IODP Expedition 317

SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	1351	B	22	X	CC	21	23

Sediment/Rock Name	glauconitic limestone	Observer	Love

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓

Percent Texture		
Sand	Silt	Clay
5	1	

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
3	Quartz
	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
1	Rock fragments
	Volcanic glass
	Accessory/trace minerals
1	Micas
	Biotite
	Muscovite
	Chlorite
	Clay Minerals
10	Glauconite
	Ferromagnesian minerals
1	other dense
	Authigenic minerals
	Zeolite
4	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
30	Carbonate cement & granular
	Micrite void filling
	Others
	Lag shell bed - reworking

Percent	Component
	BIOGENIC GRAINS
	Calcareous
12	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
5	Bioclast (undiferentiated) barnacle?
	calc. sponge
	tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
12	Bryozoans
8	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others
8	Brachs
10	Bivalves
	Minor void space present

Comments:
- Glauconite as altered grains (echinoderms) & as void-filling growth (in borings & shells) & (rarely) as grains.
- Large shells often bored, borings commonly filled with pyrite/glauconite - not bryozoa or forams.
- bryozoa, echinoderms, brachs (lg) fragments; forams & small bivalves whole

55

✓

IODP Expedition 317

SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Bottom
317	1351	B	19	X	CC	25	27

Sediment/Rock Name	sandy glauconitic limestone

Observer	Lever

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓

Percent Texture Sand	Silt	Clay
7	10	

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
4	Quartz
1	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
	Rock fragments
	Volcanic glass
	Accessory/trace minerals
1	Micas
	Biotite
	Muscovite
	Chlorite
	Clay Minerals
15	Glauconite filling spaces in fossils + alteration of shells
1	Ferromagnesian minerals
1	other dense
	Authigenic minerals
	Zeolite
7	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
25	Carbonate
	Micrite
	Others
	Lag shell bed - reworking

Percent	Component
	BIOGENIC GRAINS
	Calcareous
6	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
4	Bioclast (undiferentiated) barnacle?
	Calc. sponge tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
10	Bryozoans ✓
4	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others
6	Brachiopods
20	Bivalve shells

Comments: Lg shells have lots of borings through them, which are filled with glauconite
→ Echinoderm plates & bivalves only
shelly TO 15% glau.
matrix/cement 35.
Void space only present inside fossils
Bryozoa, echinoderms, brachs (lg) fragments; forams & small brachs whole.

✓

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Interval (cm)
317	U1351	B	~~3~~	

Not fixed yet so not uploaded

Sediment/Rock Name	Carbonated cemented shelly silty sandstone

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓

Note that % adjusted to accomodate ½ bioclasts

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
15	Quartz
11	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
8	Rock fragments polycrystalline mica argillite quartzose tect.
	Volcanic glass
	Accessory/trace minerals
	Micas
tr	Biotite
3	Muscovite
1	Chlorite SIZED !
8	Clay Minerals
	Glauconite
tr	Ferromagnesian minerals
tr	other dense
	Authigenic minerals
	Zeolite
2	Pyrite inforams
	Opaque minerals (undifferentiated)
	Fe-oxide
25	Carbonate cement
	Micrite
	Others
	Porosity

Percent	Component
	BIOGENIC GRAINS
	Calcareous
2	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
25	Bioclast (undiferentiated) ~~Bivalve large fragments~~ ?
	calc. sponge tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
tr	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others barnacles ?

Comments: mud filled burrows

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	U1351	B	48	X	CC	30	33

✓

Sediment/Rock Name	Carbonate-cemented Silty Sandstone

Observer	Kmm

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓ ?

Percent Texture		
Sand	Silt	Clay
50	35	15

a dirty! Carb....

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
20	Quartz
18	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
2	Rock fragments
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
5	Muscovite
3	Chlorite SIZED!
10	Clay Minerals "dirty" micrite
	Glauconite
tr	Ferromagnesian minerals
tr	other dense
	Authigenic minerals
	Zeolite
2	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
29	Carbonate
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
8	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
3	Bioclast (undiferentiated)
	calc. sponge
	tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
tr	Echinoderm
	Fish remains (teeth, bones, scales)
tr	Bivalves
	Others

Comments: ~~laminated~~ burrowed

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	U1351	B	9	X	CC	8	9

Sediment/Rock Name	Carbonated-cemented muddy sandstone	Observer	Kuma

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓

Percent Texture		
Sand	Silt	Clay
50	20	30

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
20	Quartz
18	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
3	Rock fragments
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
2	Muscovite
2	Chlorite SIZED !
20	Clay Minerals ← ½ clay matrix ½ carb cement or recryst. (micrite)
tr	Glauconite
	Ferromagnesian minerals
1	other dense
	Authigenic minerals
	Zeolite
2	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
20	Carbonate
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
5	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
2	Bioclast (undiferentiated)
	calc. sponge
	tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others

Comments: Bioturbated

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	U1351	B	98	X	CC	27	30

✓

Sediment/Rock Name	Observer
Sandy ~~mudstone~~ mudstone	KMM

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓

?

Percent Texture		
Sand	Silt	Clay
30	40	30

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
10	Quartz
10	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
1	Plagioclase
16	Rock fragments
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
3	Muscovite
1	Chlorite SIZED !
20	Clay Minerals
1	Glauconite
tr	Ferromagnesian minerals
1	other dense
	Authigenic minerals
	Zeolite
5	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
20	Carbonate – micrite?
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
15	Foraminifera diverse assemblage
	Nannofossils benthics + planktic
	Pteropods ↑
	Ostracodes agglutinating
	Bioclast (undiferentiated) miliolid?
	calc. sponge
	tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
8	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others

Comments: burrowed

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	41351	B	111	X	1	2	4

Sediment/Rock Name	Observer
Sandy ~~[illegible]~~ mudstone	KMM

SMEAR	Thin Sect
	✓

Dominant	Minor
	1

?

Percent Texture		
Sand	Silt	Clay
45	20	35

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
20 ~~15~~	Quartz
10 ~~15~~	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
5	Rock fragments
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
10	Muscovite
3	Chlorite SIZED !
~~[illegible]~~	Clay Minerals
tr	Glauconite
	Ferromagnesian minerals
1	other dense Sphene
	Authigenic minerals
2	Zeolite — fine com
4 ~~8~~	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
10	Carbonate
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
8 ~~10~~	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
1	Bioclast (undiferentiated)
	calc. Sponge
	tunicate Spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others

Comments:

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	U1351	B	112	X	1	1	3

Sediment/Rock Name	Observer
Carbonate cemented Sandy mudstone	KMM

SMEAR	Thin Sect
	✓

Dominant	Minor
	✓ ?

Percent Texture		
Sand	Silt	Clay
40	20	40

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
20	Quartz
10	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
5	Rock fragments
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
10	Muscovite
2	Chlorite - SIZED !
30	Clay Minerals
tr	Glauconite
tr	Ferromagnesian minerals
tr	other dense Spheres
	Authigenic minerals
tr	Zeolite
3	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
10	Carbonate
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
10	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
	Bioclast (undiferentiated)
	calc. sponge
	tunicate spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
	Organic debris
	Plant debris
	Bryozoans
	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others

Comments:

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SEDIMENT SMEAR SLIDE & THIN SECTION WORKSHEET

Leg	Site	Hole	Core	Type	Sec	Interval (cm) Top	Interval (cm) Bottom
317	U1351	B	113	X	CC	14	17

Sediment/Rock Name	Carbonate-cemented muddy sandstone	Observer	KMM

SMEAR	Thin Sect
	✓

Dominant	Minor

?

Percent Texture		
Sand	Silt	Clay
50	20	30

Percent	Component
	SILICICLASTIC GRAINS/MINERAL
	Framework minerals
20	Quartz
18	Feldspar (undifferentiated)
	K-feldspar (Orthoclase, Microcline...)
	Plagioclase
10	Rock fragments — Schist/(phyllite)
	Volcanic glass
	Accessory/trace minerals
	Micas
	Biotite
5	Muscovite
2	Chlorite — SIZED !
20	Clay Minerals
tr	Glauconite
	Ferromagnesian minerals
	other dense
	Sphene
	Authigenic minerals — in secondary pores ↳ bioclasts
1	Zeolite
1	Pyrite
	Opaque minerals (undifferentiated)
	Fe-oxide
20	Carbonate — Cement in primary pores
	Micrite
	Others

Percent	Component
	BIOGENIC GRAINS
	Calcareous
3	Foraminifera
	Nannofossils
	Pteropods
	Ostracodes
	Bioclast (undiferentiated)
	Calc. Sponge
	tunicate Spicules
	Siliceous
	Radiolarians
	Diatoms
	Silicoflagellates
	Sponge spicules
	Siliceous debris (undifferentiated)
	Others
	Dinoflagellates
	Pollen
tr	Organic debris
	Plant debris
	Bryozoans
	Echinoderm
	Fish remains (teeth, bones, scales)
	Bivalves
	Others

Comments: heavily burrowed, ~~concentrated matrix and cement in~~