

## Appendix

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## **Appendix 1    Seafloor Photographs at Drilling Site**





02SMS01BMS01A before landing



before operation



02SMS01BMS01B before landing



before operation



02SMS01BMS01C before landing



before operation



02SMS01BMS02A before landing



before operation

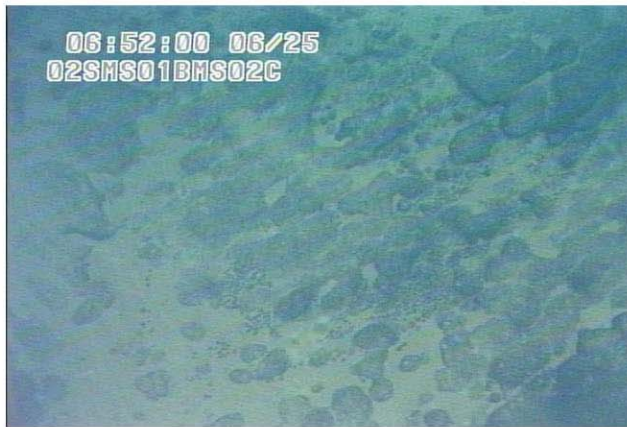




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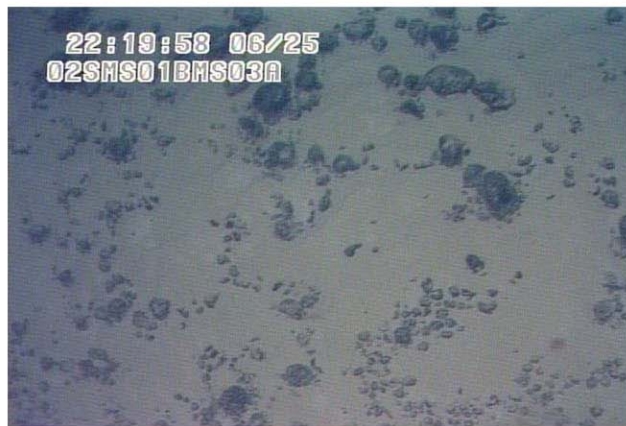
before operation



02SMS01BMS02C before landing



before operation



02SMS01BMS03A before landing



before operation



02SMS01BMS03B before landing



before operation





02SMS01BMS03C before landing



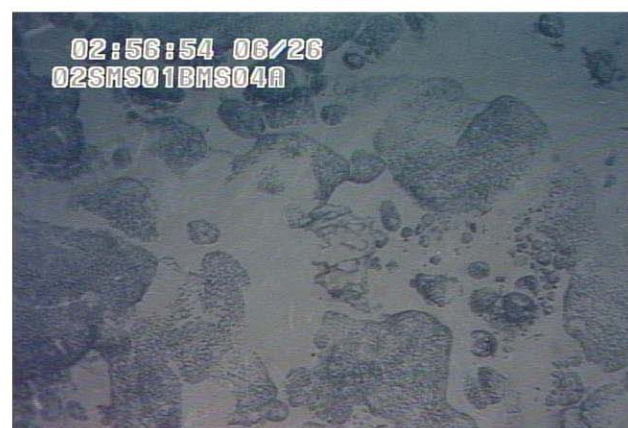
before operation



02SMS01BMS03D before landing



before operation



02SMS01BMS04A before landing



before operation



02SMS01BMS04B before landing



before operation





02SMS01BMS04C before landing



before operation



02SMS01BMS05A before landing



before operation



02SMS01BMS05B before landing



before operation



02SMS01BMS05C before landing



before operation





02SMS11BMS01A before landing



before operation



02SMS11BMS01B before landing



before operation



02SMS11BMS01C before landing



before operation



02SMS11BMS01D before landing



before operation





02SMS11BMS02A before landing



before operation



02SMS11BMS02B before landing



before operation



02SMS11BMS03A before landing



before operation



02SMS11BMS03B before landing



before operation





02SMS11BMS03C before landing



before operation



02SMS11BMS04A before landing



before operation



02SMS11BMS04B before landing



before operation





02SMS12BMS01A before landing



before operation



02SMS12BMS01B before landing



before operation



02SMS12BMS01C before landing



before operation



02SMS12BMS02A before landing



before operation

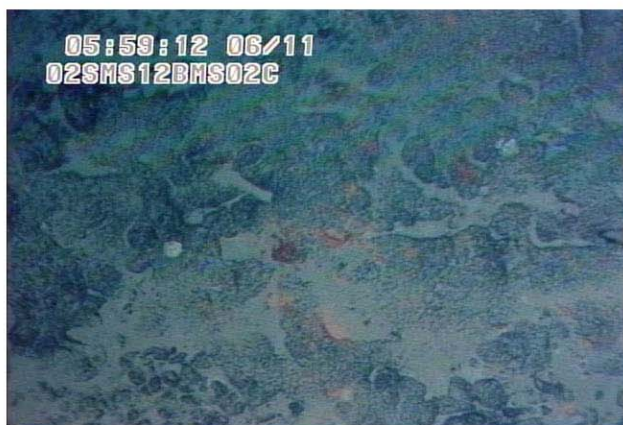




02SMS12BMS02B before landing



before operation



02SMS12BMS02C before landing



before operation



02SMS12BMS03A before landing



before operation



02SMS12BMS03B before landing



before operation

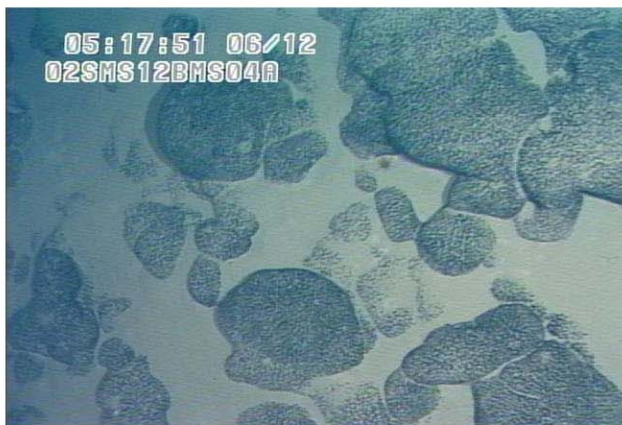




02SMS12BMS03C before landing



before operation



02SMS12BMS04A before landing



before operation



02SMS12BMS04B before landing



before operation

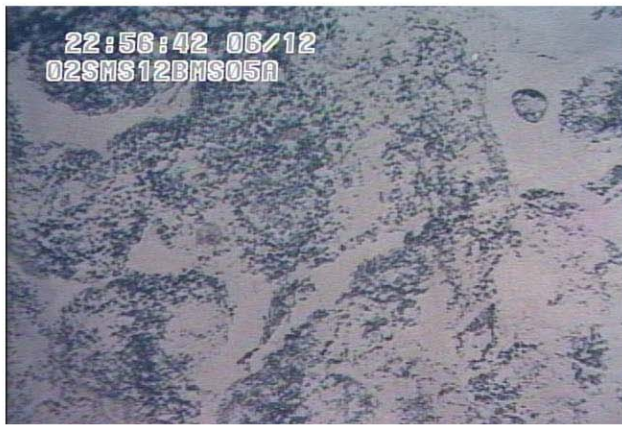


02SMS12BMS04C before landing



before operation





02SMS12BMS05A before landing



before operation



02SMS12BMS05B before landing



before operation



02SMS12BMS05C before landing



before operation



02SMS12BMS05D before landing



before operation

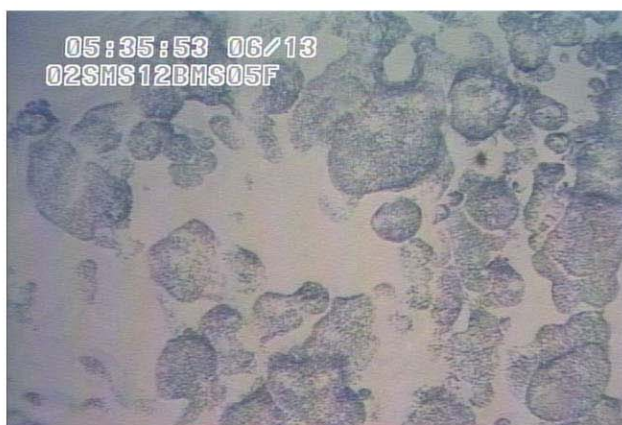




02SMS12BMS05E before landing



before operation



02SMS12BMS05F before landing



before operation



02SMS12BMS06A before landing



before operation



02SMS12BMS06B before landing



before operation

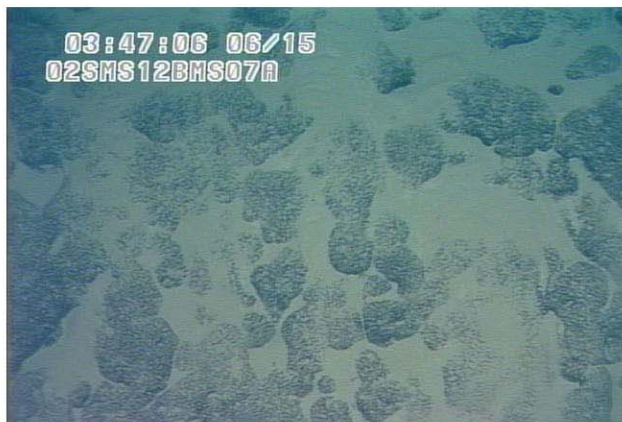




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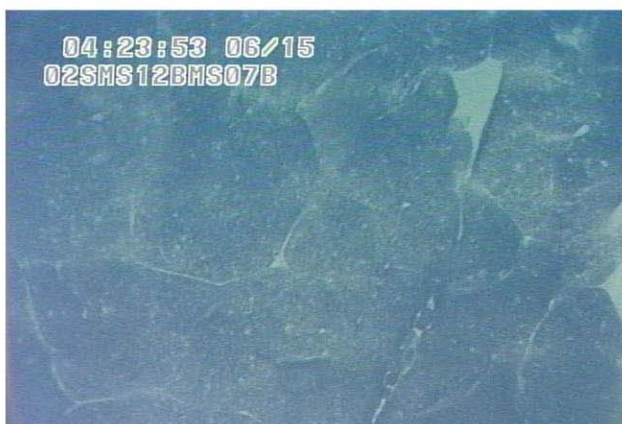
before operation



02SMS12BMS07A before landing



before operation



02SMS12BMS07B before landing



before operation





02SMS12BMS07C before landing



before opration



02SMS12BMS07D before landing



before opration

MS12 Seamount (7/7)

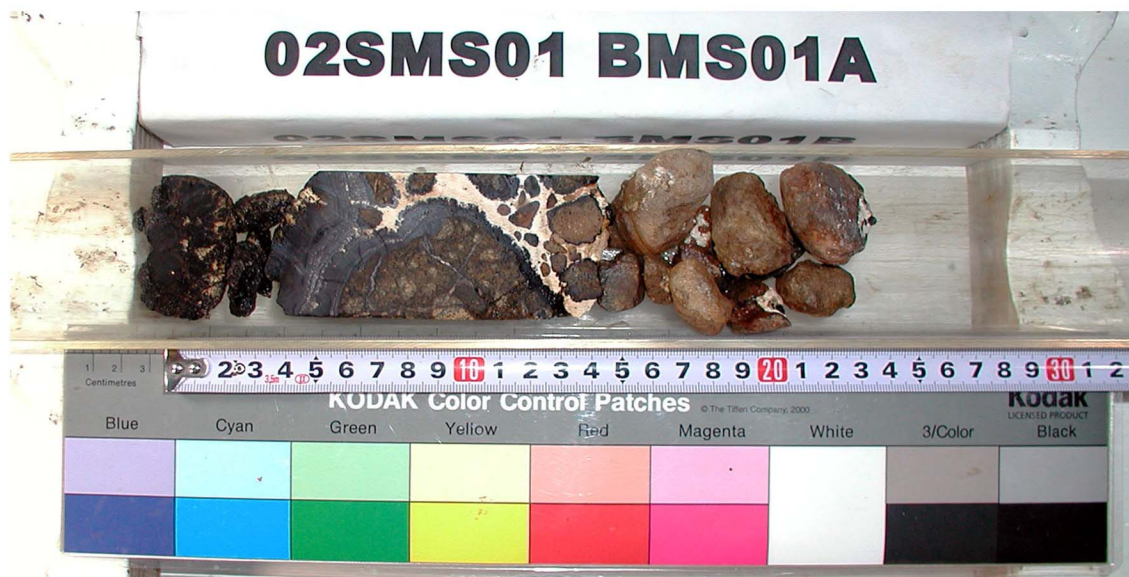
## Appendix 2   Photographs of Drill Core

Drill. Len.       : Drilling Length

Thick. Sedim.   : Thickness Sediments

Core Len.       : Core Length





Drill. Len. 37cm, Thick. Sedim. 4cm, Core Len. 24cm, Crust 6cm



Drill. Len. 40cm, Thick. Sedim. 0cm, Core Len. 35cm, Crust 2.5cm



Drill. Len. 34cm, Thick. Sedim. 0cm, Core Len. 32cm, Crust 5cm

02SMS01BMS01 A ~ C





Drill. Len. 49cm, Thick. Sedim. 4cm, Core Len. 19cm, Crust 3cm



Drill. Len. 36cm, Thick. Sedim. 8cm, Core Len. 20cm, Crust 0.2cm



Drill. Len. 34cm, Thick. Sedim. 4cm, Core Len. 21cm, Crust 6cm

02SMS01BMS02 A ~ C





Drill. Len. 49cm, Thick. Sedim. 15cm, Core Len. 34cm, Crust 0.3cm



Drill. Len. 36cm, Thick. Sedim. 0cm, Core Len. 33cm, Crust 2cm



Drill. Len. 40cm, Thick. Sedim. 1cm, Core Len. 34cm, Crust 10cm



Drill. Len. 162cm, Thick. Sedim. 0cm, Core Len. 45cm, Crust 13cm

02SMS01BMS03 A ~ D





Drill. Len. 71cm, Thick. Sedim. 4cm, Core Len. 25cm, Crust 6cm



Drill. Len. 42cm, Thick. Sedim. 0cm, Core Len. 34cm, Crust 10cm



Drill. Len. 46cm, Thick. Sedim. 1cm, Core Len. 25cm, Crust 8cm

02SMS01BMS04 A ~ C

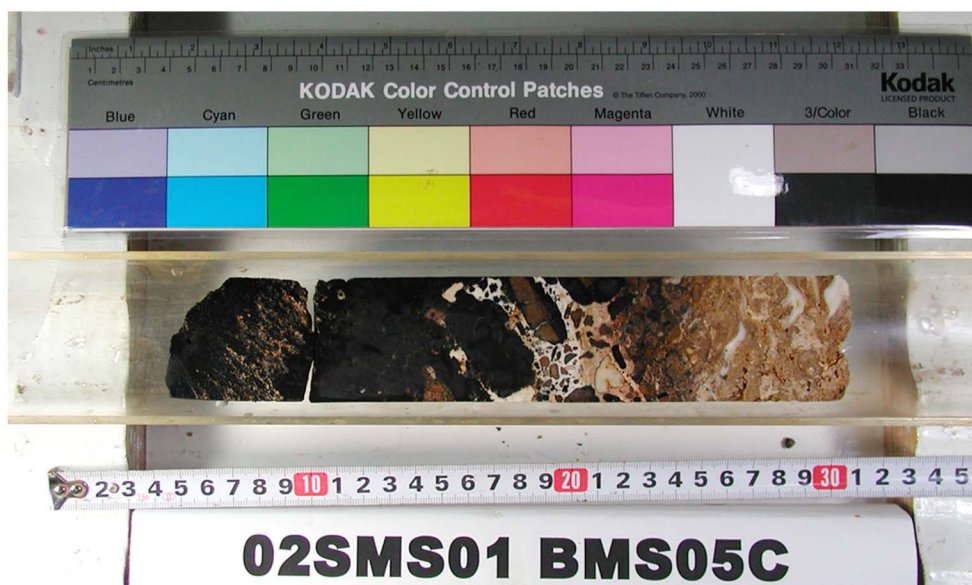




Drill. Len. 35cm, Thick. Sedim. 0cm, Core Len. 35cm, Crust 10cm



Drill. Len. 40cm, Thick. Sedim. 1cm, Core Len. 39cm, Crust 9cm



Drill. Len. 36cm, Thick. Sedim. 0cm, Core Len. 26cm, Crust 10cm

02SMS01BMS05 A ~ C



Drill.Len. 26cm, Thick.Sedim.1cm, Core Len.23cm, Crust 9.5cm, Nodule 1cm



Drill.Len. 34cm, Thick.Sedim.0cm, Core Len.32cm, Crust 16cm



Drill.Len. 33cm, Thick.Sedim.0cm, Core Len.28cm, Crust 16cm



Drill. Len.176cm, Thick.Sedim.130cm, Core Len.28cm, Crust 7cm

02SMS11BMS01 A ~ D





Drill. Len. 20cm, Thick. Sedim. 1cm, Core Len. 11cm, Crust 11cm



Drill. Len. 71cm, Thick. Sedim. 0cm, Core Len. 69cm, Crust 20cm

Enlarged



02SMS11BMS02 A ~ B



Drilli. Len. 49cm, Thick. Sedim. 0cm, Core Len. 47cm, Crust 32cm



Drilli. Len. 43m, Thick. Sedim. 5cm, Core Len. 23cm, Crust 16cm



Drill. Len. 107cm, Thick. Sedim. 15cm, Core Len. 55cm, Crust 0cm

02SMS11BMS03A ~ C





Drill. Len. 32cm、Thick. Sedim. 0cm、Core Len. 15cm、Crust 13cm、Nodule 2cm



Drill. Len. 178cm、Thick. Sedim. 0cm、Core Len. 123cm、Crust 16cm、Nodule 2cm

Enlarged



02SMS11BMS04A ~ B





Drill. Len. 71cm, Thick. Sedim. 1cm, Core Len. 70cm, Crust 5cm



Drill. Len. 82cm, Thick. Sedim. 5cm, Core Len. 77cm, Crust 0cm



Drill. Len. 71cm, Thick. Sedim. 1cm, Core Len. 67cm, Crust 5cm

Enlarged



02SMS12BMS01A



02SMS12BMS01C

02SMS12BMS01A ~ C





Drill. Len. 31cm, Thick. Sedim. 0cm, Core Len. 28cm, Crust 1.5cm



Drill. Len. 41cm, Thick. Sedim. 0cm, Core Len. 35cm, Crust 1.5cm



Drill. Len. 28cm, Thick. Sedim. 0cm, Core Len. 28cm, Crust 7cm

02SMS12BMS02A ~ C





Drill. Len. 37cm, Thick. Sedim. 7cm, Core Len. 29cm, Crust 4.5cm



Drill. Len. 30cm, Thick. Sedim. 0cm, Core Len. 28cm, Crust 11cm



Drill. Len. 40cm, Thick. Sedim. 0cm, Core Len. 33cm, Crust 9cm

02SMS12BMS03A ~ C



Drill. Len. 31cm, Thick. Sedim. 0cm, Core Len. 26cm, Crust 13cm



Drill. Len. 33cm, Thick. Sedim. 1cm, Core Len. 30cm, Crust 8cm



Drill. Len. 65cm, Thick. Sedim. 15cm, Core Len. 50cm, Crust 6cm

Enlarged  
02SMS12BMS04C



02SMS12BMS04A ~ C





Drill. Len. 31cm, Thick. Sedim. 2cm, Core Len. 28cm, Crust 10cm



Drill. Len. 30cm, Thick. Sedim. 2cm, Core Len. 28cm, Crust 8cm



Drill. Len. 31cm, Thick. Sedim. 0cm, Core Len. 18cm, Crust 12cm

02SMS12BMS05A ~ C



Drill. Len. 32cm, Thick. Sedim. 0cm, Core Len. 25cm, Crust 5cm



Drill. Len. 33cm, Thick. Sedim. 2cm, Core Len. 31cm, Crust 8cm



Drill. Len. 22cm, Thick. Sedim. 0cm, Core Len. 18cm, Crust 11cm

02SMS12BMS05D ~ F



## 02SMS12 BMS06A



Drill. Len. 22cm, Thick. Sedim. 4cm, Core Len. 18cm, Crust 6cm

## 02SMS12 BMS06B



Drill. Len. 45cm, Thick. Sedim. 0cm, Core Len. 26cm, Crust 10cm

## 02SMS12 BMS06C



Drill. Len. 38cm, Thick. Sedim. 0cm, Core Len. 35cm, Crust 6cm

02SMS12BMS06 A ~ C



Drill. Len. 29cm, Thick. Sedim. 3cm, Core Len. 26cm, Crust 18cm



Drill. Len. 20cm, Thick. Sedim. 0cm, Core Len. 19cm, Crust 10cm

02SMS12BMS07A ~ B





Enlarged



Drill. Len. 155cm, Thick. Sedim. 0cm, Core Len. 147cm, Crust 10cm



Drill. Len. 34cm, Thick. Sedim. 0cm, Core Len. 32cm, Crust 10cm

02SMS12BMS07C ~ D




### Appendix 3 Columnar Profile Drill Core



02SMS01BMS01A (MS01 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS01BMS01A
Date	June 25, 2002
Latitude	14° 18.600' N
Longitude	160° 59.997' E
Water Depth	1,388m
Drilling Length	37cm
Core Length	24cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		sediments		0~4cm:unconsolidated sediments		
		crust		4~10cm:crust, botryoidal surface, 2 layers structure layer1:40mm, Type 2 layer2:20mm, Type 1		
20		calcareous conglomerate		10~34cm:calcareous conglomerate, includes basalt of 1-8cm across, surrounded by Mn oxides. matrix is white compact limestone.  18~34cm:core is crushed to few cm across breccia.		
30						
40						

phosphoric  
conglomerate

02SMS01BMS01B (MS01 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS01BMS01B
Date	June 25, 2002
Latitude	14° 18.593' N
Longitude	161° 00.024' E
Water Depth	1,385m
Drilling Length	40cm
Core Length	35cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-5cm:crust, botryoidal surface layer1:15mm, Type 5 layer2:10mm, Type 1 3-5cm: fragments of basal		
20		calcareous conglomerate		5-35cm:calcareous conglomerate, include basalt pebbles of 1-5cm across and fragments of Mn oxides, basalt pebbles are covered by Mn oxides of 1-3mm thick. matrix is white, compact limestone 25-35cm:core is crashed to fragments of 1-5cm across		
30						
40						




02SMS01BMS01C (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS01C
Date	June 25, 2002
Latitude	14° 18.592' N
Longitude	161° 00.054' E
Water Depth	1,382m
Drilling Length	34cm
Core Length	32cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-5cm:core crashed to fragments, details unknown Mn oxides of Type1-5, 50mm thick.		
		nodule		5-9cm:nodule, 20mm thick, basalt nucleus.		
20		calcareous conglomerate		9-32cm:calcareous conglomerate,9-15cm core is brecciated to fragments of 1-5cm across, fragments of Mn oxides included. matrix is white compact limestone, includes two different size of basalt pebbles, 0.5-2cm across and 4-5cm across.		
30						
40						

02SMS01BMS02A (MS01 Seamount) 1/1  
Core Barrel 1



Hole No.	02SMS01BMS02A
Date	June 25, 2002
Latitude	14° 22.497' N
Longitude	160° 56.400' E
Water Depth	1,461m
Drilling Length	49cm
Core Length	19cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		sediments		0-4cm:unconsolidated sediments		
		nodule		4-8cm:nodule of 6-7cm across, 30mm thick, Type 2 with basalt nucleus		
20		calcareous conglomerate		8-23cm:calcareous conglomerate, core is crashed to fragments of 1-5cm across, details unknown, matrix is white, compact limestone, include basalt pebbles, some of pebbles are covered by Mn oxides of 1-5mm thick.		
30						
40						





02SMS01BMS02B (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS02B
Date	June 25, 2002
Latitude	14° 22.458' N
Longitude	160° 56.409' E
Water Depth	1,457m
Drilling Length	35cm
Core Length	20cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
		sediments		0-8cm:unconsolidated sediments bedrock is covered by Mn oxides of 2mm thick.		
10		calcareous conglomerate		8-24cm:calcareous conglomerate matrix is white, compact limestone, nodule of 1-4cm across, basalt pebbles and fragments of Mn oxide are included. 20-24cm:basalt fragments of 5-10mm across.		
20		sandstone				
30				24-28cm:yellowish gray tuffaceous sandstone, Mn oxides grains are included.		
40						

02SMS01BMS02C (MS01 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS01BMS02C
Date	June 25, 2002
Latitude	14° 22.429' N
Longitude	160° 56.405' E
Water Depth	1,457m
Drilling Length	34cm
Core Length	21cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
		sediments		0-4cm:unconsolidated sediments		
10		crust		4-10cm:crust, botryoidal texture, 3 layers structure, 60mm thick. layer1:30mm, Type 2 layer2:10mm, Type 3 layer3:20mm, Type 2		
20		lapilli tuff		10~25cm:pale yellow lapilli tuff, basalt fragments of 2-10mm are included.		
30						
40						




02SMS01BMS03A (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS03A
Date	June 26, 2002
Latitude	14° 21.489' N
Longitude	161° 08.351' E
Water Depth	1,286m
Drilling Length	49cm
Core Length	34cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		sediments		0-15cm:unconsolidated sediments		
20 30 40 50		calcareous conglomerate		15-49cm:calcareous conglomerate, surface is covered by 3mm thick Mn oxides matrix is white compact limestone, includes sub angular basalt pebbles of 3-20mm across, larger pebbles are covered by Mn oxides of 1-3mm thick.		


02SMS01BMS03B (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS03B
Date	June 26, 2002
Latitude	14° 21.487' N
Longitude	161° 08.335' E
Water Depth	1,287m
Drilling Length	36cm
Core Length	33cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		a whole core is crushed to fragments of 1-5cm, details unknown.		
20		calcareous conglomerate		0-2cm:crust, botryoidal surface, 20mm thick, 2 layer structure. layer1 : 10mm, Type5 layer2 : 10mm, Type1		
30		sandstone		2-13cm:calcareous limestone, matrix is white, compact limestone, includes basalt pebbles of 3-20mm across and fragments of Mn oxides. some of the basalt pebbles are covered by Mn oxides of 1mm thick.		
40				13-33cm:grayish brown tuffaceous sandstone		


02SMS01BMS03C (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS03C
Date	June 26, 2002
Latitude	14° 21.490' N
Longitude	161° 08.298' E
Water Depth	1,287m
Drilling Length	40cm
Core Length	34cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		crust		0-1cm:unconsolidated sediments 1-11cm:crust, botryoidal surface, 100mm thick, 2 layer structure. layer1 : 35mm, Type3 layer2 : 65mm, Type2		
10						
20		calcareous limestone		11-35cm:calcareous limestone, matrix is gray to white limestone, abundant pebbles of 50-60%, includes basalt pebble of 2-30mm across, some of them covered by Mn oxides. 18-35cm:core crushed and consists of basalt pebbles.		
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40						

02SMS01BMS03D (MS01 Seamount) 1/1  
Core Barrel 1







Hole No.	02SMS01BMS03D
Date	June 26, 2002
Latitude	14° 21.490' N
Longitude	161° 08.298' E
Water Depth	1,287m
Drilling Length	162cm
Core Length	45cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		crust		core crushed to angular fragments of 1-5cm across, details unknown. 0-13cm:fragments of crust 130mm thick.		
10						
20		calcareous conglomerate		13-45cm:calcareous limestone, matrix is white to pale gray limestone. includes basalt pebbles of 2-30cm across.		
30						
40						
50						





02SMS01BMS04A (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS04A
Date	June 26, 2002
Latitude	14° 22.248' N
Longitude	161° 08.902' E
Water Depth	1,376m
Drilling Length	71cm
Core Length	25cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
		sediments		0-4cm:unconsolidated sediments		
10		crust		4-10cm:crust,boundary is declined to 30 degree, botryoidal surface structure, 60mm thick. layer1 : 20mm, Type3 layer2 : 40mm, Type2		
20		phosphoric conglomerate				
20		calcareous conglomerate		10-16mm:grayish brown phosphoric conglomerate, slightly porous, includes limestone fragments and Mn oxides.		
30		void		16-42cm:calcareous conglomerate, white compact matrix, basalt pebbles of 5-20mm across and Mn oxides fragments. 22-42cm:void		
40		phosphoric conglomerate		42-49cm:grayish brown phosphoric conglomerate, 46-49cm: clayey		
50						


02SMS01BMS04B (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS04B
Date	June 26, 2002
Latitude	14° 22.254' N
Longitude	161° 08.931' E
Water Depth	1,381m
Drilling Length	42cm
Core Length	34cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-10cm:crust, botryoidal surface, 3 layers structure, boundary is declined to 30 degree, lower boundary not clear, 100mm thick.		
20		phosphoric conglomerate		10-34cm:phosphoric conglomerate, core is crushed to fragments of 1-5cm across, details unknown, matrix is grayish brown phosphorite, includes pebbles covered by Mn oxides.		
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40						


02SMS01BMS04C (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS04C
Date	June 26, 2002
Latitude	14° 22.257' N
Longitude	161° 08.958' E
Water Depth	1,383m
Drilling Length	46cm
Core Length	25cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-1cm:unconsolidated sediments 1-9cm:crust, botryoidal surface, 80mm thick, 2 layer structure, lower part is crushed. layer1 : 15mm, Type2 layer2 : 65mm, Type1		
20		calcareous conglomerate		9-26cm:calcareous conglomerate, matrix is white limestone, includes nodule of 1-5cm across and Mn oxides fragments.		
30						
40						

02SMS01BMS05A (MS01 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS01BMS05A
Date	June 27, 2002
Latitude	14° 16.796' N
Longitude	160° 58.451' E
Water Depth	1,585m
Drilling Length	35cm
Core Length	35cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-10cm:crust, botryoidal surface, 100mm thick, 2 layers structure, boundary is declined to 30 degree. layer1 : 50mm, Type3 layer2 : 50mm, Type2		
20		calcareous limestone		10-35cm:calcareous limestone 12-21cm:core is crushed to fragments of few cm across.  21-35cm:matrix is white compact limestone, includes basalt pebbles of 5-50mm across, pebbles are covered by Mn oxides of few mm thick.		
30						
40						




02SMS01BMS05B (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS05B
Date	June 27, 2002
Latitude	14° 16.801' N
Longitude	160° 58.481' E
Water Depth	1,584m
Drilling Length	40cm
Core Length	39cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-1cm:unconsolidated sediments 1-10cm:crust, botryoidal surface, 3 layers structure, boundary is declined to 10 degree layer1 : 25mm, Type3 layer2 : 50mm, Type2 layer3 : 15mm, Type1		
20		limestone		10-40mm:limestone 10-13cm:phosphorite pebble 13-20cm:includes basalt and nodules with basalt nucleus. 20-40cm:grayish brown limestone with limestone and basalt fragments of 1mm across		
30						
40						


02SMS01BMS05C (MS01 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS01BMS05C
Date	June 27, 2002
Latitude	14° 16.803' N
Longitude	160° 58.508' E
Water Depth	1,586m
Drilling Length	36cm
Core Length	26cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-10cm:crust, botryoidal surface, 100 thick, 2 layers structure, boundary is declined to 20 degree. layer1 : 45mm, Type3 layer2 : 55mm, Type2		
20		calcareous conglomerate		10-18cm:calcareous conglomerate, matrix is white compact limestone, nodules of 2-5mm across and fragments of basalt and Mn oxides are included.		
30		limestone				
40				18-26cm:pale brown reefal limestone, porous include fossils of shell fragments.		


02SMS11BMS01A (MS11 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS11BMS01A
Date	June 21, 2002
Latitude	10° 52.495' N
Longitude	161° 22.106' E
Water Depth	1,996m
Drilling Length	26cm
Core Length	23cm

cm	Drill core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-1cm:unconsolidated sediments 1-15cm:Mn oxides consists of crust and nodule. crust : botryoidal sur face, 2 layers structure. layer1 : 30mm, Type2 layer2 : 65mm, type1 nodule : 10mm thick, Type1		
20		limestone		15-24cm:limestone, pale orangish white, compact.		
30						
40						

02SMS11BMS01B (MS11 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS11BMS01B
Date	June 21, 2002
Latitude	10° 52.461' N
Longitude	161° 22.115' E
Water Depth	1,990m
Drilling Length	34cm
Core Length	32cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-16cm:crust, botryoidal sur face, 2 layers structure, 160mm thick. layer1 : 60mm, Type2 layer2 : 100mm, Type1		
20		limestone		16-32cm:pale brownish white limestone, includes fragments of limestone and volcanic rock		
30						
40						





02SMS11BMS01C (MS11 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS11BMS01C
Date	June 21, 2002
Latitude	10° 52.430' N
Longitude	161° 22.125' E
Water Depth	1,990m
Drilling Length	33cm
Core Length	28cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-16cm: botryoidal surface, 3 layers structure, 160mm thick. layer1 : 20mm, Type1 layer2 : 60mm, Type2 layer3 : 80mm, Type1		
20		limestone		16-28cm: pale brownish white, includes fragments of limestone and volcanic rocks		
30						
40						

02SMS11BMS01D (MS11 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS11BMS01D
Date	June 21, 2002
Latitude	10° 52.506' N
Longitude	161° 22.329' E
Water Depth	1,971m
Drilling Length	176cm
Core Length	28cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
100		sediments		0-130cm:unconsolidated sediments		
110						
120						
130		limestone		130-138cm:limestone, palebrownish white, fine, includes foraminifera .		
140		crust		138-145cm:crust, 3 layers stracture, 70mm thick. layer1 : 30mm, Type1 layer2 : 15mm, TYpe5 layer3 : 25mm, Type1		
150		limestone		145-158cm : limestone, pale yel- lowish white, compact, includes fragments of brown volcanic rock of 2-20mm across.		
160						
170						
180						



02SMS11BMS02A (MS11 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS11BMS02A
Date	June 21, 2002
Latitude	10° 46.999' N
Longitude	161° 29.902' E
Water Depth	1,983m
Drilling Length	20cm
Core Length	11cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-1cm:unconsolidated sediments 1-12cm:crust,botryoidal texture on surface, 2 layers stricture layer1 : 90mm, Type1 layer2 : 20mm, Type2		
20						
30						
40						

02SMS11BMS02B (MS11 Seamount) 1/1

Core Barrel 1


Hole No.	02SMS11BMS02B
Date	June 21, 2002
Latitude	10° 47.017' N
Longitude	161° 29.929' E
Water Depth	1,980m
Drilling Length	71cm
Core Length	69cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-20cm: crust, botryoidal texture on surface, 2 layers structure, 200mm thick. layer1 : 90mm, Type2 layer2 : 110mm, Type1  12-20cm: nodule with basalt nucleus is included, Mn oxides is 35mm thick		
20		calcareous conglomerate		20-69cm: calcareous conglomerate, includes nodules of 5-8cm across and grains of Mn oxides. matrix is white limestone.		
30				34-69cm: core crashed to angular fragments of 1-5cm across.		
40						
50						
60						
70						
80						




02SMS11BMS03A (MS11 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS11BMS03A
Date	June 23, 2002
Latitude	11° 00.840' N
Longitude	161° 18.873' E
Water Depth	2,750m
Drilling Length	49cm
Core Length	47cm

cm	Drill Core	Rock Type	Color	Descriptions	Alterations	Remarks
10		crust		0-32cm: crust, crushed to fragments of 1-5cm across, details are unknown		
40		limestone		32-47cm: limestone, white, porous, includes particles of Mn oxides.		
50						


02SMS11BMS03B (MS11 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS11BMS03B
Date	June 23, 2002
Latitude	11° 00.694' N
Longitude	161° 19.662' E
Water Depth	2,644m
Drilling Length	43cm
Core Length	23cm

cm	Drill Core	Rock Type	Color	Descriptions	Alterations	Remarks
10		sediments		0-5cm: unconsolidated sediments		
20		crust		5-7cm: 3 nodules, 1-2cm across, 5-10mm thick 7-23cm: crust, crushed to fragments, 160mm thick, details are unknown.		
30		limestone		23-28cm: limestone, pale brownish white, consists of fragments of limestone		
40						

02SMS11BMS03C (MS11 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS11BMS03C
Date	June 23, 2002
Latitude	11° 00.749' N
Longitude	161° 20.352' E
Water Depth	2,549m
Drilling Length	107cm
Core Length	55cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		sediments		0-15cm: sediments		
20		limestone		15-58cm: pale pinkish white limestone, porous, includes foraminifera. 15-17cm and 21-37cm: core is crushed to fragments of few cm across, Mn coating on surface.		
30						
40						
50						
60				58-70cm: pale brown sandy limestone, consists of 1mm across fragments of limestone and foraminifera.		
70						
80						




02SMS11BMS04A (MS11 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS11BMS04A
Date	June 23, 2002
Latitude	10° 57.657' N
Longitude	161° 20.900' E
Water Depth	2,081m
Drilling Length	32cm
Core Length	15cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-15cm: crust, botryoidal surface 150mm+ thick, 2 layers structure layer1 : 60mm, Type5 layer2 : 90mm+, Type1 10-15cm nodule is partly included		
20						
30						
40						

02SMS11BMS04B (MS11 Seamount) 1/2  
Core Barrel 1


Hole No.	02SMS11BMS04B
Date	June 23, 2002
Latitude	10° 57.534' N
Longitude	161° 21.602' E
Water Depth	1,928m
Drilling Length	178cm
Core Length	123cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-19cm: crust, botryoidal surface, 160mm thick, 2 layers structure. layer1 : 80mm, Type2 layer2 : 80mm, Type1 13-19cm: nodule is included, 7cm across, 20mm thick, Type1, basalt nucleus.		
20		calcareous conglomerate		19-31cm: calcareous conglomerate, core is crushed to fragments of 1-5cm across, details are unknown, matrix is white limestone, nodules of few cm across and fragments of Mn oxides are included.		
30						
40				31-123cm: yellowish brown limestone, porous, includes foraminifera.		
50						
60						
70						
80						
90						
100						




02SMS11BMS04B (MS11 Seamount) 2/2  
Core Barrel 2

Hole No.	02SMS11BMS04B
Date	June 23, 2002
Latitude	10° 57.534' N
Longitude	161° 21.602' E
Water Depth	1,928m
Drilling Length	178cm
Core Length	123cm

cm	Drill Core	rock type	color	Descriptions	Alteration	Remarks
100		limestone		yellowish brown limestone, porous, includes foraminifera		
110						
120						
130						
140						

02SMS12BMS01A (MS12 Seamount) 1/1  
Core Barrel 1.


Hole No.	02SMS12BMS01A
Date	June 11, 2002
Latitude	08° 49.345' N
Longitude	163° 06.621' E
Water Depth	1,371m
Drilling Length	71cm
Core Length	70cm

cm	Droll Core	Rock Type	Color	Description	Alteration	Remarks
		crust		0-1cm:unconsolidated sediments 1-6cm:crust, 45,mm thick, 1 layer structure, Type2.		
10		limestone		6-71cm:pale brown limestone, porous, fossils of shell and coral are observed, reefal limestone, includes particles of Mn oxides.		
20				41-61cm:sandy limestone, foraminifera and particles of Mn oxides are included. core is crushed to fragments.		
30						
40						
50						
60						
70						
80						




02SMS12BMS01B (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS01B
Date	June 11, 2002
Latitude	08° 49.339' N
Longitude	163° 06.590' E
Water Depth	1,373m
Drilling Length	82cm
Core Length	77cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
		sediments		0-5cm:unconsolidated sediments		
10		limestone		5-82cm:pale brown limestone, porous, fossils of shell and coral are observed, reefal limestone, fine particles of Mn oxides are included.		
20				5-15cm:core crushed to fragments of 1-5cm across, details are unknown, Mn oxides coating on surface.		
30						
40						
50						
60						
70						
80						
90						
100						

02SMS12BMS01C (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS01C
Date	June 11, 2002
Latitude	08° 49.338' N
Longitude	163° 06.554' E
Water Depth	1,380m
Drilling Length	71cm
Core Length	67cm

cm	Drill Core	Rock Type	Color	Descriptions	Alteration	Remarks
		crust		0-1cm: unconsolidated sediments 1-6cm: crust, 50mm thick, botryoidal surface, 3 layers structure. layer1 : 10mm, Type5 layer2 : 20mm, Type2 layer3 : 20mm, Type1		
10						
20				6-68cm: pale brown limestone, porous, reefal limestone with fossils of shells and coral, includes particles of Mn oxides.		
30		limestone				
40						
50						
60						
70						
80						




02SMS12BMS02A (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS02A
Date	June 12, 2002
Latitude	08° 43.256' N
Longitude	163° 09.764' E
Water Depth	1,169m
Drilling Length	31cm
Core Length	28cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		crust		0-1cm: crust		
10		lapilli tuff		1-28cm: lapilli tuff, pale yellowish brown, includes vitric volcanic rock of 2-10mm across and particles of Mn oxides. 5-20cm: core is crushed to breccia of 2-5cm across.		
20						
30						
40						


02SMS12BMS02B (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS02B
Date	June 12, 2002
Latitude	08° 43.245' N
Longitude	163° 09.710' E
Water Depth	1,160m
Drilling Length	41cm
Core Length	35cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		lapilli tuff		lapilli tuff, pale yellowish brown, cobbles of vitric volcanic rock are included, core is crushed to breccia of 1-5cm across. surface is covered by Mn oxides of 10mm thick, pebbles of Mn oxides is included.		
10						
20						
30						
40						


02SMS12BMS02C (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS02C
Date	June 11, 2002
Latitude	08° 43.251' N
Longitude	163° 09.669' E
Water Depth	1,141m
Drilling Length	28cm
Core Length	28cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-7cm: crust, 1 layer structure, 70mm thick, Type1		
20		lapilli tuff		7-28cm: lapilli tuff, 7-18cm: core is crushed to breccia of 3cm across. 23~28cm: weathered and soft.  pale yellowish brown lapilli tuff, includes vitric volcanic rock of 2-10mm across.		
30						
40						

02SMS12BMS03A (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS03A
Date	June 12, 2002
Latitude	08° 44.596' N
Longitude	163° 16.209' E
Water Depth	1,349m
Drilling Length	37cm
Core Length	29cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		sediments		0-7cm: unconsolidated sediments 7-12cm: nodule of 2cm across.		
20		nodule crust		12-17cm: crust, 45mm. across, Type5.		
30		calcareous conglomerate		17-36cm: calcareous conglomerate, includes pebbles of basalt and Mn oxides 2-30mm across. basalt pebble is brown and vitric.  33-36cm: core is crushed to breccia.		
40						




02SMS12BMS03B (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS03B
Date	June 12, 2002
Latitude	08° 44.526' N
Longitude	163° 16.265' E
Water Depth	1,359m
Drilling Length	30cm
Core Length	28cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-11cm:crust, botryoidal surface, 2 layers structure, 110mm thick. layer1 : 30mm,Type5 layer2 : 80mm,Type1		
20		basalt		11~28cm:basalt, dark gray, fine, compact, aphric. 17-20cm:calcareous vein of 3cm thick.		
30						
40						


02SMS12BMS03C (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS03C
Date	June 12, 2002
Latitude	08° 44.550' N
Longitude	163° 16.279' E
Water Depth	1,360m
Drilling Length	40cm
Core Length	33cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-9cm:crust, 90mm thick, 2 layers structure. layer1 : 20mm,Type5 layer2 : 70mm,Type1		
20		basalt		9-33cm:basalt, brown, vitric, aphric, calcareous patches and veins are included. 15-27cm:core is crashed to breccia of 2-5cm across  27cm:Mn oxides of 5mm across.		
30						
40						


02SMS12BMS04A (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS04A
Date	June 12, 2002
Latitude	08° 48.497' N
Longitude	163° 18.057' E
Water Depth	1,379m
Drilling Length	31cm
Core Length	26cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-13cm:crust, crushed to breccia of 2-5cm across, 130mm? thick, upper part is Type5, lower part Type2		
20		basalt		13-26cm:brownish gray basalt, fine, compact, aphyric, vitric.		
30						
40						

02SMS12BMS04B (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS04B
Date	June 12, 2002
Latitude	08° 48.504' N
Longitude	163° 18.032' E
Water Depth	1,373m
Drilling Length	33cm
Core Length	30cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-1cm:unconsolidated sedimnets 1-9cm:crust, crushed to fragments of 1-4cm across, consists of Type1 and Type5, 80mm thick.		
20		basalt		14-18cm:angular fragments of Mn oxides and basalt pebbles 9-14cm:brown basalt, fine, aphyric, vitric. 18-30cm:basalt, covered by 20mm thick Mn oxides, Type 1, basalt is, brown, fine and aphyric		
30						
40						




02SMS12BMS04C (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS04C
Date	June 12, 2002
Latitude	08° 48.513' N
Longitude	163° 18.007' E
Water Depth	1,370m
Drilling Length	65cm
Core Length	50cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		uncon- solidated sediments		0-15cm:unconsolidated sediments		
20		crust		15-21cm:crust, botryoidal surface, 60mm thick, 2 layers structure. layer1 : 10mm,Type5 layer2 : 50mm,Type1		
30		basalt		21-65cm:dark gray basalt, compact, fine plagioclase and pyroxene phenocryst are observed, calcareous veins of 1- 5mm wide occur.		
40						
50						
60						
70						
80						


02SMS12BMS05A (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS05A
Date	June 13, 2002
Latitude	08° 50.264' N
Longitude	163° 05.842' E
Water Depth	1,319m
Drilling Length	31cm
Core Length	28cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		uncon- solidated sediments		0-2cm:unconsolidated sediments		
10		crust		2-12cm:crust, crushed to frag- ments of 1-3cm across, 100mm thick, details unknown		
20		hyaloclastite		12-30cm:hyaloclastite, consists of of grayish brown vitric volcanic rocks of 1-2cm across. includes fine particles of Mn oxides.		
30						
40						

02SMS12BMS05B (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS05B
Date	June 13, 2002
Latitude	08° 50.129' N
Longitude	163° 06.077' E
Water Depth	1,313m
Drilling Length	30cm
Core Length	28cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		uncon- solidated sediments		0-2cm:unconsolidated sediments		
10		crust		2-10cm:crust, core is disc shape of 20mm thick, 80mm thick, 1layer structure, Type1		
20		calcareous conglomerate		10-30mm:calcareous limestone, includes lapilli tuff pebbles of 5cm across, matrix is white, pelagic sediments.		
30						
40						




02SMS12BMS05C (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS05C
Date	June 13, 2002
Latitude	08° 50.017' N
Longitude	163° 06.324' E
Water Depth	1,313m
Drilling Length	31cm
Core Length	18cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-12cm: crust, 120mm thick, 2 layers structure. layer1 : 25mm, Type5 layer2 : 95mm, Type1		
20		calcareous conglomerate		12-18cm: calcareous conglomerate, matrix is slightly phosphorized, includes pebbles of vitric volcanic rock.		
30						
40						


02SMS12BMS05D (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS05D
Date	June 13, 2002
Latitude	08° 49.930' N
Longitude	163° 05.588' E
Water Depth	1,296m
Drilling Length	32cm
Core Length	25cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-5cm: crust, botryoidal surface, 50mm thick, 2 layers structure. layer1 : 15mm, Type5 layer2 : 35mm, Type1		
20		lapilli tuff		5-25cm: lapilli tuff, patches and veins of phosphorite are included.		
30						
40						


02SMS12BMS05E (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS05E
Date	June 13, 2002
Latitude	08° 49.830' N
Longitude	163° 06.850' E
Water Depth	1,304m
Drilling Length	33cm
Core Length	31cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		unconsolidated sediments		0-2cm: unconsolidated sediments		
10		crust		2-10cm: crust, core is crushed to disc of 1cm thick, details are unknown.		
20		calcareous conglomerate		10-33cm: calcareous conglomerate, includes sub-angular basalt pebbles of 2-30mm across, matrix is palagic limestone.		
30						
40						

02SMS12BMS05F (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS05F
Date	June 13, 2002
Latitude	08° 49.418' N
Longitude	163° 06.846' E
Water Depth	1,330m
Drilling Length	22cm
Core Length	18cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		crust		0-11cm: crust, 1 layer structure, 110mm thick, Type1.		
10		basalt		11-18cm: basalt, brownish gray, fine, compact, aphyric.		
20						
30						




02SMS12BMS06A (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS06A
Date	June 15, 2002
Latitude	08° 44.395' N
Longitude	163° 12.099' E
Water Depth	1,150m
Drilling Length	22cm
Core Length	18cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
		unconsolidated sediments		0-4cm: unconsolidated sediments		
10		crust		4-10cm: crust, 60mm thick, botryoidal surface, 1 layer structure, Type1.		
20		lapilli tuff		10-22cm: lapilli tuff, yellowish brown, includes fragments of vitric volcanic rocks. 16-22cm: core crushed to fragments of 1cm across.		
30						


02SMS12BMS06B (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS06B
Date	June 15, 2002
Latitude	08° 44.370' N
Longitude	163° 12.076' E
Water Depth	1,153m
Drilling Length	45cm
Core Length	26cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
		crust		0-10cm: crust, botryoidal surface, 100mm thick, 2 layers structure. layer1 : 20mm, Type5 layer2 : 80mm, Type1		
10		lapilli tuff		10-26cm: lapilli tuff, yellowish, brown, includes fragments of vitric volcanic rocks.		
20						
30						


02SMS12BMS06C (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS06C
Date	June 15, 2002
Latitude	08° 44.343' N
Longitude	163° 12.062' E
Water Depth	1,157m
Drilling Length	38cm
Core Length	35cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		basalt		0-6cm: crust, core crushed, botryoidal surface, 60mm thick, Type1		
10		lapilli tuff		6-35cm: lapilli tuff, pale yellowish brown, includes fragments of vitric volcanic rocks. 15-20cm: calcareous veins, 2-5mm wide.		
20						
30						
40						

02SMS12BMS07A (MS12 Seamount) 1/1  
Core Barrel 1


Hole No.	02SMS12BMS07A
Date	June 15, 2002
Latitude	08° 42.805' N
Longitude	163° 11.017' E
Water Depth	1,376m
Drilling Length	29cm
Core Length	26cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0				0-3cm: unconsolidated sediments		
10		unconsolidated sediments		3-21cm: crust, botryoidal structure, 180mm thick, 2 layers structure. layer1 : 35mm, Type5 layer2 : 155mm, Type1		
20		crust				
30		tuff		21-29cm: pale yellow, fine tuff, Mn oxides particles included.		
40						




02SMS12BMS07B (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS07B
Date	June 15, 2002
Latitude	08° 42.799' N
Longitude	163° 11.044' E
Water Depth	1.378m
Drilling Length	20cm
Core Length	19cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-10cm:crusts, core is crushed to fragments of 1-5cm across, details unknown.		
		basalt		10-19cm:basalt, brownish gray, fine.		
20						
30						

02SMS12BMS07C (MS12 Seamount) 1/2  
Core Barrel 1


Hole No.	02SMS12BMS07C
Date	June 15, 2002
Latitude	08° 42.799' N
Longitude	163° 11.044' E
Water Depth	1,378m
Drilling Length	155cm
Core Length	147cm

cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
0		crust		0-10cm: crust, crushed to fragments, details unknown, 100mm thick.		
10		basalt		10-90cm: basalt, grayish brown, fine, compact fractures are filled by calcite veins. 10-16cm and 80~90cm : core is crushed to fragments of few cm across.		
20						
30						
40						
50						
60						
70						
80						
90						
100						




02SMS12BMS07C (MS12 Seamount) 2/2  
Core Barrel 2

Hole No.	02SMS12BMS07C
Date	June 15, 2002
Latitude	08° 42.799' N
Longitude	163° 11.044' E
Water Depth	1,378m
Drilling Length	155cm
Core Length	147cm

	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
90		basalt		0-57cm: basalt, grayish brown to dark brown, fine, compact, fracture is filled by calcite.		
100						
110						
120						
130						
140						
150						

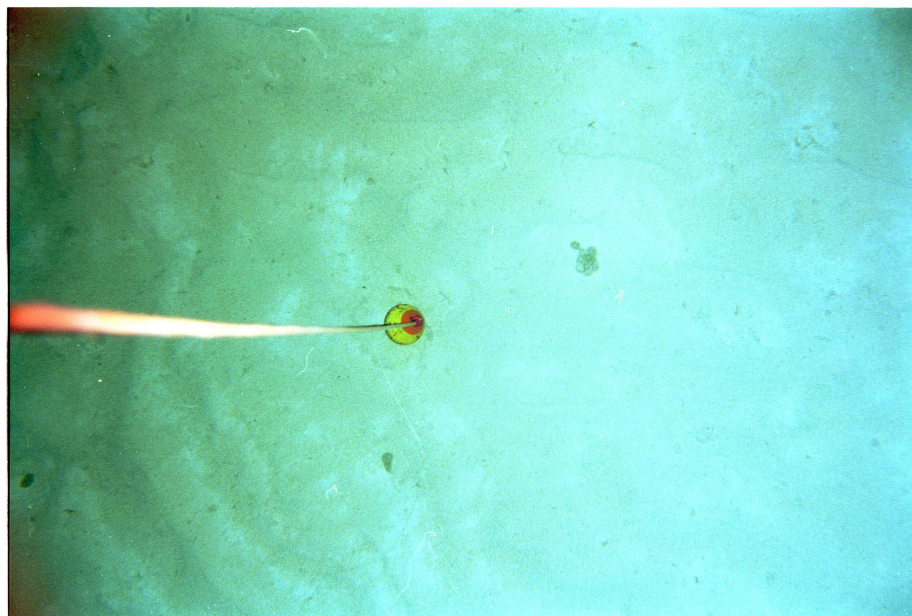
02SMS12BMS07D (MS12 Seamount) 1/1  
Core Barrel 1

Hole No.	02SMS12BMS07D
Date	June 15, 2002
Latitude	08° 42.793' N
Longitude	163° 11.072' E
Water Depth	1,378m
Drilling Length	34cm
Core Length	32cm

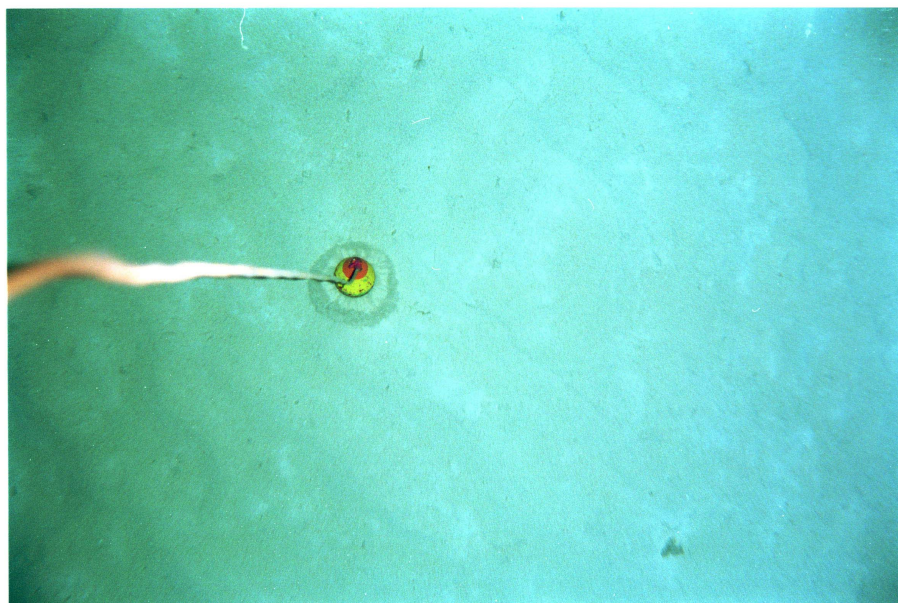
cm	Droll Core	Rock Type	Color	Descriptions	Alteration	Remarks
10		crust		0-10cm:crust, botryoidal surface, 100mm thick, 2 layers structure. layer1 : 30mm,Type2 layer2 : 70mm,Type1		
20		basalt		10-32cm:basalt, dark gray, fine, compact, relatively fresh.		
30						
40						



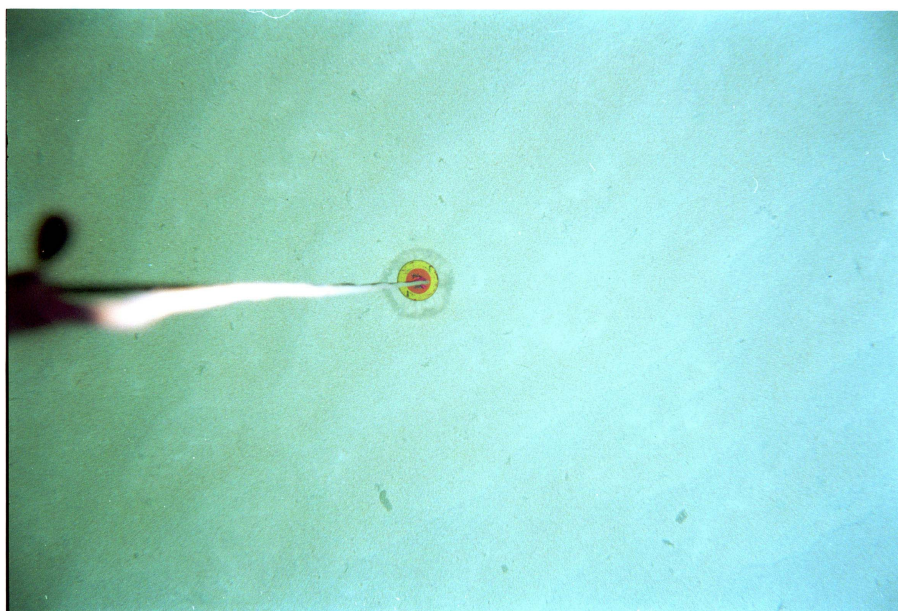
## **Appendix 4   Seafloor Photographs of LC and MC**



02SMS01LC15



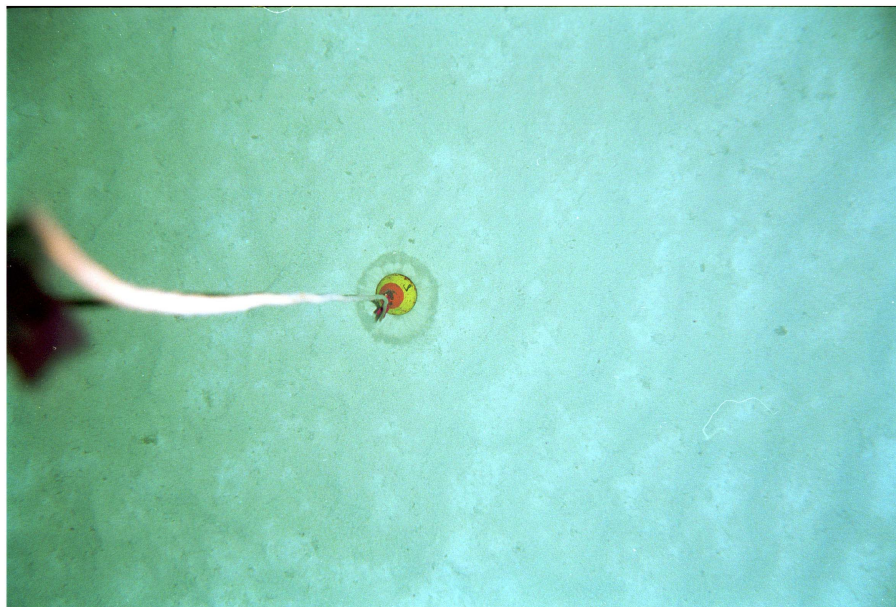
02SMS01MC01



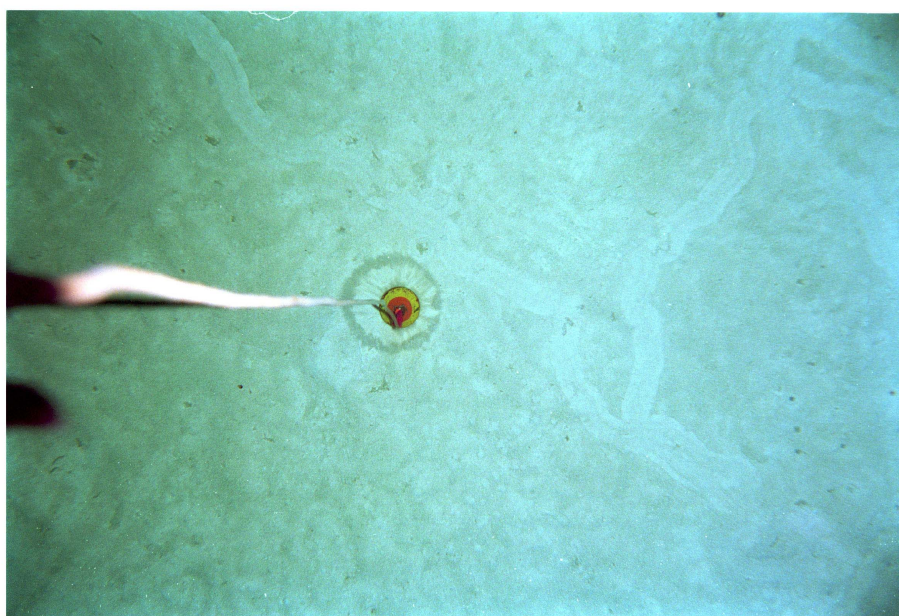
02SMS01MC02

Seafloor Photograph of MS01 Seamount (1/2)



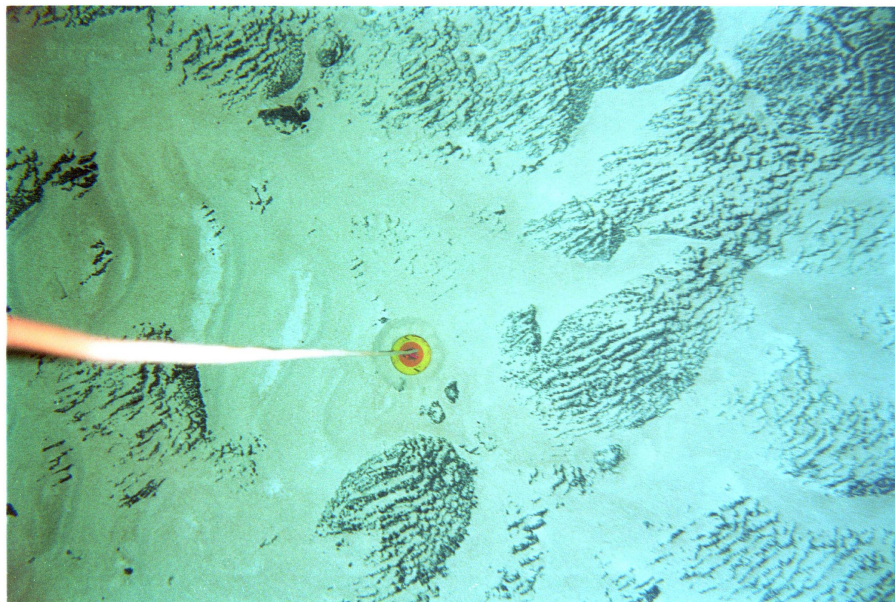


02SMS01MC03

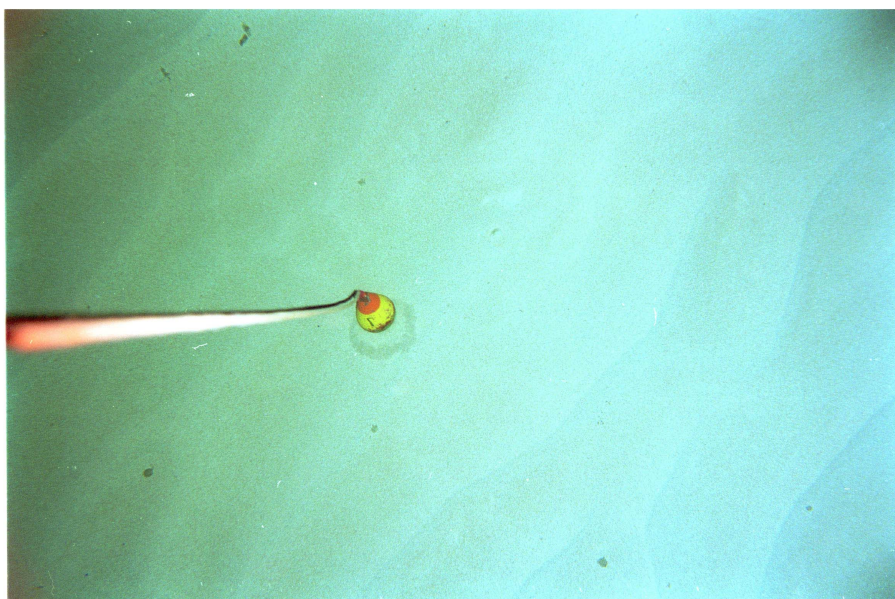


02SMS01MC04

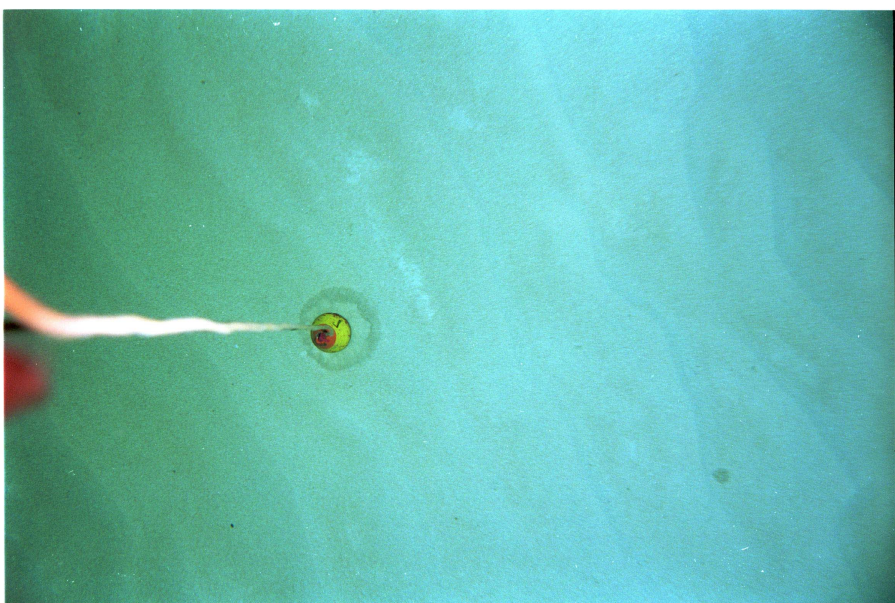




02SMS11LC17

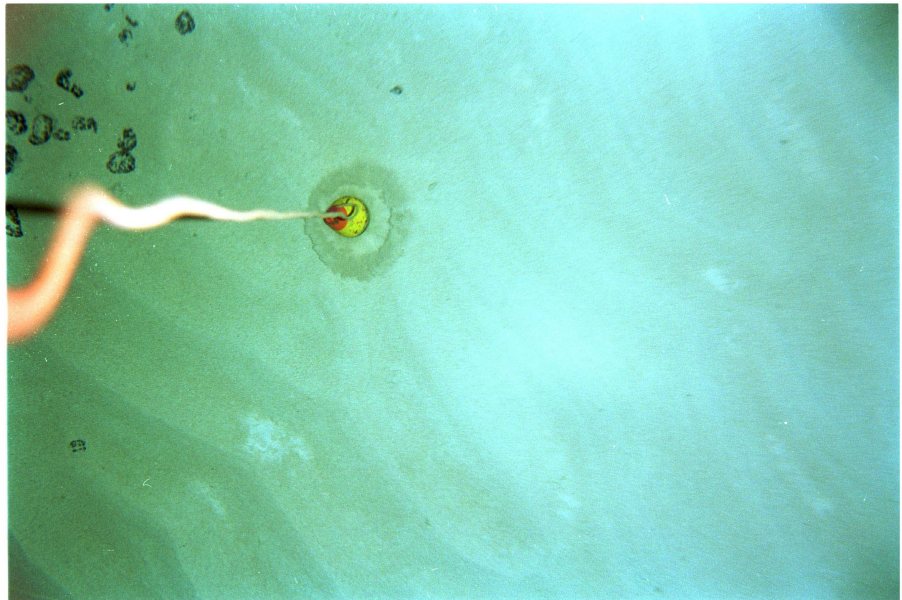


02SMS11LC18



02SMS11LC19

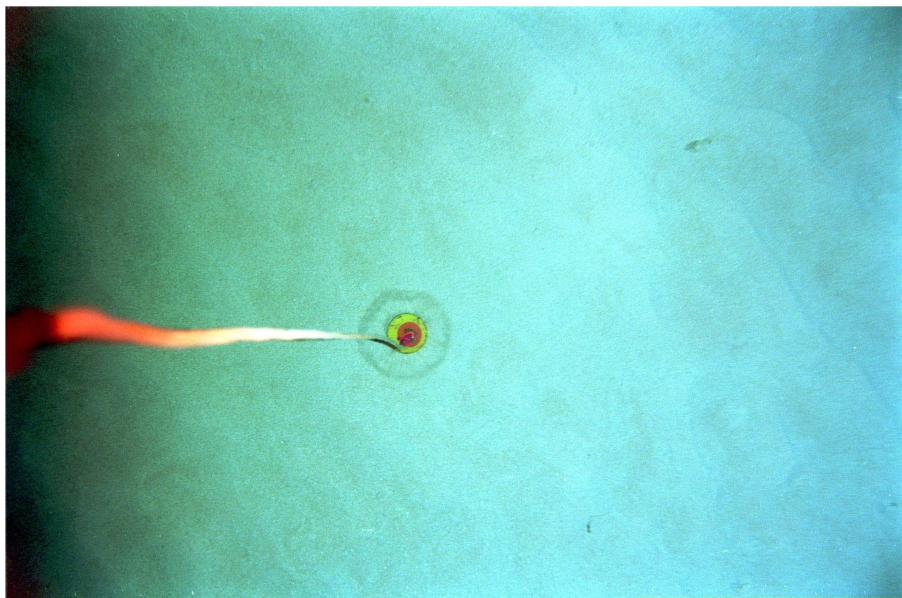




02SMS11LC20



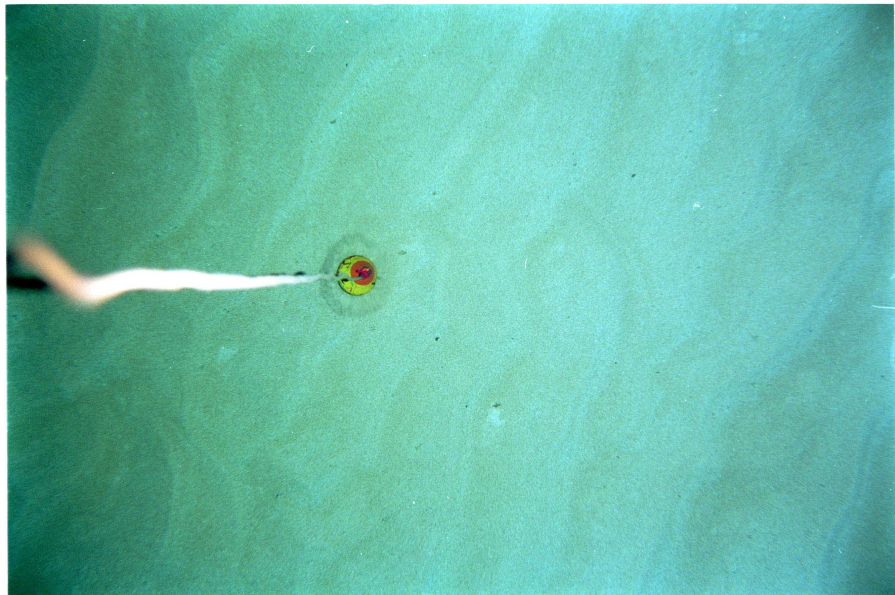
02SMS11LC21







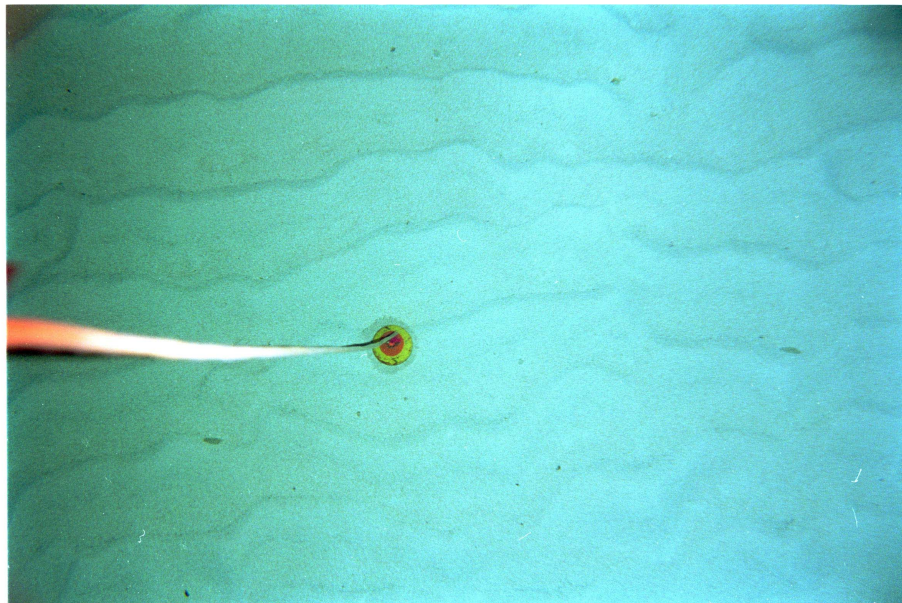
02SMS11MC01



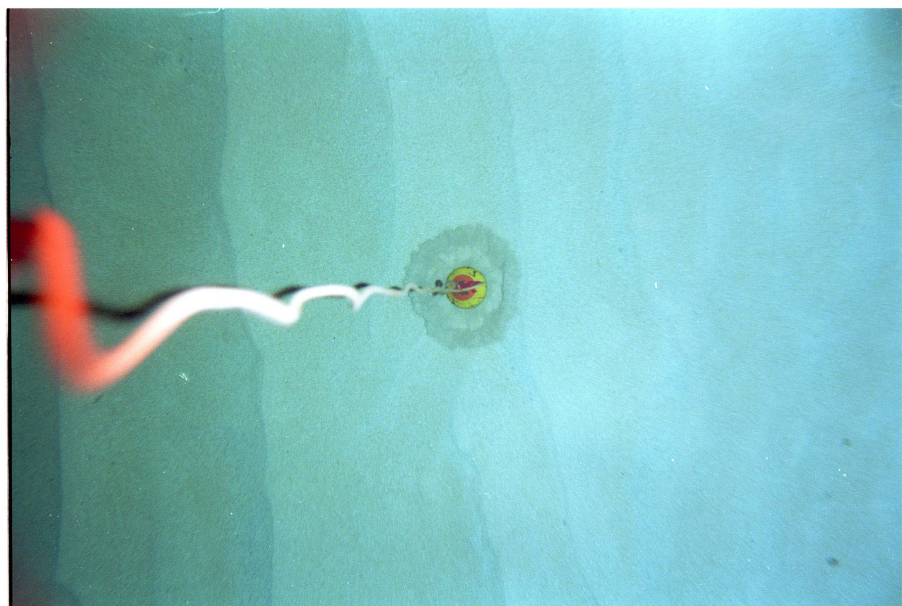
02SMS11MC02

Seafloor Photograph of MS11 Seamount (4/5)

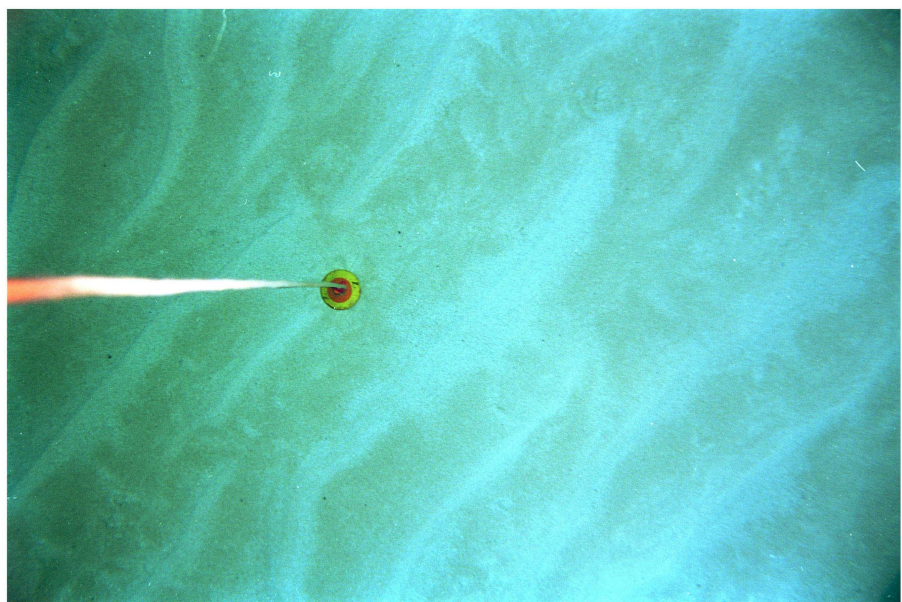




02SMS11LC14

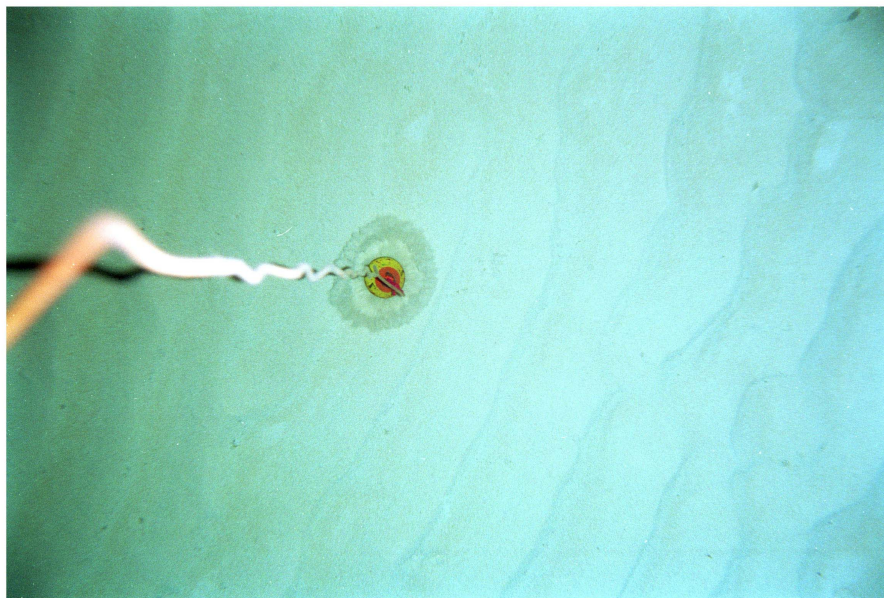


02SMS11LC15

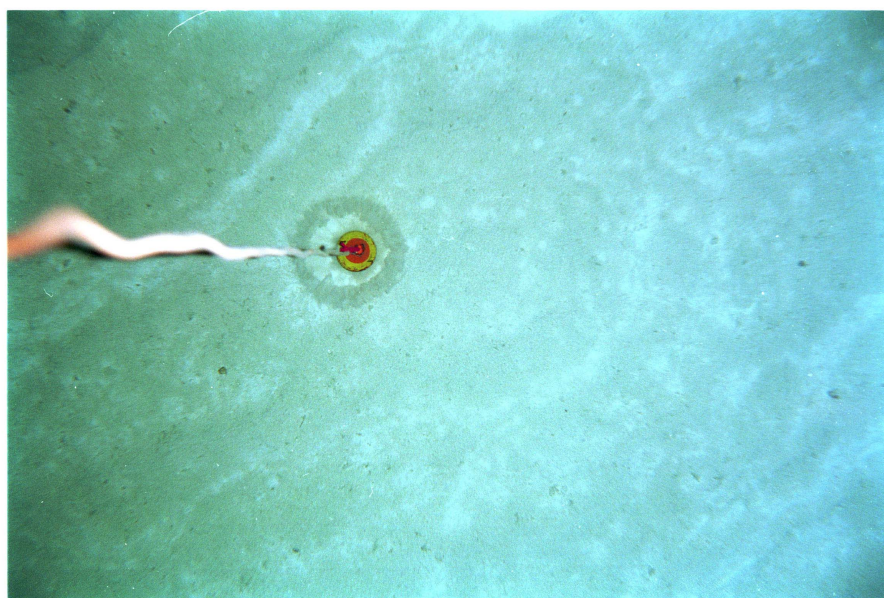


02SMS11LC16



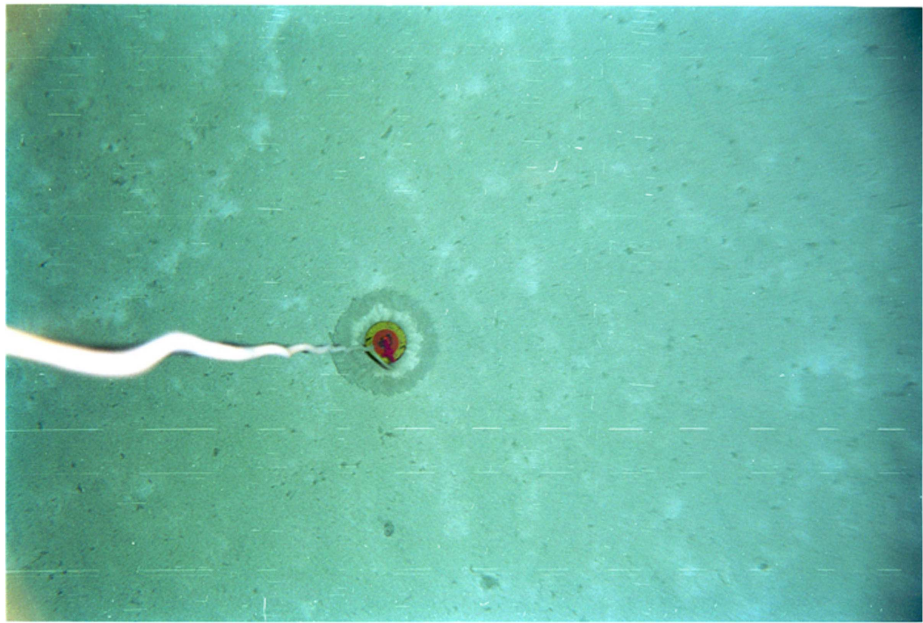


02SMS11MC03

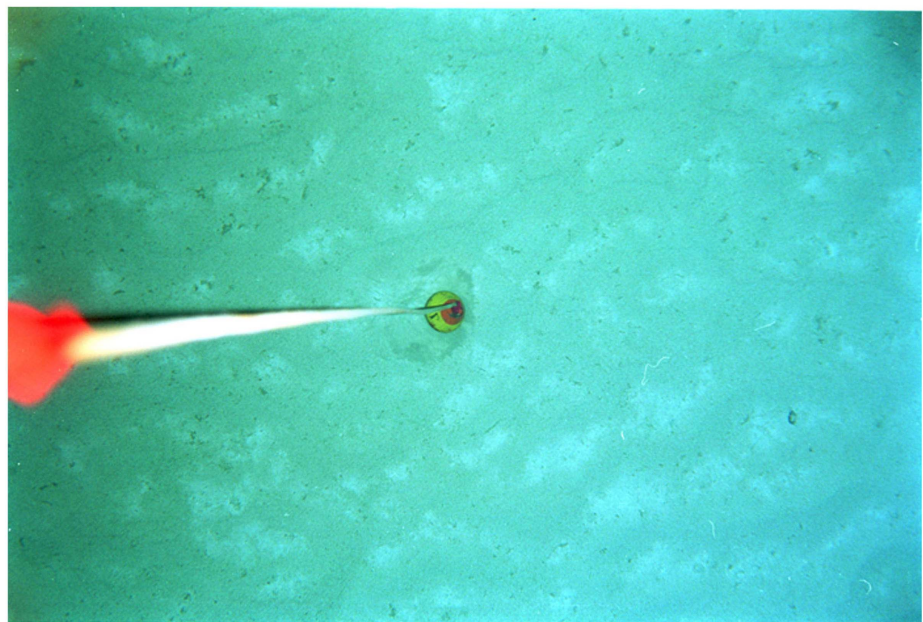


02SMS11MC04

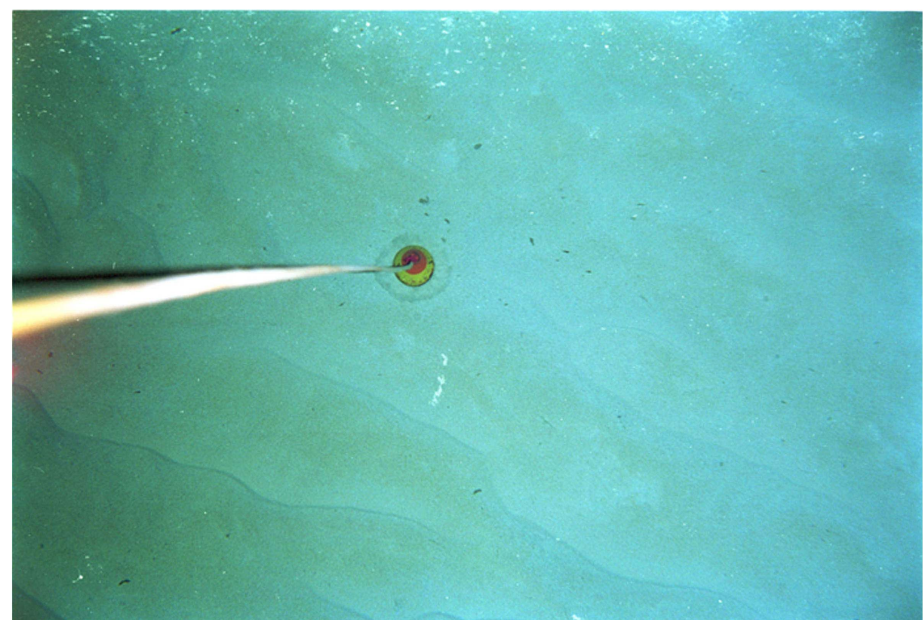




02SMS12LC19

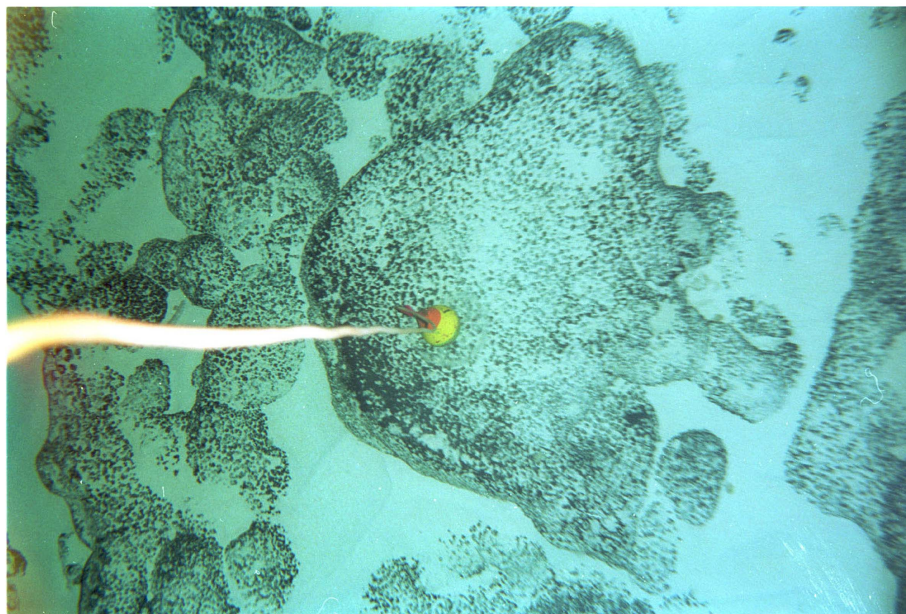


02SMS12LC20



02SMS12LC21

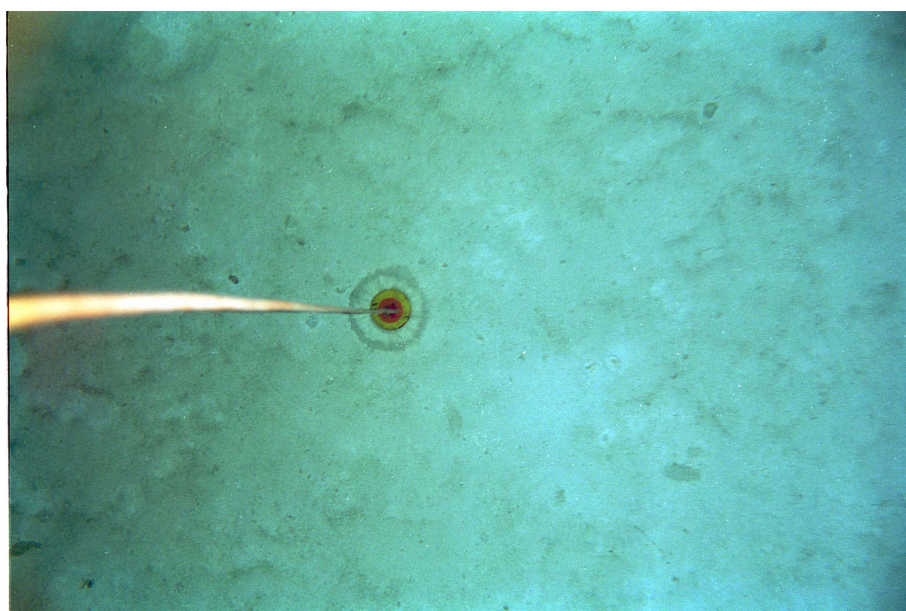




02SMS12LC22

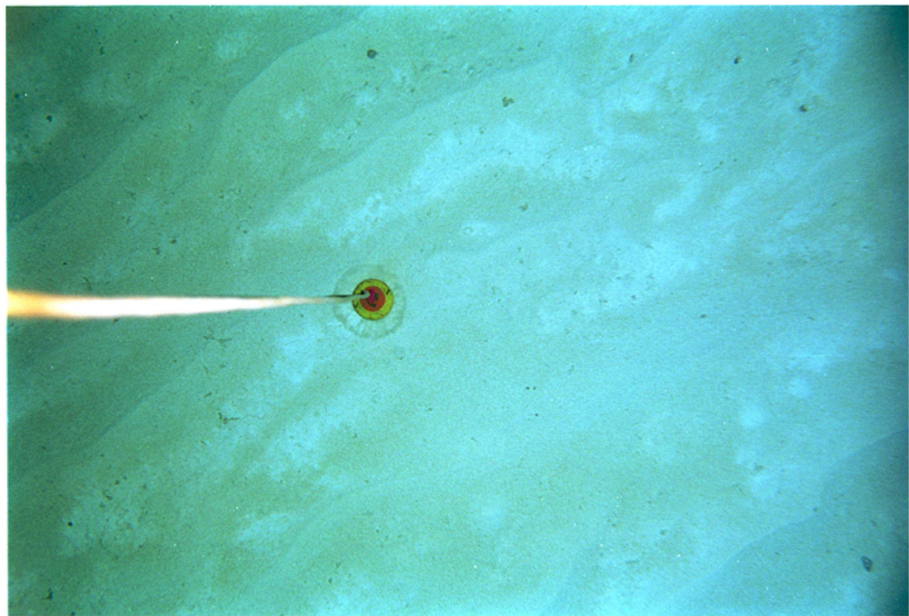


02SMS12LC23

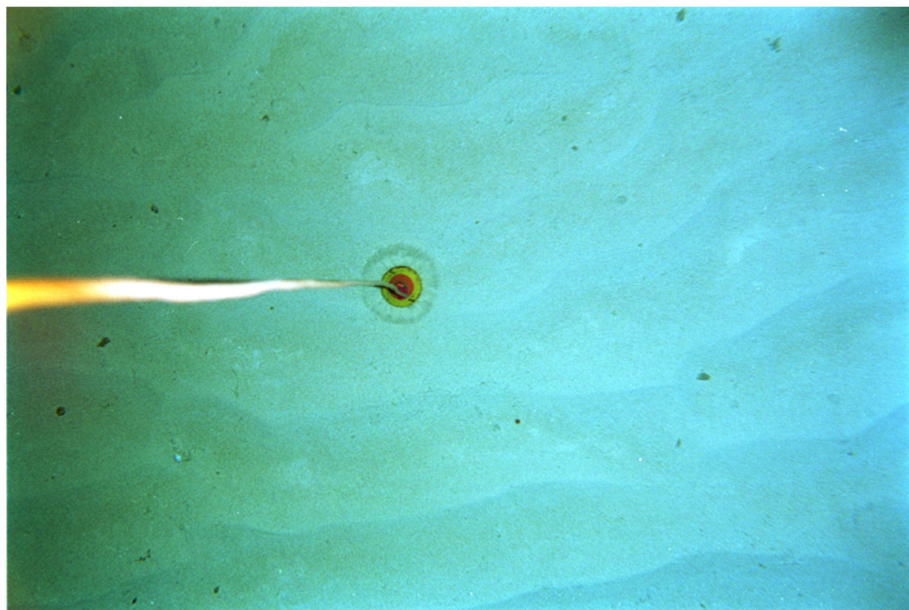


02SMS12LC24

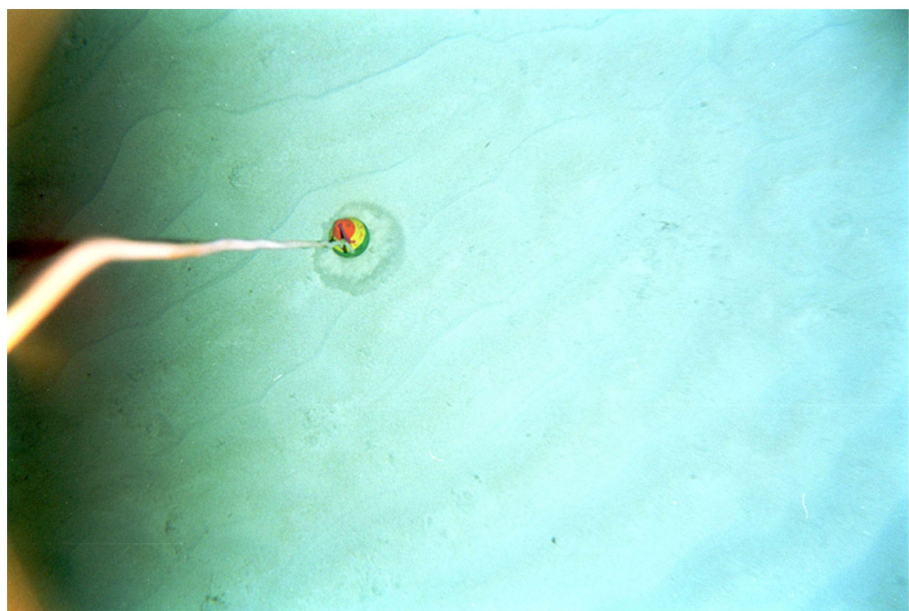




02SMS12LC25

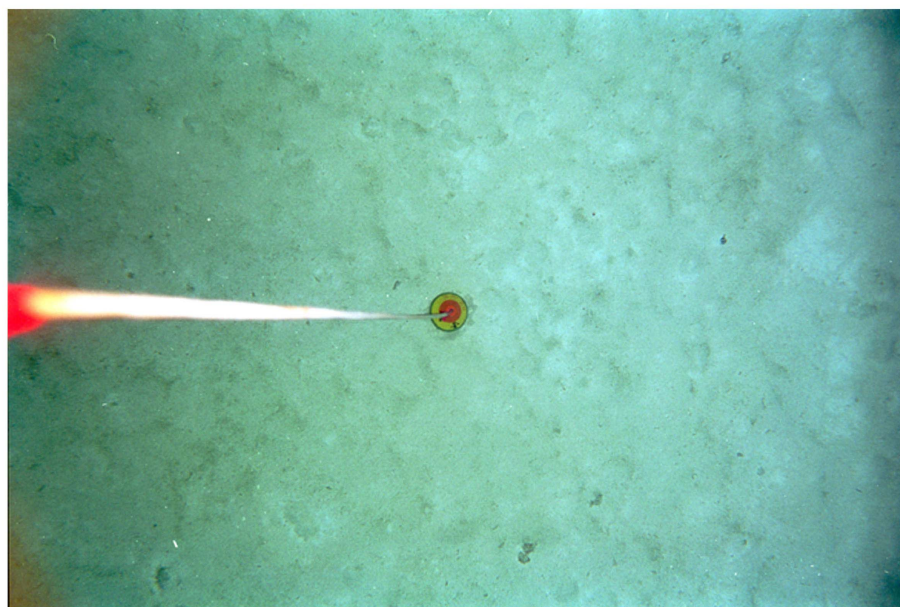


02SMS12LC26

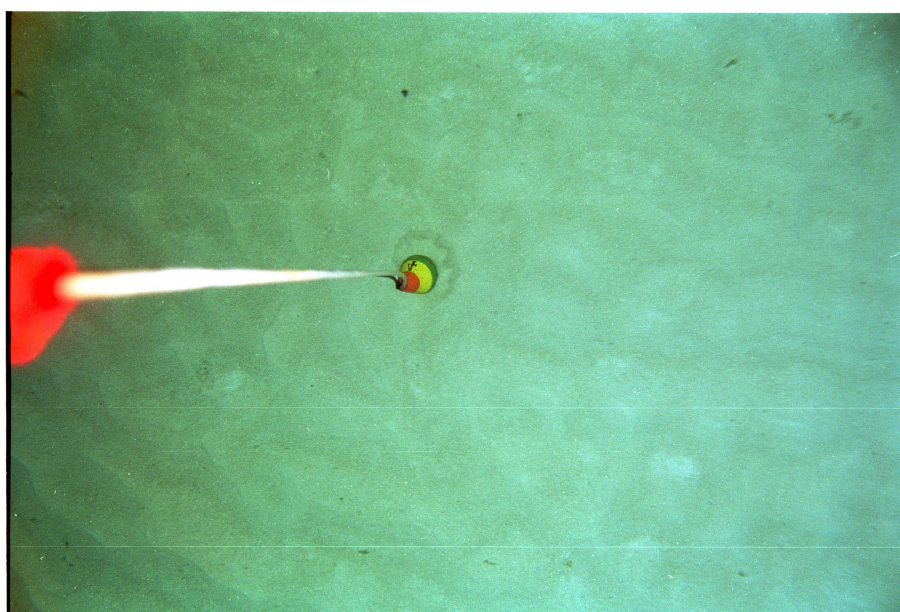


02SMS12LC27

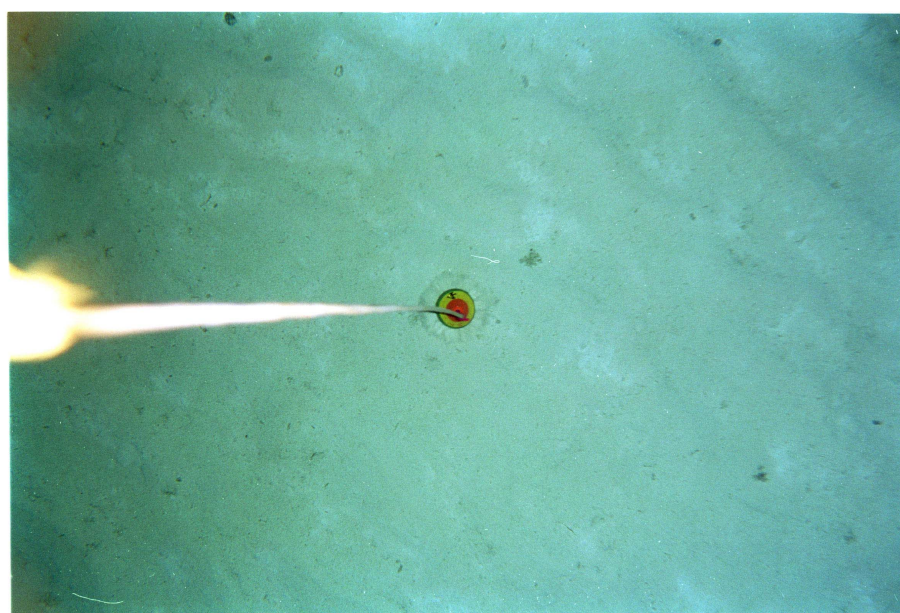




02SMS12LC28



02SMS12LC29

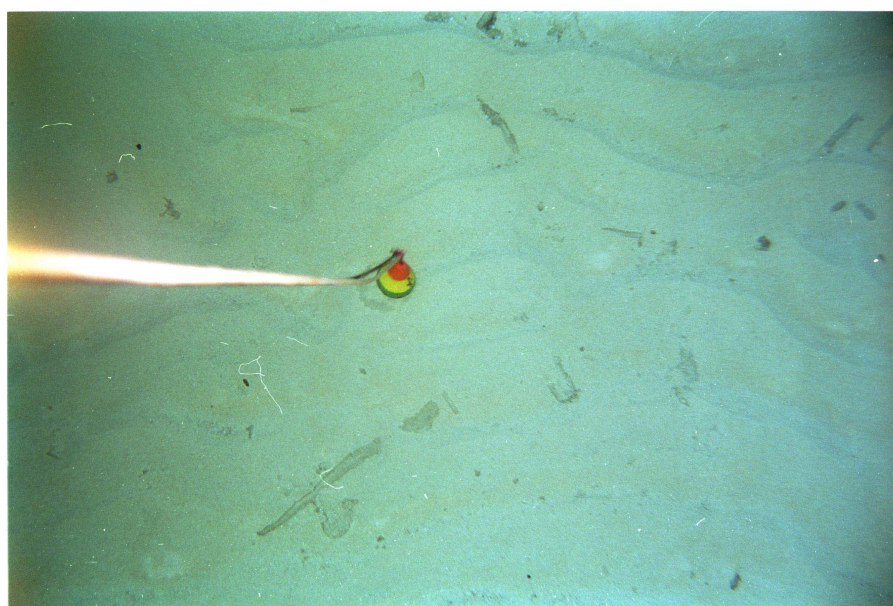


02SMS12LC30

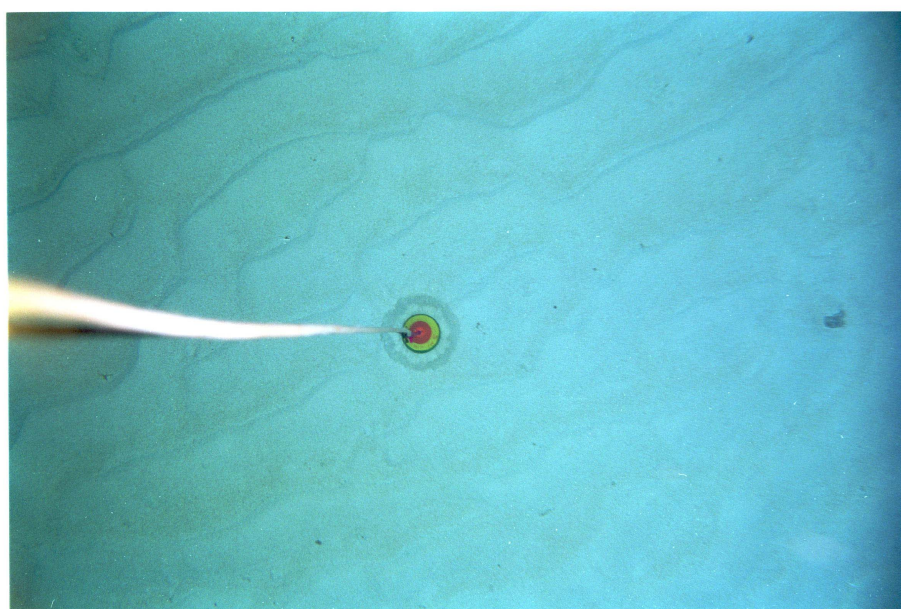




02SMS12LC31

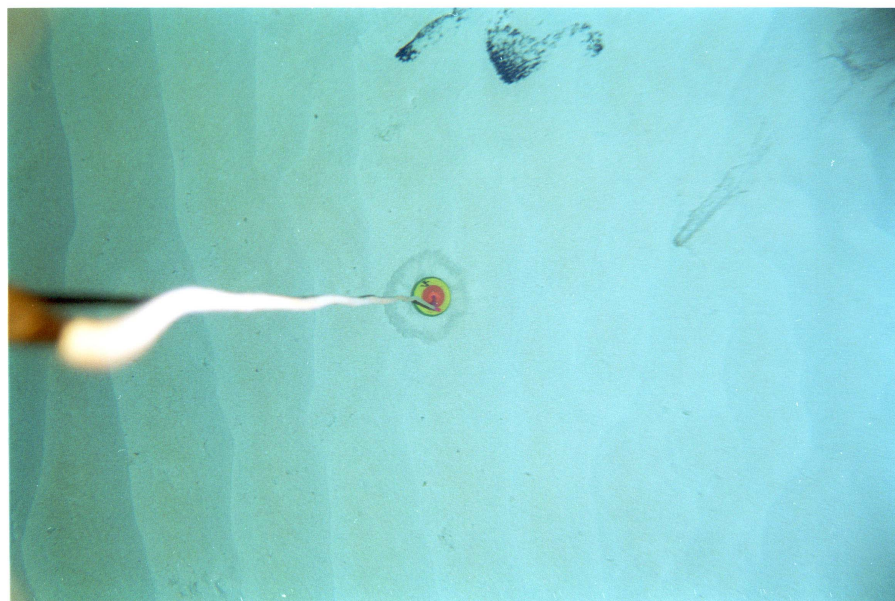


02SMS12LC32

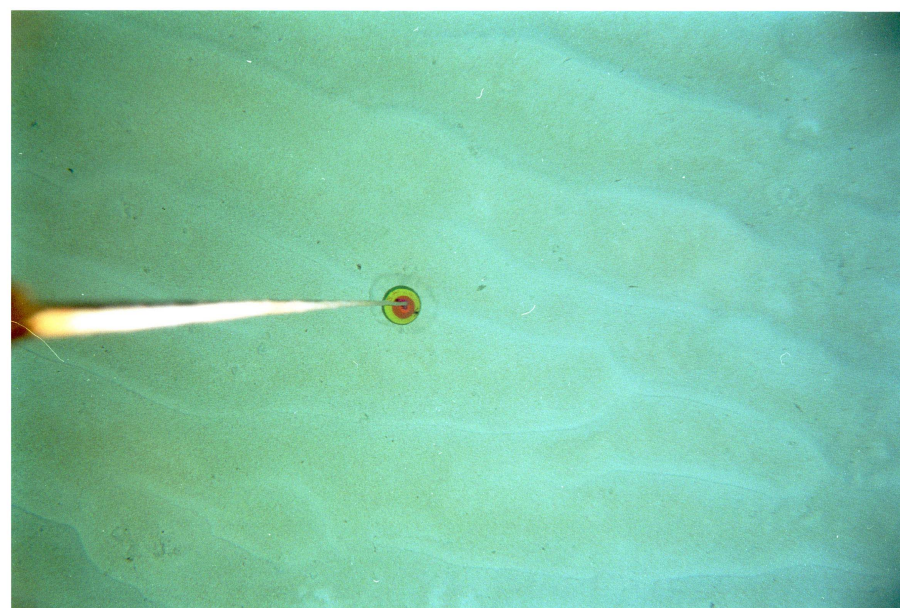


02SMS12LC33

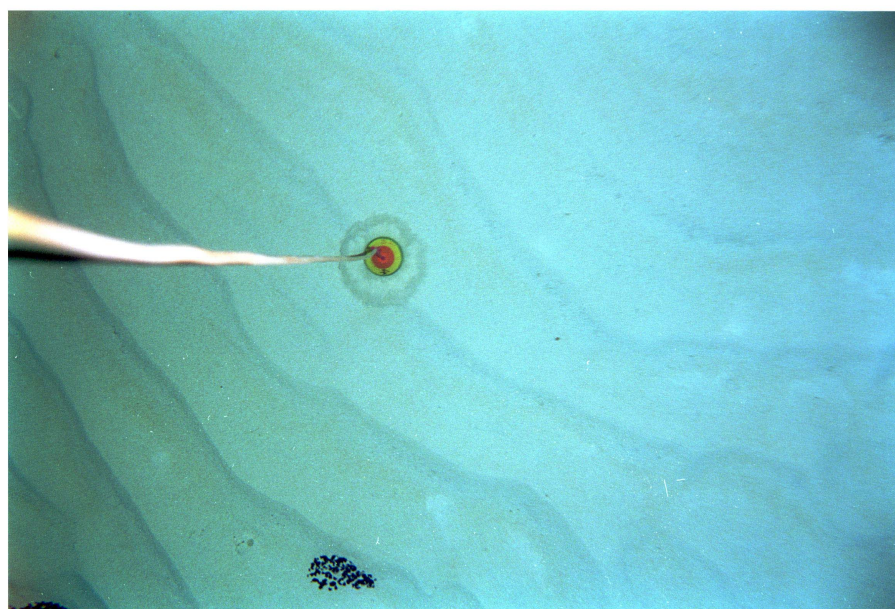




02SMS12LC34



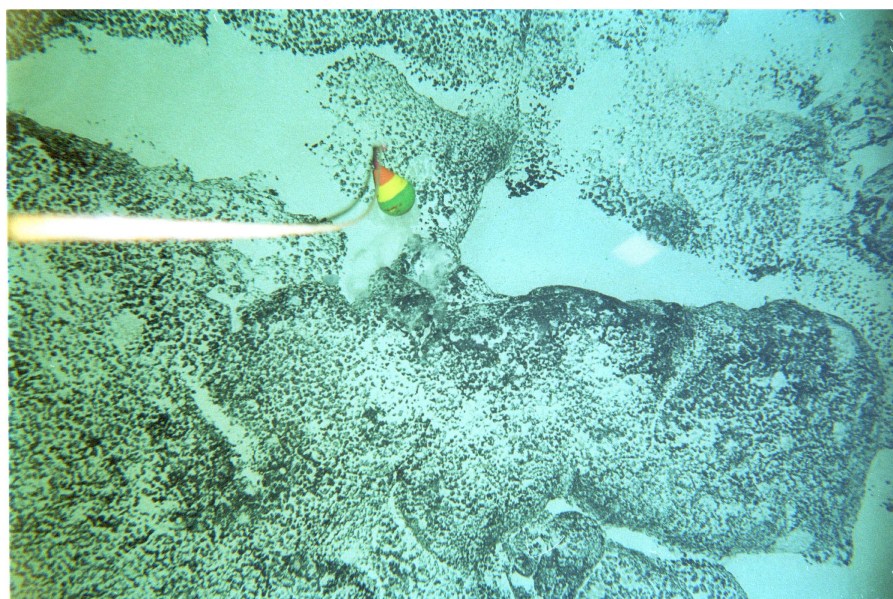
02SMS12LC35



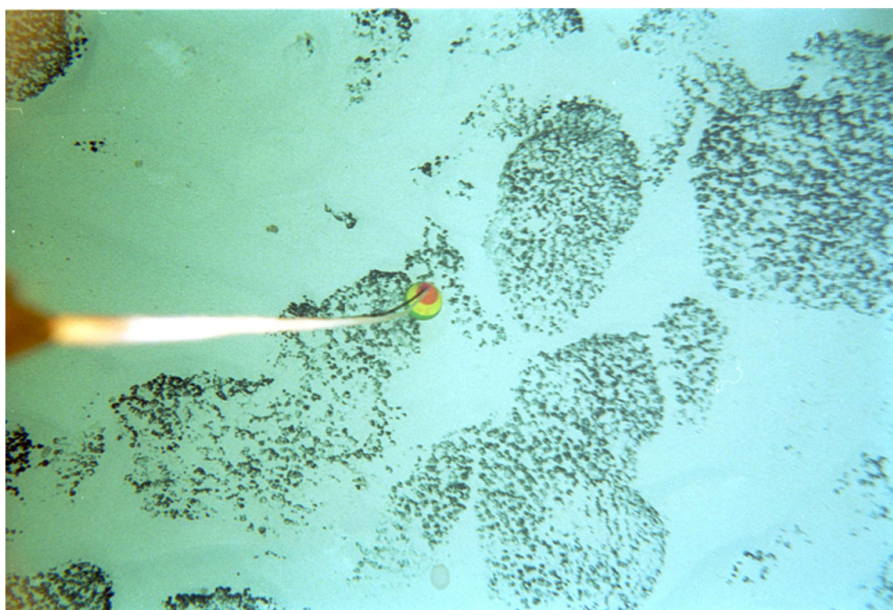
02SMS12LC36

Seafloor Photograph of MS12 Seamount (6/9)

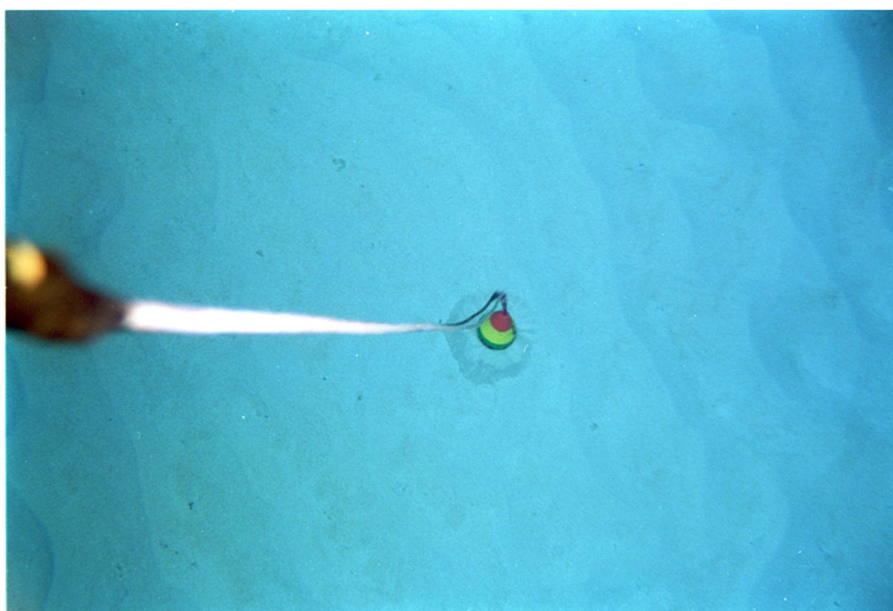




02SMS12LC37



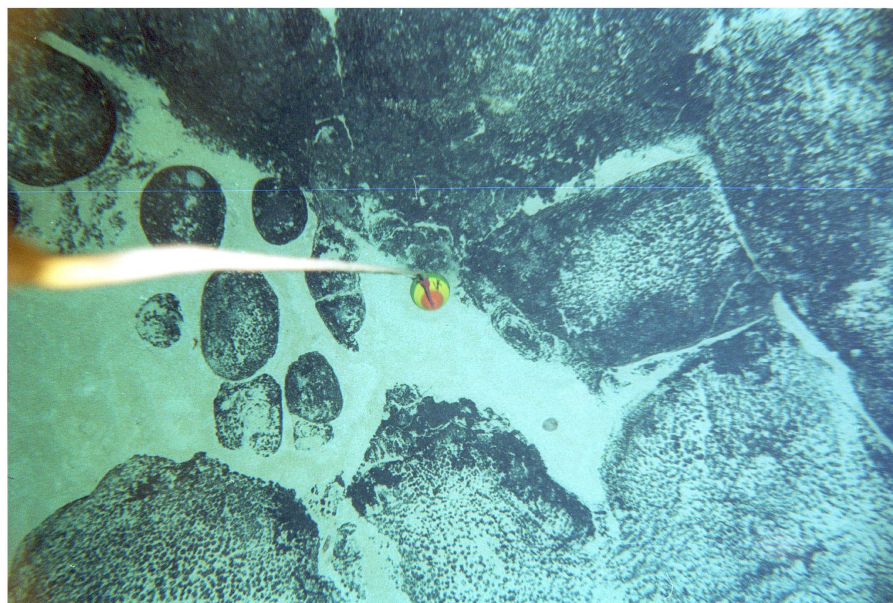
02SMS12LC38



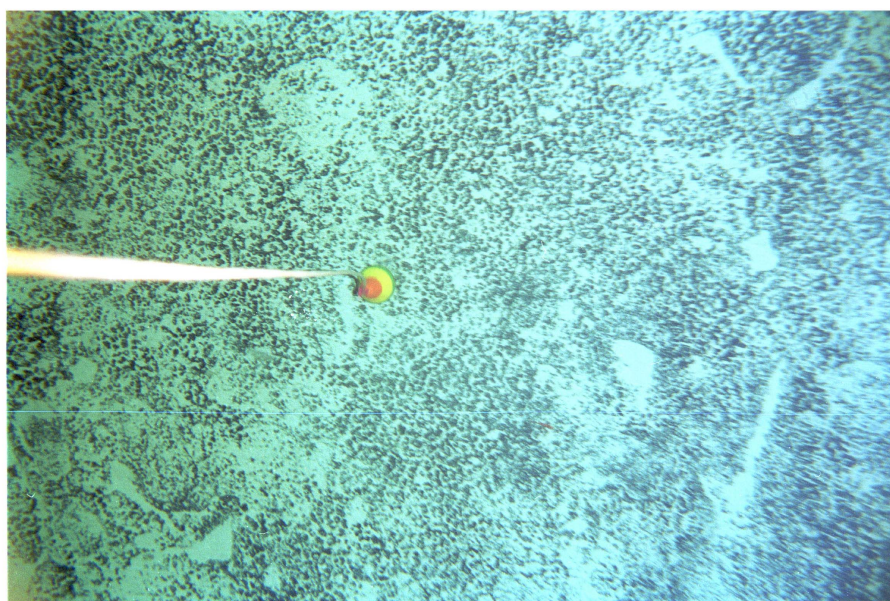
02SMS12LC39

Seafloor Photograph of MS12 Seamount (7/9)

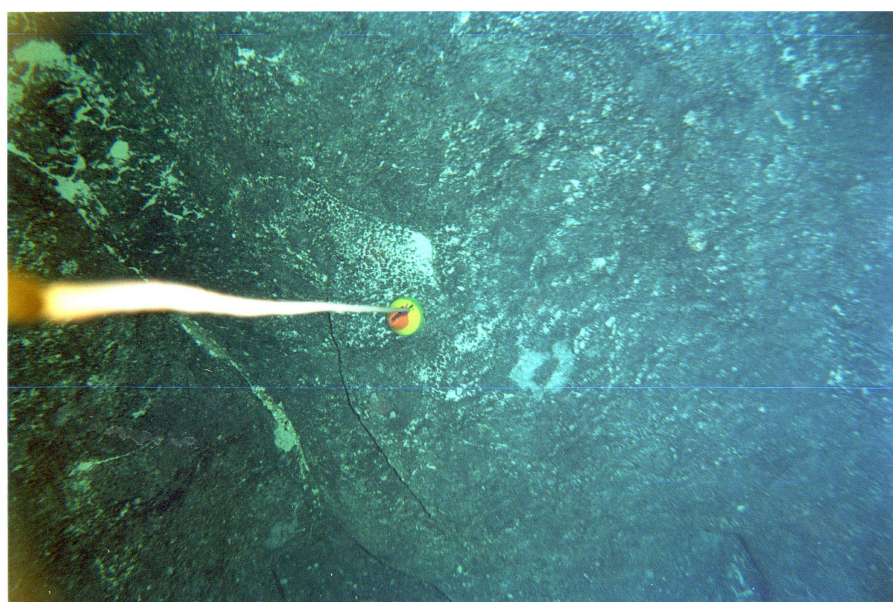




02SMS12LC40

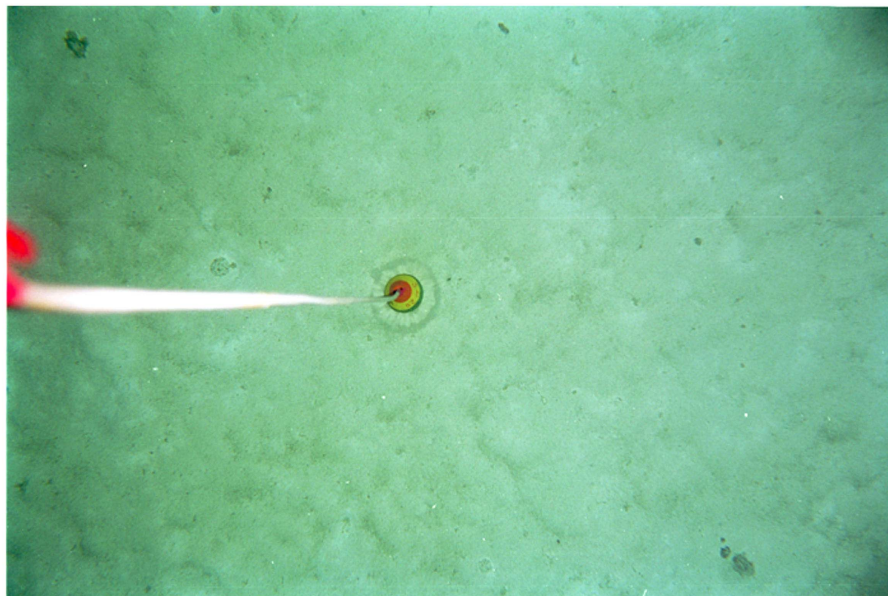


02SMS12LC41

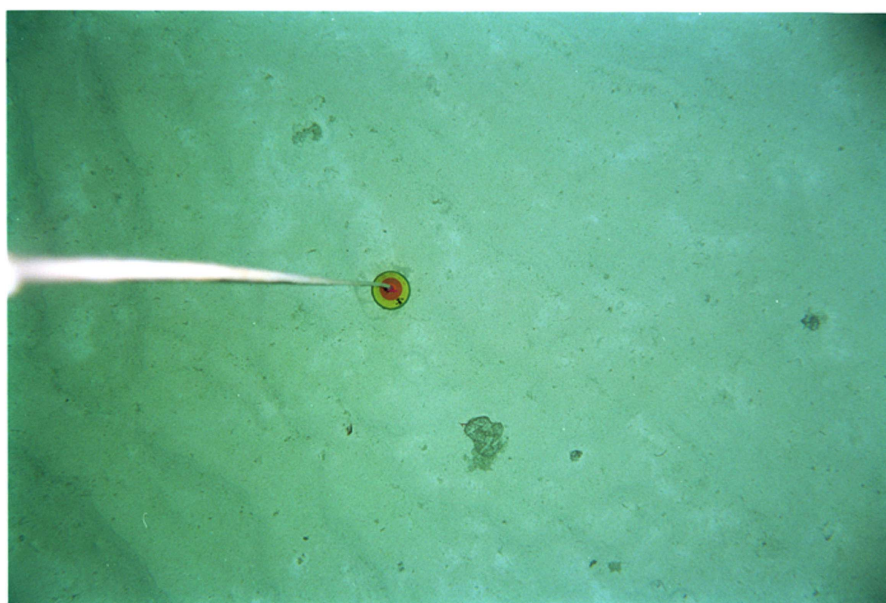


02SMS12LC42

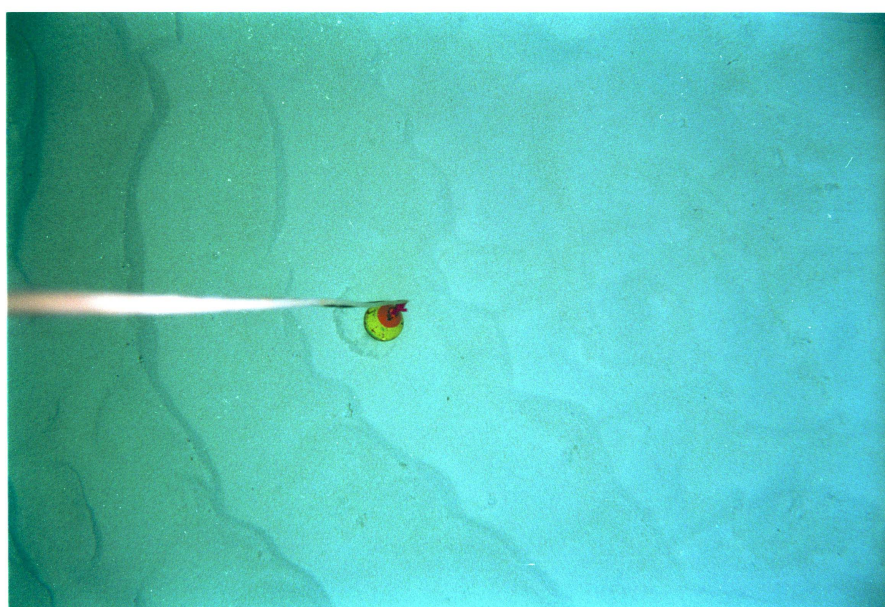




02SMS12MC01



02SMS12MC02



02SMS12MC03

Seafloor Photograph of MS12 Seamount (9/9)