CHIKYU Operation

Last Update 3/June/2011

Structural Geology Observation Sheet

No.

Exp.: 343 Site: C0019 Hole: E Core: 81R Observer: CRe SB KU Summary: Inclined beds w/ normal faults

Section No.	Structure ID	Top of Struct (cm)	Bottom of Struct (cm)	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom → "-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip	Notes
1	Bedding	109	113			270	26	0	21	—		85	129			
5	normal fault	64	72			90	60	180	56	10	270	0	137			- visible on CT, measured in core, stepped striae
CC	Bedding	18	19			270	5	180	17	—		15	21			- visible on CT measured in core
6	normal FH	119	131			270	51	121	0	—		124	140			- measured on CT image
7	Fault	5	11			90	43	131	0	—		2	20			- measure on CT
1	bedding	5	6.3			270	19	000	05	—						-visible on CT, measured on CT. -laminae are parallel to bedding over the interval 0cm-11cm
2	bedding	400	411.0			270	03	180	14							measured on CT. (WR)

Dr

NIGHT SHIFT 15/5/12

CHIKYU Operation

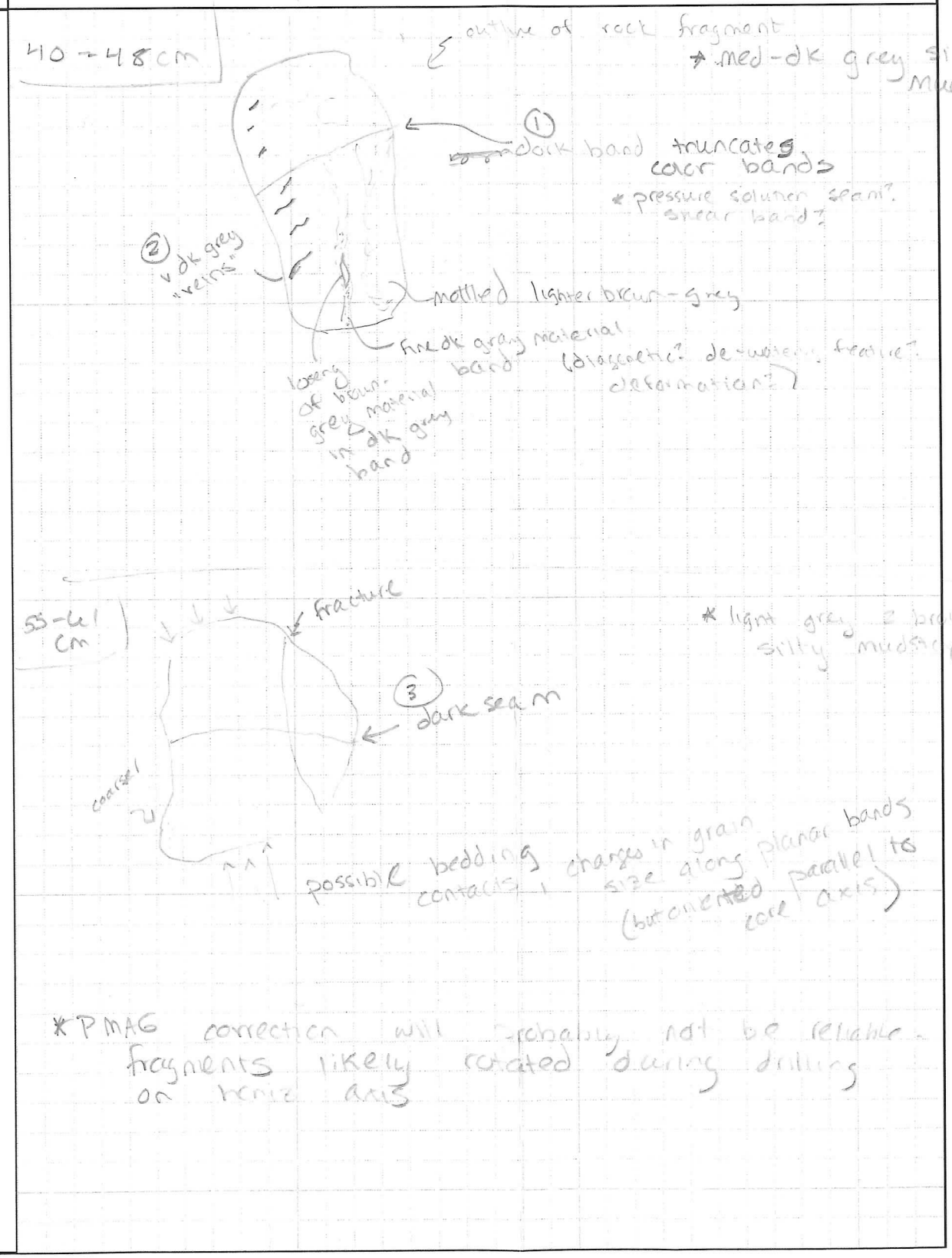
Last Update 3/June/2011

Structural Geology Observation Sheet

No.

Exp. : 343 Site : C0019 Hole : E Core : 3 Observer : Summary:

Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip		2nd app. Dip		Striation on surface		Coherent interval (for P-mag)		P-mag pole		Notes
						az.	dip	az.	dip	rake (≤90)	from (±1, 90 or 270) * Top → "1" Bottom →"-1"	top	bottom	az./trend	dip	
2	① seam	42	45			270°	42	180	10°			40	48			
2	② sed dyke vein	41	44							76°	270					
2	③ seam	57	58			0	32	270	1.5			55	61			



CHIKYU Operation

Last Update 3/June/2011

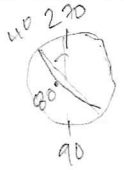
Structural Geology Observation Sheet

No.

Entered into computer?

Exp.: 343 **Site:** C0019 **Hole:** E **Core:** R02 **Observer:** V. Toy etc. **Summary:** Several faults w/ slickensides, pressure solution seams, calcite mineralization

Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom → "-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip	Notes (BLUE PEN DENOTES # ON CT LOG)
1	Fault	52	54		< 1mm	090	20	000	12							② Measured from CT.
"	"	"	53		"	090	09	180	05							Same fault; flattens toward "SW" side
1	Fault	55	56		<5mm	270	07	000	09							③ Measured from CT. This structure has complex horsetail morphology. Measured dominant strand in "NE" side of core
1	Fault	91.5	97		<2mm	090	12	000	43							④ Has been re-activated during drilling but is decorated by ~2mm thickness CT-bright material; Identified + measured from CT.
1	Fault	98	100		<1mm	090	17	000	16							⑤ Identified from CT. CT-bright material
1	Fault	91.5	97			000	45			45	270					④ From whole core fragment before it was split. Striae on surface indicate normal shear sense. Strike is 090/270 - were able to lift off faulted block.
1	Fault	98	100			000	25	090	15	58	090					⑤ Taken from whole block/core frag. 1cm λ, 2mm ampl. corrugation on surface, not "striae" (undulated surface? underlying shape? infilled by fine grained dark material?)
	Shear fracture?	43	44		1 mm	270	25	180	63							
1	pressure solution seam?	97	99			90	15	180	50							dark surface (<0.2mm thick) possible pressure solution seam — truncates burrows? shear? as well? POSTDATE
1	pressure sol?	98	100			90	15	180	50							dark surface (<0.2mm thick) possible pressure solution seam
1	Fault?	98	101			270	34	180	55							calcite coated surface (less than 0.5mm thick) - this feature is 'offset' on the solution seams
1	seam	98	104		<1mm	270	55	200	21							<1.5mm thick; closed, Darker seam that splays up the core into 3 strands.
1	dark band = bedding?	41	41.5		1-5mm	270	02	000	02							grades gradually darker toward top of core... v. difficult to tell if this is a bed, a solution seam, or???



CHIKYU Operation

Last Update 3/June/2011

Structural Geology Observation Sheet

No.

Exp.: 343 Site: C0019 Hole: E Core: 4 Observer: V-TOY Summary: STRUCTURE OBSERVATIONS ON WORKING HALF

Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom →"-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip	Notes
CC	BEDDING	6	7			090	01	000	2.5							DARKER GREY LAYERING, GRADING PALER OVER 1cm TOWARD TOP OF CORE; DRAGGED DOWN CORE WITHIN 1cm OF CORE EDGE; = BEDDING; MES IN CORE
2	FAULT	13	16		0	270	40	000	25	← IN CORE						* FAULT → MES. IN CORE; FAULT DIPS 80° FROM CUT SURFACE TOWARD 40°/270 80 IN WORKING HALF → FIND APP DIP W/ STEREONET
	"	"	"			270	42	000	30	← IN CT, SAME STRUCTURE						
2	BEDDING	13	16			090	10	000	40 ← IN CORE							PRECISE DODGY MEASUREMENT IN W.H. OF CORE
	"	"	"			090	11	180	28 ← IN CT. = BETTER MEASUREMENT.							
1	FOLD A.P.	13	16			270	89	085	76							AXIAL PLANE OF STEEPLY FOLD; BLACK DEFINES FOLD; CM-LONG. IN CORE
1	BEDDING	~~32~~ 32	33			270	20	000	06							DARKER LAYER @ BASE OF INTACT ROCK FRAGMENT. P TO ELONGATE SIGMOIDAL DARK PATCH. IN CORE (measured also in CT scan) contact between tephra ash layer and ~~clay~~ black clay
2	BEDDING	9.5	12.5		0	270	20	2	? 4 IN CORE							laminae given by patchy olivine layer.
1	BEDDING	20	24		laminae mm	270	24	000	7 IN CT.							MAY BE SAME FOLD AS MES IN W.H. BUT HERE IT IS DEFINED BY PALER LAYERING & IS @ A DIFFERENT DEPTH, BUT FRAGMENTS MAY HAVE MOVED RELATIVE
1	FOLD A-P	~~7~~	~~10~~			270	60	190	04							
1	BEDD	7	10		4	270	60	190	04							ASYM (CC PAIR) LAYER ~P A.P OF FOLD
2	BEDD	5	7			270	22	180	24	USE THIS ONE!						MEASURED ONLY IN CT SCAN; POSSIBLE BEDDING

MES IN WORKING HALF

same feature

A-H

A-H

A-H

CHIKYU Operation

Last Update 3/June/2011

Structural Geology Observation Sheet

No.

Exp.: 343 Site: C0019 Hole: F Core: 5 Observer: CR, SB Summary:

Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom →"-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip
~~3~~	~~deformation band~~	~~85~~	~~91~~			90	43	0	37						
✓ 1	bedding	43?	48			270	52	180	5			43	48		
✓ 1	bedding	32	34			270	57	180	5			29.5	31.5		
✓ 1	bedding	14	17			270	40	180	47			10	19		
✓ 1	fracture	95	99			90	36	180	0	18	90°	98	100		
~~2~~	~~shear band~~	~~70~~	~~84~~			not measured									
✓ 2	shear band	118	129			270	78	180	0			118	128		

Notes

- observed in core + measured, logged as syn-sed, deformation
- Anastamosing lenses of CT bright material in shear band (CT) ~2 cm thick zone base is a sharp CT bright band, upper boundary is an anastamosing shear network upper boundary truncates CT dark (bedding?) bands

+Repeat measurement -Do not log

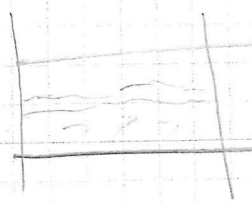
Bedding → compositional banding + bed parallel fissility

Bedding → compositional banding

Bedding → contact between coarse + fine muds at fault # 1

✓ fine hairline fracture, offsets dark (organic?) smear parallel to bedding
fracture hooktails towards 270°

- Slicks on surface of dark polished material
+ corrugation at ~5 mm λ + 1-2 mm amplitude on fault surface.



not measured.

Dark shear band, anastamosing network truncates grey bedding laminae (pinch + swell) sub parallel to shear zone

Compaction

CHIKYU Operation

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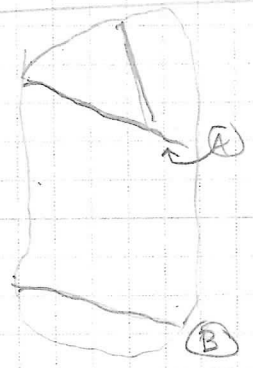
Structural Geology Observation Sheet

No.

Exp.: 343 Site: C0019 Hole: E Core: 5 Observer: CR/SB Summary:

	Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom →"-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip	Notes
√	2	bedding	43	46			90	20	180	40			44	48			Compositional banding grain size / color bedding
√	3	(A) shear band	48	49			90	5	0	11			45	65			dark shear bands offsetting soft sed deformed beds.
√		(B) shear band	53	54			90	13	0	71			45	55			
√	3	bedding	85	86			270	5	180	12			81	86			2-3 cm thick olive brown fine-grained bed
√	3	dark band	88	91			90	23	0	10			88	93			dark band, may be a shear zone in soft seds or may be the result of non-tectonic soft sed. deformation. feature truncates laminae.



CHIKYU Operation

Last Update 3/June/2011

No.

Structural Geology Observation Sheet

3cores

Exp.: 343 **Site:** C0019 **Hole:** E **Core:** 5 **Observer:** CR, SB **Summary:**

Section No.	Structure ID	Top of Struct	Bottom of Struct	ave, depth	Thickness of Struct	Core face app. Dip az.	Core face app. Dip dip	2nd app. Dip az.	2nd app. Dip dip	Striation on surface rake (≤90)	Striation on surface from (±1, 90 or 270) * Top → "1" Bottom → "-1"	Coherent interval (for P-mag) top	Coherent interval (for P-mag) bottom	P-mag pole az./trend	P-mag pole dip	Notes
1	fault (normal)	9.8	20			270	27°	204	0 CT							-CT observation: fault/shear band re fractured by drilling, oblique offset of CT bright band (CT) ① measured in core, no slicks observed; 2nd Azimuth measurement 34 mm of bed separation A to A' along fault on core face (CT)
1	struc whole round fault	71	73			CT 270	~~8~~ 9	CT 154	0							- Structure whole round (CT) sub-horiz shear band, sm anastomosing lozenge of CT bright material, sharp upper surface burrows truncated at shear zone
~~1~~	~~fracture~~	~~77~~	~~80~~			~~CT~~		~~CT~~								~~?? [illegible] in CT [illegible]~~ (CT) not clearly measurable
~~1~~		~~107~~	~~116~~			CT		CT								- ~~possible fault in CT, CT bright band (CT)~~ Not clearly measurable
2	deformation band	41 ~~4~~	46 ~~48~~			100 ~~270~~	0 ~~52~~	180 ~~180~~	49 ~~5~~							- offsets in bright CT banding (bedding??) in slice perpendicular to split face (difficult to see in core face) (CT) soft sediment deformation? Offset dark band is burrowed through measured in CT
2	deformation band	89	92			CT 98	0	CT 180	49							- CT bright shear band (CT) whole round sample
3	deformation band	9.5	11.5			270	7	180	17							- CT bright band, bedding? shear band? sub-horiz. (CT) measured in CT
3	bedding	80.5	84			270	12	180	15							- CT bright-dark banding ~ bedding? (CT)
1	Dark band	91.5	92.5		1-2 mm	270	7	180°	6							- 1-2 mm thick, v fine v dark gray to black band, possible dark gouge. V planar upper + lower contacts

drilling mud injection below surface. ~~probs~~ may be drilling induced.

VCD_sheet_str110603[1].xls