

Company: Crestone Peak Resources Operating LLC

Well: Sam #3B-25H-M166

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation

County:	Weld				
Field:	Wattenberg				
Location:	1403' FSL & 311' FWL				
Well:	Sam #3B-25H-M166				
Company:	Crestone Peak Resources Operating LLC				
		Location:			
		1403' FSL & 311' FWL	Elev.:	K.B.	5108.00 ft
		NWSW 25 1N 66W		G.L.	5085.00 ft
		Lat/Long: 40.018867 / -104.733853		D.F.	5108.00 ft
		Permanent Datum:	Ground Level	Elev.:	5085.00 f
		Log Measured From:	Kelly Bushing	23.00 ft	above Perm.Datum
		Drilling Measured From:	Kelly Bushing		
		API Serial No.	Section:	Township:	Range:
		05-123-46128	25	1N	66W
Logging Date	16-Oct-2018				

Run Number	One	
Depth Driller	12171.00 ft	
Schlumberger Depth	6880.00 ft	
Bottom Log Interval	6880.00 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	2386.00 ft	
To	12171.00 ft	
Casing/Tubing Size	5.5 in	
Weight	20 lbm/ft	
Grade	N/A	
From	0.00 ft	
To	12171.00 ft	
Max Recorded Temperatures	183 degF	
Logger on Bottom	16-Oct-2018	09:40:00
Unit Number	Fort Morgan	9108
Recorded By	Alan Moreno	
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.

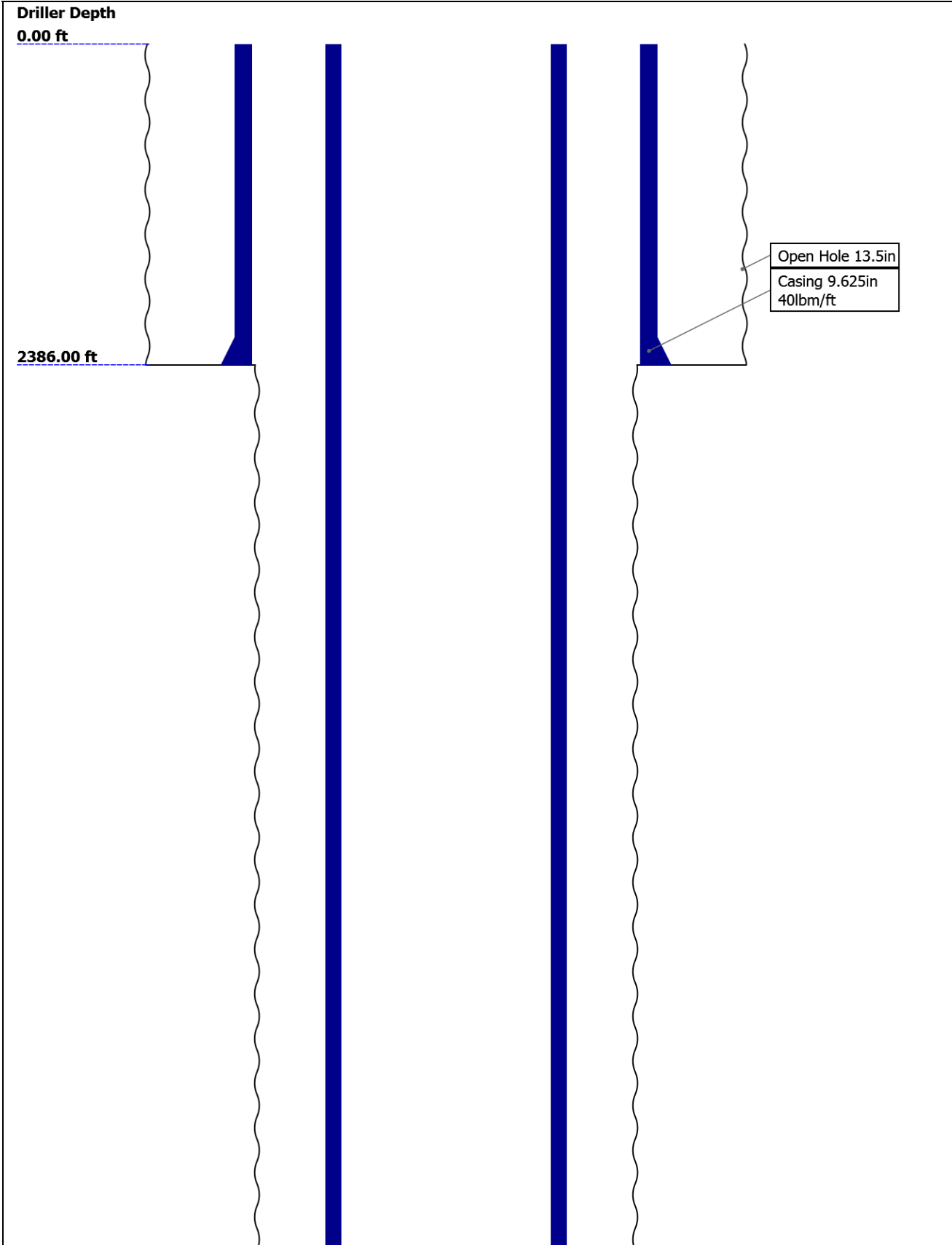
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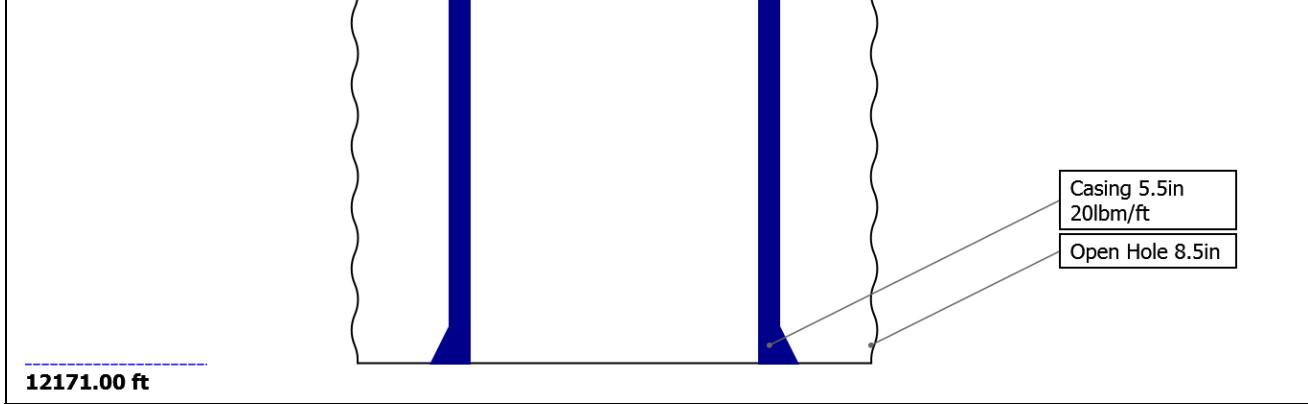
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Well Sketch






Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.5				
Top Driller (ft)	0	2386				
Top Logger (ft)	0	2386				
Bottom Driller (ft)	2386	12171				
Bottom Logger (ft)	2386	12171				
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.835	4.778				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2386	12171				
Bottom Logger (ft)	2386	12171				

Remarks and Equipment Summary

One: Toolstring				One: Remarks	
<div><div><div>Equip nameLength</div><div>LEH-QT30.73</div><div>LEH-QT</div></div><div><div>EDTC-B27.24</div><div>EDTH-B</div><div>EDTG-A</div><div>EDTC-B</div></div><div><div>AH-184[2]20.74</div><div>AH-184[1]18.74</div><div>USIT-E16.74</div><div>ECH-MFA</div><div>USAC-A</div><div>USIS-A</div><div>USSC-B</div><div>IBCS-A</div><div>EAB-GENC</div></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>	Toolstring ran as per tool sketch				
	5" gemcos and Houma kit used for centralization				
	All passes ran under 0 PSI				
	10deg 6" resolution used for main and repeat passes				
	10deg 1.5" resolution used for HiRes passes				
	Data affected at bottom due to deviation				
	Lead: 12.5ppg				
	Tail: 13.5ppg				

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Depth Summary			
	One		
Depth Measuring Device			
Type	IDW-B		
Serial Number	6455		
Calibration Date	27-Jul-2018		
Calibrator Serial Number	57		
Calibration Cable Type	7-32ASXS		
Wheel Correction 1	-1		
Wheel Correction 2	1		
Tension Device			
Type	CMTD-B/A		
Serial Number	1703		
Calibration Date	29-Jul-2018		
Calibrator Serial Number	88310A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	6		
Calibration Peak Error	9		
Logging Cable			
Type	7-32AS-XS		
Serial Number			
Length	21111.00 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 procedures followed IDW used as primary depth control, Z-chart used as secondary	
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			

Stretch Correction
Tool Zero Check At Surface

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[2]:Up	2503.98	1970.33

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 : 1636.30m(5368.44ft) to 1638.61m(5376.03ft)
MUD_N_FRP = 1.22
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.79 MRayl

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

IBC SLG 0 PSI

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	48.90 ft	6889.21 ft	16-Oct-2018 9:34:30 AM	16-Oct-2018 11:12:47 AM	ON	10.79 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Crestone Peak Resources Operating LLC Well:Sam #3B-25H-M166 One: Log[4]:Up:S007
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Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Oct-2018 15:43:31

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

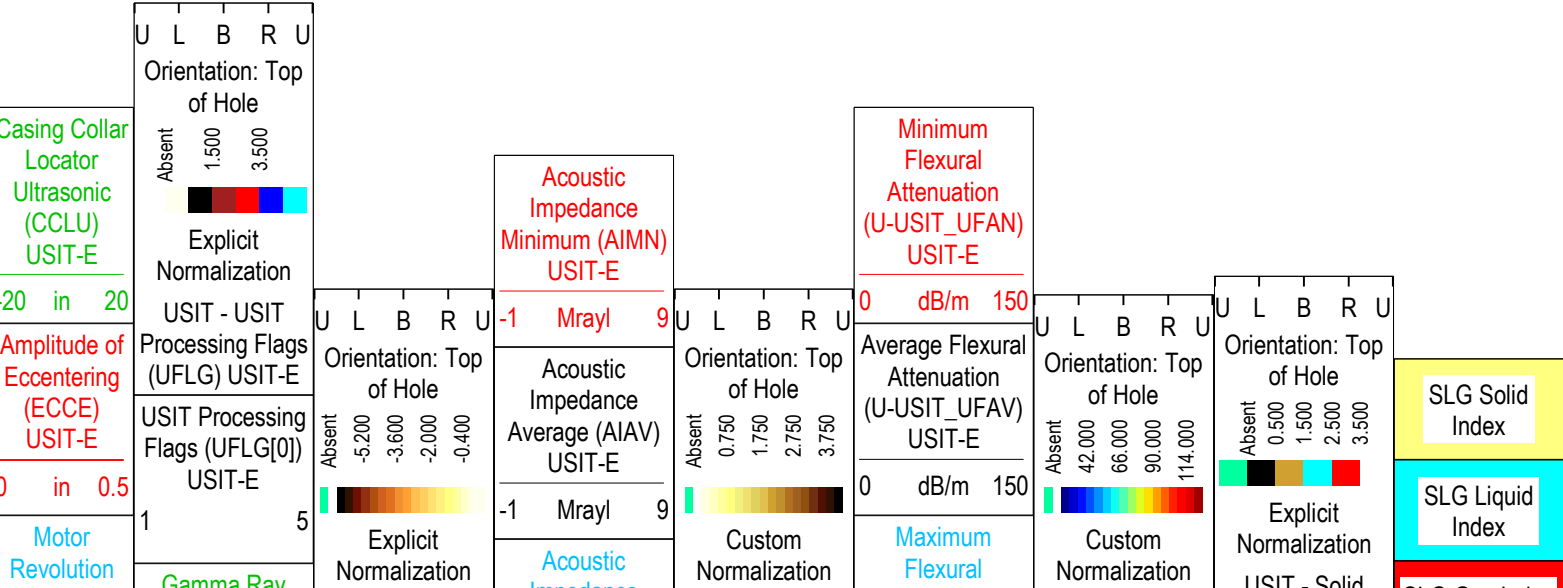
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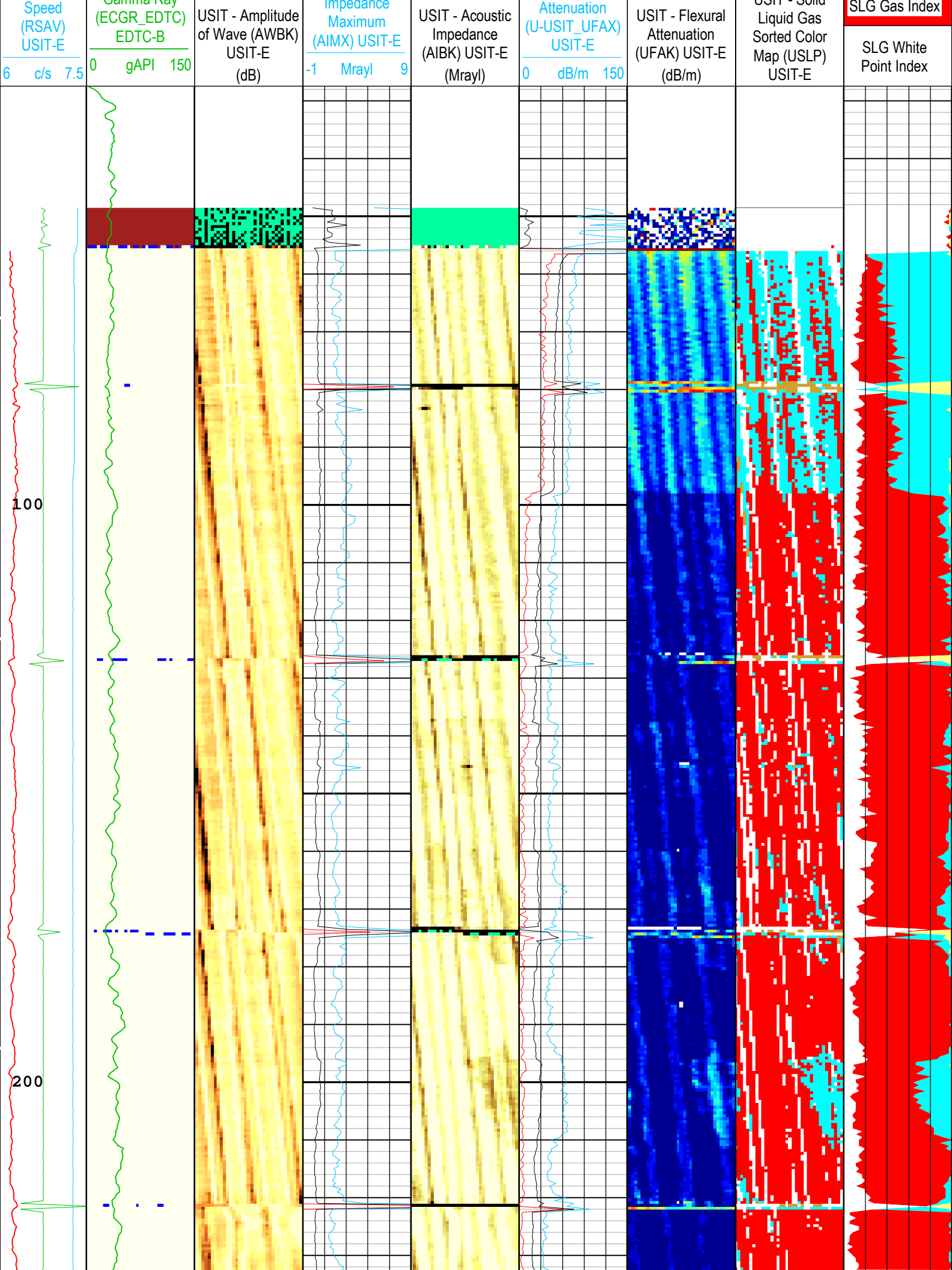
 Casing Thickness Error

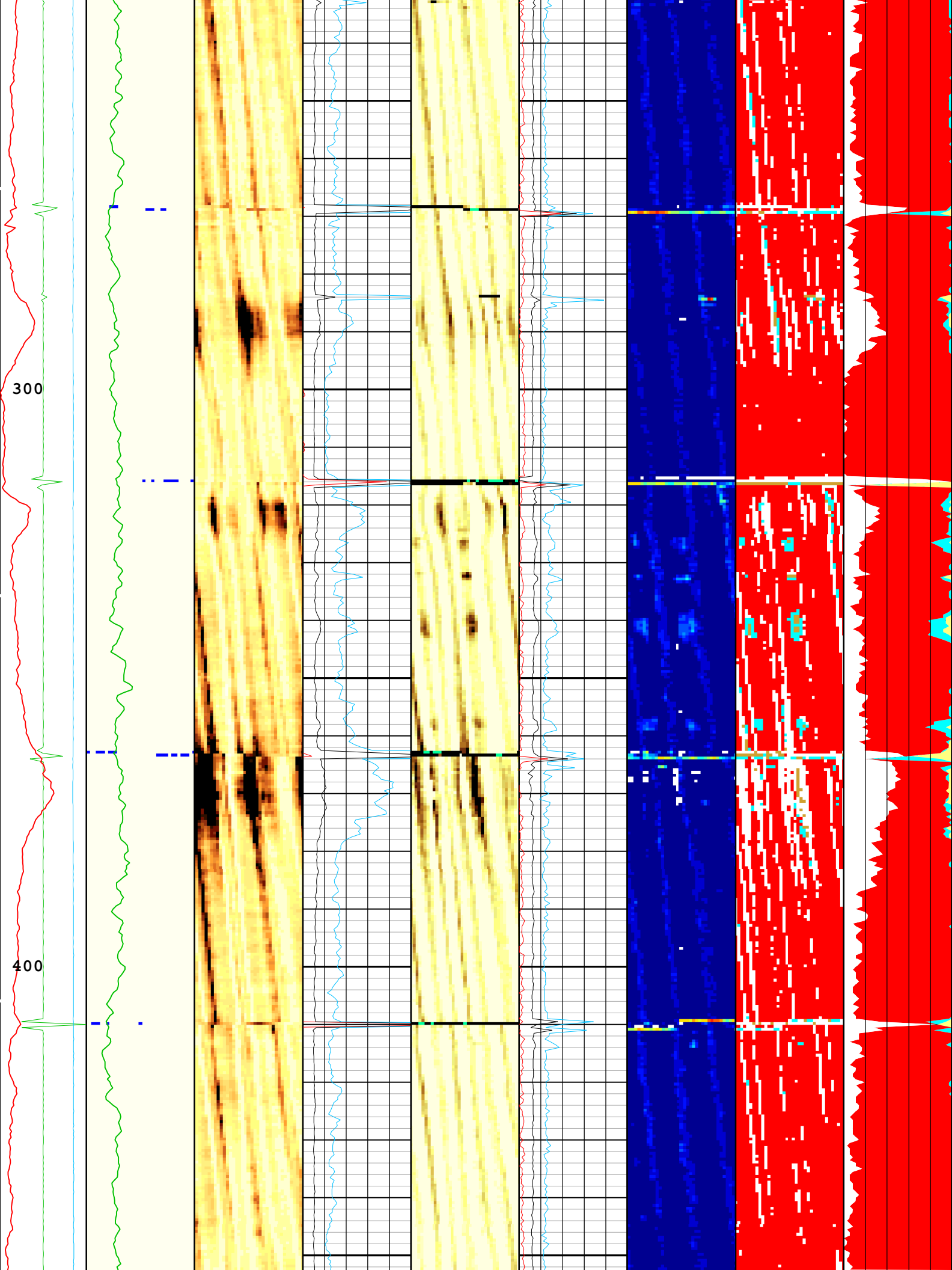
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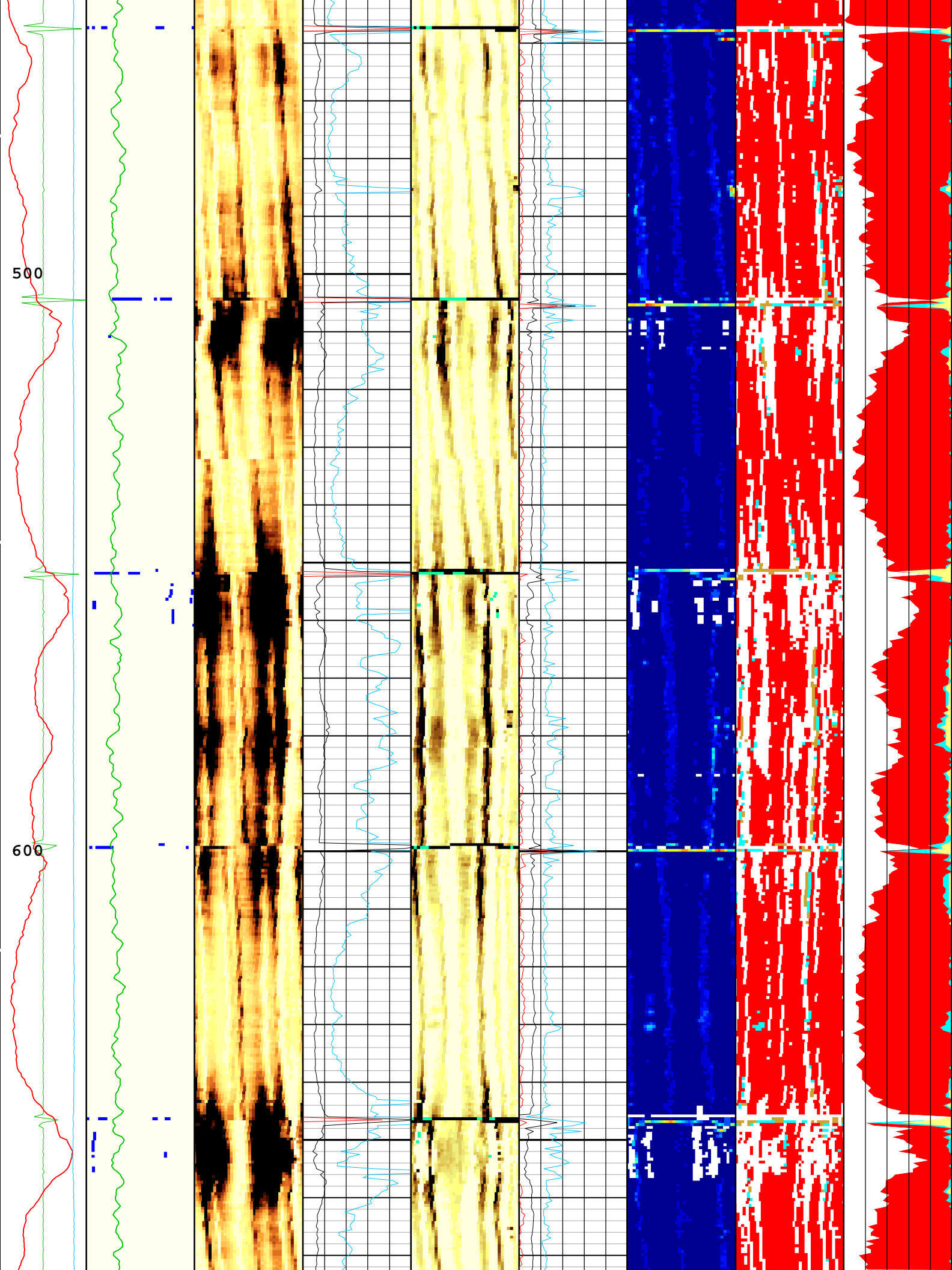
 Loop Processing Error

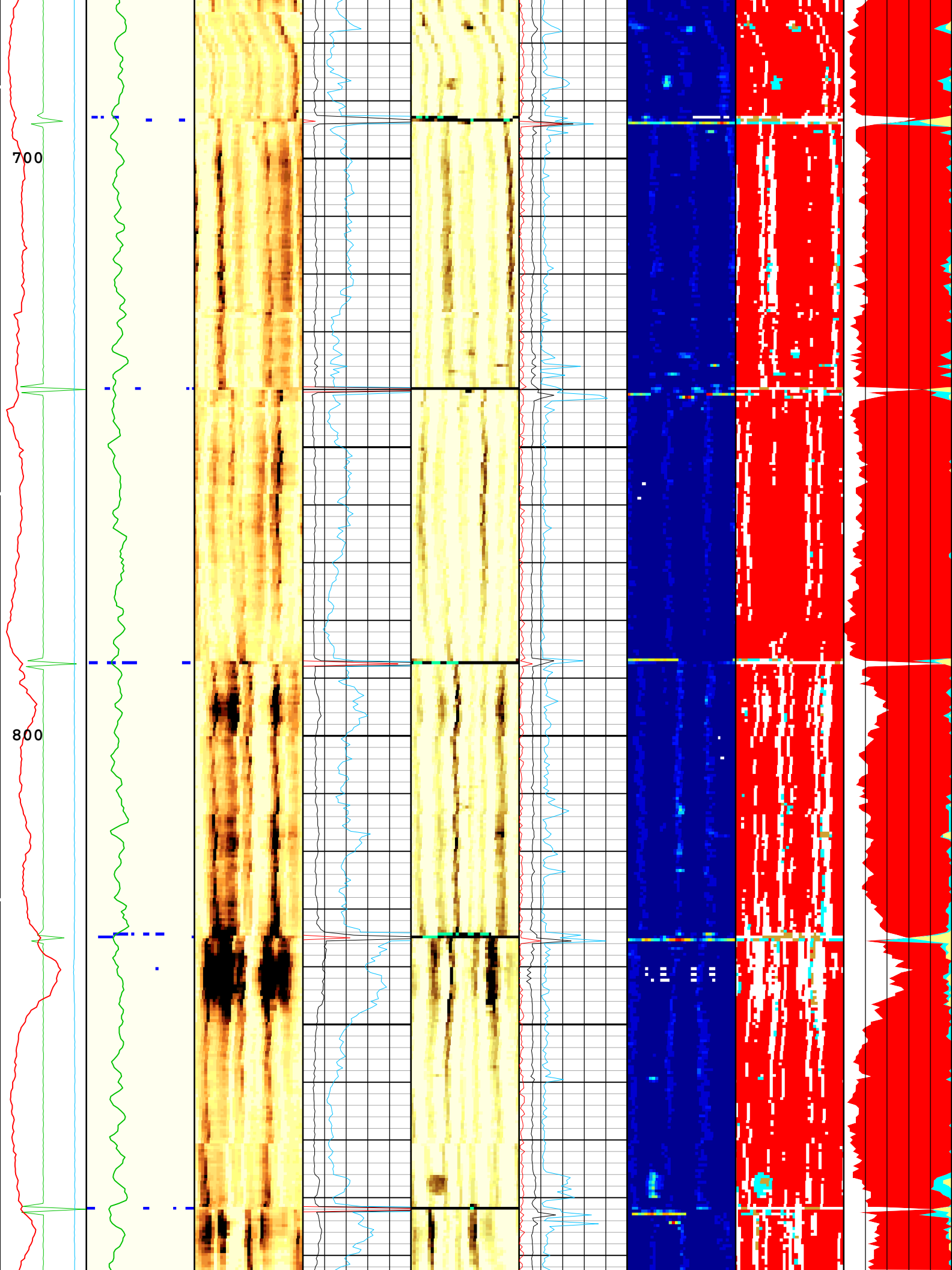
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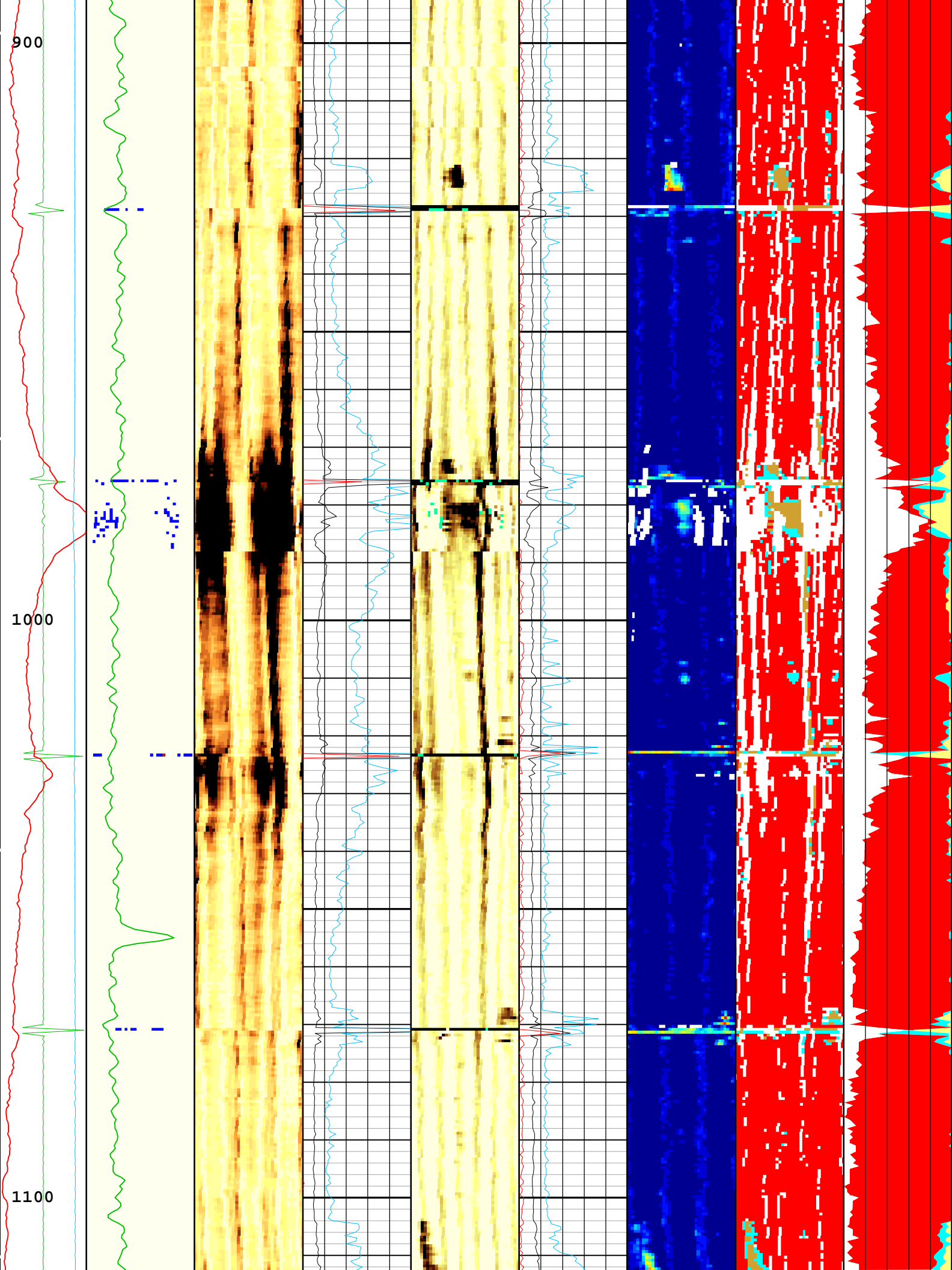


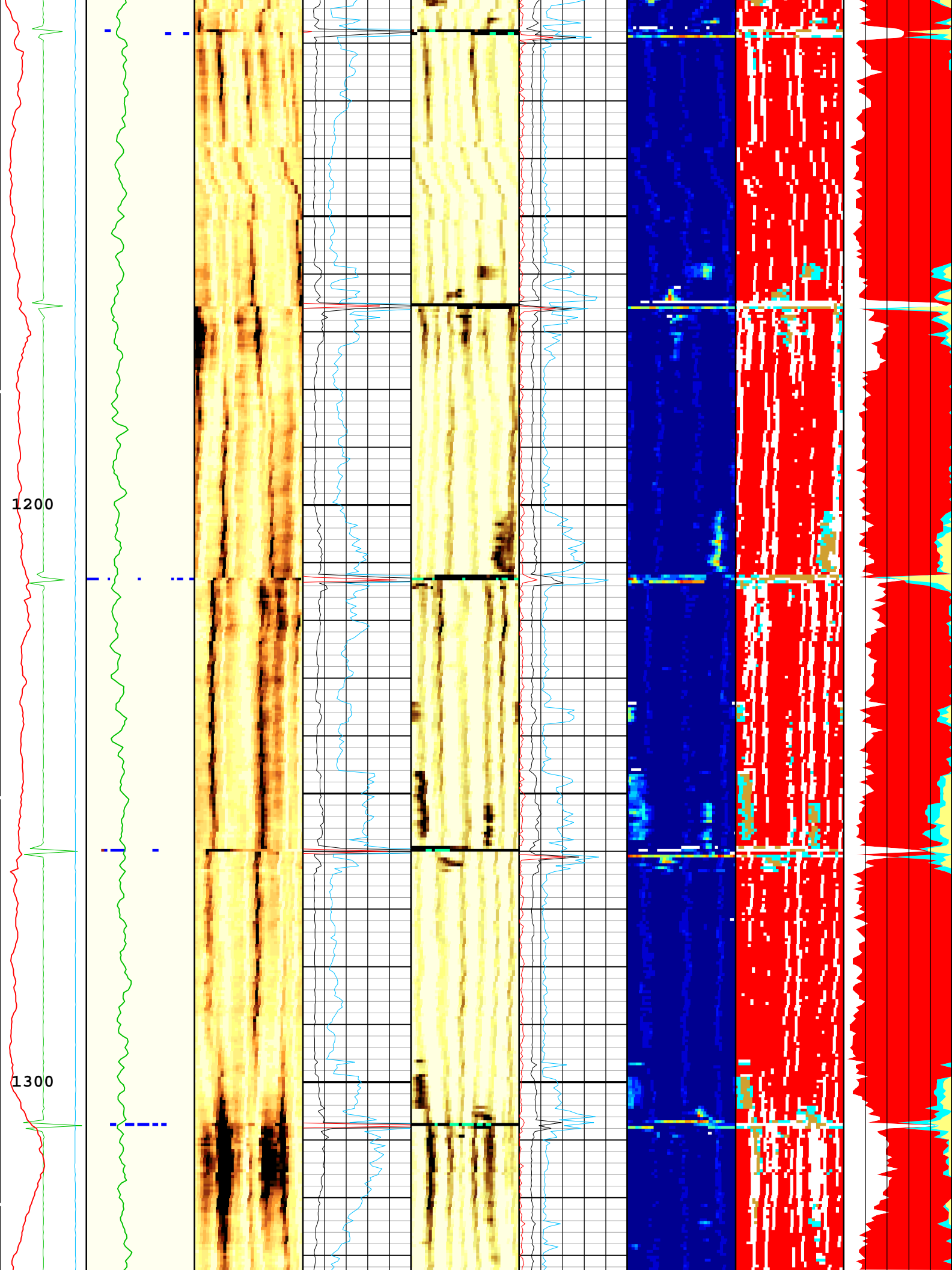


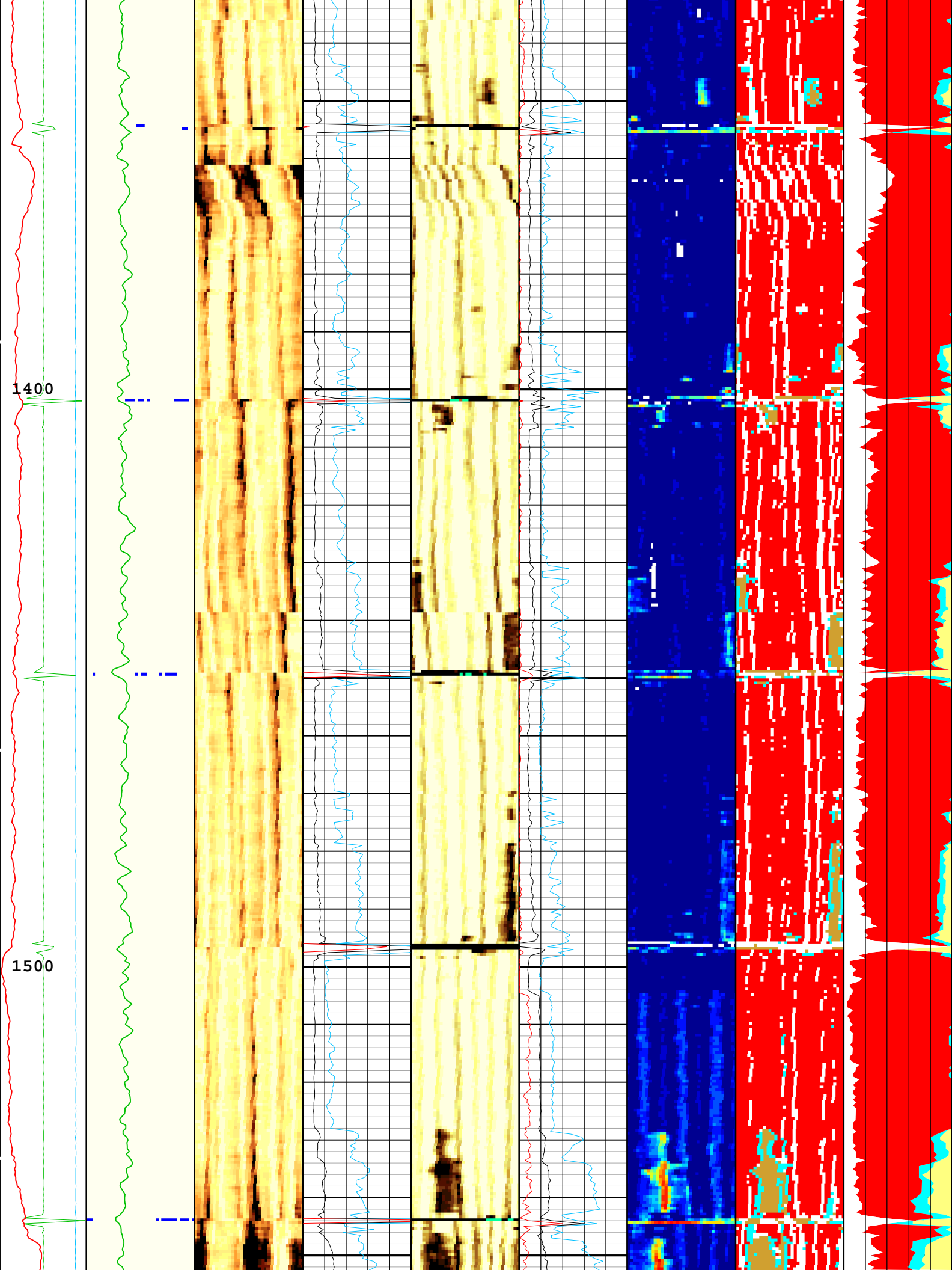


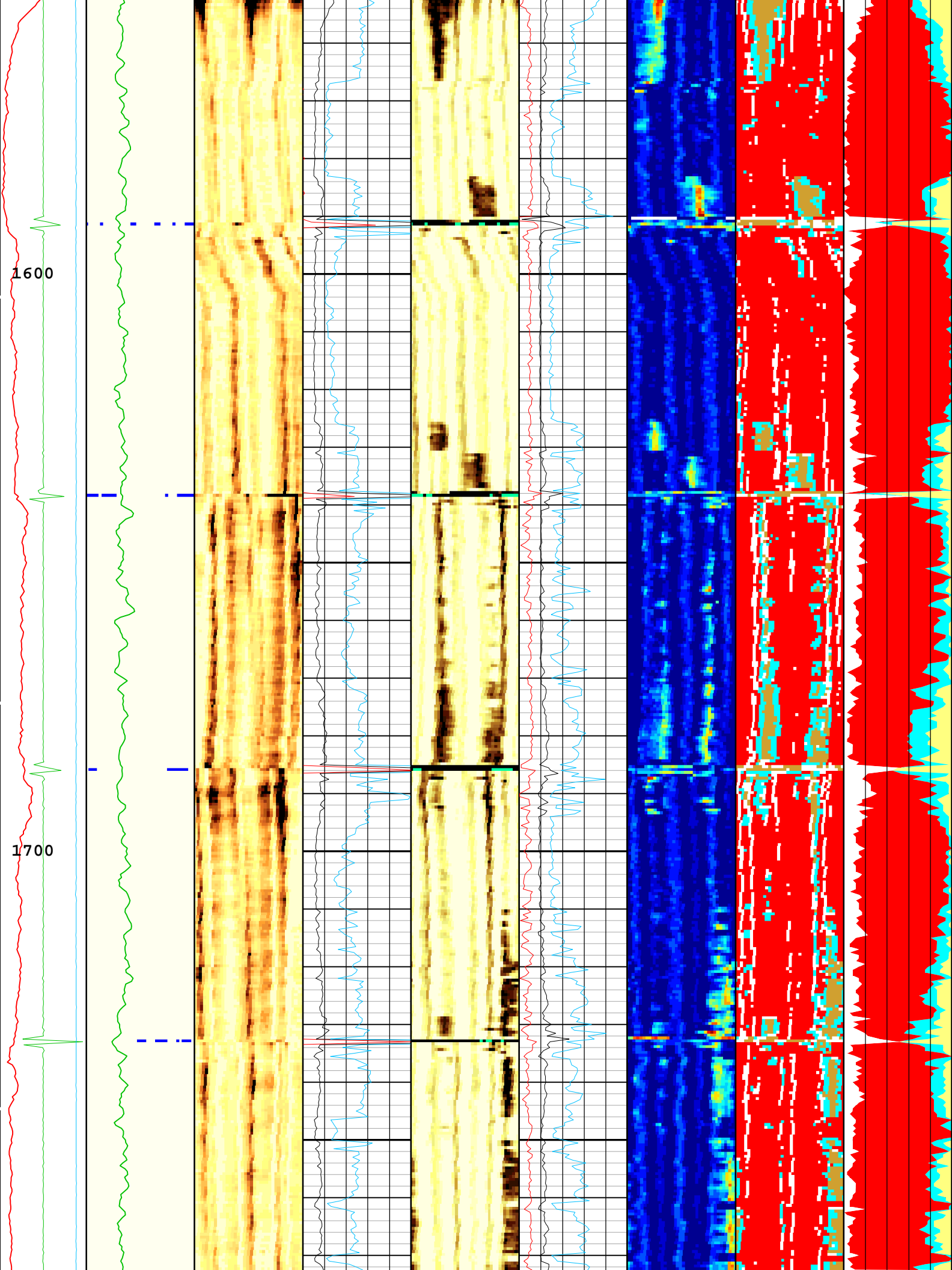


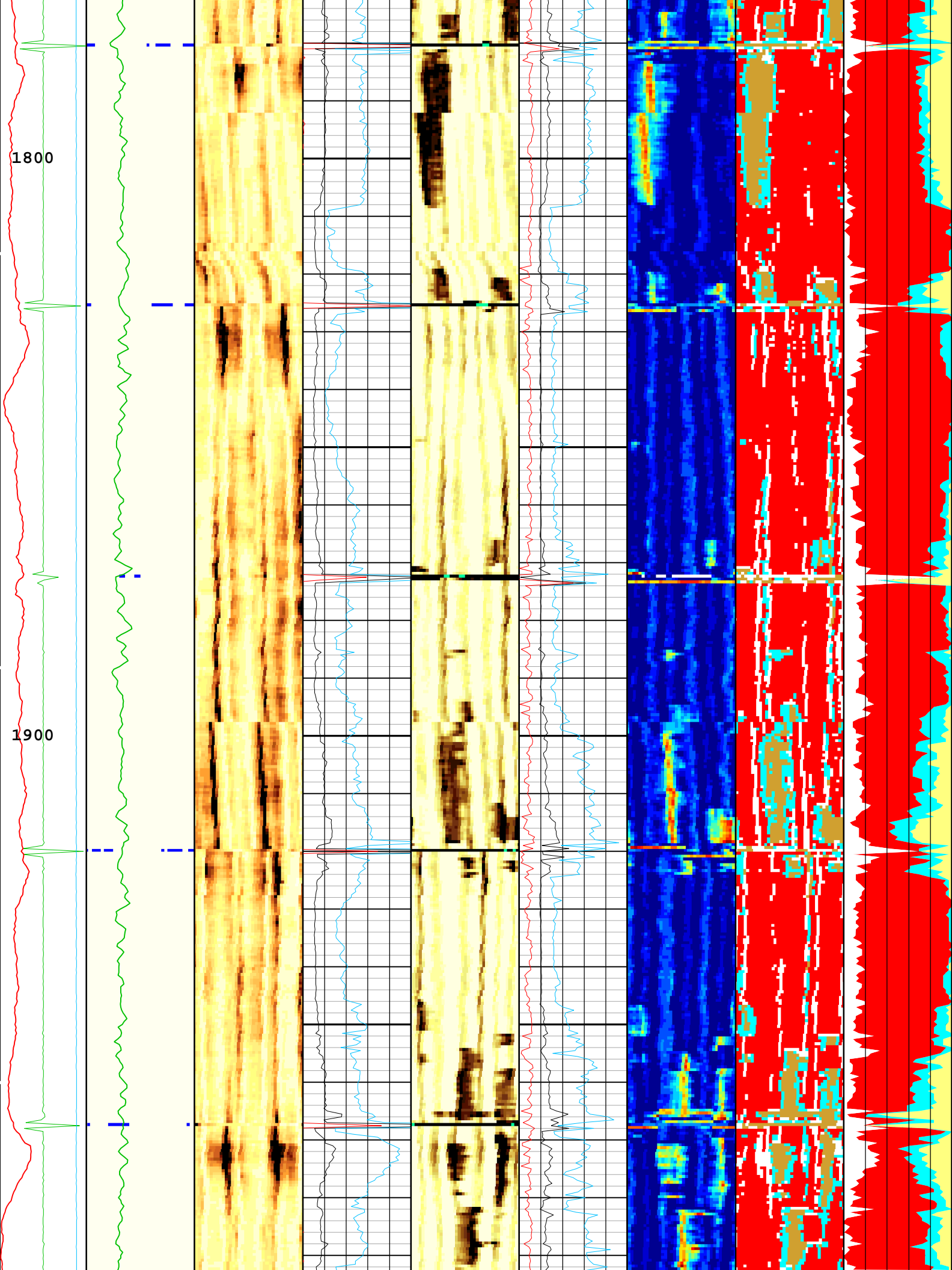


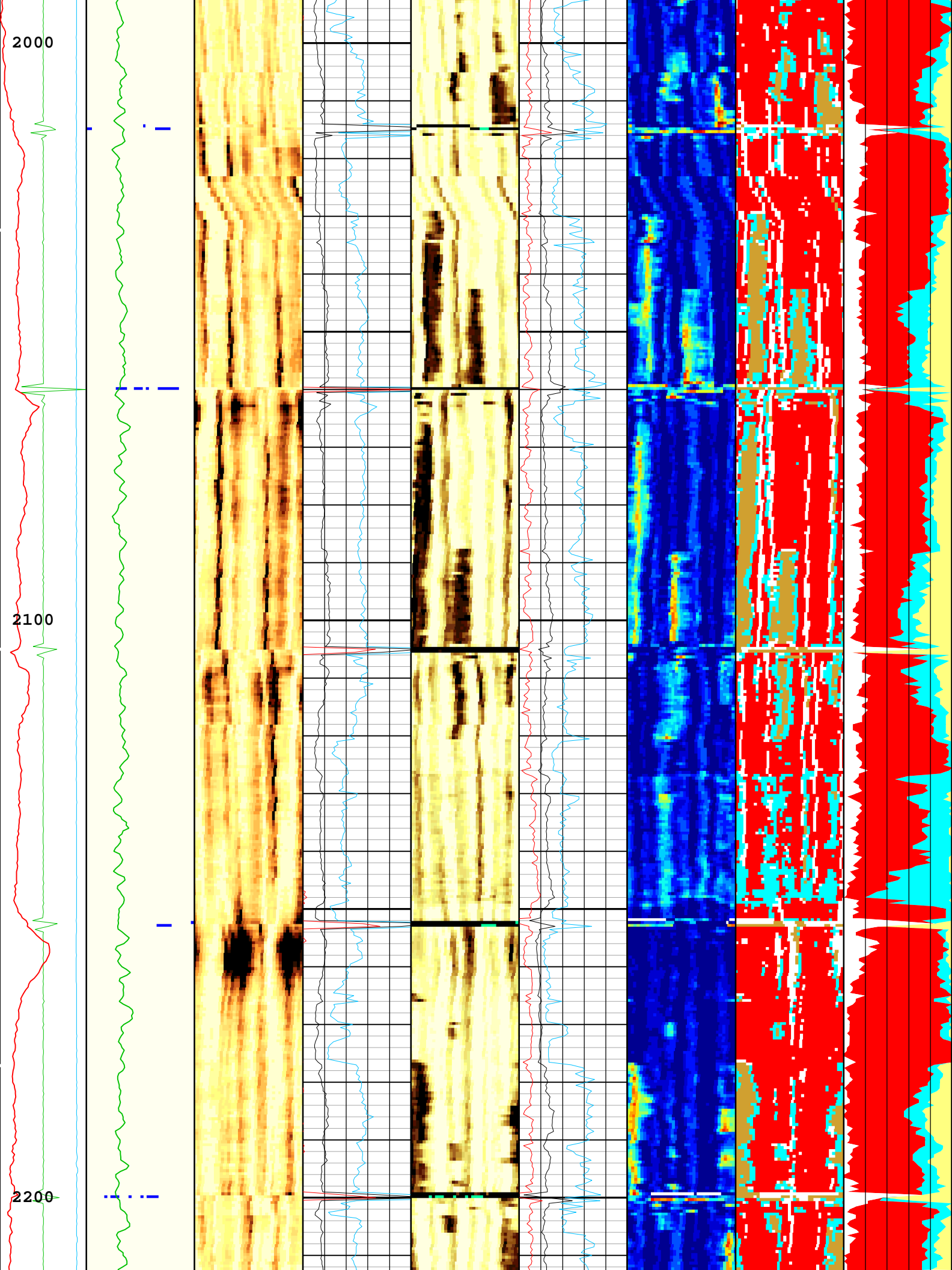


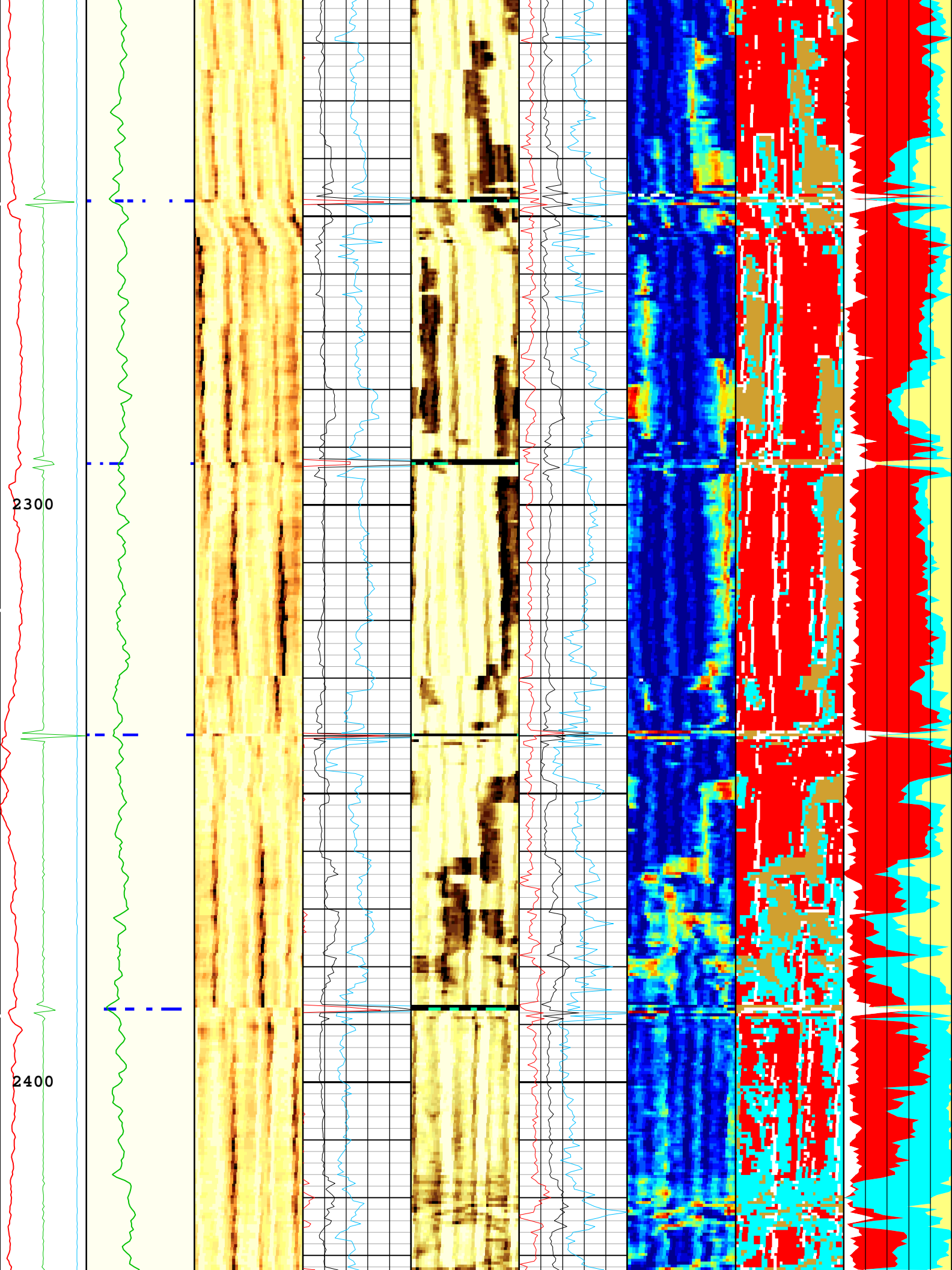


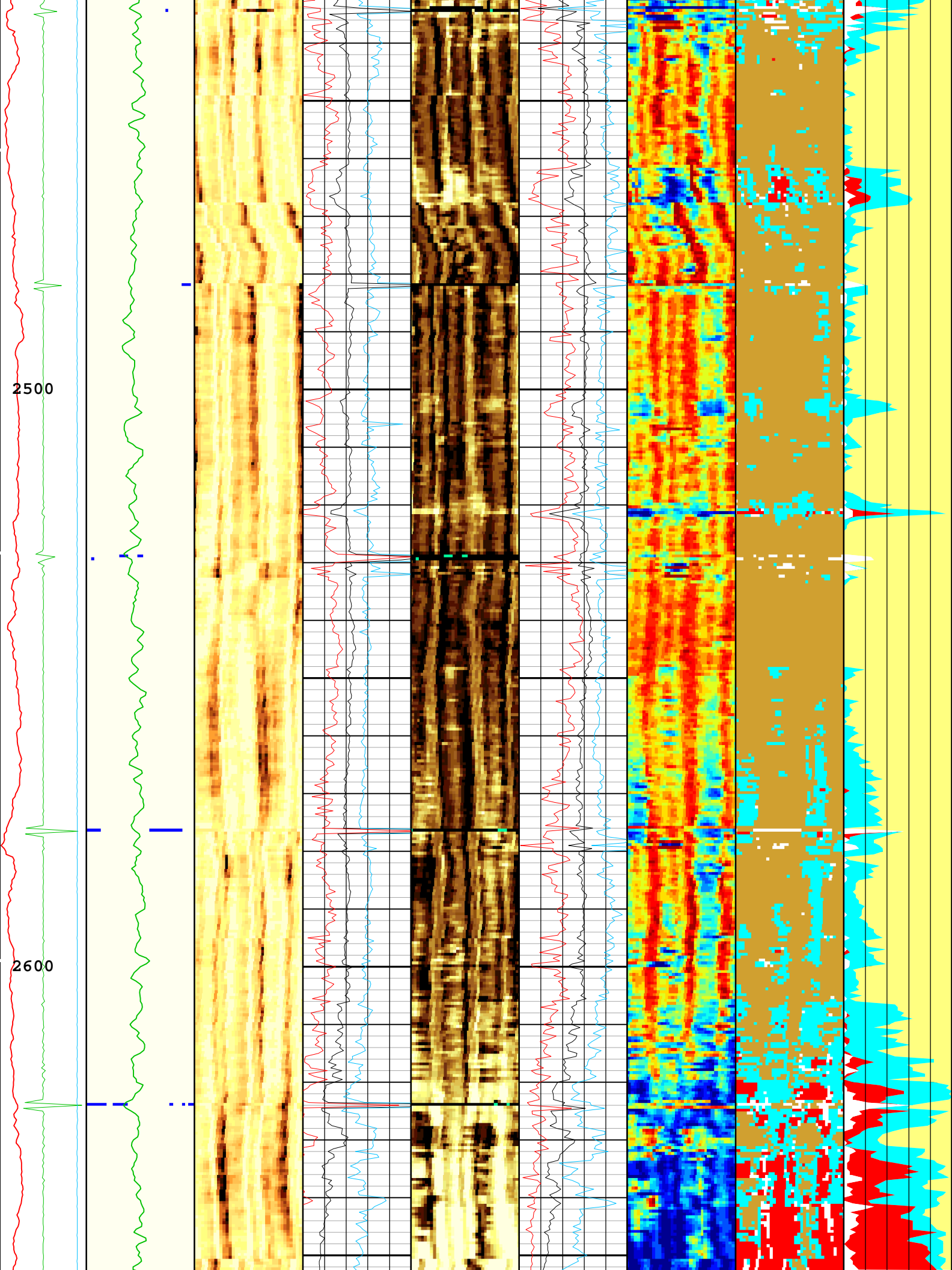


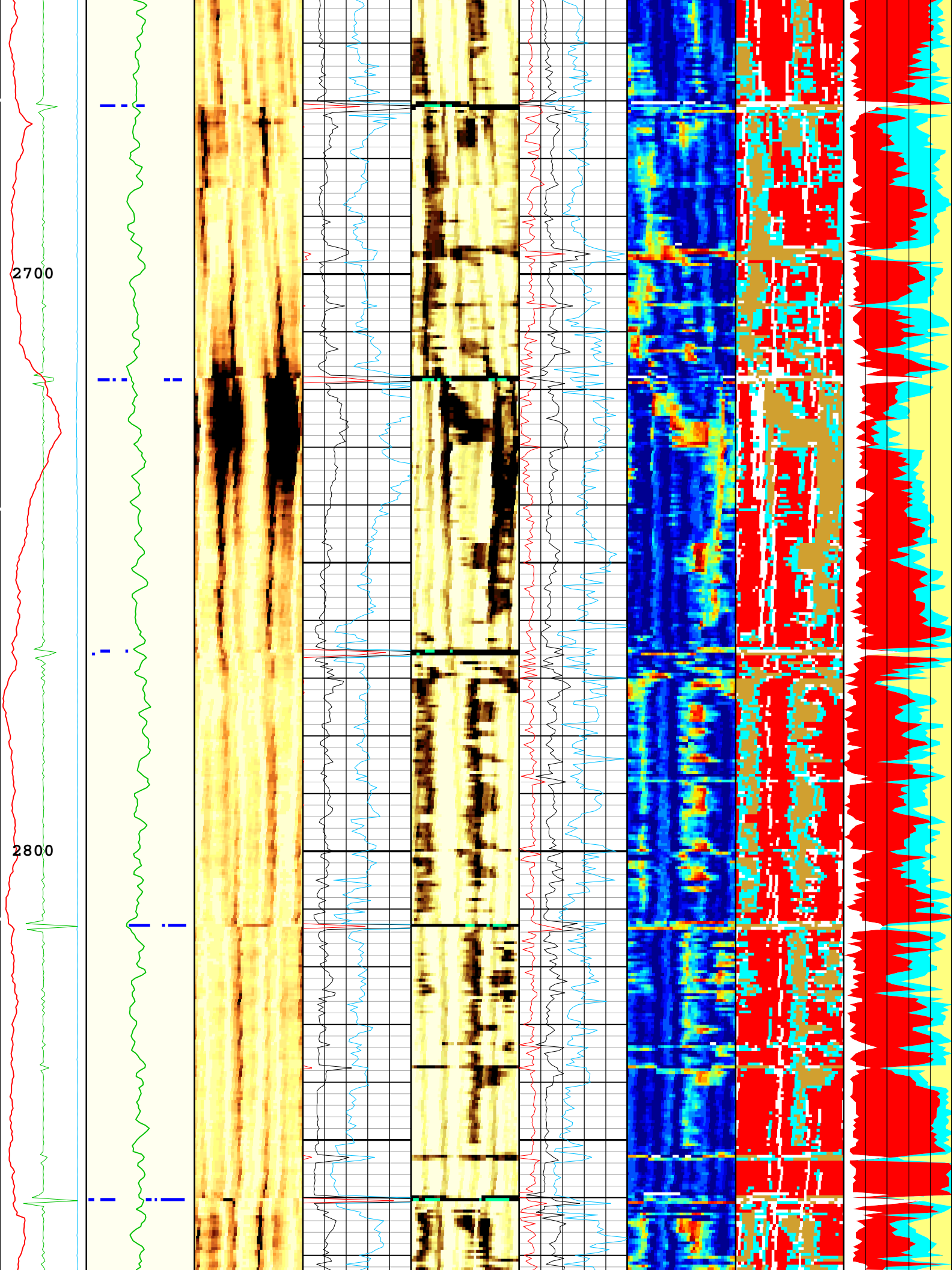


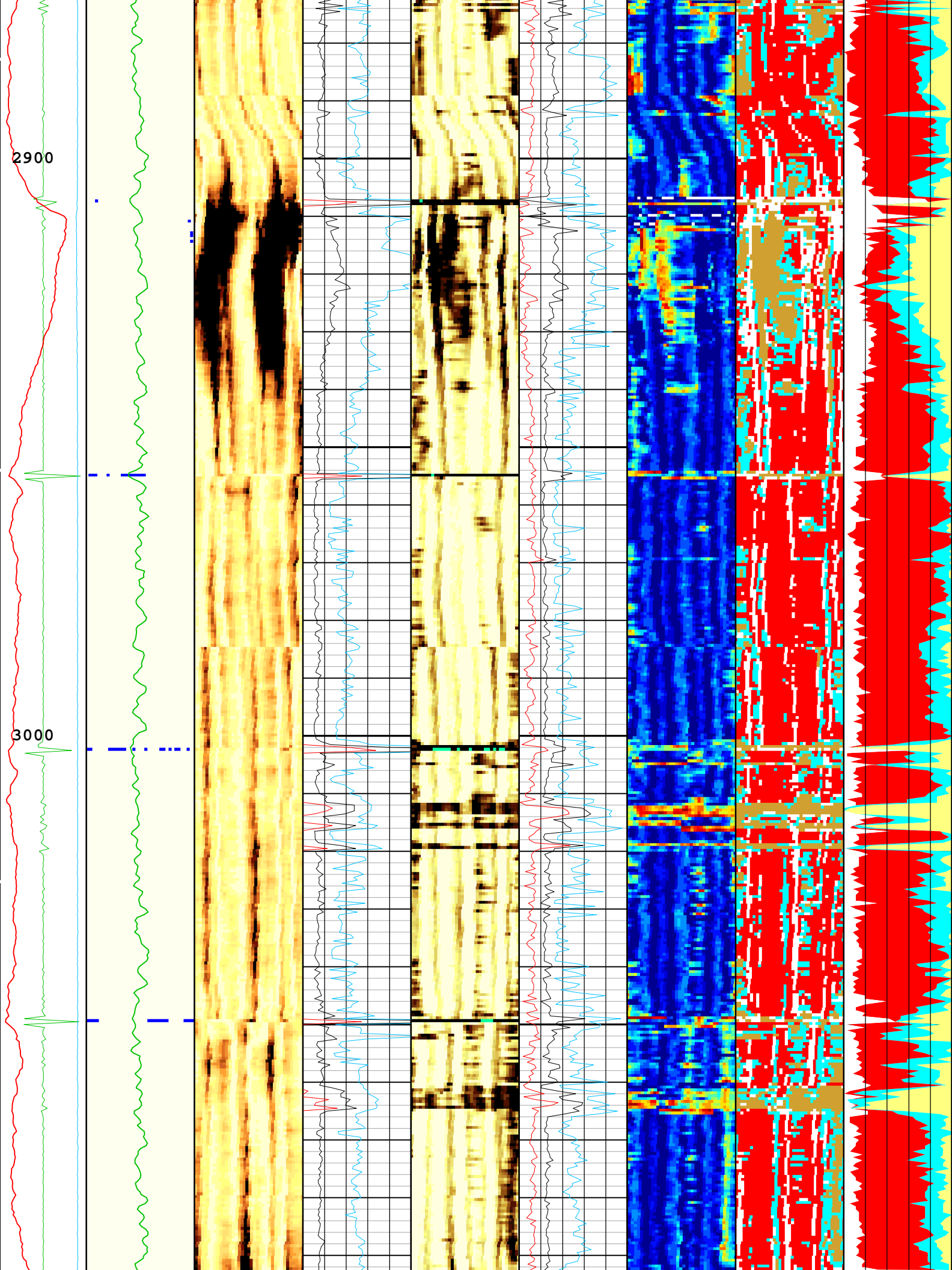


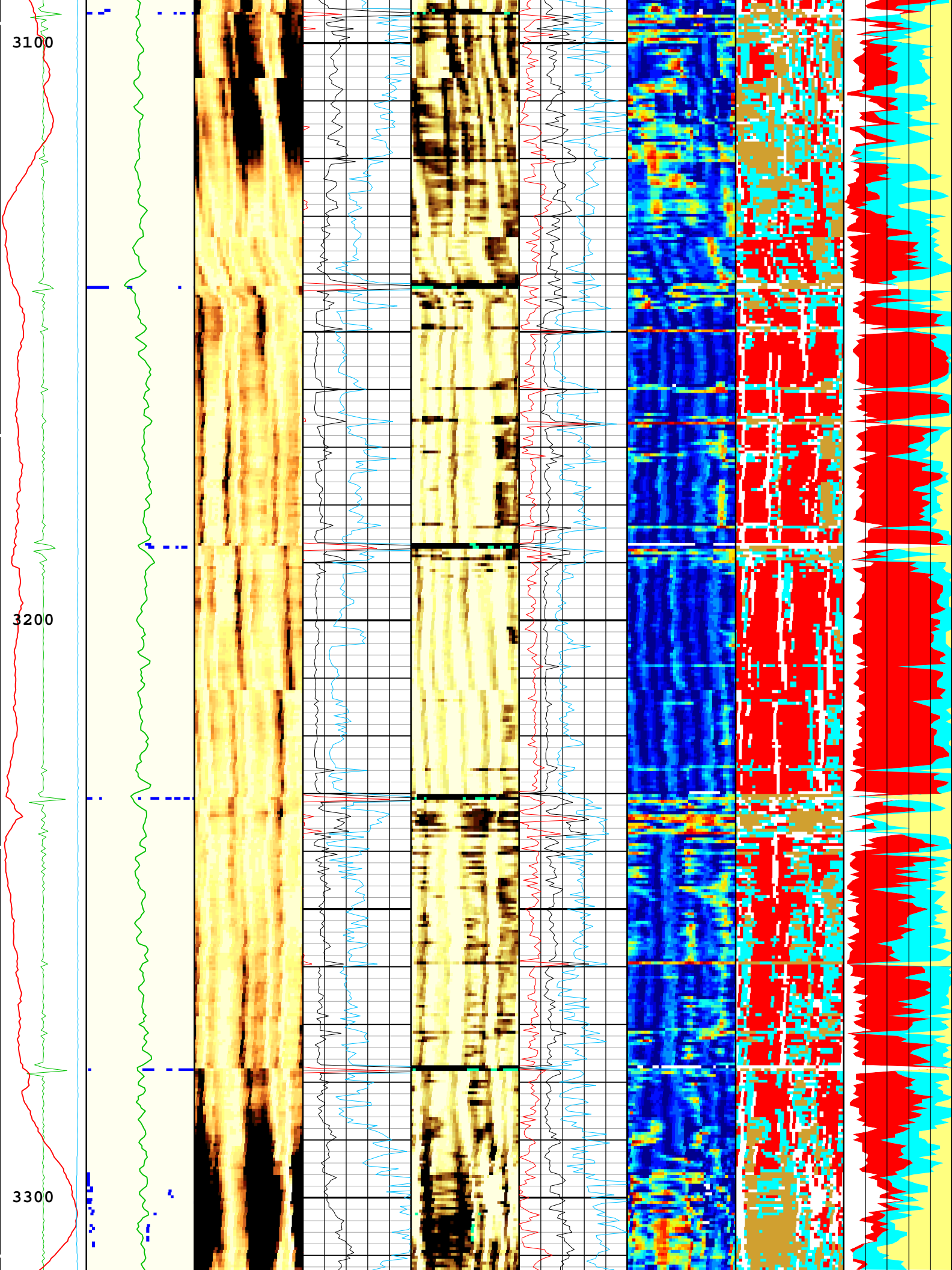


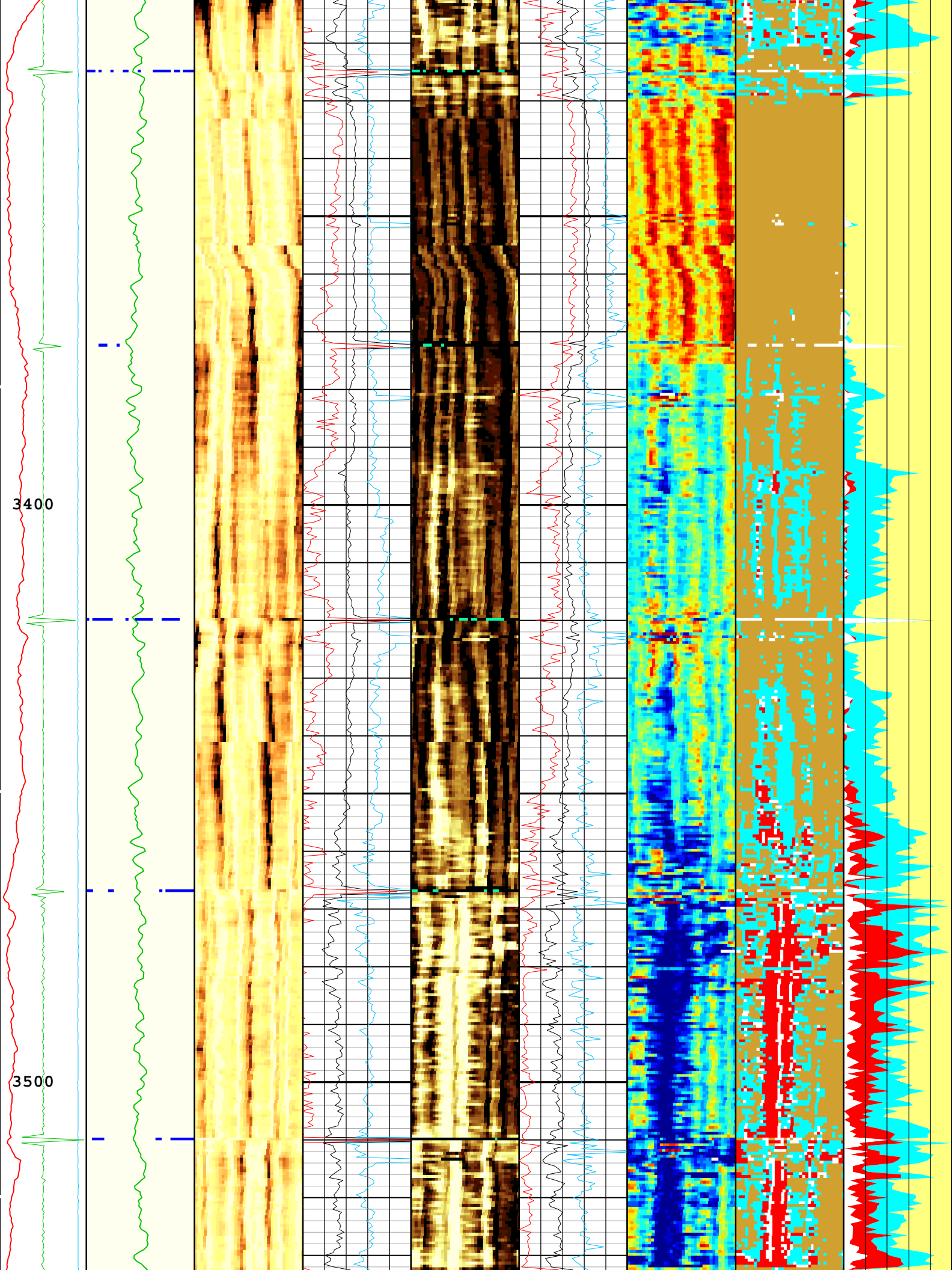


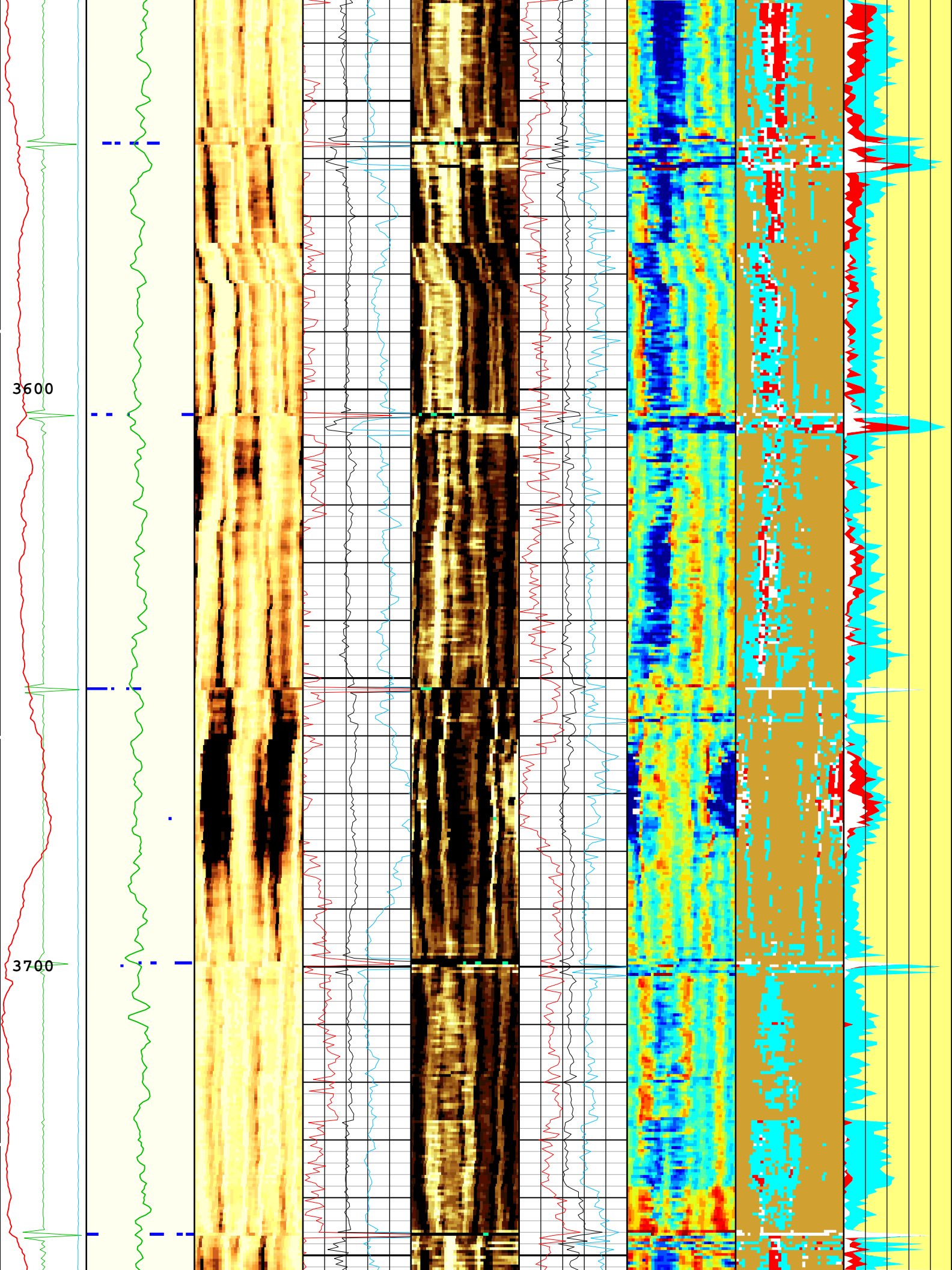


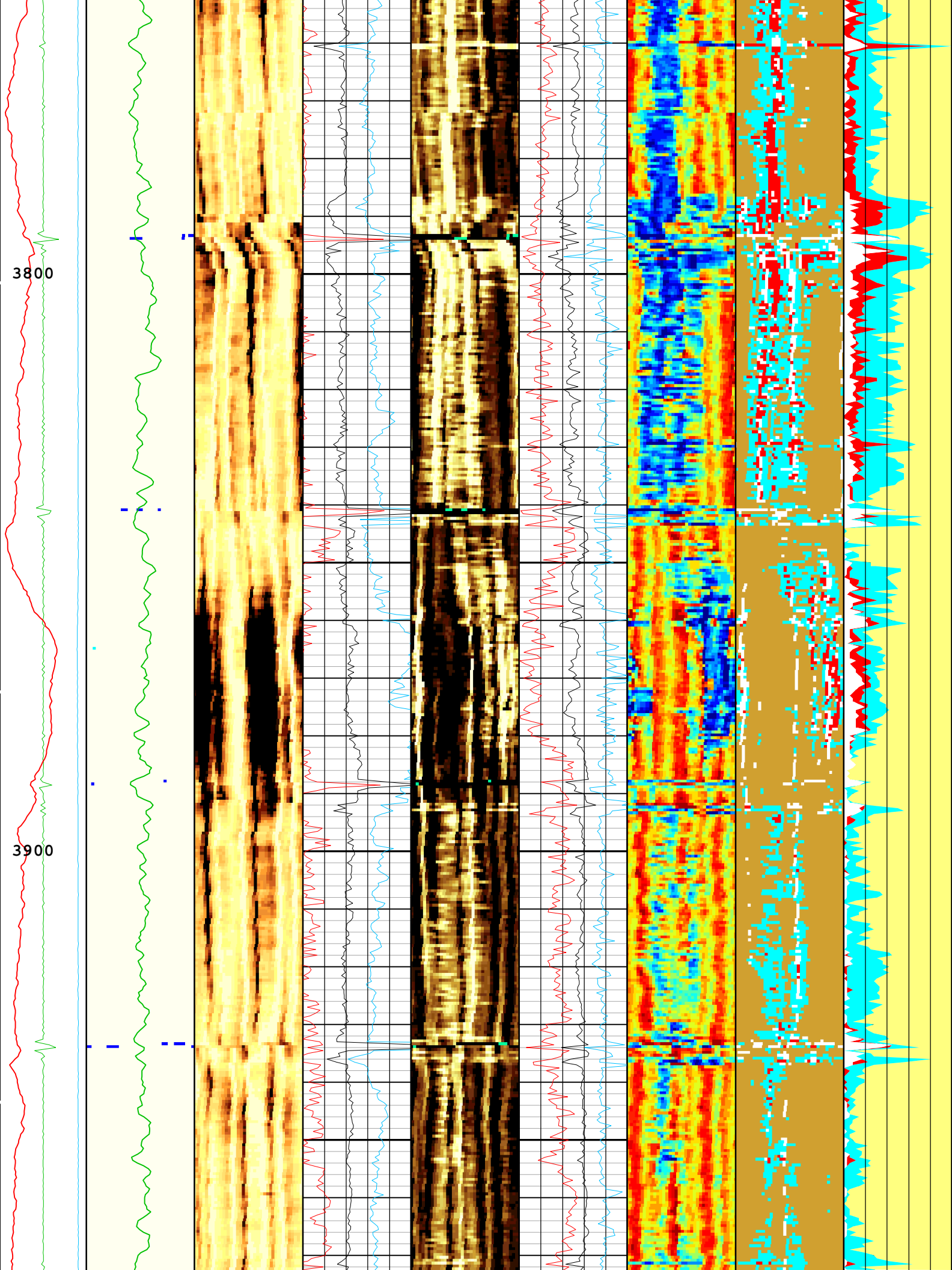


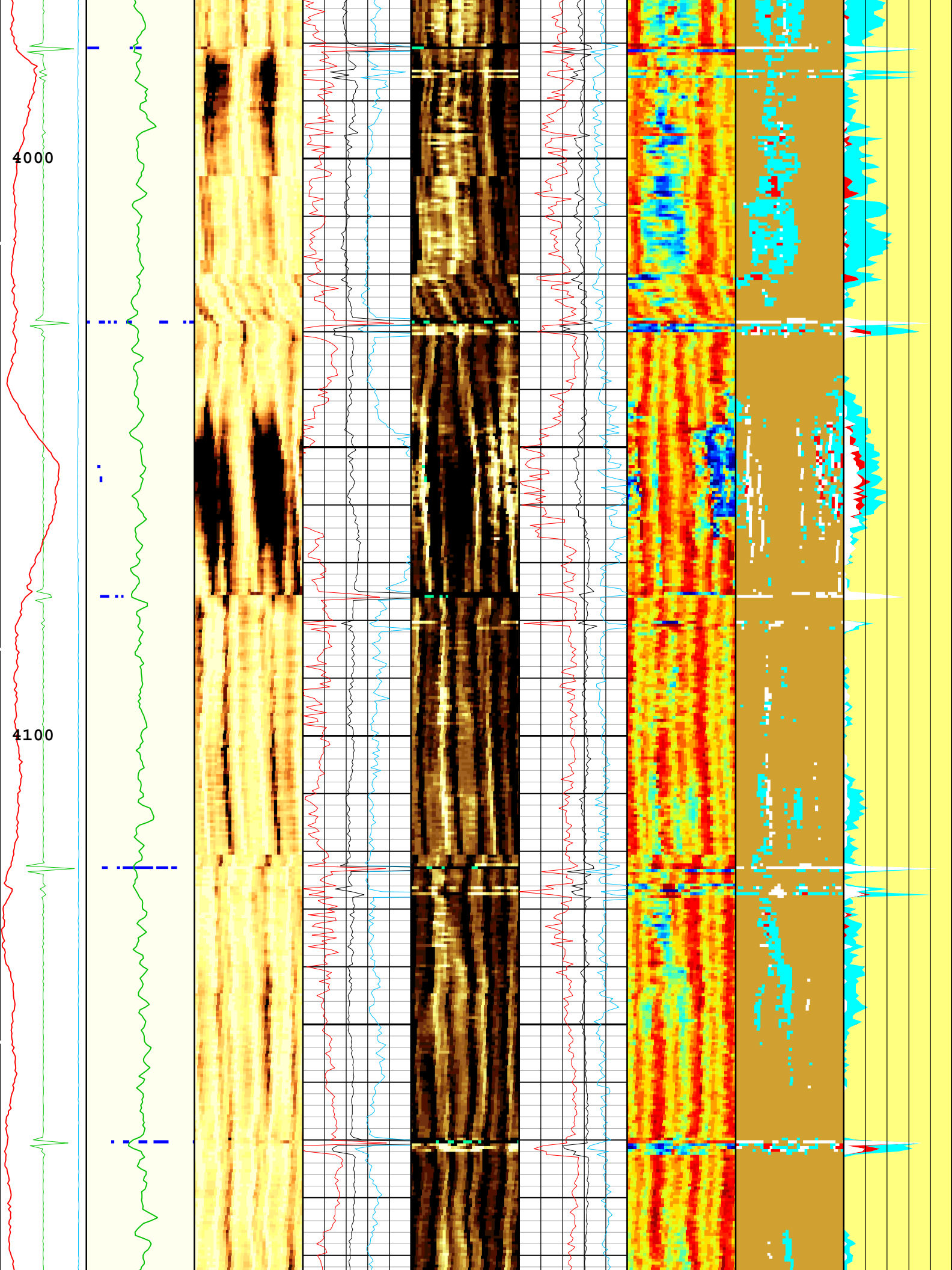


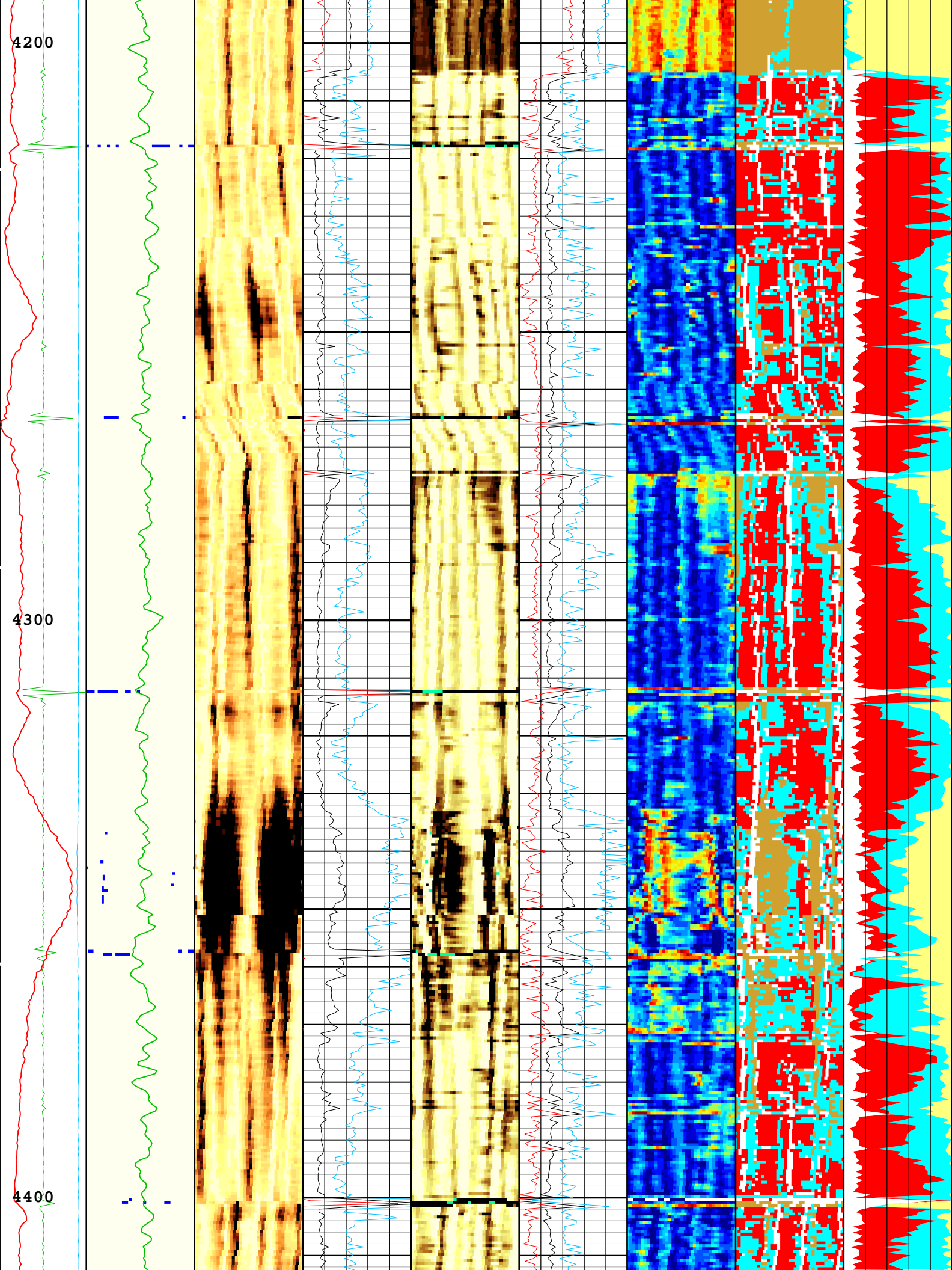


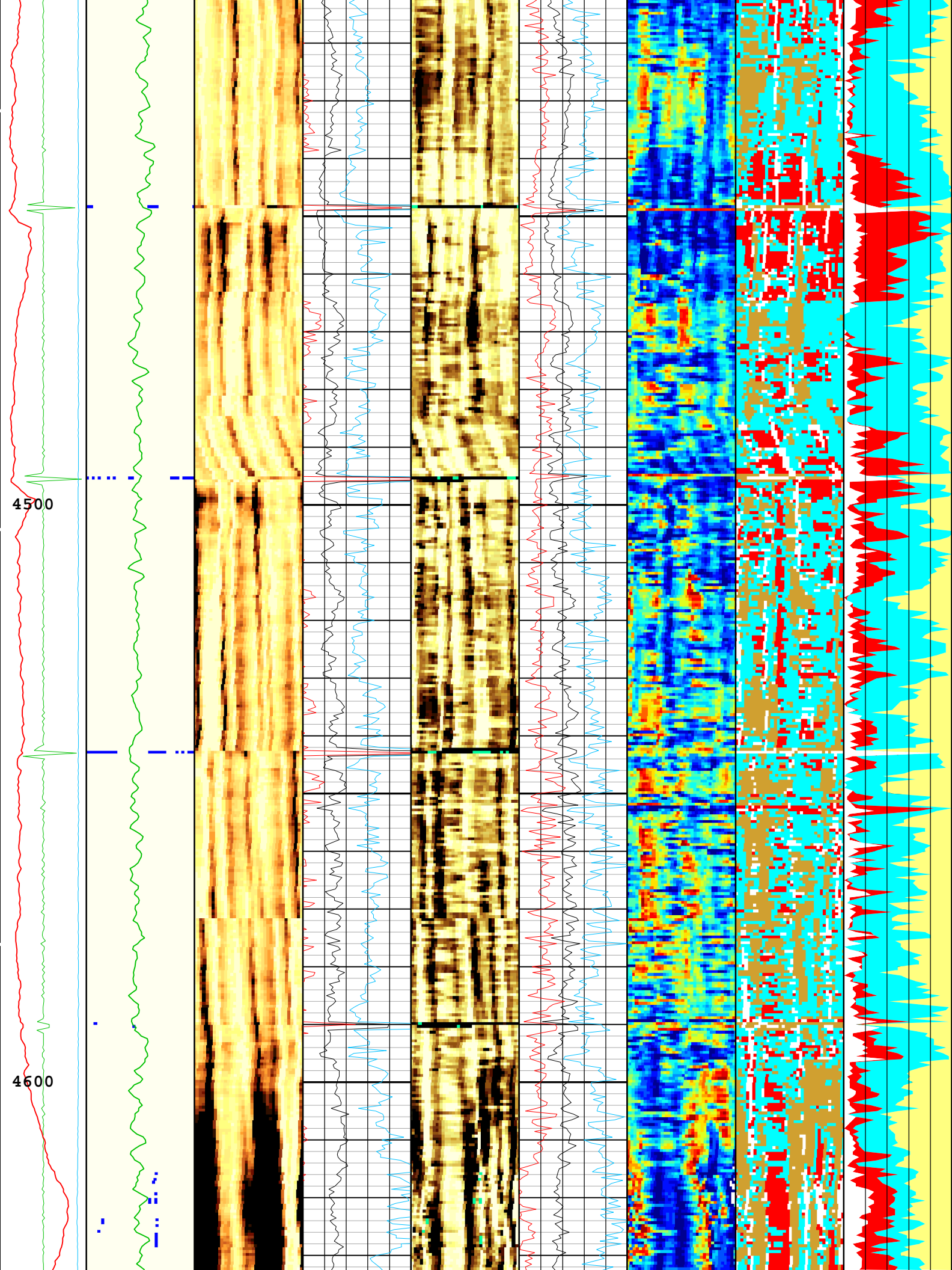


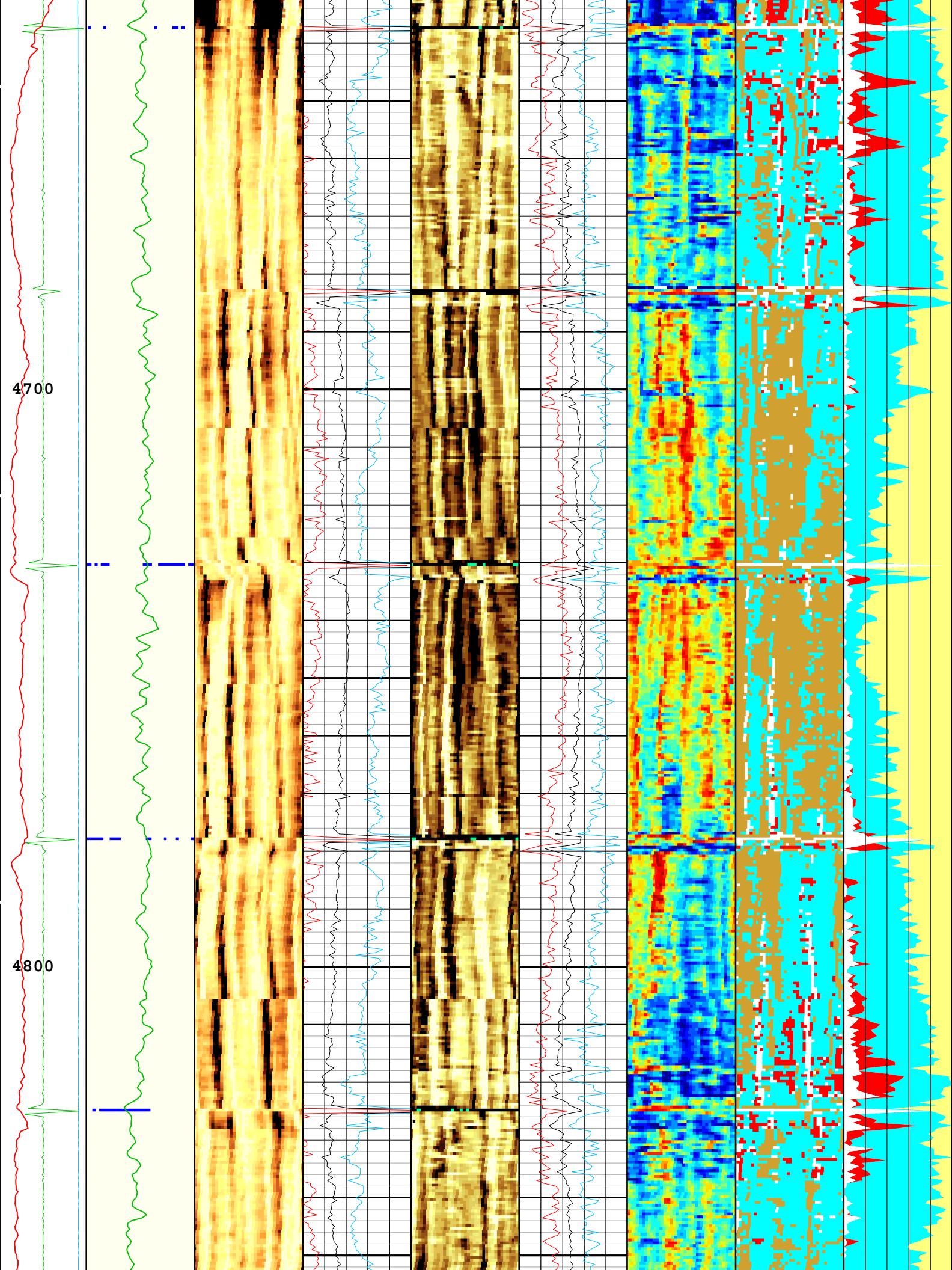


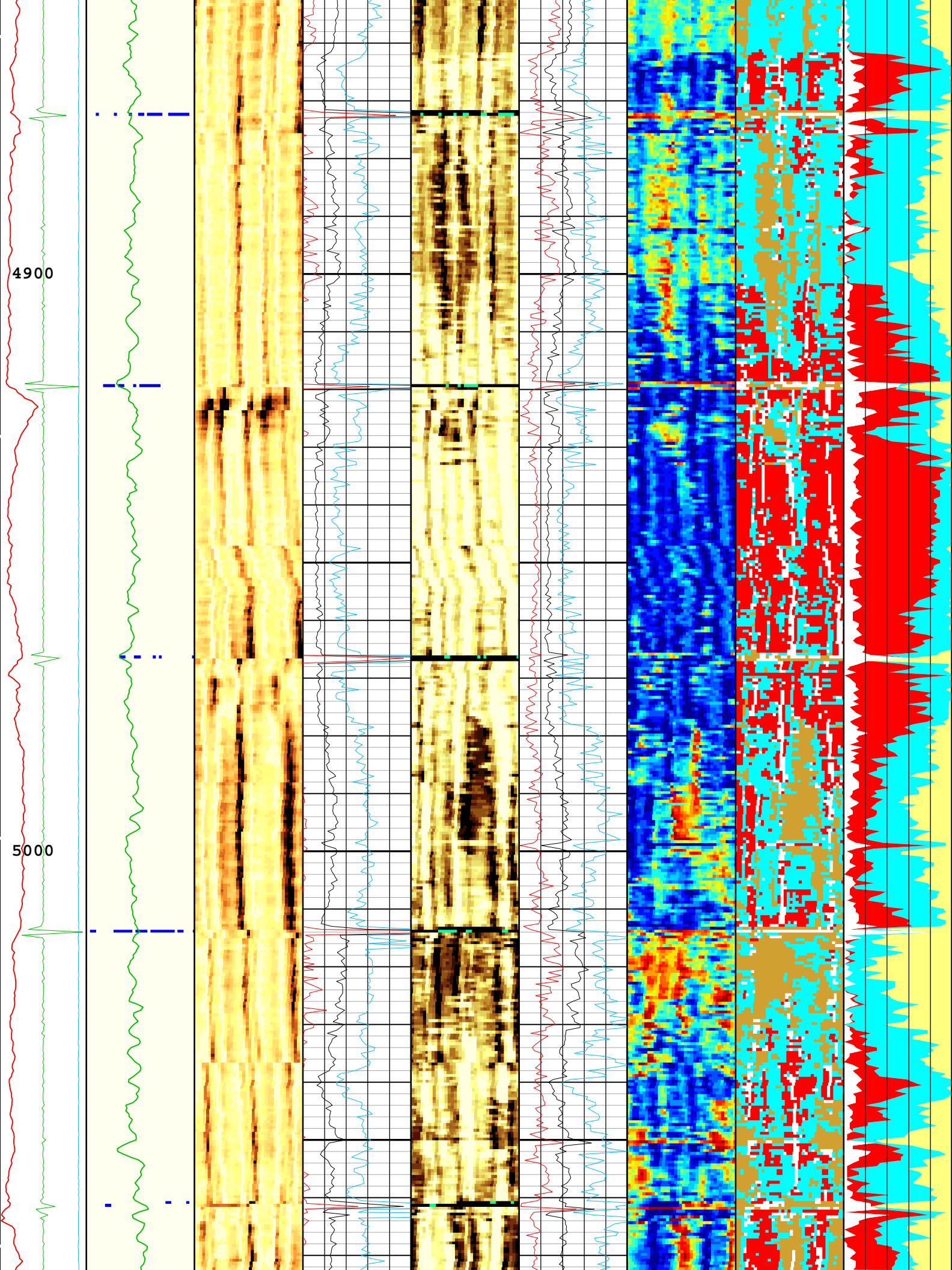


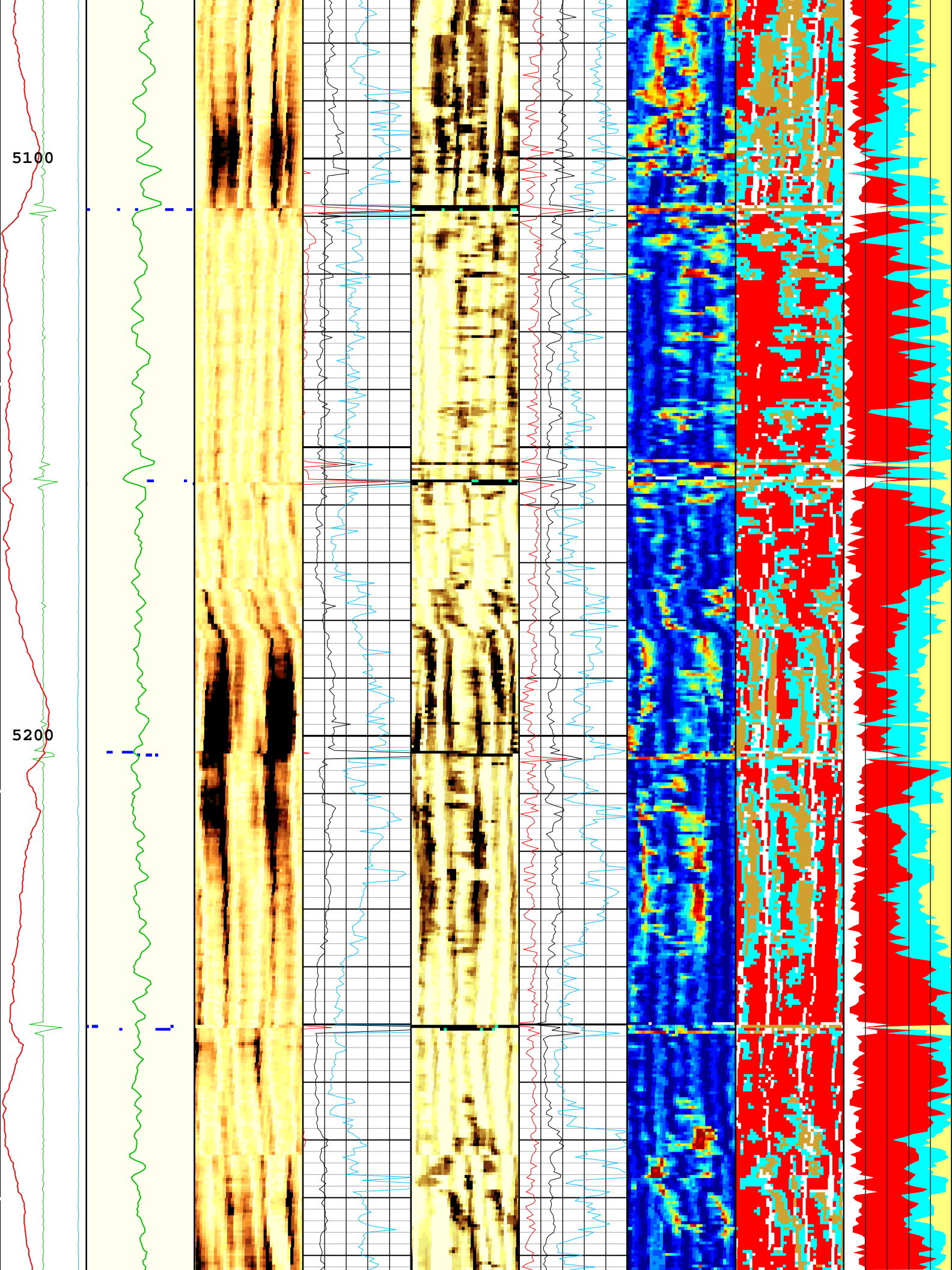


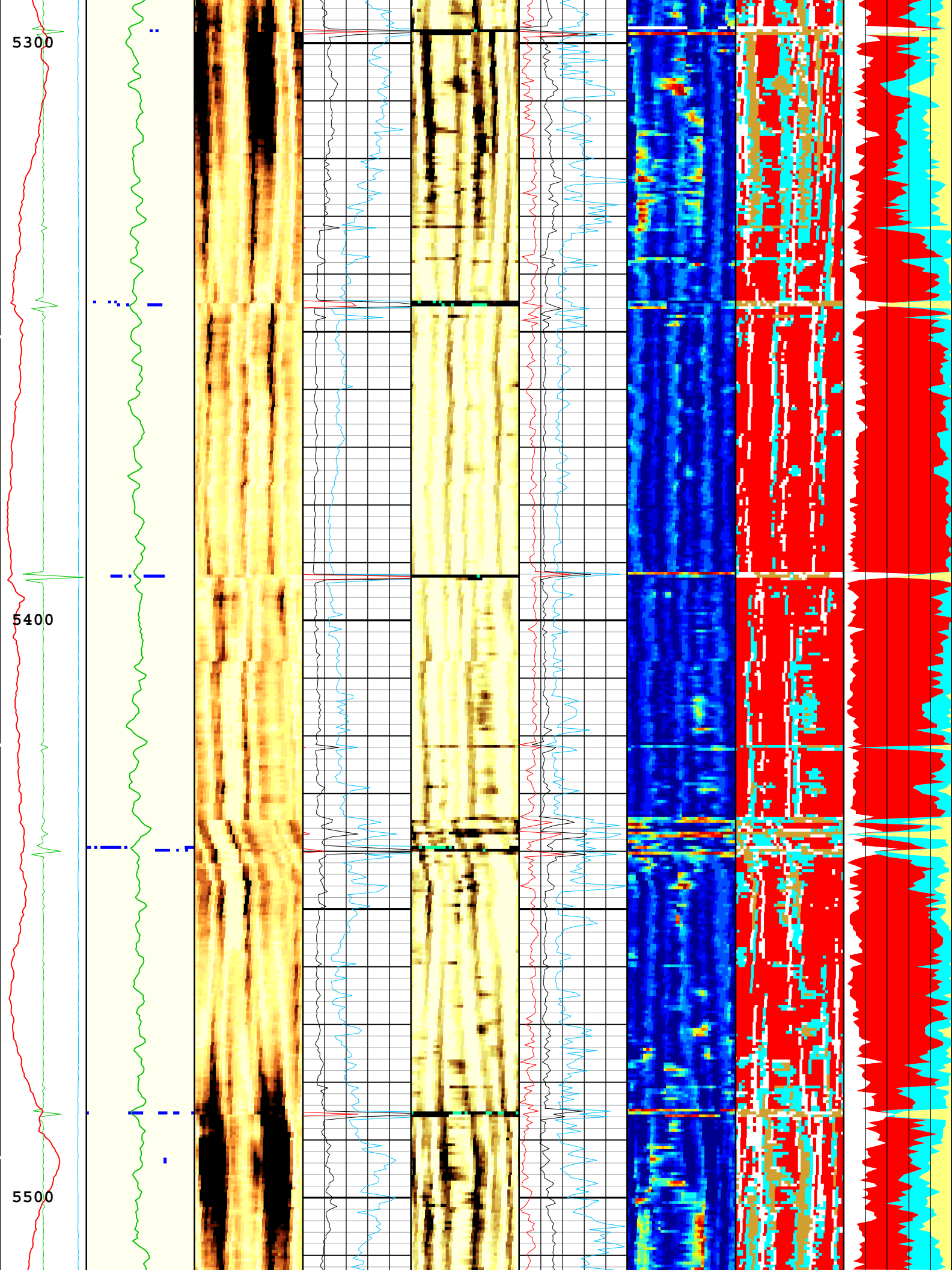


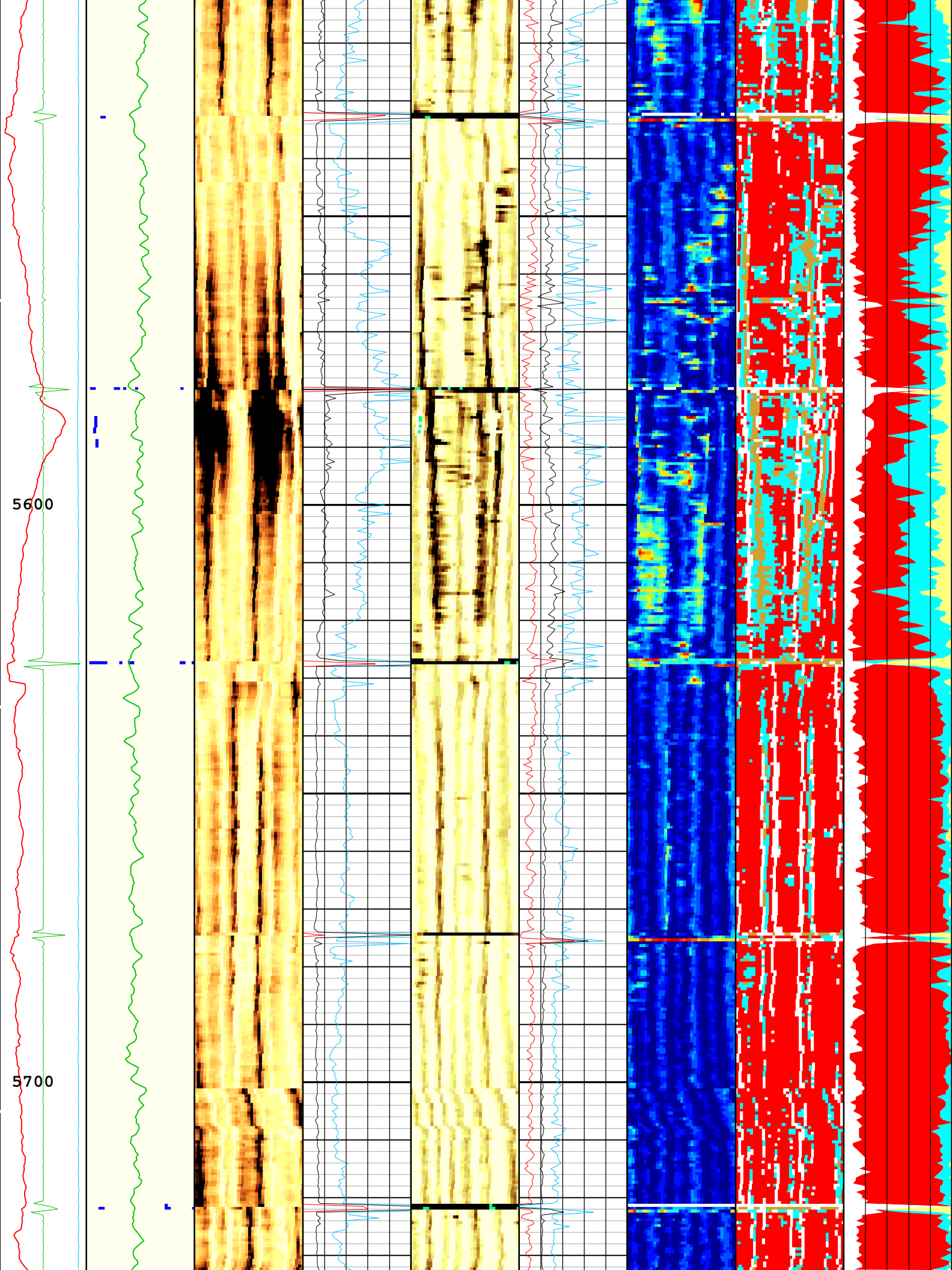


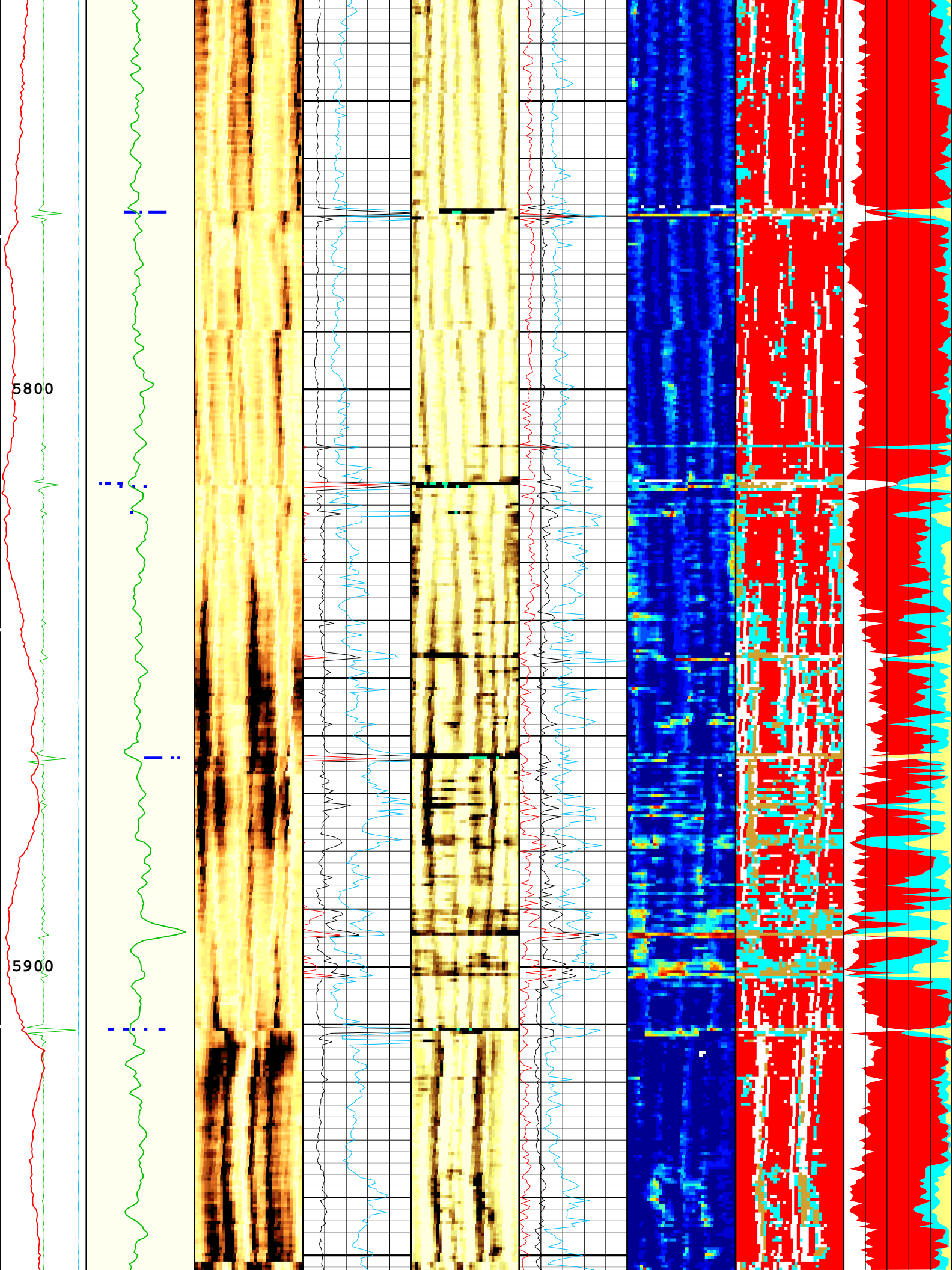


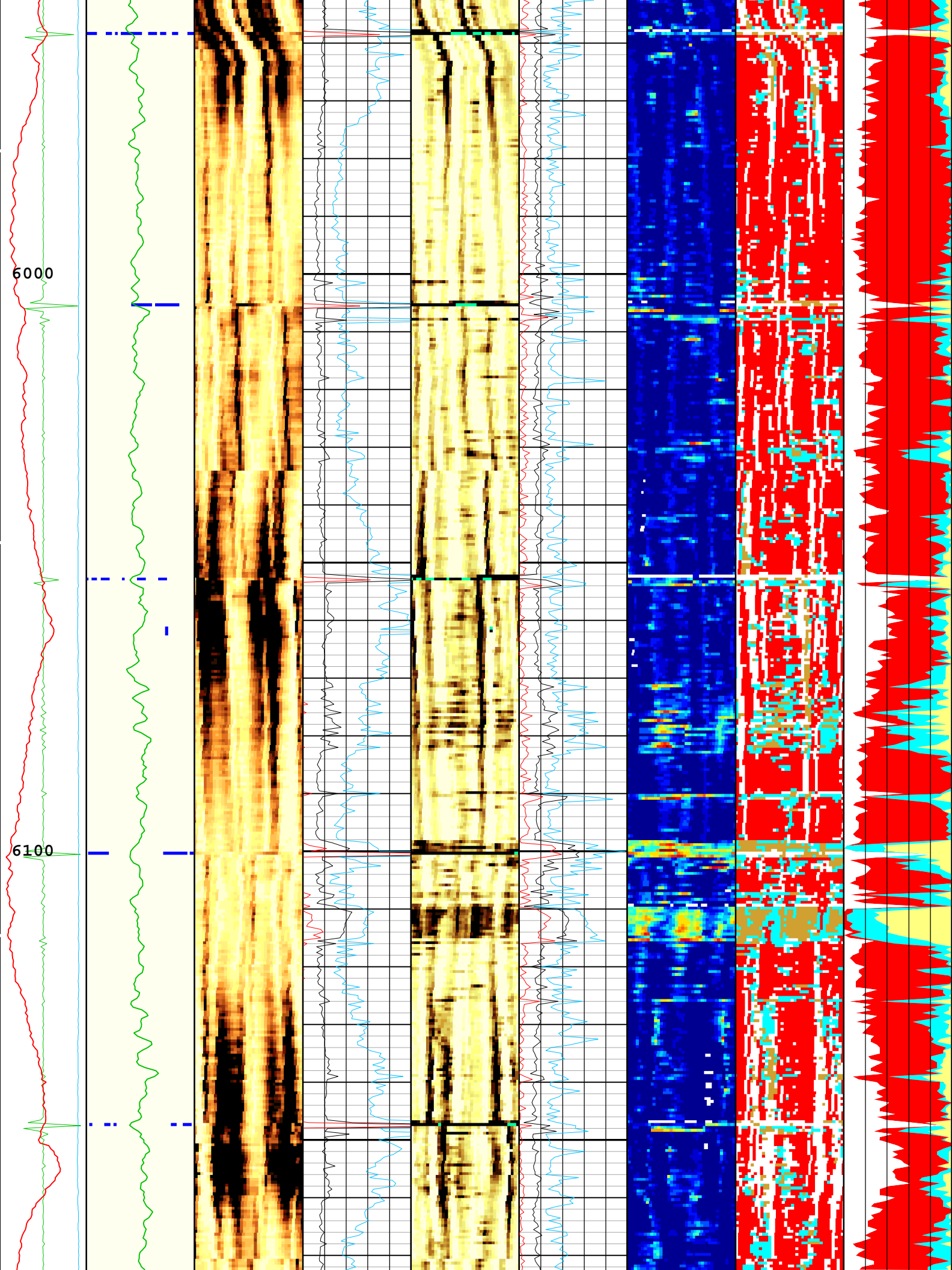


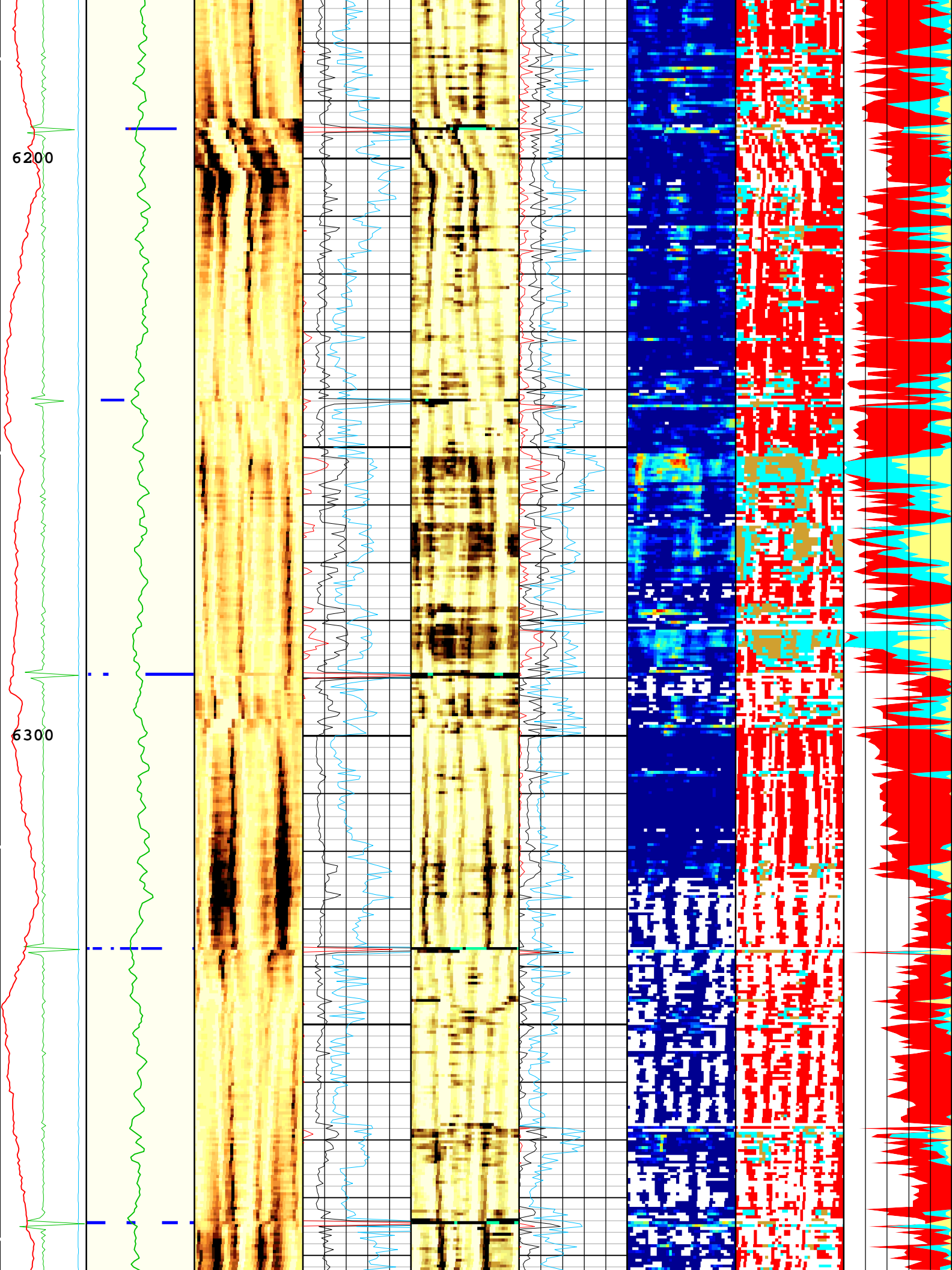


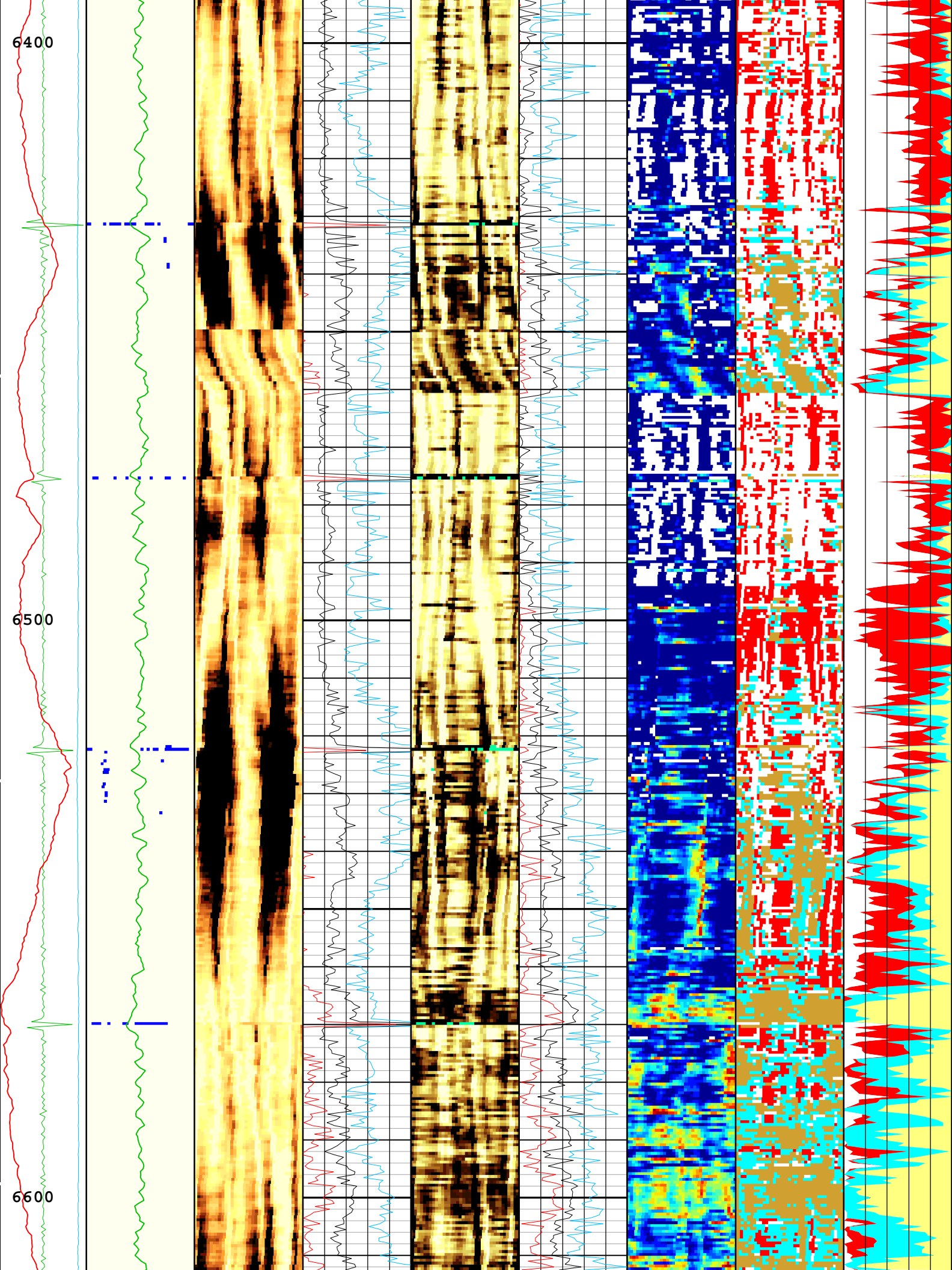


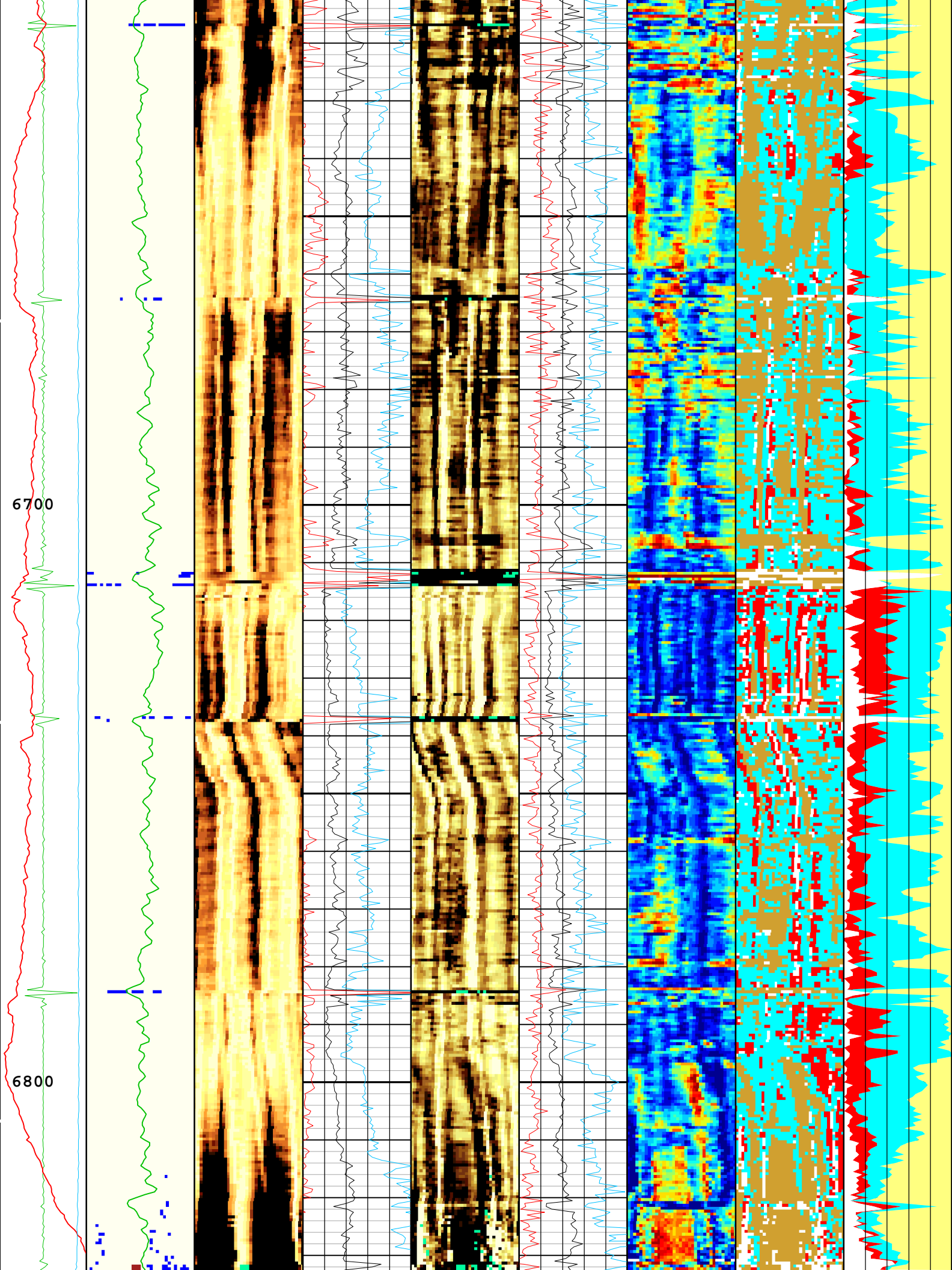


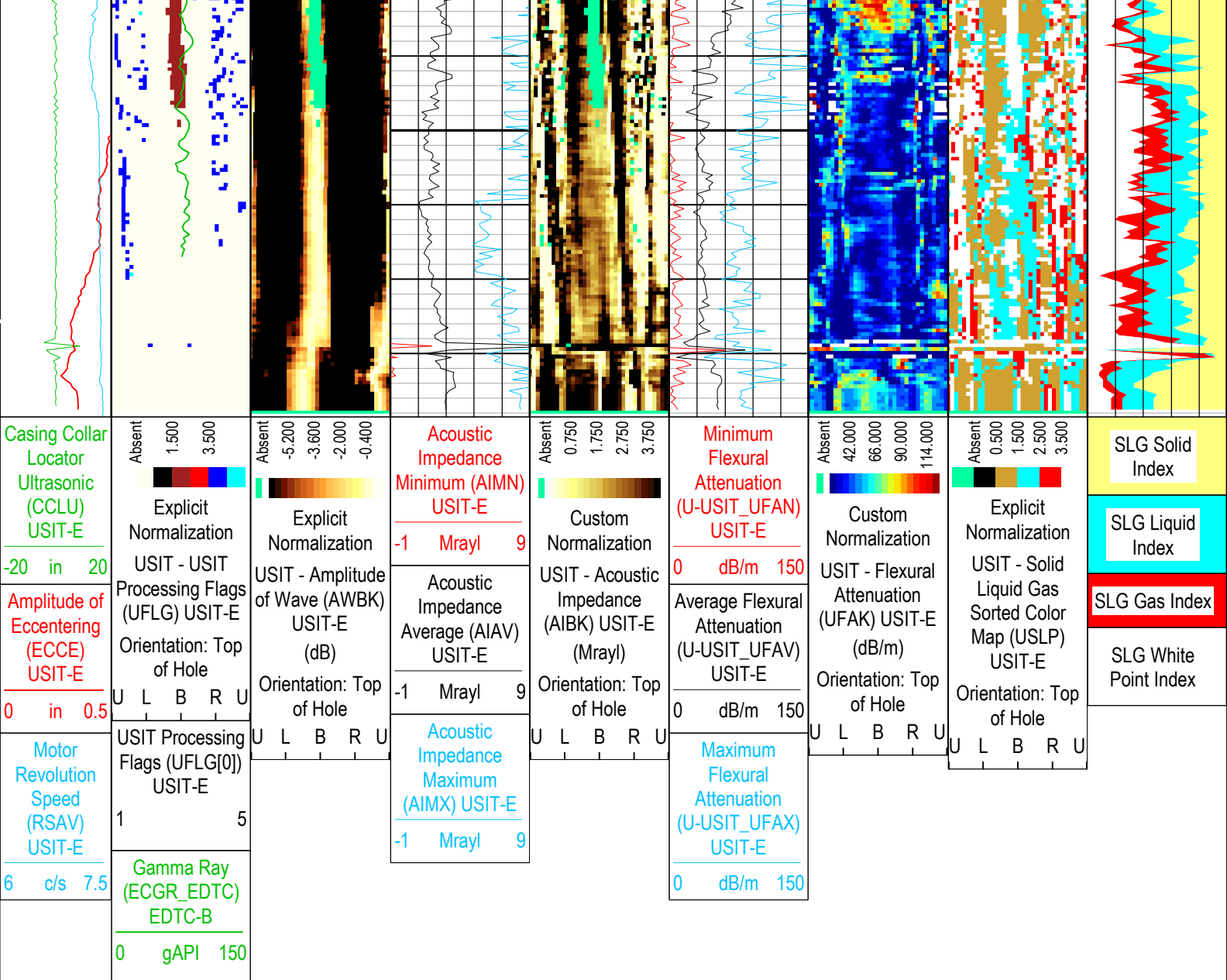












TIME_1900 - Time Marked every 60.00 (s)

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 (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Oct-2018 15:43:31

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	12171	ft
CDEN	Cement Density	USIT-E	12.5	lbm/gal

CDEM	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	206	us/ft
FD	Fluid Density	USIT-E	8.4	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	-10.28	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	-10.05	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	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	27.5	2386
BS	8.5	2386	6888.5
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	48	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	40	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	177	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	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	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
U-USIT_UFWB	137	16-Oct-2018 09:34:30	16-Oct-2018 09:35:32	6889.21	6838.44
U-USIT_UFWB	126.27	16-Oct-2018 09:35:32	16-Oct-2018 11:12:47	6838.44	48.9
U-USIT_UNWB	106	16-Oct-2018 09:34:30	16-Oct-2018 09:35:33	6889.21	6836.83
U-USIT_UNWB	94.87	16-Oct-2018 09:35:33	16-Oct-2018 11:12:47	6836.83	48.9
WINE	71.88	16-Oct-2018 09:34:30	16-Oct-2018 09:35:00	6889.21	6874.72
WINE	76.48	16-Oct-2018 09:35:00	16-Oct-2018 11:12:47	6874.72	48.9
All depth are at tool zero.					

One					

IBC SLG Composite 0 PSI					
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Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	48.90 ft	6889.21 ft	16-Oct-2018 9:34:30 AM	16-Oct-2018 11:12:47 AM	ON	10.79 ft	Yes

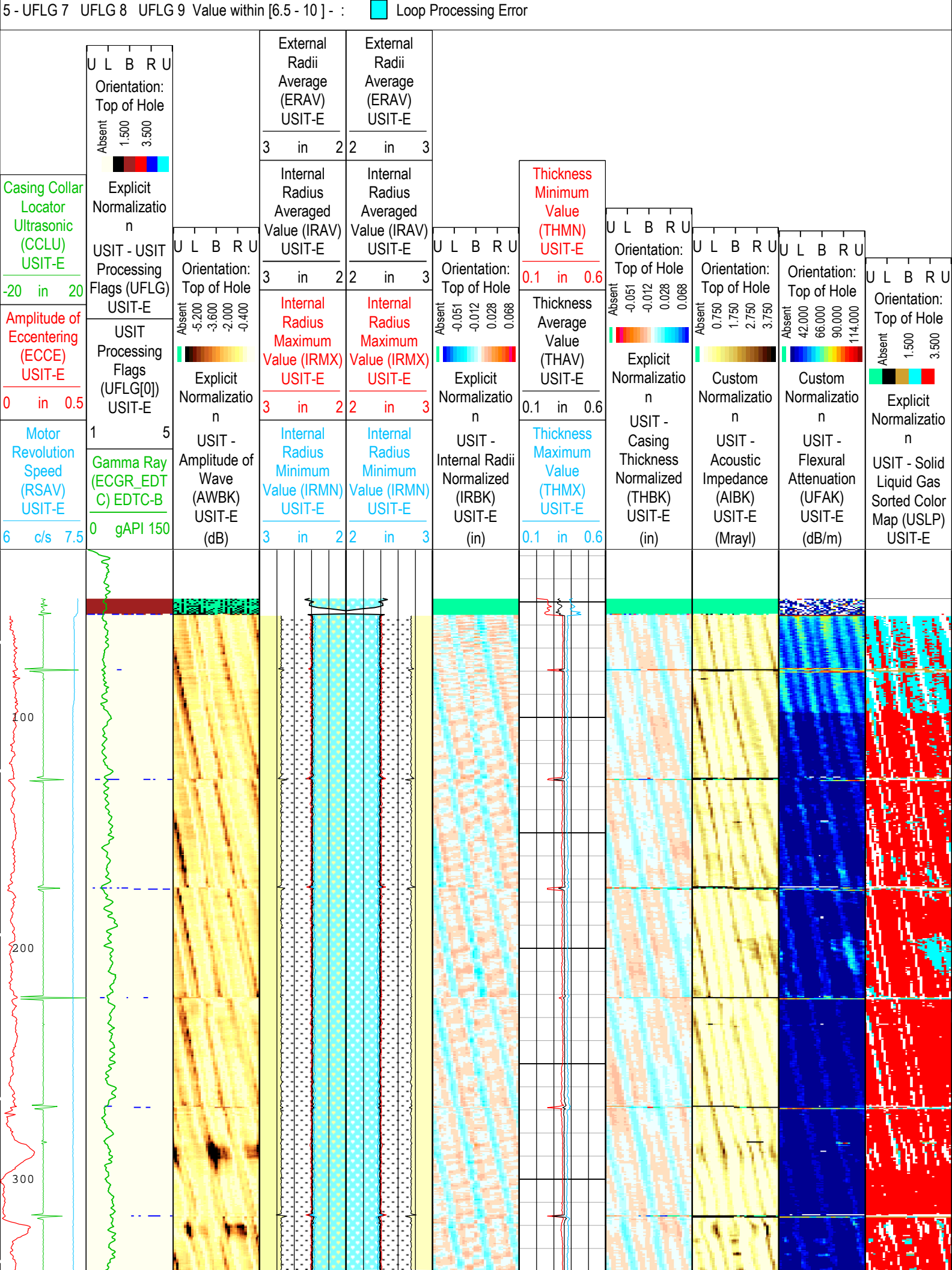
All depths are referenced to toolstring zero									
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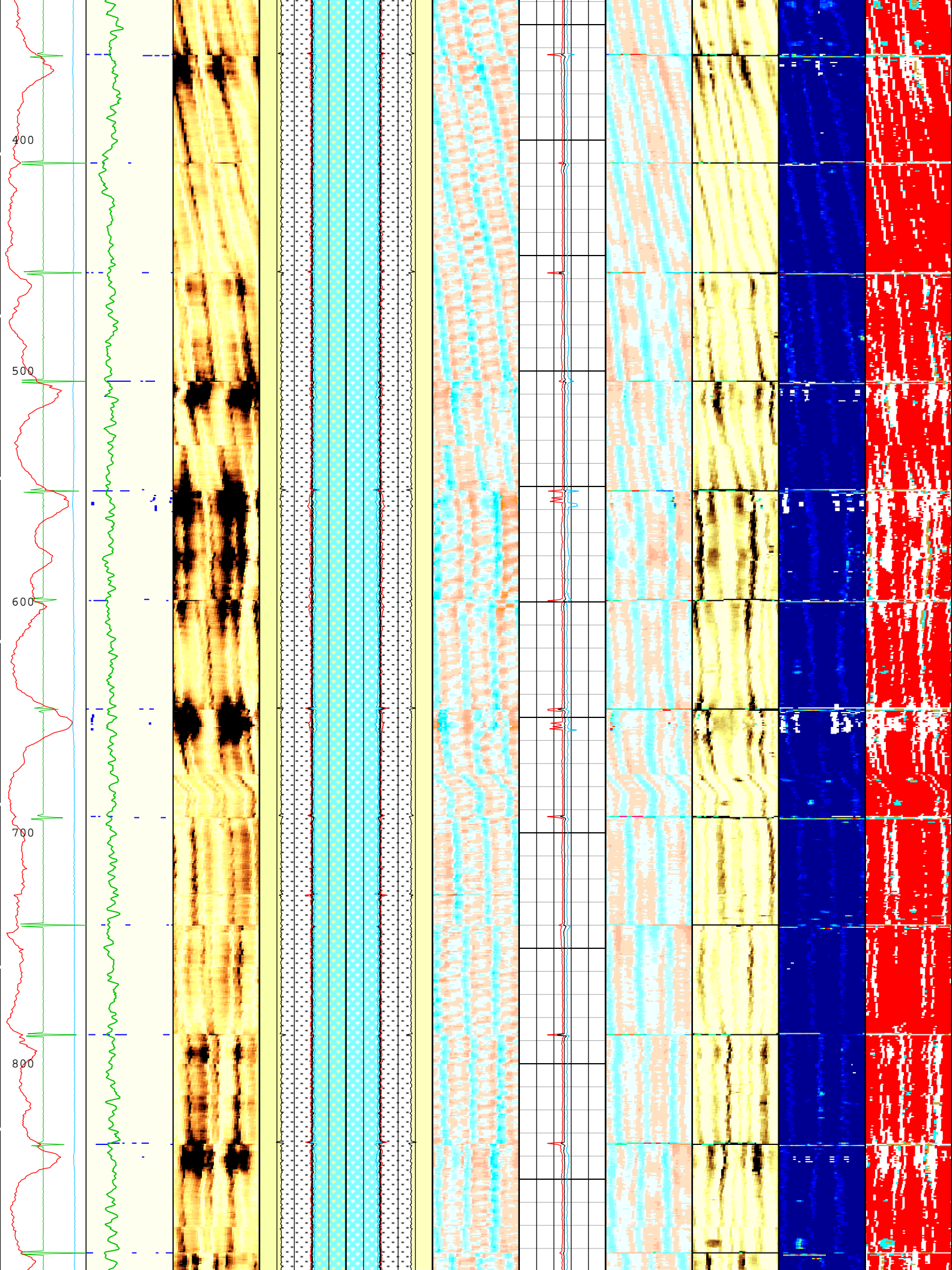
Log	Company:Crestone Peak Resources Operating LLC	Well:Sam #3B-25H-M166
		One: Log[4]:Up:S007

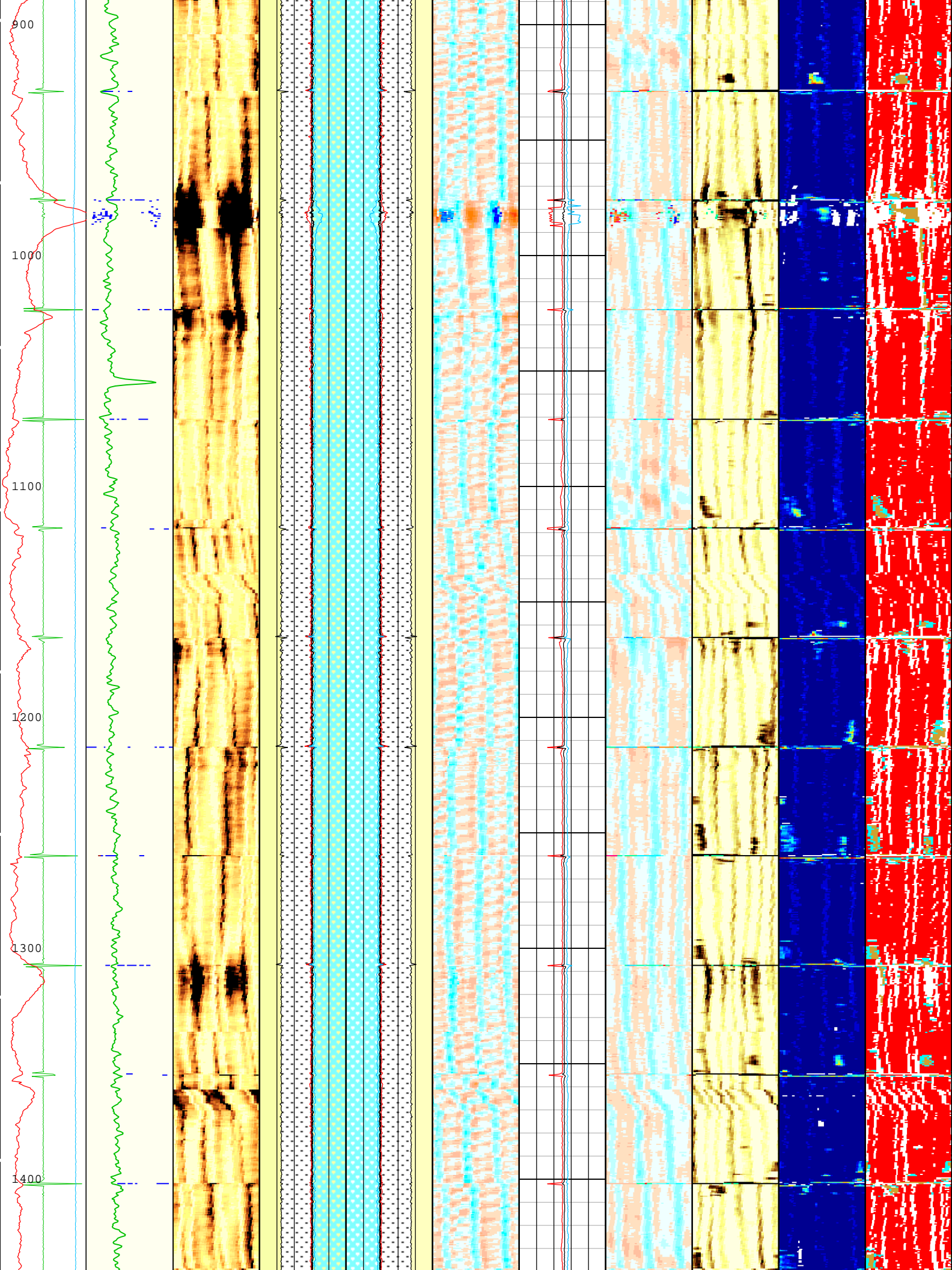
Description: USI IBC SLG Composite	Format: Log (IBC SLG Composite)	Index Scale: 2 in per 100 ft	Index Unit: ft	Index Type: Measured Depth
Creation Date: 16-Oct-2018 15:43:44				

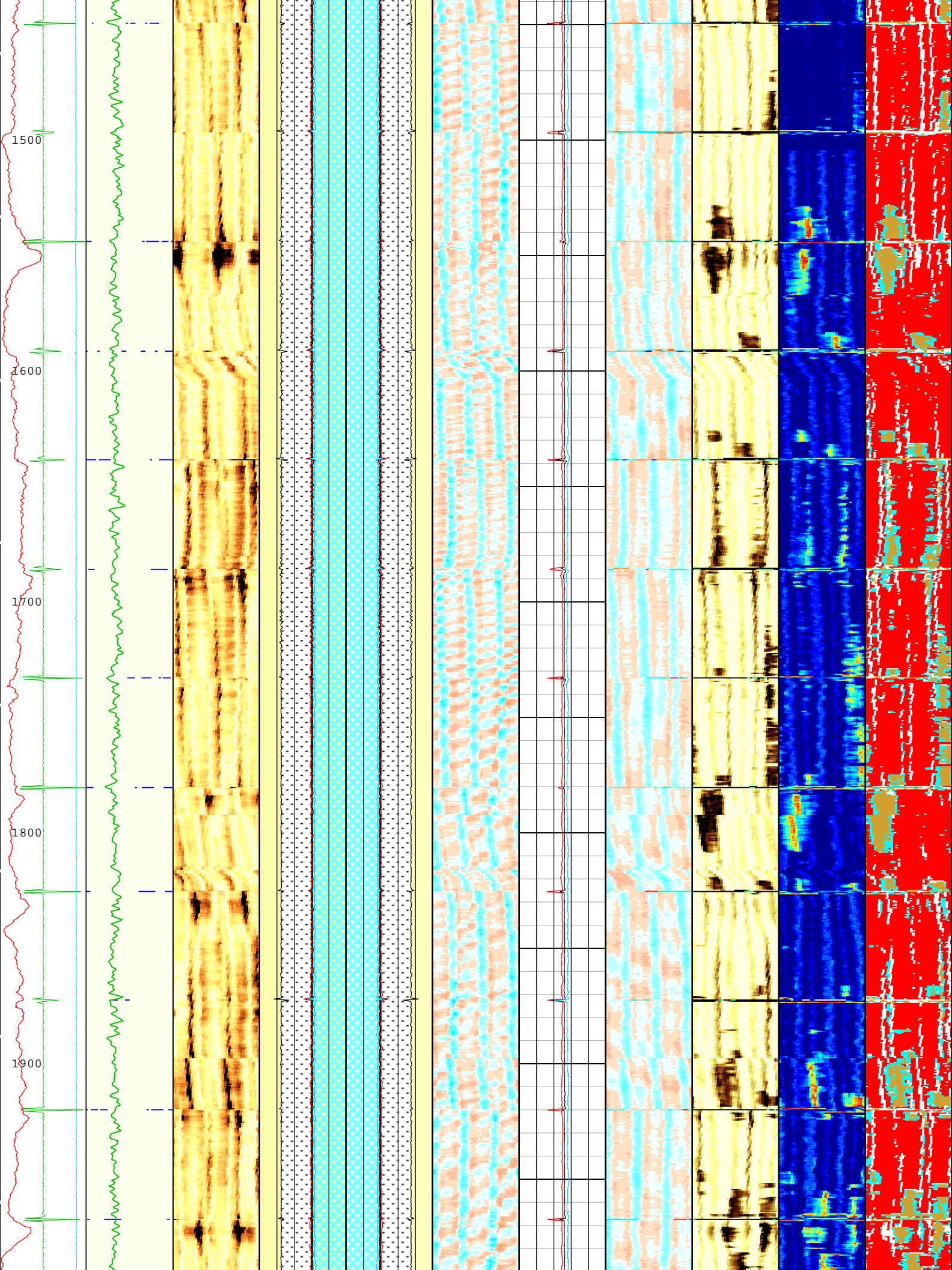
TIME_1900 - Time Marked every 60.00 (s)

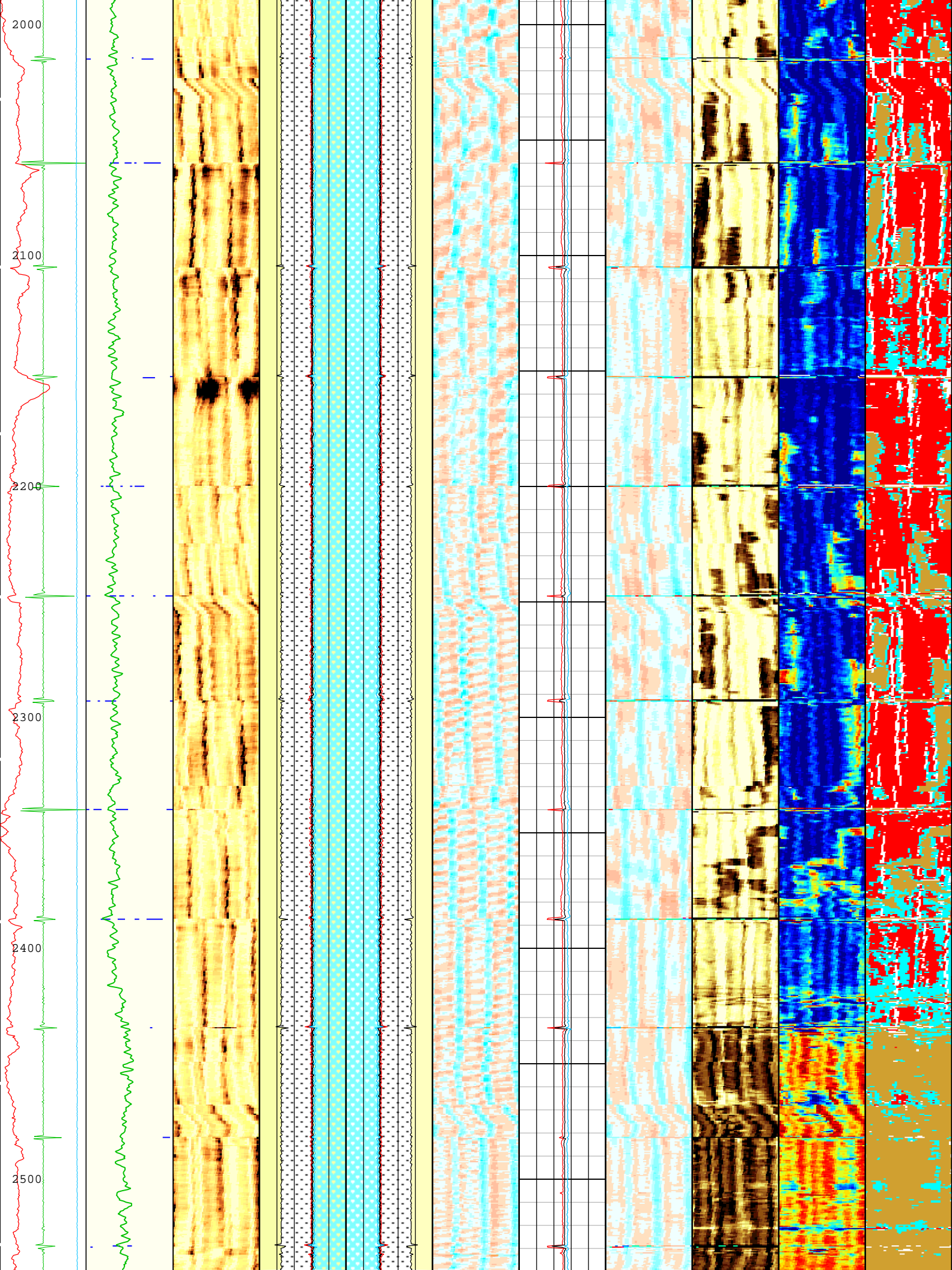
USIT Processing Flags (UFLG[0]) USIT-E				
1 - UFLG 1 Value within [0.0 - 1.5] - :	<div> <div></div> <div>UTIM Error</div> </div>			
2 - UFLG 2 Value within [1.5 - 2.5] - :	<div> <div></div> <div>Pulse Origin Not Detected</div> </div>			
3 - UFLG 3 Value within [2.5 - 3.5] - :	<div> <div></div> <div>WINLEN Error</div> </div>			
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :	<div> <div></div> <div>Casing Thickness Error</div> </div>			

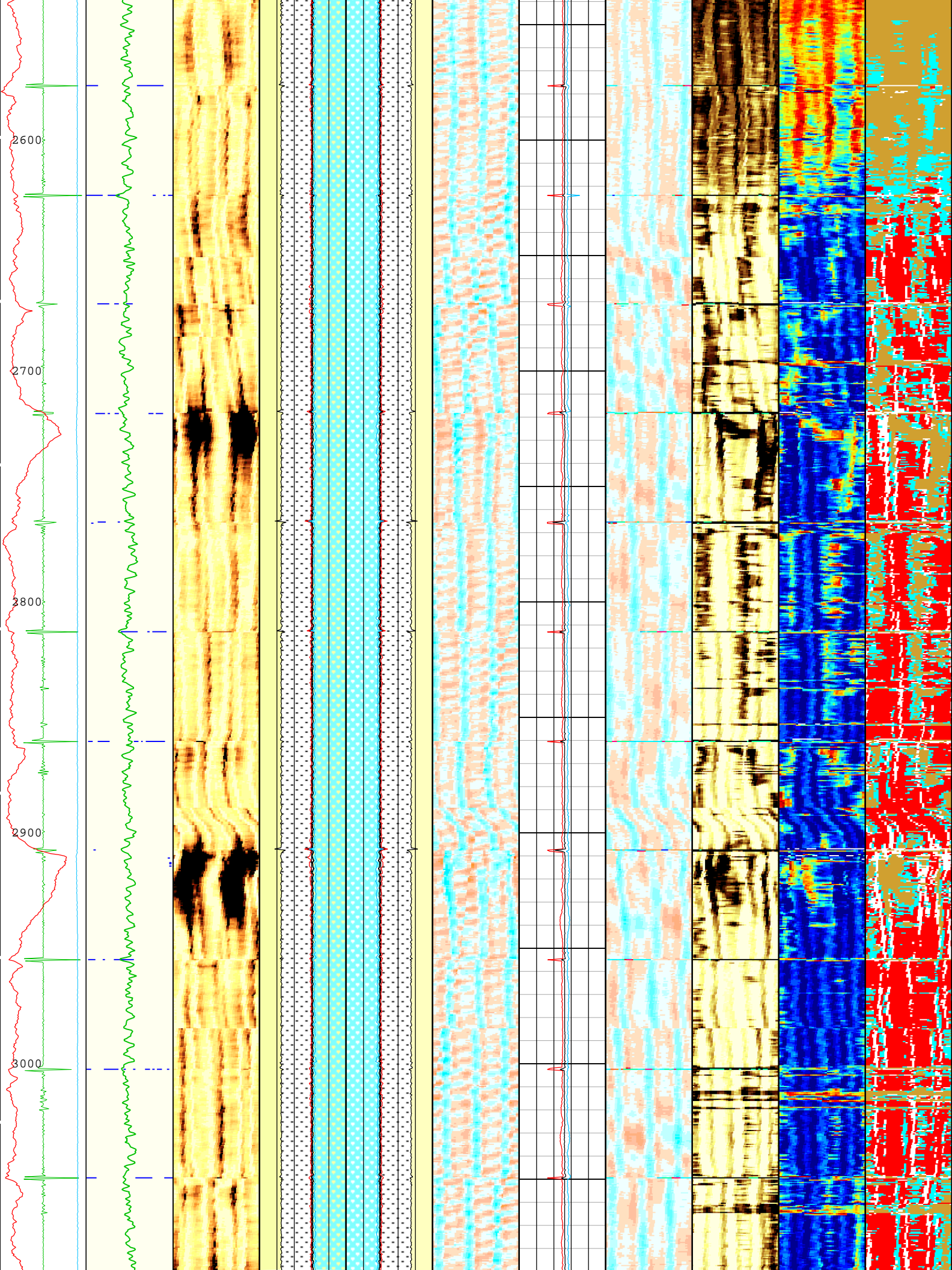


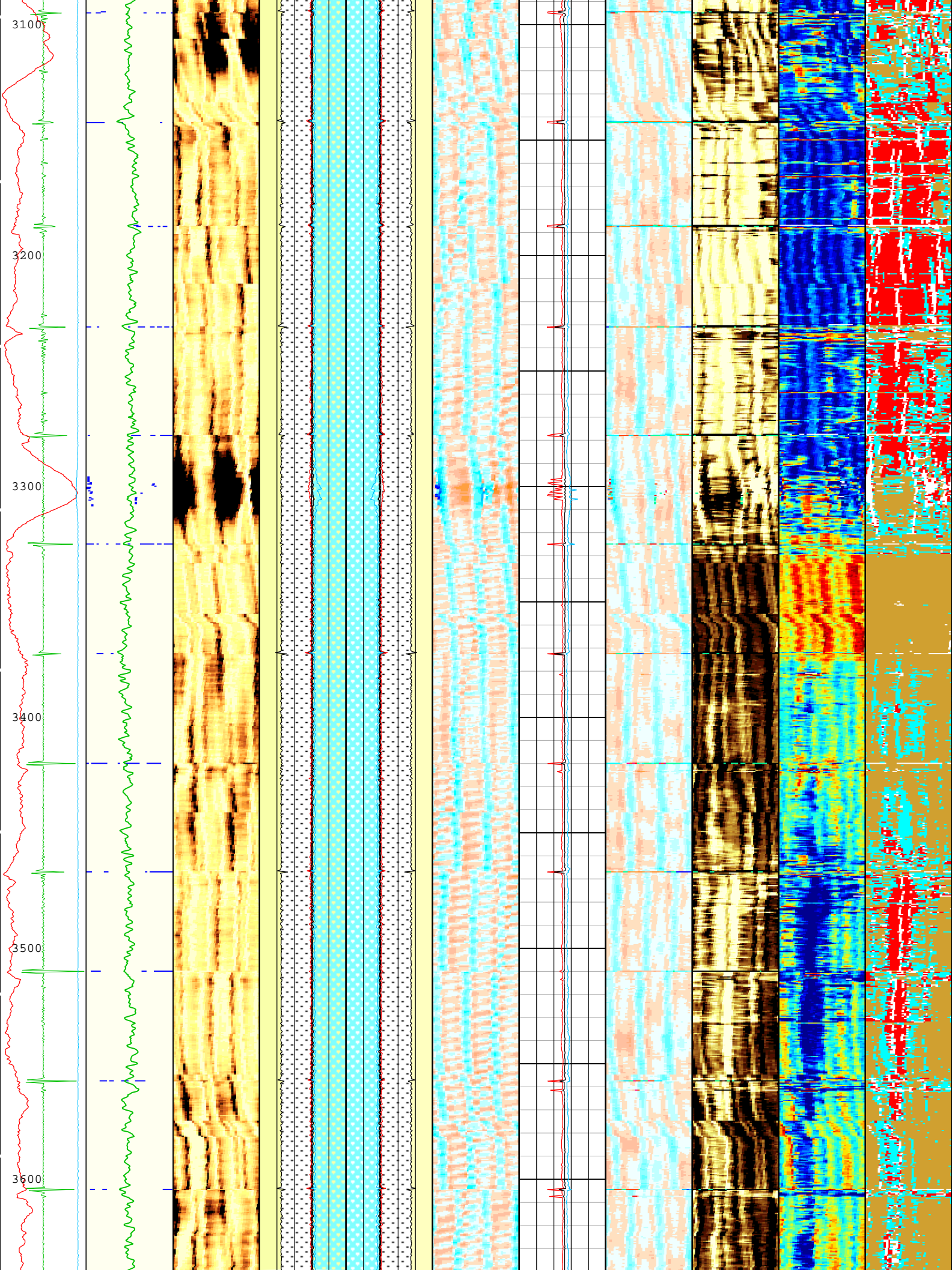


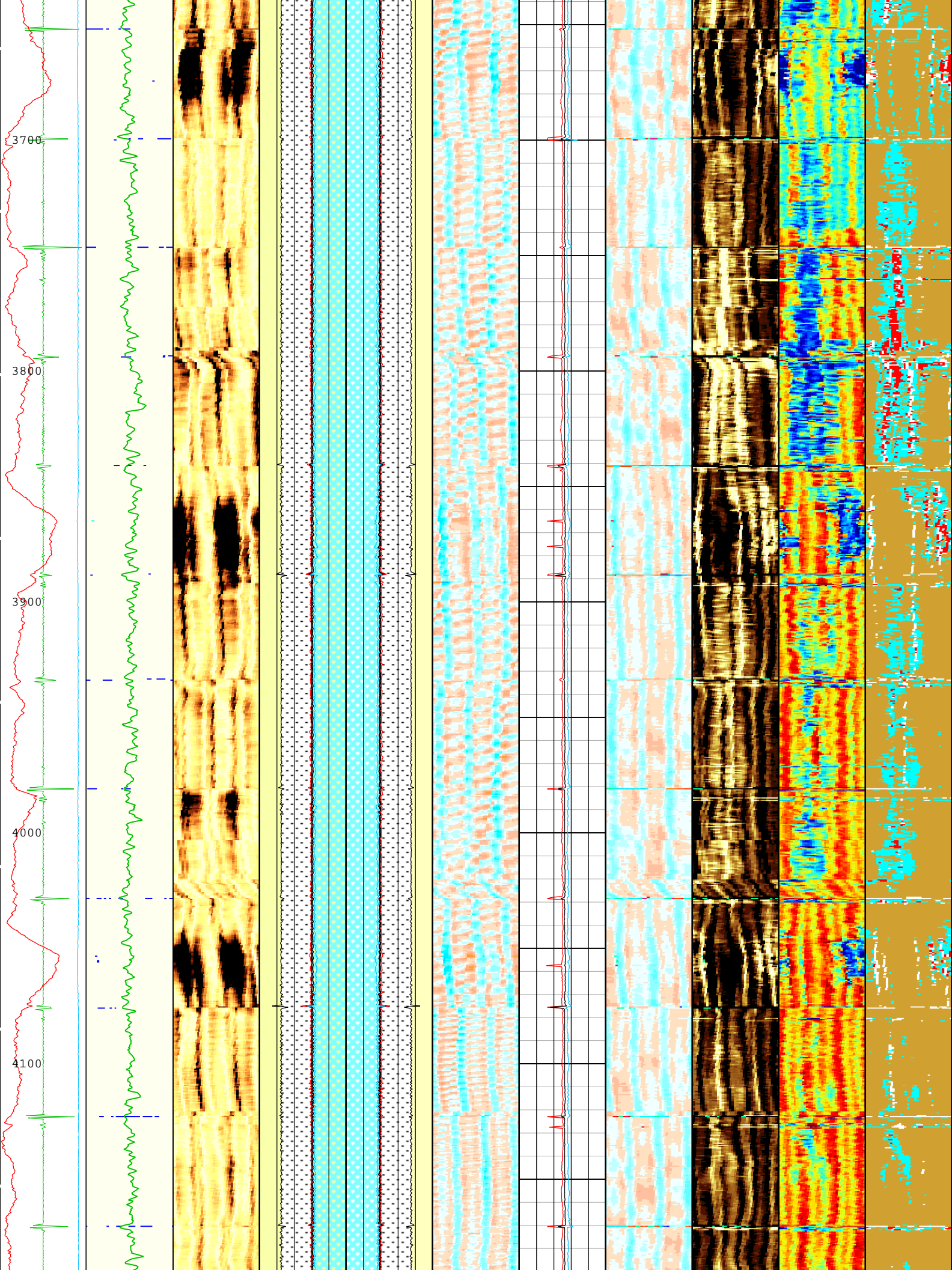


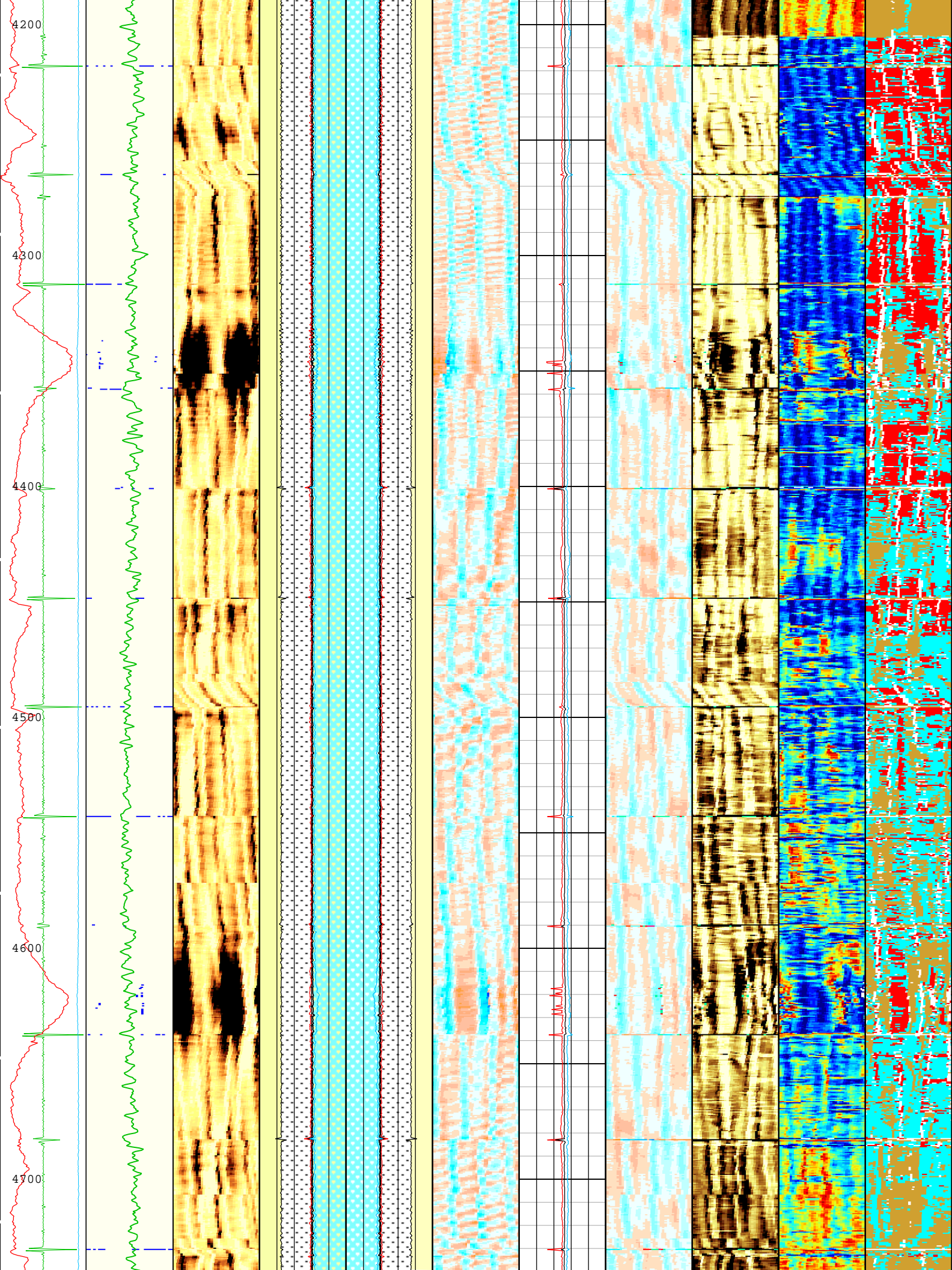


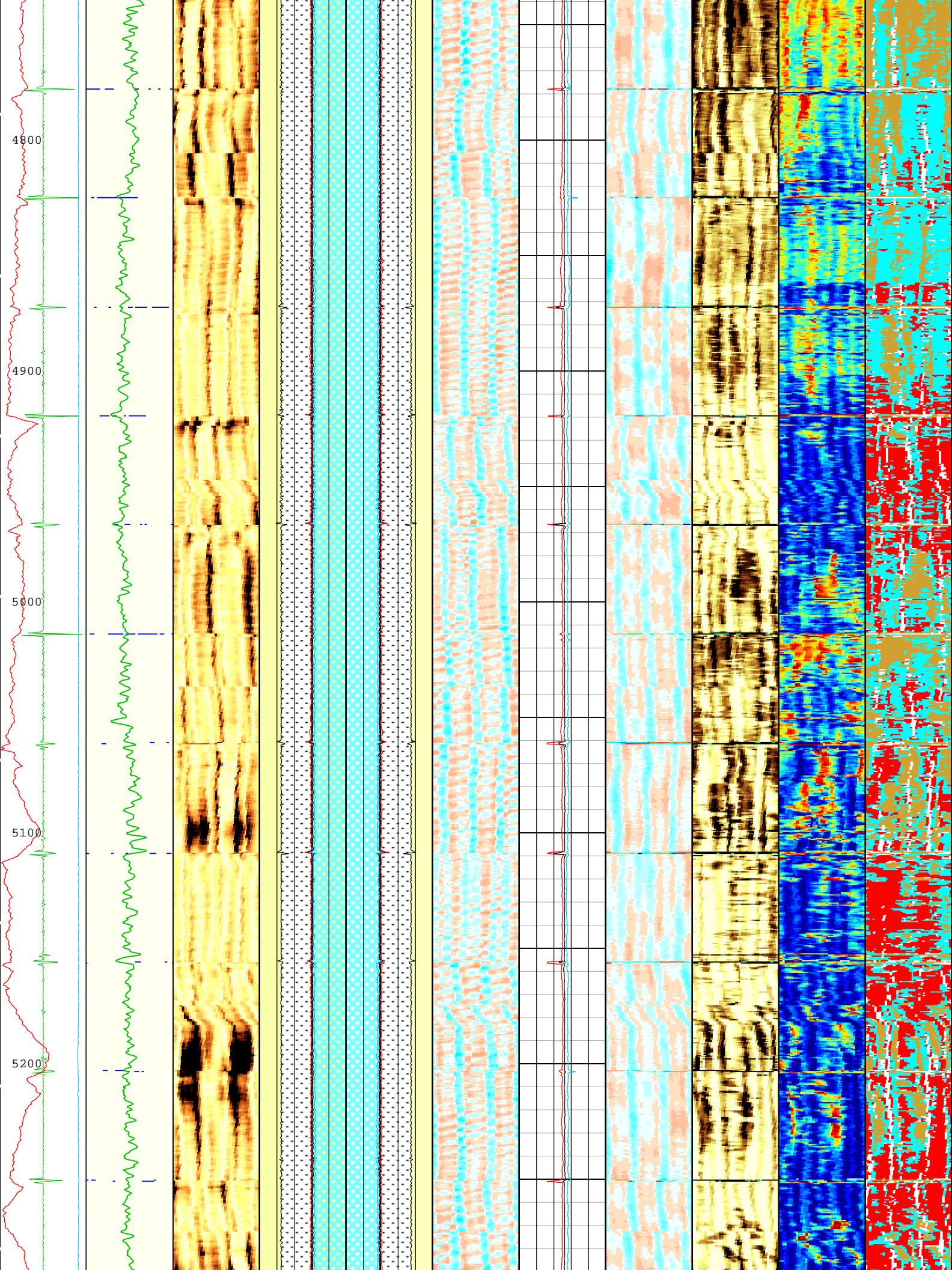


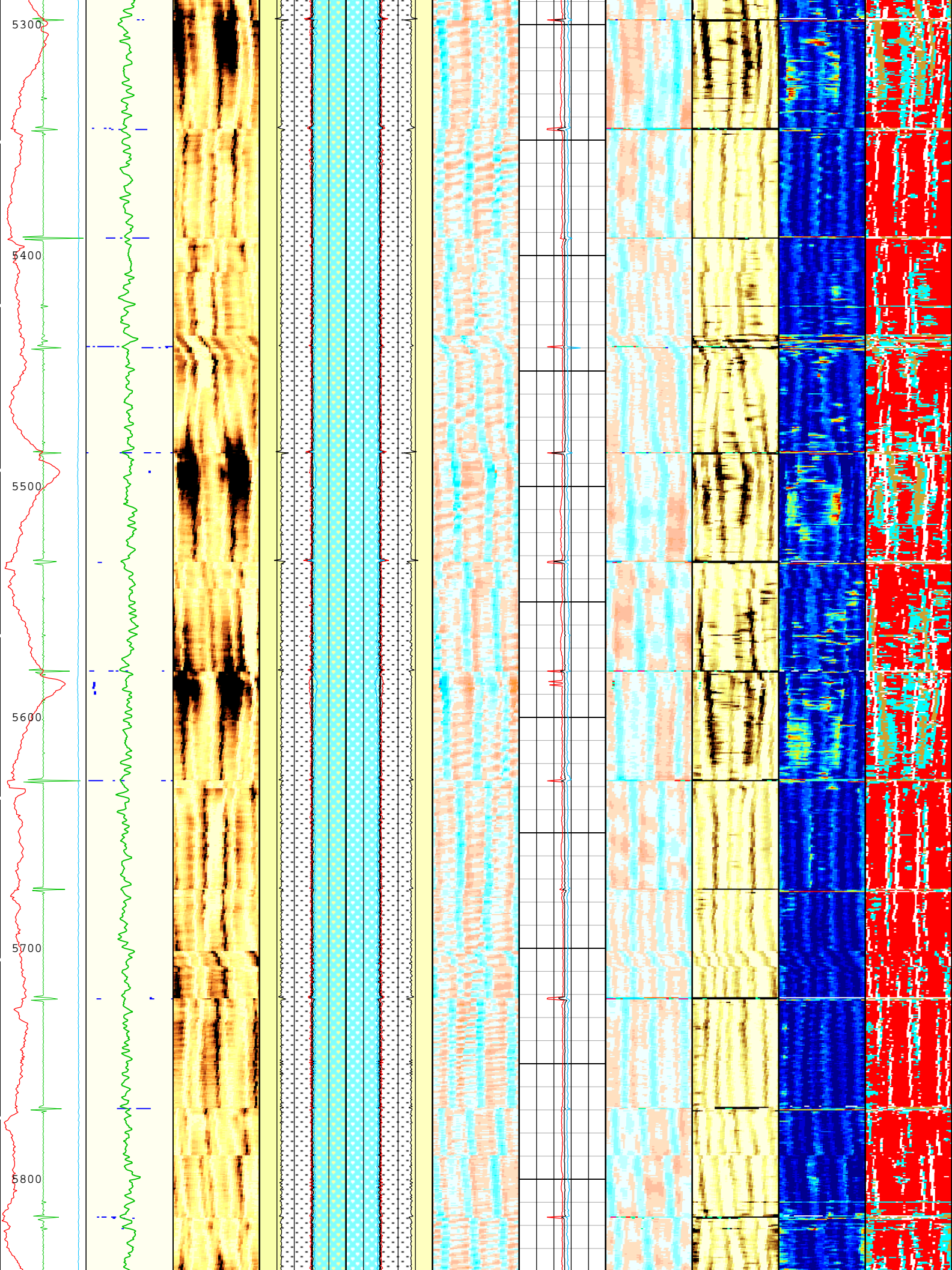


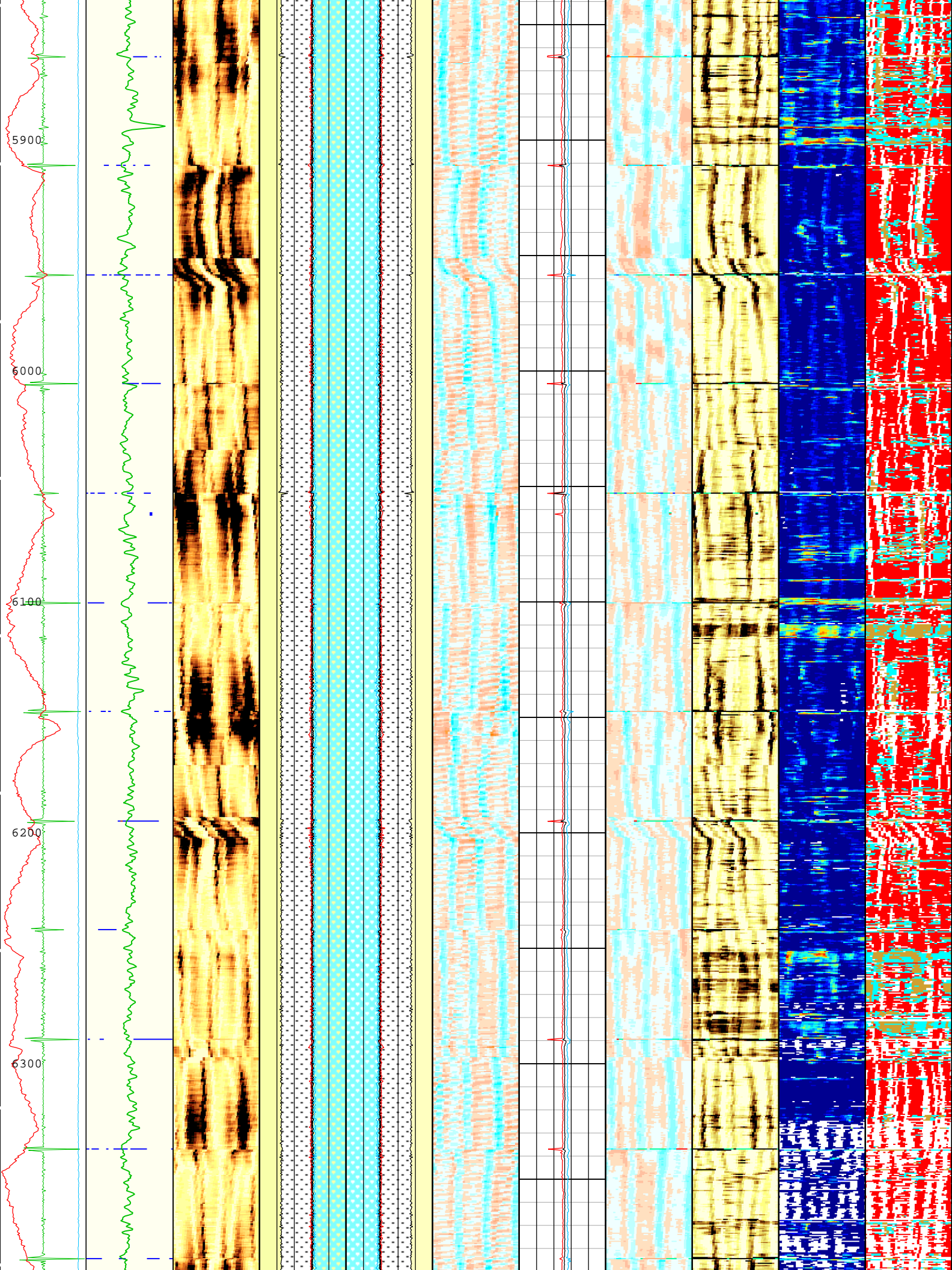


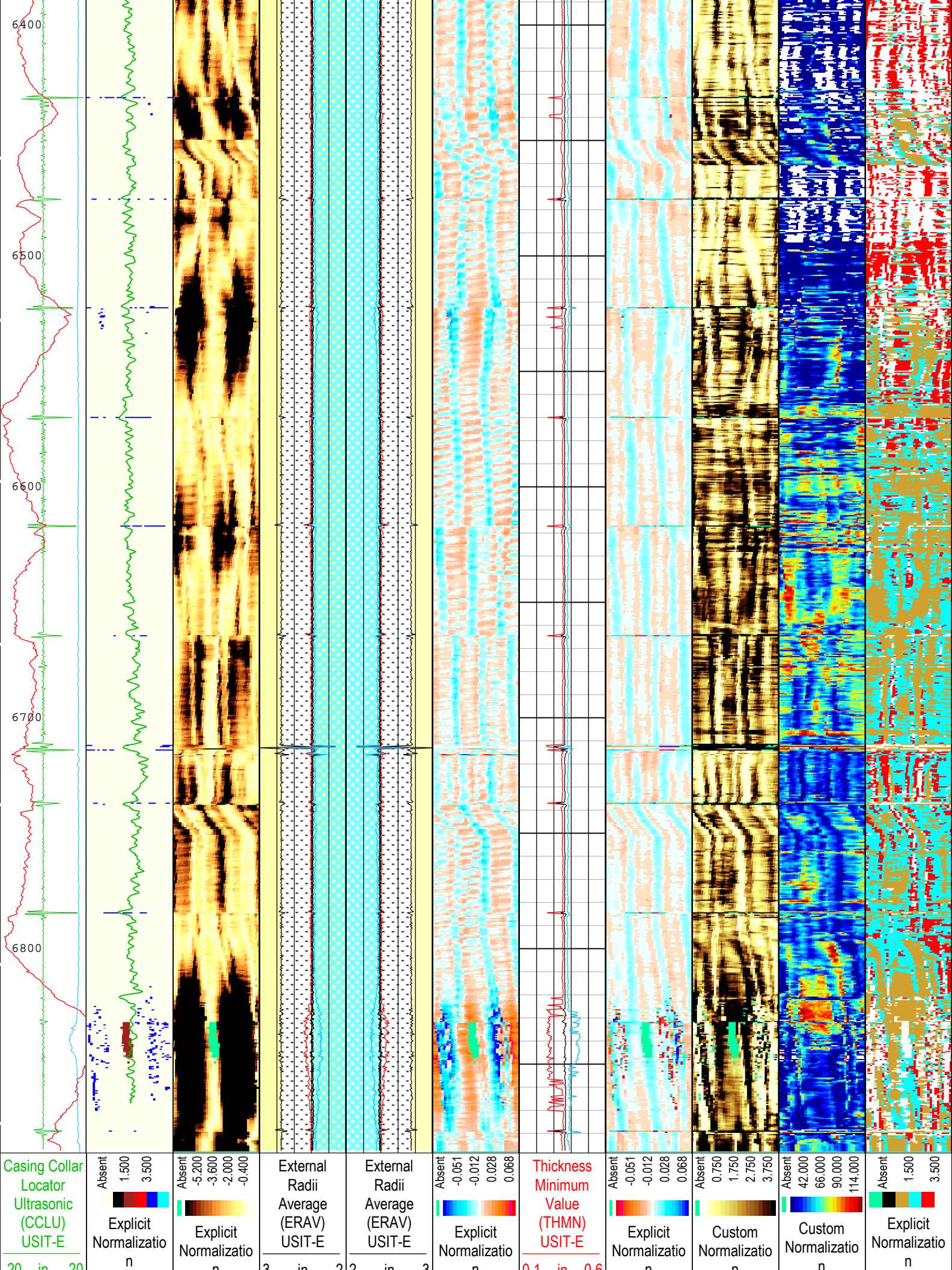












20 in 2.0	USIT - USIT Processing Flags (UFLG) USIT-E Orientation: Top of Hole U L B R U	USIT - Amplitude of Wave (AWBK) USIT-E (dB) Orientation: Top of Hole U L B R U	Internal Radius Averaged Value (IRAV) USIT-E 3 in 2	Internal Radius Averaged Value (IRAV) USIT-E 2 in 3	USIT - Internal Radii Normalized (IRBK) USIT-E (in) Orientation: Top of Hole U L B R U	Thickness Average Value (THAV) USIT-E 0.1 in 0.6 Thickness Maximum Value (THMX) USIT-E 0.1 in 0.6	USIT - Casing Thickness Normalized (THBK) USIT-E (in) Orientation: Top of Hole U L B R U	USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl) Orientation: Top of Hole U L B R U	USIT - Flexural Attenuation (UFAK) USIT-E (dB/m) Orientation: Top of Hole U L B R U	USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E Orientation: Top of Hole U L B R U
Amplitude of Eccentering (ECCE) USIT-E 0 in 0.5			Internal Radius Maximum Value (IRMX) USIT-E 3 in 2	Internal Radius Maximum Value (IRMX) USIT-E 2 in 3						
Motor Revolution Speed (RSAV) USIT-E 6 c/s 7.5	USIT Processing Flags (UFLG[0]) USIT-E 1 5 Gamma Ray (ECGR_EDT C) EDTC-B 0 gAPI 150		Internal Radius Minimum Value (IRMN) USIT-E 3 in 2	Internal Radius Minimum Value (IRMN) USIT-E 2 in 3						

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

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: 16-Oct-2018 15:43:44

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	12171	ft
CDEN	Cement Density	USIT-E	12.5	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	206	us/ft
FD	Fluid Density	USIT-E	8.4	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	-10.28	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_FSP	Free Pipe Mud Normalization Factor	USIT-E	1.22	

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	-10.05	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	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	27.5	2386
BS	8.5	2386	6888.5
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	48	dB
EMXV	EMEX Voltage	USIT-E	40	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	177	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	146	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	31.88	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)
U-USIT_UFWB	137	16-Oct-2018 09:34:30	16-Oct-2018 09:35:32	6889.21	6838.44
U-USIT_UFWB	126.27	16-Oct-2018 09:35:32	16-Oct-2018 11:12:47	6838.44	48.9
U-USIT_UNWB	106	16-Oct-2018 09:34:30	16-Oct-2018 09:35:33	6889.21	6836.83
U-USIT_UNWB	94.87	16-Oct-2018 09:35:33	16-Oct-2018 11:12:47	6836.83	48.9
WINE	71.88	16-Oct-2018 09:34:30	16-Oct-2018 09:35:00	6889.21	6874.72
WINE	76.48	16-Oct-2018 09:35:00	16-Oct-2018 11:12:47	6874.72	48.9
All depth are at tool zero.					

One									
IBC Goodwin Compressed 0 PSI									

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	48.90 ft	6889.21 ft	16-Oct-2018 9:34:30 AM	16-Oct-2018 11:12:47 AM	ON	10.79 ft	Yes

Log

Well: Sam #3B-25H-M166

Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 16-Oct-2018 15:43:55

Gamma
Ray
(ECGR_E
DTC)
EDTC-B

0 150
gAPI

Amplitude
of
Eccenteri
ng
(ECCE)
USIT-E

0 in 0.5

Motor
Revolutio
n Speed
(RSAV)
USIT-E

6 c/s 7.5

Goodwin Sector Curves (5 Mrayl per Division)

Acoustic
Impedance
Minimum
(AIMN)
USIT-E

Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9

Acoustic
Impedance
Average
(AIAV)
USIT-E

Minimum
Flexural
Attenuation
(U-USIT_UF
AN) USIT-E

Maximum Flexural Attenuation (U-USIT_UR AX) USIT-E	
40	140
dB/m	

Average Flexural Attenuation (U-USIT_UR AV) USIT-E	
40	140
dB/m	

ULBRU
Orientation:
Top of Hole
Absent
0.750
1.750
2.750
3.750

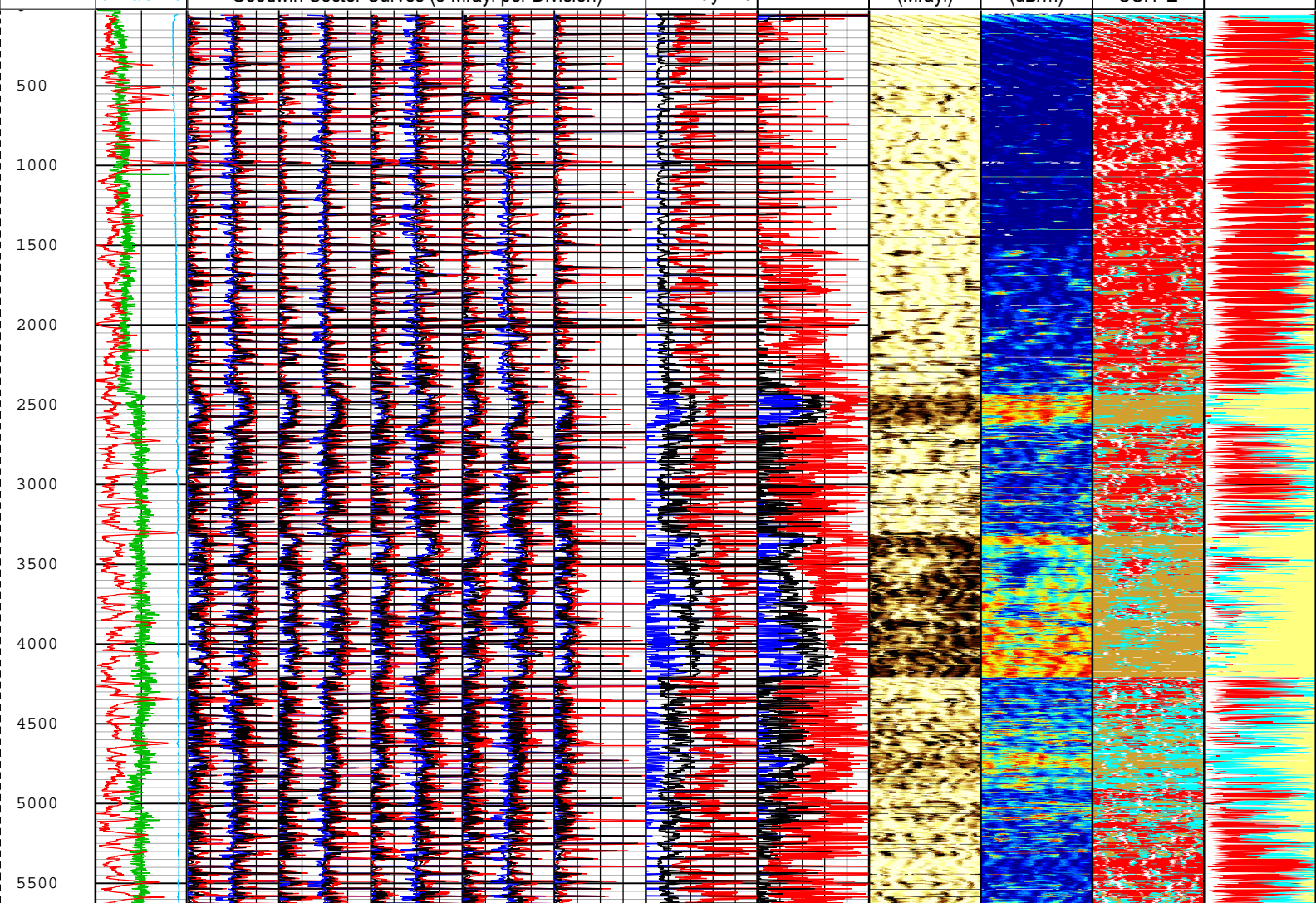
Custom Normalization	USIT - Acoustic Impedance (AIBK)	USIT-E (Mrayl)
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Orientation
Top of Hole

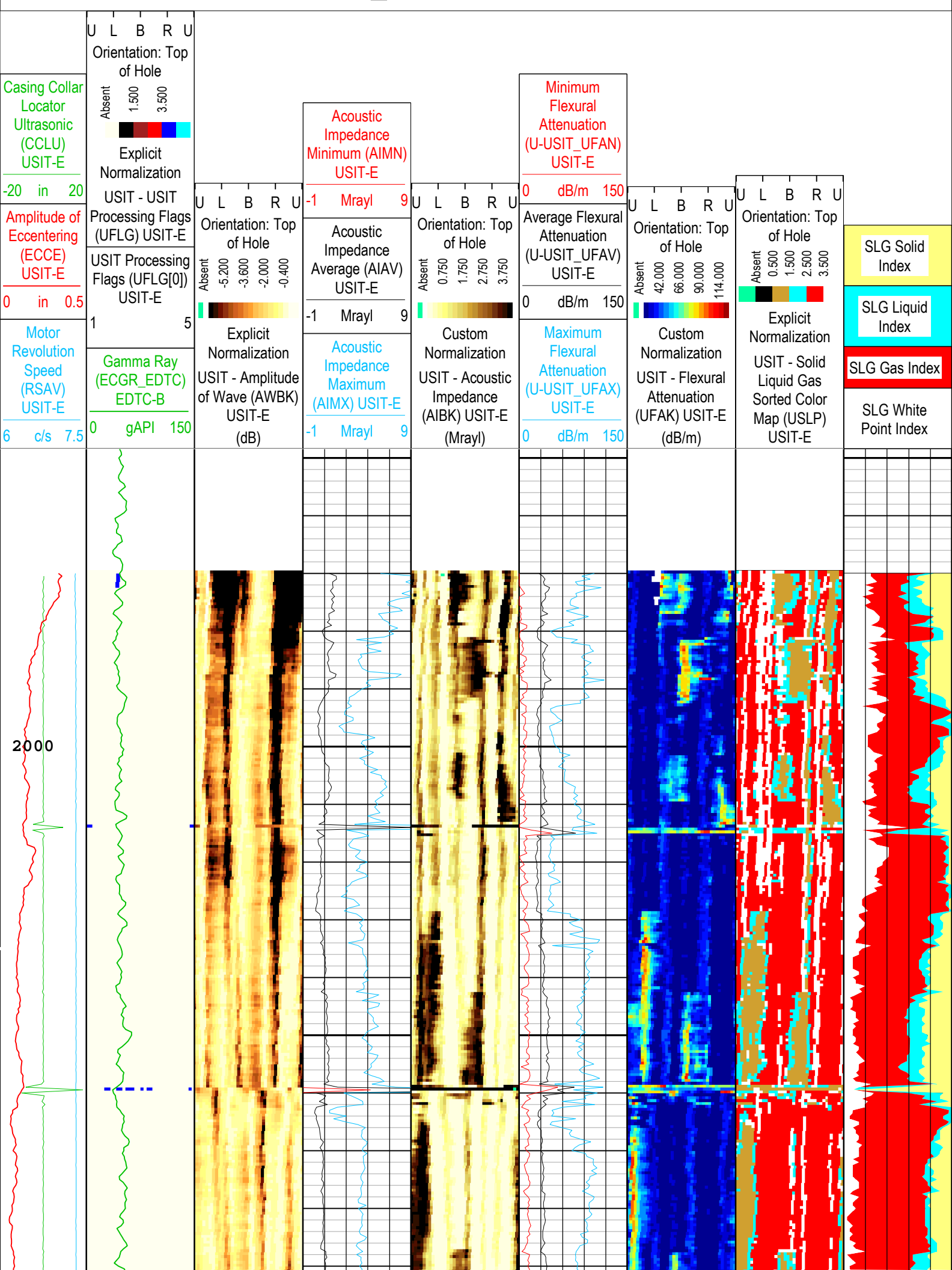
Custom
Normalization
USIT -
Flexural
Attenuation
(UFAK)
USIT-E
(dB/m)

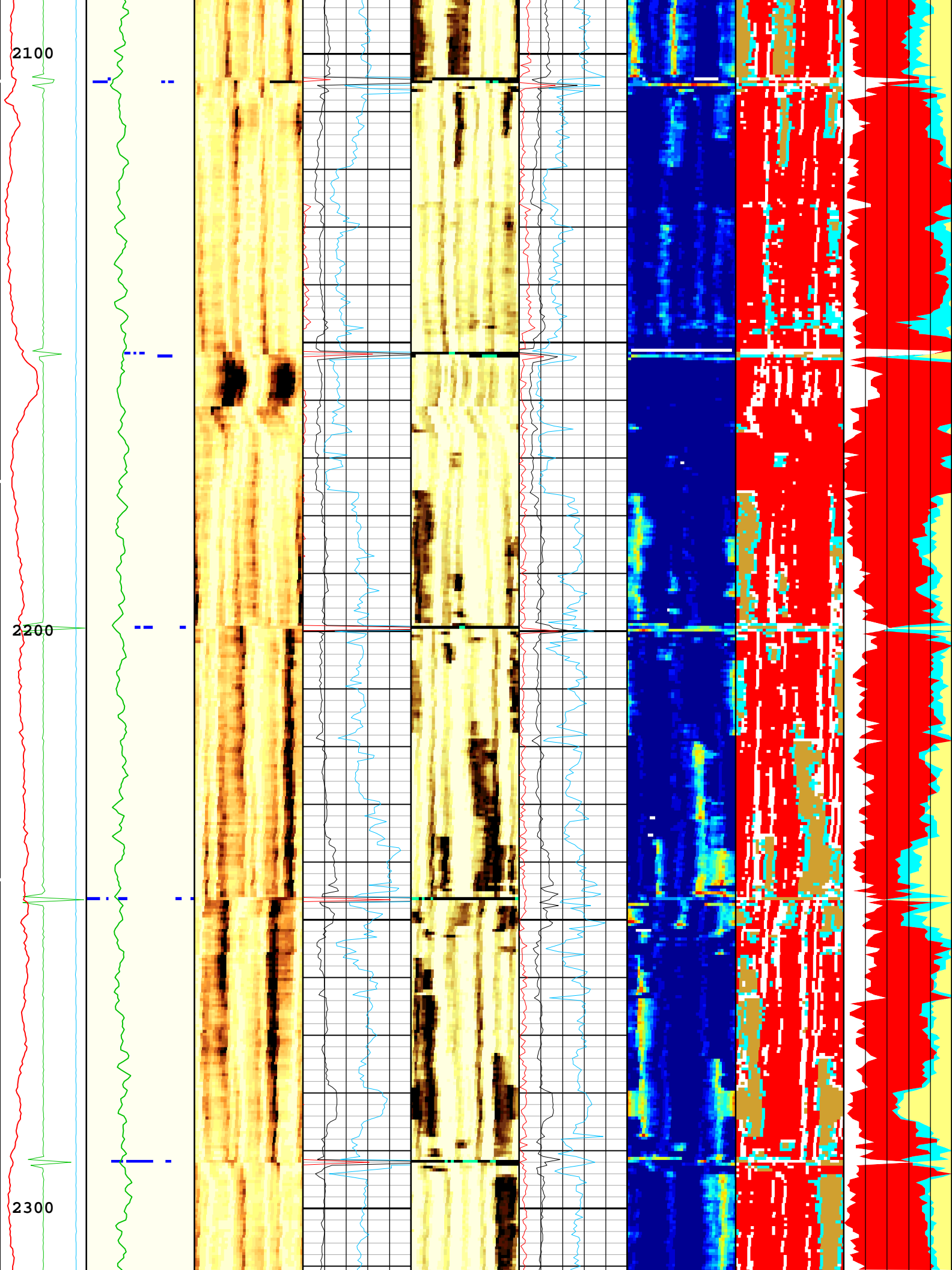
UL	B	R
Orientation		
Top of Hole		
Absent	1.500	3.500

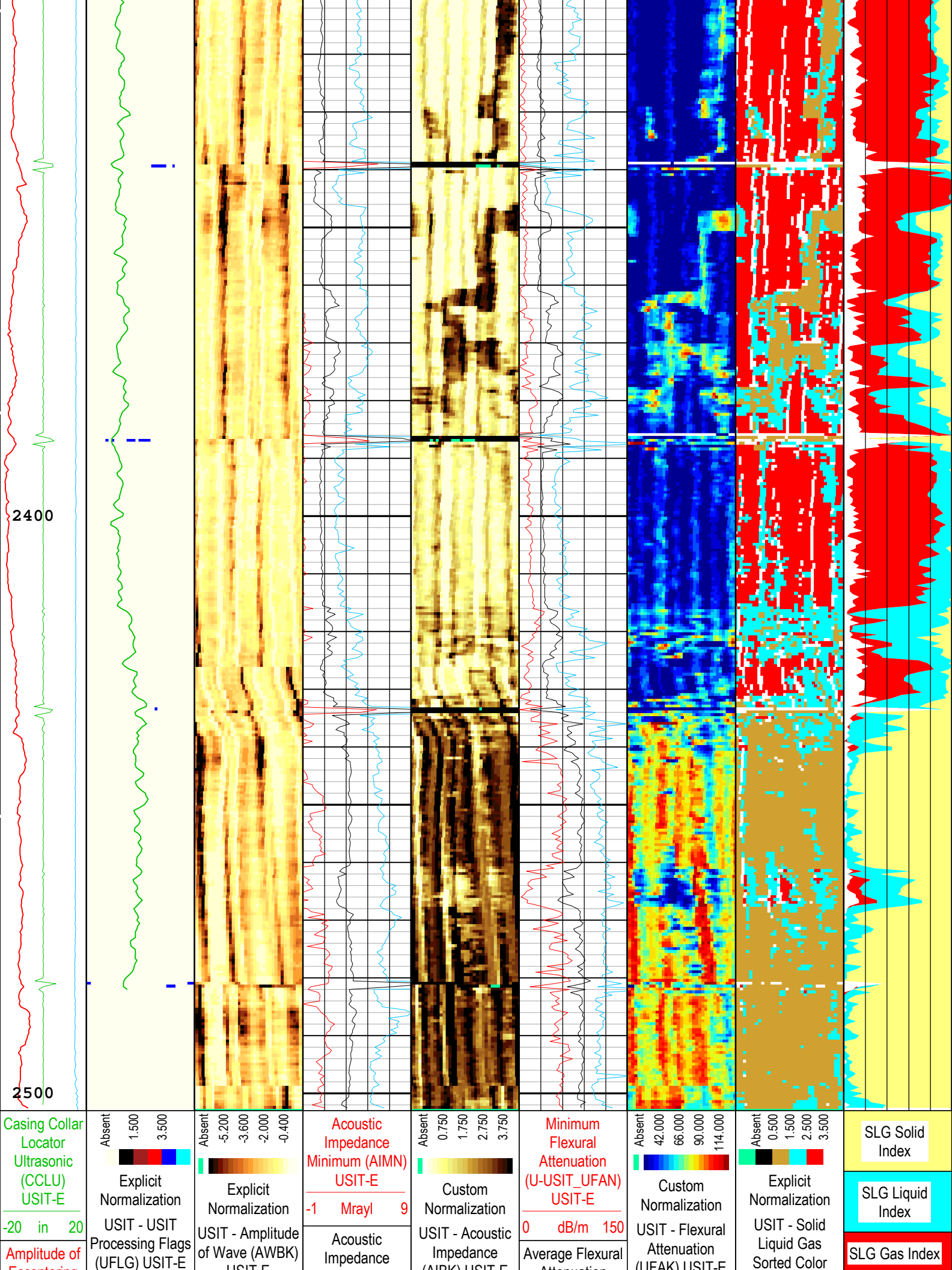
Explicit Normalization	USIT - Solid Liquid Gas	Sorted Color Map (USLP)	USIT-E
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SLG Solid
IndexSLG
Liquid
IndexSLG Gas
IndexSLG White
Point
Index

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







Parameter	Description	Tool	Value	Unit
BAR1(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	12171	ft
CDEN	Cement Density	USIT-E	12.5	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	206	us/ft
FD	Fluid Density	USIT-E	8.4	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	-10.28	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	-10.05	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	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	1948.5	2386
BS	8.5	2386	2503

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	48	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	40	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

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	1970.33 ft	2503.98 ft	16-Oct-2018 9:03:55 AM	16-Oct-2018 9:12:08 AM	ON	3.50 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating LLC






Well:Sam #3B-25H-M166

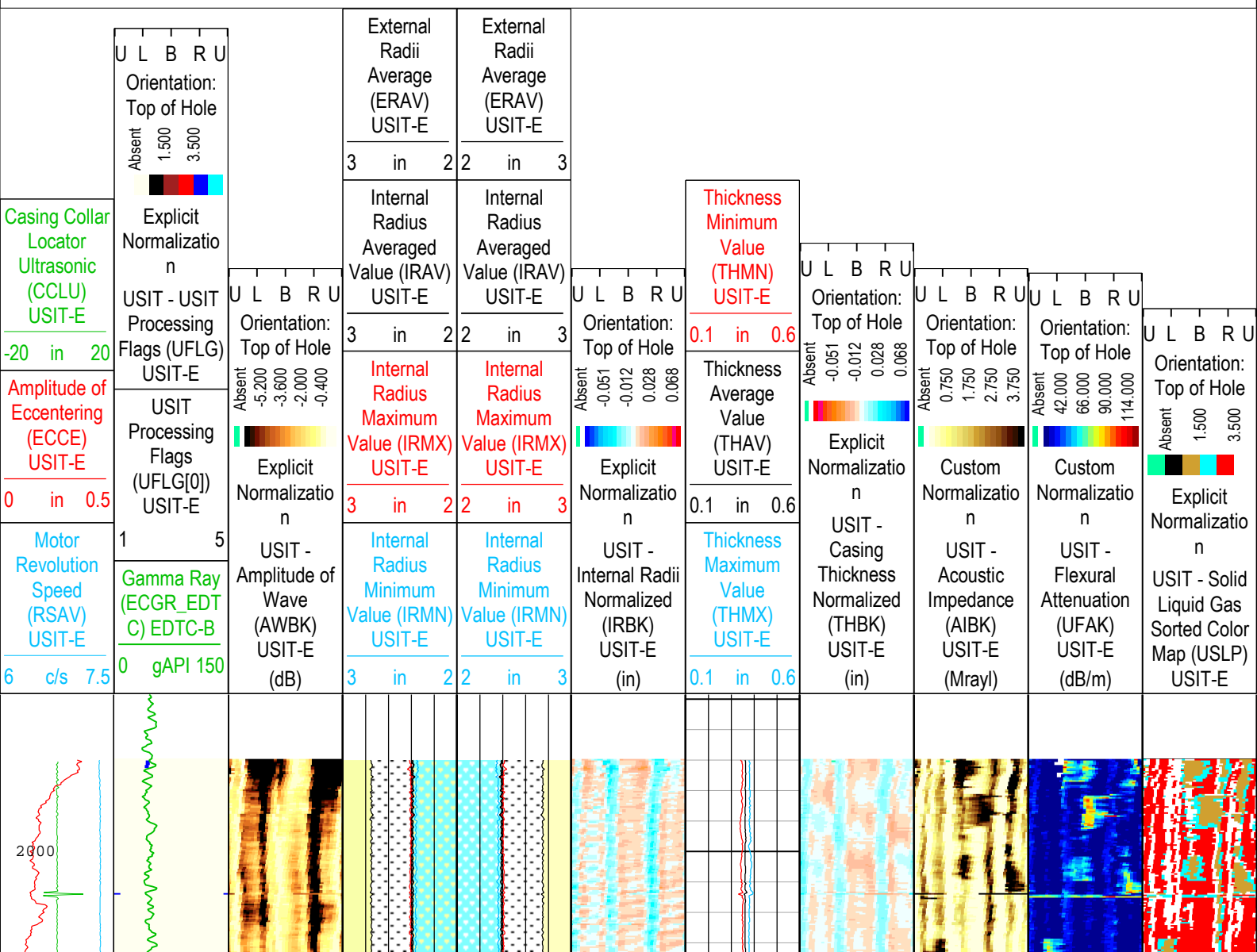
One: Log[2]:Up:S007

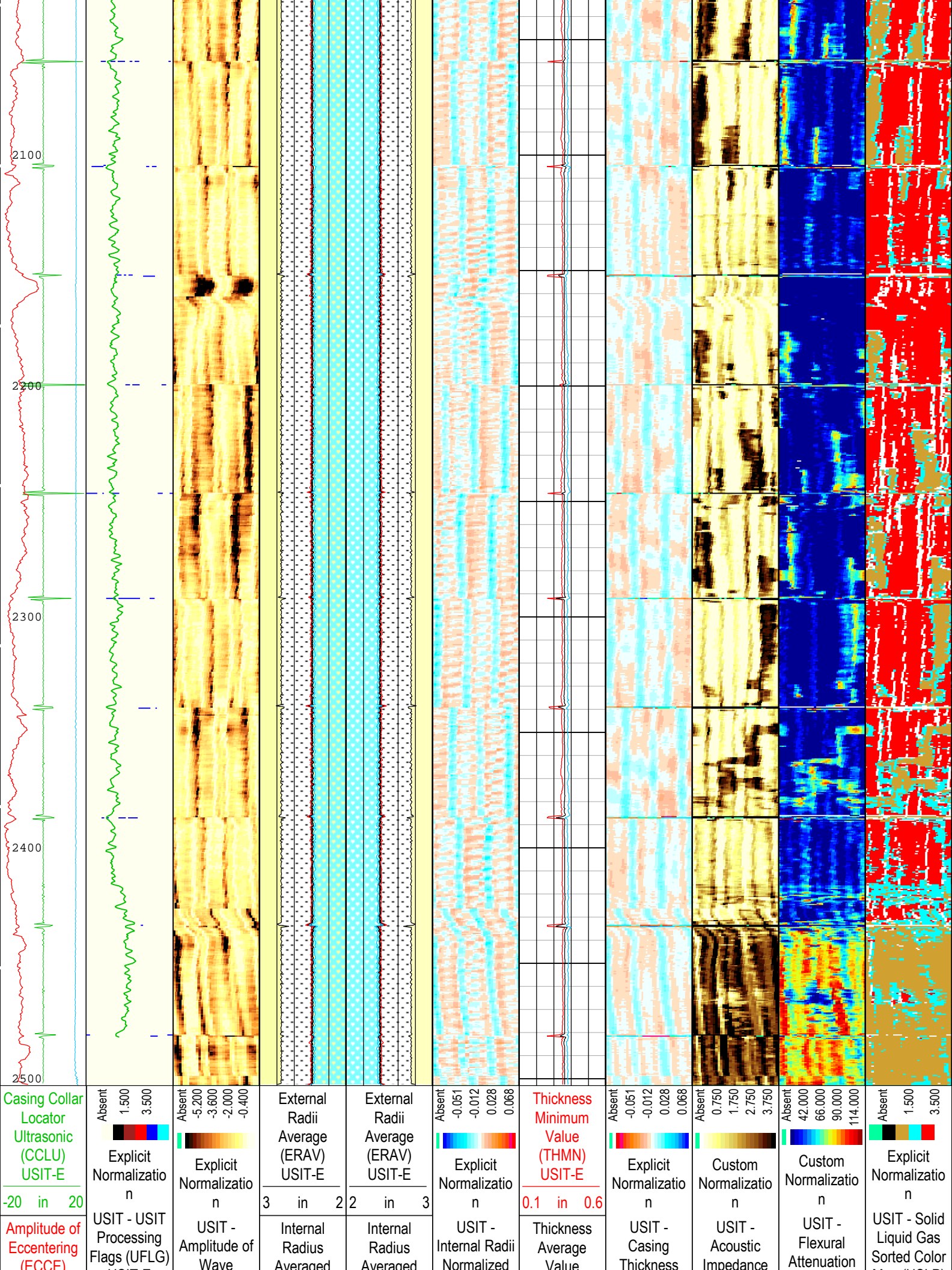
Description: USI IBC SLG Composite Format: Log (IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 16-Oct-2018 15:44:07

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





Parameter	Description	Tool	Value	Unit
BAR(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	12171	ft
CDEN	Cement Density	USIT-E	12.5	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	206	us/ft
FD	Fluid Density	USIT-E	8.4	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	-10.28	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	-10.05	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	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

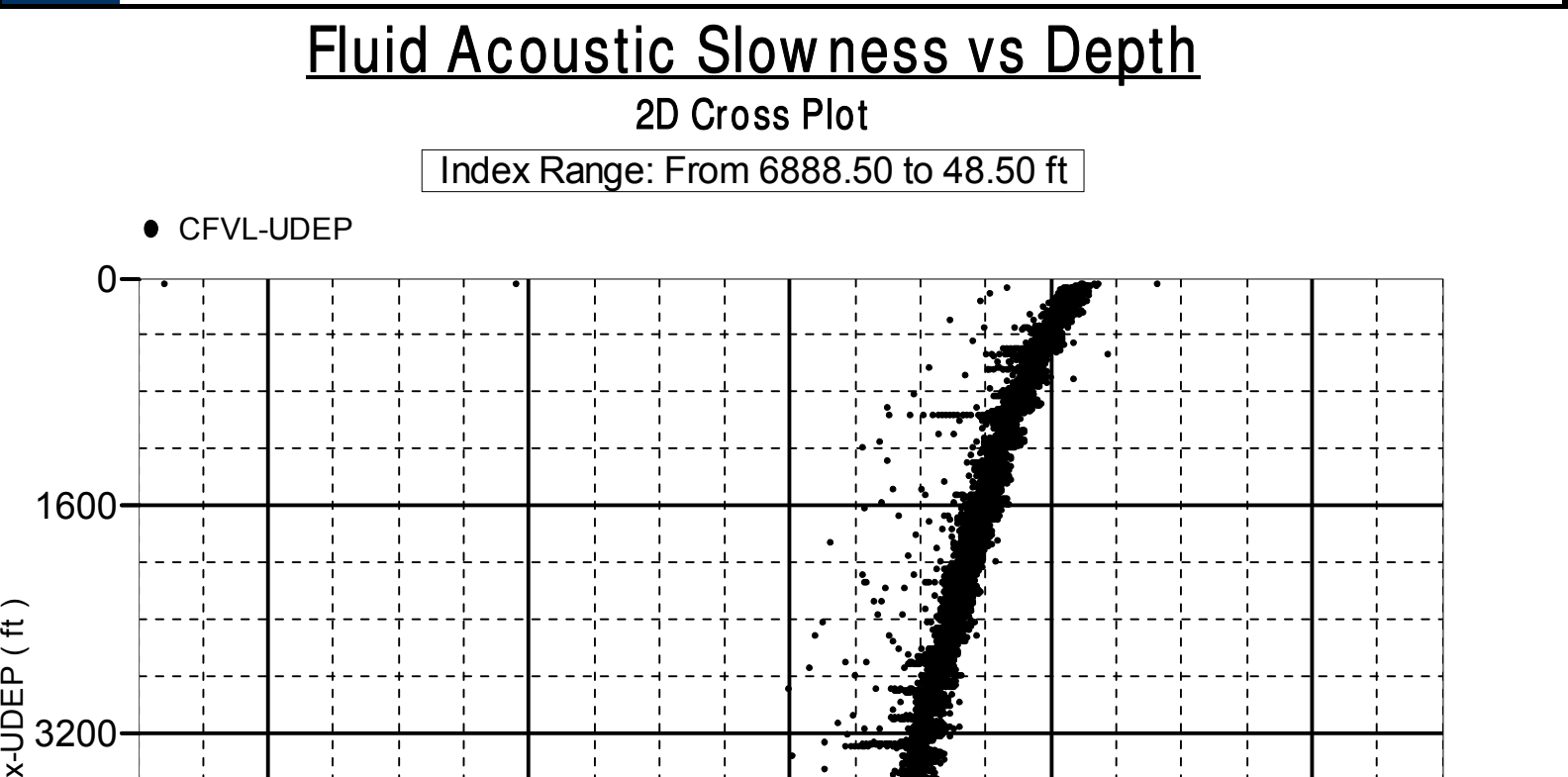
Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	1948.5	2386
BS	8.5	2386	2503

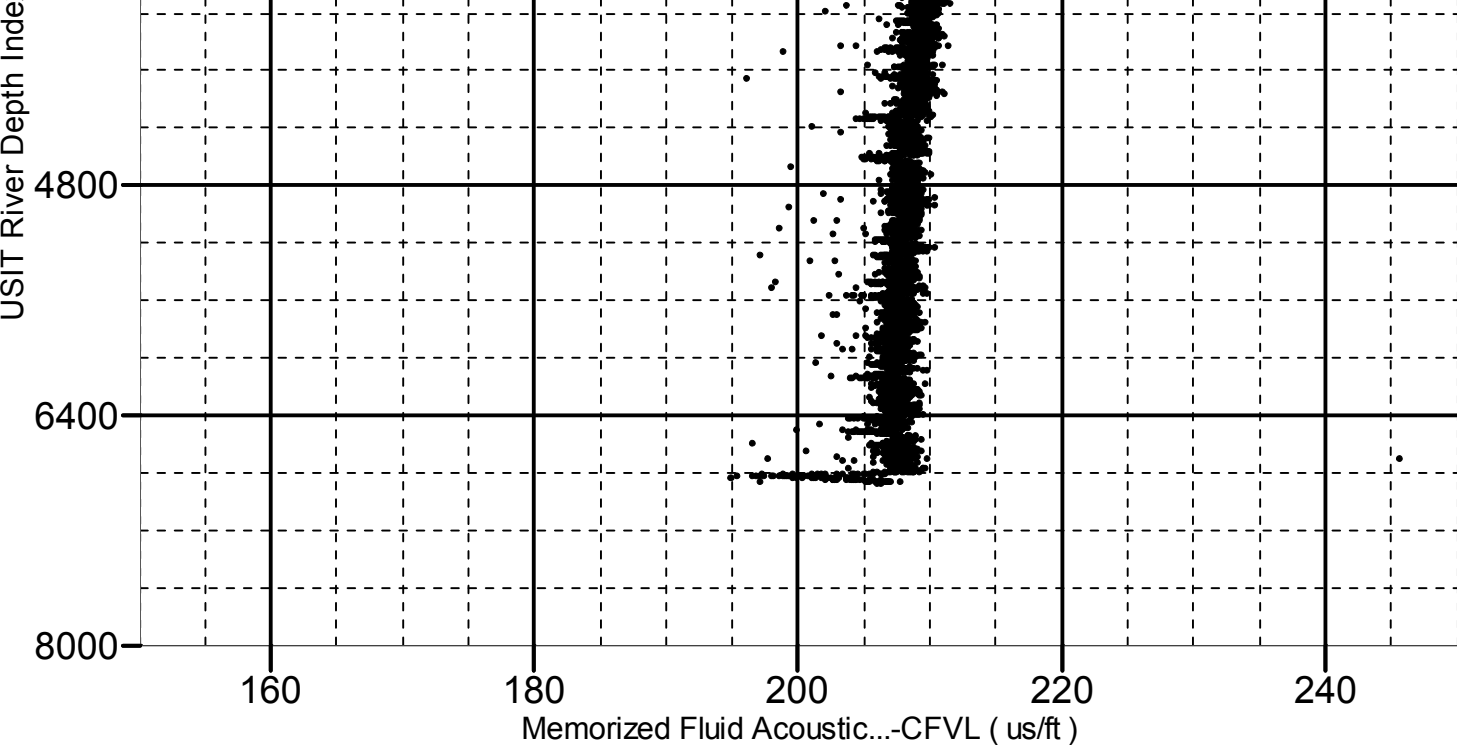
All depth are actual.

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	48	dB
EMXV	EMEX Voltage	USIT-E	40	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
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	146	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	31.88	us
WINE	Window End Time	USIT-E	71.88	us

XYZ	Company:Crestone Peak Resources Operating LLC Well:Sam #3B-25H-M166 One: Log[4]:Up:S007
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XYZ

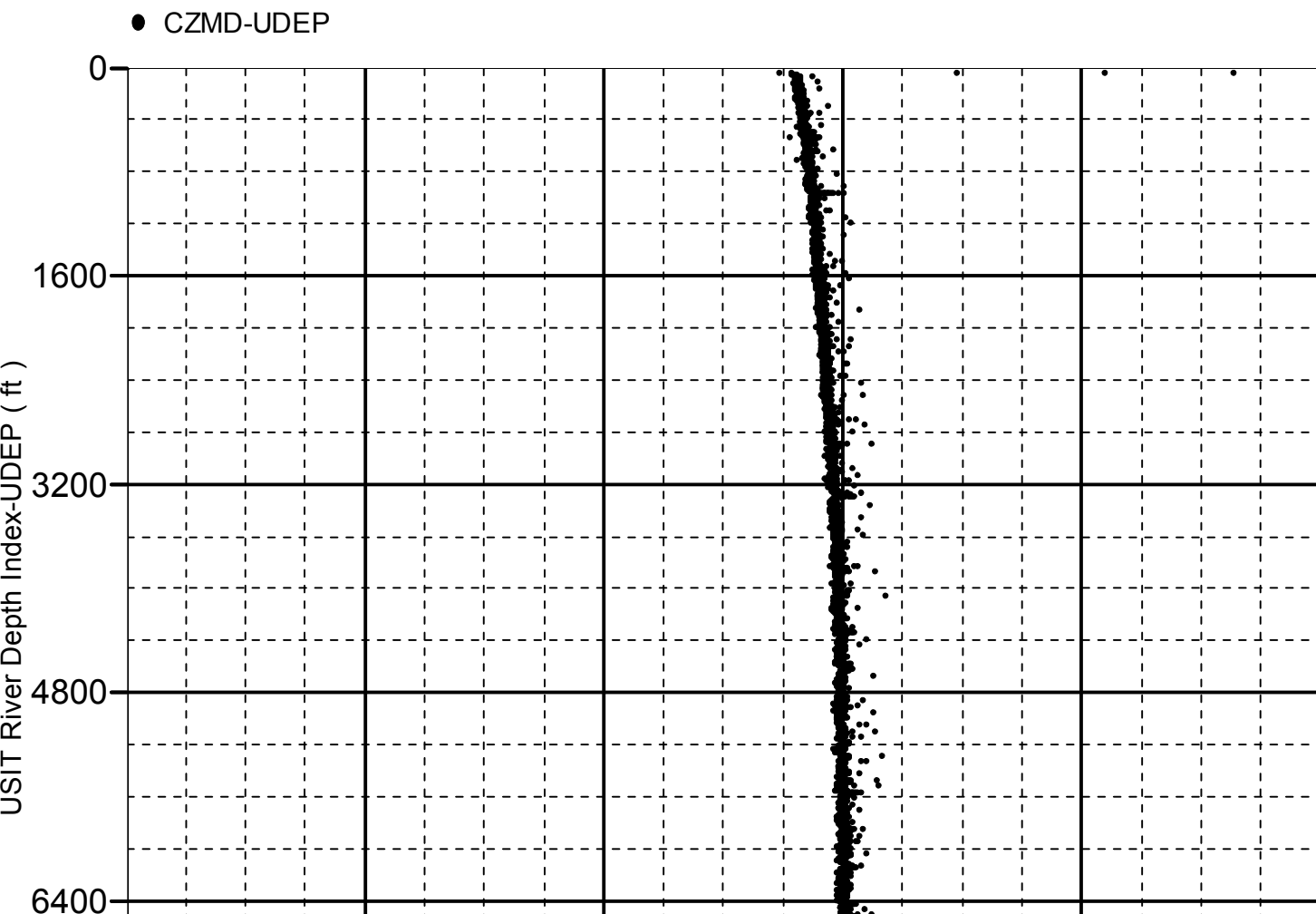
Company:Crestone Peak Resources Operating LLC Well:Sam #3B-25H-M166

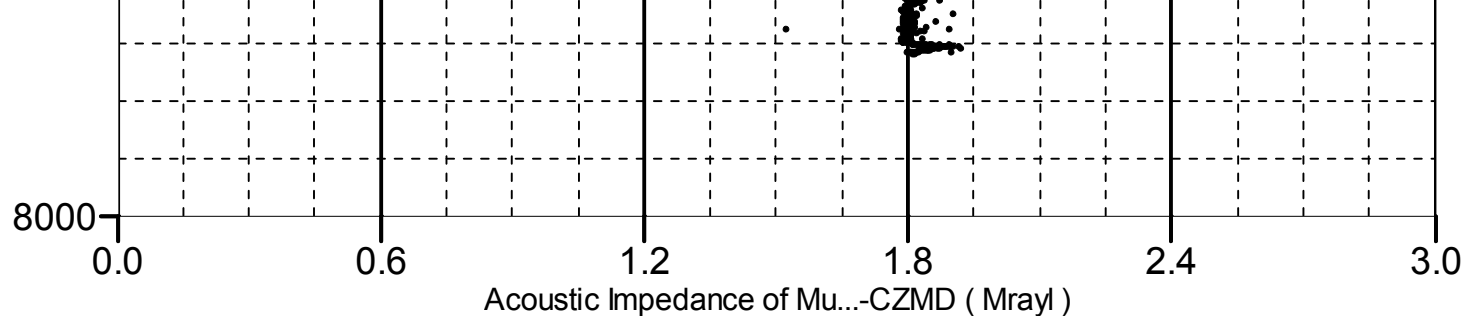
One: Log[4]:Up:S007

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6888.50 to 48.50 ft





Company: Crestone Peak Resources Operating LLC

Schlumberger

Well: Sam #3B-25H-M166

Field: Wattenberg

County: Weld

State: Colorado

Isolation Scanner
Cement Evaluation

