

Alexander Francke

Drill Platform



































Coring - XTN





Extended Nose (XTN) for harder, unconsolidated sediments

Coring - Alien



Alien (ALN) for hard, unconsolidated or coarse-grained (sand, gravel) sediments and hard rock coring

Coring - NCA



Non Coring Assembly (NCA) for drilling only

Coring - HPC



Piston Core Assembly at bottom of hole ready for sampling Piston Core Sample Tube advanced using lake water pressure in drill string



Coring - HPC



Coring - Lake Ohrid



HPC

XTN ALN



- Recovery derived from field depths: >95% •
- Water depth = 250m •
- Deepest Hole = 1D (568 m blf) •

Coring - Bit Correction





HPC = 0.03m XTN = 0.15m ALN = 0.045m

Coring - Depth Calculations



Drillers Reference Depth (DRD)= no. pipes x length pipes + BHA + stick down

→ Distance between drillers mark and bottom of BHA!

Drillers Constant = water depth + air gap

Sediment depth (m blf) = DRD - water depth - air gap = DRD - Drillers Constant

Coring - Depth Calculations



Number of pipes calculated from DRD = DRD / length pipes → stick up / stick down calculation

Example: DRD = 460m length pipes = 6.095m BHA = 4.535m bit correction = 0.03m for HPC

(DRD - BHA - bit correction) / length pipes ≈ 74.723 → 74 pipes + 0.723 parts of pipe 75

stick down = 0.723 x length pipes ≈ 4.405m

stick up: Length pipes - 4.405 ≈ 1.69π

Coring - Depth Calculations (HPC)



Bottom depth of HPC run is unknown!

Bottom of HPC run = Top of run (DRD) + recovery of HPC run

Advantage: \rightarrow Bottom of HPC run = Top of next HPC run \rightarrow 100% recovery

BUT:

→ core loss when tool is pulled to platform
→ measured recovery to short
→ next HPC run above bottom of hole

- \rightarrow gas expansion of sediment in liner
 - \rightarrow measured recovery is to long
 - \rightarrow gaps in the sediment sequence

Coring - Routine Procedures



Routine Procedure for XTN and ALN runs:

- Normally 3m runs followed by a 3.095m long run
- Equals 6.095m (length of drill pipes)
- For overlapping core segments, a 5f long pipe (1.53m) can be added to the drill string

Coring - Water Depth Calculation



HPC shots into the water column until sediment is recovered for the first time

→ Water depth = no or pipes x 6.095 + BHA + stick down + max. length of HPC run (3.095m) recovery - air gap



















Core Handling - cc







Core Handling - cc





Core Handling- Problems





Core Handling - Problems









On Site Documentation

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	- <u>//s</u> - <u>//</u>	<u>36 t</u>	Date	10.04.	
	1= DEEP H= HE	ec.	Shot Time	4:30	
	X= XT A= 1. hole A= AL	N	Core on Deck	5:30	
Drillers I	Ref. Depth TOP	547,140	mblf TOP	301, 300	
Drillers I	Ref. Depth BOTT	FOM <u>550_14</u> 0	mblf BOTTOM	304 300	
pipes total	90 pipes on dec	ck drillers	mark offset		
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	ery slow	non lession	NH XIN		
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Section Sec 1 Sec 2 Sec 3 Sec 4 Sec 5 Sec 6 Sec 6 Sec 7	Length (cm) 101.5 100.0 100.5	remarks	-		
Section Sec 1 Sec 2 Sec 3 Sec 4 Sec 5 Sec 5 Sec 6 Sec 6	Length (cm) 101.5 100.0 100.5	remarks	-		
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Section Sec 1 Sec 2 Sec 3 Sec 4 Sec 5 Sec 6 Sec 6 Sec 7 SC	Length (cm) <u>101,5</u> <u>100,5</u> <u>100,5</u> <u>8,5</u>	remarks			

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5045-3A -244 ± - - - - - - - - - - - - - - - - - -	16 12	63,065	66, 115	102,0 102,0 101,5 14,005	323,0	3,05	330 Topofee	3.05 run -33.175 m tion - bright gryish colour, clay - gap
5045-3A-25H	18:00	66,115	69,165	1065	2- 4-	5.21	234	3.05run-> 3.275m recovery

On Site Core Storage



Initial Data





