

Company: CRESTONE PEAK RESOURCES OPERATING LLC

Well: HWY 52 4V-32H-O268

Field: WATTENBERG

County: WELD State: COLORADO

Isolation Scanner
Cement Evaluation
Gamma Ray - CCL Log

County:	WELD		
Field:	WATTENBERG		
Location:	598' FSL & 1914' FEL		
Well:	HWY 52 4V-32H-O268		
Company:	CRESTONE PEAK RESOURCES OPERATING LLC		
Location:	598' FSL & 1914' FEL	Elev.:	K.B. 5005.00 ft
			G.L. 4992.00 ft
			D.F. 5005.00 ft
Permanent Datum:		Ground Level	Elev.: 4992.00 f
Log Measured From:		Kelly Bushing	13.00 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing	
API Serial No.		Section:	Range:
05-123-43113		32	2N 68W
Logging Date	19-Oct-2017		

Run Number	ONE
Depth Driller	12136.00 ft
Schlumberger Depth	12136.00 ft
Bottom Log Interval	7200.00 ft
Top Log Interval	50.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.50 in
From	0.00 ft
To	12136.00 ft
Casing/Tubing Size	5.5 in
Weight	20 lbm/ft
Grade	P110
From	0.00 ft
To	12136.00 ft
Max Recorded Temperatures	169 degF
Logger on Bottom	19-Oct-2017 13:00:00
Unit Number	2132
Recorded By	MEGAN LEONE
Witnessed By	CALEB BREWER

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 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.

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11. ONE IBC SLG

11.1 Integration Summary

Well Sketch

Driller Depth

0.00 ft






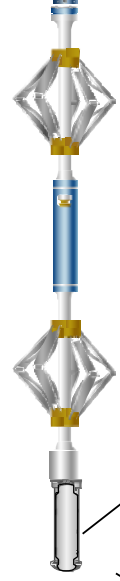
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.5					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	12136					
Bottom Logger (ft)	12136					
Casing						
Size (in)	5.5					
Weight (lbm/ft)	20					
Inner Diameter (in)	4.778					
Grade	P110					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	12136					
Bottom Logger (ft)	12136					

Remarks and Equipment Summary

ONE: Toolstring			ONE: Remarks	
<div><div><div>Equip nameLength</div><div>LEH-QT30.16</div><div>LEH-QT</div></div><div><div>EDTC-B:927.24</div><div>045</div><div>EDTH-B:92</div><div>EDTG-A:77998</div><div>EDTC-B:9045</div></div><div><div>AH-184[2]20.74</div><div>AH-184[1]18.74</div><div>USIT-E:87116.74</div><div>ECH-MFA:1775</div><div>USAC-A:871</div><div>USIT-A:88</div></div></div> <div><div>MP nameOffset</div><div>CTEM23.74</div><div>ACCZ0.00</div><div>HV0.00</div><div>Gamma21.87</div><div>Ray</div><div>TelStatu20.74</div><div>s</div></div> <div></div>	THANK YOU FOR CHOOSING SCHLUMBERGER!			
	TOOLSTRING RUN AS PER TOOLSKETCH			
	GEMCO AND IN-LINE CENTRALIZERS USED FOR CENTRALIZATION			
	ALL PASSES RUN UNDER 0 PSI			
	LEAD 12 PPG			
	TAIL 13.5 PPG			

USIS-A:98
5
USSC-B:18
03
IBCS-A:87
1
FAR-SENS
OR
IBC-TX
NEAR-SEN
SOR
IBC-TX
USI-SENS
OR
IBC-TX
EMITTER-
SENSOR
IBC-TX



USI Sen 0.84
sor
Head Te
nsion
TOOL_ZERO

Lengths are in ft
Maximum Outer Diameter = 3.625 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[4]:Up	7698.99	66.89

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
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Mud Impedance = "FreePipe Norm."
Free Pipe normalization zone is : 396.77m(1301.75ft) to 406.40m(1333.35ft)
MUD_N_FRP = 1.17
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.68 MRayl

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
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ONE

IBC SLG

Software Version

Acquisition System	Version
Maxwell 2018	8.0.93964.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	66.89 ft	7698.99 ft	19-Oct-2017 1:14:48 PM	19-Oct-2017 3:04:04 PM	ON	8.59 ft	Yes

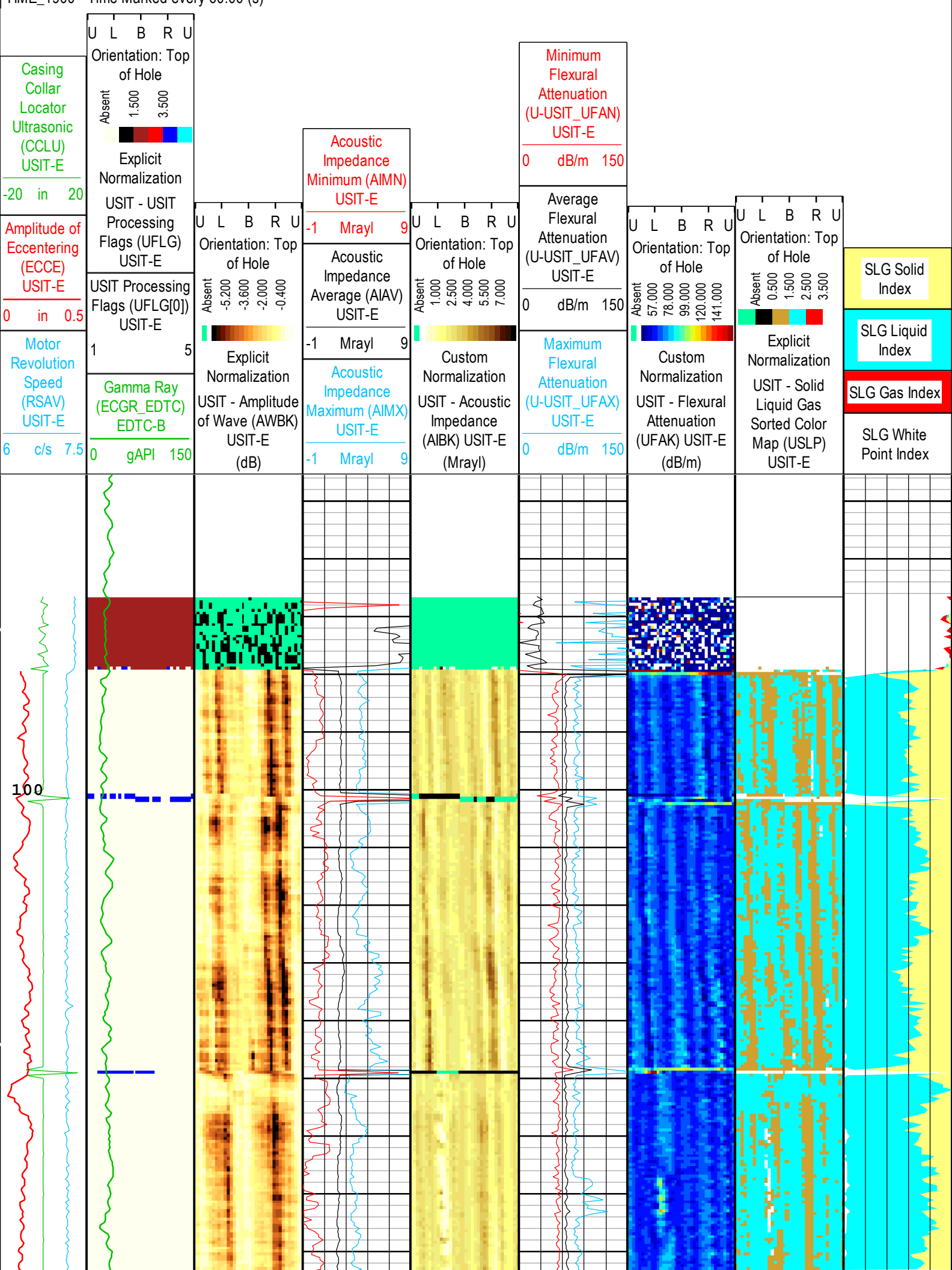
All depths are referenced to toolstring zero

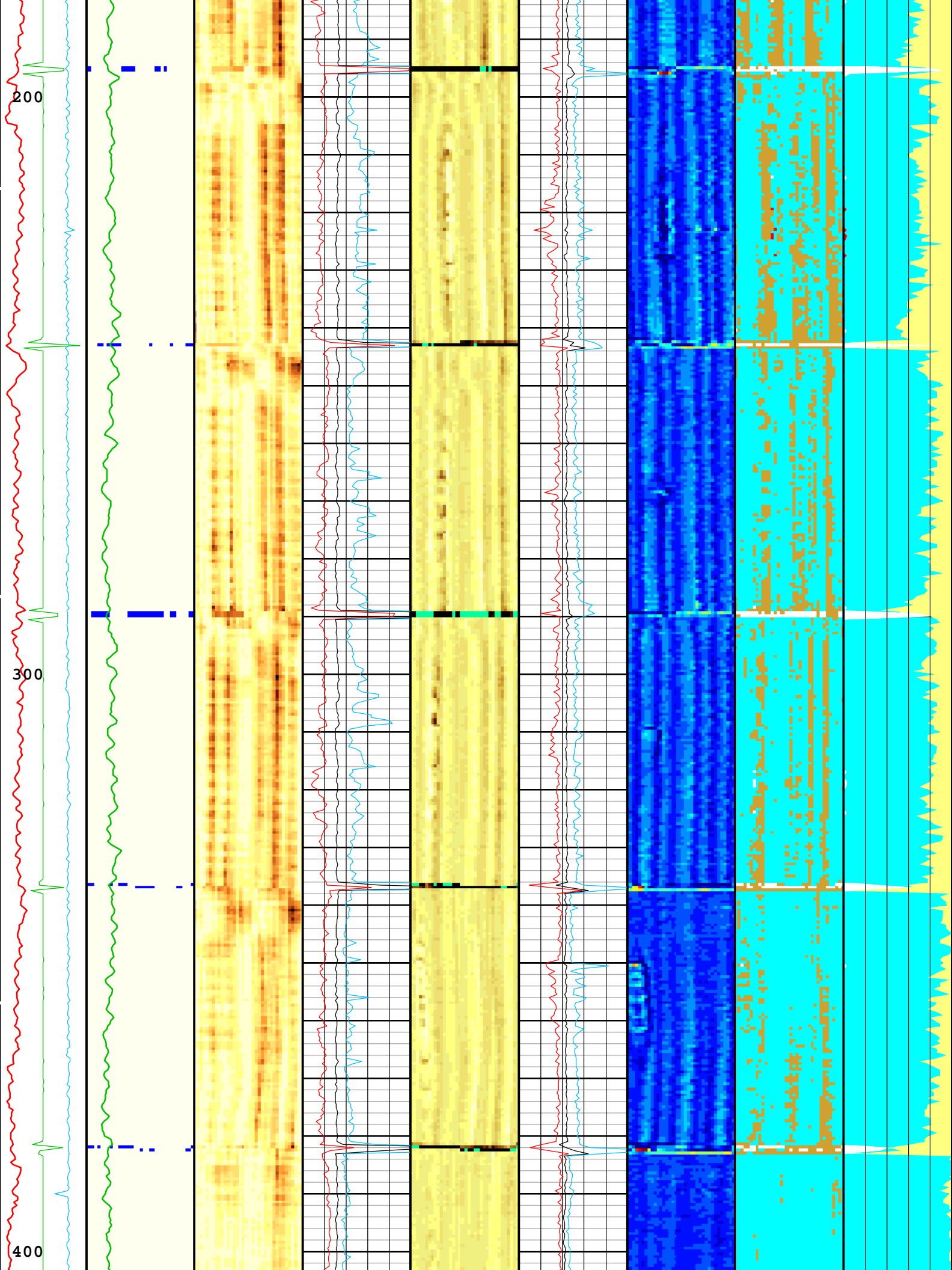
Log	Company:CRESTONE PEAK RESOURCES OPERATING LLC	Well:HWY 52 4V-32H-O268
		ONE: Log[4]:Up:S006

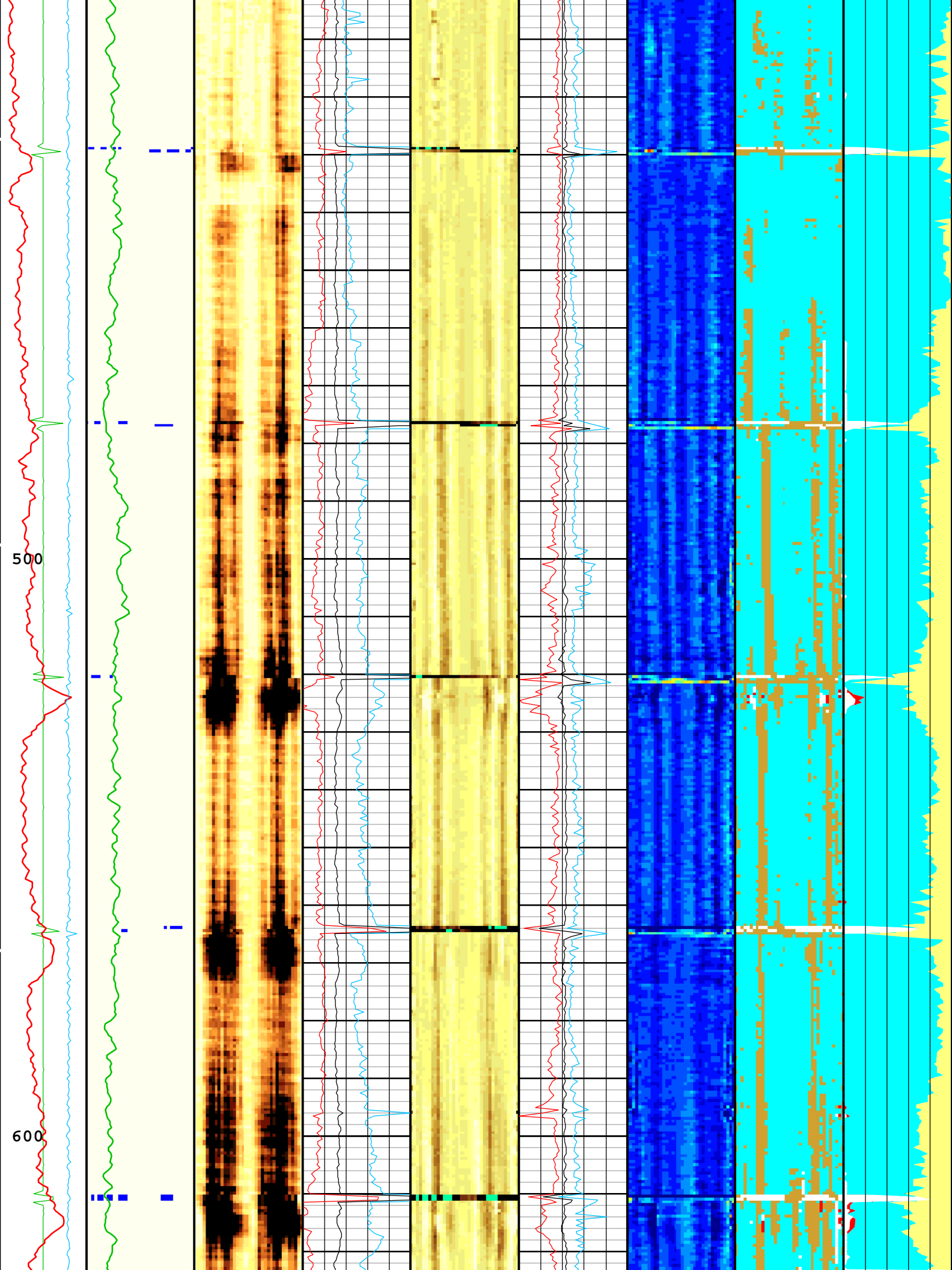
Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2017 03:51:02

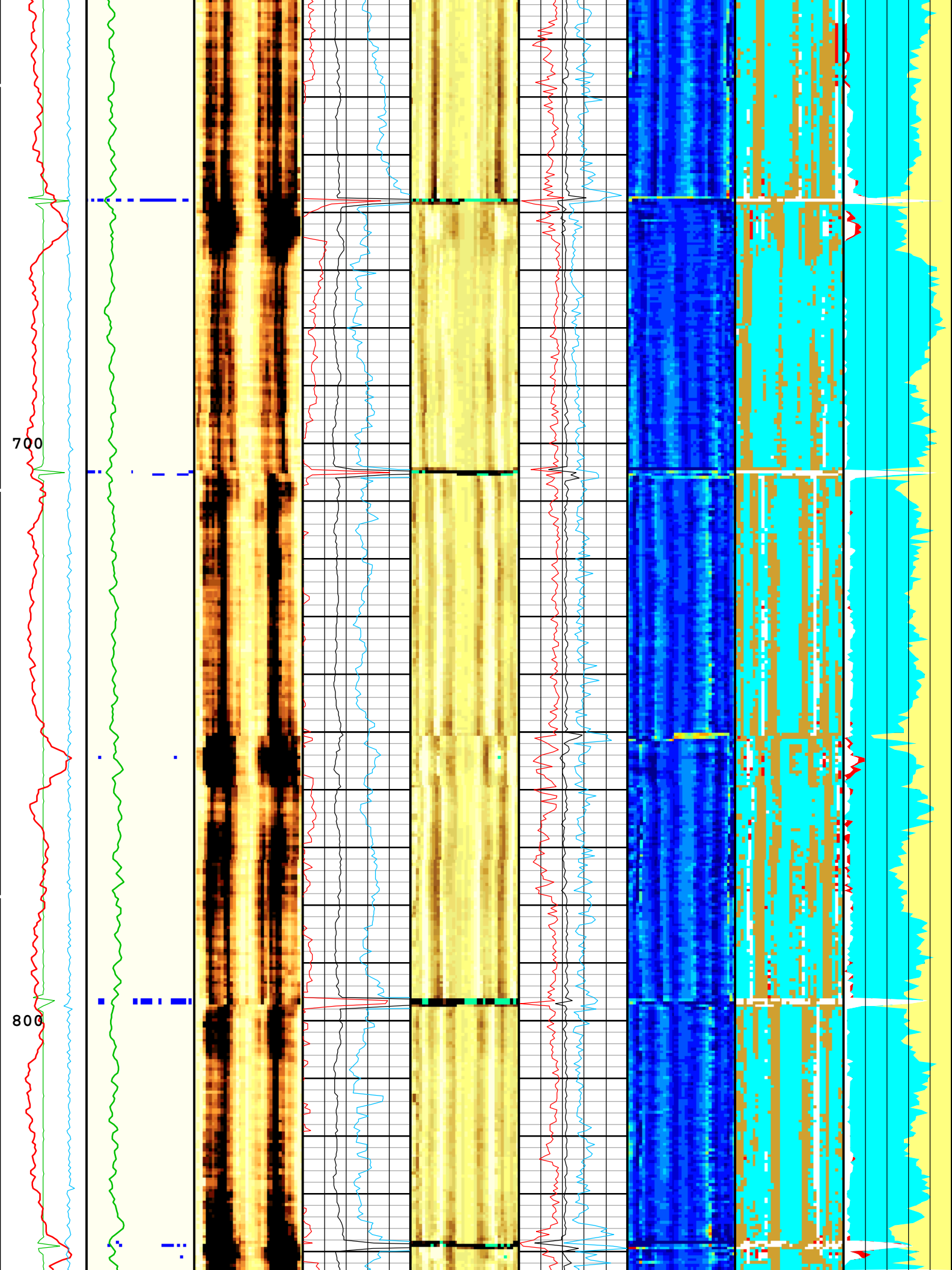
USIT Processing Flags (UFLG[0]) USIT-E	
1 - UFLG 1 Value within [0.0 - 1.5] - :	UTIM Error
2 - UFLG 2 Value within [1.5 - 2.5] - :	Pulse Origin Not Detected
3 - UFLG 3 Value within [2.5 - 3.5] - :	WINLEN Error
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :	Casing Thickness Error
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :	Loop Processing Error

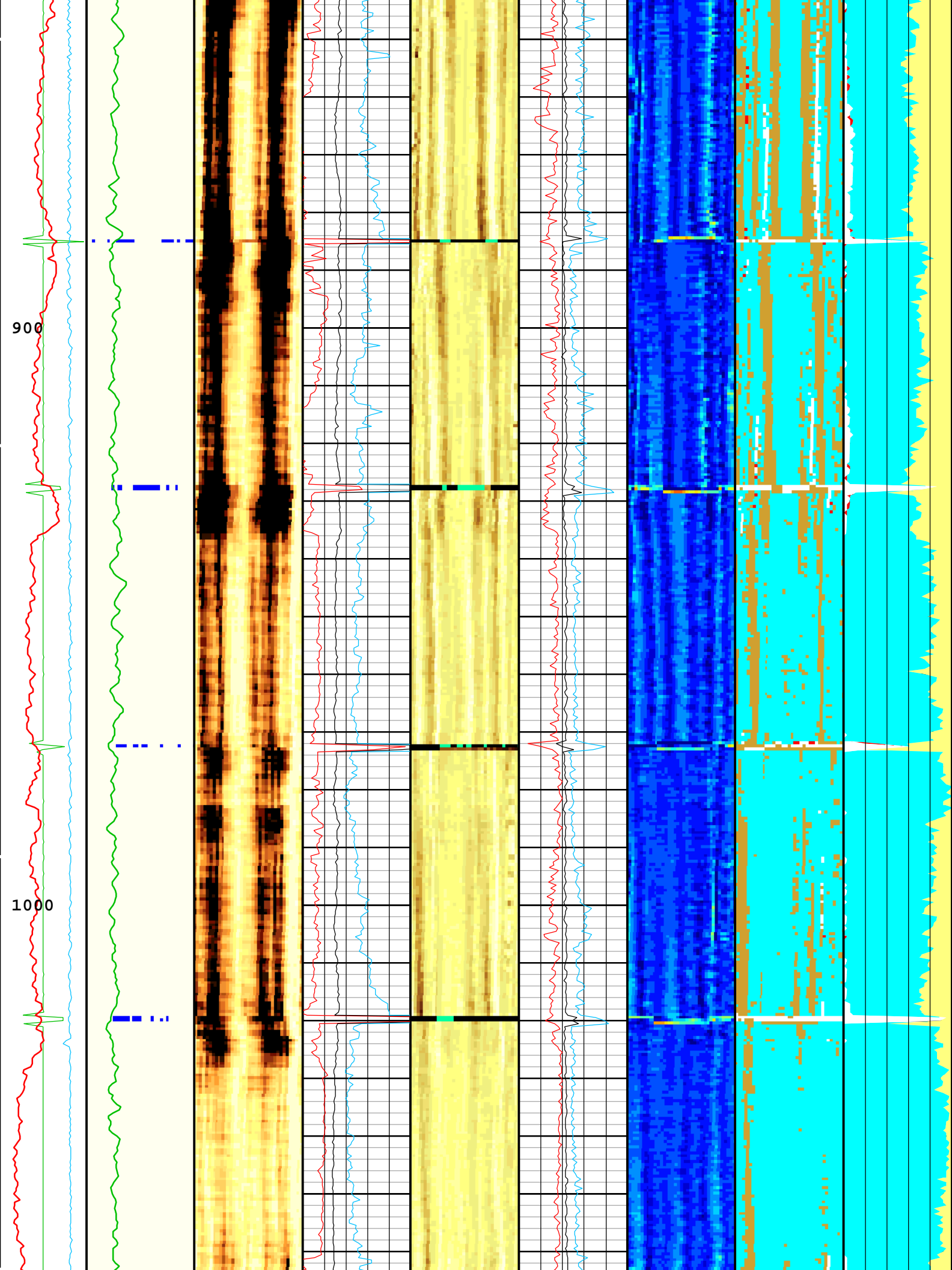
TIME 1900 - Time Marked every 60.00 (s)

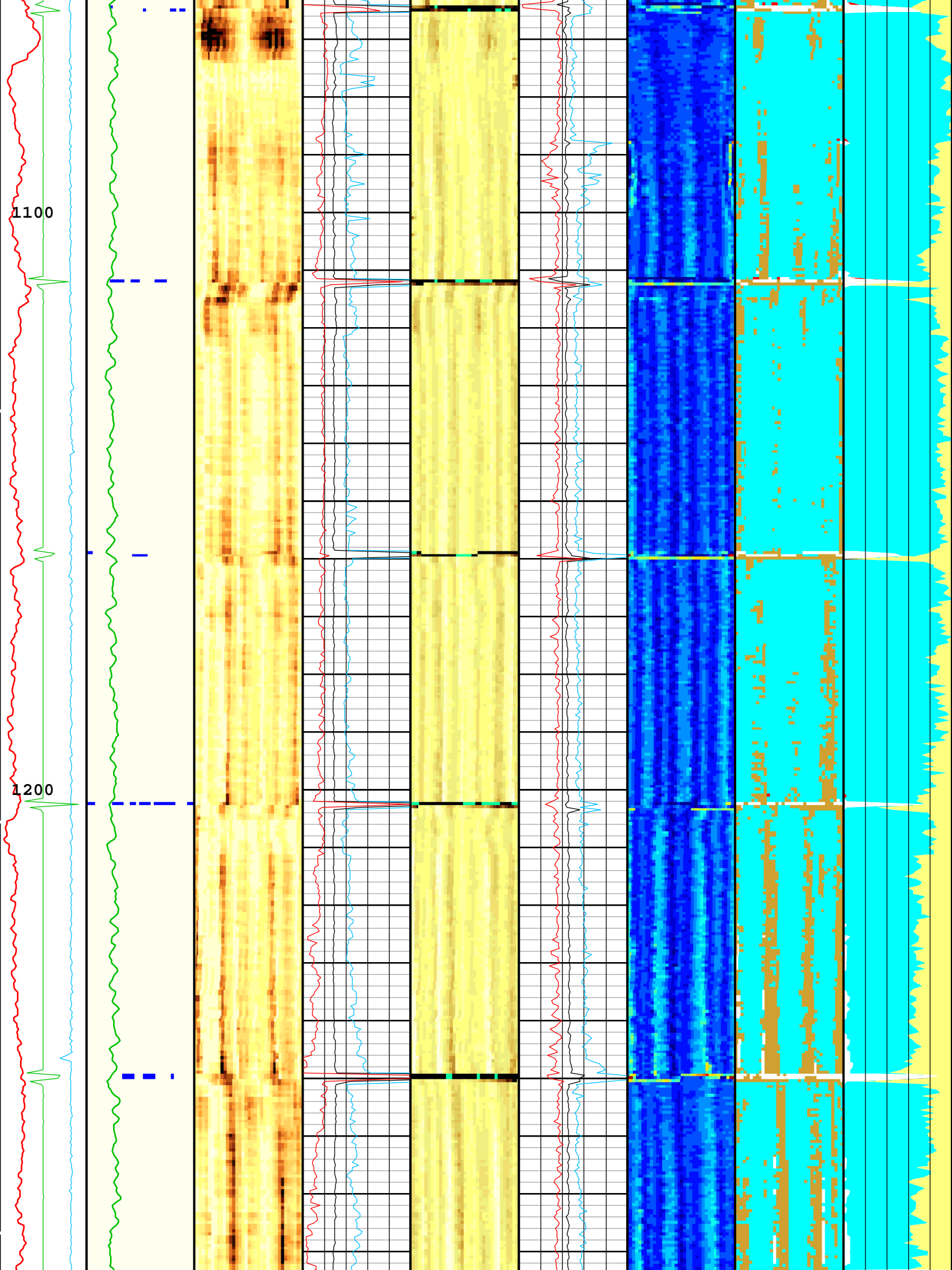


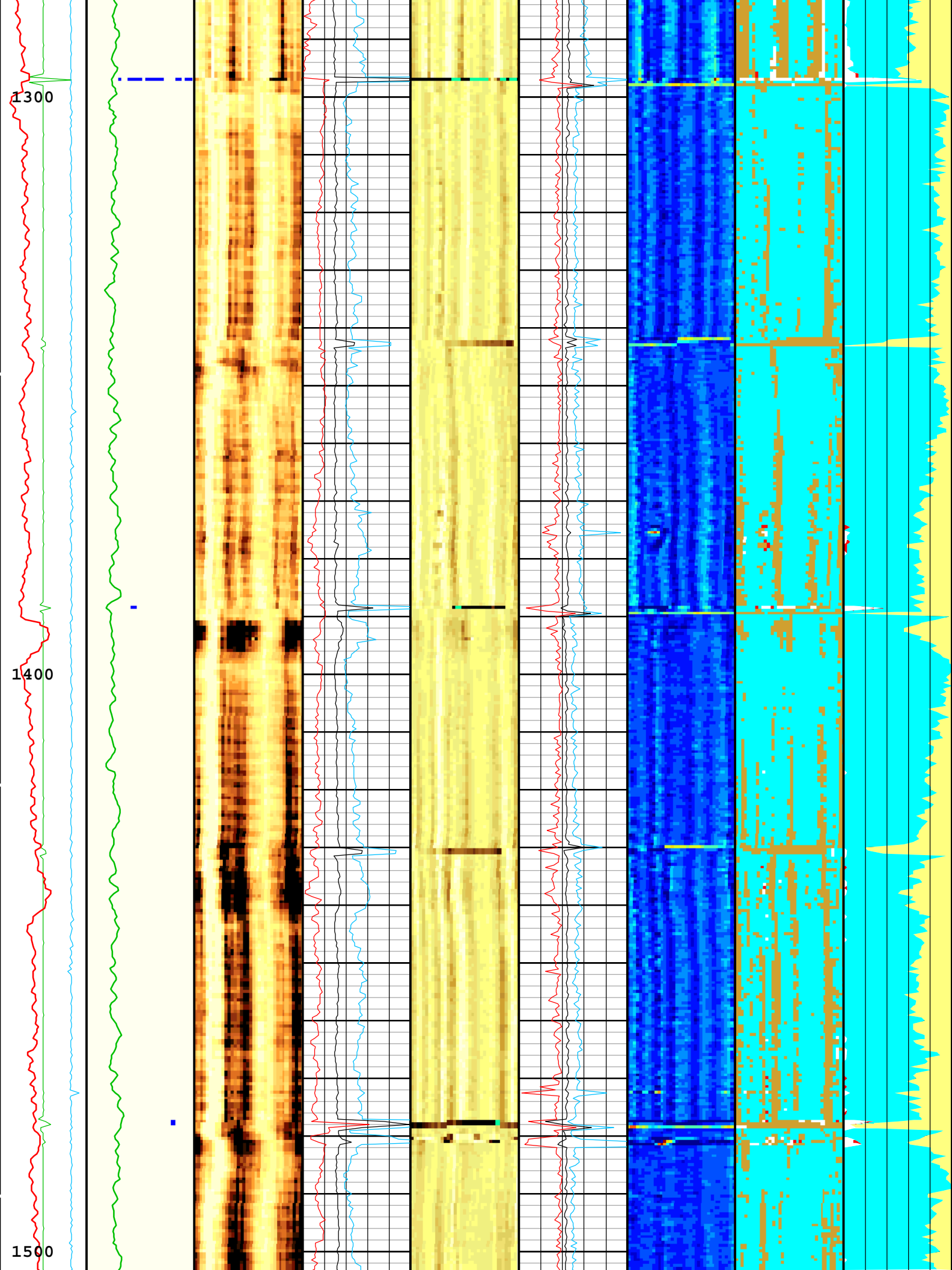


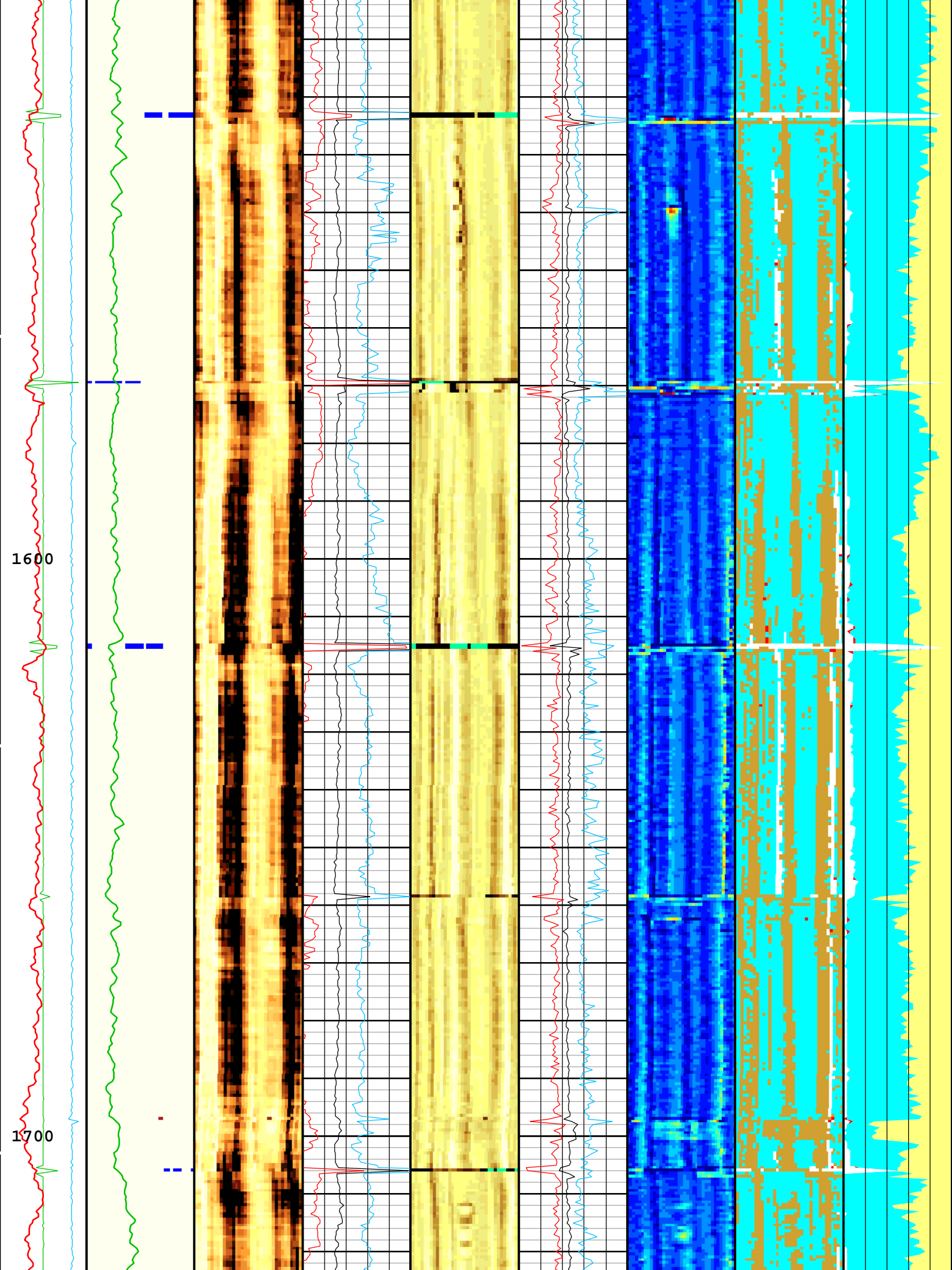


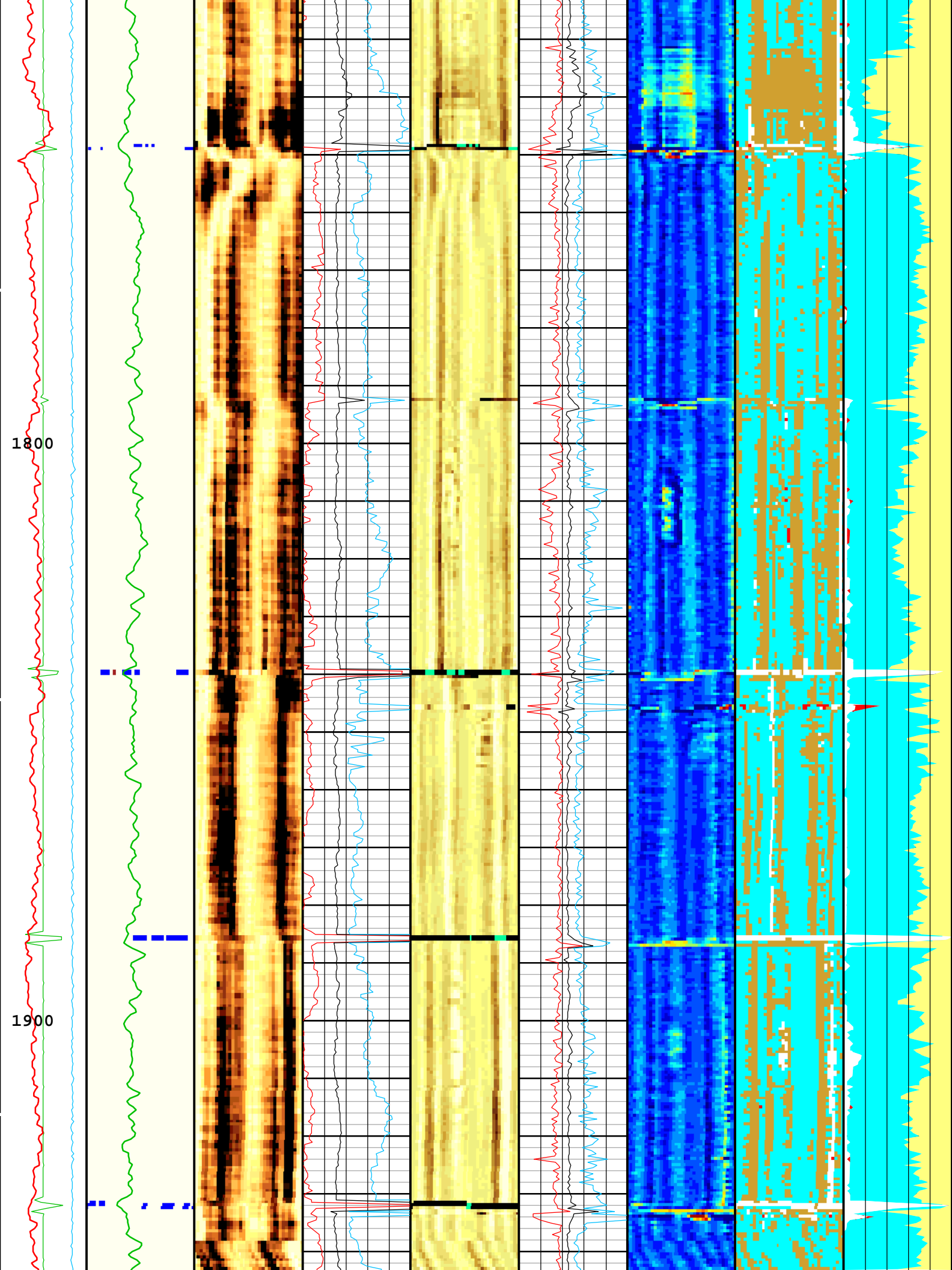


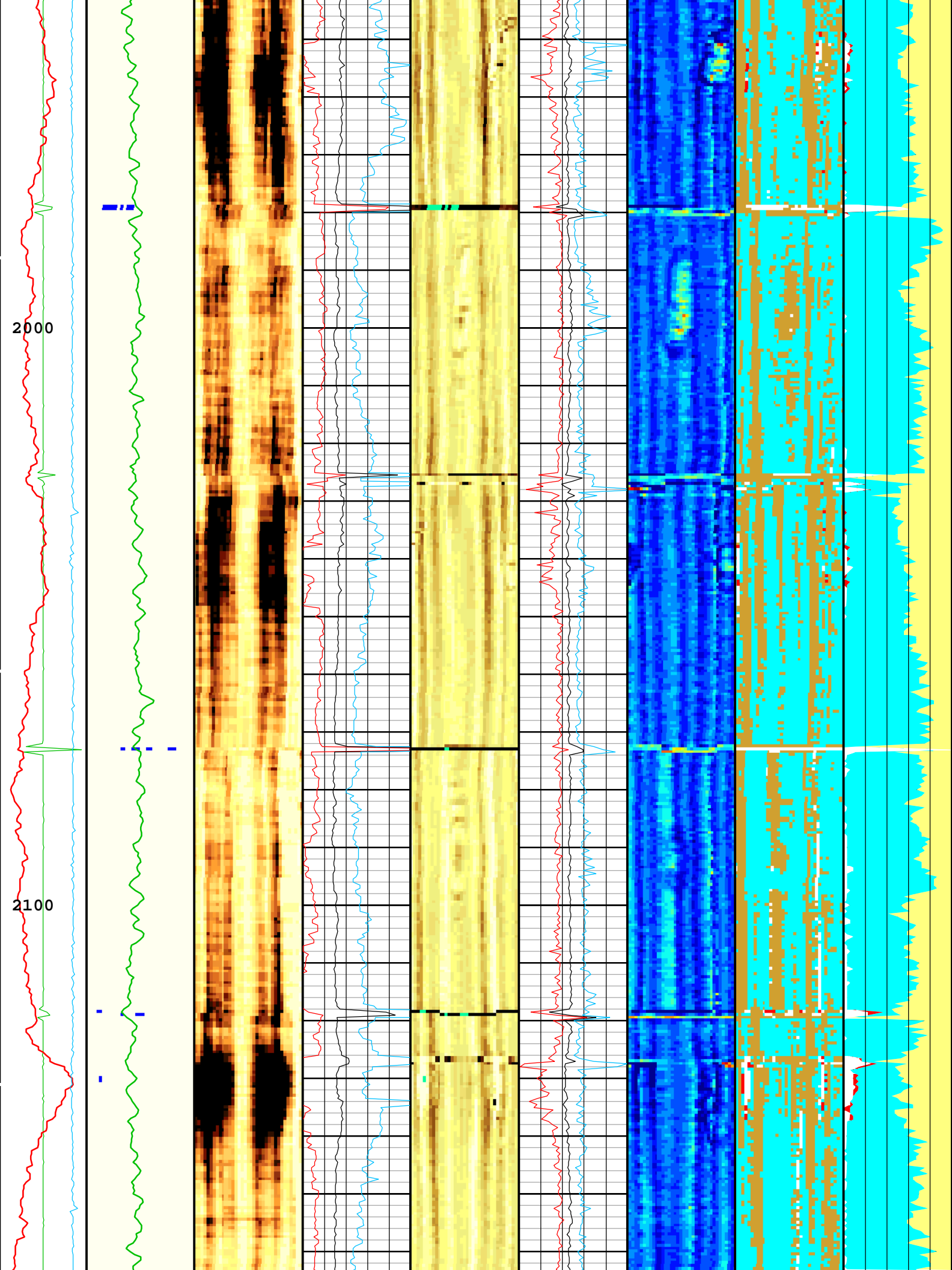


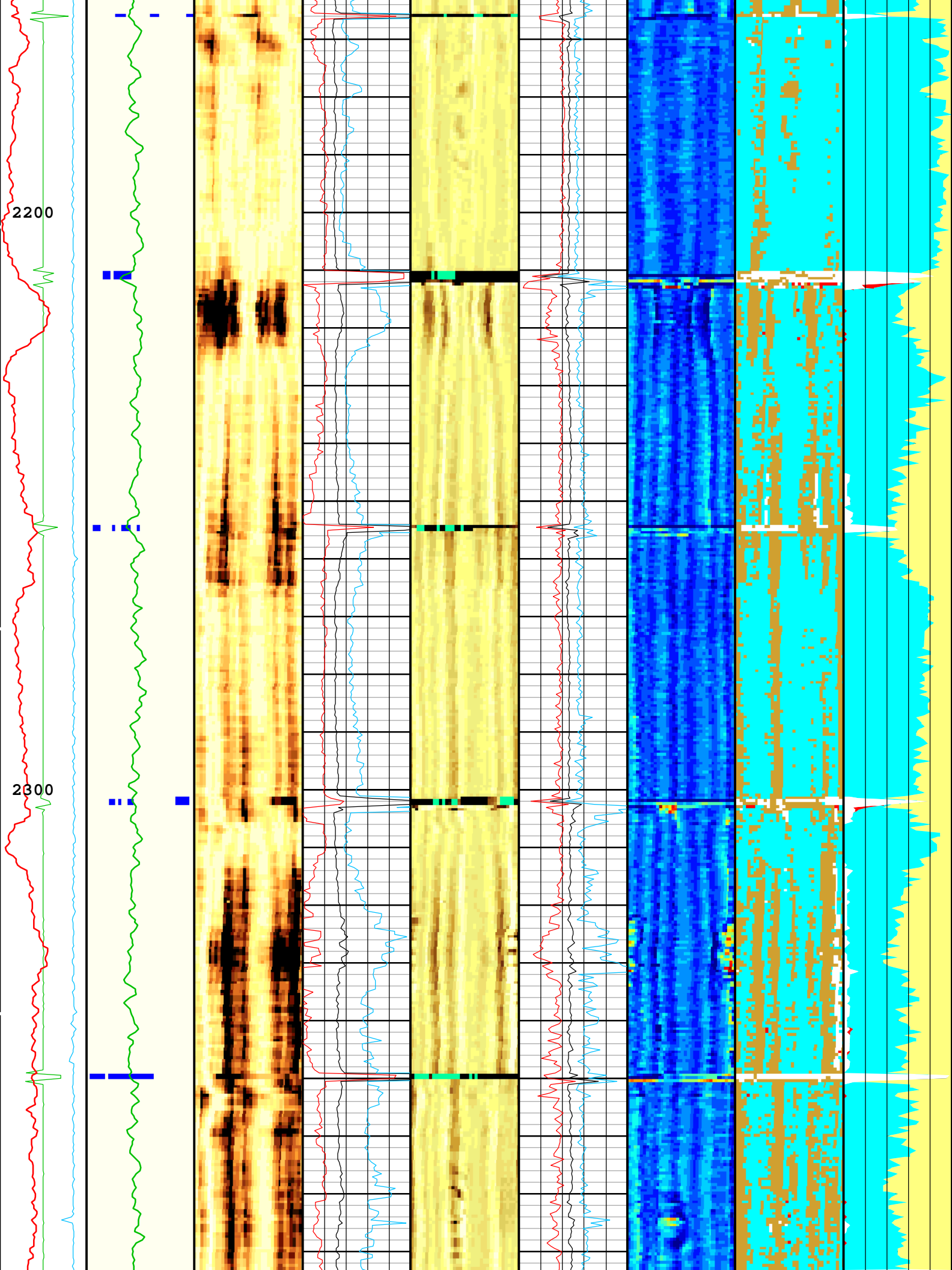


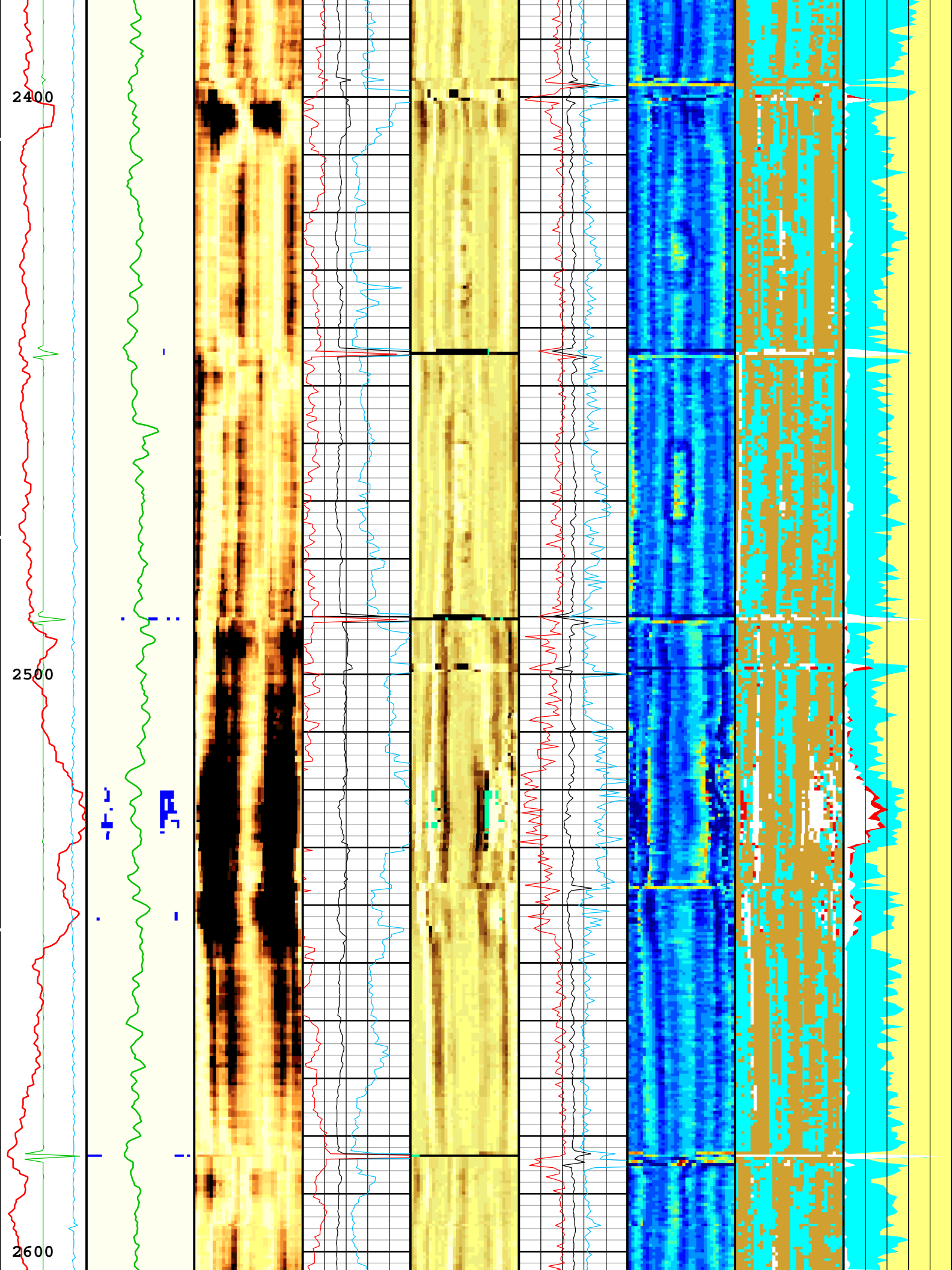


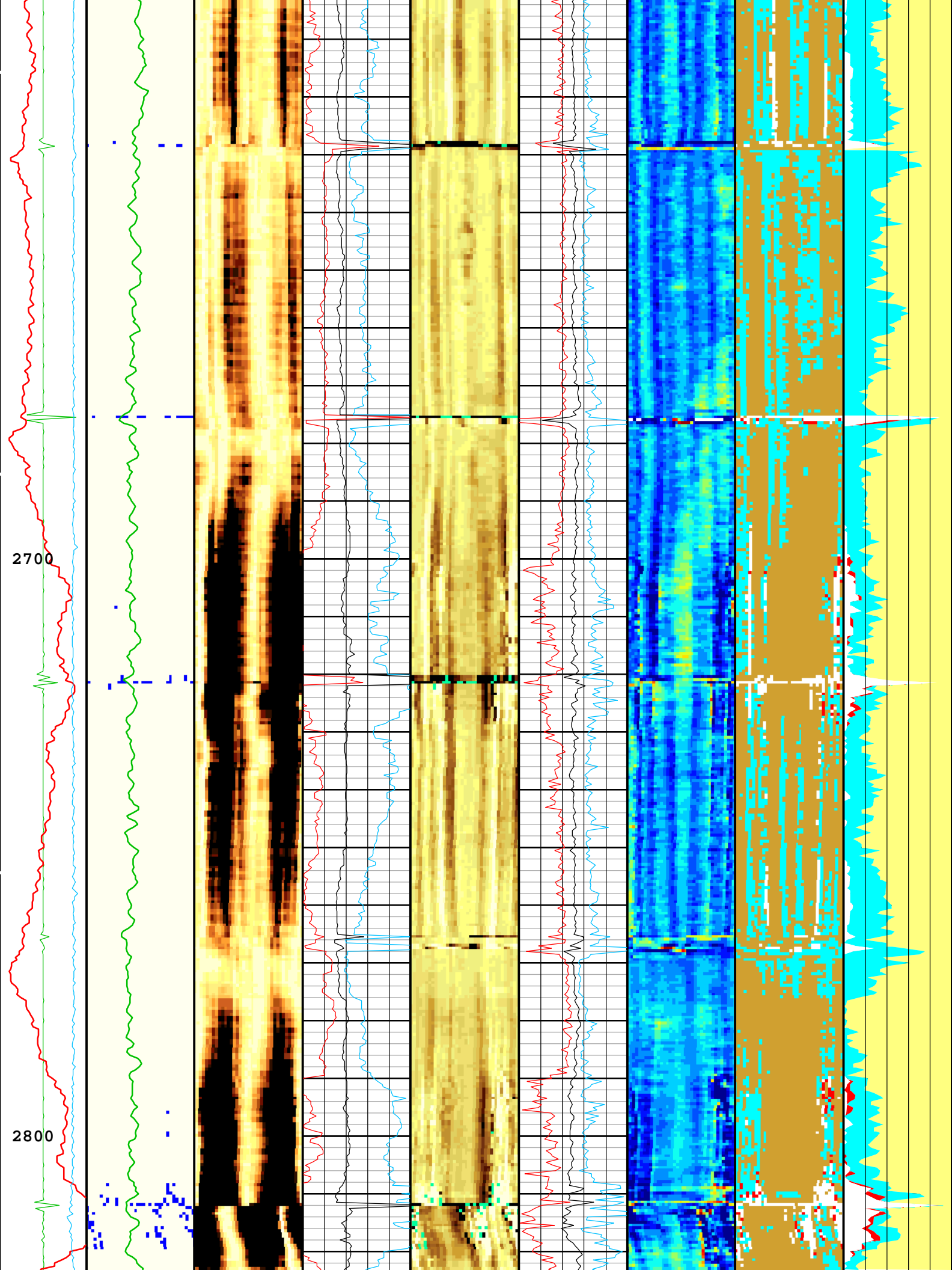


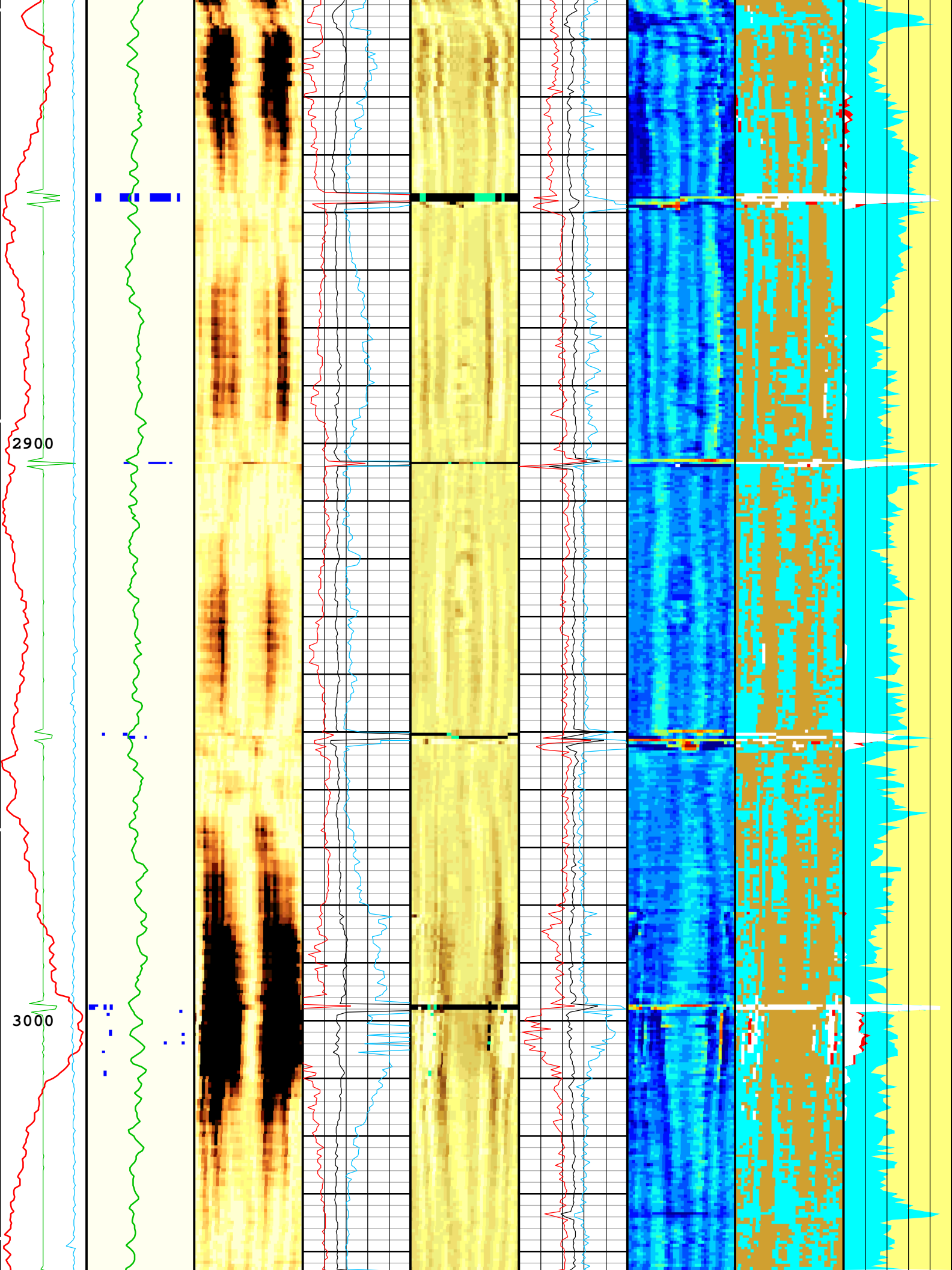


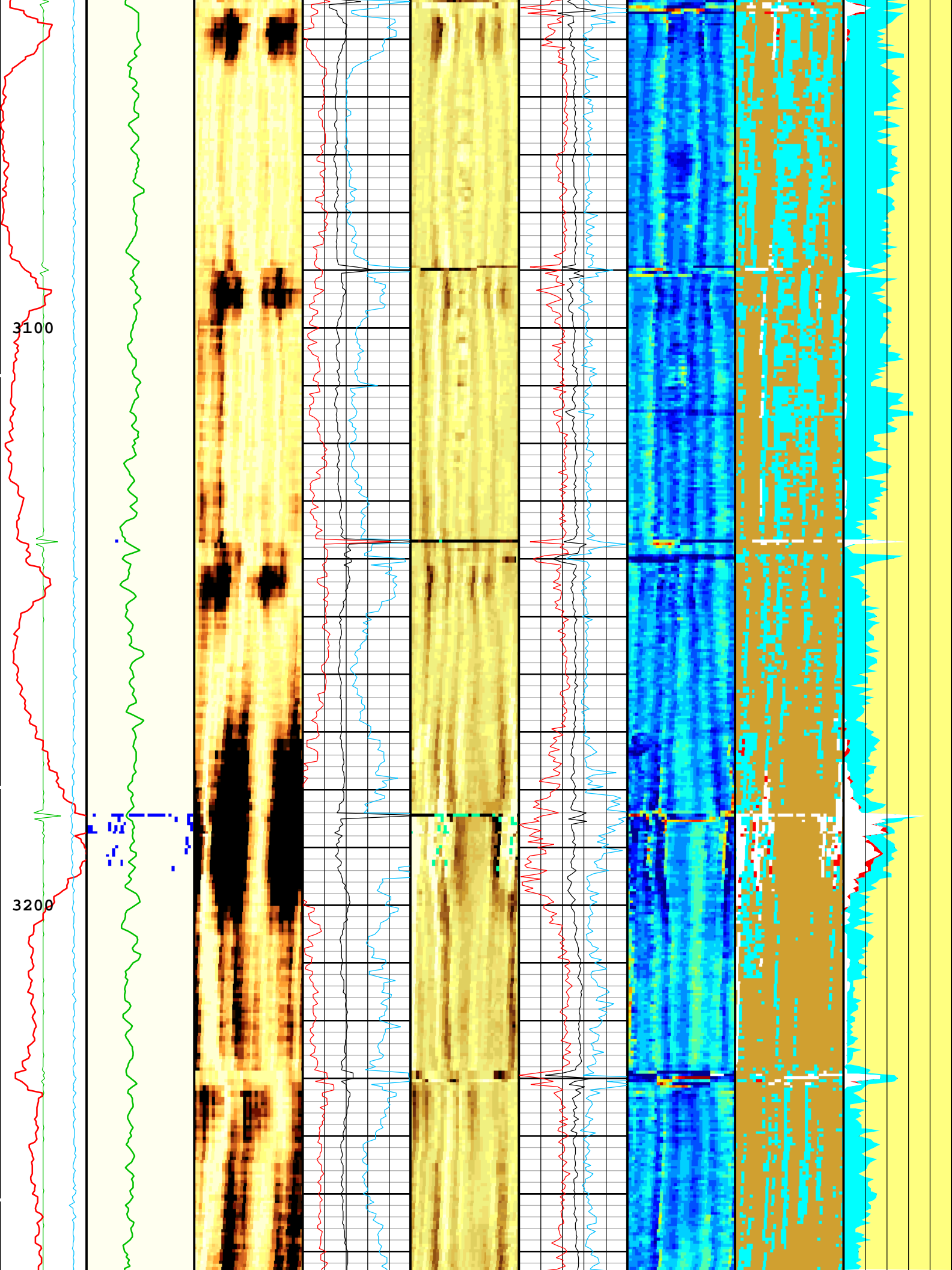


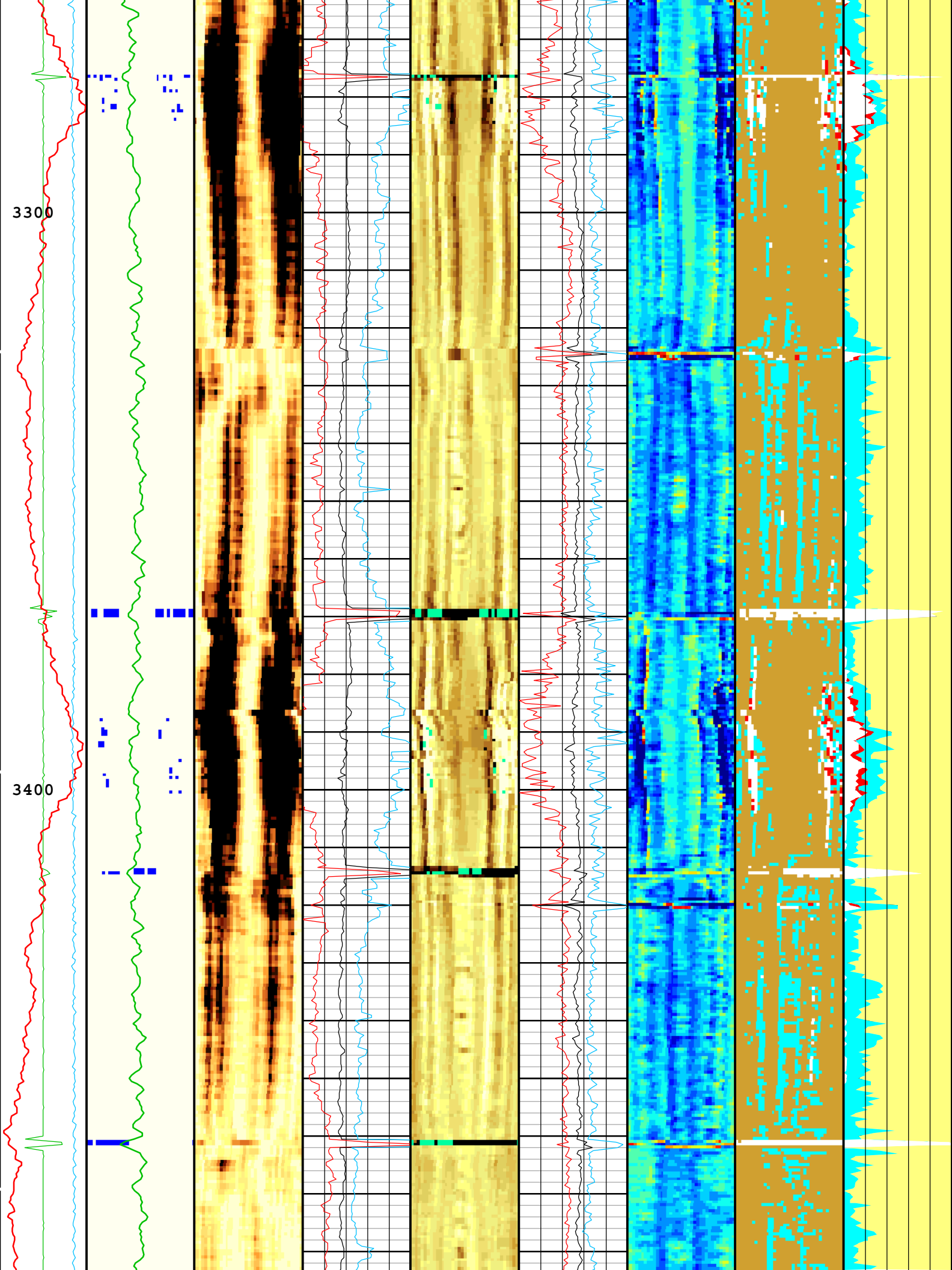


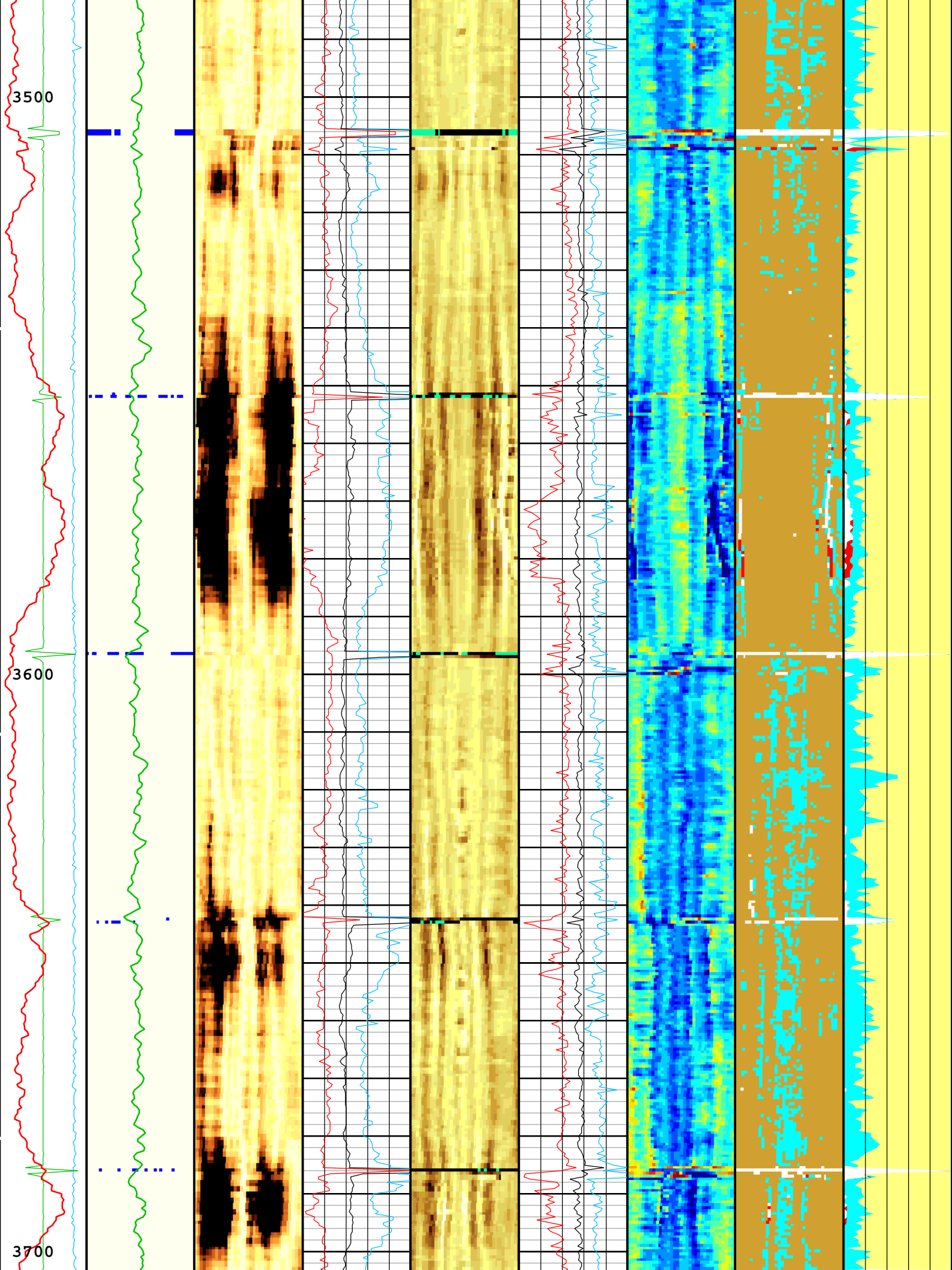


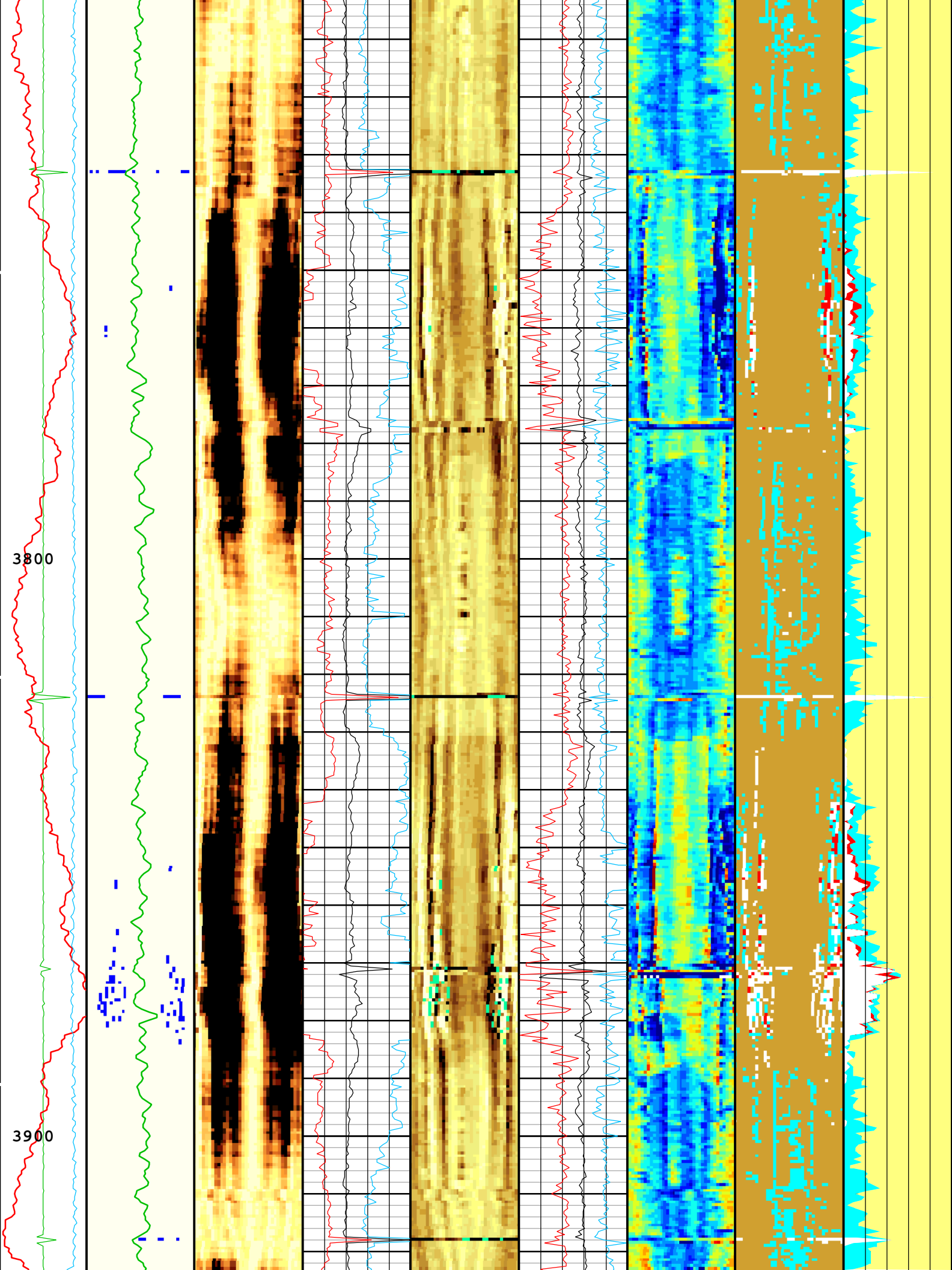


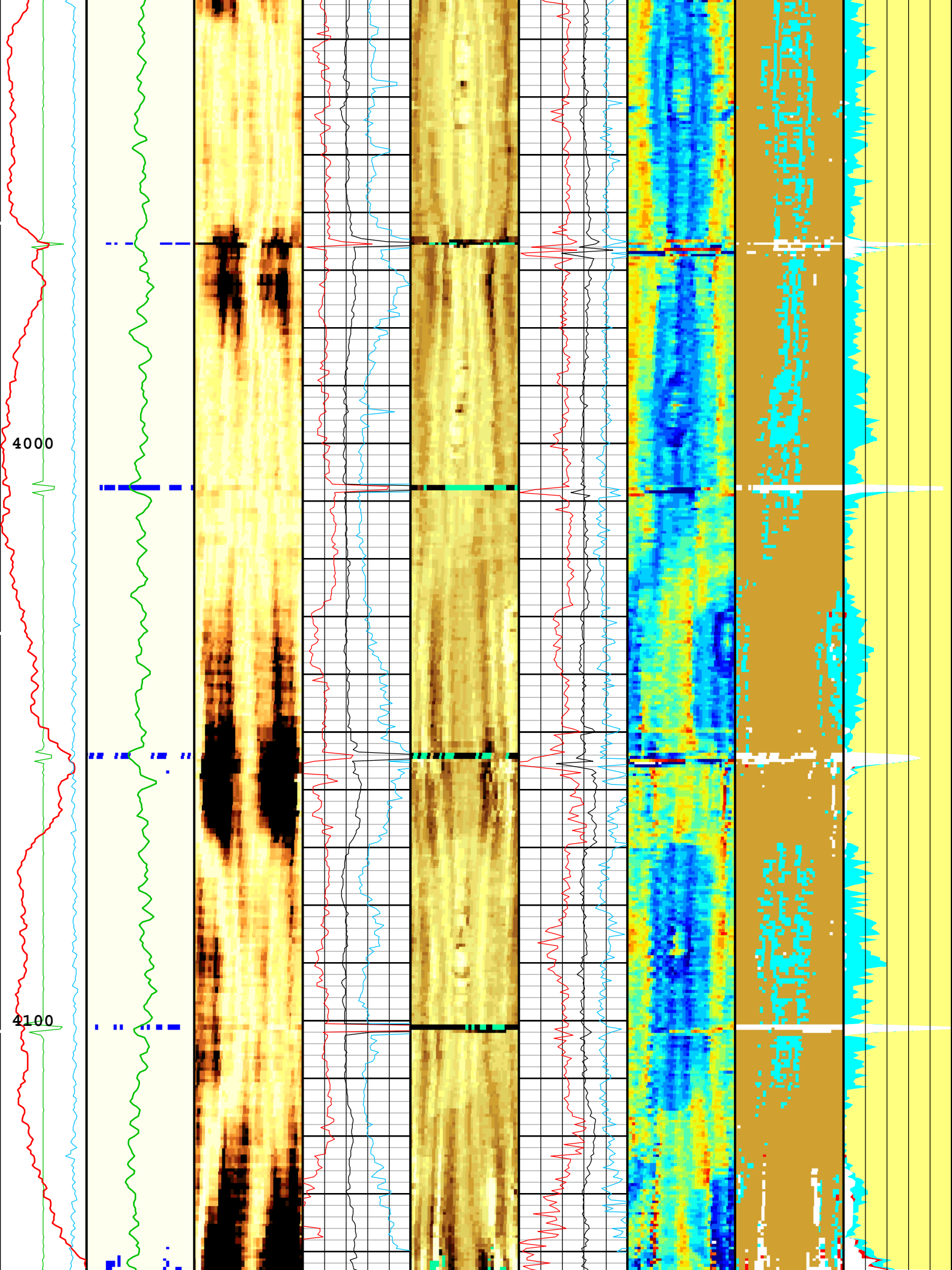


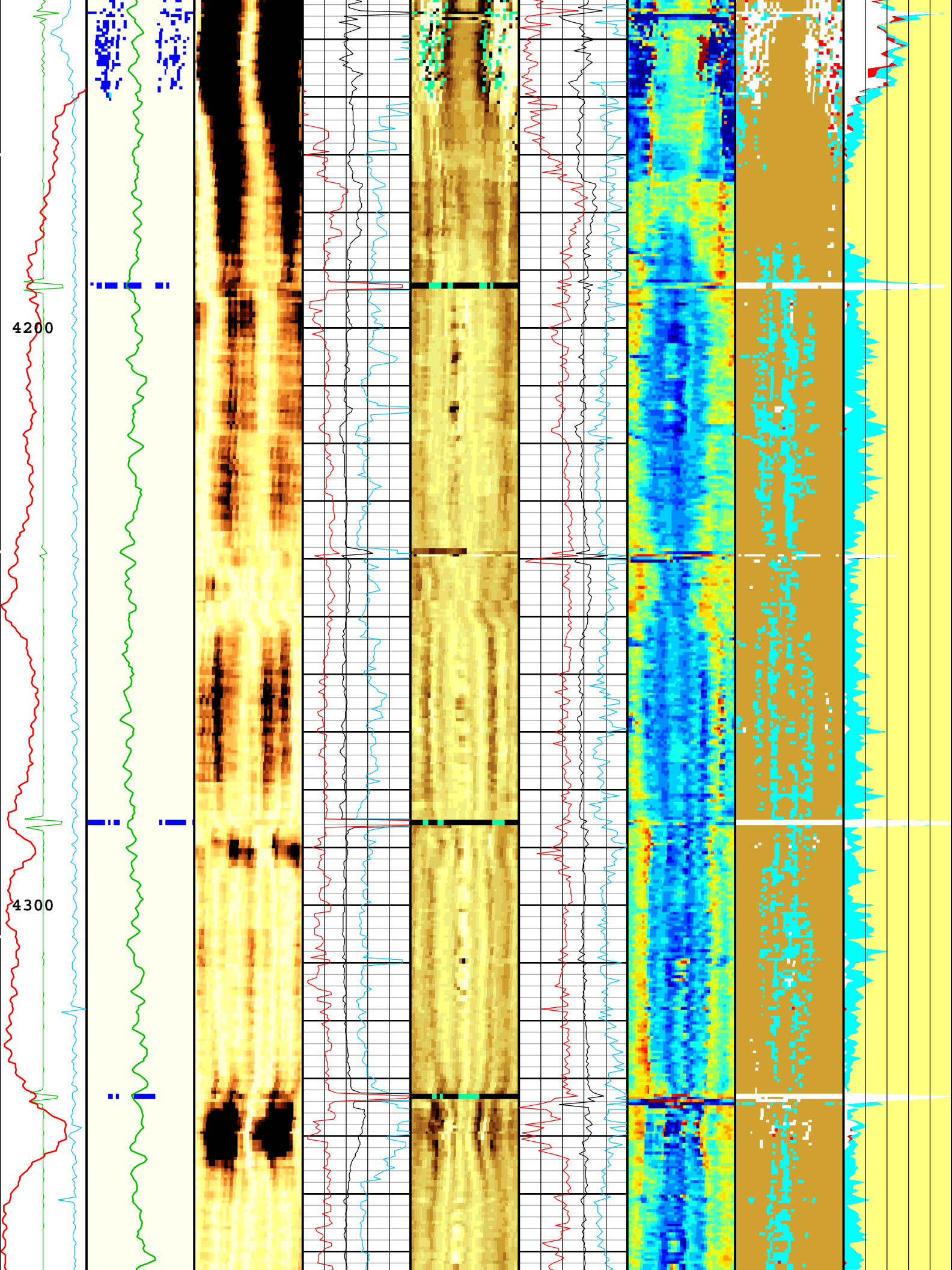


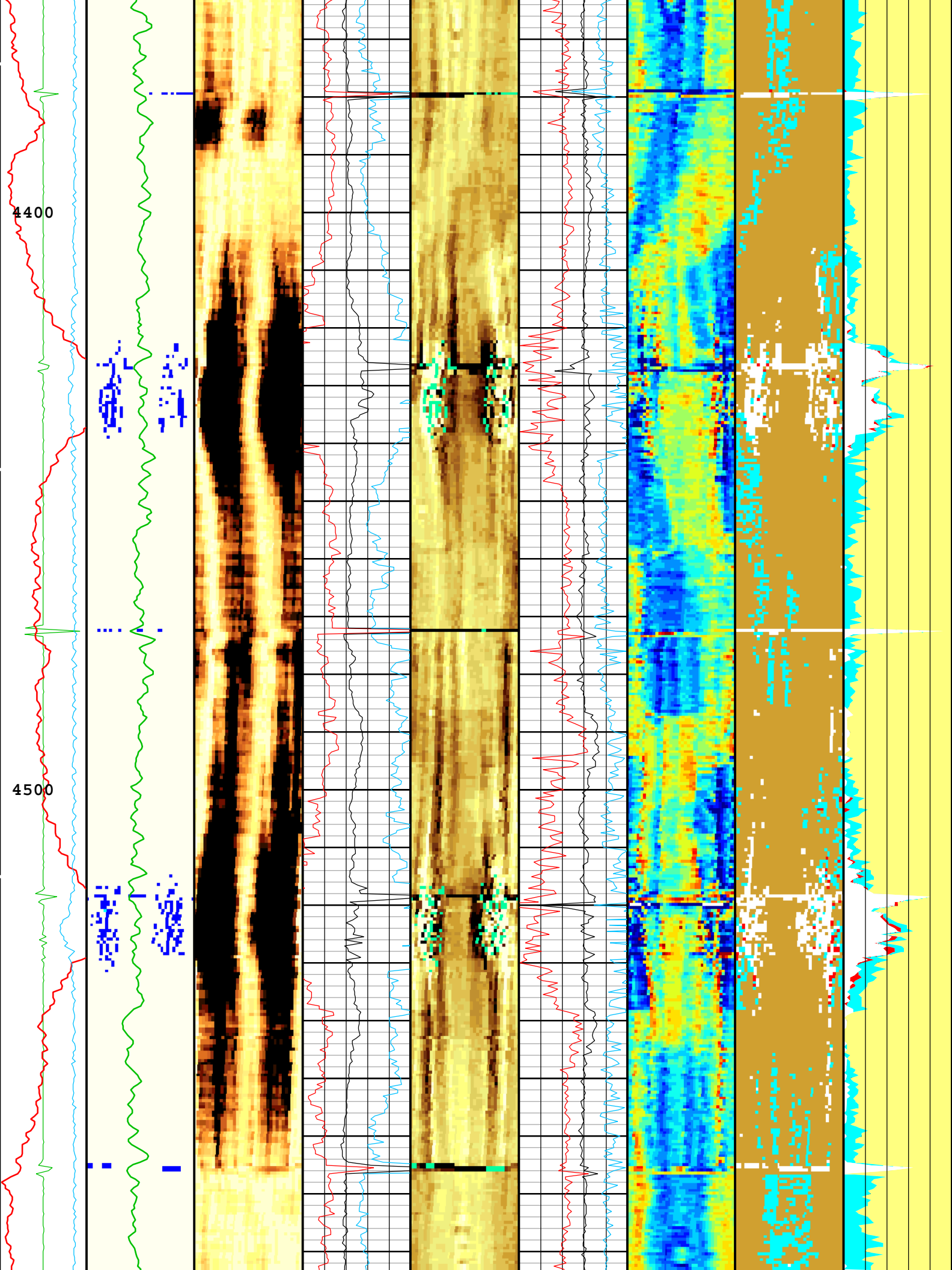


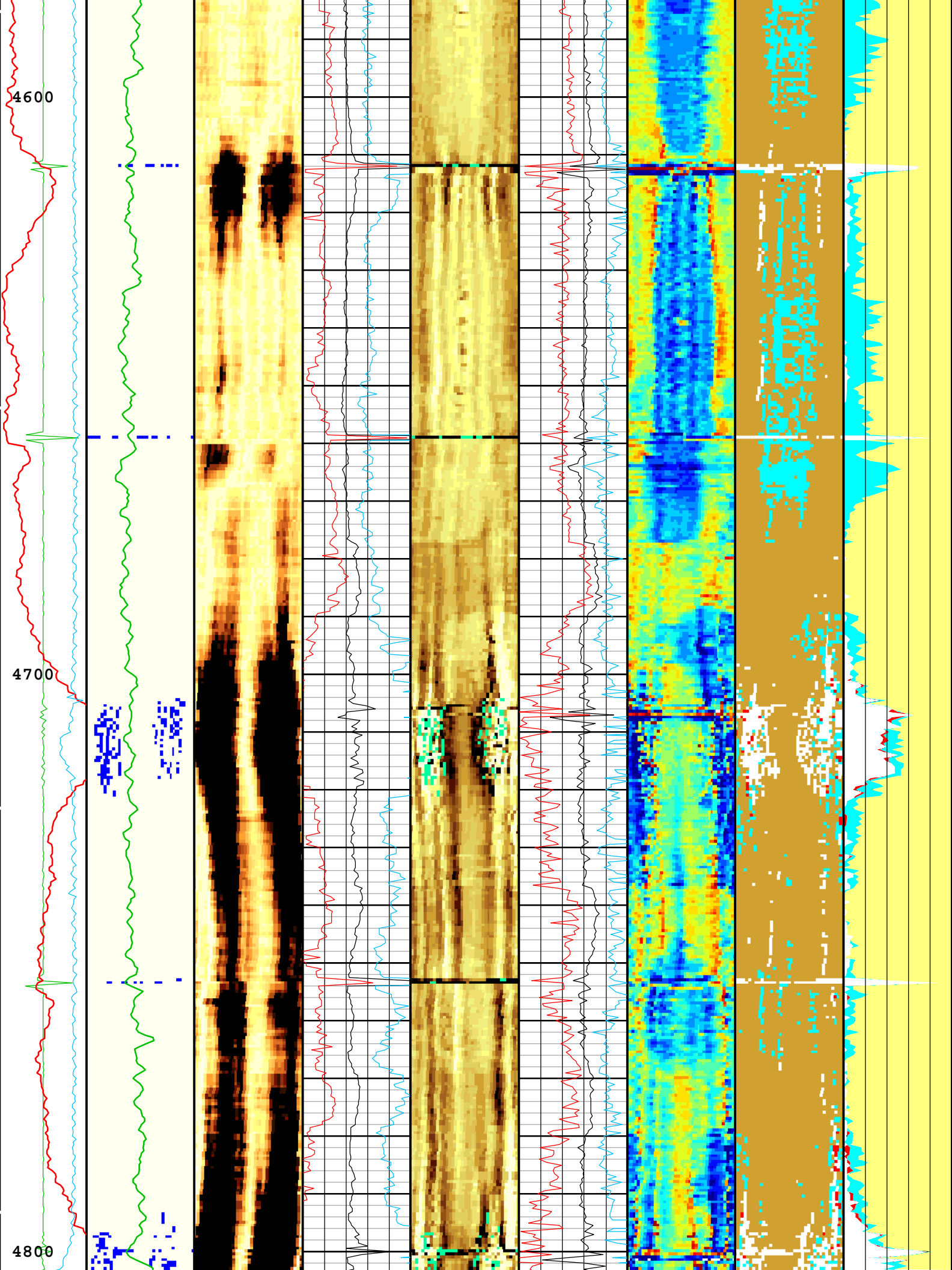


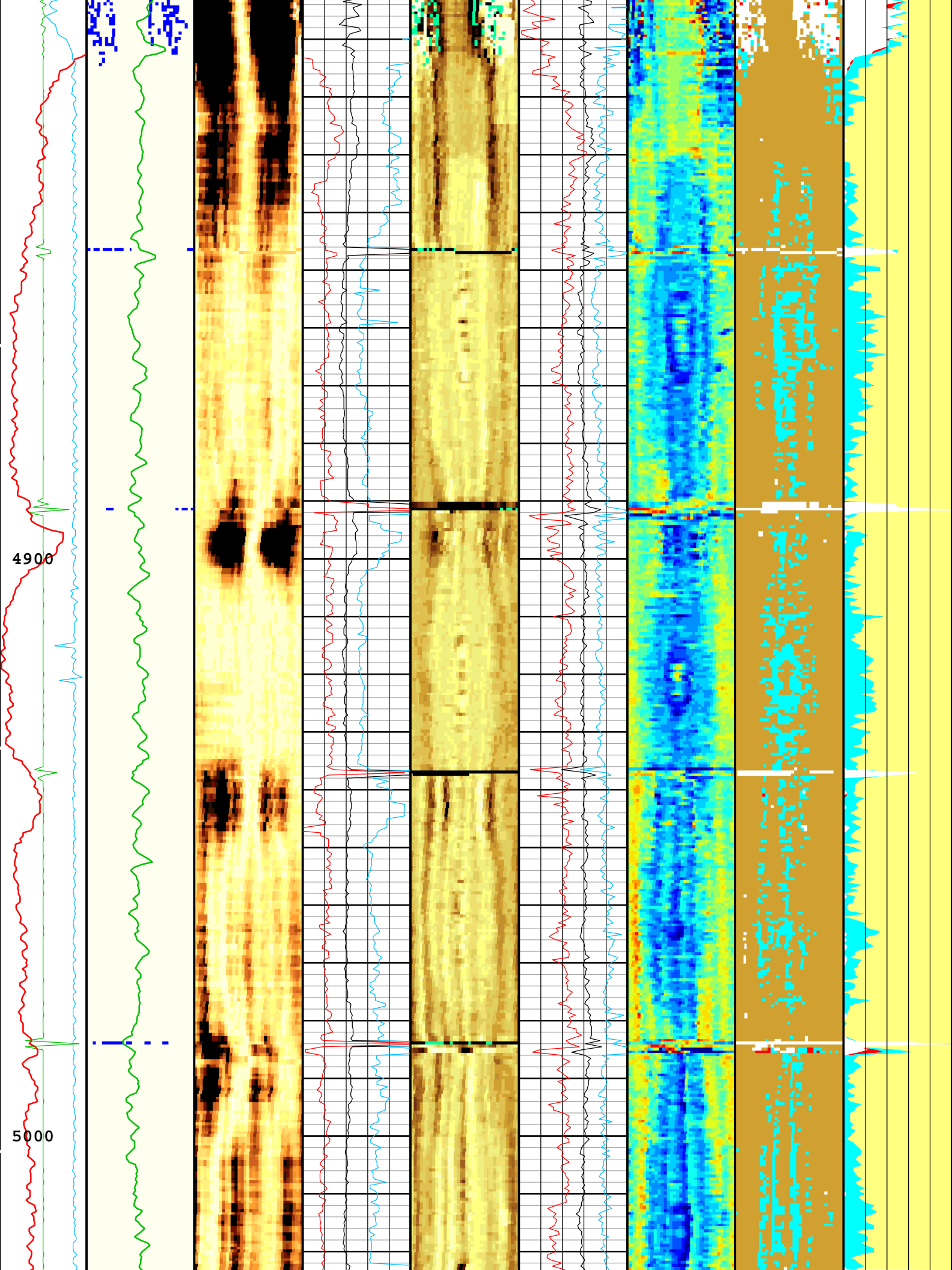


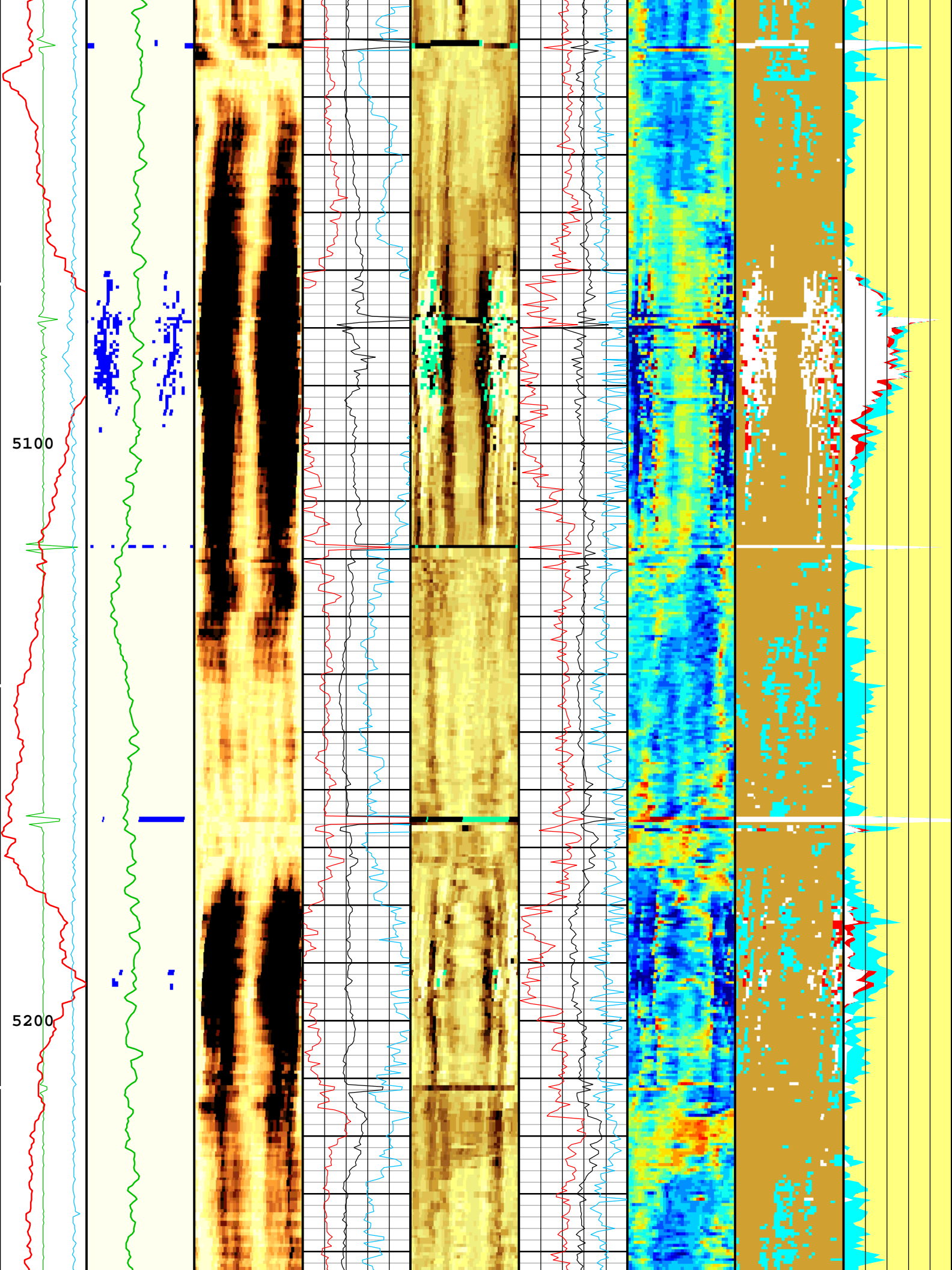


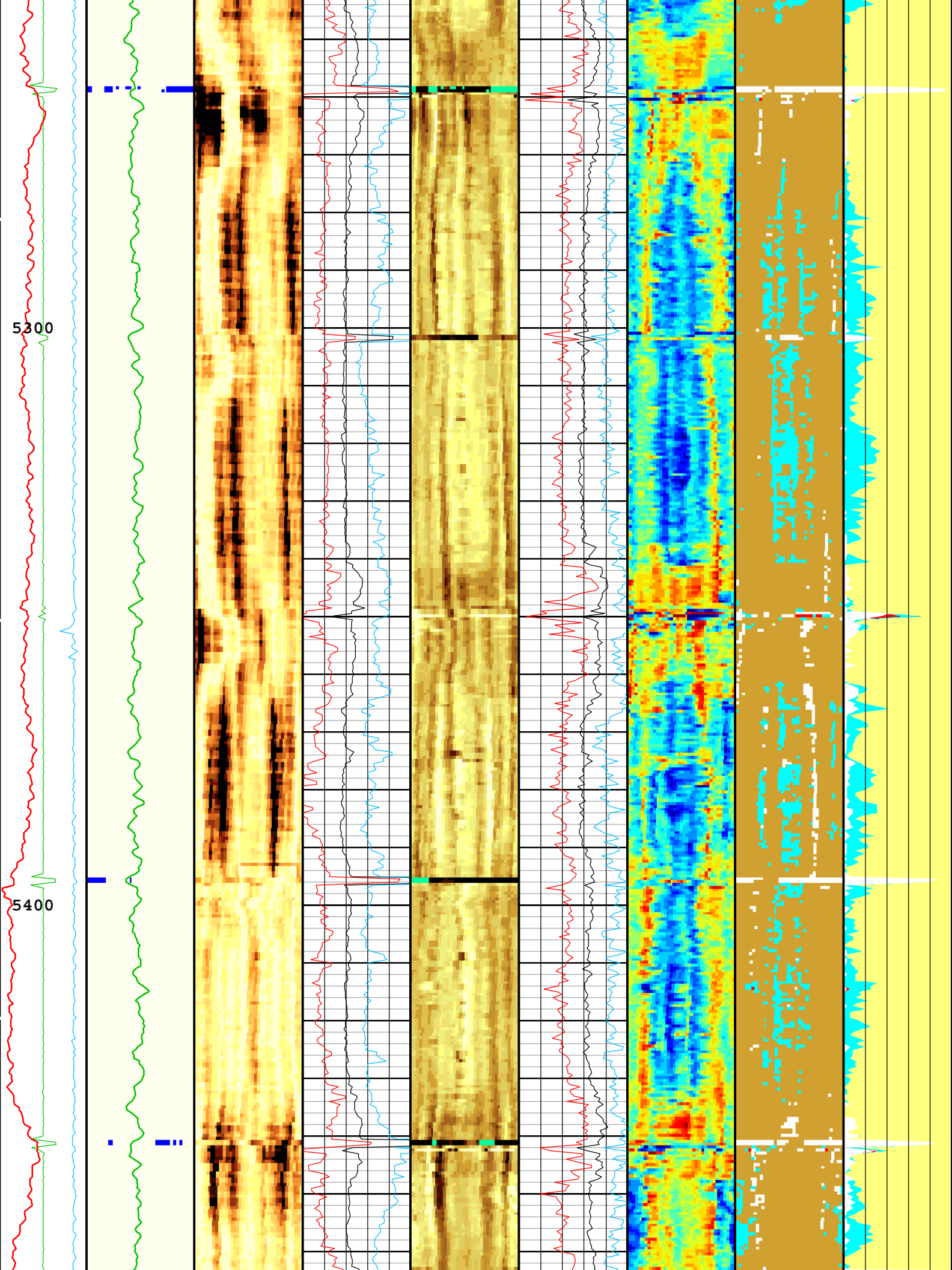


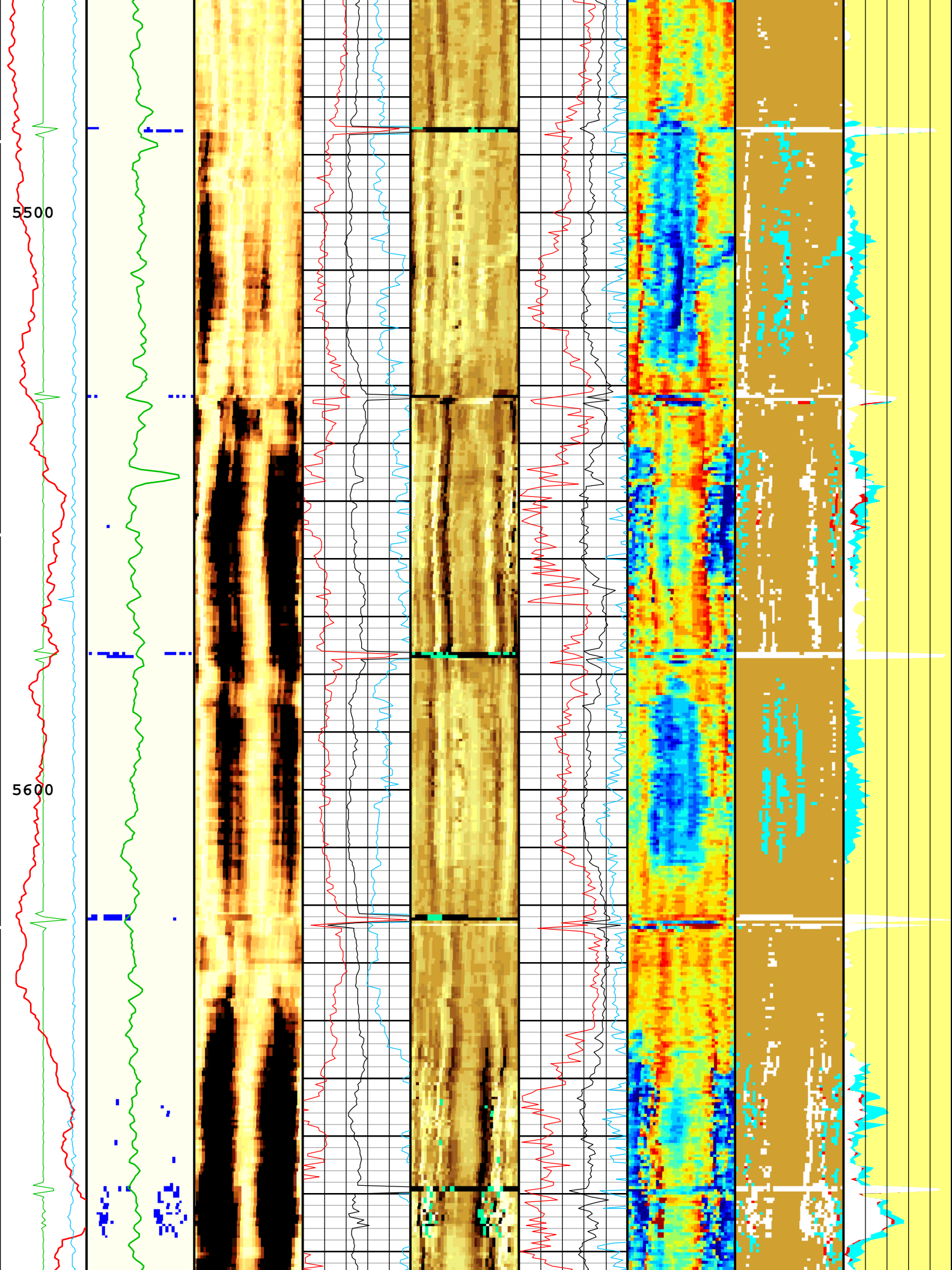


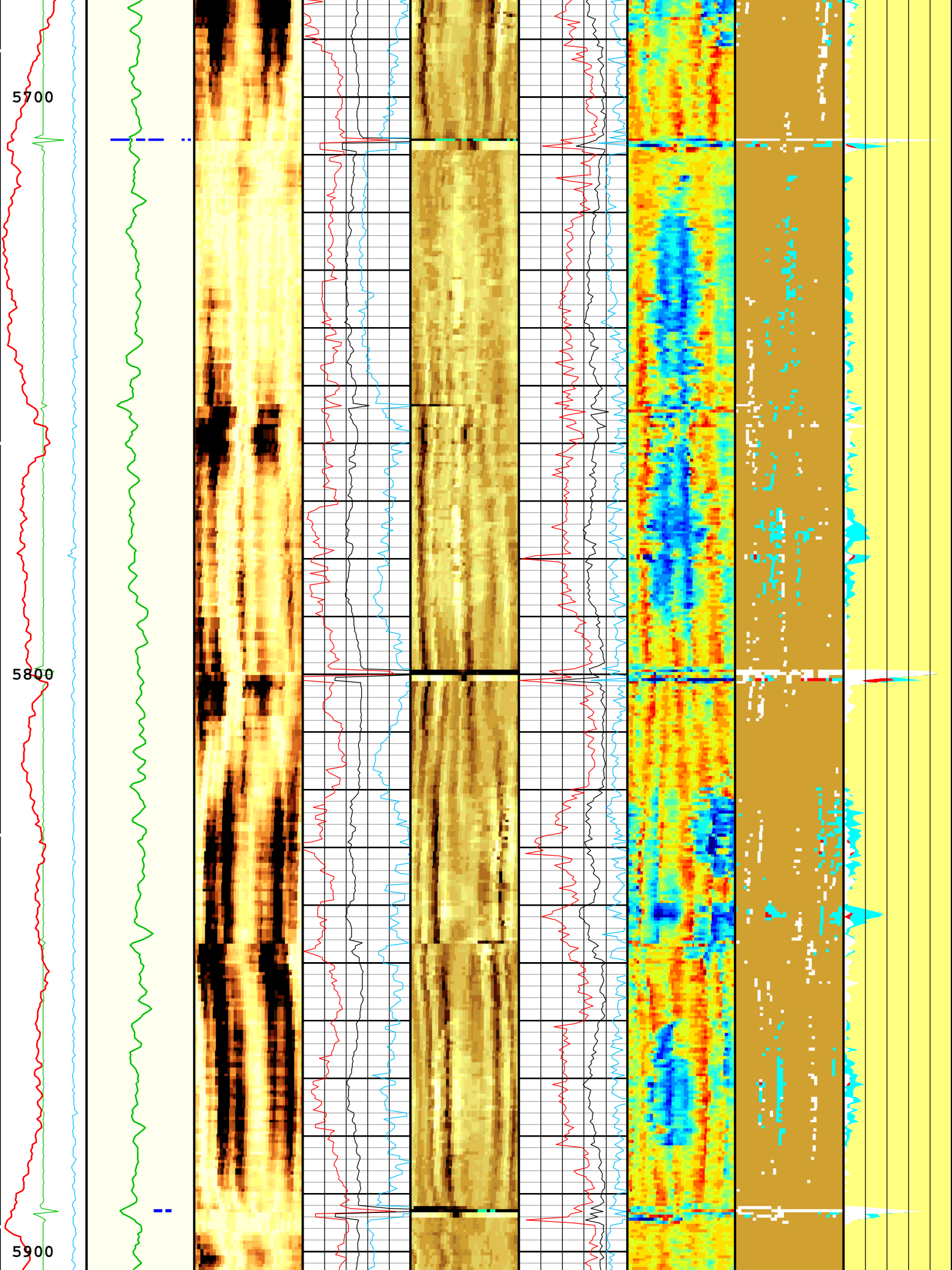


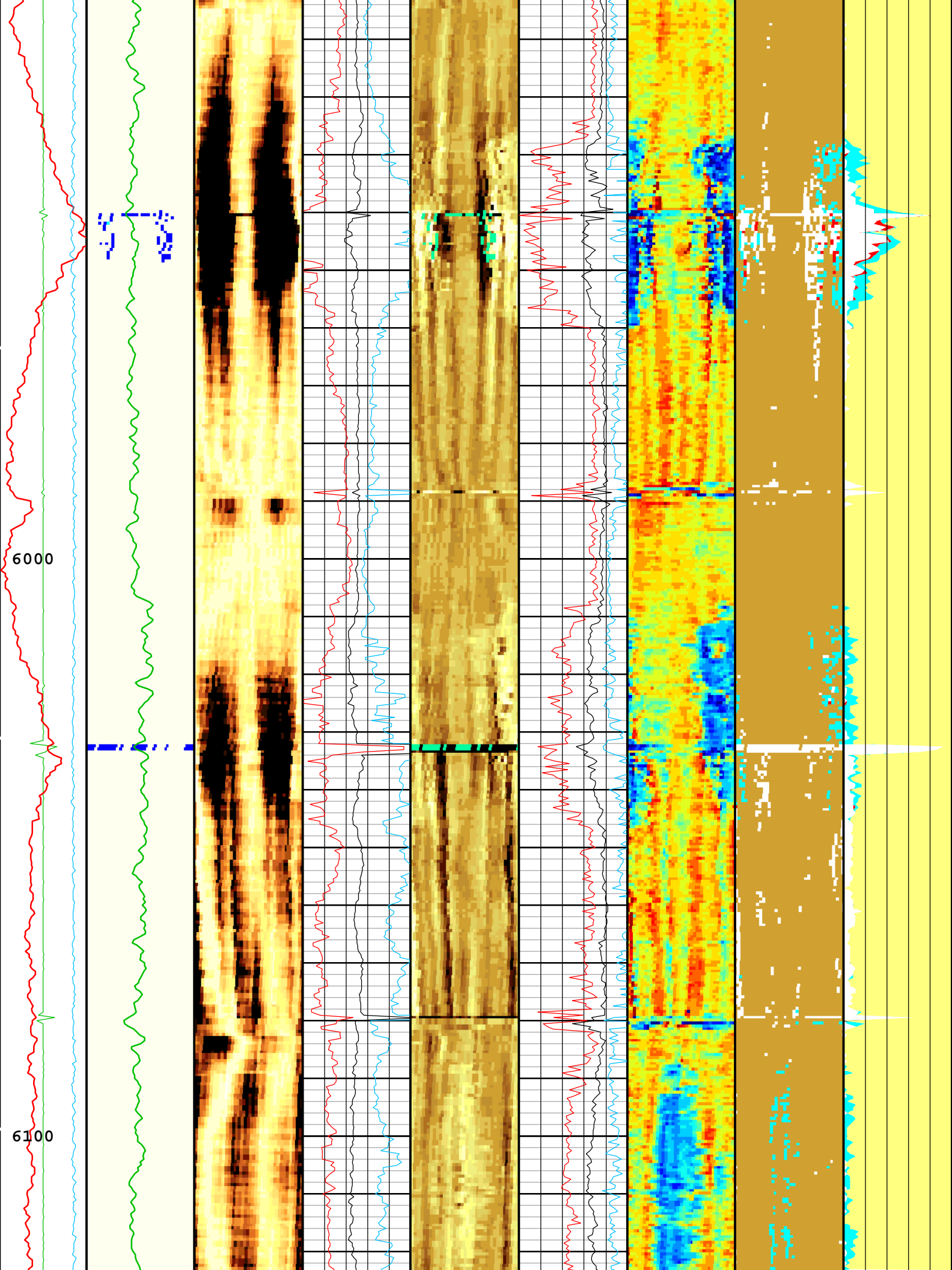


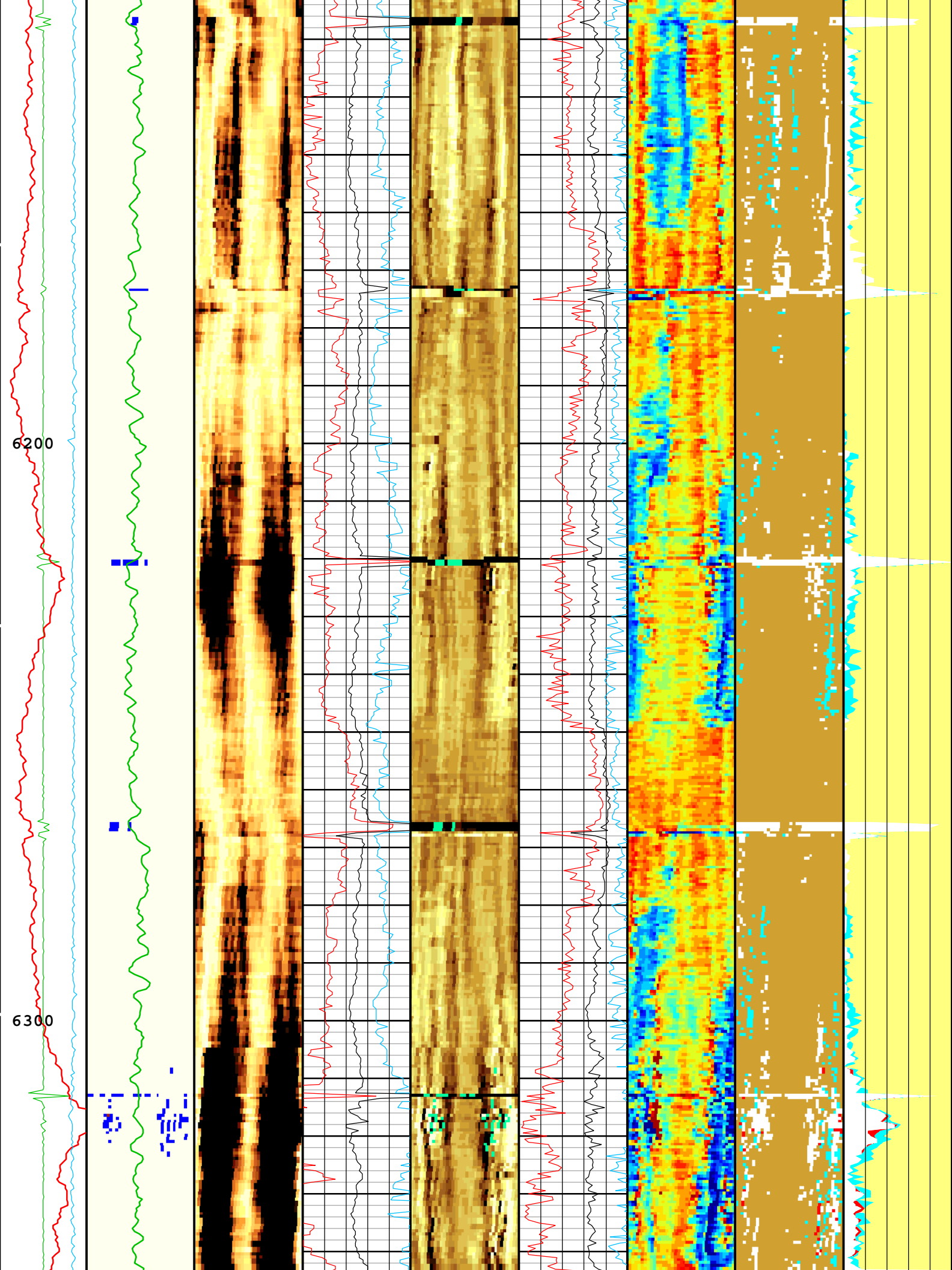


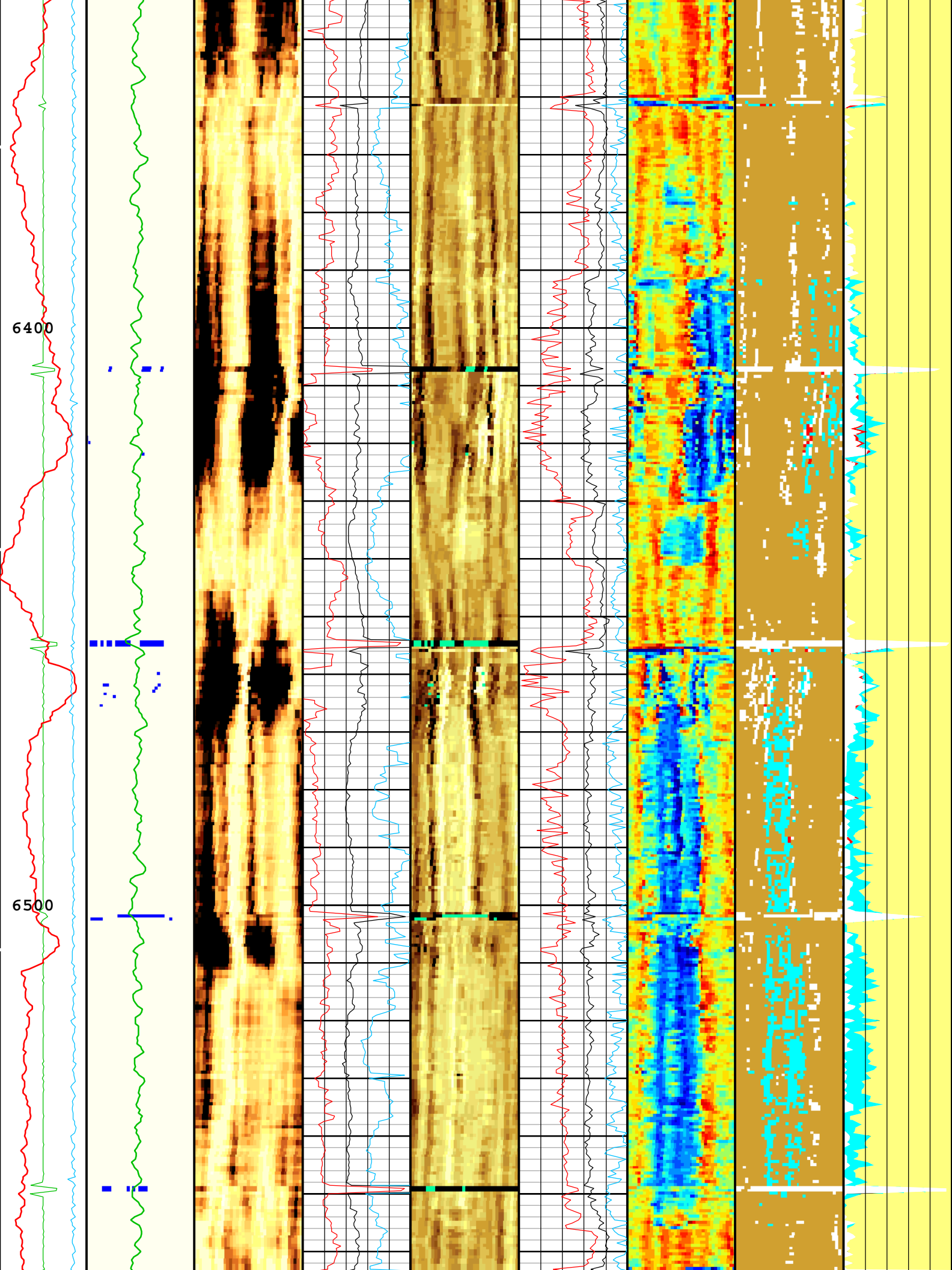


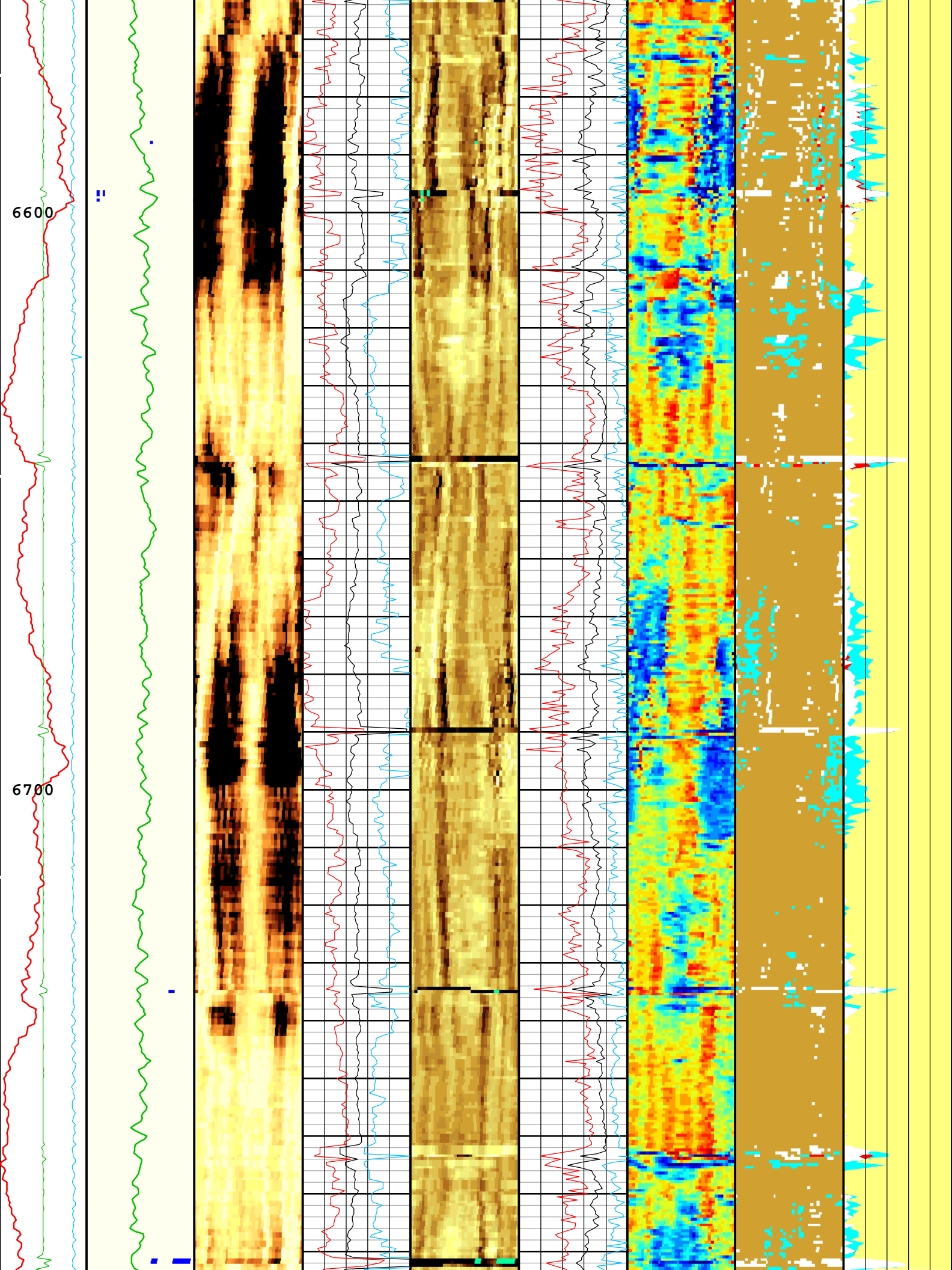


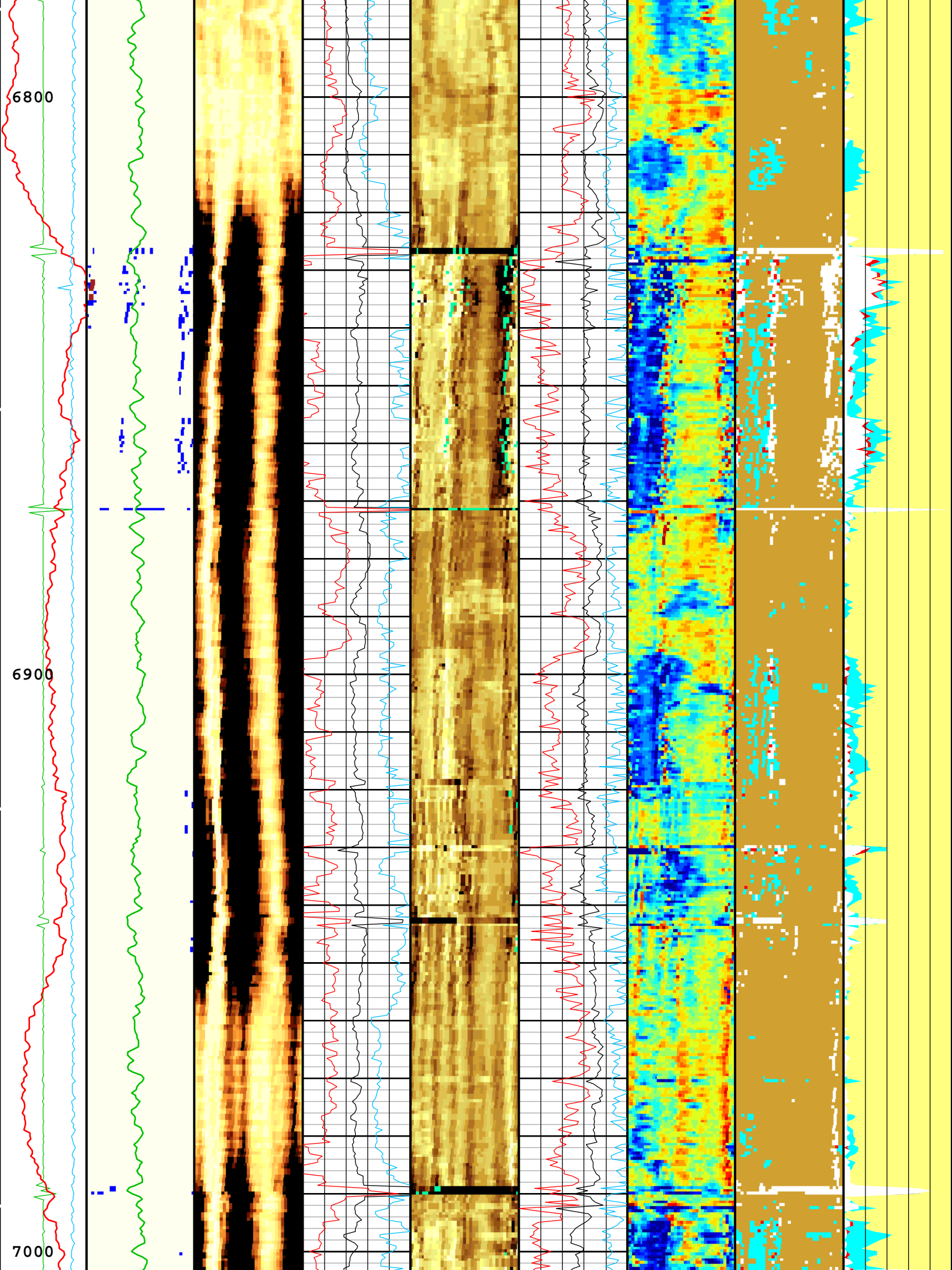


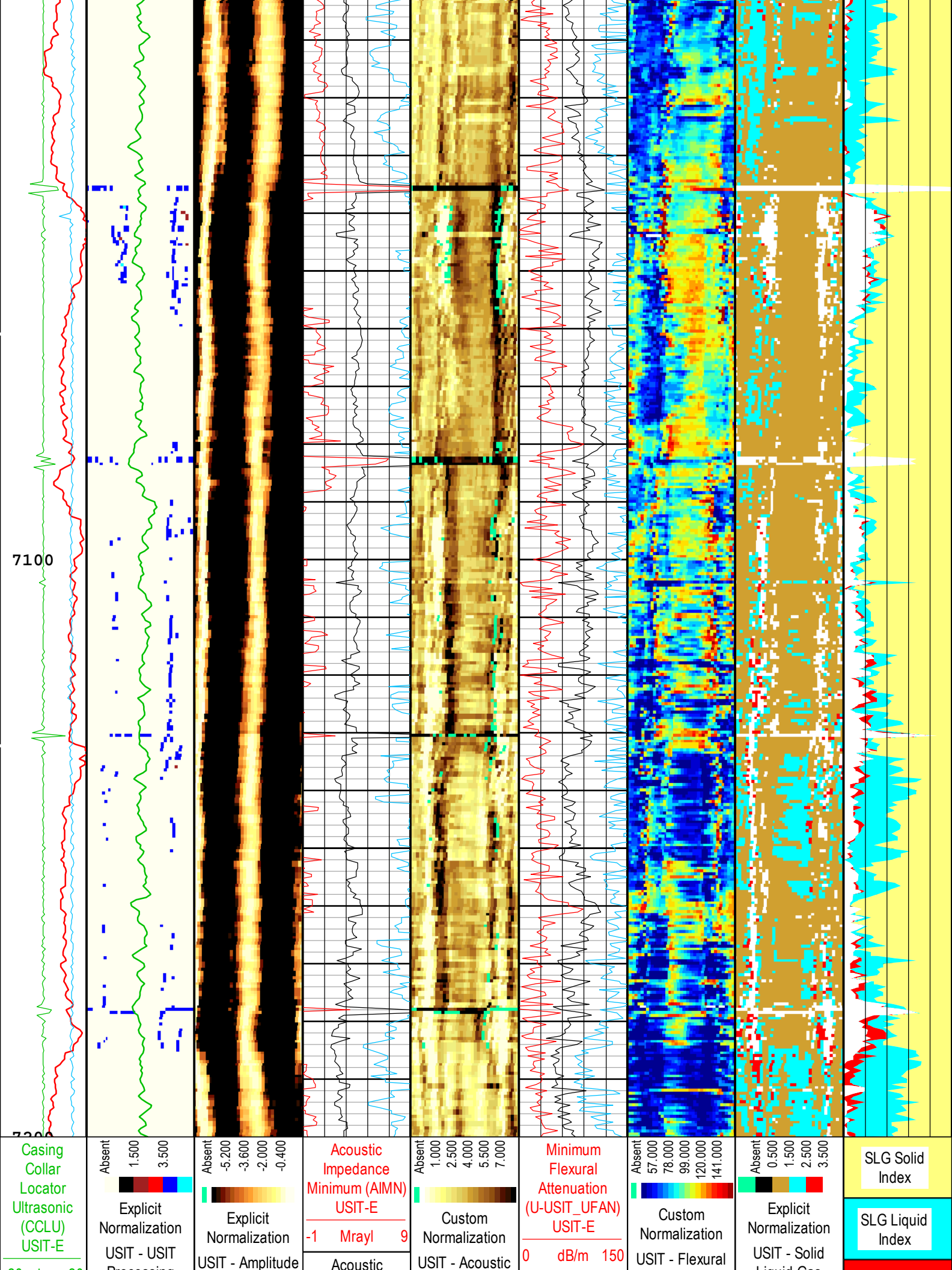












20 in 20	Processing Flags (UFLG) USIT-E	of Wave (AWBK) USIT-E (dB)	Acoustic Impedance Average (AIAV) USIT-E	Impedance (AIBK) USIT-E (Mrayl)	Average Flexural Attenuation (U-USIT_UFAV) USIT-E	Attenuation (UFAK) USIT-E (dB/m)	Liquid Gas Sorted Color Map (USLP) USIT-E	SLG Gas Index
Amplitude of Eccentering (ECCE) USIT-E	Orientation: Top of Hole	Orientation: Top of Hole	-1 Mrayl 9	Orientation: Top of Hole	0 dB/m 150	Orientation: Top of Hole	Orientation: Top of Hole	SLG White Point Index
0 in 0.5	U L B R U	U L B R U	Acoustic Impedance Maximum (AIMX) USIT-E	U L B R U		U L B R U	U L B R U	
Motor Revolution Speed (RSAV) USIT-E	USIT Processing Flags (UFLG[0]) USIT-E		-1 Mrayl 9		Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E			
6 c/s 7.5	1 5				0 dB/m 150			
	Gamma Ray (ECGR_EDTC) EDTC-B							
	0 gAPI 150							

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

- 1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :

5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

Pulse Origin Not Detected

WINLEN Error

Casing Thickness Error

Loop Processing Error

Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2017 03:51:02

Channel Processing Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	12136	ft
CDEN	Cement Density	USIT-E	12	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FD	Fluid Density	USIT-E	10	lbm/gal
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GR_MULTIPLIER	Gamma Ray Multiplier	EDTC-B	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	-3.18	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	FreePipe Norm.	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	

MEAS_WLEN	Tube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.17	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	1.19	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.216	in
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	1.07	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
USI_RPLUS	Ultrasonic R+ Processing	USIT-E	No	
THDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.3	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	120	19-Oct-2017 13:14:48	19-Oct-2017 13:23:41	7698.99	7082.94
EMXV	125	19-Oct-2017 13:23:41	19-Oct-2017 13:25:21	7082.94	6967.52
EMXV	80	19-Oct-2017 13:25:21	19-Oct-2017 13:25:40	6967.52	6945.53
EMXV	125	19-Oct-2017 13:25:40	19-Oct-2017 13:28:59	6945.53	6715.32
EMXV	80	19-Oct-2017 13:28:59	19-Oct-2017 13:29:34	6715.32	6675.74
EMXV	90	19-Oct-2017 13:29:34	19-Oct-2017 13:29:45	6675.74	6662.21
EMXV	80	19-Oct-2017 13:29:45	19-Oct-2017 13:30:53	6662.21	6583.75
EMXV	120	19-Oct-2017 13:30:53	19-Oct-2017 13:31:31	6583.75	6540.51
EMXV	80	19-Oct-2017 13:31:31	19-Oct-2017 13:33:40	6540.51	6391.78
EMXV	120	19-Oct-2017 13:33:40	19-Oct-2017 13:34:00	6391.78	6367.98
EMXV	80	19-Oct-2017 13:34:00	19-Oct-2017 13:34:30	6367.98	6332.41
EMXV	120	19-Oct-2017 13:34:30	19-Oct-2017 13:38:26	6332.41	6069.12
EMXV	80	19-Oct-2017 13:38:26	19-Oct-2017 13:43:48	6069.12	5704.59
EMXV	60	19-Oct-2017 13:43:48	19-Oct-2017 13:44:26	5704.59	5662.28
EMXV	120	19-Oct-2017 13:44:26	19-Oct-2017 13:44:53	5662.28	5631.66
EMXV	60	19-Oct-2017 13:44:53	19-Oct-2017 13:45:58	5631.66	5558
EMXV	120	19-Oct-2017 13:45:58	19-Oct-2017 13:48:21	5558	5394.96
EMXV	60	19-Oct-2017 13:48:21	19-Oct-2017 13:53:04	5394.96	5067.19
EMXV	120	19-Oct-2017 13:53:04	19-Oct-2017 13:53:29	5067.19	5038.43
EMXV	60	19-Oct-2017 13:53:29	19-Oct-2017 13:56:26	5038.43	4832.34
EMXV	120	19-Oct-2017 13:56:26	19-Oct-2017 13:57:25	4832.34	4763.54
EMXV	60	19-Oct-2017 13:57:25	19-Oct-2017 13:57:56	4763.54	4726.94
EMXV	120	19-Oct-2017 13:57:56	19-Oct-2017 13:58:49	4726.94	4666.22
EMXV	60	19-Oct-2017 13:58:49	19-Oct-2017 13:59:36	4666.22	4612.54
EMXV	120	19-Oct-2017 13:59:36	19-Oct-2017 13:59:47	4612.54	4599.09
EMXV	60	19-Oct-2017 13:59:47	19-Oct-2017 14:01:00	4599.09	4514.05
EMXV	120	19-Oct-2017 14:01:00	19-Oct-2017 14:03:54	4514.05	4311.64
EMXV	60	19-Oct-2017 14:03:54	19-Oct-2017 14:07:44	4311.64	4051.51
EMXV	120	19-Oct-2017 14:07:44	19-Oct-2017 14:16:05	4051.51	3462.25
EMXV	60	19-Oct-2017 14:16:05	19-Oct-2017 14:17:01	3462.25	3394.52
EMXV	120	19-Oct-2017 14:17:01	19-Oct-2017 14:20:53	3394.52	3116.31
EMXV	60	19-Oct-2017 14:20:53	19-Oct-2017 14:21:53	3116.31	3045.08
EMXV	120	19-Oct-2017 14:21:53	19-Oct-2017 14:22:02	3045.08	3035.23
EMXV	60	19-Oct-2017 14:22:02	19-Oct-2017 14:22:20	3035.23	3013.22
EMXV	120	19-Oct-2017 14:22:20	19-Oct-2017 14:23:08	3013.22	2957.04
EMXV	60	19-Oct-2017 14:23:08	19-Oct-2017 14:25:11	2957.04	2811.06
EMXV	120	19-Oct-2017 14:25:11	19-Oct-2017 14:25:46	2811.06	2770.16
EMXV	60	19-Oct-2017 14:25:46	19-Oct-2017 14:26:13	2770.16	2739.02
EMXV	120	19-Oct-2017 14:26:13	19-Oct-2017 14:28:11	2739.02	2602.57
EMXV	90	19-Oct-2017 14:28:11	19-Oct-2017 14:29:16	2602.57	2524.94
EMXV	120	19-Oct-2017 14:29:16	19-Oct-2017 14:31:53	2524.94	2346.4
EMXV	90	19-Oct-2017 14:31:53	19-Oct-2017 14:34:38	2346.4	2156.28

EMXV	60			19-Oct-2017 14:34:38	19-Oct-2017 14:57:41	2156.28	518.66
EMXV	120			19-Oct-2017 14:57:41	19-Oct-2017 14:57:52	518.66	506.77
EMXV	90			19-Oct-2017 14:57:52	19-Oct-2017 15:04:04	506.77	66.89
U-USIT_UFWB	137			19-Oct-2017 13:14:48	19-Oct-2017 13:15:14	7698.99	7680.2
U-USIT_UFWB	107.43			19-Oct-2017 13:15:14	19-Oct-2017 13:16:34	7680.2	7587.06
U-USIT_UFWB	116.85			19-Oct-2017 13:16:34	19-Oct-2017 15:04:04	7587.06	66.89
U-USIT_UFWE	177			19-Oct-2017 13:14:48	19-Oct-2017 13:16:32	7698.99	7588.67
U-USIT_UFWE	186.96			19-Oct-2017 13:16:32	19-Oct-2017 15:04:04	7588.67	66.89
U-USIT_UNWB	106			19-Oct-2017 13:14:48	19-Oct-2017 13:15:10	7698.99	7684.47
U-USIT_UNWB	70.81			19-Oct-2017 13:15:10	19-Oct-2017 13:22:34	7684.47	7162.82
U-USIT_UNWB	78.13			19-Oct-2017 13:22:34	19-Oct-2017 15:04:04	7162.82	66.89
U-USIT_UNWE	146			19-Oct-2017 13:14:48	19-Oct-2017 13:16:21	7698.99	7601.82
U-USIT_UNWE	157.66			19-Oct-2017 13:16:21	19-Oct-2017 15:04:04	7601.82	66.89
WINB	31.88			19-Oct-2017 13:14:48	19-Oct-2017 13:15:21	7698.99	7672.02
WINB	18.16			19-Oct-2017 13:15:21	19-Oct-2017 13:16:16	7672.02	7607.89
WINB	17.39			19-Oct-2017 13:16:16	19-Oct-2017 13:16:52	7607.89	7566.24
WINB	22			19-Oct-2017 13:16:52	19-Oct-2017 13:17:07	7566.24	7547.94
WINB	26.6			19-Oct-2017 13:17:07	19-Oct-2017 13:17:39	7547.94	7510.62
WINB	18.93			19-Oct-2017 13:17:39	19-Oct-2017 13:21:25	7510.62	7246.09
WINB	26.6			19-Oct-2017 13:21:25	19-Oct-2017 15:04:04	7246.09	66.89
WINE	71.88			19-Oct-2017 13:14:48	19-Oct-2017 13:15:19	7698.99	7673.81
WINE	48.85			19-Oct-2017 13:15:19	19-Oct-2017 13:15:23	7673.81	7669.4
WINE	54.99			19-Oct-2017 13:15:23	19-Oct-2017 13:16:17	7669.4	7605.86
WINE	47.32			19-Oct-2017 13:16:17	19-Oct-2017 13:16:53	7605.86	7564.84
WINE	63.44			19-Oct-2017 13:16:53	19-Oct-2017 13:16:56	7564.84	7561.28
WINE	48.09			19-Oct-2017 13:16:56	19-Oct-2017 13:16:59	7561.28	7558.01
WINE	65.74			19-Oct-2017 13:16:59	19-Oct-2017 13:17:02	7558.01	7554.49
WINE	54.23			19-Oct-2017 13:17:02	19-Oct-2017 13:17:06	7554.49	7549.65
WINE	68.81			19-Oct-2017 13:17:06	19-Oct-2017 13:17:43	7549.65	7506.2
WINE	66.51			19-Oct-2017 13:17:43	19-Oct-2017 13:17:47	7506.2	7501.47
WINE	62.67			19-Oct-2017 13:17:47	19-Oct-2017 13:21:22	7501.47	7249.28
WINE	68.04			19-Oct-2017 13:21:22	19-Oct-2017 13:21:35	7249.28	7233.3
WINE	73.41			19-Oct-2017 13:21:35	19-Oct-2017 13:21:37	7233.3	7230.69
WINE	78.78			19-Oct-2017 13:21:37	19-Oct-2017 15:04:04	7230.69	66.89

All depth are at tool zero.

ONE

IBC SLG Composite

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	66.89 ft	7698.99 ft	19-Oct-2017 1:14:48 PM	19-Oct-2017 3:04:04 PM	ON	8.59 ft	Yes

All depths are referenced to toolstring zero

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

- 1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :

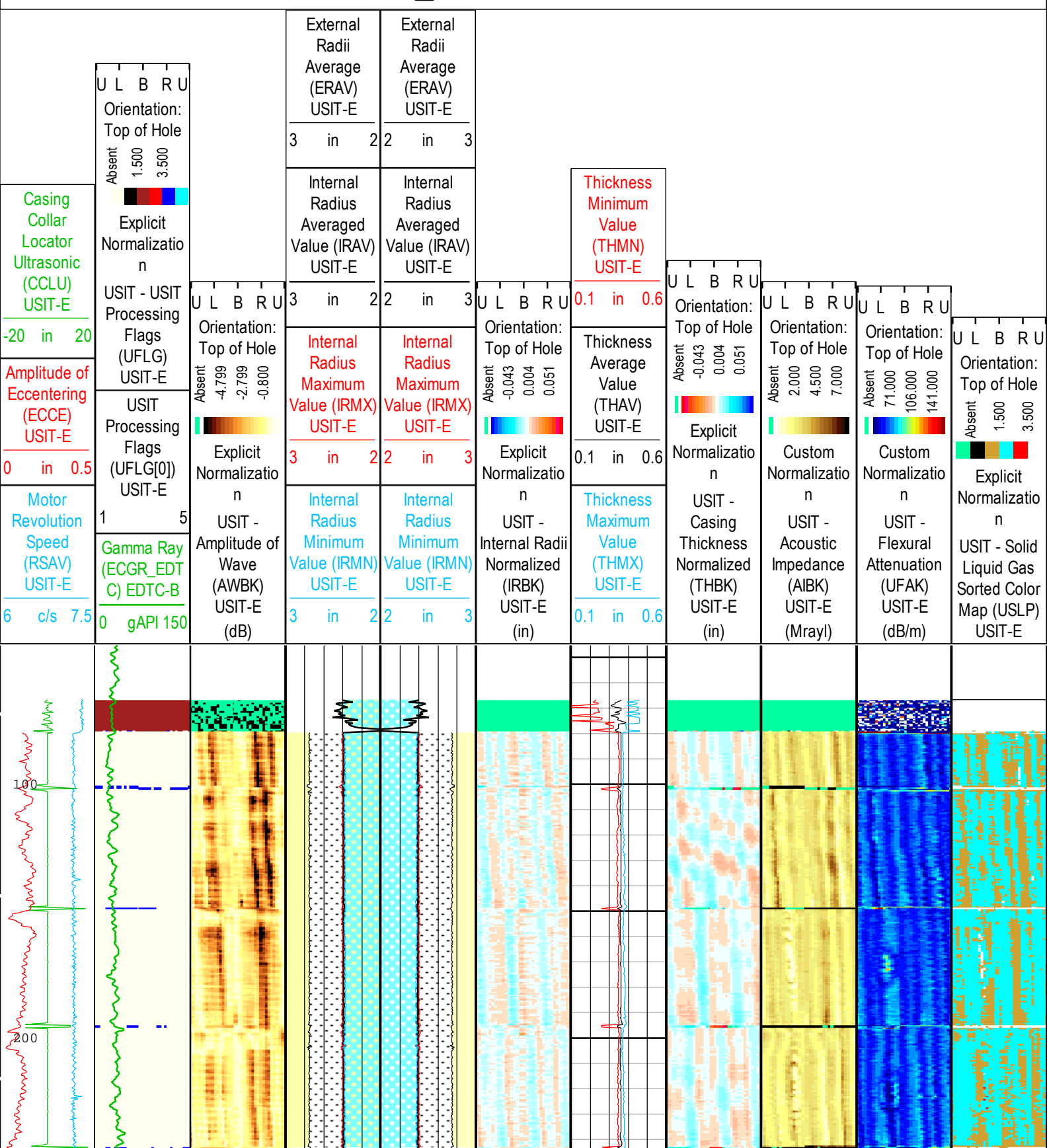
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

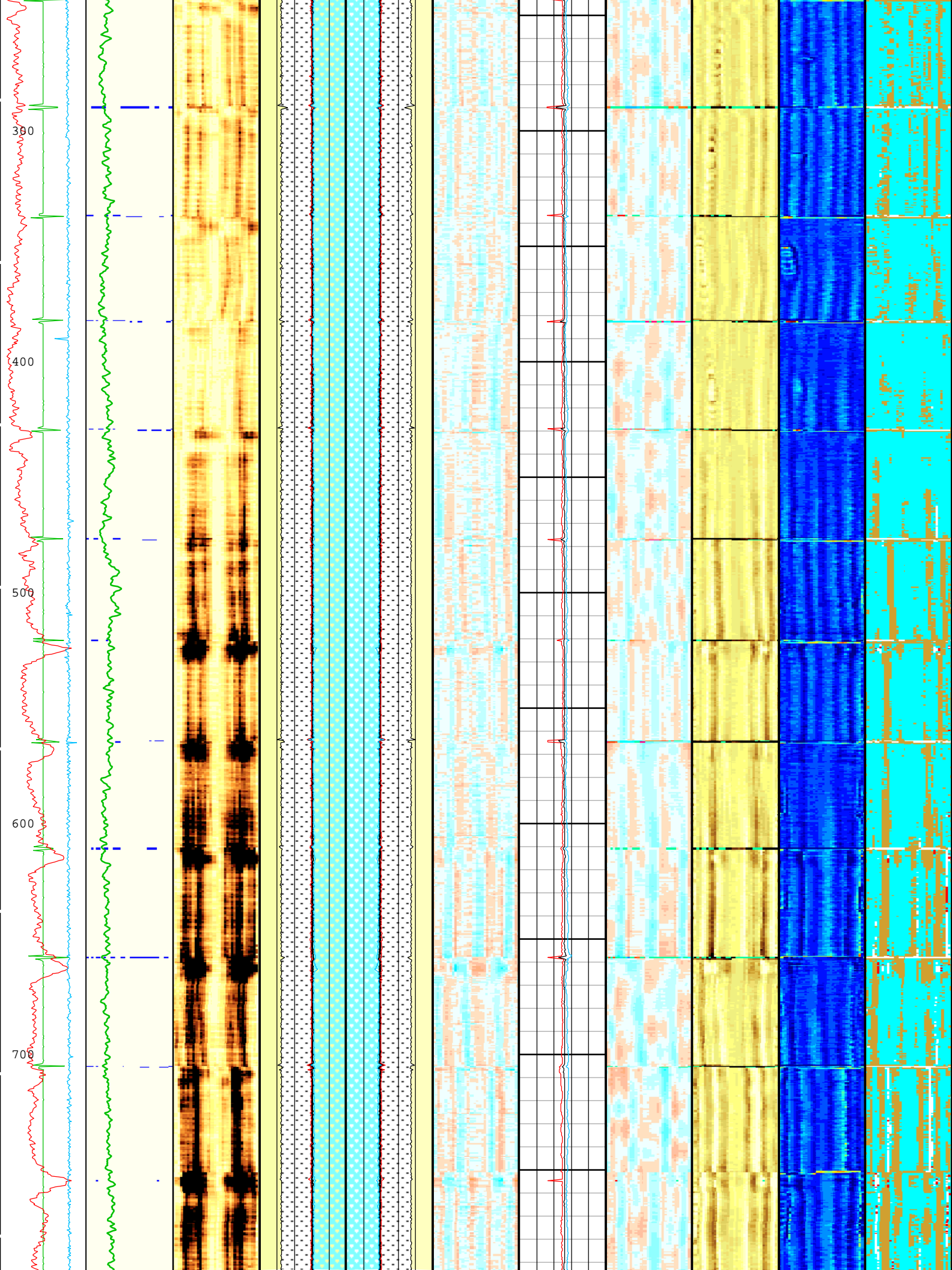
Pulse Origin Not Detected

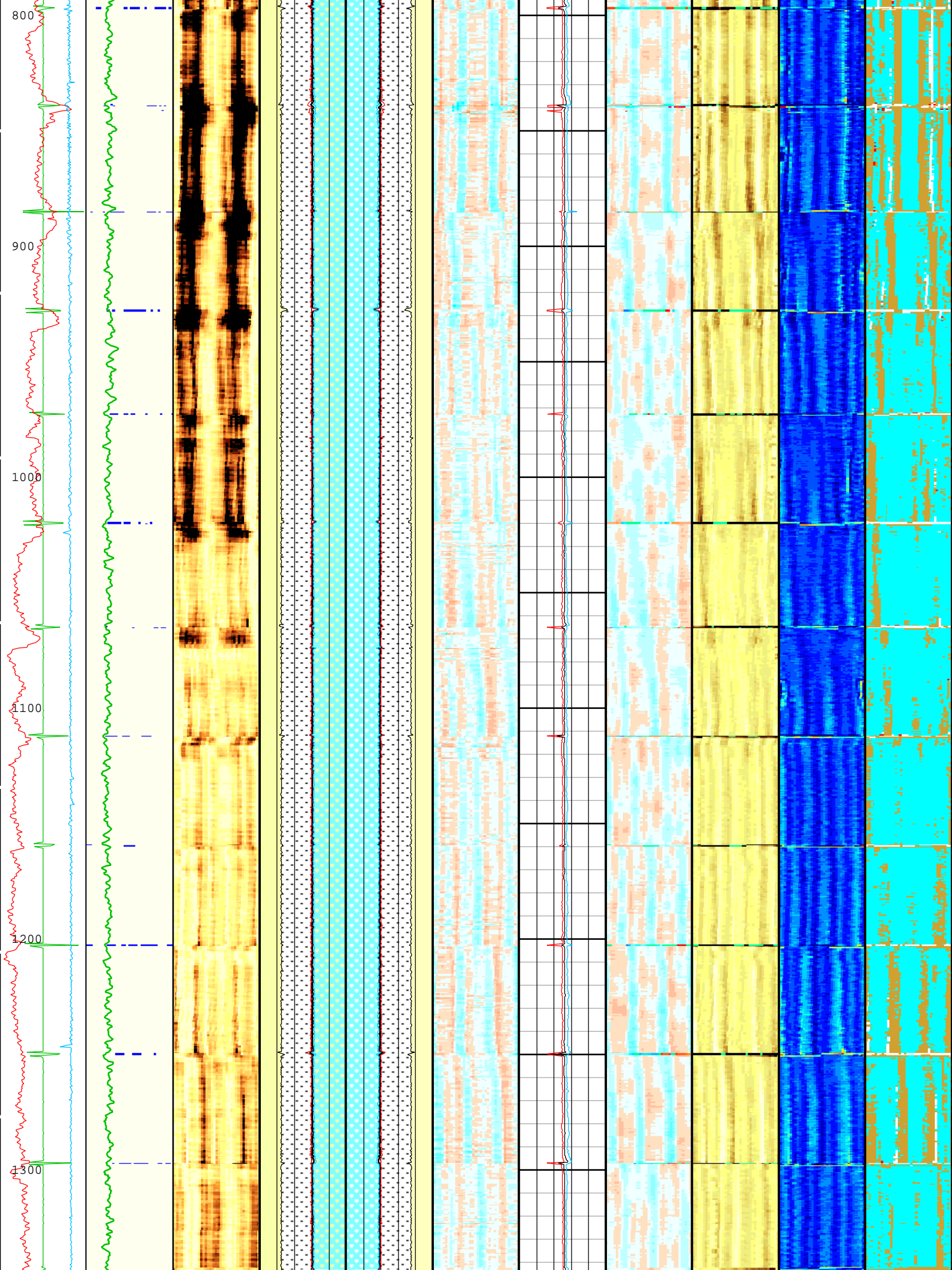
WINLEN Error

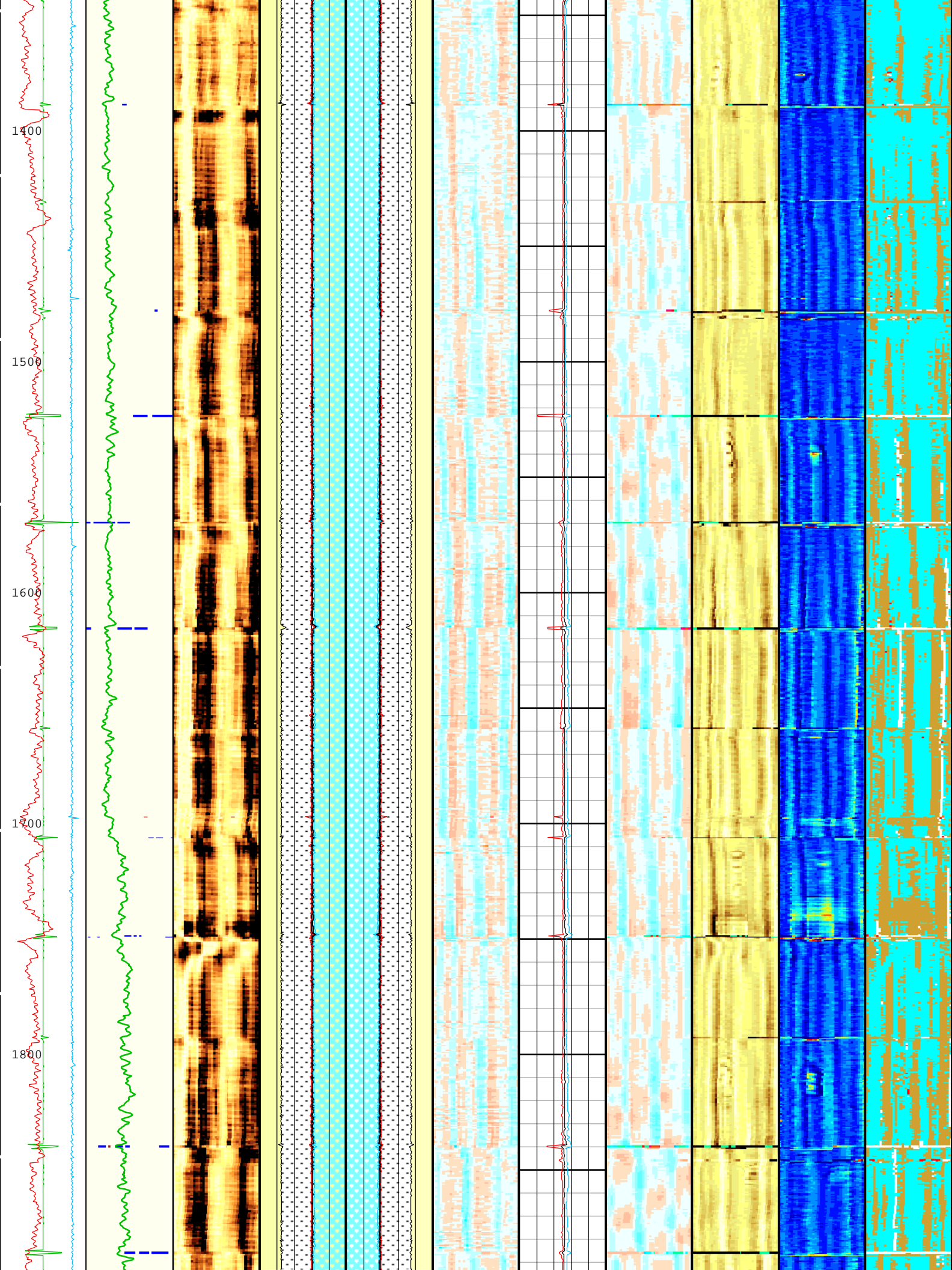
Casing Thickness Error

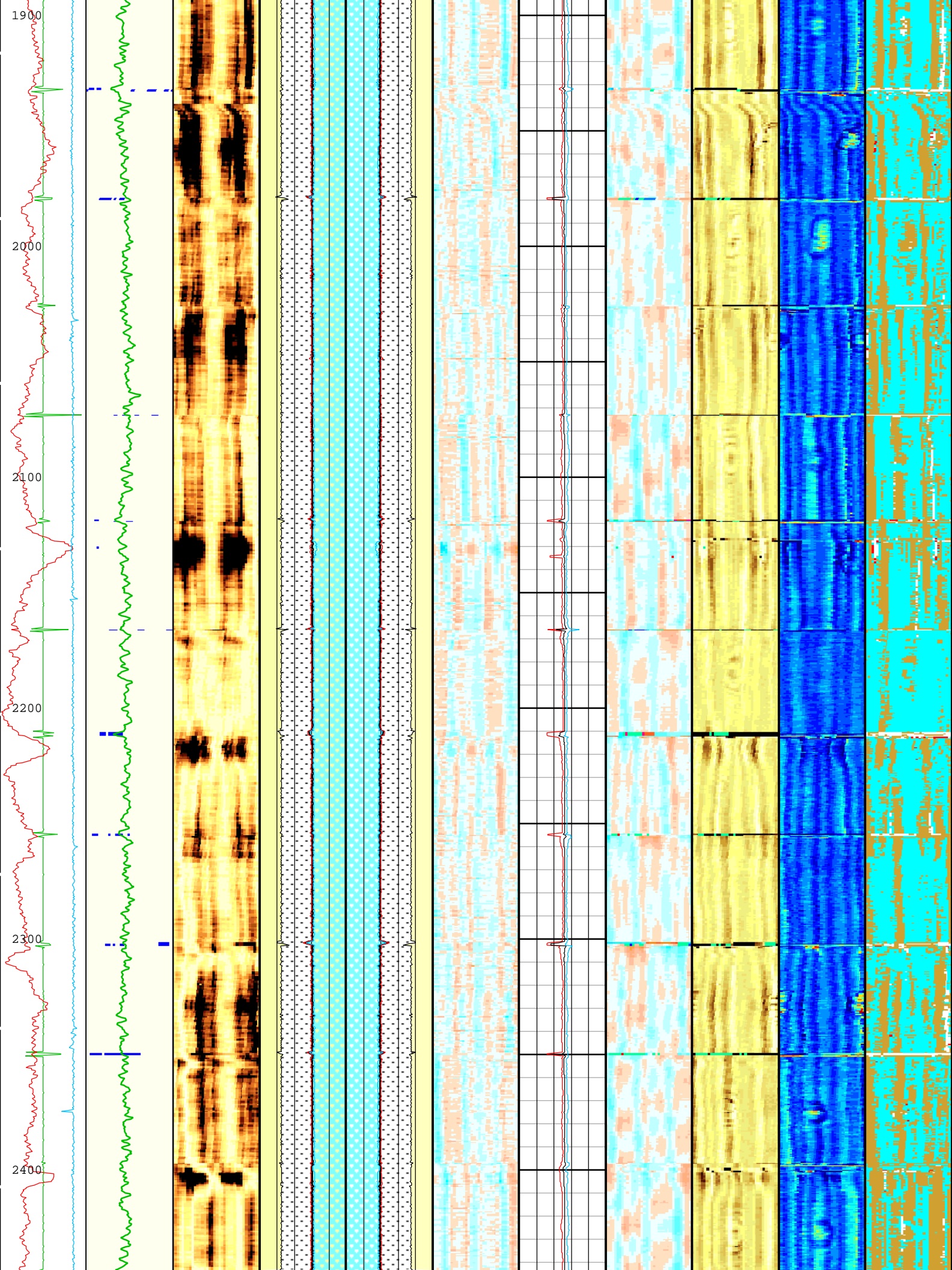
Loop Processing Error

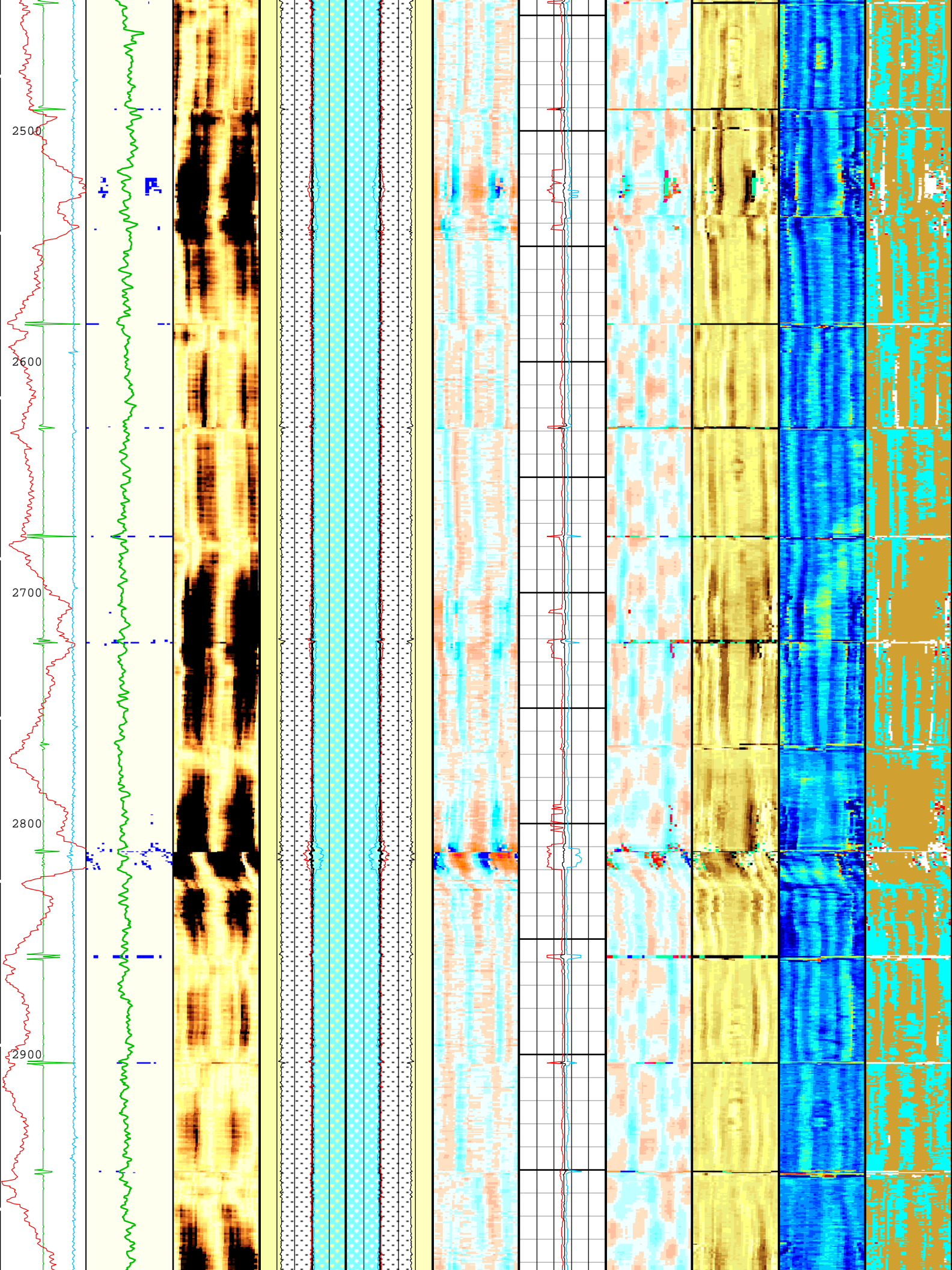


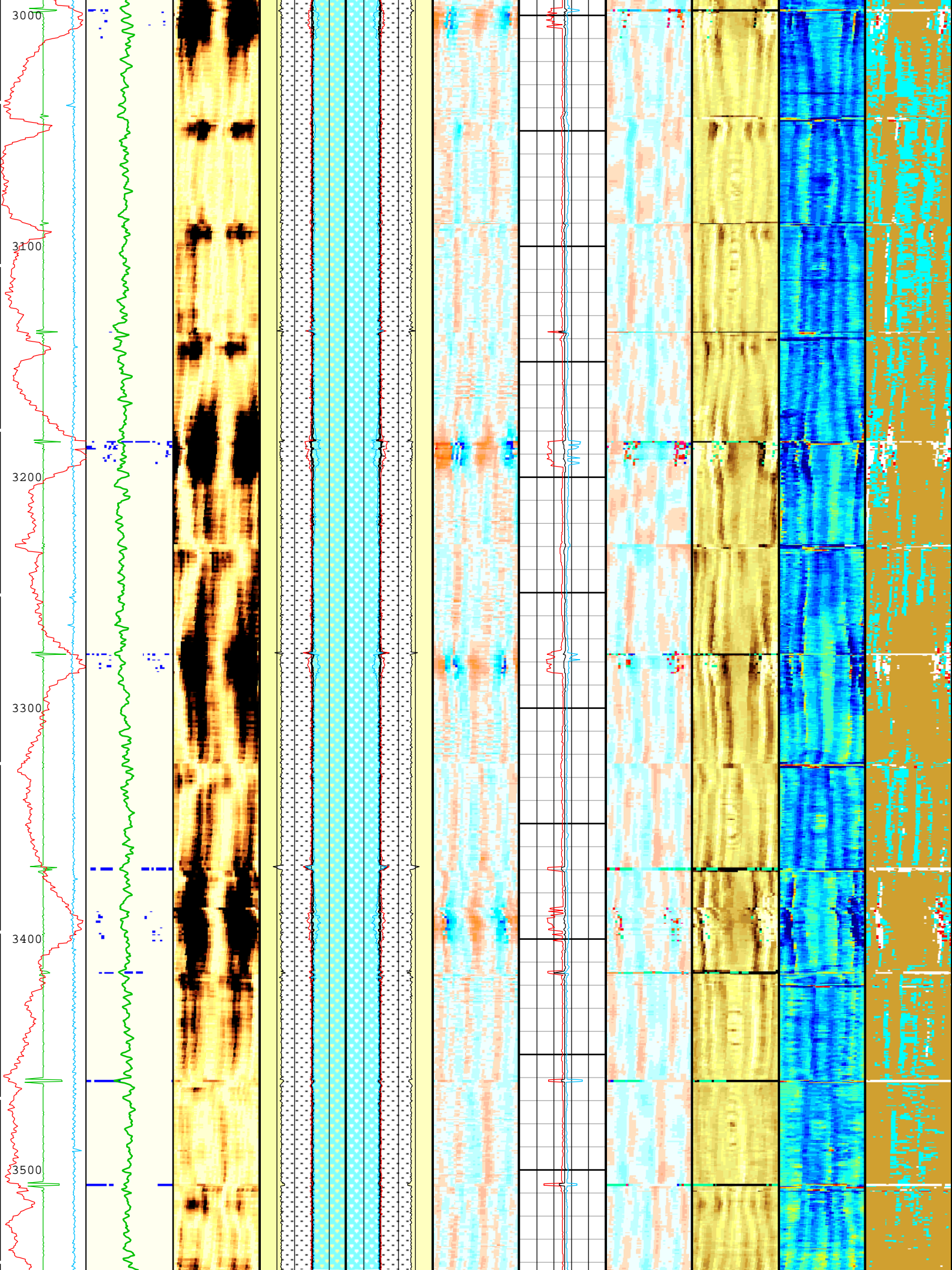


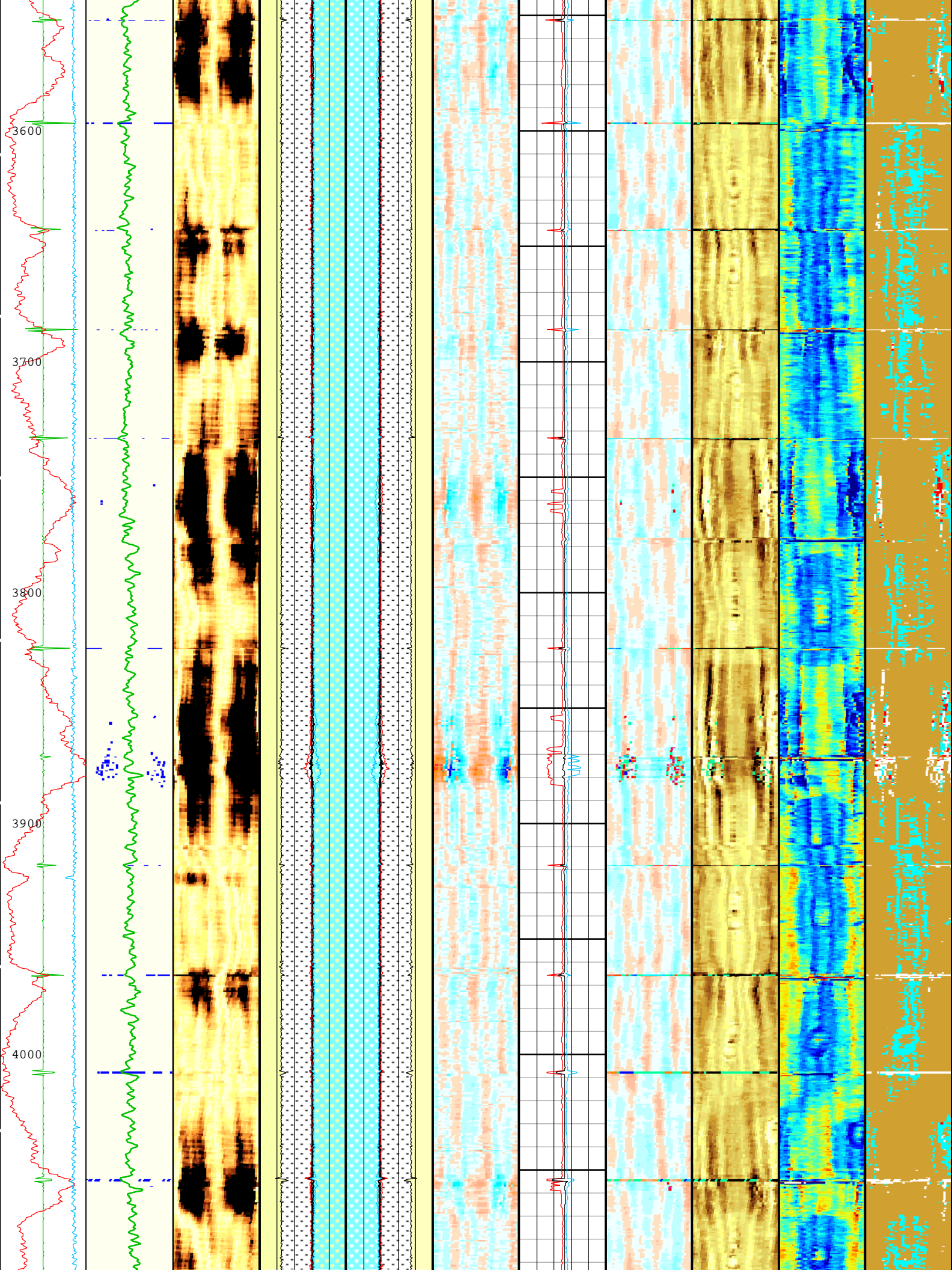


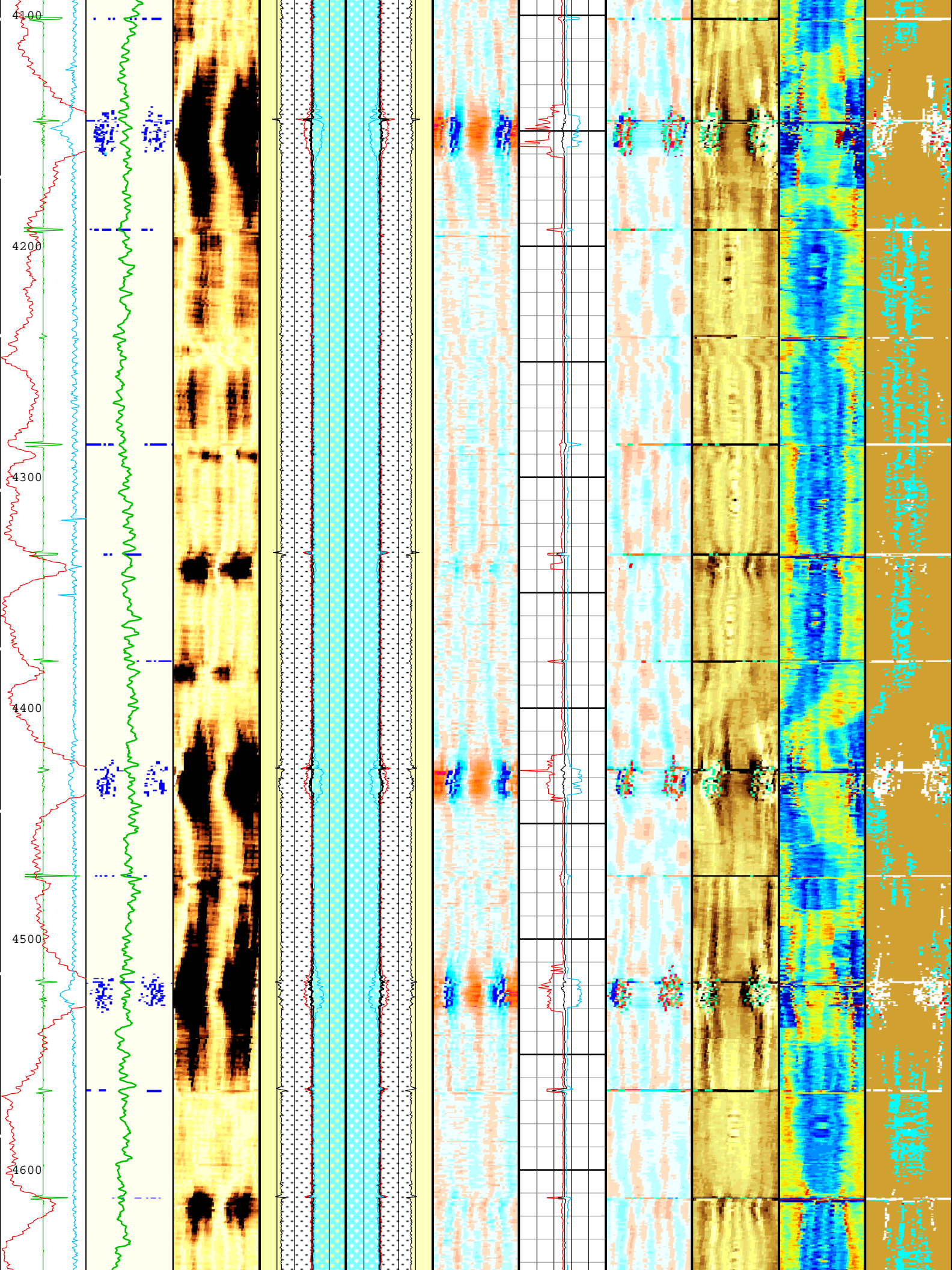


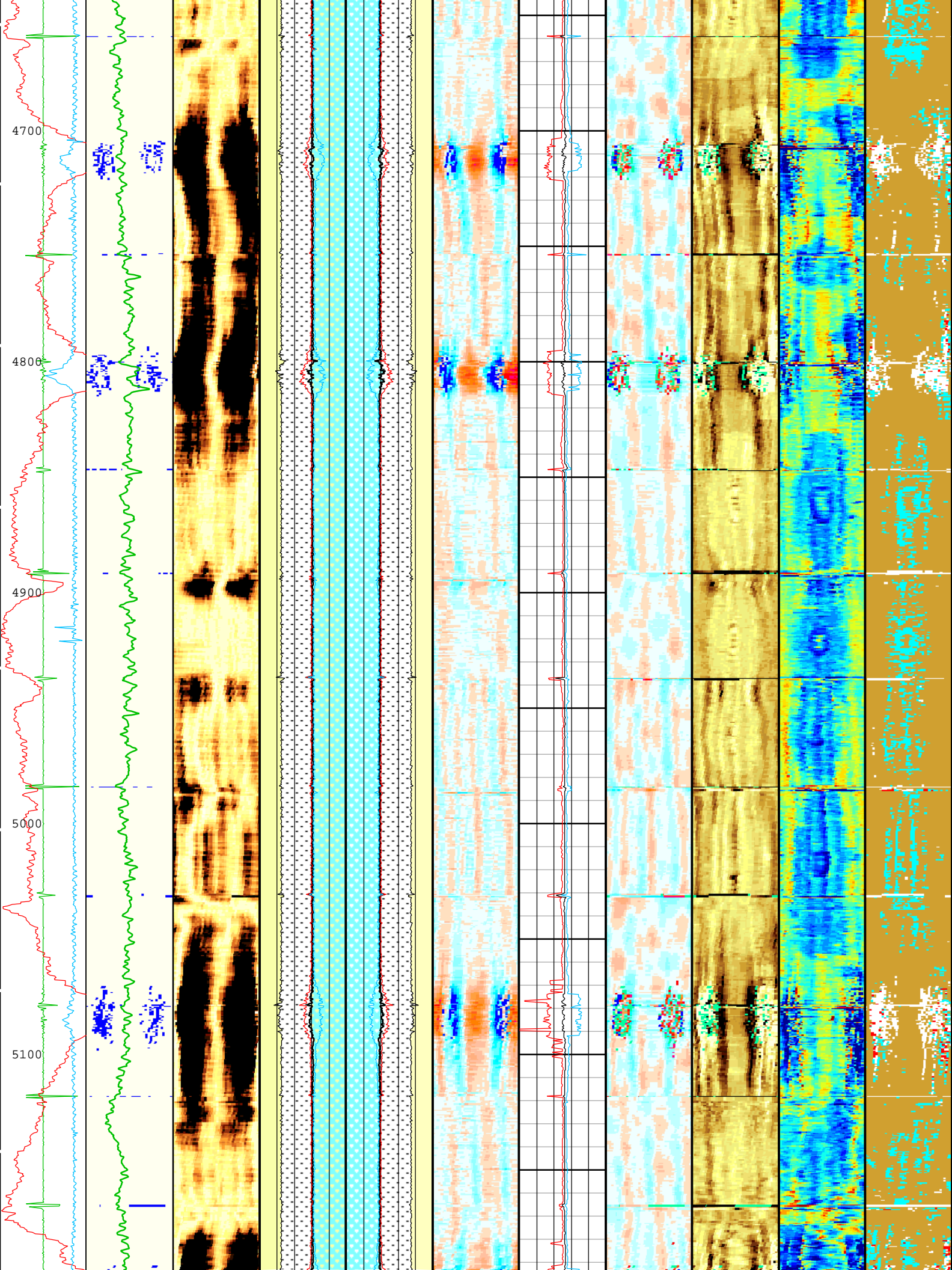


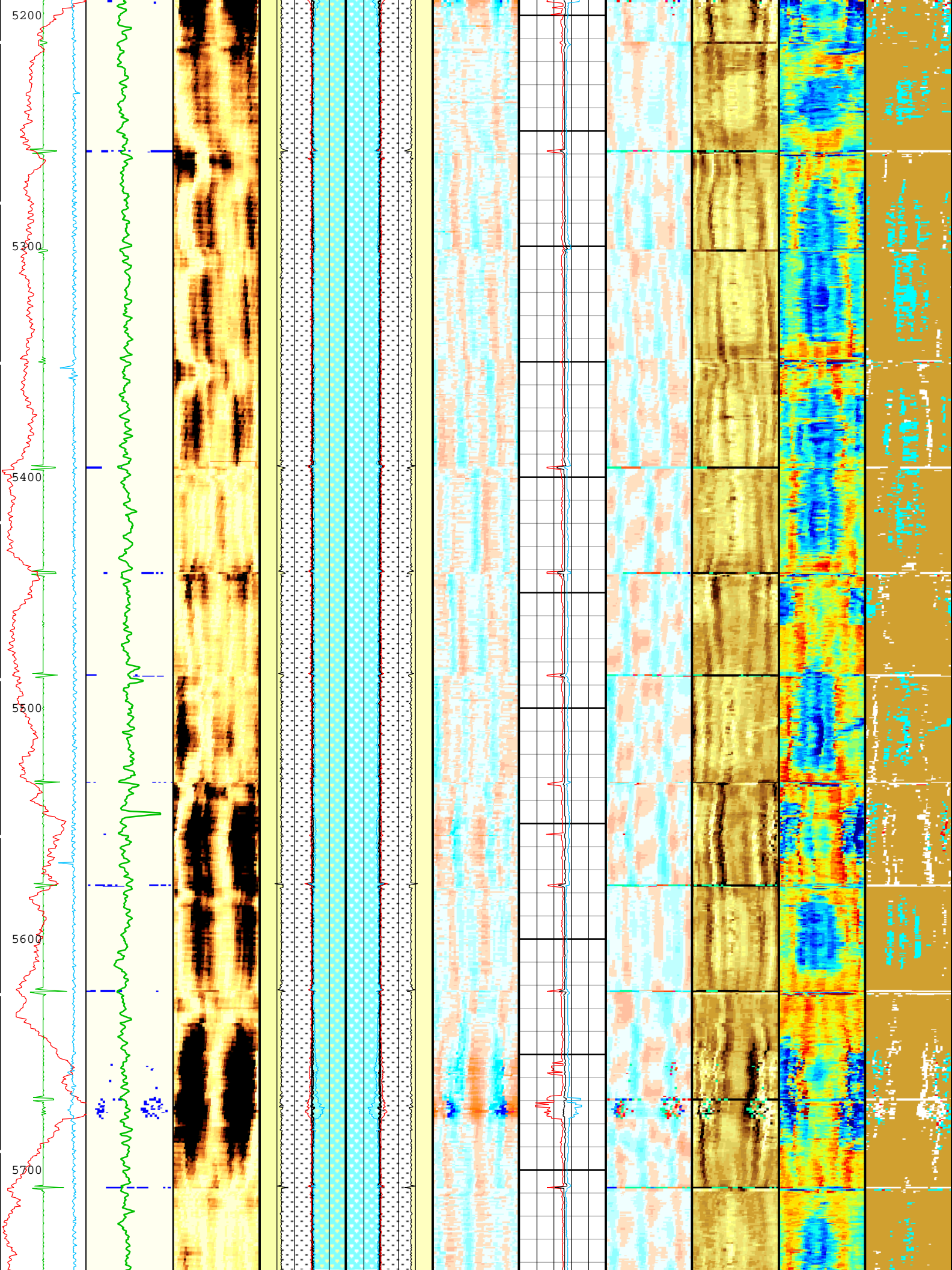


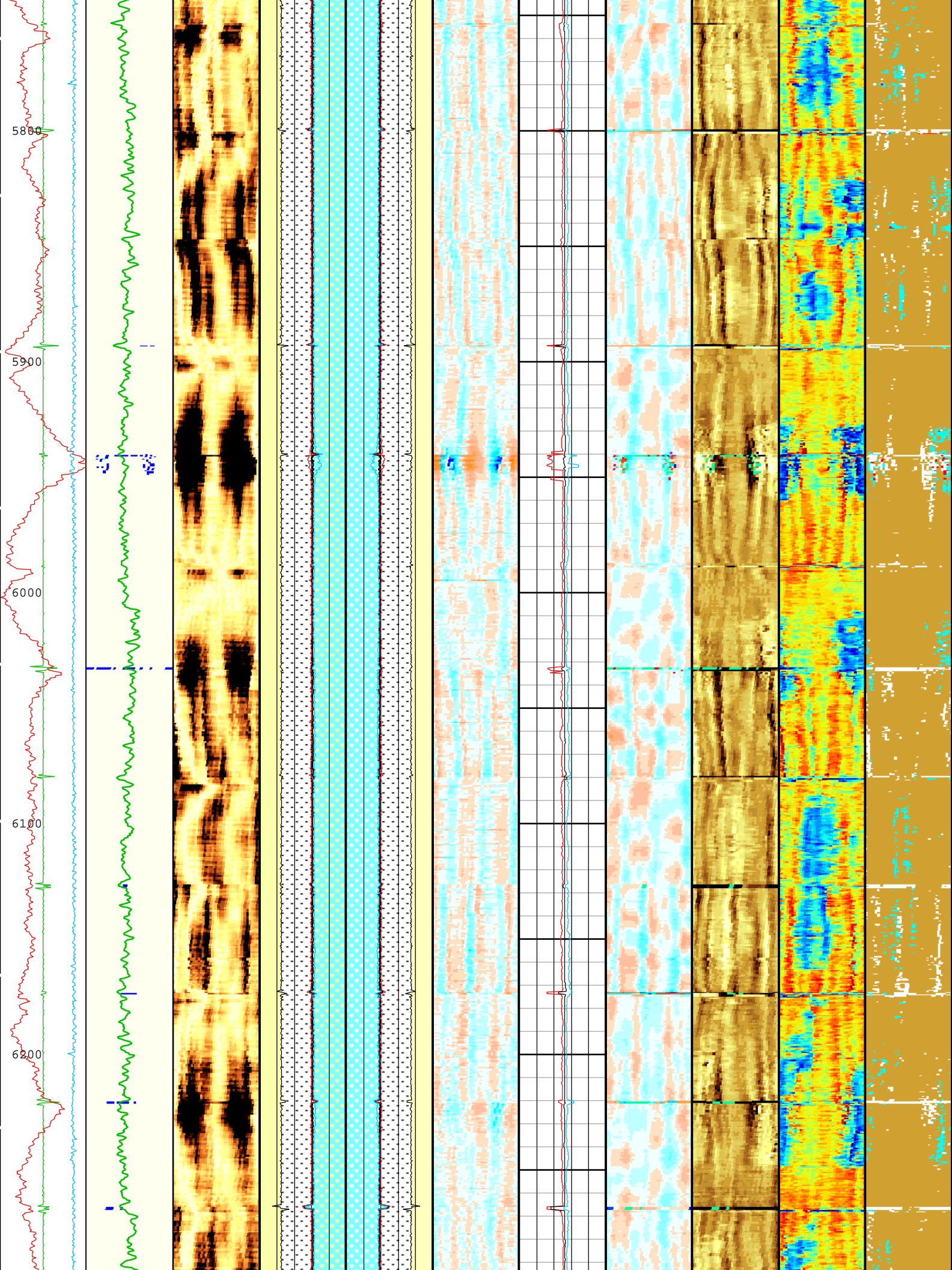


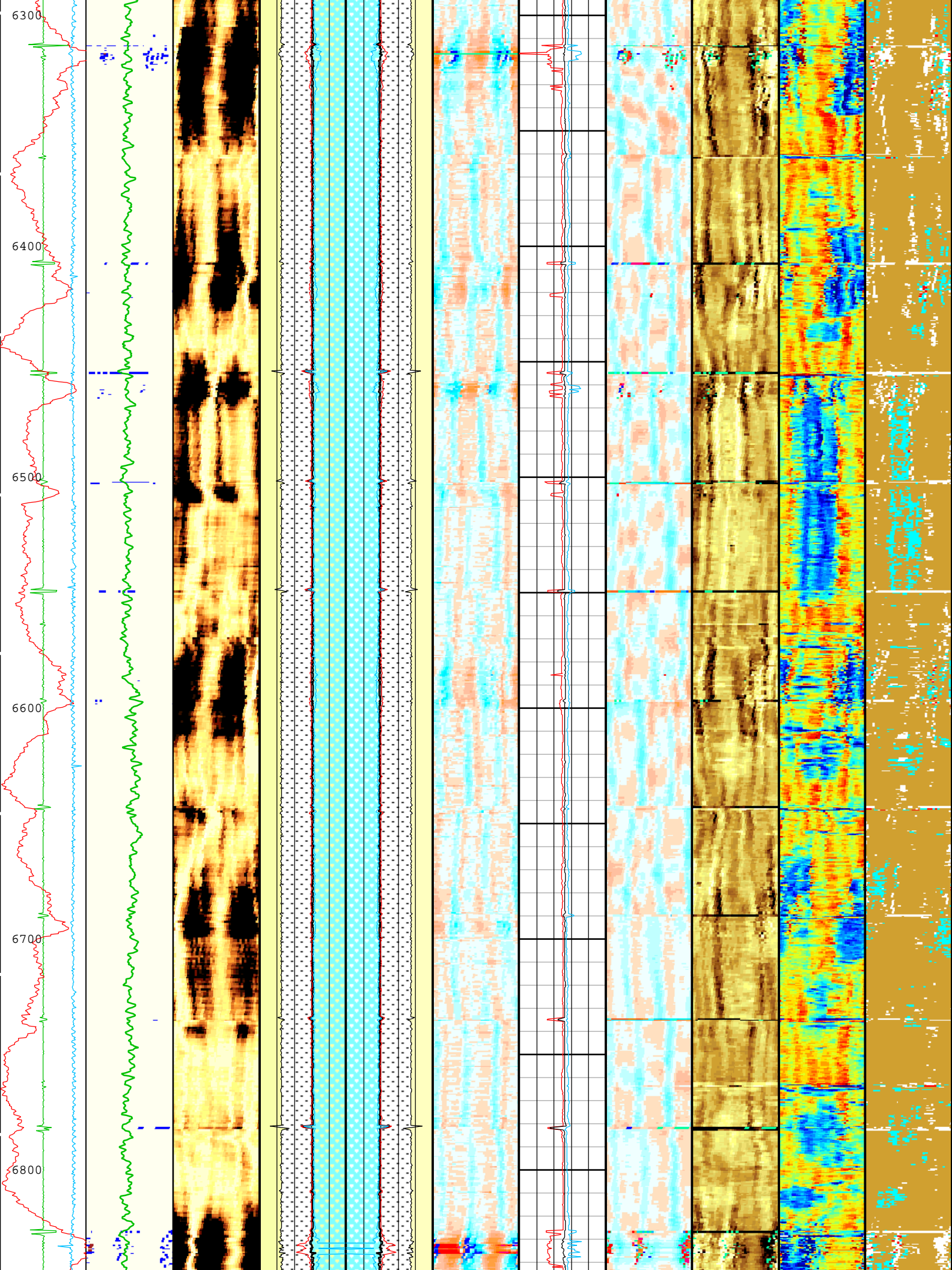


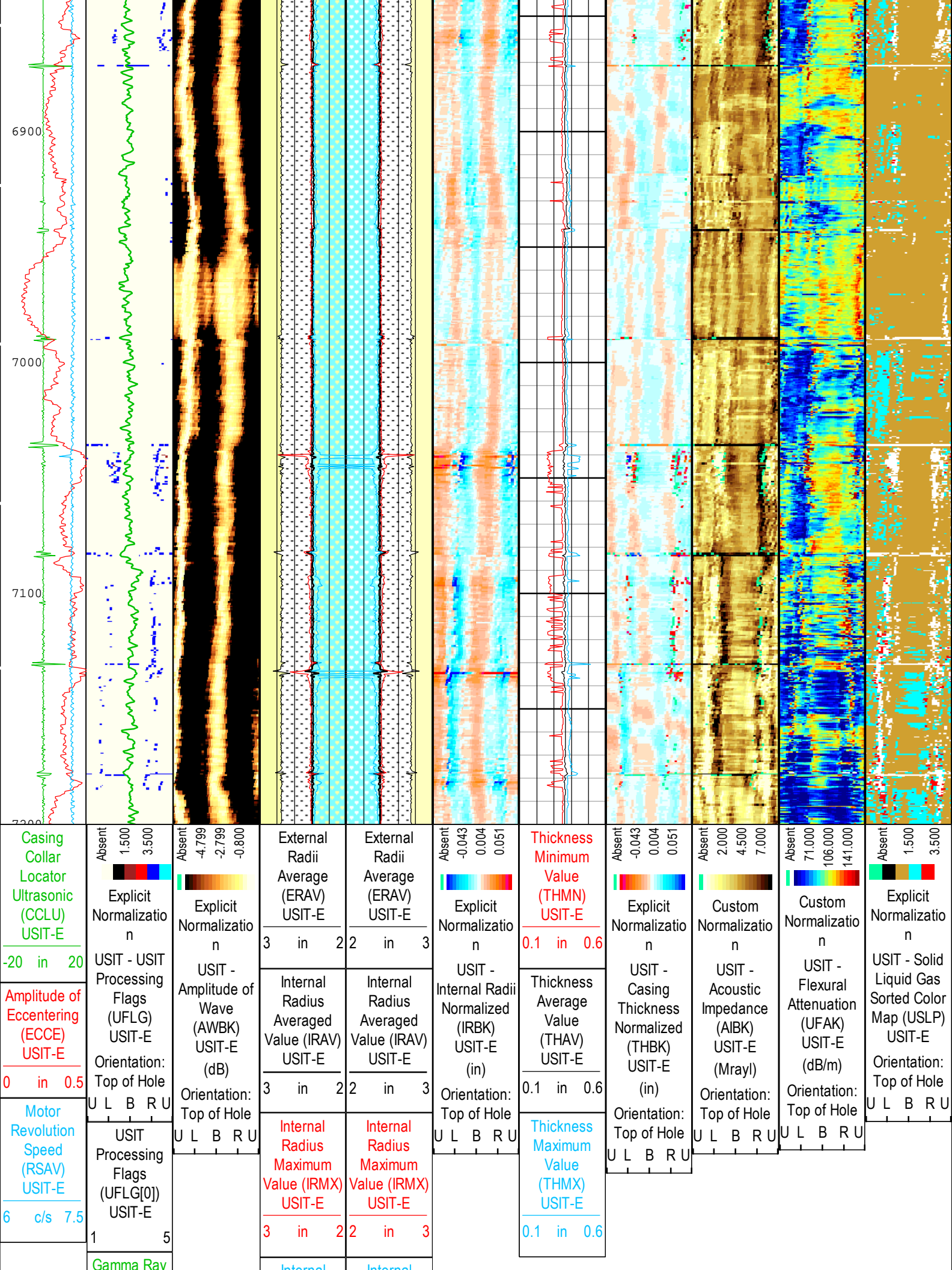

















USIT Processing Flags (UFLG[0]) USIT-E				
1 - UFLG 1 Value within [0.0 - 1.5] - :		UTIM Error		
2 - UFLG 2 Value within [1.5 - 2.5] - :		Pulse Origin Not Detected		
3 - UFLG 3 Value within [2.5 - 3.5] - :		WINLEN Error		
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :		Casing Thickness Error		
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :		Loop Processing Error		
TIME_1900 - Time Marked every 60.00 (s)				
Description: USI IBC SLG Composite Format: Log (IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth				
Creation Date: 20-Oct-2017 03:51:13				

ONE: Parameters

Tool Control Parameters	
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[illegible]

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	120	19-Oct-2017 13:14:48	19-Oct-2017 13:23:41	7698.99	7082.94
EMXV	125	19-Oct-2017 13:23:41	19-Oct-2017 13:25:21	7082.94	6967.52
EMXV	80	19-Oct-2017 13:25:21	19-Oct-2017 13:25:40	6967.52	6945.53
EMXV	125	19-Oct-2017 13:25:40	19-Oct-2017 13:28:59	6945.53	6715.32
EMXV	80	19-Oct-2017 13:28:59	19-Oct-2017 13:29:34	6715.32	6675.74
EMXV	90	19-Oct-2017 13:29:34	19-Oct-2017 13:29:45	6675.74	6662.21
EMXV	80	19-Oct-2017 13:29:45	19-Oct-2017 13:30:53	6662.21	6583.75
EMXV	120	19-Oct-2017 13:30:53	19-Oct-2017 13:31:31	6583.75	6540.51
EMXV	80	19-Oct-2017 13:31:31	19-Oct-2017 13:33:40	6540.51	6391.78
EMXV	120	19-Oct-2017 13:33:40	19-Oct-2017 13:34:00	6391.78	6367.98
EMXV	80	19-Oct-2017 13:34:00	19-Oct-2017 13:34:30	6367.98	6332.41
EMXV	120	19-Oct-2017 13:34:30	19-Oct-2017 13:38:26	6332.41	6069.12
EMXV	80	19-Oct-2017 13:38:26	19-Oct-2017 13:43:48	6069.12	5704.59
EMXV	60	19-Oct-2017 13:43:48	19-Oct-2017 13:44:26	5704.59	5662.28
EMXV	120	19-Oct-2017 13:44:26	19-Oct-2017 13:44:53	5662.28	5631.66
EMXV	60	19-Oct-2017 13:44:53	19-Oct-2017 13:45:58	5631.66	5558
EMXV	120	19-Oct-2017 13:45:58	19-Oct-2017 13:48:21	5558	5394.96
EMXV	60	19-Oct-2017 13:48:21	19-Oct-2017 13:53:04	5394.96	5067.19
EMXV	120	19-Oct-2017 13:53:04	19-Oct-2017 13:53:29	5067.19	5038.43
EMXV	60	19-Oct-2017 13:53:29	19-Oct-2017 13:56:26	5038.43	4832.34
EMXV	120	19-Oct-2017 13:56:26	19-Oct-2017 13:57:25	4832.34	4763.54
EMXV	60	19-Oct-2017 13:57:25	19-Oct-2017 13:57:56	4763.54	4726.94
EMXV	120	19-Oct-2017 13:57:56	19-Oct-2017 13:58:49	4726.94	4666.22
EMXV	60	19-Oct-2017 13:58:49	19-Oct-2017 13:59:36	4666.22	4612.54
EMXV	120	19-Oct-2017 13:59:36	19-Oct-2017 13:59:47	4612.54	4599.09
EMXV	60	19-Oct-2017 13:59:47	19-Oct-2017 14:01:00	4599.09	4514.05

EMXV	120	19-Oct-2017 14:01:00	19-Oct-2017 14:03:54	4514.05	4311.64
EMXV	60	19-Oct-2017 14:03:54	19-Oct-2017 14:07:44	4311.64	4051.51
EMXV	120	19-Oct-2017 14:07:44	19-Oct-2017 14:16:05	4051.51	3462.25
EMXV	60	19-Oct-2017 14:16:05	19-Oct-2017 14:17:01	3462.25	3394.52
EMXV	120	19-Oct-2017 14:17:01	19-Oct-2017 14:20:53	3394.52	3116.31
EMXV	60	19-Oct-2017 14:20:53	19-Oct-2017 14:21:53	3116.31	3045.08
EMXV	120	19-Oct-2017 14:21:53	19-Oct-2017 14:22:02	3045.08	3035.23
EMXV	60	19-Oct-2017 14:22:02	19-Oct-2017 14:22:20	3035.23	3013.22
EMXV	120	19-Oct-2017 14:22:20	19-Oct-2017 14:23:08	3013.22	2957.04
EMXV	60	19-Oct-2017 14:23:08	19-Oct-2017 14:25:11	2957.04	2811.06
EMXV	120	19-Oct-2017 14:25:11	19-Oct-2017 14:25:46	2811.06	2770.16
EMXV	60	19-Oct-2017 14:25:46	19-Oct-2017 14:26:13	2770.16	2739.02
EMXV	120	19-Oct-2017 14:26:13	19-Oct-2017 14:28:11	2739.02	2602.57
EMXV	90	19-Oct-2017 14:28:11	19-Oct-2017 14:29:16	2602.57	2524.94
EMXV	120	19-Oct-2017 14:29:16	19-Oct-2017 14:31:53	2524.94	2346.4
EMXV	90	19-Oct-2017 14:31:53	19-Oct-2017 14:34:38	2346.4	2156.28
EMXV	60	19-Oct-2017 14:34:38	19-Oct-2017 14:57:41	2156.28	518.66
EMXV	120	19-Oct-2017 14:57:41	19-Oct-2017 14:57:52	518.66	506.77
EMXV	90	19-Oct-2017 14:57:52	19-Oct-2017 15:04:04	506.77	66.89
U-USIT_UFWB	137	19-Oct-2017 13:14:48	19-Oct-2017 13:15:14	7698.99	7680.2
U-USIT_UFWB	107.43	19-Oct-2017 13:15:14	19-Oct-2017 13:16:34	7680.2	7587.06
U-USIT_UFWB	116.85	19-Oct-2017 13:16:34	19-Oct-2017 15:04:04	7587.06	66.89
U-USIT_UFWE	177	19-Oct-2017 13:14:48	19-Oct-2017 13:16:32	7698.99	7588.67
U-USIT_UFWE	186.96	19-Oct-2017 13:16:32	19-Oct-2017 15:04:04	7588.67	66.89
U-USIT_UNWB	106	19-Oct-2017 13:14:48	19-Oct-2017 13:15:10	7698.99	7684.47
U-USIT_UNWB	70.81	19-Oct-2017 13:15:10	19-Oct-2017 13:22:34	7684.47	7162.82
U-USIT_UNWB	78.13	19-Oct-2017 13:22:34	19-Oct-2017 15:04:04	7162.82	66.89
U-USIT_UNWE	146	19-Oct-2017 13:14:48	19-Oct-2017 13:16:21	7698.99	7601.82
U-USIT_UNWE	157.66	19-Oct-2017 13:16:21	19-Oct-2017 15:04:04	7601.82	66.89
WINB	31.88	19-Oct-2017 13:14:48	19-Oct-2017 13:15:21	7698.99	7672.02
WINB	18.16	19-Oct-2017 13:15:21	19-Oct-2017 13:16:16	7672.02	7607.89
WINB	17.39	19-Oct-2017 13:16:16	19-Oct-2017 13:16:52	7607.89	7566.24
WINB	22	19-Oct-2017 13:16:52	19-Oct-2017 13:17:07	7566.24	7547.94
WINB	26.6	19-Oct-2017 13:17:07	19-Oct-2017 13:17:39	7547.94	7510.62
WINB	18.93	19-Oct-2017 13:17:39	19-Oct-2017 13:21:25	7510.62	7246.09
WINB	26.6	19-Oct-2017 13:21:25	19-Oct-2017 15:04:04	7246.09	66.89
WINE	71.88	19-Oct-2017 13:14:48	19-Oct-2017 13:15:19	7698.99	7673.81
WINE	48.85	19-Oct-2017 13:15:19	19-Oct-2017 13:15:23	7673.81	7669.4
WINE	54.99	19-Oct-2017 13:15:23	19-Oct-2017 13:16:17	7669.4	7605.86
WINE	47.32	19-Oct-2017 13:16:17	19-Oct-2017 13:16:53	7605.86	7564.84
WINE	63.44	19-Oct-2017 13:16:53	19-Oct-2017 13:16:56	7564.84	7561.28
WINE	48.09	19-Oct-2017 13:16:56	19-Oct-2017 13:16:59	7561.28	7558.01
WINE	65.74	19-Oct-2017 13:16:59	19-Oct-2017 13:17:02	7558.01	7554.49
WINE	54.23	19-Oct-2017 13:17:02	19-Oct-2017 13:17:06	7554.49	7549.65

WINE	68.81	19-Oct-2017 13:17:06	19-Oct-2017 13:17:43	7549.65	7506.2
WINE	66.51	19-Oct-2017 13:17:43	19-Oct-2017 13:17:47	7506.2	7501.47
WINE	62.67	19-Oct-2017 13:17:47	19-Oct-2017 13:21:22	7501.47	7249.28
WINE	68.04	19-Oct-2017 13:21:22	19-Oct-2017 13:21:35	7249.28	7233.3
WINE	73.41	19-Oct-2017 13:21:35	19-Oct-2017 13:21:37	7233.3	7230.69
WINE	78.78	19-Oct-2017 13:21:37	19-Oct-2017 15:04:04	7230.69	66.89

All depth are at tool zero.

ONE

IBC Goodwin Compressed

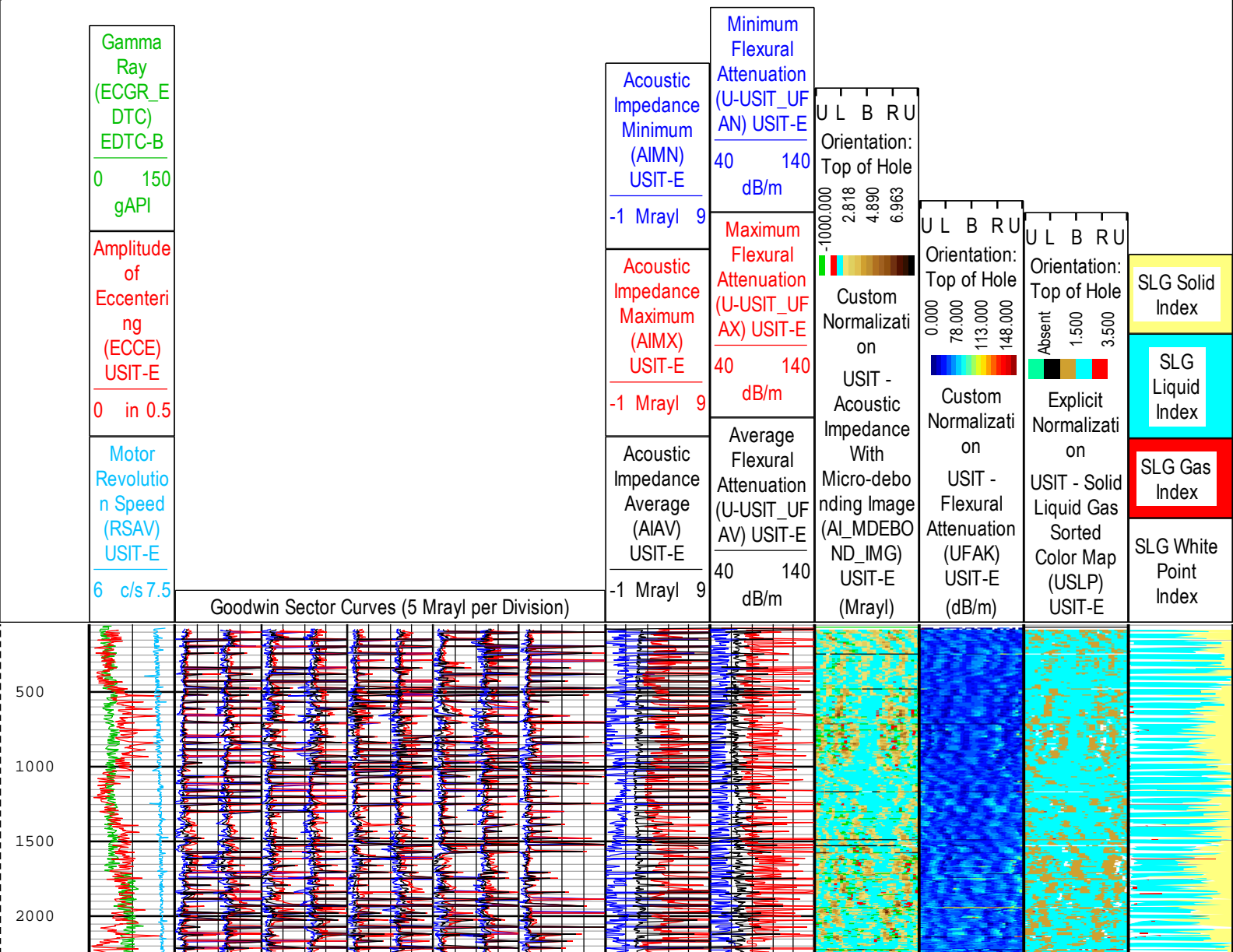
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	66.89 ft	7698.99 ft	19-Oct-2017 1:14:48 PM	19-Oct-2017 3:04:04 PM	ON	8.59 ft	Yes

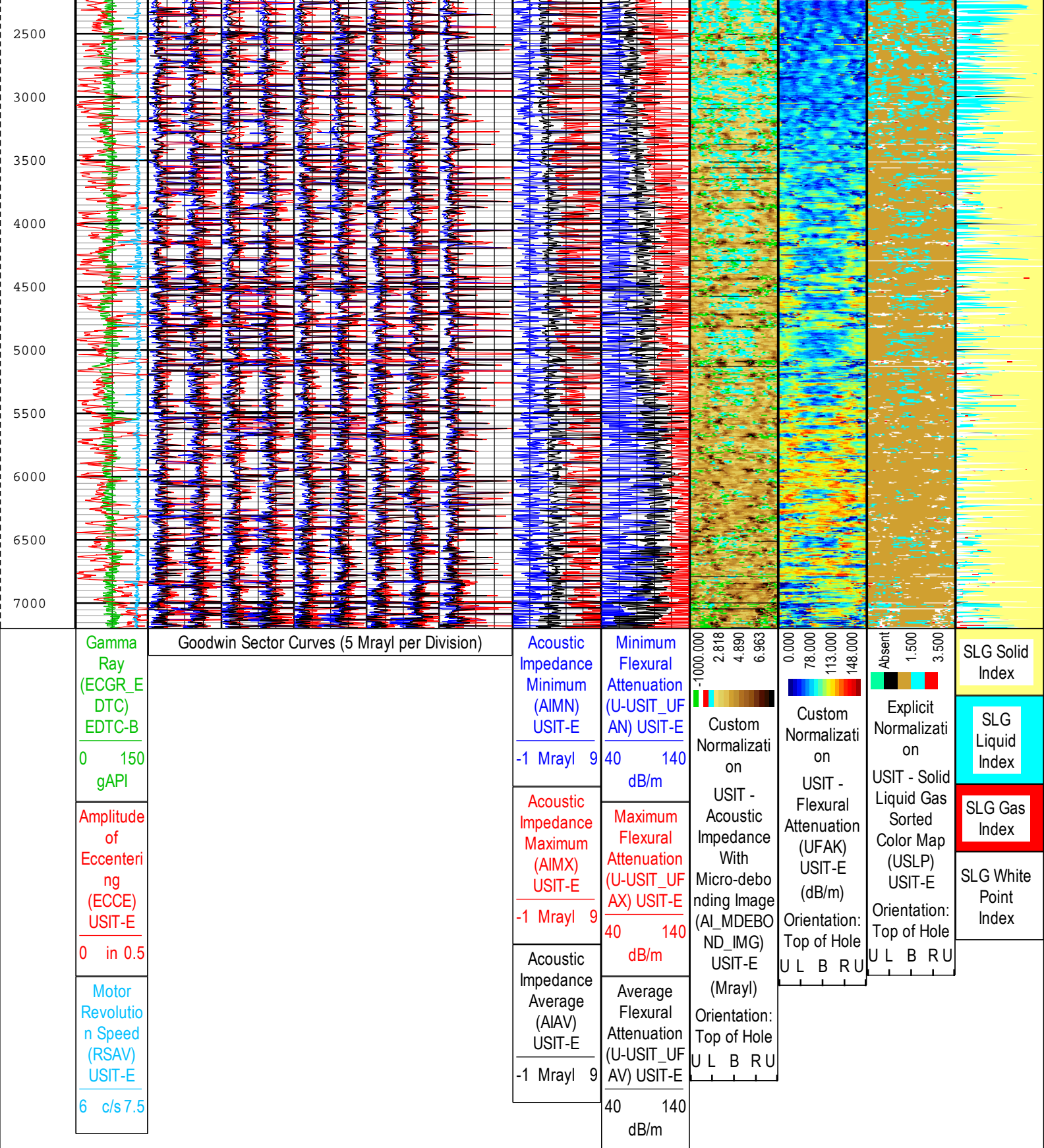
All depths are referenced to toolstring zero

Log	Company:CRESTONE PEAK RESOURCES OPERATING LLC	Well:HWY 52 4V-32H-O268
	ONE: Log[4]:Up:S006	

Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2017 03:51:21

TIME_1900 - Time Marked every 60.00 (s)





TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2017 03:51:21

ONE	
IBC SLG	
Software Version	
Acquisition System	Version

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[2]:Up	Up	1241.56 ft	1463.58 ft	19-Oct-2017 12:46:09 PM	19-Oct-2017 12:49:38 PM	ON	2.08 ft	Yes

All depths are referenced to toolstring zero

Log

Company:CRESTONE PEAK RESOURCES OPERATING LLC






Well:HWY 52 4V-32H-O268

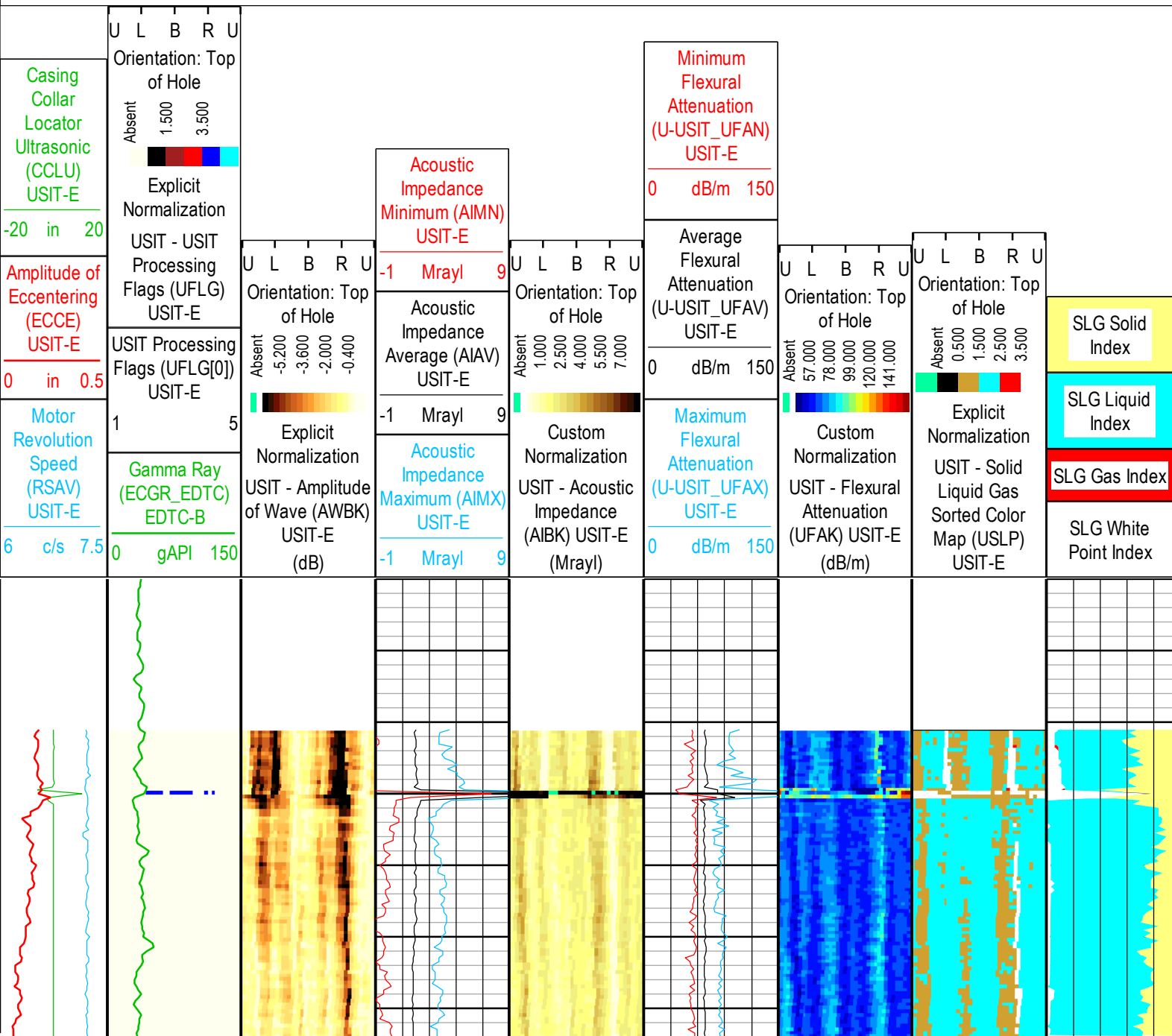
ONE: Log[2]:Up:S006

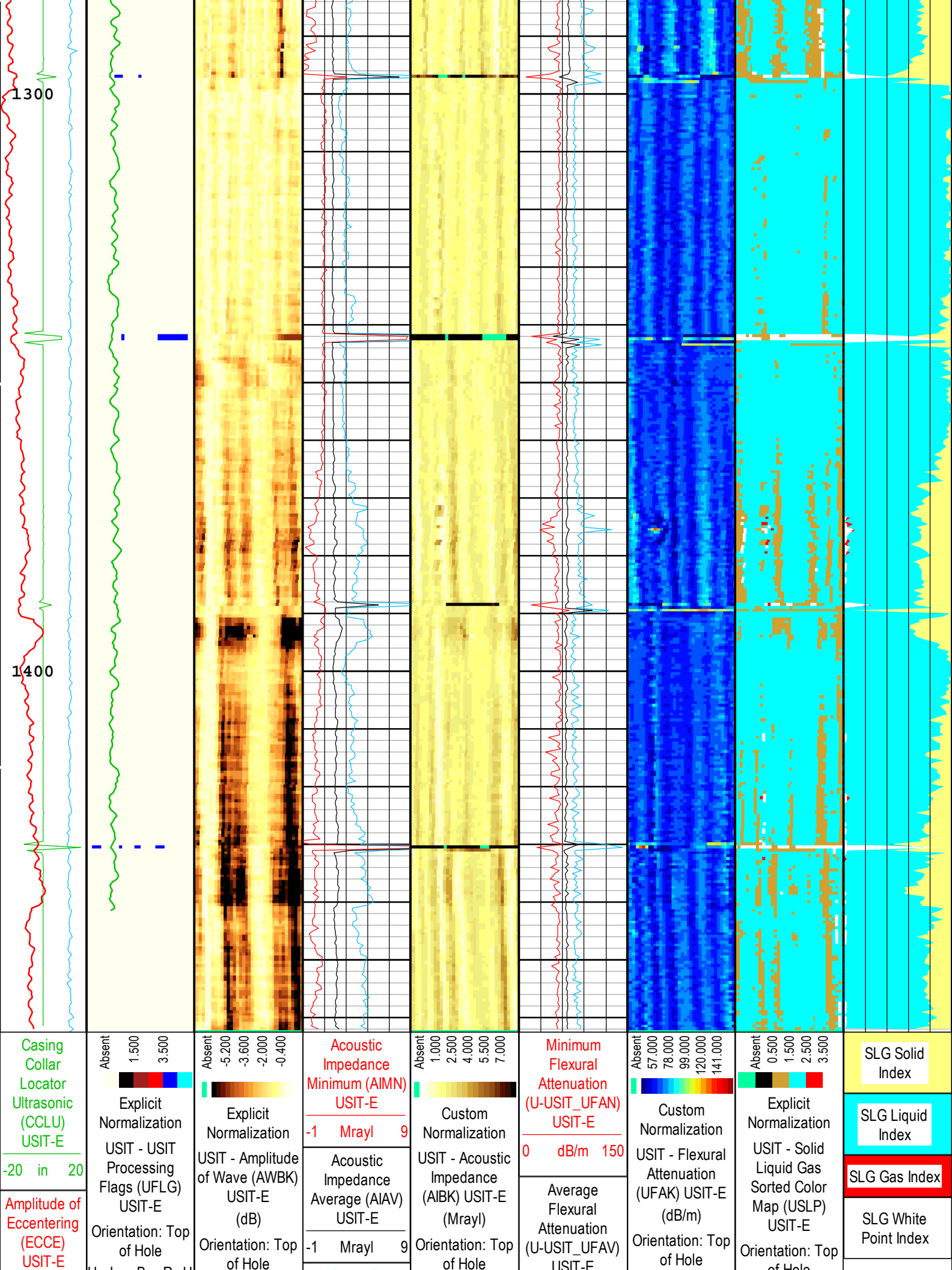
Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2017 03:51:26

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

- | | |
|---|---|
| 1 - UFLG 1 Value within [0.0 - 1.5] - : |  UTIM Error |
| 2 - UFLG 2 Value within [1.5 - 2.5] - : |  Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - : |  WINLEN Error |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : |  Casing Thickness Error |
| 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - : |  Loop Processing Error |





RCD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.216	in
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	1.07	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
USI_RPLUS	Ultrasonic R+ Processing	USIT-E	No	
THDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.3	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

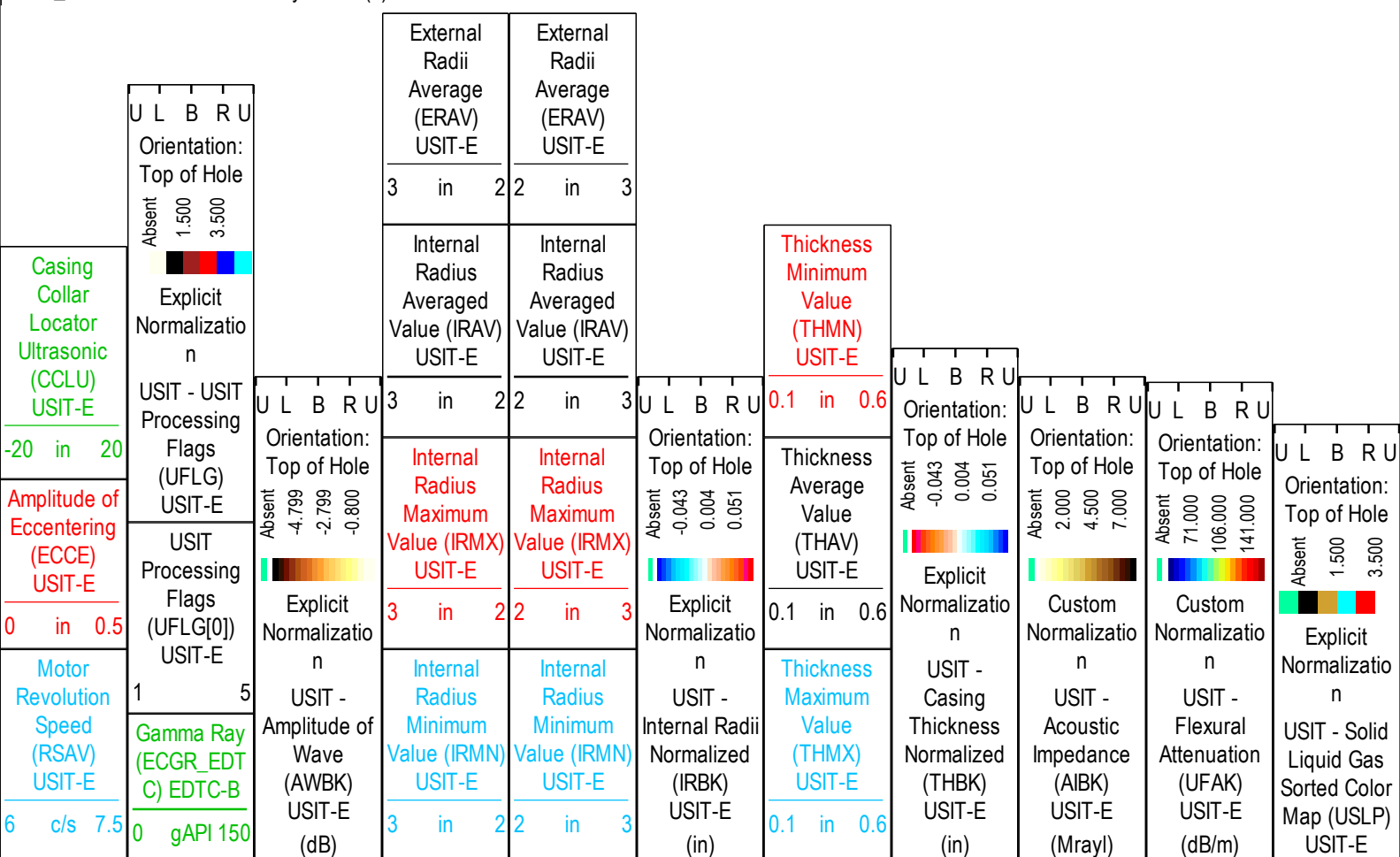
Tool Control Parameters

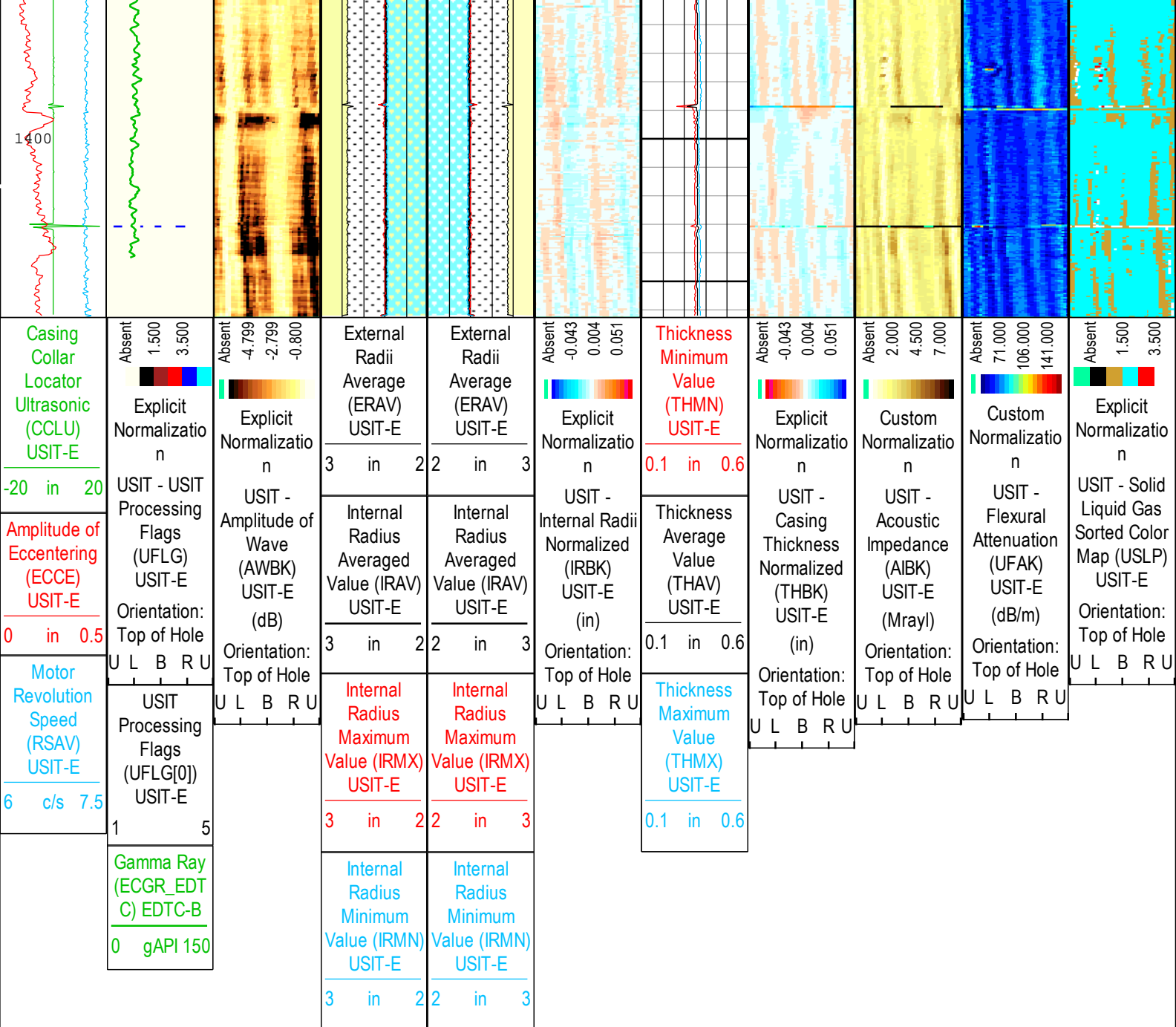
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	60	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	137	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	177	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	106	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	146	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

ONE

IBC SLG Composite

Pass Summary





Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	12136	ft

CDEN	Cement Density	USIT-E	12	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FD	Fluid Density	USIT-E	10	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	-3.18	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	FreePipe Norm.	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.17	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	1.19	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	1.07	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.3	Mrayl
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Tool Control Parameters

ONE: Parameters				
Parameter	Description	Tool	Value	Unit
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AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	60	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	137	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	177	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	106	us
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VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

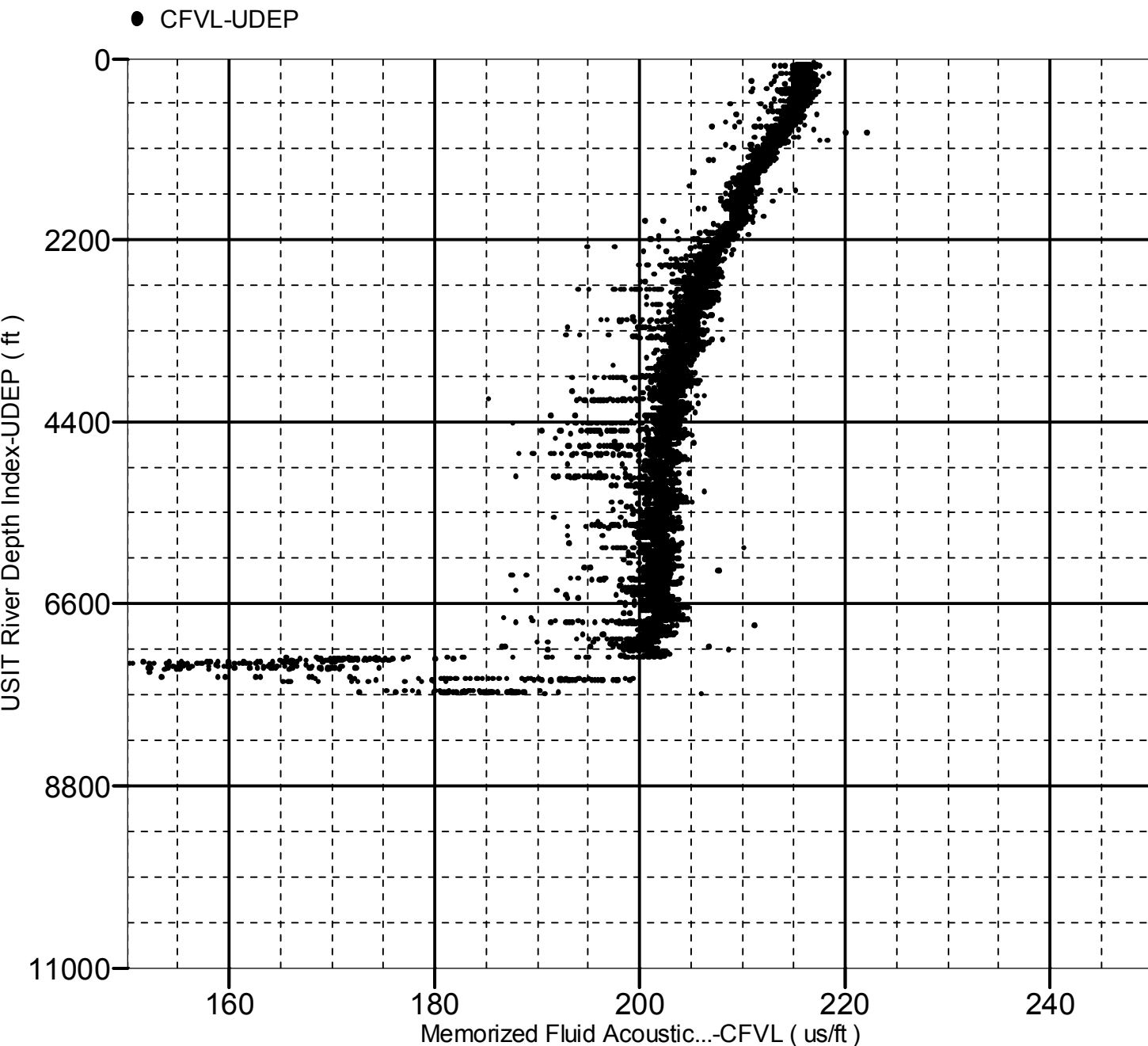
XYZ

Company:CRESTONE PEAK RESOURCES OPERATING LLC Well:HWY 52 4V-32H-O268
 ONE: Log[4]:Up:S006

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 7200.00 to 66.50 ft



XYZ

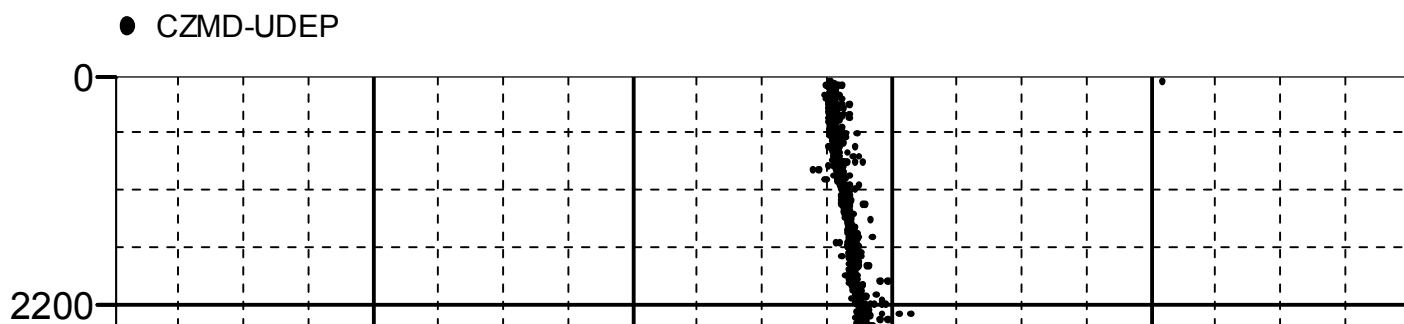
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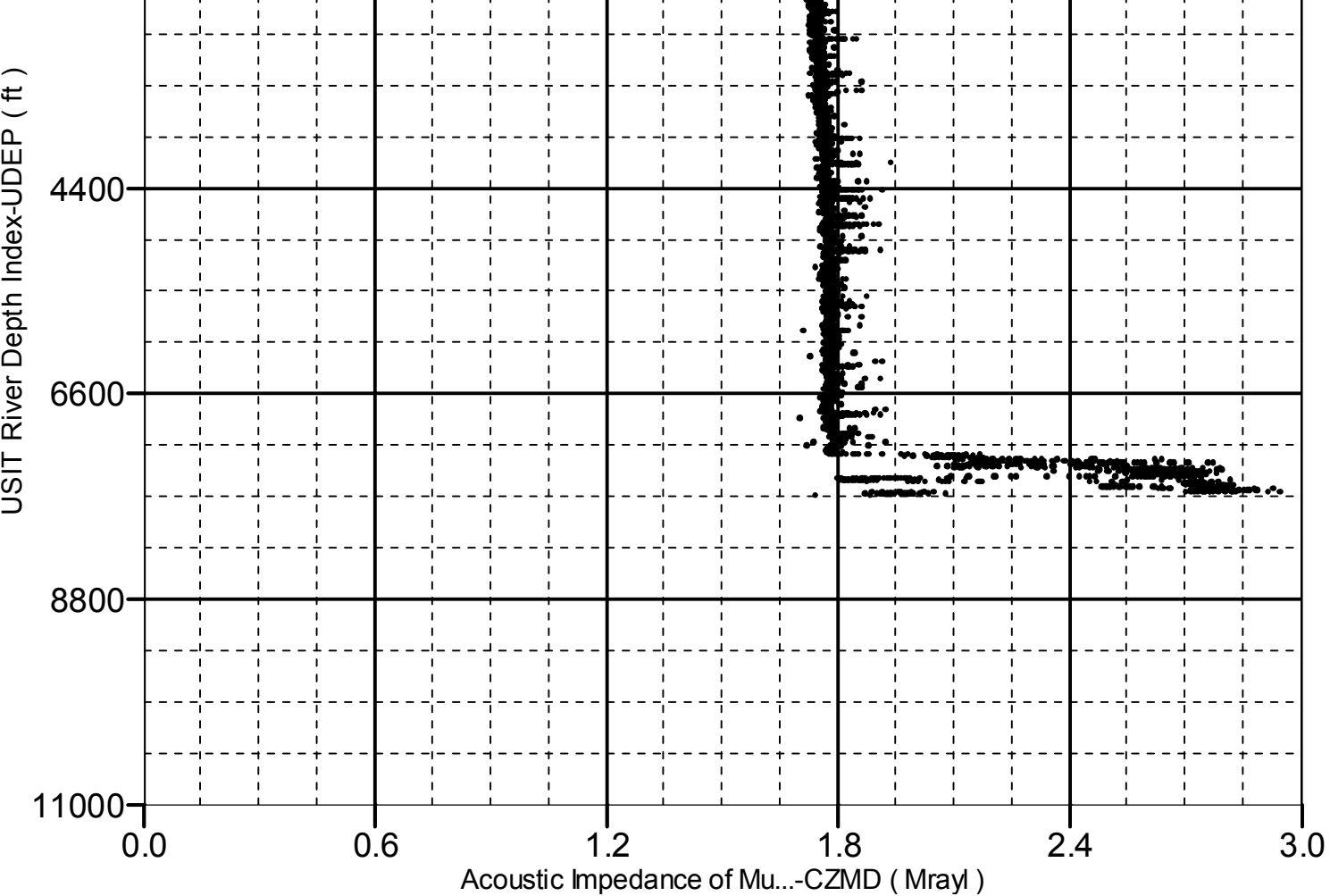
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Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 7200.00 to 66.50 ft





Company:	CRESTONE PEAK RESOURCES OPERATING LLC	Schlumberger
Well:	HWY 52 4V-32H-O268	
Field:	WATTENBERG	
County:	WELD	
State:	COLORADO	
Isolation Scanner		
Cement Evaluation		
Gamma Ray - CCL Log		