

Company: Crestone Peak Resources Operating LLC

Well: Sam 3N-25H-M166

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation

County:	Weld
Field:	Wattenberg
Location:	NWSW Sec. 25, T1N, R66W
Well:	Sam 3N-25H-M166
Company:	Crestone Peak Resources Operating LLC
Location:	
NWSW Sec. 25, T1N, R66W	Elev.: K.B. 5103.00 ft
SHL: 1283' FSL & 309' FWL	G.L. 5080.00 ft
Lat/Long: 40.018538 / -104.733856	D.F. 5103.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 25
05-123-46122	Township: 1N
	Range: 66W

Logging Date	19-Oct-2018
Run Number	One
Depth Driller	12098.00 ft
Schlumberger Depth	12098.00 ft
Bottom Log Interval	6730.00 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	2424.00 ft
To	12098.00 ft
Casing/Tubing Size	5.5 in
Weight	20 lbm/ft
Grade	J55
From	0.00 ft
To	12092.00 ft
Max Recorded Temperatures	184 degF
Logger on Bottom	19-Oct-2018
Unit Number	9108
Recorded By	Richard Woods
Witnessed By	Keith Kershnik

Disclaimer

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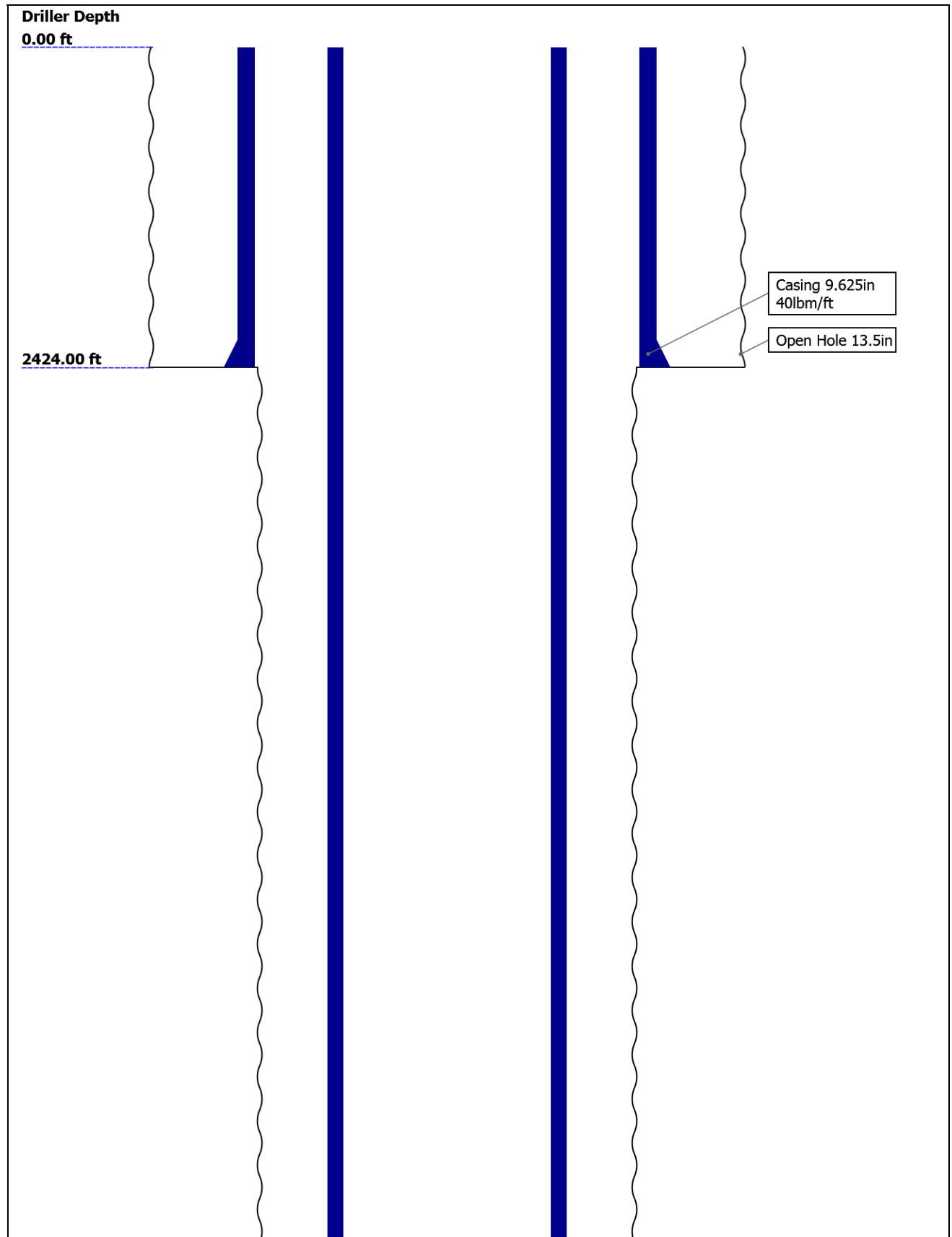
11.1 Integration Summary

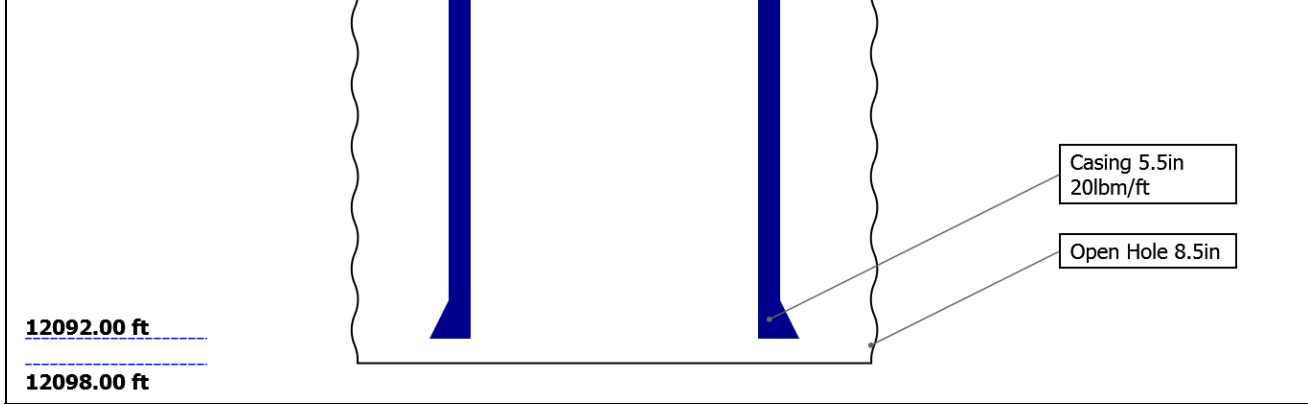
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11.3 Log (IBC Goodwin)

12. One IBC SLG 0 PSI

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.5				
Top Driller (ft)	0	2424				
Top Logger (ft)	0	2424				
Bottom Driller (ft)	2424	12098				
Bottom Logger (ft)	2424	12098				
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)	2424	12092				
Bottom Logger (ft)	2424	12092				

Remarks and Equipment Summary

One: Toolstring				One: Remarks	
<div><div><div>Equip nameLengthMP nameOffset</div><div>LEH-QT30.73LEH-QT</div><div>EDTC-B27.24EDTH-BEDTG-AEDTC-B</div><div>AH-184[2]20.74</div><div>AH-184[1]18.74</div><div>USIT-E16.74ECH-MFAUSAC-AUSIS-AUSSC-BIBCS-AEAB-CENG</div></div><div><div>CTEM23.74ACCZ0.00HV0.00Gamma21.87RayTelStatu20.74s</div><div></div></div></div>				Thank you for choosing Schlumberger!	
				Tool string run as per tool sketch and client logging program.	
				5" Gemcos and in-line centralizers with small hole kit used for centralization.	
				All passes run under 0 PSI.	
				Lead: 12.5 ppg Tail: 13.5 ppg Spacer: 12 ppg	

<div data-bbox="223 0 335 567"> </div> <div data-bbox="79 588 478 693"> <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 depth 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			

Stretch Correction
Tool Zero Check At Surface

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[3]:Up	6734.1	43.21

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 : 180.33m(591.65ft) to 182.62m(599.15ft)
MUD_N_FRP = 1.18
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.69 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[3]:Up	Up	43.21 ft	6734.10 ft	19-Oct-2018 8:36:10 AM	19-Oct-2018 10:21:08 AM	ON	4.33 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Crestone Peak Resources Operating LLC Well:Sam 3N-25H-M166 One: Log[3]:Up:S003
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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: 19-Oct-2018 18:12:04

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

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-20 in 20

Amplitude of Eccentering (ECCE) USIT-E

0 in 0.5

Motor Revolution Speed (RSAV) USIT-E

Absent 1.500 3.500

Explicit Normalization

USIT - USIT

Processing Flags (UFLG) USIT-E

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

1 5

Gamma Ray (ECGR_EDTC) EDTC-B

Absent 0.750 1.750 2.750 3.750

Custom Normalization

USIT - Amplitude of Wave (AWBK) USIT-E

USIT - Acoustic Impedance (AIBK) USIT-E

Absent 0.500 1.500 2.500 3.500

Explicit Normalization

USIT - Solid Liquid Gas Sorted Color Map (USLP)

Acoustic Impedance Minimum (AIMN) USIT-E

-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E

-1 Mrayl 9

Acoustic Impedance Maximum (AIMX) USIT-E

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E

0 dB/m 150

Average Flexural Attenuation (U-USIT_UFAV) USIT-E

0 dB/m 150

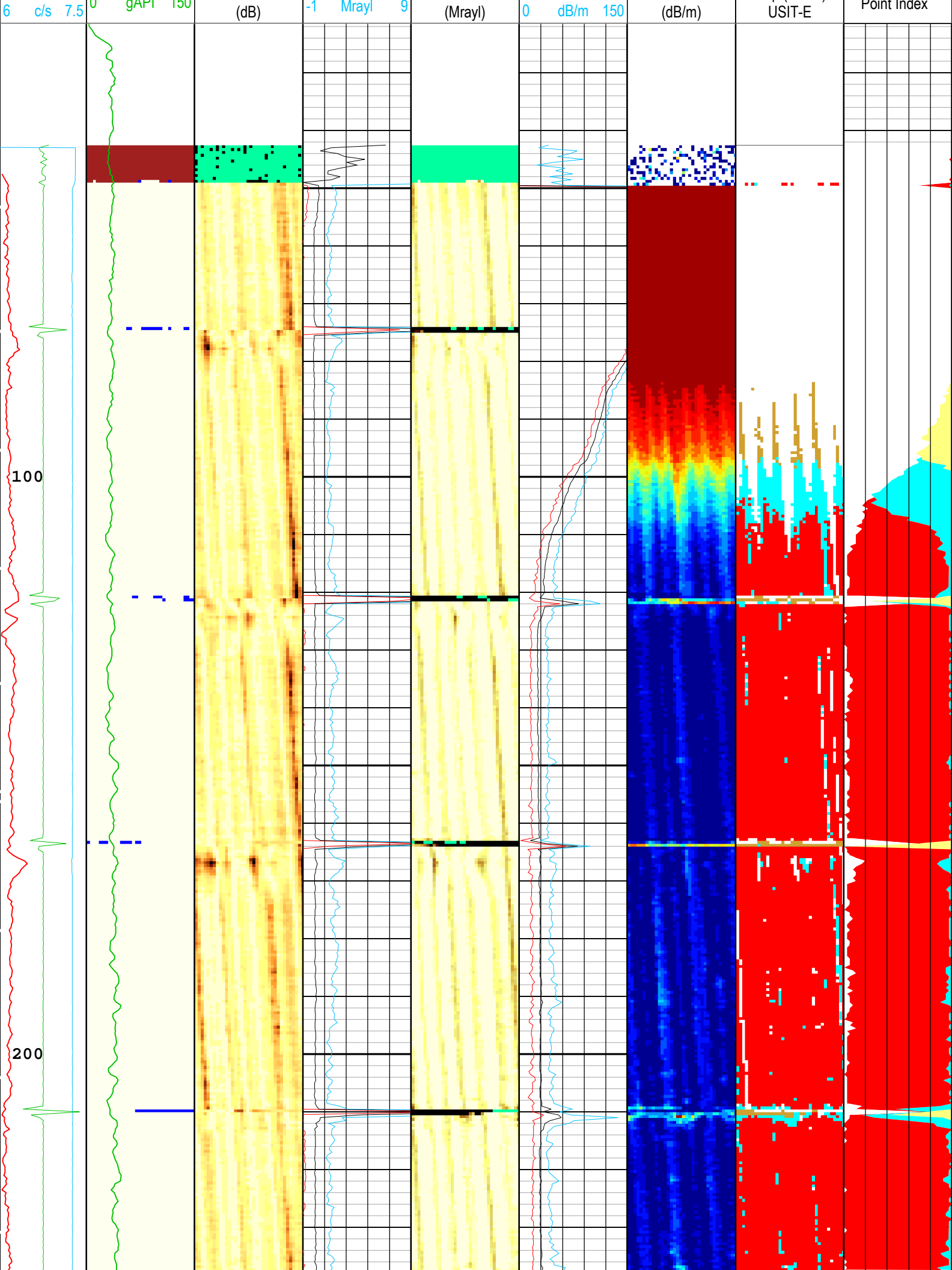
Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E

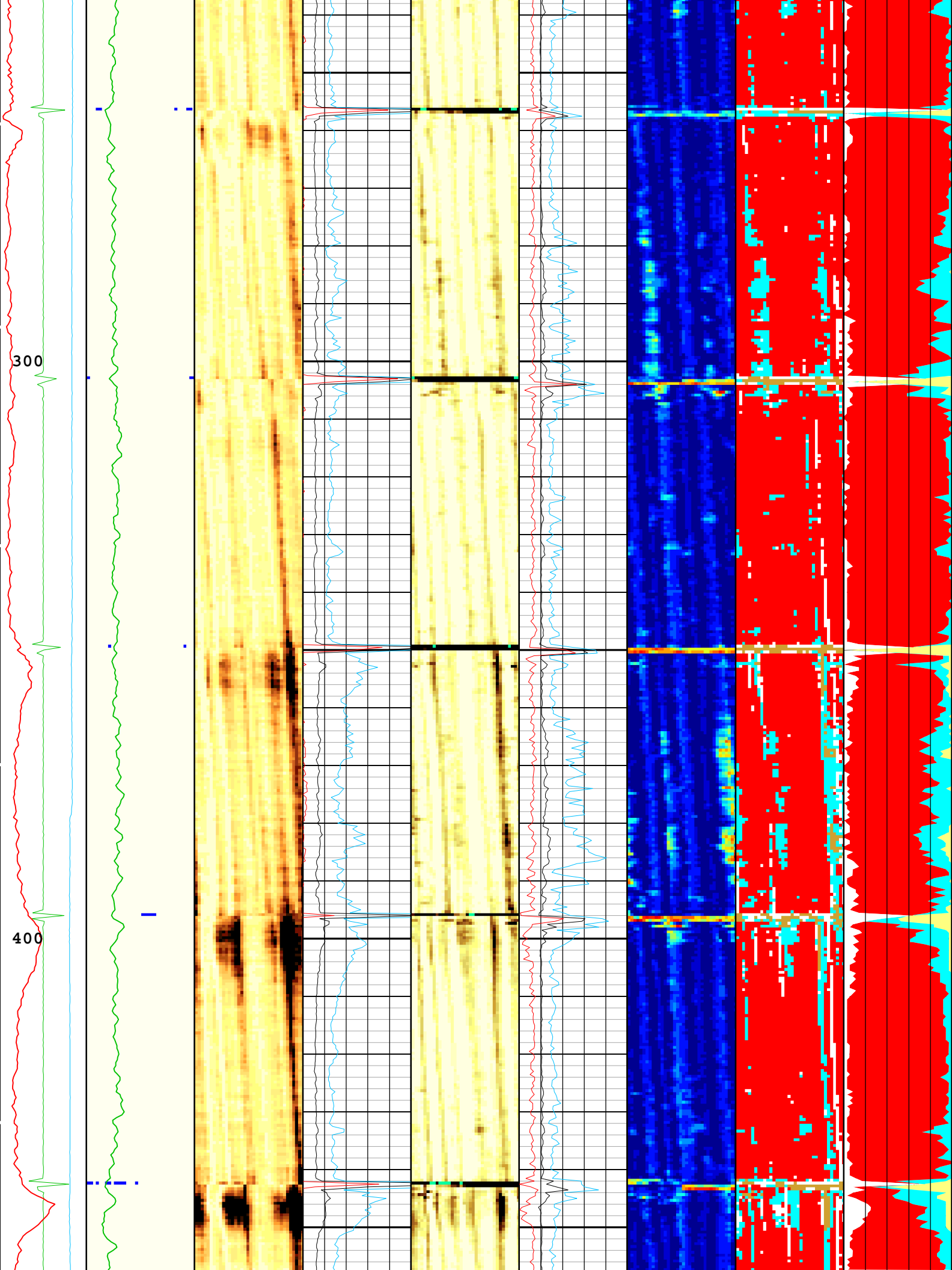
SLG Solid Index

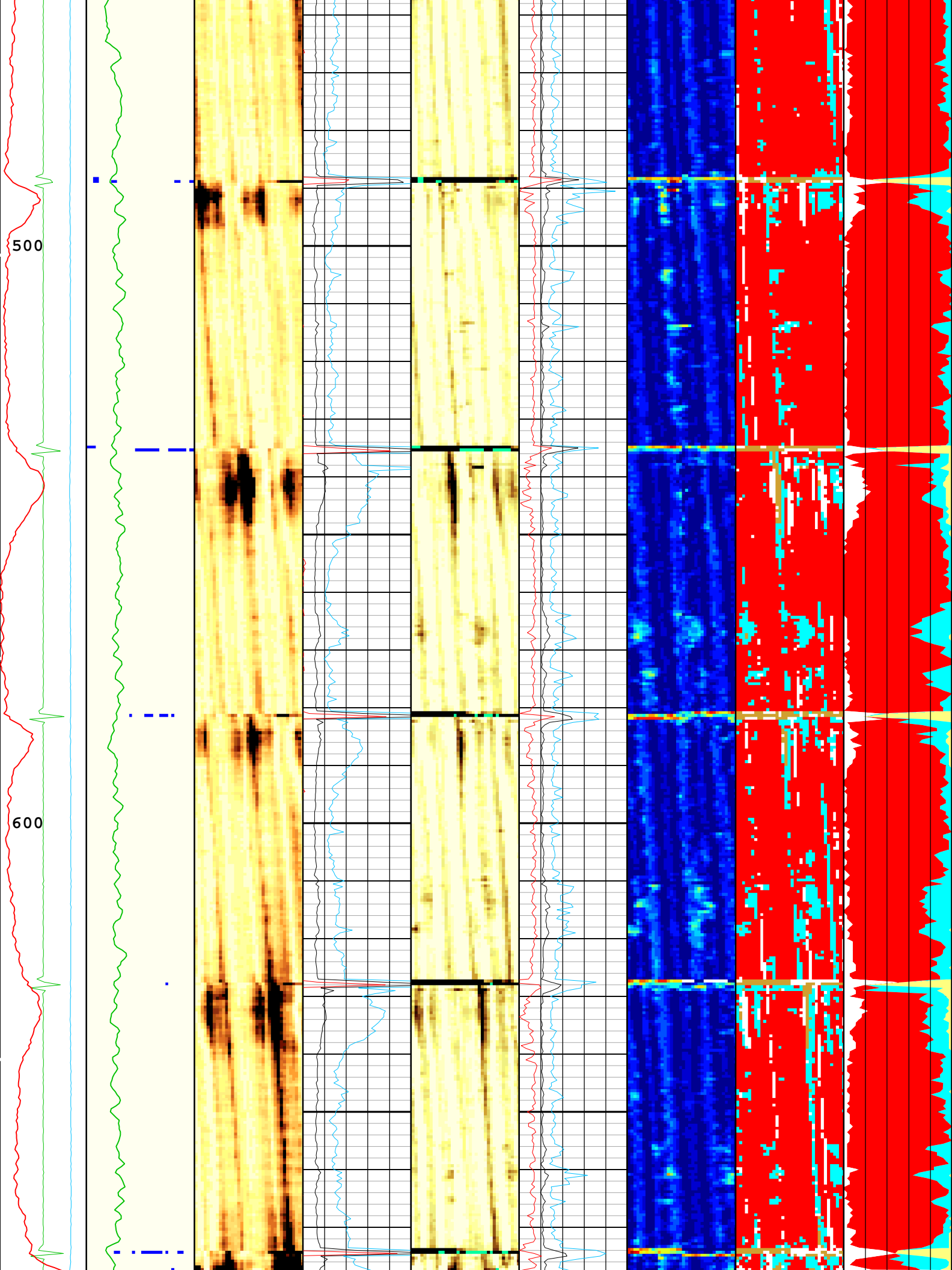
SLG Liquid Index

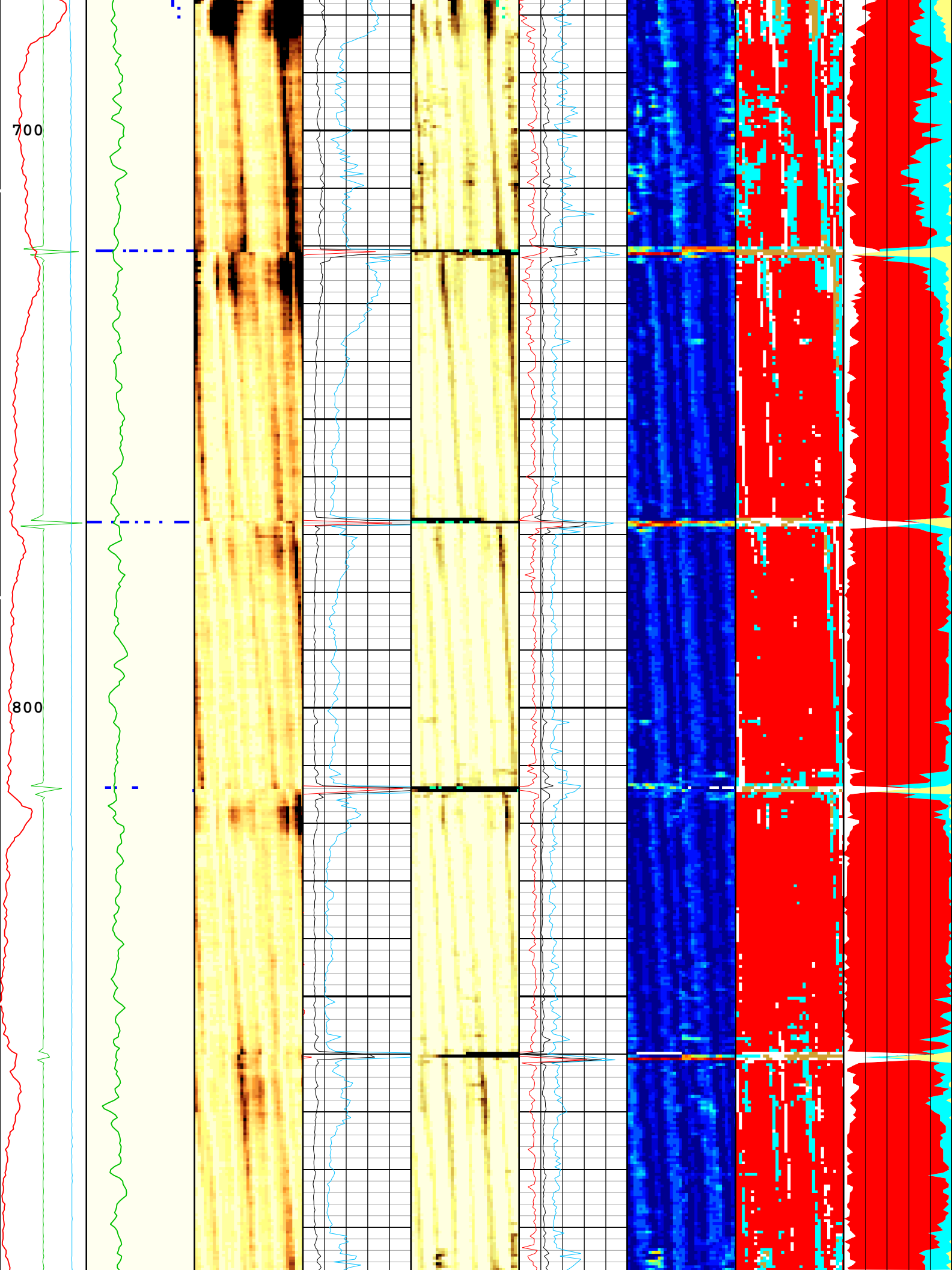
SLG Gas Index

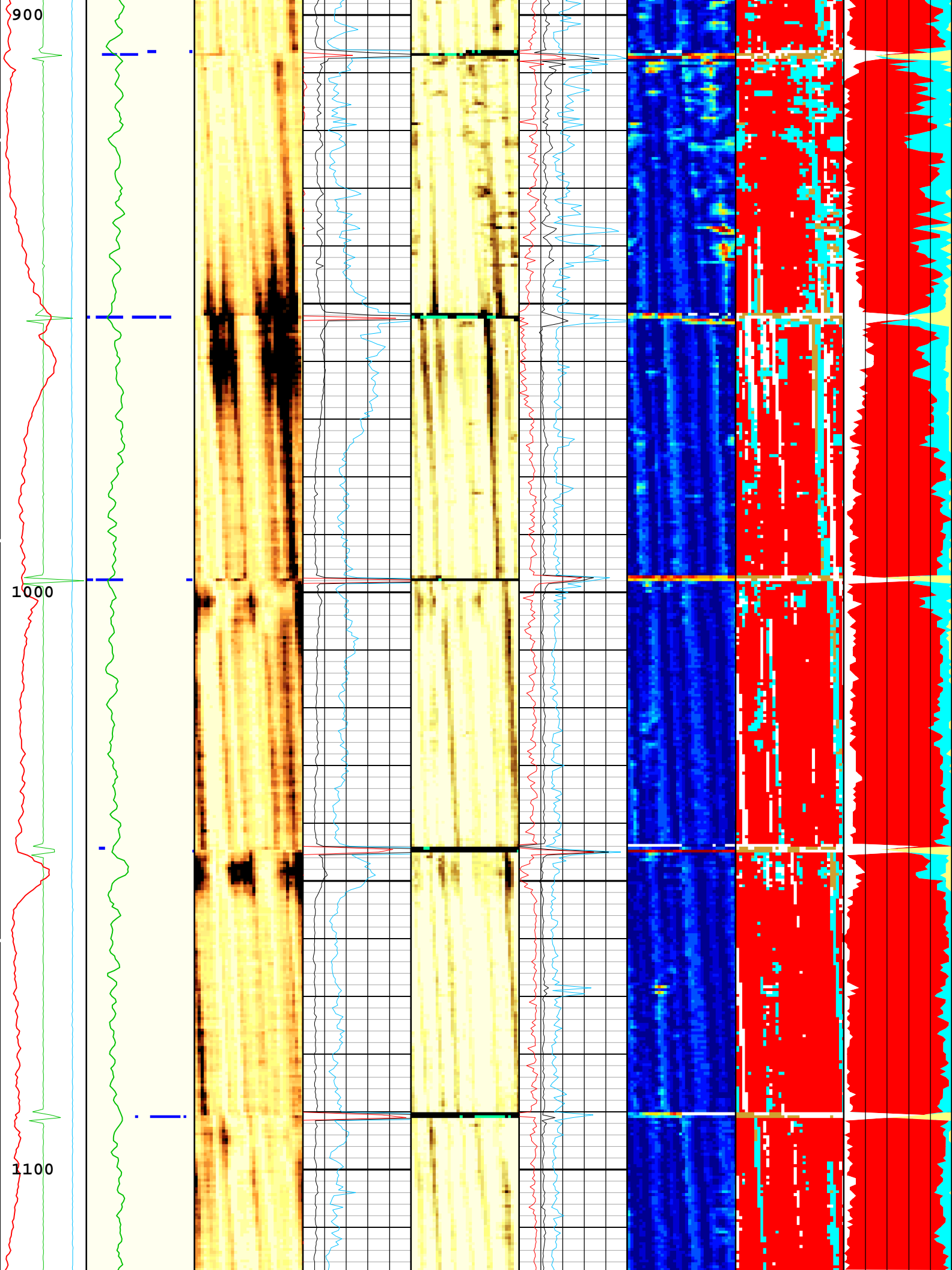
SLG White

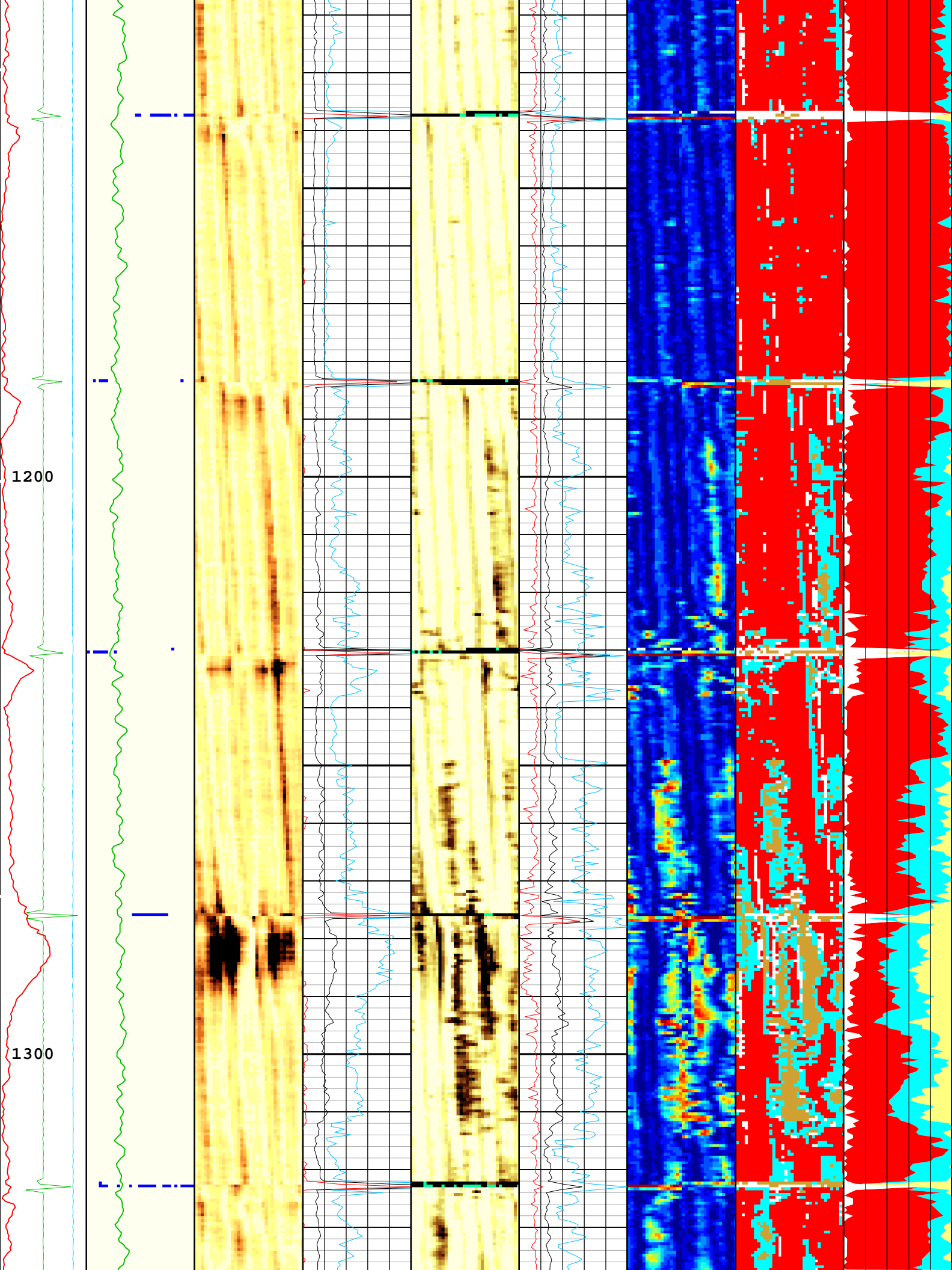


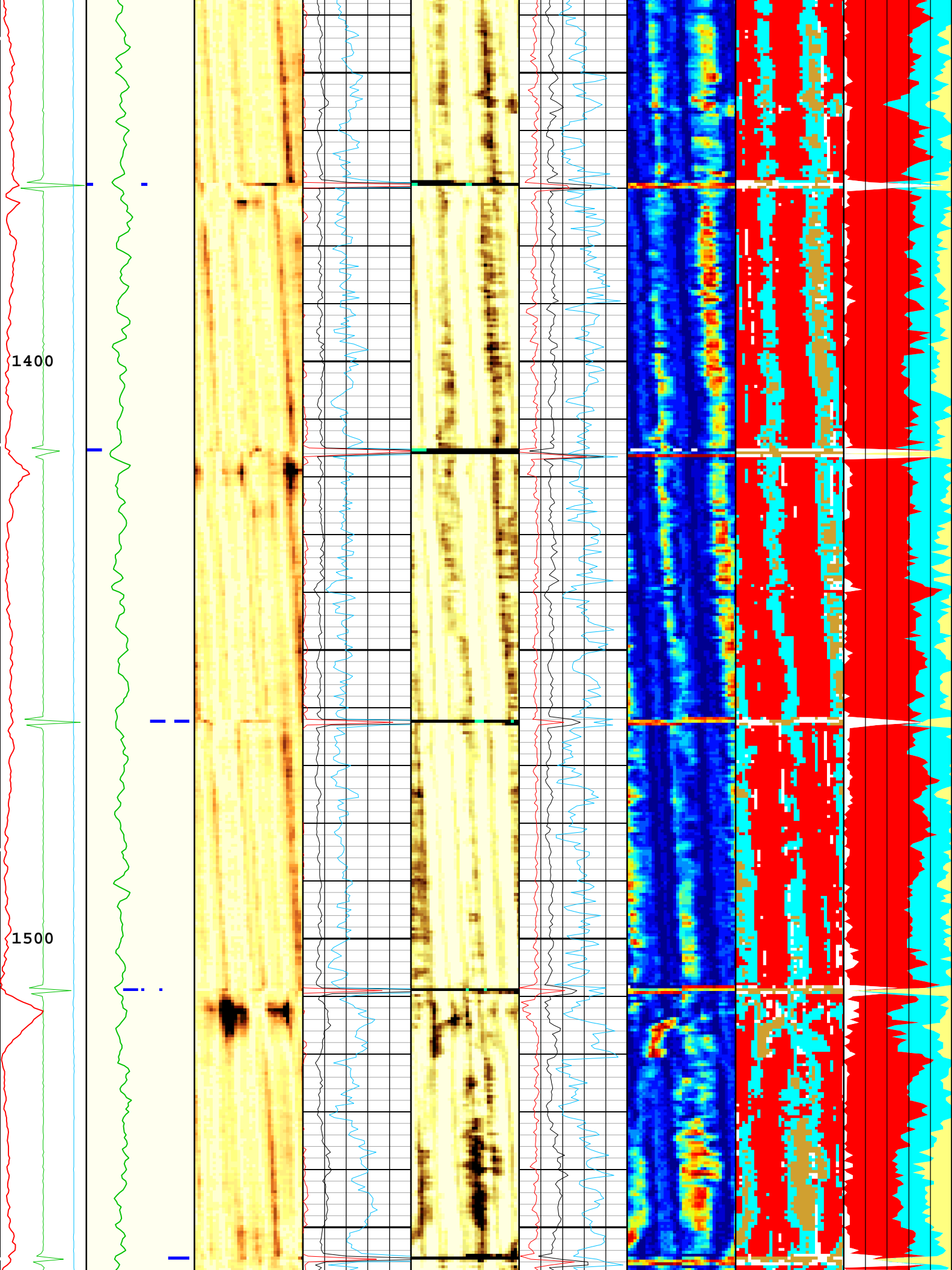


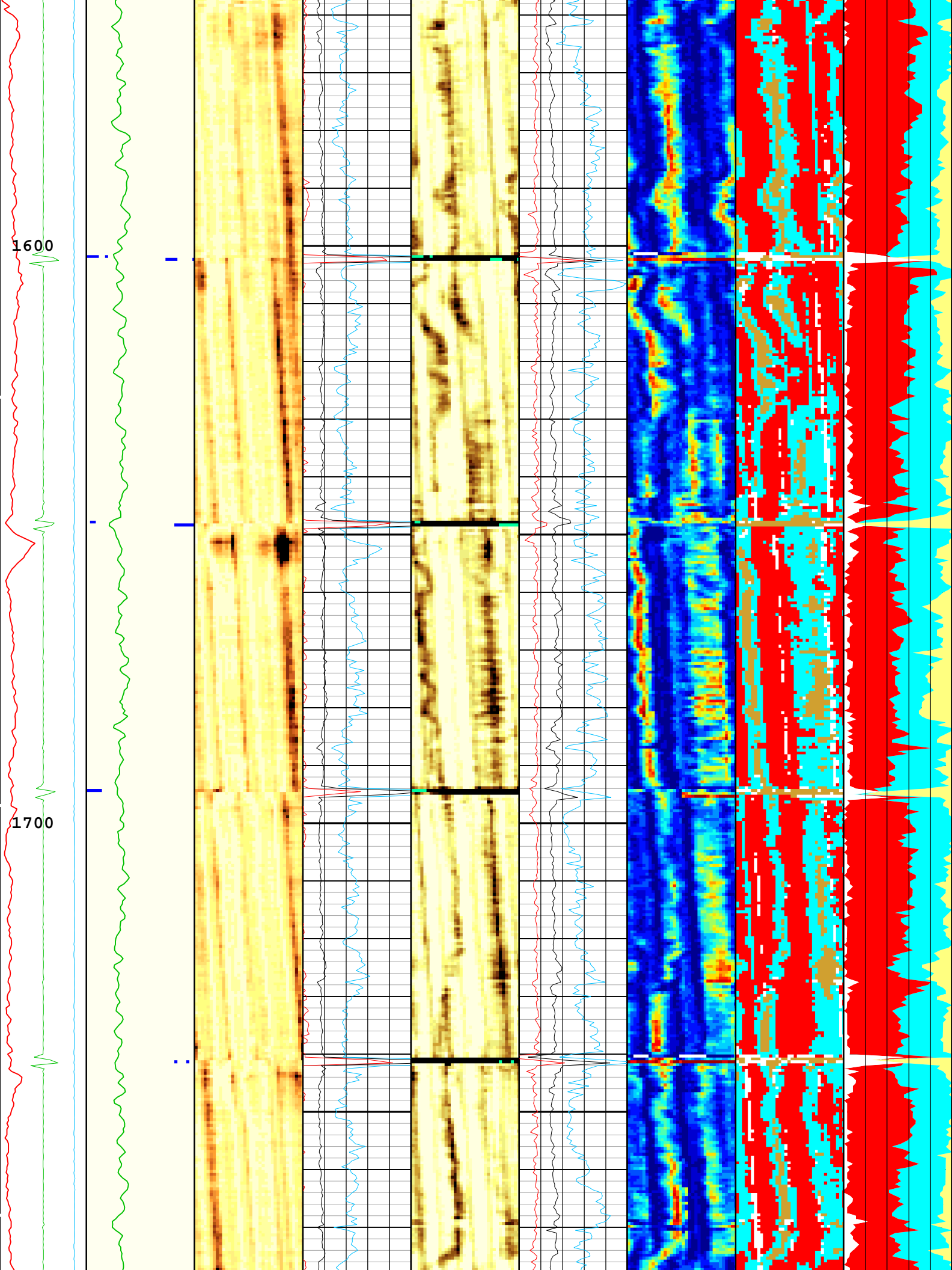


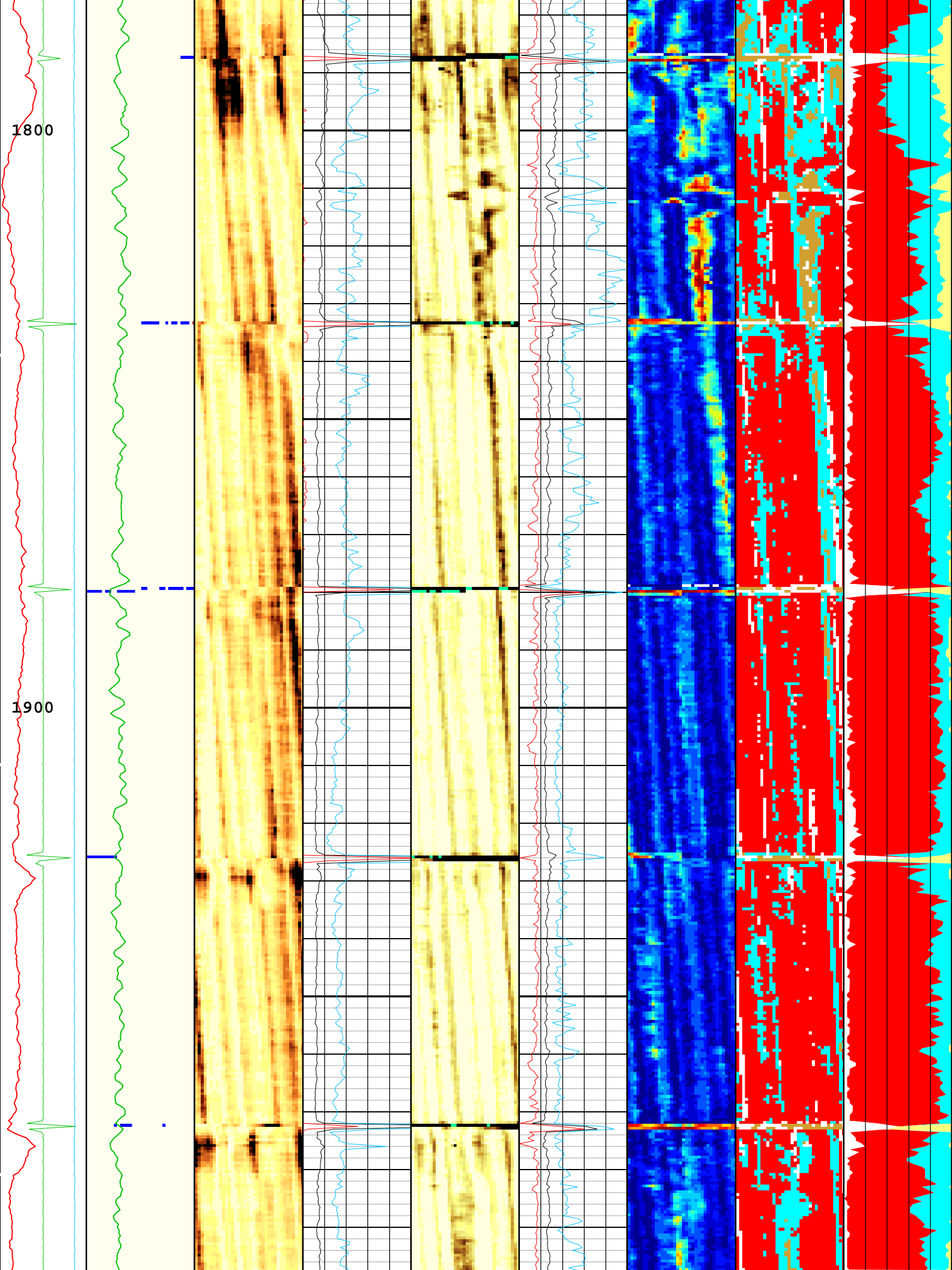


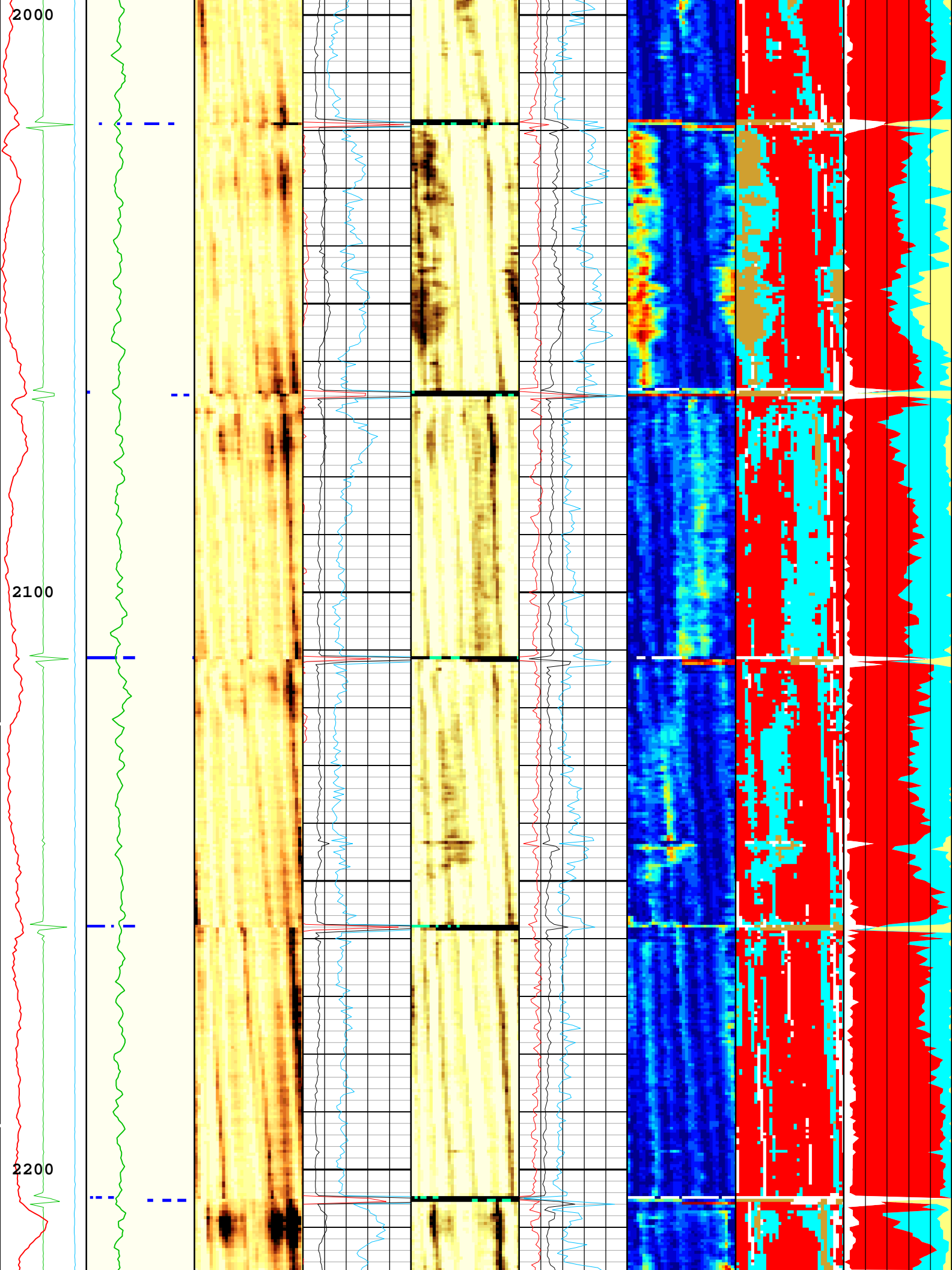


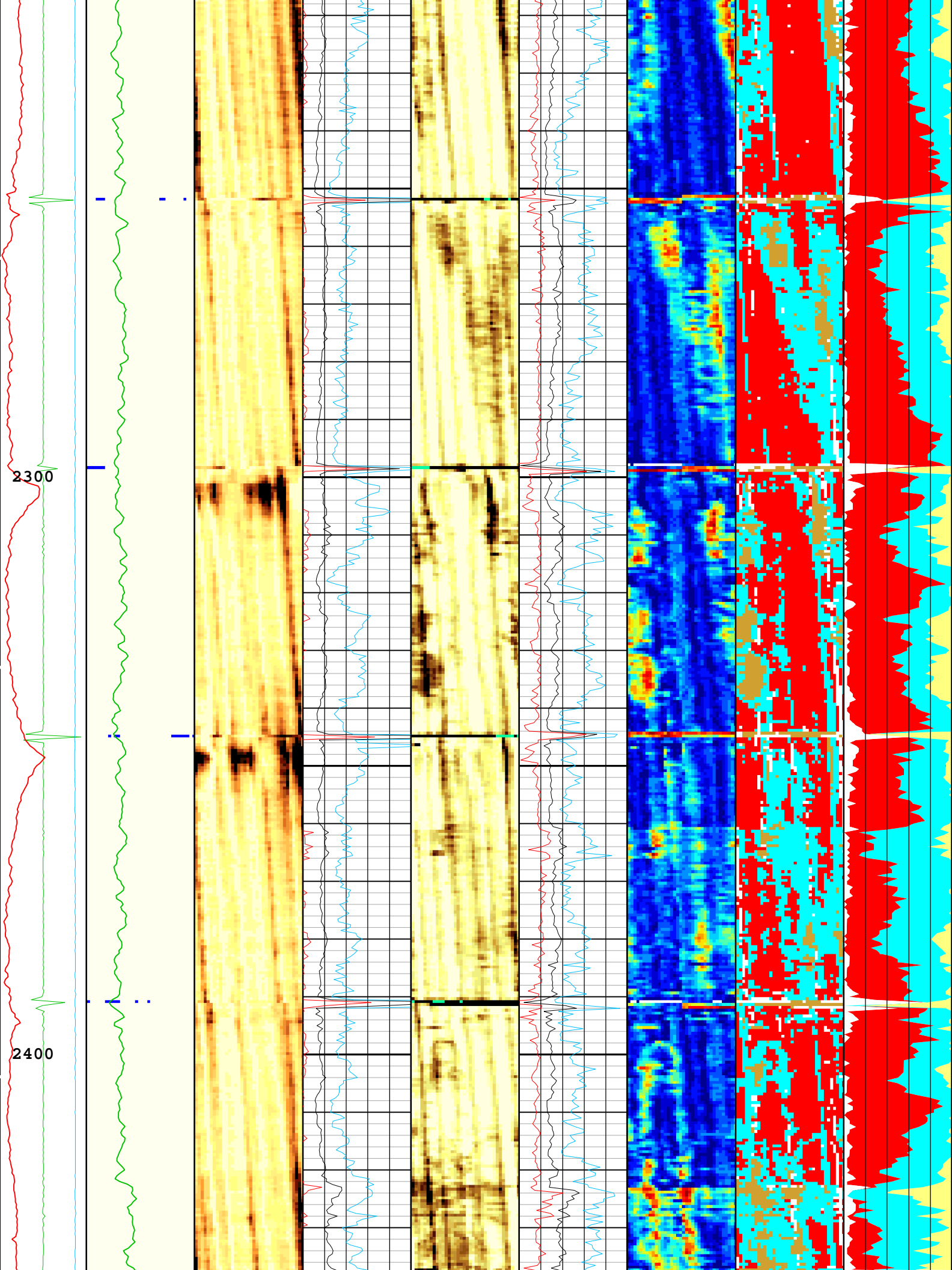


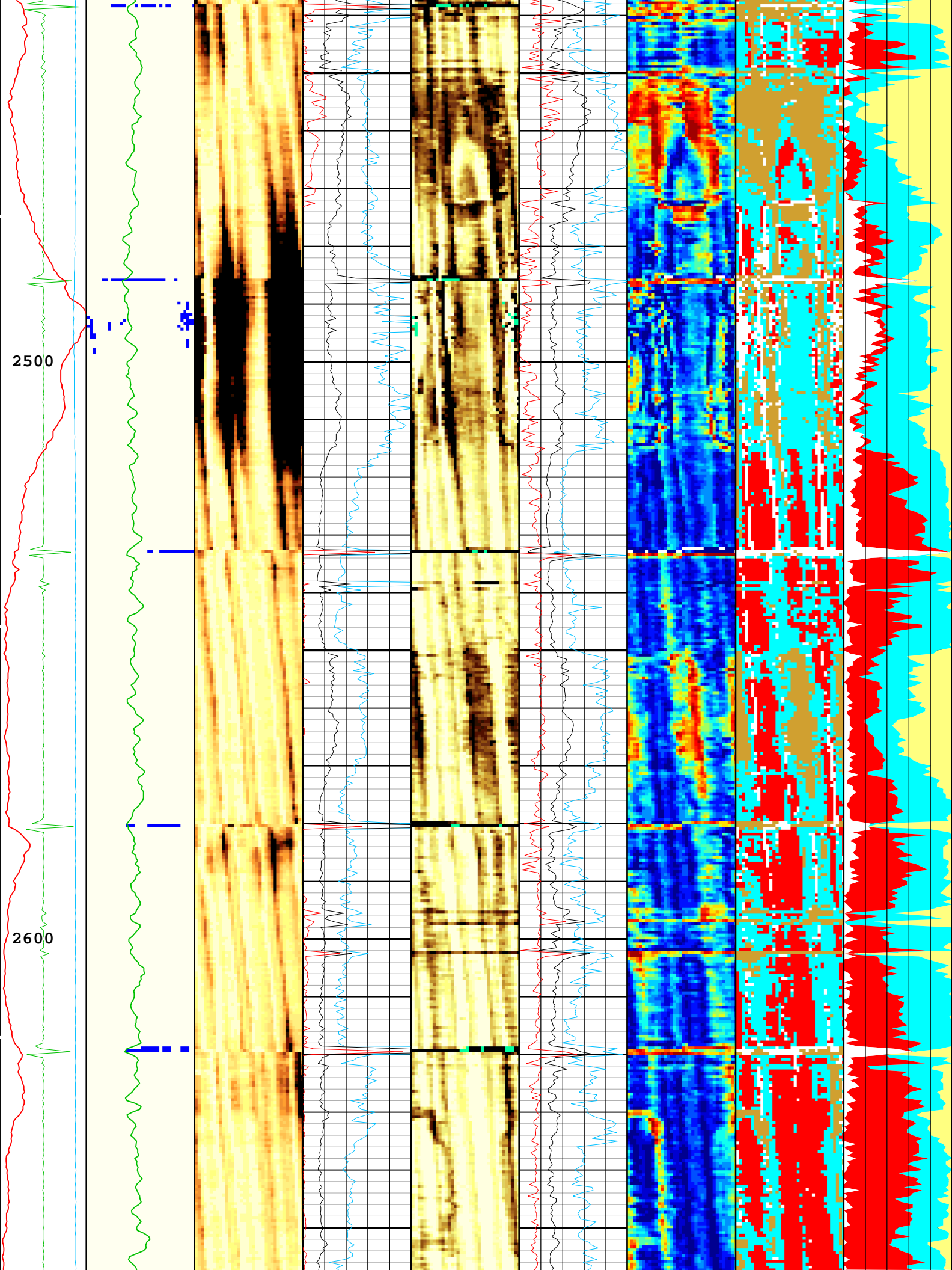


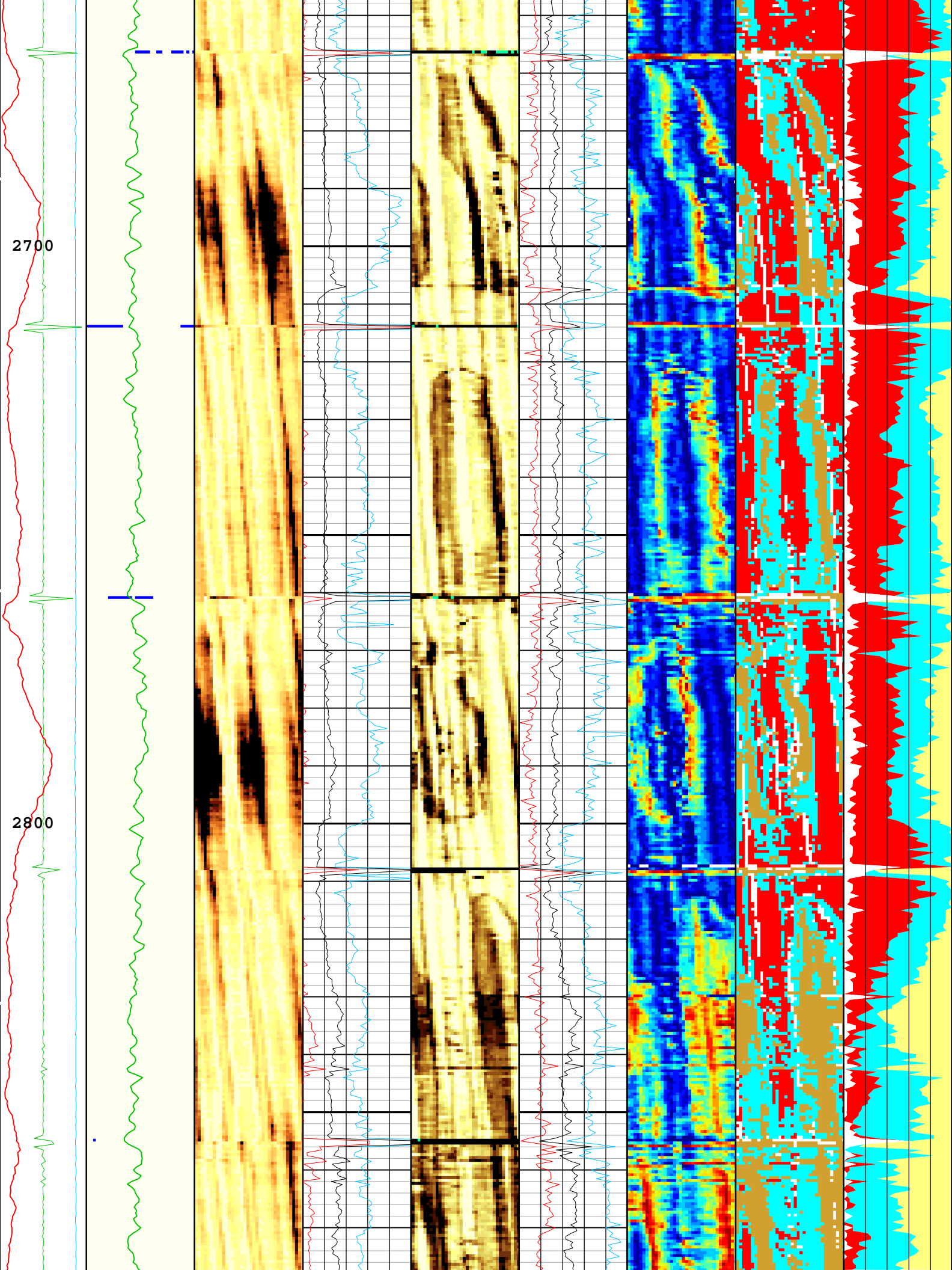


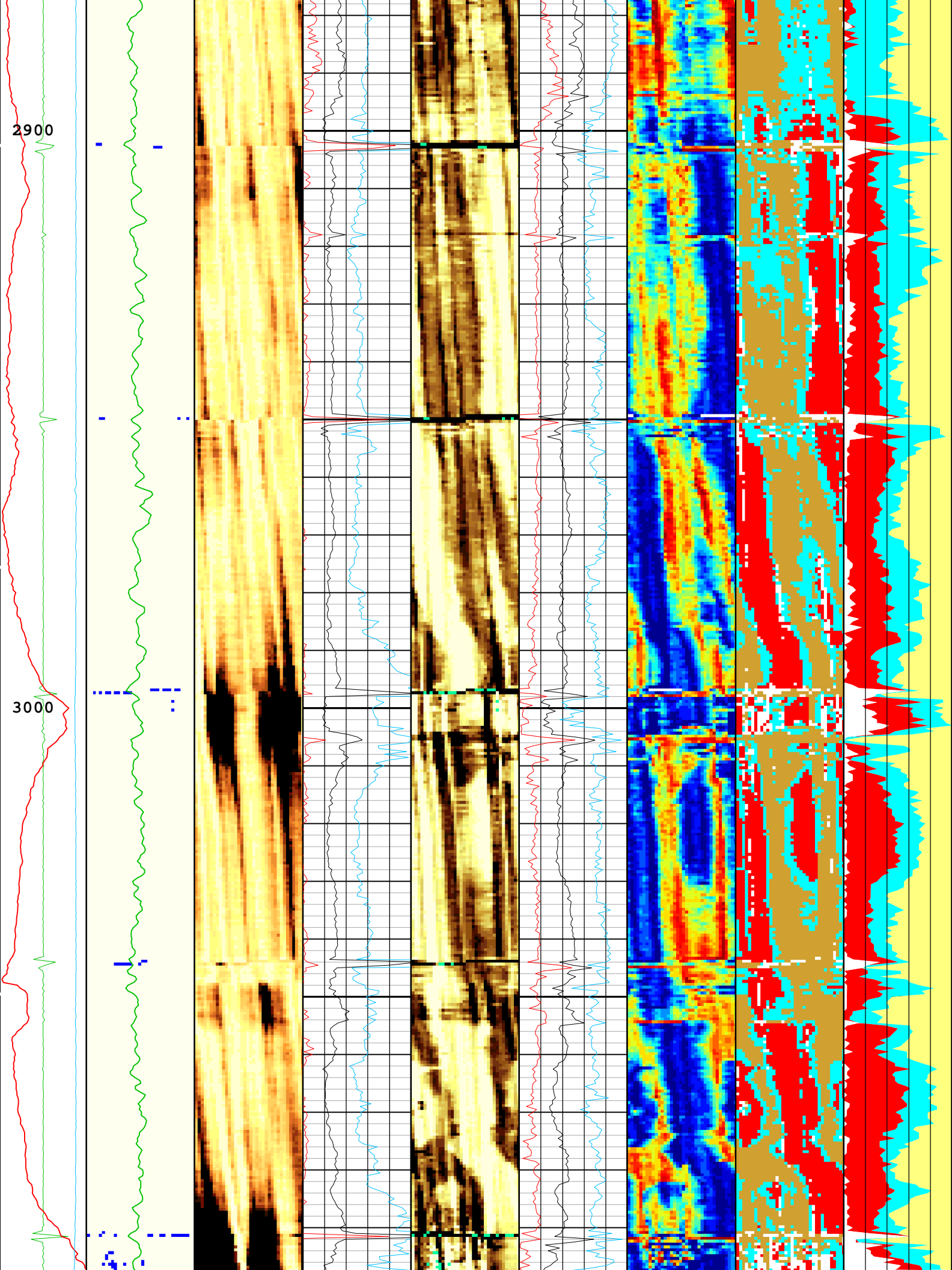


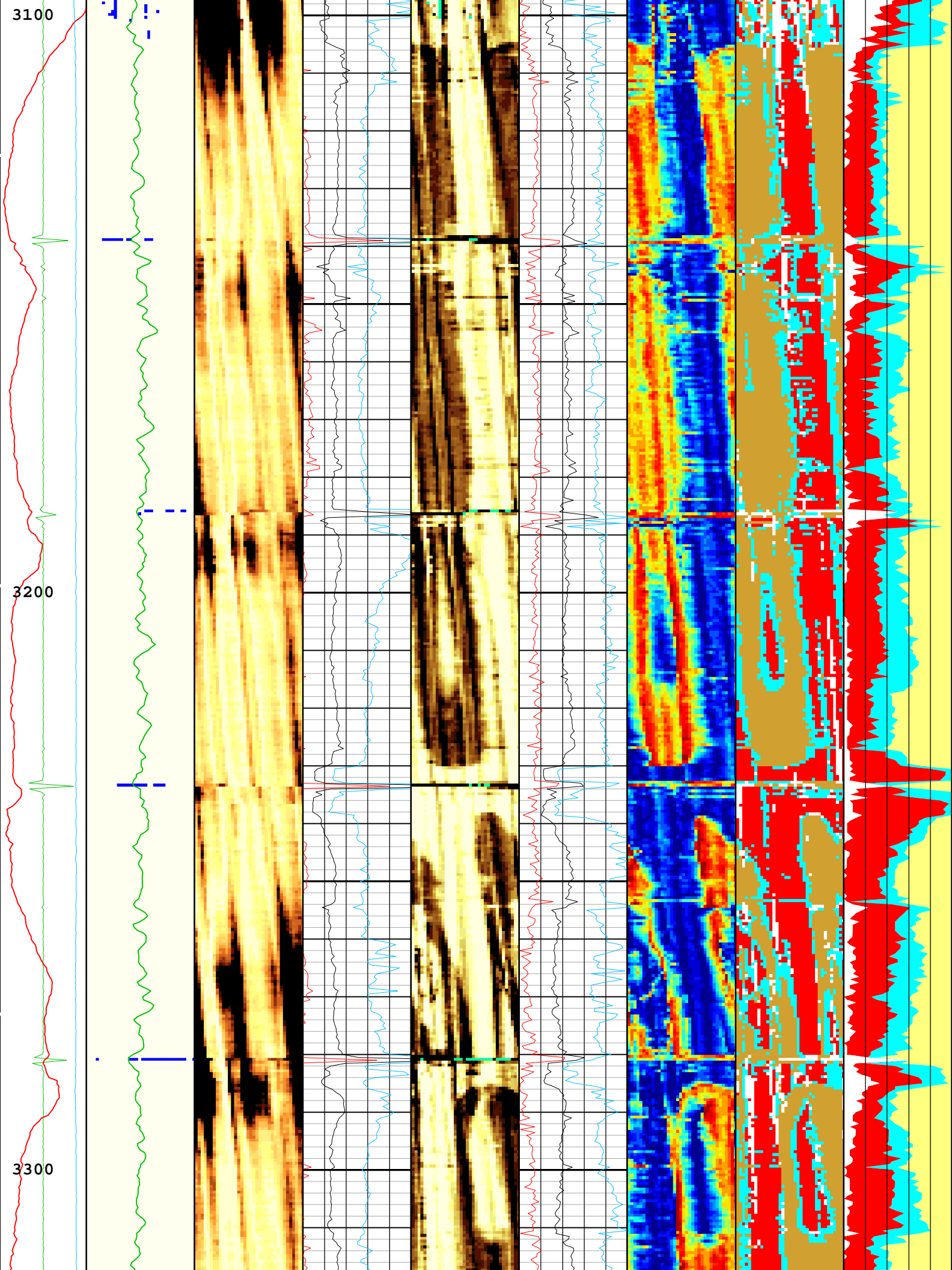


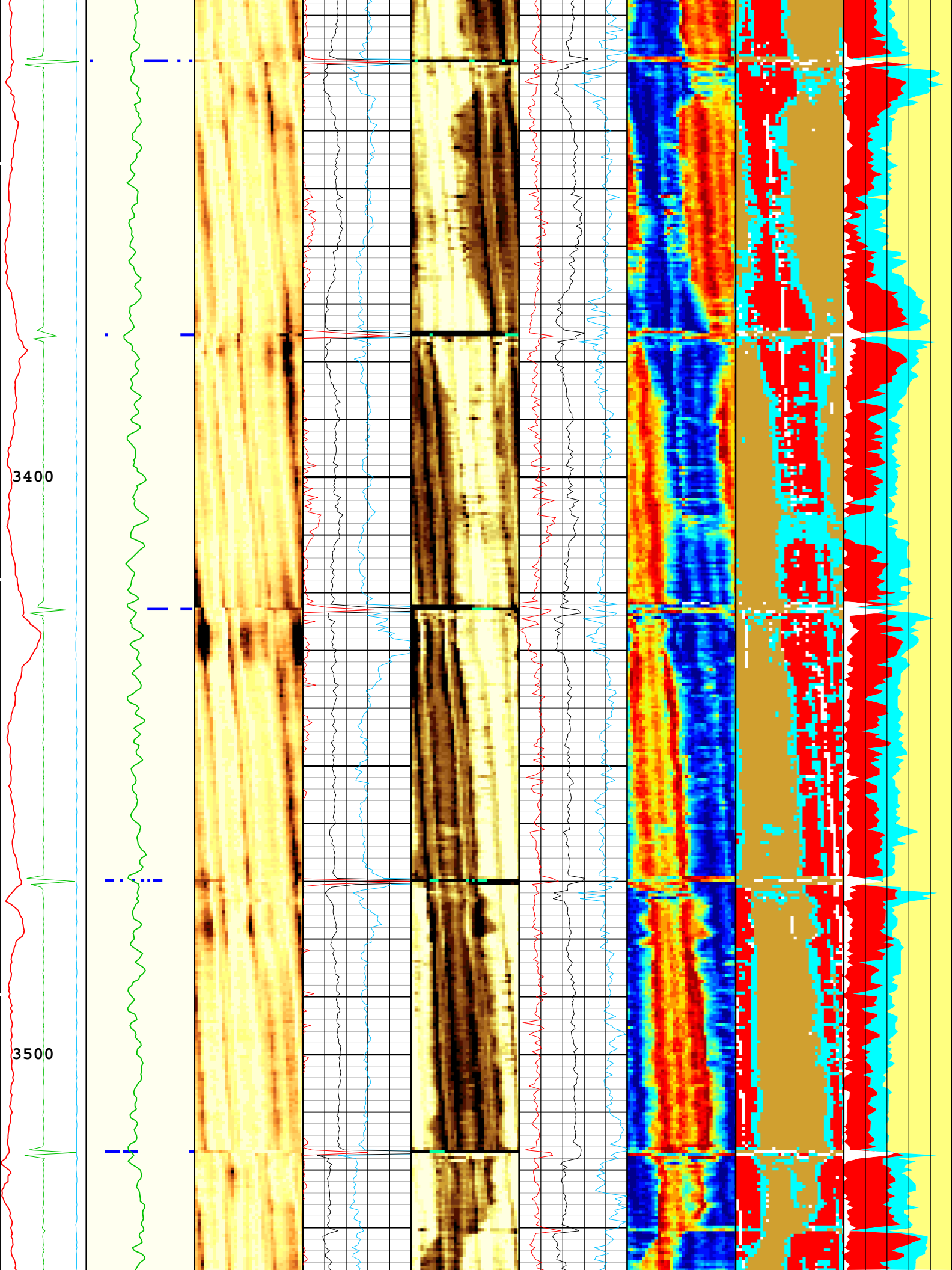


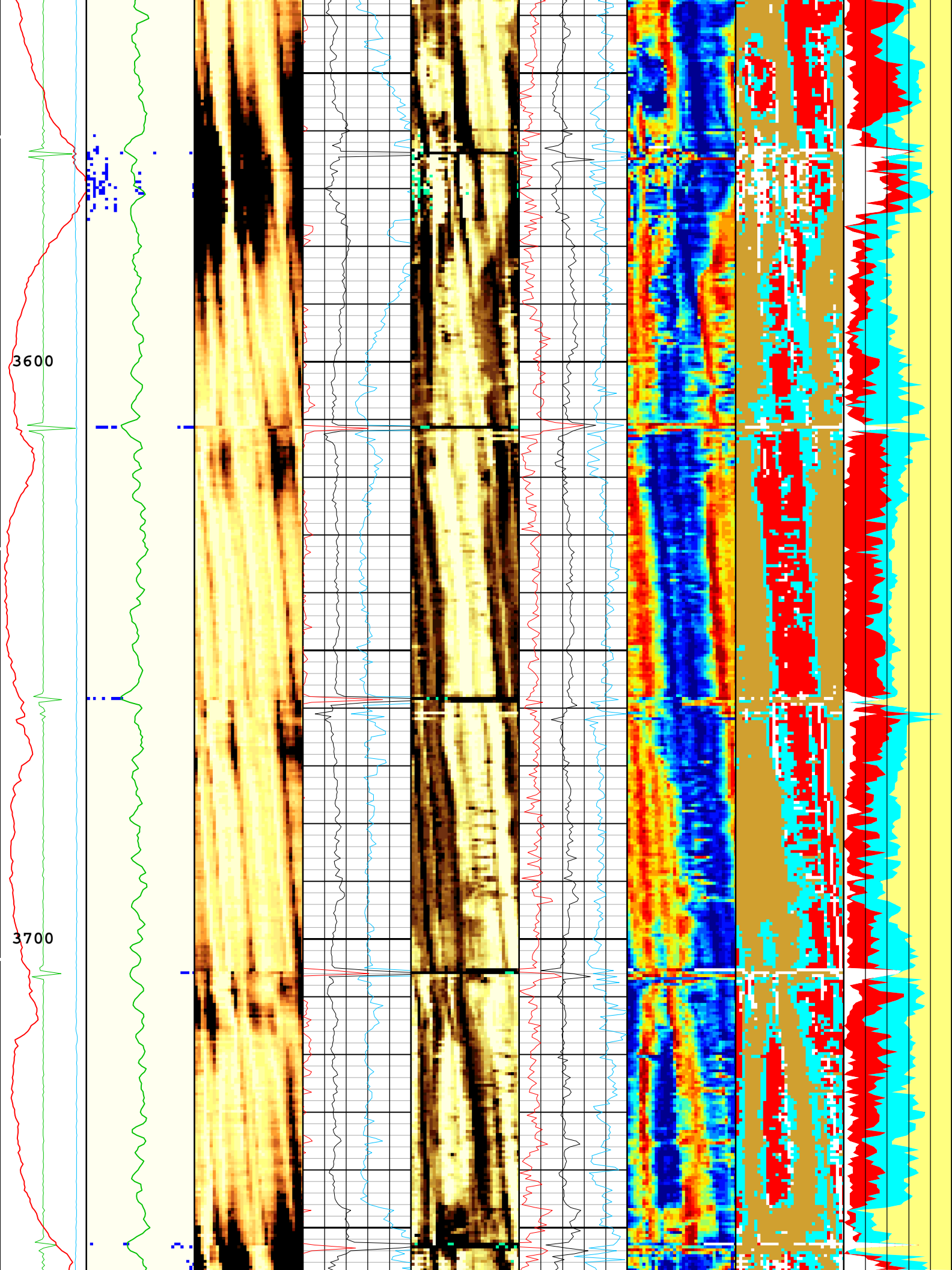


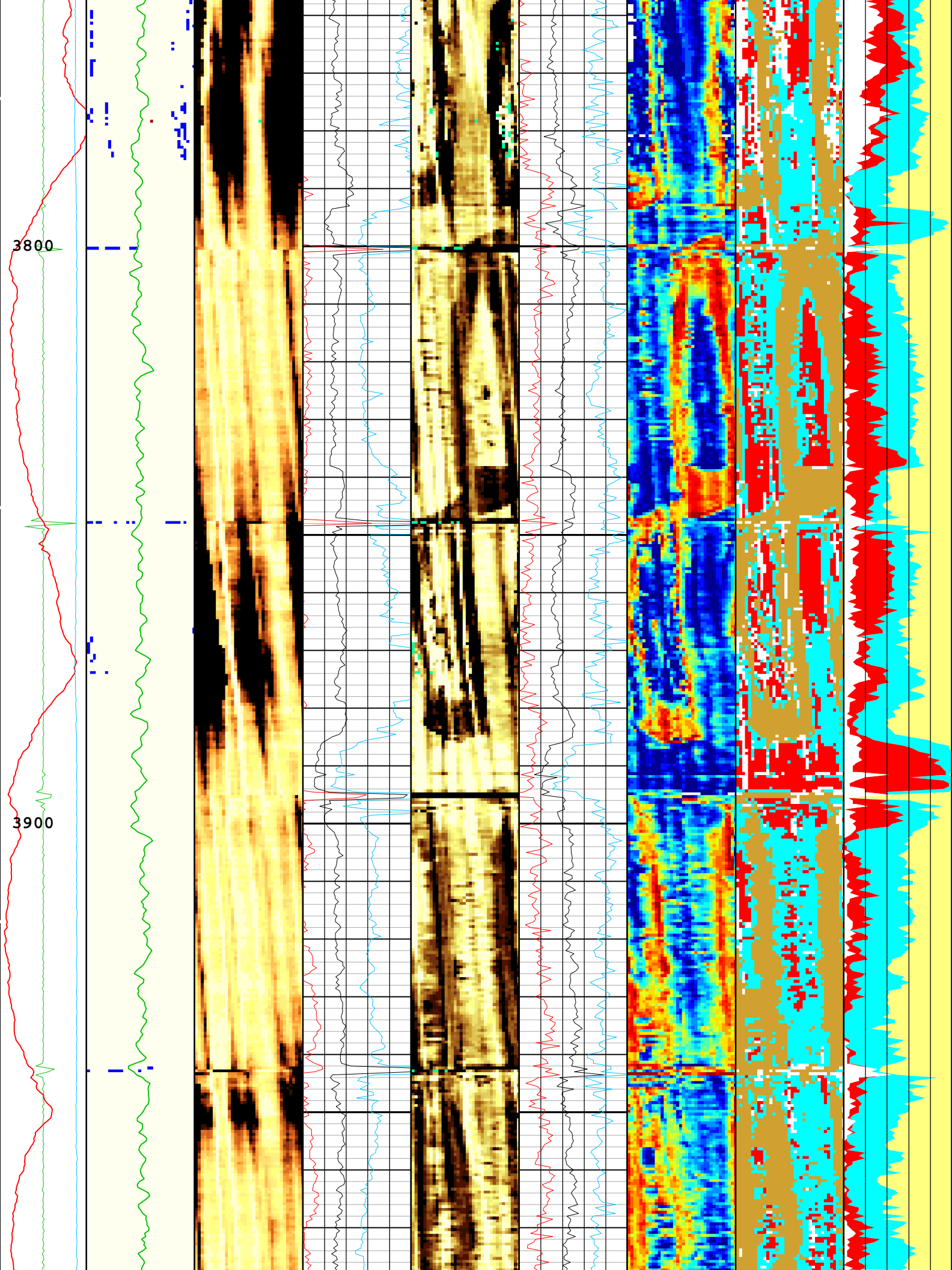


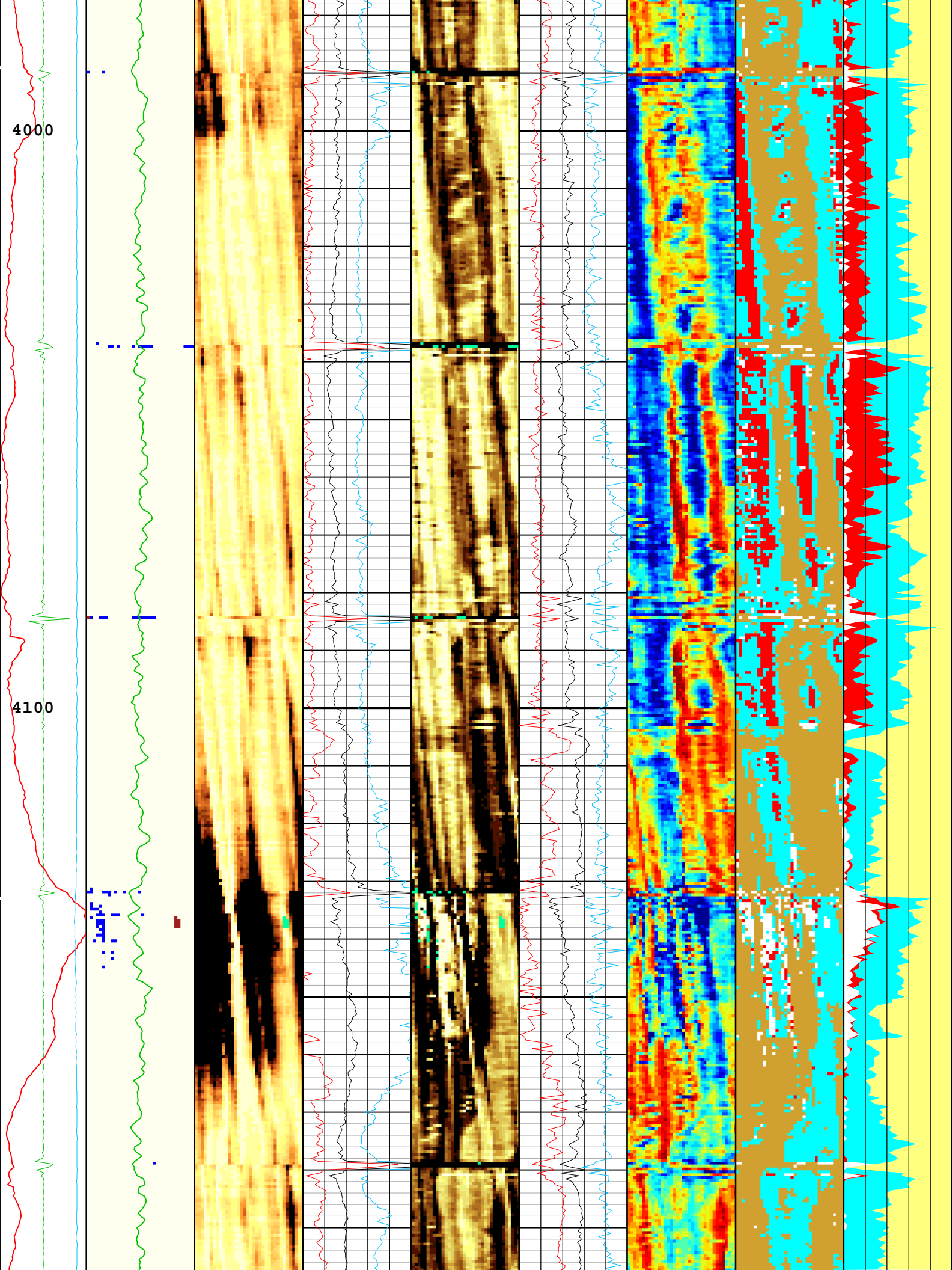


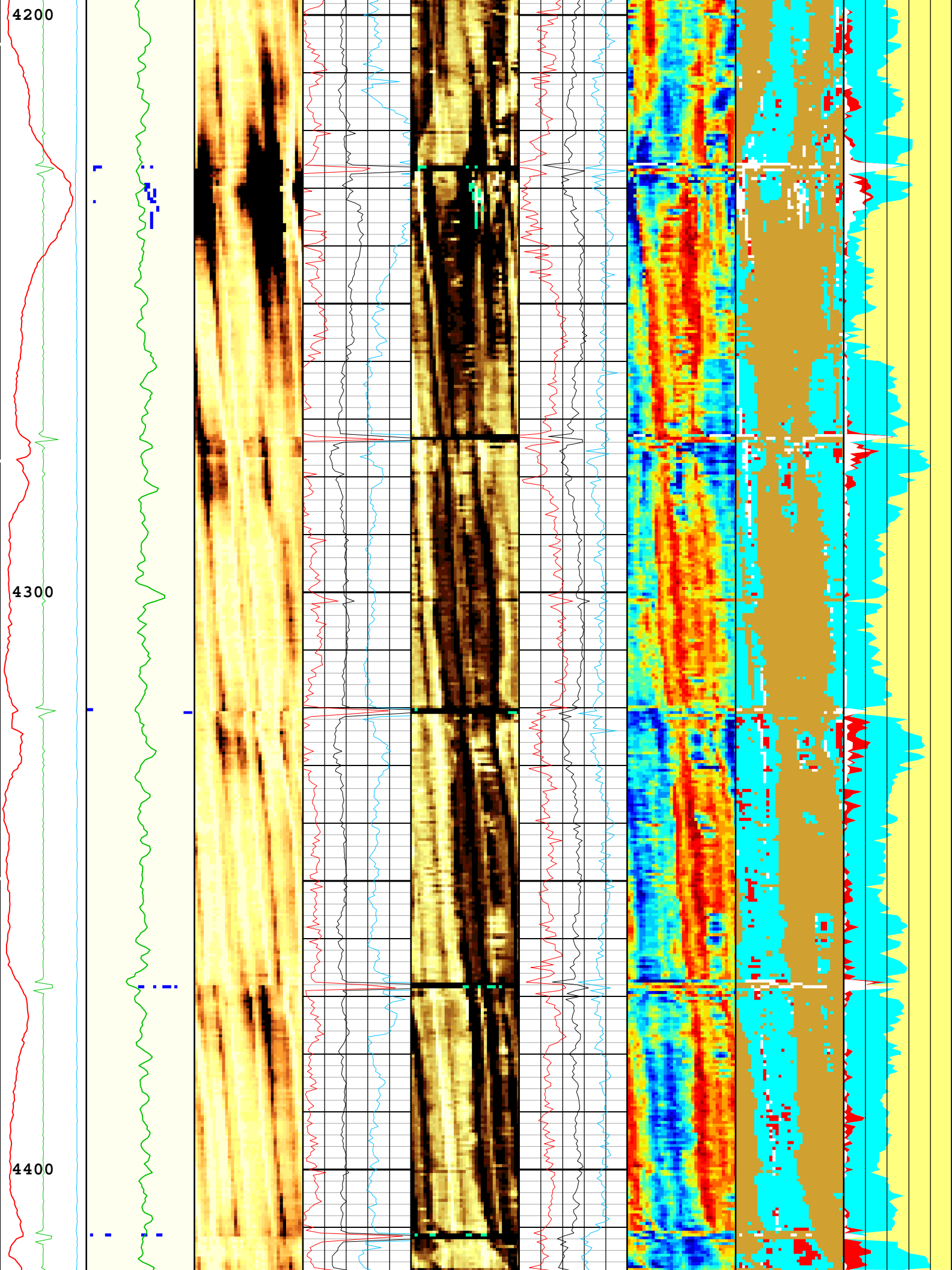


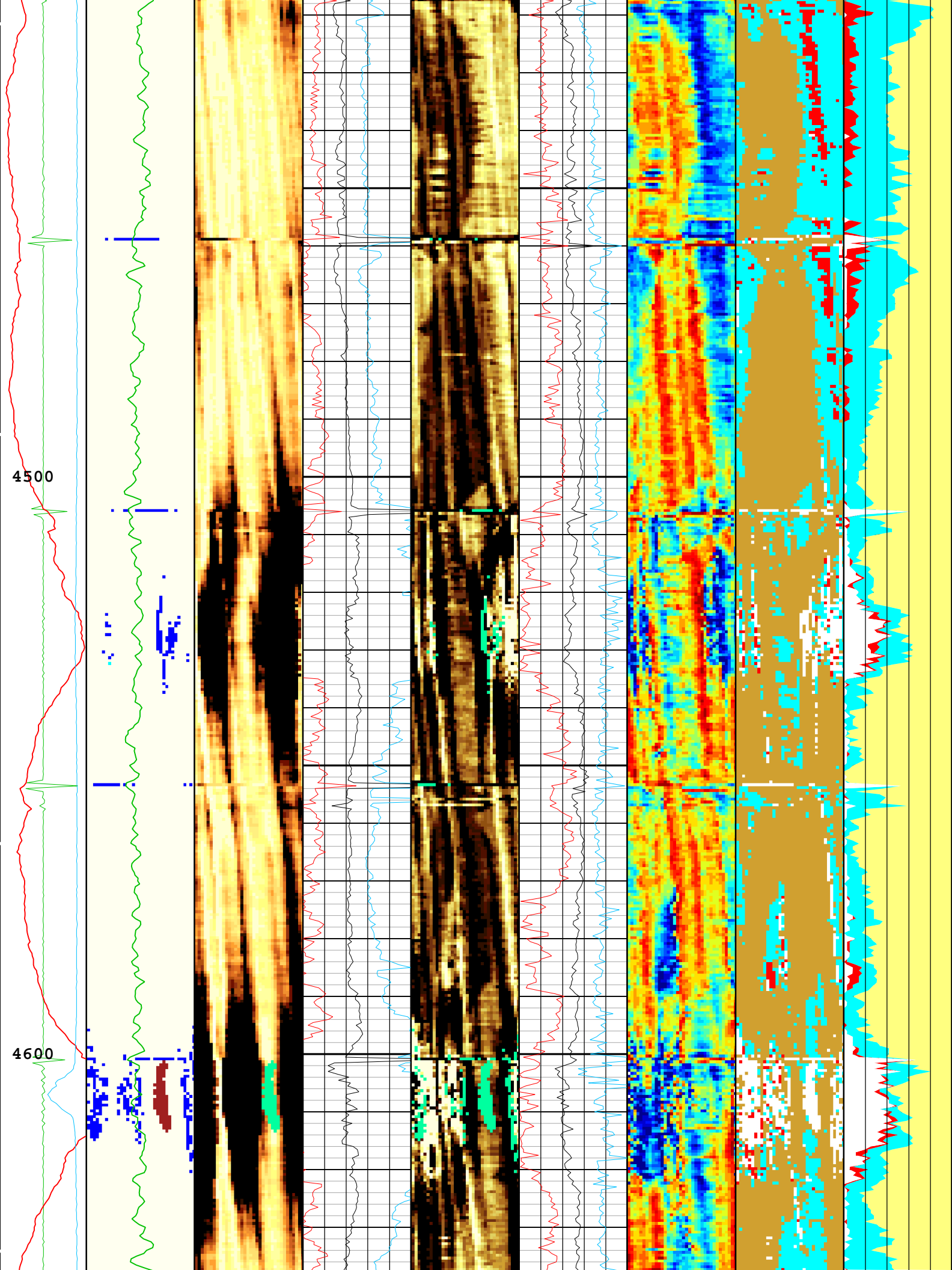


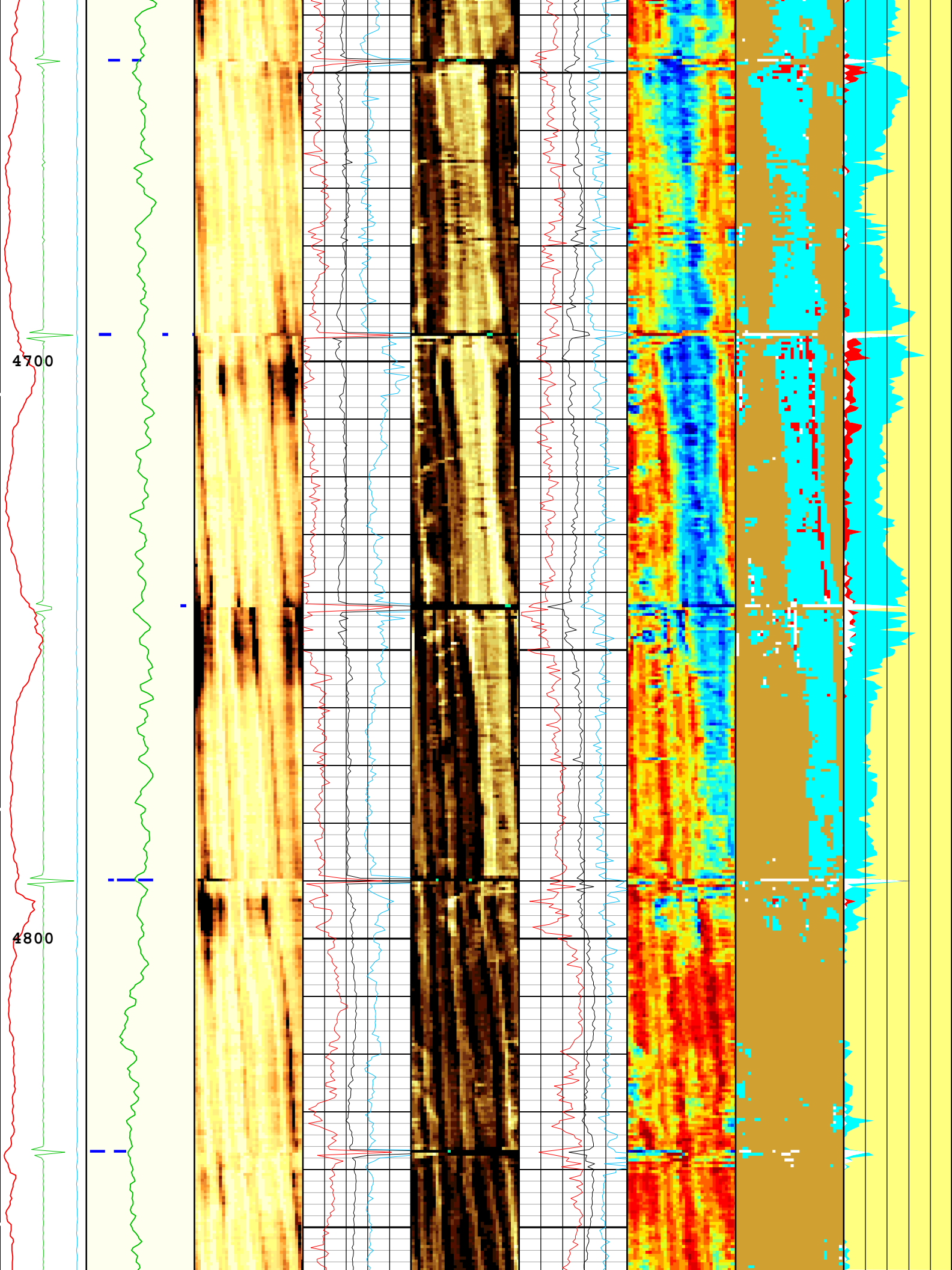


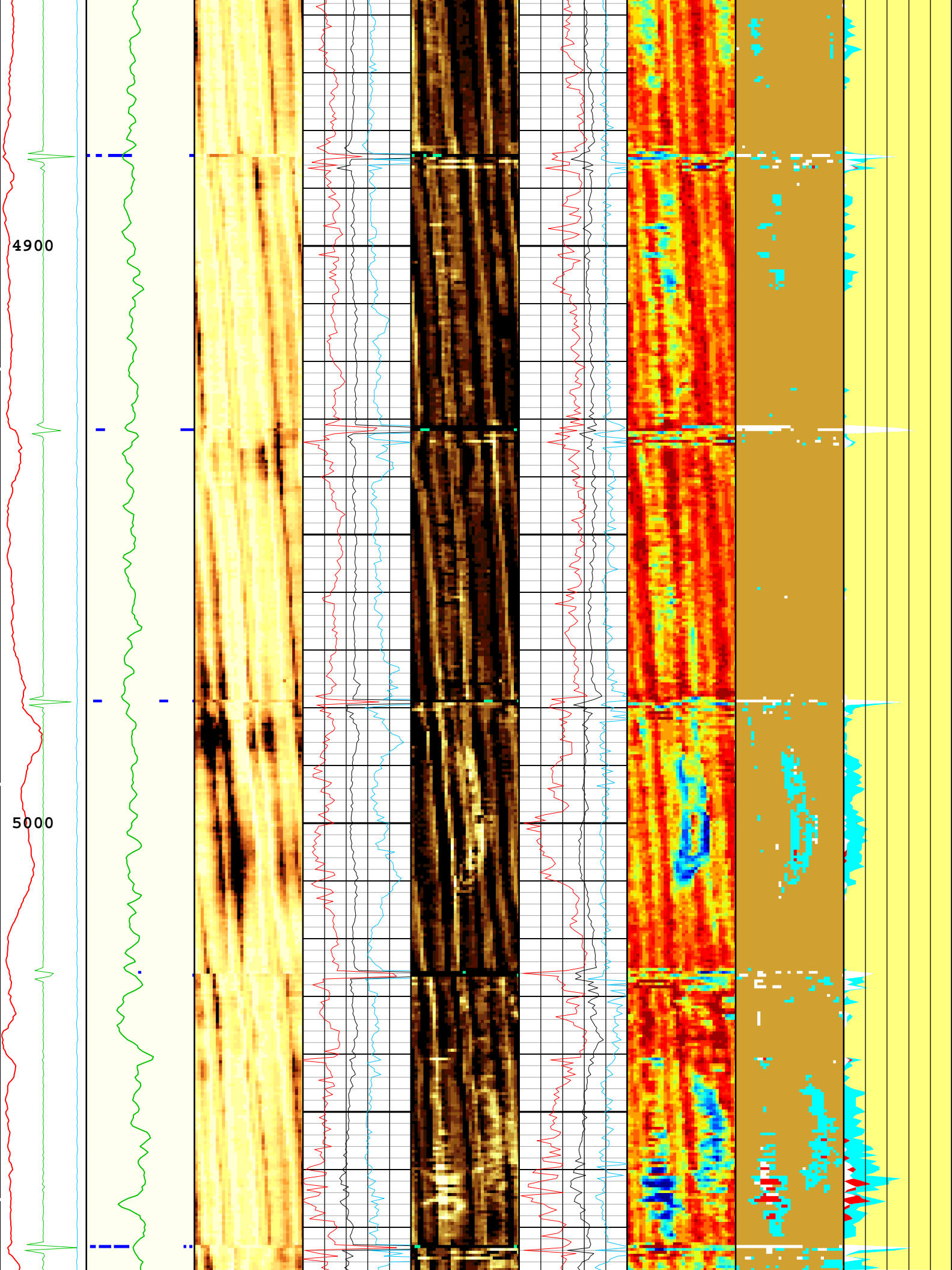


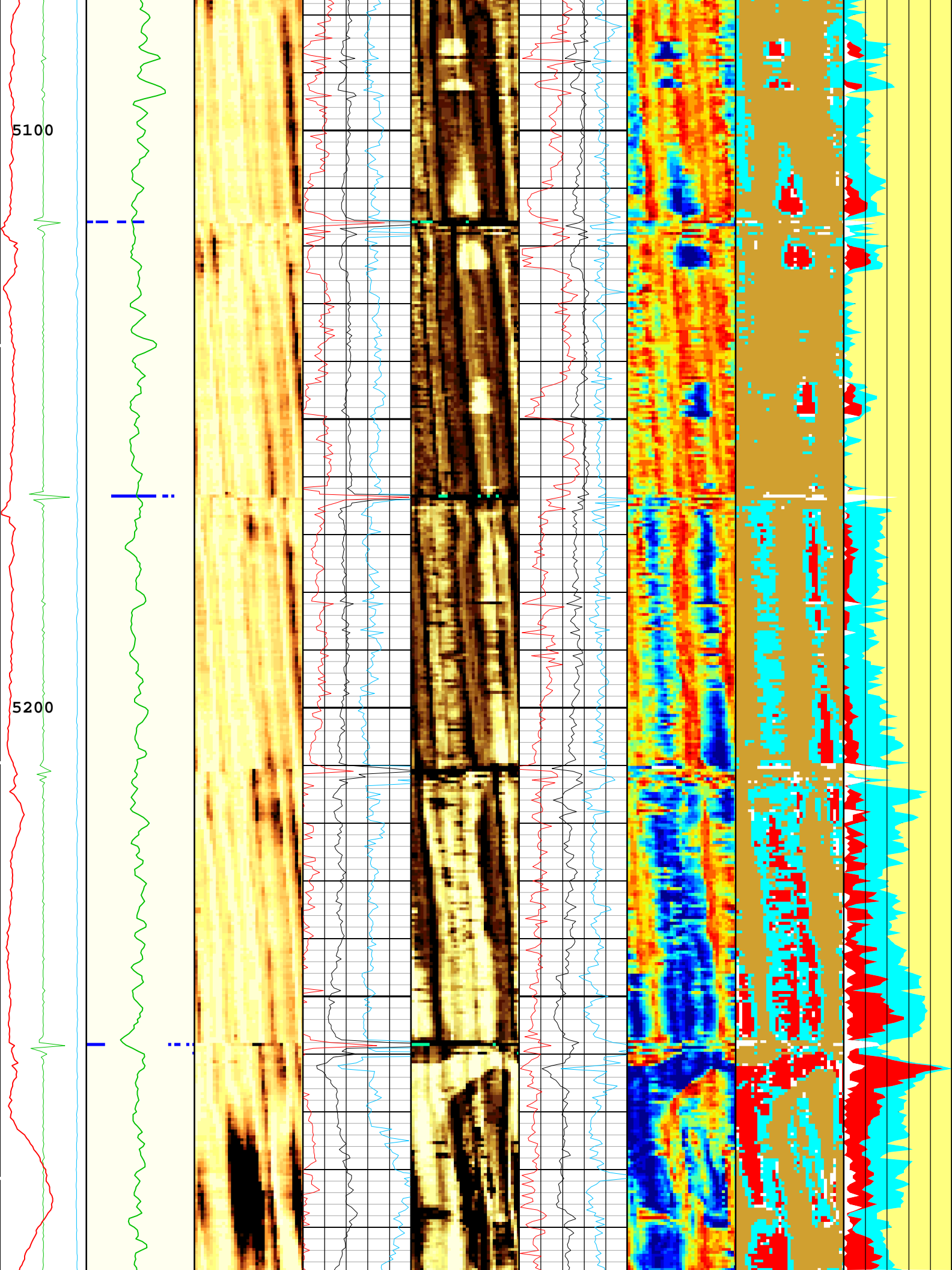


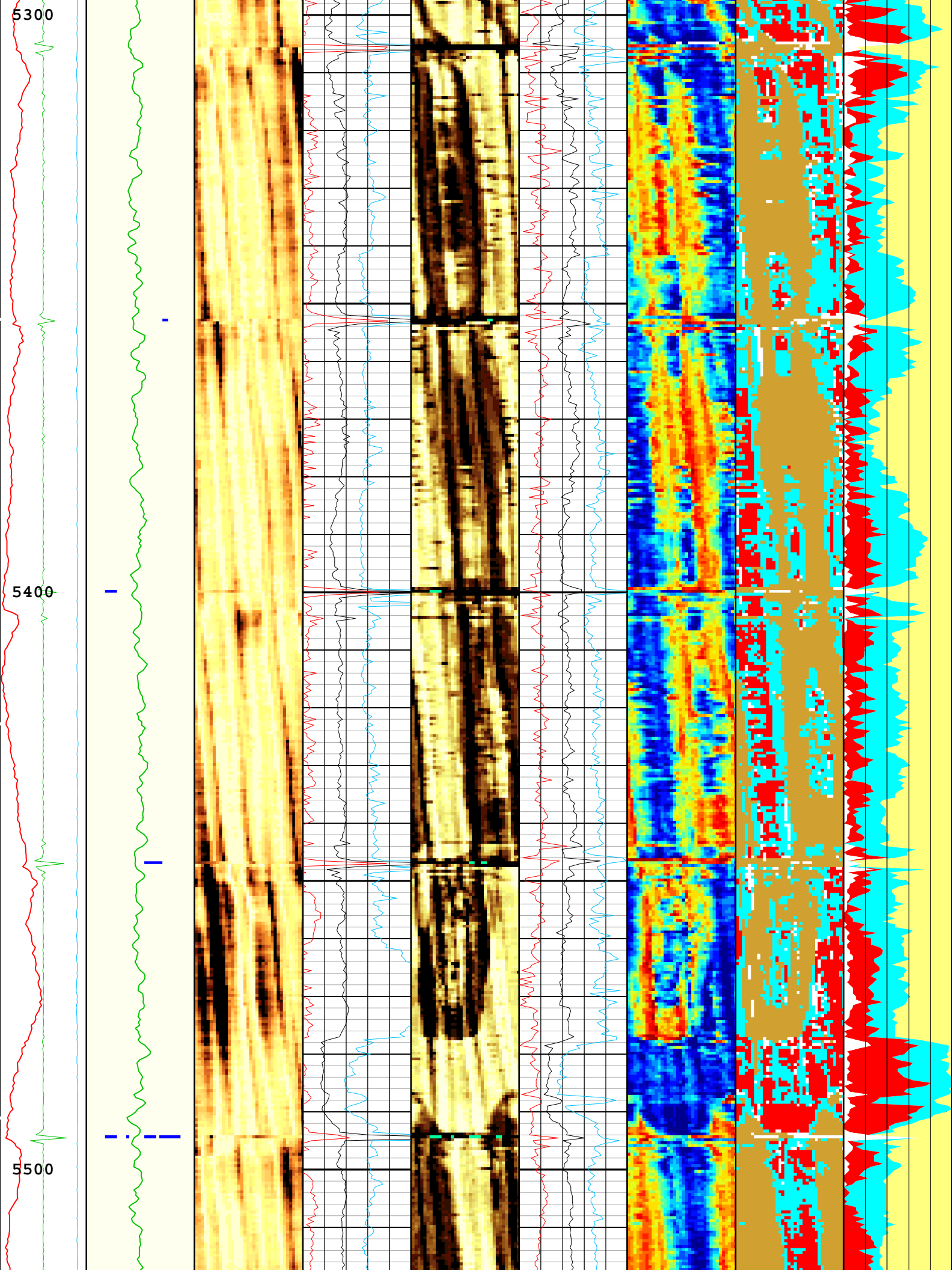


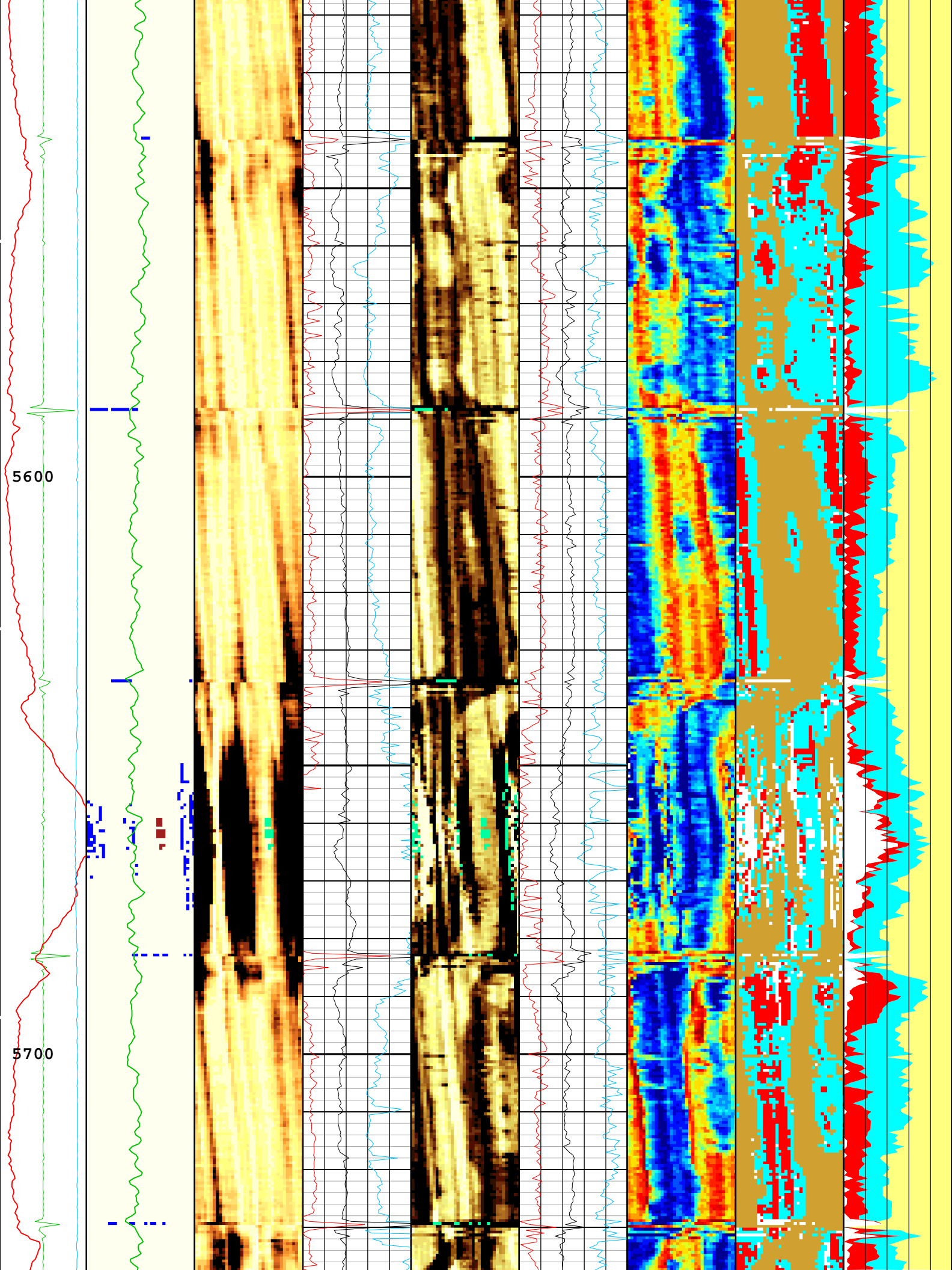


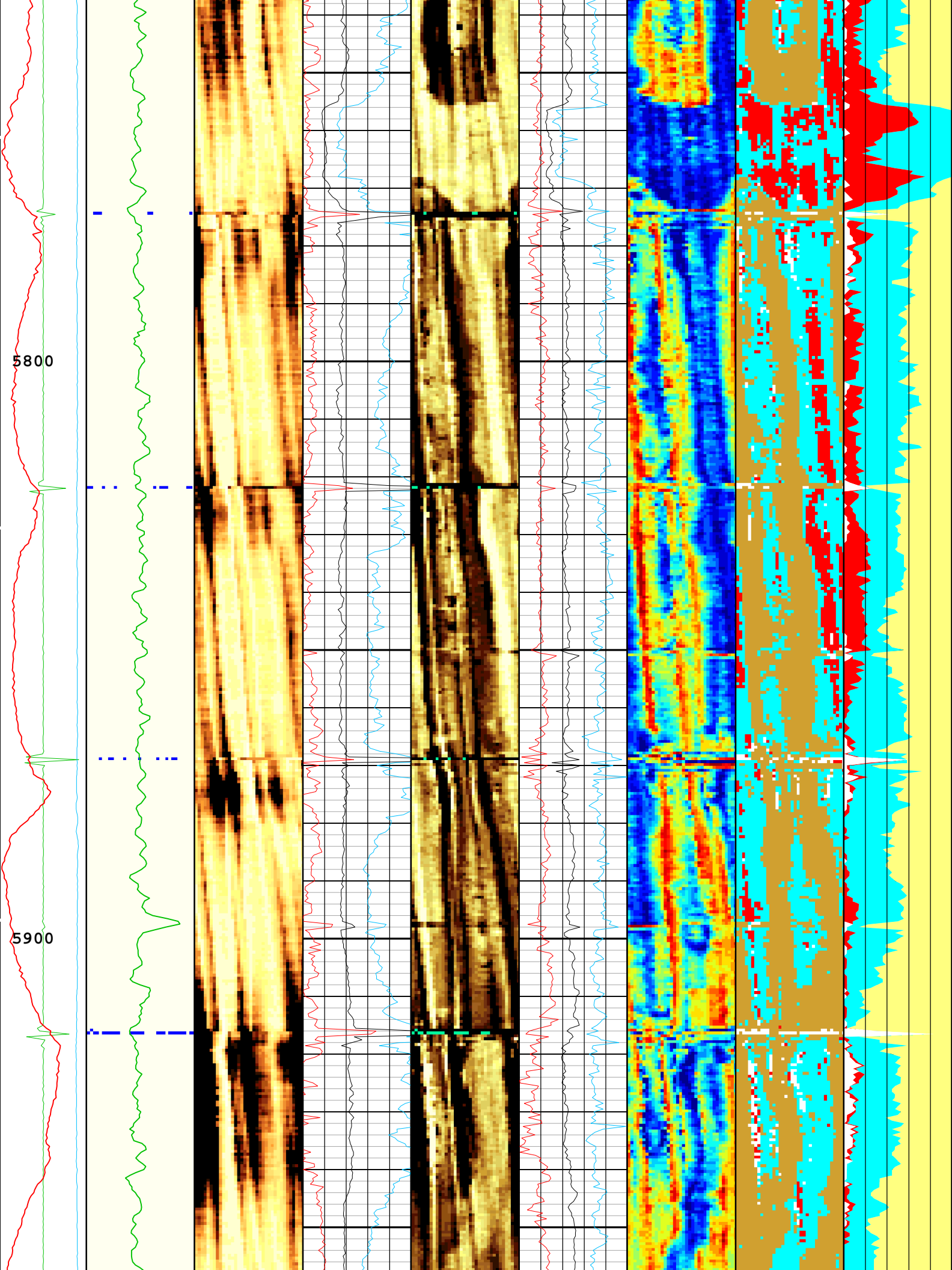


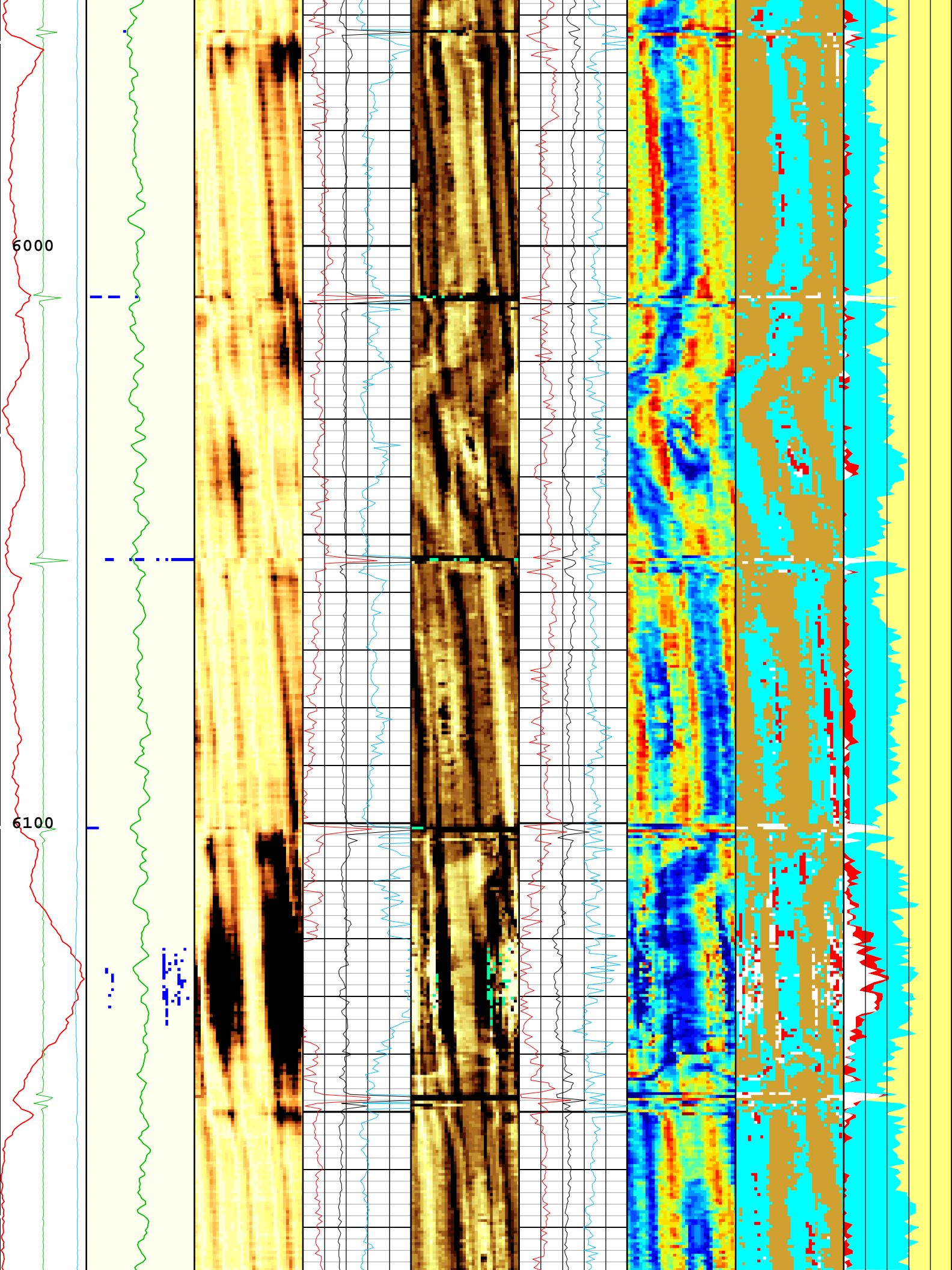


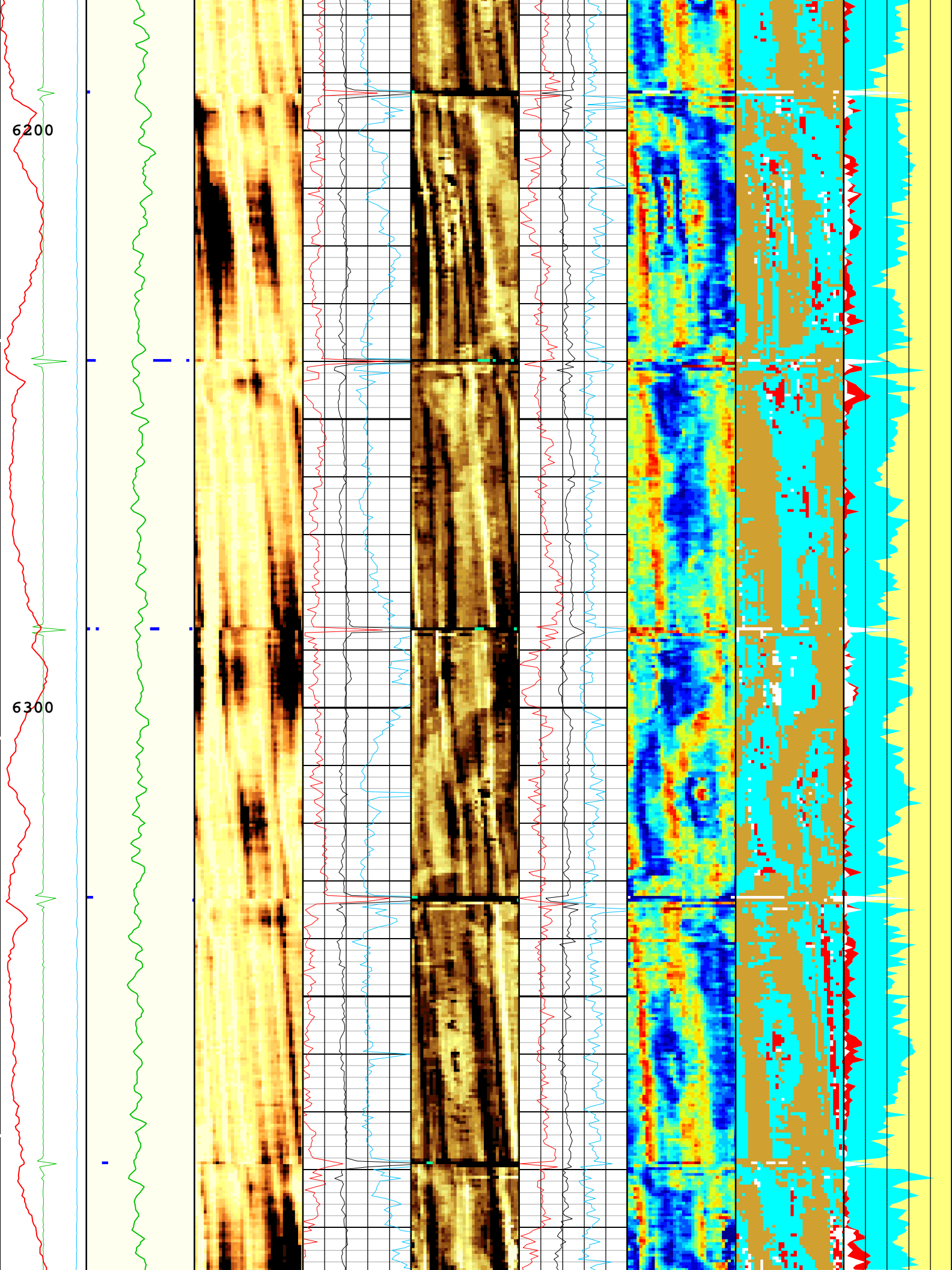


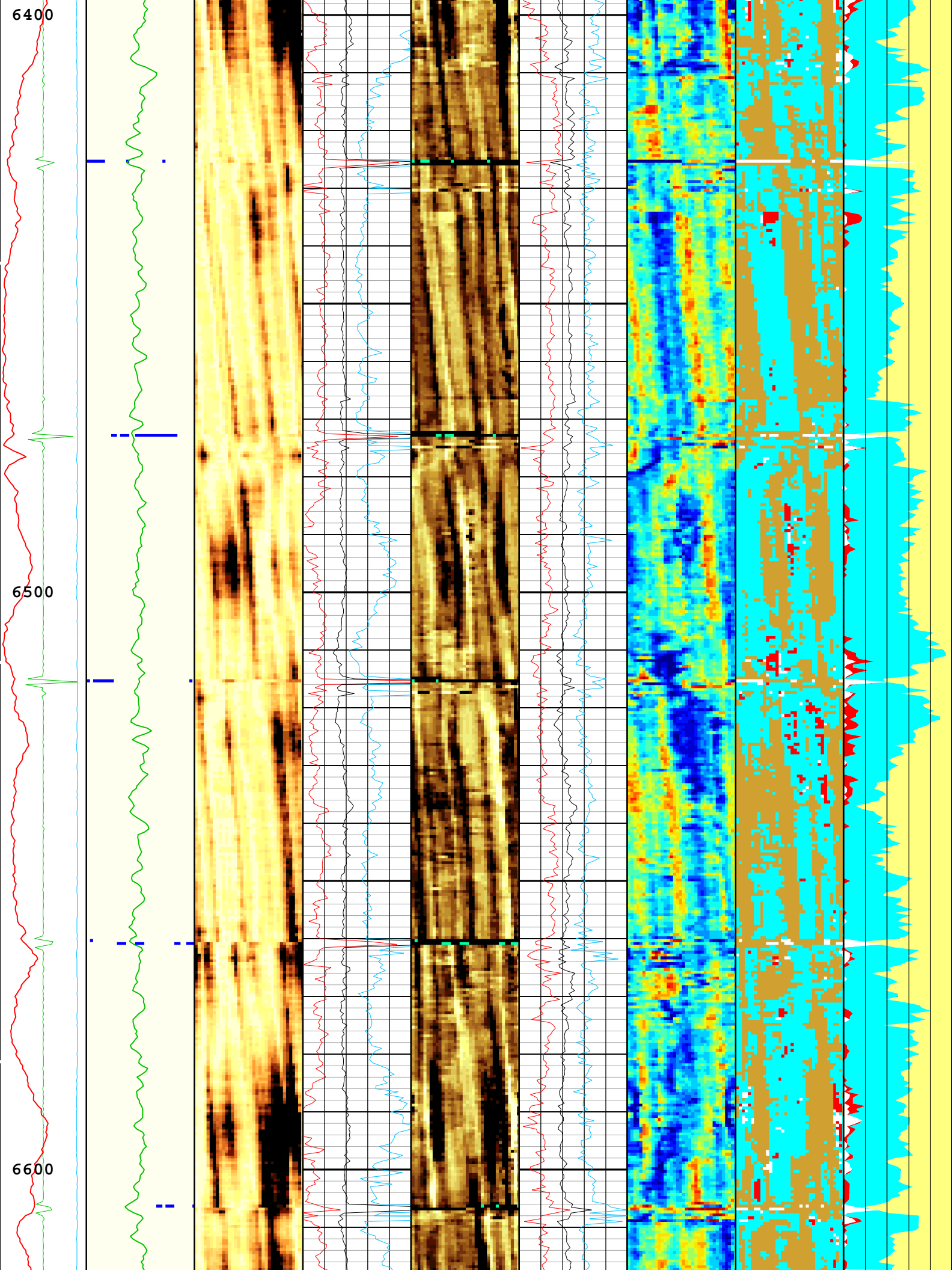


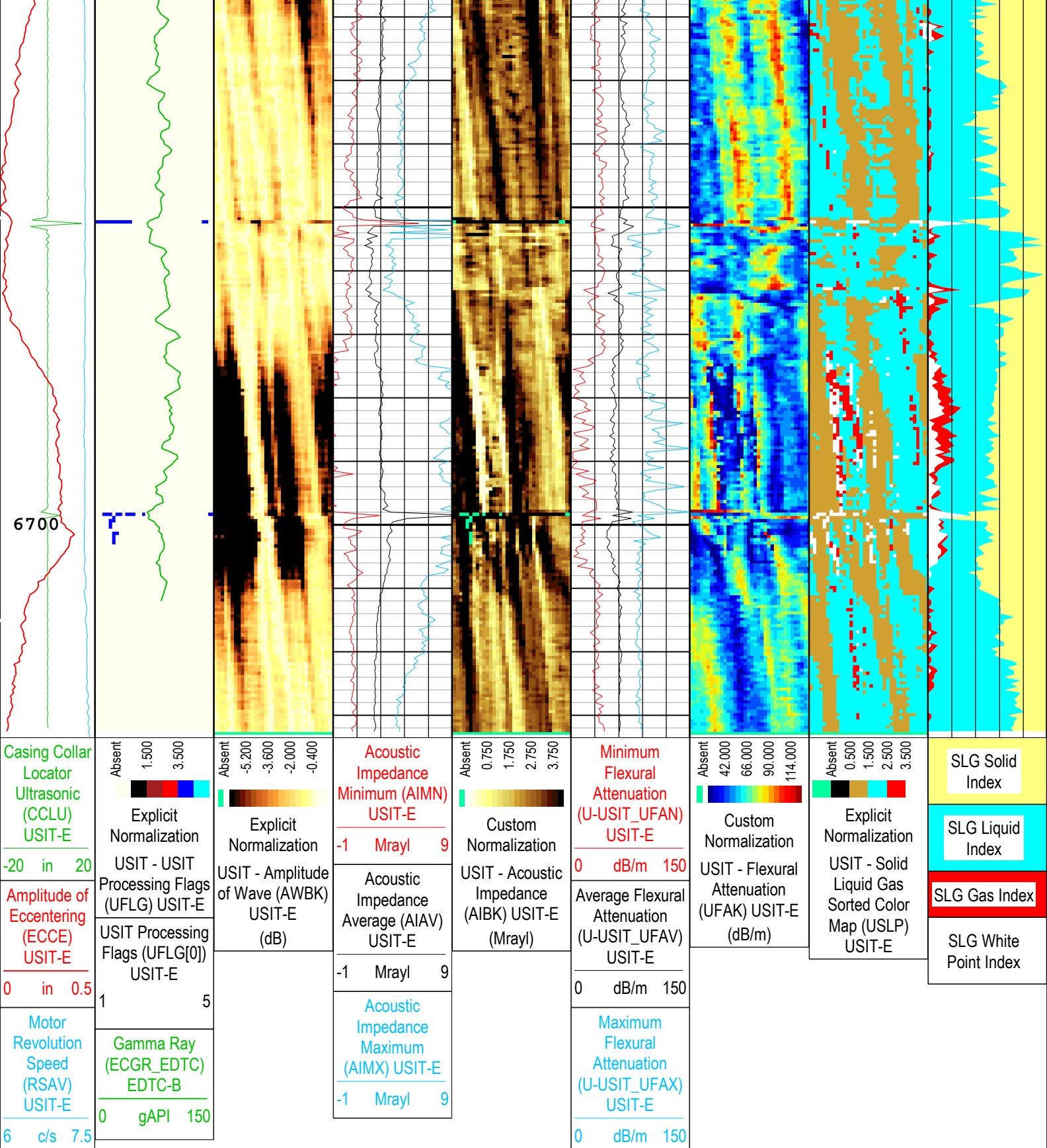

















USIT Processing Flags (UFLG[0]) USIT-E

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Oct-2018 18:12:04

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	12092	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	-17.55	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
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	1.18	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
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	-33	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	21.5	2424
BS	8.5	2424	6733.5

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	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
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	19-Oct-2018 08:36:10	19-Oct-2018 08:59:42	6734.1	5158.39
EMXV	65	19-Oct-2018 08:59:42	19-Oct-2018 08:59:57	5158.39	5139.9
EMXV	60	19-Oct-2018 08:59:57	19-Oct-2018 09:23:01	5139.9	3488.03
EMXV	55	19-Oct-2018 09:23:01	19-Oct-2018 10:21:08	3488.03	43.21

All depth are at tool zero.

One

IBC SLG Composite 0 PSI

Pass Summary






Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	43.21 ft	6734.10 ft	19-Oct-2018 8:36:10 AM	19-Oct-2018 10:21:08 AM	ON	4.33 ft	Yes

All depths are referenced to toolstring zero

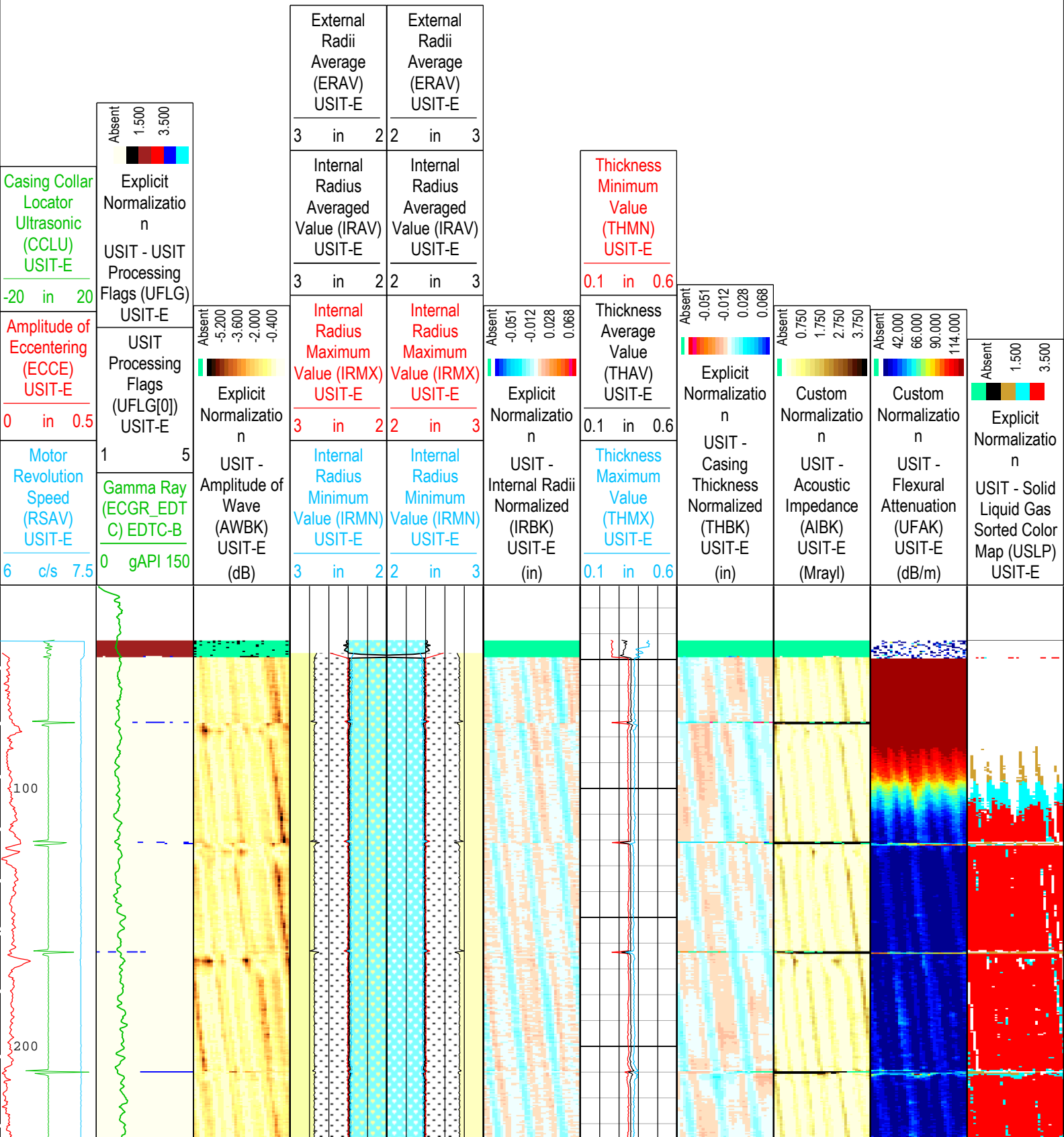
Description: USI IBC SLG Composite Format: Log (IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth

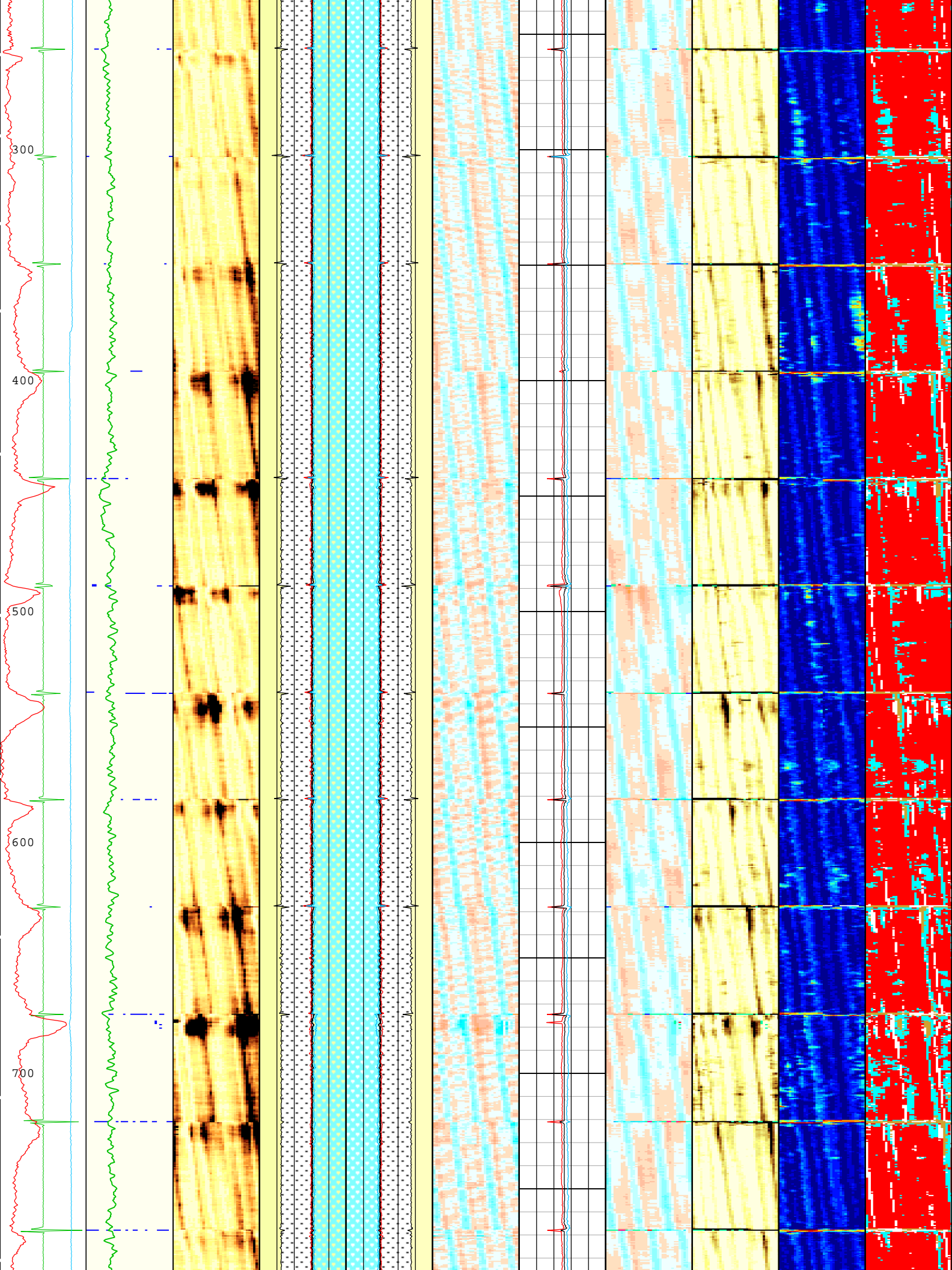
Creation Date: 19-Oct-2018 18:12:26

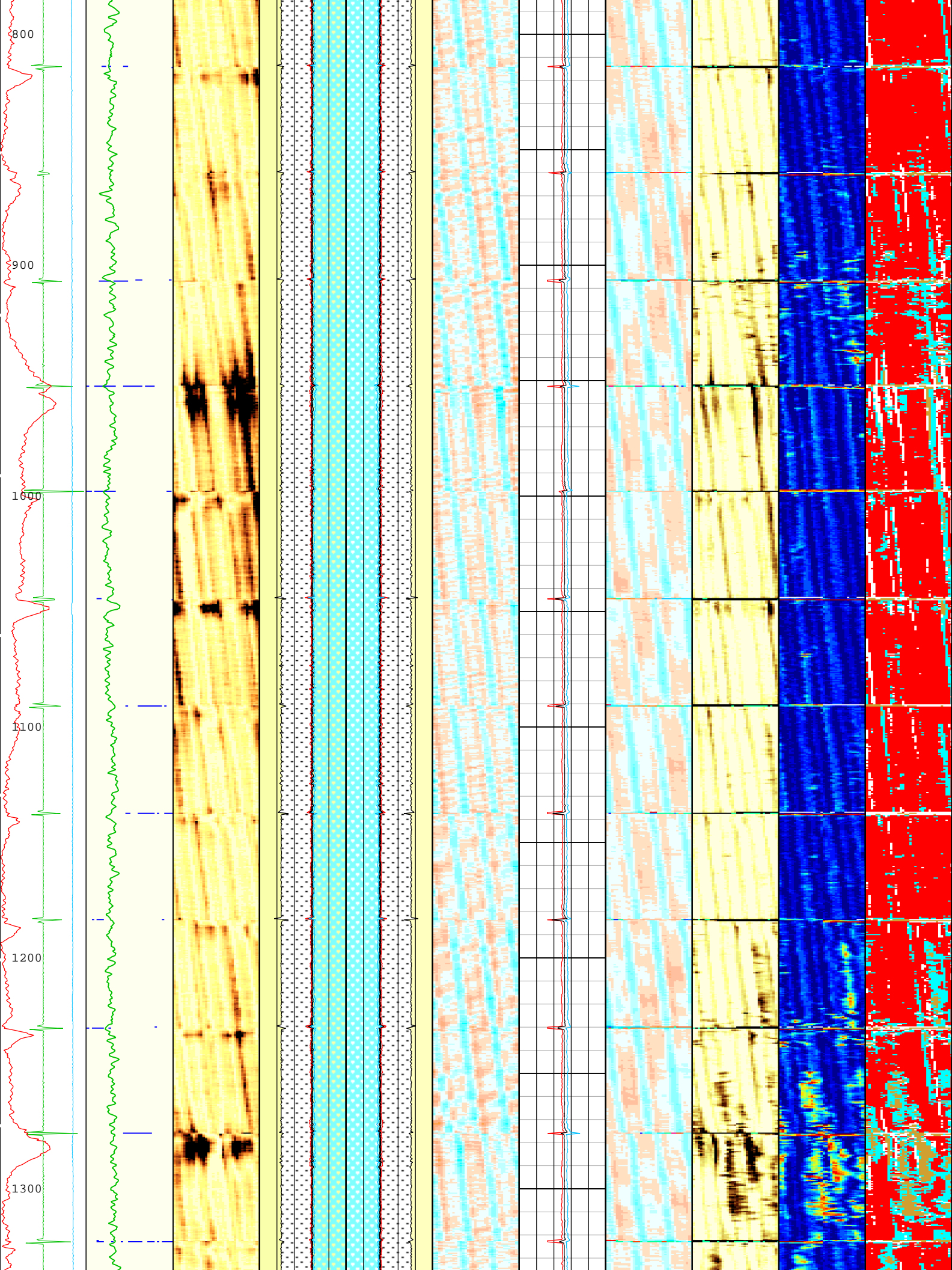
USIT Processing Flags (UFLG[0]) USIT-E

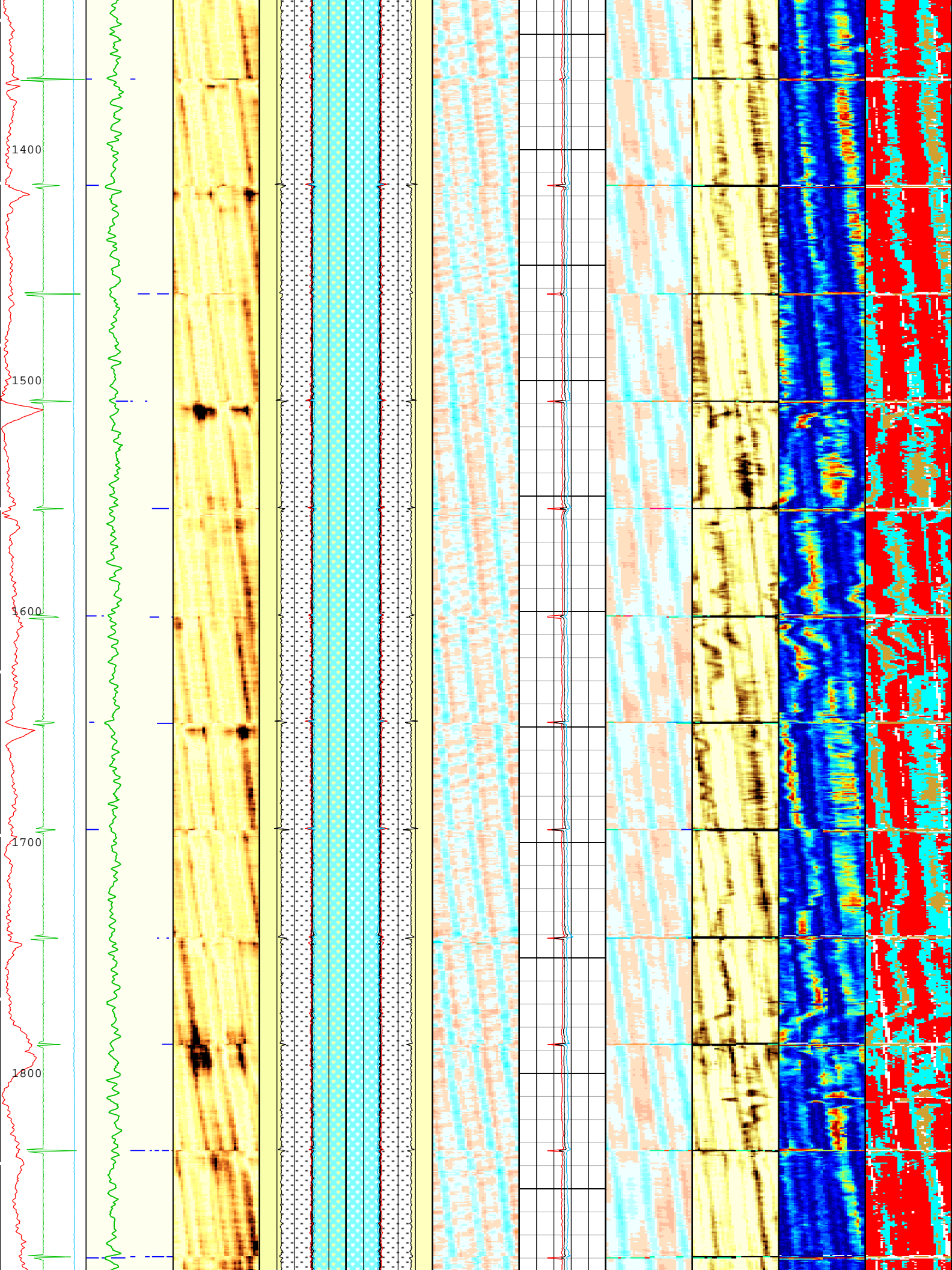
- 1 - UFLG 1 Value within [0.0 - 1.5] - :  UTIM Error
- 2 - UFLG 2 Value within [1.5 - 2.5] - :  Pulse Origin Not Detected
- 3 - UFLG 3 Value within [2.5 - 3.5] - :  WINLEN Error
- 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :  Casing Thickness Error
- 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5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

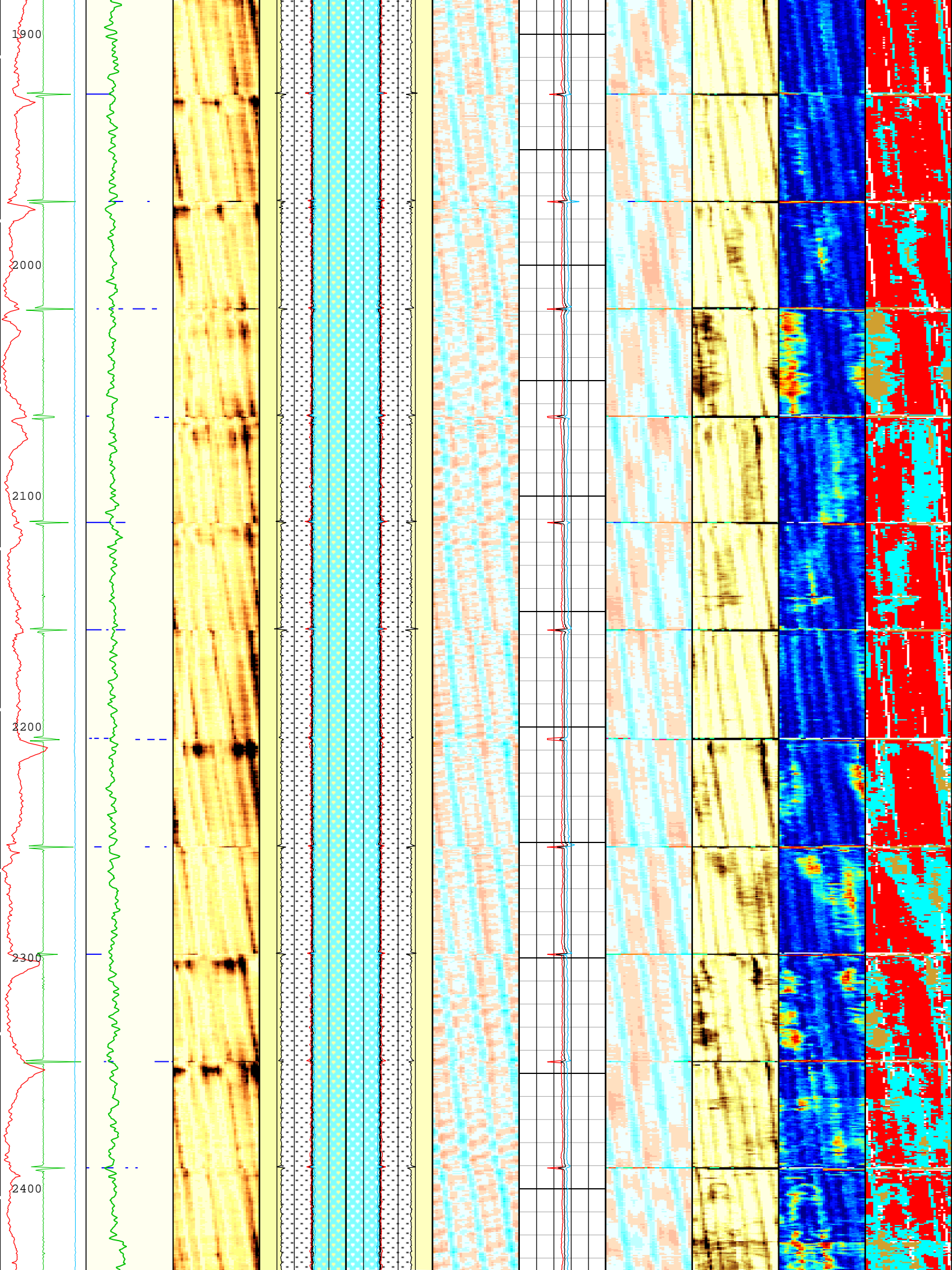
TIME_1900 - Time Marked every 60.00 (s)

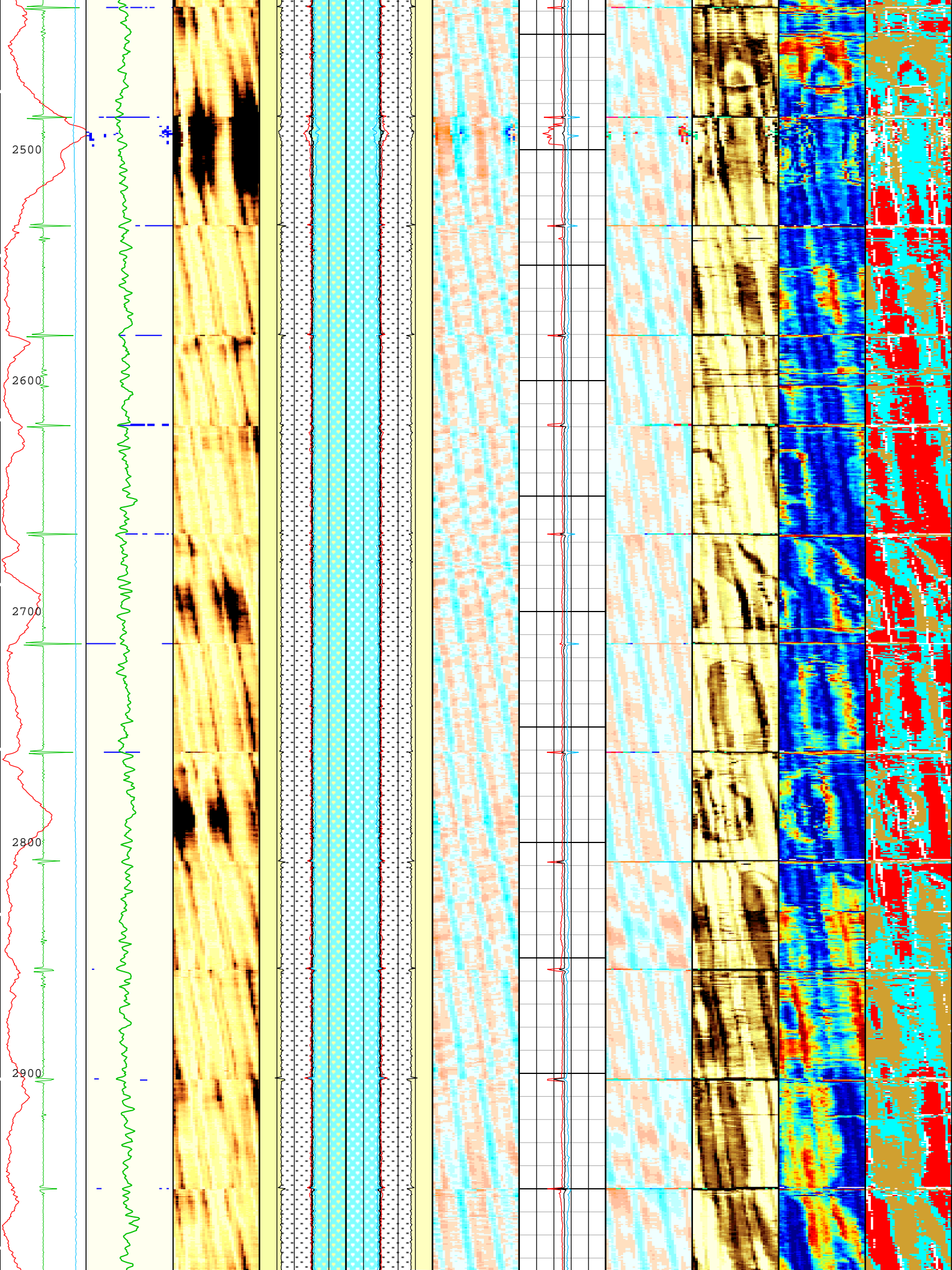


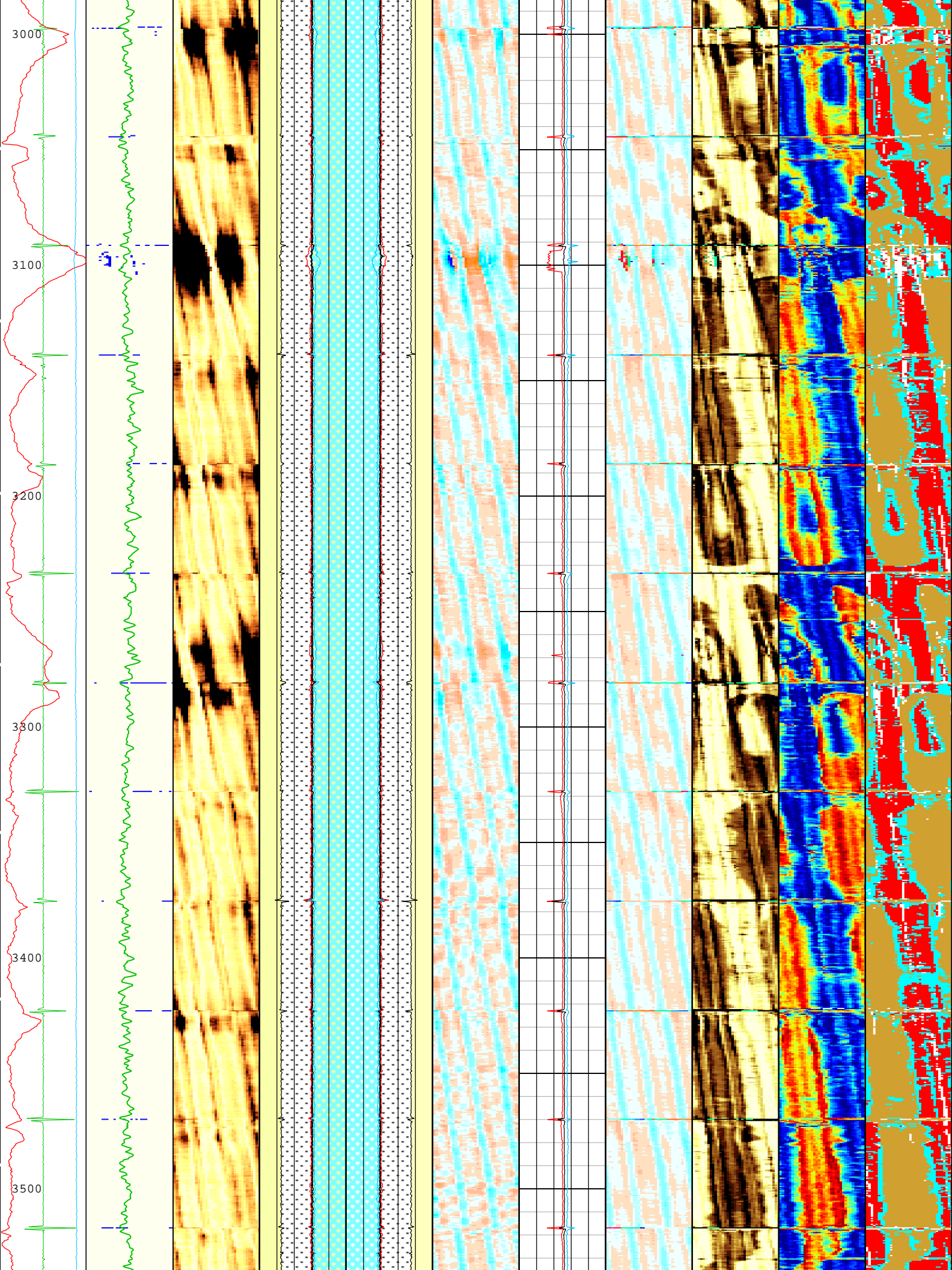


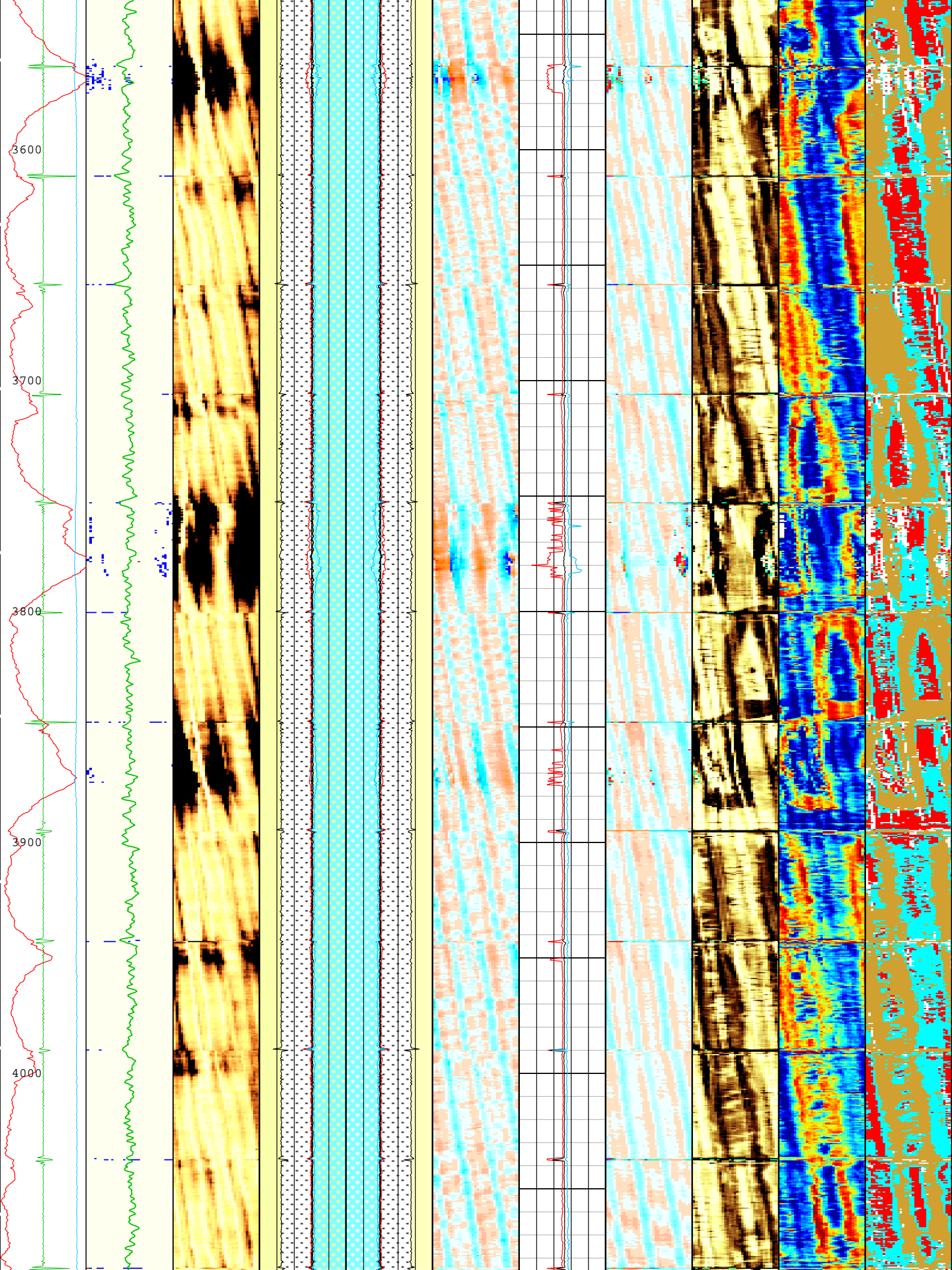


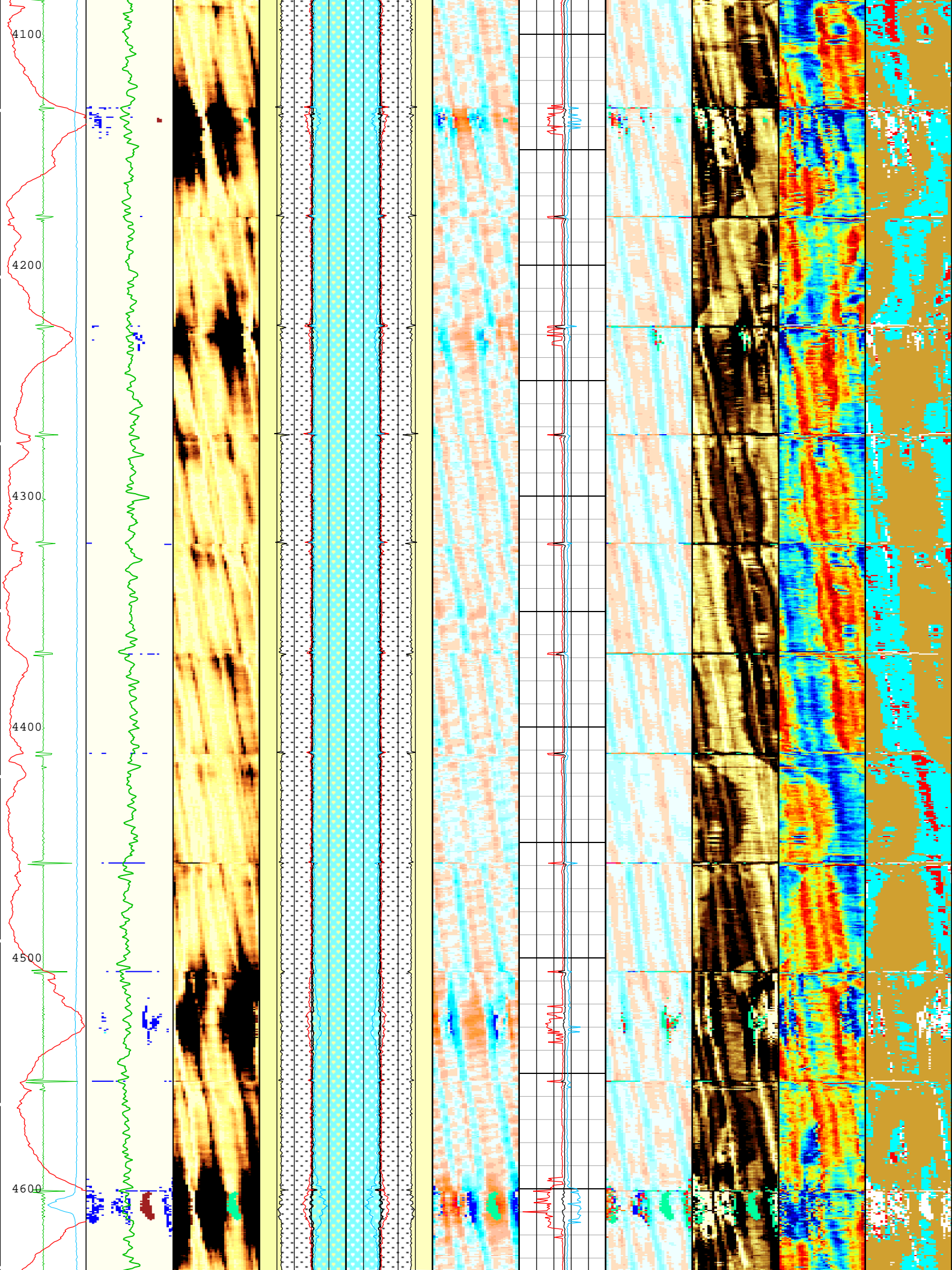


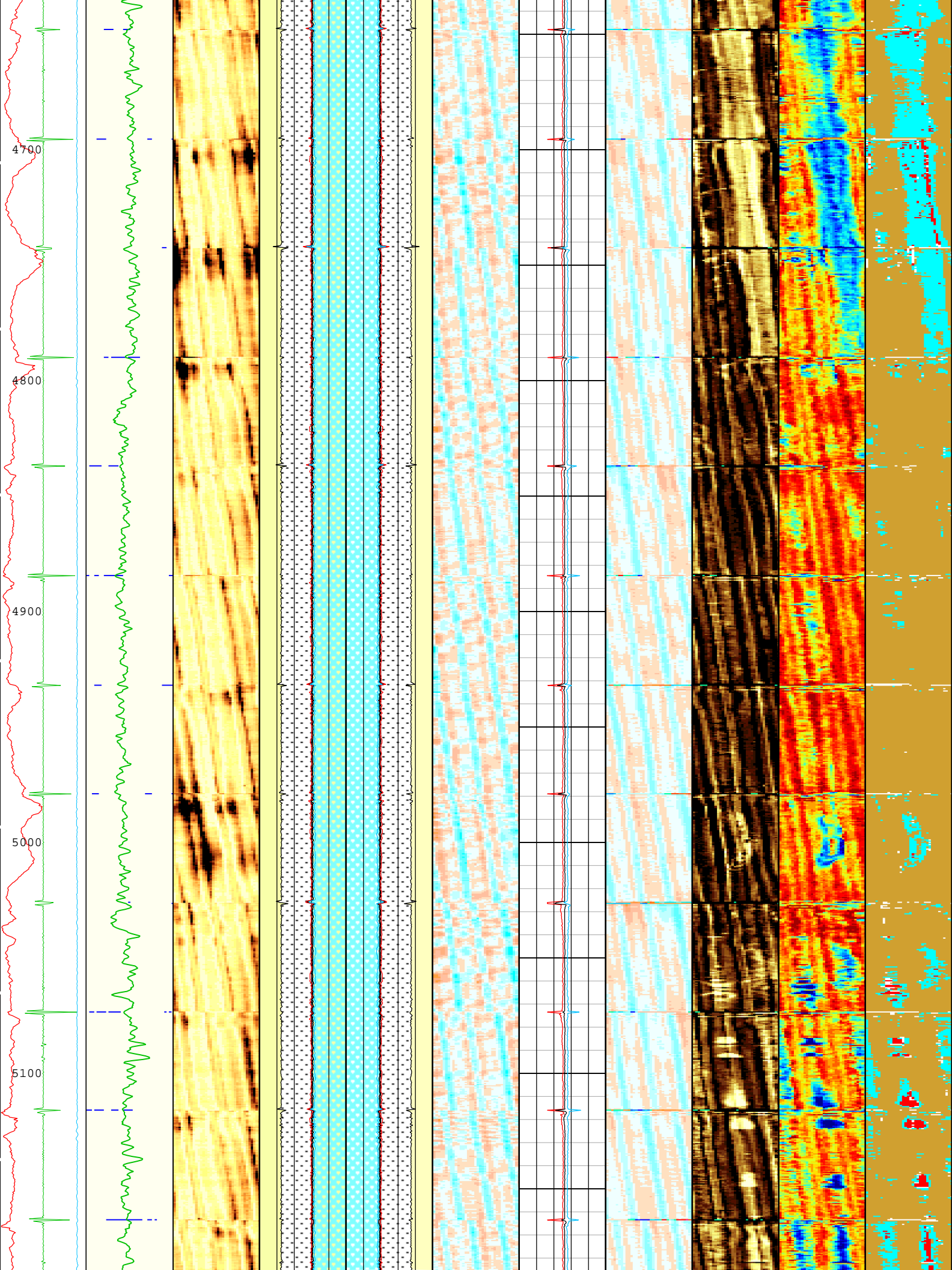


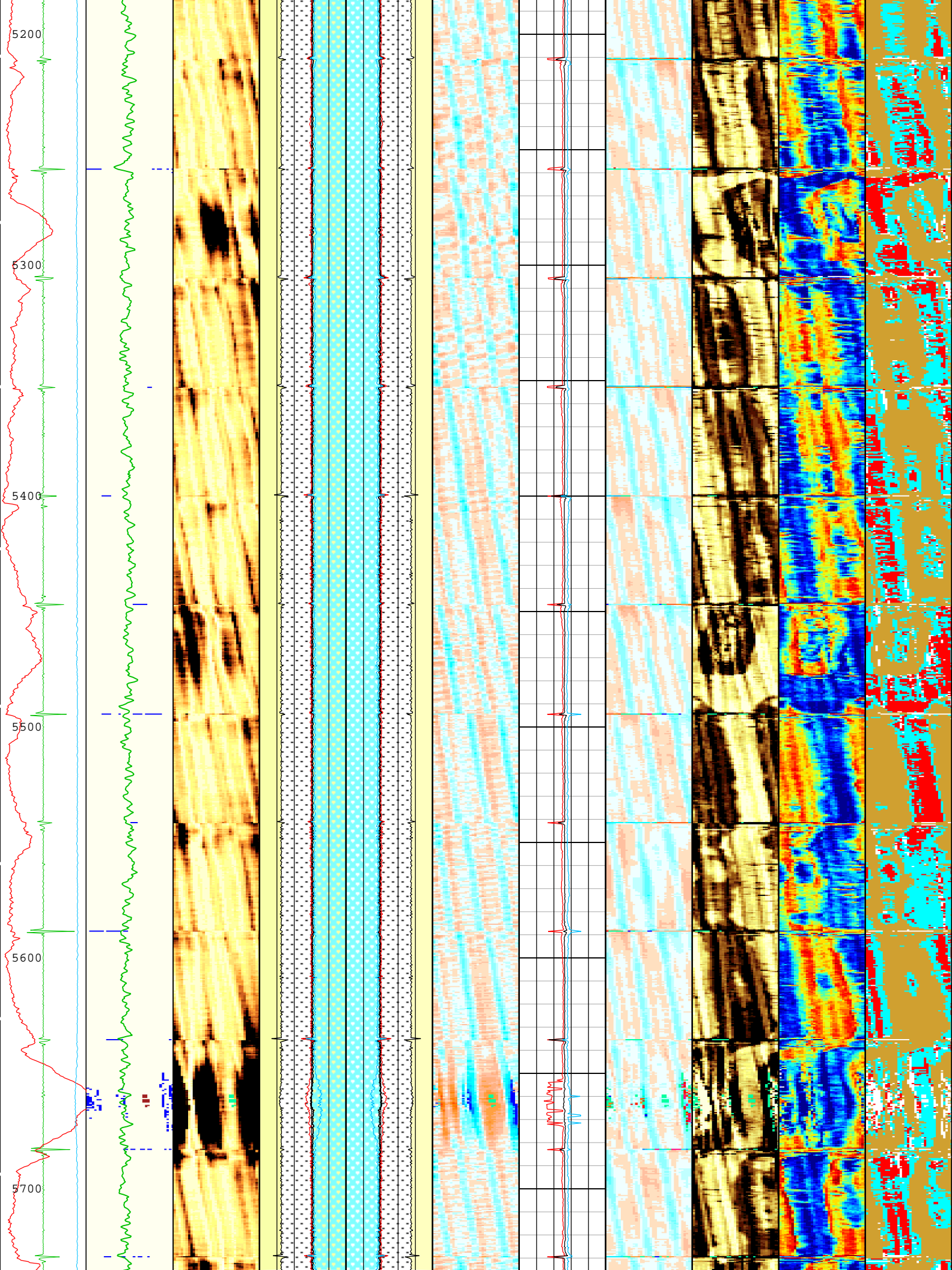


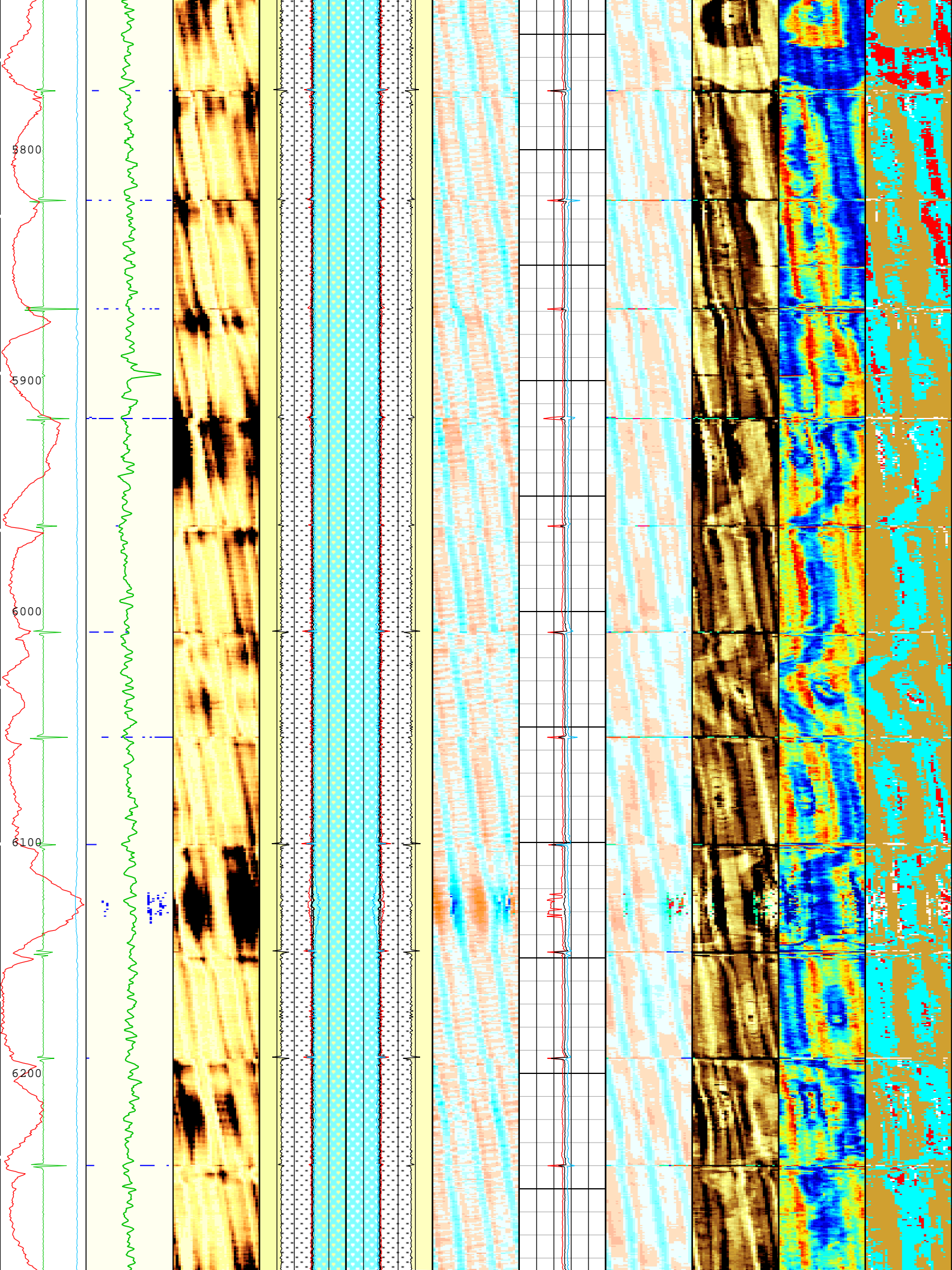


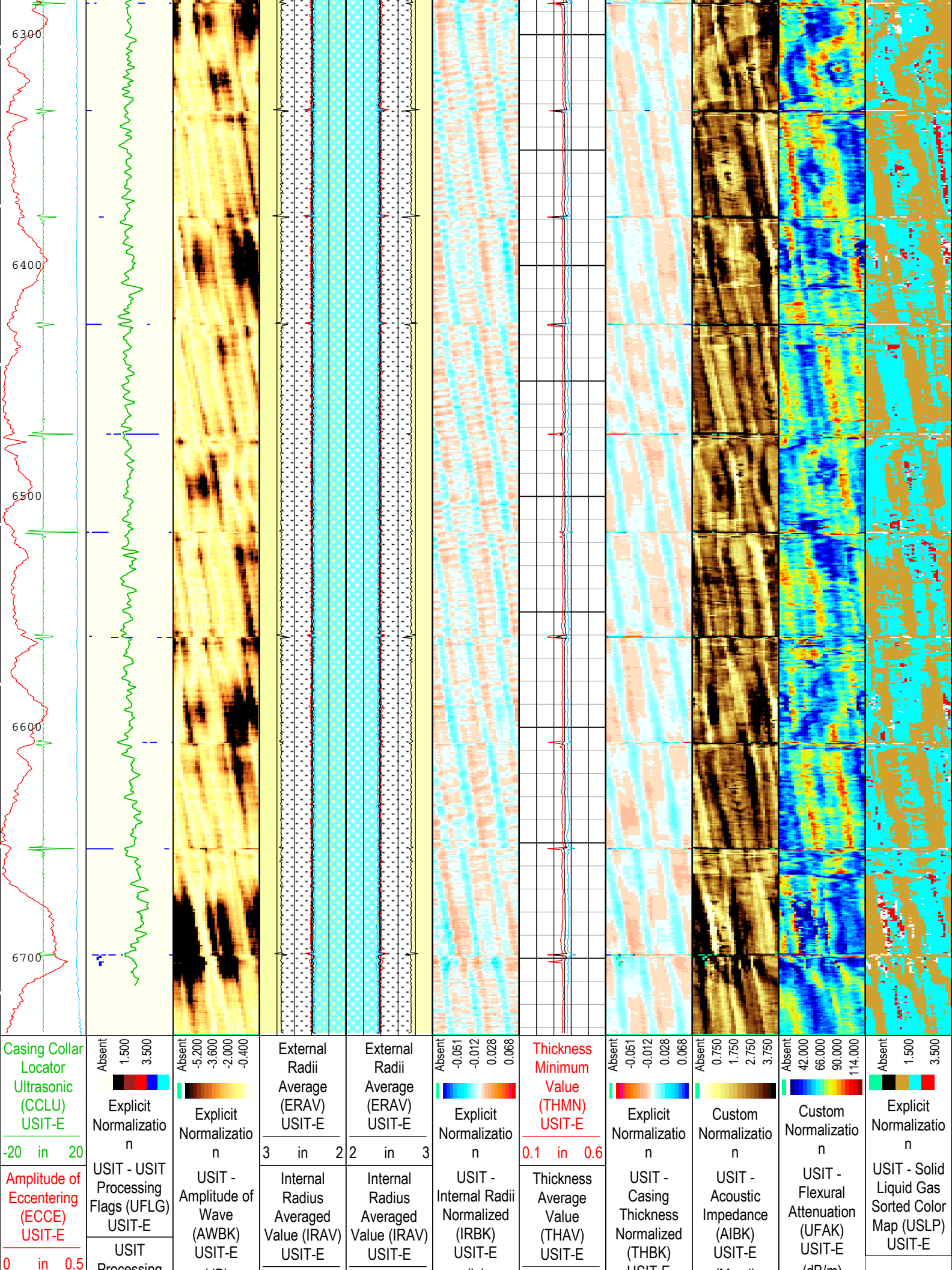












<div>Motor Revolution Speed (RSAV) USIT-E</div> <div>6 c/s 7.5</div>	<div>ICE Processing Flags (UFLG[0]) USIT-E</div> <div>1 5</div> <div>Gamma Ray (ECGR_EDT C) EDTC-B</div> <div>0 gAPI 150</div>	(dB)	3 in 2 2 in 3			(in)	0.1 in 0.6			USIT-E (in)	(Mrayl)	(dB/m)			
			Internal Radius Maximum Value (IRMX) USIT-E				Internal Radius Maximum Value (IRMX) USIT-E						Thickness Maximum Value (THMX) USIT-E		
			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: 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: 19-Oct-2018 18:12:26

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	12092	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	-17.55	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
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	1.18	
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	-33	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	

ZMUD	Acoustic Impedance of Mud	Borehole	1.75	
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	21.5	2424
BS	8.5	2424	6733.5
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	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	19-Oct-2018 08:36:10	19-Oct-2018 08:59:42	6734.1	5158.39
EMXV	65	19-Oct-2018 08:59:42	19-Oct-2018 08:59:57	5158.39	5139.9
EMXV	60	19-Oct-2018 08:59:57	19-Oct-2018 09:23:01	5139.9	3488.03
EMXV	55	19-Oct-2018 09:23:01	19-Oct-2018 10:21:08	3488.03	43.21
All depth are at tool zero.					

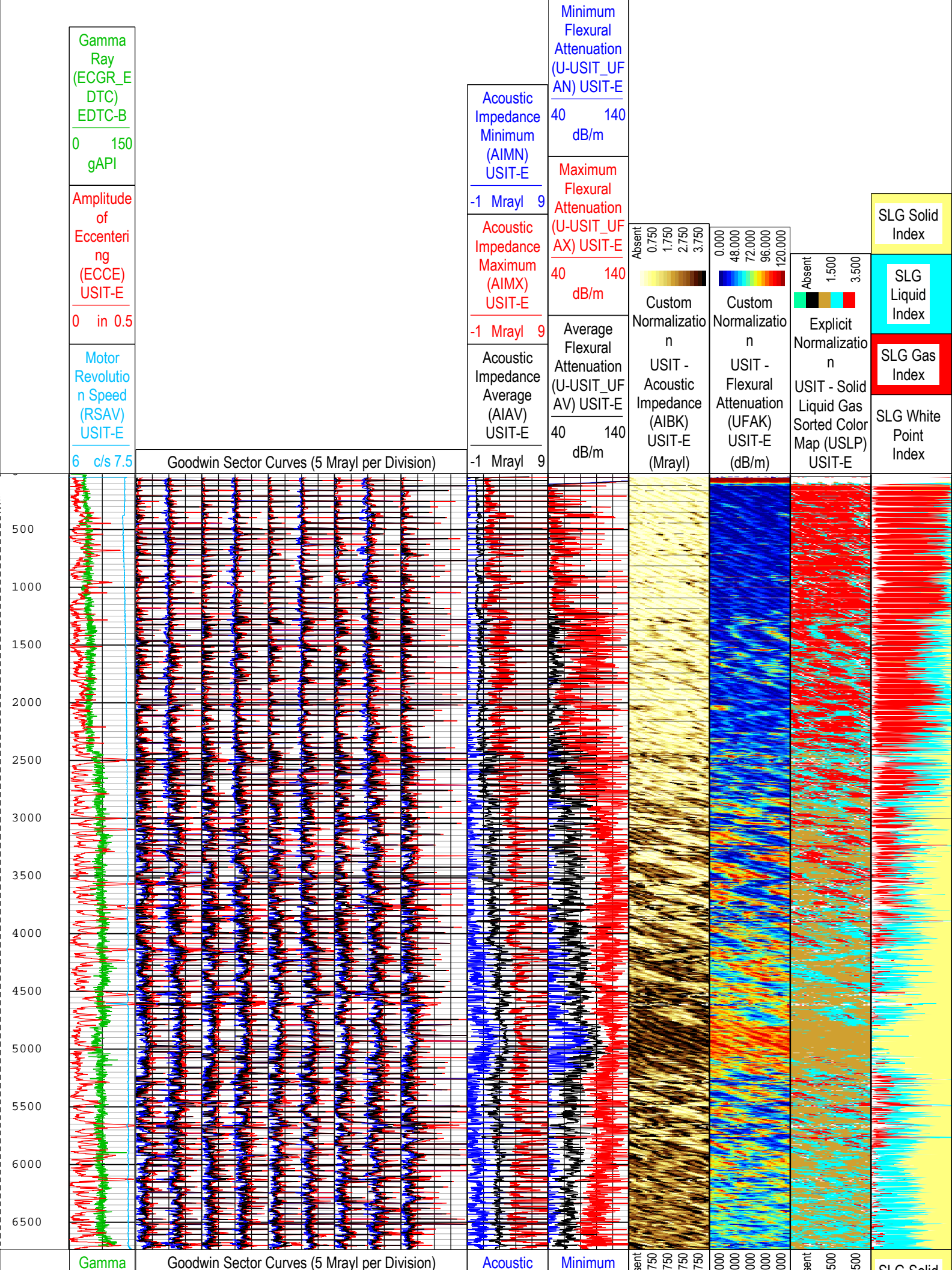
One									
IBC Goodwin Compressed 0 PSI									

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	43.21 ft	6734.10 ft	19-Oct-2018 8:36:10 AM	19-Oct-2018 10:21:08 AM	ON	4.33 ft	Yes
All depths are referenced to toolstring zero									

Log	Company:Crestone Peak Resources Operating LLC Well:Sam 3N-25H-M166 One: Log[3]:Up:S003								
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Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Oct-2018 18:12:37

TIME_1900 - Time Marked every 60.00 (s)



Ray (ECGR_E DTC) EDTC-B	0150 gAPI	Amplitude of Eccentering (ECCE) USIT-E	0in0.5	Motor Revolution Speed (RSAV) USIT-E	6c/s7.5	Impedance Minimum (AIMN) USIT-E	-1Mrayl9	Acoustic Impedance Maximum (AIMX) USIT-E	-1Mrayl9	Acoustic Impedance Average (AIAV) USIT-E	-1Mrayl9	Flexural Attenuation (U-USIT_UF AN) USIT-E	40140 dB/m	Maximum Flexural Attenuation (U-USIT_UF AX) USIT-E	40140 dB/m	Average Flexural Attenuation (U-USIT_UF AV) USIT-E	40140 dB/m	Abs0123	Custom Normalization	USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Abs0487296120	Custom Normalization	USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)	Abs13	Explicit Normalization	USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E	SLG Solid Index	SLG Liquid Index	SLG Gas Index	SLG White Point Index
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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: 19-Oct-2018 18:12:37

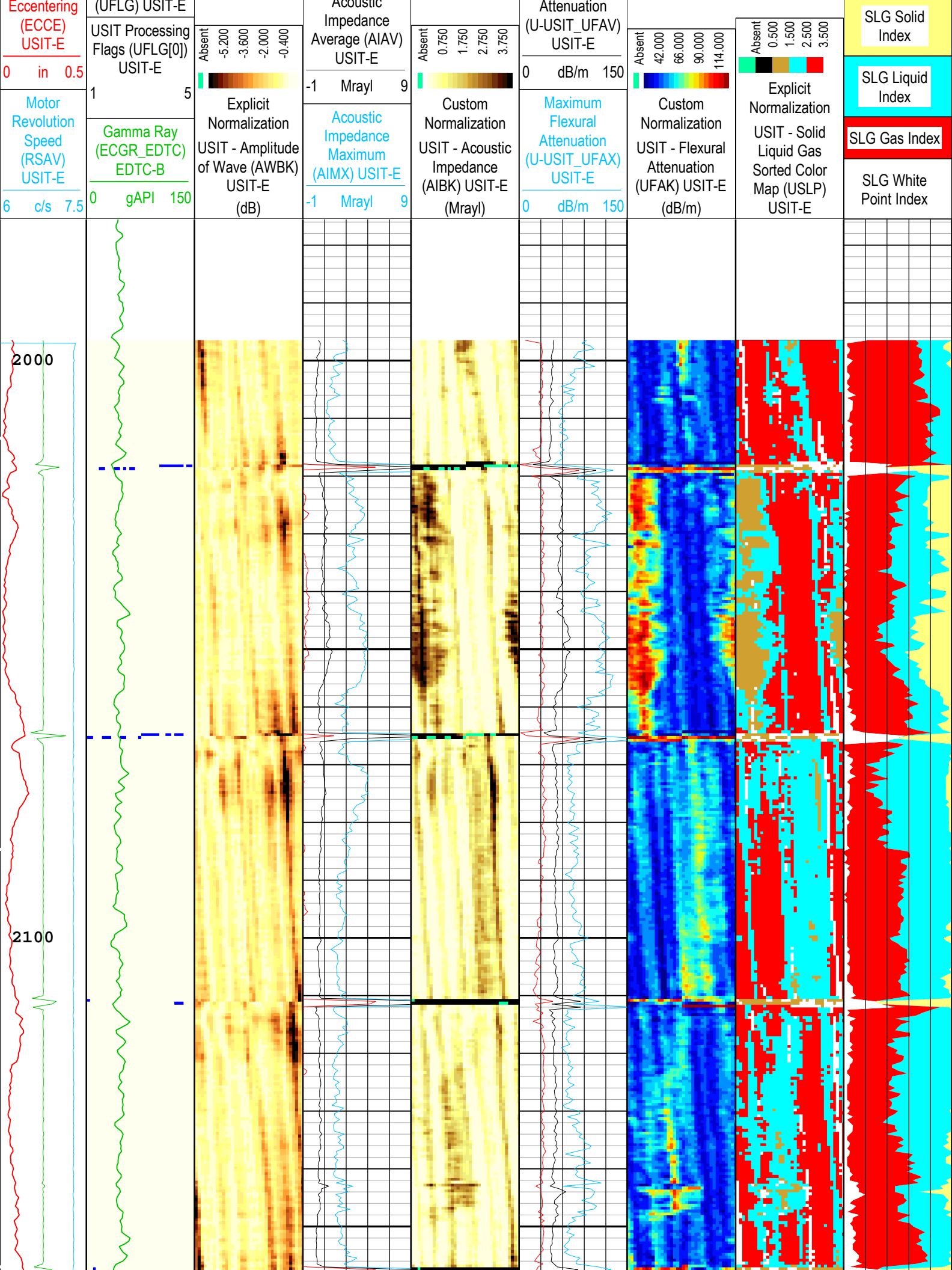
One									
IBC SLG 0 PSI									
Software Version									
Acquisition System						Version			
Maxwell 2018 SP2						8.2.104493.3100			
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[1]:Up	Up	1997.15 ft	2498.85 ft	19-Oct-2018 7:56:50 AM	19-Oct-2018 8:06:51 AM	ON	-1.90 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:Crestone Peak Resources Operating LLC						Well:Sam 3N-25H-M166		
	One: Log[1]:Up:S003								

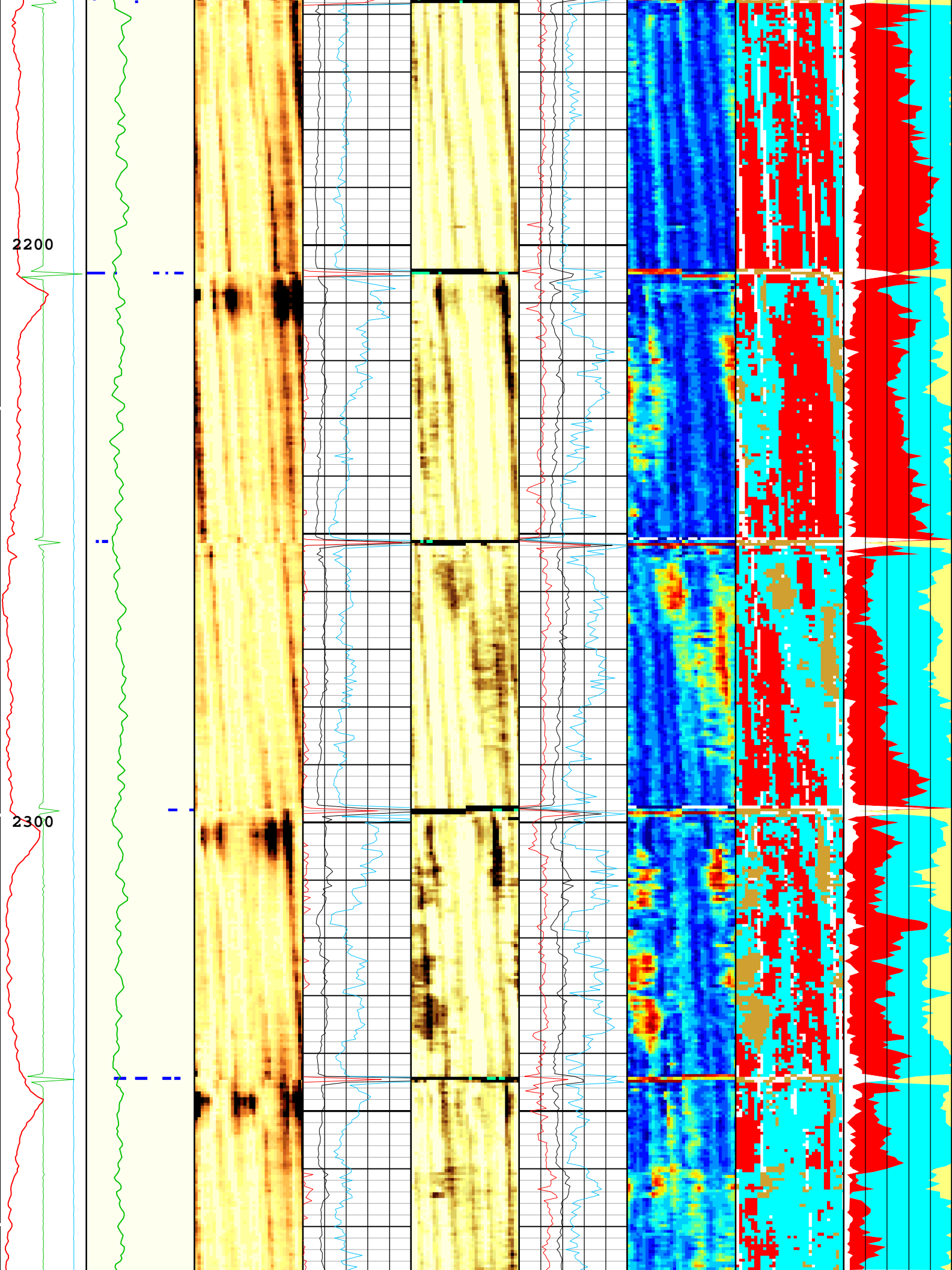
Description: USI IBC SLG Format: Log (IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Oct-2018 18:12:43

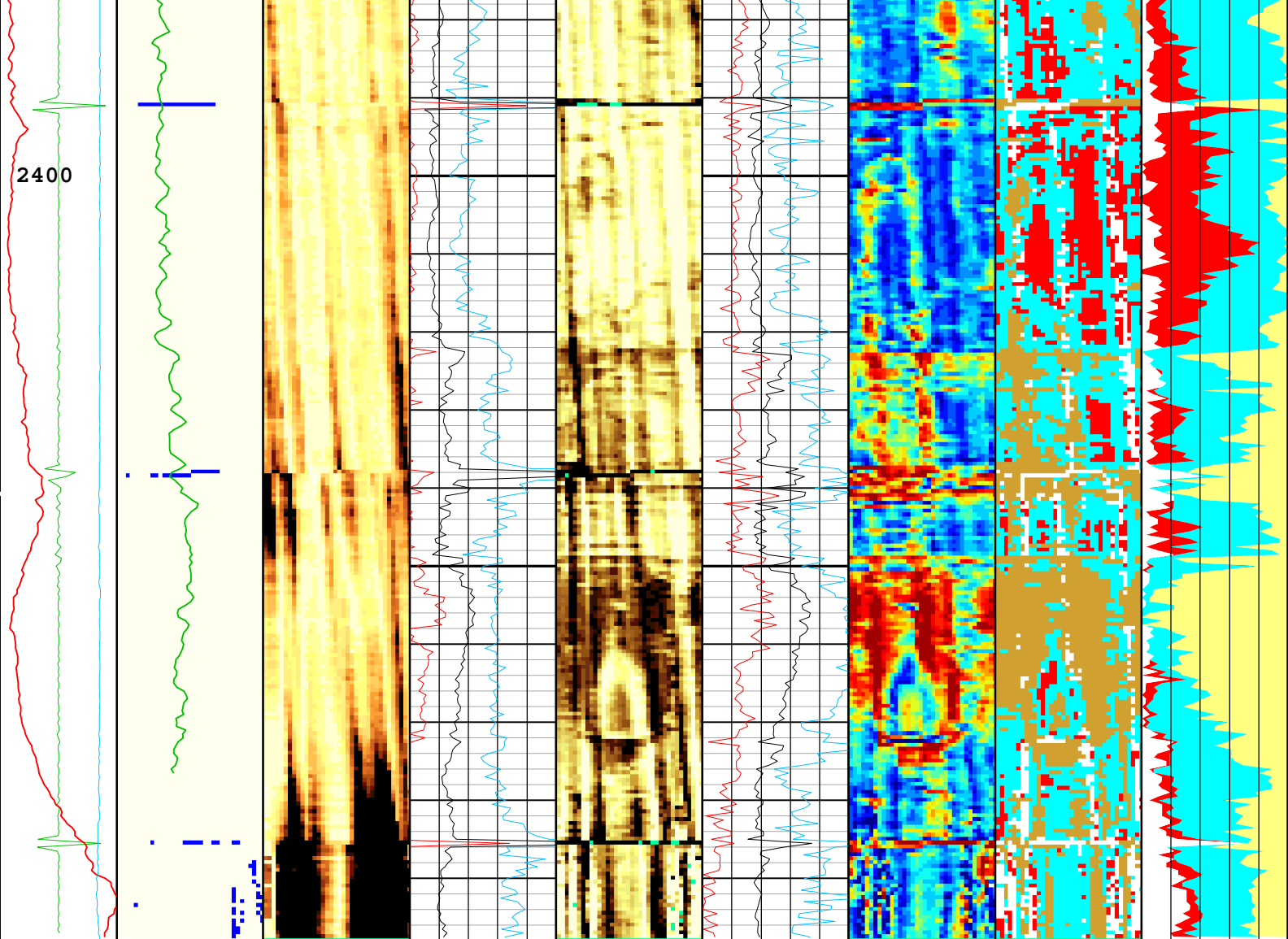
TIME_1900 - Time Marked every 60.00 (s)

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>					
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :				<div> <div></div> <div>Loop Processing Error</div> </div>					

Casing Collar Locator Ultrasonic (CCLU) USIT-E	Absent 1.500 3.500	Explicit Normalization	USIT - USIT	Processing Flags	Acoustic Impedance Minimum (AIMN) USIT-E	-1Mrayl9	Acoustic	Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E	0dB/m150	Average Flexural
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Casing Collar Locator (CCLU) USIT-E	Absent 1.500 3.500 Explicit Normalization USIT - USIT Processing Flags (UFLG) USIT-E	Absent -5.200 -3.600 -2.000 -0.400 Explicit Normalization USIT - Amplitude of Wave (AWBK) USIT-E (dB)	Acoustic Impedance Minimum (AIMN) USIT-E -1 Mrayl 9	Absent 0.750 1.750 2.750 3.750 Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Minimum Flexural Attenuation (U-USIT_UFAN) 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)	Absent 0.500 1.500 2.500 3.500 Explicit Normalization USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E	SLG Solid Index
Amplitude of Eccentering (ECCE) USIT-E 0 in 0.5	USIT Processing Flags (UFLG[0]) USIT-E 1 5		Acoustic Impedance Average (AIAV) USIT-E -1 Mrayl 9		Average Flexural Attenuation (U-USIT_UFAV) USIT-E 0 dB/m 150			SLG Liquid Index
Motor Revolution Speed (RSAV) USIT-E 6 c/s 7.5	Gamma Ray (ECGR_EDTC) EDTC-B 0 gAPI 150		Acoustic Impedance Maximum (AIMX) USIT-E -1 Mrayl 9		Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E 0 dB/m 150			SLG Gas Index
								SLG 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 |

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: 10 Oct 2018

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	12092	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	-17.55	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
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	1.18	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
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	-33	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
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Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	1975.5	2424
BS	8.5	2424	2498
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	60	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	137	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	177	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	106	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	146	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

One									
IBC SLG Composite 0 PSI									

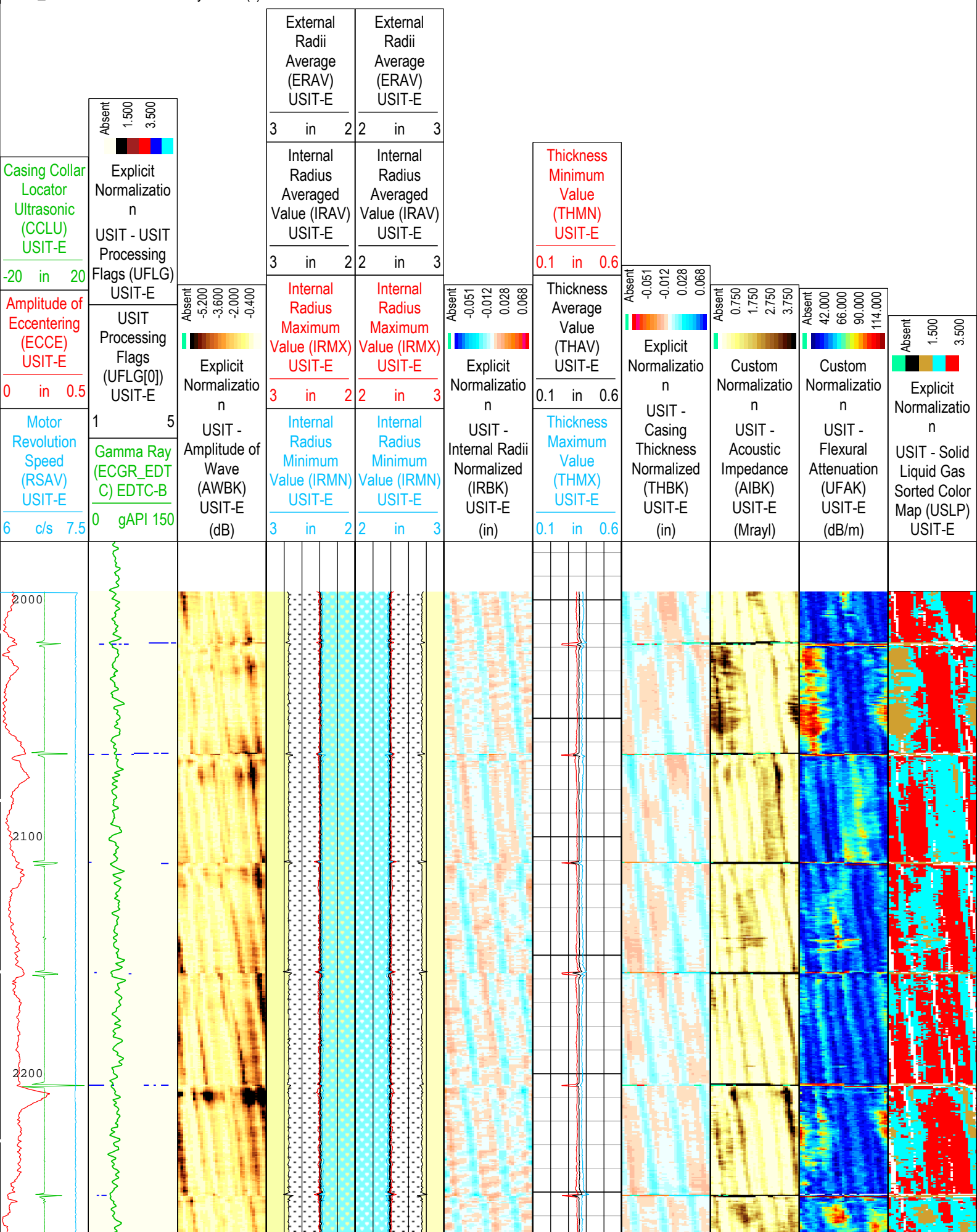
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[1]:Up	Up	1997.15 ft	2498.85 ft	19-Oct-2018 7:56:50 AM	19-Oct-2018 8:06:51 AM	ON	-1.90 ft	Yes

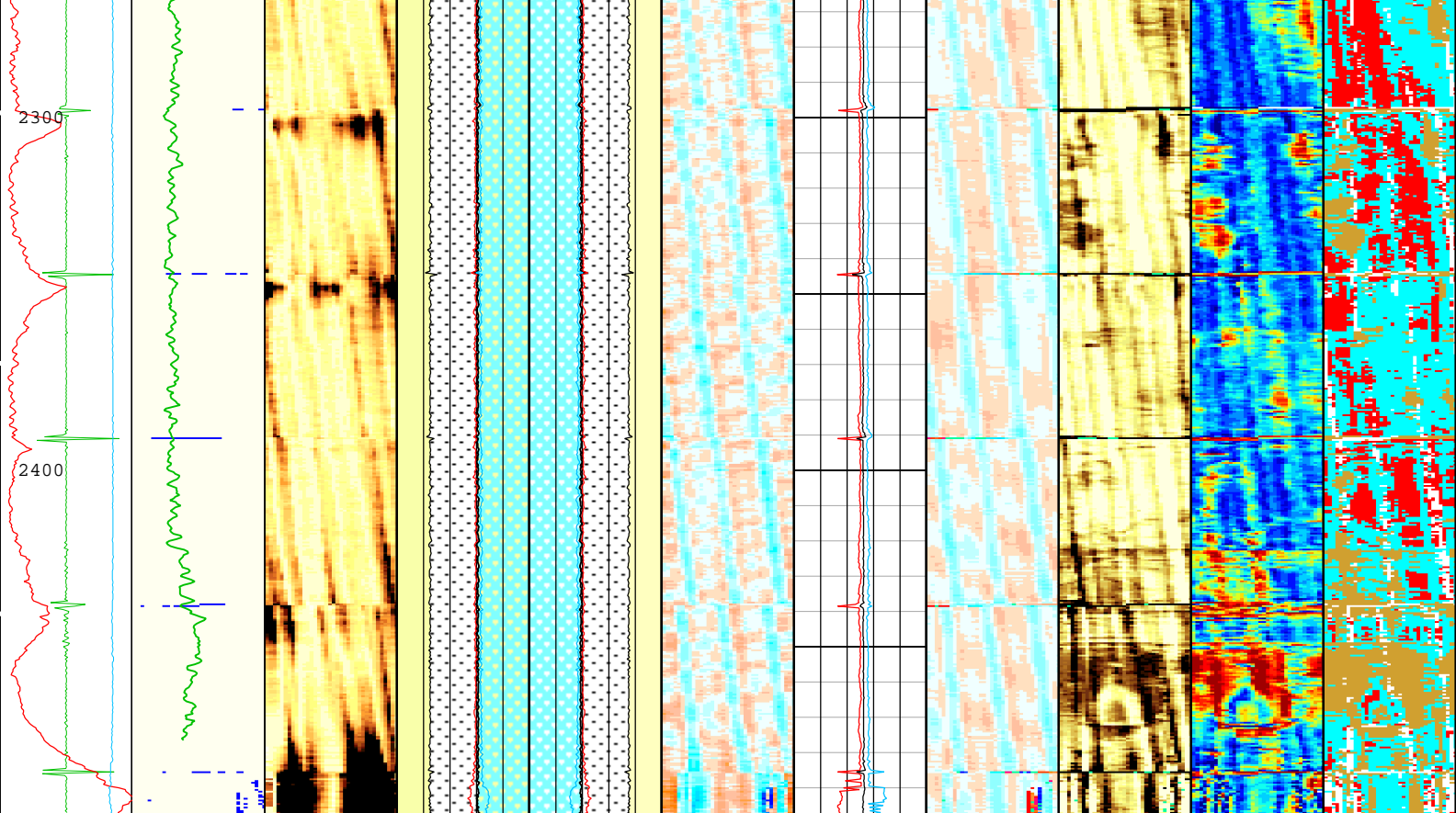
All depths are referenced to toolstring zero									
Log	Company:Crestone Peak Resources Operating LLC				Well:Sam 3N-25H-M166				
	One: Log[1]:Up:S003								

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: 19-Oct-2018 18:12:49

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] - :				 Coring Thickness Error					

TIME_1900 - Time Marked every 60.00 (s)





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 |

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	12092	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	-17.55	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
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	1.18	
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	-33	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	1975.5	2424
BS	8.5	2424	2498

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
EMXV	EMEX Voltage	USIT-E	60	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	137	us
U-USIT_UFEF	Far Receiver Window End 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

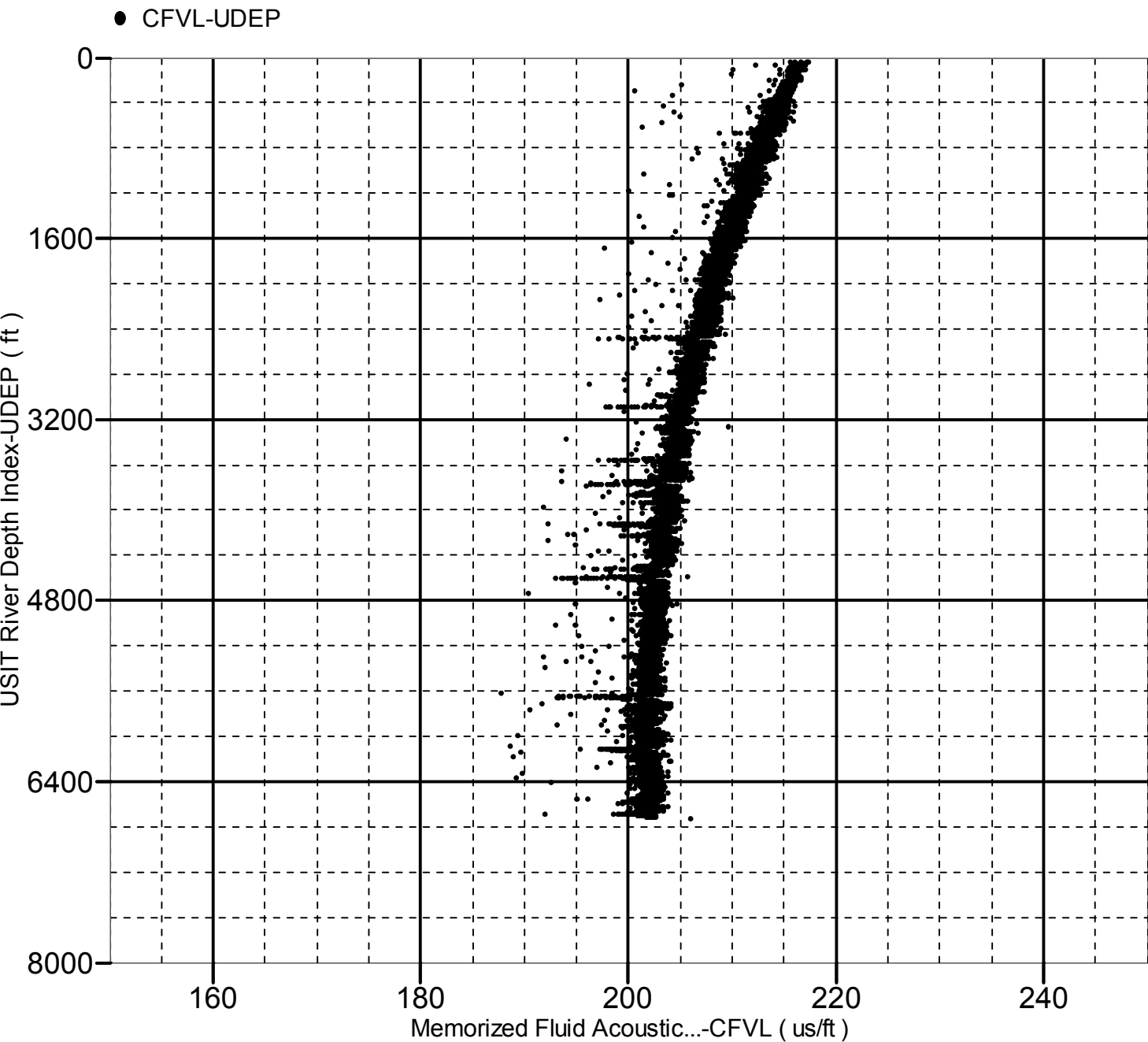
Company:Crestone Peak Resources Operating LLC Well:Sam 3N-25H-M166

One: Log[3]:Up:S003

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6733.50 to 42.50 ft



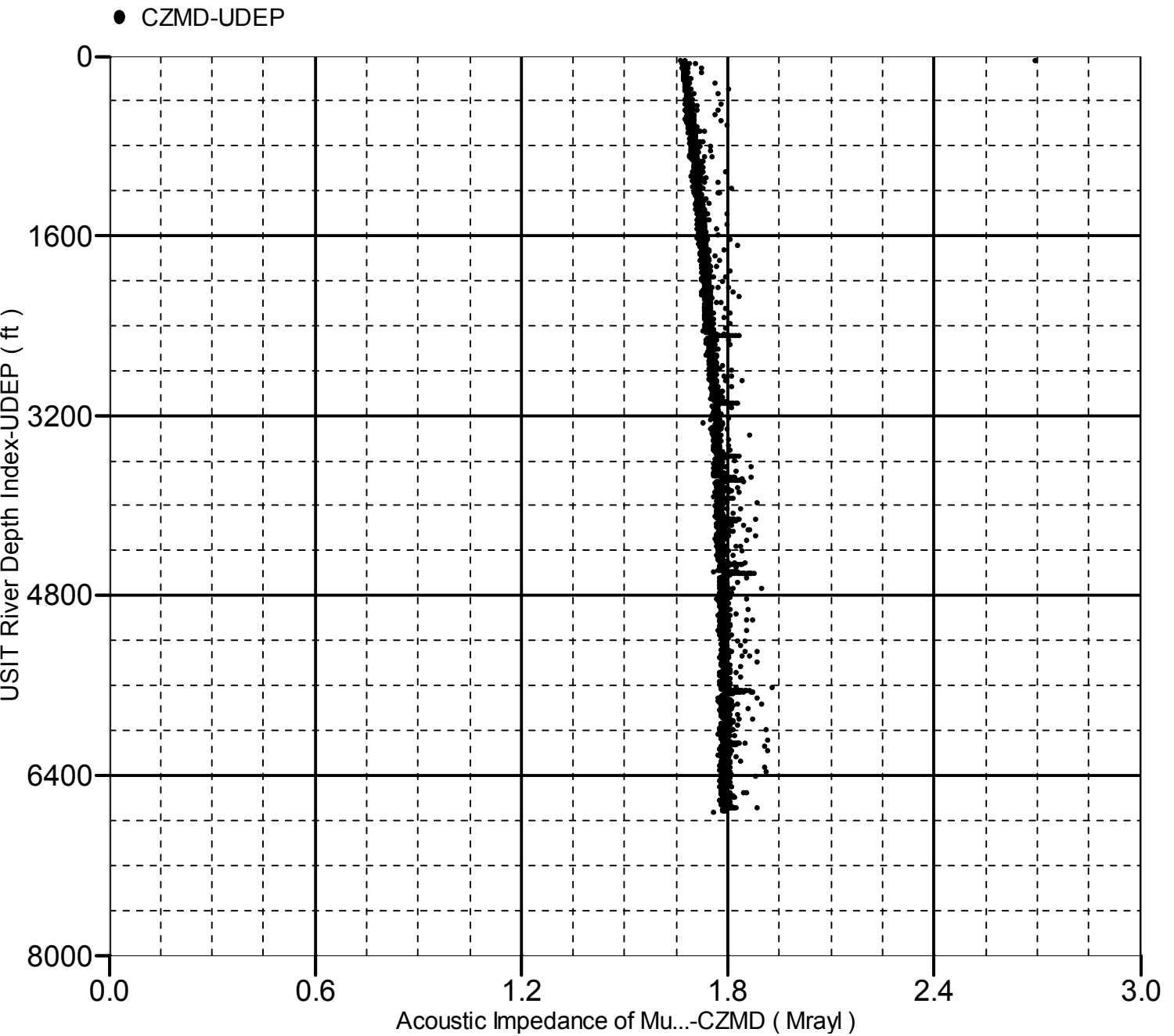
XYZ

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

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6733.50 to 42.50 ft



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