

Company: CRESTONE PEAK RESOURCES OPERATING LLC

Well: HINGLEY 1F-18H-A167

Field: WATTENBERG

County: WELD State: COLORADO

ISOLATION SCANNER
VDL-IBC COMBINED PRINT
GAMMA RAY - COLLAR LOCTOR LOG

County:	WELD
Field:	WATTENBERG
Location:	SEC. 18. T1N R67W
Well:	SEC. 18. T1N R67W
Company:	HINGLEY 1F-18H-A167
CRESTONE PEAK RESOURCES OPERATING LLC	
Location:	
SEC. 18. T1N R67W	Elev.: K.B. 5080.00 ft
NENE 514 FNL 567 FEL	G.L. 5057.00 ft
Latitud: 40.057007 / Longitude: -104.925994	D.F. 5080.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 18
05-123-47171-0000	Township: 1N
	Range: 67W

Logging Date	13-Nov-2019
Run Number	TWO
Depth Driller	12619.00 ft
Schlumberger Depth	12619.00 ft
Bottom Log Interval	7402.00 ft
Top Log Interval	78.00 ft
Casing Fluid Type	Water
Salinity	
Density	9.5 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	2573.00 ft
To	12619.00 ft
Casing/Tubing Size	5.5 in
Weight	20 lbm/ft
Grade	P110
From	0.00 ft
To	12605.00 ft
Max Recorded Temperatures	228.5 degF
Logger on Bottom	14-Nov-2019
Unit Number	2216
Recorded By	Beatriz Guaita
Witnessed By	Garet Wood

Disclaimer

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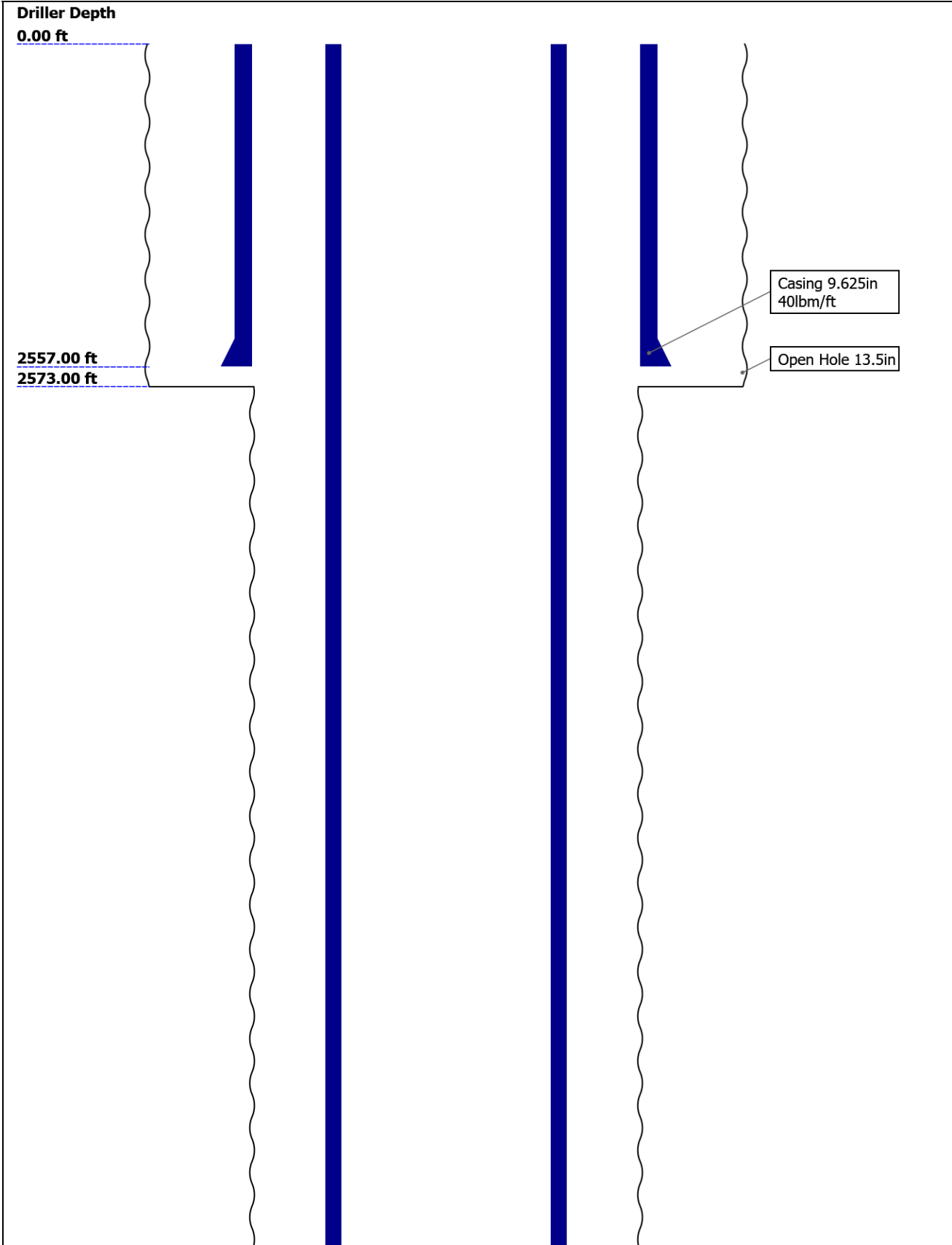
10.3 Composite Summary

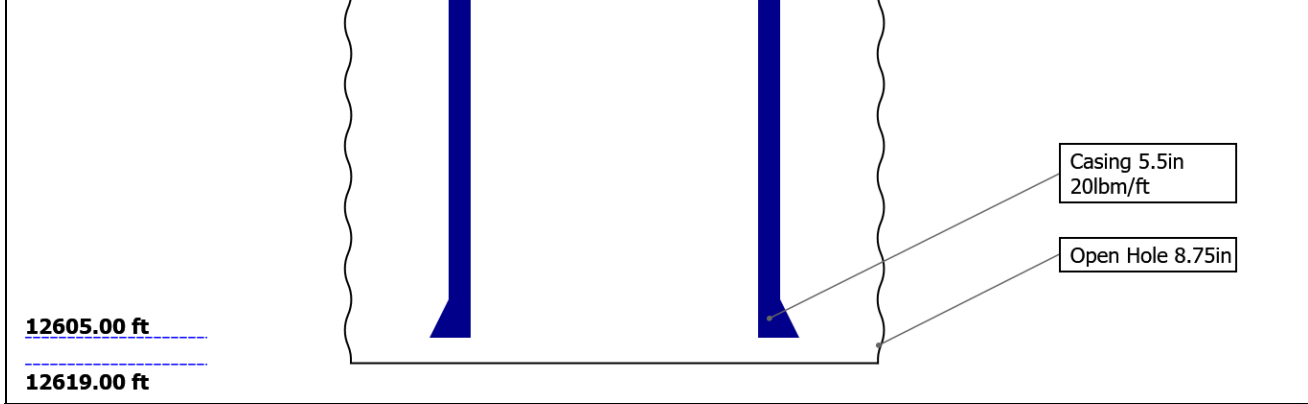
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Well Sketch



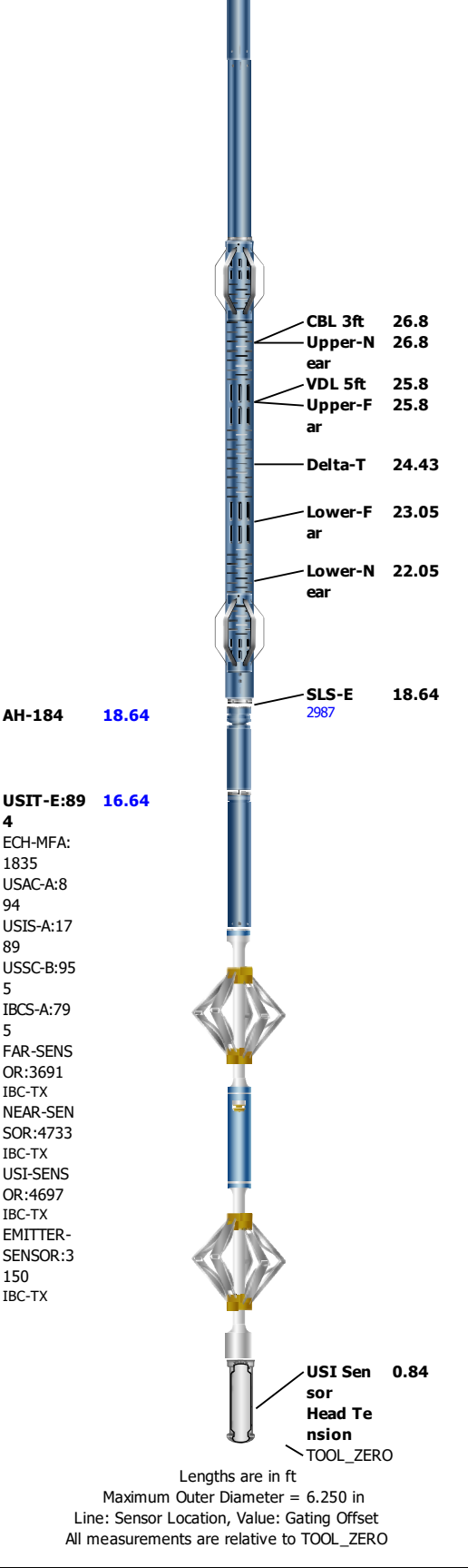


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75				
Top Driller (ft)	0	2573				
Top Logger (ft)	0	2573				
Bottom Driller (ft)	2573	12619				
Bottom Logger (ft)	2573	12619				
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)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2557	12605				
Bottom Logger (ft)	2557	12605				

Remarks and Equipment Summary

TWO: Toolstring				TWO: Remarks	
Equip name	Length	MP name	Offset	Thank you for choosing Schlumberger!	
LEH-QT	51.27			Tool string run as per tool sketch and client logging program.	
LEH-QT				All passes run under 0 PSI.	
DTC-H:94	47.78	CTEM	46.88	Toolstring run with 4 5" gemcos, in-lines with small hole kit and booster kit for centralization.	
86		HV	0.00	Logging Resolution: 10 deg 6 in.	
ECH-KC:1		TelStatu	44.78	Annular Fluid: 10.5 ppg OBM	
0585		s		Lead Cement: 12.5 ppg	
DTC-H:948		ToolSta	44.78		
6		tus			
SGT-N:97	44.78	GR	43.86		
47					
SGH-K:260					
5					
SGD-TAA:					
21259					
SGC-TB:97					
47					
DSLT-H:8	39.28				
154					
ECH-KH:8					
401					
DSLCH:81					
54					
SLS-E:122					
9					



Depth Summary

TWO

Depth Measuring Device

Type IDW-B

Serial Number

Calibration Date

Calibrator Serial Number

Calibration Cable Type

Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		
Logging Cable			
Type	7-39AI-XXS		
Serial Number			
Length	18400.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane USA		
TWO:Depth Control Parameters		Depth Control Remarks	
Log Sequence	Subsequent Trip To the Well	All Schlumberger depth control procedures followed. IDW used as primary depth control device. Z chart used as secondary depth control device.	
Reference Log Name	PNX		
Reference Log Run Number	ONE		
Reference Log Date	13-Nov-2019		
Subsequent Trip Down Log Correction			

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Log[6]:Up	7403.48	2591.54

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=1.06
DFD=1.14g/cm3(9.50lbm/gal)

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
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Main Pass

IBC SLG VDL-IBC PRINT MAIN PASS @10DEG X 6IN @0PSI [5:100]

Software Version	
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Acquisition System	Version
Maxwell 2019.2	9.2.113335.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
TWO	Log[6]:Up	Up	2591.54 ft	7403.48 ft	14-Nov-2019 10:37:00 AM	14-Nov-2019 12:28:07 PM	ON	3.06 ft	Yes
TWO	Log[7]:Up	Up	65.68 ft	2856.62 ft	14-Nov-2019 3:18:25 PM	14-Nov-2019 4:31:35 PM	ON	3.31 ft	Yes

All depths are referenced to toolstring zero

Log	Company:CRESTONE PEAK RESOURCES OPERATING LLC	Well:HINGLEY 1F-18H-A167
		Main Pass:S025

Description: USI IBC SLG Format: Log (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Nov-2019 18:05:31

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] - :

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] - :

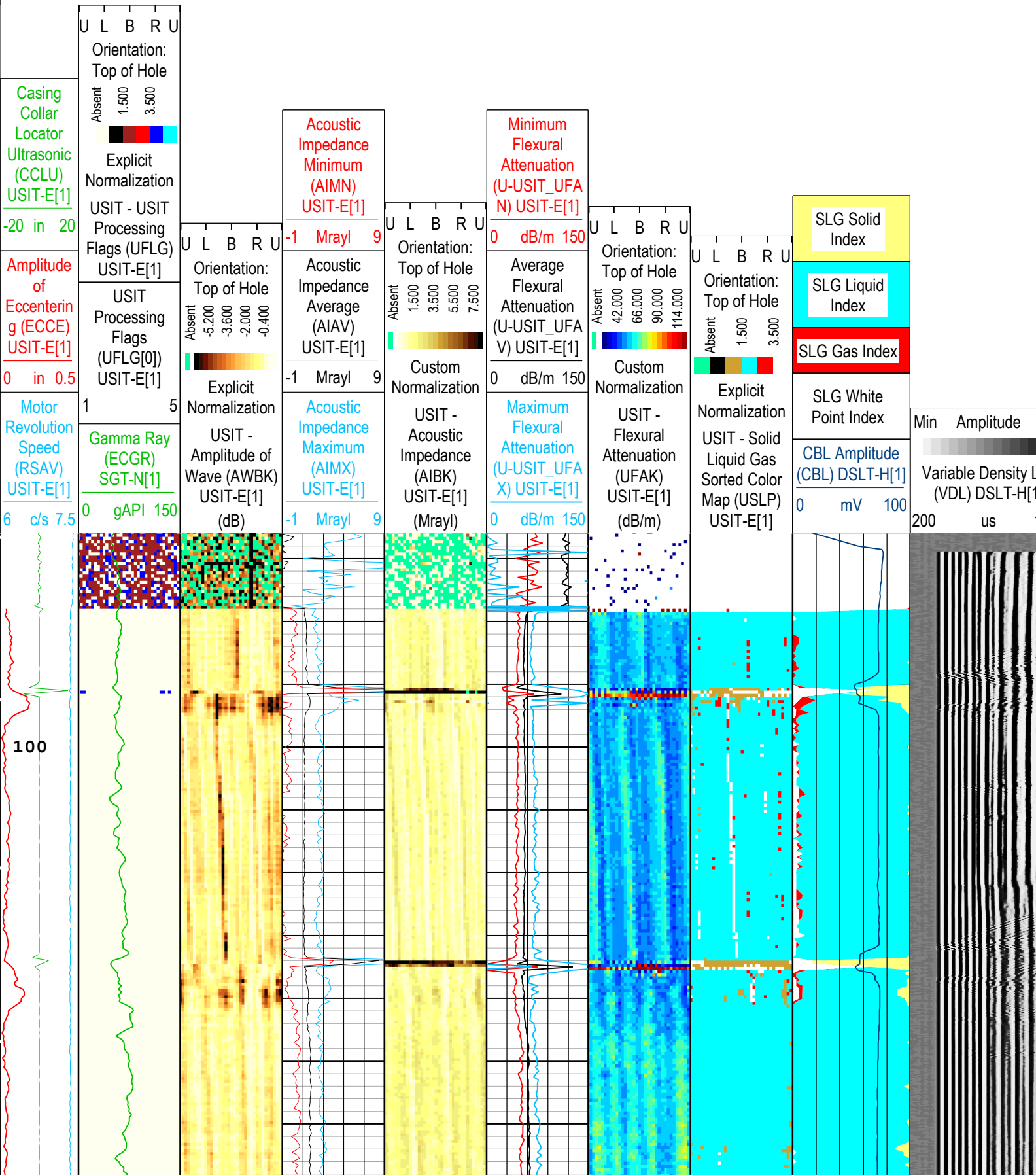
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

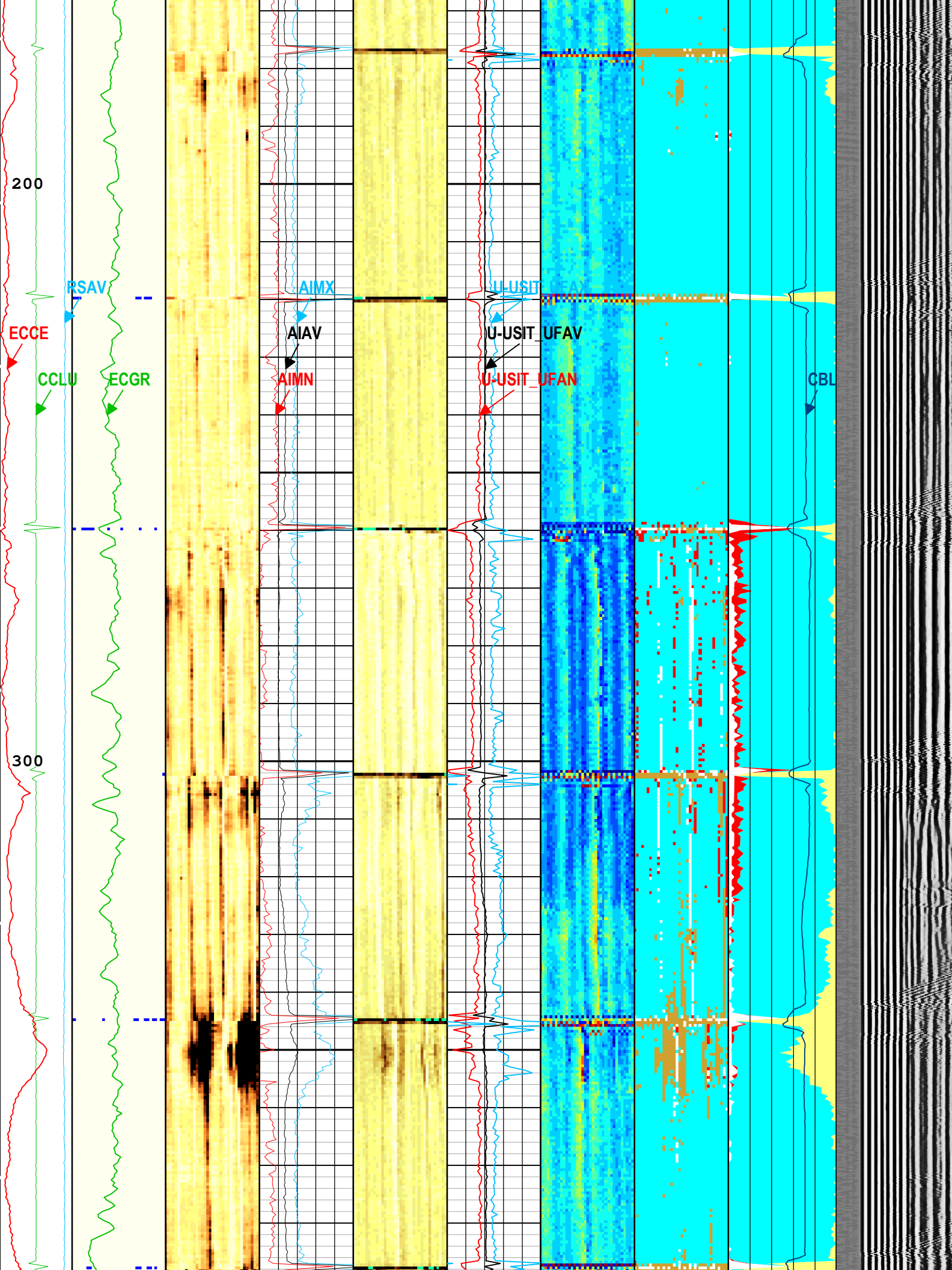
Pulse Origin Not Detected

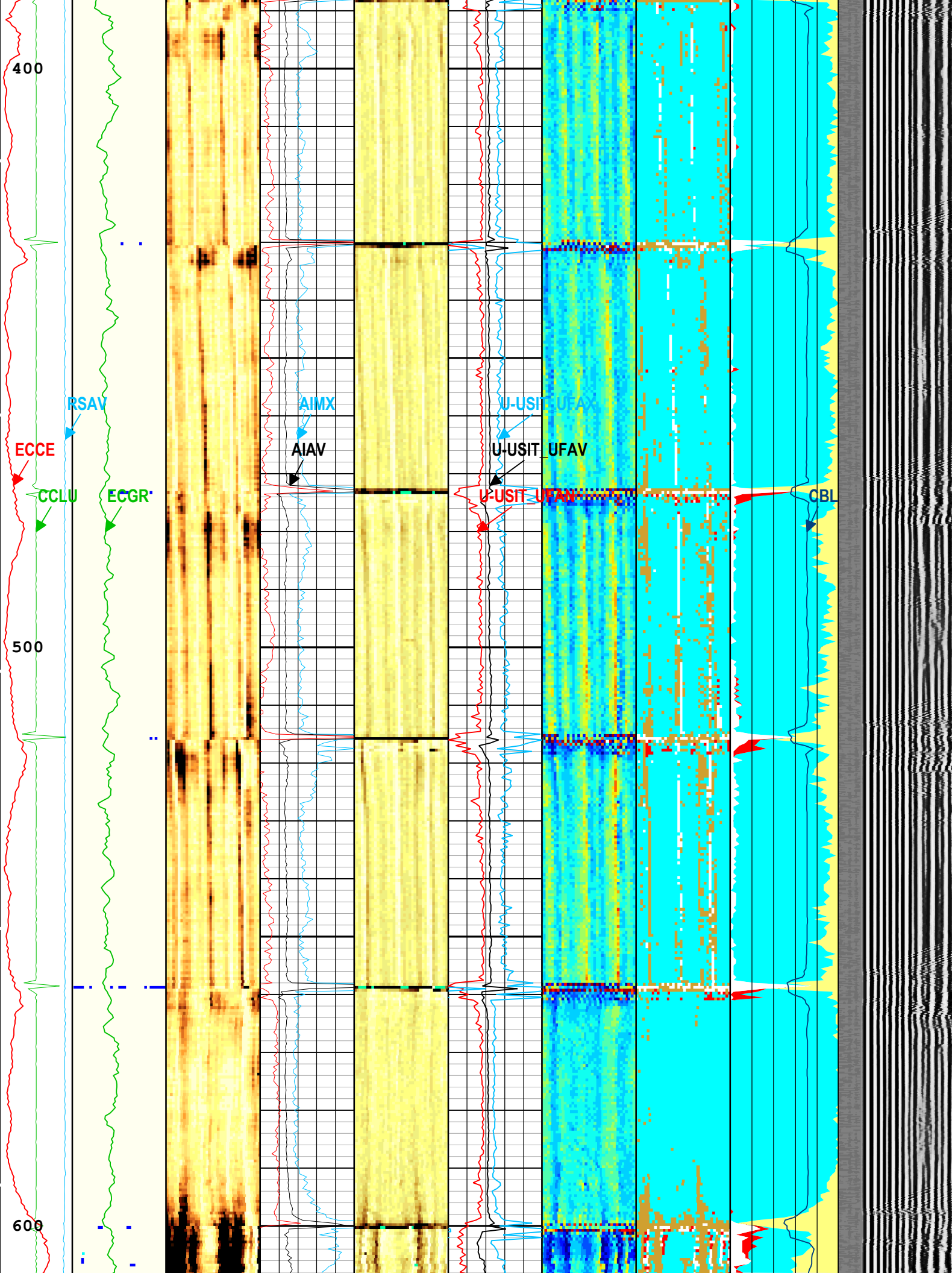
WINLEN Error

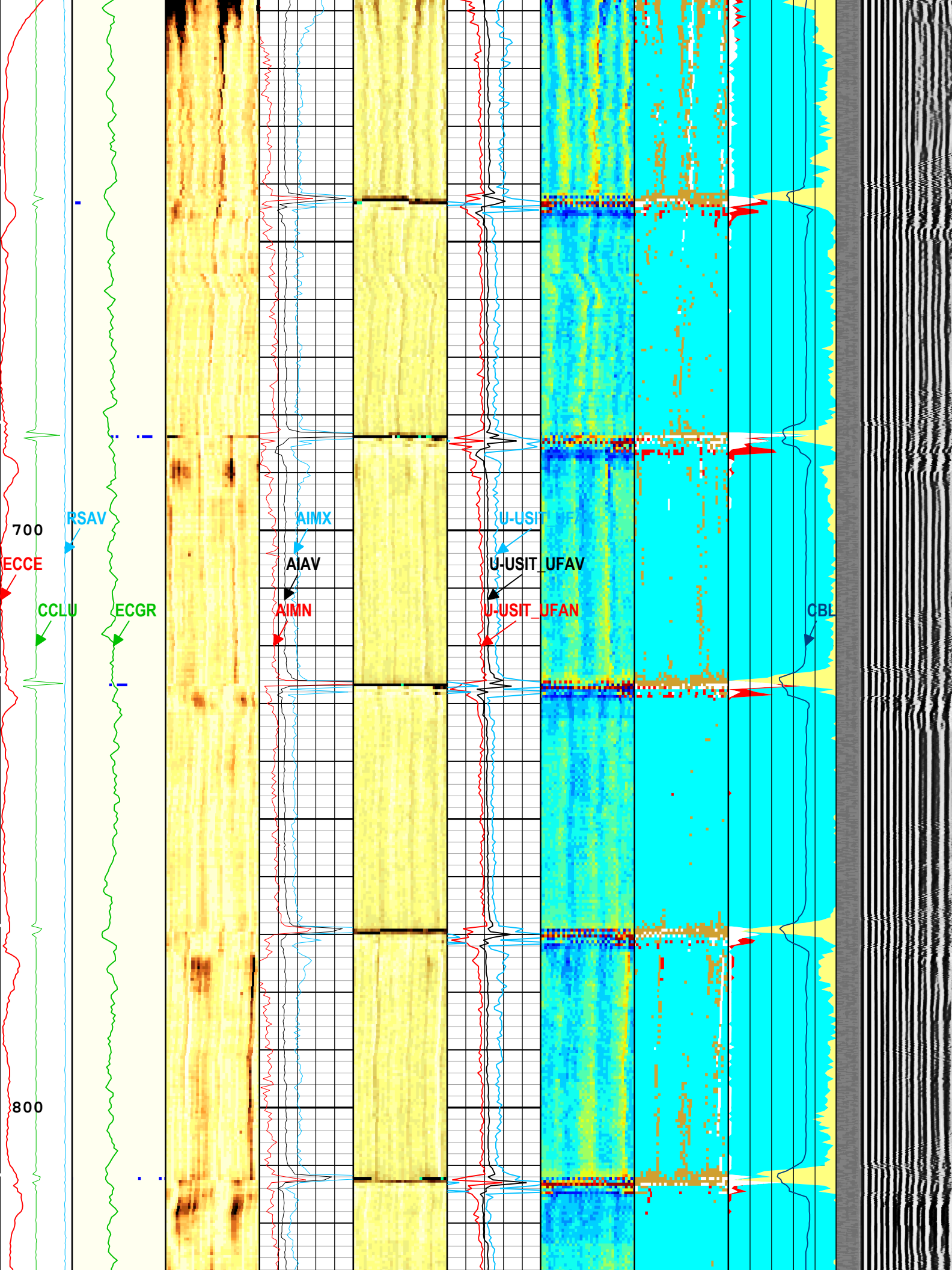
Casing Thickness Error

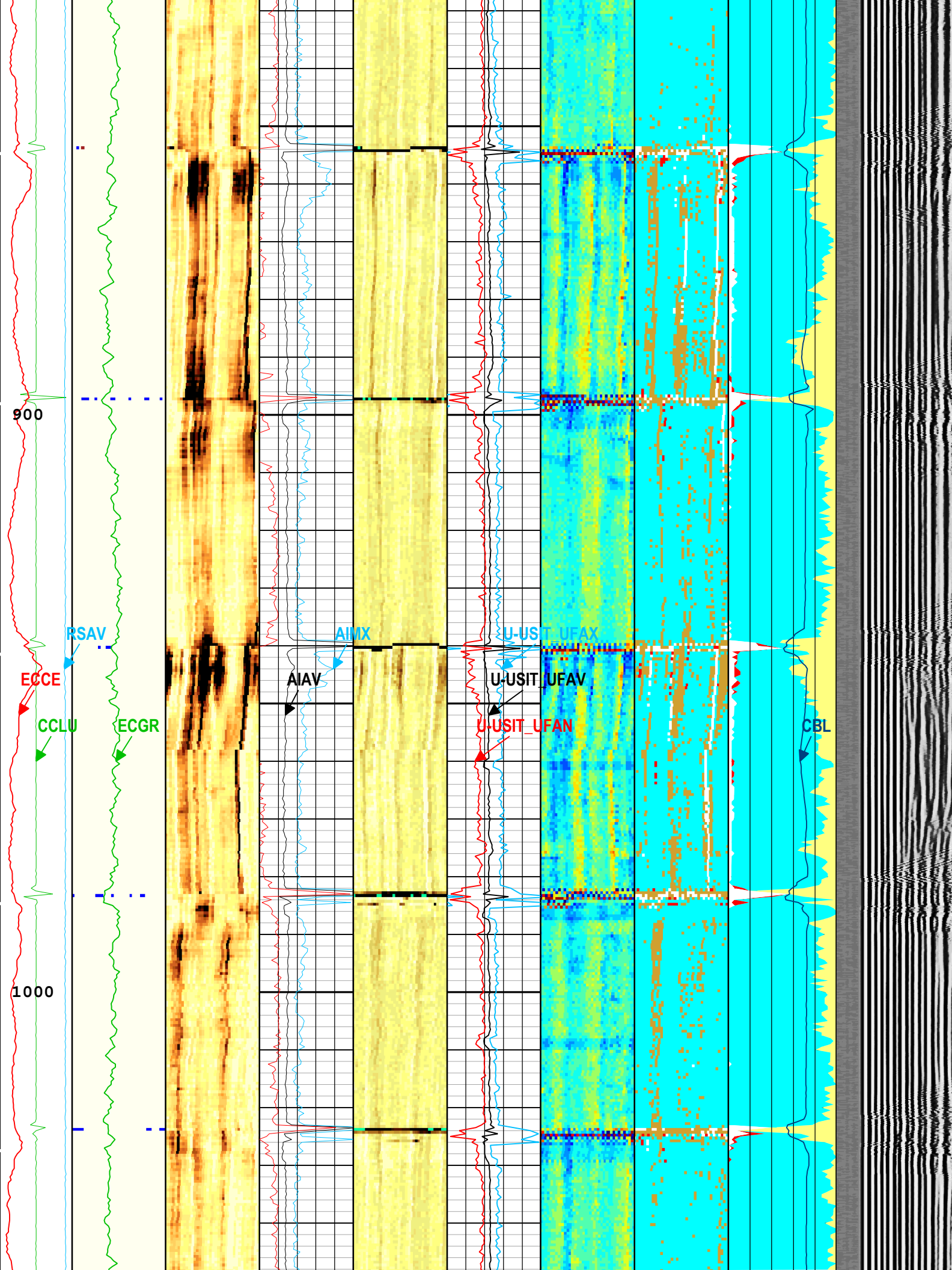
Loop Processing Error

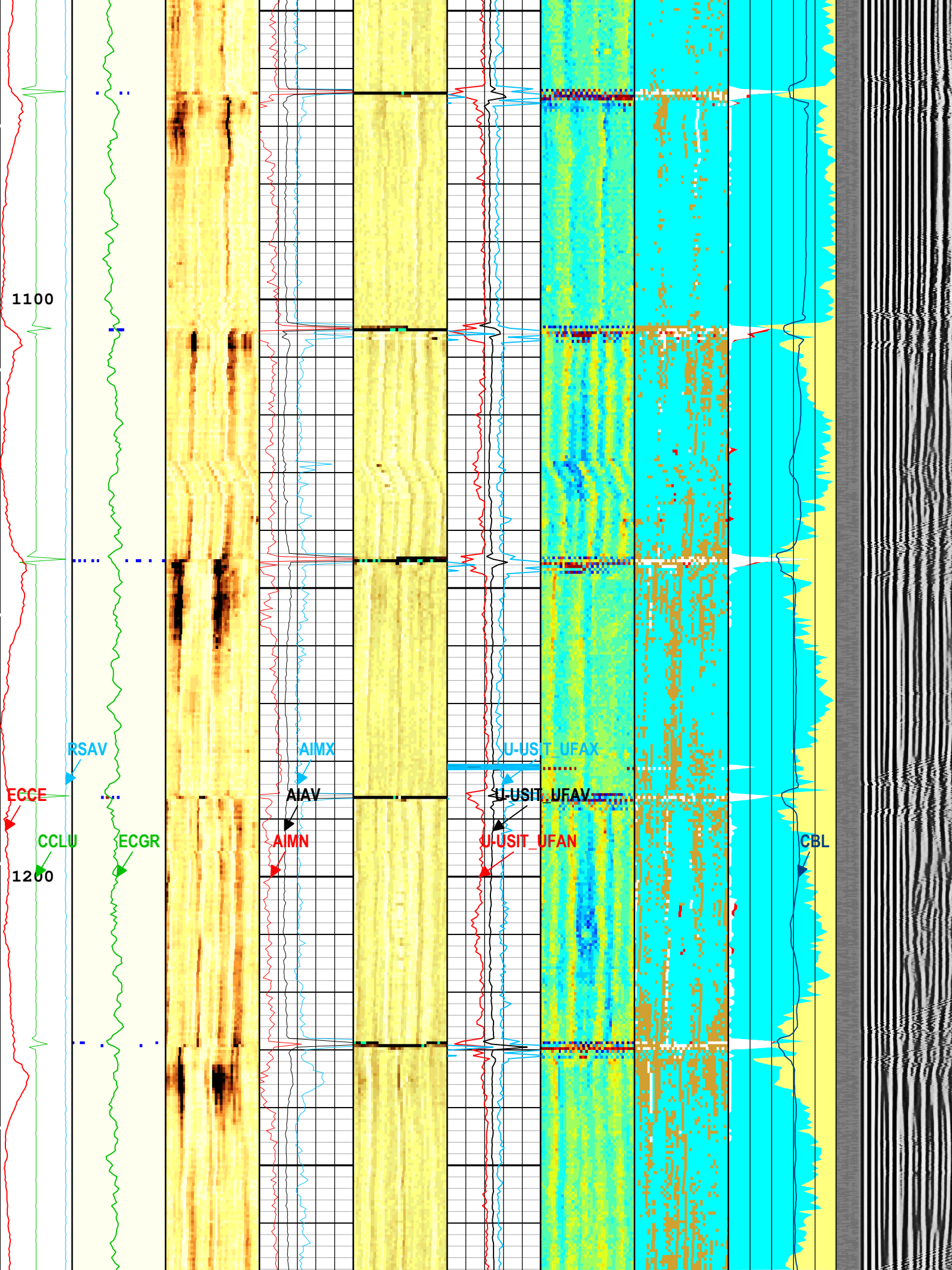


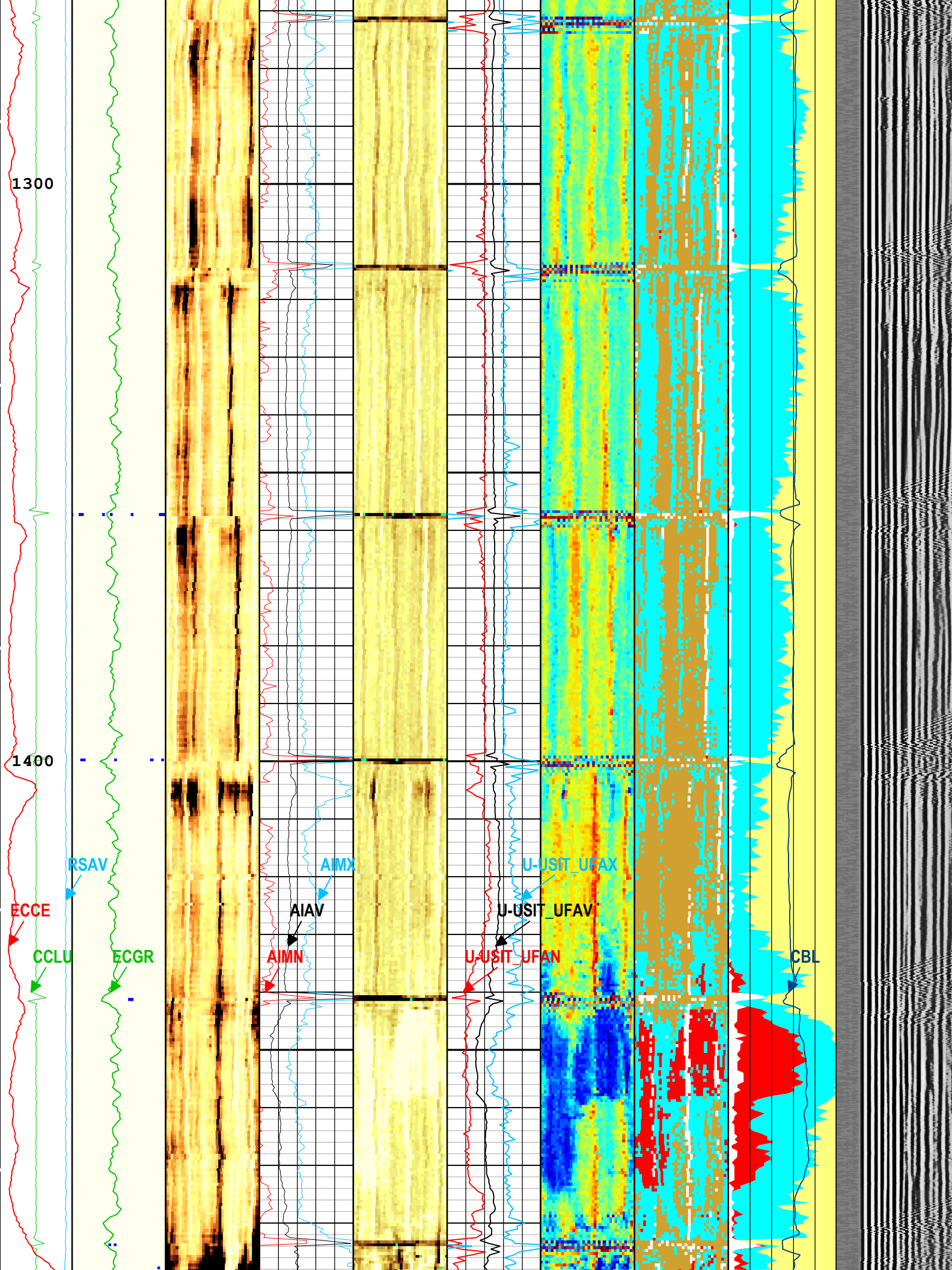


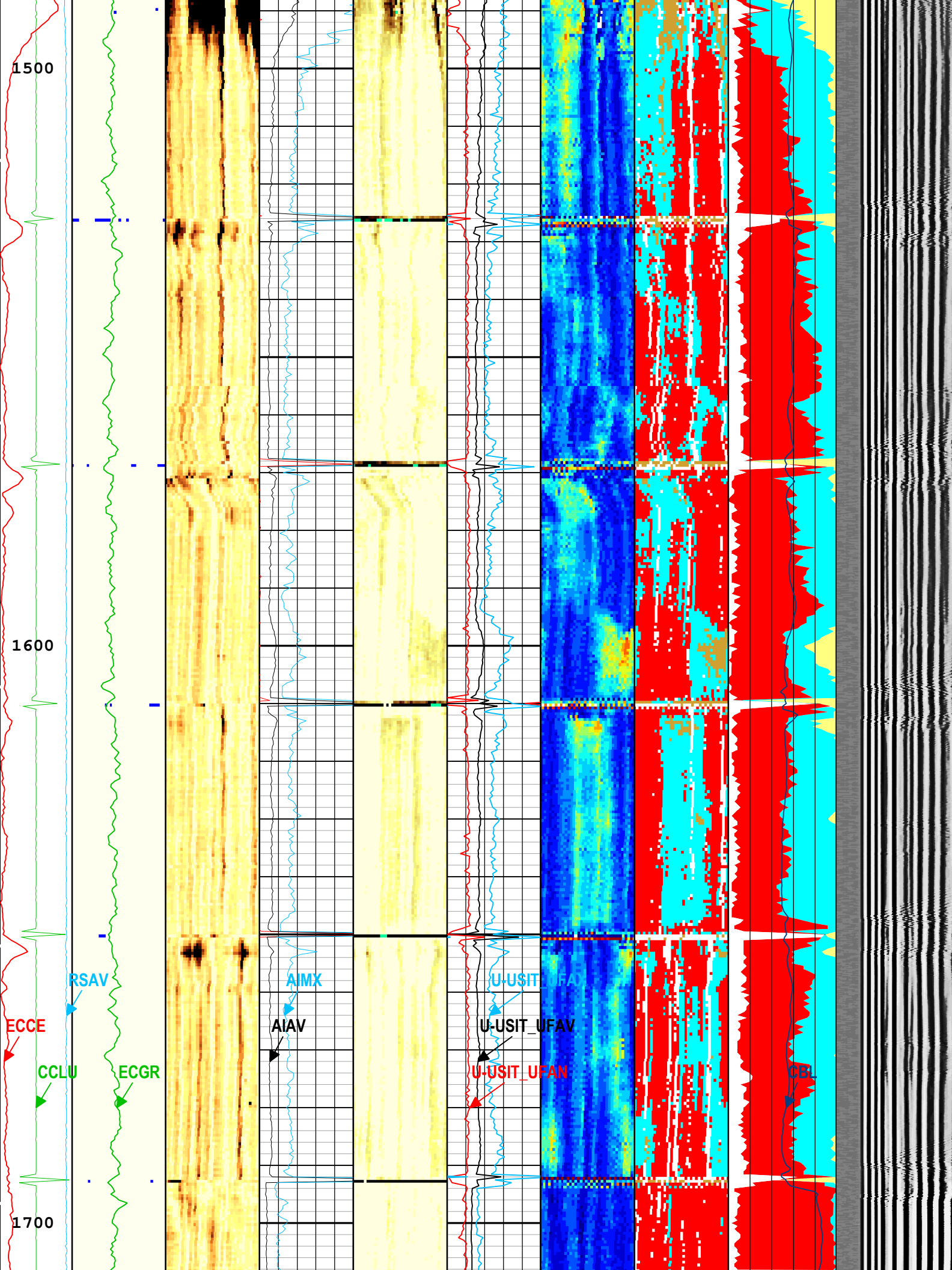


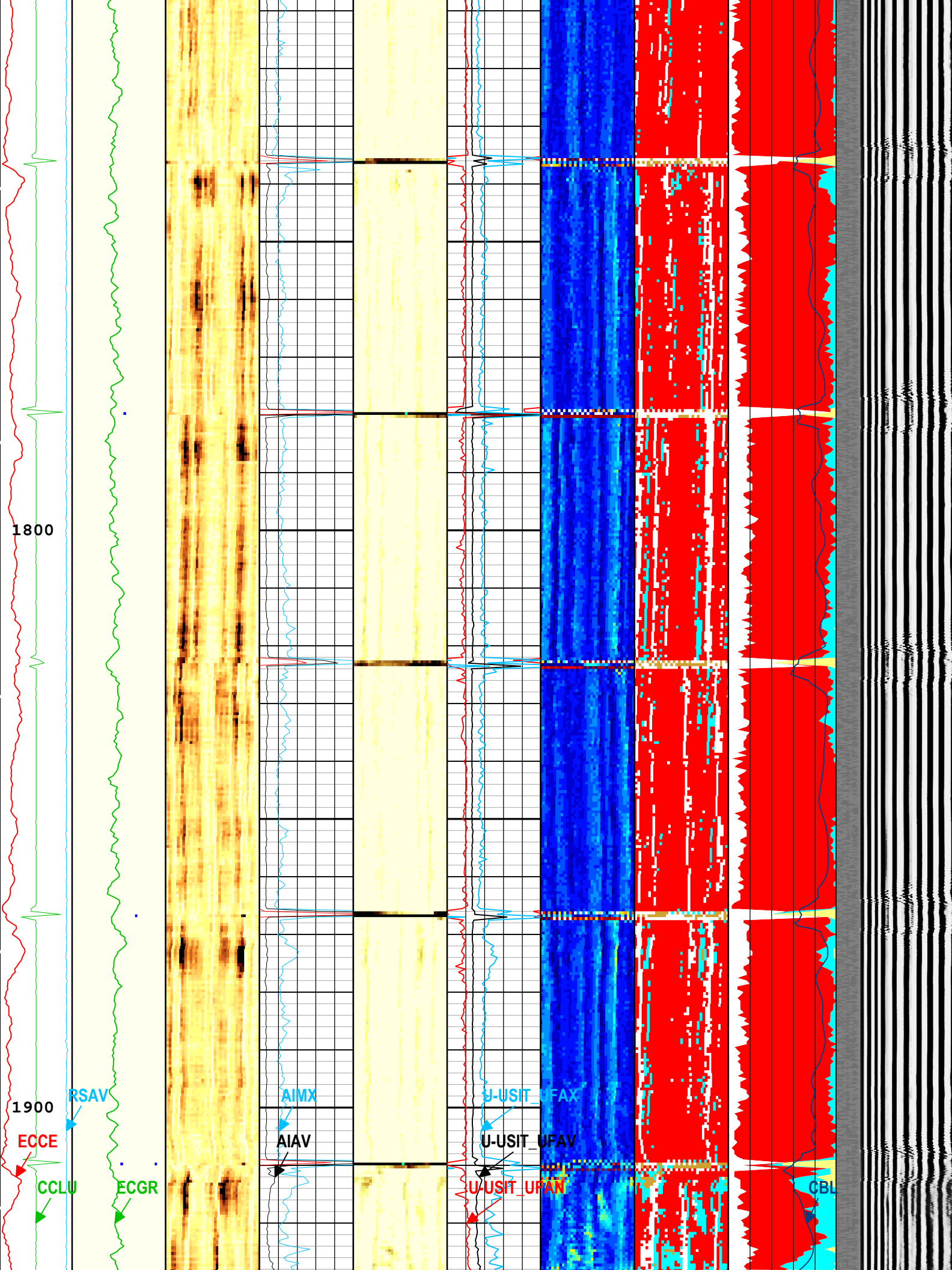


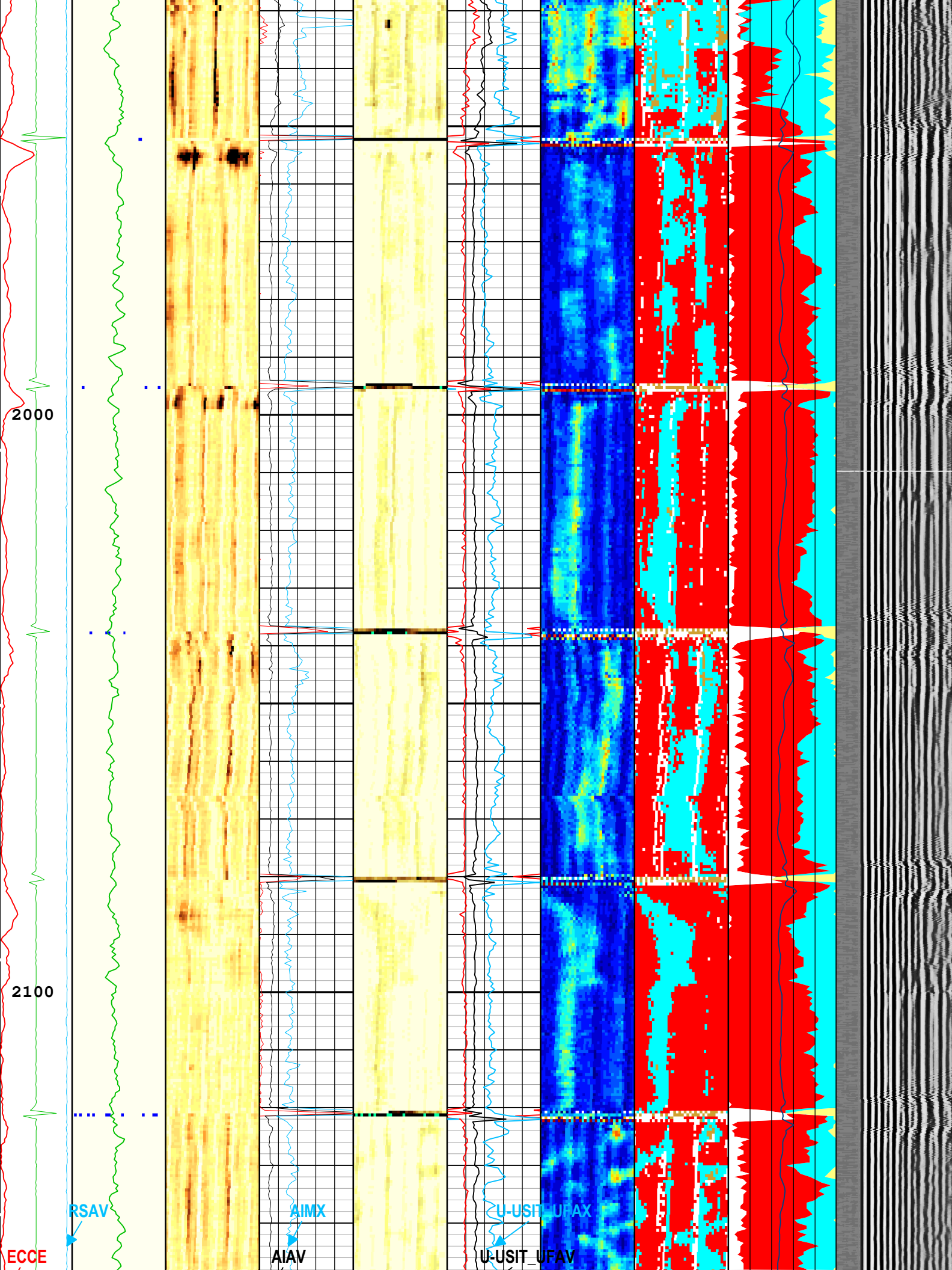


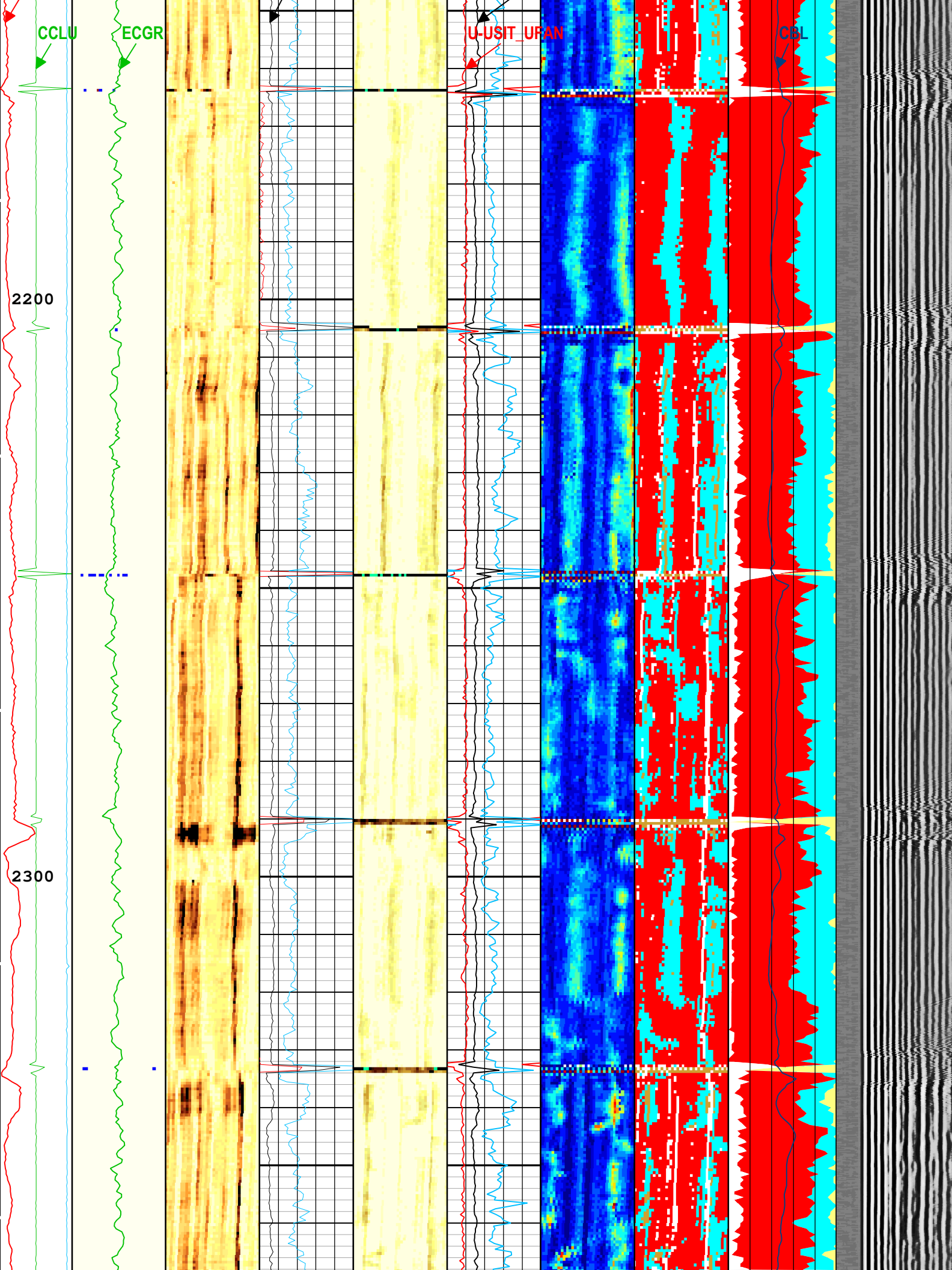


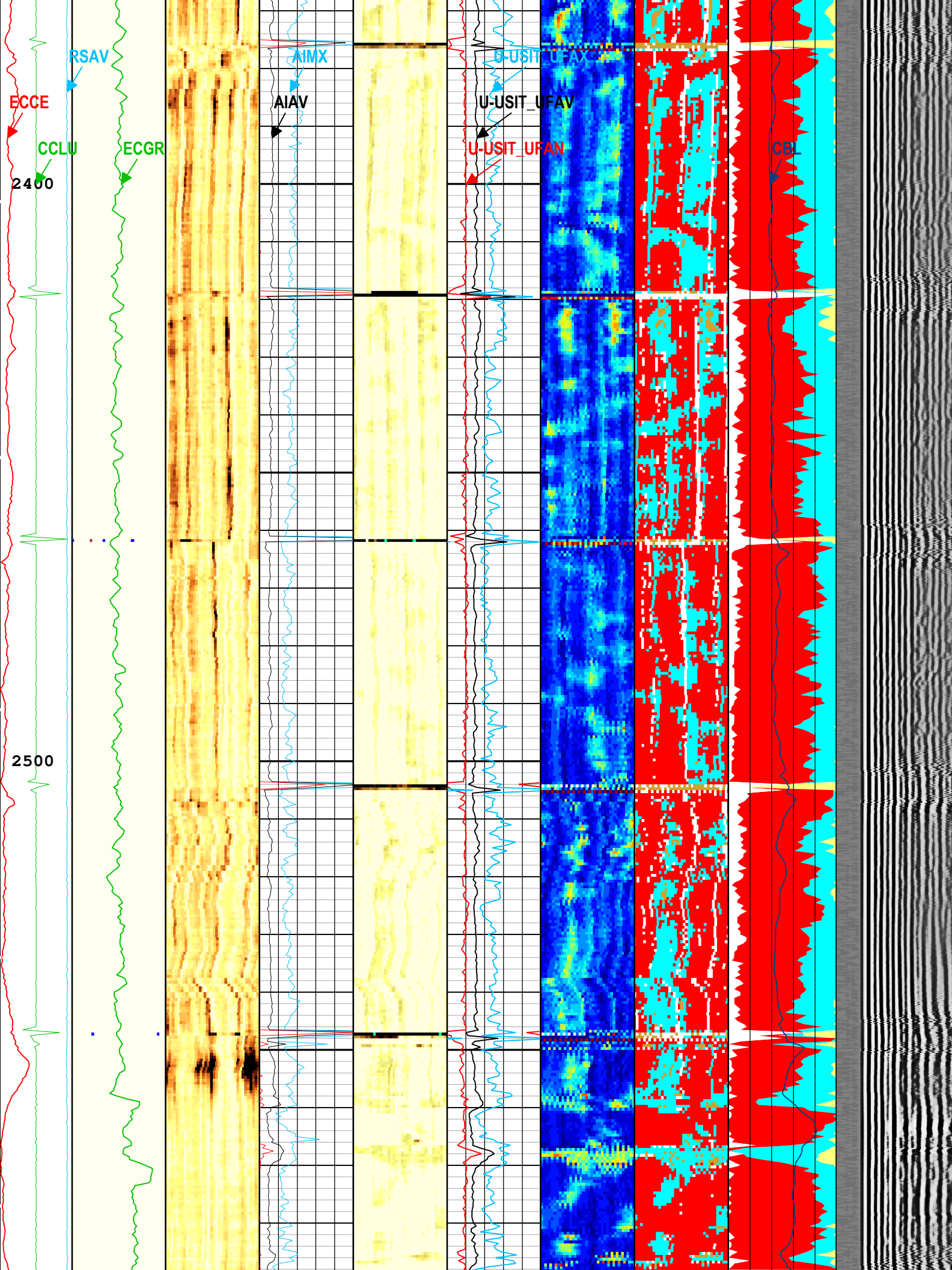


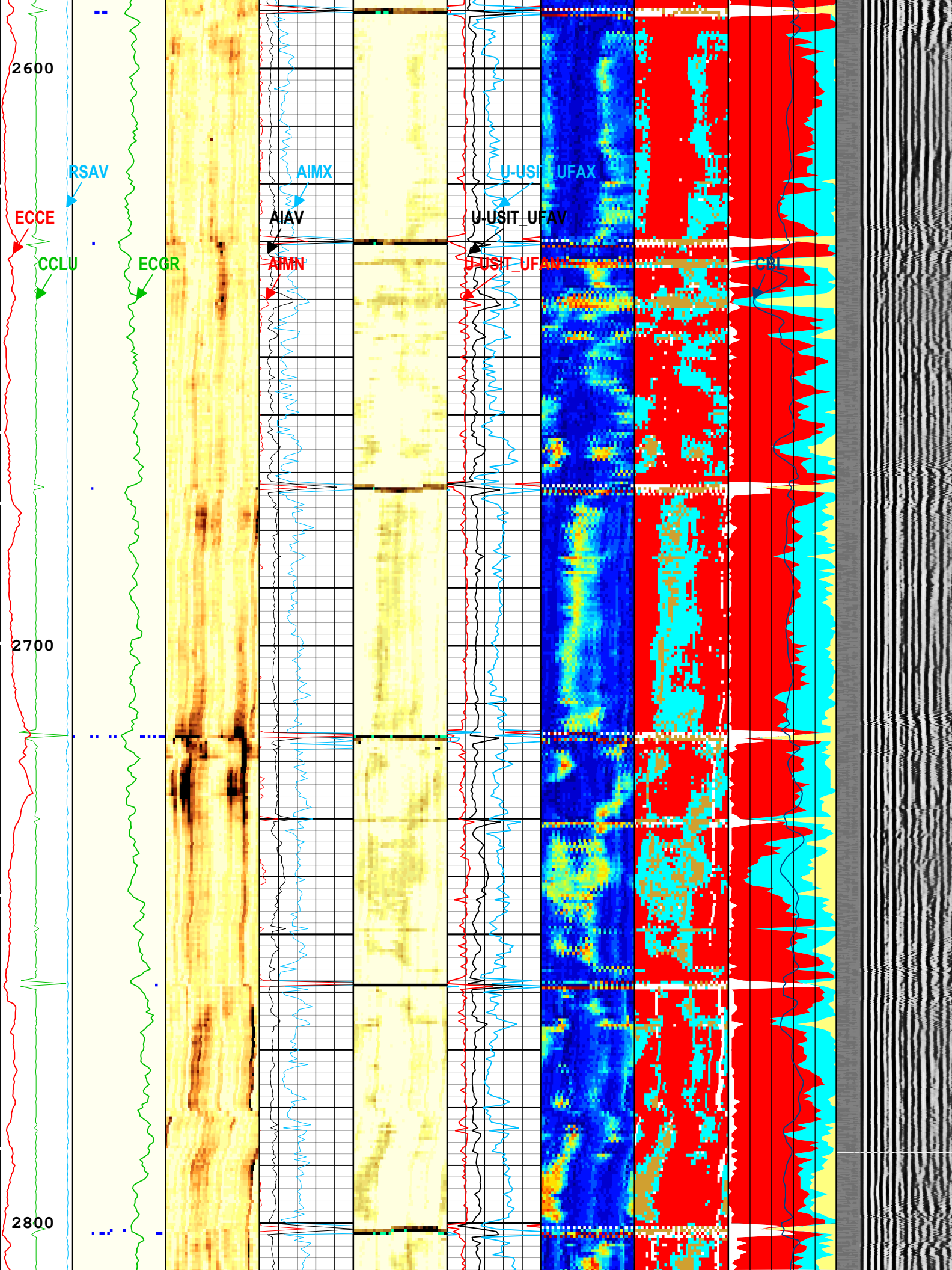


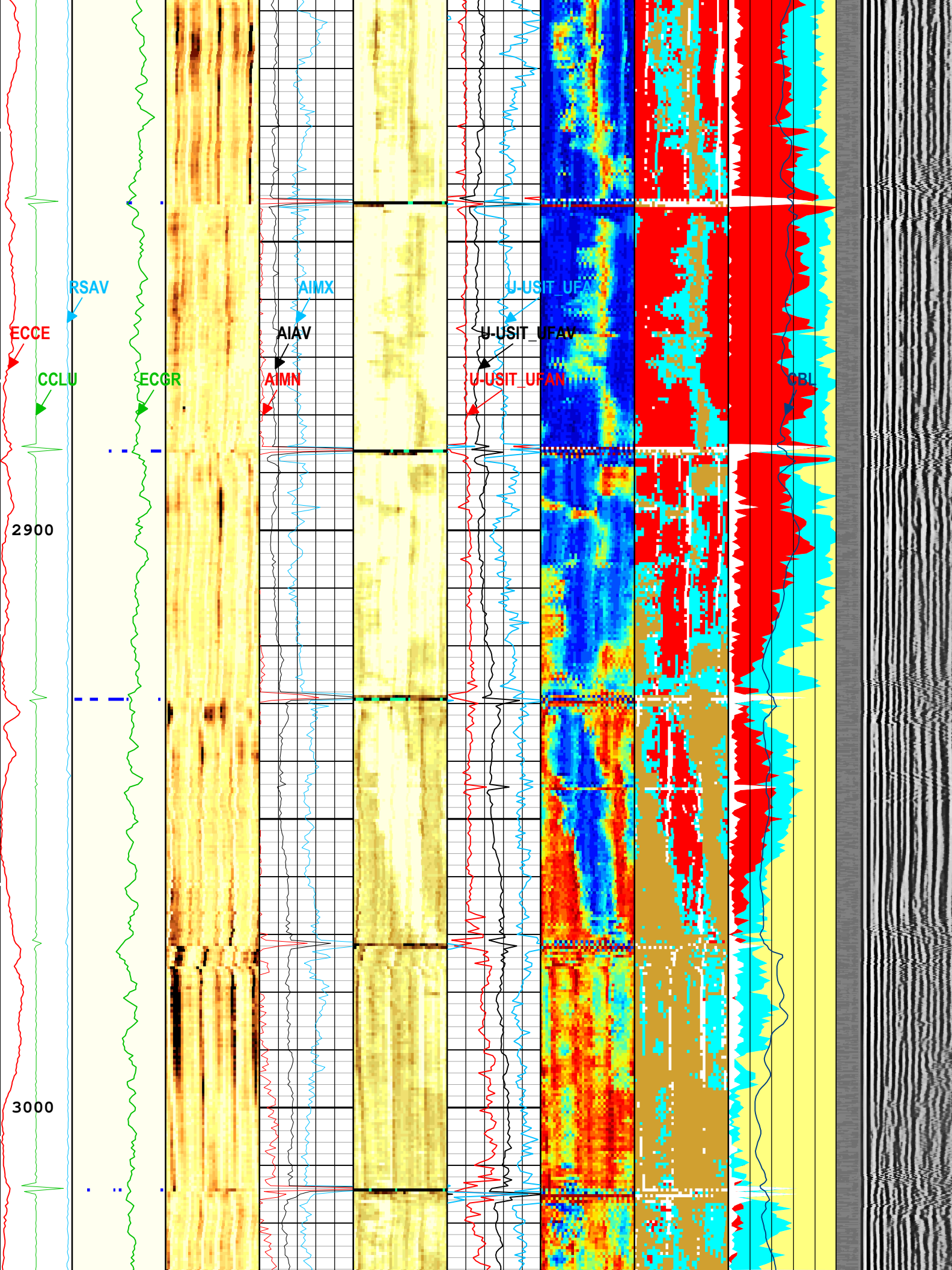


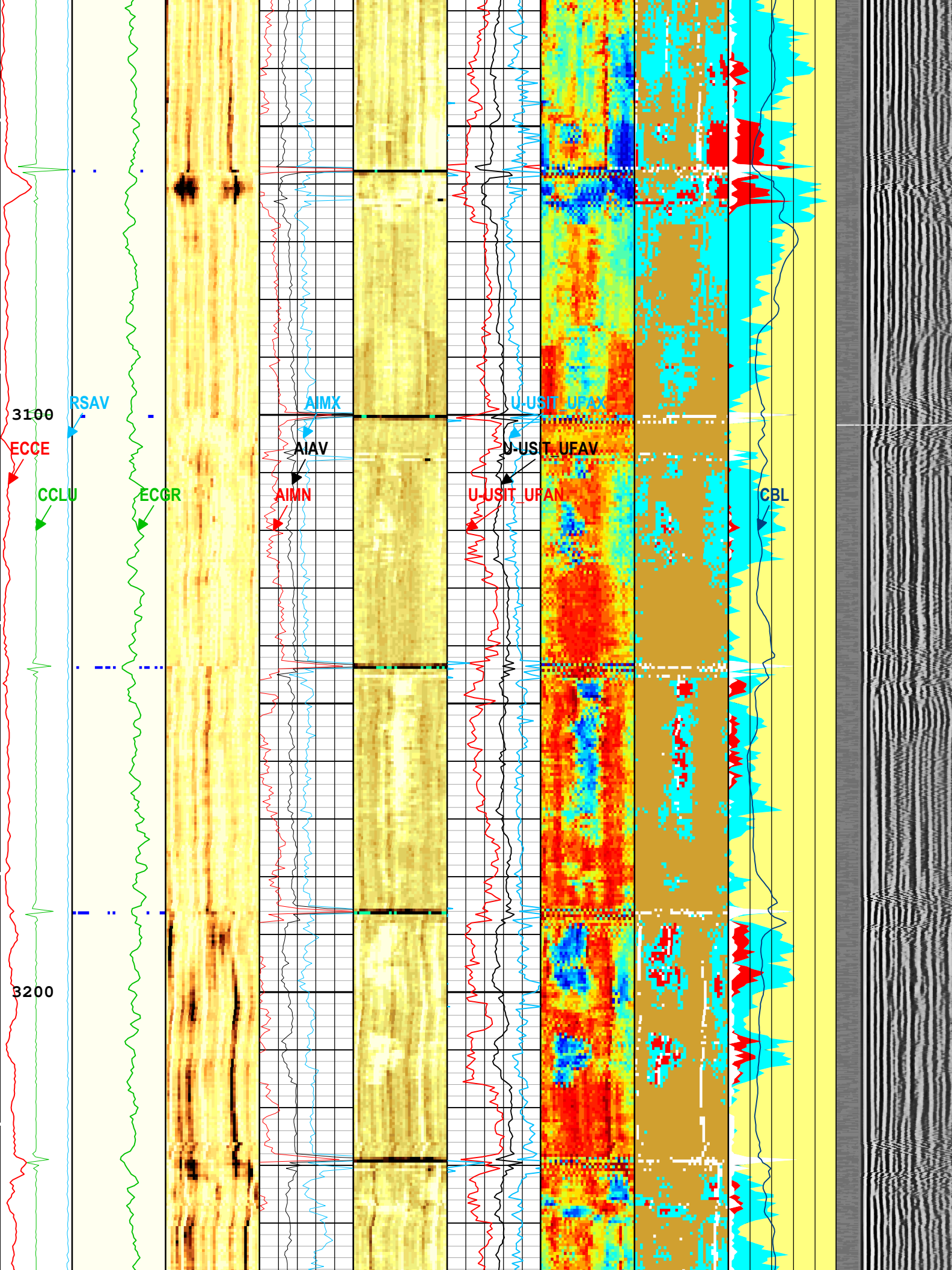


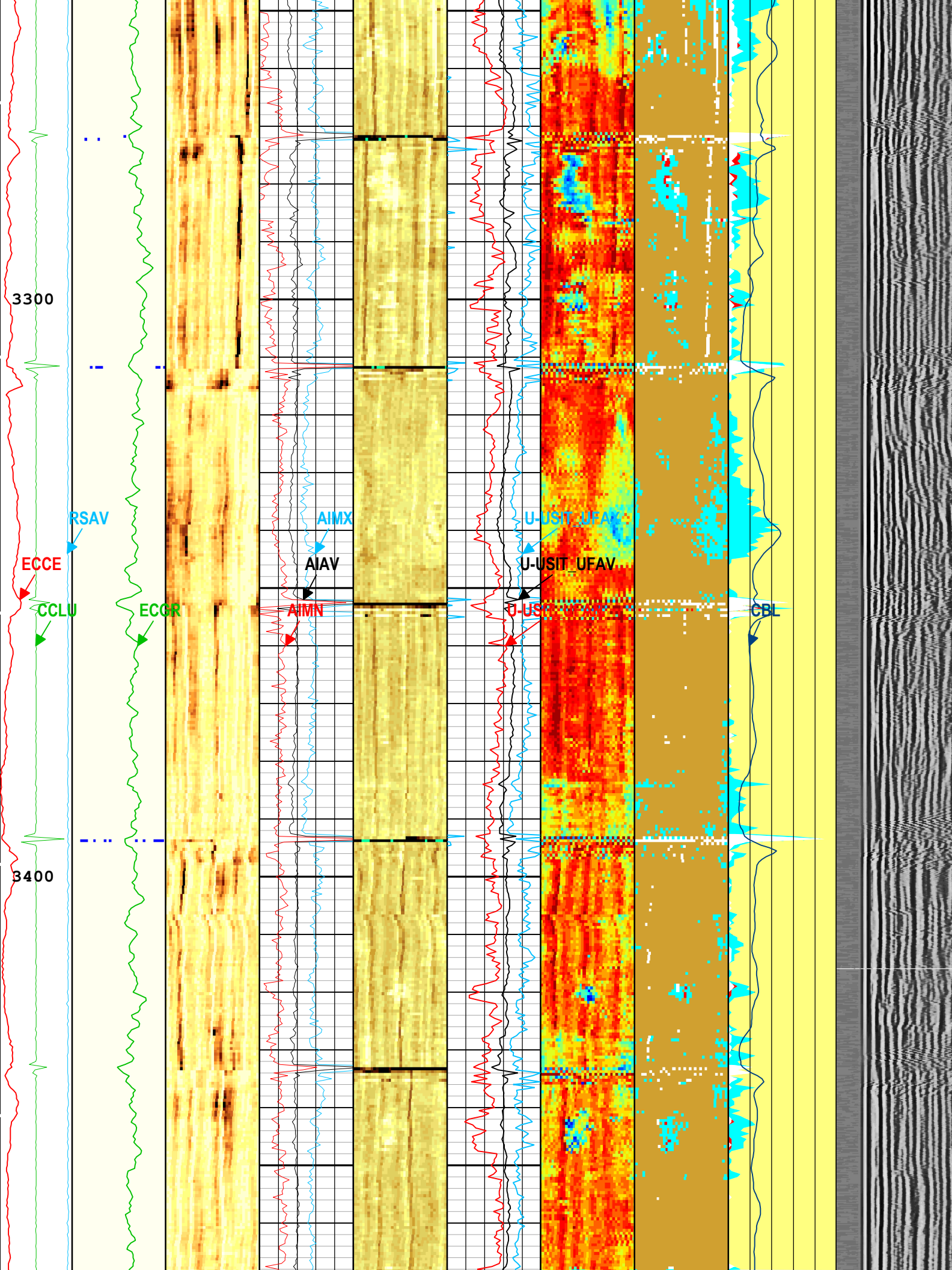


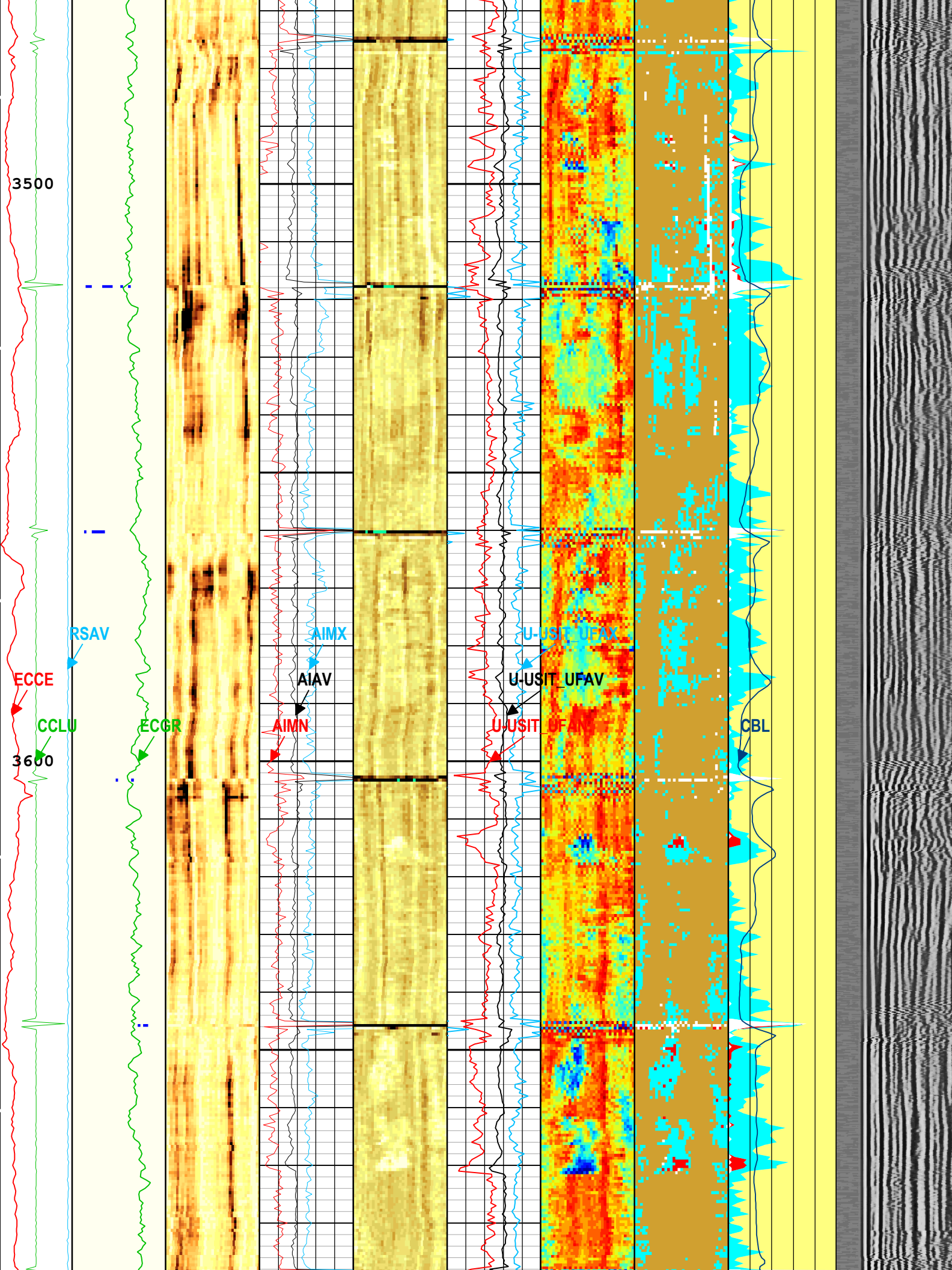


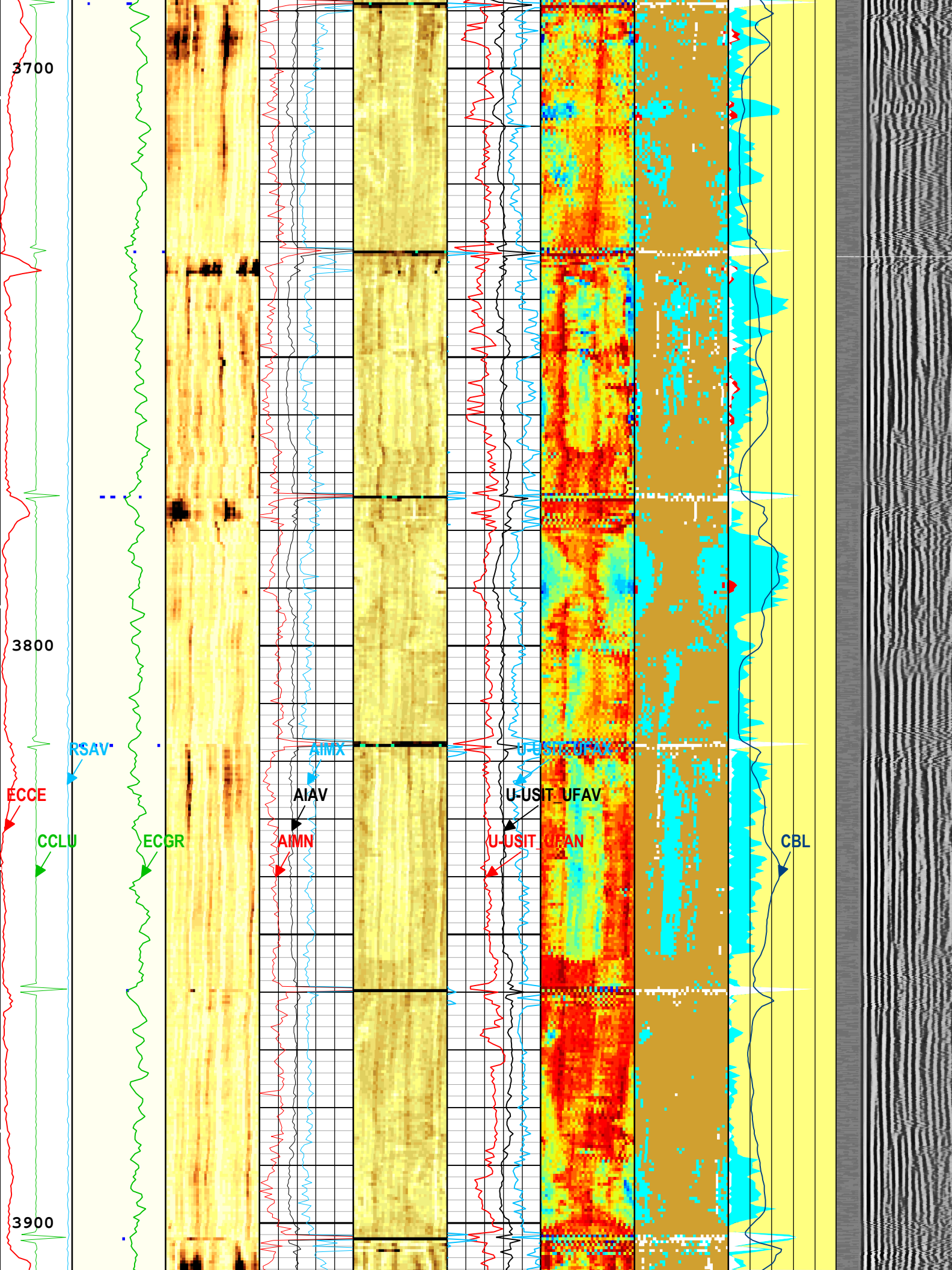


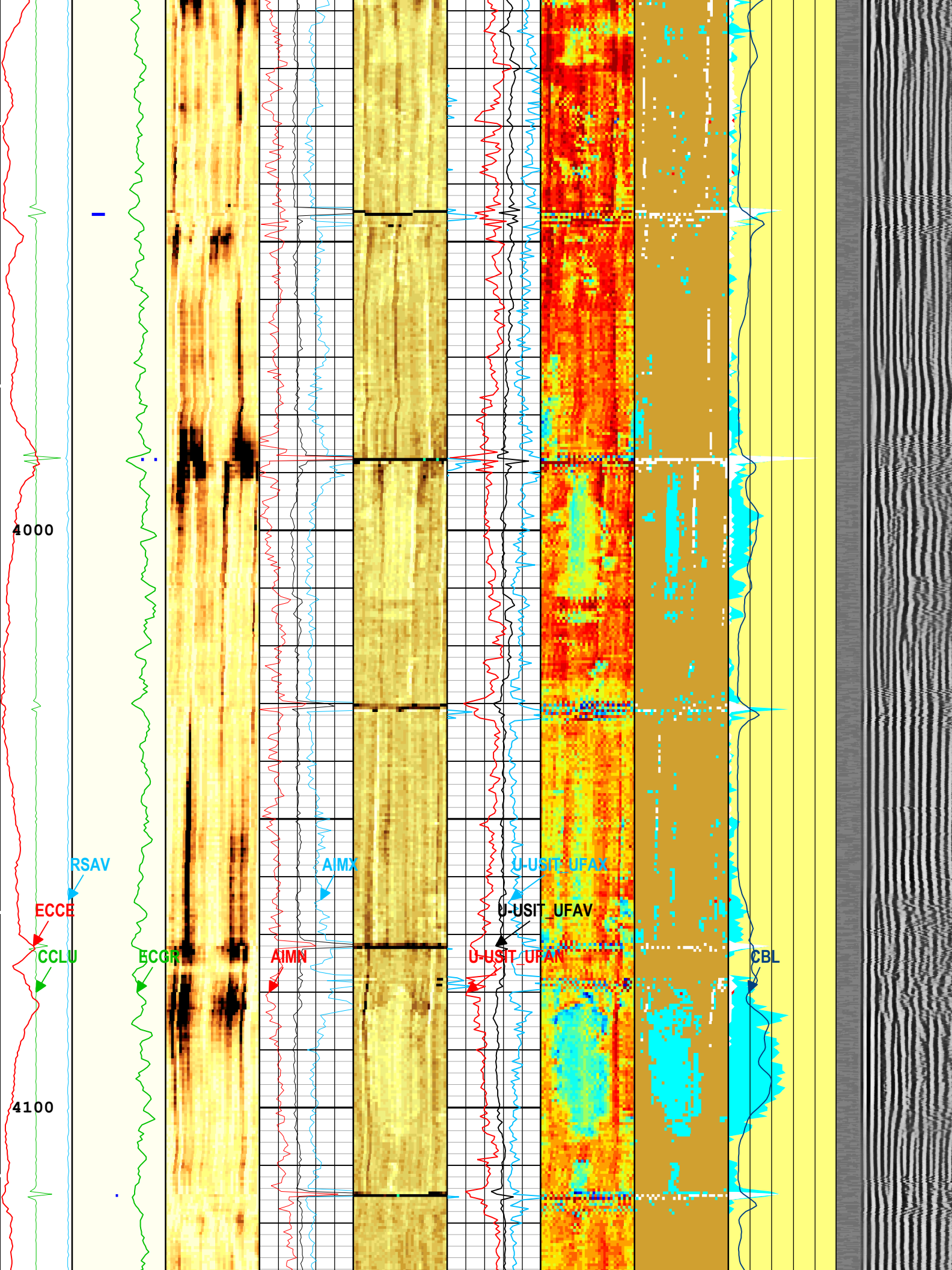


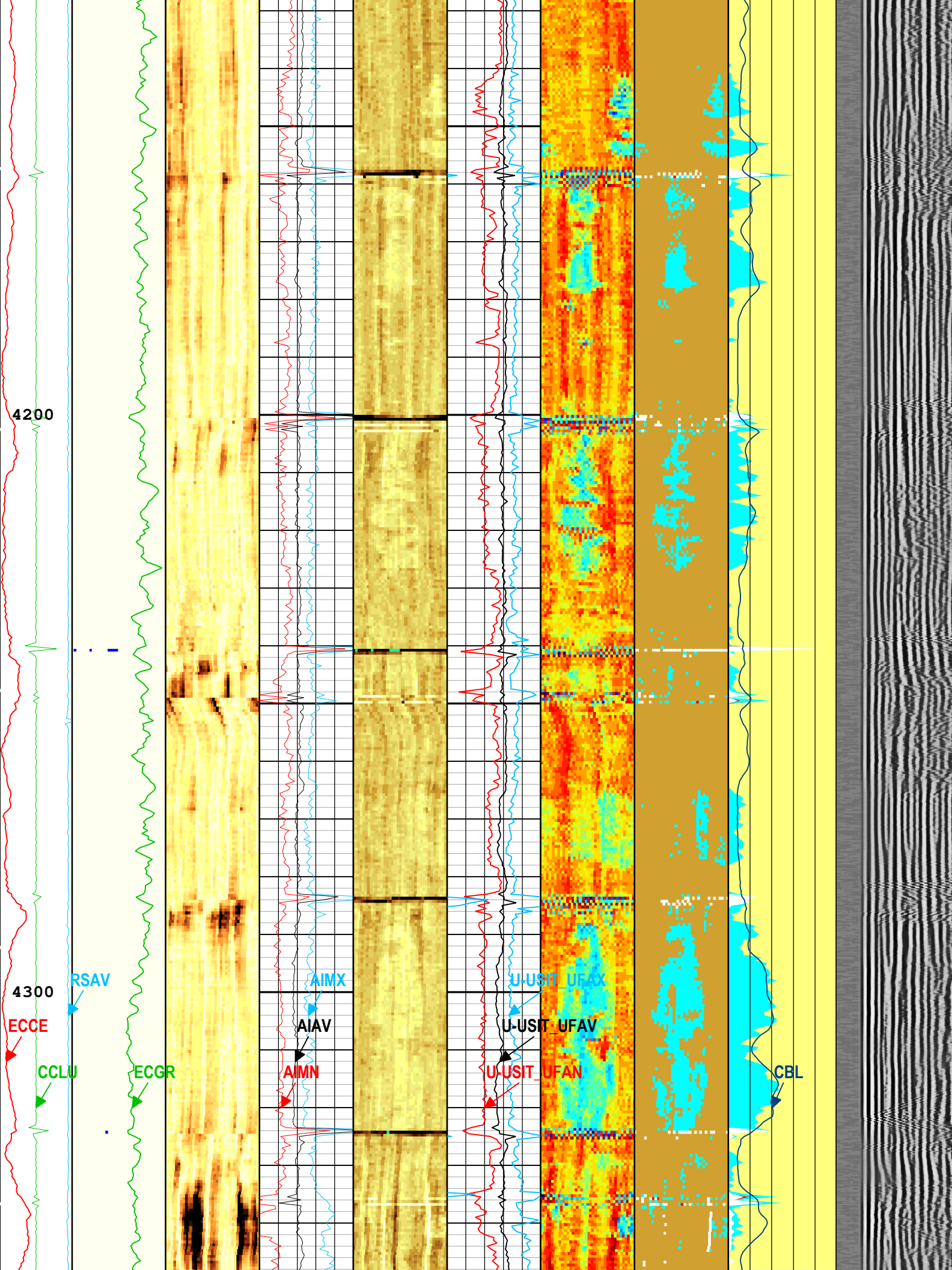


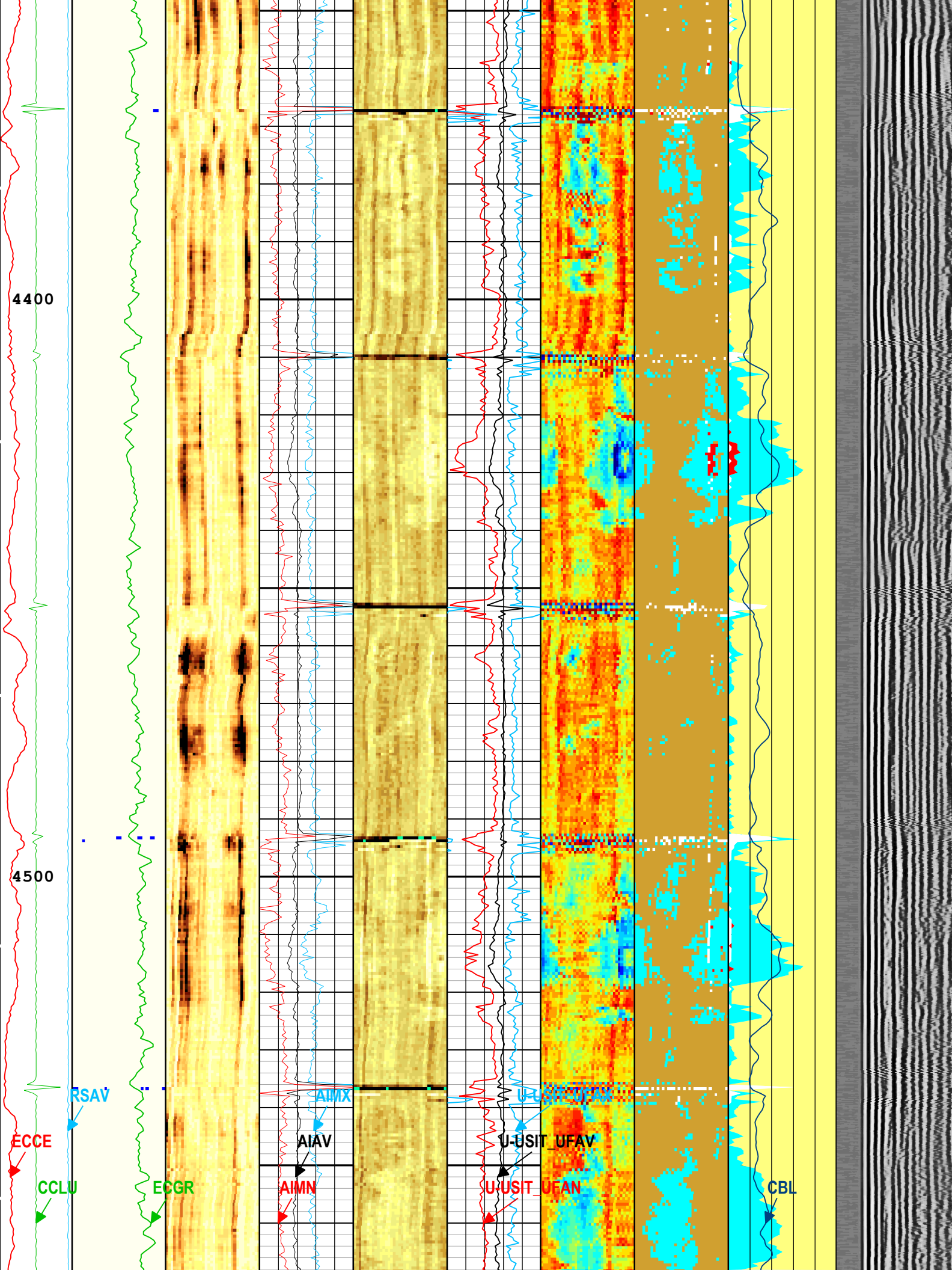


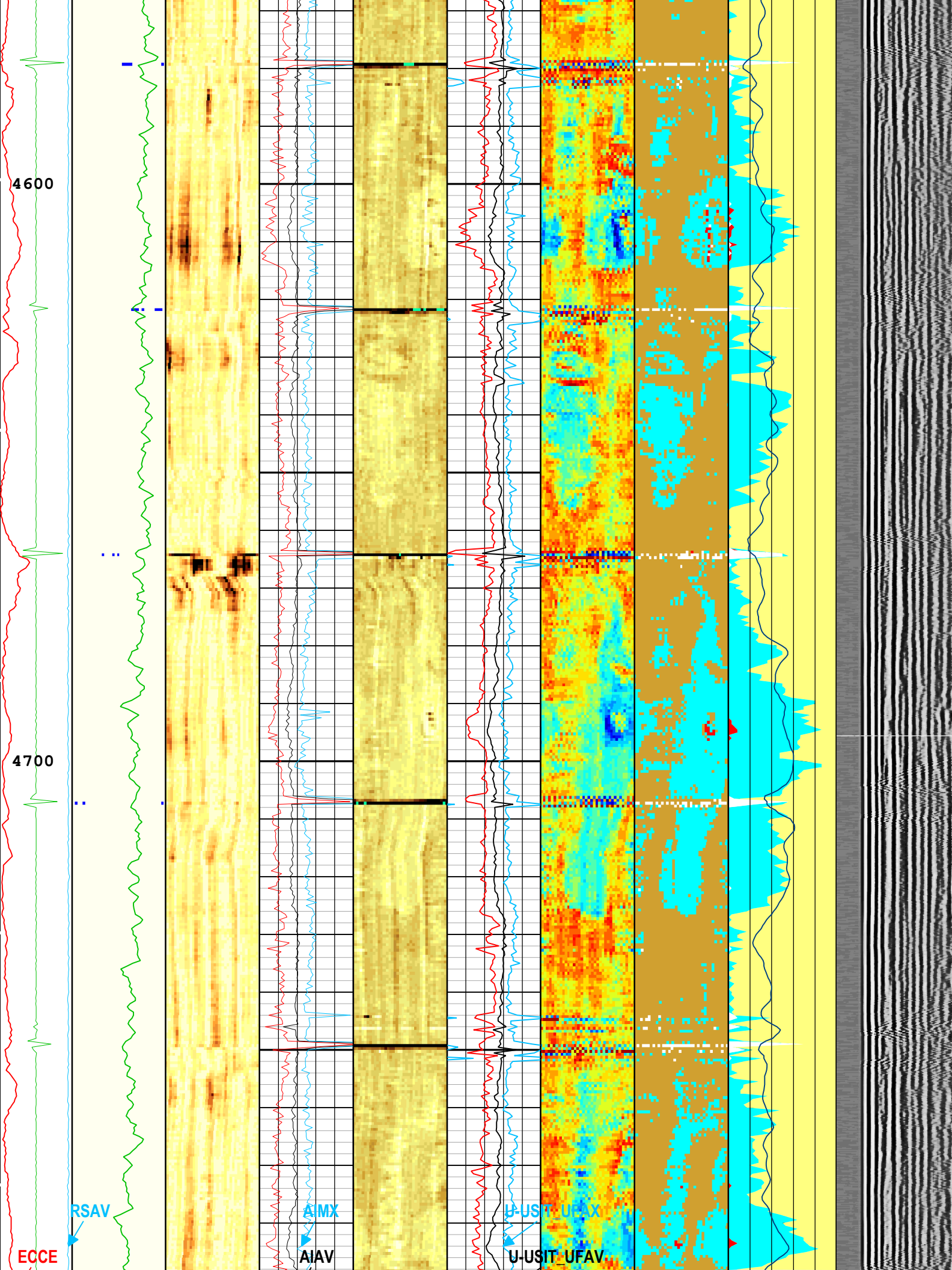


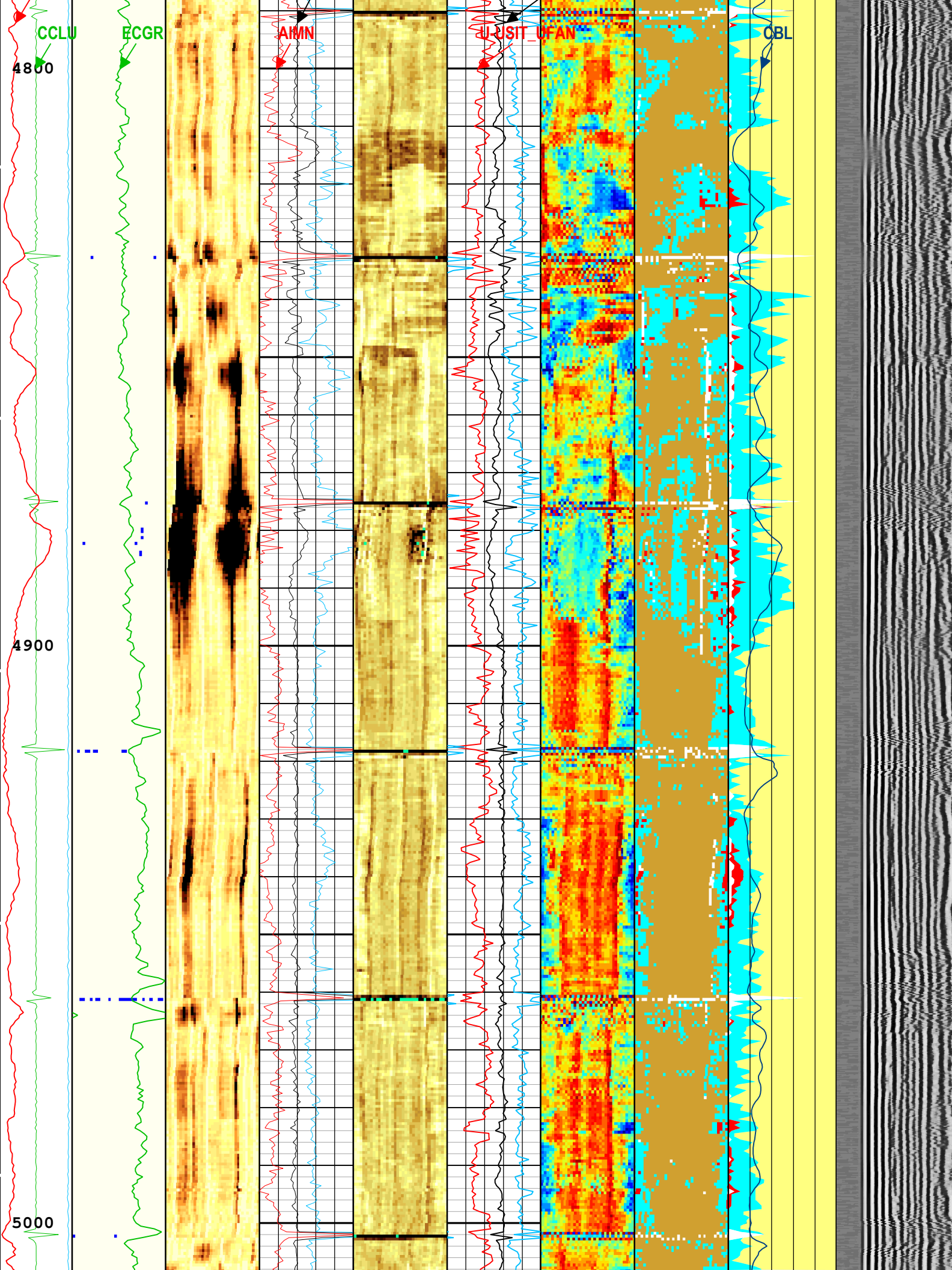


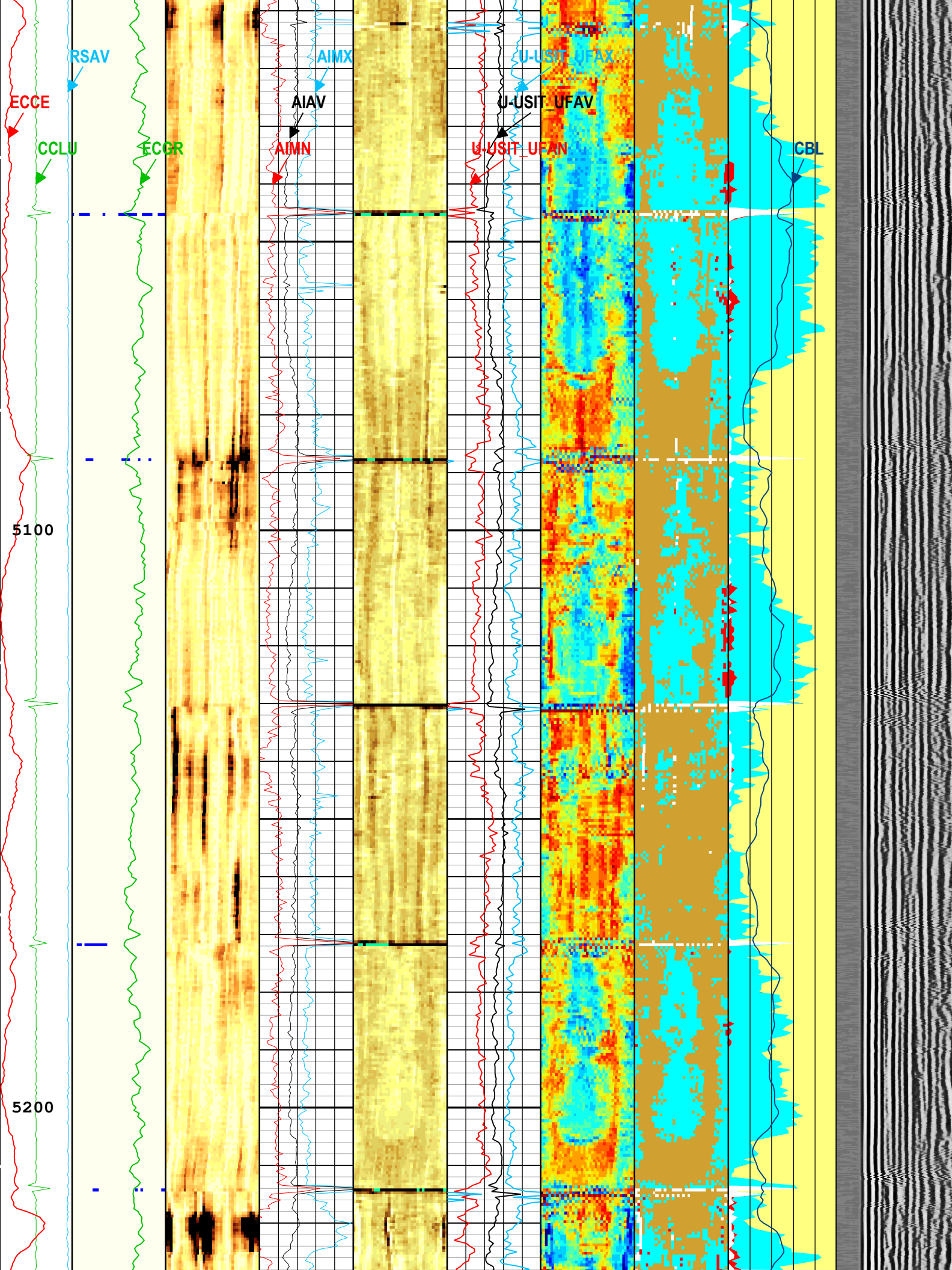


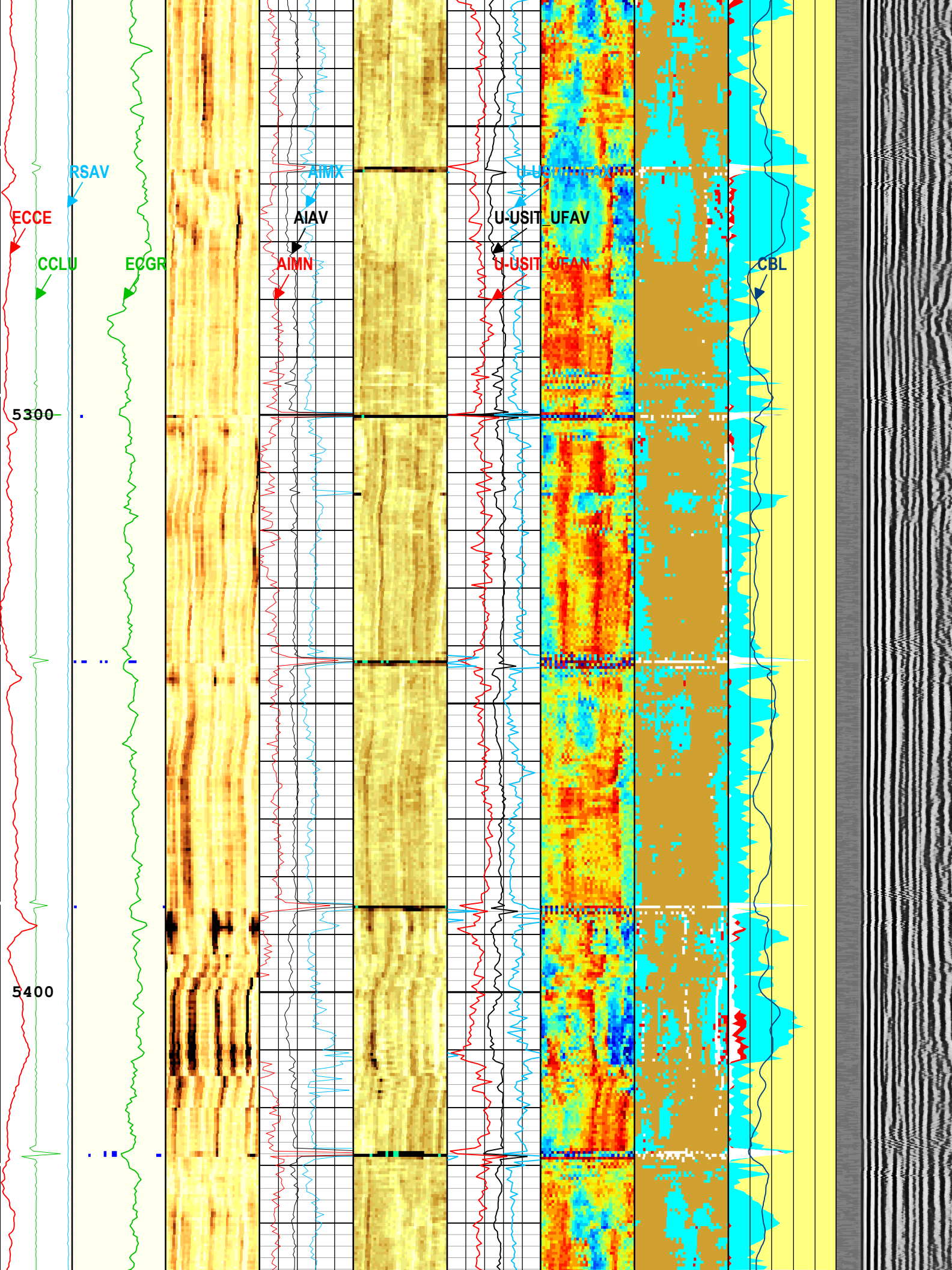


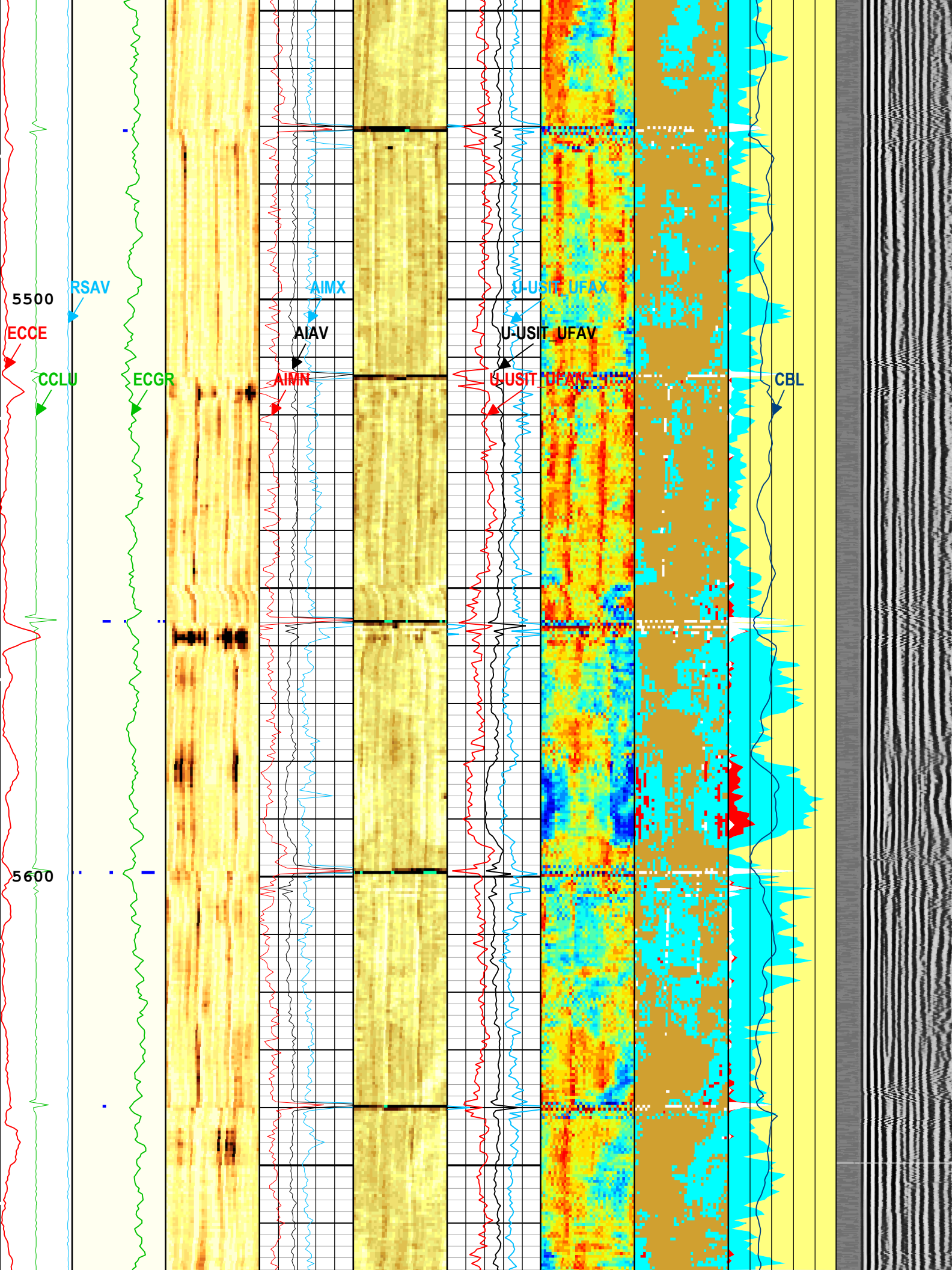


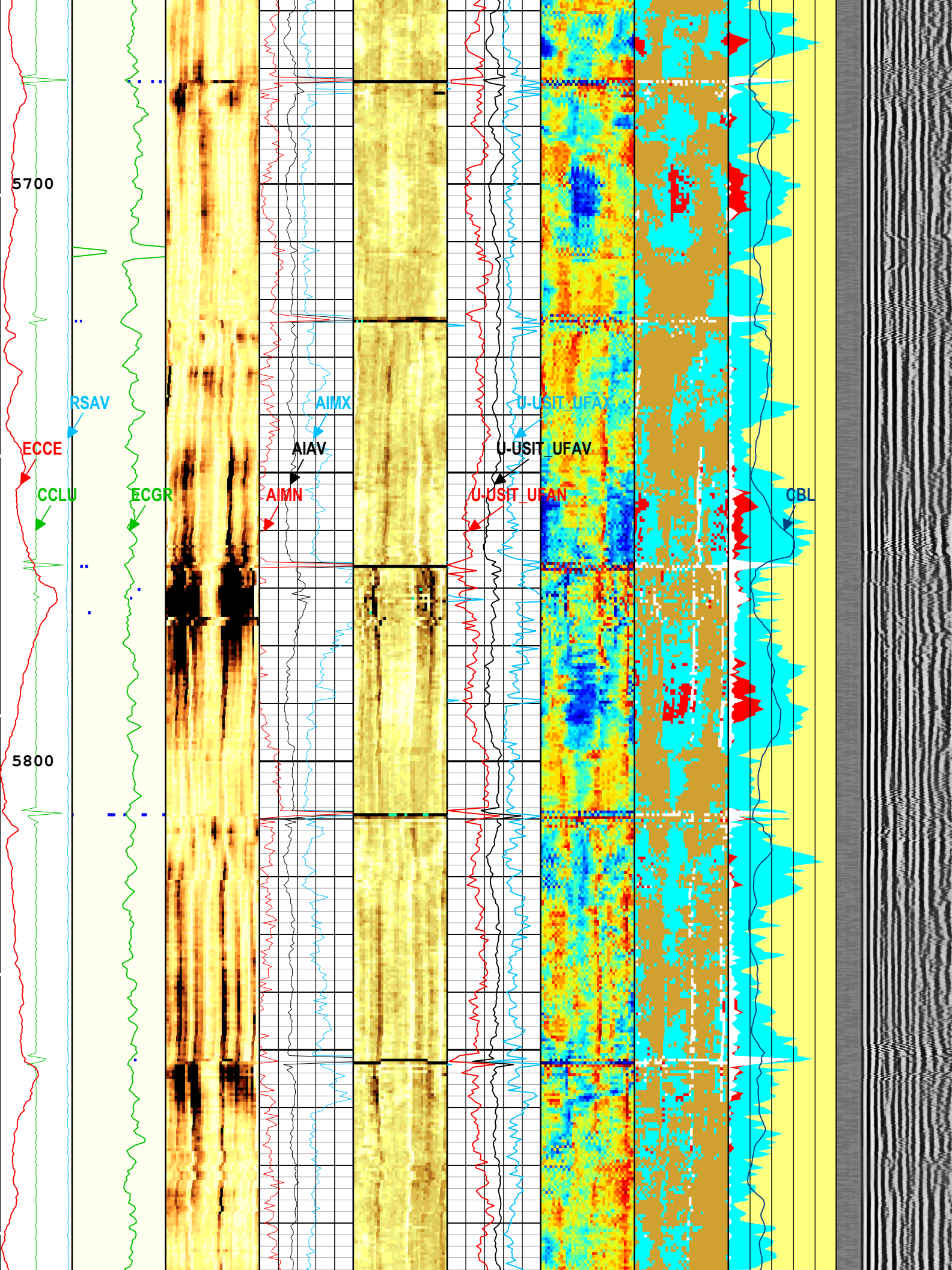


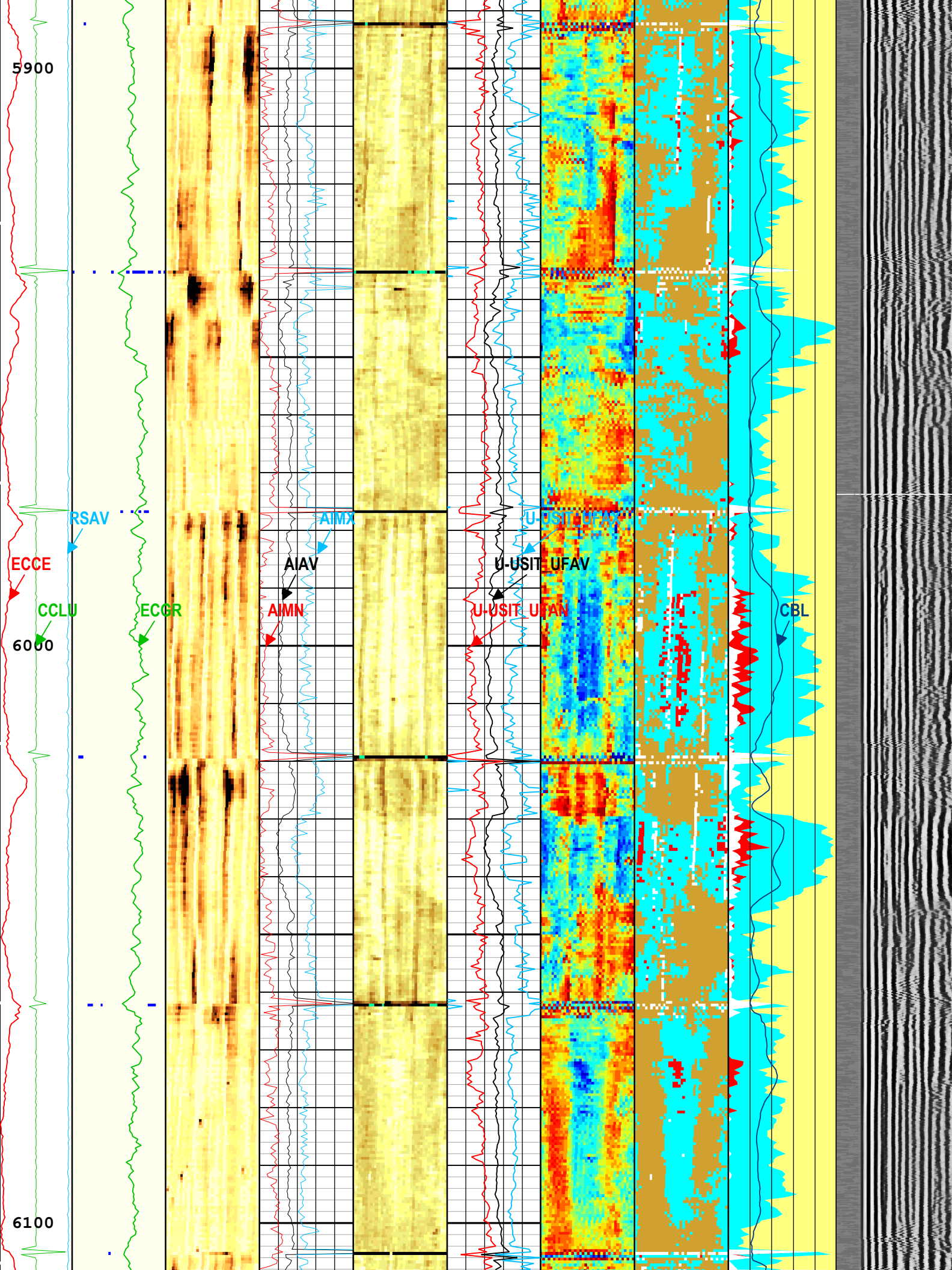


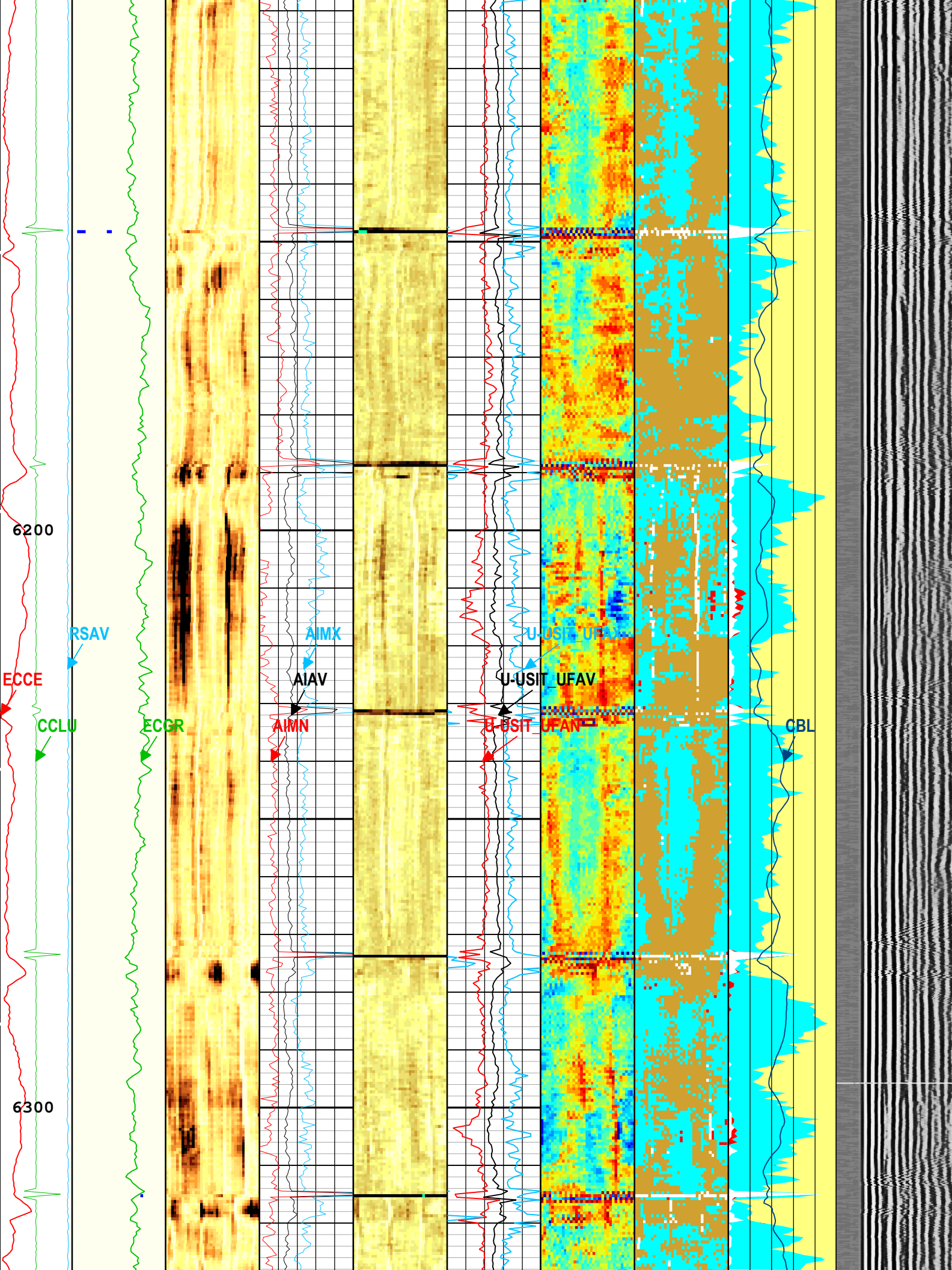


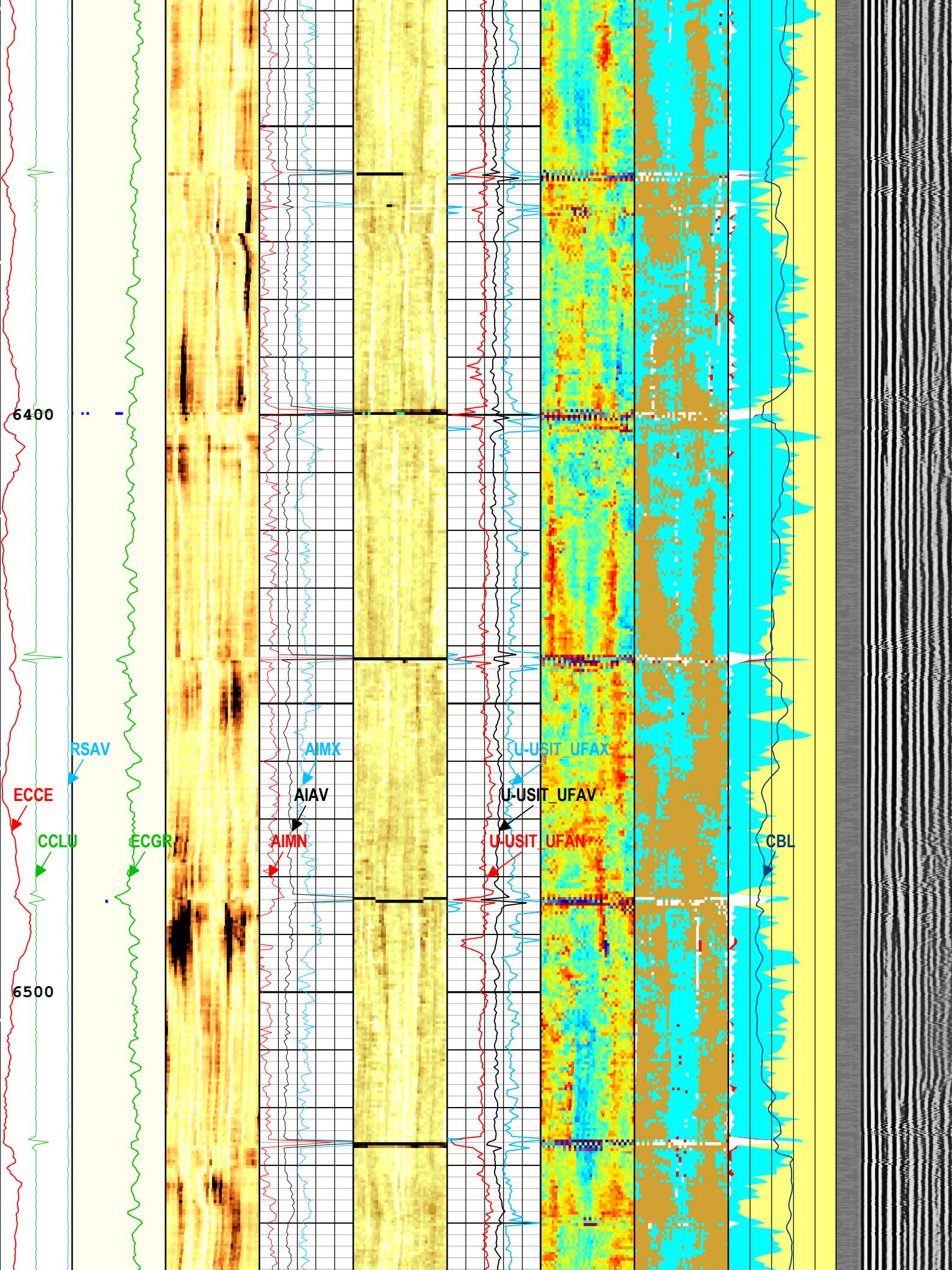


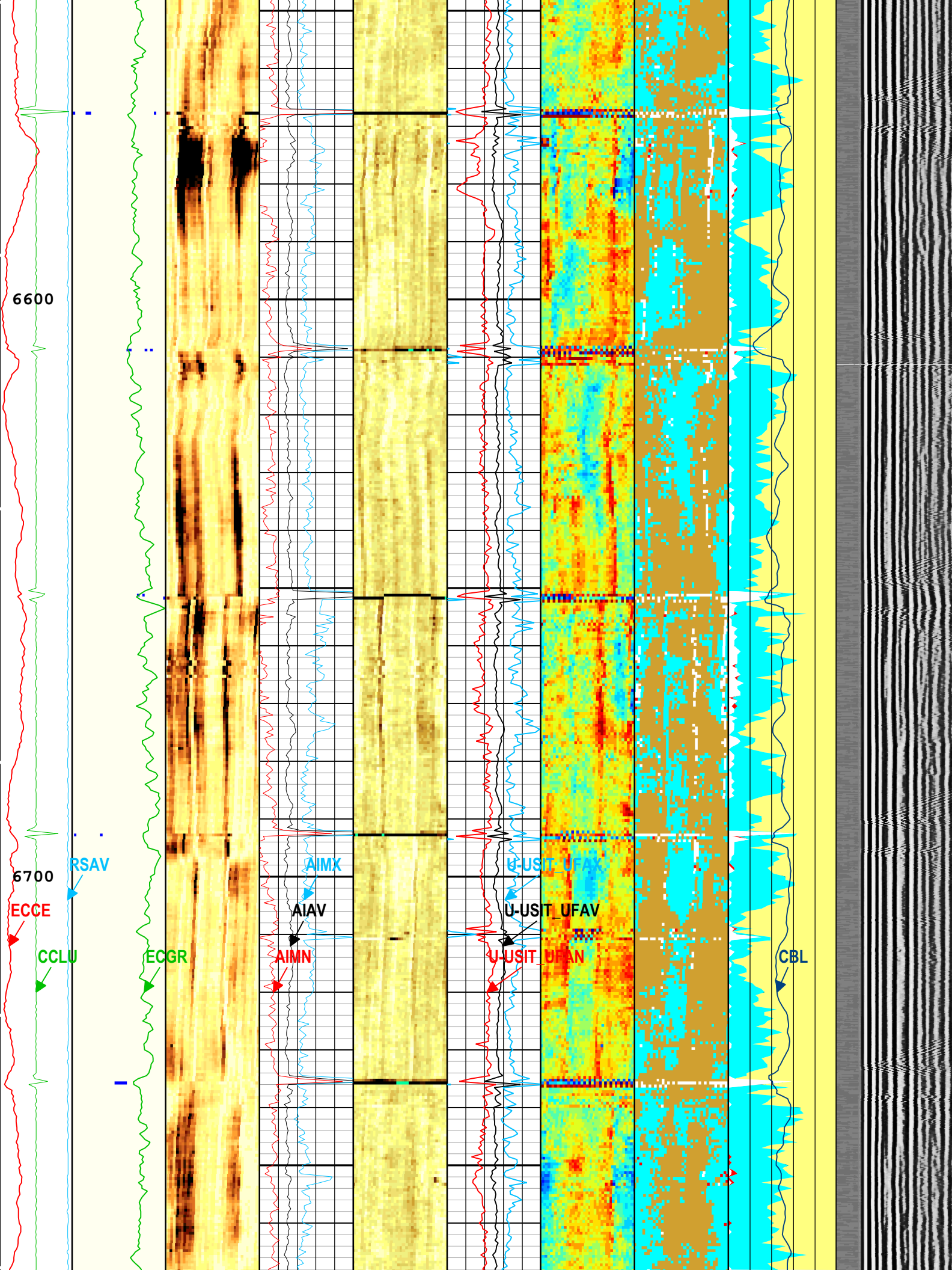


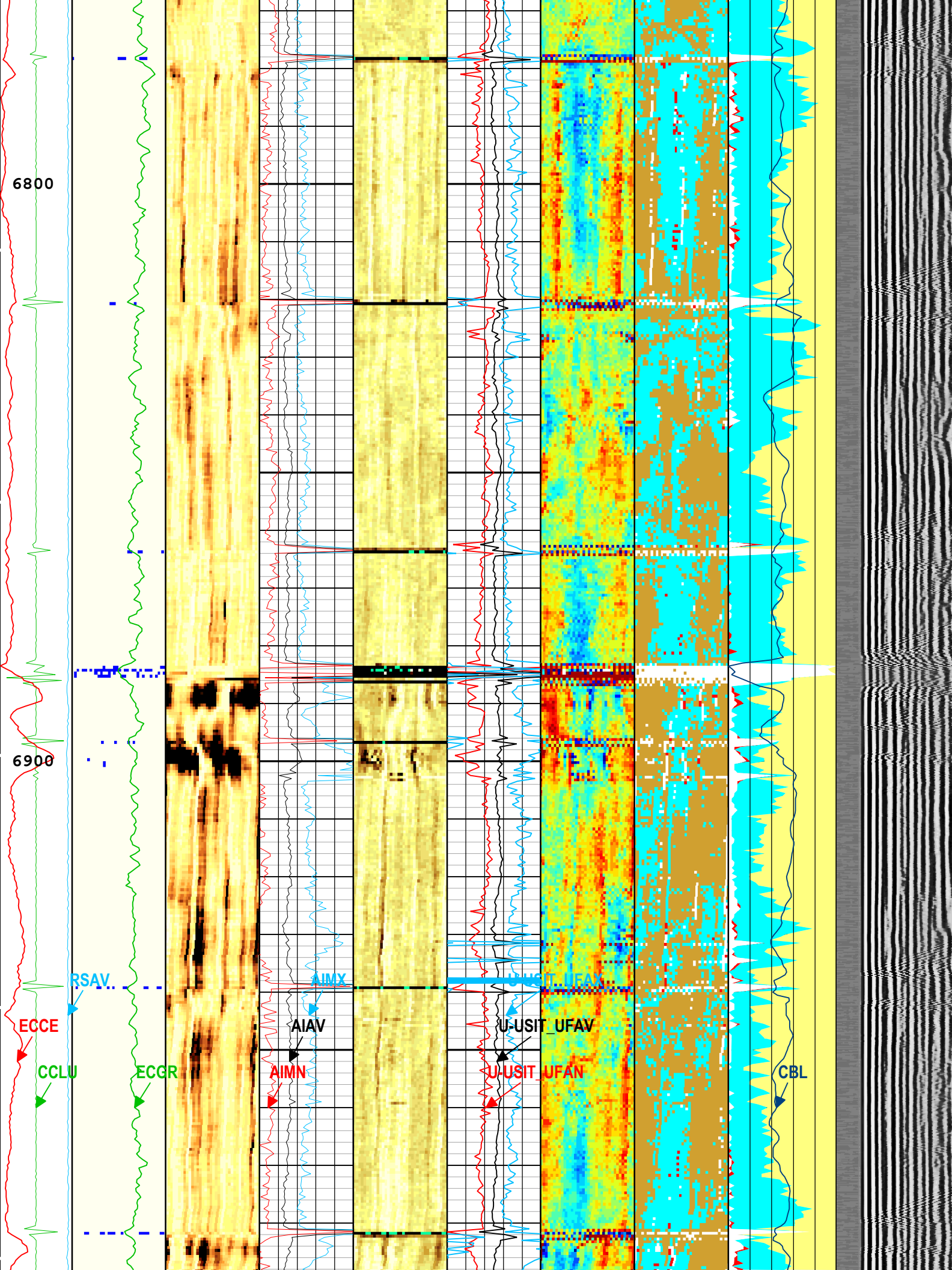


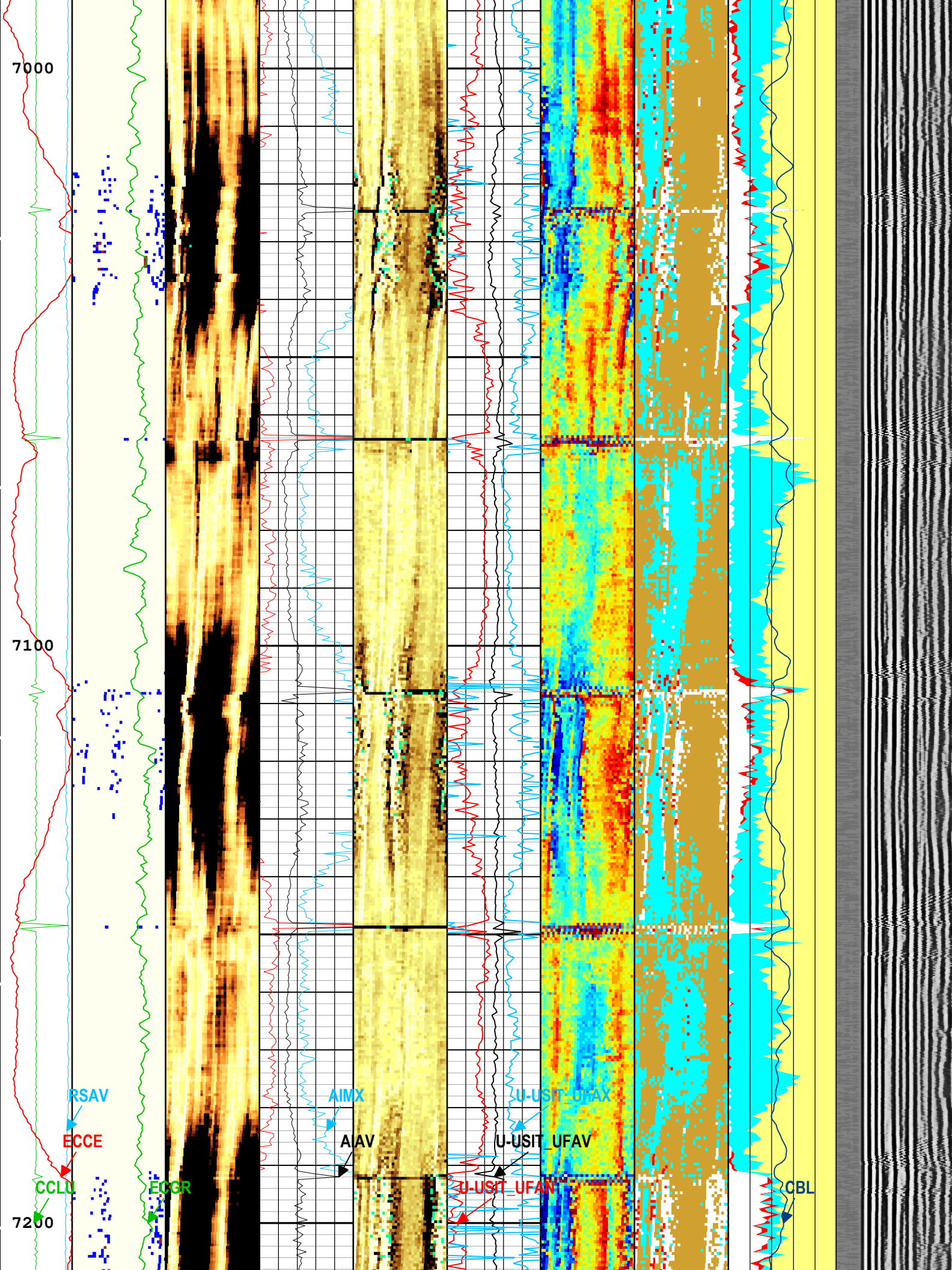


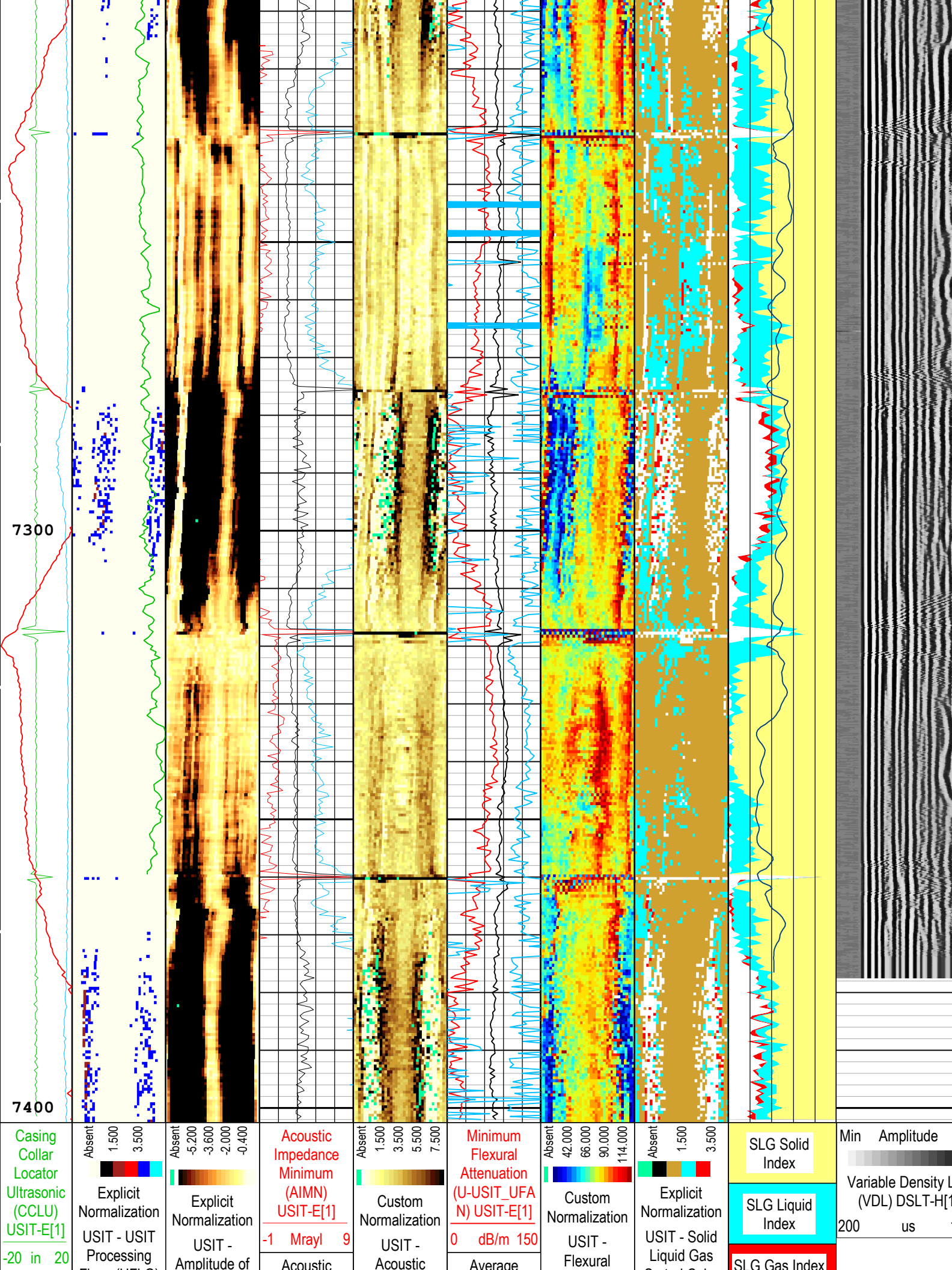

















Amplitude of Eccentering (ECCE) USIT-E[1] 0 in 0.5	Flags (UFLG) USIT-E[1] Orientation: Top of Hole U L B R U				Wave (AWBK) USIT-E[1] (dB) Orientation: Top of Hole U L B R U			Acoustic Impedance Average (AIAV) USIT-E[1] -1 Mrayl 9			Impedance (AIBK) USIT-E[1] (Mrayl) Orientation: Top of Hole U L B R U			Average Flexural Attenuation (U-USIT_UFA V) USIT-E[1] 0 dB/m 150			Attenuation (UFAK) USIT-E[1] (dB/m) Orientation: Top of Hole U L B R U			Sorted Color Map (USLP) USIT-E[1] Orientation: Top of Hole U L B R U			SLG Gate Index CBL Amplitude (CBL) DSLT-H[1] 0 mV 100		
	USIT Processing Flags (UFLG[0]) USIT-E[1] 1 5							Acoustic Impedance Maximum (AIMX) USIT-E[1] -1 Mrayl 9						Maximum Flexural Attenuation (U-USIT_UFA X) USIT-E[1] 0 dB/m 150											
	6 c/s 7.5																								
					Gamma Ray (ECGR) SGT-N[1] 0 gAPI 150																				

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 DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Nov-2019 18:05:31										

Channel Processing Parameters				
TWO: Parameters				
Parameter	Description	Tool	Value	Unit
BAR(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLG	CBL Gate Width	DSLTH	50	us
CBLO	Casing Bottom (Logger)	WLSESSION	12605	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	72	mV
CDEN	Cement Density	USIT-E	12.5	lbm/gal
CDEN	Cement Density	SGT-N	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DETE	Delta-T Detection	DSLTH	E1	
DFD	Drilling Fluid Density	Borehole	9.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
FD	Fluid Density	USIT-E	10.5	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)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLTH	3.43	mV
HEMA	Hematite Presence Flag	Borehole	No	
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	
IMAR	Image Rotation	USIT-E	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLTH	38.88	dB/m

MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	90	
MSA	Minimum Sonic Amplitude	DSLT-H	1.6	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	1.6	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.06	
NMSG	Near Minimum Sliding Gate	DSLT-H	245	us
SGAD	Sliding Gate Status	DSLT-H	Off	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.68	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-28.91	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

TWODepth Zoned Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	66	2573
BS	8.75	2573	7402.5
MCI	14.81	66	2557
MCI	4.75	2557	7402.5
All depth are actual.			

Tool Control Parameters	
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TWO: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	20	dB
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	Standard	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	26	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	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	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

TWOTime Zoned Parameters

Pass Log[6]:Up					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	125	14-Nov-2019 10:37:08	14-Nov-2019 12:28:07	7403.34	2675.25

U-USIT_UFWB	132.8	14-Nov-2019 10:37:00	14-Nov-2019 10:47:35	7403.34	6960.13
U-USIT_UFWB	131.08	14-Nov-2019 10:47:35	14-Nov-2019 12:28:07	6960.13	2675.25
U-USIT_UFWE	178.02	14-Nov-2019 10:37:00	14-Nov-2019 10:47:43	7403.34	6954.35
U-USIT_UFWE	179.17	14-Nov-2019 10:47:43	14-Nov-2019 12:28:07	6954.35	2675.25
U-USIT_UNWB	100.36	14-Nov-2019 10:37:00	14-Nov-2019 10:46:12	7403.34	7020.22
U-USIT_UNWB	99.14	14-Nov-2019 10:46:12	14-Nov-2019 10:46:19	7020.22	7015.41
U-USIT_UNWB	97.22	14-Nov-2019 10:46:19	14-Nov-2019 10:47:10	7015.41	6978.33
U-USIT_UNWB	94.52	14-Nov-2019 10:47:10	14-Nov-2019 12:28:07	6978.33	2675.25
U-USIT_UNWE	145	14-Nov-2019 10:37:00	14-Nov-2019 10:47:17	7403.34	6973.16
U-USIT_UNWE	146.85	14-Nov-2019 10:47:17	14-Nov-2019 12:28:07	6973.16	2675.25
WINB	24.8	14-Nov-2019 10:37:00	14-Nov-2019 10:40:43	7403.34	7254.38
WINB	25.86	14-Nov-2019 10:40:43	14-Nov-2019 10:40:57	7254.38	7244.56
WINB	28.4	14-Nov-2019 10:40:57	14-Nov-2019 10:48:04	7244.56	6939.12
WINB	26.71	14-Nov-2019 10:48:04	14-Nov-2019 12:28:07	6939.12	2675.25
WINE	82.14	14-Nov-2019 10:37:00	14-Nov-2019 10:40:27	7403.34	7265.69
WINE	83.36	14-Nov-2019 10:40:27	14-Nov-2019 10:40:50	7265.69	7249.52
WINE	83.99	14-Nov-2019 10:40:50	14-Nov-2019 10:48:09	7249.52	6935.6
WINE	84.84	14-Nov-2019 10:48:09	14-Nov-2019 10:48:14	6935.6	6932.45
WINE	85.97	14-Nov-2019 10:48:14	14-Nov-2019 12:28:07	6932.45	2675.25

Pass Log[7]:Up					
EMXV	120	14-Nov-2019 15:24:20	14-Nov-2019 16:31:35	2856.62	65.68
U-USIT_UFWB	136	14-Nov-2019 15:18:25	14-Nov-2019 15:26:12	2856.62	2781.37
U-USIT_UFWB	132.62	14-Nov-2019 15:26:12	14-Nov-2019 16:31:35	2781.37	65.68
U-USIT_UFWE	176	14-Nov-2019 15:24:20	14-Nov-2019 16:31:35	2856.62	65.68
U-USIT_UNWB	105	14-Nov-2019 15:18:25	14-Nov-2019 15:26:29	2856.62	2769.53
U-USIT_UNWB	103.76	14-Nov-2019 15:26:29	14-Nov-2019 16:31:35	2769.53	65.68
U-USIT_UNWE	145	14-Nov-2019 15:24:20	14-Nov-2019 16:31:35	2856.62	65.68
WINB	31.12	14-Nov-2019 15:18:25	14-Nov-2019 15:25:43	2856.62	2802.17
WINB	32.74	14-Nov-2019 15:25:43	14-Nov-2019 15:25:47	2802.17	2799.11
WINB	33.32	14-Nov-2019 15:25:47	14-Nov-2019 16:31:35	2799.11	65.68
WINE	71.12	14-Nov-2019 15:18:25	14-Nov-2019 15:24:34	2856.62	2850.41
WINE	74.23	14-Nov-2019 15:24:34	14-Nov-2019 15:24:59	2850.41	2833.38
WINE	75.96	14-Nov-2019 15:24:59	14-Nov-2019 15:25:28	2833.38	2812.8
WINE	77.11	14-Nov-2019 15:25:28	14-Nov-2019 15:25:32	2812.8	2809.68
WINE	77.97	14-Nov-2019 15:25:32	14-Nov-2019 15:25:38	2809.68	2805.58
WINE	80.28	14-Nov-2019 15:25:38	14-Nov-2019 15:25:51	2805.58	2796.43
WINE	80.85	14-Nov-2019 15:25:51	14-Nov-2019 16:01:50	2796.43	1205.25
WINE	82.3	14-Nov-2019 16:01:50	14-Nov-2019 16:02:21	1205.25	1182.05
WINE	83.14	14-Nov-2019 16:02:21	14-Nov-2019 16:31:35	1182.05	65.68

All depth are at tool zero.

TWO

IBC SLG VDL-IBC REPEAT PASS 1 @10DEG X 6IN @0PSI [5:100]

Software Version

Acquisition System	Version
Maxwell 2019.2	9.2.113335.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
TWO	Log[5]:Up	Up	7083.23 ft	7423.53 ft	14-Nov-2019 10:22:34 AM	14-Nov-2019 10:31:56 AM	ON	2.86 ft	Yes

All depths are referenced to toolstring zero

Log

Company:CRESTONE PEAK RESOURCES OPERATING LLC






Well:HINGLEY 1F-18H-A167

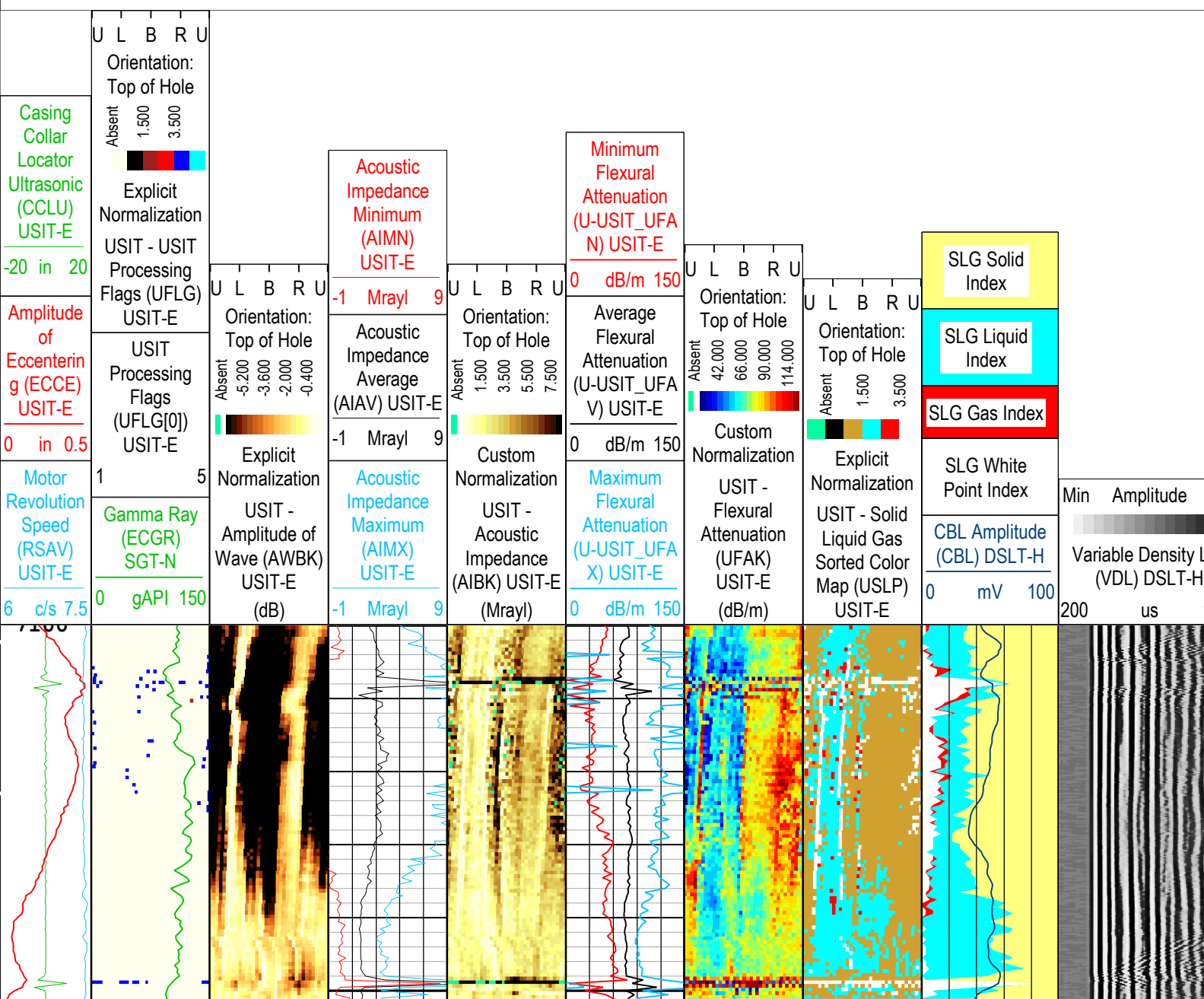
TWO: Log[5]:Up:S025

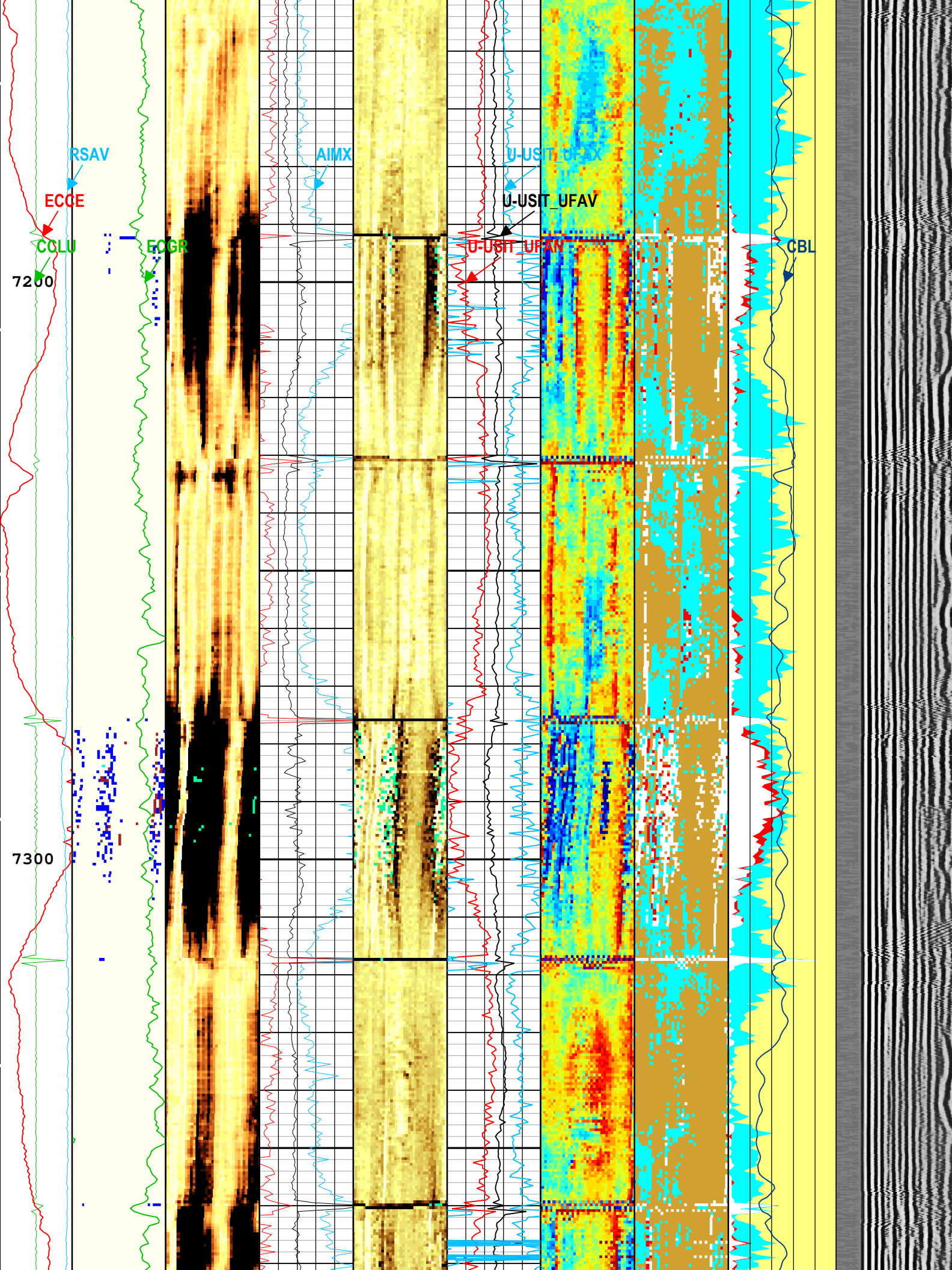
Description: USI IBC SLG Format: Log (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Nov-2019 18:05:59

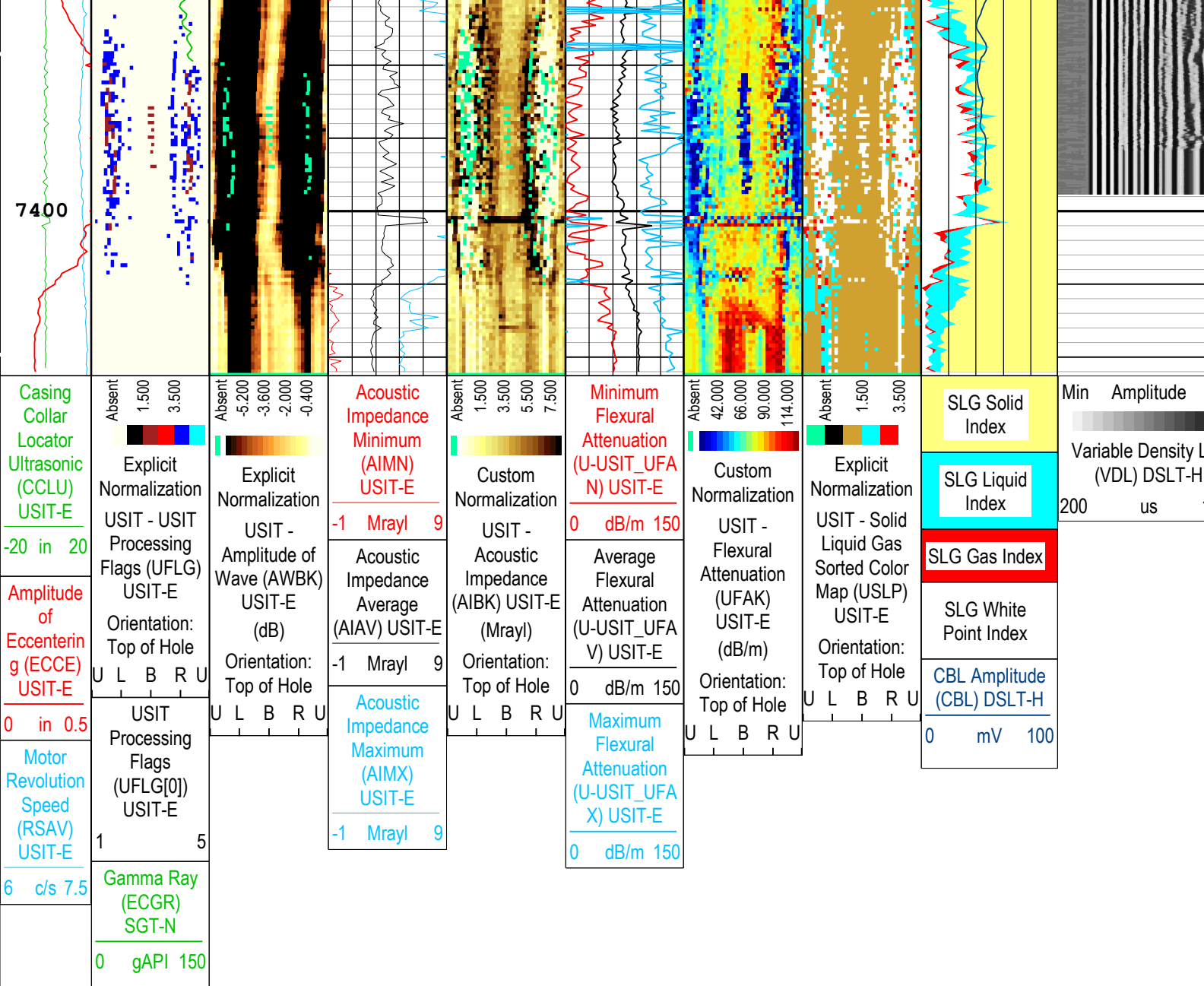
TIME_1900 - Time Marked every 60.00 (s)

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 |







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 DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Nov-2019 18:05:59				

Channel Processing Parameters				
TWO: 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	8.75	in
CBLG	CBL Gate Width	DSLTH	50	us
CBLO	Casing Bottom (Logger)	WLSESSION	12605	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	72	mV
CDEN	Cement Density	USIT-E	12.5	lbm/gal

CDEN	Cement Density	USIT-E	12.3	lbm/gal
CDEN	Cement Density	SGT-N	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	9.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
FD	Fluid Density	USIT-E	10.5	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)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLT-H	3.43	mV
HEMA	Hematite Presence Flag	Borehole	No	
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	
IMAR	Image Rotation	USIT-E	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLT-H	38.88	dB/m
MCI	Minimum Cemented Interval for Isolation	DSLT-H	4.75	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	90	
MSA	Minimum Sonic Amplitude	DSLT-H	1.6	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	1.6	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.06	
NMSG	Near Minimum Sliding Gate	DSLT-H	245	us
SGAD	Sliding Gate Status	DSLT-H	Off	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.68	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-28.91	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	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

TWO: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	Time Zoned	dB
AGMX	Maximum Gain of Cartridge	USIT-E	Time Zoned	dB
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	Standard	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	26	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	145	us
UPAT	USIT Emission Pattern	USIT-F	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	Time Zoned	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)
AGMN	-10	14-Nov-2019 10:22:34	14-Nov-2019 10:25:21	7423.53	7320.68
AGMN	-12	14-Nov-2019 10:25:21	14-Nov-2019 10:31:56	7320.68	7083.22
AGMX	20	14-Nov-2019 10:22:34	14-Nov-2019 10:25:28	7423.53	7315.71
AGMX	48	14-Nov-2019 10:25:28	14-Nov-2019 10:25:37	7315.71	7309.18
AGMX	20	14-Nov-2019 10:25:37	14-Nov-2019 10:31:56	7309.18	7083.22
EMXV	120	14-Nov-2019 10:22:34	14-Nov-2019 10:29:41	7423.53	7136.51
EMXV	125	14-Nov-2019 10:29:41	14-Nov-2019 10:31:56	7136.51	7083.22
U-USIT_UFWB	136	14-Nov-2019 10:22:34	14-Nov-2019 10:26:31	7423.53	7270.82
U-USIT_UFWB	133.77	14-Nov-2019 10:26:31	14-Nov-2019 10:31:22	7270.82	7096.68
U-USIT_UFWB	132.8	14-Nov-2019 10:31:22	14-Nov-2019 10:31:56	7096.68	7083.22
U-USIT_UFWE	176	14-Nov-2019 10:22:34	14-Nov-2019 10:26:26	7423.53	7274.59
U-USIT_UFWE	178.02	14-Nov-2019 10:26:26	14-Nov-2019 10:31:56	7274.59	7083.22
U-USIT_UNWB	105	14-Nov-2019 10:22:34	14-Nov-2019 10:31:28	7423.53	7093.38
U-USIT_UNWB	100.36	14-Nov-2019 10:31:28	14-Nov-2019 10:31:56	7093.38	7083.22
WINB	31.12	14-Nov-2019 10:22:34	14-Nov-2019 10:30:51	7423.53	7102.29
WINB	24.8	14-Nov-2019 10:30:51	14-Nov-2019 10:31:56	7102.29	7083.22
WINE	71.12	14-Nov-2019 10:22:34	14-Nov-2019 10:23:42	7423.53	7390.88
WINE	73.55	14-Nov-2019 10:23:42	14-Nov-2019 10:23:59	7390.88	7378.55
WINE	78.91	14-Nov-2019 10:23:59	14-Nov-2019 10:24:06	7378.55	7373.89
WINE	80.89	14-Nov-2019 10:24:06	14-Nov-2019 10:24:11	7373.89	7370.02
WINE	83.71	14-Nov-2019 10:24:11	14-Nov-2019 10:24:15	7370.02	7367.55
WINE	86.81	14-Nov-2019 10:24:15	14-Nov-2019 10:24:23	7367.55	7361.38
WINE	88.51	14-Nov-2019 10:24:23	14-Nov-2019 10:31:16	7361.38	7100.05
WINE	82.14	14-Nov-2019 10:31:16	14-Nov-2019 10:31:56	7100.05	7083.22

All depth are at tool zero.

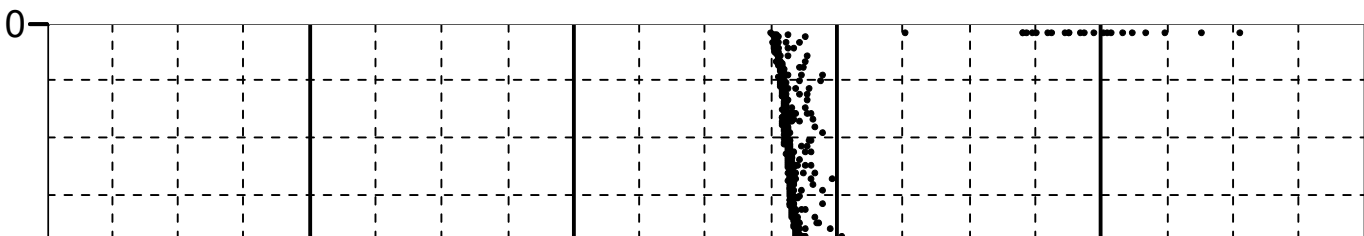
XYZ	Company:CRESTONE PEAK RESOURCES OPERATING LLC Well:HINGLEY 1F-18H-A167
	Main Pass:S025

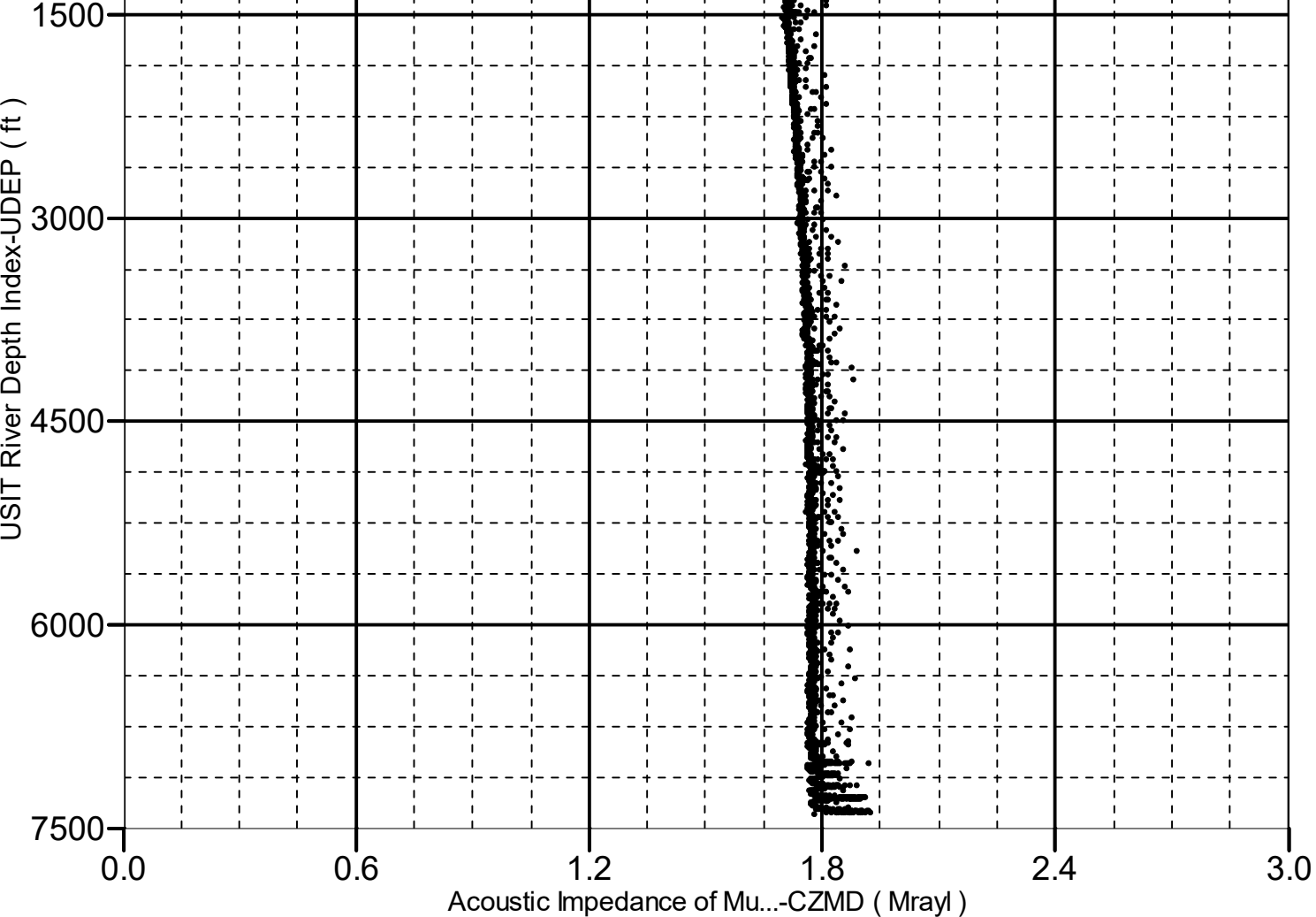
Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 65.00 to 7402.50 ft

● CZMD-UDEP

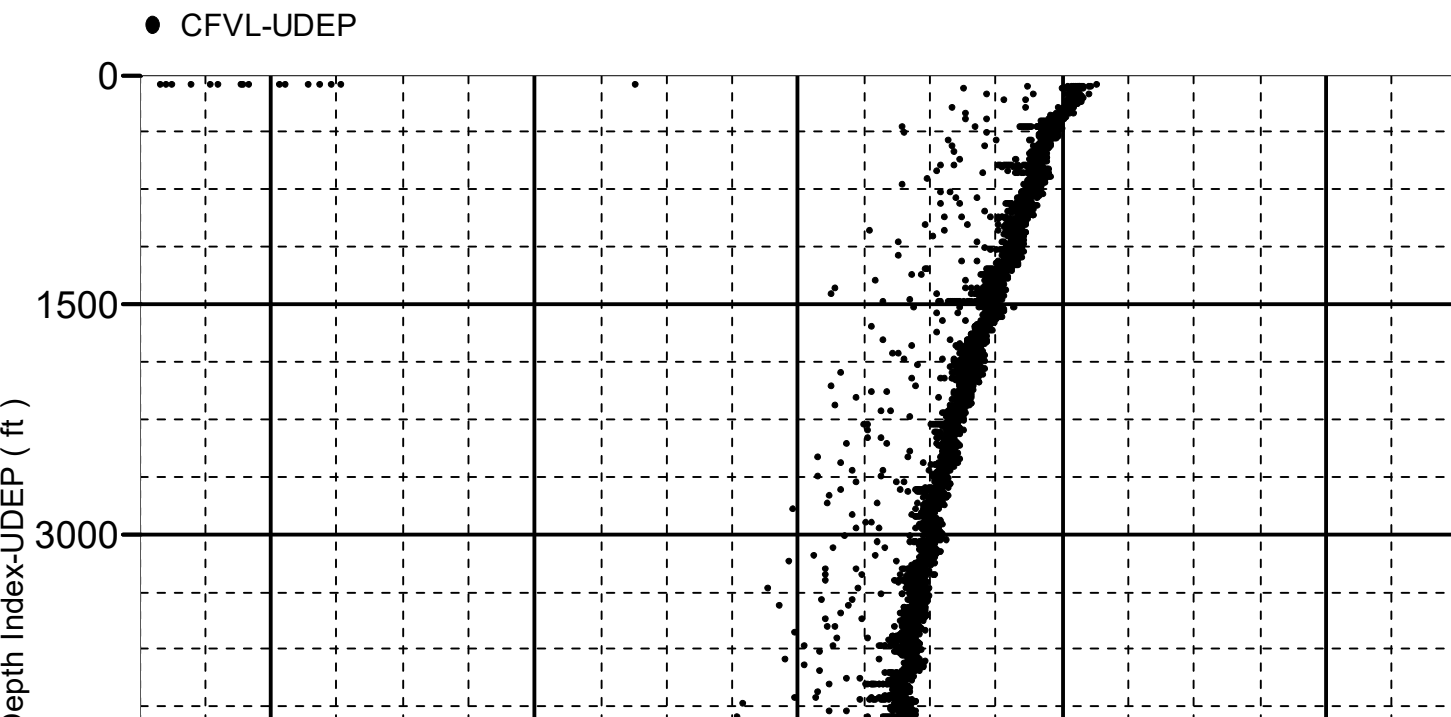


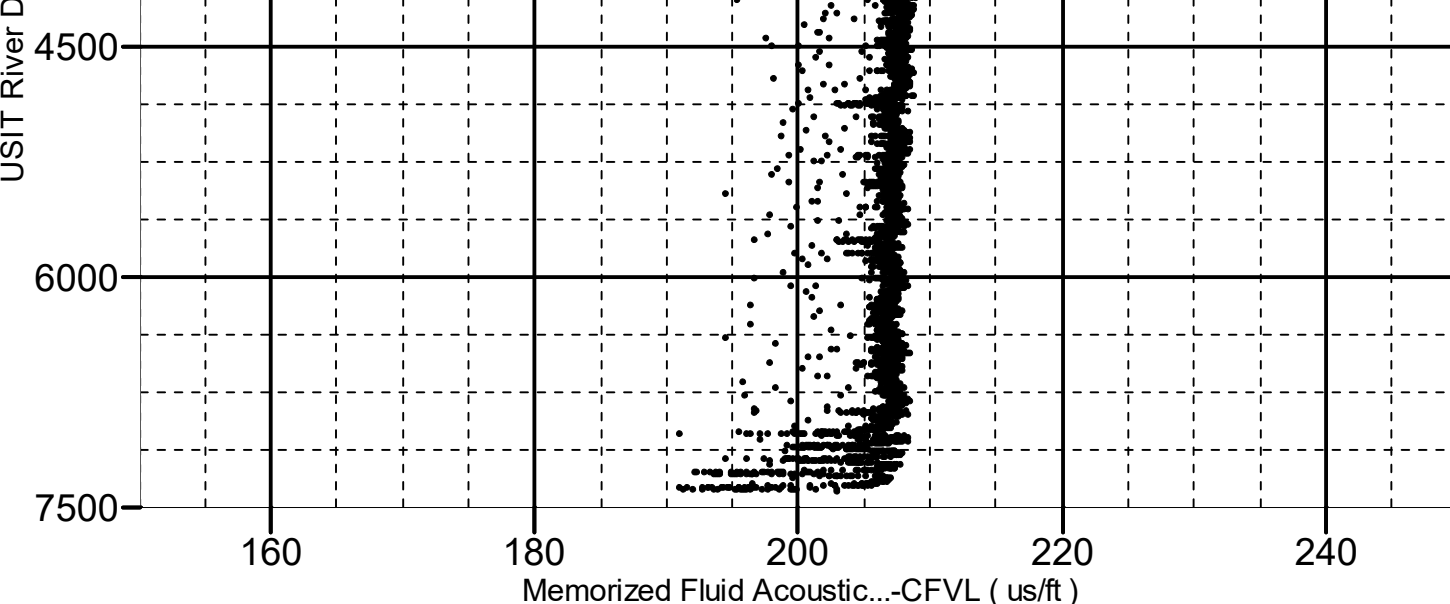


Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 65.00 to 7402.50 ft





Calibration Report

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run TWO

Primary Equipment :

Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL

SLS-E

1229

CBL Normalization - CBL Accumulations

Master (Measured): 05:37:25 21-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude (AMF1)		Master	4200.0	3200.0	3281.4		
Upper Near Raw Amplitude (RAF2)	mV	Master	33.000	27.000	27.878	43.000	
Lower Far Amplitude (AMF3)		Master	4200.0	3200.0	3618.5		
Lower Near Raw Amplitude (RAF4)	mV	Master	46.000	27.000	35.332	68.000	

CBL Normalization - CBL/VDL Coefficients

Master (Measured): 05:37:25 21-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT (CBCF_UT)		Master	3.500	2.700	4.161	4.300	
CBL Correction Factor for LT (CBCF_LT)		Master	2.500	1.700	3.283	4.300	
VDL Ratio between UT and LT for CBLB Mode (VDR)		Master			1.103		

CBL Free Pipe Adjustment - Free Pipe Measurement

Before (Manual Entry): 18:01:37 14-Nov-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude (CBLF) - 0	mV	Before	----	----	----	----	
CBL Reference Amplitude (CBRA) - 0	mV	Before	----	----	----	----	
Measurement Depth (DEPTH) - 0	ft	Before	----	----	----	----	

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before (Manual Entry): 18:01:37 14-Nov-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor (CBL_ADJUST_FACTOR)		Before	1.000	0.200	0.967	5.000	
Depth of Before Calibration (BDEP)	ft	Before			188.38		

Company:	CRESTONE PEAK RESOURCES OPERATING LLC	Schlumberger
Well:	HINGLEY 1F-18H-A167	
Field:	WATTENBERG	
County:	WELD	
State:	COLORADO	

ISOLATION SCANNER
VDL-IBC COMBINED PRINT
GAMMA RAY - COLLAR LOCTOR LOG