DANMARKS OG GRØNLANDS GEOLOGISKE UNDERSØGELSE RAPPORT 2012/2

Nanok-1 core Well, GGU 517004, Hold with Hope, North-East Greenland: Completion report

Anders Pilgaard

GEOLOGICAL SURVEY OF DENMARK AND GREENLAND
MINISTRY OF ENVIRONMENT AND ENERGY

GEUS

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Confidential report

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GEUS

1. General information

1.1 Borehole data

Country	Greenland / Denmark
Borehole number	GGU 517004
Borehole name	Nanok 1
Area	North-East Greenland, Hold with Hope
Operator	GEUS
Drilling operator	GEUS

Borehole Location	
Altitude:	63 m above mean sea level.
Coordinates WGS 84:	Latitude: 73°42.387´ N, Longitude: 20°32.732´ W
UTM Zone:	27 0514232 N - 8179343 E

Drill rig	Sandvik DE 130
Drilling contractor	GEUS
Casing diameter	74/67 mm, 64/57 mm,
Casing depth	Casing 74/67 mm to 6.31 m. Casing 64/57 mm to 31.5 m
Borehole diameter	56 mm
Core diameter	42 mm
Total depth	168.15 m
Core recovery	96%
Status	Plugged and abandoned.

Logistic history:

Transportation of rig and crew to drill site at Hold with Hope	August 1st–2nd 2011
Establishment of field camp and drilling rig	August 2nd–3rd 2011
Spud	August 3rd 2011
Drilling completed	August 10th 2011
Drill rig transported to Nyhavn (Mestersvig)	August 14th 2011
Effective drilling	8 days
Total days on drill location	14 days

1.2 Borehole summary

Nanok 1, GGU 517004, was drilled during the summer of 2011 near the old trapper's hut south of Knudshoved, north-eastern Hold with Hope, approximately 65 km south of the Daneborg military station and 200 km north of Nyhavn (Mestersvig) (Fig. 1.1). The name Nanok is derived from the hunting company "Nanok" that worked in the area and used the trapper's hut at Knudshoved.
Nanok 1 is the fifth core hole in an onshore drilling program in East and North-East Greenland that began in 2008 with the drilling of the Blokelv core hole in central Jameson Land. In 2009 this was followed by the drilling of Rødryggen-1 on Wollaston Forland and in 2010 by Store Koldewey-1 on Store Koldewey and Brorson Halvø-1 on Wollaston Forland. The drilling program is part of collaboration between GEUS and a number of oil companies regarding Petroleum Geological Studies, Services and Data in East and North-East Greenland. Fieldwork and drilling was financed by GEUS. Subsequent analytical work is financed by sponsoring companies. A more detailed description of Nanok 1 together with all analytical results will be delivered to sponsoring companies during 2012 as described in the Appendix B4 (not this report).

The primary objective was to core the mid–Upper Cretaceous marine Home Forland Formation of the Hold with Hope Group to obtain fresh unweathered and continuous samples for investigations of source and reservoir rock potential and detailed stratigraphic extent on this sand- and mudstone succession.

The Nanok 1 borehole was spudded on August 3rd 2011 and completed on August 11th 2011 at a total depth of 168.15 m. The core recovery was 96%. The core diameter is 42 mm and cores are stored in 29 core boxes of c. 25 kg each.

The borehole was abandoned plugged at the top by cement and with the casing down to 31.5 m. The larger casing (74/67 mm) was restored to the surface and returned to Denmark.

Logging in the field included a total gamma log from terrain surface and down to 157 m.

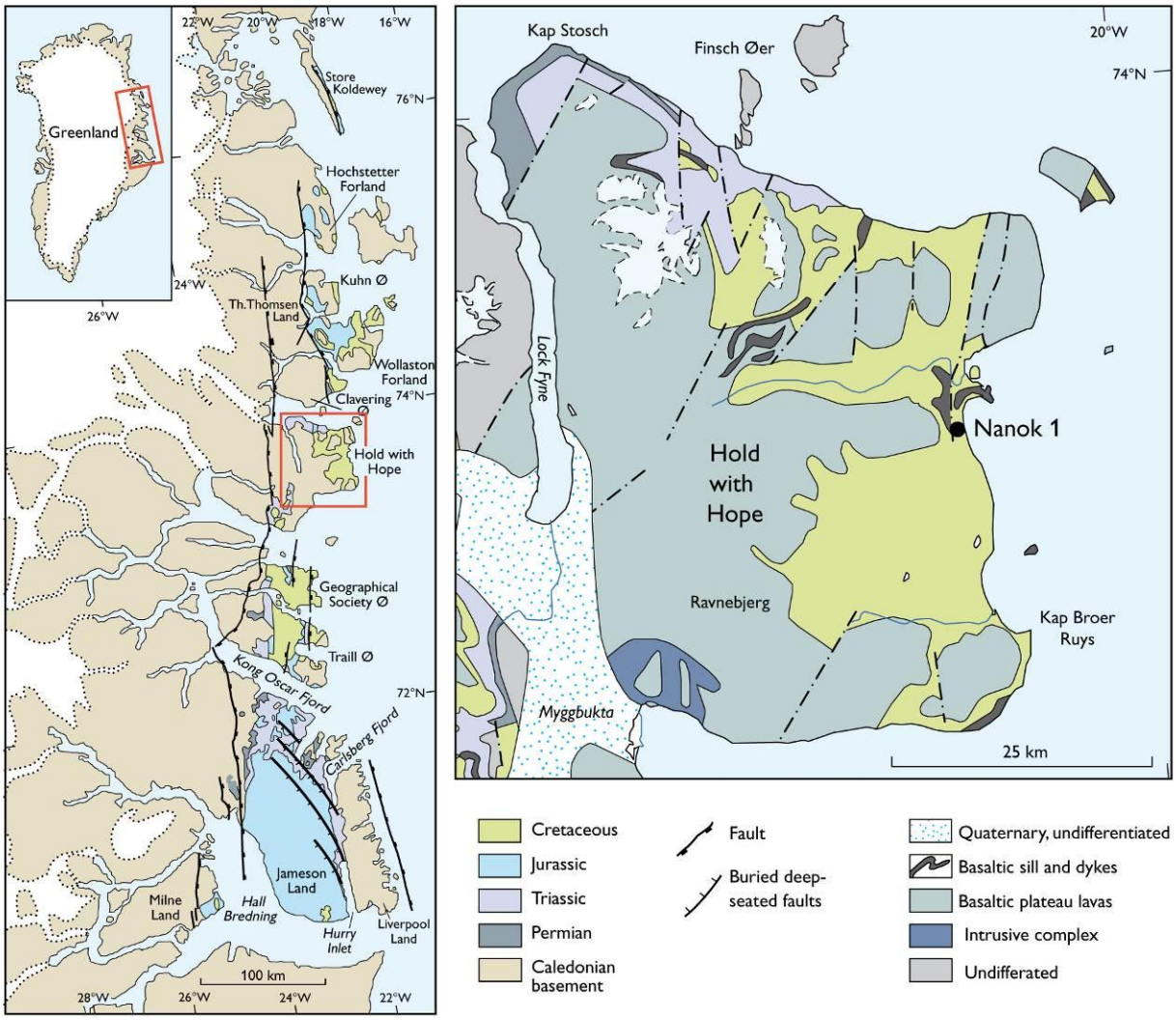


Figure 1.1. Map of East Greenland showing the Permian–Cretaceous outcrops and major faults. The detailed map of Hold with Hope, with the location of the Nanok 1 borehole marked, also includes basaltic plateau-lavas and dykes. Map of East Greenland based on Surlyk (2003).

2. Drilling operation

The drilling camp personnel:

Senior technician John Boserup, GEUS

Driller Lars Thomsson, GEO-group

Driller and technician Anders Clausen, Dana Geo-Consult

Driller's assistants Fredrik Sønderholm, and Anders Pilgaard, GEUS

Well site geologist Anders Pilgaard, GEUS

Logistics were handled by GEUS in corporation with POLOG.
Helicopter from Air Greenland (Eurocopter AS-350B2) was chartered for a full field season.

Drilling was carried out by a Sandvik DE 130 wire line rig. Two types of casing where used with an inner and outer casing diameter of 57 mm and 64 mm, and 67 mm and 74 mm respectively. Core barrels are 1.5 and 3 m long. The borehole diameter is 56 mm, whereas the core diameter is 42 mm.

Field equipment and part of drill rig was flown from Aalborg to Mestersvig with an ANTONOV-12 and from there with Twin Otter plane to Daneborg at Wollaston Foreland, the headquarters of the Sirius dog sledge Patrol. At Daneborg it was sorted along with the equipment and drill rig parts left at Daneborg after the summer field season 2010. The shipping port at Nyhavn (Mestersvig) acted as GEUS main base for the drilling team and the field teams in the area. From Daneborg the drill rig parts were brought to the drill site at Hold with Hope with helicopter slings, a distance of c. 65 km. The helicopter was a Eurocopter AS-350, which has a maximum sling load of 1.3–1.4 tons (less with longer distances). After completion of the Nanok 1 well, the drill rig parts were brought to Nyhavn (Mestersvig) by helicopter and shipped to Denmark with Royal Arctic Line.

Mobilisation of the drill rig was initiated at Daneborg. Transport to drill site and camp mobilisation took 2 days and the effective drilling took 11 days (Fig. 2.2, Appendix A). Casing was drilled to 31.5 m, drill core recovered to 168.15 m. Demobilisation and transport to Nyhavn (Mestersvig) took 4 days.

Water for drilling was salt water supplied from the sea at approximately 300 m lateral distance by a diesel-driven water pump through inflatable hoses into a 5000 l basin. Permafrost was present from a few metres below terrain surface and down to about 100 m.

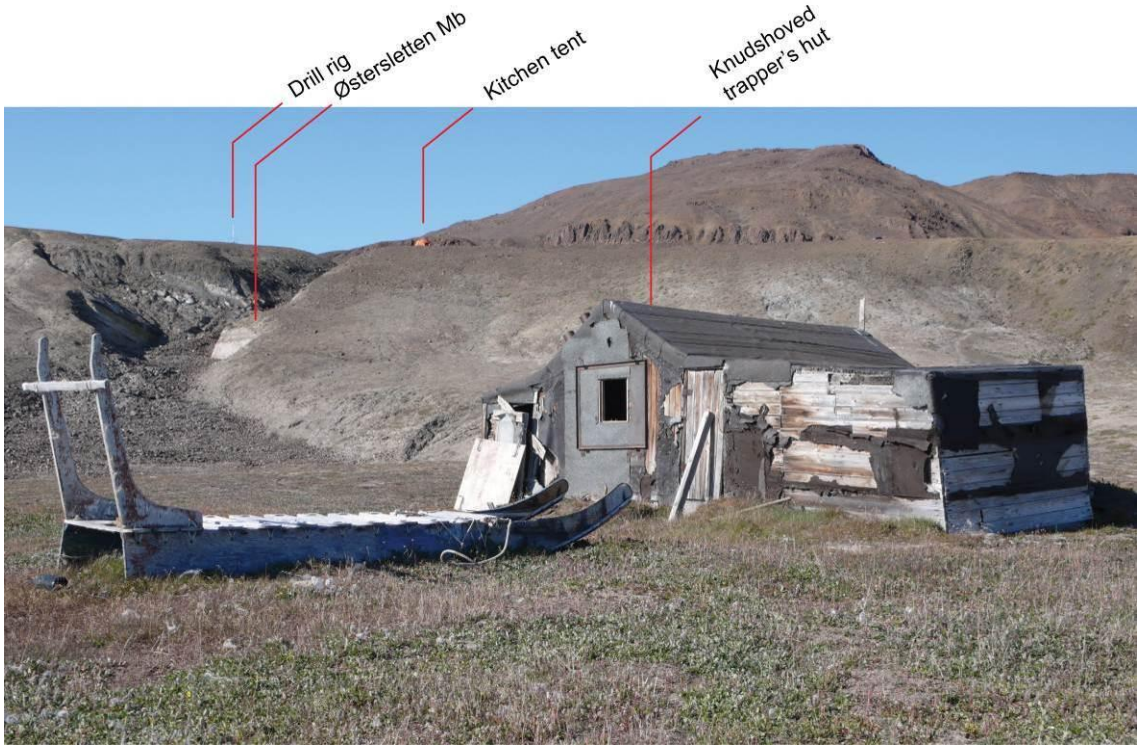


Figure 2-1 Base of slope by Nanok 1 drill site with Knudshoved trapper's hut in the foreground.

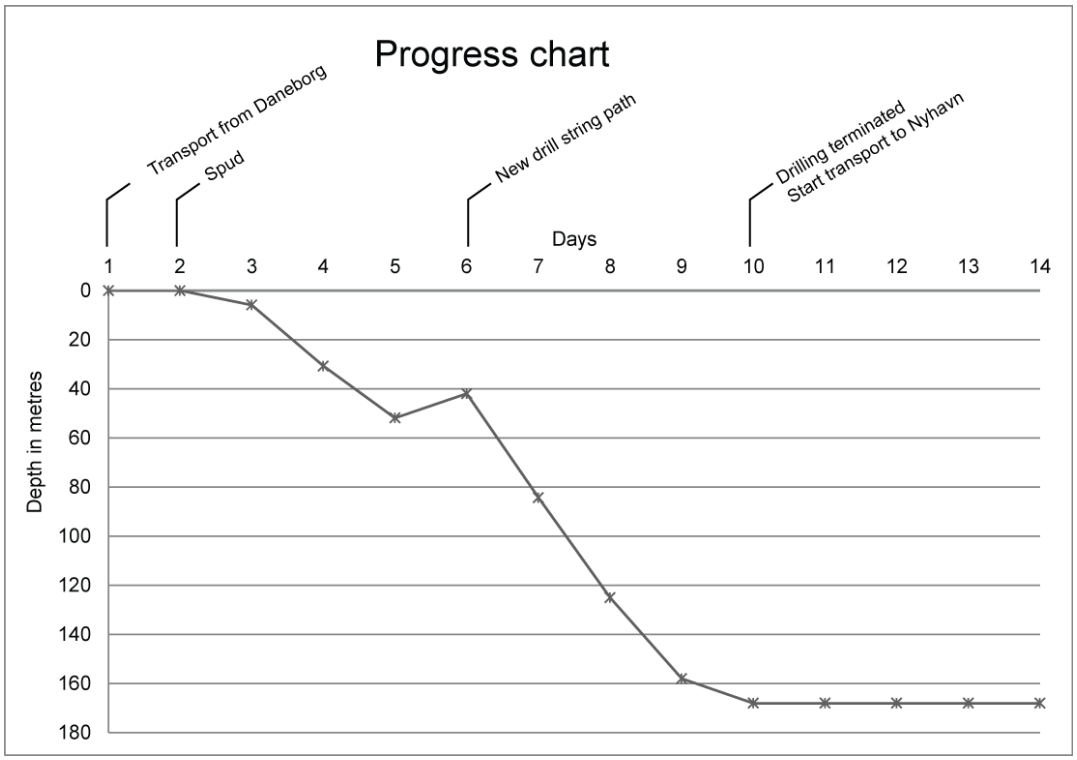


Figure 2-2 Progress chart; obtained drilling depth during presence at the Hold with Hope site (01.08.2011 - 14.08.2011).

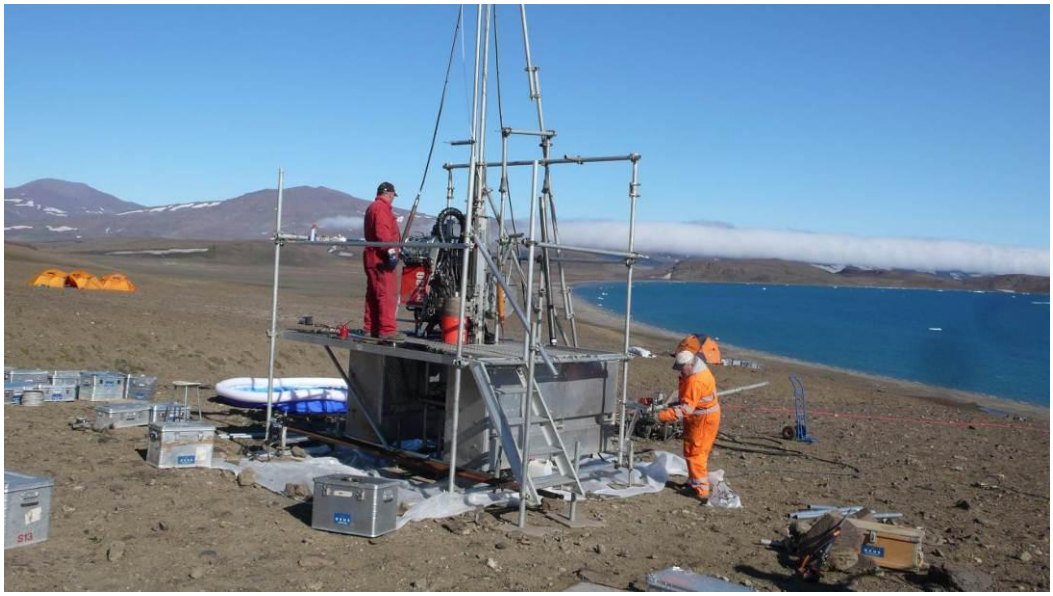


Figure 2-3 Two drillers at the drill rig.

3. Geological and geophysical data

The Nanok 1 borehole is located on the north-eastern part of Hold with Hope, North-East Greenland (Fig. 1.1), at the top of the slope by the old Knudshoved trapper's hut. Outcrops near the drill site are characterised by dark mudstones and mica-rich-sandstones of the mid – Late Cretaceous Home Forland Formation (Kelly et al, 1998). Outcrops in the slope exposes mudstone from the top of the Fosdalen Mb (?Albian – Turonian) overlain by mica-rich-sandstone layers of the Østersletten Mb (?Coniacian – ?Santonian) followed by dark, grey mudstones of the Knudshoved Mb (?Campanian). Moreover, a ?6 m thick Nanok Mb is exposed 1 km south of Knudshoved trapper's hut (Kelly et al., 1998). It occurs between the Fosdalen and Østersletten Mbs and has been described as a red pebbly sandstone with clasts in the earlier literature. The age estimations of the above mentioned units have been discussed in the literature (Nøhr-Hansen, 1993; Stemmerik et al., 1997; Kelly et al., 1998), and should be considered tentative at this point.

Figure 3-1 Picture of outcrop at the drill site. Note the boundary between the Knudshoved Mb and the Østersletten Mb.

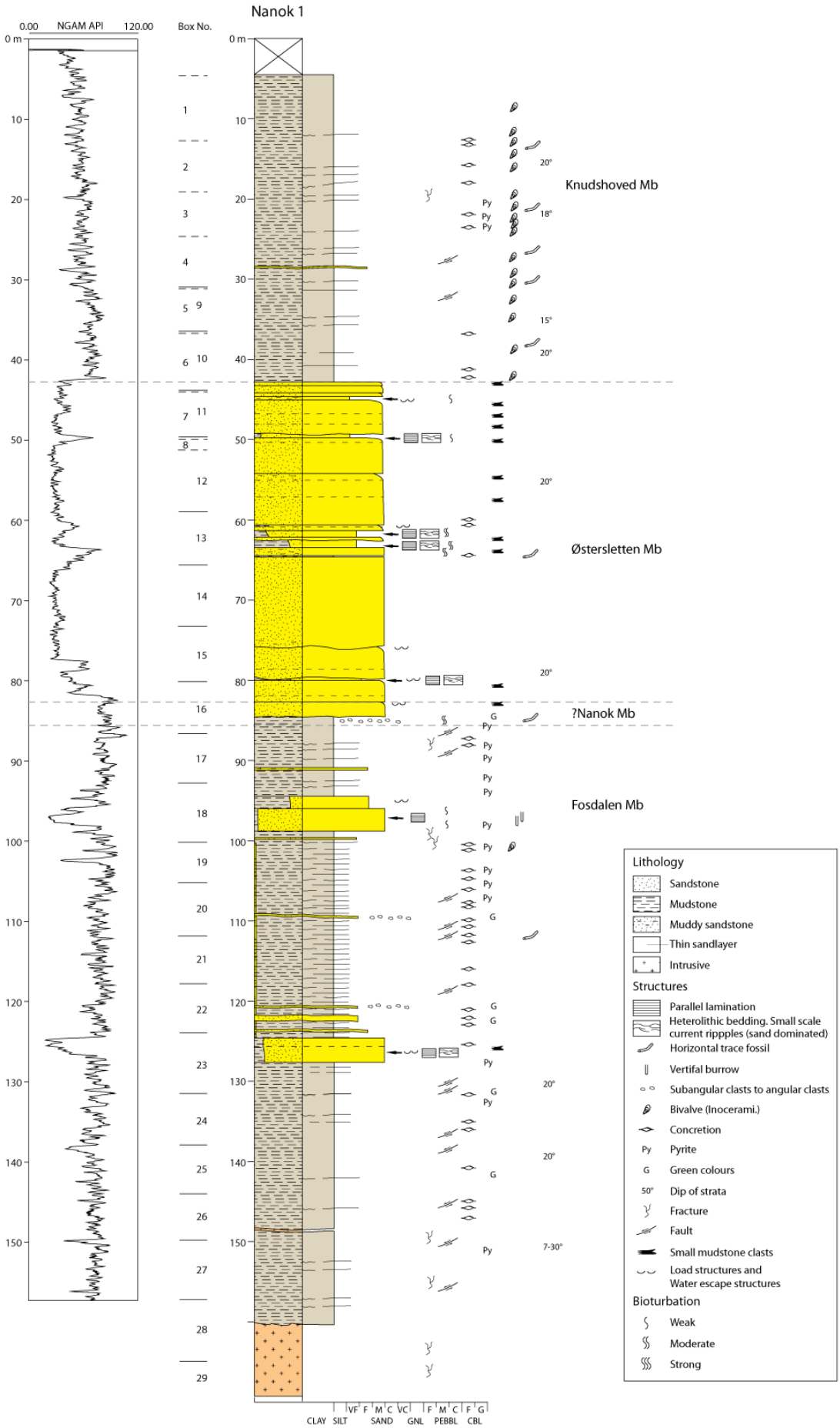
3.1 Objectives

The target of the drilling was the mid-Upper Cretaceous succession of the Home Forland Formation. The primary objectives are to investigate reservoir quality, source rock potential and preliminary cap-rock properties of the drilled interval. In addition, the project aims to describe sedimentary facies, interpret depositional environments, erect biostratigraphic and lithostratigraphic divisions, determine diagenesis patterns, and to assess uplift history (using AFTA).

3.2 Coring

Conventional coring was performed from terrain surface to TD at 168.15 m. A preliminary sedimentologic log was carried out on the un-slapped core (Figure 3-2). The core recovery was 96%, in places with highly fragmented core material.
At depth 32 m the drill string or the hole displaced itselt to a new path coursing an overlap from 32 m to 52 m. In consequence the core is stored with box naming Nanok 1 and Nanok 1A.

Figure 3-2 Next page. Sedimentological log of the Nanok 1 core with GR-log. GR log was measured in the drill hole.The drilled Members are indicated.


Nanok 1
0.00 NGAM API 120.00
Box No.
Knudshoved Mb
Østersletten Mb
?Nanok Mb
Fosdalen Mb
CLAY SILT VF F M C VC SAND GNL F M C PEBBL F G CBL
Lithology
Sandstone
Mudstone
Muddy sandstone
Thin sandlayer
Intrusive
Structures
Parallel lamination
Heterolithic bedding. Small scale current rippples (sand dominated)
Horizontal trace fossil
Vertifal burrow
Subangular clasts to angular clasts
Bivalve (Inocerami.)
Concretion
Py Pyrite
G Green colours
50° Dip of strata
Fracture
Fault
Small mudstone clasts
Load structures and Water escape structures
Bioturbation
Weak
Moderate
Strong

3.3 Sampling programme at the drill site

A total of 14 whole core samples for gas analyses were collected immediately from the recovered core for every 5 m in average. Samples have lengths up to about 10 cm and they were stored in sealed metal cans. 117 samples from the core were collected for Rock-Eval/TOC screening and biostratigraphic age identification based on dinoflagellate cysts at GEUS. (See appendix C.)

3.4 Total GR-log

A total gamma ray log was run in the drill string after drilling completed to 157 m, which was the safety distance for the probe to TD (Figure 3-2). A gamma ray log will be completed at GEUS laboratory among with a density-log covering Østersletten Mb.

Overall the gamma-ray log indicates increasing values from 0 to 42.5 m followed by a sand interval. The highest gamma-peaks are in the interval 82 – 120 m, whereas the largest TOC-values are from 120 m and downwards (Figure 3-3).

The Gamma-ray log ends before the transition to the intrusion.

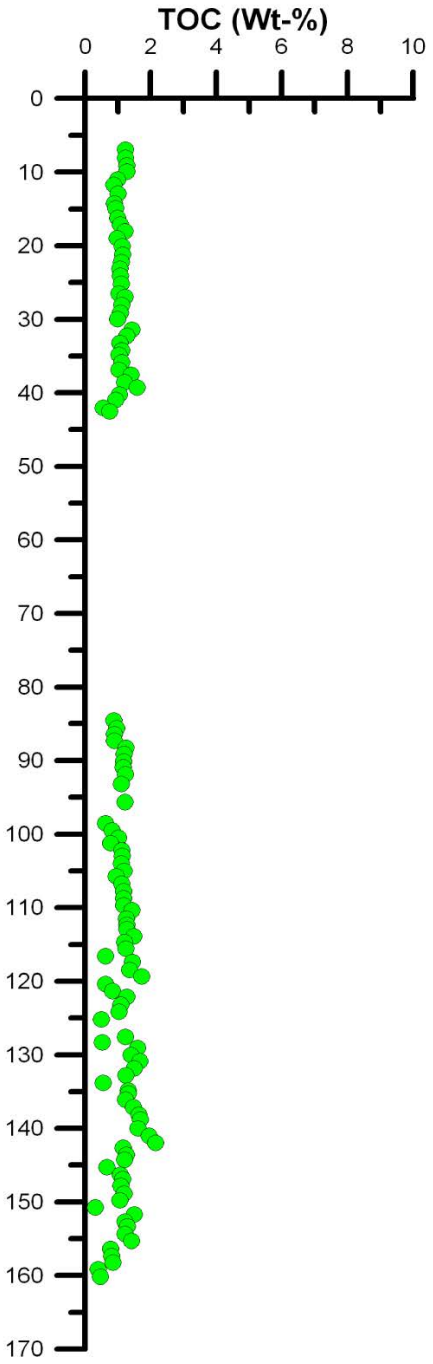


Figure 3-3 TOC-screening of the Nanok 1 well from samples taken in the field. No measurements were made in sandstone-units.

3.5 Biostratigraphy of the cored succession

Preliminary investigations of dinoflagellate cysts have been carried out by Henrik Nøhr-Hansen, GEUS. The biostratigraphic dates represents ages from Cenomanian (Fosdalen Mb) to Campanian (Knudshoved Mb).Detailed age descriptions will be done at GEUS.

3.6 Description of lithology

The Nanok 1 core recovered the following 168.15 m thick succession:

Strata	Lithology	Depth (m)	Thickness (m)
Knudshoved Mb	Dark grey mudstone	5.5-42.5 m	37 m
Østersletten Mb	Mica-rich massive sandstone	42.5-82 m	39.5 m
?Nanok Mb	Conglomeratic sandstone	?82-84.4 m	2.4 m
Fosdalen Mb	Dark mudstone	84.4-157,75 m	73.35 m
Igneous intrusion	Dark grey aphanitic to porphyritic Crystalline intrusion	157.75-168.35 m (TD)	10.25 m

The base of Fosdalen Mb was not reached. Next pages include a short lithological description of the core starting from the top.

Dark grey mudstone of Knudshoved Mb
5.5-42.5 m
Knudshoved Mb interval is characterized by dark grey mudstone intercalated with silt and very fine sandlayers (0.1-1 cm). The sandlayers are often slightly contorted and discontinuous. Inoceramide bivalves are common along with some horizontal trace fossils visible as light, circular sand filled channels (0.1-0.5 cm). Carbonate concretions are common and the interval shows a few scattered pyrite concretions.
From 27 to 35 m the core is broken by faults and slickensides are common.

Figure 3-4 Next page. Pictures of boxes showing three of the drilled members,

Box 6
37.36-43.39 m
Knudshoved Mb
Østersletten Mb

Box 12
52.08-58.64 m
Østersletten Mb

Box 13
59.31-65.58 m
Østersletten Mb

Box 28
157.25-163.45 m
Fosdalen Mb
Intrusion

Mica-rich massive sandstones of Østersletten Mb
42.5-82 m
The sandy Østersletten Mb interval is dominated by massive, graded-top-only sandstone units up to 7 m thick. The sandstones contain possible amalgamation-surfaces, abundant mica-minerals and mud clasts mostly in the upper parts of units. Erosive lower boundaries are common.

The sandstones are interbedded with heterolithic (sand dominated) intervals with primarily parallel lamination and secondary low-angle small scale cross lamination, or are bioturbated.

Conglomeratic ?Nanok Mb
?82-84.4 m
At the transition between the Østersletten Mb and the Fosdalen Mb there is a 2.4 m thick interval starting with approximately 2 m of poorly sorted grey sandstone and followed by a mudstone layer with some angular to sub-angular grey clasts. One clast consists of greenish sand (2 cm).

The description of the Nanok Mb is varied in the literature. For instance, according to Maync (1949) it comprises “weakly phosphatized clasts in grey mudstones.” This unit will require more detailed studies.

Dark mudstone of Fosdalen Mb
84.4-157.75 m
The Fosdalen Mb consists of dark mudstone interrupted by two heterolithic intervals (3 m and 2 m thick respectively). The mudstones are intercalated with silt and very fine sand-layers (0.1-0.5 cm), which are most common between 107-125 m. A single sand-layer is 1 cm thick and show ripple structures.
Pyrite concretions are very abundant between 85-115 m and are scattered in the interval along with carbonate concretions.

The upper heterolithic layer of fine to very fine yellow sand is slightly bioturbated and contains two distinct vertical burrows. The lower layer of fine sands shows remnants of parallel and possible cross stratification destroyed by water escape structures.

The interval is downwards increasingly broken by faults with slickensides, and some fractures.

Crystalline intrusion
157.75 m -TD
The intrusion is a dark grey crystalline intrusion with an undulating, soft boundary to the baked overlying mudstone. The grain size develops from aphanitic to barely visible grains

of abundant light minerals. The intrusion is fractured by two generations of first calcite and then green minerals.

3.7 Possible Cretaceous source rock

The Nanok 1 core has indications of a Cretaceous source rock. As the Nanok 1 core reached GEUS in Copenhagen from Greenland the lid of box 18 was brown from bitumen. In ultraviolet light box 18 shows bright flourescence in a sand dominated interval (Figure 3-5).
The preliminary results from Rock-Eval Screening confirm the presence of bitumen staining, but needs further detailed study.

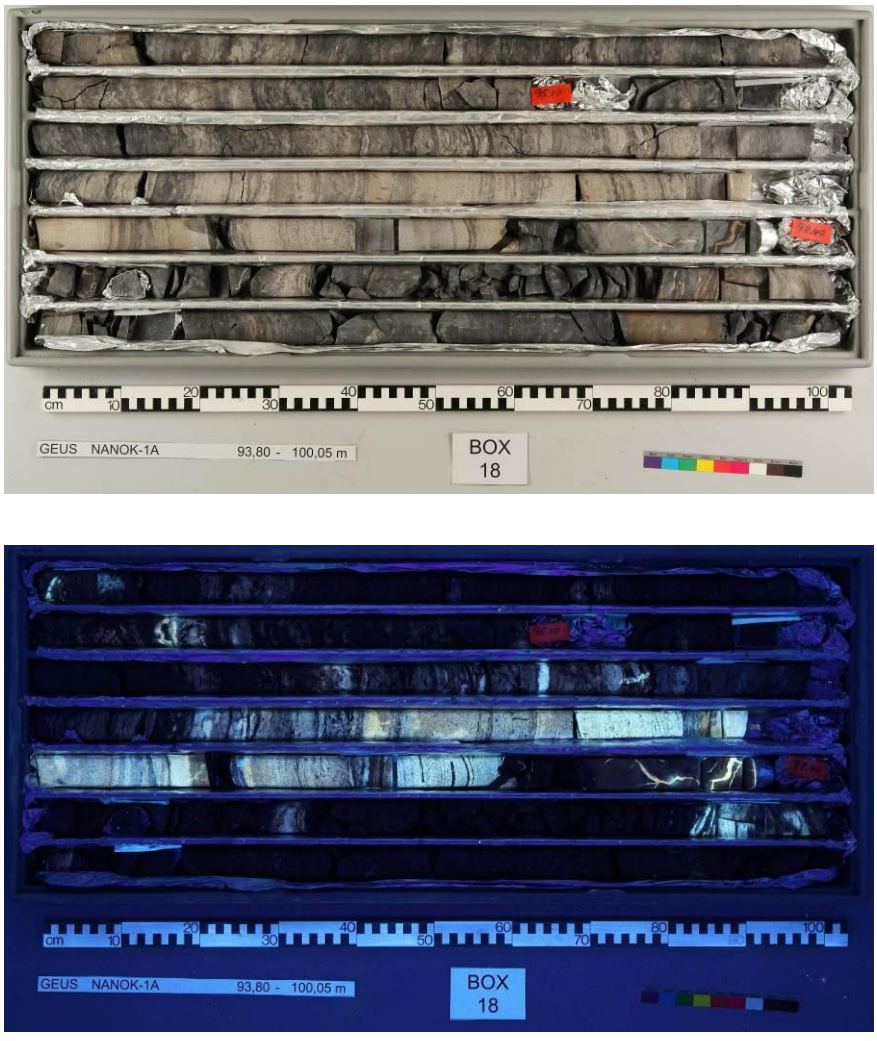


Figure 3-5 Pictures of box 18 in normal and ultraviolet light.

4. Future investigations

The future investiations includes:

- AFTA on representative sandstone samples from the core or nearby outcrops.
- A biostratigraphic age identification based on dinoflagellates and macrofossils will be carried out at GEUS and reported.
- A detailed core description/interpretation will be carried out and reported.
- A total GR- and density log will be measured in the core-lab at GEUS in order to obtain a coverage of the entire drilled succession. This will be reported.
- A TC/Rock-Eval/TOC/TS of core samples will be carried out at GEUS and reported along with other petroleum geochemistry analyses.
- Headspace Gas Analysis of a selection of canned core samples.
- Sandstone diagenesis incl. SEM- and XRD-analysis will be carried out.
- Plugs analysed for sonic velocity properties, if the quality of the core allows.
- Poro-perm analysis on a number of samples.

For detailed description see Appendix B4 (not this report).

5. References

Donovan, D. T., 1957, The Jurassic and Cretaceous Systems in East Greenland, København, Kommisionen for videnskabelige undersøgelser i Grønland - C.A. Reitzels Forlag, Meddelelser om Grønland, v. 155 nr. 4, 214

Frebold, D. T., 1934, Obere Kreide in Östgrönland: Meddelelser om Grønland, v. 84, no. 8.

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Maync, W., 1949, The Cretaceous Beds between Kuhn Island and Cape Franklin (Gauss Peninsula), Northern East Greenland: Meddelelser om Grønland, v. 133, no. 3.

Nøhr-Hansen, H., 1993, Dinoflagellate cyst stratigraphy of the Barremian to Albian, Lower Cretaceous, North-East Greenland: Grønlands Geologiske Undersøgelse, Bull, v. 166, p. 166.

Stemmerik, L., Clausen, O. R., Korstgård, J. A., Larsen, M., Piasecki, S., Seidler, L., Surlyk, F., and Therkelsen, J., 1997, Petroleum geological investigations in East Greenland: project 'Resources of the sedimentary basins of North and East Greenland': Geology of Greenland Survey Bull, v. 176, p. 29-38.

APPENDIX

Appendix A: Nanok 1 Daily drilling report.

Appendix B: Nanok 1, GGU 517004, Core Box Depths.

Appendix C : Nanok 1, GGU 517004. Core Samples Depths.

Appendix A: Daily drilling report for Nanok 1 well.

Date	Cored	Remarks
1/8-2/8 2011		Flying out crew and equipment from Daneborg to Hold with Hope drill site. Establishment of drill rig and camp.
3/8-2011	5.9 m	Core drilling 0–5.9 m with 0% core recovery.
4/8-2011	24.85 m	Core drilling 5.9–30.75 m with 98% core recovery.
5/8-2011	21.15 m	Core drilling 30.75-51.9 m with 98% core recovery. Casing drilling 0-6.31 m (74/67).
6/8-2011	8 m	Casing drilling 0-31.5 m (57/64). Core drilling 34-42 m with 99% core recovery (new drill string path).
7/8-2011	42.35 m	Core drilling 42-84.35 m with 97% core recovery.
8/8-2011	40,65 m	Core drilling 84.35-125 m with 99% core recovery.
9/8-2011	33 m	Core drilling 125-158 m with 98% core recovery.
10/8-2011	10 m	Core drilling 158-168.15 m with 99% core recovery. Drilling finished. Gamma-log of hole in drill string.
11-14/8-2011		Dismantling drill rig and camp, flying equipment and crew to Nyhavn.

Appendix B: Nanok 1 and 1A, GGU 517004, Core box depths.

Box	Box marked	Box Top (m)	Box Bund (m)	Box Længde (m)
Box 1	Nanok 1	0.00	13.30	13.30
Box 2	Nanok 1	13.70	19.24	5.54
Box 3	Nanok 1	19.06	25.55	6.49
Box 4	Nanok 1	25.40	31.75	6.35
Box 5	Nanok 1	31.76	37.46	5.70
Box 6	Nanok 1	37.36	43.39	6.03
Box 7	Nanok 1	43.44	50.06	6.62
Box 8	Nanok 1	50.15	51.90	1.75
Box 9	Nanok 1A	32.52	38.53	6.01
Box 10	Nanok 1A	38.52	45.23	6.71
Box 11	Nanok 1A	45.27	52.22	6.95
Box 12	Nanok 1A	52.08	58.64	6.56
Box 13	Nanok 1A	59.31	65.58	6.27
Box 14	Nanok 1A	65.36	72.15	6.79
Box 15	Nanok 1A	72.28	78.92	6.64
Box 16	Nanok 1A	79.91	87.26	7.35
Box 17	Nanok 1A	87.20	93.98	6.78
Box 18	Nanok 1A	93.80	100.05	6.25
Box 19	Nanok 1A	100.23	106.70	6.47
Box 20	Nanok 1A	106.80	112.90	6.10
Box 21	Nanok 1A	112.69	119.29	6.60
Box 22	Nanok 1A	119.17	125.68	6.51
Box 23	Nanok 1A	125.59	131.82	6.23
Box 24	Nanok 1A	131.91	138.08	6.17
Box 25	Nanok 1A	137.86	144.22	6.36
Box 26	Nanok 1A	143.77	150.71	6.94
Box 27	Nanok 1A	150.73	157.30	6.57
Box 28	Nanok 1A	157.25	163.45	6.20
Box 29	Nanok 1A	163.22	168.35	5.13

Appendix C : Nanok 1, GGU 517004. Core Samples Depths (sampled in the field).

Sub nr	Marker	Marker to sma-ple top	Sample length	Corebox	Purpose	Mean depth
1	37.46	1.00	10	6	Head	38.51
2	43.85	0.49	10	7	Head	44.39
3	48.60	2.00	10	8	Head	50.65
4	84.35	0.33	10	16	Head	84.73
5	88.53	2.09	10	17	Head	90.67
6	95.40	0.00	10	18	Head	95.45
7	94.40	1.95	10	19	Head	96.40
8	102.49	0.60	10	19	Head	103.14
9	107.50	1.05	10	20	Head	108.60
10	113.97	0.03	10	21	Head	114.05
11	118.85	0.06	10	21	Head	118.96
12	126.67	0.73	10	22	Head	127.45
13	134.58	0.70	10	24	Head	135.33
14	143.60	0.02	10	25	Head	143.67

Sub nr	Marker	Marker to sma-ple top	Sample length	Corebox	Purpose	Mean depth
51	6.90	0.00	5	1	Screening	6.93
52	7.95	0.10	5	1	Screening	8.08
53	9.00	0.08	5	1	Screening	9.11
54	9.90	0.03	5	1	Screening	9.96
55	10.72	0.25	5	1	Screening	11.00
56	11.40	0.30	5	1	Screening	11.73
57	12.90	0.00	5	1	Screening	12.93
58	14.04	0.20	5	2	Screening	14.27
59	14.80	0.08	5	2	Screening	14.91
60	16.05	0.15	5	2	Screening	16.23
61	17.05	0.08	5	2	Screening	17.16
62	17.75	0.23	6	2	Screening	18.01
63	18.90	0.09	6	2	Screening	19.02
64	19.99	0.04	5	3	Screening	20.06
65	21.13	0.05	5	3	Screening	21.21
66	21.90	0.30	5	3	Screening	22.23
67	22.83	0.28	5	3	Screening	23.14
68	22.83	1.21	7	3	Screening	24.08
69	24.58	0.55	5	3	Screening	25.16
70	26.10	0.40	5	4	Screening	26.53
71	26.10	0.85	5	4	Screening	26.98
72	27.35	0.70	6	4	Screening	28.08
73	28.83	0.25	5	4	Screening	29.11
74	28.83	1.12	5	4	Screening	29.98
75	30.75	0.64	5	4	Screening	31.42
76	32.10	0.14	5	5	Screening	32.27
77	33.13	0.04	5	5	Screening	33.20

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Sub nr	Marker	Marker to sma-ple top	Sample length	Corebox	Purpose	Mean depth
78	33.13	1.06	5	5	Screening	34.22
79	34.68	0.15	5	5	Screening	34.86
80	34.68	1.18	5	5	Screening	35.89
81	35.87	0.97	5	5	Screening	36.87
82	37.46	0.04	5	6	Screening	37.53
83	37.46	1.10	5	6	Screening	38.59
84	38.85	0.40	5	6	Screening	39.28
85	38.85	1.36	5	6	Screening	40.24
86	40.47	0.48	5	6	Screening	40.98
87	40.47	1.58	5	6	Screening	42.08
88	42.10	0.38	5	6	Screening	42.51
89	81.70	0.34	5	16	Screening	82.07
90	84.35	0.16	5	16	Screening	84.54
91	84.35	1.24	5	16	Screening	85.62
92	86.40	0.00	5	16	Screening	86.43
93	86.40	0.85	5	17	Screening	87.28
94	86.40	1.82	5	17	Screening	88.25
95	88.53	0.57	5	17	Screening	89.13
96	88.53	1.54	5	17	Screening	90.10
97	90.65	0.19	5	17	Screening	90.87
98	90.65	1.17	5	17	Screening	91.85
99	92.65	0.50	5	17	Screening	93.18
100	95.40	0.22	5	18	Screening	95.65
101	98.40	0.07	5	18	Screening	98.50
102	98.40	1.07	5	18	Screening	99.50
103	98.40	2.07	5	19	Screening	100.50
104	100.65	0.56	5	19	Screening	101.24
105	100.65	1.47	5	19	Screening	102.15
106	102.49	0.45	5	19	Screening	102.97
107	102.49	1.45	5	19	Screening	103.97
108	102.49	2.45	5	19	Screening	104.97
109	105.60	0.10	5	19	Screening	105.73
110	105.60	1.10	5	20	Screening	106.73
111	107.50	0.23	5	20	Screening	107.76
112	107.50	1.20	5	20	Screening	108.73
113	107.50	2.17	5	20	Screening	109.70
114	109.53	0.76	5	20	Screening	110.32
115	109.53	1.92	5	20	Screening	111.48
116	109.53	1.75	5	20	Screening	111.31
117	112.50	0.40	5	21	Screening	112.93
118	112.50	1.36	5	21	Screening	113.89
119	113.97	0.64	5	21	Screening	114.64
120	113.97	1.57	5	21	Screening	115.57
121	113.97	1.60	5	21	Screening	115.60
122	117.07	0.29	5	21	Screening	117.39
123	117.07	1.31	5	22	Screening	118.41

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Sub nr	Marker	Marker to sma-ple top	Sample length	Corebox	Purpose	Mean depth
124	118.85	0.48	5	22	Screening	119.36
125	118.85	1.47	5	22	Screening	120.35
126	118.85	2.45	5	22	Screening	121.33
127	121.90	0.20	5	22	Screening	122.13
128	121.90	1.24	5	22	Screening	123.17
129	121.90	2.23	5	22	Screening	124.16
130	121.90	3.23	5	23	Screening	125.16
131	126.67	0.85	5	23	Screening	127.545
132	127.65	0.59	5	23	Screening	128.27
133	128.83	0.19	5	23	Screening	129.05
134	128.83	1.18	5	23	Screening	130.04
135	130.25	0.57	5	23	Screening	130.85
136	130.25	1.57	5	23	Screening	131.85
137	132.48	0.31	5	24	Screening	132.82
138	133.63	0.17	5	24	Screening	133.83
139	133.63	1.17	5	24	Screening	134.83
140	134.58	0.65	5	24	Screening	135.26
141	135.83	0.23	5	24	Screening	136.09
142	135.83	1.25	5	24	Screening	137.11
143	135.83	2.25	5	24	Screening	138.11
144	138.15	0.62	5	25	Screening	138.80
145	139.60	0.36	5	25	Screening	139.99
146	139.60	1.36	5	25	Screening	140.99
147	139.60	2.36	5	25	Screening	141.99
148	141.92	0.68	5	25	Screening	142.63
149	141.92	1.64	5	25	Screening	143.59
150	143.60	0.62	5	26	Screening	144.25
151	143.60	1.64	5	26	Screening	145.27
152	143.60	2.64	5	26	Screening	146.27
153	146.25	0.60	5	26	Screening	146.88
154	146.25	1.48	5	26	Screening	147.76
155	148.60	0.27	5	26	Screening	148.90
156	148.46	1.29	5	26	Screening	149.78
157	148.46	2.25	5	27	Screening	150.74
158	150.85	0.82	5	27	Screening	151.70
159	150.85	1.80	5	27	Screening	152.68
160	152.70	0.60	5	27	Screening	153.33
161	152.70	1.60	5	27	Screening	154.33
162	155.30	0.00	5	27	Screening	155.33
163	155.30	1.02	5	27	Screening	156.35
164	155.30	2.00	5	28	Screening	157.33
165	157.97	0.26	5	28	Screening	158.26
166	157.97	1.16	5	28	Screening	159.16
167	157.97	2.18	5	28	Screening	160.18
168	157.97	3.01	5	28	Screening	161.01