SITE 783 HOLE A CORE 1R CORED INTERVAL 4648.8-4658.5 mbsl; 0.0-9.7 mbsf

TIME-ROCK UNIT: LOWER PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: B; R/P — NANNOFOSSILS: CN14a; R/P — RADIOLARIANS: R/P — DIATOMS: R/P — *N. reinholdii*

PALEOMAGNETICS: N

PHYS. PROPERTIES: ϕ=71.0 P=1.40; ϕ=69.2 P=1.49; ϕ=71.3 P=1.48; ϕ=72.4 P=1.46; ϕ=72.9 P=1.50; ϕ=73.2 P=1.48; ϕ=72.0 P=1.47

CHEMISTRY: 1.2; 0.9; 0.2; 4.1; 20.6 0.41; 1.2; 60.4

wt.%CaCO3; wt.%TOC

SECTION: 1 2 3 4 5 6 7 CC CC

METERS: 0.5; 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW; IW; IW

LITHOLOGIC DESCRIPTION

GLASS-RICH SILTY CLAY

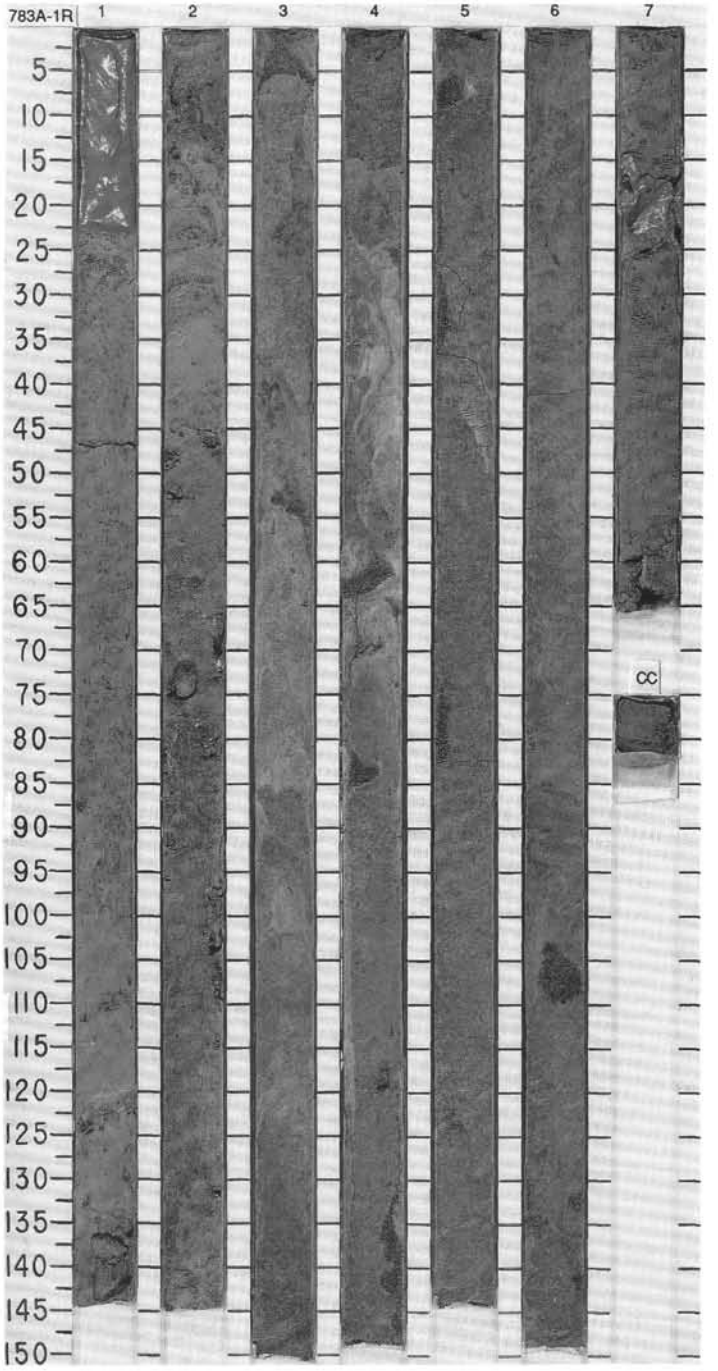
Major lithology: GLASS-RICH SILTY CLAY, light olive brown (2.5Y 5/6) streaked with gray (2.5Y 6/0) in Section 1 and light yellowish brown (2.5Y 6/4) to grayish brown (2.5Y 5/2) in Section 2, 3, 4, 5, 6, 7, and CC. Contains faint laminations in Section 1 at 100-115 cm, in Section 2 at 15-33 and 125-130 cm, in Section 3 at 5-7, 37-39, 46-48, 70, 84, 101, and 120 cm, and in Section 6 at 84-88 and 105-109 cm. Most of the laminations are ash-rich. Section 4 contains a graded unit from 14 to 60 cm with a sharp-based ash layer at its base.

SMEAR SLIDE SUMMARY (%):

	1, 96 D	2, 55 D	3, 4 M	4, 15 M	4, 70 M	5, 63 D	6, 68 D
TEXTURE:							
Sand	—	3	10	—	—	—	10
Silt	70	60	60	25	35	60	30
Clay	30	37	30	75	65	40	60
COMPOSITION:							
Carbonate grains	—	—	6	—	—	5	—
Clay	53	40	22	76	65	51	63
Diatoms	2	2	2	7	Tr	1	6
Epidote	—	—	—	—	Tr	—	—
Feldspar	8	8	15	5	—	13	7
Glass	30	43	30	3	1	25	13
Micrite	—	—	—	—	2	—	—
Nannofossils	—	—	—	Tr	30	—	—
Opaques	5	5	10	1	1	—	—
Pyroxene	—	—	15	1	—	—	—
Radiolarians	2	2	—	1	Tr	5	3
Silicoflagellates	—	—	—	1	Tr	—	—
Spicules	—	—	—	5	1	—	8
Zeolite	Tr	Tr	Tr	Tr	—	Tr	Tr

SMEAR SLIDE SUMMARY (%):

	7, 50 D	CC, 5 D
TEXTURE:		
Sand	—	10
Silt	40	60
Clay	60	30
COMPOSITION:		
Carbonate grains	—	5
Chlorite	1	—
Clay	66	30
Diatoms	—	2
Feldspar	5	5
Foraminifers	—	3
Glass	25	50
Opaques	1	3
Pyroxene	2	—
Radiolarians	—	1
Spicules	—	1
Zeolite	Tr	Tr



SITE 783 HOLE A CORE 2R CORED INTERVAL 4658.5-4665.2 mbsl; 9.7-16.4 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B		R/P	R	ϕ=66.2 ρ=1.42	0.2	1	0.5				*
					R	ϕ=72.6 ρ=1.35	0.3		1.0			◇	
							0.37	2					
								CC					

wt.%$CaCO_3$
wt.%TOC

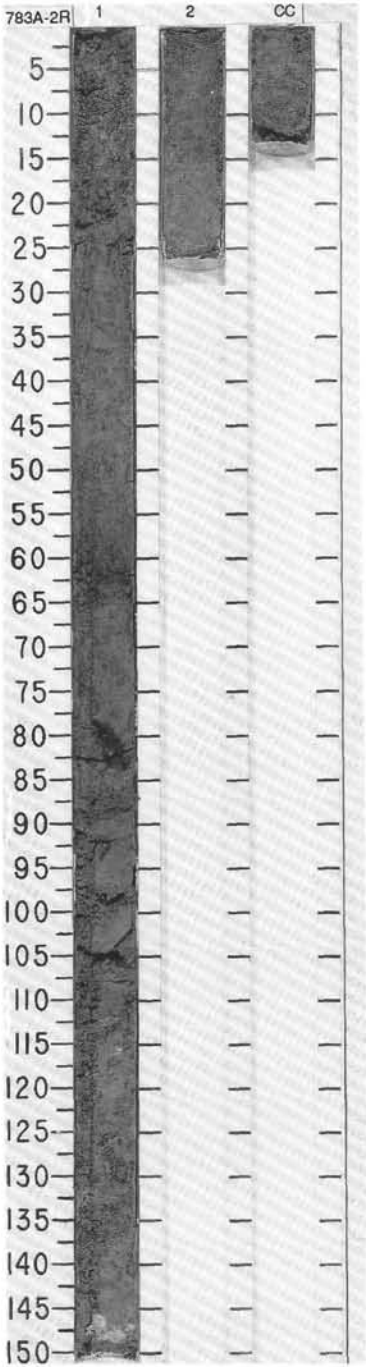
LITHOLOGIC DESCRIPTION

GLASS-BEARING CLAY

Major lithology: GLASS-BEARING CLAY, dark grayish brown (2.5Y 4/2) to very dark grayish brown (2.5 3/2) gradually changing to dark gray (N4/) in Section CC. Very homogeneous; no sedimentary structures. One small patch of black (10YR 2/1) ash is present at 77-83 cm in Section 1.

SMEAR SLIDE SUMMARY (%):

	1, 50 D
TEXTURE:	
Silt	20
Clay	80
COMPOSITION:	
Clay	80
Diatoms	1
Feldspar	5
Glass	7
Opaques	3
Pyroxene	2
Radiolarians	Tr
Spicules	2



SITE 783 HOLE A CORE 3R CORED INTERVAL 4665.2-4674.8 mbsl; 16.4-26.0 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES	LITHOLOGIC DESCRIPTION
LOWER PLEISTOCENE	B	F/P CN14a		R/P				CC			V		*	NANNOFOSSIL-BEARING VITRIC CLAYEY SILT

Major lithology: NANNOFOSSIL-BEARING VITRIC CLAYEY SILT, light gray (10YR 5/1). Badly disturbed by drilling. One pyritized trace fossil, approximately 3 cm long and 1 cm in diameter, was found.

SMEAR SLIDE SUMMARY (%):

	CC, 1 D
TEXTURE	
Silt	60
Clay	40
COMPOSITION:	
Chlorite	2
Clay	43
Diatoms	Tr
Feldspar	3
Glass	35
Nannofossils	10
Opaques	7
Radiolarians	Tr
Zeolite	Tr

SITE 783 HOLE A CORE 4R CORED INTERVAL 4674.8-4684.5 mbsl; 26.0-35.7 mbsf

TIME-ROCK UNIT: LOWER PLEISTOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: B; NANNOFOSSILS: CN14a, C/M; RADIOLARIANS: R/P; DIATOMS: R/P; PALEOMAGNETICS: R

PHYS. PROPERTIES: 0-70.0 ρ=1.50; 0-72.4 ρ=1.47; 0-71.7 ρ=1.49; 0-69.1 ρ=1.52; 0-66.0 ρ=1.55

CHEMISTRY: 3.6; 6.7; 21.6 0.34; 0.7; 3.9; 0.5; wt.%CaCO3 wt.%TOC

SECTION: 1, 2, 3, 4, 5, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW

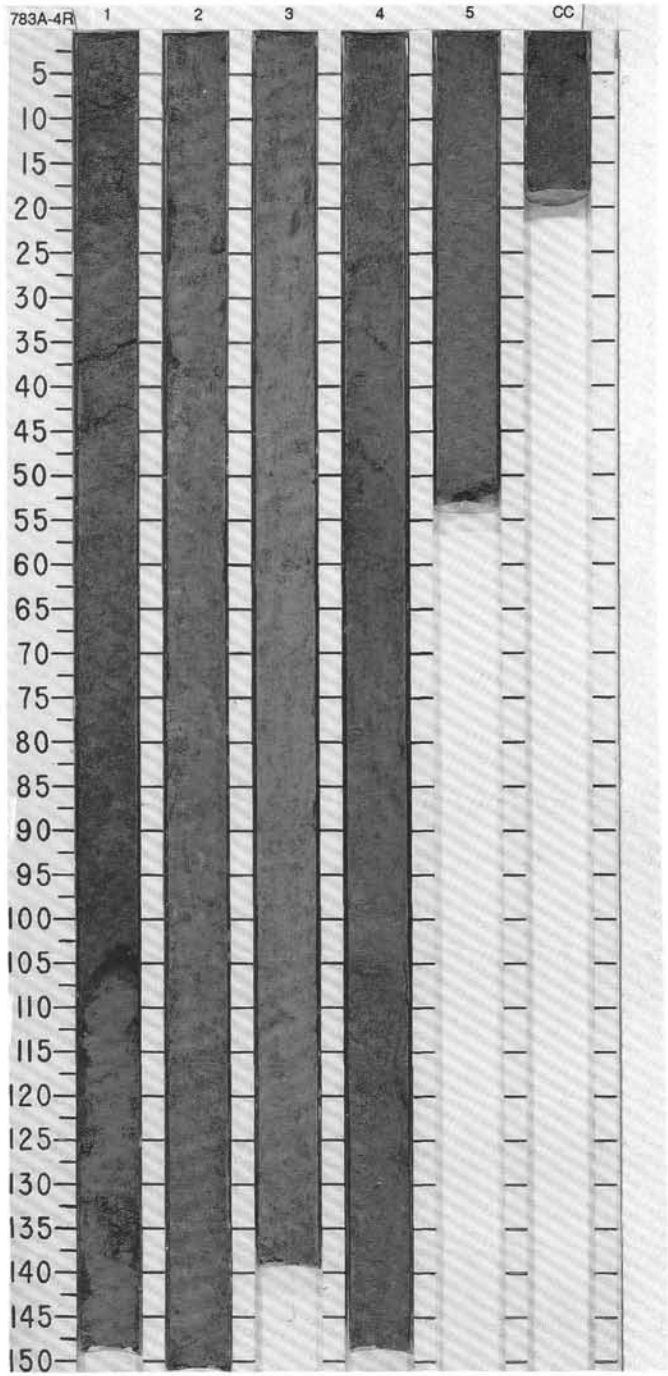
LITHOLOGIC DESCRIPTION

GLASS-AND NANNOFOSSIL- RICH SILTY CLAY AND CLAYEY SILT

Major lithology: GLASS-, AND NANNOFOSSIL- RICH SILTY CLAY AND CLAYEY SILT, gray (10YR 5/1) to dark gray (10YR 4/1). Core extensively mottled by drilling and cutting. Section 1 contains one 1.5 cm light gray, subangular pumice clast at 16-17 cm and an ash layer from 104-105 cm. Section 4 contains green laminations of vitric clay at 45 degrees from horizontal (drilling disturbance?). Also present in Section 4 is a graded bed with sharp-based lower contact, laminations in the central portion, and faint cross-bedding at the top.

SMEAR SLIDE SUMMARY (%):

	1, 50 D	1, 104 M	3, 50 D	4, 27 M	5, 20 D
TEXTURE:					
Sand	—	80	5	5	—
Silt	50	10	45	35	20
Clay	50	10	50	60	80
COMPOSITION:					
Carbonate grains	—	—	7	—	—
Clay	51	10	42	63	40
Diatoms	Tr	—	1	—	3
Epidote	—	—	—	—	7
Feldspar	5	30	5	10	10
Glass	25	50	—	27	5
Micrite	8	—	20	—	15
Nannofossils	—	—	15	—	6
Opaques	4	—	2	—	—
Pyroxene	—	10	—	—	—
Radiolarians	1	Tr	3	—	3
Silicoflagellates	Tr	—	—	—	—
Spicules	1	—	5	—	8
Zeolite	—	—	—	Tr	3



SITE 783 HOLE A CORE 5R CORED INTERVAL 4684.5-4691.5 mbsl; 35.7-42.7 mbsf

TIME-ROCK UNIT: UPPER PLIOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS B; NANNOFOSSILS B; RADIOLARIANS; DIATOMS C/M; *R. praeabergonii*

PALEOMAGNETICS: R

PHYS. PROPERTIES: Φ=62.8, ρ=1.54; Φ=64.6, ρ=1.58; Φ=68.0, ρ=1.53; Φ=66.1, ρ=1.58; Φ=62.5, ρ=1.63

CHEMISTRY: wt.%CaCO3; wt.%TOC; 1.0; 0.2; 0.2; 0.3; 0.5; 0.7

SECTION: 1, 2, 3, 4, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES

LITHOLOGIC DESCRIPTION

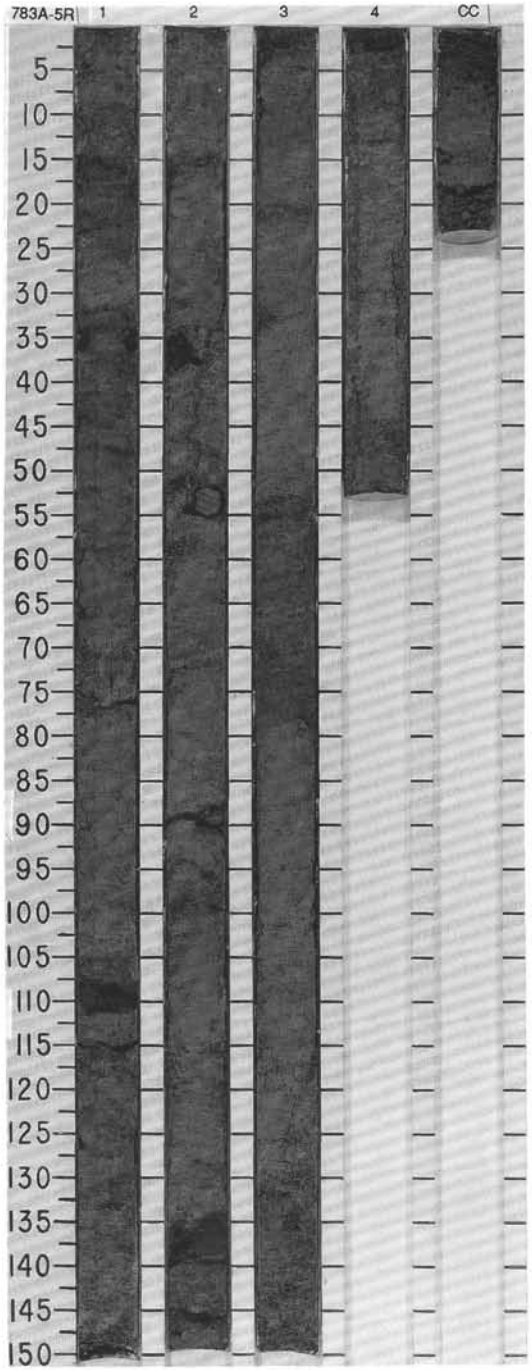
FELDSPAR- AND VITRIC-RICH SILTY CLAY

Major lithology: FELDSPAR- AND VITRIC-RICH SILTY CLAY, dark greenish gray (5G 4/1) grading in and out of indistinct zones of dusky blue green (5BG 3/2). Ash-rich layers are present in Section 1 at 33.5-34 cm, in Section 2 at 31, 72, and 94 cm, in Section 3 at 20 and 53 cm, and in Section 4 at 3 and 13 cm. Rare pumice clasts are present at 52-55 cm in Section 2 and at 99 and 119-145 cm in Section 3.

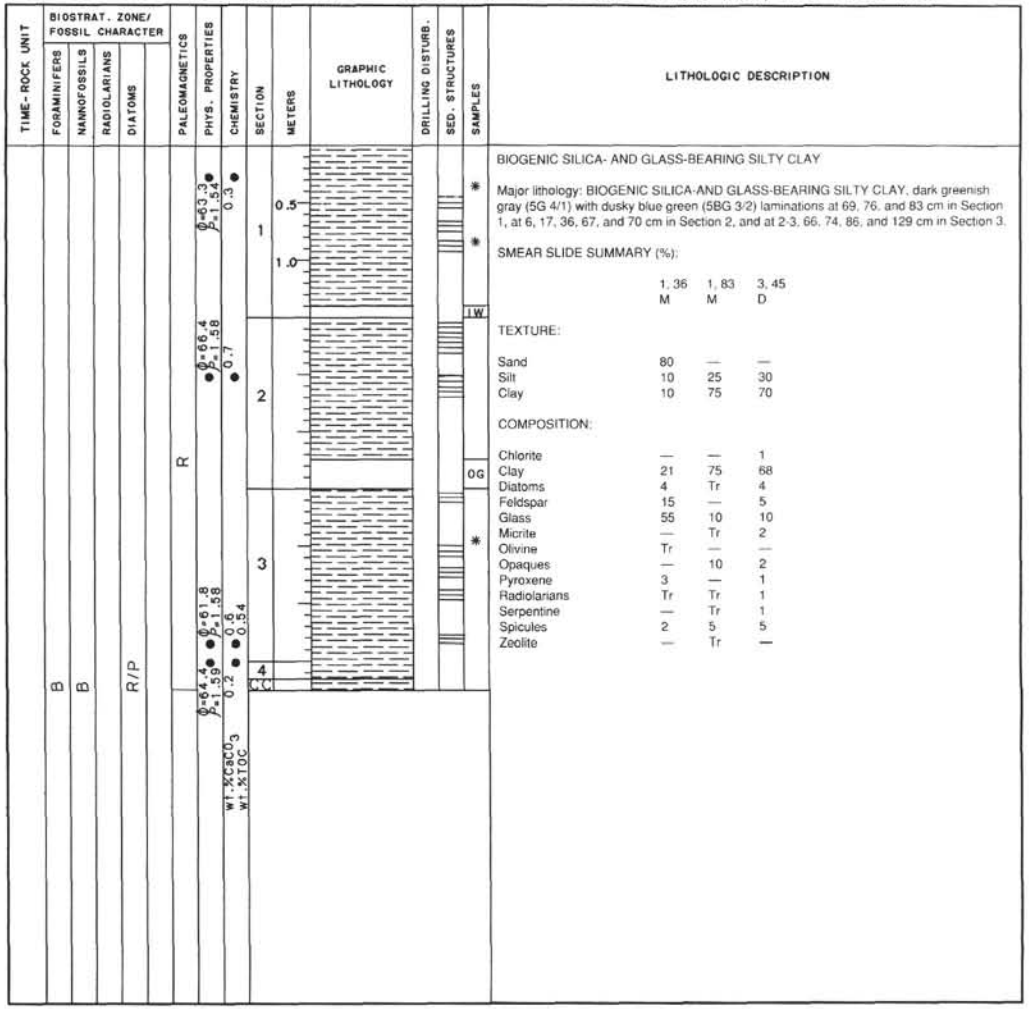
SMEAR SLIDE SUMMARY (%):

	1, 16 M	1, 34 D	1, 65 M	2, 37 M	2, 54 M	2, 89 M	2, 138 M
TEXTURE:							
Sand	—	60	—	60	—	70	15
Silt	70	30	45	30	40	20	50
Clay	30	10	55	10	60	10	35
COMPOSITION:							
Chlorite	—	Tr	3	—	1	Tr	1
Clay	30	15	50	—	57	—	25
Diatoms	3	Tr	3	—	—	—	—
Feldspar	9	5	15	10	3	10	8
Foraminifers	—	—	—	—	—	—	4
Glass	45	75	20	85	30	90	58
Micrite	—	—	Tr	—	—	—	—
Opaques	6	5	3	5	5	—	1
Pyroxene	—	Tr	Tr	—	—	Tr	2
Radiolarians	2	Tr	1	—	1	—	—
Serpentine	Tr	—	—	—	1	—	—
Silicoflagellates	—	Tr	—	—	—	—	—
Spicules	4	Tr	5	—	2	—	1
Thulite	—	Tr	Tr	—	—	—	—
Zeolite	Tr	—	—	—	Tr	—	—

783 A 6R NO RECOVERY



SITE 783 HOLE A CORE 7R CORED INTERVAL 4701.2-4710.9 mbsl; 52.4-62.1 mbsf

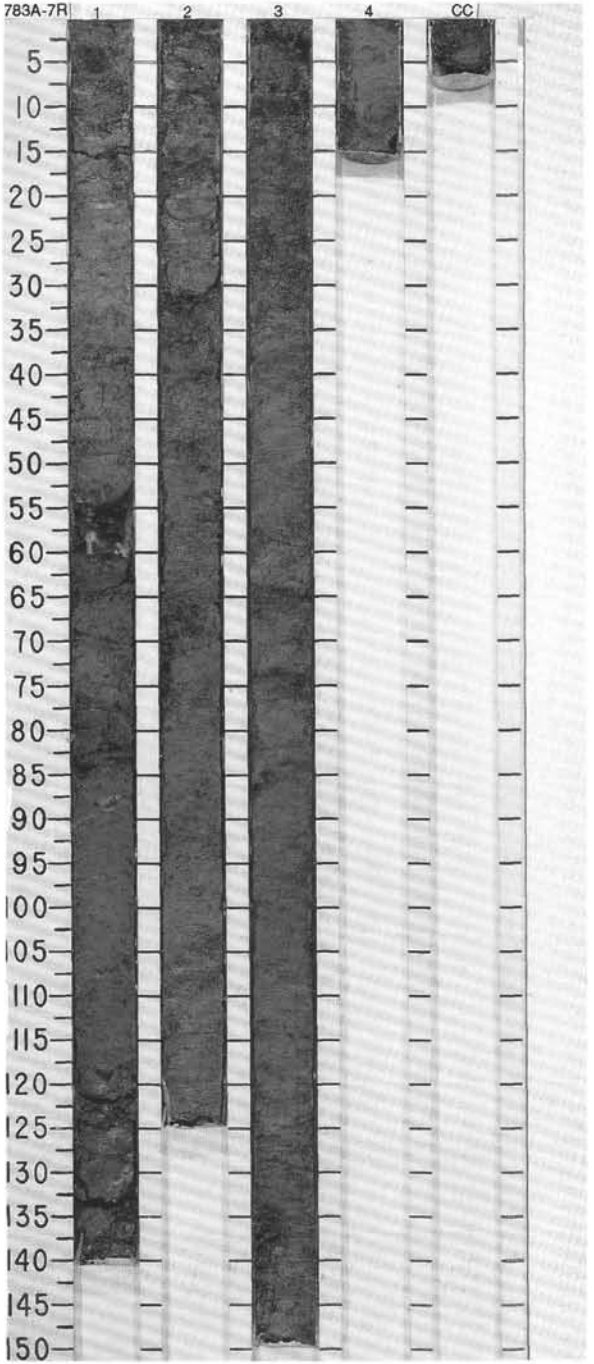


BIOGENIC SILICA- AND GLASS-BEARING SILTY CLAY

Major lithology: BIOGENIC SILICA-AND GLASS-BEARING SILTY CLAY, dark greenish gray (5G 4/1) with dusky blue green (5BG 3/2) laminations at 69, 76, and 83 cm in Section 1, at 6, 17, 36, 67, and 70 cm in Section 2, and at 2-3, 66, 74, 86, and 129 cm in Section 3.

SMEAR SLIDE SUMMARY (%):

	1, 36 M	1, 83 M	3, 45 D
TEXTURE:			
Sand	80	—	—
Silt	10	25	30
Clay	10	75	70
COMPOSITION:			
Chlorite	—	—	1
Clay	21	75	68
Diatoms	4	Tr	4
Feldspar	15	—	5
Glass	55	10	10
Micrite	—	Tr	2
Olivine	Tr	—	—
Opaques	—	10	2
Pyroxene	3	—	1
Radiolarians	Tr	Tr	1
Serpentine	—	Tr	1
Spicules	2	5	5
Zeolite	—	Tr	—



SITE 783 HOLE A CORE 8R CORED INTERVAL 4710.9-4720.6 mbsl; 62.1-71.8 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B		R/P	N	ϕ=67.3 ρ=1.49	0.9	1	0.5				
									1.0				
						ϕ=65.5 ρ=1.55	0.2	2					*
						ϕ=64.9 ρ=1.52	0.4	3					*
							wt.%CaCO3 wt.%TOC	CC					

BIOGENIC SILICA- AND GLASS-RICH CLAY AND CLAYSTONE

Major lithology: BIOGENIC SILICA-AND GLASS-RICH CLAY AND CLAYSTONE, dark greenish gray (5G 4/1), homogeneous. Zones of burrowing are present at 60-61 cm in Section 1 and 60-100 cm in Section 2. Both vertical and horizontal burrowsare present. Lithification of areas within core appears to be the result normal burial diagenesis from clay to firm clay and claystone. A minor ash-rich zone is present at 140 cm in Section 2.

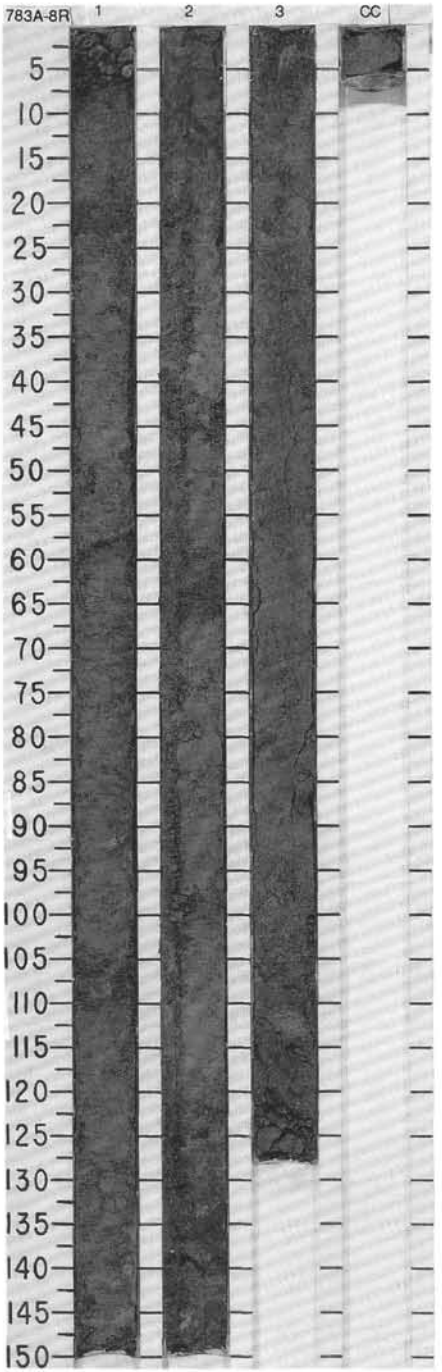
SMEAR SLIDE SUMMARY (%):

	2, 50 D	2, 140 M	3, 50 D
TEXTURE:			
Sand	—	25	—
Silt	10	35	10
Clay	90	40	90
COMPOSITION:			
Clay	40	10	20
Diatoms	10	—	10
Feldspar	Tr	10	—
Glass	25	60	40
Micrite	5	—	5
Opaques	10	5	10
Pyroxene	—	15	—
Radiolarians	Tr	—	5
Serpentine	Tr	—	Tr
Silicoflagellates	Tr	—	—
Spicules	10	—	10
Thulite	—	Tr	—

SITE 783 HOLE A CORE 9R CORED INTERVAL 4720.6-4730.1 mbsl; 71.8-81.3 mbsf

TIME-ROCK UNIT	FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B		R/P				1	0.5				
									1.0				

Recovered 2 cm — given to paleontologists.



SITE 783 HOLE A CORE 10R CORED INTERVAL 4730.1-4739.7 mbsl; 81.3-90.9 mbsf

TIME-ROCK UNIT: LOWER PLIOCENE

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: B; NANNOFOSSILS: B; RADIOLARIANS: R/P; DIATOMS: *N. jouseae*

PALEOMAGNETICS: ?

PHYS. PROPERTIES: Φ=71.5, ρ=1.48; Φ=70.8, ρ=1.50

CHEMISTRY: wt.%CaCO3 0.3, 0.44; wt.%TOC 0.1

SECTION: 1, 2; METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: IW

LITHOLOGIC DESCRIPTION

BIOGENIC SILICA- AND VITRIC-RICH CLAY

Major lithology: BIOGENIC SILICA- AND VITRIC-RICH CLAY, dark greenish gray (5G 4/1). Section 1 contains a sedimentary breccia at 20-40 cm and an ash layer 16.5-17 cm.

SMEAR SLIDE SUMMARY (%):

	1, 17 M	1, 100 D
TEXTURE:		
Sand	70	—
Silt	20	10
Clay	10	90
COMPOSITION:		
Clay	—	35
Diatoms	—	10
Feldspar	10	5
Glass	80	25
Opaques	—	10
Pyroxene	10	—
Radiolarians	Tr	5
Serpentine	Tr	Tr
Spicules	Tr	10

SITE 783 HOLE A CORE 11R CORED INTERVAL 4739.7-4749.4 mbsl; 90.9-100.6 mbsf

TIME-ROCK UNIT:

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS: B; NANNOFOSSILS: B; RADIOLARIANS:; DIATOMS: T/P

PALEOMAGNETICS: ?

PHYS. PROPERTIES: Φ=62.6, ρ=1.62

CHEMISTRY: wt.%CaCO3 0.2, 0.22

SECTION: 1

METERS:

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES:

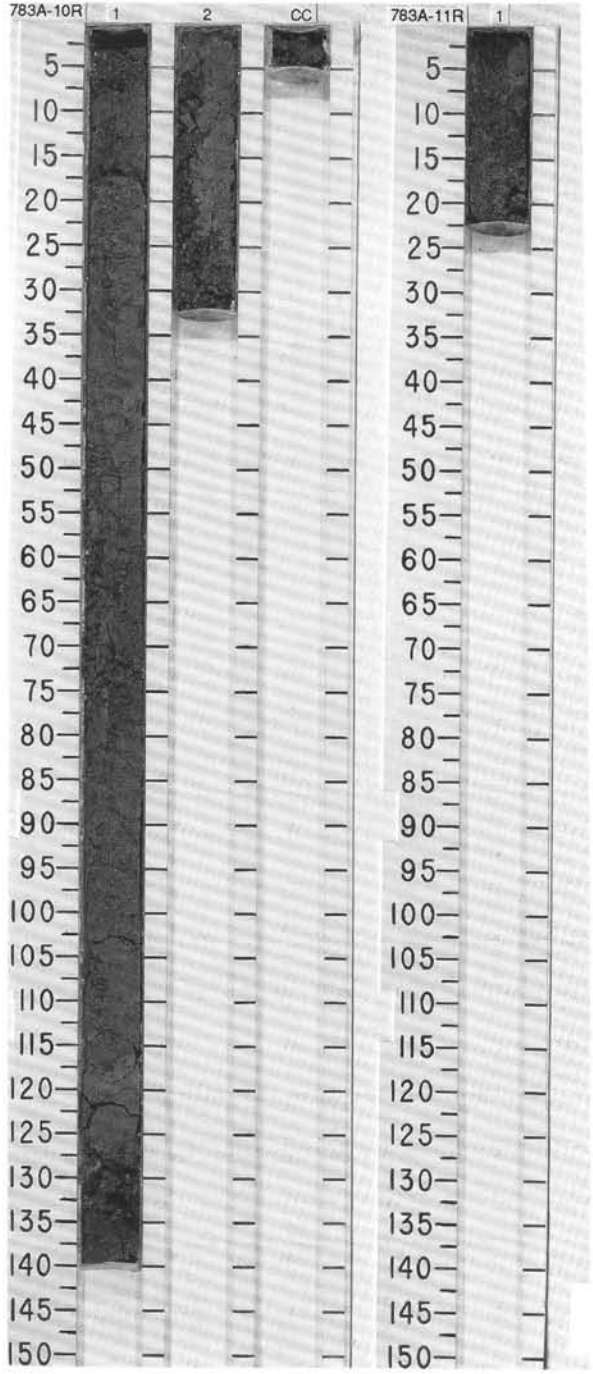
LITHOLOGIC DESCRIPTION

VITRIC SILT

Major lithology: VITRIC SILT, dark gray (5Y 4/1) with approximately 25% intermixed sand-sized ash material.

SMEAR SLIDE SUMMARY (%):

	1, 4 D
TEXTURE:	
Sand	2
Silt	80
Clay	18
COMPOSITION:	
Clay	38
Feldspar	10
Glass	40
Opaques	7
Zeolite	5



SITE 783 HOLE A CORE 12R CORED INTERVAL 4749.4-4759.0 mbsl; 100.6-110.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B		R/P	?	Φ=73.2 ρ=1.44	wt.%CaCO3 0.2 wt.%TOC 0.26	1					* *

LITHOLOGIC DESCRIPTION

CLAY-RICH SILT and FELDSPAR-BEARING VITRIC-RICH SILT

Major lithology: CLAY-RICH SILT and FELDSPAR-BEARING VITRIC-RICH SILT, dark greenish gray (5G 4/1). Inversely graded interval from 0 to 40 cm in Section 1 consists of small, angular pebbles in a clast-supported conglomerate bed (4 cm thick) grading downward into coarse sand (4-7 cm) and then into a sandy silt (7-40 cm). Clasts are dark greenish gray (5G 4/1) to grayish brown (10YR 5/2).

SMEAR SLIDE SUMMARY (%):

	1, 7 D	1, 28 D
TEXTURE:		
Sand	—	5
Silt	15	75
Clay	85	20
COMPOSITION:		
Clay	65	30
Feldspar	8	15
Glass	10	32
Opaques	2	3
Serpentine	10	—
Zeolite	5	20

SITE 783 HOLE A CORE 13R CORED INTERVAL 4759.0-4768.7 mbsl; 110.2-119.9 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	R/P		B				CC					*
		CP14b/CP15											

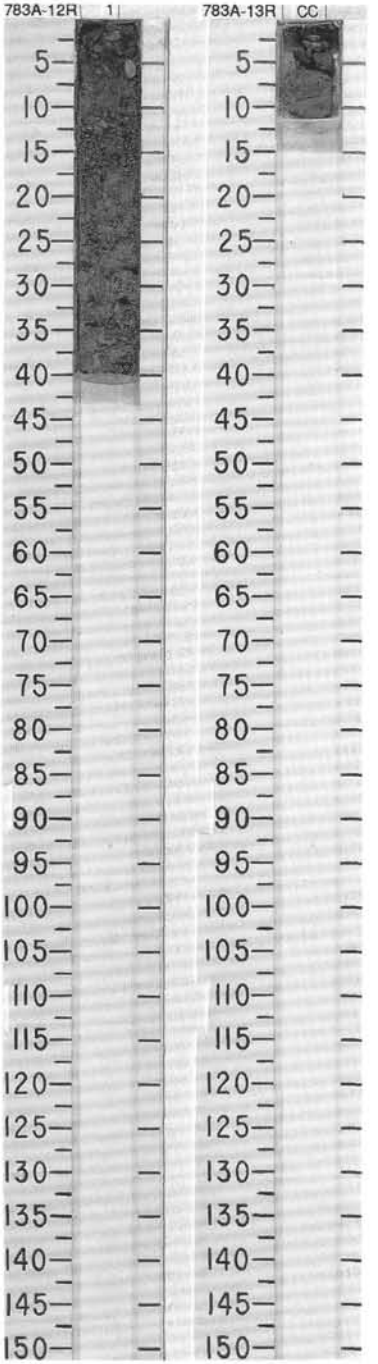
LITHOLOGIC DESCRIPTION

CONGLOMERATIC FELDSPAR-BEARING VITRIC-RICH SILTSTONE

Major lithology: CONGLOMERATIC FELDSPAR-BEARING VITRIC SILT, dark greenish gray (5G 4/1). Isolated clasts with mud coatings are present from 0 to 5 cm and one large piece of indurated mud-clast bearing siltstone.

SMEAR SLIDE SUMMARY (%):

	CC, 6 D
TEXTURE:	
Sand	5
Silt	65
Clay	30
COMPOSITION:	
Carbonate grains	2
Clay	63
Feldspar	10
Glass	20
Opaques	5



SITE 783 HOLE A CORE 14R CORED INTERVAL 4768.7-4778.4 mbsl; 119.9-129.6 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS	PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
	B	B			?			1					
								CC					

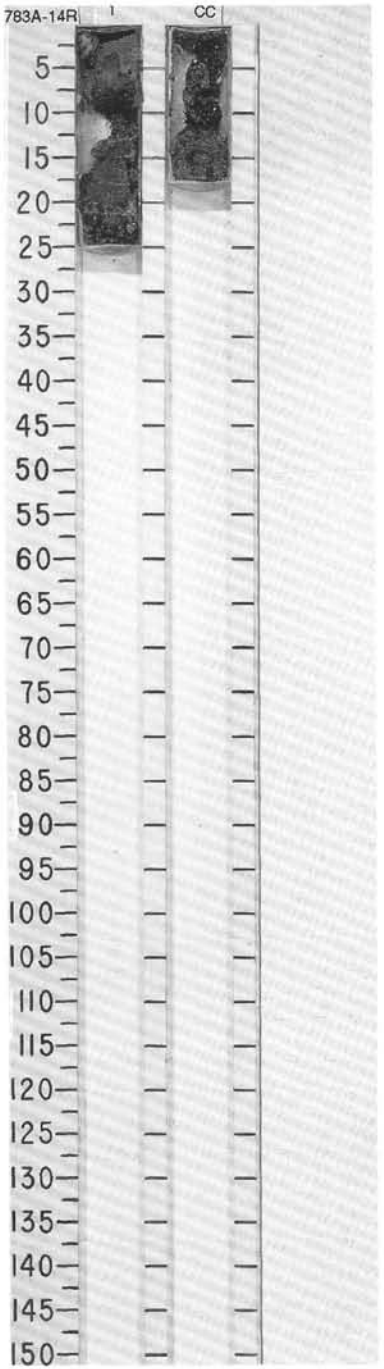
LITHOLOGIC DESCRIPTION

SERPENTINE-BEARING FELDSPAR-AND GLASS-RICH SILTY CLAY and SILT-SIZED SERPENTINE

Major lithology: SERPENTINE-BEARING FELDSPAR-AND GLASS-RICH SILTY CLAY and SILT-SIZED SERPENTINE, black (7.5YR 2/0) with light green veins and yellowish gray (5Y 7/1) (probably siltstone), light green (serpentinite), and black (igneous and serpentinite) clasts. Clasts range from fine sand to 3 cm in diameter and are subrounded to subangular. Many coarse sand-sized ash grains are present in Section 2 as are pyrite grains.

SMEAR SLIDE SUMMARY (%):

	1, 3 D	1, 19 D	1, 21 D	CC, 13 D
TEXTURE:				
Sand	—	—	—	20
Silt	40	100	100	30
Clay	60	—	—	50
COMPOSITION:				
Chlorite	2	—	—	—
Clay	59	5	5	50
Feldspar	12	—	—	12
Glass	15	—	—	12
Micrite	2	—	—	—
Opaques	3	5	—	5
Pyroxene	—	—	—	Tr
Radiolarians	1	—	—	—
Serpentine	4	90	65	20
Spicules	2	—	—	—
Thulite	—	—	30	1



SITE 783 HOLE A CORE 15R CORED INTERVAL 4778.4-4788.0 mbsl; 129.6-139.2 mbsf

TIME-ROCK UNIT: B

BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS; NANNOFOSSILS; RADIOLARIANS; DIATOMS

PALEOMAGNETICS: ?

PHYS. PROPERTIES: ϕ=38.1 ρ=2.16 V=1.98; ϕ=29.5 ρ=2.15 V=2.06; ϕ=34.6 ρ=2.10 V=1.88

CHEMISTRY: 0.4; 0.13; 3.7; 0.2; wt.%CaCO3; wt.%TOC

SECTION: 1, 2, 3, CC

METERS: 0.5, 1.0

GRAPHIC LITHOLOGY

DRILLING DISTURB.

SED. STRUCTURES

SAMPLES: TS; WR; TSS; LW

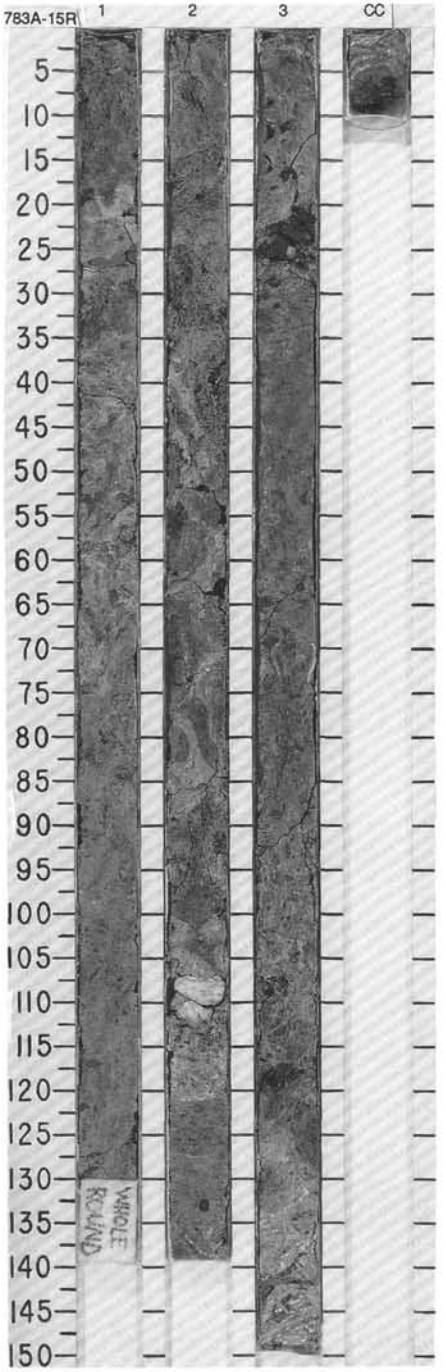
LITHOLOGIC DESCRIPTION

SILT-SIZED SERPENTINE

Major lithology: SILT-SIZED SERPENTINE, bluish gray (5B 6/1) and dark blue gray (5B 4/1) to light gray (5Y 7/1) and greenish gray (5G 6/1). Blue material is highly sheared and phacoidal, green is less sheared and has abundant, angular to subrounded, sand- to small pebble-sized clasts of serpentinite. Chlorite is common in the upper part of Section 2 and aragonite occurs in a brecciated interval from 112-120 cm in Section 2. Red hematite-stained serpentine is present is convolute laminations at 125-150 cm in Section 3.

SMEAR SLIDE SUMMARY (%):

	1, 30 D	1, 80 D	2, 90 M	2, 118 D	3, 131 M	3, 148 M
TEXTURE:						
Silt	100	100	100	100	100	60
Clay	—	—	—	—	—	40
COMPOSITION:						
Aragonite	—	—	—	50	—	—
Chlorite	—	35	23	20	—	—
Hematite	—	—	—	—	—	40
Opaques	4	5	7	2	—	—
Serpentine	95	60	60	28	100	60
Thulite	—	—	10	Tr	—	—



SITE 783 HOLE A CORE 16R CORED INTERVAL 4788.0-4797.7 mbsl; 139.2-148.9 mbsf

TIME-ROCK UNIT | BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS, NANNOFOSSILS, RADIOLARIANS, DIATOMS | PALEOMAGNETICS | PHYS. PROPERTIES | CHEMISTRY | SECTION | METERS | GRAPHIC LITHOLOGY | DRILLING DISTURB. | SED. STRUCTURES | SAMPLES

LITHOLOGIC DESCRIPTION

SILT-SIZED SERPENTINE and GARNET-BEARING SILT-SIZED SERPENTINE

Major lithology: SILT-SIZED SERPENTINE and GARNET-BEARING SILT-SIZED SERPENTINE, dominantly bluish gray (5B 6/1) to dark bluish gray (5B 4/1). Pervasive sheared texture with common black, subangular to subrounded clasts (serpentinite?) up to 5 cm in diameter.

SMEAR SLIDE SUMMARY (%):

	1, 40 D	1, 139 M	3, 19 D
TEXTURE:			
Silt	100	100	100
COMPOSITION:			
Chlorite	5	—	—
Dolomite	—	Tr	1
Fish	—	—	Tr
Garnet	—	7	5
Micrite	Tr	—	—
Opaques	3	—	2
Serpentine	90	93	92
Thulite	2	Tr	—

SITE 783 HOLE A CORE 17R CORED INTERVAL 4797.7-4807.4 mbsl; 148.9-158.6 mbsf

TIME-ROCK UNIT | BIOSTRAT. ZONE/FOSSIL CHARACTER: FORAMINIFERS, NANNOFOSSILS, RADIOLARIANS, DIATOMS | PALEOMAGNETICS | PHYS. PROPERTIES | CHEMISTRY | SECTION | METERS | GRAPHIC LITHOLOGY | DRILLING DISTURB. | SED. STRUCTURES | SAMPLES

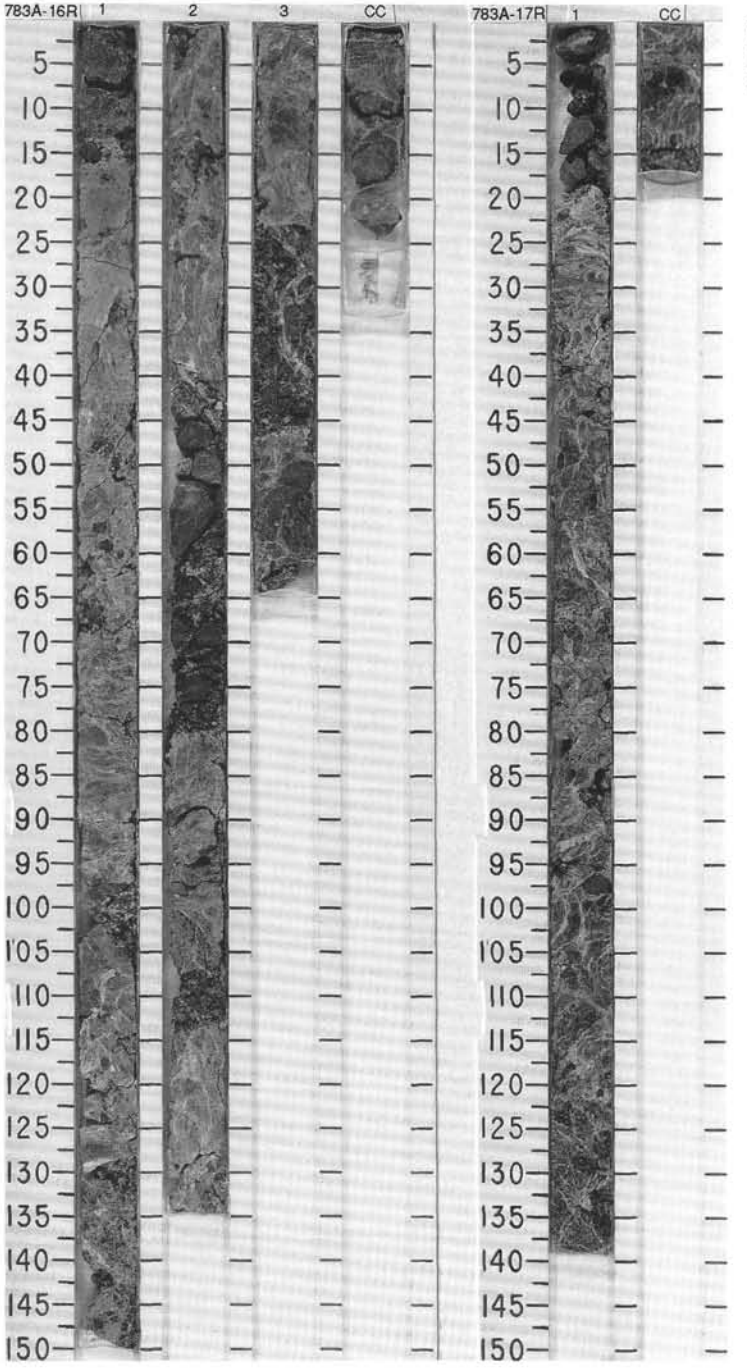
LITHOLOGIC DESCRIPTION

SHEARED PHACOIDAL SERPENTINE

Major lithology: SHEARED PHACOIDAL SERPENTINE, highly foliated with veins and pods of light green (5G 8/2) serpentine anastomosing around separate pods, rhomboids, and phacoids of dark green (5G 4/2 and 5G 3/2) serpentine. Both well-lithified and soft clasts (serpentinite and serpentine?) are present.

SMEAR SLIDE SUMMARY (%):

	1, 25 M	1, 66 M	1, 120 D	CC, 2 D
TEXTURE:				
Sand	2	10	5	5
Silt	85	80	90	75
Clay	13	10	5	20
COMPOSITION:				
Chlorite	—	7	1	10
Clay	10	—	—	—
Fish	—	Tr	Tr	Tr
Micrite	4	2	2	2
Opaques	6	3	1	—
Serpentine	80	88	96	83
Thulite	Tr	—	—	Tr
Unspecified minerals	—	—	—	5



SITE 783 HOLE A CORE 18R CORED INTERVAL 4807.4-4817.0 mbsl; 158.6-168.2 mbsf

TIME-ROCK UNIT	BIOSTRAT. ZONE/ FOSSIL CHARACTER: FORAMINIFERS	NANNOFOSSILS	RADIOLARIANS	DIATOMS		PALEOMAGNETICS	PHYS. PROPERTIES	CHEMISTRY	SECTION	METERS	GRAPHIC LITHOLOGY	DRILLING DISTURB.	SED. STRUCTURES	SAMPLES
						?	?		1	0.5	IM		◇	TS
							ρ = 2.56							*
						?	Φ = 0.4							TS
							● 0.4	wt.%CaCO3						TS
							● 0.13	wt.%TOC		1.0				TS
											IM		◇	*

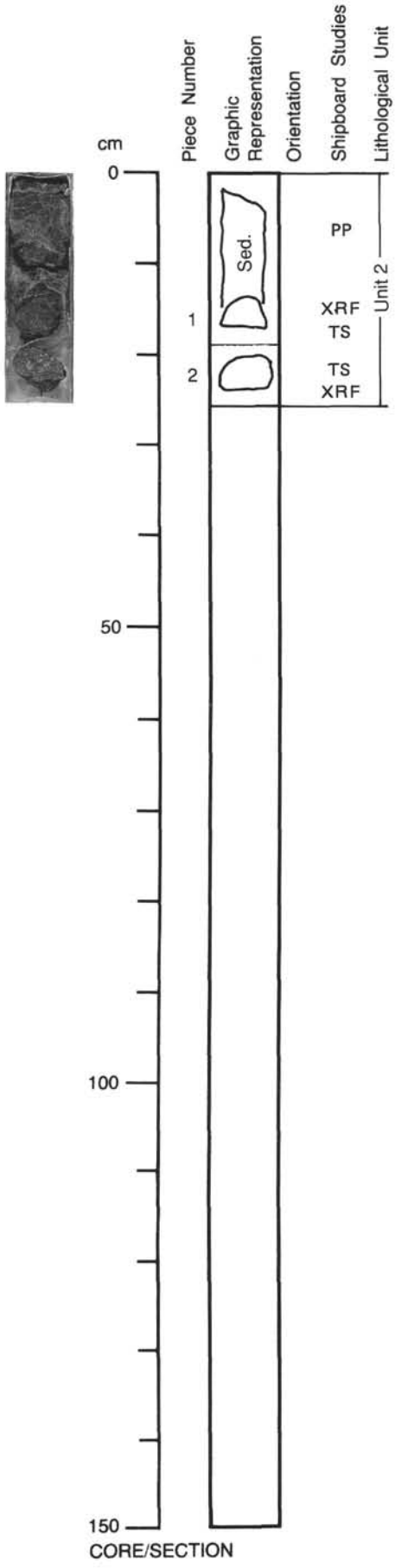
LITHOLOGIC DESCRIPTION

SHEARED PHACOIDAL SERPENTINE

Major lithology: SHEARED PHACOIDAL SERPENTINE, light blue gray (5B 7/1) to bluish gray (5B 6/1) and dark blue gray (5B 5/1) with intermixed anastomosing very pale yellow (5Y /8) and white streaks in a fine-grained phacoidal texture. Very soft phacoids plus serpentinized ultramafic clasts up to 3.5 cm in diameter are common.

SMEAR SLIDE SUMMARY (%):

	1, 30 D	1, 129 D
TEXTURE:		
Sand	10	5
Silt	30	75
Clay	60	20
COMPOSITION:		
Chlorite	Tr	8
Epidote	5	—
Garnet	—	Tr
Micrite	3	6
Opaques	—	4
Serpentine	92	77
Thulite	Tr	Tr
Zoisite	—	5



125-783A-16R-CC

UNIT 2: SERPENTINIZED HARZBURGITE

Pieces 1, 2

COLOR: Black (5G 3/2).
LAYERING: None.
DEFORMATION: None.
PRIMARY MINERALOGY: Primary silicates, variably serpentinized.

Olivine - Mode: 85-90%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: Not visible.
Percent replacement: Variable.

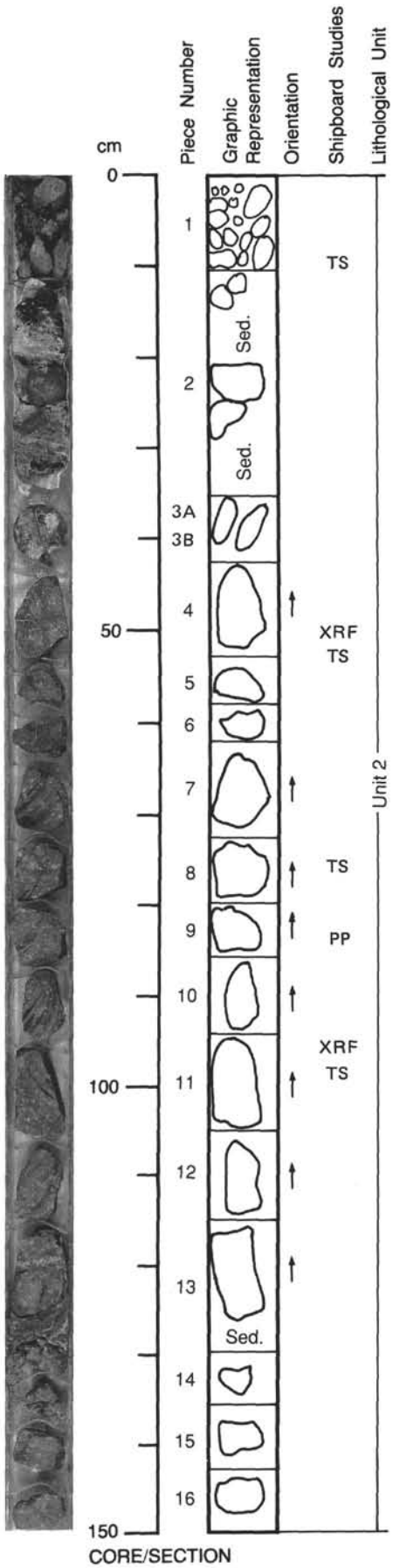
Orthopyroxene - Mode: 10-15%.
Crystal size: 1-5 mm.
Crystal shape: Subhedral.
Crystal orientation: Not visible.
Percent replacement: Variable.

Spinel - Mode: <1%.
Crystal size: 0.5 mm.
Crystal shape: Euhedral-subhedral.
Crystal orientation: Not visible.
Percent replacement: 0.

Native copper - Mode: Trace.
Crystal size: 0.1-0.5 mm.
Crystal shape: Anhedral.
Crystal orientation: Not visible.
Percent replacement: 0.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 70-80%.
Texture: N/A.
Vein material: None.



125-783A-18R-1

UNIT 2: SERPENTINIZED TECTONIZED HARZBURGITE

Pieces 1-16

COLOR: Black (5B 4/1).
LAYERING: Locally bastitic orthopyroxene-rich layers, <1 cm wide.
DEFORMATION: Some vein-filled fractures.
PRIMARY MINERALOGY: Primary minerals are largely replaced by serpentine.

Olivine - Mode: 80-95%.
Crystal size: Not visible.
Crystal shape: Not visible.
Crystal orientation: Not visible.
Percent replacement: Variable.

Orthopyroxene - Mode: 5-20%.
Crystal size: <5 mm.
Crystal shape: Raggedy to euhedral.
Crystal orientation: Random.
Percent replacement: Variable.

Spinel - Mode: Trace.
Crystal size: < 0.1 mm.
Crystal shape: Subhedral to anhedral.
Crystal orientation: Random.
Percent replacement: None visible.

SECONDARY MINERALOGY:

Serpentine.
Total percent: 70-90%.
Texture: Bastitic pyroxene in olivine-mesh groundmass.
Vein material: filled with dark green or white serpentine.

UNIT 2: METABASALT

Pieces 1, one of multiple fragments

COLOR: Dark reddish brown (5YR 2.5/2).
LAYERING: Massive.
DEFORMATION: None.
PRIMARY MINERALOGY: No primary mineralogy visible.
SECONDARY MINERALOGY: Very fine-grained, black dots.

Total percent: 100%.
Texture: Brecciated and recrystallized?
Vein material: Not visible.

125-783A-14R-01 (9-11 cm) OBSERVER: HIR WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.2-2 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Olivine	1	85-90	1-2		Anhedral	90-95% serpentinized to mesh texture.
Clinopyroxene	Trace	<1	<0.5		Anhedral	Occurs in small patches in and around orhopyroxene.
Spinel	<1	<1	0.2-1		Subhedral-anhedral	Dark red in color, chrome-rich spinel.
Orthopyroxene	1-2	10-15	0.7-1.5		Subhedral	85-90% serpentinized to bastite texture.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	2	Serpentine	Dusty brownish clay scattered throughout slide and intermixed with serpentine.
Chlorite	<1	Orthopyroxene bastite	Pale-green in color. Sometimes recognized in orthopyroxene bastite.
Talc	<1	Orthopyroxene bastite	High birefringence, mainly fills in orthopyroxene bastite.
Chrysotile/lizardite	93-95	Orthopyroxene olivine	Serpentine pseudomorph of olivine, shows typical mesh texture.
Magnetite	<1	Spinel	Very fine-grained, mainly occurs in serpentinite veins.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: This rock is highly serpentinized. No deformation texture is recognized. No piece number given.

125-783A-15R-01 (88-95 cm) OBSERVER: PHI WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Sand-sized serpentine

GRAIN SIZE: Fine to very fine-grained

TEXTURE: Foliated clastic (melange)

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	N/A	N/A		N/A	
Orthopyroxene	0	N/A	N/A		N/A	
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	5	Olivine, orthopyroxene(?)	
Serpentine	80	Olivine, orthopyroxene(?)	
Opaques	15	Olivine, orthopyroxene(?)	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Angular to rounded grains (< 1.5 mm) of serpentine set in a fine-grained serpentine matrix with moderately anastomosing foliation. Minor clay in highly altered areas. Some large grains are rotated and others are fractured and separated by fine-grained matrix. These shear textures probably reflect flowing of the materials. No piece number given.

125-783A-15R-02 (84-86 cm) OBSERVER: HIR WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Metabasalt

GRAIN SIZE: (0.05-0.2 mm) fine-grained

TEXTURE: Primary intersertal

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	0	40	0.05-0.1		Anhedral-subhedral	Completely altered to chlorite.
Clinopyroxene	20	25	0.05-0.15		Anhedral	Partly altered to chlorite.
Glass	0	35	N/A		N/A	Completely altered to clay and chlorite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	40	Glass, plagioclase and clinopyroxene	Dusty brownish clay replacing glass.
Zeolites	Trace	Vesicles	Shows very low reflective index and characteristic wavy extinction.
Chlorite	40	Plagioclase/vein	Pale-green in color.
Albite	Trace	Plagioclase	Low reflective index, colorless.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	Trace	Random	<0.2	Chlorite, zeolite	Round

COMMENTS: Plagioclase has been completely chloritized. Chlorite veins (0.2 to 0.8 mm) developed throughout the rock. No piece number given.

125-783A-15R-02 (107-109 cm) OBSERVER: HIR WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Metavolcaniclastic rock

GRAIN SIZE: 1-2 mm

TEXTURE: Secondary cataclastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Clinopyroxene	5	10-15	1-2		Anhedral	Mostly altered to actinolite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	40-50	Matrix	Dusty brownish clay arbitrarily fills in matrix.
Chlorite	5-10		Shows brownish abnormal interference color; coexists with actinolite plus or minus sphene.
Albite	1-2		Colorless, low refractive index, twinning.
Epidote	1-2		Clinozoisite, tabular shape; bluish, abnormal interference color.
Actinolite	5-10	Clinopyroxene	Occurs as colorless acicular crystal: replacing clinopyroxene.
Sphene	Trace		Fine-grained crystal, high refractive index, coexists with chlorite.
Prehnite	20-30	Clinopyroxene	Shows wavy extinction.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Prehnite and actinolite secondarily replaced detrital clinopyroxene fragments. Prehnite also occurs in vein that cuts both detrital fragments and matrix. The stable mineral assemblage of this rock appears to be prehnite and actinolite and chlorite which occurs in Fe-rich rock under prehnite-pumpellyite facies conditions. No piece number given.

125-783A-15R-CC (0-3 cm) OBSERVER: PHI WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Foliated sand-sized serpentine

GRAIN SIZE: Fine to very fine-grained

TEXTURE: Foliated clastic (melange)

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	N/A	Most	N/A		N/A	
Orthopyroxene	N/A	Some?	N/A		N/A	
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	10?	Olivine, orthopyroxene(?)	
Chlorite	trace	Olivine, orthopyroxene(?)	
Opaques	10?	Olivine, orthopyroxene(?)	
Serpentine	80?	Olivine, orthopyroxene(?)	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Most of section was abraded away during polishing; fragmentary remnants show rounded, lensoid (phacoidal) grains of serpentine and opaque minerals set in a fine-grained foliated matrix that anastomoses around the larger clasts. (Probably a serpentinite debris flow). No piece number given.

125-783A-16R-01 (12-14 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized dunite

GRAIN SIZE: 0.01-3 mm

TEXTURE: Mesh

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	<0.01	97.5	0.01		Anhedral	Completely altered to serpentine, mesh; only present as rounded inclusion within spinel.
Spinel	0.5	1	0.5-1.5	Cr	Euhedral-anhedral	Red-brown; fractured.
Orthopyroxene	0	1.5	1-3		Anhedral	Completely altered to serpentine bastite.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	<1	Serpentine	Dusty brown clay intermixed with serpentine on one edge of slide.
Serpentine	98	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh texture after olivine.
Magnetite	1	Spinel	Dusty grains arranged in elongated trains along serpentine mesh edges.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Completely serpentinized dunite! Spinel grains have serpentine pseudomorphic inclusions. One spinel has inclusion of fresh-looking olivine grain. Mesh texture is well developed throughout slide. In some areas the mesh looks locally deformed, but doesn't look like there has been any post-serpentinization deformation. No piece number given.

125-783A-16R-CC (Piece 1,14-17 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-5 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	17	85	0.5-2		Anhedral	Altered to serpentine mesh; elongated wavy extinction.
Clinopyroxene	1	1	0.1-0.3		Subhedral-anhedral	As exsolution lamellae, as grains in and near orthopyroxene margins.
Spinel	1	1	0.2-2	Cr	Euhedral-anhedral	Red, fractured.
Orthopyroxene	10	13	1-5		Subhedral-anhedral	Altered to serpentine bastite; has clinopyroxene exsolution lamellae, wavy extinction.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	70	Olivine, orthopyroxene	Lizardite and/or chrysotile forming bastite and mesh texture from olivine and orthopyroxene.
Magnetite	1	Spinel	Dusty grains concentrated along serpentine veins and mesh edges.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Spinels form crudely elongate trails across slide. Some silicate appears to be forming between fractures in the spinels. Spinels have minor inclusions of rounded olivine(?). Olivine and orthopyroxene appear slightly deformed because of wavy extinction and elongation of grains. Small (0.2-mm-wide) serpentine veins cutting mesh texture. Orthopyroxene has inclusions of clinopyroxene.

125-783A-16R-CC (Piece 2,19-22 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized clinopyroxene-rich harzburgite

GRAIN SIZE: 0.1-6 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	26	74	0.2-1		Anhedral	Altered to serpentine mesh texture.
Clinopyroxene	5	5	0.5-2		Anhedral	As exsolution lamellae and separate grains, fractured.
Spinel	1	1	0.1-2	Cr	Anhedral	Red-brown, fractured, elongate(?).
Orthopyroxene	12	20	0.5-6		Anhedral	Altered to serpentine bastite; deformed crystals, wavy extinction.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Serpentine	55	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite textures from olivine and orthopyroxene. Minor (<0.2-mm-wide) serpentine veins cutting mesh and bastite textures.
Magnetite	1	Spinel, olivine	Dusty 0.1-mm grains scattered throughout more serpentinized portion of slide. Concentrated along cleavages and veins and mesh texture.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Clinopyroxene-rich harzburgite! The clinopyroxene appears freshest in this section. Clinopyroxene is fractured, has wavy extinction, and is distributed throughout slide (not just around orthopyroxene grains). Orthopyroxene grains have small clinopyroxene inclusions. Most of olivine is altered but some orthopyroxene grains are still fresh looking. Spinels are crudely aligned in some elongate trains.

125-783A-17R-01 (Piece 1,9-12 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.5-5 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	1	86	Not visible		Not visible	Altered to serpentine mesh.
Clinopyroxene	1	1	0.1-0.8		Anhedral	As relic grains mostly near orthopyroxenes and spinels.
Spinel	0.5	1	0.1-0.5	Cr	Subhedral-anhedral	Red-brown, fractured; some are elongated(?).
Orthopyroxene	<1	12	0.5-5		Anhedral	Altered to serpentine bastite.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	3	Serpentine	Dusty brown clay intermixed with serpentine throughout slide.
Serpentine	92	Olivine, orthopyroxene	Lizardite and/or chrysotile forming bastite and mesh textures from olivine and orthopyroxene.
Magnetite	2	Spinel, olivine	Dusty 0.2-mm grains throughout slide and concentrated mainly in serpentine veining and bastite "cleavages".

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Spinel has inclusions of round olivines plus serpentine pseudomorphic inclusions. The slide represents a completely altered harzburgite. Relic clinopyroxenes are the only primary grains left (excluding spinels). Minor serpentine and clay veins (0.3 mm wide) cutting mesh and bastite textures. Orthopyroxene bastite appear to have serpentine pseudomorph inclusions with the grain. One portion of slide (appears to represent inner portion of rock) has no clay intermixed with serpentine.

125-783A-17R-CC (10-14 cm) OBSERVER: TER WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Sedimentary serpentinized harzburgite

GRAIN SIZE: 0.5-4 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	85-90	N/A		Anhedral	Mesh texture.
Spinel	Trace	1	<0.5		Subhedral	Reddish brown Cr-spinel.
Orthopyroxene	0	10-15	1-4		Anhedral	Bastite, kink-band.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	40	Serpentine	Variably replacing bastite and olivine pseudomorph.
Serpentine	59	Olivine and orthopyroxene	Lizardite and chrysotile.
Magnetite	1	Spinel and in veins	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Sedimentary serpentine of tectonized harzburgite. Shearing texture is also visible among clasts. No piece number given.

125-783A-18R-01 (Piece 1,0-2 cm) OBSERVER: JOH WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Metabasalt

GRAIN SIZE: <0.01 mm

TEXTURE: Aphyric to sparsely phyric

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	1-2?	1.2		Euhedral	100% altered, clays, hematite.
Clinopyroxene	Trace	<1	0.2-0.5		Euhedral	Elongate 98% altered to clays.
GROUNDMASS						
Glass	0	N/A	N/A		N/A	Highly altered to clays with hematite staining.
Plagioclase	0	10-20	0.01-0.05		Laths	Completely altered.
Clinopyroxene	<1	1-2	1-2		Euhedral-subhedral	
Opaques	<1-1	<1-2	0.01-0.03		Euhedral to anhedral	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	50-65	Glass, plagioclase, clinopyroxene	
Chlorite	10-25	Glass	Slightly brown-green.
Hematite	25-45	Glass	Red to red-brown staining, pervasive and staining.
Iddingsite	1	Olivine	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	3-10	Throughout	0.1-1	Clay	Round to elongate

COMMENTS: Primary minerology has been largely obscured by alteration. Trace amounts of plagioclase may have been present but are indistinguishable now.

125-783A-18R-01 (Piece 4,49-51 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-5 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	22.5	81.5	0.5-3		Anhedral	Fractured, altering to serpentine mesh; slightly wavy extinction in some grains.
Clinopyroxene	2	2	0.1-0.6		Anhedral	As exsolution lamellae and grains in and near orthopyroxene.
Spinel	1.5	1.5	0.5-3	Cr	Subhedral-anhedral	Fractured, red color.
Orthopyroxene	10	15	1-5		Subhedral-anhedral	Slightly wavy extinction; altering to serpentine bastite; some anhedral clinopyroxene inclusions.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	2	Serpentine	Dusty brown clay distributed throughout serpentine but mostly concentrated in one-half of slide.
Serpentine	60	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite texture from olivine and orthopyroxene throughout slide.
Magnetite	2	Spinel	Dusty, 0.1-mm grains; arranged in elongated trails within serpentine veins and mesh edges and orthopyroxene cleavages.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Harzburgite is relatively clinopyroxene-rich. Olivine and orthopyroxene are altered to serpentine mesh and bastite. The mesh appears undeformed in most of slide. The spinels have minor anhedral inclusions of serpentine pseudomorphs (of orthopyroxene???). Orthopyroxene has some kink-bands in a few grains.

125-783A-18R-01 (Piece 8,72-75 cm) OBSERVER: HIR WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized lherzolite

GRAIN SIZE: Coarse-grained

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Olivine	10	60	1-2.5		Anhedral	Serpentinized to mesh texture.
Clinopyroxene	10-15	20	1-2.5		Subhedral	High birefringence, extinction angle=30-40 degrees.
Spinel	1-2	1-2	0.2-1	Aluminous	Subhedral-anhedral	Yellowish brown in color.
Orthopyroxene	10	15	1-4		Subhedral	Serpentinized to bastite texture; often include clinopyroxene exsolution lamellae.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chrysotile/ lizardite	65-70	Olivine, orthopyroxene	Forming bastite and mesh texture.
Magnetite	Trace		Magnetite (0.01 to 0.03 mm) scattered throughout the slide.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: This slide contains a band rich in clinopyroxene and orthopyroxene that is 1 to 1.5 cm wide. Abundant clinopyroxene and brownish color of spinel suggest that this rock primarily is lherzolite. Subhedral to anhedral spinels are arranged in trains. Fine-grained spinels are often included as inclusions in olivine.

125-783A-18R-01 (Piece 11,96-97 cm) OBSERVER: SAB WHERE SAMPLED: Torishima Forearc Seamount, north flank

ROCK NAME: Serpentinized harzburgite

GRAIN SIZE: 0.1-5 mm

TEXTURE: Mesh and bastite

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	25	82	0.5-3		Anhedral	Altered to serpentine mesh; wavy extinction.
Clinopyroxene	2	2	0.1-0.5		Subhedral-anhedral	As exsolution lamellae, grains in and around orthopyroxene.
Spinel	1	1	0.1-0.2	Cr	Subhedral-anhedral	Red; fractured.
Orthopyroxene	10	15	1-5		Subhedral-anhedral	Wavy extinction, minor kink-banding; altered to serpentine bastite.
GROUNDMASS						
N/A	N/A	N/A	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays	1	Serpentine	Dusty brown clay, intermixed with serpentine on one edge of slide.
Serpentine	60	Olivine, orthopyroxene	Lizardite and/or chrysotile forming mesh and bastite textures from olivine and orthopyroxene.
Magnetite	1	Spinel	Dusty 0.1-mm grains concentrated within serpentine mesh centers and veining.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	0				

COMMENTS: Orthopyroxenes contain inclusions of clinopyroxene in some grains. Olivine and orthopyroxene have wavy extinctions and appear slightly deformed. Clay and serpentine rim probably indicates further alteration of serpentine on edges of rock. Orthopyroxene grain has slightly bent clinopyroxene lamellae.