

Company: Crestone Peak Resources Operating LLC

Well: Melbon Ranch 4C-17H-M265

Field: Wattenburg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation
Gamma Ray - CCL Log

County: Weld
Field: Wattenburg
Location: SWSW S17 T2N R65W
Well: Melbon Ranch 4C-17H-M265
Company: Crestone Peak Resources Operating LLC

Location:	SWSW S17 T2N R65W	Elev.:	K.B.	4979.00 ft
	SHL: 1275 FSL & 219 FWL Lat/Long: 40.134852,-104.696635		G.L. D.F.	4956.00 ft 4978.00 ft
Permanent Datum:		Ground Level		Elev.: 4956.00 f
Log Measured From:		Kelly Bushing		23.00 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.		Section:	Township:	Range:
05-123-47753		17	2N	65W

Logging Date 22-Nov-2018

Run Number One

Depth Driller 12045.00 ft

Schlumberger Depth 12045.00 ft

Bottom Log Interval 6956.00 ft

Top Log Interval 97.00 ft

Casing Fluid Type WBM

Salinity

Density 8.4 lbm/gal

Fluid Level 97.00 ft

BIT/CASING/TUBING STRING

Bit Size 8.50 in

From 2433.00 ft

To 12045.00 ft

Casing/Tubing Size 5.5 in

Weight 20 lbm/ft

Grade N/A

From 0.00 ft

To 12045.00 ft

Max Recorded Temperatures 148 degF 197

Logger on Bottom 22-Nov-2018 07:35:00

Unit Number 9102

Recorded By C. Stiles/L. Lewis

Witnessed By Keith Kershnik

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.

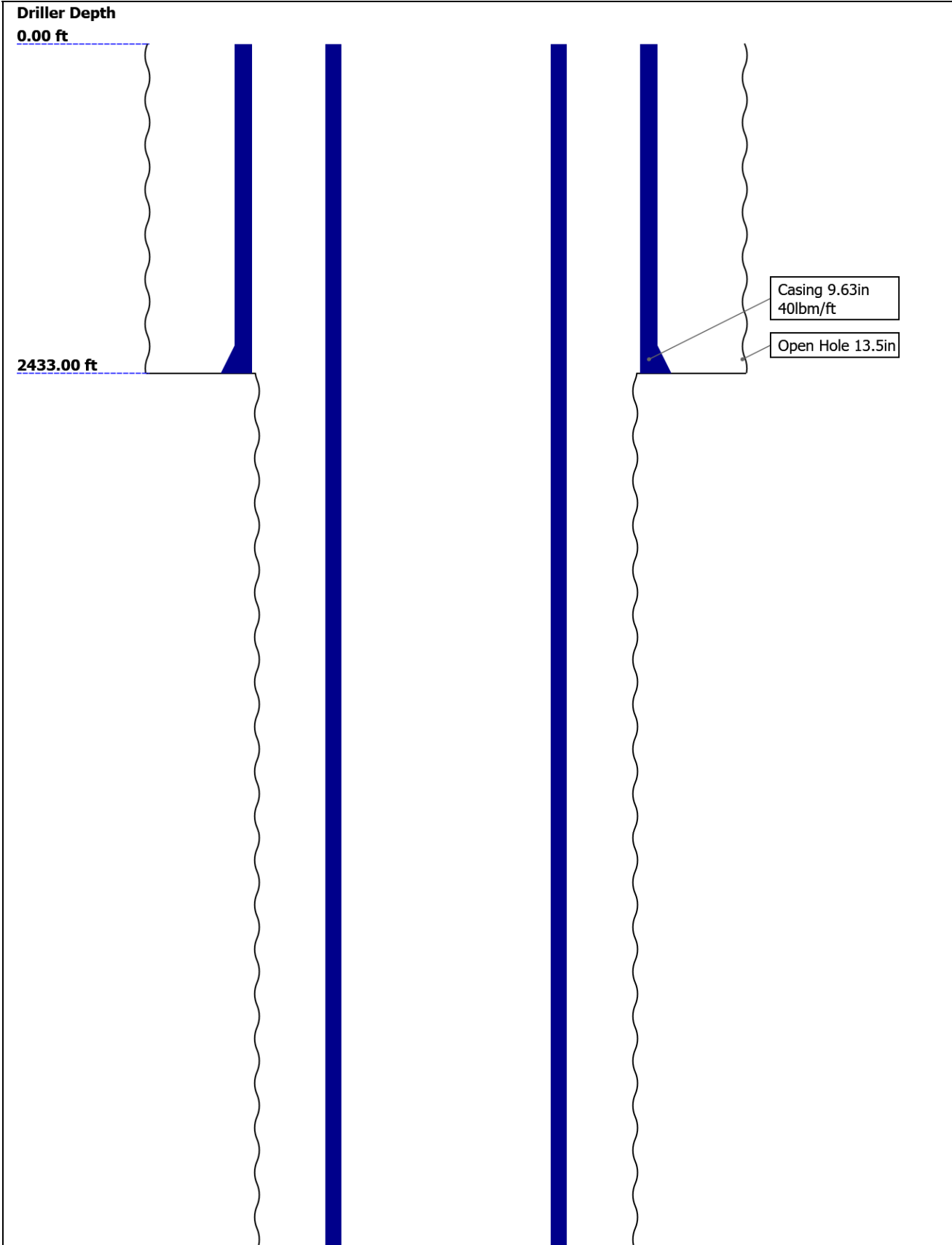
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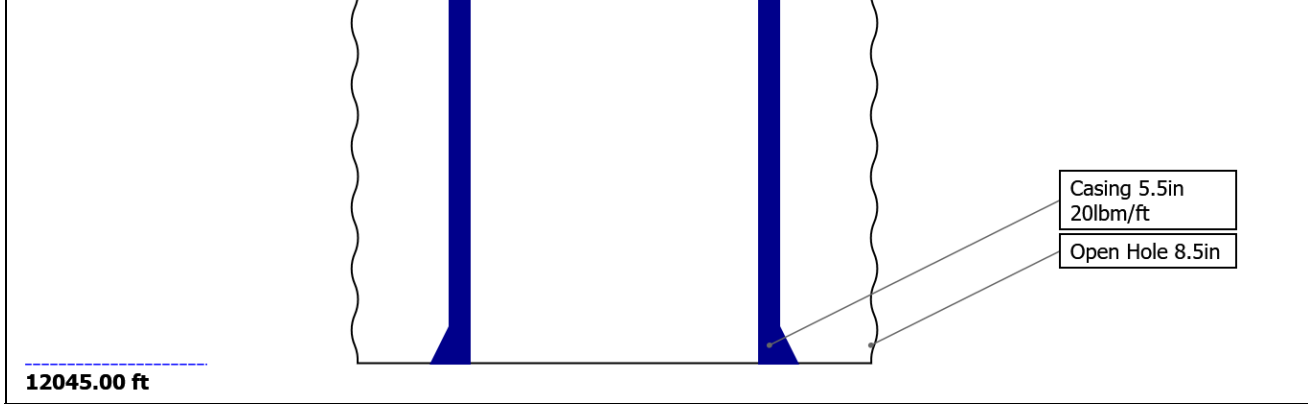
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Well Sketch

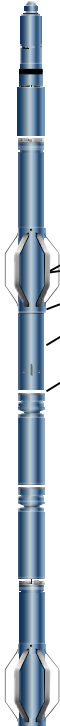


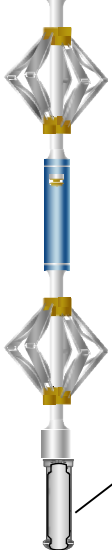


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.5				
Top Driller (ft)	0	2433				
Top Logger (ft)	0	2433				
Bottom Driller (ft)	2433	12045				
Bottom Logger (ft)	2433	12045				
Casing						
Size (in)	9.63	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.837	4.778				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2433	12045				
Bottom Logger (ft)	2433	12045				

Remarks and Equipment Summary

One: Toolstring			One: Remarks	
<div><div><div>Equip nameLength</div><div>LEH-QT:230.73</div><div>493</div><div>LEH-QT:2493</div><div>EDTC-B:827.24</div><div>424</div><div>EDTH-B:8432</div><div>EDTG-A:77303</div><div>EDTC-B:8424</div><div>AH-184[2]20.74</div><div>AH-184[1]18.74</div><div>USIT-E:1716.74</div><div>25</div><div>ECH-MFA:1991</div><div>USAC-A:1725</div><div>USIT-A:10</div></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>	Toolstring ran as per tool sketch and client logging program.		Tool centralized with 5.25" Gemcos, inline centralizers w/ small hole and Houma kit.	
	Lead: 11.7 ppg Tail: 13.5 ppg Spacer: 11.3 ppg		High deviation (34 deg) near KOP affects local data quality.	
	Thank you for choosing Schlumberger!			

USLS-A:18 20 USSC-B:79 9 IBCS-A:80 0 FAR-SENS OR:4561 IBC-TX NEAR-SEN SOR:2115 IBC-TX USI-SENS OR:3172 IBC-TX EMITTER- SENSOR:4 215 IBC-TX	 <p>USI Sen 0.84 sor Head Te nsion</p> <p>TOOL_ZERO</p> <p>Lengths are in ft Maximum Outer Diameter = 6.250 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p>	
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Depth Summary			
	One		
Depth Measuring Device			
Type	IDW-B		
Serial Number	5822		
Calibration Date	14-Oct-2018		
Calibrator Serial Number	57		
Calibration Cable Type	7-46 AXS		
Wheel Correction 1	-2		
Wheel Correction 2	-2		
Tension Device			
Type	CMTD-B/A		
Serial Number	1106		
Calibration Date	19-Oct-2018		
Calibrator Serial Number	78135A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	69		
Calibration Peak Error	116		
Logging Cable			
Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane		
One:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control policies followed.	
Rig Up Length At Surface		IDW used as primary depth control method.	
Rig Up Length At Bottom		Z-chart used as secondary method.	
Rig Up Length Correction			

Stretch Correction 11.23 ft

Tool Zero Check At Surface

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 4	Log[4]:Up	6957.04	48.62

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 : 1280.10m(4199.79ft) to 1283.02m(4209.37ft)
MUD_N_FRP = 1.22
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.83 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 SP2	8.2.104493.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	48.62 ft	6957.04 ft	22-Nov-2018 7:35:49 AM	22-Nov-2018 9:12:41 AM	ON	11.23 ft	Yes

All depths are referenced to toolstring zero

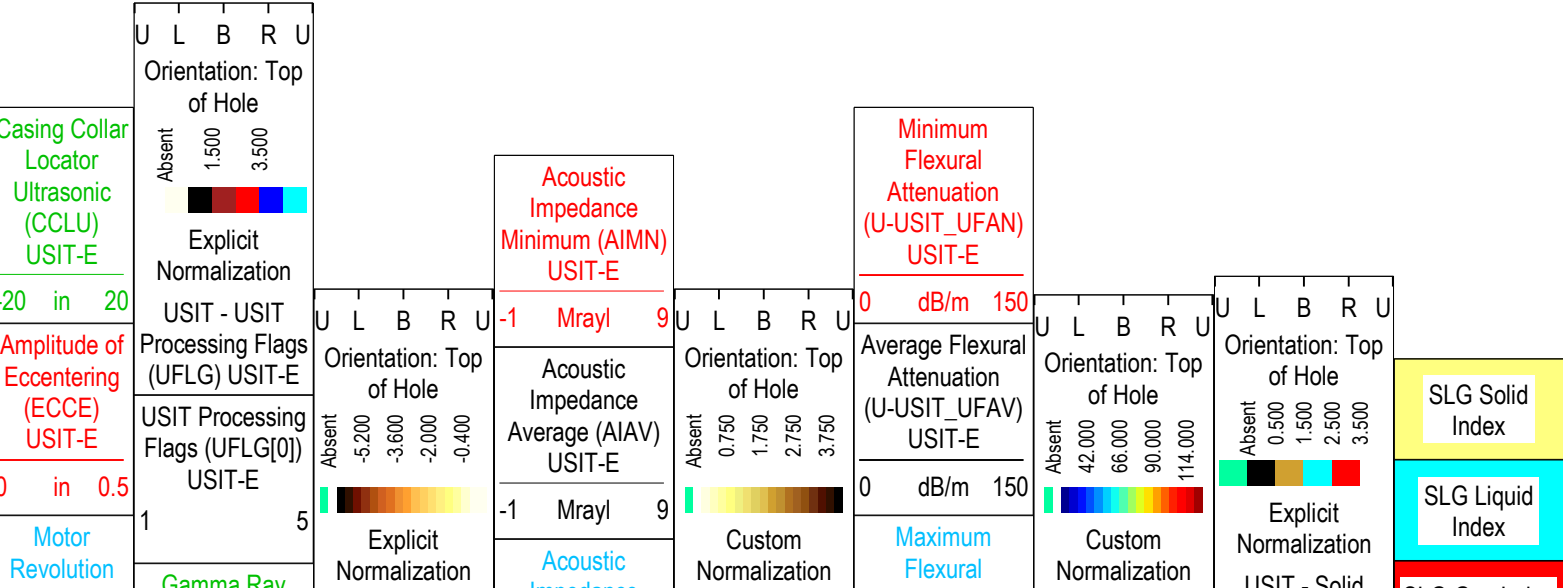
Log	Company:Crestone Peak Resources Operating LLC	Well:Melbon Ranch 4C-17H-M265
	One: Log[4]:Up:S037	

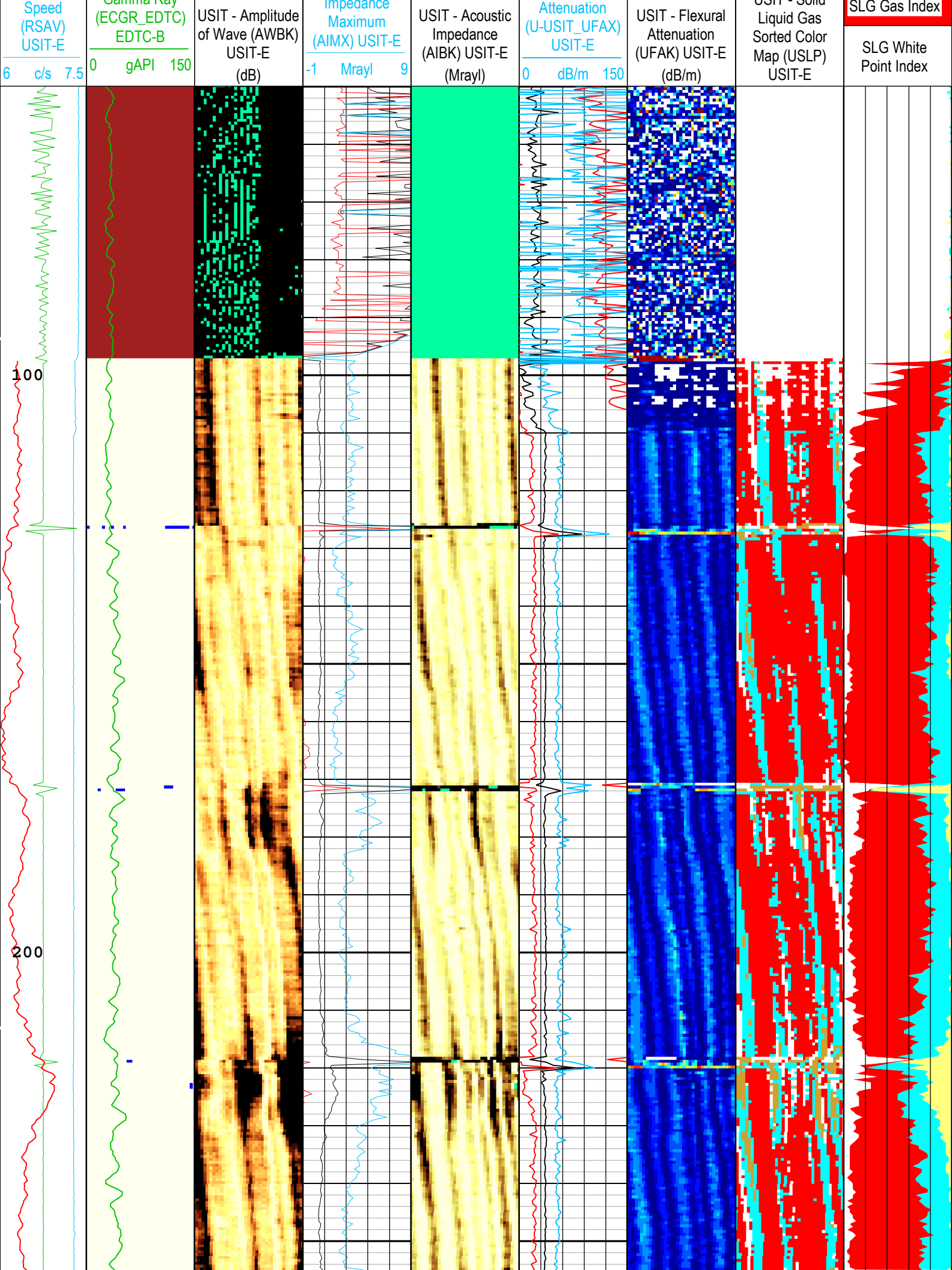
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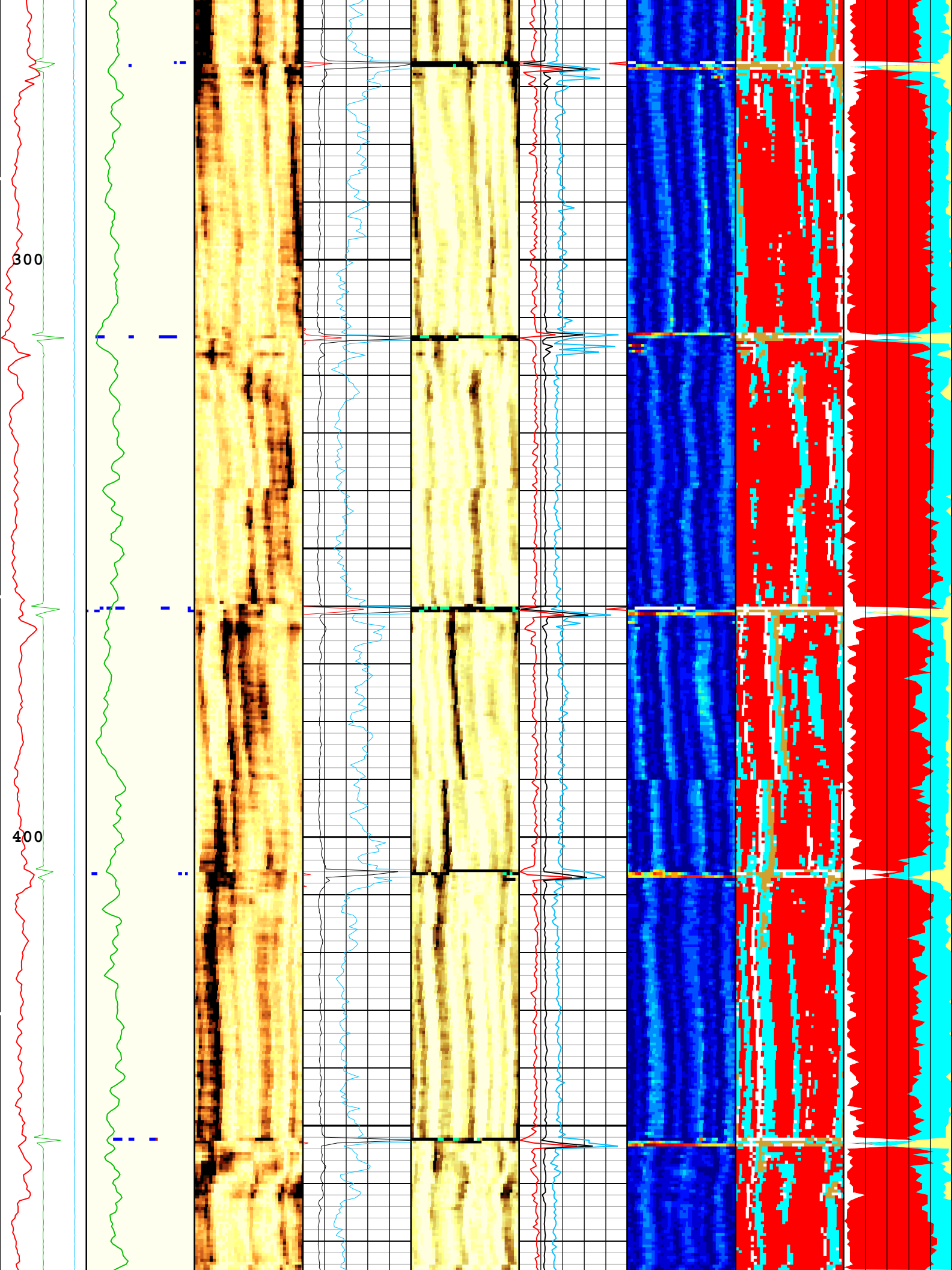
USIT Processing Flags (UFLG[0]) USIT-E

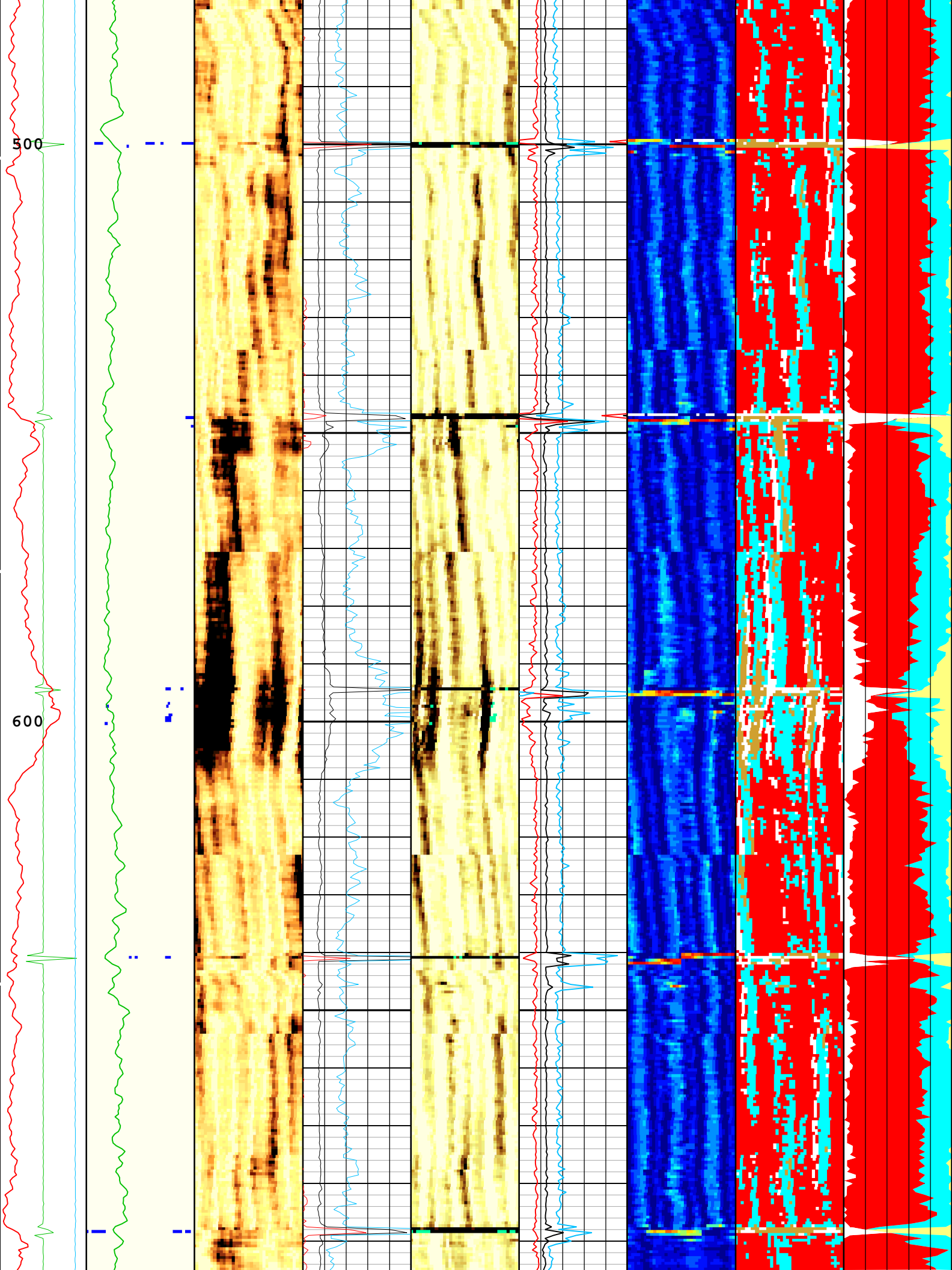
- 1 - UFLG 1 Value within [0.0 - 1.5] - :
- 2 - UFLG 2 Value within [1.5 - 2.5] - :
- 3 - UFLG 3 Value within [2.5 - 3.5] - :
- 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
- 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error
- Pulse Origin Not Detected
- WINLEN Error
- Casing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

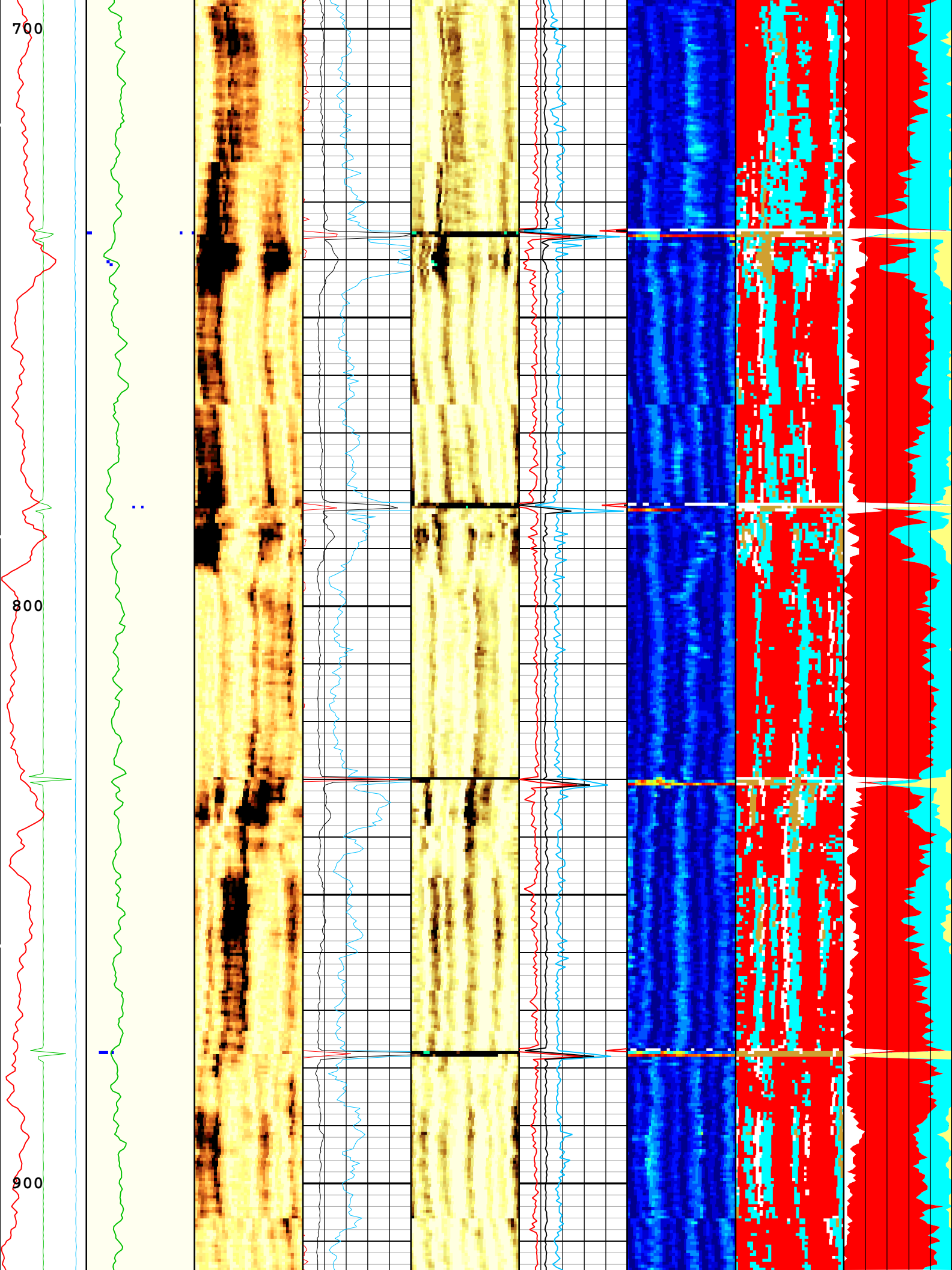
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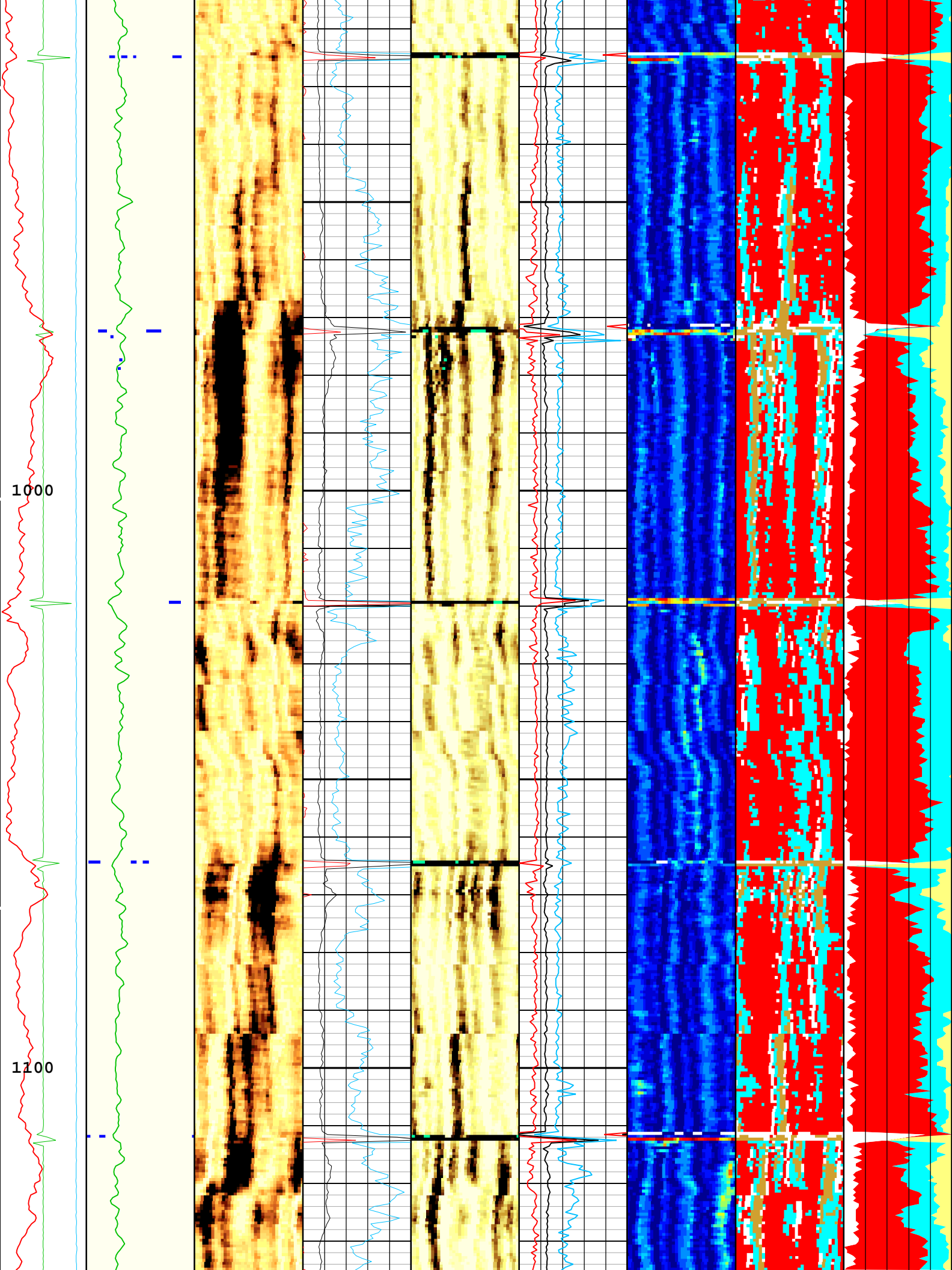


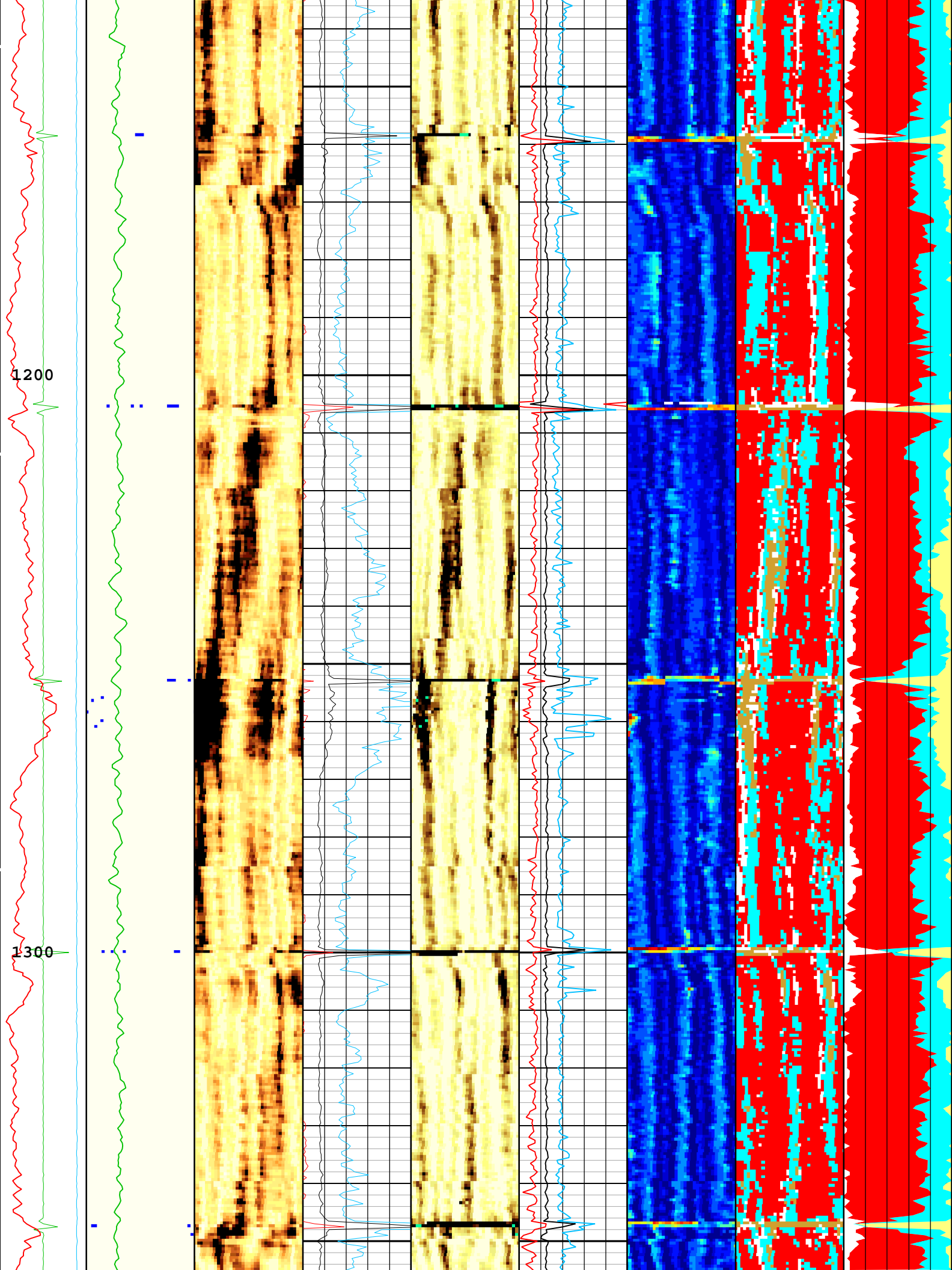


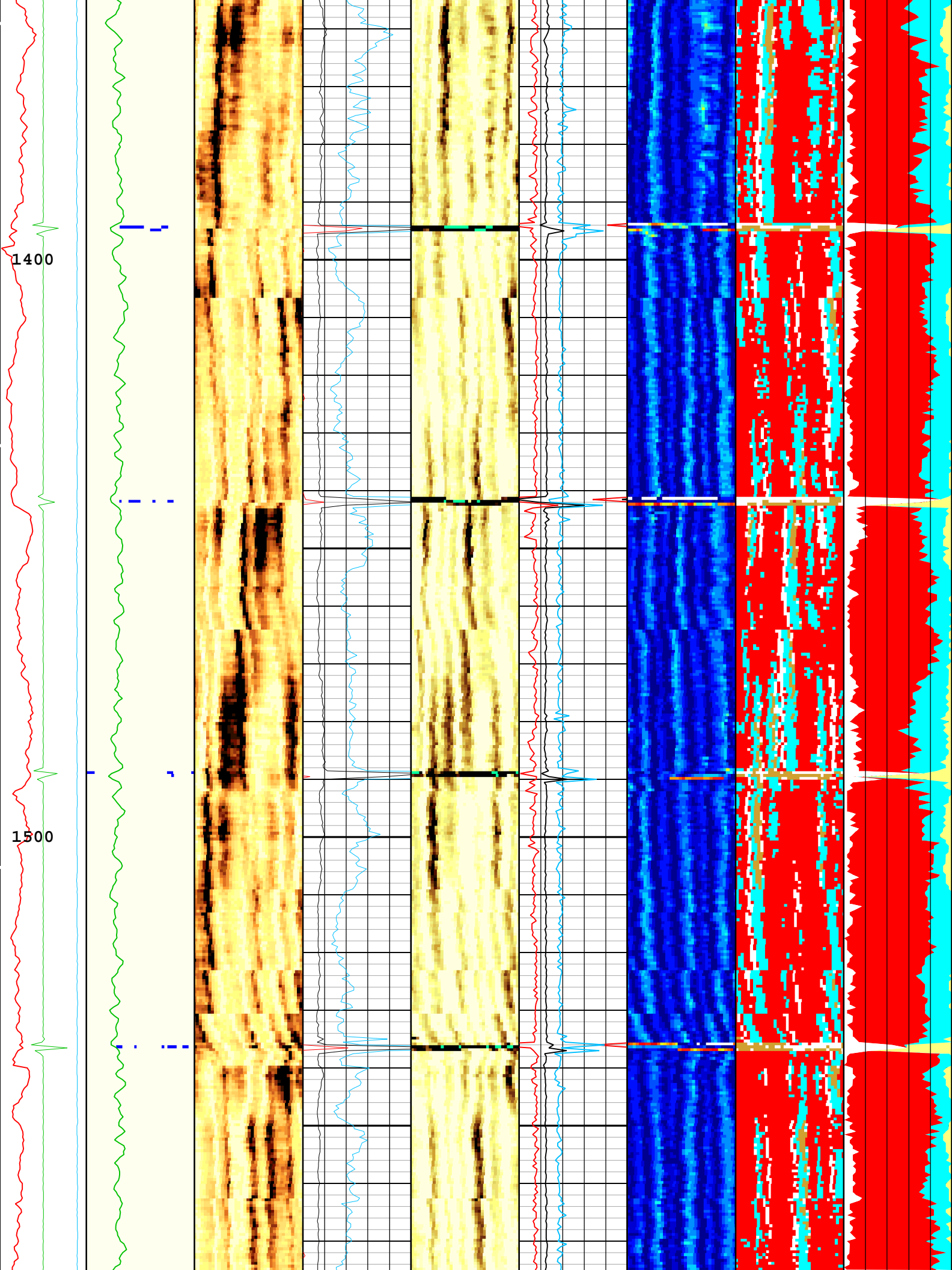


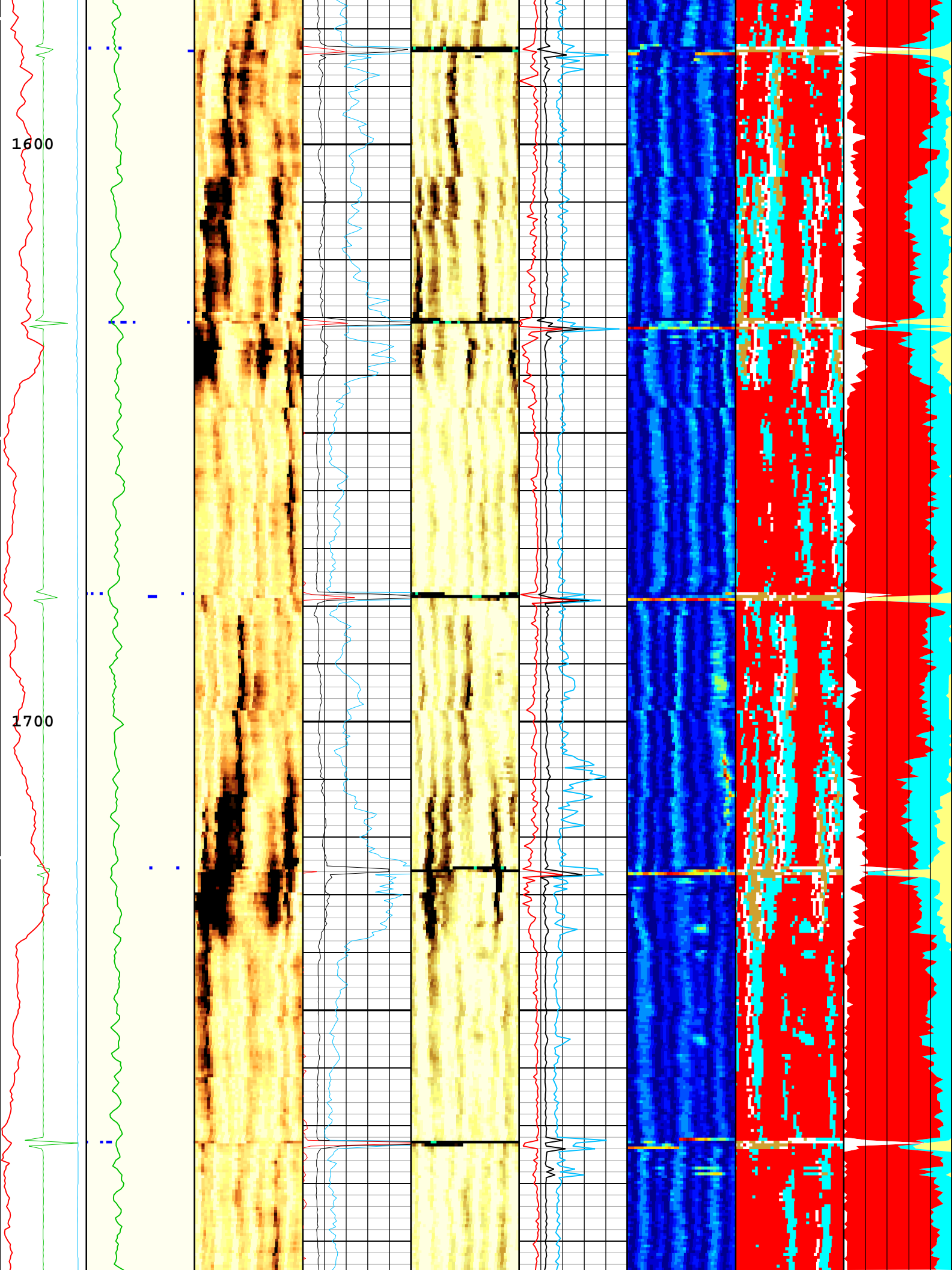


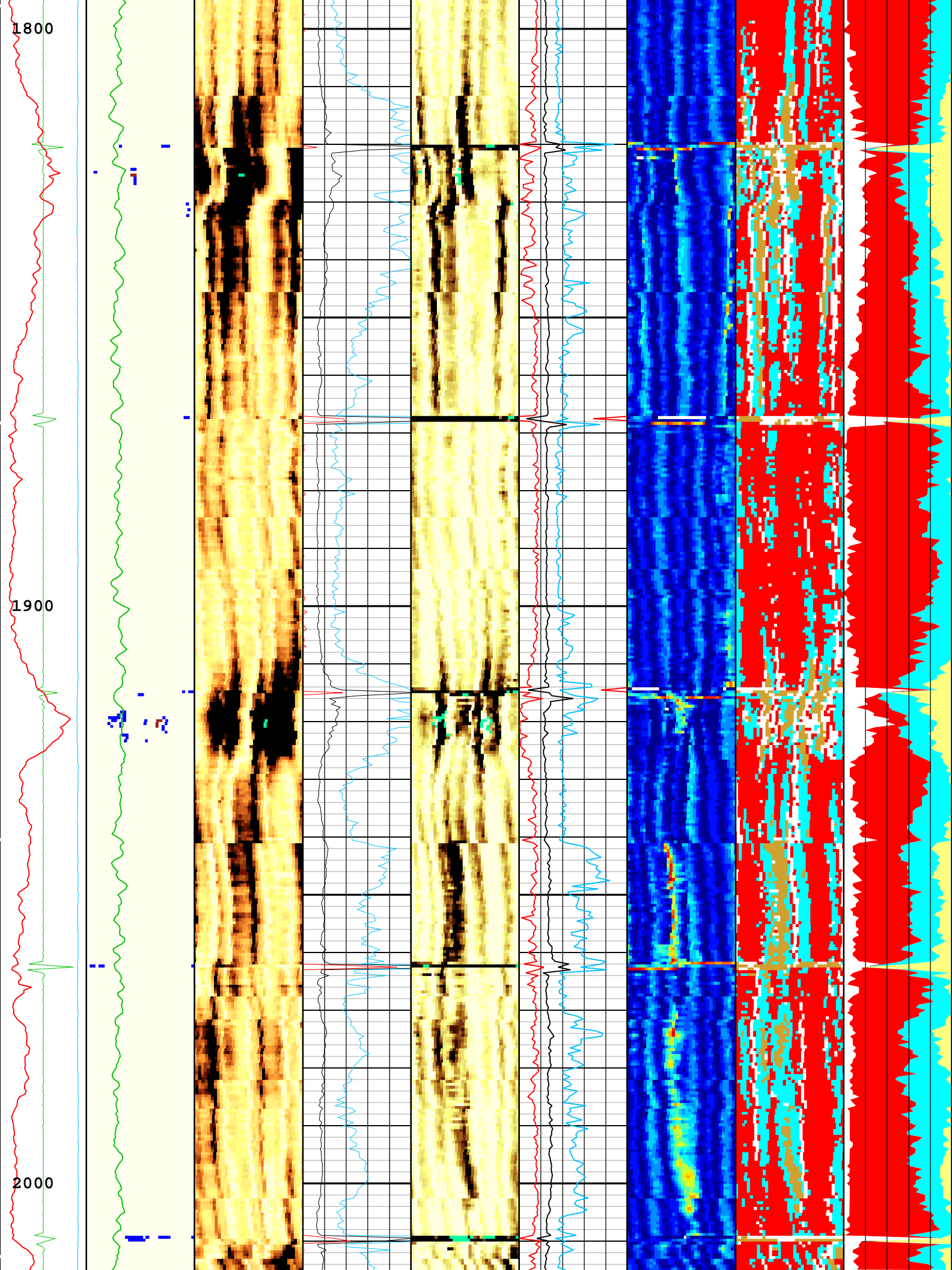


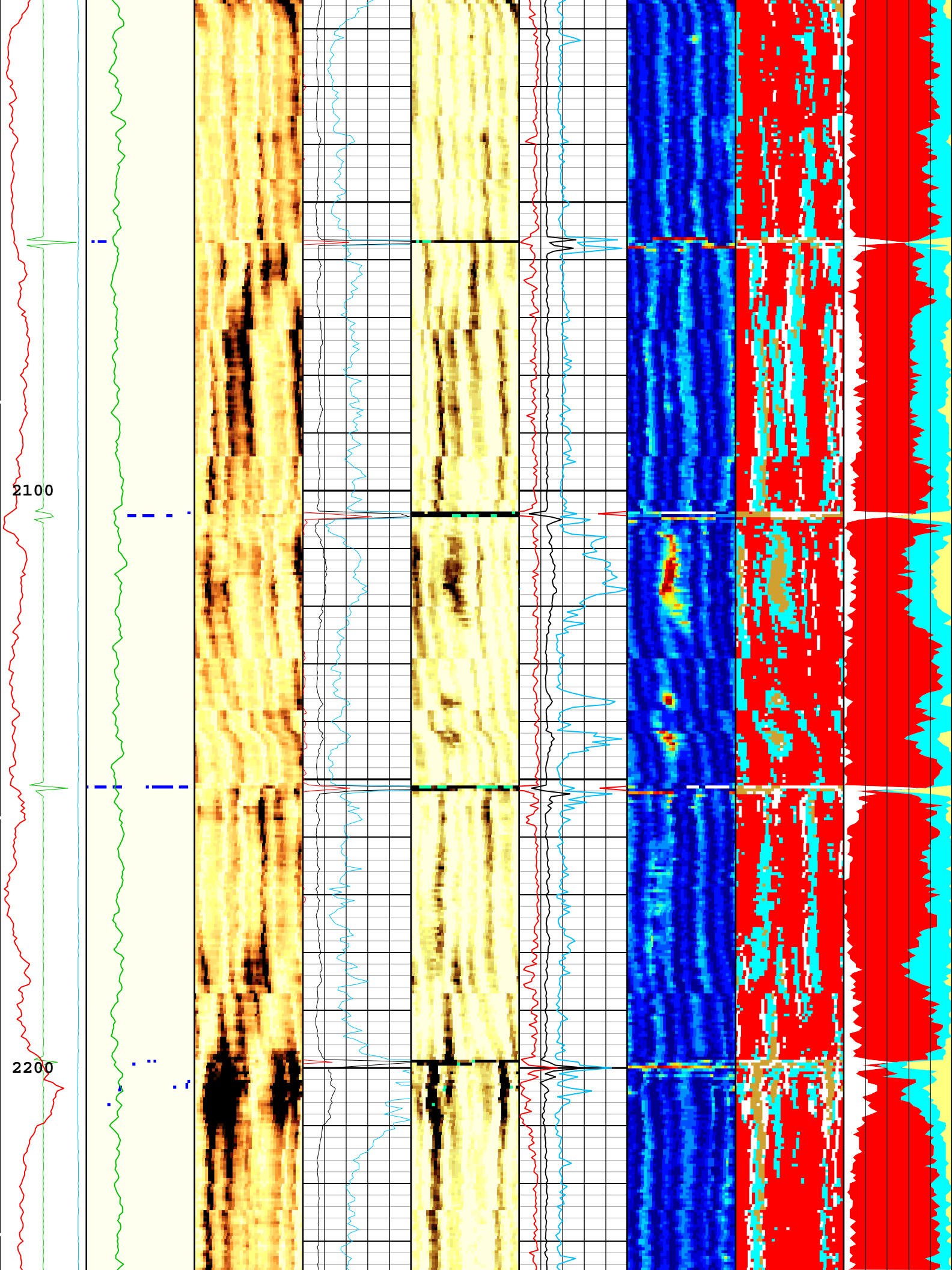


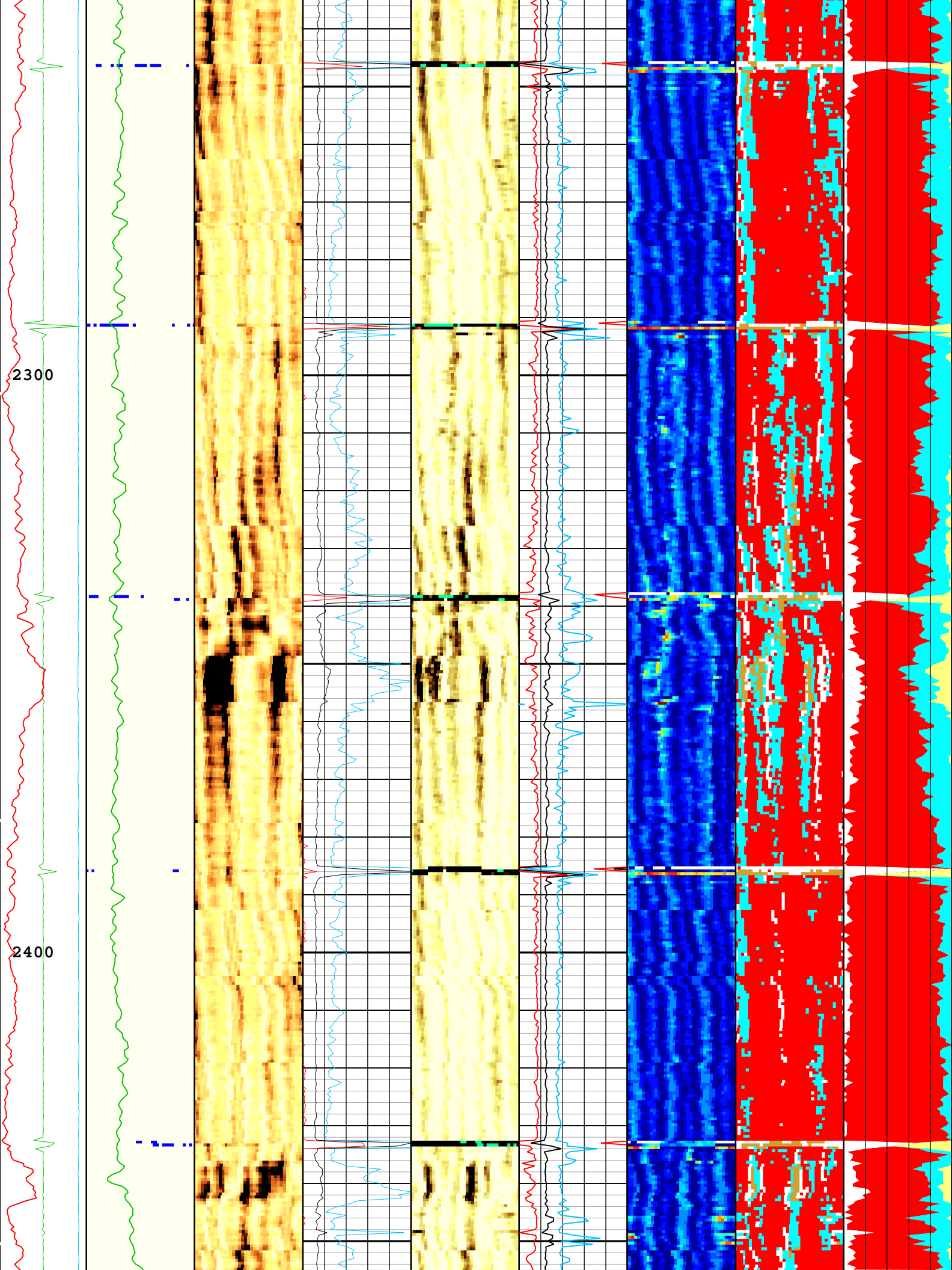


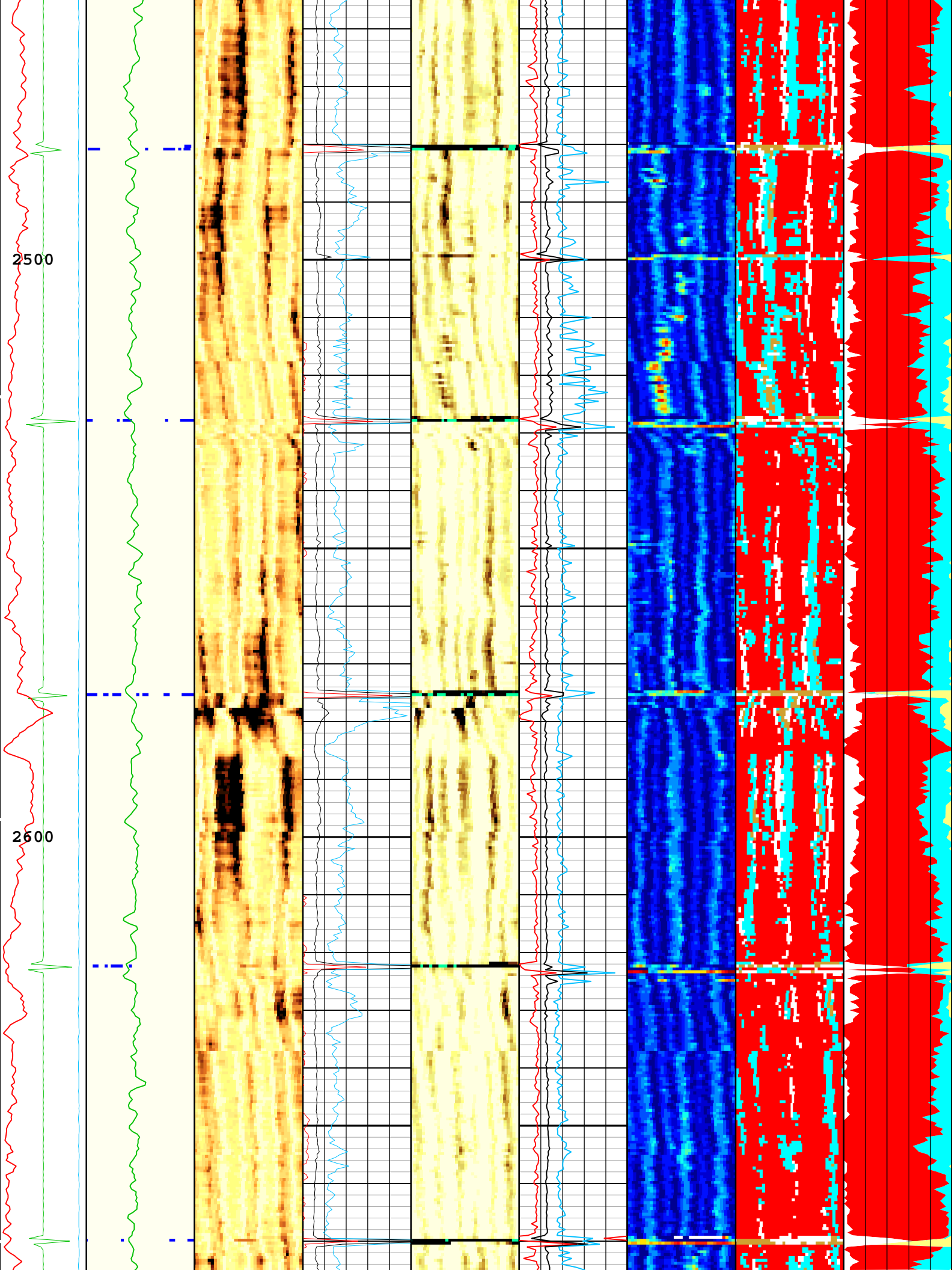


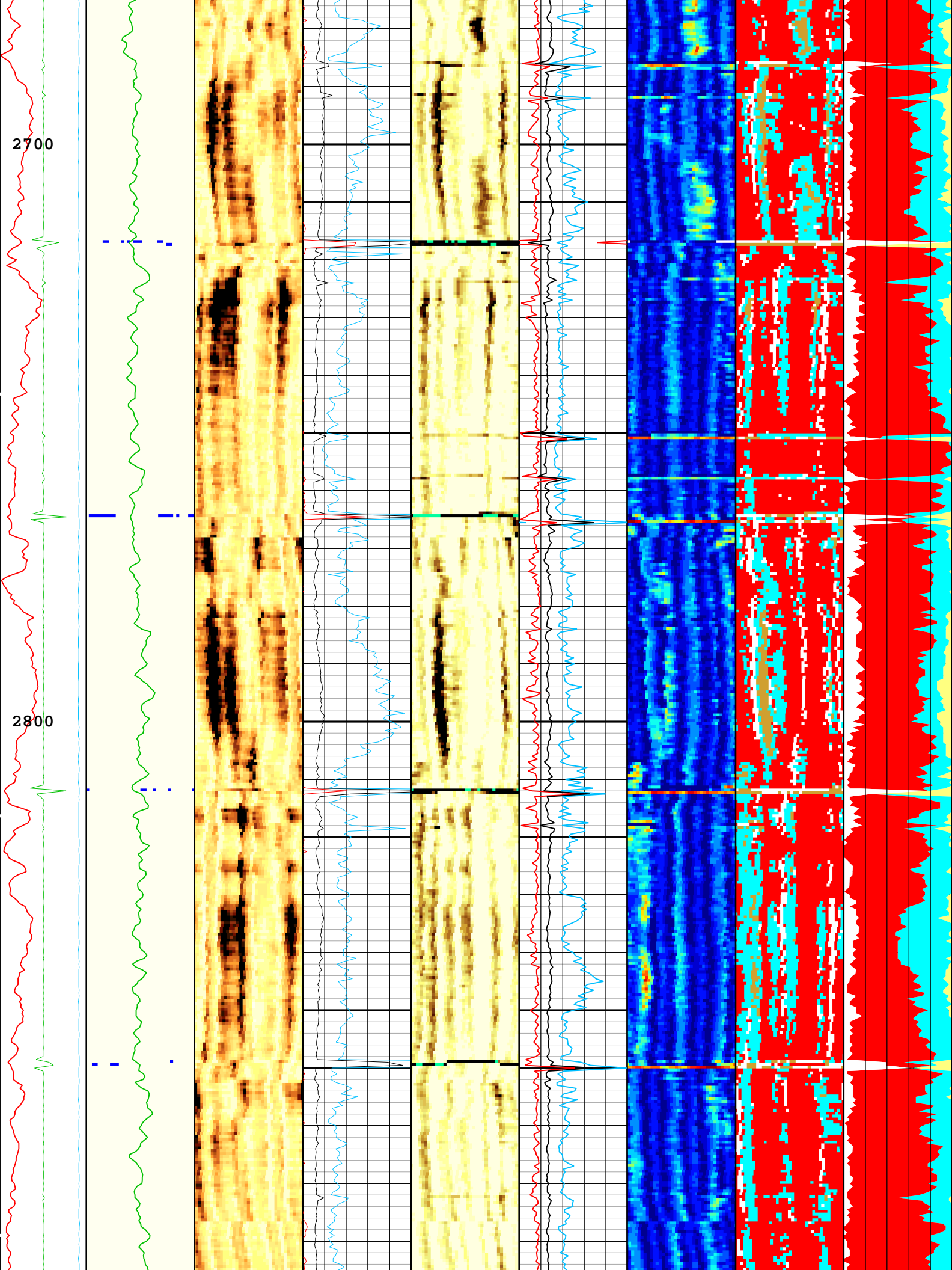


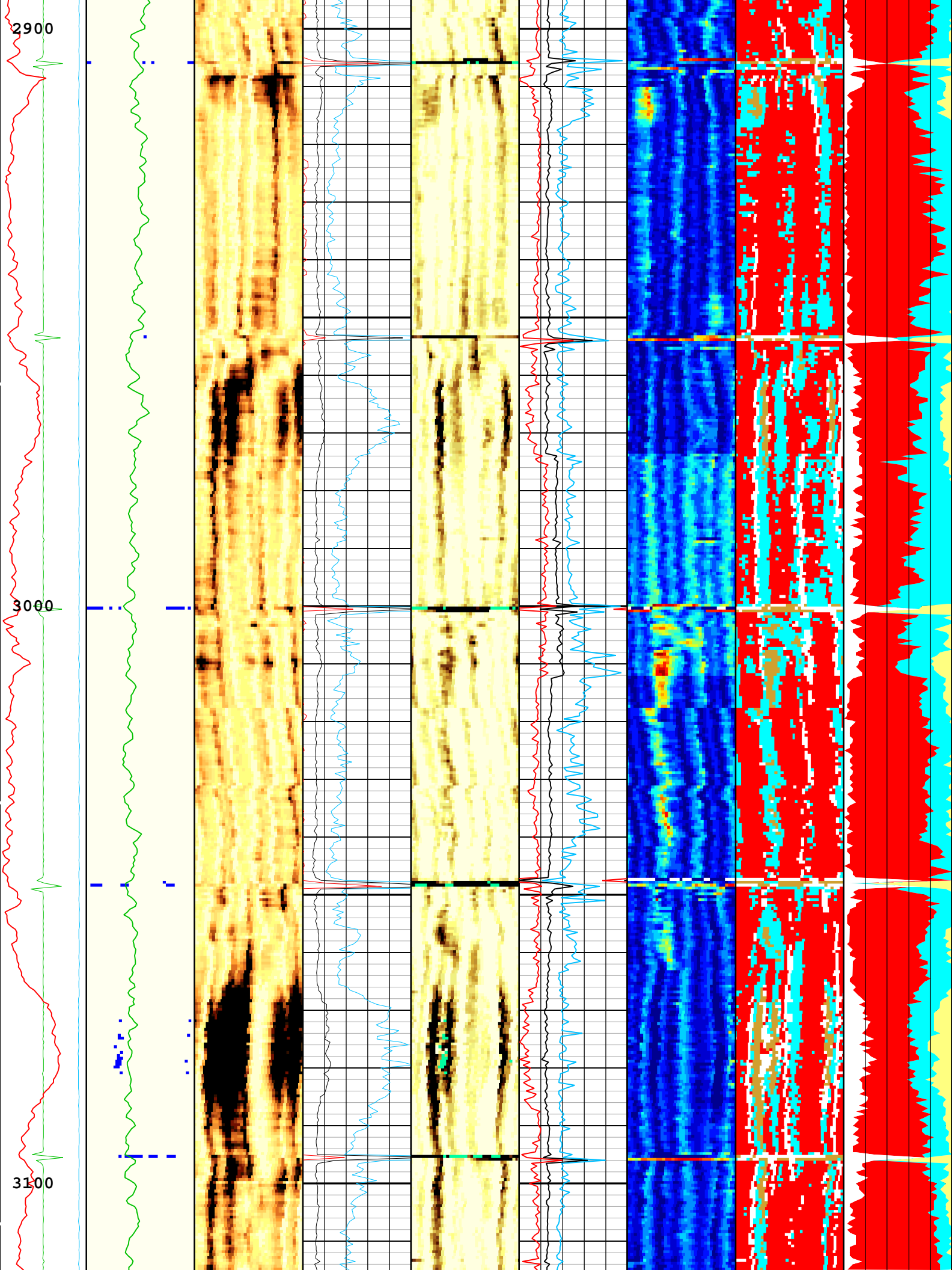


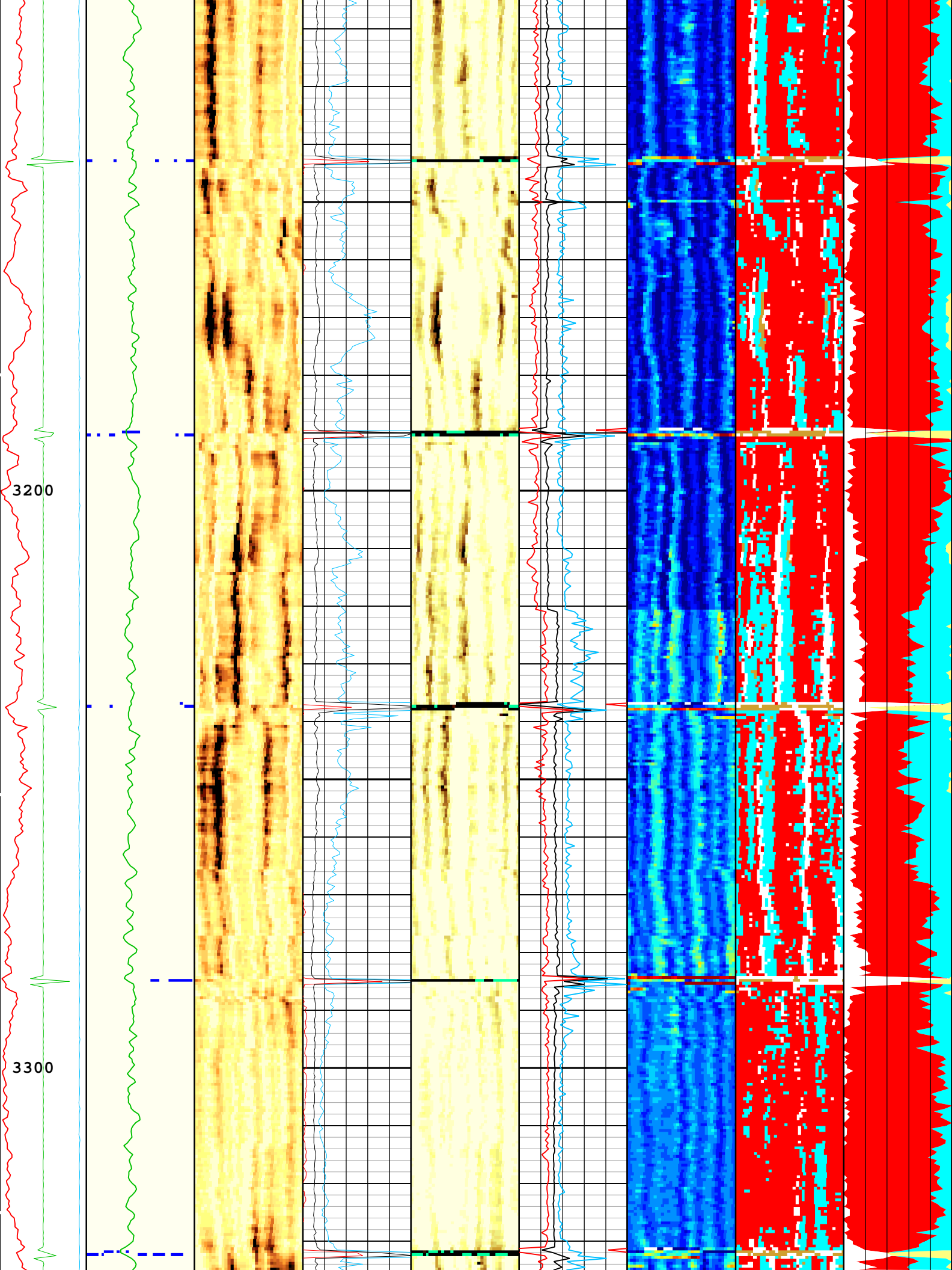


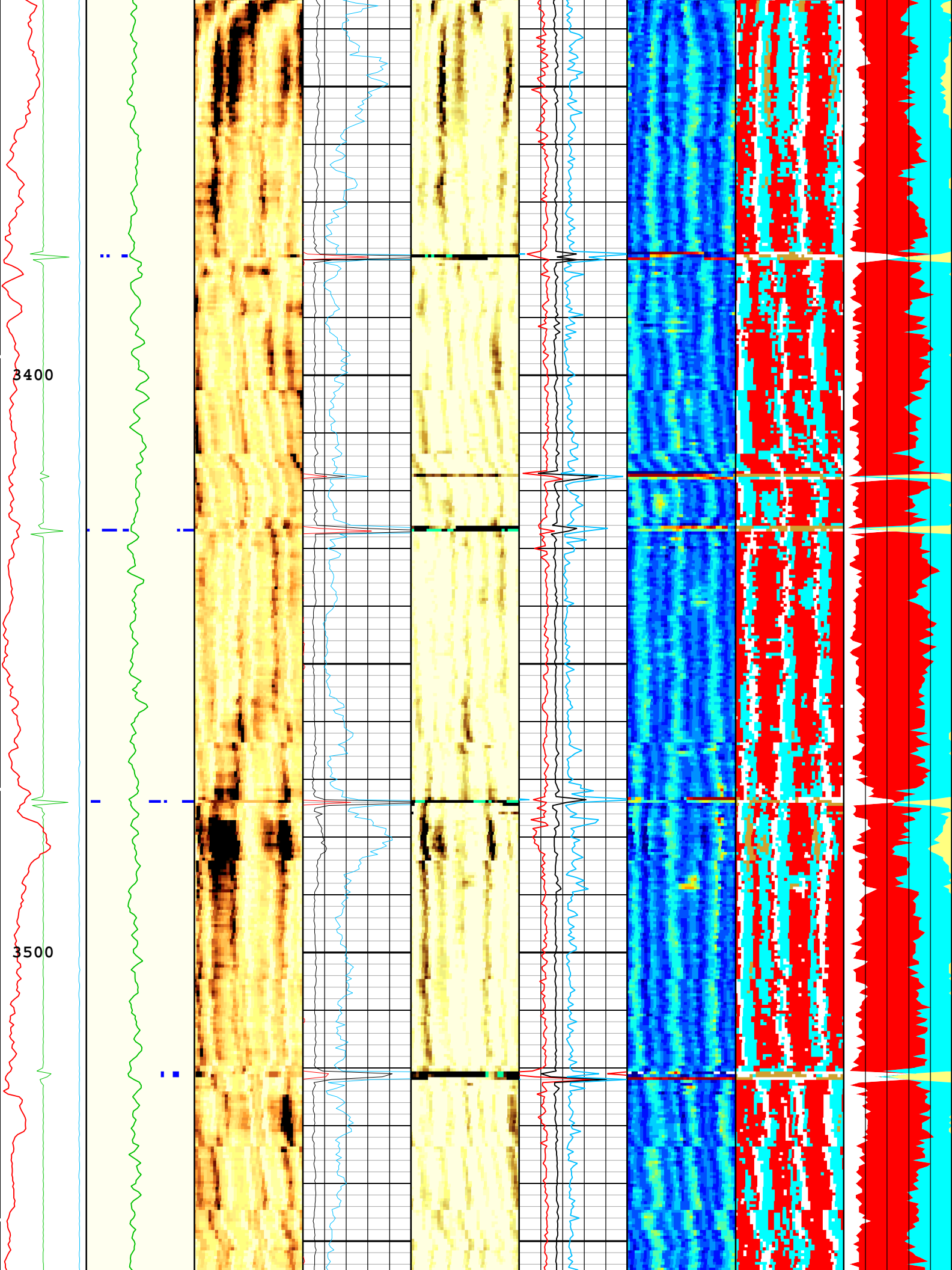


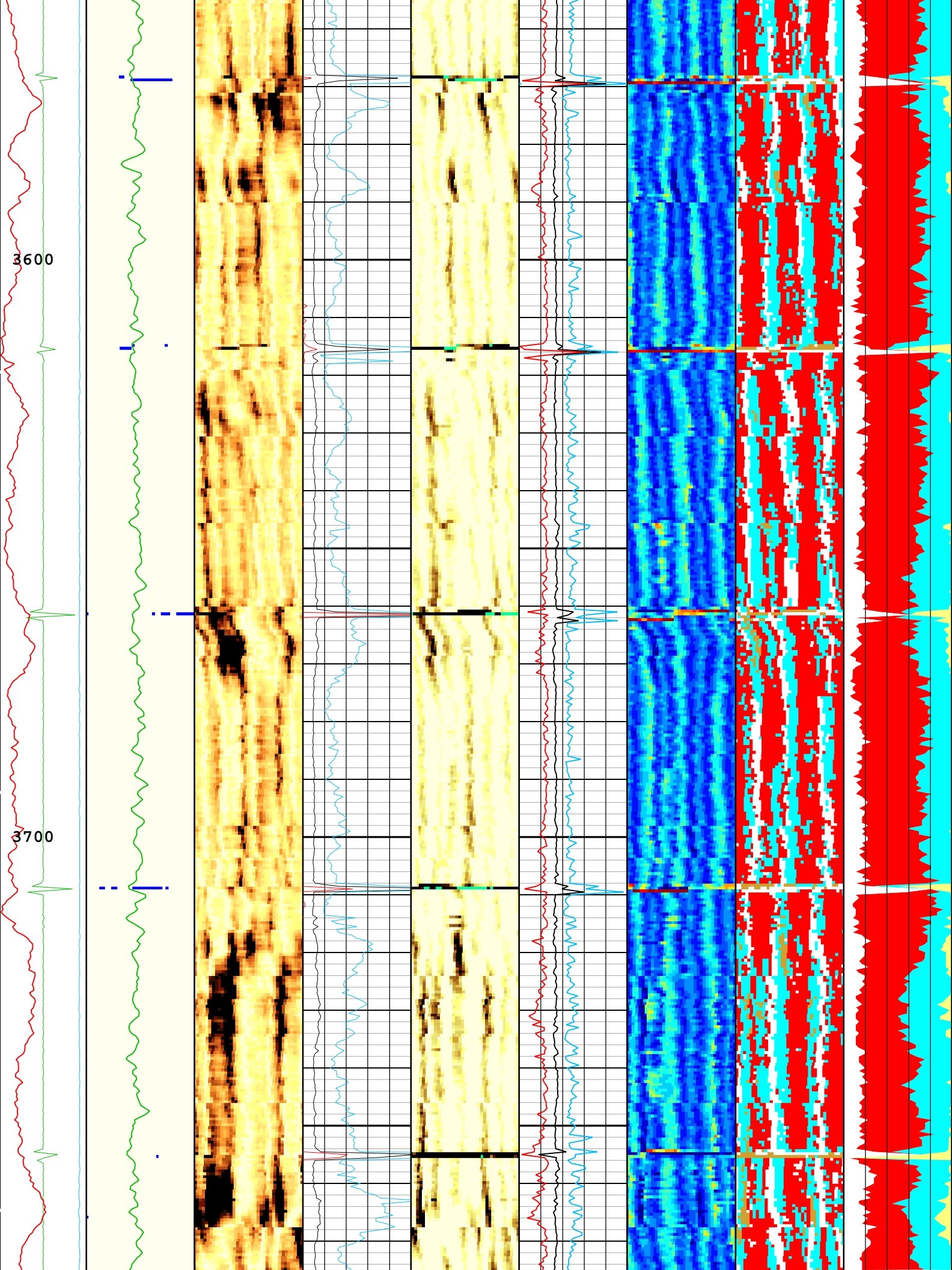


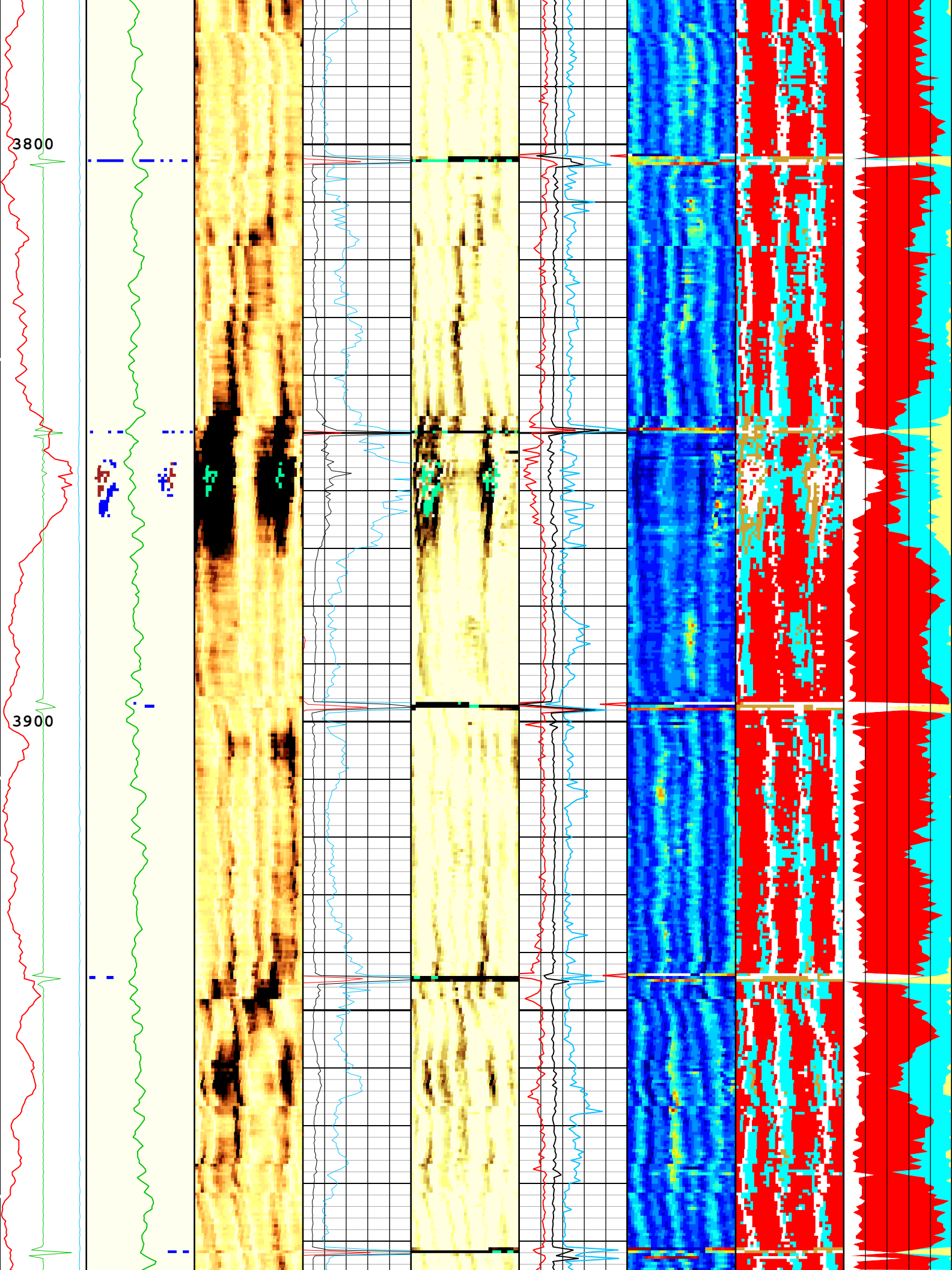


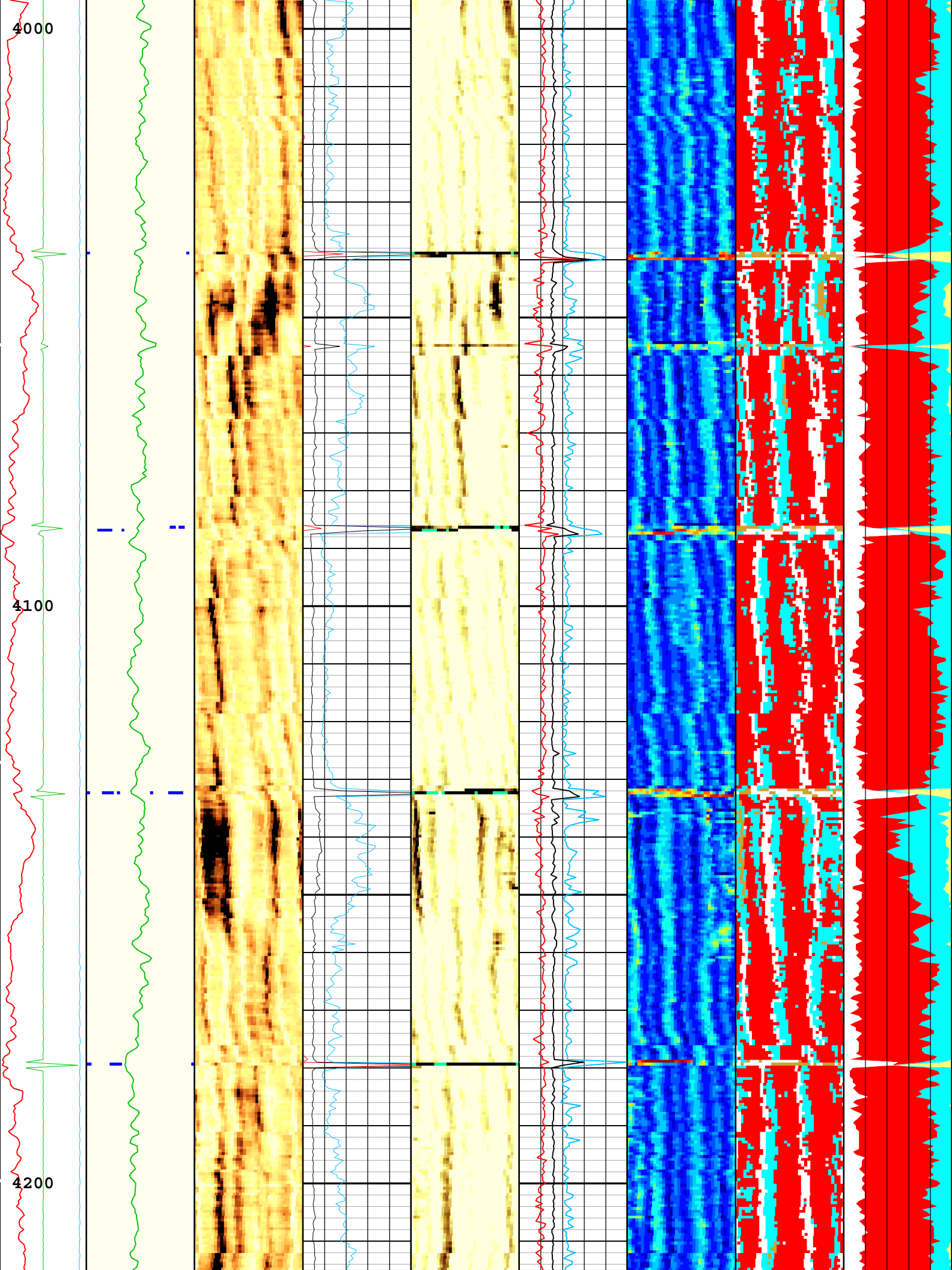


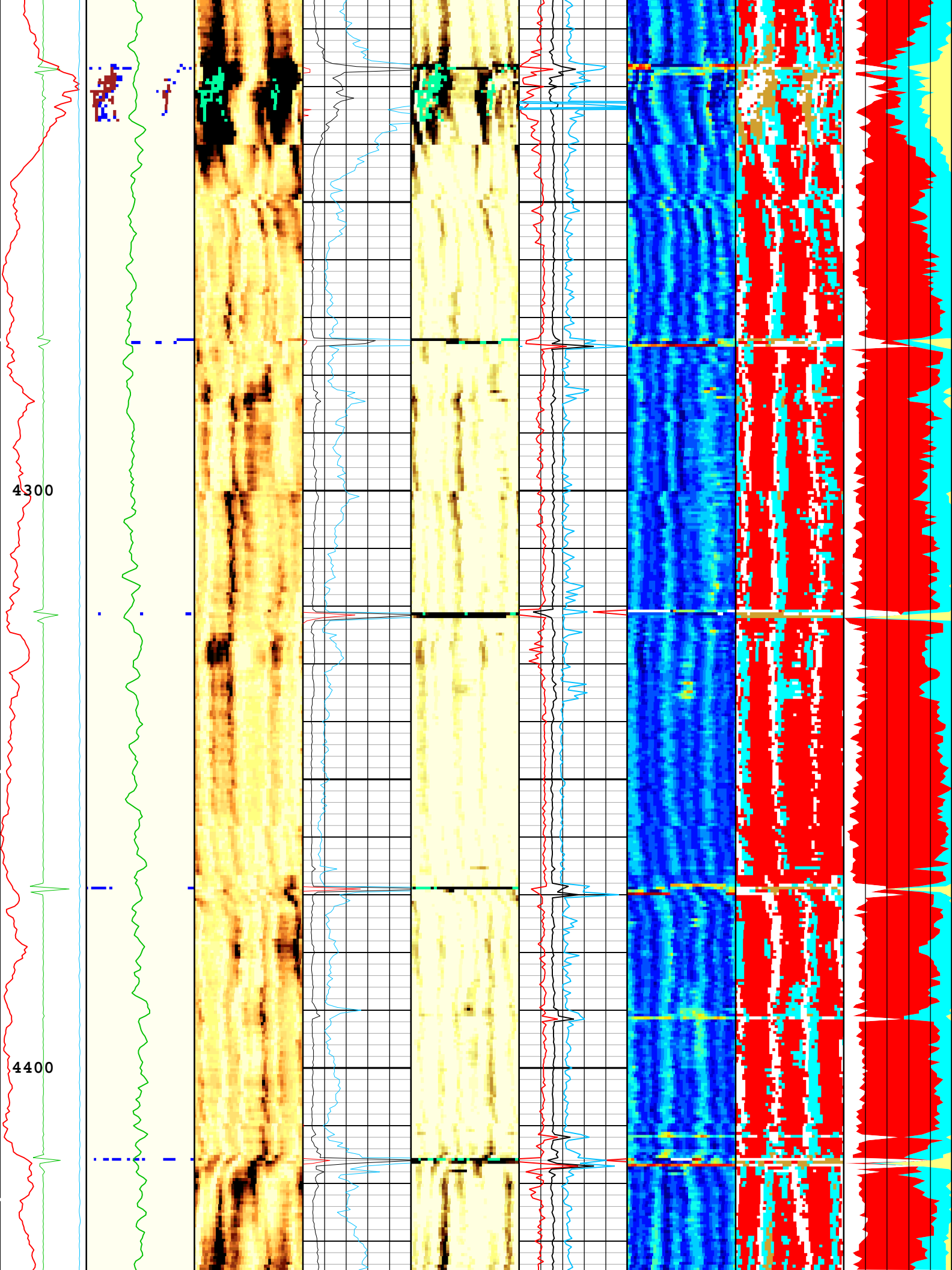


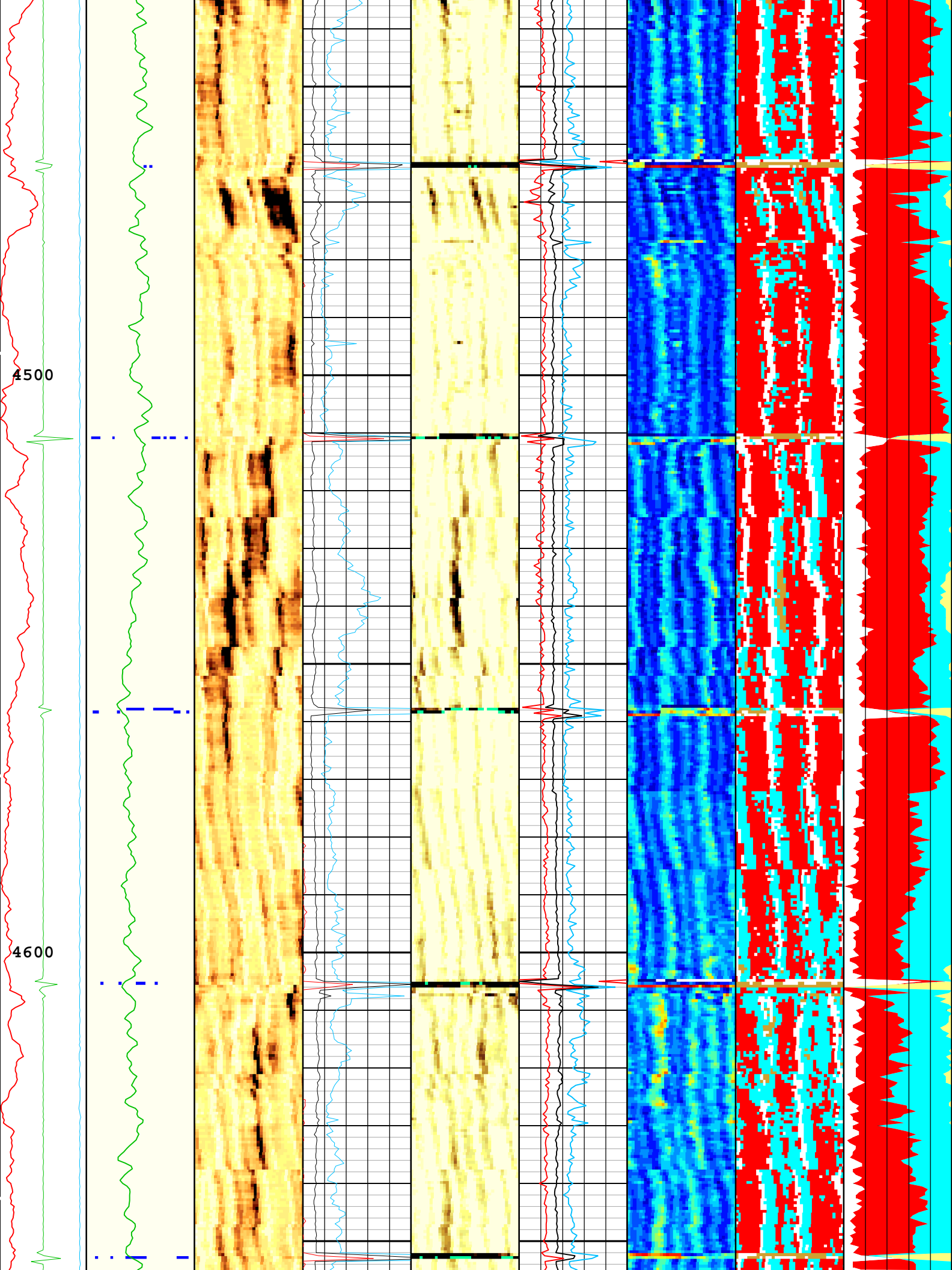


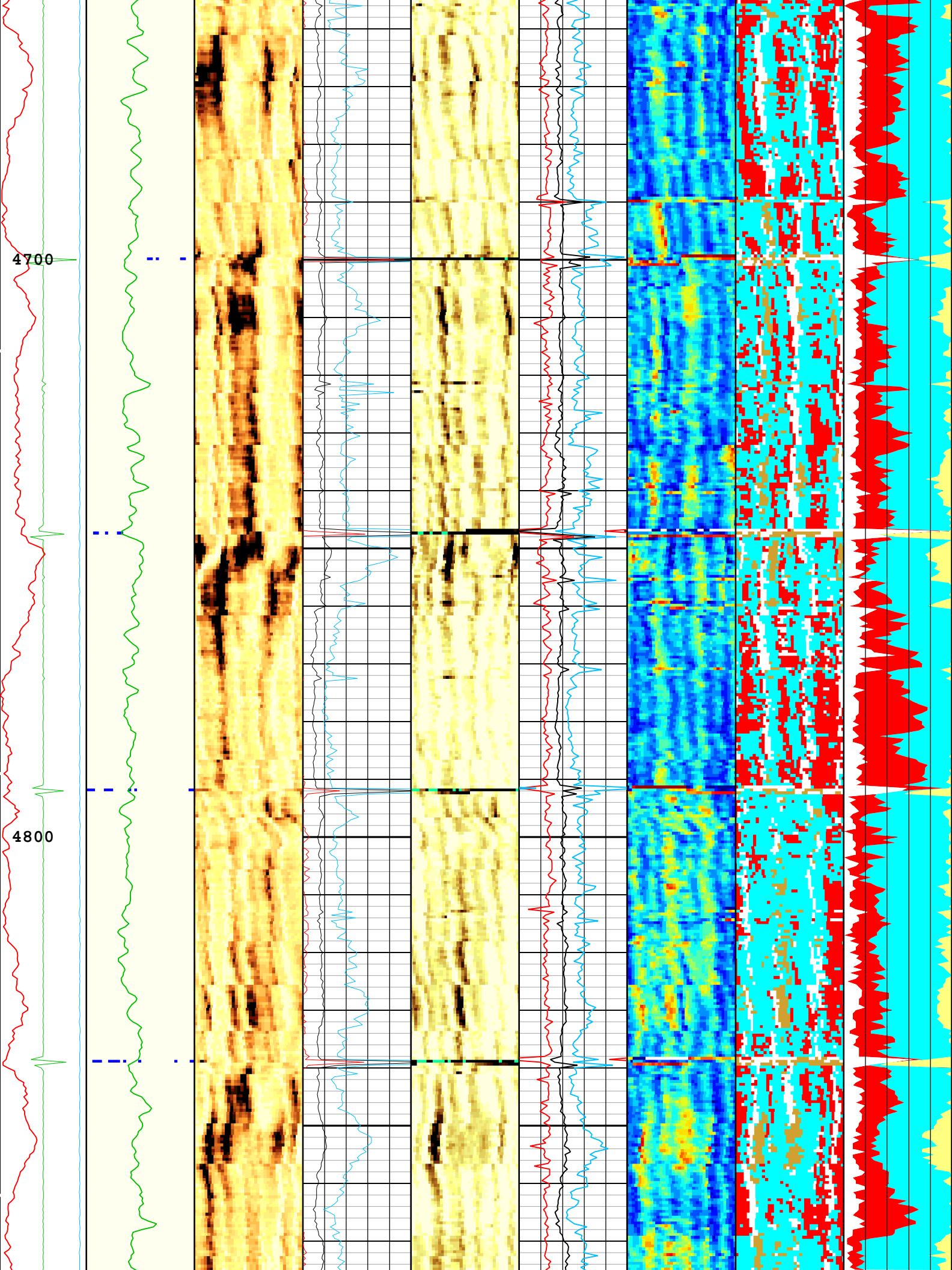


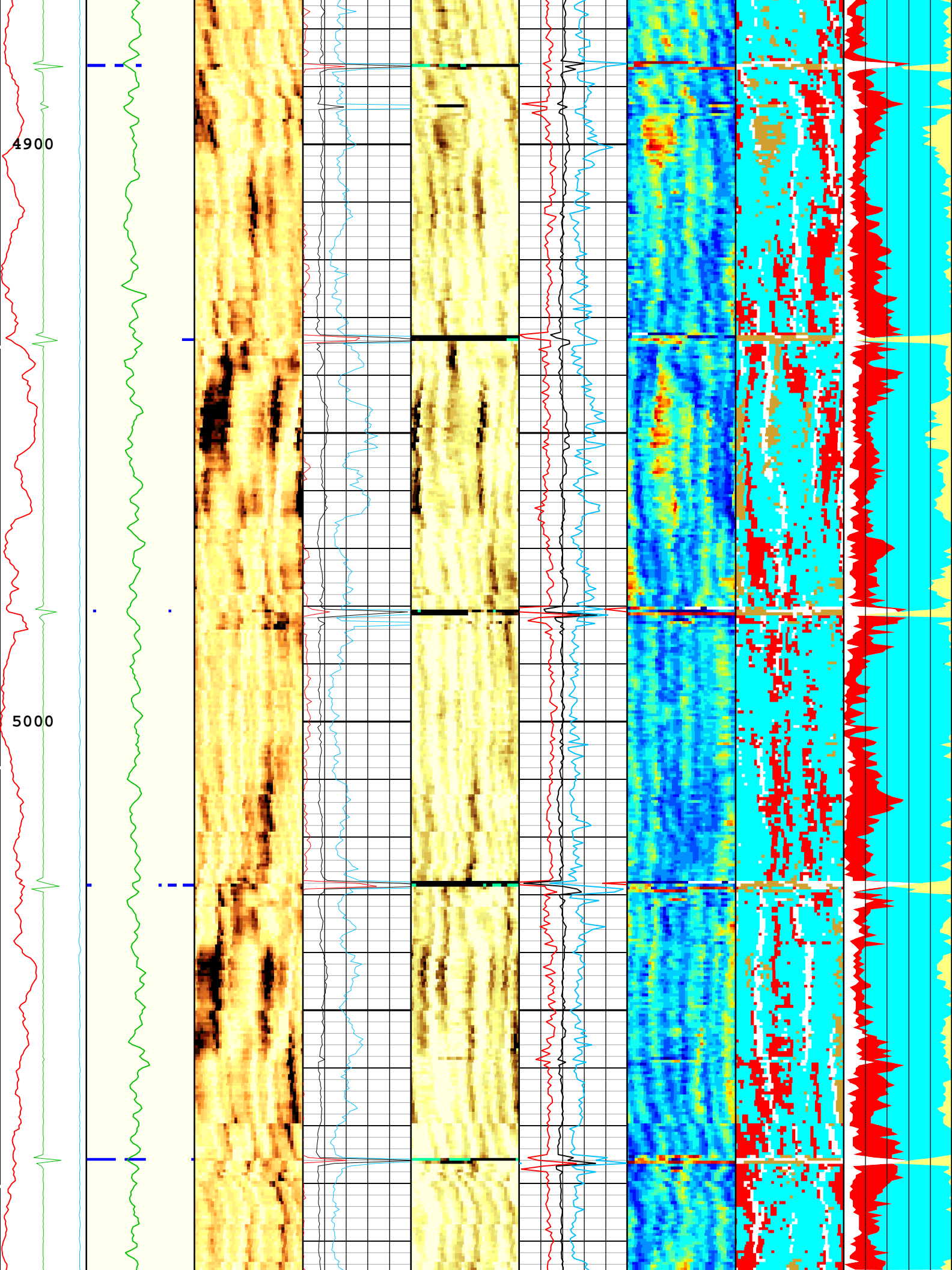


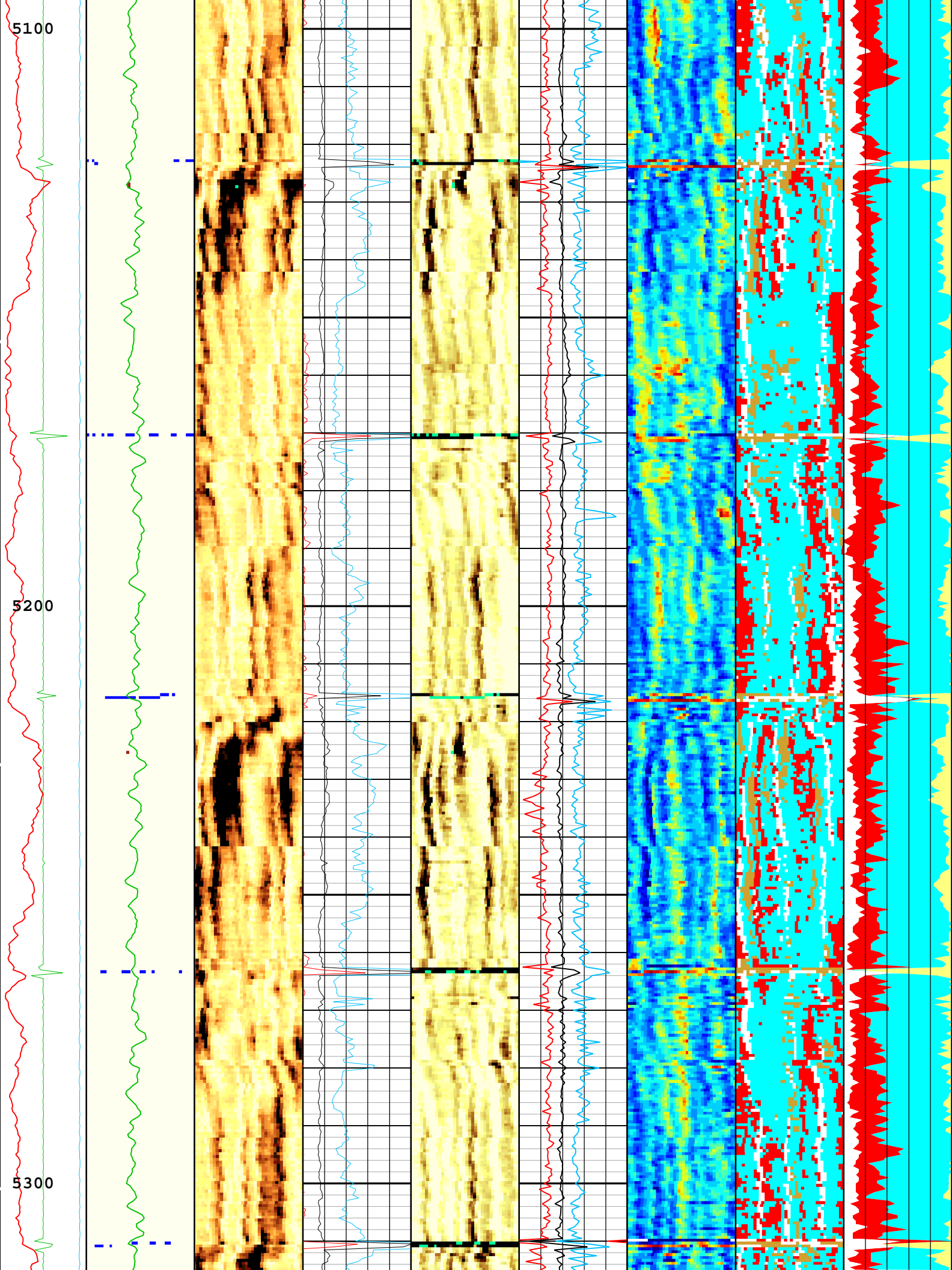


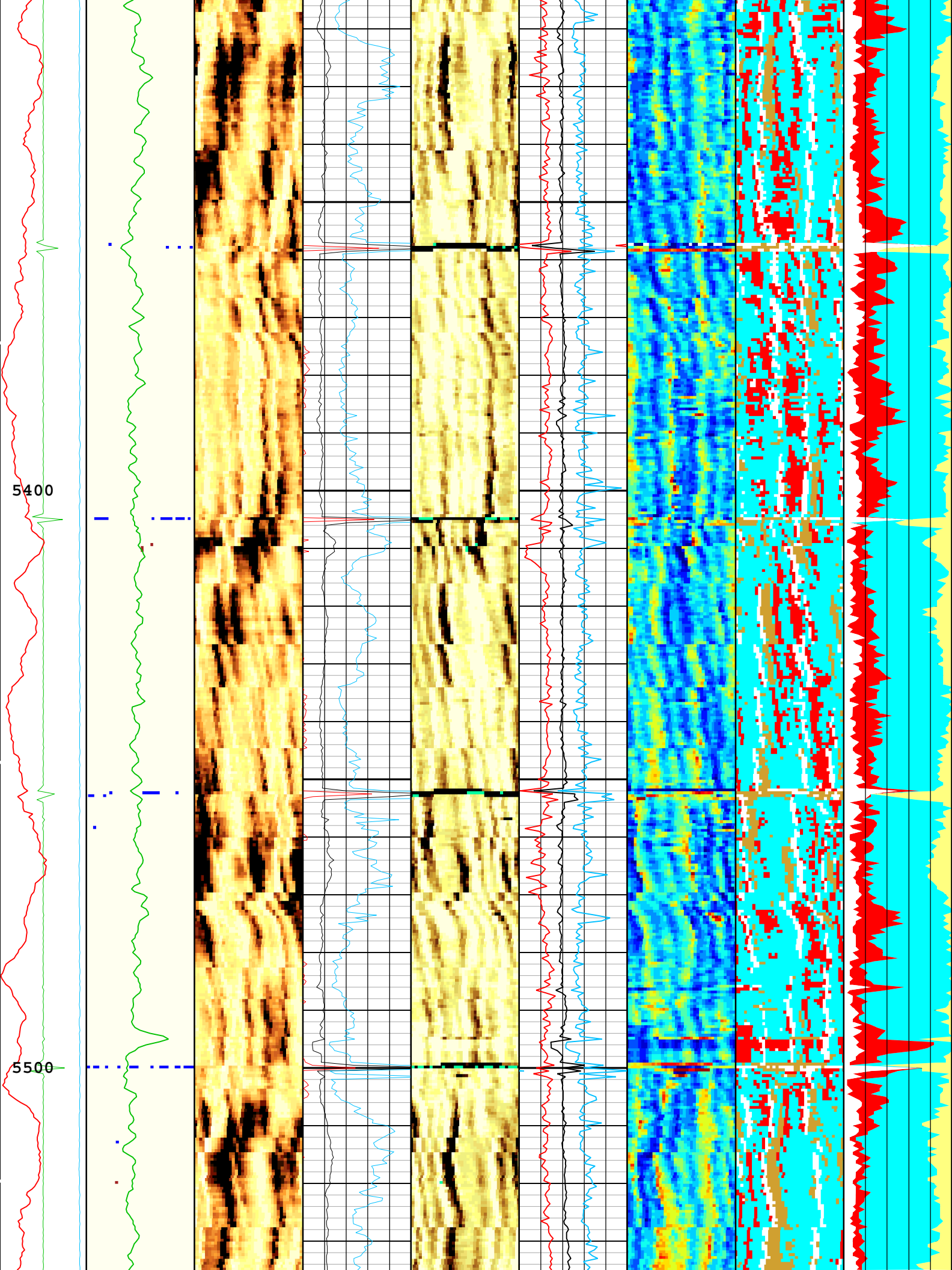


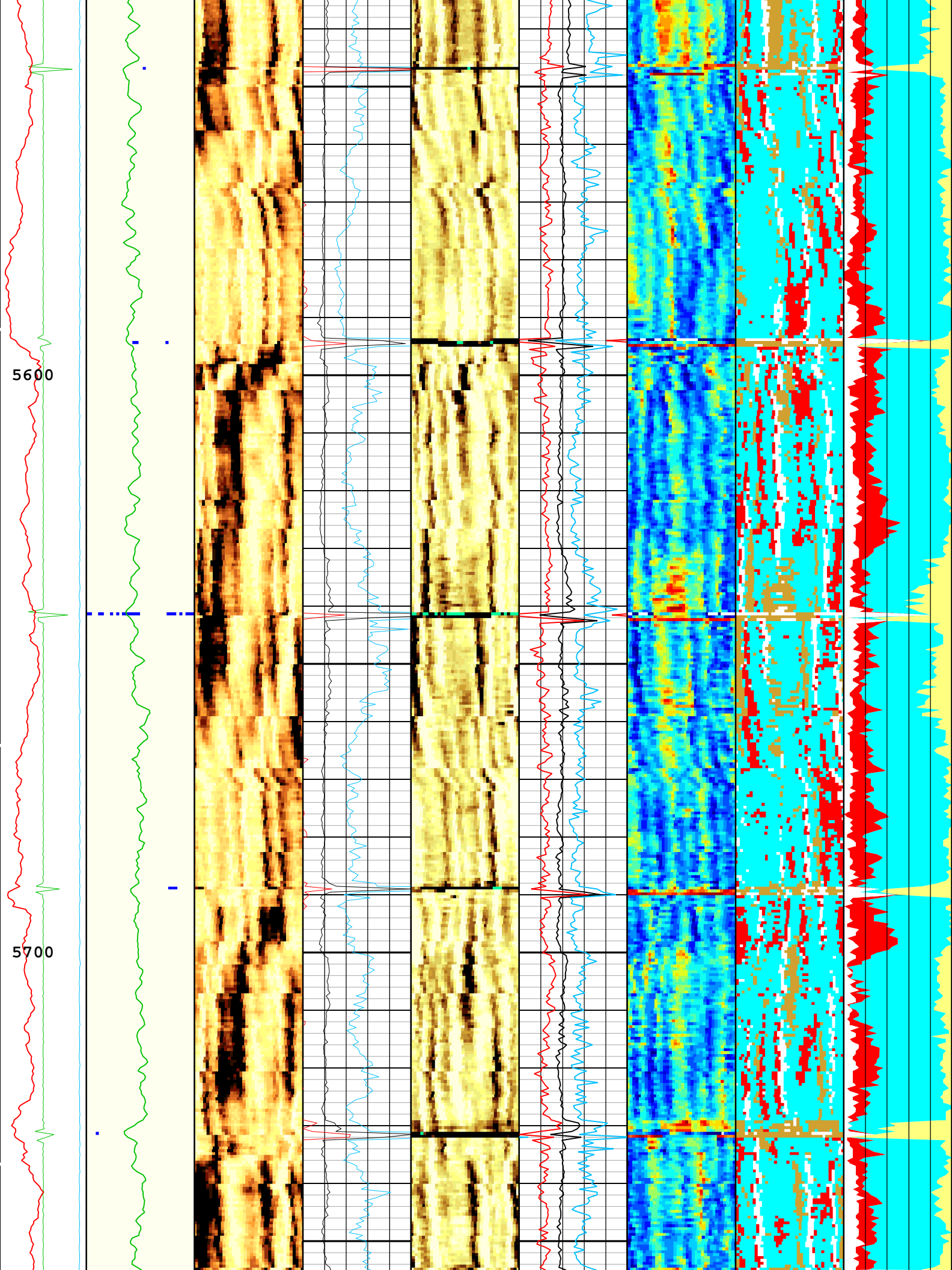


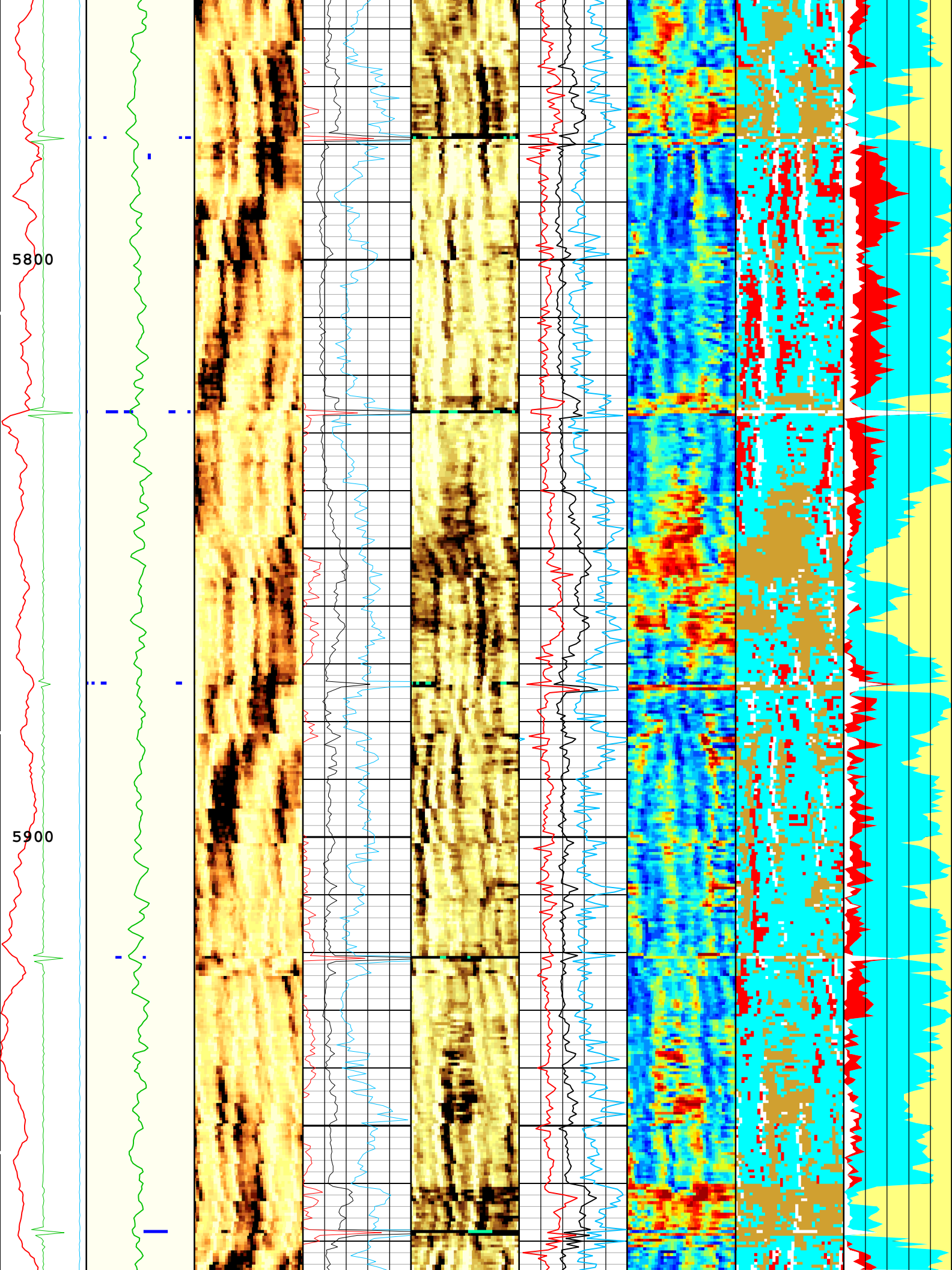


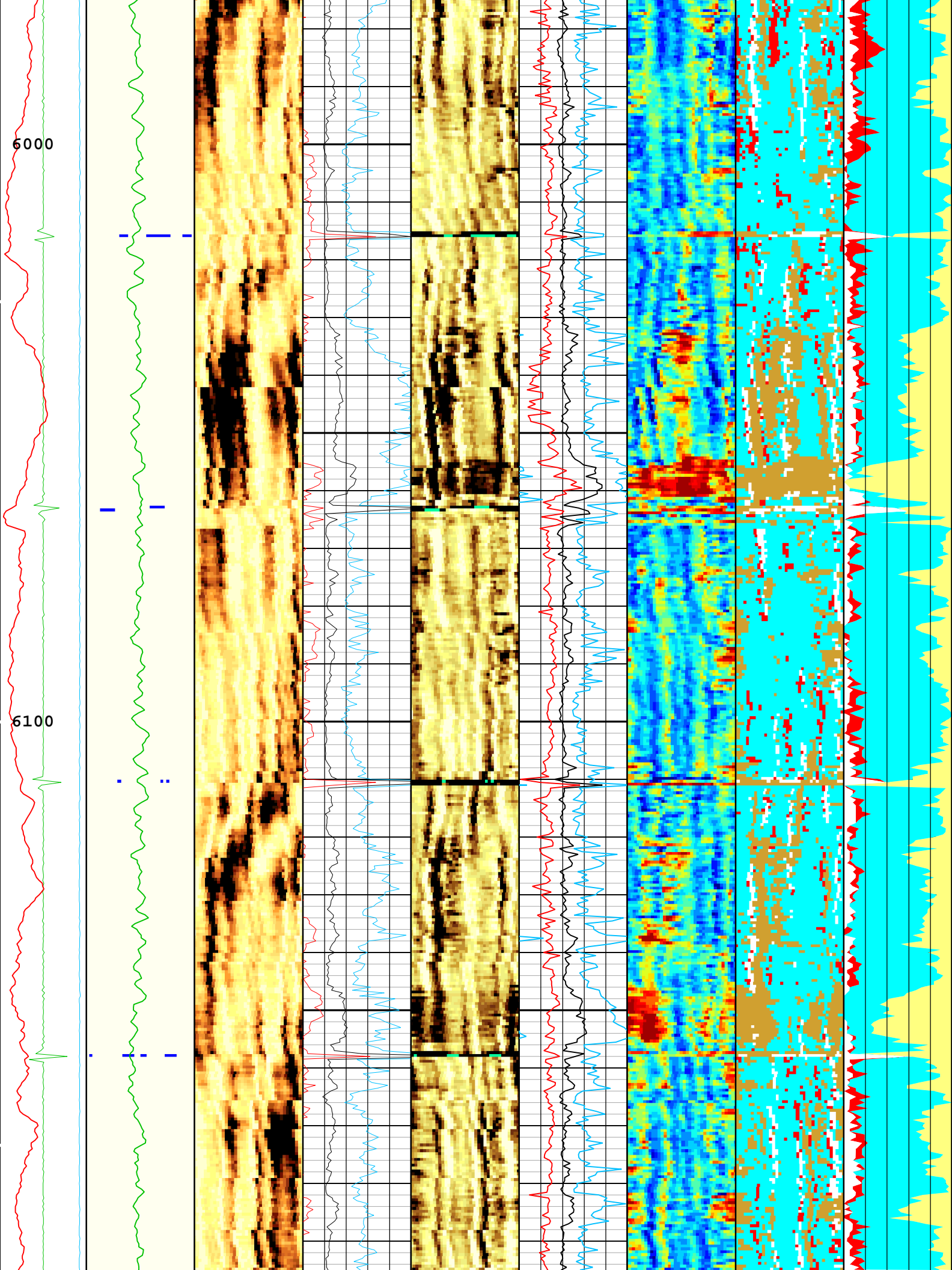


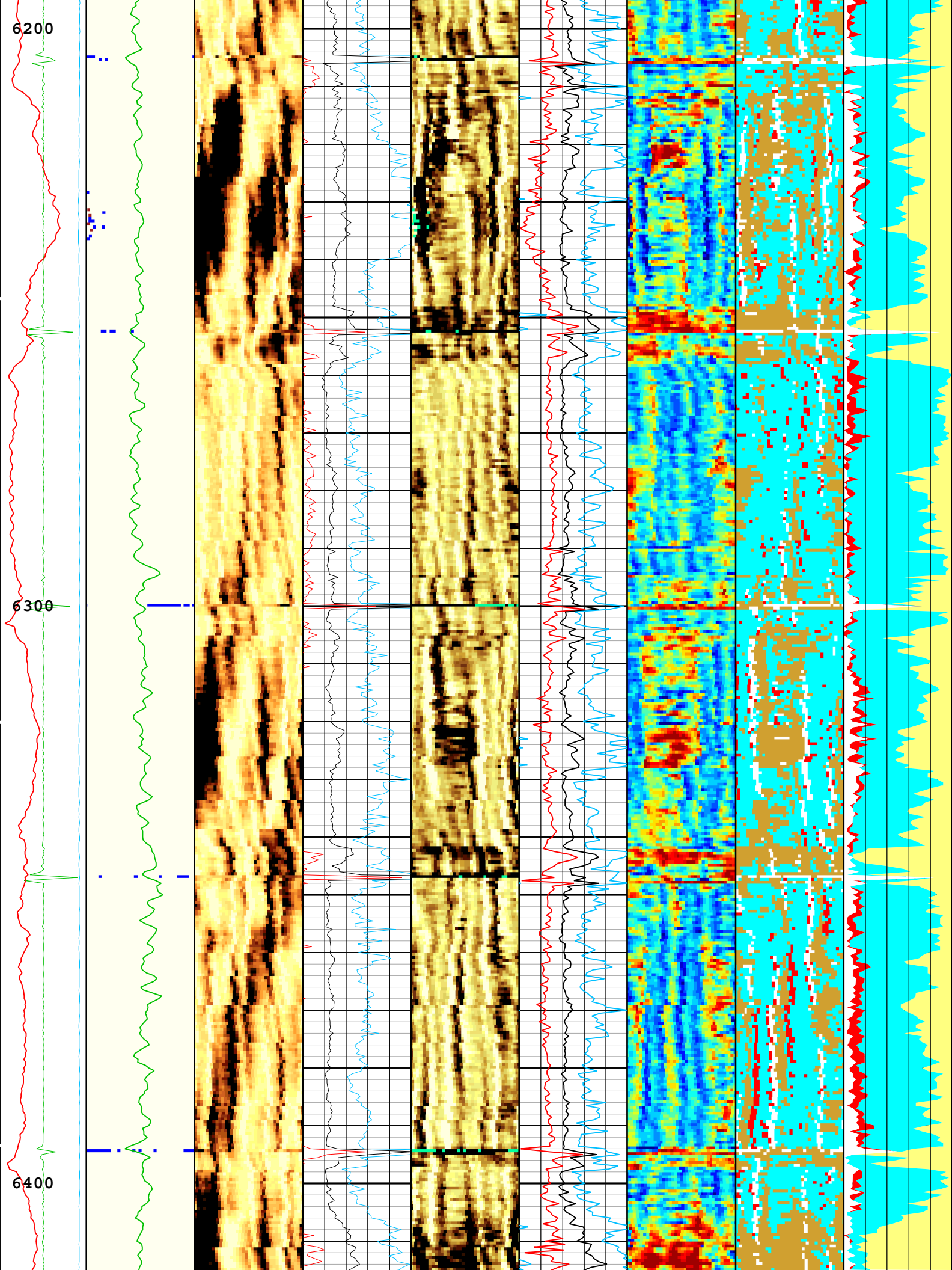


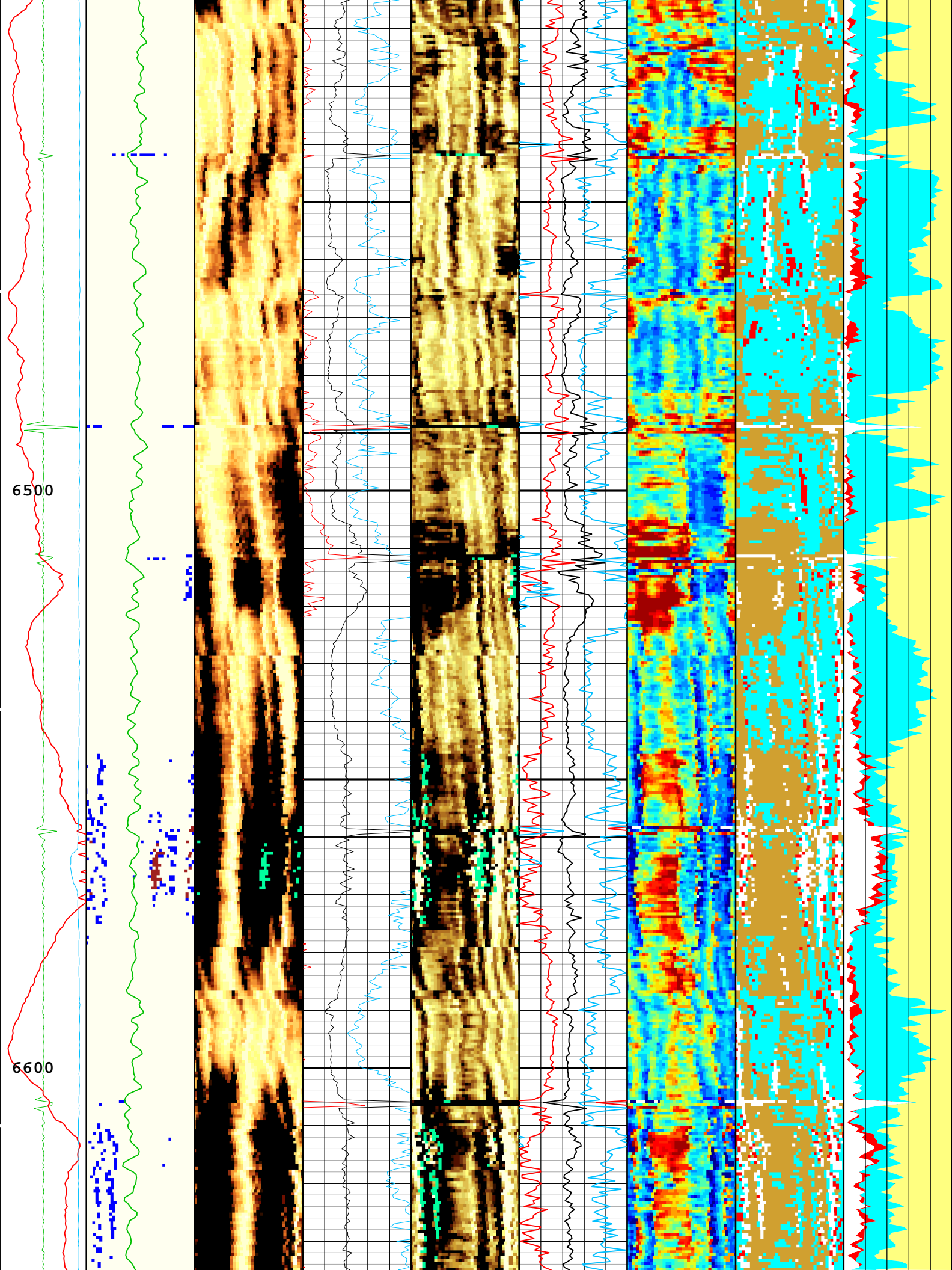


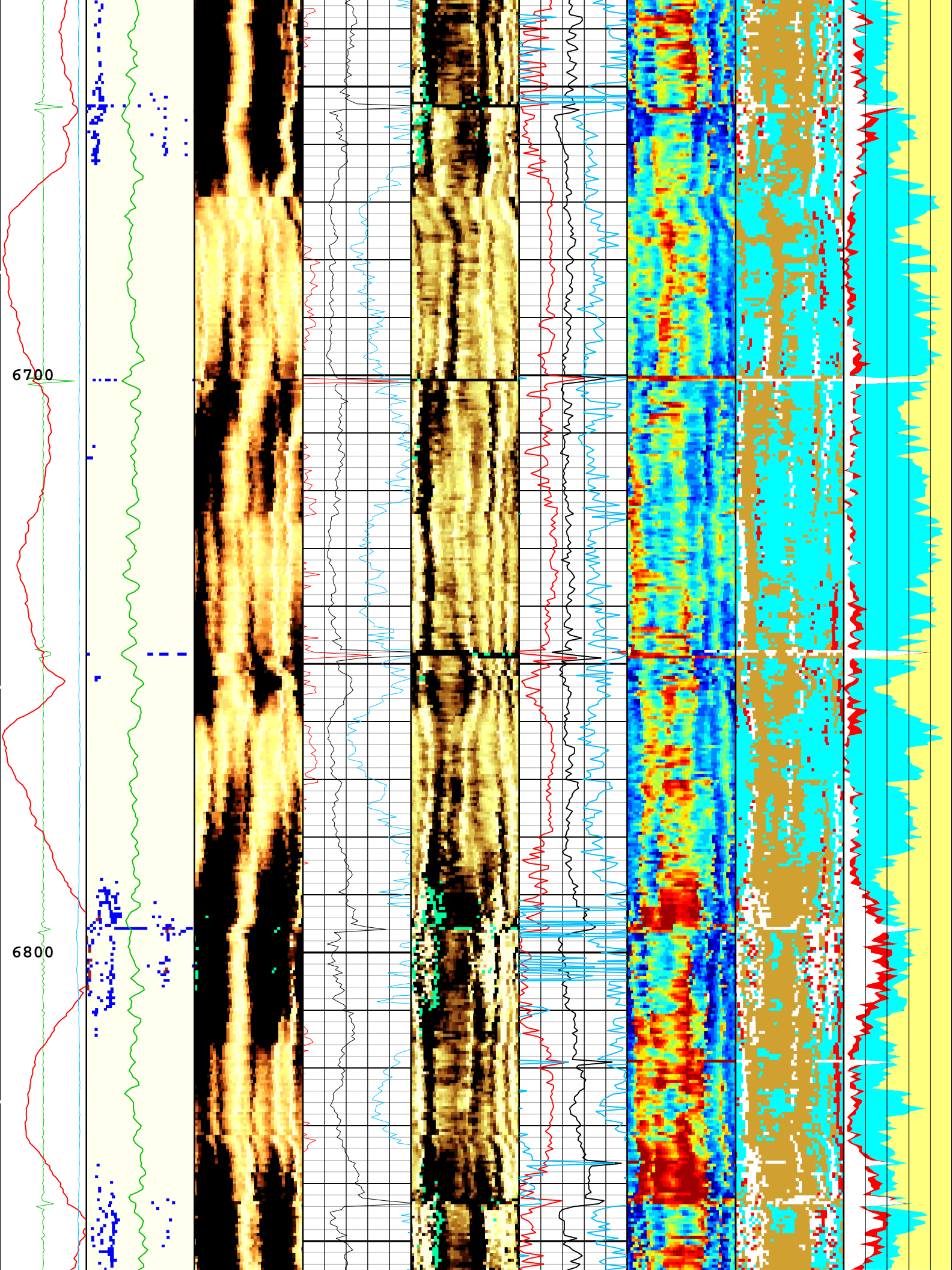


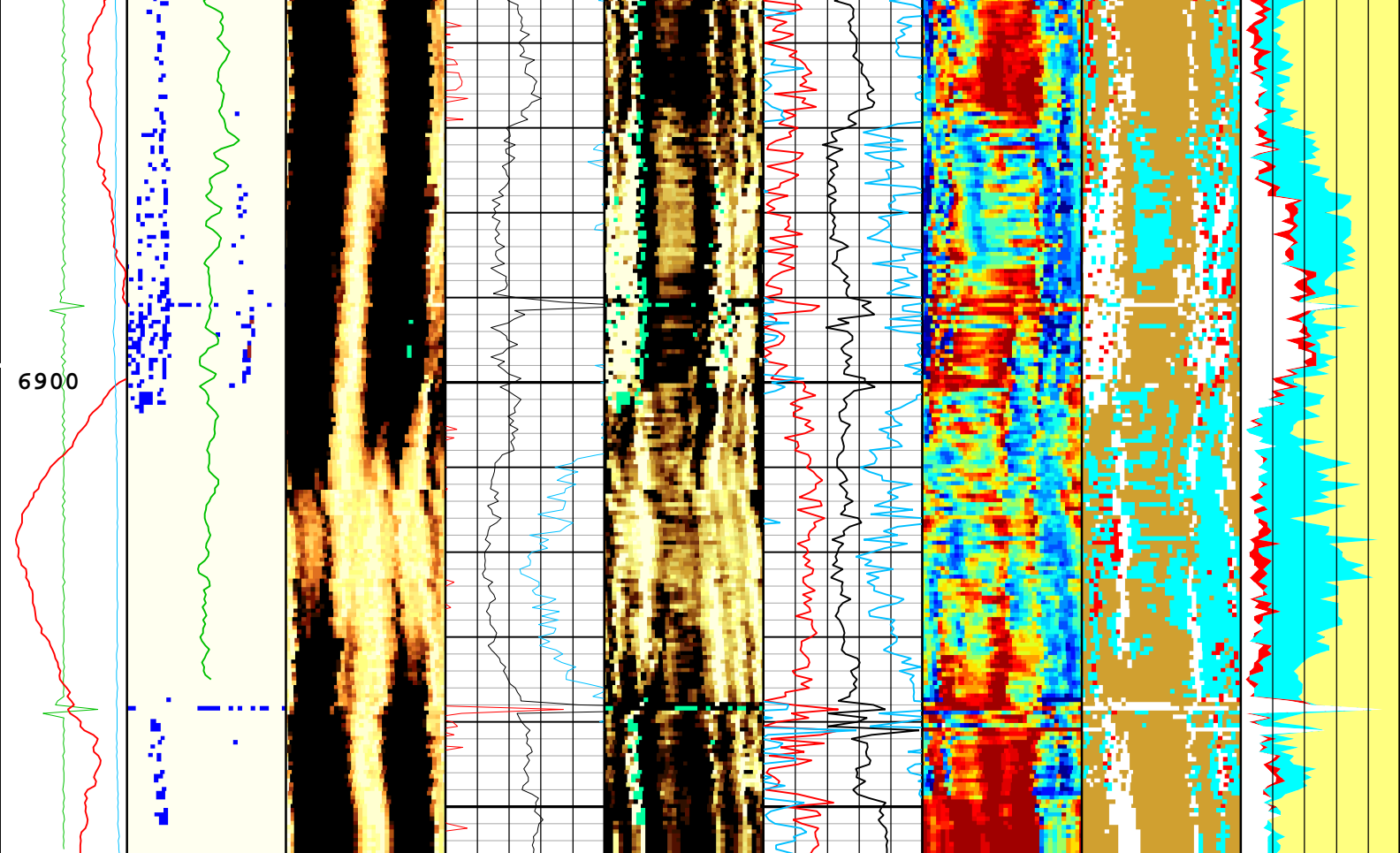












Casing Collar Locator (CCLU) USIT-E	Absent 1.500 3.500 Explicit Normalization USIT - USIT Processing Flags (UFLG) USIT-E Orientation: Top of Hole U L B R U	Absent -5.200 -3.600 -2.000 -0.400 Explicit Normalization USIT - Amplitude of Wave (AWBK) USIT-E (dB) Orientation: Top of Hole U L B R U	Acoustic Impedance Minimum (AIMN) USIT-E -1 Mrayl 9 Acoustic Impedance Average (AIAV) USIT-E -1 Mrayl 9 Acoustic Impedance Maximum (AIMX) USIT-E -1 Mrayl 9	Absent 0.750 1.750 2.750 3.750 Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl) Orientation: Top of Hole U L B R U	Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E 0 dB/m 150 Average Flexural Attenuation (U-USIT_UFAV) USIT-E 0 dB/m 150 Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E 0 dB/m 150	Absent 42.000 66.000 90.000 114.000 Custom Normalization USIT - Flexural Attenuation (UFAK) USIT-E (dB/m) Orientation: Top of Hole U L B R U	Absent 0.500 1.500 2.500 3.500 Explicit Normalization USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E Orientation: Top of Hole U L B R U	SLG Solid Index	SLG Liquid Index	SLG Gas Index	SLG White Point Index
Amplitude of Eccentering (ECCE) USIT-E	-20 in 20 0 in 0.5	USIT Processing Flags (UFLG[0]) USIT-E 1 5									
Motor Revolution Speed (RSAV) USIT-E	6 c/s 7.5	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] - : | 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 |

Description: USI IBC SLG Format: Log (Import (1) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Nov-2018 01:25:20

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BAR(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	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	12045	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	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	204	us/ft
FD	Fluid Density	USIT-E	10.7	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	-21.12	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	1.22	
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	-6.69	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	1.75	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.09	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	50	2433
BS	8.5	2433	6956

All depth are actual.

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	101	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	28.86	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	80	22-Nov-2018 07:35:49	22-Nov-2018 07:36:21	6957.04	6944.29
EMXV	95	22-Nov-2018 07:36:21	22-Nov-2018 07:38:31	6944.29	6788.47
EMXV	111	22-Nov-2018 07:38:31	22-Nov-2018 07:40:41	6788.47	6632.75
EMXV	120	22-Nov-2018 07:40:41	22-Nov-2018 09:12:41	6632.75	48.62
U-USIT_UFWB	132	22-Nov-2018 07:35:49	22-Nov-2018 07:38:04	6957.04	6820.7
U-USIT_UFWB	125.32	22-Nov-2018 07:38:04	22-Nov-2018 09:12:41	6820.7	48.62
U-USIT_UFWE	172	22-Nov-2018 07:35:49	22-Nov-2018 07:36:34	6957.04	6929.57
U-USIT_UFWE	180.03	22-Nov-2018 07:36:34	22-Nov-2018 07:37:42	6929.57	6846.63
U-USIT_UFWE	197.09	22-Nov-2018 07:37:42	22-Nov-2018 07:57:26	6846.63	5414.78
U-USIT_UFWE	209.14	22-Nov-2018 07:57:26	22-Nov-2018 09:12:41	5414.78	48.62
U-USIT_UNWE	141	22-Nov-2018 07:35:49	22-Nov-2018 07:36:40	6957.04	6921.56
U-USIT_UNWE	153	22-Nov-2018 07:36:40	22-Nov-2018 07:37:45	6921.56	6843.09
U-USIT_UNWE	160.74	22-Nov-2018 07:37:45	22-Nov-2018 07:57:28	6843.09	5412.44
U-USIT_UNWE	179.31	22-Nov-2018 07:57:28	22-Nov-2018 09:12:41	5412.44	48.62

	68.86	22-Nov-2018 07:35:49	22-Nov-2018 07:36:23	6957.04	6941.96
WINE	74.02	22-Nov-2018 07:36:23	22-Nov-2018 07:36:44	6941.96	6916.12
WINE	77.9	22-Nov-2018 07:36:44	22-Nov-2018 07:37:49	6916.12	6838.32
WINE	81.78	22-Nov-2018 07:37:49	22-Nov-2018 09:12:41	6838.32	48.62

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	48.62 ft	6957.04 ft	22-Nov-2018 7:35:49 AM	22-Nov-2018 9:12:41 AM	ON	11.23 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Crestone Peak Resources Operating LLC	Well:Melbon Ranch 4C-17H-M265	One: Log[4]:Up:S037
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Description: USI IBC SLG Composite Format: Log (Import (1) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured
Depth Creation Date: 27-Nov-2018 01:25:33

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] - :

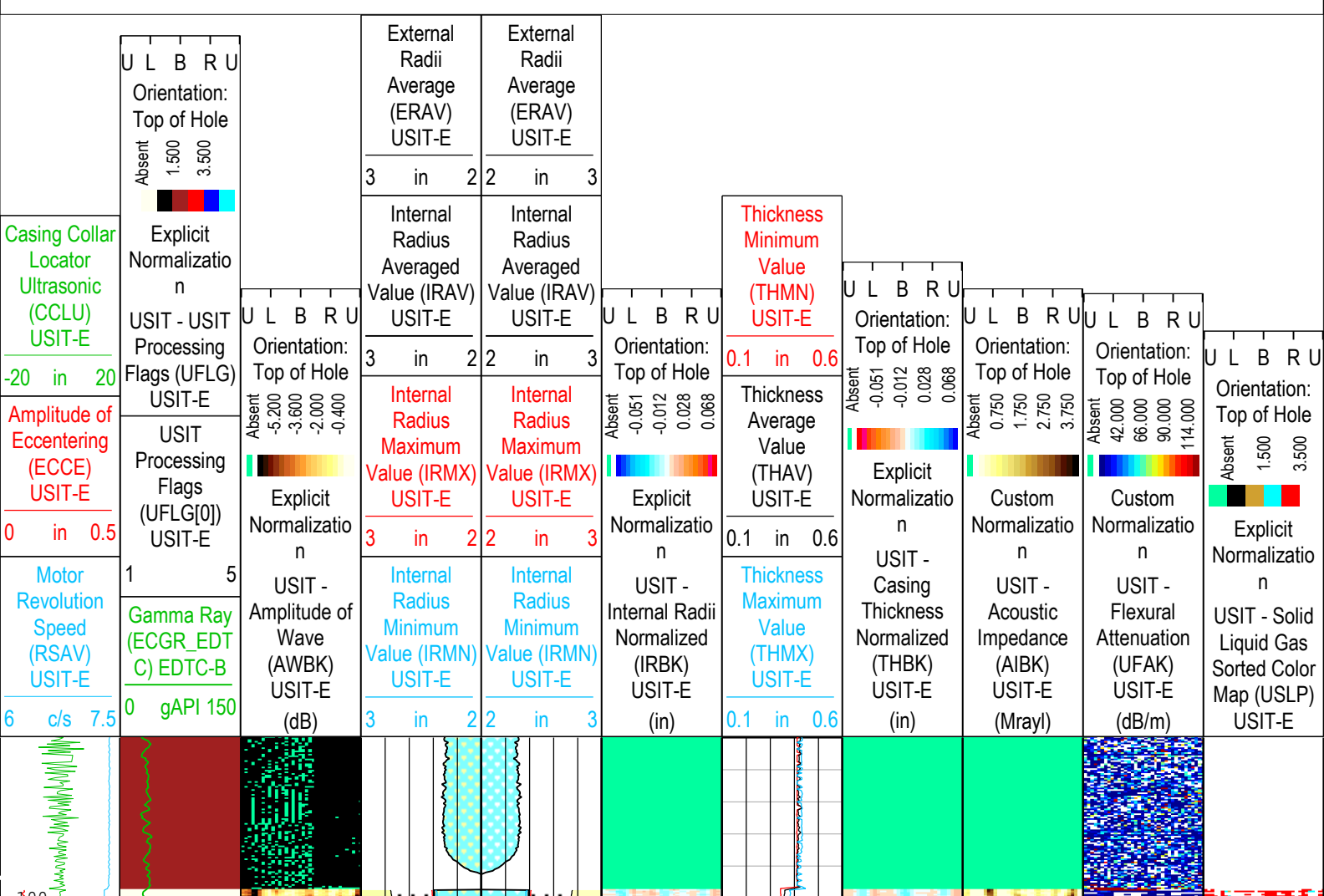
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

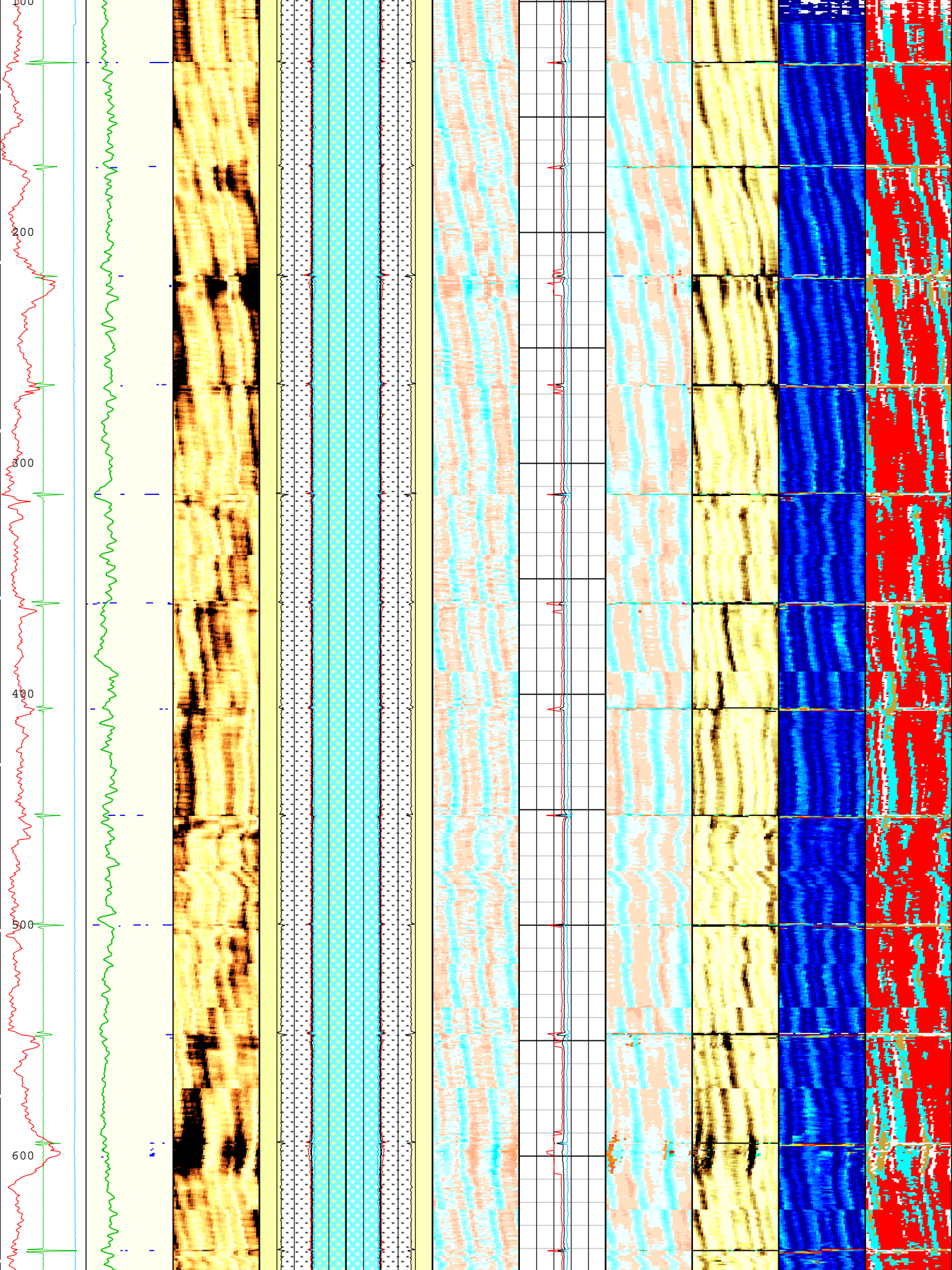
Pulse Origin Not Detected

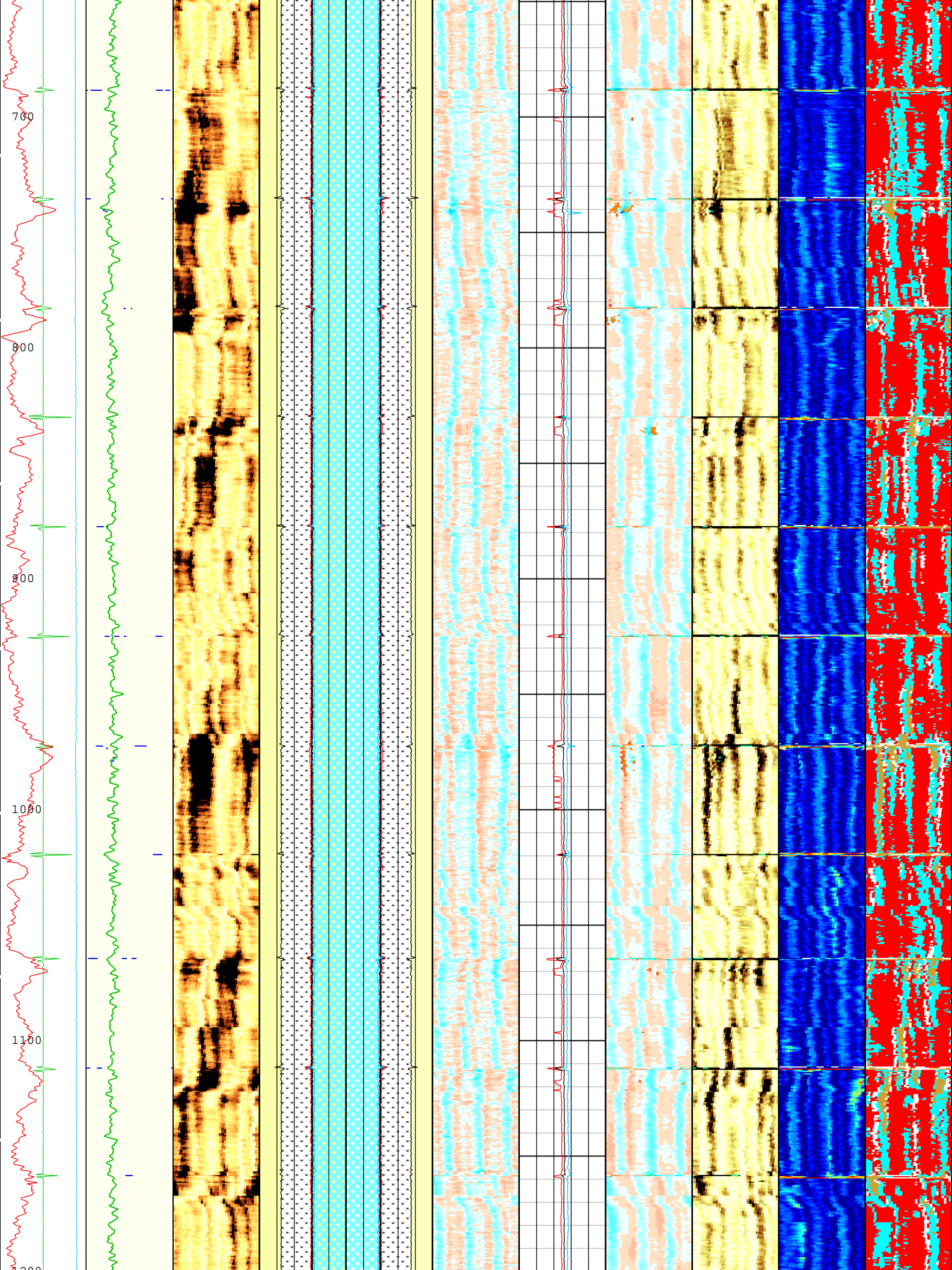
WINLEN Error

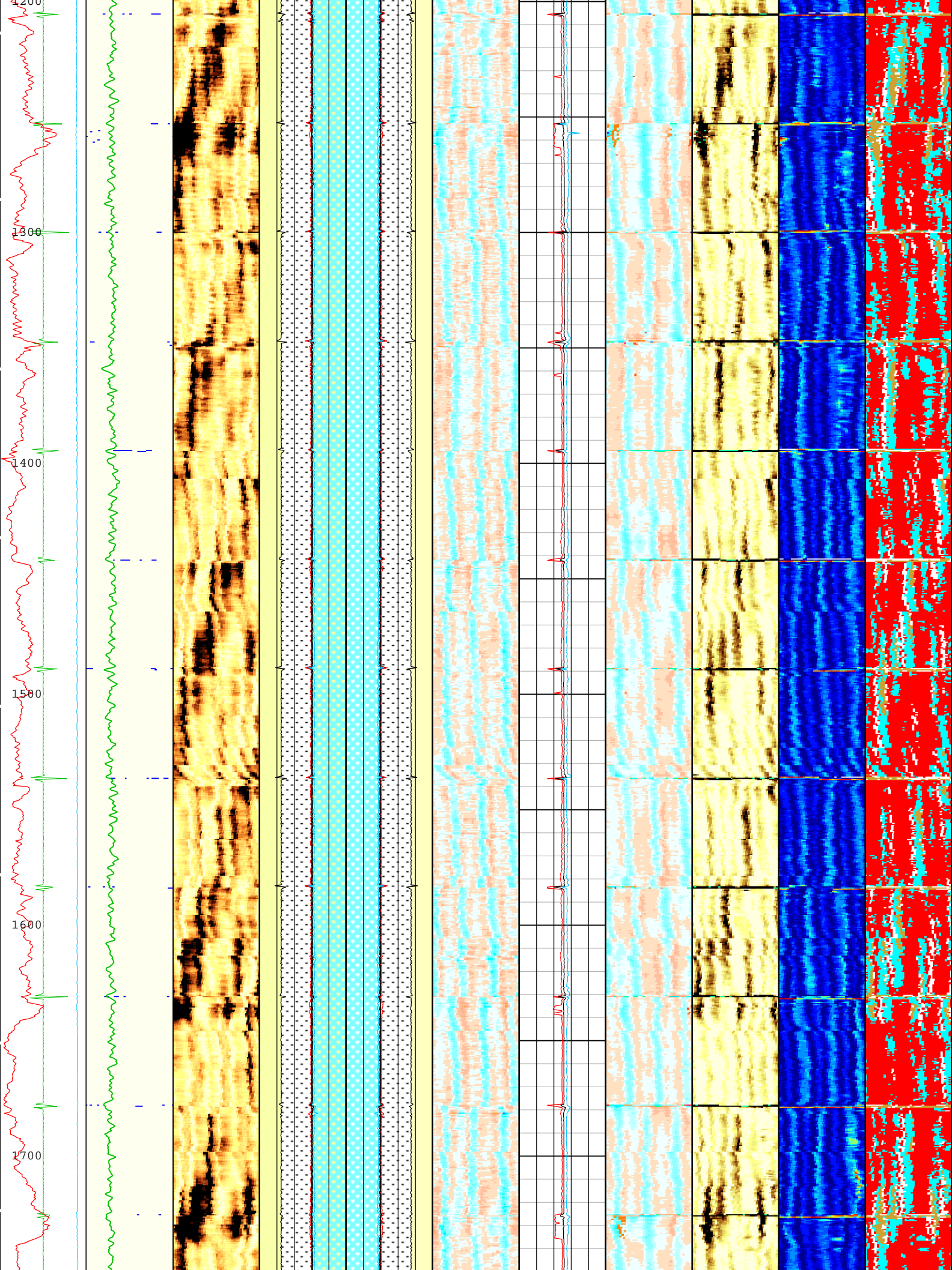
Casing Thickness Error

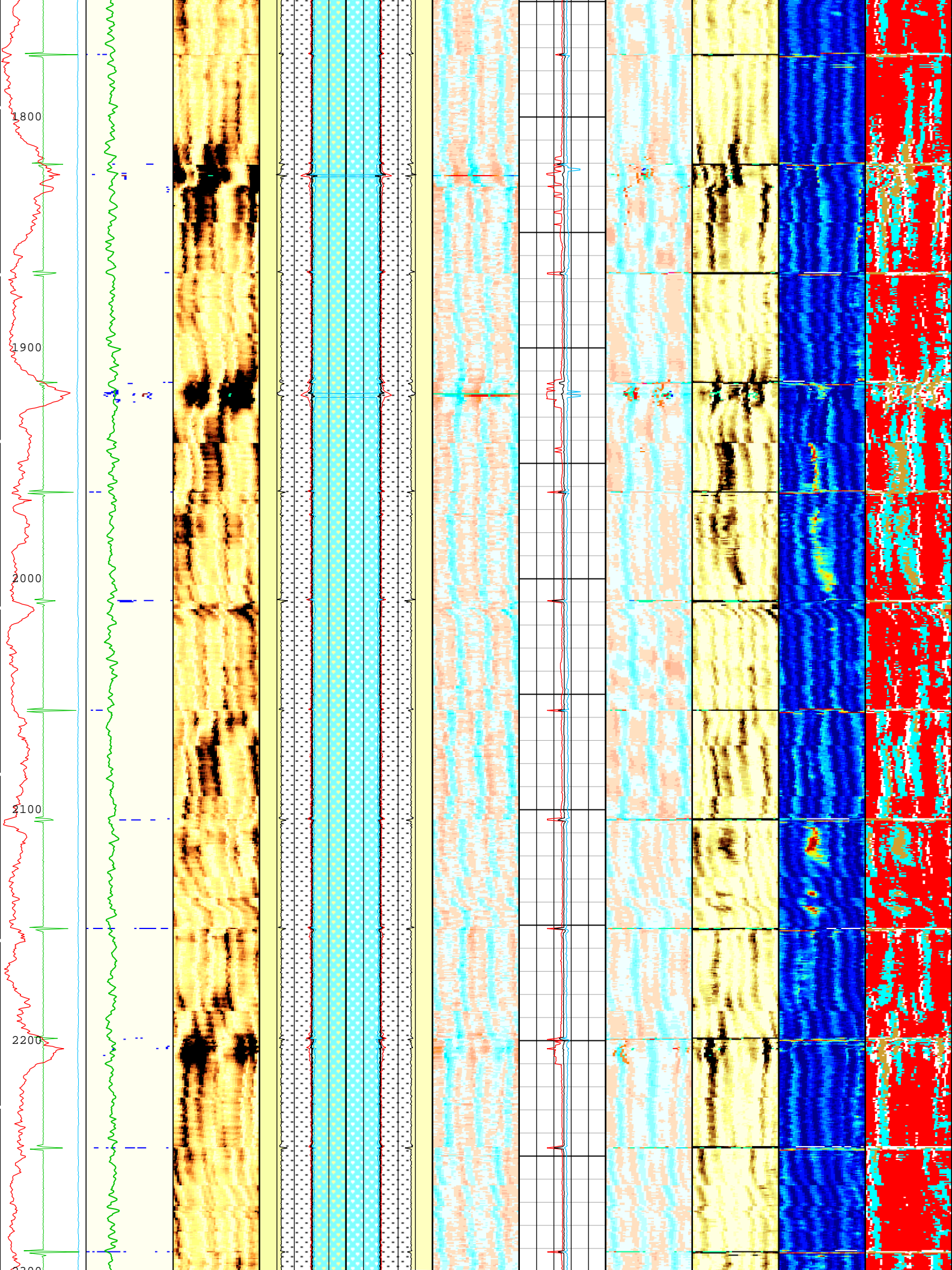
Loop Processing Error

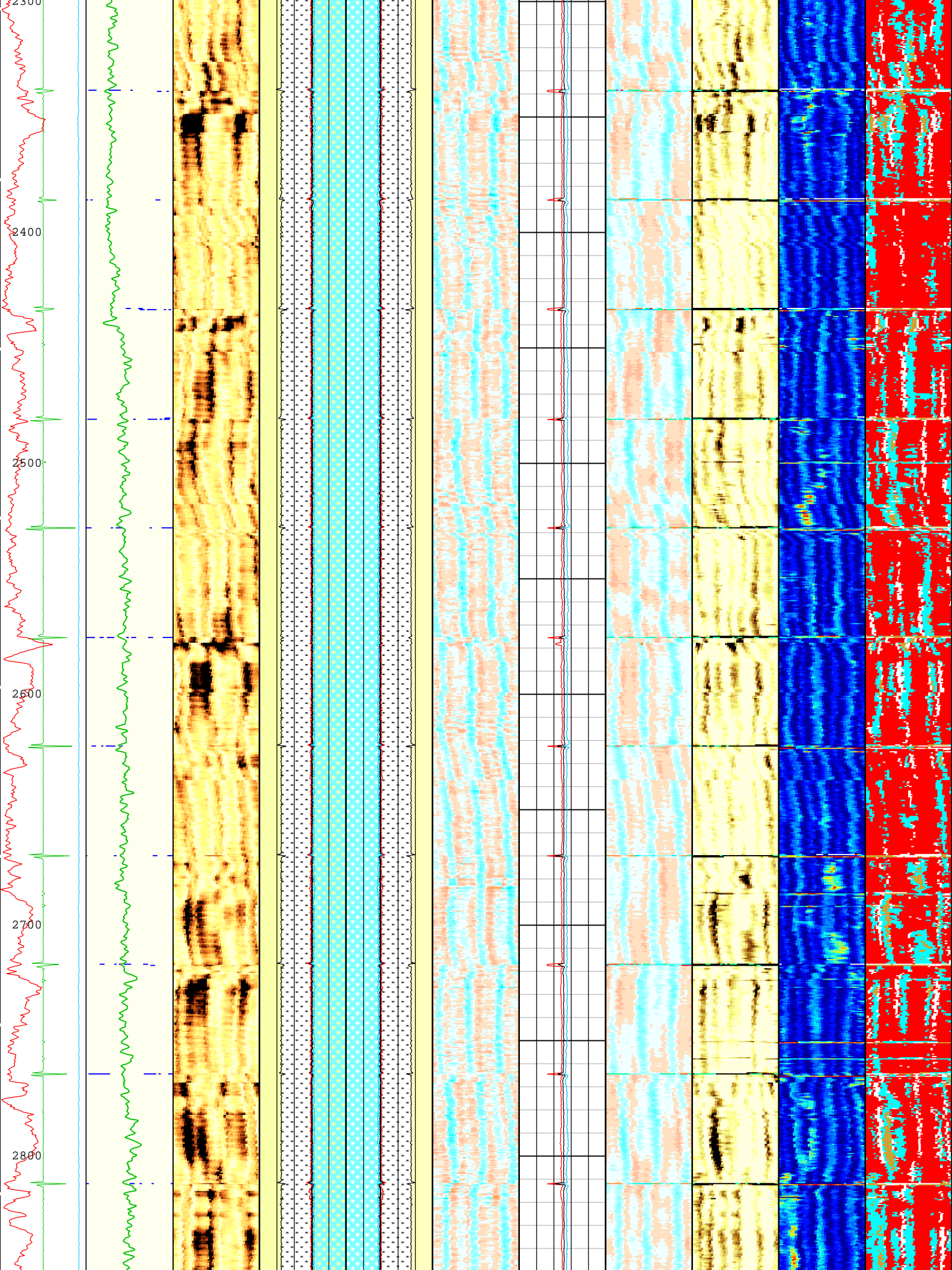


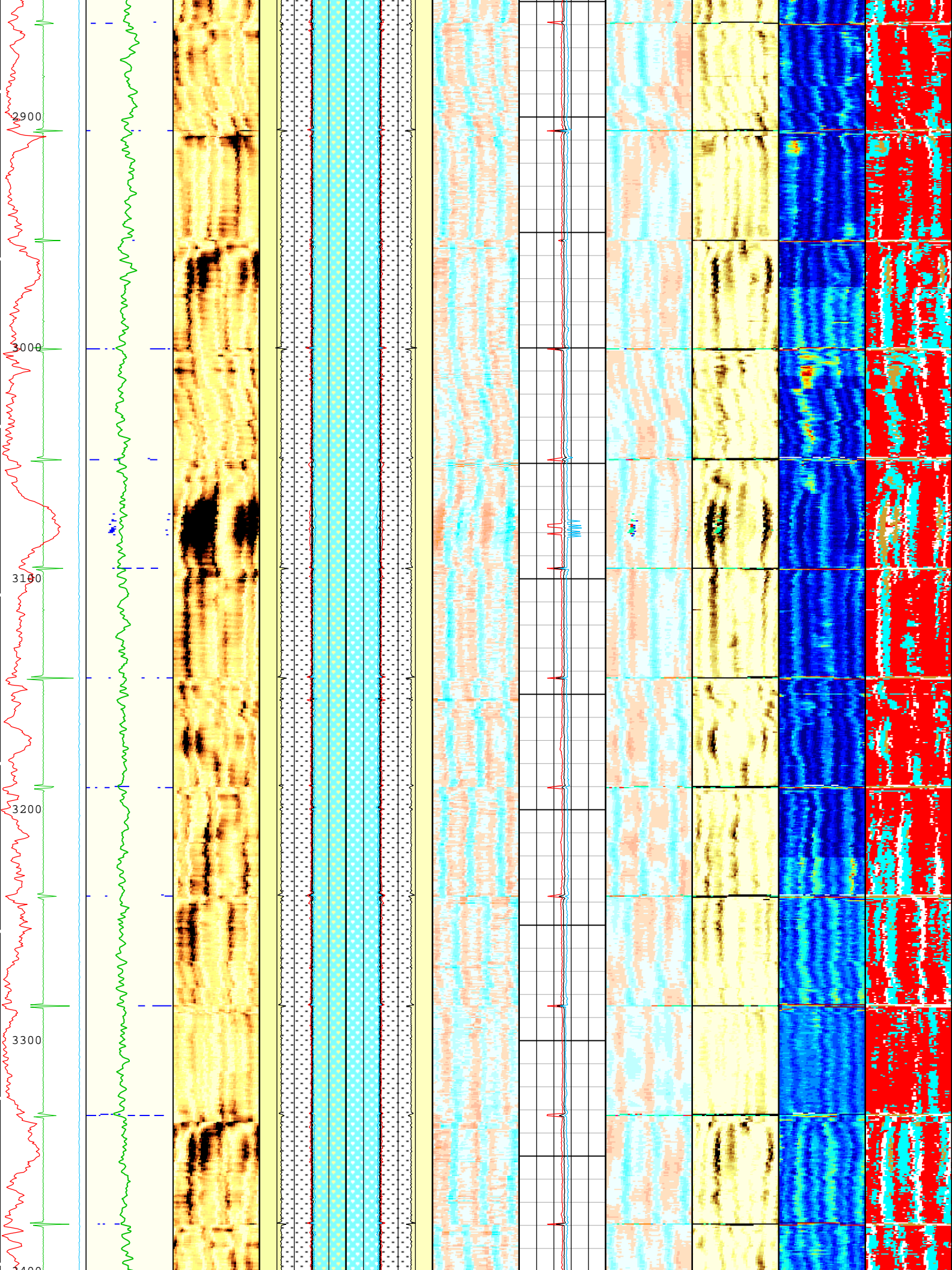


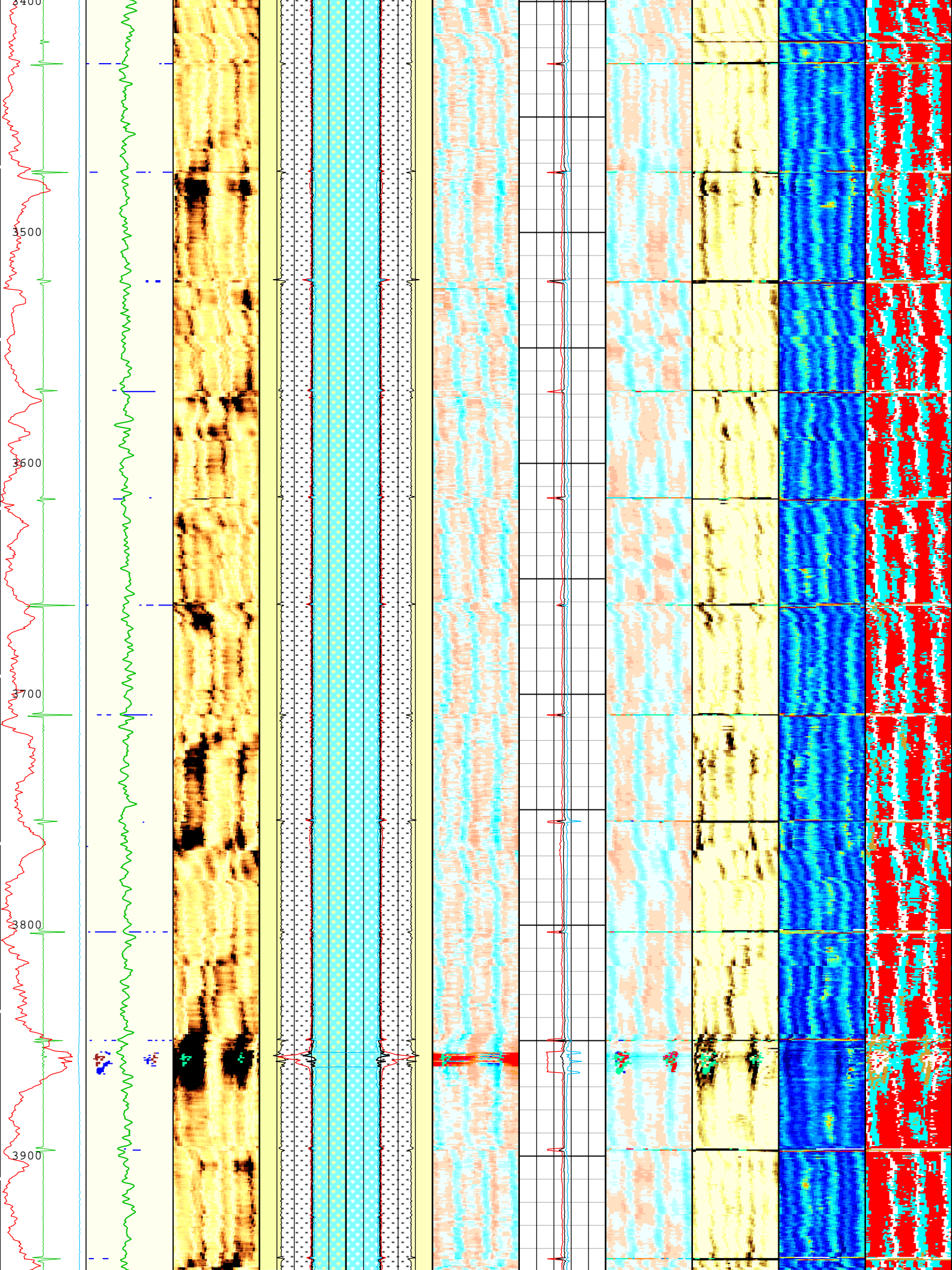


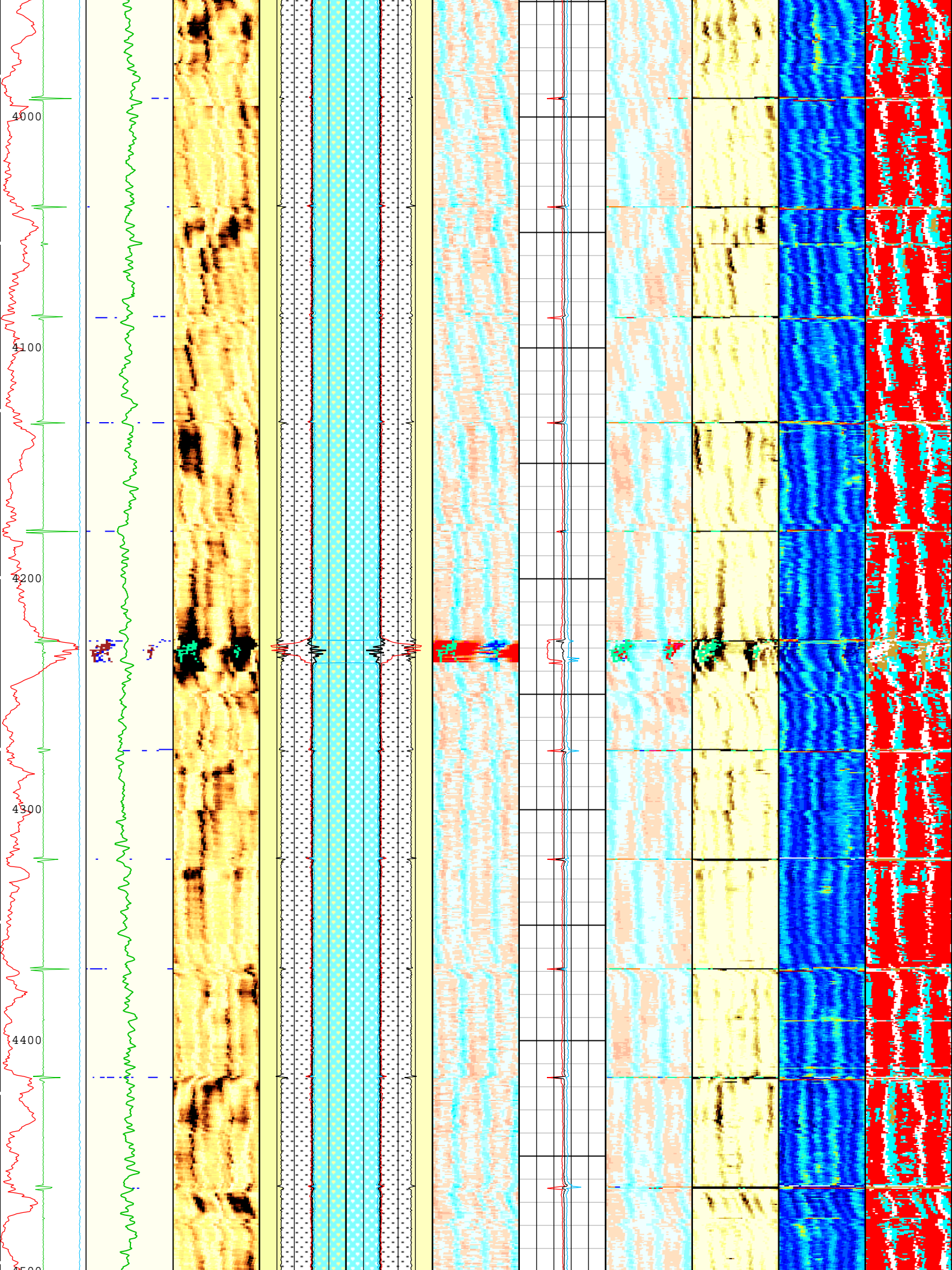


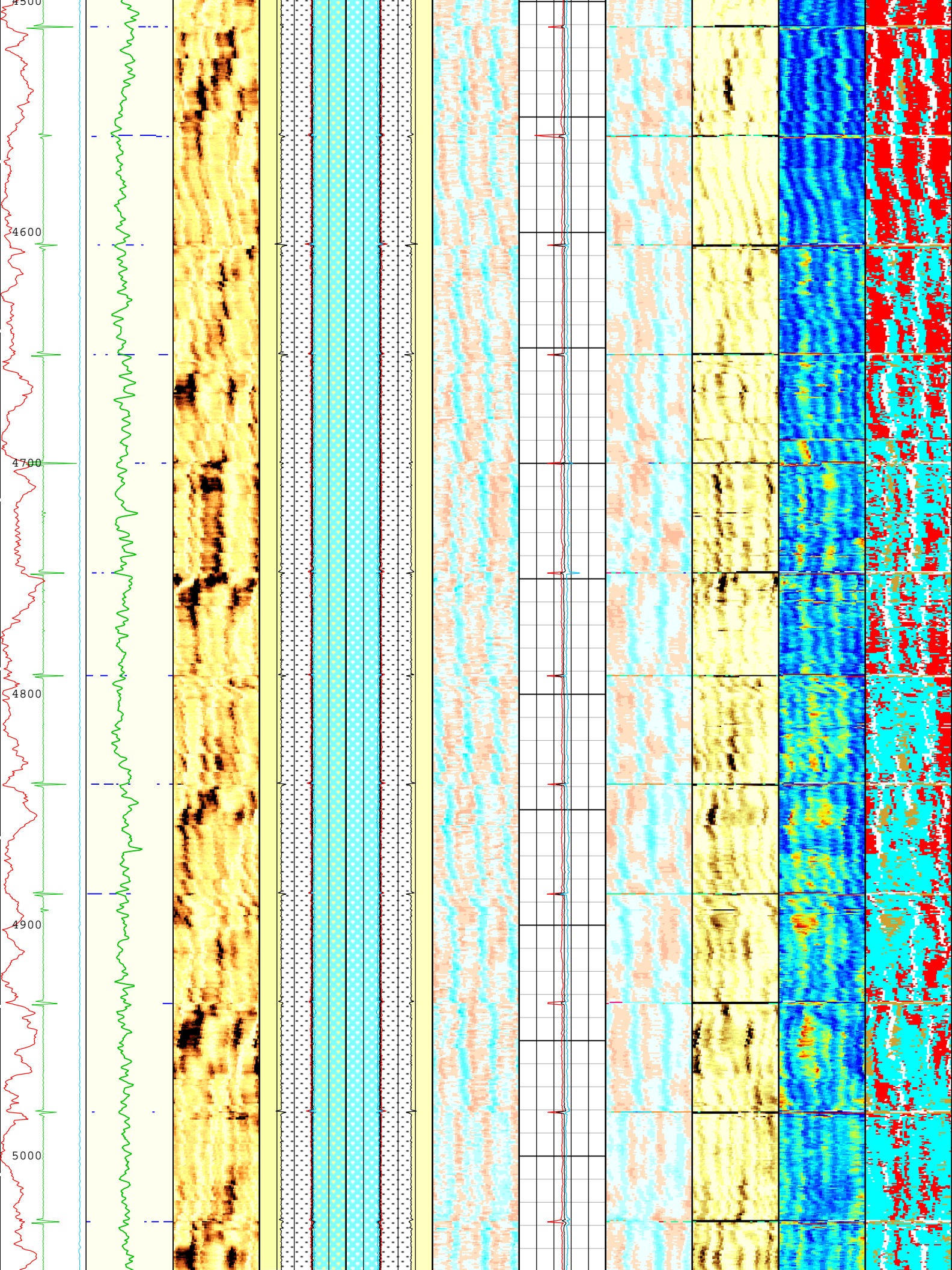


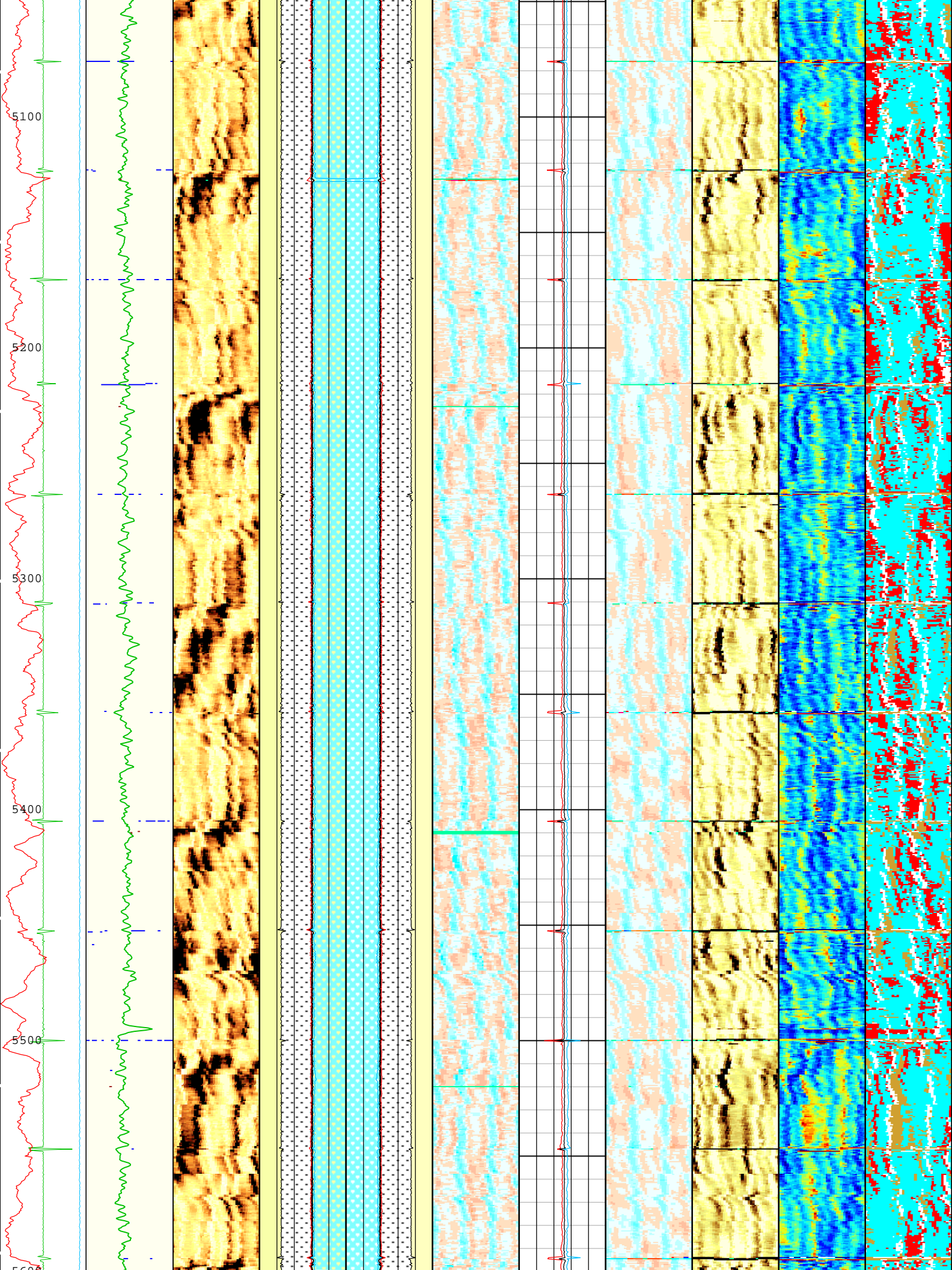


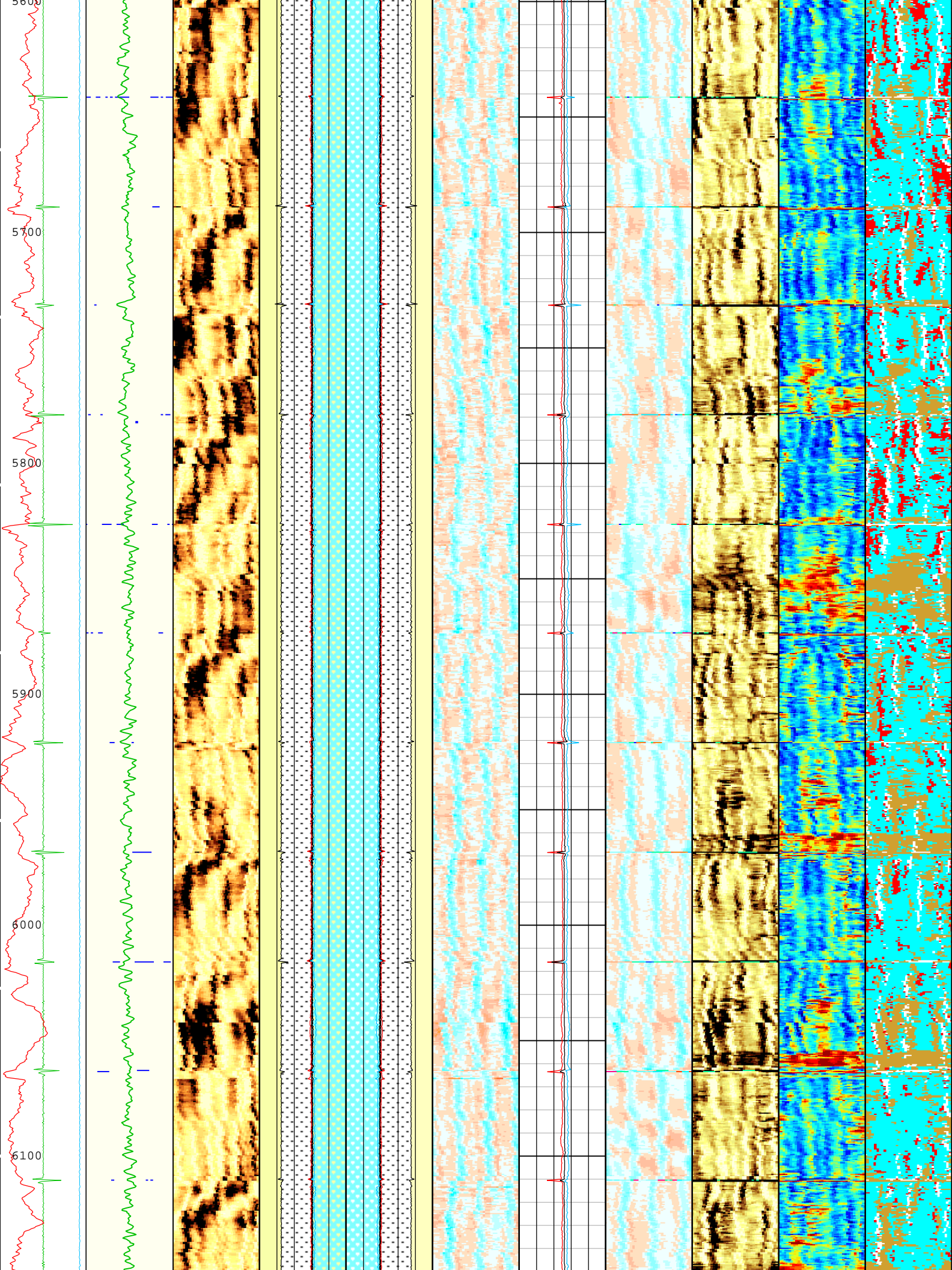


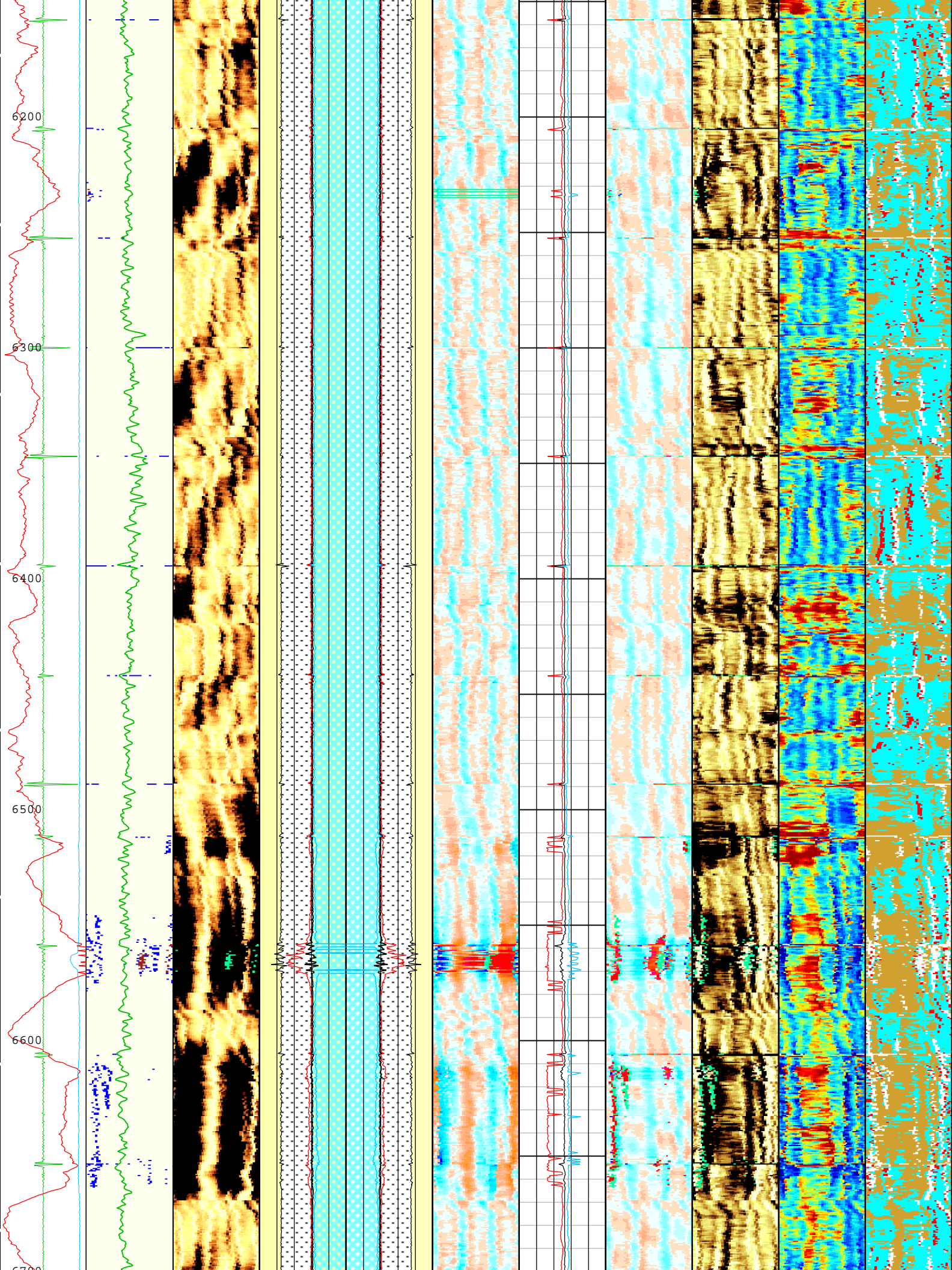


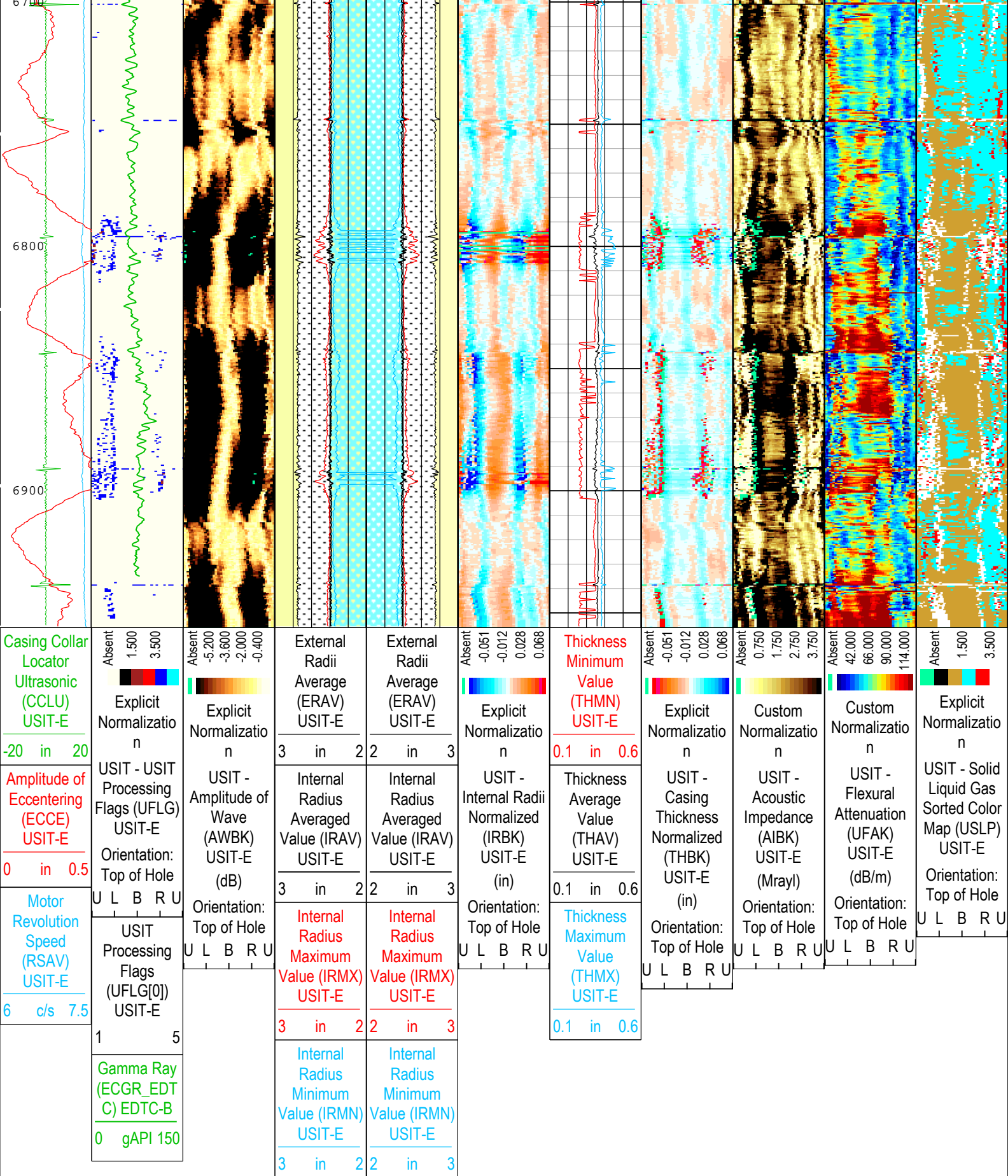












USIT Processing Flags (UFLG[0]) USIT-E

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

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	12045	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	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	204	us/ft
FD	Fluid Density	USIT-E	10.7	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	-21.12	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	1.22	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-6.69	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.75	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.09	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	50	2433
BS	8.5	2433	6956

All depth are actual.

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
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	101	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	us
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	28.86	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	80	22-Nov-2018 07:35:49	22-Nov-2018 07:36:21	6957.04	6944.29
EMXV	95	22-Nov-2018 07:36:21	22-Nov-2018 07:38:31	6944.29	6788.47
EMXV	111	22-Nov-2018 07:38:31	22-Nov-2018 07:40:41	6788.47	6632.75
EMXV	120	22-Nov-2018 07:40:41	22-Nov-2018 09:12:41	6632.75	48.62
U-USIT_UFWB	132	22-Nov-2018 07:35:49	22-Nov-2018 07:38:04	6957.04	6820.7
U-USIT_UFWB	125.32	22-Nov-2018 07:38:04	22-Nov-2018 09:12:41	6820.7	48.62
U-USIT_UFWE	172	22-Nov-2018 07:35:49	22-Nov-2018 07:36:34	6957.04	6929.57
U-USIT_UFWE	180.03	22-Nov-2018 07:36:34	22-Nov-2018 07:37:42	6929.57	6846.63
U-USIT_UFWE	197.09	22-Nov-2018 07:37:42	22-Nov-2018 07:57:26	6846.63	5414.78
U-USIT_UFWE	209.14	22-Nov-2018 07:57:26	22-Nov-2018 09:12:41	5414.78	48.62
U-USIT_UNWE	141	22-Nov-2018 07:35:49	22-Nov-2018 07:36:40	6957.04	6921.56
U-USIT_UNWE	153	22-Nov-2018 07:36:40	22-Nov-2018 07:37:45	6921.56	6843.09
U-USIT_UNWE	160.74	22-Nov-2018 07:37:45	22-Nov-2018 07:57:28	6843.09	5412.44
U-USIT_UNWE	179.31	22-Nov-2018 07:57:28	22-Nov-2018 09:12:41	5412.44	48.62
WINE	68.86	22-Nov-2018 07:35:49	22-Nov-2018 07:36:23	6957.04	6941.96
WINE	74.02	22-Nov-2018 07:36:23	22-Nov-2018 07:36:44	6941.96	6916.12
WINE	77.9	22-Nov-2018 07:36:44	22-Nov-2018 07:37:49	6916.12	6838.32
WINE	81.78	22-Nov-2018 07:37:49	22-Nov-2018 09:12:41	6838.32	48.62

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	48.62 ft	6957.04 ft	22-Nov-2018 7:35:49 AM	22-Nov-2018 9:12:41 AM	ON	11.23 ft	Yes

All depths are referenced to toolstring zero

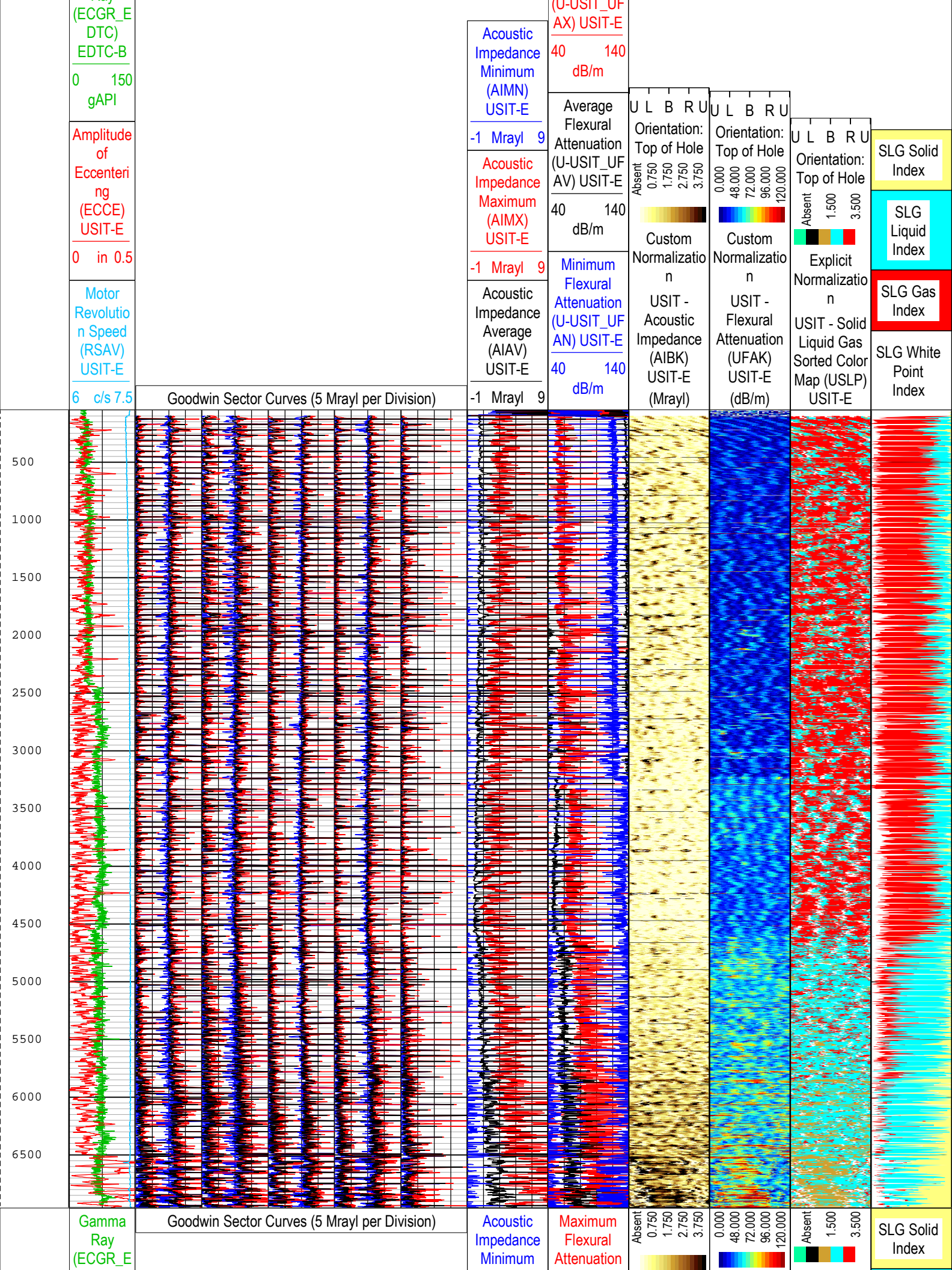
Log	Company:Crestone Peak Resources Operating LLC	Well:Melbon Ranch 4C-17H-M265
		One: Log[4]:Up:S037

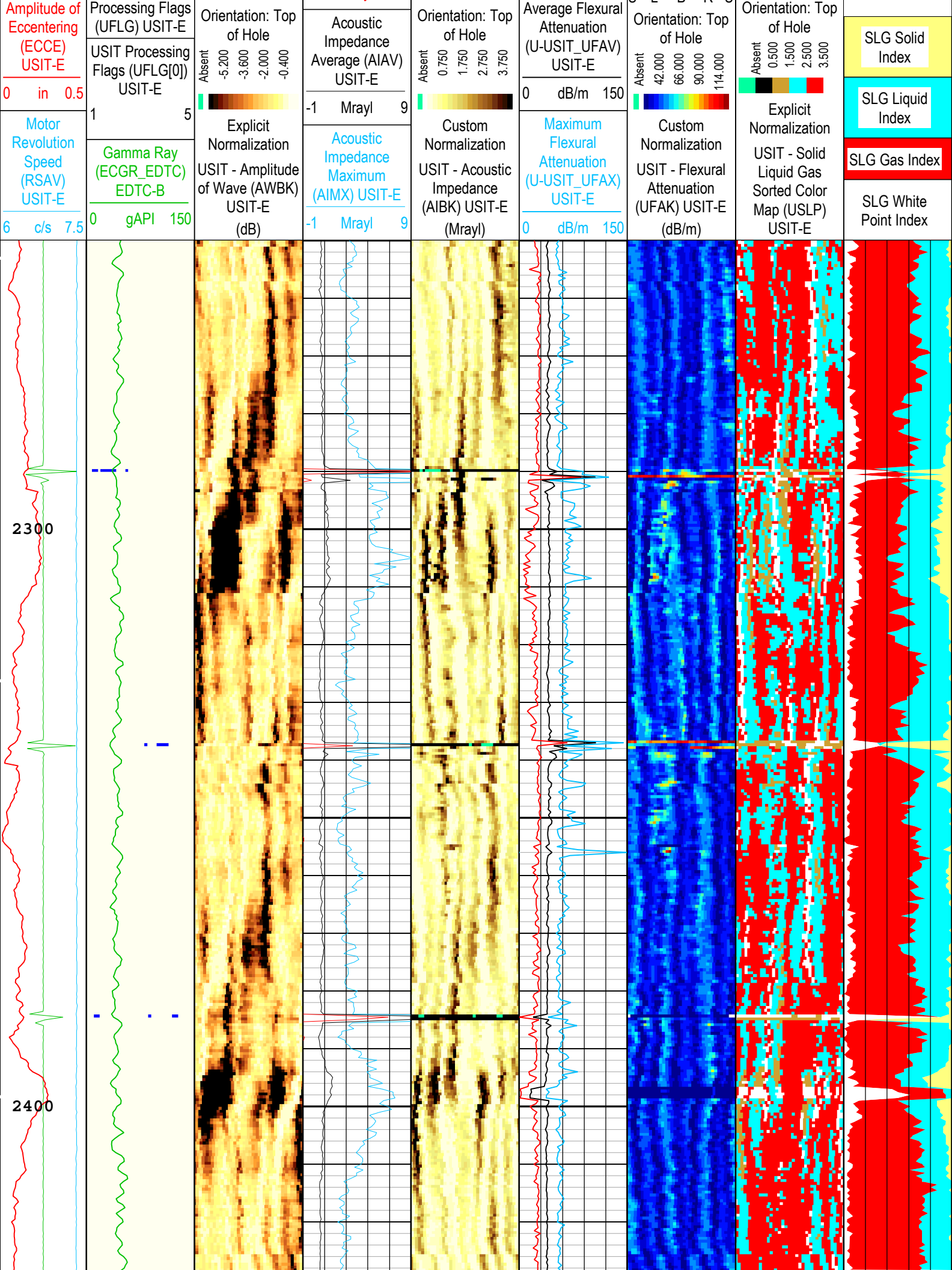
Description: USI Goodwin Format: Log (Import (1) of IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Nov-2018 01:25:44

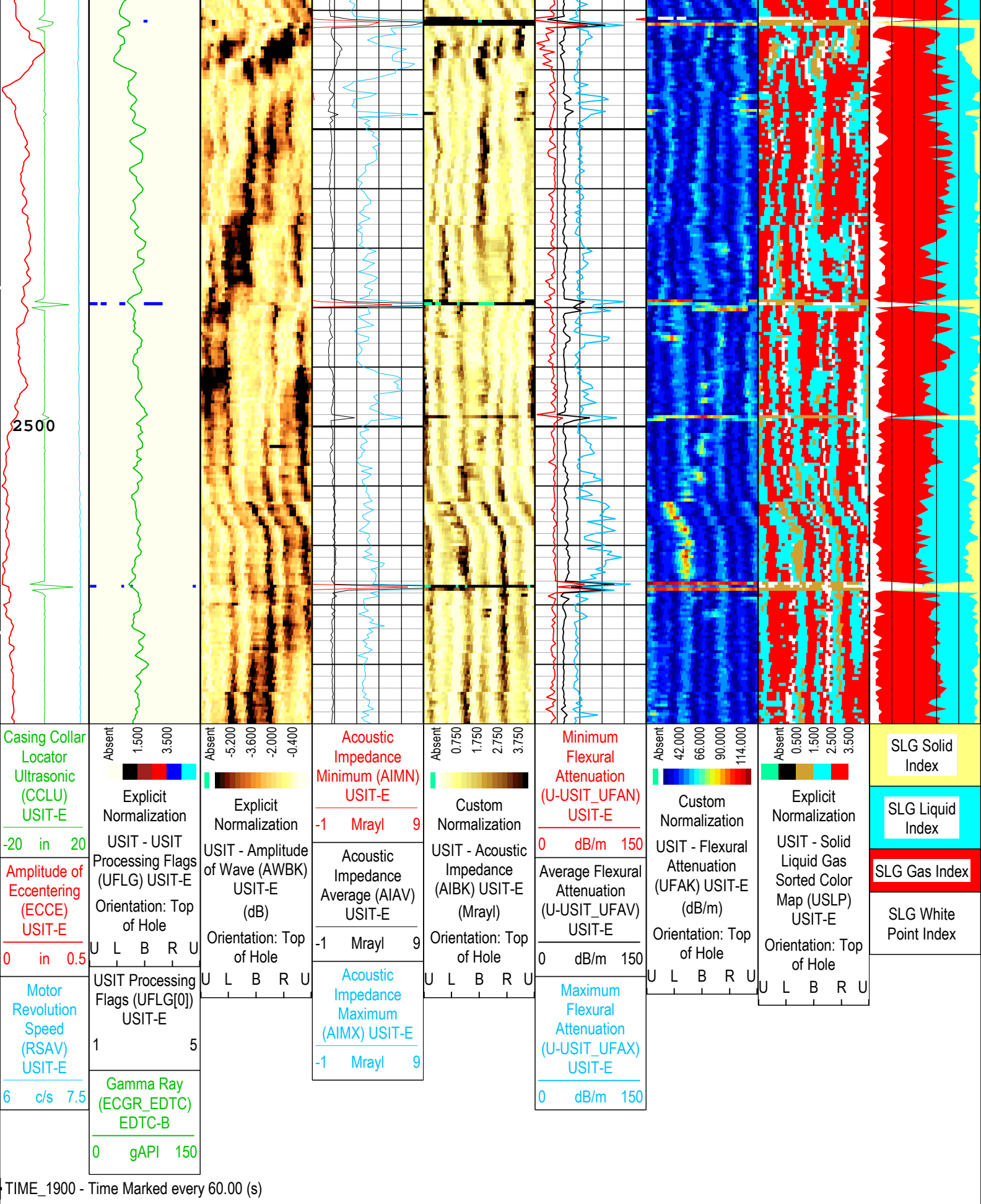
TIME_1900 - Time Marked every 60.00 (s)

Gamma
Ray

Maximum
Flexural
Attenuation
(USIT-UF)







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

Description: USI IBC SLG Format: Log (Import (1) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Nov-2018 01:25:50

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(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	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	12045	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	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	204	us/ft
FD	Fluid Density	USIT-E	10.7	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	-21.12	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	1.22	
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	-6.69	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

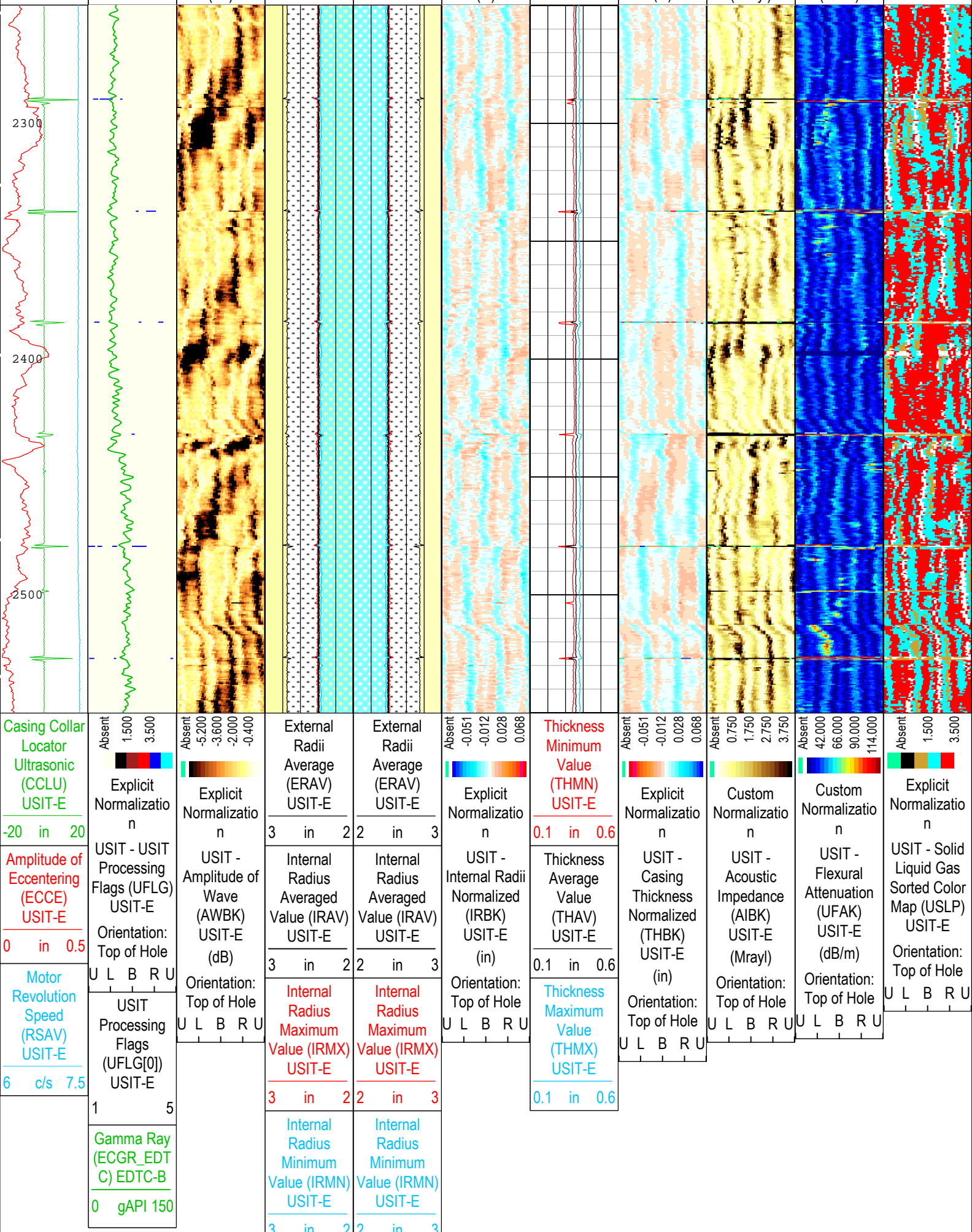
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.75	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.09	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	2250	2433
BS	8.5	2433	2550
All depth are actual.			

Tool Control Parameters				
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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	132	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	101	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	60	22-Nov-2018 07:10:43	22-Nov-2018 07:14:05	2704.52	2575.42
EMXV	80	22-Nov-2018 07:14:05	22-Nov-2018 07:20:06	2575.42	2172.21
EMXV	95	22-Nov-2018 07:20:06	22-Nov-2018 07:22:09	2172.21	2024.66
U-USIT_UFWE	172	22-Nov-2018 07:10:43	22-Nov-2018 07:14:19	2704.52	2564.71
U-USIT_UFWE	198.6	22-Nov-2018 07:14:19	22-Nov-2018 07:14:22	2564.71	2562.4
U-USIT_UFWE	204.12	22-Nov-2018 07:14:22	22-Nov-2018 07:15:30	2562.4	2510.65
U-USIT_UFWE	214.66	22-Nov-2018 07:15:30	22-Nov-2018 07:22:09	2510.65	2024.66
U-USIT_UNWE	141	22-Nov-2018 07:10:43	22-Nov-2018 07:14:17	2704.52	2566.29
U-USIT_UNWE	161.77	22-Nov-2018 07:14:17	22-Nov-2018 07:14:35	2566.29	2552.78
U-USIT_UNWE	168.99	22-Nov-2018 07:14:35	22-Nov-2018 07:15:34	2552.78	2506.59



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 Composite Format: Log (Import (1) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Nov-2018 01:25:55

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	12045	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	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	204	us/ft
FD	Fluid Density	USIT-E	10.7	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	-21.12	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	1.22	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-6.69	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.75	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.09	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	2250	2433
BS	8.5	2433	2550

All depth are actual.

Tool Control Parameters

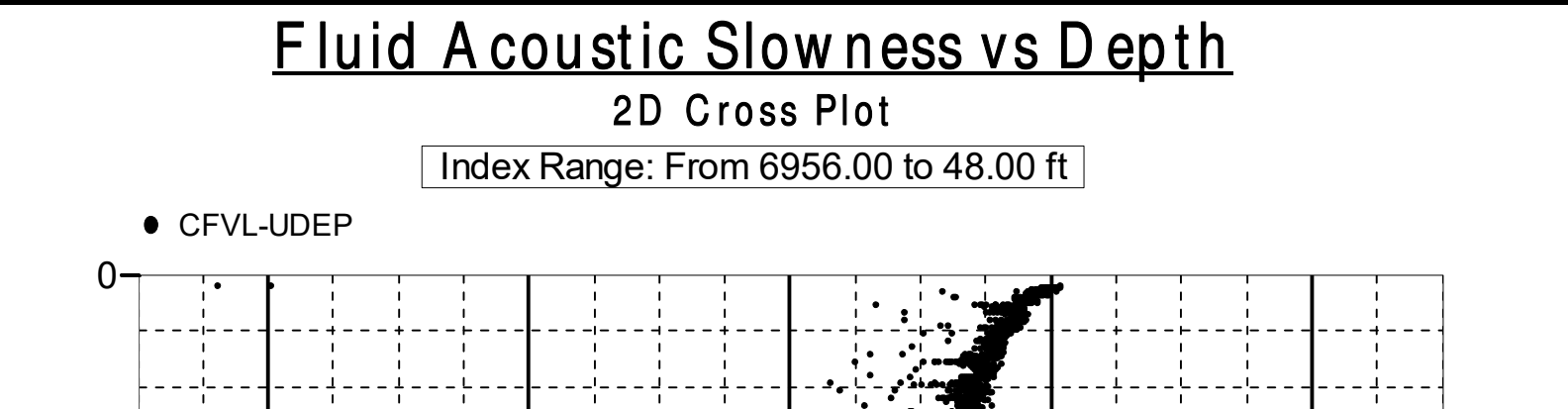
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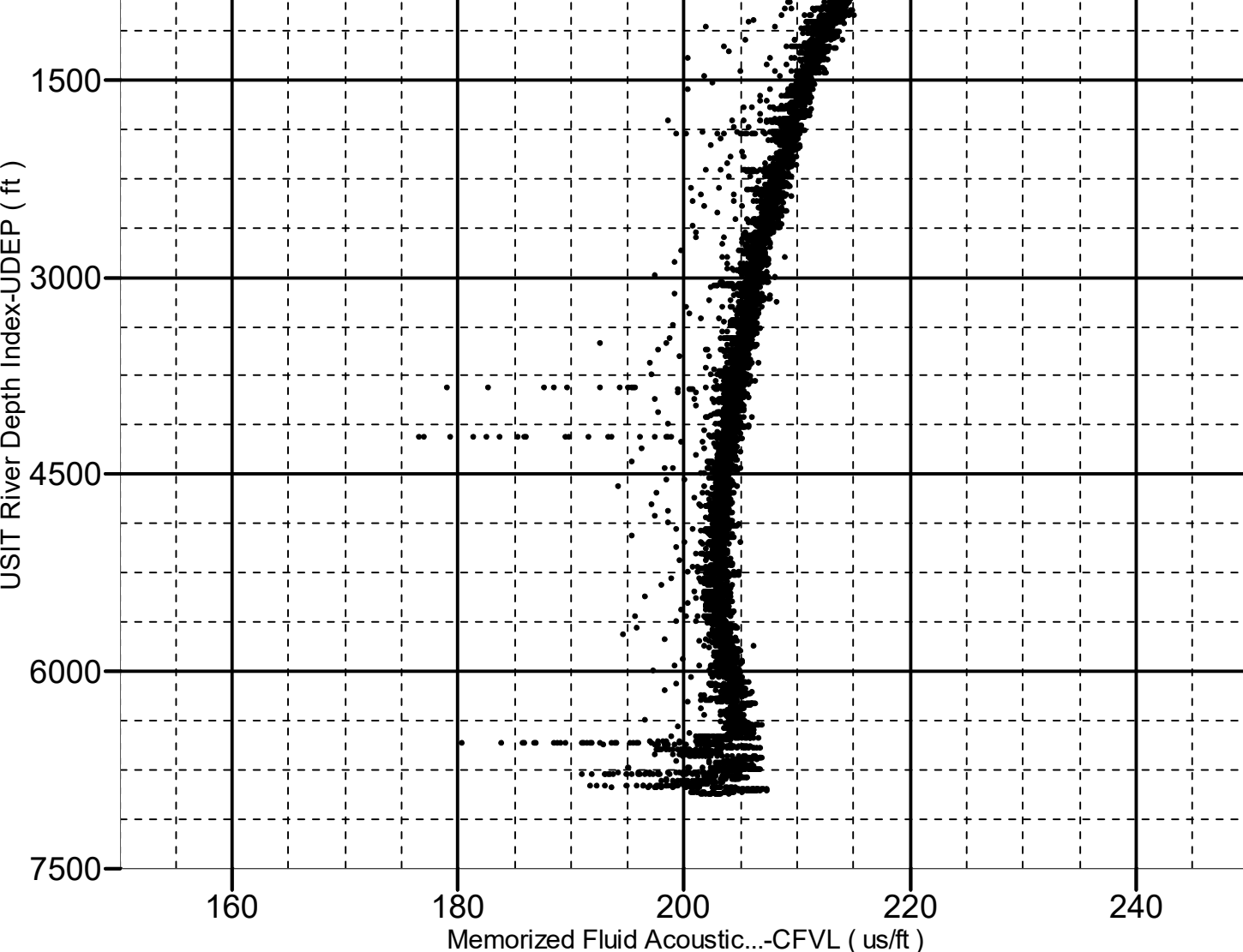
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB

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	132	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	101	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	us
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	60	22-Nov-2018 07:10:43	22-Nov-2018 07:14:05	2704.52	2575.42
EMXV	80	22-Nov-2018 07:14:05	22-Nov-2018 07:20:06	2575.42	2172.21
EMXV	95	22-Nov-2018 07:20:06	22-Nov-2018 07:22:09	2172.21	2024.66
U-USIT_UFWE	172	22-Nov-2018 07:10:43	22-Nov-2018 07:14:19	2704.52	2564.71
U-USIT_UFWE	198.6	22-Nov-2018 07:14:19	22-Nov-2018 07:14:22	2564.71	2562.4
U-USIT_UFWE	204.12	22-Nov-2018 07:14:22	22-Nov-2018 07:15:30	2562.4	2510.65
U-USIT_UFWE	214.66	22-Nov-2018 07:15:30	22-Nov-2018 07:22:09	2510.65	2024.66
U-USIT_UNWE	141	22-Nov-2018 07:10:43	22-Nov-2018 07:14:17	2704.52	2566.29
U-USIT_UNWE	161.77	22-Nov-2018 07:14:17	22-Nov-2018 07:14:35	2566.29	2552.78
U-USIT_UNWE	168.99	22-Nov-2018 07:14:35	22-Nov-2018 07:15:34	2552.78	2506.59
U-USIT_UNWE	174.15	22-Nov-2018 07:15:34	22-Nov-2018 07:22:09	2506.59	2024.66
WINB	28.86	22-Nov-2018 07:10:43	22-Nov-2018 07:12:42	2704.52	2637.08
WINB	41.02	22-Nov-2018 07:12:42	22-Nov-2018 07:12:50	2637.08	2631.15
WINB	29.76	22-Nov-2018 07:12:50	22-Nov-2018 07:13:03	2631.15	2621.54
WINB	32.48	22-Nov-2018 07:13:03	22-Nov-2018 07:22:09	2621.54	2024.66
WINE	68.86	22-Nov-2018 07:10:43	22-Nov-2018 07:14:10	2704.52	2571.19
WINE	80.23	22-Nov-2018 07:14:10	22-Nov-2018 07:14:40	2571.19	2549.26
WINE	85.67	22-Nov-2018 07:14:40	22-Nov-2018 07:22:09	2549.26	2024.66
All depth are at tool zero.					

XYZ	Company:Crestone Peak Resources Operating LLC Well:Melbon Ranch 4C-17H-M265 One: Log[4]:Up:S037
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XYZ

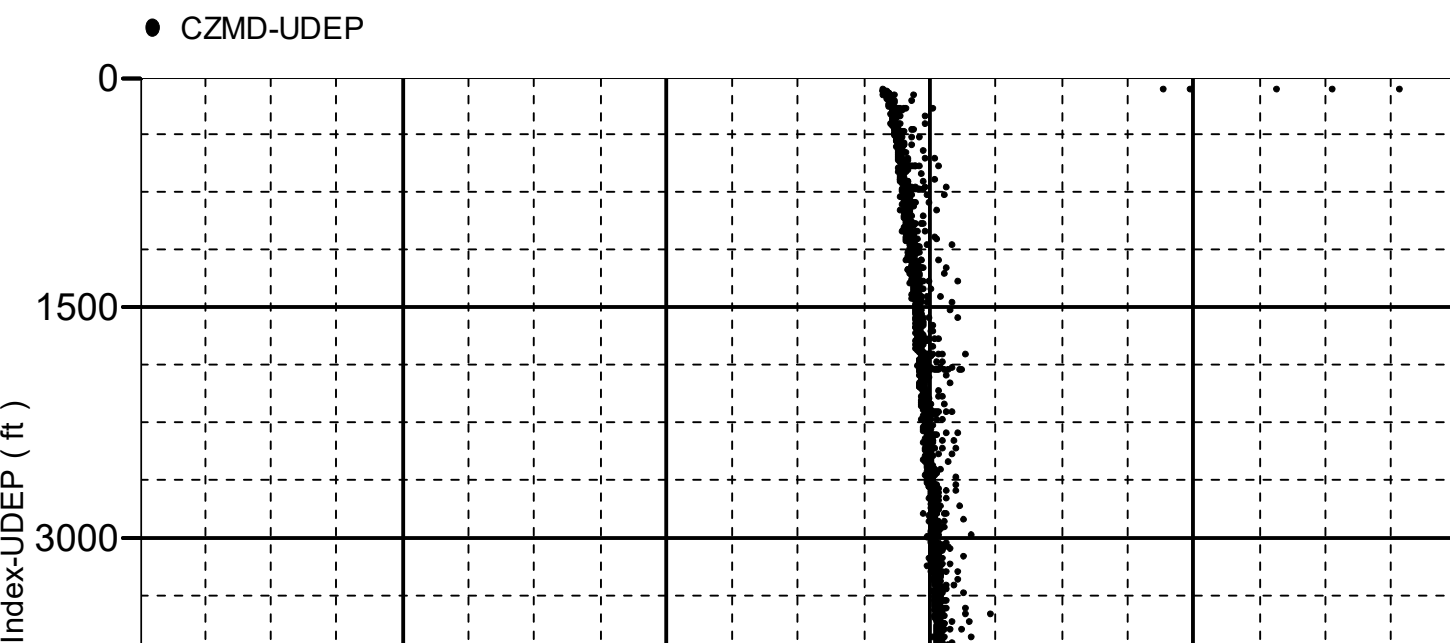
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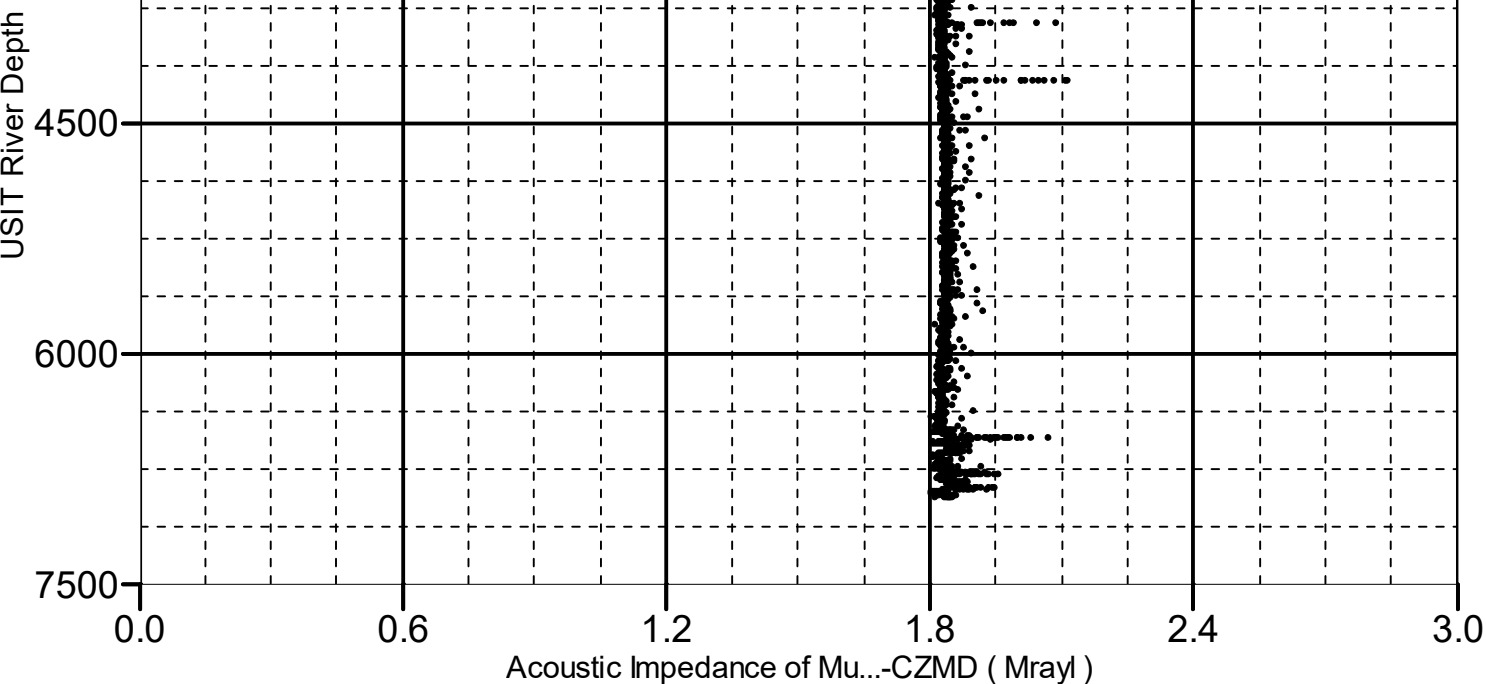
One: Log[4]:Up:S037

Acoustic Impedance of M ud vs Depth

2D Cross Plot

Index Range: From 6956.00 to 48.00 ft





Company: Crestone Peak Resources Operating LLC

Schlumberger

Well: Melbon Ranch 4C-17H-M265

Field: Wattenburg

County: Weld

State: Colorado

Isolation Scanner

Cement Evaluation

