

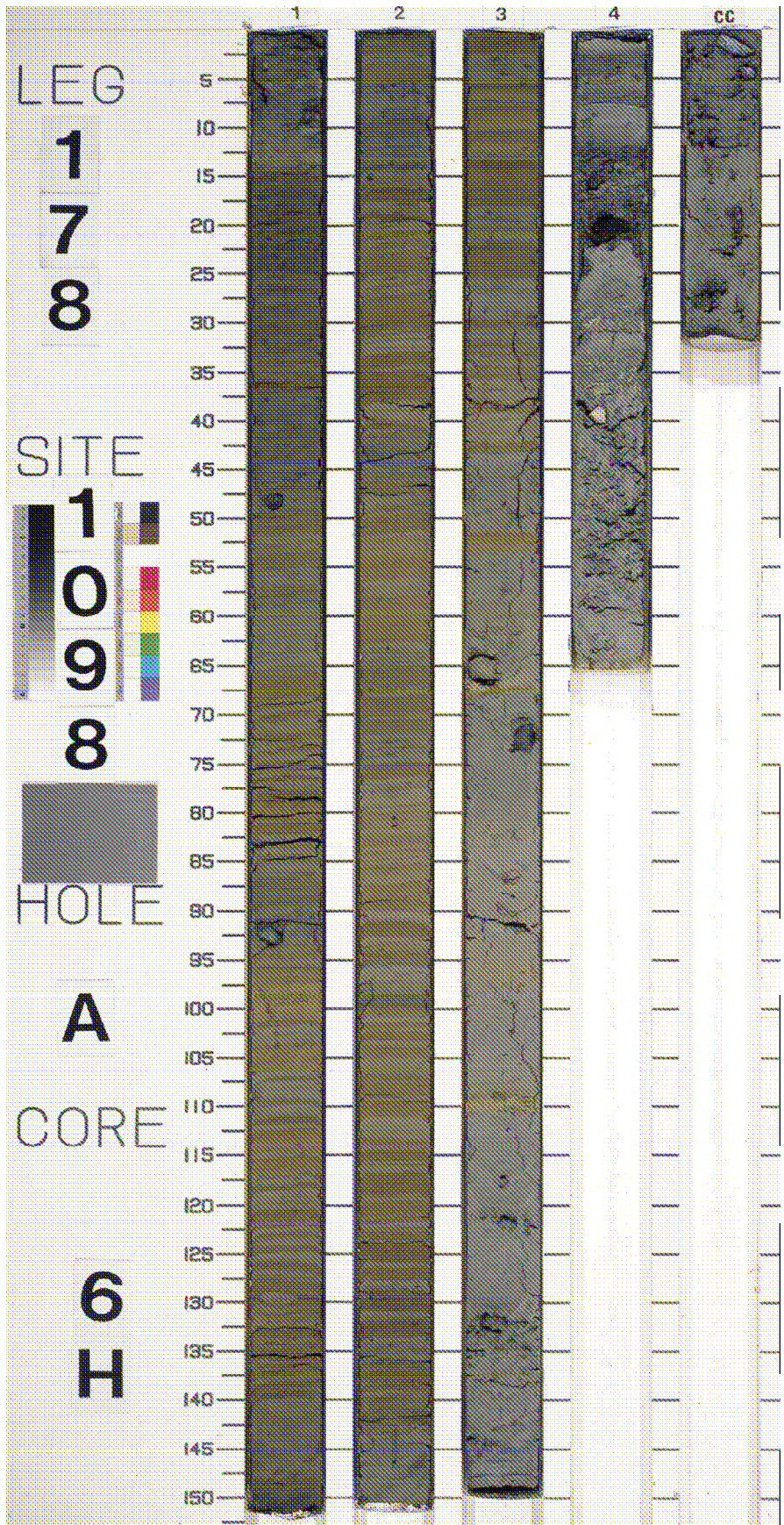
Labeling on Underside of Replica Leg 178-1098A-6H-1

The Antarctic Peninsula is one of the most sensitive regions of Antarctica to climate change. Here, ecological and cryospheric systems respond rapidly to climate fluctuations. This deglacial laminated interval was deposited directly over a glaciomarine diamict, hence during a globally recognised period of rapid climate change. Laminated to thinly bedded orange-brown diatom ooze (near monogeneric *Hyalochaete Chaetoceros* spp. resting spores) alternates with blue-grey terrigenous sediments (open water diatom species). These discrete laminae are interpreted as austral spring and summer signals respectively, with negligible winter deposition. Sub-seasonal sub-laminae are observed repeatedly through the summer laminae, suggesting variations in shelf waters throughout the summer. Tidal cycles, high storm intensities and/or intrusion of Circumpolar Deep Water onto the continental shelf introduced conditions which enhanced specific species productivity through the season (Maddison, E. J., Pike, J., Leventer, A. and Domack, E. W. 2005. Deglacial seasonal and sub-seasonal diatom record from Palmer Deep, Antarctica. *J. Quaternary Sci.*, Vol. 20 pp. 435–446. ISSN 0267-8179).

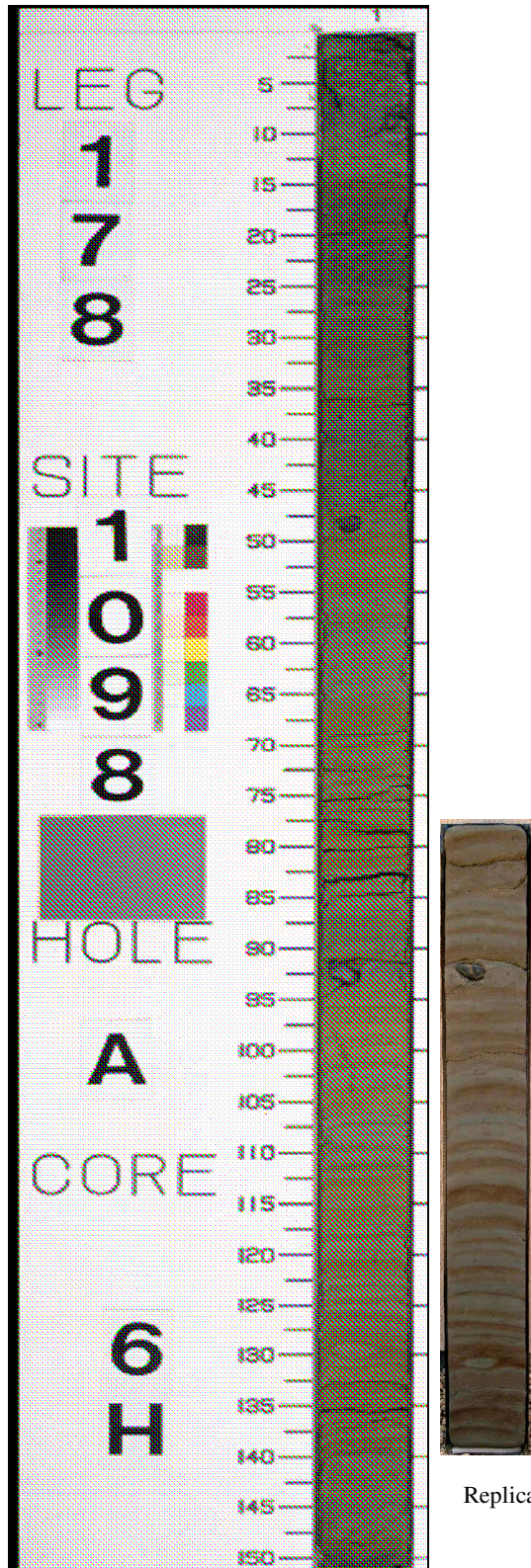
IODP Leg 178-1098A-6H - Visual Core Description

Site 1098 Hole A Core 6H						Cored 39.9-45.4 mbsf	
METERS	SECTION	GRAPHIC LITH.	BIOTURB.	STRUCTURE	DISTURB.	SAMPLE	DESCRIPTION
1	1						<p>DIATOM CLAYEY SILT and SILTY CLAY with DIATOM OOZE</p> <p>Section 1, 0 cm to Section 3, 43 cm: Laminated alternations of grayish green (5Y 4/3) diatom silty clay and gray (5Y 4/1) diatom silty clay, in beds 0.3 cm to 6 cm thick. Some beds are graded, probably indicating differential settling in the water column. Bioturbated. A mud intraclast at Section 1, 130 cm. Section 1, 40% of laminae are grayish green; Section 2, 60% of laminae are grayish green; Section 3, 0-43 cm, 40% of laminae are grayish green. Ice rafted pebbles at: Section 1, 48 cm, 92 cm; Section 2, 81 cm.</p>
2	2						
3	3						<p>Section 3, 43-110 cm: Diatom-bearing silty clay, with laminae of diatom ooze at 54, 66, and 90 cm. A diatom-bearing aragonite silt layer at 110 cm. Ice rafted debris at 72 cm. Consolidated mud clasts at 64, 122, and 132 cm.</p>
4	4						<p>Section 3, 110 cm to Section 4, 64 cm and Core Catcher: Silty clay, gray (5Y 5/1) and interbedded coarse sand to silt graded beds. Graded beds at Section 3, 140-148 cm; Section 4, 3-8, 15-22, 30-31, and 33-35 cm. Bottom disturbed by coring, but probably the same lithology as silty clay with graded beds.</p>
5	4						

IODP Leg 178-1098A-6H-1 - Whole Core Photo



Replica of Leg 178-1098A-6H-1
Consortium for Ocean Leadership – Deep Earth Academy
28 April 2009



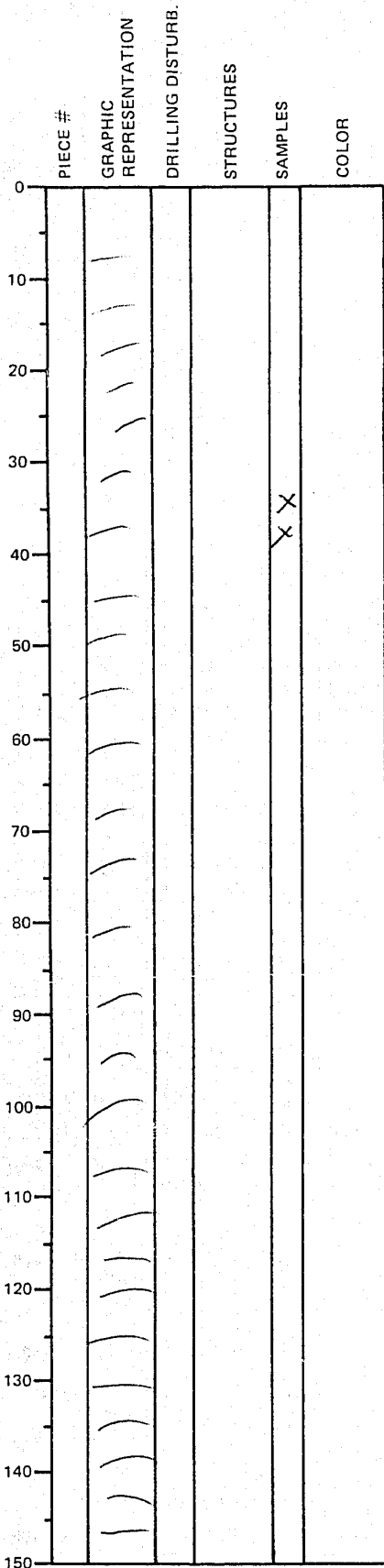
IODP Leg 178-1098A-6H-1 - Handwritten Description

LEG	SUB	SITE	HOLE	CORE	TYPE	SEC
178		1098	A	06401		
OBSERVER						
						AM

ODP
VISUAL CORE DESCRIPTION

SEDIMENTS / SEDIMENTARY ROCKS

SECTION DESCRIPTION



0-150 cm

laminated alternations of
discontinuous mud and ooze

~~54 2/3~~ (54 1/1) gray and

36.5

38.5 (54 2/3 grayish green)

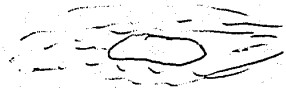
(90%) laminae grayish fine 0.3 mm - 2.5 mm

(60%) gray laminae 1-6 cm

parallel bedding. Some beds show
produp, which indicates settling
of turbid flows in the water
column.

Absence of ripple laminations

A mud intruded at

 130 cm

Some layers show reverse produp.

"Turbiditic" layers are more frequent
towards the bottom

Drop down at
48, 92

Table T30. Depth offsets of the Sites 1098 and 1099 mcd scale relative to mbsf depth.

Core	Depth (mbsf)	Depth (mcd)	Offset (m)
178-1098A-			
1H	0.01	-0.05	-0.06
2H	1.91	2.75	0.84
3H	11.41	12.67	1.26
4H	20.91	22.35	1.44
5H	30.41	32.63	2.22
6H	39.91	41.43	1.52
178-1098B-			
1H	0.01	0.05	0.04
2H	6.01	7.21	1.2
3H	15.51	16.71	1.2
4H	25.01	26.91	1.9
5H	34.51	36.23	1.72
178-1098C-			
1H	0.01	0.01	0
2H	8.71	8.71	0
3H	18.21	18.51	0.3
4H	27.71	29.29	1.58
5H	37.21	39.03	1.82
178-1099A-			
1H	0.01	0.01	0
2H	5.31	5.31	0
3H	14.81	14.81	0
4H	24.32	24.32	0
5H	33.82	33.82	0
6H	43.32	43.32	0
7H	52.82	52.82	0
178-1099B-			
1H	60.02	60.34	0.32
2H	69.52	69.84	0.32
3H	79.02	79.34	0.32
4H	88.52	88.84	0.32
5H	98.02	98.39	0.32

Note: To shift from one scale to another, add the offset values to the mbsf depths. The depths are from the bottom of each section.

Figure F7. Lithostratigraphic column for Site 1098. Summarized lithology and percent biogenic component for Holes 1098A, 1098B, and 1098C. Magnetic susceptibility data are from Hole 1098B. Laminated oozes occur in packets 0.1–2.2 m thick. They dominate the sequence from 9 to 23 mbsf and below 40 mbsf. Massive, bioturbated ooze occurs in units 0.1–1.9 m thick. In the upper 6.5 m, laminated sediments have low values of magnetic susceptibility. Each turbidite base has high magnetic susceptibility. T.D. = total depth of each hole.

