



# RADIAL ANALYSIS BOND LOG

Baker Atlas

FILE NO: CH031801  
COMPANY WILLIAMS PRODUCTION COMPANY  
WELL RWF 332-3  
FIELD RULISON

API NO: 05045196380000  
COUNTY GARFIELD  
STATE COLORADO

Ver. 3.87  
3 7S 94W  
R/W 83-34  
NABORS 573  
LOCATION:  
SHL: 619' FSL & 1834' FEL S34T6SR94W  
BHL: 1506' FNL & 1972' FEL S31T7SR94W  
SEC 3 TWP 7S RGE 94W  
OTHER SERVICES  
RPM

PERMANENT DATUM  
LOG MEASURED FROM  
DRILL MEAS. FROM  
GL ELEVATION 6100 FT  
KB 26 FT ABOVE P.D.  
KELLY BUSHING  
ELEVATIONS:  
KB 5651.6 FT  
DF 5650.6 FT  
GL 5625.6 FT

DATE	30-Mar-2011
RUN	1
TRIP	1
SERVICE ORDER	576868
DEPTH DRILLER	8309 FT
DEPTH LOGGER	8202 FT
BOTTOM LOGGED INTERVAL	8198 FT
TOP LOGGED INTERVAL	26 FT
TIME STARTED	14:00
TIME FINISHED	21:00
OPERATOR RIG TIME	5 HRS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	N/A
FLUID SALINITY	N/A
FLUID LEVEL	FULL
LOGGED CEMENT TOP	N/A
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	N/A
NOMINAL LOGGING SPEED	45 F/MIN
MAX. RECORDED TEMP.	223 DEGF
REFERENCE LOG	NONE
REFERENCE LOG DATE	N/A
EQUIP. NO.	HL 6670
LOCATION	G.J., CO.
RECORDED BY	J. OSTLER
WITNESSED BY	MR. BOB CADY

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD		
BIT SIZE	FROM	TO
13.5 IN	SURFACE	2113 FT
7.875 IN	SURFACE	8309 FT

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
9.625 IN			SURFACE	2113 FT
4.5 IN	11.6 LB/F	P-110	SURFACE	8309 FT

## REMARKS

RUN 1 TRIP 1 : ALL DATA ON THIS LOG IS SHIFTED USING THE CCL CURVE TO PUT THE WELL HEAD (TOP CCL MARK) ON DEPTH WITH GROUND LEVEL ELEVATION AT THE CLIENTS REQUEST. THE AMOUNT OF SHIFT IS 12 FEET DOWN.

WELL WAS LOGGED WITH 0 PSI AT THE WELL HEAD.

BHT = 24 DEGF.

SHORT JOINT AT 4535' TO 4556'.

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO	SERIAL NO	POSITION
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ROW	TRF	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	VDL	1426XA	10404539	CENTRALIZED
1	1	GR/CCL/NEU	2459XA	10218504	CENTRALIZED

## MAIN LOG PRIMARY PRESENTATION 0 PSI

ECLIPS 6.11 Aug 06, 2010  
Updates: 1

Tue Apr 5 05:10:09 2011

Pcrplt /main/62

Cplot

Pdf\_Cpp /main/16

Fileview 5.51

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/576868/m012eR02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 14.500 ft BOTTOM DEPTH: 8212.750 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	light (2a)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"

### RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

### ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgpn*)	187	us	TOP	BOTTOM
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (strn*)	-77	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

### CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Mar 30 21:10:13 2011	CASING COLLAR LOCATOR
F1:FAMPN	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Mar 30 21:10:13 2011	FAR WAVE FORM
F1:GR	Mar 30 21:10:13 2011	GAMMA RAY
F1:TTN	Mar 30 21:10:13 2011	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

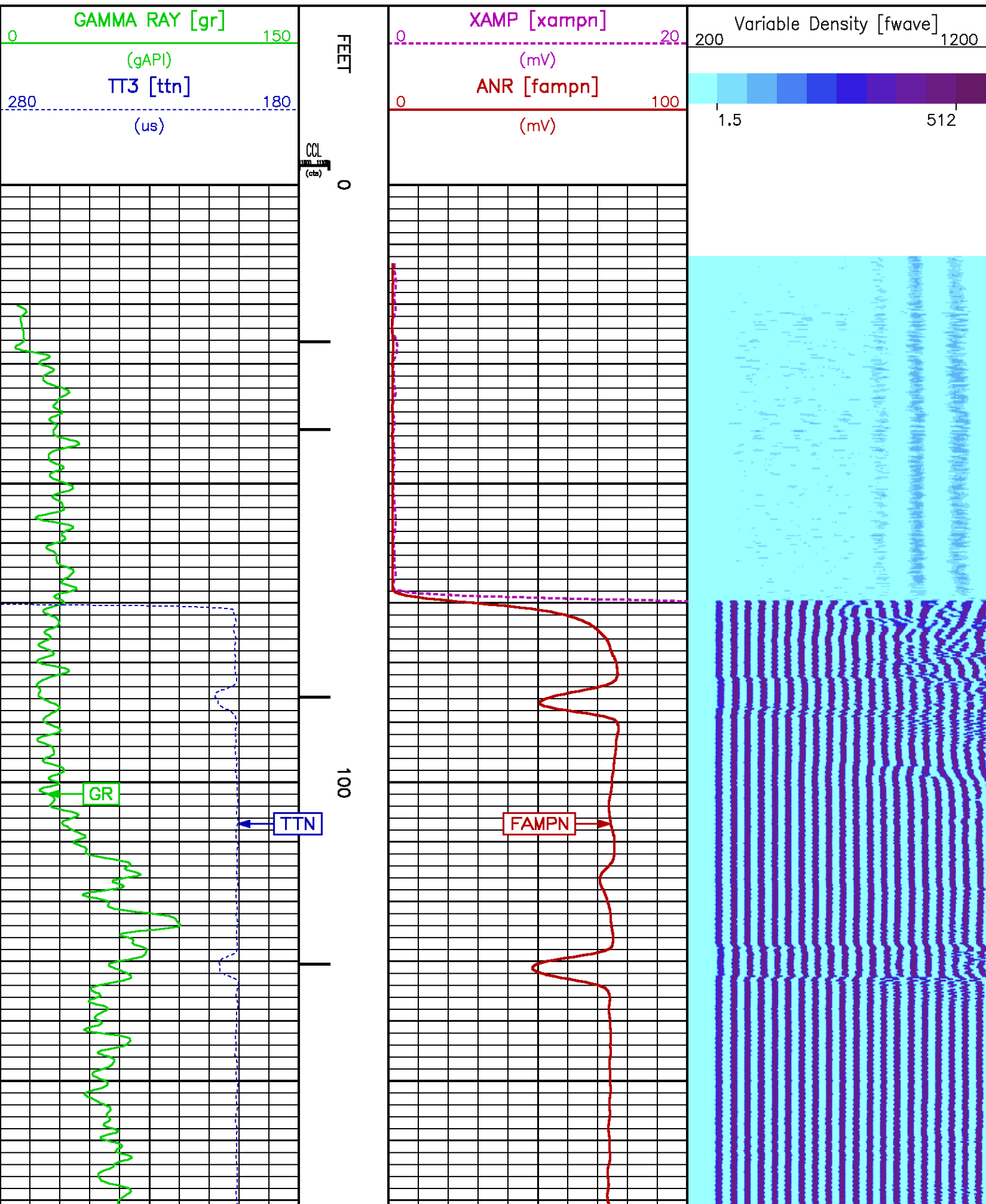
### CURVE MEASURE POINT OFFSET

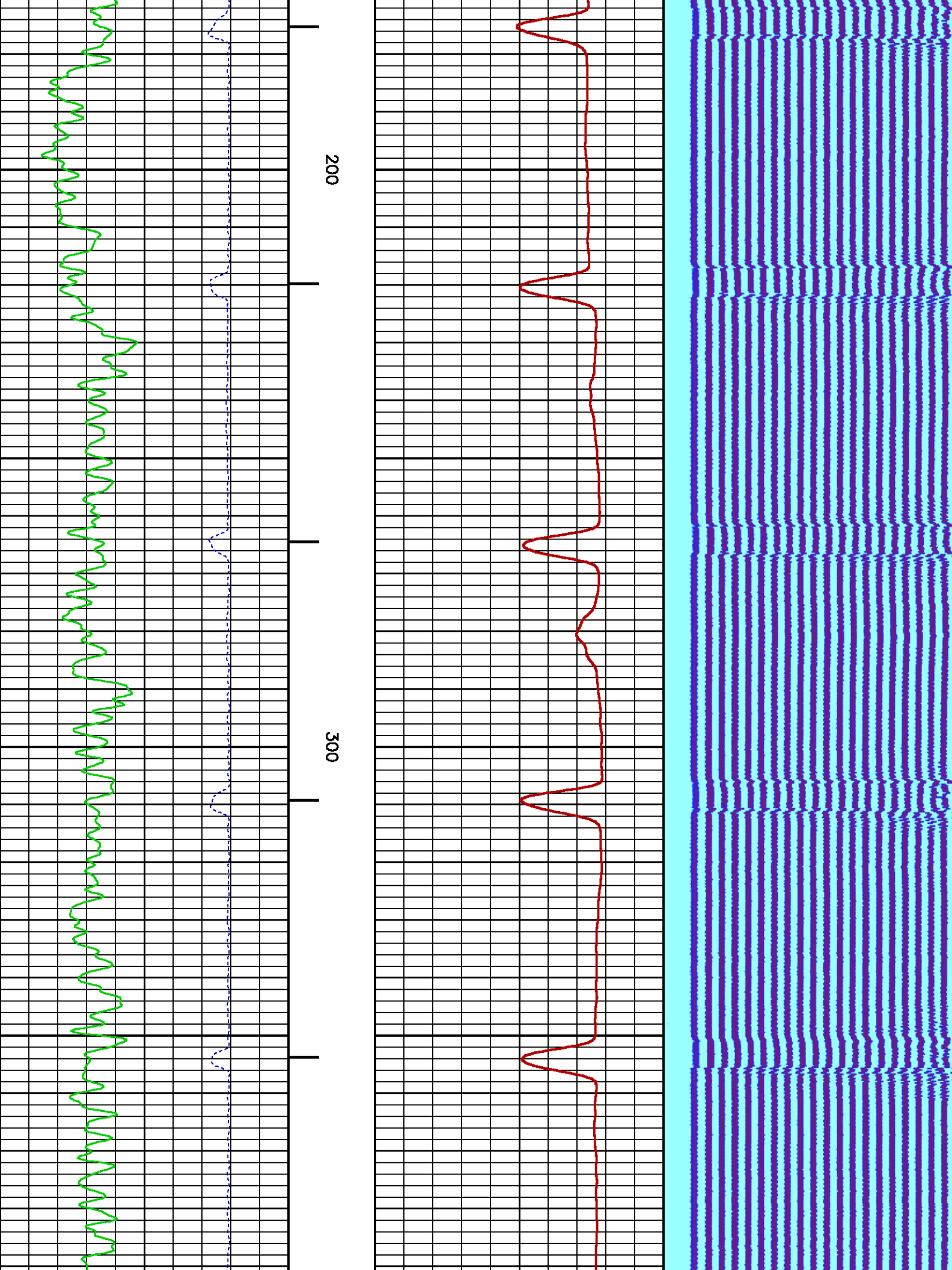
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	11.50	GR	9.50	XAMPN	16.50		
FAMPN	16.50	TTN	16.50				

Presentation : HL6670:/data/576868/CBL\_PRL\_PRES+01-MAIN-MAIN\_CBL\_-5.pdf [5"/100' Scale]  
Plot Interval : 0 - 8208 Feet

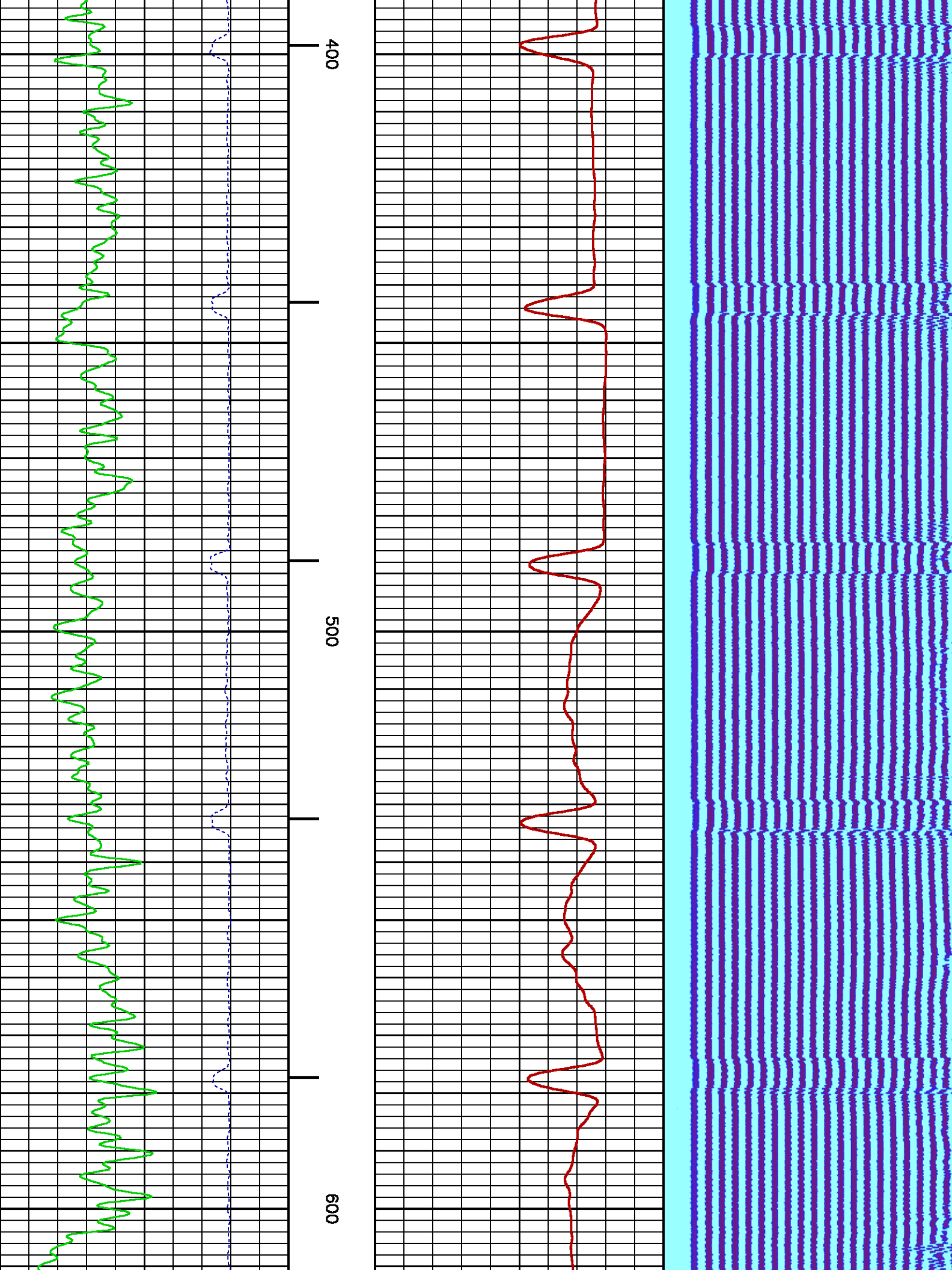
Data File 1 : F1 : HL6670:/data/576868/MAIN\_CBL\_.xlf

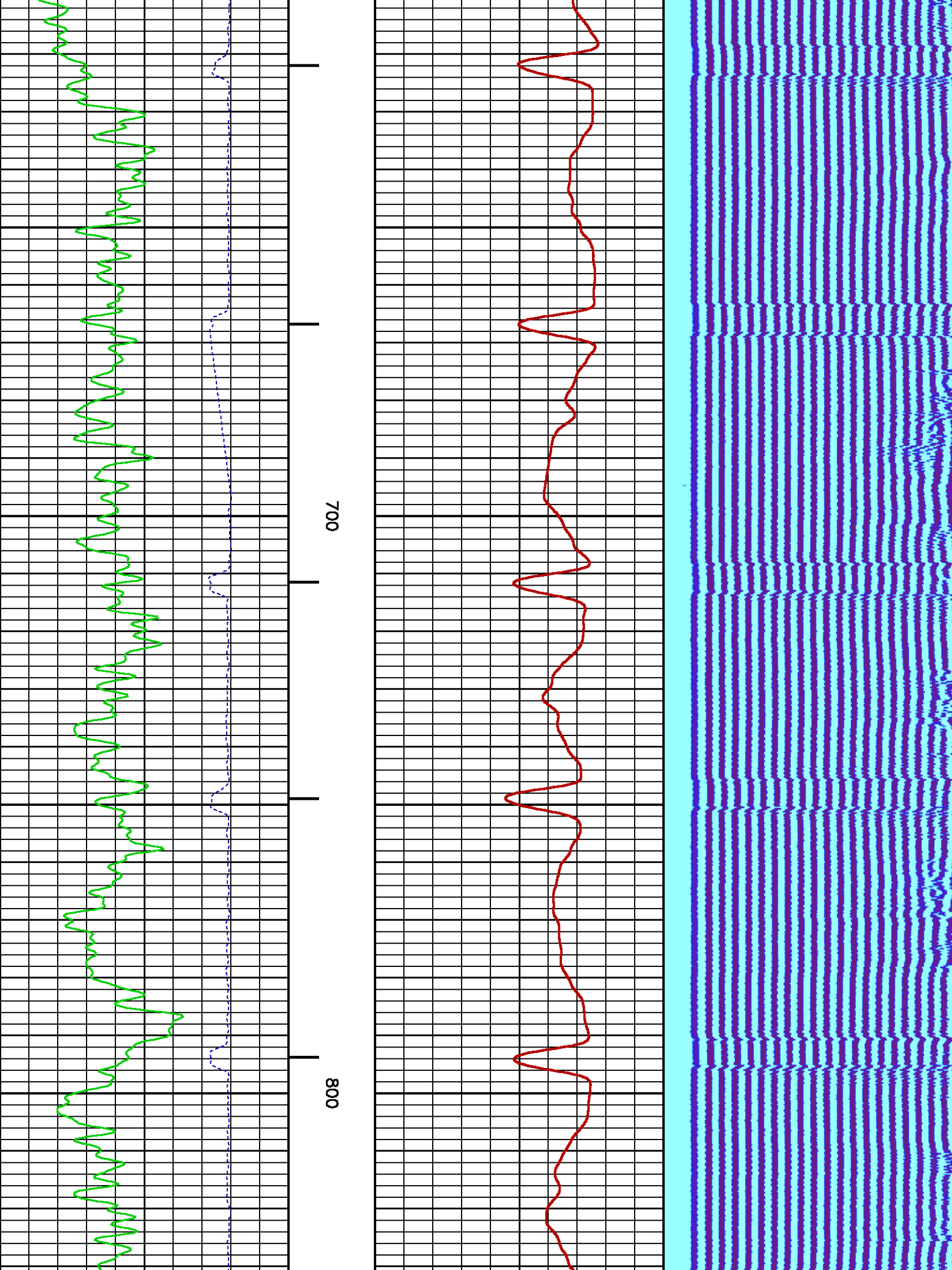
Created On : Mar 30 21:10:15 2011  
Company : WILLIAMS PRODUCTION COMPANY  
Well : RWF 332-3  
Field : RULISON  
File Interval : 12 - 8229 Feet  
Oct : m012a

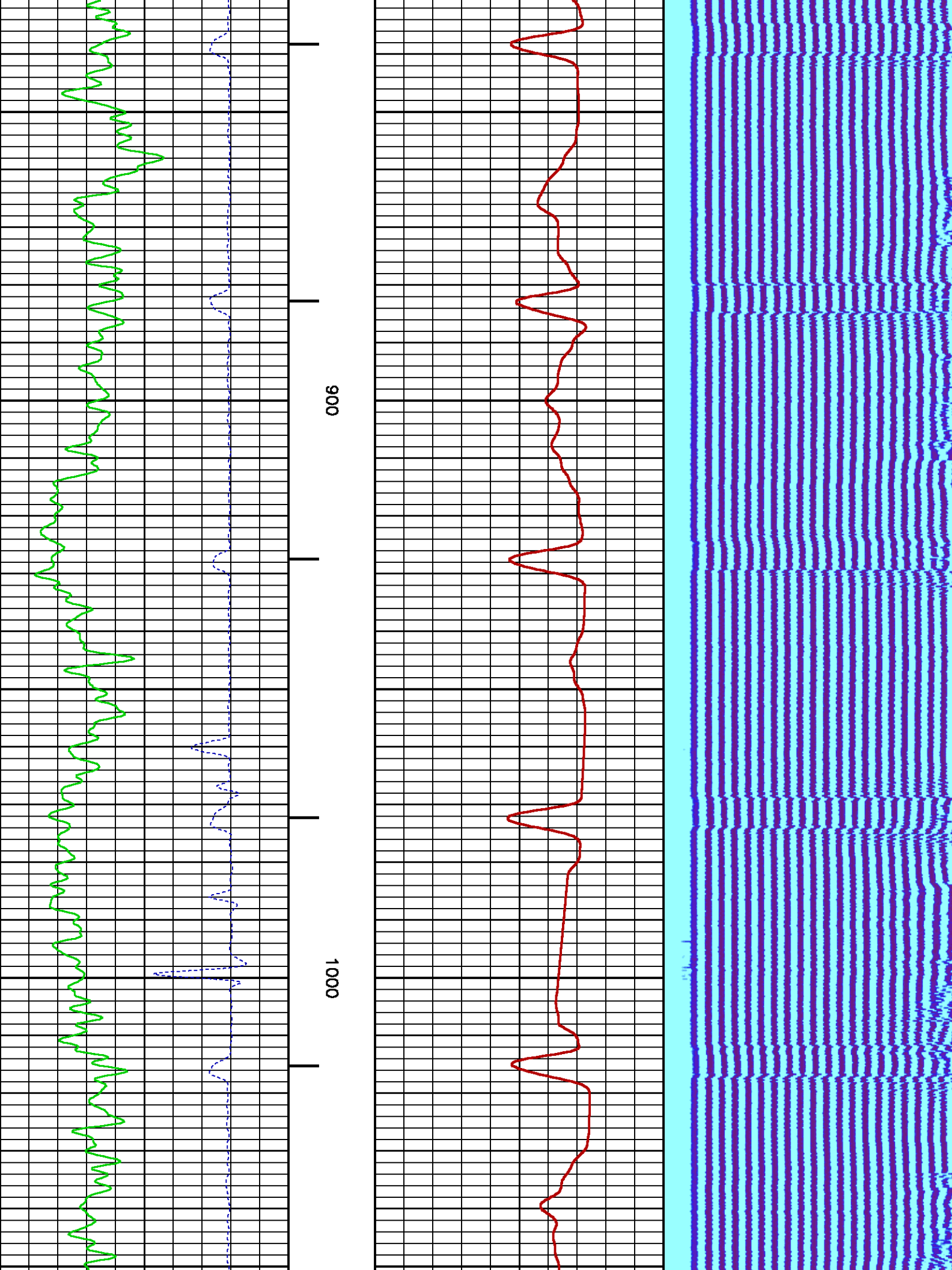




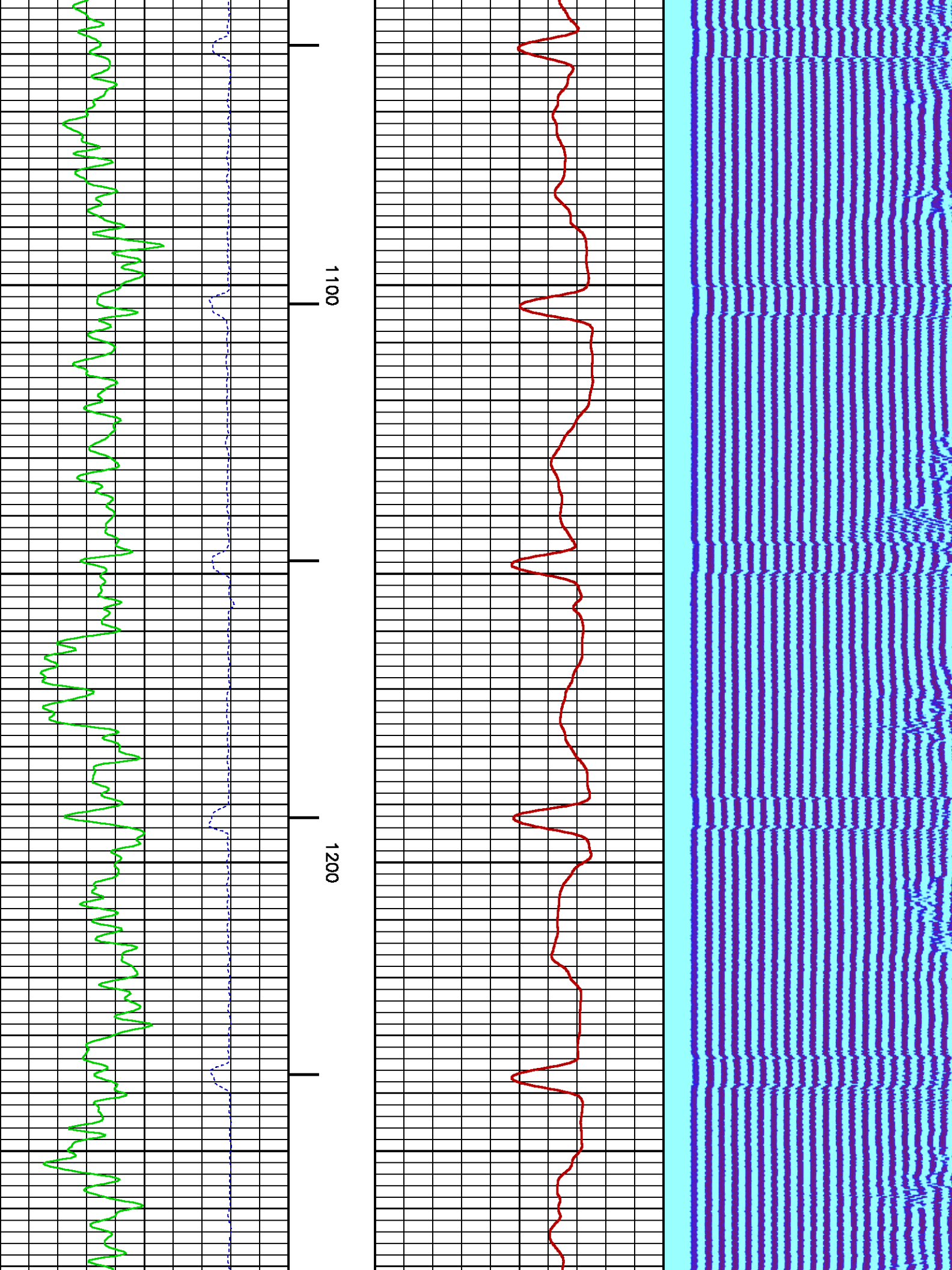


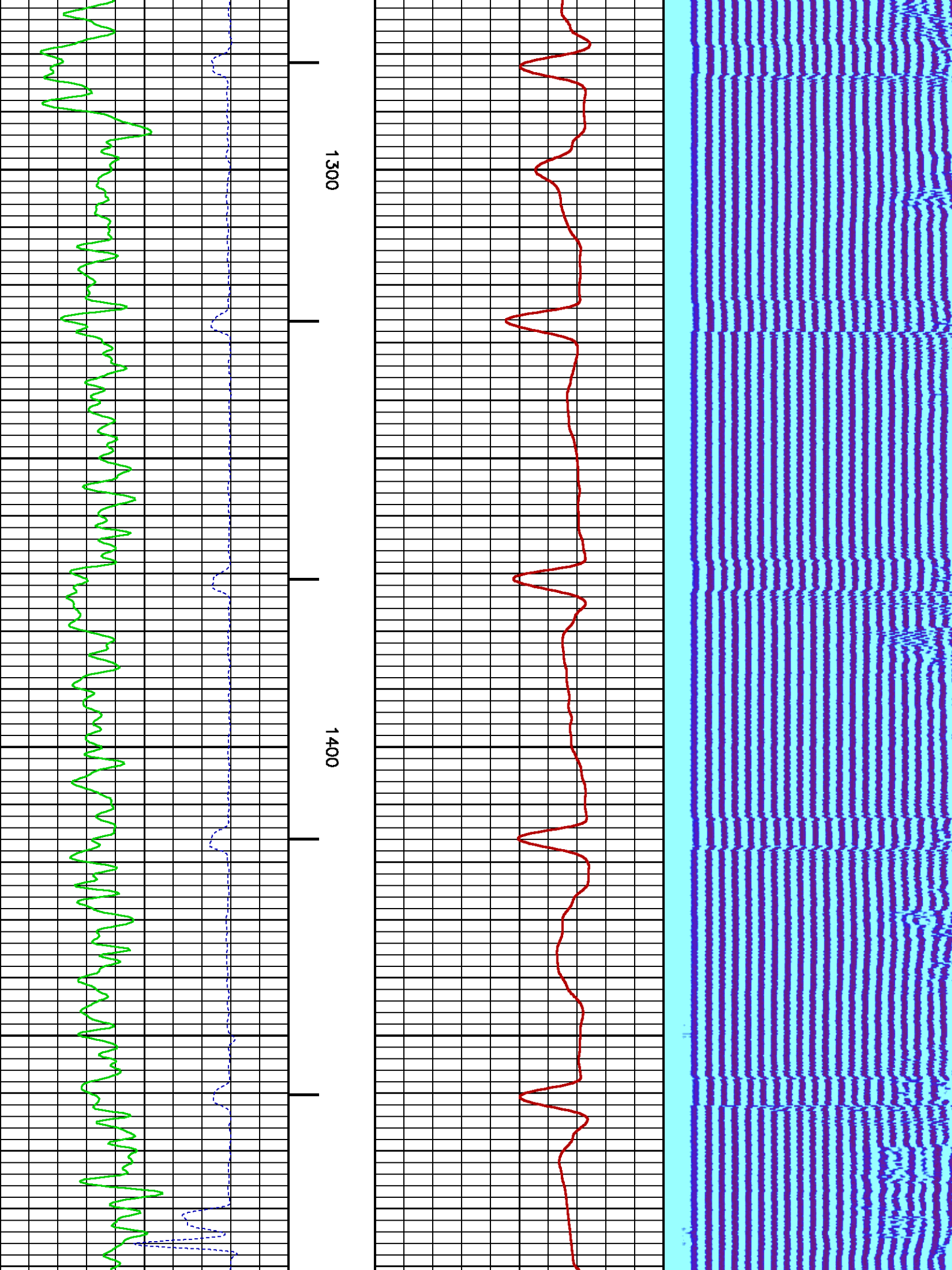


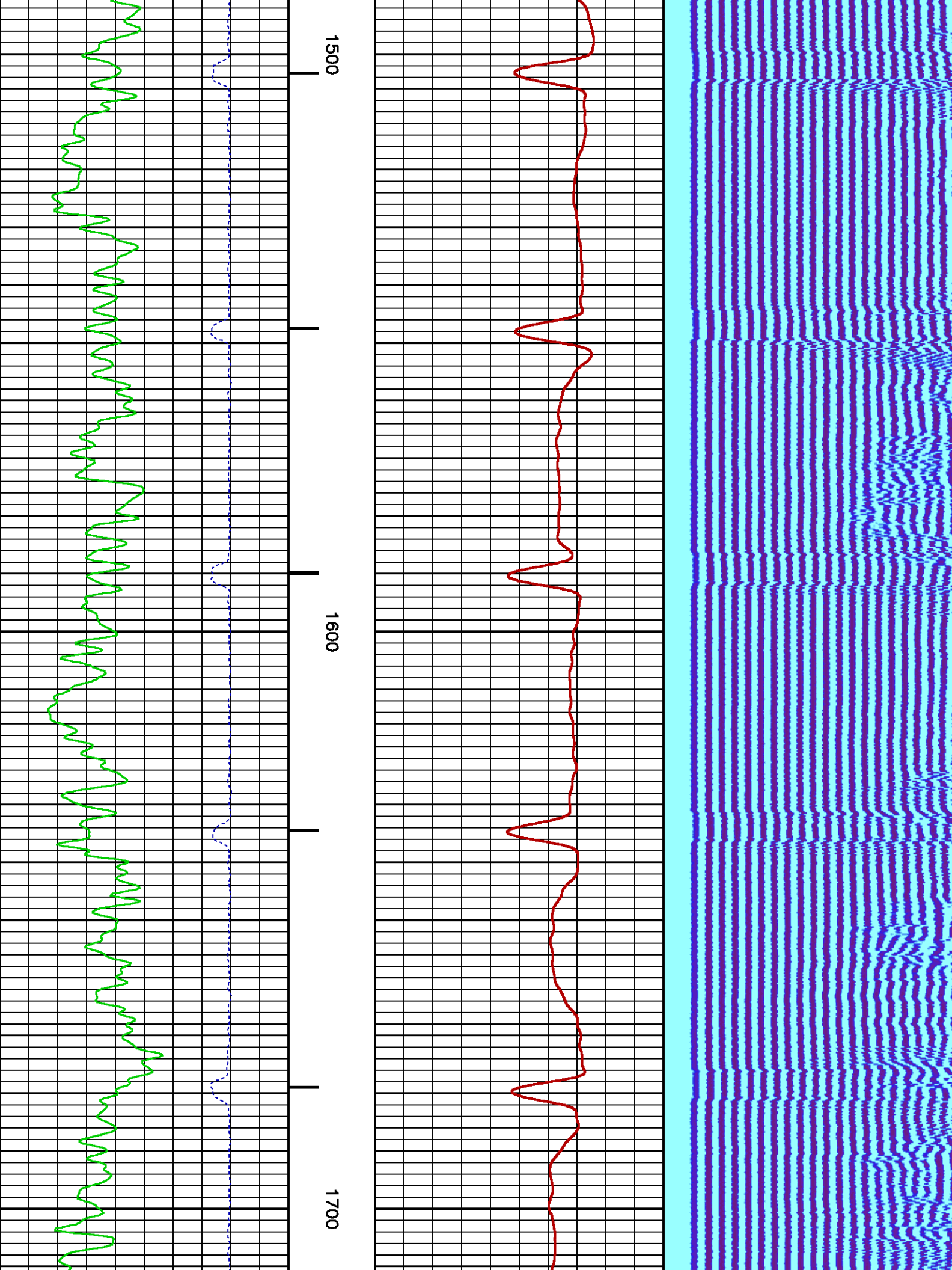




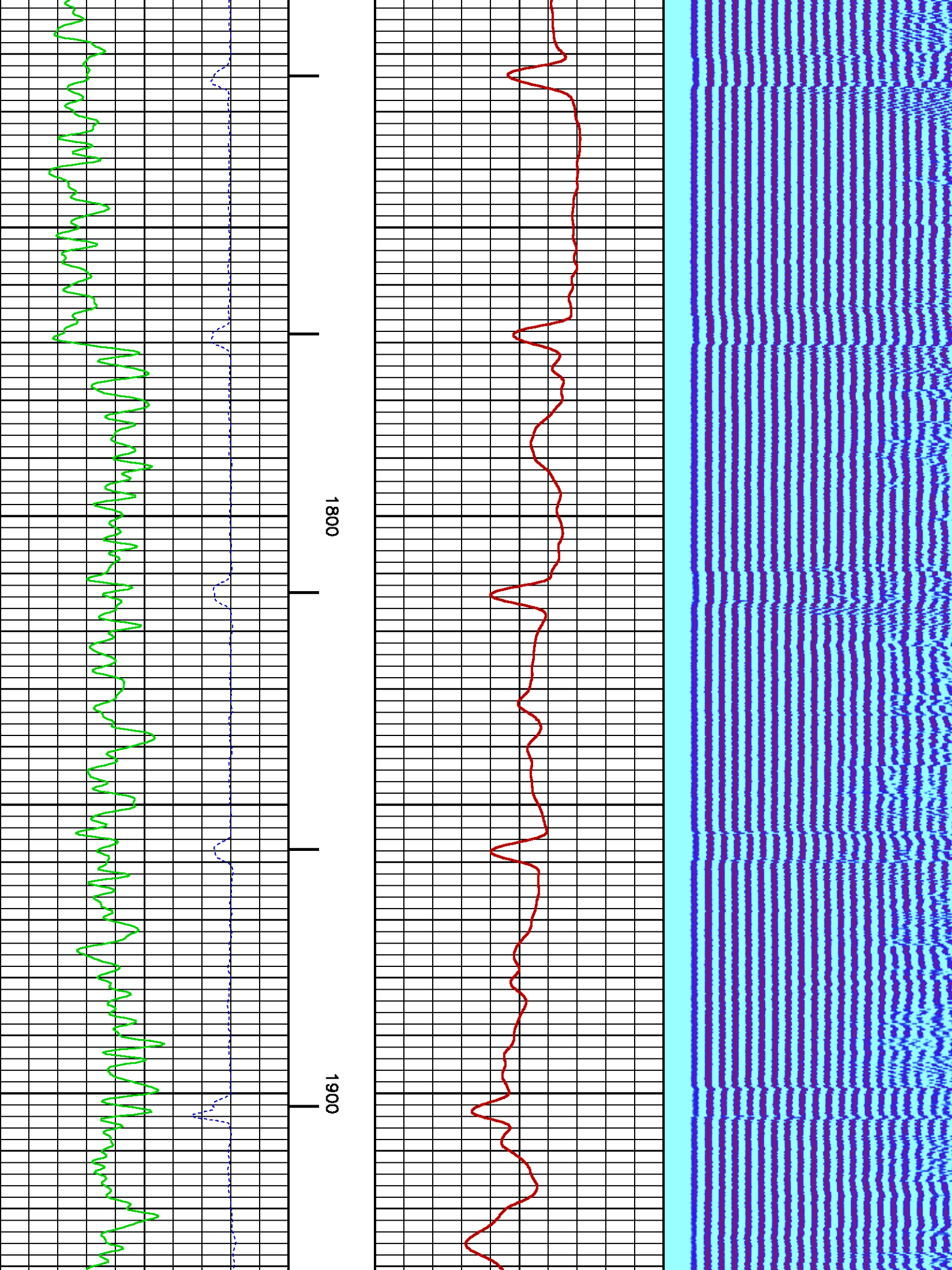


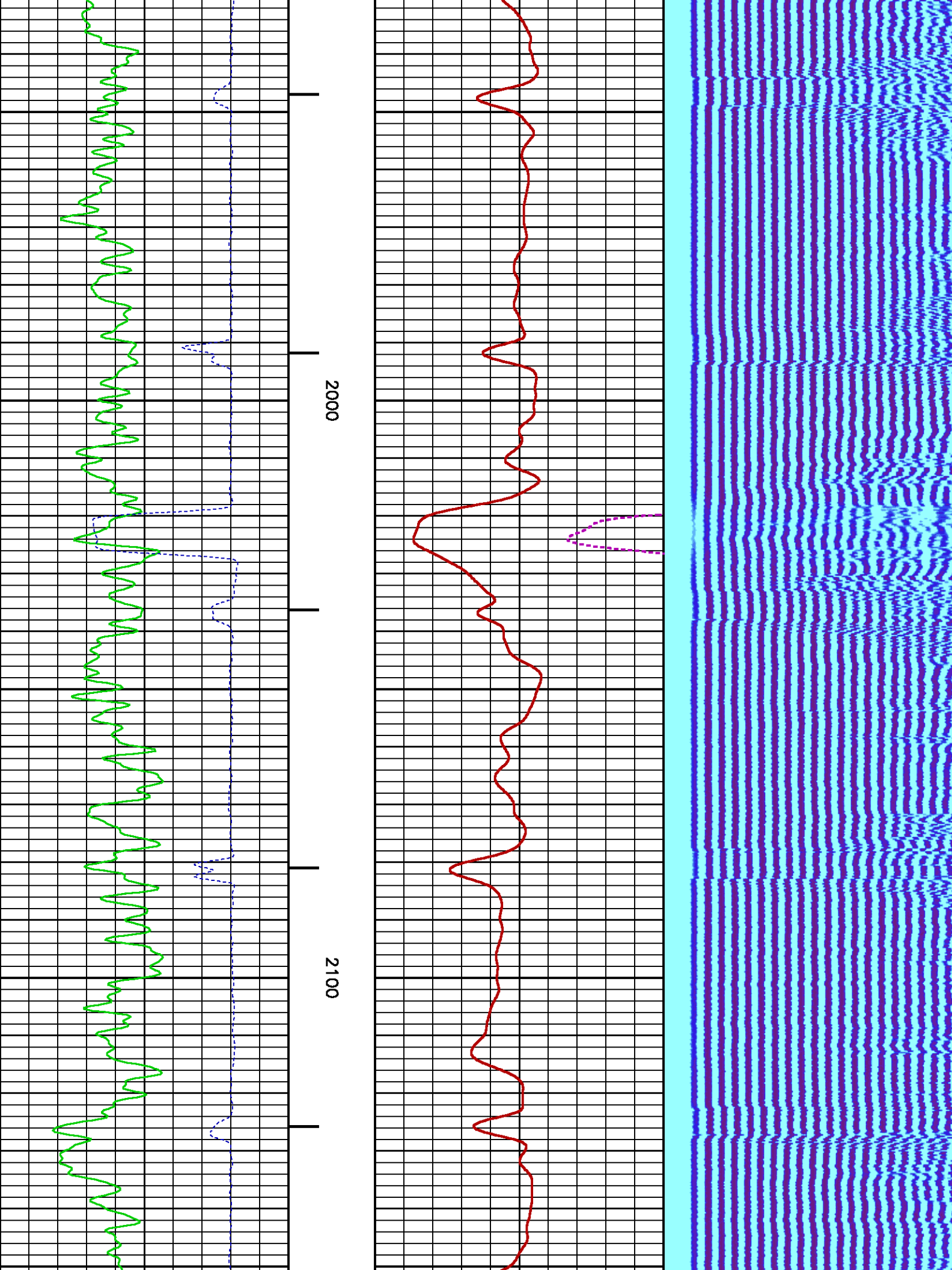


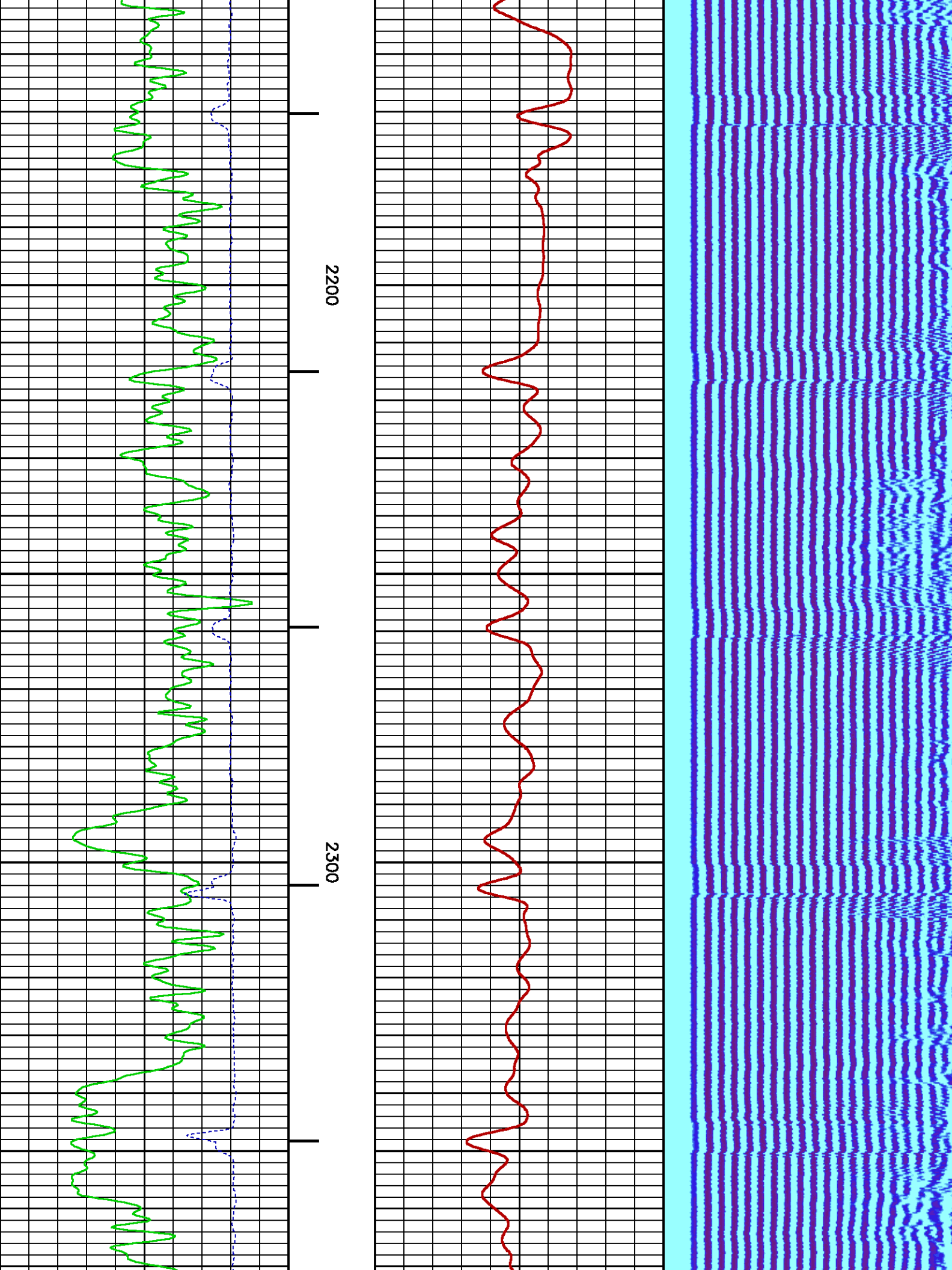




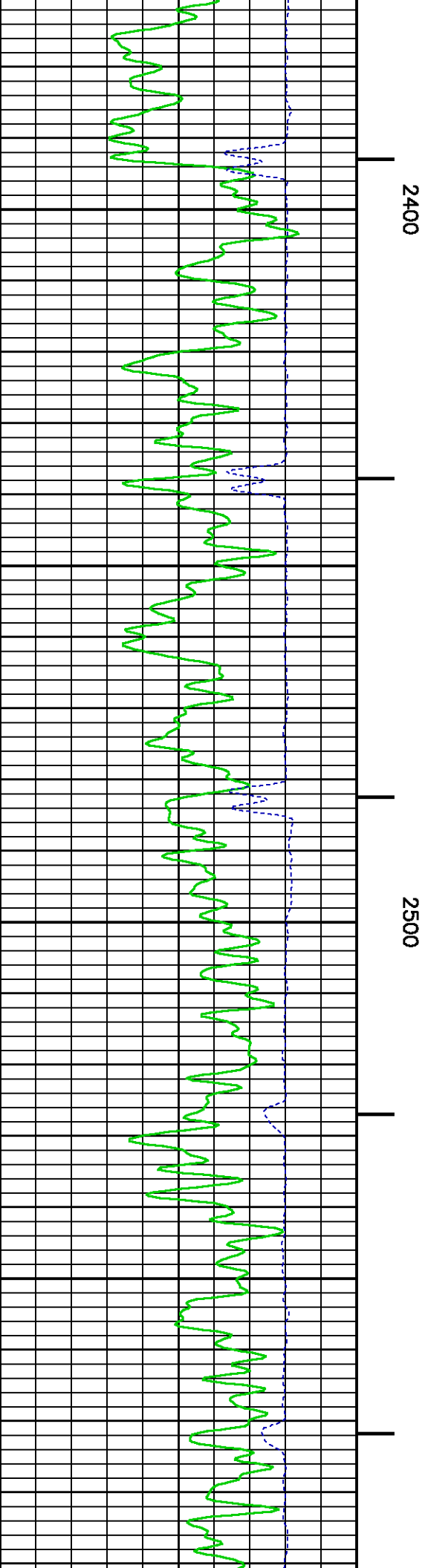
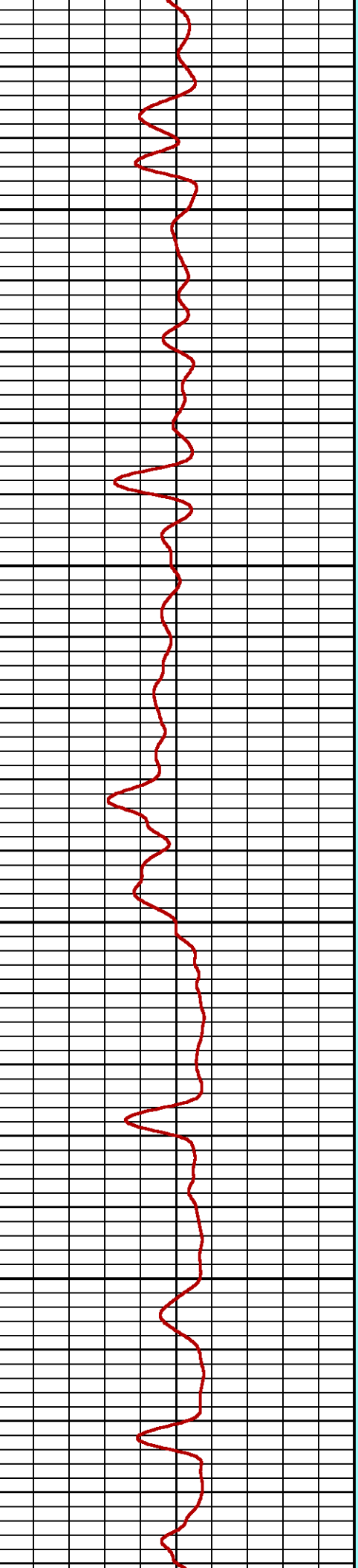
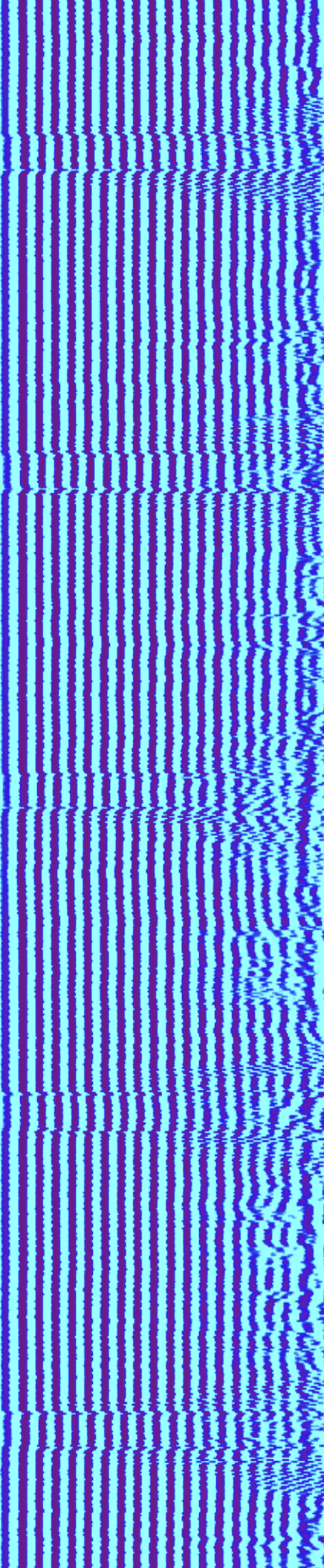


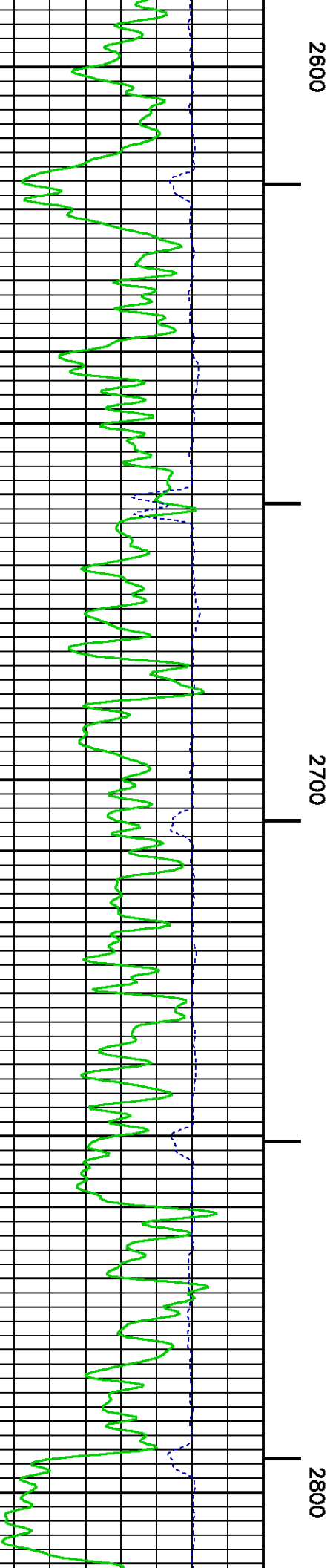
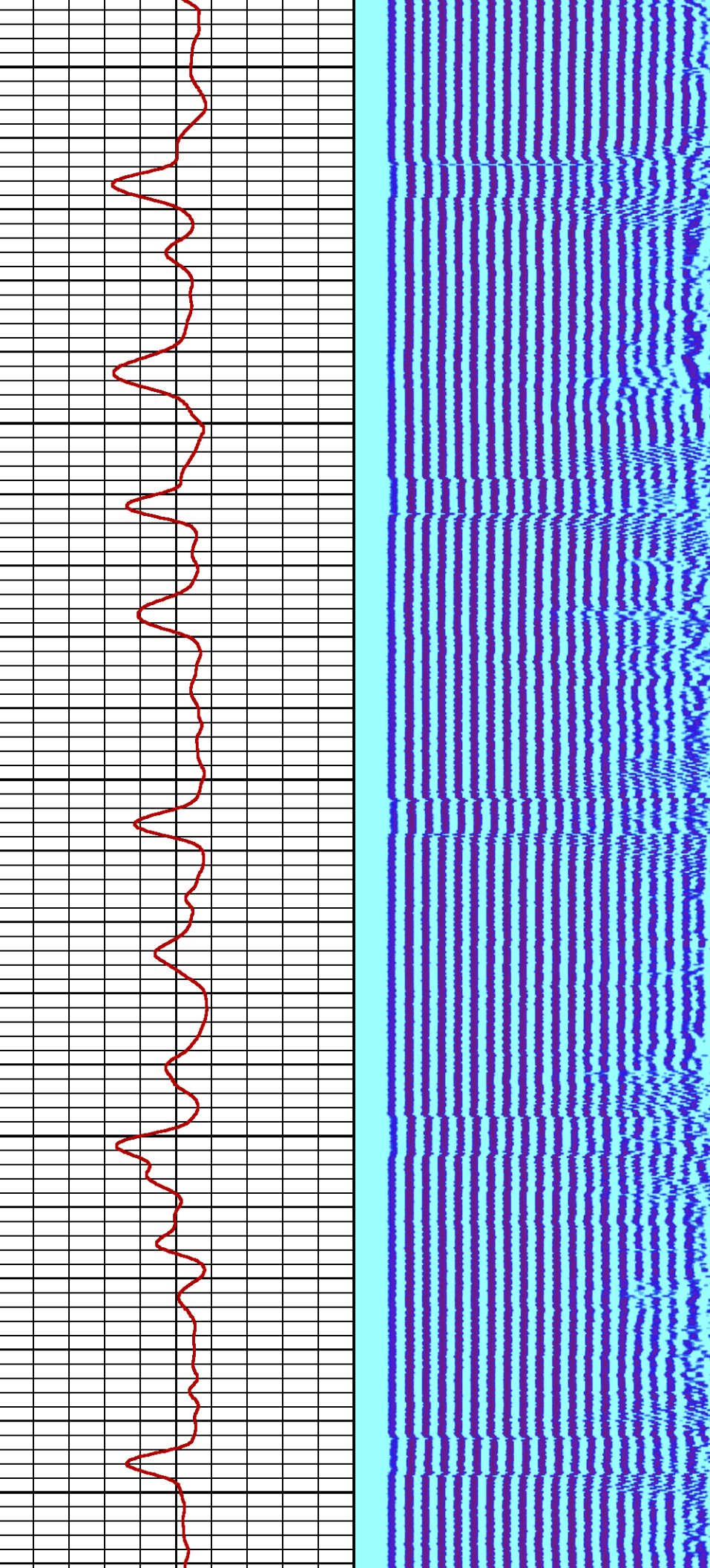


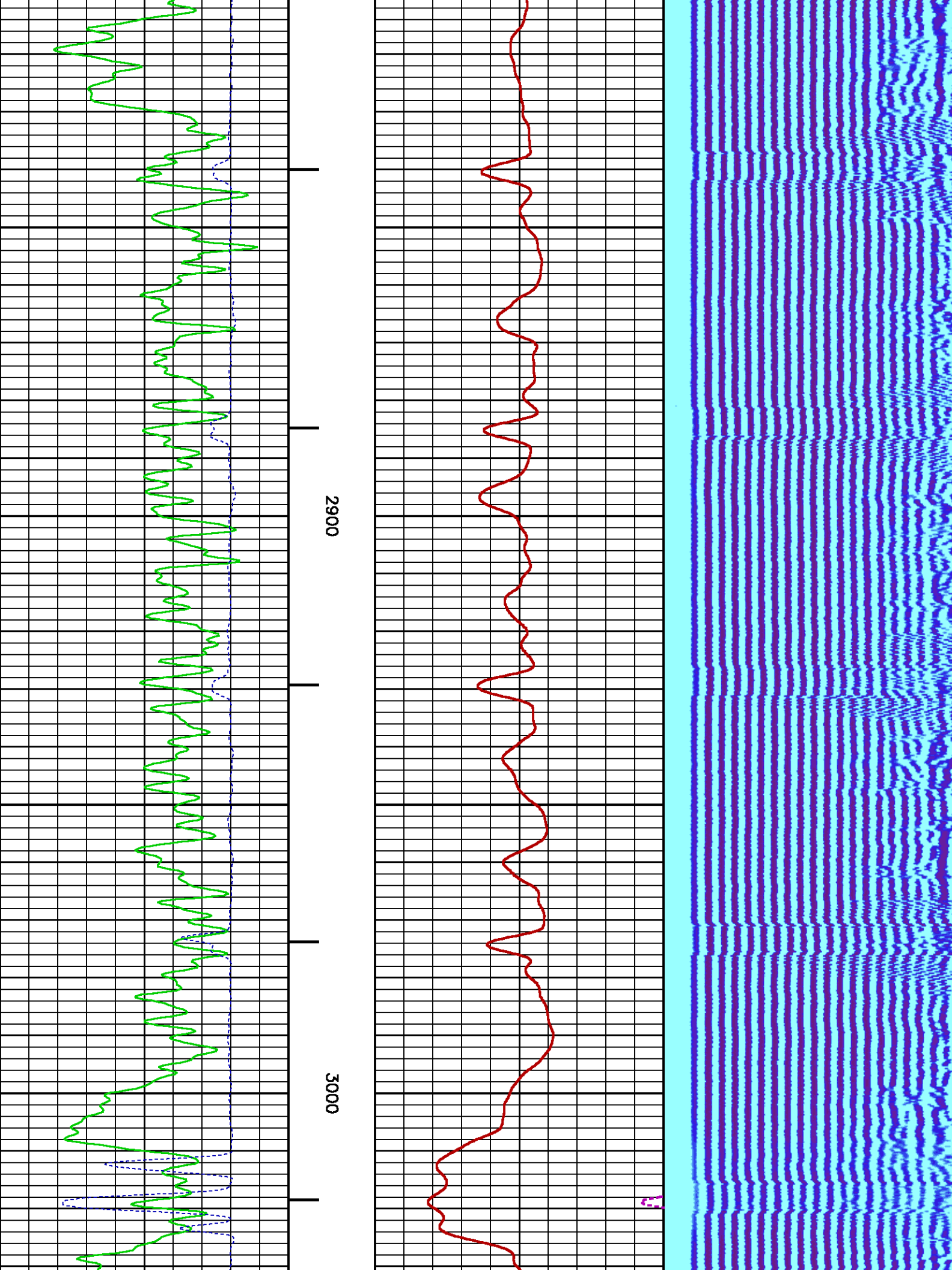




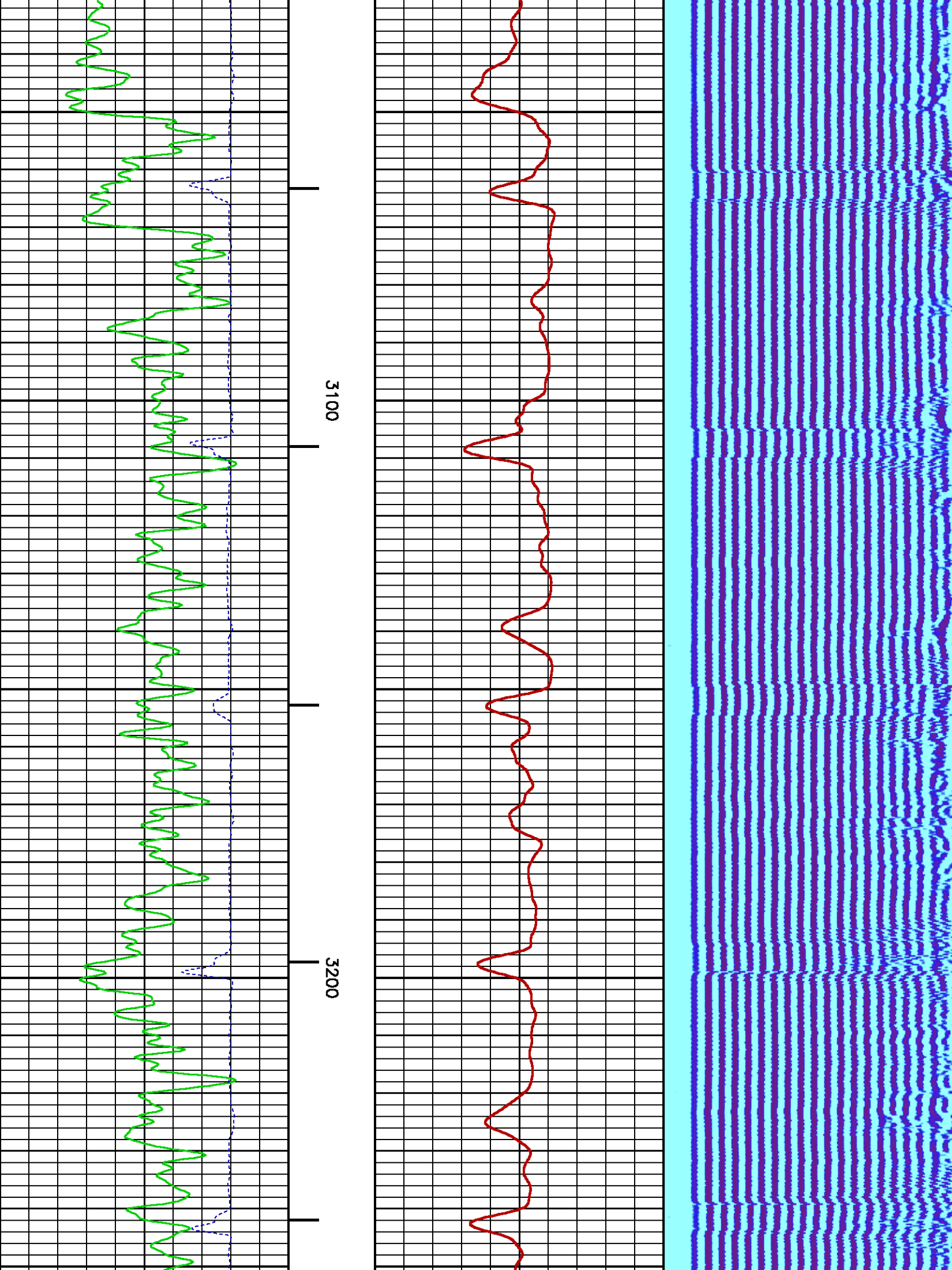


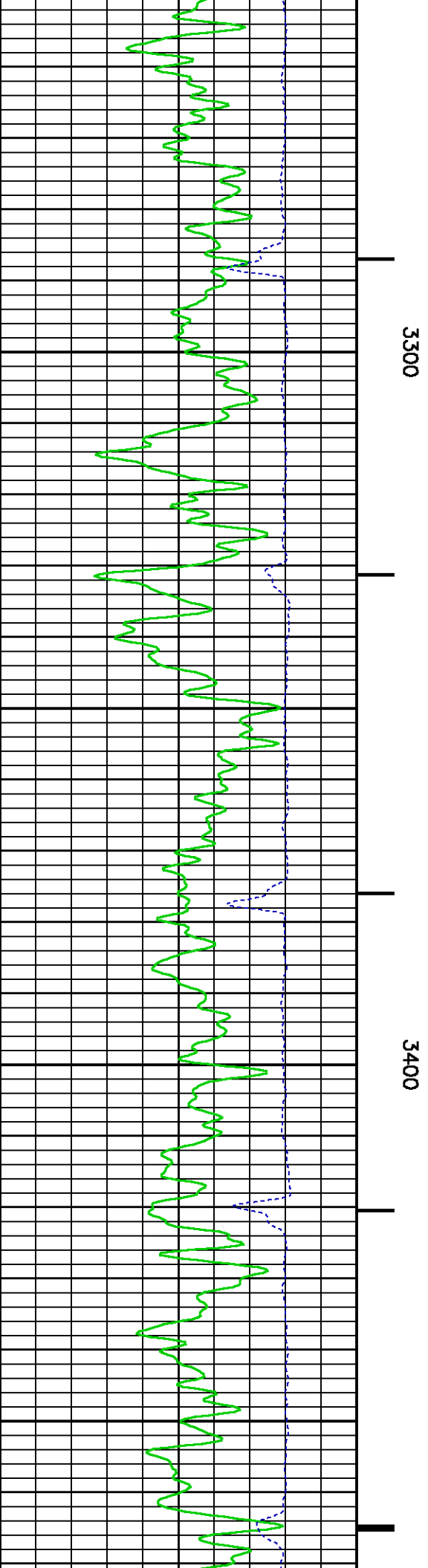
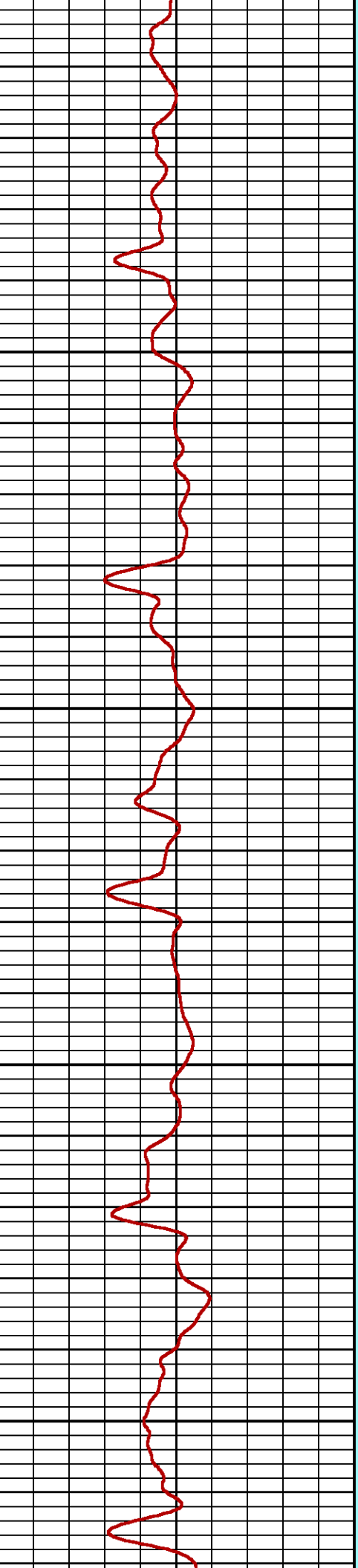
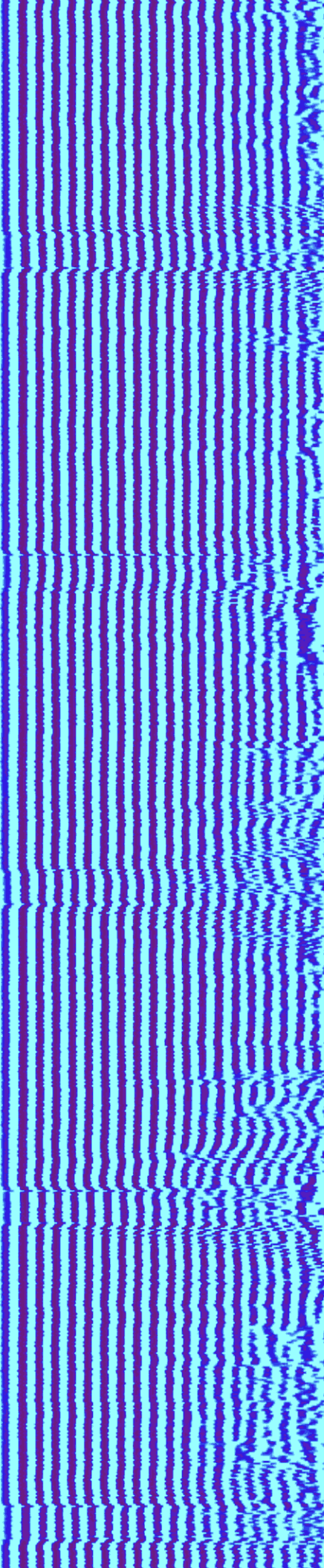


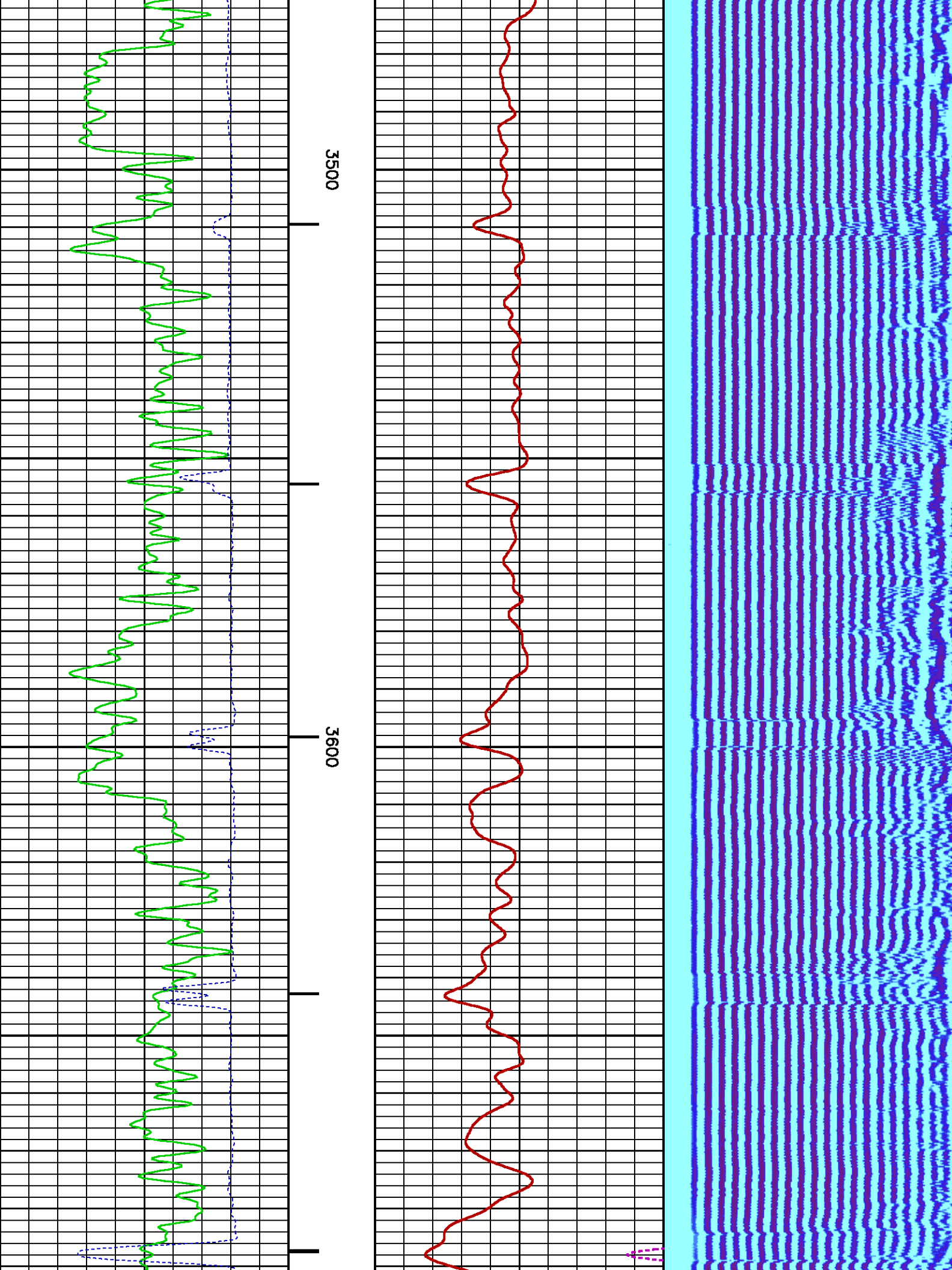




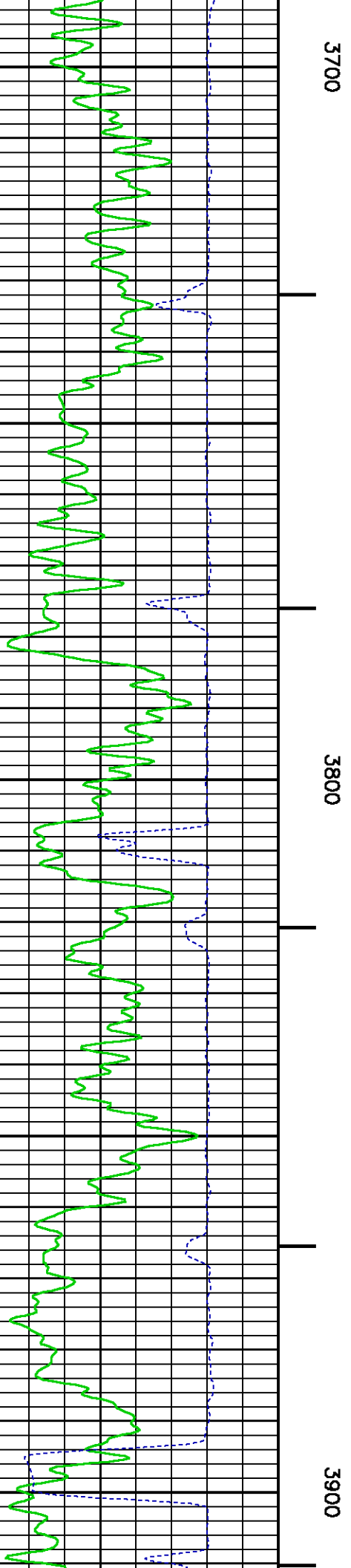
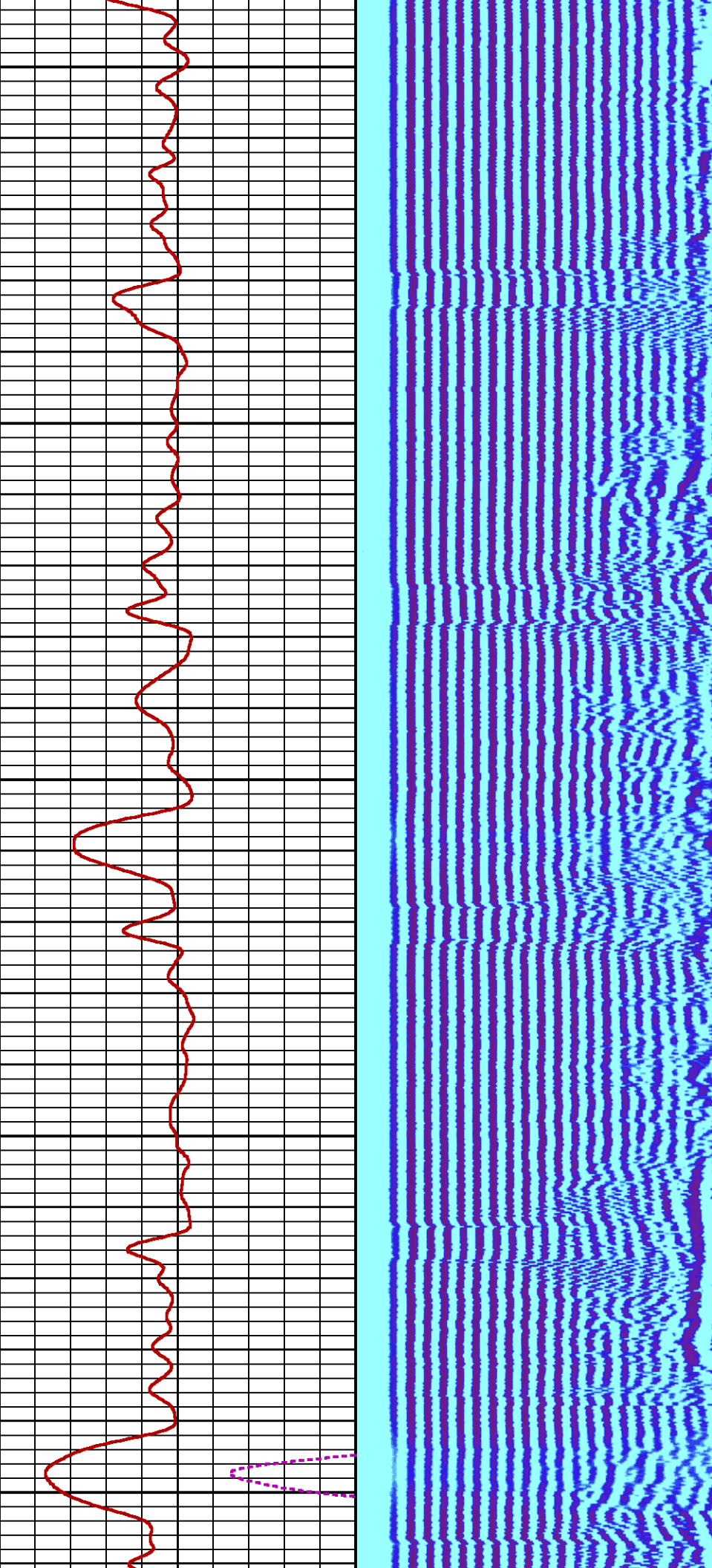


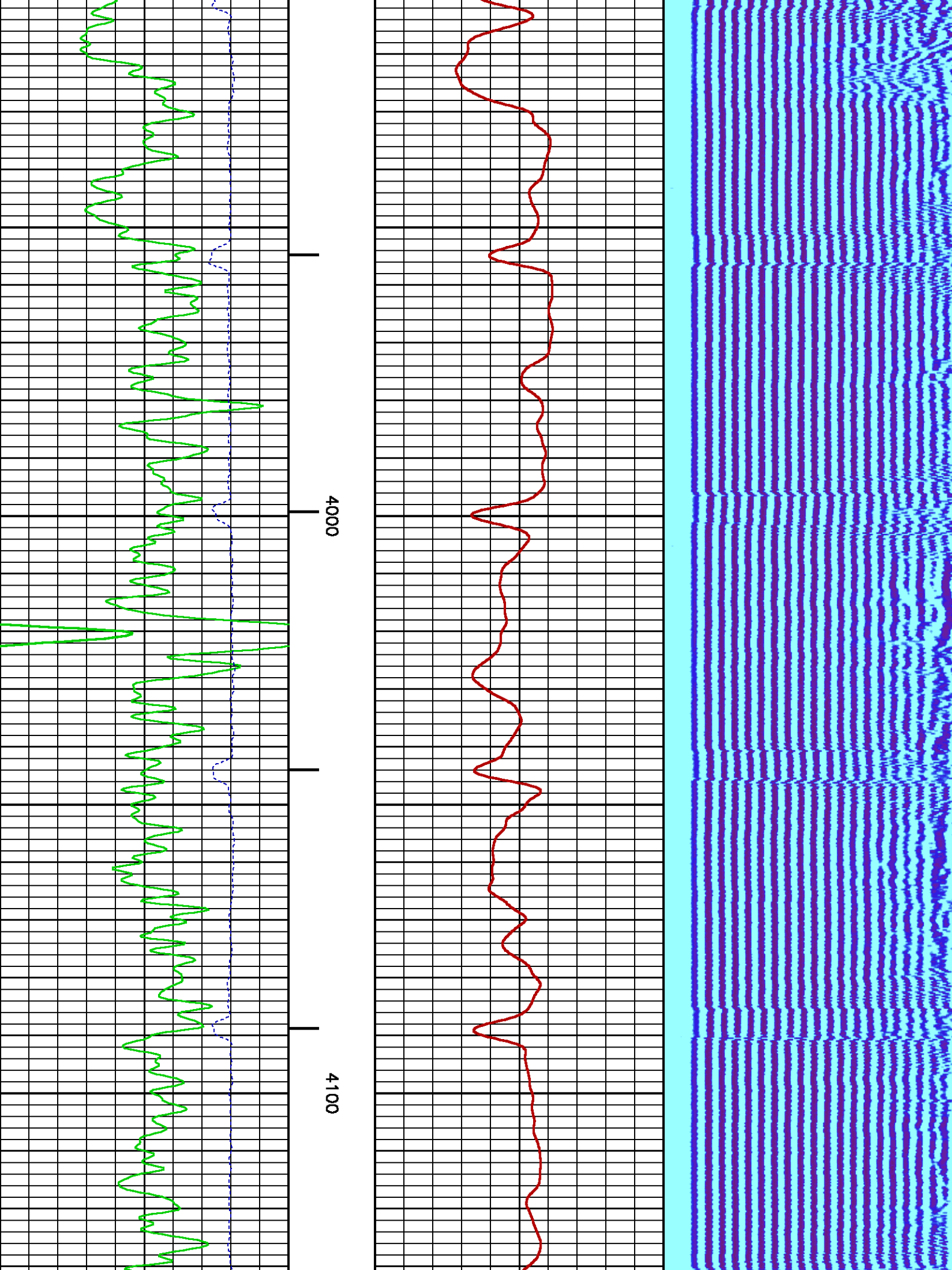


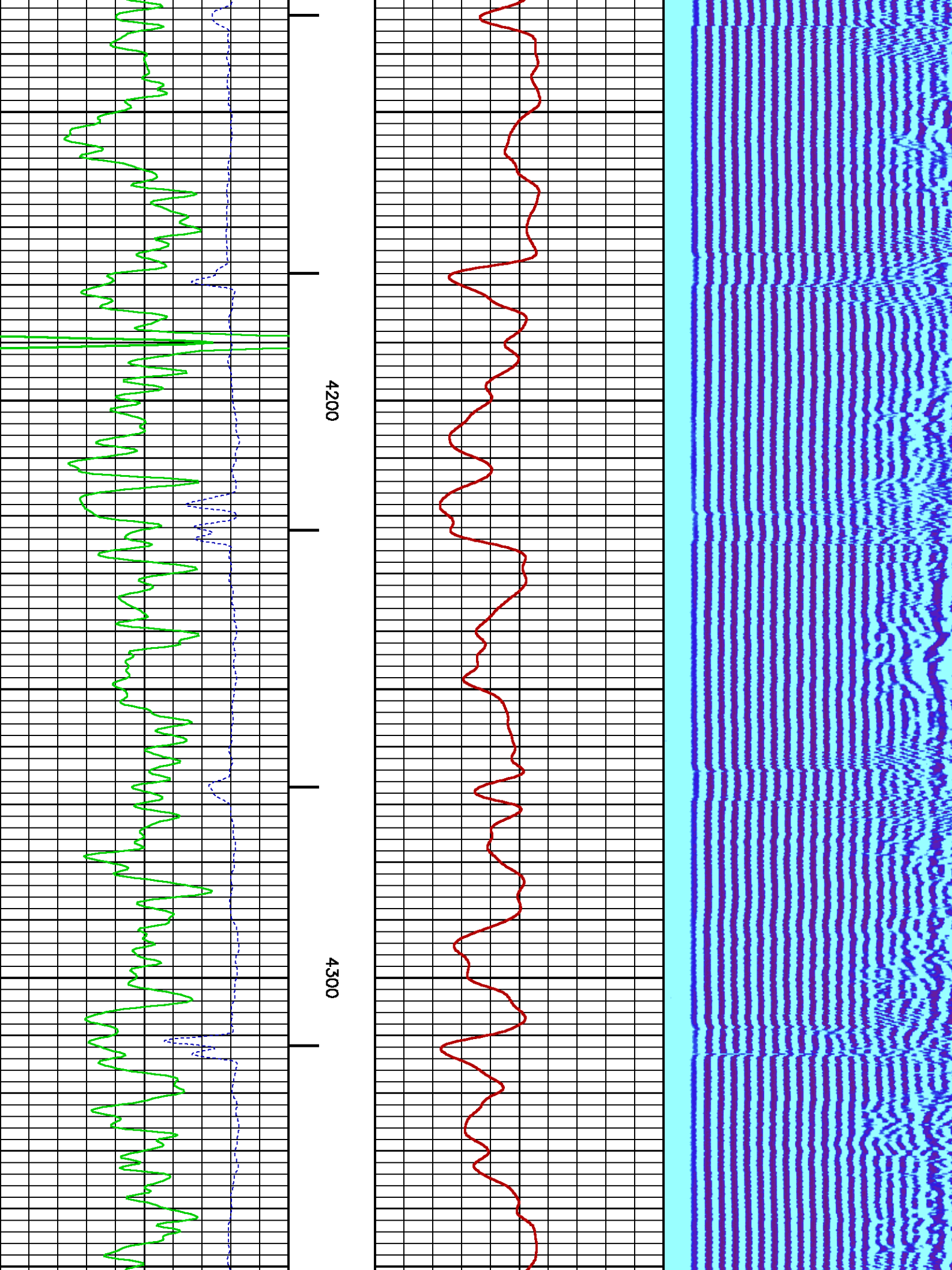




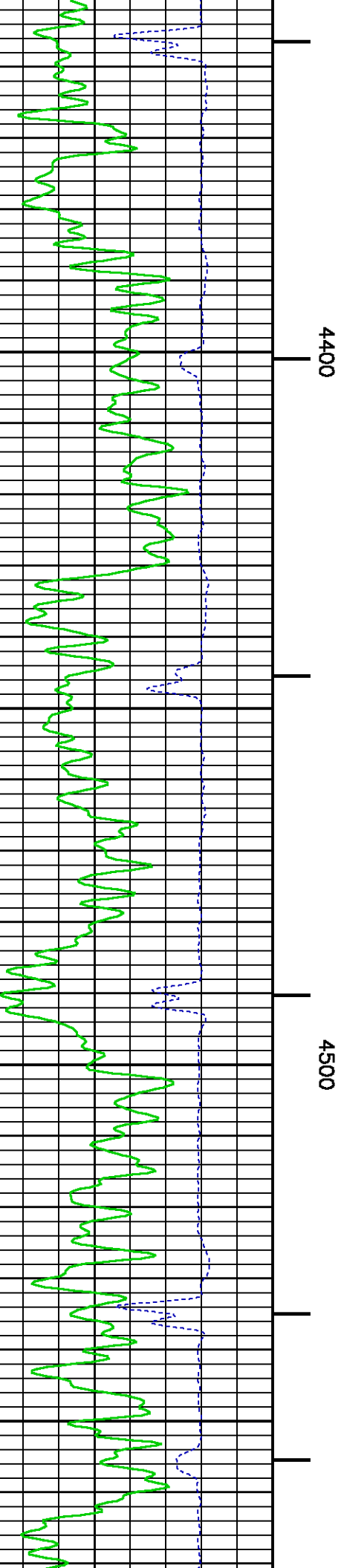
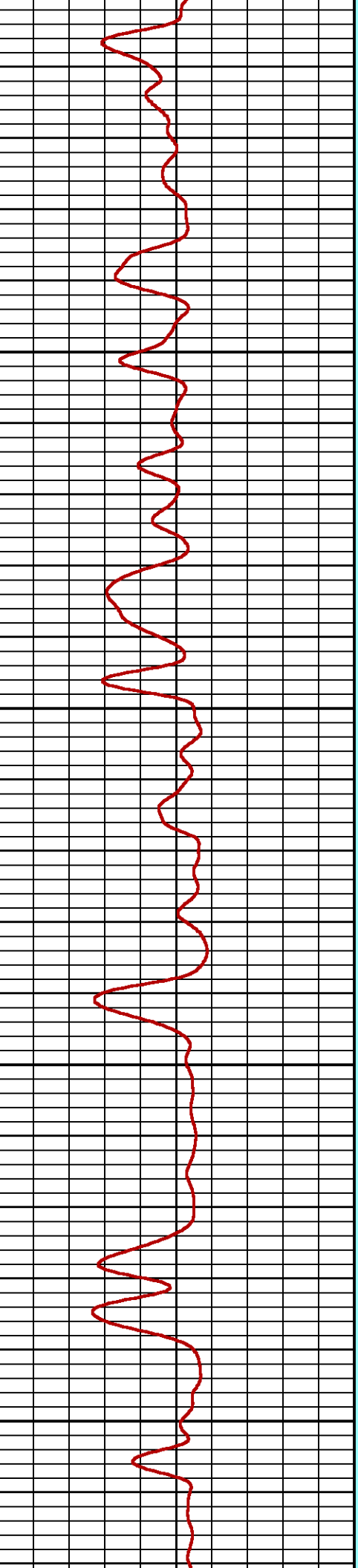
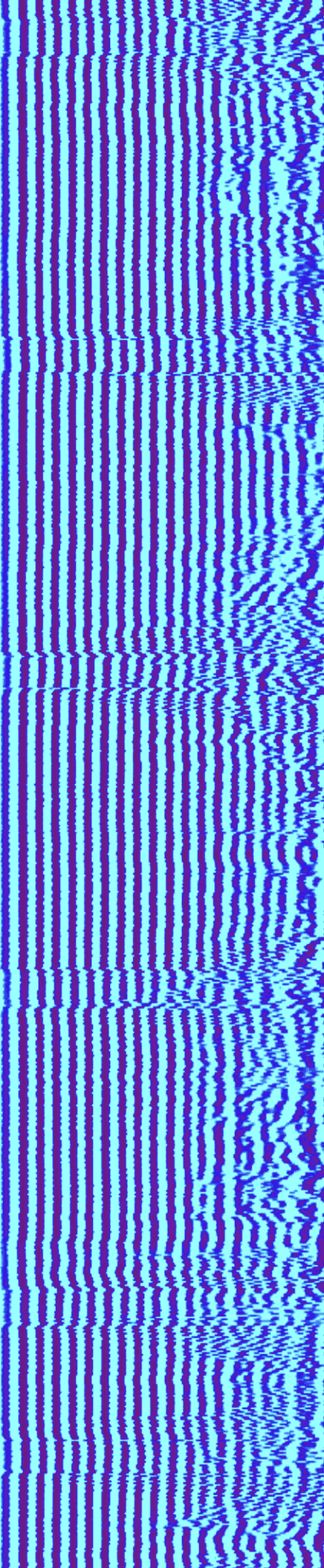


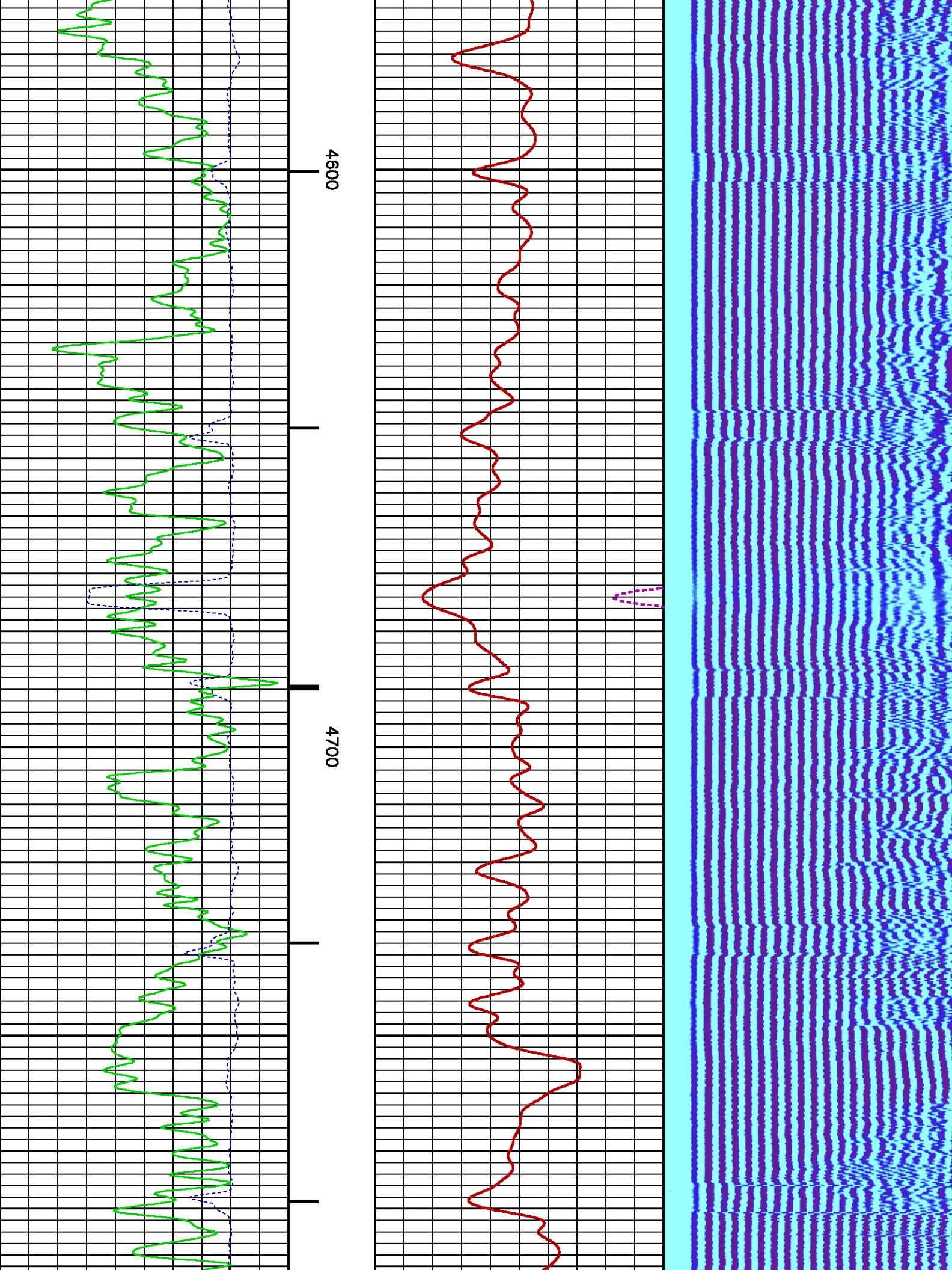


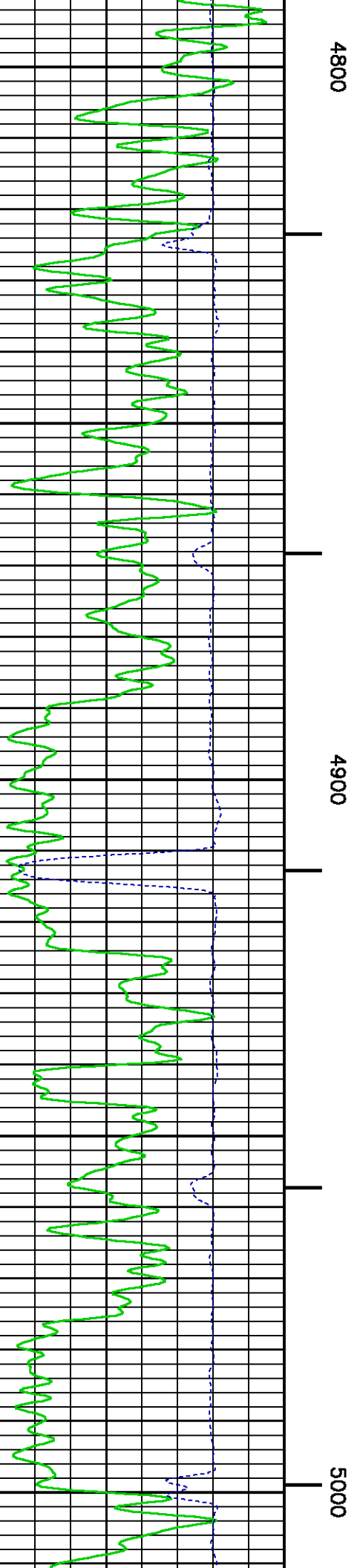
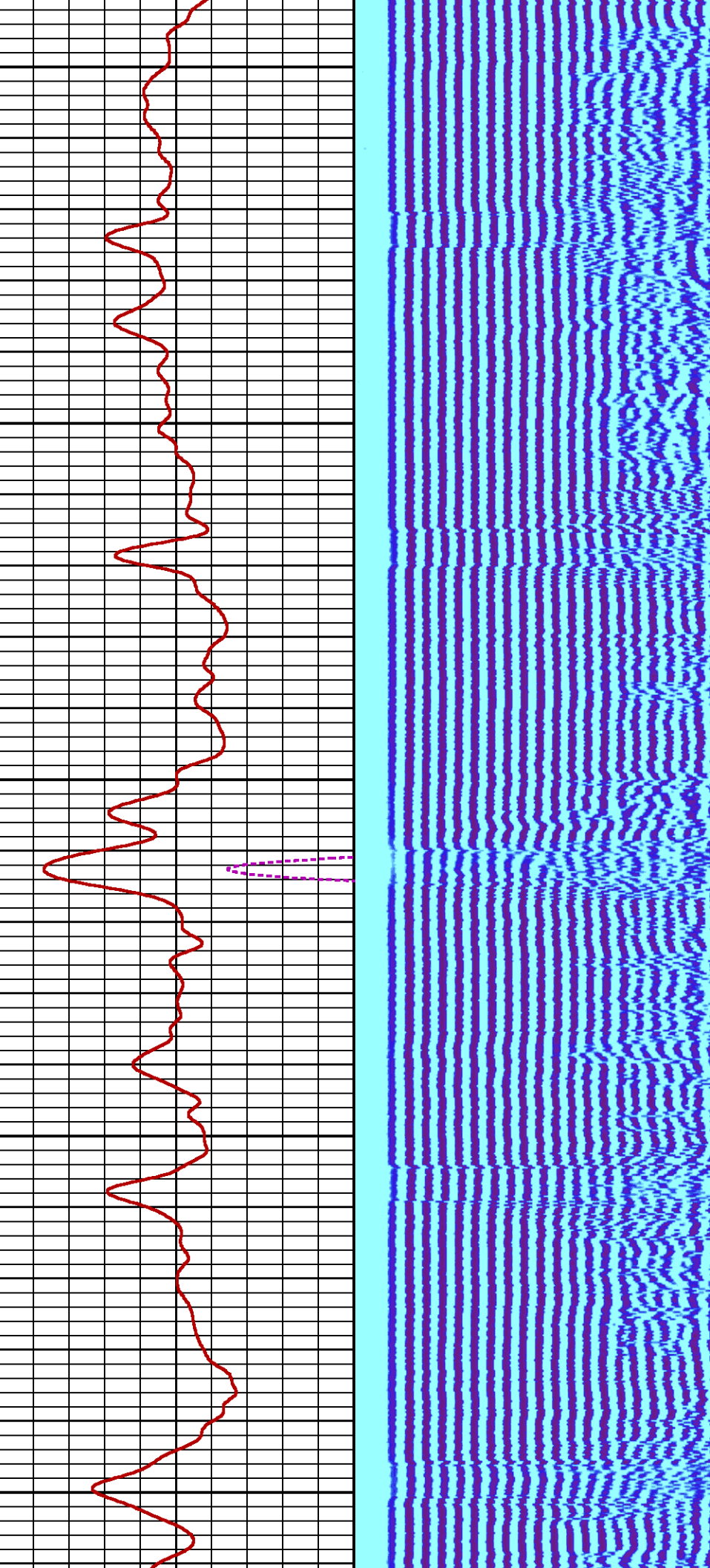




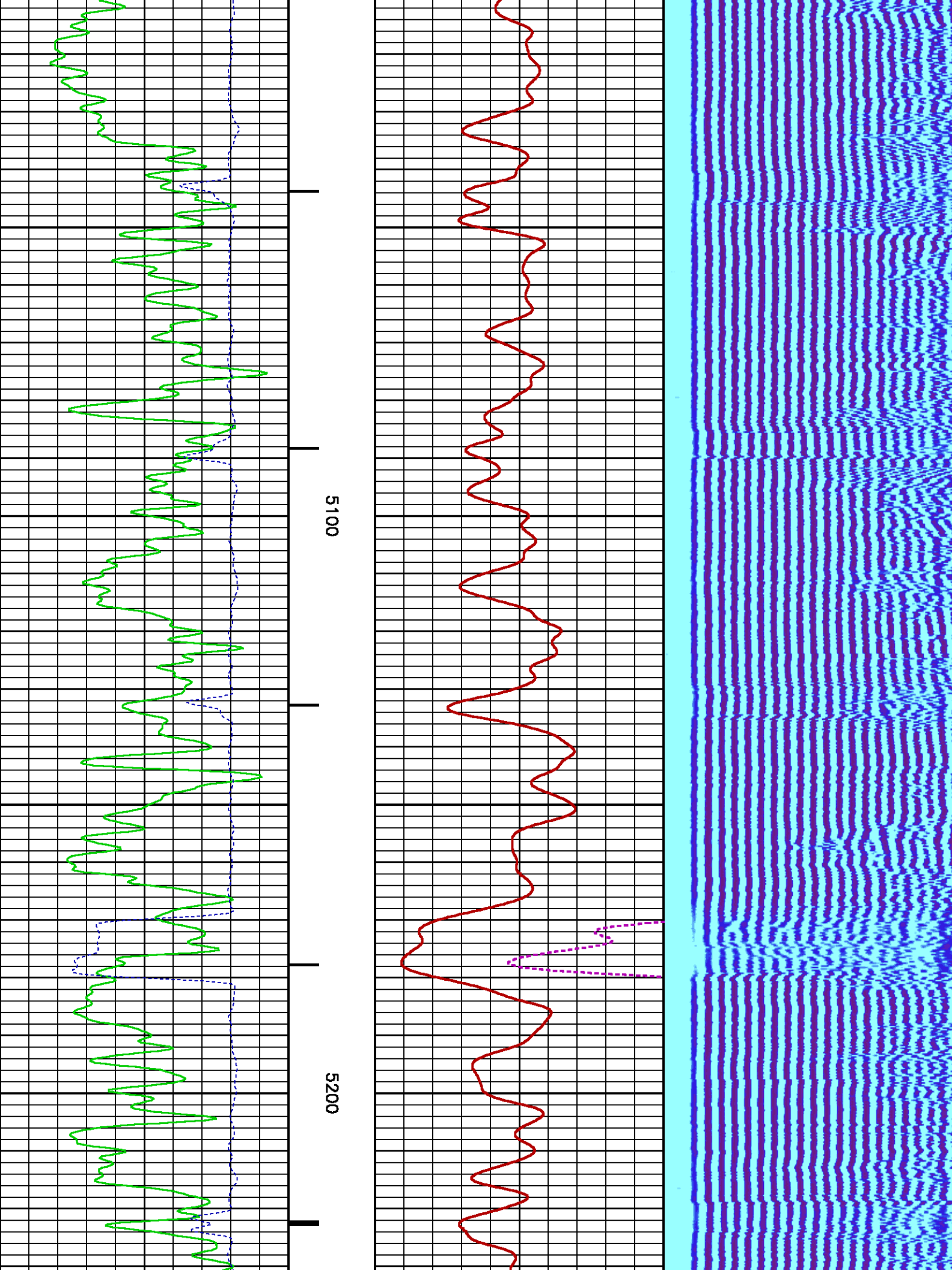


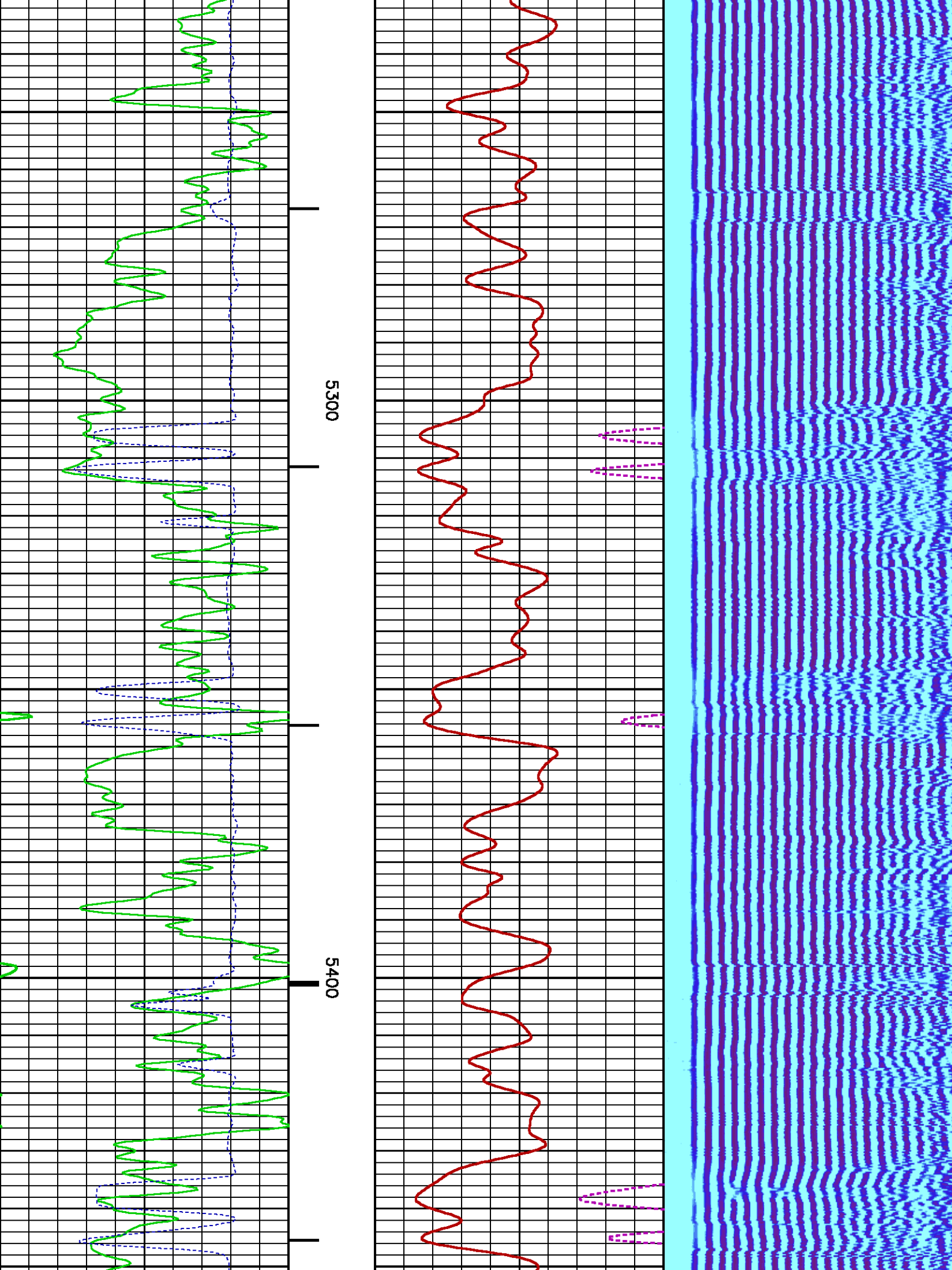


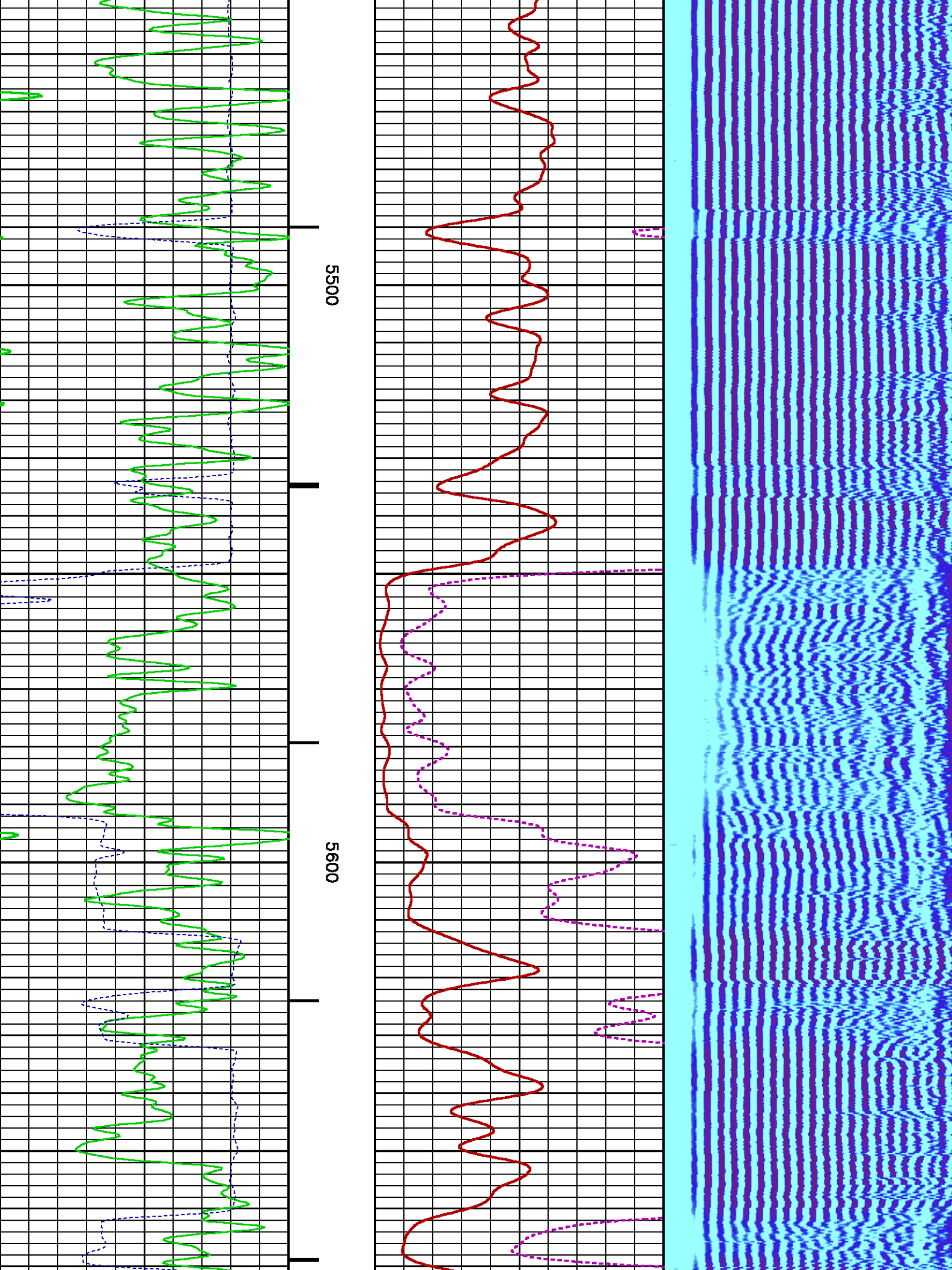




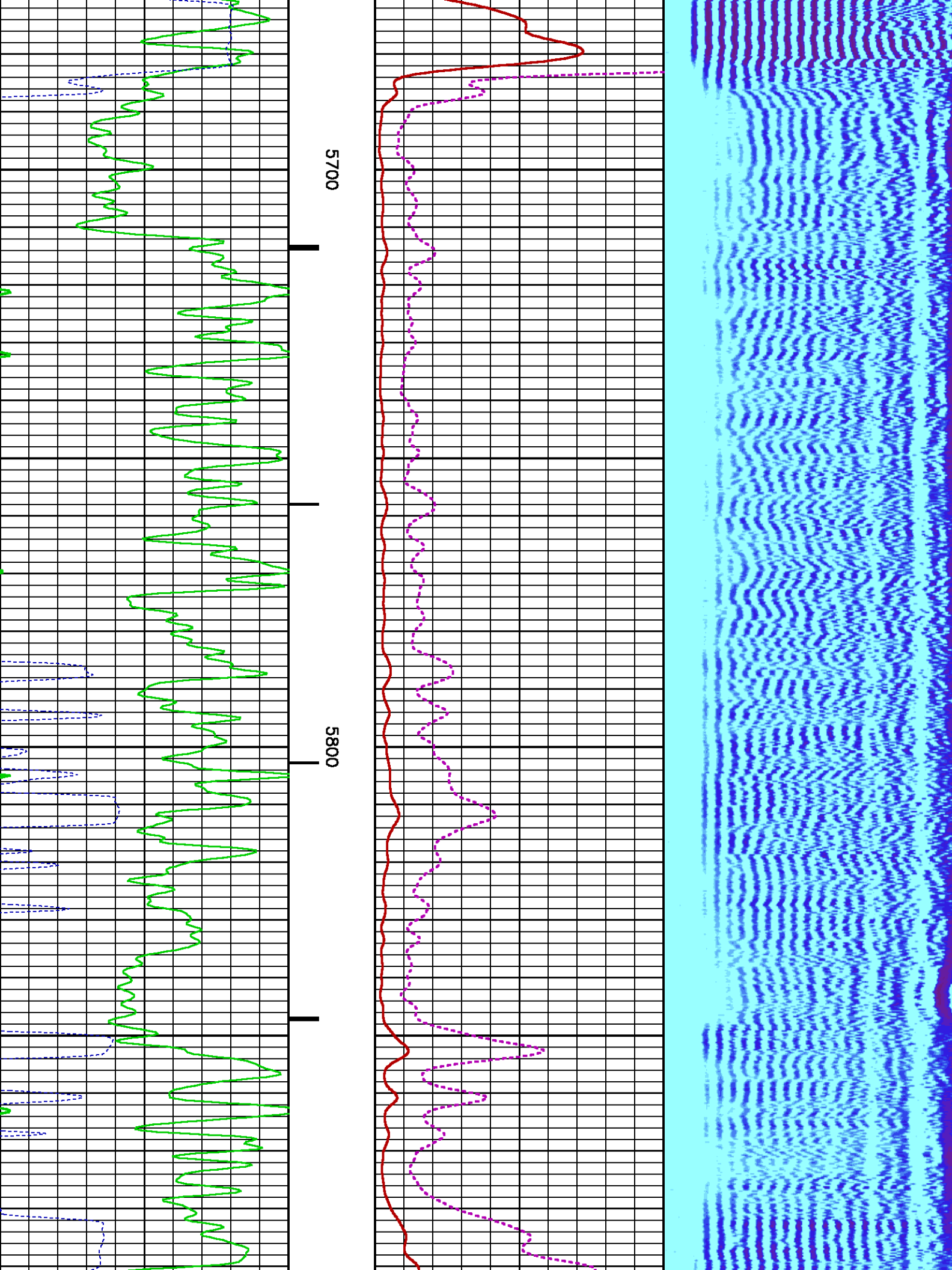


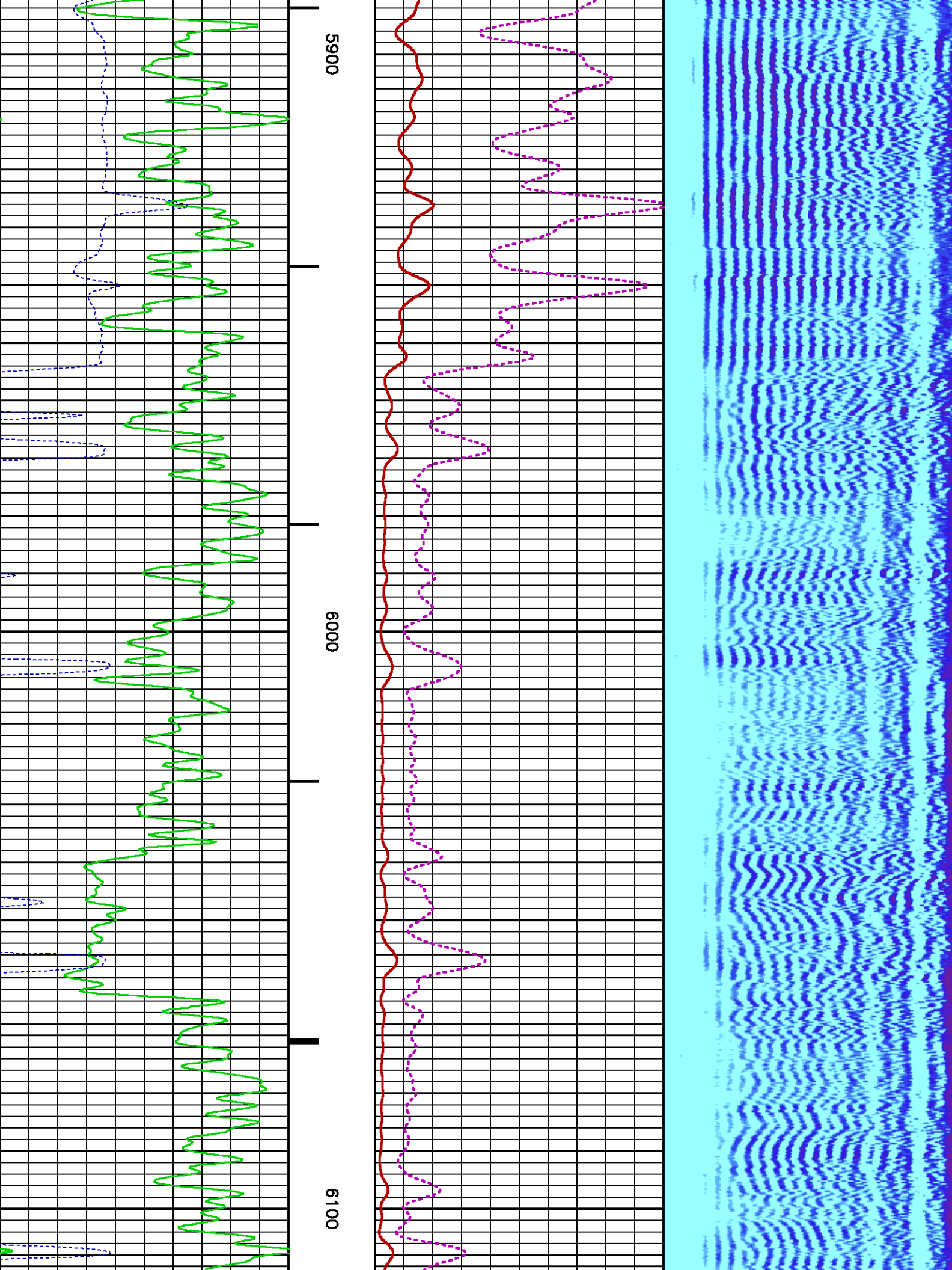


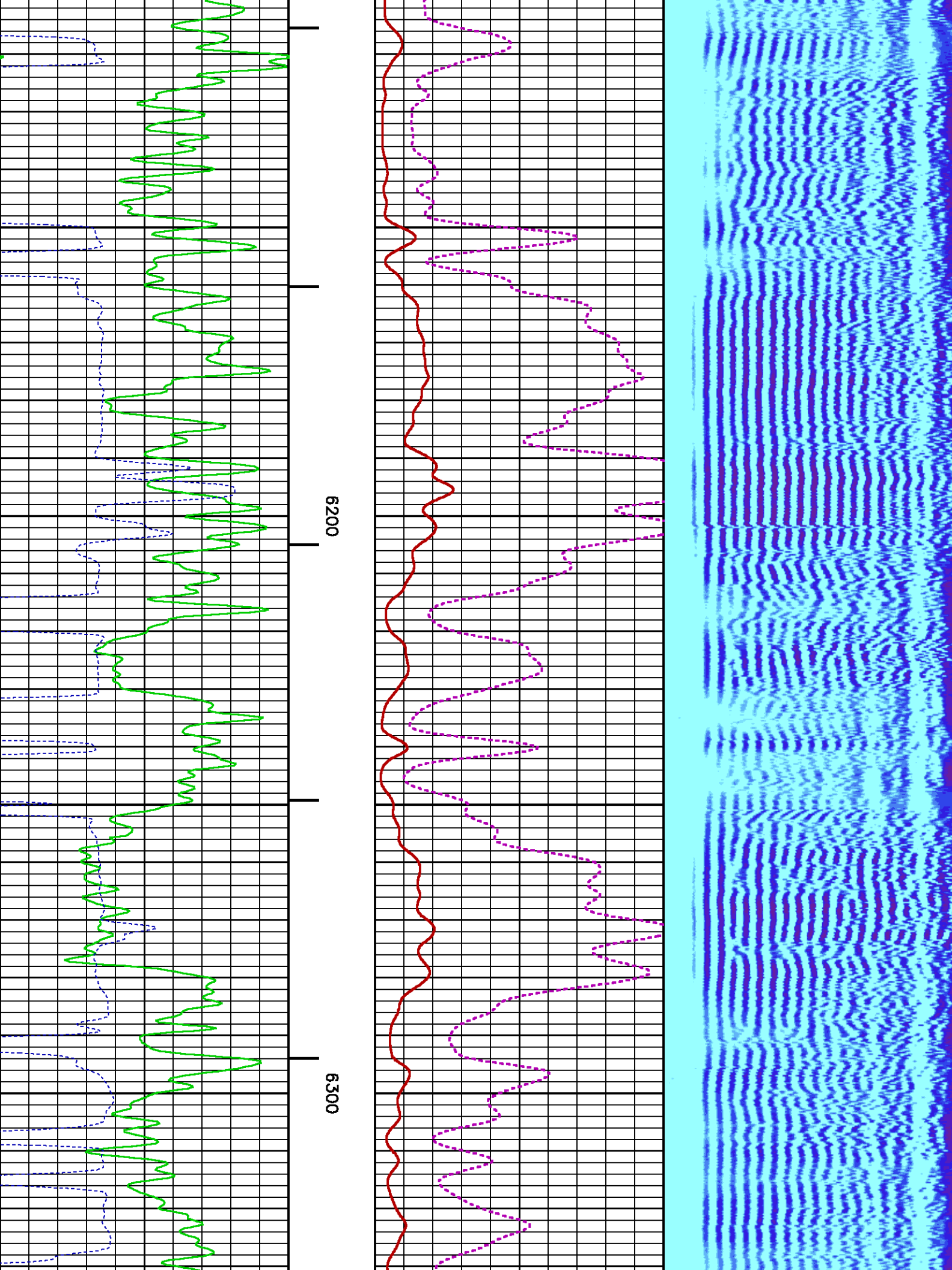




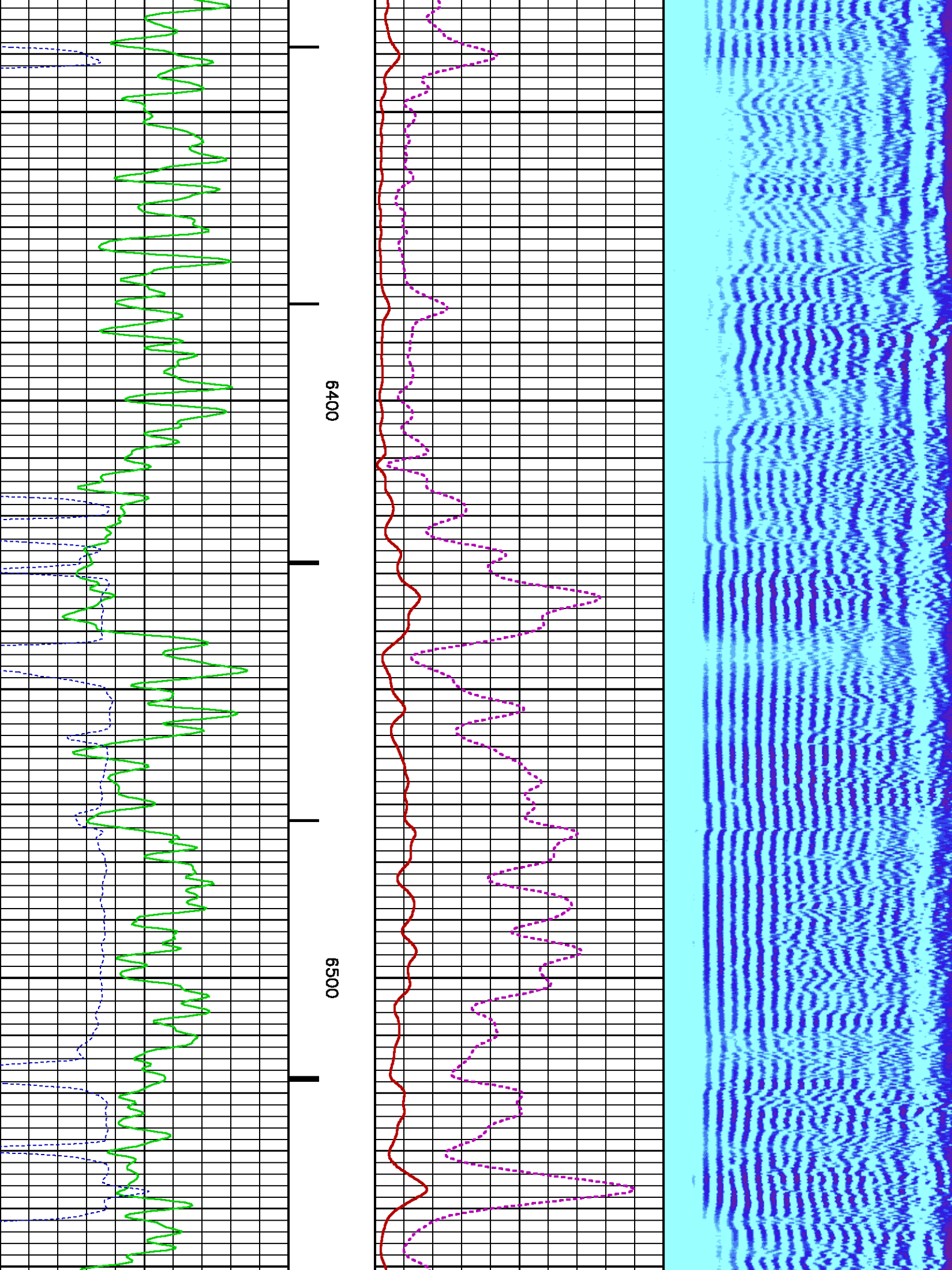


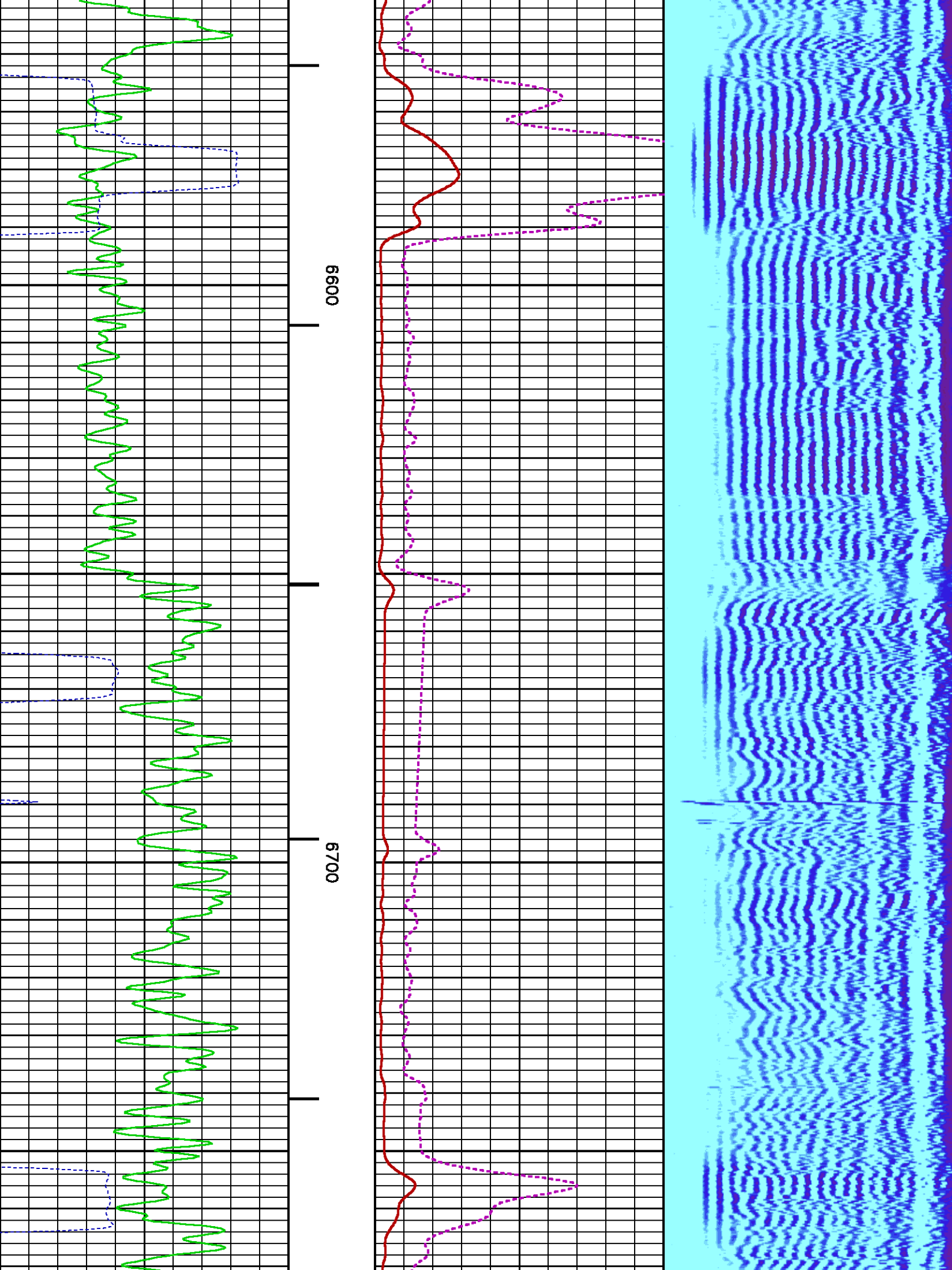


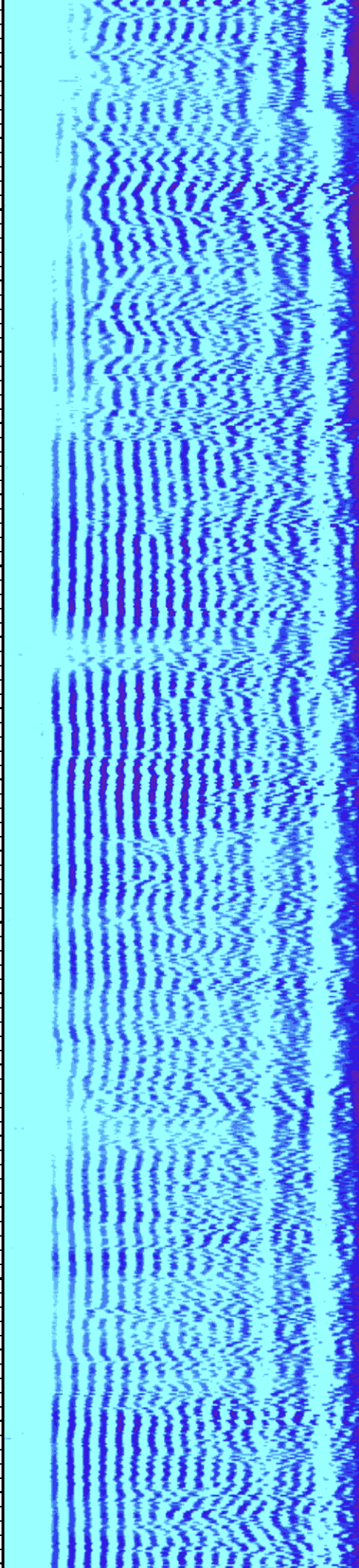
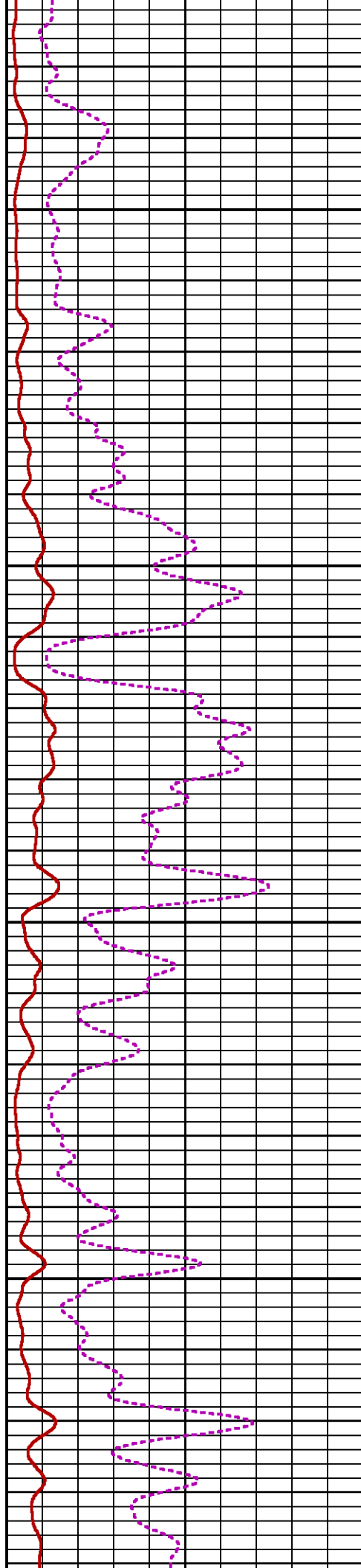
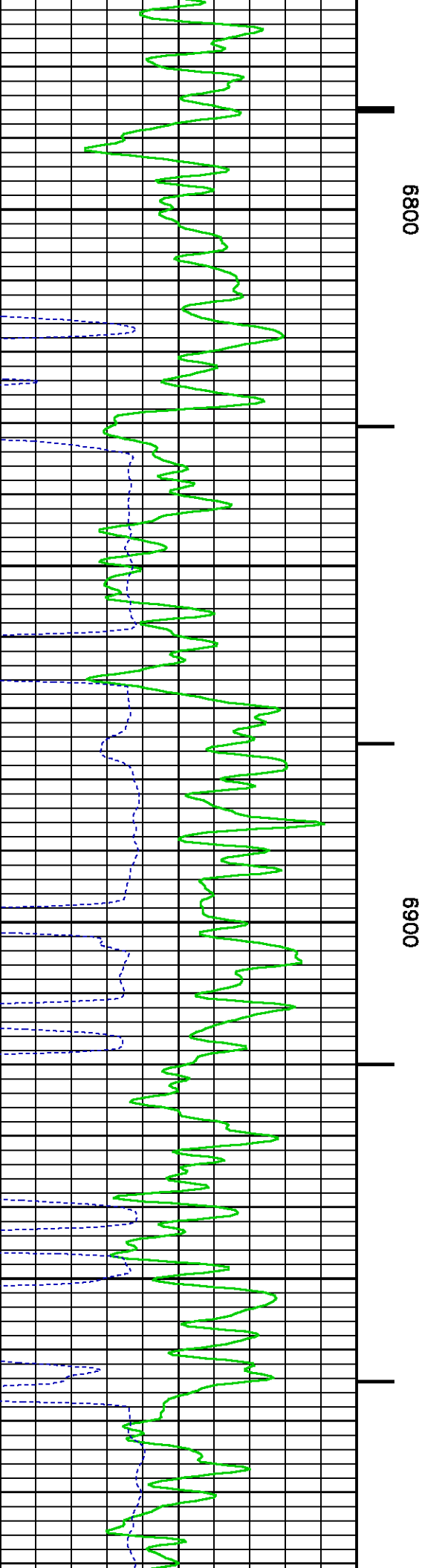




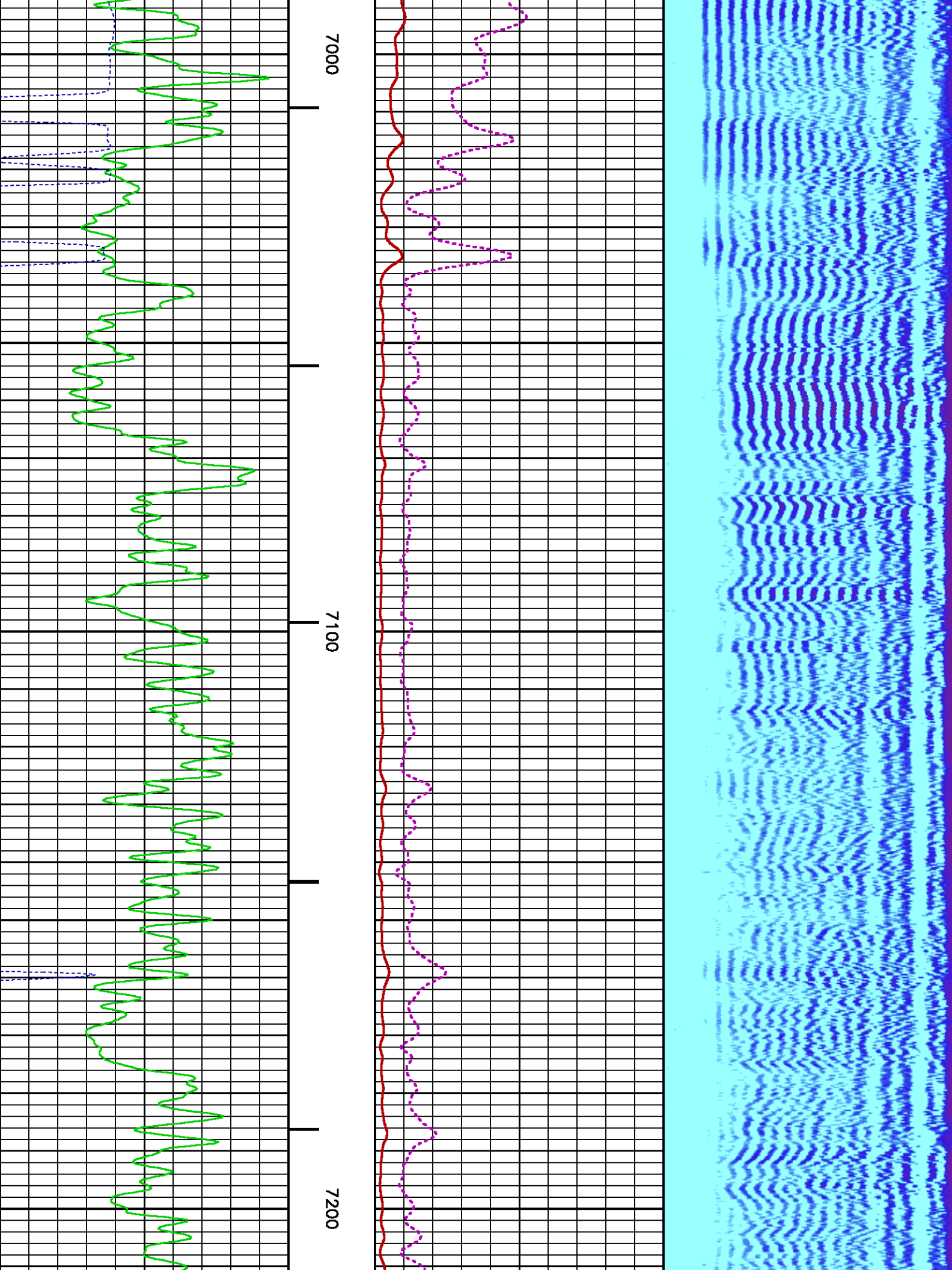


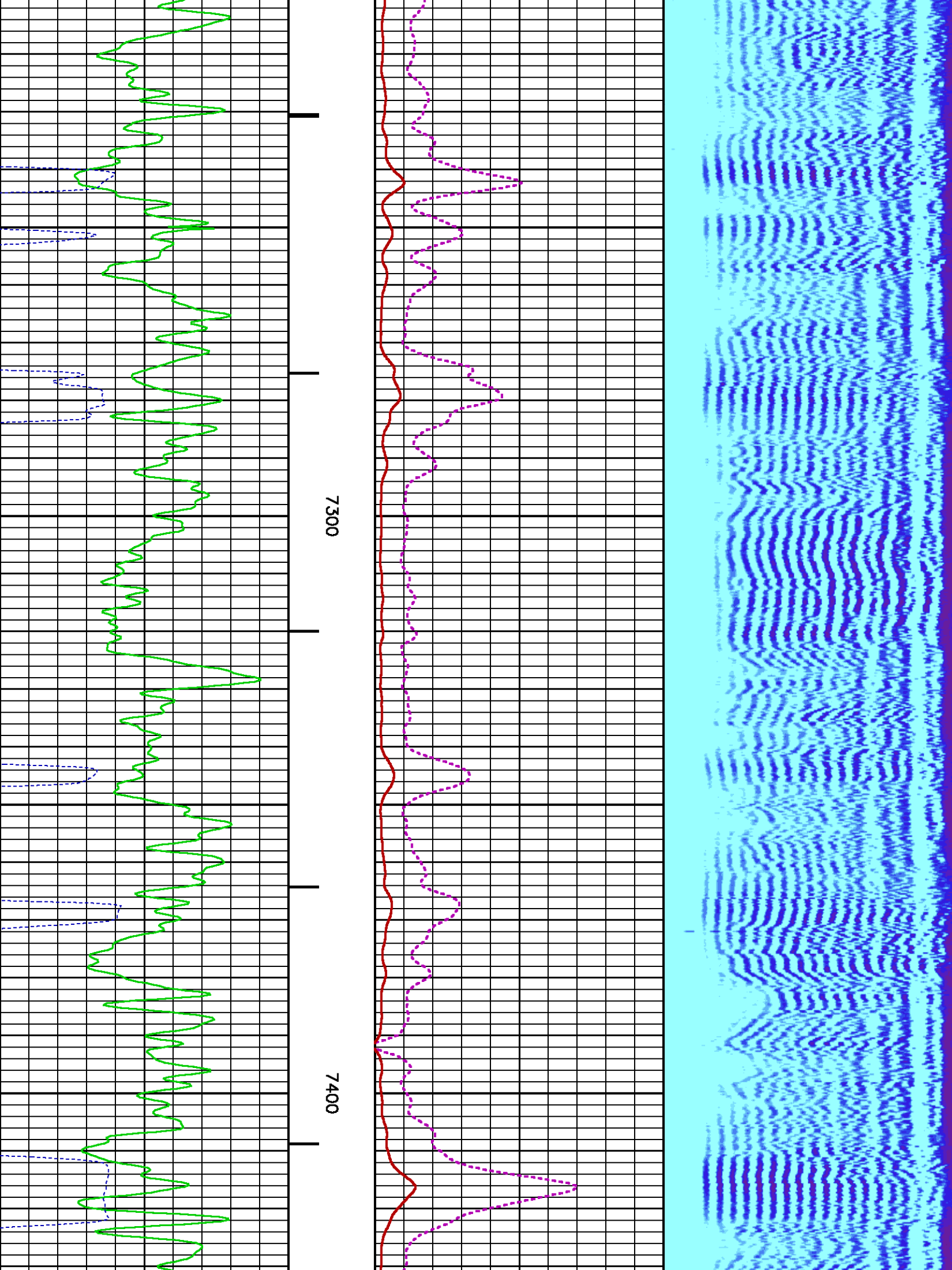


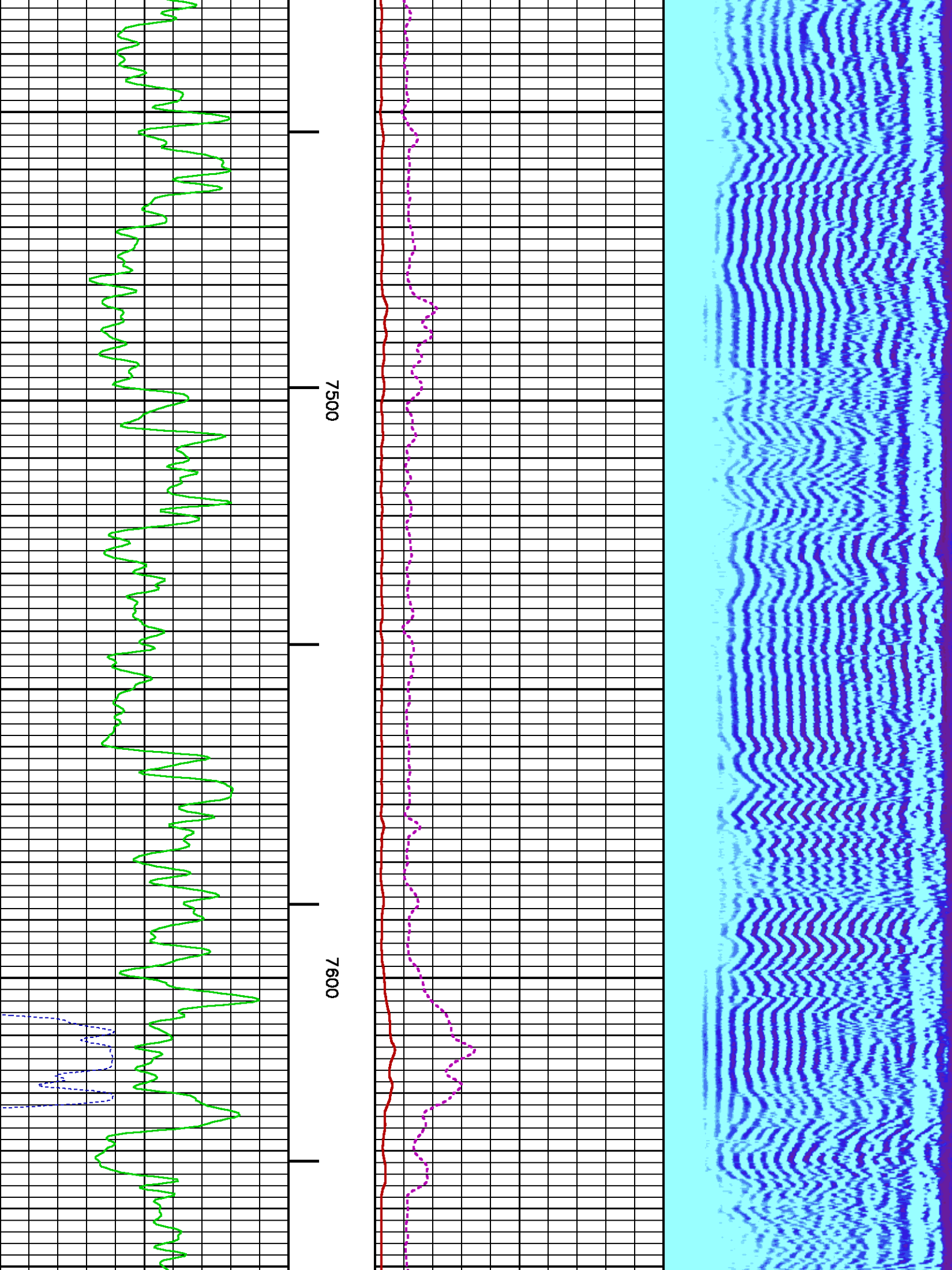




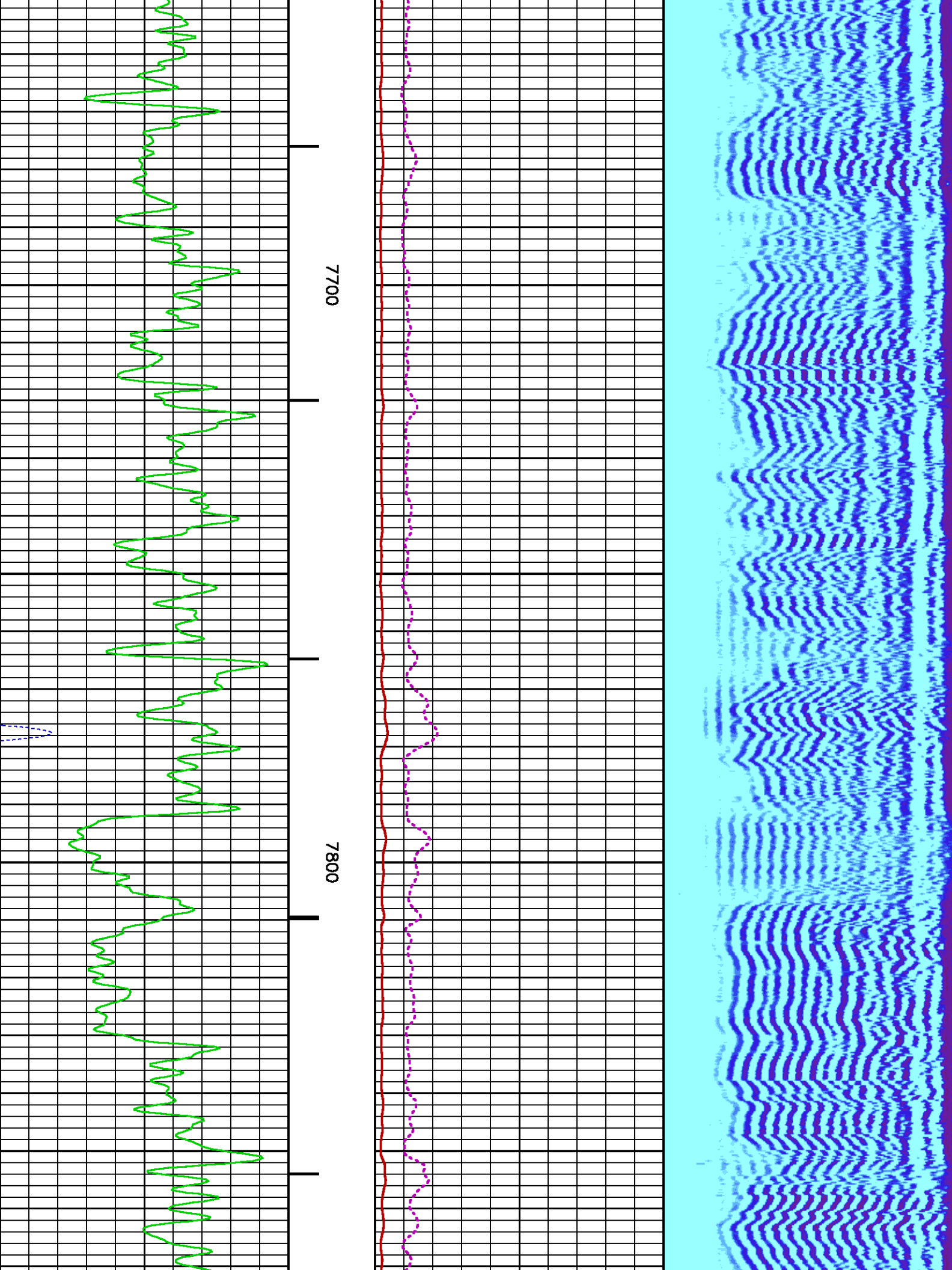


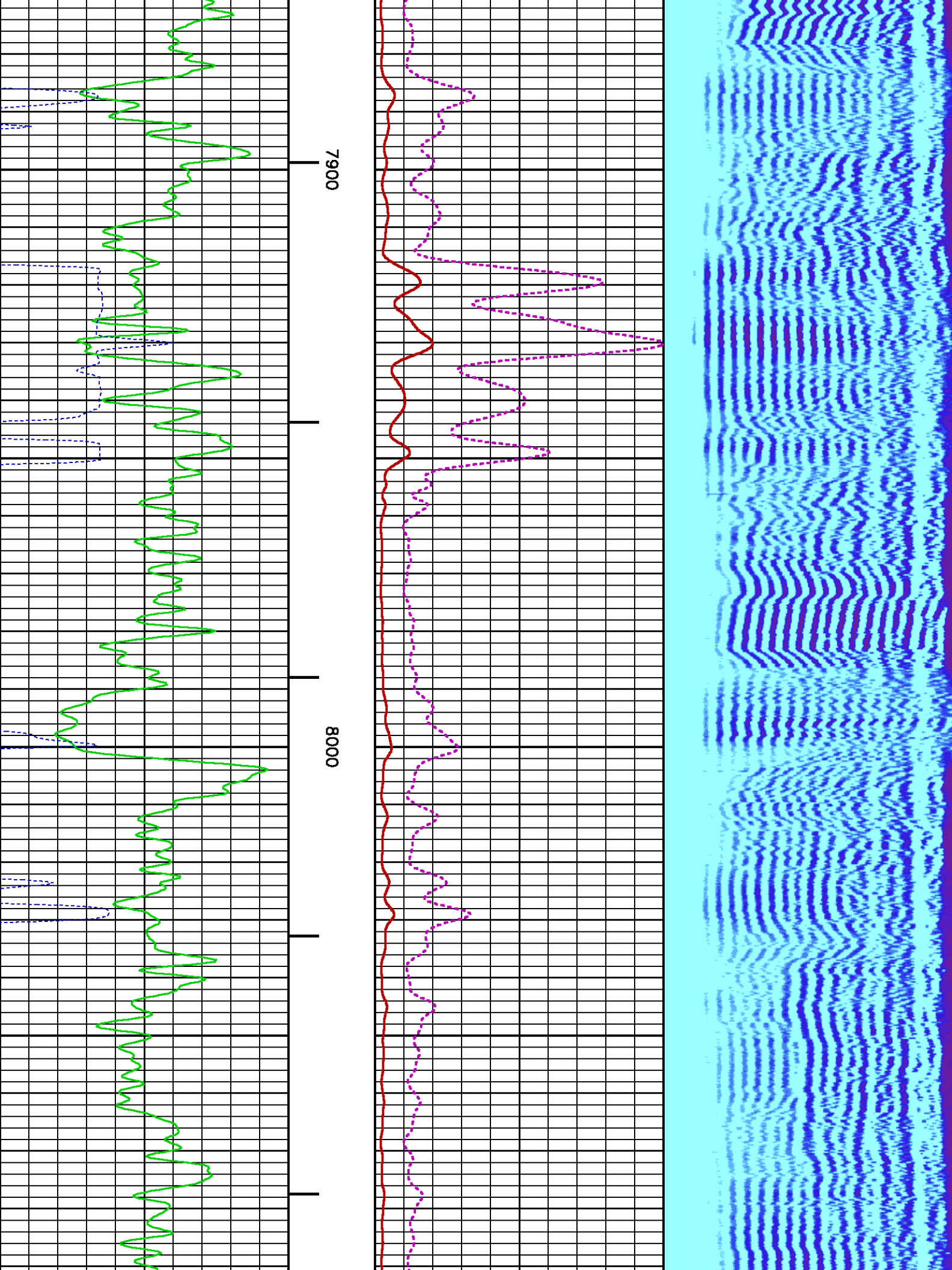


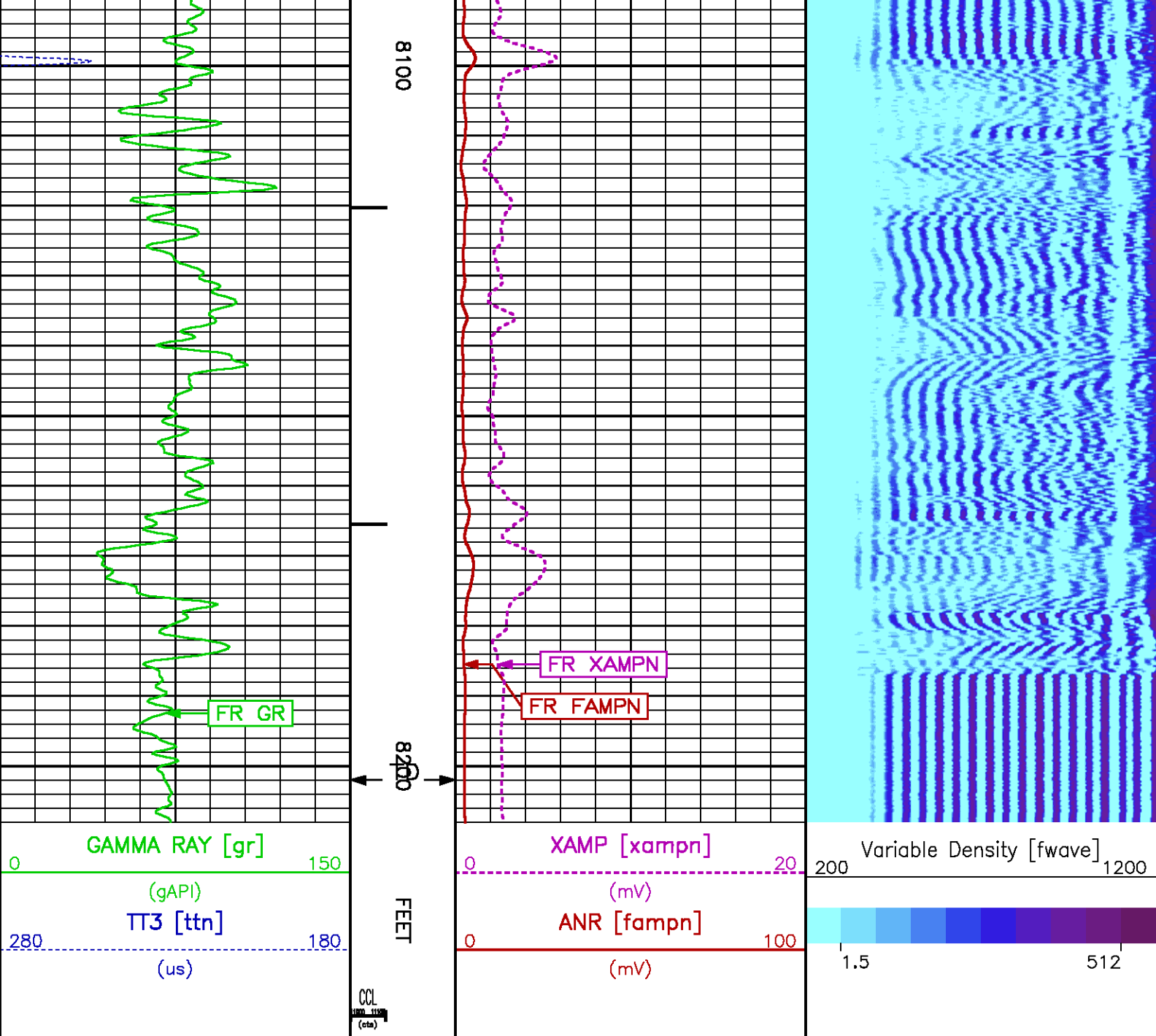












## MAIN LOG SECONDARY PRESENTATION 0 PSI

ECLIPS 6.11 Aug 06, 2010  
Updates: 1

Tue Apr 5 05:09:08 2011

Pcrplt /main/62

Cplot

Pdf\_Cpp /main/16

Fileview 5.51

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/576868/m012eR02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 14.500 ft BOTTOM DEPTH: 8212.750 ft

SYMMETRIC FILTER



SYMMETRIC FILTER					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ( )	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ( )	light (2a)		"	"
TRAVEL TIME	FILTER ( )	medium (1)		"	"
RAL CCL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM
ANALOG RAL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	187	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	187	us	"	"
	AMP WINDOW START (fgp3*)	187	us	"	"
	AMP WINDOW START (fgp4*)	187	us	"	"
	AMP WINDOW START (fgp5*)	187	us	"	"
	AMP WINDOW START (fgp6*)	187	us	"	"
	AMP WINDOW START (fgp7*)	187	us	"	"
	AMP WINDOW START (fgp8*)	187	us	"	"
	AMP WINDOW START (fgpn*)	187	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-77	us	"	"
	TOOL DELAY (str2*)	-77	us	"	"
	TOOL DELAY (str3*)	-77	us	"	"
	TOOL DELAY (str4*)	-77	us	"	"
	TOOL DELAY (str5*)	-77	us	"	"
	TOOL DELAY (str6*)	-77	us	"	"
	TOOL DELAY (str7*)	-77	us	"	"
	TOOL DELAY (str8*)	-77	us	"	"
	TOOL DELAY (strn*)	-77	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"
PERCENT BOND CEMENT MAP					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"
	FULL BOND AMP REC 3	2	mV	"	"
	FULL BOND AMP REC 4	2	mV	"	"
	FULL BOND AMP REC 5	2	mV	"	"
	FULL BOND AMP REC 6	2	mV	"	"
	FULL BOND AMP REC 7	2	mV	"	"
	FULL BOND AMP REC 8	2	mV	"	"
CURVE DESCRIPTION REPORT					
CURVE NAME	CREATION DATE	CURVE DESCRIPTION			
F1:AR1	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R1			
F1:AR2	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R2			
F1:AR3	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R3			
F1:AR4	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R4			
F1:AR5	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R5			
F1:AR6	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R6			
F1:AR7	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R7			
F1:AR8	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE T-R8			
F1:CCL	Mar 30 21:10:13 2011	CASING COLLAR LOCATOR			
F1:FAMPN	Mar 30 21:10:13 2011	FIXED GATE AMPLITUDE NEAR RECEIVER			
F1:FWAVE	Mar 30 21:10:13 2011	FAR WAVE FORM			

F1:GR  
F1:PBMAP  
F1:TTN  
F1:XAMPN

Mar 30 21:10:13 2011  
Mar 30 21:10:13 2011  
Mar 30 21:10:13 2011  
Mar 30 21:10:13 2011

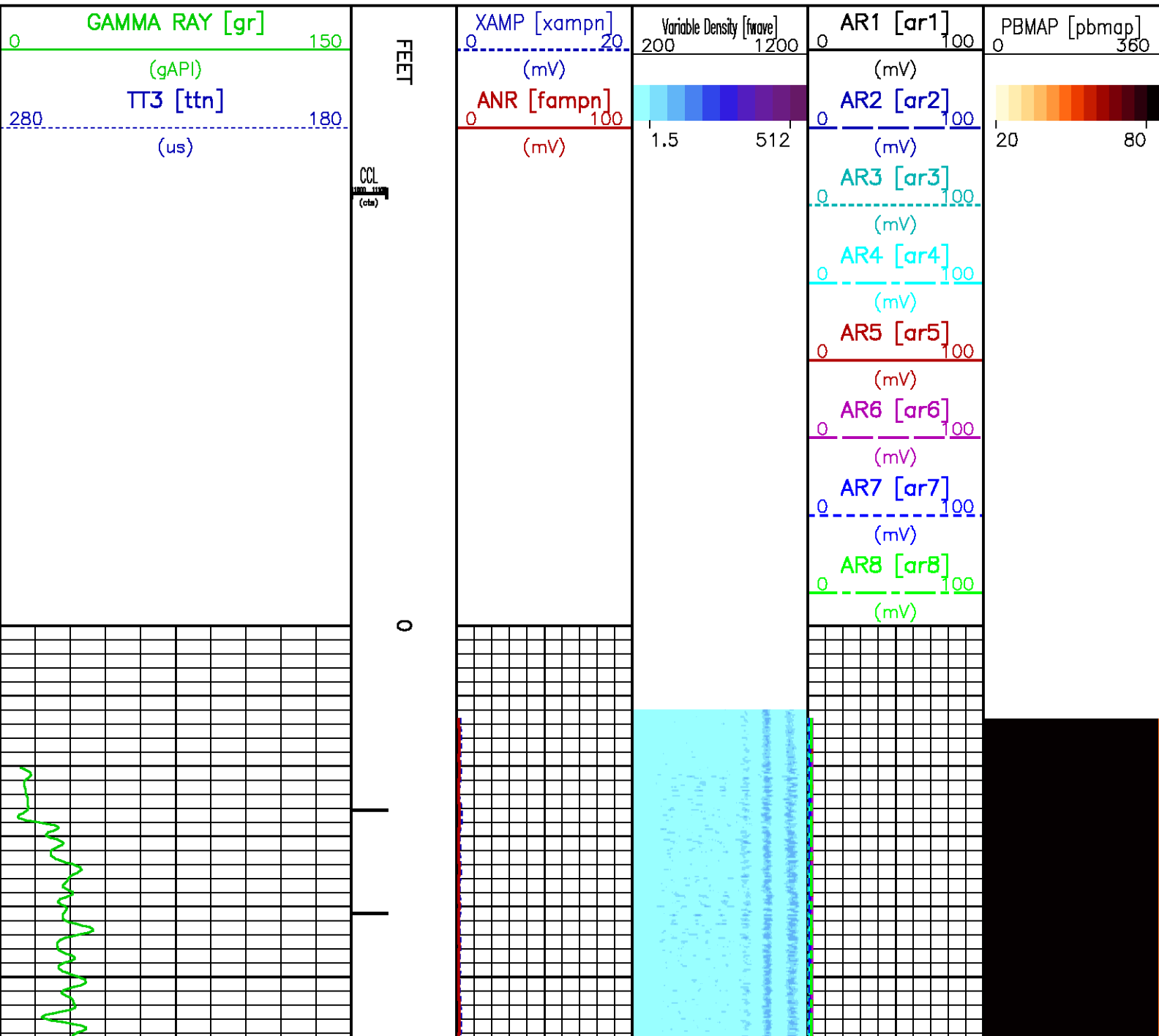
GAMMA RAY  
PERCENT BOND CEMENT MAP  
TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER  
FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

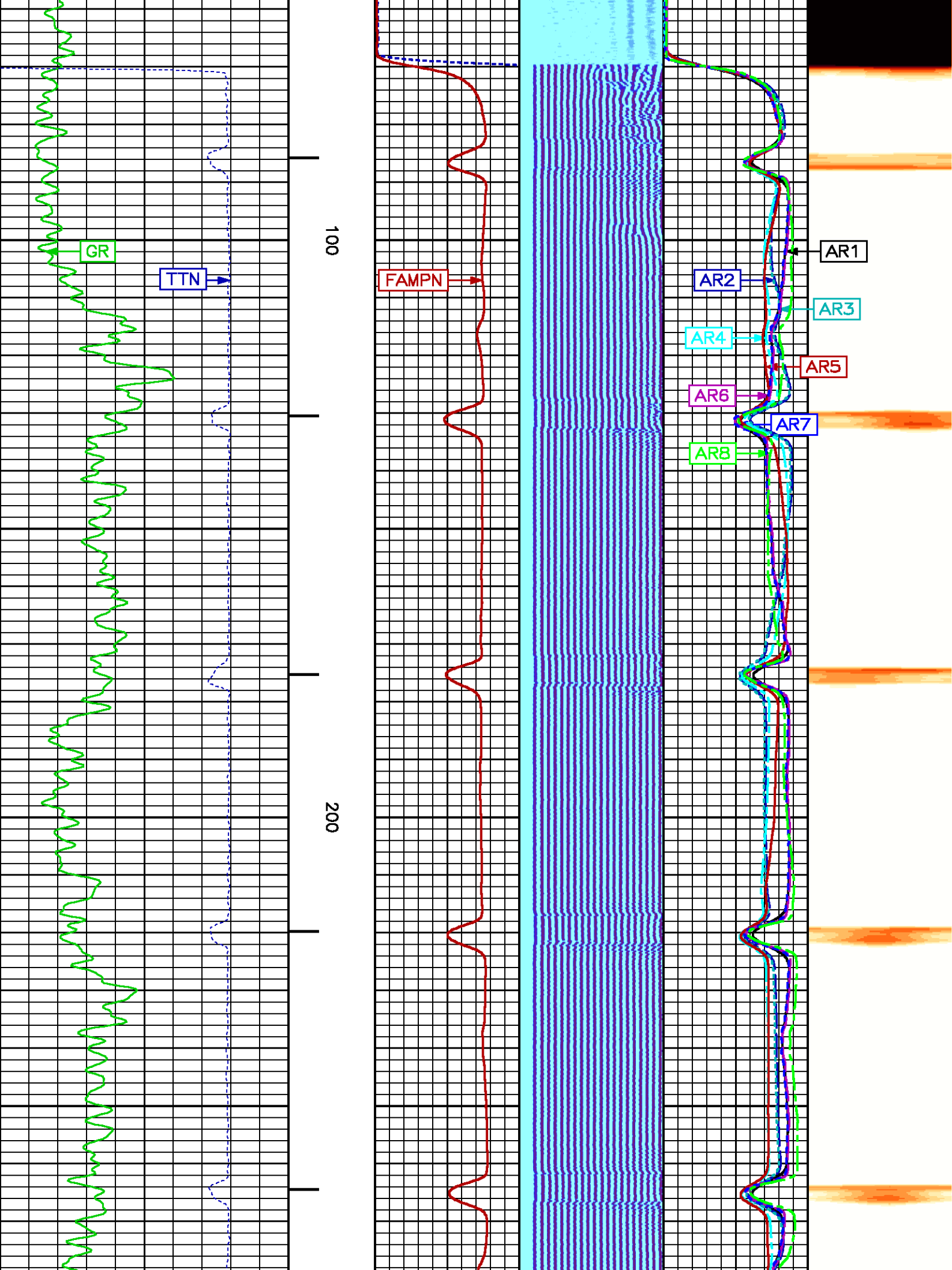
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	16.50	AR5	16.50	CCL	11.50	XAMPN	16.50
AR2	16.50	AR6	16.50	FAMPN	16.50		
AR3	16.50	AR7	16.50	GR	9.50		
AR4	16.50	AR8	16.50	TTN	16.50		

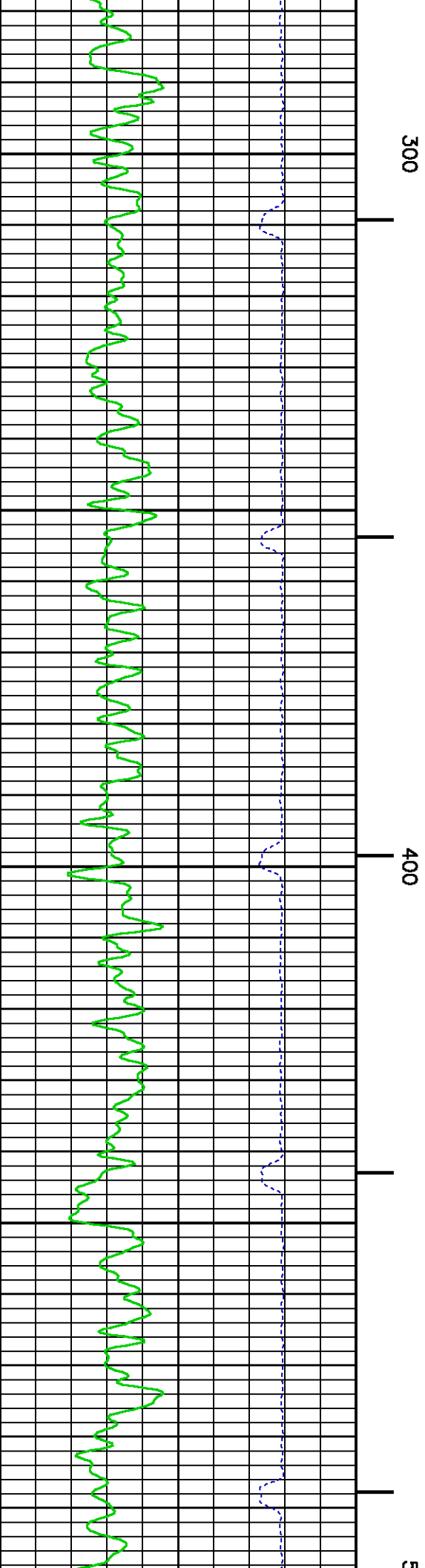
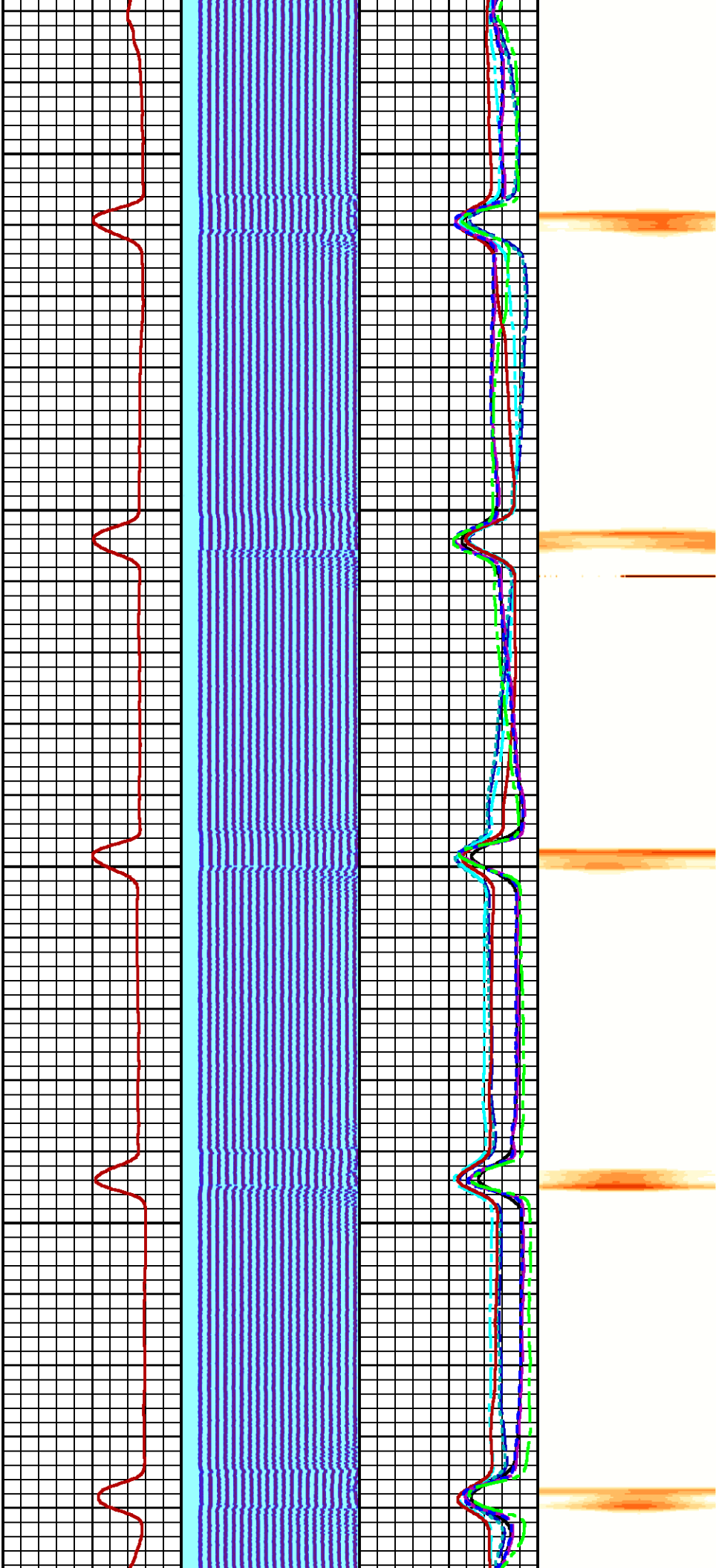
Presentation : HL6670:/dat1a/576868/CBL\_SEC\_PRES+01-MAIN-MAIN\_CBL\_-5.pdf [5"/100' Scale]  
Plot Interval : 0 - 8208 Feet

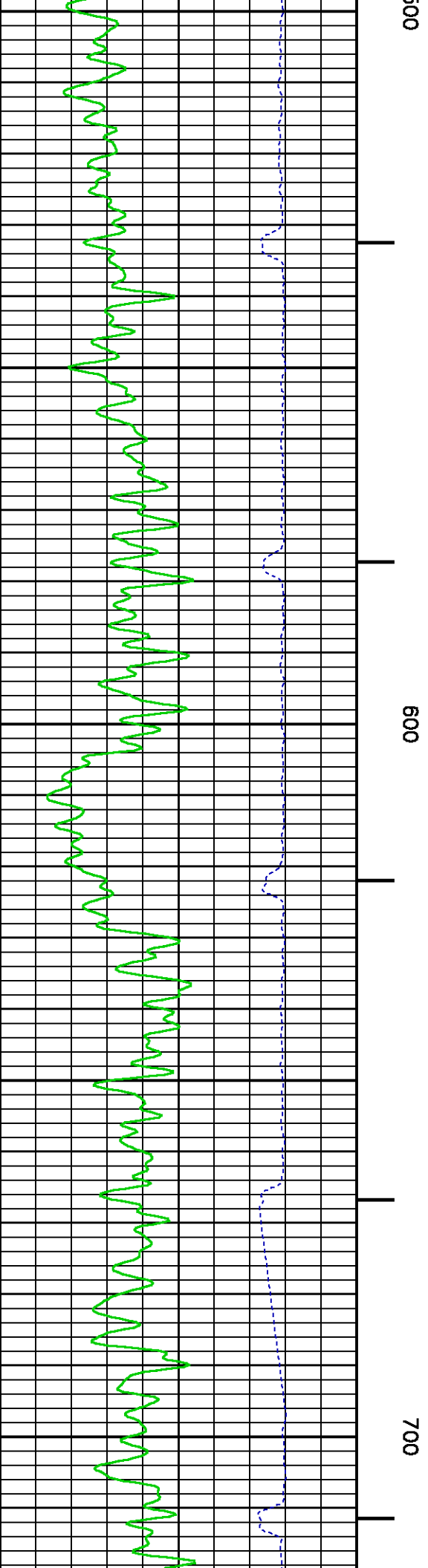
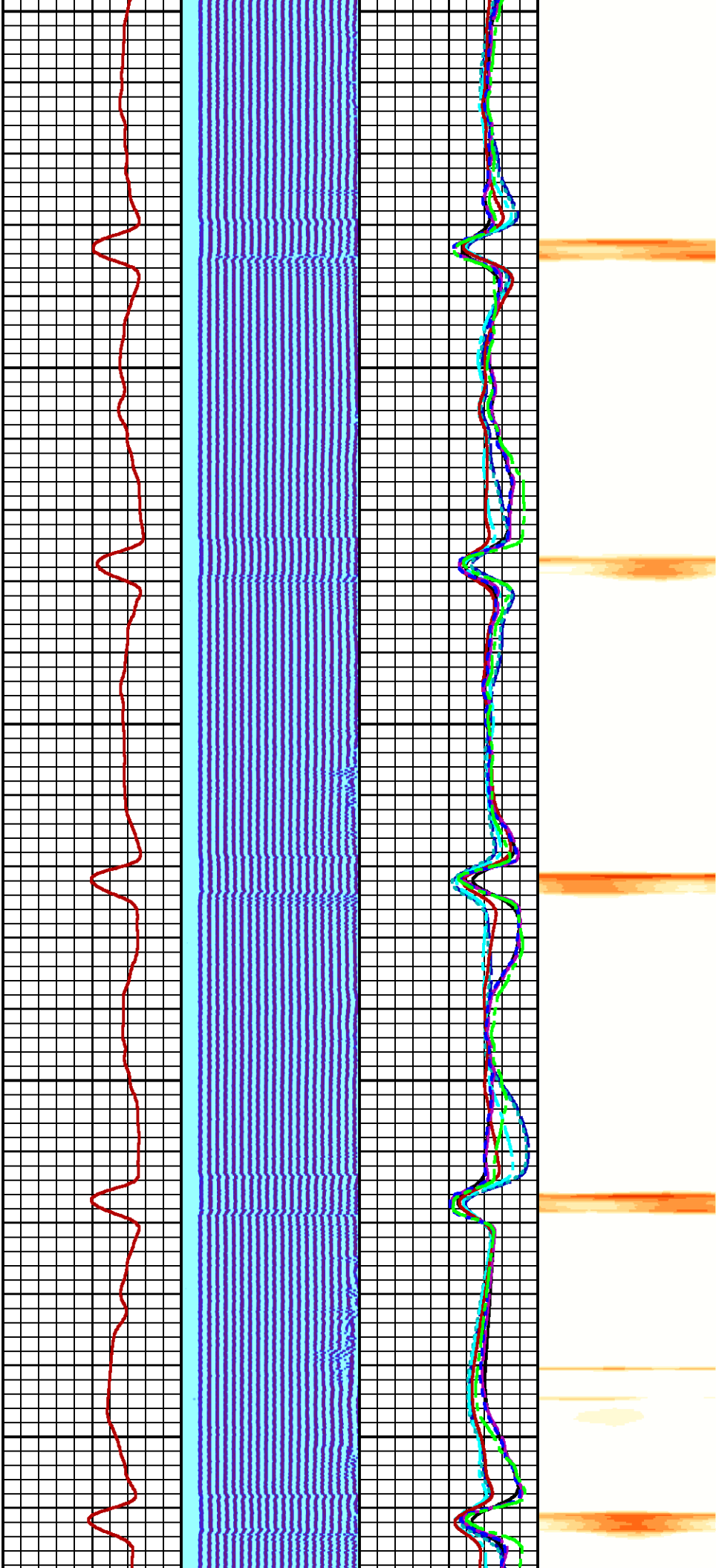
Data File 1 : F1 : HL6670:/dat1a/576868/MAIN\_CBL\_.xif  
Created On : Mar 30 21:10:13 2011  
Company : WILLIAMS PRODUCTION COMPANY  
Well : RWF 332-3  
Field : RULISON  
File Interval : 12 - 8229 Feet  
Oct : m012e

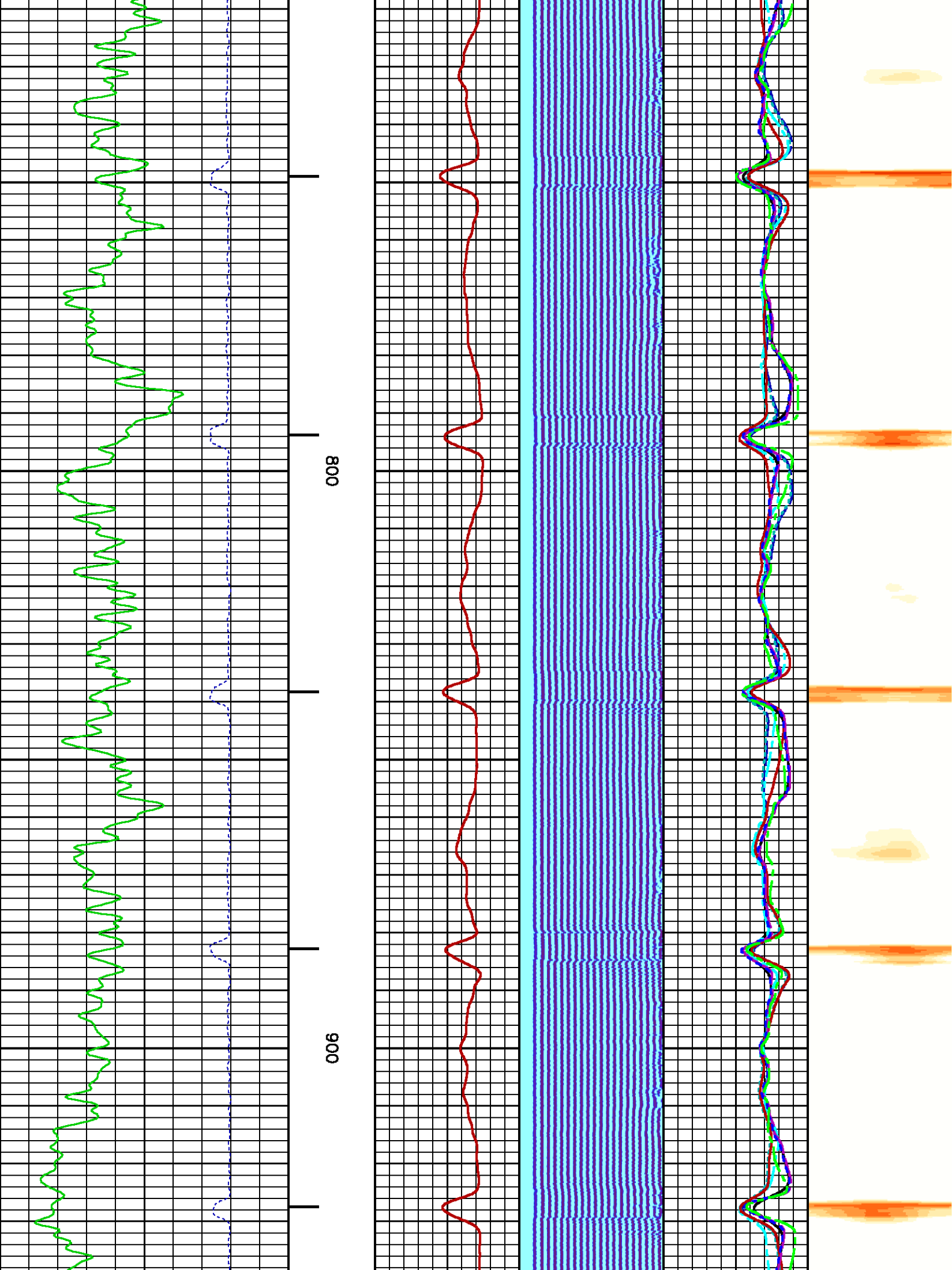




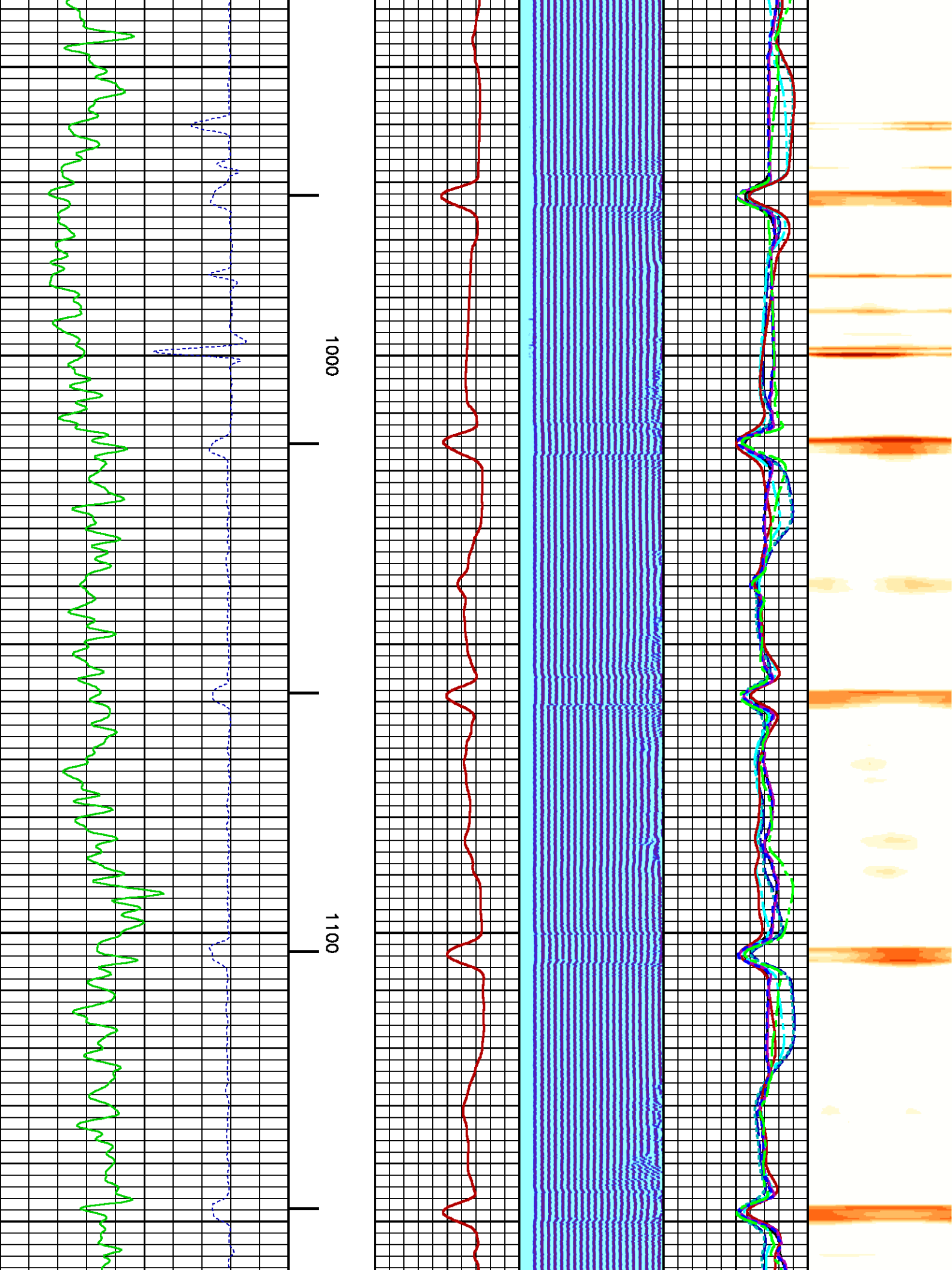


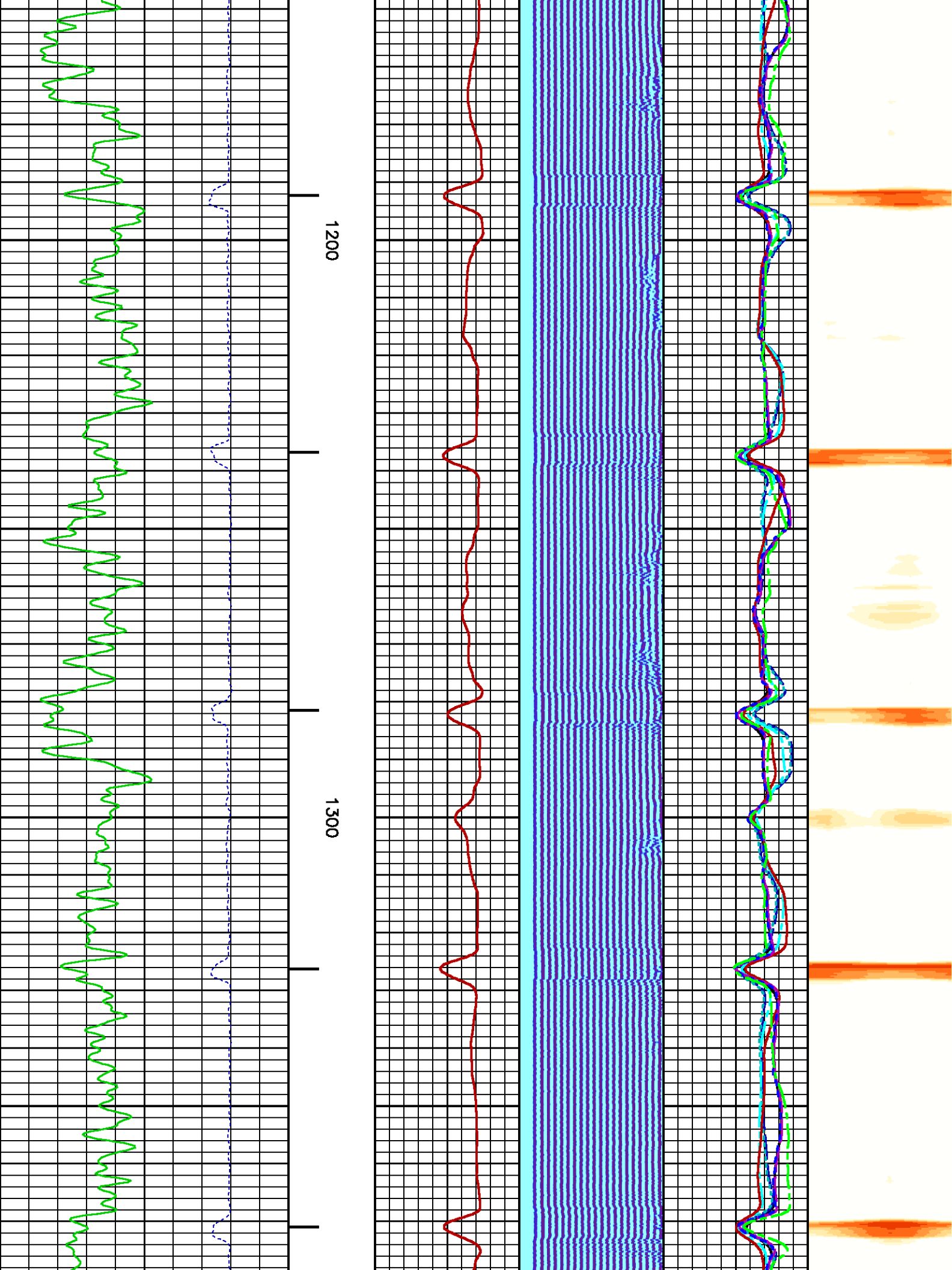


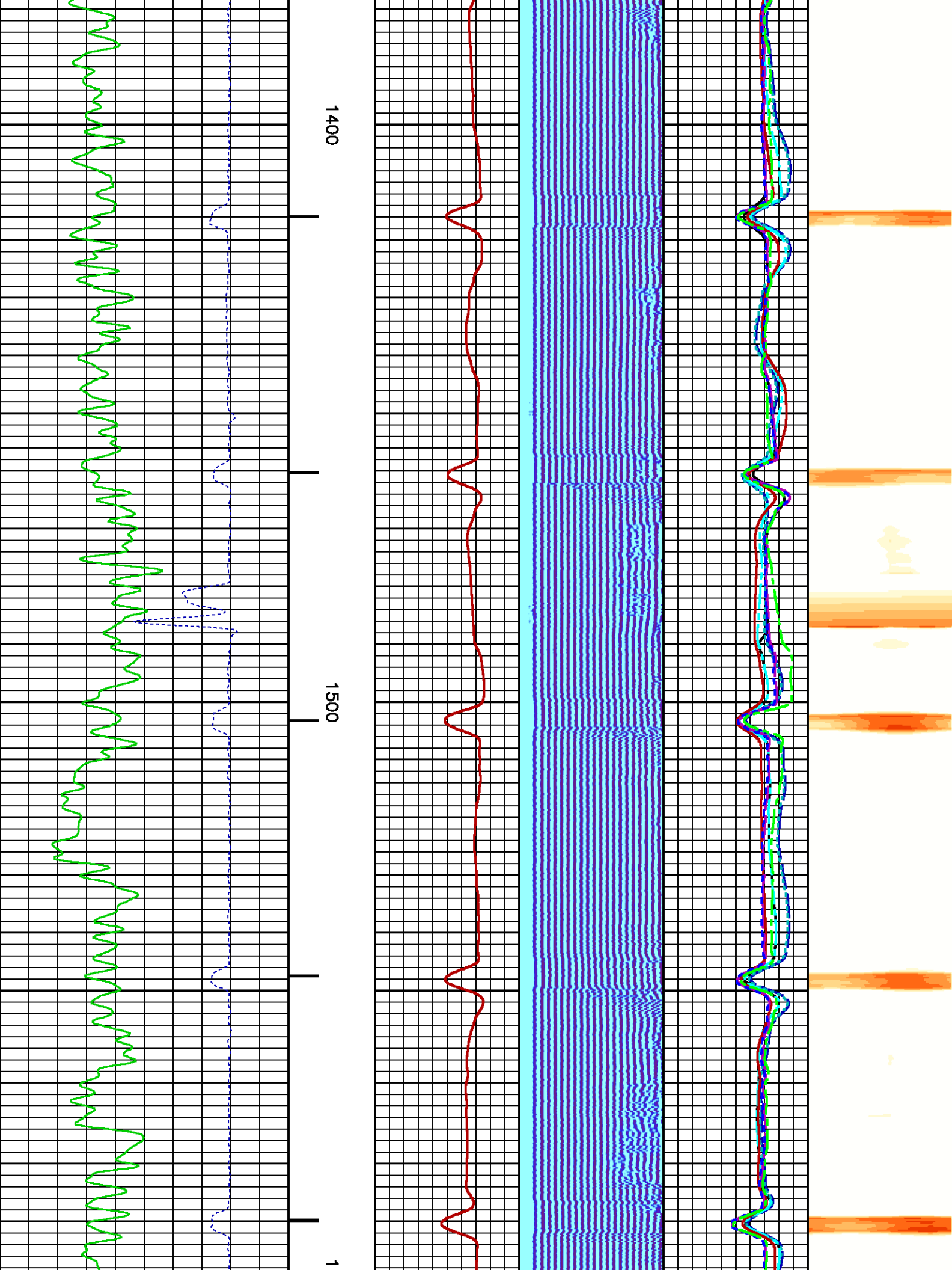




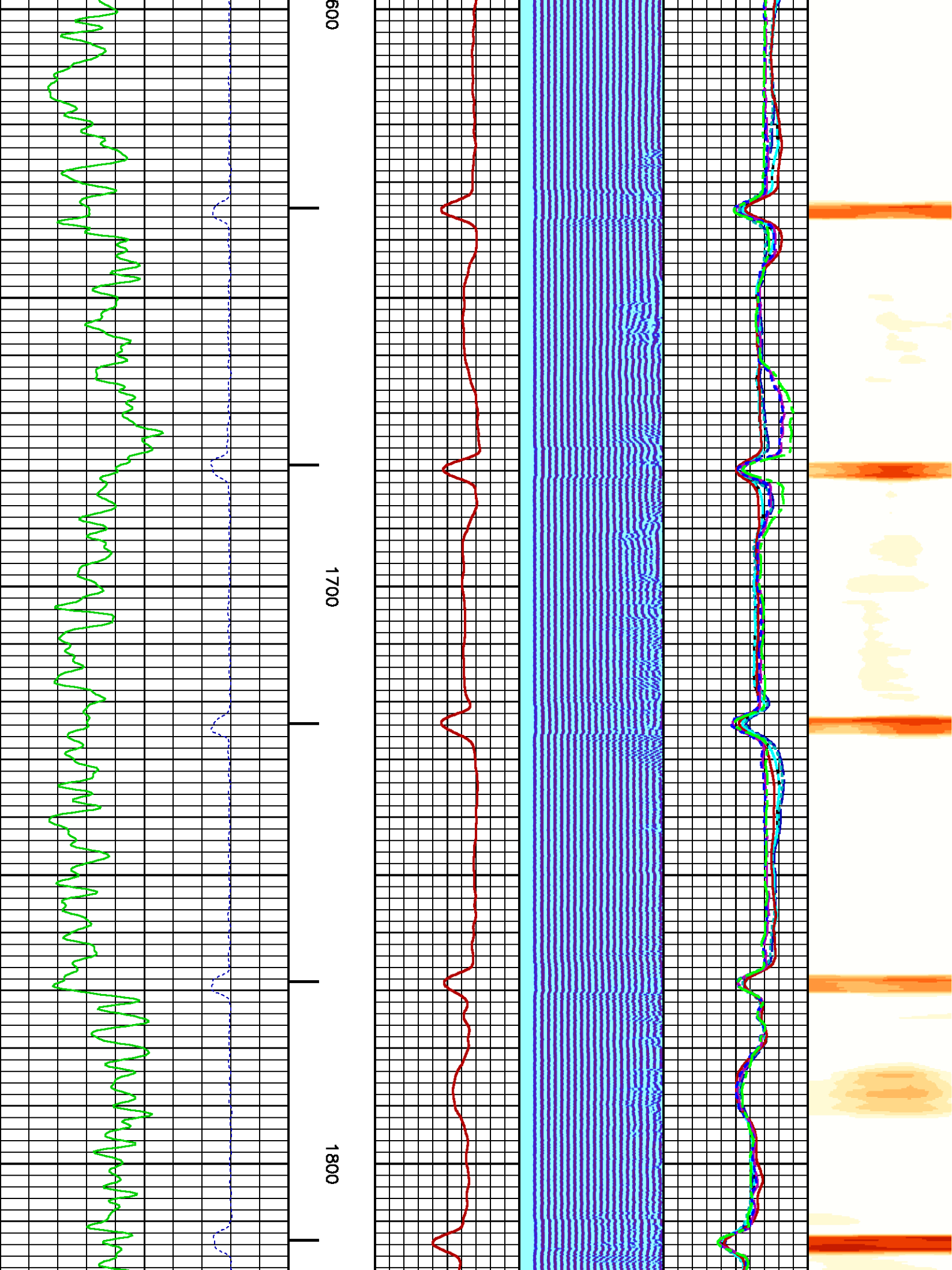


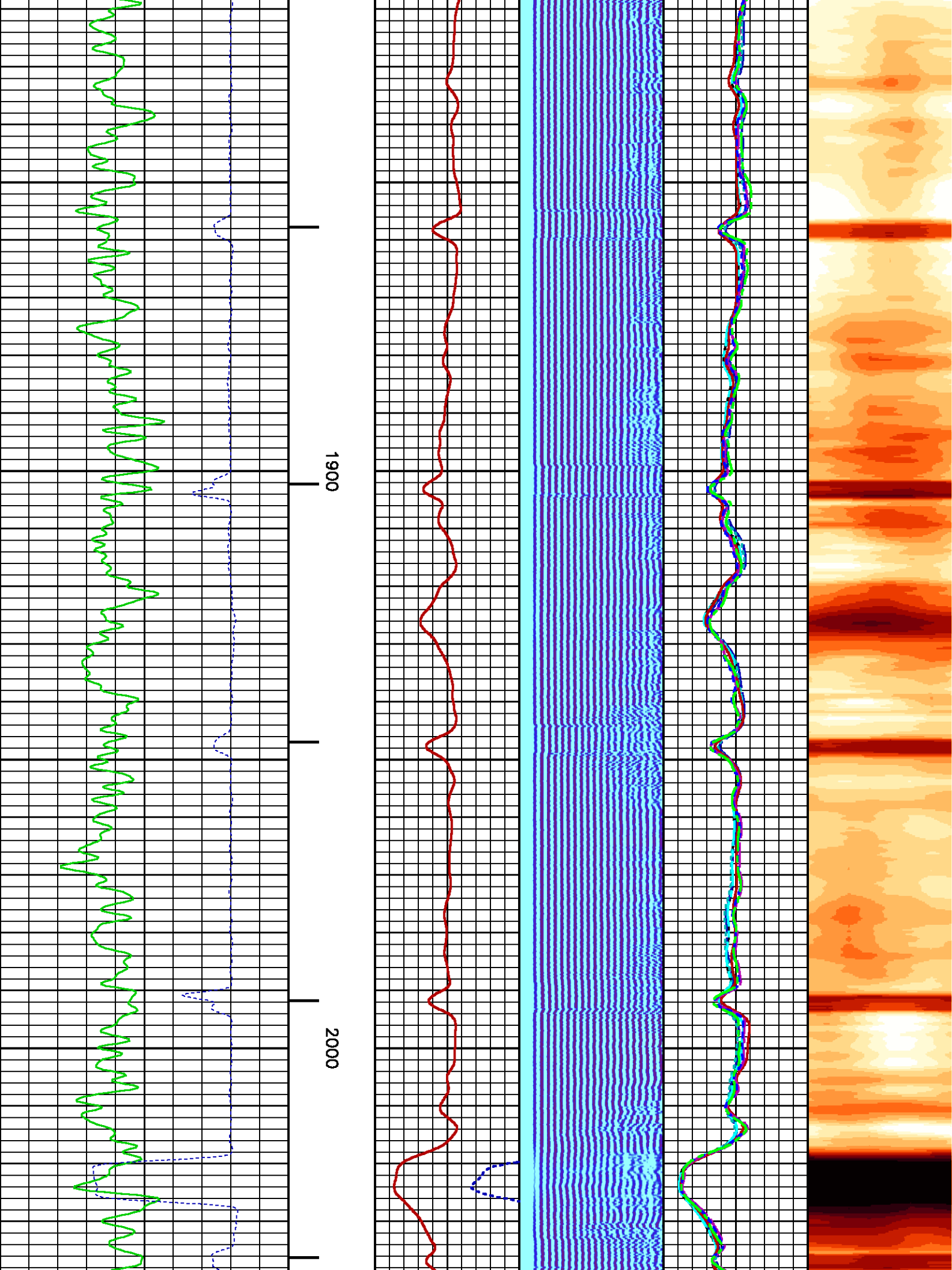


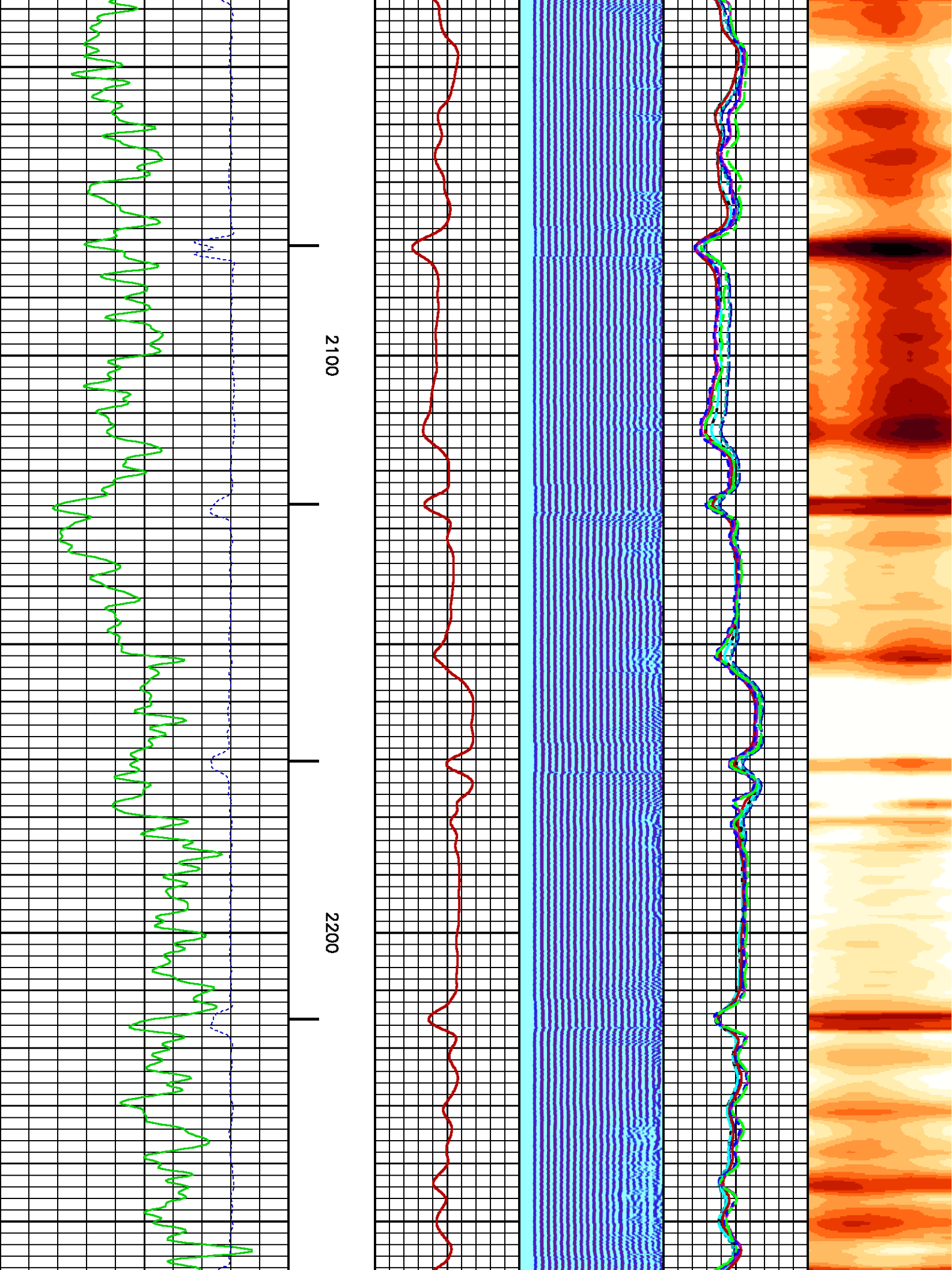




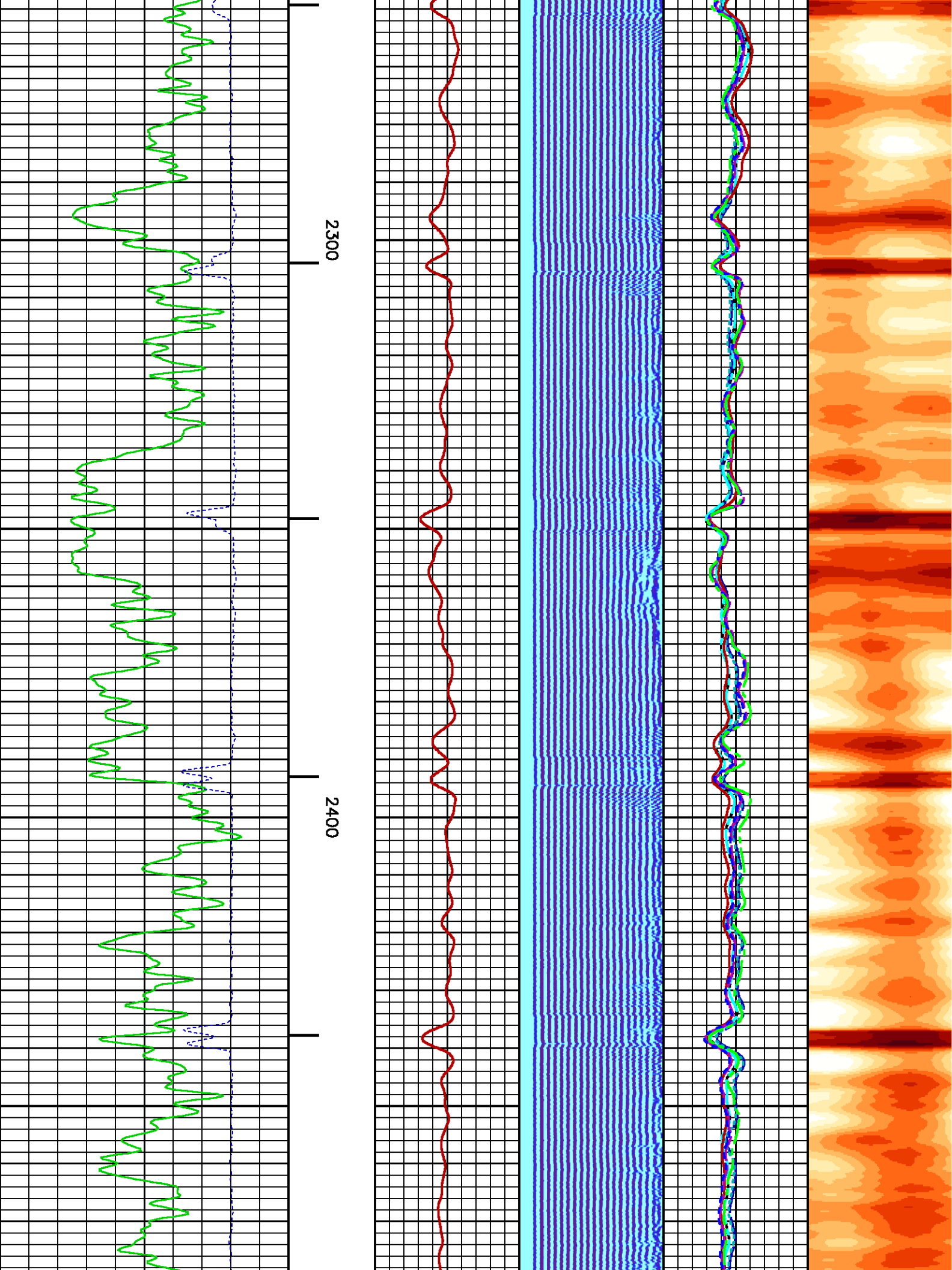


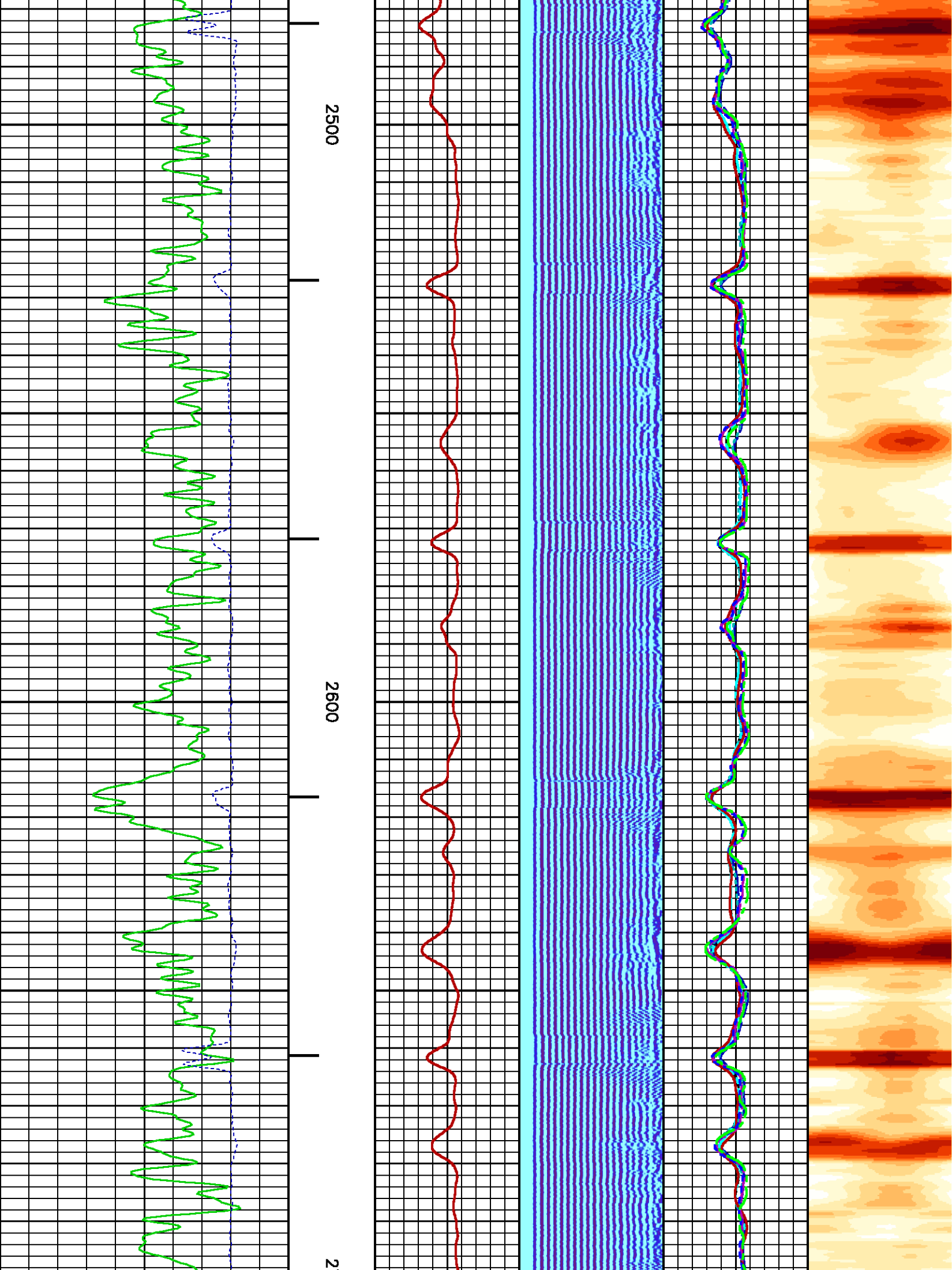


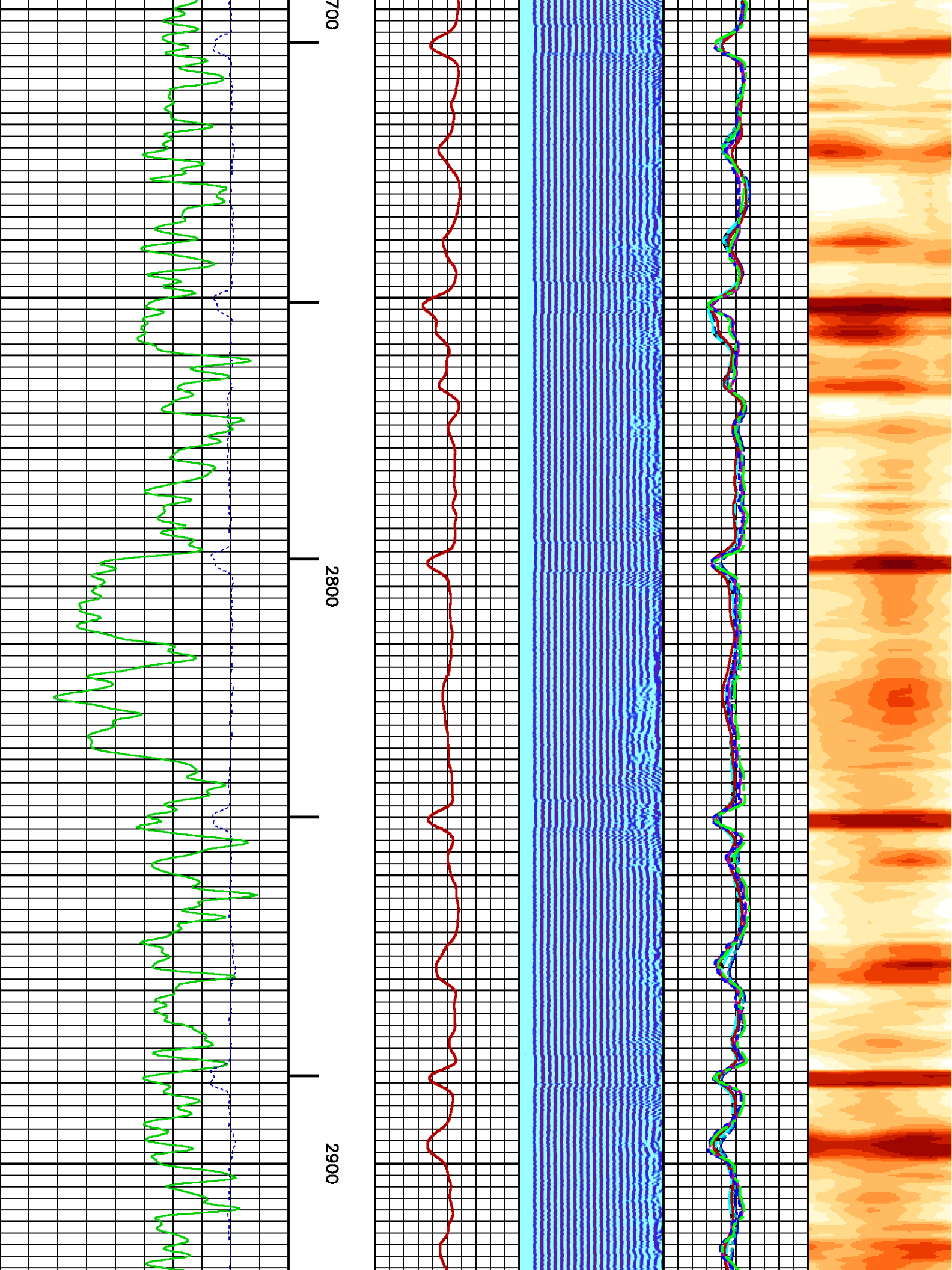




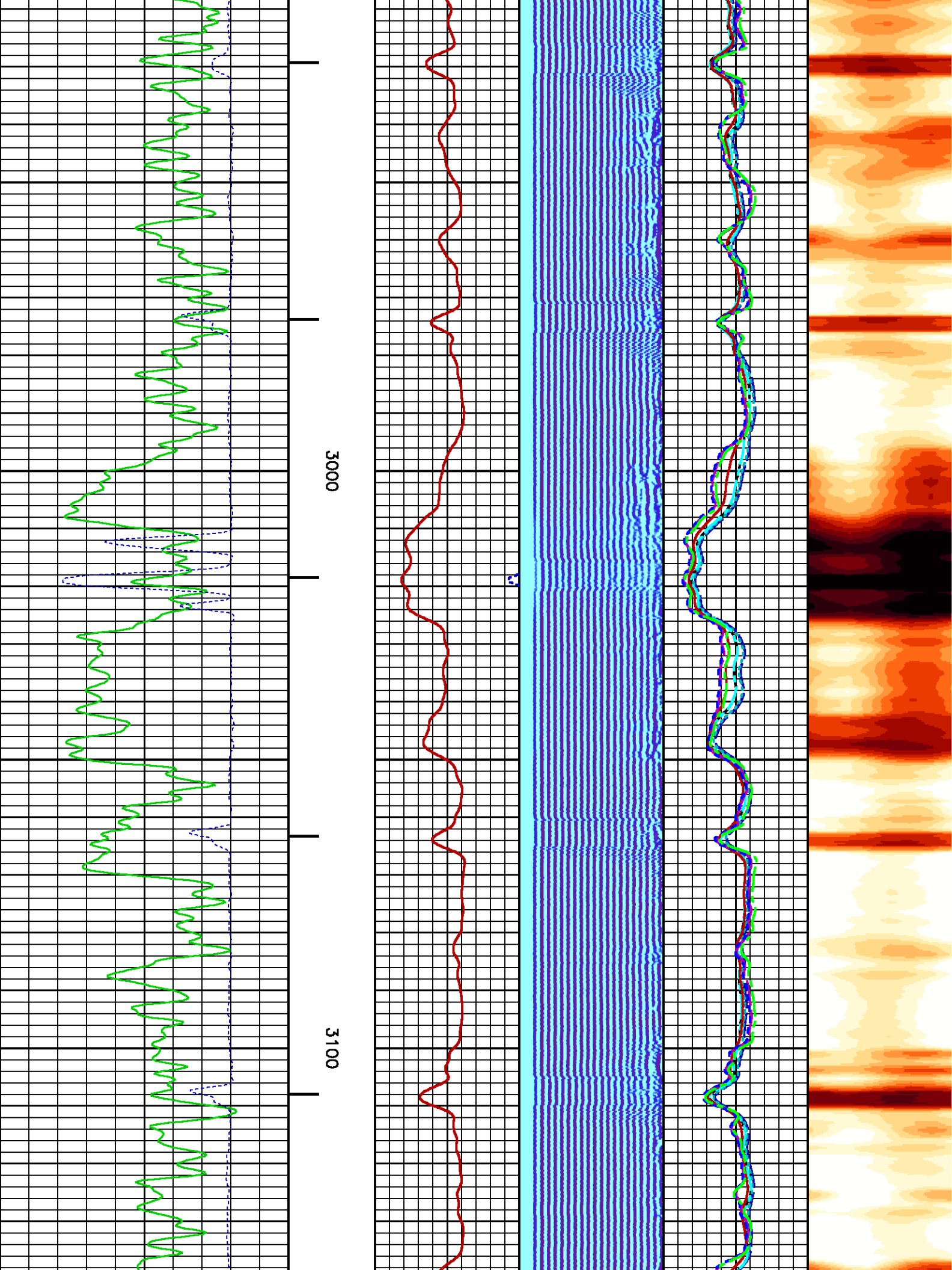


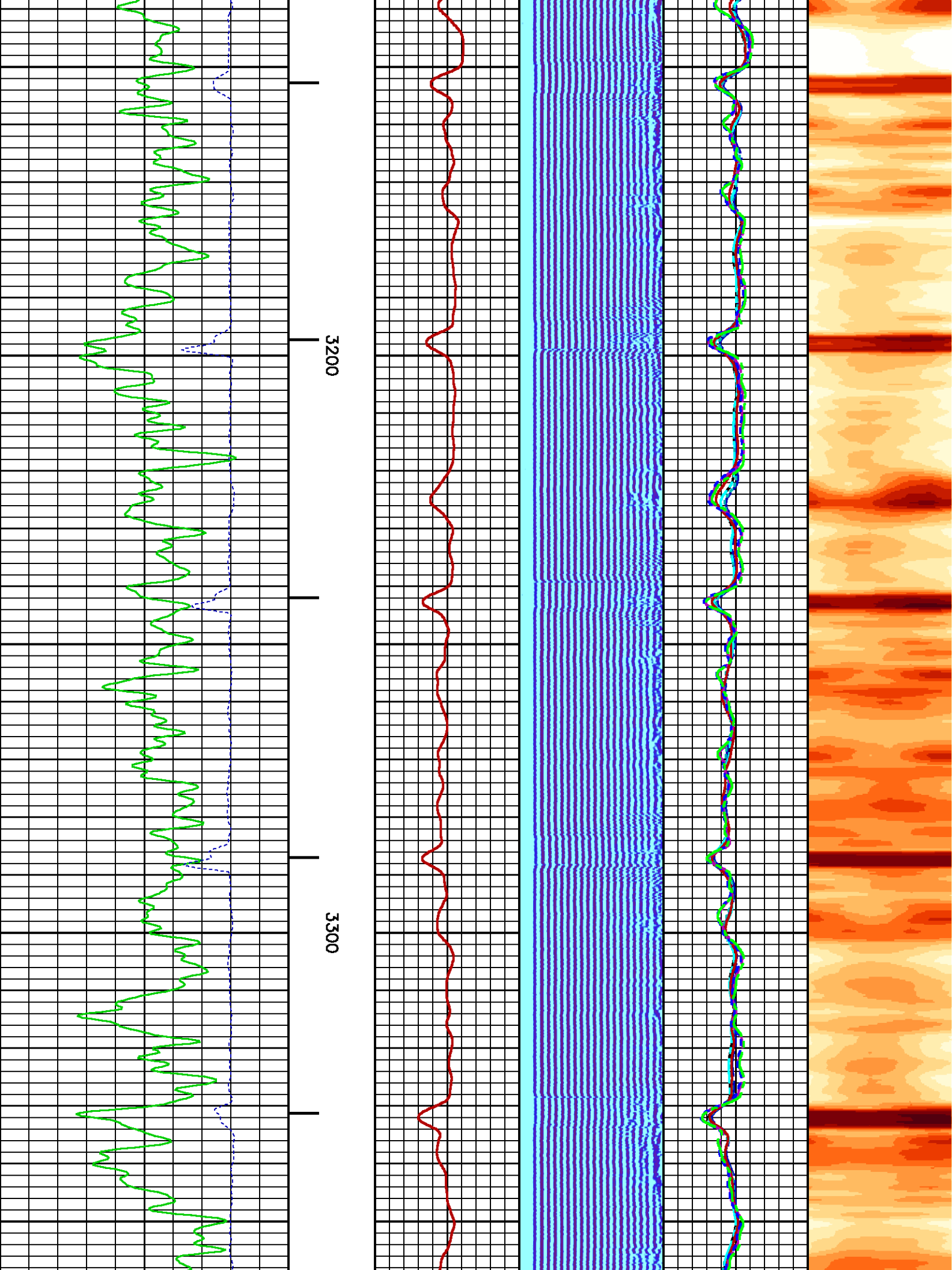


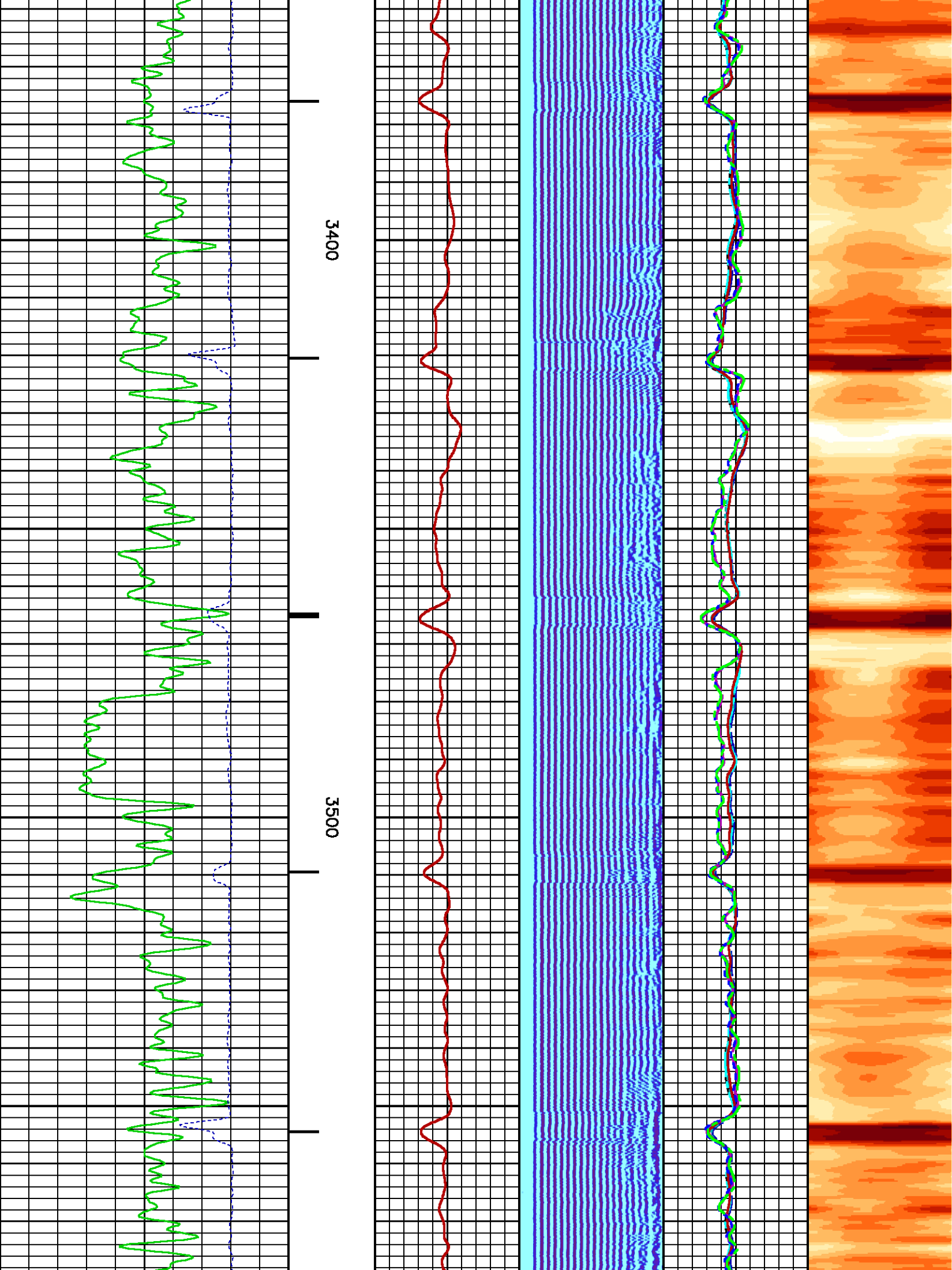




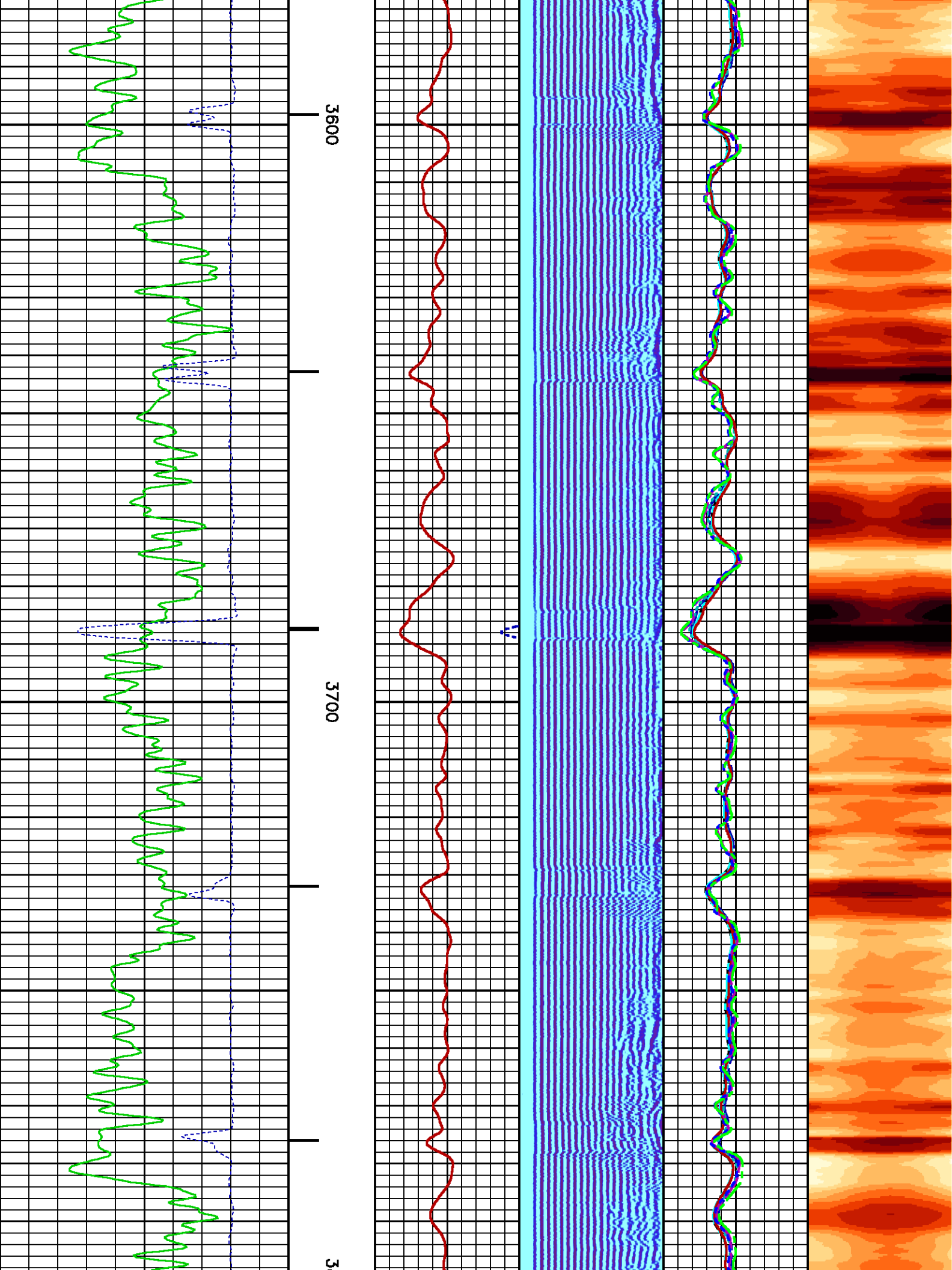


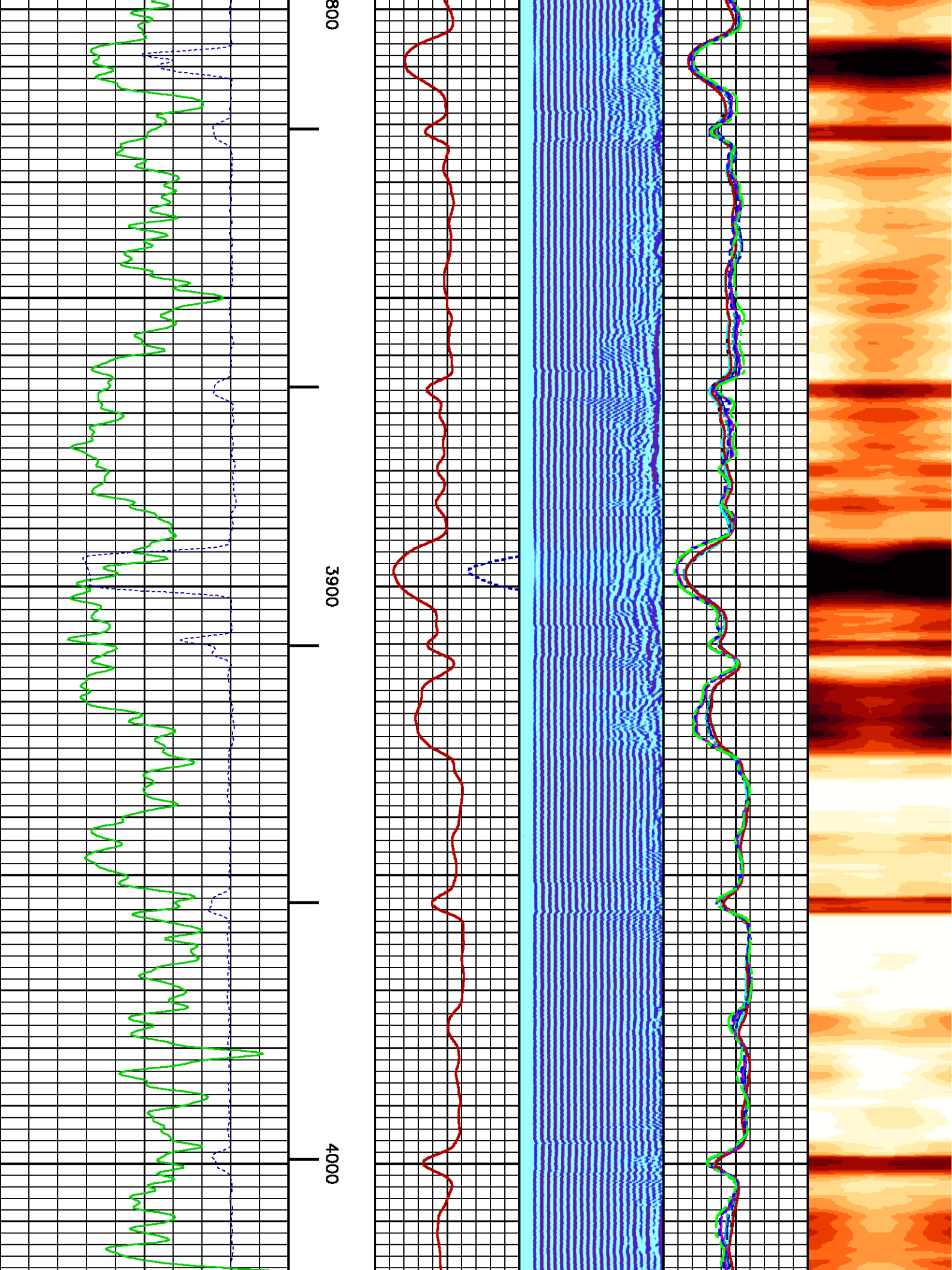


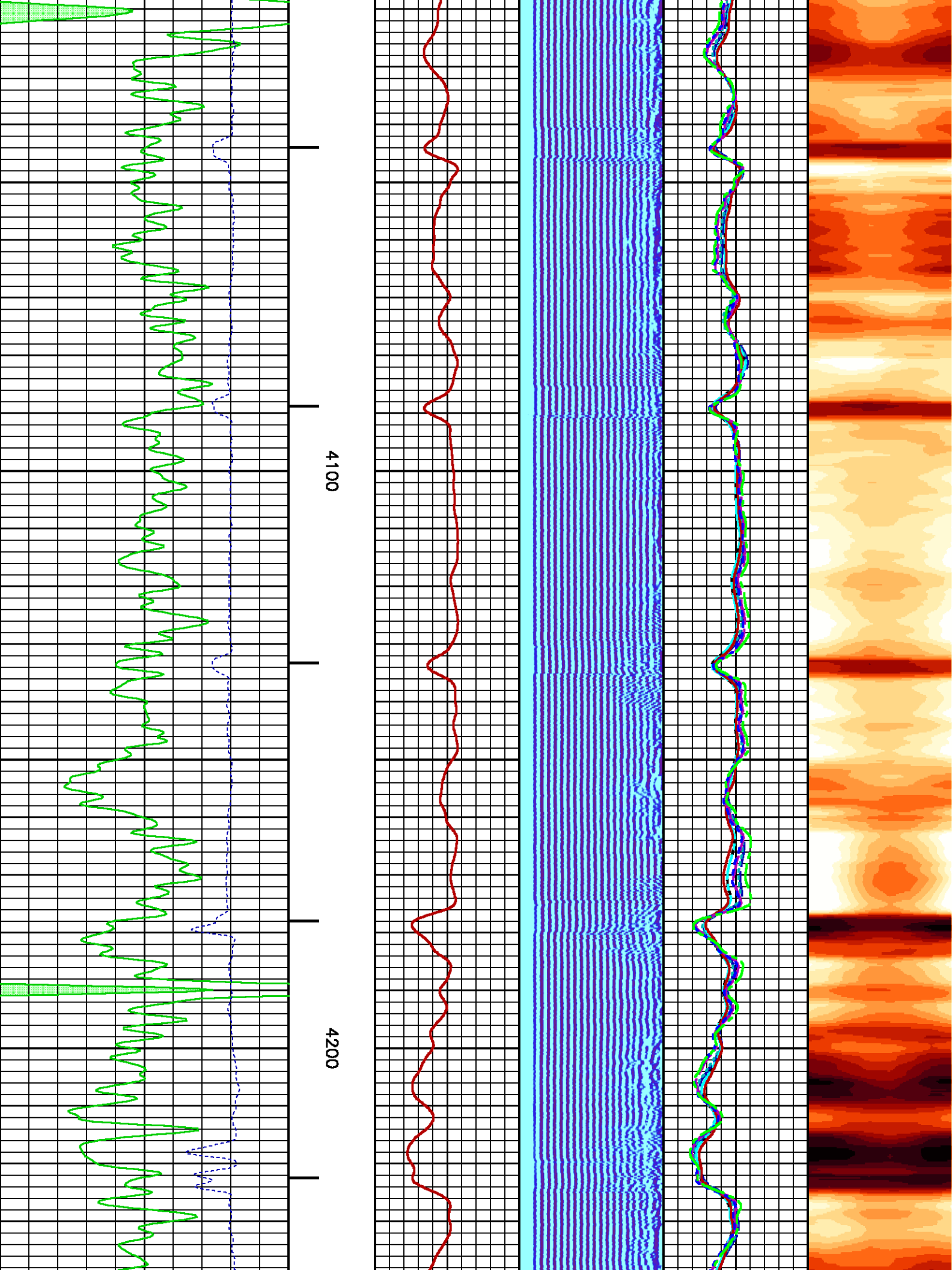




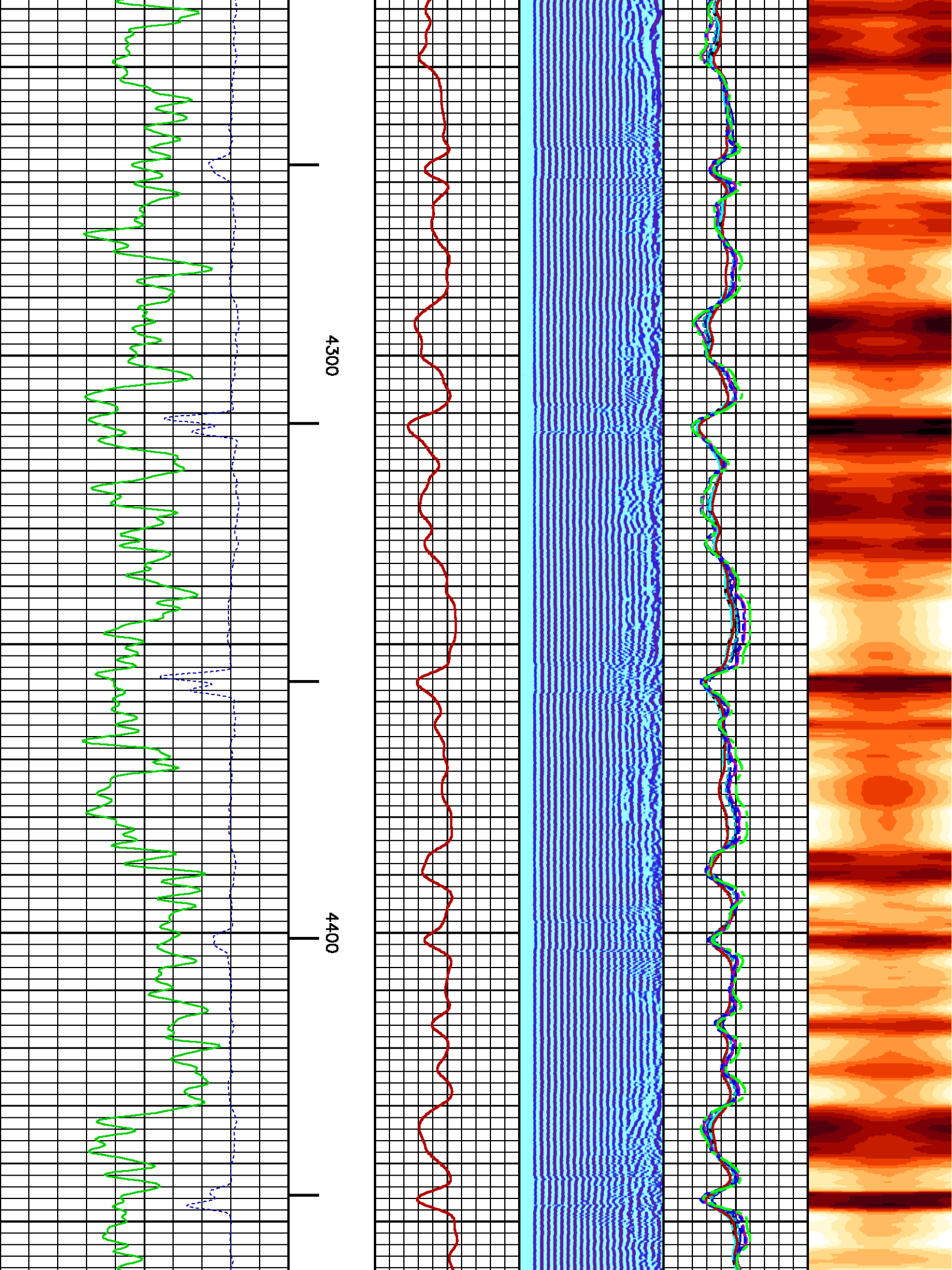


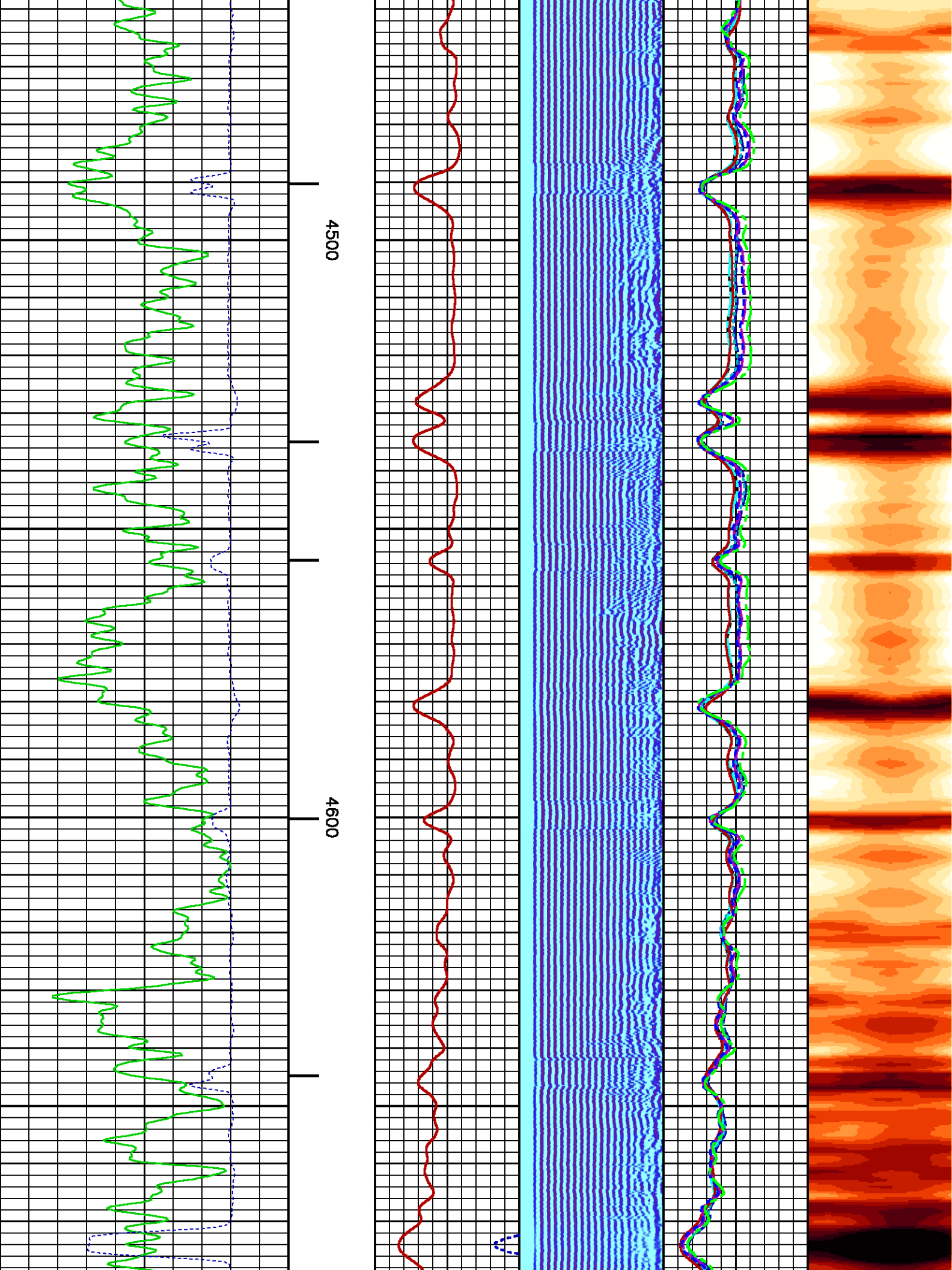


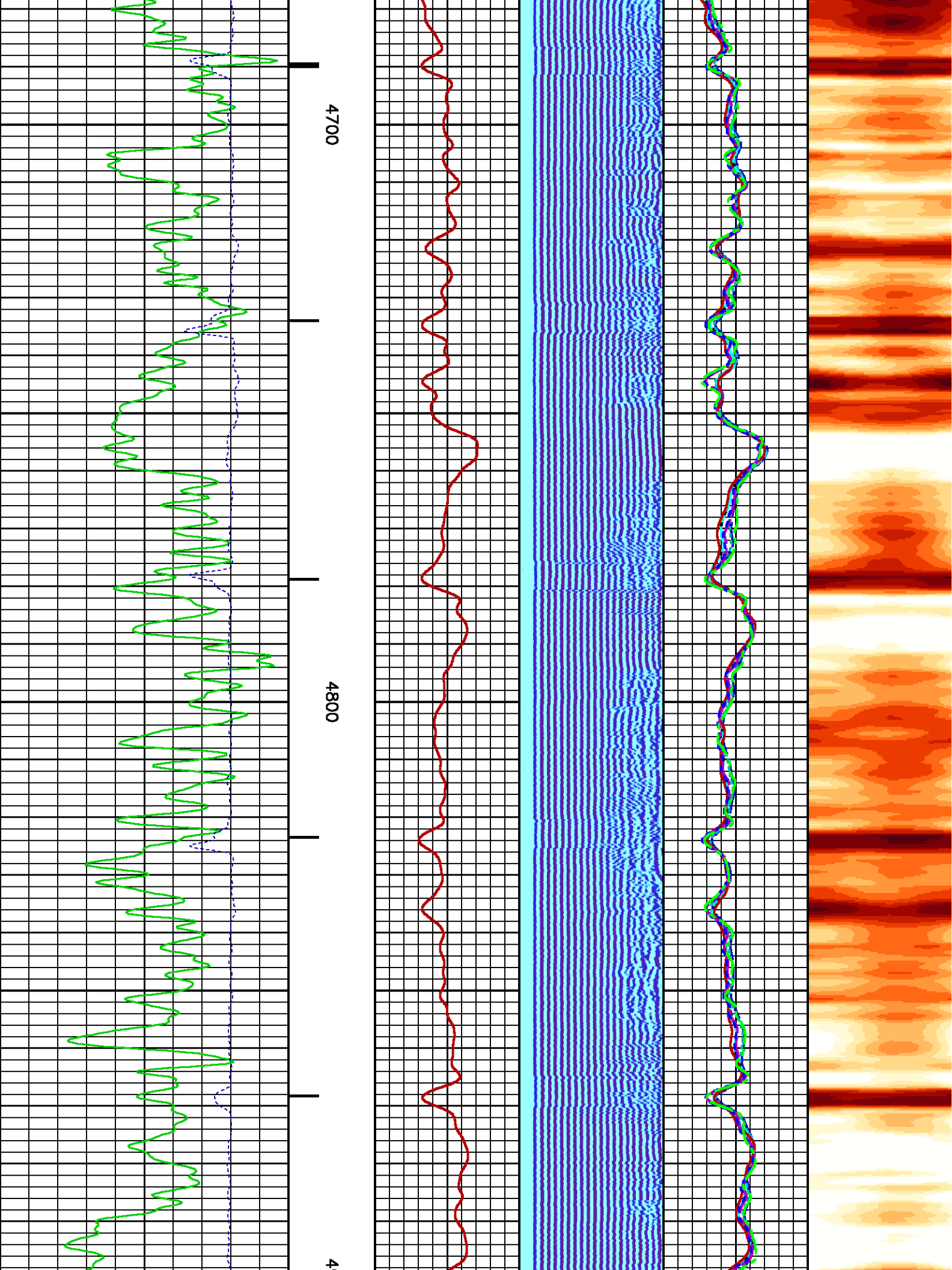




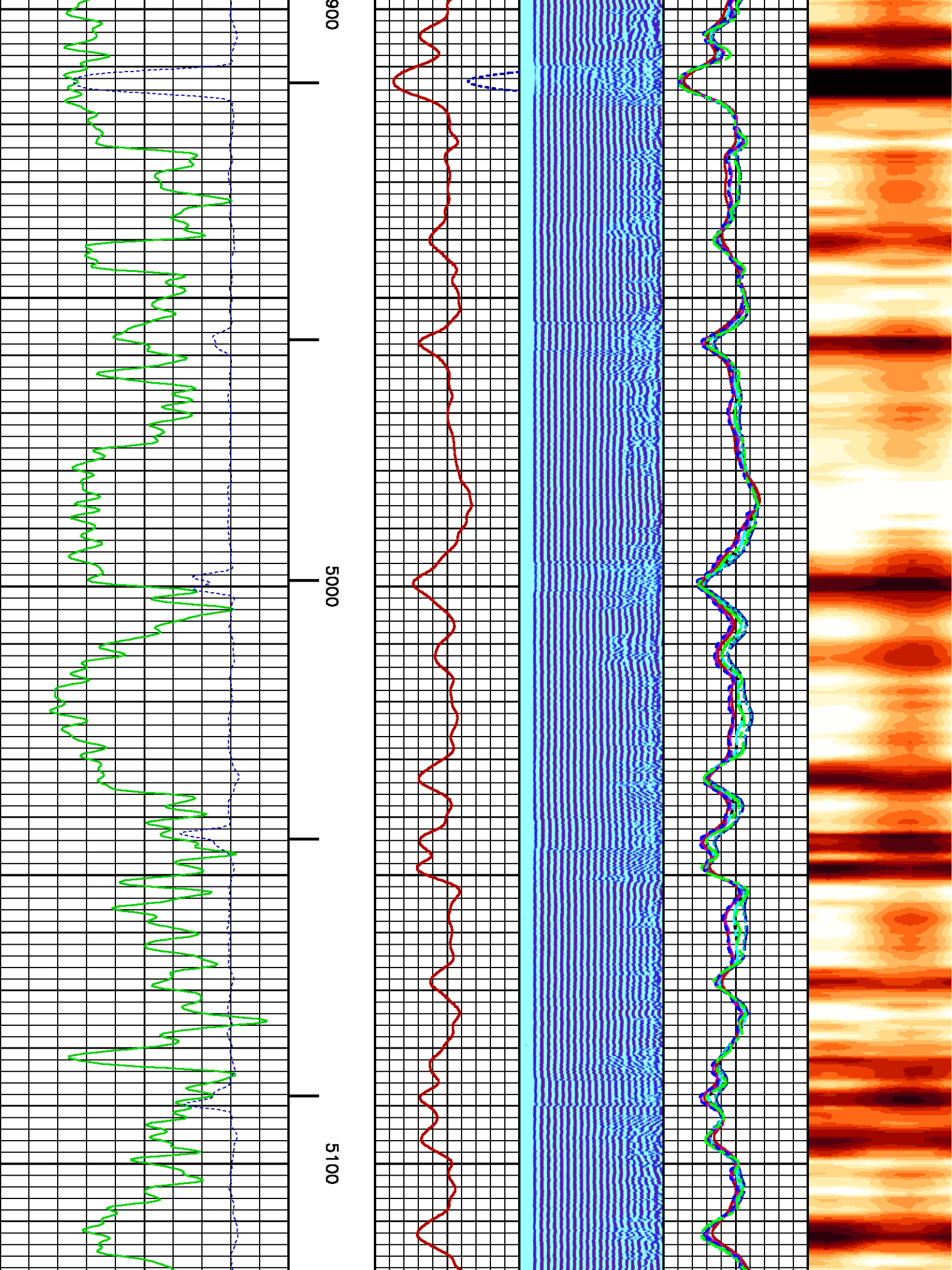


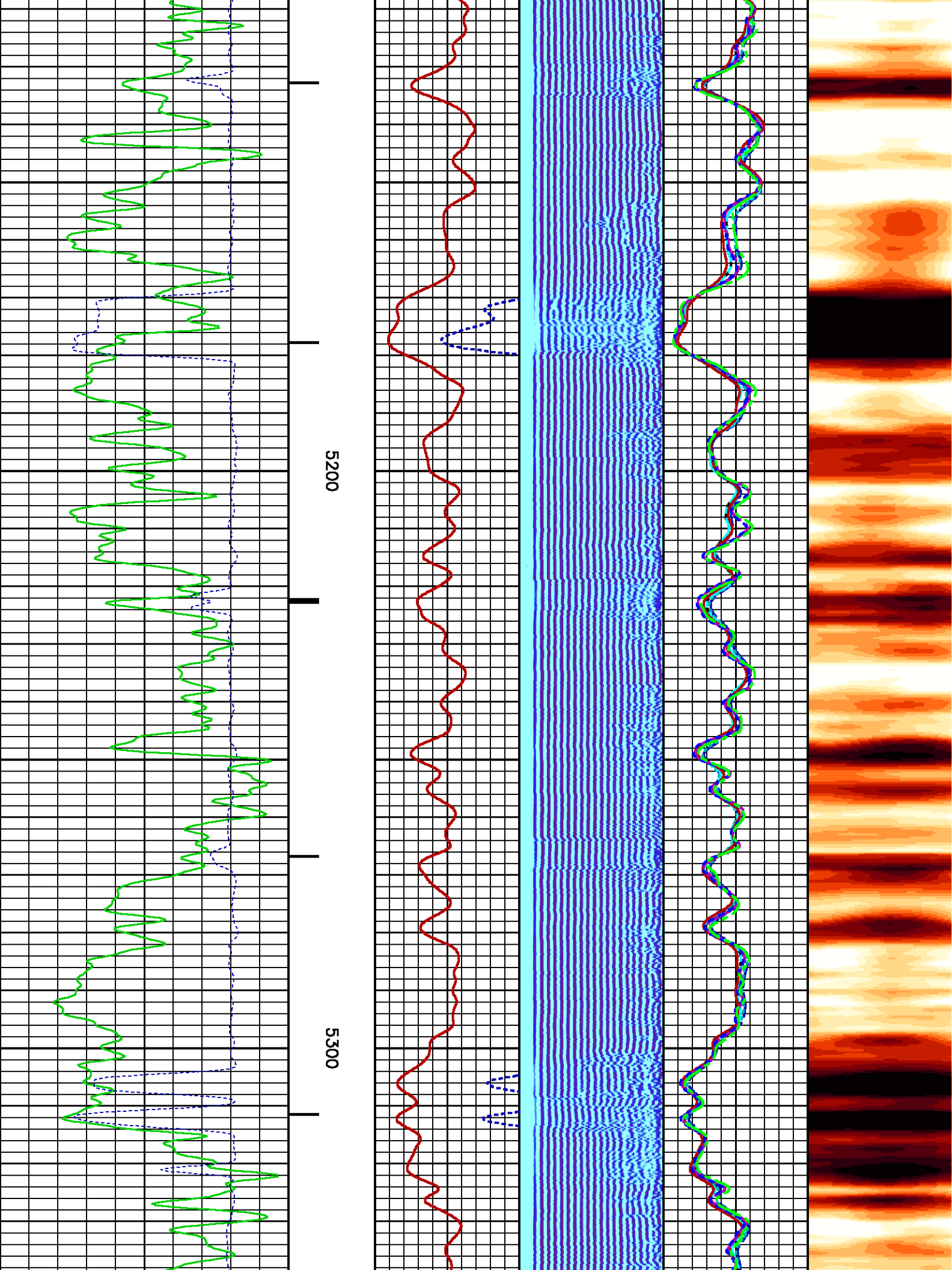


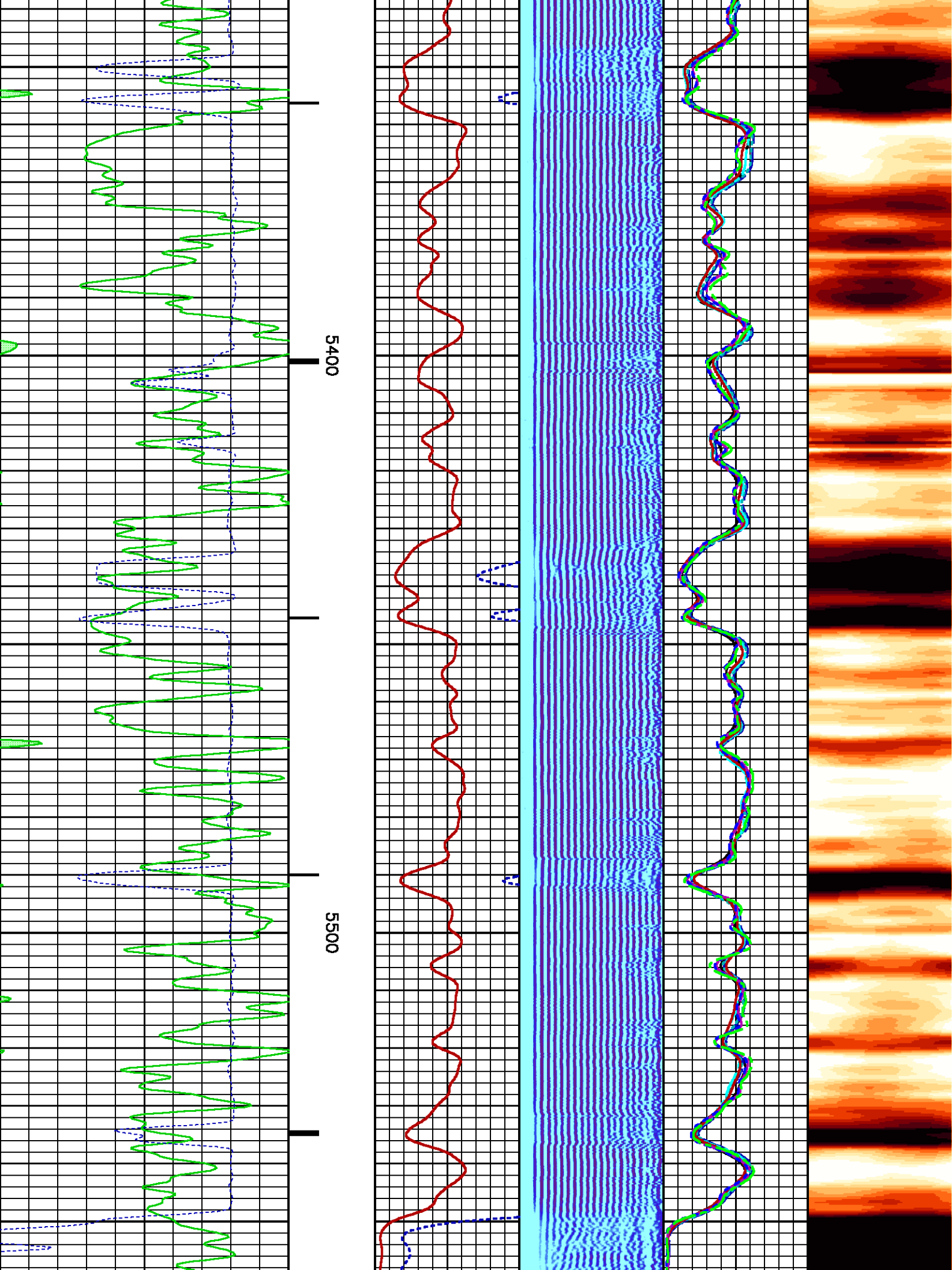




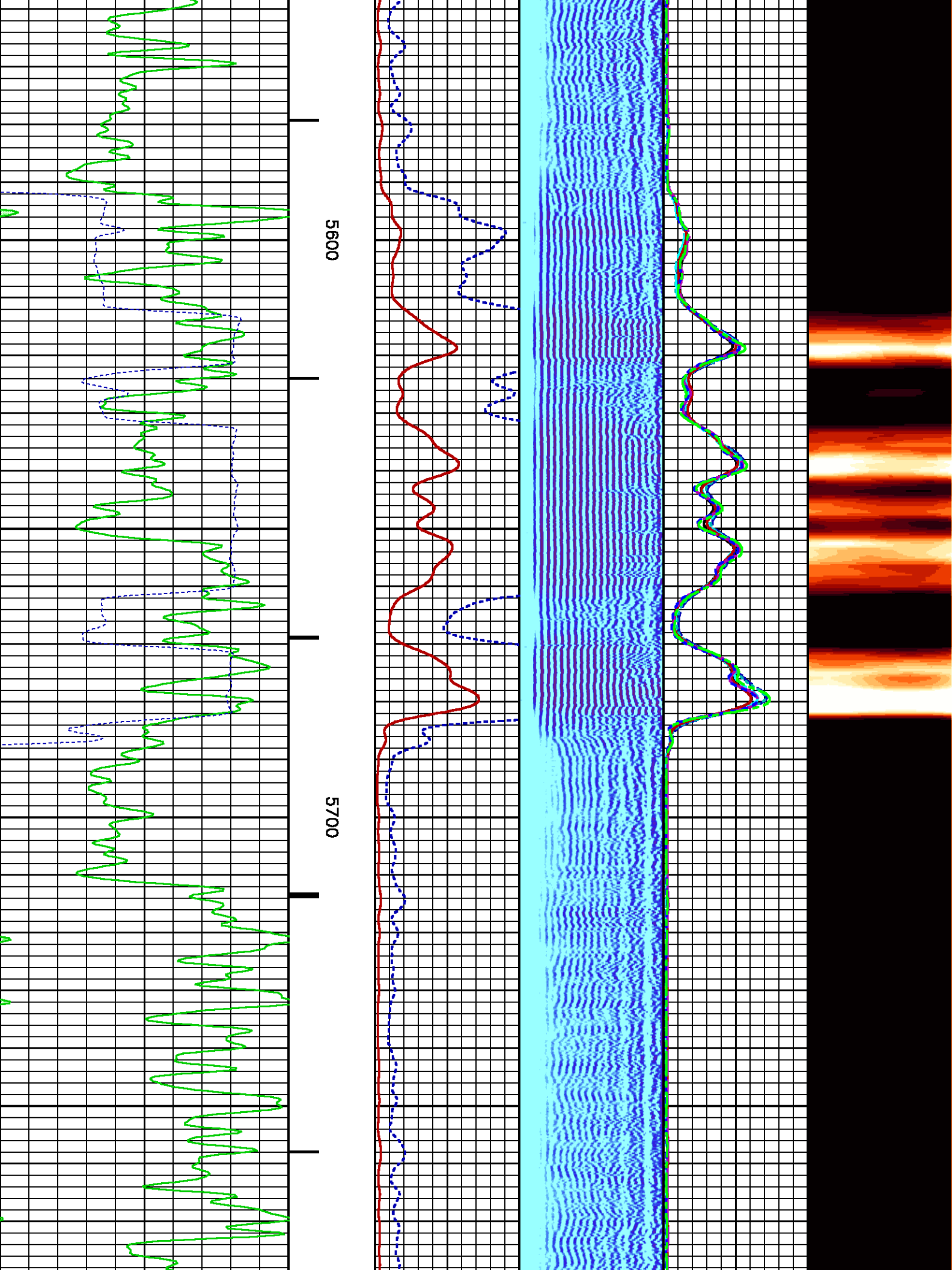


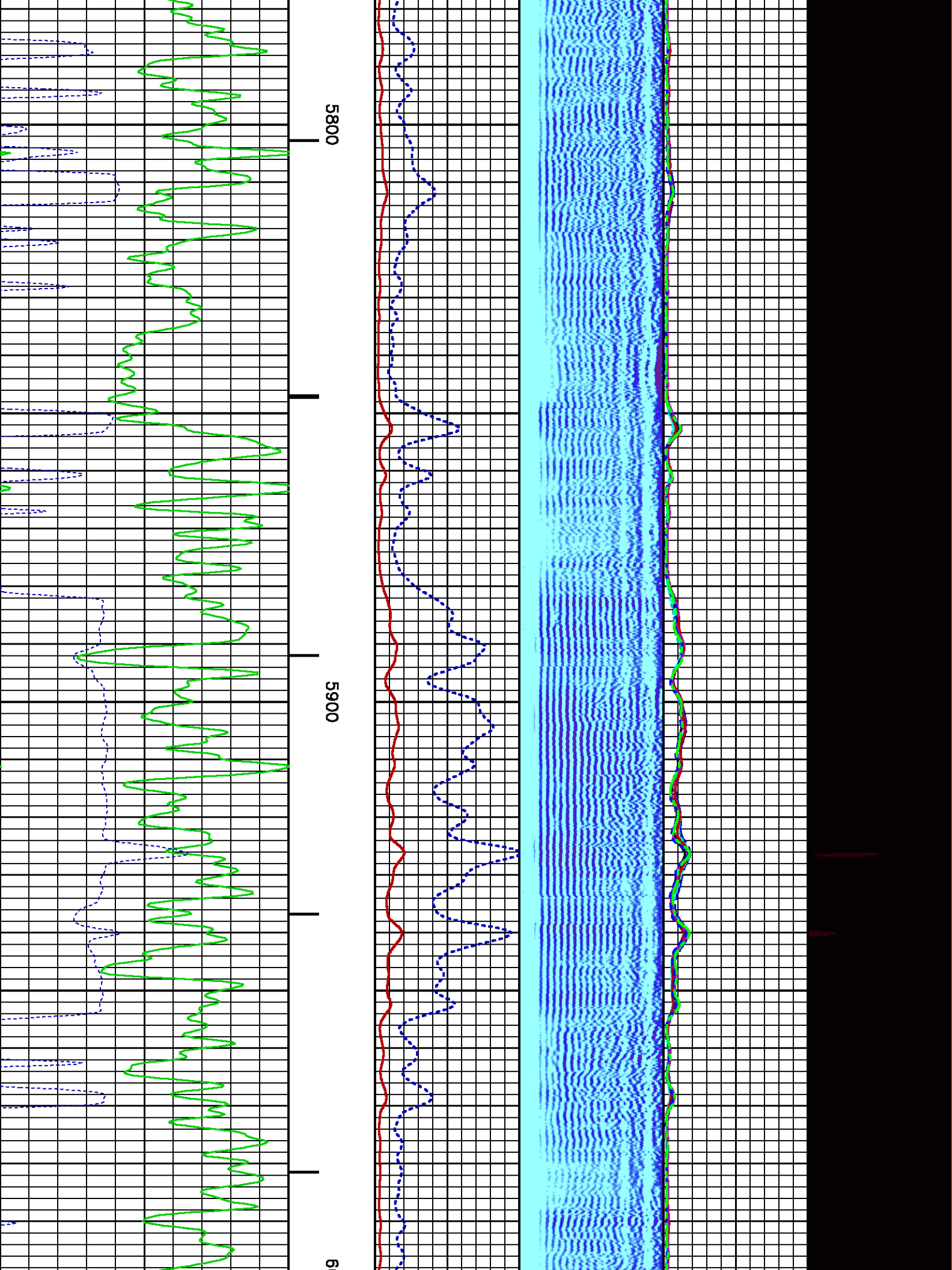


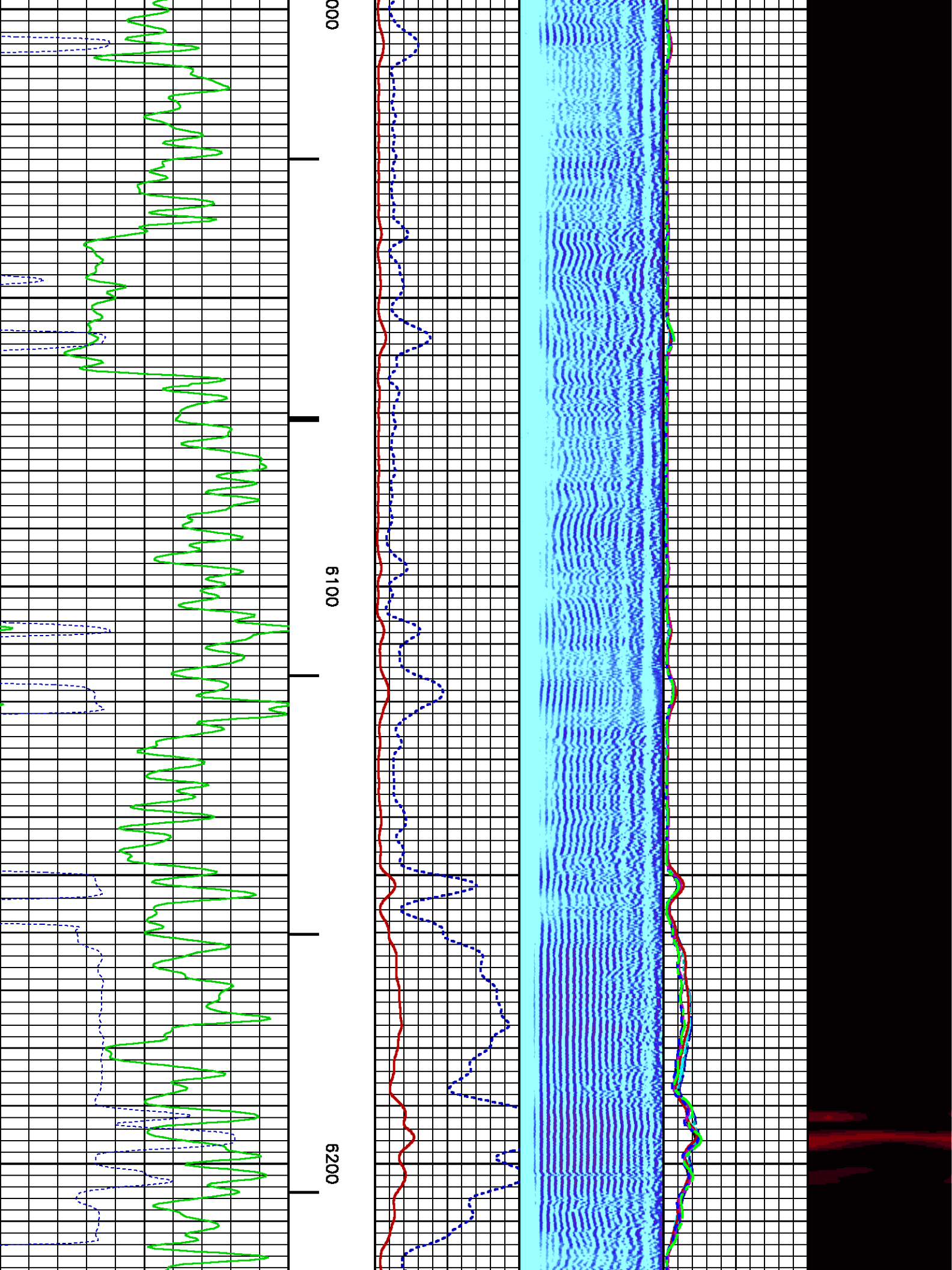




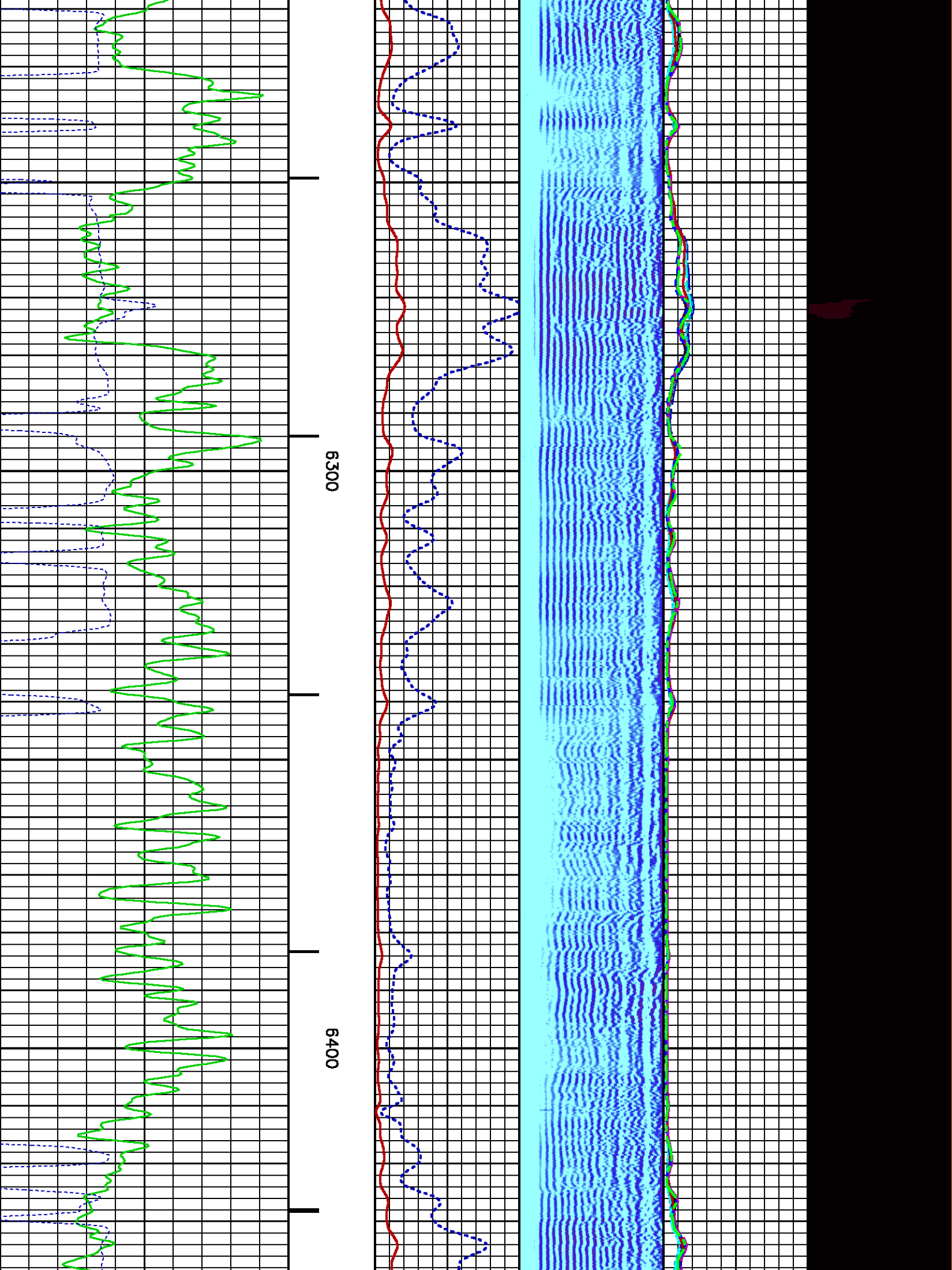


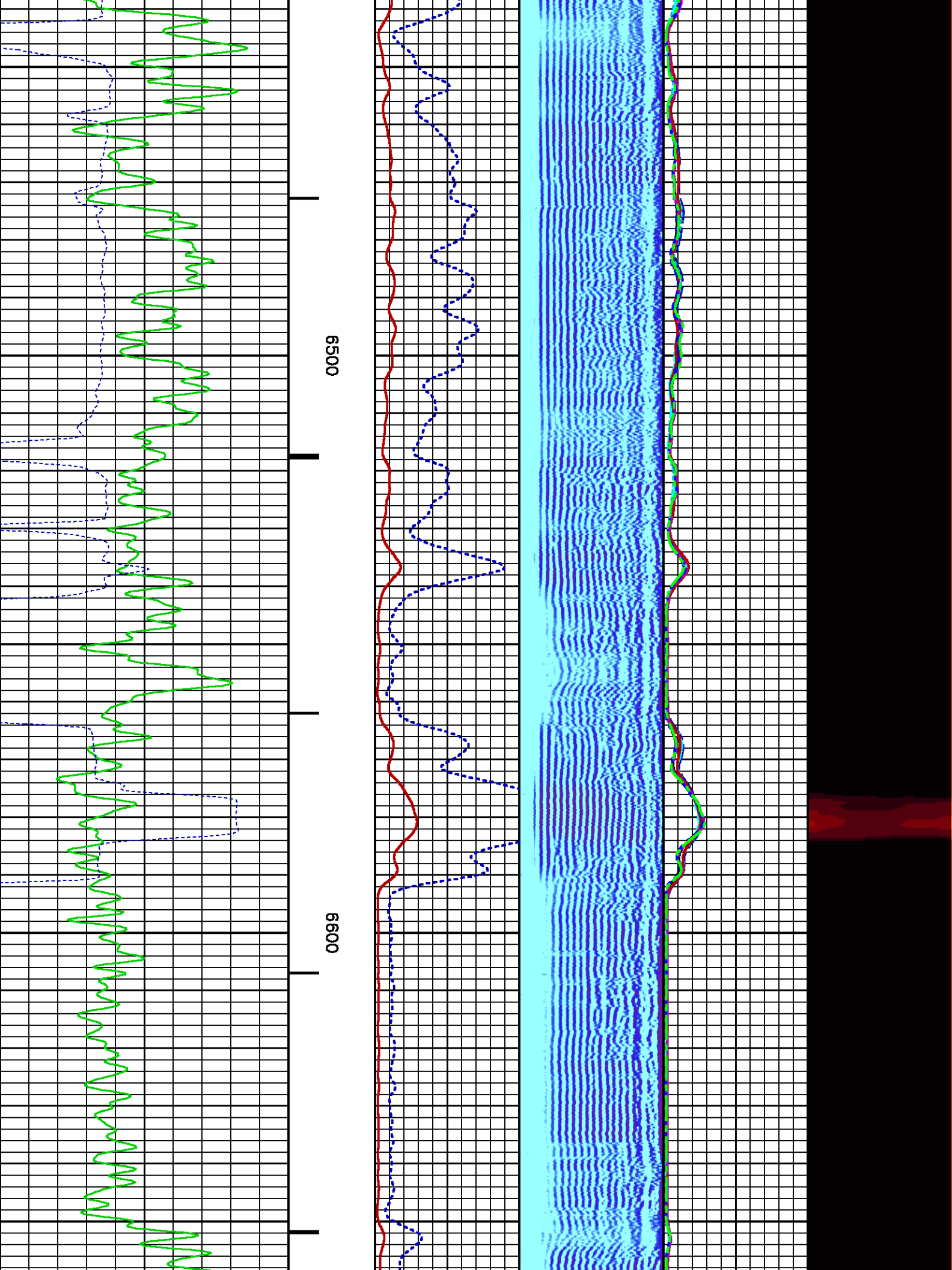


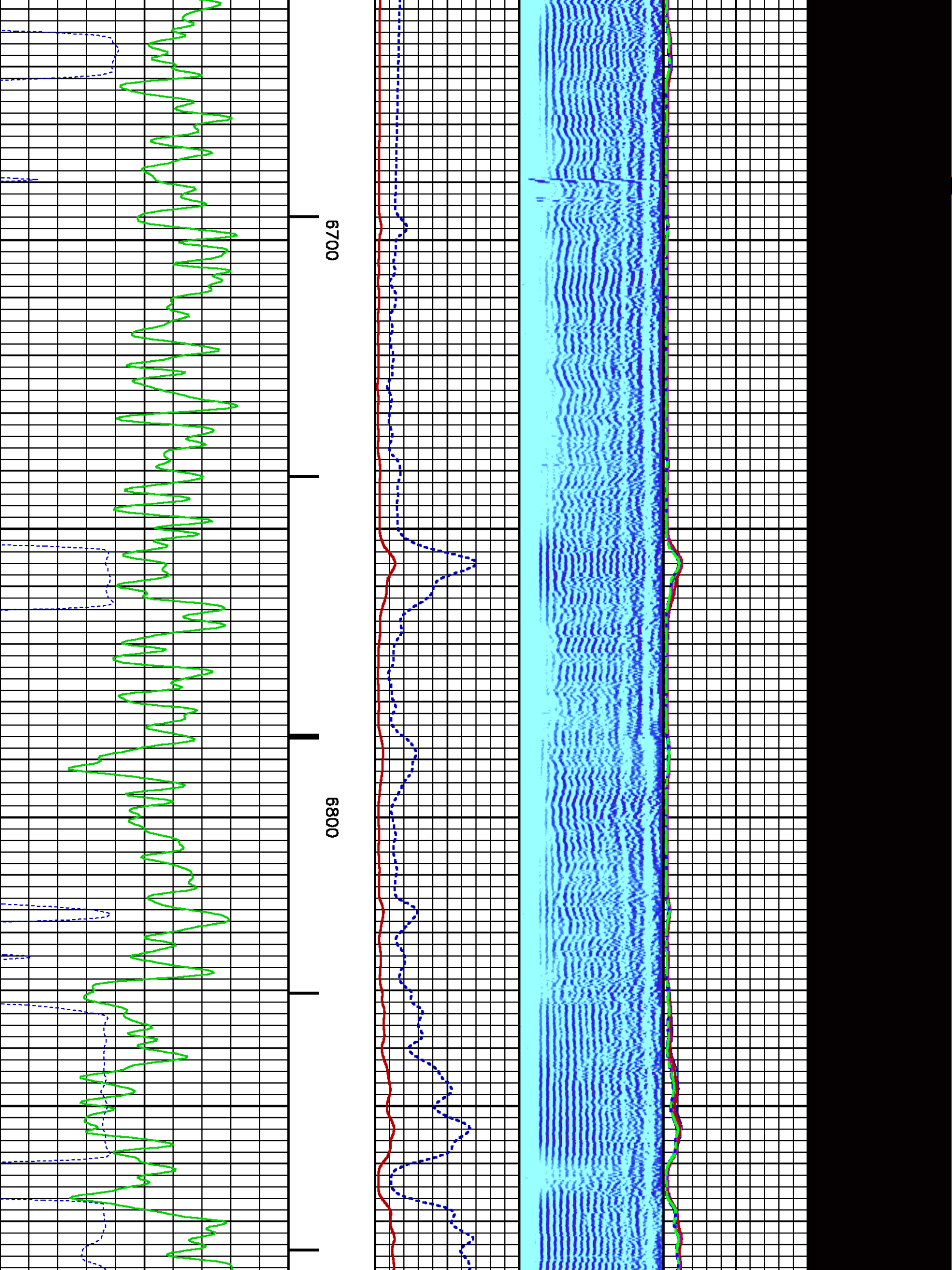




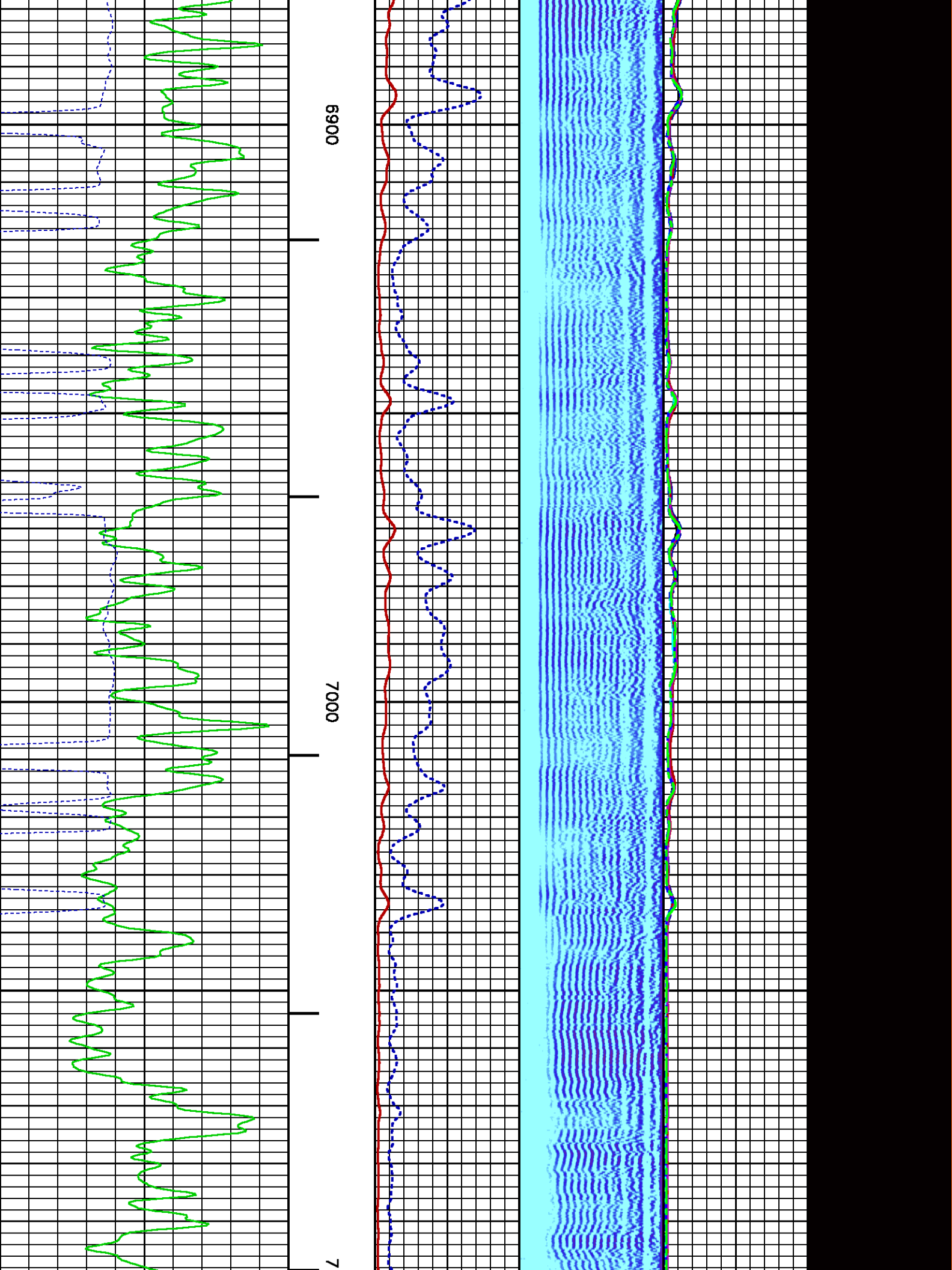


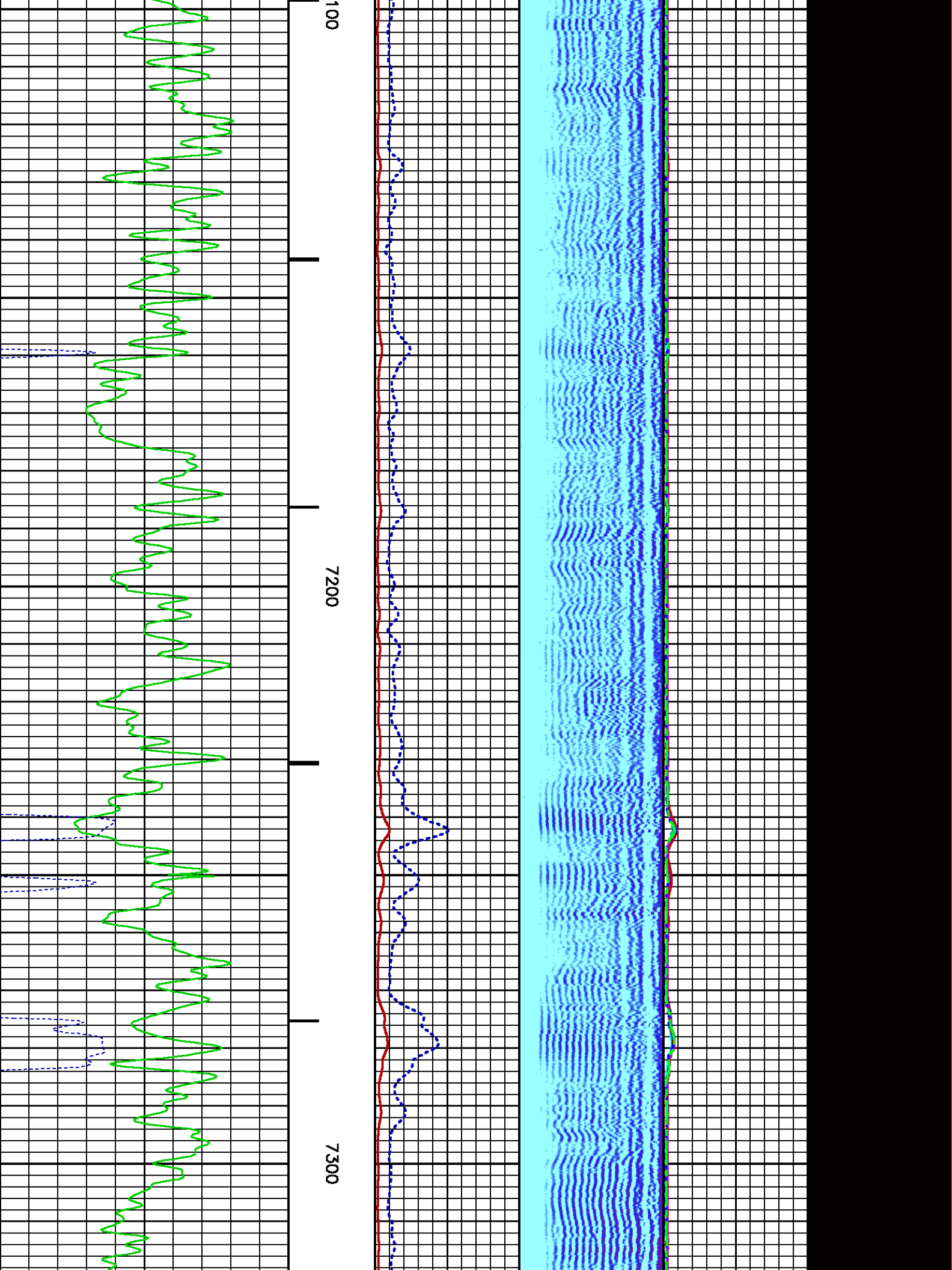


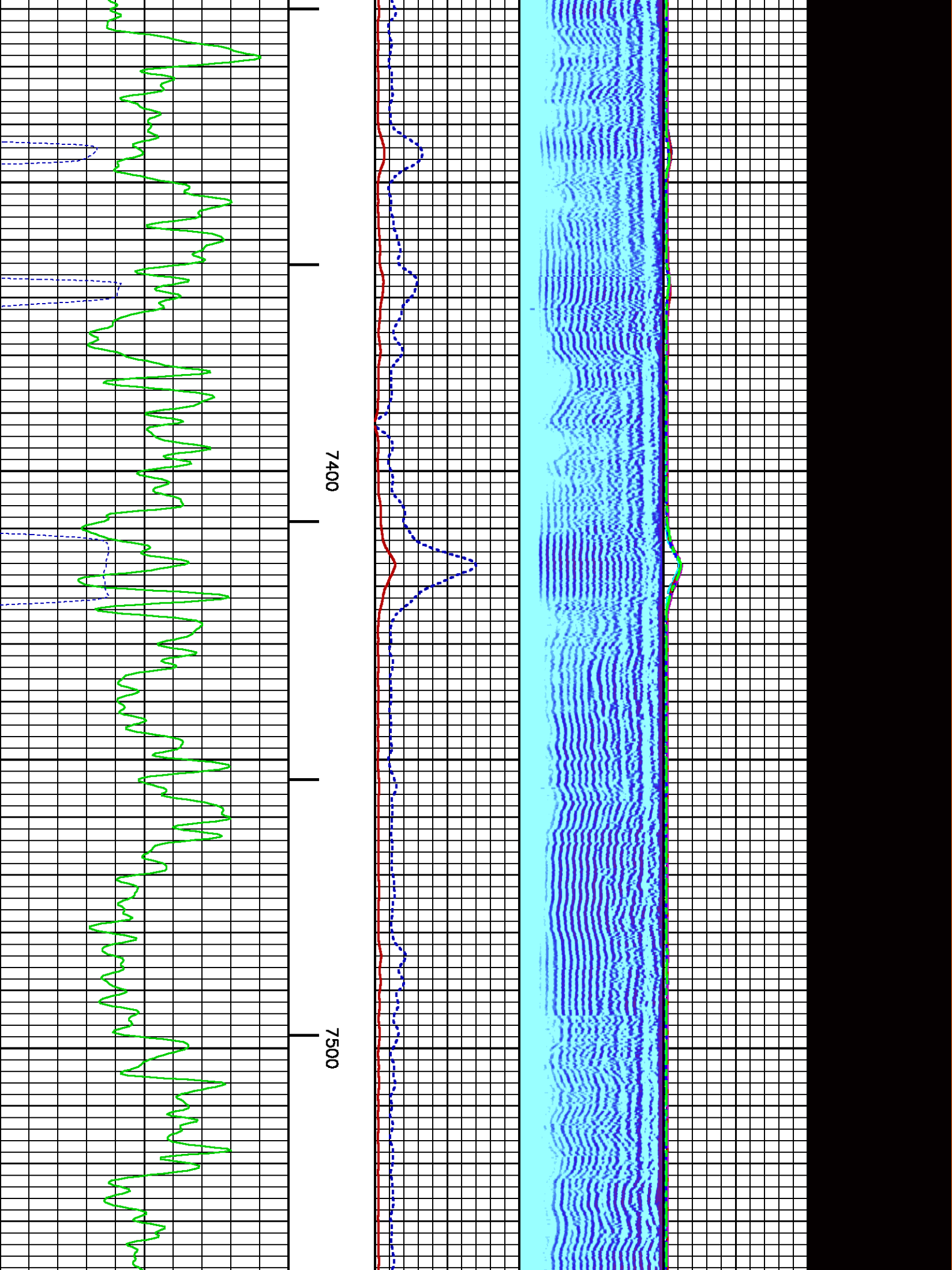




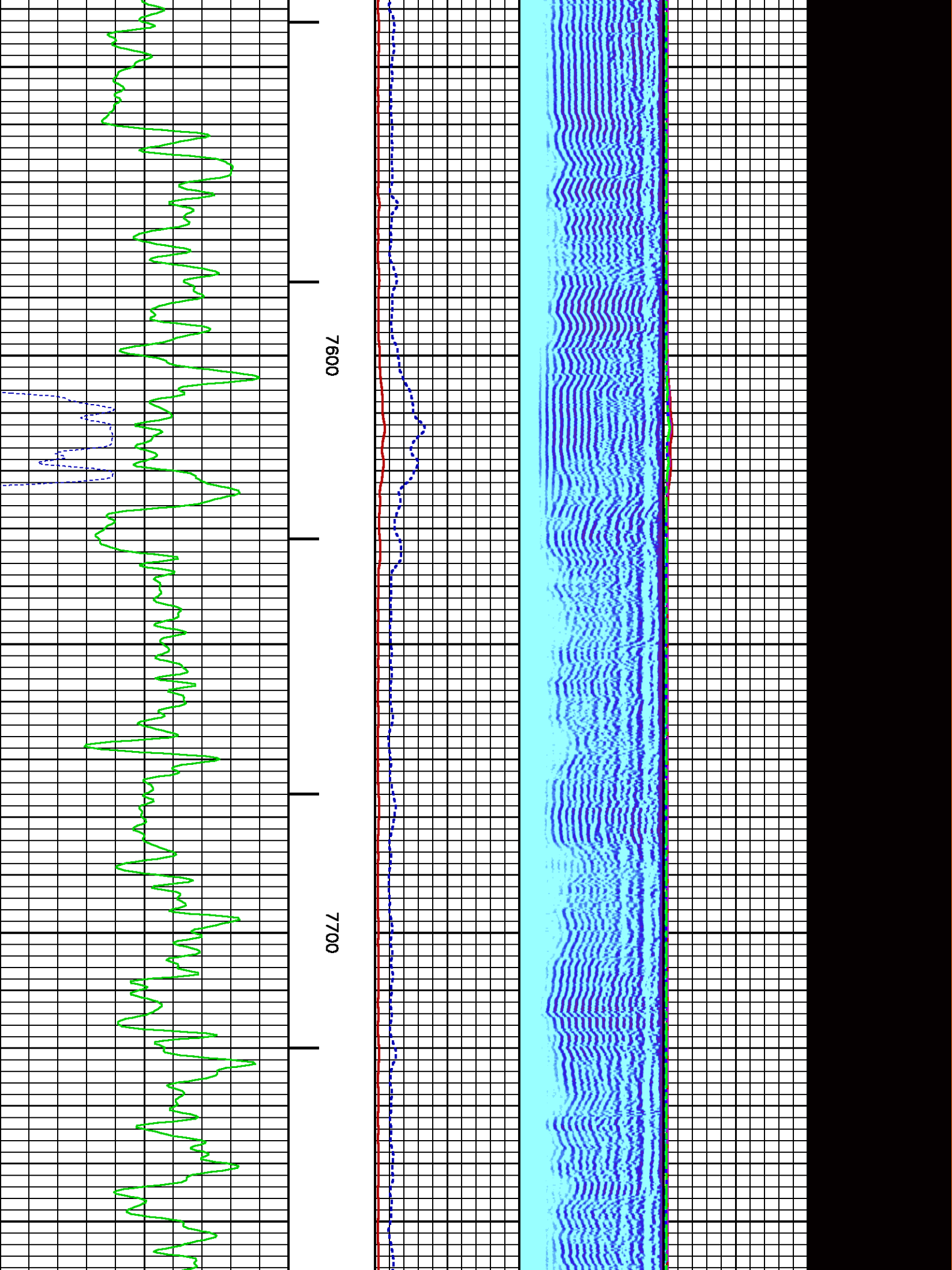


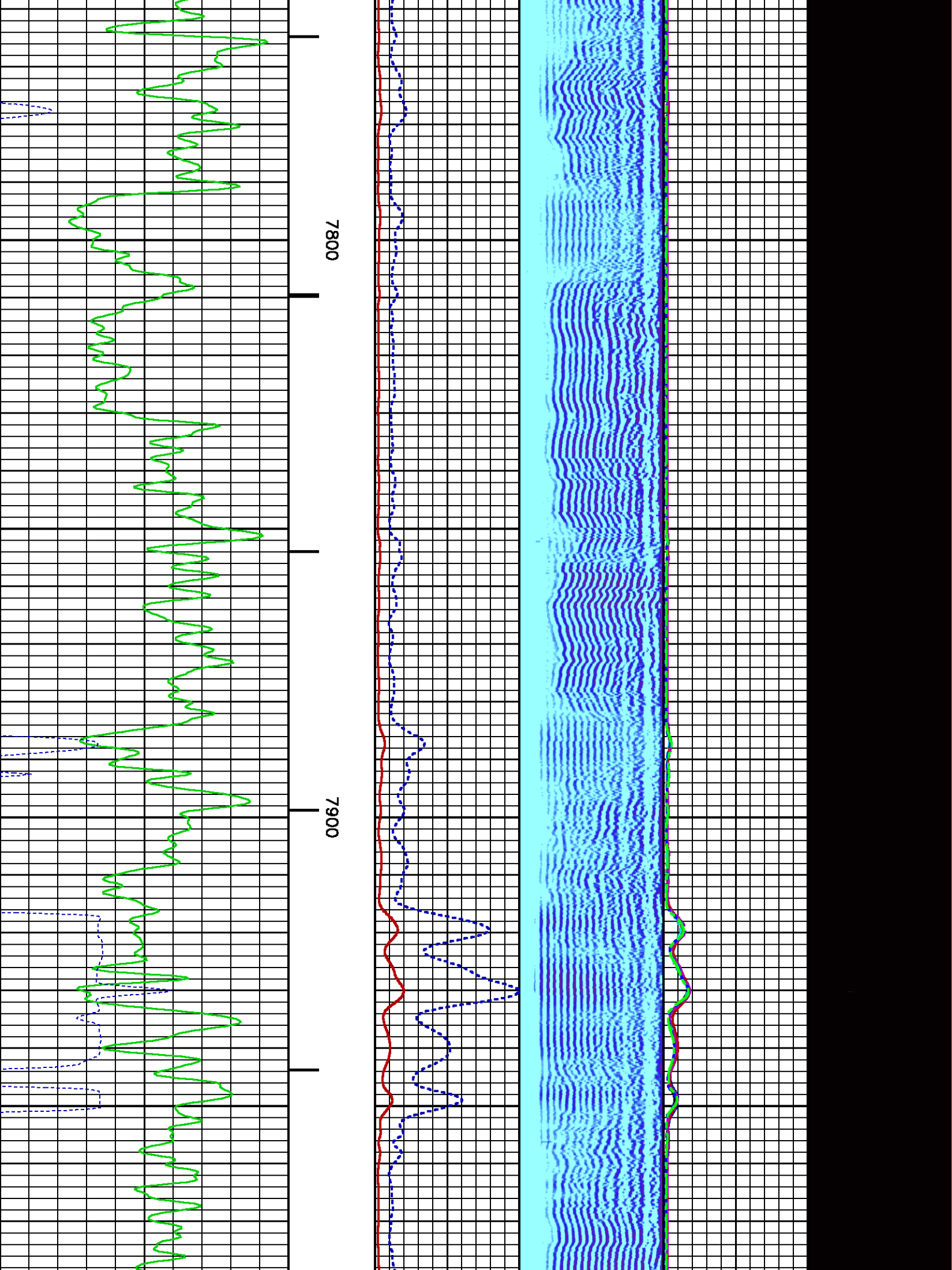


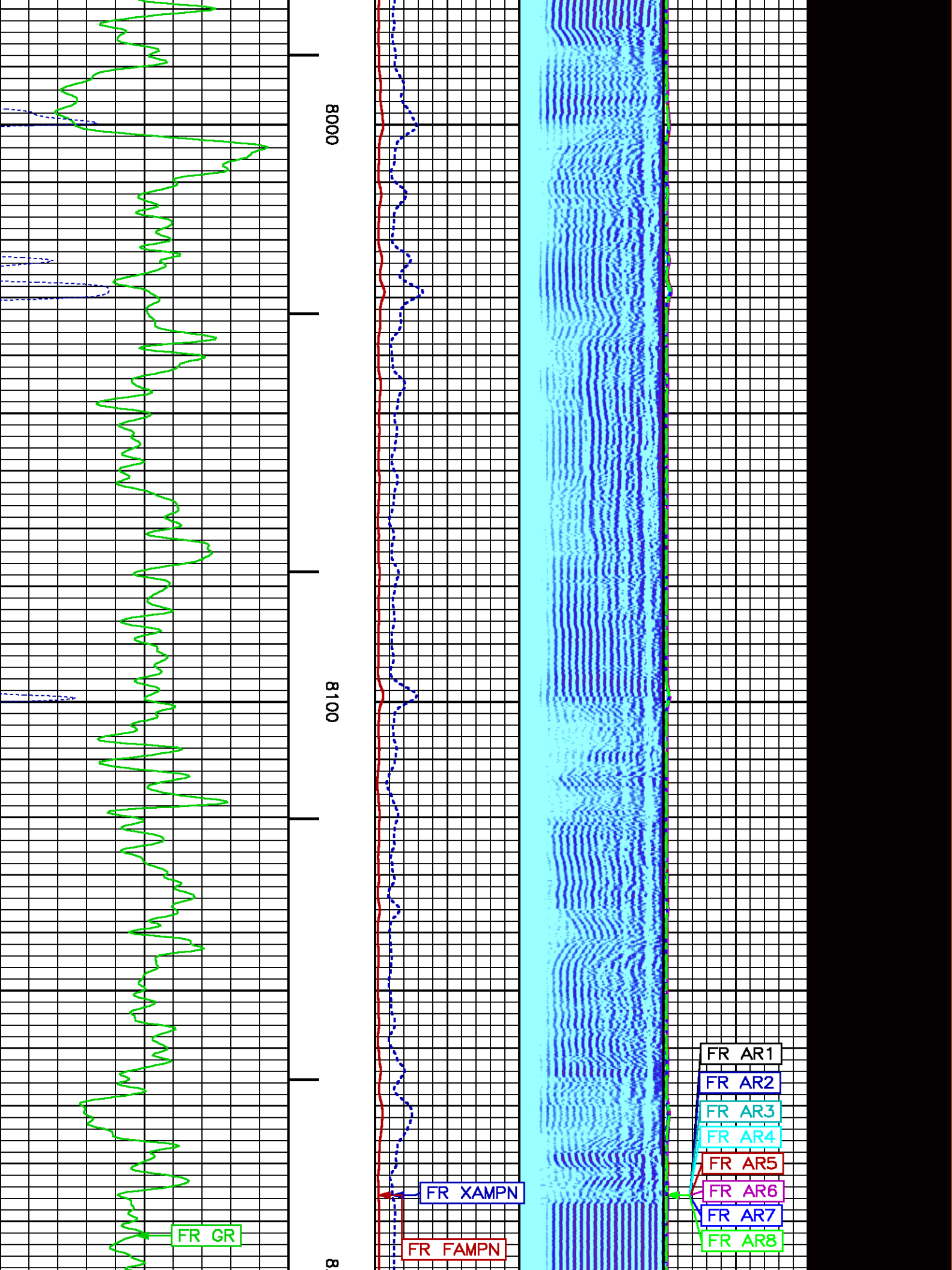




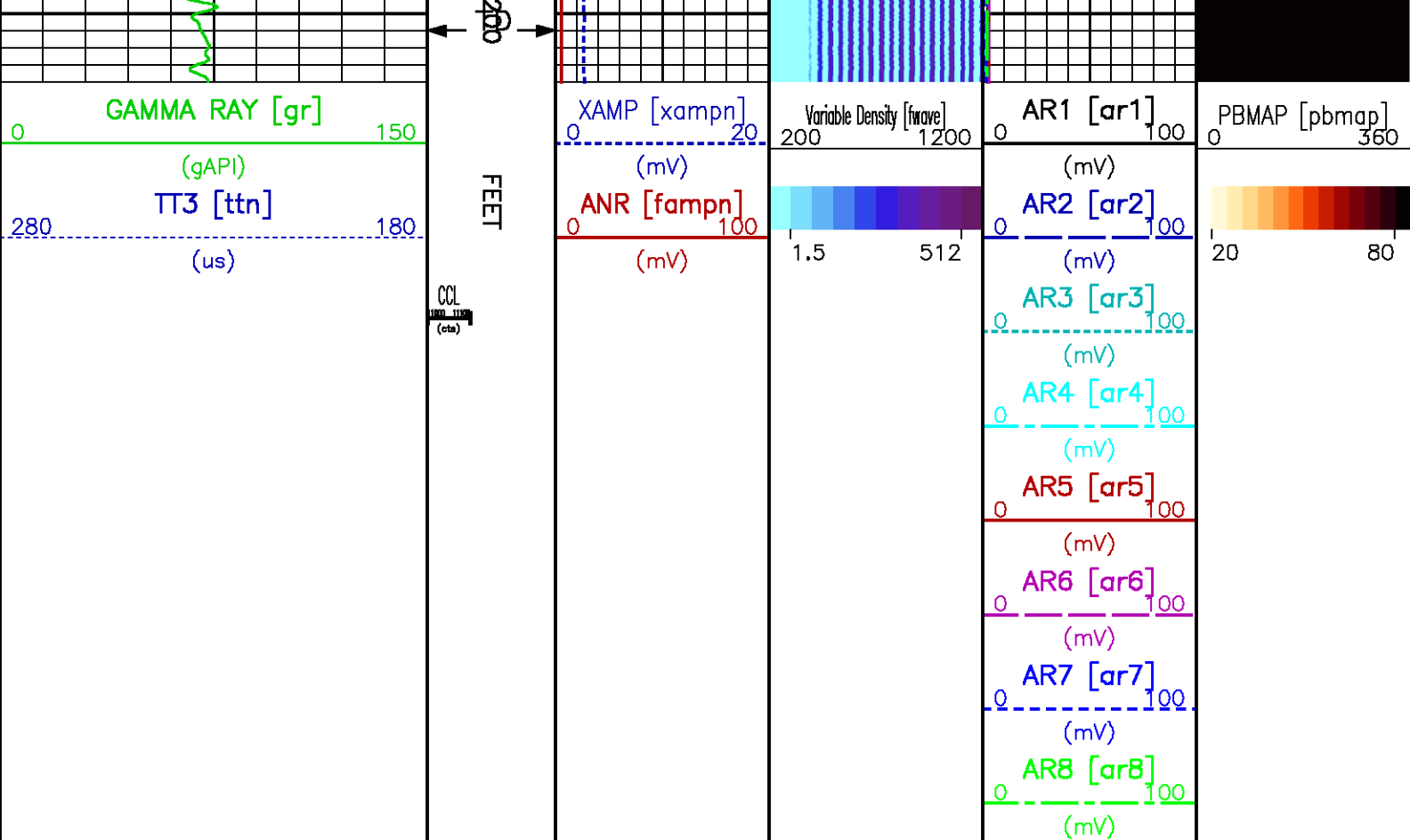












REPEAT LOG 0 PSI

ECLIPS 6.11 Aug 06, 2010  
Updates: 1

Tue Apr 5 05:35:17 2011

Pcrplt /main/62

Cplot

Pdf\_Cpp /main/16

Fileview 5.51

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/576868/m012eR01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 7728.000 ft BOTTOM DEPTH: 8211.000 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ( )	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ( )	light (2a)		"	"
TRAVEL TIME	FILTER ( )	medium (1)		"	"

### RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

### ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgpn*)	187	us	TOP	BOTTOM
	AMP WINDOW LENGTH	25	us	"	"

TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	''	''
	TT WINDOW LENGTH	500	us	''	''
	FIRST BRK THRESHOLD (ttn*)	4	mV	''	''
RAL CASING PARAMETERS	PPT NEAR	200.391	us	''	''
RAL TOOL DELAY	TOOL DELAY (strn*)	-77	us	''	''
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	''	''
	NOISE WINDOW LENGTH	25	us	''	''

## CURVE DESCRIPTION REPORT

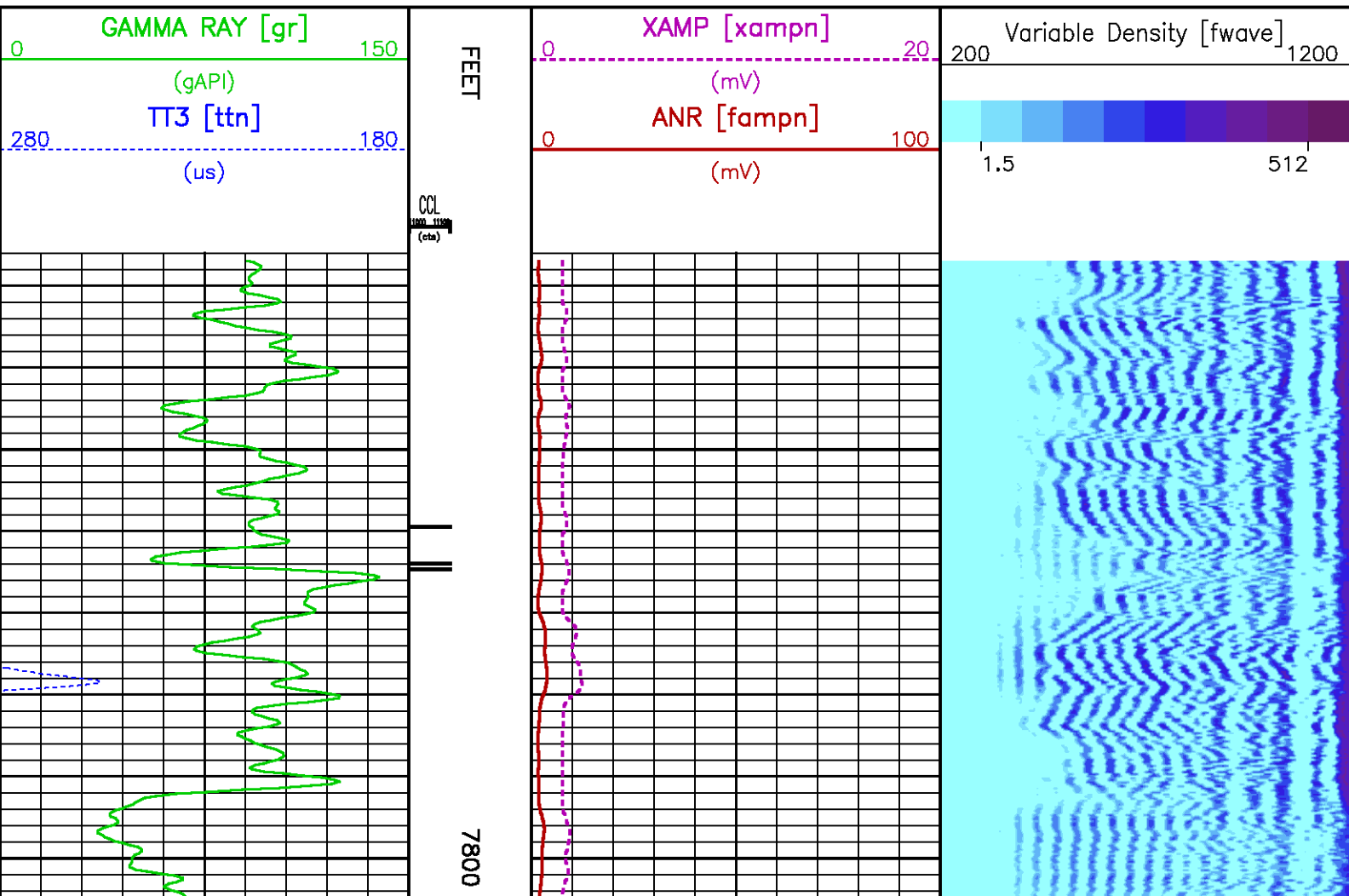
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Mar 30 21:05:53 2011	CASING COLLAR LOCATOR
F1:FAMPN	Mar 30 21:05:53 2011	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Mar 30 21:05:53 2011	FAR WAVE FORM
F1:GR	Mar 30 21:05:53 2011	GAMMA RAY
F1:TTN	Mar 30 21:05:53 2011	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Mar 30 21:05:53 2011	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

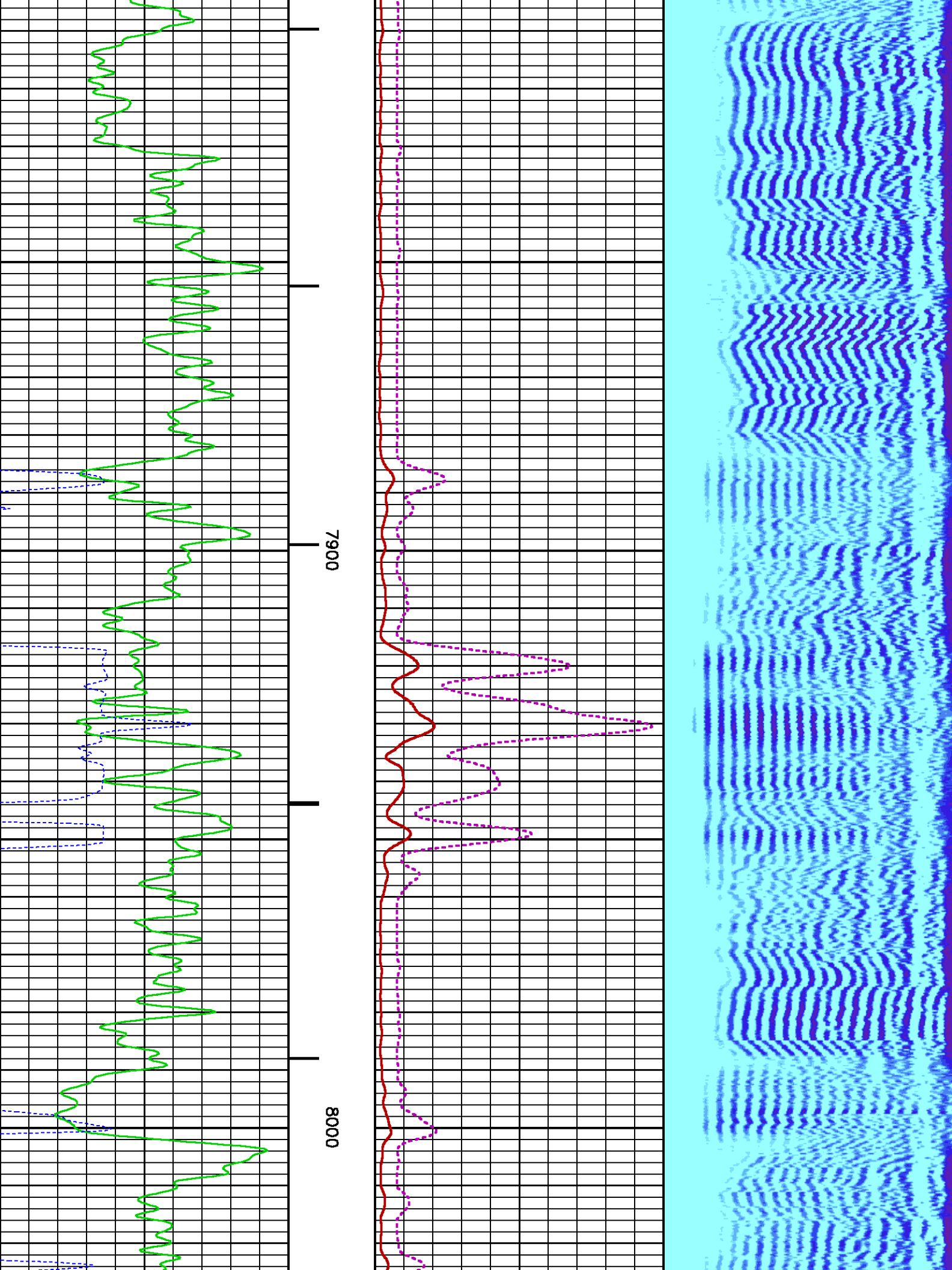
## CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	11.50	GR	9.50	XAMPN	16.50		
FAMPN	16.50	TTN	16.50				

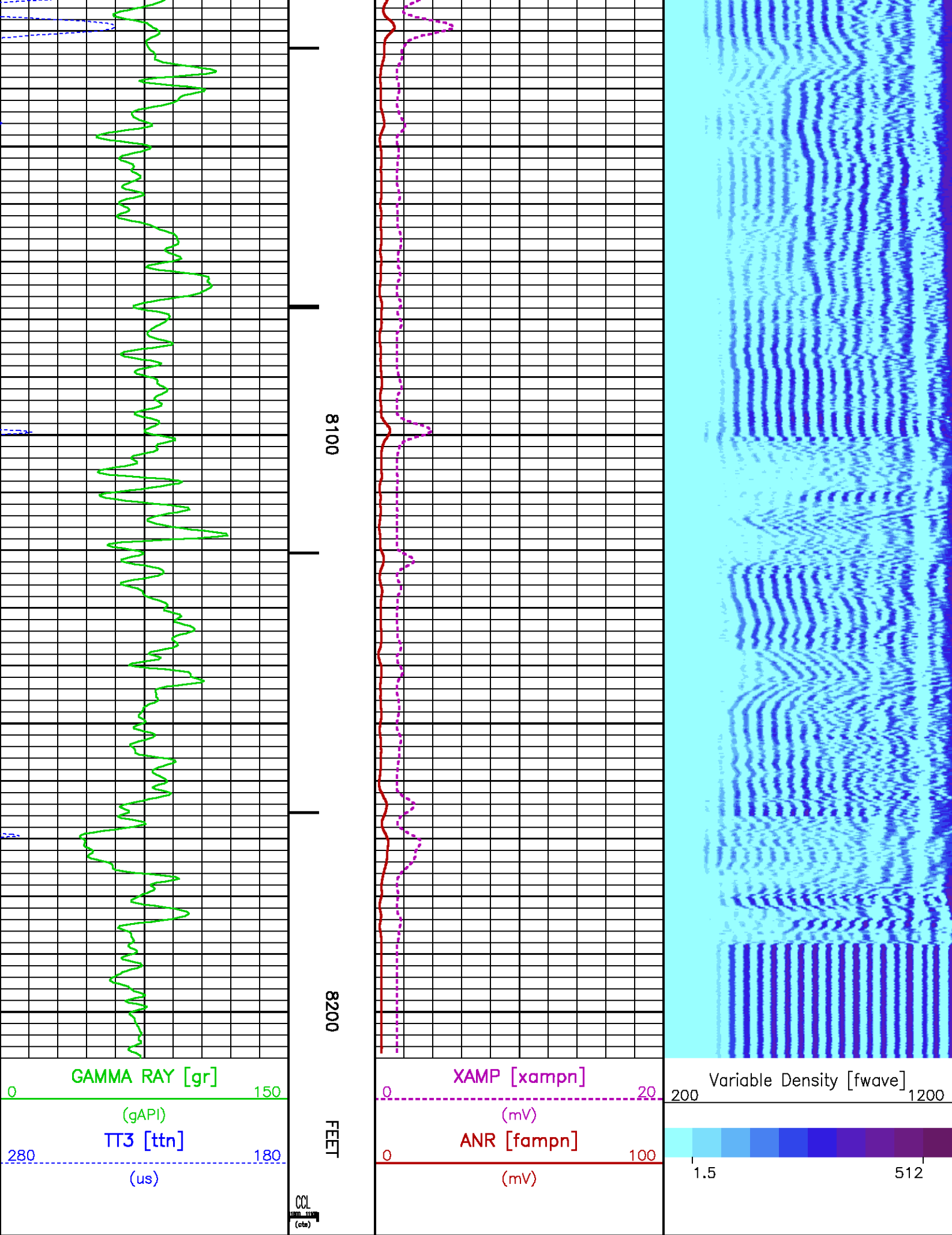
Presentation : HL6670:/data/576868/CBL\_REPEAT\_PRES+01-REPEAT-REPEAT\_CBL-5.pdf [5"/100' Scale]  
Plot Interval : 7727 - 8208 Feet

Data File 1 : F1 : HL6670:/data/576868/REPEAT\_CBL.xtf  
Created On : Mar 30 21:05:53 2011  
Company : WILLIAMS PRODUCTION COMPANY  
Well : RWF 332-3  
Field : RULISON  
File Interval : 12.25 - 8229 Feet  
Oct : m012e











# INSTRUMENT CONFIGURATION

## CABLEHEAD

Diameter : 2.75"  
Length : 2.25'  
Weight : 10 lbs  
Series : CABL234  
Mnemonic : CBLH

## RADIAL BOND TOOL

Diameter : 2.75"  
Length : 11.17'  
Weight : 126 lbs  
Series : 1426XA  
Mnemonic : RAL  
Measure Point: 4.21': NEAR RCVR  
Measure Point: 3.25': FAR RCVR

## RAL NEUTRON/GR/CCL/CHV DETECTOR

Diameter : 2.75"  
Length : 9.42'  
Weight : 106 lbs  
Series : 2459XA  
Mnemonic : RAL  
Measure Point: 8.48': CCL  
Measure Point: 6.60': GR  
Measure Point: 1.21': NEU

## CENTRALIZER

Diameter : 3.12"  
Length : 2.68'  
Weight : 20 lbs  
Series : 1426ZZ  
Mnemonic : CENT

## BULL PLUG 3 1/8

TOTAL LENGTH: 25.94'  
TOTAL WEIGHT: 284 lbs  
MAX DIAMETER: 0'3.12"



25.94'

NEAR RCVR 16.74'

FAR RCVR 15.78'

CCL 11.57'

GR 9.71'

NEU 4.32'

0.00'



COMPANY  
WELL  
FIELD  
COUNTY

WILLIAMS PRODUCTION COMPANY  
RWF 332-3  
RULISON  
GARFIELD

STATE COLORADO

FILE NO:

CH031801

API NO:

05045196380000

LOCATION:

SHL : 619' FSI \* 1834' FEI S34T6SR94W

ELEVATIONS:

KB 5651.6 FT

3 7S 94W

RW 83-34

145222-575

Baker Atlas





