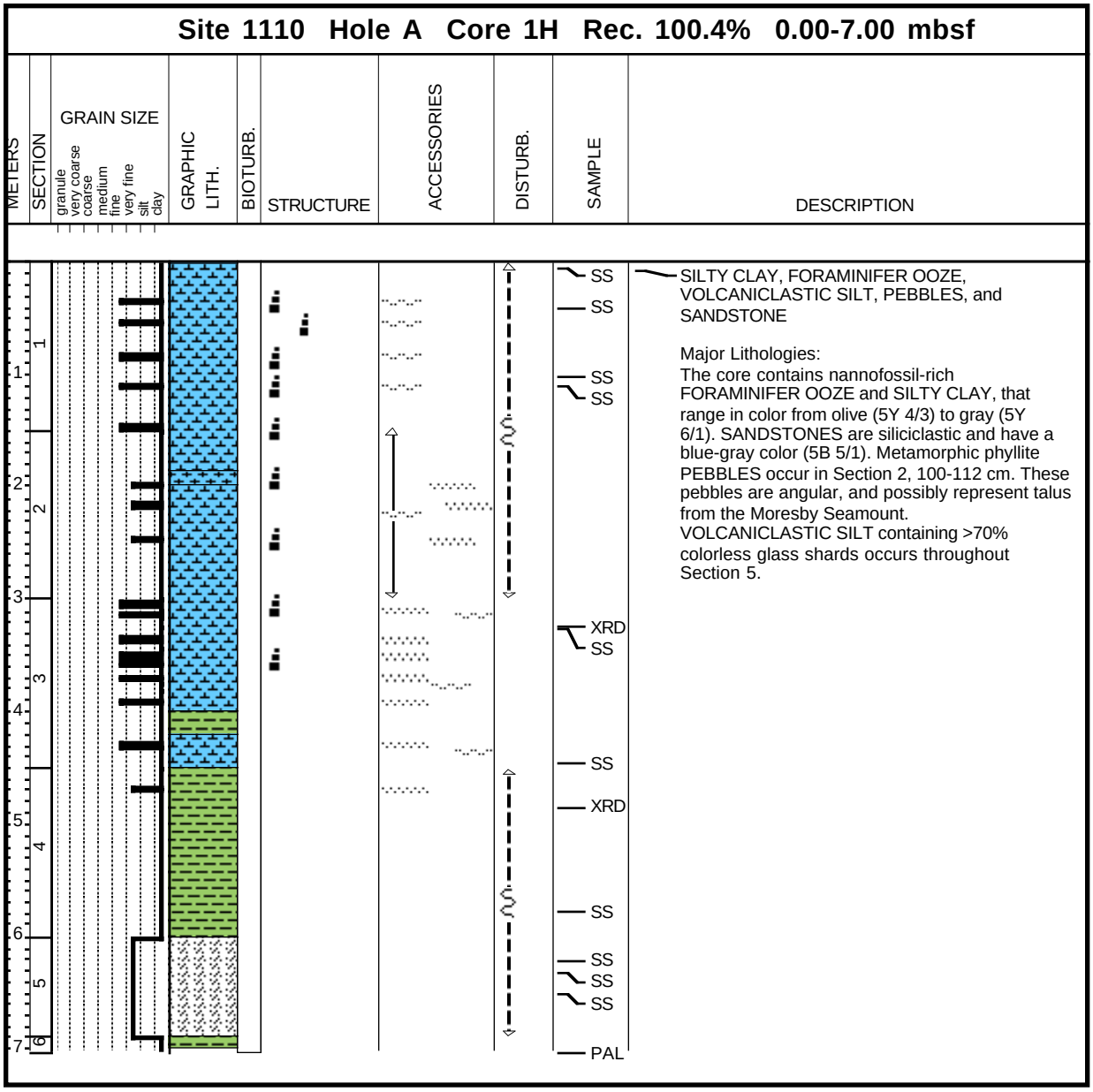
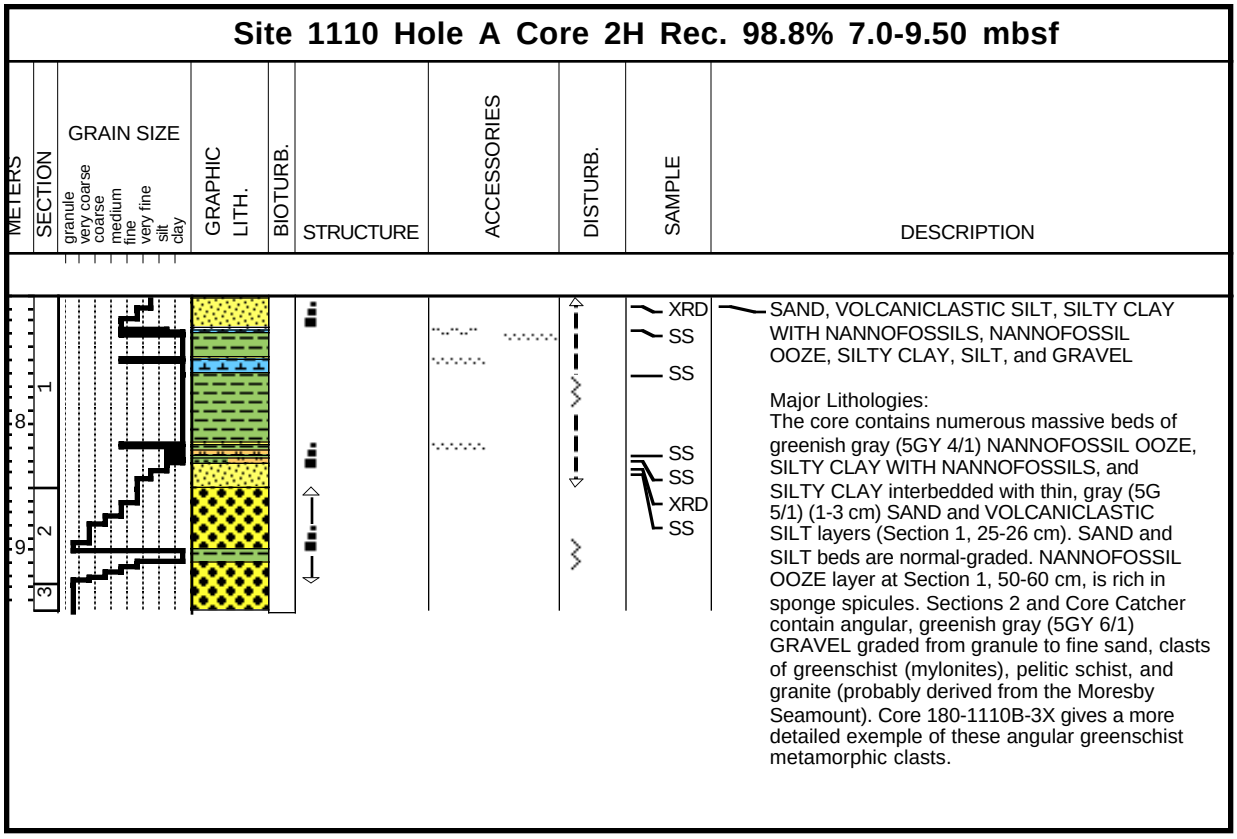
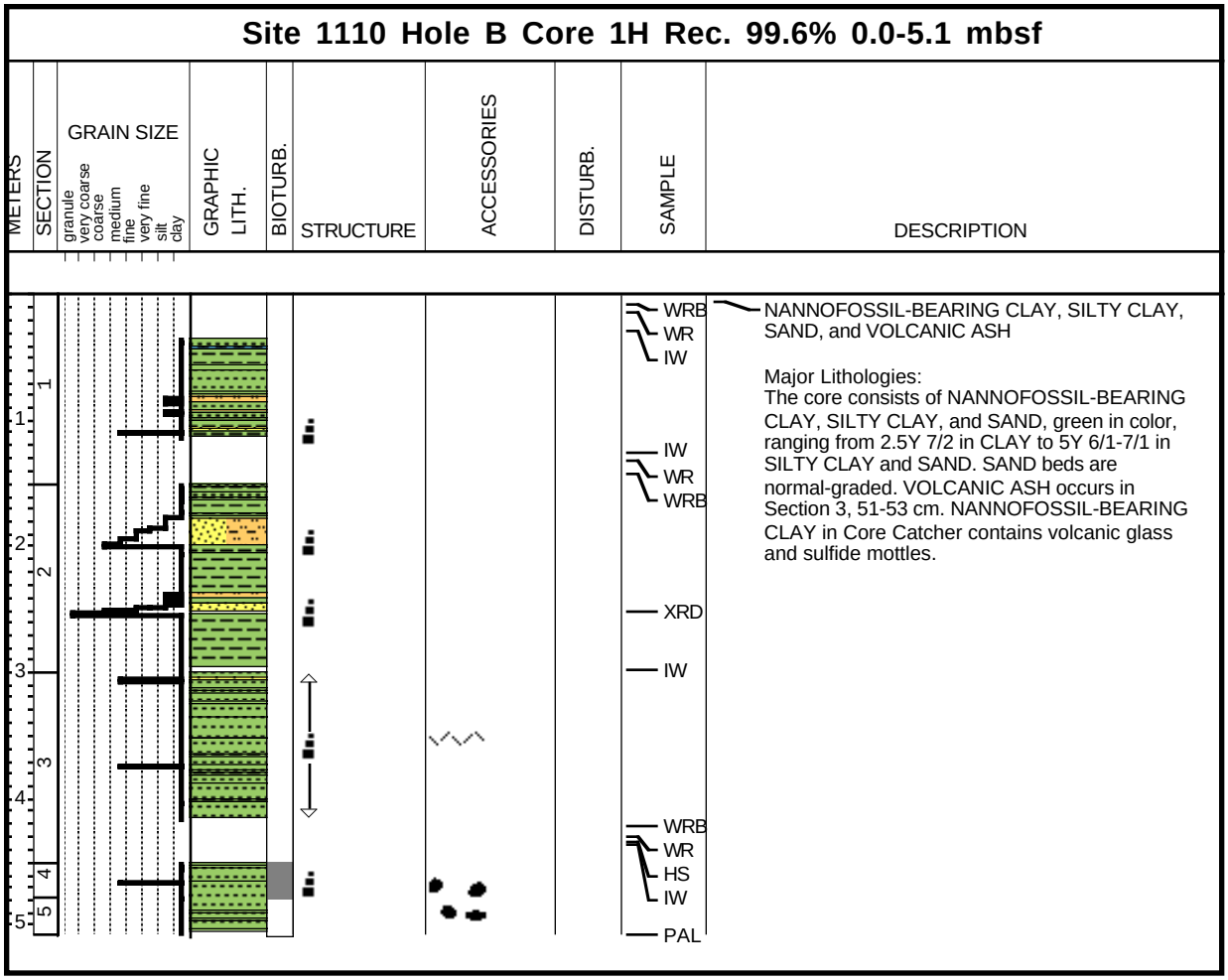
Core Photo


Site 1110 Hole A Core 1H Rec. 100.4% 0.00-7.00 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
SS
SS
SS
SS
XRD
SS
SS
XRD
SS
SS
SS
SS
PAL
SILTY CLAY, FORAMINIFER OOZE, VOLCANICLASTIC SILT, PEBBLES, and SANDSTONE
Major Lithologies:
The core contains nannofossil-rich FORAMINIFER OOZE and SILTY CLAY, that range in color from olive (5Y 4/3) to gray (5Y 6/1). SANDSTONES are siliciclastic and have a blue-gray color (5B 5/1). Metamorphic phyllite PEBBLES occur in Section 2, 100-112 cm. These pebbles are angular, and possibly represent talus from the Moresby Seamount.
VOLCANICLASTIC SILT containing >70% colorless glass shards occurs throughout Section 5.

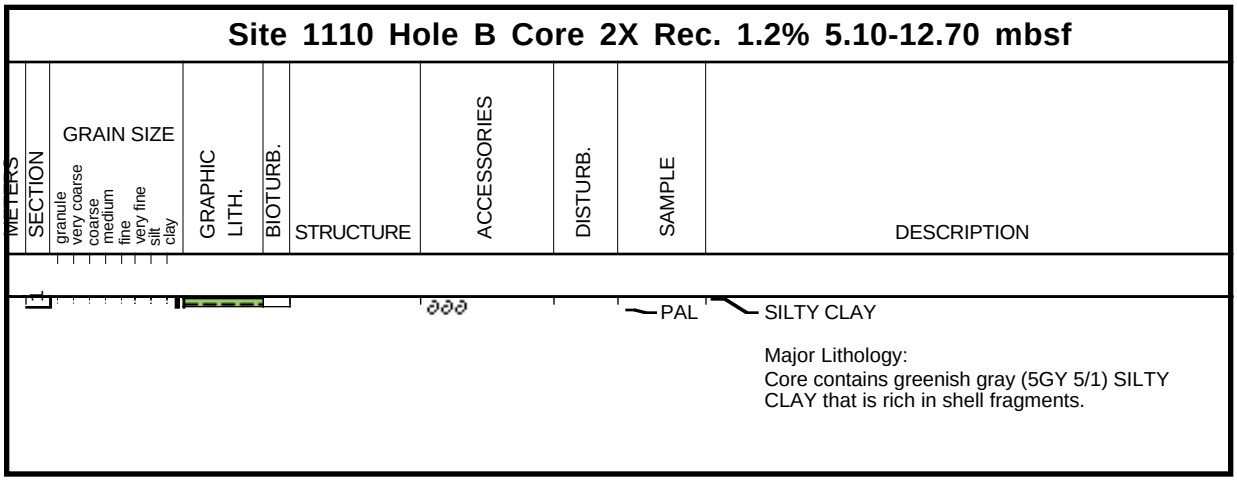
Core Photo


Site 1110 Hole A Core 2H Rec. 98.8% 7.0-9.50 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
XRD
SS
SS
SS
SS
XRD
SS
SAND, VOLCANICLASTIC SILT, SILTY CLAY WITH NANNOFOSSILS, NANNOFOSSIL OOZE, SILTY CLAY, SILT, and GRAVEL
Major Lithologies:
The core contains numerous massive beds of greenish gray (5GY 4/1) NANNOFOSSIL OOZE, SILTY CLAY WITH NANNOFOSSILS, and SILTY CLAY interbedded with thin, gray (5G 5/1) (1-3 cm) SAND and VOLCANICLASTIC SILT layers (Section 1, 25-26 cm). SAND and SILT beds are normal-graded. NANNOFOSSIL OOZE layer at Section 1, 50-60 cm, is rich in sponge spicules. Sections 2 and Core Catcher contain angular, greenish gray (5GY 6/1) GRAVEL graded from granule to fine sand, clasts of greenschist (mylonites), pelitic schist, and granite (probably derived from the Moresby Seamount). Core 180-1110B-3X gives a more detailed exemple of these angular greenschist metamorphic clasts.

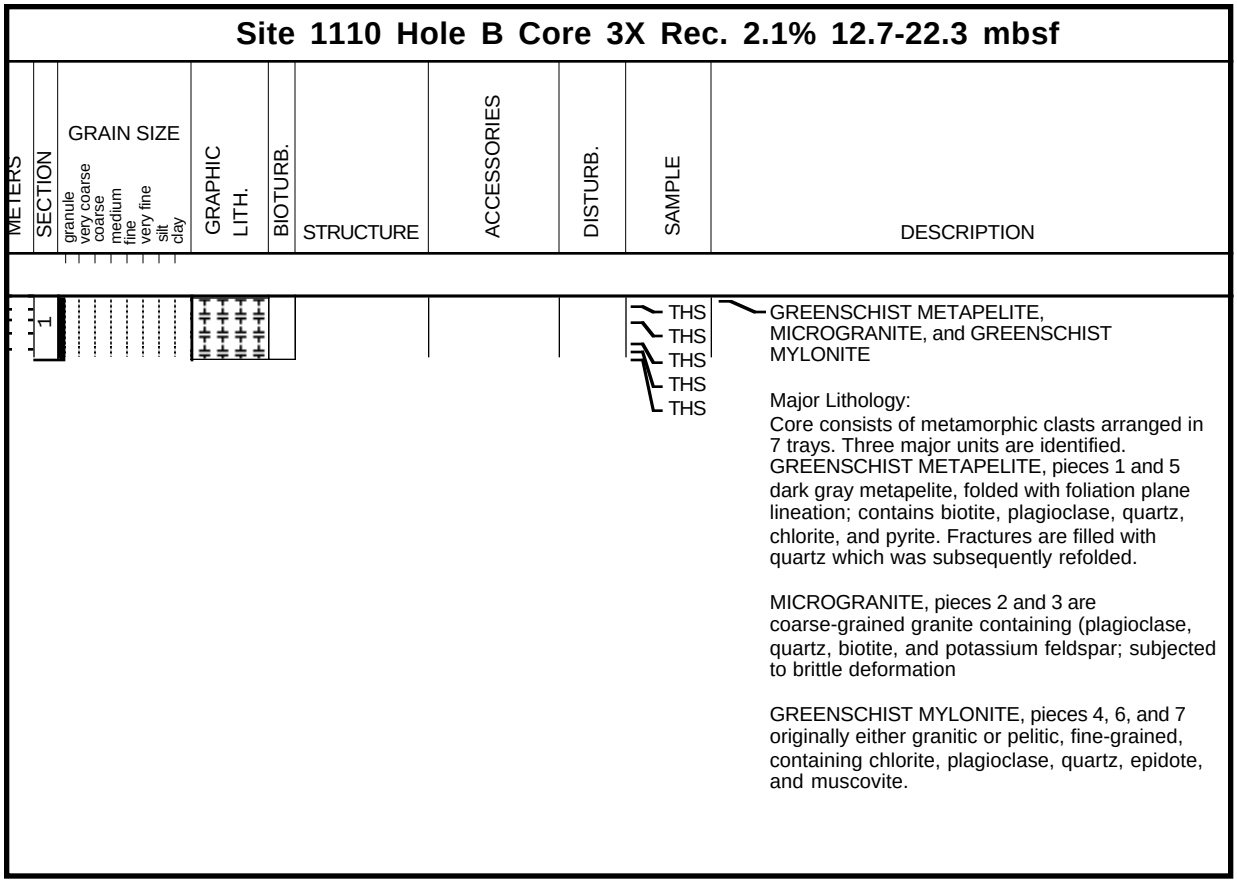
Core Photo


Site 1110 Hole B Core 1H Rec. 99.6% 0.0-5.1 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
WRB
WR
IW
IW
WR
WRB
XRD
IW
WRB
WR
HS
IW
PAL
NANNOFOSSIL-BEARING CLAY, SILTY CLAY, SAND, and VOLCANIC ASH
Major Lithologies:
The core consists of NANNOFOSSIL-BEARING CLAY, SILTY CLAY, and SAND, green in color, ranging from 2.5Y 7/2 in CLAY to 5Y 6/1-7/1 in SILTY CLAY and SAND. SAND beds are normal-graded. VOLCANIC ASH occurs in Section 3, 51-53 cm. NANNOFOSSIL-BEARING CLAY in Core Catcher contains volcanic glass and sulfide mottles.

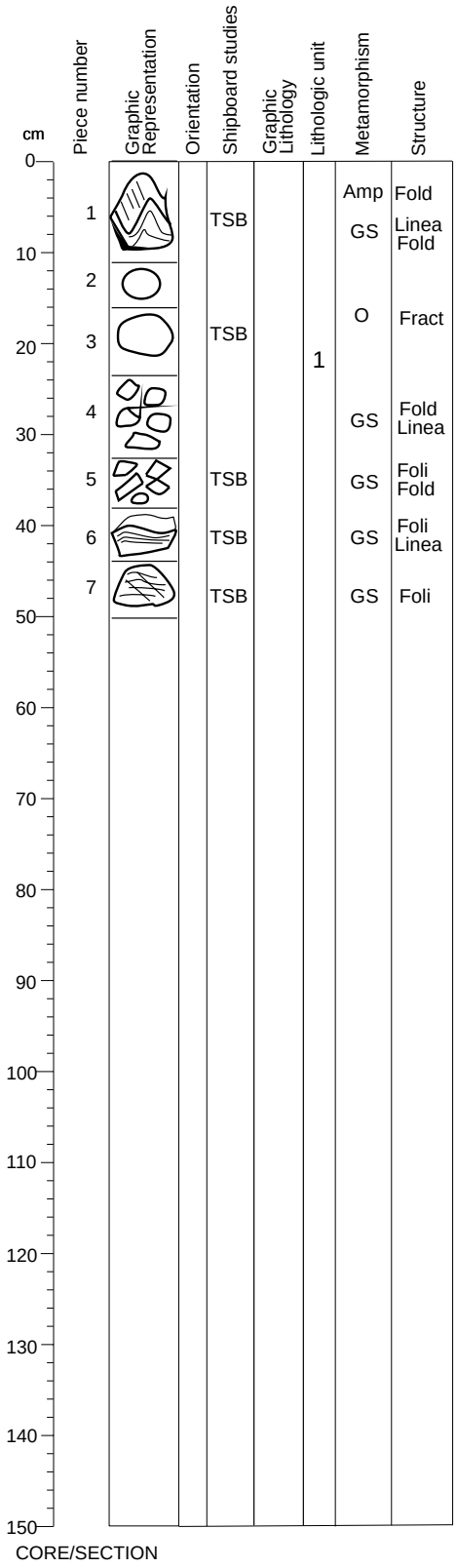
Core Photo


Site 1110 Hole B Core 2X Rec. 1.2% 5.10-12.70 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
PAL
SILTY CLAY
Major Lithology:
Core contains greenish gray (5GY 5/1) SILTY CLAY that is rich in shell fragments.

Core Photo


Site 1110 Hole B Core 3X Rec. 2.1% 12.7-22.3 mbsf
METERS
SECTION
GRAIN SIZE
granule
very coarse
coarse
medium
fine
very fine
silt
clay
GRAPHIC LITH.
BIOTURB.
STRUCTURE
ACCESSORIES
DISTURB.
SAMPLE
DESCRIPTION
1
THS
THS
THS
THS
THS
GREENSCHIST METAPELITE, MICROGRANITE, and GREENSCHIST MYLONITE
Major Lithology:
Core consists of metamorphic clasts arranged in 7 trays. Three major units are identified.
GREENSCHIST METAPELITE, pieces 1 and 5 dark gray metapelite, folded with foliation plane lineation; contains biotite, plagioclase, quartz, chlorite, and pyrite. Fractures are filled with quartz which was subsequently refolded.
MICROGRANITE, pieces 2 and 3 are coarse-grained granite containing (plagioclase, quartz, biotite, and potassium feldspar; subjected to brittle deformation
GREENSCHIST MYLONITE, pieces 4, 6, and 7 originally either granitic or pelitic, fine-grained, containing chlorite, plagioclase, quartz, epidote, and muscovite.

Core Photo



180-1110B-3X-1 (12.70-22.30 mbsf)

UNIT: 1 HETEROGENEOUS TALUS

Pieces: 1,5

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	3X	1	1	12.70
Lower contact:	3X	1	5	13.08

Thickness (m):
Contact Type: No contacts preserved.

GENERAL: These are low-grade (greenschist facies) carbonated schists. Pieces are angular clasts.

GRAIN SIZE: 1-2 mm
TEXTURE: Lepidoblastic
STRUCTURE: Foliation plane folded, lineation, fracture filled with calcite.
ALTERATION: Pervasive chloritization, sericite

COMMENTS: Carbonated schists contain calcite, quartz, chlorite, and pyrite.

Pieces: 2,3

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact:	3X	1	2	12.81
Lower contact:	3X	1	3	12.93

Thickness (m):
Contact Type: No contacts preserved.

GENERAL: These rocks are microgranites.

GRAIN SIZE: Coarse-grained
TEXTURE: Cataclastic
STRUCTURE: Fractures
ALTERATION: None

COMMENTS: Rock contains quartz (40%), plagioclase (30%), alkali-feldspar (20%), and trace of pyrite. Fractures indicate brittle deformation. Pieces are angular clasts.

Pieces: 4, 6, and 7

Interval Location:	Core	Section	Piece	Depth (mbsf)
Upper contact: 3X	1	4	12.93	
Lower contact: 3X	1	7	13.20	

Thickness (m):
Contact Type: No contacts preserved.

GENERAL: These are mylonitic micaschist rocks.

GRAIN SIZE: Fine-grained
TEXTURE: Mylonitic
STRUCTURE: Foliation, lineation, extensional cleavage
ALTERATION: Pervasive

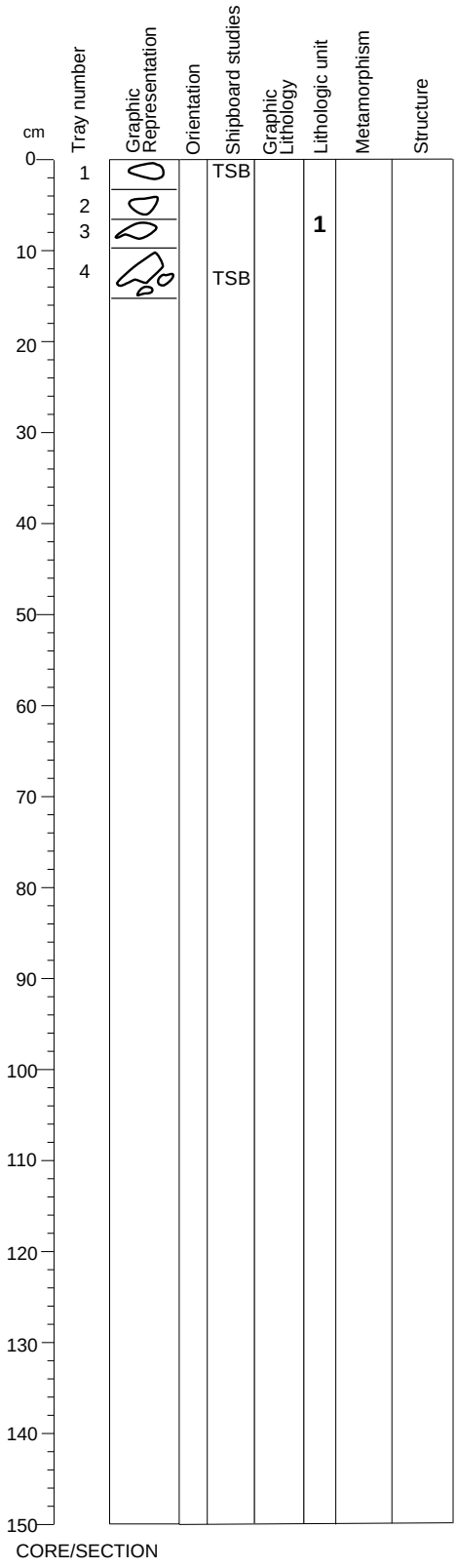
COMMENTS: Micaschists contain chlorite, plagioclase, quartz, epidote, and muscovite. These are angular clasts.

Core Photo

Site 1110 Hole D Core 1W Rec. n/a 0.00-22.70 mbsf

METERS	SECTION	GRAIN SIZE (granule, very coarse, coarse, medium, fine, very fine, silt, clay)	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	1							THS THS	EPIDOSITE, GREENSCHISTS, and AMPHIBOLITE Major Lithologies: The wash core brought up angular clasts of three types of metamorphic rocks (EPIDOSITE. GREENSCHISTS, and AMPHIBOLITE). See Petrology Visual Core Descriptions for more detailed description.

Core Photo



180-1110D-1W-1 (0.00-0.06 mbsf)

UNIT: 1 HETEROGENEOUS TALUS

TRAYS: 1 and 2

Interval Location:	Core	Section	TRAY	Depth (mbsf)
Upper contact:	1W	1	1	0.02
Lower contact:	1W	1	2	0.05

Thickness (m): 0.03
Contact Type: No contacts preserved.

GENERAL: These are low-grade epidote schists

GRAIN SIZE: 1-2 mm
TEXTURE: Lepidoblastic
STRUCTURE: Foliation plane folded, lineation, fractured filled with quartz.
ALTERATION: Moderate alteration to epidote.

COMMENTS: Rock contains plagioclase, muscovite, and quartz with secondary quartz, epidote, zoisite, sericite, and chlorite. Pieces are angular clasts.

TRAY: 3

Interval Location:	Core	Section	Depth TRAY	(mbsf)
Upper contact: 1W	1	3	0.08	
Lower contact: 1W	1	4	0.13	

Thickness (m): 0.05
Contact Type: No contacts preserved.

GENERAL: These are angular clasts of schist altered to greenschist grade.

GRAIN SIZE: <1 mm
TEXTURE: Lepidoblastic
STRUCTURE: None
ALTERATION: Negligible

COMMENTS: These are metamorphic rocks classified as greenschist facies. Pieces are angular clasts.

TRAY: 4

Interval Location:	Core	Section	Depth TRAY	(mbsf)
Upper contact: 1W	1	4	0.13	
Lower contact: 1W	1	4	0.14	

Thickness (m): .02
Contact Type: No contacts preserved.

GENERAL: These are angular clasts of amphibolite.

GRAIN SIZE: Medium-grained
TEXTURE: Equigranular
STRUCTURE: None
ALTERATION: Negligible

COMMENTS: These are metamorphic rocks metamorphosed upper amphibolite facies. Mineral association is hornblende-clinopyroxene-albite-actinolite-quartz-mica. Pieces are angular clasts.

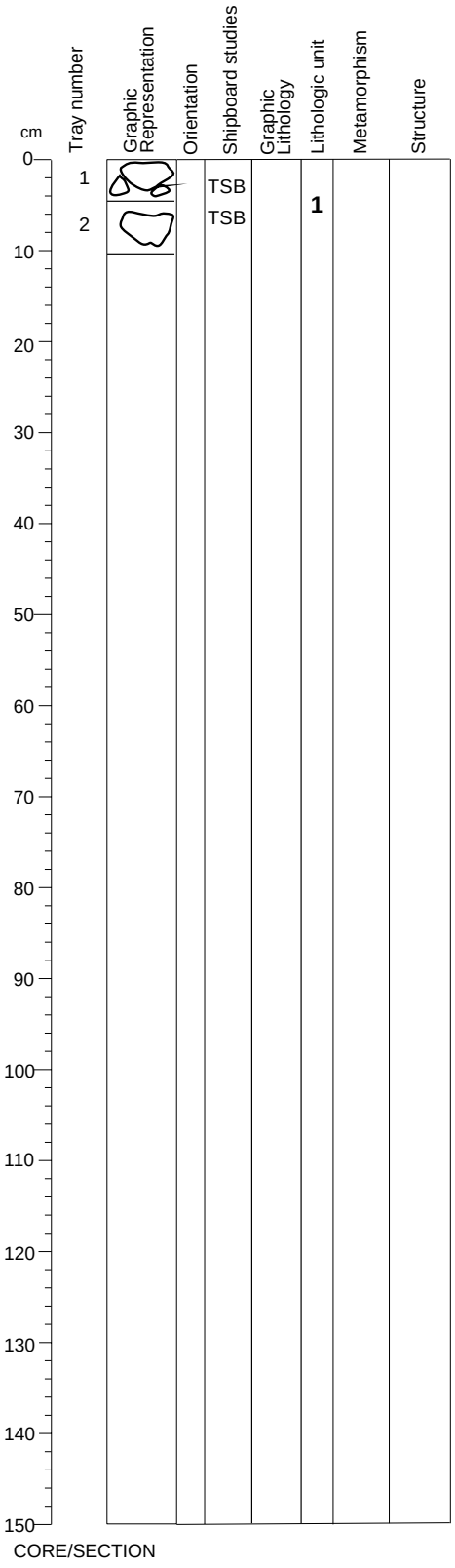
Core Photo

Site 1110 Hole D Core 2R Rec. 1.67% 22.7-28.7 mbsf

METERS	SECTION	GRAIN SIZE (granule / very coarse / coarse / medium / fine / very fine / silt / clay)	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	1							THS	CHLORITE SCHIST and AMPHIBOLITE

Major Lithologies:
Core contains angular clasts of two types of metamorphic rocks (CHLORITE SCHIST and AMPHIBOLITE). Refer to Petrology Visual Core Descriptions for more details.

Core Photo



180-1110D-2R-1 (22.70-22.80 mbsf)

UNIT: 1 HETEROGENEOUS TALUS

TRAYS: Tray 1 pieces 1, 2, and Tray 2

Interval Location:	Core	Section	TRAY	Depth (mbsf)
Upper contact:	2R	1	1	22.73
Lower contact:	2R	1	2	22.77

Thickness (m): 0.04
Contact Type: No contacts preserved.

GENERAL: These are low-grade (greenschist to lower amphibolite facies) metamorphic rocks classified as chlorite schist.

GRAIN SIZE: 1-2 mm
TEXTURE: Lepidoblastic
STRUCTURE: Foliation plane folded, lineation, fractured filled with quartz
ALTERATION: Pervasive chloritization, sericite

COMMENTS: Rock shows evidence of ductile deformation with folding of pre-existing foliation planes. Pieces are angular clasts.

TRAY: 1, piece 3

Interval Location:	Core	Section	TRAY	Depth (mbsf)
Upper contact:	2R	1	1	22.72
Lower contact:	2R	1	1	22.74

Thickness (m): 0.02
Contact Type: No contacts preserved.
GENERAL: These are angular clasts of mica schist.
GRAIN SIZE: Fine-grained
TEXTURE: Mylonitic
STRUCTURE: Foliation planes, asymmetric tails around porphyroblasts.
ALTERATION: Heavy

COMMENTS: This is a metamorphic rock, possibly retrogressed under amphibolite facies conditions. These are angular clasts.

Core, section interval (cm)	Depth (mbsf)	Described by	Lithology (dominant/minor)	Size			Siliciclastic and volcaniclastic composition																								Biogenic composition								Sediment or rock name
				Sand	Silt	Clay	Quartz	Feldspar	Plagioclase	Muscovite	Biotite	Glauconite	Amphibole	Pyroxene	Rock fragments (sedimentary)	Rock fragments (metamorphic)	Rock fragments (basaltic)	Volcanic glass	Volcanic glass (brown)	Volcanic glass (colorless)	Accessory minerals	Carbonate	Calcite	Dolomite	Opaque (oxide)	Opaque (sulfide)	Fe oxides	Clinoptilolite	Phillipsite	Other	Clay	Nannofossils	Foraminifers	Diatoms	Radiolarians	Sponge spicules	Shell debris	Organic material	Fish debris	Bioclasts	Unidentified/other	
180-1110A-																																							
1H-1, 4	0.04	TS	D	r	c	a	r	r			r										r		c								a	c		r	r				Silty clay nannofossil ooze
1H-1, 40	0.40	TS	D	r	c	a	r	r			r							r					r								a	c			r				Silty clay nannofossil ooze
1H-1, 100	1.00	TS	D	r	c	a	r	r			r						r	r			r		c								a	r			r				Silty nannofossil ooze
1H-1, 110	1.10	TS	M	c	c	r	r	r			r					r	r				r		c								c	c			r				Fine-grained sandstone
1H-3, 24	3.24	TS	M	c	c	r	r	c			r					r					r										c	r							Fine-grained sandstone
1H-3, 145	4.45	TS	D		c	a	r		r		r							r			r		c							c	a	c			r				Silty clay nannofossil ooze
1H-4, 127	5.77	AR	D	c	a	c	c		r		r	r				a	r				r				r					c	c	r							Silt
1H-5, 20	6.20	AR	D	r	a	c	a	c			r					c	r	a					c							c	c	c							Calcareous clayey silt
1H-5, 30	6.30	AR	M	r	a	c	c		r	r							r	a			r		r		r						r	r			r				Glass-rich clay
1H-5, 50	6.50	AR	M	r	a	c	c	r			r						r	a					r							c	c	r							Glass-rich silt
2H-1, 25	7.25	TS	M	r	c	c	r	c			r						r	a			r		c								c	c		r					Volcaniclastic silt
2H-1, 62	7.62	AR	M	a	c	r	r		r							r					r		c									a			r				Foraminifer-rich sand
2H-1, 123	8.23	AR	M	c	a	r	c		r	r					a	c	a						c		c							r								Silt
2H-1, 129	8.29	AR	M	r	a	c	c		c		r	r			a	a							r									r								Silt with foraminifers
2H-1, 140	8.40	AR	D	r	a	c	c		r		r					c	r	c					r							r	r	r							

Note: a = abundant (51%–100%); c = common (11%–50%); r= rare (1%–10%).

180-1110D-1W-1 (Piece 4, 5-6 cm)
Thin section: # 103
ROCK NAME: Amphibolite or **Hornblende Lamprophyre**
GRAIN SIZE: Medium-grained
TEXTURE: Equigranular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Amphibole	30	0.5-1			Euhedral	Green hornblende
Plagioclase	50	0.3		An_{10-20}	Subhedral	Granular aggregate
Clinopyroxene	15	0.3				
Quartz	<1					

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Epidote	2	Plagioclase	
Biotite	1	Amphiboles	
Sericite	1	Plagioclase	

COMMENTS: This rock maybe igneous. Foliation is not seen in thin section. If it is metamorphic it could be amphibolite facies.

180-1110D-1W-1 (Piece 1, 2-3 cm)
Thin section: #104
ROCK NAME: Epidote-schist
GRAIN SIZE: Fine-grained
TEXTURE: Lepidoblastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Plagioclase	5-10	?	Up to 2	?	Anhedral	Porphyroblast relics elongated in the foliation plane.
Muscovite	15	?	0.1		Platy	Muscovite elongated in relics of a previous foliation.
Quartz	5	5	0.1		Anhedral	Small lenses of quartz elongated in the foliation plane, undulose extinctions.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Quartz	5	Veins	
Epidote	40	Plagioclase-veins	Very fine grained epidote in the matrix, coarse grained epidote in veins.
Zoisite	10	Plagioclase	Very small granular zoisite replacing plagioclase in the matrix.
Sericite	5	plagioclase	Associated with zoisite in the matrix.
Chlorite	5	Muscovite	Colorless, fibrous, filling vesicles or elongated in the foliation plane.

COMMENTS: Two types of microfractures are observed in the thin section: 0.5 mm wide microfracture filled with quartz+calcite and 1 mm wide microfractures filled with epidote+quartz, both generations are coherent with extension.

180-1110D-2R-1 (Piece 2, 5-6 cm)
Thin section: #105
ROCK NAME: Mica-schist
GRAIN SIZE: Fine-grained
TEXTURE:Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
Muscovite	20	?	0.1		Anhedral	Elongated flakes in foliation plane.
Plagioclase	10	0.5			Anhedral	Augen porphyroblasts with asymmetric tails.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Epidote	20	Plagioclase	Well developed boudins.
Clinozoisite	10	Plagioclase	
Sericite	1	Plagioclase	
Chlorite	1	Micas	
Quartz	20		Anhedral. In lenses, associated with epidote and clinozoisite.

COMMENTS: Sections of clinozoisite are six-sided and have extinction angles at 25 degrees. This is a metamorphic rock classified as greenschist facies. Traversed by a kink band normal to foliation and containing calcite.