Hole U1346A Core 1W, Interval 71-71.24 m (core depth below seafloor)

Major: Chert. Brownish (2.5Y 3/1) chert with relict sedimentary features such as fine laminations preserved. Small shell fragments visible in places. Minor: Bluish black (5PB 2.5/1) chert pieces.

Depth (m)	Core length (cm)	Section	Core image	Graphic lithology	GRA bulk density (g/cm³) (GRA - raw; GRA - filtere	Magnetic Susceptibility (x10 <sup>5</sup> SI) (MS, MS Point - raw; MS, MS Point - filtered) 0 0 0 0 0 0 0 0 0 0 0	Reflectance (L*, b* - raw; 2 - 0	Nannofossil B Zone a	Grain size ວ⊢ເດເຕ່ຊ ↓↓↓↓↓↓↓↓↓	Shipboard sample	Bioturbation intensity	Ichnofossil / Fossil	Sedimentary structure rt	Lithologic accessories	Drilling disturbance
	-	1			6	1	100				5	999		1	1



Hole U1346A Core 2R, Interval 100.5-100.69 m (core depth below seafloor)

Major: Bluish black (5PB 2.5/1) chert.

Black chert nodules (~2-4 cm in length) and cherty fragments. Faintly laminated in places. Fossil "ghosts" which have been replaced by secondary gray silica are visible in places. Surface of some pieces has a clay-carbonate coating, <1 mm thick.



Hole U1346A Core 3R, Interval 110-110.07 m (core depth below seafloor) Major. Chert. Black (2.5Y 2.5/1) chert nodule (~5 cm). Mostly cryptocrystalline but some relict laminations (<1 mm - 5 mm) are preserved. These lamainations alternate in color from black to greenish black. The darker layers have gray flecks (silica replaced fossils) and inclusions of soft green clay which can be <1 mm to 2 mm in size. Ichnofossil / Fossil Reflectance Core length (cm) Structure Age (L\*, b\* - raw; L\*, b\* - filtered) GRA bulk Bioturbation intensity Sedimentary structure Nannofossil zone Lithologic accessories Drilling disturbance Core image Shipboard sample density (g/cm<sup>3</sup>) (GRA - raw; GRA - filtered) **L**100 Depth (m) 50 75 Section Grain size -20 Graphic lithology 0 - 0 0 4 0 0 22.0 1 



Hole U1346A Core 4R, Interval 119.5-122.4 m (core depth below seafloor)

Major: Dark green (5GY 4/1) basalts interbedded with brownish gray (10YR 5/2) and very dark gray (5Y 3/1) limestone. Very dark gray (N4), carbonaceous, volcaniclastic sand-silt-claystones. Minor: Light brown (10YR 6/2), volcaniclastic clayey limestones with shell fragments.

Section 1 has green, altered basalts (0-22 cm, 33-63 cm, 102-115 cm) interbedded with limestones with nannofossils and volcaniclastics (23-32 cm, 64-101 cm). Evidence for soft-sediment deformation in the limestones, where original sedimentary bedding is disturbed.

Section 2 contains a green, altered basalt (0-38 cm), which may be a continuation of the piece from the bottom of Section 1. Beneath the basalt is a finely-laminated sand-silt claystone section (39-126 cm) containing three fining-upward sequences. Probably turbiditic.

Below the mudstone (127-130 cm) is a coarse, grain-supported li mestone breccia containing volcanic grains. Below this (131-134 cm) is a black chert piece with a sharp contact to a thin nanofossil-bearing limestone beneath. Beneath this (135-138 cm) is a bioclastic limestone containing abundant volcaniclastic grains. Beneath this (139-149 cm) is a brownish gray, faintly laminated limestone with some shelly material. This lithology continues into 4CC.









	324-U1346A-4R-1, Top of Section: 119.5 CSF-A (m)															
Depth (m)	Core length (cm)	Piece number	Scanned image	Orientation	Shipboard studies	Lith. unit	Structure	Structural	did	Vesicularity 승은 ጺ ጽ 용 당	% Phenocrysts (pl., ol., px.) 6 ଜ 은 은 은 은 왕 양	Groundmass grain size (mm) 8 4 2 6 7 6 6 6 6	Alteration 	Magnetic susceptibility (x10 <sup>5</sup> SI) MS Point - filtered 88888888 288888888 288888888	Reflectance (L <sup>*</sup> , b <sup>*</sup> - raw; L <sup>*</sup> , b <sup>*</sup> - filtered) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Description
119.5	0 10 -	-			TS PP PP XFD	3		95 160 12 12 20	72 75 265 265 210							U1346A-4R-1 continued UNIT: 6 LITHOLOGY: Peperite (Units 3-7) VOLCANIC DESCRIPTION: Mixed carbonate-bearing sediment (limestone) containing a single angular fragment of vesicular aphyric basalt, chilled margin on non-vesicular volcanic fragment indicates rock was molten when intruded into soft sediments
-	20 - 30 -	-			TS PAL	4	-									TEXTURE: Aphyric COLOR: Green-bluish gray basalt, Yellow-brown mudstone PHENOCRYSTS: None GROUNDMASS: Cryptocrystalline VESICLES: Non-vesicular UPPER CONTACT: Fluidal contact between vesicular aphyric basalt and deformed lime-mudstone LOWER CONTACT: Not recovered ALTERATION: Fragment of highly altered dark green basalt. VEINS: none
- 120.0 -	40 - 50 -	-			XRD T8	5	₽₽ •••	50 78	255 75							STRUCTURE: Peperite composed of massive structure of basalt. UNIT: 7 (continued into next section) LITHOLOGY: Peperite (Units 3-7) VOLCANIC DESCRIPTION: Vesicular aphyric basalt piece that has mingled with unconsolidated fine-grained calcareous sediment vesicular interior of pillow, possible crust on one side TEXTURE: Aphyric
-	60 <b>-</b>	-					8 1	15 122 158	160 70 50	-					00 00 00 00 00 00 00 00 00 00 00 00 00	OLOR: Green-bluish gray HENOCRYSTS: None FSICLES: Moderately vesicular, rounded to subrounded, 50% lied IPPER CONTACT: Not recovered OWER CONTACT: Not recovered UTERATION: Highly altered dark green basalt. Primary phases
-	70 - 80 -	-			TS PAL PAL PAL PAL	6	ייע   	70 128 160	100 75 20							are replaced by green and white clays. Vesicles are filled by calcite, white mineral, pyrite and Fe-oxides. VEINS: Veins of clays +/- carbonate and pyrite. STRUCTURE: Massive structure of altered and vesicular basalt. Two veins.
-	90 -				PAL PAL		,									
120.5 —	100 -				PAL PP PAL	7	1	<del>9</del> 8	700						•••	
-	110 -		and the second		PP		Å	8	65							





#### Hole U1346A Core 5R, Interval 129.2-130.83 m (core depth below seafloor)

Major: Dark grayish brown (2.5Y 4/2), calcareous mudstone with glauconite, volcanclastics and shell fragments. Gray (N 5) to dark gray (5Y 4/1) sitly limestone with volcaniclastics and shell fragments.

Minor: Light gray (2.5Y 7/2) clayey limestone with glauconite and shell fragments. Olive gray (5Y 5/2) clayey limestone with glauconite and volcaniclastics. Black (5Y 2.5/1) chert.

Core contains mixture of clayey limestones and calareous mudstones. Clay-rich limestones tend to be darker olive brown color while "cleaner" limestones are gray in color. Volcaniclastics (including plagioclase crystals), glauconite and shell fragments are abundant throughout. Bioclasts include bivalves, echinoderms, gastropods and benthic foraminifers.

Flame structure observed at the top of a gray limestone piece (109 cm). One broken chert fragment, likely fall-in from drilling, appears near top of core.

one bloken chert hagment, likely lairin nom unling, appears near top of core.

Parts of the core are affected by drilling disturbance (brecciation and slurry texture).

































Site U1346 core descriptions













































	324-U1346A-14R-1, Top of Section: 177.4 CSF-A (m)															
Depth (m)	Core length (cm)	Piece number	Scanned image	Orientation	Shipboard studies	Lith. unit	Structure	Structural Strike	dig dig	Vesicularity ২ ২ ৯ ৪ ৭ হ	6 Phenocrysts (pl., ol., px.) 6	Groundmass grain size (mm) 02 0 0 0 0 0 01 1 1 1 1	Alteration ■000 8√)	Magnetic susceptibility (x10 <sup>5</sup> SI) (S, MS Point - raw; MS Point - filtered 00000000000000000000000000000000000	Reflectance (L*, b* - raw; b* - filtered)	Description
	0-						4	0	26 34					* *	•••	UNIT: 40
177.5 –	10 –	1		1	PP	40	•	8	46							PIECES: 1 (based on piece 1) LITHOLOGY: Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Base portion of a pillow inflation unit TEXTURE: Aphyric, Amygdaloidal COLOR: Dark grey PHENOCRYSTS: None GROUNDMASS: Very fine grained VESICLES: Sparsely vesicular (5% modal), moderate sphericity,
-	20 -						4	0	50					<u> </u>	•••	rounded to subrounded, includes common short 2-3 cm long subvertical vesicle trains
-	30 <del>-</del>	2	-1. S.					90 0 116	30 40 32							LOWER CONTACT: Not recovered LOWER CONTACT: Not recovered ALTERATION: Moderately altered dark gray basalt. VEINS: A network of fine carbonate veins (>0.5mm) STRUCTURE: Subertical amygdules dominated at the base, two set of shear veins developed.
-	40 -					41	*									UNII: 41 PIECES: 2 to 6 (based on several pieces) LITHOLOGY: Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Upper part of interior of inflation unit
-	50 <b>-</b>	3		1			₩ ₩	0	90							TEXTURE: Aphyric, Amygdaloidal COLOR: Dark grey PHENOCRYSTS: None GROUNDMA55: Microcrystalline VESICLES: Sparsely to moderately vesicular (2-30% modal), moderate sphericity, rounded to subrounded, includes areas with vesicle density decreasing downward, small coalesced vesicles, and some randomly distributed vesicle zones
178.0 -	60 -	5														UPPER CONTACT: Not recovered LOWER CONTACT: Not recovered ALTERATION: Moderately altered dark gray basalt.
-	70 <b>-</b>						<b>1</b> 99	0	20 20						00 00 00 00 00 00 00	Calcite, green clay and brown clay. STRUCTURE: Empty bubbles at the top, the others are no obviously oriented vesicles.
-	80 -	7		1		42	111									PIECES: 7 (based on piece 7) LITHOLOGY: Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Well-preserved 29 cm cross-section through a complete basalt pillow. Glassy margins preserved. TEXTURE: Aphyric, Amygdaloidal COLOR: Dark grey PHENOCRYSTS: None CDOLN: Davids: Microareutalline
-	90 -		1													VESICLES: Sparsely vesicular (1-20% modal), moderate sphericity, rounded to subrounded, includes areas with vertical pipe vesicles in the center and radial vesicle trains and 1-2 cm
-	100 –	8 9		1		43										gas blisters in both the top and bottom parts UPPER CONTACT: Chilled margin, radiating vesicles LOWER CONTACT: Chilled margin, radiating vesicles ALTERATION: Moderately altered dark gray basalt. Pillow margins are completely altered to dark green clays. VEINS: A network of fine carbonate veins (>0.5mm) STRUCTURE: Oriented anwadules at the top perpendicular to
178.5 -	110 -	10					4							• • • •	00 00 00	the chilled margin. Subvertical pipe vesicles in the middle and some thin networked veins in the middle.
-	120 -	11			X760	44	1210 1510 -							• • • • •	00 00 00 00 00 00 00 00 00 00 00 00 00	
-	130 <b>-</b>	12			_	45	**	0	60							
-	140 -														00 00 00 00	



	324-U1346A-14R-1, Top of Section: 177.4 CSF-A (m)															
Depth (m)	Core length (cm)	Piece number	Scanned image	Orientation	Shipboard studies	Lith. unit	Structure	Structural Strike	did	% Vesicularity 도우 & 용 용 율 다니니니니	。Phenocrysts (pl., ol., px.)	Groundmass grain size (mm) 8 9 0 8 6 0 0 1 1 1	Alteration — -1000 <mark>⊗</mark> ⊚	Magnetic susceptibility (x10 <sup>5</sup> SI) S, MS Point - raw; MS Point - filterec 00000000000000000000000000000000000	Reflectance (L*, b* - raw; L*, b* - filtered) 0,	Description
			· · ·					0 0	26 34					· · · ·	• •	U1346A-14R-1 continued
177.5 –	10-	1		1	РР	40		8	46 58							UNIT: 43 PIECES: 8 to 10 (based on all pieces) LITHOLOGY: Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Well-preserved near-vertical chilled zones from basalt pillow TEXTURE: Aphyric, Amygdaloidal
-	20 -						/	0	50						•••	COLOR: Dark grey PHENOCRYSTS: None GROUNDMASS: Microcrystalline VECCUC
-	30 -	2	1. S. 12					90 0 116	30 40 32						*** *** ***	VESICLES: Moderately VesiCular (25% modal), moderate sphericity, subangular, radially arranged vesicle trains up to 1 m long UPPER CONTACT: Chilled side margin, radiating vesicles LOWER CONTACT: Chilled side margin, radiating vesicles ALTERATION: Moderately altered dark grav basalt. Pillow margins are completely altered to dark green clays.
-	40 -	-				41	ser and a series of the series	0	90							VEINS: A network of fine carbonate veins (>0.5mm) STRUCTURE: Radiating vesicles perpendicular to chilled side margin. UNIT: 44
-	50 -	3		1			*									PIECES: 11 and 12a (based on both pieces) LITHOLOS' Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Well-preserved near-vertical (but curved) chilled zones from basalt between two small pillows in contact. Upper pillow.
178.0 –	60 -	5					*									TEXTURE: Aphyric, Amygdaloidal COLOR: Dark grey PHENOCRYSTS: None GROUNDMASS: Microcrystalline VESICLES: Moderately vesicular (25% modal), moderate sphericity, subangular, radially arranged vesicle trains up to 1
-	70 -						<b>ч</b> и	0	20 20						00 00 00 00 00 00 00	cm iong. UPPER CONTACT: Chilled side margin, radiating vesicles LOWER CONTACT: Chilled side margin, radiating vesicles ALTERATION: Moderately altered dark gray basalt. Pillow margins are completely altered to dark green clays. VEINS: A network of fine carbonate veins (>0.5mm)
-	80 -	7		1		42	THE .									STRUCTURE: Radiating vesicles perpendicular to chilled side margin. UNIT: 45 PIECES: 12b (based on piece 12b)
-	90 -		1 				-								••	LITHOLOGY: Amygdaloidal aphyric basalt VOLCANIC DESCRIPTION: Well-preserved near-vertical (but curved) chilled zones from basalt between two small pillows in contact. Lower pillow. TEXTURE: Aphyric, Amygdaloidal
-	100 <del>-</del>	8		Î		43										COLOR: Dark grey PHENOCRYSTS: None GROUNDMASS: Microcrystalline VESICLES: Sparsely vesicular (7% modal), moderate sphericity, subrounded, well-developed radial vesicle trains and coalescine bisters <2 cm.
178.5 –	110-	10		-			*									UPPER CONTACT: Chilled side margin, radiating vesicles LOWER CONTACT: Chilled side margin, radiating vesicles ALTERATION: Moderately altered draft gray basalt, Pillow margins are completely altered to dark green clays.
-	120 -	11			<b>X72</b>	44	1111 1111						H	•	00 00 00 00 00 00 00 00	VEIN3: A network of the carbonate veins (>0.5mm) STRUCTURE: Radiating vesicles perpendicular to chilled side margin.
-	130 -	12				45		0	60							
-	140 -		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1												0 0 0 0 0 0	























