

Company: Anadarko Petroleum Company

Well: Spurling 36C-34HZ

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation
Gamma Ray - CCL LogCounty: Weld
Field: Wattenberg
Location: NWNW Sec. 34, T2N, R67W
Well: Spurling 36C-34HZ
Company: Anadarko Petroleum Company

Location:			
NWNW Sec. 34, T2N, R67W SHL: 377' FNL & 1178' FWL Lat/Long: 40.100998/-104.882209		Elev.:	K.B. 5034.00 ft G.L. 5013.00 ft D.F. 5033.00 ft
Permanent Datum:	Ground Level	Elev.:	5013.00 f
Log Measured From:	Kelly Bushing	21.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-123-39128-0000	34	2N	67W

Logging Date	19-Jun-2014		
Run Number	Run 1		
Depth Driller	8141.00 ft		
Schlumberger Depth	8141.00 ft		
Bottom Log Interval	7120.00 ft		
Top Log Interval			
Casing Fluid Type	Water		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.75 in		
From	1000.00 ft		
To	8141.00 ft		
Casing/Tubing Size	7 in		
Weight	26 lbm/ft		
Grade	N/A		
From	0.00 ft		
To	8141.00 ft		
Max Recorded Temperatures	218 degF		
Logger on Bottom	19-Jun-2014	09:50:00	
Unit Number	Location:	Time	
3030		Fort Morgan, CO	
Recorded By	Keri Ondrus		
Witnessed By	Trevor Davies		

Disclaimer

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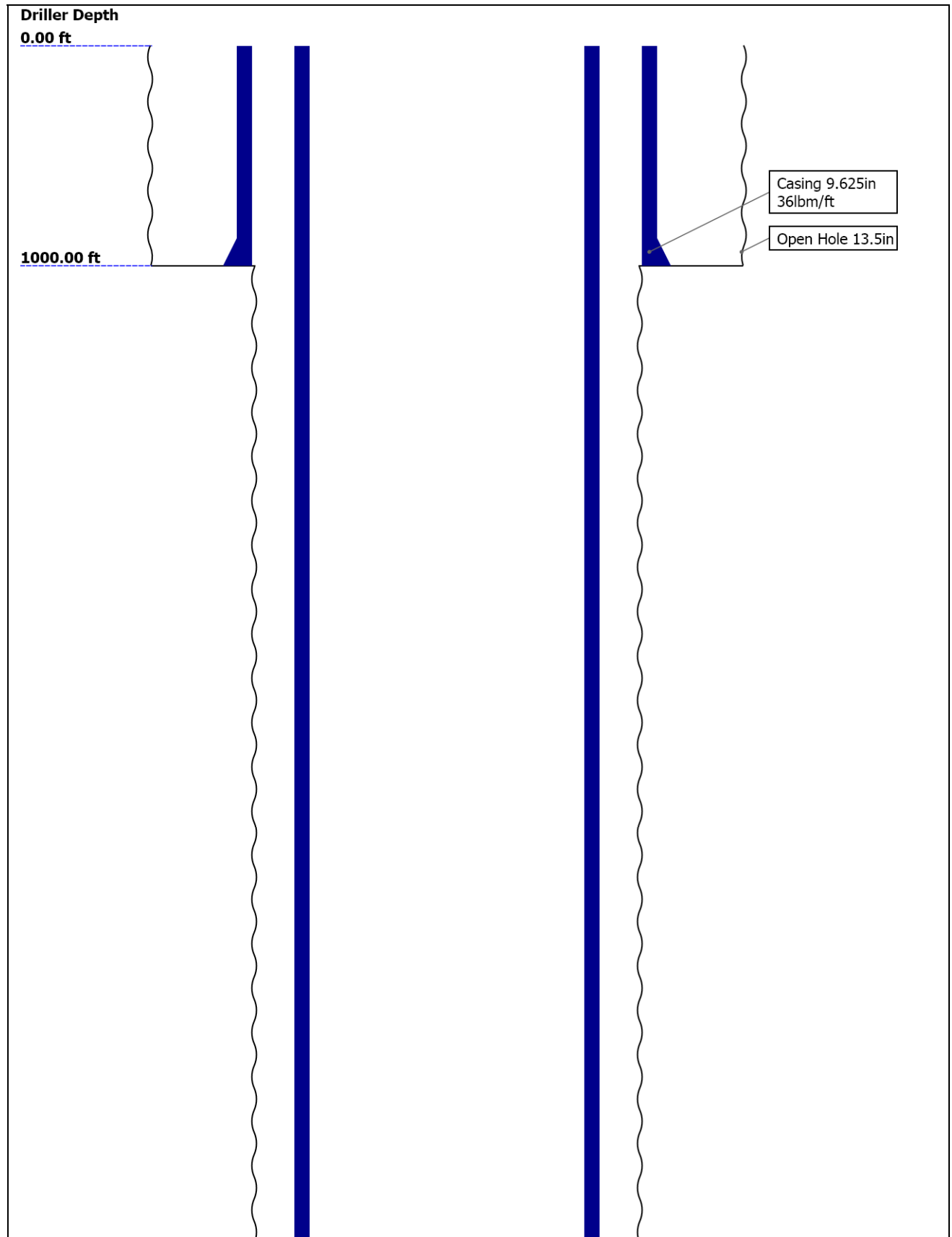
12.1 USI Fluid Properties Measurement

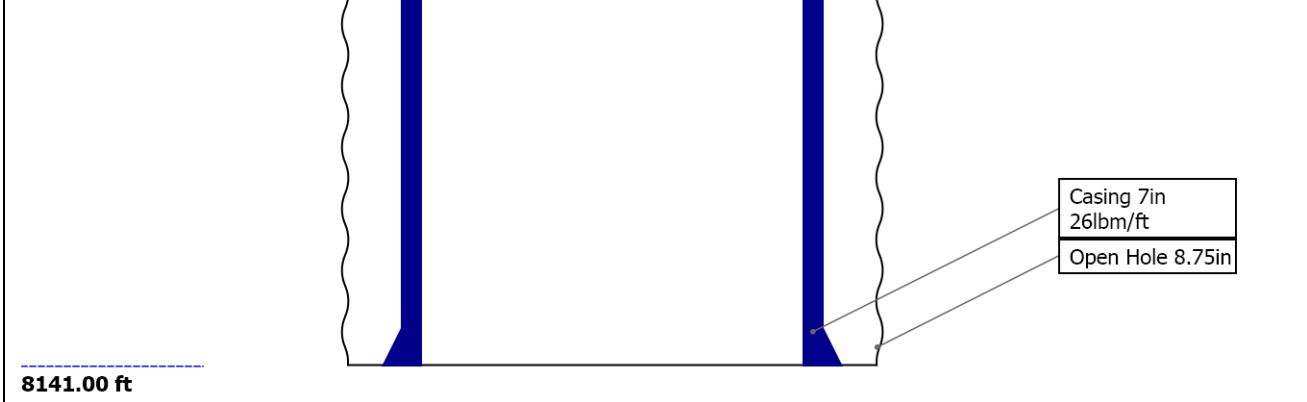
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13.1 USI Fluid Properties Measurement

Well Sketch





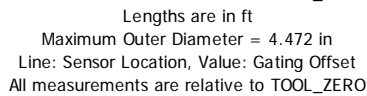
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75				
Top Driller (ft)	0	1000				
Top Logger (ft)	0	1000				
Bottom Driller (ft)	1000	8141				
Bottom Logger (ft)	1000	8141				
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	36	26				
Inner Diameter (in)	8.921	6.276				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	1000	8141				
Bottom Logger (ft)	1000	8141				

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	19-Jun-2014					
Time Log Started	08:12:40					
Date Log Finished	19-Jun-2014					
Time Log Finished	12:52:31					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)	7120.00					
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.750					
Logging Unit Number	3030					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Keri Ondrus					
Witnessed By	Trevor Davies					
Service Order Number	BX19-00146					

Service Order Number	DX15-00140					
Borehole Fluids						
Parameter(unit)	Run 1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	218					
Salinity (ppm)	0					
Density (lbm/gal)	8.4					
Date Logger on Bottom	19-Jun-2014					
Time Logger on Bottom	09:50:00					
Total Solid (%)						
High Gravity Solids (%)						
Remarks and Equipment Summary						
Run 1: Toolstring			Run 1: Remarks			
<div>Equip name LengthMP name Offset</div> <div>LEH-QT:21 33.9210LEH-QT:2110</div> <div>DTC-H:938 31.006ECH-KC:10472DTC-H:9386</div> <div>SGT-N:103 28.0086SGH-K:3164SGC-TB:10386SGD-TAA:21892</div> <div>CME-AF 22.5</div> <div>AH-184:27 18.7146</div> <div>USIT-E:977 16.71ECH-MFA:1969USAC-A:977USIS-A:2797USSC-B:1730IBCS-B:910FAR-SENSORNEAR-SENSORUSI-SENSOREMITTER-SENSOR</div> <div>CTEM 30.1HV 0.00ToolStat 28.00usTelStatus 28.00GR 27.09USI Sens 0.87</div>			<div>Toolstring run as per toolsketch.</div> <div>4.5" liner top at 7136'. Bottom log interval at 7115' to maintain distance from liner top.</div> <div>Main pass run under 3000 PSI. Repeat pass run without pressure.</div> <div>Full lube used to reach ground level with logs.</div> <div>Cemented by Halliburton.</div> <div>13 PPG lead and 14.4 PPG tail cement. HAL welllife slurry with rubber compound.</div> <div>Estimated top of cement at</div> <div>Thank you for choosing Schlumberger wireline!</div> <div>SLB crew:Derrick Hunter, Gary Lapp, and Keri Ondrus.</div>			



Depth Summary

Run 1

Depth Measuring Device

Type	IDW-B
Serial Number	6428
Calibration Date	21-Apr-2014
Calibrator Serial Number	
Calibration Cable Type	7-39PLXS
Wheel Correction 1	-5
Wheel Correction 2	-4

Tension Device

Type	CMTD-B/A
Serial Number	777
Calibration Date	12-Jun-2014
Calibrator Serial Number	78135a
Number of Calibration Points	10
Calibration Root Mean Square Error	27
Calibration Peak Error	43

Logging Cable

Type	7-39P-LXS
Serial Number	F713271
Length	18200.00 ft
Conveyance Type	Wireline
Rig Type	Crane

Run 1:Depth Control Parameters

Log Sequence	Subsequent Trip To the Well
Reference Log Name	Ultrasonic Imager: Cement Evaluation
Reference Log Run Number	1
Reference Log Date	08-May-2014
Subsequent Trip Down Log Correction	6.00 ft

Depth Control Remarks

All Schlumberger depth control procedures followed.
IDW used as primary depth control device.
Z-chart used as secondary depth control device.

USI IBC SLG Composite

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[5]:Up	7125.78	16.67

**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 = "Manual".

CZMD uses ZMUD parameter zoned table below

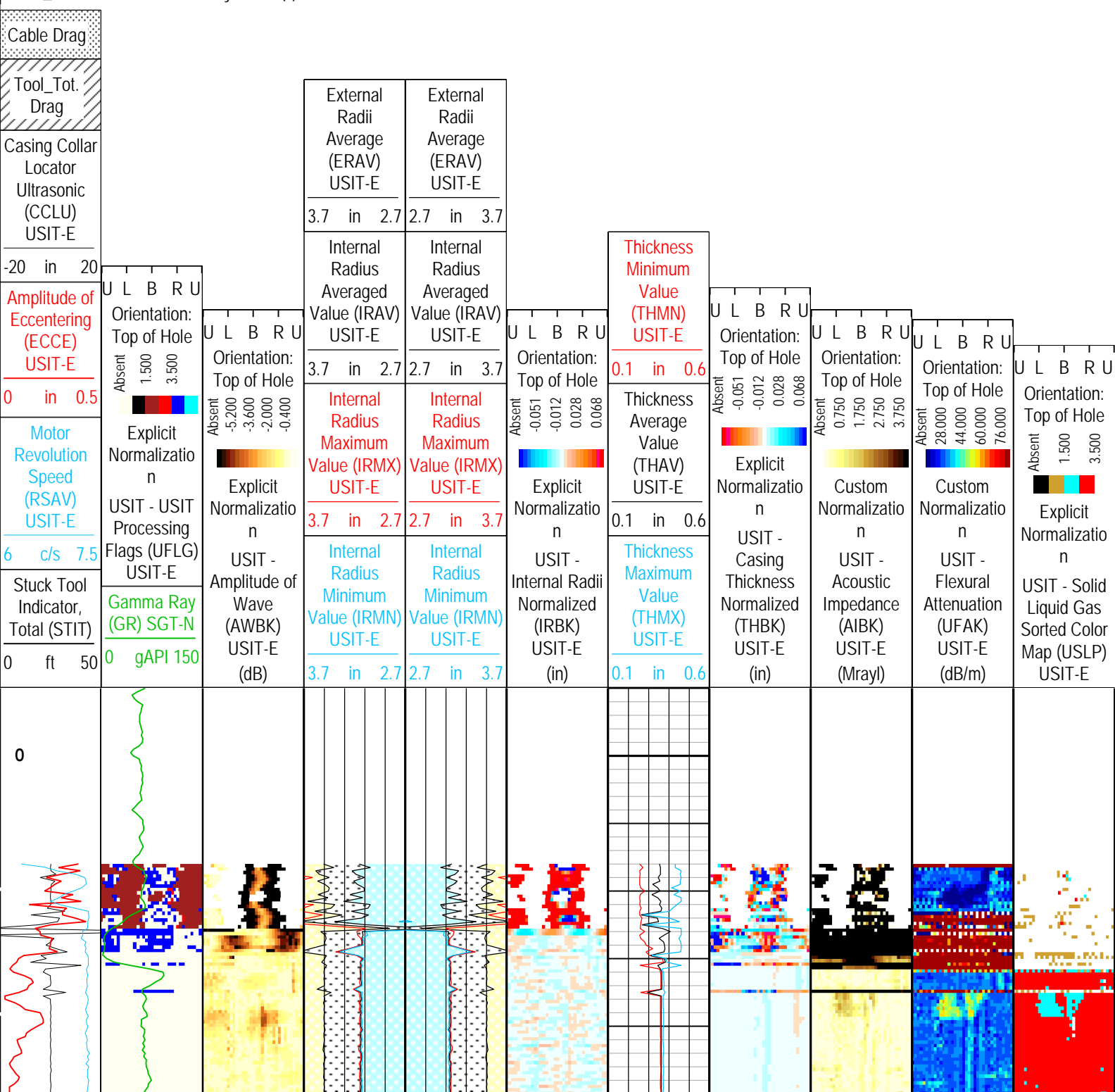
Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	75	1.67	1.67
75	1000	1.66	1.66
1000	2000	1.67	1.67
2000		1.68	1.68

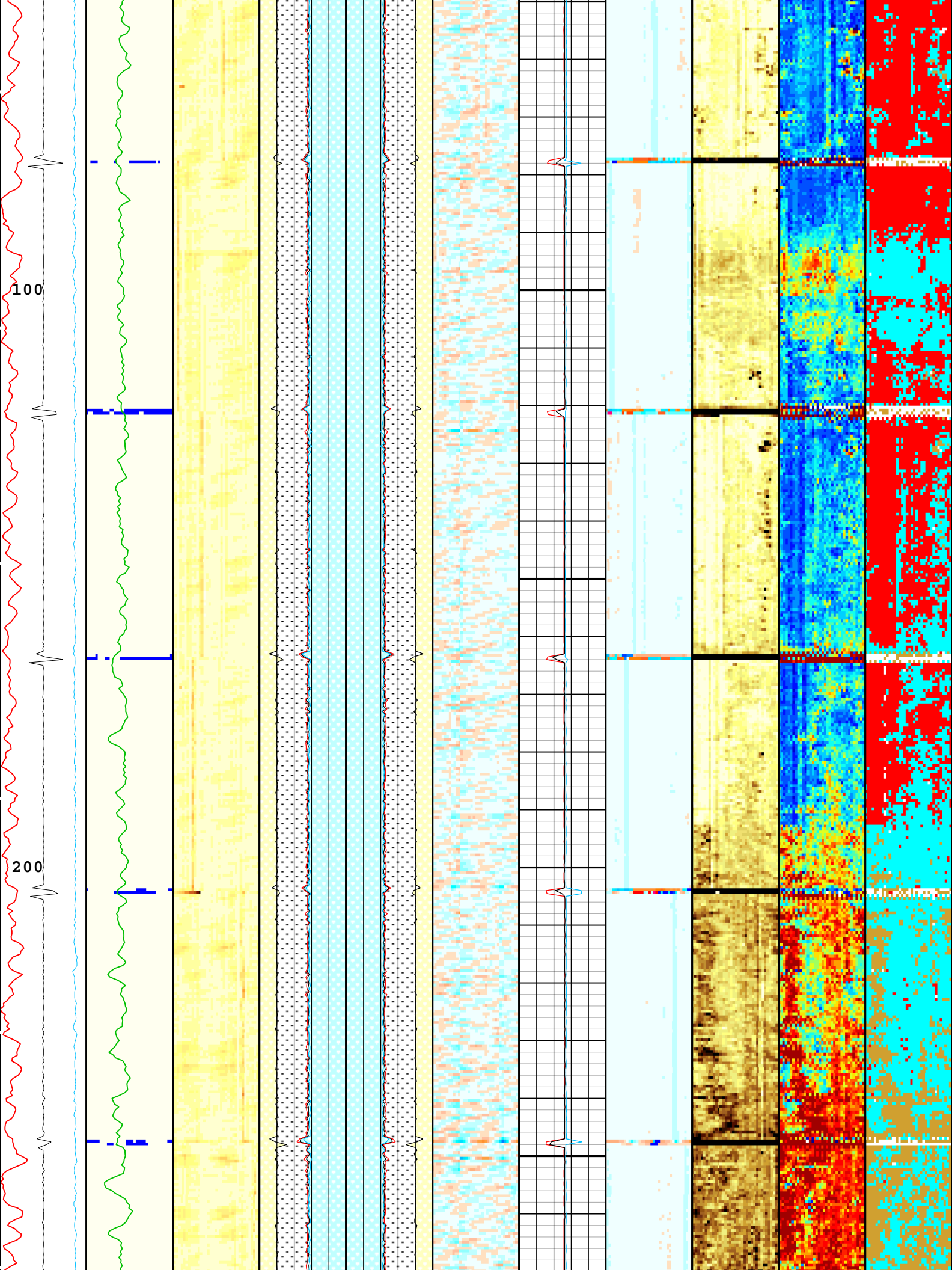
Run 1

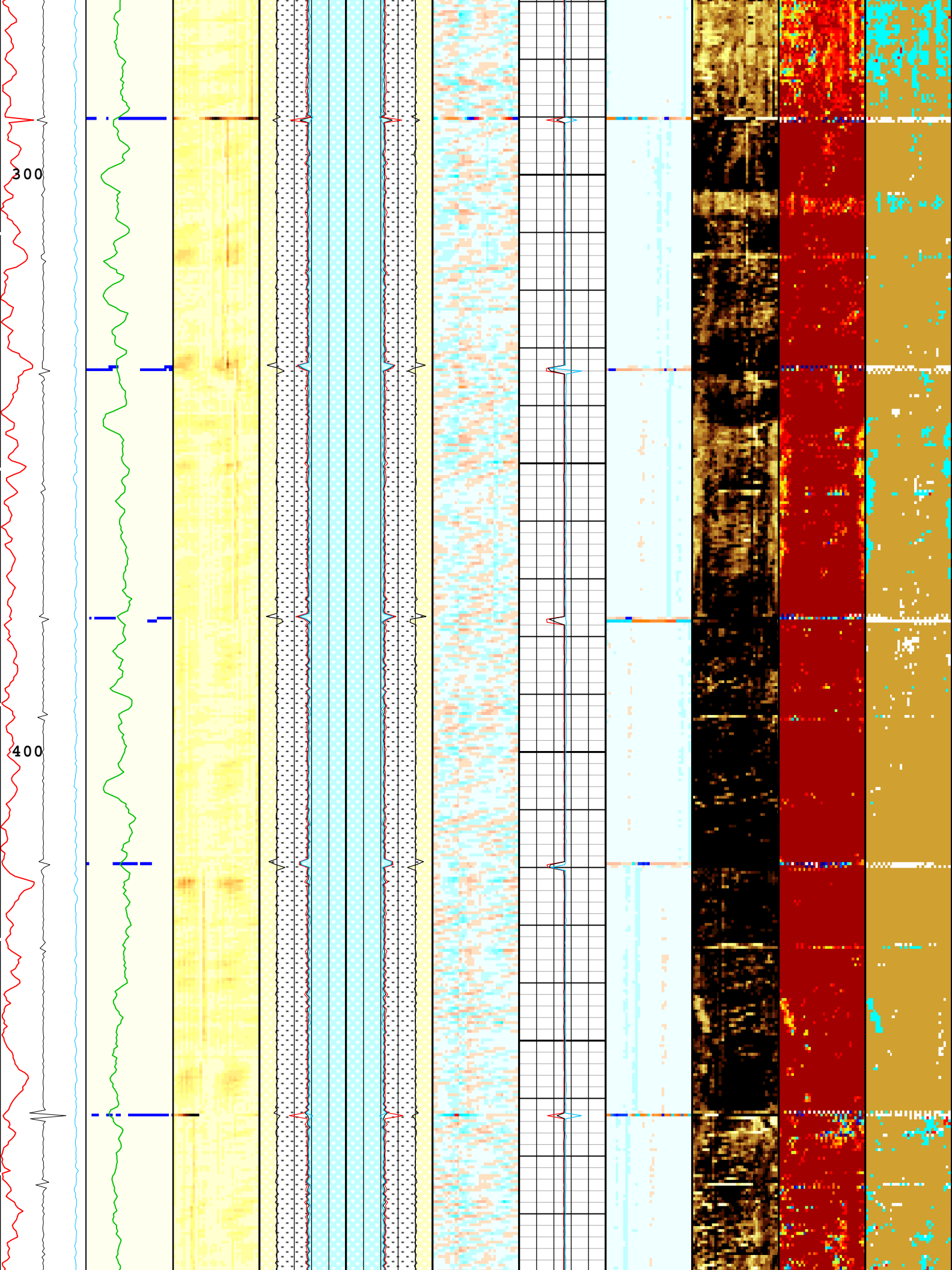
IBC SLG Composite - 3000 PSI

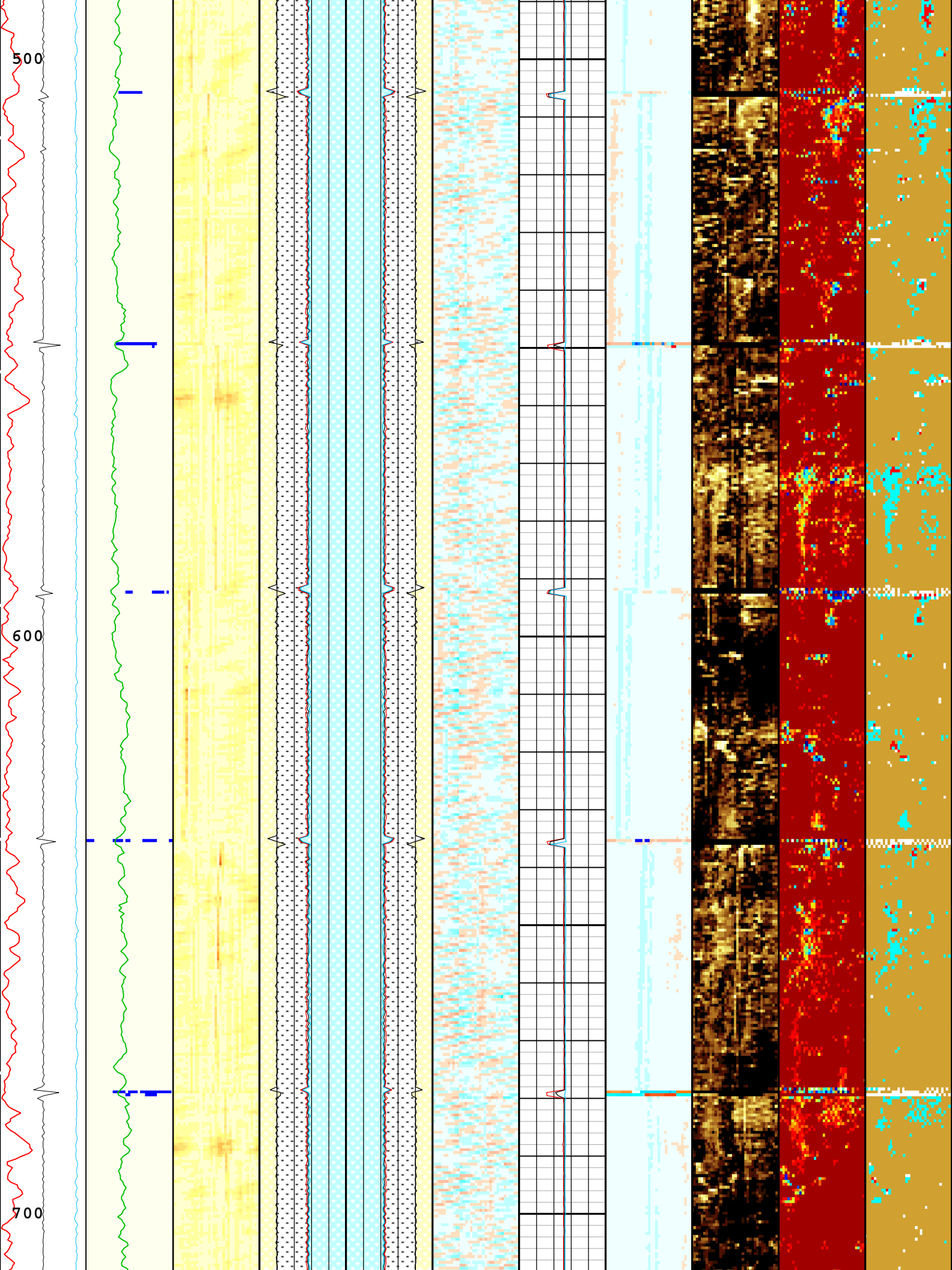
Software Version

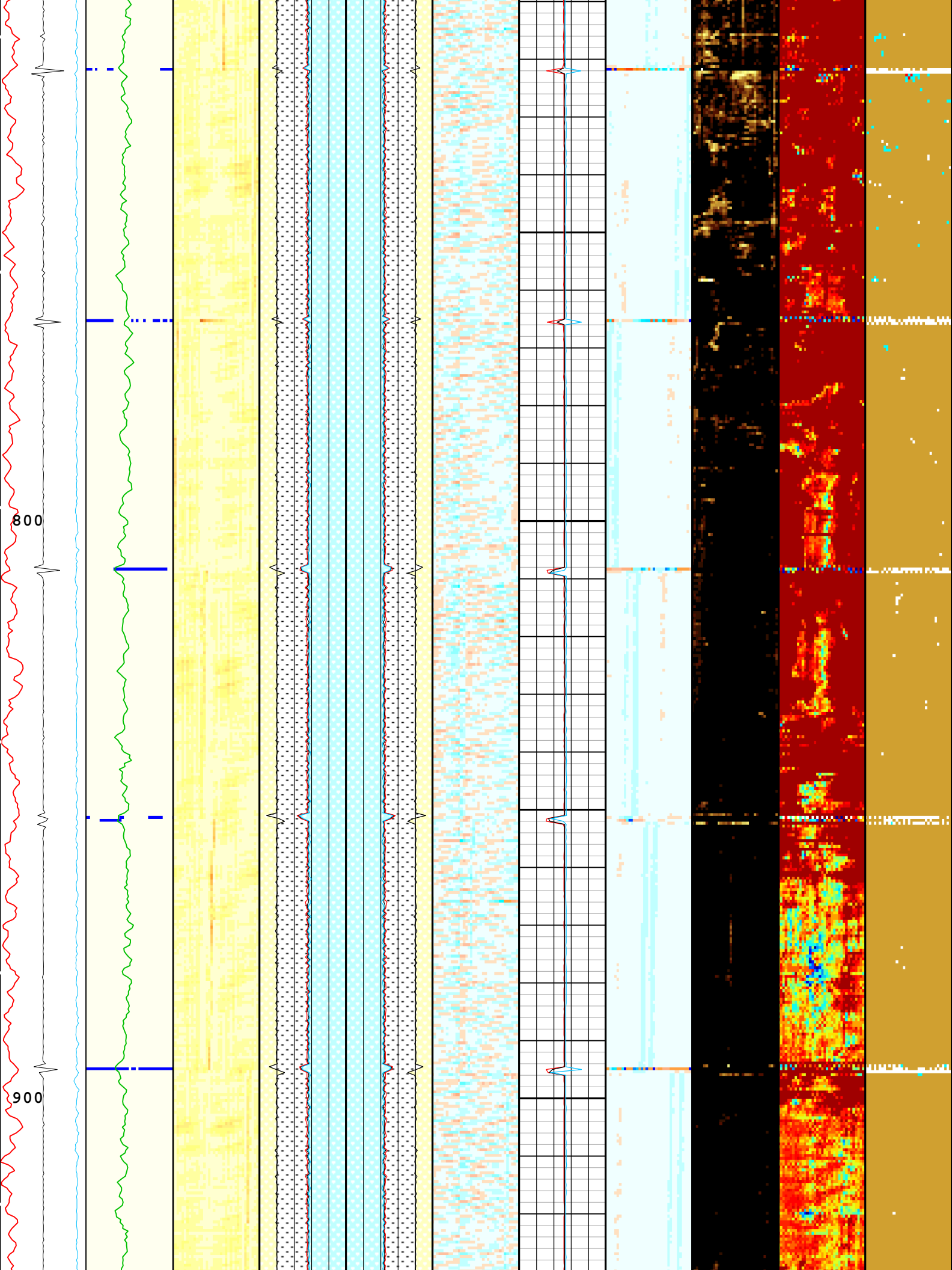
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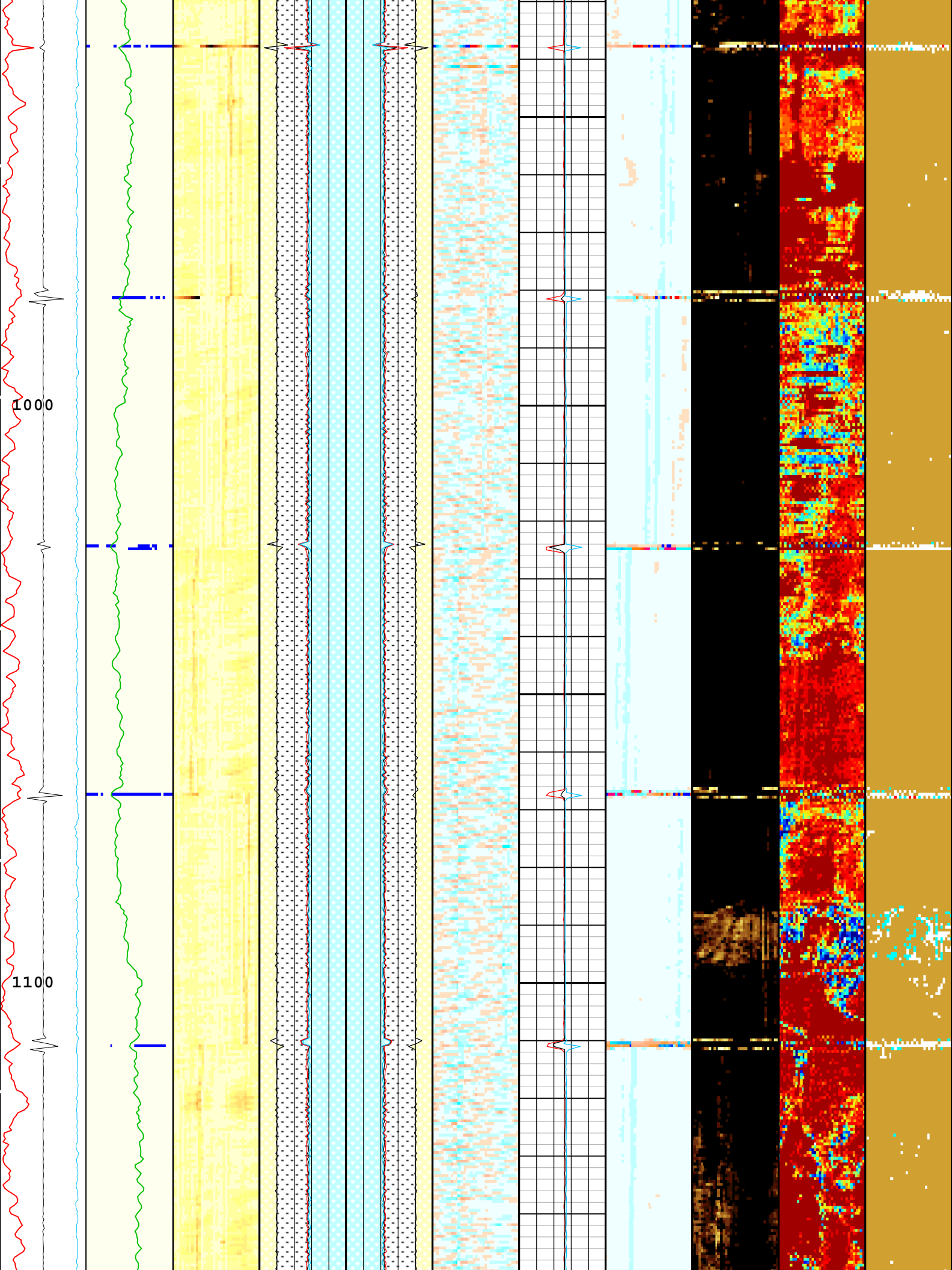


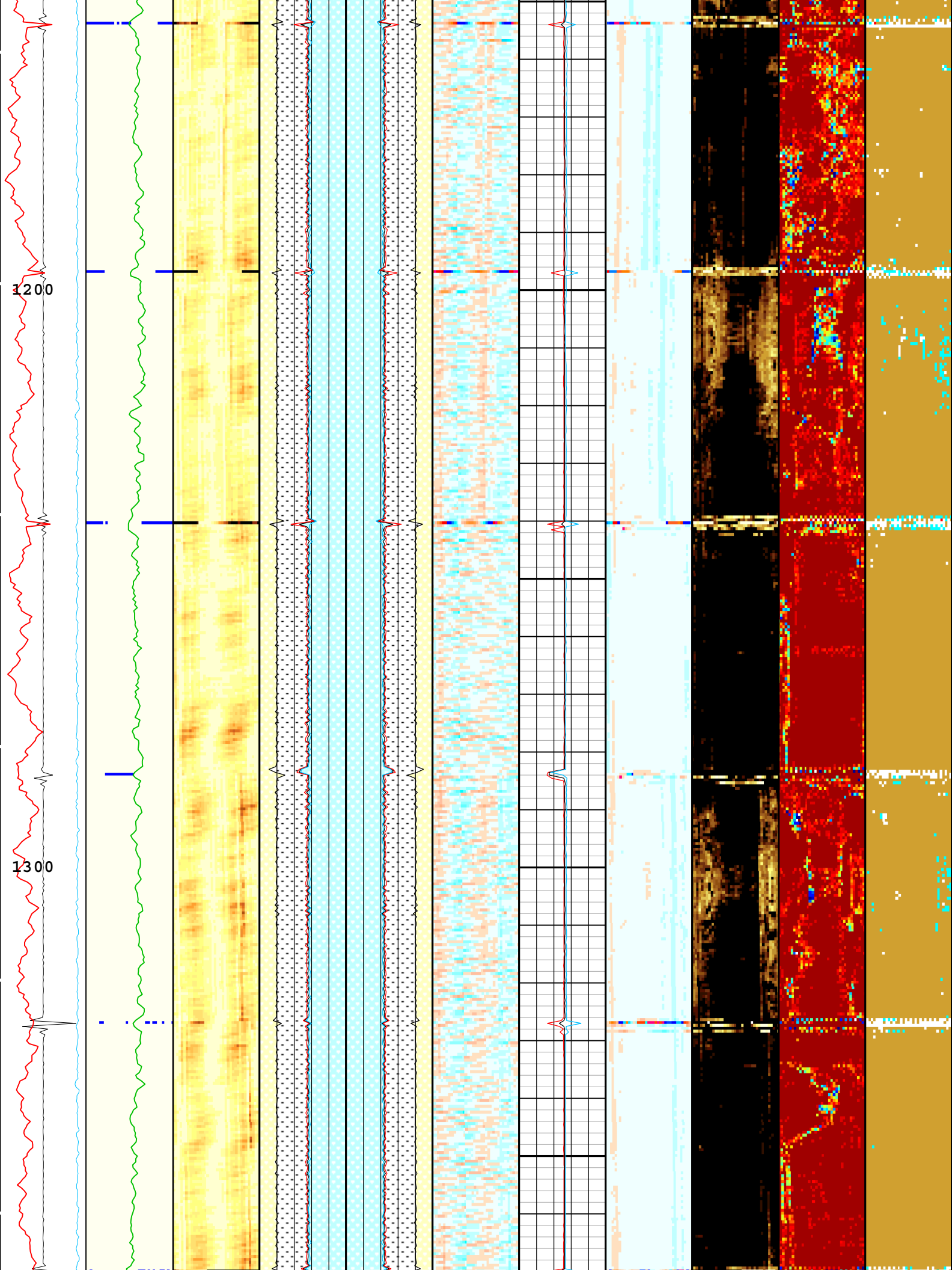


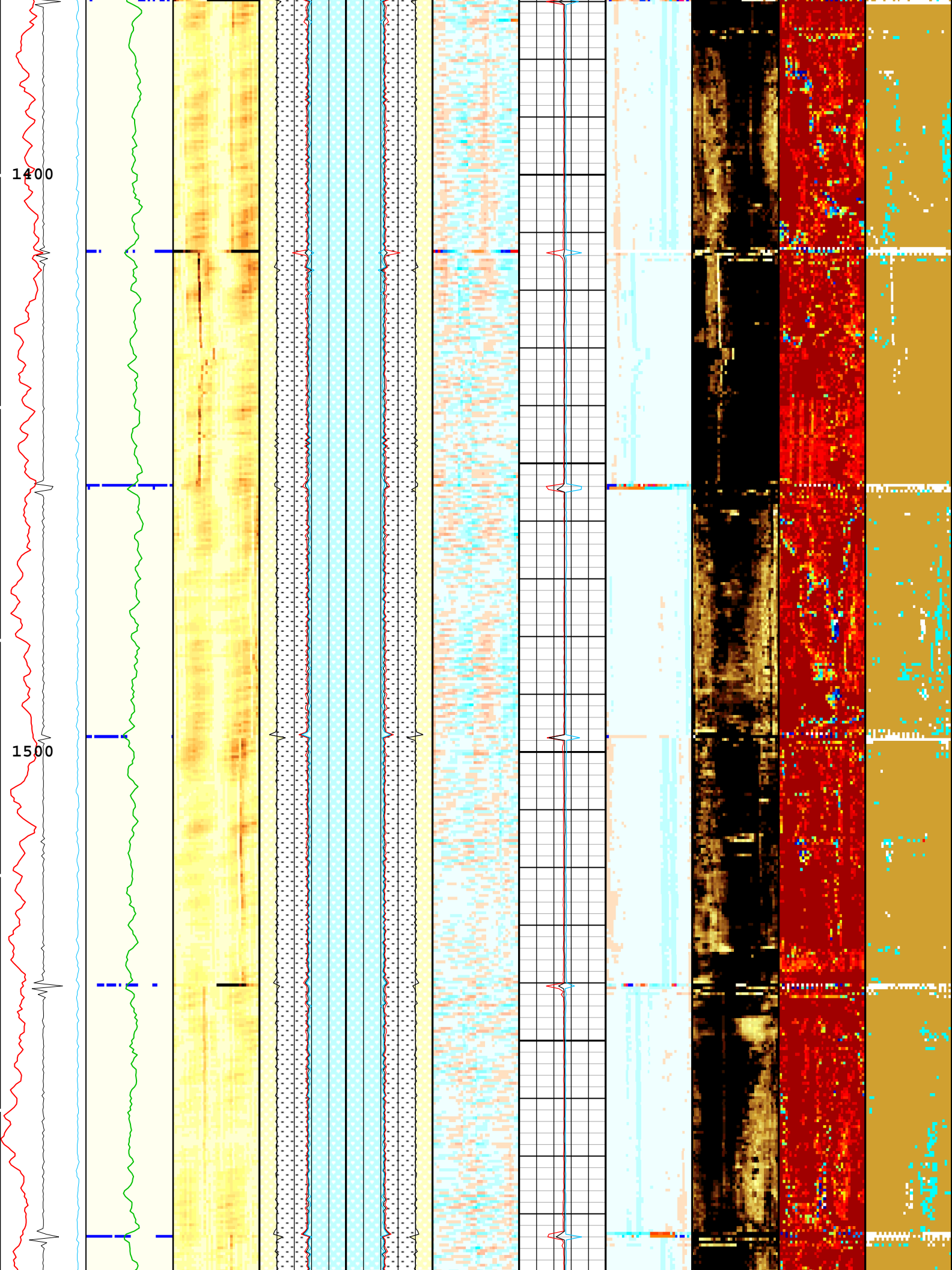


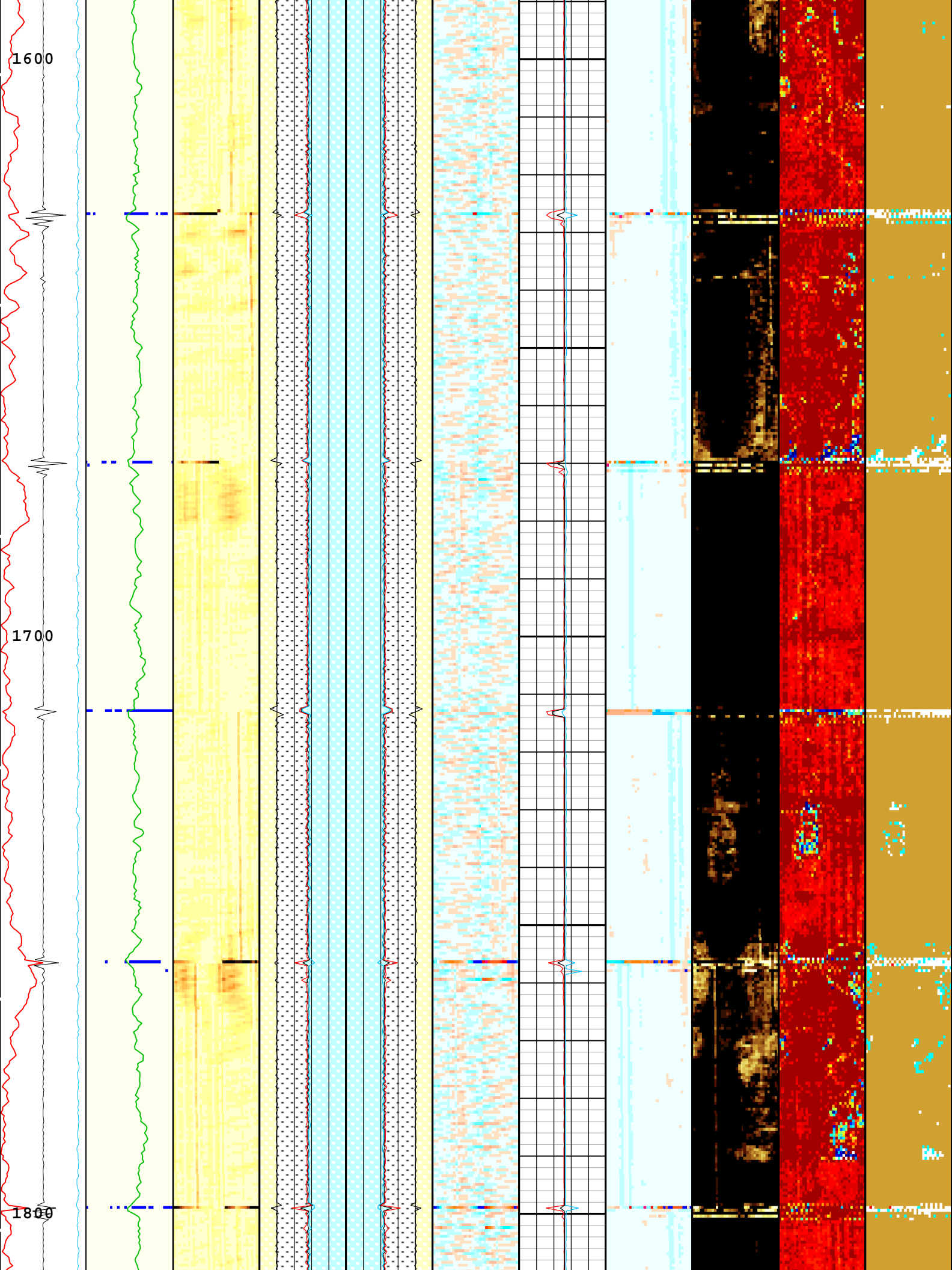


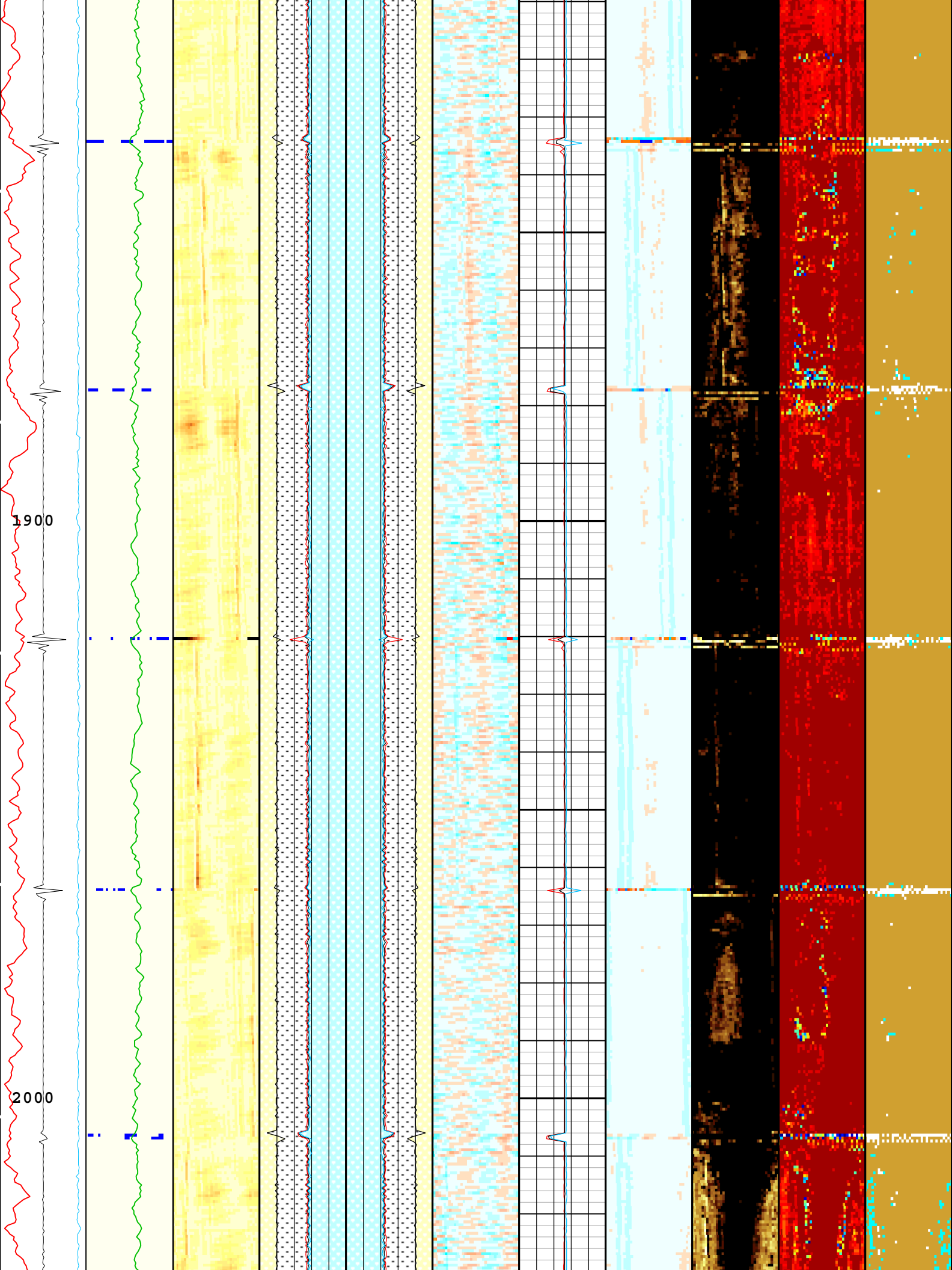


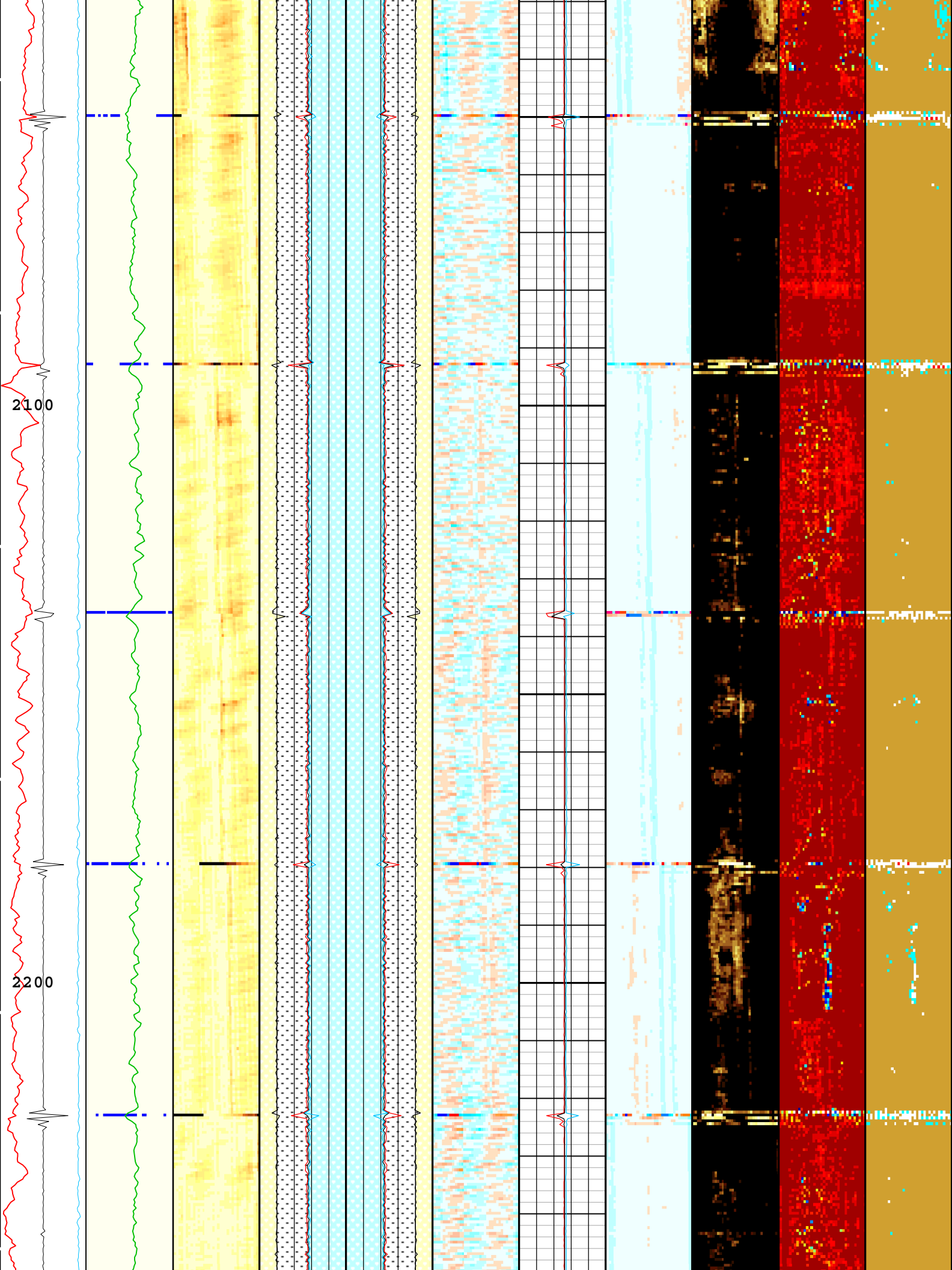


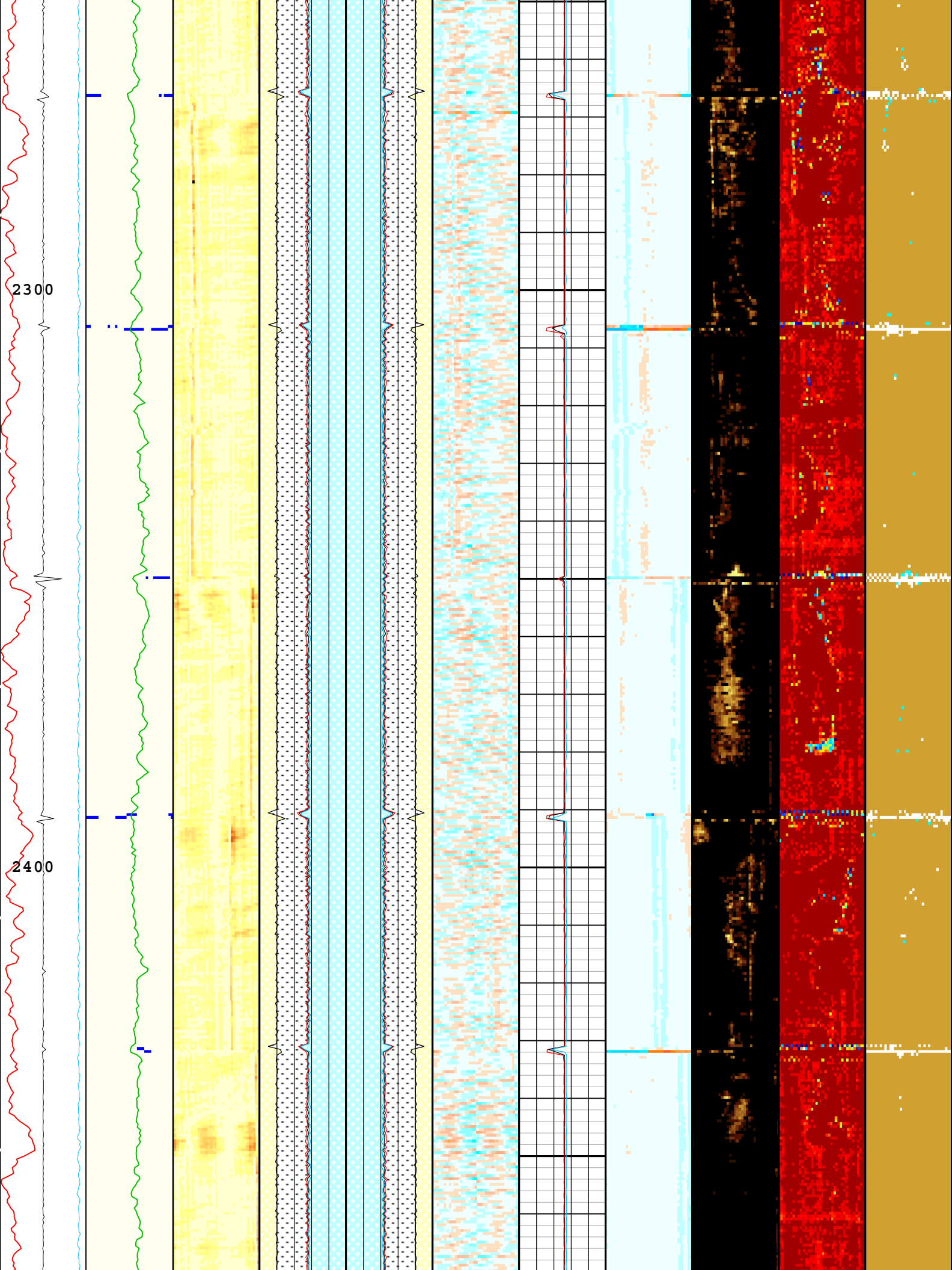


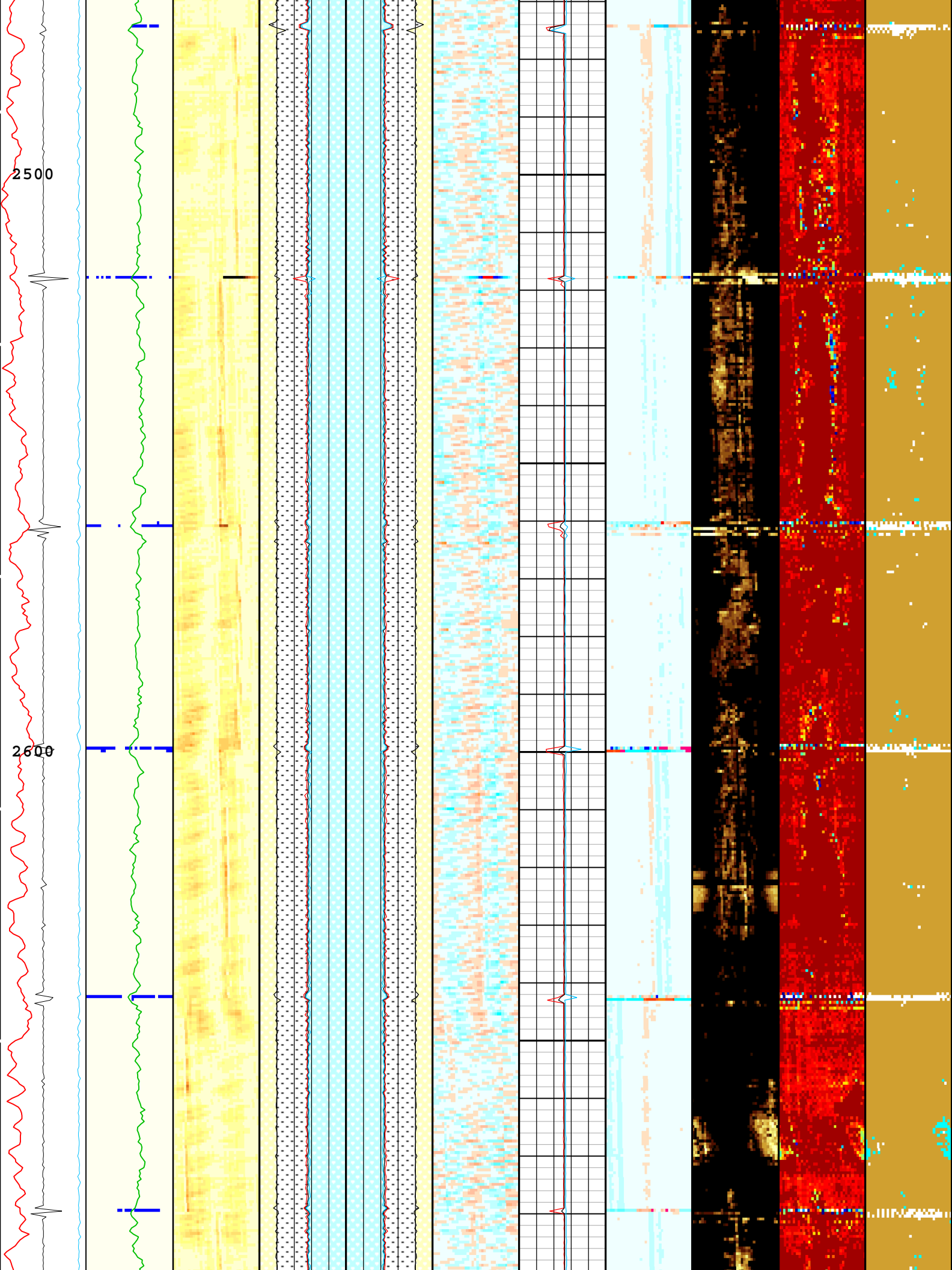


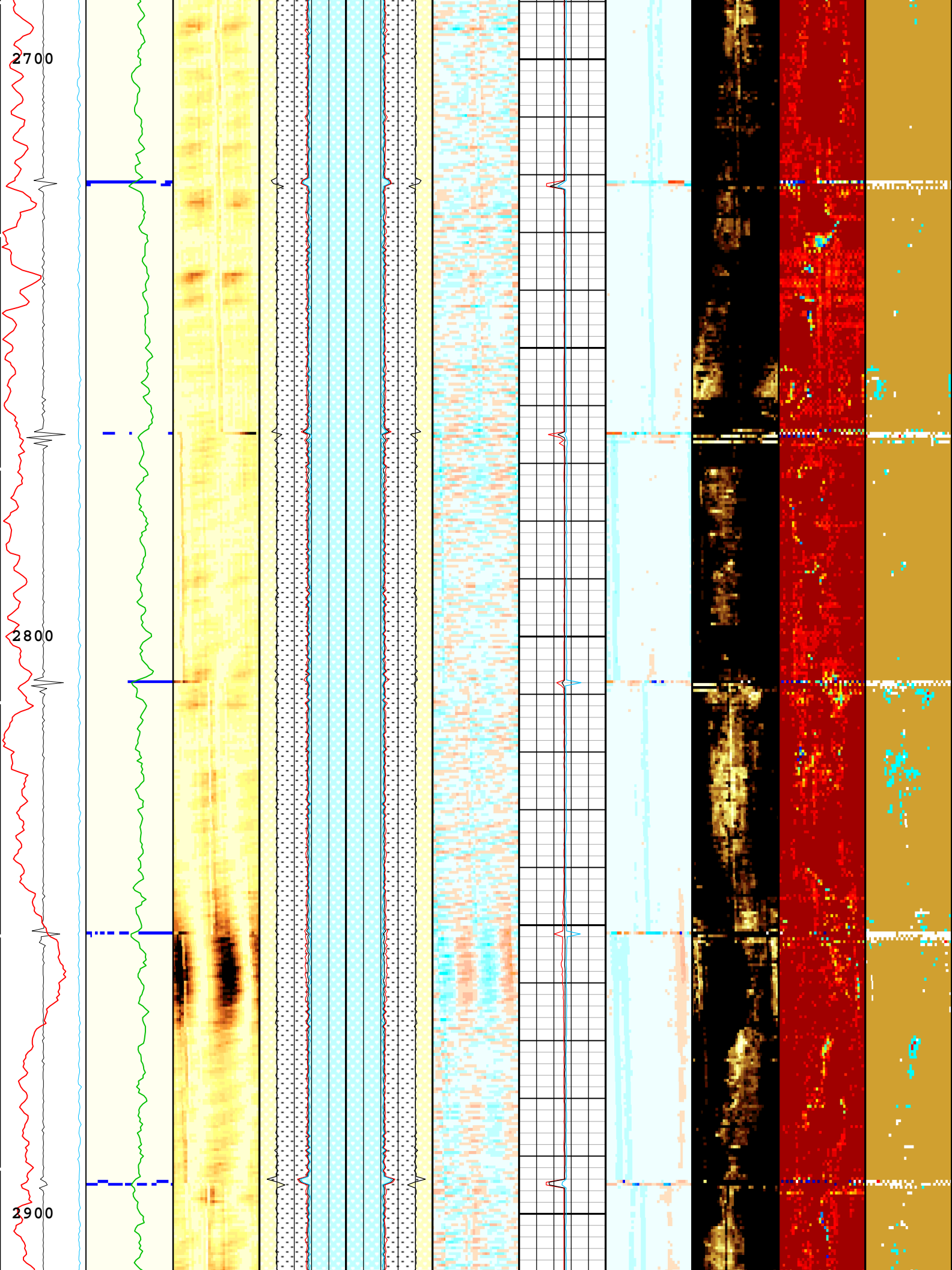


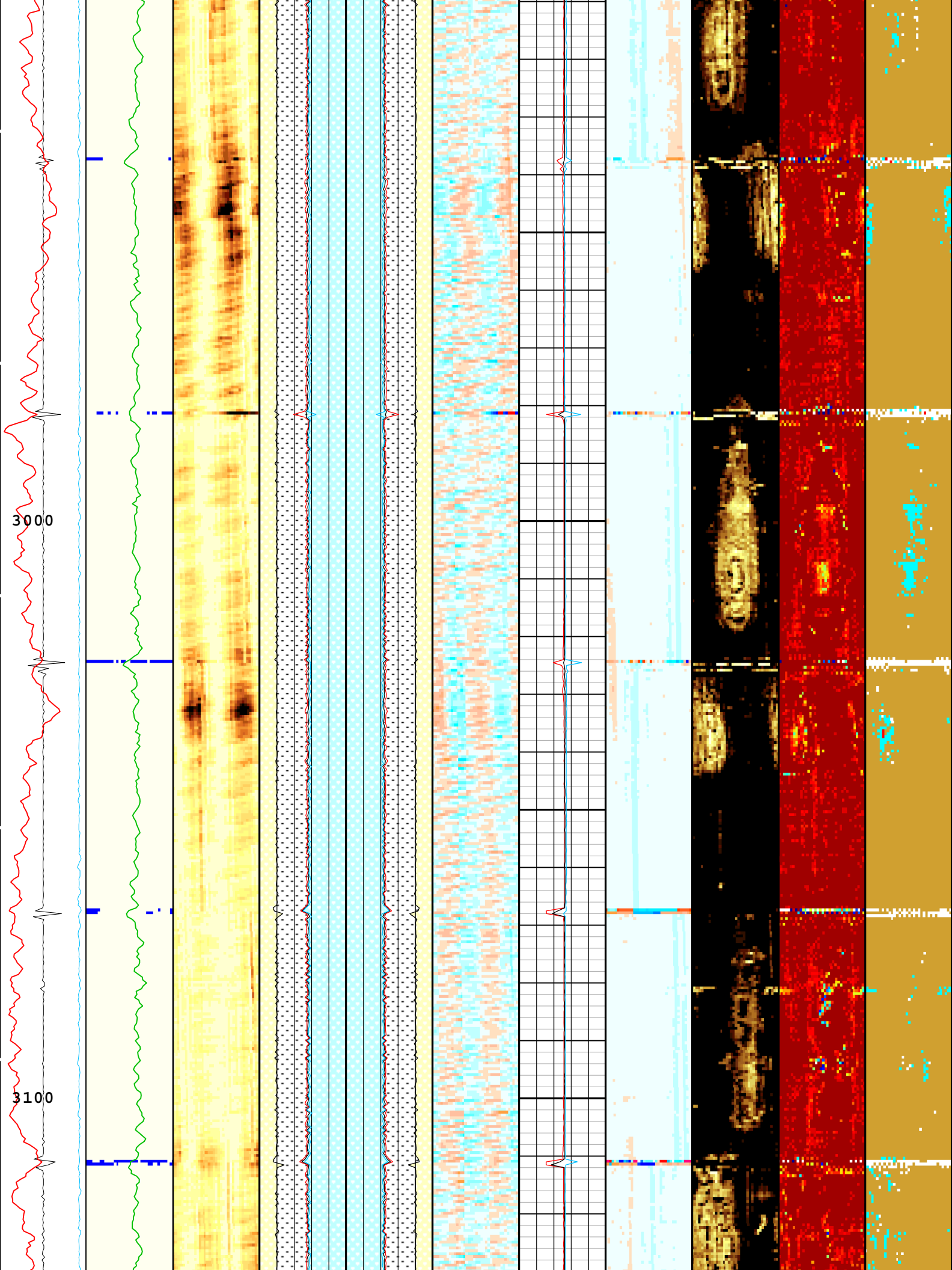


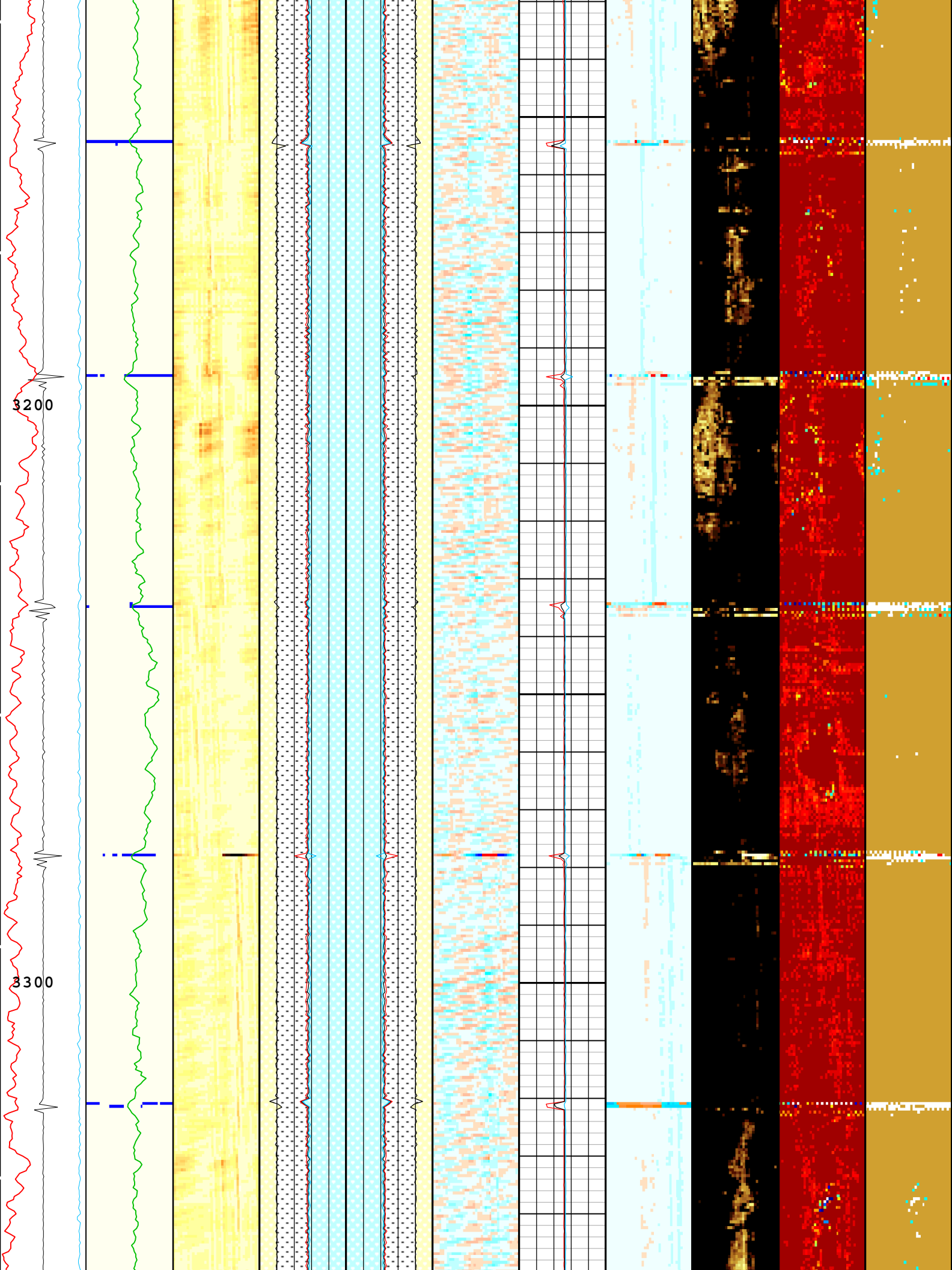


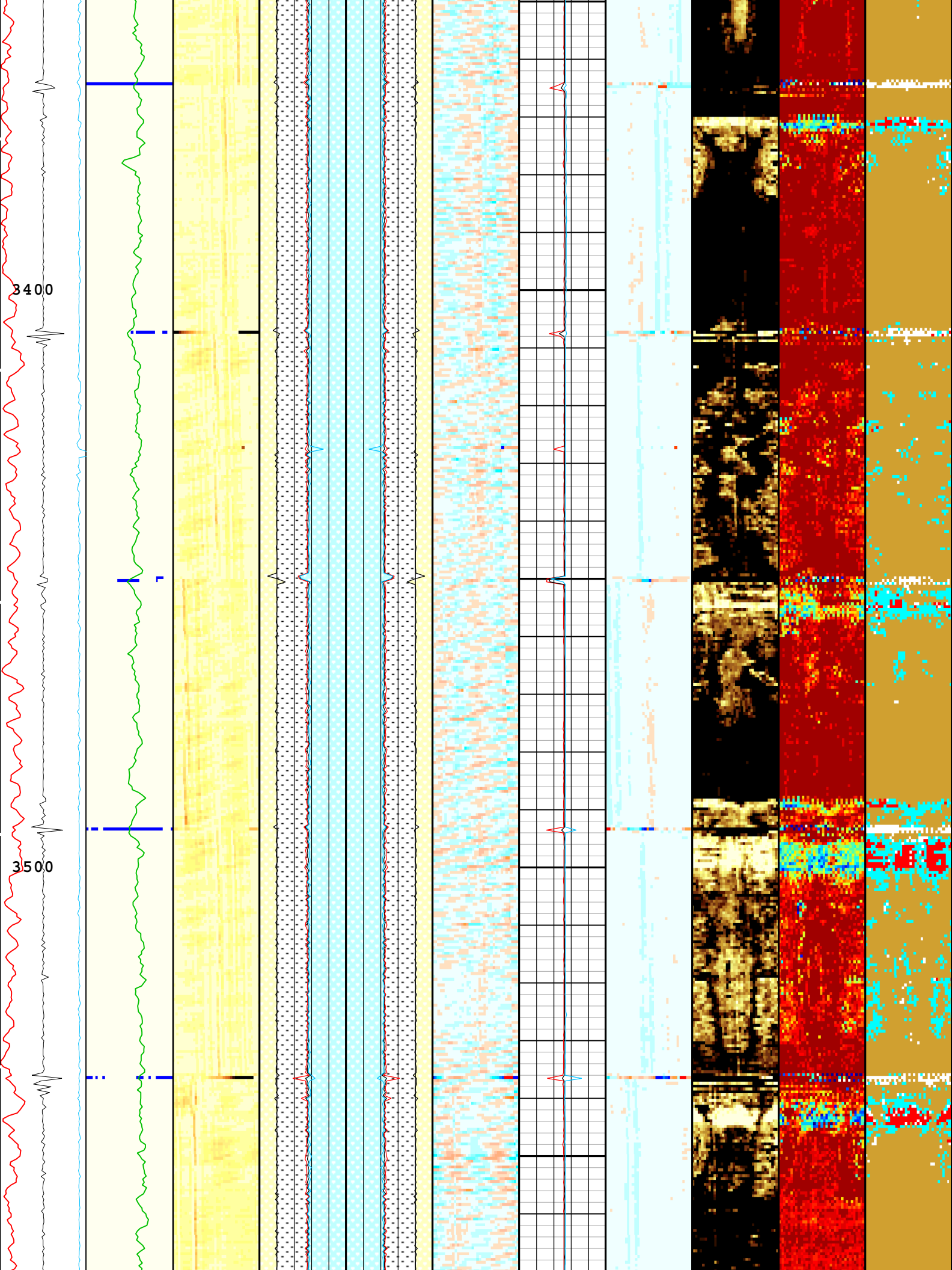


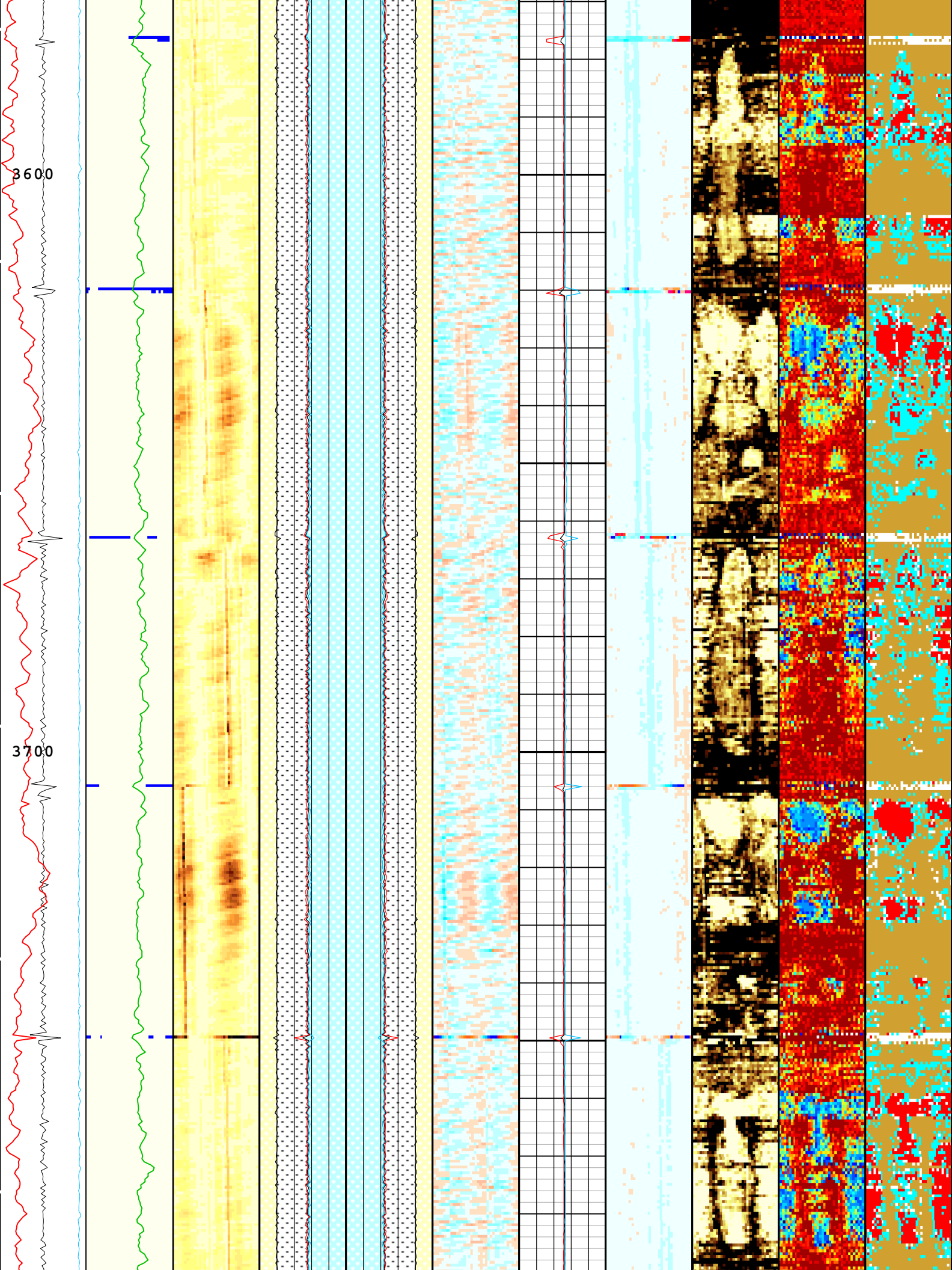


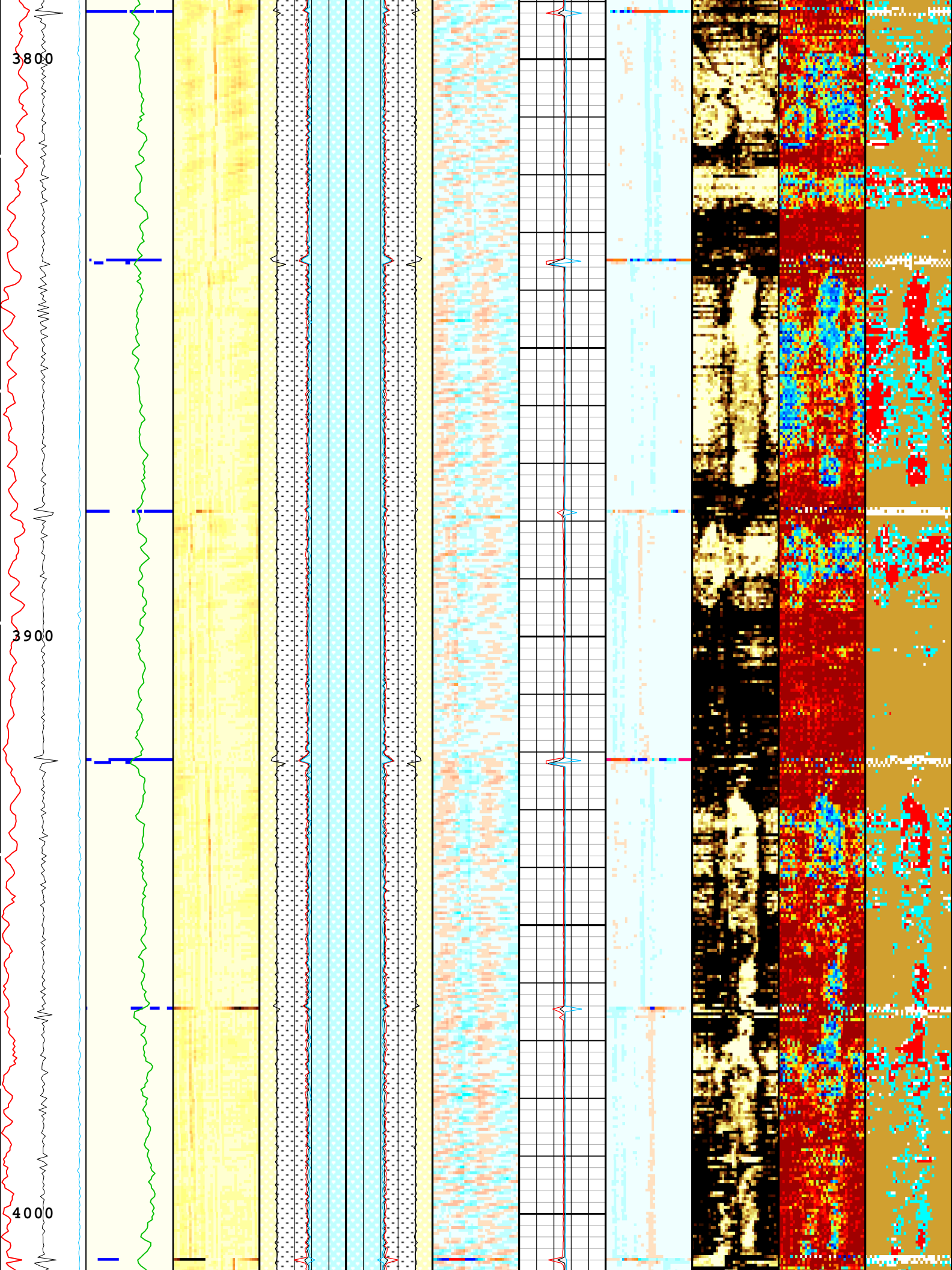


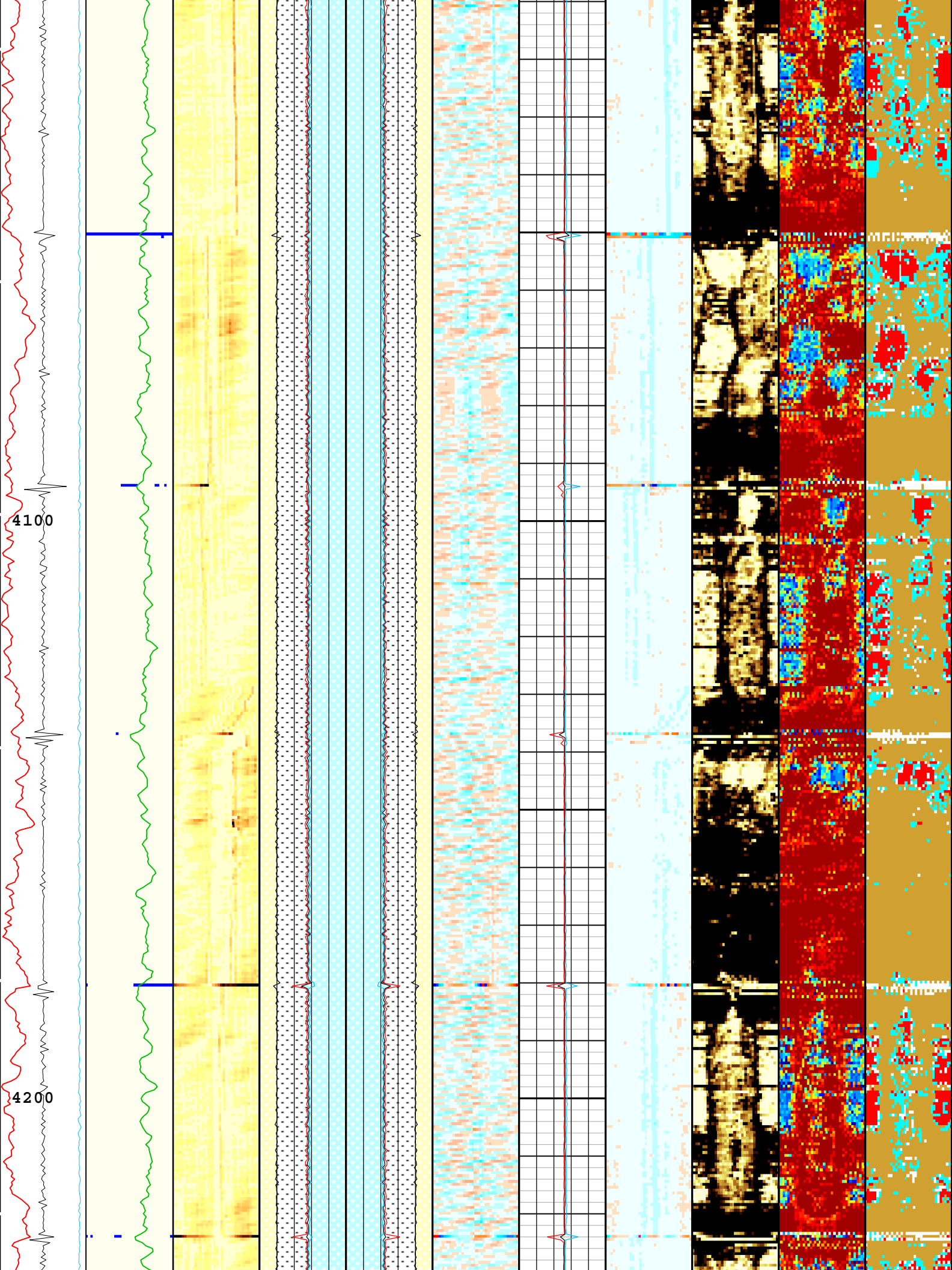


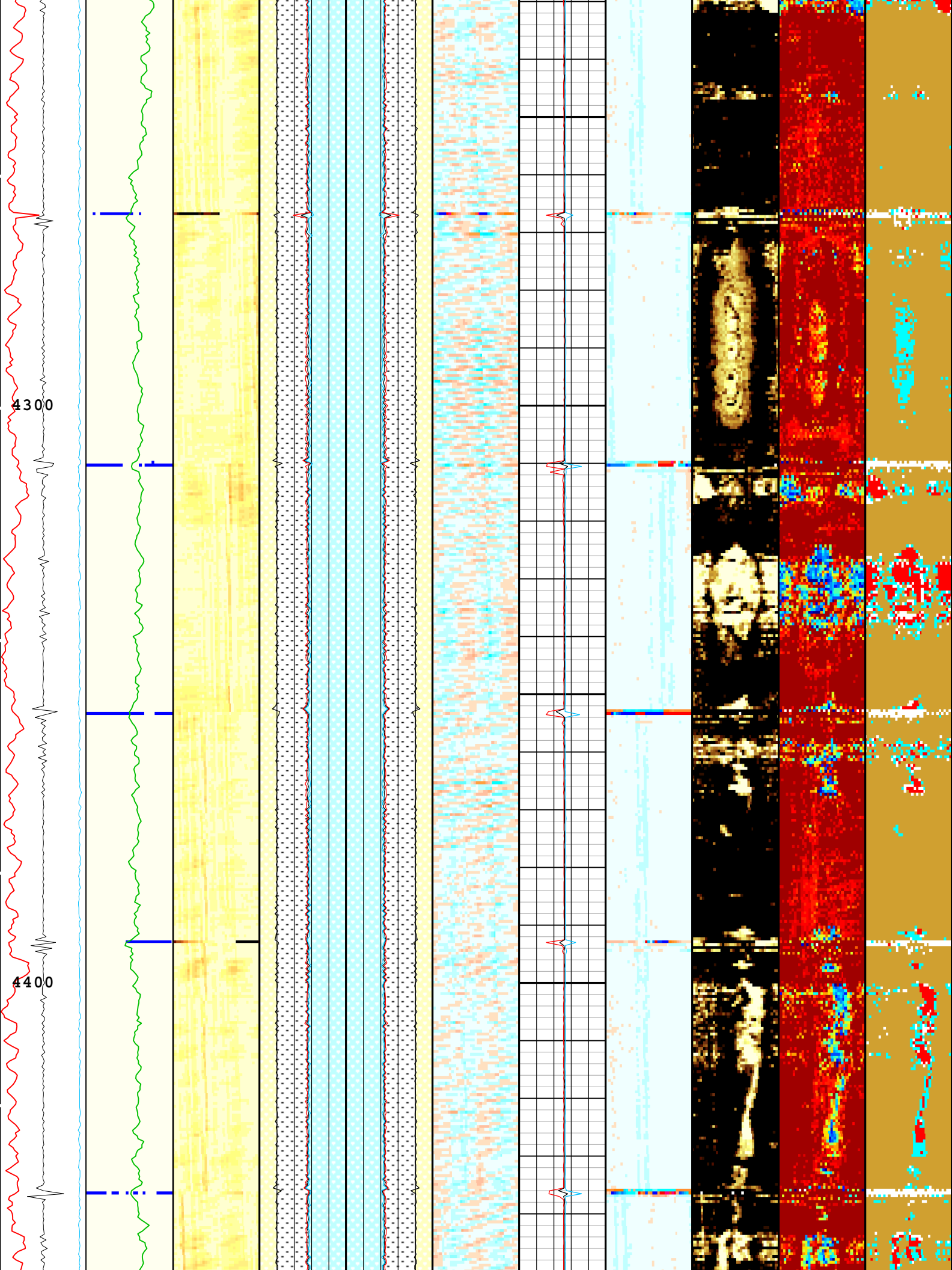


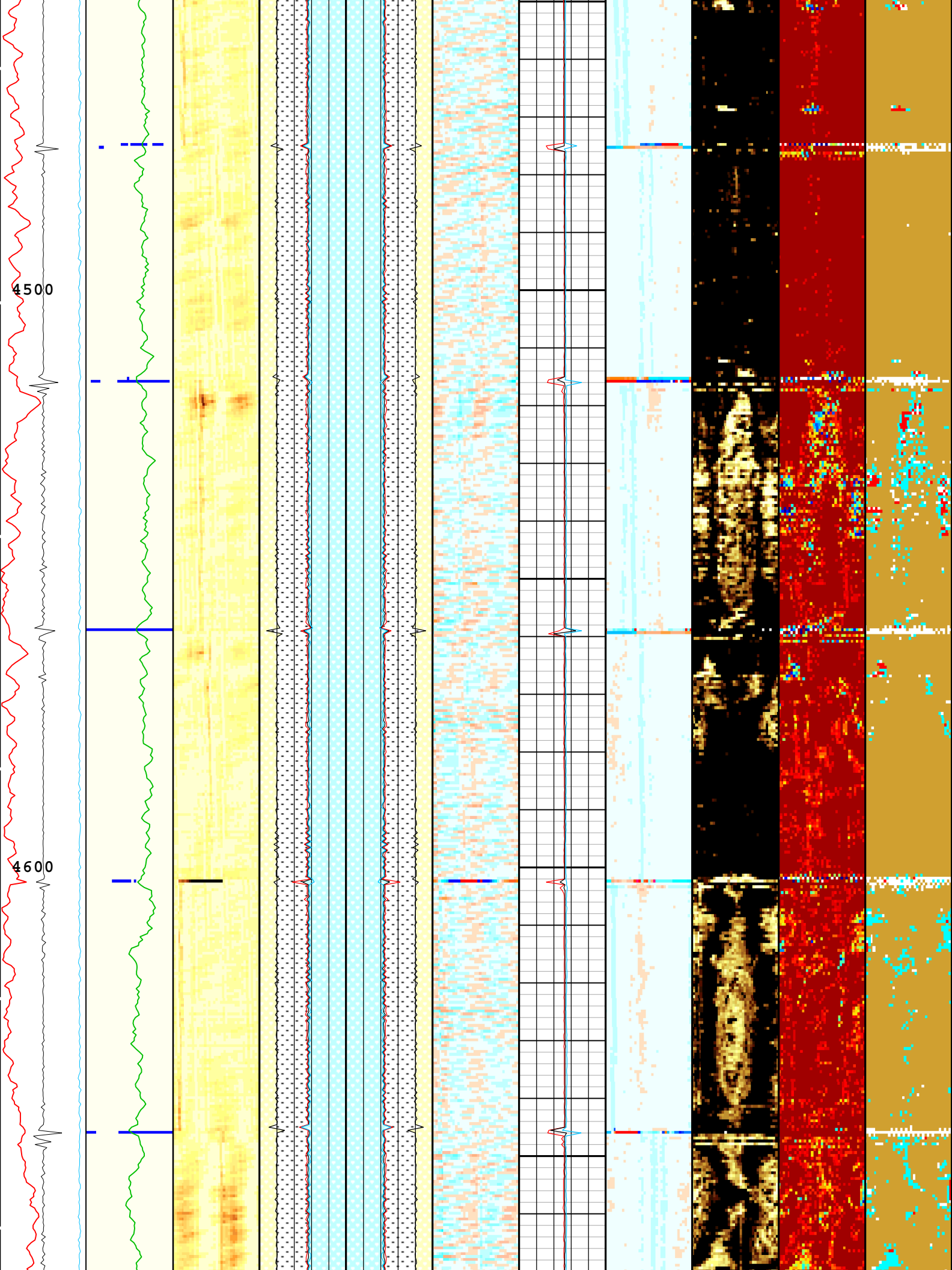


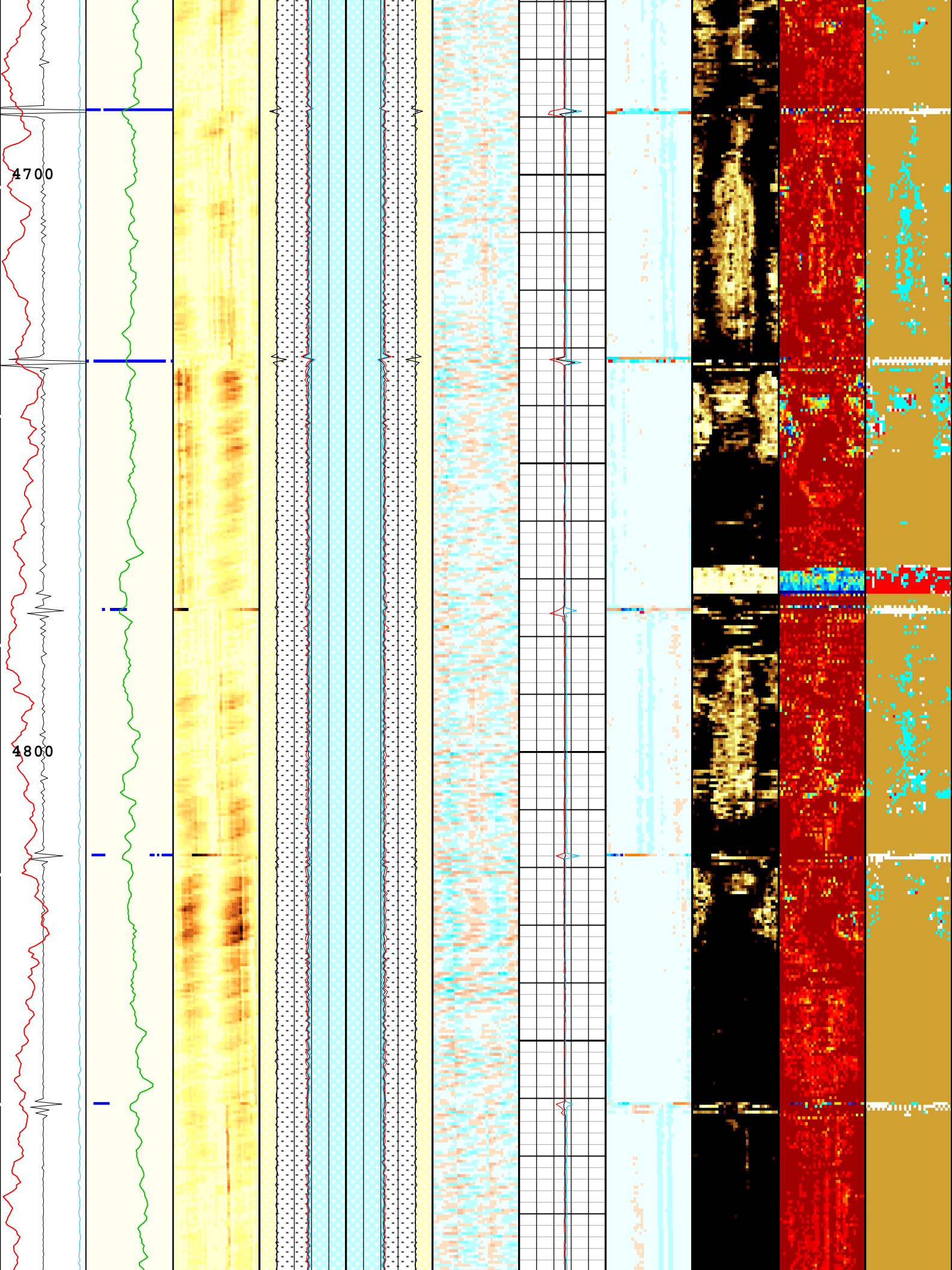


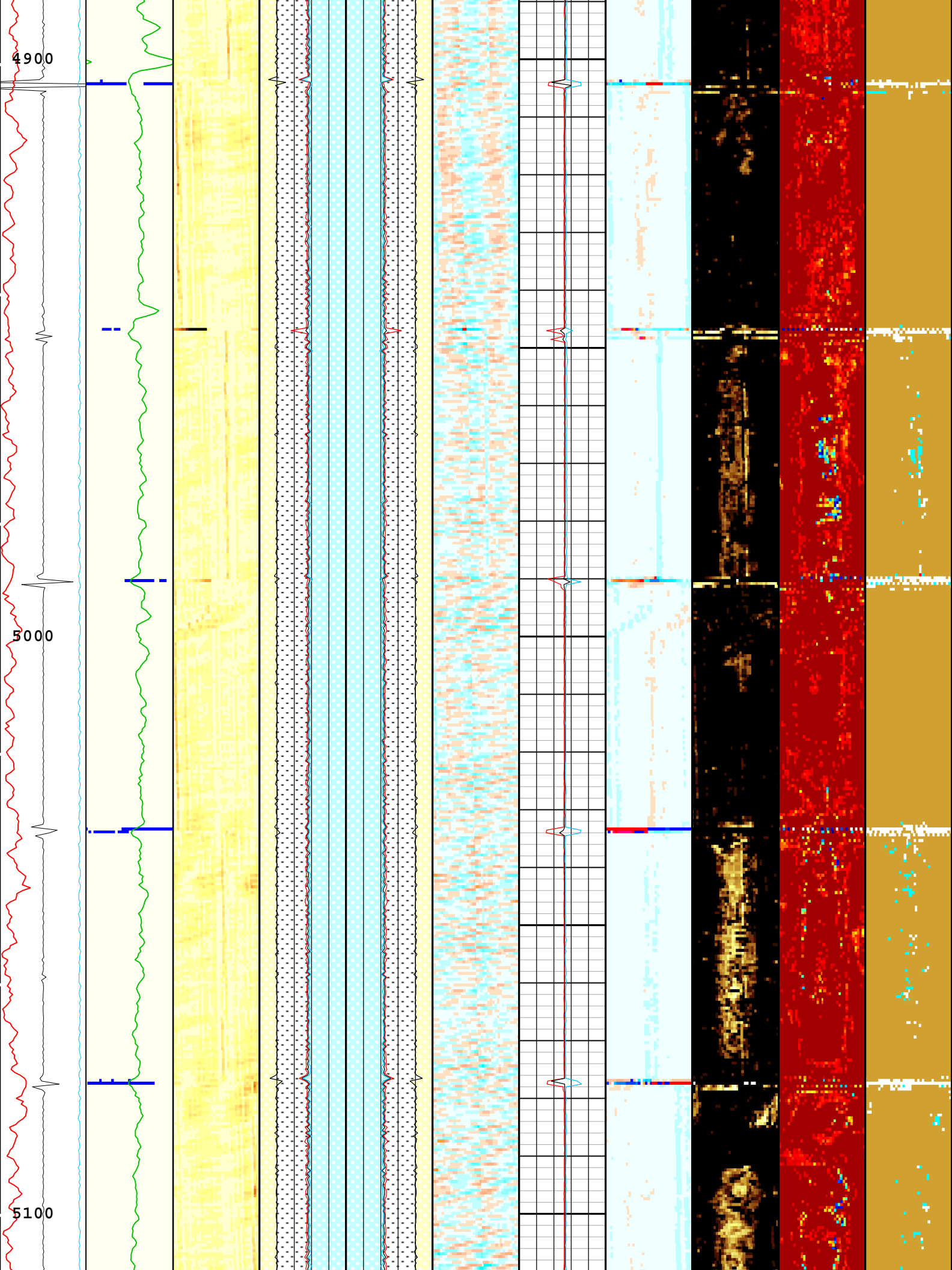


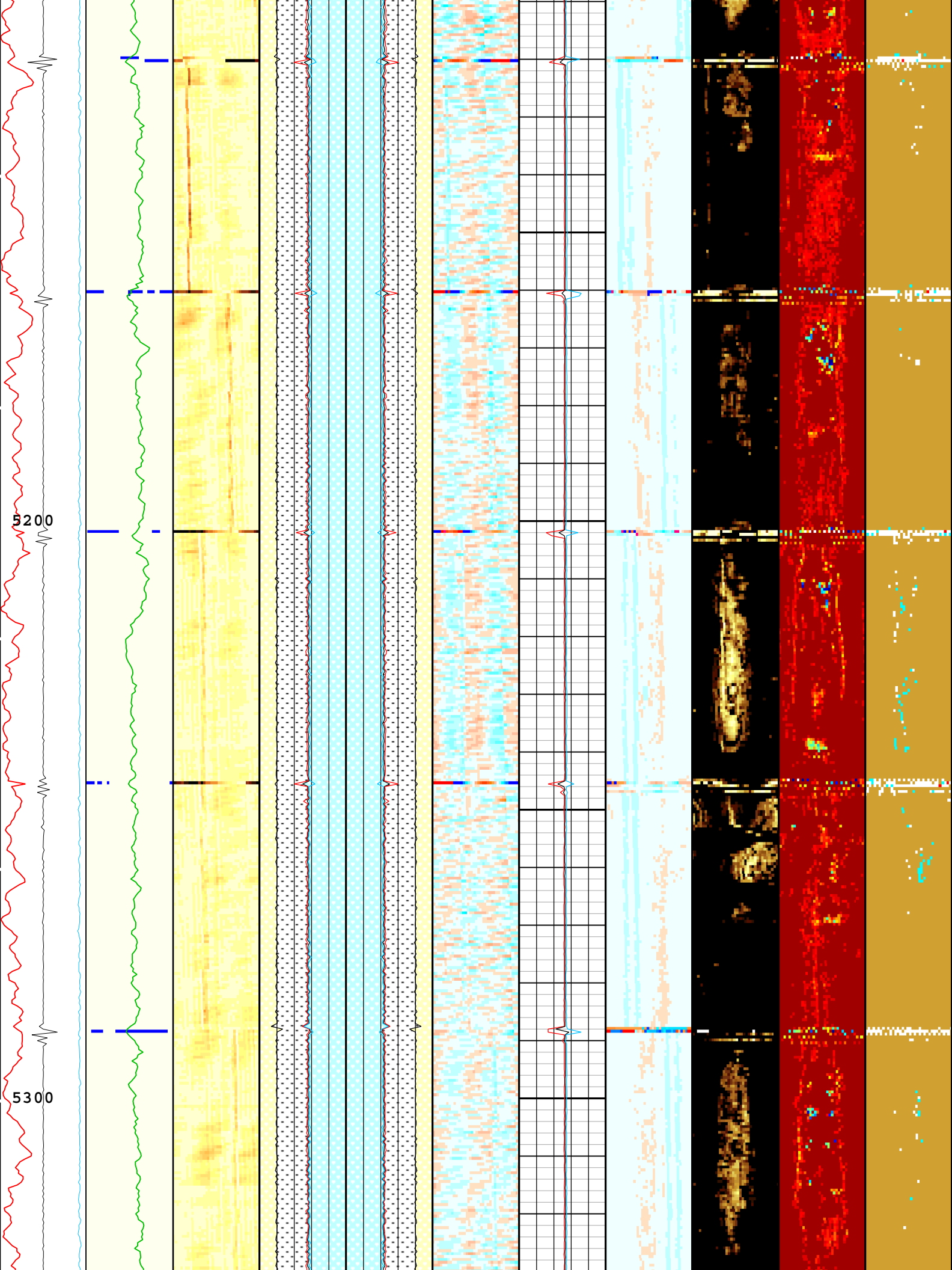


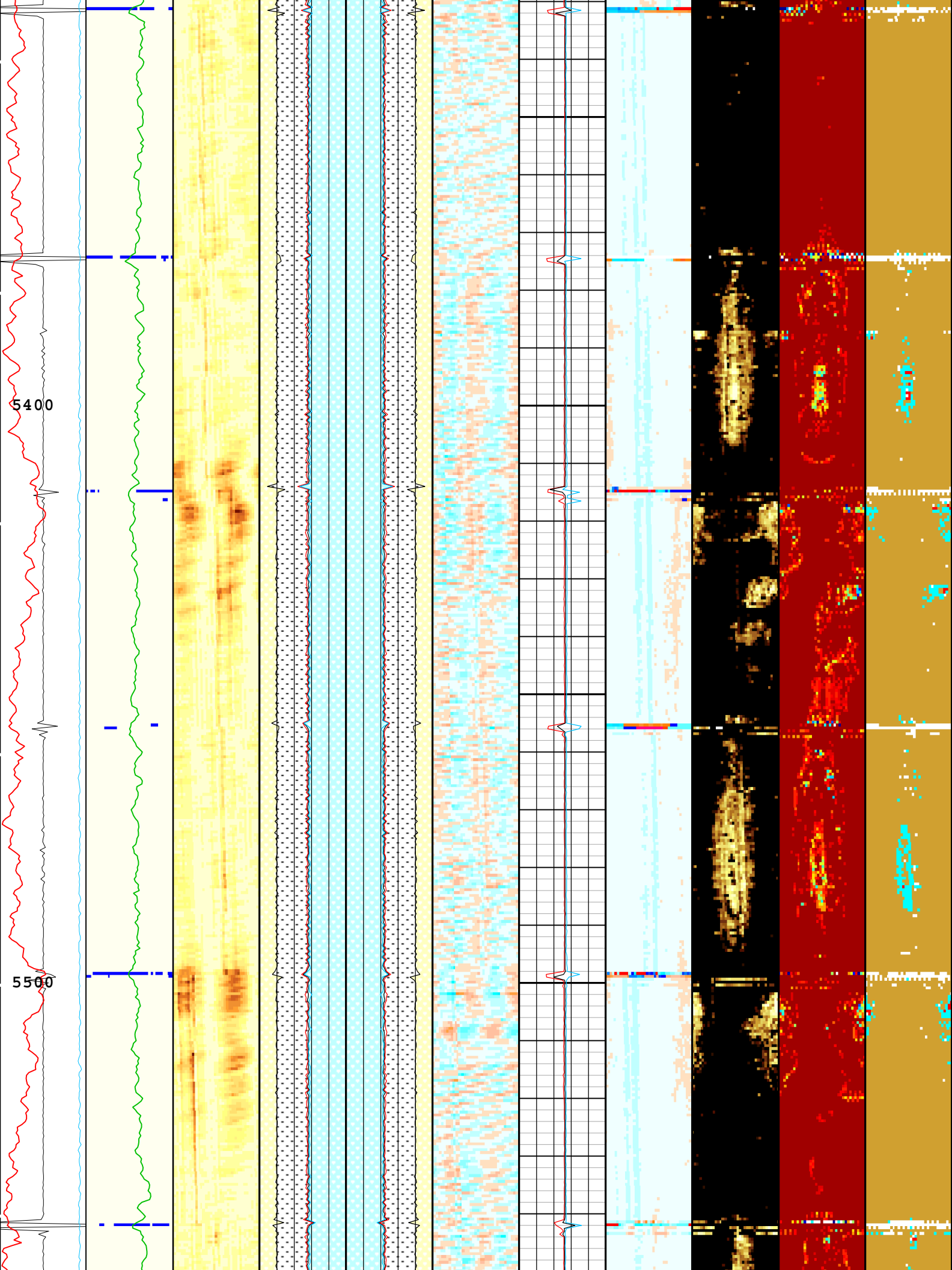


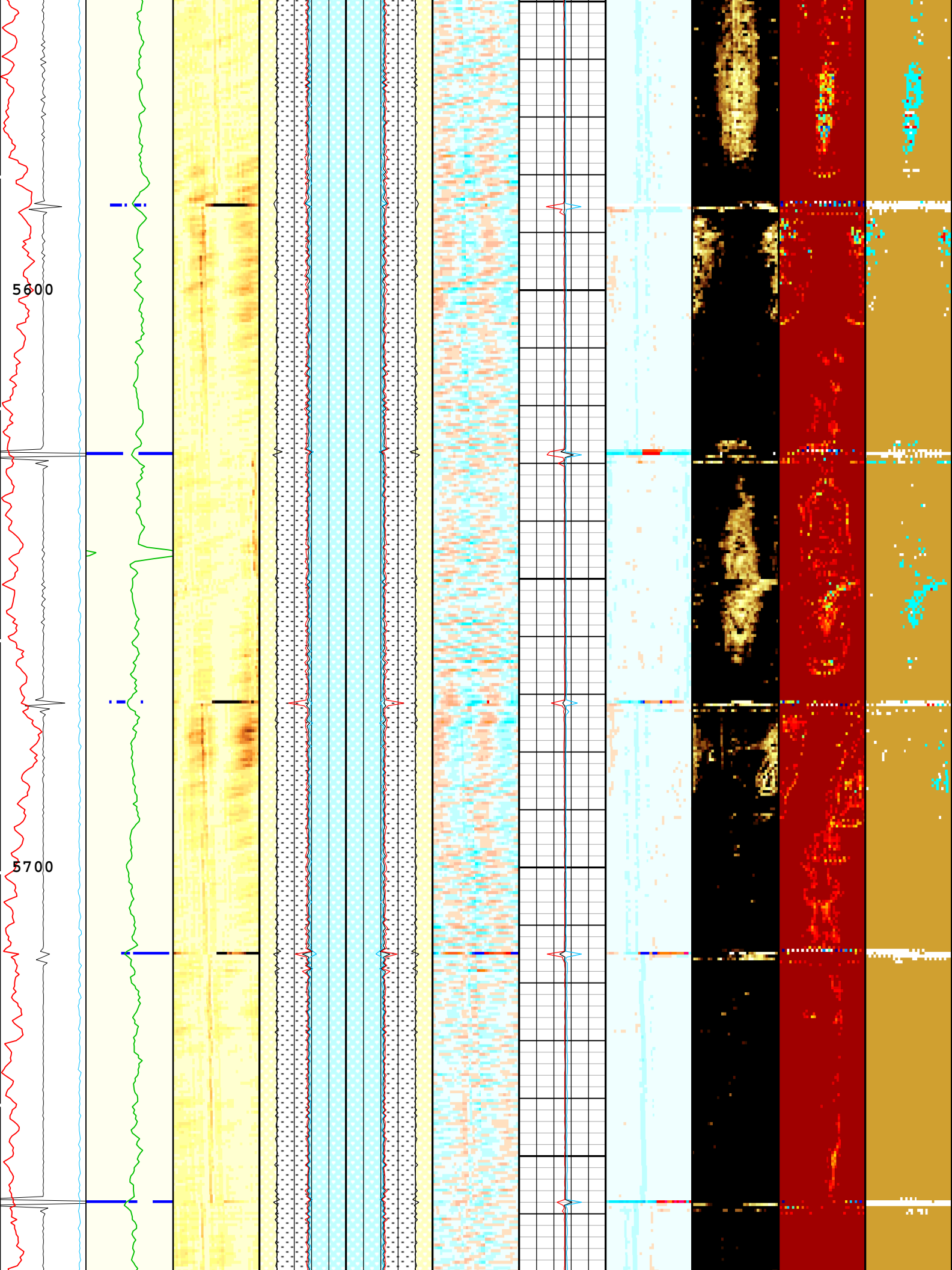


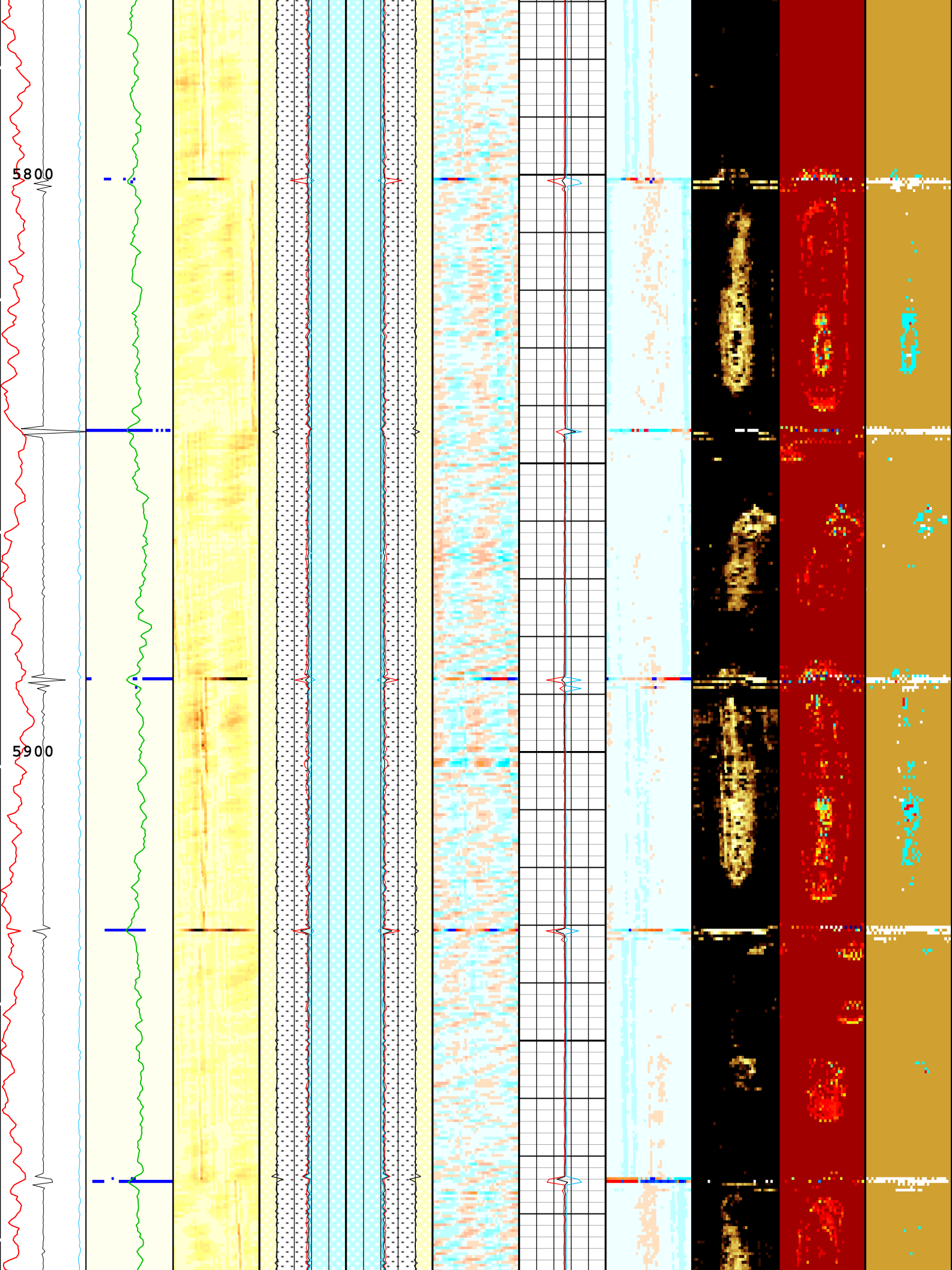


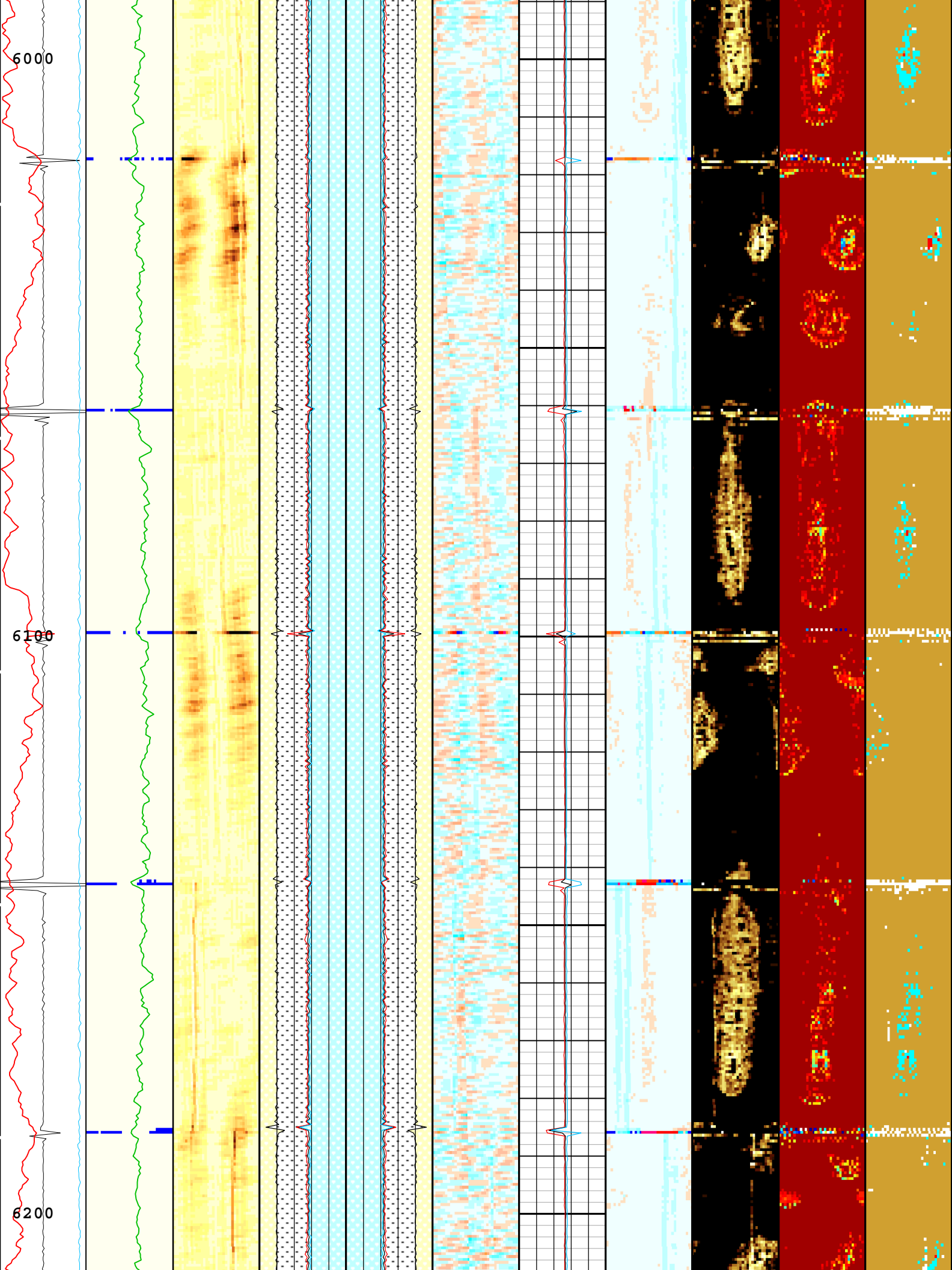


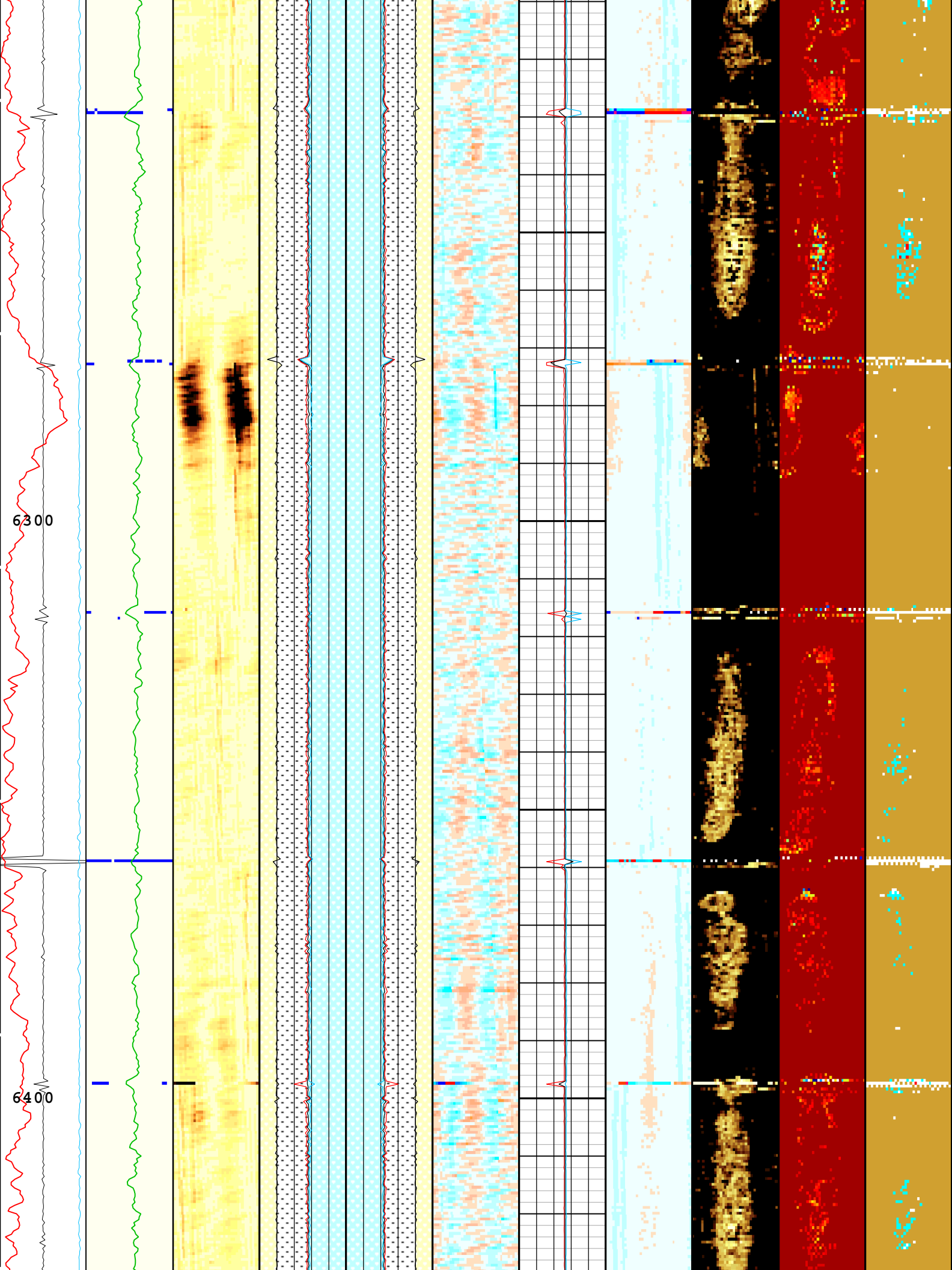


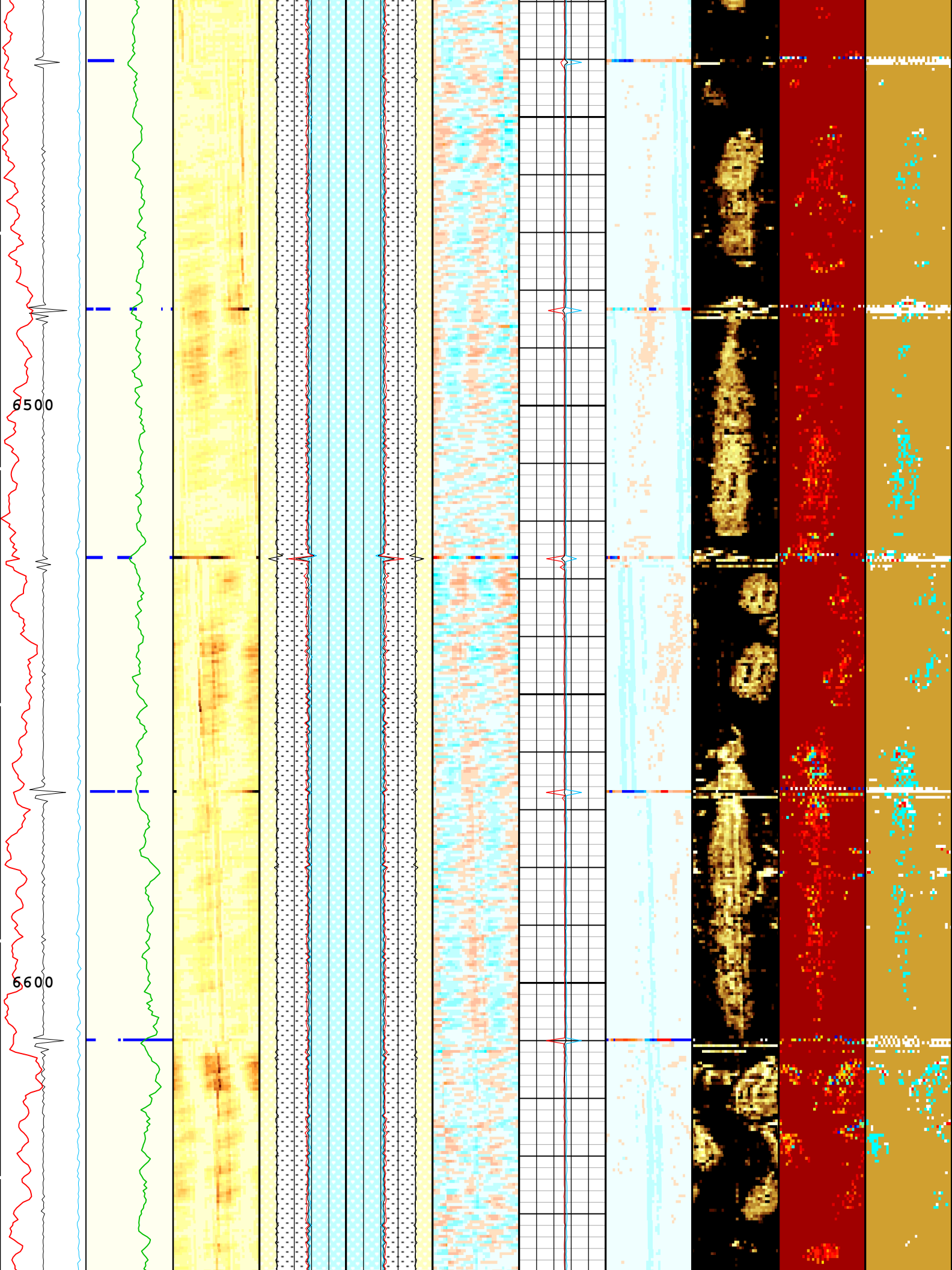


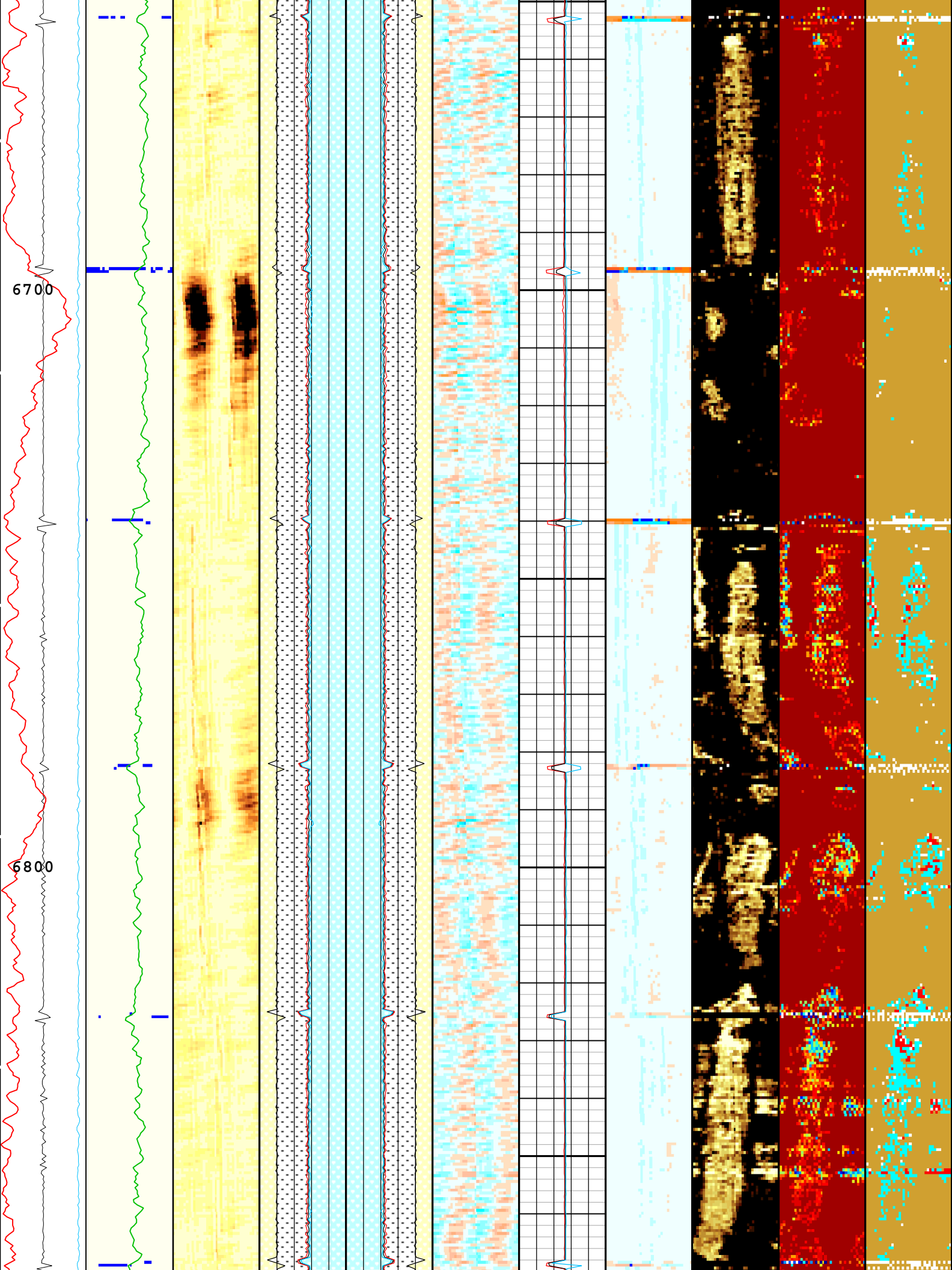


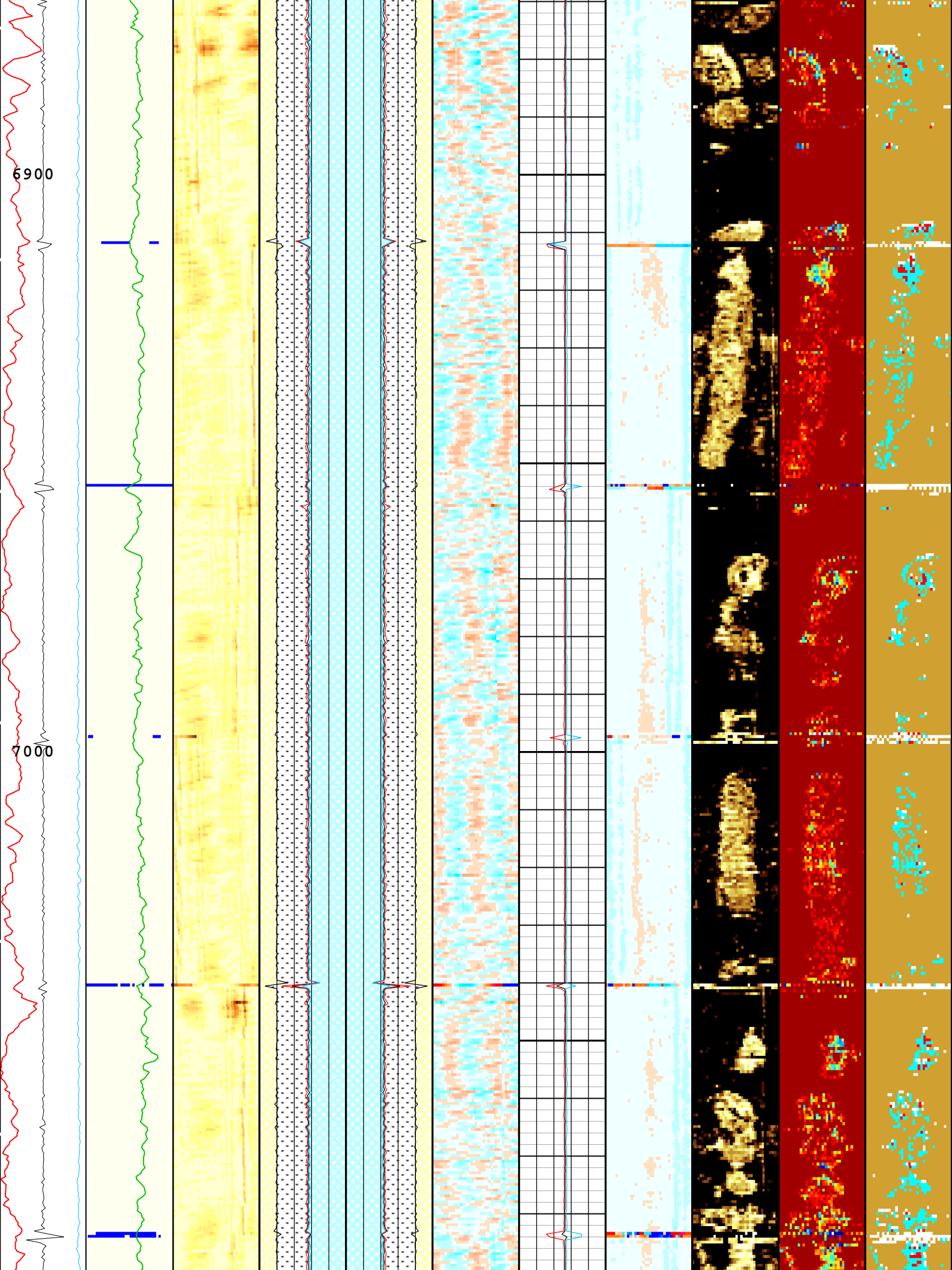


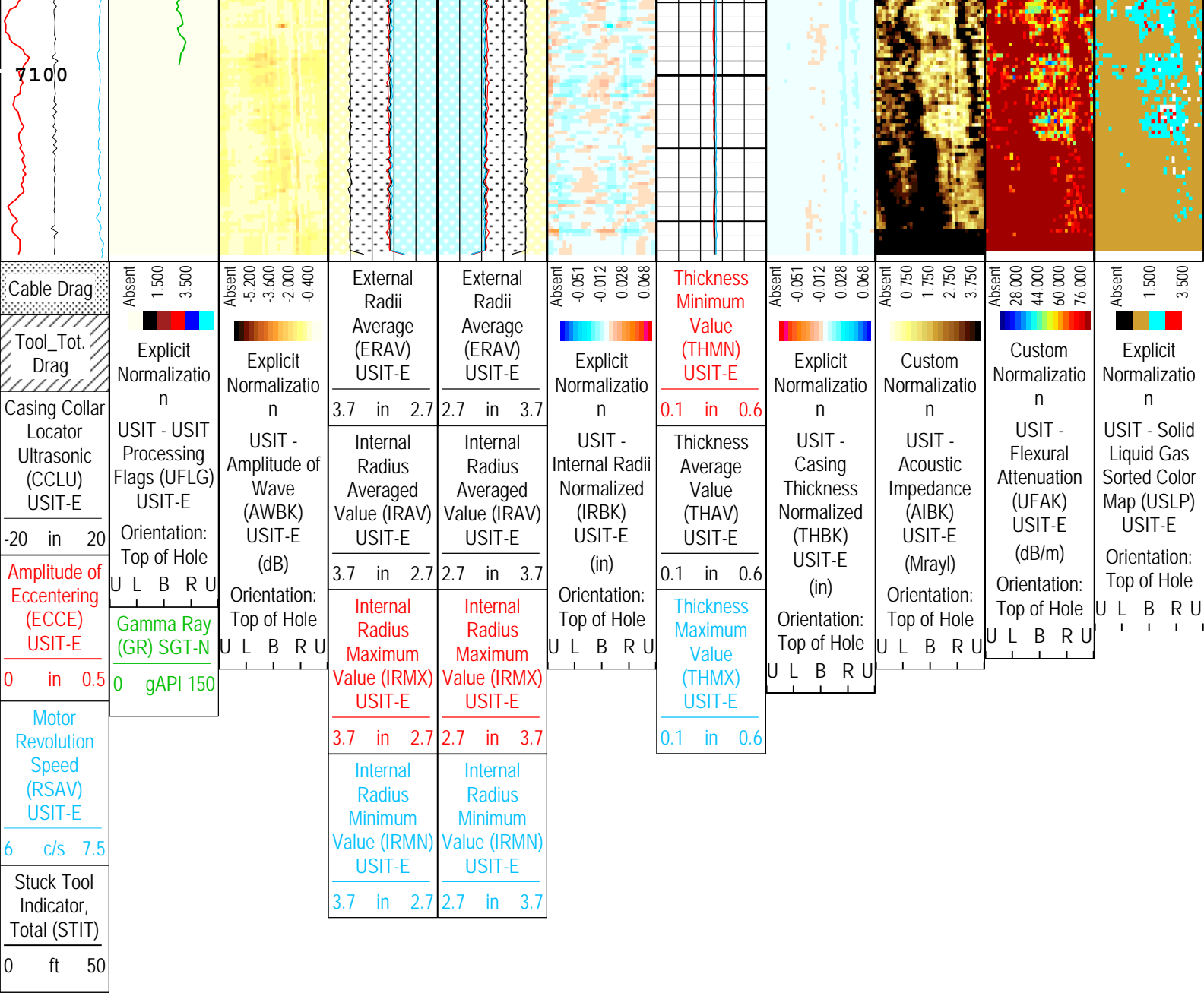












TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Composite Format: USI IBC SLG Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:04

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	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	8141	ft
CDEN.1	Cement Density	USIT-E	0	lbm/gal
CDEN.2	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.352	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	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	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	8.16	dB/m
IBC_FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
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	Manual	
ICE_BINPROC	ICE Bin Processing Depth Interval	USIT-E	0	ft
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	Depth Zoned	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.09	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
OCDI	Outer Casing Diameter	USIT-E	0	in
OCSH	Outer Casing Shoe	USIT-E	0	ft
OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in
TCUB	T^3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	7120	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS	Tool Position: Centered or Eccentered	SGT-N	Eccentered	
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
UFAO	SIT Flexural Attenuation Offset	USIT-E	17.91	dB/m
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
UTHDP	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	Depth Zoned	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	0	1000
BS	8.75	1000	7125.5
MEAS_WLEN	22.5	0	7125.5
ZMUD	1.67	0	75

ZMUD	1.67	0	75
ZMUD	1.66	75	1000
ZMUD	1.67	1000	2000
ZMUD	1.68	2000	7125.5

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	2700	ft/h
TMUC	Type of Mud	USIT-E	BRI	
UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
UFWE	Far Receiver Window End Time	USIT-E	173	us
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
UNWE	Near Receiver Window End Time	USIT-E	142	us
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7120	ft
USSP	Ultrasonic Service	USIT-E	IBC	
UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	37.61	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	75	19-Jun-2014 09:53:01	19-Jun-2014 10:10:15	7125.78	6459.52
EMXV	72	19-Jun-2014 10:10:15	19-Jun-2014 10:10:49	6459.52	6436.61
EMXV	70	19-Jun-2014 10:10:49	19-Jun-2014 10:11:07	6436.61	6424.46
EMXV	67	19-Jun-2014 10:11:07	19-Jun-2014 10:24:10	6424.46	5895.08
EMXV	70	19-Jun-2014 10:24:10	19-Jun-2014 10:34:31	5895.08	5479.53
EMXV	67	19-Jun-2014 10:34:31	19-Jun-2014 10:34:43	5479.53	5471.19
EMXV	64	19-Jun-2014 10:34:43	19-Jun-2014 11:02:35	5471.19	4356.99
EMXV	68	19-Jun-2014 11:02:35	19-Jun-2014 11:02:42	4356.99	4352.21
EMXV	72	19-Jun-2014 11:02:42	19-Jun-2014 11:02:48	4352.21	4348.57
EMXV	70	19-Jun-2014 11:02:48	19-Jun-2014 11:18:59	4348.57	3695.98
EMXV	72	19-Jun-2014 11:18:59	19-Jun-2014 11:19:06	3695.98	3691.52
EMXV	74	19-Jun-2014 11:19:06	19-Jun-2014 11:38:47	3691.52	2900.48
EMXV	76	19-Jun-2014 11:38:47	19-Jun-2014 12:22:08	2900.48	1153.23
EMXV	78	19-Jun-2014 12:22:08	19-Jun-2014 12:22:16	1153.23	1147.77
EMXV	80	19-Jun-2014 12:22:16	19-Jun-2014 12:22:52	1147.77	1124.14
EMXV	82	19-Jun-2014 12:22:52	19-Jun-2014 12:23:04	1124.14	1119.81

EMXV	82	19-Jun-2014 12:22:52	19-Jun-2014 12:23:04	1124.01	1116.01
EMXV	84	19-Jun-2014 12:23:04	19-Jun-2014 12:51:04	1116.01	18.37
EMXV	90	19-Jun-2014 12:51:04	19-Jun-2014 12:51:20	18.37	16.67
UFWB	133	19-Jun-2014 09:53:01	19-Jun-2014 10:08:44	7125.78	6521.62
UFWB	124.14	19-Jun-2014 10:08:44	19-Jun-2014 10:14:52	6521.62	6272.66
UFWB	114.45	19-Jun-2014 10:14:52	19-Jun-2014 10:52:42	6272.66	4753.25
UFWB	119.99	19-Jun-2014 10:52:42	19-Jun-2014 10:52:55	4753.25	4744.88
UFWB	125.53	19-Jun-2014 10:52:55	19-Jun-2014 12:51:20	4744.88	16.67
UNWB	102	19-Jun-2014 09:53:01	19-Jun-2014 10:08:47	7125.78	6519.44
UNWB	96.68	19-Jun-2014 10:08:47	19-Jun-2014 10:14:48	6519.44	6275.53
UNWB	88.91	19-Jun-2014 10:14:48	19-Jun-2014 10:52:49	6275.53	4749.02
UNWB	91.5	19-Jun-2014 10:52:49	19-Jun-2014 12:51:20	4749.02	16.67
WINE	77.61	19-Jun-2014 09:53:01	19-Jun-2014 10:15:24	7125.78	6250.89
WINE	98.14	19-Jun-2014 10:15:24	19-Jun-2014 10:15:27	6250.89	6248.78
WINE	85.96	19-Jun-2014 10:15:27	19-Jun-2014 12:51:20	6248.78	16.67

All depth are at tool zero.

USI IBC SLG

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[5]:Up	7125.78	16.67

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 = "Manual".
CZMD uses ZMUD parameter zoned table below

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	75	1.67	1.67
75	1000	1.66	1.66
1000	2000	1.67	1.67
2000		1.68	1.68

Run 1

IBC SLG - 3000 PSI

Software Version

Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_13393-4.0.9163.3001

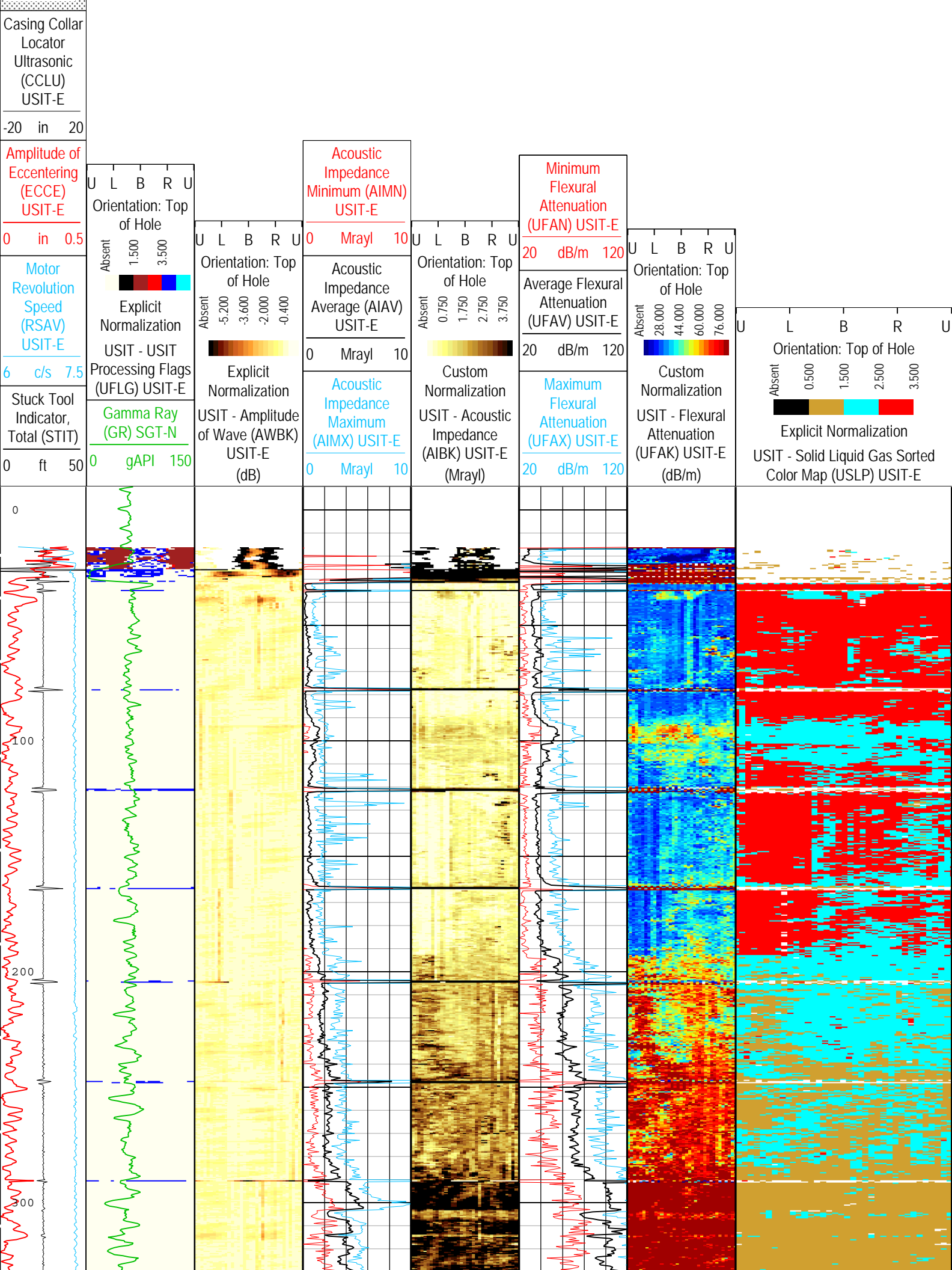
Computation	Description		Version
DepthCorrection	DepthCorrection		4.0.9213.3000
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DSP: v01.82
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

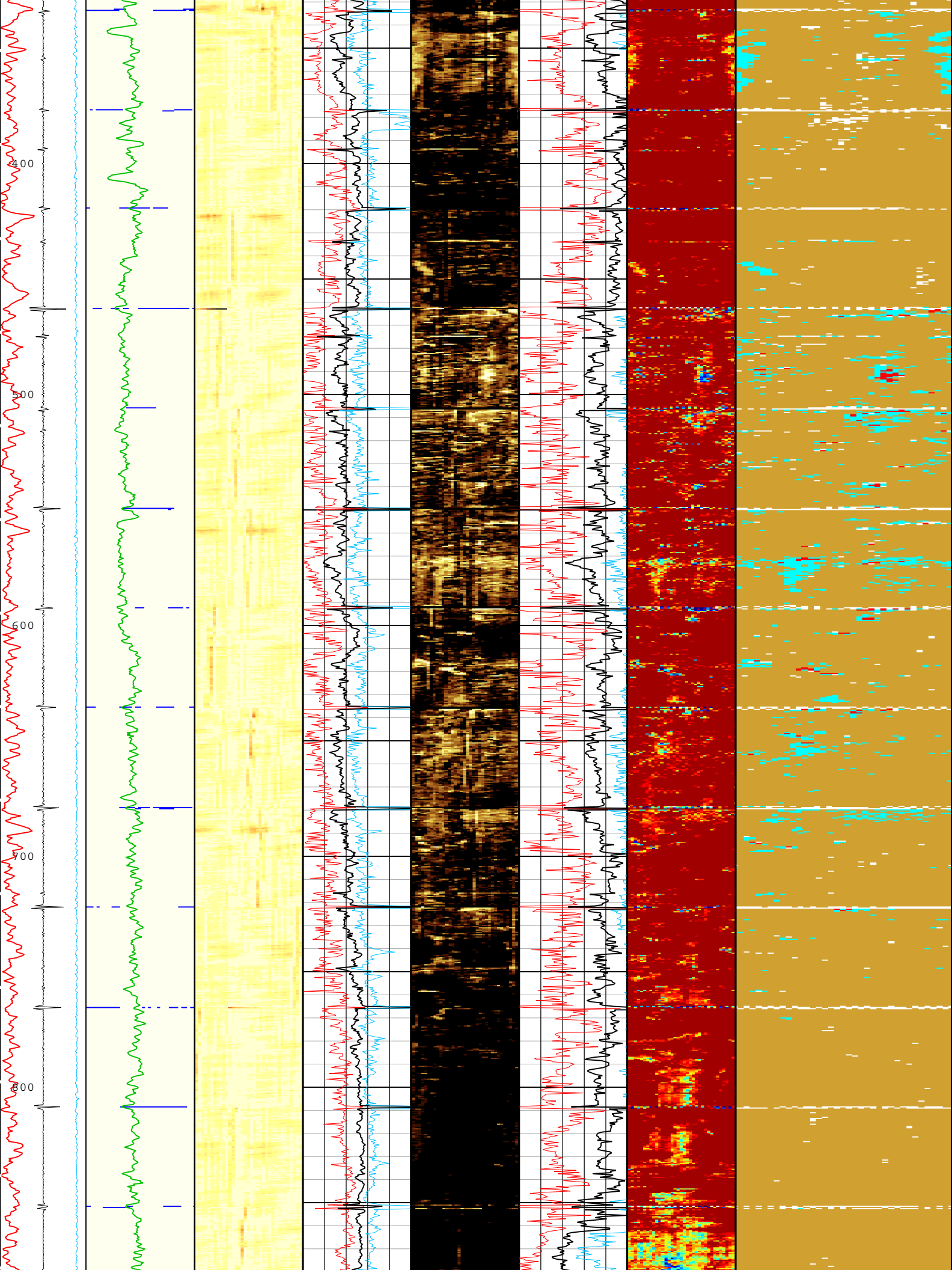
Log	Company:Anadarko Petroleum Company	Well:Spurling 36C-34HZ
		Run 1: Main[5]:Up:S011

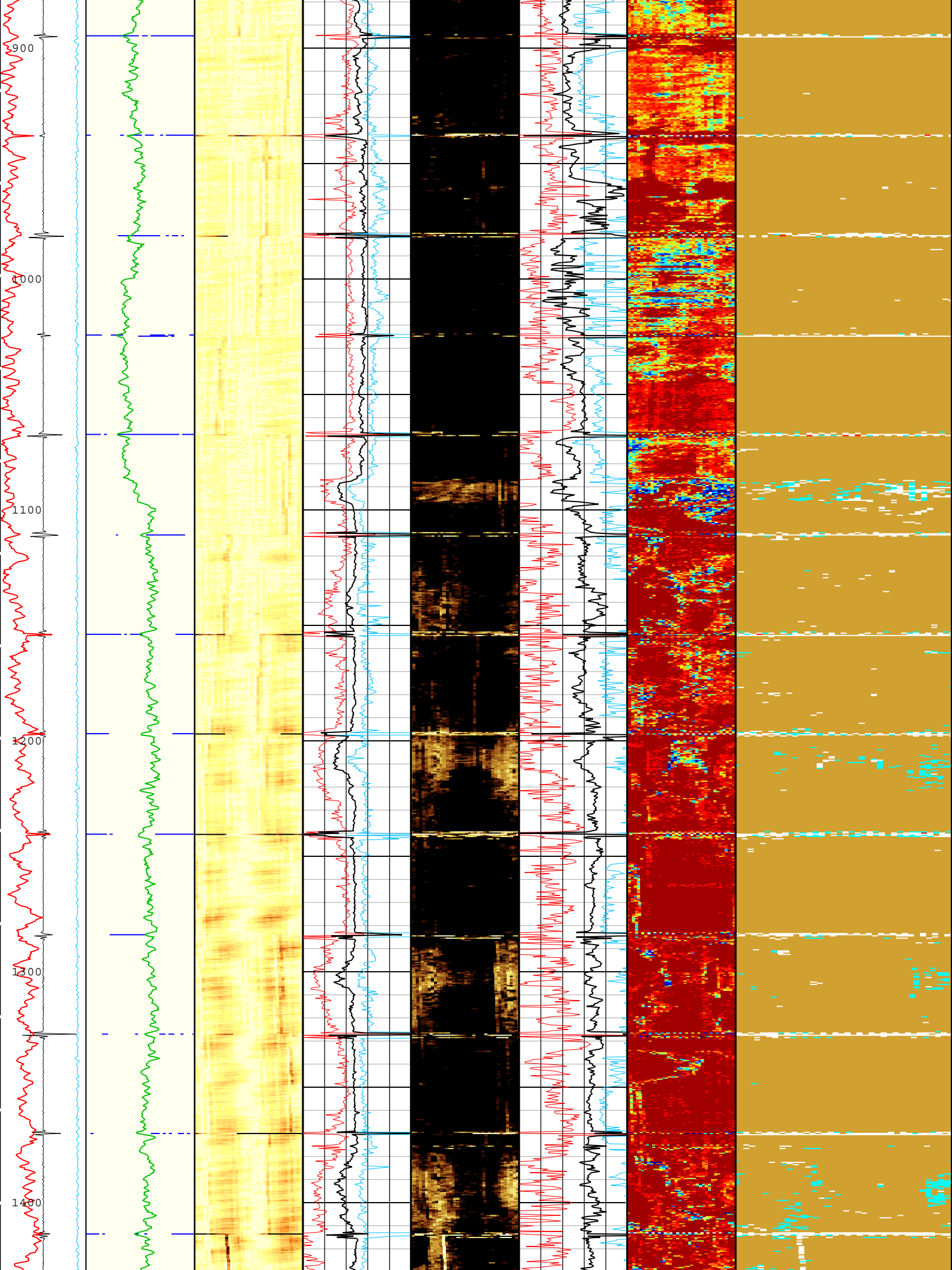
Description: USI IBC SLG Format: USI IBC SLG Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:14

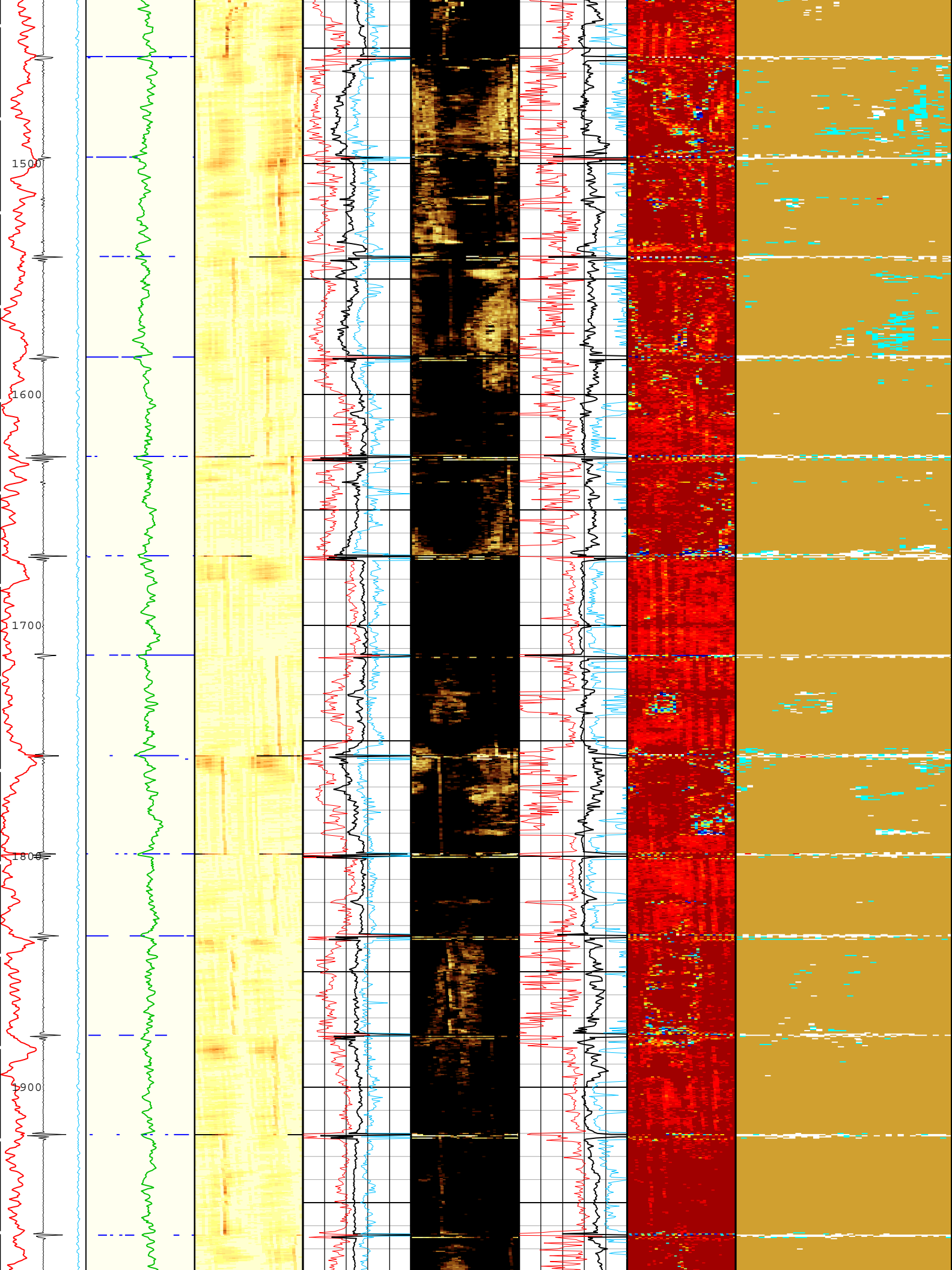
TIME_1900 - Time Marked every 60.00 (s)

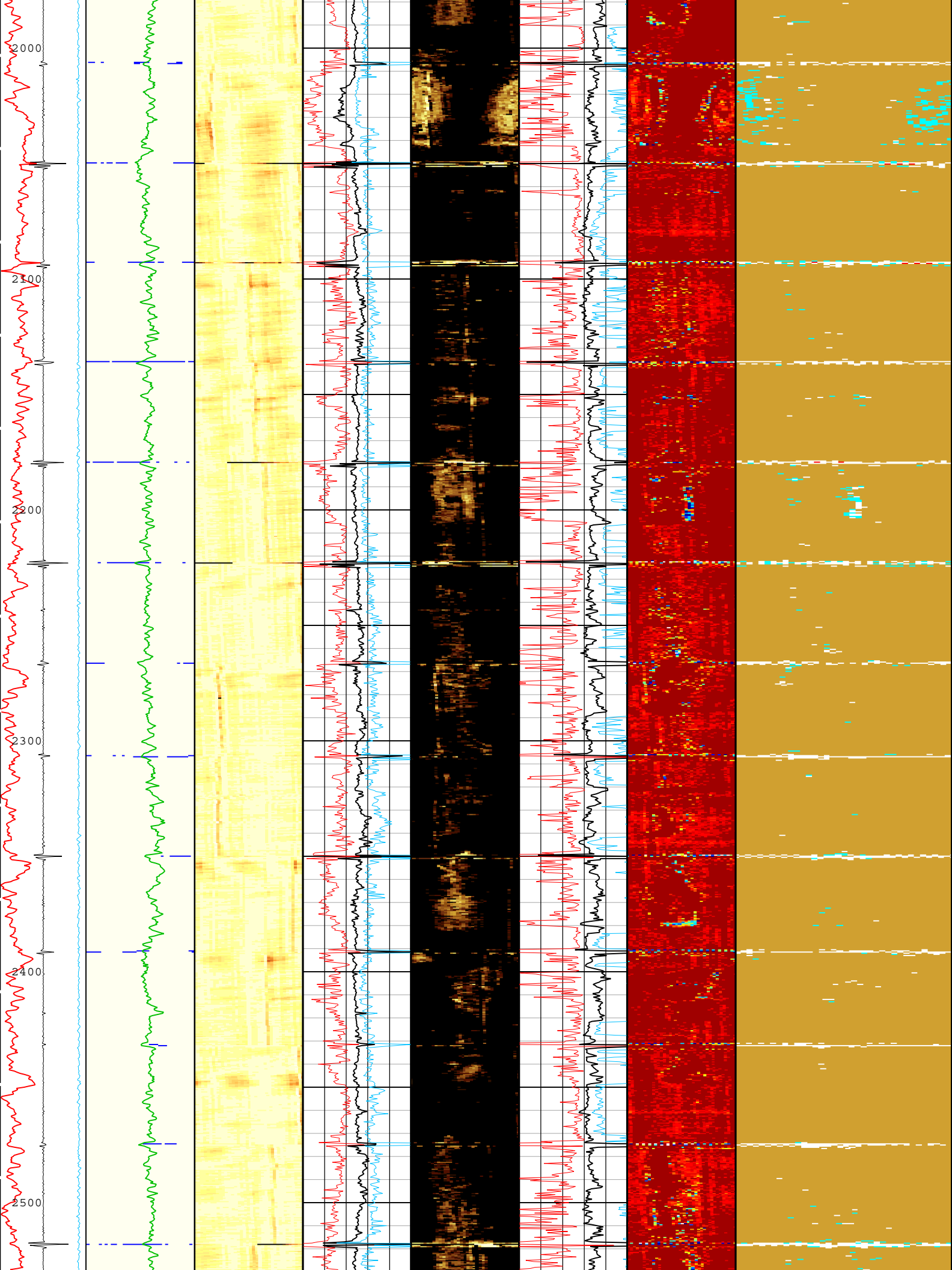


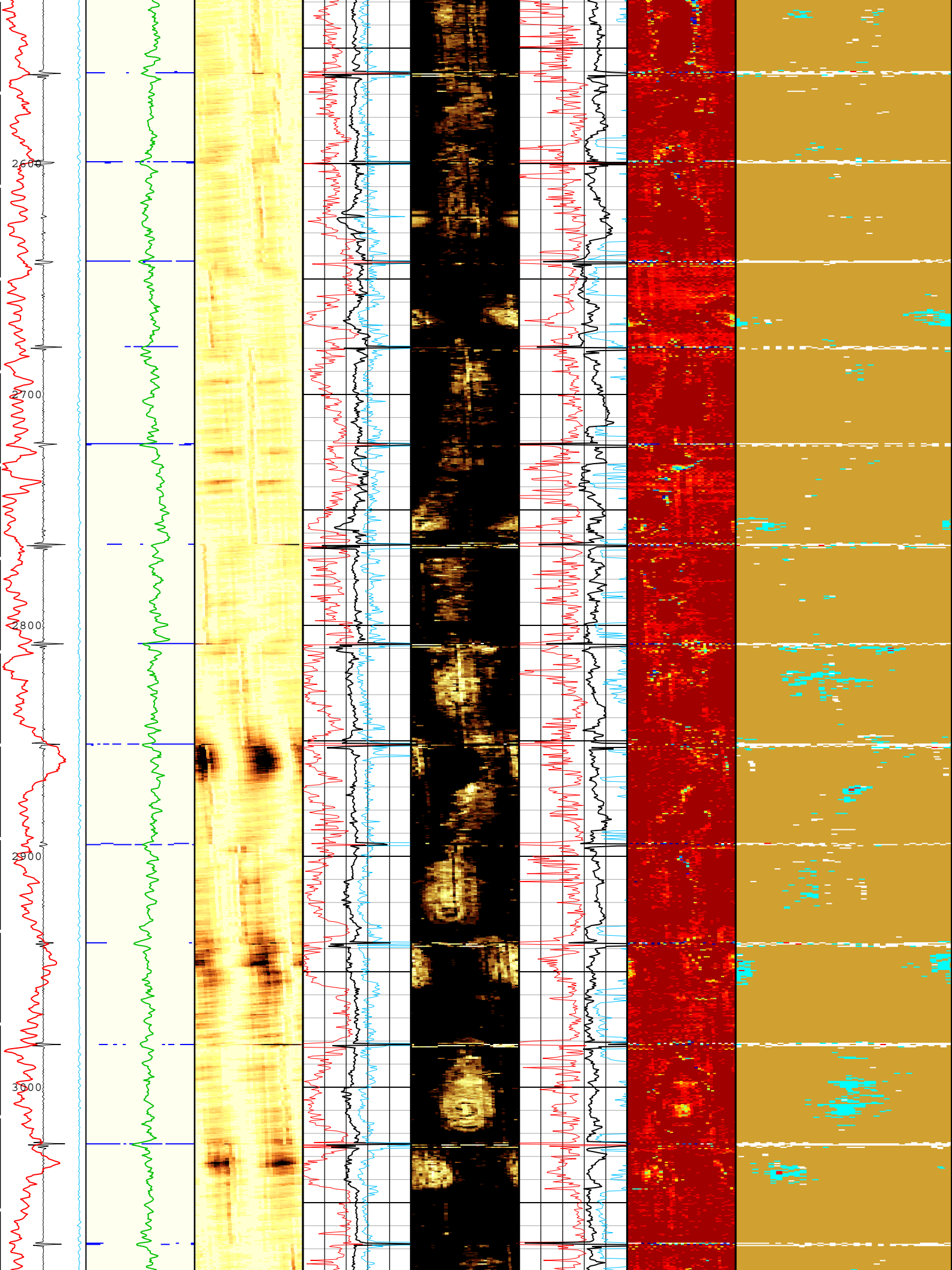


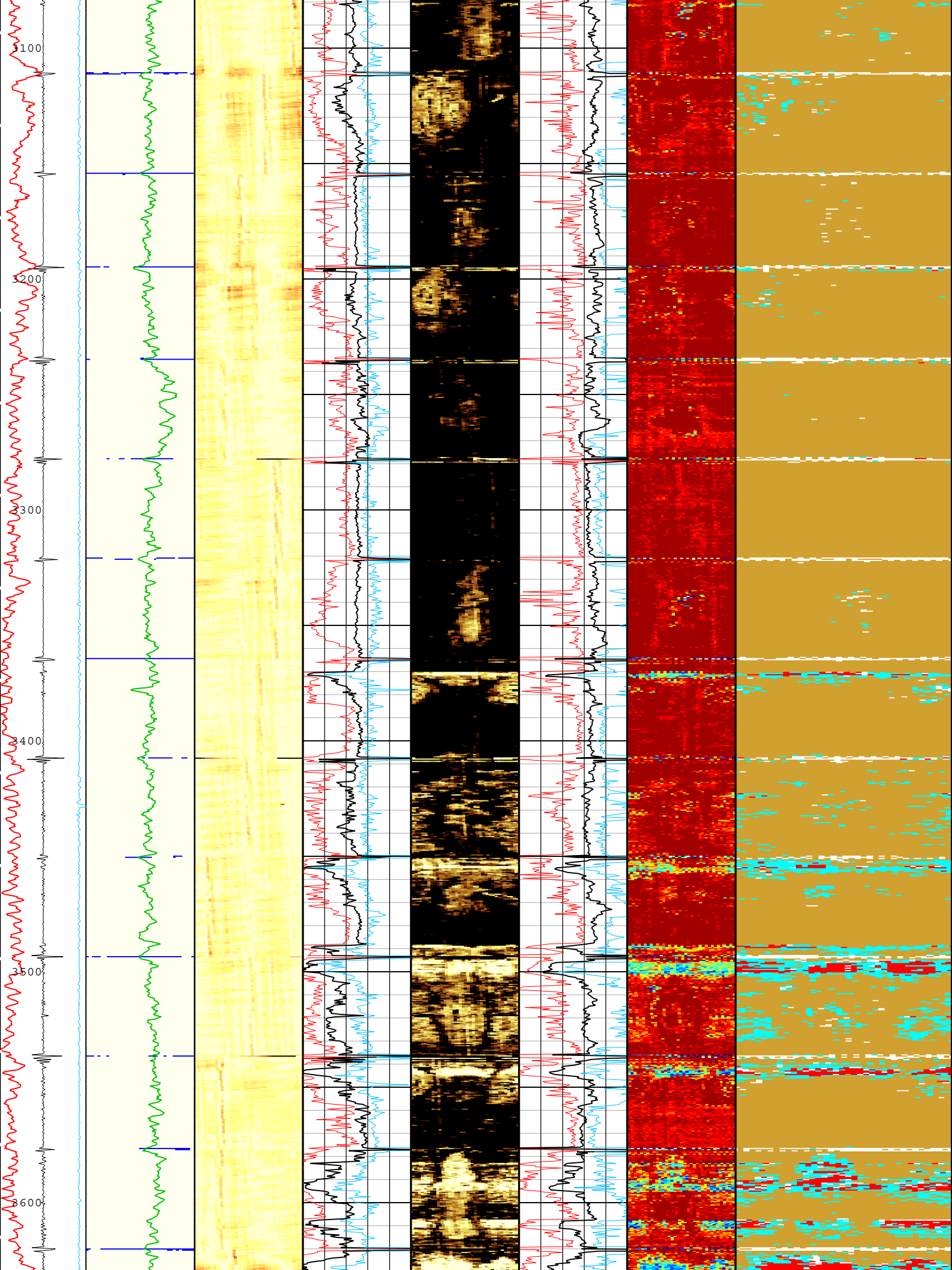


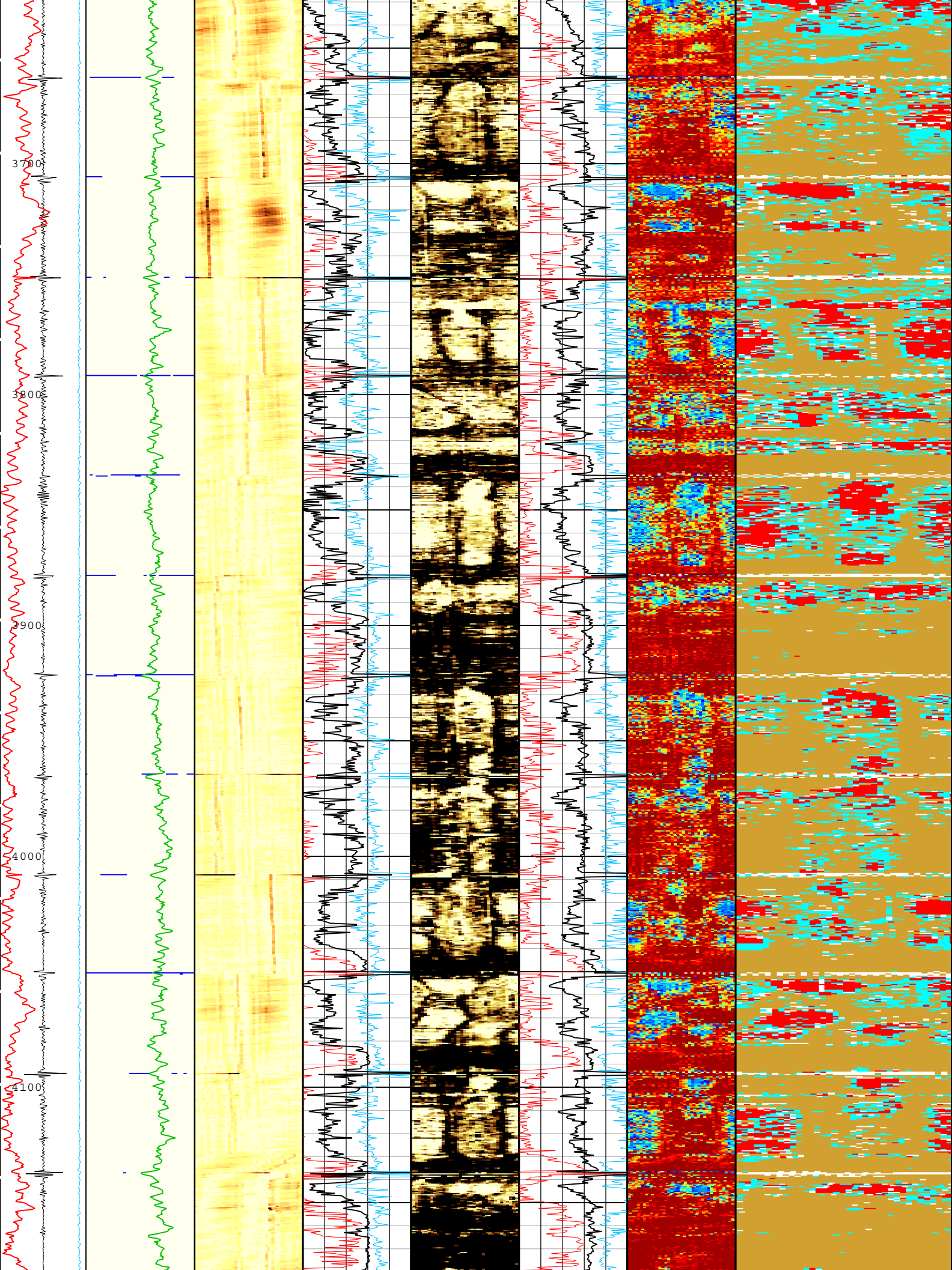


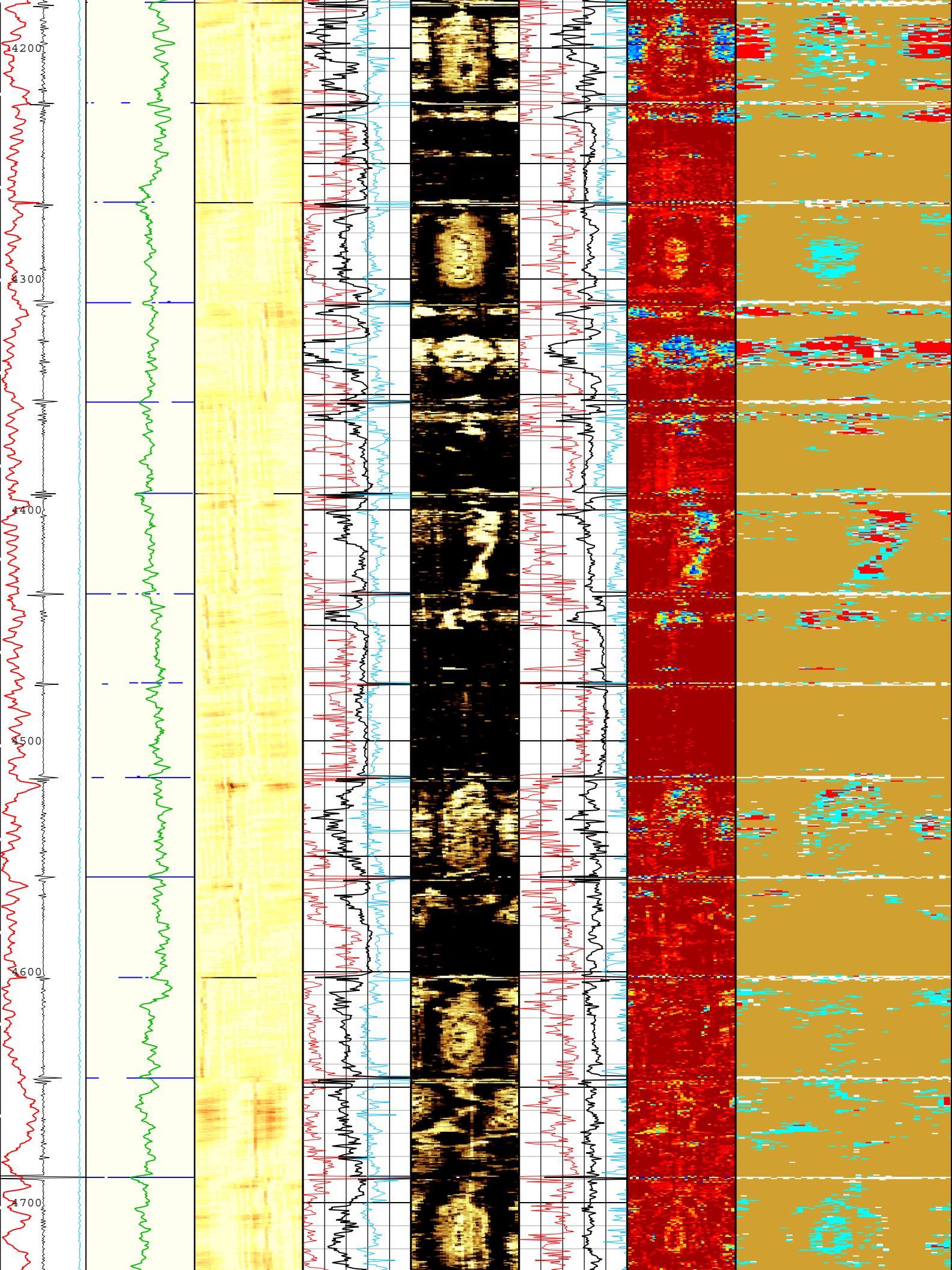


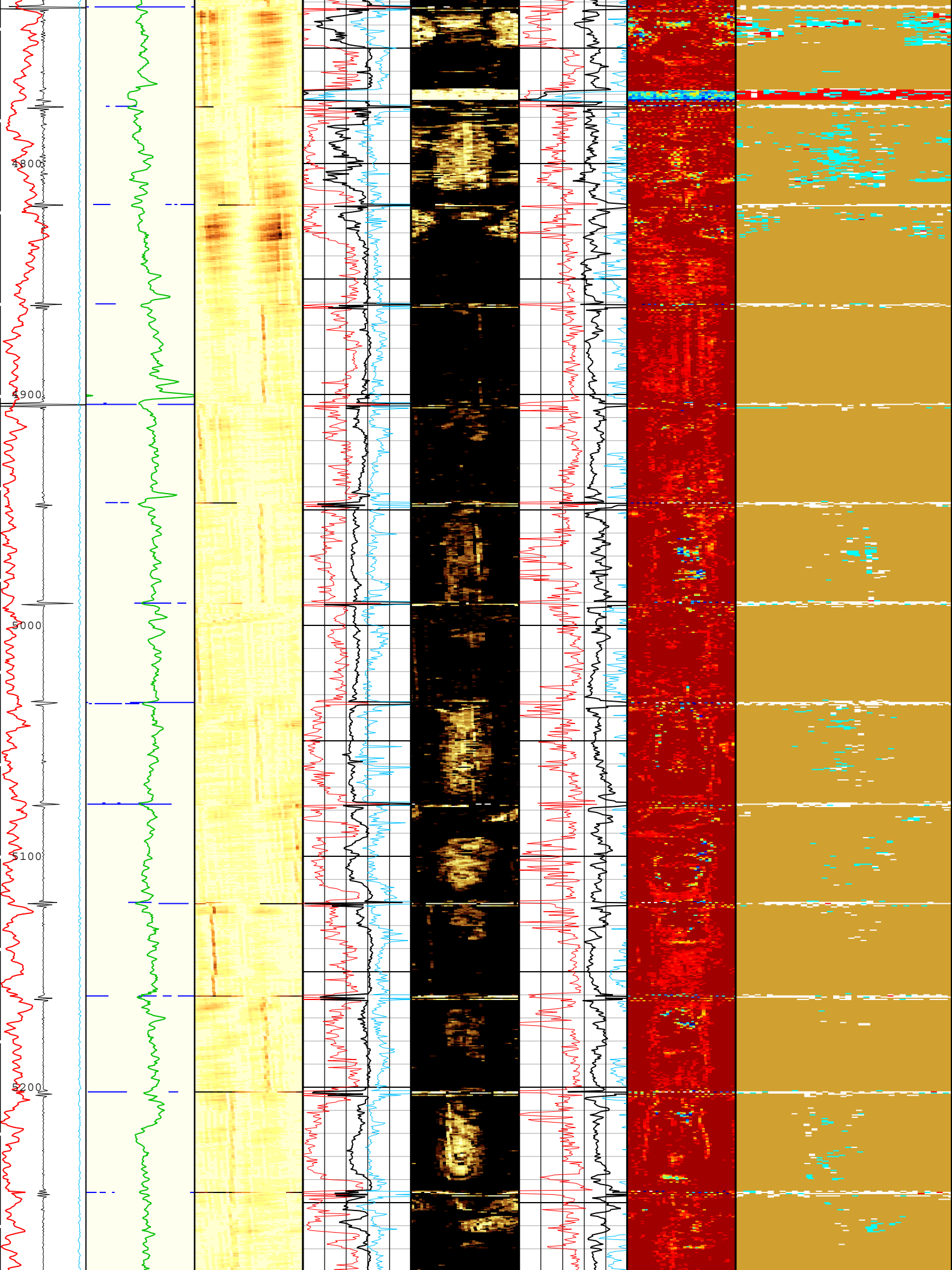


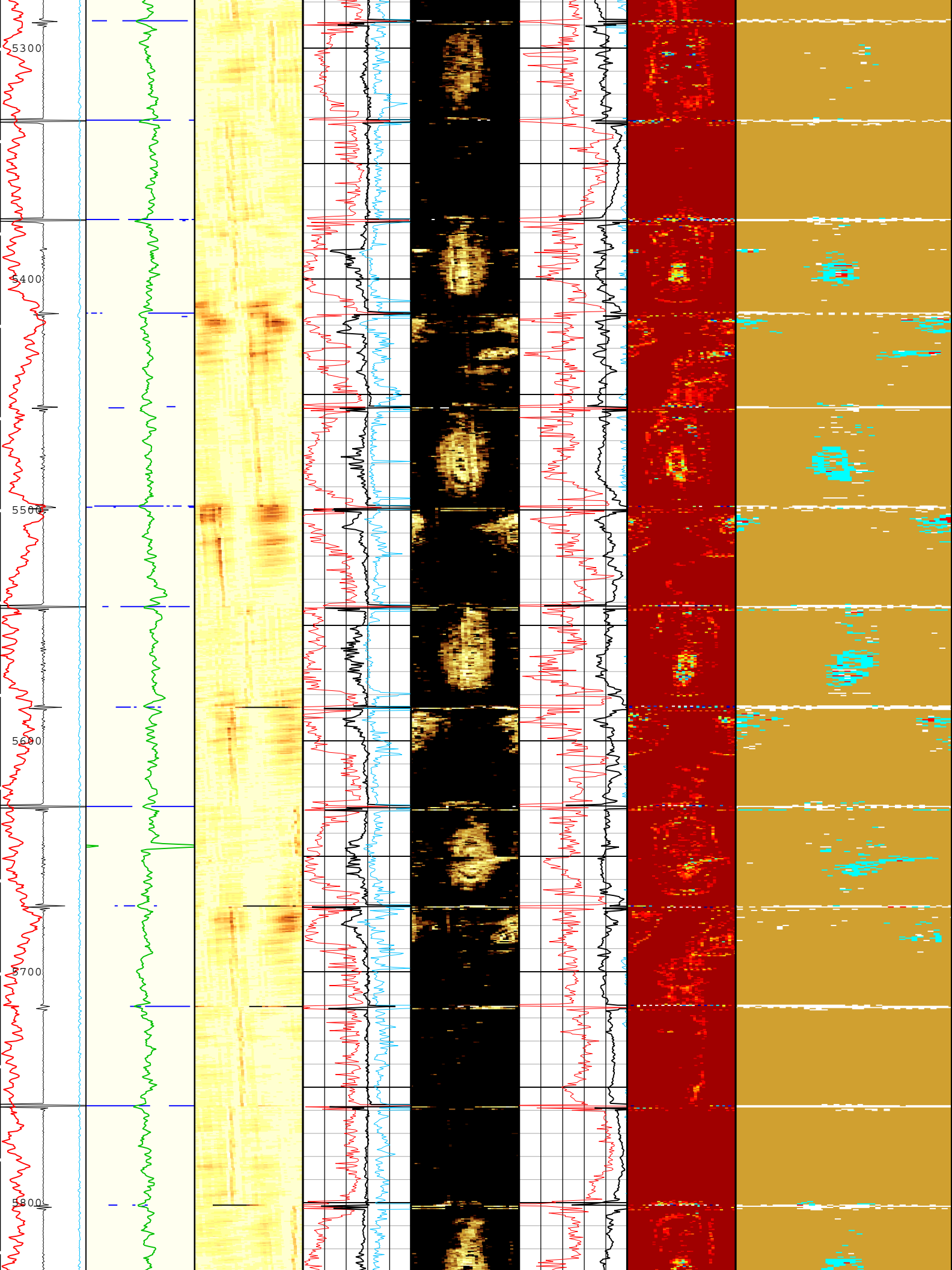


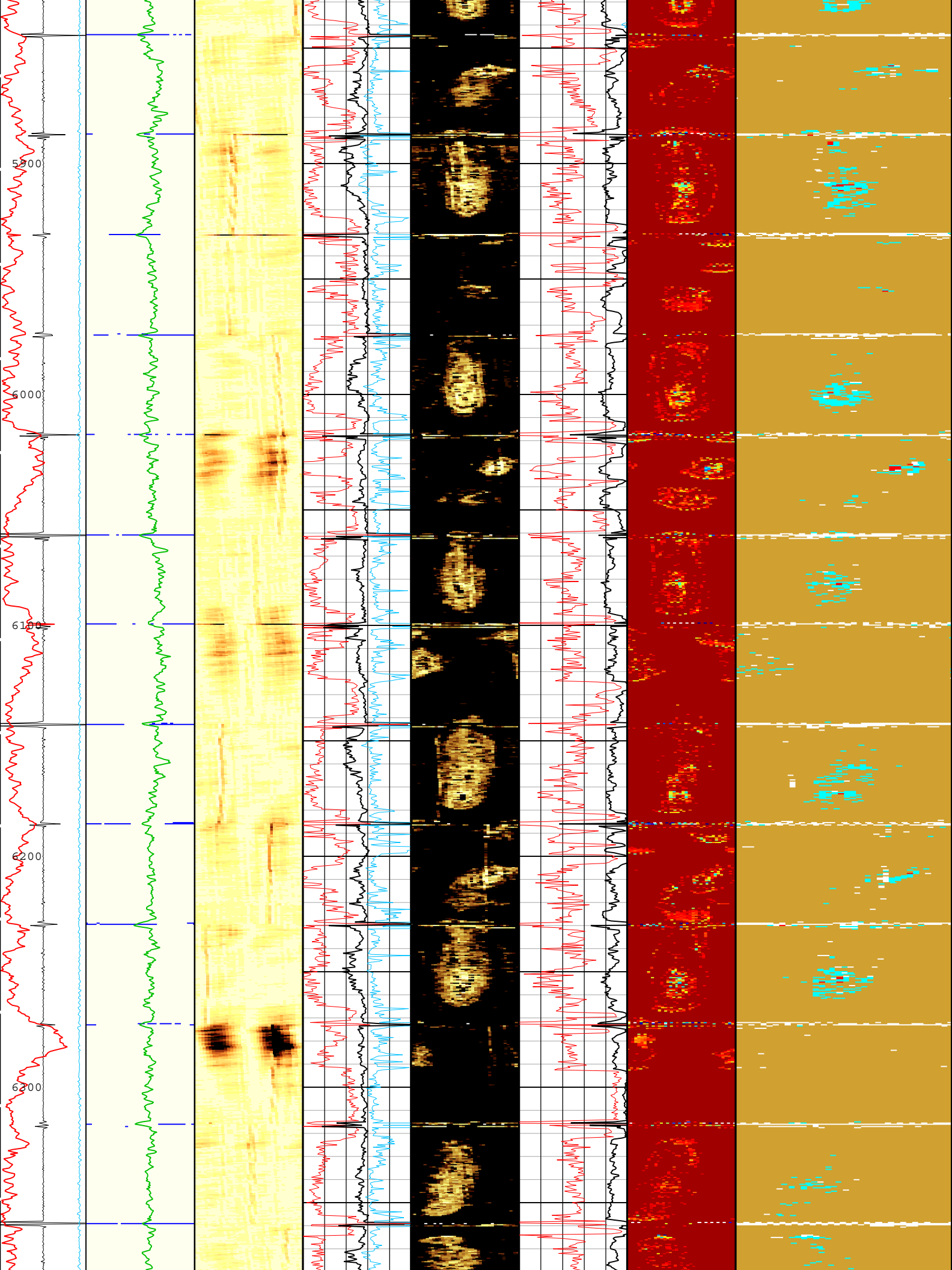


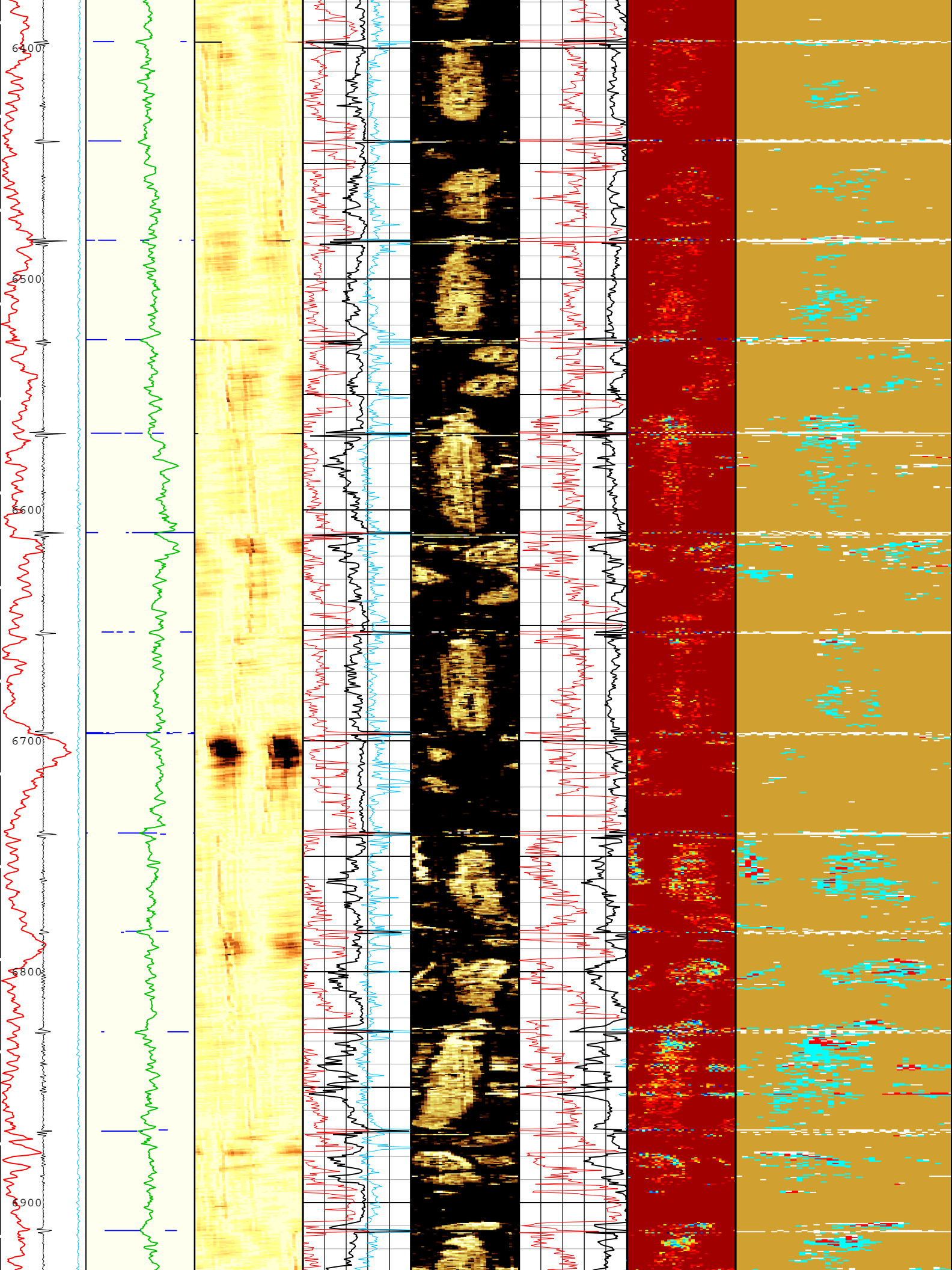


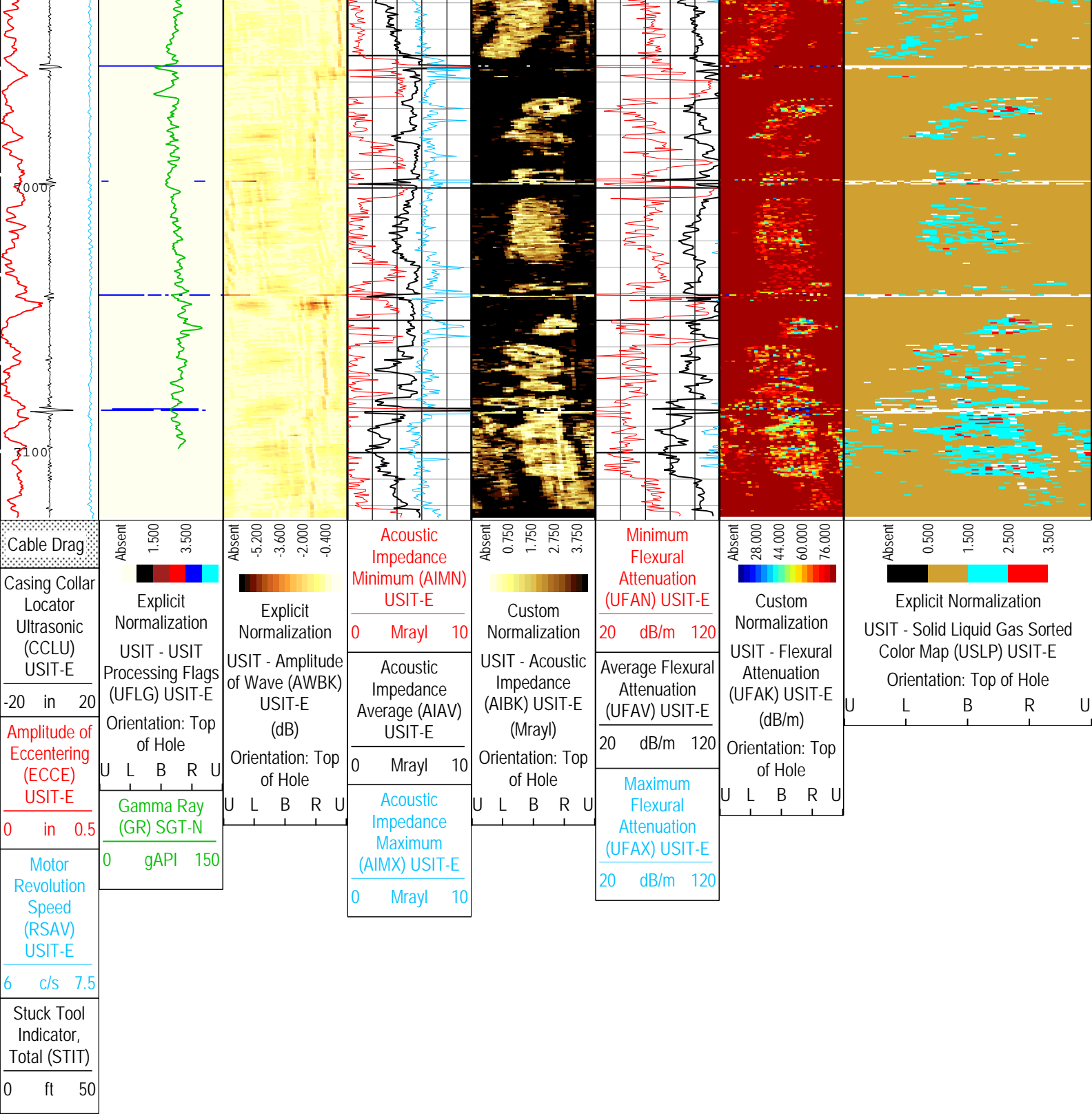












TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Format: USI IBC SLG Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:14

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	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	8141	ft
CDEN.1	Cement Density	USIT-E	0	lbm/gal

	Cement Density	USIT-E	16.69	lbm/gal
CDEN.2	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.352	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	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	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	8.16	dB/m
IBC_FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
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	Manual	
ICE_BINPROC	ICE Bin Processing Depth Interval	USIT-E	0	ft
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	Depth Zoned	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.09	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
OCDI	Outer Casing Diameter	USIT-E	0	in
OCSH	Outer Casing Shoe	USIT-E	0	ft
OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in
TCUB	T*3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	7120	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS	Tool Position: Centered or Eccentered	SGT-N	Eccentered	
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
UFAO	SIT Flexural Attenuation Offset	USIT-E	17.91	dB/m
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
UTHDP	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	Depth Zoned	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl

	Acoustic Impedance Threshold for Cement	USIT-E	0.3	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	0	1000
BS	8.75	1000	7125.5
MEAS_WLEN	22.5	0	7125.5
ZMUD	1.67	0	75
ZMUD	1.66	75	1000
ZMUD	1.67	1000	2000
ZMUD	1.68	2000	7125.5
All depth are actual.			

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	2700	ft/h
TMUC	Type of Mud	USIT-E	BRI	
UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
UFWE	Far Receiver Window End Time	USIT-E	173	us
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
UNWE	Near Receiver Window End Time	USIT-E	142	us
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7120	ft
USSP	Ultrasonic Service	USIT-E	IBC	
UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	37.61	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	75	19-Jun-2014 09:53:01	19-Jun-2014 10:10:15	7125.78	6459.52
EMXV	72	19-Jun-2014 10:10:15	19-Jun-2014 10:10:49	6459.52	6436.61
EMXV	70	19-Jun-2014 10:10:49	19-Jun-2014 10:11:07	6436.61	6424.46
EMXV	67	19-Jun-2014 10:11:07	19-Jun-2014 10:24:10	6424.46	5895.08
EMXV	70	19-Jun-2014 10:24:10	19-Jun-2014 10:34:31	5895.08	5479.53
EMXV	67	19-Jun-2014 10:34:31	19-Jun-2014 10:34:43	5479.53	5471.19
EMXV	64	19-Jun-2014 10:34:43	19-Jun-2014 11:02:35	5471.19	4356.99
EMXV	68	19-Jun-2014 11:02:35	19-Jun-2014 11:02:42	4356.99	4352.21
EMXV	72	19-Jun-2014 11:02:42	19-Jun-2014 11:02:48	4352.21	4348.57

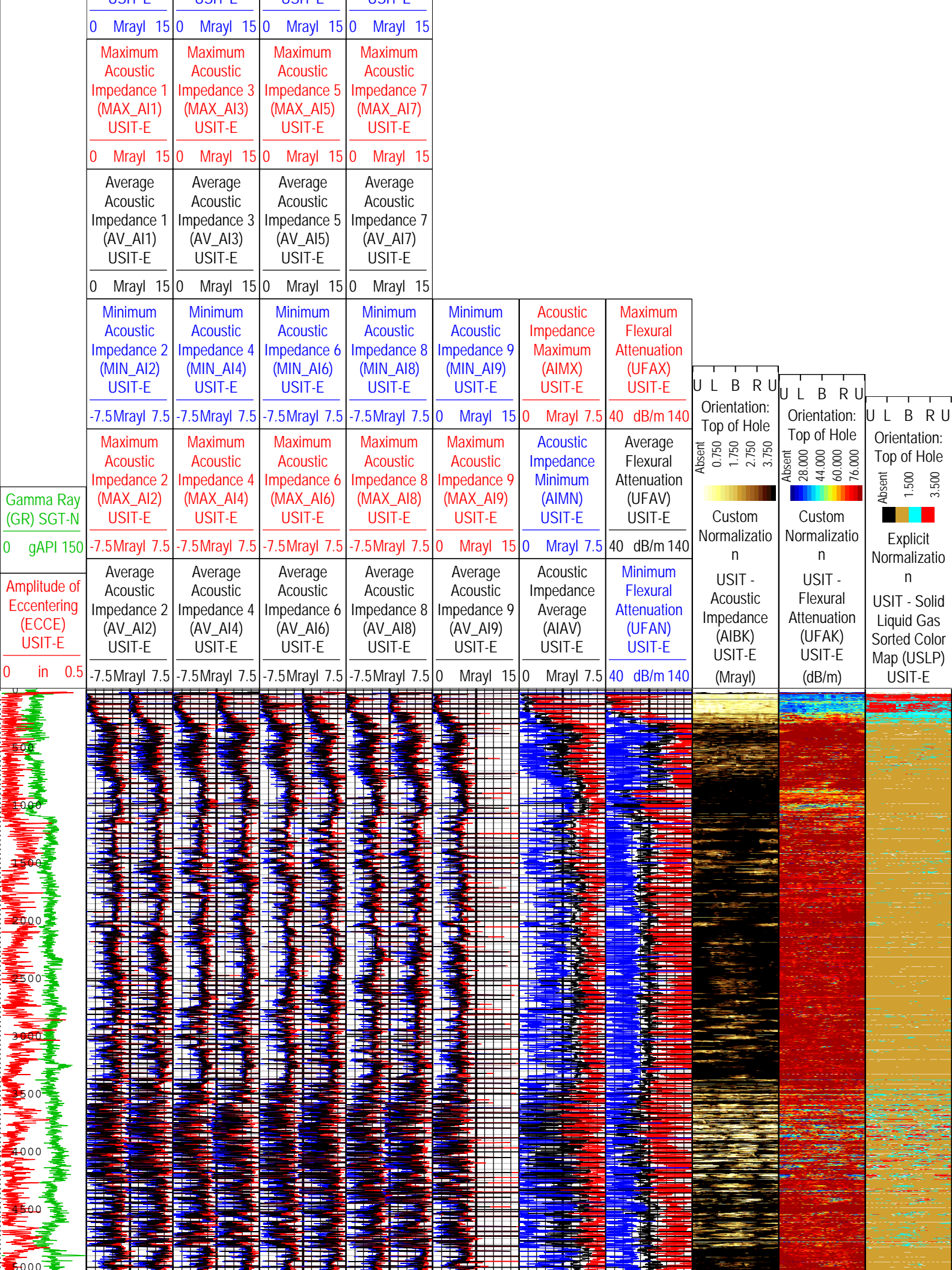
EMXV	70	19-Jun-2014 11:02:48	19-Jun-2014 11:18:59	4348.57	3695.98
EMXV	72	19-Jun-2014 11:18:59	19-Jun-2014 11:19:06	3695.98	3691.52
EMXV	74	19-Jun-2014 11:19:06	19-Jun-2014 11:38:47	3691.52	2900.48
EMXV	76	19-Jun-2014 11:38:47	19-Jun-2014 12:22:08	2900.48	1153.23
EMXV	78	19-Jun-2014 12:22:08	19-Jun-2014 12:22:16	1153.23	1147.77
EMXV	80	19-Jun-2014 12:22:16	19-Jun-2014 12:22:52	1147.77	1124.14
EMXV	82	19-Jun-2014 12:22:52	19-Jun-2014 12:23:04	1124.14	1116.01
EMXV	84	19-Jun-2014 12:23:04	19-Jun-2014 12:51:04	1116.01	18.37
EMXV	90	19-Jun-2014 12:51:04	19-Jun-2014 12:51:20	18.37	16.67
UFWB	133	19-Jun-2014 09:53:01	19-Jun-2014 10:08:44	7125.78	6521.62
UFWB	124.14	19-Jun-2014 10:08:44	19-Jun-2014 10:14:52	6521.62	6272.66
UFWB	114.45	19-Jun-2014 10:14:52	19-Jun-2014 10:52:42	6272.66	4753.25
UFWB	119.99	19-Jun-2014 10:52:42	19-Jun-2014 10:52:55	4753.25	4744.88
UFWB	125.53	19-Jun-2014 10:52:55	19-Jun-2014 12:51:20	4744.88	16.67
UNWB	102	19-Jun-2014 09:53:01	19-Jun-2014 10:08:47	7125.78	6519.44
UNWB	96.68	19-Jun-2014 10:08:47	19-Jun-2014 10:14:48	6519.44	6275.53
UNWB	88.91	19-Jun-2014 10:14:48	19-Jun-2014 10:52:49	6275.53	4749.02
UNWB	91.5	19-Jun-2014 10:52:49	19-Jun-2014 12:51:20	4749.02	16.67
WINE	77.61	19-Jun-2014 09:53:01	19-Jun-2014 10:15:24	7125.78	6250.89
WINE	98.14	19-Jun-2014 10:15:24	19-Jun-2014 10:15:27	6250.89	6248.78
WINE	85.96	19-Jun-2014 10:15:27	19-Jun-2014 12:51:20	6248.78	16.67
All depth are at tool zero.					

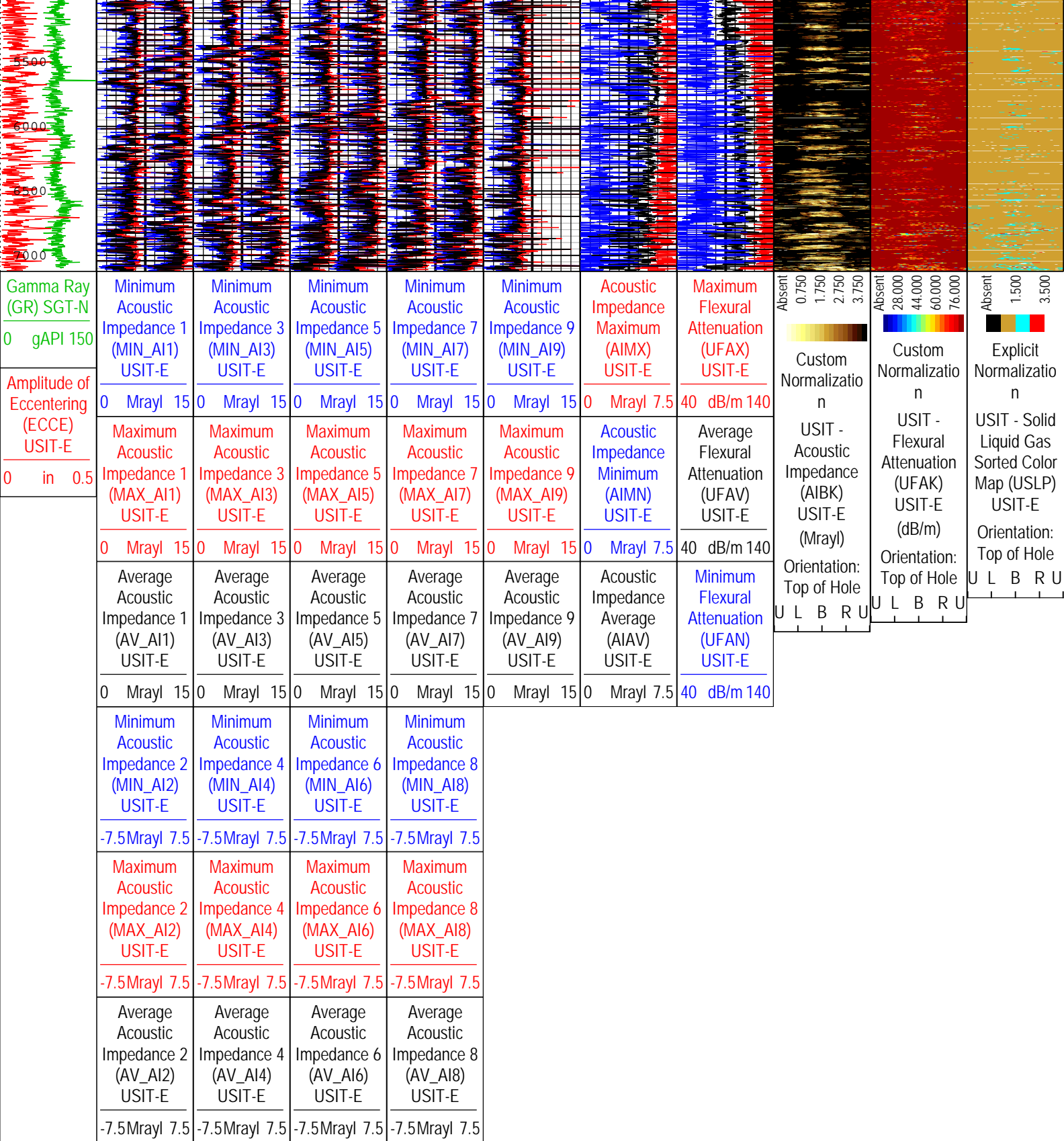
USI Goodwin			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[5]:Up	7125.78	16.67
Fluid Velocity = "Automatic". CFVL equals DFSL channel			
Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
Mud Impedance = "Manual". CZMD uses ZMUD parameter zoned table below			
Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	75	1.67	1.67
75	1000	1.66	1.66
1000	2000	1.67	1.67
2000		1.68	1.68
Run 1			
IBC Goodwin Compressed - 3000 PSI			
Log	Company:Anadarko Petroleum Company		Well:Spurling 36C-34HZ
			Run 1: Main[5]:Up:S011

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:20

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 (MIN_AI1) USIT-F	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-F	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-F	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-F
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TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:20

USI IBC SLG Composite			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Repeat[4]:Up	7124.19	6828.75
Fluid Velocity = "Automatic". CFVL equals DFSL channel			
Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

CZMD uses ZMUD parameter zoned table below

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	75	1.67	1.67
75	1000	1.66	1.66
1000	2000	1.67	1.67
2000		1.68	1.68

Run 1

IBC SLG Composite - 0 PSI Repeat

Software Version

Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description	Version	
DepthCorrection	DepthCorrection	4.0.9213.3000	
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DSP: v01.82
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

Log

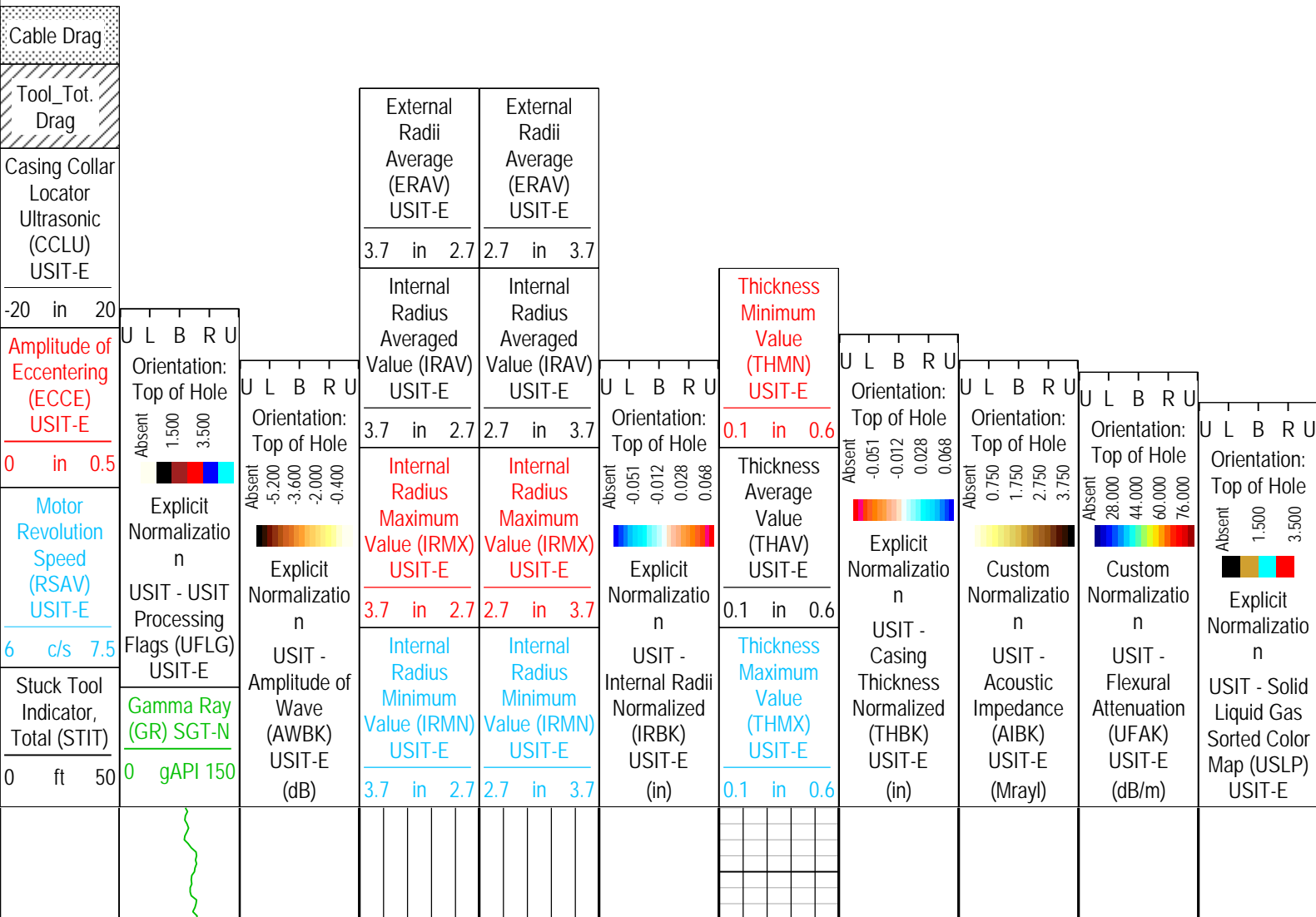
Company:Anadarko Petroleum Company

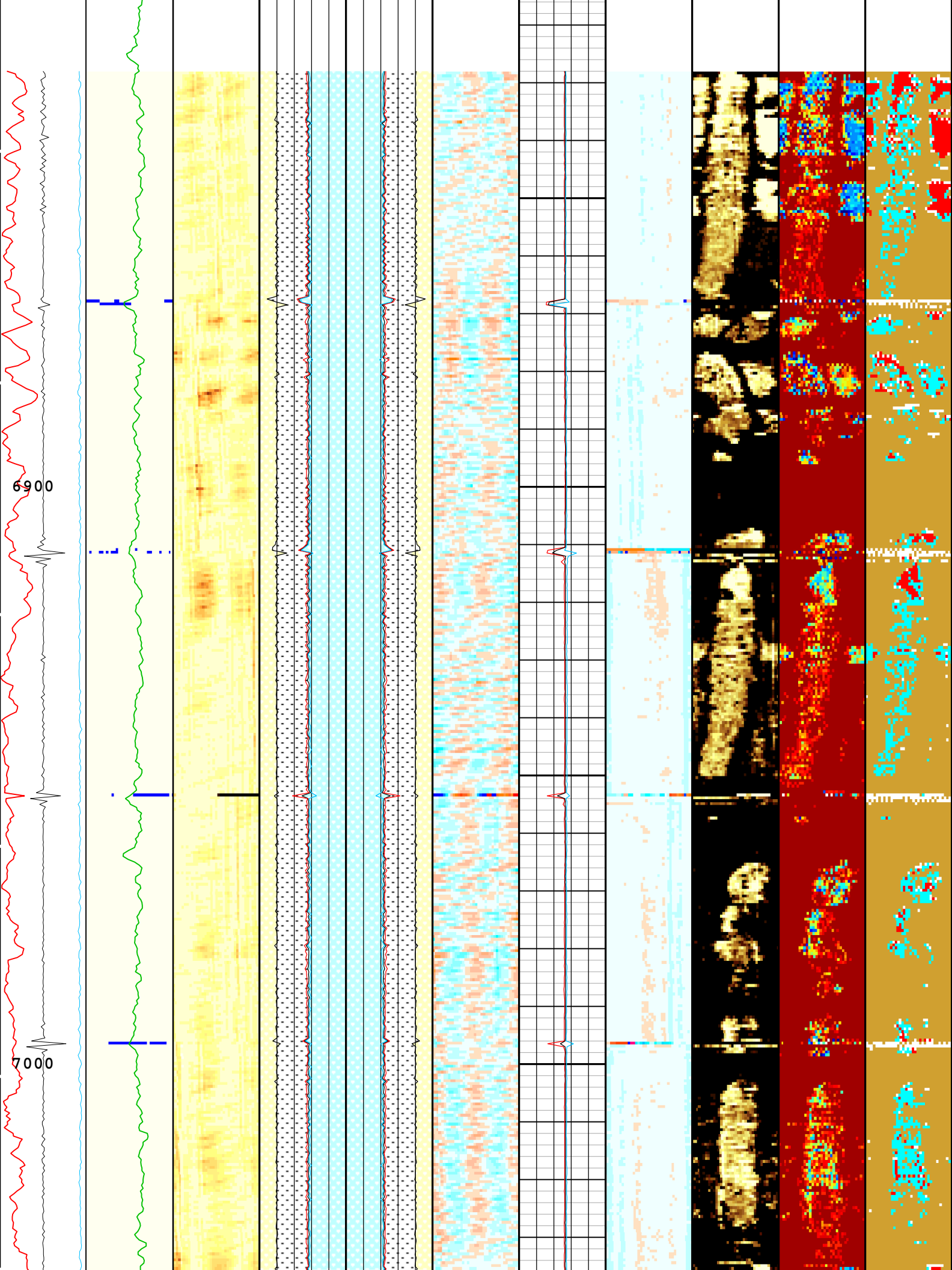
Well: Spurling 36C-34HZ

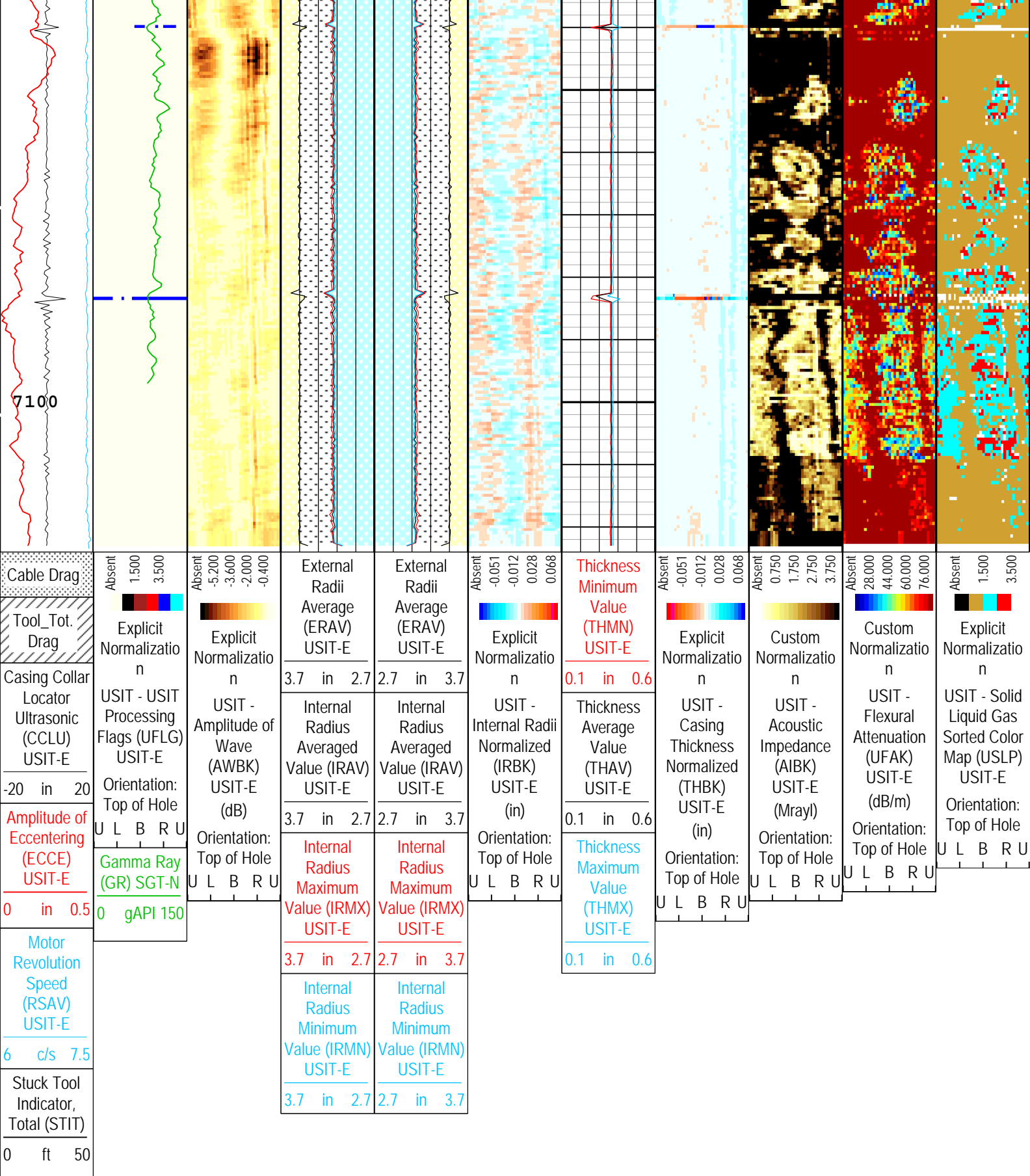
Run 1: Repeat[4]:Up:S011

Description: USI IBC SLG Composite	Format: USI IBC SLG Composite	Index Scale: 5 in per 100 ft	Index Unit: ft	Index Type: Measured Depth	Creation Date: 19-Jun-2014 14:13:25
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TIME_1900 - Time Marked every 60.00 (s)







TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Composite Format: USI IBC SLG Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:25

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	

BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.75	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	8141	ft
CDEN.1	Cement Density	USIT-E	0	lbm/gal
CDEN.2	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	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	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	8.16	dB/m
IBC_FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
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	Manual	
ICE_BINPROC	ICE Bin Processing Depth Interval	USIT-E	0	ft
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.5	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.09	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
OCDI	Outer Casing Diameter	USIT-E	0	in
OCSH	Outer Casing Shoe	USIT-E	0	ft
OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in
TCUB	T^3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	7120	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS	Tool Position: Centered or Eccentered	SGT-N	Eccentered	
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
UFAO	SIT Flexural Attenuation Offset	USIT-E	17.91	dB/m
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
UTHDP	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	1.68	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	75	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	2700	ft/h
TMUC	Type of Mud	USIT-E	BRI	
UFWB	Far Receiver Window Begin Time	USIT-E	133	us
UFWE	Far Receiver Window End Time	USIT-E	173	us
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
UNWB	Near Receiver Window Begin Time	USIT-E	102	us
UNWE	Near Receiver Window End Time	USIT-E	142	us
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7120	ft
USSP	Ultrasonic Service	USIT-E	IBC	
UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	37.61	us
WINE	Window End Time	USIT-E	77.61	us

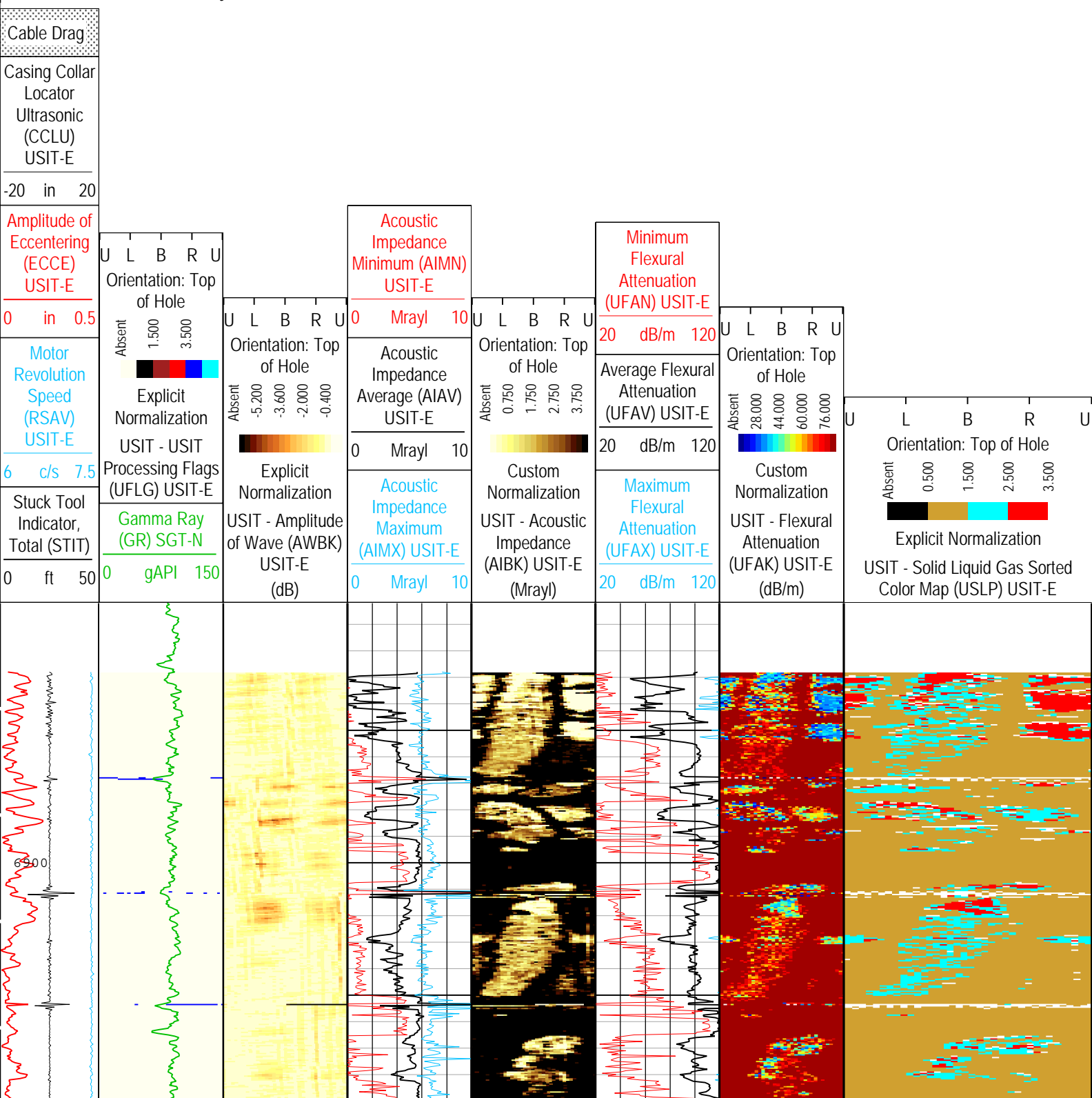
USI IBC SLG	
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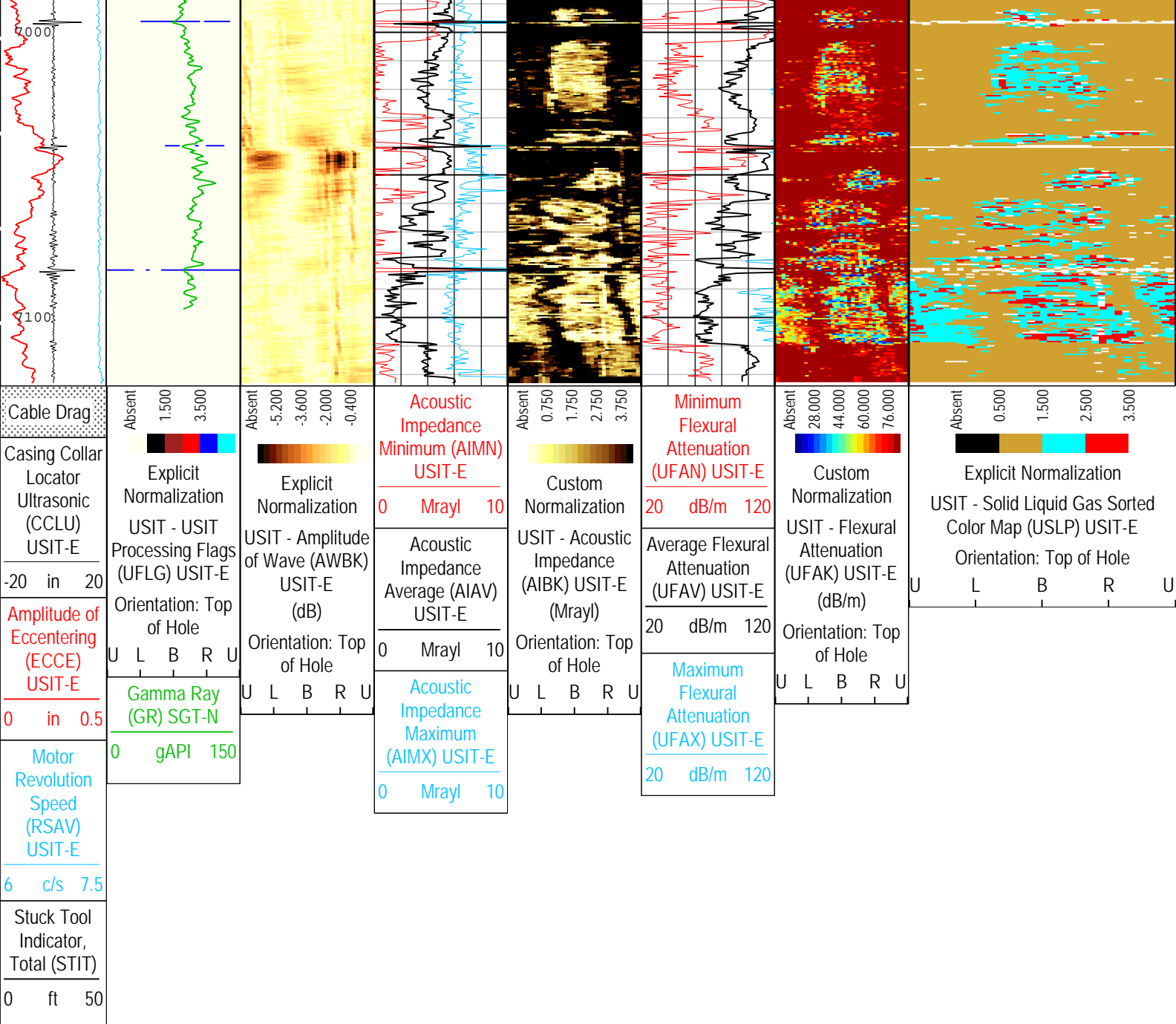
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Repeat[4]:Up	7124.19	6828.75
Fluid Velocity = "Automatic". CFVL equals DFSL channel			
Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
Mud Impedance = "Manual". CZMD uses ZMUD parameter zoned table below			
Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	75	1.67	1.67
75	1000	1.66	1.66
1000	2000	1.67	1.67
2000		1.68	1.68
Run 1			
IBC SLG - 0 PSI Repeat			
Software Version			
Acquisition System		Version	

MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description	Version	
DepthCorrection	DepthCorrection	4.0.9213.3000	
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DSP: v01.82
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

Log	Company:Anadarko Petroleum Company				Well:Spurling 36C-34HZ	
					Run 1: Repeat[4]:Up:S011	
Description: USI IBC SLG Format: USI IBC SLG Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:29						

TIME_1900 - Time Marked every 60.00 (s)





TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Format: USI IBC SLG Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 19-Jun-2014 14:13:29

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.75	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	8141	ft
CDEN.1	Cement Density	USIT-E	0	lbm/gal
CDEN.2	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal

DFT	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	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	8.16	dB/m
IBC_FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
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	Manual	
ICE_BINPROC	ICE Bin Processing Depth Interval	USIT-E	0	ft
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.5	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.09	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
OCDI	Outer Casing Diameter	USIT-E	0	in
OCSH	Outer Casing Shoe	USIT-E	0	ft
OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in
TCUB	T^3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	7120	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
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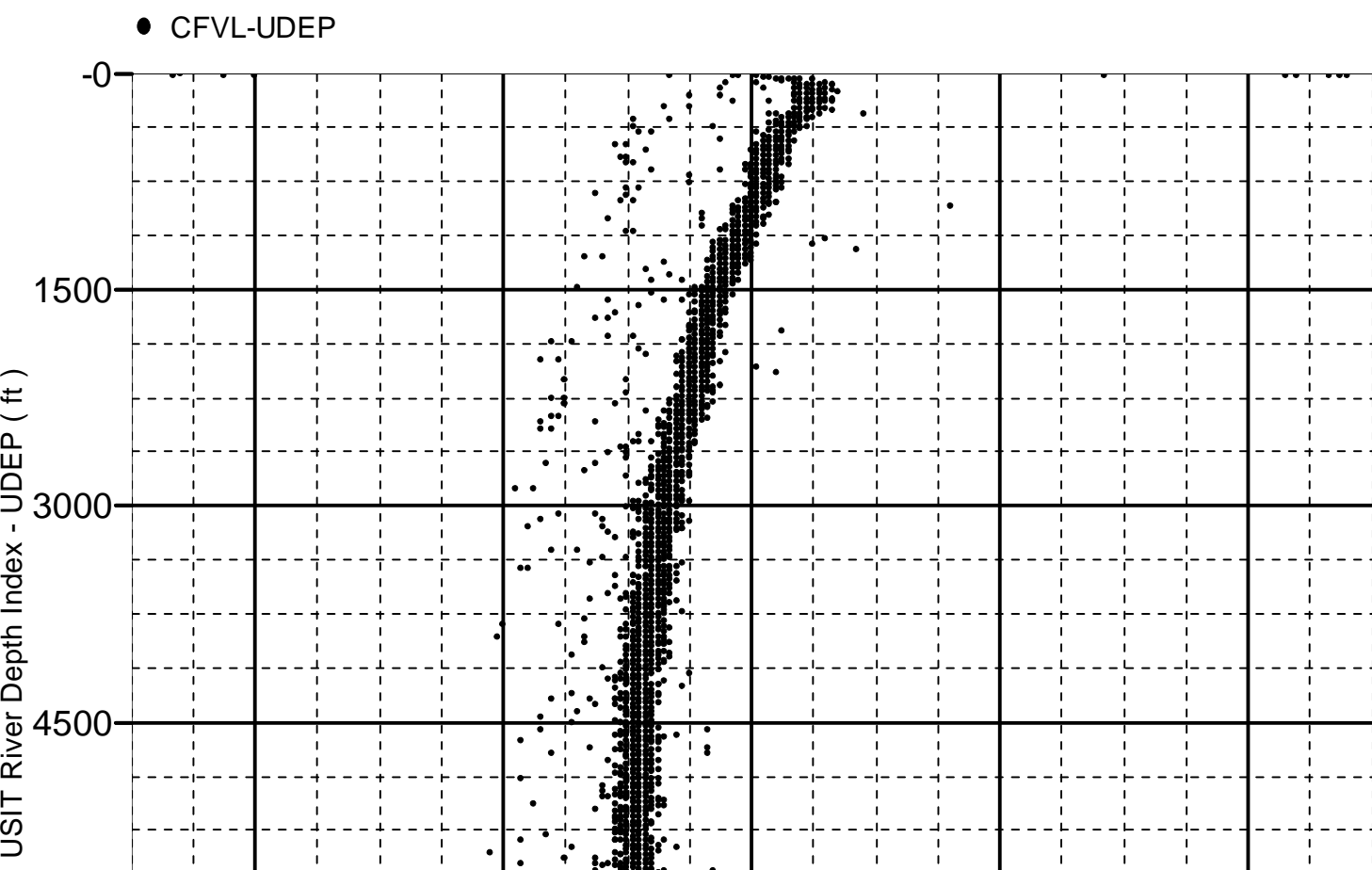
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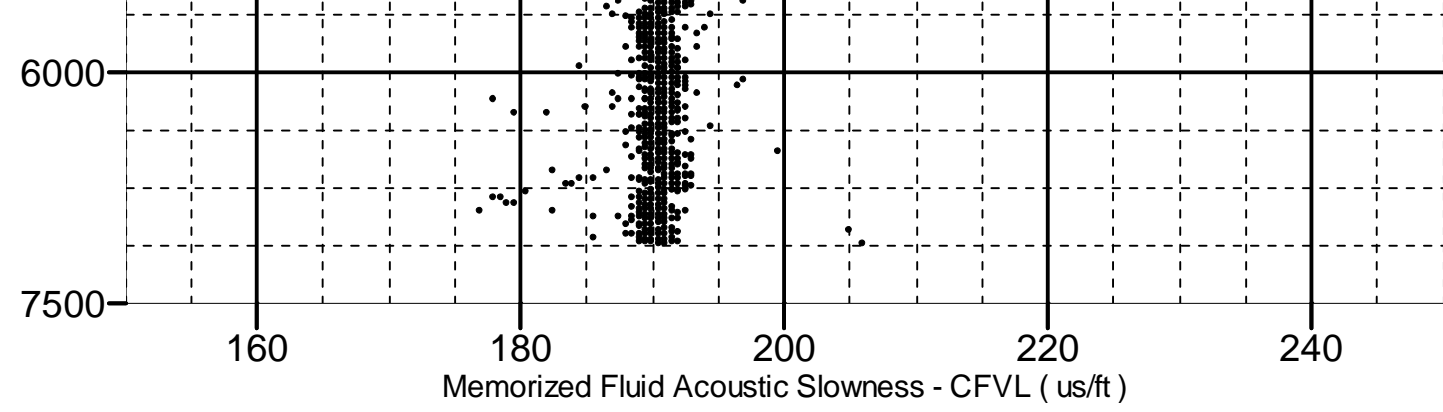
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WINB	Window Begin Time	USIT-E	37.61	us
WINE	Window End Time	USIT-E	77.61	us

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 7125.00 to 16.00 ft

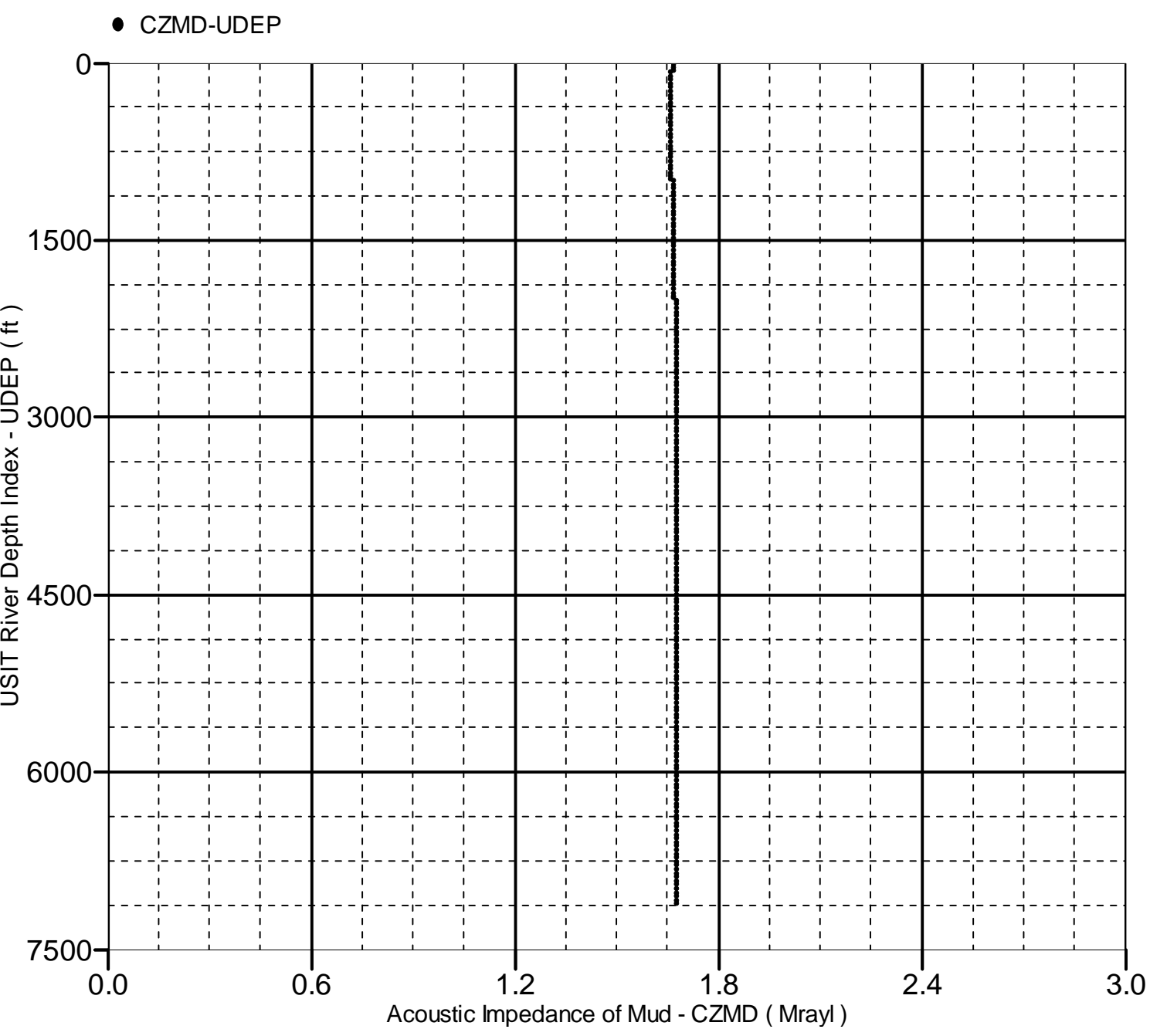




Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 7125.00 to 16.00 ft



Company:	Anadarko Petroleum Company	Schlumberger
Well:	Spurling 36C-34HZ	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Isolation Scanner		
Cement Evaluation		
Gamma Ray - CCL Log		