

**Core Photo**

1111A-1R NO RECOVERY

Site 1111 Hole A Core 2R Rec. 0.73% 10.1-19.7 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	granule very coarse coarse medium fine very fine silt clay								<p>NANNOFOSSIL-BEARING CLAY</p> <p>Major Lithology:            NANNOFOSSIL-BEARING CLAY is massive, green (GEY 5GY 6/1) and contains foraminifers, spicules, and carbonate fragments.</p>



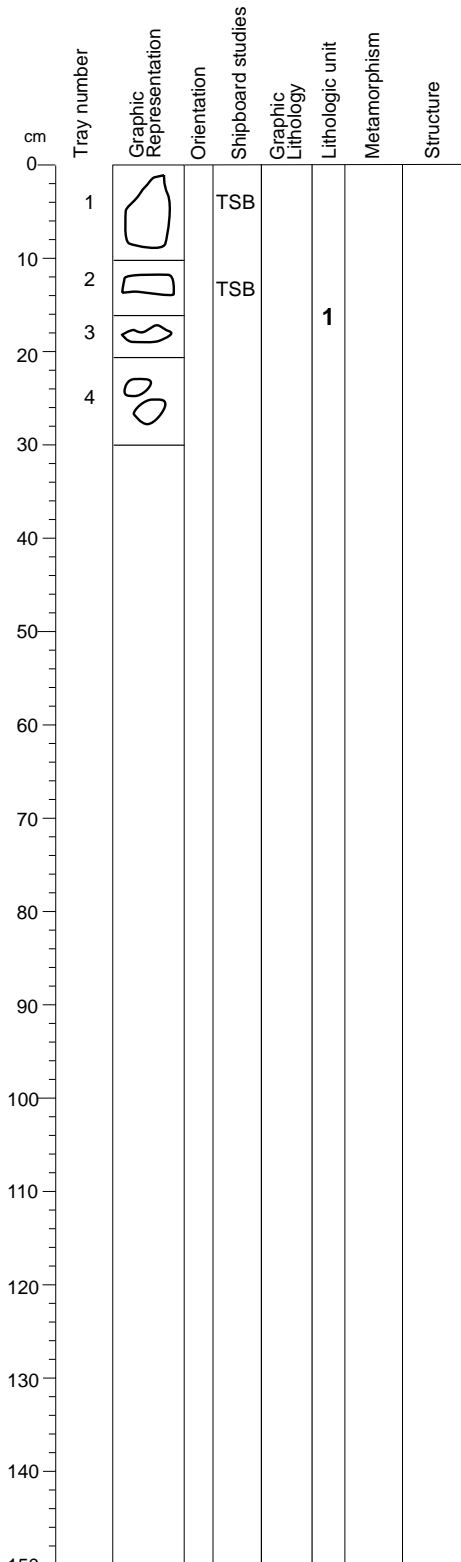
**CORE DESCRIPTIONS**  
**VISUAL CORE DESCRIPTIONS, SITE 1111**

**Core Photo**

Site 1111 Hole A Core 3R Rec. 1.6% 19.7-29.2 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
20	1	granule very coarse coarse medium fine very fine silt clay						THS THS	<p>EPIDOTE SCHIST and CLAY</p> <p>Major Lithologies:            Core contains angular clasts of EPIDOTE SCHIST in trays 1, 2, and 3 and greenish gray (5GY 4/1) CLAY with pebbles of EPIDOTE SCHIST. Refer to Petrology Visual Core Descriptions for more details.</p>

**Core Photo**

**180-1111A-3R-CC (19.70-20.00 mbsf)**



**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1,2, and 3**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	3R	CC	1	19.73
<b>Lower contact:</b>	3R	CC	3	19.88
<b>Thickness (m):</b>	0.15			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** These are low-grade metamorphic rocks classified as epidote schist.  
**GRAIN SIZE:** Fine-grained  
**TEXTURE:** Mylonitic  
**STRUCTURE:** Folded foliation  
**ALTERATION:** Pervasive

**COMMENTS:** Rocks contain primary muscovite and plagioclase with secondary epidote, clinozoisite, quartz, and clay. Pieces are angular clasts.

**TRAY: 4**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	3R	CC	4	19.95
<b>Lower contact:</b>	3R	CC	4	20.00
<b>Thickness (m):</b>	0.05			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** These are green (5GY 4/1) clumps of clay containing the previously described greenschist pebbles.

**GRAIN SIZE:** Clay  
**TEXTURE:** Massive  
**STRUCTURE:** None  
**ALTERATION:** None

**COMMENTS:** This is likely the generally unrecovered matrix of the talus unit.

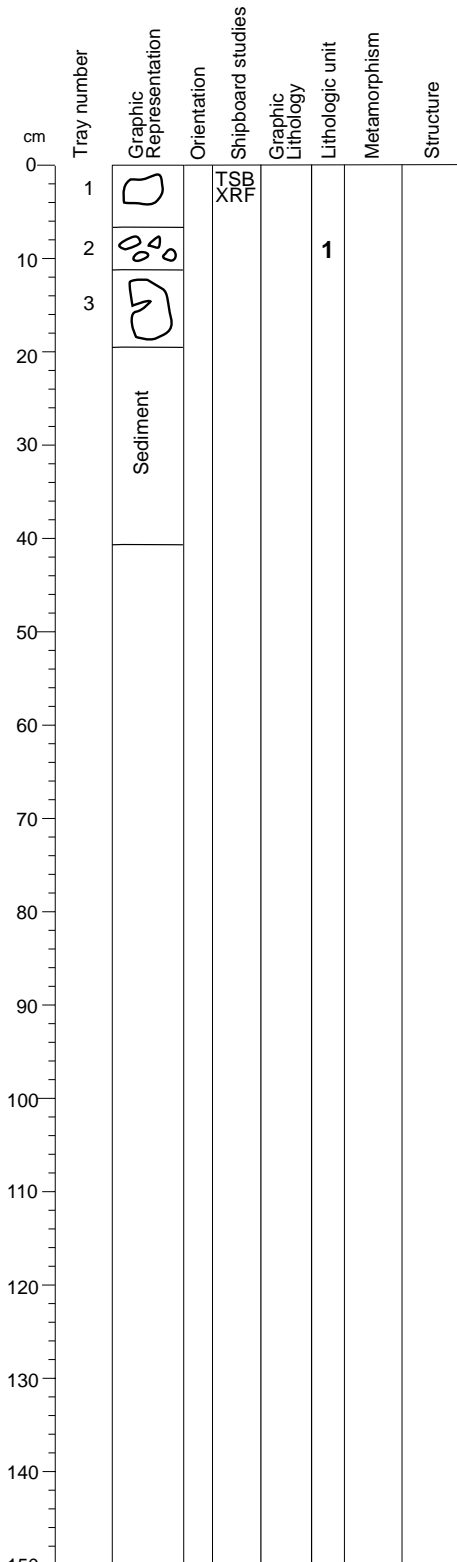
CORE/SECTION

**Core Photo**

Site 1111 Hole A Core 4R Rec. 1.2% 29.2-38.7 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
1									<p>THS LAMPROPHYRE and CLAY</p> <p>Major Lithologies:                      Core contains angular clasts of LAMPROPHYRE in trays 1 and 2 and greenish brown (2.5Y 6/2) CLAY containing LAMPROPHYRE pebbles. Refer to Petrology Visual Core Description for more details.</p>

**Core Photo**

**180-1111A-4R-CC (29.20-29.39 mbsf)**



**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1 and 2**

<b>Interval Location:</b>	<b>Core</b>	<b>Section</b>	<b>TRAY</b>	<b>Depth (mbsf)</b>
<b>Upper contact:</b>	4R	CC	1	20.22
<b>Lower contact:</b>	4R	CC	2	20.30
<b>Thickness (m): 0.08</b>				
<b>Contact Type: No contacts preserved.</b>				

**GENERAL:** These are angular clasts of lamprophyre.

**GRAIN SIZE:** Fine-grained with phenocrysts up to 1 mm

**TEXTURE:** Porphyritic-panidiomorphic

**STRUCTURE:** None

**ALTERATION:** Slight serpentinization

**COMMENTS:** These rocks have a panidiomorphic texture and are classified (on the basis of thin section examination) as lamprophyre, but more precise identification would require chemical analysis.

**TRAY: 3**

<b>Interval Location:</b>	<b>Core</b>	<b>Section</b>	<b>TRAY</b>	<b>Depth (mbsf)</b>
<b>Upper contact:</b>	4R	CC	3	29.32
<b>Lower contact:</b>	4R	CC	3	29.37
<b>Thickness (m): 0.05</b>				
<b>Contact Type: No contacts preserved.</b>				

**GENERAL:** These are brown (2.5Y 6/2) clumps of clay containing the previously described lamprophyre pebbles.

**GRAIN SIZE:** Clay

**TEXTURE:** Massive

**STRUCTURE:** None

**ALTERATION:** None

**COMMENTS:** This is likely the unrecovered matrix within the talus unit.

CORE/SECTION

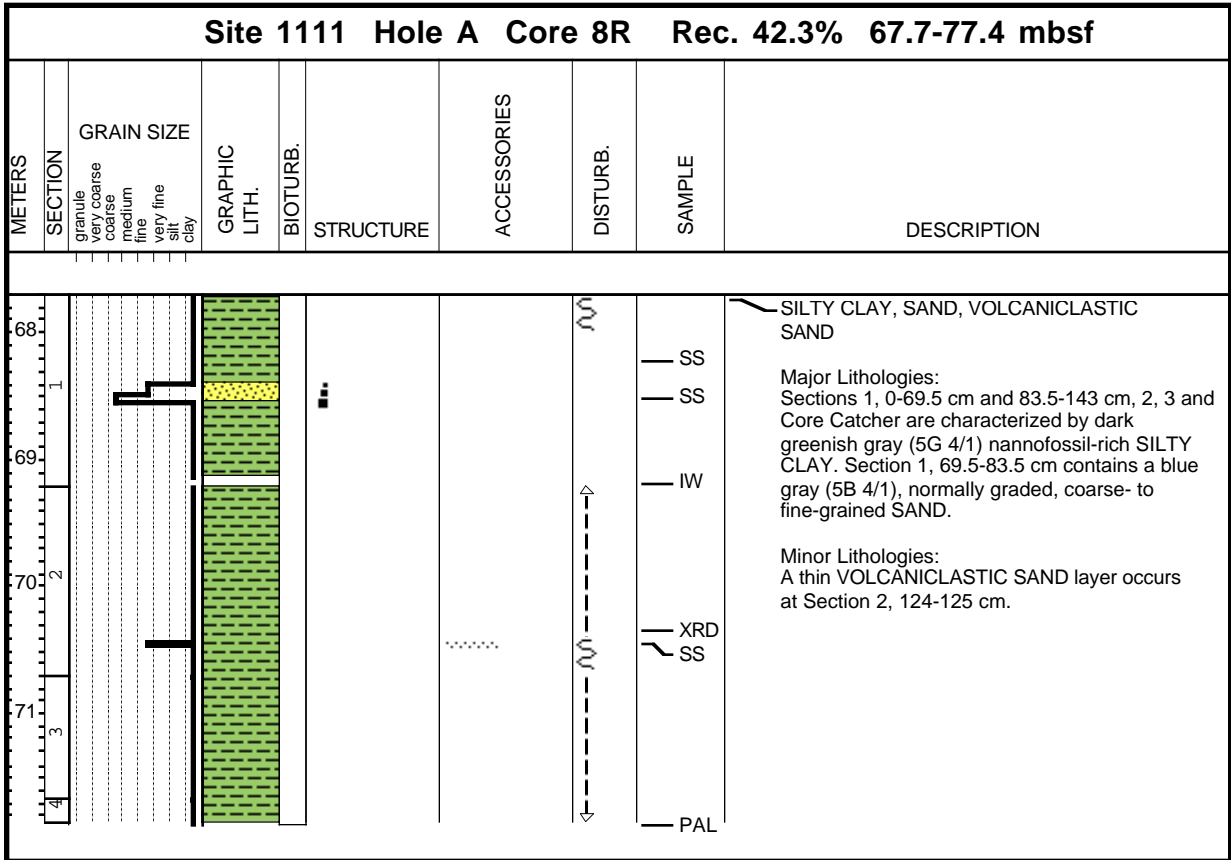
1111A-5R NO RECOVERY

**Core Photo**

Site 1111 Hole A Core 6R Rec. 0.9% 48.4-58.1 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	granule very coarse coarse medium fine very fine silt clay								<p>DOLERITE, METADOLERITE, and SILT</p> <p>Major Lithologies:                      The upper 5 cm of the core catcher contain subangular to angular fragments of DOLERITE and METADOLERITE. The interval from 5-9 cm is a nannofossil-rich SILT with drilling induced fragments of the same types above.</p>



**Core Photo**



1111A-9R NO RECOVERY

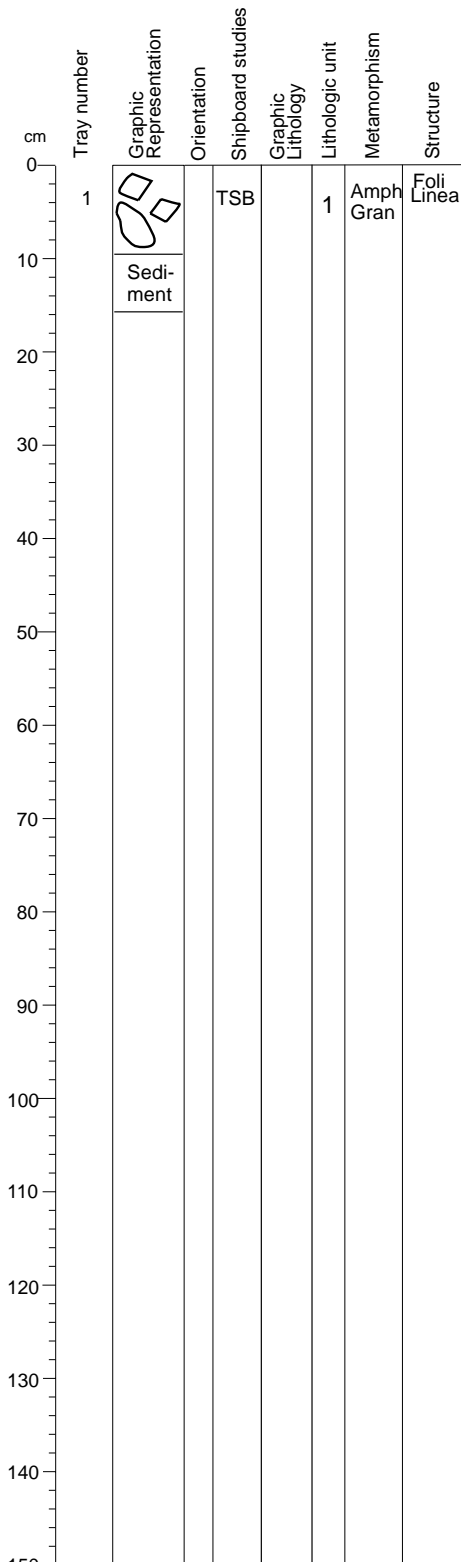


**Core Photo**

Site 1111 Hole A Core 10R Rec. 1.4% 87.0-96.7 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
	granule very coarse coarse medium fine very fine silt clay								<p>AMPHIBOLITE and NANNOFOSSIL OOZE</p> <p>Major Lithologies:            Core consists of three pieces of foliated, lineated metamorphic rocks (AMPHIBOLITE), most likely of amphibolite grade, underlain by 6 cm of NANNOFOSSIL OOZE containing foraminifers and small fragments of metamorphic rocks. Refer to Petrology Visual Core Description for more details.</p>

**Core Photo**

**180-1111A-10R-CC (87.00-87.14 mbsf)**



**UNIT: 1 HETEROGENEOUS TALUS**

**TRAY: 1**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	10R	CC	1	87.00
<b>Lower contact:</b>	10R	CC	1	87.10
<b>Thickness (m):</b>	0.10			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** These are three angular clasts of amphibolite facies metamorphic rocks.

**GRAIN SIZE:** Fine-grained

**TEXTURE:** Mylonitic

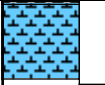


**STRUCTURE:** Foliated, mylonitic.

**ALTERATION:** Moderate

**COMMENTS:** Rocks contain amphibole, plagioclase, quartz, and Fe-oxide with secondary epidote, chlorite, quartz, calcite, and clay. Epidote, quartz, and calcite exist in a network of veins. They are thought to be mylonitized and retrogressed metagabbros.

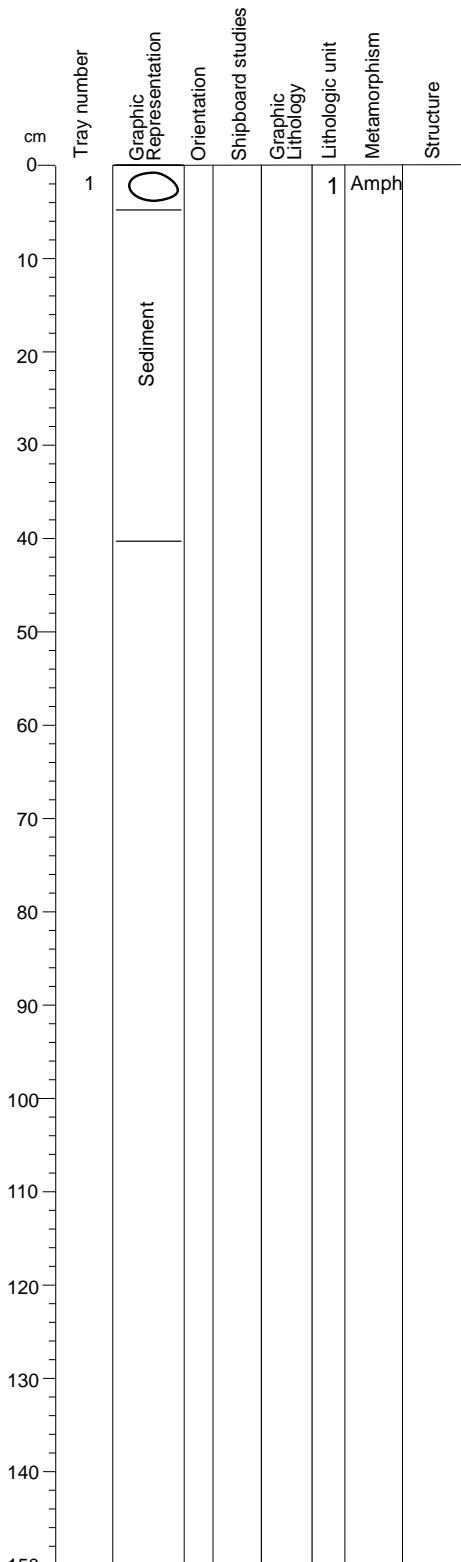
CORE/SECTION

**Core Photo**

Site 1111 Hole A Core 11R Rec. 6.8% 96.7-106.4 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
97 1 2		granule very coarse coarse medium fine very fine silt clay							<p>MYLONITIC ROCK FRAGMENTS, GRANODIORITE(?) and SILTY CLAYEY NANNOFOSSIL OOZE</p> <p>Major Lithologies:                      Core consists of three angular pieces of bluish gray MYLONITIC ROCK FRAGMENTS underlain by SILTYEY CLAY NANNOFOSSIL OOZE with rare forams and intermixed angular fragments of Phyllite, quartz granules, and possibly a GRANODIORITE(?) at 23 cm. Refer to Petrology Visual Core Description for more details.</p>

**Core Photo**

**180-1111A-11R-1 (96.70-97.17 mbsf)**



**UNIT: 1 HETEROGENEOUS TALUS**

**TRAY: 1**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	11R	1	1	96.71
<b>Lower contact:</b>	11R	1	1	96.74
<b>Thickness (m):</b>	0.03			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** This is a pebble of mylonitic rock metamorphosed to amphibolite facies conditions.

**GRAIN SIZE:** Fine-grained

**TEXTURE:** Mylonitic

**COMMENTS:** Pebble contains plagioclase, amphibole, and veins with calcite and pyrite.


CORE/SECTION

**Core Photo**

Site 1111 Hole A Core 12R Rec. 0.21% 106.4-116.1 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
		granule very coarse coarse medium fine very fine silt clay							
									<p>MYLONITE</p> <p>Major Lithology:                      Core consists of one pebble of a mylonitic metamorphic rock. Rock is foliated and contains veins filled with calcite and pyrite. Refer to Petrology Visual Core Description for more details.</p>

**Core Photo**

**180-1111A-12R-CC (106.40-106.42 mbsf)**

cm	Tray number	Graphic Representation	Orientation	Shipboard studies	Graphic Lithology	Lithologic unit	Metamorphism	Structure
	1					1 Amph		
0								
10								
20								
30								
40								
50								
60								
70								
80								
90								
100								
110								
120								
130								
140								
150								

**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	12R	CC	1	106.40
<b>Lower contact:</b>	12R	CC	1	106.42
<b>Thickness (m):</b>	0.02			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** This is a pebble of mylonitic rock metamorphosed to amphibolite facies conditions.

**GRAIN SIZE:** Fine-grained

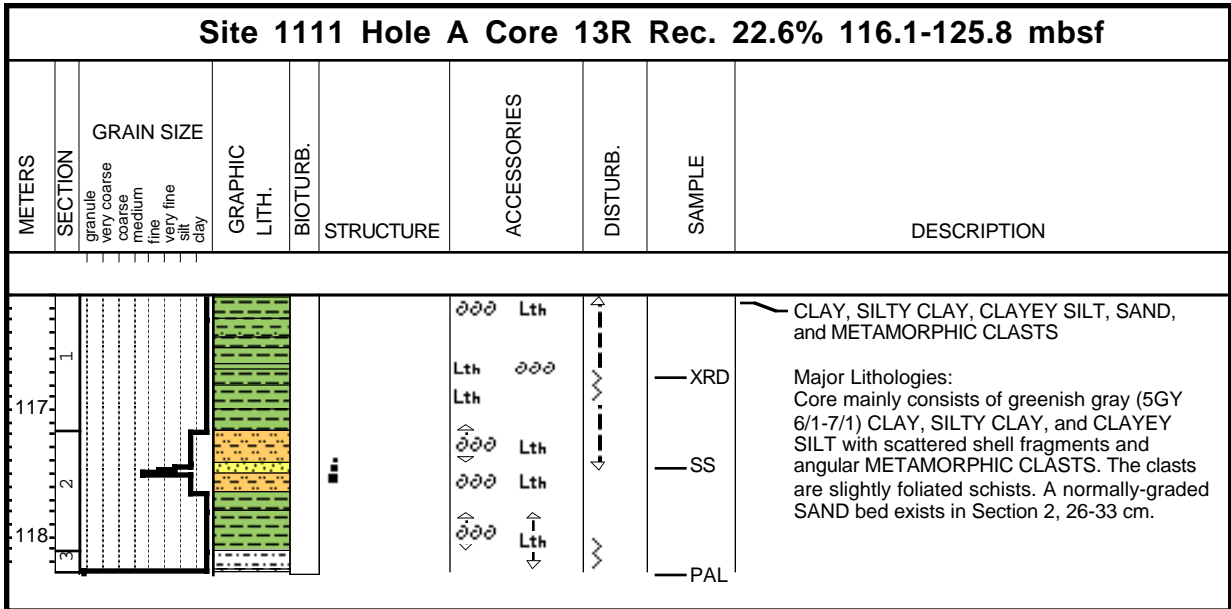
**TEXTURE:** Mylonitic

**STRUCTURE:** Foliation plane defined by plagioclase-rich layers, lineation by amphibole.

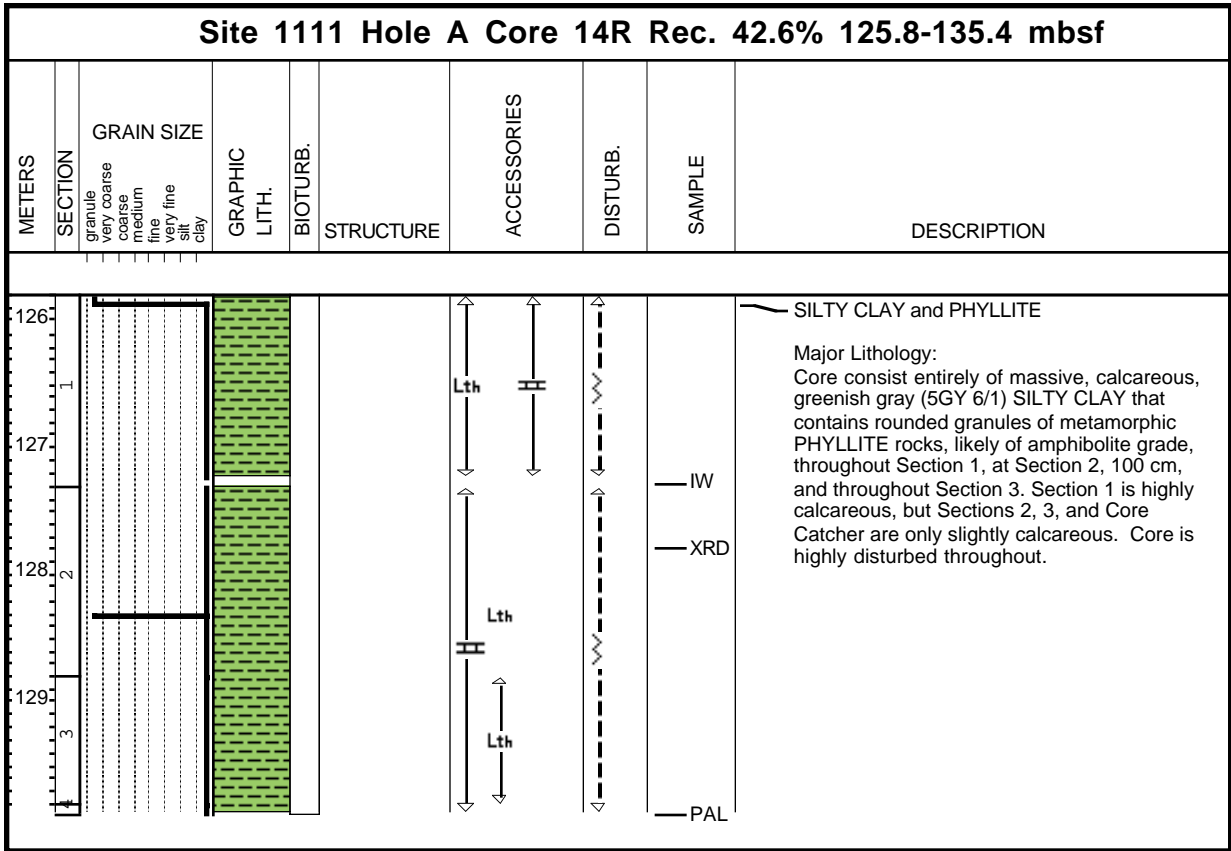
**COMMENTS:** Pebble contains plagioclase, amphibole, and veins with calcite and pyrite.

CORE/SECTION

**Core Photo**

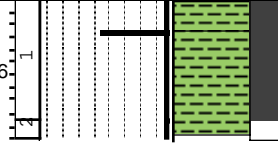


**Core Photo**





**Core Photo**

Site 1111 Hole A Core 15R Rec. 11.5% 135.4-145.0 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
136 1 4		granule very coarse coarse medium fine very fine silt clay							<p>SILTY CLAY, PEBBLES, and SAND</p> <p>Major Lithology:            Core mostly consists of greenish gray (5G 6/1) SILTY CLAY containing angular PEBBLES of greenschist metamorphic talus likely deposited from the Moresby Seamount. A 1 cm bed of medium-grained SAND exists in Section 1 26-27 cm.</p>



**Core Photo**

**180-1111A-16R-CC (145.58-145.79 mbsf)**

Tray number	Graphic Representation	Orientation	Shipboard studies	Graphic Lithology	Lithologic unit	Metamorphism	Structure
1			TSB			GS	
2			TSB			GS	
3			TSB		1	GS	
4			TSB				

**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1-4**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	16R	CC	1	145.58
<b>Lower contact:</b>	16R	CC	3	145.78
<b>Thickness (m):</b>	0.20			
<b>Contact Type:</b>	No contacts preserved.			

**GENERAL:** These are angular clasts of greenschist facies metamorphic rocks.

**GRAIN SIZE:** Fine-grained

**TEXTURE:** Mylonitic

**ALTERATION:** Pervasive, mostly epidote.

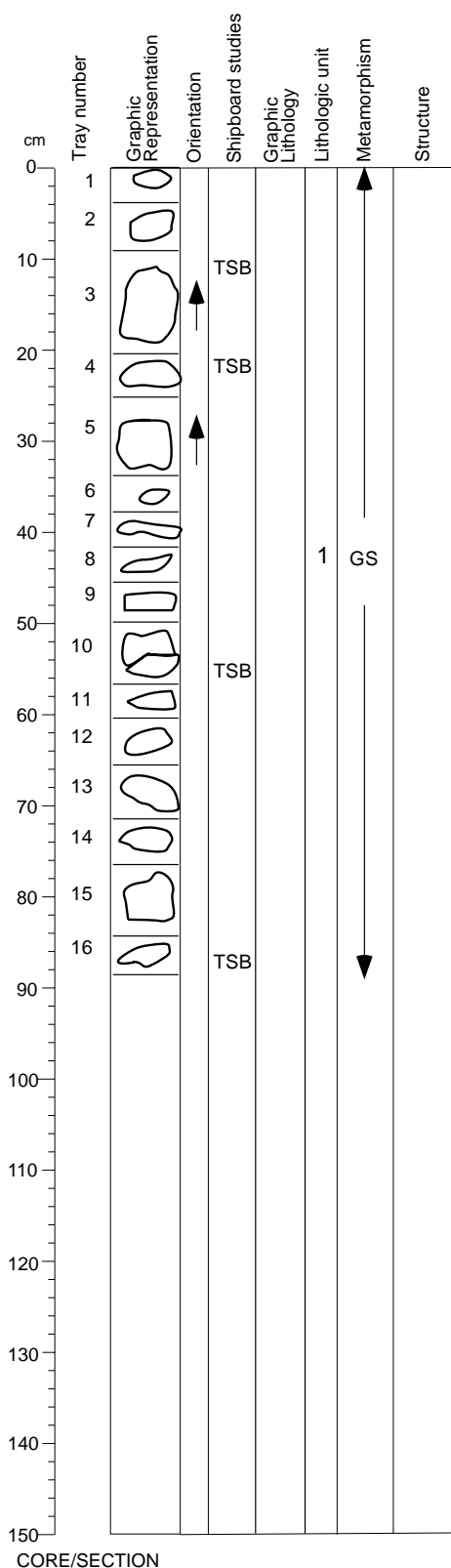
**COMMENTS:** These rocks have quartz and calcite veins that are deformed by extensional brittle deformation either during or after the ductile deformation of the rest of the rocks. Thin section analysis has identified the rock types as epidote amphibolite in Tray 1, retrogressed lamprophyre in Tray 2, epidote schist in Tray 3, and metamorphosed porphyritic granite in Tray 4.

CORE/SECTION

**Core Photo**

Site 1111 Hole A Core 17R Rec. 6.5% 154.6-164.2 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
155.1									<p>— THS                      / THS                        THS                      \ THS</p> <p>AMPHIBOLITE, METADOLERITE, and DOLERITE</p> <p>Major Lithologies:                      Core consists of rock fragments likely deposited as talus from nearby Moresby Seamount. Most clasts are AMPHIBOLITE with the exception of two DOLERITE clasts and two METADOLERITE(?) clasts. Refer to Petrology Visual Core Descriptions for more details.</p>

**Core Photo**



**180-1111A-17R-1 (154.60-155.48 mbsf)**

**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1, 2, 5-14**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	17R	1	1	154.60
<b>Lower contact:</b>	17R	1	14	155.36

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

**GENERAL:** These are mylonitic amphibolite.

**GRAIN SIZE:** Fine-grained  
**TEXTURE:** Mylonitic  
**ALTERATION:** Pervasive

**COMMENTS:** Asymmetric tails around plagioclase and amphibole porphyroclasts along with elongation of chlorite and actinolite within the foliation plane indicate ductile deformation. The lack of undulose extinction within porphyroclasts indicates brittle behavior. Deformation took place under upper greenschist facies conditions and retrogressed to lower greenschist facies conditions.

**TRAYS: 3 and 4**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	17R	1	3	154.70
<b>Lower contact:</b>	17R	1	4	154.75

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

**GENERAL:** These rocks appear to be hydrothermally altered pyroxenite with original igneous texture.

**GRAIN SIZE:** Coarse-grained  
**TEXTURE:** Porphyritic  
**STRUCTURE:** Mortar texture and micro-fractures filled with chlorite and quartz indicate brittle deformation.  
**ALTERATION:** Pervasive chlorite and epidote, likely hydrothermal.

**COMMENTS:** Rock contains original clinopyroxene and amphibole with secondary amphibole, chlorite, sericite, and quartz.

**TRAYS: 15 and 16**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	17R	1	15	155.38
<b>Lower contact:</b>	17R	1	16	155.49

**Thickness (m):** 0.11  
**Contact Type:** No contacts preserved.

**GENERAL:** These are clasts of chloritized microgranite that may have experienced hydrothermal alteration.

**GRAIN SIZE:** Medium-grained  
**TEXTURE:** Granular  
**ALTERATION:** Moderate chloritization, possibly hydrothermal

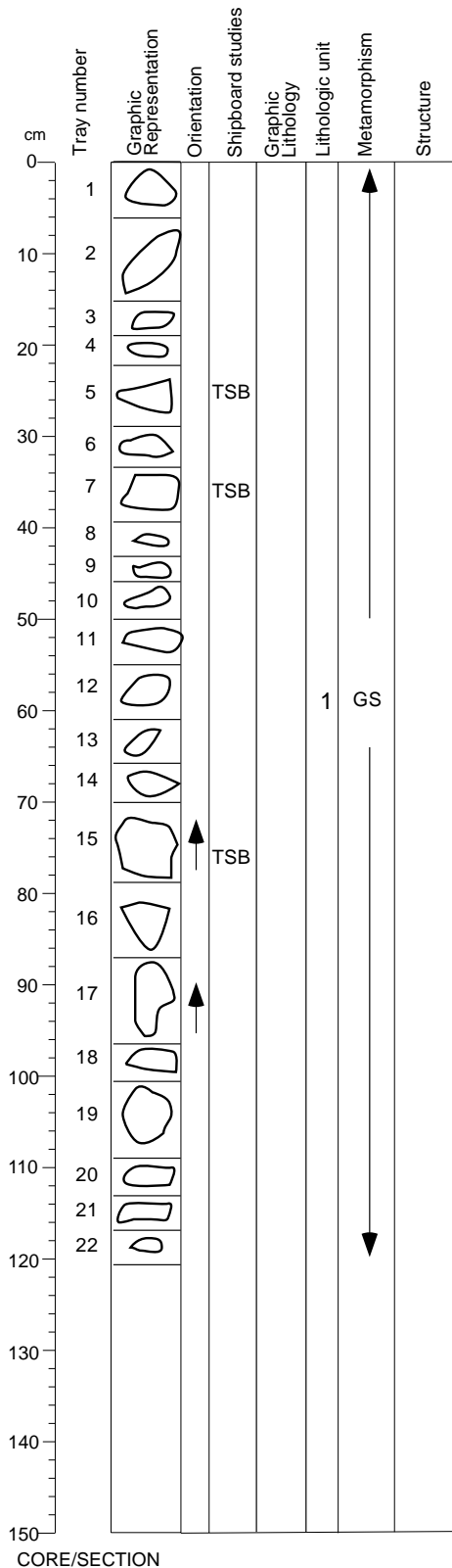
**COMMENTS:** Rocks consist of plagioclase and pyroxene and are very leucocratic.

**Core Photo**

Site 1111 Hole A Core 18R Rec. 8.5% 164.2-173.7 mbsf									
METERS	SECTION	GRAIN SIZE	GRAPHIC LITH.	BIOTURB.	STRUCTURE	ACCESSORIES	DISTURB.	SAMPLE	DESCRIPTION
165	granule very coarse coarse medium fine very fine silt clay								<p>— THS                      / THS                      — THS</p> <p>GREENSCHIST, METADOLERITE, and QUARTZITE</p> <p>Major Lithologies:                      Core consists of angular clasts of GREENSCHIST, METADOLERITE, and QUARTZITE likely deposited as talus from nearby Moresby Seamount. Refer to Petrology Visual Core Descriptions for more details.</p>

**Core Photo**

**180-1111A-18R-1 (164.20-165.40 mbsf)**



**UNIT: 1 HETEROGENEOUS TALUS**

**TRAYS: 1 to 22**

Interval Location:	Core	Section	TRAY	Depth (mbsf)
<b>Upper contact:</b>	18R	1	1	155.38
<b>Lower contact:</b>	18R	1	22	165.40
<b>Thickness (m):</b>				
<b>Contact Type:</b> No contacts preserved.				

**GENERAL:** These are clasts of various metamorphic rocks, largely sheared greenschist facies, except that trays 7 and 8 contain coarse-grained quartzites and trays 15 and 16 are metadiabases.

**GRAIN SIZE:** Variable  
**TEXTURE:** Microgranular to granoblastic  
**STRUCTURE:** Ductilely deformed  
**ALTERATION:** Chlorite, epidote, etc.

**COMMENTS:** These are talus blocks, likely from the Moresby Seamount and representing a heterogenous metamorphic terrain.

Core, section interval (cm)	Depth (mbsf)	Described by	Lithology (dominant/minor)	Size		Siliciclastic and volcanoclastic composition																Biogenic composition										Sediment or rock name									
				Sand	Silt Clay	Quartz	Feldspar	Plagioclase	Muscovite	Biotite	Glaucinite	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	Climoptilolite	Phillipsite	Other	Clay	Nannofossils		Foraminifers	Diatoms	Radiolarians	Sponge spicules	Shell debris	Organic material	Fish debris	Bioclasts	Unidentified/other
180-1111A-6R-CC, 6	48.46	TS	D	c	a	c	c	r			r		r	c														a	r		r									Nannofossil-rich silty clay	
7R-CC, 14	58.24	TS	M	c	c	c	r	c	r			r	r														c	c	r										Silty fine-grained volcanoclastic sandstone		
8R-1, 50	68.20	TS	D	c	a	r	c	r						r	c												c	c	r										Nannofossil-rich silty clay		
8R-1, 80	68.50	TS	M	c	c	r	c	r				c		c	c												r	r	r										Fine-grained volcanoclastic sandstone		
8R-2, 124	70.44	TS	M	c	c	c	r	c	r			r		r	r												c	c	r										Fine-grained volcanoclastic sandstone		
10R-CC, 10	87.10	TS	D	c	a	r	r	r				r			c												a	a	c		r								Nannofossil-rich silty clay		
11R-1, 22	96.92	TS	D	c	a	r	r	r				r		r	c												a	r		r										Silty clayey nannofossil ooze	
13R-2, 28	117.44	AR	D	r	c	a	r	r	r				r		r												a	a	c	r	r	r									Silty clay
15R-1, 26	135.66	AR	M	r	c	r	r	r	r			a			r												r	r	r	r										Sand	

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



180-1111A-3R-CC (Piece 1, 6-8 cm)

Thin section: #106

ROCK NAME: Tremolite-Epidote Amphibolite

GRAIN SIZE: Fine-grained

TEXTURE: Lepidoblastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Amphibole	I	5	40	0.3	Subhedral	Pseudomorphed by chlorite.
Plagioclase	10	60	0.5		Subhedral	Cloudy, partly replaced by sericite.
SECONDARY MINERALOGY		PERCENT		REPLACING/ FILLING		COMMENTS
Quartz	10	Veins				
Epidote	20	Plagioclase				Very fine-grained epidote in the matrix, associated with clay and chlorite.
Tremolite	30	Amphibole I				Very small granular zoisite replacing plagioclase in the matrix.
Sericite	15	Plagioclase				
Chlorite	10	Tremolite				Pale green fibrous; replacing amphibole.

COMMENTS: Metamorphosed dolerite.

180-1111A-3R-1 (Piece 2, 10-11 cm)

Thin section: #107

ROCK NAME: Epidote schist

GRAIN SIZE: Fine-grained

TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Muscovite	5-10	?	0.1		Flakes	Elongated in the foliation plane.
Plagioclase	2	0.3			Anhedral	Augen porphyroclasts.
SECONDARY MINERALOGY		PERCENT	REPLACING/ FILLING	COMMENTS		
Epidote	40	Plagioclase		Granular.		
Clinzoisite	10	Plagioclase		Granular to fibrolitic, elongated in the foliation plane.		
Quartz	10			Lenses of fine-grained quartz elongated in the foliation plane.		
Clay	20					

COMMENTS: Mylonitic epidote-rich schist; mylonitic foliation is folded.

180-1111A-4R-CC (3-5 cm)

Thin section: #108

ROCK NAME: Lamprophyre

GRAIN SIZE: Fine-grained with phenocrysts up to 1 mm

TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Phenocryst:						
Clinopyroxene		1	1	1		Euhedral Elongated flakes in both foliation plane. Originally euhedral, difficult to identify now, pseudomorphed.
Olivine		10	1-2			
Groundmass						
Clinopyroxene		25	25	0.1		Euhedral Very fresh.
Amphibole		35	35	0.1		Needles Pleochroism pale greenish brown.
Felsic mesostasis		30	30	Fine	Fills interstitial areas	Not identified (alkali feldspar, zeolite).
	Fe-oxide	5	5	Fine		Small cubic crystals
SECONDARY MINERALOGY		PERCENT		REPLACING/ FILLING		COMMENTS
Serpentine	10			Olivine		Pseudomorphs after large silicates (not previously identified), iron ore.

COMMENTS: This rock has a panidiomorphic texture and is ascribed to the lamprophyre clan.

180-1111A-2R-1 (2-3 cm)  
Thin section: # 109  
ROCK NAME: Epidote schist  
GRAIN SIZE: Fine-grained  
TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	1	?	0.2		Anhedral	Porphyroblast relics.
SECONDARY MINERALOGY		PERCENT		REPLACING/ FILLING		COMMENTS
Epidote	40			Plagioclase		Granular to tabular, elongated parallel to the foliation plane.
Calcite	15			Plagioclase, veins		Fine- to coarse-grained.
Quartz	15					Very fine-grained quartz forming lenses parallel to the foliation plane.
Clay	30					Dark brown, fine-grained clay minerals elongated in the foliation plane.

**COMMENTS:** This rock has a mylonitic texture. The mylonitic and shear bands are evidence by sigmoidal quartz-epidote lenses. Microfractures perpendicular to the foliation are filled with quartz and calcite.

180-1111A-10R-CC (Piece 1, 3-5 cm)

Thin section: # 110

ROCK NAME: Schist

GRAIN SIZE: Fine-grained

TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Amphibole	25	?	0.2		Anhedral	Porphyroblast relics.
Plagioclase	10	?	0.5		Anhedral	
Quartz	5	?	0.5		Anhedral	
Fe-oxide	2	?	0.5		Granular	
SECONDARY MINERALOGY		PERCENT	REPLACING/ FILLING		COMMENTS	
Epidote	5		0.1	Granular.		
Chlorite	5		0	Dark green chlorite.		
Quartz	15		0.1	Very fine-grained quartz associated with epidote.		
Calcite	10		0.8	Coarse-grained calcite.		
Clay	5		0.01	Dark brown, fine-grained clay minerals elongated in the foliation plane.		

**COMMENTS:** Mylonite retrogressed under greenschist facies conditions. The retrogression under Greenschist conditions is free of deformation as both chlorite and epidote developed as fibrous and non-oriented grains.

180-1111A-16R-CC (Piece 1, 3-5 cm)

Thin section: # 111

ROCK NAME: Epidote schist

GRAIN SIZE: Fine-grained

TEXTURE: Lepidoblastic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	15	?	2-3		Subhedral	Large magmatic porphyroblasts partly altered.
SECONDARY MINERALOGY		PERCENT	REPLACING/ FILLING			COMMENTS
Amphibole	40	?	0.5			Small fibrolitic colorless amphibole (tremolite?).
Chlorite	10	Amphibole, vein	0.2			Pale green, fibrous, filling veins with quartz and replacing amphiboles.
Quartz	5		0.1			Very fine-grained quartz forming lenses parallel to the foliation plane.
Epidote	20	Plagioclase, vein	Up to 0.5			
Clinzoisite	5	Plagioclase, vein	0.1			
Clay	10	0.01				Dark brown, fine-grained clay minerals elongated in the foliation plane.

**COMMENTS:** Highly-retrogressed basic rock (gabbro?) containing relics of magmatic plagioclase in a fine-grained matrix made of amphibole (fibrous) and clay minerals. Brittle to ductile deformation is evidenced by the presence of fractures (filled with quartz, calcite, chlorite, and Fe-oxide). Some of the fractures are folded.

180-1111A-16R-CC (Piece 2, 5-8 cm)  
Thin section: # 112  
ROCK NAME: Epidote schist  
GRAIN SIZE: Medium- to fine-grained  
TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	15	?	2-3		Anhedral	Porphyroblast relics.
Clinopyroxene	2	?	1		Anhedral	Porphyroblast relics showing undulose extinction.
SECONDARY MINERALOGY		PERCENT	REPLACING/ FILLING			COMMENTS
Tremolite	50	Clinopyroxene	0.2			Elongated in the foliation plane.
Epidote	15	Plagioclase	0.1			
Quartz	5	Vein	0.8			
Calcite	5	Vein				Coarse-grained calcite.
Clay	5	0.01				Dark brown, fine-grained clay minerals elongated in the foliation plane.

**COMMENTS:** Ductile (medium T>400°C) deformation evidenced by undulose extinction in plagioclase and quartz.; amphibole, elongated in the foliation plane, developed during ductile deformation. Epidote+calcite-rich layers alternate with quartz+plagioclase layers. Microfractures filled with quartz crosscut the foliation plane.

180-1111A-16R-CC (Piece 3, 9-14 cm)

Thin section: # 113

ROCK NAME: Epidote schist

GRAIN SIZE: Fine-grained

TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	1	?	0.2		Subhedral	Replaced by fibrolitic epidote.
White mica	5	?	0.1		Anhedral	Elongated in the foliation plane.
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Epidote	50	Plagioclase folds.	0.1	Fine-grained, granular epidote in 5 mm thick layers, coarse-grained (0.2 mm) epidote in the hinge of		
Chlorite	10	Mica	0.	Dark green chlorite filling interboudins of fractured epidote layer.		
Quartz	10	Vein	0.1	Very fine-grained quartz associated with epidote.		
Calcite	20	Vein	0.8	Coarse-grained calcite.		
Clay	5		0.01	Dark brown, fine-grained clay minerals elongated in the foliation plane.		

**COMMENTS:** Two deformation events visible: 1) responsible for the development of the foliation plane, 2) folding of the foliation under ductile / brittle conditions (epidote layers are boudinaged).



180-1111A-16R-CC (Piece 4, 16-20 cm)

Thin section: # 114

ROCK NAME: Porphyry

GRAIN SIZE: Fine- to coarse-grained

TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	25	?	0.2		Subhedral	Cloudy, replaced by sericite
Pyroxene	5	?	0.1		Subhedral	
Quartz-feldspar intergrowth	50	Vein	0.1			
Sphene	1					
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Epidote	5	Plagioclase	0.1	Granular		
Chlorite	5	Mica	0.1	Platy		
Sericite	3	Plagioclase	0.05	Platy		
Calcite	2	Plagioclase	0.1			
Fe-oxide	1	Amphibole	0.01	Granular		

COMMENTS:

180-1111A-7R-1 (Piece 3, 21-24 cm)

Thin section: # 115

ROCK NAME: Pyroxenite

GRAIN SIZE: Coarse-grained

TEXTURE: Porphyritic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Clinopyroxene		80	?	2-3	Anhedral	
Amphibole I		3	?	2	Anhedral	Colorless to pale green porphyritic amphibole.
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Amphibole II	5	Amphibole I		Needles of colorless amphibole (tremolite?).		
Chlorite	5	Amphibole II		Colorless to Pale green chlorite.		
Sericite	4	Plagioclase?				
Quartz	2	Veins				

COMMENTS: Brittle deformation (motar texture) and microfractures filled with chlorite+quartz.

180-1111A-17-R-1 (10-12 cm, Piece 3)

Thin section: # 116

ROCK NAME: Pyroxenite

GRAIN SIZE: Coarse-grained

TEXTURE: Brecciated

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Clinopyroxene	80	?	2-3		Anhedral	
<b>SECONDARY MINERALOGY</b>	<b>PERCENT</b>	<b>REPLACING/ FILLING</b>		<b>COMMENTS</b>		
Fine-grained dark material	18	Olivine(?)		Nature of this material cannot be identified in thin section.		
Quartz	2	Veins				

COMMENTS: Brittle deformation (motar texture) and microfractures filled with chlorite+quartz.

180-1111A-17R-1 (Piece 10, 50-56 cm)

Thin section: # 117

ROCK NAME: Epidote schist

GRAIN SIZE: Fine-grained

TEXTURE: Mylonitic

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Amphibole I	3	?	0.5		Anhedral	Porphyroclast relics elongated in the foliation plane.
Plagioclase	15	?	0.25		Anhedral	
Quartz	10	?	0.1		Anhedral	
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING				COMMENTS
Actinolite	30	Amphibole I	0.1			Pale green, pleochroic, fibrous, elongated in the foliation plane.
Chlorite	10	Actinolite	0.1			Dark green chlorite.
Epidote	30	Plagioclase	0.1			Granular.
Sericite	2	Plagioclase	0.8			Platy.
Fe-oxide	5		0.01			Granular.

**COMMENTS:** Shear sense given by asymmetric tails around plagioclase and amphibole porphyroclasts. Brittle behavior of the porphyroclasts (no undulose extinction), chlorite and actinolite elongated in the foliation plane (ductile behavior). Deformation took place under upper Greenschist facies conditions (>400°C) and retrogressed to lower Greenschist conditions (<300°C); epidote-rich layer boudinaged, tension vein filled with quartz.

180-1111A-17R-1 (Piece 10, 50-56 cm)  
Thin section: # 118  
ROCK NAME: Diorite  
GRAIN SIZE: Medium-grained  
TEXTURE: Cataclastic to equigranular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Clinopyroxene	20	-	1	Anhedral	Granular.	
Biotite	25	-				
Plagioclase	35	-	0.5		Anhedral	
Quartz	5					
Fe-oxide	5	10	0.1		Granular	
<b>SECONDARY MINERALOGY</b>	<b>PERCENT</b>	<b>REPLACING/ FILLING</b>		<b>COMMENTS</b>		
Chlorite	10	Biotite	0.1	Pale green chlorite.		
Epidote	5	Plagioclase	0.1			

**COMMENTS:** Evidence for brittle deformation, cataclastic texture: fragments of pyroxene and plagioclase in very fine-grained brown matrix.

180-1111A-18R-5 (22-29 cm)

Thin section: # 119

ROCK NAME: Dolerite

GRAIN SIZE: Medium

TEXTURE: Granular

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	~50	~50	0.5-1		Euhedral, prismatic	
Clinopyroxene	~45	~45	0.5-3	Augite	Anhedral	
Opaque	~1	~1	0.1	-	Subhedral	
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Green alteration products	~4			Interstitial glass, possibly olivine.		

COMMENTS: This rock does not have the ophitic texture, but is granular. Pseudomorphs of greenish layered silicates may be in part after original olivine.

180-1111A-18R-1 (Piece 7, 33-39 cm)

Thin section: # 120

ROCK NAME: Quartzite

GRAIN SIZE: Coarse-grained

TEXTURE: Massive

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Quartz	95	100	100- 200		Anhedral	
SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING		COMMENTS		
Calcite	5	Veins				

COMMENTS: In quartz evidence for ductile deformation: undulose extinction and recrystallization at the margin. Brittle deformation evidenced by fractures filled with calcite.

180-1111A-18R-1 (Piece 15, 70-78 cm)

Thin section: # 121

ROCK NAME: Mica-schist

GRAIN SIZE: Fine-grained

TEXTURE: Lepidoblastic

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PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Muscovite	20	?	0.3		Anhedral	Elongated in the foliation plane.
Quartz	40	?	0.2		Anhedral	
Plagioclase	5	?	0.5		Anhedral	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	10	Muscovite	Pale green chlorite.
Sericite		Plagioclase	
Epidote	5	Plagioclase	Yellow granular epidote.
Quartz	10	Veins	Quartz veins are folded.
Calcite	3	Veins	
Fe-oxide	2	Granular	
Clay	5		

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COMMENTS: Quartz-rich layers alternate with muscovite-clay-rich layers defining the foliation plane.