

Company: Crestone Peak Resources Operating LLC

Well: Ruegge 3E-4H-N165

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation
Gamma Ray - CCL Log

County: Weld
Field: Wattenberg
Location: SESW SEC:4 TWN:1N RNG:65W
Well: Ruegge 3E-4H-N165
Company: Crestone Peak Resources Operating LLC

Location:		SESW SEC:4 TWN:1N RNG:65W	Elev.: K.B. 4941.00 ft G.L. 4918.00 ft D.F. 4941.00 ft
Permanent Datum:	Ground Level		Elev.: 4918.00 f
Log Measured From:	Kelly Bushing		23.00 ft above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05123465650000	4	1N	65W

Logging Date	28-Jun-2018		
Run Number	ONE		
Depth Driller	12202.00 ft		
Schlumberger Depth	7110.00 ft		
Bottom Log Interval	7110.00 ft		
Top Log Interval	50.00 ft		
Casing Fluid Type	Water		
Salinity			
Density	8.8 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.50 in		
From	2515.00 ft		
To	12202.00 ft		
Casing/Tubing Size	5.5 in		
Weight	20 lbm/ft		
Grade	P110		
From	23.00 ft		
To	12187.44 ft		
Max Recorded Temperatures			
220.6 degF			
Logger on Bottom	Time		
Unit Number	Location:	3108	11:02:00
Recorded By	Justin Ray		Evanston, Wyoming
Witnessed By	Satch Bowe		

Disclaimer

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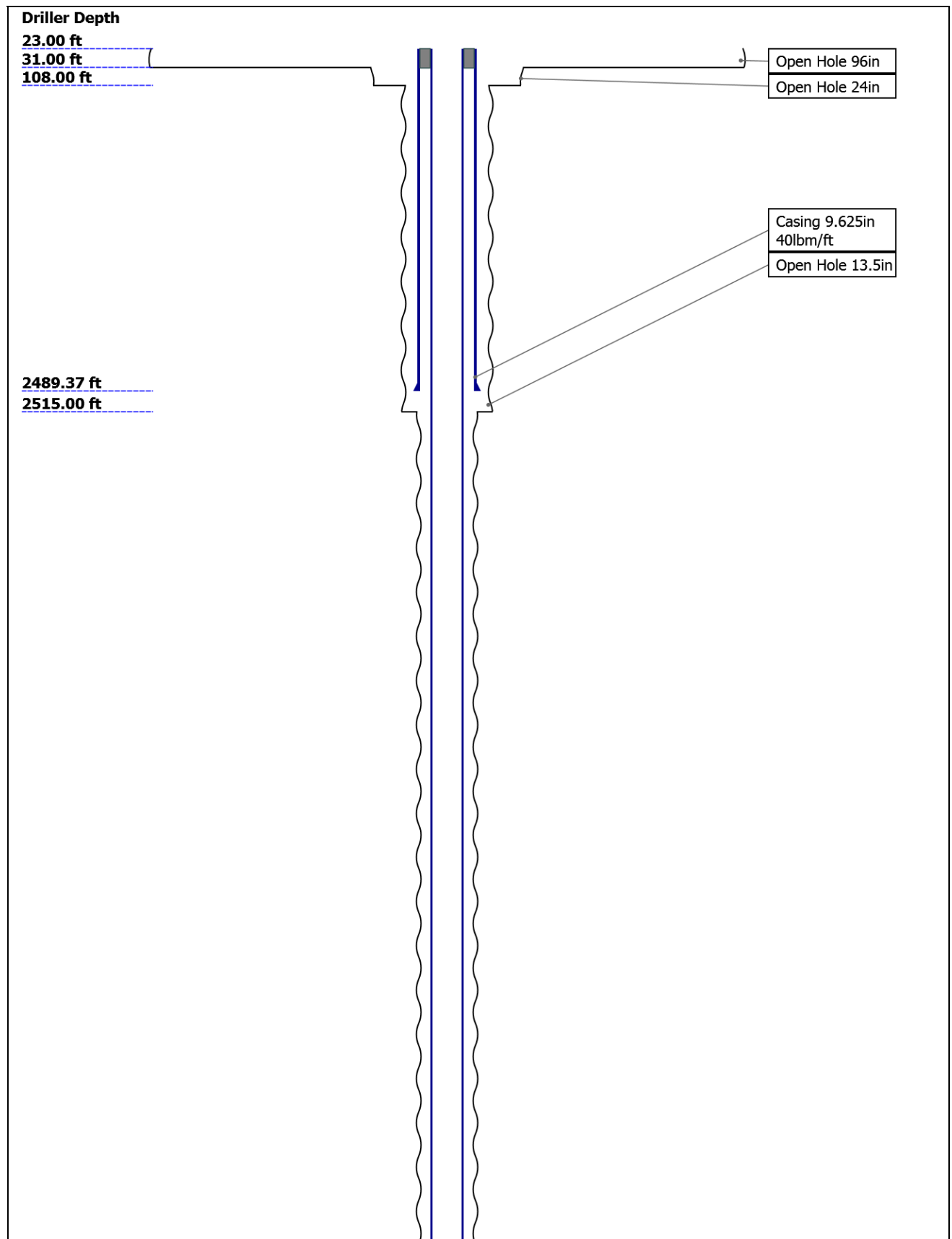
11.1 Integration Summary

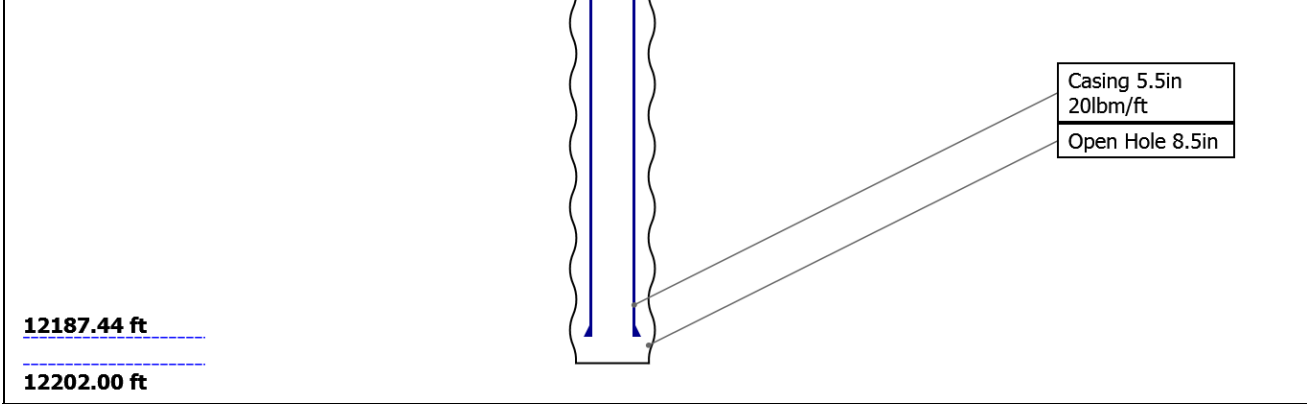
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Well Sketch

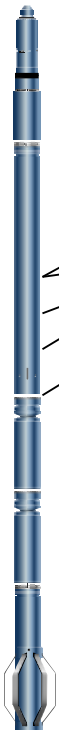


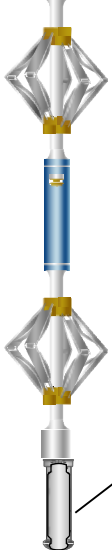


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	96	24	13.5	8.5		
Top Driller (ft)	23	31	108	2515		
Top Logger (ft)	23	31	108	2515		
Bottom Driller (ft)	31	108	2515	12202		
Bottom Logger (ft)	31	108	2515	12202		
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.835	4.778				
Grade	J55	P110				
Top Driller (ft)	23	23				
Top Logger (ft)	23	23				
Bottom Driller (ft)	2489.37	12187.44				
Bottom Logger (ft)	2489.37	12187.44				

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks	
<div><div><div>Equip nameLengthMP nameOffset</div><div>LEH-QT:230.16353</div><div>LEH-QT:2353</div><div>EDTC-B:927.24247</div><div>EDTH-B:9309</div><div>EDTG-A:79445</div><div>EDTC-B:9247</div><div>AH-184[2]20.74</div><div>AH-184[1]18.74</div><div>USIT-E:93016.74</div><div>ECH-MFA:1924</div><div>USAC-A:930</div><div>USIT-A:10</div></div><div></div><div><div>CTEM23.74</div><div>ACCZ0.00</div><div>HV0.00</div><div>Gamma21.87</div><div>Ray</div><div>TelStatu20.74</div><div>s4880</div><div>5965</div></div></div>				Tool string ran as per tool sketch	
				Gemcos, centralizer boosters and two knuckles ran on string for tool centralization	
				All passes run under 0 PSI surface induced pressure	
				Thank you for choosing Schlumberger	

USIS-A:18 20 USSC-B:79 9 IBCS-A:77 4 FAR-SENS OR:4670 IBC-TX NEAR-SEN SOR:4642 IBC-TX USI-SENS OR:1358 IBC-TX EMITTER- SENSOR:4 561 IBC-TX	 <p>USI Sen 0.84 sor Head Te nsion</p> <p>TOOL_ZERO</p> <p>Lengths are in ft Maximum Outer Diameter = 6.250 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p>	
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Depth Summary			
		ONE	
Depth Measuring Device			
Type	IDW-JA		
Serial Number	5979		
Calibration Date	06-oct-2017		
Calibrator Serial Number	IDWC-C-57		
Calibration Cable Type	7-39-AIXXS		
Wheel Correction 1	-3		
Wheel Correction 2	-3		
Tension Device			
Type	CMTD-B/A		
Serial Number	1398		
Calibration Date	22-jun-2018		
Calibrator Serial Number	78796A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	16		
Calibration Peak Error	25		
Logging Cable			
Type	7-39P-LXS		
Serial Number	F713178		
Length	10000.00 ft		
Conveyance Type	Wireline		
Rig Type	MAST		
ONE:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed	
Rig Up Length At Surface		IDW used as primary depth control	
Rig Up Length At Bottom		Z-Chart used as secondary depth control	
Rig Up Length Correction			

Stretch Correction	6.38 ft
Tool Zero Check At Surface	23.00 ft

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[4]:Up	7360.61	3238.88

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 = "Theoretical".
CZMD uses theoretical results.
MUD_N_THE=1.15
DFD=1.05g/cm3(8.80lbm/gal)

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
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Composite 1

IBC SLG Main Pass

Software Version

Acquisition System	Version
Maxwell 2018	8.0.95333.3100
Application Patch	Wireline_NPD-PNX-2018CMZ_8.0.100887

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	3238.88 ft	7360.61 ft	28-Jun-2018 10:30:23 AM	28-Jun-2018 11:28:30 AM	ON	6.38 ft	Yes
ONE	Log[5]:Up	Up	3186.72 ft	3307.01 ft	28-Jun-2018 11:29:32 AM	28-Jun-2018 11:31:27 AM	ON	6.38 ft	Yes
ONE	Log[6]:Up	Up	61.08 ft	3277.94 ft	28-Jun-2018 11:35:40 AM	28-Jun-2018 12:21:36 PM	ON	6.12 ft	Yes






All depths are referenced to toolstring zero

Log	Company:Crestone Peak Resources Operating LLC Well:Ruegge 3E-4H-N165 Composite 1:S025
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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: 11-Jul-2018 19:04:35

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E[1]

- 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

Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]


-20 in 20

Amplitude of Eccentering (ECCE) USIT-E[1]

0 in 0.5

Motor

Absent 1.500 3.500



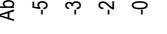
Explicit Normalization

USIT - USIT Processing Flags (UFLG) USIT-E[1]

USIT Processing Flags (UFLG[0]) USIT-E[1]

1 5

Absent -5.200 -3.600 -2.000 -0.400



Explicit

Acoustic Impedance Minimum (AIMN) USIT-E[1]

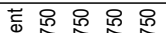
-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E[1]

-1 Mrayl 9

Acoustic

Absent 0.750 1.750 2.750 3.750



Custom

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E[1]


0 dB/m 150

Average Flexural Attenuation (U-USIT_UFAV) USIT-E[1]

0 dB/m 150


Maximum

Absent 42.000 66.000 90.000 114.000



Custom Normalization

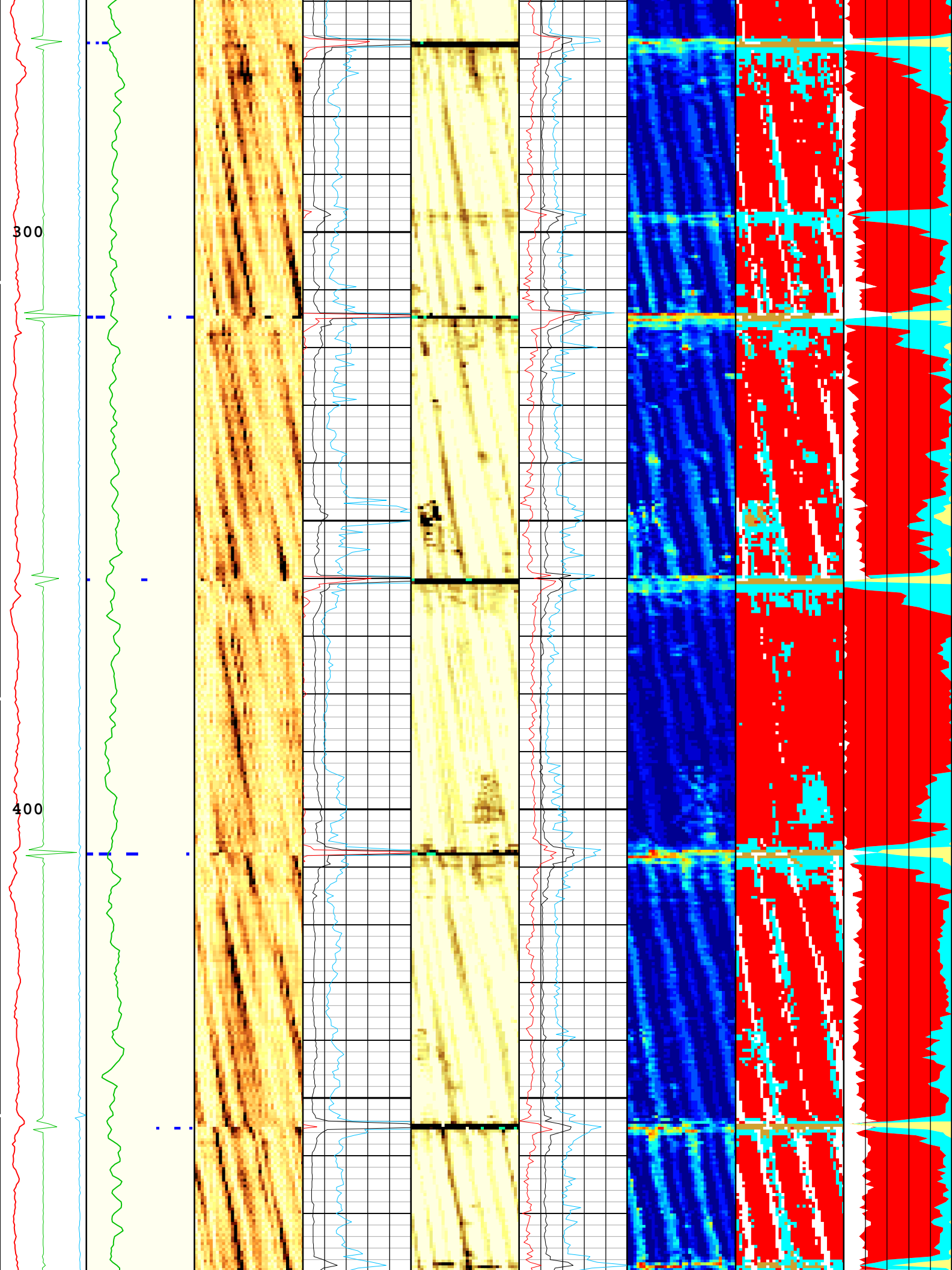
Absent 0.500 1.500 2.500 3.500

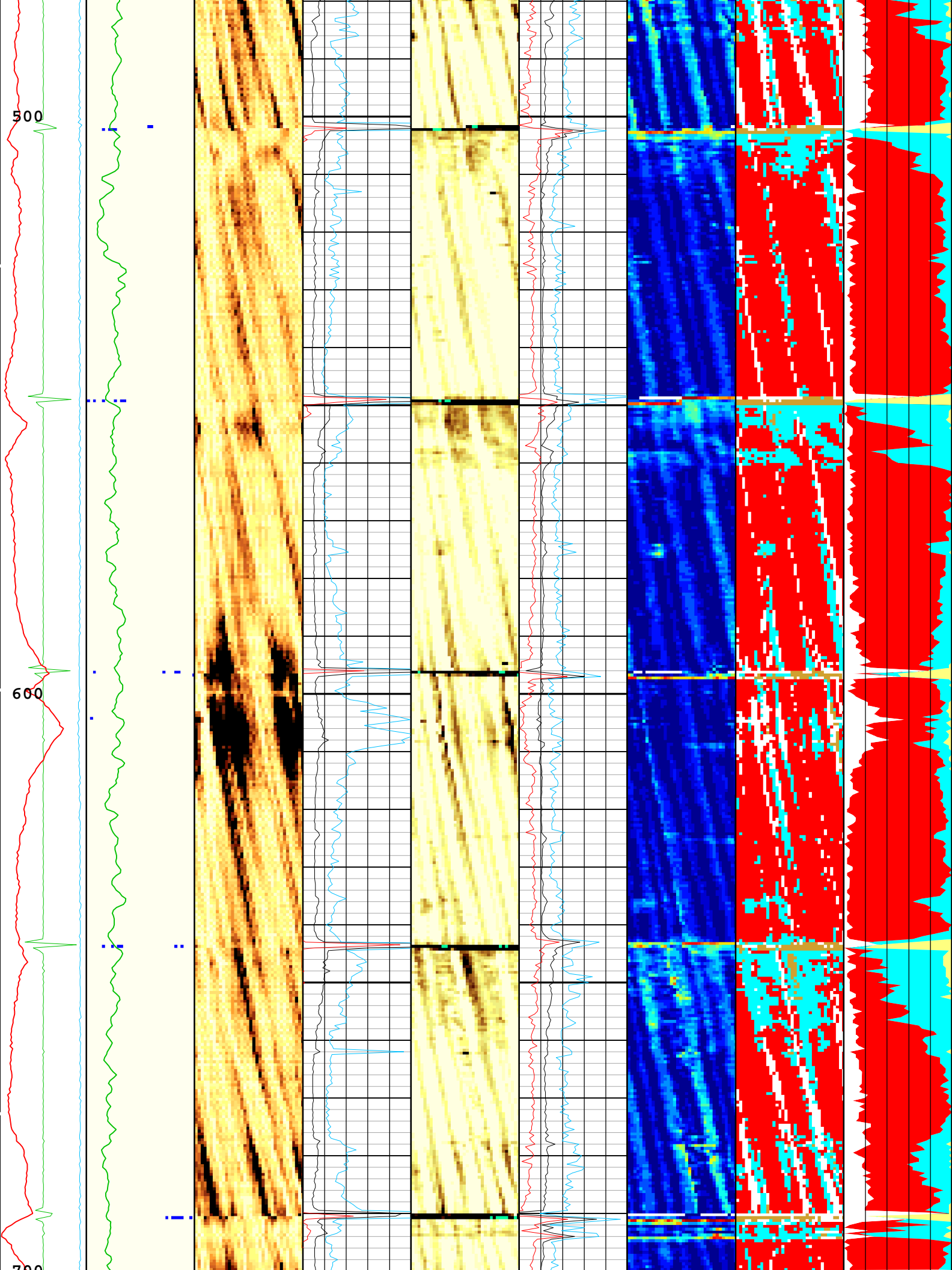


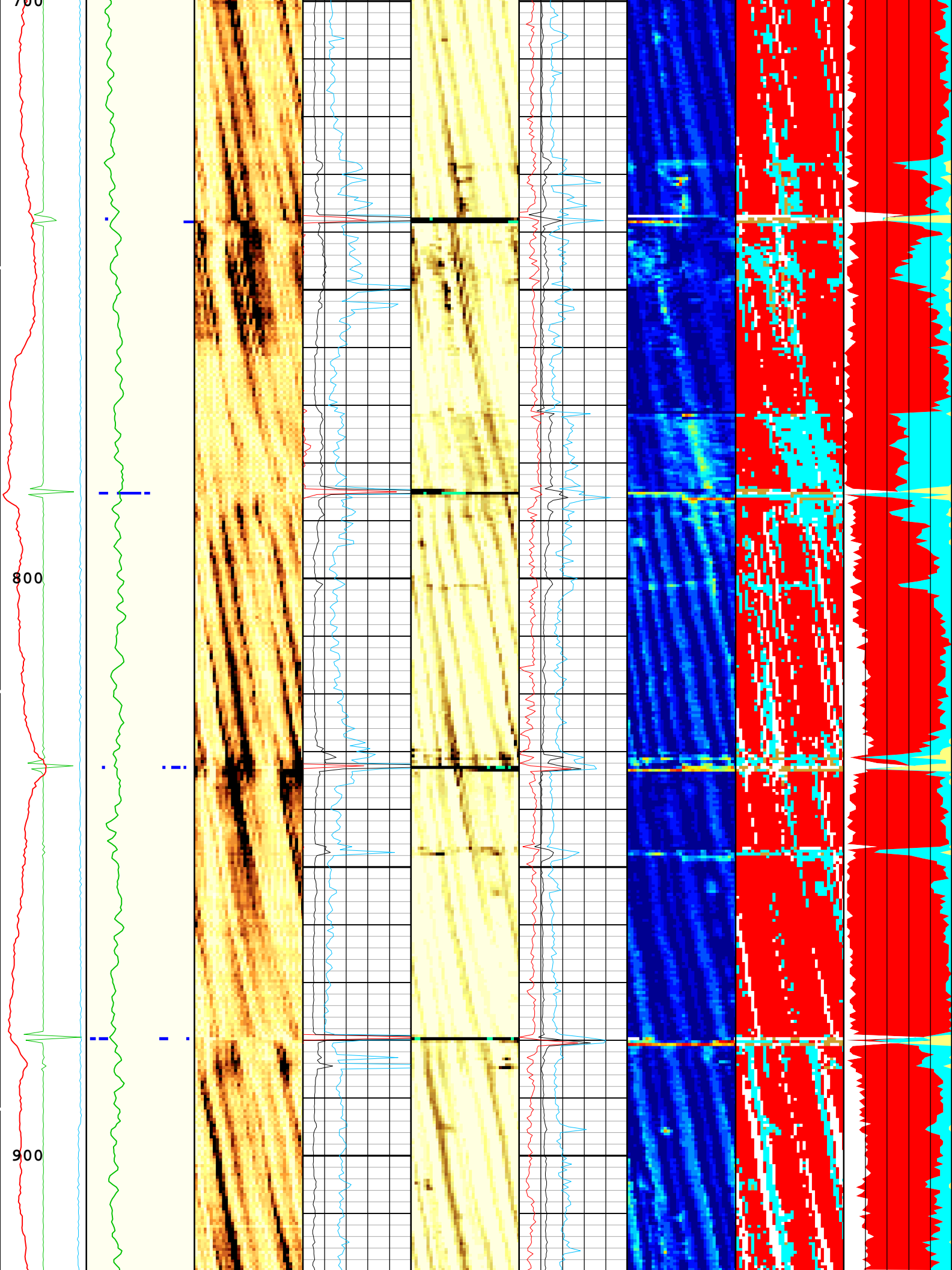
Explicit Normalization

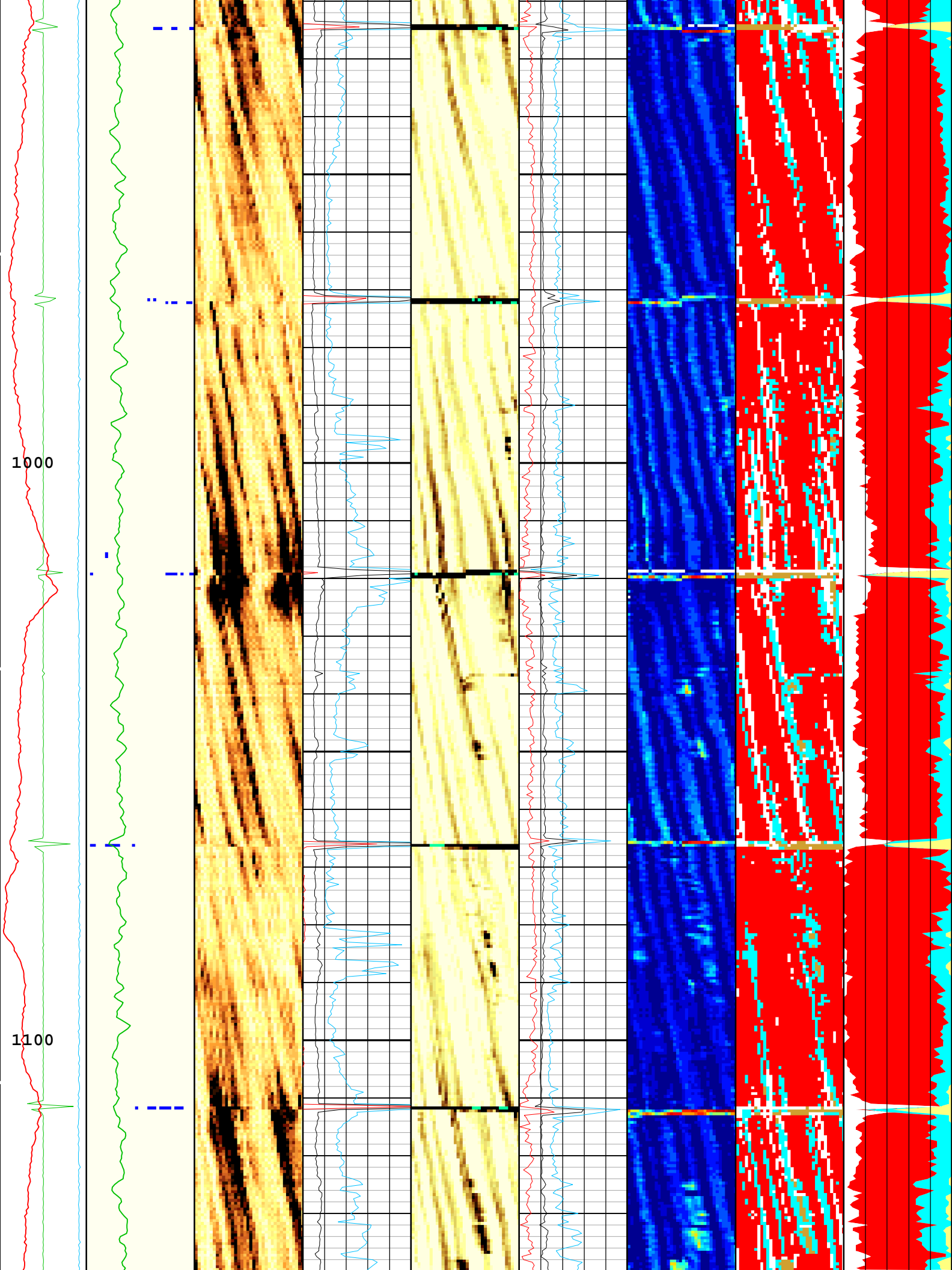
SLG Solid Index

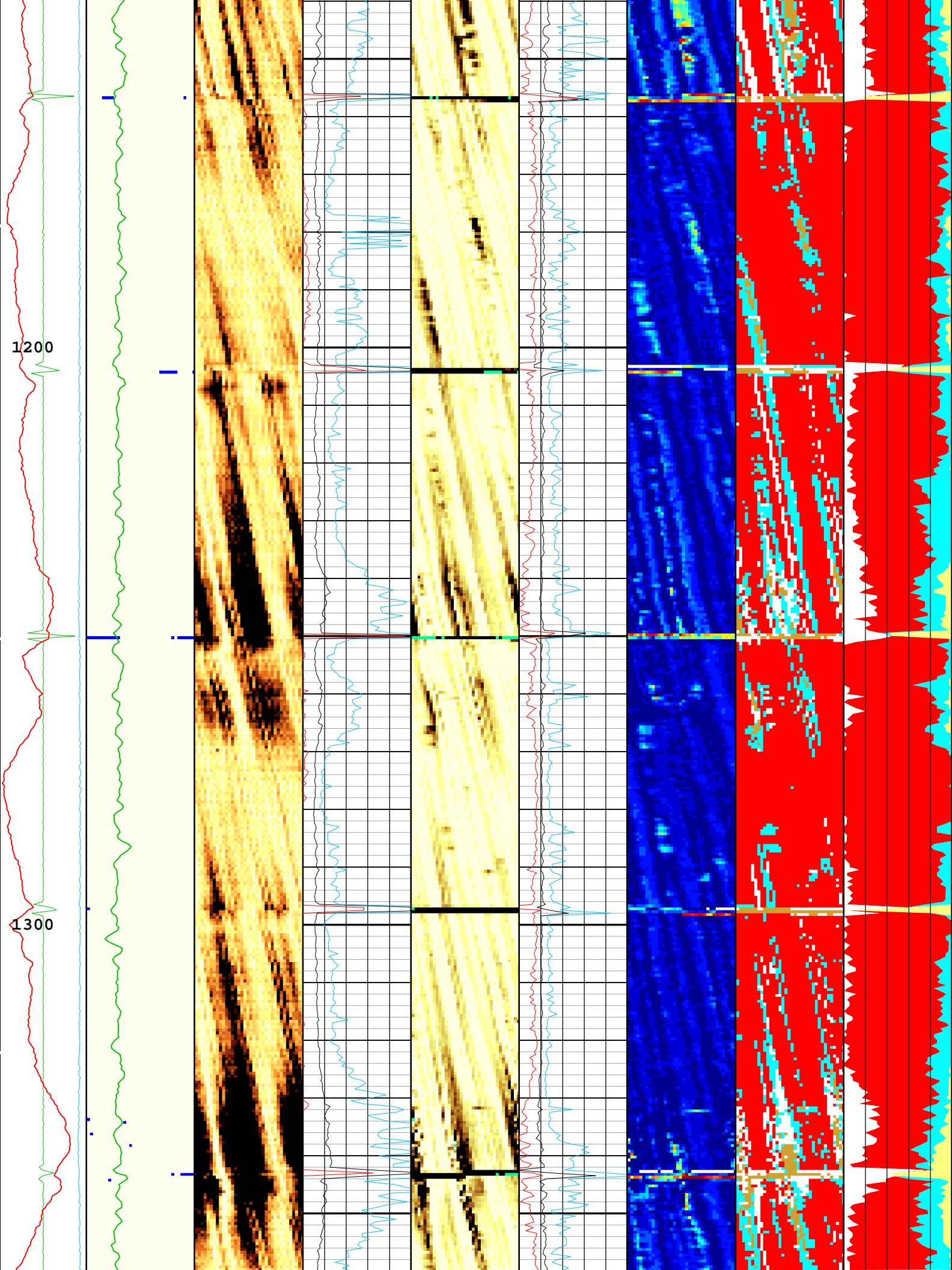
SLG Liquid Index

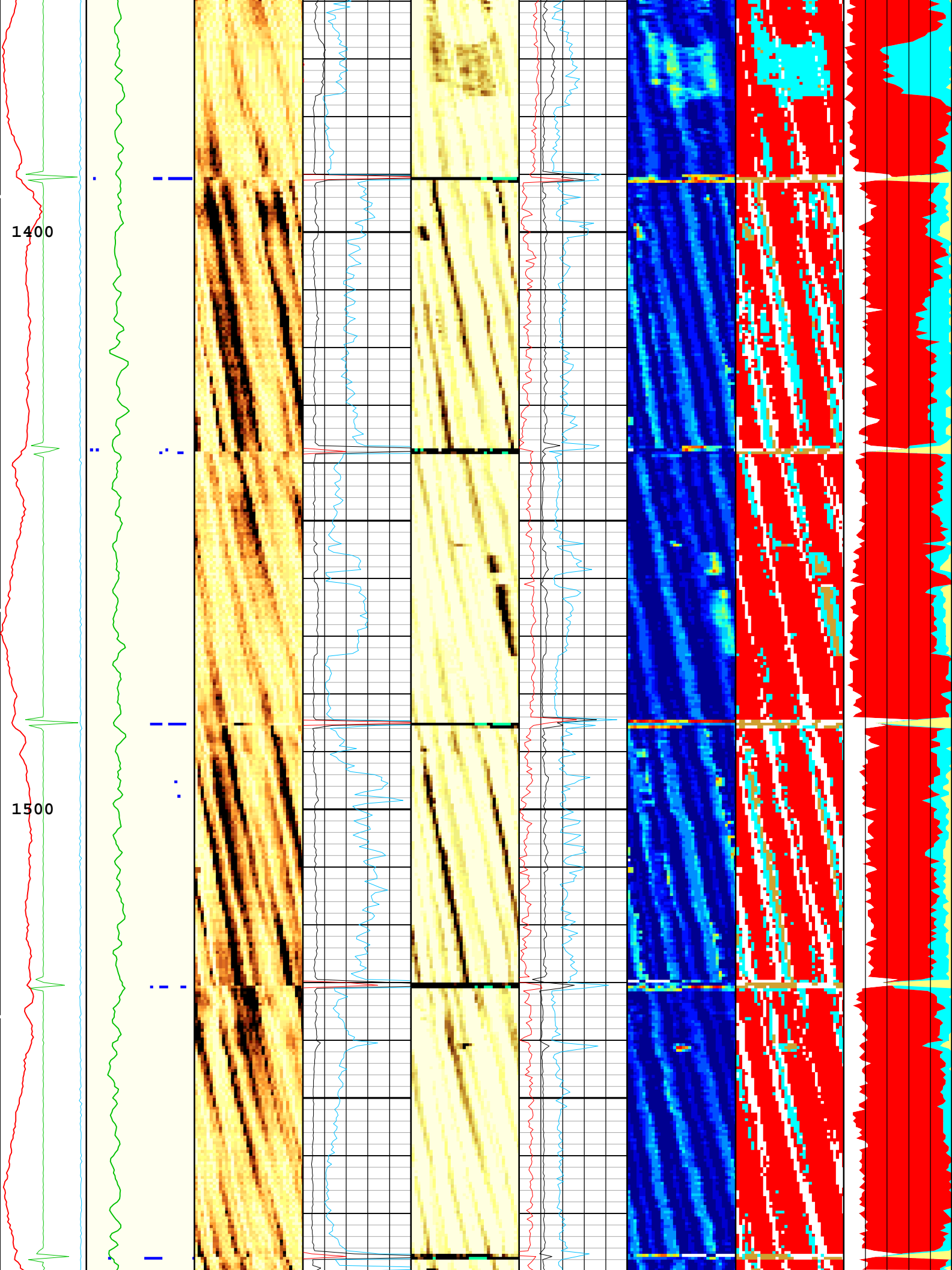


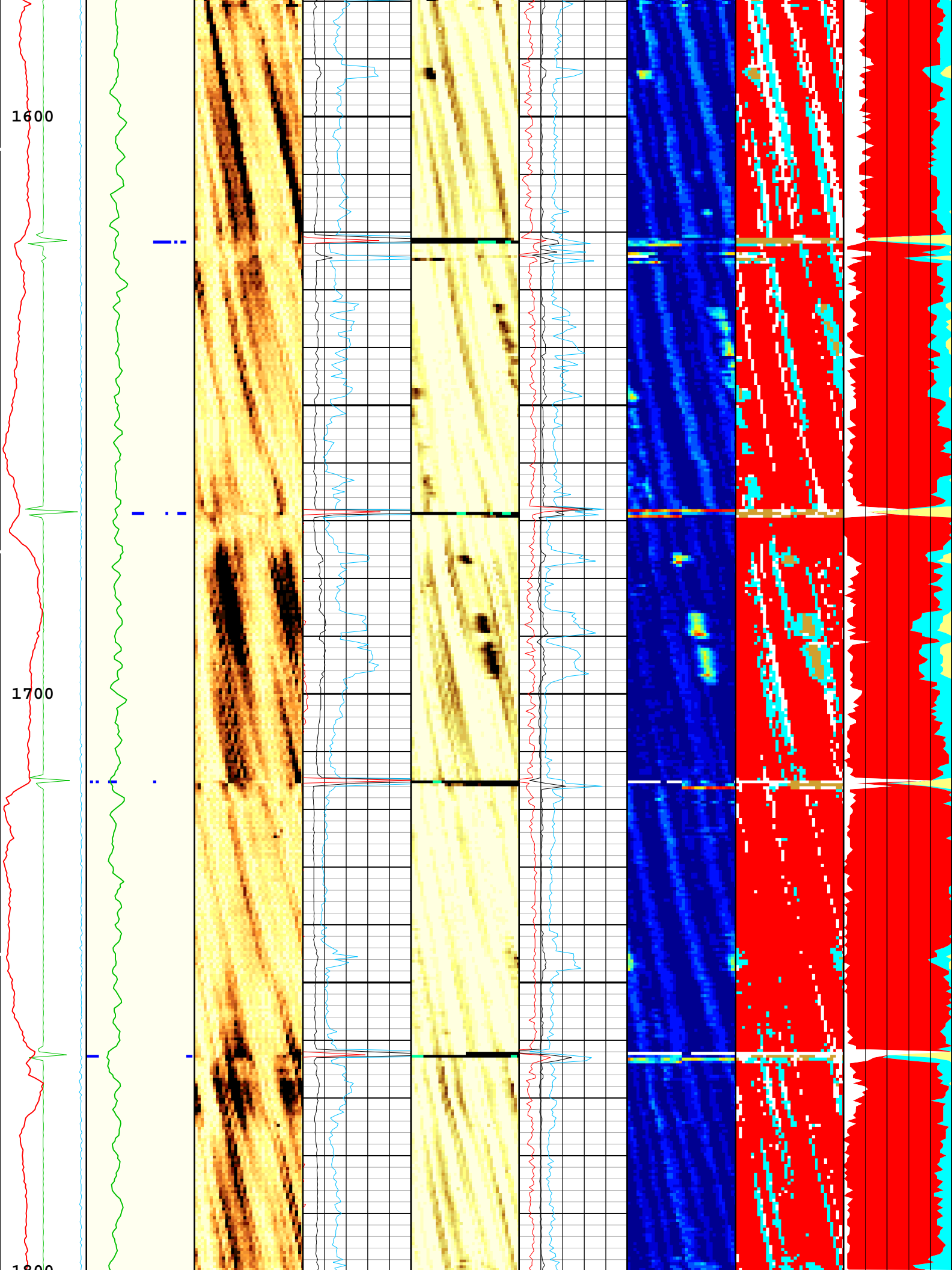


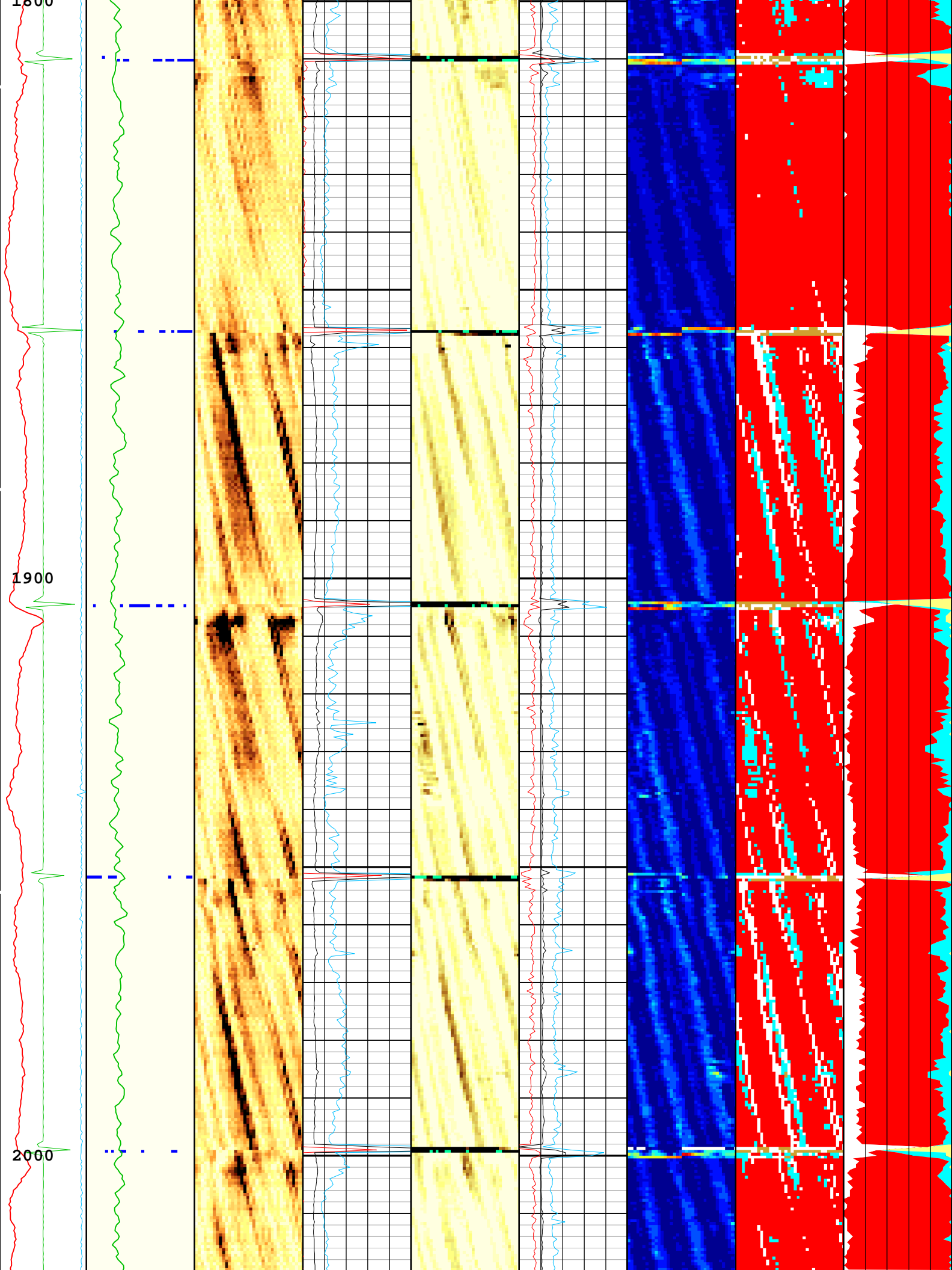


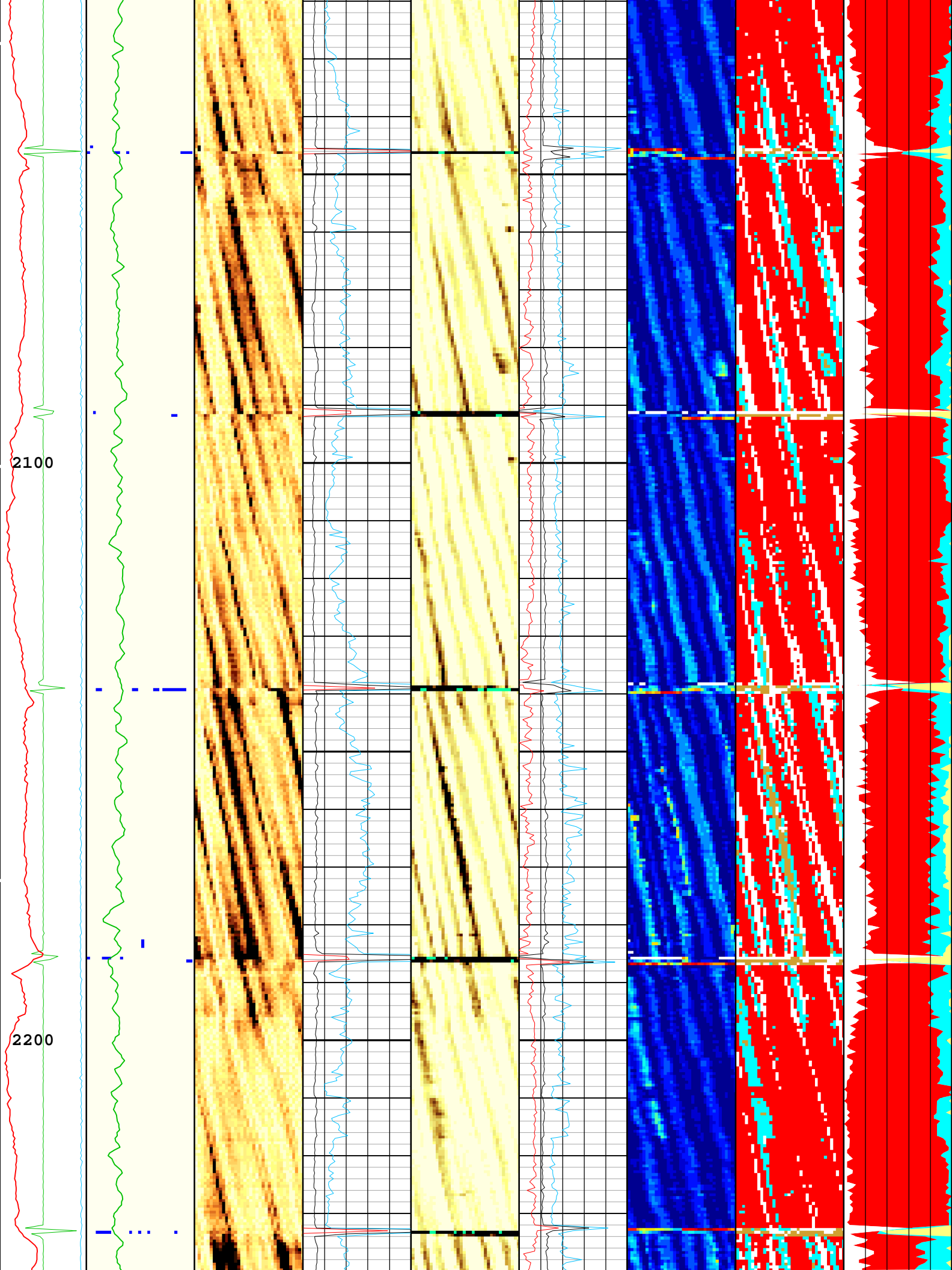


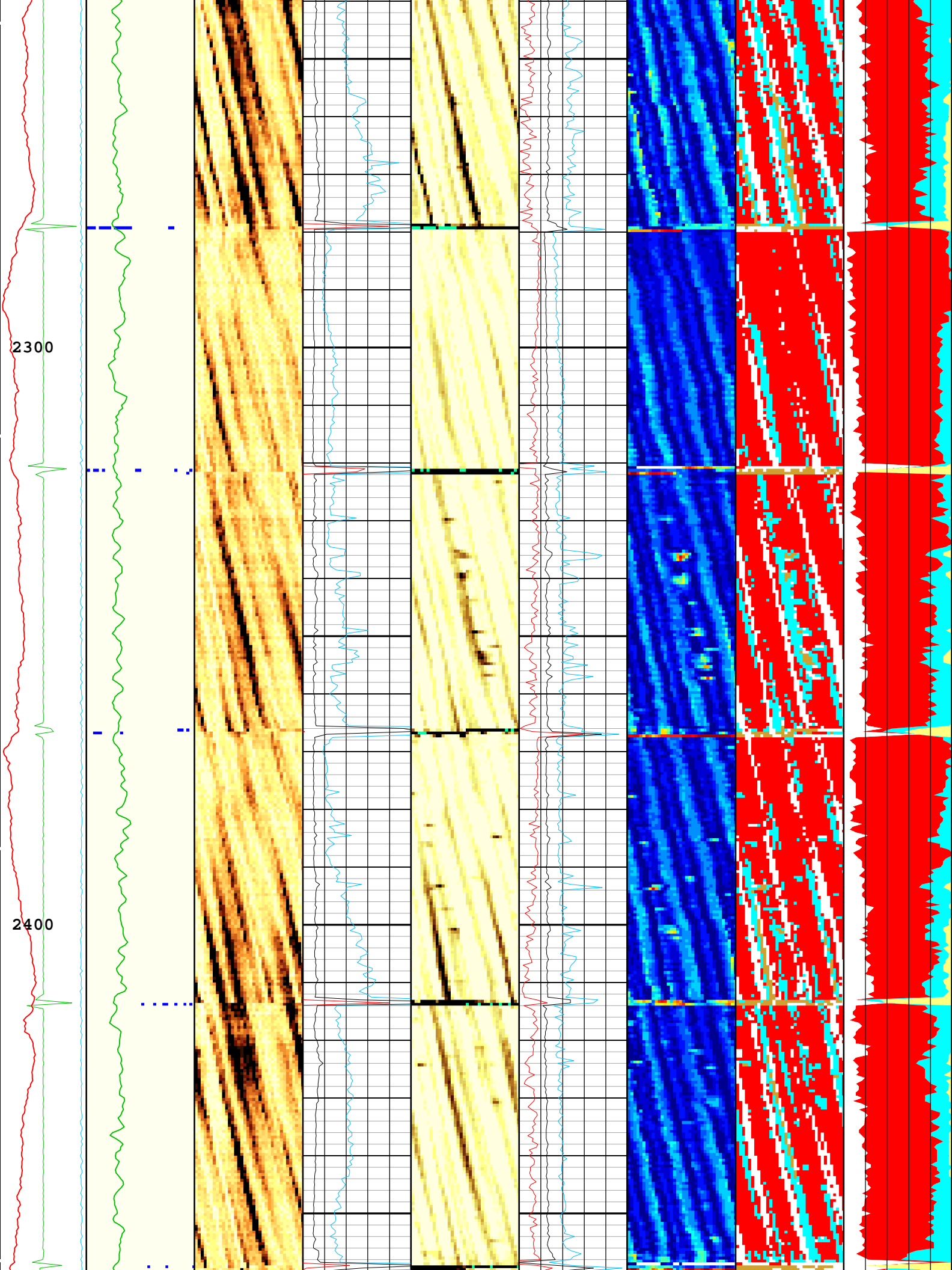


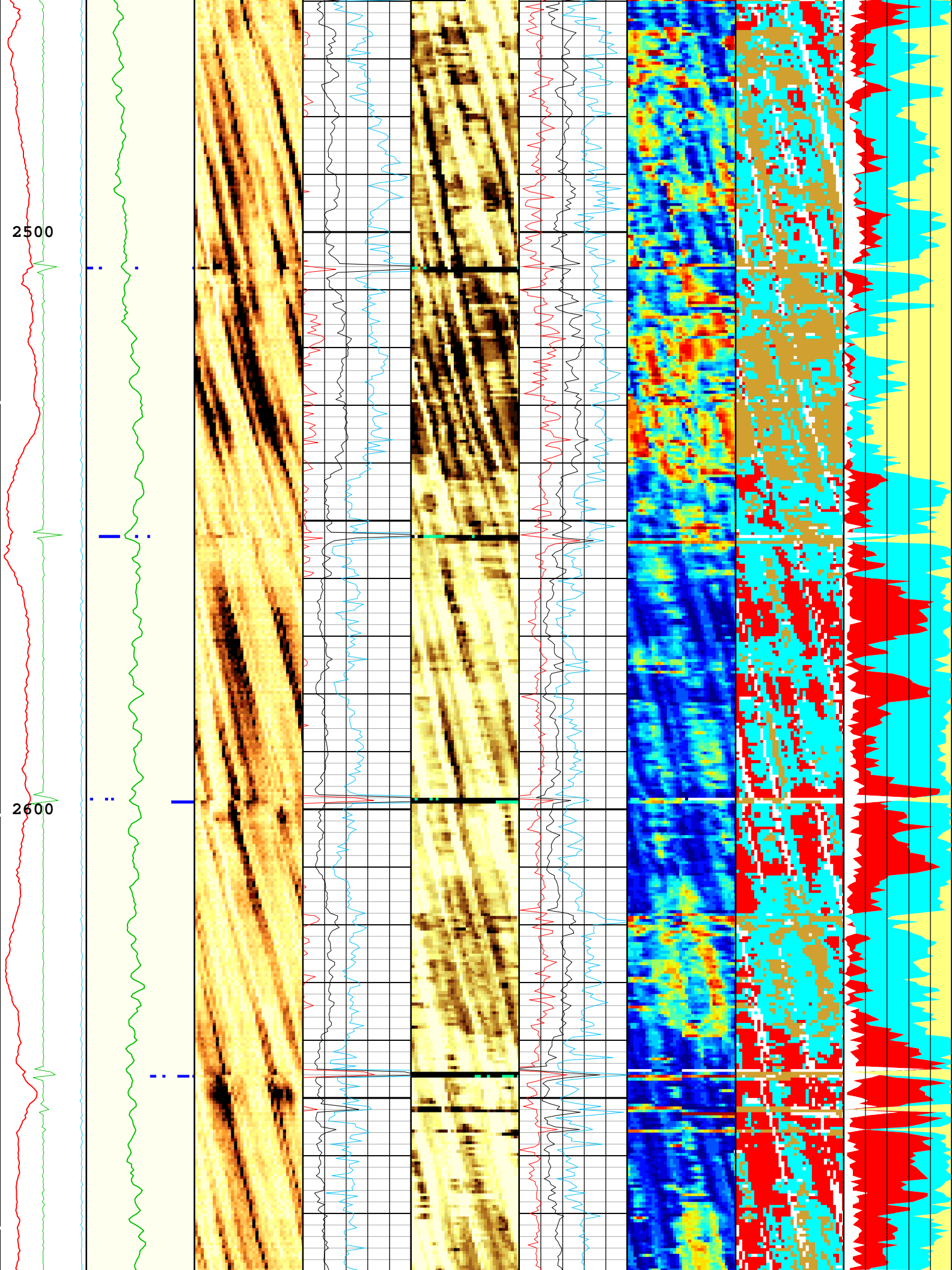


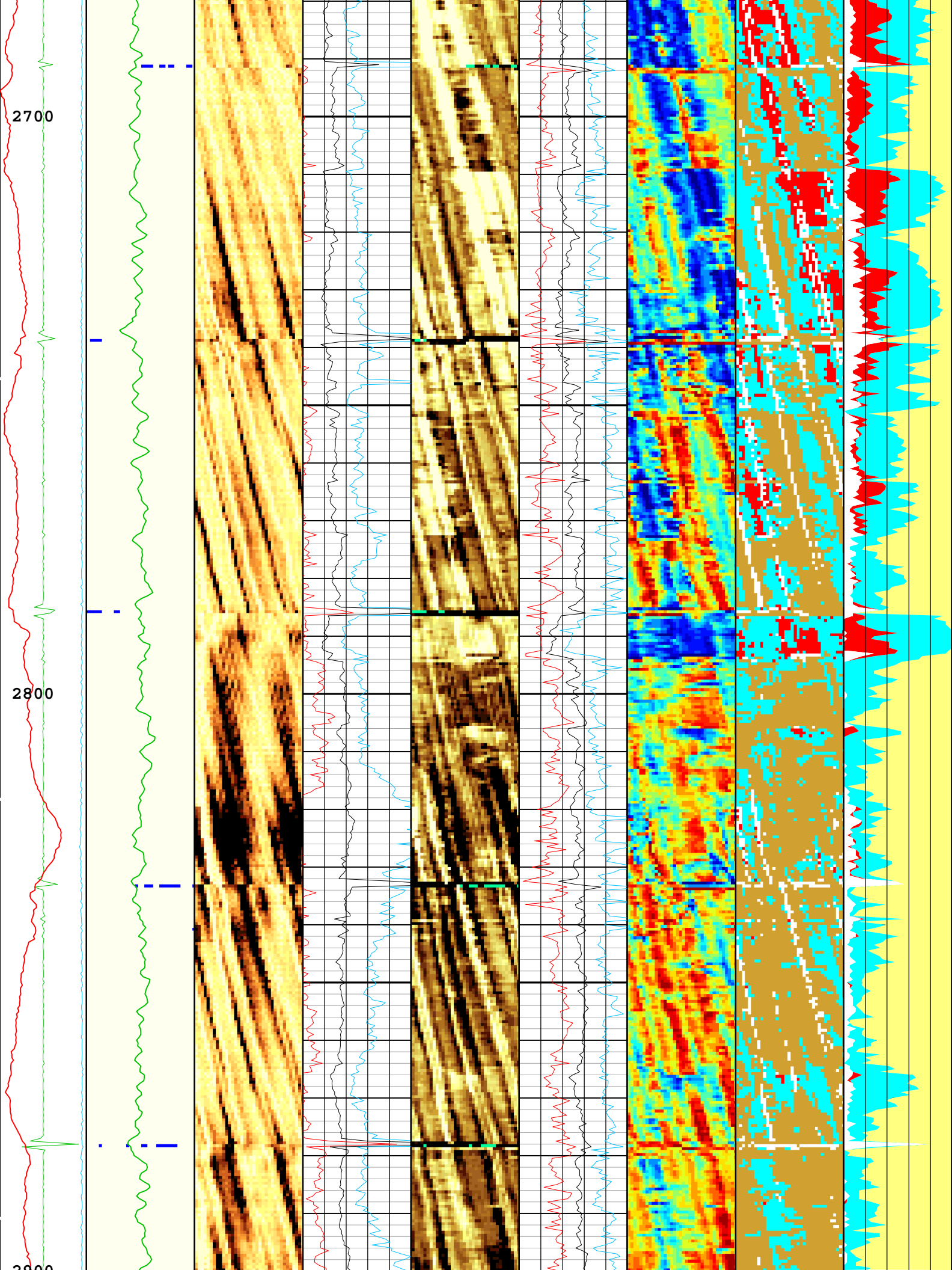


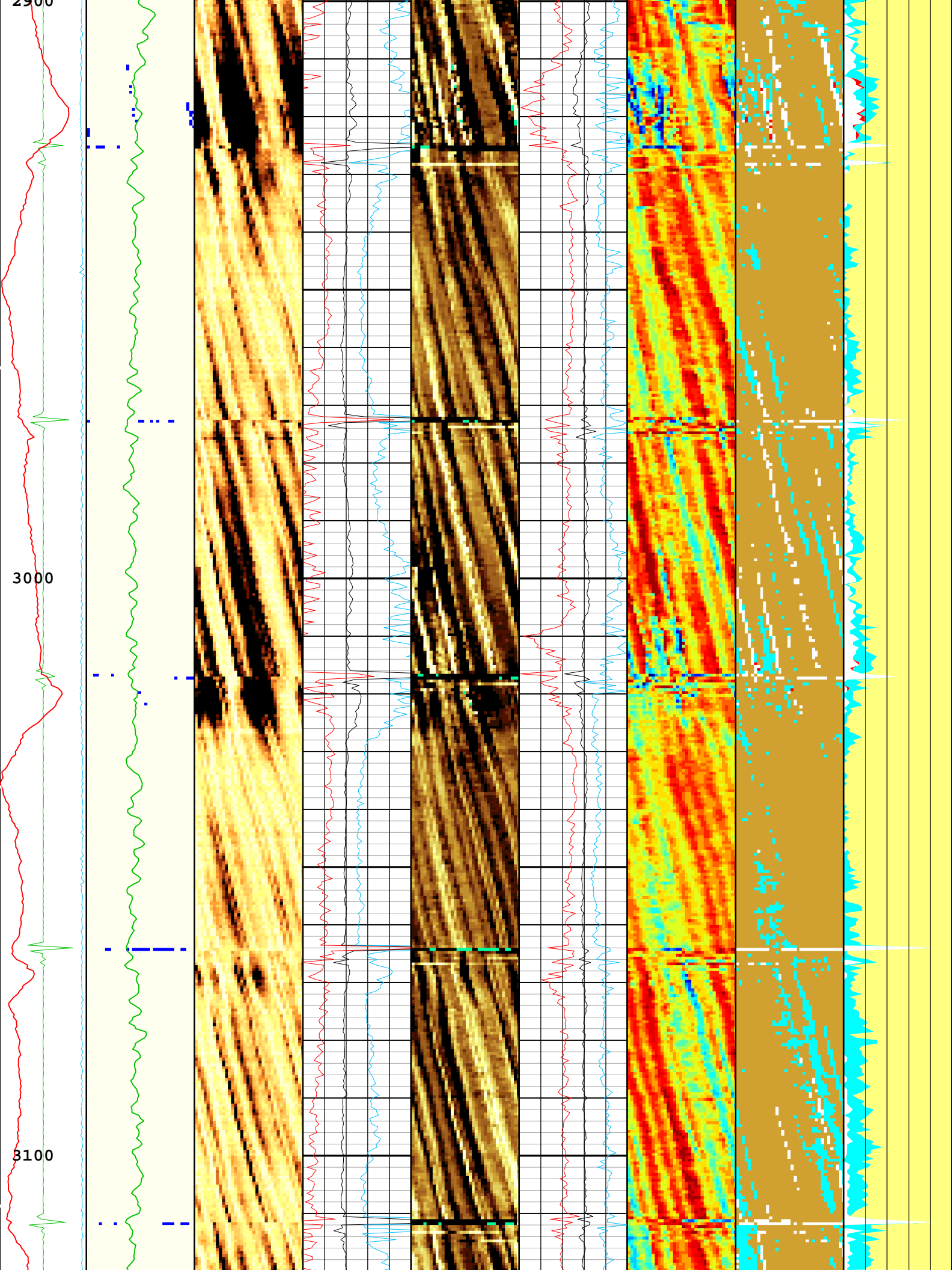


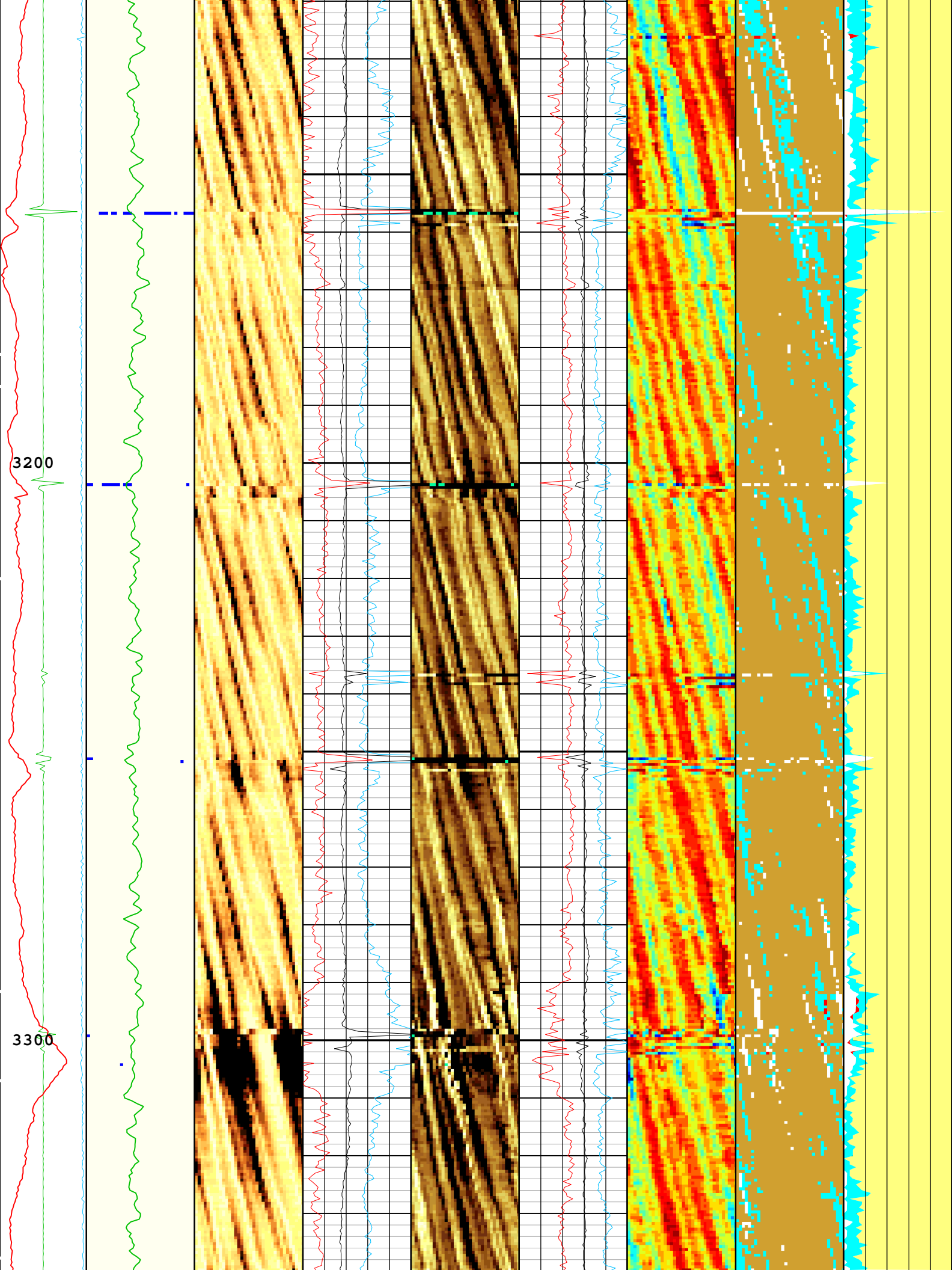


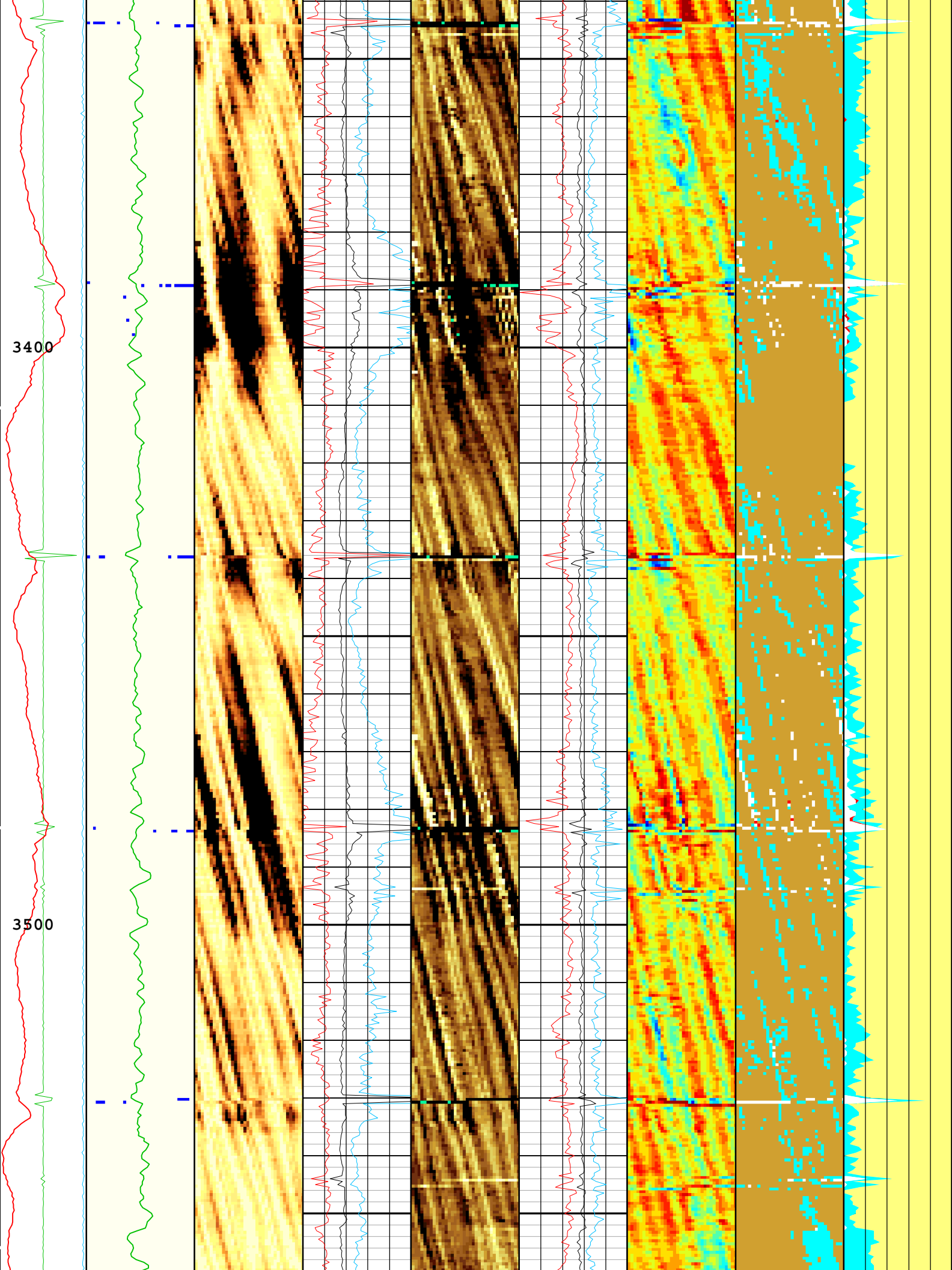


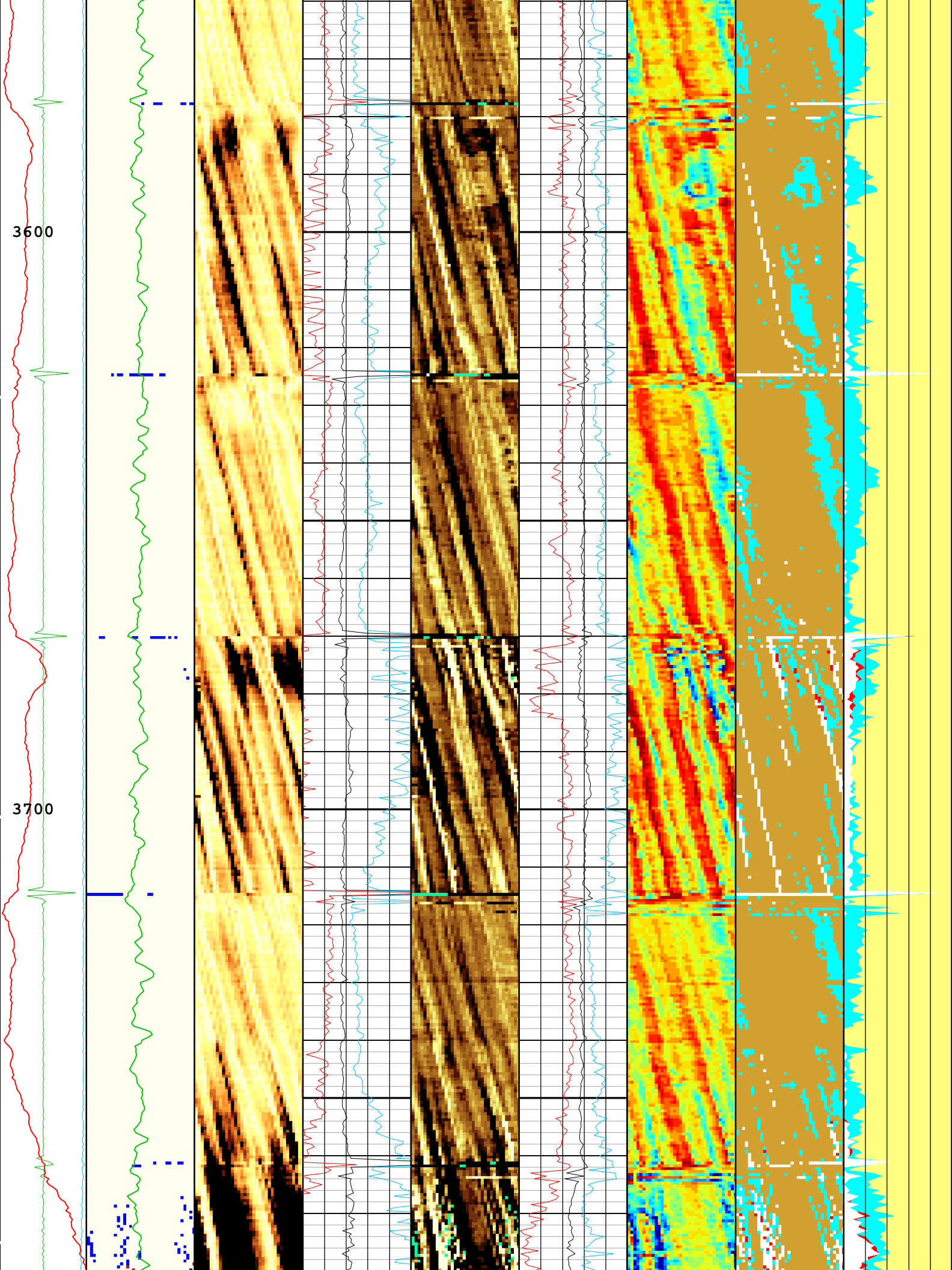


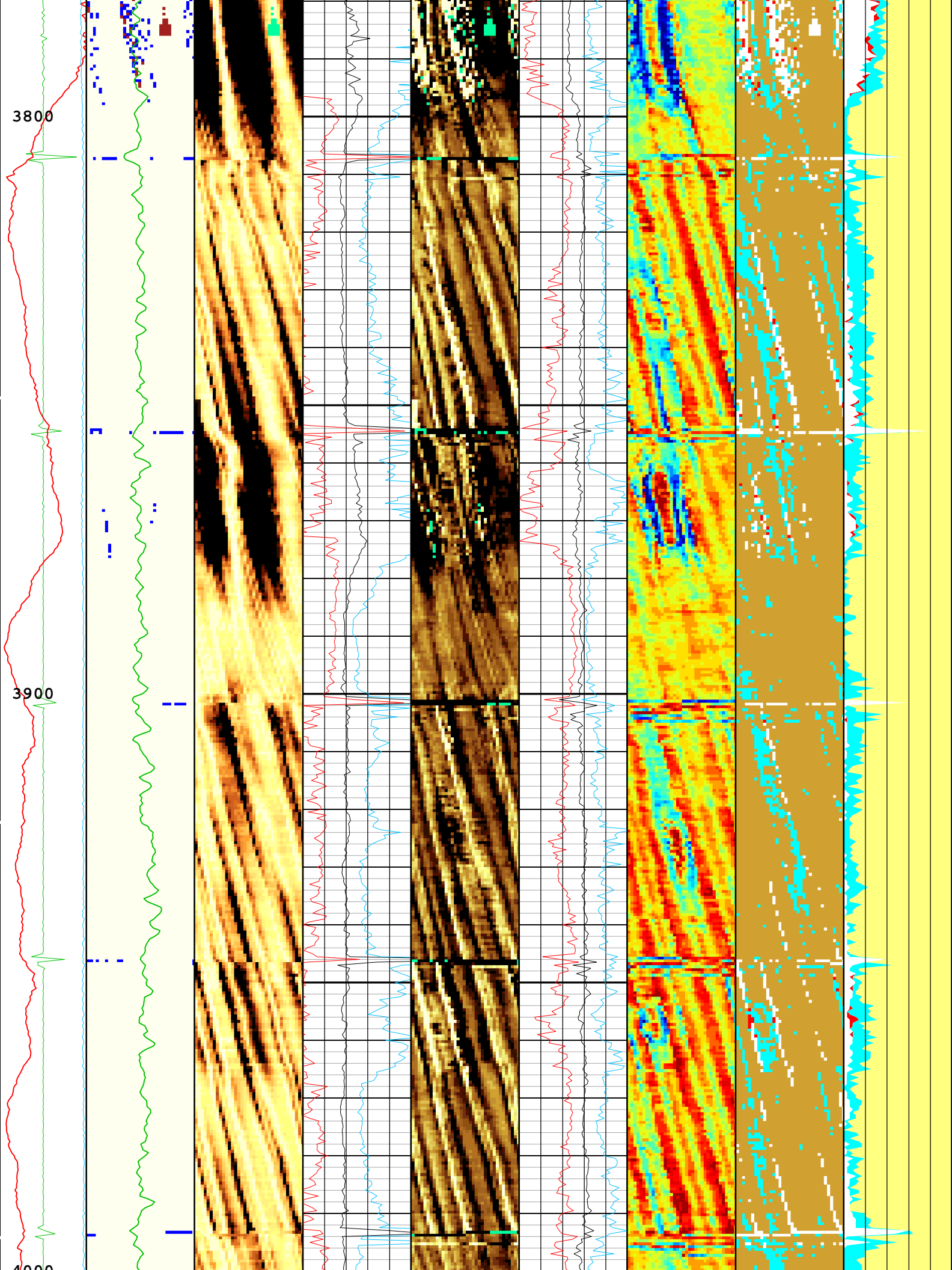


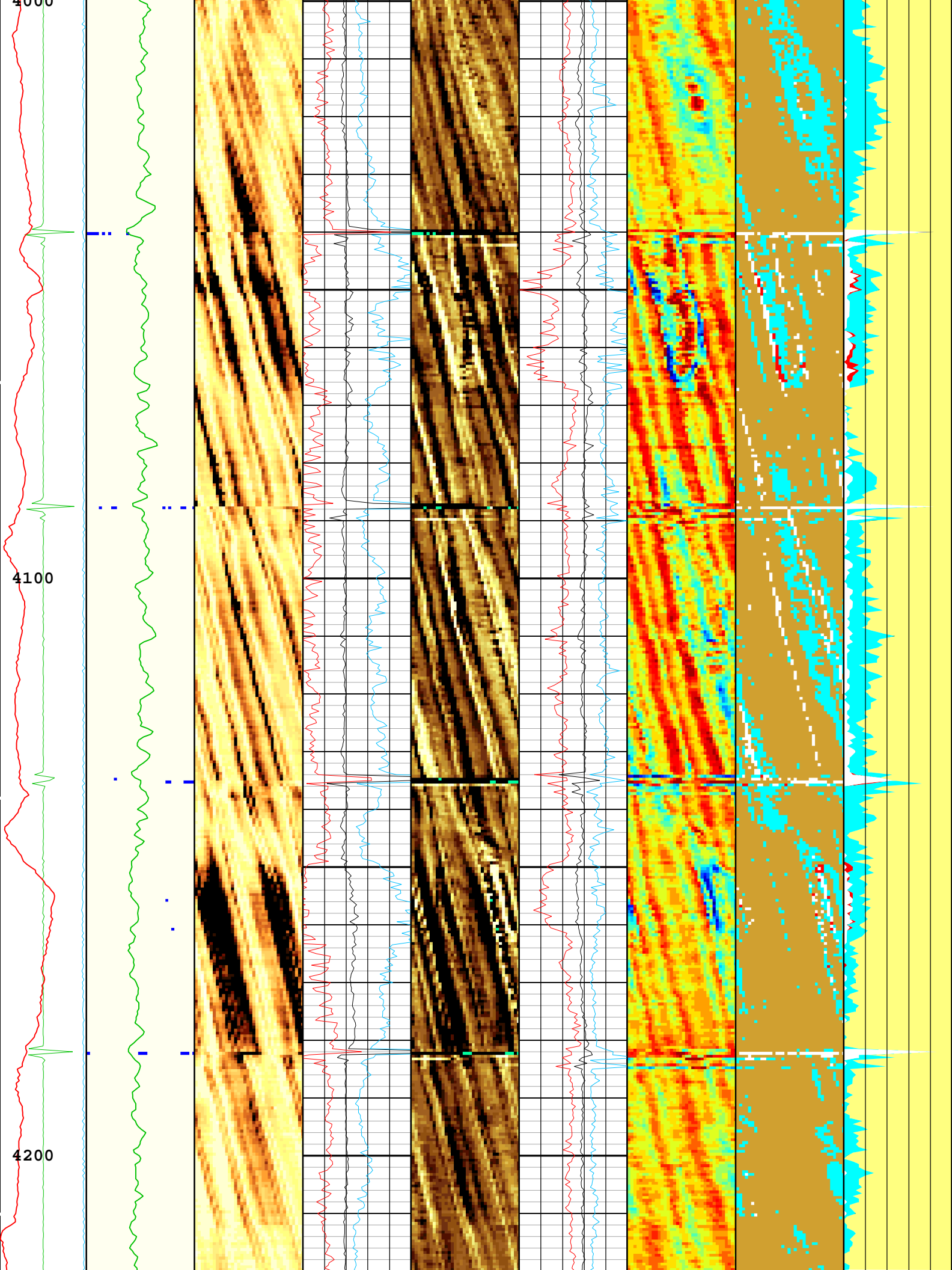


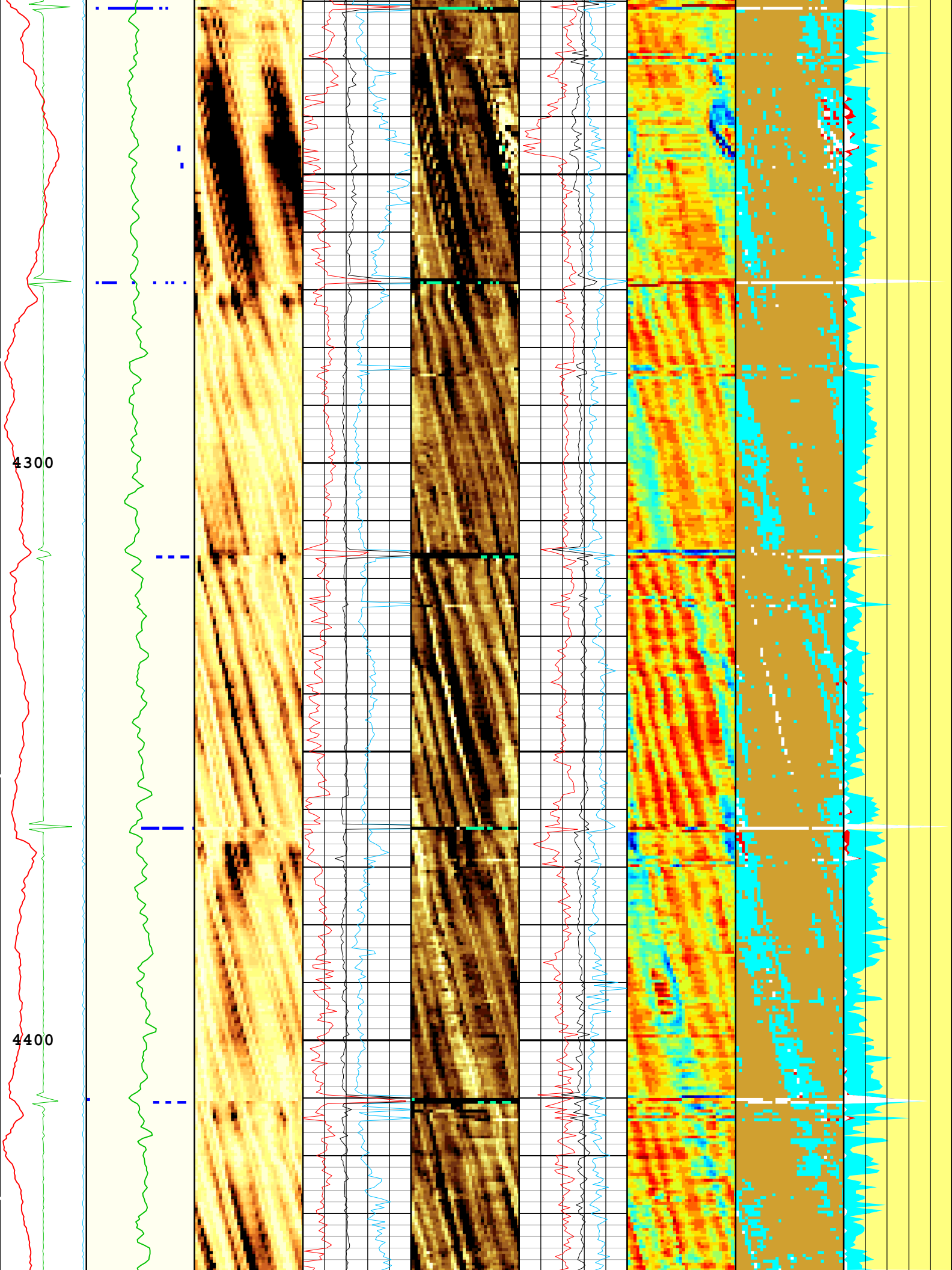


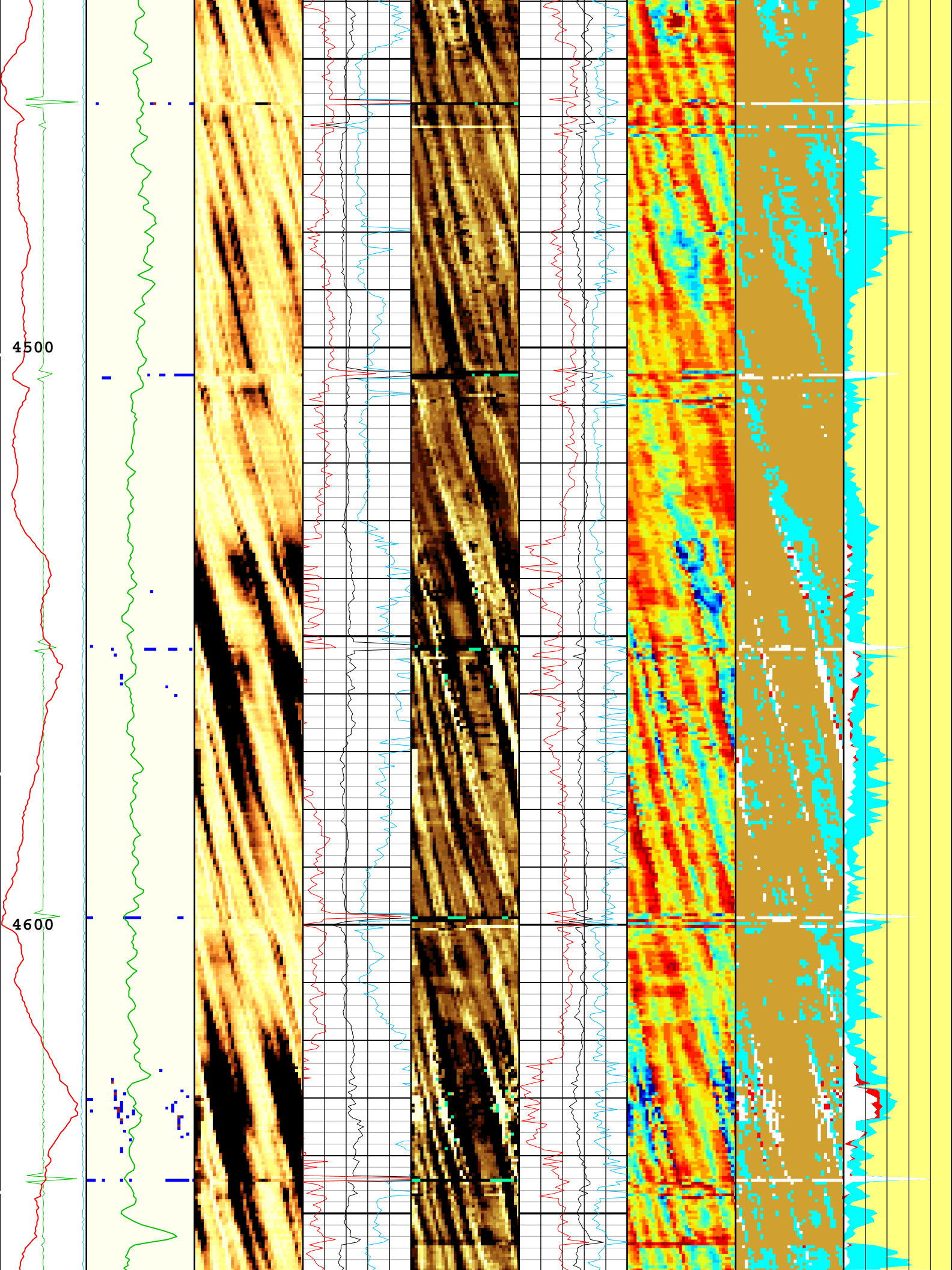


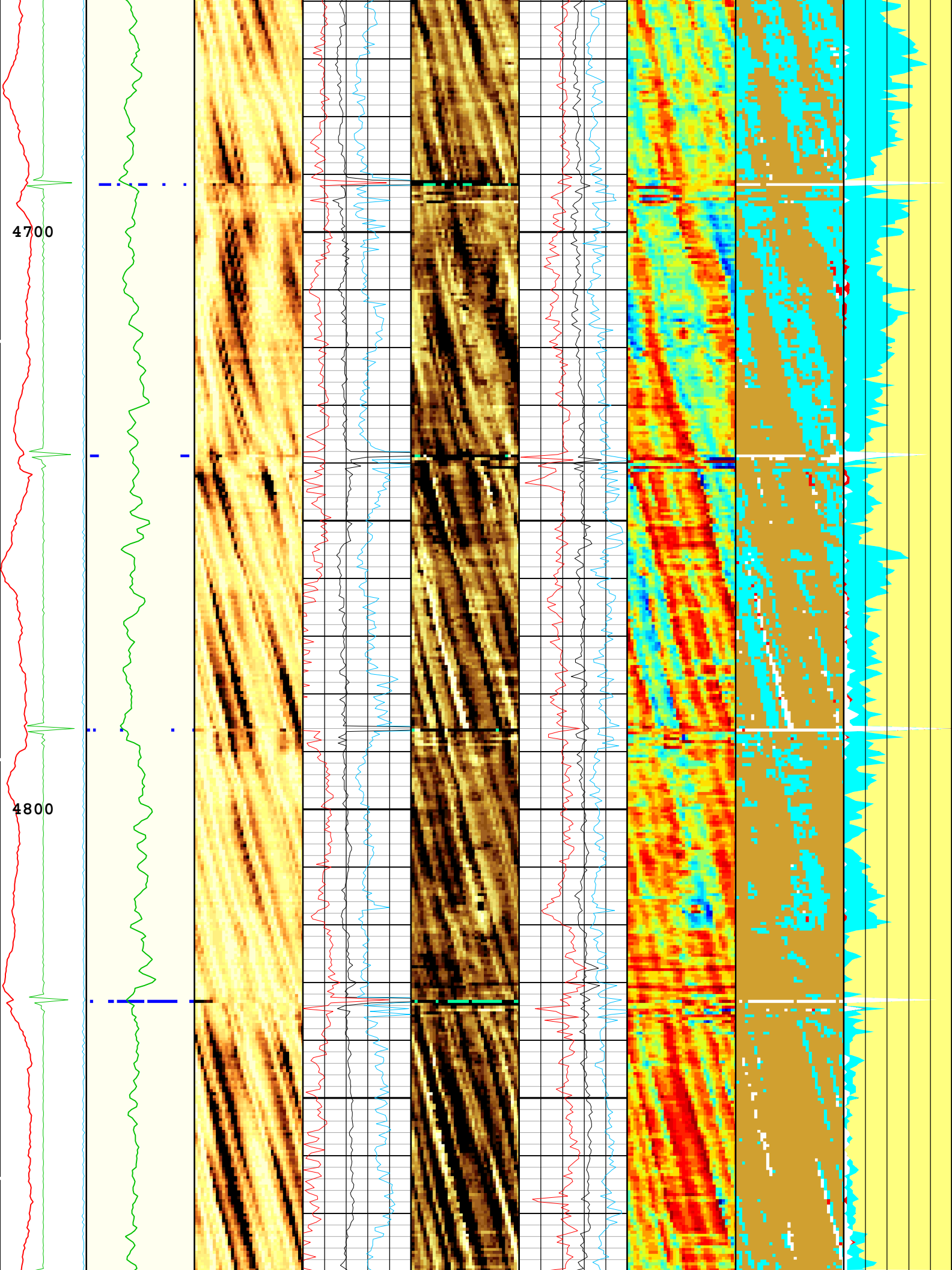


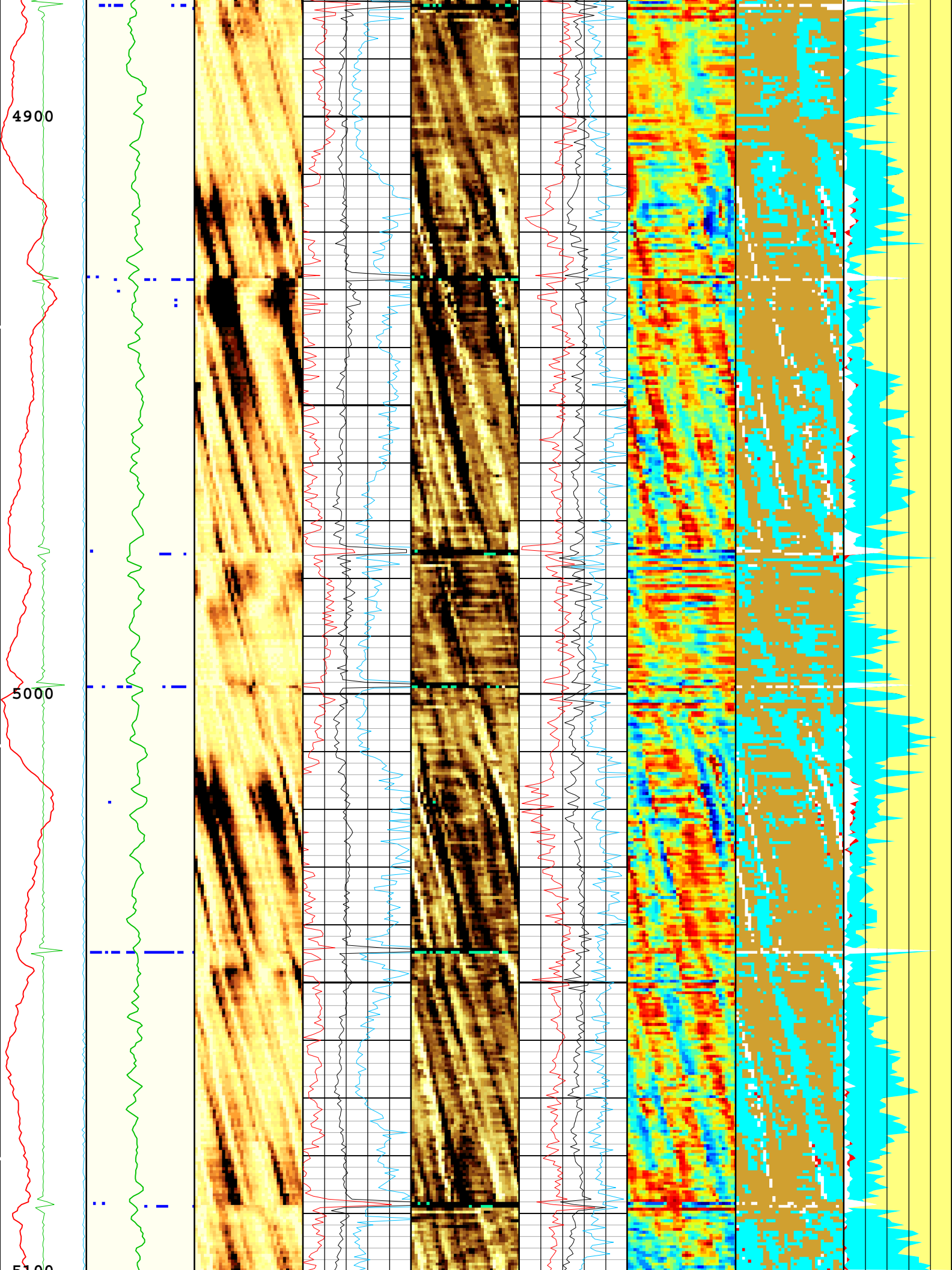


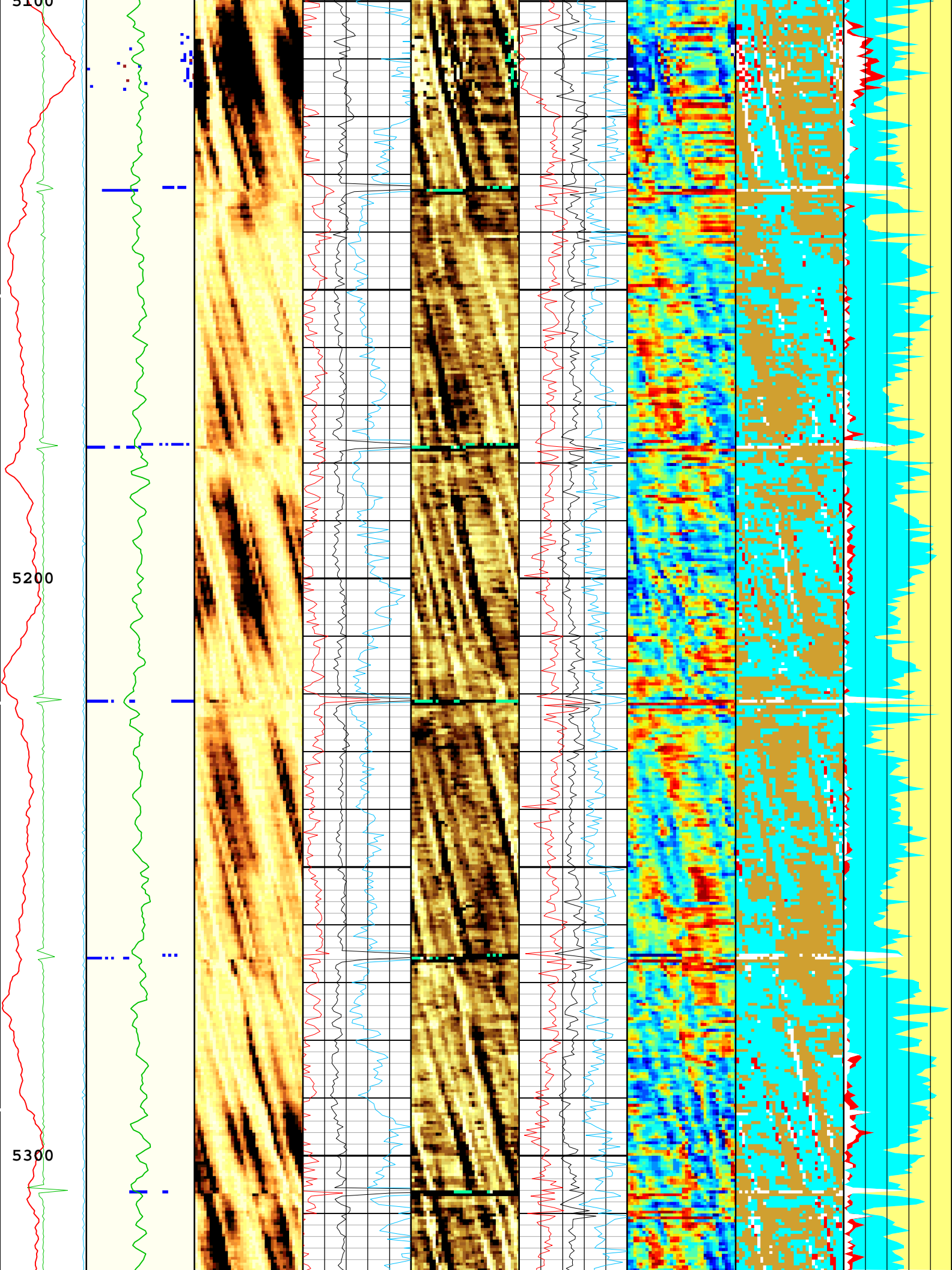


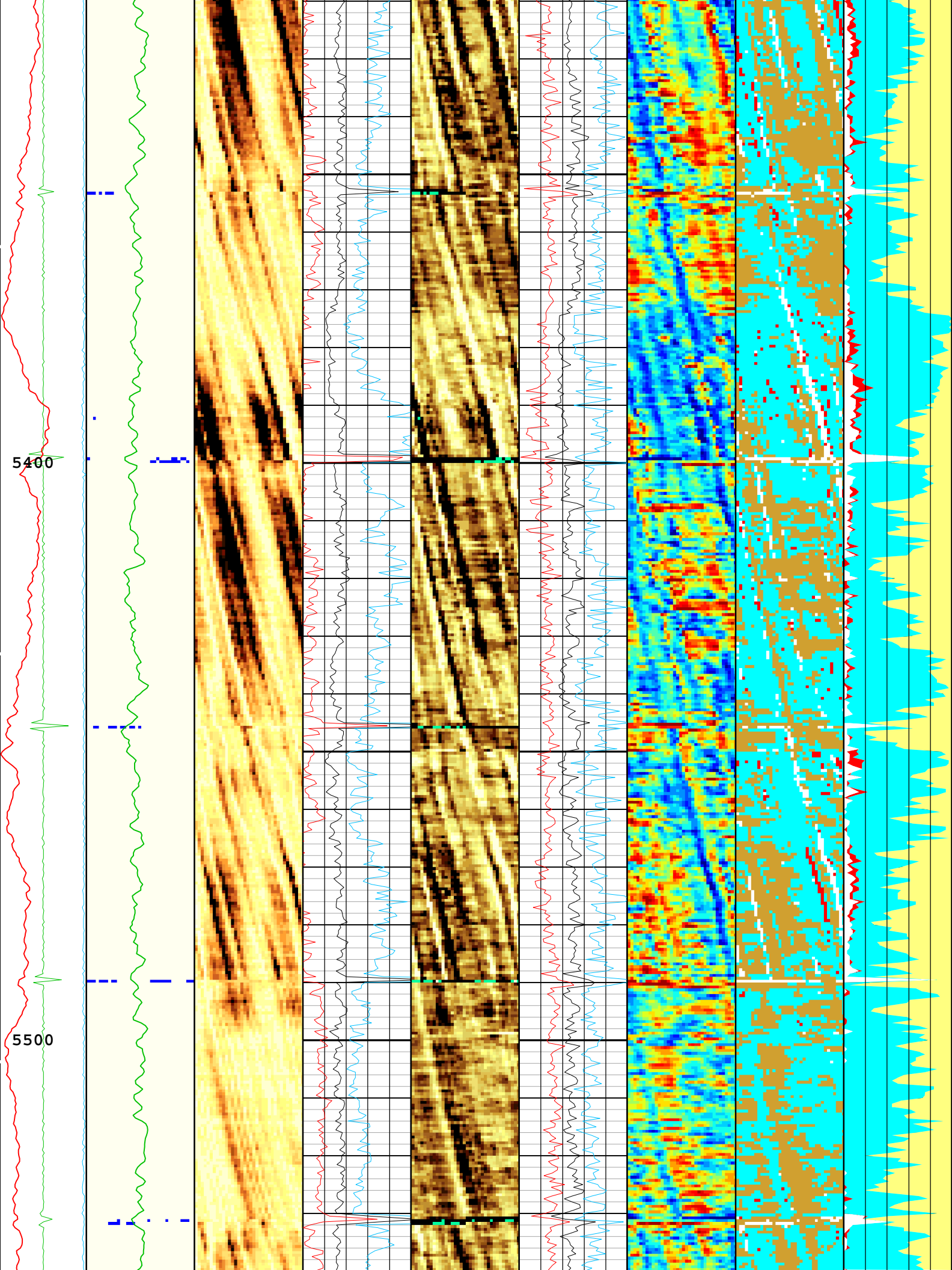


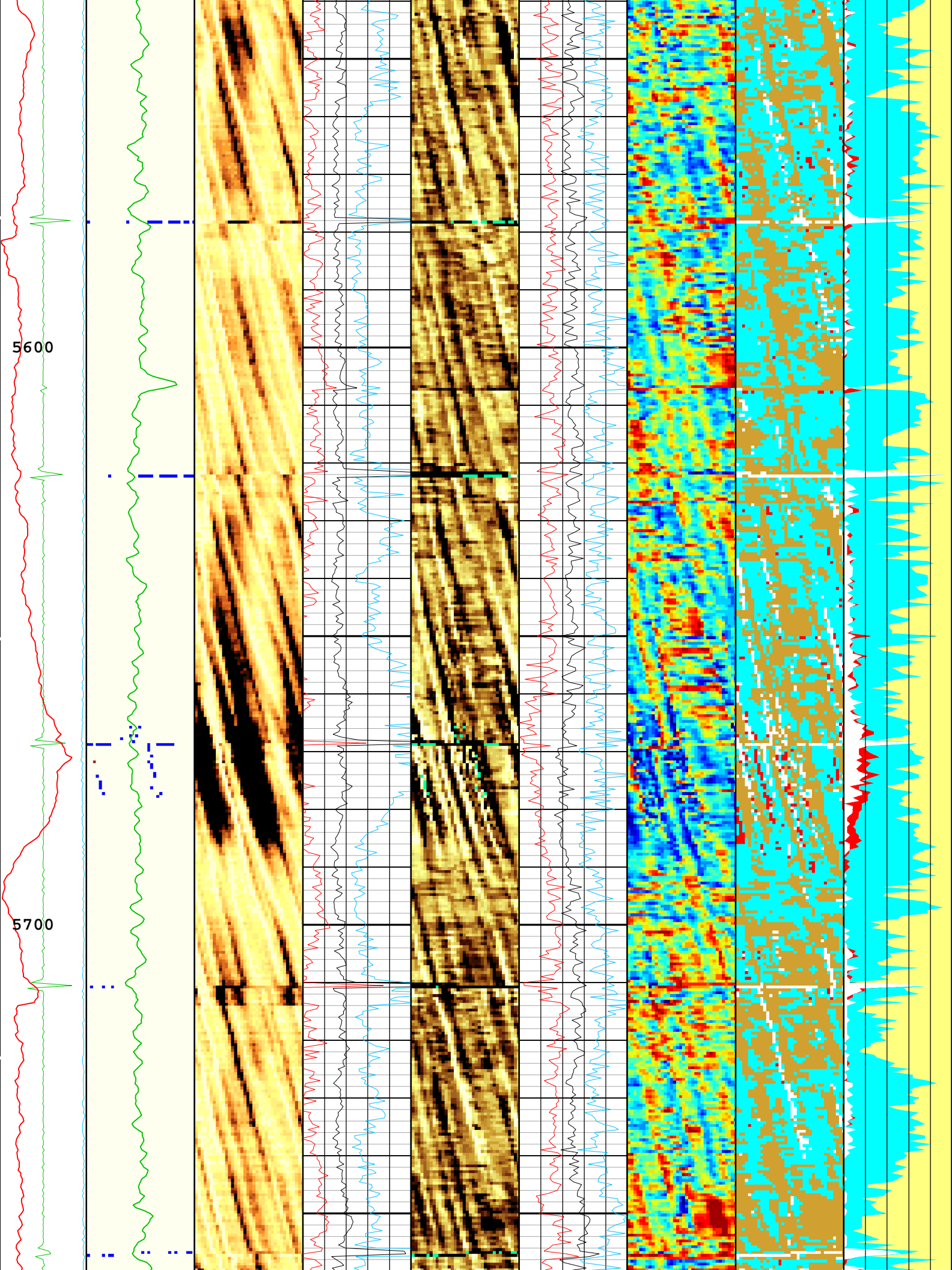


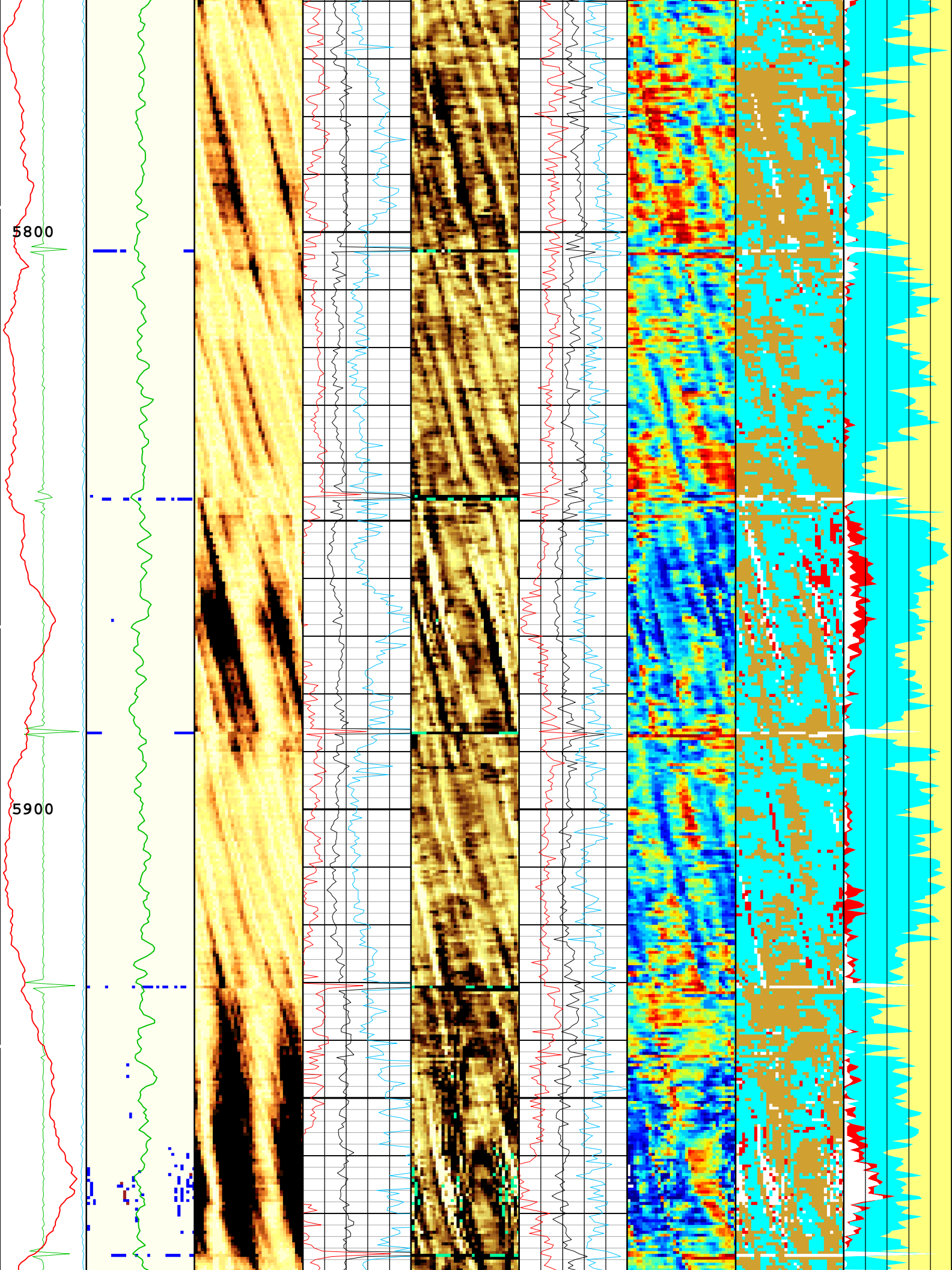


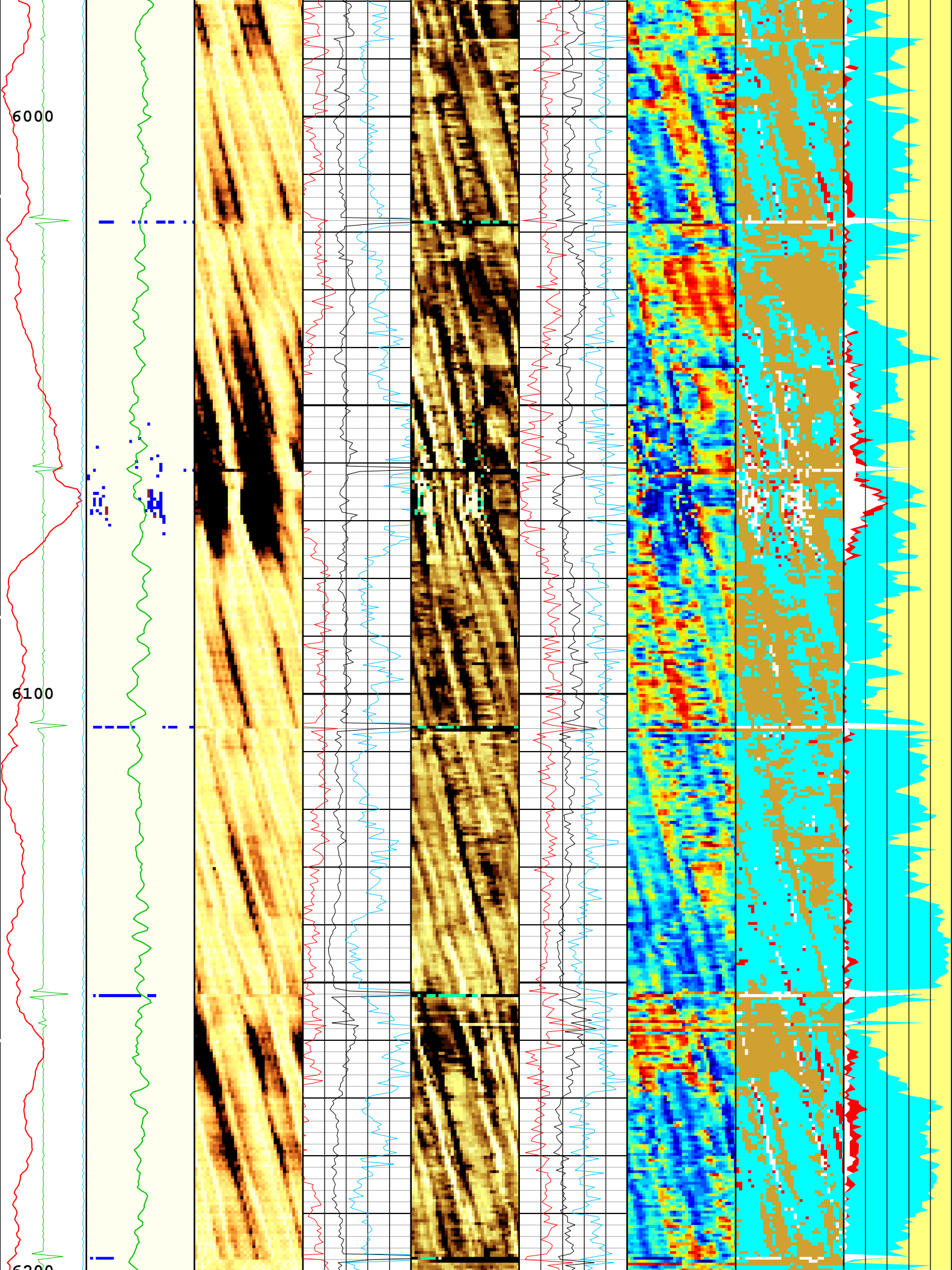


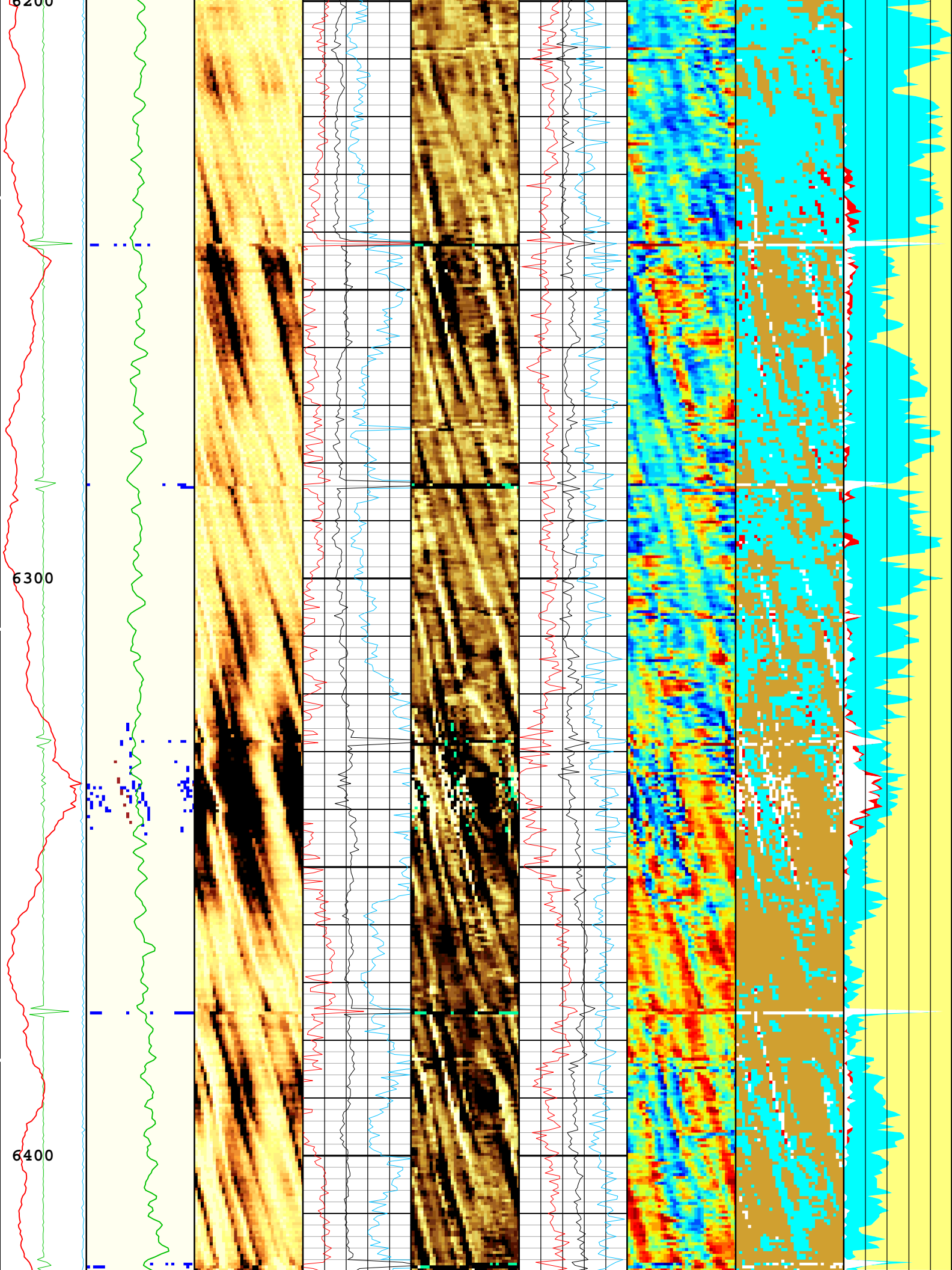


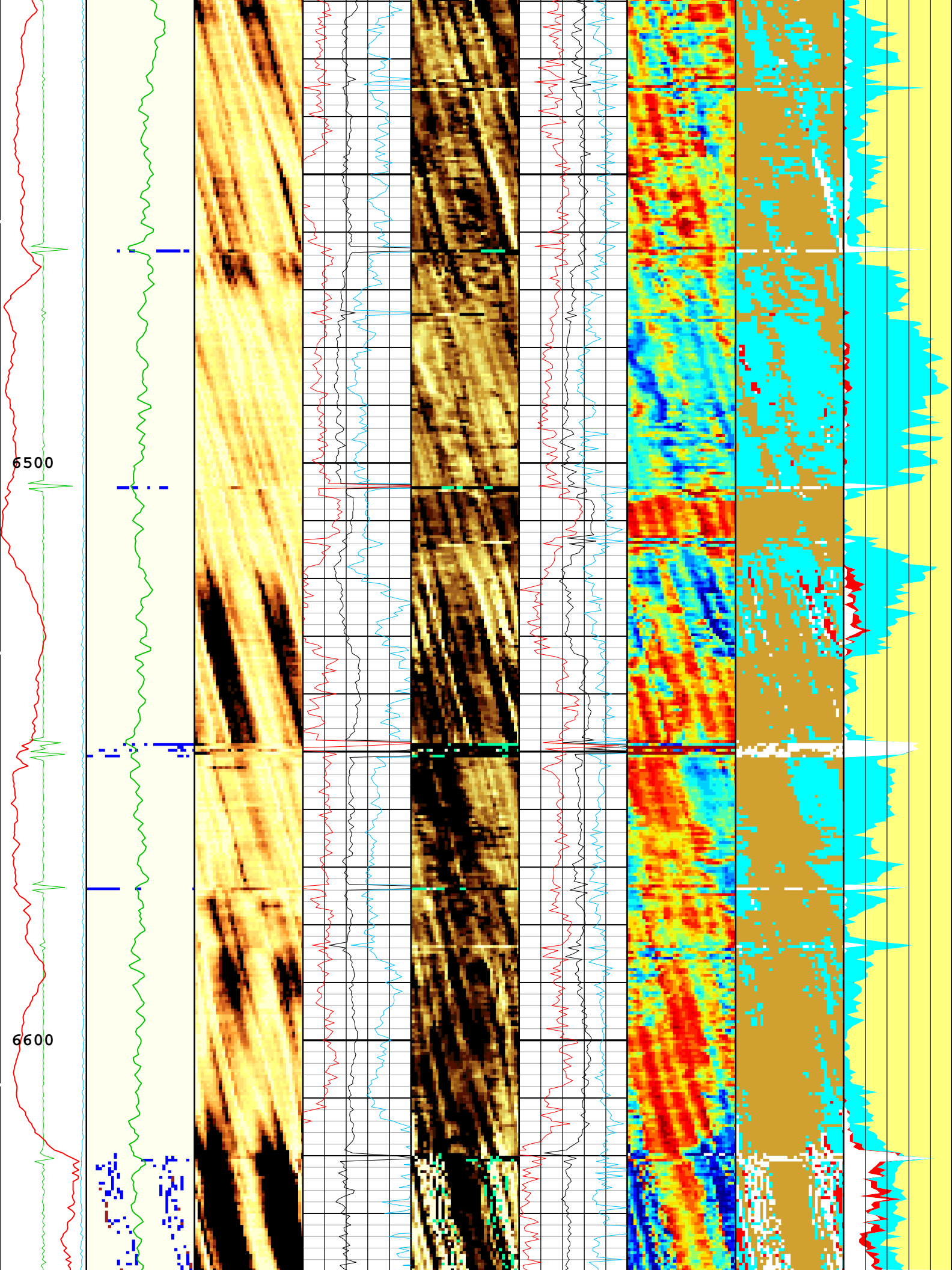


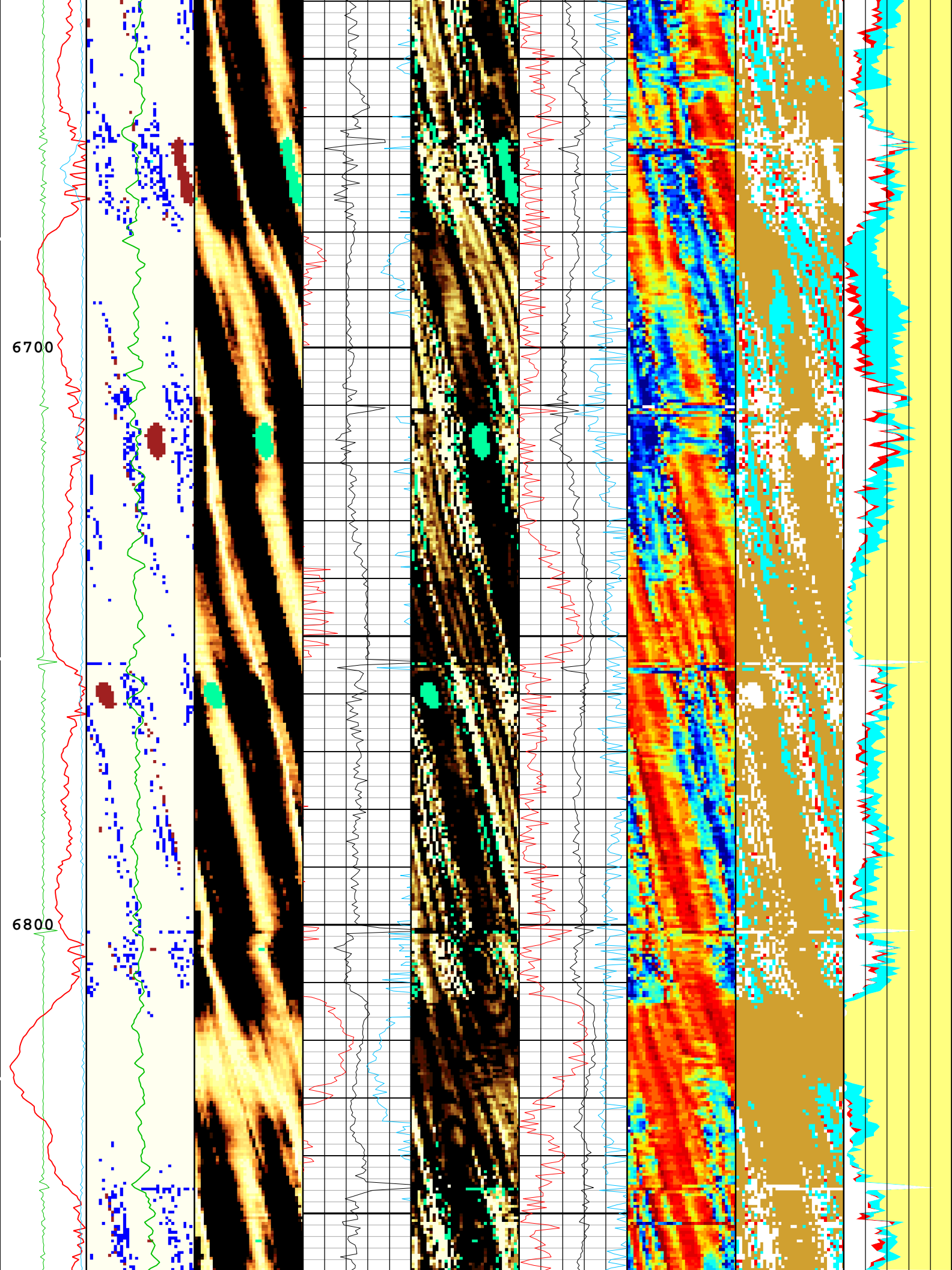


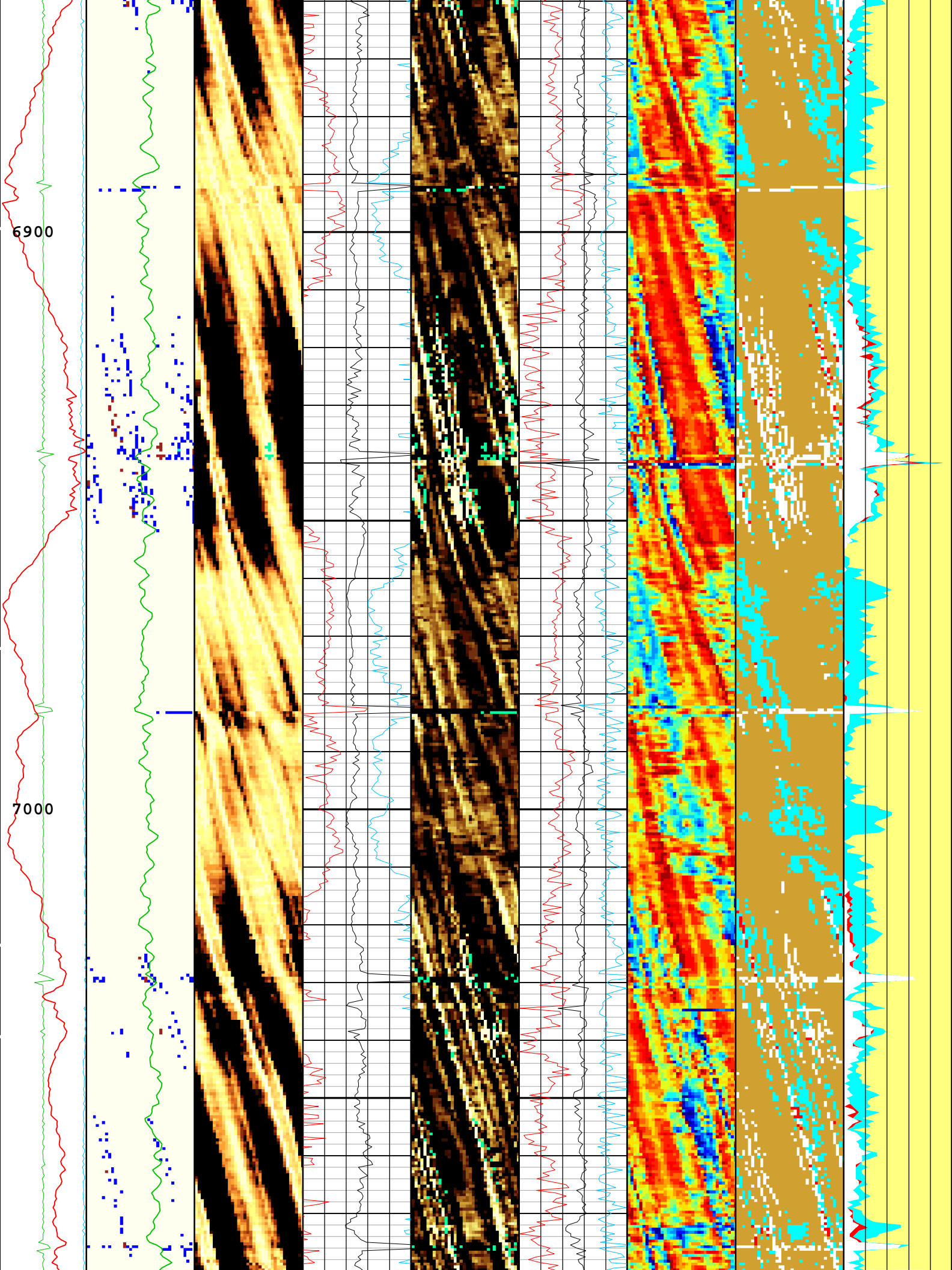


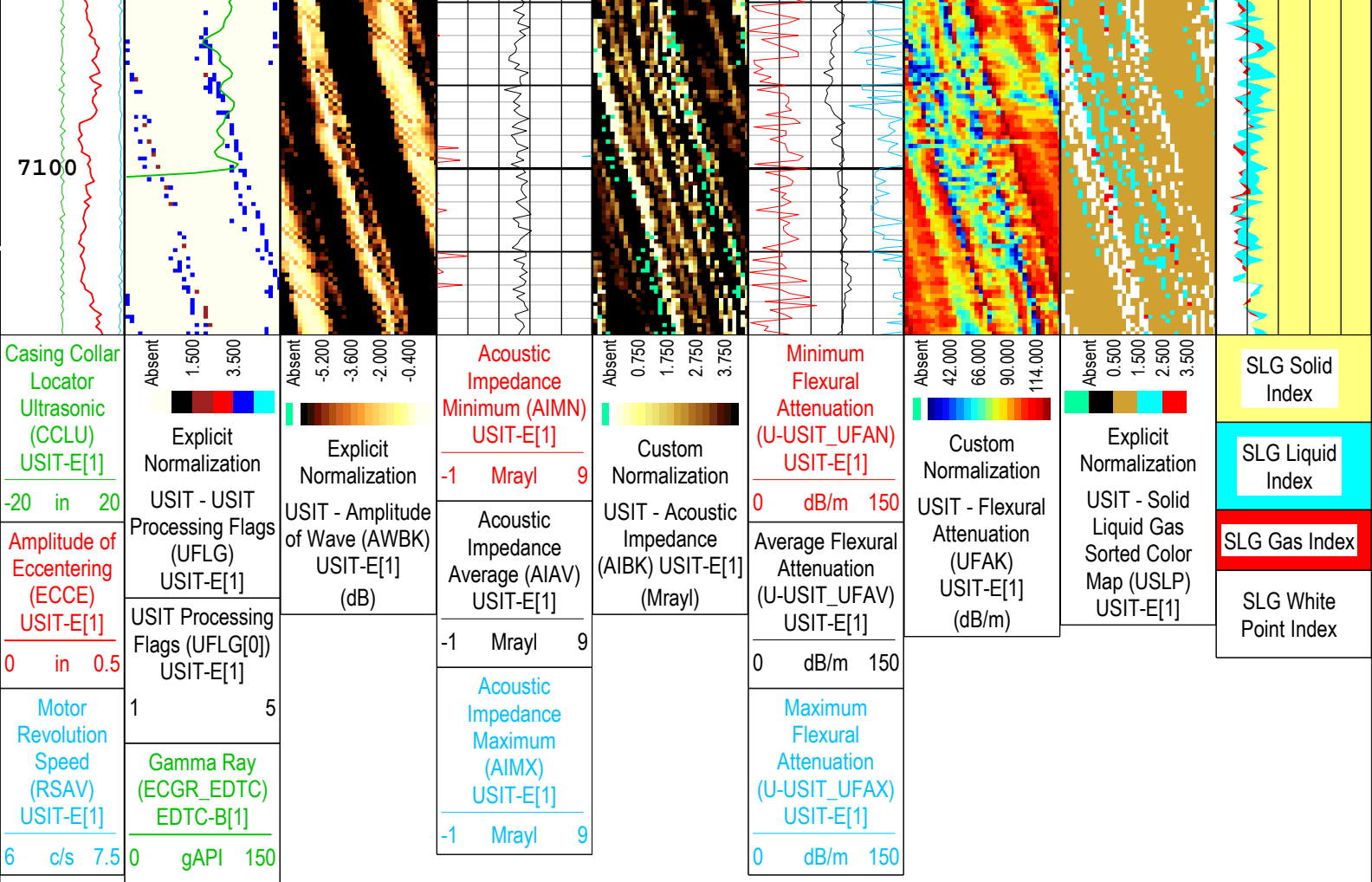

















USIT Processing Flags (UFLG[0]) USIT-E[1]				
1 - UFLG 1 Value within [0.0 - 1.5] - :		UTIM Error		
2 - UFLG 2 Value within [1.5 - 2.5] - :		Pulse Origin Not Detected		
3 - UFLG 3 Value within [2.5 - 3.5] - :		WINLEN Error		
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :		Casing Thickness Error		
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: 11-Jul-2018 19:04:35				

Channel Processing Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
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	12187.44	ft
CDEN	Cement Density	USIT-E	Depth Zoned	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.8	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	PPM 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	19.32	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	Theoretical	
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	1.38	
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	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-10.51	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	1.88	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.24	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

ONEDepth Zoned Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	24	60	108
BS	13.5	108	2515
BS	8.5	2515	7120
CDEN	13.52	60	4000
CDEN	15.69	4000	6600
CDEN	16.52	6600	7120
All depth are actual.			

Tool Control Parameters	
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ONE: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in

EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	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

ONETime Zoned Parameters

Pass Log[4]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	110	28-Jun-2018 10:30:23	28-Jun-2018 10:45:40	7360.34	6332.92
EMXV	120	28-Jun-2018 10:45:40	28-Jun-2018 10:45:46	6332.92	6325.52
EMXV	110	28-Jun-2018 10:45:46	28-Jun-2018 10:45:51	6325.52	6319.62
EMXV	100	28-Jun-2018 10:45:51	28-Jun-2018 10:47:43	6319.62	6179.86
EMXV	80	28-Jun-2018 10:47:43	28-Jun-2018 10:47:47	6179.86	6175.58
EMXV	90	28-Jun-2018 10:47:47	28-Jun-2018 10:48:49	6175.58	6100.29
EMXV	85	28-Jun-2018 10:48:49	28-Jun-2018 10:51:00	6100.29	5940.3
EMXV	90	28-Jun-2018 10:51:00	28-Jun-2018 10:54:45	5940.3	5668.38
EMXV	110	28-Jun-2018 10:54:45	28-Jun-2018 10:56:48	5668.38	5517.58
EMXV	100	28-Jun-2018 10:56:48	28-Jun-2018 10:57:06	5517.58	5496.46
EMXV	90	28-Jun-2018 10:57:06	28-Jun-2018 10:59:59	5496.46	5292.47
EMXV	100	28-Jun-2018 10:59:59	28-Jun-2018 11:27:06	5292.47	3329.45
EMXV	90	28-Jun-2018 11:27:06	28-Jun-2018 11:28:30	3329.45	3282.97

Pass Log[5]:Up

EMXV	90	28-Jun-2018 11:29:53	28-Jun-2018 11:31:27	3298.5	3206.96
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Pass Log[6]:Up

EMXV	90	28-Jun-2018 11:35:40	28-Jun-2018 12:02:33	3272.61	1353.35
EMXV	85	28-Jun-2018 12:02:33	28-Jun-2018 12:02:36	1353.35	1349.68
EMXV	90	28-Jun-2018 12:02:36	28-Jun-2018 12:21:36	1349.68	61.37

All depth are at tool zero.

Composite 1

IBC SLG Composite Main Pass

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	3238.88 ft	7360.61 ft	28-Jun-2018 10:30:23 AM	28-Jun-2018 11:28:30 AM	ON	6.38 ft	Yes
ONE	Log[5]:Up	Up	3186.72 ft	3307.01 ft	28-Jun-2018 11:29:32 AM	28-Jun-2018 11:31:27 AM	ON	6.38 ft	Yes
ONE	Log[6]:Up	Up	61.08 ft	3277.94 ft	28-Jun-2018 11:35:40 AM	28-Jun-2018 12:21:36 PM	ON	6.12 ft	Yes

All depths are referenced to toolstring zero

Log	Company:Crestone Peak Resources Operating LLC	Well:Ruegge 3E-4H-N165
		Composite 1:S025

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: 11-Jul-2018 19:06:08

USIT Processing Flags (UFLG[0]) USIT-E[1]

- 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

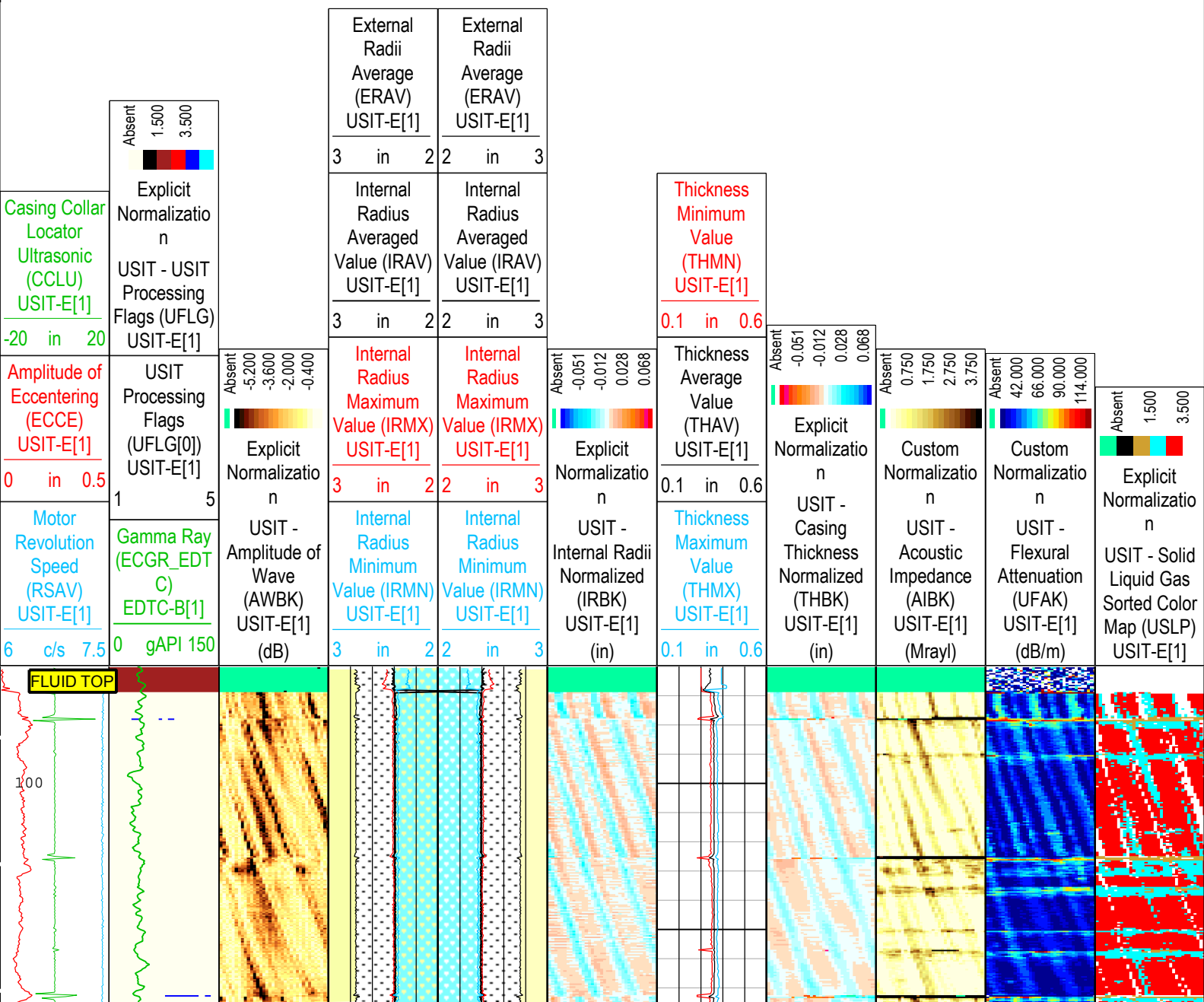
Pulse Origin Not Detected

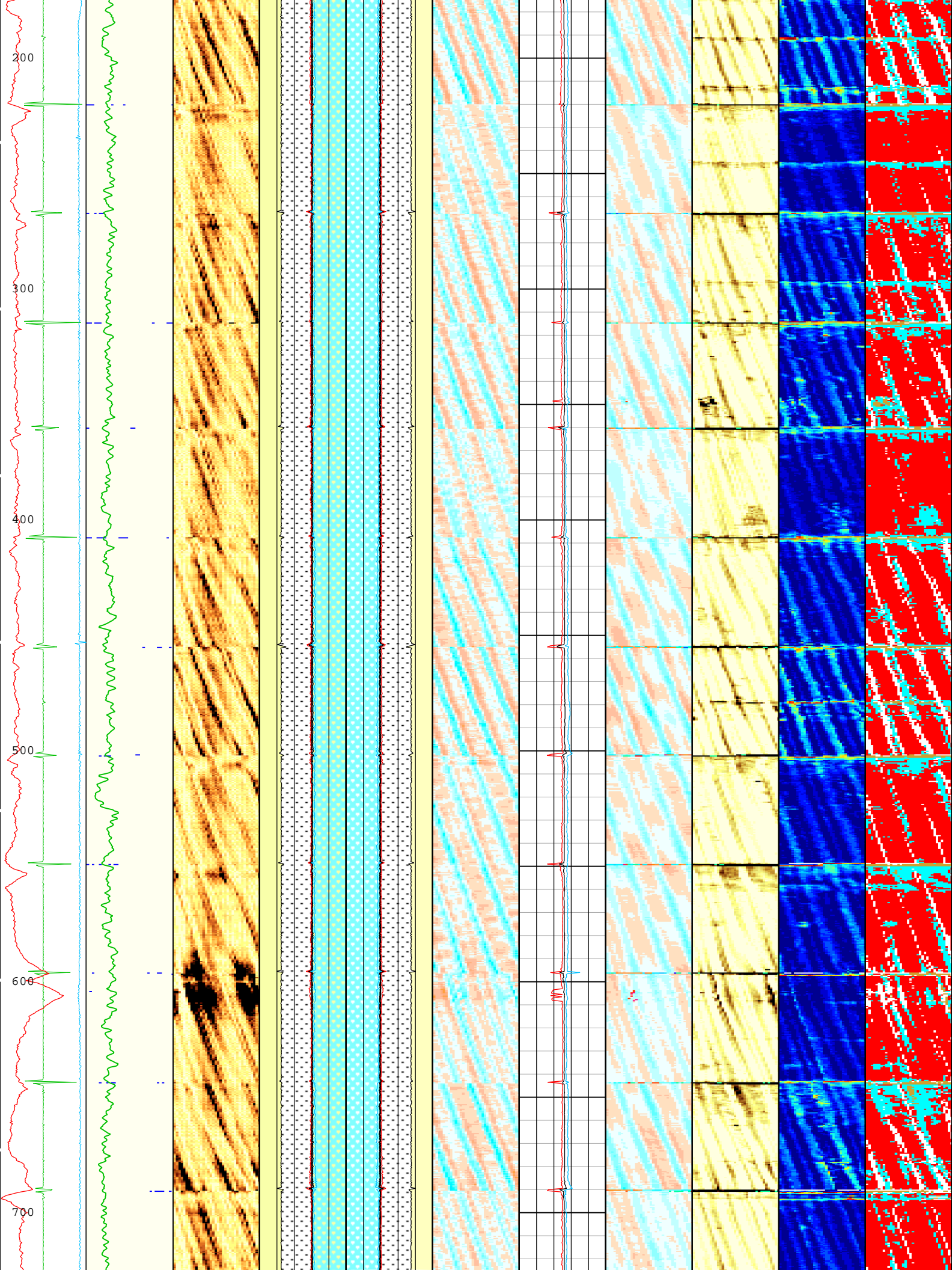
WINLEN Error

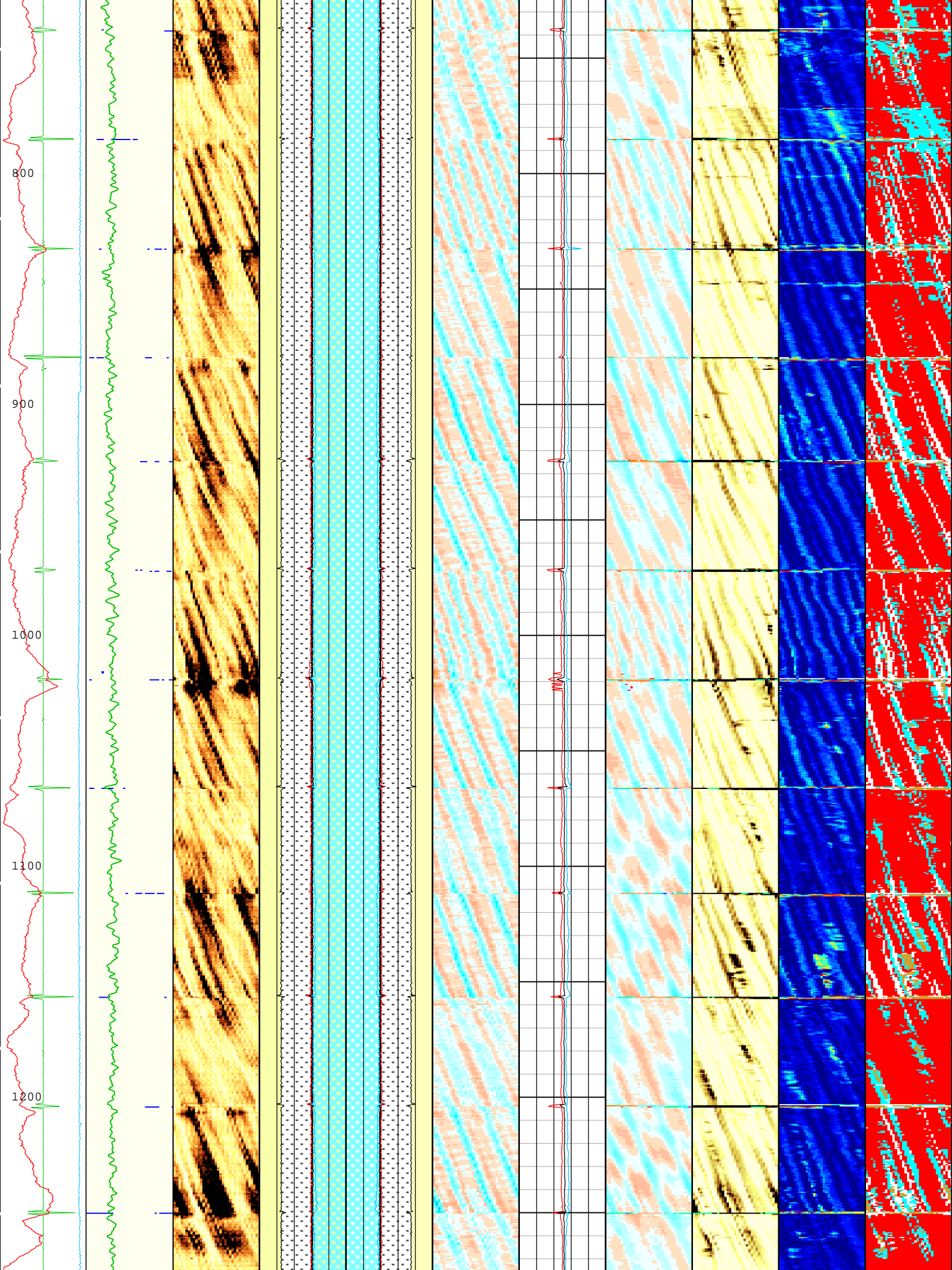
Casing Thickness Error

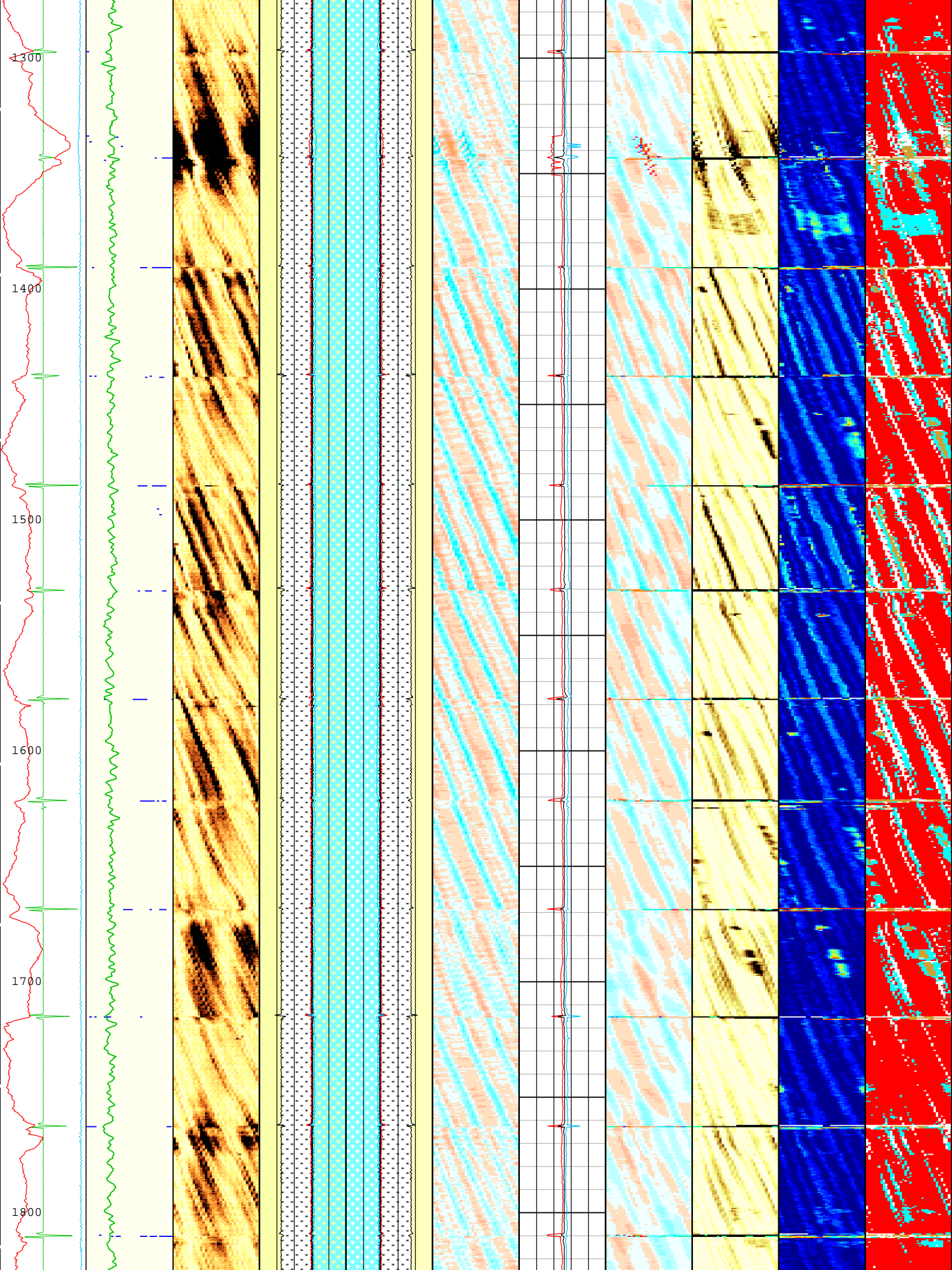
Loop Processing Error

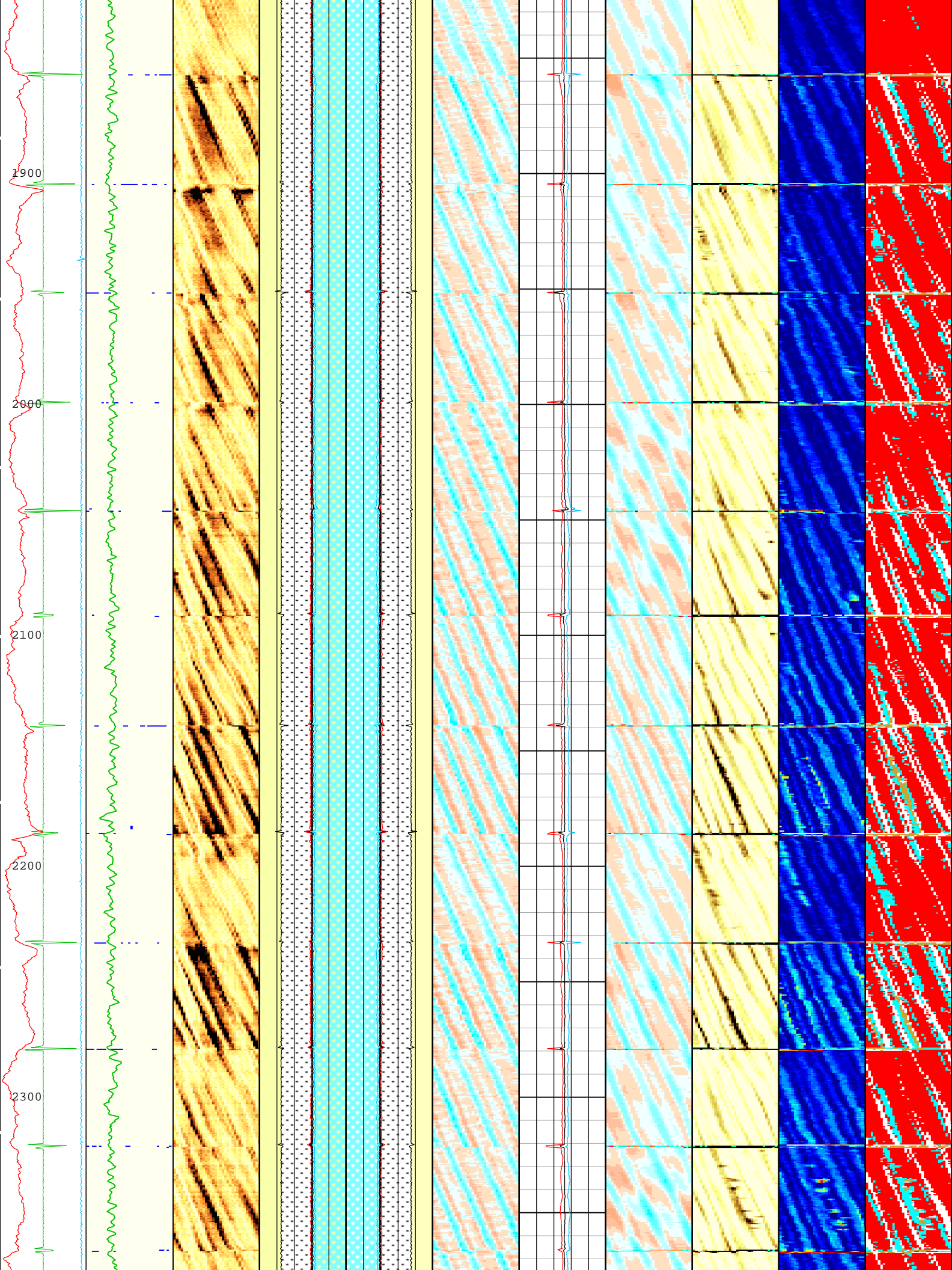
TIME_1900 - Time Marked every 60.00 (s)

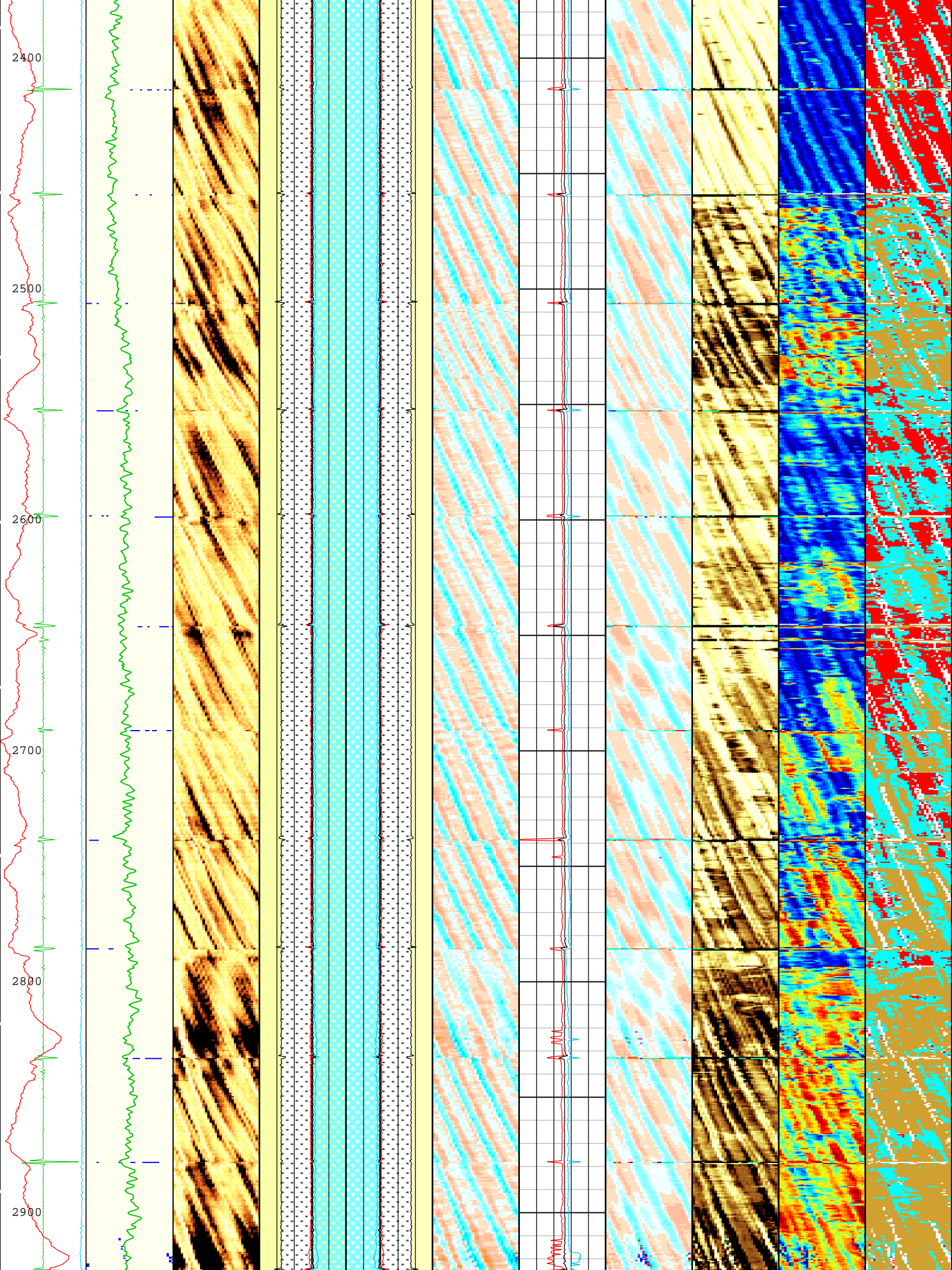


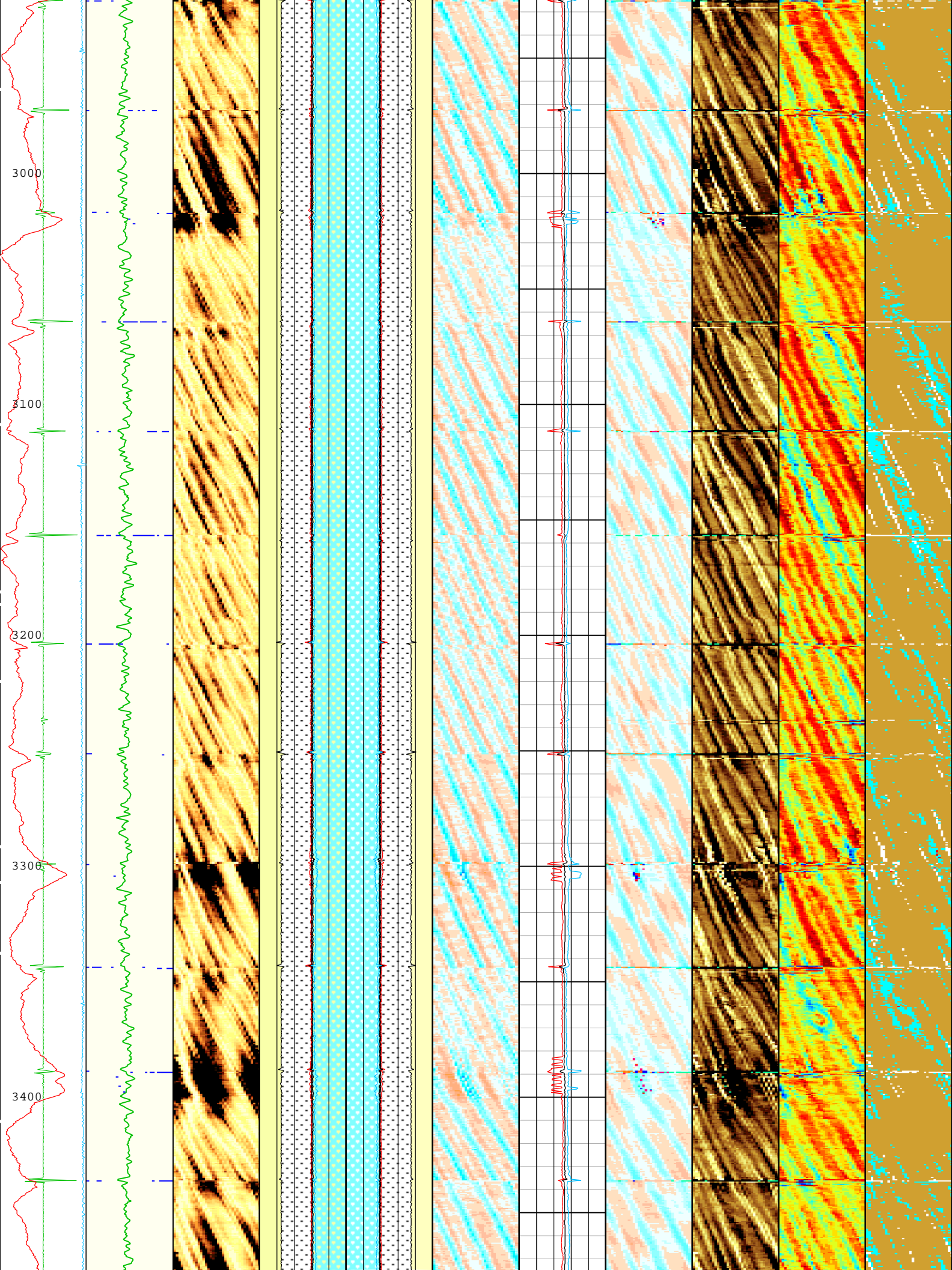


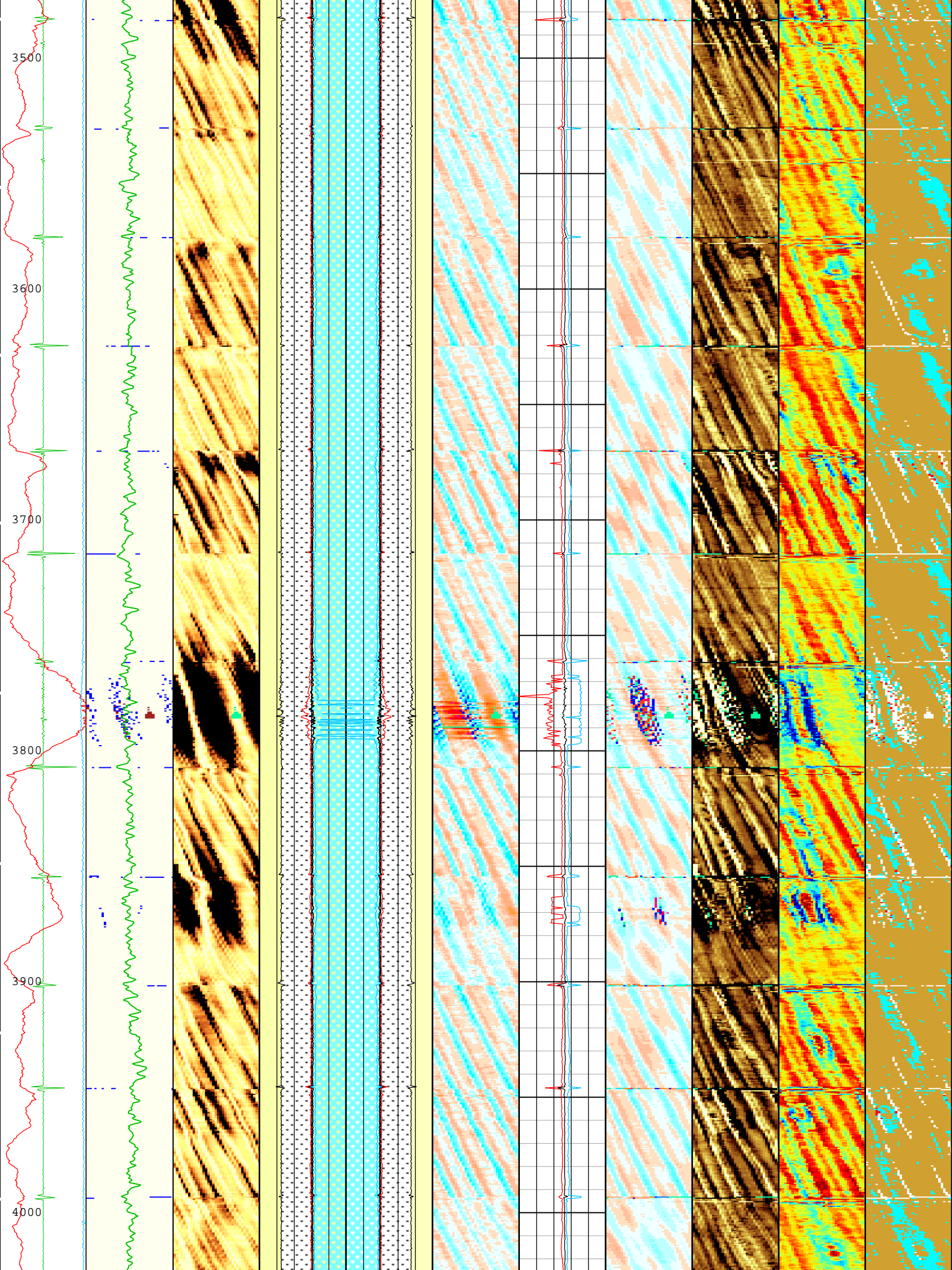


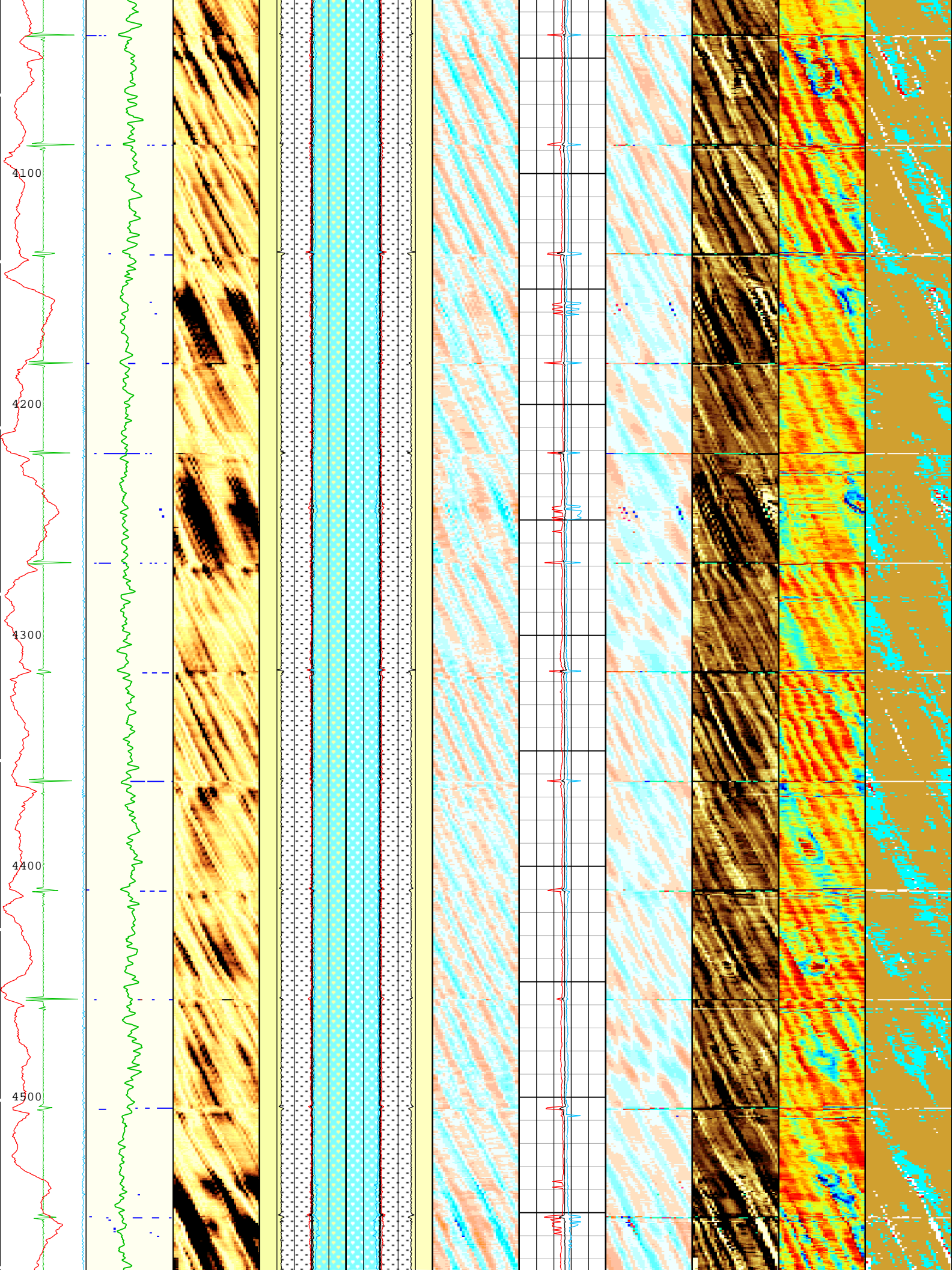


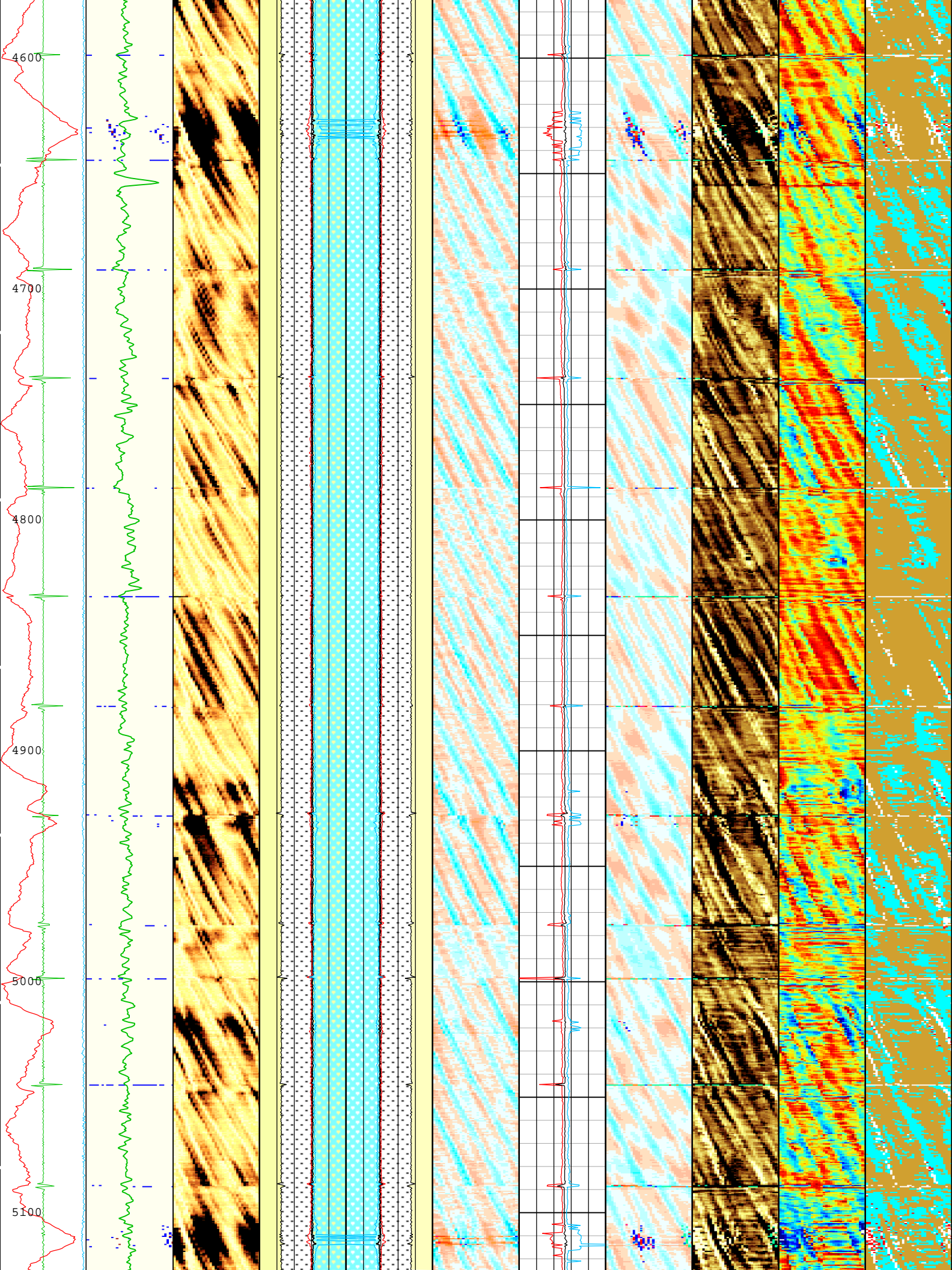


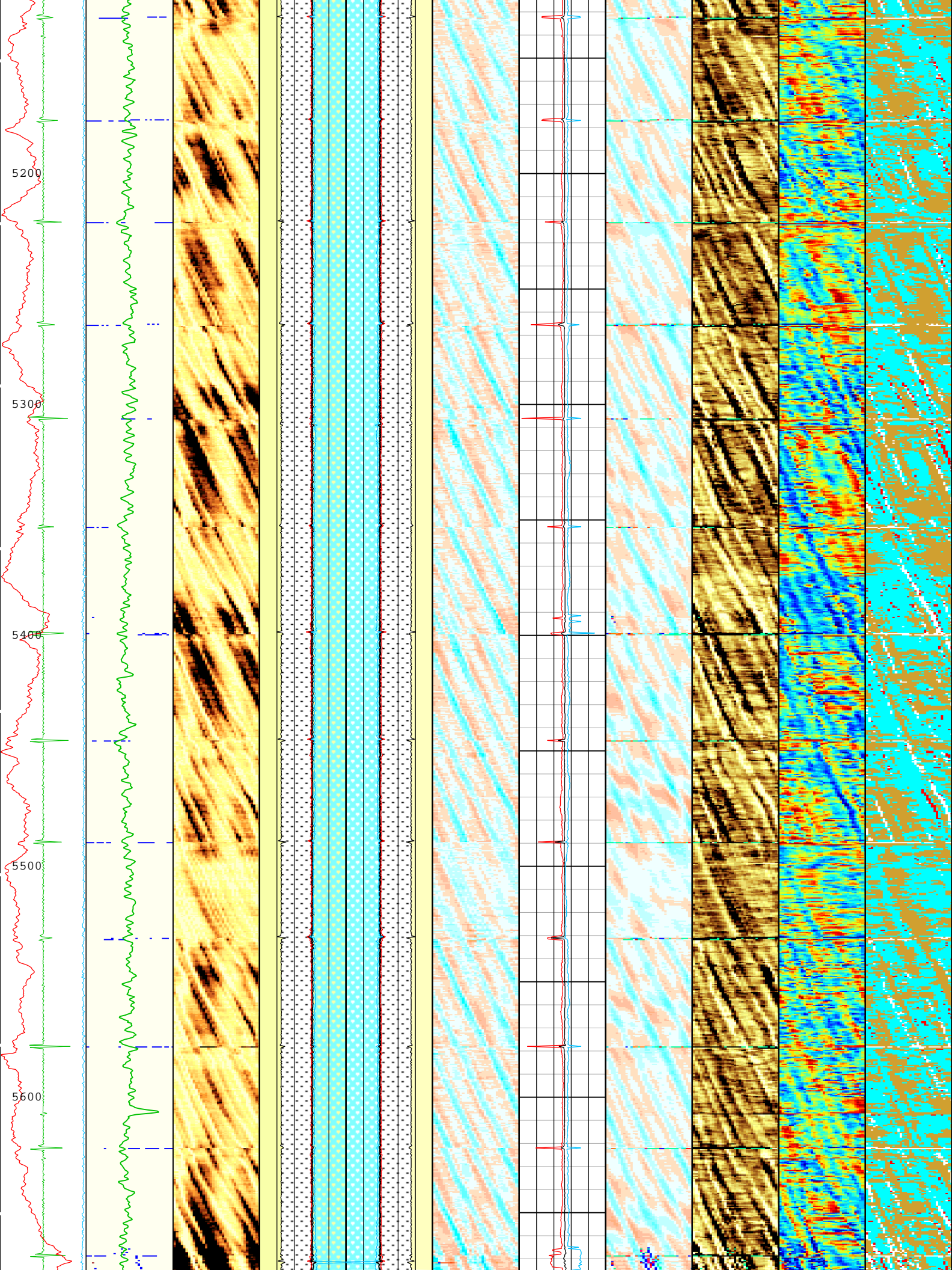


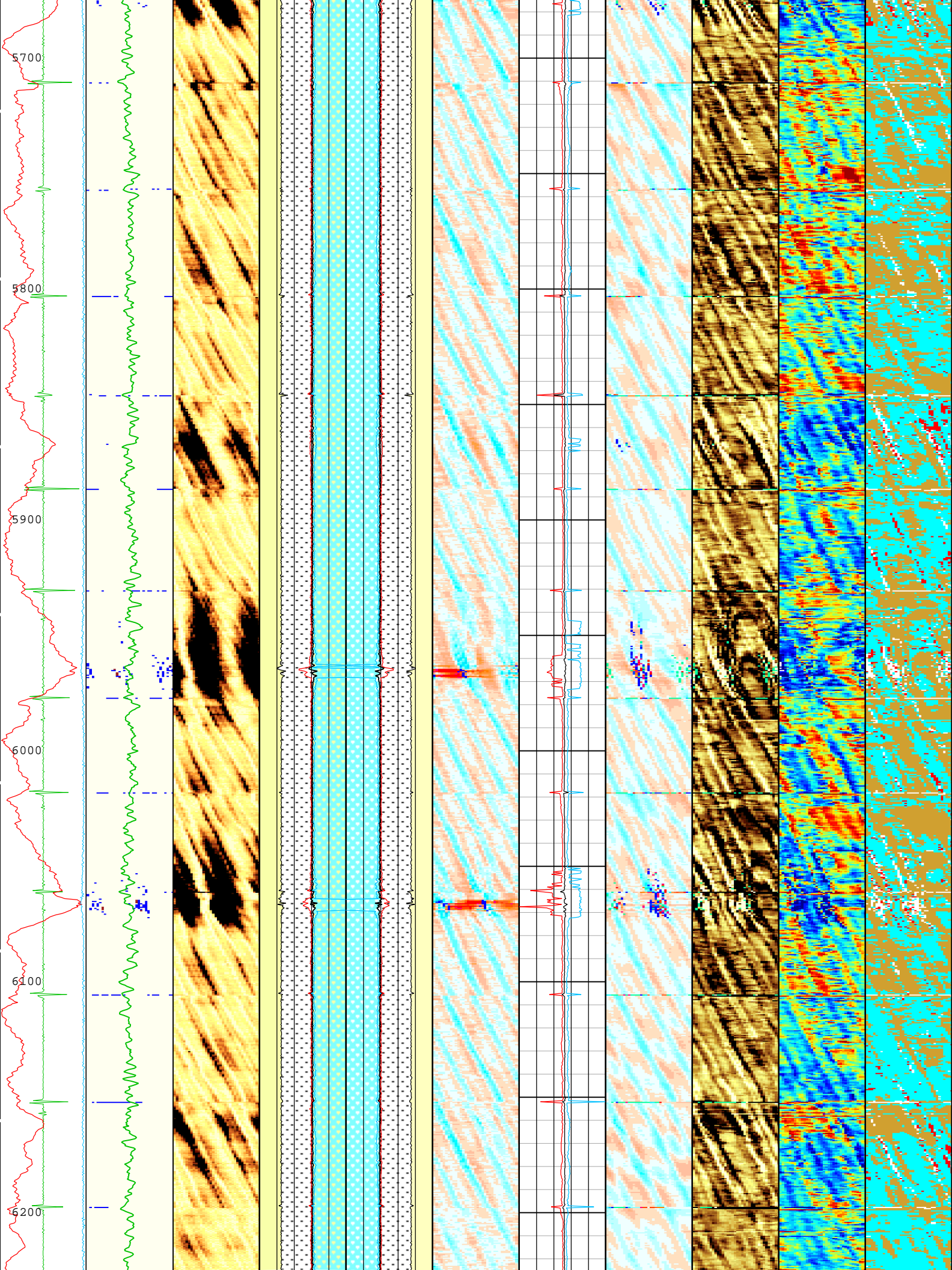


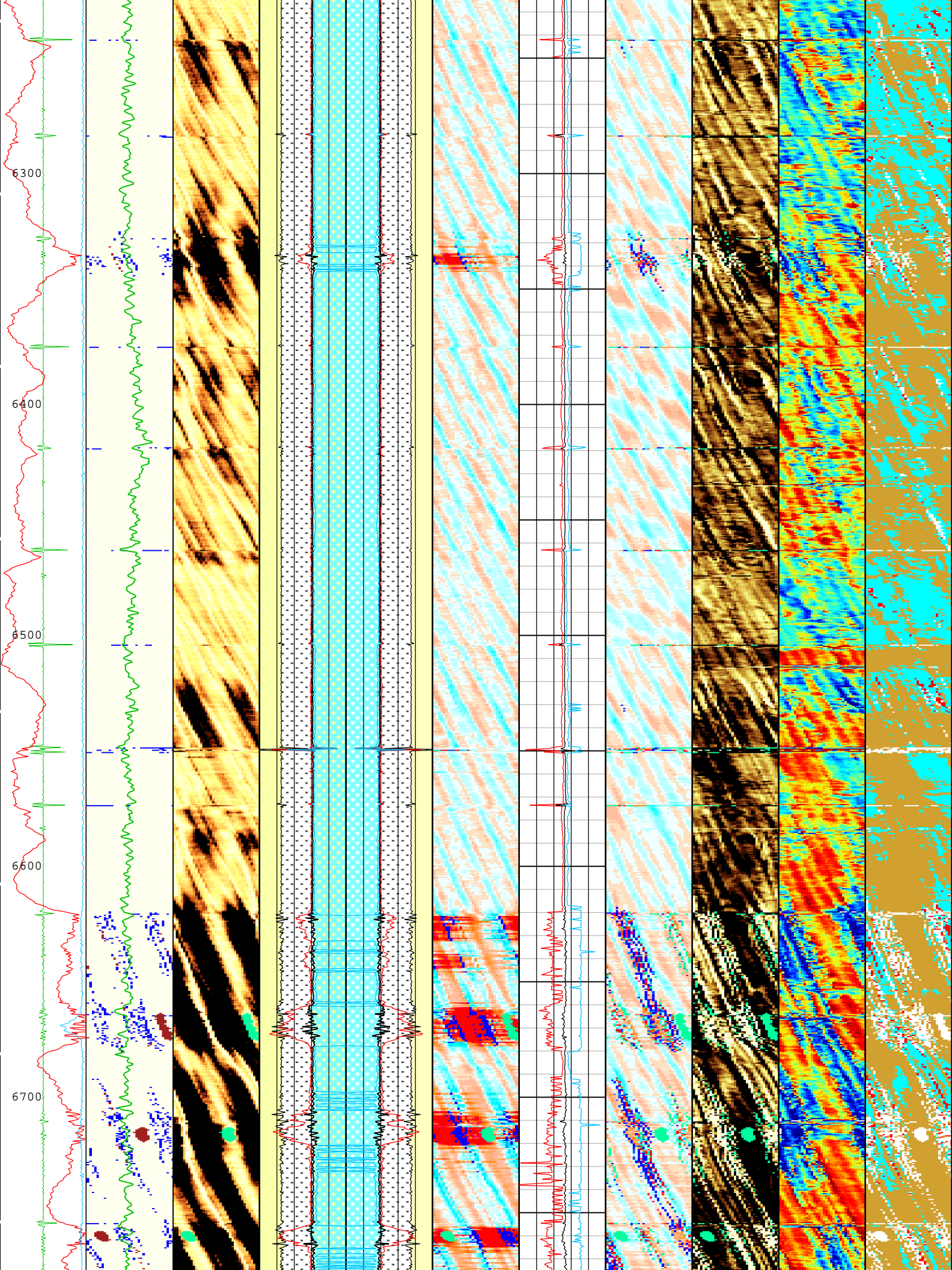


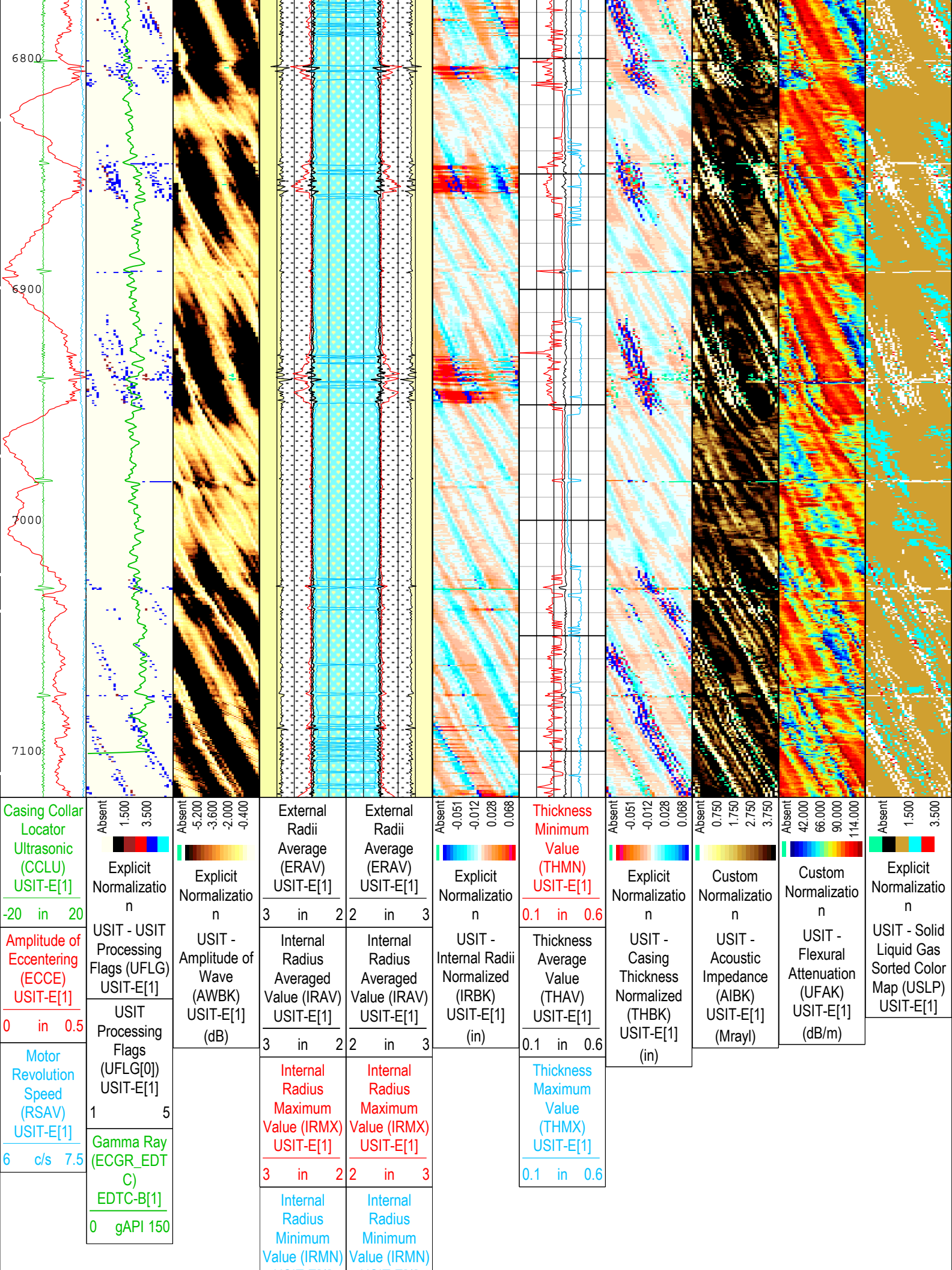












USIT-E[1]	USIT-E[1]
3 in 2	2 in 3

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E[1]

- 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: 11-Jul-2018 19:06:08

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
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	12187.44	ft
CDEN	Cement Density	USIT-E	Depth Zoned	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.8	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	19.32	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	Theoretical	
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	1.38	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-10.51	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.88	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.24	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

ONEDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	24	60	108
BS	13.5	108	2515
BS	8.5	2515	7120
CDEN	13.52	60	4000

CDEN	15.69	4000	6600
CDEN	16.52	6600	7120

All depth are actual.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	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

ONETime Zoned Parameters

Pass Log[4]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	110	28-Jun-2018 10:30:23	28-Jun-2018 10:45:40	7360.34	6332.92
EMXV	120	28-Jun-2018 10:45:40	28-Jun-2018 10:45:46	6332.92	6325.52
EMXV	110	28-Jun-2018 10:45:46	28-Jun-2018 10:45:51	6325.52	6319.62
EMXV	100	28-Jun-2018 10:45:51	28-Jun-2018 10:47:43	6319.62	6179.86
EMXV	80	28-Jun-2018 10:47:43	28-Jun-2018 10:47:47	6179.86	6175.58
EMXV	90	28-Jun-2018 10:47:47	28-Jun-2018 10:48:49	6175.58	6100.29
EMXV	85	28-Jun-2018 10:48:49	28-Jun-2018 10:51:00	6100.29	5940.3
EMXV	90	28-Jun-2018 10:51:00	28-Jun-2018 10:54:45	5940.3	5668.38
EMXV	110	28-Jun-2018 10:54:45	28-Jun-2018 10:56:48	5668.38	5517.58
EMXV	100	28-Jun-2018 10:56:48	28-Jun-2018 10:57:06	5517.58	5496.46
EMXV	90	28-Jun-2018 10:57:06	28-Jun-2018 10:59:59	5496.46	5292.47
EMXV	100	28-Jun-2018 10:59:59	28-Jun-2018 11:27:06	5292.47	3329.45
EMXV	90	28-Jun-2018 11:27:06	28-Jun-2018 11:28:30	3329.45	3282.97

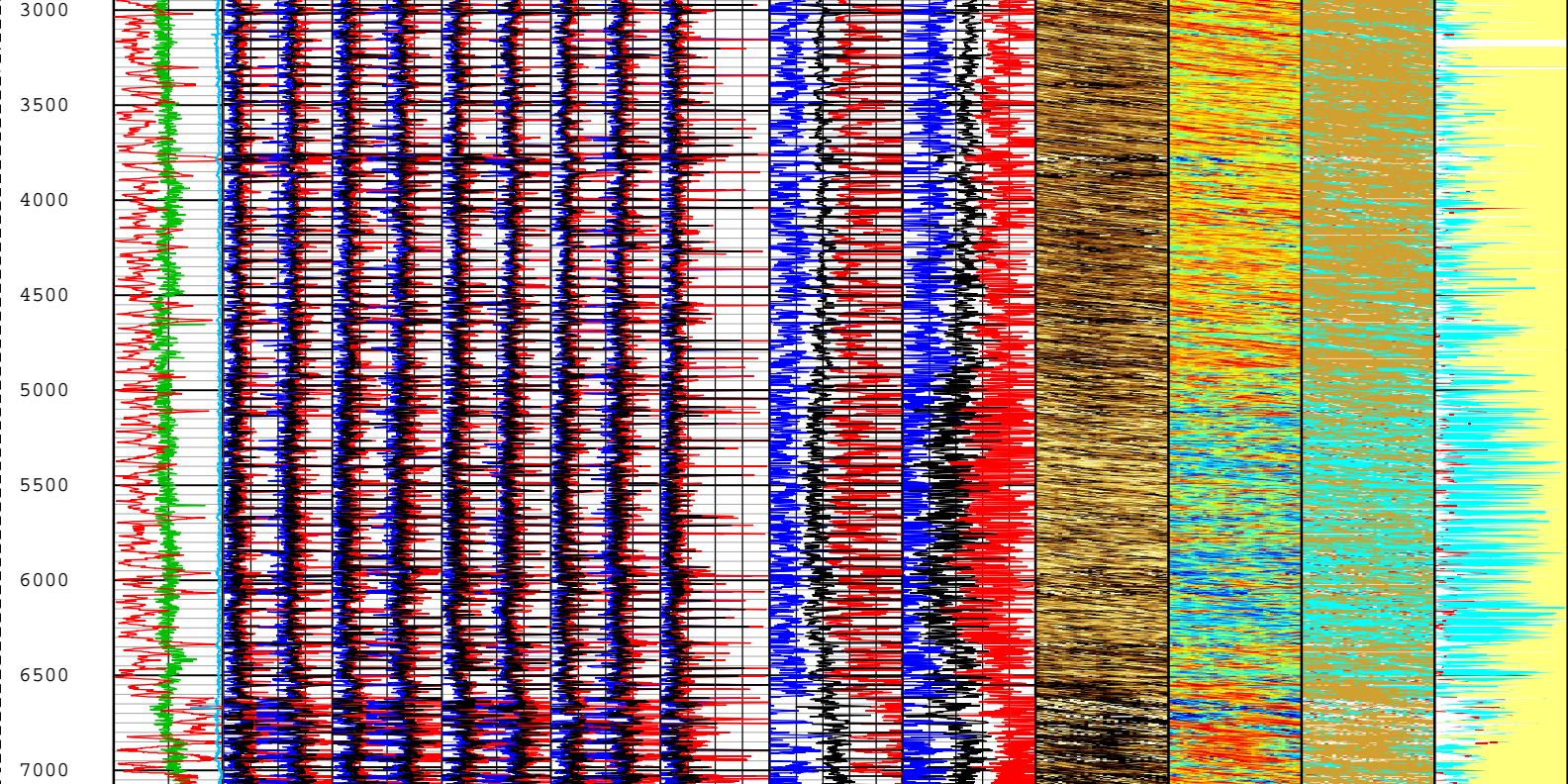
Pass Log[5]:Up

EMXV	90	28-Jun-2018 11:29:53	28-Jun-2018 11:31:27	3298.5	3206.96
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Pass Log[6]:Up

EMXV	90	28-Jun-2018 11:35:40	28-Jun-2018 12:02:33	3272.61	1353.35
EMXV	85	28-Jun-2018 12:02:33	28-Jun-2018 12:02:36	1353.35	1349.68
EMXV	90	28-Jun-2018 12:02:36	28-Jun-2018 12:21:36	1349.68	61.37

All depth are at tool zero.

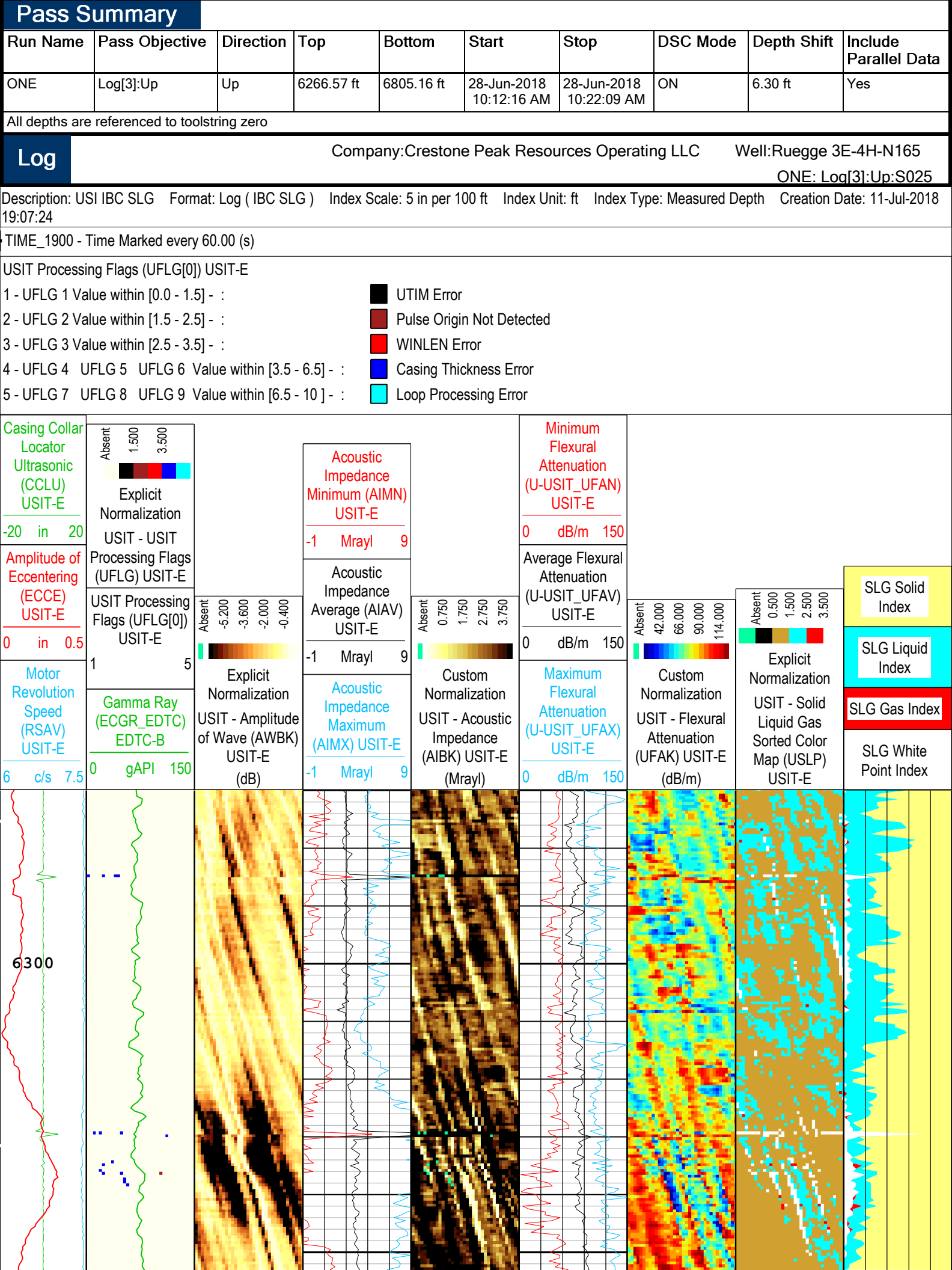


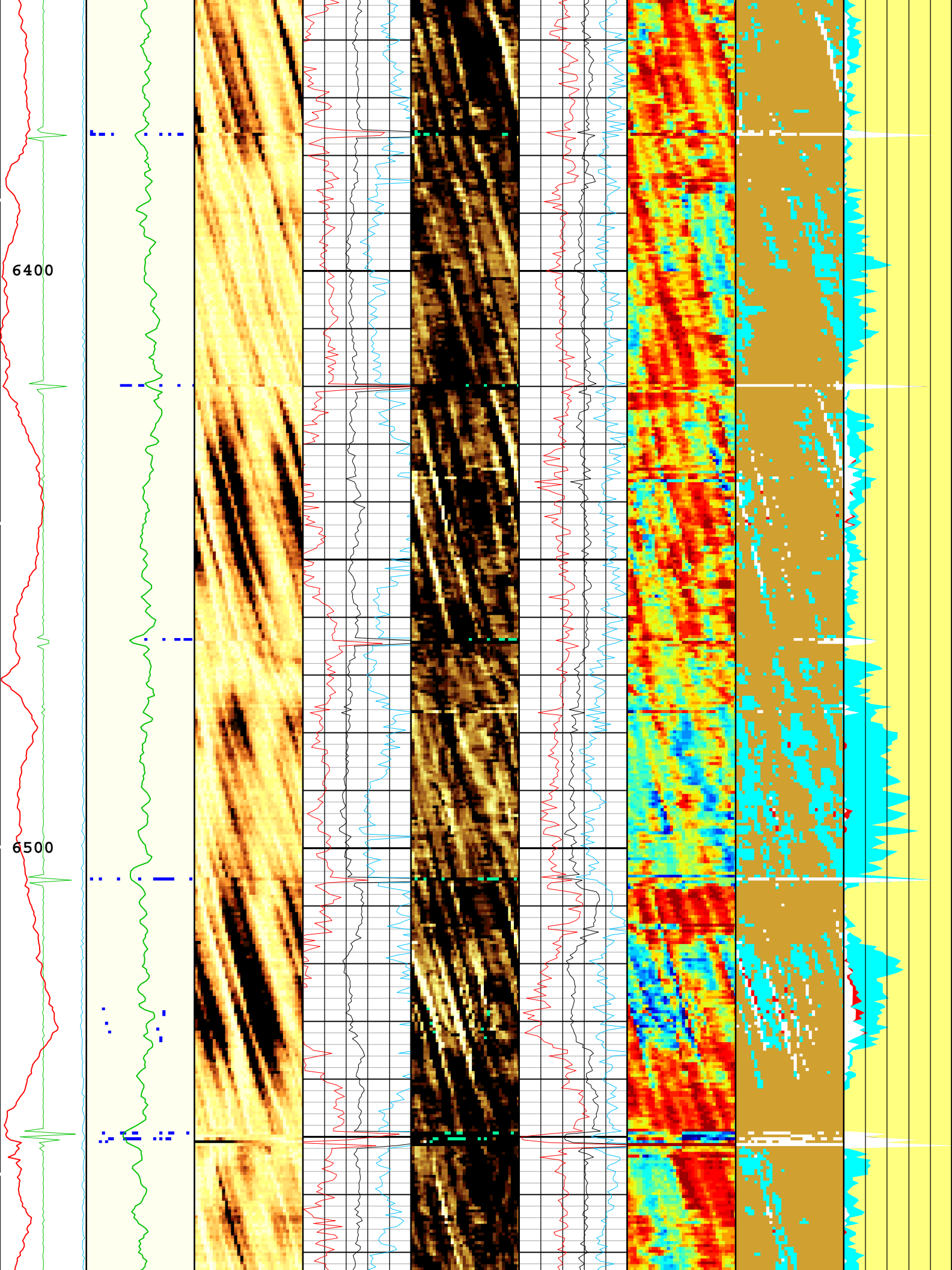
<div>Gamma Ray (ECGR_E DTC) EDTC-B[1]</div> <div>0150 gAPI</div> <div>Amplitude of Eccenteri ng (ECCE) USIT-E[1]</div> <div>0in 0.5</div> <div>Motor Revolutio n Speed (RSAV) USIT-E[1]</div> <div>6c/s 7.5</div>	Goodwin Sector Curves (5 Mrayl per Division)	<div>Acoustic Impedance Minimum (AIMN) USIT-E[1]</div> <div>-1 Mrayl9</div>	<div>Minimum Flexural Attenuation (U-USIT_UF AN) USIT-E[1]</div> <div>40140 dB/m</div>	<div>Absent 0.750 1.750 2.750 3.750</div> <div>Custom Normalizatio n</div> <div>USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)</div>	<div>Absent 0.000 48.000 72.000 96.000 120.000</div> <div>Custom Normalizatio n</div> <div>USIT - Flexural Attenuation (UFAK) USIT-E[1] (dB/m)</div>	<div>Absent 1.500 3.500</div> <div>Explicit Normalizatio n</div> <div>USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E[1]</div>	SLG Solid Index	
								SLG Liquid Index
								SLG Gas Index
								SLG White Point Index

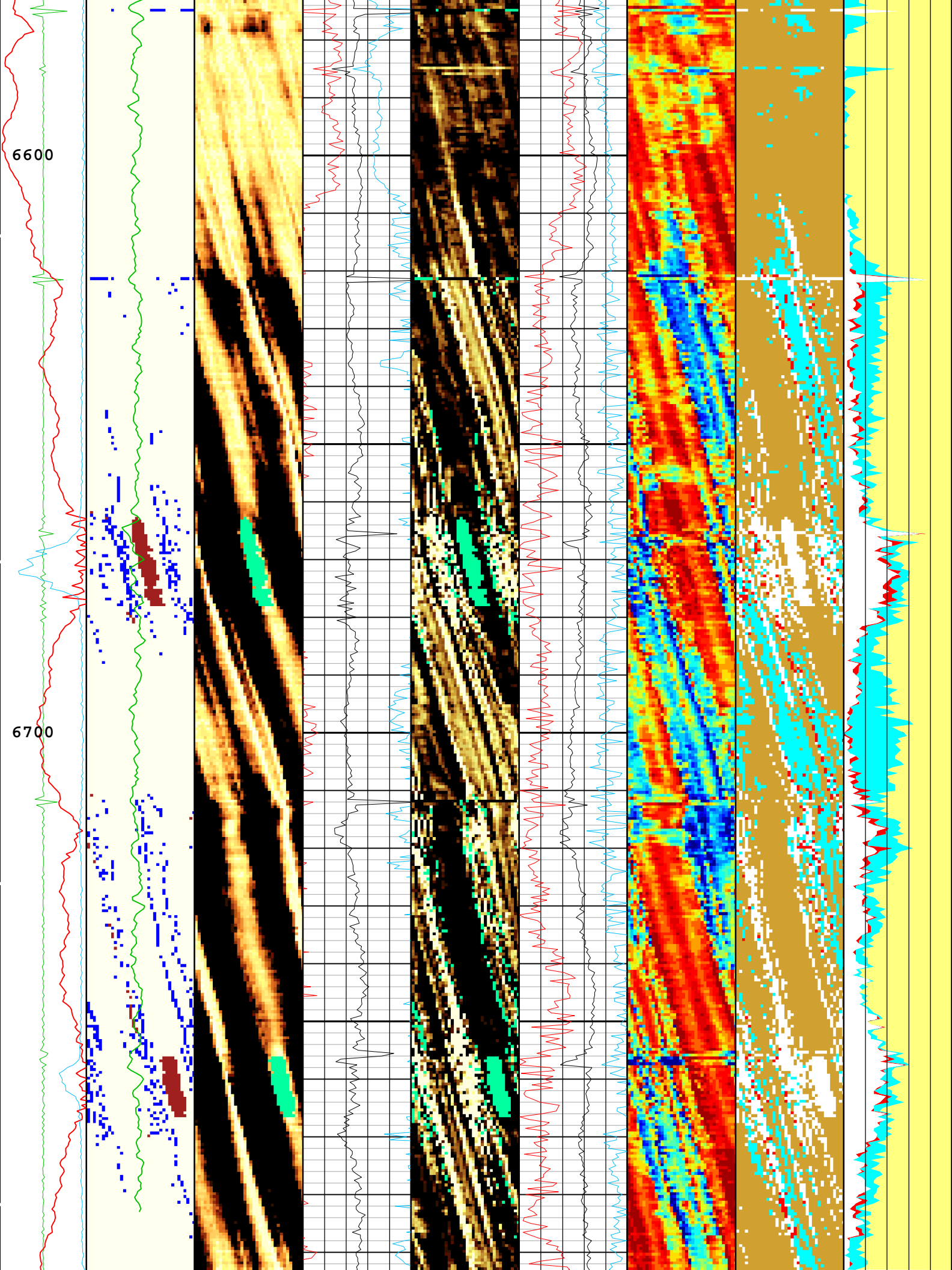
TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 11-Jul-2018 19:07:09

ONE	
IBC SLG Repeat Pass	
Software Version	
Acquisition System	Version
Maxwell 2018	8.0.95333.3100
Application Patch	Wireline_NPD-PNX-2018CMZ_8.0.100887





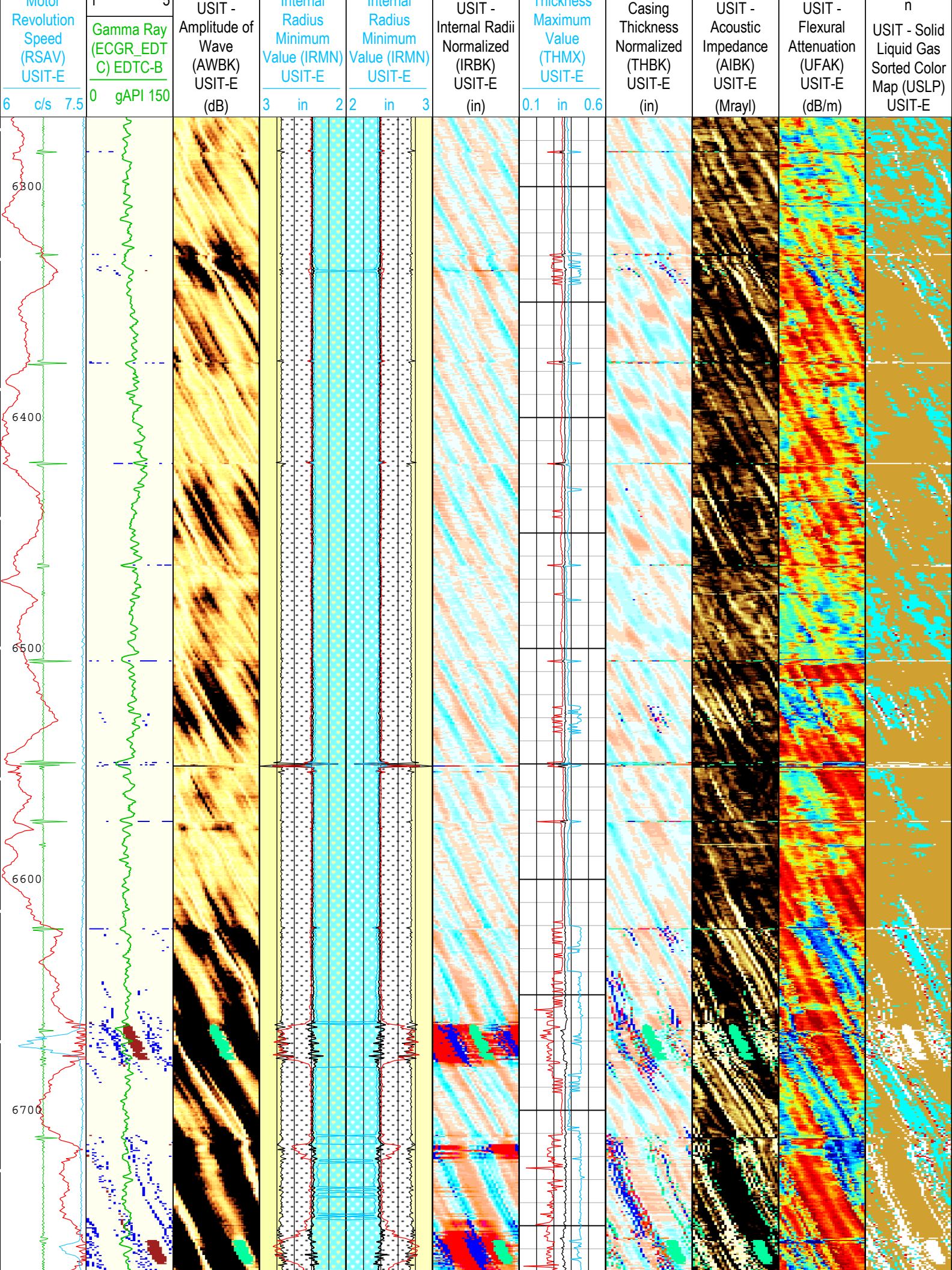


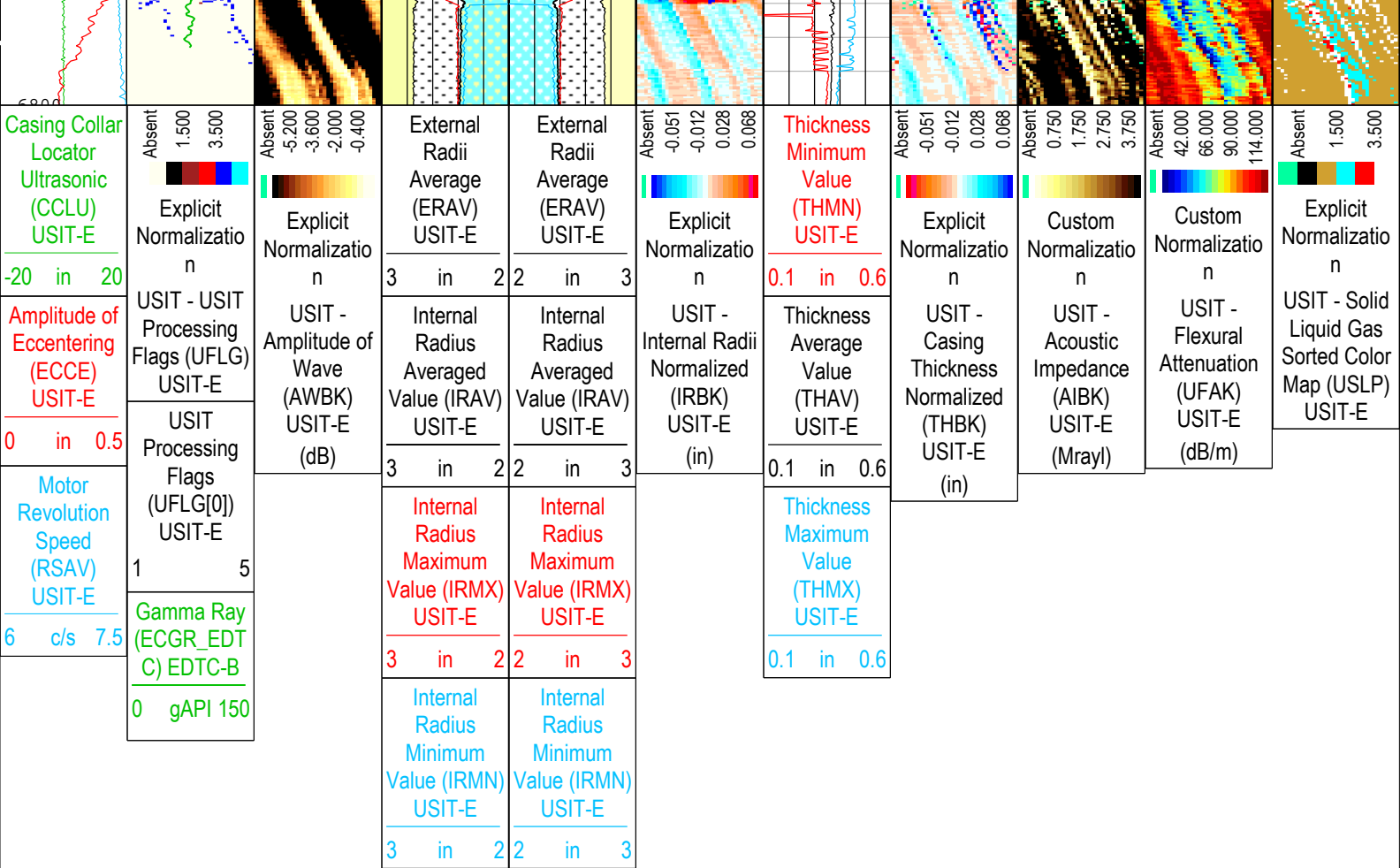
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.38	
MUD_N_THE	Theoretical Mud Normalization 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	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-10.51	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	1.88	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.24	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters				
Parameter	Value	Start (ft)	Stop (ft)	
CDEN	15.69	6270	6600	
CDEN	16.52	6600	6800	
All depth are actual.				

Tool Control Parameters	
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



ONE: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	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
USER	Ultrasonic Sampling Frequency	USIT-E	666667	Hz





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: 11-Jul-2018 19:07:35

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	12187.44	ft
CDEN	Cement Density	USIT-E	Depth Zoned	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
DFD	Drilling Fluid Density	Borehole	8.8	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 FRP Offset from Free Pipe	USIT-E	19.32	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	Theoretical	
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	1.38	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.15	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-10.51	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.88	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.24	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
CDEN	15.69	6270	6600
CDEN	16.52	6600	6800
All depth are actual.			

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

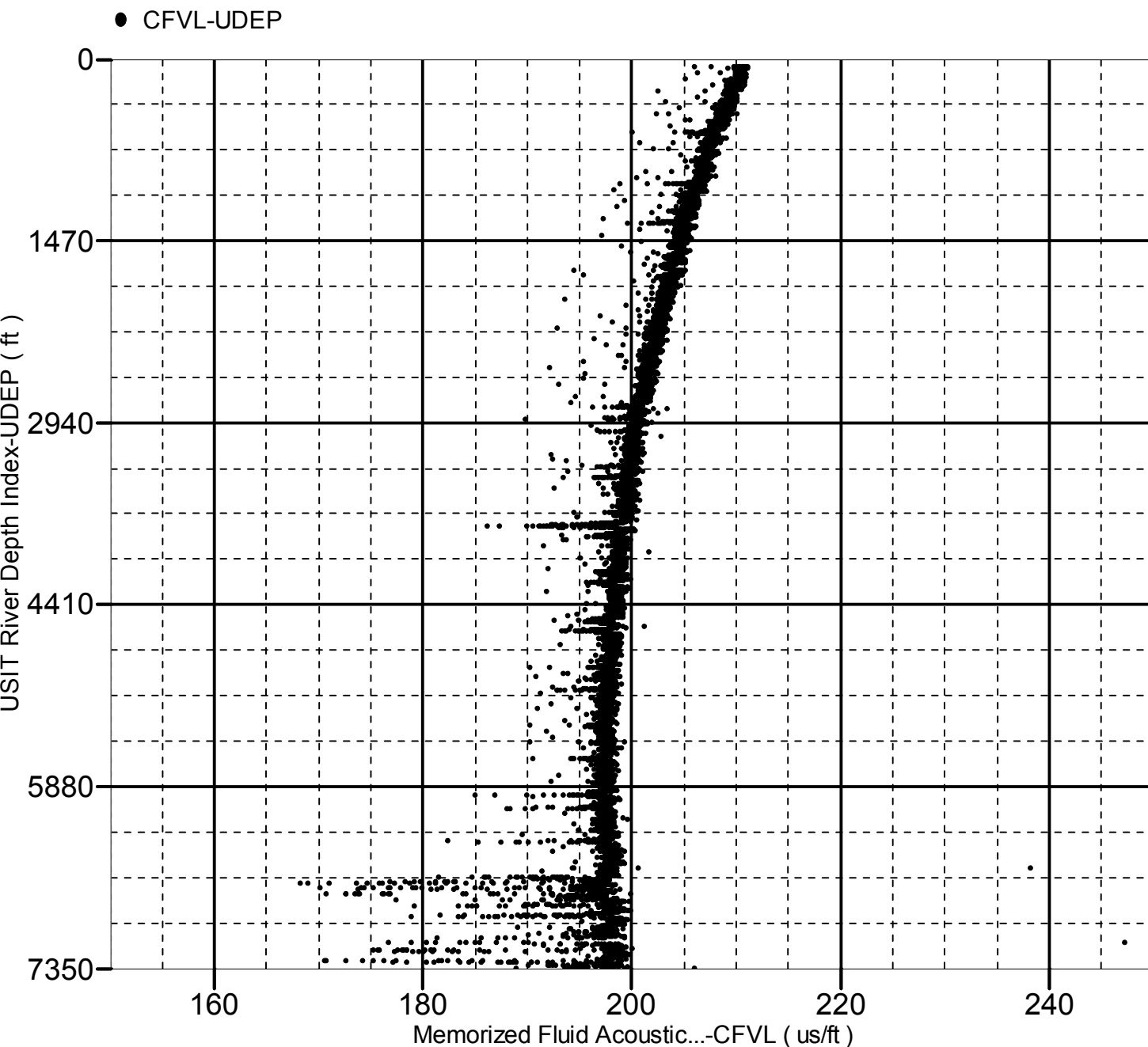
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	80	28-Jun-2018 10:12:16	28-Jun-2018 10:13:09	6805.16	6772.51
EMXV	90	28-Jun-2018 10:13:09	28-Jun-2018 10:15:20	6772.51	6650.87
EMXV	110	28-Jun-2018 10:15:20	28-Jun-2018 10:22:09	6650.87	6266.57
All depth are at tool zero.					

XYZ	Company:Crestone Peak Resources Operating LLC Well:Ruegge 3E-4H-N165				Composite 1:S025
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Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 60.50 to 7359.50 ft



XYZ

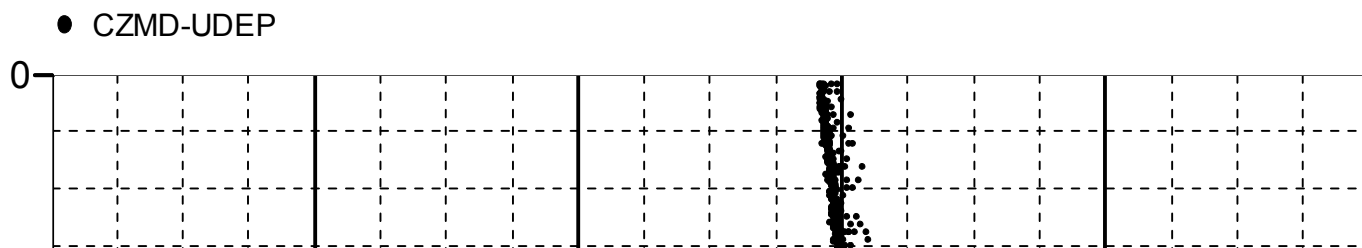
Company:Crestone Peak Resources Operating LLC Well:Ruegge 3E-4H-N165

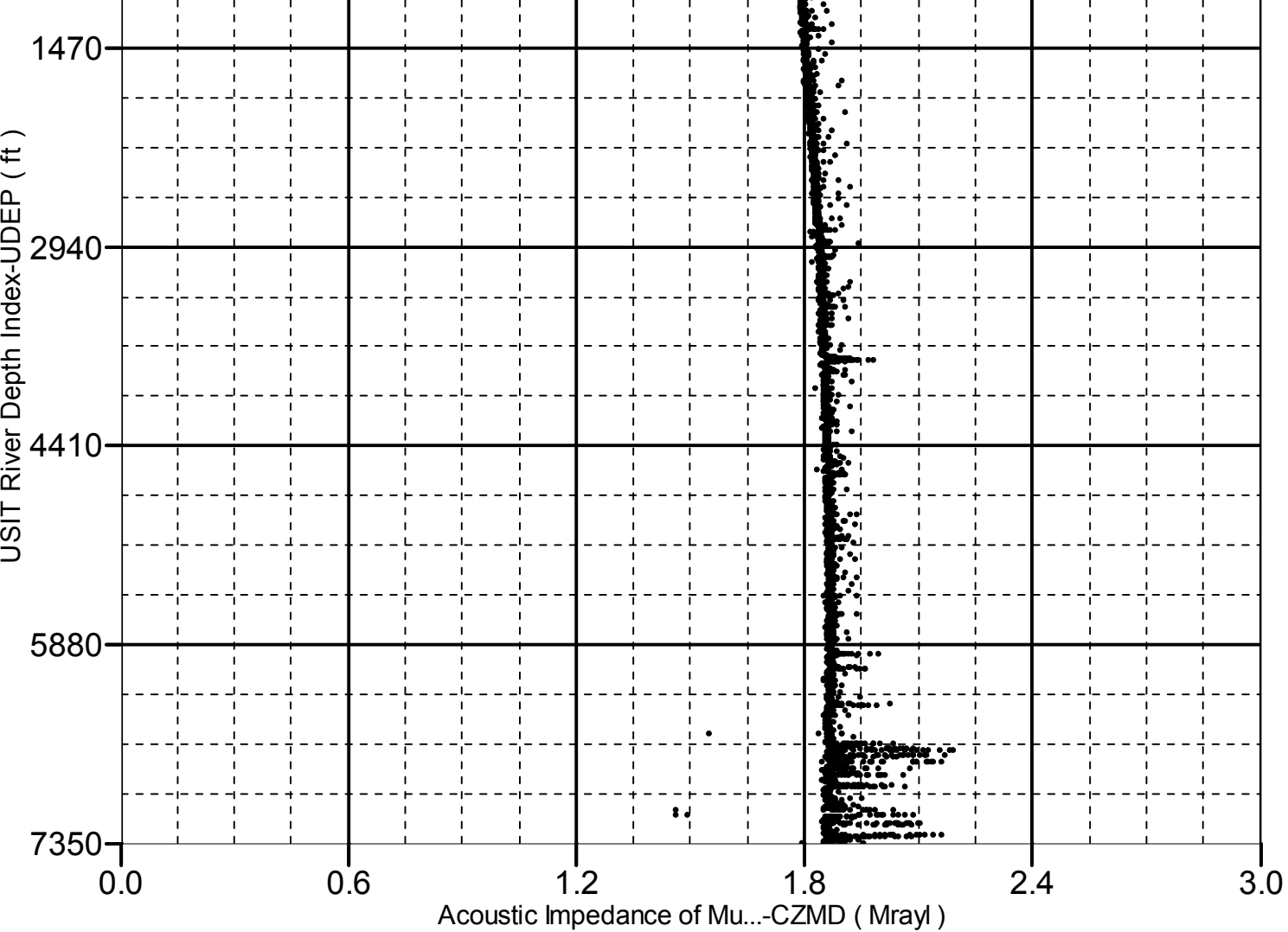
Composite 1:S025

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 60.50 to 7359.50 ft





Company:	Crestone Peak Resources Operating LLC	Schlumberger
Well:	Ruegge 3E-4H-N165	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	

Isolation Scanner
Cement Evaluation
Gamma Ray - CCL Log