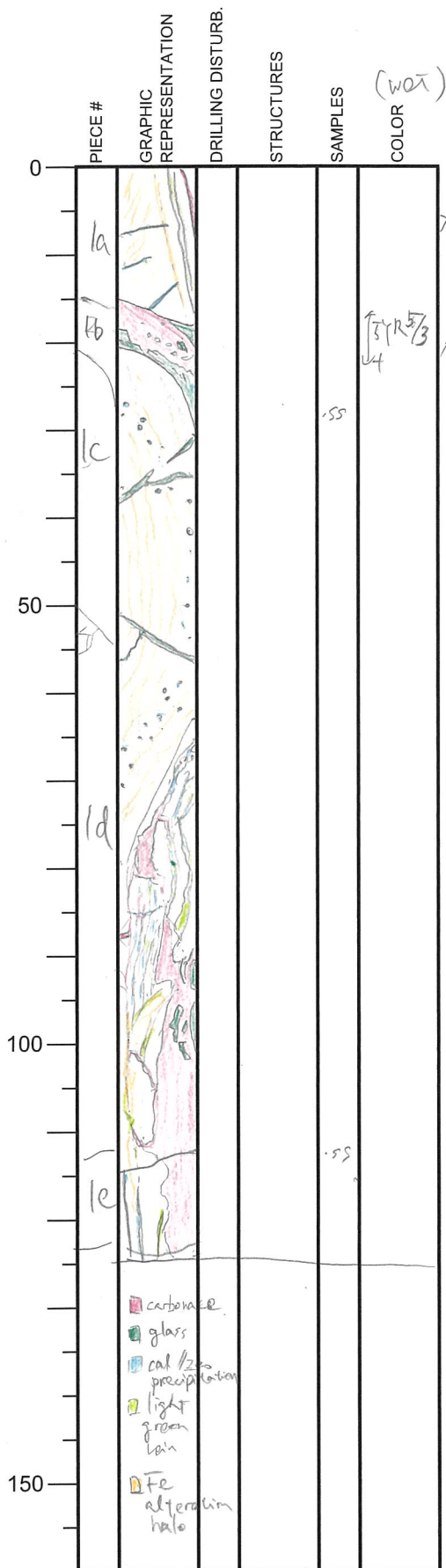


International Ocean Discovery Program

Visual Core Description

NO.
DATE: 02/12/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 1K
SECTION:
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Asuka

* Hand rock description.

Basalt, pillow lava (0-124.5 cm)

* Sedimentary description

Limestone (12-22 cm, middle: 17 cm, thickness = 4 cm)

(cal/radish brown) (65.5-123.5 cm, middle: 94.5 cm, thickness = 4 cm)

* Texture & Accessories

Altered (0-124.5 cm)

Vein (15-25 cm, 66-123.5 cm)

Pin → see Structure description.

* Comments. (not necessary to input JCORFS)

Curved occurrence of limestone + glassy basalt suggest pillow basalt. (12-25 cm)

Curved distribution of amygdulites (mineral-filled vesicles of calcite & zeolite) also suggest pillow. (25-72 cm)

Subvertical veins (62-123.5 cm) are composed of limestone, white minerals (especially thin veins & vein tips), light greenish gray clays. White minerals are likely to be calcite & zeolite.

Tabular fragments of glassy basalt

124.5 cm: in limestones section bottom.



Orange Fe-alteration halos overprinted onto dark greenish gray clay veins.

Orange alteration halo develops throughout the section.

White, small zoned alteration mineral occurs 0-77 cm.

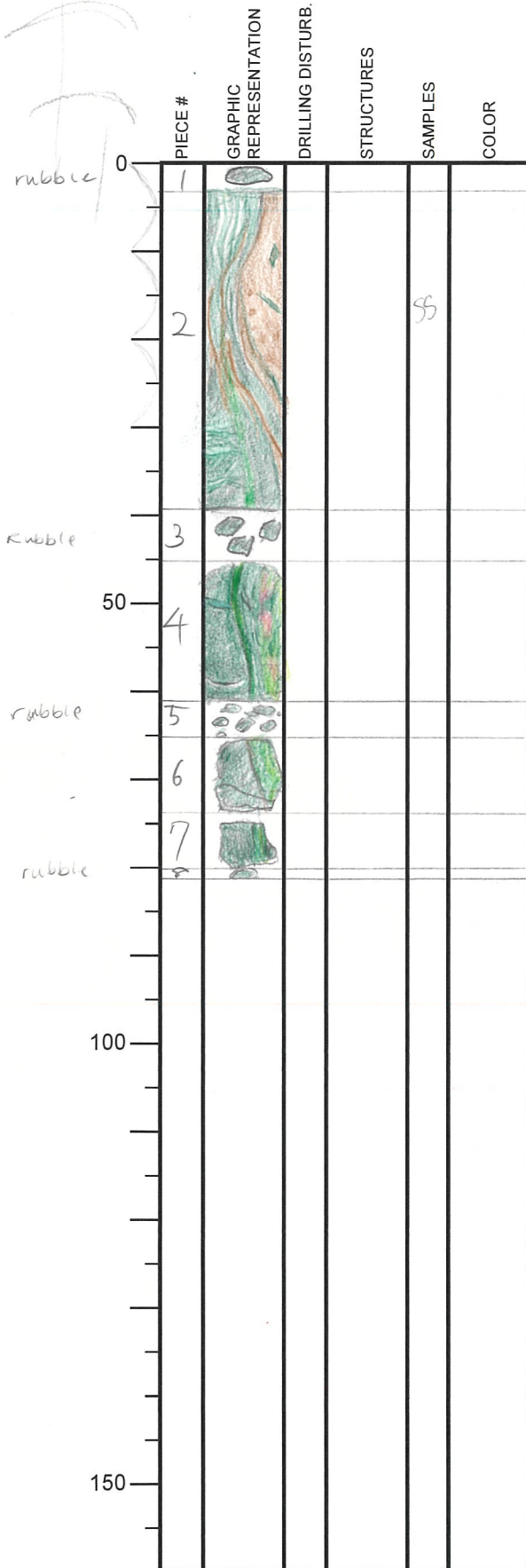
amygdule

International Ocean Discovery Program Visual Core Description

NO.
DATE: 3/2/2024
EXP.: 405
SITE/HOLE: COOR P
CORE: 14
SECTION: 2
TOP DEPTH (m CSF):

SECTION DESCRIPTION

OBSERVER: Torgare + Asuke



x Had rock description

↳ basalt / pillow lava (0-82cm)

Sediments

x (3-28 cm) = Deformed
subvertical dull-reddish brown
"lithified" (59R 5/3)
mudstone? injection?
with micro-clasts

x Texture & accessories

x Altered (0-82cm)

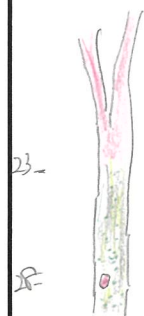
x Calcite - veins subvertical + subhorizontal

x Greenish - veins that don't reach to HCO (except at the edges)

x ↳ all next to the "mudstone"
↳ cooling effect creating cracks/veins.

82 cm. End of section

#1 ~ #8: altered pillow basalt
with subvertical veins of limestone,
white minerals, green clay minerals.



1 Gradational change from limestone vein to greenish clay vein at 23cm

1 Limestone clast in greenish vein at 28cm.

1 #6: Orange alteration halos are frequented & involved in vertical vein.



International Ocean Discovery Program Visual Core Description

NO.
DATE: 3/12/2024
EXP.: 405
SITE/HOLE: C0015 P
CORE: 1K
SECTION: 3
TOP DEPTH (m CSF):

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					
3	1				
12.5	2				10YR 3/1 (dry)
				SS (1/2)	5YR 2/1 (wet)
	3				7.5YR 3/3 (dry)
				SS	5YR 4/2 (wet)
41	4				
45				SS	
50					10YR 3/1 (dry)
					5YR 4/2 (wet)
	5				reddish rim (2mm) 2.5YR 2/4 (very dark reddish brown) at dry
					10YR 5/6
76					
90	6				
100					
150					

SECTION DESCRIPTION

OBSERVER: Aruka

* Hand rock description:

Basalt pillow lava (top to bottom)
Color: 10YR 3/1 (dark greenish gray) at dry condition
5YR 2/1 (greenish black) at wet condition.

Small amount of angules of white minerals

* Sediment description:

Limestone (29-41 cm, middle 35 cm, thickness 2 cm & 42-44 cm)

Color: 7.5YR 3/3 (dull brown) at dry condition
5YR 4/2 (grayish brown) at wet condition
reddish rim (2mm) 2.5YR 2/4 (very dark reddish brown) at dry.

* Texture & Accessories

Altered (top to bottom) 10YR 5/6 (yellowish brown)
Greenish clayey alteration + anastomosing orange alteration halo.

↑ End of section = 90 cm

Veins of white minerals. Gently to highly dipping, blanching at 32 cm & 53.5 cm.

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 03/12/2024
EXP.: 405
SITE/HOLE: COO19P
CORE: 1K
SECTION: 4
TOP DEPTH (m CSF):

OBSERVER: Asuka

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					
1					
6					
2					
50					
54					
3					
87.5					
100					
105					
110					
125					
150					

SECTION DESCRIPTION

- * Handrock description:
0-110cm: Basalt massive lava.
- * Texture & Accessories
 - ° Crystal rich (ca 110cm).
 - ° Subhorizontal to steeply dipping veins (see structure)

* Comments: (no need for JCORES)

- ° Texture changed from Sec. 3, Sec. 3 is more vitric, smaller grain sizes of phenocrysts. Large plagioclase phenocrysts (up to ~3mm) occur in Sec. 4 (at ~33cm).
- ° Alteration state also changed from Sec. 3. Background greenish alteration became subtle, as well as anastomosing Fe orange alteration halos.
- ° Instead, light gray patches (size < 1cm) develop around amygdulites. Black tabular mineral disappear in this patch. Light gray patches do not occur < 1cm from high angle white vein (22-37cm).

Summary of core 1: ^{greenish}
 Sec. 1-3: Highly altered pillow basalt with brown carbonate as interpillow.
 Sec. 4: Gray crystal-rich ^{basalt} massive

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 03/21/2024
EXP.: 405
SITE/HOLE: Coo19 P
CORE: 2K
SECTION: 1
TOP DEPTH (m CSF):

OBSERVER: Asuka

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					dry N5/1 gray
1					wet N15/0 black
31					
50					
56					
100					
150					

SECTION DESCRIPTION

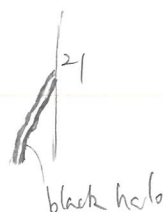
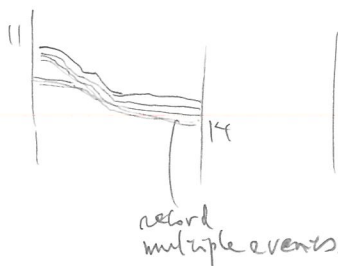
* Hand rock description.
Basalt sill (0-31cm).

* Texture
• Crystal rich (0-31cm), Altered (15-17cm)
• Gray (N5/1) patch across veins, pl-rich

* Accessories
• Pyrite (0-17cm)

* Comments:

- Phenocryst size < 4 mm.
- Repeated crack seal of vein @ 10-14 cm
- Black halo (thickness < 1 mm) along a vein @ 22-31 cm.



International Ocean Discovery Program

Visual Core Description

NO.
DATE: 03/12/2024
EXP.: 405
SITE/HOLE: C0019 P
CORE: 2K
SECTION: 2
TOP DEPTH (m CSF):

OBSERVER: Anka

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					dry; N3/1 dark gray
50					
83.5					End
100					
150					

SECTION DESCRIPTION

* Hard rock description
• Basalt sill (0-82 cm) or Dolerite

* Texture
• Crystal rich (0-82 cm)
• Altered (63-71 cm: Gray alteration)

Commines:

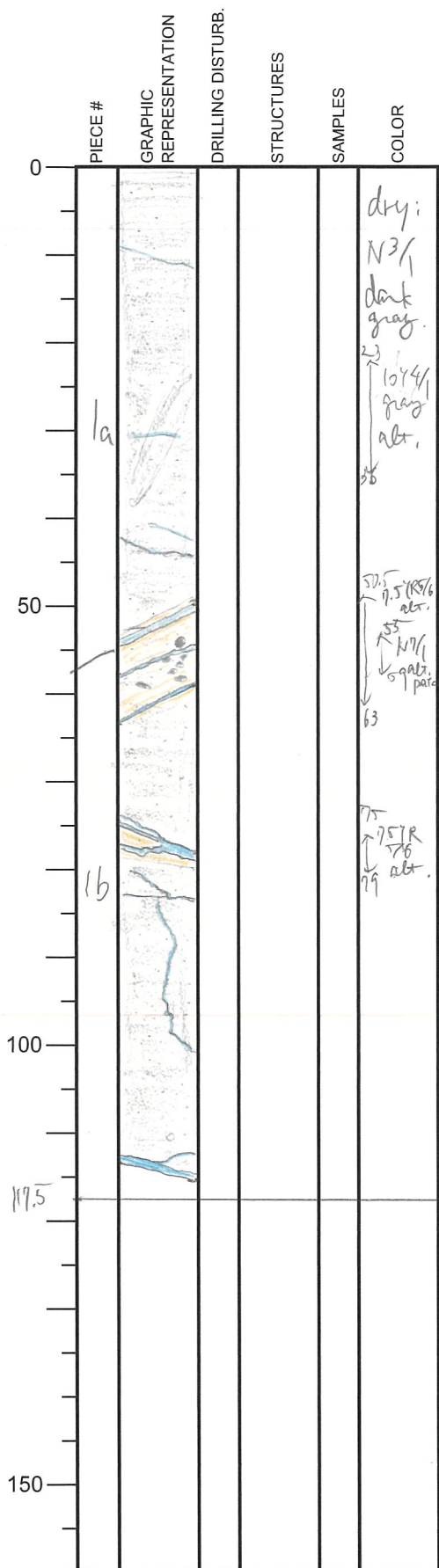
- Phenocrysts:
 - Plagioclase ($\leq \sim 5$ mm)
 - Pyroxene (aggregate: max ≤ 1.5 cm)
- Amygdale:
 - Black mineral (not sure): ≤ 1 mm
 - Clay (greenish gray): ≤ 1 mm
 - White mineral (not sure): ≤ 0.5 mm

• Vents are composed of white minerals, showing meandering-like irregular orientations.

International Ocean Discovery Program

Visual Core Description

NO. 0312/24
 DATE: 03/12/24
 EXP.: 405
 SITE/HOLE: Coo19P
 CORE: 2K
 SECTION: 3
 TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Asuka

* Handrock description

Basalt sill (0-115 cm) or Dolerite

* Texture

Crystalline (0-115 cm)

Altered

Orange (7.5YR5/6, bright brown) alteration at 50.5-63 cm (thickness of alt. zone = 7 cm), at 75-79 cm (thickness = max 2.5 cm)

Gray (10Y4/1) alteration, at 23-36 cm, ellipsoidal shape.

Gray (N7/1, grayish white) patches at 55-59 cm.

Comments:

Orange alteration occurs along moderate angle veins.

Gray patches look like overprint the orange alteration.

Pyroxene phenocryst size: ≤ 1 cm
 plagioclase, size ≤ 0.8 cm.

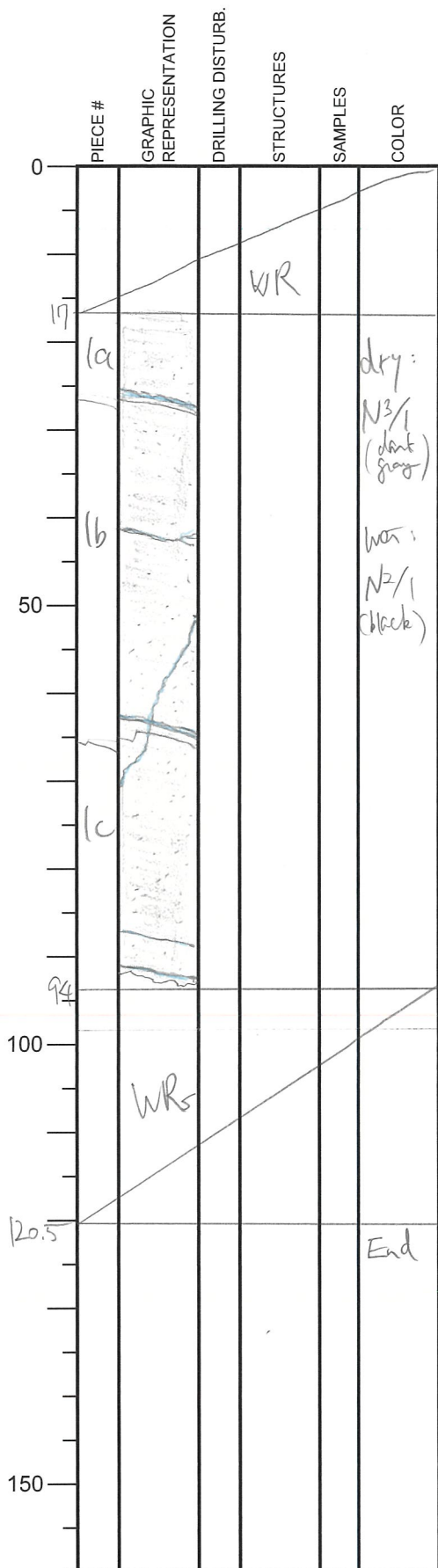
Anysidules: similar to spec. 2 but white anysidules are less than that of rec. 2.

Meandering veins (especially 80-101 cm)

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 1/2/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 2K
SECTION: 4
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Azuka

* Hard rock description
Basalt G11 top to bottom
or Poleria

* Texture

* Crystal rich (17-94 cm)

JGRES

Comments

* Alteration is not obvious at least VCD level.

(but there can be some auggdules)

* Phenocryst:

Plagioclase size ≤ 8 mm.

Pyroxene ≤ 5 mm.

* Veins

Subhorizontal ones are dominant.

Multiple generations, meandering

* The most intact section in this core.

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 04/24
EXP.: 405
SITE/HOLE: 600191
CORE: 3K
SECTION: 5
TOP DEPTH (m CSF):

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					
1					dry: N4/1 (gray) wet: N2/1 (black)
38.5					End
50					
100					
150					

SECTION DESCRIPTION

OBSERVER: Asuka

* Hard rock description
- Basaltic sill (0-217 cm)

* Texture
- Altered (6-37 cm)
- Crystalline (0-37 cm)

J CORES

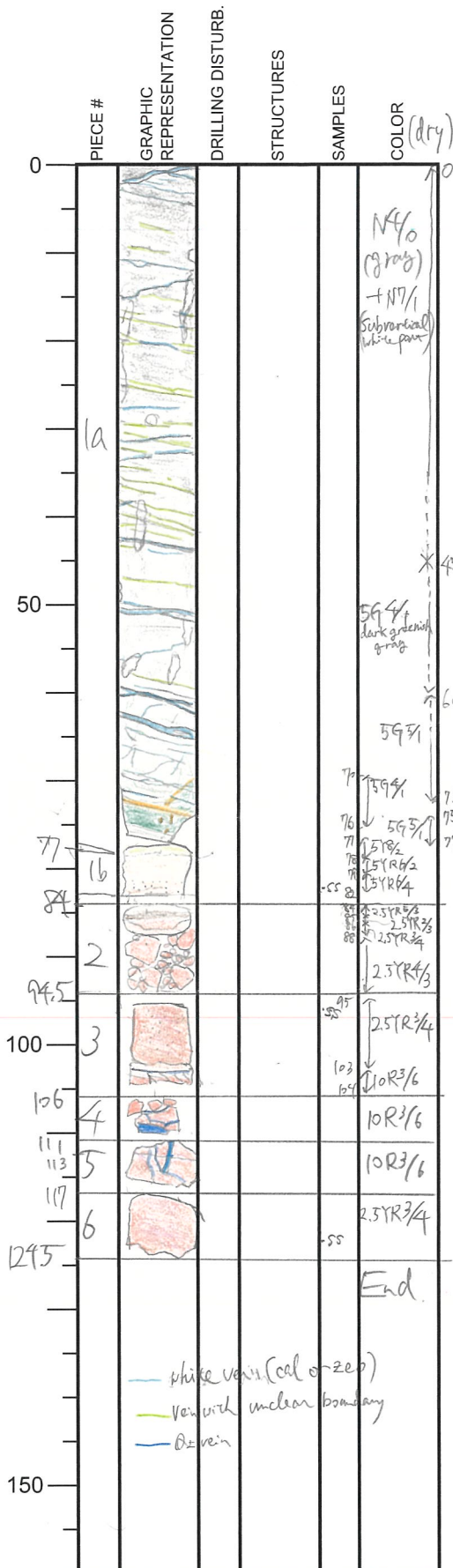


* Comments
- Slightly brighter color than sec. 3 & 4
- Phenocryst size is slightly smaller than sec. 4. (pl: ≤ 5 mm, px ≤ 5 mm)
- Black amygdulites start to occur from 6 cm. (size < 1 mm)

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 07/12/24
EXP.: 405
SITE/HOLE: Cool 9 P
CORE: 2K
SECTION: 6
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Asuka

- * Hard rock description
 - Basalt sill (0-77cm)
- * Sedimentary rock description
 - Limestone (77-103cm)
 - Chert (103-113cm)
 - Siliceous mudstone (113-124.5cm), carbonate bearing
- * Texture & Accessories.
 - Altered (0-77cm)
 - Crystal rich (0-72cm)
 - Vitric (75-77cm)

Comments

- * Basalt
 - Gradual color change from top (gray) to boundary (greenish gray)
 - Subvertical white parts: cut by veins. Crystal mush (magmatic origin) or alteration product.
 - Veins: two types, greenish veins with unclear boundary are cut by white veins with clear boundary.
 - Centers of green, unclear veins are filled with dark green minerals.
 - White veins show high CT number: calcite?
 - Plagioclase & pyroxene phenocrysts. Black (small) & white (large) amygdules.

* Boundary

- 70.5-76cm: Dark greenish gray zone with high CT number. Reaction zone? White veins also became green.
 - 70.5-73.5 & 73-74 cm: ~7mm-thick yellowish brown (10R5/6) layers: Reaction rim? Also, yellowish brown pipes at 73.5-75.5cm.
 - 75-77cm: 10mm-thick greenish gray to gray, fine-grained part. Chilled margin.
 - 77-78cm: ~8-12mm-thick light gray (5Y8/2) layer: Baked margin.
 - 78-80cm: ~2cm-thick grayish brown zone with high CT number: Reaction zone? Gradually changing into limestone.
- Baked & chilled margins with reaction zones

* Sedimentary rocks

- Limestones (77-103cm): dull-dark reddish brown, weaker than SUS. Carbonate (calcite or dolomite) particles in SS. Dissolved by HCl.
- Chert (103-112cm): dark red, stiffer than SUS. Sharp boundaries with limestone & siliceous mudstone.
- Siliceous mudstone (113-124.5cm): dark red to dull reddish brown. Weaker than SUS. Cherty lithic & carbonate particles in SS.
- piece #3 has sand-size carbonate particles.

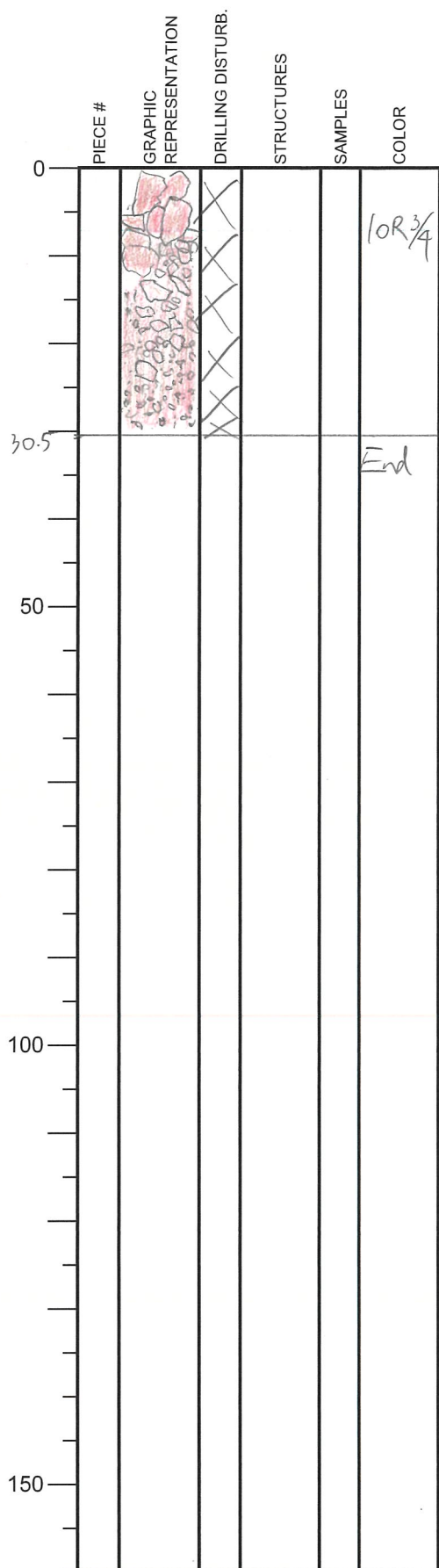
VCD_sheet_Lithology

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 04/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 25
SECTION: 7
TOP DEPTH (m CSF):

OBSERVER: Asuka



SECTION DESCRIPTION

* Sediment rock description

• Chert (0-30.5cm)

* Disturbance

• Drilling breccia (0-30.5cm)

J cores



Comment:

• Dark red chert (10R 3/4)

• Surfaces of chunks are covered with carbonate, possibly mixed with fragmented limestone due to brecciation by drilling.

* Summary of core 2

• Sec. 1-6: Crystal-rich altered basalt silt.

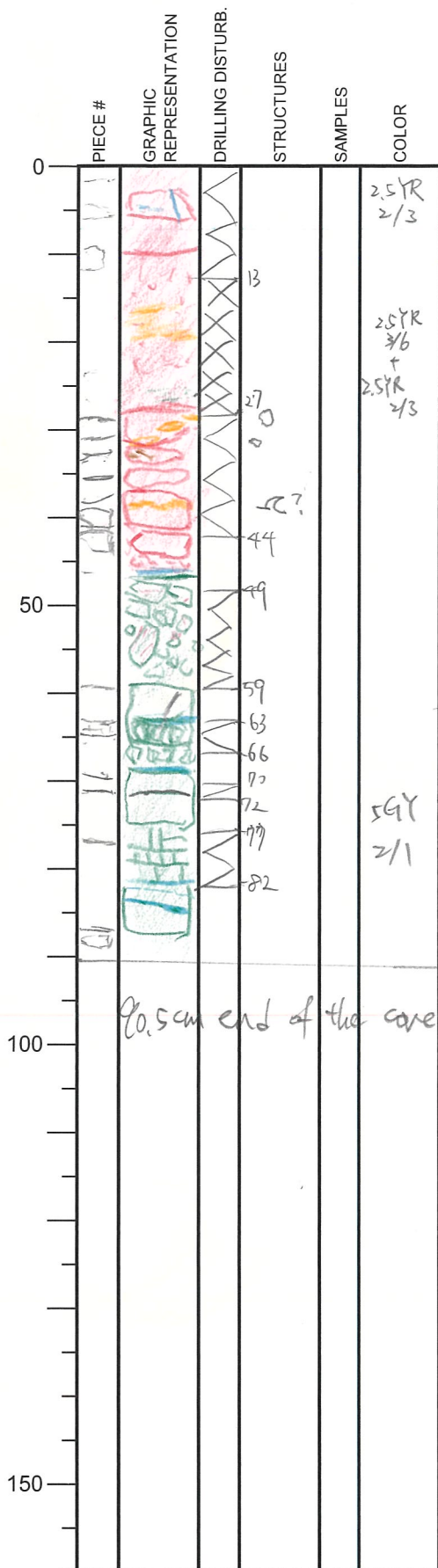
• Sec. 6-7: Red-colored pelagic sediments (limestone, chert, siliceous mudstone)

• Intrusive boundary at sec 6, 77cm.

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 4/12/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 3*
SECTION: 1
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Yunchun

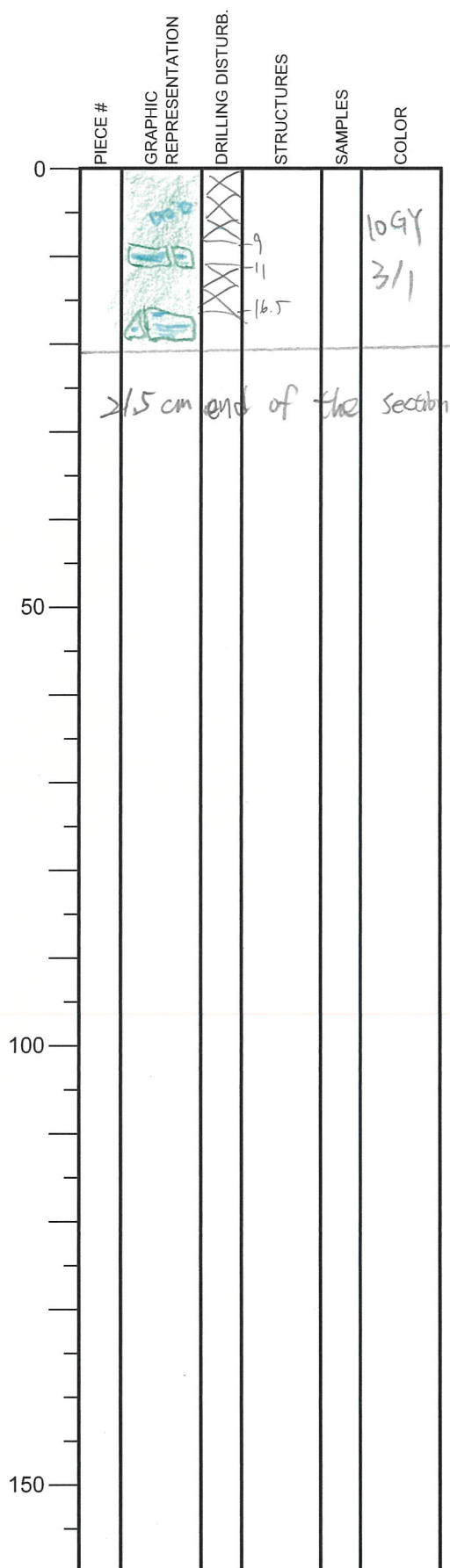
0-6 cm carbonaceous clay-silt (very dark reddish brown 2.5YR 2/3)
Subvertical-vertical veins (4-6 cm)
6-14 cm chert fragments + carbonaceous clay
14-20.5 cm (2.5YR 3/6) dark reddish brown silt mix with very dark reddish (2.5YR 2/3) clay + chert fragments
20.5-27 cm clay (2.5YR 2/3) + a patch of gray slurry?
27-41 cm claystone fragments with between each chunk clasts & patches are highly compressed (?)
41-46 cm chert (2.5Y 3/6)
46-49 cm boundary between chert & basalt with damaged white veins (?) → chilled margin (AT)
49-58 cm fragmented basalt with reddish carbonaceous clays covering on the top
58-90 cm broken pieces of basalt (olive black 5GY 2/1) cryptocrystalline (micro-crystal) vitreous texture,
90.5 cm end of the core
white veins: 71.5-72, 80, 82, 84-85 cm
red colour may come from more oxidized particles ← from SS view
grain size in damaged vein zone are poor sorted

Summary: boundary of chert & basalt with dark reddish brown mud in the chert interval. mineral veins in the basalt intervals are usually damaged with poor sorted particle size

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 4/12/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 3K
SECTION: 2C
TOP DEPTH (m CSF):



SECTION DESCRIPTION

OBSERVER: Yuchuan

0-4, 5-9, 11-16.5, 20-22 cm
brecciated basalt (10GY 3/1) dark greenish gray.
(due to drillily disturbance)

4-5, 10-11:
basalt fragment with 0.5-1 cm thick subhorizontal
carbonaceous mineal veins

17-20 → <0.1 cm mineal veins

* Basalt in core 3 should be sill, because
there is no pillow, clinker below the boundary.
Subhorizontal veins continue to core 4K, so 4K
should also be sill. (A.T.)

Summary of core 3.

- Upper half: chert & carbonaceous mud.
- Lower half: basalt sill with subhorizontal veins.
- Brecciated by drilling.

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 05/12/24
EXP.: 405
SITE/HOLE: C0019P
CORE: 4K7
SECTION:
TOP DEPTH (m CSF):

OBSERVER: Asuka

PIECE #	GRAPHIC REPRESENTATION	DRILLING DISTURB.	STRUCTURES	SAMPLES	COLOR
0					
1a					595/1
1b					
1c					
1d		32			
2		49.5			595/1
49					End
50					
100					
150					

SECTION DESCRIPTION

* Hard rock description.
Basalt sill (0-47.5 cm) 595/ greenish gray.

* Texture & Accessories.

- Altered (0-47.5cm)
- Crystal rich (0-47.5cm)

↑ CORES

* Comments

- Dark green to black spherical patches: amygdale? — olive
- Cut by subhorizontal veins.

- White subhorizontal veins: calcareous?

Five thick veins (0-3, 13-15.5, 12.5-13.5, 31-32.5, 40-41 cm, and numerous thin, discontinuous veins.

* Summary of core 4K

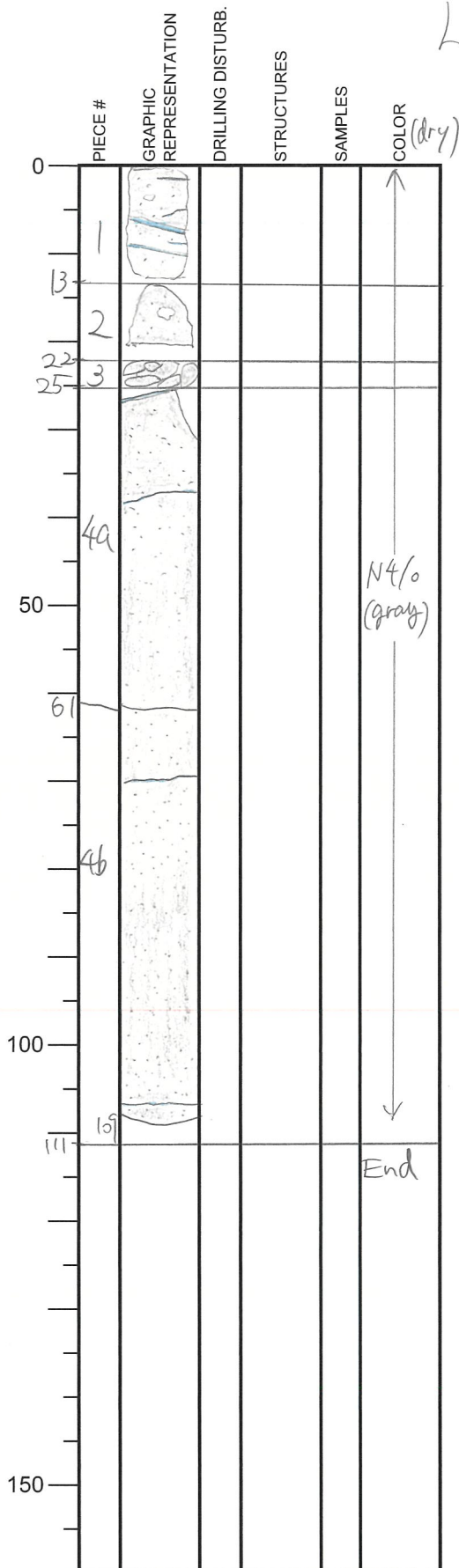
- Altered, crystal-rich basalts: ill with numerous subhorizontal veins

International Ocean Discovery Program

Visual Core Description

NO.
DATE: 05/14/24
EXP.: 405
SITE/HOLE: COO19P
CORE: 5K
SECTION: 1
TOP DEPTH (m CSF):

Last IODP core!



SECTION DESCRIPTION

OBSERVER: Asuka

* Hard rock description.

• Basalt (sill) or Dolerite: 0-109 cm.

* Texture & Accessories.

• Crystal rich (0-109 cm).

JCORES
↑

* Comments.

• Two thick veins in Piece #1,

Fine thin veins in Piece #4.

• ~1cm white crystal at 16-17cm.

• Weak alteration.

Summary of core 5K

• Crystal-rich basalt/sill