

Company: Anadarko Petroleum Company

Well: Benson Farms 32C-23HZ

Field: Wattenberg

County: Weld State: Colorado

Ultrasonic Imager
Cement Evaluation
Gamma Ray - CCL

County: Weld
Field: Wattenberg
Location: NWSW Sec. 24, T3N, R68W
Well: Benson Farms 32C-23HZ
Company: Anadarko Petroleum Company

Location:			
NWSW Sec. 24, T3N, R68W SHL: 2135' FSL X 50' FWL		Elev.:	K.B. 4973.00 ft G.L. 4957.00 ft D.F. 4972.00 ft
Permanent Datum:	Ground Level	Elev.:	4957.00 f
Log Measured From:	Kelly Bushing	16.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-123-39395-0000	24	3N	68W

Logging Date	12-Aug-2014		
Run Number	Run 1: USIT		
Depth Driller	13292.00 ft		
Schlumberger Depth	13292.00 ft		
Bottom Log Interval	6759.00 ft		
Top Log Interval			
Casing Fluid Type	Brine		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	0.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.75 in		
From	0.00 ft		
To	13292.00 ft		
Casing/Tubing Size	7 in		
Weight	26 lbm/ft		
Grade	P110		
From	0.00 ft		
To	7743.00 ft		
Max Recorded Temperatures	215 degF		
Logger on Bottom	Time		
Unit Number	Location:	Ft. Morgan, CO	
Recorded By	Tim Hoffman		
Witnessed By	Trevor Daniel		

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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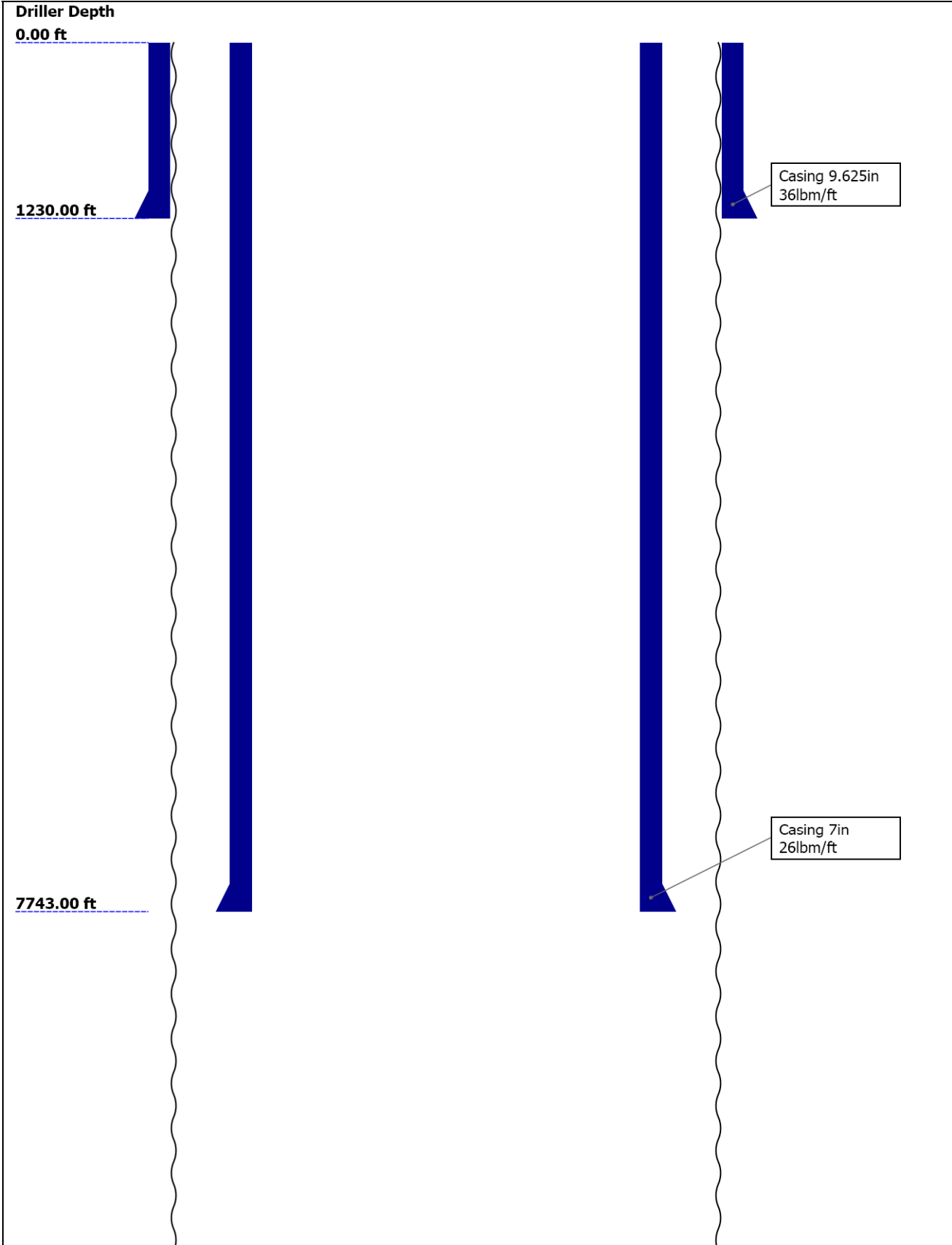
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	13292					
Bottom Logger (ft)	13292					
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	36	26				
Inner Diameter (in)	8.921	6.276				
Grade	J55	P110				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	1230	7743				
Bottom Logger (ft)	1230	7743				

Operational Run Summary

Parameter (unit)	Run1: USIT					
Date Log Started	12-Aug-2014					
Time Log Started	13:43:44					
Date Log Finished	12-Aug-2014					
Time Log Finished	16:47:25					
Top Log Interval (ft)	NaN					
Bottom Log Interval (ft)	6759.00					
Total Depth (ft)	13292.00					
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	Ft. Morgan, CO					
Recorded By	Tim Hoffman					
Witnessed By	Trevor Daniel					
Service Order Number	CX03-00083					

Remarks and Equipment Summary			
Run1: USIT: Toolstring		Run1: USIT: Remarks	
<div> <div> <div>Equip name</div> <div>Length</div> </div> <div> <div>LEH-QT:24</div> <div>30.75</div> </div> </div> <div> <div>93</div> <div>LEH-QT:2493</div> </div> <div> <div>DTC-H:938</div> <div>27.84</div> </div> <div> <div>6</div> <div>ECH-KC:1047</div> <div>2</div> <div>DTC-H:9386</div> </div> <div> <div>SGT-N:984</div> <div>24.84</div> </div> <div> <div>1</div> <div>SGH-K:2693</div> <div>SGC-TB:9841</div> <div>SGD-TAA:213</div> <div>65</div> </div> <div> <div>CME-AF</div> <div>19.34</div> </div> <div> <div>USIT-E:928</div> <div>15.54</div> </div> <div> <div>ECH-MFA:19</div> <div>03</div> <div>USAC-A:928</div> <div>USIS-A:1804</div> <div>USSC-B</div> <div>USRS-B:875</div> <div>USI-SENSOR</div> </div> <div> <div>USI Sens</div> <div>0.38</div> </div> <div> <div>or</div> <div>TOOL ZERO</div> </div> <div> <div>Head</div> <div>ension</div> </div> <div> <div>Lengths are in ft</div> <div>Maximum Outer Diameter = 4.645 in</div> <div>Line: Sensor Location, Value: Gating Offset</div> <div>All measurements are relative to TOOL_ZERO</div> </div>	<div> <div>MP name</div> <div>Offset</div> </div> <div> <div>CTEM</div> <div>26.94</div> </div> <div> <div>HV</div> <div>0.00</div> </div> <div> <div>TelStatus</div> <div>24.84</div> </div> <div> <div>ToolStat</div> <div>24.84</div> </div> <div> <div>us</div> </div> <div> <div>GR</div> <div>23.92</div> </div>		

Depth Summary			
		Run1: USIT	
Depth Measuring Device			
Type	IDW-B		
Serial Number	6428		
Calibration Date	21-Apr-2014		
Calibrator Serial Number			
Calibration Cable Type	7-39P LXS		
Wheel Correction 1	-5		
Wheel Correction 2	-4		

Tension Device

Version Device

Type	CMTD-B/A		
Serial Number	2858		
Calibration Date	09-Aug-2014		
Calibrator Serial Number			
Number of Calibration Points	10		
Calibration Root Mean Square Error	24		
Calibration Peak Error	49		

Logging Cable

Type	7-39P-LXS		
Serial Number			
Length	18000.00 ft		
Conveyance Type	Wireline		
Rig Type			

Run1: USIT:Depth Control Parameters

Log Sequence	First Log In the Well	Depth Control Remarks
Rig Up Length At Surface		
Rig Up Length At Bottom		
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

Copy of USI Composite

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[3]:Up	6772.1	15.77

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	200	1.68	1.68
200	400	1.66	1.66
400	700	1.66	1.66
700	1000	1.68	1.68
1000	1500	1.7	1.7
1500	2000	1.72	1.72
2000	2500	1.74	1.74
2500	3000	1.76	1.76
3000	4000	1.77	1.77
4000		1.78	1.78

Run1: USIT

2800 PSI Pass

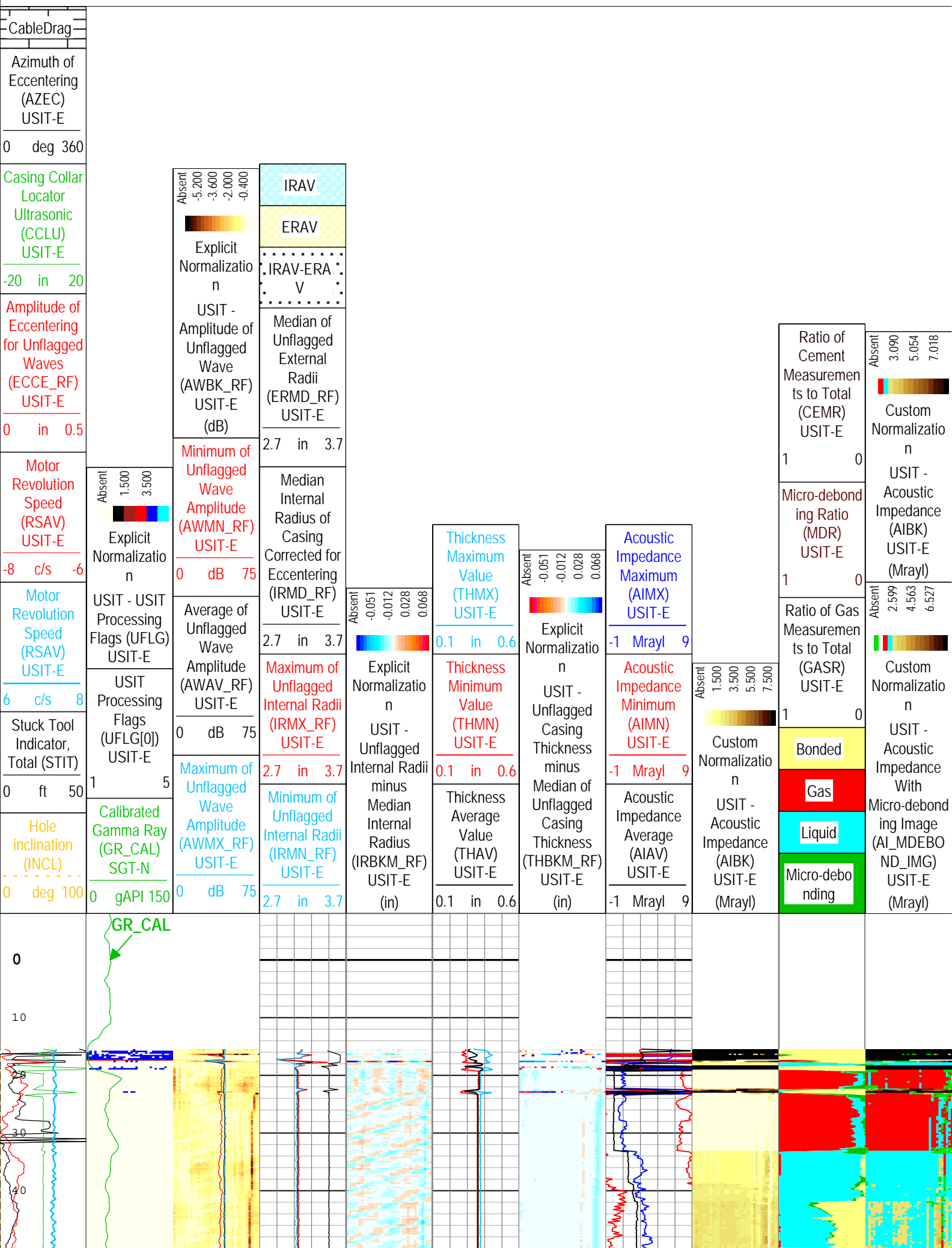
Log	Company:Anadarko Petroleum Company	Well:Benson Farms 32C-23HZ
		Run1: USIT: Log[3]:Up:S002

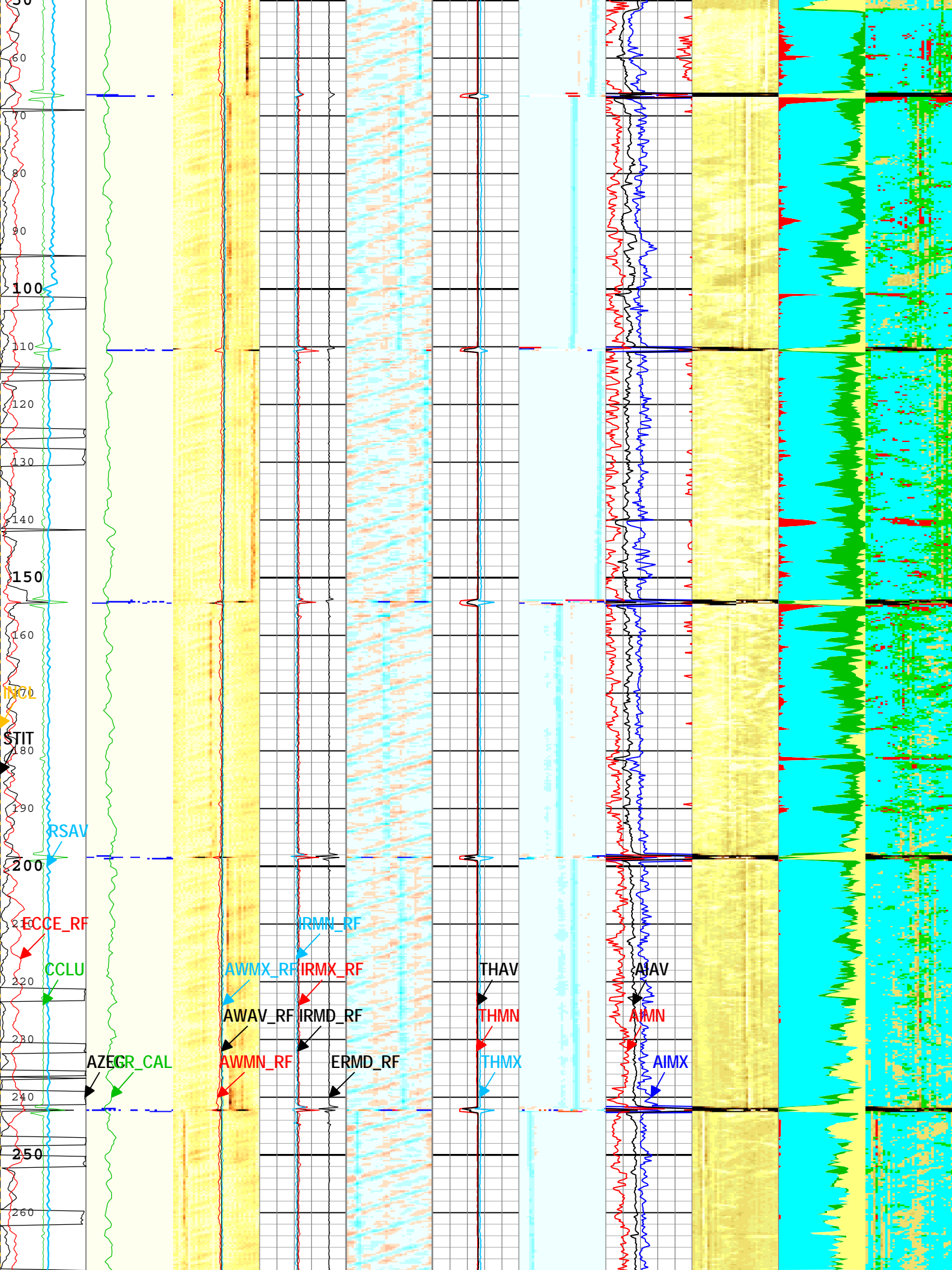
Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 07:43:34

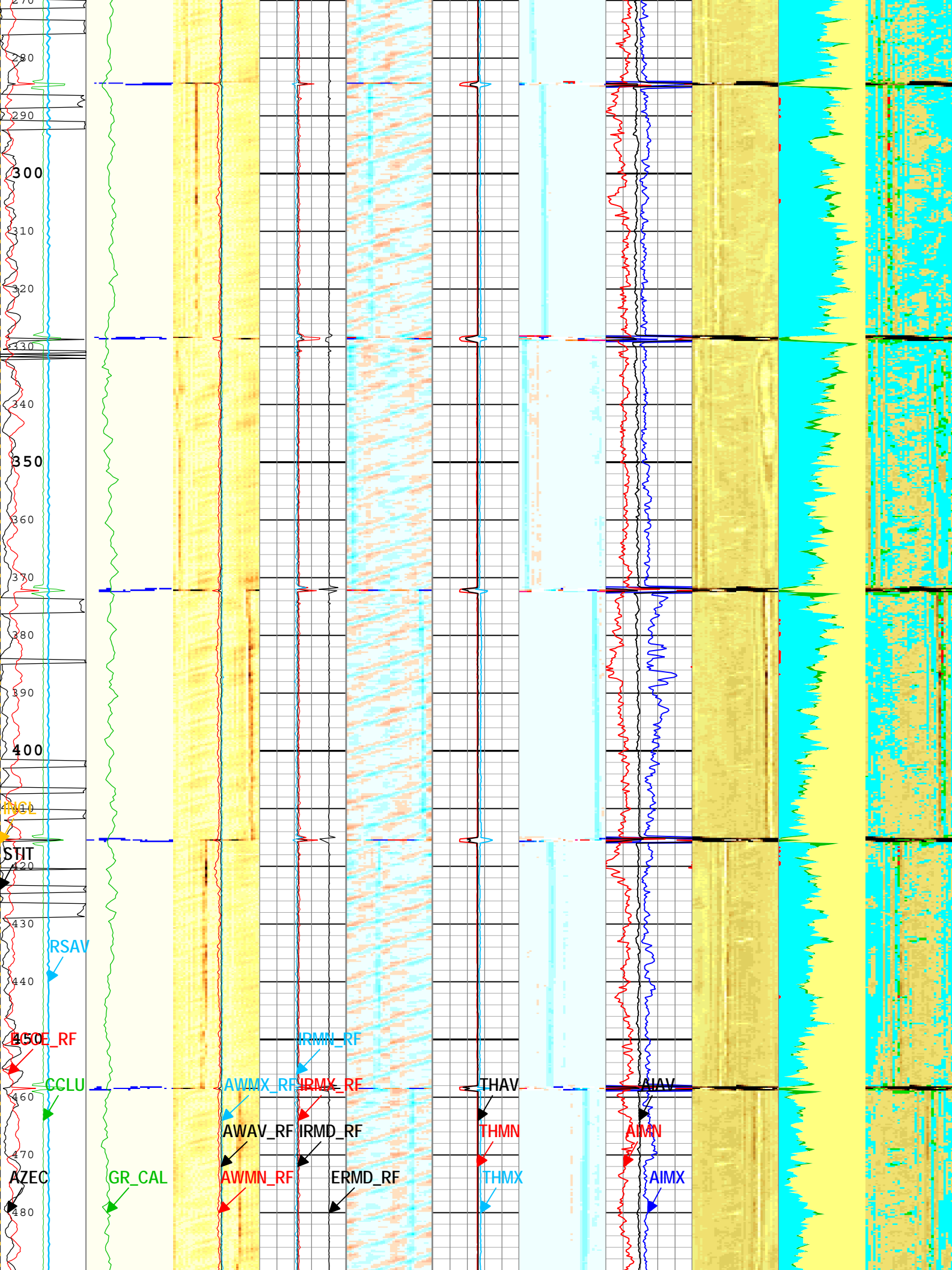
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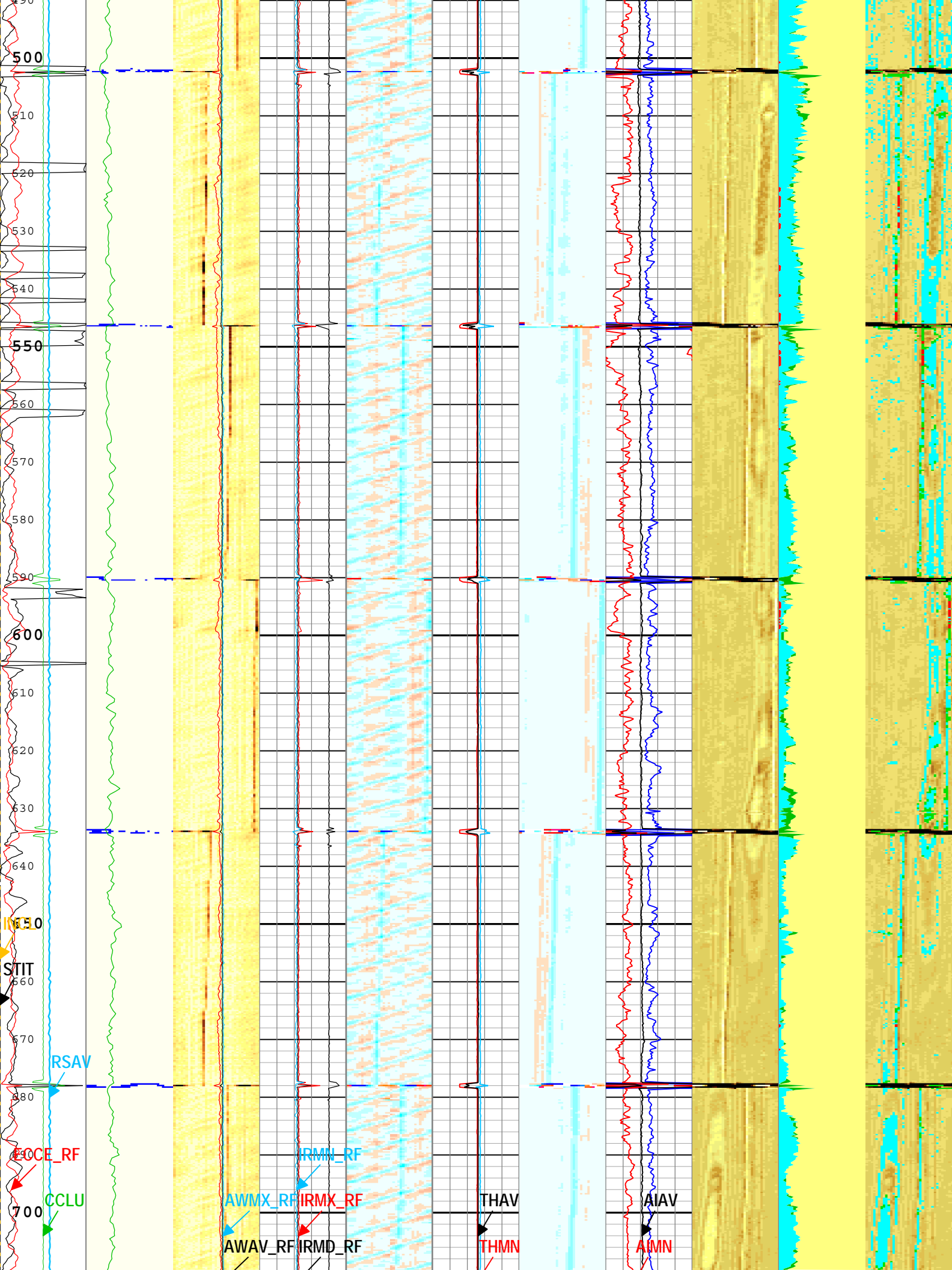
USIT Processing Flags (UFLG[0]) USIT-E

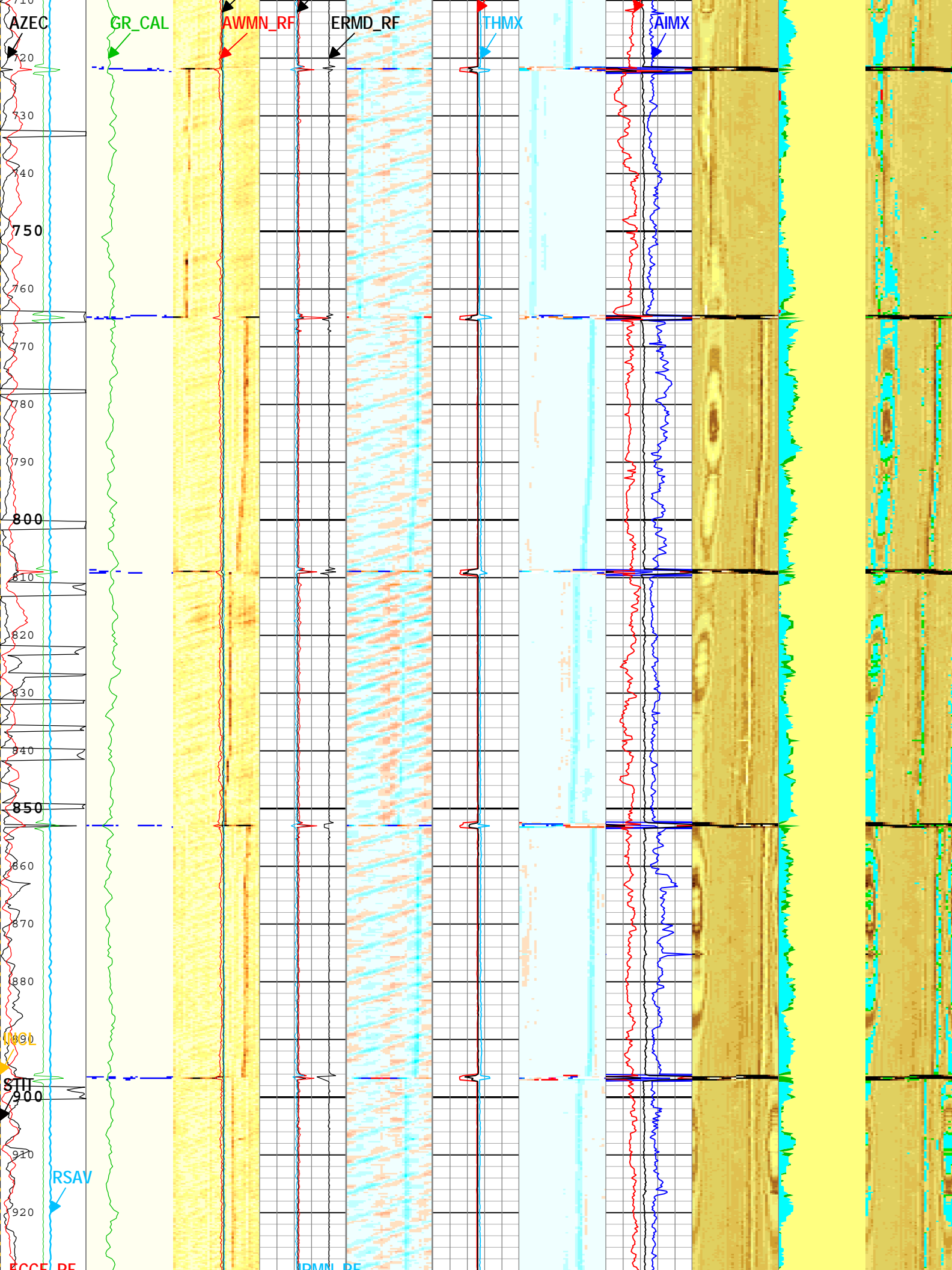
1 - UFLG 1 Value within [0.0 - 1.5] - :	UTIM Error
2 - UFLG 2 Value within [1.5 - 2.5] - :	Pulse Origin Not Detected
3 - UFLG 3 Value within [2.5 - 3.5] - :	WINLEN Error
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :	Casing Thickness Error

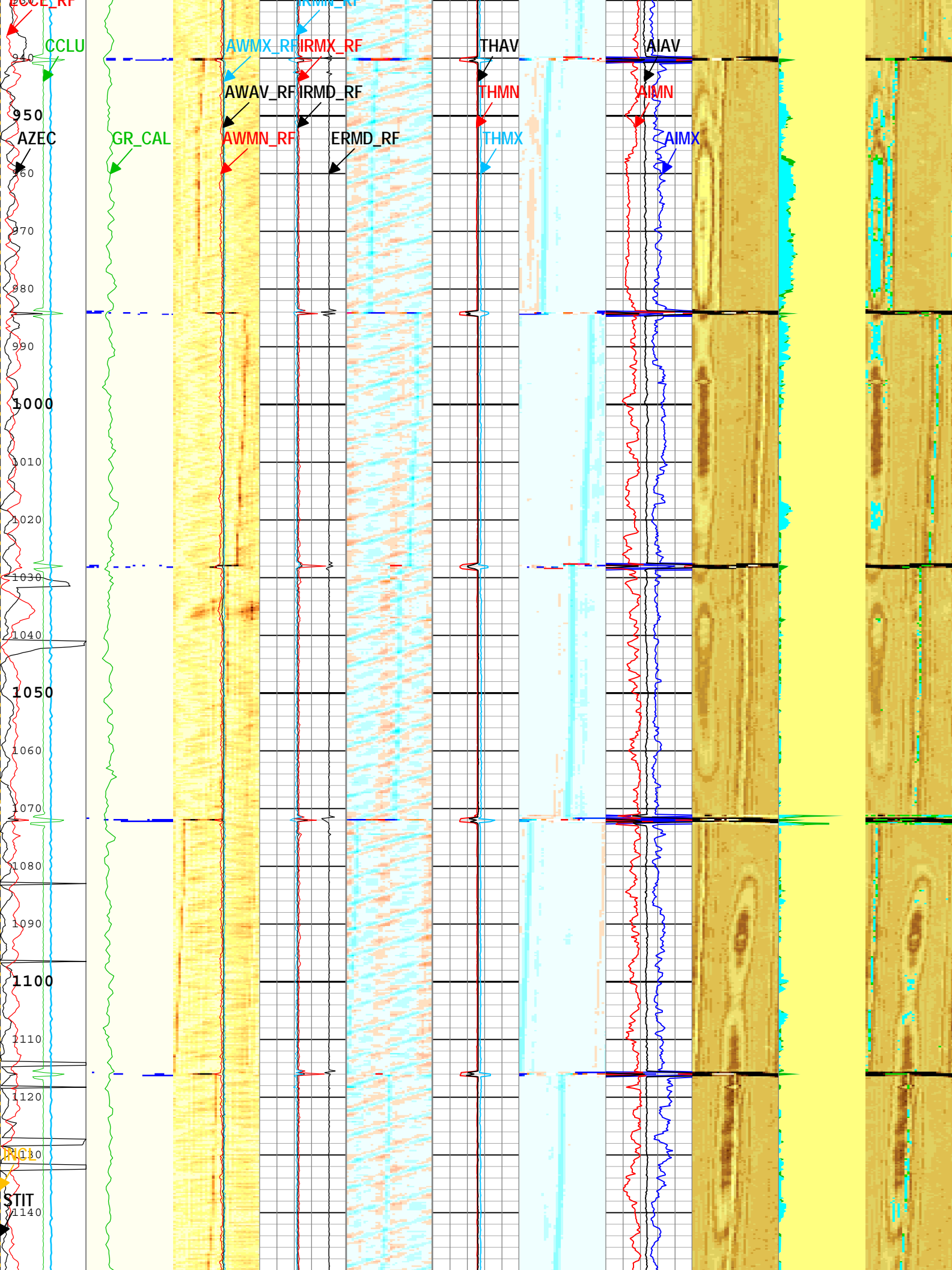


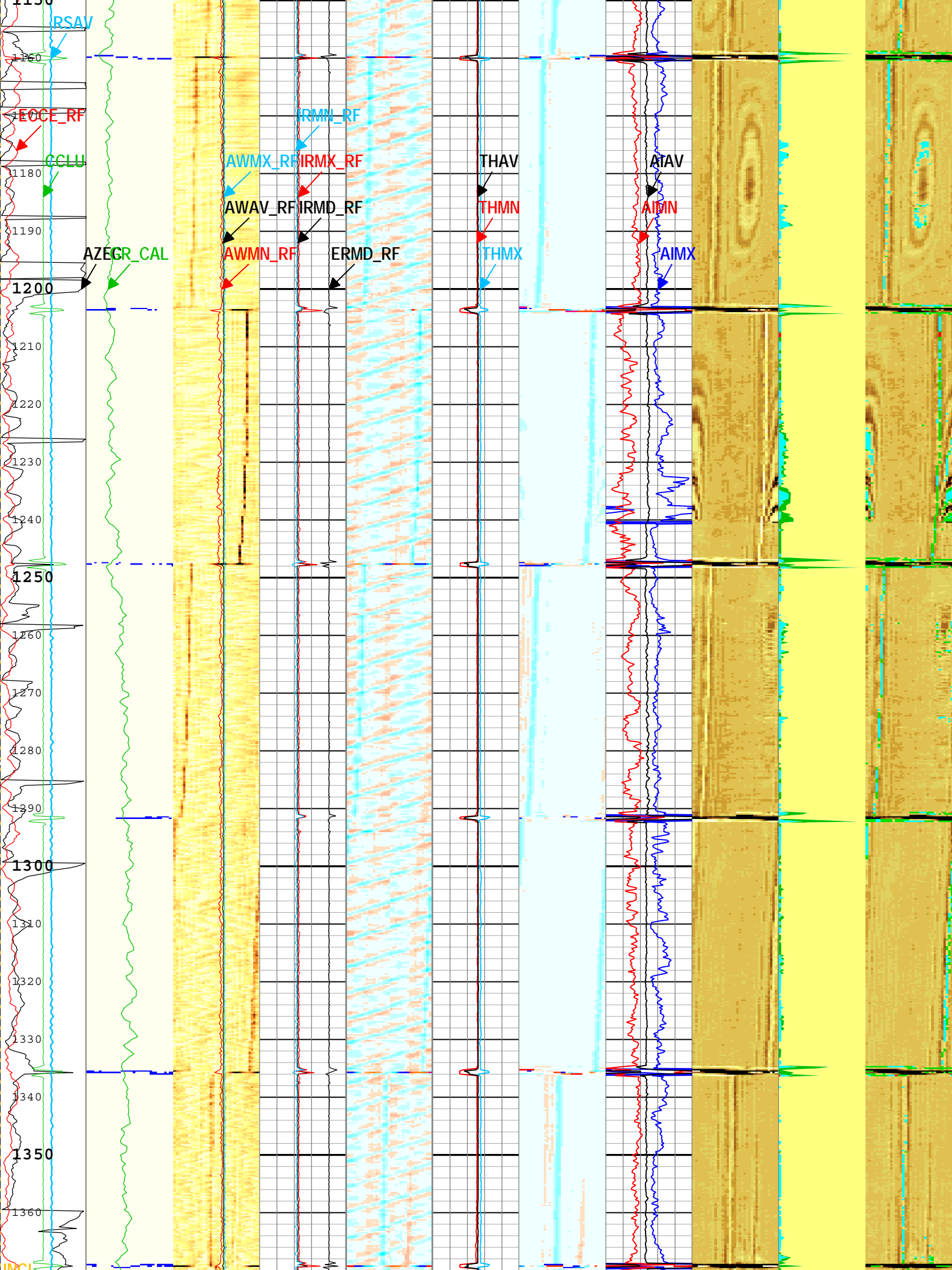


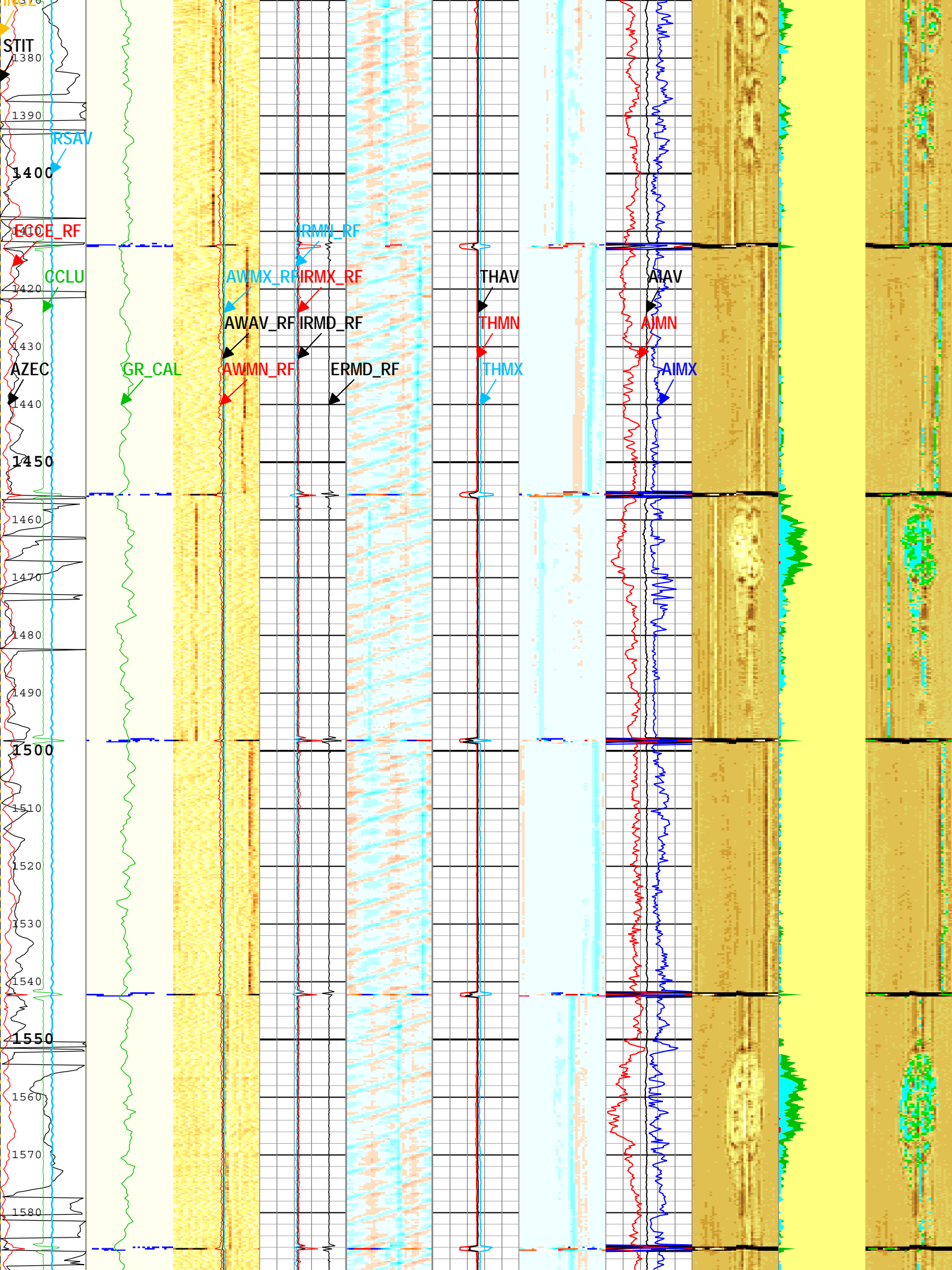


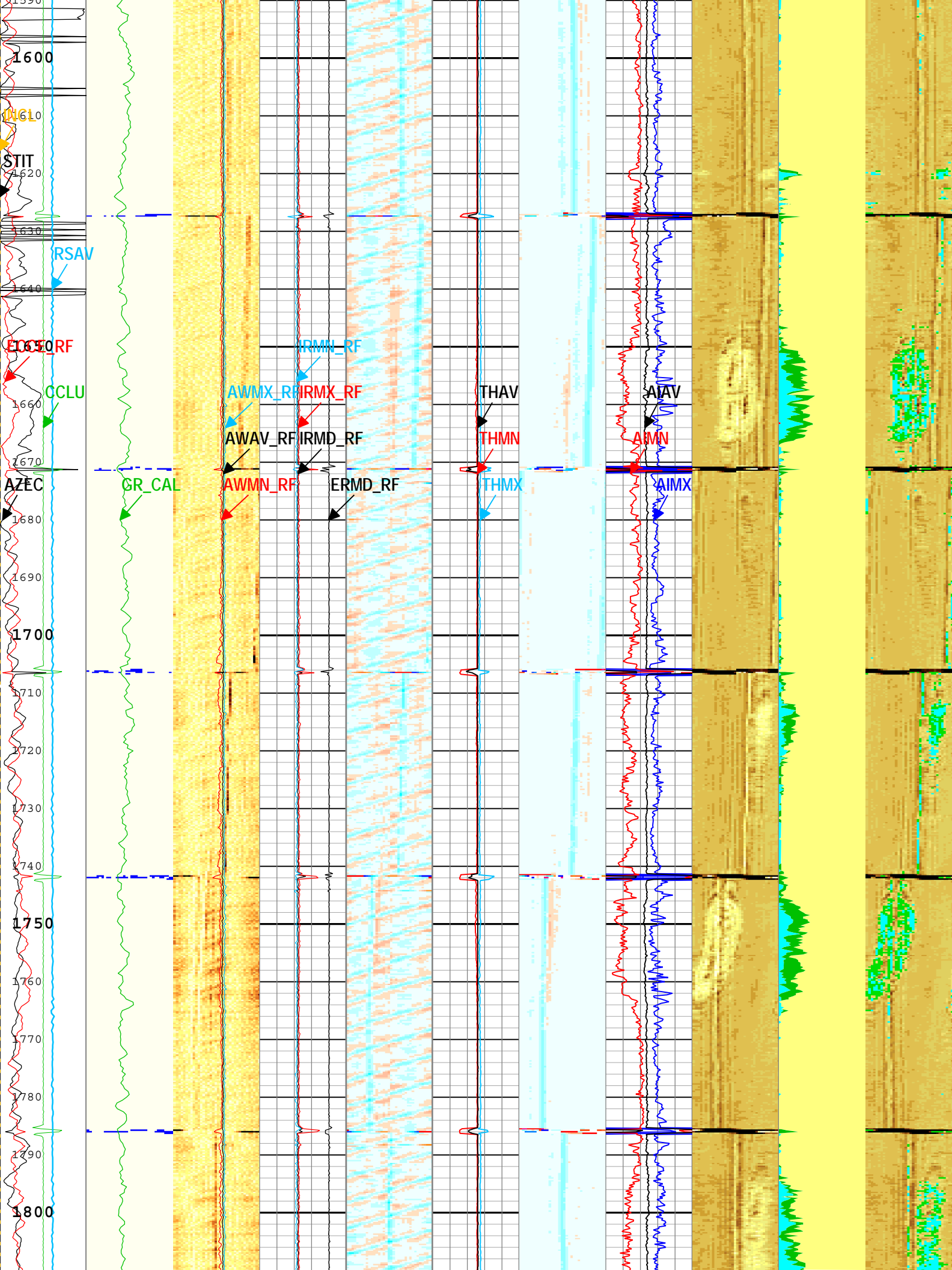


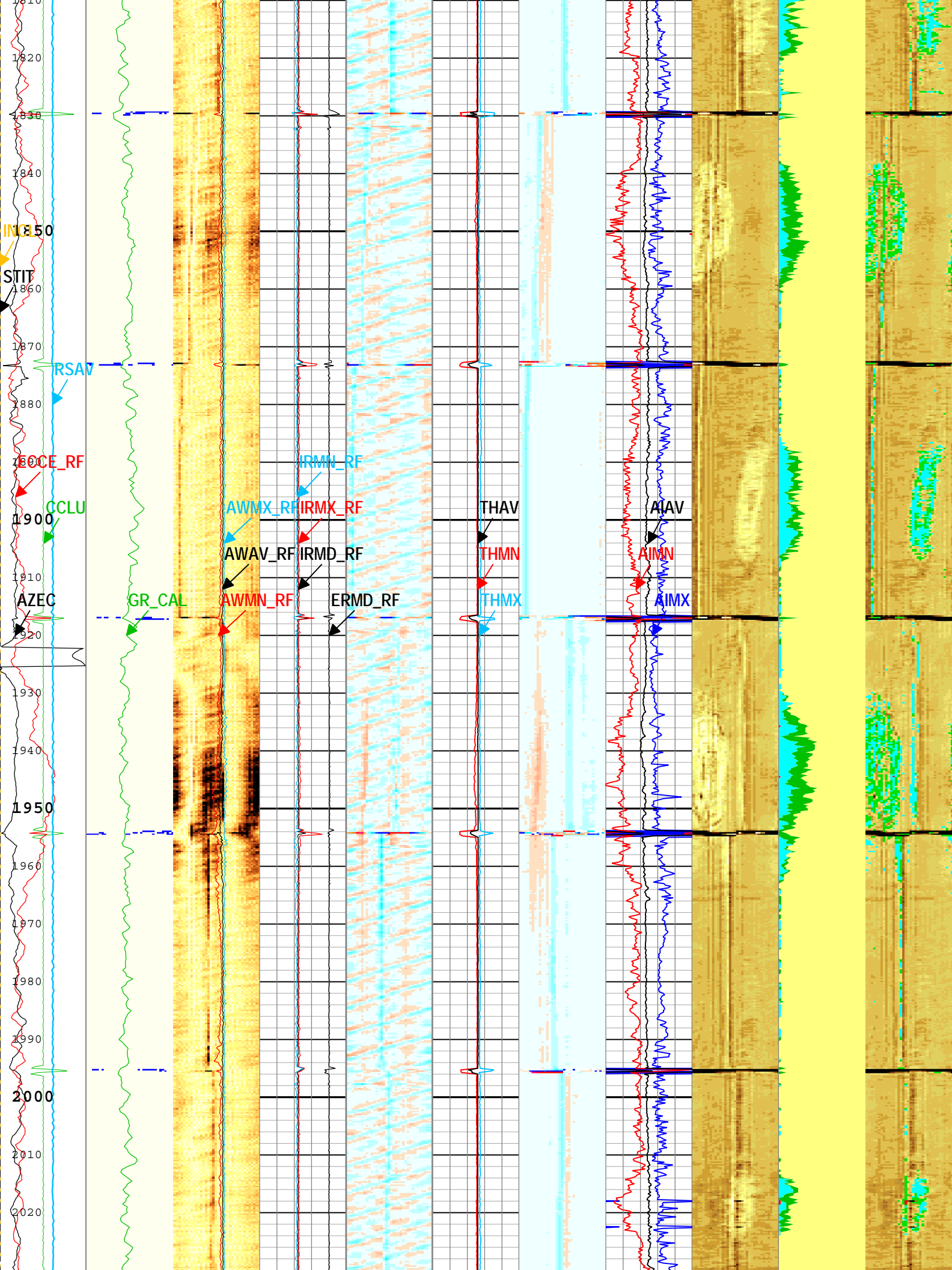


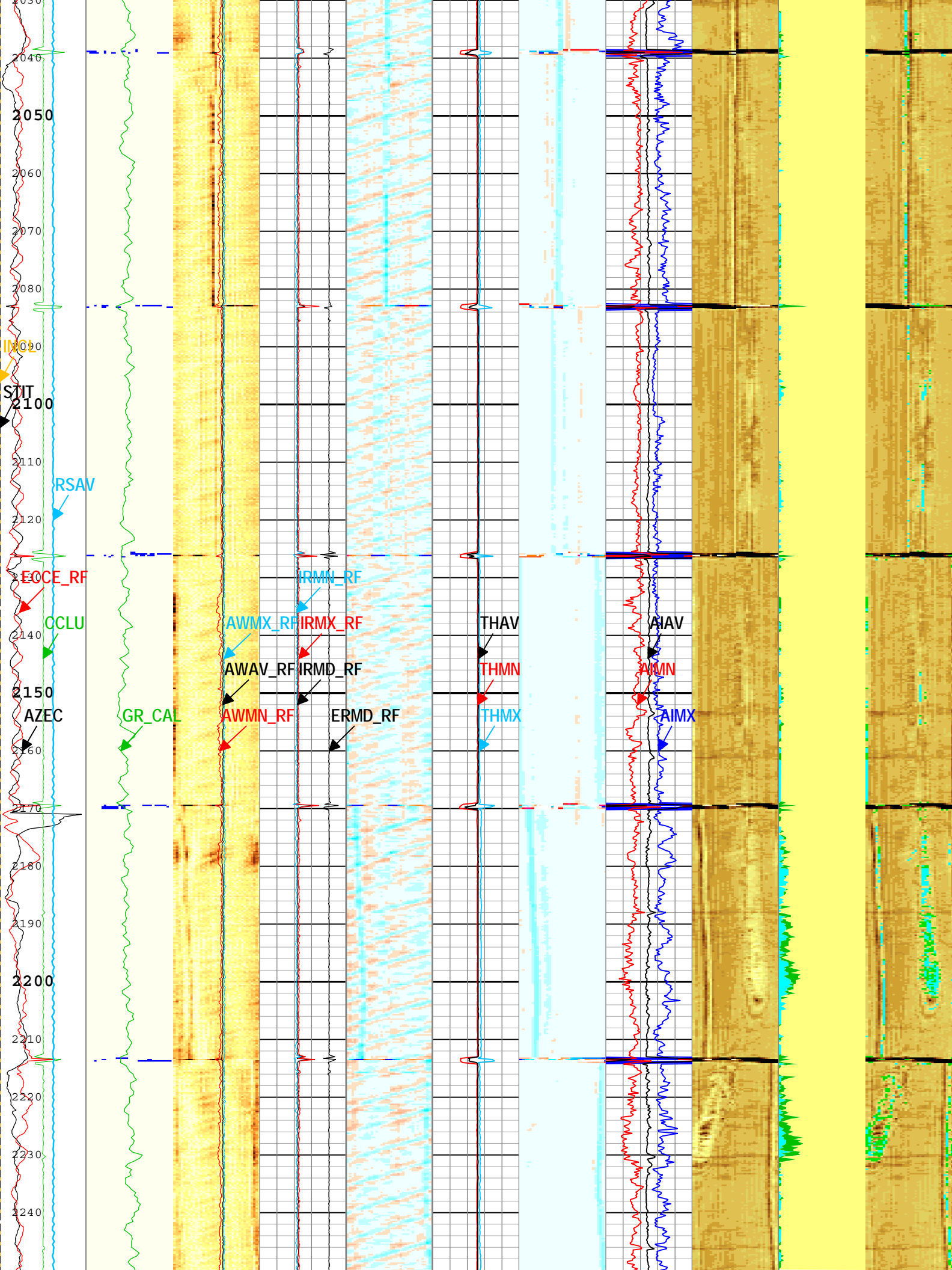


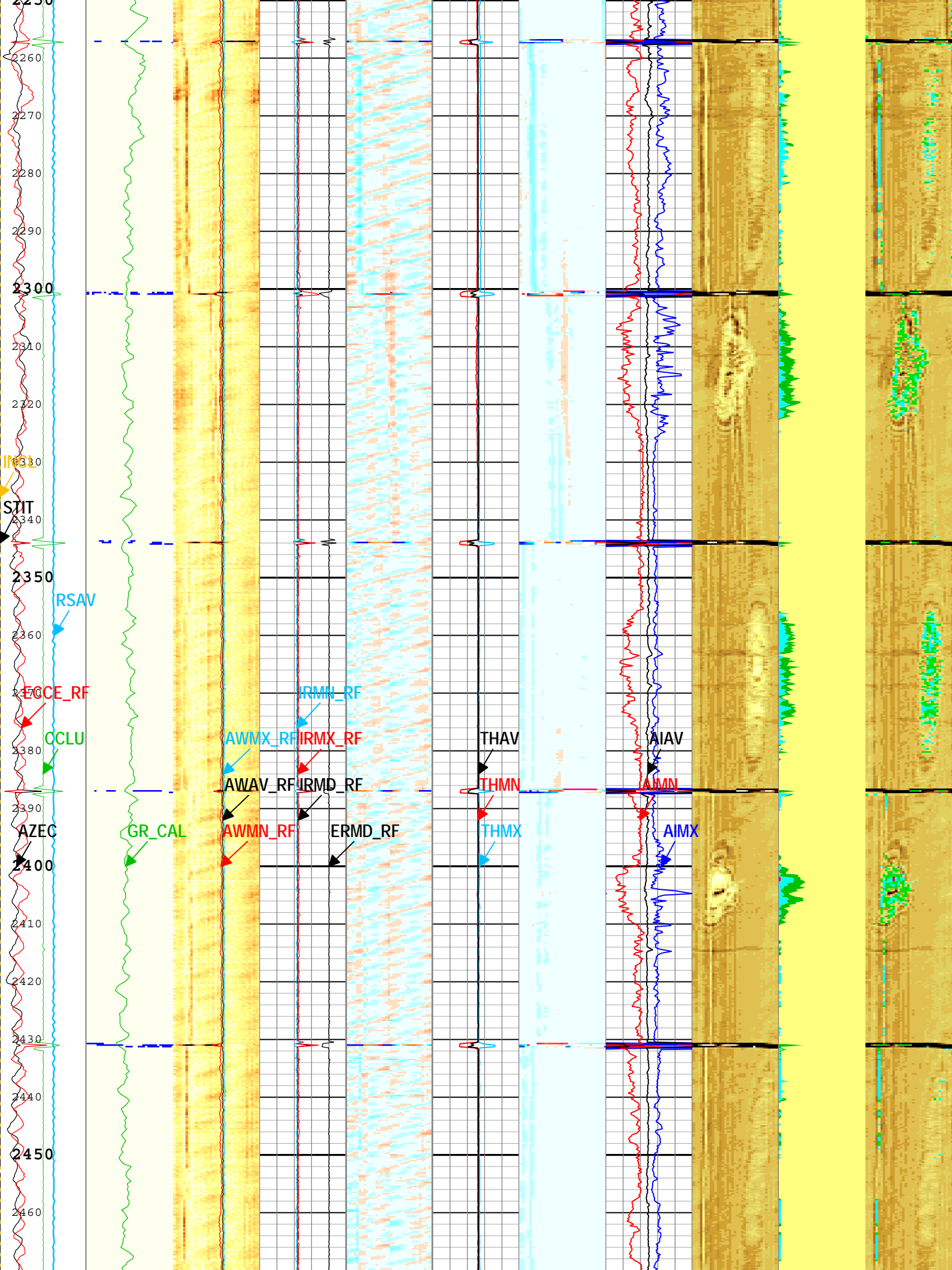


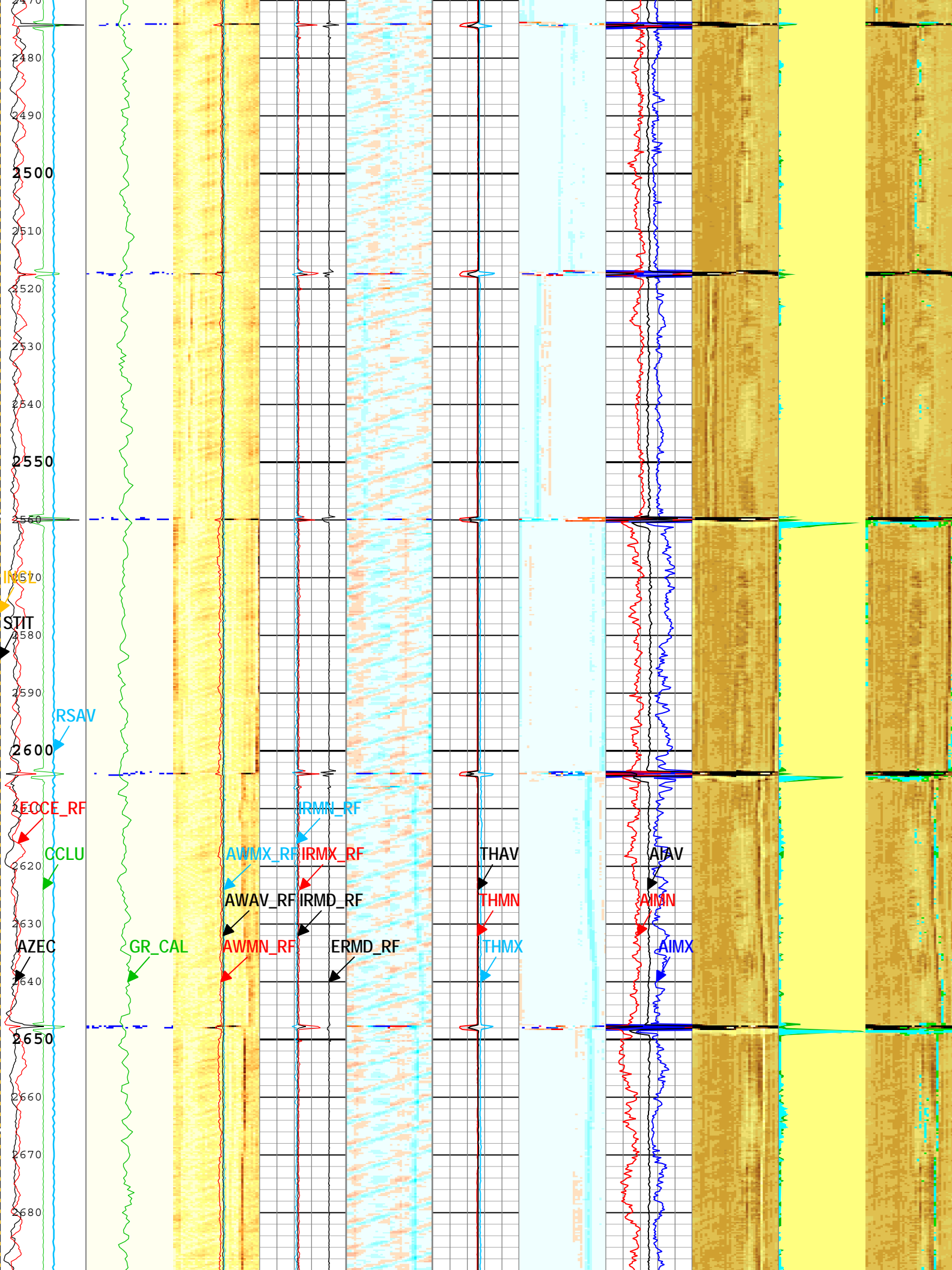


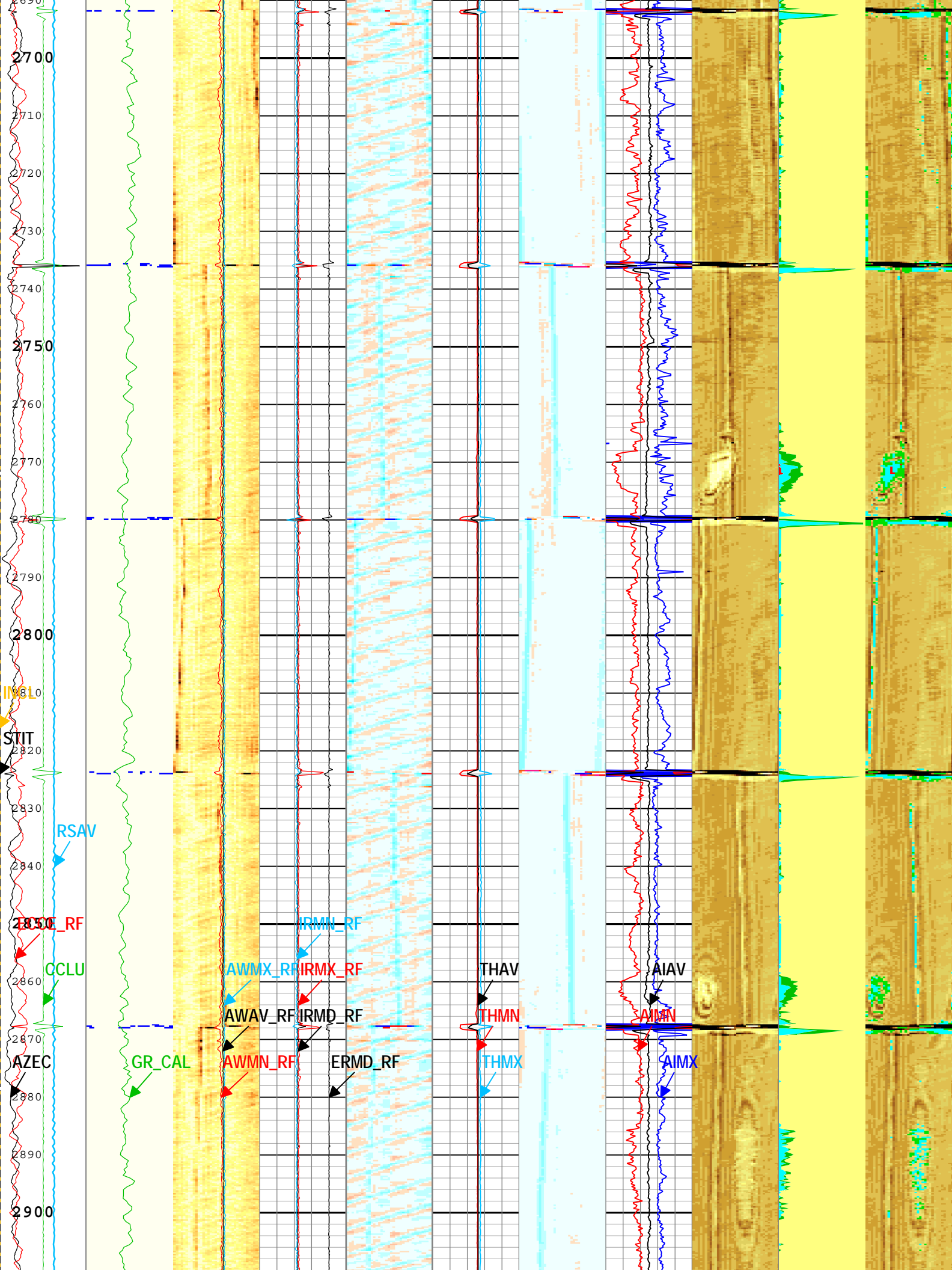


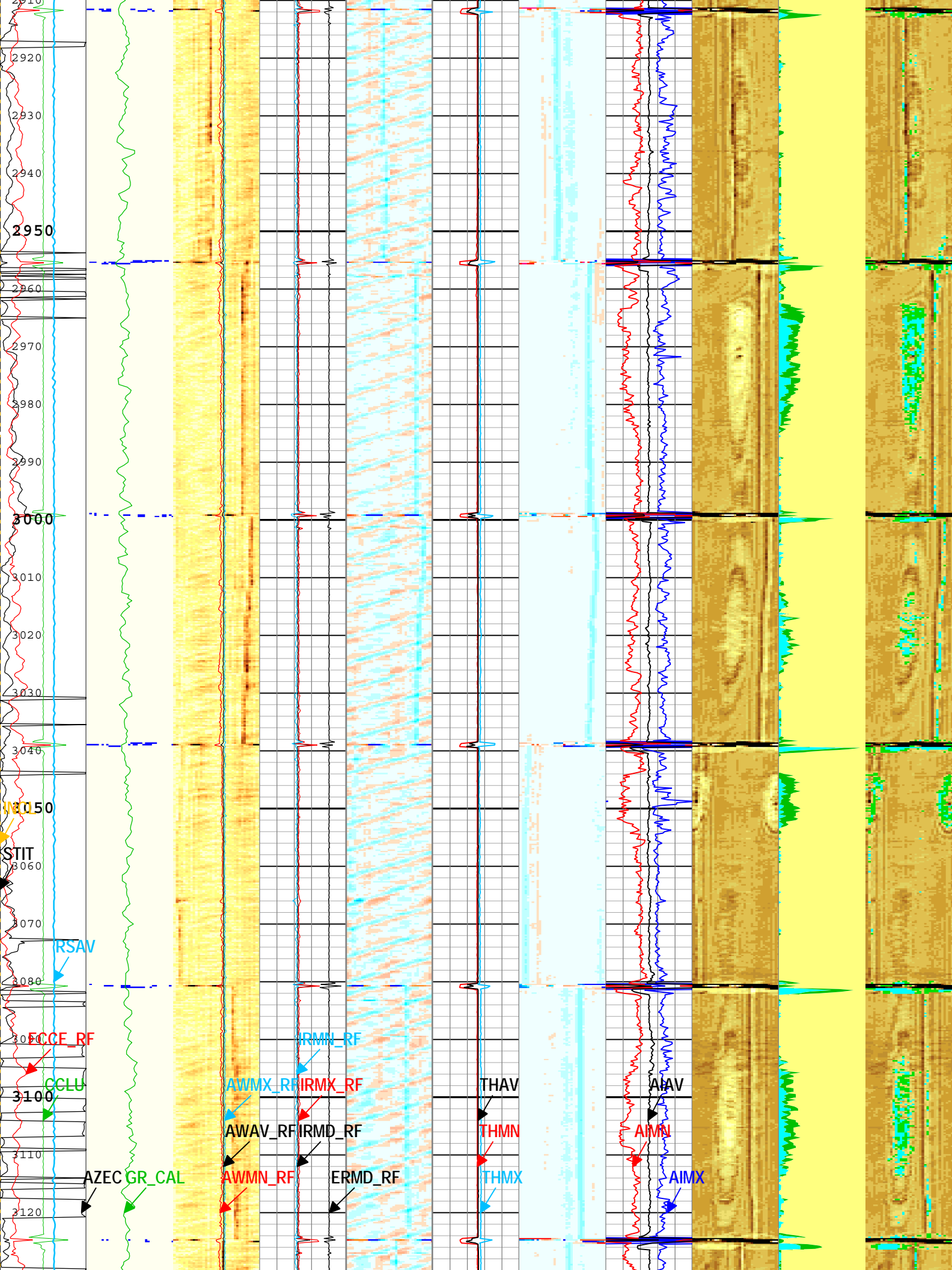


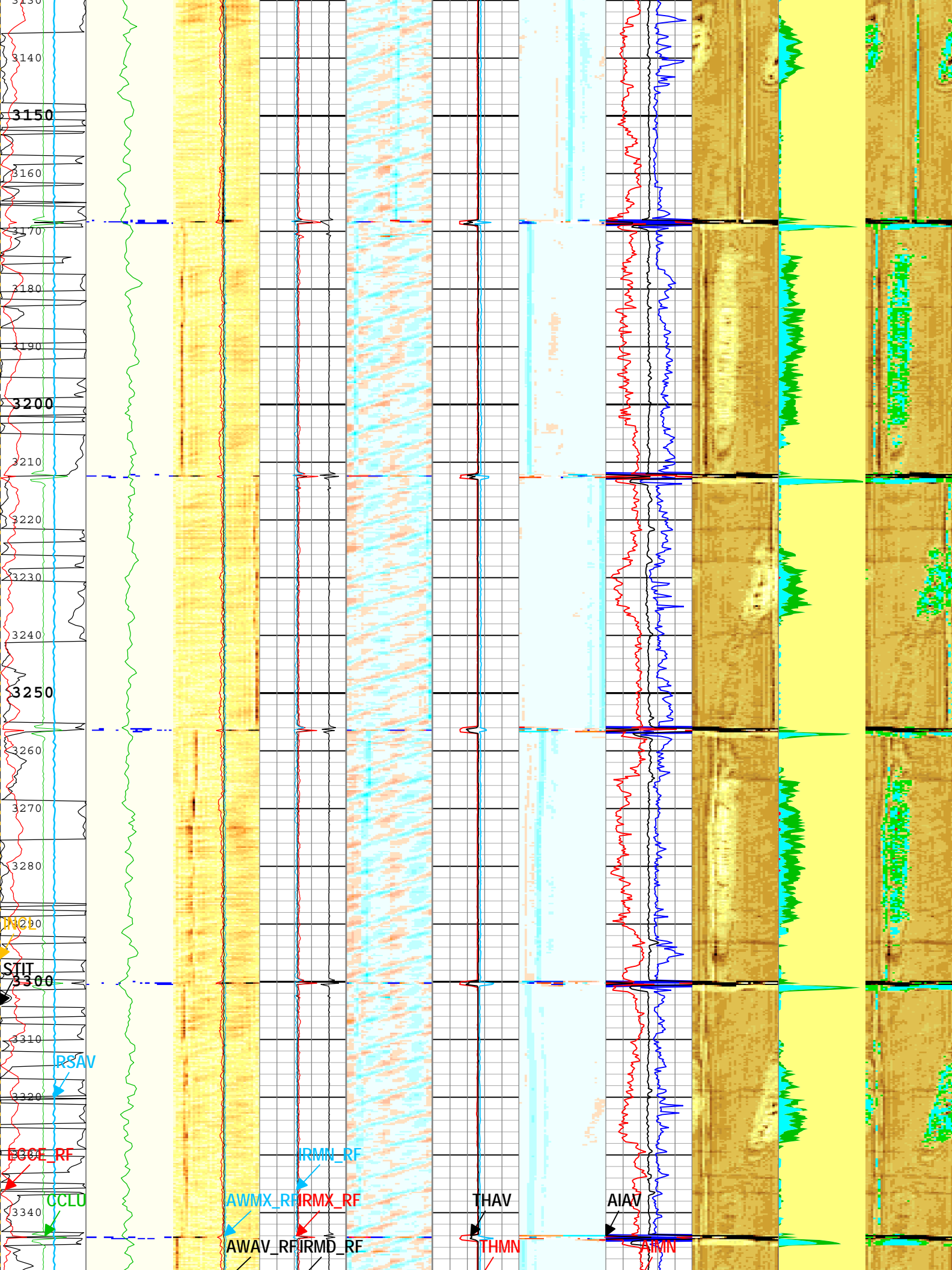


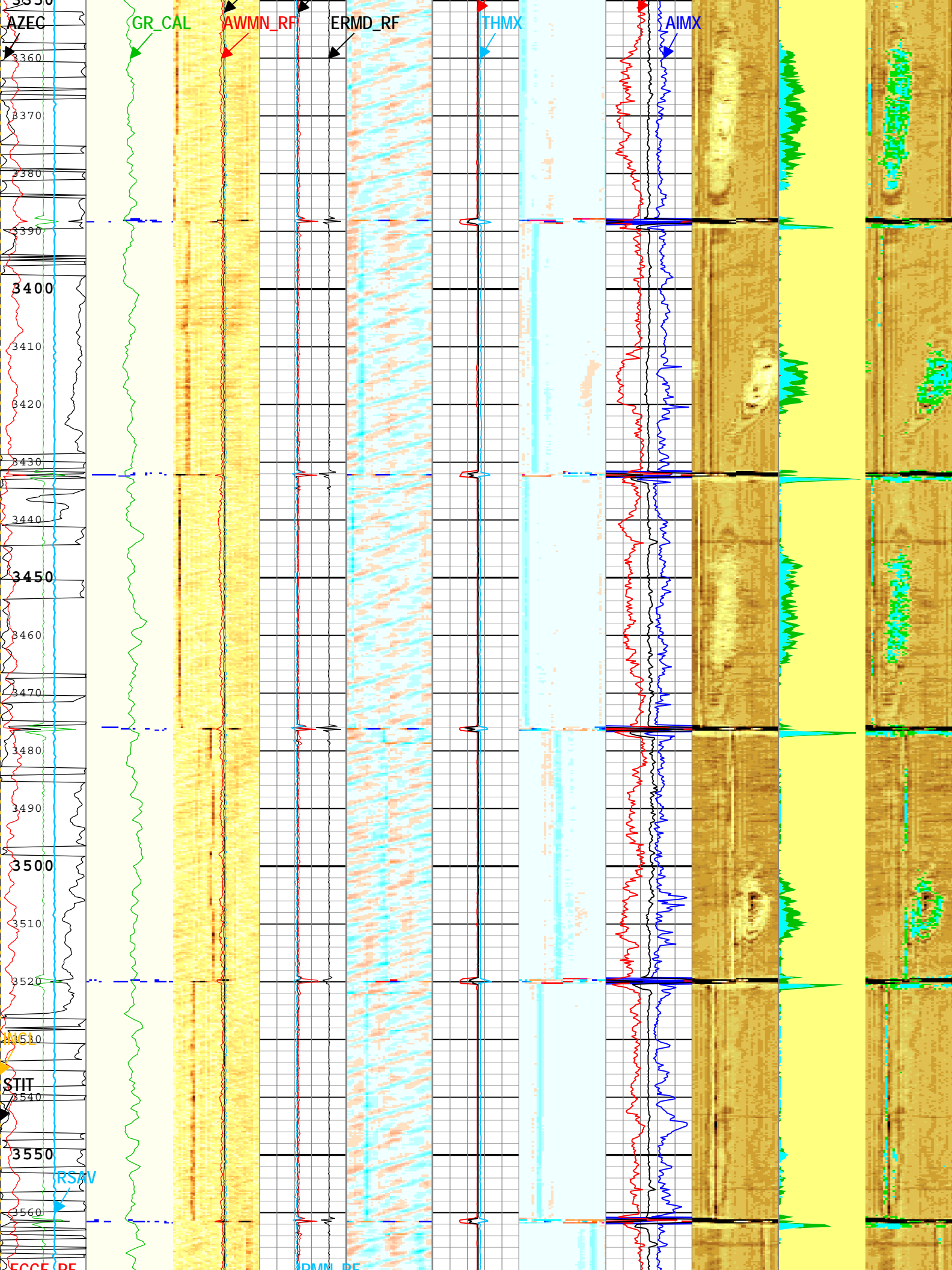


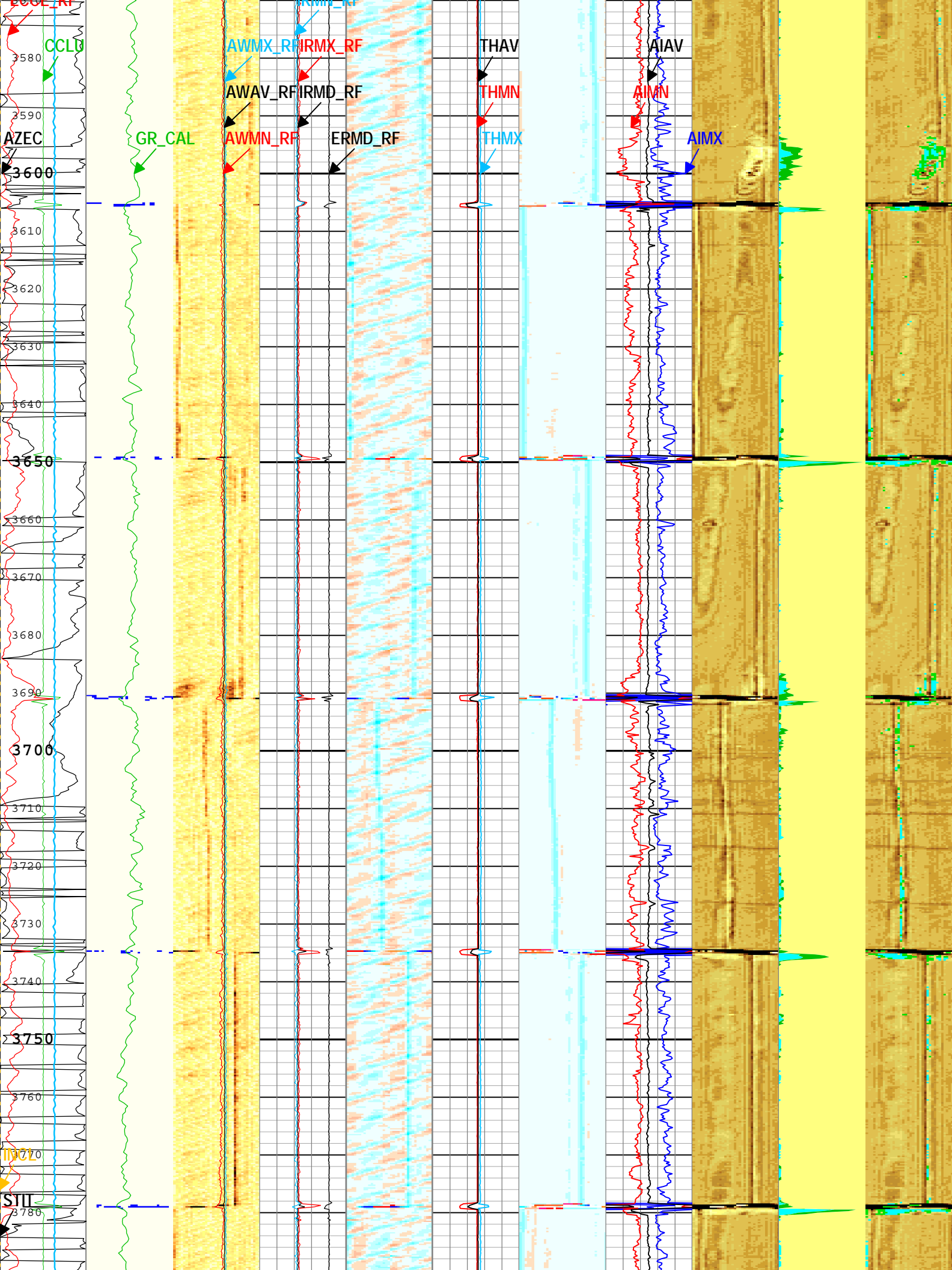


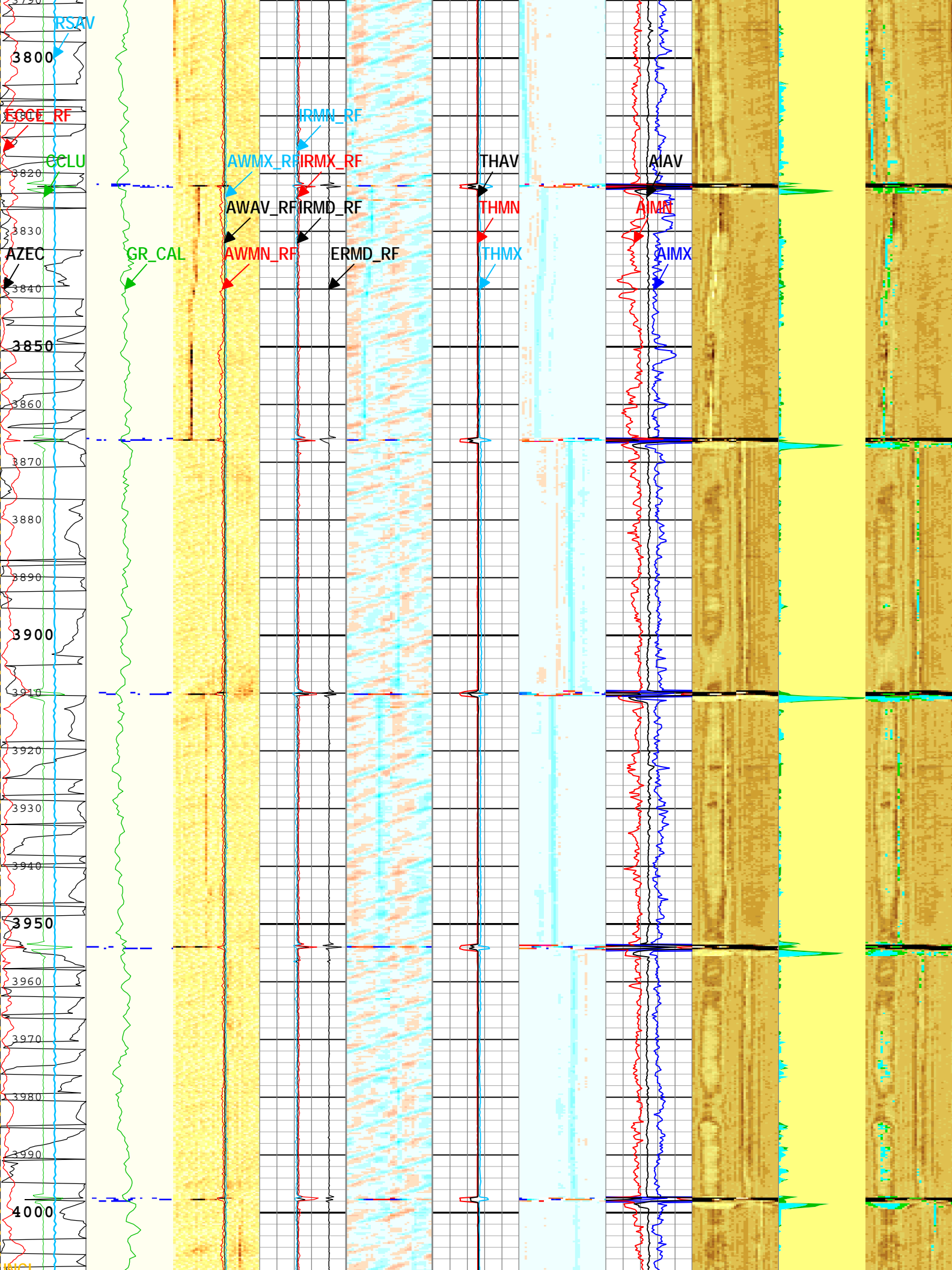


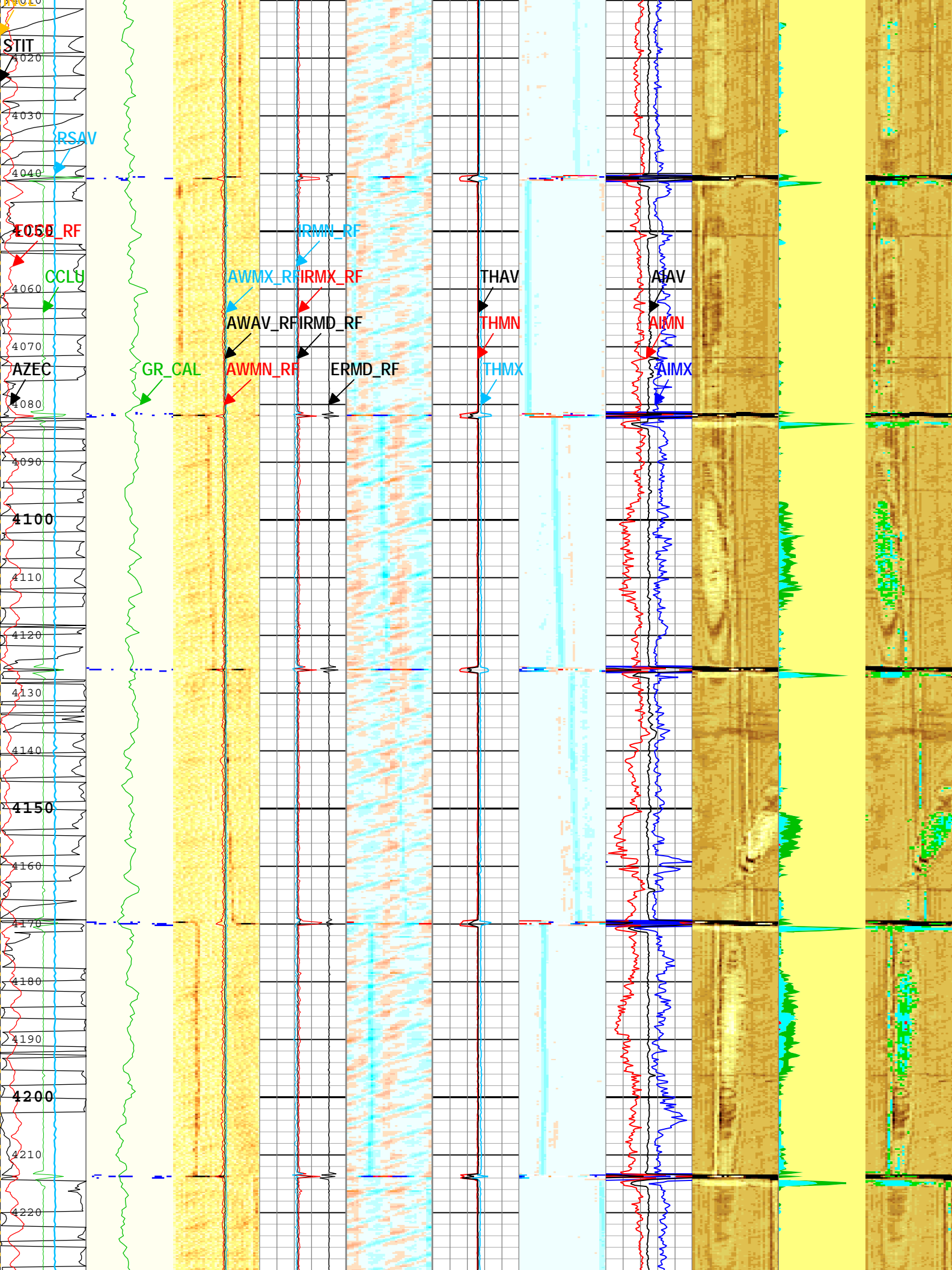


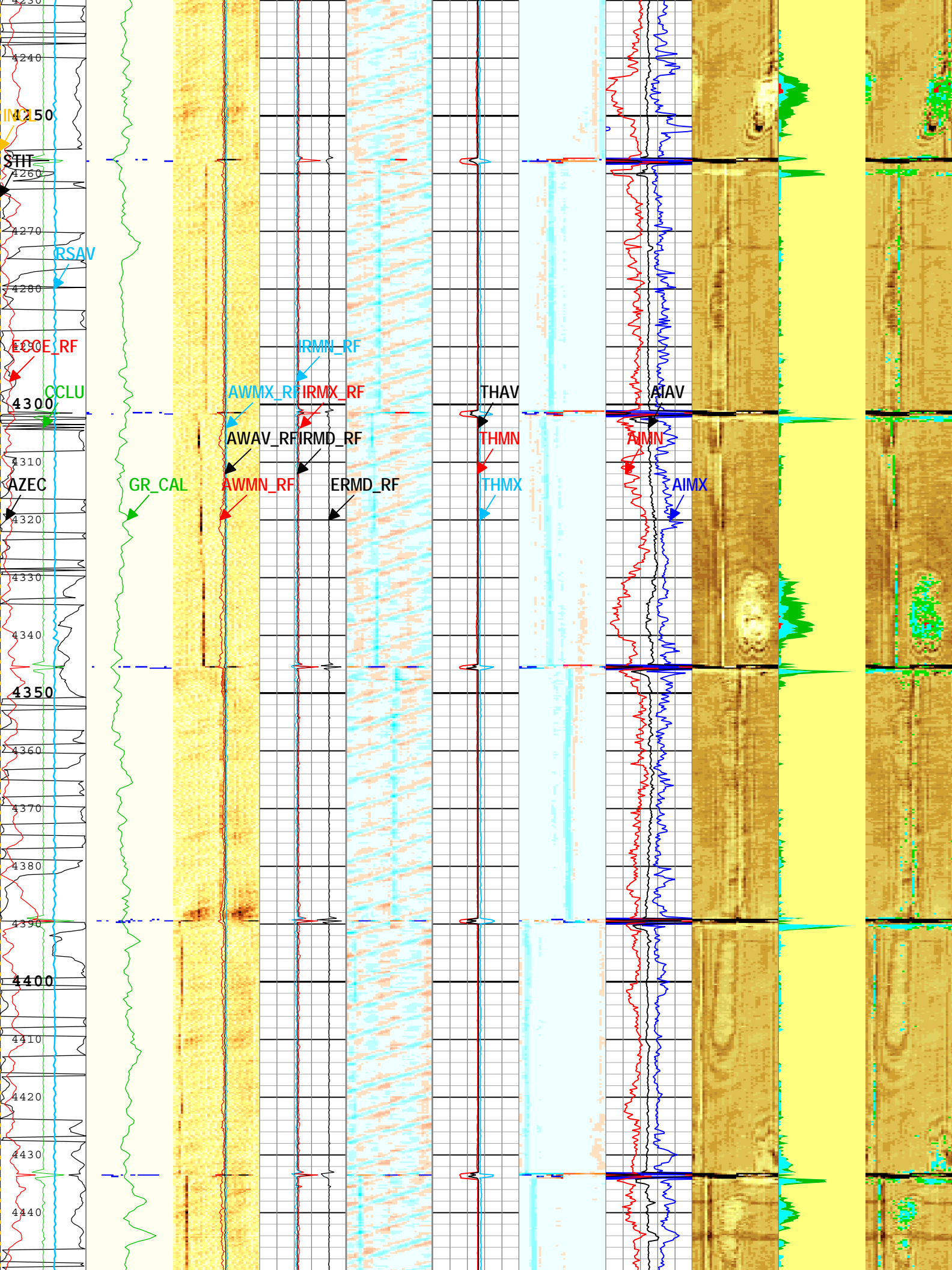


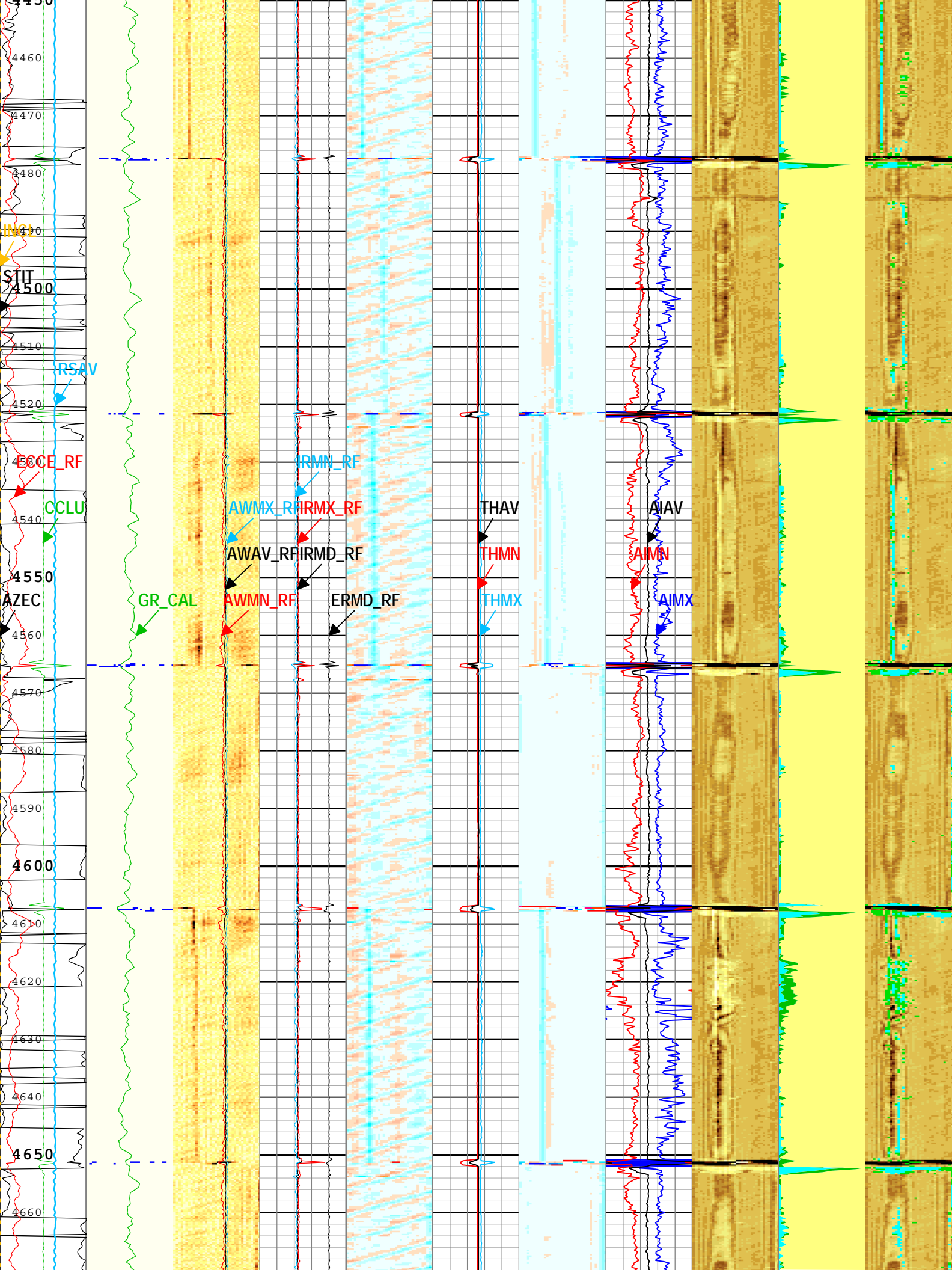


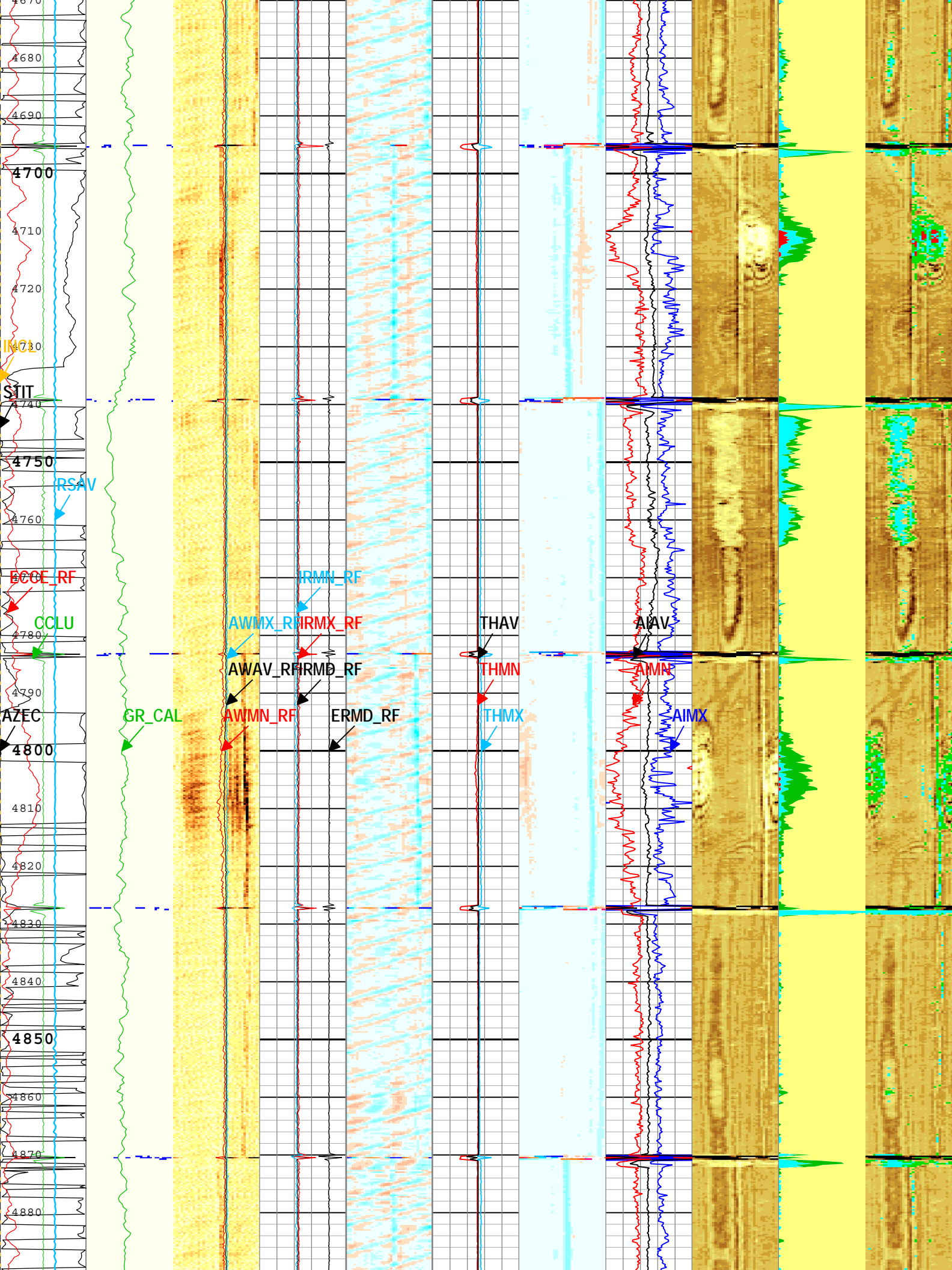


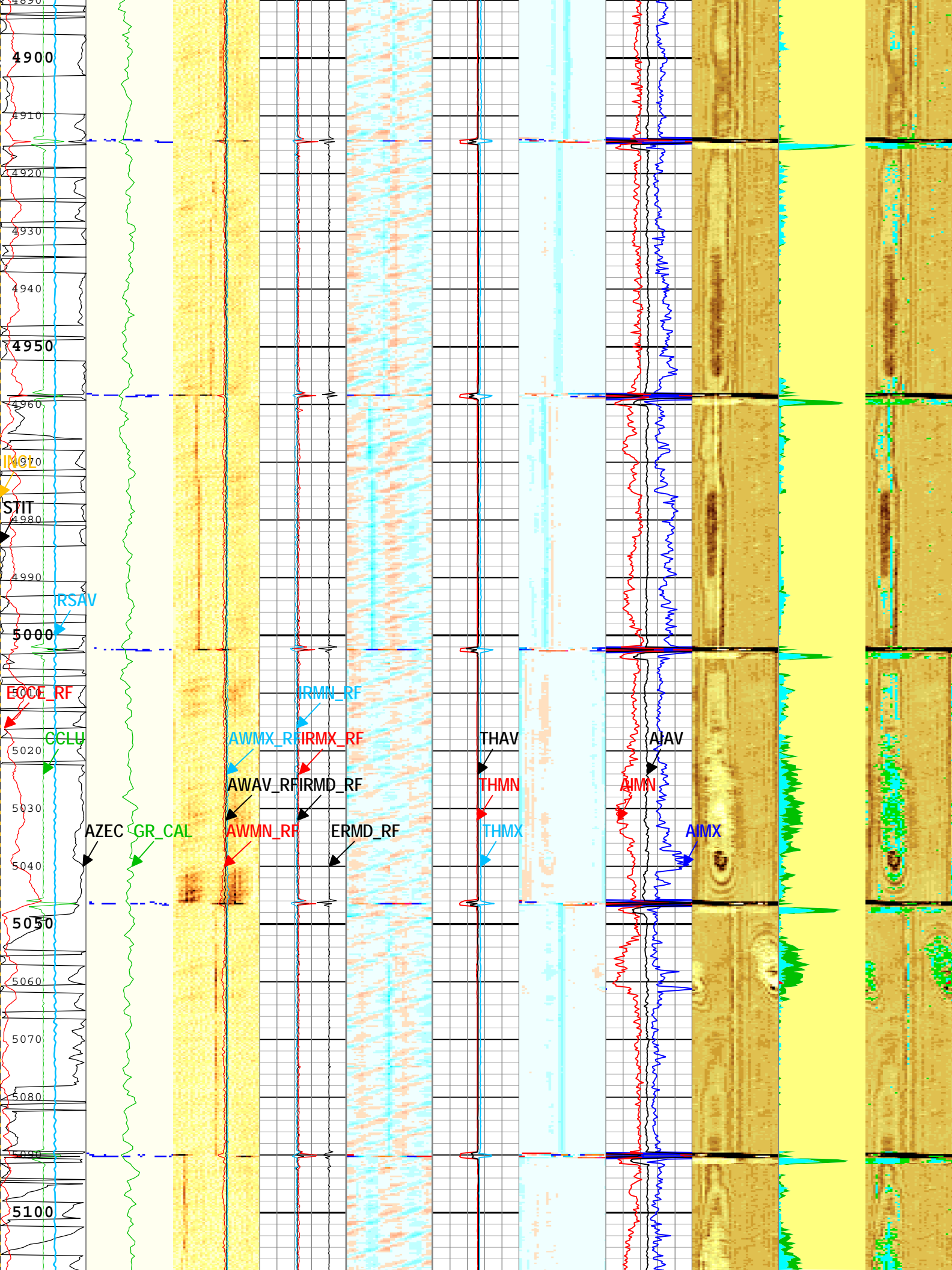


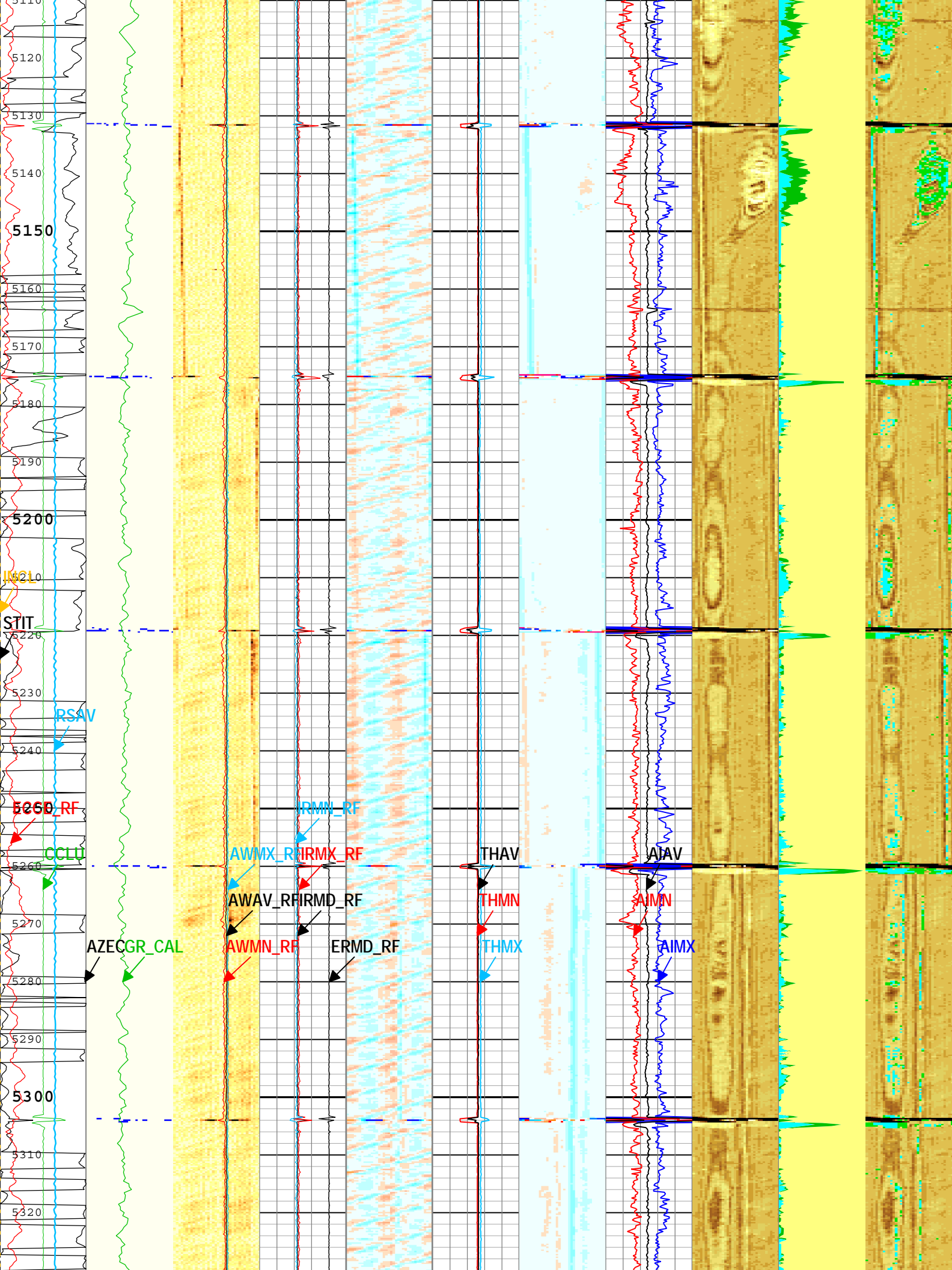


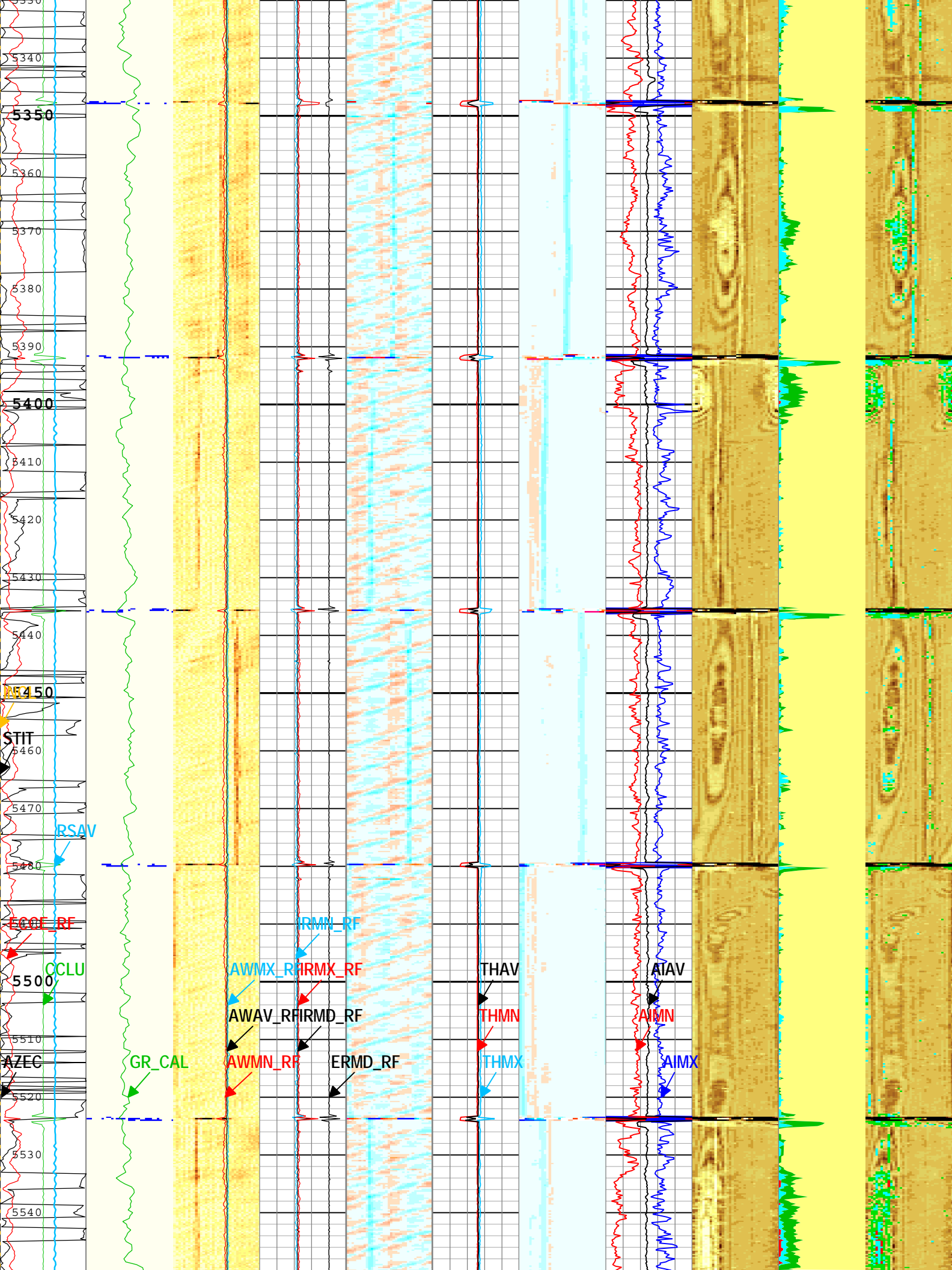


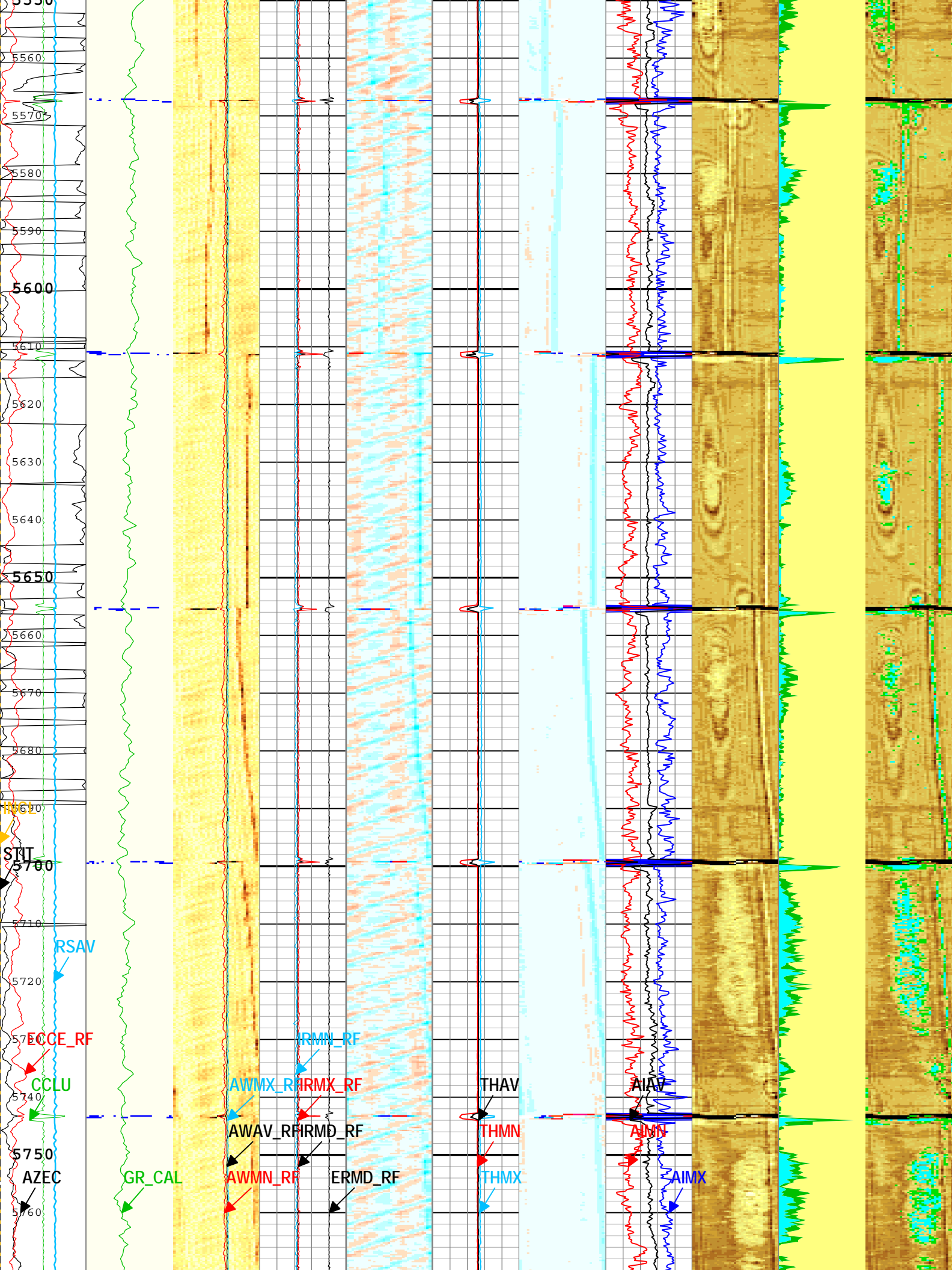


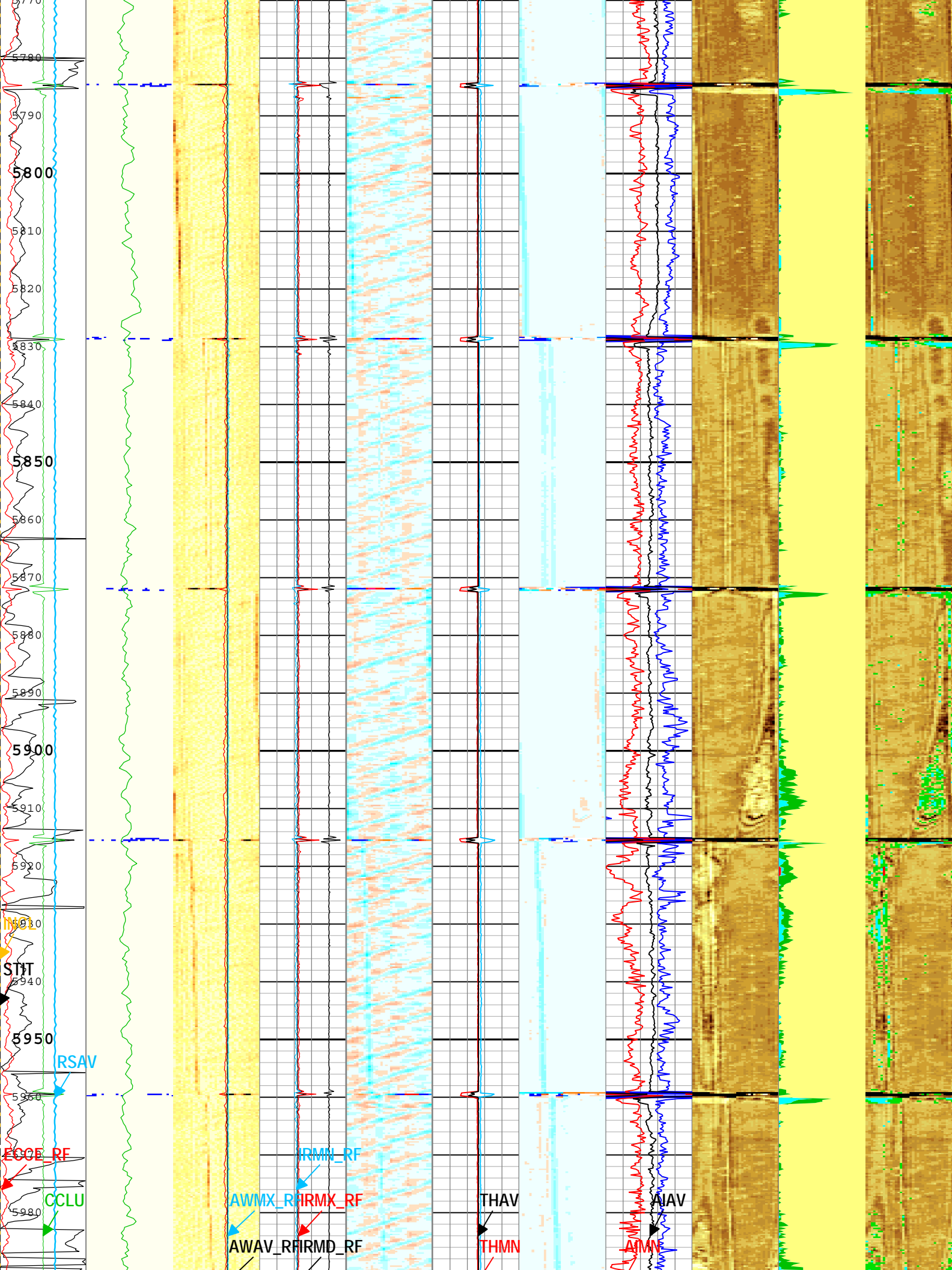


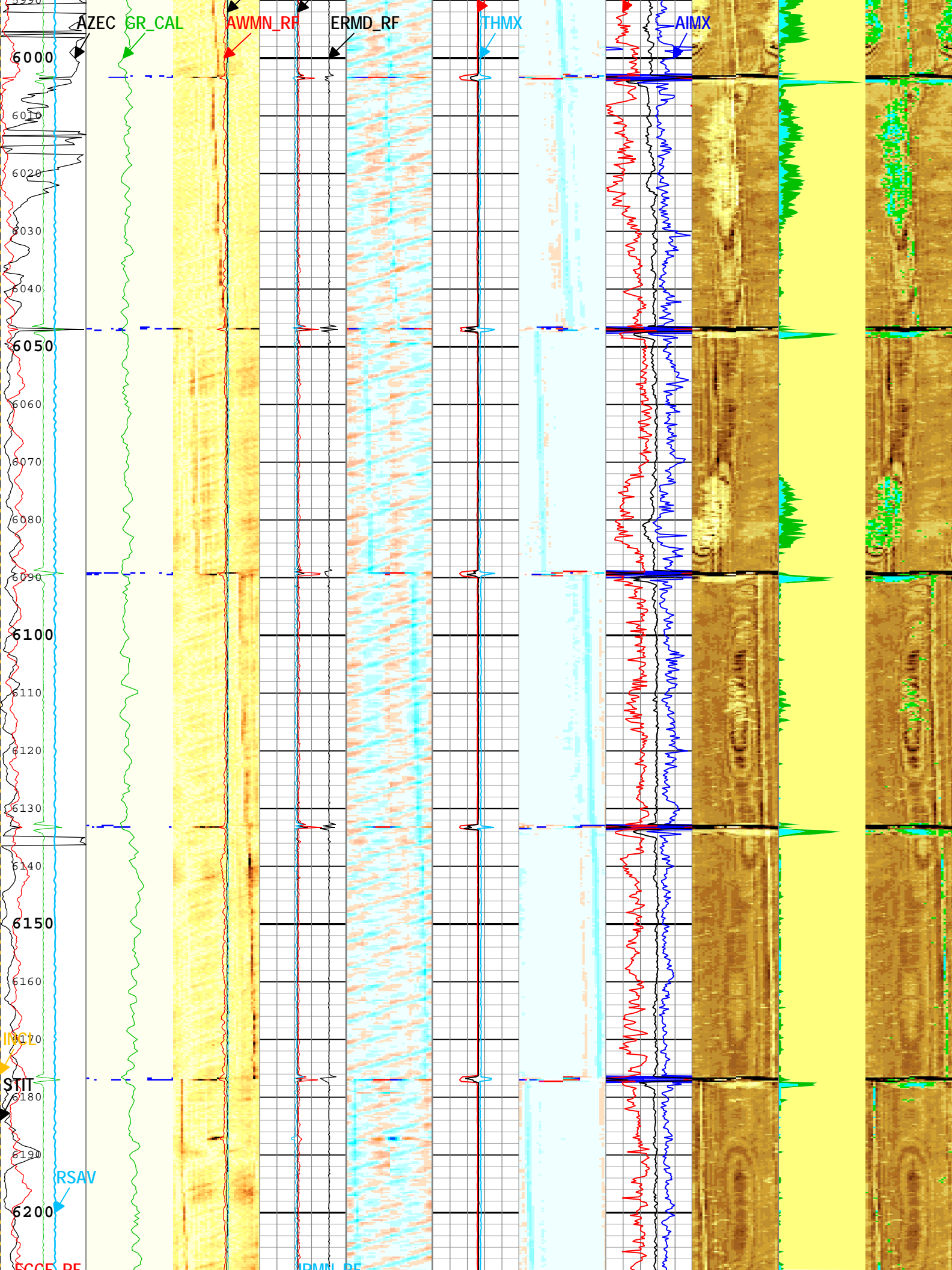


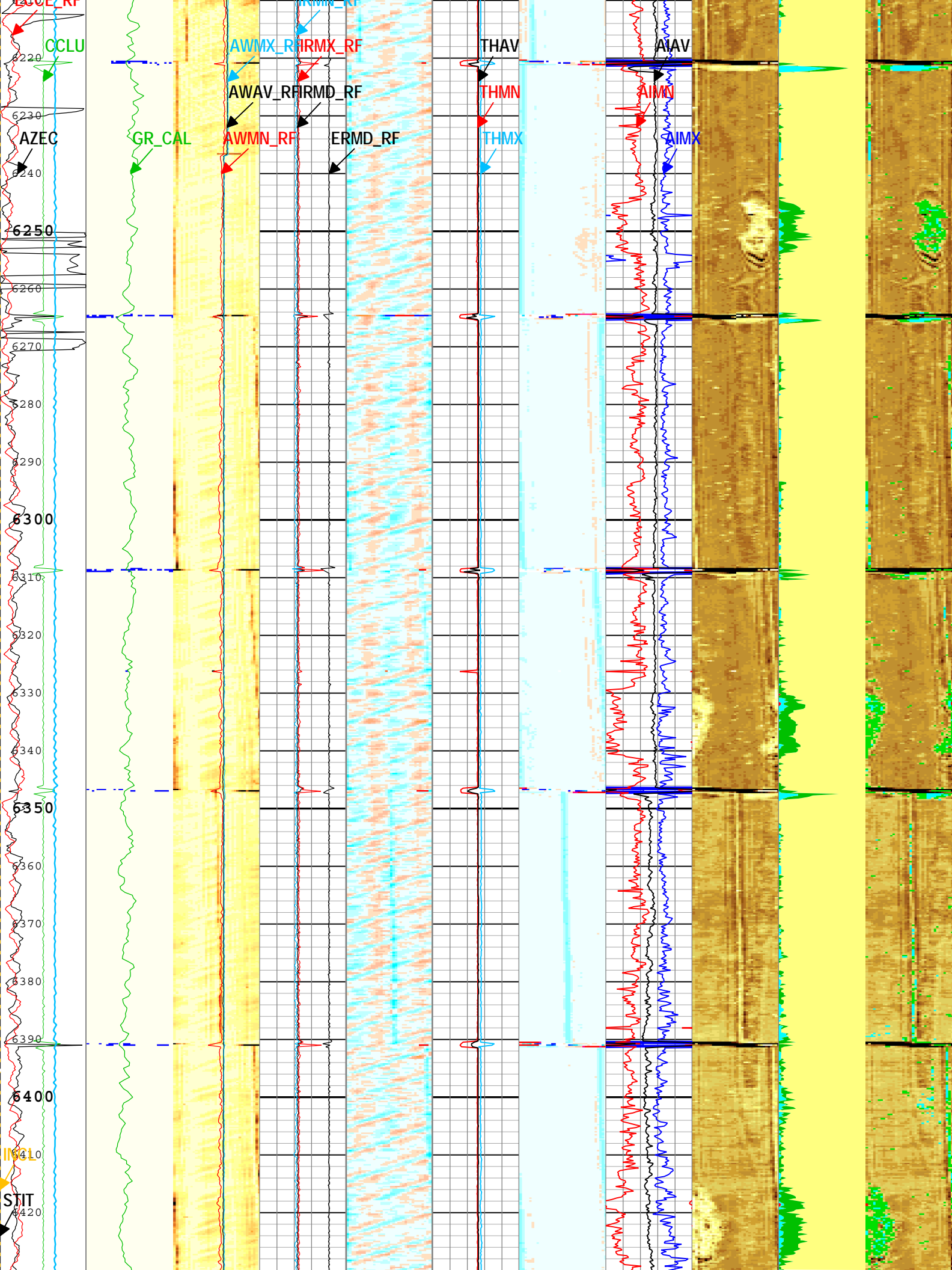


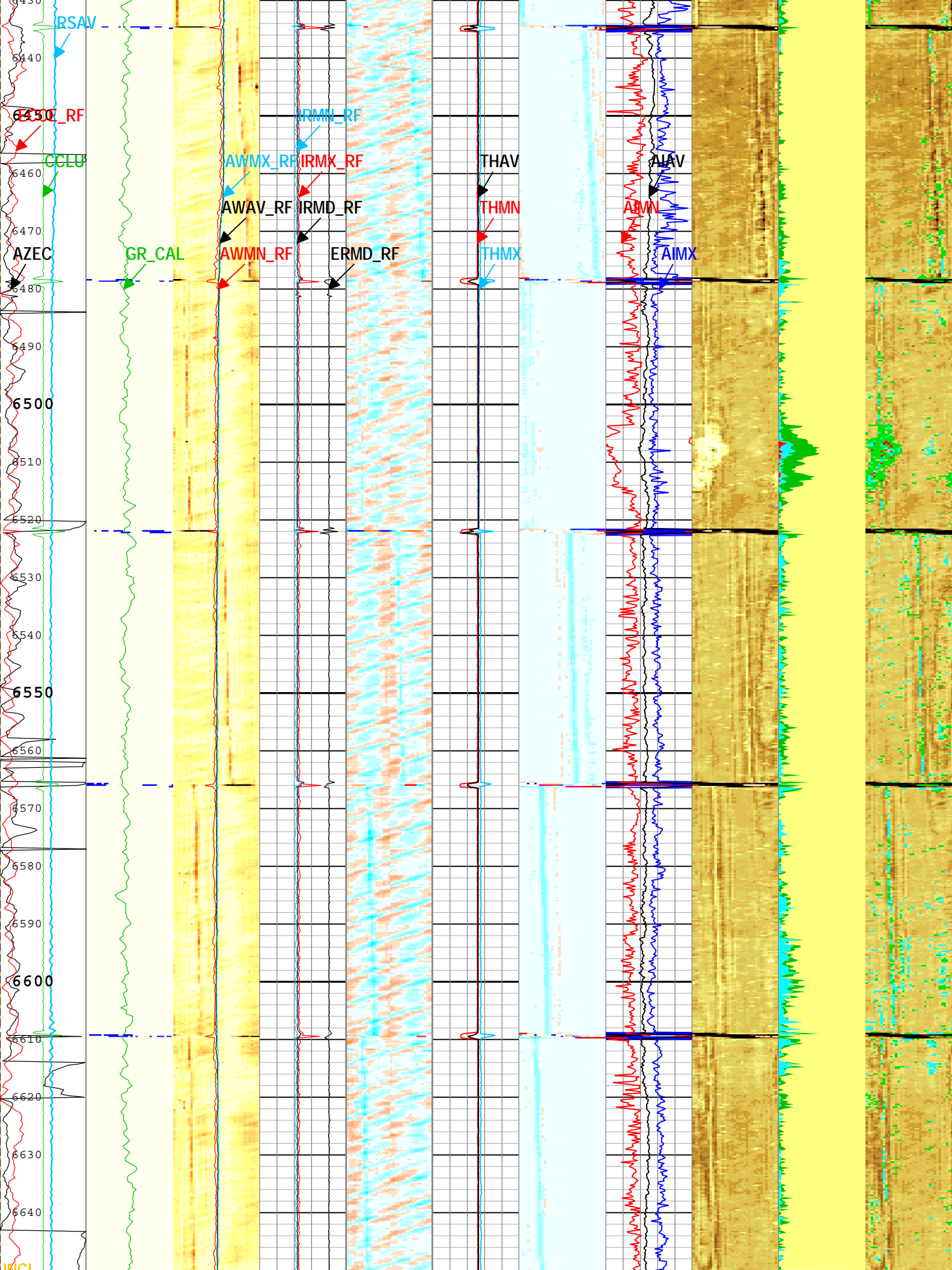


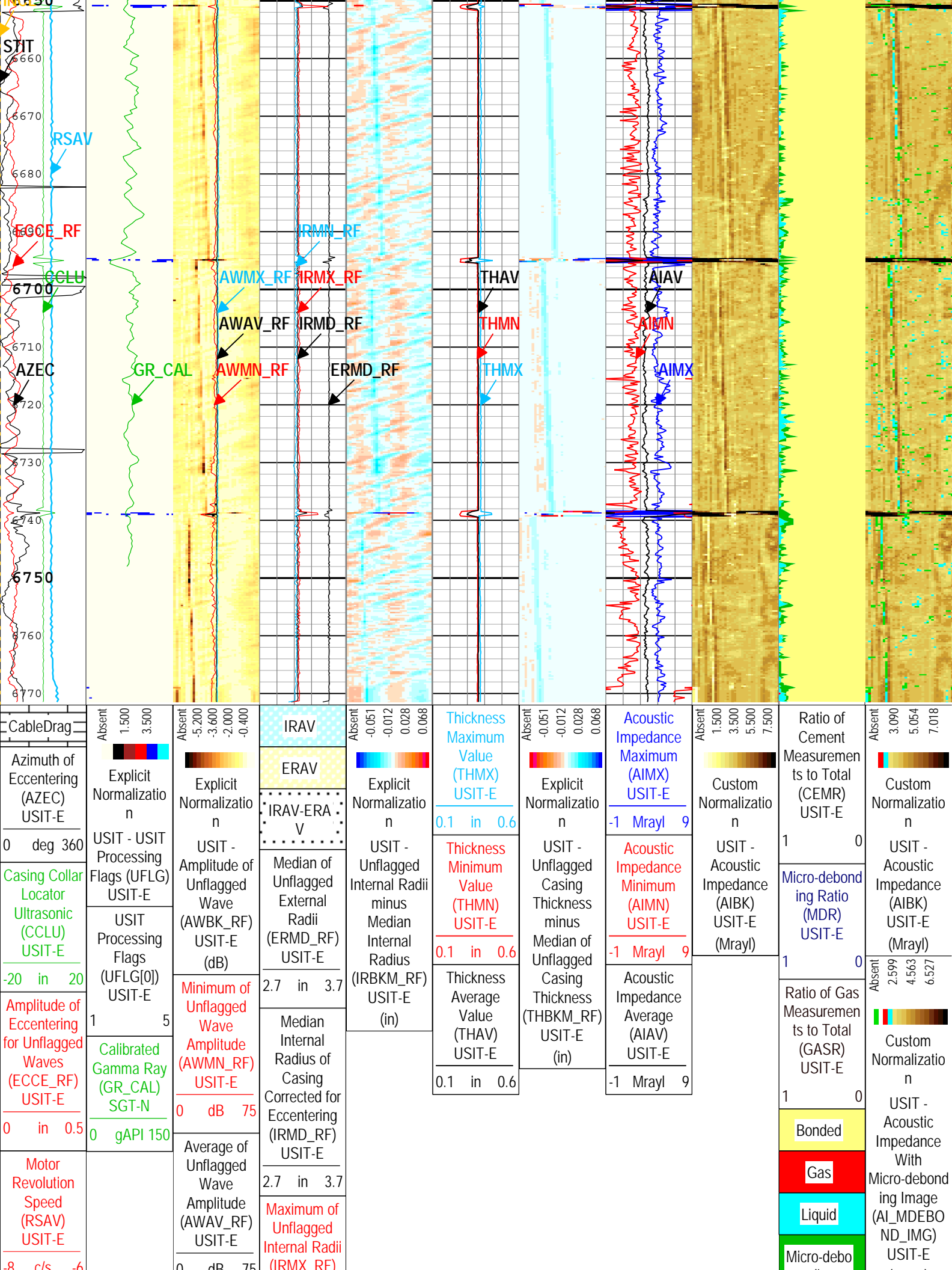












<div> <div> <div>US</div> <div>0</div> </div> <div> <div>Motor Revolution Speed (RSAV) USIT-E</div> <div>6 c/s 8</div> </div> </div> <div> <div>Stuck Tool Indicator, Total (STIT)</div> <div>0 ft 50</div> </div> <div> <div>Hole inclination (INCL)</div> <div>0 deg 100</div> </div>	<div> <div>0 dB 75</div> <div>Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E</div> <div>0 dB 75</div> </div> <div> <div>(IRMX_RF) USIT-E</div> <div>2.7 in 3.7</div> <div>Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E</div> <div>2.7 in 3.7</div> </div>	<div>ending</div> <div>(Mrayl)</div>
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USIT Processing Flags (UFLG[0]) USIT-E
<div> <div>1 - UFLG 1 Value within [0.0 - 1.5] - :</div> <div> <div></div> <div>UTIM Error</div> </div> </div> <div> <div>2 - UFLG 2 Value within [1.5 - 2.5] - :</div> <div> <div></div> <div>Pulse Origin Not Detected</div> </div> </div> <div> <div>3 - UFLG 3 Value within [2.5 - 3.5] - :</div> <div> <div></div> <div>WINLEN Error</div> </div> </div> <div> <div>4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :</div> <div> <div></div> <div>Casing Thickness Error</div> </div> </div> <div> <div>5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :</div> <div> <div></div> <div>Loop Processing Error</div> </div> </div>
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Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 07:43:34

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	190	us/ft
ETIP	Elevation of the TIP above MSL	WLSESSION	4973	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	Off	
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
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	13292	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	6772	
ZMUD	1.68	0	200	
ZMUD	1.66	200	700	
ZMUD	1.68	700	1000	
ZMUD	1.7	1000	1500	
ZMUD	1.72	1500	2000	
ZMUD	1.74	2000	2500	
ZMUD	1.76	2500	3000	
ZMUD	1.77	3000	4000	
ZMUD	1.78	4000	6772	
All depth are actual.				

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	55	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	6759	ft
WDEG	Vertical Resolution	USIT-E	2.6 in	

VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	33.87	us
WINE	Window End Time	USIT-E	73.87	us

USI Goodwin

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[3]:Up	6772.1	15.77

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	200	1.68	1.68
200	400	1.66	1.66
400	700	1.66	1.66
700	1000	1.68	1.68
1000	1500	1.7	1.7
1500	2000	1.72	1.72
2000	2500	1.74	1.74
2500	3000	1.76	1.76
3000	4000	1.77	1.77
4000		1.78	1.78

Run1: USIT

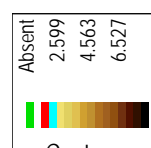
USI Goodwin Compressed

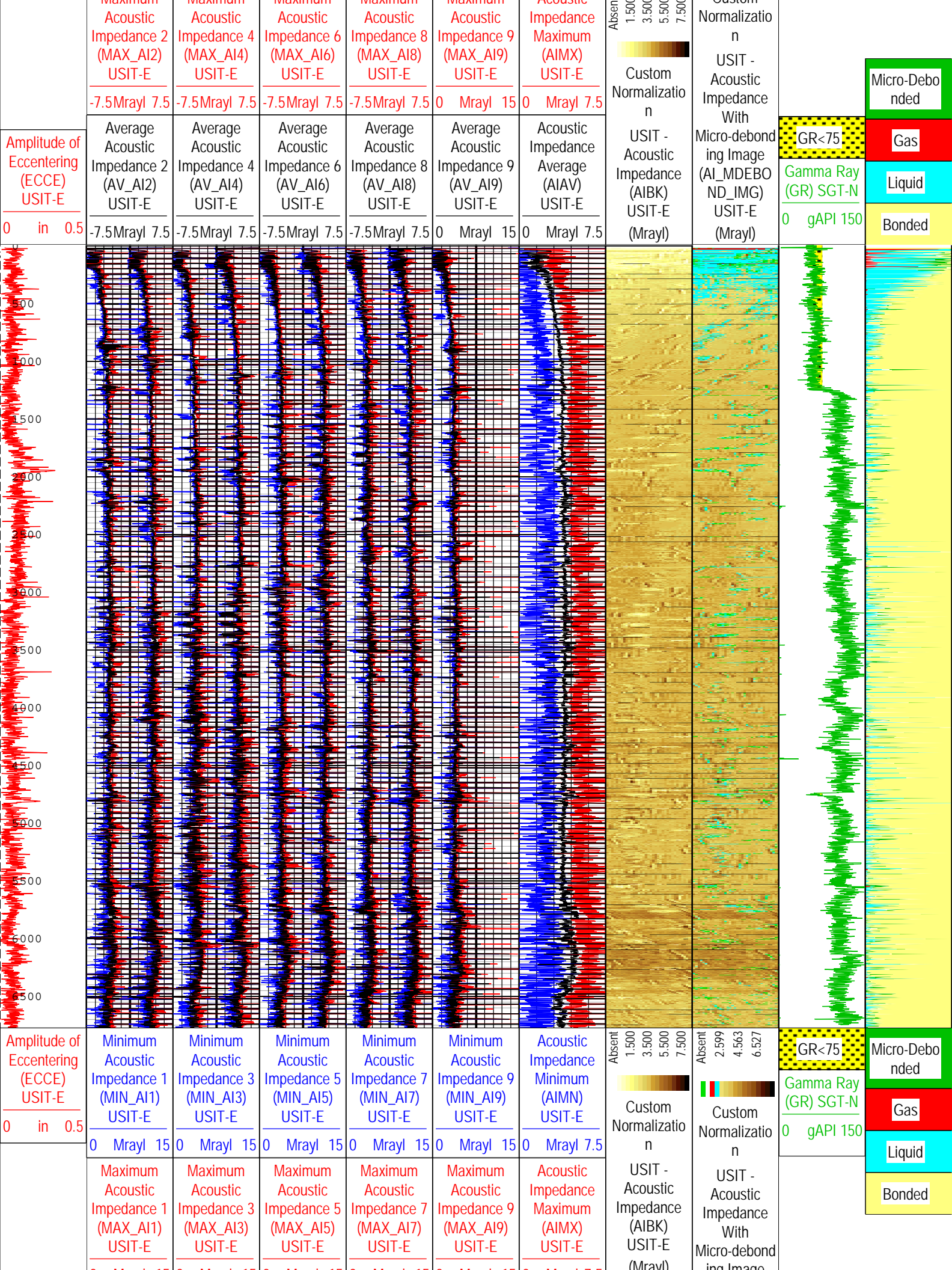
Log	Company:Anadarko Petroleum Company	Well:Benson Farms 32C-23HZ
		Run1: USIT: Log[3]:Up:S002

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 07:43:45

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Average Acoustic Impedance 1 (AV_AI1) USIT-E	Average Acoustic Impedance 3 (AV_AI3) USIT-E	Average Acoustic Impedance 5 (AV_AI5) USIT-E	Average Acoustic Impedance 7 (AV_AI7) USIT-E		
0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15		
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E	Acoustic Impedance Minimum (AIMN) USIT-E
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	0 Mrayl 15	0 Mrayl 7.5
Maximum	Maximum	Maximum	Maximum	Maximum	Acoustic





0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5	(Mrayl)	ing Image (AI_MDEBO ND_IMG) USIT-E (Mrayl)
Average Acoustic Impedance 1 (AV_AI1) USIT-E	Average Acoustic Impedance 3 (AV_AI3) USIT-E	Average Acoustic Impedance 5 (AV_AI5) USIT-E	Average Acoustic Impedance 7 (AV_AI7) USIT-E	Average Acoustic Impedance 9 (AV_AI9) USIT-E	Acoustic Impedance Average (AIAV) USIT-E		
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	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				
Average Acoustic Impedance 2 (AV_AI2) USIT-E	Average Acoustic Impedance 4 (AV_AI4) USIT-E	Average Acoustic Impedance 6 (AV_AI6) USIT-E	Average Acoustic Impedance 8 (AV_AI8) USIT-E				
-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5				

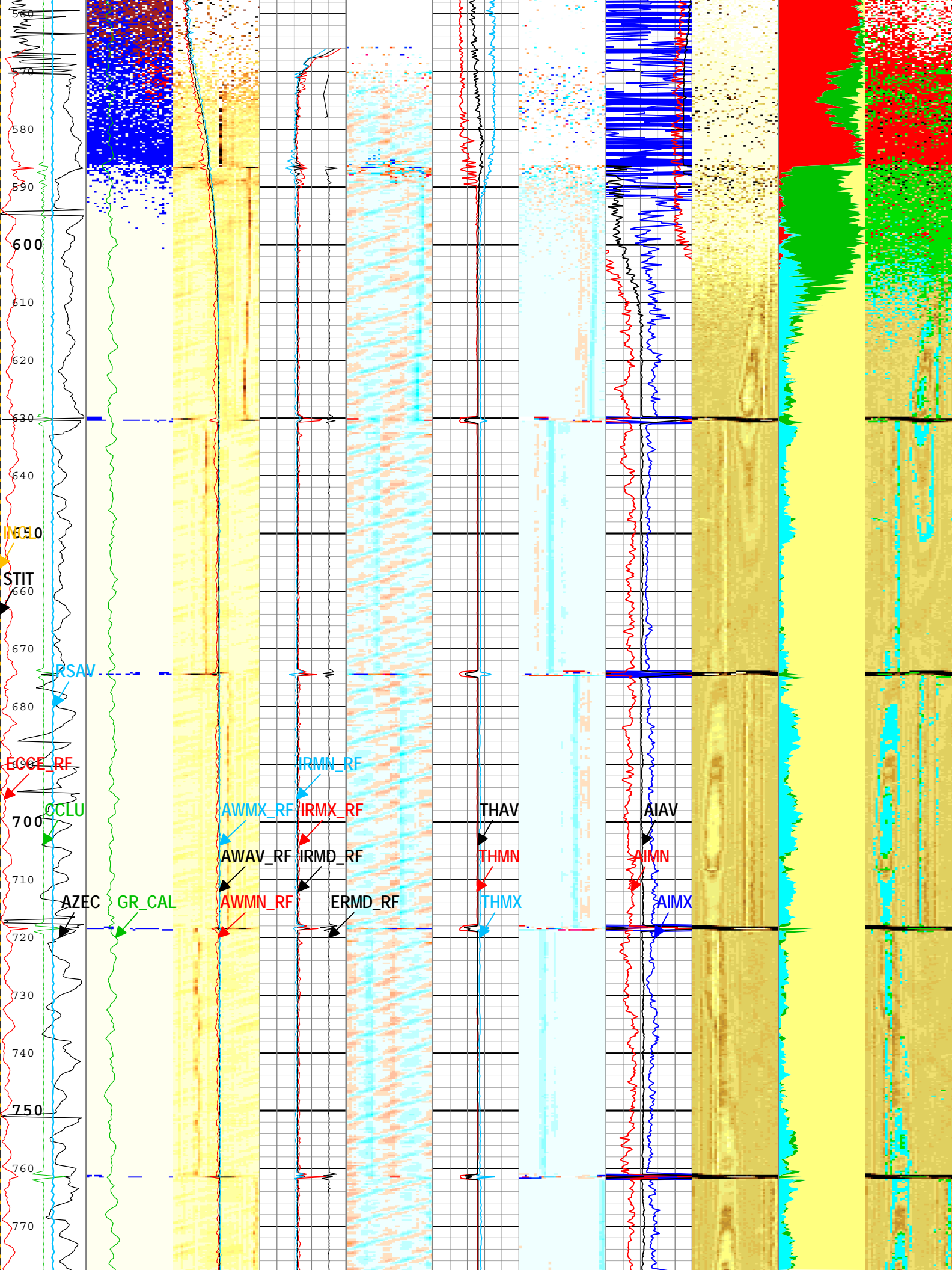
TIME_1900 - Time Marked every 60.00 (s)

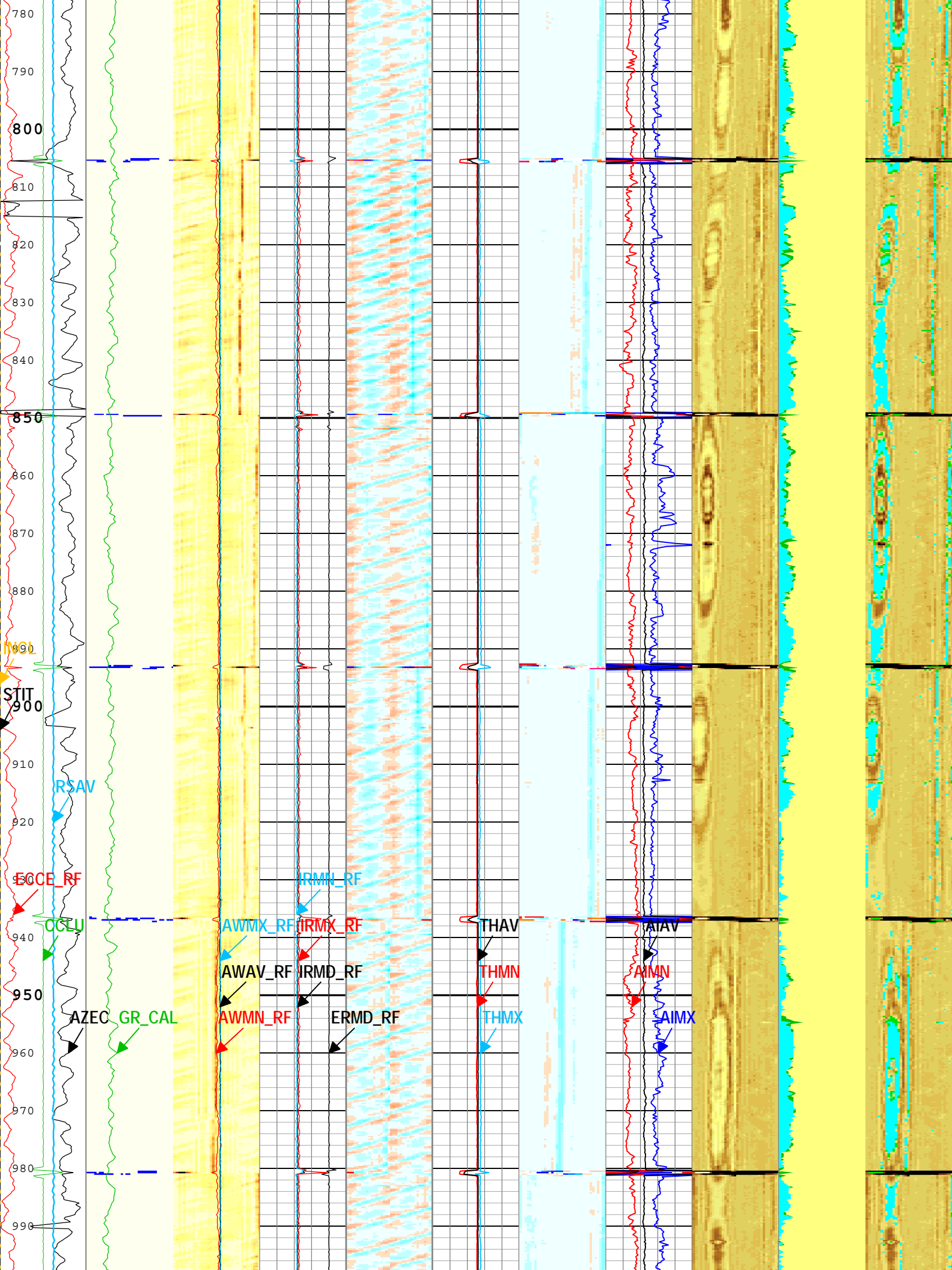
Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 07:43:45

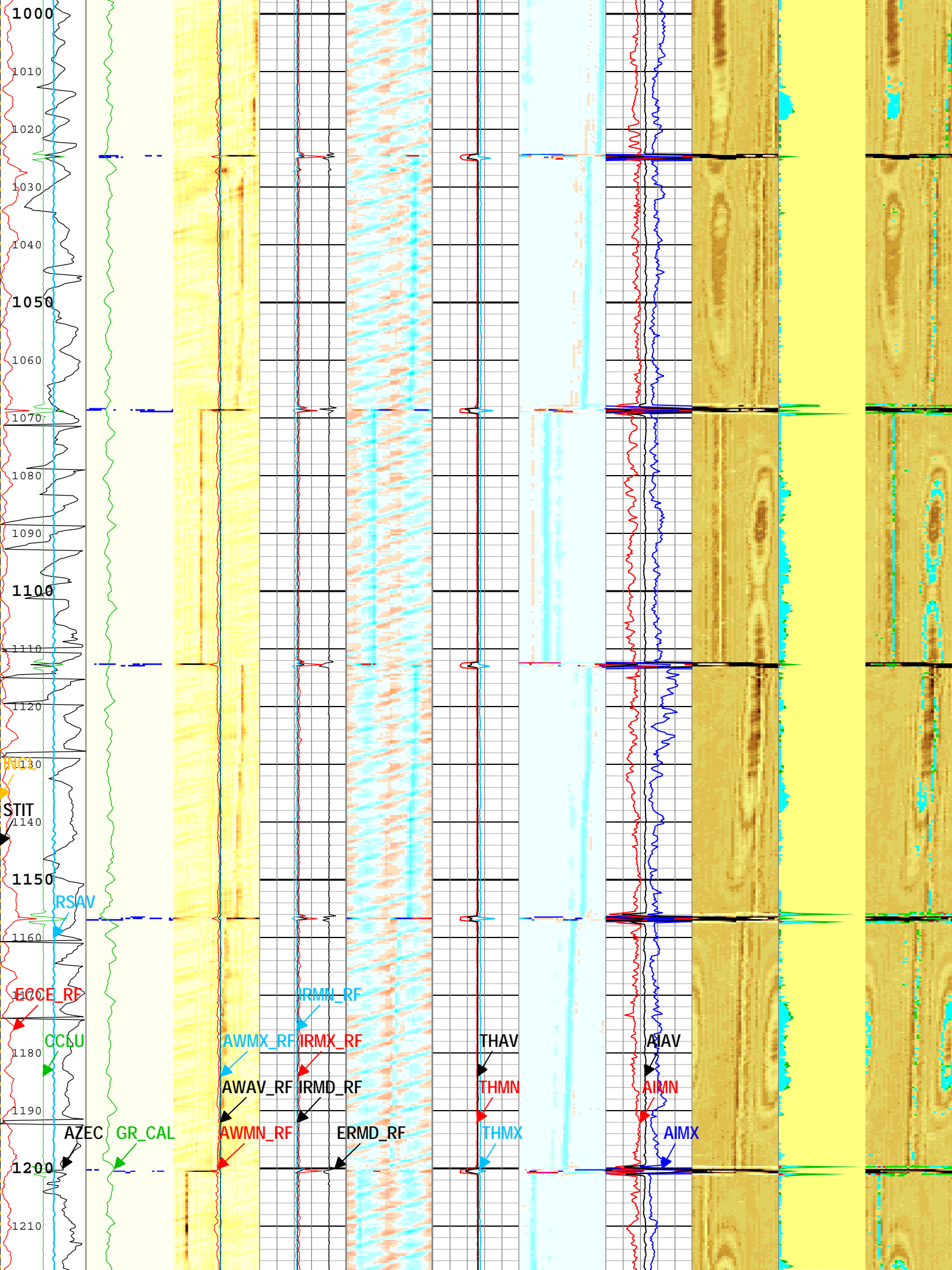
Copy of USI Composite			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[2]:Up	6764.11	547.28
Fluid Velocity = "Automatic". CFVL equals DFSL channel			
Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
Mud Impedance = "Manual". CZMD uses ZMUD parameter zoned table below			
Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
0	200	1.68	1.68
200	400	1.66	1.66
400	700	1.66	1.66
700	1000	1.68	1.68
1000	1500	1.7	1.7
1500	2000	1.72	1.72
2000	2500	1.74	1.74
2500	3000	1.76	1.76
3000	4000	1.77	1.77
4000		1.78	1.78
Run1: USIT			
0 PSI Pass			
Log	Company:Anadarko Petroleum Company Well:Benson Farms 32C-23HZ Run1: USIT: Log[2]:Up:S002		

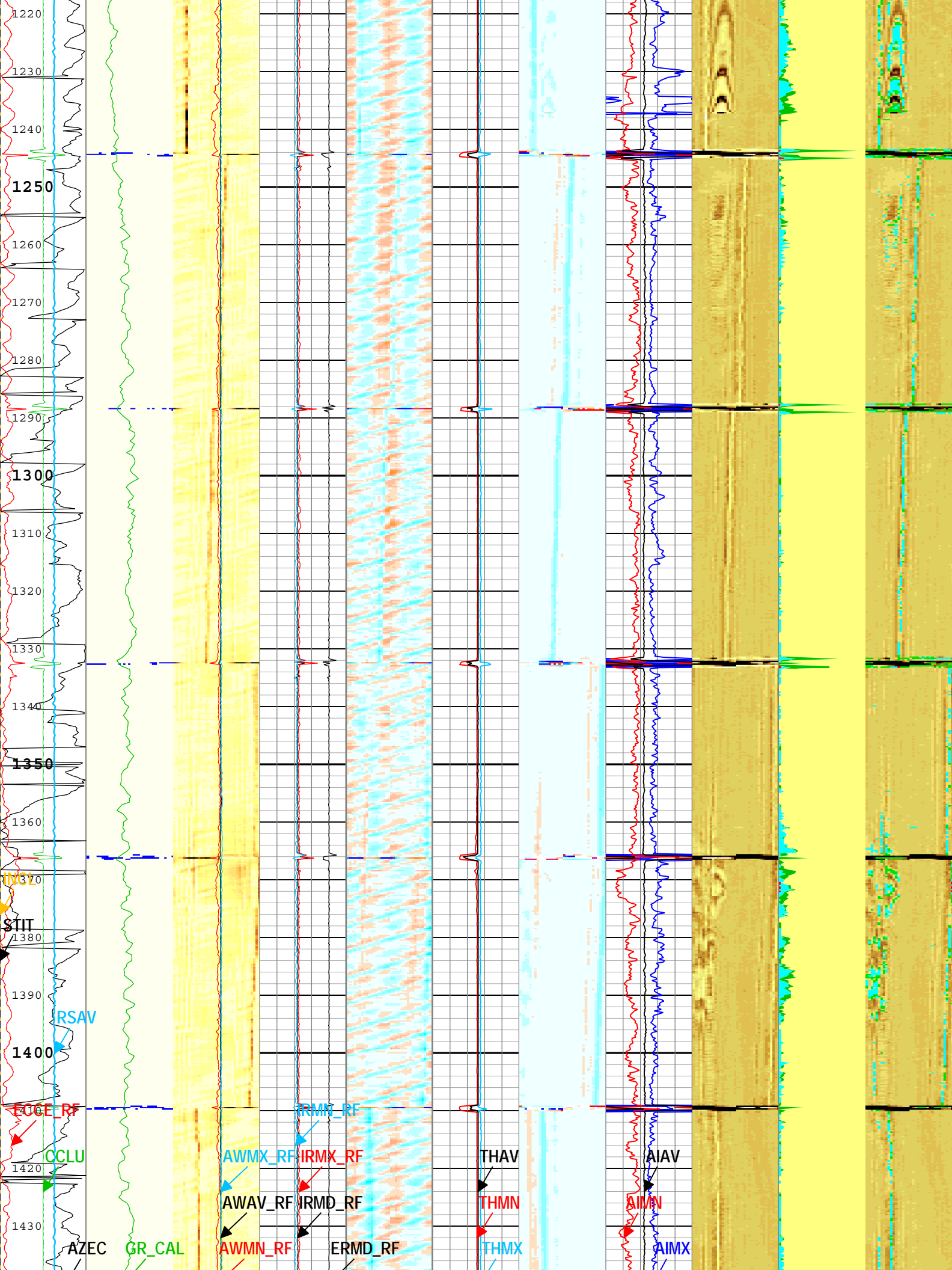
Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 07:43:49

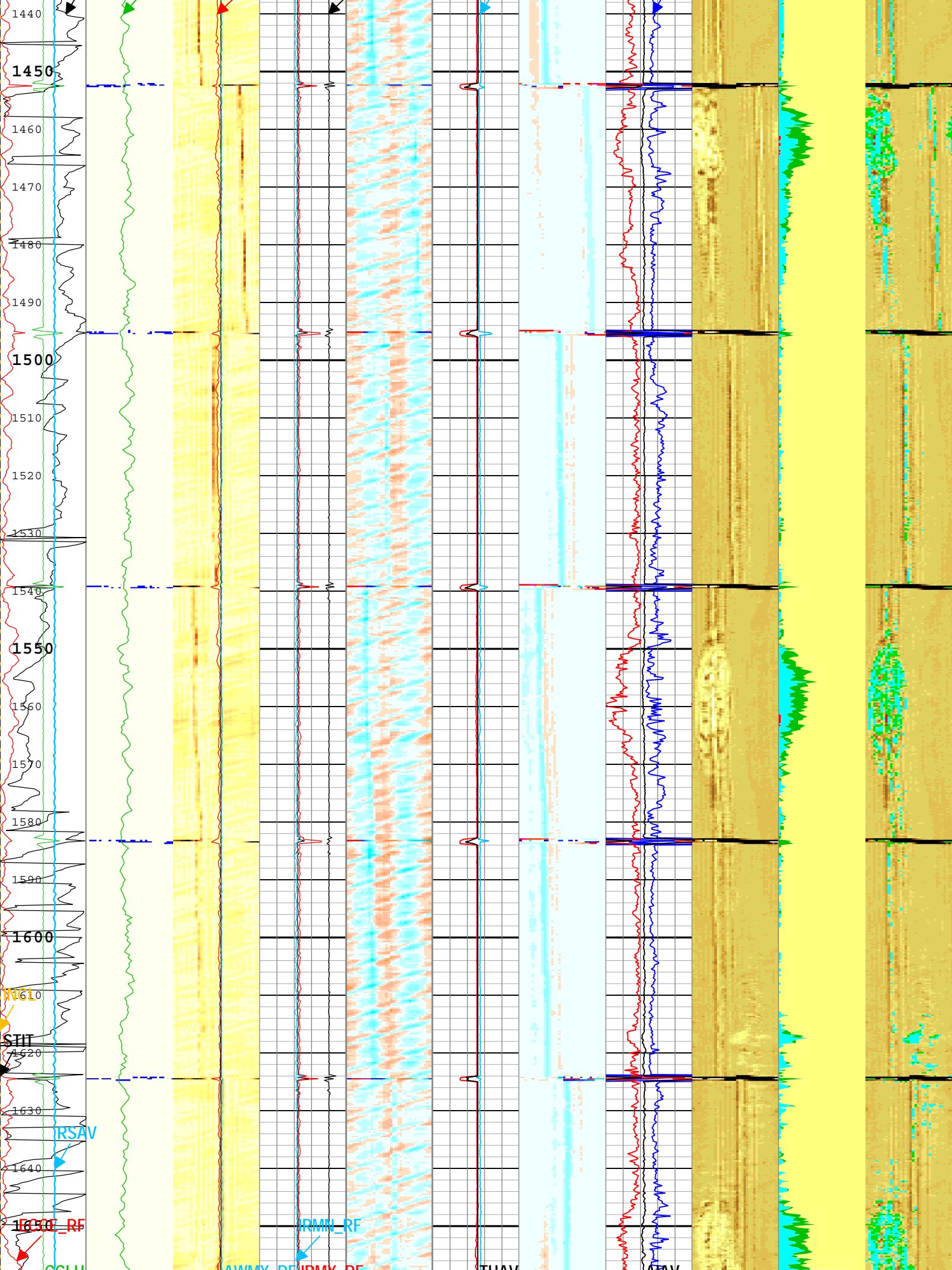
TIME_1900 - Time Marked every 60.00 (s)

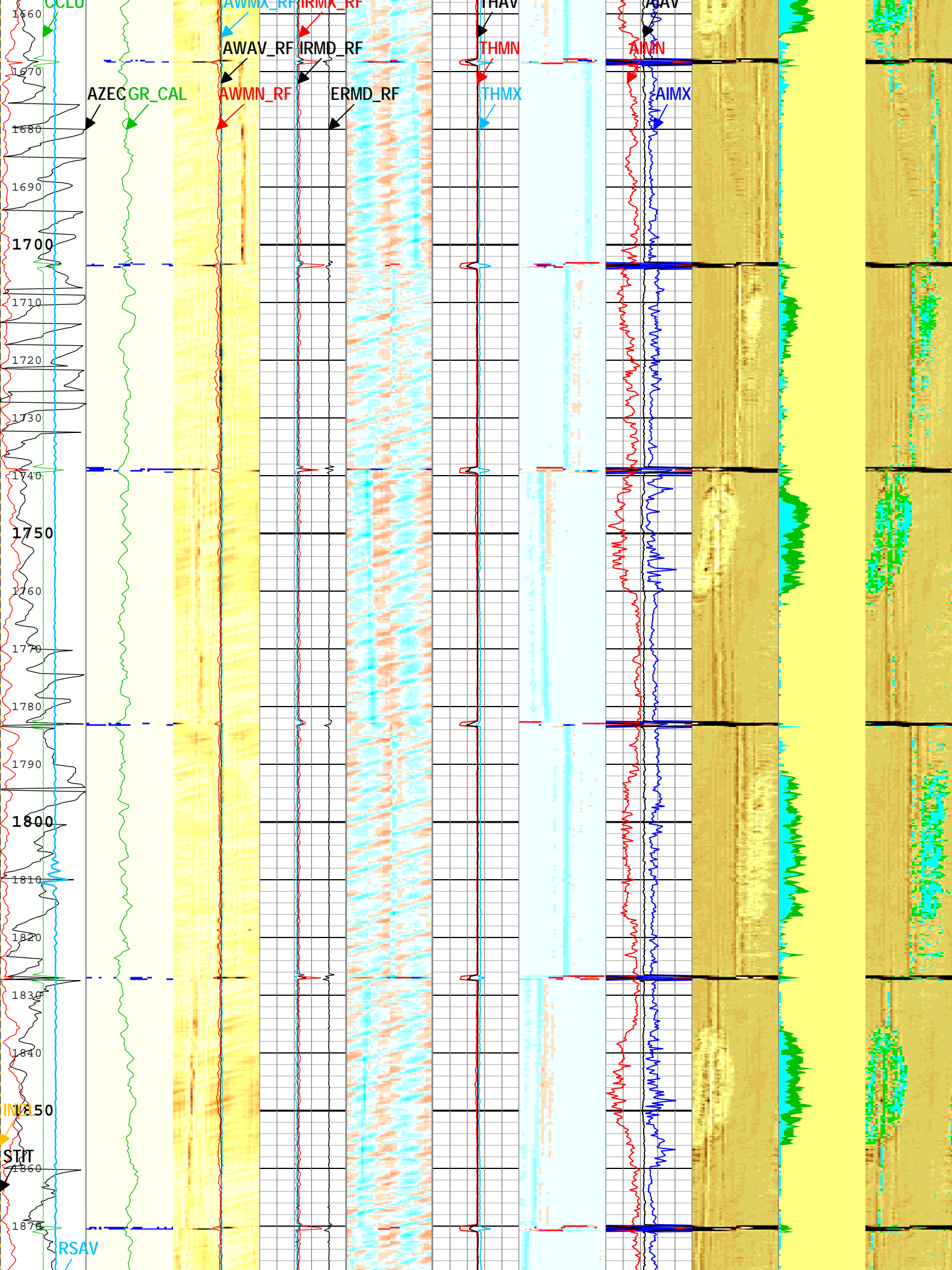


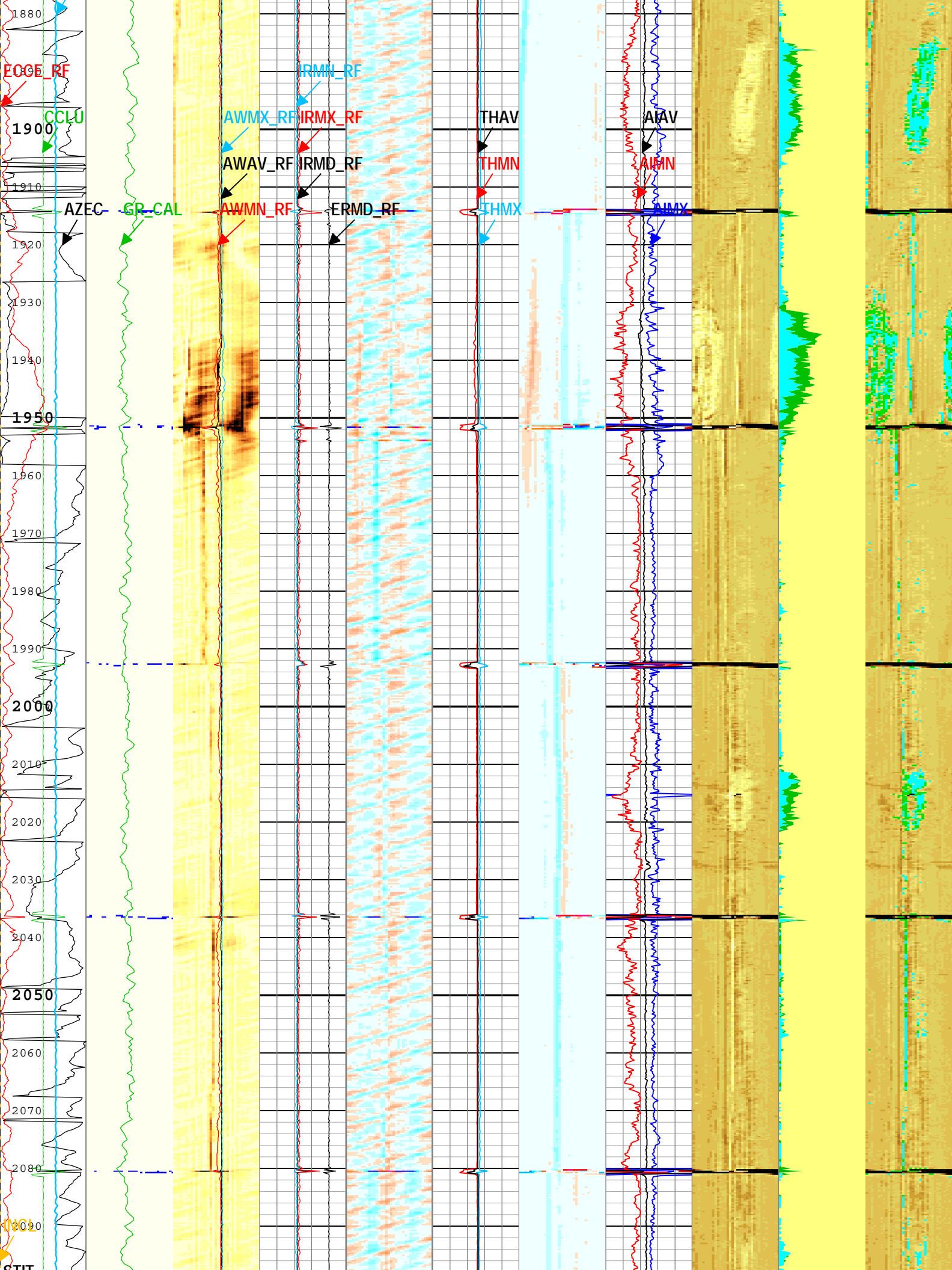


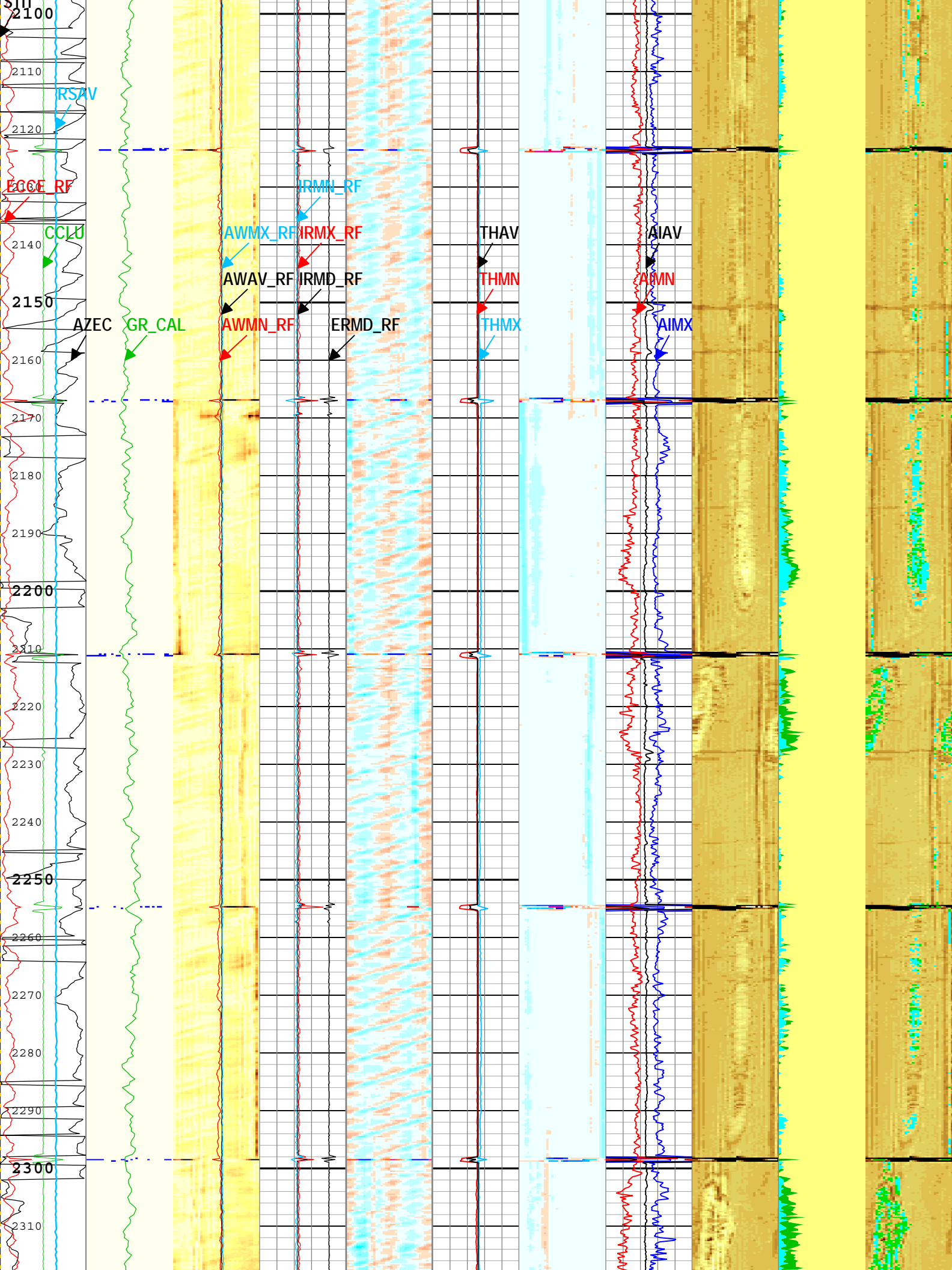


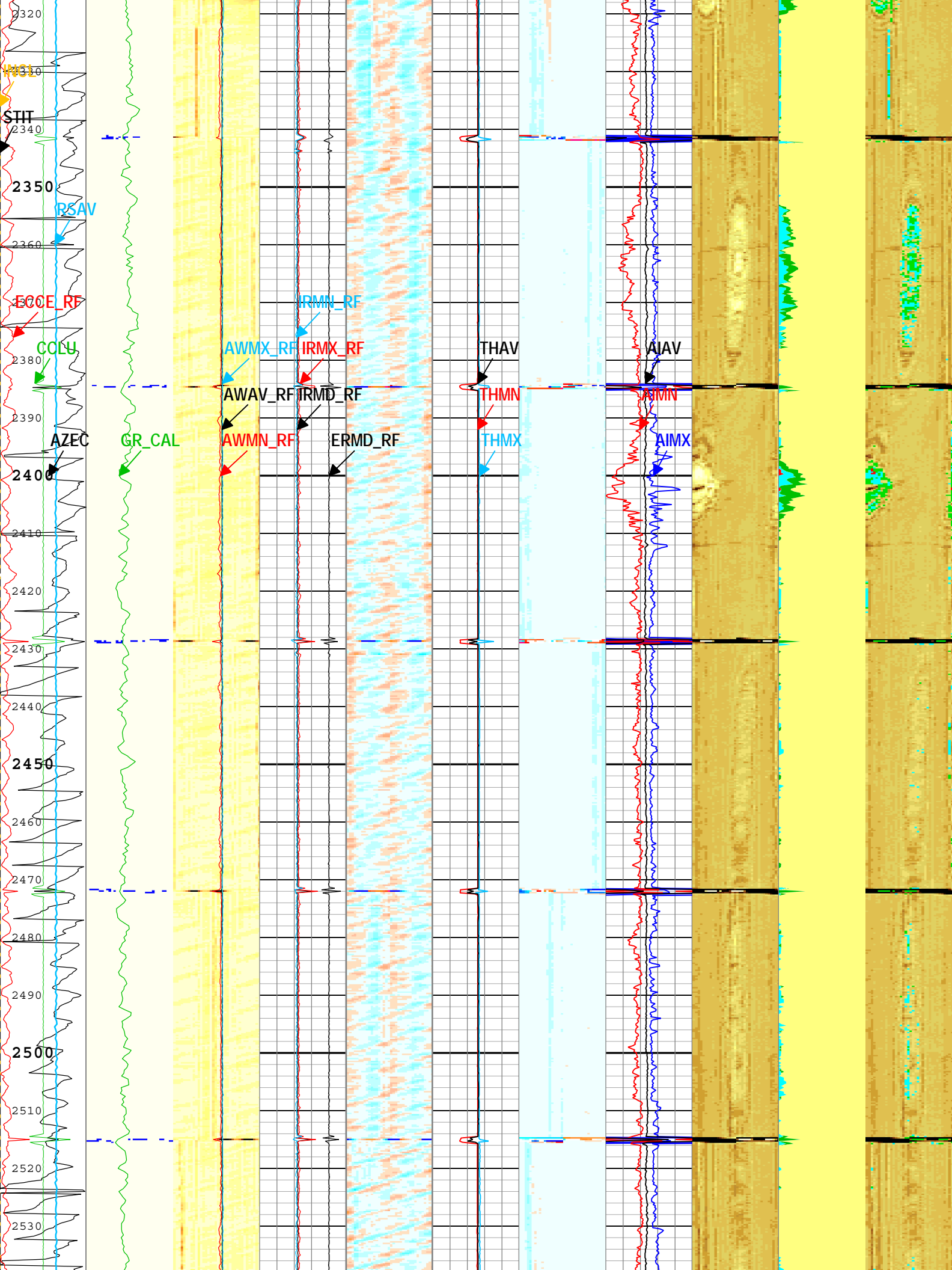


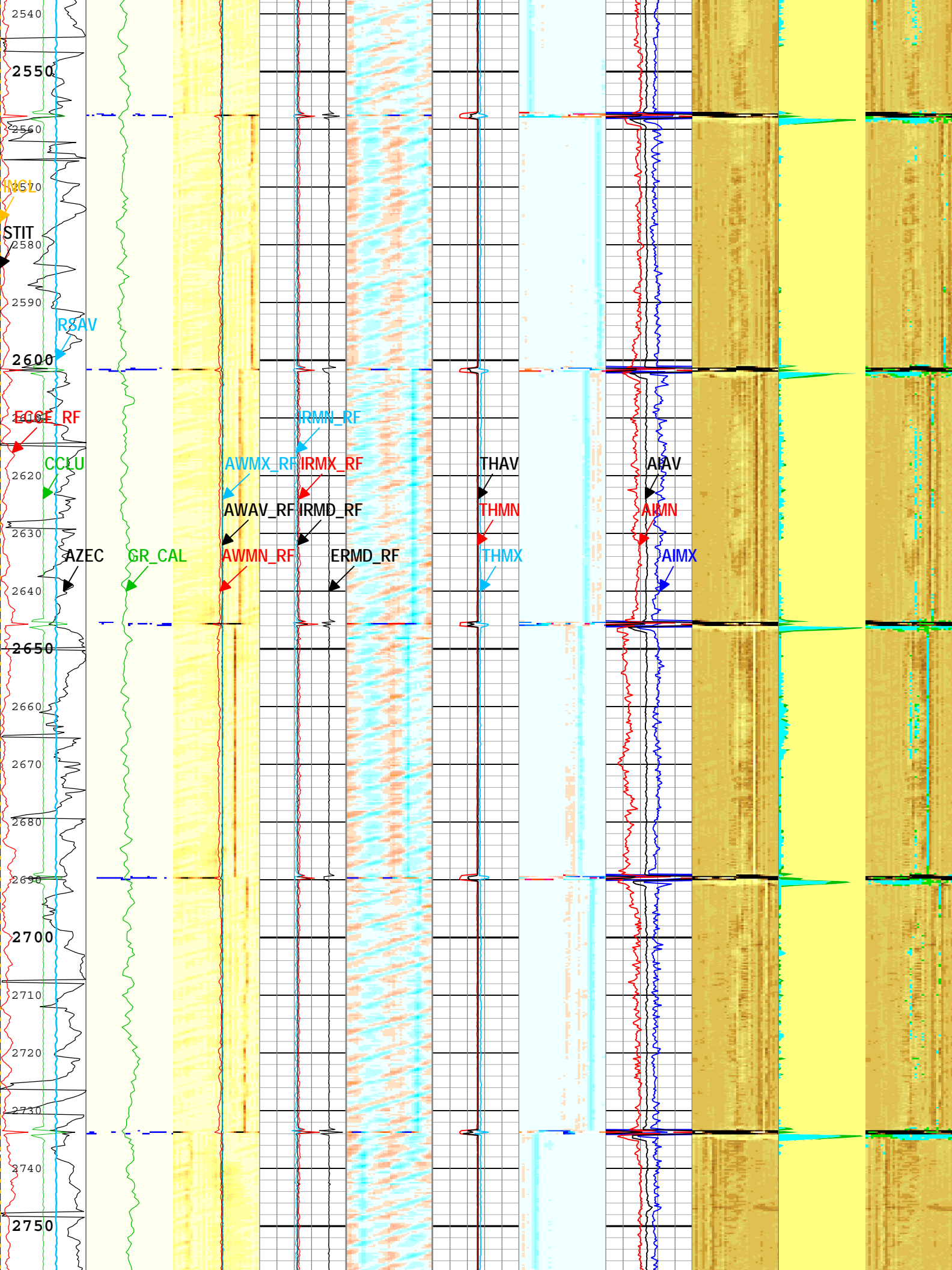


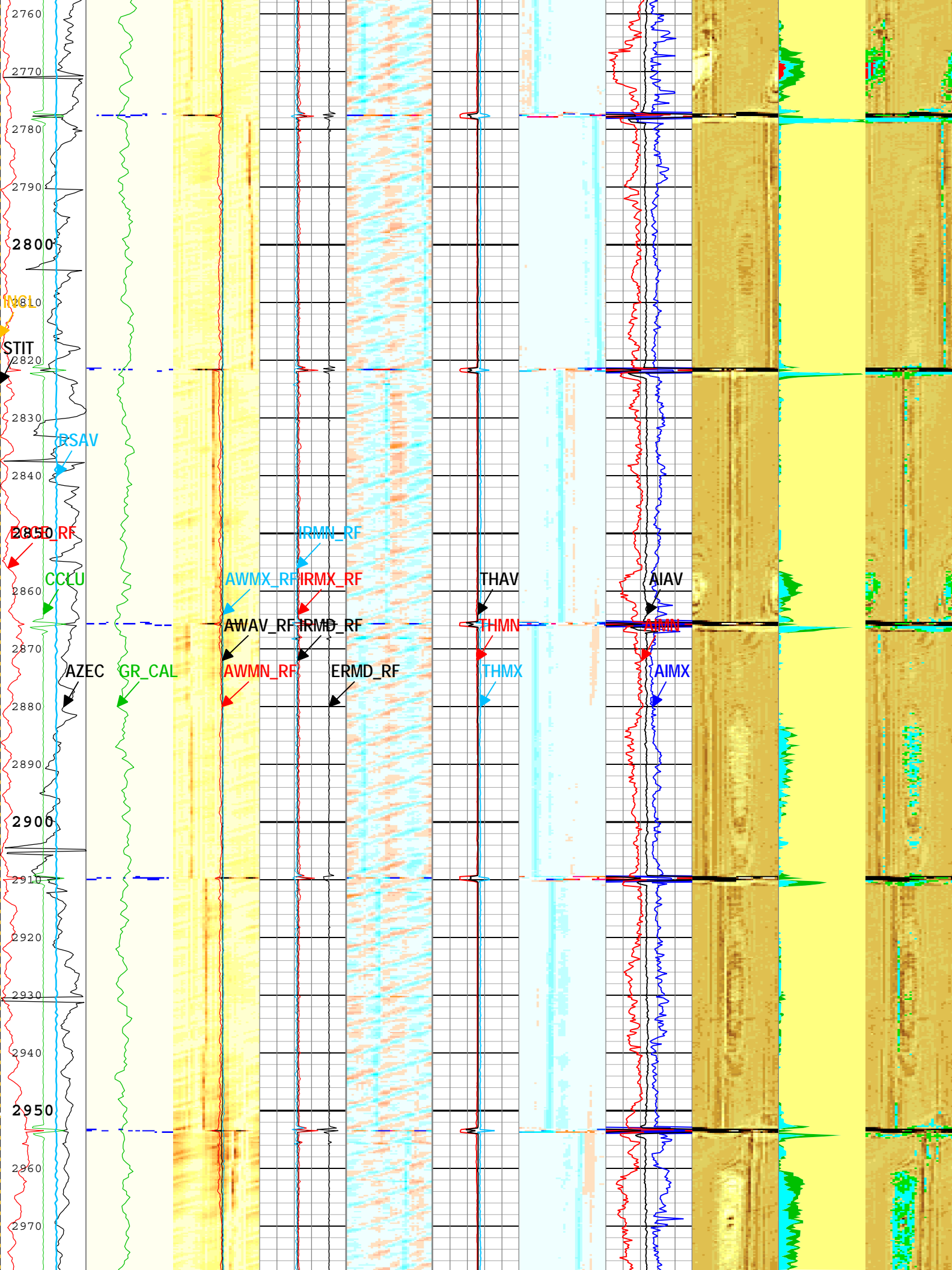


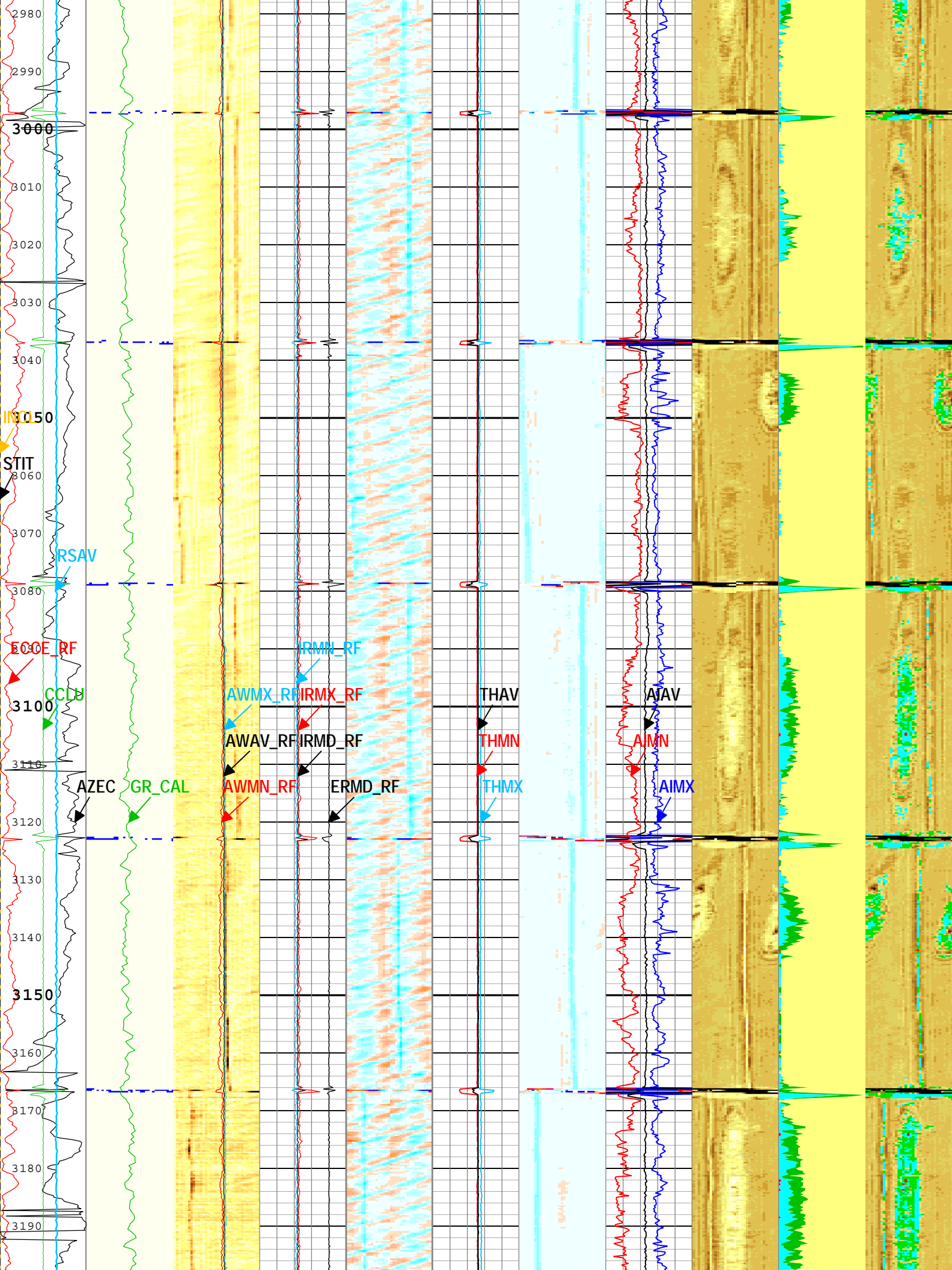


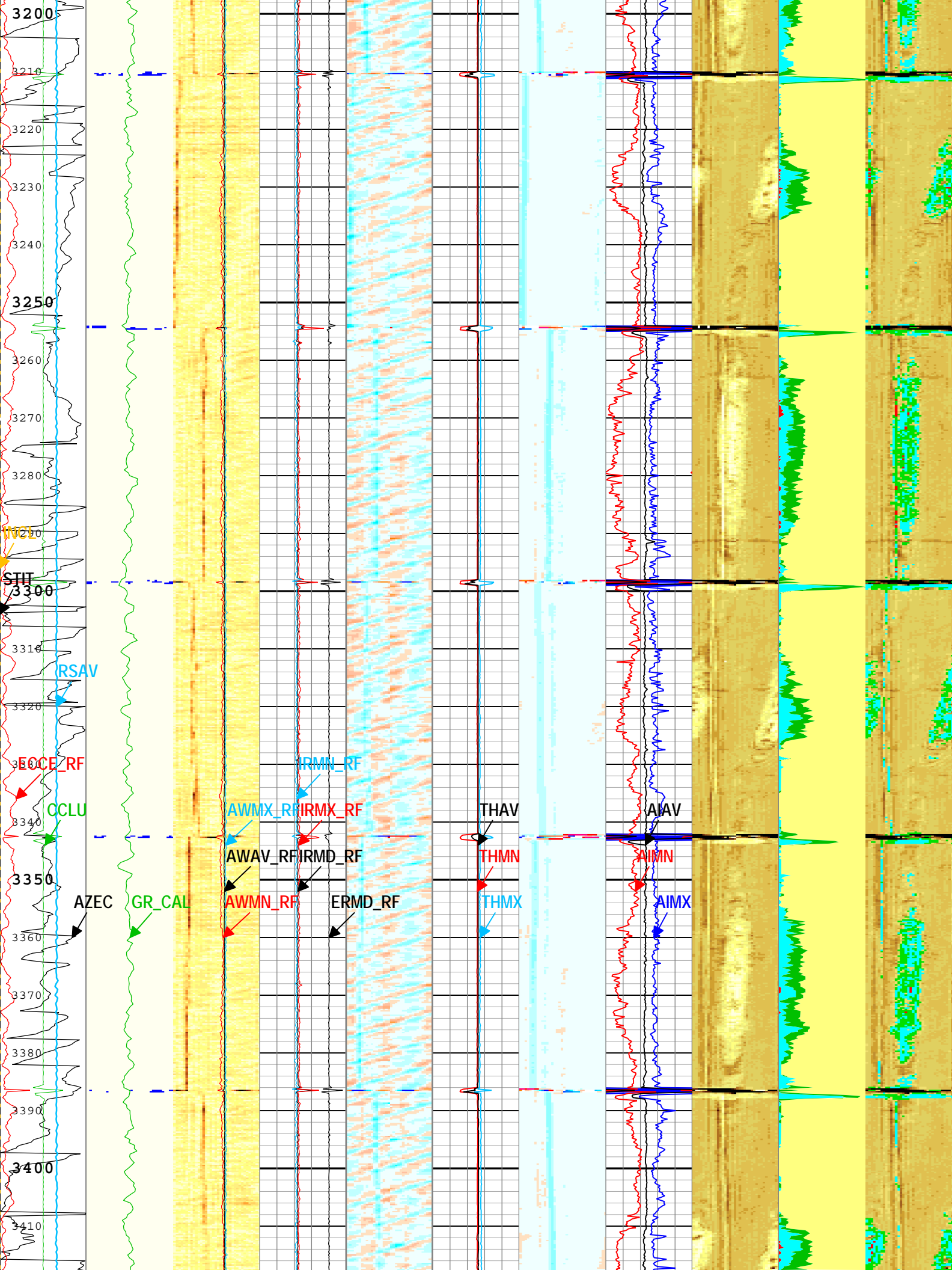


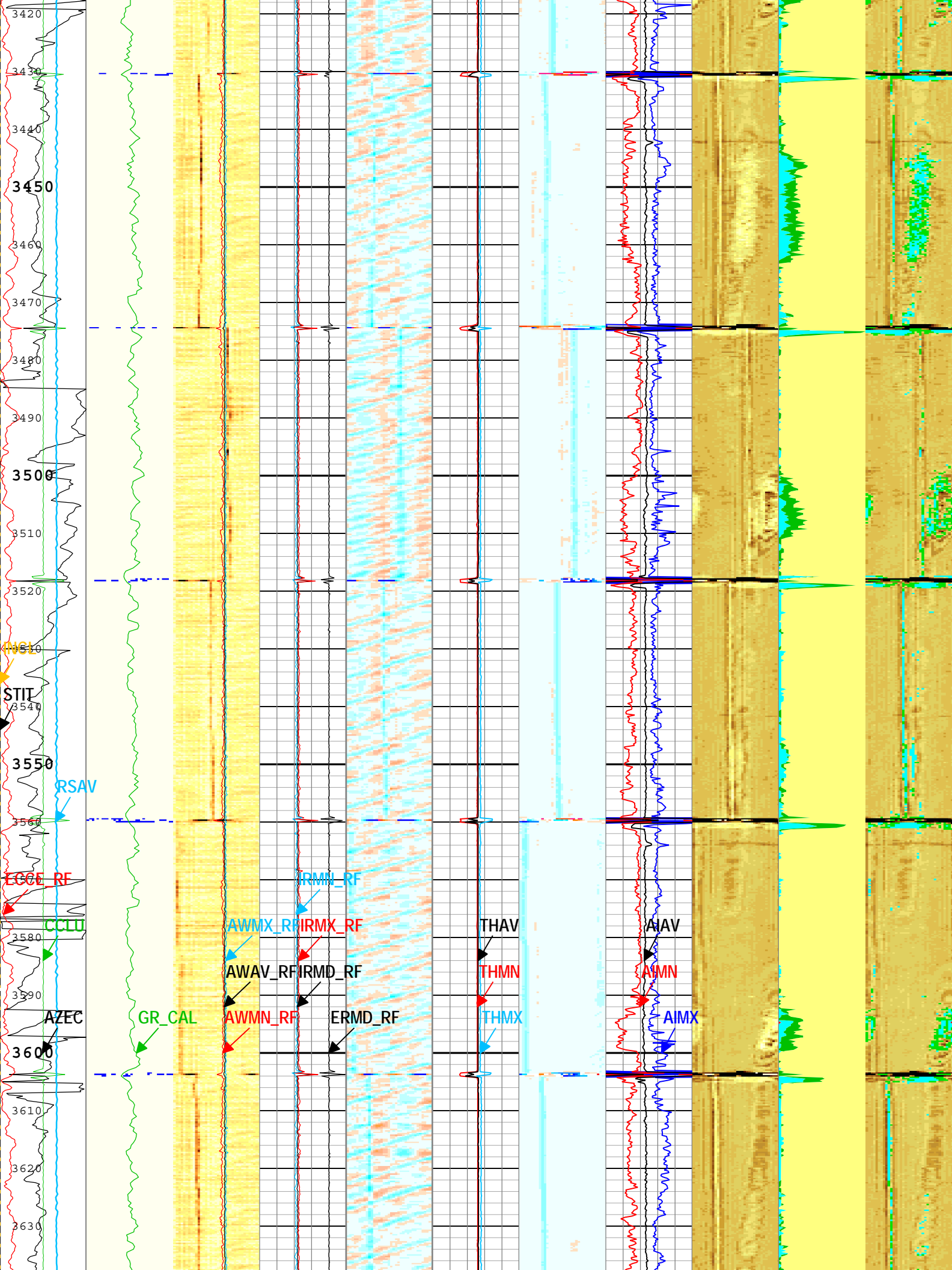


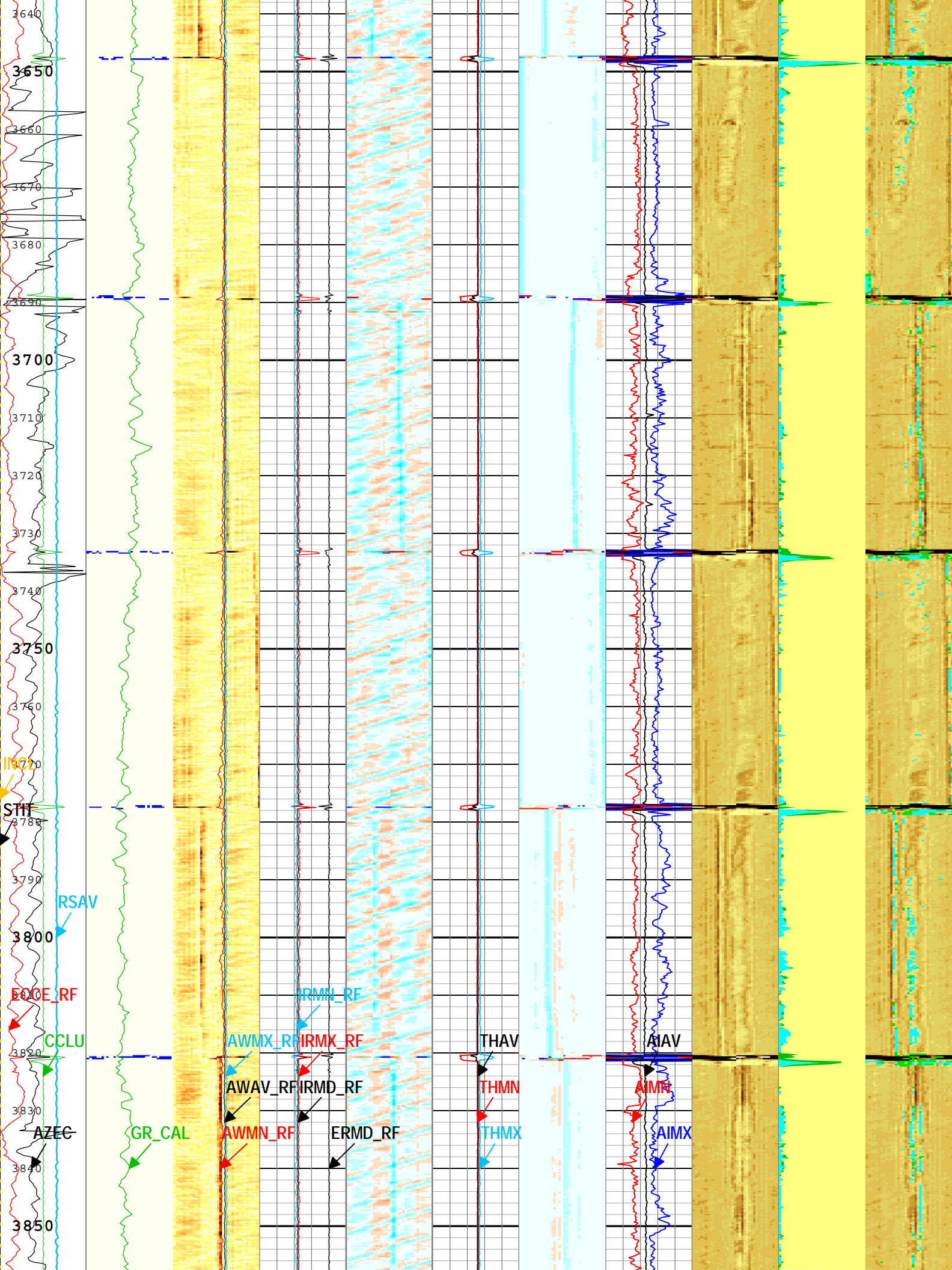


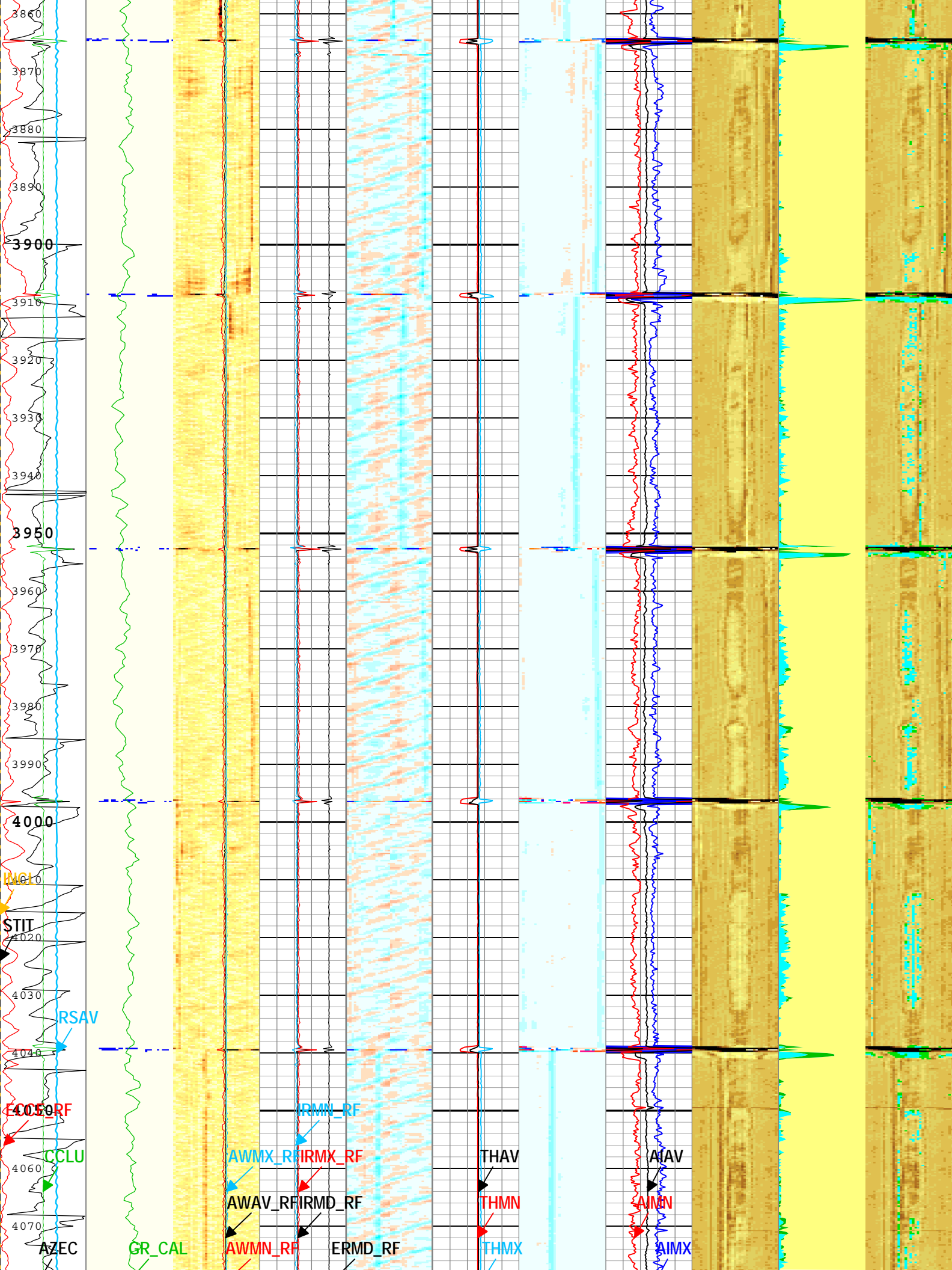


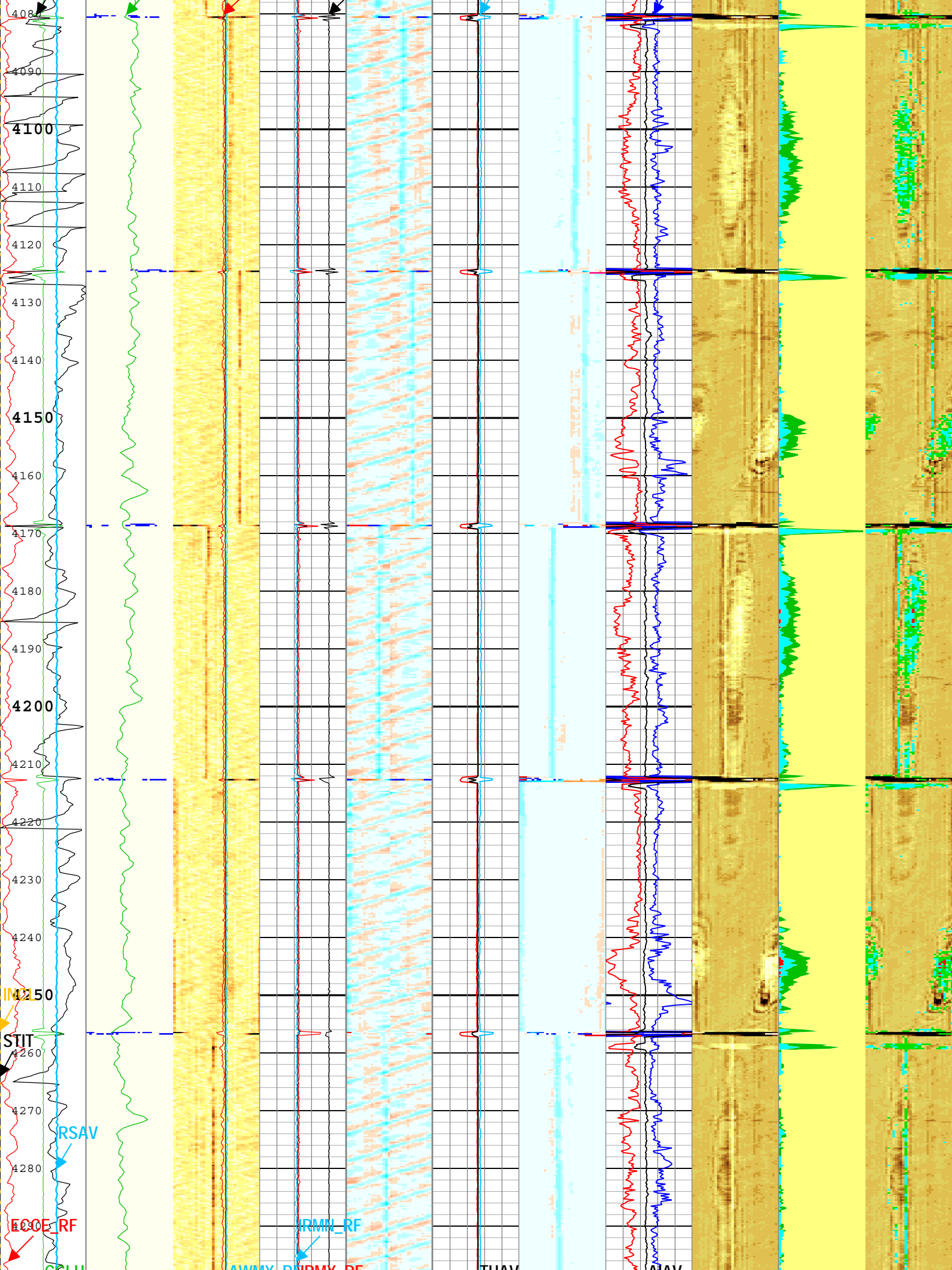


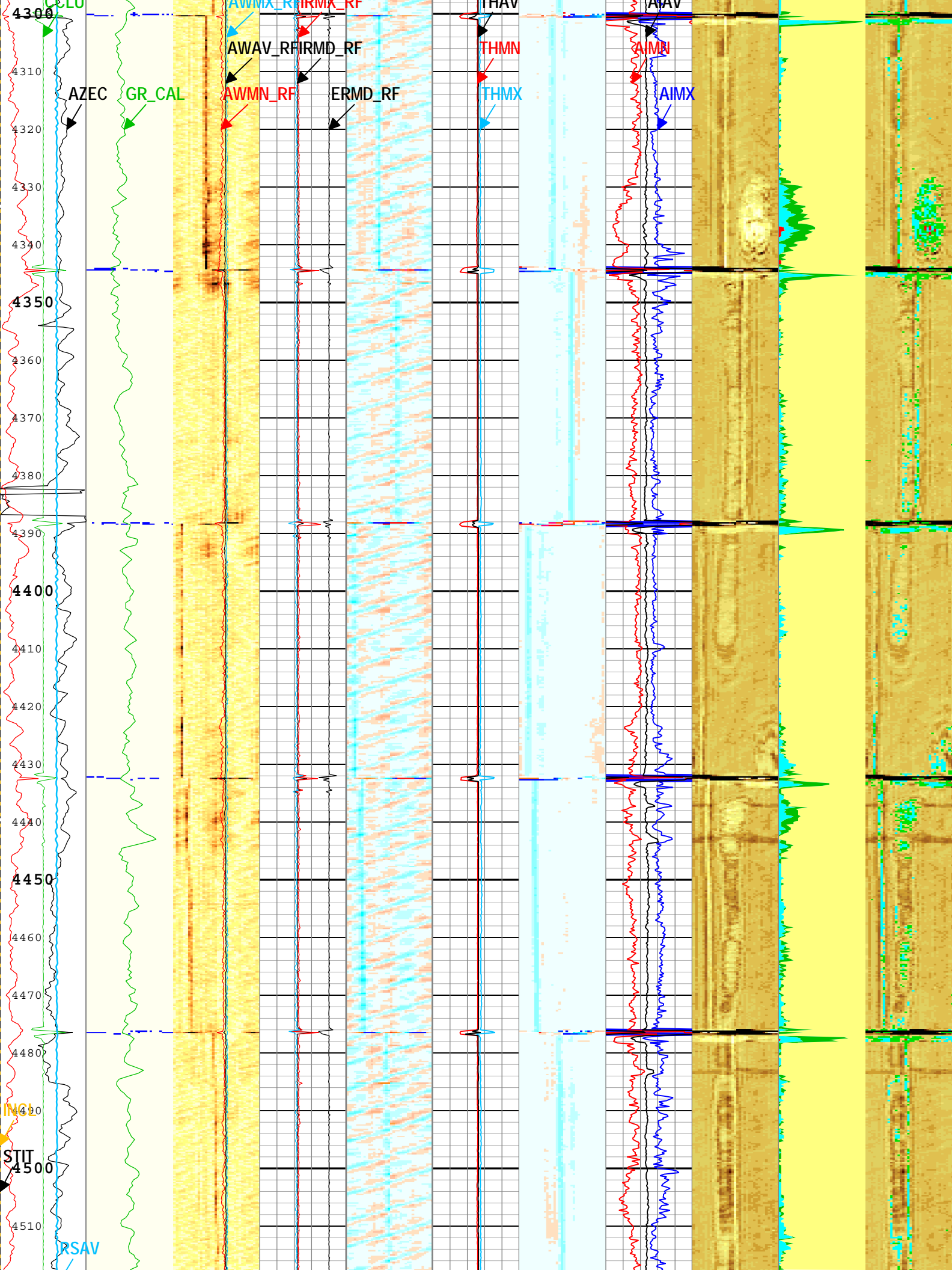


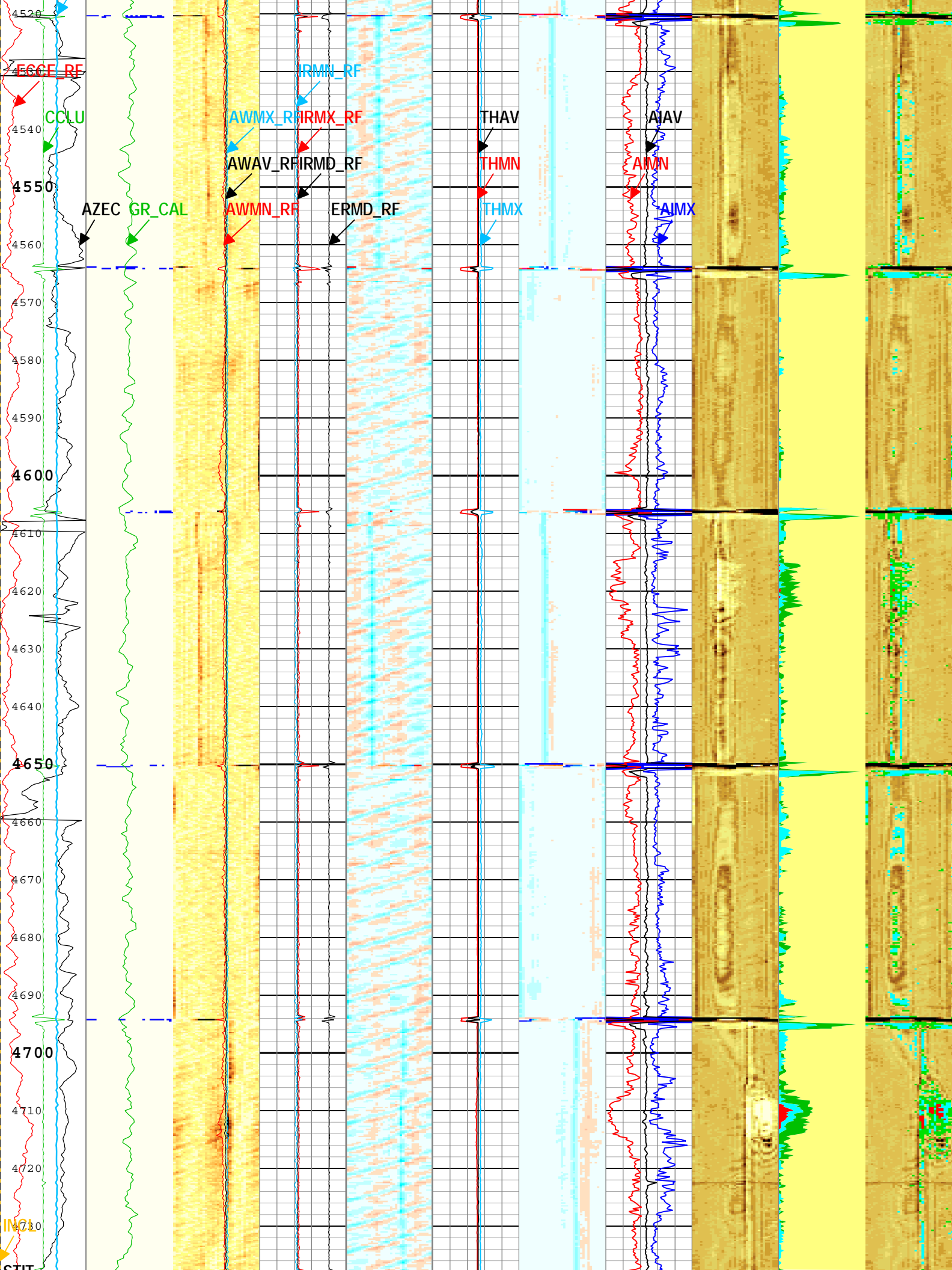


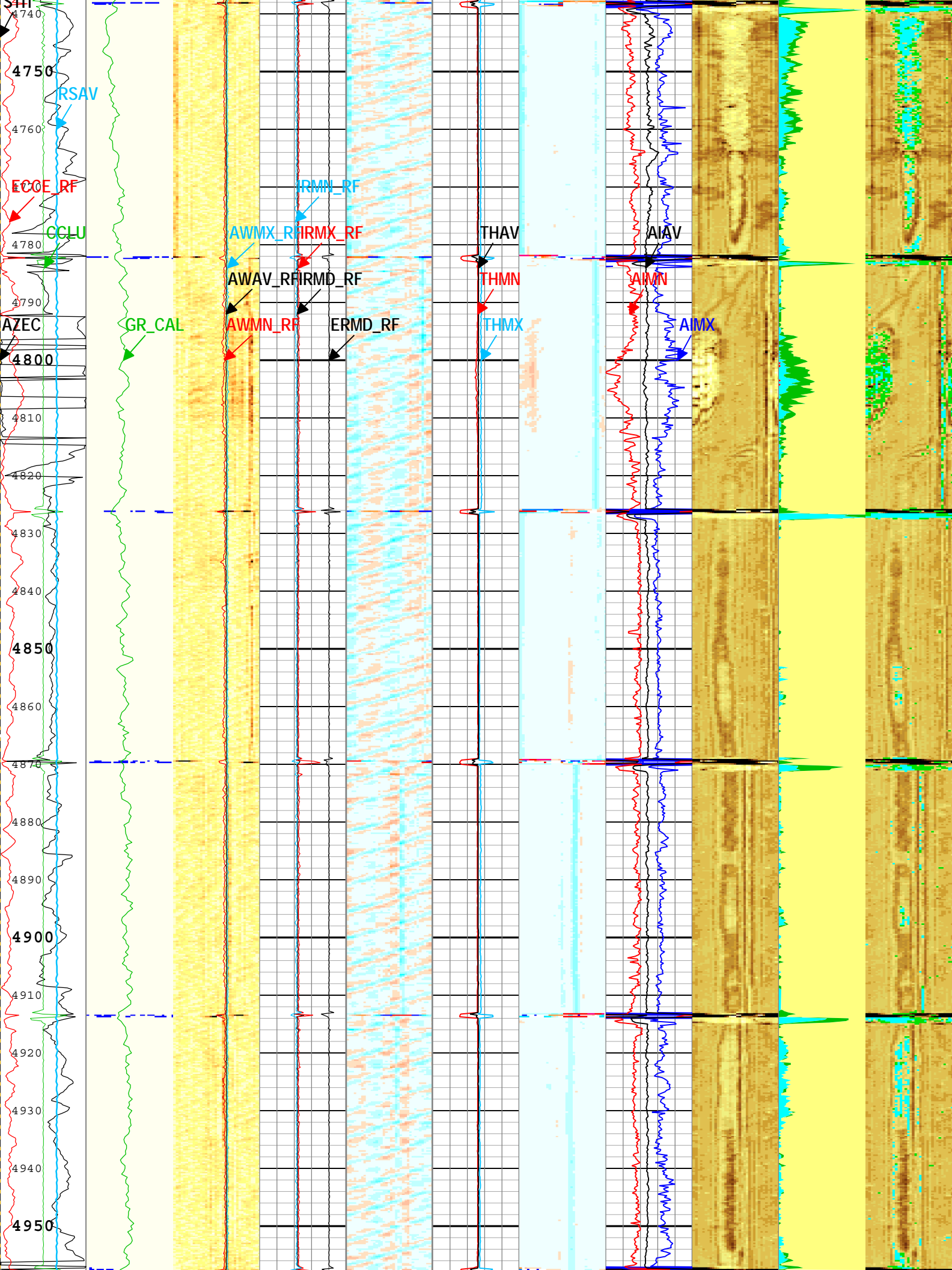


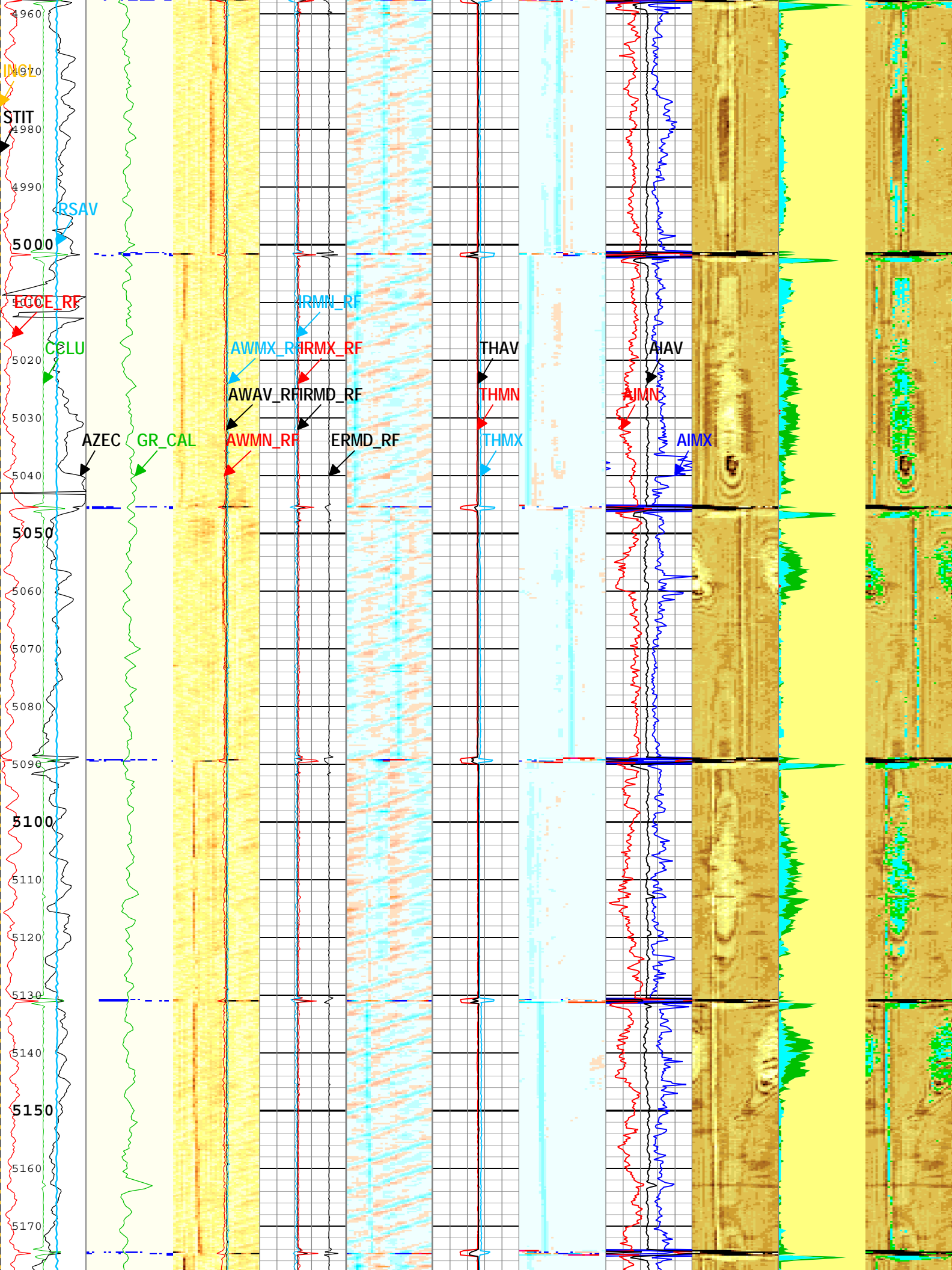


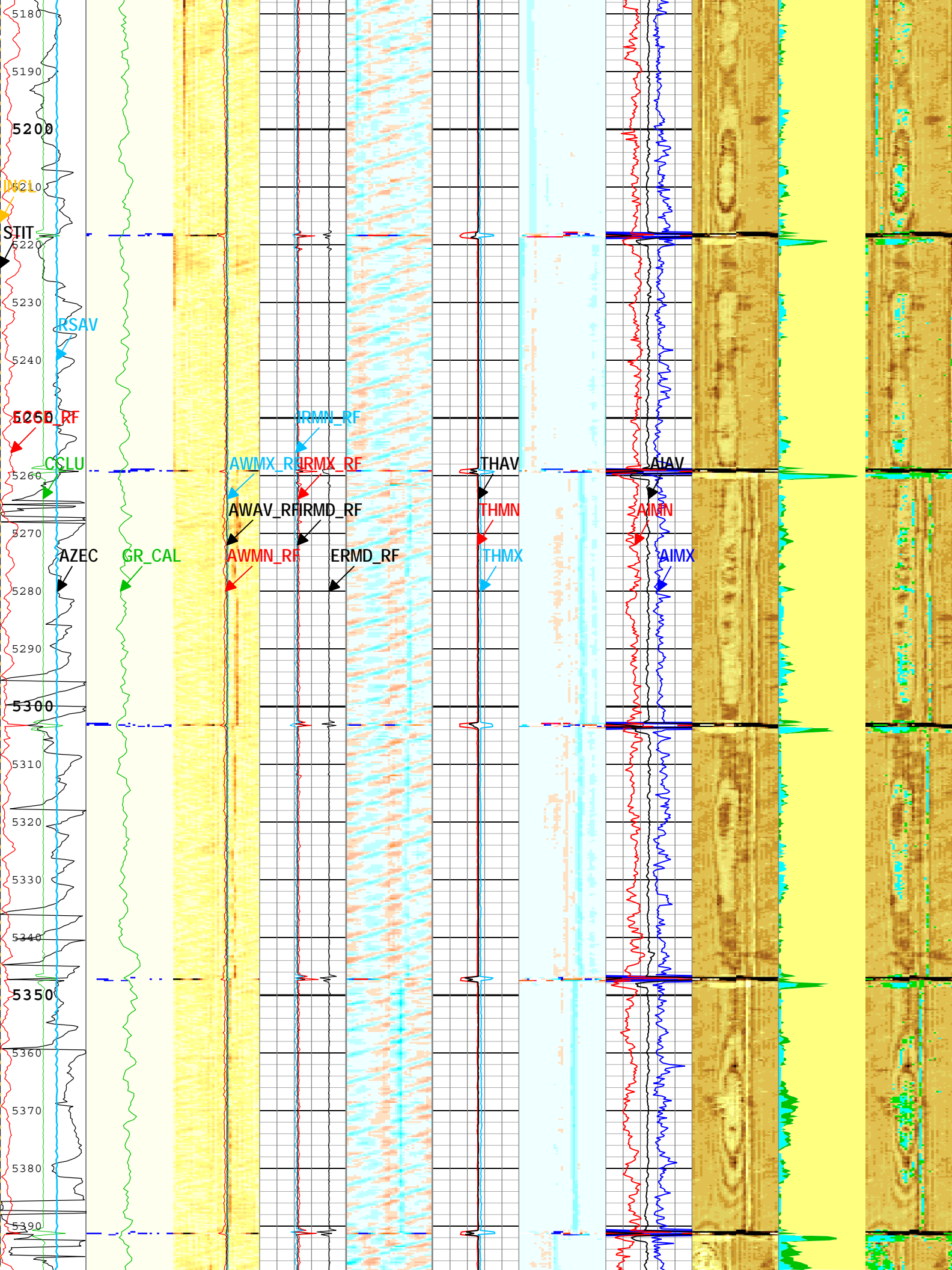


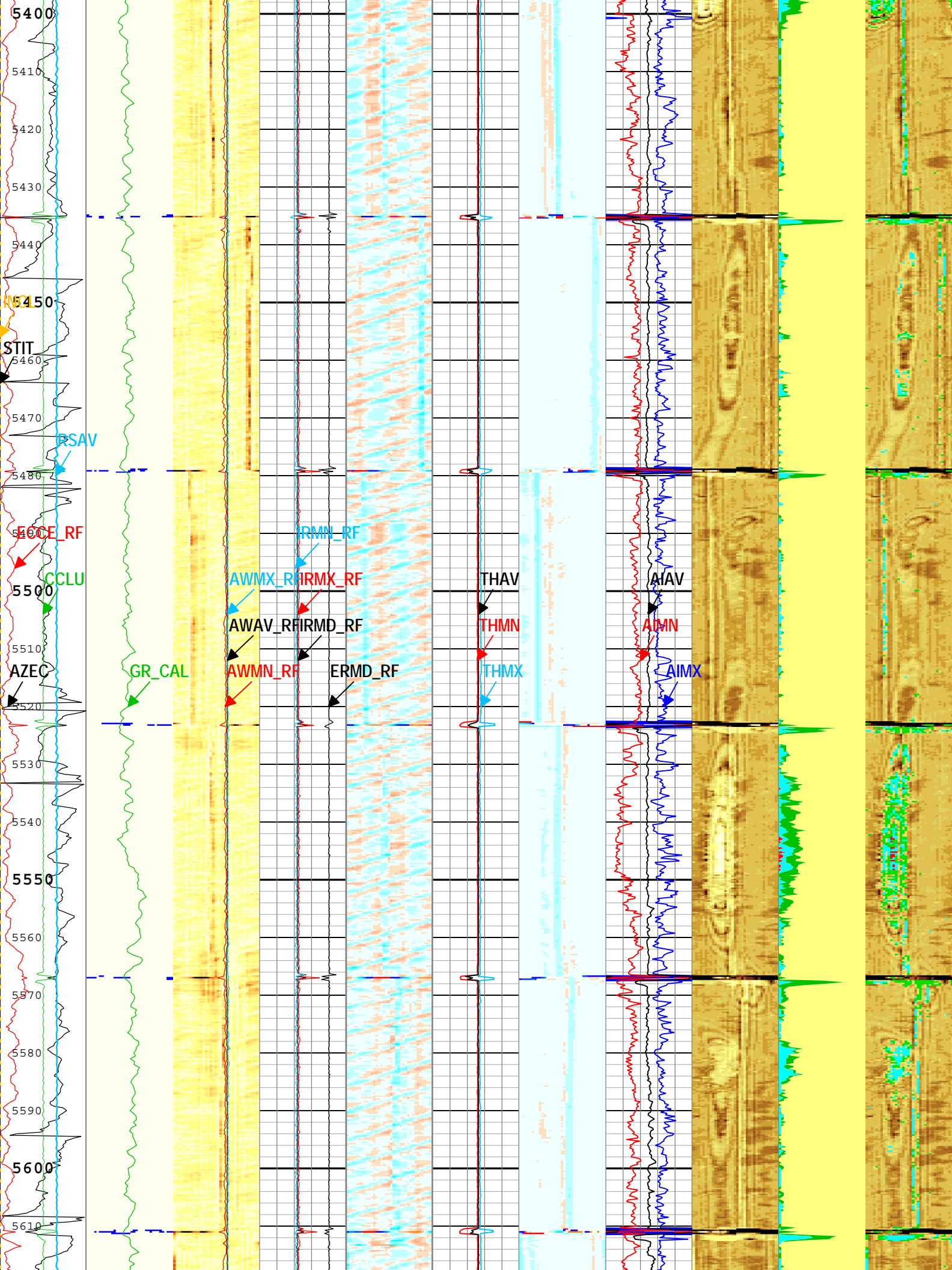


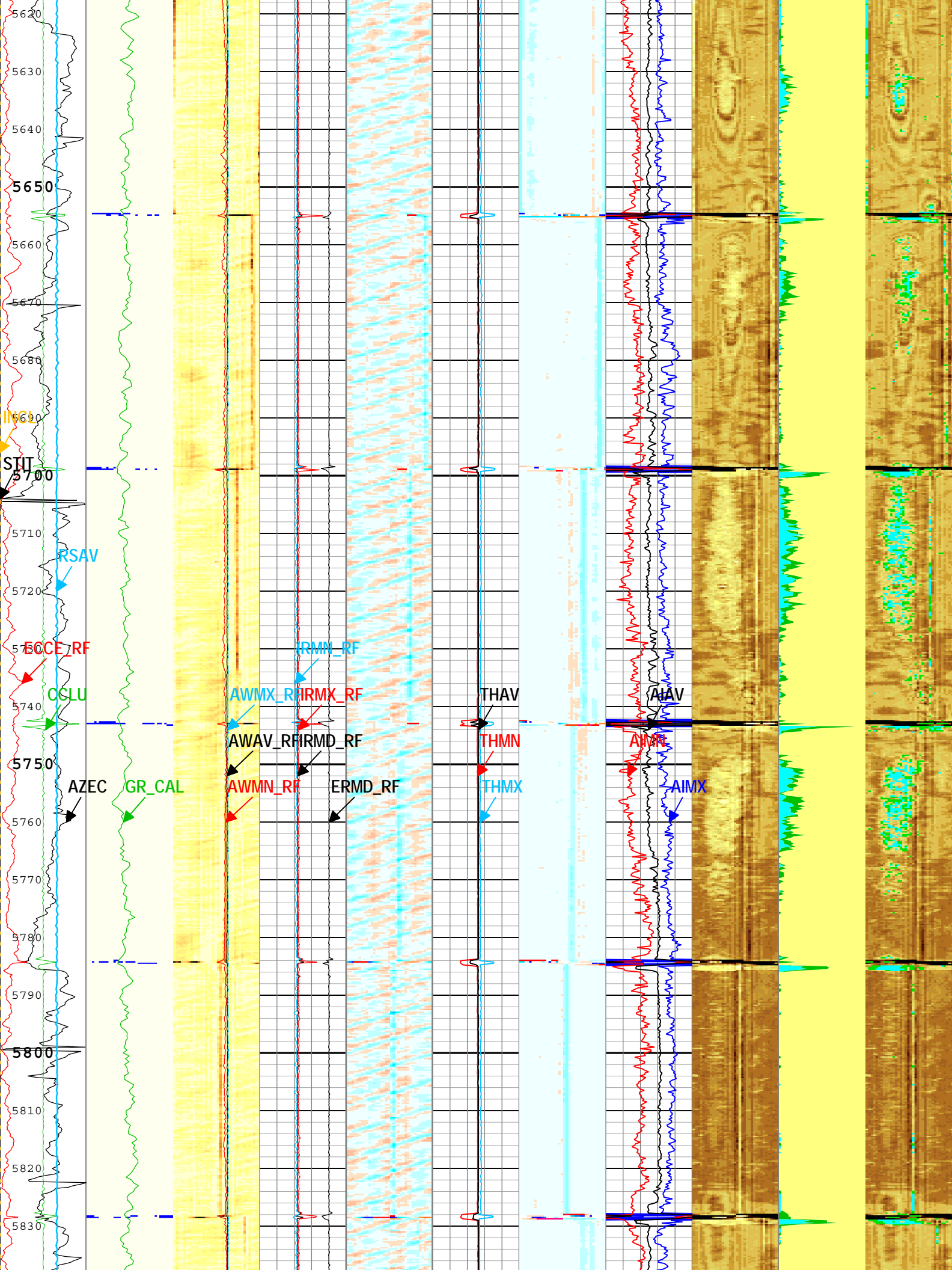


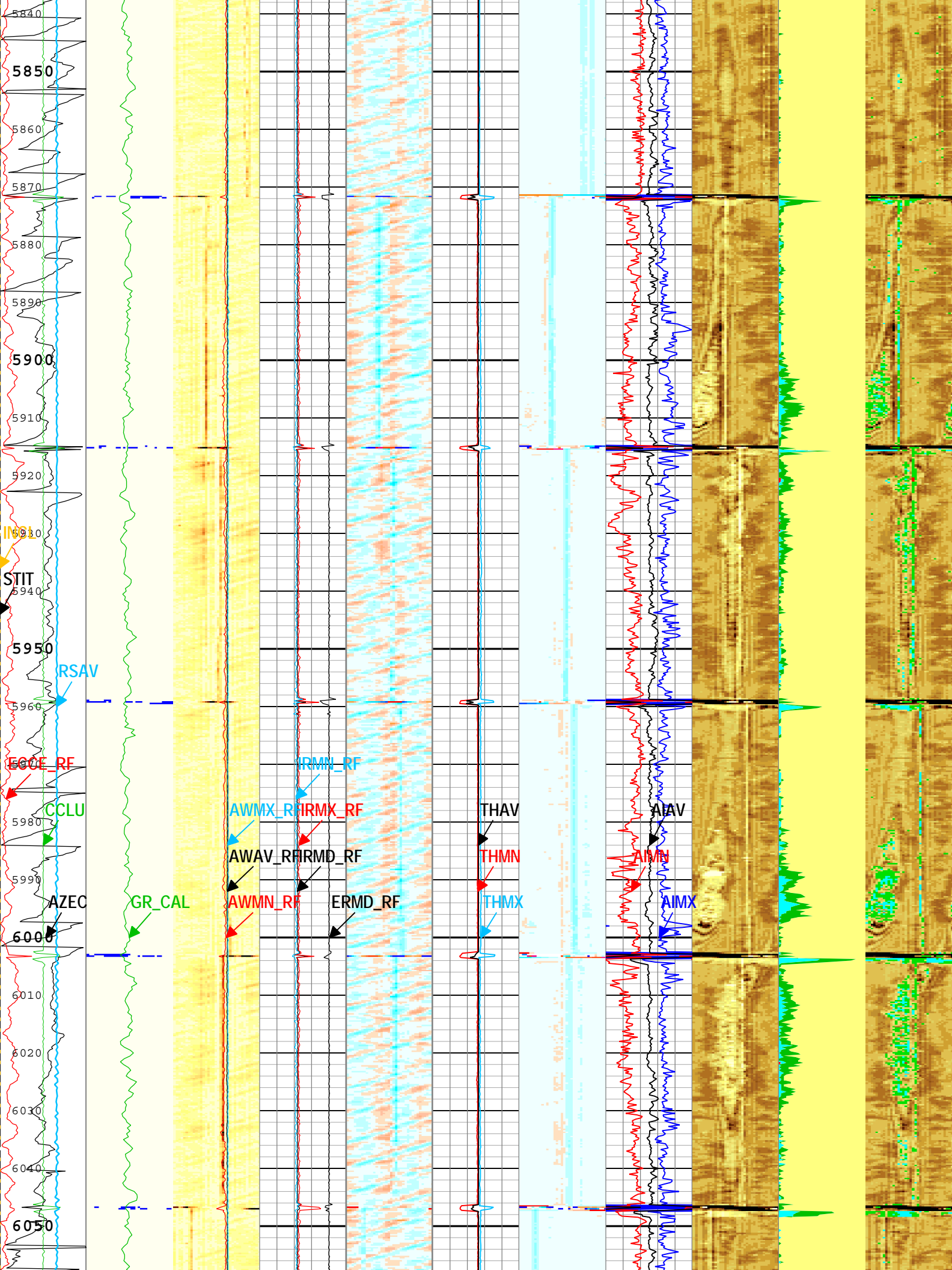


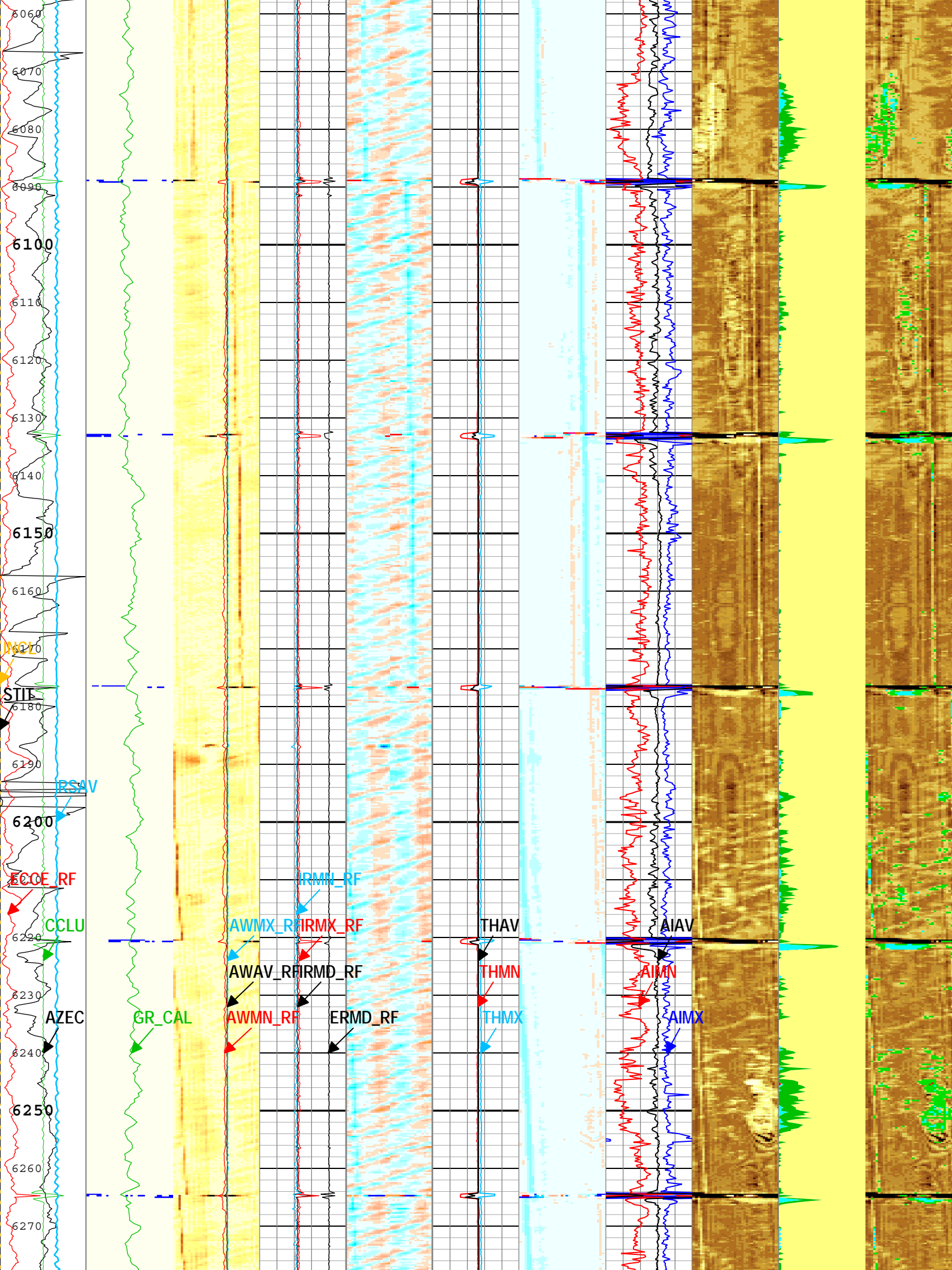


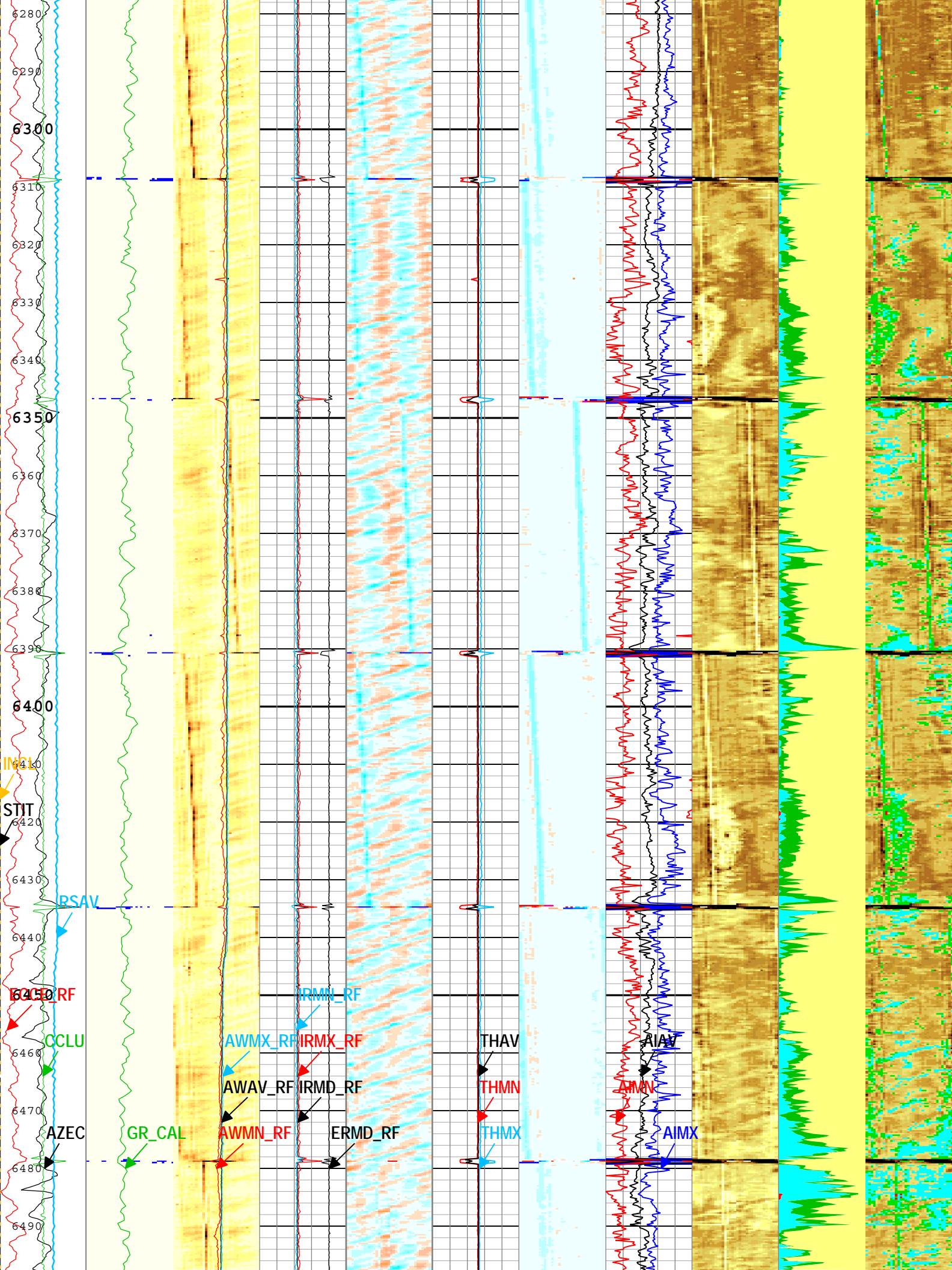


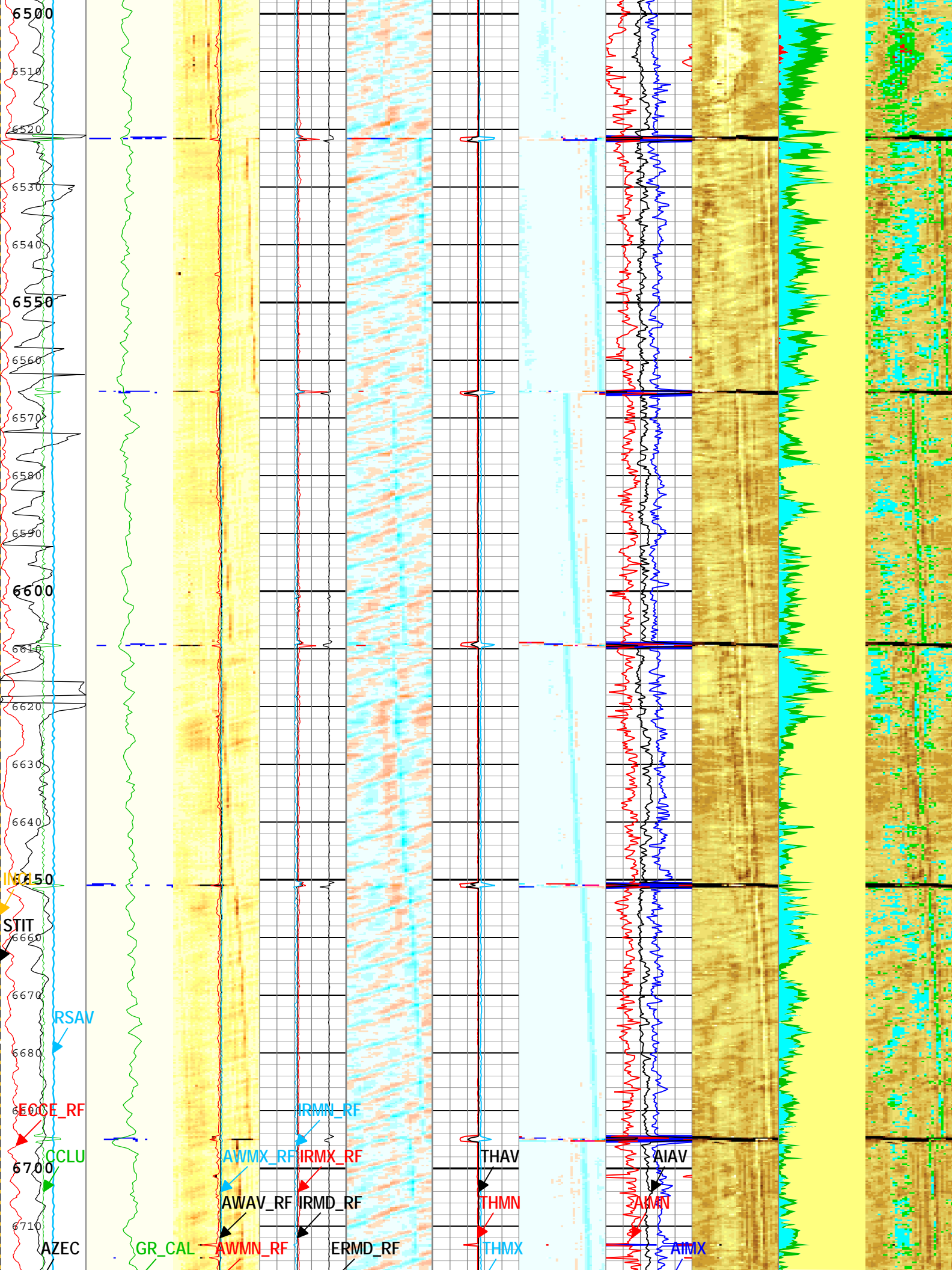


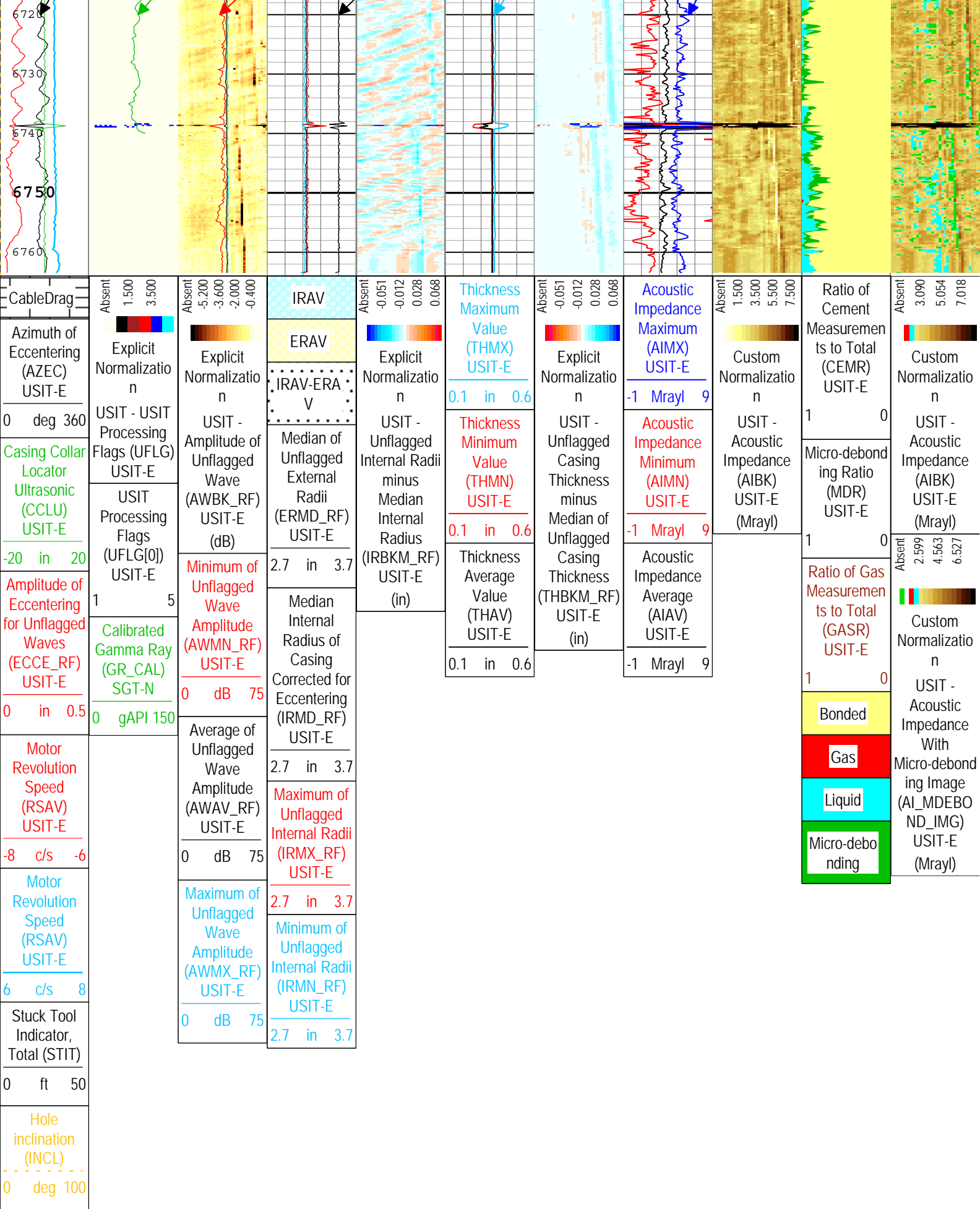












USIT Processing Flags (UFLG[0]) USIT-E

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

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

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

UTIM Error

Pulse Origin Not Detected

WINLEN Error

4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : <div></div> Casing Thickness Error				
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - : <div></div> 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: 14-Aug-2014 07:43:49				
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	190	us/ft
ETIP	Elevation of the TIP above MSL	WLSESSION	4973	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	Off	
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
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	13292	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	523.5	6764
ZMUD	1.66	523.5	700
ZMUD	1.68	700	1000
ZMUD	1.7	1000	1500
ZMUD	1.72	1500	2000
ZMUD	1.74	2000	2500
ZMUD	1.76	2500	3000
ZMUD	1.77	3000	4000
ZMUD	1.78	4000	6764
All depth are actual.			

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	55	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	6759	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	33.87	us
WINE	Window End Time	USIT-E	73.87	us

USI Goodwin	
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USIT - Fluid Properties Measurement	
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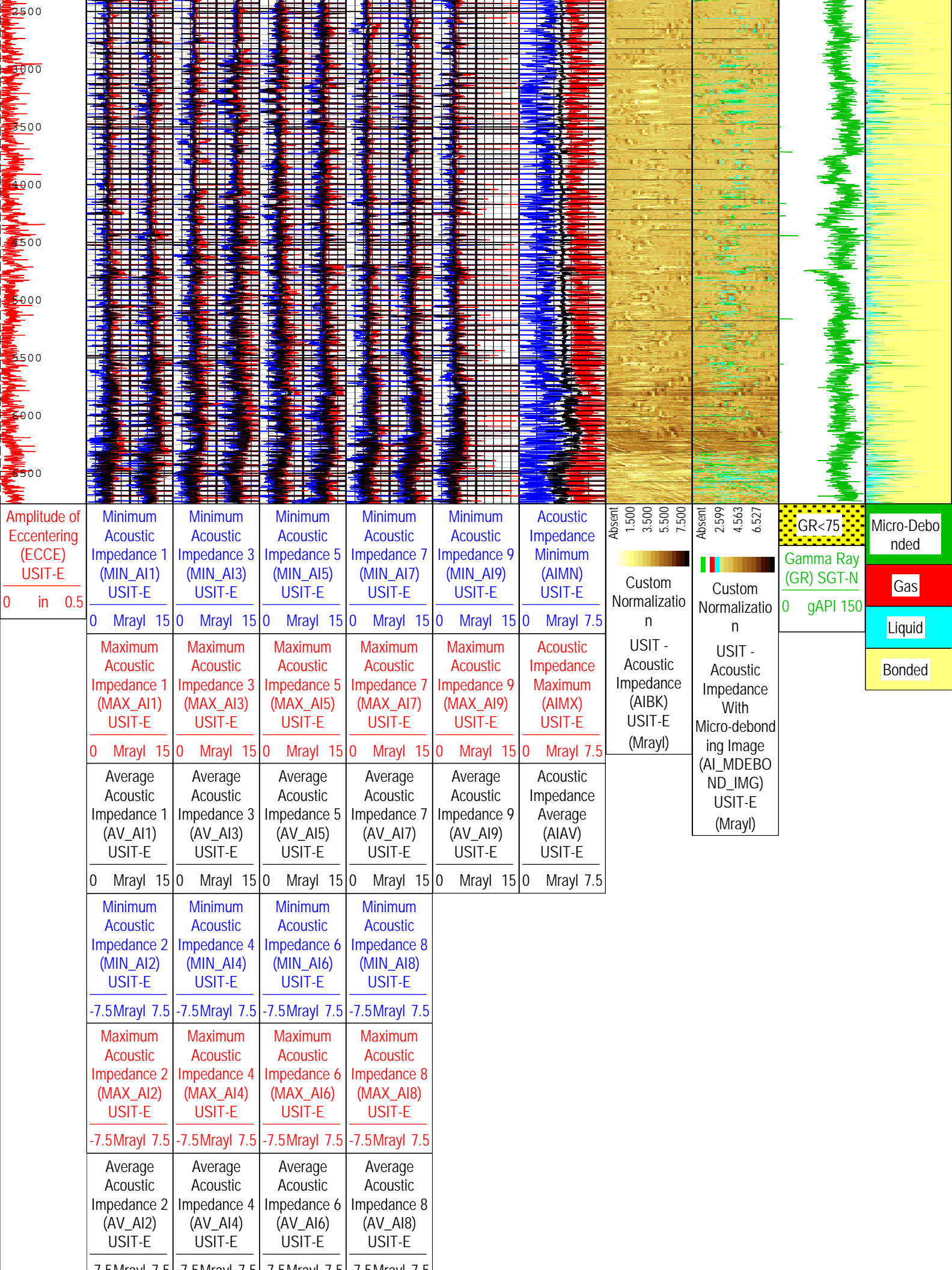
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[2]:Up	6764.11	547.28

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	200	1.68	1.68
200	400	1.66	1.66
400	700	1.66	1.66
700	1000	1.68	1.68
1000	1500	1.7	1.7
1500	2000	1.72	1.72
2000	2500	1.74	1.74

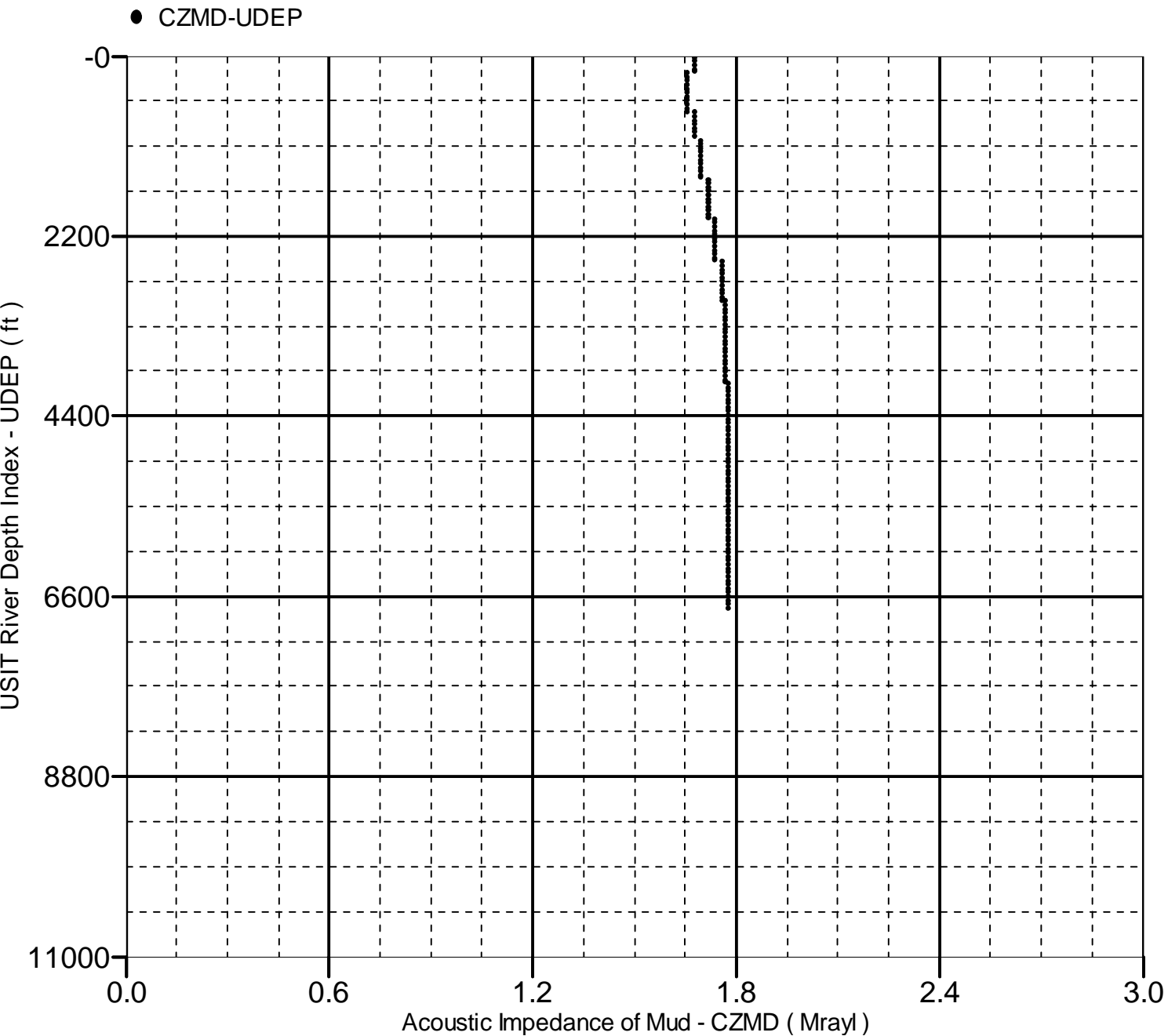
[illegible]



Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6771.75 to 15.50 ft

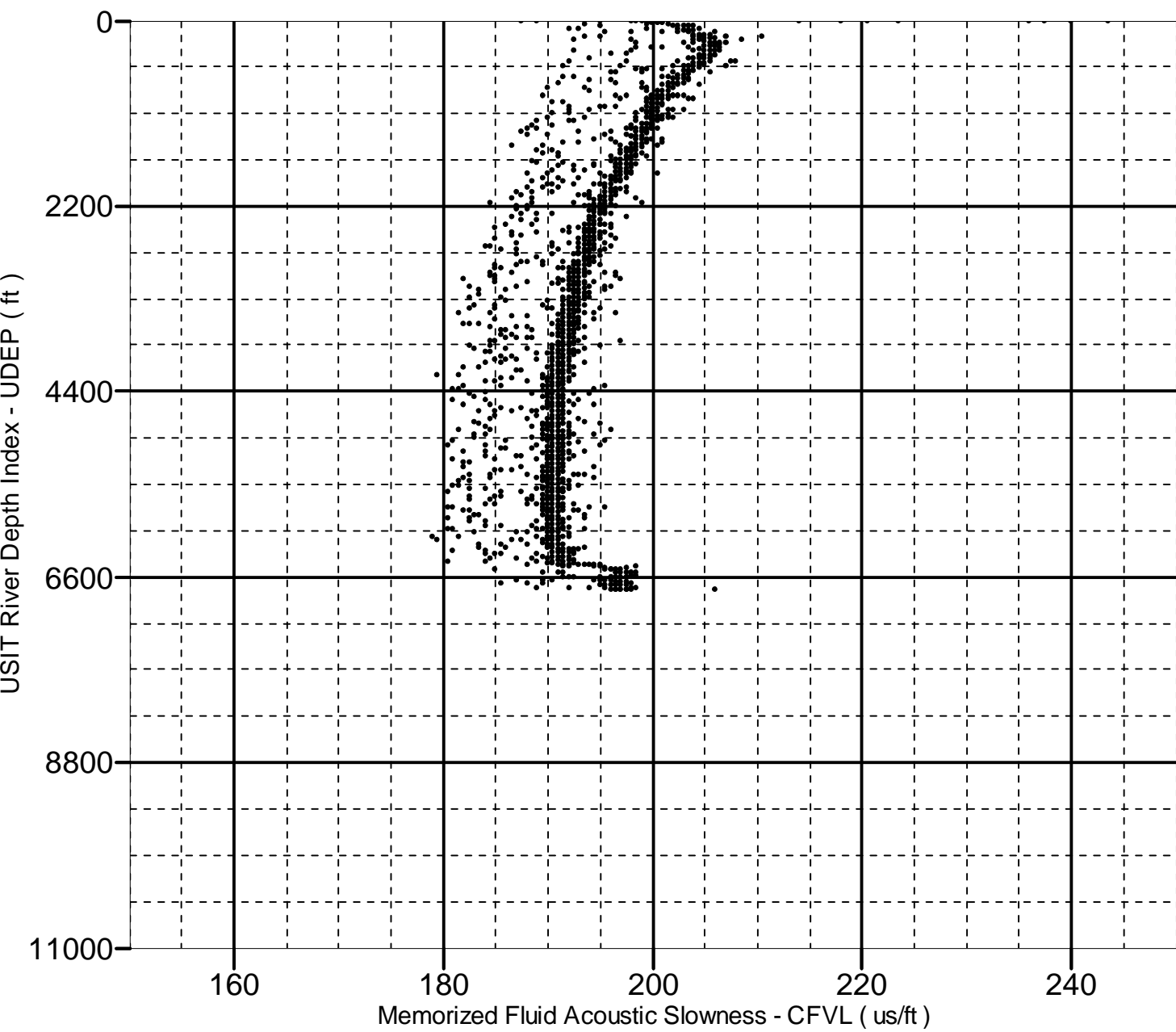


Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6771.75 to 15.50 ft

● CFVL-UDEP



Company:	Anadarko Petroleum Company	Schlumberger
Well:	Benson Farms 32C-23HZ	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Ultrasonic Imager		
Cement Evaluation		
Gamma Ray - CCL		