

Schlumberger									
Company: Anadarko Petroleum Company									
Well: Spurling 34N-34HZ									
Field: Wattenberg									
County: Weld					State: Colorado				
<div>Ultrasonic Imager</div> <div>Cement Evaluation</div> <div>Gamma Ray - CCL</div>									
Location:									
NWNW Sec 34, T2N, R67W					Elev.: K.B. 5037.00 ft				
SHL: 377' FNL & 1028' FWL					G.L. 5016.00 ft				
Lat/Long: 40.100997/-104.882745					D.F. 5036.00 ft				
Permanent Datum:					Ground Level				
Log Measured From:					Kelly Bushing				
Drilling Measured From:					Kelly Bushing				
API Serial No.					Section: 34				
05-123-39124-0000					Township: 2N				
					Range: 67W				
Logging Date					17-Jun-2014				
Run Number					Run 1				
Depth Driller					7855.00 ft				
Schlumberger Depth					7855.00 ft				
Bottom Log Interval					6920.00 ft				
Top Log Interval					12.00 ft				
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					7855.00 ft				
Casing/Tubing Size					7 in				
Weight					26 lbm/ft				
Grade					N/A				
From					0.00 ft				
To					7855.00 ft				
Max Recorded Temperatures					211 degF				
Logger on Bottom					17-Jun-2014				
Unit Number					3030				
Recorded By					Keri Ondrus				
Witnessed By									

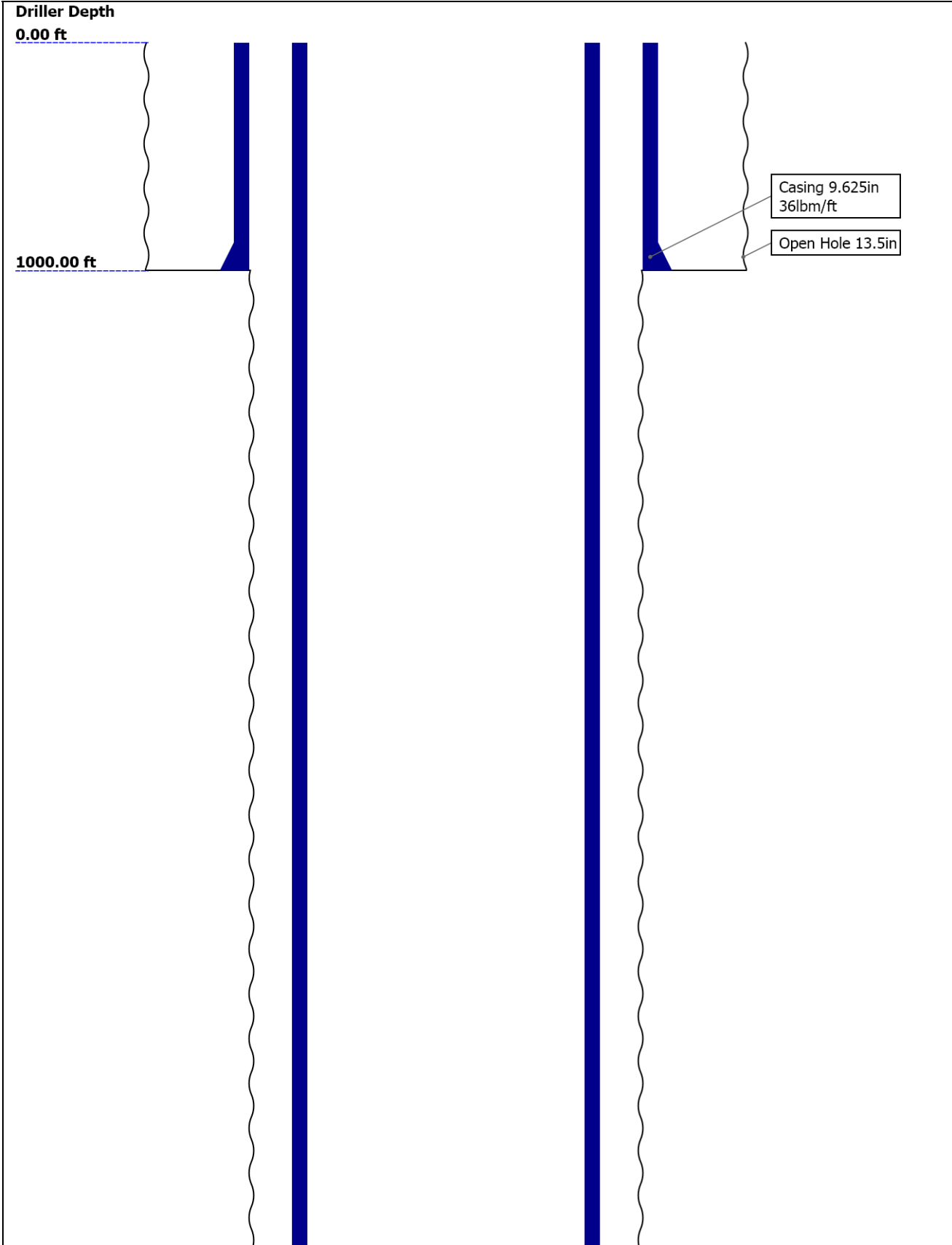
Disclaimer

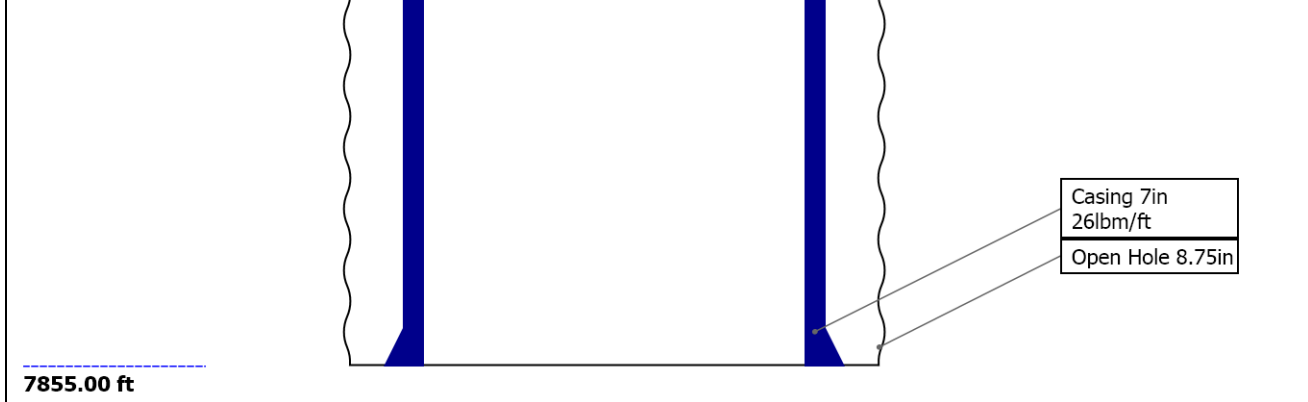
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Well Sketch





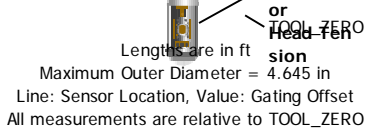
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75				
Top Driller (ft)	0	1000				
Top Logger (ft)	0	1000				
Bottom Driller (ft)	1000	7855				
Bottom Logger (ft)	1000	7855				
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	7855				
Bottom Logger (ft)	1000	7855				

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	17-Jun-2014					
Time Log Started	08:31:10					
Date Log Finished	17-Jun-2014					
Time Log Finished	15:06:52					
Top Log Interval (ft)	12.00					
Bottom Log Interval (ft)	6920.00					
Total Depth (ft)	6920.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	8.750					
Logging Unit Number	3030					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Keri Ondrus					
Witnessed By						
Service Order Number	BX19-00144					

Service Order Number	DX15-00144					
Borehole Fluids						
Parameter(unit)	Run 1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	211					
Salinity (ppm)	0					
Density (lbm/gal)	8.4					
Date Logger on Bottom	17-Jun-2014					
Time Logger on Bottom	09:30:00					
Total Solid (%)						
High Gravity Solids (%)						
Remarks and Equipment Summary						
Run 1: Toolstring		Run 1: Remarks				
Equip name Length	MP name Offset	Toolstring run as per toolsketch.				
LEH-QT:21 32.75 10 LEH-QT:2110		4.5" liner top at 6933'. Bottom log interval at 6915' to maintain distance from liner top.				
		Log interval from 6915' to ground level run under 0 PSI and 3000 PSI.				
DTC-H:938 29.84 6 ECH-KC:1047 2 DTC-H:9386	CTEM 28.94 HV 0.00	Full lube used to reach ground level with logs.				
	ToolStat 26.84 us	Cemented by Halliburton.				
SGT-N:103 26.84 86 SGH-K:3164 SGC-TB:1038 6 SGD-TAA:218 92	TelStatus 26.84 GR 25.92	Lead cement: 12.7 PPG Class G Econocem B1; Tail cement: 14.4 PPG class G expandace				
		0 PSI log spliced at 404'. Fluid was not topped off properly resulting in the need to splice.				
		Estimated top of cement at 775'.				
		Thank you for choosing Schlumberger Wireline!				
		SLB crew: Derrick Hunter, Gary Lapp, Jake Jump, Keri Ondrus				
CME-AF 21.34						
AH-184:27 17.54 46						
USIT-E:977 15.54 ECH-MFA:19 69 USAC-A:977 USIS-A:2797 USSC-B:1730 USRS-B:875 USI-SENSOR						
	USI Sens 0.38					



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		

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		

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

Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control device.
Rig Up Length At Bottom		Z-chart used as secondary depth control device.
Rig Up Length Correction		
Stretch Correction	3.53 ft	
Tool Zero Check At Surface		

Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control device.
Rig Up Length At Bottom		Z-chart used as secondary depth control device.
Rig Up Length Correction		
Stretch Correction	3.53 ft	
Tool Zero Check At Surface		

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[6]:Up	6922.94	11.12

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	150	1.58	1.58
150	250	1.57	1.57
250	800	1.58	1.58
800	1300	1.59	1.59
1300	2300	1.6	1.6
2300	3500	1.61	1.61
3500	4800	1.62	1.62
4800		1.63	1.63

Run 1

3000 PSI Pass

Log

Company:Anadarko Petroleum Company






Well:Spurling 34N-34HZ

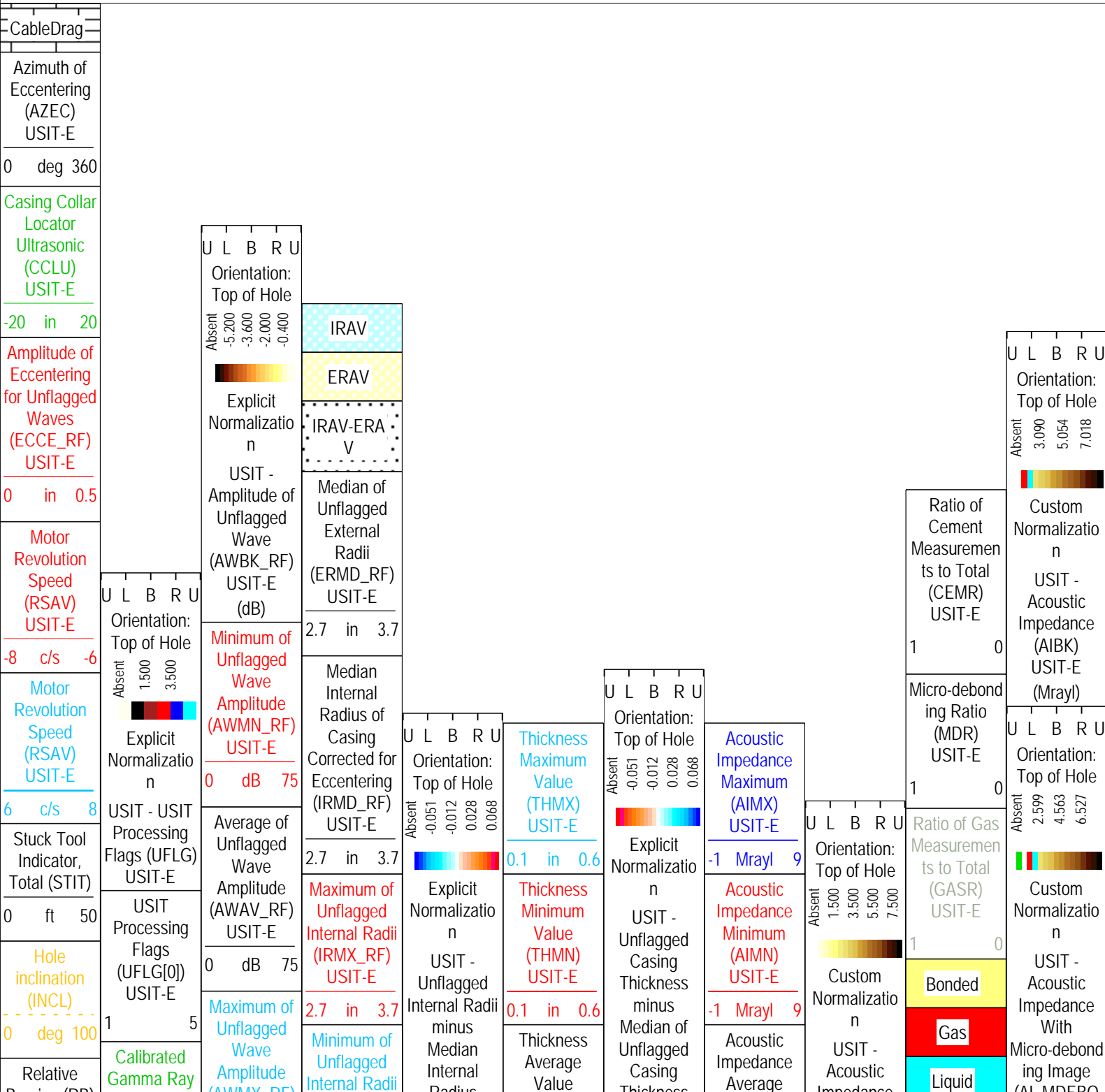
Run 1: Main[6]:Up:S006

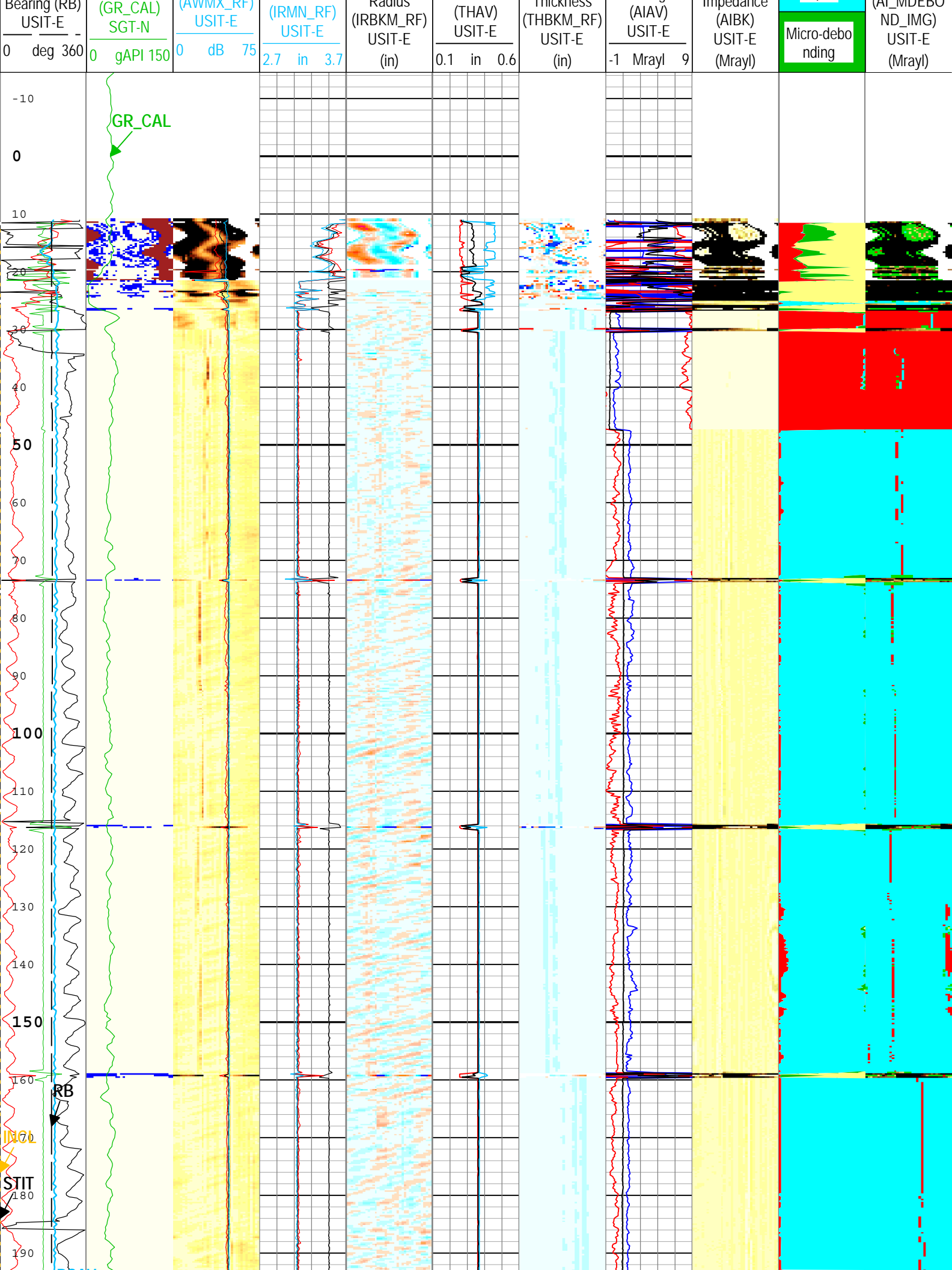
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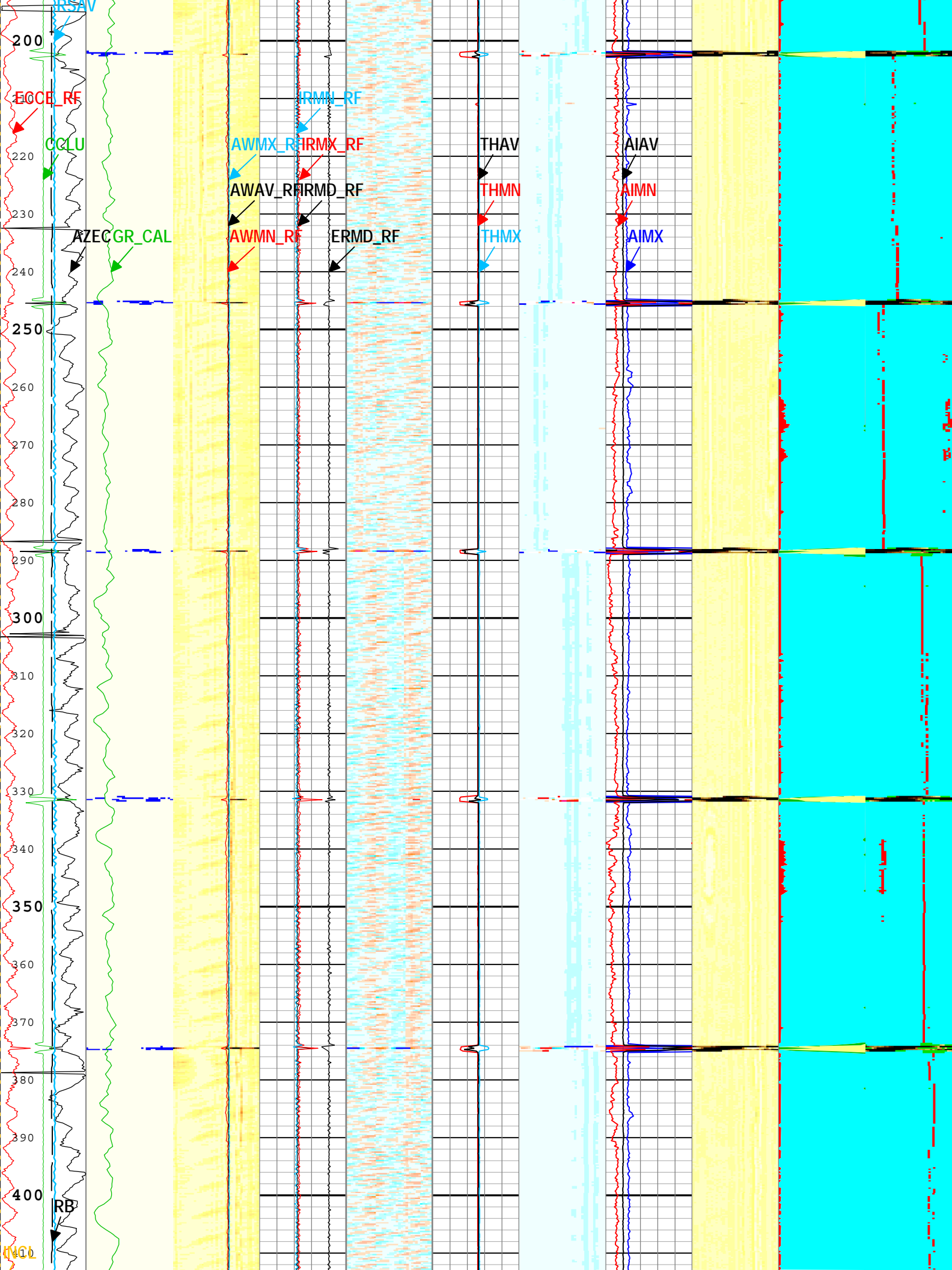
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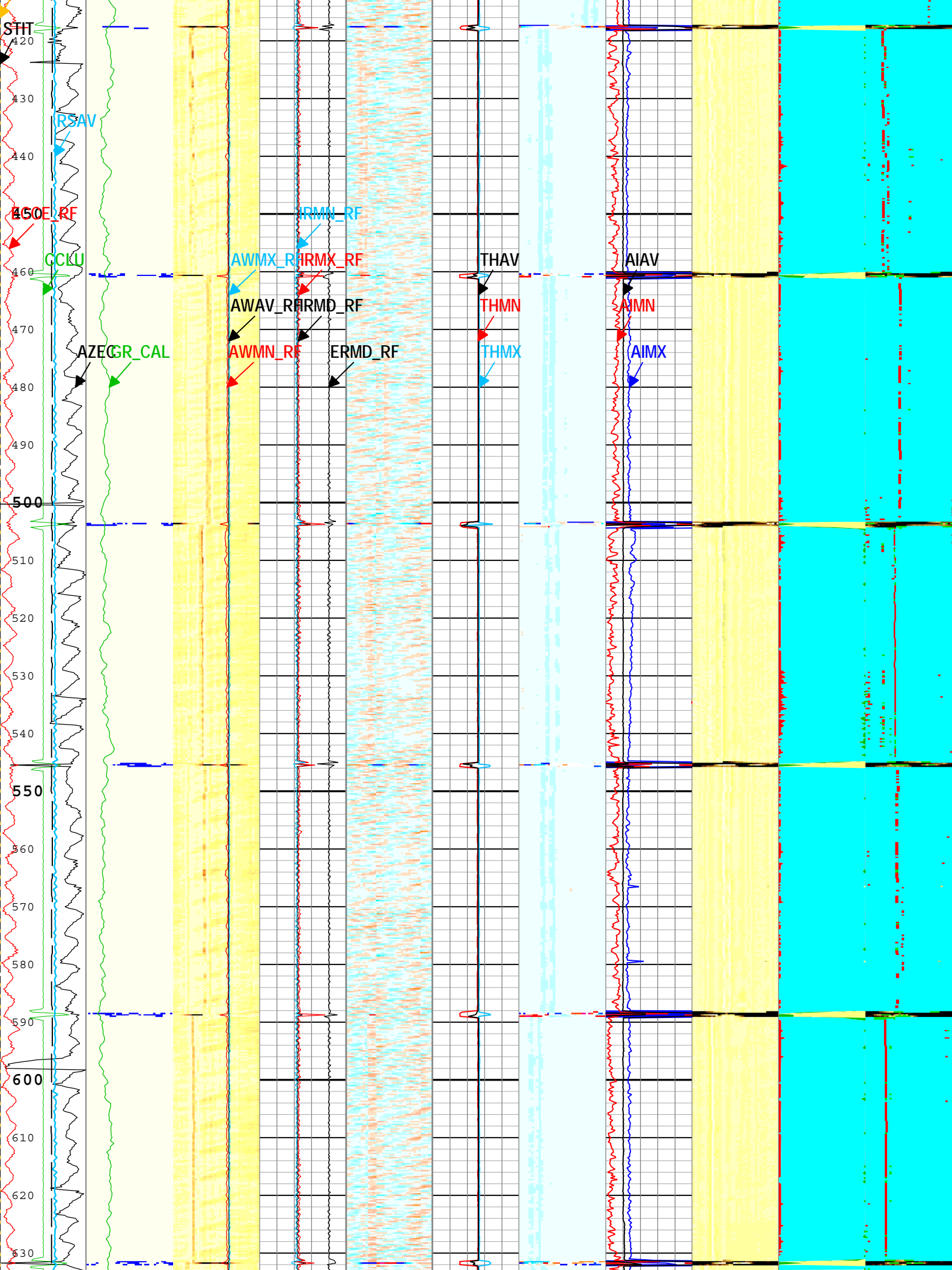
USIT Processing Flags (UFLG[0]) USIT-E

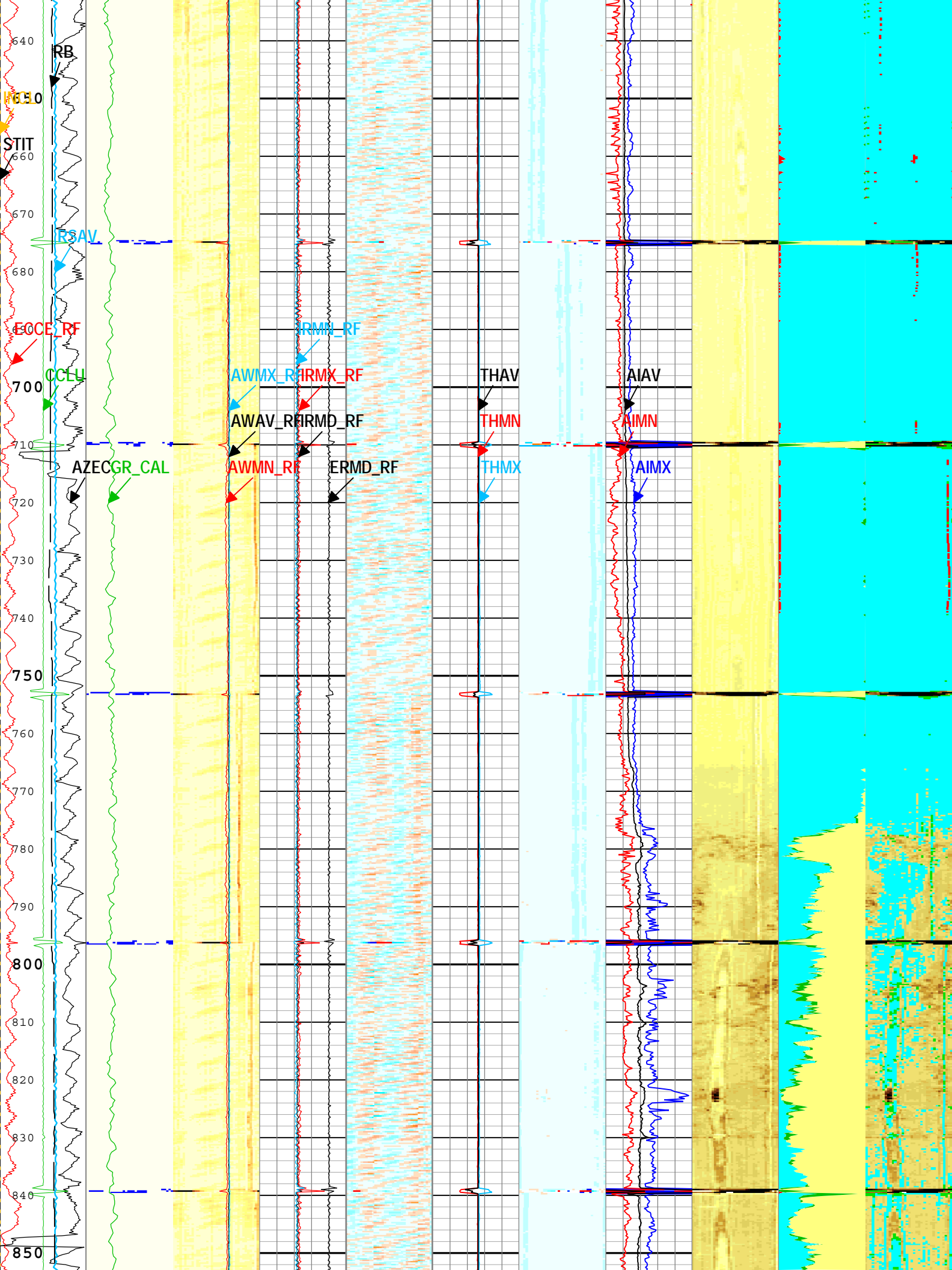
- | | |
|---|---|
| 1 - UFLG 1 Value within [0.0 - 1.5] - : |  UTIM Error |
| 2 - UFLG 2 Value within [1.5 - 2.5] - : |  Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - : |  WINLEN Error |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : |  Casing Thickness Error |
| 5 - UFLG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

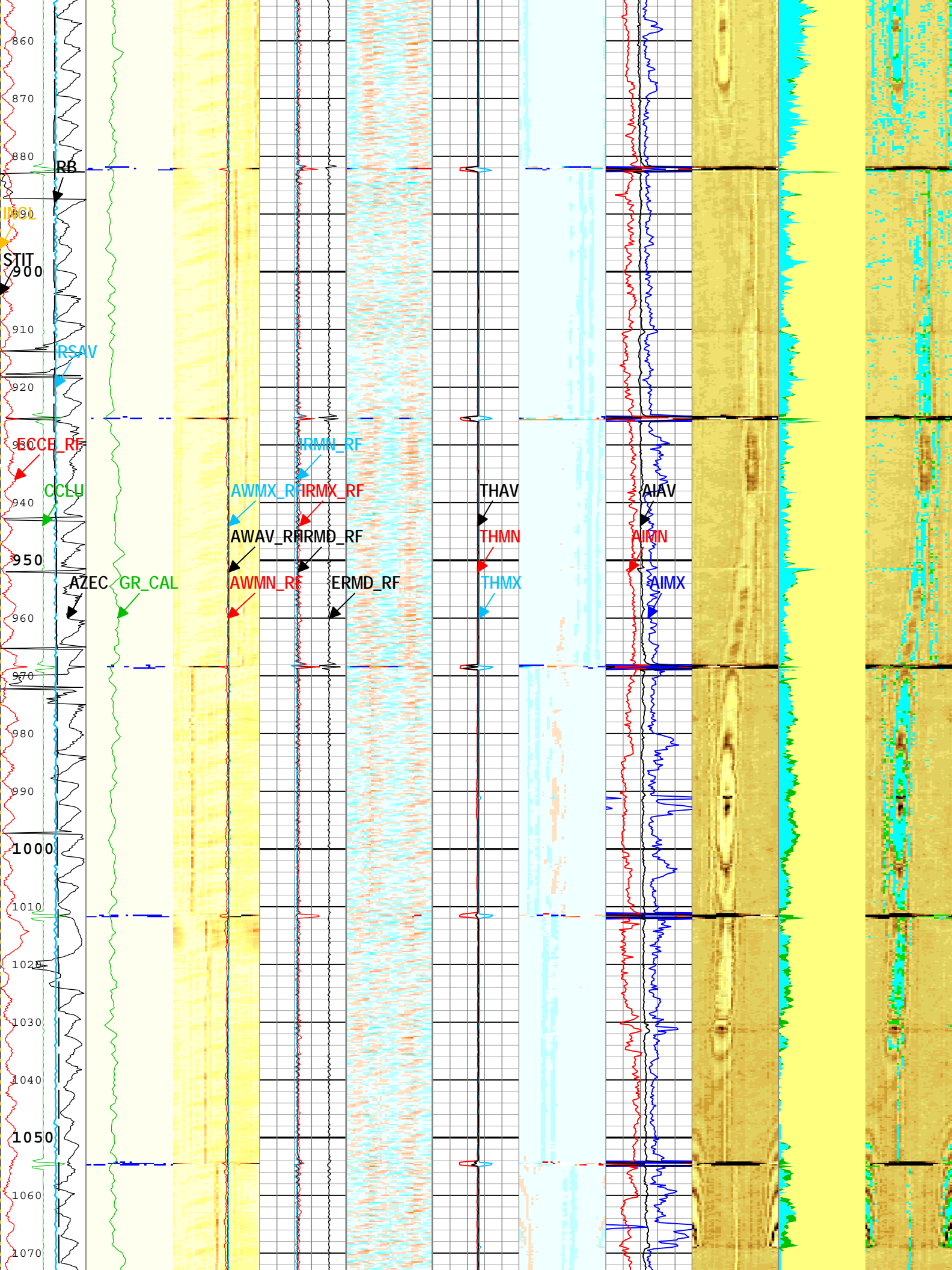


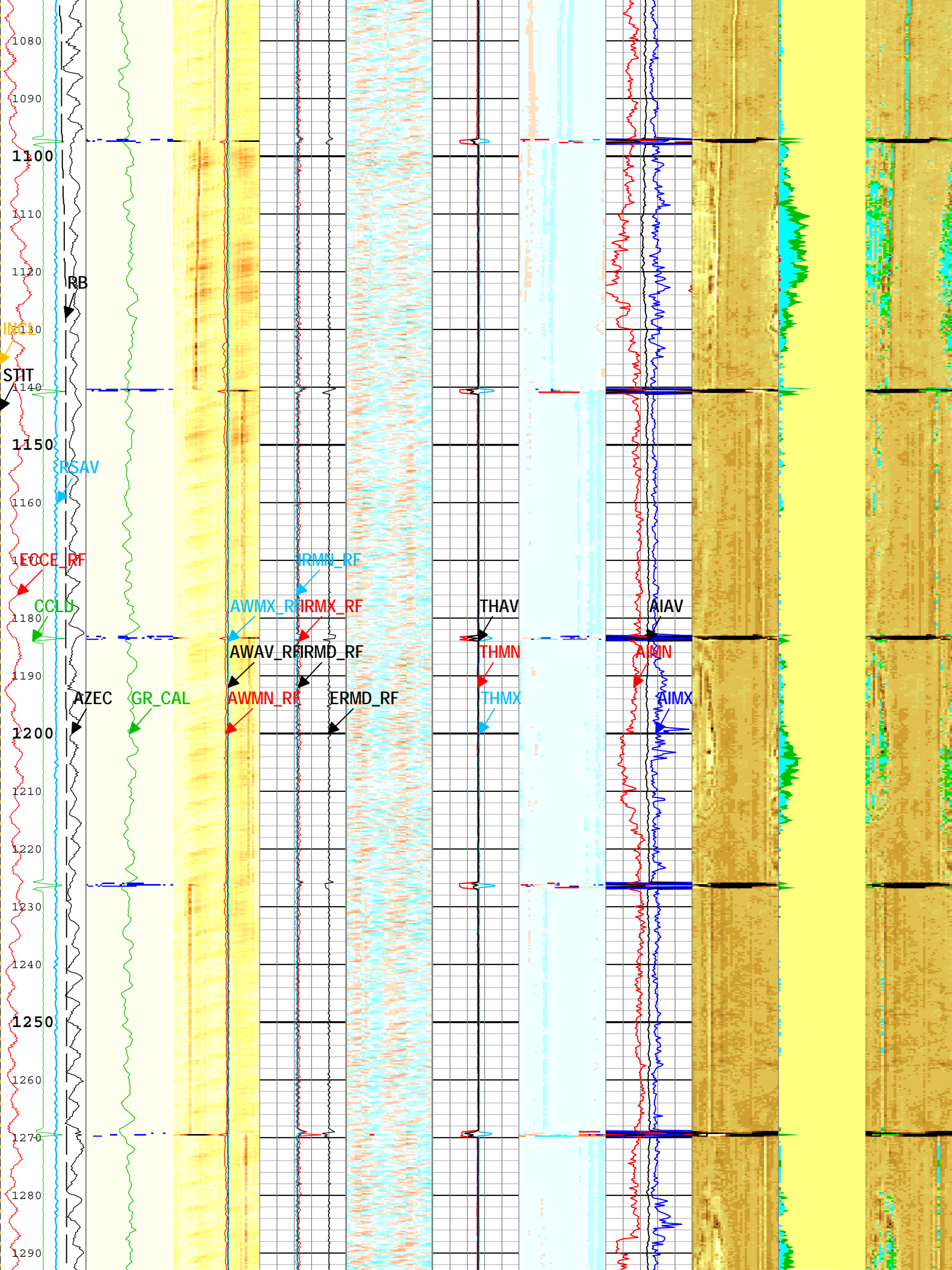


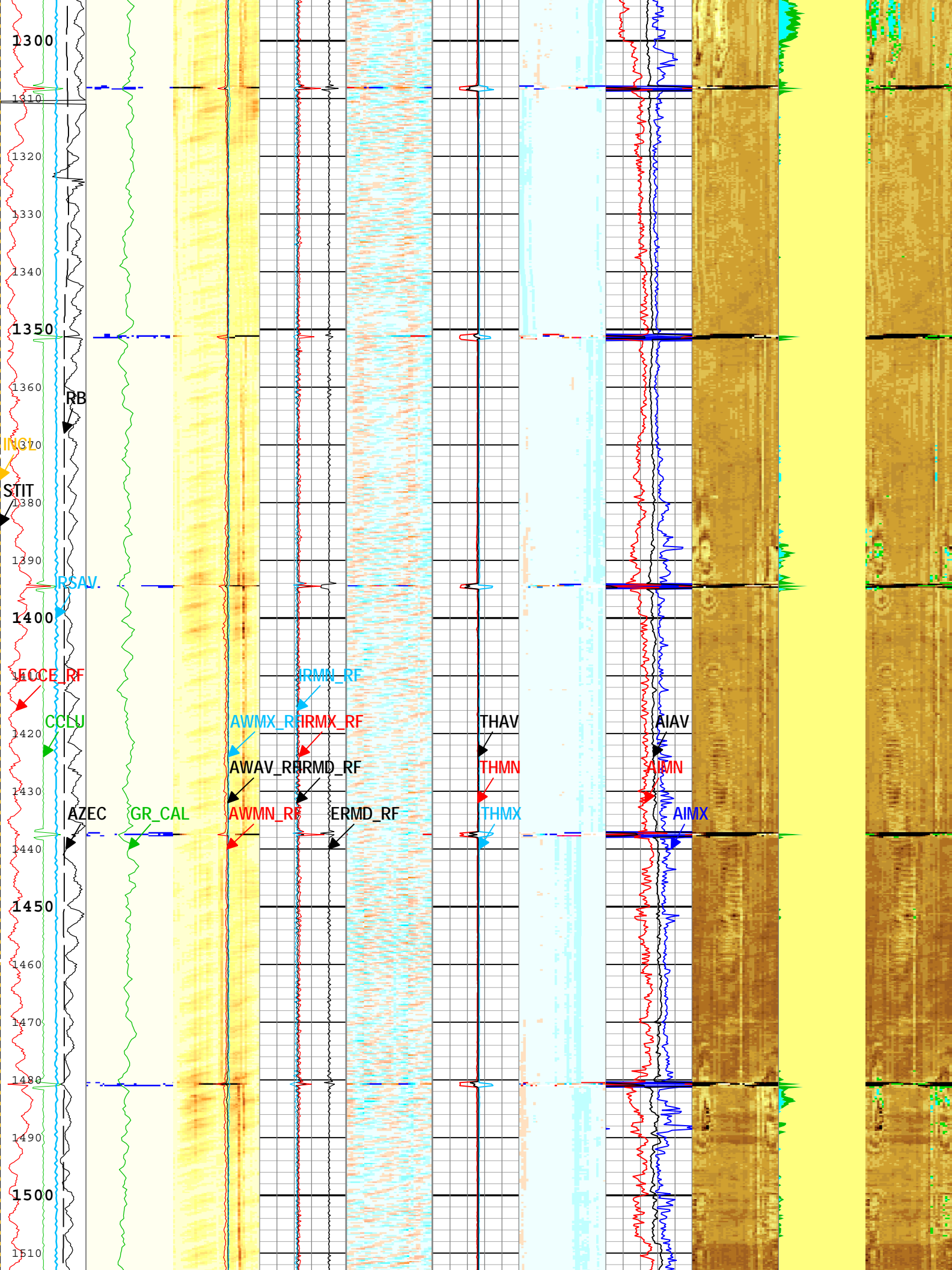


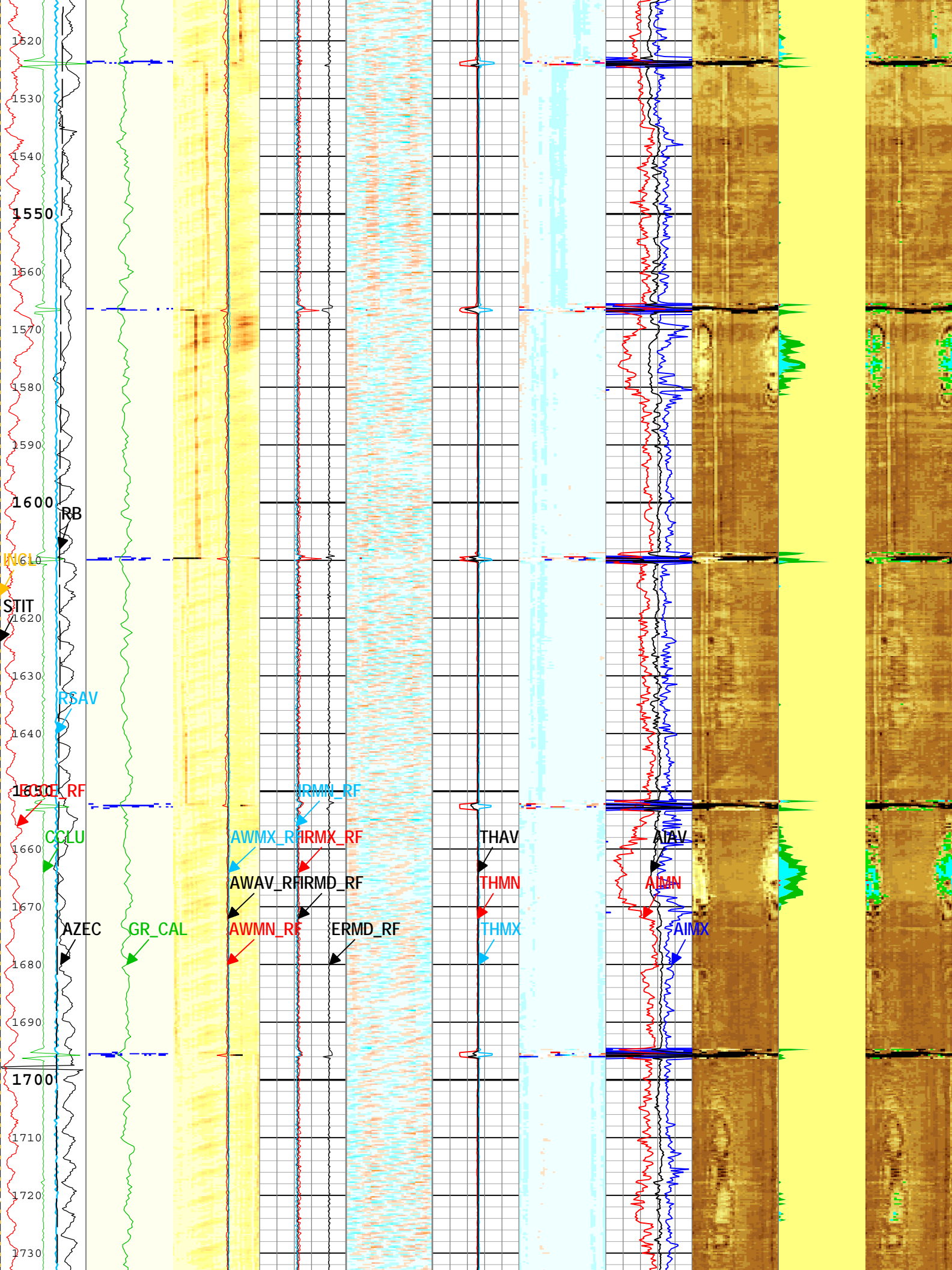


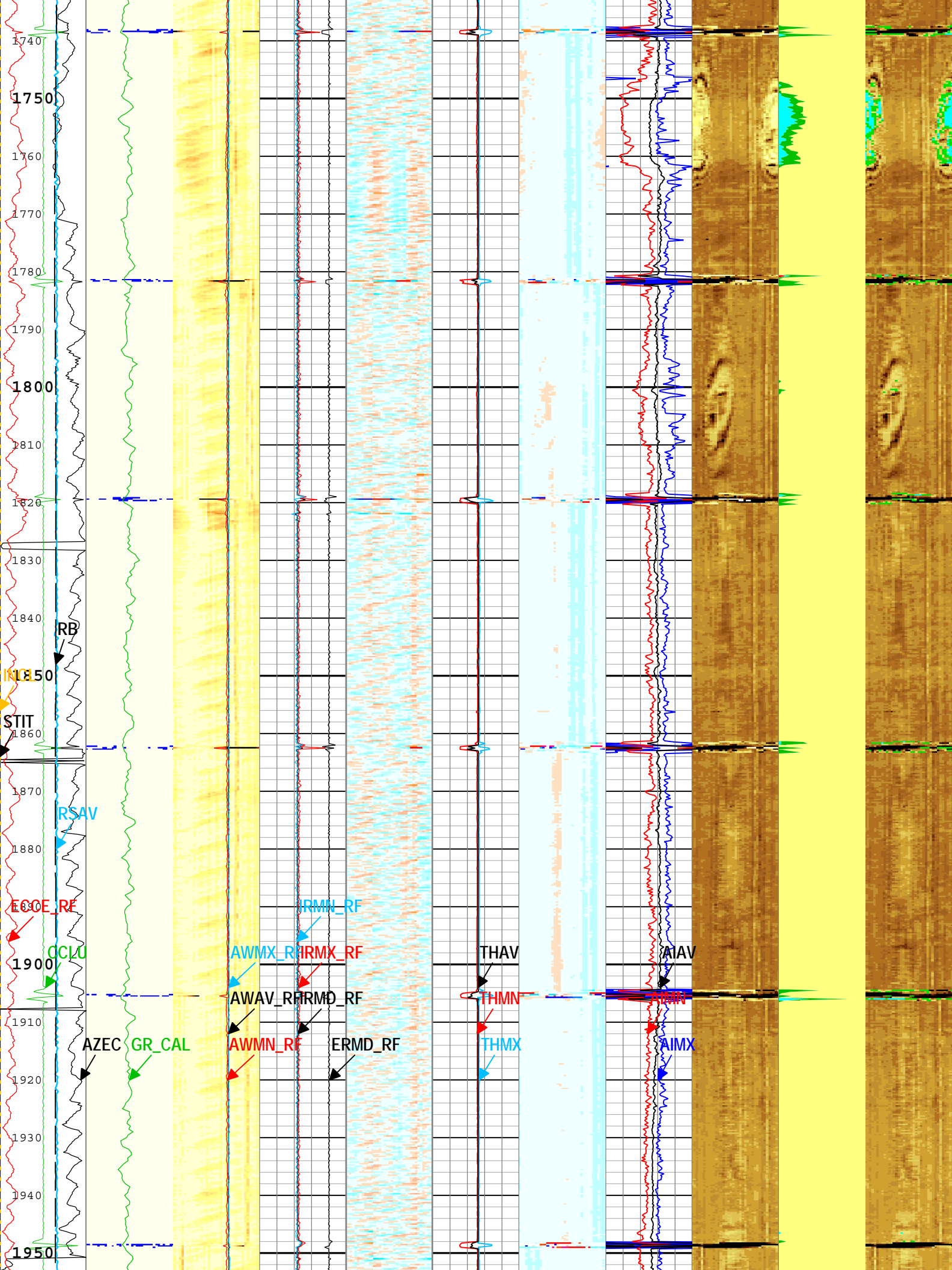


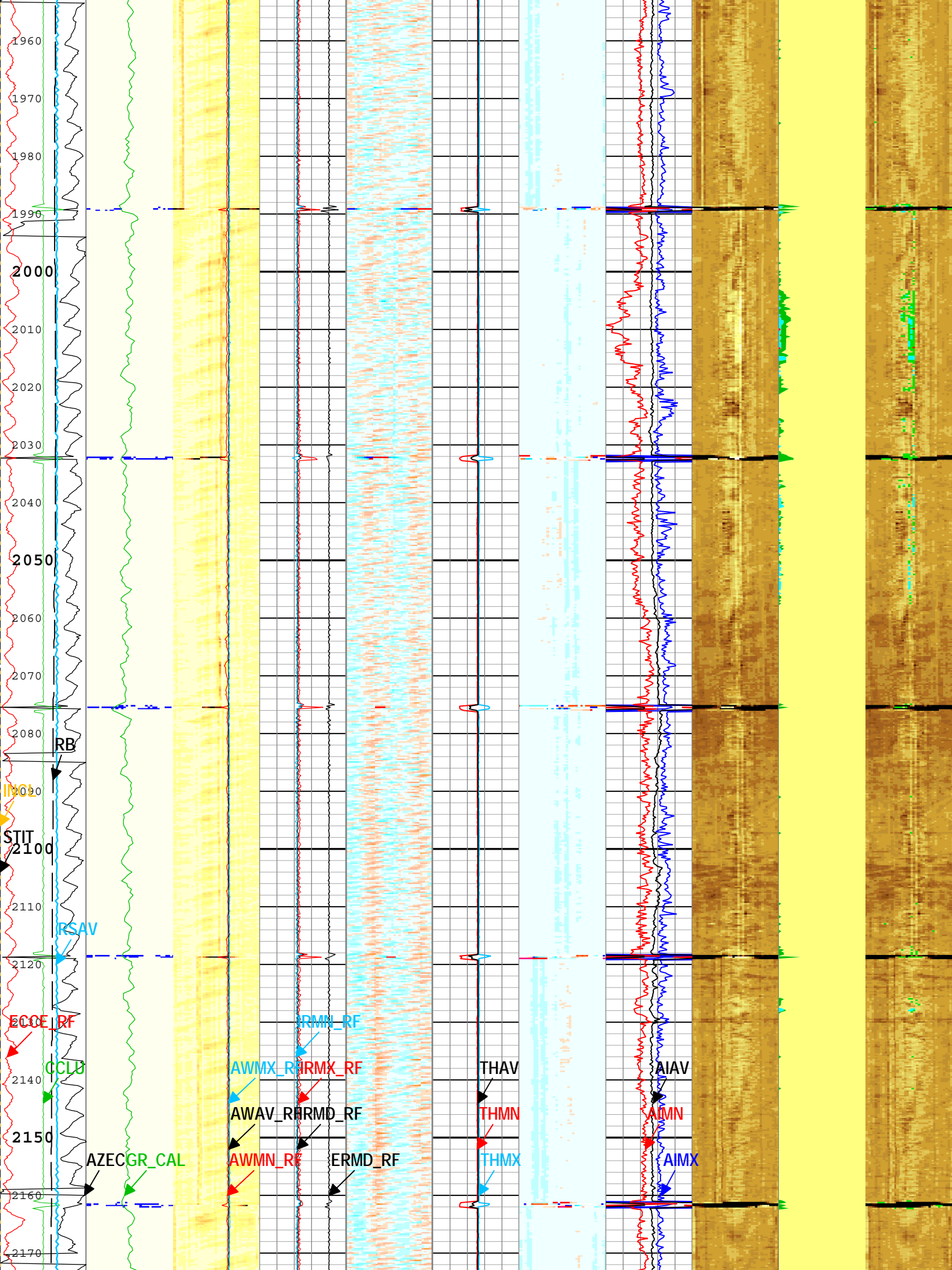


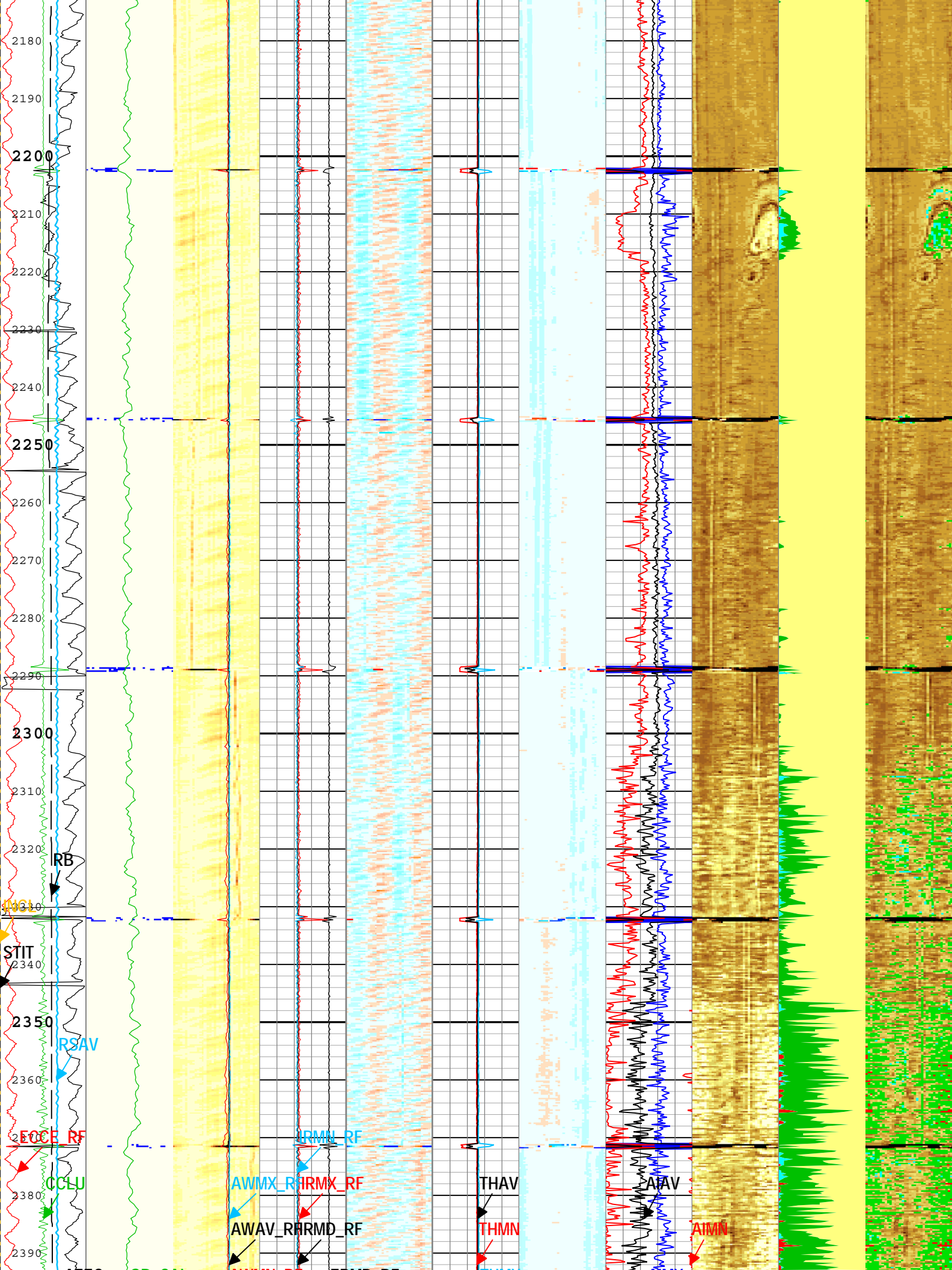


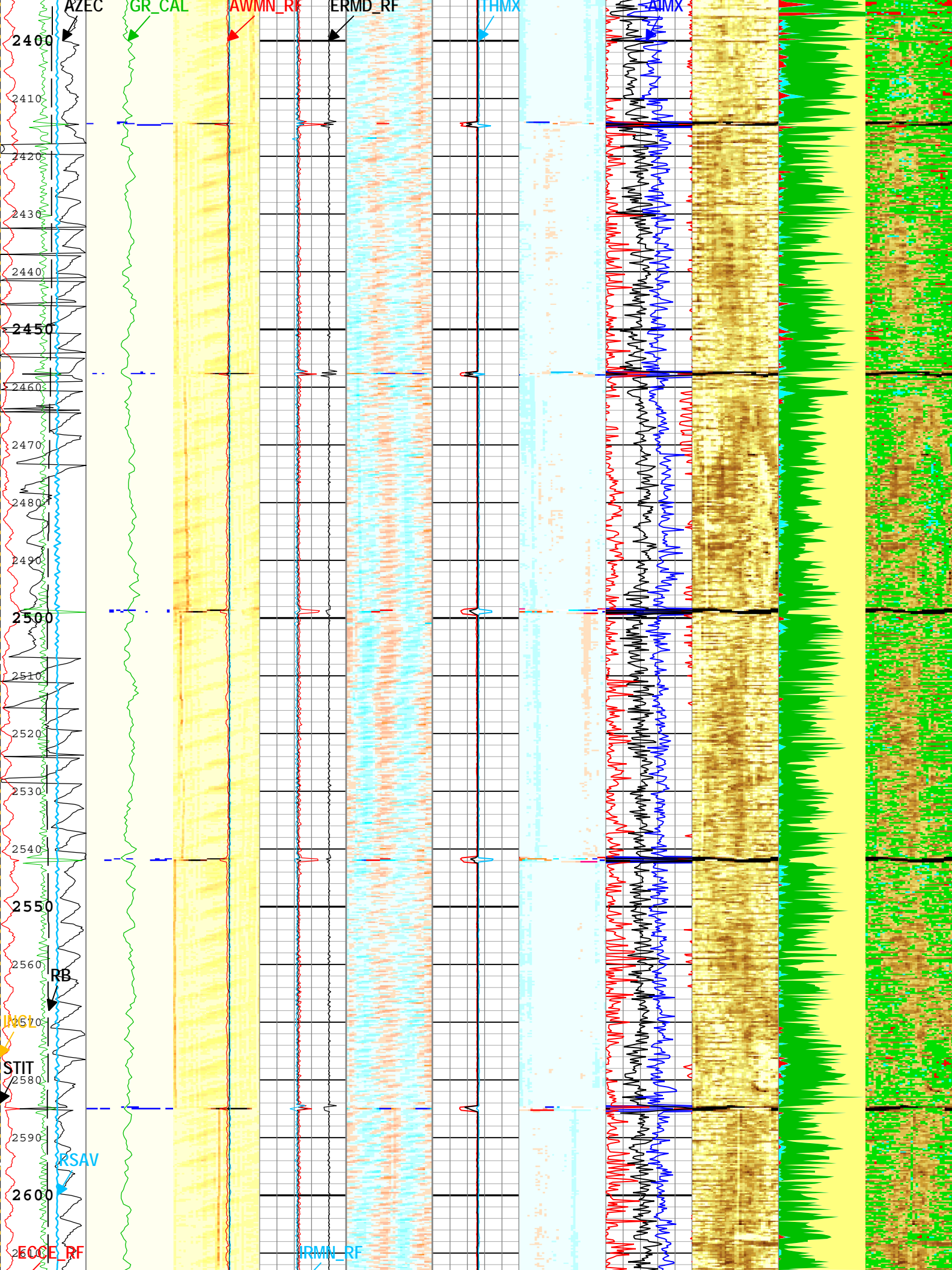


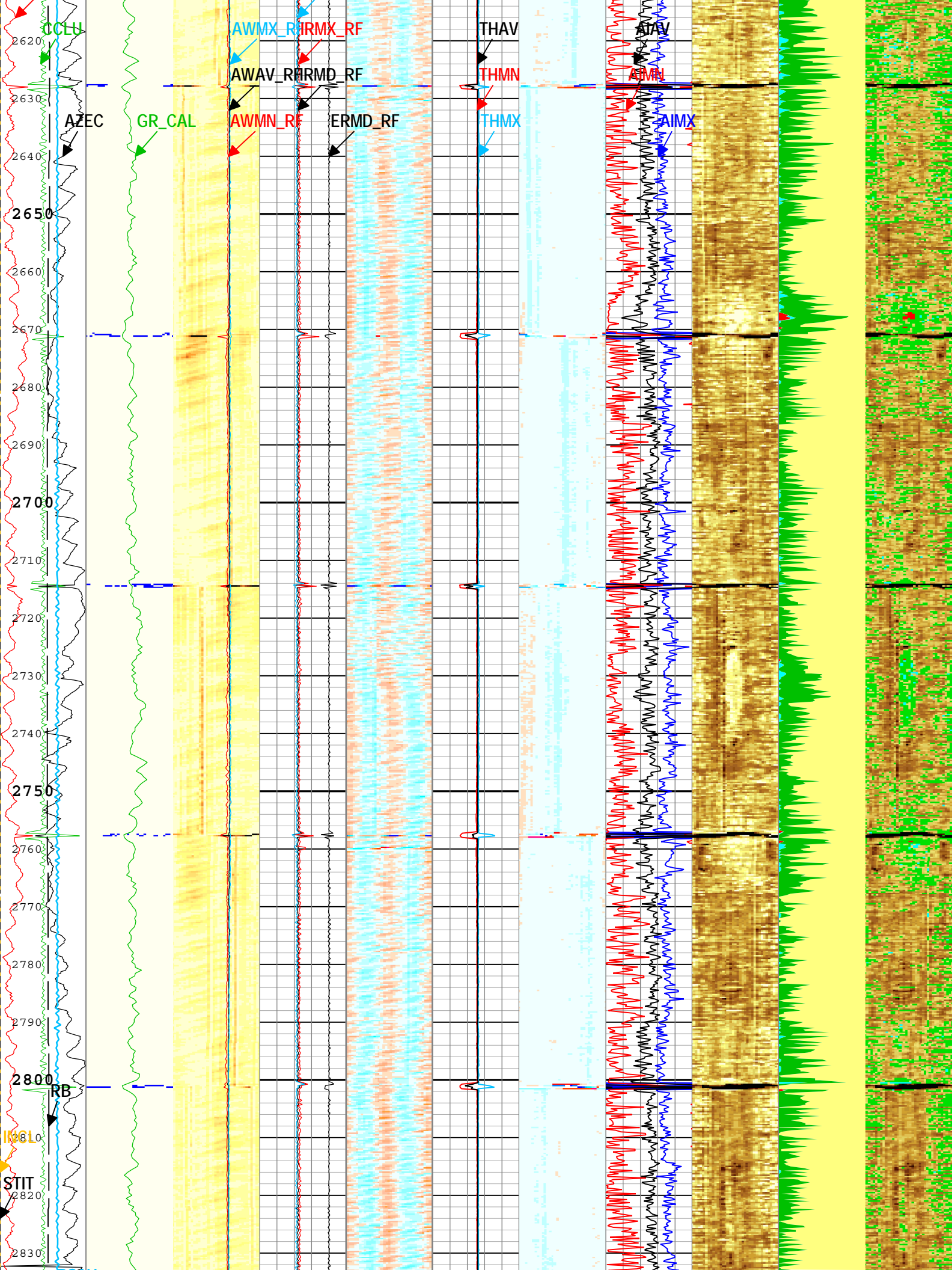


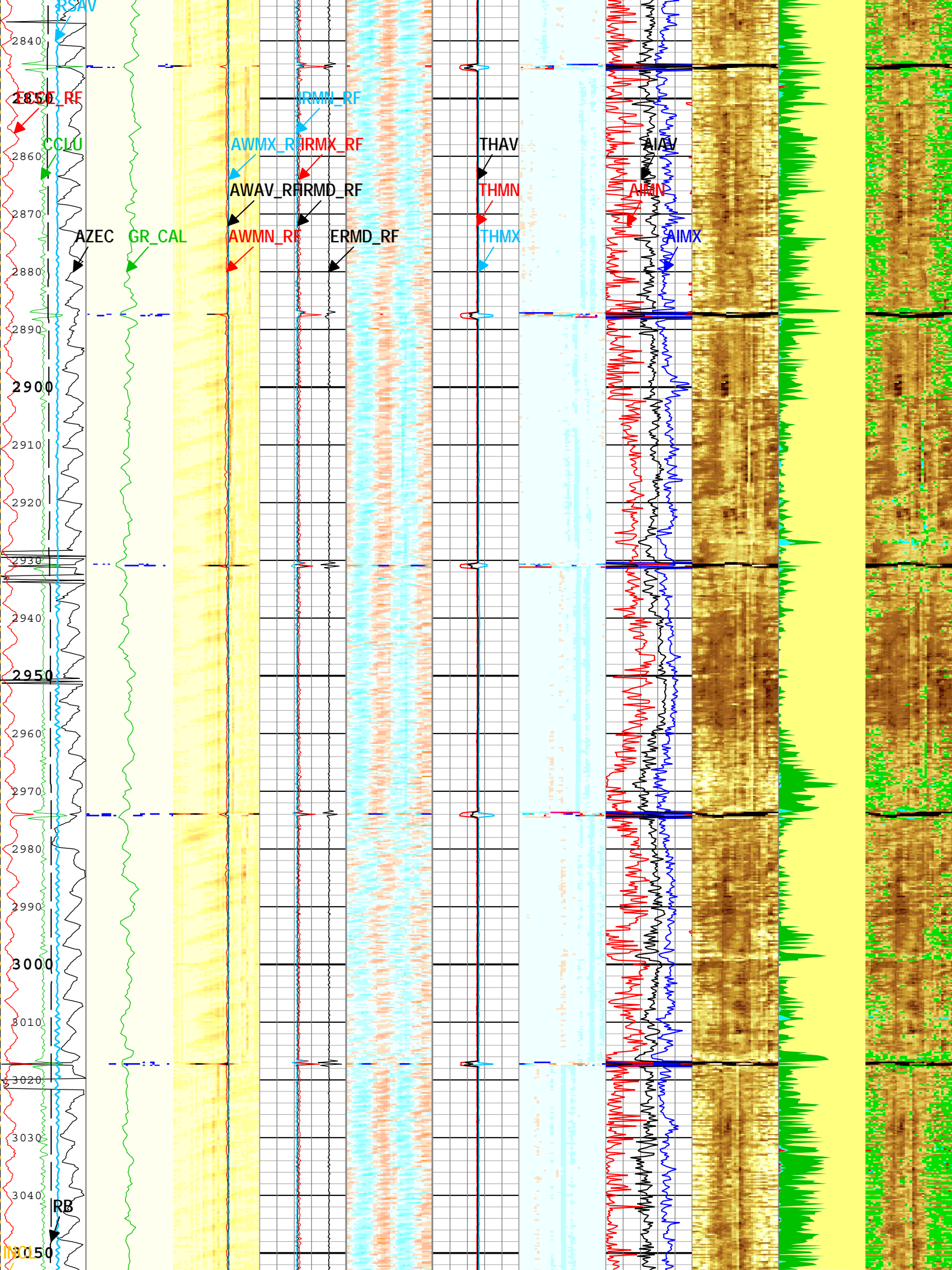


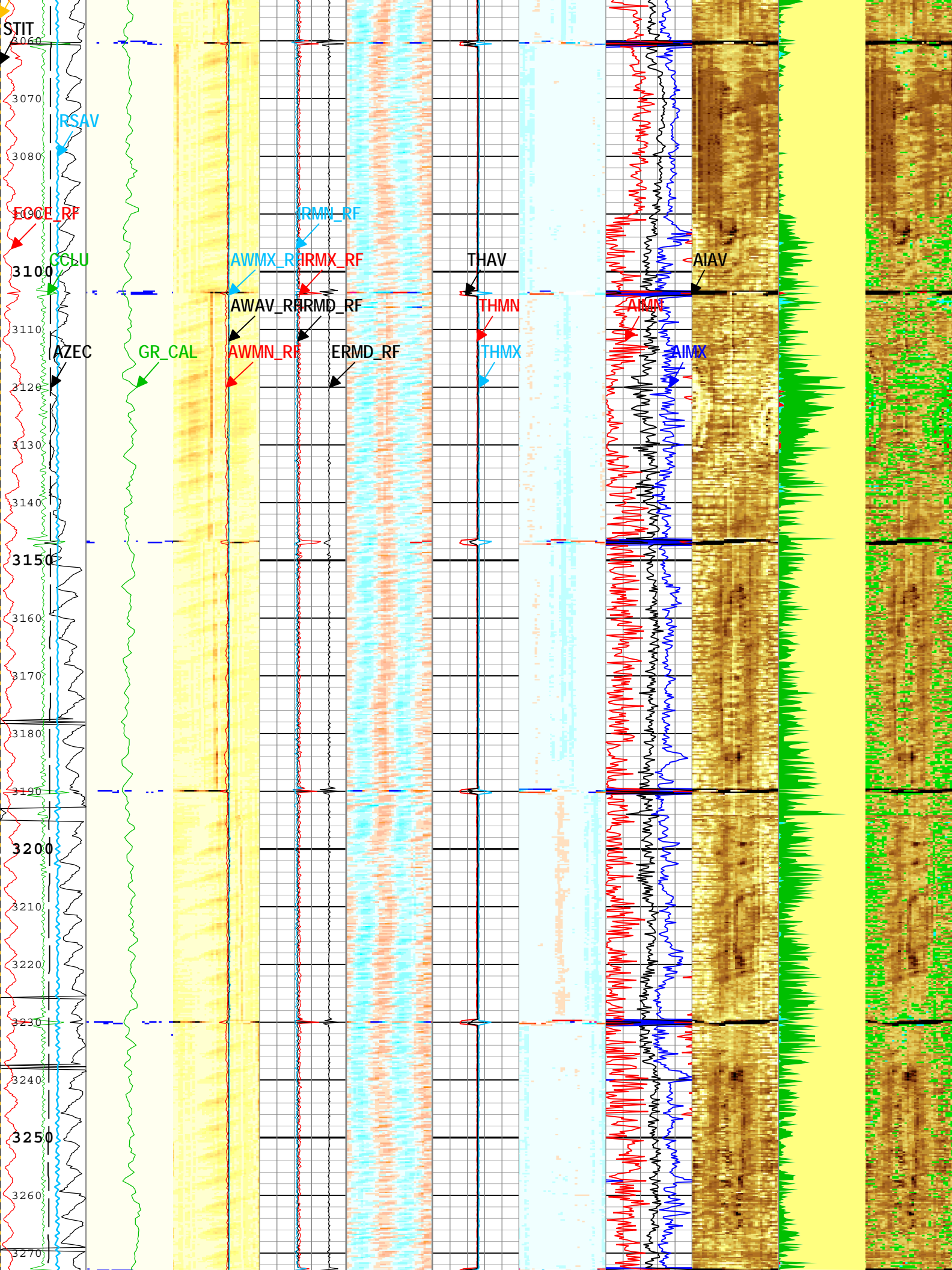


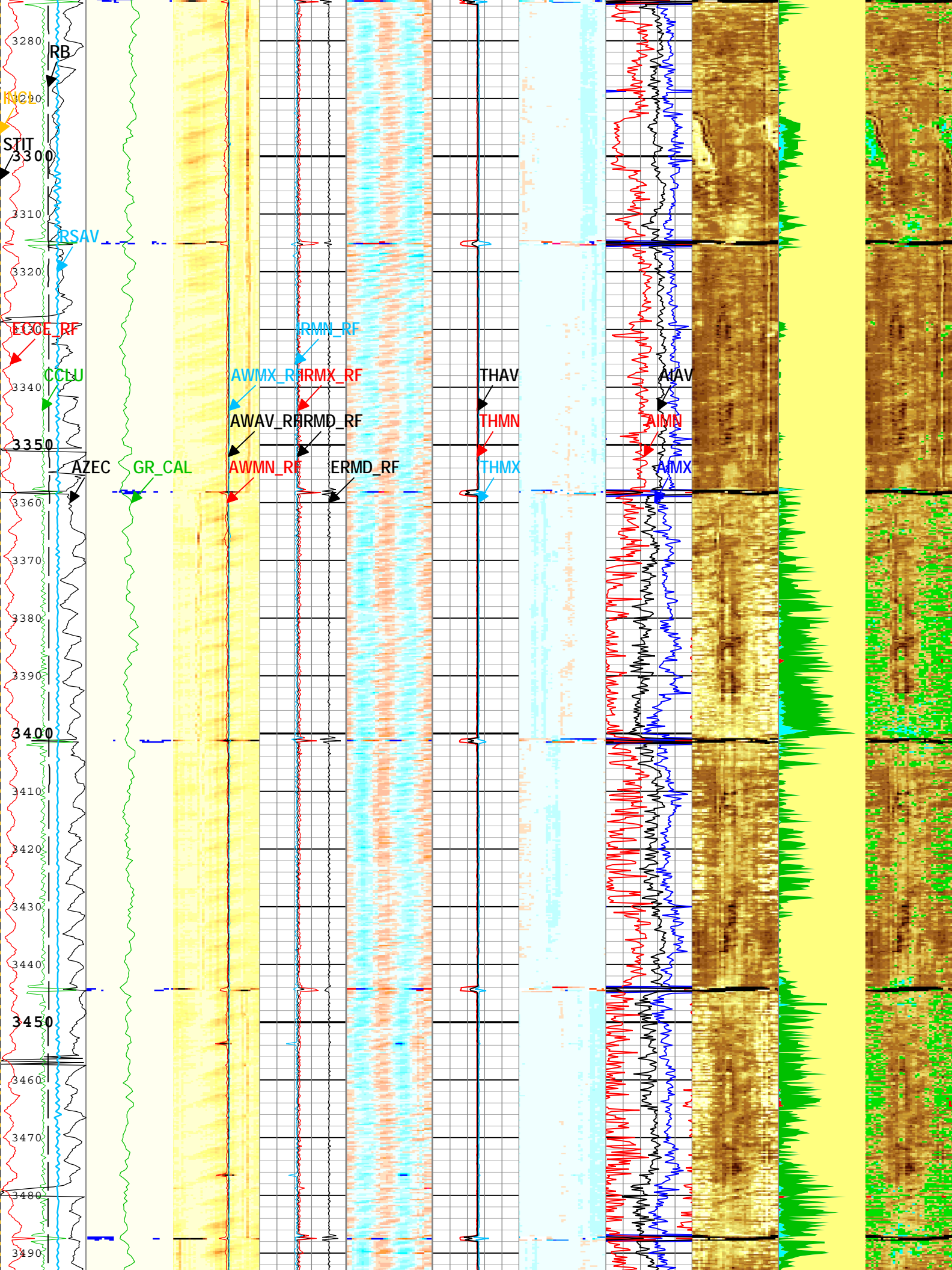


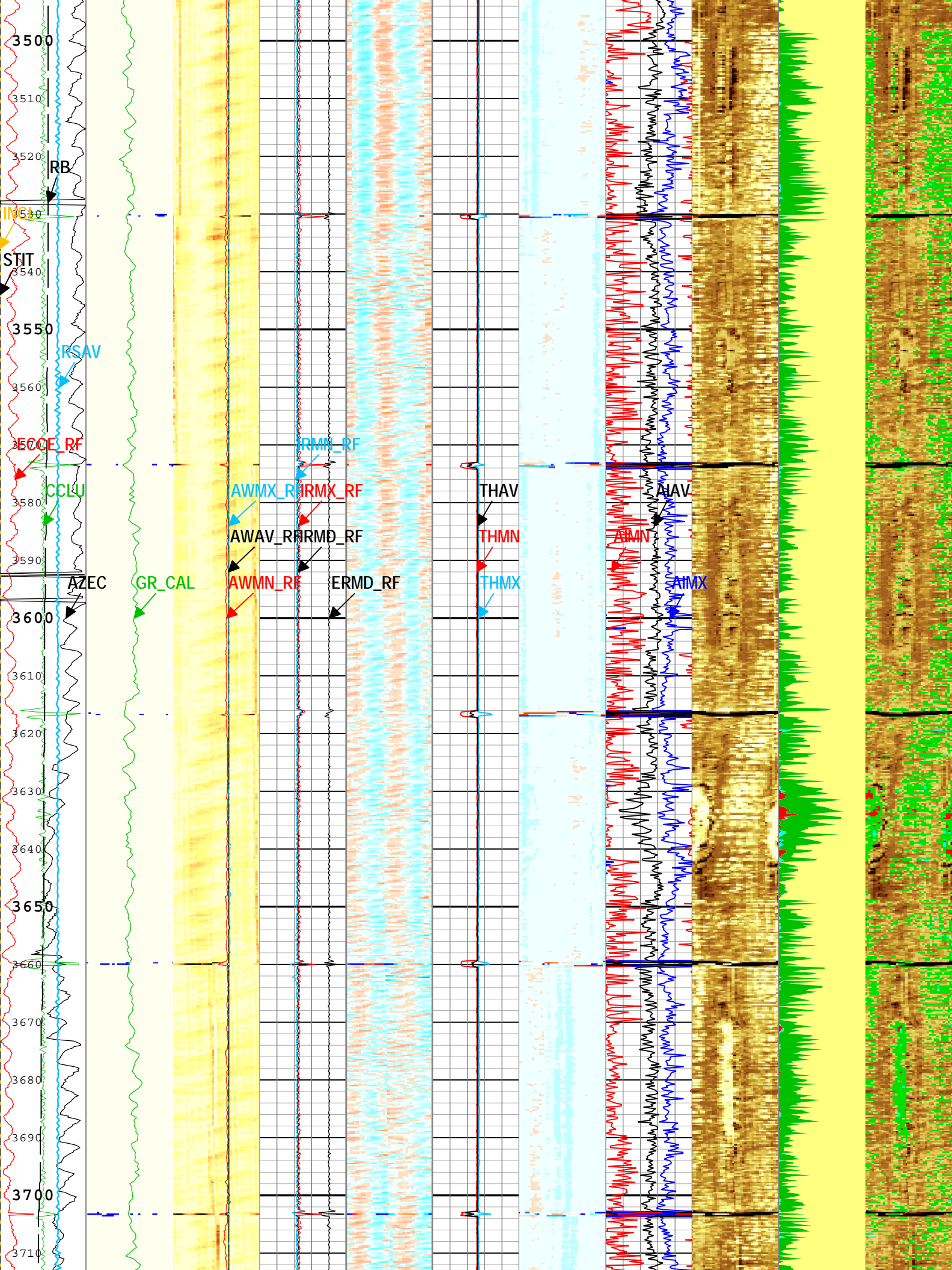


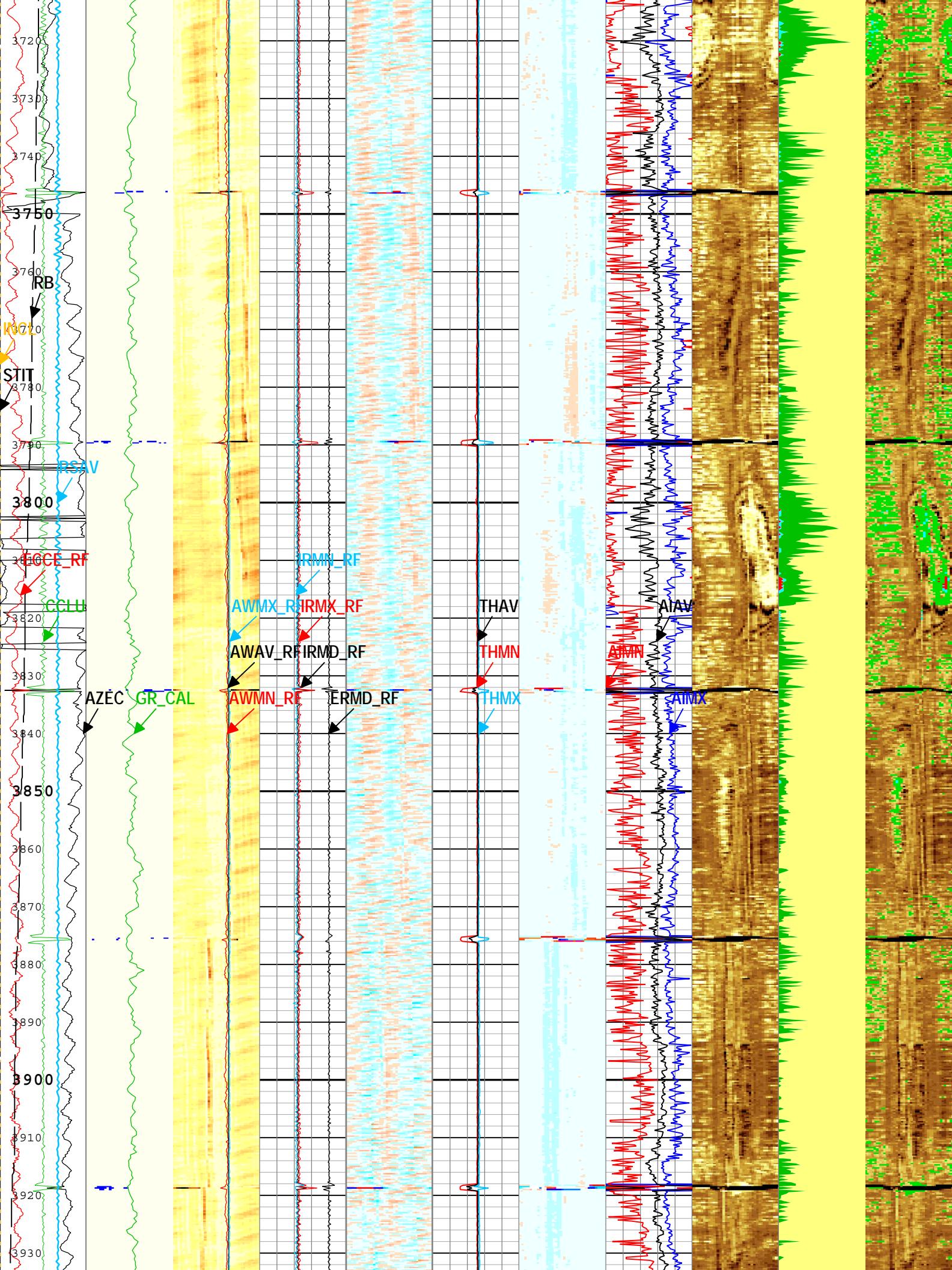


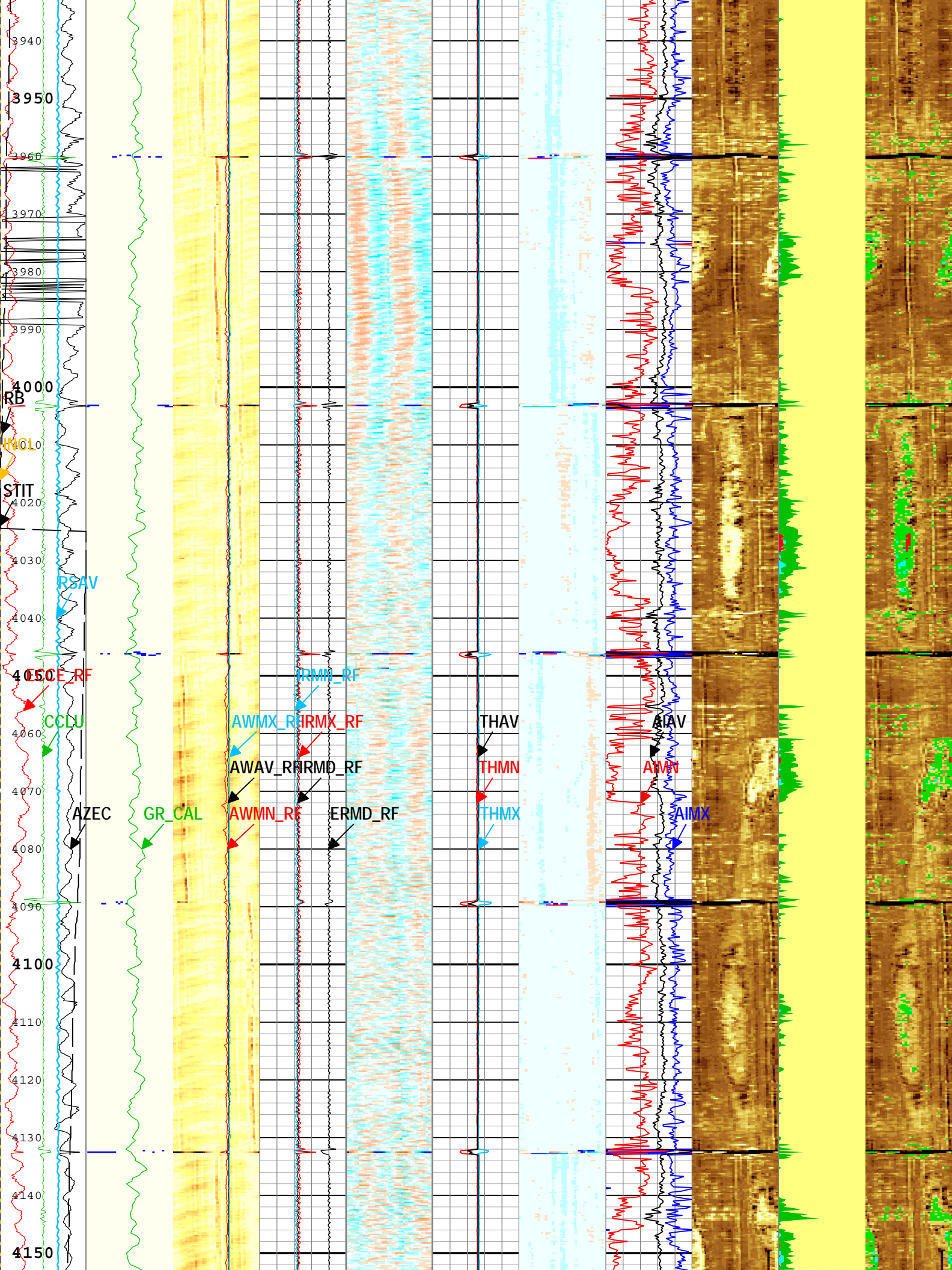


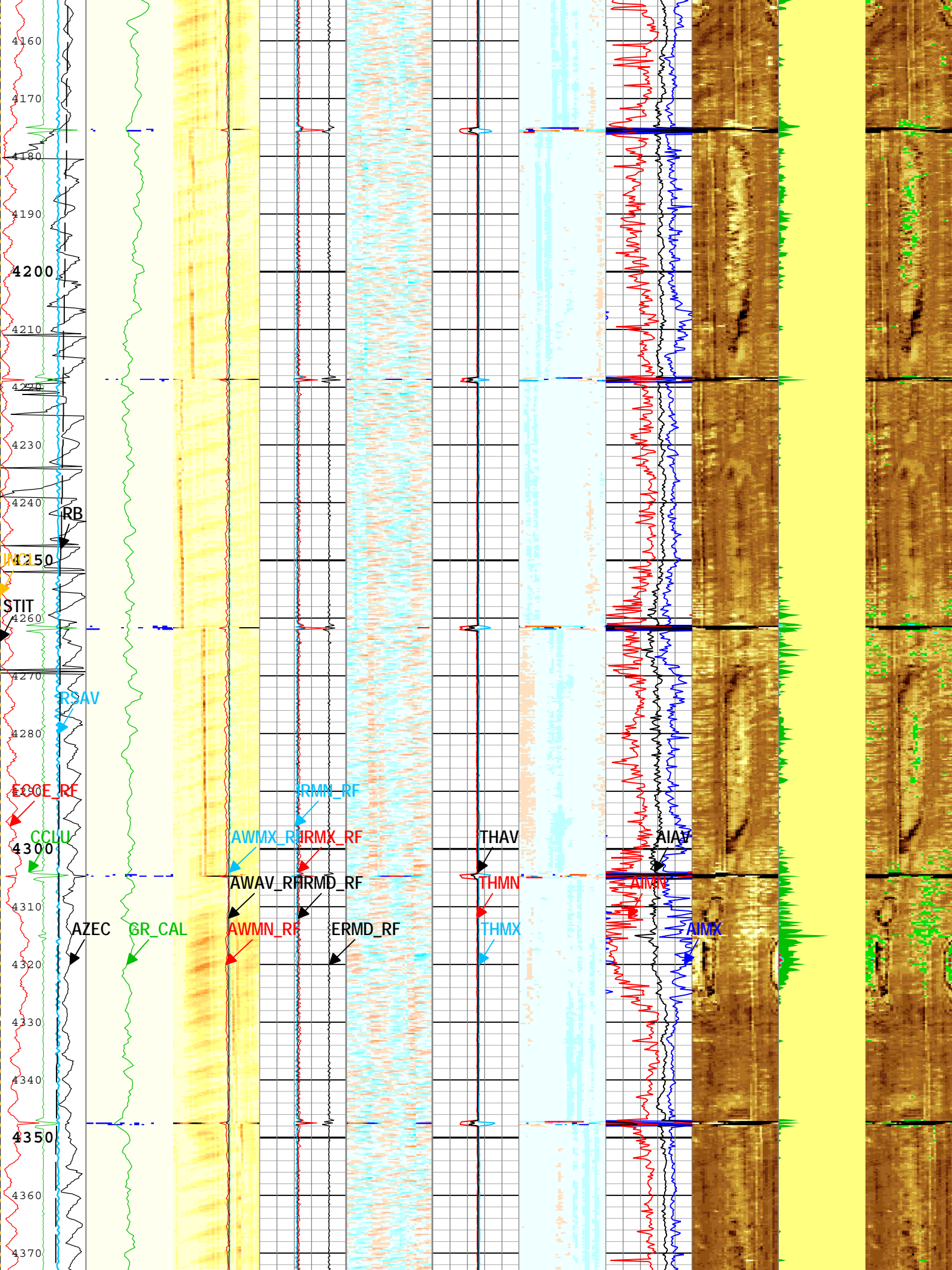


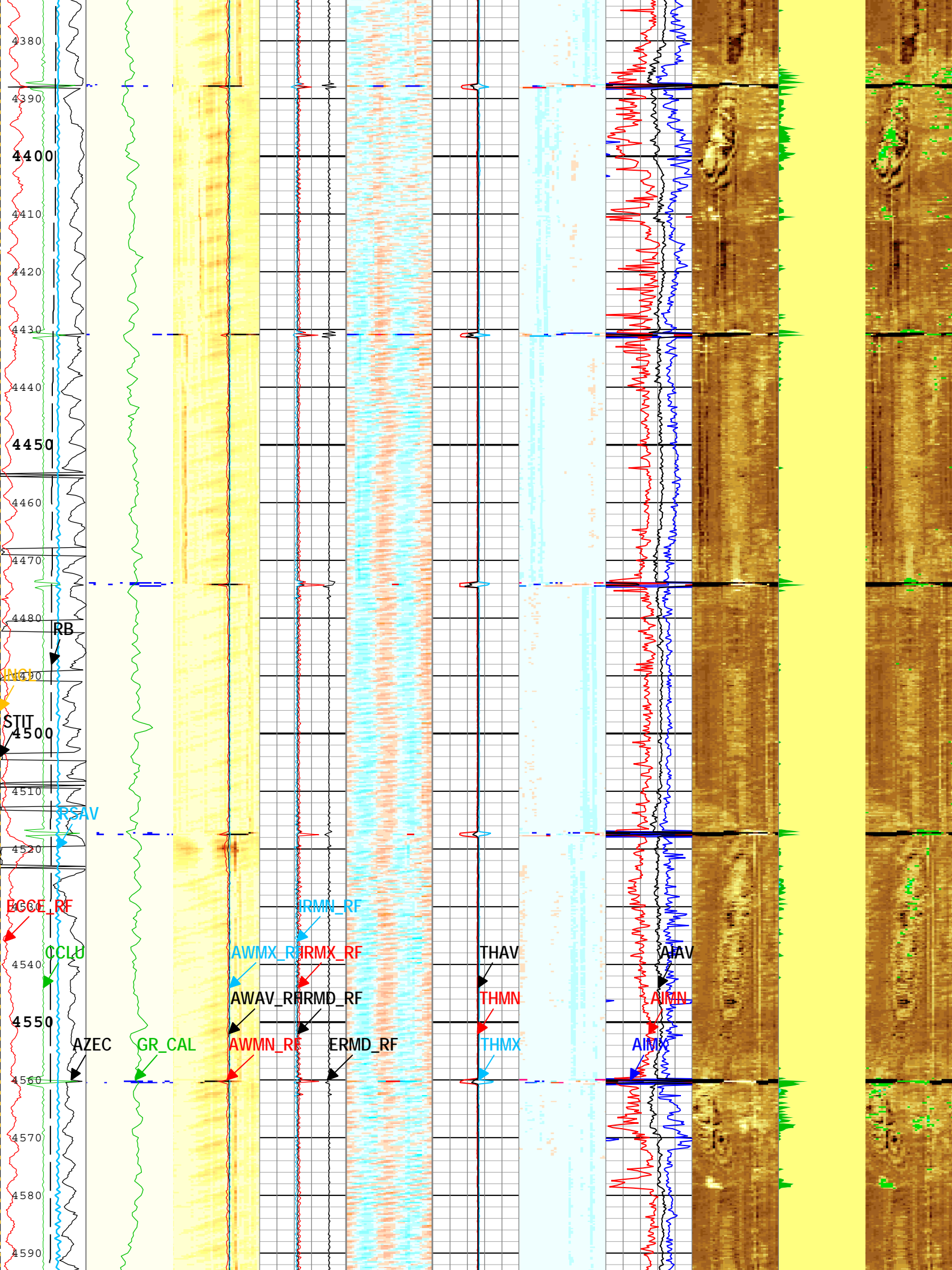


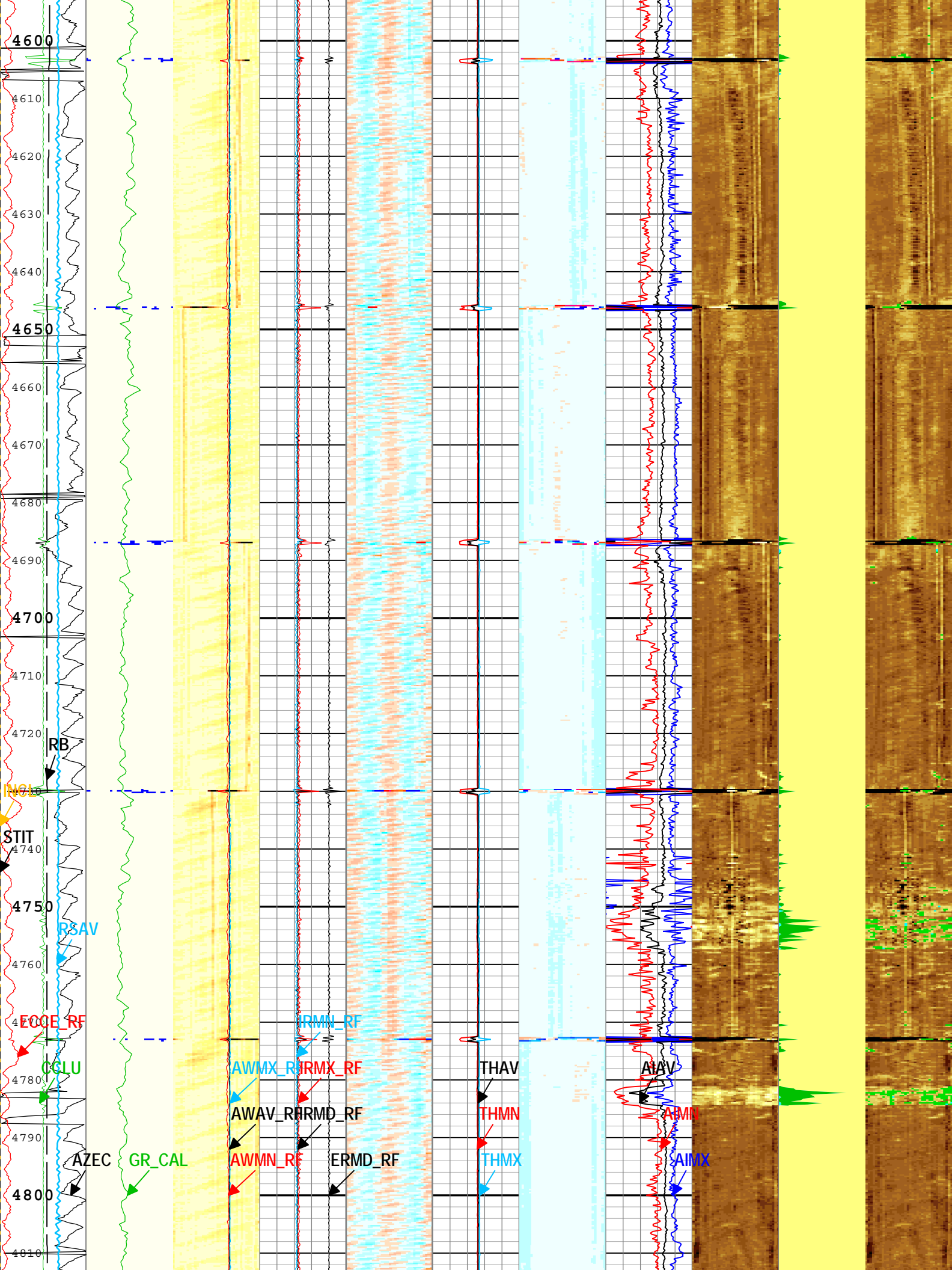


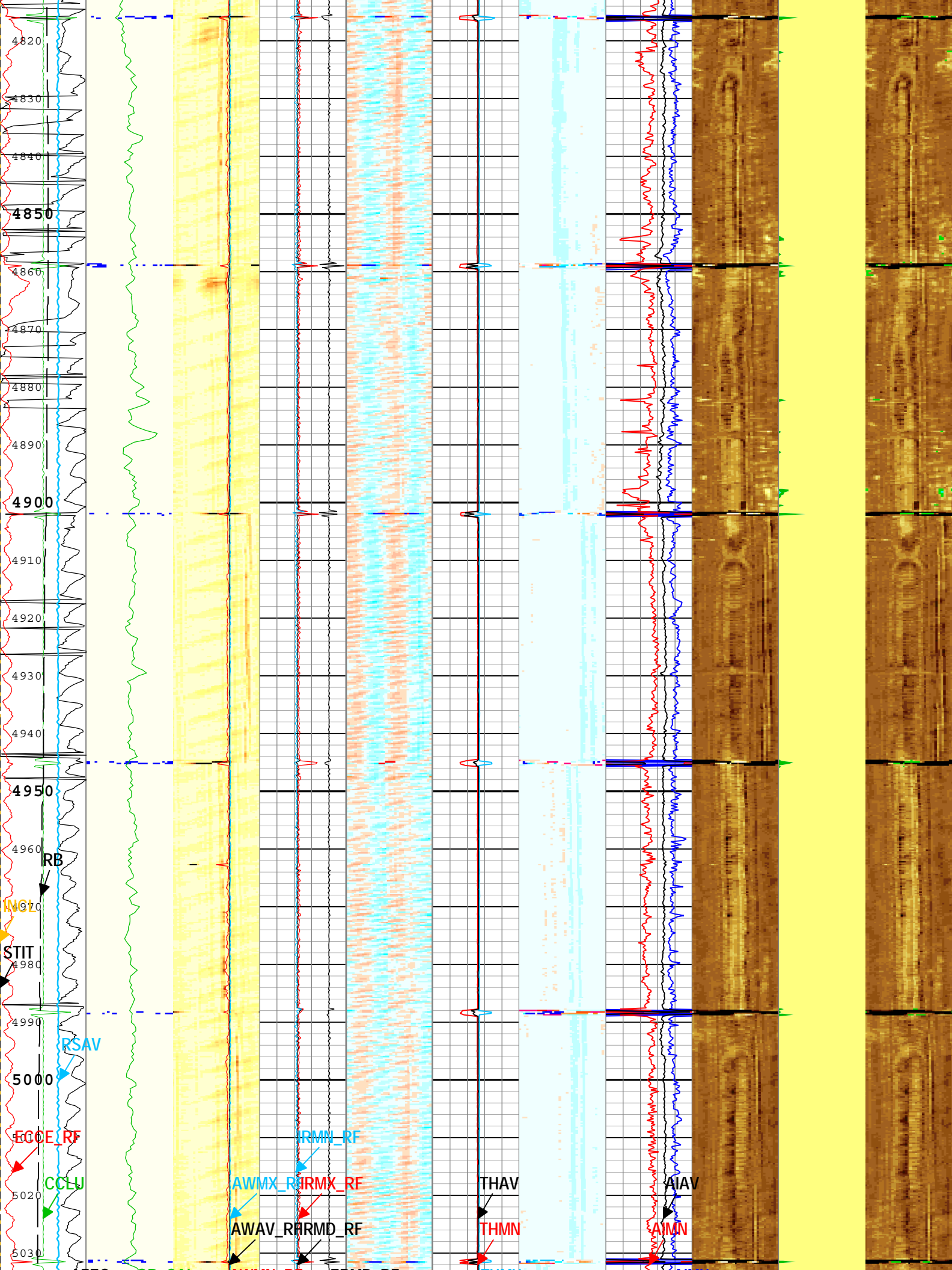


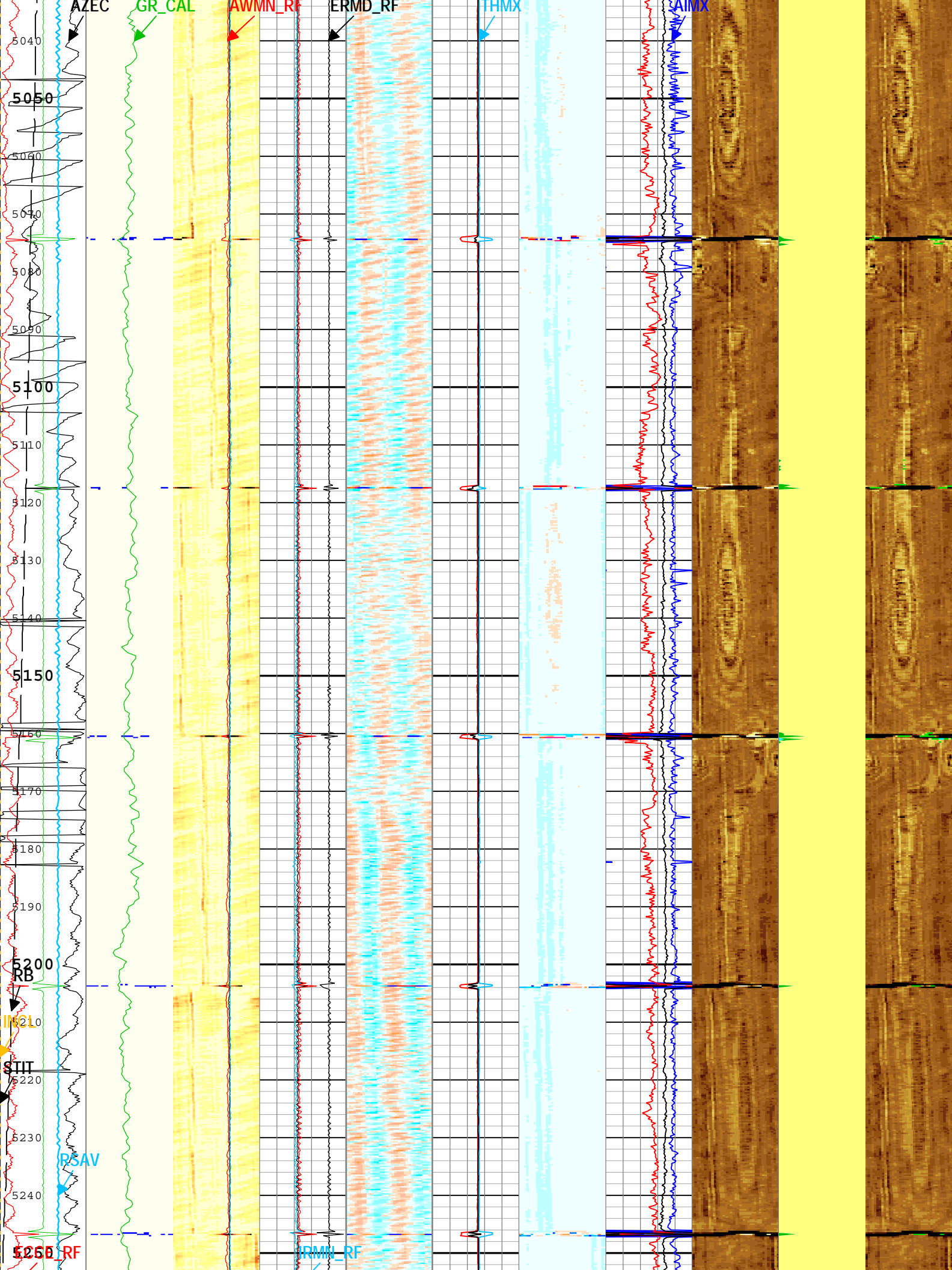


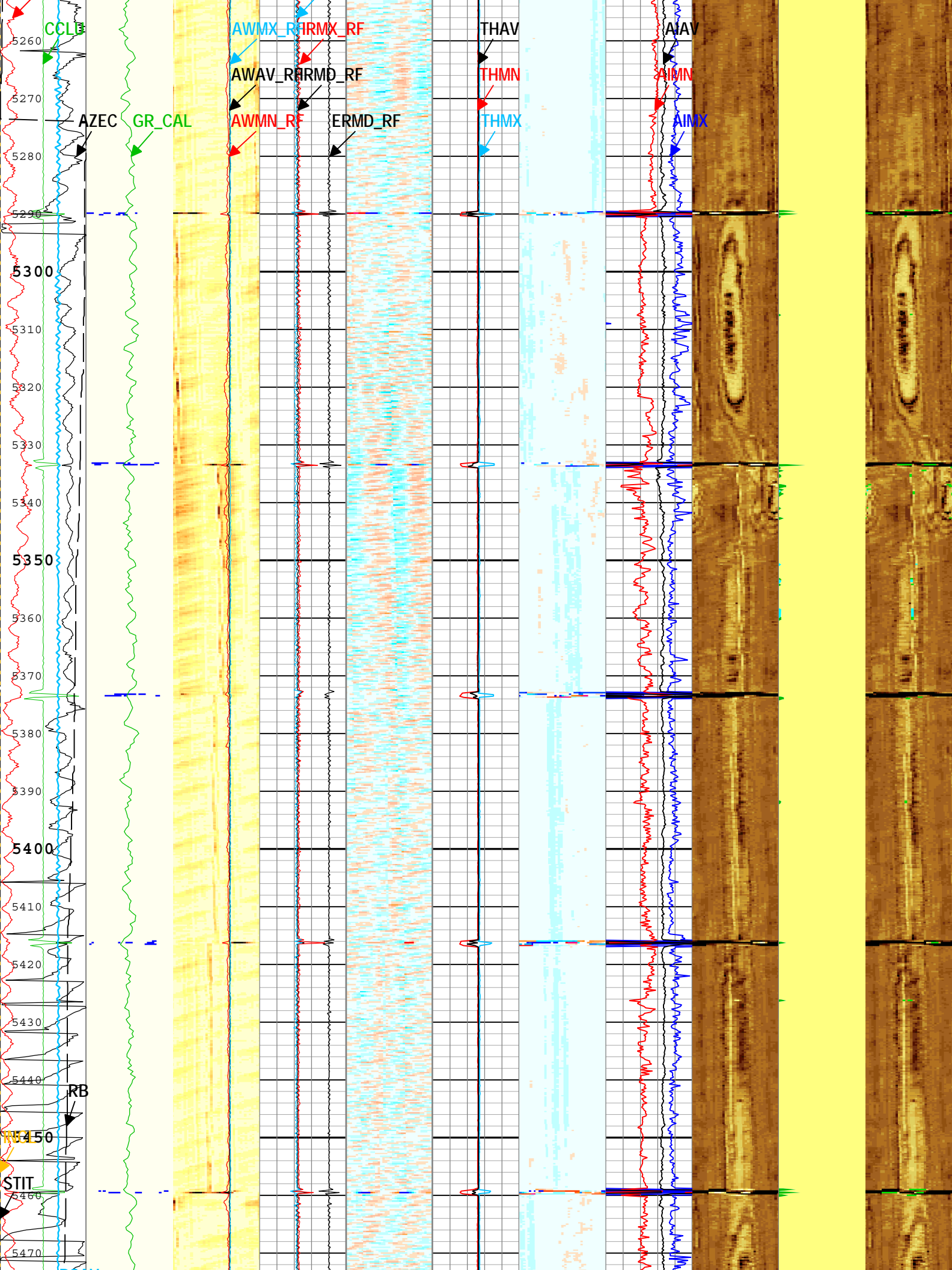


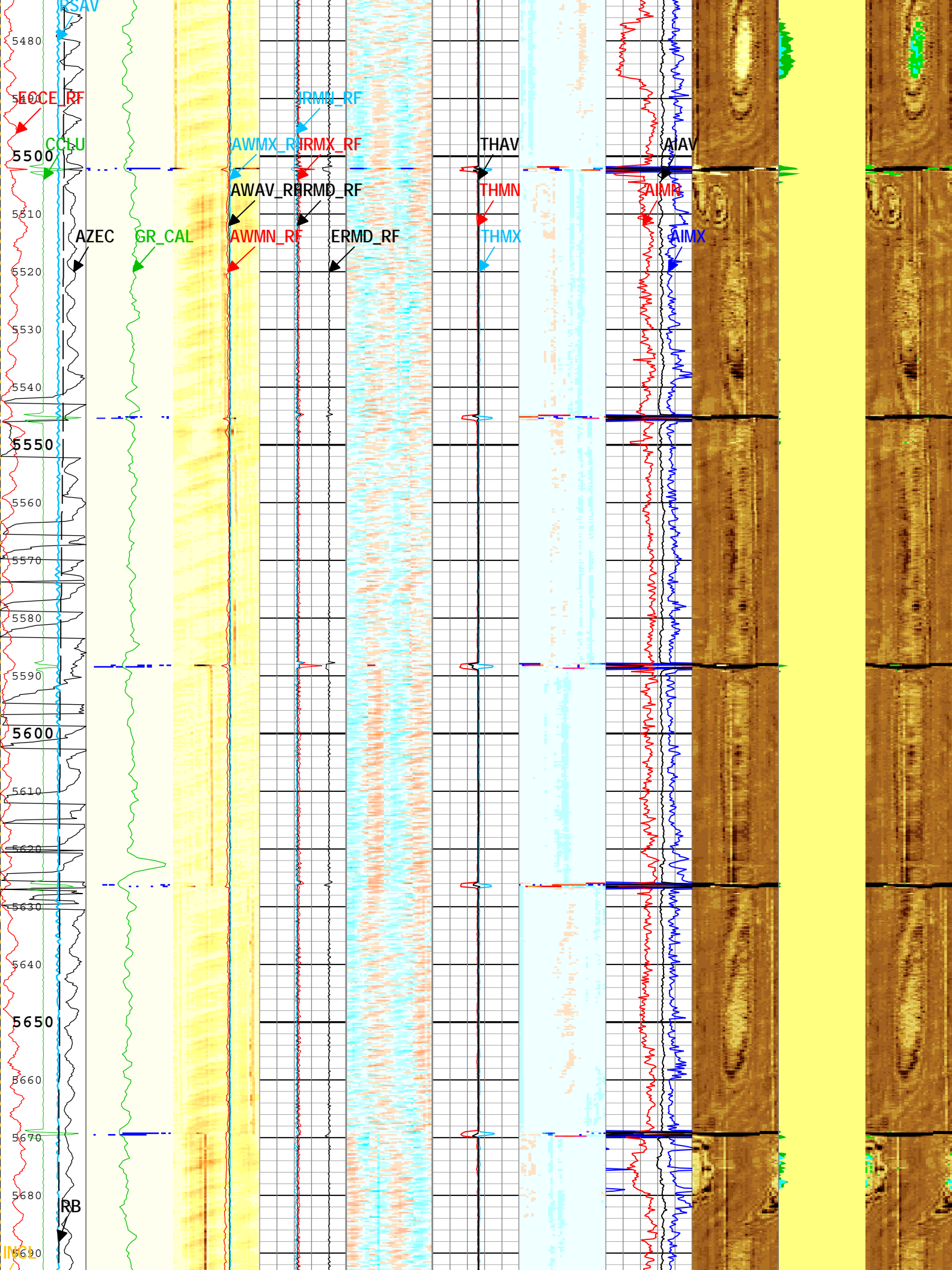


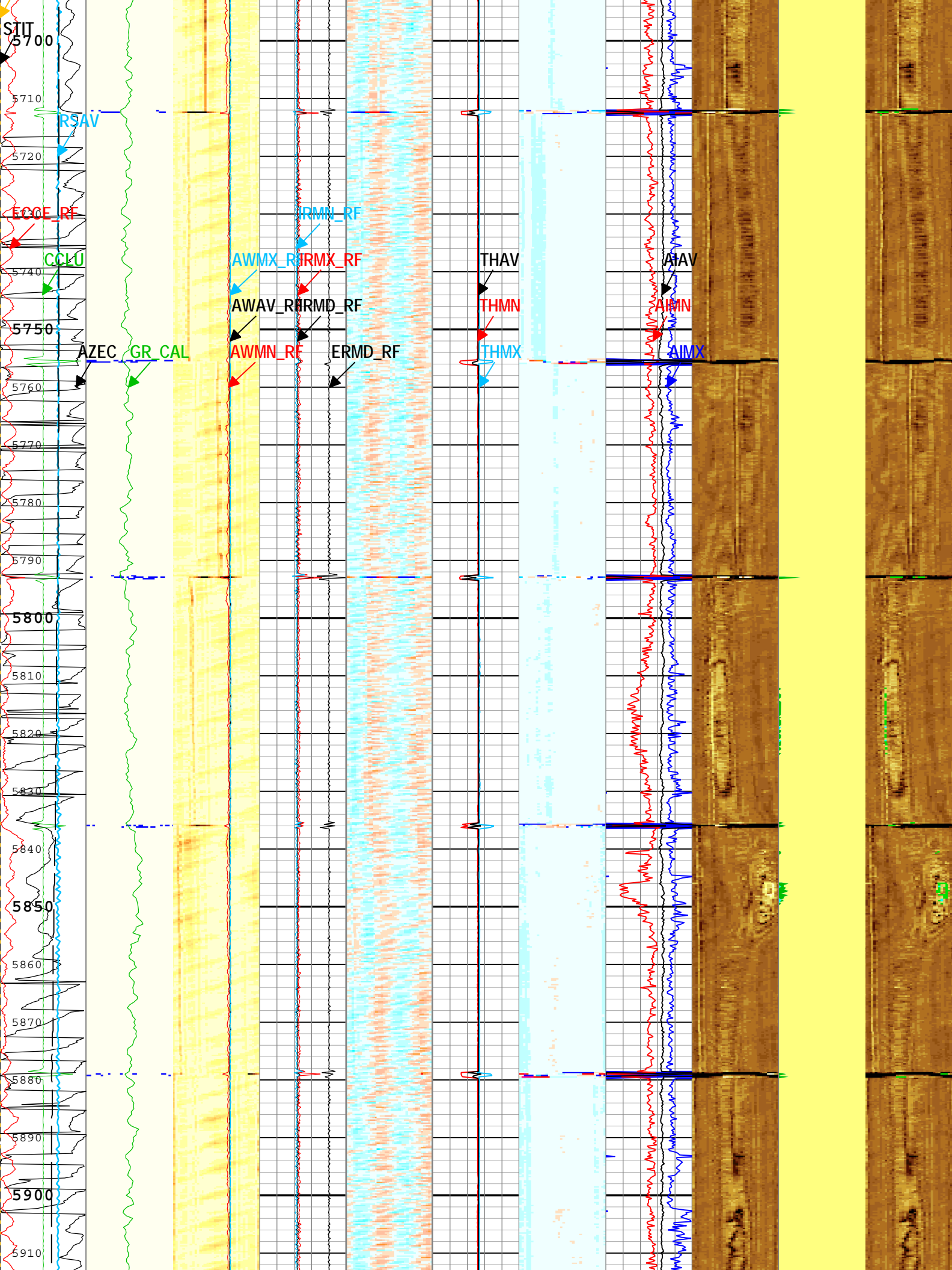


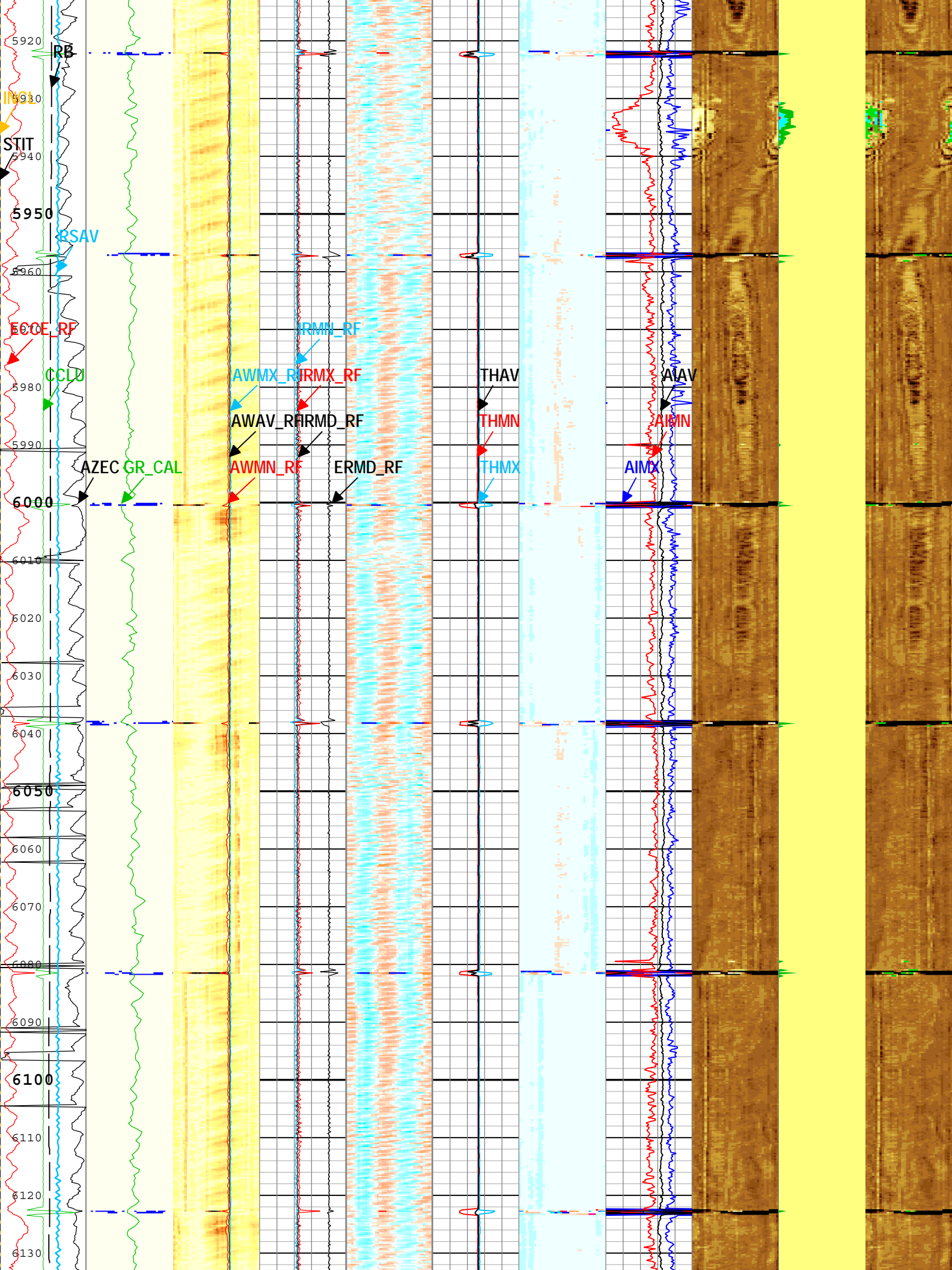


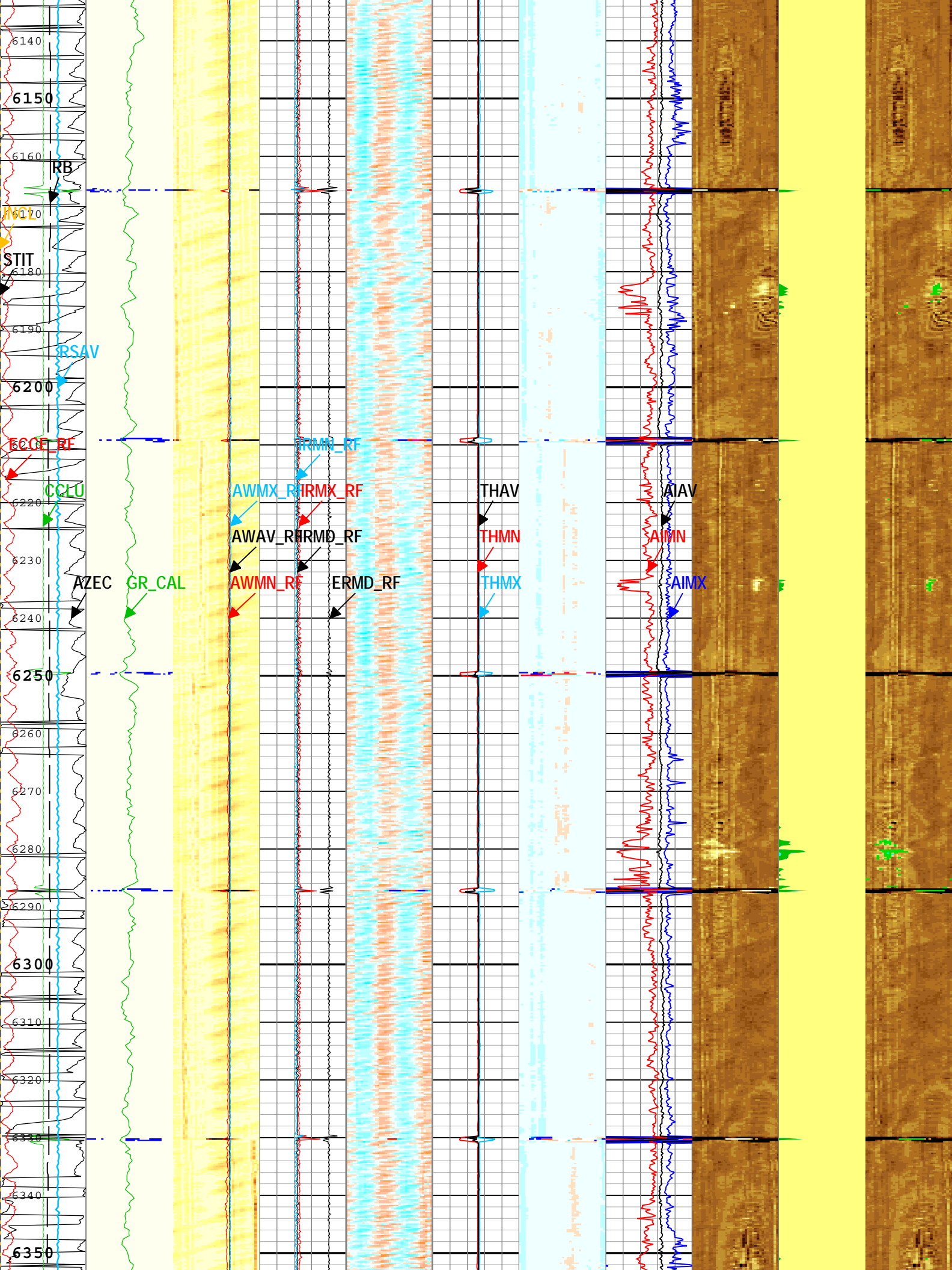


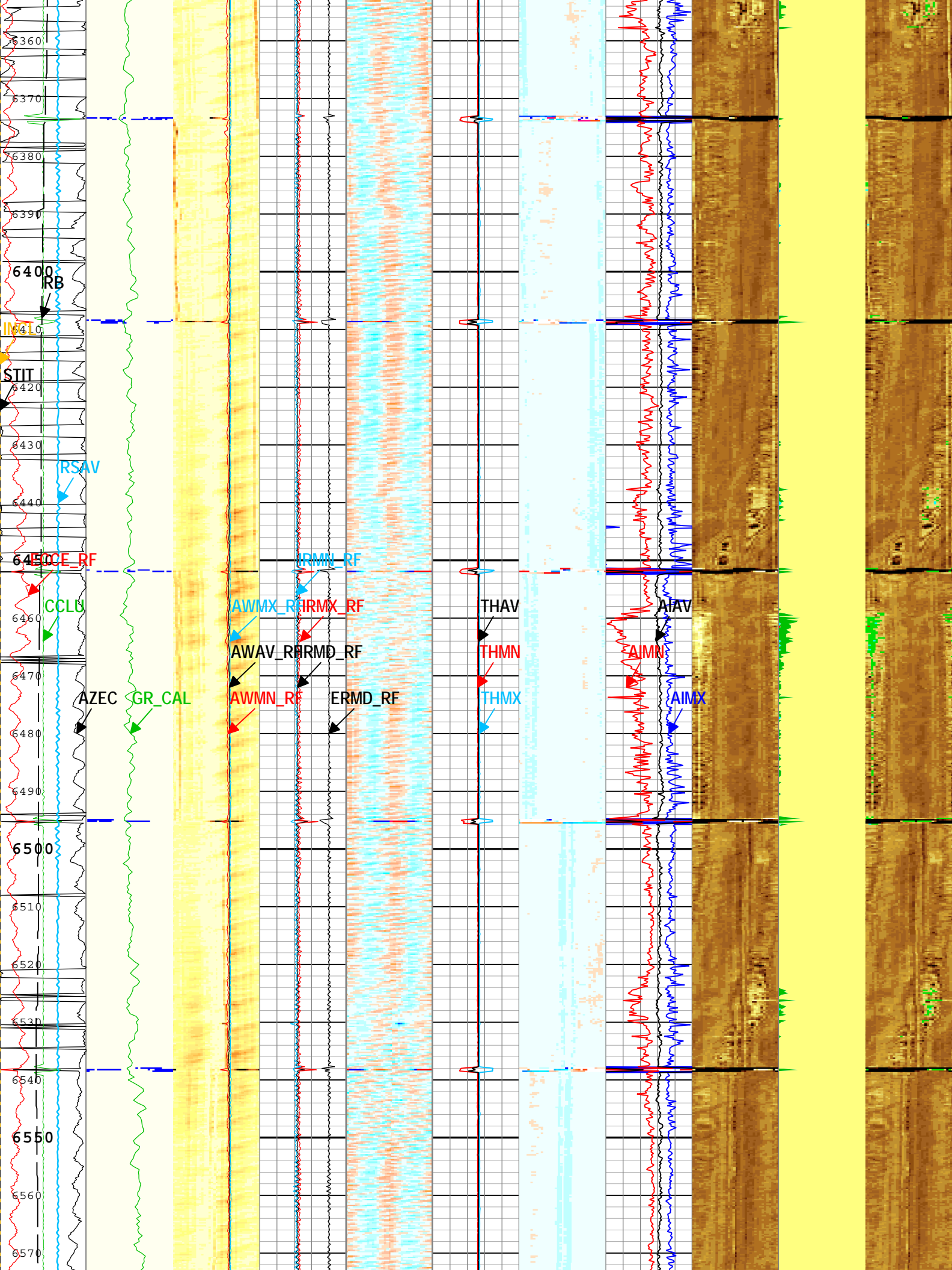


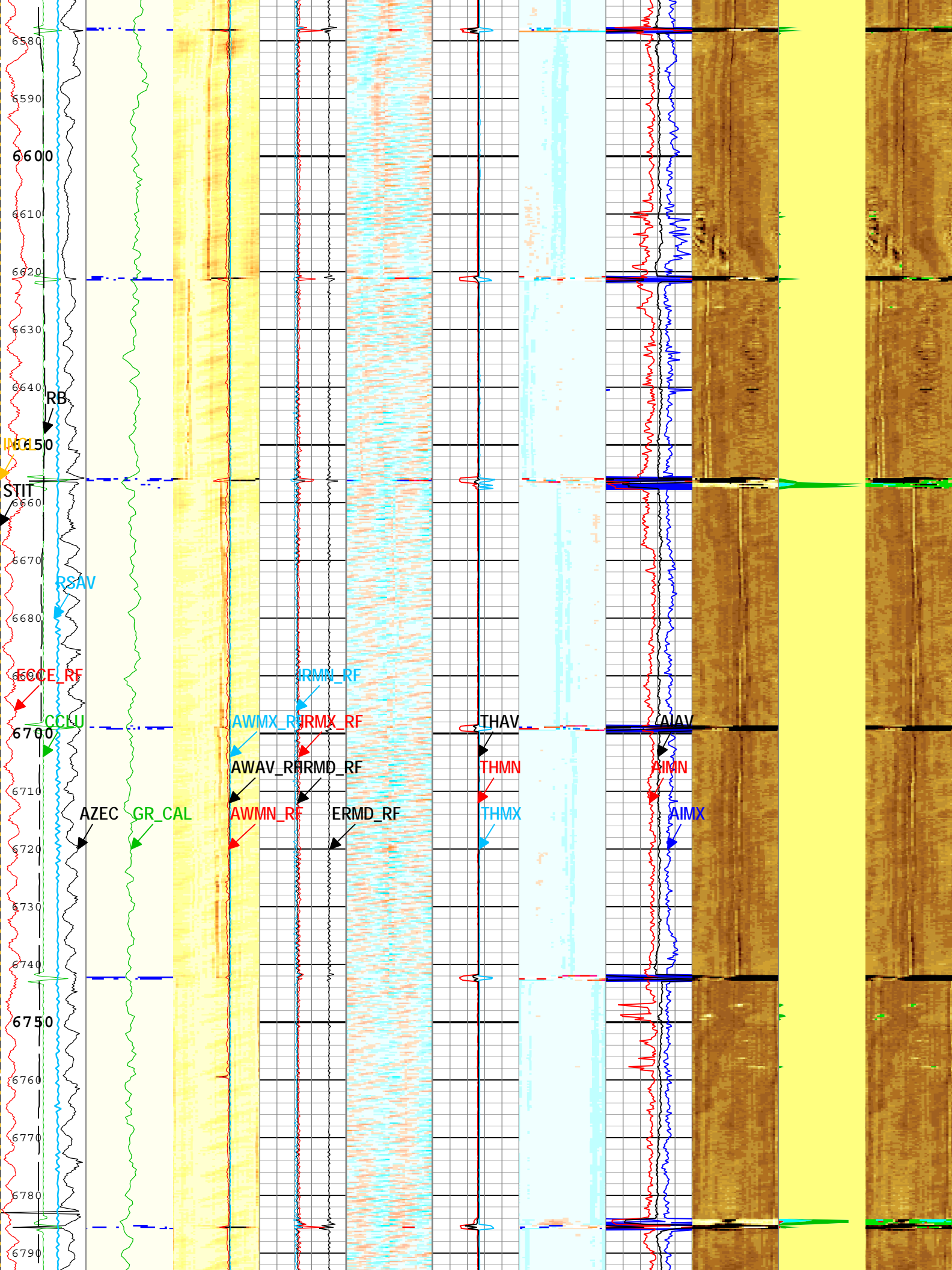


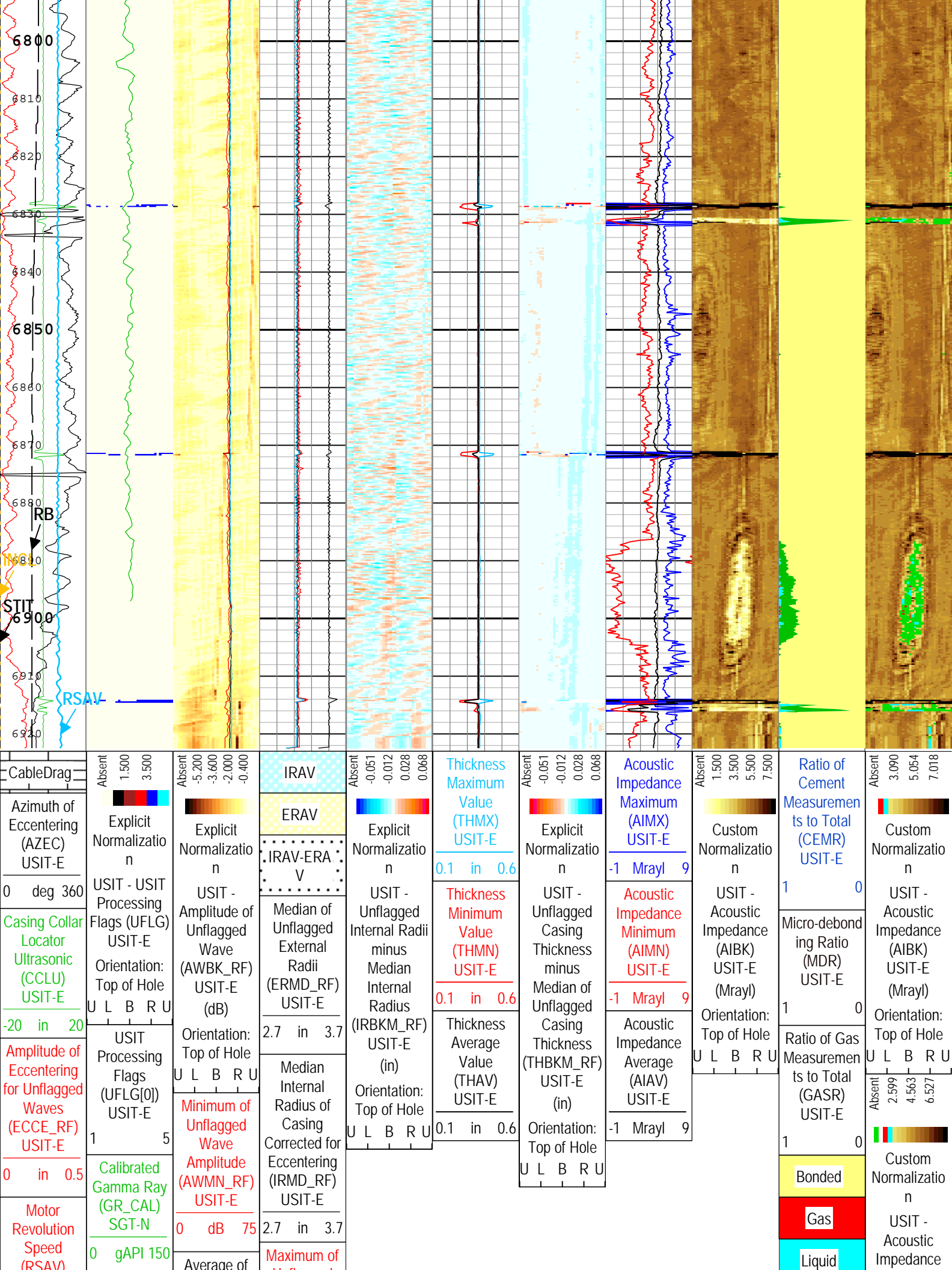












(RSAV) USIT-E		Unflagged Wave Amplitude (AWAV_RF) USIT-E	Unflagged Internal Radii (IRMX_RF) USIT-E	Micro-debonding	With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl) Orientation: Top of Hole U L B R U
-8 c/s -6		0 dB 75	2.7 in 3.7		
Motor Revolution Speed (RSAV) USIT-E		Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E	Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E		
6 c/s 8		0 dB 75	2.7 in 3.7		
Stuck Tool Indicator, Total (STIT)					
0 ft 50					
Hole inclination (INCL)					
0 deg 100					
Relative Bearing (RB) USIT-E					
0 deg 360					

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

- 1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

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

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

Pulse Origin Not Detected

WINLEN Error

Casing Thickness Error

Loop Processing Error

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Jun-2014 17:27:40

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
AFVU	Automatic Fluid Velocity Update	USIT-E	On	
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CMTY	Cement Type	USIT-E	Regular 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
ETIP	Elevation of the TIP above MSL	WLSESSION	5037	ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
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	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	

OPLEV	USIT Remove Flagged Data Level	USIT-E	OPT2	
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
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVR	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
TCUB	T^3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	6920	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
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
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	Manual	
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)
MEAS_WLEN	22.5	0	6923
ZMUD	1.58	0	150
ZMUD	1.57	150	250
ZMUD	1.58	250	800
ZMUD	1.59	800	1300
ZMUD	1.6	1300	2300
ZMUD	1.61	2300	3500
ZMUD	1.62	3500	4800
ZMUD	1.63	4800	6923
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	24	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	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz

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	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6920	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	38.4	us
WINE	Window End Time	USIT-E	78.4	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	55	17-Jun-2014 13:21:08	17-Jun-2014 13:43:19	6922.94	6898.12
EMXV	50	17-Jun-2014 13:43:19	17-Jun-2014 14:19:35	6898.12	3756.65
EMXV	51	17-Jun-2014 14:19:35	17-Jun-2014 14:24:16	3756.65	3351.28
EMXV	53	17-Jun-2014 14:24:16	17-Jun-2014 14:30:41	3351.28	2794.43
EMXV	55	17-Jun-2014 14:30:41	17-Jun-2014 14:30:48	2794.43	2784.14
EMXV	57	17-Jun-2014 14:30:48	17-Jun-2014 14:30:59	2784.14	2768.78
EMXV	60	17-Jun-2014 14:30:59	17-Jun-2014 14:50:57	2768.78	1024.6
EMXV	63	17-Jun-2014 14:50:57	17-Jun-2014 14:51:15	1024.6	998.69
EMXV	65	17-Jun-2014 14:51:15	17-Jun-2014 14:52:58	998.69	847.36
EMXV	67	17-Jun-2014 14:52:58	17-Jun-2014 15:06:09	847.36	11.12
All depth are at tool zero.					

USI Goodwin	
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USIT - Fluid Properties Measurement	
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Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[6]:Up	6922.94	11.12

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	150	1.58	1.58
150	250	1.57	1.57
250	800	1.58	1.58
800	1300	1.59	1.59
1300	2300	1.6	1.6
2300	3500	1.61	1.61
3500	4800	1.62	1.62
4800		1.63	1.63

Run 1

USI Goodwin Compressed - 3000 PSI Pass
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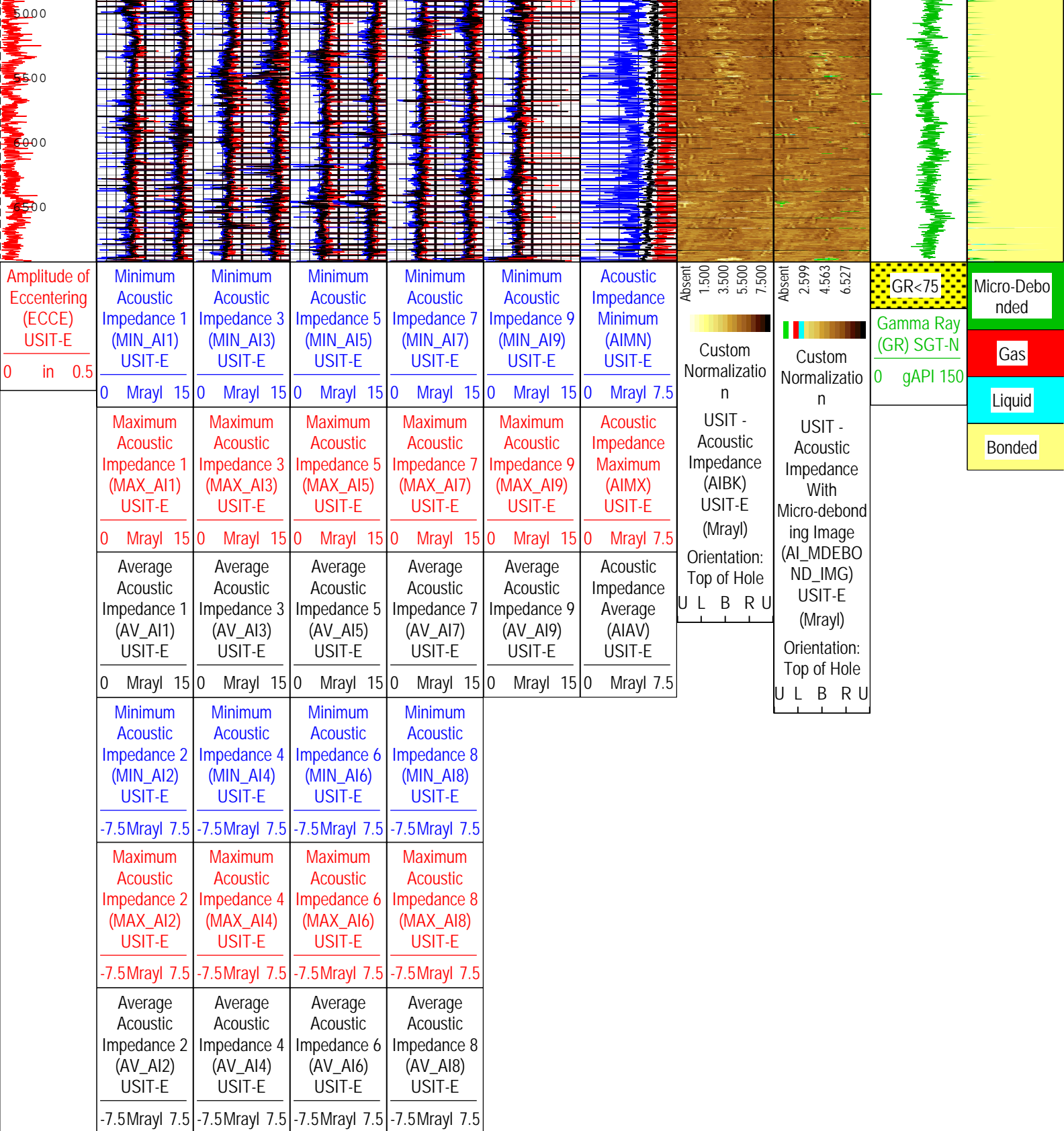
Log	Company:Anadarko Petroleum Company	Well:Spurling 34N-34HZ
		Run 1: Main[6]:Up:S006

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Jun-2014 17:27:57

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 (MIN_AI1)	Minimum Acoustic Impedance 3 (MIN_AI3)	Minimum Acoustic Impedance 5 (MIN_AI5)	Minimum Acoustic Impedance 7 (MIN_AI7)
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[illegible]



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: 20-Jun-2014 17:27:57

Copy of USI Composite			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[3]:Up	6919.67	254.96
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	150	1.58	1.58
150	250	1.57	1.57
250	800	1.58	1.58
800	1300	1.59	1.59
1300	2300	1.6	1.6
2300	3500	1.61	1.61
3500	4800	1.62	1.62
4800		1.63	1.63

Composite 1






0 PSI pass

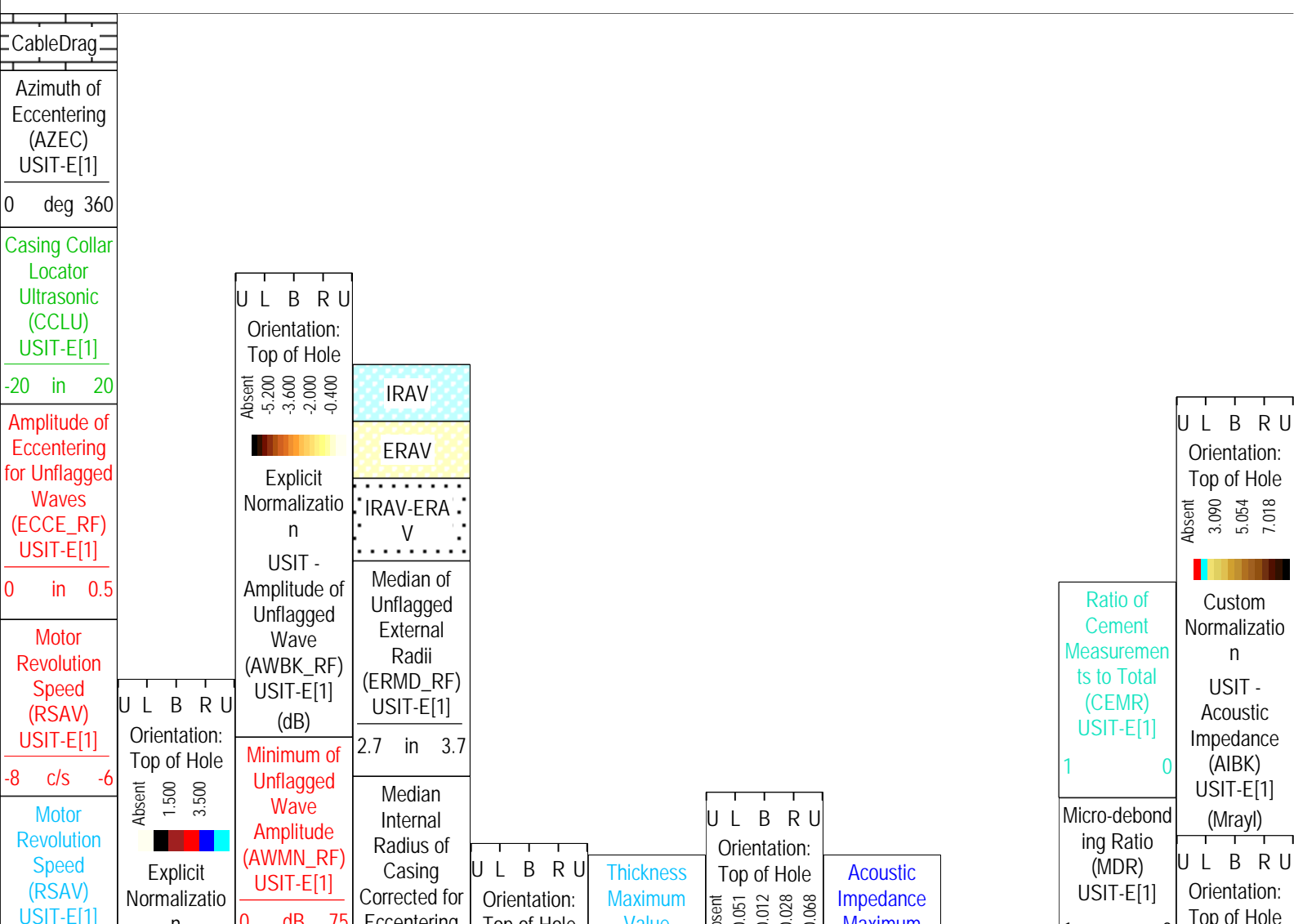
Log	Company:Anadarko Petroleum Company	Well:Spurling 34N-34HZ
		Composite 1:S006

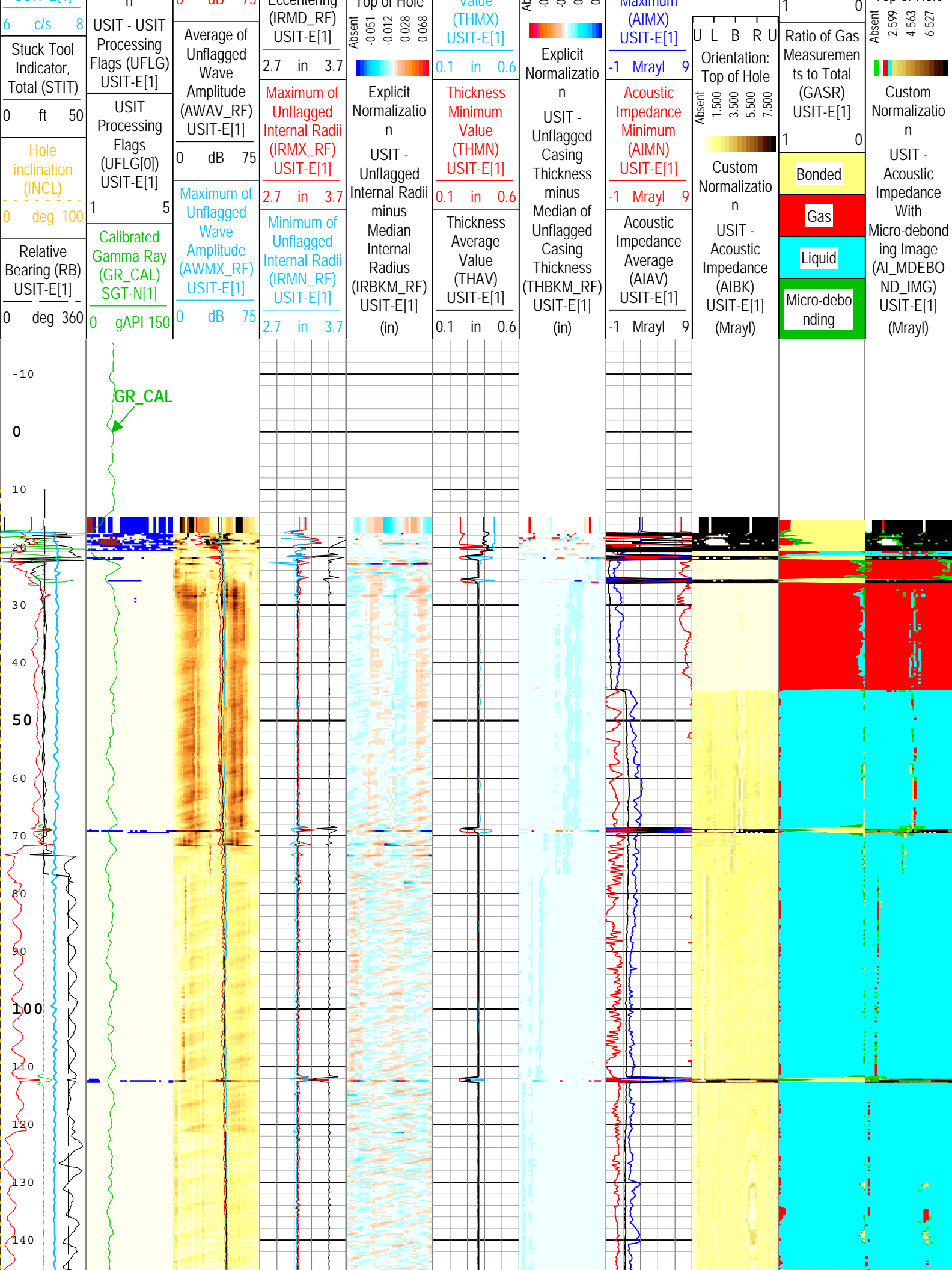
Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Jun-2014 17:28:05

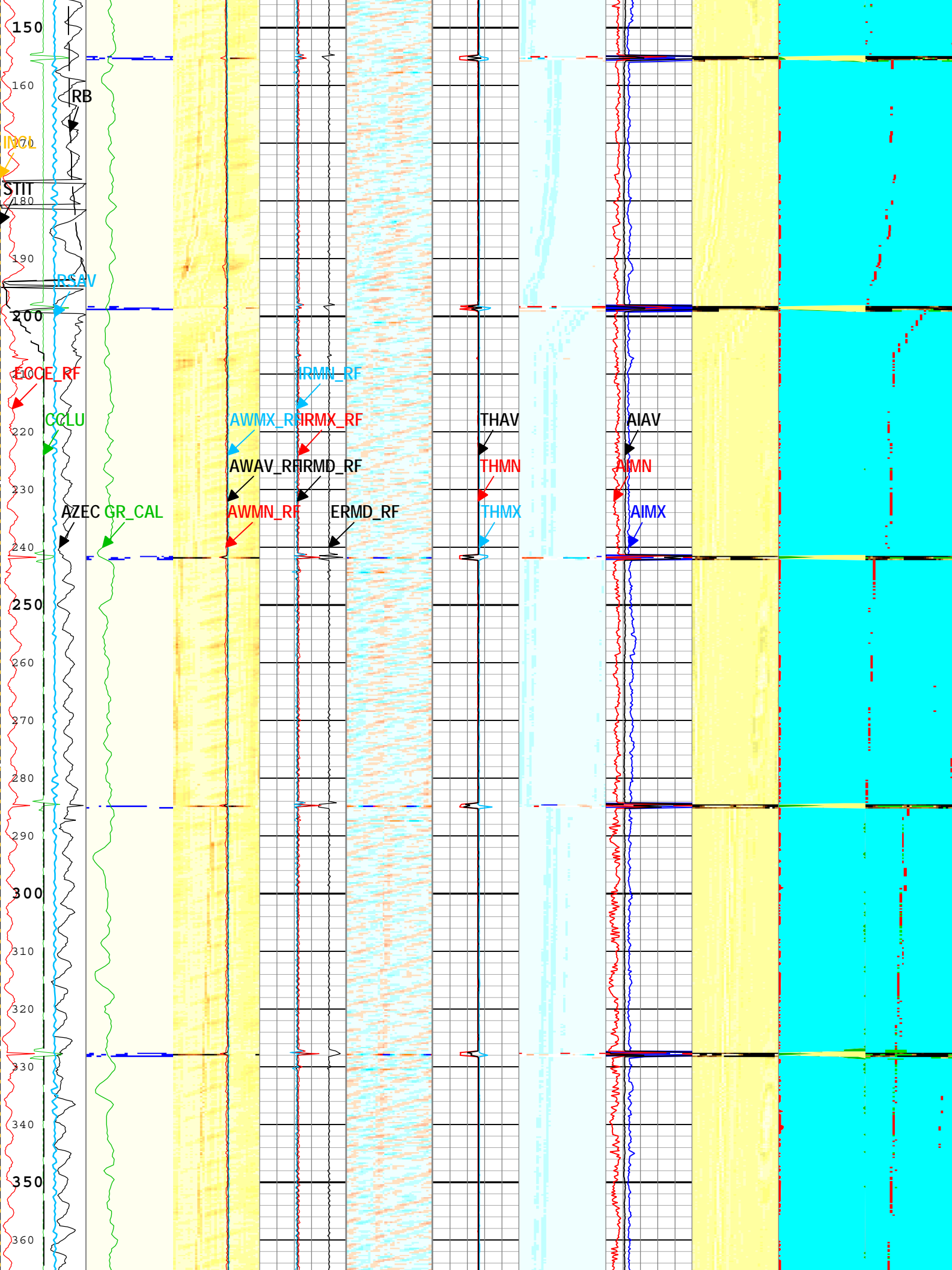
TIME_1900 - Time Marked every 60.00 (s)

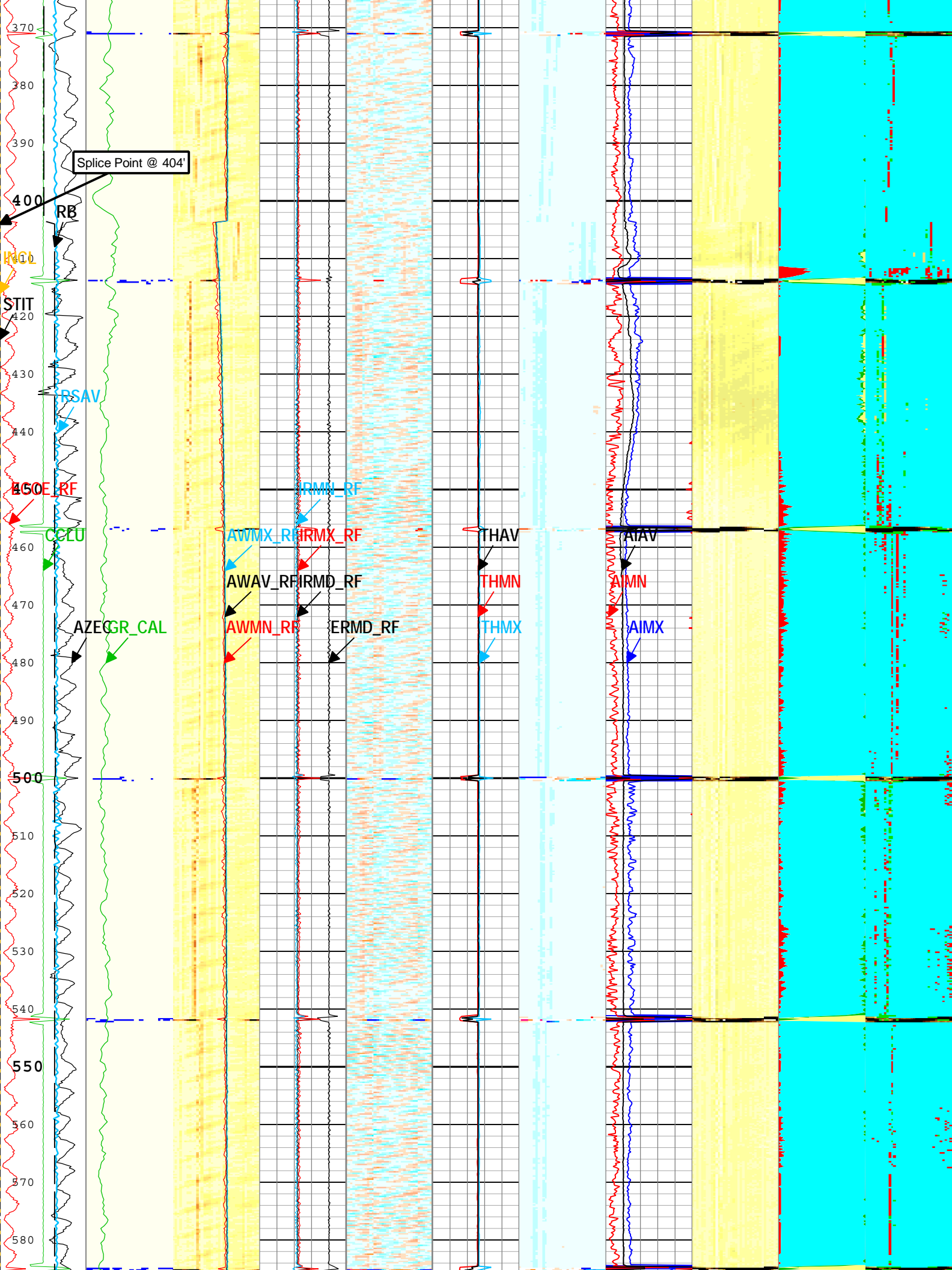
USIT Processing Flags (UFLG[0]) USIT-E[1]

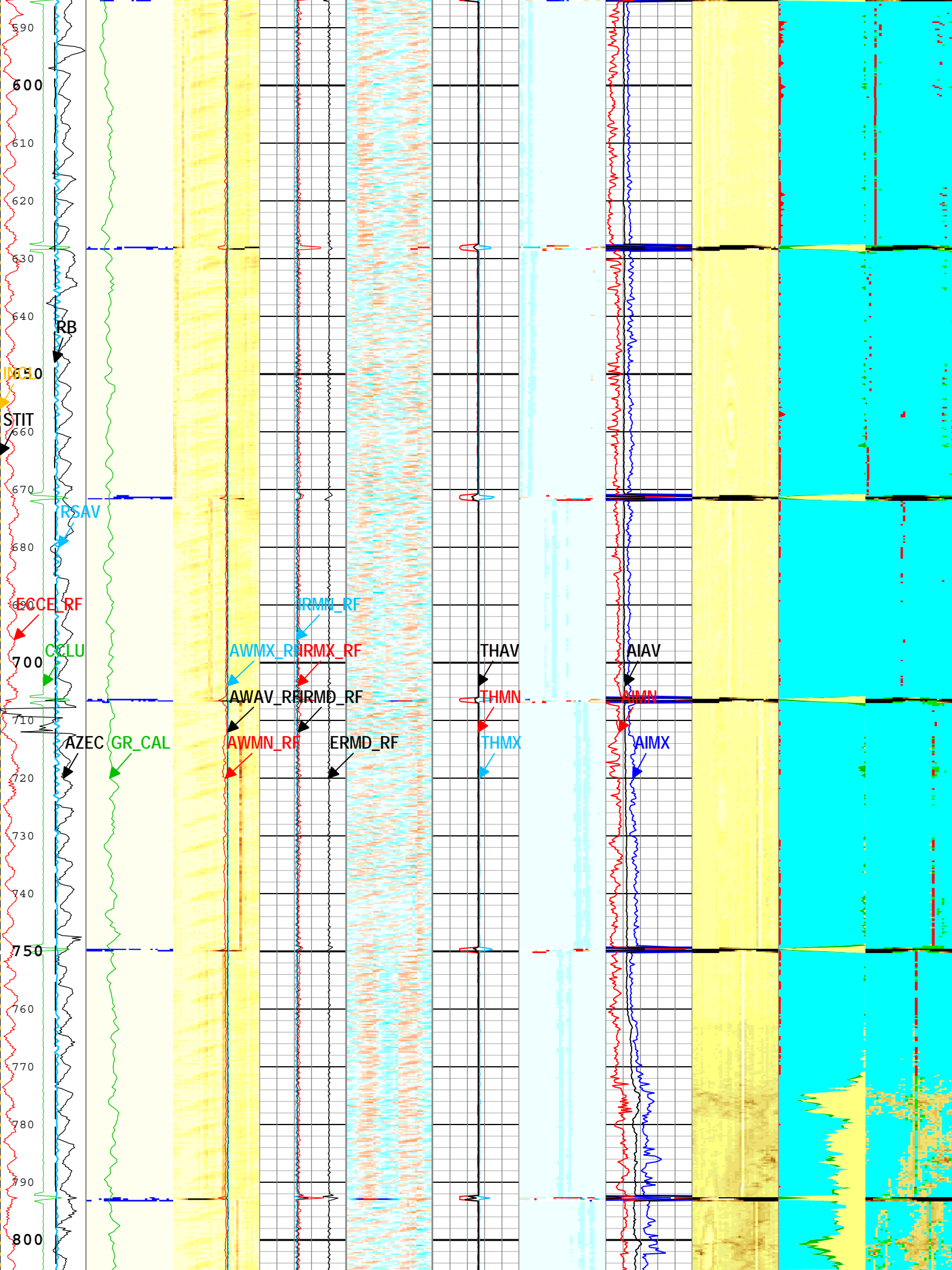
- | | |
|---|---|
| 1 - UFLG 1 Value within [0.0 - 1.5] - : |  UTIM Error |
| 2 - UFLG 2 Value within [1.5 - 2.5] - : |  Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - : |  WINLEN Error |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : |  Casing Thickness Error |
| 5 - UFLG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

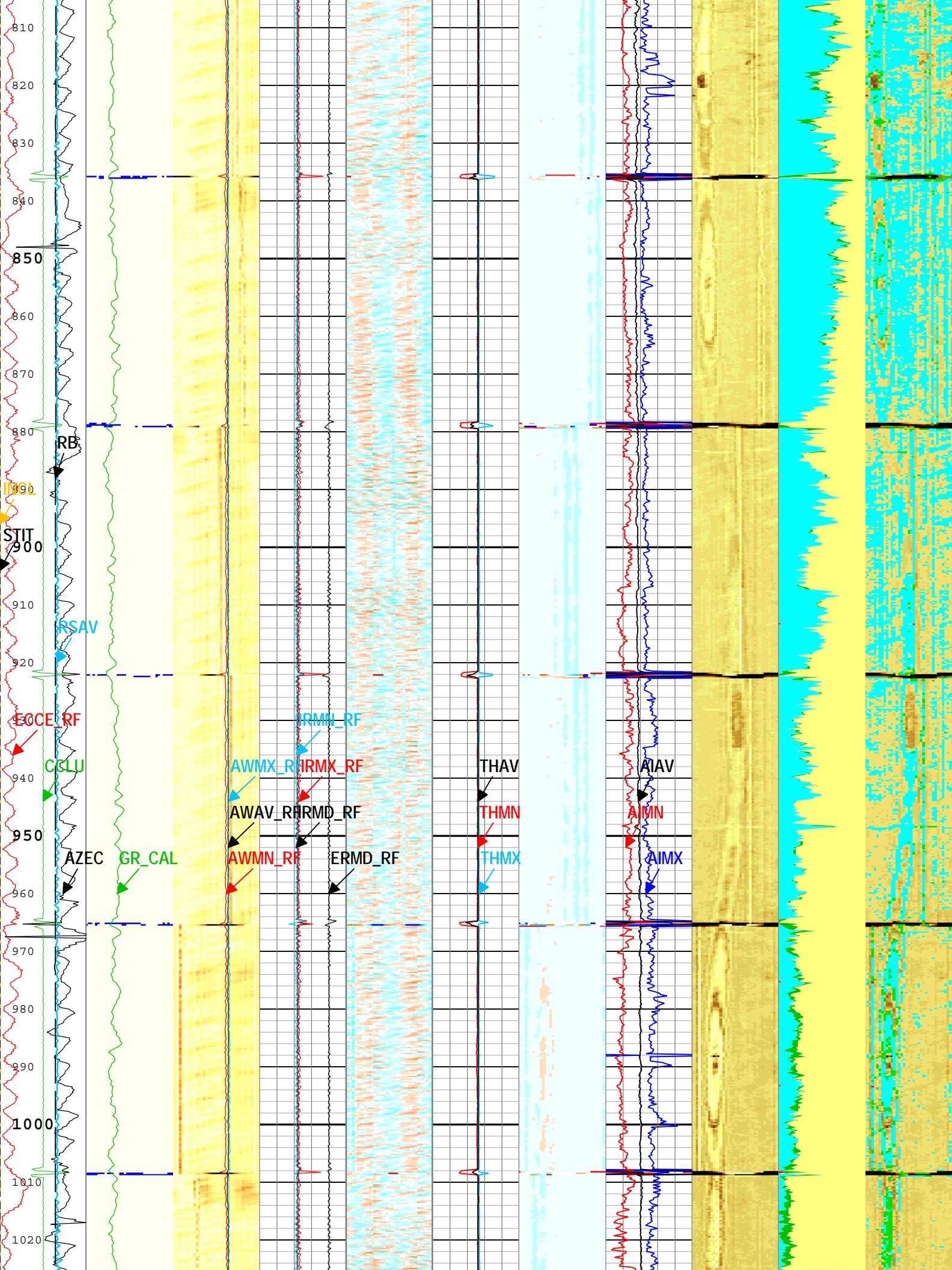


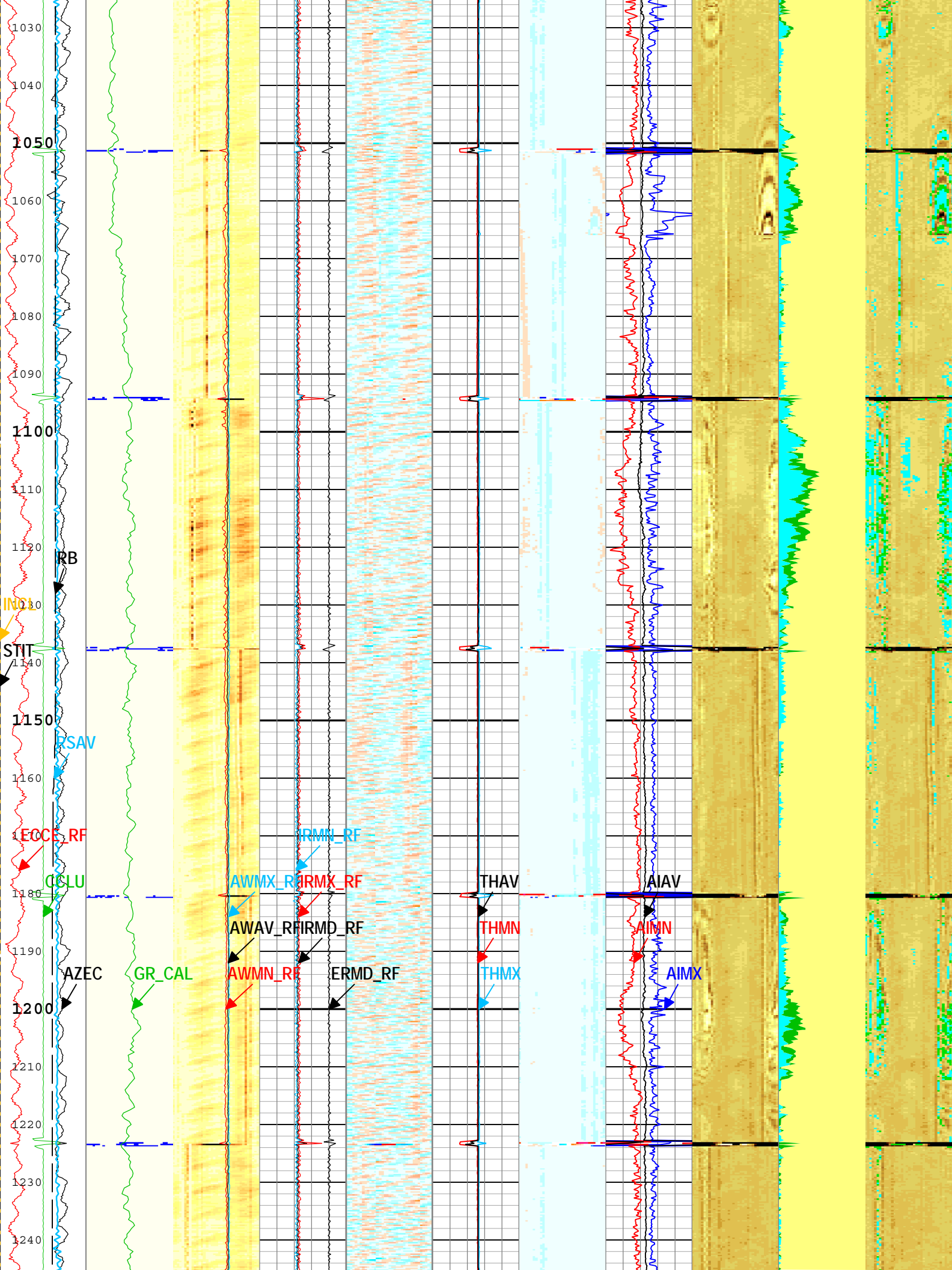


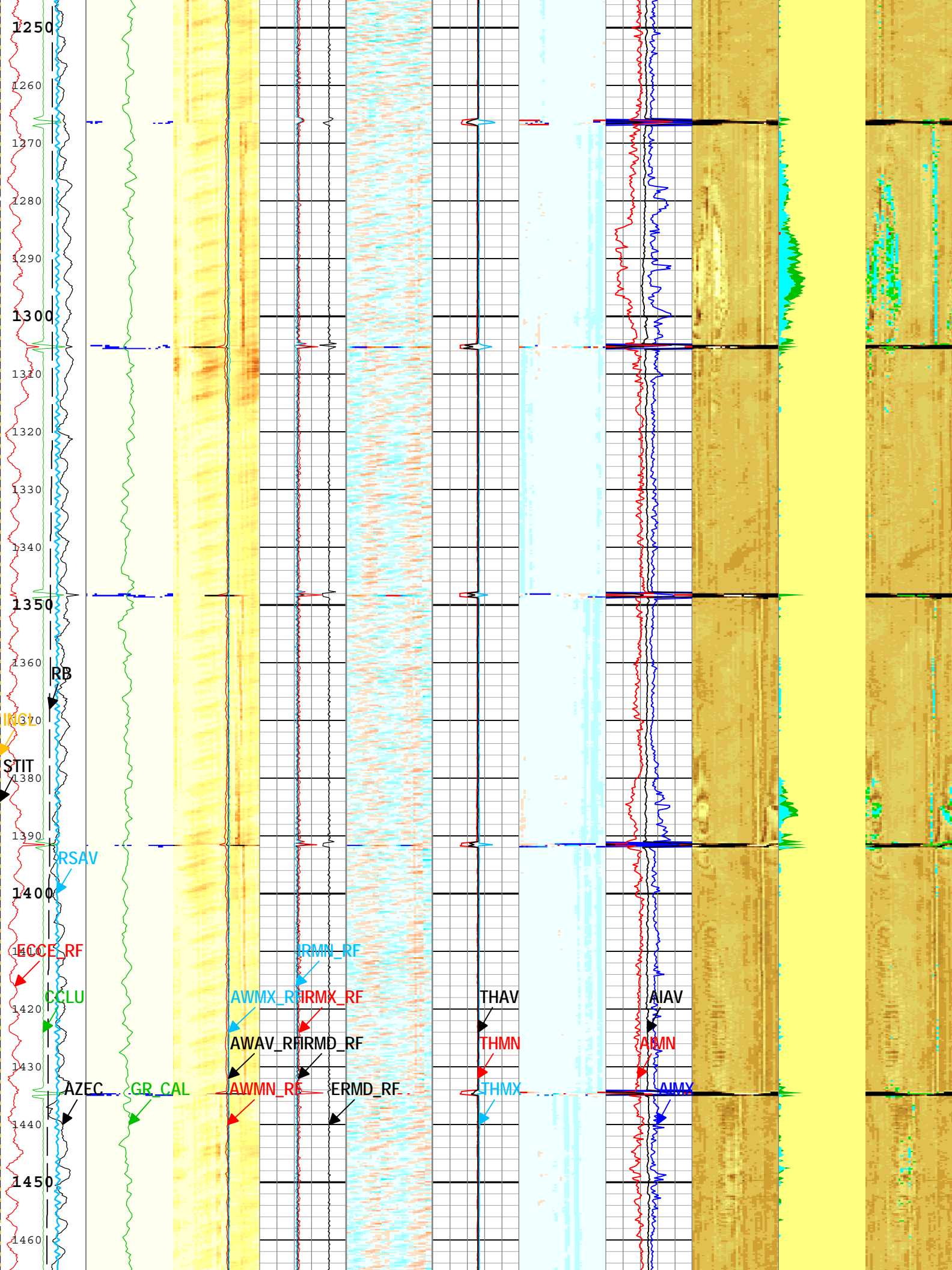


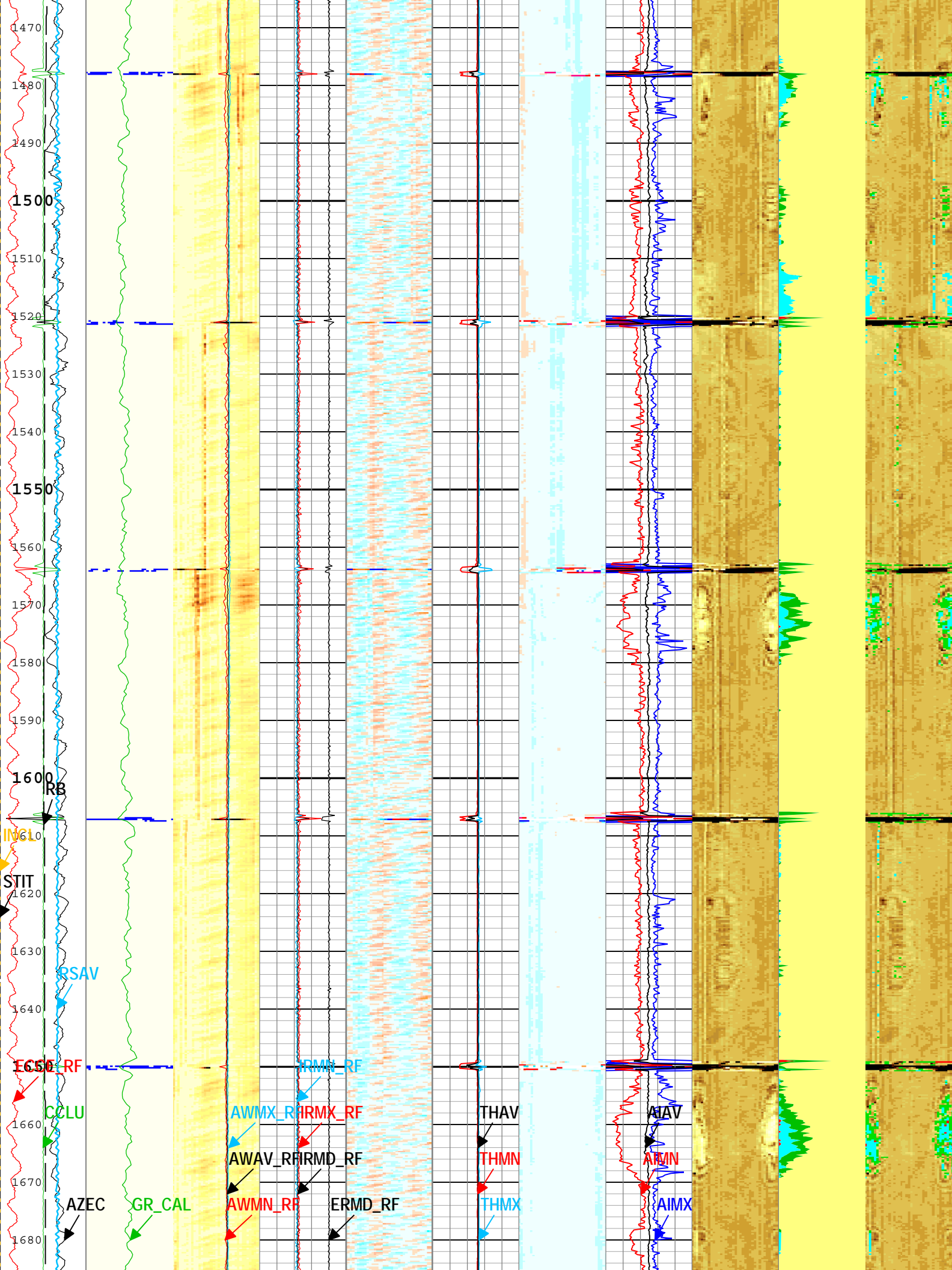


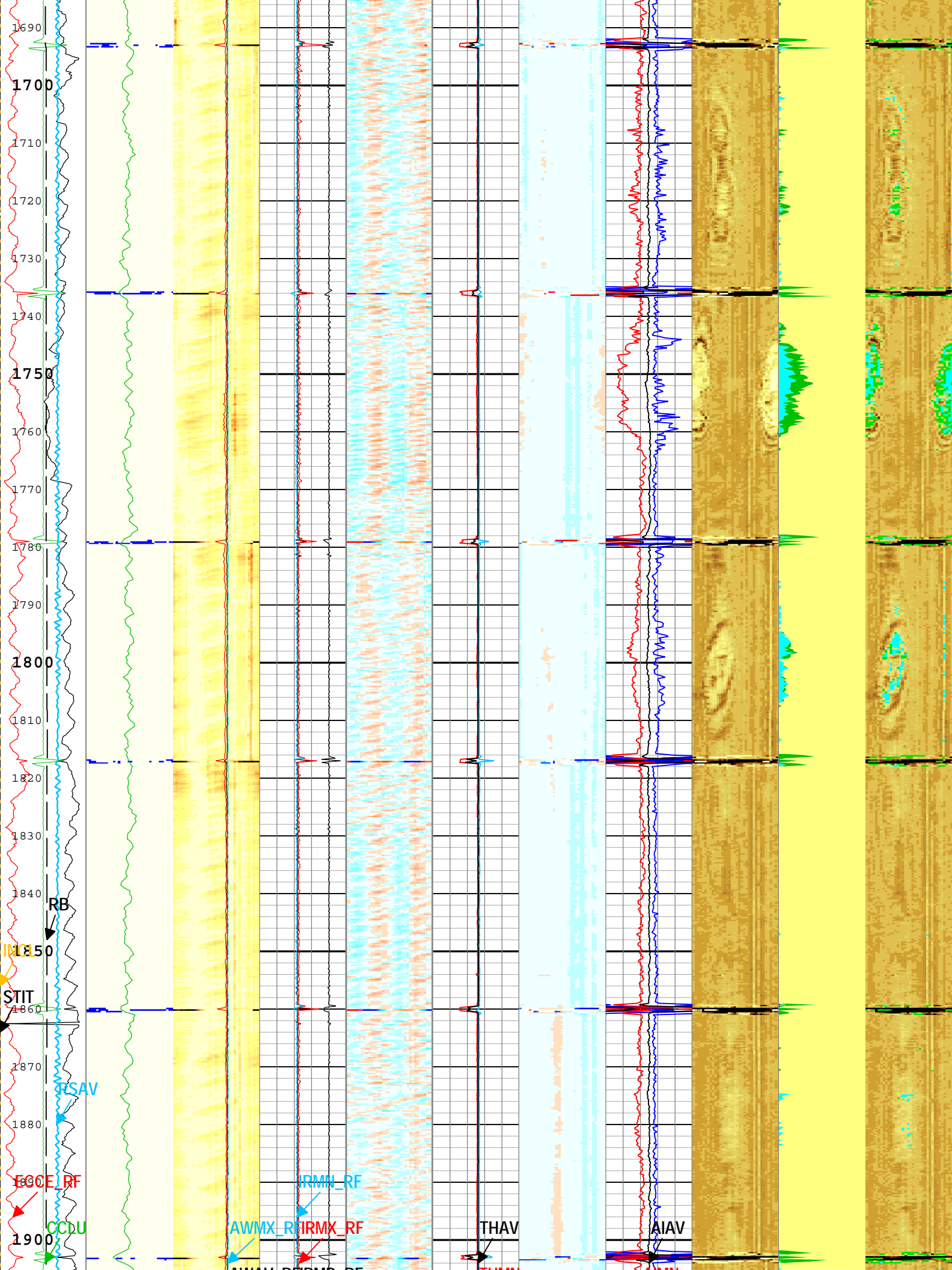


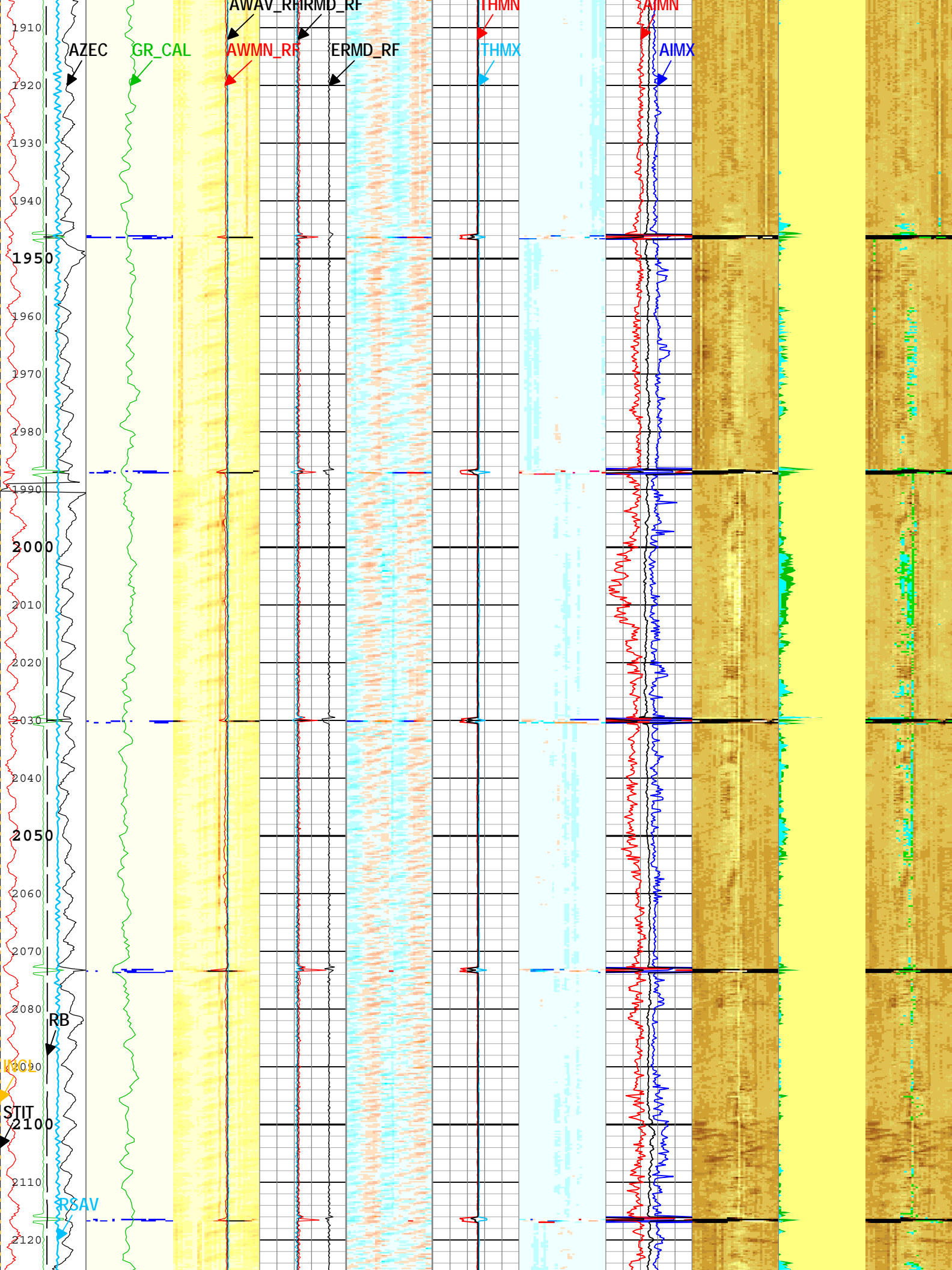


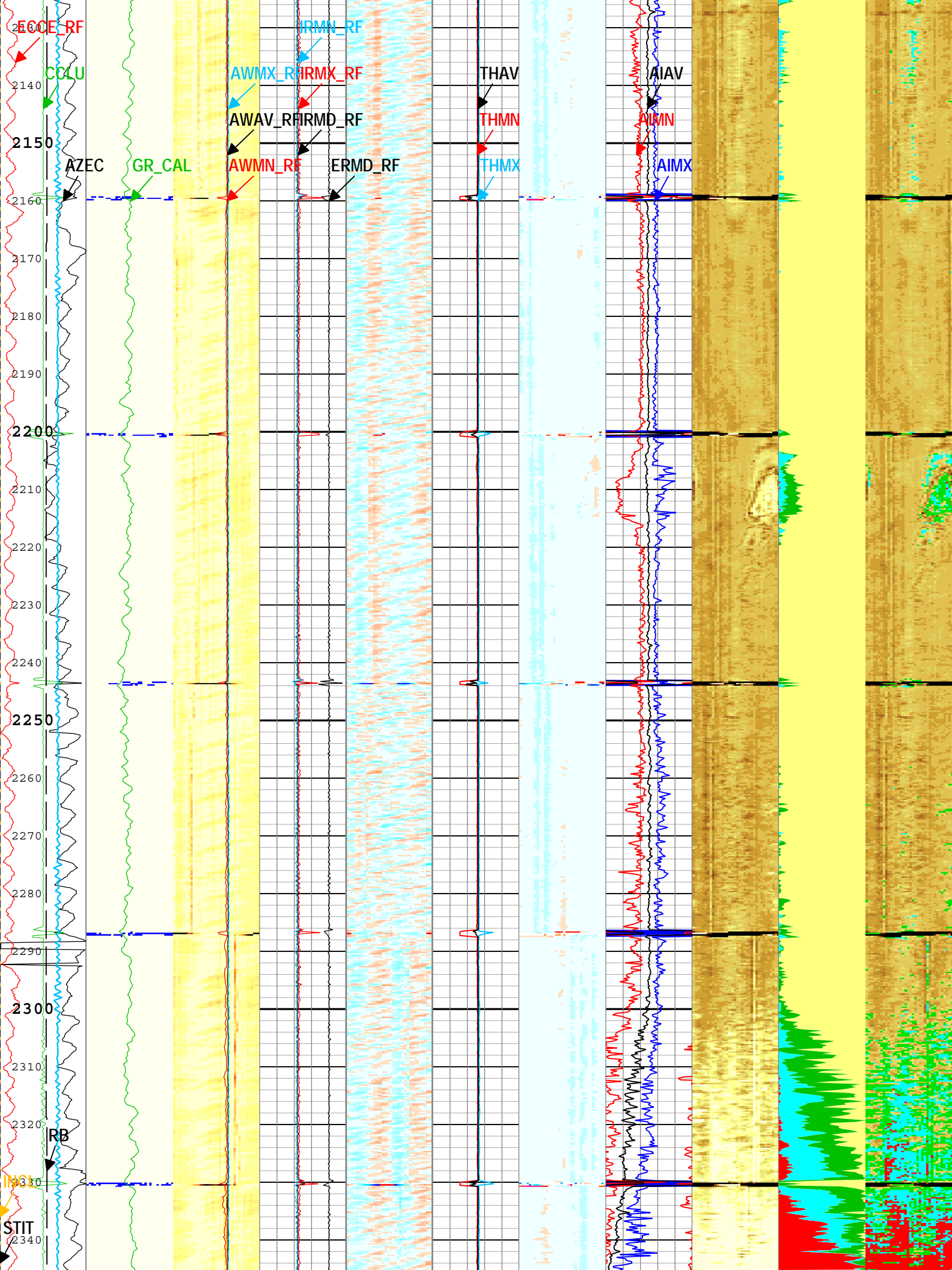


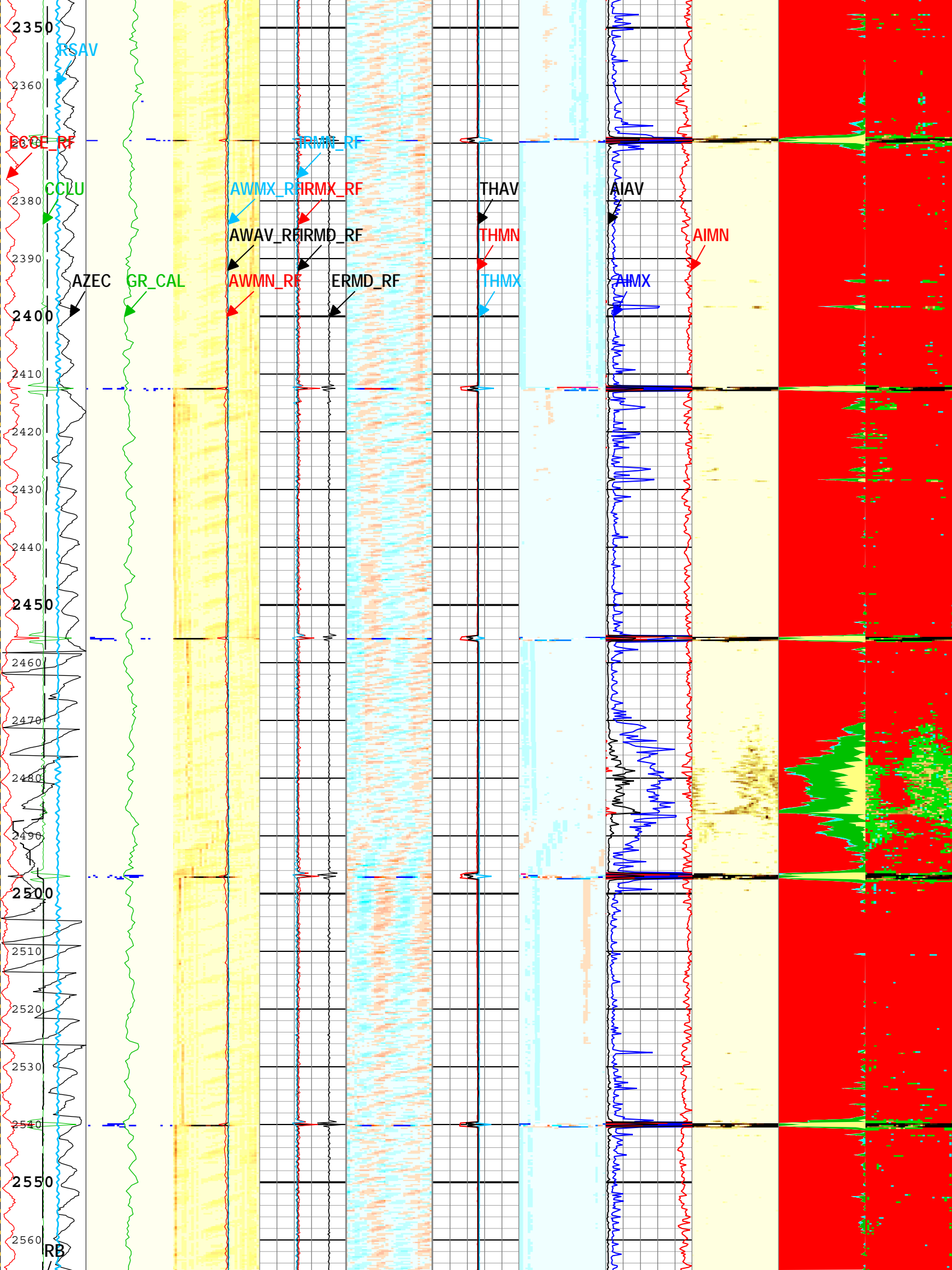


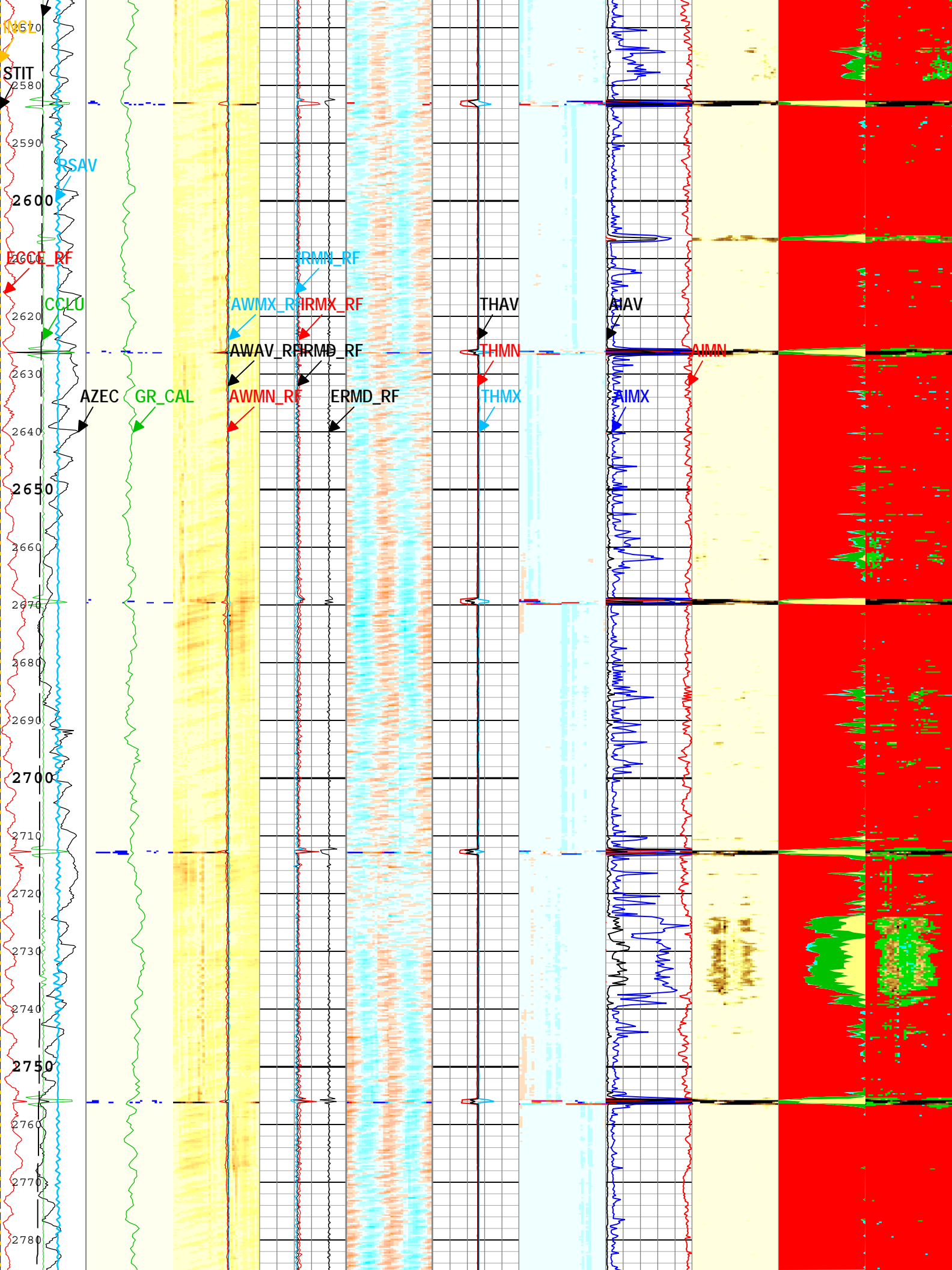


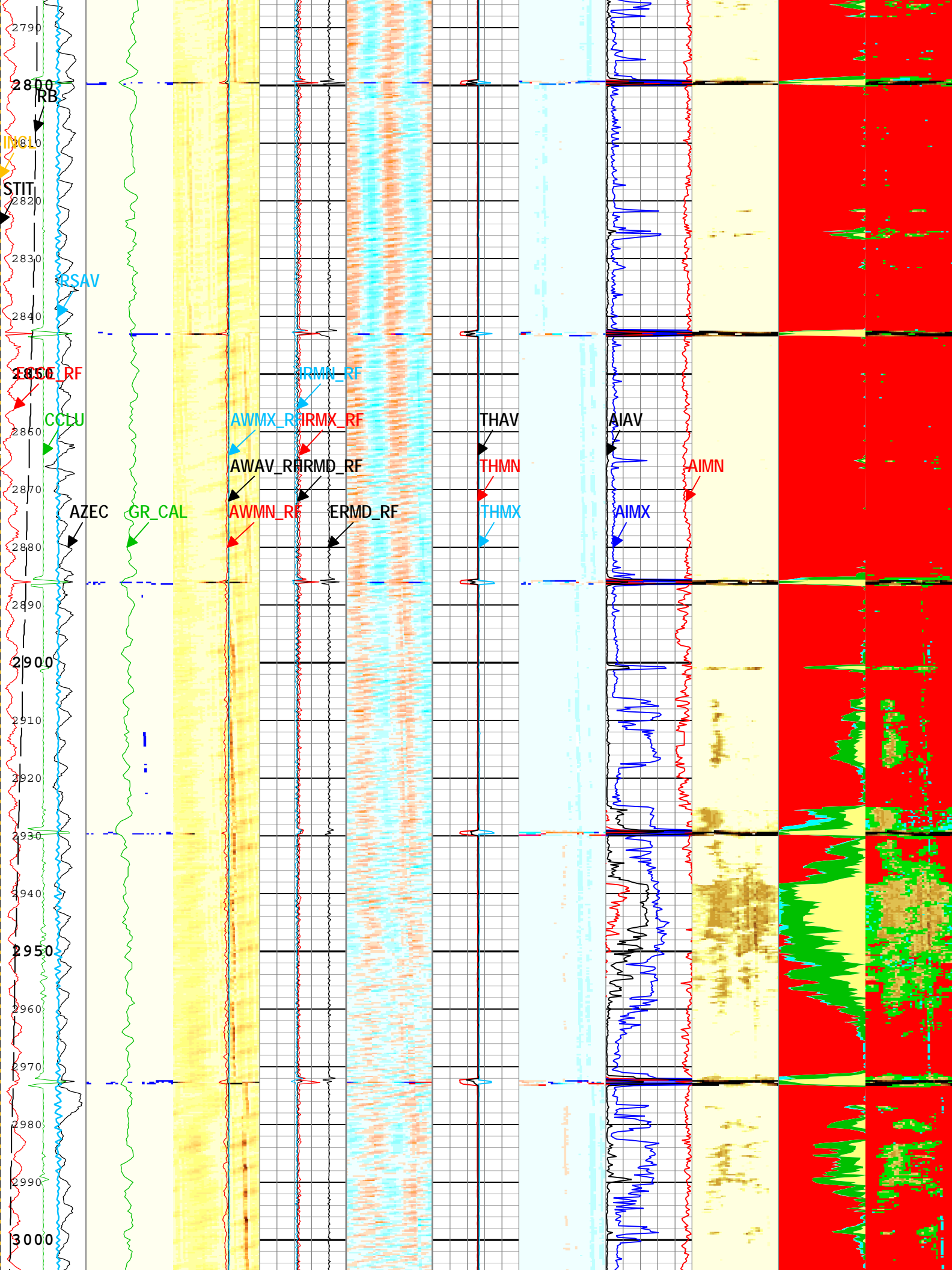


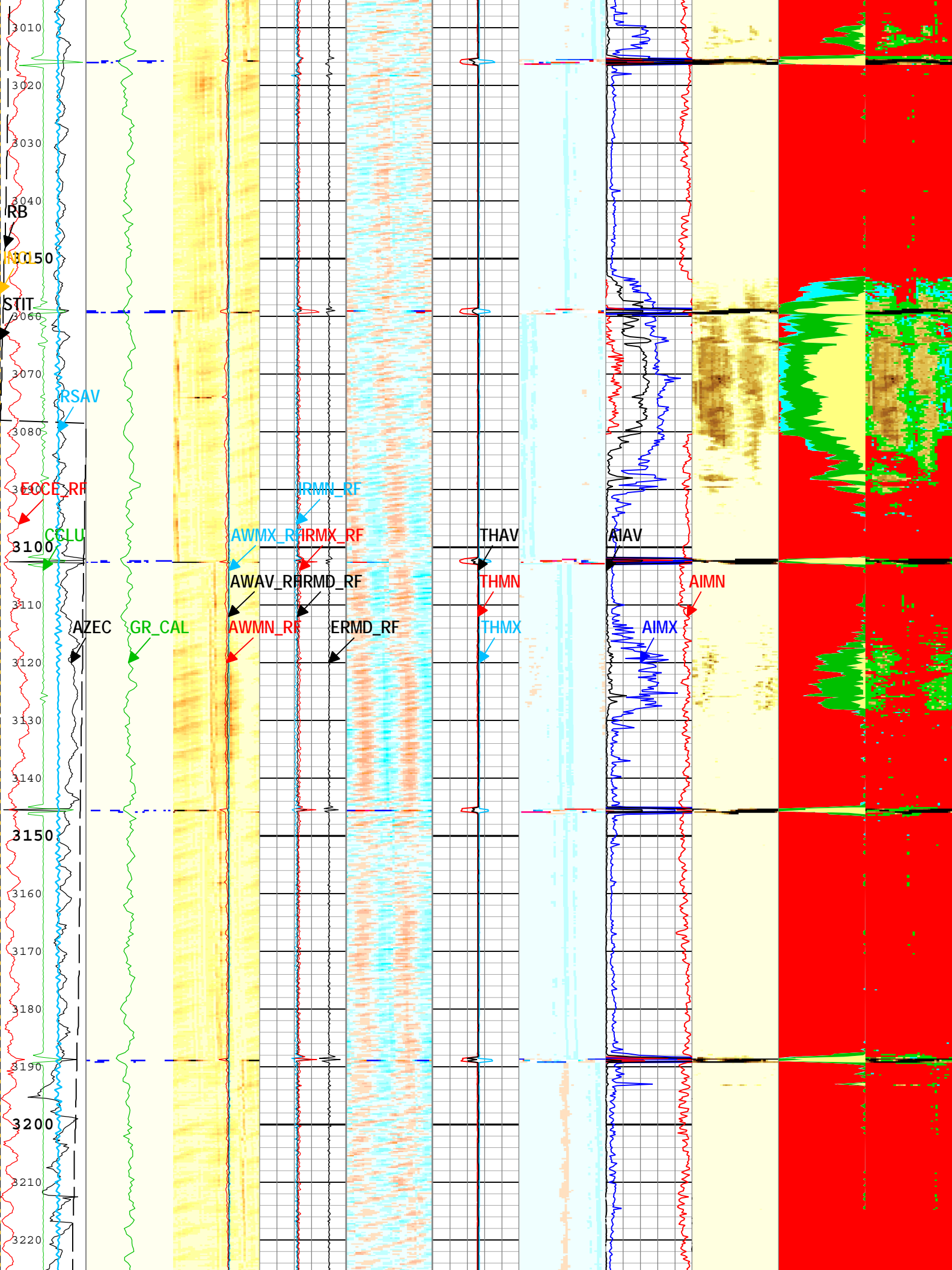


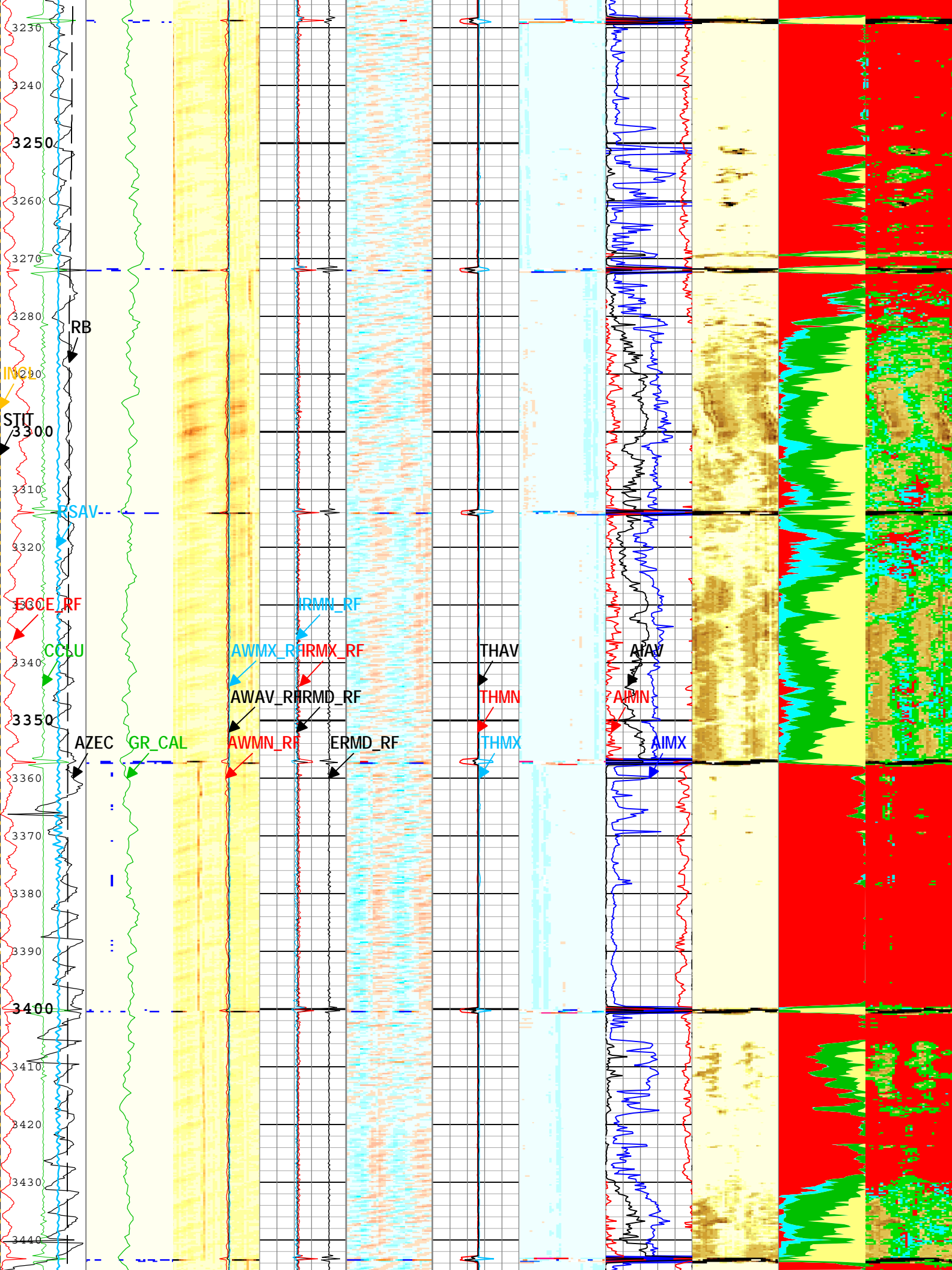


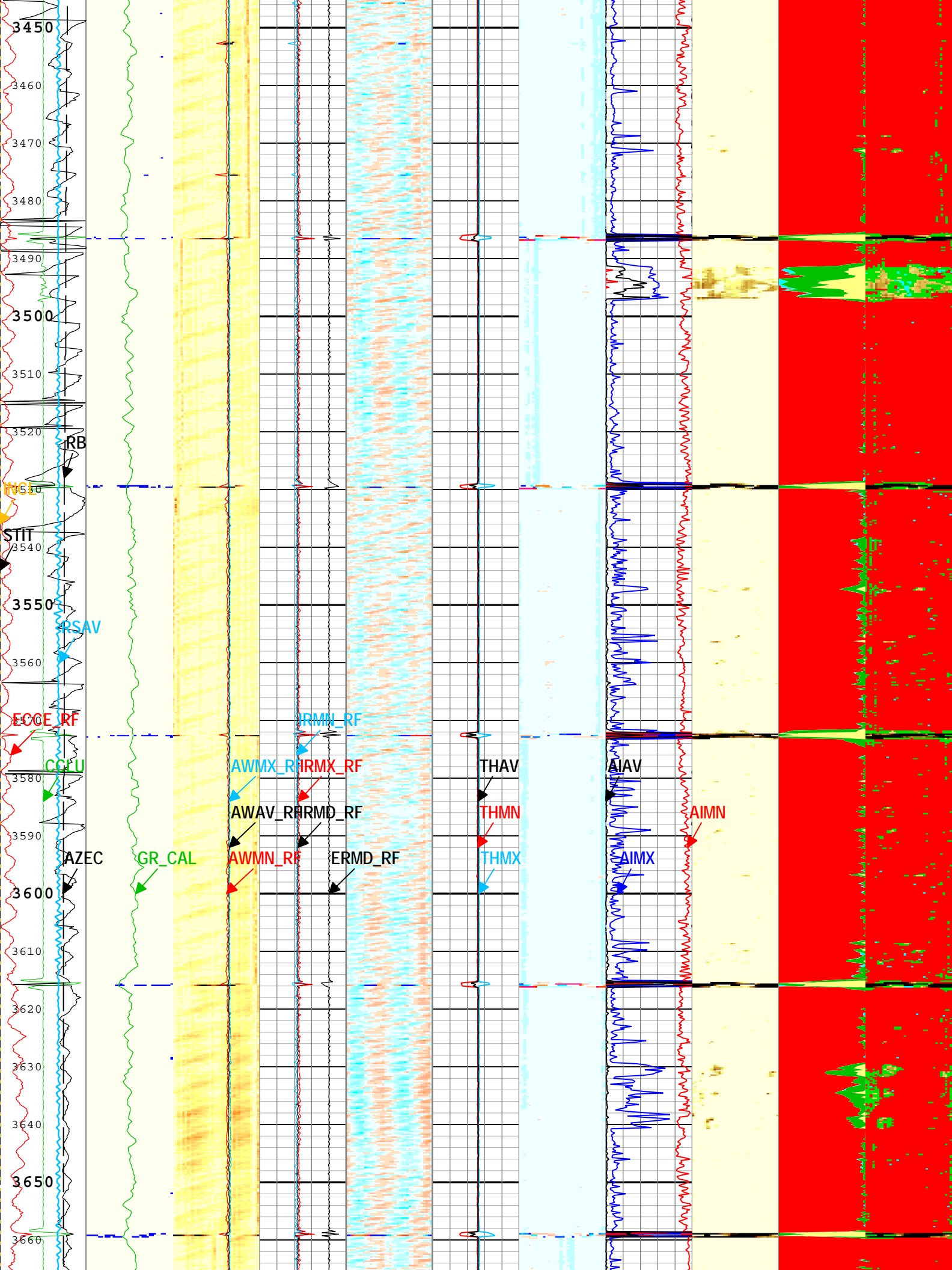


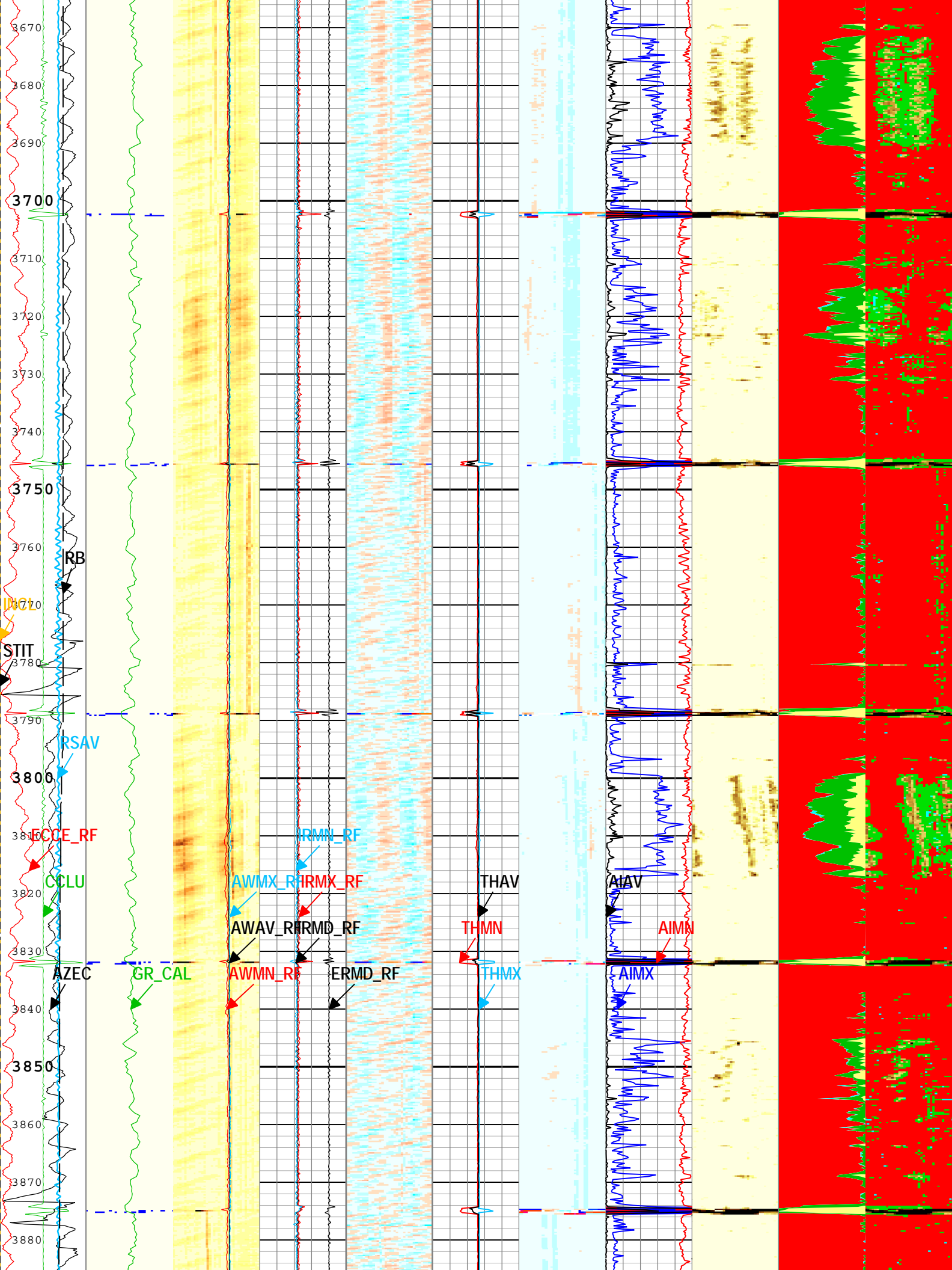


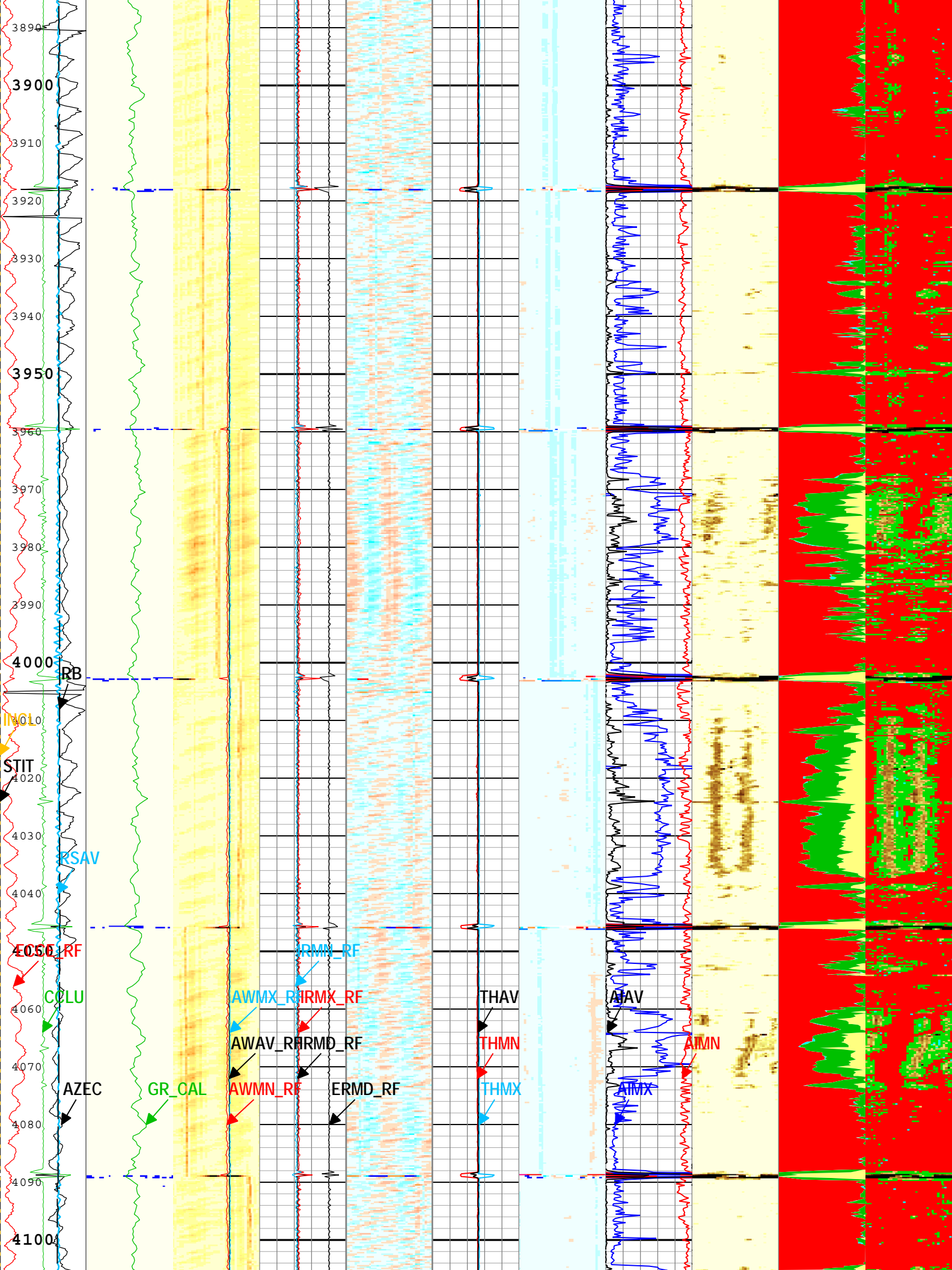


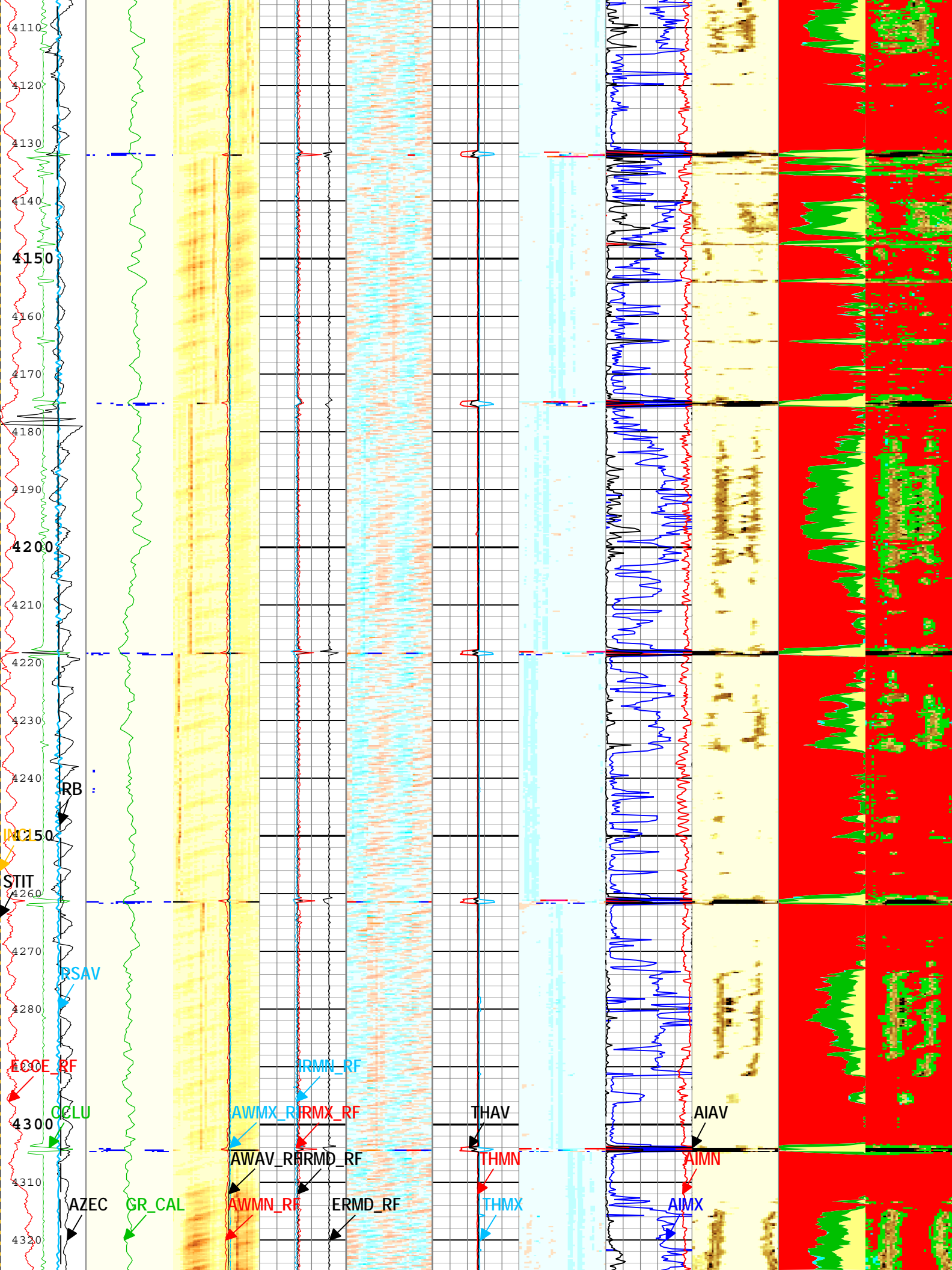


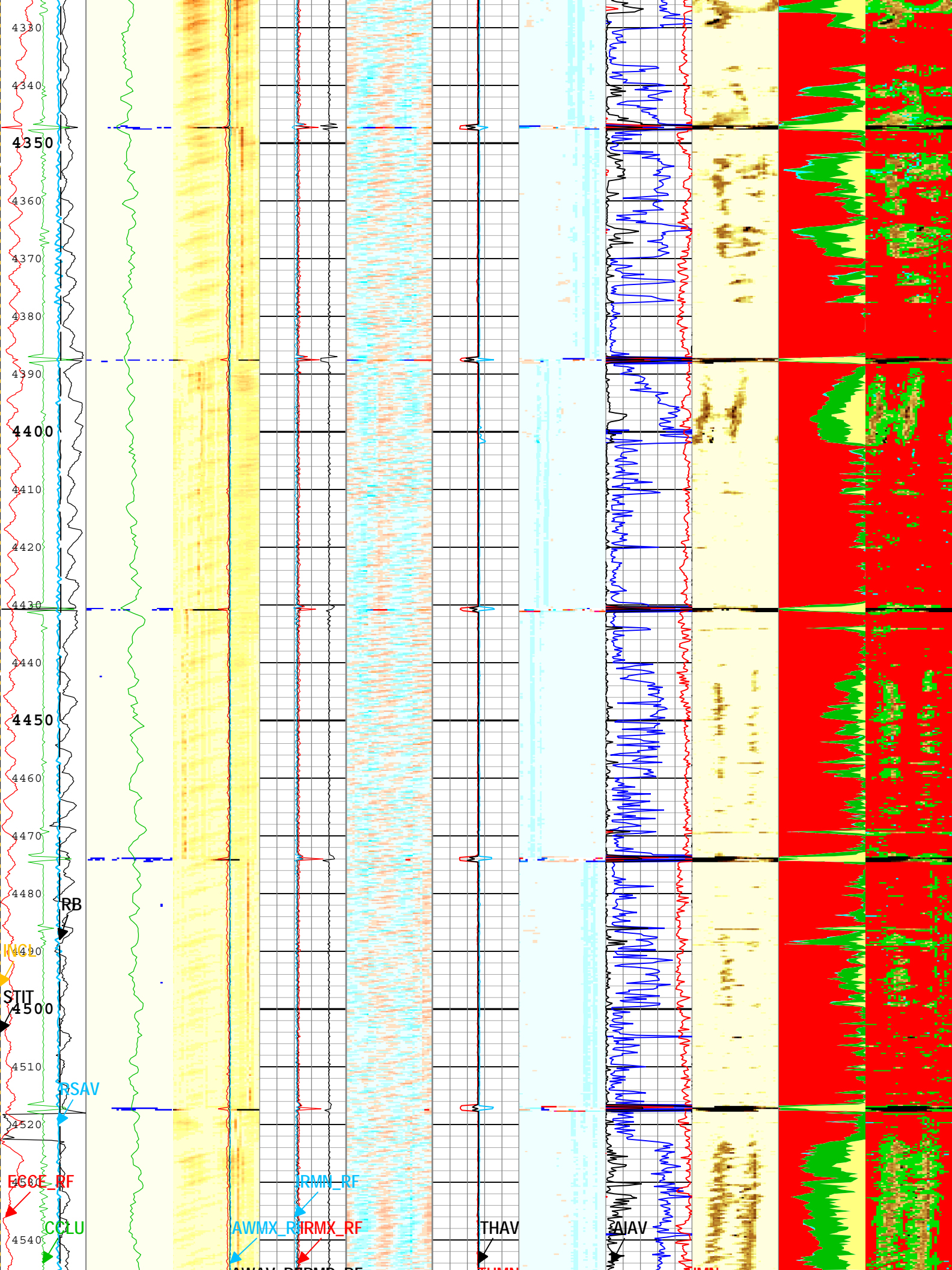


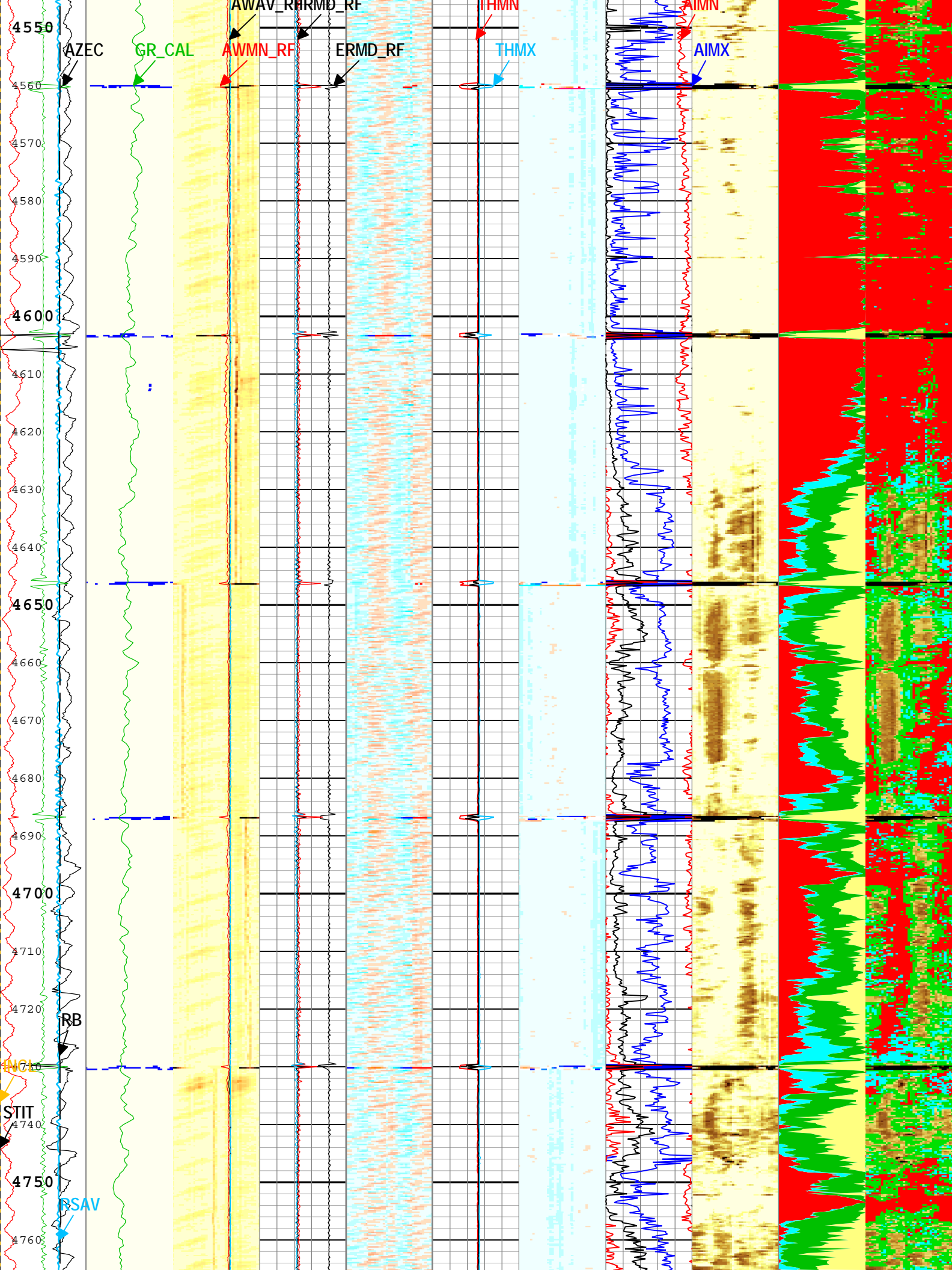


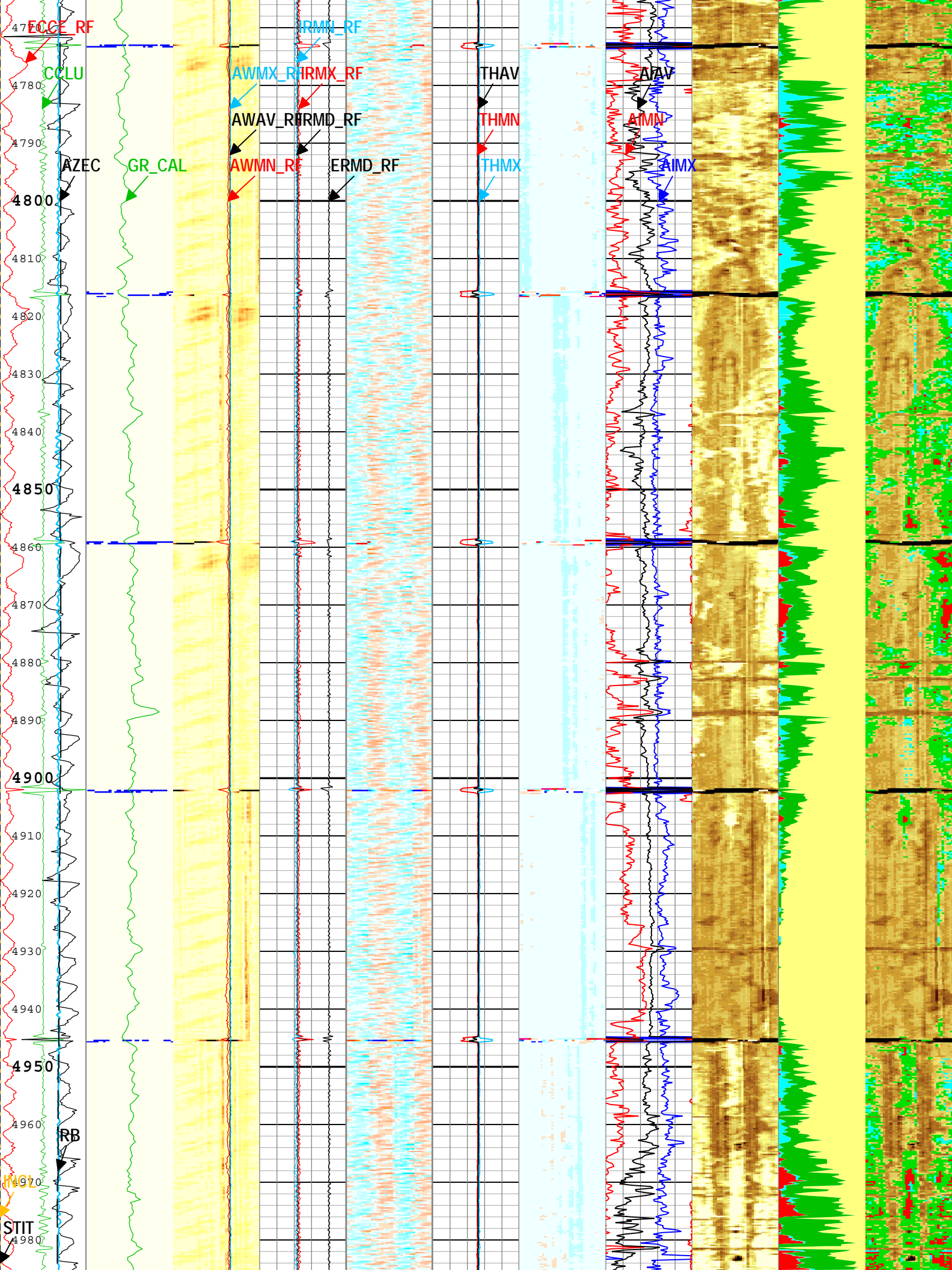


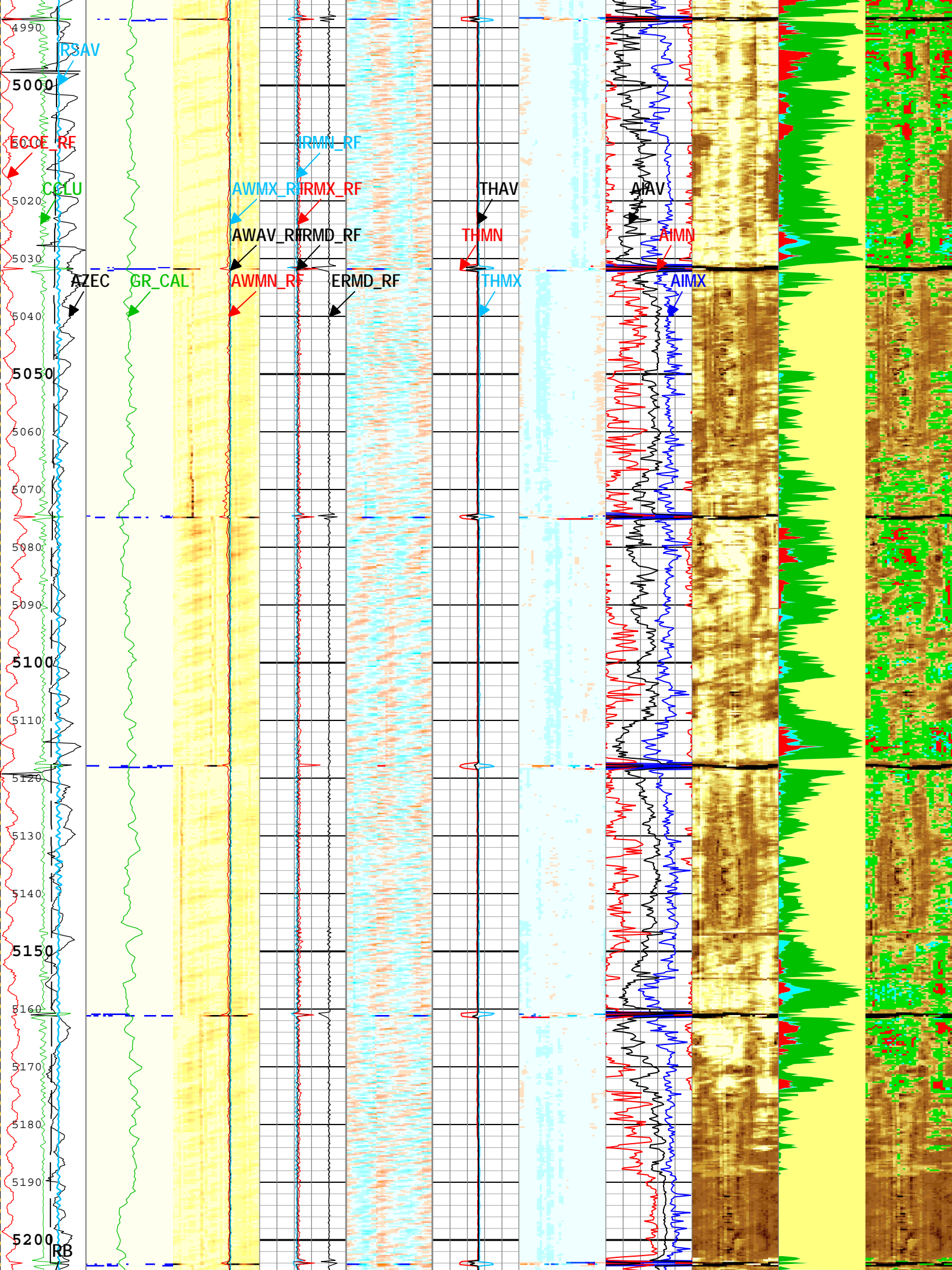


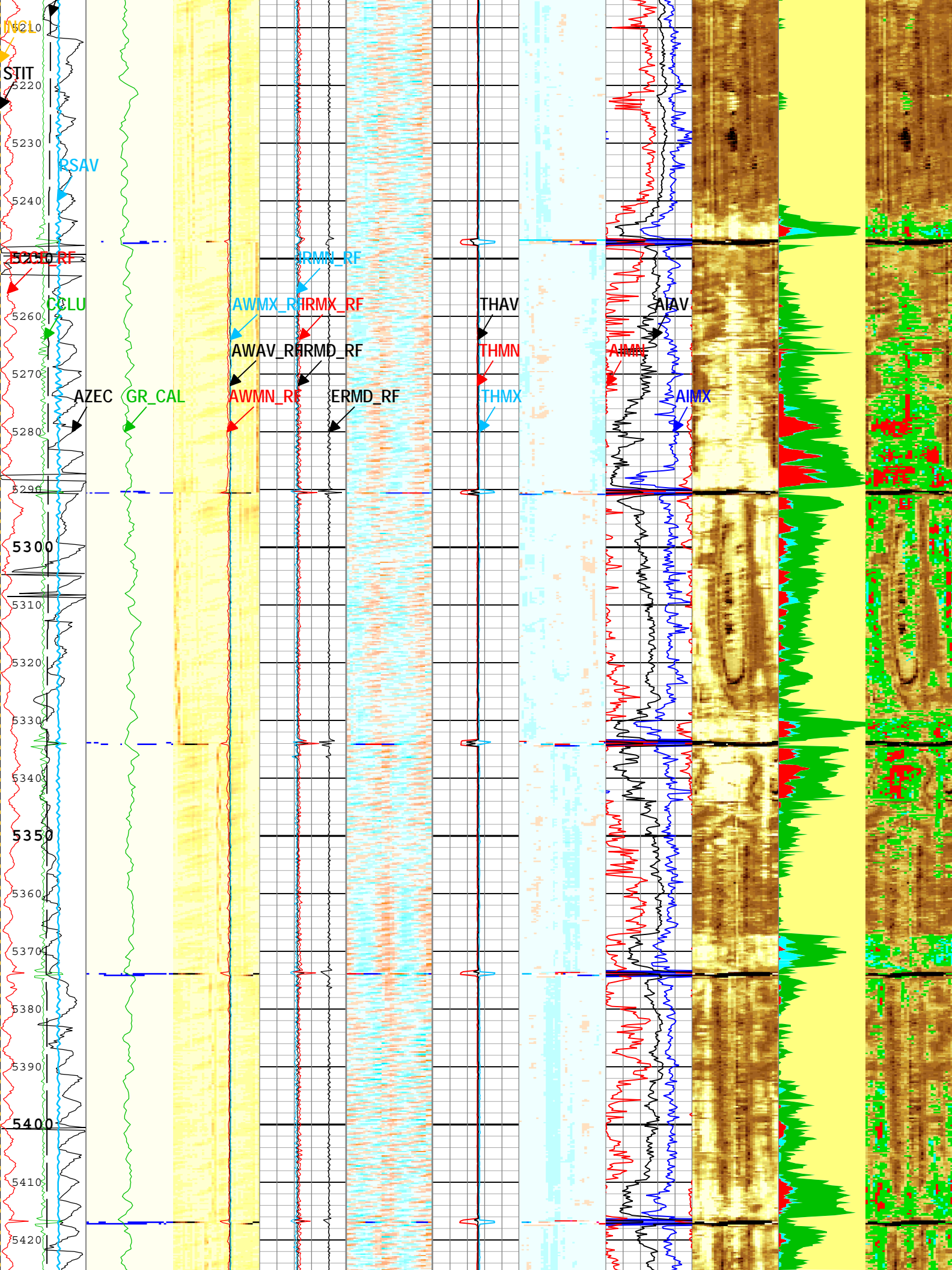


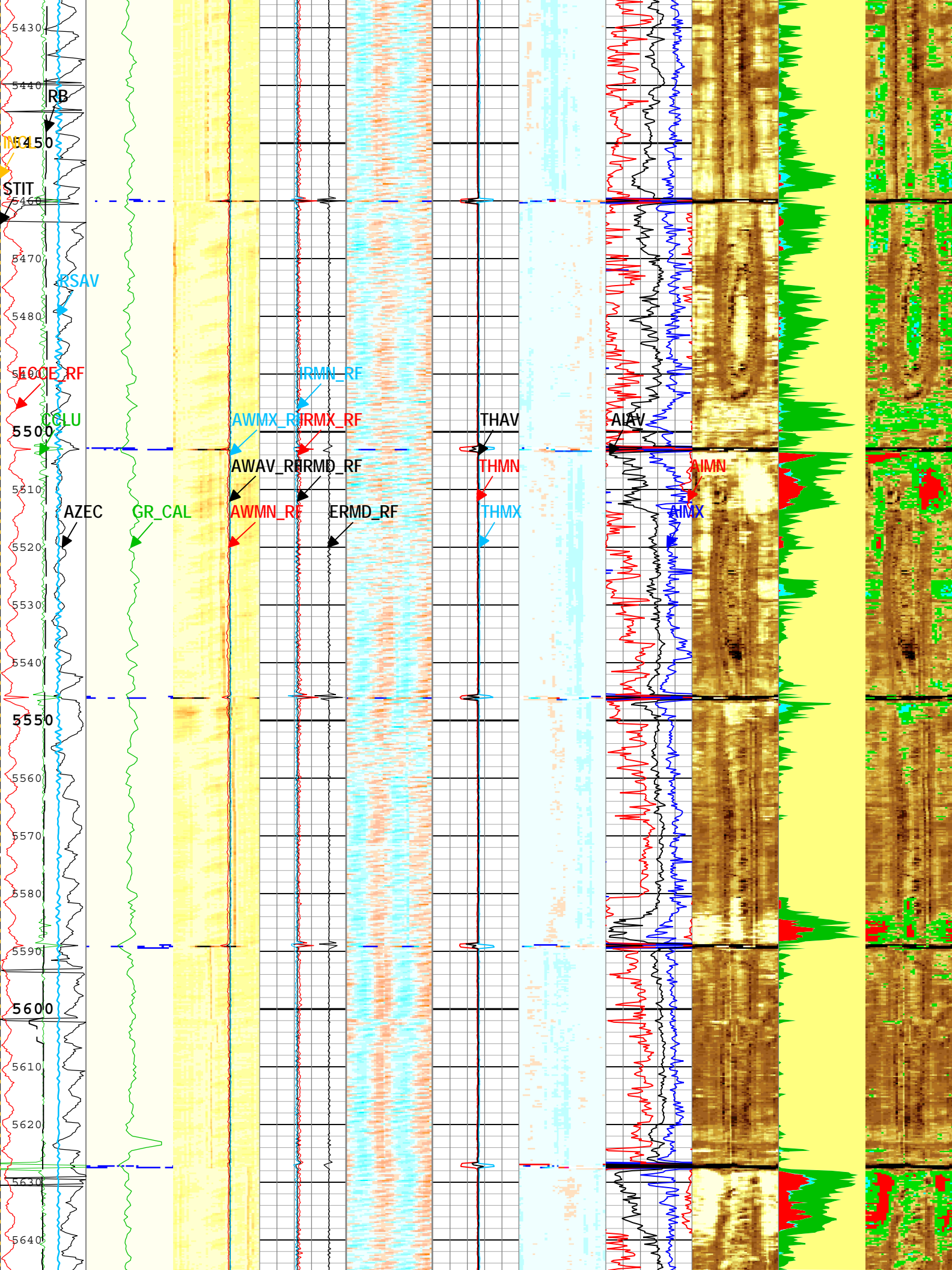


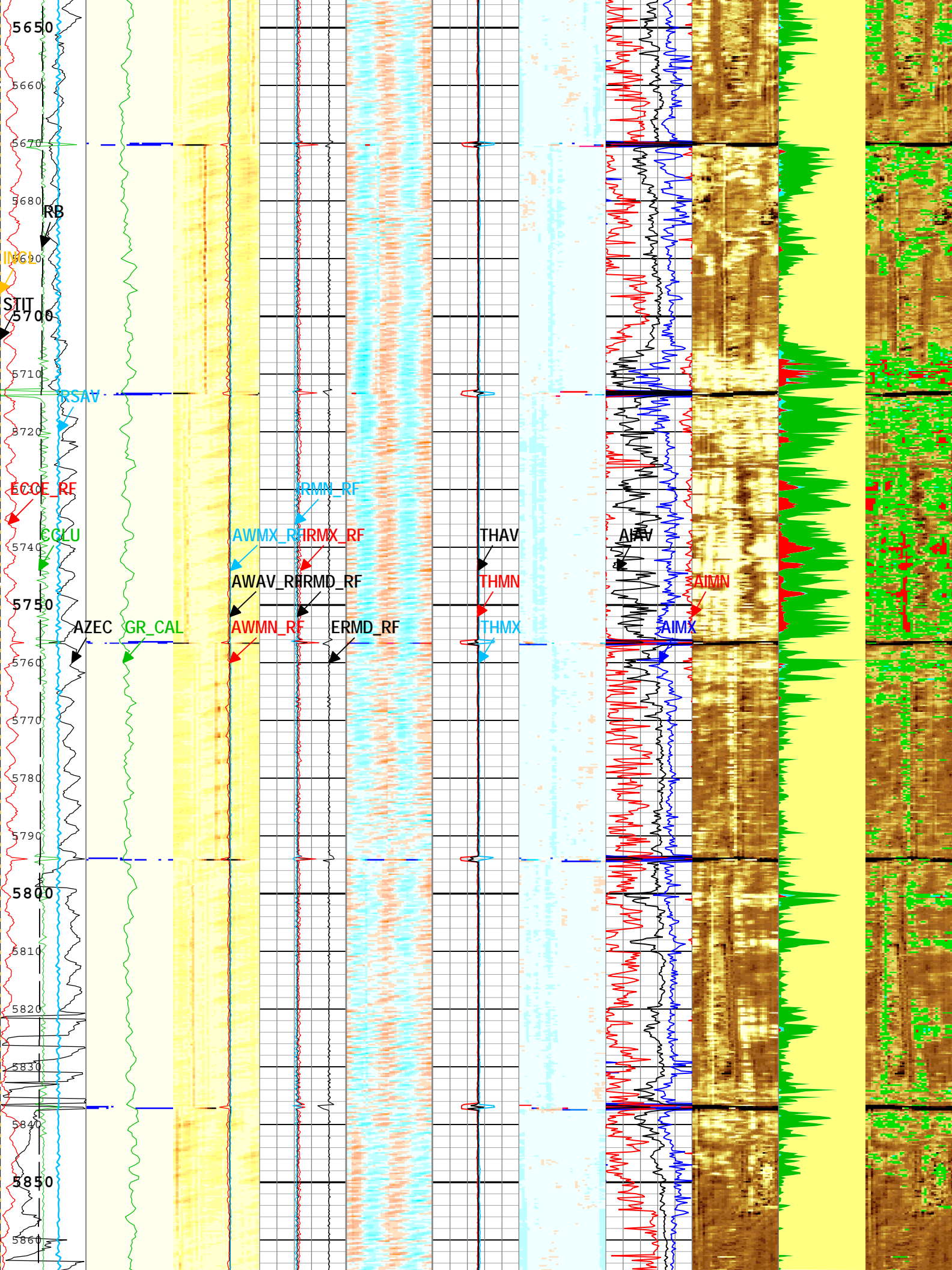


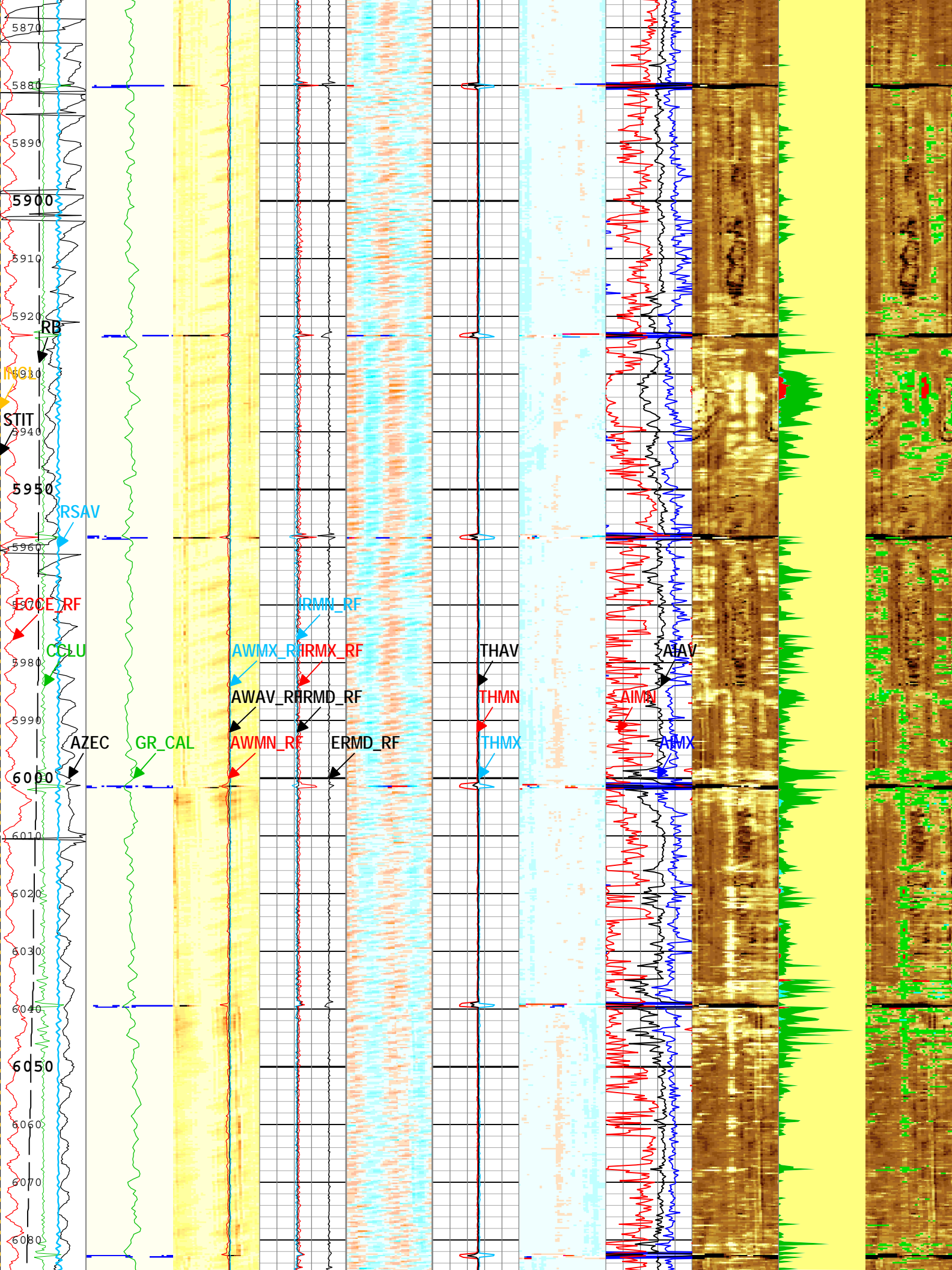


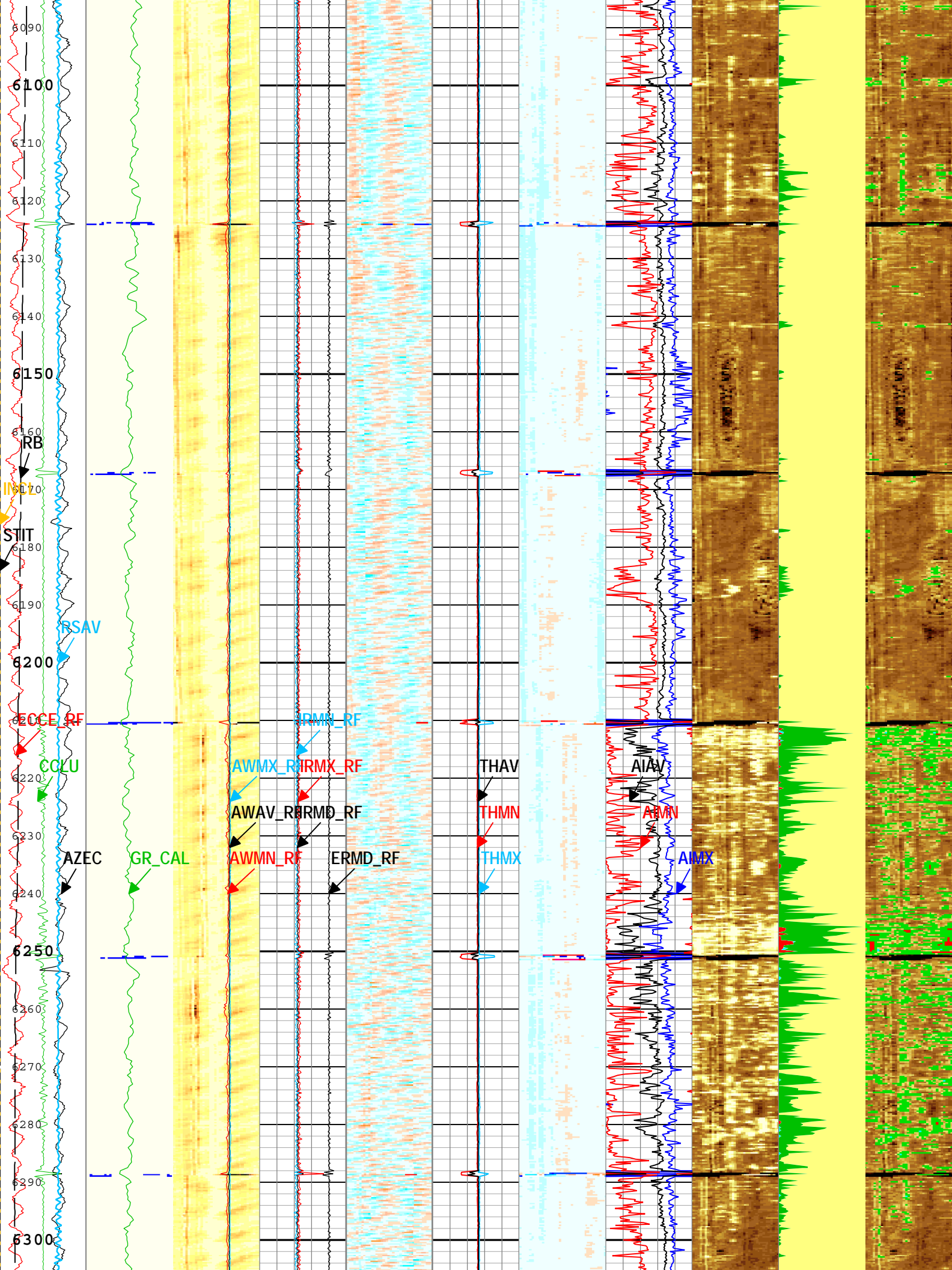


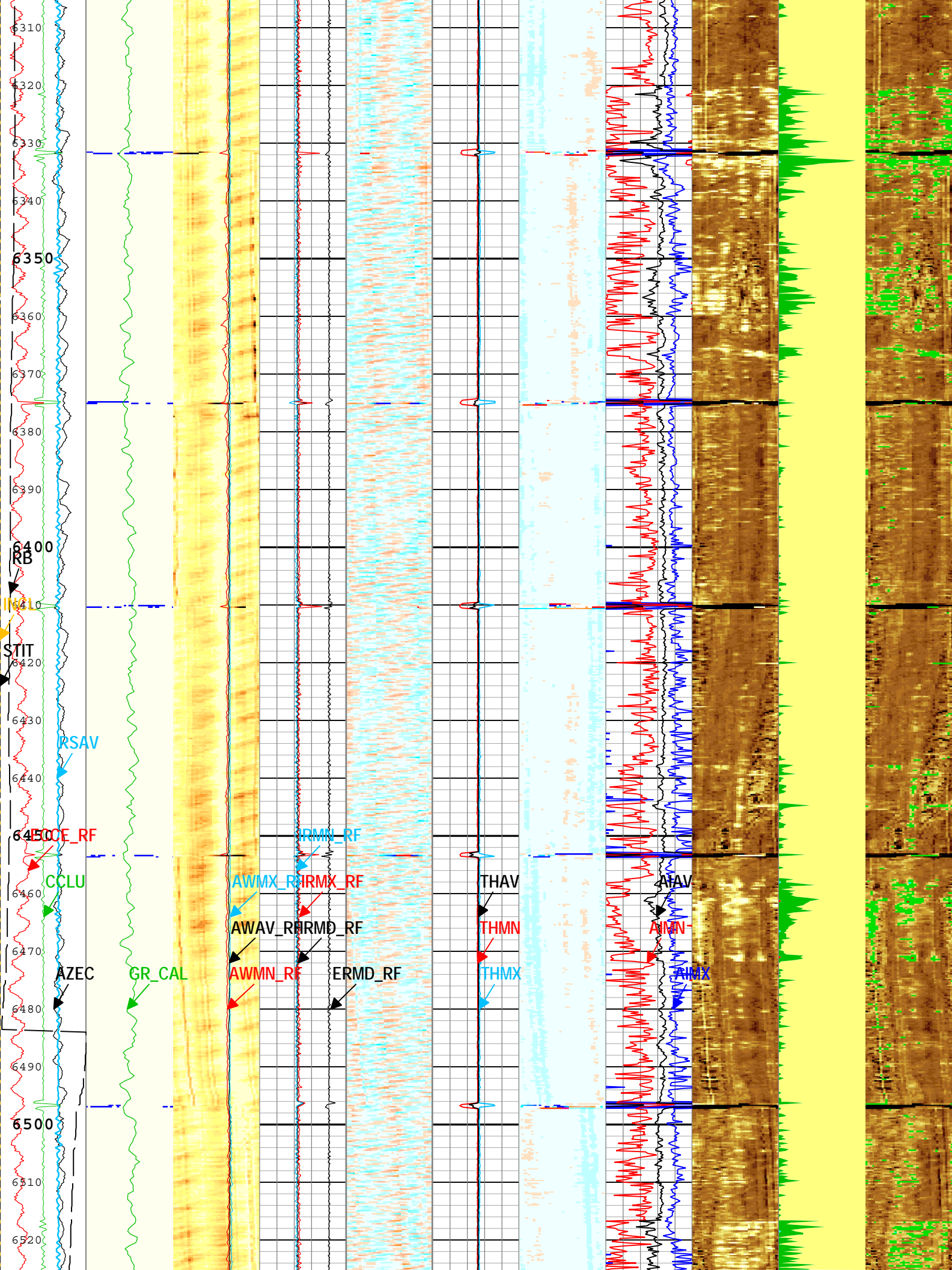


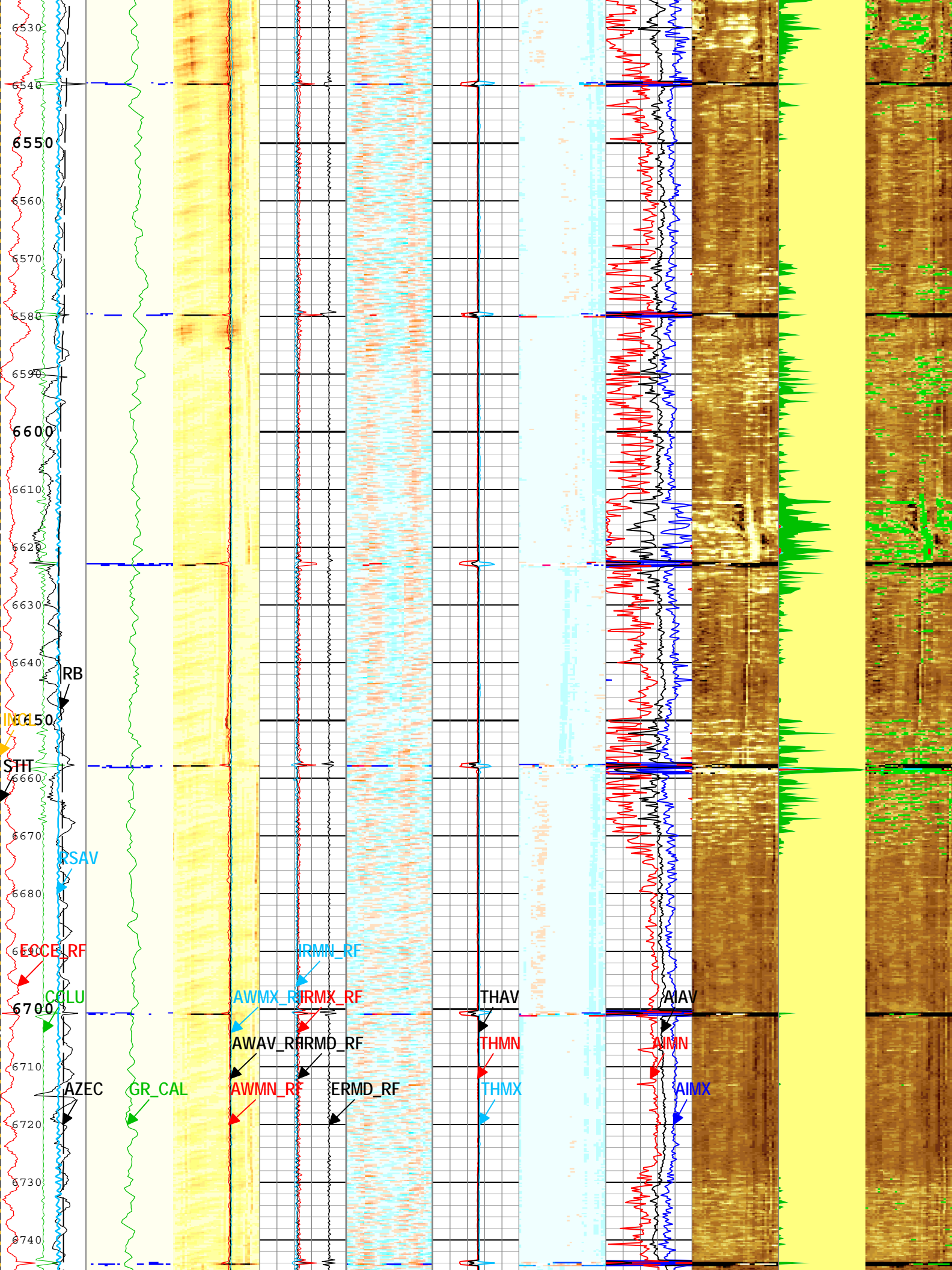


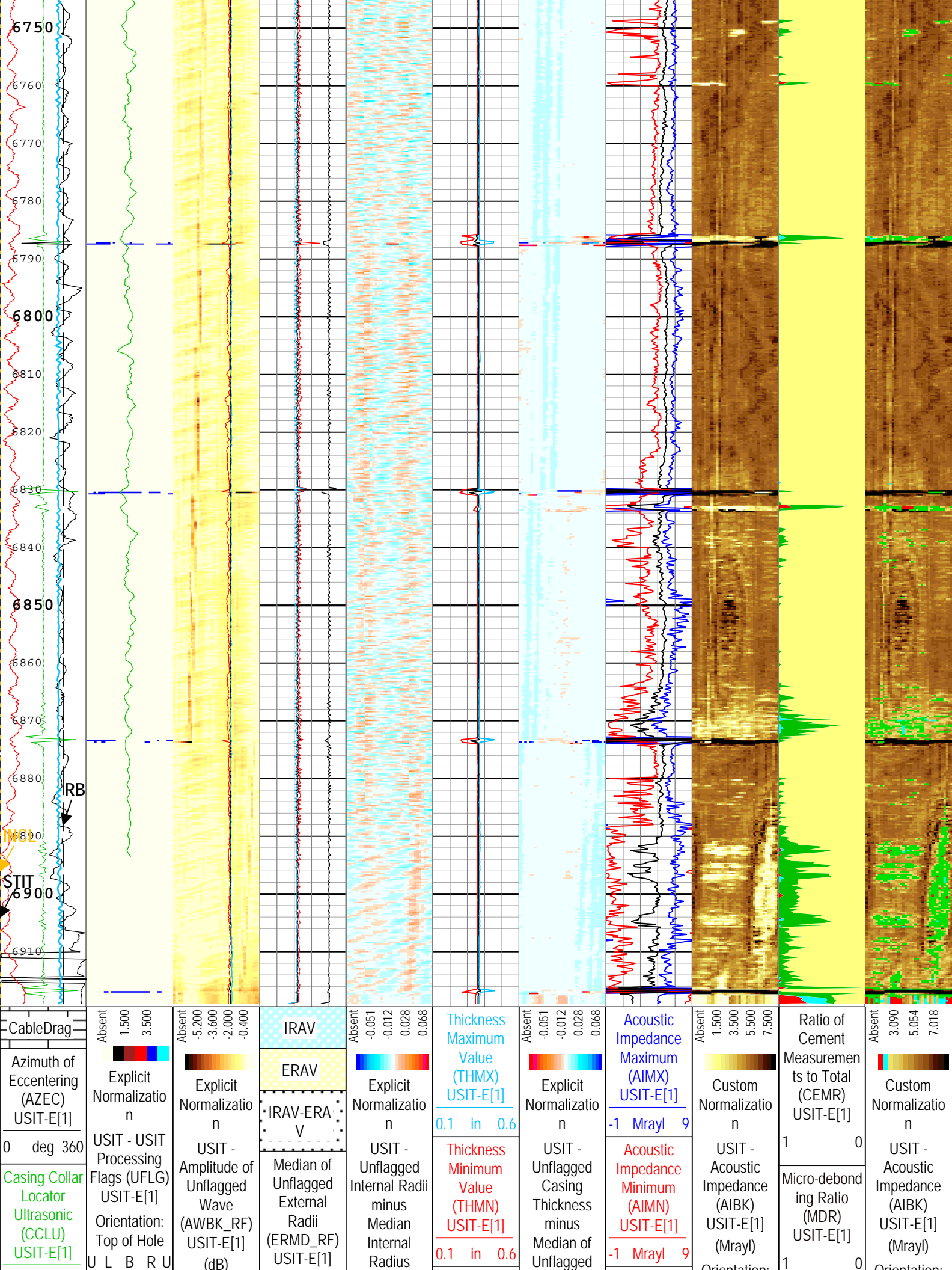












<div> <div>-20 in 20</div> <div>Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]</div> <div>0 in 0.5</div> <div>Motor Revolution Speed (RSAV) USIT-E[1]</div> <div>-8 c/s -6</div> <div>Motor Revolution Speed (RSAV) USIT-E[1]</div> <div>6 c/s 8</div> <div>Stuck Tool Indicator, Total (STIT)</div> <div>0 ft 50</div> <div>Hole inclination (INCL)</div> <div>0 deg 100</div> <div>Relative Bearing (RB) USIT-E[1]</div> <div>0 deg 360</div> </div>	<div> <div>USIT Processing Flags (UFLG[0]) USIT-E[1]</div> <div>1 5</div> <div>Calibrated Gamma Ray (GR_CAL) SGT-N[1]</div> <div>0 gAPI 150</div> </div>	<div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> <div>Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]</div> <div>0 dB 75</div> <div>Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]</div> <div>0 dB 75</div> <div>Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]</div> <div>0 dB 75</div> </div>	<div> <div>2.7 in 3.7</div> <div>Median Internal Radius of Casing Corrected for Eccentering (IRMD_RF) USIT-E[1]</div> <div>2.7 in 3.7</div> <div>Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]</div> <div>2.7 in 3.7</div> <div>Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]</div> <div>2.7 in 3.7</div> </div>	<div> <div>(IRBKM_RF) USIT-E[1] (in)</div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> </div>	<div> <div>Thickness Average Value (THAV) USIT-E[1]</div> <div>0.1 in 0.6</div> </div>	<div> <div>Casing Thickness (THBKM_RF) USIT-E[1] (in)</div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> </div>	<div> <div>Acoustic Impedance Average (AIAV) USIT-E[1]</div> <div>-1 Mrayl 9</div> </div>	<div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> </div>	<div> <div>Ratio of Gas Measurements to Total (GASR) USIT-E[1]</div> <div>1 0</div> <div>Bonded</div> <div>Gas</div> <div>Liquid</div> <div>Micro-debonding</div> </div>	<div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> <div>Absent 2,599 4,563 6,527</div> <div>Custom Normalization</div> <div>USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)</div> <div>Orientation: Top of Hole</div> <div>U L B R U</div> </div>
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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 Composite	Format: USI Composite	Index Scale: 5 in per 100 ft	Index Unit: ft
17:28:05		Index Type: Measured Depth	Creation Date: 20-Jun-2014

Channel Processing Parameters				
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
AFVU	Automatic Fluid Velocity Update	USIT-E	On	
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CMTY	Cement Type	USIT-E	Regular 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
ETIP	Elevation of the TIP above MSL	WLSESSION	5037	ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
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	0	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
OPELV	USIT Remove Flagged Data Level	USIT-E	OPT2	
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
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SdTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
TCUB	T^3 Processing Level	USIT-E	Loop	
TD	Total Measured Depth	Borehole	6920	ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
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
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	Manual	
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

Run 1Depth Zoned Parameters			
Parameter	Value	Start (ft)	Stop (ft)
MEAS_WLEN	22.5	0	6919.5
ZMUD	1.58	0	150
ZMUD	1.57	150	250
ZMUD	1.58	250	800
ZMUD	1.59	800	1300
ZMUD	1.6	1300	2300
ZMUD	1.61	2300	3500
ZMUD	1.62	3500	4800
ZMUD	1.63	4800	6919.5
All depth are actual.			

Tool Control Parameters

Run 1: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	44	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	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
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	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6916	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Run 1Time Zoned Parameters

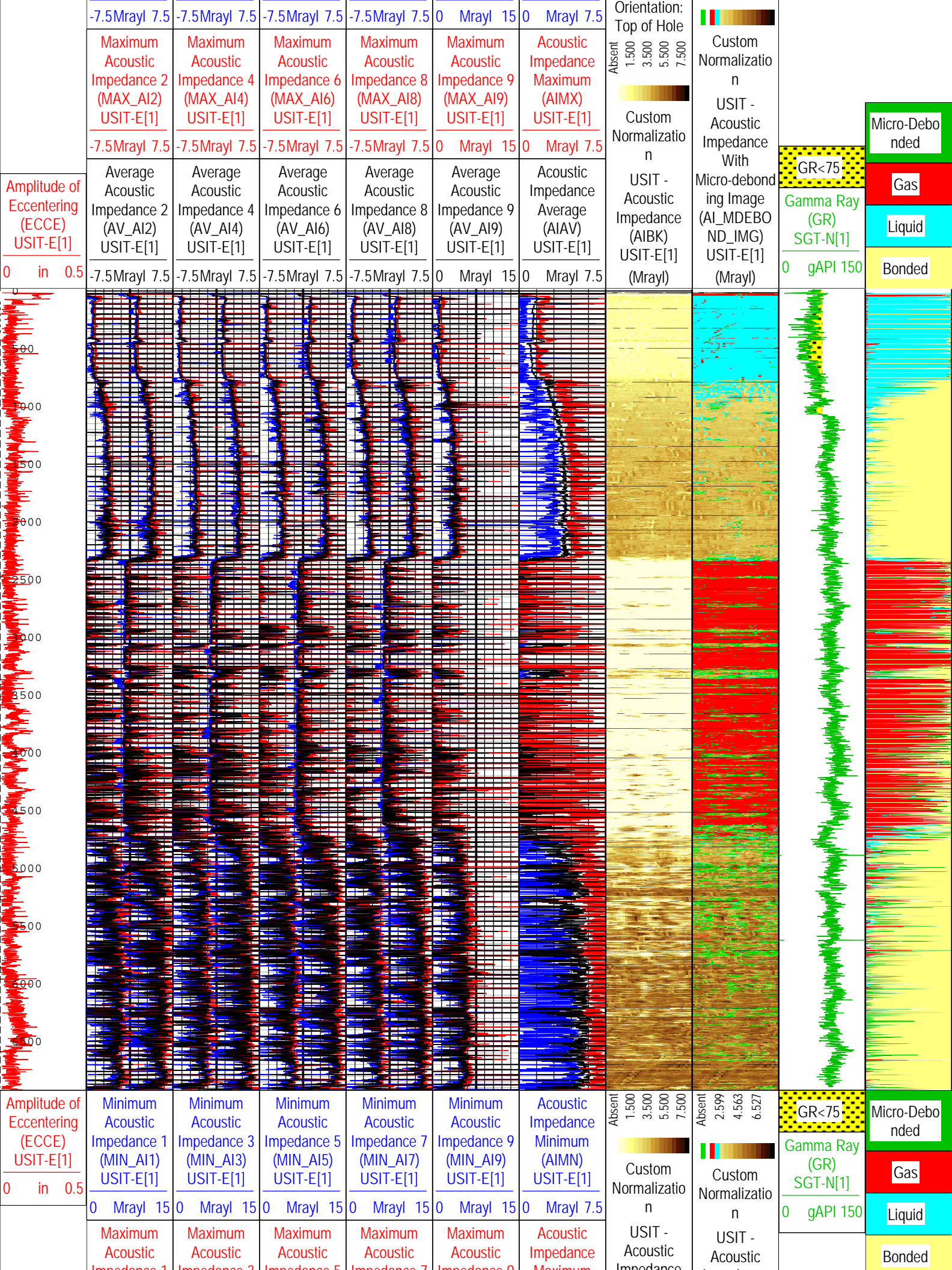
Pass Main[3]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	63	17-Jun-2014 09:58:35	17-Jun-2014 09:59:17	6919.42	6908.12
EMXV	60	17-Jun-2014 09:59:17	17-Jun-2014 09:59:22	6908.12	6905.92
EMXV	58	17-Jun-2014 09:59:22	17-Jun-2014 10:03:55	6905.92	6537
EMXV	55	17-Jun-2014 10:03:55	17-Jun-2014 10:04:20	6537	6500.32
EMXV	52	17-Jun-2014 10:04:20	17-Jun-2014 11:00:00	6500.32	1633.77
EMXV	55	17-Jun-2014 11:00:00	17-Jun-2014 11:00:13	1633.77	1615.24
EMXV	57	17-Jun-2014 11:00:13	17-Jun-2014 11:00:27	1615.24	1594.63
EMXV	59	17-Jun-2014 11:00:27	17-Jun-2014 11:47:37	1594.63	404.09
WINB	38.4	17-Jun-2014 09:58:48	17-Jun-2014 11:47:37	6919.42	404.09
WINE	78.4	17-Jun-2014 09:58:48	17-Jun-2014 11:47:37	6919.42	404.09

Pass Main[5]:Up

EMXV	55	17-Jun-2014 12:22:08	17-Jun-2014 12:22:59	403.92	375.63
EMXV	60	17-Jun-2014 12:22:59	17-Jun-2014 12:28:40	375.63	96.62
EMXV	65	17-Jun-2014 12:28:40	17-Jun-2014 12:28:46	96.62	91.97
EMXV	70	17-Jun-2014 12:28:46	17-Jun-2014 12:28:57	91.97	83.25
EMXV	75	17-Jun-2014 12:28:57	17-Jun-2014 12:30:15	83.25	49.86
EMXV	80	17-Jun-2014 12:30:15	17-Jun-2014 12:30:22	49.86	47.82
EMXV	85	17-Jun-2014 12:30:22	17-Jun-2014 12:30:30	47.82	45.78
EMXV	90	17-Jun-2014 12:30:30	17-Jun-2014 12:30:37	45.78	43.93
EMXV	95	17-Jun-2014 12:30:37	17-Jun-2014 12:31:01	43.93	37.63
EMXV	100	17-Jun-2014 12:31:01	17-Jun-2014 12:31:11	37.63	34.98
EMXV	105	17-Jun-2014 12:31:11	17-Jun-2014 12:31:42	34.98	26.78
EMXV	110	17-Jun-2014 12:31:42	17-Jun-2014 12:33:11	26.78	9.92

WINB	38.4	17-Jun-2014 12:22:08	17-Jun-2014 12:32:51	403.92	13.33
WINB	43.02	17-Jun-2014 12:32:51	17-Jun-2014 12:33:11	13.33	9.92
WINE	78.4	17-Jun-2014 12:22:08	17-Jun-2014 12:32:55	403.92	12.65
WINE	91.43	17-Jun-2014 12:32:55	17-Jun-2014 12:33:11	12.65	9.92
All depth are at tool zero.					
Import (2) of USI Goodwin					
USIT - Fluid Properties Measurement					
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)		
Run 1	Main[3]:Up	6919.67	254.96		
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	150	1.58	1.58		
150	250	1.57	1.57		
250	800	1.58	1.58		
800	1300	1.59	1.59		
1300	2300	1.6	1.6		
2300	3500	1.61	1.61		
3500	4800	1.62	1.62		
4800		1.63	1.63		
Composite 1					
USI Goodwin Compressed - 0 PSI					
Log	Company:Anadarko Petroleum Company Well:Spurling 34N-34HZ Composite 1:S006				
Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Jun-2014 17:28:25					
TIME_1900 - Time Marked every 60.00 (s)					
Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E[1]	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E[1]	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E[1]	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E[1]		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E[1]	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E[1]	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E[1]	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E[1]		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Average Acoustic Impedance 1 (AV_AI1) USIT-E[1]	Average Acoustic Impedance 3 (AV_AI3) USIT-E[1]	Average Acoustic Impedance 5 (AV_AI5) USIT-E[1]	Average Acoustic Impedance 7 (AV_AI7) USIT-E[1]		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1]	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1]	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1]	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1]	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1]	Acoustic Impedance Minimum (AIMN) USIT-E[1]
					<div>U L B R U</div> <div>Orientation: Top of Hole</div> <div>Absent 2.599 4.563 6.527</div>



Impedance 1 (MAX_AI1) USIT-E[1]	Impedance 3 (MAX_AI3) USIT-E[1]	Impedance 5 (MAX_AI5) USIT-E[1]	Impedance 7 (MAX_AI7) USIT-E[1]	Impedance 9 (MAX_AI9) USIT-E[1]	Maximum (AIMX) USIT-E[1]	Impedance (AIBK) USIT-E[1] (Mrayl) Orientation: Top of Hole U L B R U	Impedance With Micro-debond ing Image (AI_MDEBO ND_IMG) USIT-E[1] (Mrayl) Orientation: Top of Hole U L B R U
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5		
Average Acoustic Impedance 1 (AV_AI1) USIT-E[1]	Average Acoustic Impedance 3 (AV_AI3) USIT-E[1]	Average Acoustic Impedance 5 (AV_AI5) USIT-E[1]	Average Acoustic Impedance 7 (AV_AI7) USIT-E[1]	Average Acoustic Impedance 9 (AV_AI9) USIT-E[1]	Acoustic Impedance Average (AIAV) USIT-E[1]		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5		
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1]	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1]	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1]	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1]				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E[1]	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E[1]	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E[1]	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E[1]				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				
Average Acoustic Impedance 2 (AV_AI2) USIT-E[1]	Average Acoustic Impedance 4 (AV_AI4) USIT-E[1]	Average Acoustic Impedance 6 (AV_AI6) USIT-E[1]	Average Acoustic Impedance 8 (AV_AI8) USIT-E[1]				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				

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: 20-Jun-2014 17:28:25

XYZ

Company:Anadarko Petroleum Company

Well:Spurling 34N-34HZ

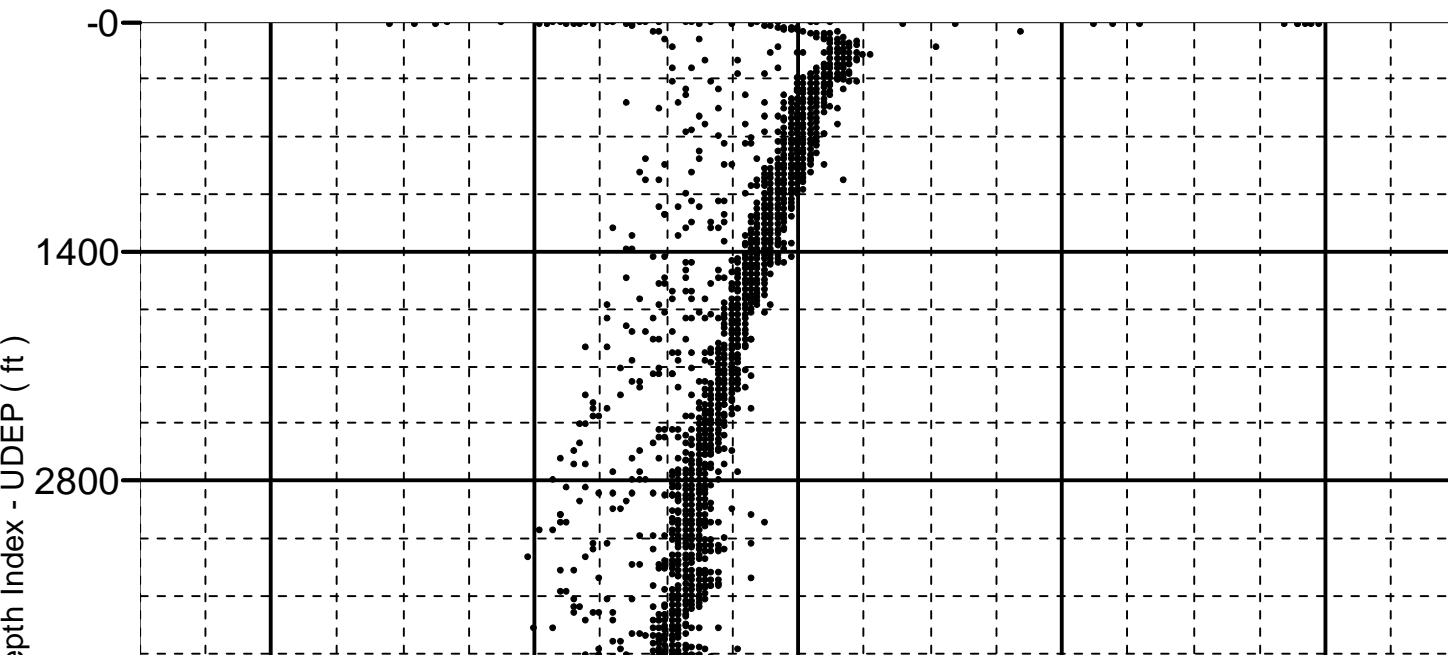
Run 1: Main[6]:Up:S006

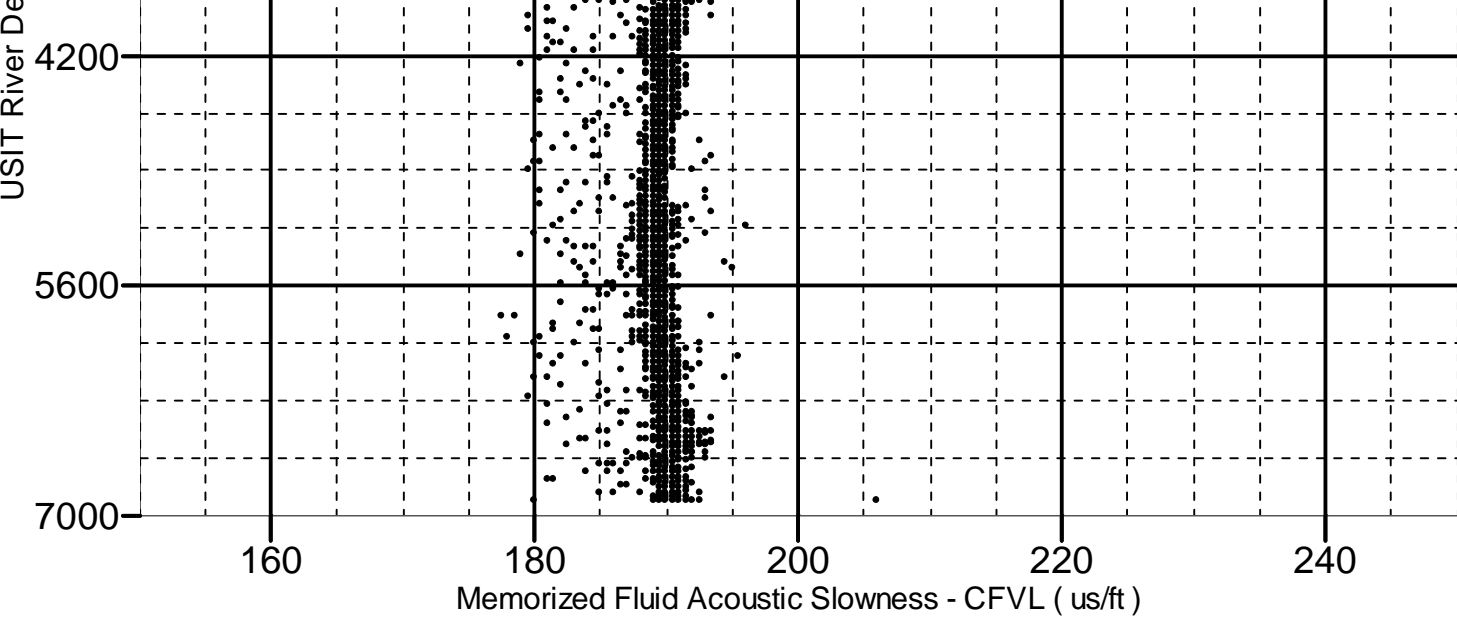
Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6922.50 to 10.75 ft

● CFVL-UDEP





XYZ

Company:Anadarko Petroleum Company

Well:Spurling 34N-34HZ

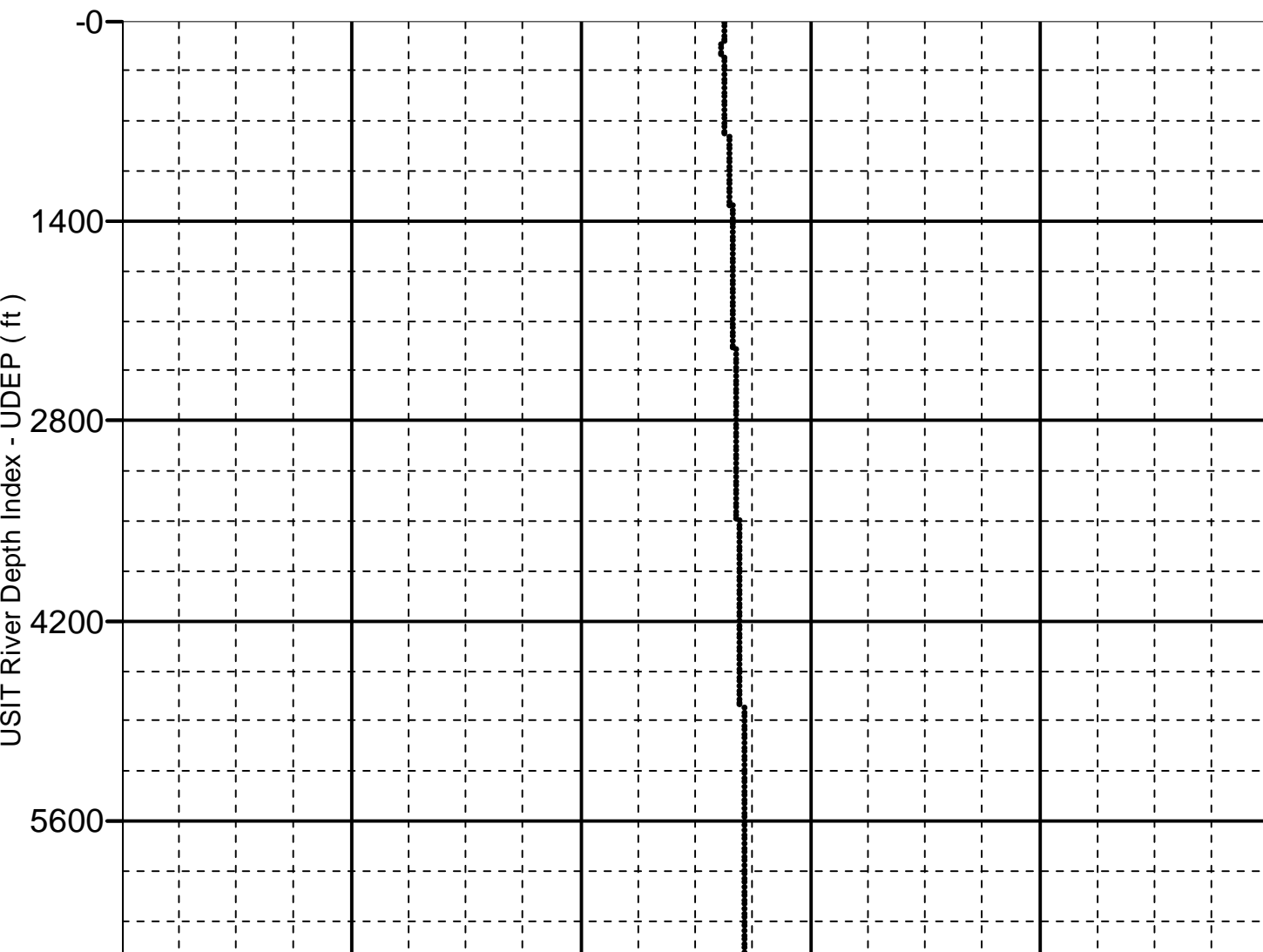
Run 1: Main[6]:Up:S006

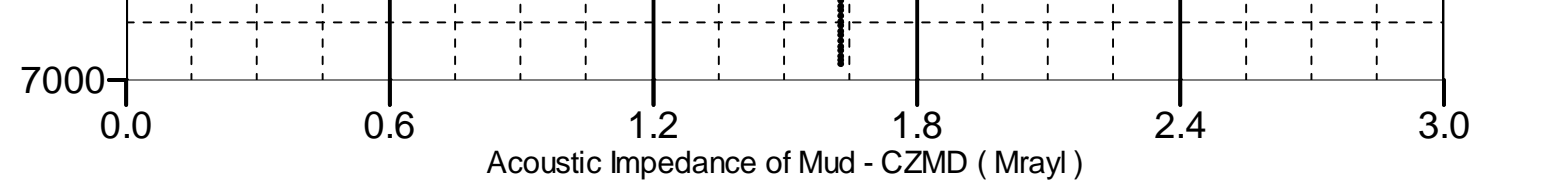
Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6922.50 to 10.75 ft

● CZMD-UDEP





Company:	Anadarko Petroleum Company	Schlumberger
Well:	Spurling 34N-34HZ	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	

Ultrasonic Imager

Ultrasonic Imager

Cement Evaluation

Gamma Ray - CCL