

**Company:** Lamont Doherty

**Well:** Expedition 321 Site U1341B

**Field:** Bering Sea

**Rig:** JOIDES Resolution Country: USA

## Formation Micro-Scanner Natural Gamma Spectroscopy

Rig: JOIDES Resolution		Latitude: N 54° 40.471'		Elev.: K.B. 11.00 m	
Field: Bering Sea		Longitude: W 169° 58.453'		G.L. -1879.40 m	
Location: Latitude: N 54° 40.471'		Longitude: W 169° 58.453'		D.F. 11.00 m	
Well: Expedition 321 Site U1341B		Permanent Datum: _____		Elev.: 0.00 m _____	
Company: Lamont Doherty		Log Measured From: _____		11.00 m above Perm. Datum	
		Drilling Measured From: _____			
Ocean: Pacific		Max. Well Deviation 0 deg		Longitude	
				Latitude	

Logging Date		1-Aug-2009			
Run Number		2			
Depth Driller		2750.9 m			
Schlumberger Depth		2080 m			
Bottom Log Interval		2080 m			
Top Log Interval		2005 m			
Casing Driller Size @ Depth		4.500 in @ 1962 m			
Casing Schlumberger		1962 m			
Bit Size		11.438 in			
Type Fluid In Hole		Seawater Gel			
Density		1.258 g/cm3			
Fluid Loss		PH			
Source Of Sample		N/A			
RM @ Measured Temperature		@		@	
RMF @ Measured Temperature		@		@	
RMC @ Measured Temperature		@		@	
Source RMF		RMC			
RM @ MRT		RMF @ MRT			
Maximum Recorded Temperatures		15 degC @ 15		@ 15	
Circulation Stopped		20-Jul-2009		11:00	
Logger On Bottom		1-Aug-2009		22:00	
Unit Number		625003		Houston	
Recorded By		C. Furman			
Witnessed By		T. Liu, G. Guerin			

Logging Date				Run 1		Run 2		R	
Run Number									
Depth Driller									
Schlumberger Depth									
Bottom Log Interval									
Top Log Interval									
Casing Driller Size @ Depth									
Casing Schlumberger									
Bit Size									
Type Fluid In Hole									
Density									
Fluid Loss									
Source Of Sample									
RM @ Measured Temperature									
RMF @ Measured Temperature									
RMC @ Measured Temperature									
Source RMF									
RM @ MRT									
Maximum Recorded Temperatures									
Circulation Stopped									
Logger On Bottom									
Unit Number									
Recorded By									
Witnessed By									



**DISCLAIMER**

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**OTHER SERVICES1**

OS1: DSI  
 OS2: DIT  
 OS3: APS/HLDS  
 OS4: HNGS

**REMARKS: RUN NUMBER 1**

Logs run in second hole ("B" hole) of drilling site U1341 to aid in depth correlation of core data collected in surface labs.

Average heave during the run less than 0.2m; No Heave Compensator used.

TD was found to be 2750mBRF with the pipe (bit) at 2229mBRF. Sea found at 2150mBRF.

FMS run with EMEX Mode set to "Automatic"

FMS Calipers open from TD to 2277m. Closed at 2277m for safe entry into drill pipe.




EMEX disabled 2277m, prior to entering drill pipe, on Pass #2.

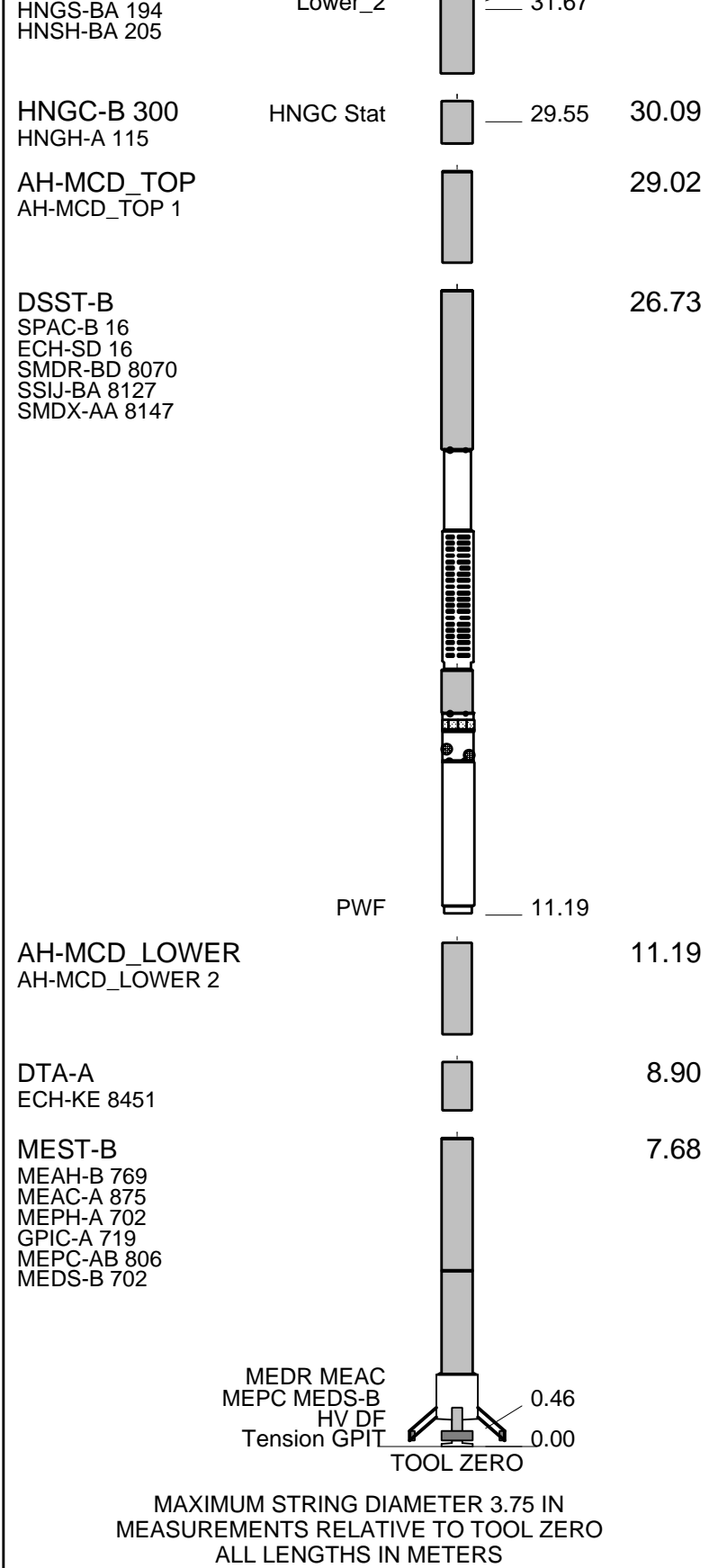
FMS Pad Contact affected by borehole conditions in some areas.

RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: 17C0-154 FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

**EQUIPMENT DESCRIPTION**

RUN 1	RUN 2
<b>SURFACE EQUIPMENT</b>	
GSR-U 616008 WITM (DTS)-A	

DOWNHOLE EQUIPMENT	
LEH-QT LEH-QT 301	 34.39
DTC-H ECH-KC 2304	CTEM TelStatus 33.22 ToolStatu 32.59  33.50
HNGS-BA 194	Upper_1 31.89 Lower_2 31.67  32.59



Production String	(in)	(m)	Well Schematic	(m)	(in)	Casing String
	OD	ID		MD	MD	

Kelly Bushing Elevation

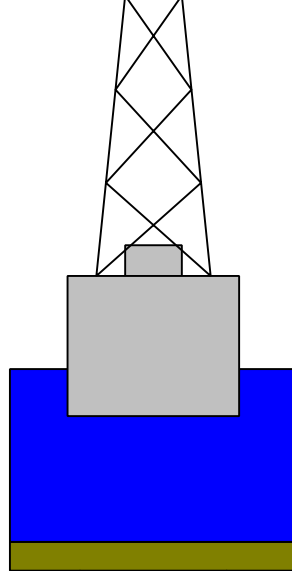
Derrick Floor Elevation

Mean Sea Level

0.0

0.0

0.0



0.0

5.875

3.800

Top of Drill Pipe

2150.9

11.438

Sea Floor

2229.0

5.875

3.800

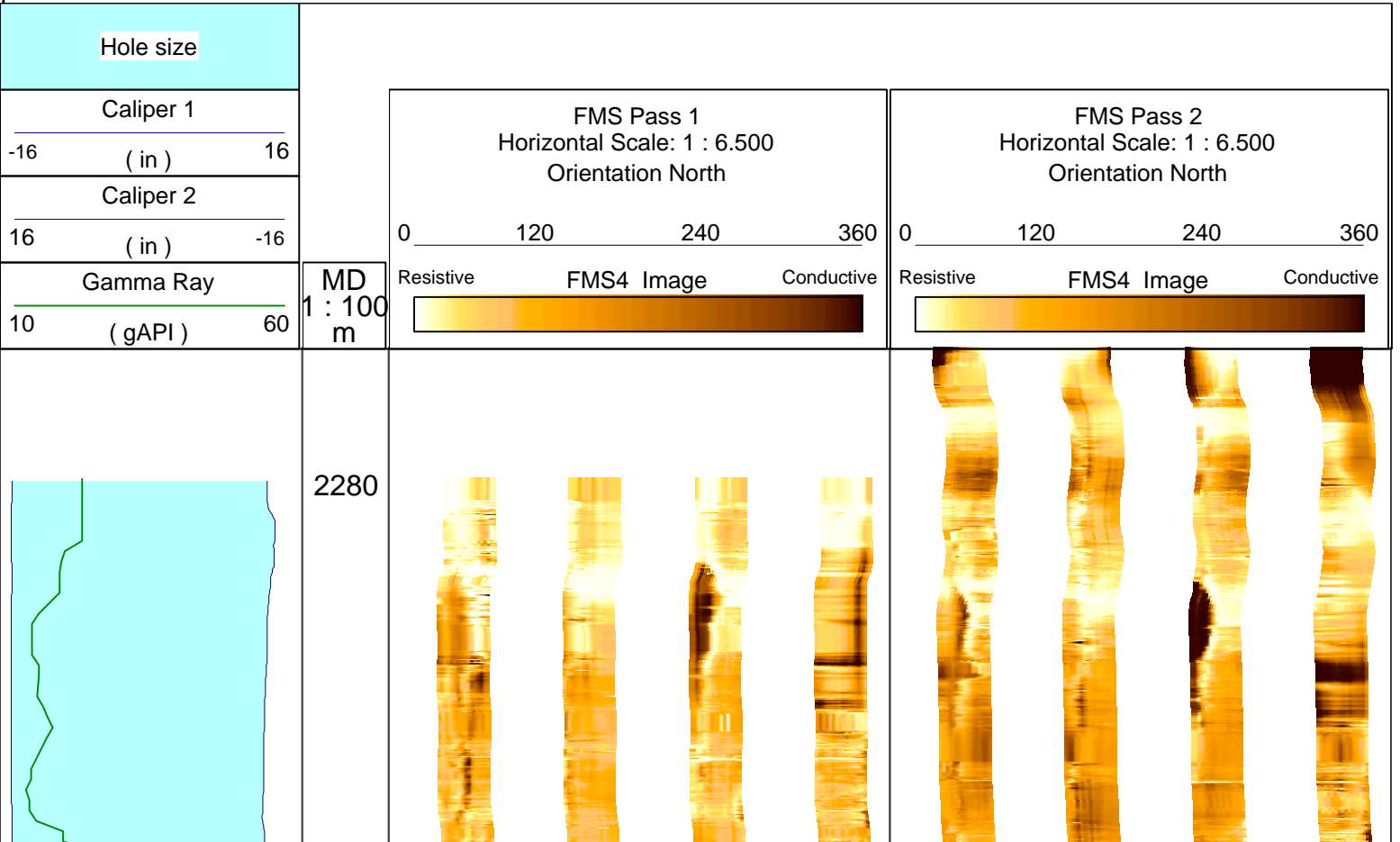
Drill Bit / BHA w/ LFV

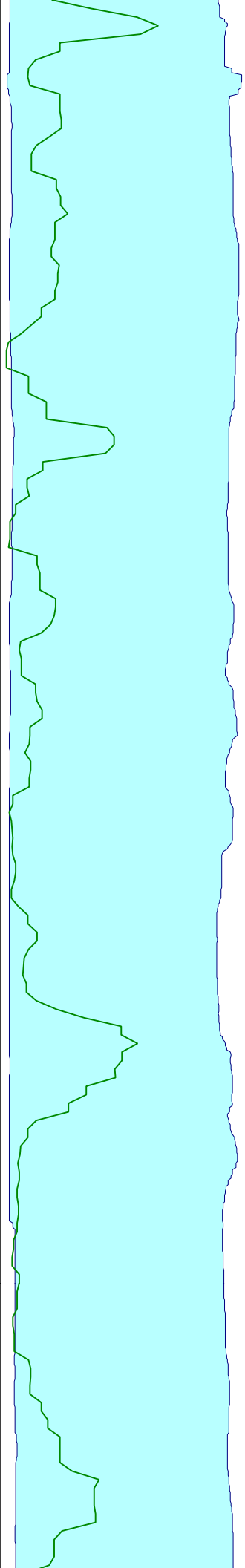
2750.9

11.438

Total Depth - Driller



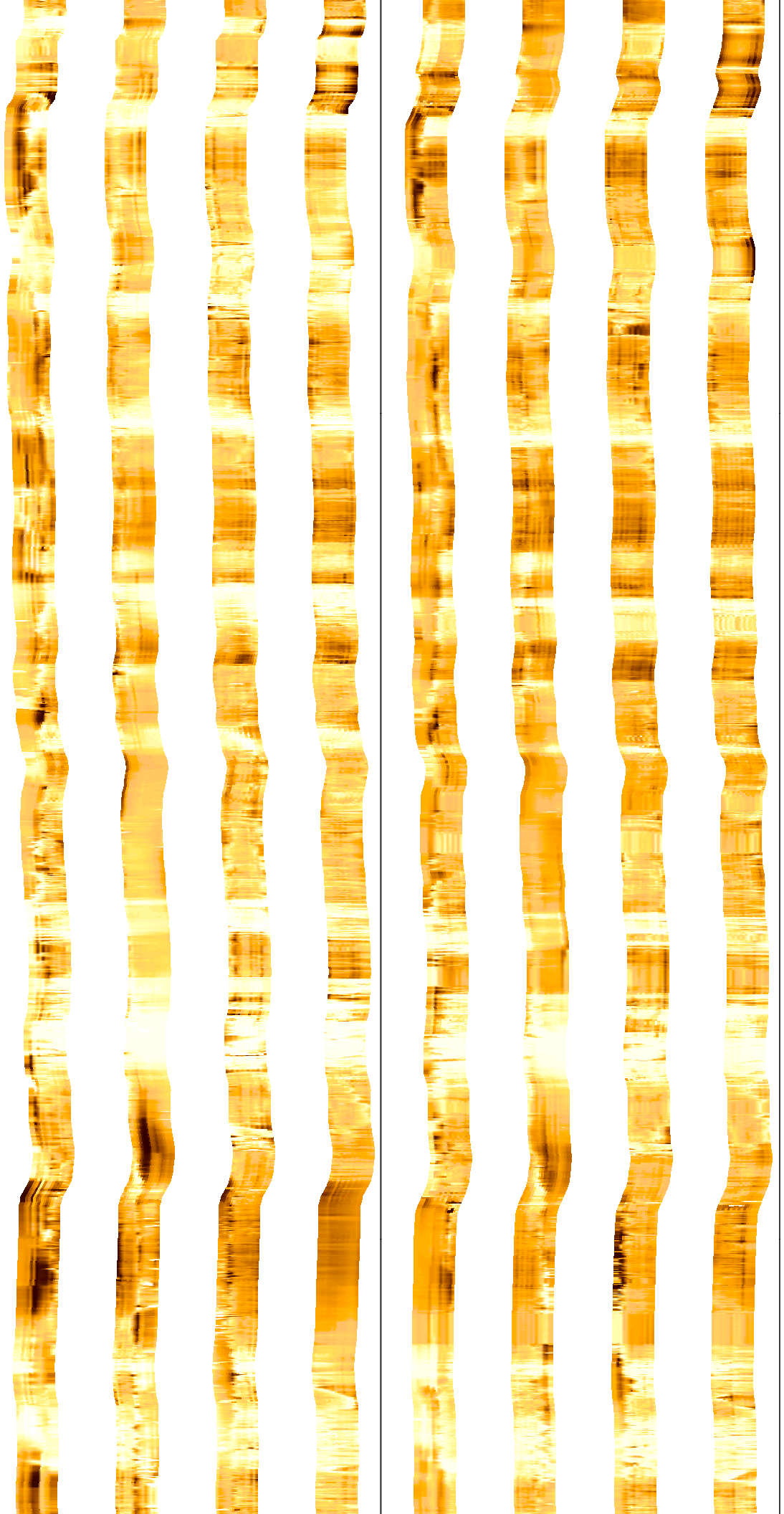


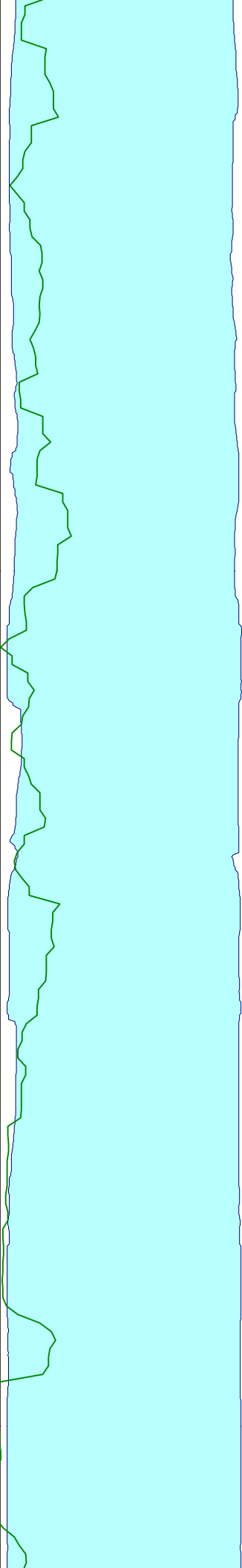


2290

2300

2310

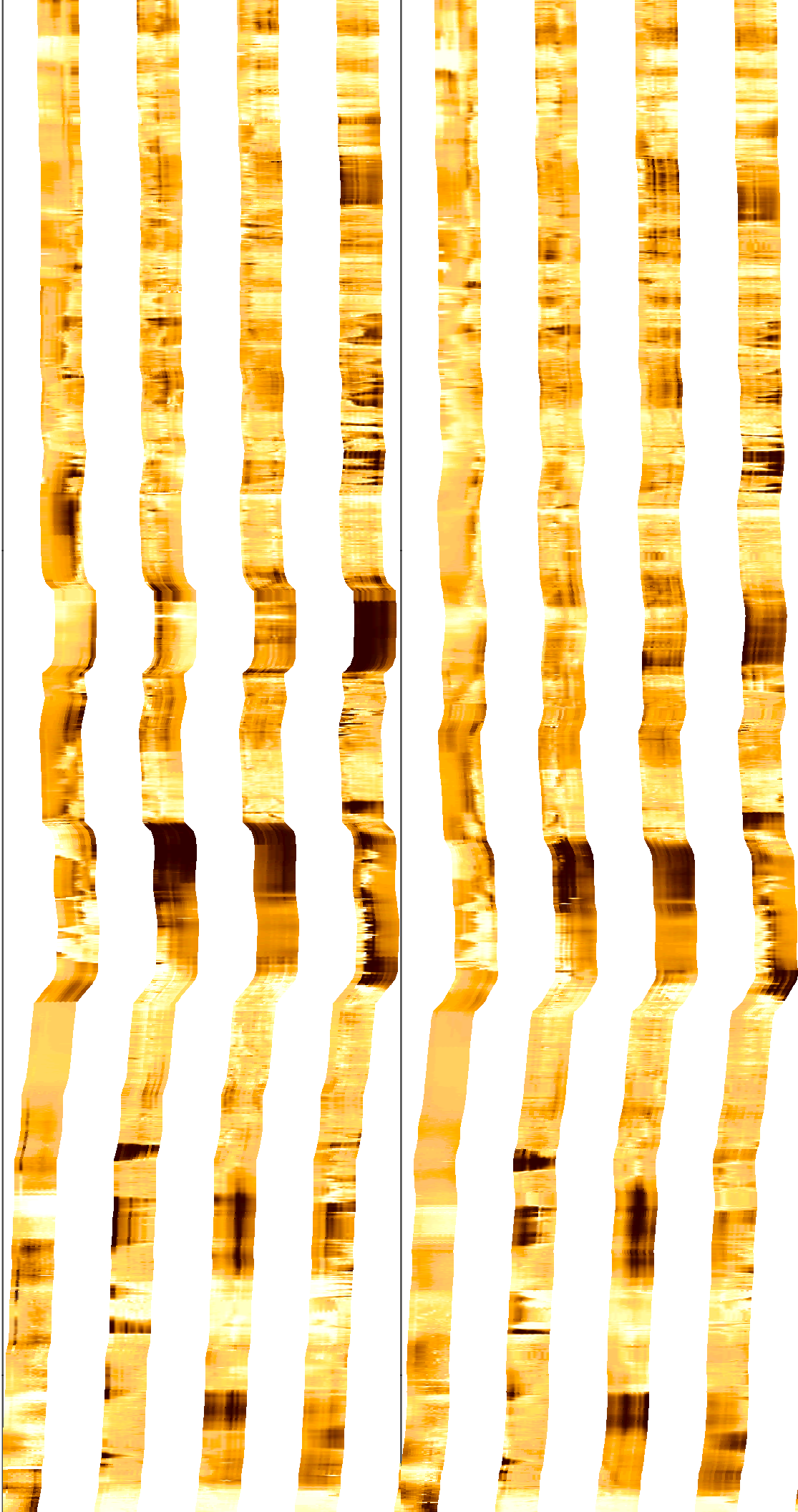


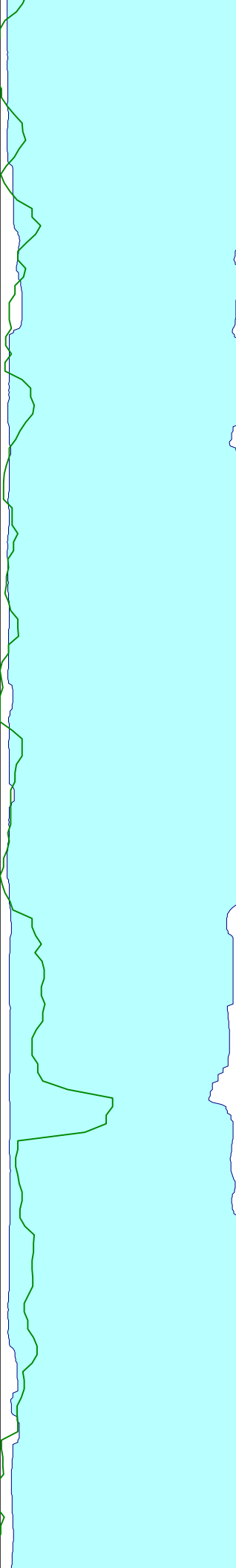


2320

2330

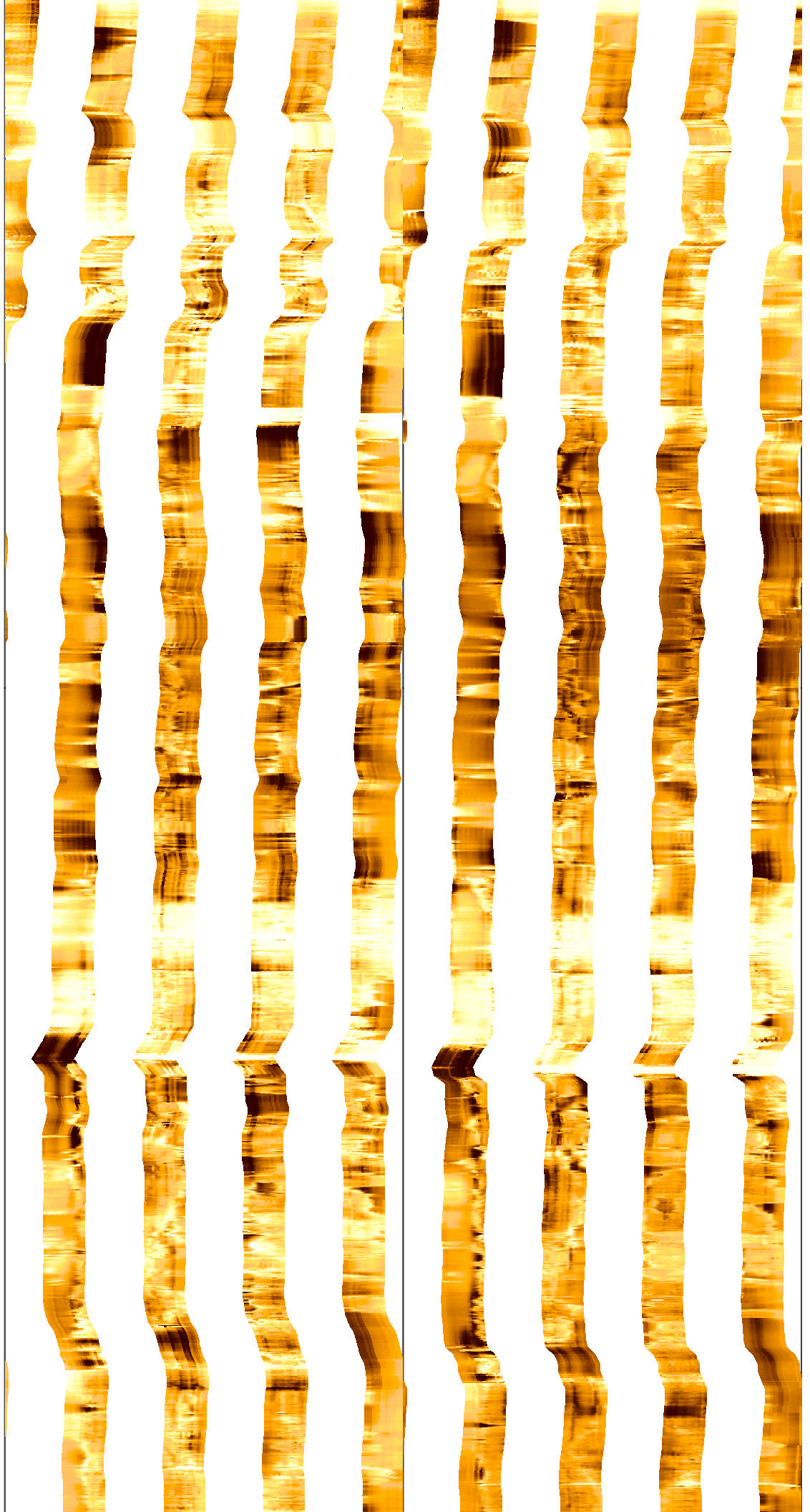
2340





2350

2360

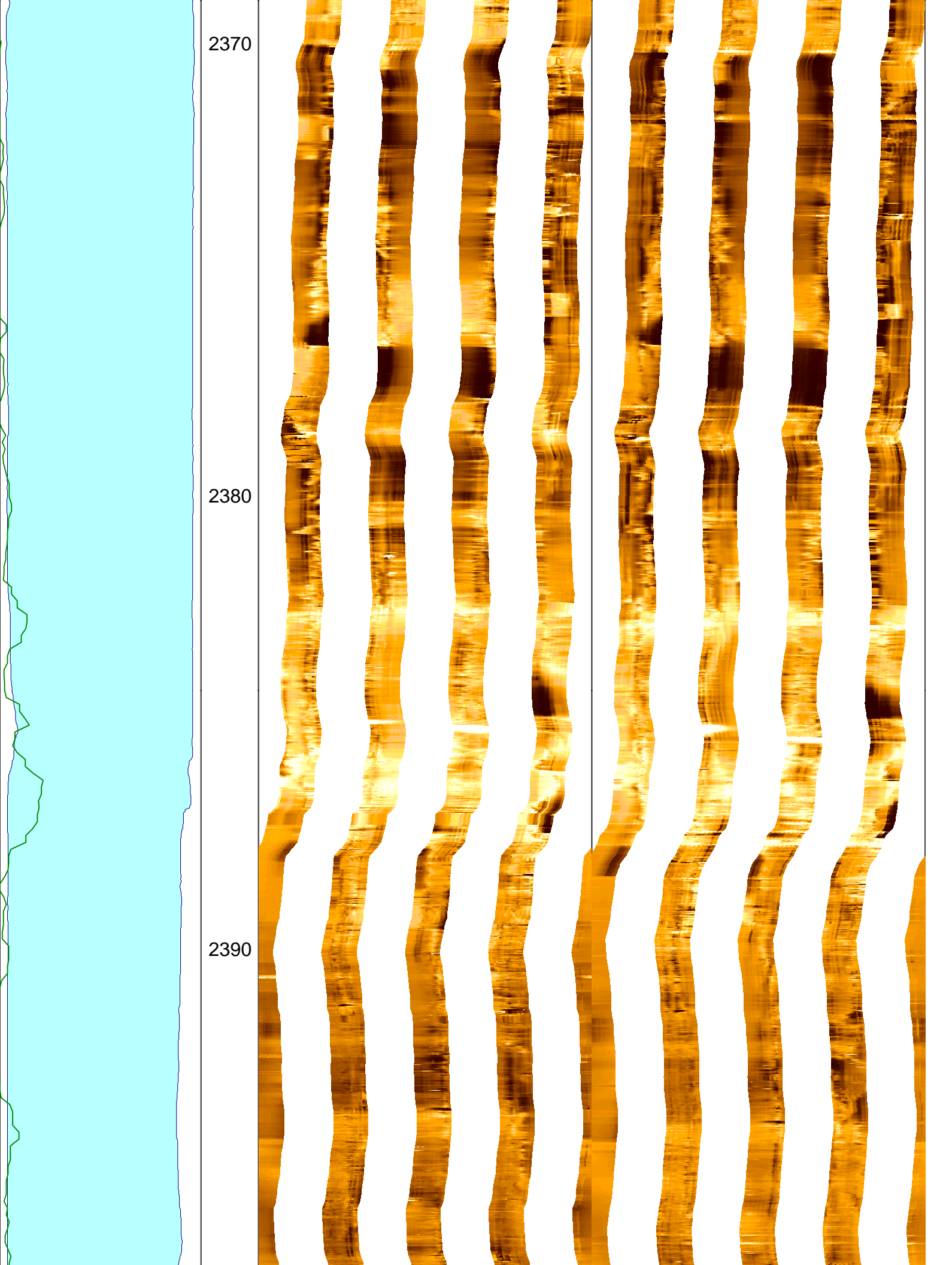




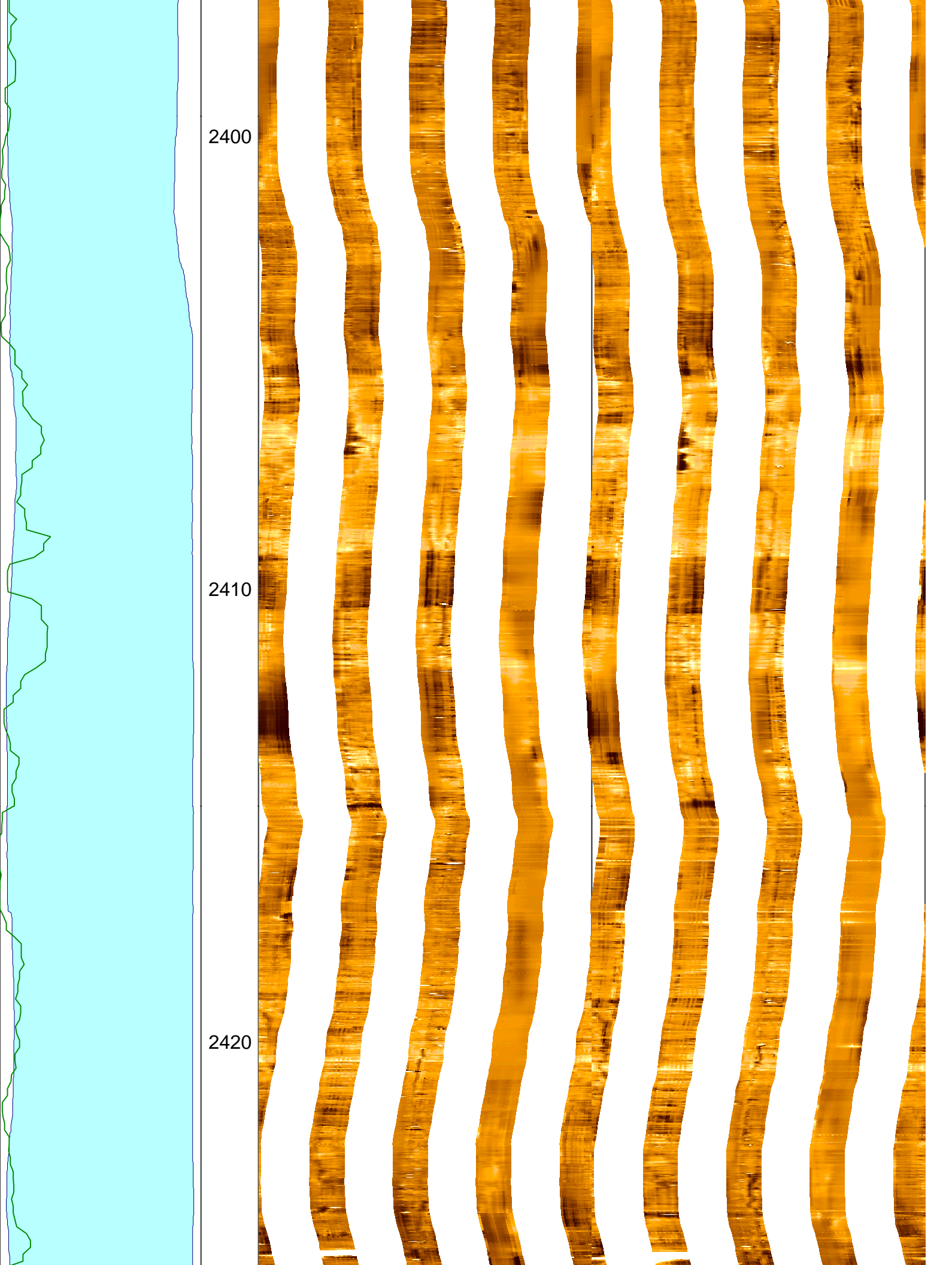
2370

2380

2390



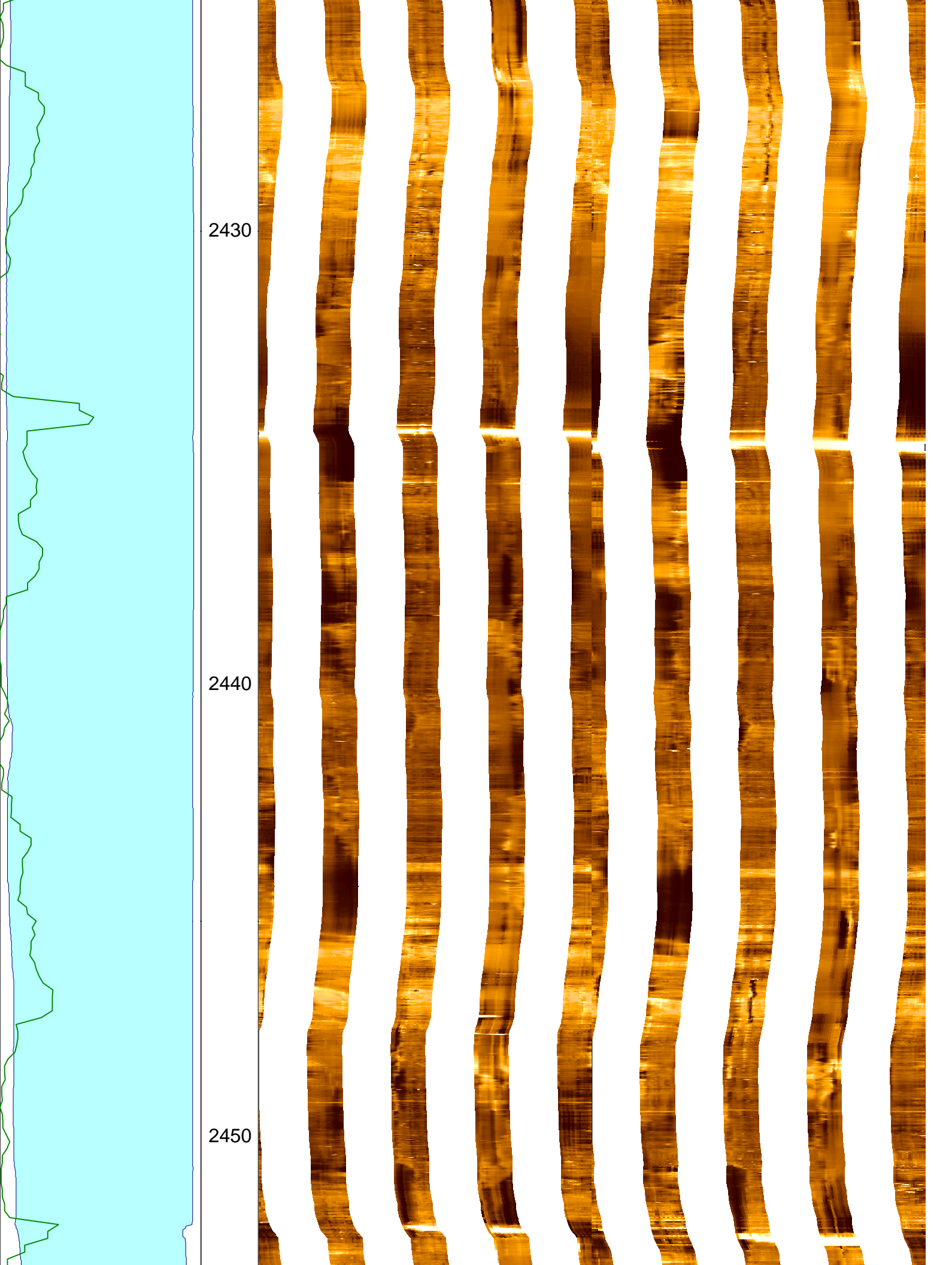




2400

2410

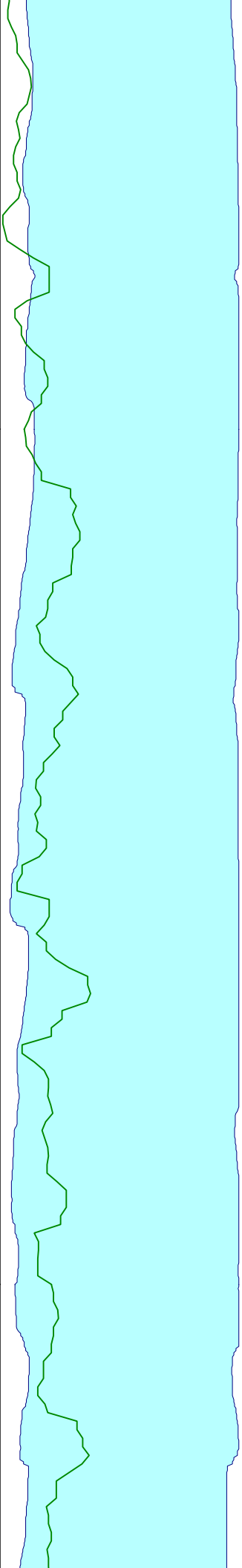
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2430

2440

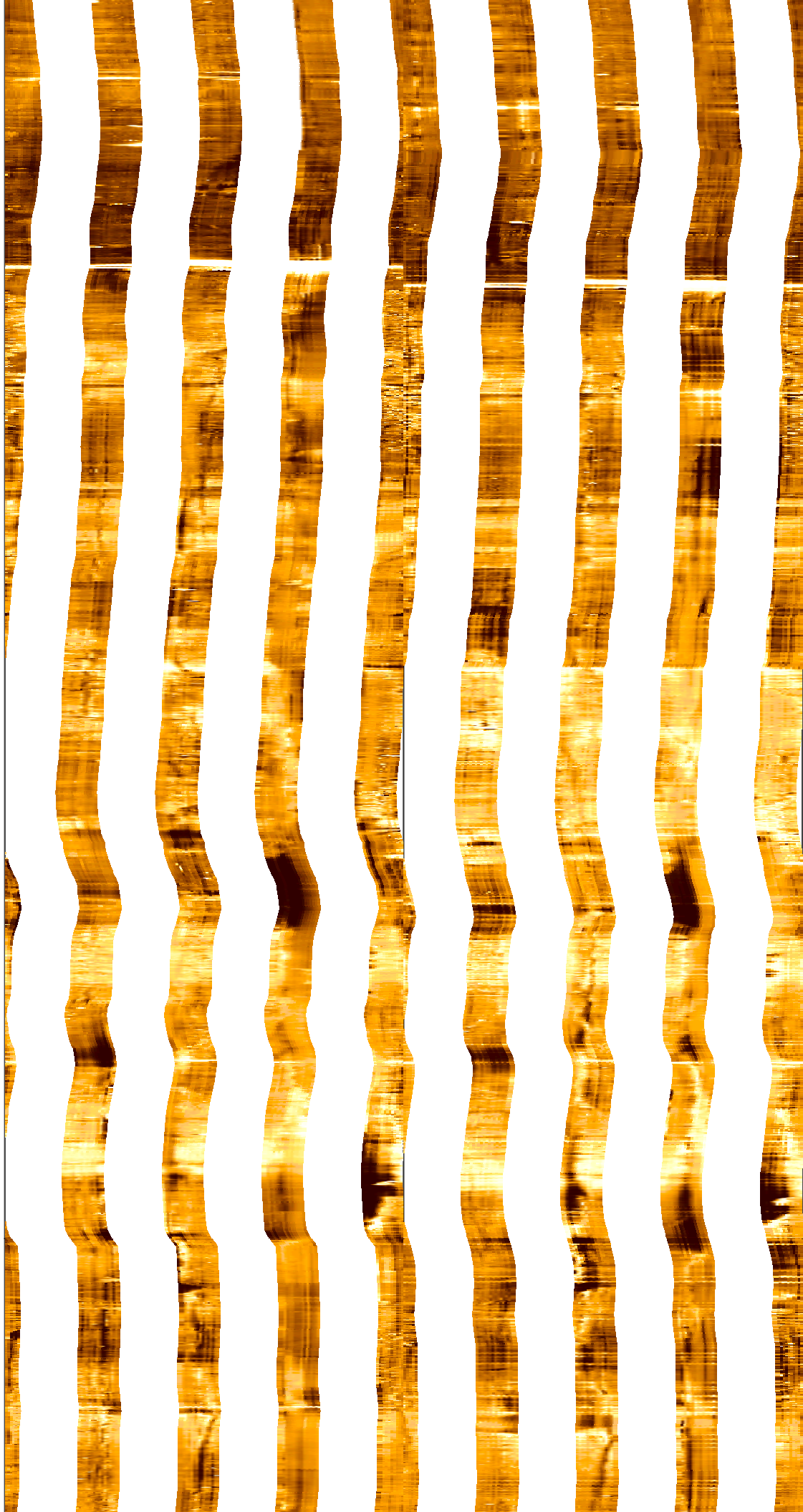
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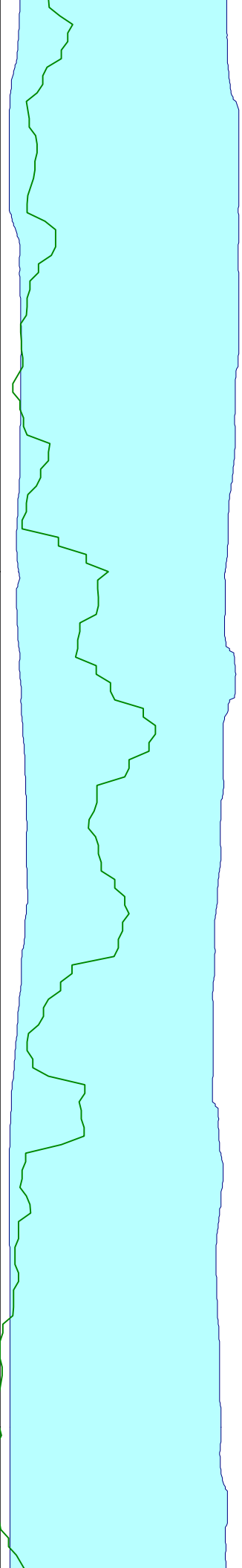


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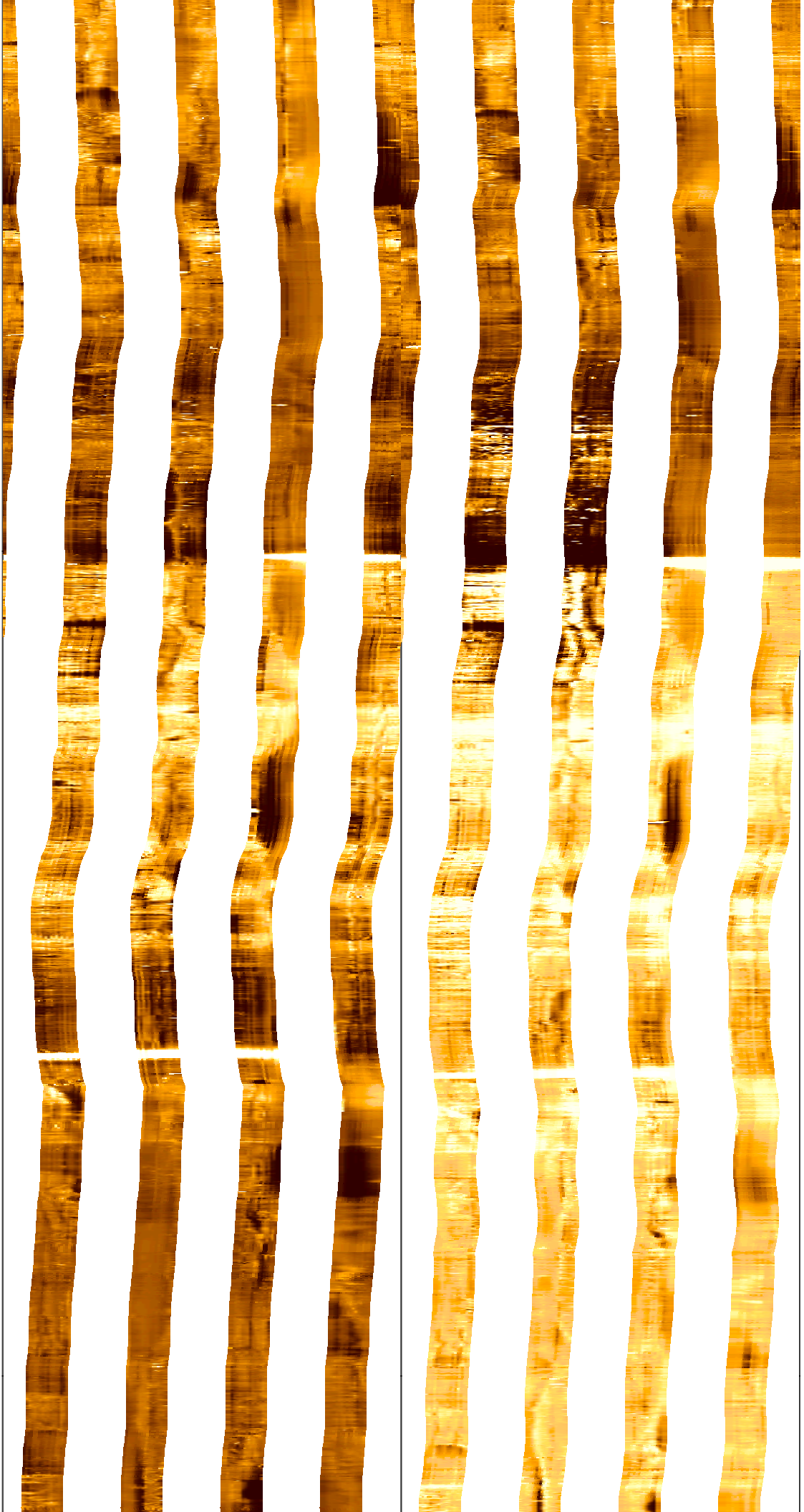
2480





2490

2500

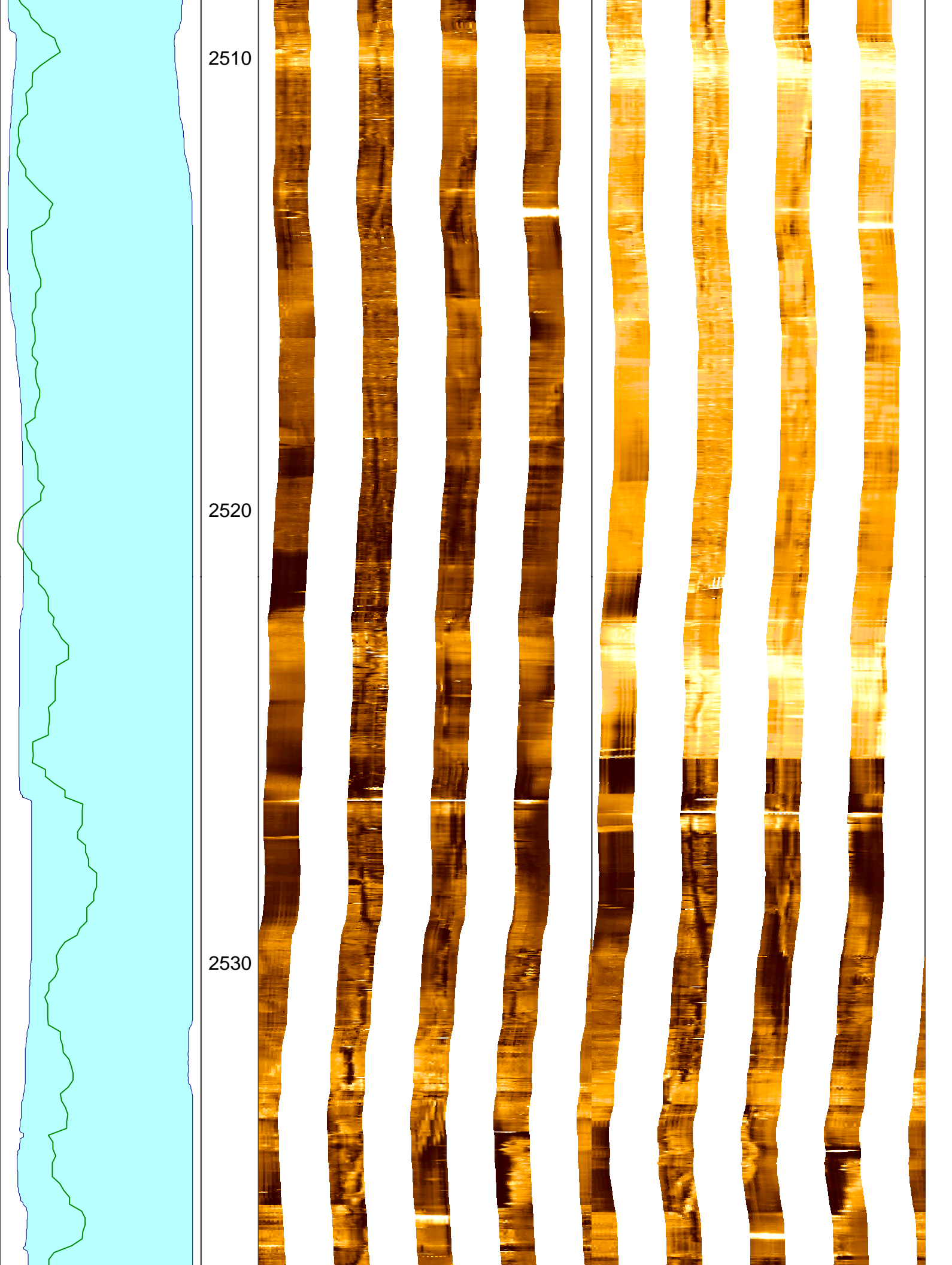


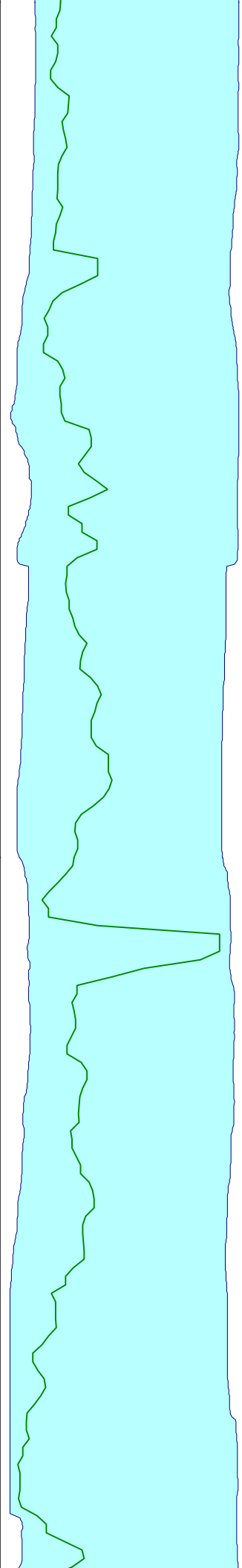


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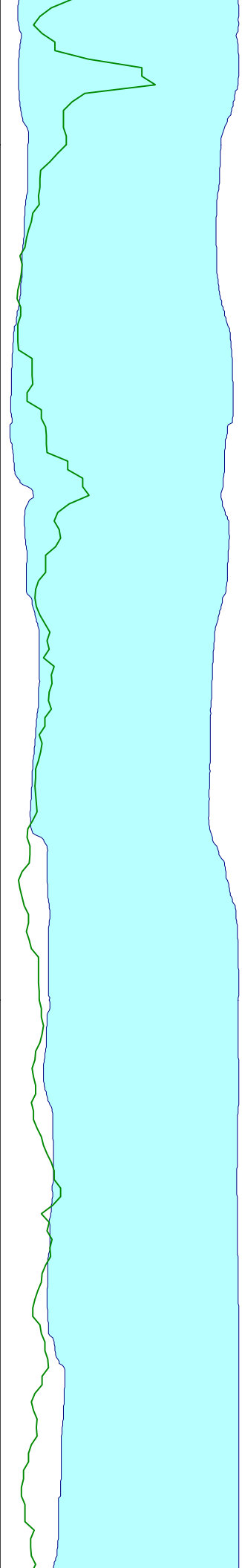


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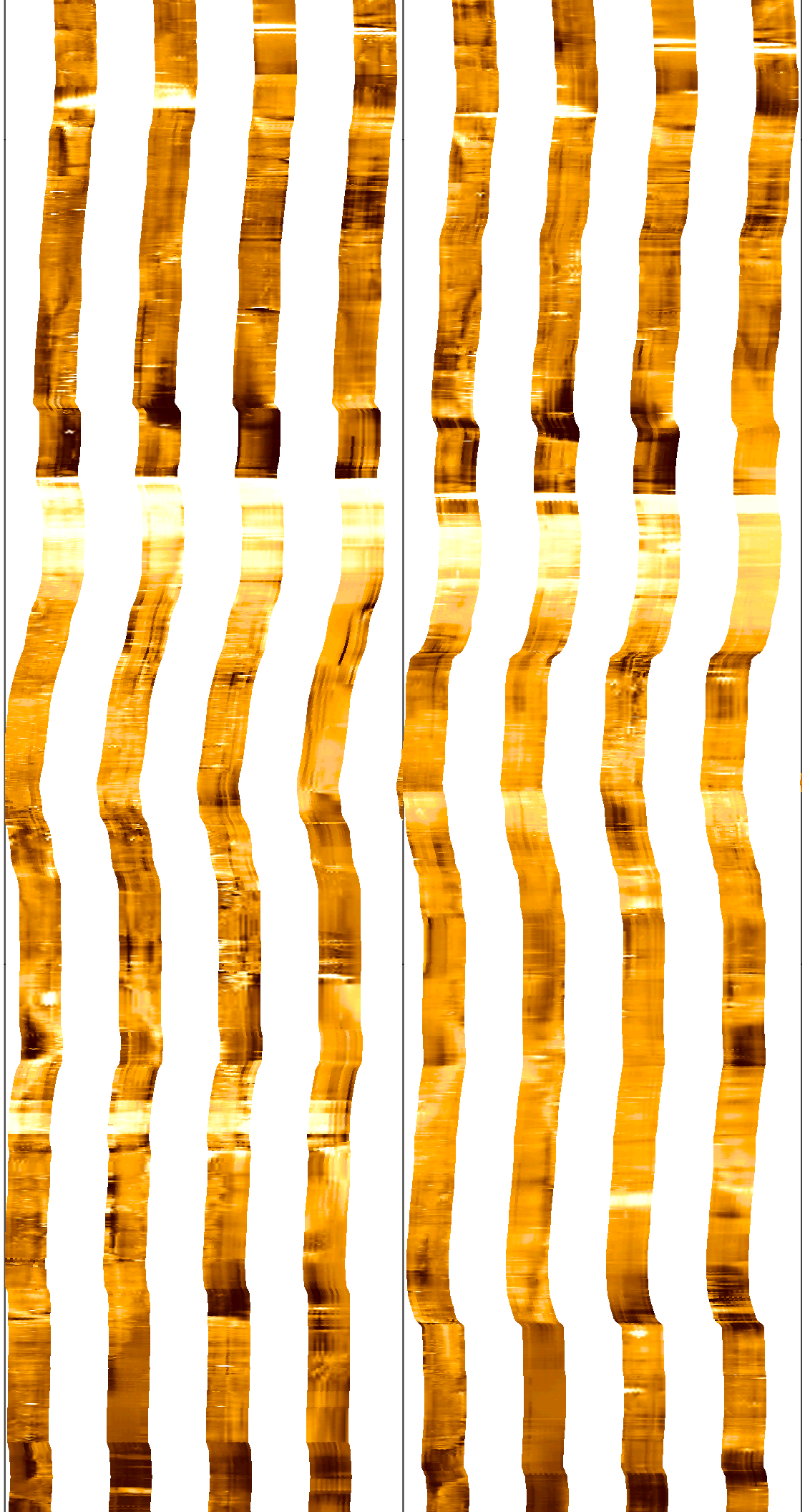


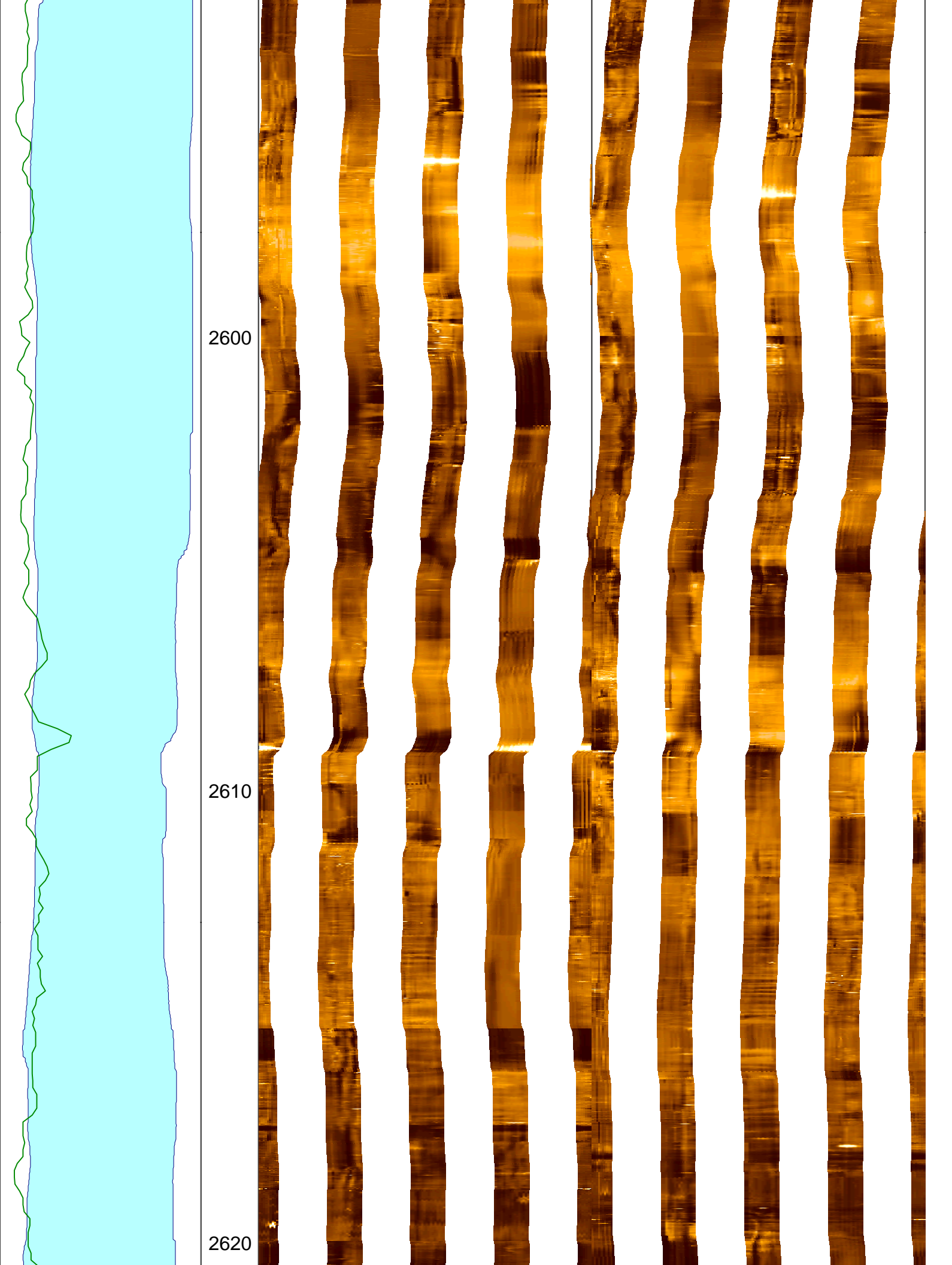


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2580

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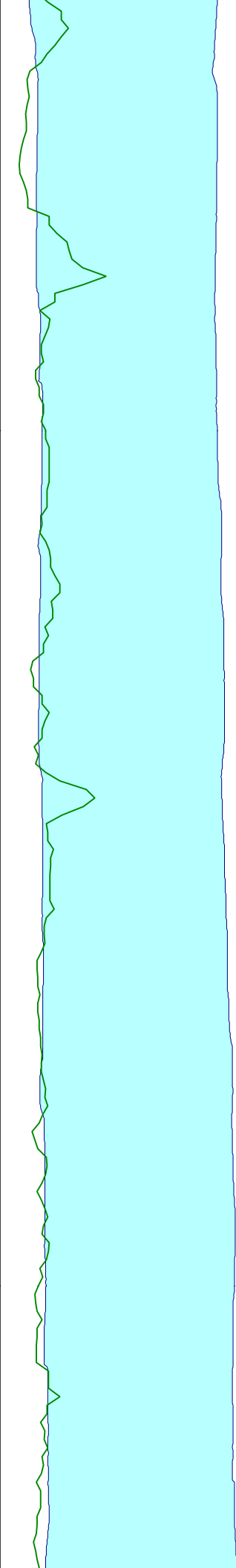


2600

2610

2620

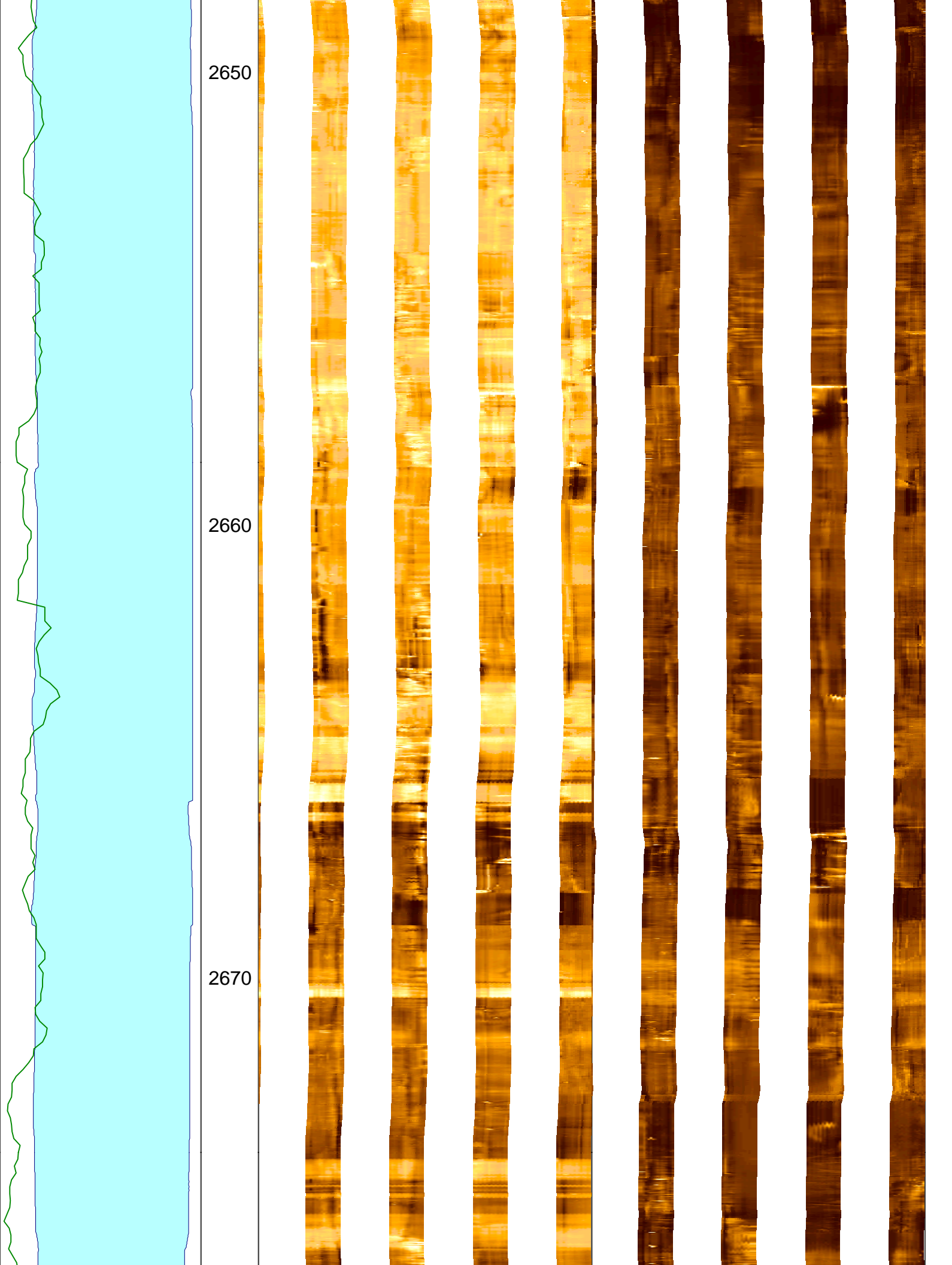




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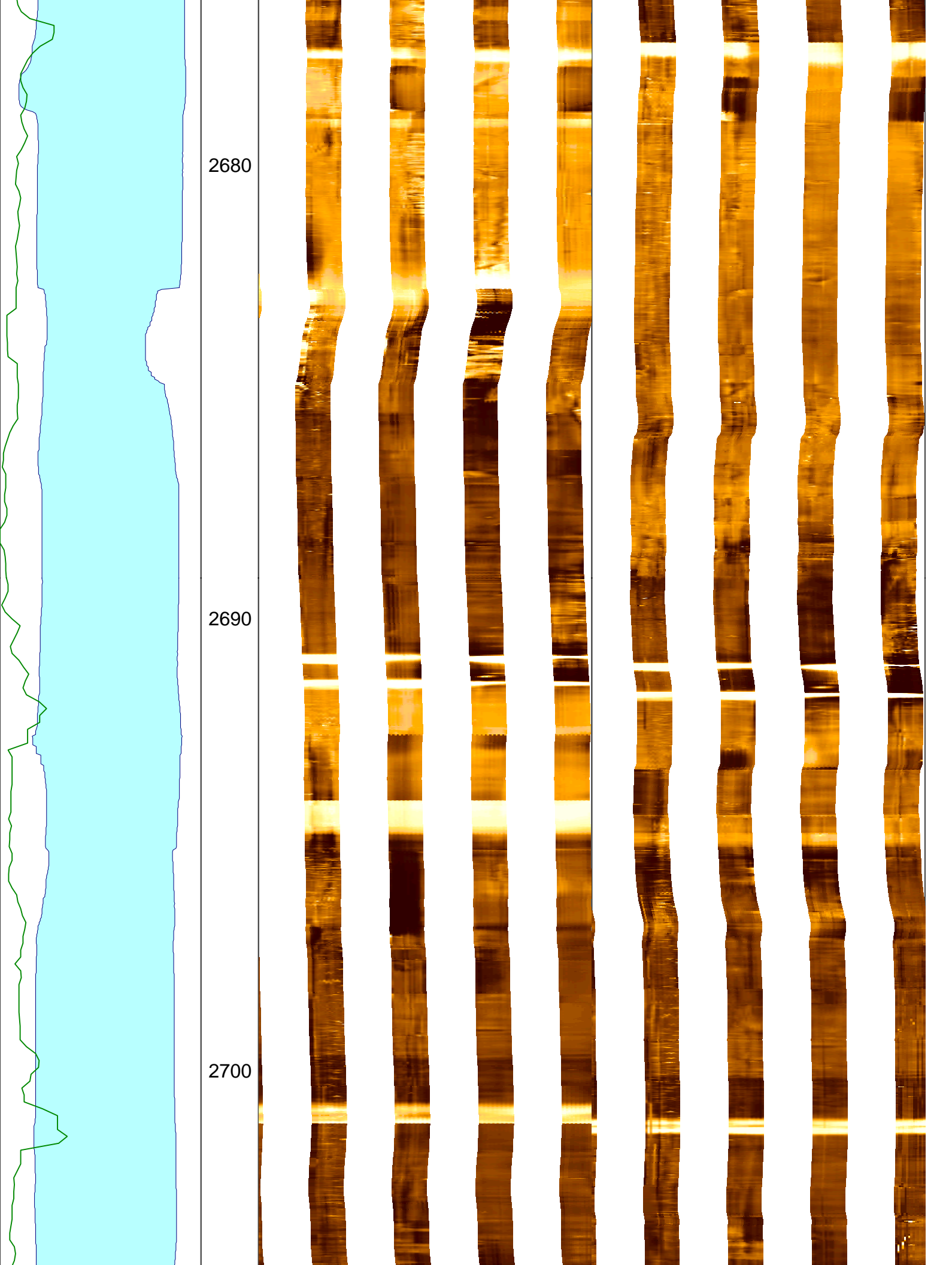




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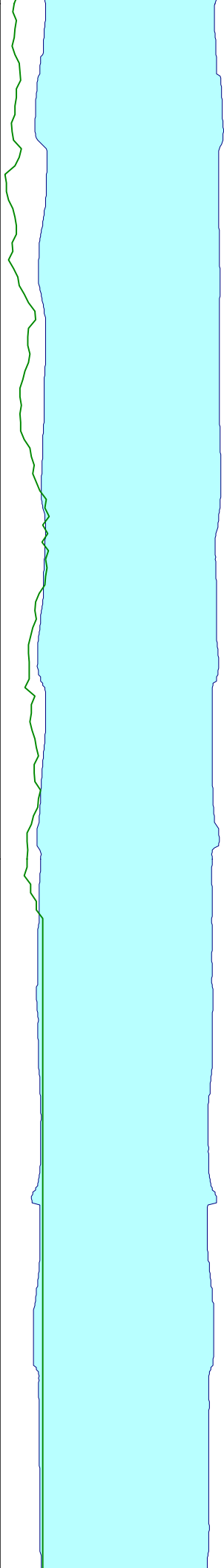
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2680

2690

2700

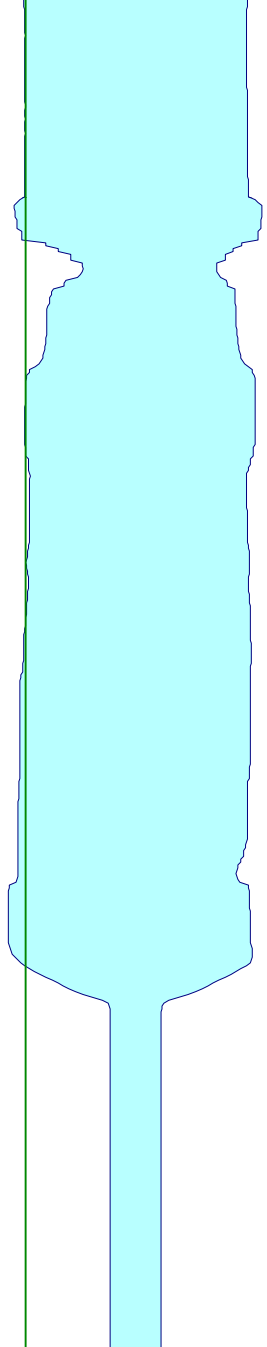


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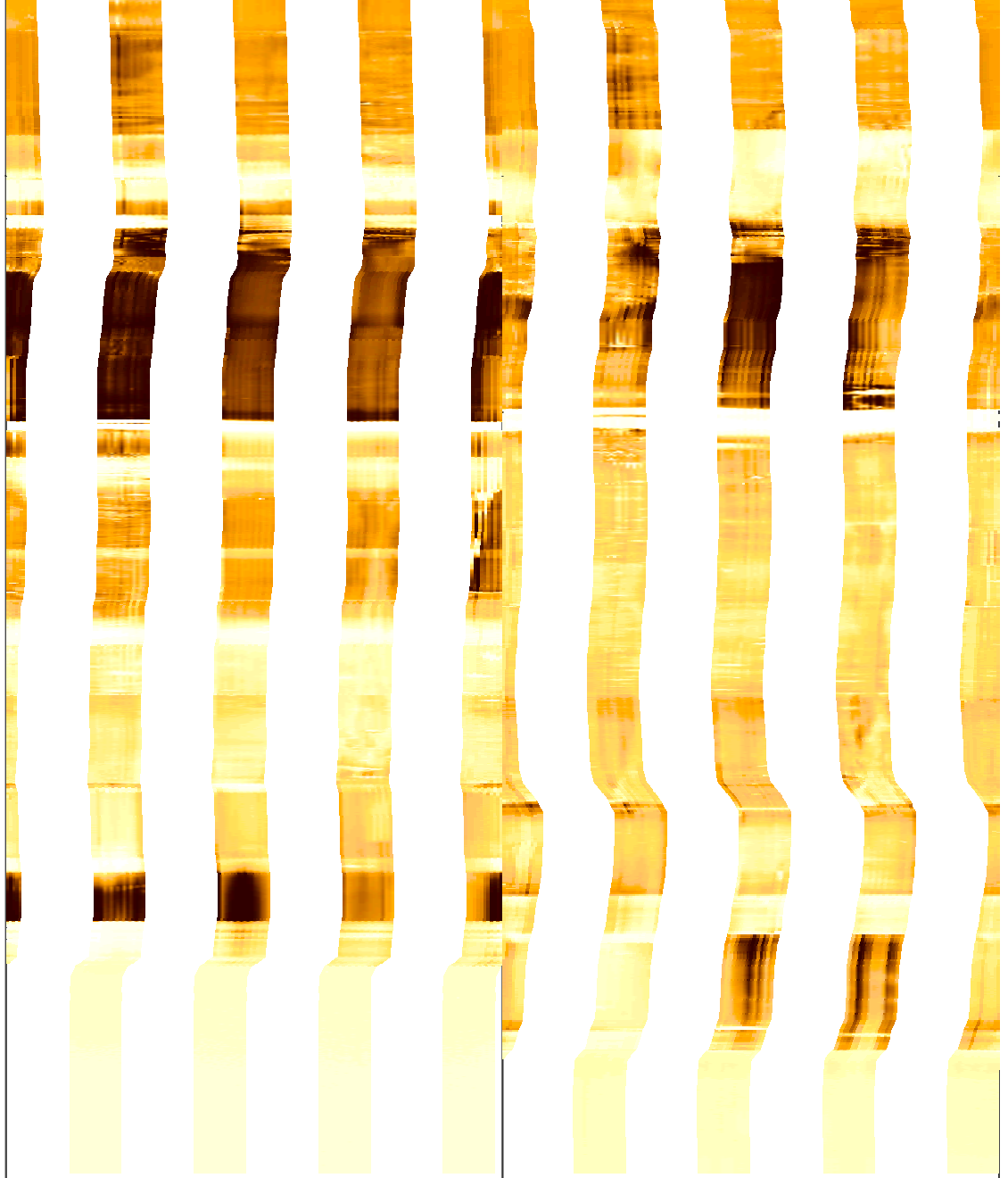
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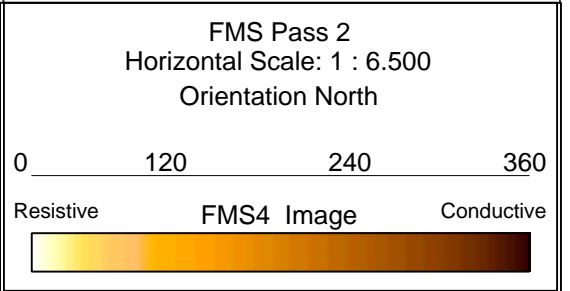
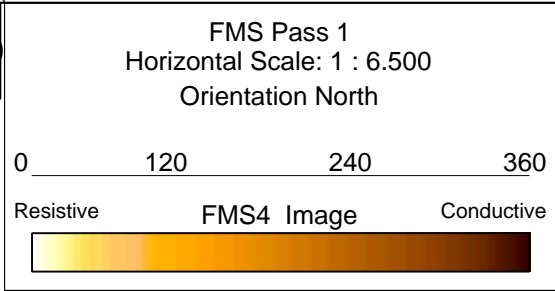


2740

2750  
MD  
1 : 100  
m



Gamma Ray	10	60
( gAPI )		
Caliper 2	16	-16
( in )		
Caliper 1	-16	16
( in )		
Hole size		



# Calibrations

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>Micro Electrical Scanner - B (Slim) Wellsite Calibration - Caliper Calibration</b>							
Before: Calibration out of date 4-Jun-2009 2:47							
Caliper 1 Zero Measurement	12.00	N/A	12.57	N/A	N/A	N/A	IN
Caliper 2 Zero Measurement	12.00	N/A	12.44	N/A	N/A	N/A	IN
Caliper 1 Plus Measurement	15.19	N/A	15.77	N/A	N/A	N/A	IN
Caliper 2 Plus Measurement	15.19	N/A	15.68	N/A	N/A	N/A	IN
<b>Micro Electrical Scanner - B (Slim) Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY</b>							
Before: 1-Aug-2009 6:56							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	92	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	10	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	448	N/A	N/A	N/A	
<b>Micro Electrical Scanner - B (Slim) Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY</b>							
Before: 1-Aug-2009 6:56							
TEMPERATURE REFERENCE :	N/A	N/A	19	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	99	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	12	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	428	N/A	N/A	N/A	
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check</b>							
Master: 19-Jun-2009 22:52 Before: 1-Aug-2009 7:01 After: 1-Aug-2009 14:24							
Na 511 Peak Loc	40.00	39.80	39.61	39.73	0.1242	1.000	
Na 511 Peak Res	15.50	15.76	14.80	14.77	-0.02923	2.000	%
High Voltage	1150	1181	1145	1148	3.242	N/A	V
Na 1785 Peak Loc	142.6	142.6	143.1	142.9	-0.1831	7.000	
Na 1785 Peak Res	8.500	8.553	7.181	7.778	0.5971	2.000	%
Temperature	15.50	32.22	13.82	14.91	1.089	N/A	DEGC
Na Count Rate	45.00	37.08	36.46	36.77	0.3117	8.000	CPS
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check</b>							
Master: 19-Jun-2009 22:52 Before: 1-Aug-2009 7:01 After: 1-Aug-2009 14:24							
Na 511 Peak Loc	40.00	39.62	39.63	39.71	0.08313	1.000	
Na 511 Peak Res	15.50	16.69	14.92	14.89	-0.02178	2.000	%
High Voltage	1150	1114	1080	1082	1.789	N/A	V
Na 1785 Peak Loc	142.6	142.4	142.1	142.2	0.09767	7.000	
Na 1785 Peak Res	8.500	8.478	8.208	8.545	0.3373	2.000	%
Temperature	15.50	32.71	15.02	16.35	1.327	N/A	DEGC
Na Count Rate	45.00	38.14	36.62	36.70	0.08572	8.000	CPS
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2</b>							
Master: 19-Jun-2009 22:52 Before: 1-Aug-2009 7:01 After: 1-Aug-2009 14:24							
Coincidence Count Rate Ratio	1.000	0.9751	0.9973	1.000	0.002843	0.05000	

Micro Electrical Scanner - B (Slim) / Equipment Identification

<b>Primary Equipment:</b>		
MEST Sonde - B	MEDS - B	702
MEST Preamplifier Cartridge - AB	MEPC - AB	806
GPIT Cartridge - A	GPIC - A	719
MEST Acquisition Cartridge - A	MEAC - A	875
<b>Auxiliary Equipment:</b>		
MEST-B Preamplifier Cartridge Housing	MEPH - A	702
MEST Acquisition Cartridge Housing (Slim)	MEAH - B	769

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

<b>Primary Equipment:</b>		
HNGC Cartridge	HNGC - B	300
<b>Auxiliary Equipment:</b>		
HNGC Housing	HNGH - A	115



Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:  
HNGS Sonde

HNGS - BA 194

Auxiliary Equipment:  
HNGS Sonde Housing  
Gamma Source Radioactive

HNSH - BA 205  
GSR - U 616008

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.80	Master		15.76	Master		1181
Before		39.61	Before		14.80	Before		1145
After		39.73	After		14.77	After		1148
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		142.6	Master		8.553	Master		32.22
Before		143.1	Before		7.181	Before		13.82
After		142.9	After		7.778	After		14.91
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	
Phase	Na Count Rate CPS	Value						
Master		37.08						
Before		36.46						
After		36.77						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 19-Jun-2009 22:52			Before: 1-Aug-2009 7:01			After: 1-Aug-2009 14:24		

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.62	Master		16.69	Master		1114
Before		39.63	Before		14.92	Before		1080
After		39.71	After		14.89	After		1082
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		142.4	Master		8.478	Master		32.71
Before		142.1	Before		8.208	Before		15.02
After		142.2	After		8.545	After		16.35
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	
Phase	Na Count Rate CPS	Value						
Master		38.14						
Before		36.62						
After		36.70						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 19-Jun-2009 22:52			Before: 1-Aug-2009 7:01			After: 1-Aug-2009 14:24		

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		0.9751
Before		0.9073
After		0.9073

Before			0.9973
After			1.000
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 19-Jun-2009 22:52			
Before: 1-Aug-2009 7:01			
After: 1-Aug-2009 14:24			

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge  
DTC-H Telemetry Cartridge

DTCH - A  
DTCH - A                    8753

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC                    2304

Company: Lamont Doherty

**Schlumberger**

Well: Expedition 321 Site U1341B

Field: Bering Sea

Rig: JOIDES Resolution

Country: USA

Formation Micro-Scanner  
Natural Gamma Spectroscopy