

## Schlumberger

Company: **Encana Oil & Gas Inc (USA)**

Well: **Ranchero 1**

Field: **Wattenberg**

County: **Weld** State: **Colorado**

Ultra Sonic Imager Corrosion									
County:		Weld							
Field:		Wattenberg							
Location:		Sec. 34, T2N, R66W							
Well:		Ranchero 1							
Company:		Encana Oil & Gas Inc (USA)							
Logging Date		LOCATION							
		Sec. 34, T2N, R66W SHL: 1650' FSI & 990' FWL NWSW				Elev.: K.B. 5013.00 ft G.L. 5010.00 ft D.F. 5012.00 ft			
Run Number		Permanent Datum: _____				Ground Level _____			
Depth Driller		Log Measured From: _____				Ground Level _____			
Schlumberger Depth		Drilling Measured From: _____				Ground Level _____			
Bottom Log Interval		API Serial No. 05-123-08576-0000		Section 34		Township 2N		Range 66W	
Top Log Interval		30-Mar-2011		1					
Casing Driller Size @ Depth		7350 ft		7350 ft					
Casing Schlumberger		100 ft		4.500 in		@			
Bit Size		7.875 in		Water					
Type Fluid In Hole		Density		Viscosity		8.4 lbm/gal			
Fluid Loss		PH							
Source Of Sample		RM @ Measured Temperature		@		@		@	
RMF @ Measured Temperature		RMC @ Measured Temperature		@		@		@	
Source RMF		RMC		@		@		@	
RM @ MRT		RMF @ MRT		@		@		@	
Maximum Recorded Temperatures		Circulation Stopped		Time		Time		Time	
Logger On Bottom		Location		Time		30-Mar-2011		13:00	
Unit Number		Recorded By		Philip Grant		Tom Majors			
Witnessed By									

[illegible]

## DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1

OS1: none

OS2:

OS3:

OS4:

OS5:

REMARKS: RUN NUMBER 1

Tool run as per sketch.

Casing becomes more narrow at 500' and 200' no mentions were made about a different casing id's.	
--------------------------------------------------------------------------------------------------	--

Crew: Troy Ocanas

Rig: Work over

RUN 1

SERVICE ORDER #:  
PROGRAM VERSION:  
FLUID LEVEL:

BEOK-00134  
18C0-147

RUN 2

SERVICE ORDER #:  
PROGRAM VERSION:  
FLUID LEVEL:

LOGGED INTERVAL

START

STOP

LOGGED INTERVAL

START

STOP

[illegible]

RUN 1

RUN 2

SURFACE EQUIPMENT  
WITM (DTS)-A

GSR-U/Y  
NCT-B  
CNB-AB  
NCS-VB

## DOWNHOLE EQUIPMENT

LEH-QT  
LEH-QT

43.4



AH-Inline Cent  
AH-Inline Cent

40.5



DTC-H  
ECH-KC  
DTCH0-A  
DTCH1-A

CTEM  
TelStatus  
ToolStatu  
HGNS HTEM  
HMCA  
HGNS Gamm

HILTB-FTB  
HGNSD-B  
HMCA  
HGNH  
NLS-KL  
NSR-F 5068  
HACCZ 727  
HCNT  
HGR  
NPV-N

HGNS Neut  
HGNS Neut

HGNS sens

AH-Inline\_Cent  
AH-Inline\_Cent

USIT-D  
ECH-MRA  
USIC-D  
USIS-A  
USSC-A  
USRS-A/AB

Control  
Normal In  
DF  
HTEN HMAS HV  
Accelerom  
USI Relat  
Tension

TOOL ZERO



36.7  
33.7  
33.7  
33.0  
27.2  
26.7  
24.3  
24.3  
20.6  
0.4  
0.0

MAXIMUM STRING DIAMETER 3.56 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_010LUP	FN:9	PRODUCER	30-Mar-2011 13:25	7359.5 FT	104.5 FT
---------	-------------------------	------	----------	-------------------	-----------	----------

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_011PUP	FN:10	PRODUCER	30-Mar-2011 20:04	7335.5 FT	80.5 FT
---------	-------------------------	-------	----------	-------------------	-----------	---------

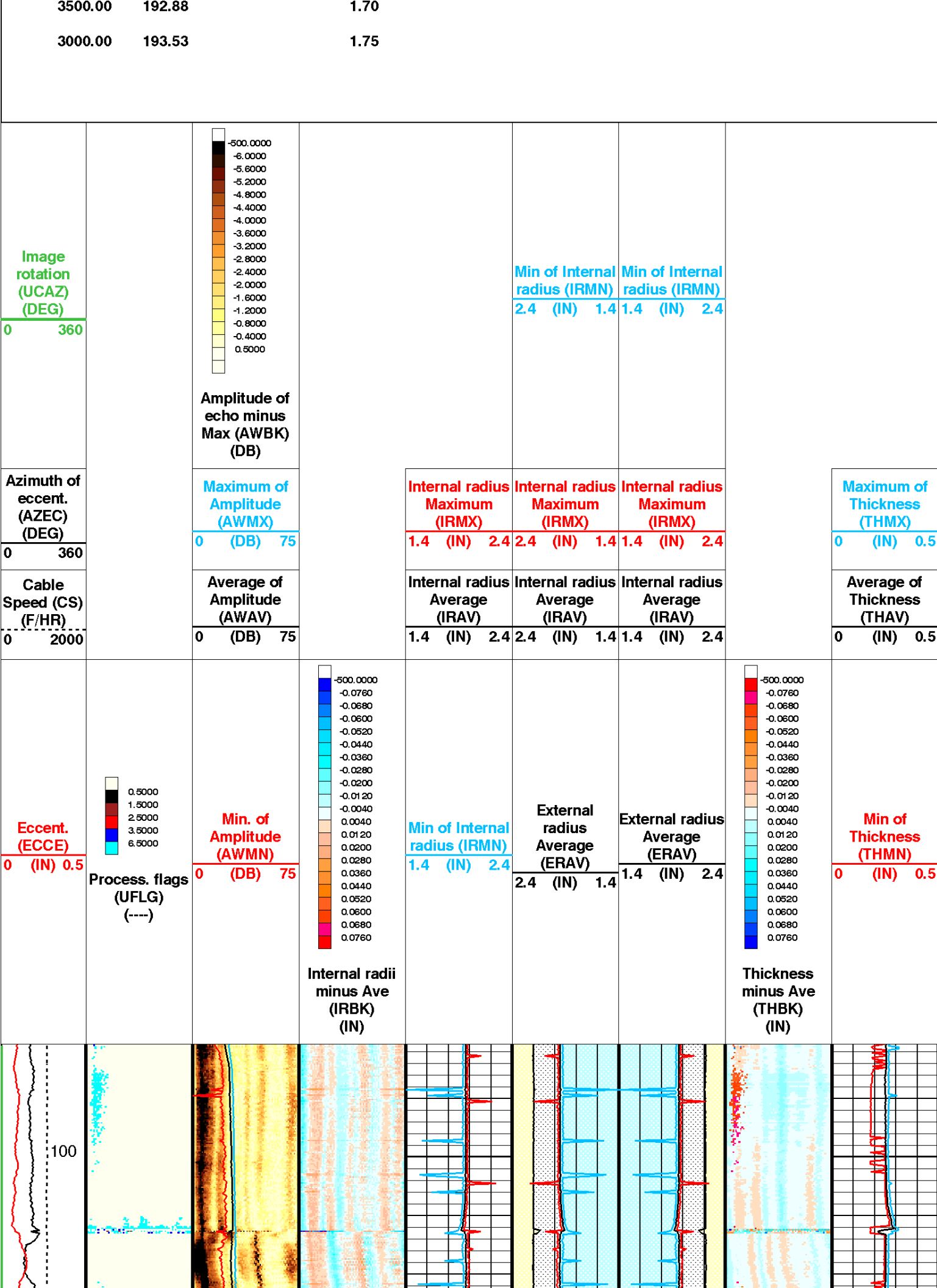
OP System Version: 18C0-147

USIT-D DTC-H	SRPC-4072-Q4_2010_OP18_b 18C0-147	HILTB-FTB	18C0-147
-----------------	--------------------------------------	-----------	----------

Zoning of Mud Parameters

Depth	Fluid Velocity (DFVL)	Acoustic Impedance (ZMUD)
7350.00	202.68	1.69
7000.00	195.29	1.31
6500.00	194.75	1.43
6000.00	192.90	1.48
5500.00	192.83	1.53
5000.00	192.41	1.57
4500.00	192.18	1.63
4000.00	192.23	1.63





Eccent. (ECCE)

0(IN)0.5

Process. flags (UFLG) (---)

0.5000

1.5000

2.5000

3.5000

6.5000

Min. of Amplitude (AWMN)

0(DB)75

Internal radii minus Ave (IRBK) (IN)

-500.0000

-0.0760

-0.0680

-0.0600

-0.0520

-0.0440

-0.0360

-0.0280

-0.0200

-0.0120

-0.0040

0.0040

0.0120

0.0200

0.0280

0.0360

0.0440

0.0520

0.0600

0.0680

0.0760

Min of Internal radius (IRMN)

1.4(IN)2.4

External radius Average (ERAV)

2.4(IN)1.4

External radius Average (ERAV)

1.4(IN)2.4

Min of Thickness (THMN)

0(IN)0.5

Thickness minus Ave (THBK) (IN)

-500.0000

-0.0760

-0.0680

-0.0600

-0.0520

-0.0440

-0.0360

-0.0280

-0.0200

-0.0120

-0.0040

0.0040

0.0120

0.0200

0.0280

0.0360

0.0440

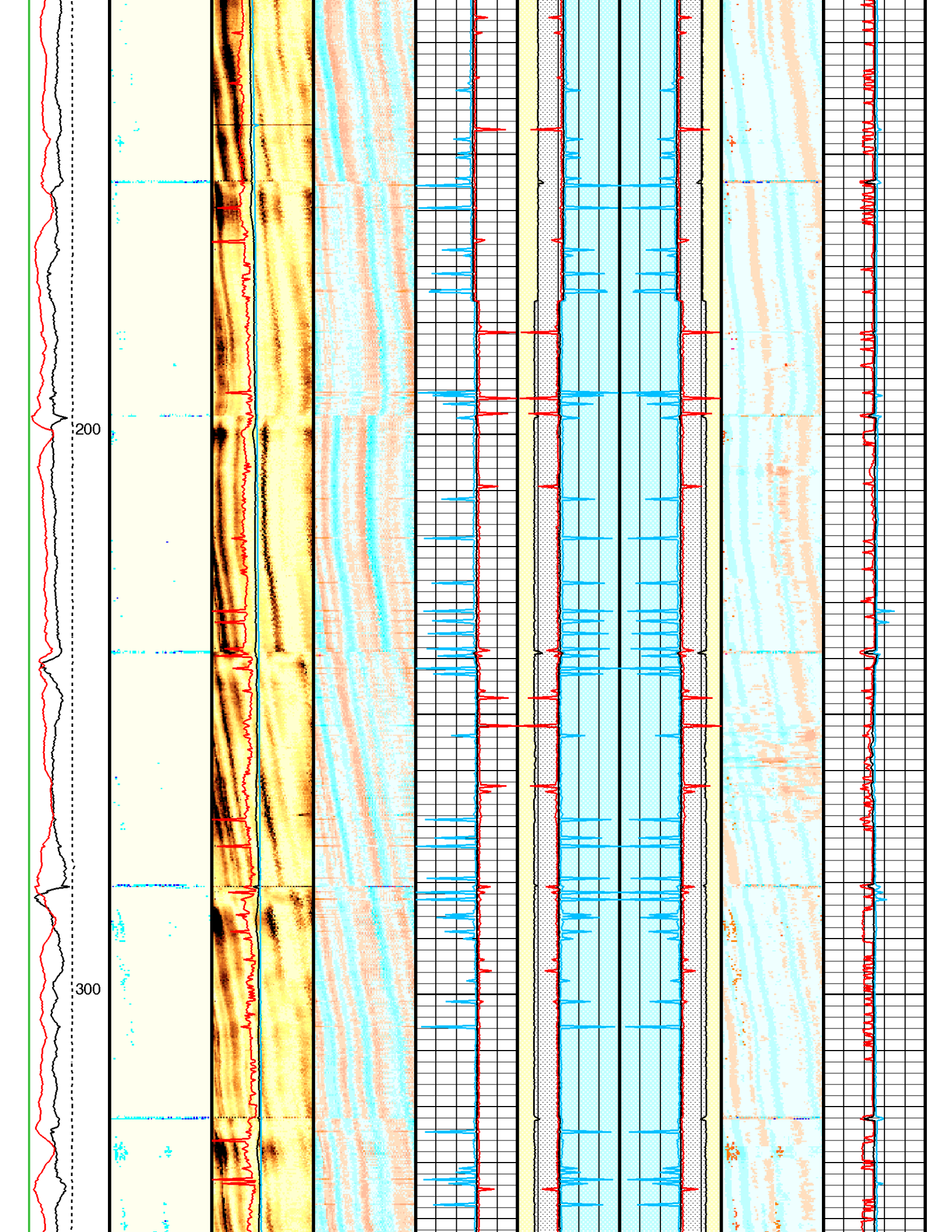
0.0520

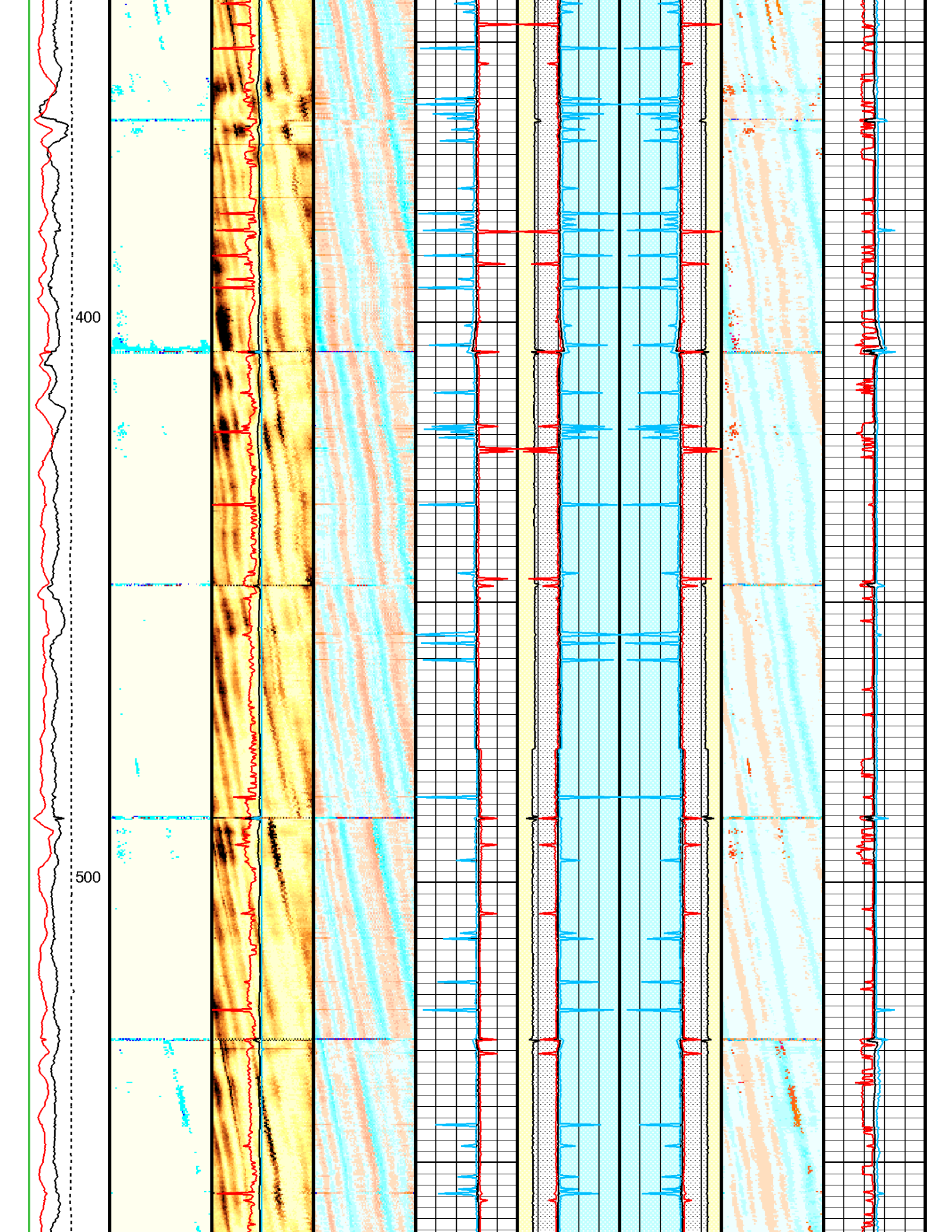
0.0600

0.0680

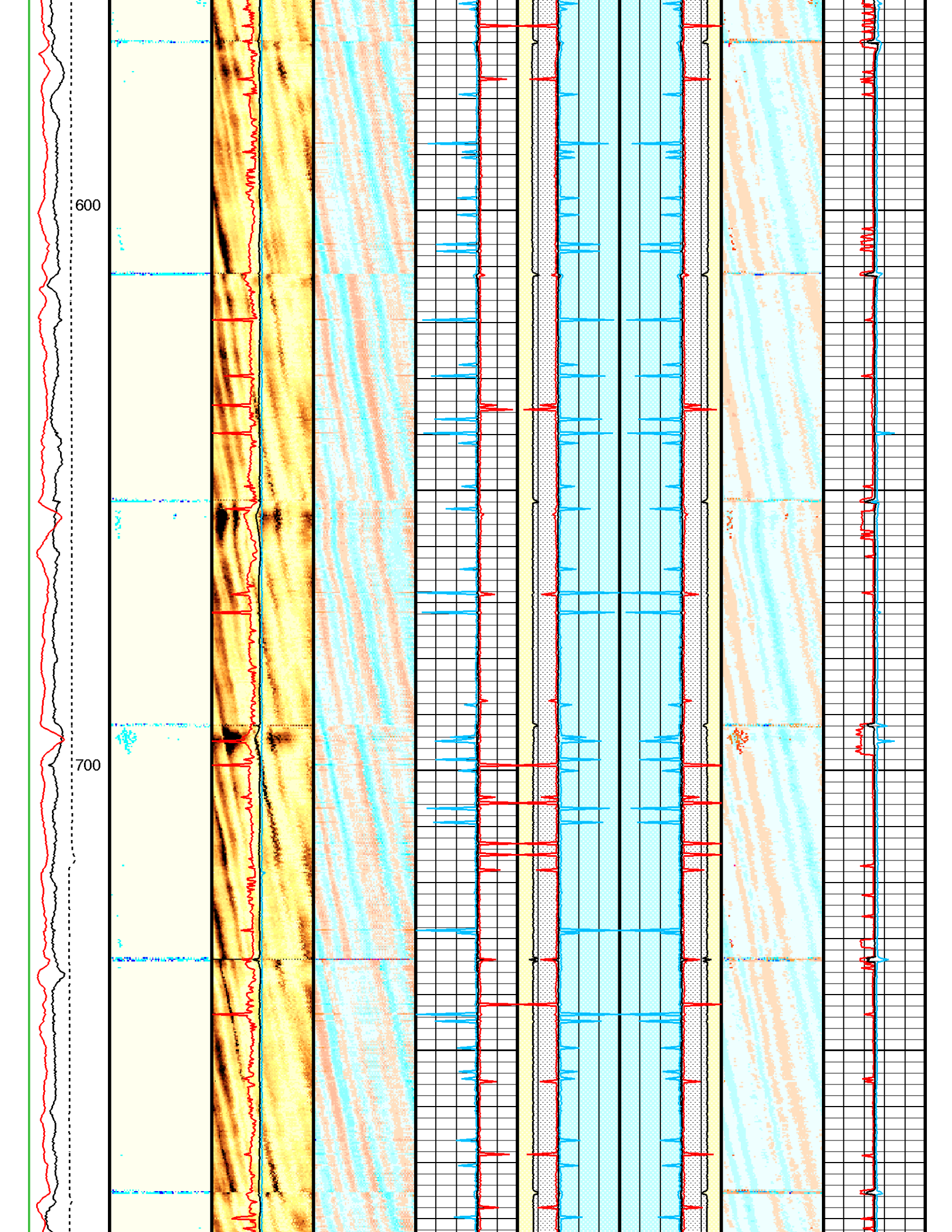
0.0760

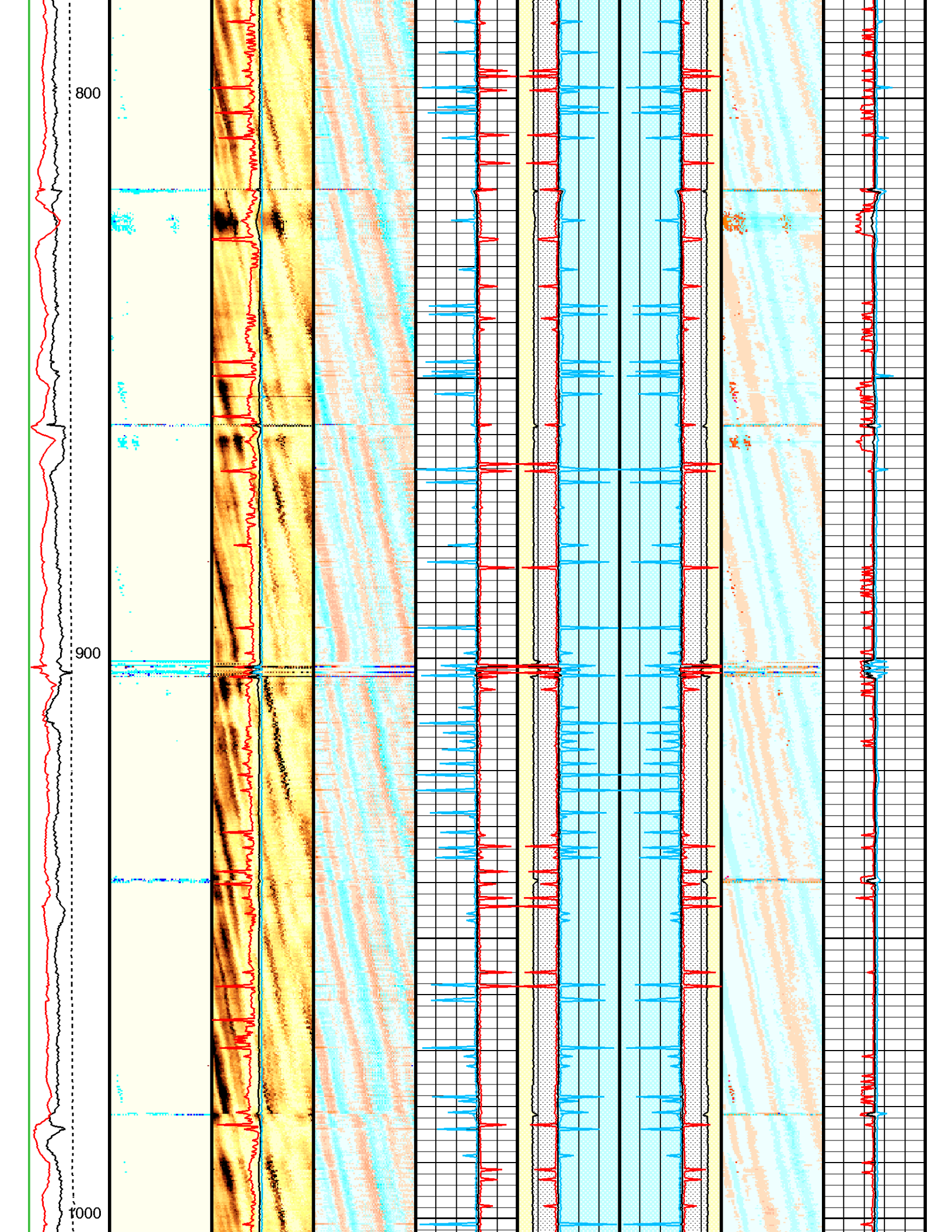
100



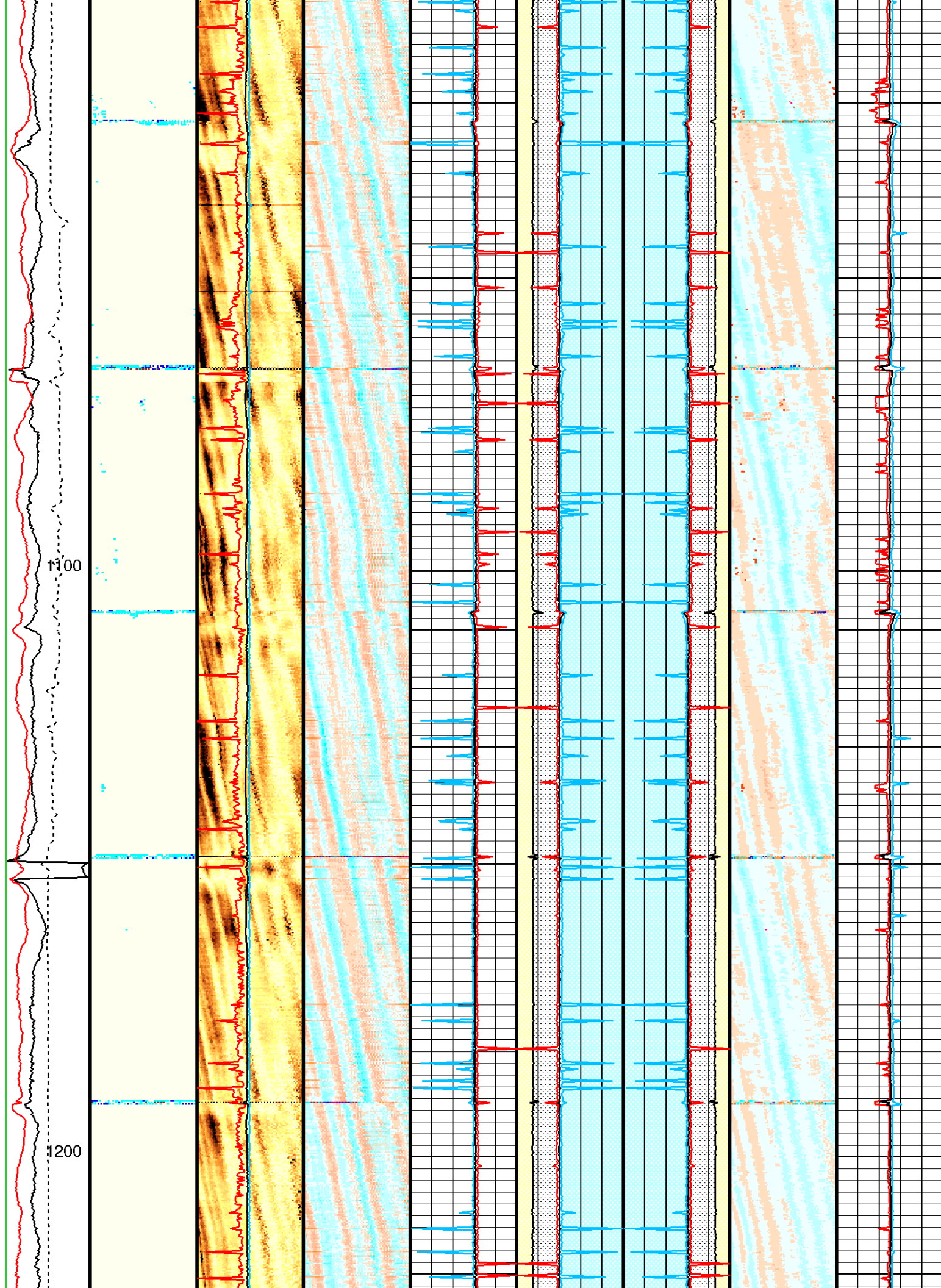


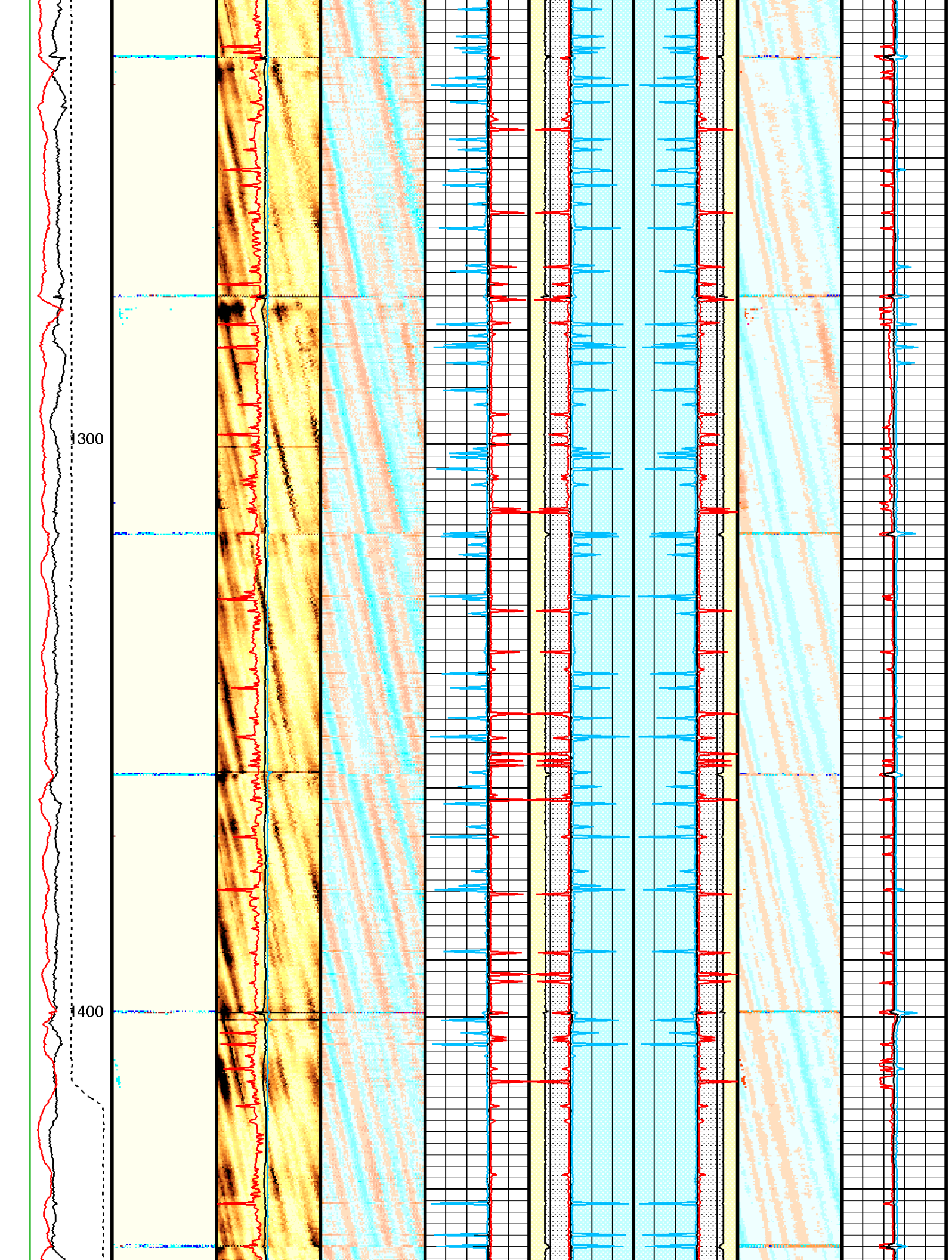




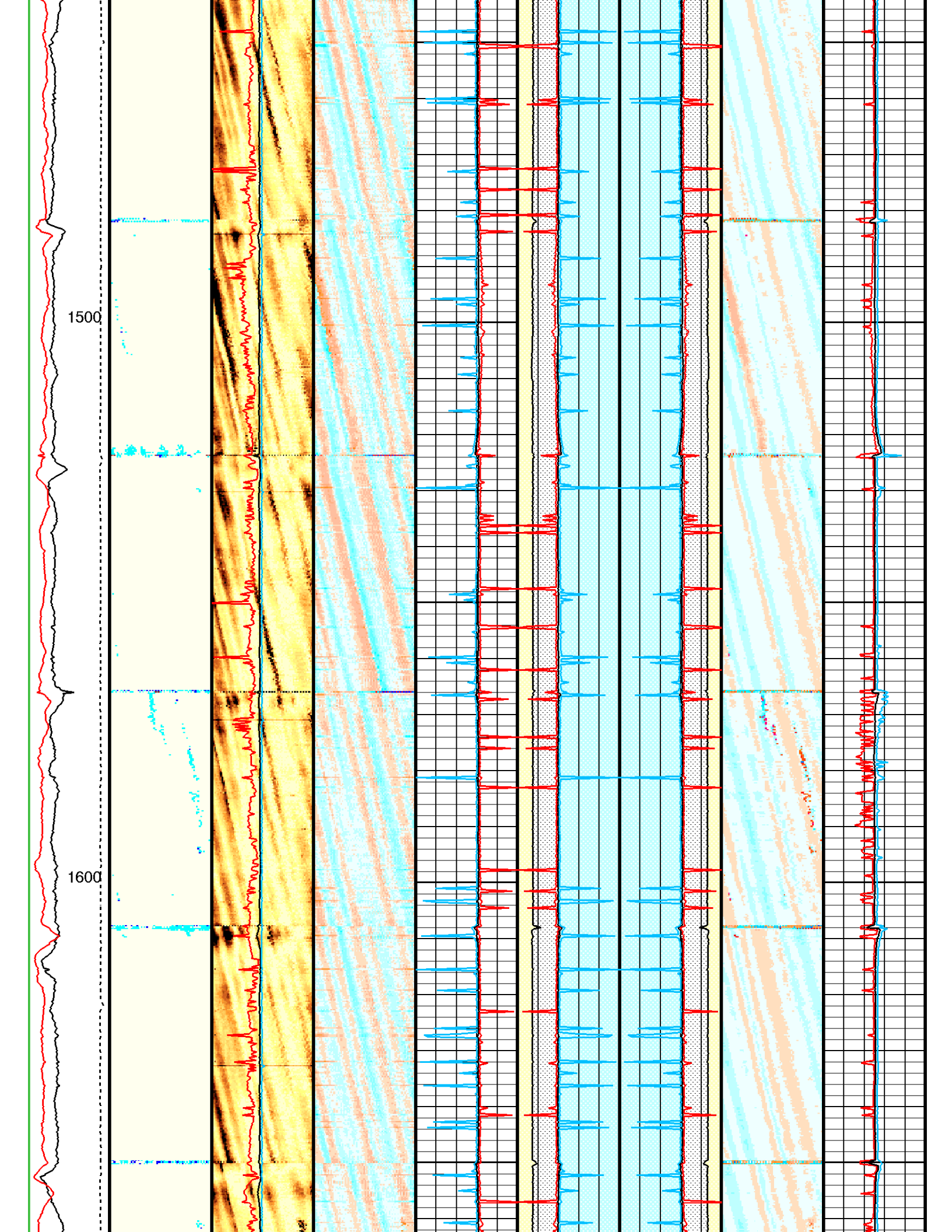




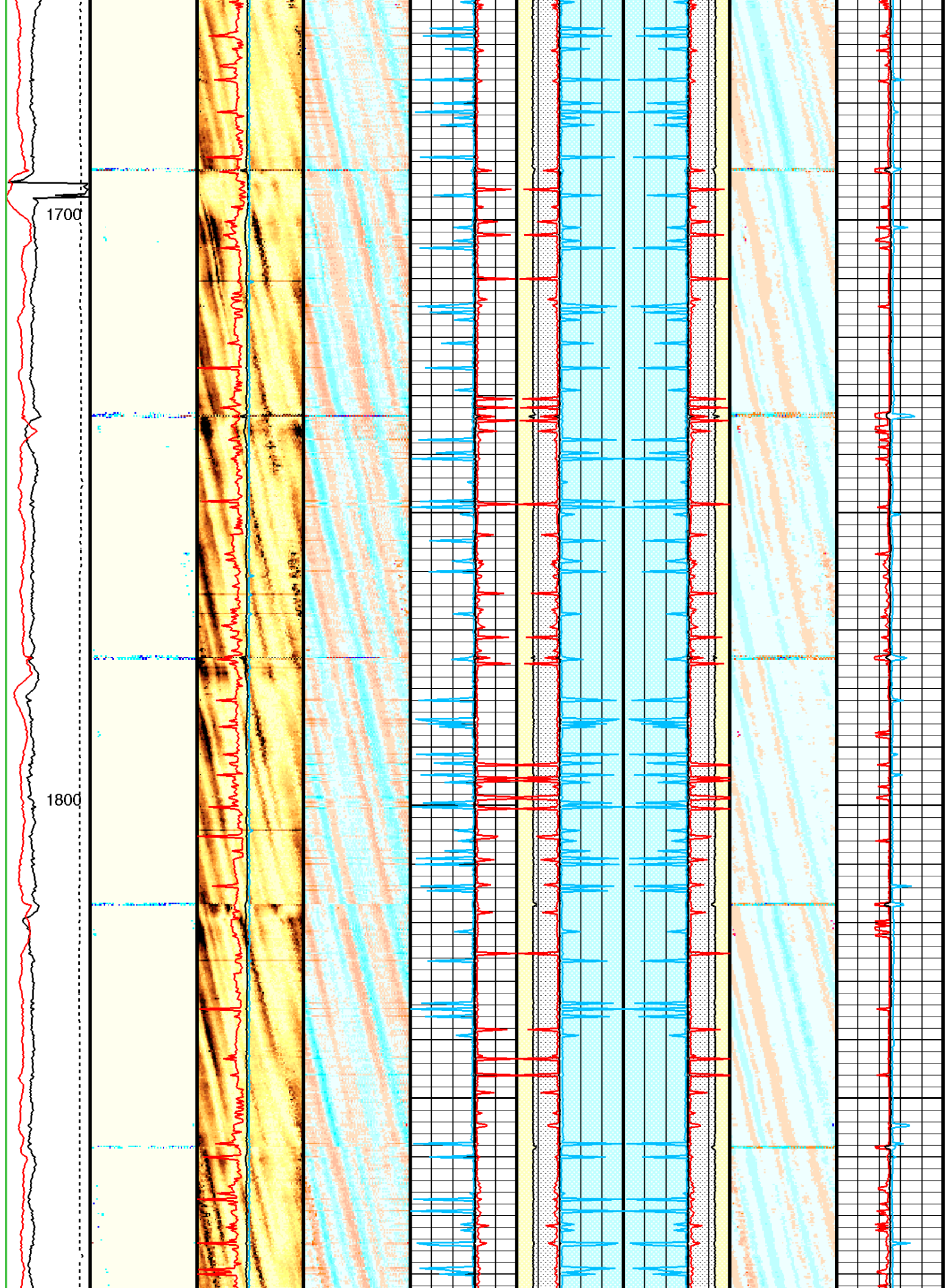


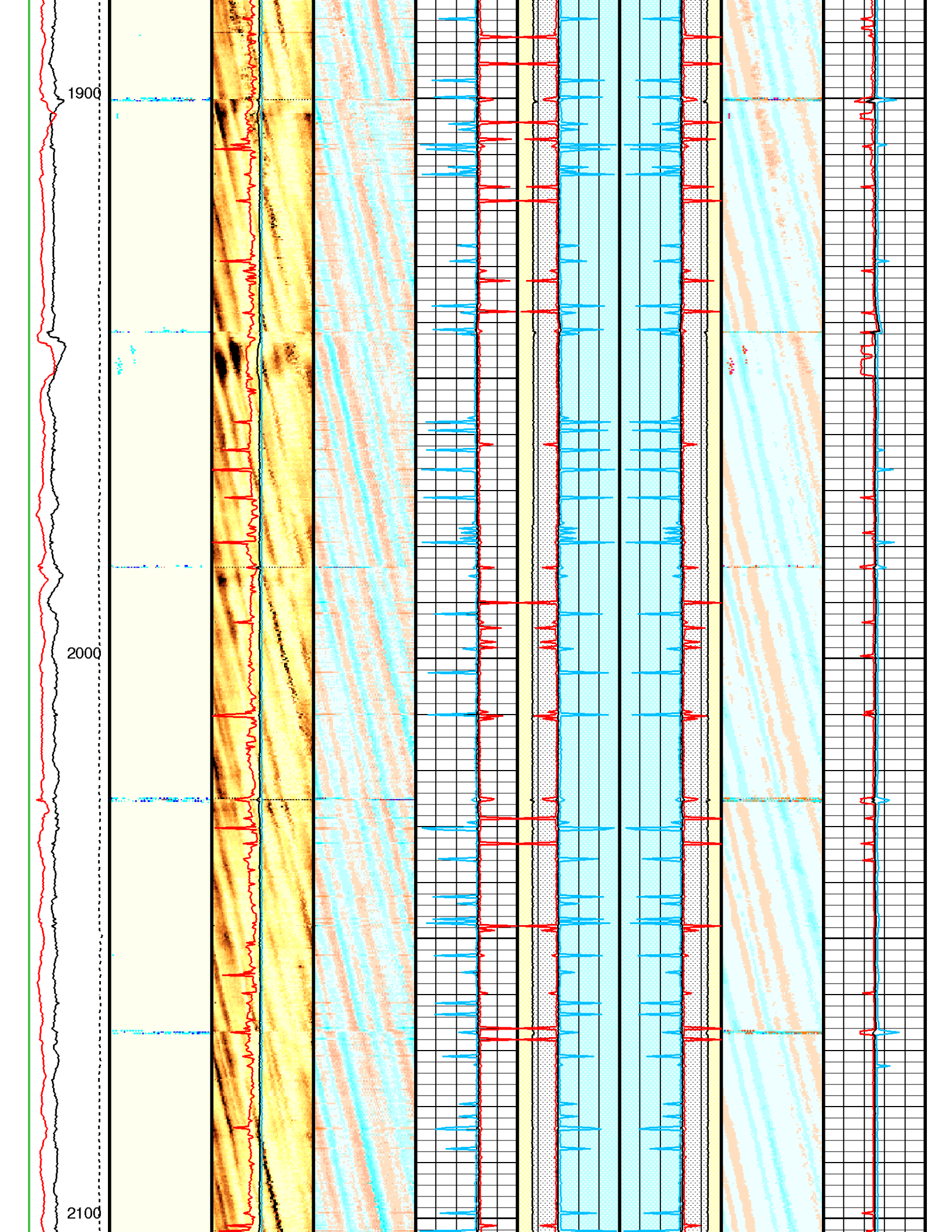




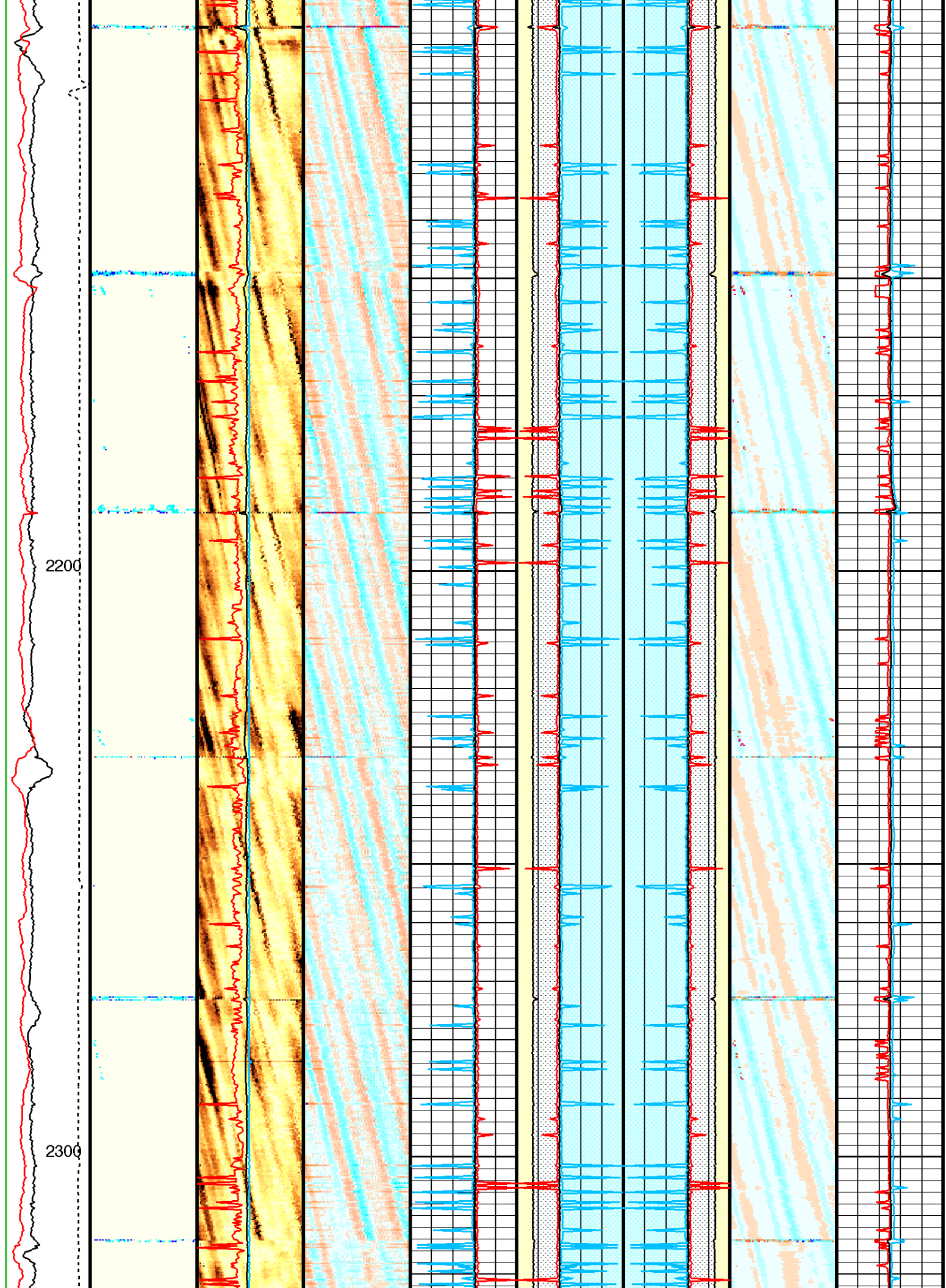


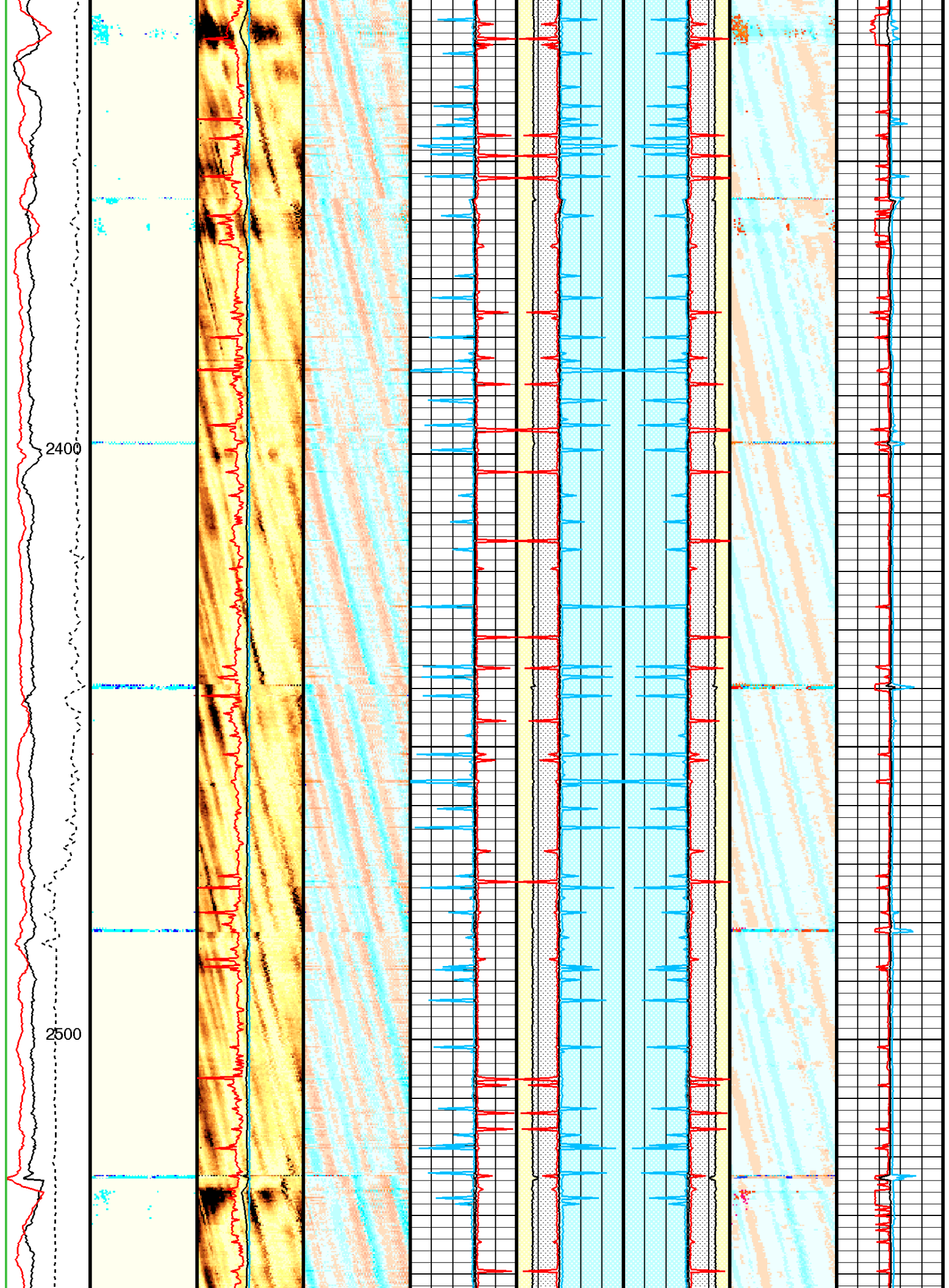




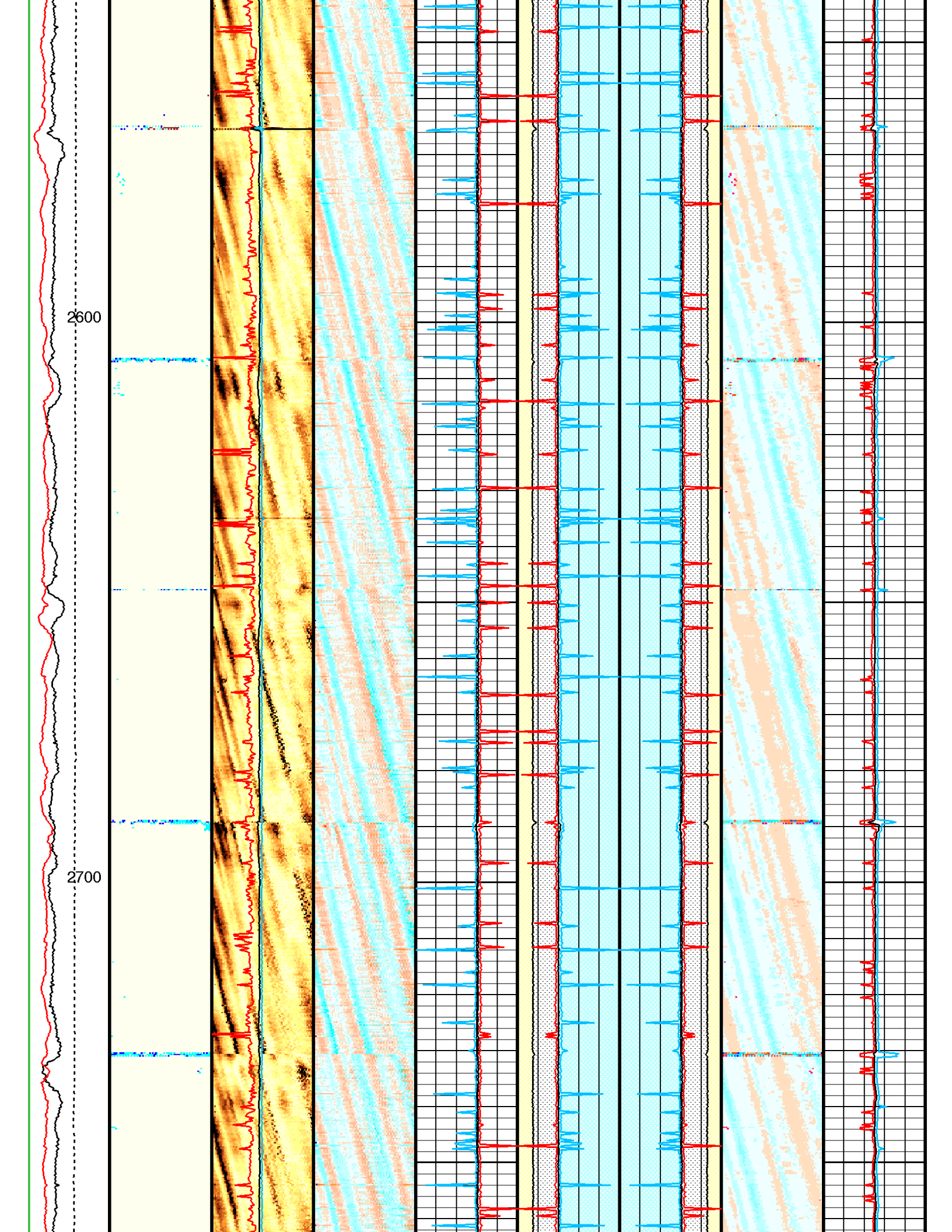


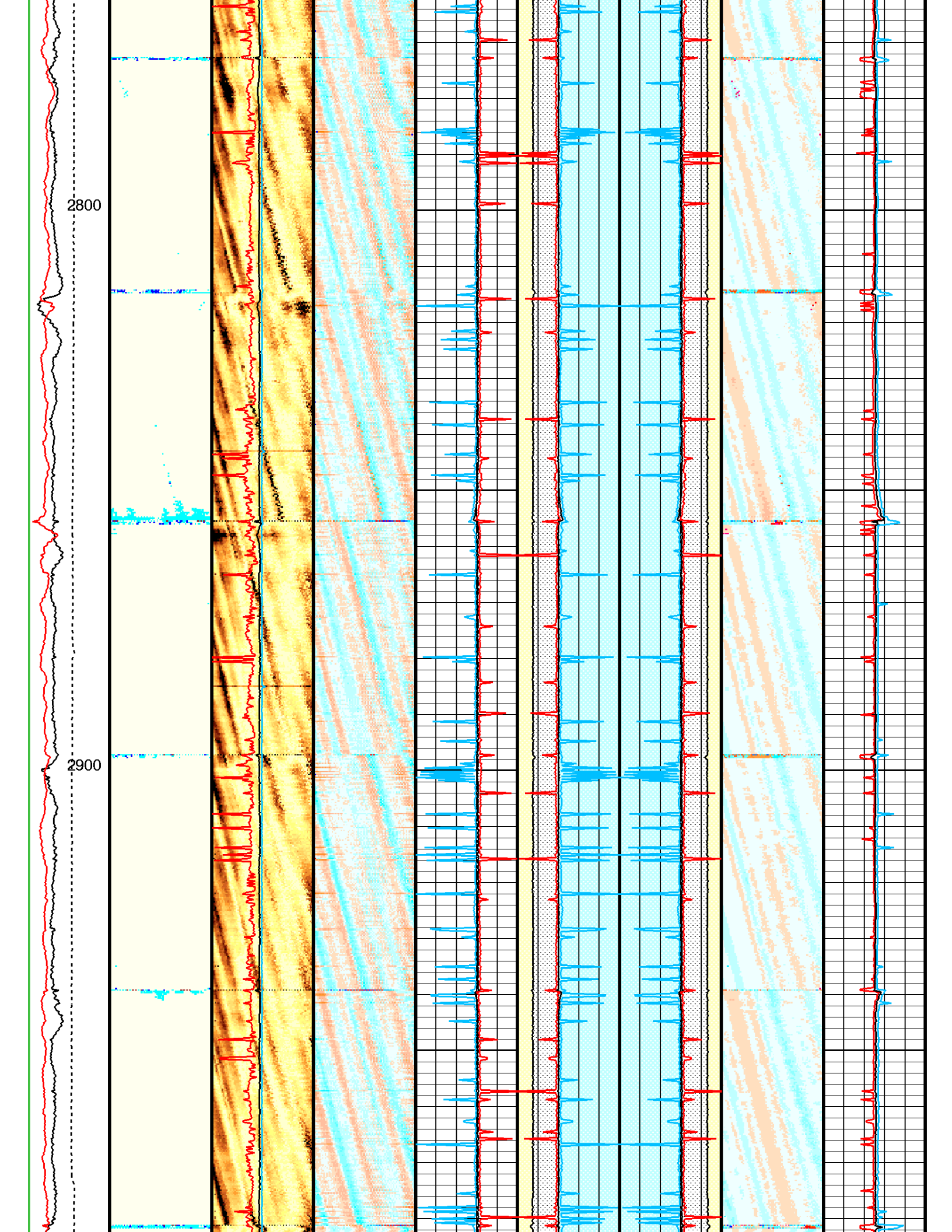




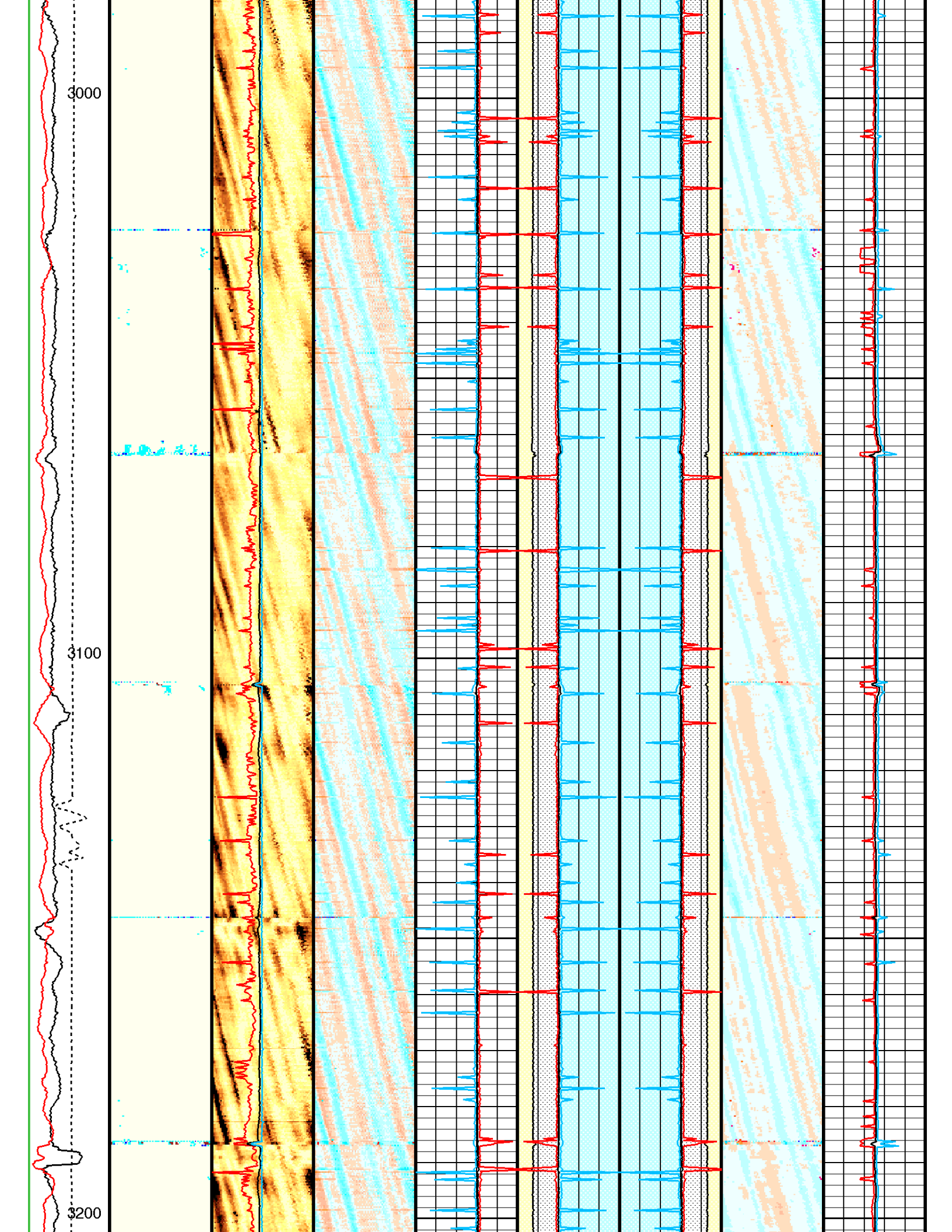


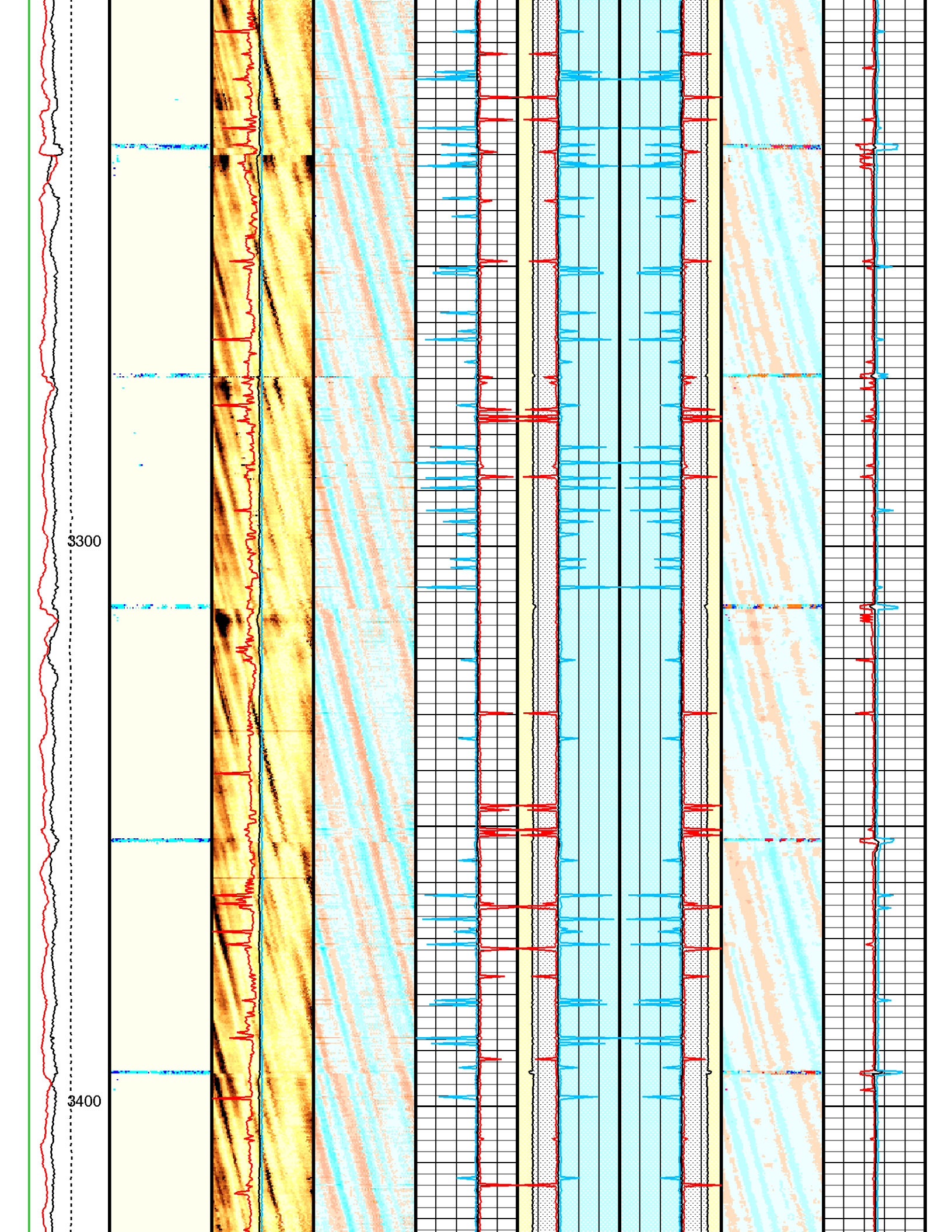




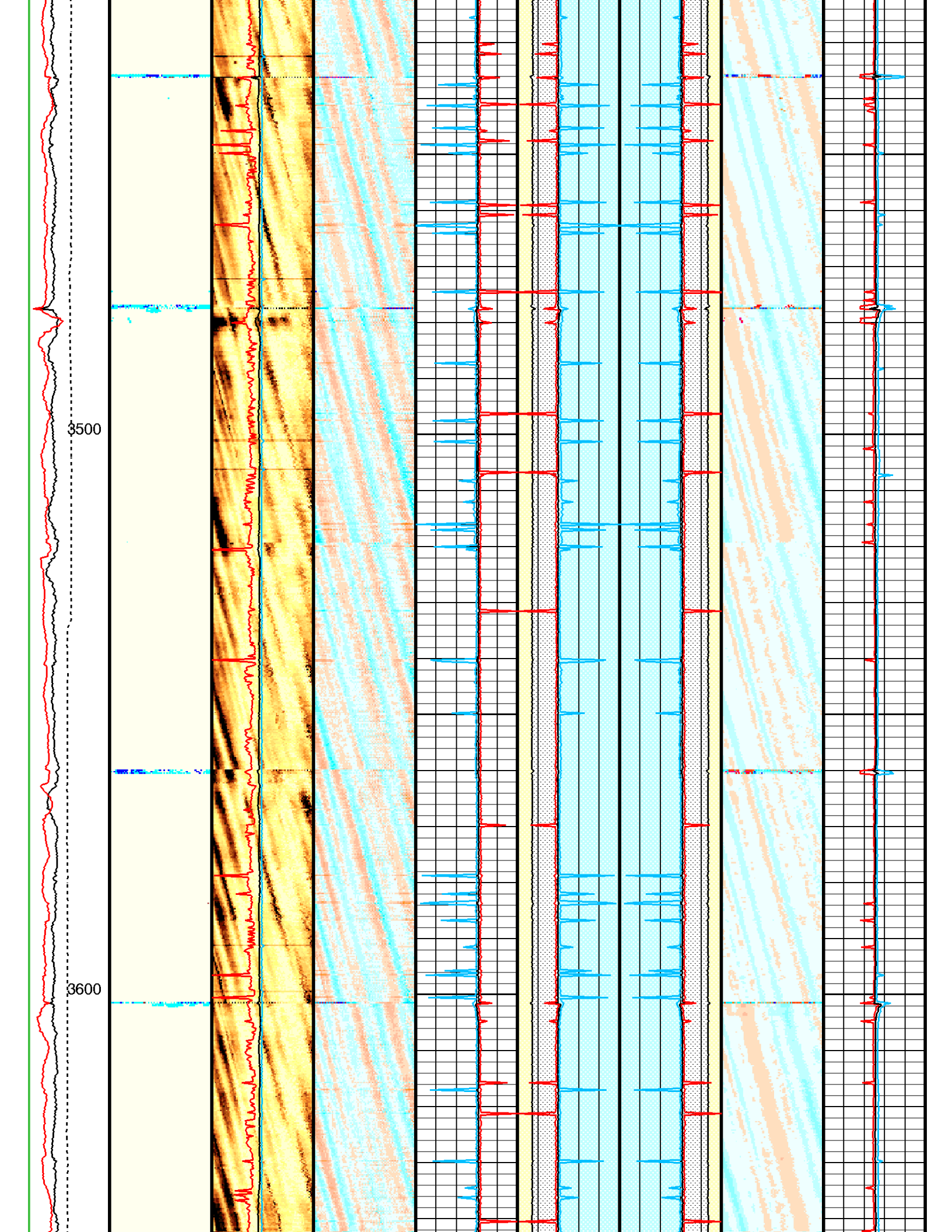


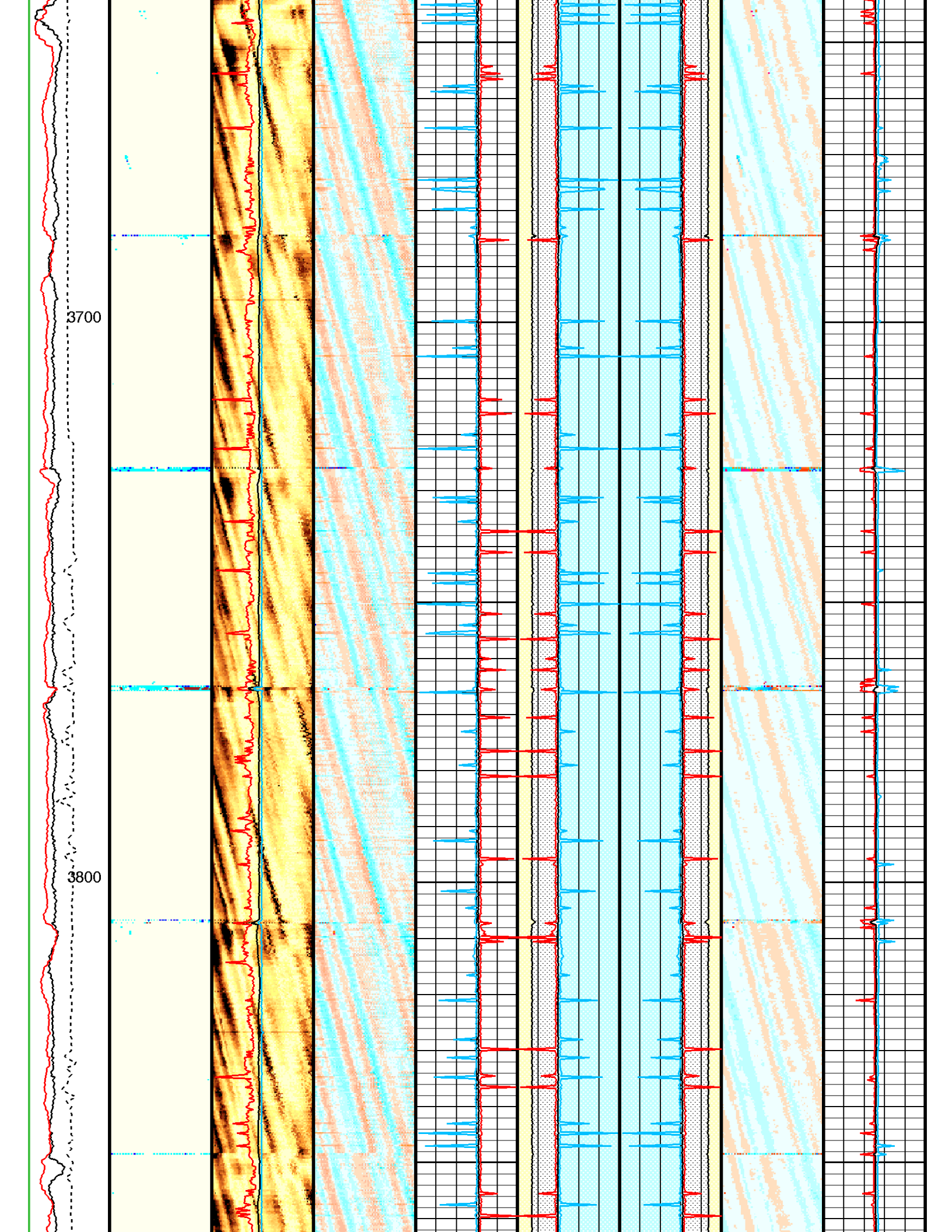




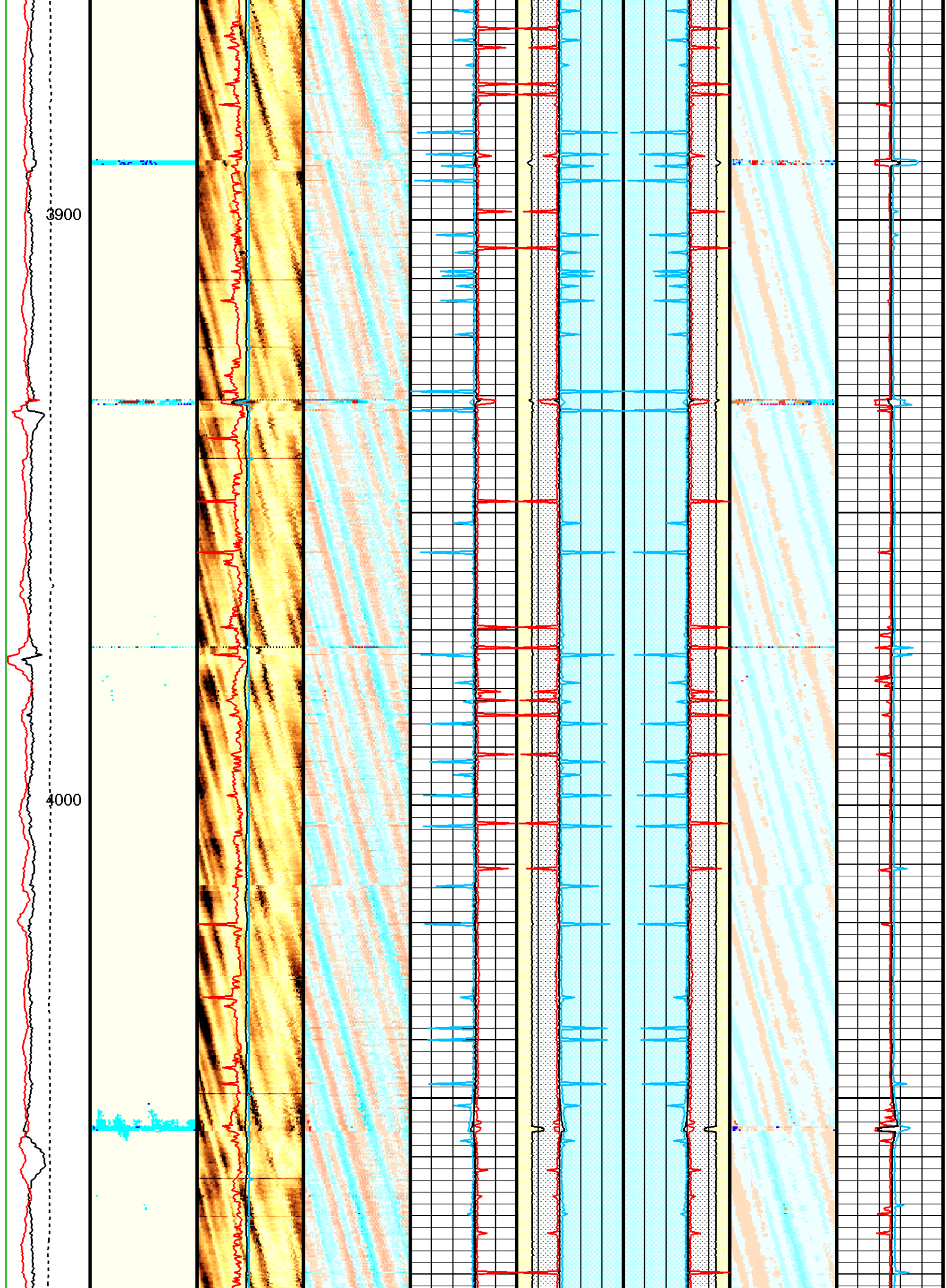


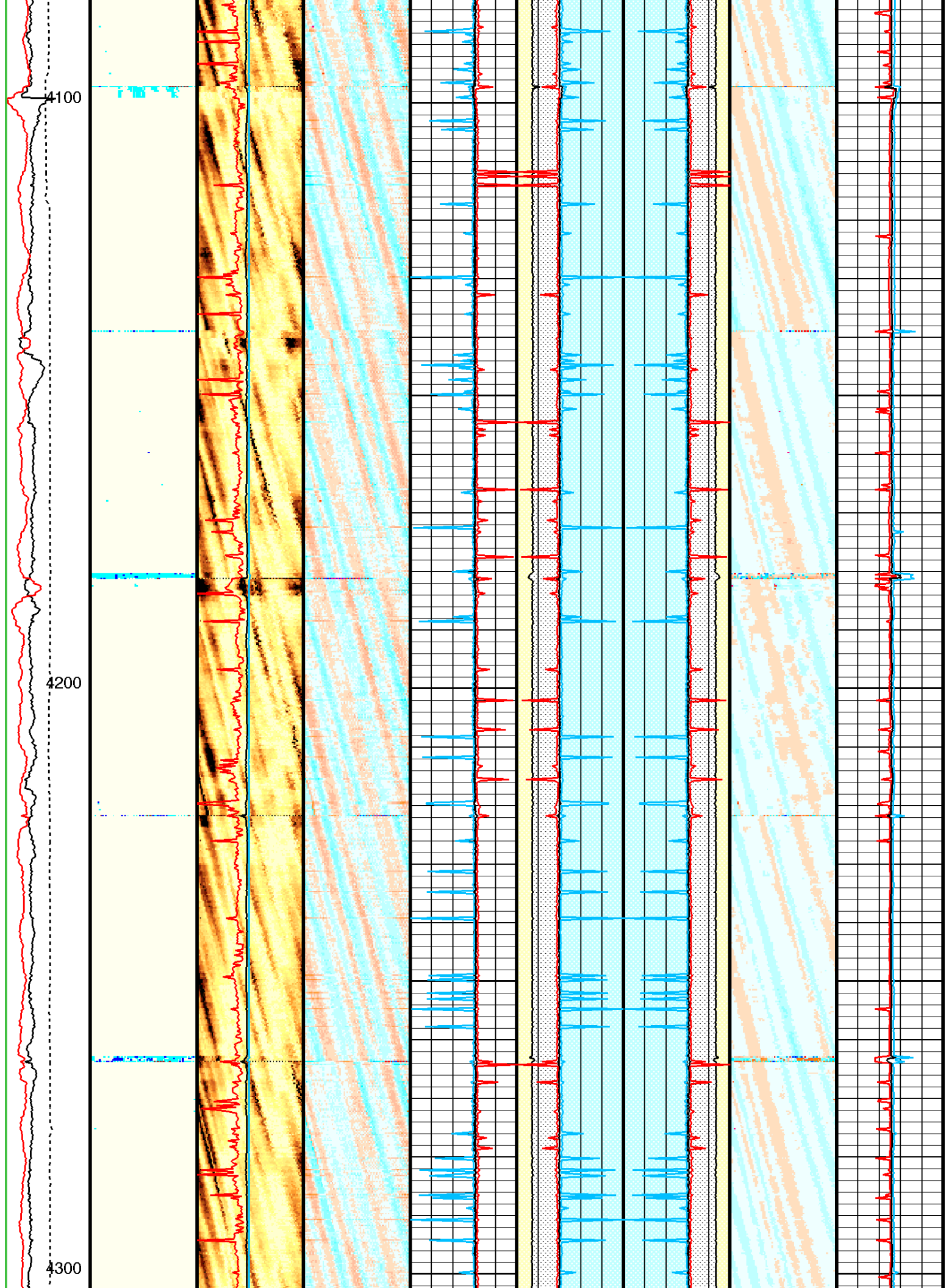




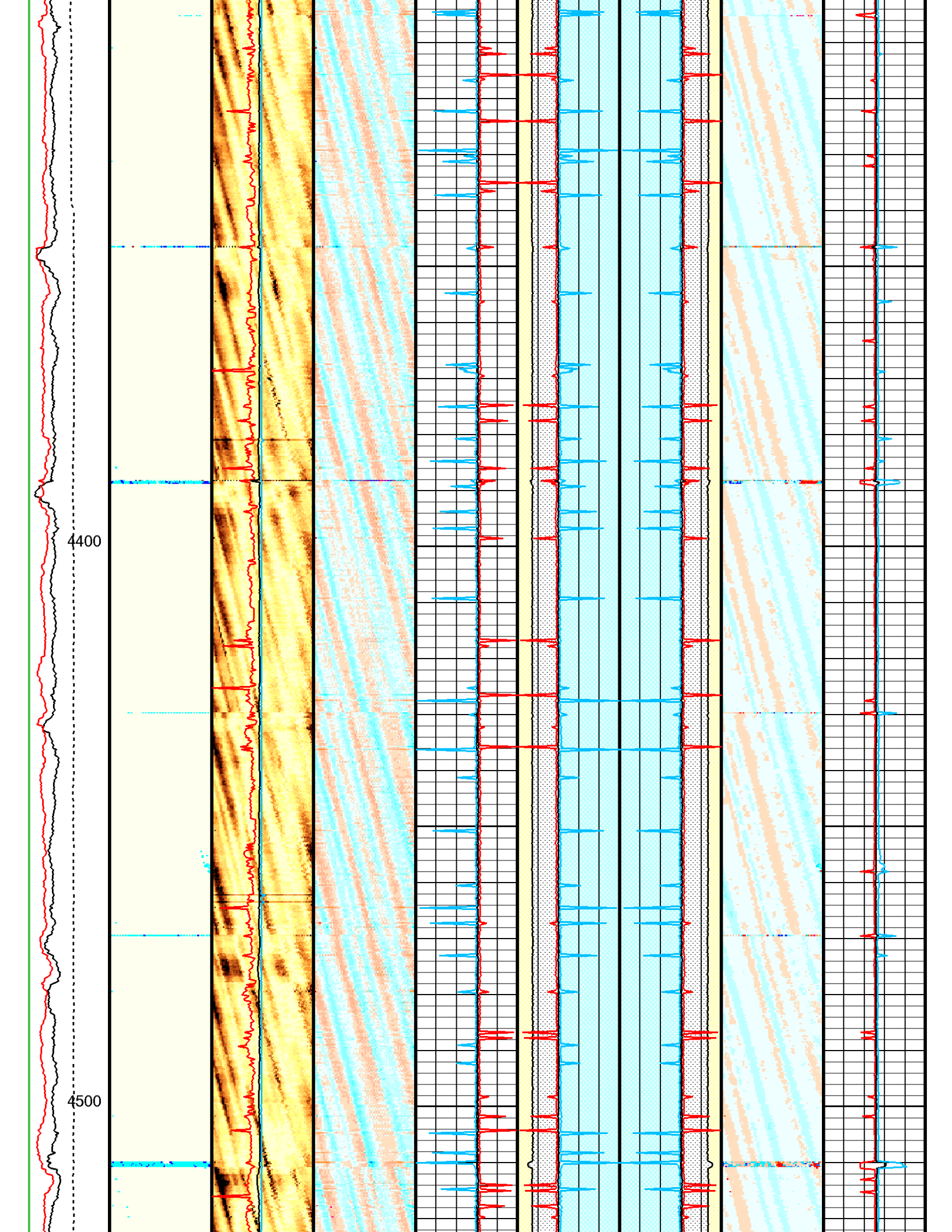


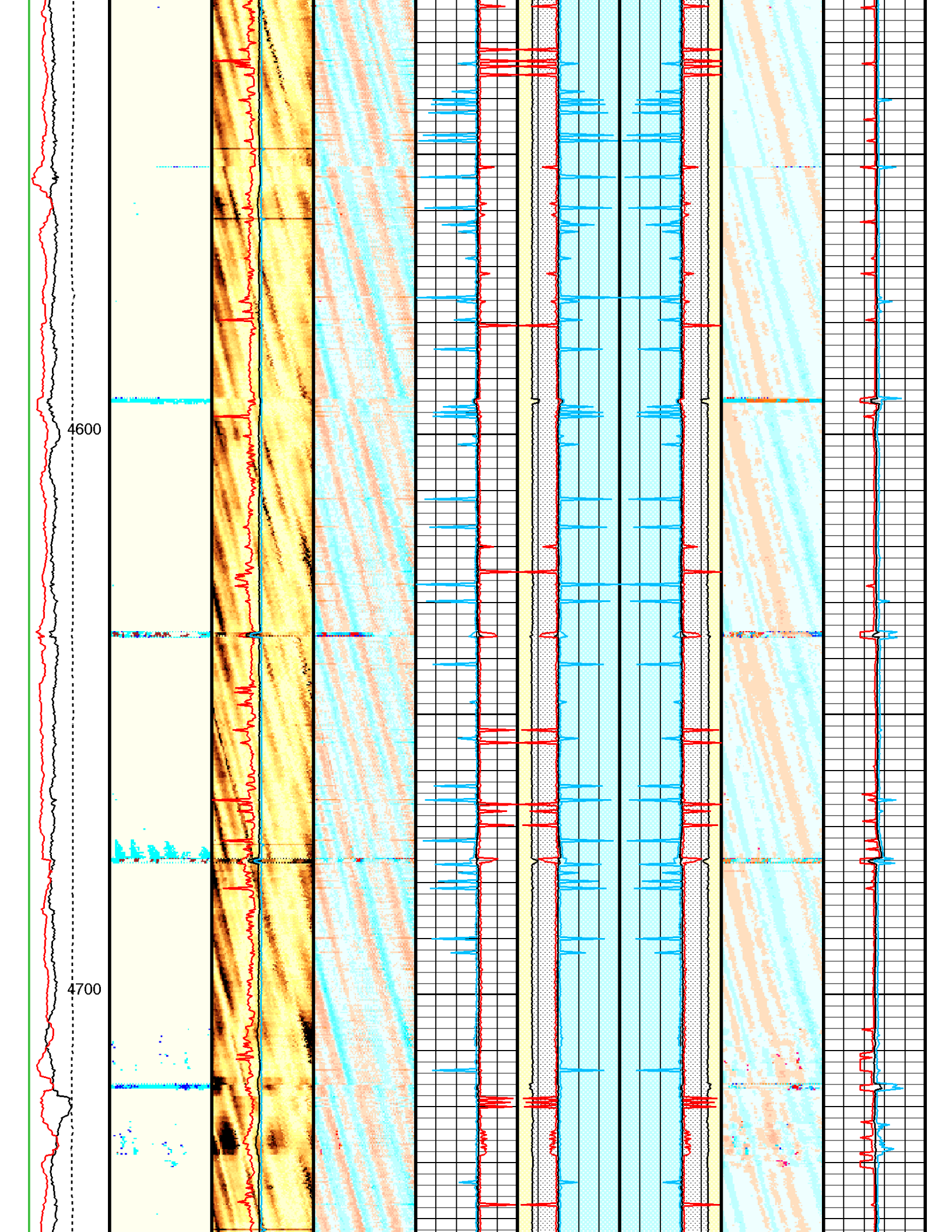




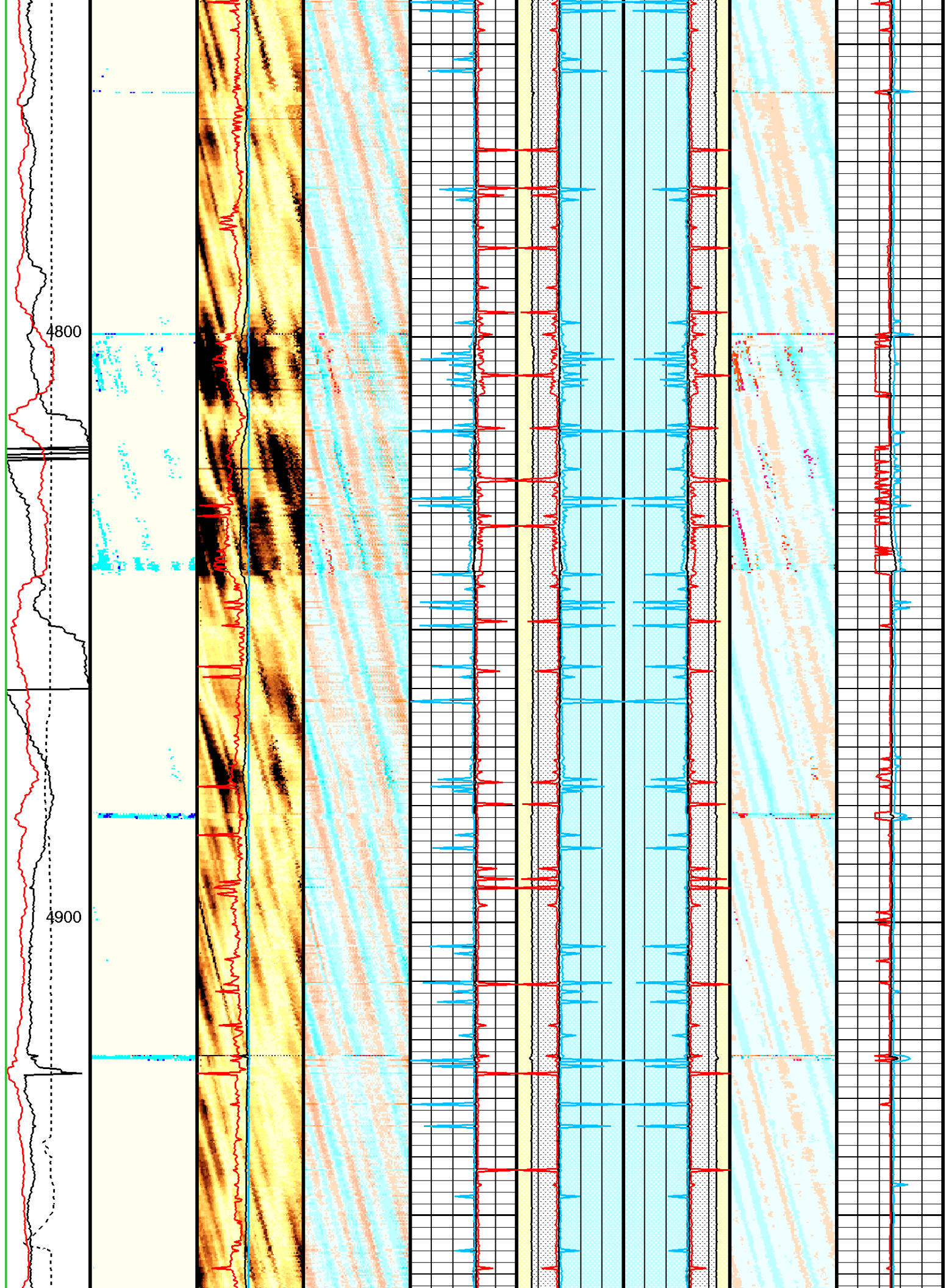


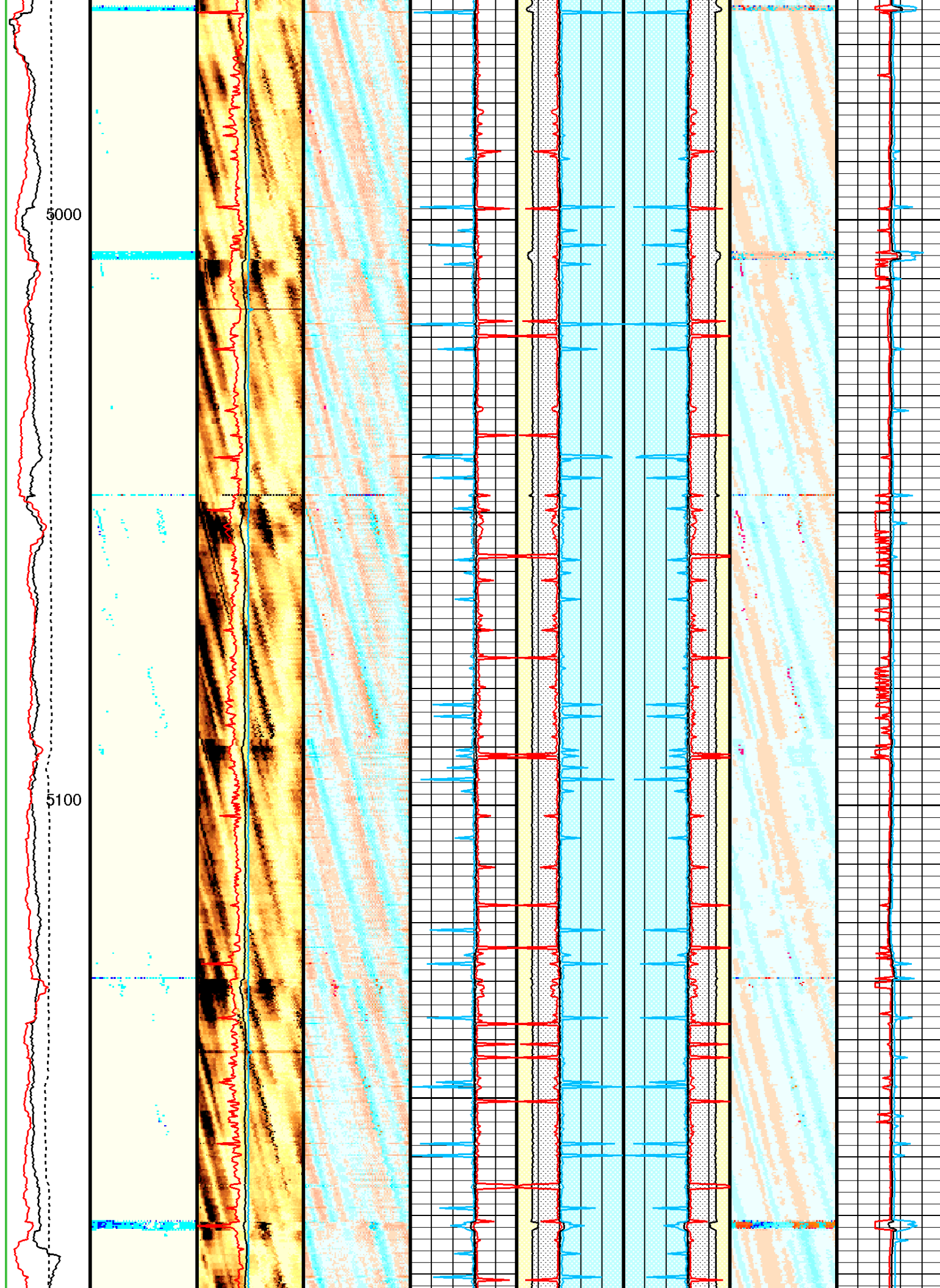




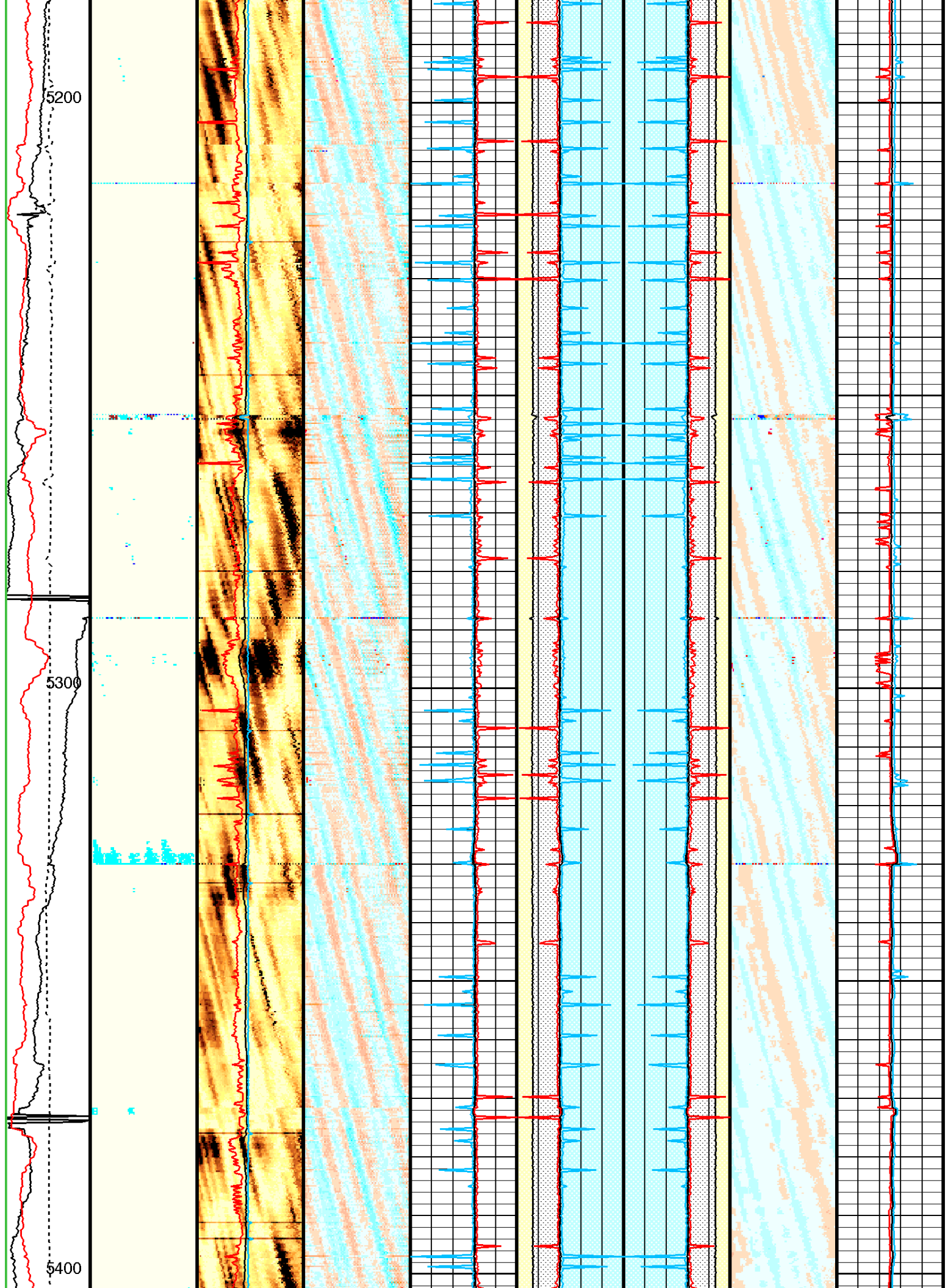


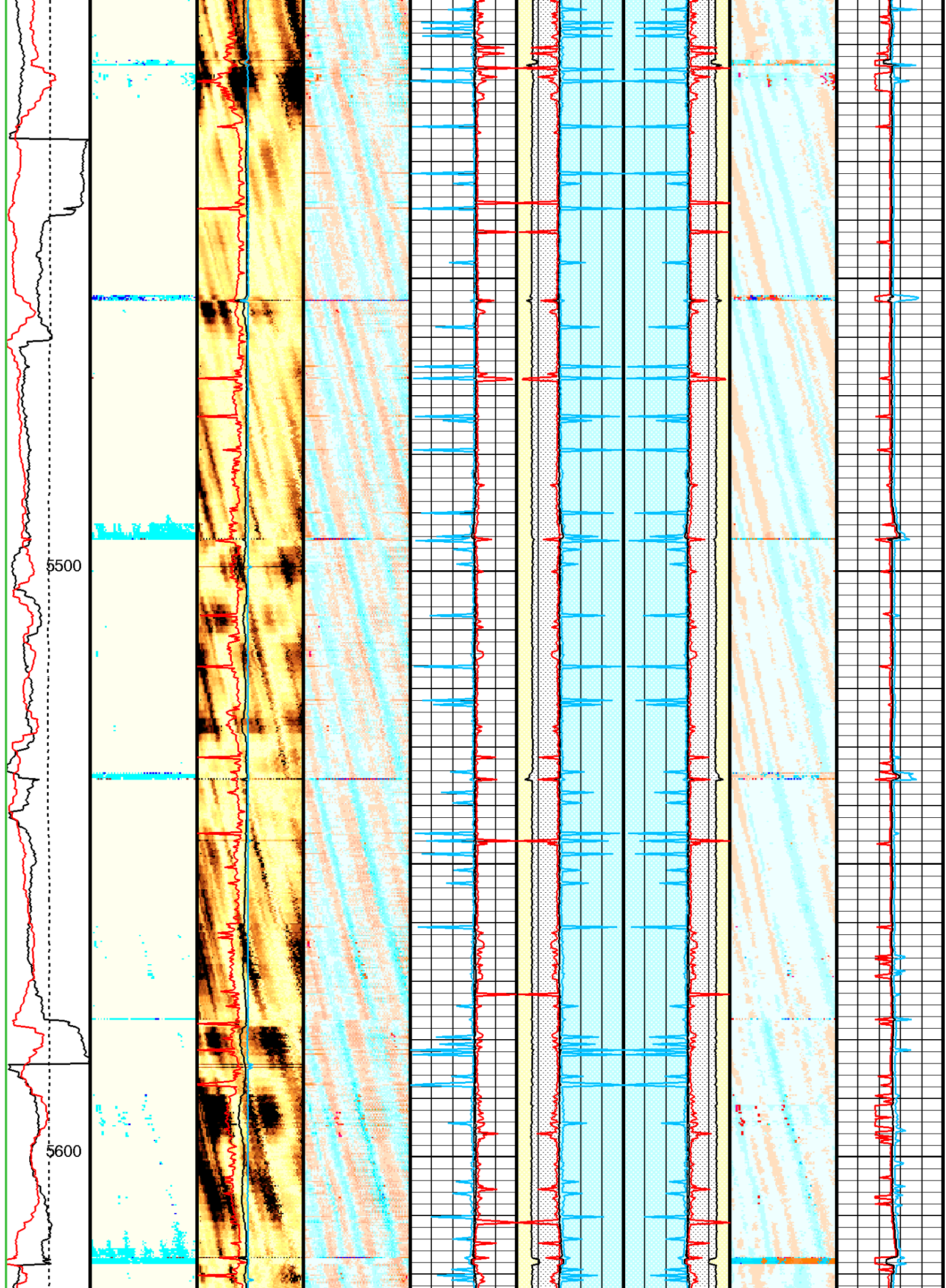




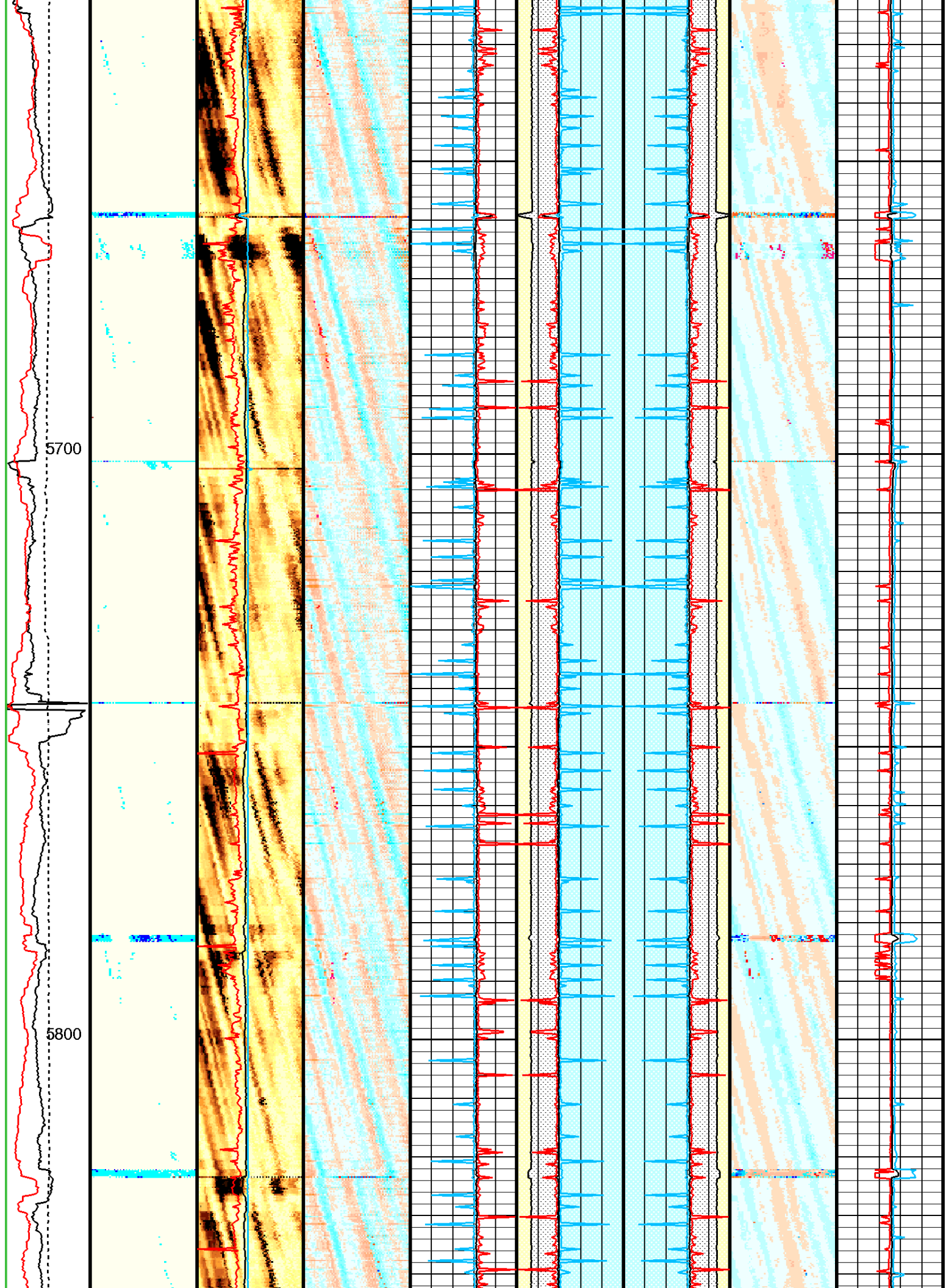


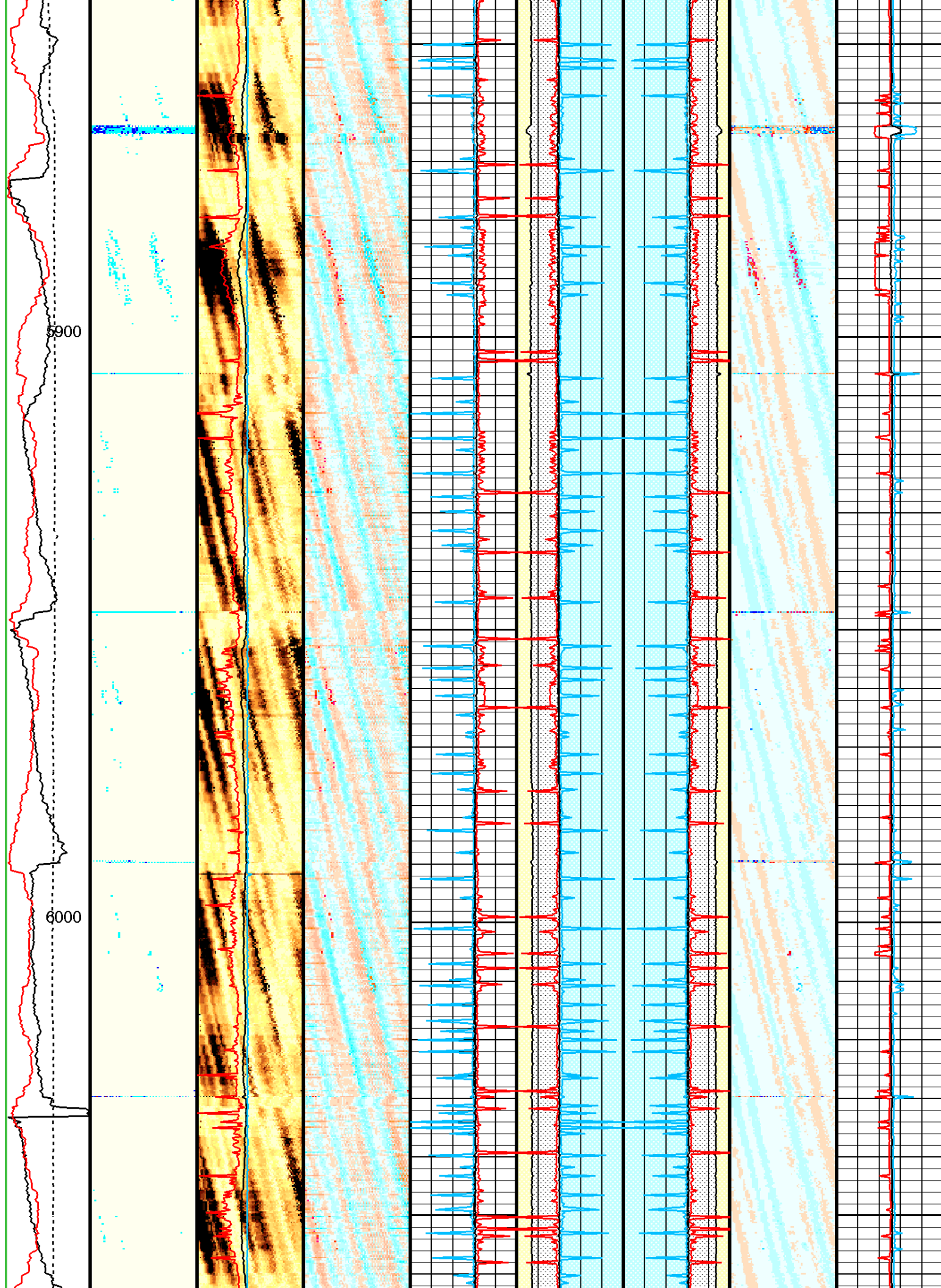




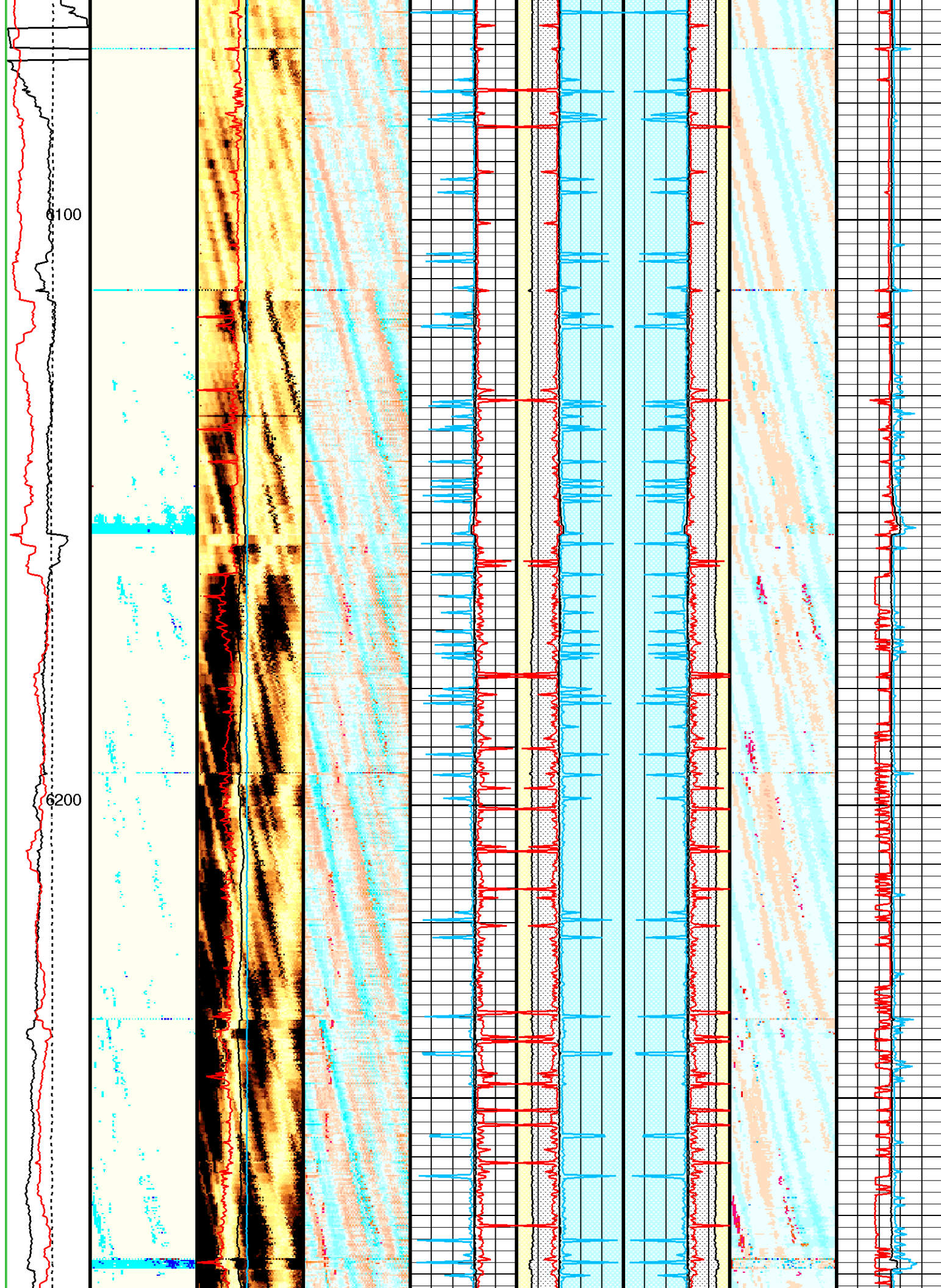


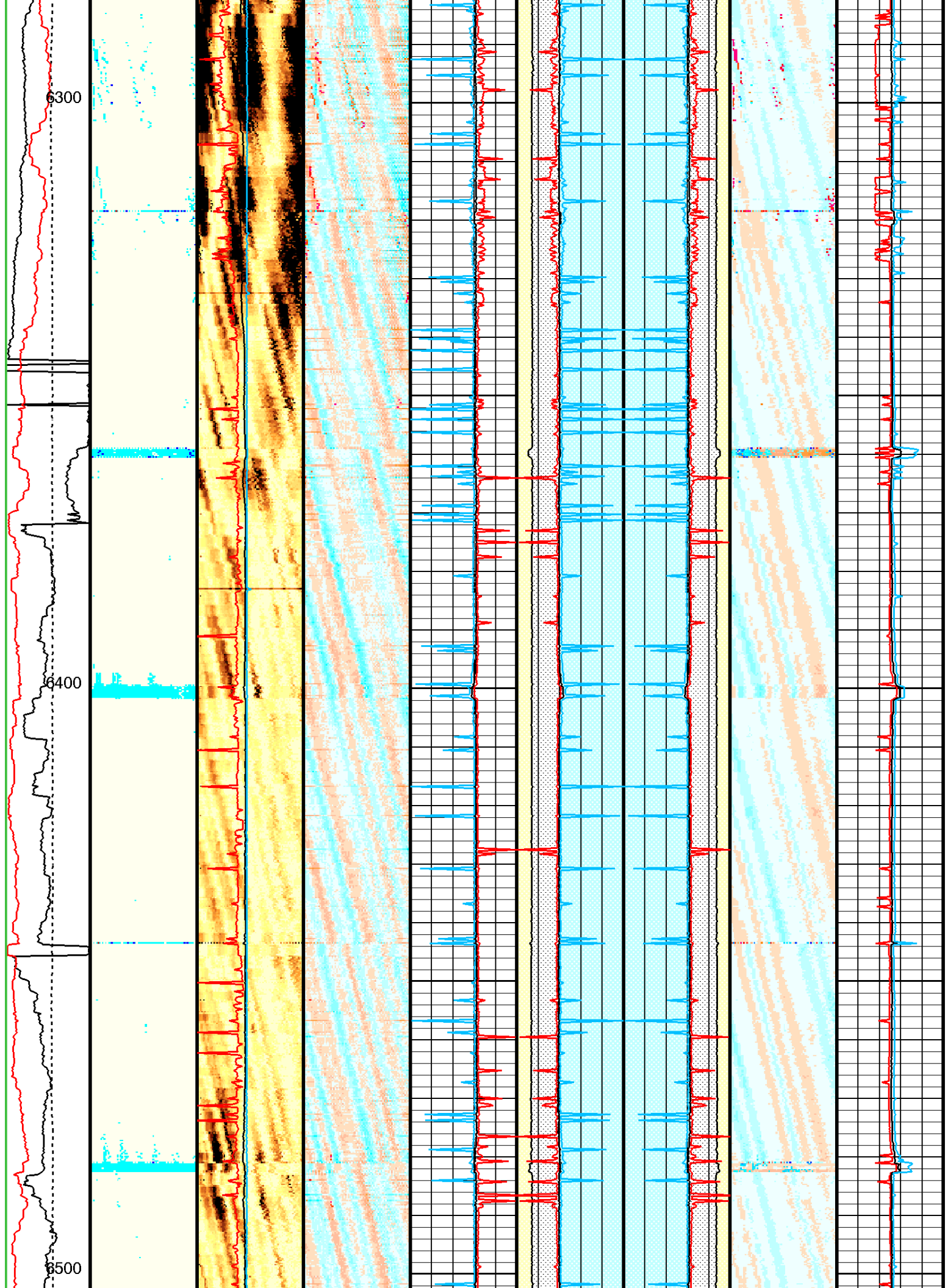




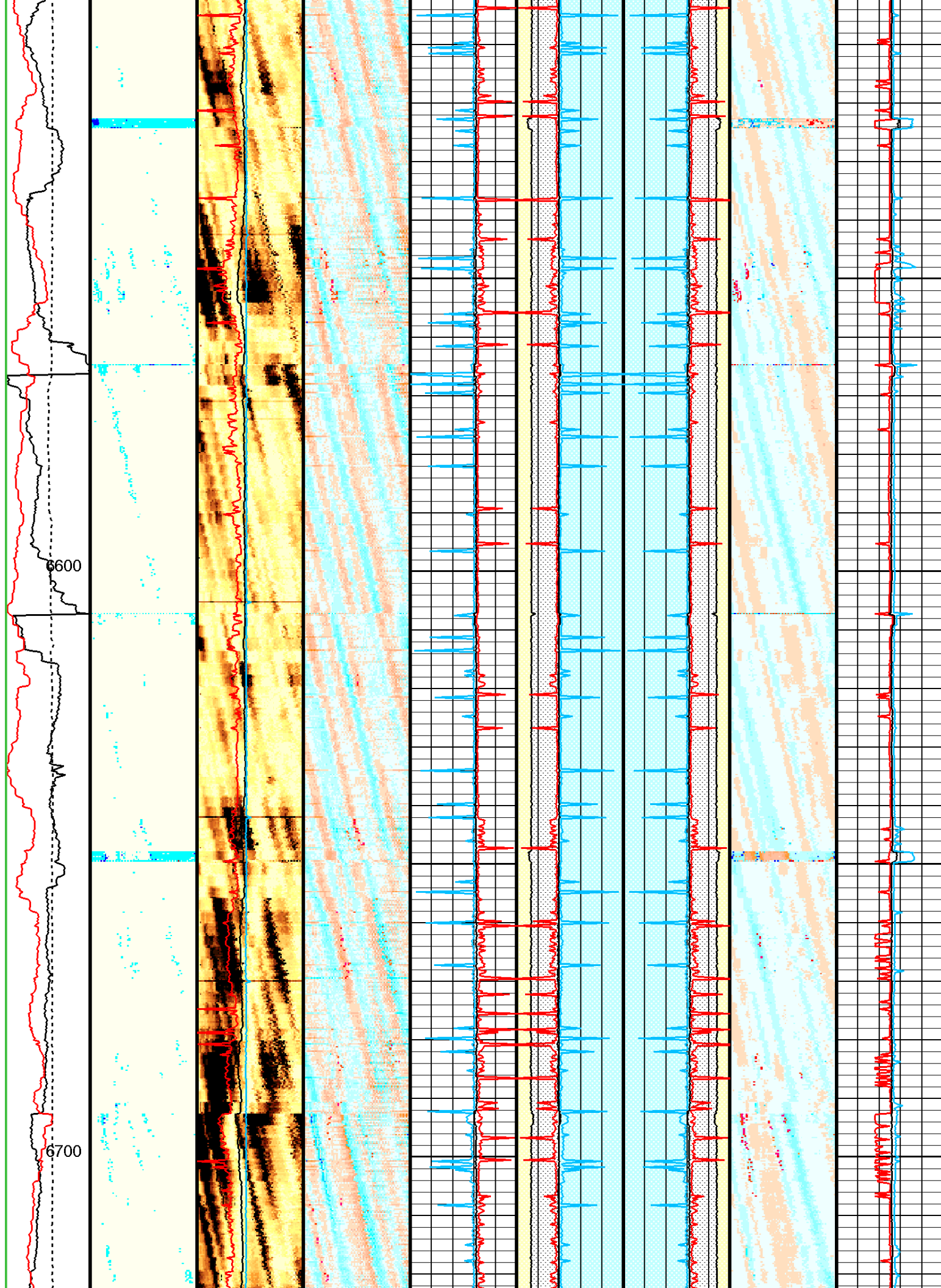


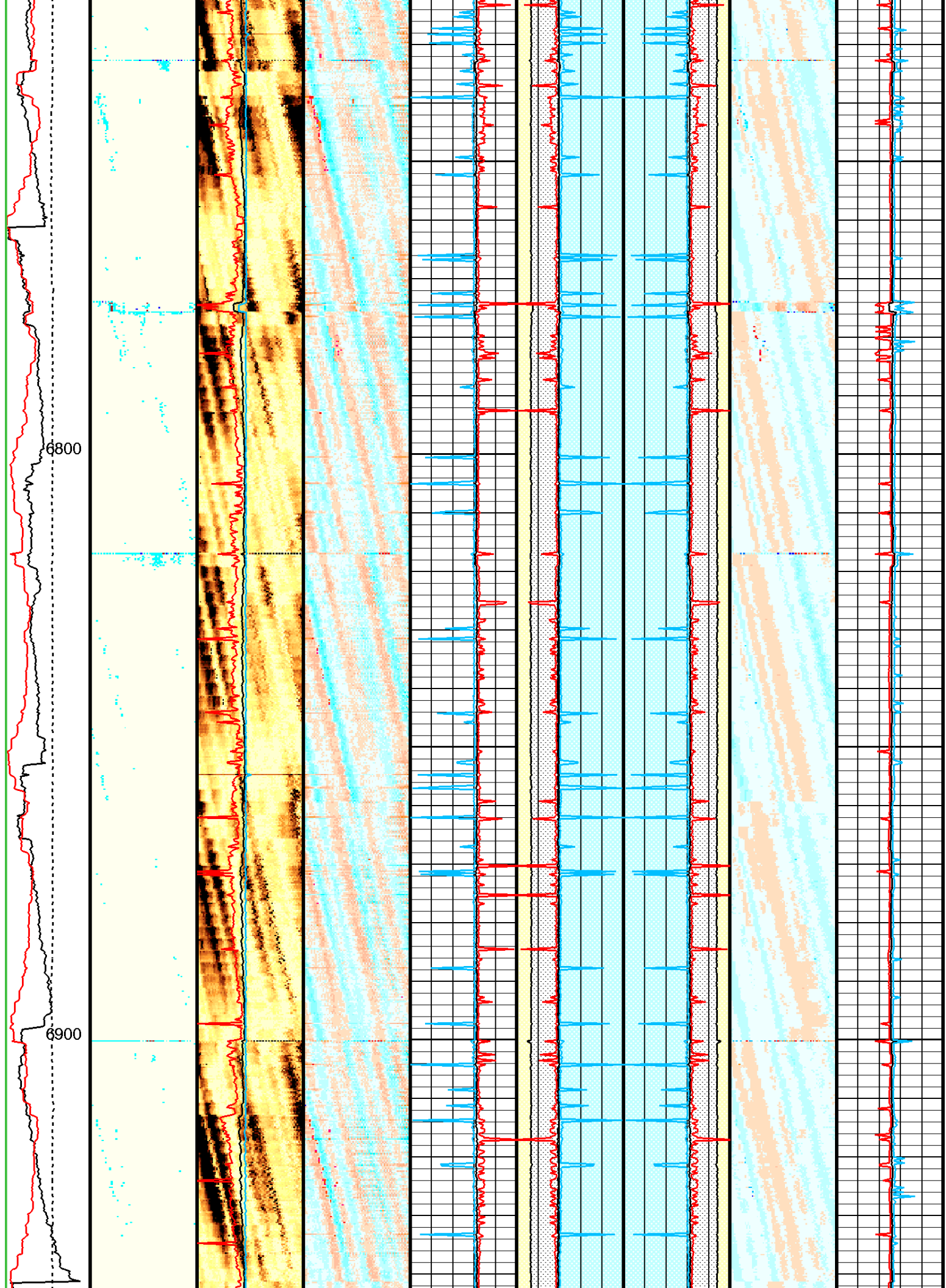




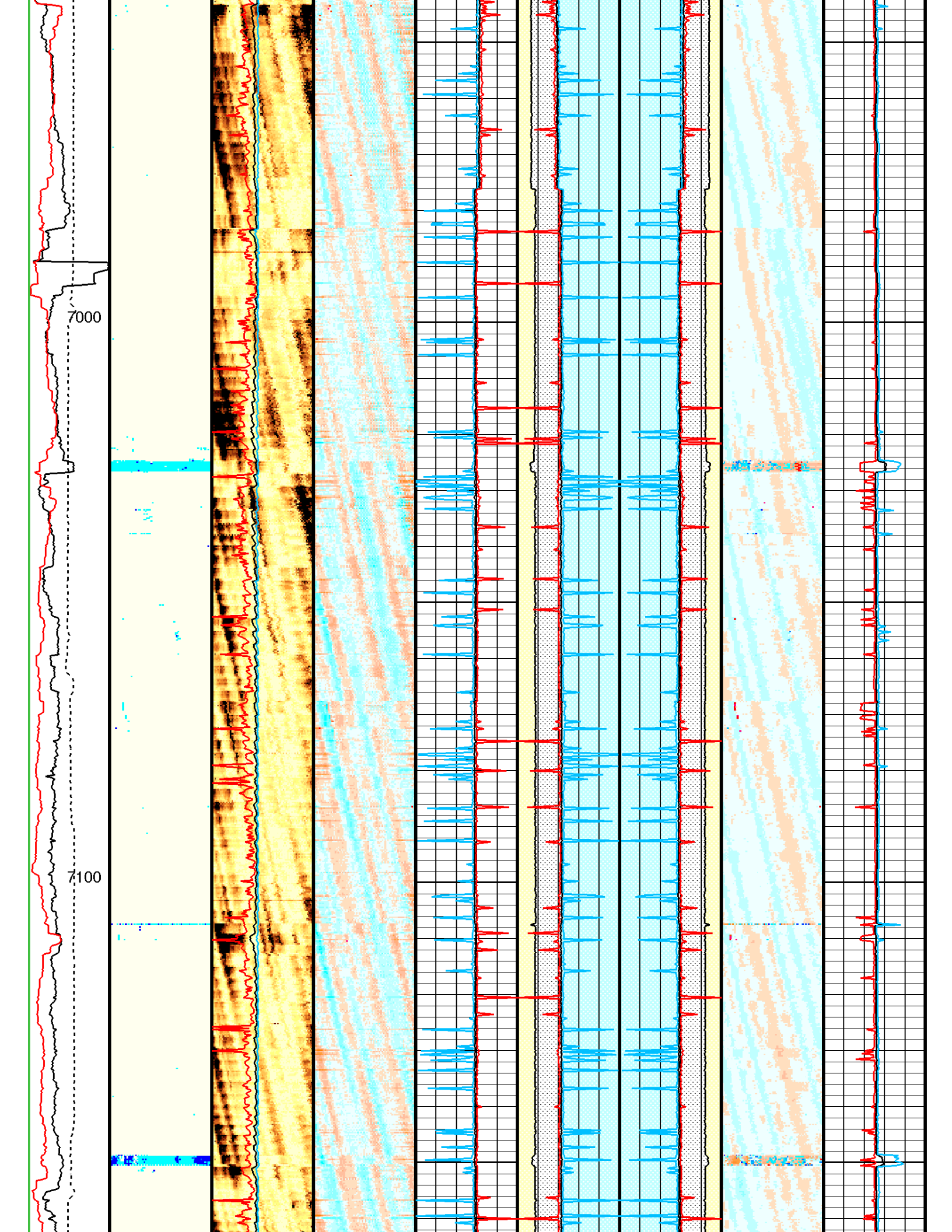
















			<div>0.0760</div> Internal radii minus Ave (IRBK) (IN)				<div>0.0760</div> Thickness minus Ave (THBK) (IN)	
Cable Speed (CS) (F/HR)		Average of Amplitude (AWAV)		Internal radius Average (IRAV)	Internal radius Average (IRAV)	Internal radius Average (IRAV)		Average of Thickness (THAV)
0 2000		0 (DB) 75		1.4 (IN) 2.4	2.4 (IN) 1.4	1.4 (IN) 2.4		0 (IN) 0.5
Azimuth of eccent. (AZEC) (DEG)		Maximum of Amplitude (AWMX)		Internal radius Maximum (IRMX)	Internal radius Maximum (IRMX)	Internal radius Maximum (IRMX)		Maximum of Thickness (THMX)
0 360		0 (DB) 75		1.4 (IN) 2.4	2.4 (IN) 1.4	1.4 (IN) 2.4		0 (IN) 0.5
Image rotation (UCAZ) (DEG)		<div> <div> -500.0000 -6.0000 -5.6000 -5.2000 -4.8000 -4.4000 -4.0000 -3.6000 -3.2000 -2.8000 -2.4000 -2.0000 -1.6000 -1.2000 -0.8000 -0.4000 0.5000 </div> Amplitude of echo minus Max (AWBK) (DB) </div>			Min of Internal radius (IRMN)	Min of Internal radius (IRMN)		
0 360					2.4 (IN) 1.4	1.4 (IN) 2.4		

Format: USI_Corrosion	Vertical Scale: 5" per 100'	Graphics File Created: 30-Mar-2011 20:04
OP System Version: 18C0-147		
USIT-D DTC-H	SRPC-4072-Q4_2010_OP18_b 18C0-147	HILTB-FTB 18C0-147
All USI Images are outside views		
COMPUTATION FLAGS LABELLING		
(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

Parameters		
DLIS Name	Description	Value

## USIT-D: Ultrasonic Imaging - D

AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	4.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	20	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.25	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub 5 inch	
UWKM	Ultrasonic Working Mode	5DEG_3IN_60U HF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	14.9916	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.3	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
DIR: Directional Survey Computation			
SPVD	TVD of Starting Point	0	FT
TIMD	Along-hole depth of Tie-in Point	0	FT
TIVD	TVD of Tie-in Point	0	FT
System and Miscellaneous			
CWEI	Casing Weight	11.60	LB/F
DO	Depth Offset for Playback	-24.0	FT
PP	Playback Processing	OFF	

## Input DLIS Files

DEFAULT USI\_TLD\_MCFL\_CNL\_010LUP FN:9 PRODUCER 30-Mar-2011 13:25 7359.5 FT 104.5 FT

## Output DLIS Files

DEFAULT USI\_TLD\_MCFL\_CNL\_011PUP FN:10 PRODUCER 30-Mar-2011 20:04

Company: **Encana Oil & Gas Inc (USA)**

**Schlumberger**

Well: **Ranchero 1**

Field: **Wattenberg**

County: **Weld**

State: **Colorado**

Ultra Sonic Imager

Corrosion