groundmass with olivine.

Sparsely plagioclase phyric.

Highly phyric (25%) basalt. Plagioclase>green augite>olivine. Intergranular groundmass.

Phyric (8%) basalt. Plagioclase.

Site 333 Hole A Core 7 Cored Interval: 358.0-396.0 m



LITHOLOGIC DESCRIPTION

Original recovery was 1.80 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered.

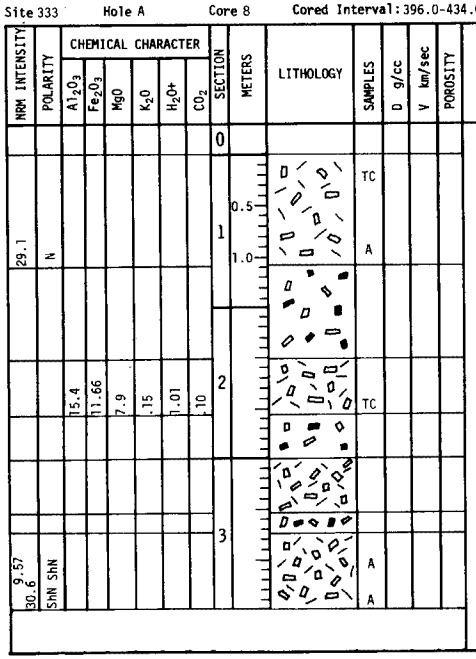
Breccia: chlorite matrix. Clasts are plagioclase phyric basalt.

Phyric (10%) basalt. Plagioclase>>olivine>green augite.

Breccia with clasts of moderately phyric basalt (plagioclase>olivine). Matrix was originally glass and palagonite, now largely to completely replaced by chlorite.

Phyric (10%) basalt (plagioclase>olivine) similar to clast in breccia above. Groundmass is rapidly quenched.

Site 333 Hole A Core 8 Cored Interval: 396.0-434.0 m Sheet 1 of 2



LITHOLOGIC DESCRIPTION

Original recovery was 5.82 m. Styrofoam spacers make the amount of basalt shown here greater than the amount recovered.

Mixed unit. Sparsely to moderately plagioclase phyric basalt. Rare olivine and green augite phenocrysts found in some pieces. Several pieces are highly vesicular. Olivine present in groundmass.

Breccia: matrix is glass-palagonite now mostly or completely replaced by chlorite. Clasts are sparsely to moderately phyric (plagioclase>> olivine) basalt.

Moderately (8%) plagioclase phyric basalt.

Augite and olivine in thin section.

Breccia: similar to above.

Moderately (9%) plagioclase phyric basalt.

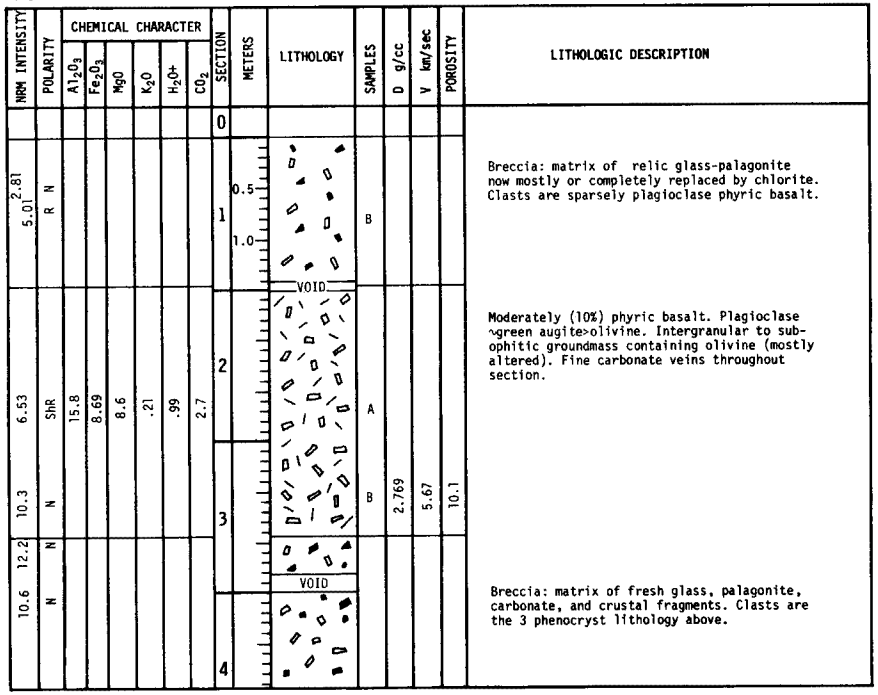
Breccia: similar to above.

Contact seen in one piece (8-3 #9A)

Moderately (8-10%) phyric basalt (plagioclase >green augite>olivine). Intergranular groundmass containing olivine.

No augite or olivine.

Site 333 Hole A Core 8 Cored Interval: 396.0-434.0 m Sheet 2 of 2



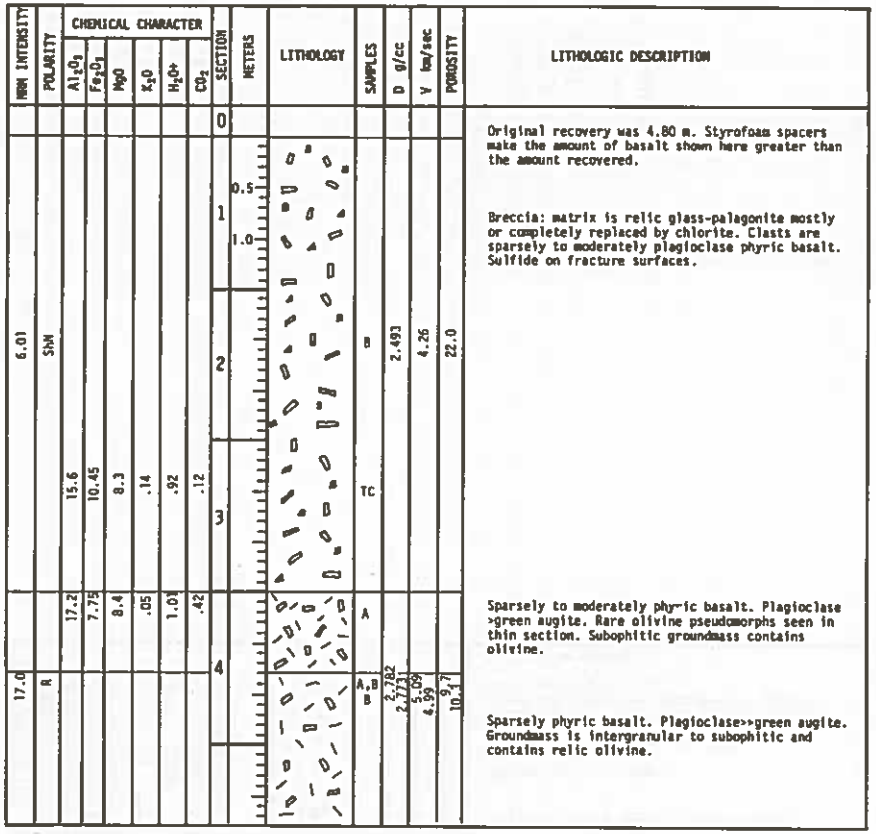
LITHOLOGIC DESCRIPTION

Breccia: matrix of relic glass-palagonite now mostly or completely replaced by chlorite. Clasts are sparsely plagioclase phyric basalt.

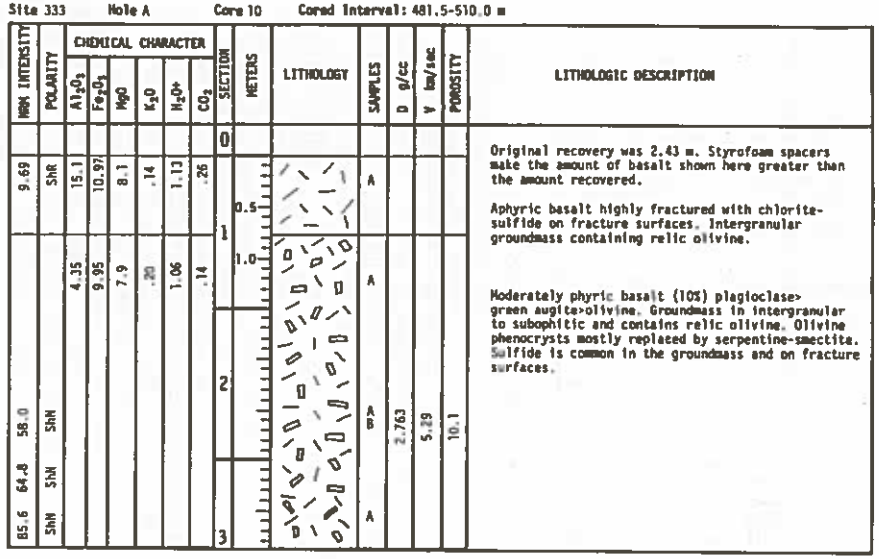
Moderately (10%) phyric basalt. Plagioclase ~green augite>olivine. Intergranular to subophitic groundmass containing olivine (mostly altered). Fine carbonate veins throughout section.

Breccia: matrix of fresh glass, palagonite, carbonate, and crustal fragments. Clasts are the 3 phenocryst lithology above.

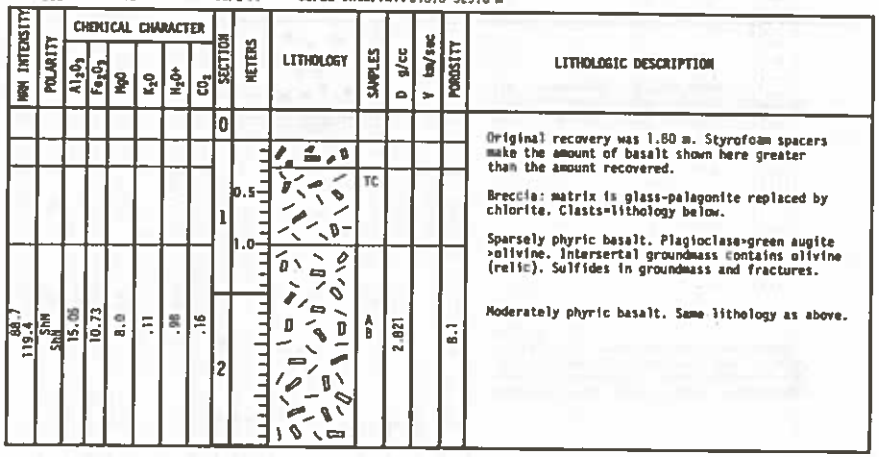
Site 333 Hole A Core 9 Cored Interval: 434.0-481.5 m



Site 333 Hole A Core 10 Cored Interval: 481.5-510.0 m



Site 333 Hole A Core 11 Cored Interval: 510.0-529.0 m



DEEP SEA DRILLING PROJECT

LEG 37 SITE 334 (HOLE 334)

SITE SUMMARY SHEET

POSITION: Latitude: 37°02.13'N Longitude: 34°24.87'W

Water depth (sea level): 2619 corrected meters, echo sounding

Bottom felt at: 2632 meters, drill pipe Penetration: 376.5 meters

Number of cores: 27 Total length of cored section: 253 meters

Total core recovered: 99.55 meters Percentage core recovery: 39%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 254 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Miocene

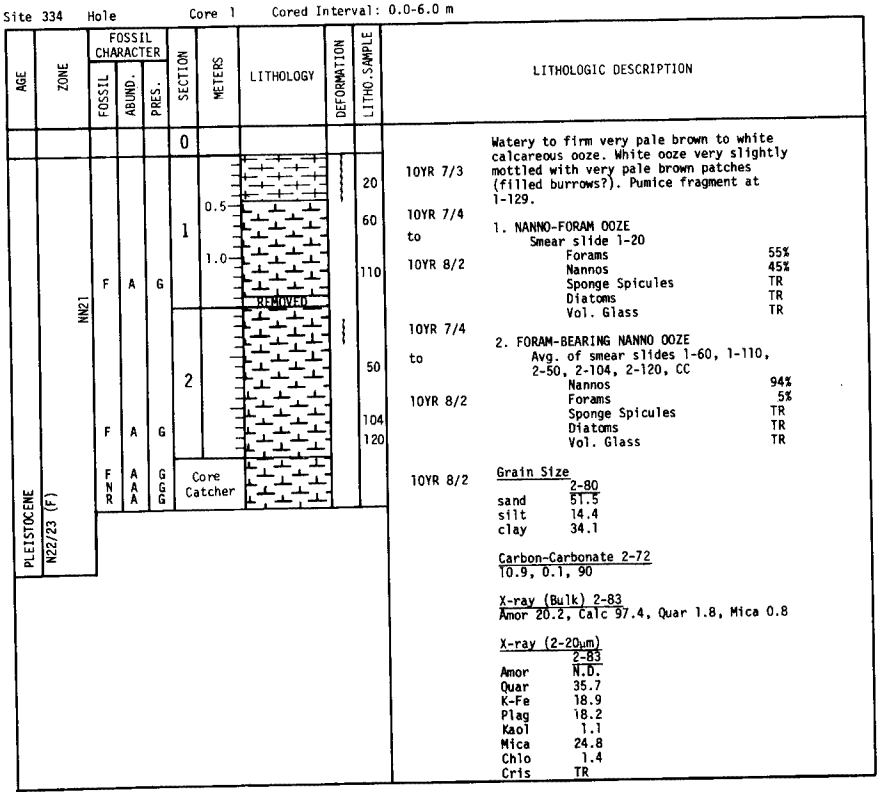
BASEMENT:

Depth subbottom: 259.5 meters Nature: Basalt overlying a gabbro/peridotite sequence

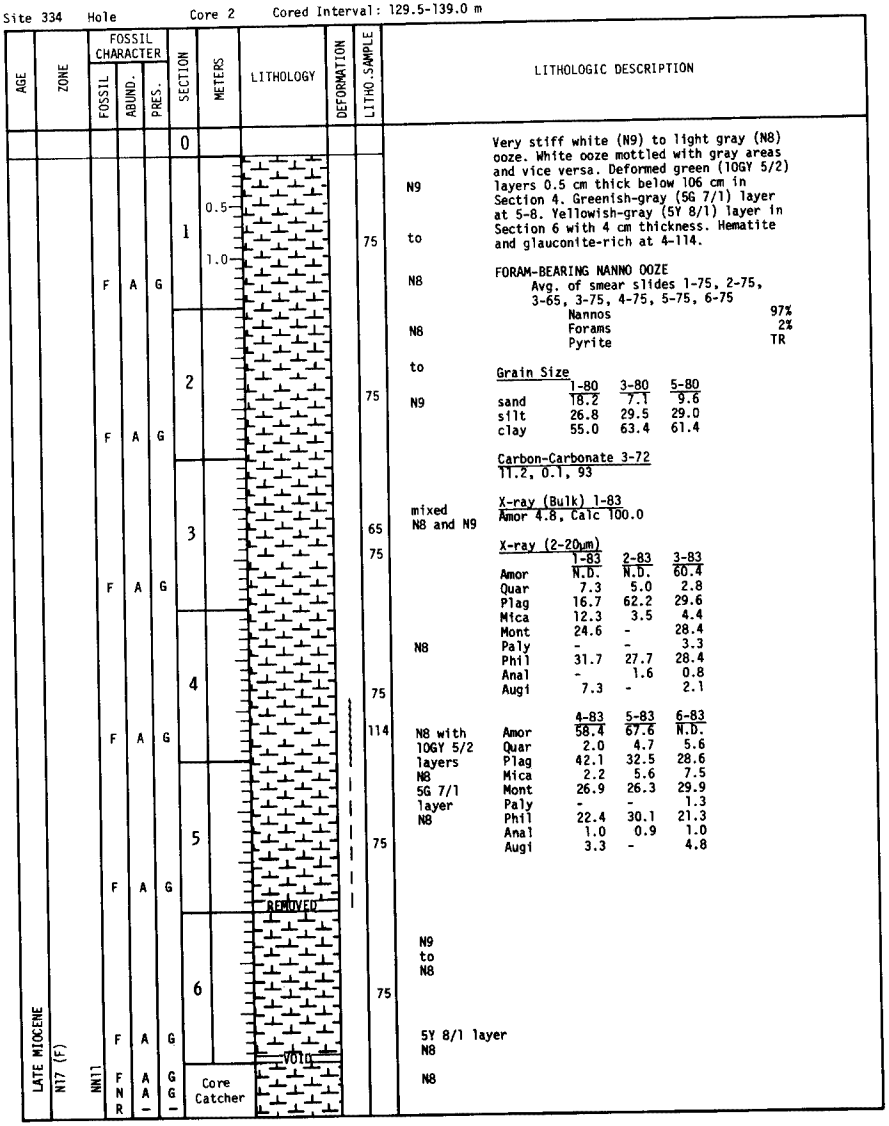
PRINCIPAL RESULTS:

Site 334 was drilled on a steep east-facing slope (fault scarp?) in a small, deep basin near the middle of magnetic anomaly 5. Acoustic basement was found beneath 254 meters of Recent to Late Miocene foram-bearing nannofossil ooze, and was drilled to 123.5 meters with 20 percent recovery. Basement consists of an upper 80-meter section of largely aphyric basalt and a lower 47.5 meters of fresh, coarse-grained gabbro, serpentinized olivine gabbro, serpentinized peridotite, and sedimentary and tectonic breccias. Such shallow occurrence of the deep plutonic assemblage was unexpected at this site. Sedimentary breccias with gabbro and periodtite clasts in a nanno-foram ooze matrix occur interlayered in the gabbro/peridotite complex and may reflect surface exposure of a melange in or near the median valley of the mid-Atlantic Ridge prior to burial by later basaltic extrusions. It is probable that uplift along the east-facing slope also assisted in bringing the gabbro-peridotite complex to a shallow depth. The plutonic rocks show mainly primary igneous textures and range from very fresh to highly hydrated. Textures are suggestive of a cumulative origin for the peridotites and some of the gabbros.

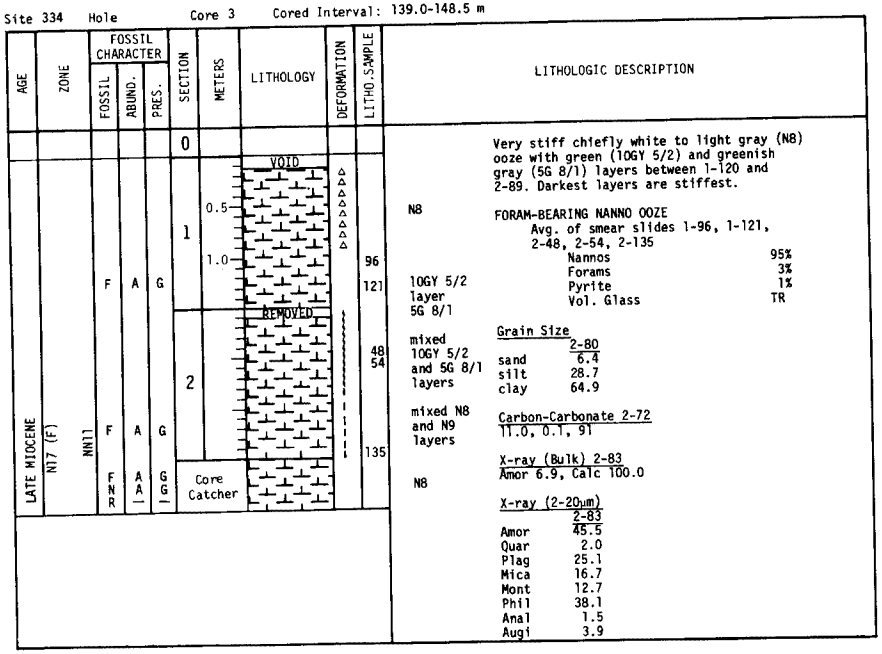
Site 334 Hole Core 1 Cored Interval: 0.0-6.0 m



Site 334 Hole Core 2 Cored Interval: 129.5-139.0 m



Site 334 Hole Core 3 Cored Interval: 139.0-148.5 m



Very stiff chiefly white to light gray (N8) ooze with green (10GY 5/2) and greenish gray (5G 8/1) layers between 1-120 and 2-89. Darkest layers are stiffest.

N8

FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-96, 1-121, 2-48, 2-54, 2-135

Nannos	95%
Forams	3%
Pyrite	1%
Vol. Glass	TR

10GY 5/2 layer
5G 8/1

mixed 10GY 5/2 and 5G 8/1 layers

mixed N8 and N9 layers

N8

Grain Size

	2-80
sand	6.4
silt	28.7
clay	64.9

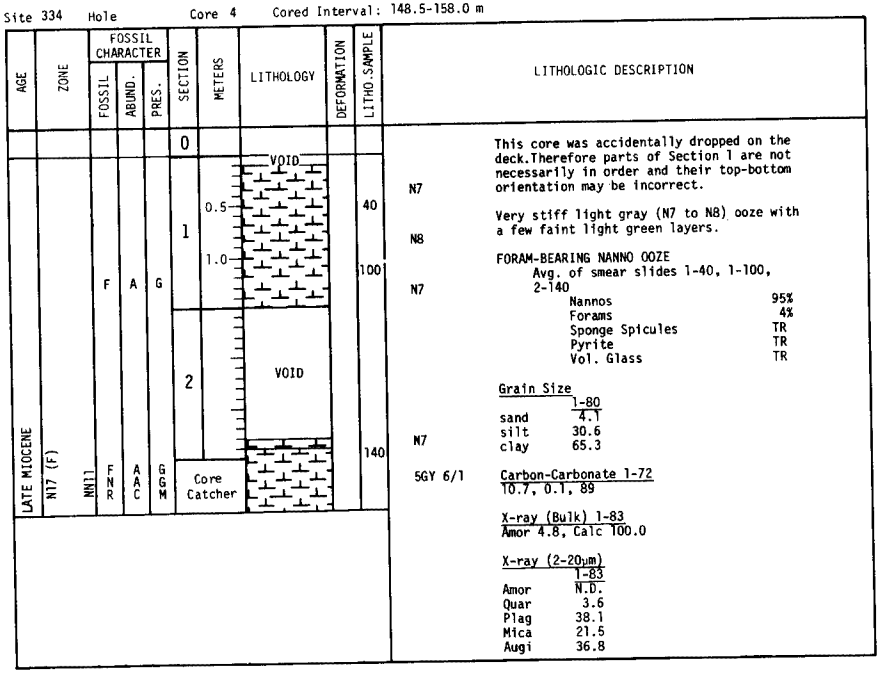
Carbon-Carbonate 2-72
11.0, 0.1, 91

X-ray (Bulk) 2-83
Amor 6.9, Calc 100.0

X-ray (2-20μm)

	2-83
Amor	45.5
Quar	2.0
Plag	25.1
Mica	16.7
Mont	12.7
Phil	38.1
Anal	1.5
Augi	3.9

Site 334 Hole Core 4 Cored Interval: 148.5-158.0 m



This core was accidentally dropped on the deck. Therefore parts of Section 1 are not necessarily in order and their top-bottom orientation may be incorrect.

N7

Very stiff light gray (N7 to N8) ooze with a few faint light green layers.

N8

FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-40, 1-100, 2-140

Nannos	95%
Forams	4%
Sponge Spicules	TR
Pyrite	TR
Vol. Glass	TR

N7

5GY 6/1

Grain Size	1-80
sand	4.1
silt	30.6
clay	65.3

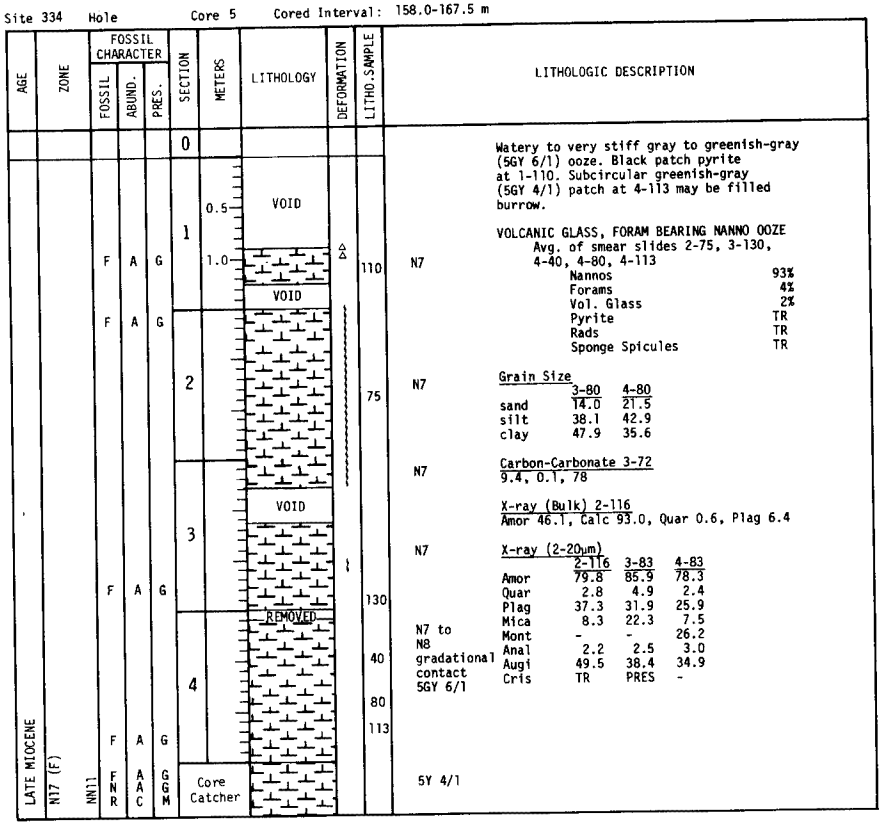
Carbon-Carbonate 1-72
10.7, 0.1, 89

X-ray (Bulk) 1-83
Amor 4.8, Calc 100.0

X-ray (2-20μm)

	1-83
Amor	N.D.
Quar	3.6
Plag	38.1
Mica	21.5
Augi	36.8

Site 334 Hole Core 5 Cored Interval: 158.0-167.5 m



Watery to very stiff gray to greenish-gray (5GY 6/1) ooze. Black patch pyrite at 1-110. Subcircular greenish-gray (5GY 4/1) patch at 4-113 may be filled burrow.

N7

VOLCANIC GLASS, FORAM BEARING NANNO OOZE
Avg. of smear slides 2-75, 3-130, 4-40, 4-80, 4-113

Nannos	93%
Forams	4%
Vol. Glass	2%
Pyrite	TR
Rads	TR
Sponge Spicules	TR

N7

Grain Size

	3-80	4-80
sand	14.0	21.5
silt	38.1	42.9
clay	47.9	35.6

N7

Carbon-Carbonate 3-72
9.4, 0.1, 78

X-ray (Bulk) 2-116
Amor 46.1, Calc 93.0, Quar 0.6, Plag 6.4

N7

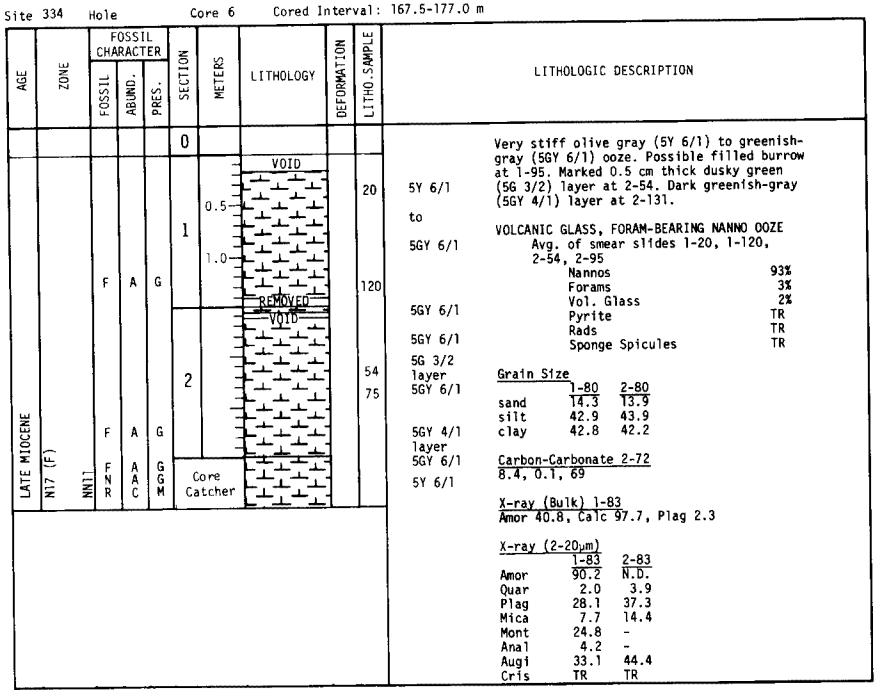
X-ray (2-20μm)

	2-116	3-83	4-83
Amor	79.8	85.9	78.3
Quar	2.8	4.9	2.4
Plag	37.3	31.9	25.9
Mica	8.3	22.3	7.5
Mont	-	-	26.2
Anal	2.2	2.5	3.0
Augi	49.5	38.4	34.9
Cris	TR	PRES	-

N7 to N8 gradational contact 5GY 6/1

5Y 4/1

Site 334 Hole Core 6 Cored Interval: 167.5-177.0 m



Very stiff olive gray (5Y 6/1) to greenish-gray (5GY 6/1) ooze. Possible filled burrow at 1-95. Marked 0.5 cm thick dusky green (5G 3/2) layer at 2-54. Dark greenish-gray (5GY 4/1) layer at 2-131.

VOLCANIC GLASS, FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-20, 1-120, 2-54, 2-95

Nannos	93%
Forams	3%
Vol. Glass	2%
Pyrite	TR
Rads	TR
Sponge Spicules	TR

Grain Size

	1-80	2-80
sand	14.3	13.9
silt	42.9	43.9
clay	42.8	42.2

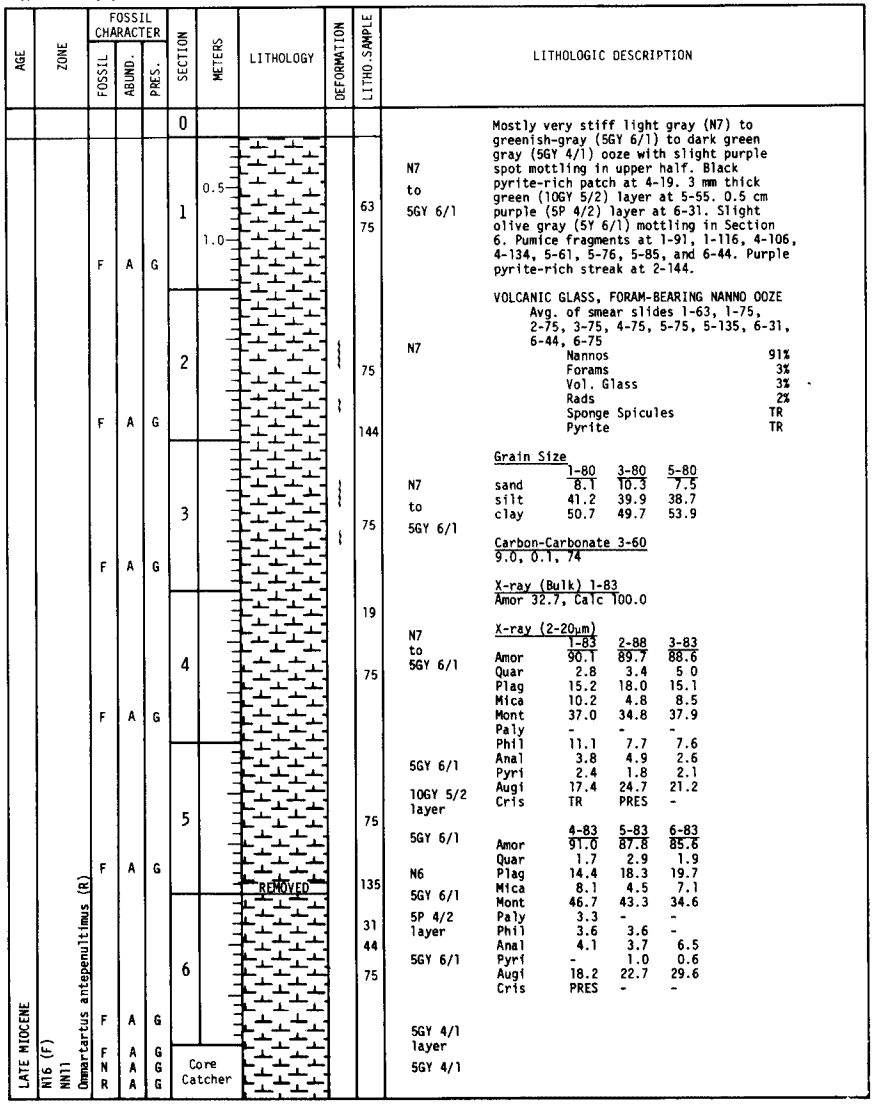
Carbon-Carbonate 2-72
8.4, 0.1, 69

X-ray (Bulk) 1-83
Amor 40.8, Calc 97.7, Plag 2.3

X-ray (2-20μm)

	1-83	2-83
Amor	90.2	N.D.
Quar	2.0	3.9
Plag	28.1	37.3
Mica	7.7	14.4
Mont	24.8	-
Anal	4.2	-
Augi	33.1	44.4
Cris	TR	TR

Site 334 Hole Core 7 Cored Interval: 177.0-186.5 m



Mostly very stiff light gray (N7) to greenish-gray (5GY 6/1) to dark green gray (5GY 4/1) ooze with slight purple spot mottling in upper half. Black pyrite-rich patch at 4-19. 3 mm thick green (10GY 5/2) layer at 5-55. 0.5 cm purple (5P 4/2) layer at 6-31. Slight olive gray (5Y 6/1) mottling in Section 6. Pumice fragments at 1-91, 1-116, 4-106, 4-134, 5-61, 5-76, 5-85, and 6-44. Purple pyrite-rich streak at 2-144.

VOLCANIC GLASS, FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-63, 1-75, 2-75, 3-75, 4-75, 5-75, 5-135, 6-31, 6-44, 6-75

Nannos	91%
Forams	3%
Vol. Glass	3%
Rads	2%
Sponge Spicules	TR
Pyrite	TR

Grain Size

	1-80	3-80	5-80
sand	8.1	10.3	7.5
silt	41.2	39.9	38.7
clay	50.7	49.7	53.9

Carbon-Carbonate 3-60
9.0, 0.1, 74

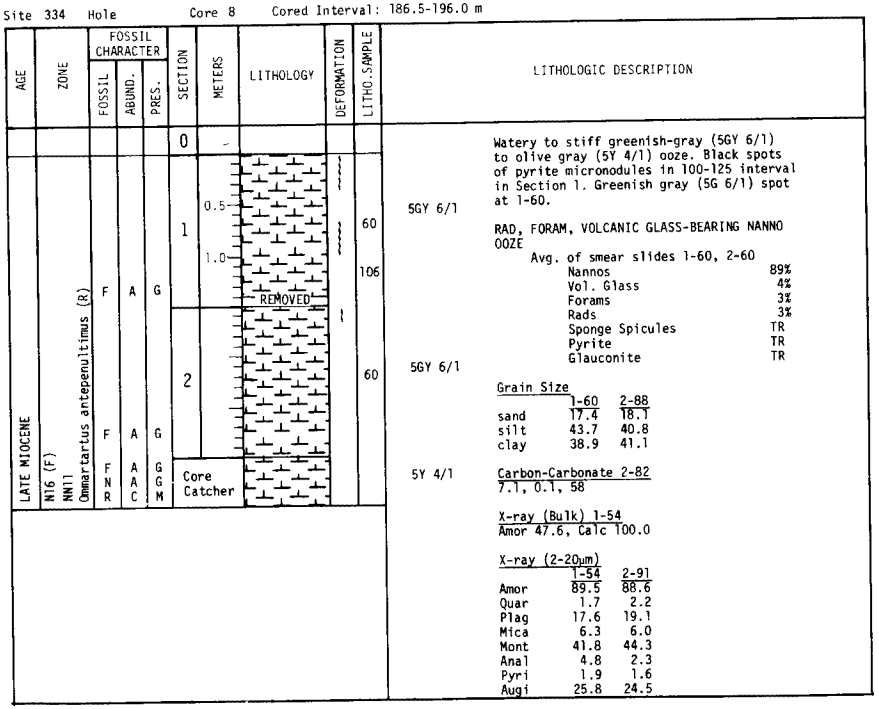
X-ray (Bulk) 1-83
Amor 32.7, Calc 100.0

X-ray (2-20μm)

	1-83	2-88	3-83
Amor	90.1	89.7	88.6
Quar	2.8	3.4	5 0
Plag	15.2	18.0	15.1
Mica	10.2	4.8	8.5
Mont	37.0	34.8	37.9
Paly	-	-	-
Phil	11.1	7.7	7.6
Anal	3.8	4.9	2.6
Pyri	2.4	1.8	2.1
Augi	17.4	24.7	21.2
Cris	TR	PRES	-

	4-83	5-83	6-83
Amor	91.0	87.8	85.6
Quar	1.7	2.9	1.9
Plag	14.4	18.3	19.7
Mica	8.1	4.5	7.1
Mont	46.7	43.3	34.6
Paly	3.3	-	-
Phil	3.6	3.6	-
Anal	4.1	3.7	6.5
Pyri	-	1.0	0.6
Augi	18.2	22.7	29.6
Cris	PRES	-	-

Site 334 Hole Core 8 Cored Interval: 186.5-196.0 m



Watery to stiff greenish-gray (5GY 6/1) to olive gray (5Y 4/1) ooze. Black spots of pyrite micronodules in 100-125 interval in Section 1. Greenish gray (5G 6/1) spot at 1-60.

RAD, FORAM, VOLCANIC GLASS-BEARING NANNO OOZE

Avg. of smear slides 1-60, 2-60

Nannos	89%
Vol. Glass	4%
Forams	3%
Rads	3%
Sponge Spicules	TR
Pyrite	TR
Glauconite	TR

Grain Size

	1-60	2-88
sand	17.4	18.1
silt	43.7	40.8
clay	38.9	41.1

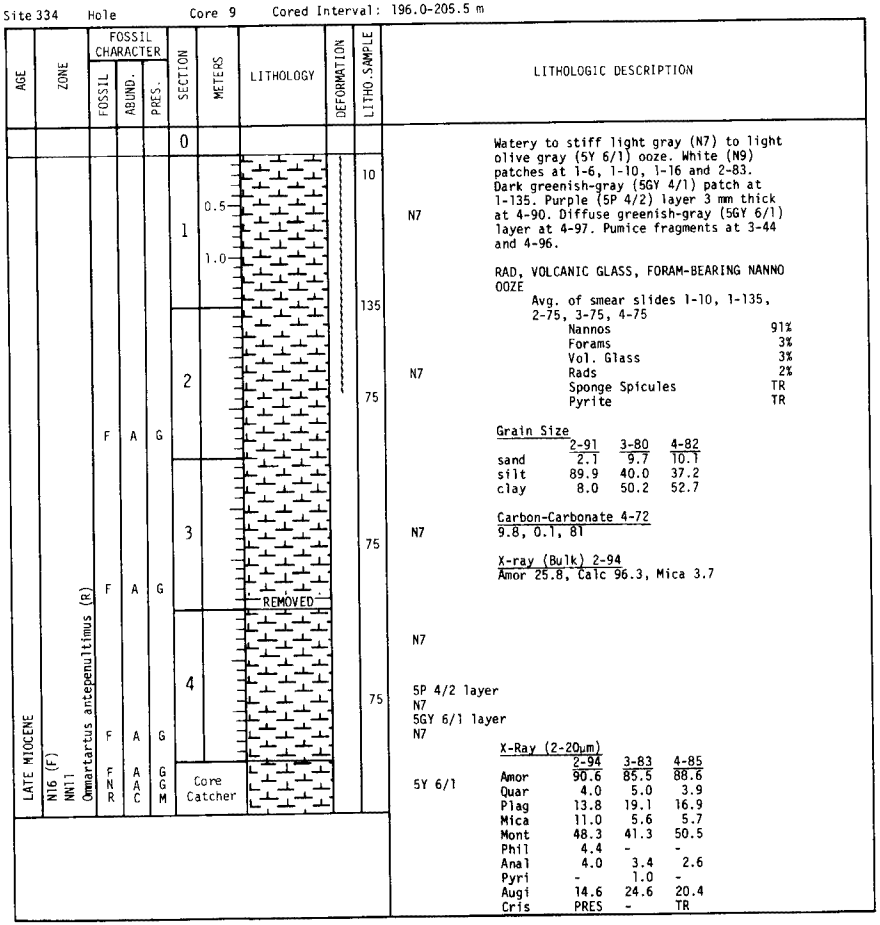
Carbon-Carbonate 2-82
7.1, 0.1, 58

X-ray (Bulk) 1-54
Amor 47.6, Calc 100.0

X-ray (2-20μm)

	1-54	2-91
Amor	89.5	88.6
Quar	1.7	2.2
Plag	17.6	19.1
Mica	6.3	6.0
Mont	41.8	44.3
Anal	4.8	2.3
Pyri	1.9	1.6
Augi	25.8	24.5

Site 334 Hole Core 9 Cored Interval: 196.0-205.5 m



Watery to stiff light gray (N7) to light olive gray (5Y 6/1) ooze. White (N9) patches at 1-6, 1-10, 1-16 and 2-83. Dark greenish-gray (5GY 4/1) patch at 1-135. Purple (5P 4/2) layer 3 mm thick at 4-90. Diffuse greenish-gray (5GY 6/1) layer at 4-97. Pumice fragments at 3-44 and 4-96.

RAD, VOLCANIC GLASS, FORAM-BEARING NANNO OOZE

Avg. of smear slides 1-10, 1-135, 2-75, 3-75, 4-75

Nannos	91%
Forams	3%
Vol. Glass	3%
Rads	2%
Sponge Spicules	TR
Pyrite	TR

Grain Size

	2-91	3-80	4-82
sand	2.1	9.7	10.1
silt	89.9	40.0	37.2
clay	8.0	50.2	52.7

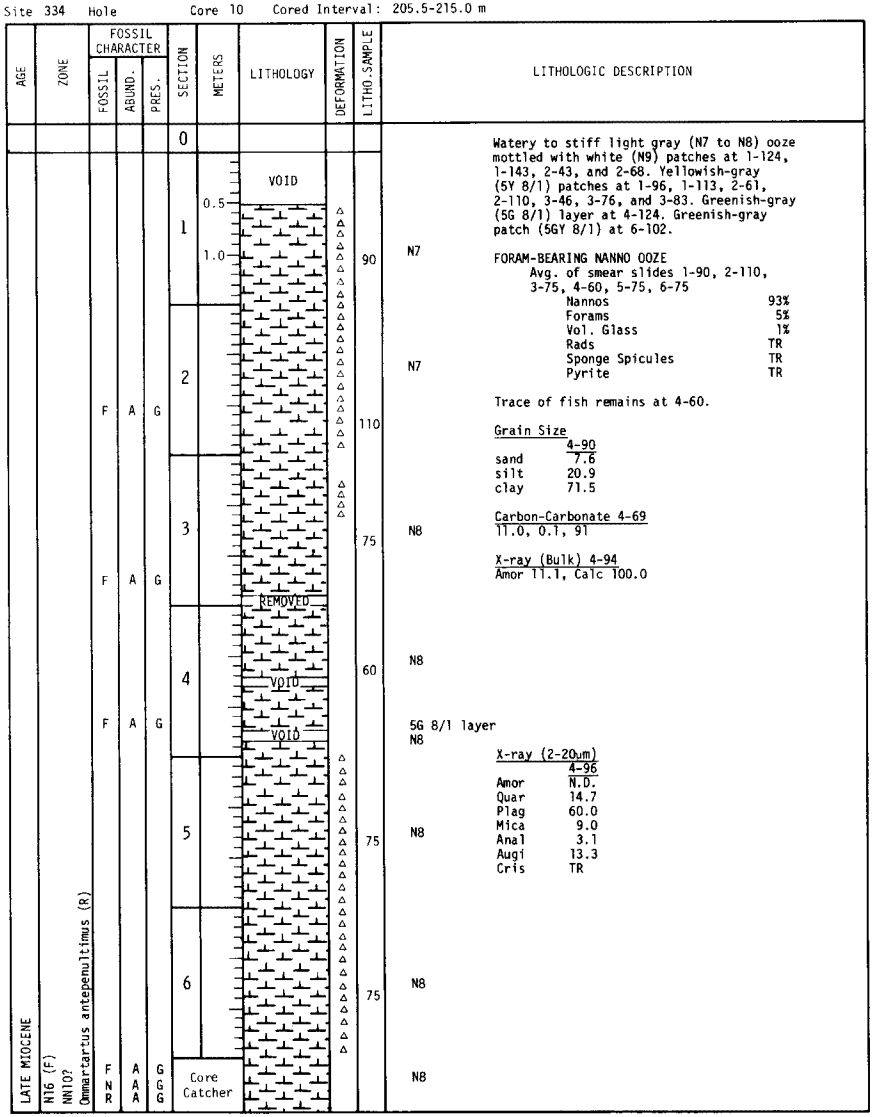
Carbon-Carbonate 4-72
9.8, 0.1, 81

X-ray (Bulk) 2-94
Amor 25.8, Calc 96.3, Mica 3.7

X-Ray (2-20μm)

	2-94	3-83	4-85
Amor	90.6	85.5	88.6
Quar	4.0	5.0	3.9
Plag	13.8	19.1	16.9
Mica	11.0	5.6	5.7
Mont	48.3	41.3	50.5
Phil	4.4	-	-
Anal	4.0	3.4	2.6
Pyri	-	1.0	-
Augi	14.6	24.6	20.4
Cris	PRES	-	TR

Site 334 Hole Core 10 Cored Interval: 205.5-215.0 m



Watery to stiff light gray (N7 to N8) ooze mottled with white (N9) patches at 1-124, 1-143, 2-43, and 2-68. Yellowish-gray (5Y 8/1) patches at 1-96, 1-113, 2-61, 2-110, 3-46, 3-76, and 3-83. Greenish-gray (5G 8/1) layer at 4-124. Greenish-gray patch (5GY 8/1) at 6-102.

FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-90, 2-110, 3-75, 4-60, 5-75, 6-75

Nannos	93%
Forams	5%
Vol. Glass	1%
Rads	TR
Sponge Spicules	TR
Pyrite	TR

Trace of fish remains at 4-60.

Grain Size

	4-90
sand	7.6
silt	20.9
clay	71.5

Carbon-Carbonate 4-69
11.0, 0.1, 91

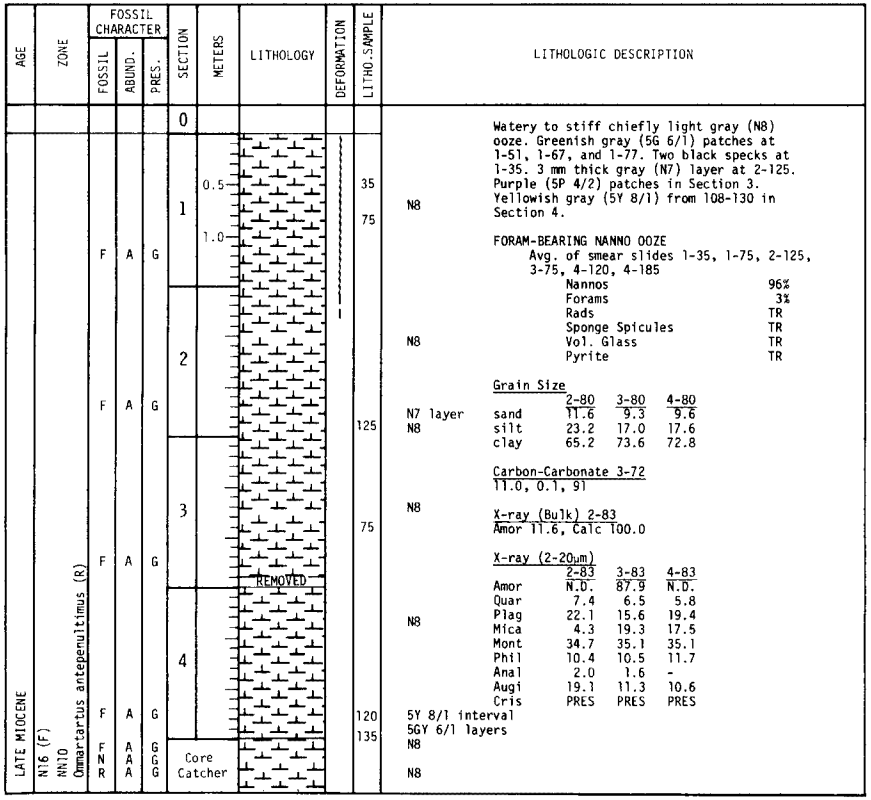
X-ray (Bulk) 4-94
Amor 11.1, Calc 100.0

5G 8/1 layer

X-ray (2-20μm)

	4-96
Amor	N.D.
Quar	14.7
Plag	60.0
Mica	9.0
Anal	3.1
Augi	13.3
Cris	TR

Site 334 Hole Core 11 Cored Interval: 215.0-224.5 m



Watery to stiff chiefly light gray (N8) ooze. Greenish gray (5G 6/1) patches at 1-51, 1-67, and 1-77. Two black specks at 1-35. 3 mm thick gray (N7) layer at 2-125. Purple (5P 4/2) patches in Section 3. Yellowish gray (5Y 8/1) from 108-130 in Section 4.

FORAM-BEARING NANNO OOZE
Avg. of smear slides 1-35, 1-75, 2-125, 3-75, 4-120, 4-185

Nannos	96%
Forams	3%
Rads	TR
Sponge Spicules	TR
Vol. Glass	TR
Pyrite	TR

Grain Size

	2-80	3-80	4-80
sand	11.6	9.3	9.6
silt	23.2	17.0	17.6
clay	65.2	73.6	72.8

Carbon-Carbonate 3-72
11.0, 0.1, 91

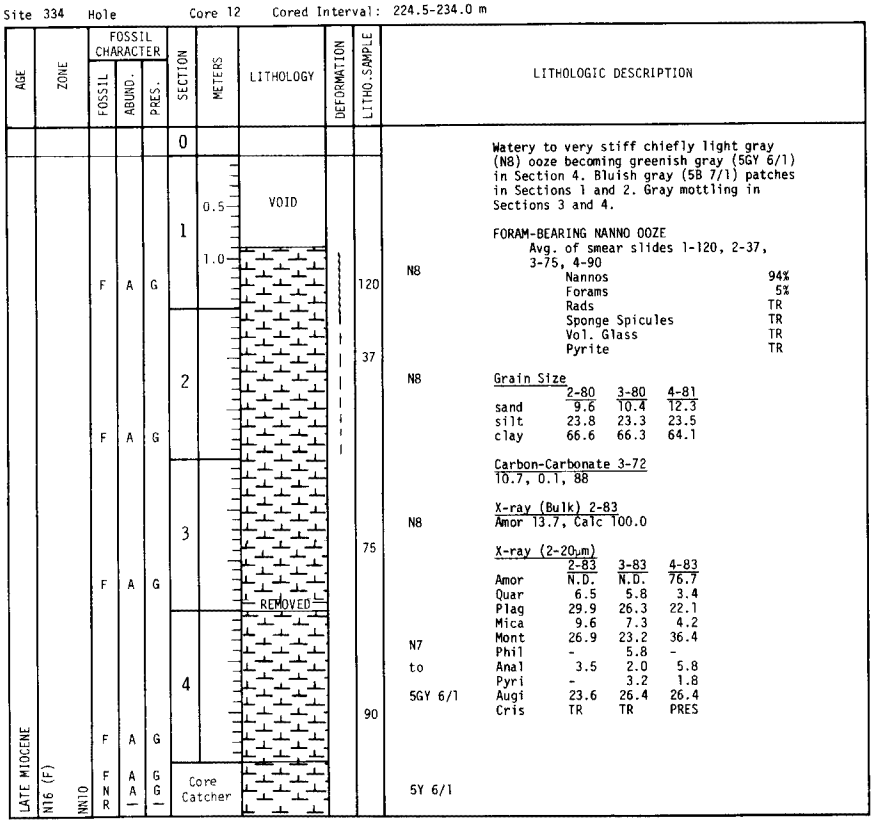
X-ray (Bulk) 2-83
Amor 11.6, Calc 100.0

X-ray (2-20μm)

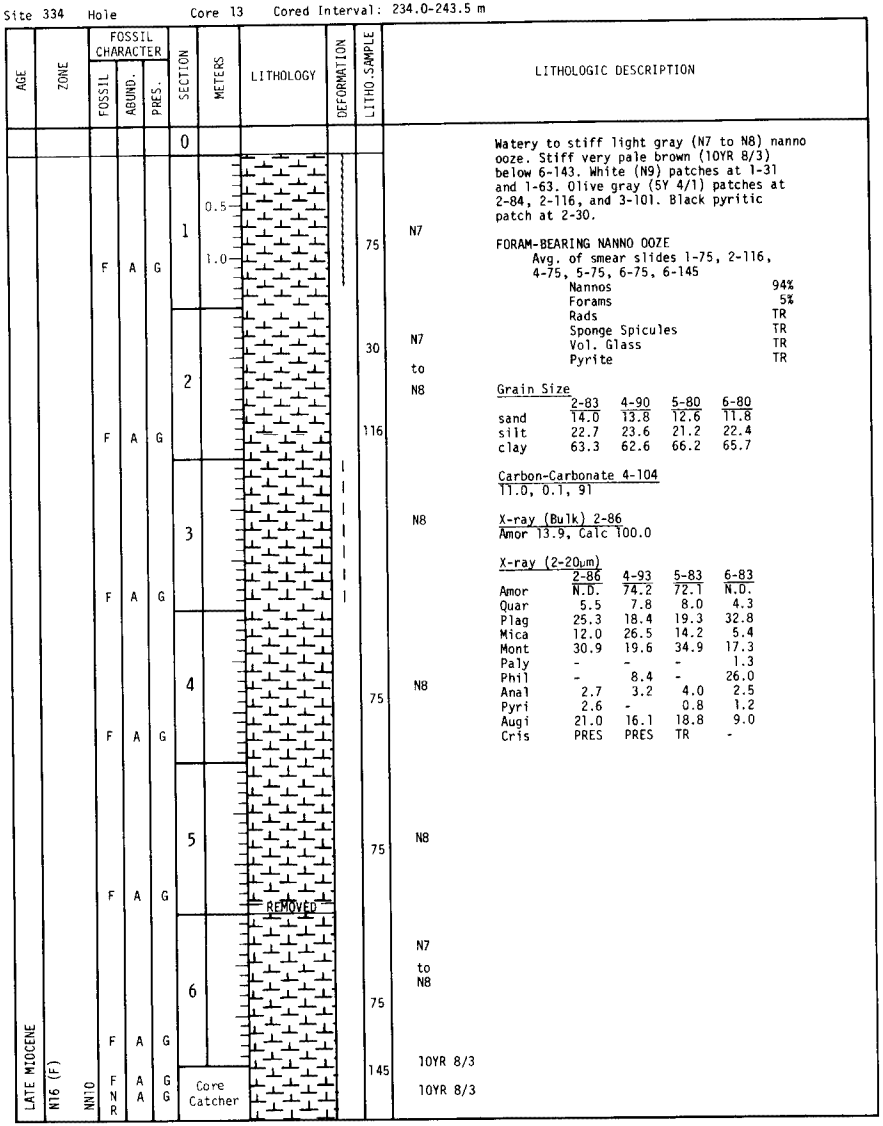
	2-83	3-83	4-83
Amor	N.D.	87.9	N.D.
Quar	7.4	6.5	5.8
Plag	22.1	15.6	19.4
Mica	4.3	19.3	17.5
Mont	34.7	35.1	35.1
Phil	10.4	10.5	11.7
Anal	2.0	1.6	-
Augi	19.1	11.3	10.6
Cris	PRES	PRES	PRES

5Y 8/1 interval
5GY 6/1 layers

Site 334 Hole Core 12 Cored Interval: 224.5-234.0 m



Site 334 Hole Core 13 Cored Interval: 234.0-243.5 m



Site 334 Hole Core 14 Cored Interval: 243.5-253.0 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
LATE MIOCENE	N16 (F) / NN10	F	A	G	0				
					1	0.5 / 1.0			110
					Core Catcher				

Watery mixture of light gray (N8) and very pale brown (10YR 8/3) ooze above 1-76. Stiff very pale brown below.

mixture of N8 and 10YR 8/3

FORAM-BEARING NANNO OOZE

Smear slide 1-110

Nannos	97%
Forams	2%
Pyrite	TR

10YR 8/3

Grain Size

	1-82
sand	6.6
silt	23.4
clay	70.1

10YR 8/3

Carbon-Carbonate 1-72
11.1, 0.1, 92

X-ray (Bulk) 1-91
Amor 17.6, Calc 100.0

X-ray (2-20μm)

	1-91
Amor	N.D.
Quar	7.1
Plag	22.2
Mica	7.2
Mont	32.1
Anal	3.7
Pyri	3.0
Augi	24.7
Cris	TR

Site 334 Hole Core 15 Cored Interval: 253.0-262.5 m Sheet 1 of 2

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO. SAMPLE
LATE MIOCENE	NN10				0				
					1	0.5	VOID / VOID		31 / 70

Blocks of very stiff grayish orange (10YR 7/4) nanno ooze. Very pale orange (10YR 8/2) patch at 1-31 with yellowish brown (10YR 5/6) spot having 66% volcanic glass content.

10YR 7/4

10YR 7/4 FORAM-BEARING NANNO OOZE

Smear slide 1-70

Nannos	98%
Forams	2%

Site 334 Hole Core 15 Cored Interval: 253.0-262.5 m Sheet 2 of 2

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
		15.7	10.4	7.6	.31	.57	.24	0						
								1	0.5 / 1.0		T,C			

Original basalt recovery was 0.20 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 2-30
5% of phenocrysts, chiefly plagioclase with lesser augite and olivine. Quenched groundmass of skeletal plagioclase, olivine and some augite crystal in glassy to poorly crystallized material. Slight replacement of glass by smectite. Sparse vesicles contain some calcite.

Site 334 Hole Core 16 Cored Interval: 262.5-272.0 m

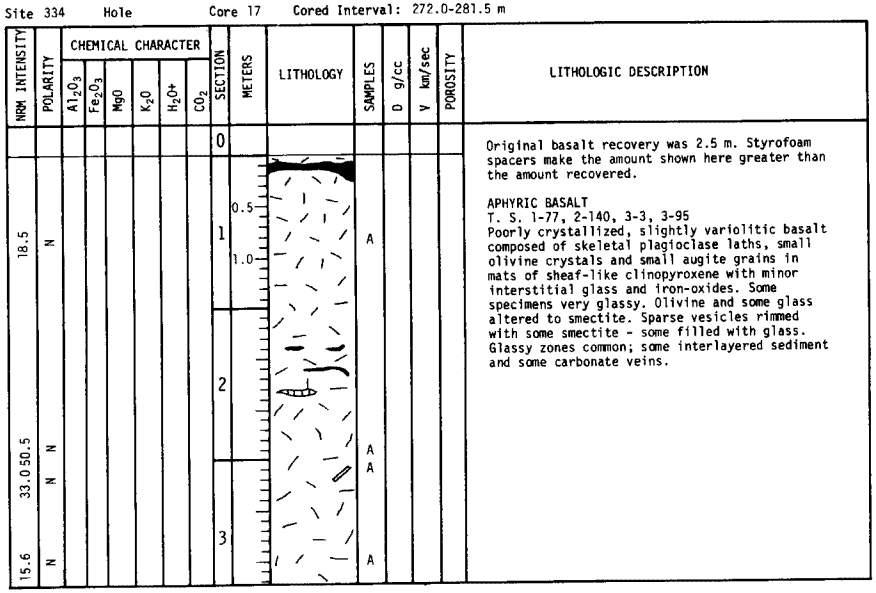
NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
N	118.1							0			A			
N	26.8							1	0.5 / 1.0	VOID	A / A			
N	71.0	15.7	10.4	8.1	.19	.67	.04	2			B / A	2.820	5.94	7.3
N	78.5	14.8	10.1	8.6	.17	.42	.22	3			A			
N	30.4							4			B / A	2.928	6.44	3.3
N	34.0							5			A			
N	11.5													

Original basalt recovery was 4.55 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. SPARSELY PHYRIC BASALT
   T. S. 1-110, 2-109, 3-16
   5-10% of plagioclase, augite and olivine phenocrysts up to 5 mm long in poorly crystallized groundmass of skeletal plagioclase laths, small olivine crystals and sheaf-like masses of clinopyroxene. Minor interstitial glass and iron-oxides. Glass and olivine partly replaced by smectite. Sparse vesicles and veinlets contain some smectite and carbonate and rare zeolites.

2. APHYRIC BASALT
   T. S. 4-7, 4-110, 5-19
   Poorly crystallized basalt similar to sparsely phyric unit above except these rocks contain only traces of plagioclase microphenocrysts. Some sedimentary interlayers with some glassy breccia. Olivine typically replaced by brown smectite.

Site 334 Hole Core 17 Cored Interval: 272.0-281.5 m

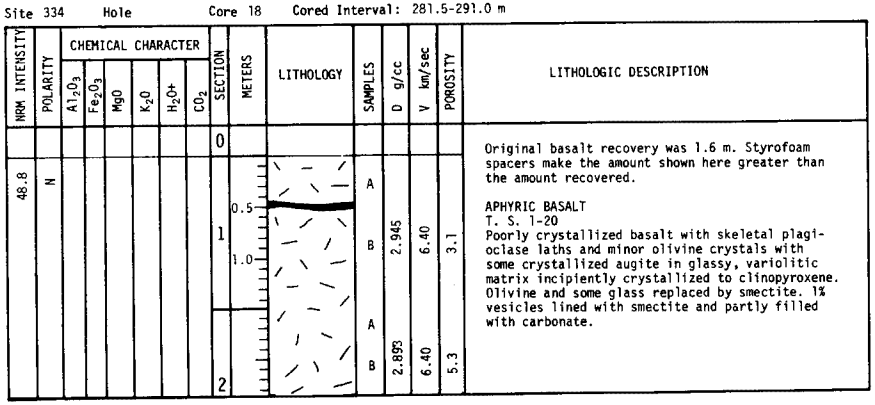


LITHOLOGIC DESCRIPTION

Original basalt recovery was 2.5 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-77, 2-140, 3-3, 3-95
Poorly crystallized, slightly variolitic basalt composed of skeletal plagioclase laths, small olivine crystals and small augite grains in mats of sheaf-like clinopyroxene with minor interstitial glass and iron-oxides. Some specimens very glassy. Olivine and some glass altered to smectite. Sparse vesicles rimmed with some smectite - some filled with glass. Glassy zones common; some interlayered sediment and some carbonate veins.

Site 334 Hole Core 18 Cored Interval: 281.5-291.0 m

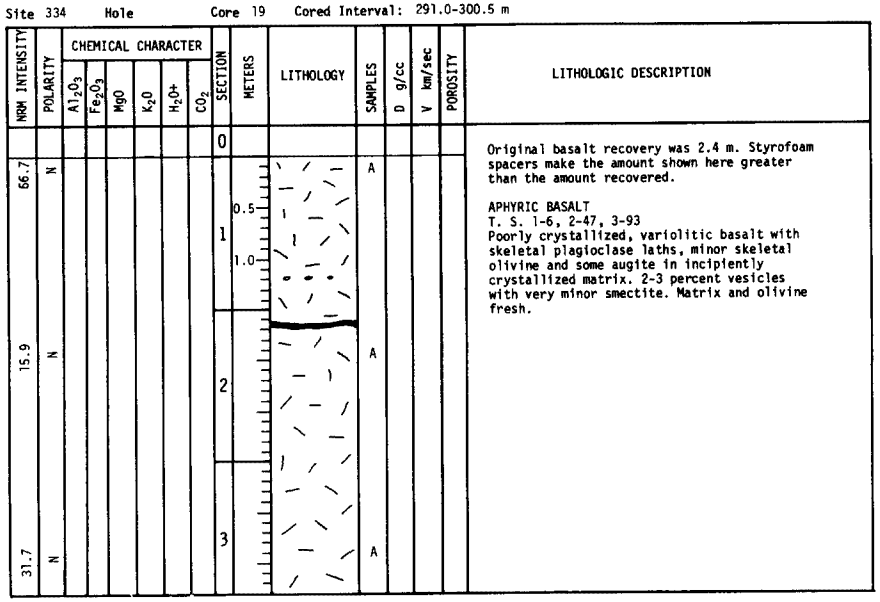


LITHOLOGIC DESCRIPTION

Original basalt recovery was 1.6 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-20
Poorly crystallized basalt with skeletal plagioclase laths and minor olivine crystals with some crystallized augite in glassy, variolitic matrix incipiently crystallized to clinopyroxene. Olivine and some glass replaced by smectite. 1% vesicles lined with smectite and partly filled with carbonate.

Site 334 Hole Core 19 Cored Interval: 291.0-300.5 m

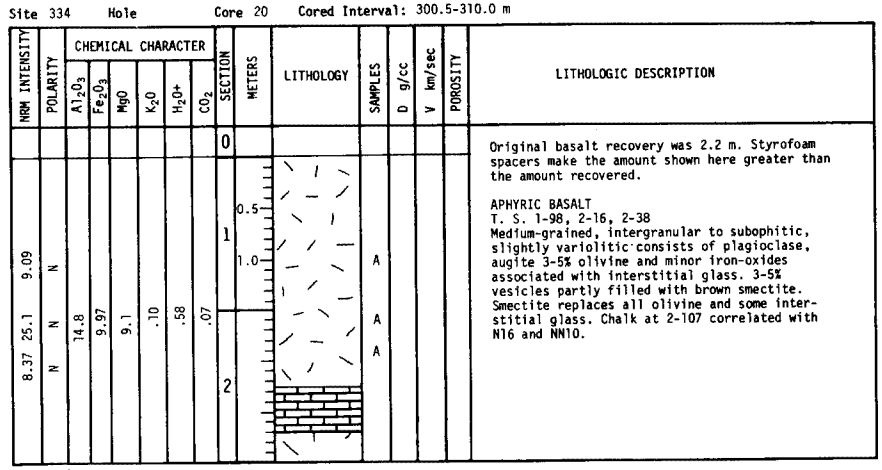


LITHOLOGIC DESCRIPTION

Original basalt recovery was 2.4 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-6, 2-47, 3-93
Poorly crystallized, variolitic basalt with skeletal plagioclase laths, minor skeletal olivine and some augite in incipiently crystallized matrix. 2-3 percent vesicles with very minor smectite. Matrix and olivine fresh.

Site 334 Hole Core 20 Cored Interval: 300.5-310.0 m

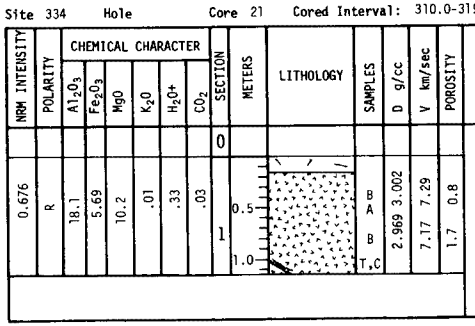


LITHOLOGIC DESCRIPTION

Original basalt recovery was 2.2 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC BASALT
T. S. 1-98, 2-16, 2-38
Medium-grained, intergranular to subophitic, slightly variolitic consists of plagioclase, augite 3-5% olivine and minor iron-oxides associated with interstitial glass. 3-5% vesicles partly filled with brown smectite. Smectite replaces all olivine and some interstitial glass. Chalk at 2-107 correlated with N16 and NN10.

Site 334 Hole Core 21 Cored Interval: 310.0-319.5 m



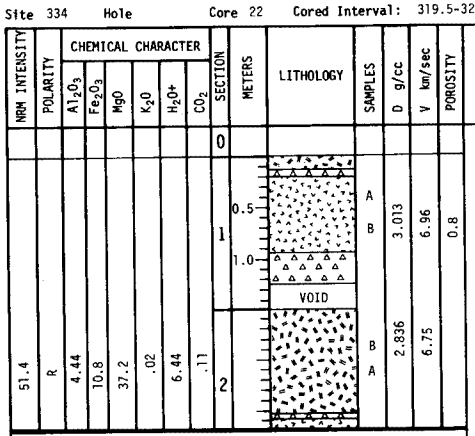
LITHOLOGIC DESCRIPTION

Original recovery was 0.8 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. TWO PYROXENE GABBRO
   T. S. 1-47, 1-98
   Coarse-grained, hypidmorphic granular; composed of augite, orthopyroxene and plagioclase. Minor uralite and chlorite on pyroxene crystal margins.

2. APHYRIC BASALT

Site 334 Hole Core 22 Cored Interval: 319.5-329.0 m



LITHOLOGIC DESCRIPTION

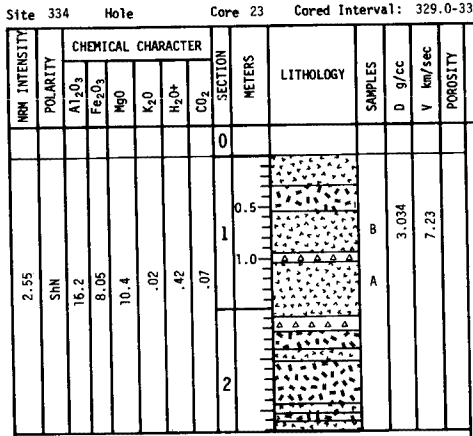
Original recovery was 1.6 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. PERIDOTITE
   T. S. 2-61
   Coarse grained serpentinized peridotite. Serpentine psuedomorphs after olivine form ovoids 1.5 cm across. Interstitial material consists of augite surrounded by minor green amphibole and chlorite. Minor plagioclase. Fairly abundant sulfides.

2. GABBRO
   T. S. 1-40
   Augite and orthopyroxene gabbro.

3. BRECCIA
   Gabbro and peridotite fragments and broken plagioclase and pyroxene crystals in matrix of nanno chalk.

Site 334 Hole Core 23 Cored Interval: 329.0-338.5 m



LITHOLOGIC DESCRIPTION

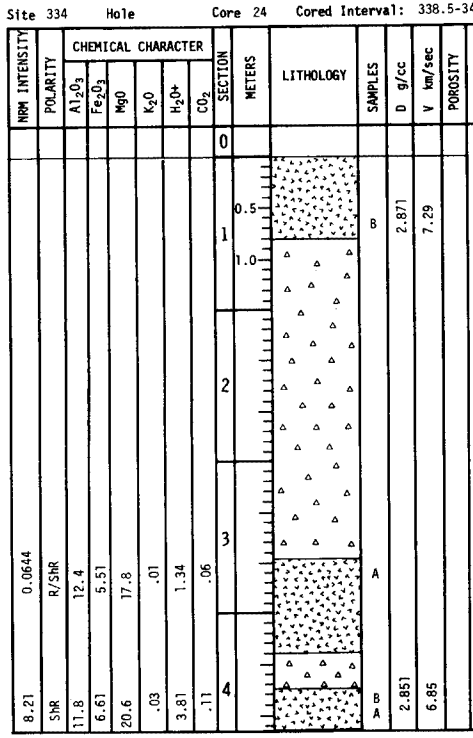
Original recovery was 1.5 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. GABBRO
   T. S. 1-127
   Coarse-grained, hypidiomorphic granular; crystals slightly deformed. Composed of plagioclase, augite, and orthopyroxene. Pyroxene crystal margins slightly granulated and altered to green amphibole.

2. PERIDOTITE
   Dark greenish-gray, serpentinized plagioclase-bearing peridotite.

3. BRECCIA
   Angular clasts of gabbro and peridotite and crystal fragments of plagioclase and pyroxene in white to light brown matrix of nanno-bearing chalk.

Site 334 Hole Core 24 Cored Interval: 338.5-348.0 m



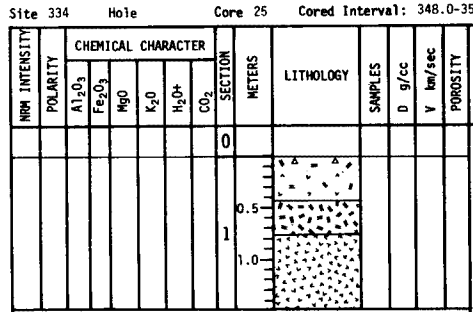
LITHOLOGIC DESCRIPTION

Original recovery was 3.8 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. GABBRO
   T. S. 3-112, 4-95
   Coarse-grained, hypidiomorphic granular; composed of plagioclase, augite and orthopyroxene with minor olivine replaced by serpentine. Some green amphibole around margins of pyroxene crystals. Some secondary amphibole and sulfide minerals in veins.

2. BRECCIA
   Brecciated gabbro; broken fragments of feldspar and partly uralitized pyroxene in light colored matrix (nonsediment, non-carbonate) with some chlorite and talc(?).

Site 334 Hole Core 25 Cored Interval: 348.0-357.5 m



LITHOLOGIC DESCRIPTION

Original recovery was 1.0 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

1. GABBRO
   Coarse-grained, light colored; composed of clinopyroxene, orthopyroxene and plagioclase. Some olivine in lower part.

2. PERIDOTITE
   Dark greenish gray, coarse-grained; large black ovoids of magnetite-dusted serpentine after olivine; interstitial plagioclase and pyroxene, somewhat uralitized. Some spinel inclusions in olivine psuedomorphs.

   In upper 45 cm gabbro and peridotite are intimately interlayered and appear to grade into one another.

Site 334 Hole Core 26 Cored Interval: 357.5-367.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 1.4 m. Styrofoam spacers make the amount shown here greater than the amount recovered. GABBRO T. S. 1-20 Light brown, coarse-grained, allotriomorphic granular; composed of clinopyroxene, augite and plagioclase with minor olivine and picotite. Some olivine serpentinized. From 0-100 cm gabbro and peridotite are interlayered and associated with some breccia. PERIDOTITE Dark gray-green serpentinized rock composed of pyroxene and ovoids of serpentinized olivine. Minor spinel and plagioclase.
.21.4	R	5.14	9.78	37.3	.00	7.2	.31	1	0.5 1.0		A B	2.666	5.65		
								2			B	2.640	5.88		

Site 334 Hole Core 27 Cored Interval: 367.0-376.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original recovery was 0.3 m. Styrofoam spacers make the amount shown here greater than the amount recovered. GABBRO T.S. Light brown, coarse-grained, composed of orthopyroxene, clinopyroxene, plagioclase, minor olivine and spinel. Olivine serpentinized and pyroxene somewhat uralitized.

DEEP SEA DRILLING PROJECT

LEG 37 SITE 335 (HOLE 335)

SITE SUMMARY SHEET

POSITION: Latitude: 37°17.74'N Longitude: 35°11.92'W

Water depth (sea level): 3188 corrected meters, echo sounding

Bottom felt at: 3198 meters, drill pipe Penetration: 562.0 meters

Number of cores: 16 Total length of cored section: 152.0 meters

Total core recovered: 59.3 meters Percentage core recovery: 39%

OLDEST SEDIMENT CORED ABOVE BASEMENT:

Depth subbottom: 449.5 meters Nature: Foram-bearing nannofossil ooze

Age: Early late Miocene

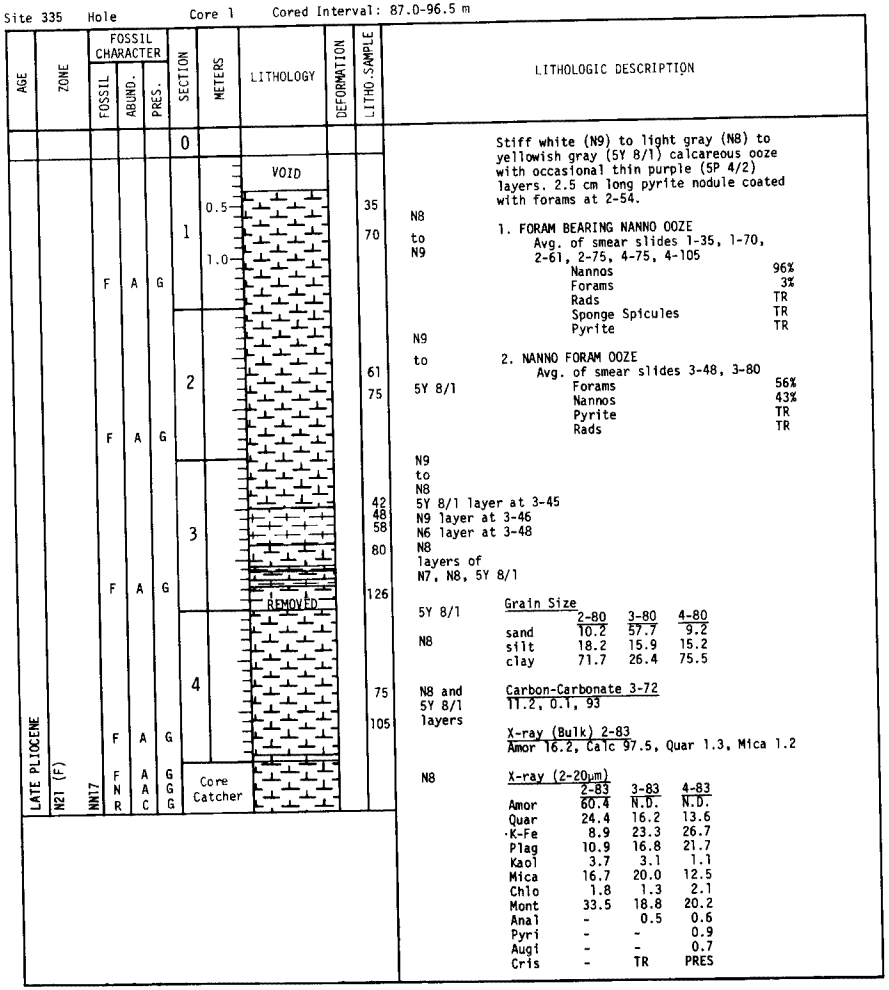
BASEMENT:

Depth subbottom: 454 meters Nature: Pillow basalt

PRINCIPAL RESULTS:

Acoustic basement consists of a remarkably homogeneous sequence of sparsely phyric basalt with common nannofossil ooze interlayers. The basalts have numerous glassy rinds and are probably pillow lavas. The basalts have strong, uniformly high inclination remanent magnetization.

Site 335 Hole Core 1 Cored Interval: 87.0-96.5 m



Stiff white (N9) to light gray (N8) to yellowish gray (5Y 8/1) calcareous ooze with occasional thin purple (5P 4/2) layers. 2.5 cm long pyrite nodule coated with forams at 2-54.

N8 to N9

1. FORAM BEARING NANNO OOZE
Avg. of smear slides 1-35, 1-70, 2-61, 2-75, 4-75, 4-105

Nannos	96%
Forams	3%
Rads	TR
Sponge Spicules	TR
Pyrite	TR

N9 to 5Y 8/1

2. NANNO FORAM OOZE
Avg. of smear slides 3-48, 3-80

Forams	56%
Nannos	43%
Pyrite	TR
Rads	TR

N9 to N8
5Y 8/1 layer at 3-45
N9 layer at 3-46
N6 layer at 3-48
N8 layers of N7, N8, 5Y 8/1

5Y 8/1

Grain Size

	2-80	3-80	4-80
sand	10.2	57.7	9.2
silt	18.2	15.9	15.2
clay	71.7	26.4	75.5

N8

N8 and 5Y 8/1 layers

Carbon-Carbonate 3-72
11.2, 0.1, 93

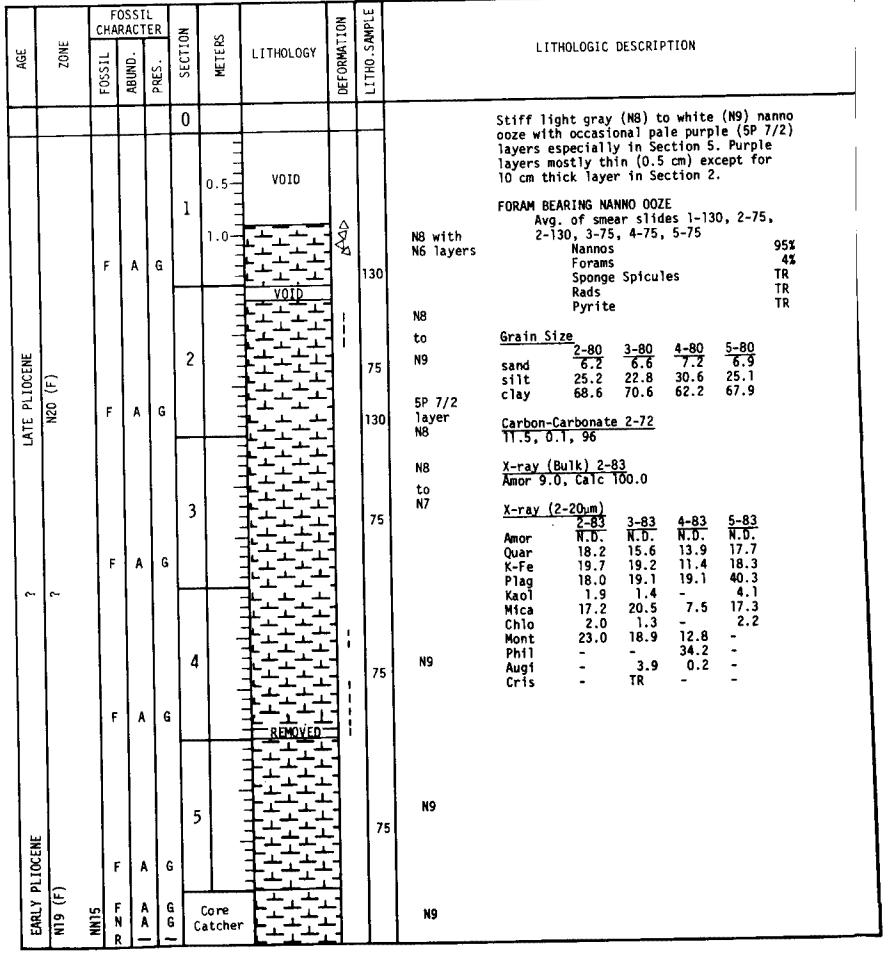
X-ray (Bulk) 2-83
Amor 16.2, Calc 97.5, Quar 1.3, Mica 1.2

N8

X-ray (2-20μm)

	2-83	3-83	4-83
Amor	60.4	N.D.	N.D.
Quar	24.4	16.2	13.6
K-Fe	8.9	23.3	26.7
Plag	10.9	16.8	21.7
Kaol	3.7	3.1	1.1
Mica	16.7	20.0	12.5
Chlo	1.8	1.3	2.1
Mont	33.5	18.8	20.2
Anal	-	0.5	0.6
Pyri	-	-	0.9
Augi	-	-	0.7
Cris	-	TR	PRES

Site 335 Hole Core 2 Cored Interval: 125.0-134.5 m



Stiff light gray (N8) to white (N9) nanno ooze with occasional pale purple (5P 7/2) layers especially in Section 5. Purple layers mostly thin (0.5 cm) except for 10 cm thick layer in Section 2.

N8 with N6 layers

FORAM BEARING NANNO OOZE
Avg. of smear slides 1-130, 2-75, 2-130, 3-75, 4-75, 5-75

Nannos	95%
Forams	4%
Sponge Spicules	TR
Rads	TR
Pyrite	TR

N8 to N9

Grain Size

	2-80	3-80	4-80	5-80
sand	6.2	6.6	7.2	6.9
silt	25.2	22.8	30.6	25.1
clay	68.6	70.6	62.2	67.9

5P 7/2 layer N8

Carbon-Carbonate 2-72
11.5, 0.1, 96

N8 to N7

X-ray (Bulk) 2-83
Amor 9.0, Calc 100.0

X-ray (2-20μm)

	2-83	3-83	4-83	5-83
Amor	N.D.	N.D.	N.D.	N.D.
Quar	18.2	15.6	13.9	17.7
K-Fe	19.7	19.2	11.4	18.3
Plag	18.0	19.1	19.1	40.3
Kaol	1.9	1.4	-	4.1
Mica	17.2	20.5	7.5	17.3
Chlo	2.0	1.3	-	2.2
Mont	23.0	18.9	12.8	-
Phil	-	-	34.2	-
Augi	-	3.9	0.2	-
Cris	-	TR	-	-

N9

N9

N9

Site 335 Hole Core 3 Cored Interval: 220.0-229.5 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE
EARLY PLIOCENE	N19 (F) NN13 ? NN14	F F N R	A A I	G G I	0				
					1	0.5 1.0	REMOVED		75 90
					Core Catcher				

LITHOLOGIC DESCRIPTION

Stiff white (N9) ooze with 0.5 cm thick purple (5P 4/2) layer at 56 cm. Purple spot at 1-70 is possible filled burrow. Pyrite bearing purple streak at 75 cm.

N9 FORAM BEARING NANNO OOZE
Smear slide at 90 cm

Nannos	94%
Forams	5%
Rads	TR

N9 Grain Size

	1-80
sand	6.1
clay	20.2
silt	73.7

Carbon-Carbonate 1-72
11.5, 0.1, 95

X-ray (Bulk) 1-83
Amor 7.1, Calc 100.0

X-ray (2-20μm)

	1-83
Amor	N.D.
Quar	18.6
K-Fe	12.8
Plag	24.8
Mica	26.6
Phil	16.8
Pyri	0.5

Site 335 Hole Core 4 Cored Interval: 315.0-324.5 m

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE
LATE MIOCENE	N16/17 (F) NN11	F F N R	A A I	G G I	0				
		F	A	G	1	0.5 1.0	VOID	△	
		F	A	G	2		VOID		140 60
		F	A	G	3		REMOVED		122 43 102
					Core Catcher				

LITHOLOGIC DESCRIPTION

Stiff to very stiff chiefly white (N9) nanno ooze with slight purple spot mottling above 2-40. Purple (5P 7/2) layer from 2-120 to 2-124. Black pyritic patch at 3-43.

FORAM BEARING NANNO OOZE
Avg. of smear slides 1-140, 2-60, 2-122, 3-102

Nannos	94%
Forams	5%
Sponge Spicules	TR
Pyrite	TR

N9 Grain Size

	2-80	3-80
sand	8.0	4.8
silt	34.4	30.6
clay	57.6	64.6

N8

N9
5P 7/2 layer (2-120 to 2-124)
N9

Carbon-Carbonate 2-72
11.6, 0.1, 96

N9

X-ray (Bulk) 2-82
Amor 10.0, Calc 100.0

5G 7/1 layer (3-96 to 3-111)

N9 X-ray (2-20μm)

	2-82	3-83
Amor	N.D.	N.D.
Quar	6.5	12.1
K-Fe	-	10.2
Plag	14.0	12.5
Mica	71.4	55.5
Phil	3.7	8.9
Pyri	2.4	0.8
Augi	1.9	-

Site 335 Hole Core 5 Cored Interval: 448.0-457.5 m Sheet 1 of 2

AGE	ZONE	FOSSIL CHARACTER: FOSSIL	ABUND.	PRES.	SECTION	METERS	LITHOLOGY	DEFORMATION	LITHO.SAMPLE
LATE MIOCENE	N16 NN10	F N R	A A	M G	0				
					1	0.5 1.0			70

LITHOLOGIC DESCRIPTION

Very, very stiff (above 110 cm) white (N9) nanno ooze with slight greenish gray cast. Possible lighter in color burrows from 1-17 to 1-75.

N9 FORAM BEARING NANNO OOZE
Smear slide at 90 cm

Nannos	97%
Forams	2%
Rads	TR
Pyrite	TR
Vol. Glass	TR

Site 335 Hole Core 5 Cored Interval: 448.0-457.5 m Sheet 2 of 2

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER: Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY
62.0	R	15.0	10.95	8.5	0.37	0.89	0.13	0						
								1	0.5 1.0		B	2.866	6.22	
								2						
											A			

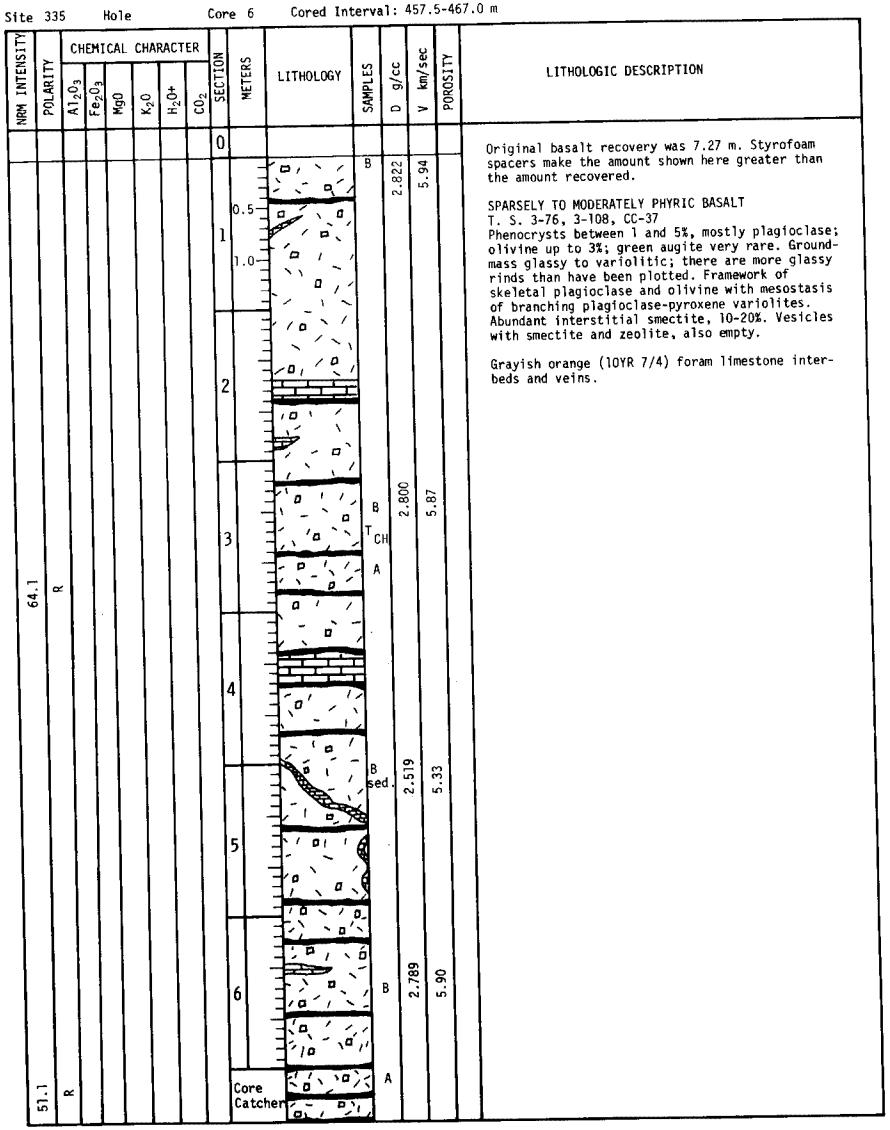
LITHOLOGIC DESCRIPTION

Original basalt recovery was 1.6 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

Section 1 is foram-bearing nanno ooze, described elsewhere.

SPARSELY PHYRIC BASALT
T. S. 3-55
Phenocrysts between 1 and 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite (10 to 20%). Vesicles with smectite and carbonate, also empty.

Site 335 Hole Core 6 Cored Interval: 457.5-467.0 m



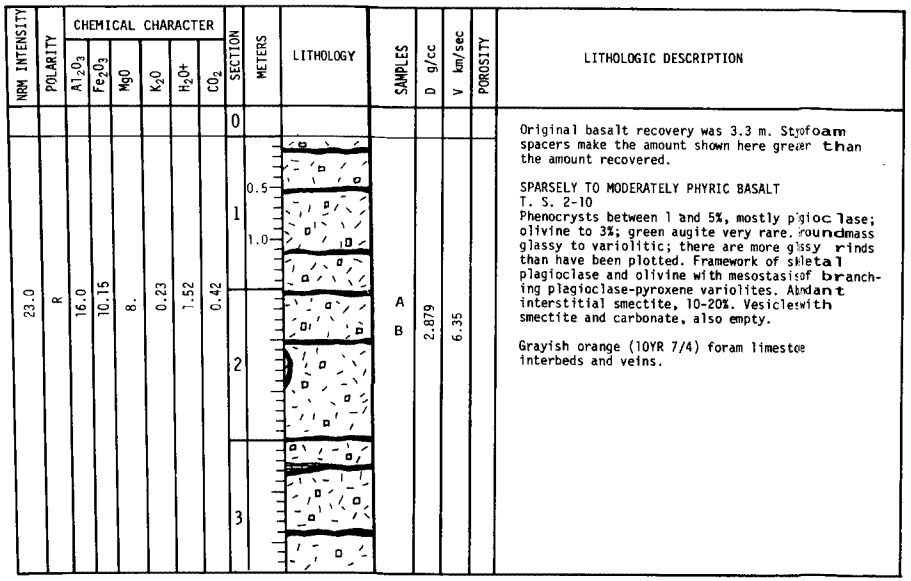
LITHOLOGIC DESCRIPTION

Original basalt recovery was 7.27 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY TO MODERATELY PHYRIC BASALT
T. S. 3-76, 3-108, CC-37
Phenocrysts between 1 and 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and zeolite, also empty.

Grayish orange (10YR 7/4) foram limestone interbeds and veins.

Site 335 Hole Core 7 Cored Interval: 467.0-476.5 m



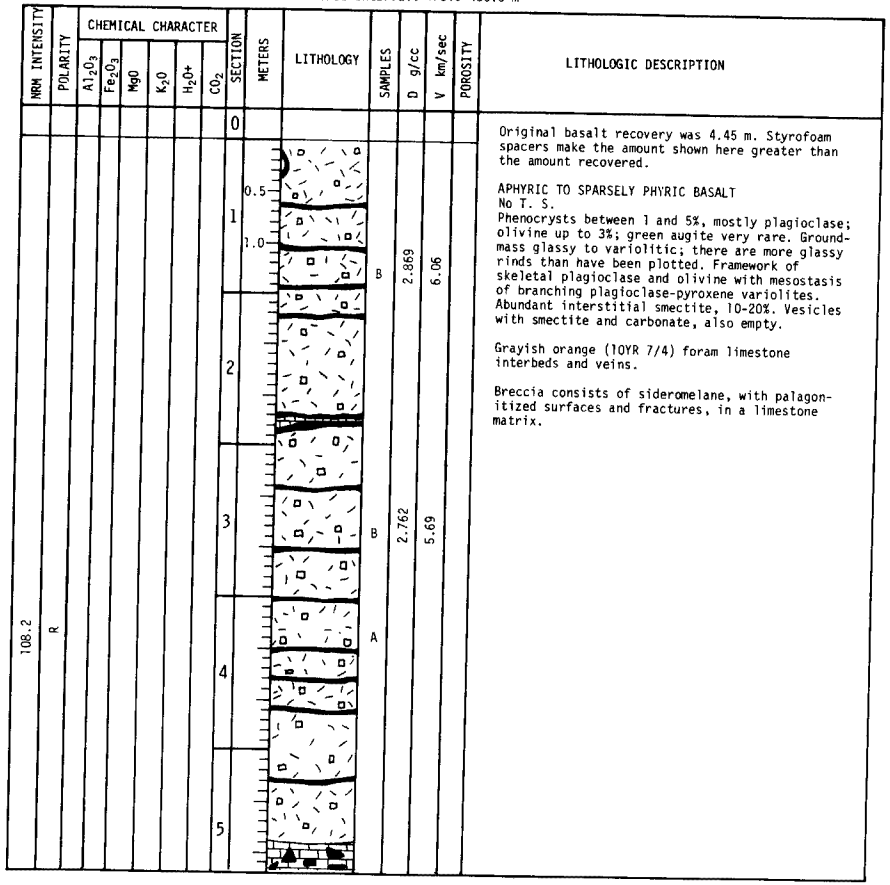
LITHOLOGIC DESCRIPTION

Original basalt recovery was 3.3 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY TO MODERATELY PHYRIC BASALT
T. S. 2-10
Phenocrysts between 1 and 5%, mostly plagioclase; olivine to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Grayish orange (10YR 7/4) foram limestone interbeds and veins.

Site 335 Hole Core 8 Cored Interval: 476.5-486.0 m



LITHOLOGIC DESCRIPTION

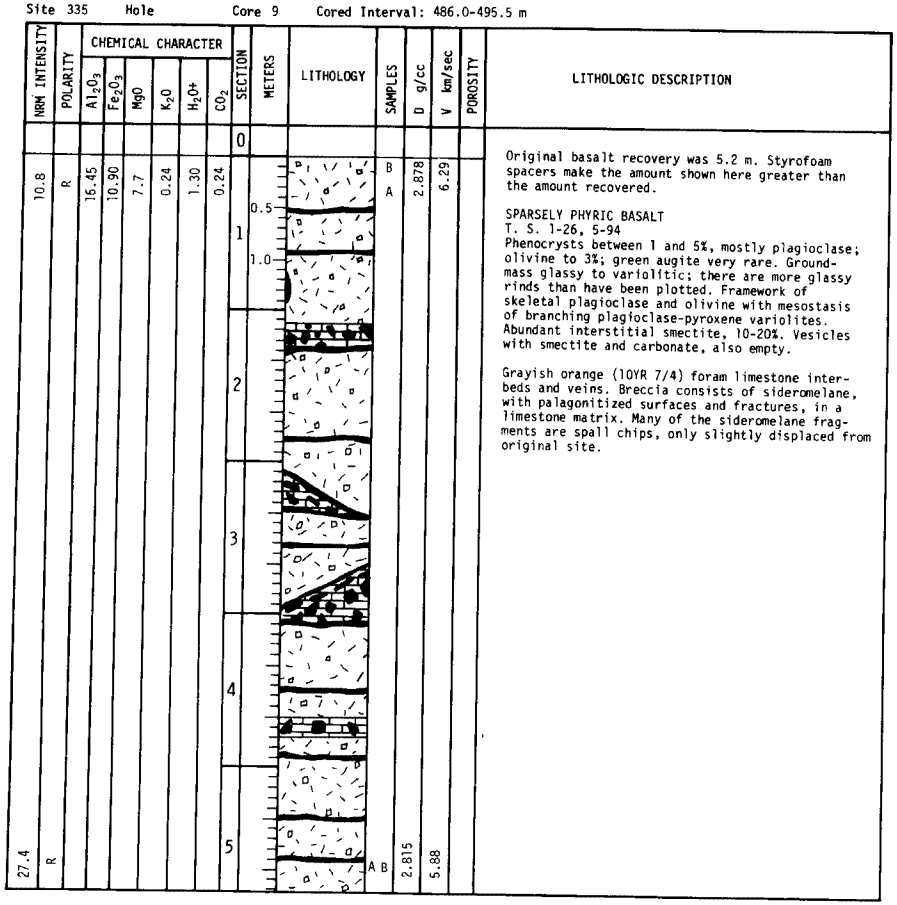
Original basalt recovery was 4.45 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC TO SPARSELY PHYRIC BASALT
No T. S.
Phenocrysts between 1 and 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Grayish orange (10YR 7/4) foram limestone interbeds and veins.

Breccia consists of sideromelane, with palagonitized surfaces and fractures, in a limestone matrix.

Site 335 Hole Core 9 Cored Interval: 486.0-495.5 m



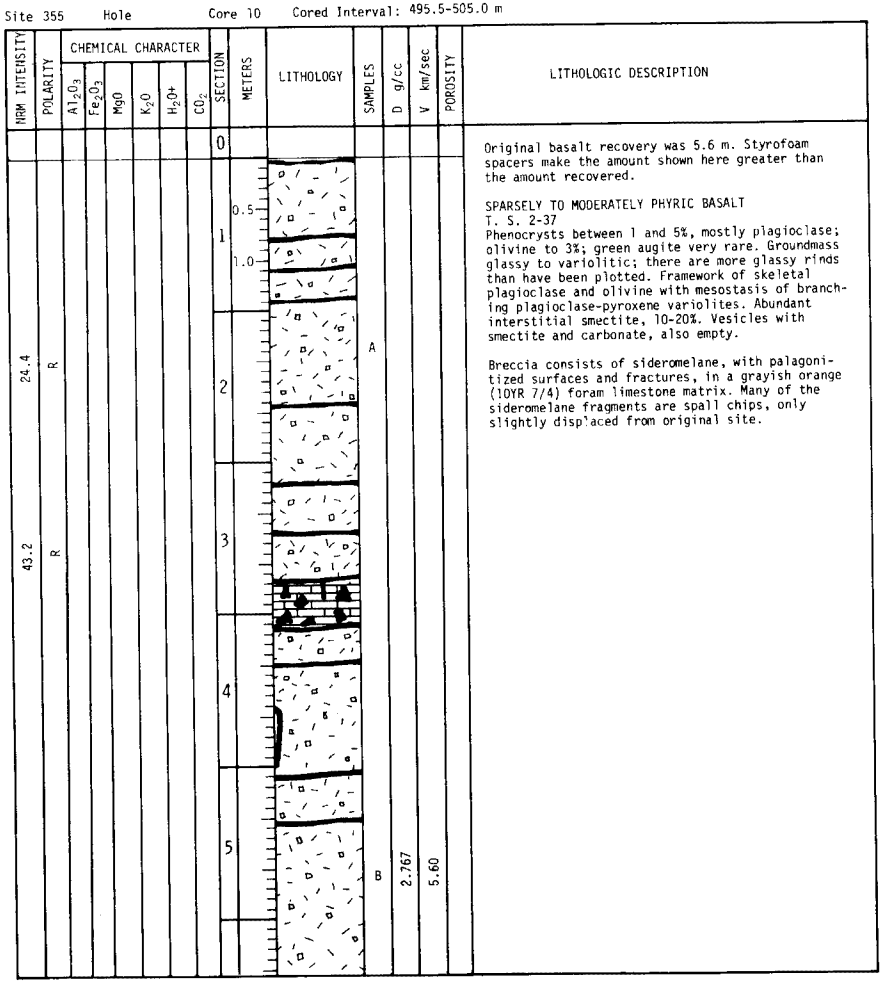
LITHOLOGIC DESCRIPTION

Original basalt recovery was 5.2 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY PHYRIC BASALT
T. S. 1-26, 5-94
Phenocrysts between 1 and 5%, mostly plagioclase; olivine to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Grayish orange (10YR 7/4) foram limestone interbeds and veins. Breccia consists of sideromelane, with palagonitized surfaces and fractures, in a limestone matrix. Many of the sideromelane fragments are spall chips, only slightly displaced from original site.

Site 355 Hole Core 10 Cored Interval: 495.5-505.0 m



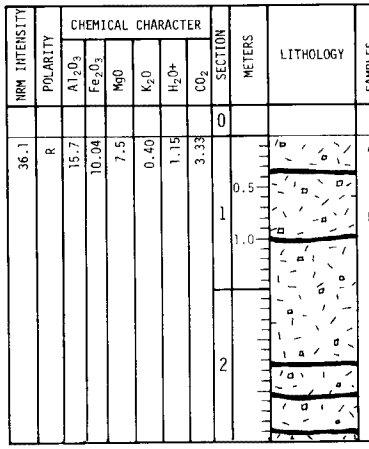
LITHOLOGIC DESCRIPTION

Original basalt recovery was 5.6 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY TO MODERATELY PHYRIC BASALT
T. S. 2-37
Phenocrysts between 1 and 5%, mostly plagioclase; olivine to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Breccia consists of sideromelane, with palagonitized surfaces and fractures, in a grayish orange (10YR 7/4) foram limestone matrix. Many of the sideromelane fragments are spall chips, only slightly displaced from original site.

Site 335 Hole Core 11 Cored Interval: 505.0-514.5 m

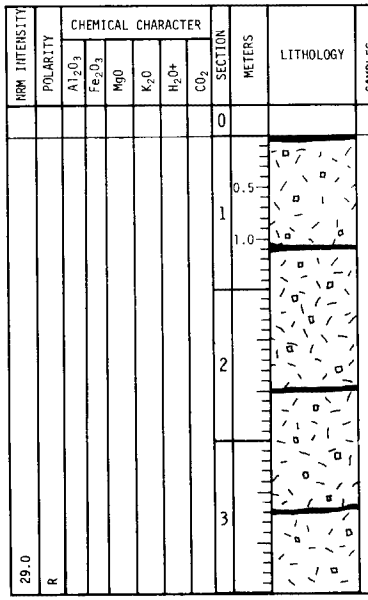


LITHOLOGIC DESCRIPTION

Original basalt recovery was 2.2 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

MODERATELY PHYRIC BASALT
T. S. 1-13
Phenocrysts are about 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Site 335 Hole Core 12 Cored Interval: 514.5-524.0 m

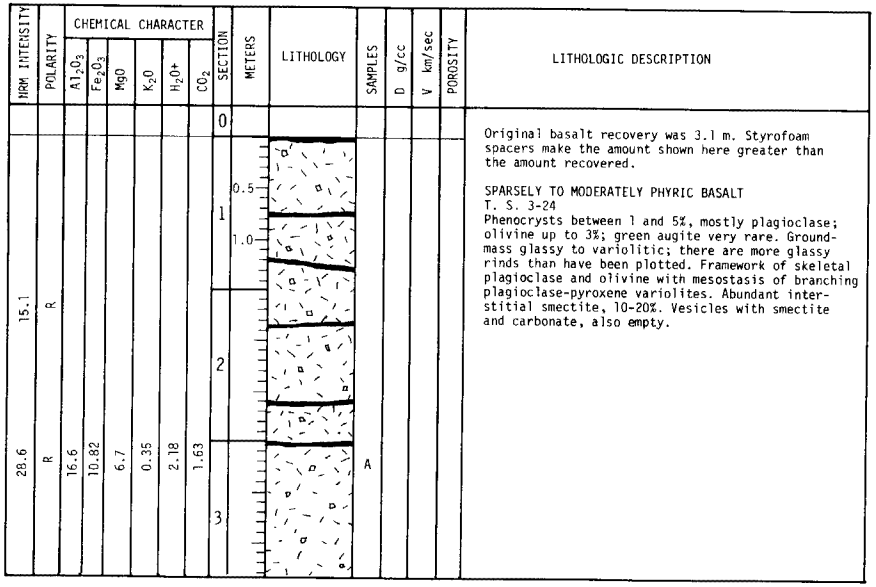


LITHOLOGIC DESCRIPTION

Original basalt recovery was 3.1 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

MODERATELY PHYRIC BASALT
T. S. 3-146
Phenocrysts are about 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Site 335 Hole Core 13 Cored Interval: 524.0-533.5 m

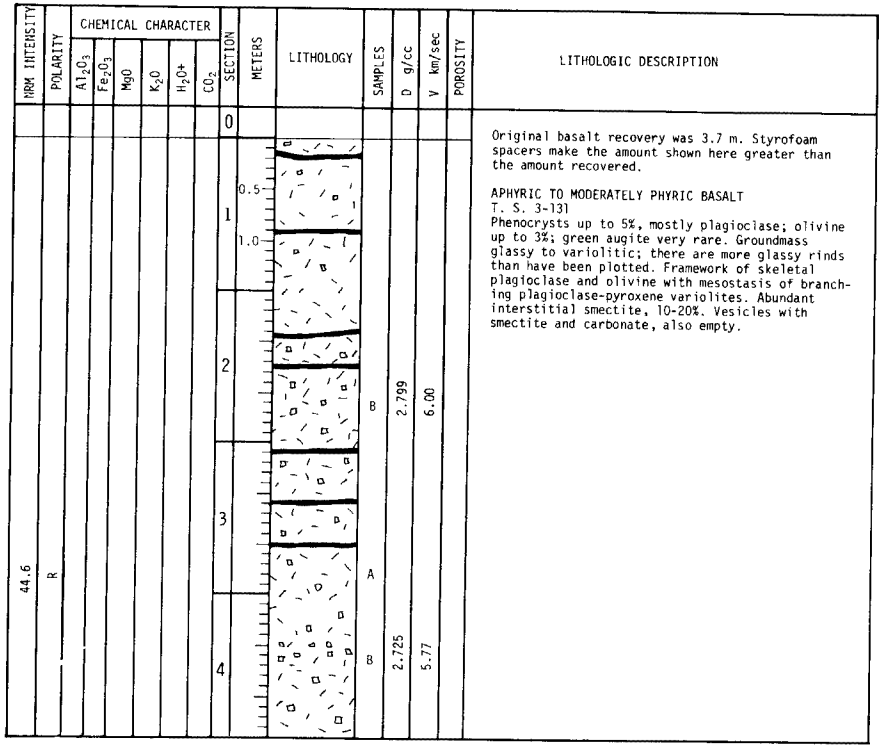


LITHOLOGIC DESCRIPTION

Original basalt recovery was 3.1 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

SPARSELY TO MODERATELY PHYRIC BASALT
T. S. 3-24
Phenocrysts between 1 and 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Site 335 Hole Core 14 Cored Interval: 533.5-543.0 m



LITHOLOGIC DESCRIPTION

Original basalt recovery was 3.7 m. Styrofoam spacers make the amount shown here greater than the amount recovered.

APHYRIC TO MODERATELY PHYRIC BASALT
T. S. 3-131
Phenocrysts up to 5%, mostly plagioclase; olivine up to 3%; green augite very rare. Groundmass glassy to variolitic; there are more glassy rinds than have been plotted. Framework of skeletal plagioclase and olivine with mesostasis of branching plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.

Site 335 Hole Core 15 Cored Interval: 543.0-552.5 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original basalt recovery was 0.1 m. Styrofoam spacers make the amount shown here greater than the amount recovered. SPARSELY PHYRIC BASALT Phenocrysts about 3%, mostly plagioclase, olivine about 1%; green augite very rare. Texture probably variolitic; vesicles with carbonate and smectite.

Site 335 Hole Core 16 Cored Interval: 552.5-562.0 m

NRM INTENSITY	POLARITY	CHEMICAL CHARACTER Al_2O_3	Fe_2O_3	MgO	K_2O	H_2O+	CO_2	SECTION	METERS	LITHOLOGY	SAMPLES	D g/cc	V km/sec	POROSITY	LITHOLOGIC DESCRIPTION
								0							Original basalt recovery was 0.35 m. Styrofoam spacers make the amount shown here greater than the amount recovered. SPARSELY TO MODERATELY PHYRIC BASALT T. S. 1-22 Phenocrysts between 1 and 5%, mostly plagioclase; olivine to 3%; green augite very rare. Texture variolitic, with a framework of skeletal plagioclase and olivine with mesostasis of branching fine-grained plagioclase-pyroxene variolites. Abundant interstitial smectite, 10-20%. Vesicles with smectite and carbonate, also empty.
41.2	R	15.9	10.57	9.0	0.3	1.12	0.24		0.5		A				