

Company: Crestone Peak Resources Operating LLC

Well: Sam 3K-25H-M166

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation

County:	Weld				
Field:	Wattenberg				
Location:	NWSW Sec. 25, T1N, R66W				
Well:	Sam 3K-25H-M166				
Company:	Crestone Peak Resources Operating LLC				
Location:		NWSW Sec. 25, T1N, R66W	Elev.:	K.B.	5103.00 ft
		SHL: 1313' FSL & 310' FWL		G.L.	5080.00 ft
		Lat/Long: 40.01862 / -104.733855		D.F.	5103.00 ft
		Permanent Datum:	Ground Level	Elev.:	5080.00 f
		Log Measured From:	Kelly Bushing	23.00 ft	above Perm.Datum
		Drilling Measured From:	Kelly Bushing		
		API Serial No.	Section:	Township:	Range:
		05-123-46121	25	1N	66W
Logging Date	18-Oct-2018				

Run Number	ONE	
Depth Driller	11937.00 ft	
Schlumberger Depth	11937.00 ft	
Bottom Log Interval	6830.00 ft	
Top Log Interval	50.00 ft	
Casing Fluid Type	Fresh Water	
Salinity		
Density	8.4 lbm/gal	
Fluid Level	8.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	8.50 in	
From	2425.00 ft	
To	11937.00 ft	
Casing/Tubing Size	5.5 in	
Weight	20 lbm/ft	
Grade	J55	
From	0.00 ft	
To	11936.00 ft	
Max Recorded Temperatures	182 degF	
Logger on Bottom	18-Oct-2018	15:30:00
Unit Number	9108	Fort Morgan, CO
Recorded By	Richard Woods	
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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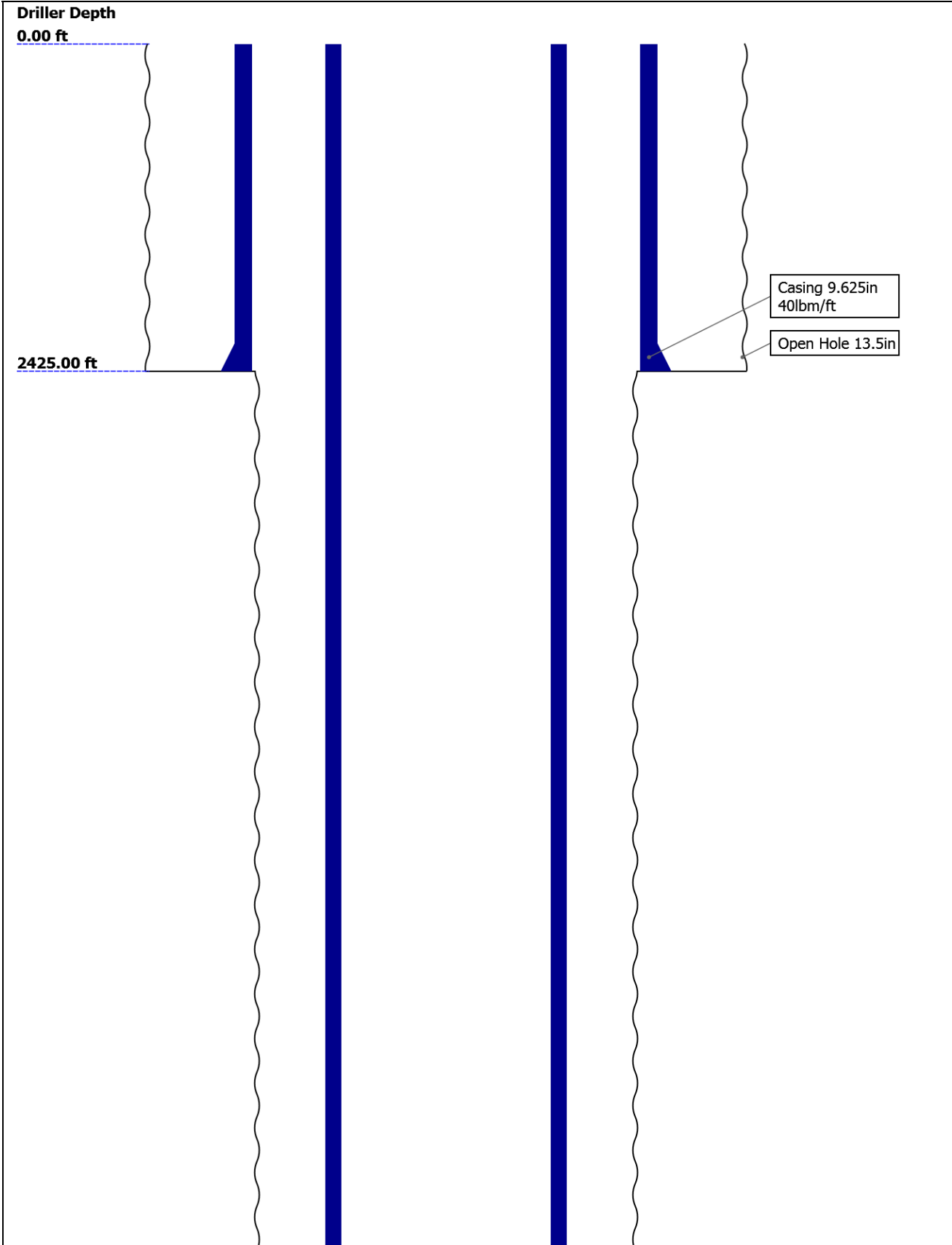
10.1 Integration Summary

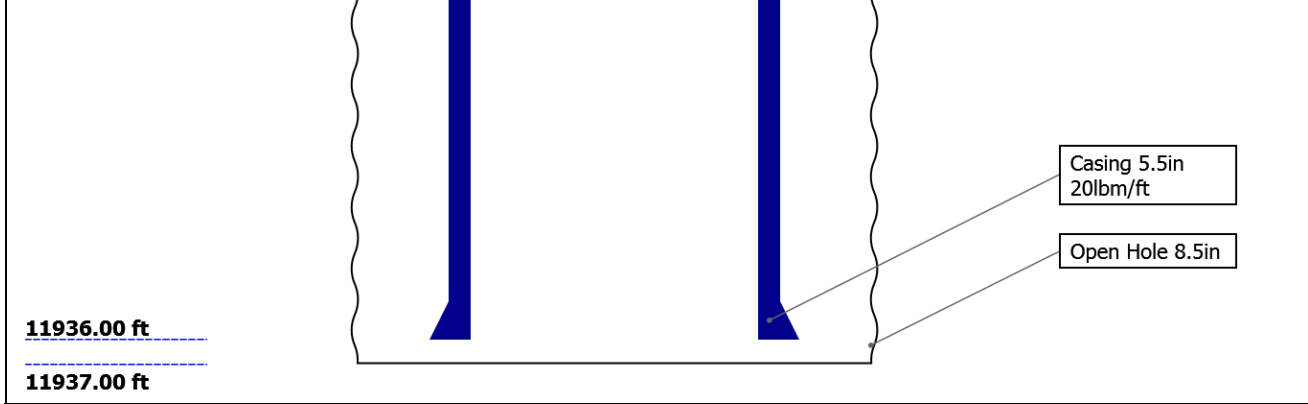
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.5				
Top Driller (ft)	0	2425				
Top Logger (ft)	0	2425				
Bottom Driller (ft)	2425	11937				
Bottom Logger (ft)	2425	11937				
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.835	4.778				
Grade	J55	J55				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2425	11936				
Bottom Logger (ft)	2425	11936				

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks	
Equip name	Length	MP name	Offset	Thank you for choosing Schlumberger!	
LEH-QT	30.73			Tool string run as per tool sketch and client logging program.	
LEH-QT				5" Gemcos and in-line centralizers with small hole kit used for centralization.	
EDTC-B	27.24			All passes run under 0 PSI.	
EDTH-B				Lead: 12.5 ppg	
EDTG-A				Tail: 13.5 ppg	
EDTC-B				Spacer: 12 ppg	
AH-184[2]	20.74	CTEM	23.74		
		ACCZ	0.00		
		HV	0.00		
		Gamma	21.87		
		Ray			
		TelStatu	20.74		
		s			
AH-184[1]	18.74				
USIT-E	16.74				
ECH-MFA					
USAC-A					
USIS-A					
USSC-B					
IBCS-A					
EAP-GENC					

<div data-bbox="220 0 331 569"> </div> <div data-bbox="86 594 443 684"> <p>Lengths are in ft Maximum Outer Diameter = 3.625 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p> </div>		
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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 USA		
ONE:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger Depth control procedures followed. IDW used for primary depht control. Zchart used for secondary depth control. Logs correlated to down log.	
Rig Up Length At Surface			
Rig Up Length At Bottom			
Rig Up Length Correction			

Tool Zero Check At Surface

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
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Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
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Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
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150313-2-201

Software Version	
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Acquisition System	Version
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Version

	8.2.104493.3100
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Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include
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									Parallel Data
ONE	Log[5]:Up	Up	43.51 ft	6834.68 ft	18-Oct-2018 2:53:53 PM	18-Oct-2018 4:34:56 PM	ON	4.22 ft	Yes

All depths are referenced to toolstring zero

Company:Crestone Peak Resources Operating LLC

Well:Sam 3K-25H-M166

ONE: Log[5]:Up:S002

Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 18-Oct-2018 17:53:20

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

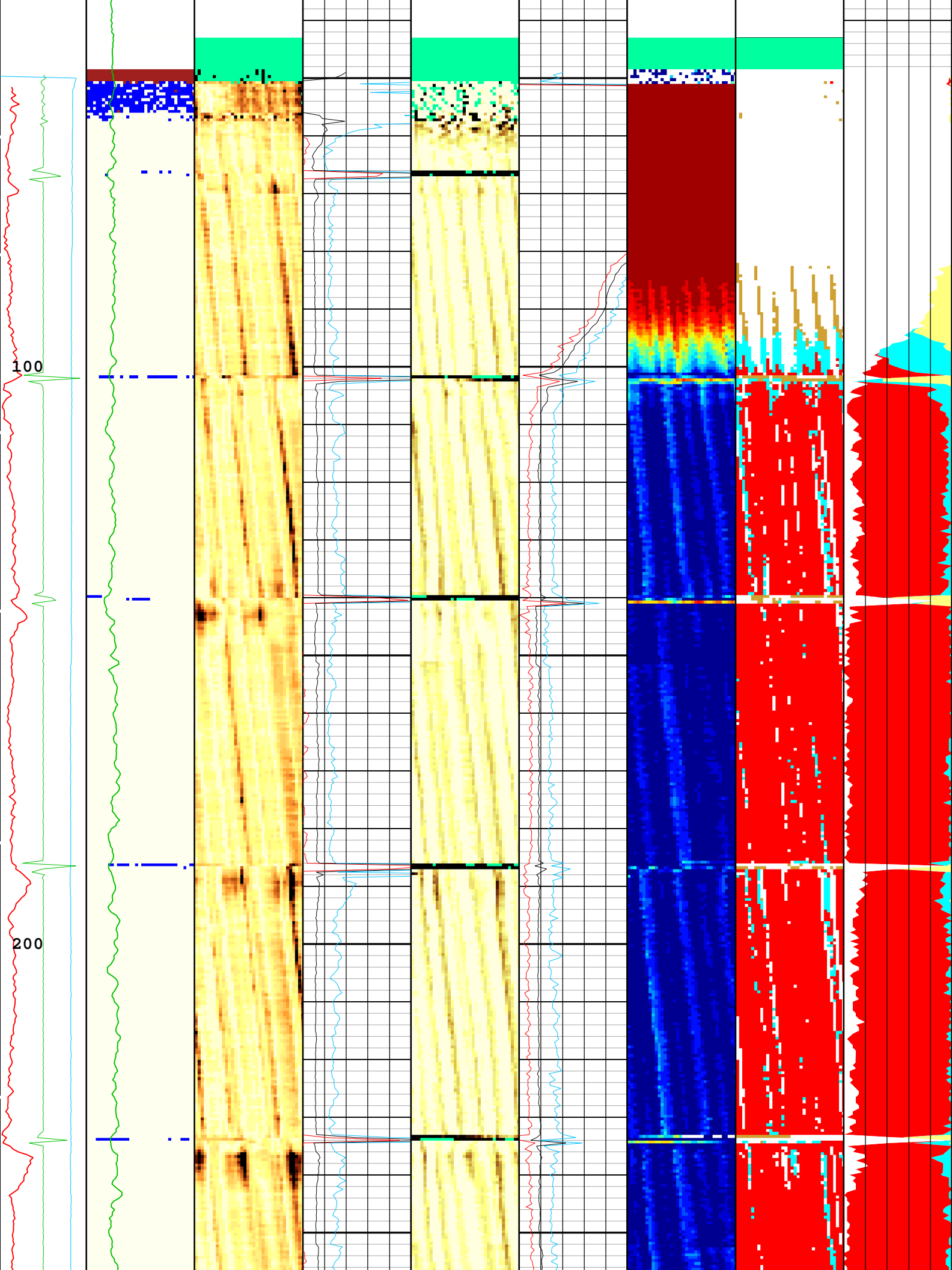
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :

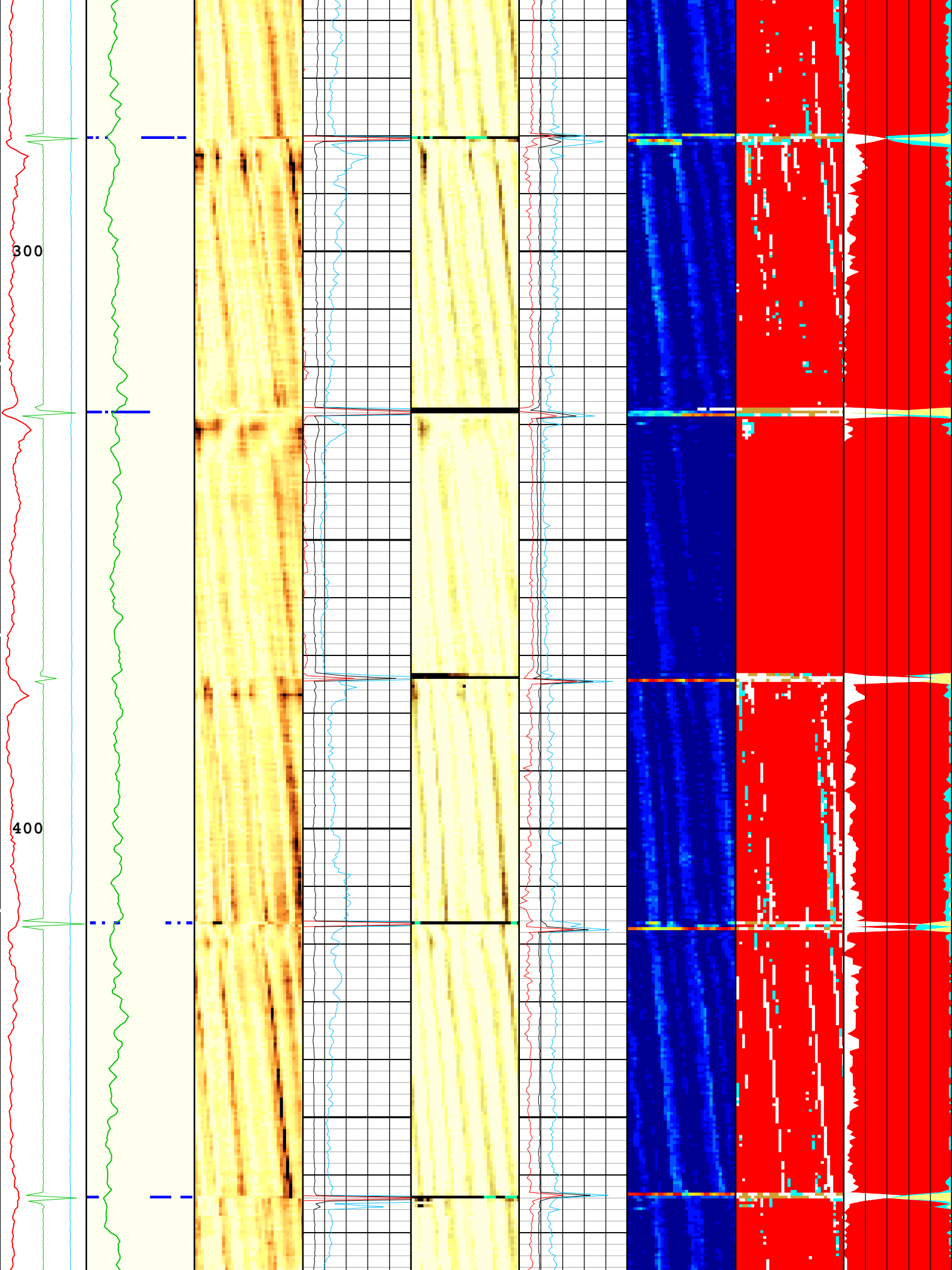
■ Casing Thickness Error

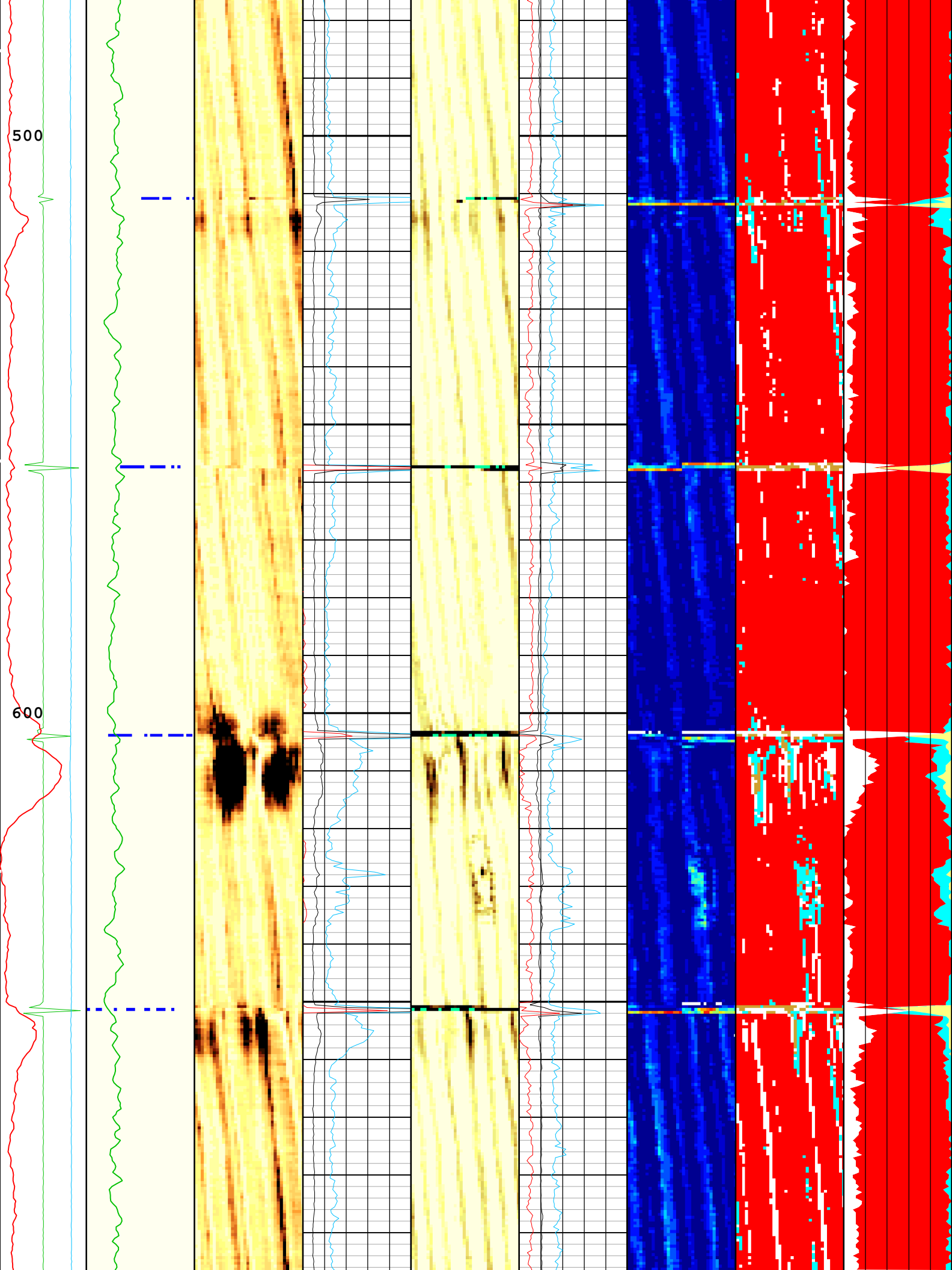
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

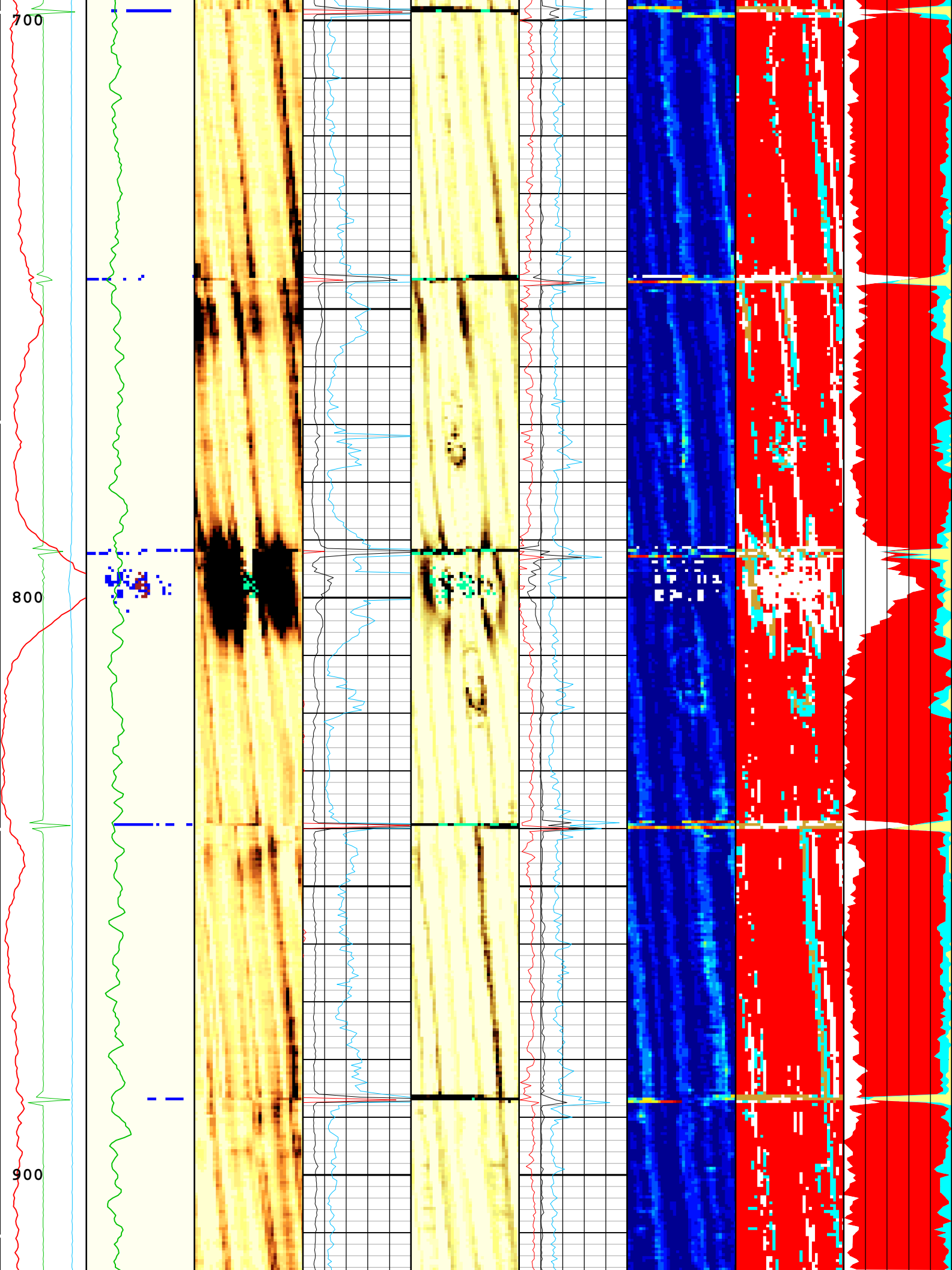
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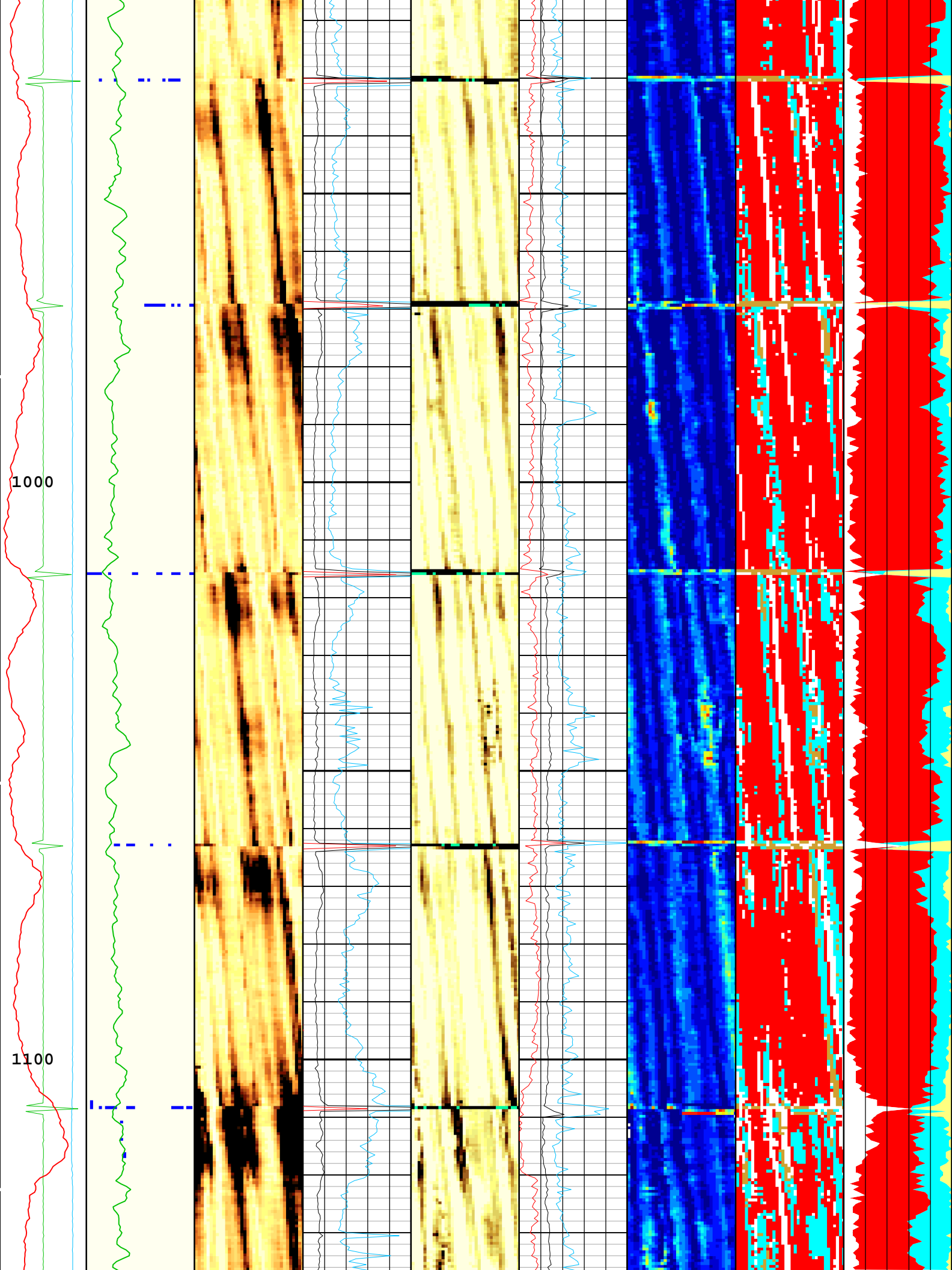
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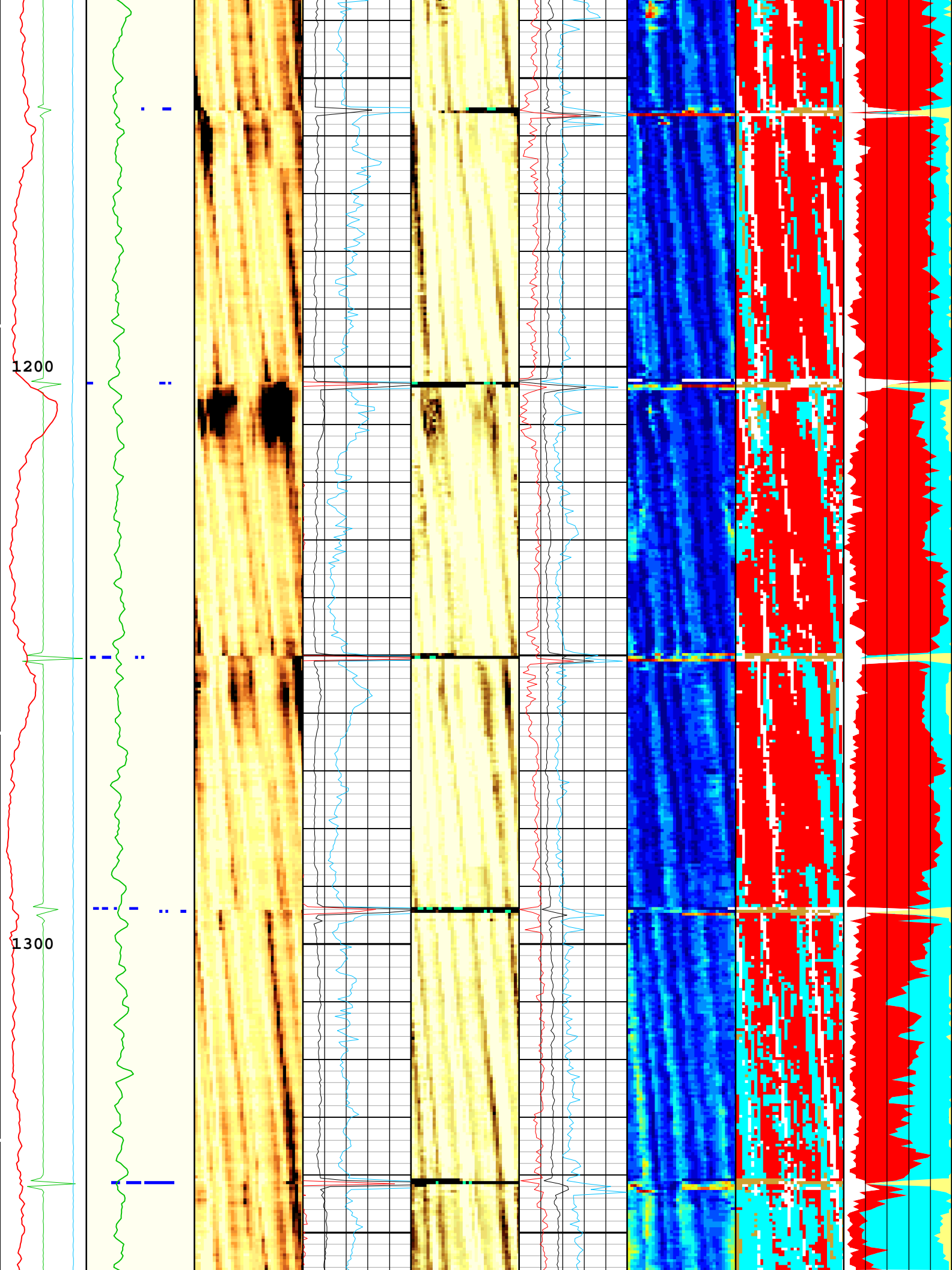


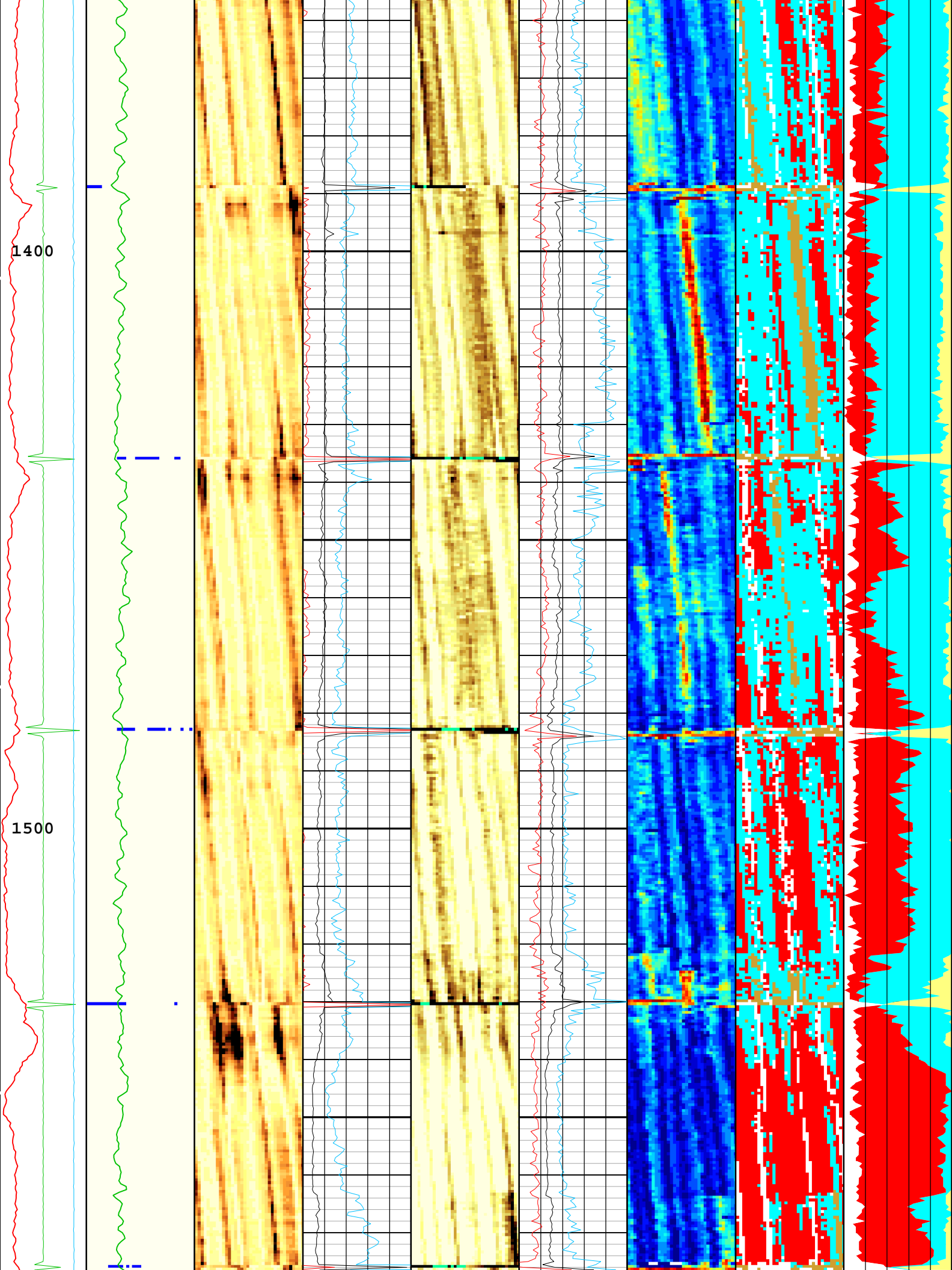


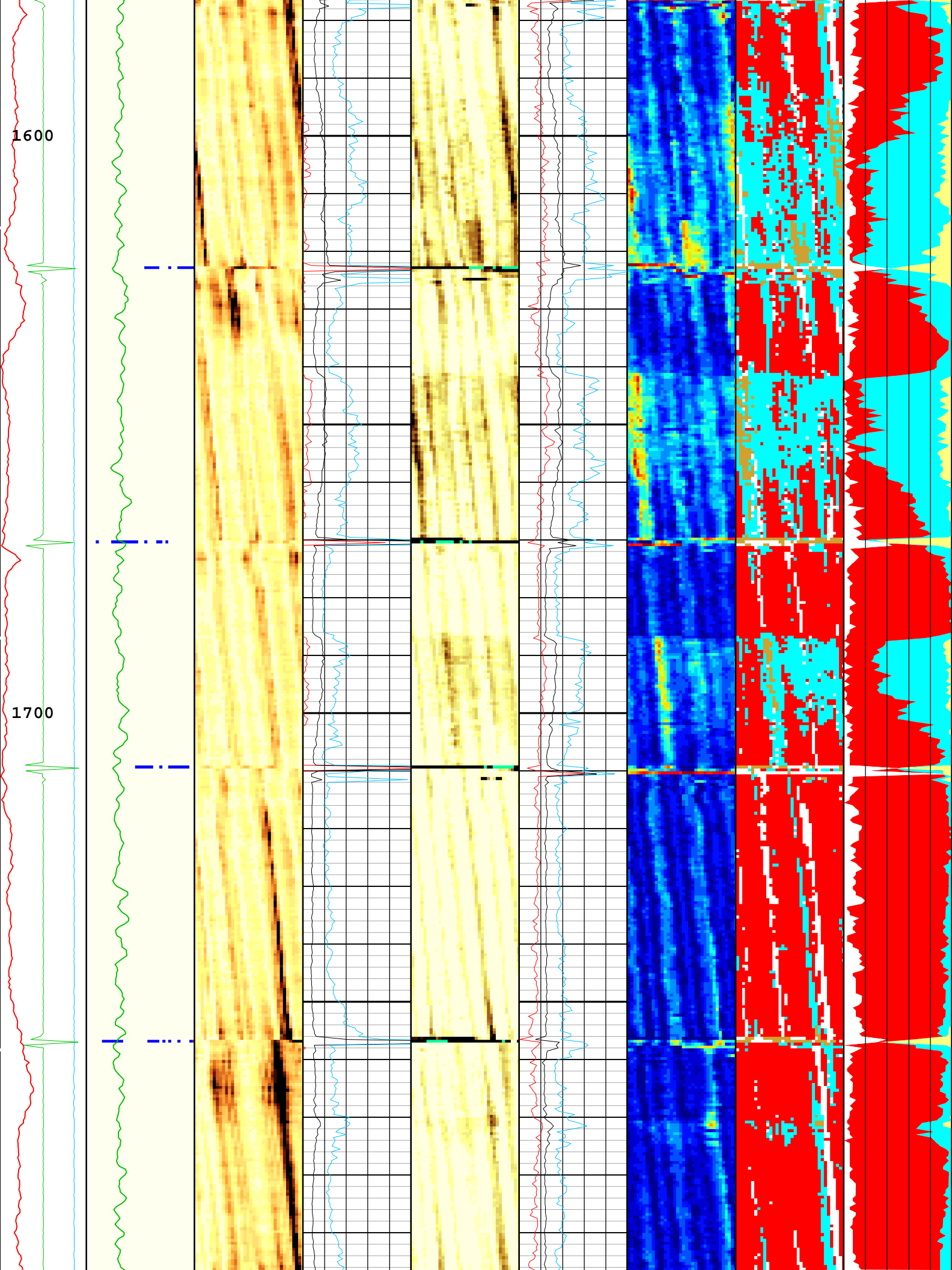


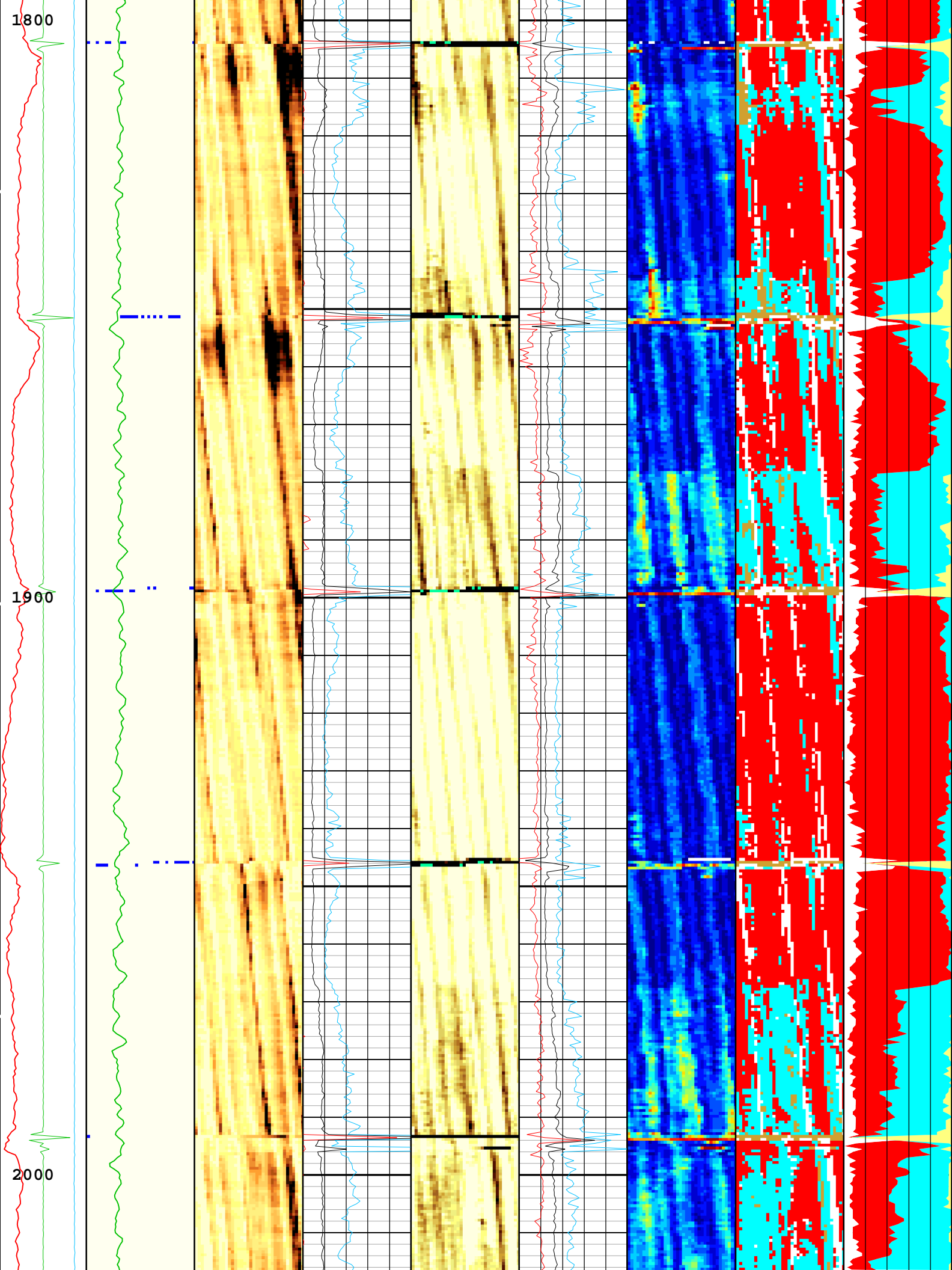


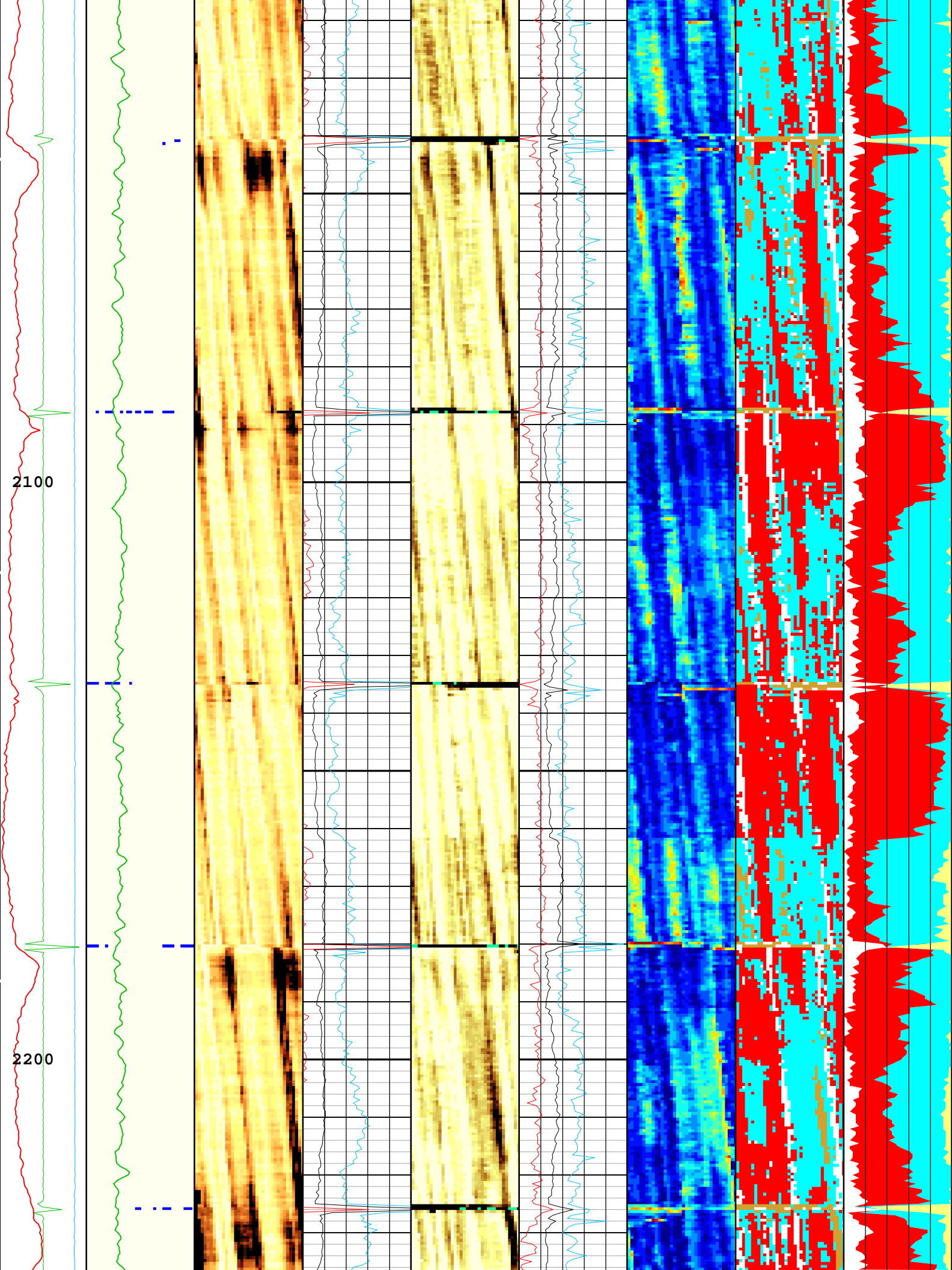


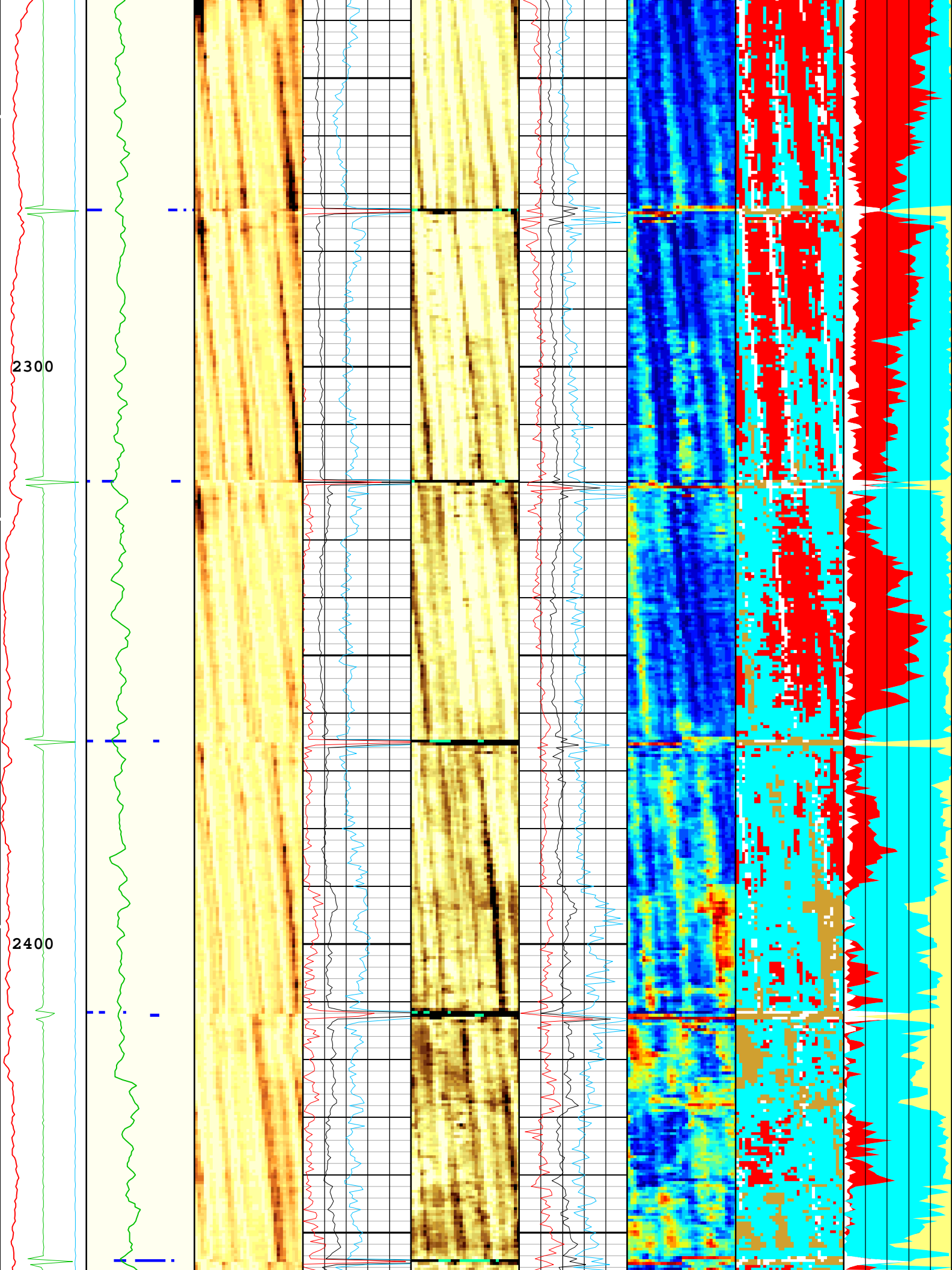


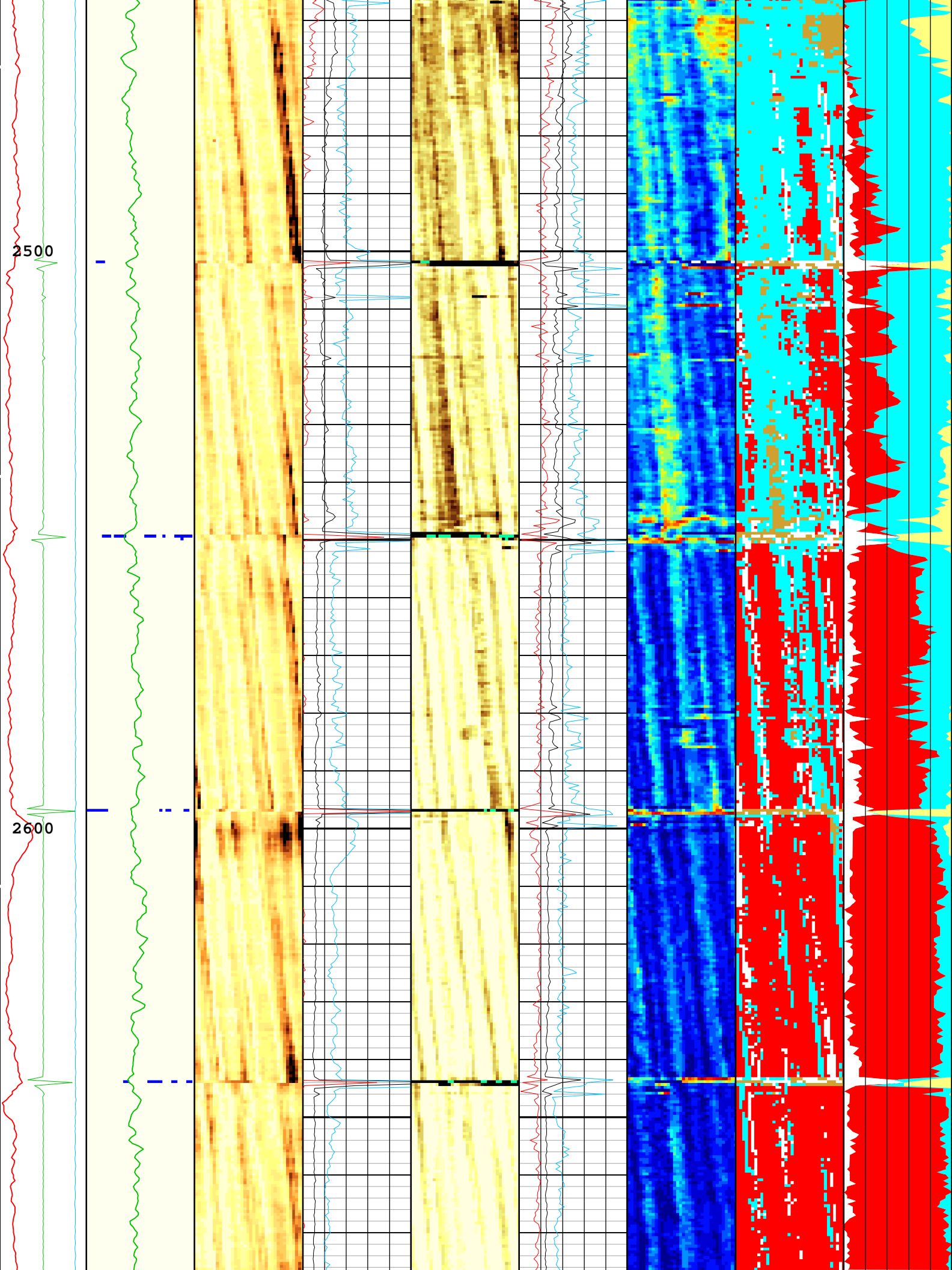


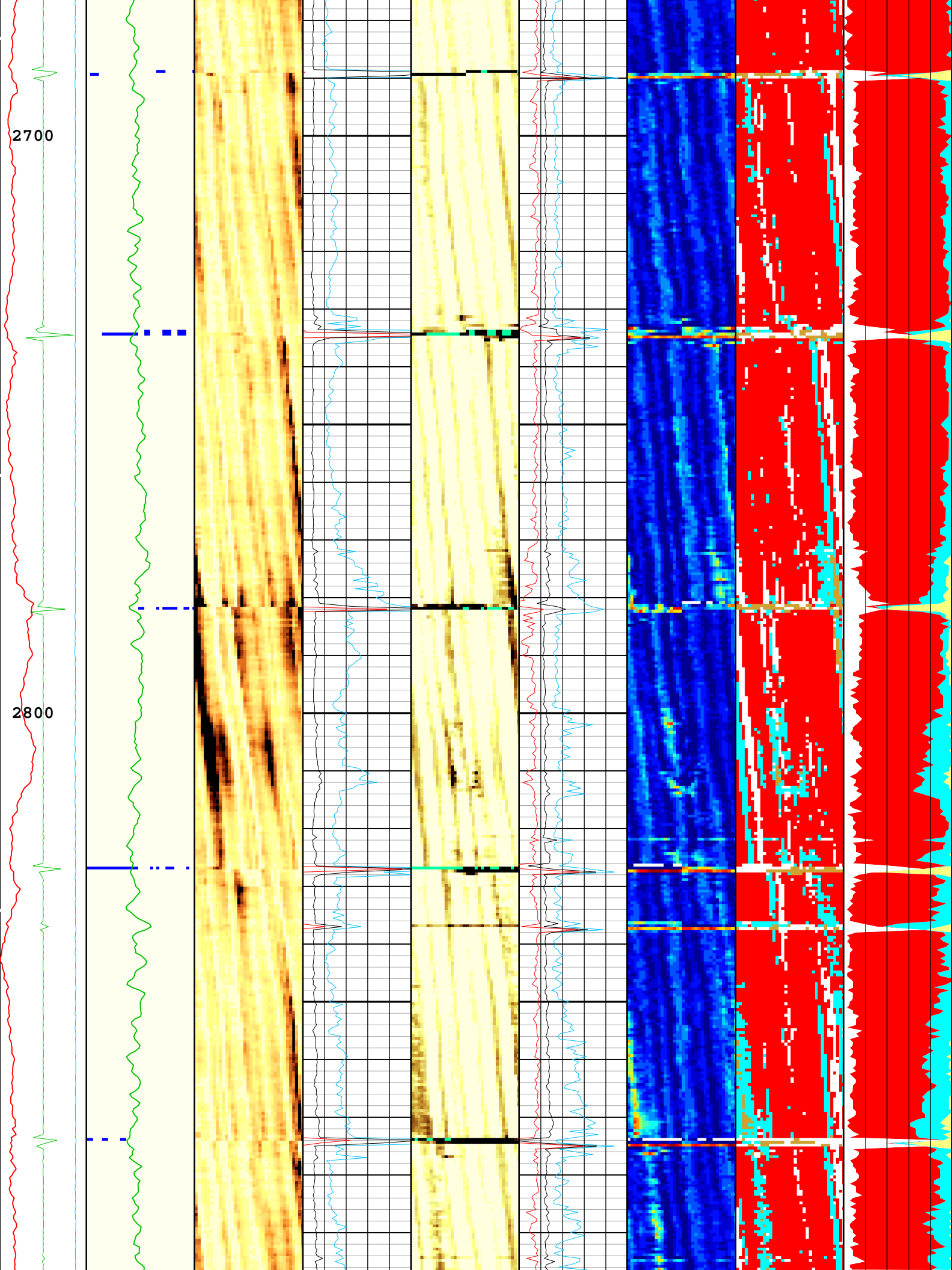


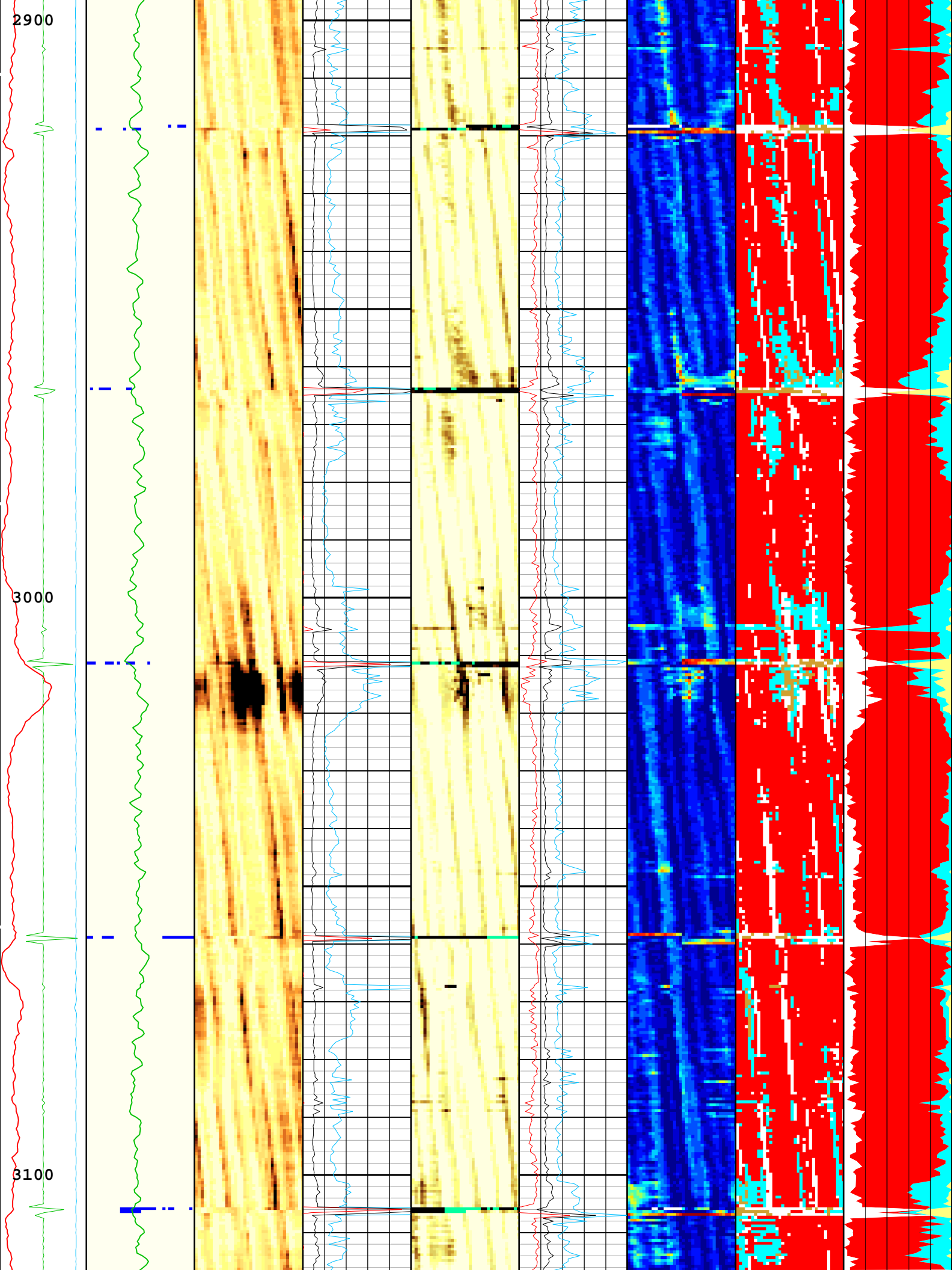


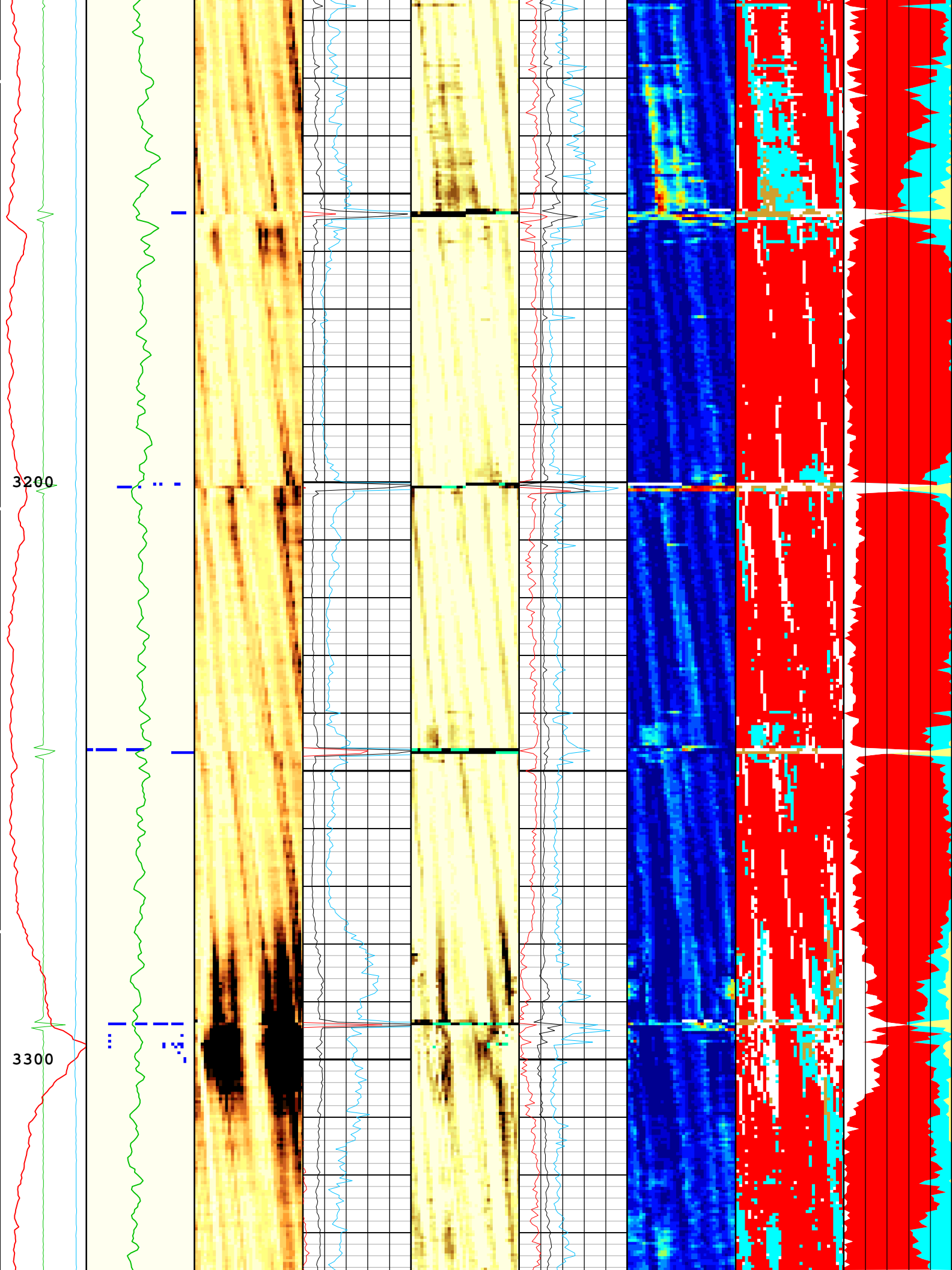


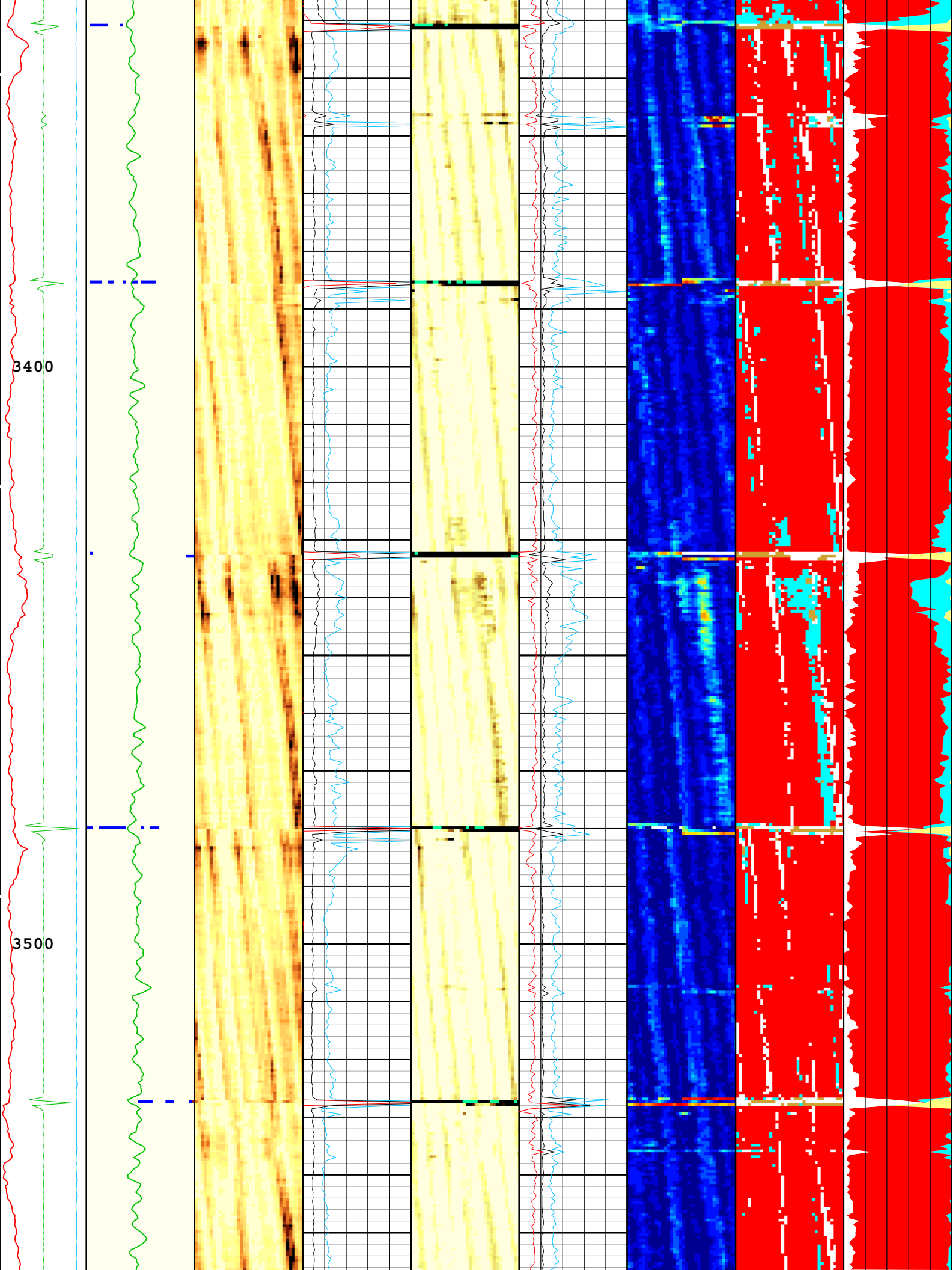


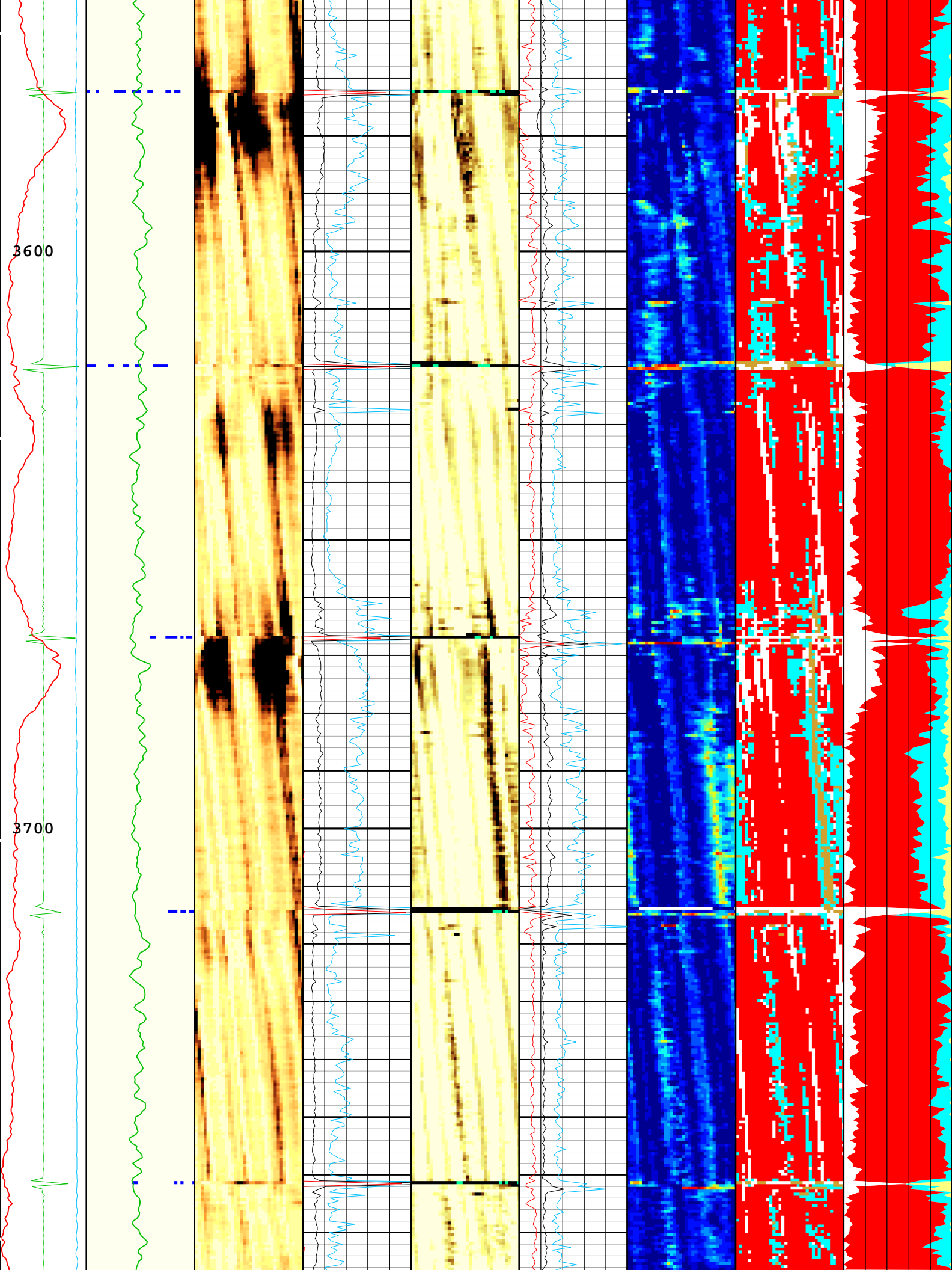


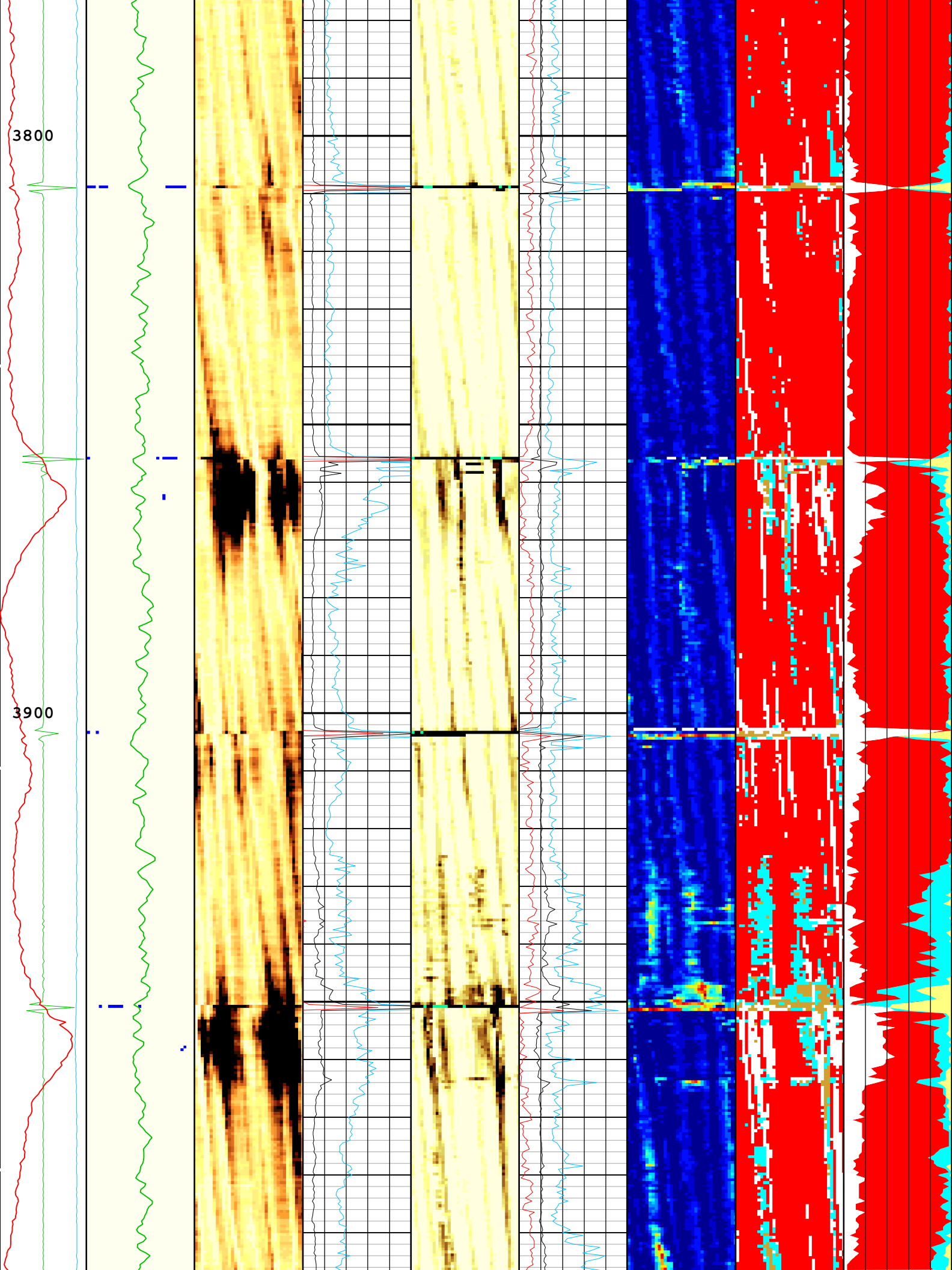


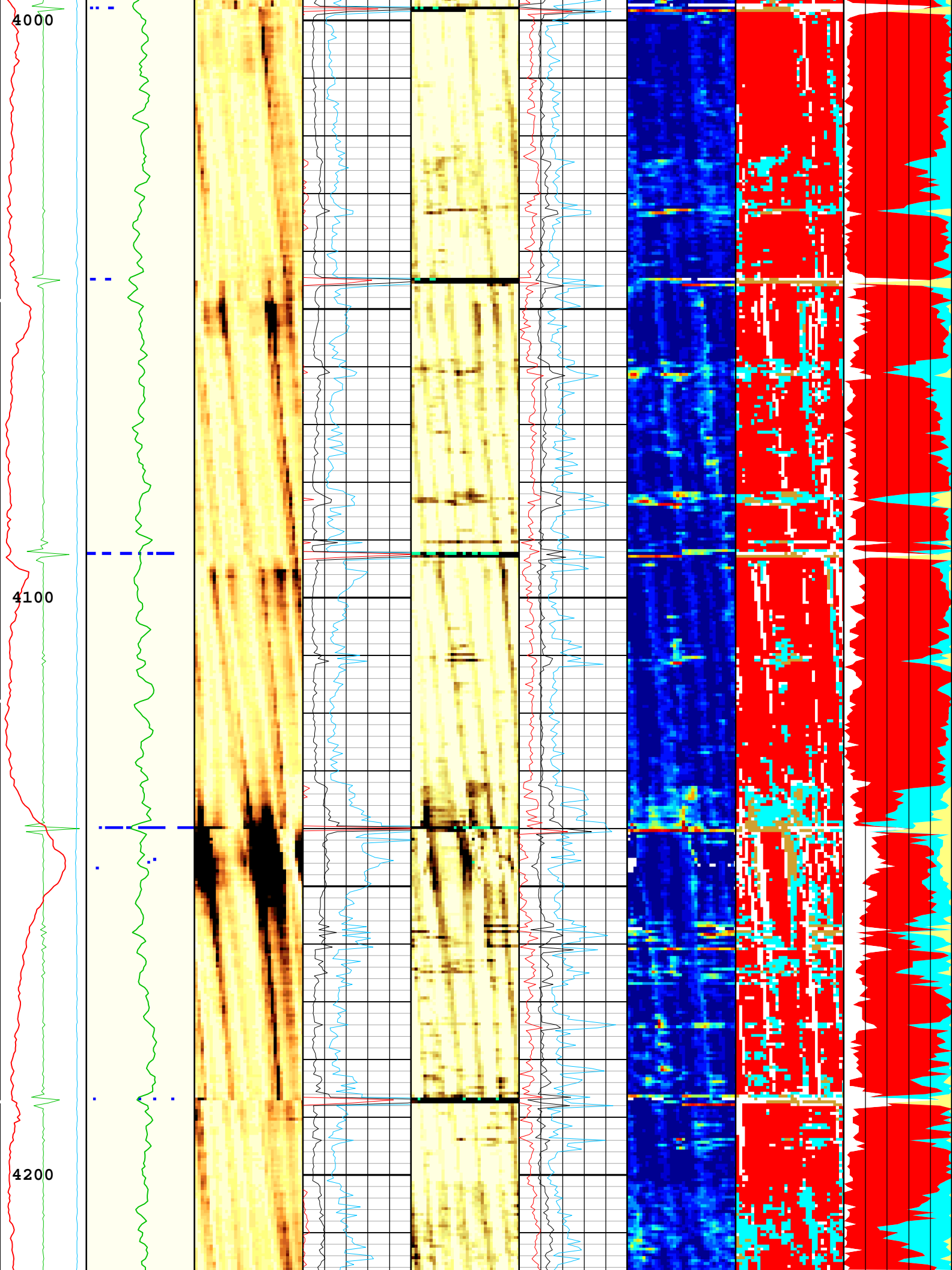


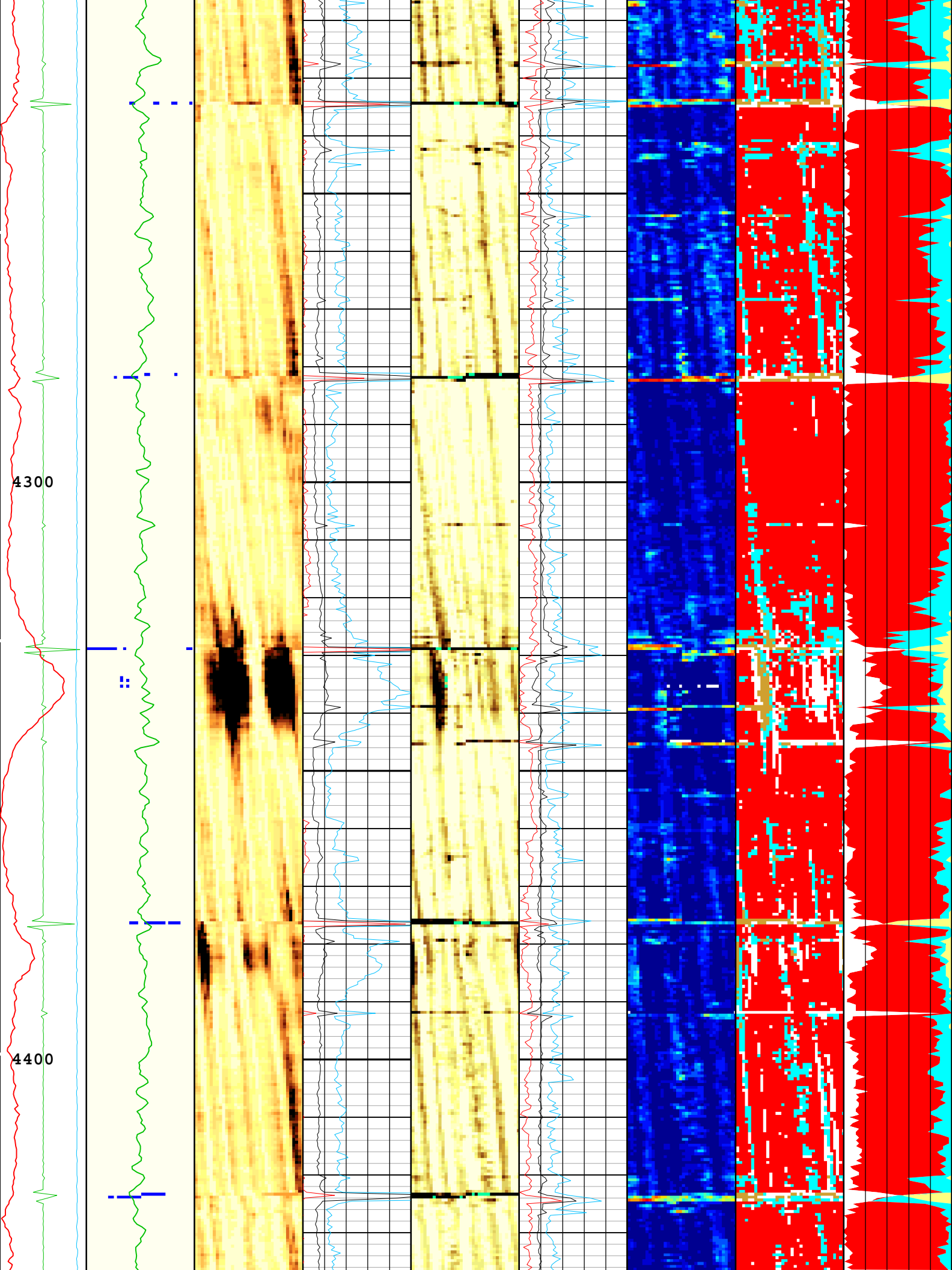


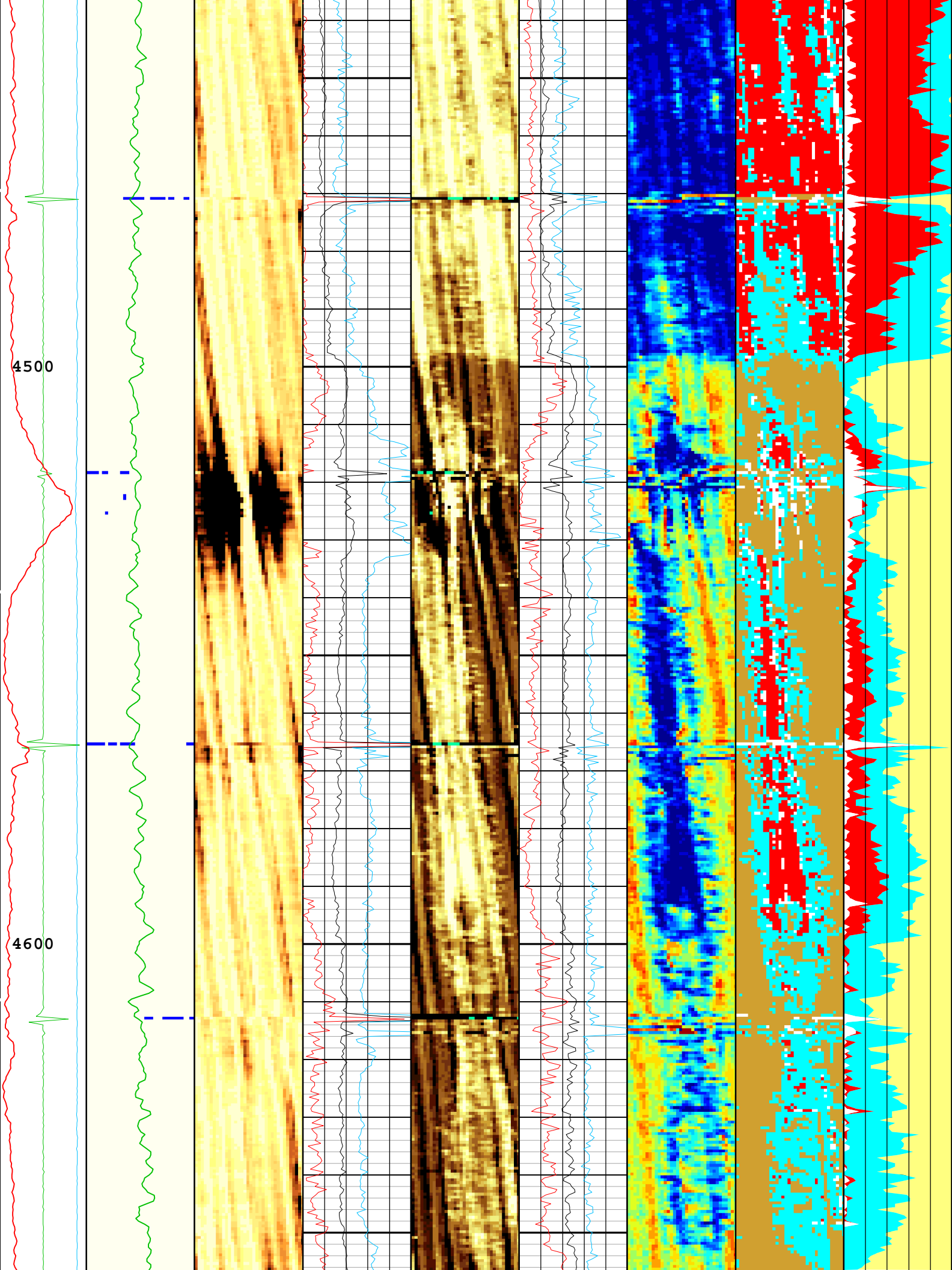


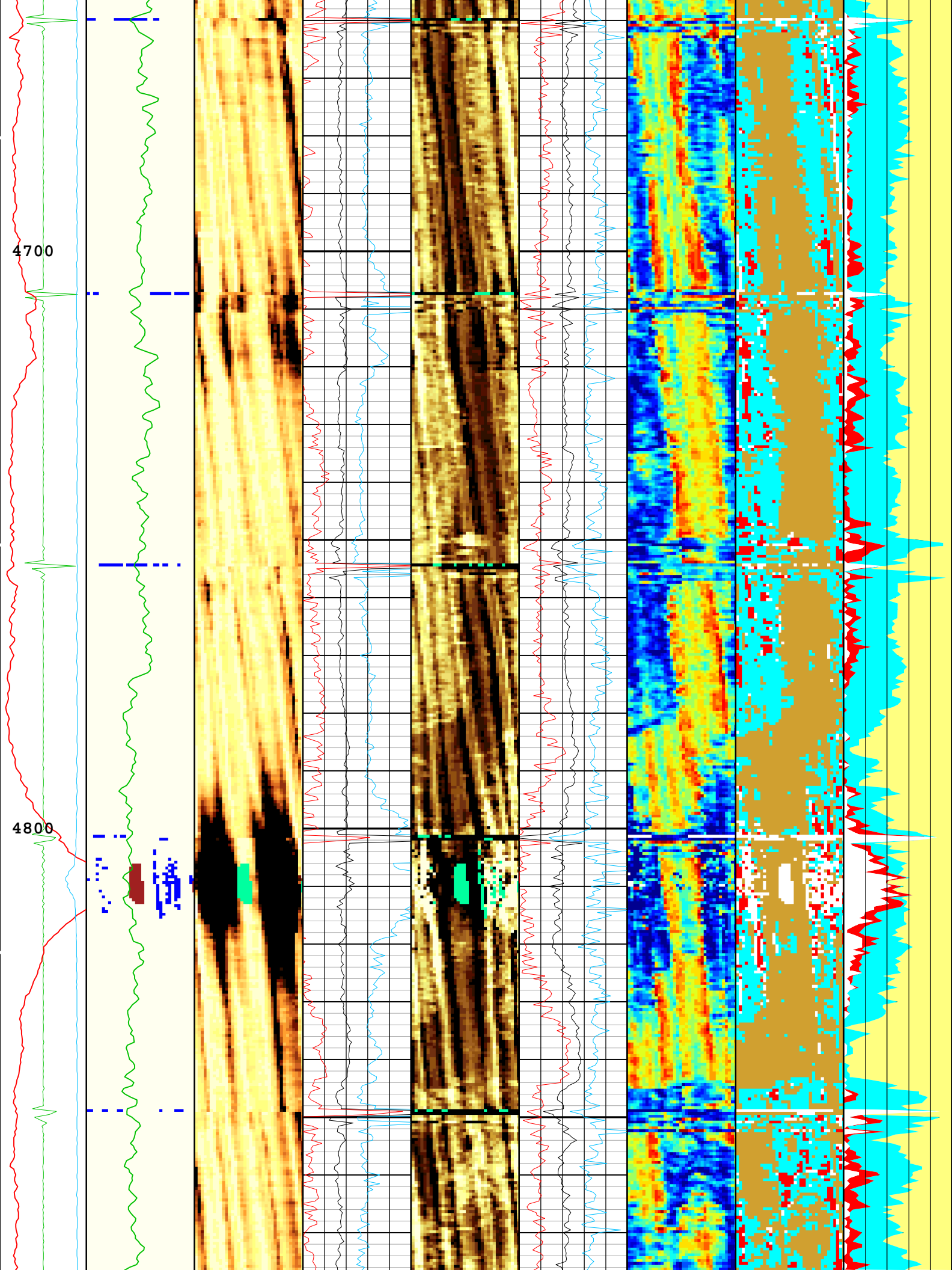


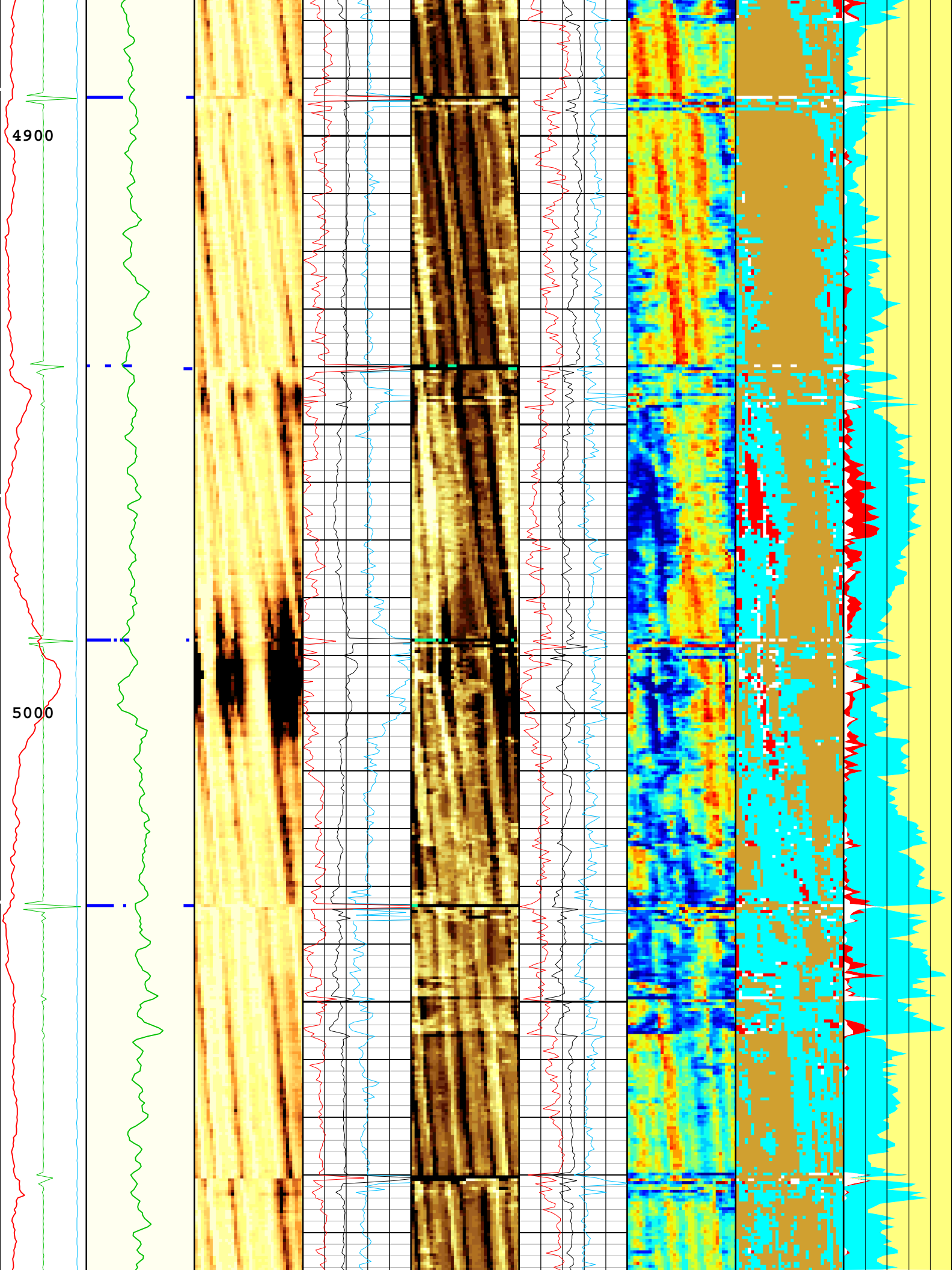


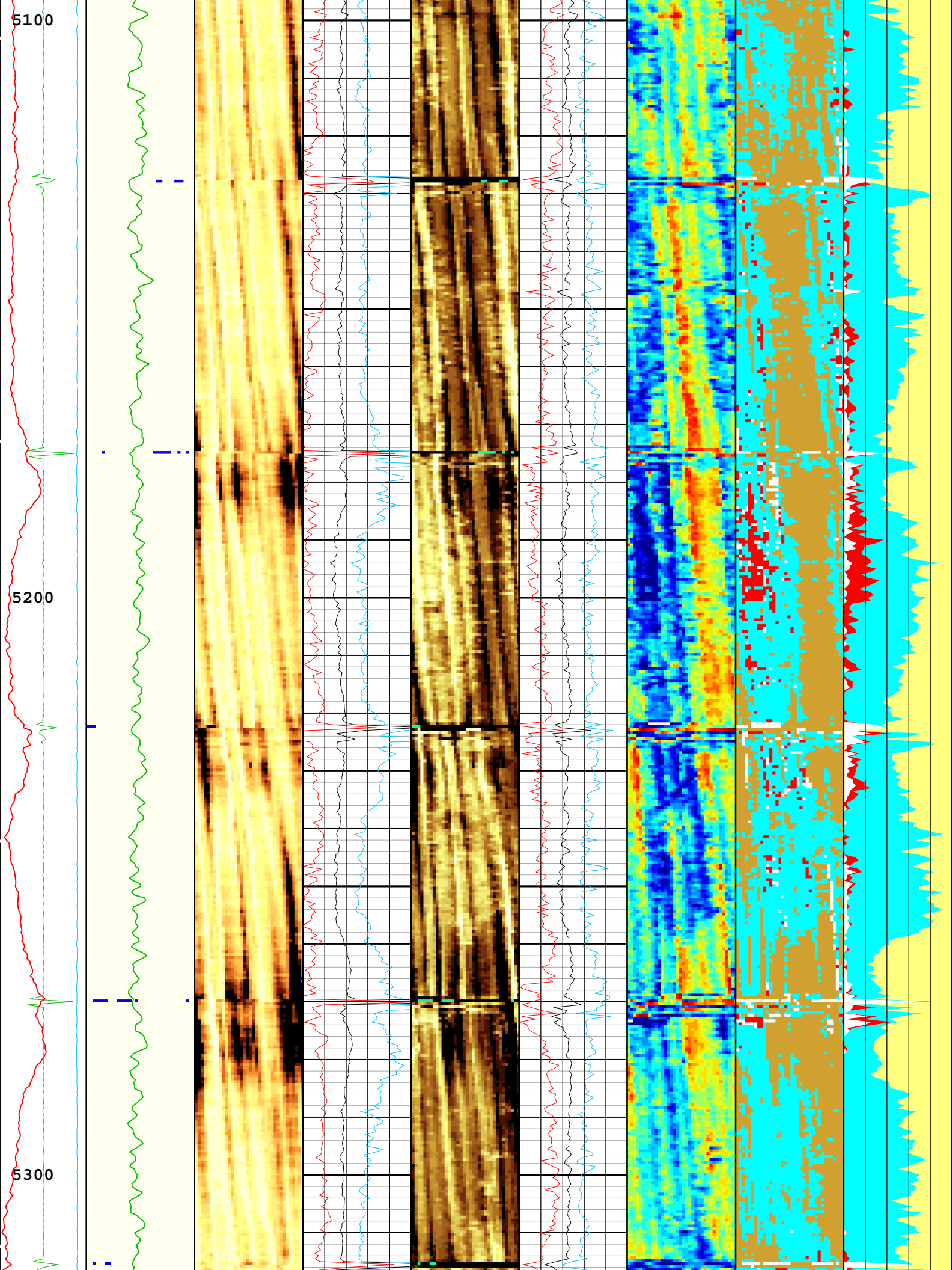


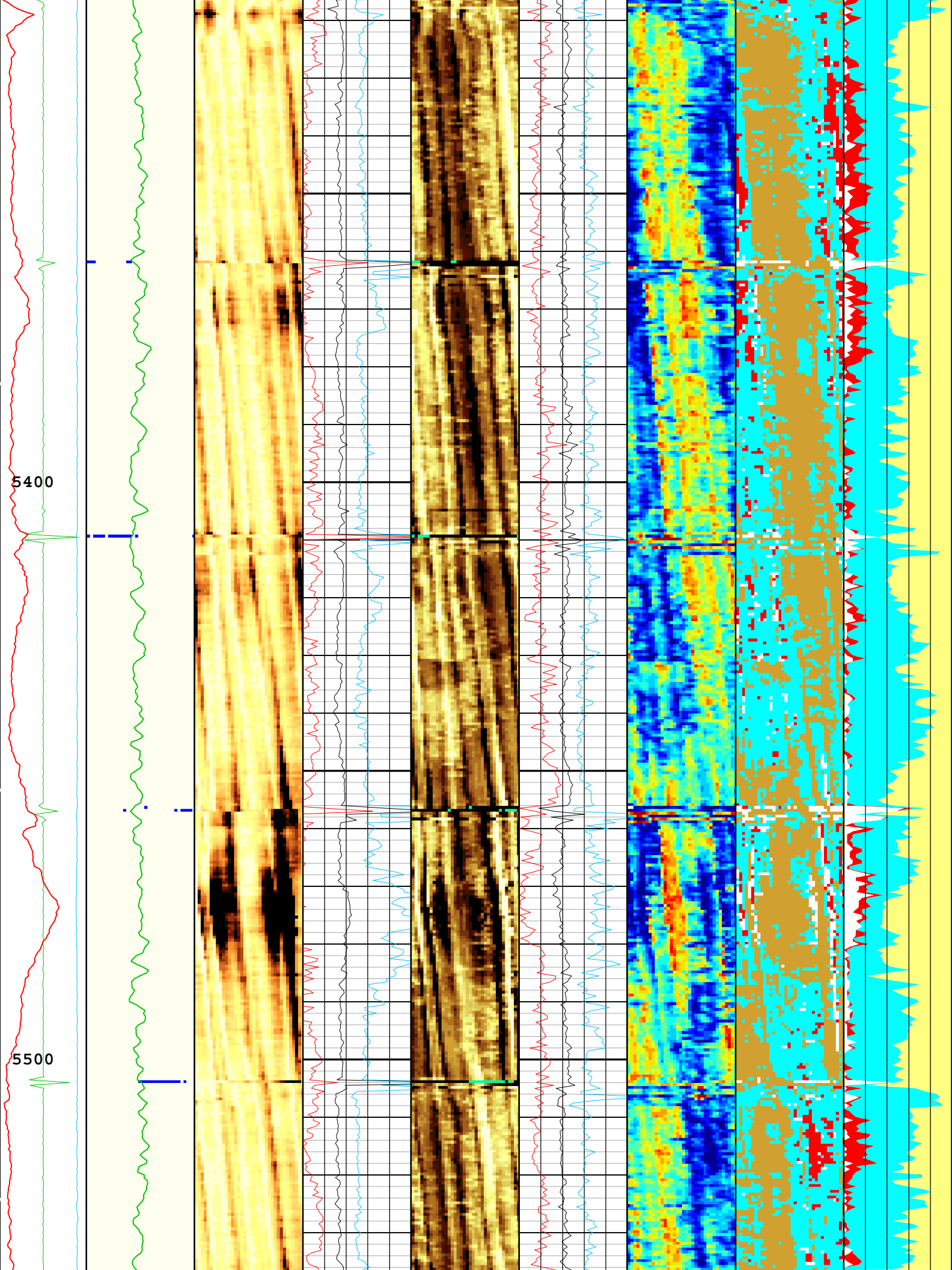


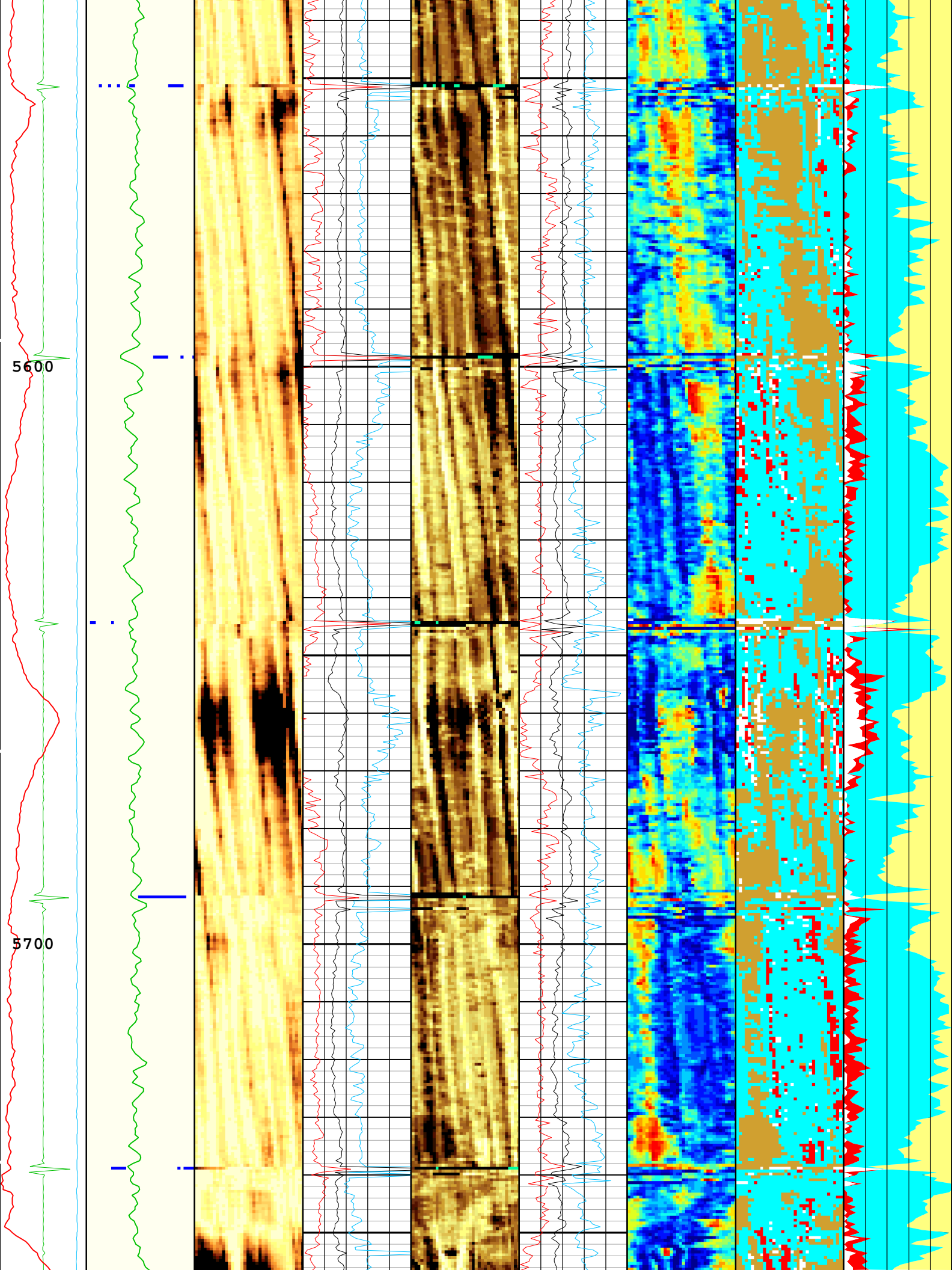


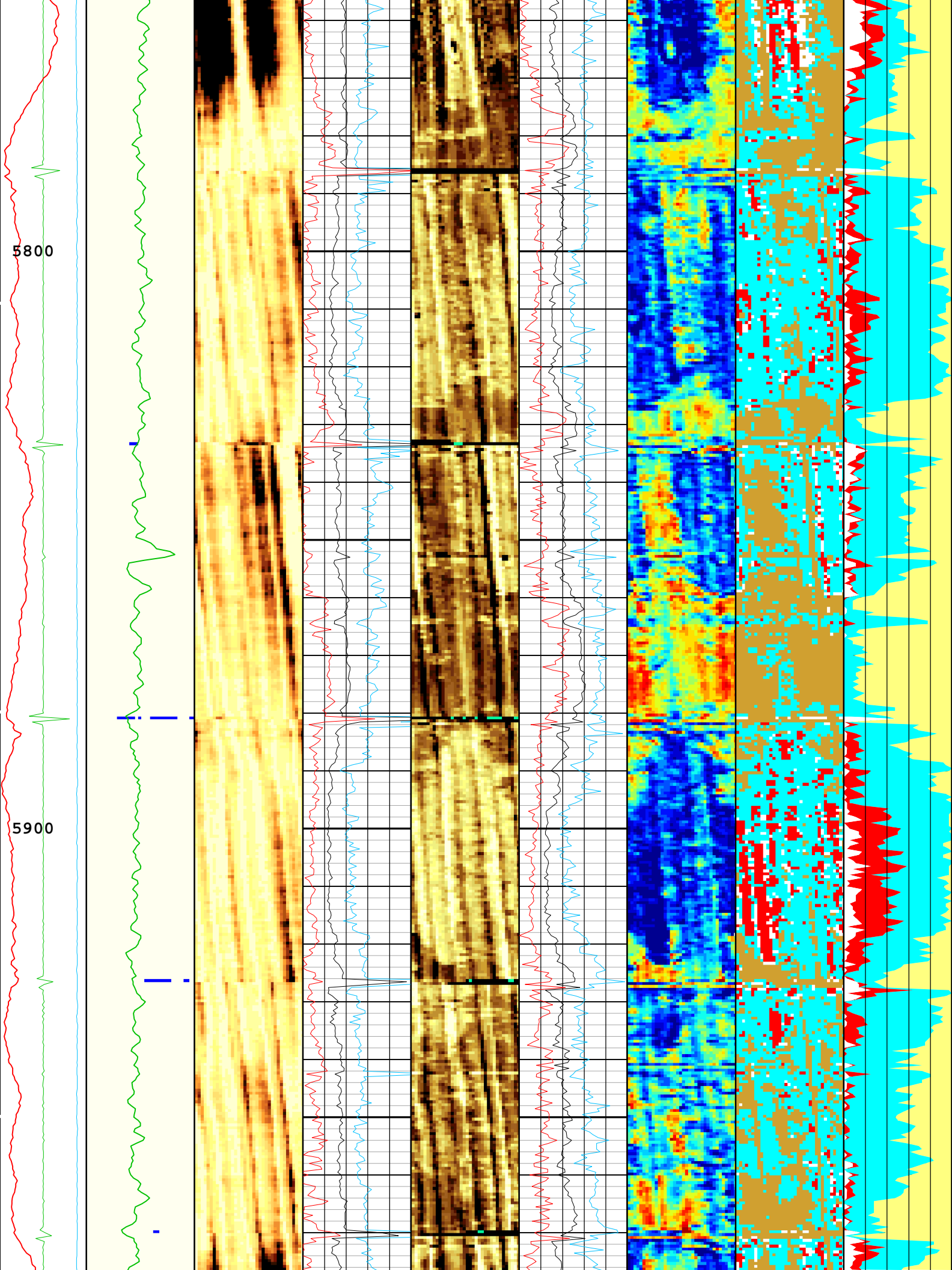


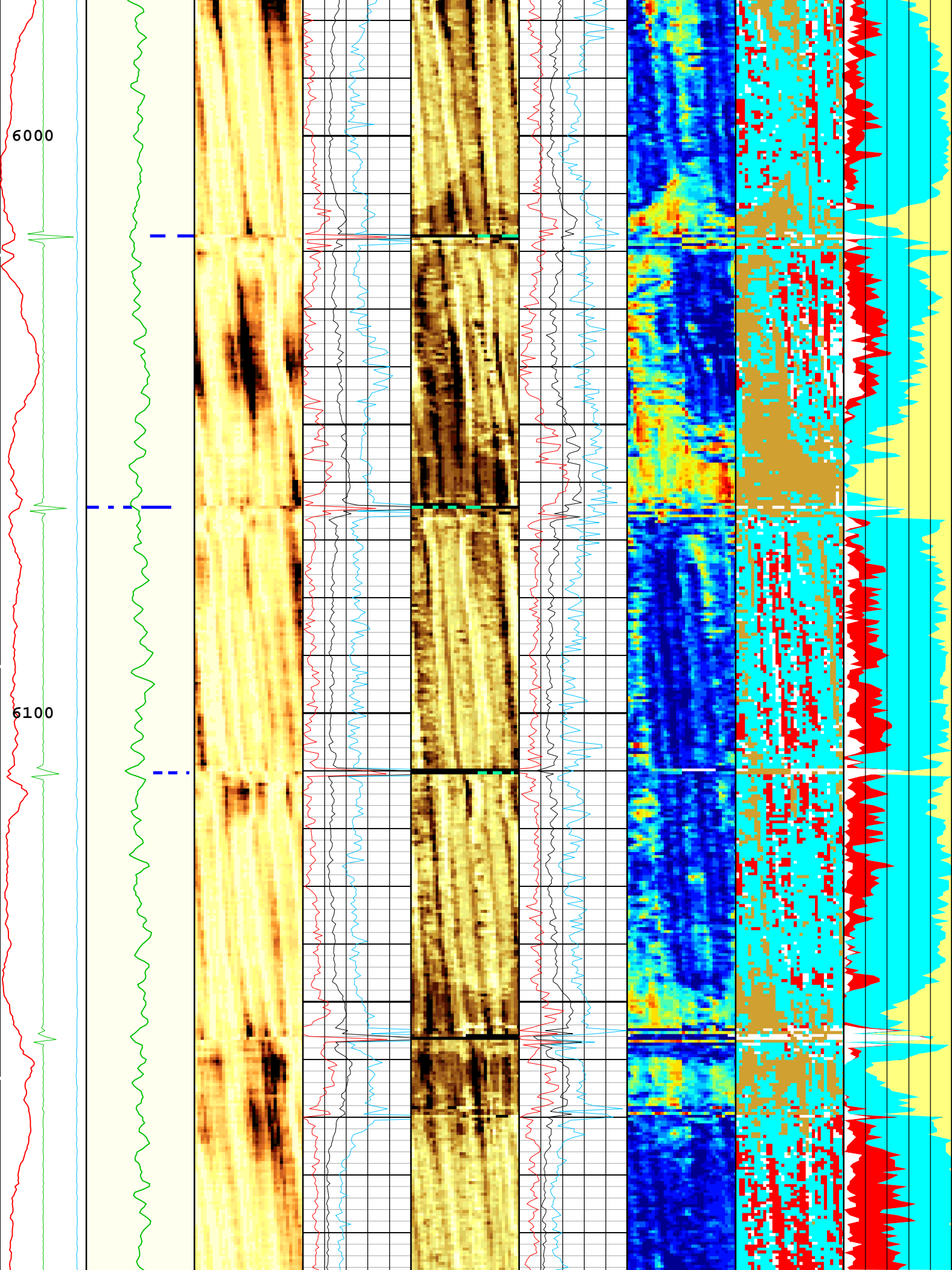


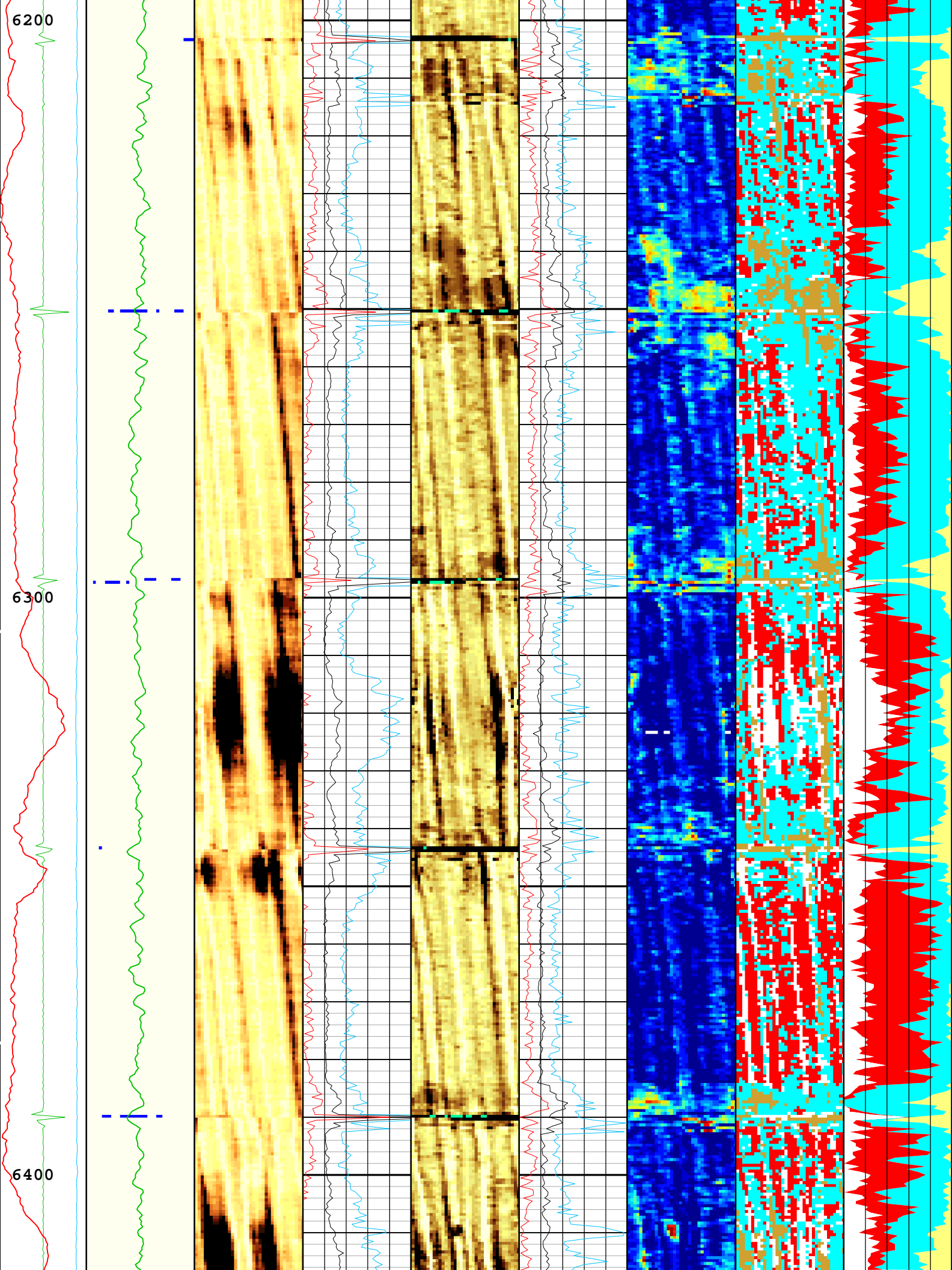


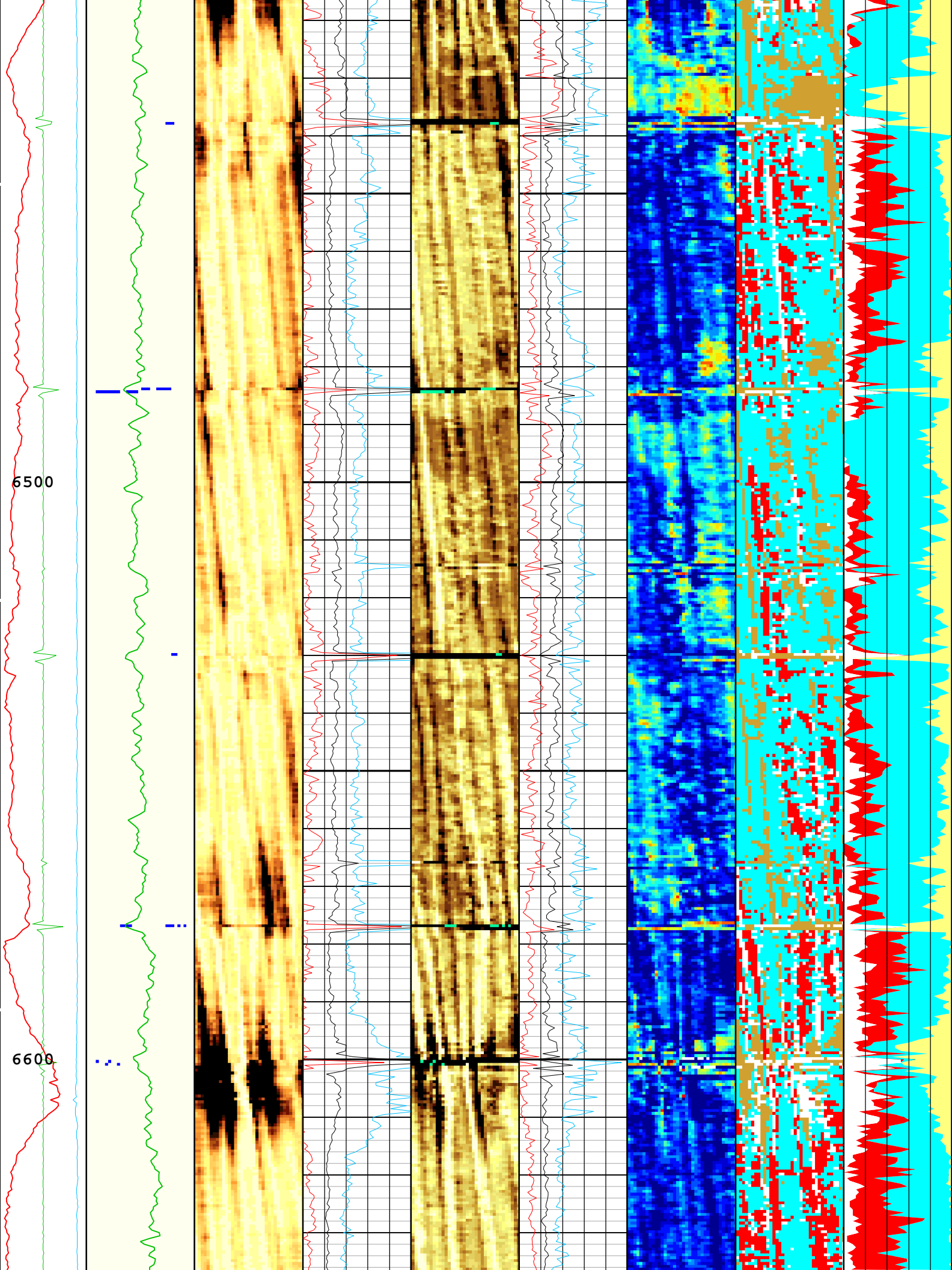


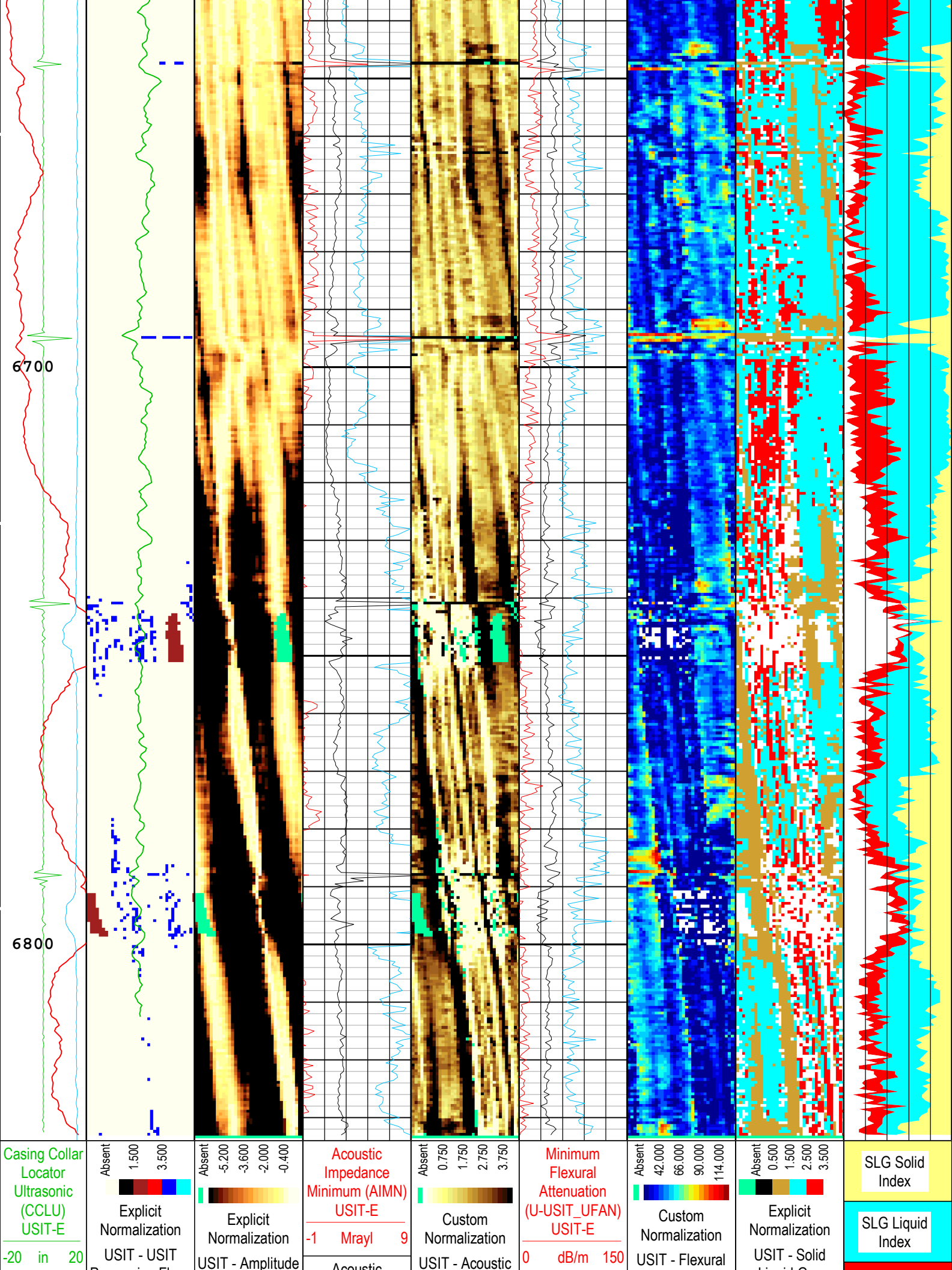












Amplitude of Eccentering (ECCE) USIT-E	Processing Flags (UFLG) USIT-E	of Wave (AWBK) USIT-E (dB)	Acoustic Impedance Average (AIAV) USIT-E		Impedance (AIBK) USIT-E (Mrayl)	Average Flexural Attenuation (U-USIT_UFAV) USIT-E		Attenuation (UFAK) USIT-E (dB/m)	Liquid Gas Sorted Color Map (USLP) USIT-E	SLG Gas Index
	USIT Processing Flags (UFLG[0]) USIT-E		-1 Mrayl 9	0 dB/m 150		SLG White Point Index				
0 in 0.5	1									

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 Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 18-Oct-2018 17:53:20

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	11936	ft
CDEN	Cement Density	USIT-E	12.52	lbm/gal
CDEN	Cement Density	EDTC-B	12.52	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	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	-24.43	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	Off	
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_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in

	Reference Calibrator Casing Diameter	USIT-E	1.0	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	-30.39	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	22	2425
BS	8.5	2425	6834
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	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	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

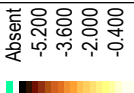

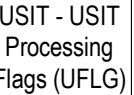
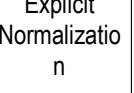



























































Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	70	18-Oct-2018 14:53:53	18-Oct-2018 14:57:38	6834.68	6616.35
EMXV	75	18-Oct-2018 14:57:38	18-Oct-2018 14:58:32	6616.35	6553.95
EMXV	70	18-Oct-2018 14:58:32	18-Oct-2018 15:07:45	6553.95	5896.28
EMXV	65	18-Oct-2018 15:07:45	18-Oct-2018 15:25:22	5896.28	4654
EMXV	60	18-Oct-2018 15:25:22	18-Oct-2018 15:36:38	4654	3864.31
EMXV	55	18-Oct-2018 15:36:38	18-Oct-2018 16:04:10	3864.31	1888.27
EMXV	50	18-Oct-2018 16:04:10	18-Oct-2018 16:34:56	1888.27	43.51

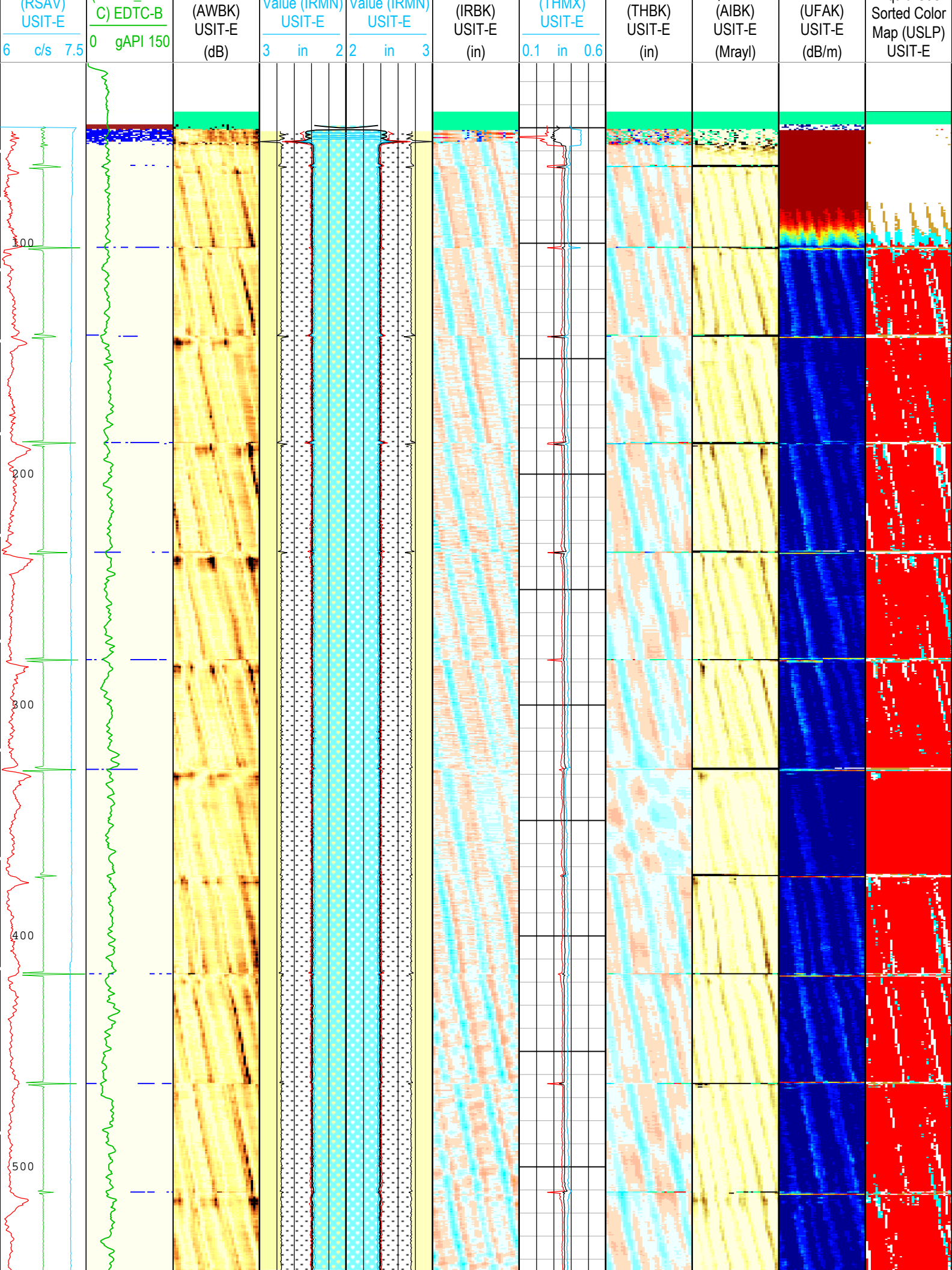
IBC SLG Composite 0 PSI

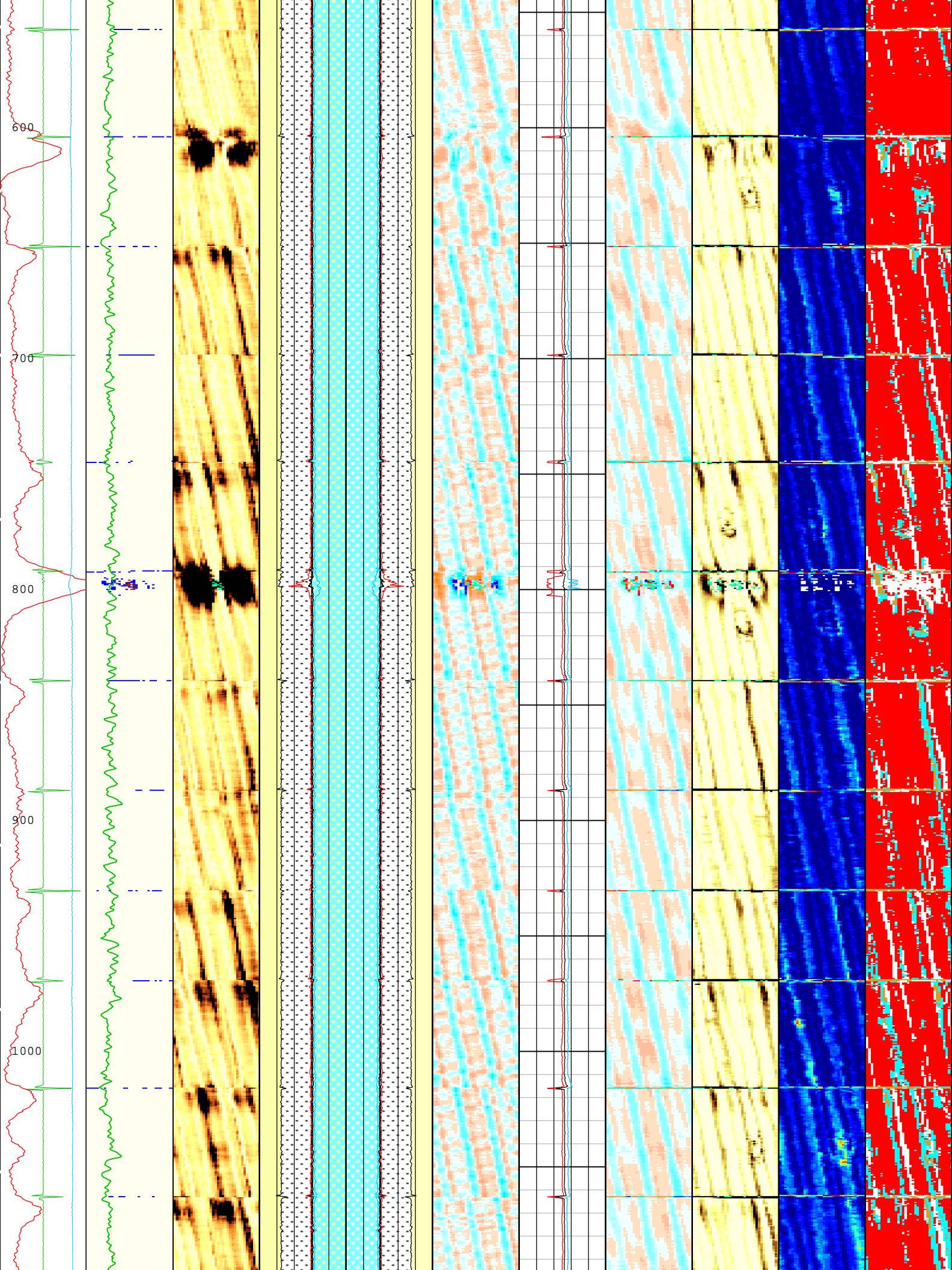
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[5]:Up	Up	43.51 ft	6834.68 ft	18-Oct-2018 2:53:53 PM	18-Oct-2018 4:34:56 PM	ON	4.22 ft	Yes

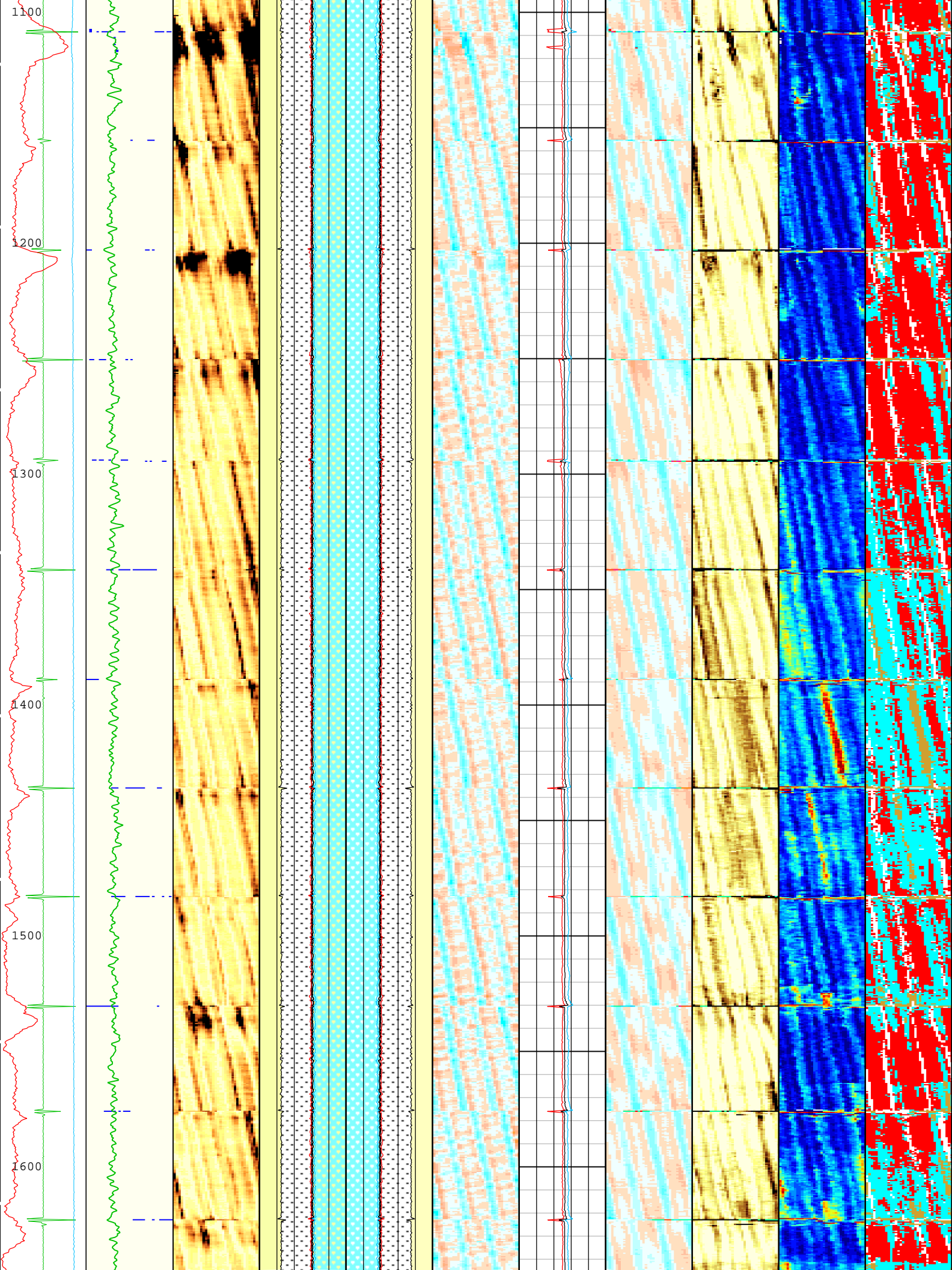
ONE: Log[5]:Up:S002

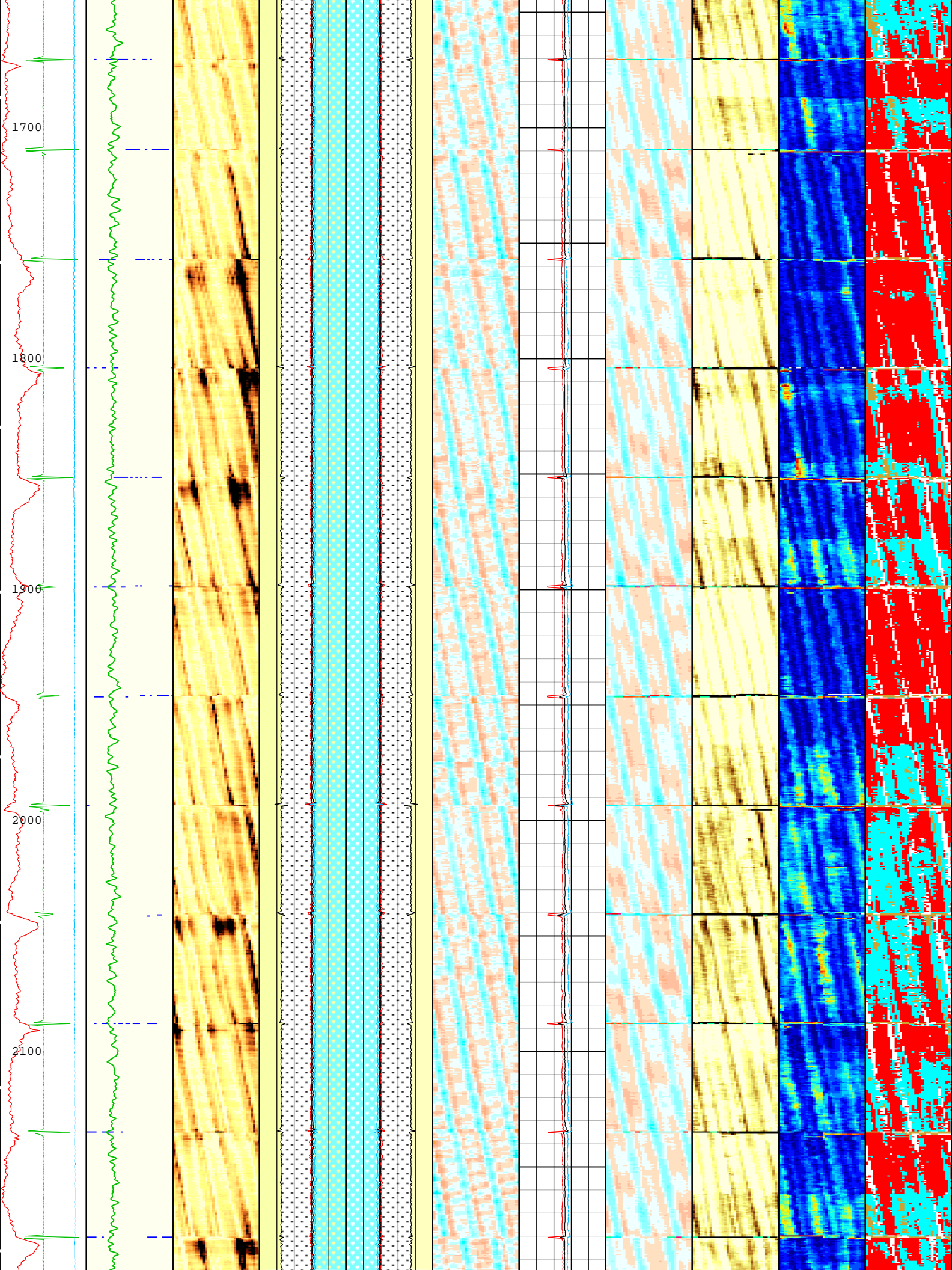
-  UTIM Error
-  Pulse Origin Not Detected
-  WINLEN Error
-  Casing Thickness Error
-  Loop Processing Error

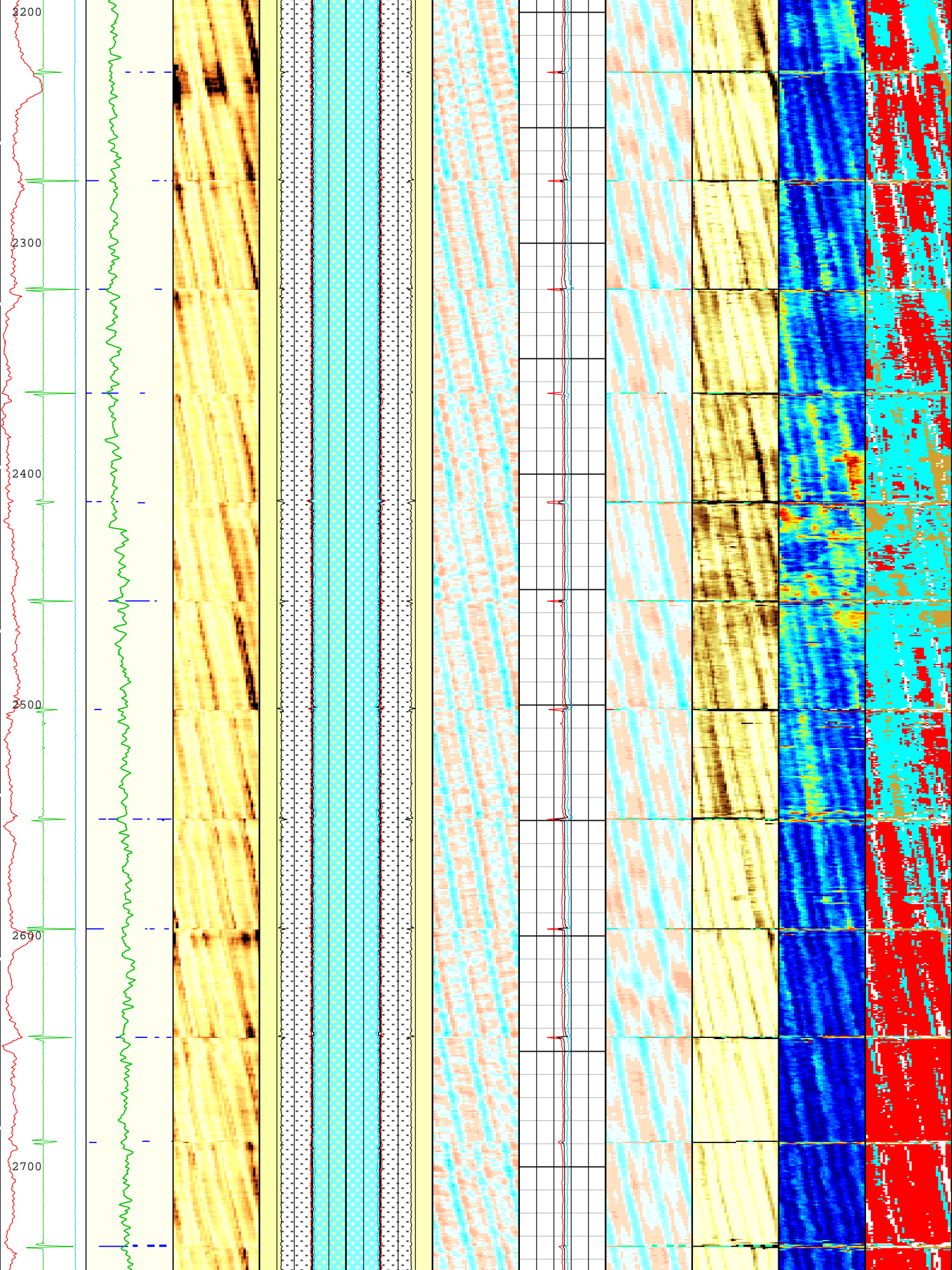
Casing Collar Locator Ultrasonic (CCLU) USIT-E	Amplitude of Eccentering (ECCE) USIT-E	Motor Revolution Speed (RCAS)	1	5	 USIT - Amplitude of Wave	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	 Explicit Normalization n	 USIT - USIT Processing Flags (UFLG) USIT-E	
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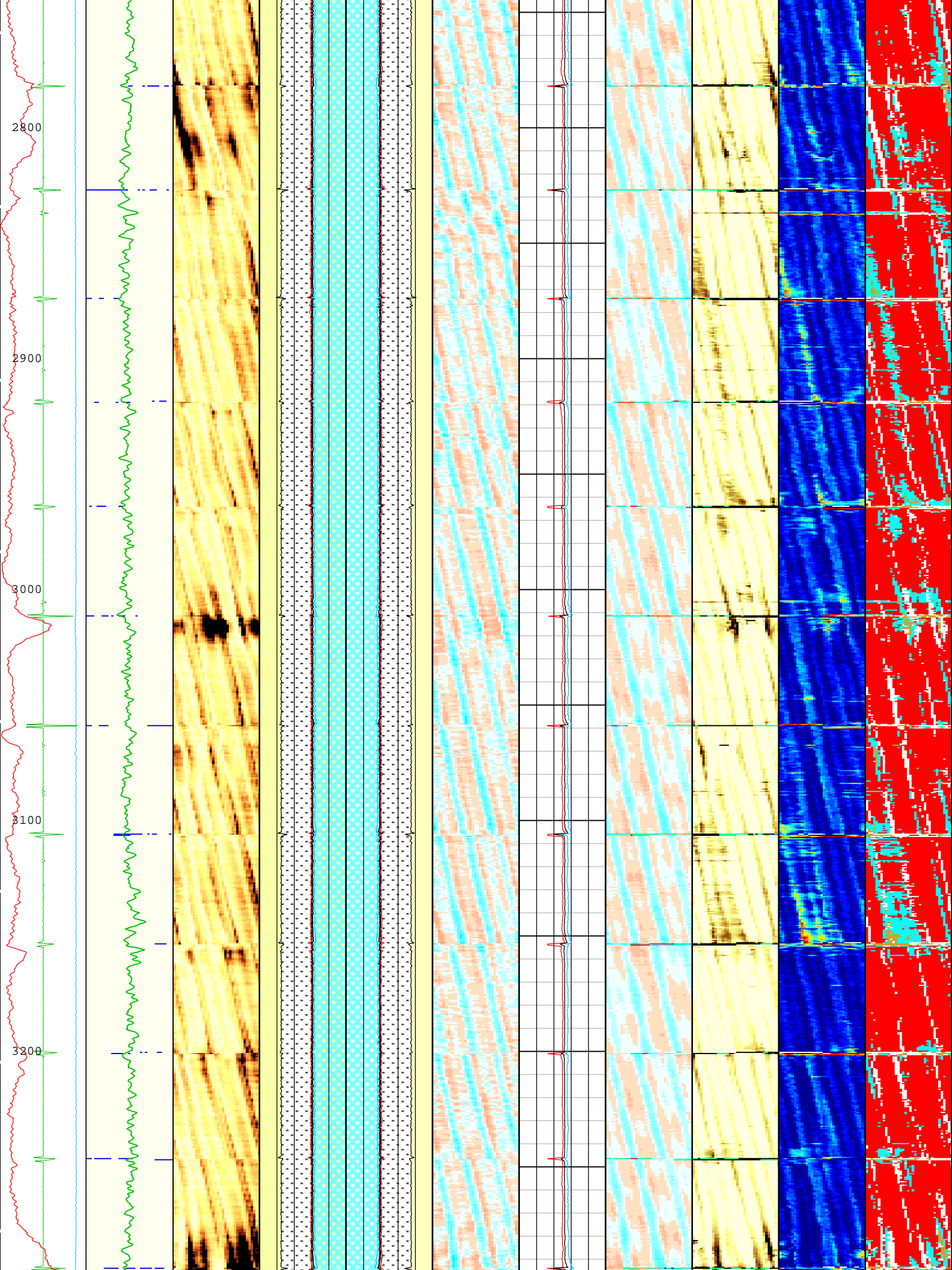


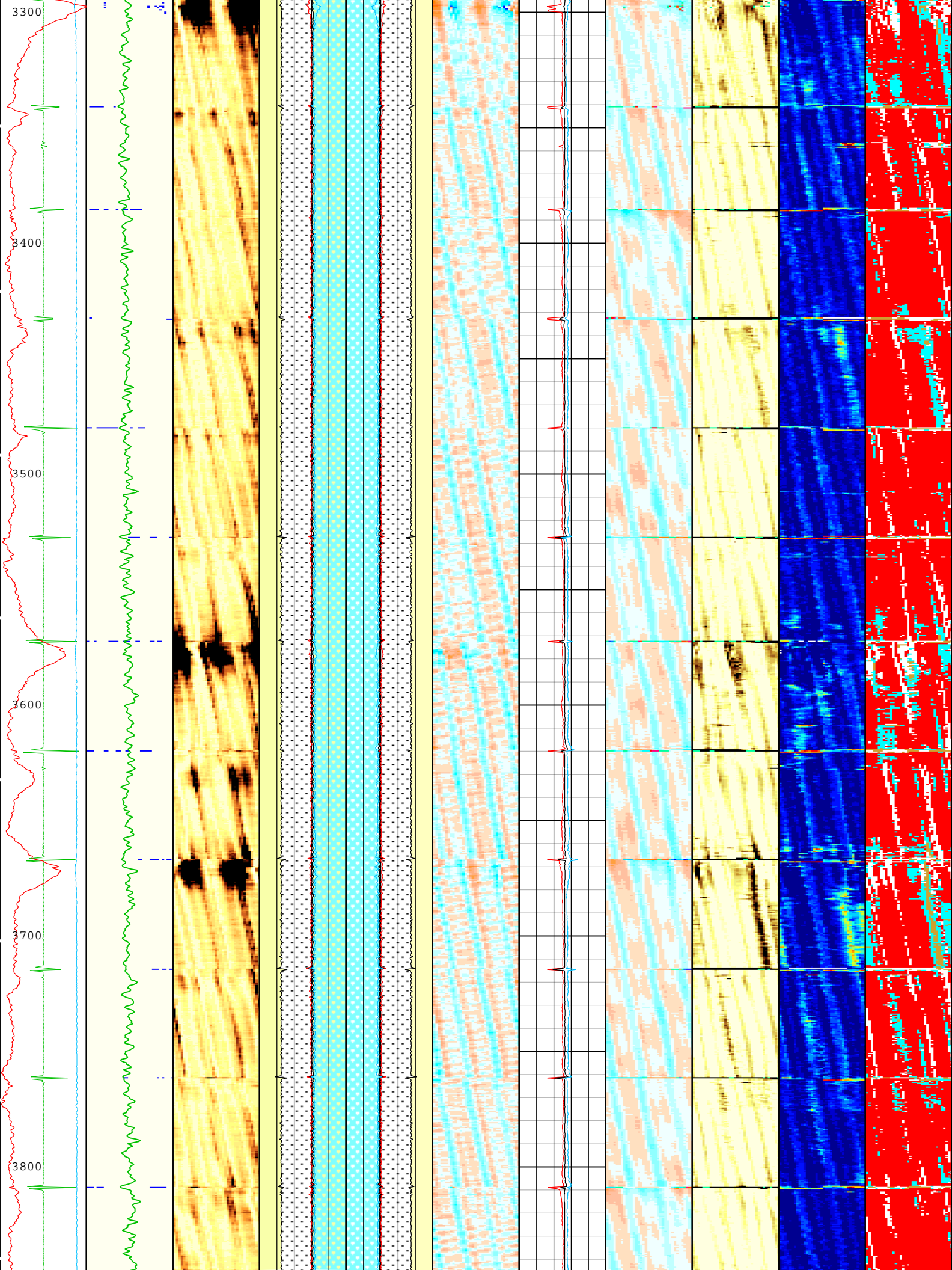


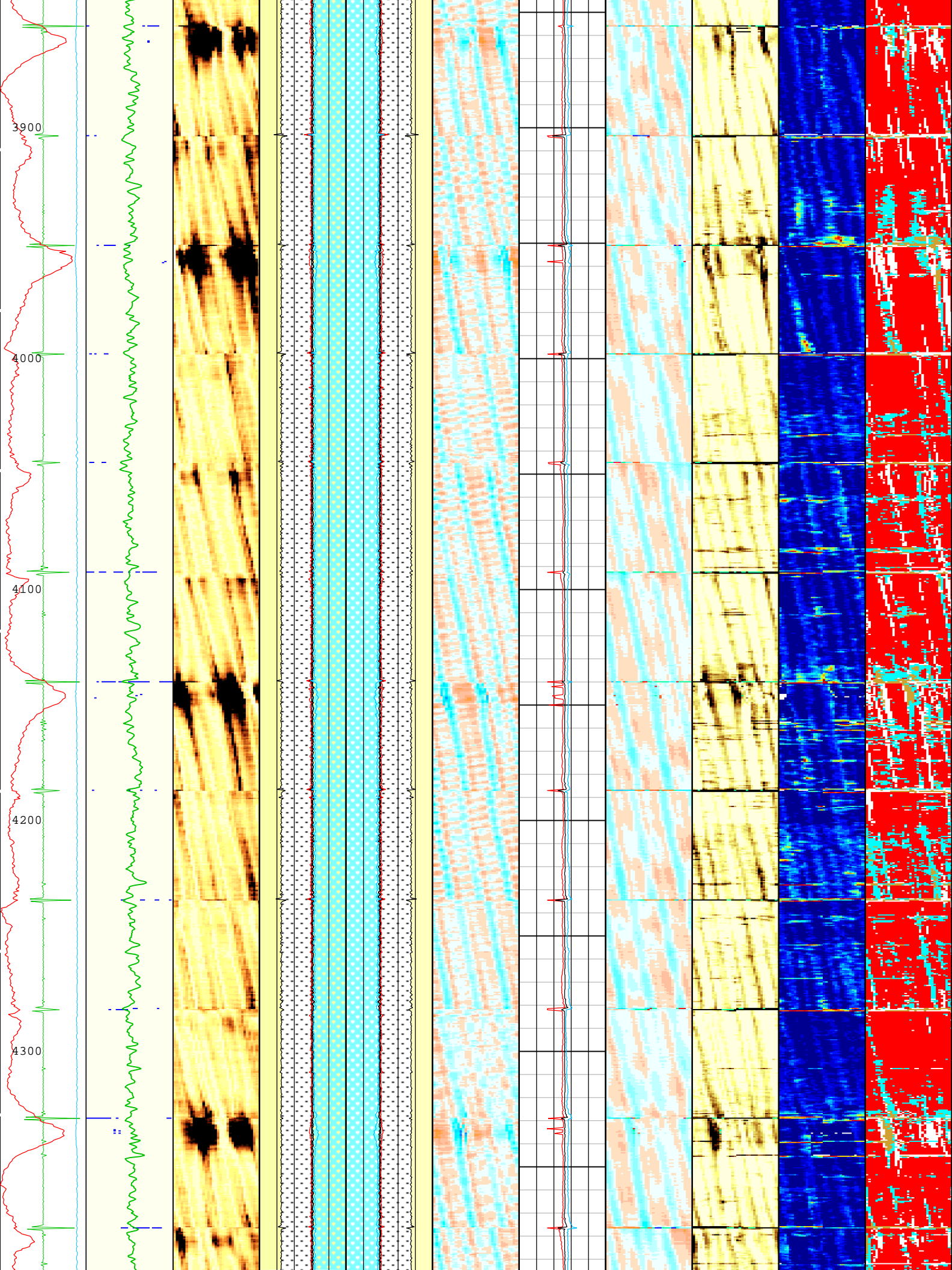


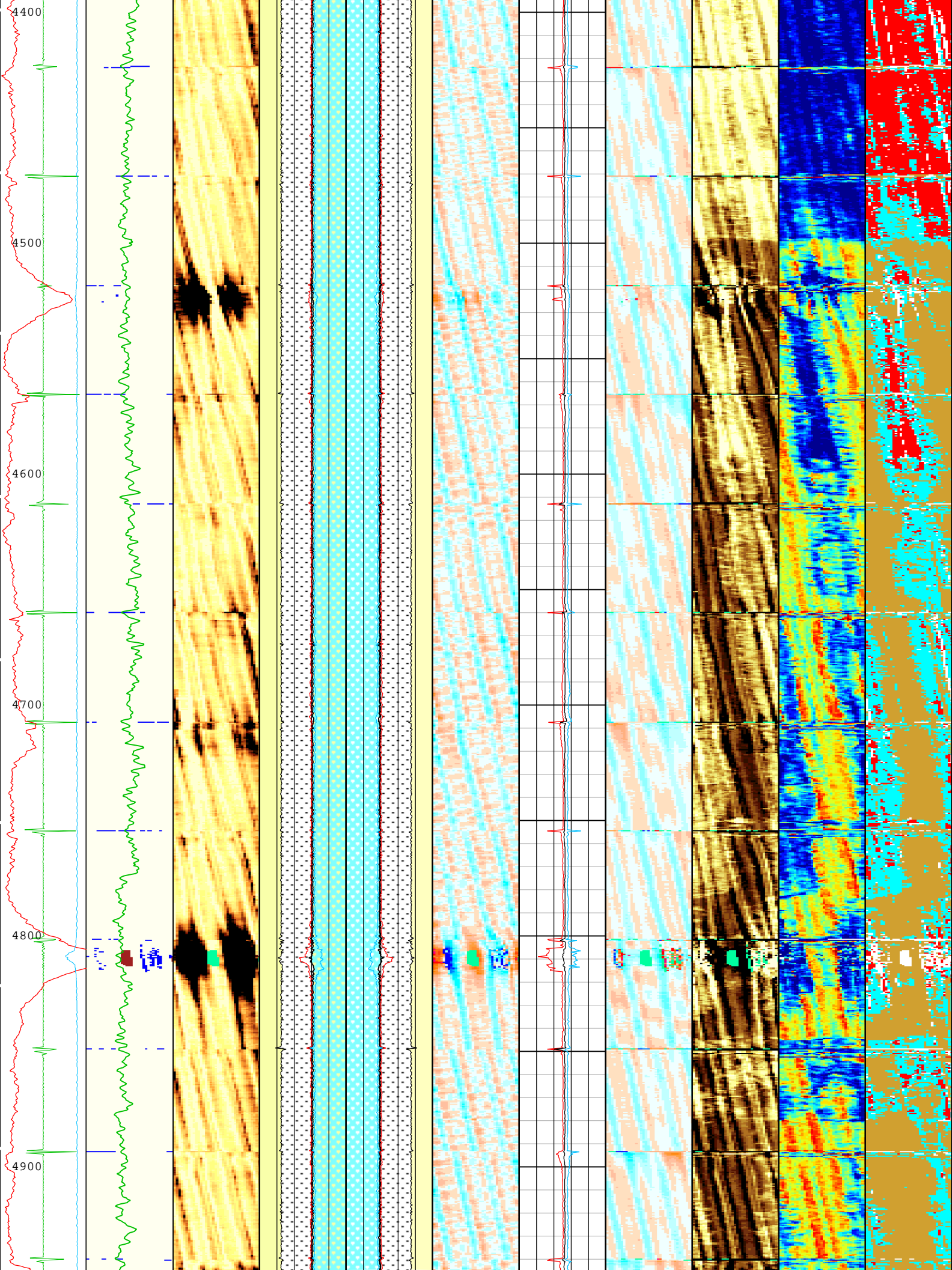


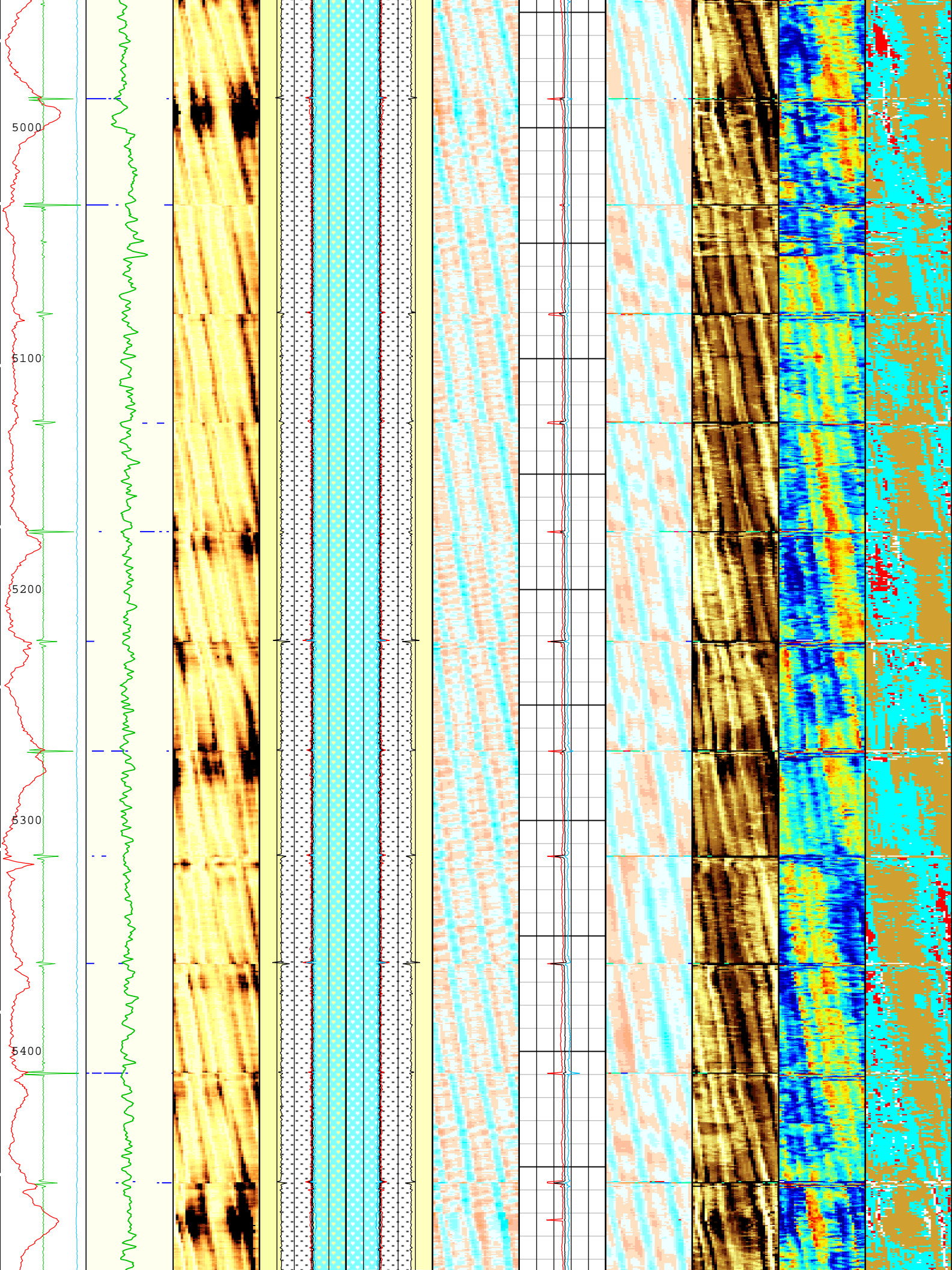


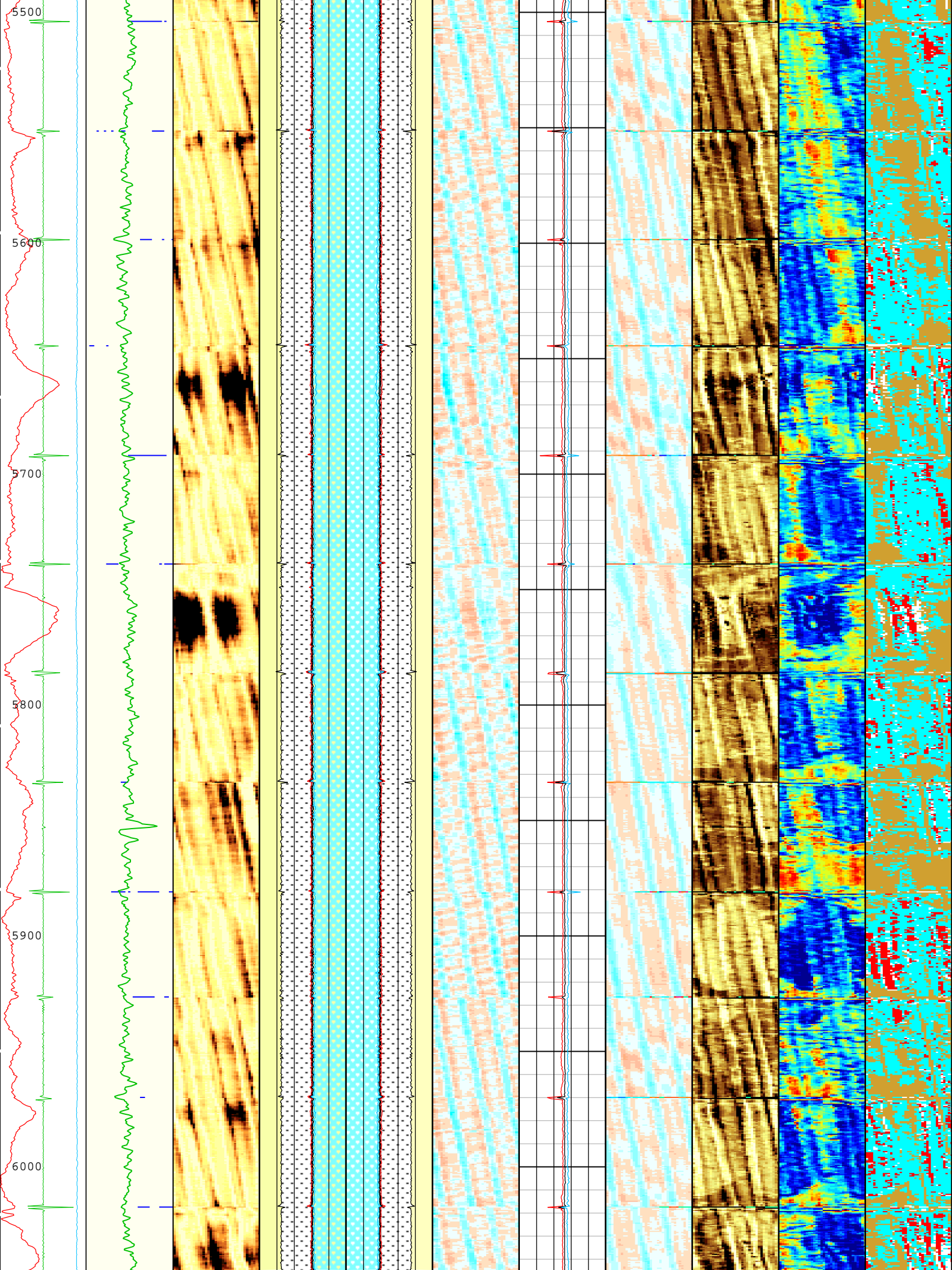


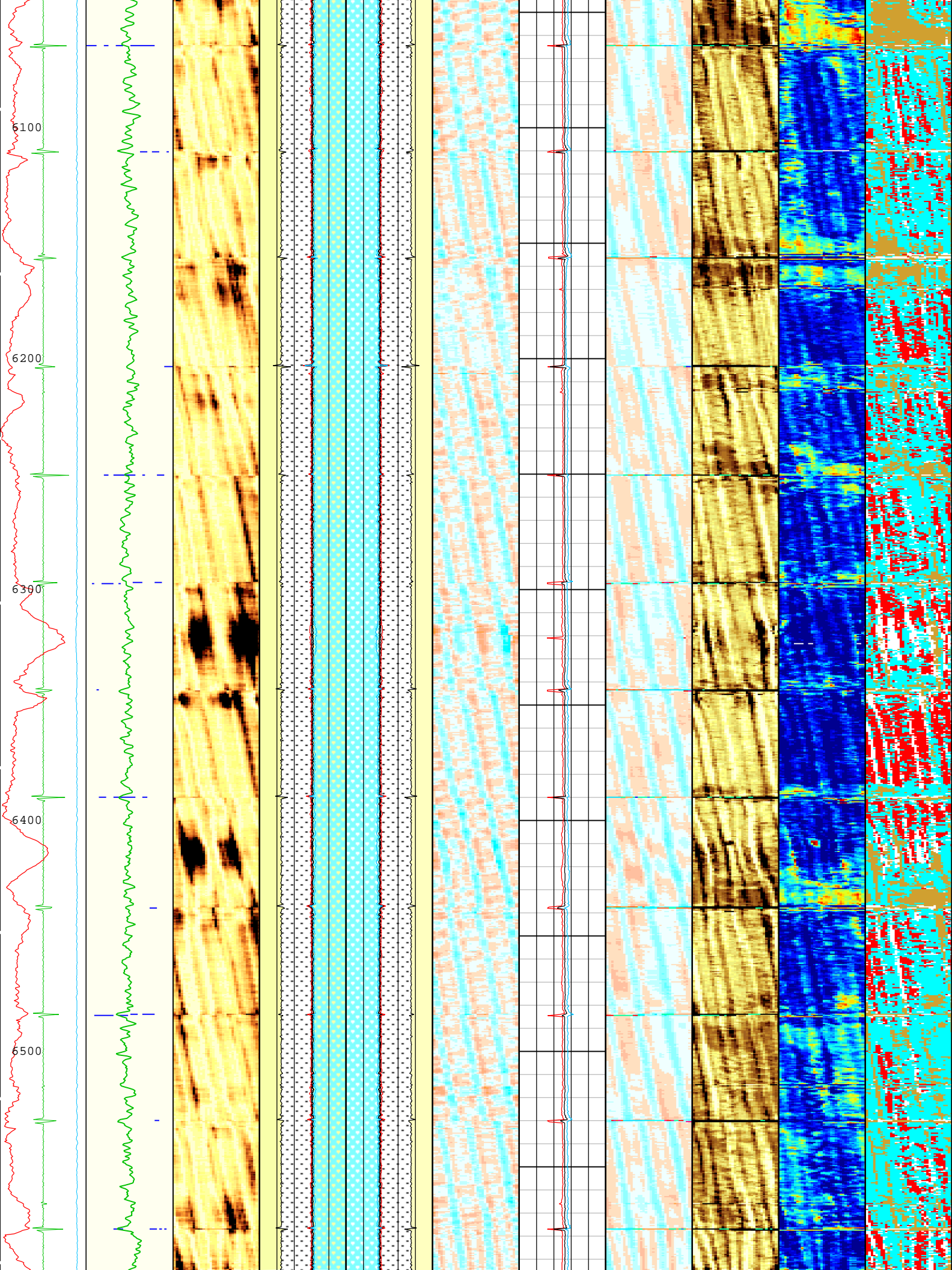


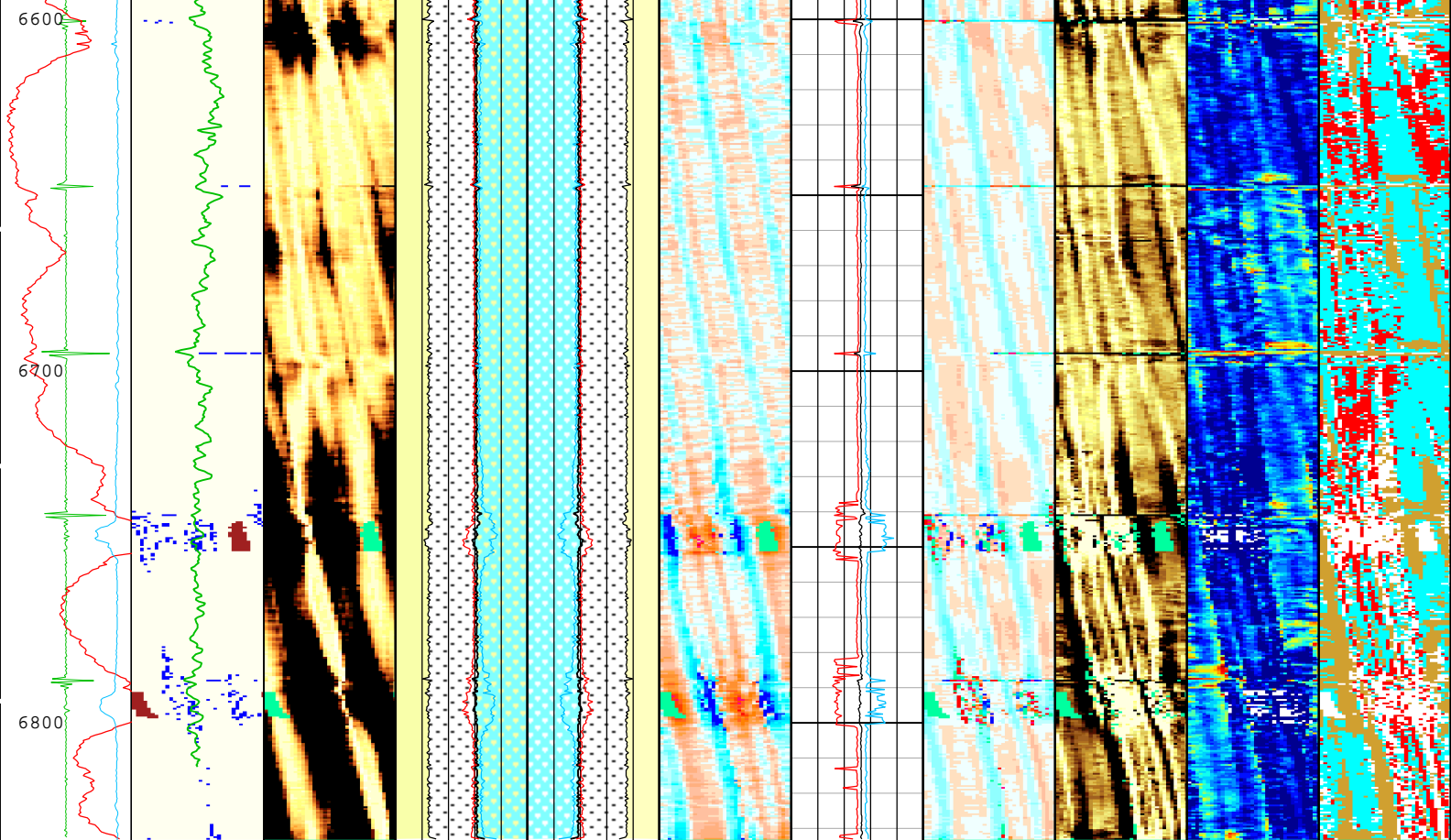












Casing Collar Locator (CCLU) USIT-E	Explicit Normalization	Explicit Normalization	External Radii Average (ERAV) USIT-E	External Radii Average (ERAV) USIT-E	Explicit Normalization	Thickness Minimum Value (THMN) USIT-E	Explicit Normalization	Custom Normalization	Custom Normalization	Explicit Normalization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

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: USIT-IRC SLG Composite - Format: Log (IRC SLG Composite) - Index: Scale: 2 in per 100 ft - Index Unit: ft - Index Type: Measured Depth

Channel Processing Parameters	
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ONE: Parameters

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	11936	ft
CDEN	Cement Density	USIT-E	12.52	lbm/gal
CDEN	Cement Density	EDTC-B	12.52	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	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	-24.43	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	Off	
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_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.75	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-30.39	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	22	2425
BS	8.5	2425	6834

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	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	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

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	70	18-Oct-2018 14:53:53	18-Oct-2018 14:57:38	6834.68	6616.35
EMXV	75	18-Oct-2018 14:57:38	18-Oct-2018 14:58:32	6616.35	6553.95
EMXV	70	18-Oct-2018 14:58:32	18-Oct-2018 15:07:45	6553.95	5896.28
EMXV	65	18-Oct-2018 15:07:45	18-Oct-2018 15:25:22	5896.28	4654
EMXV	60	18-Oct-2018 15:25:22	18-Oct-2018 15:36:38	4654	3864.31
EMXV	55	18-Oct-2018 15:36:38	18-Oct-2018 16:04:10	3864.31	1888.27
EMXV	50	18-Oct-2018 16:04:10	18-Oct-2018 16:34:56	1888.27	43.51

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[5]:Up	Up	43.51 ft	6834.68 ft	18-Oct-2018 2:53:53 PM	18-Oct-2018 4:34:56 PM	ON	4.22 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating LLC

Well:Sam 3K-25H-M166

ONE: Log[5]:Up:S002

Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 18-Oct-2018 17:54:06

TIME_1900 - Time Marked every 60.00 (s)

Gamma Ray (ECGR_EDTC) EDTC-B

0150 gAPI

Amplitude of Eccentering (ECCE) USIT-E

0in0.5

Motor Revolution Speed

Acoustic Impedance Minimum (AIMN) USIT-E

-1Mrayl9

Acoustic Impedance Maximum (AIMX) USIT-E

-1Mrayl9

Acoustic Impedance Average

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E

40140 dB/m

Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E

40140 dB/m

Average Flexural Attenuation (U-USIT_UFAV) USIT-E

Absent0.7501.7502.7503.750

Custom Normalization

USIT - Acoustic

0.00048.00072.00096.000120.000

Custom Normalization

USIT - Flexural

Absent1.5003.500

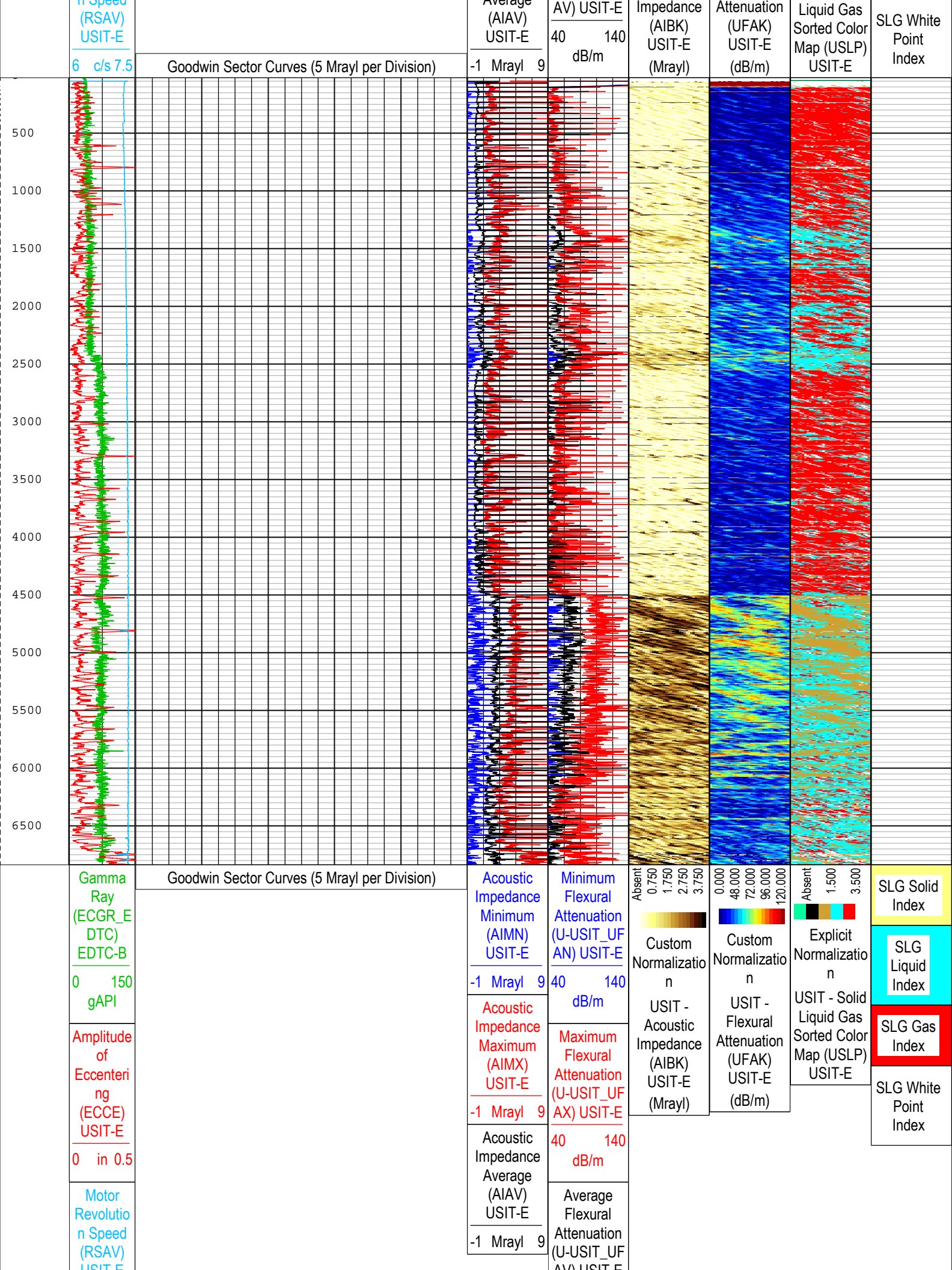
Explicit Normalization

USIT - Solid

SLG Solid Index

SLG Liquid Index

SLG Gas Index



USIT-E
6 c/s 7.5

AV) USIT-E
40 140
dB/m

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:
18-Oct-2018 17:54:06

XYZ

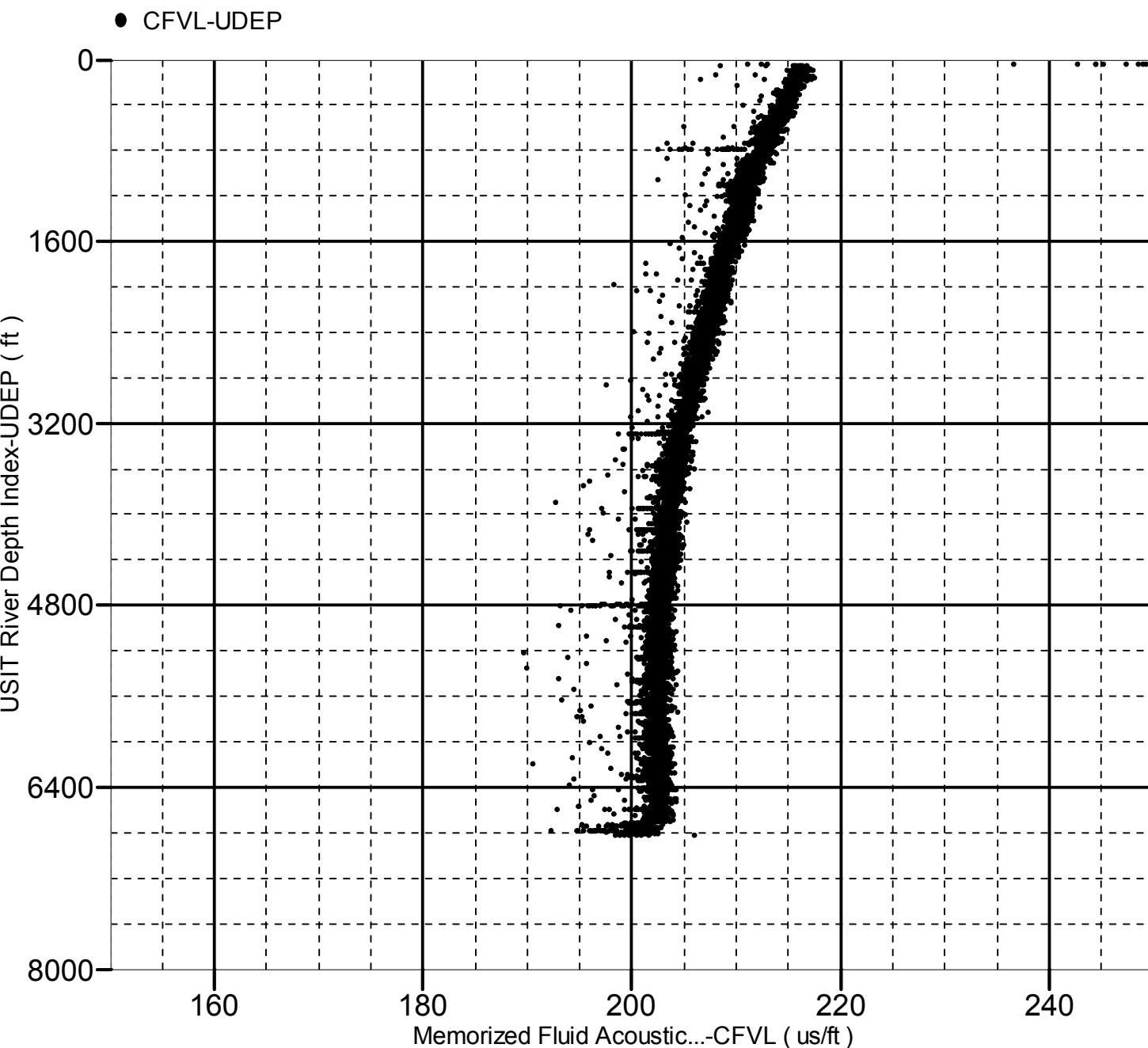
Company: Crestone Peak Resources Operating LLC Well: Sam 3K-25H-M166

ONE: Log[5]:Up:S002

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6834.00 to 43.00 ft



XYZ

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

ONE: Log[5]:Up:S002

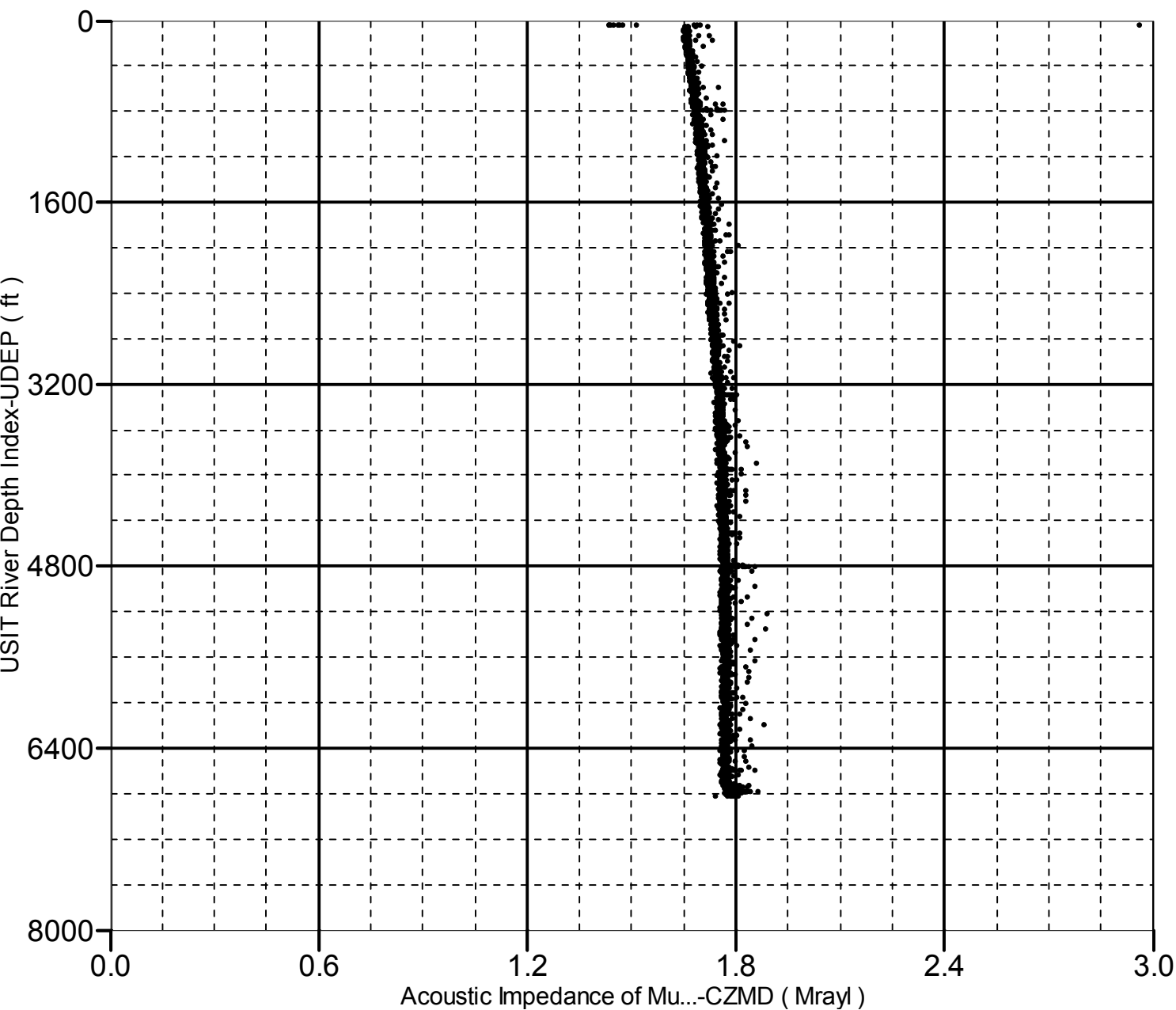
Acoustic Impedance of Mud vs Depth

2D Cross Plot

2D Cross Plot

Index Range: From 6834.00 to 43.00 ft

● CZMD-UDEP



Company:	Crestone Peak Resources Operating LLC	Schlumberger
Well:	Sam 3K-25H-M166	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Isolation Scanner Cement Evaluation		