

Company:

Anadarko Petroleum Company

Well:

Benson Farms 11N-19HZ

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 11N-19HZ

Company:

Anadarko Petroleum Company

Location:

NWSW Sec. 24, T3N, R68W

SHL: 2105' FSL & 50' FWL

Lat/Long: 40.210143/-104.960554

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.

05-123-39398-0000

Section:

24

Township:

3N

Range:

68W

Logging Date

13-Aug-2014

Run Number	Run 1	
Depth Driller	14387.00 ft	
Schlumberger Depth	14387.00 ft	
Bottom Log Interval	6400.00 ft	
Top Log Interval		
Casing Fluid Type	Water	
Salinity		
Density	8.4 lbm/gal	
Fluid Level	8.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	6.13 in	
From	7477.00 ft	
To	14387.00 ft	
Casing/Tubing Size	7 in	
Weight	26 lbm/ft	
Grade	P110	
From	0.00 ft	
To	7477.00 ft	
Max Recorded Temperatures	201 degF	
Logger on Bottom	Time	
Unit Number	Location:	
Recorded By		
Witnessed By		

Disclaimer

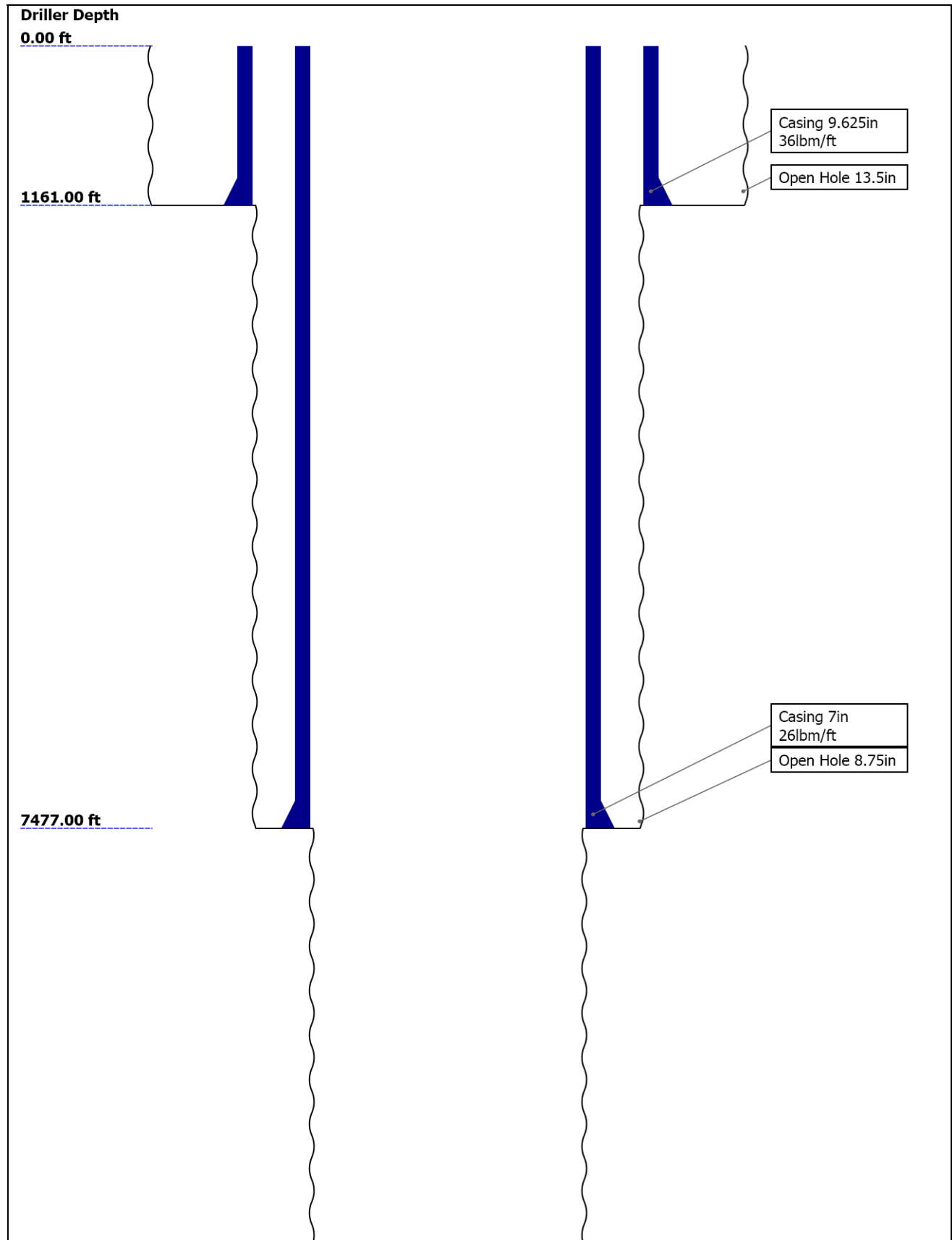
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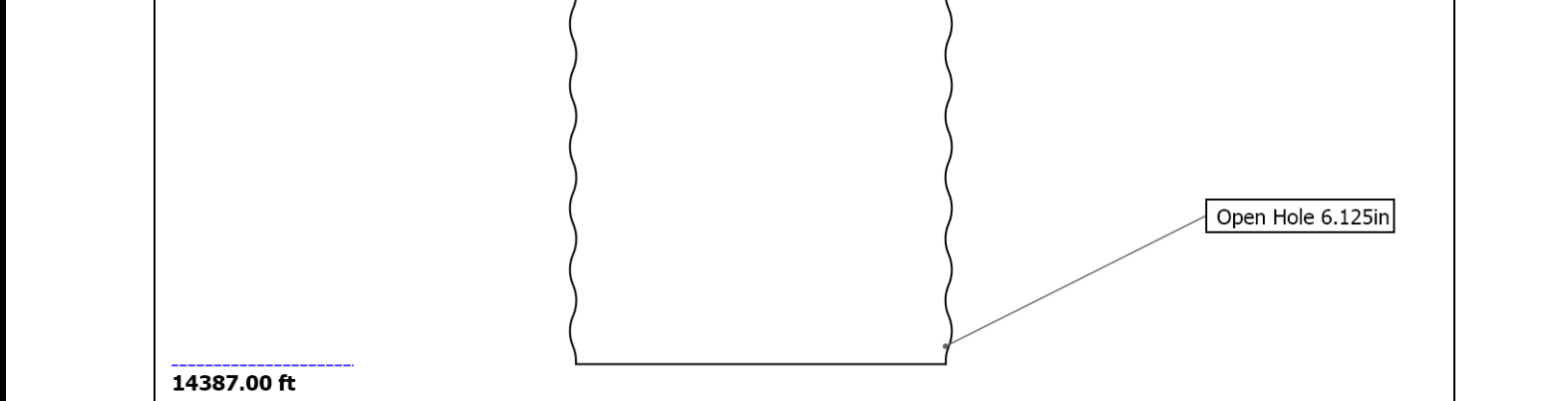
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Well Sketch






Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75	6.125			
Top Driller (ft)	0	1161	7477			
Top Logger (ft)	0	1161	7477			
Bottom Driller (ft)	1161	7477	14387			
Bottom Logger (ft)	1161	7477	14387			
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)	1161	7477				
Bottom Logger (ft)	1161	7477				

Operational Run Summary

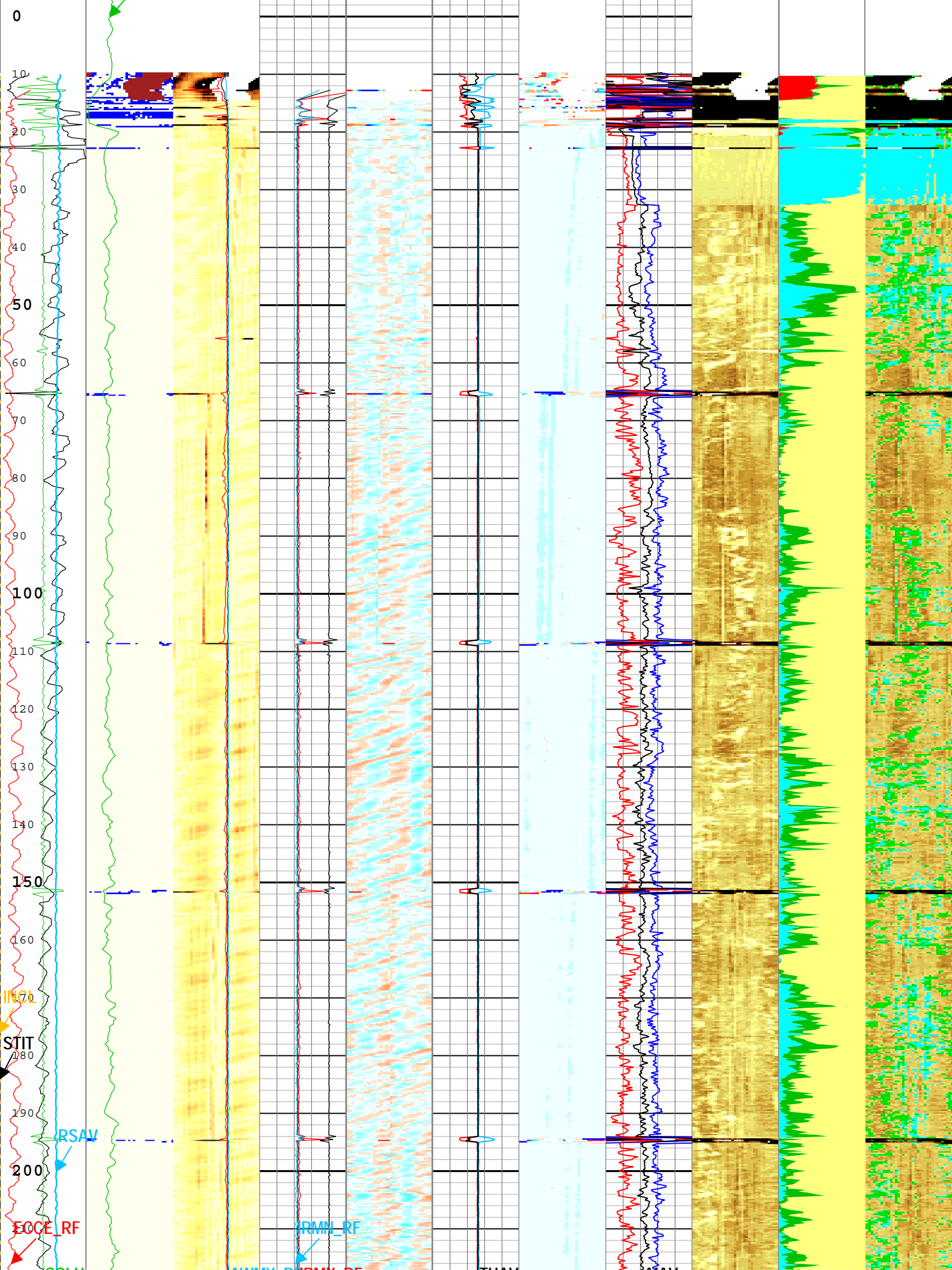
Parameter (unit)	Run 1					
Date Log Started	13-Aug-2014					
Time Log Started	10:45:30					
Date Log Finished	13-Aug-2014					
Time Log Finished	14:35:07					
Top Log Interval (ft)	NaN					
Bottom Log Interval (ft)	6400.00					
Total Depth (ft)	4000.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	6.125					
Logging Unit Number	3030					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Keri Ondrus					
Witnessed By	Trevor Daniel					
Service Order Number	BX19-00169					

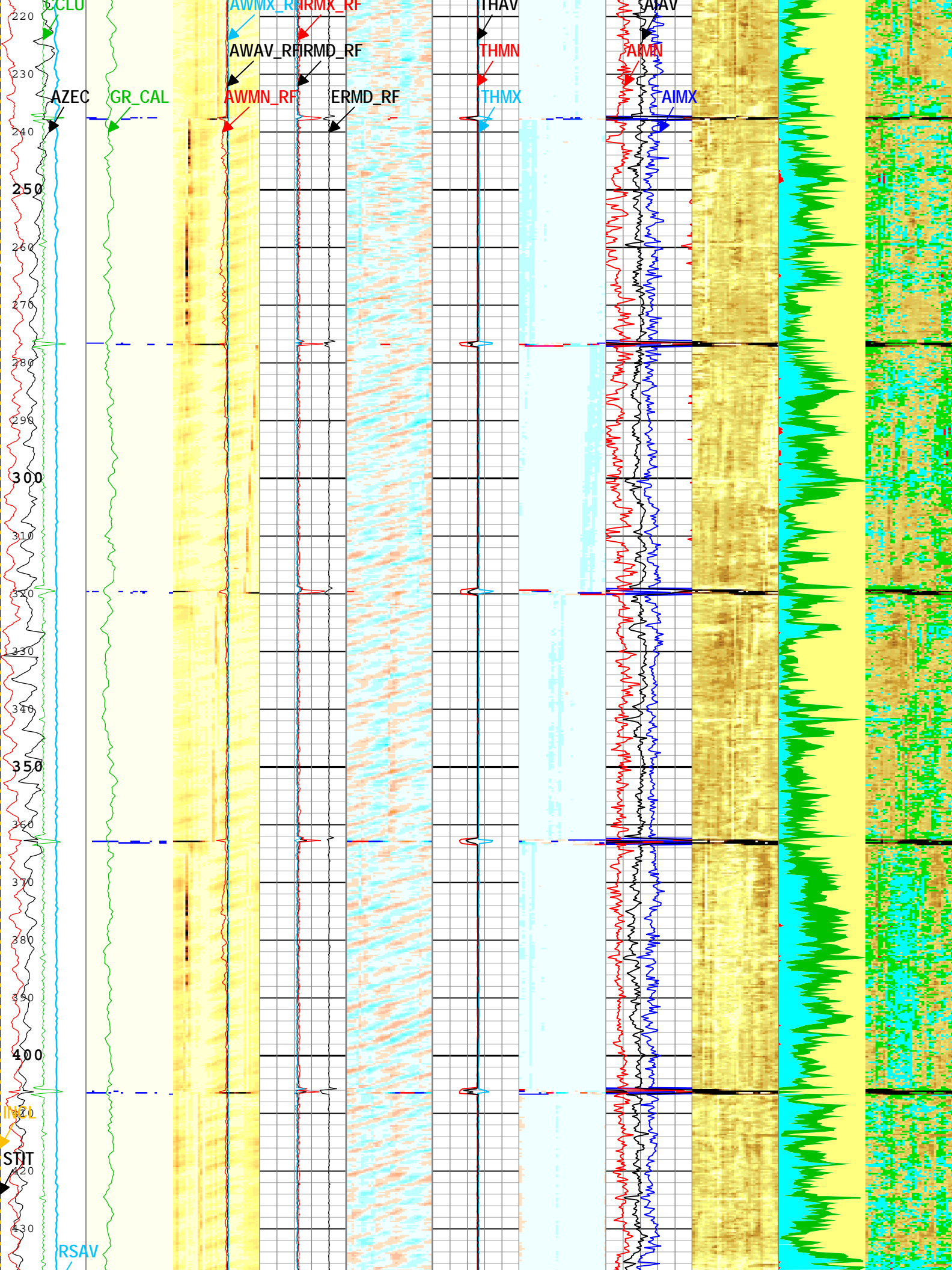
Service Order Number	DX15-00103					
Borehole Fluids						
Parameter(unit)	Run 1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	201					
Salinity (ppm)	0					
Density (lbm/gal)	8.4					
Date Logger on Bottom	NaN					
Time Logger on Bottom	NaN					
Total Solid (%)						
High Gravity Solids (%)						
Remarks and Equipment Summary						
Run 1: Toolstring			Run 1: Remarks			
<div><div><div>Equip name</div><div>Length</div></div><div>LEH-QT:24</div><div>30.75</div><div>93</div><div>LEH-QT:2493</div></div> <div><div><div>DTC-H:938</div><div>27.84</div></div><div>6</div><div>ECH-KC:1047</div><div>2</div><div>DTC-H:9386</div></div> <div><div><div>SGT-N:984</div><div>24.84</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><div>USIT-E:928</div><div>15.54</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> <div><div><div>MP name</div><div>Offset</div></div><div>CTEM</div><div>26.94</div><div>HV</div><div>0.00</div><div>TelStatus</div><div>24.84</div><div>ToolStat</div><div>24.84</div><div>us</div><div></div><div>GR</div><div>23.92</div><div>USI Sens</div><div>0.38</div><div>or</div><div>TOOL ZERO</div><div>Head Ten</div><div>sion</div></div> <div><div>Lengths are in ft</div><div>Maximum Outer Diameter = 4.645 in</div><div>Liner Sensor Location - Value: Station Offset</div></div>			Toolstring run as per toolsketch			
			Objective: Cement and Corrosion logs.			
			Cemented by Schlumberger on 11-Jul-2014.			
			8.33PPG Wash, 8.4PPG CW-7 Spacer, 11.00PPG MUDPUSH Express, 12.0PPG lead cement, 13.0PPG tail cement, and 10.3 PPG displacement.			
			Good returns in cement job; floats held.			
			Main log ran under 0PSI and 2800PSI			
			Poor quality data from 990-1250 feet; repeated on downlog and 0 PSI pass.			
			4.5" liner top at 6417 feet.			
			Bottom log interval at 6400 feet to maintain distance from liner top.			
			Junk Basket run into 4.5" liner. Lost tension at 7110 feet.			
			Splice point at 5245' of 2800 PSI pass due to loss of telemetry while logging.			
			Thank you for choosing Schlumberger Wireline.			
			SLB crew: Aaron Weber, Tyler Riter, and Gary Lapp.			

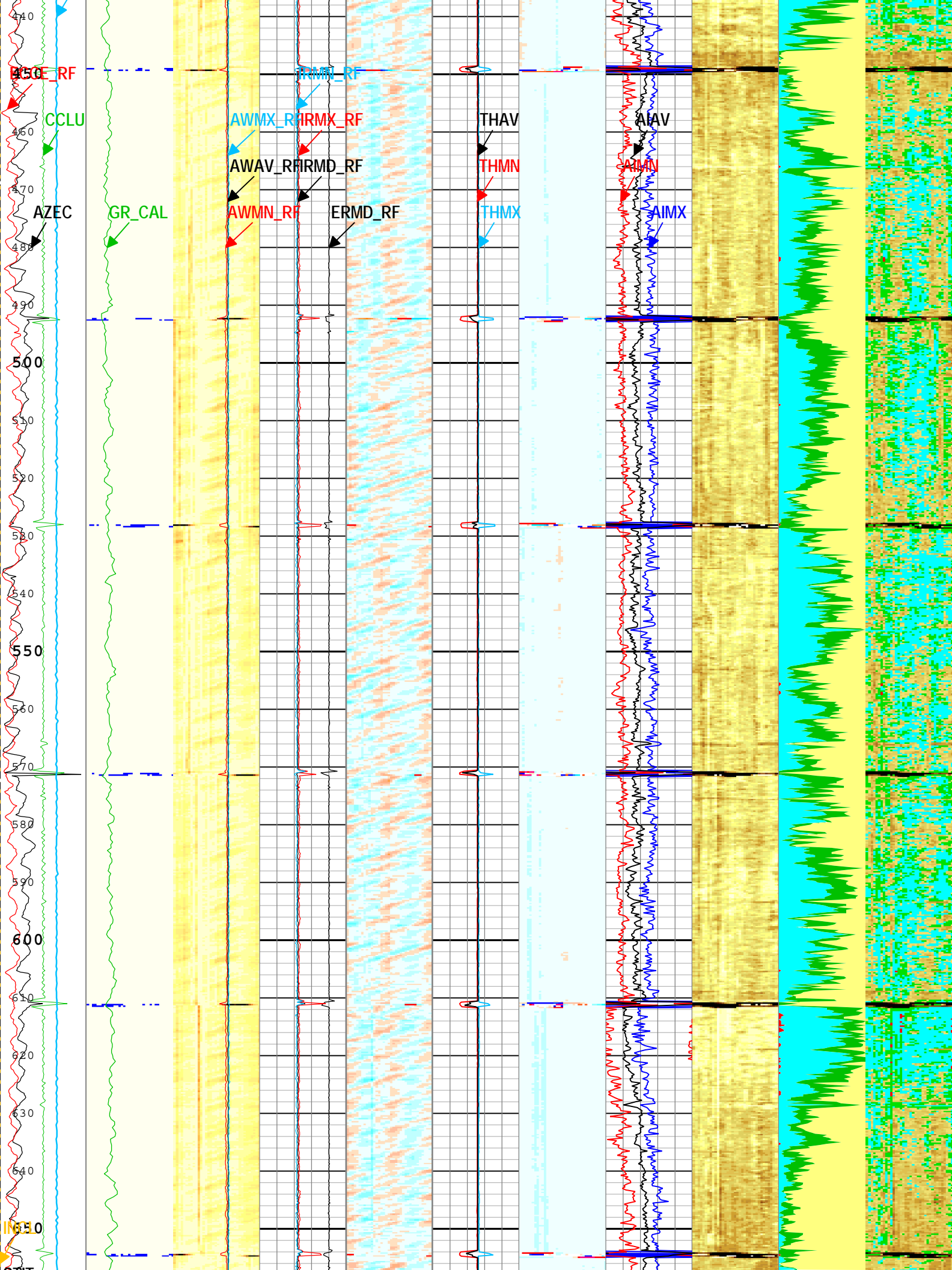
Line: Sensor Location, value: Gating Onset All measurements are relative to TOOL_ZERO			
Depth Summary			
	Run 1		
Depth Measuring Device			
Type	IDW-B		
Serial Number	6428		
Calibration Date	21-Apr-2014		
Calibrator Serial Number			
Calibration Cable Type	7-39P LXS		
Wheel Correction 1	-5		
Wheel Correction 2	-4		
Tension 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	Crane		
Run 1:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.	
Rig Up Length At Surface		IDW used as primary depth control device.	
Rig Up Length At Bottom		Z-chart used as secondary depth control device.	
Rig Up Length Correction			
Stretch Correction	2.84 ft		
Tool Zero Check At Surface			
Copy of USI Composite			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Main[4]:Up	5273.82	9.87
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	400	1.78	1.78
400	800	1.8	1.8
800	990	1.82	1.82
990	1050	1.83	1.83
1050	1250	1.86	1.86
1250	2500	1.88	1.88
2500	2900	1.9	1.9
2900	3200	1.92	1.92
3200		1.95	1.95
Composite 1			
2800 PSI Pass			

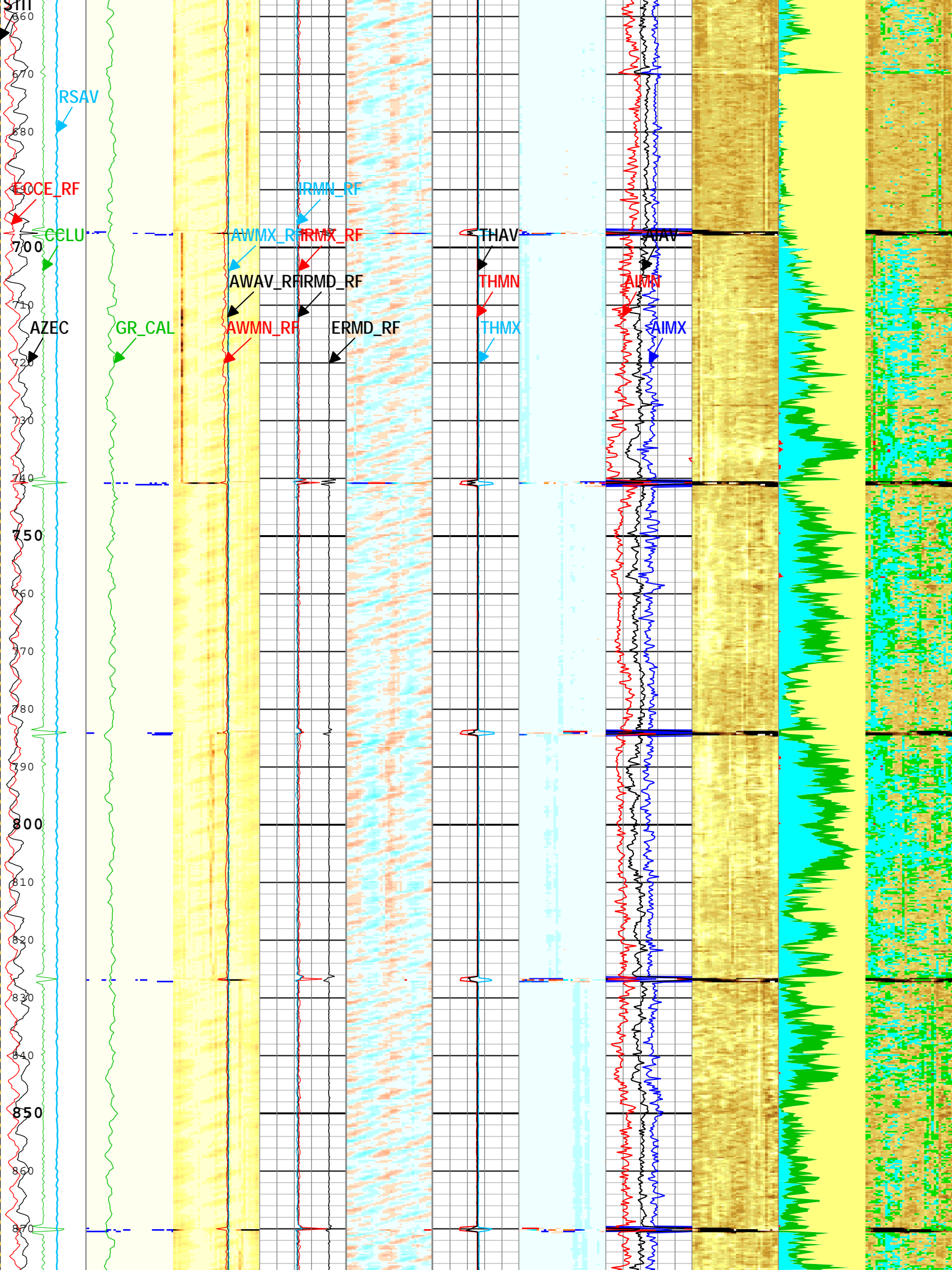
■ Loop Processing Error

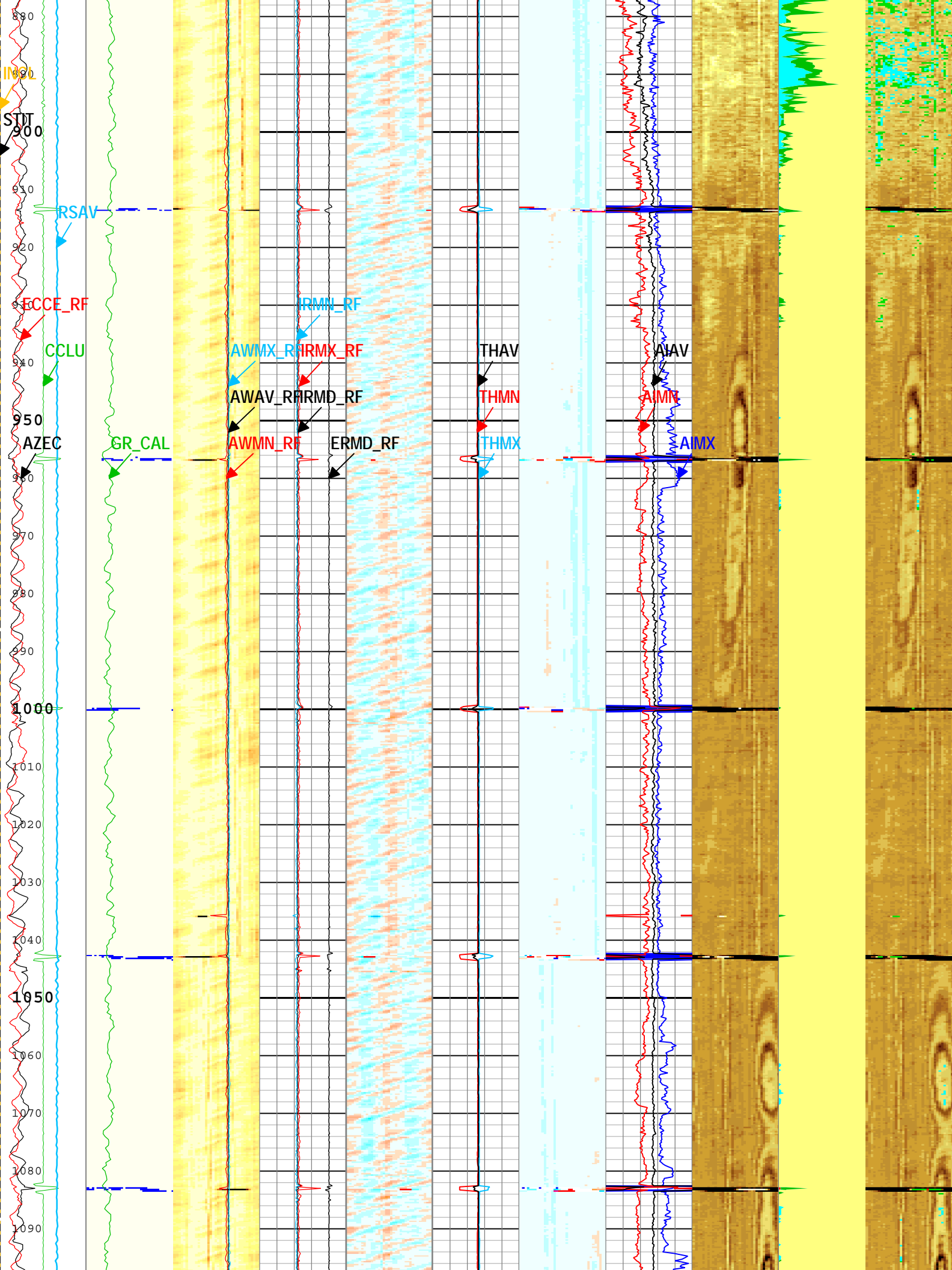
Method	USIT - Acoustic Impedance (AIBK)	USIT-E[1] (Mrayl)
Custom Normalization	3.090	3.090
USIT - Acoustic Impedance (AIBK)	5.054	5.054
USIT-E[1] (Mrayl)	7.018	7.018

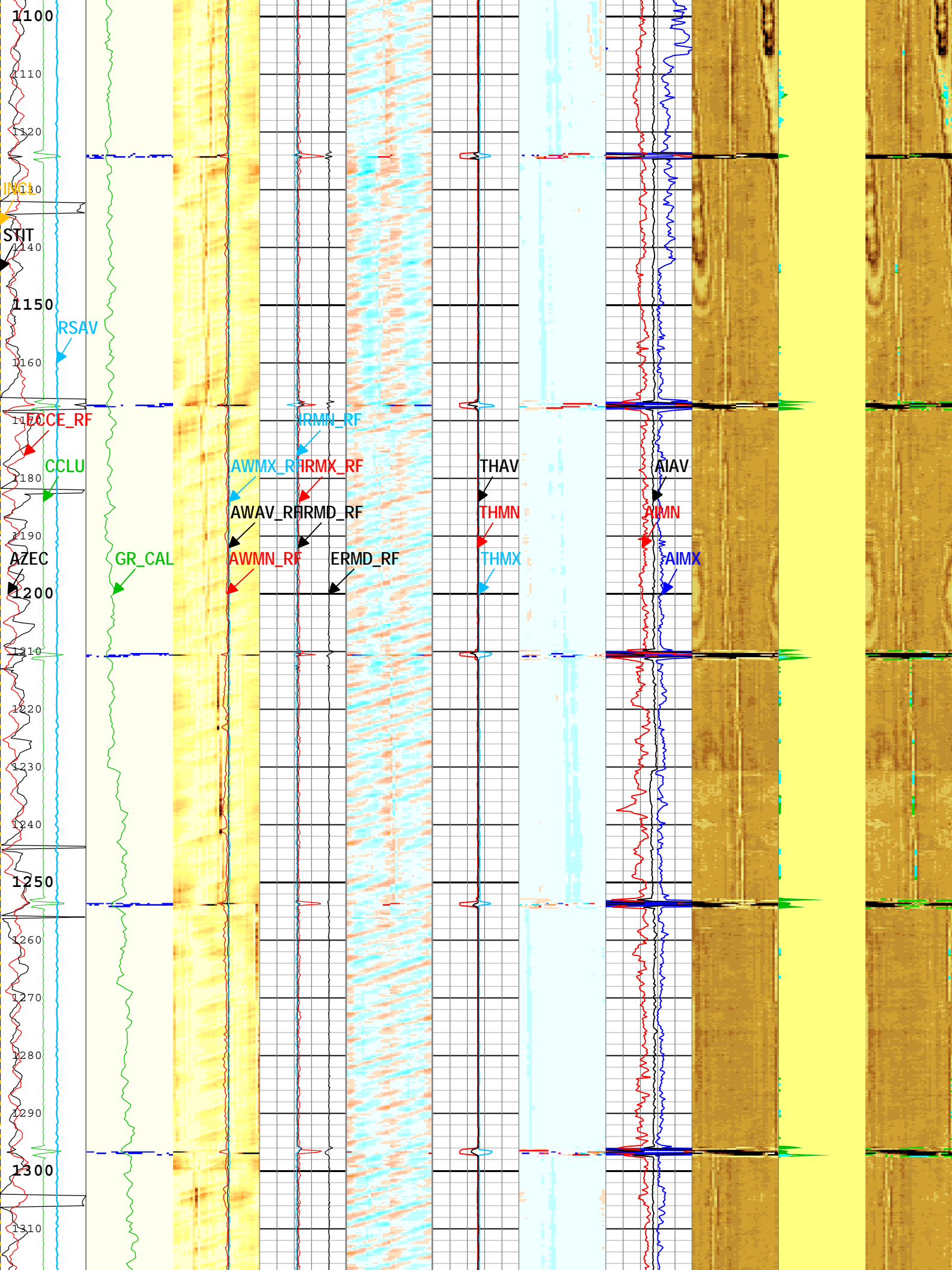


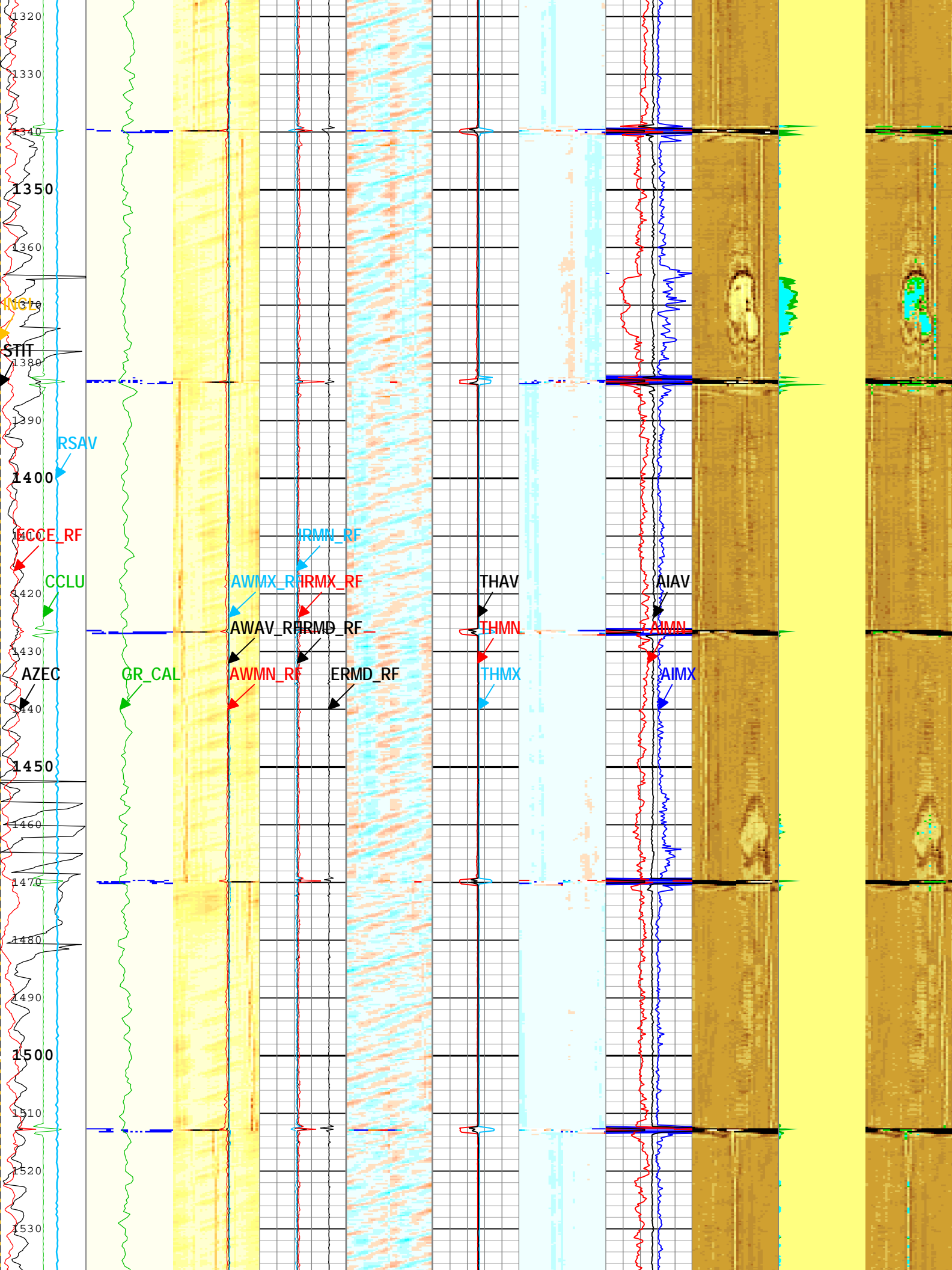


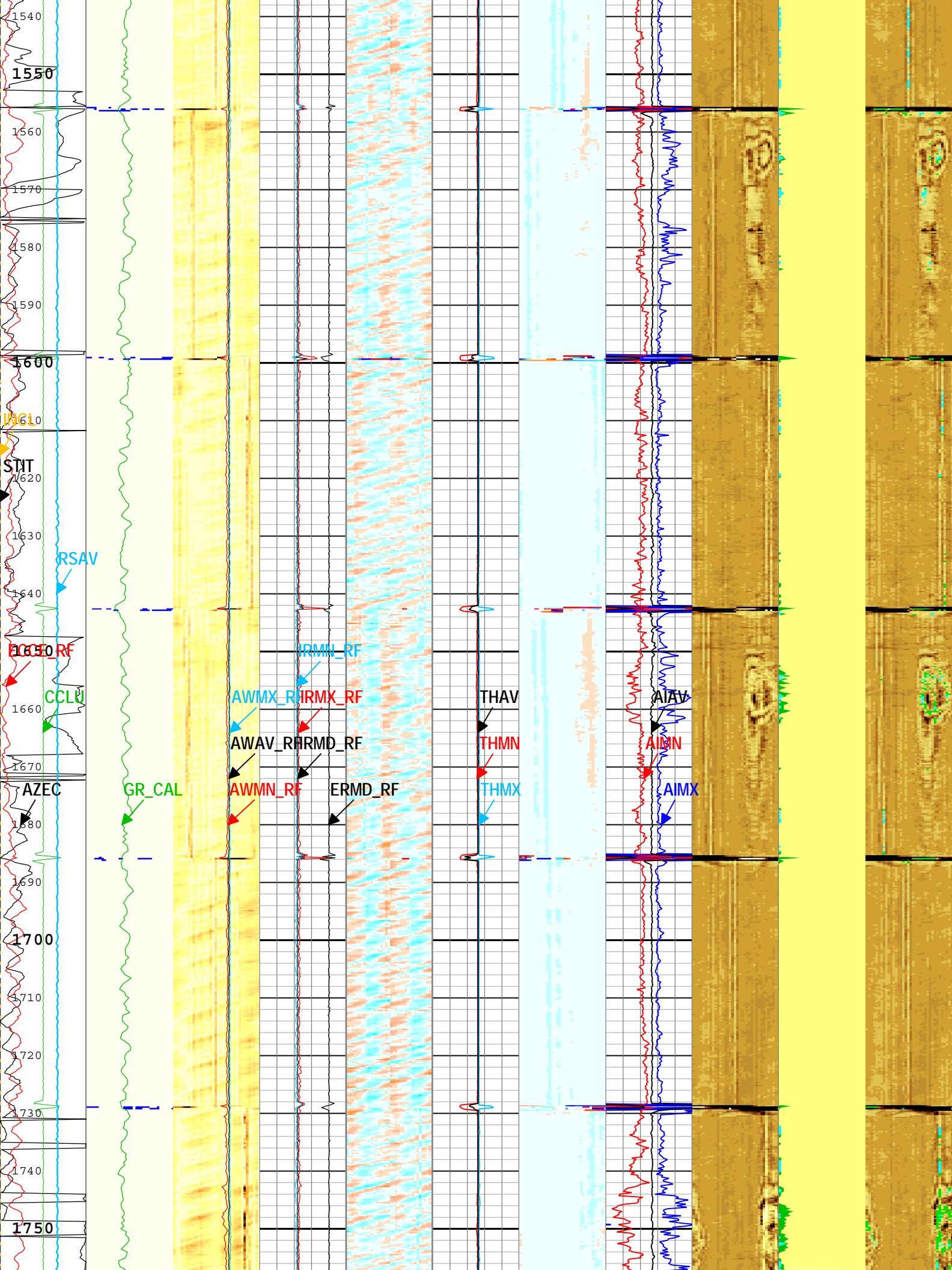


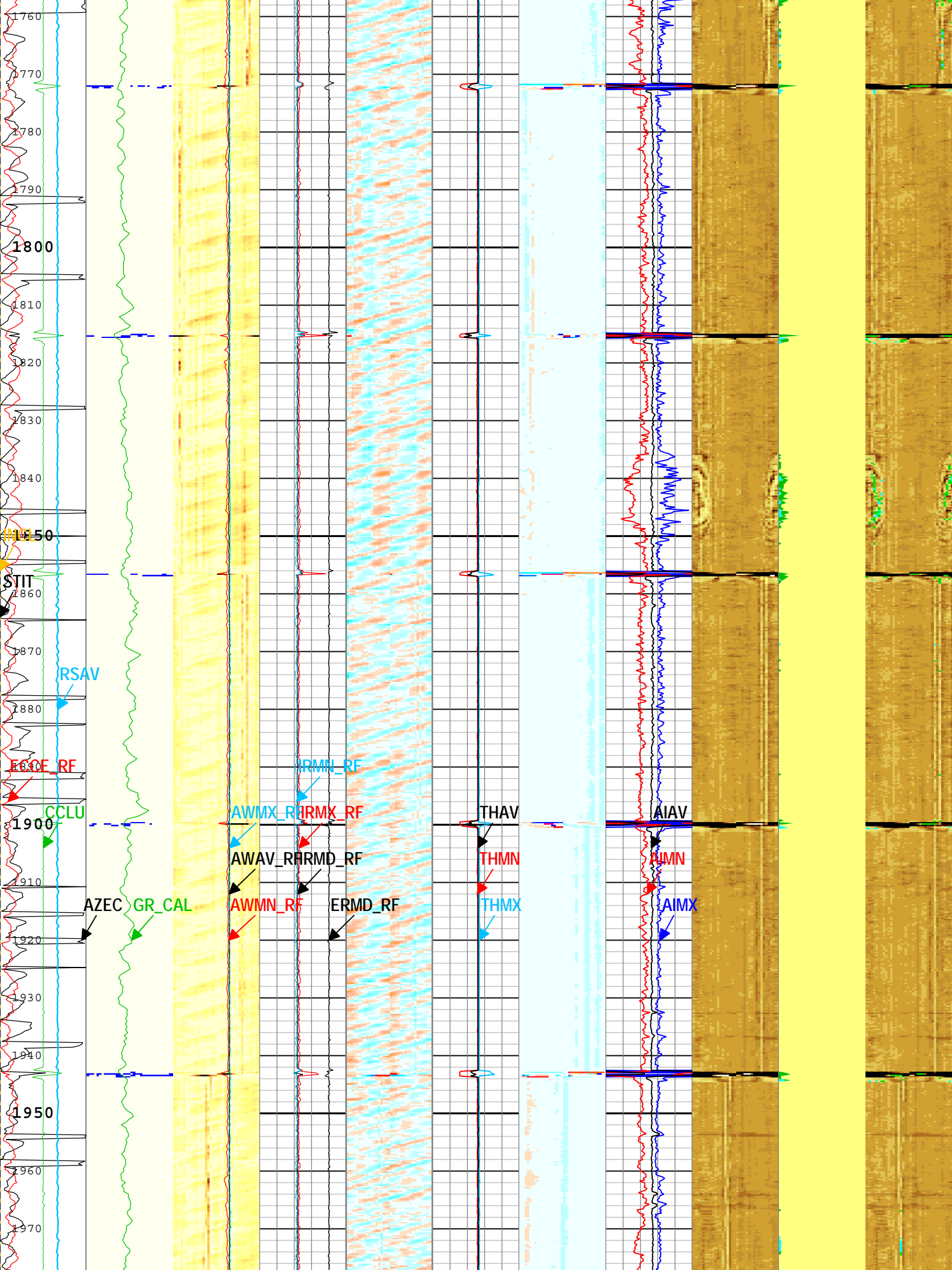


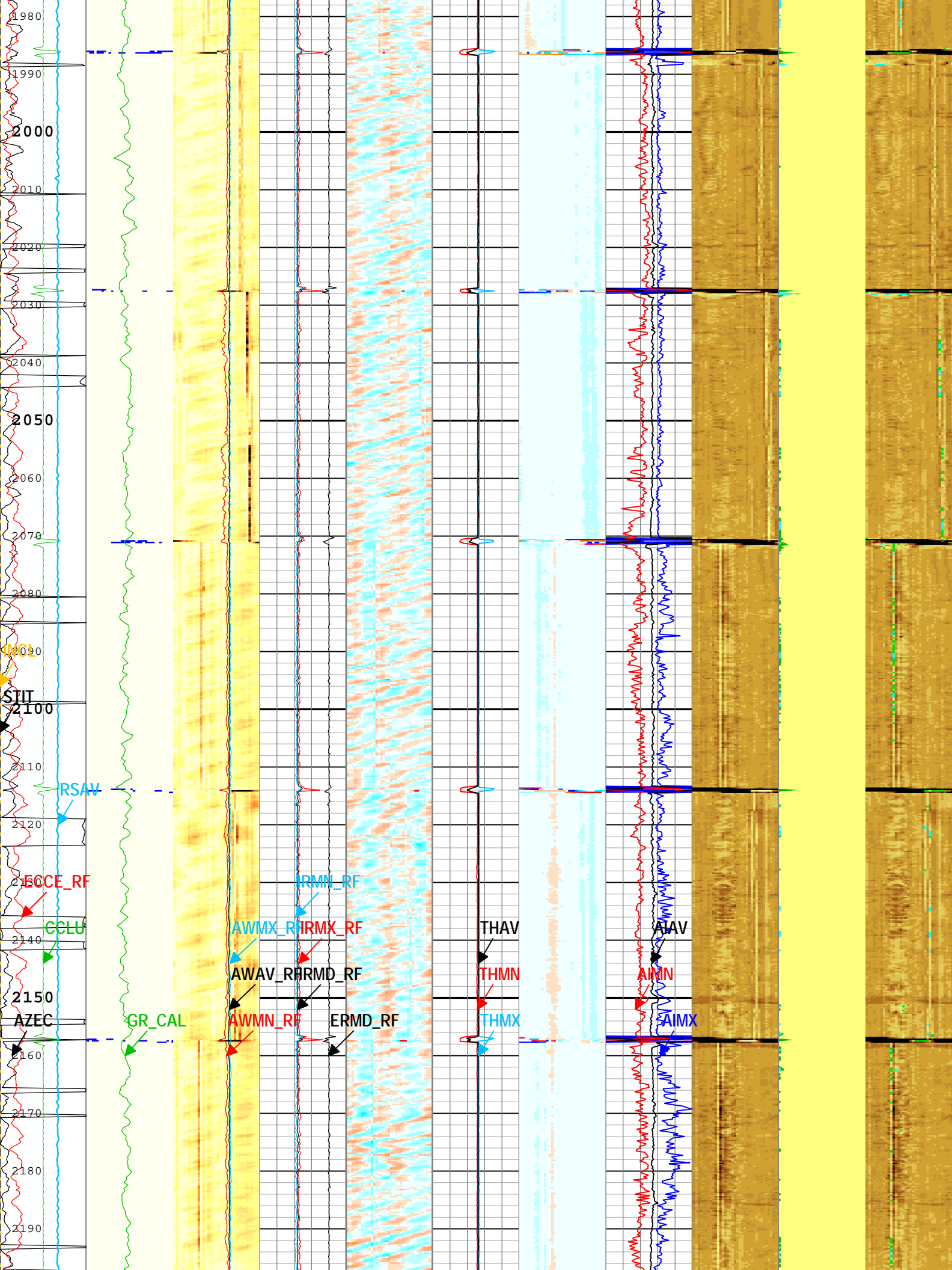


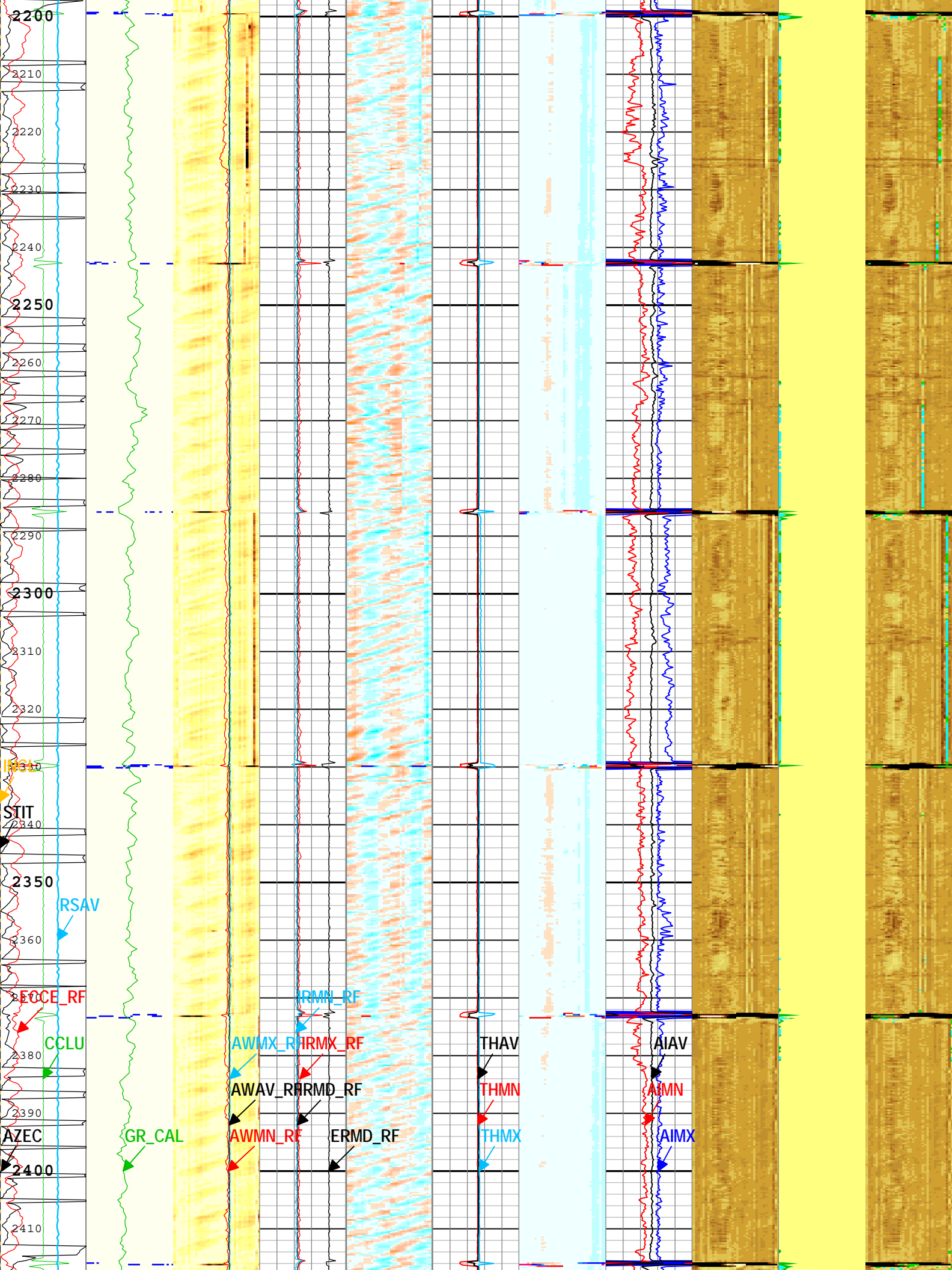


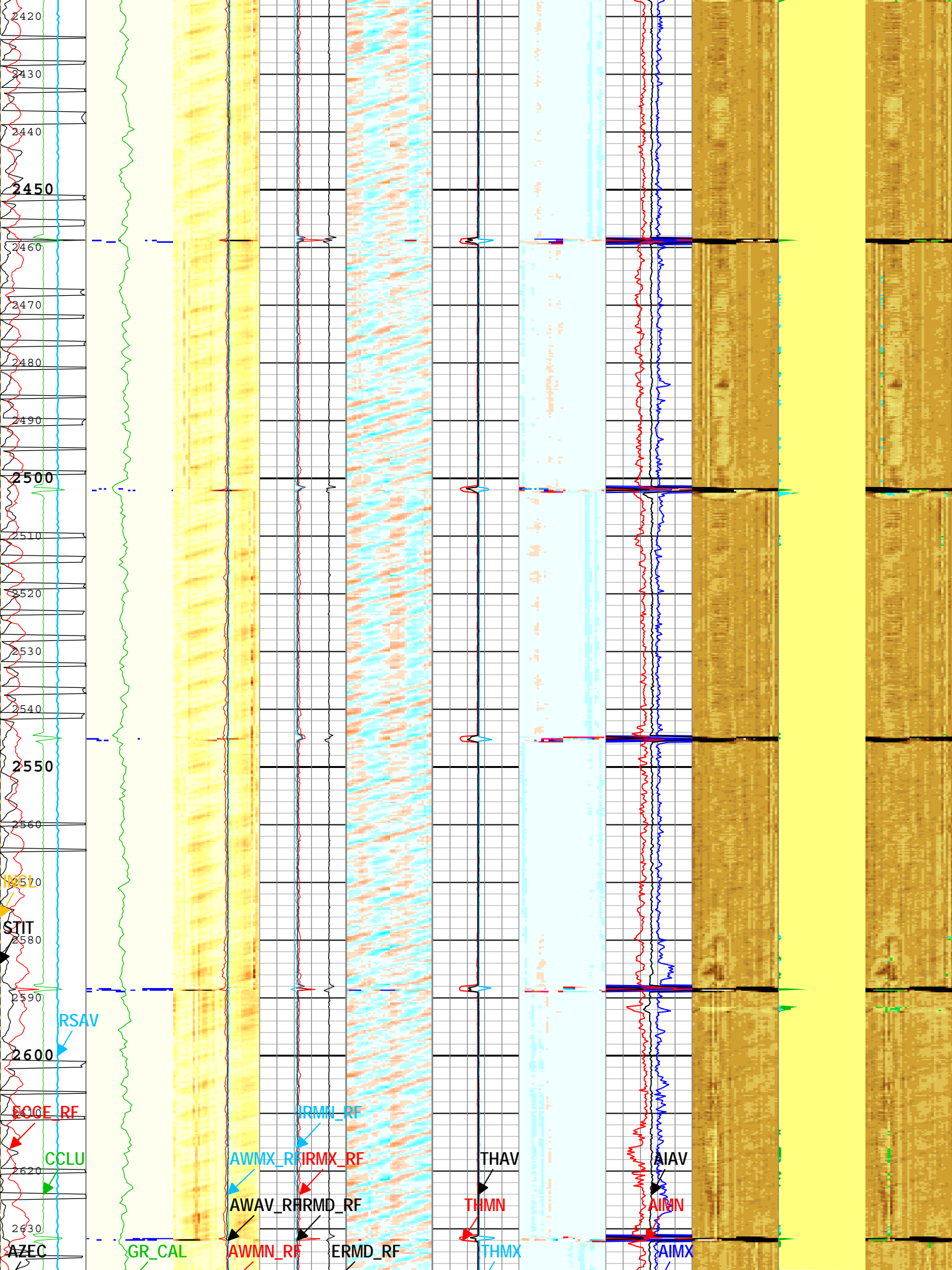


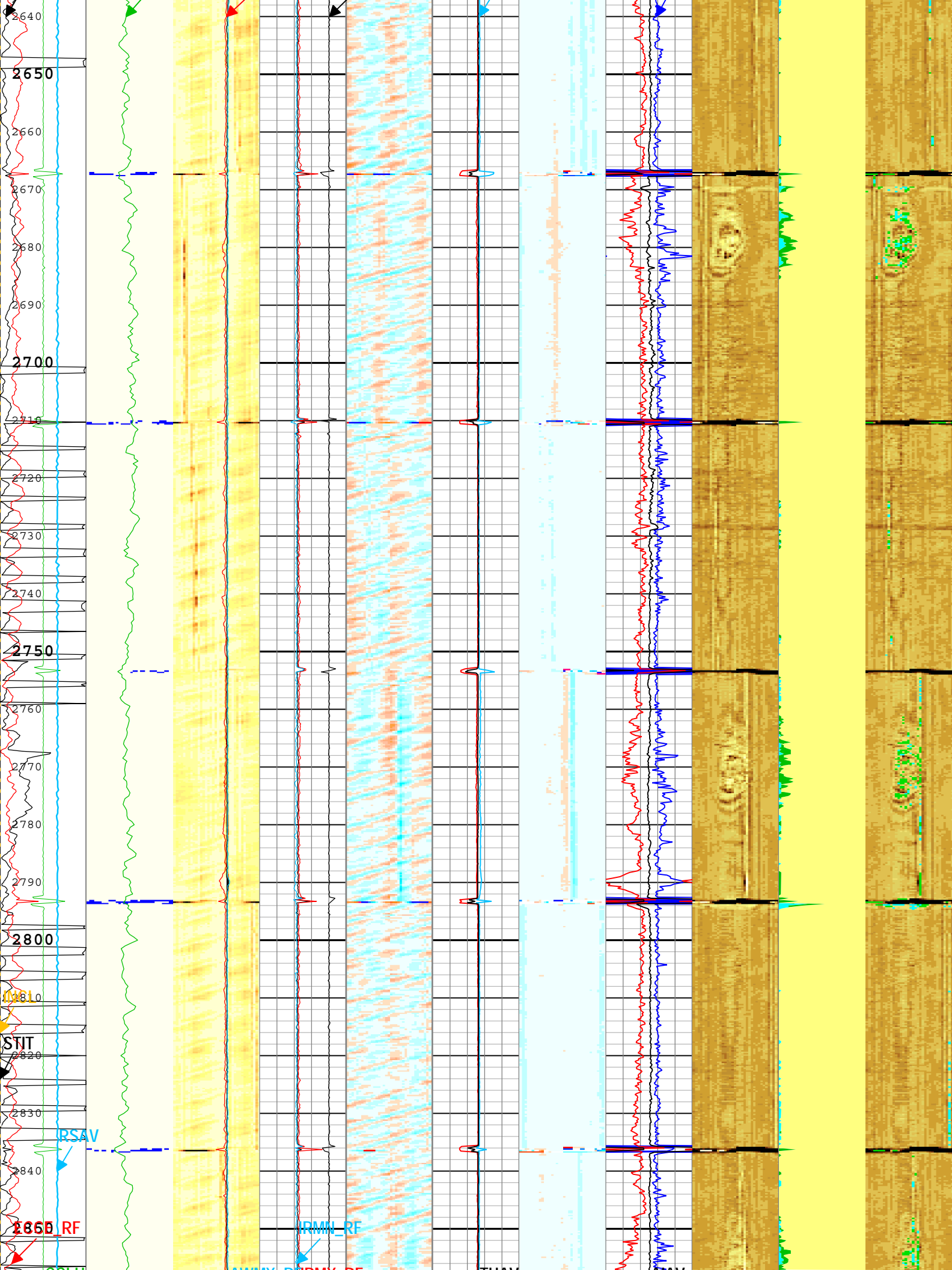


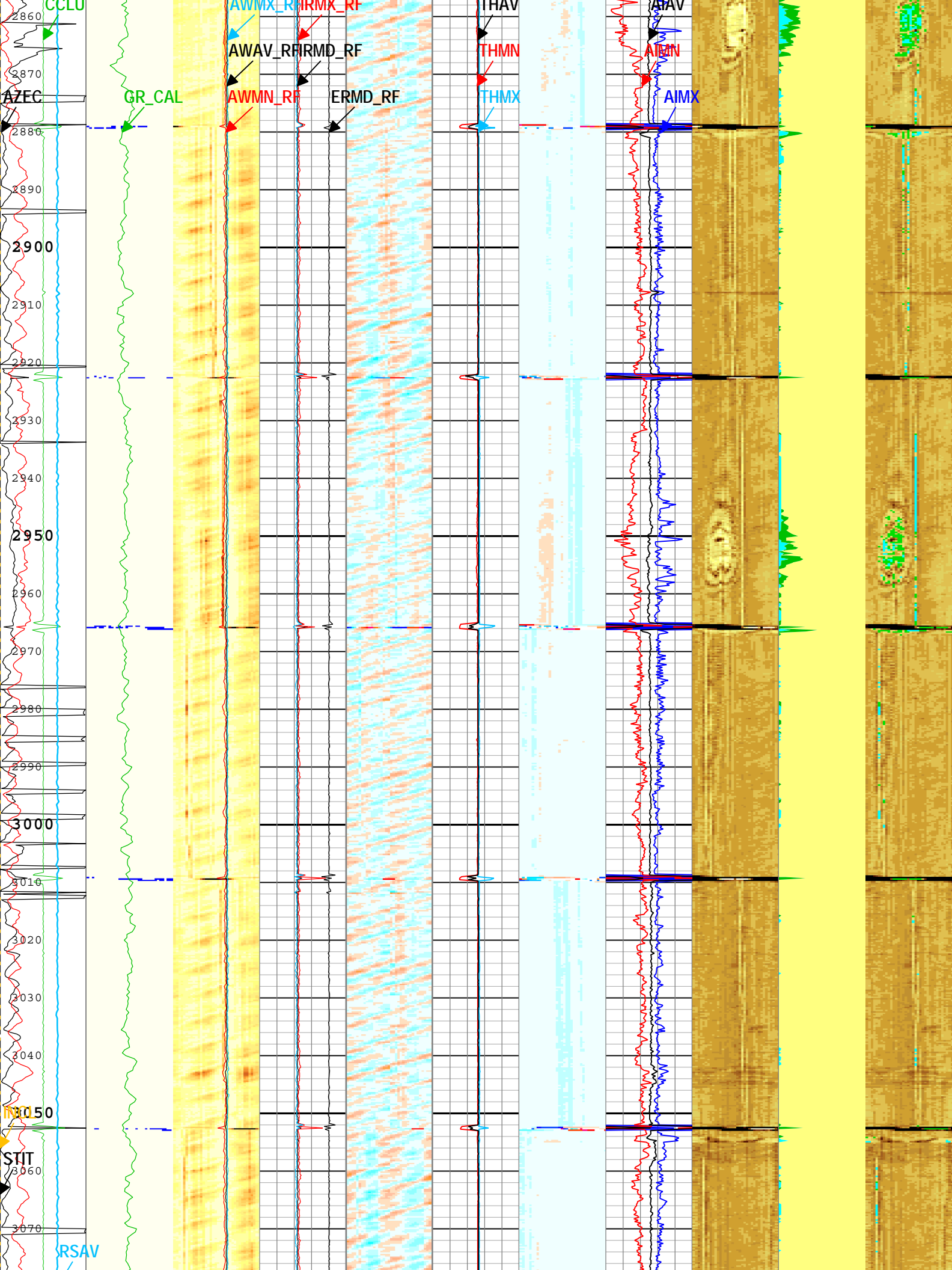


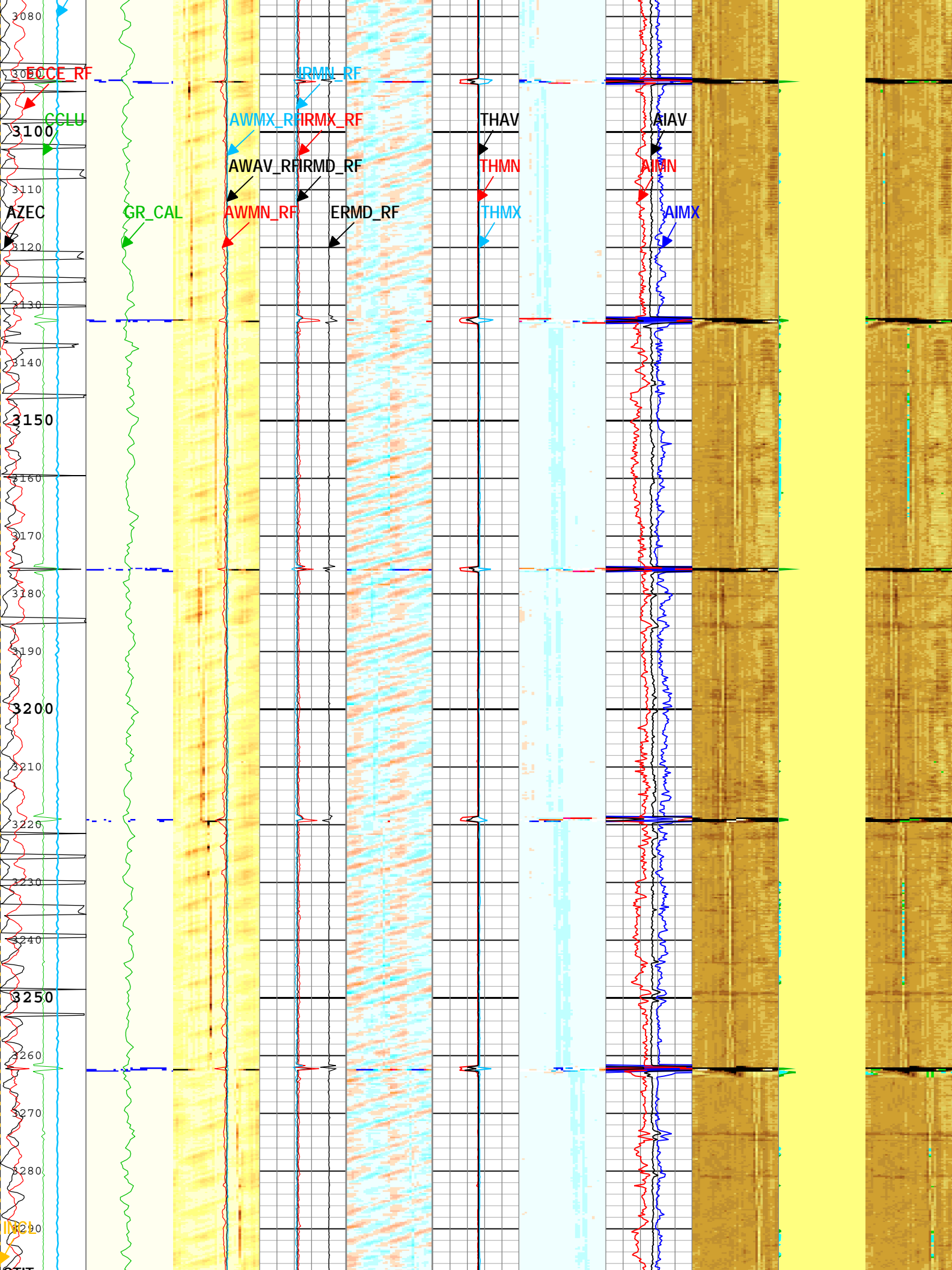


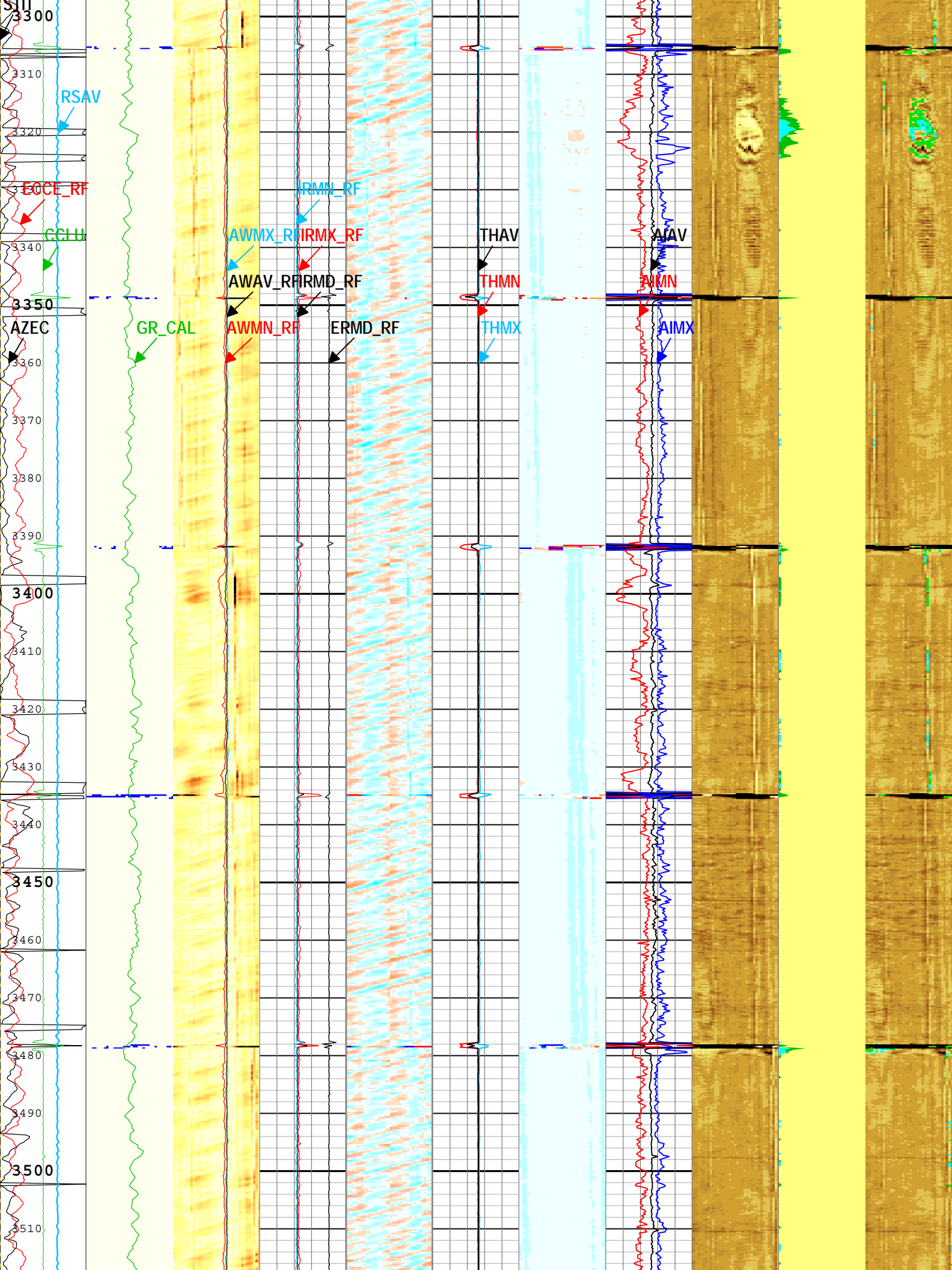


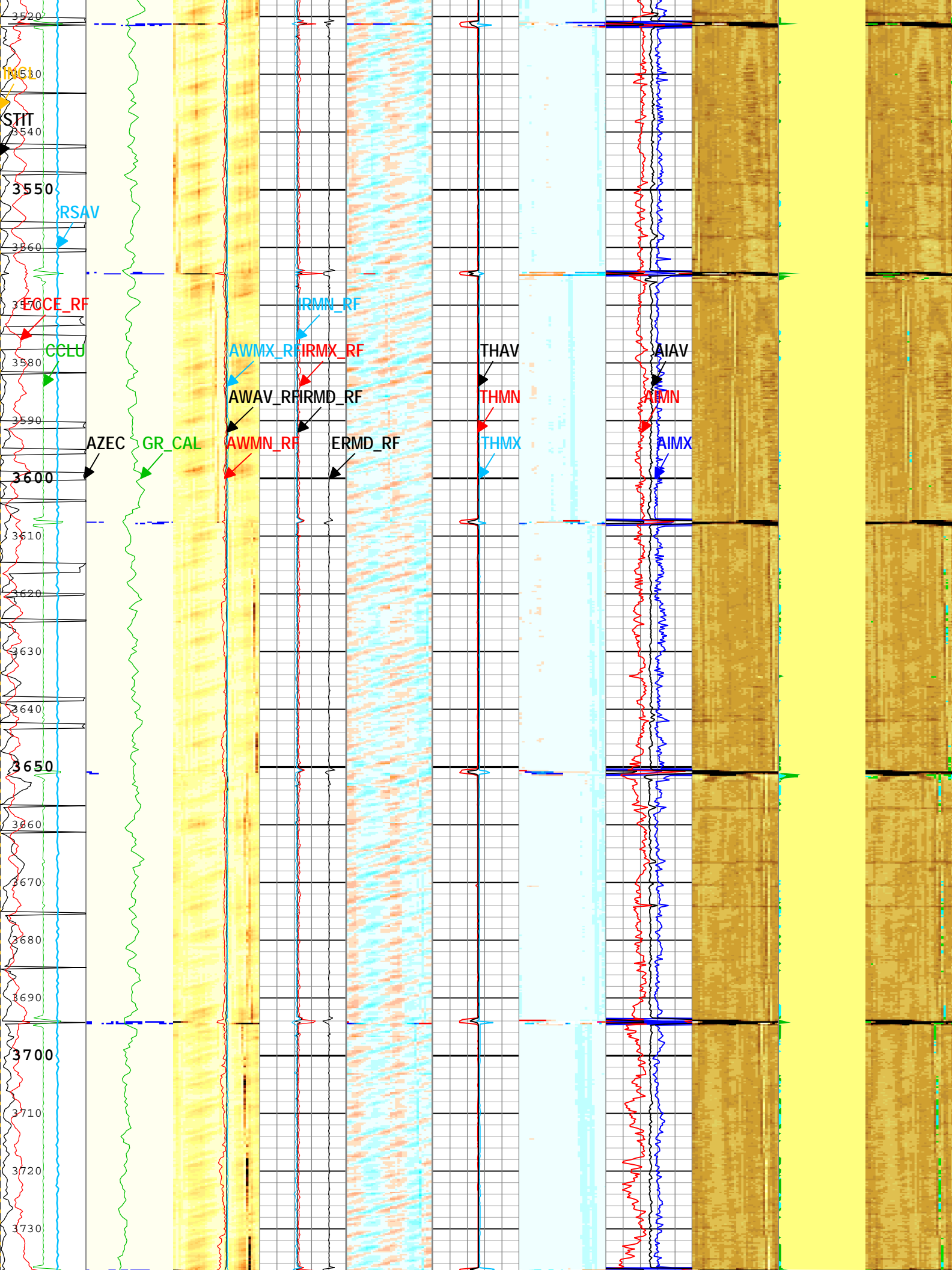


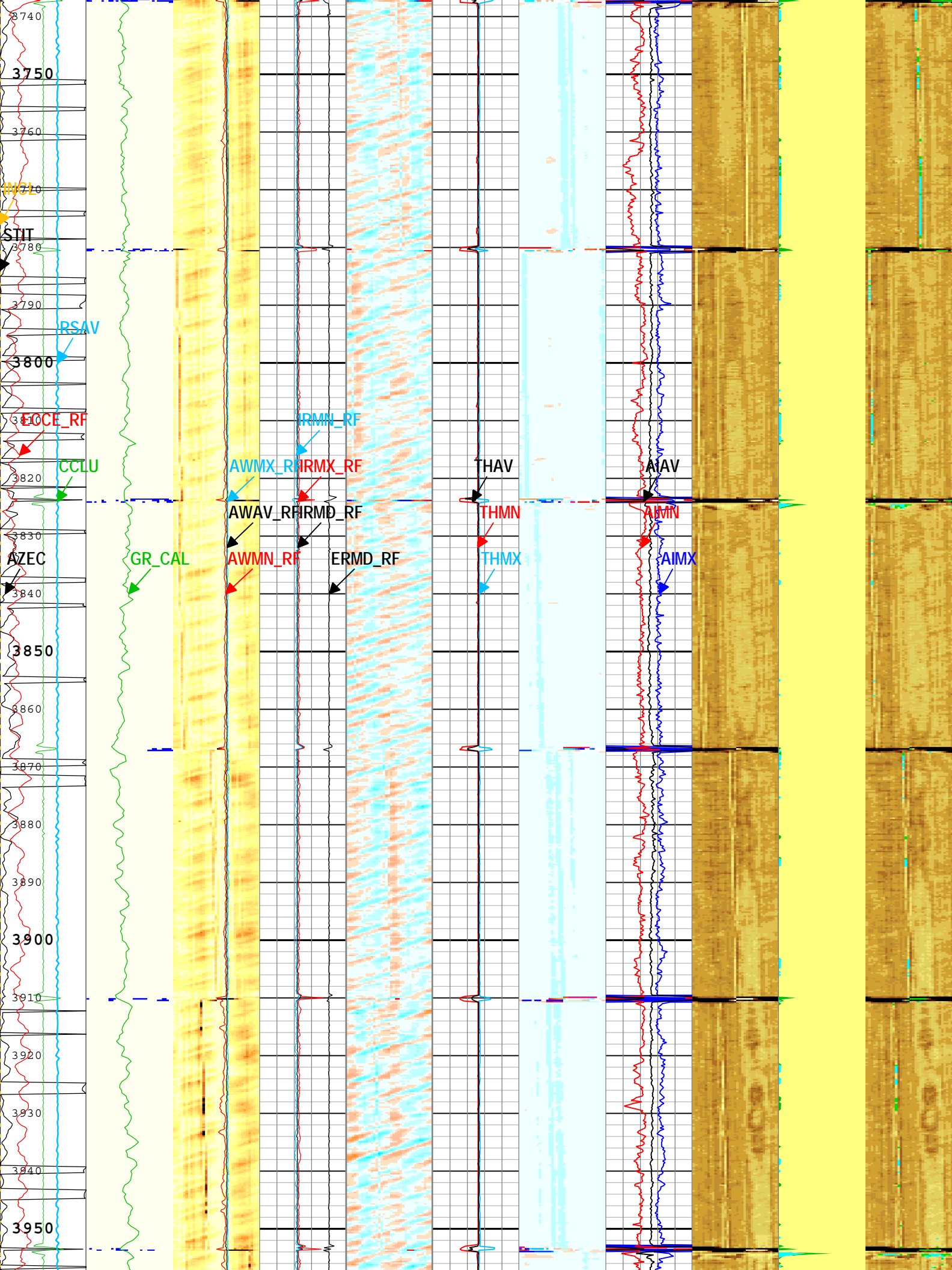


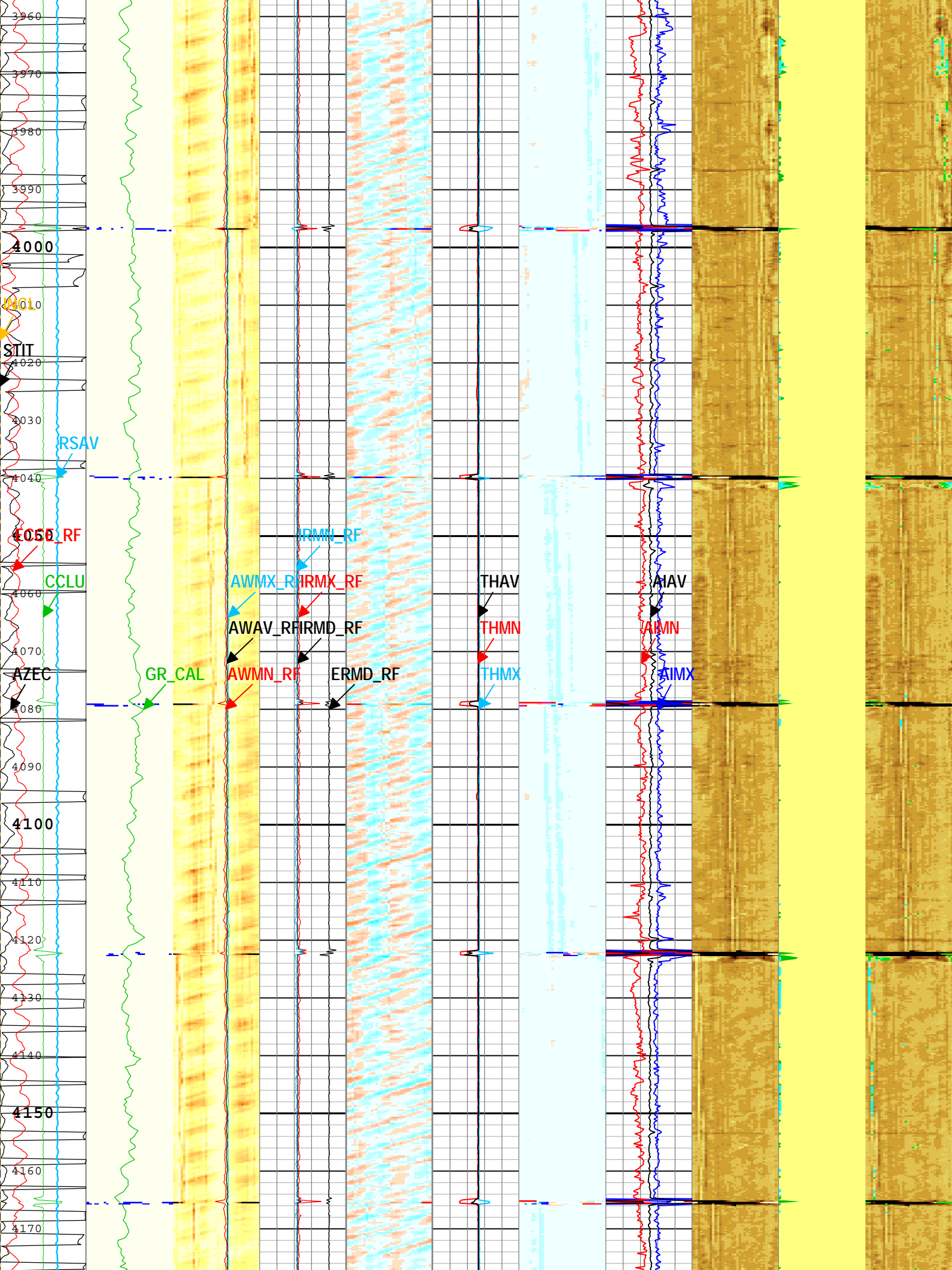


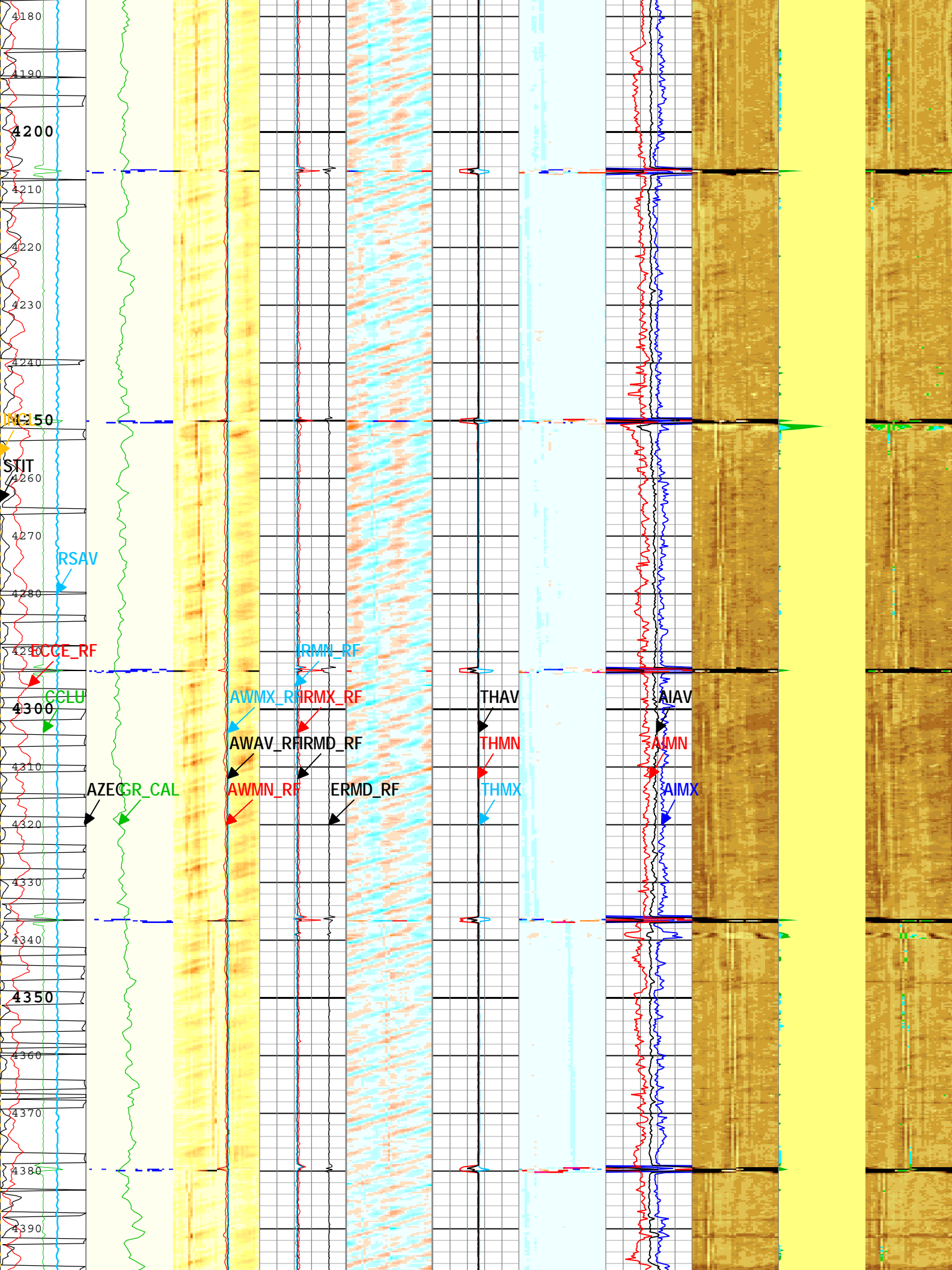


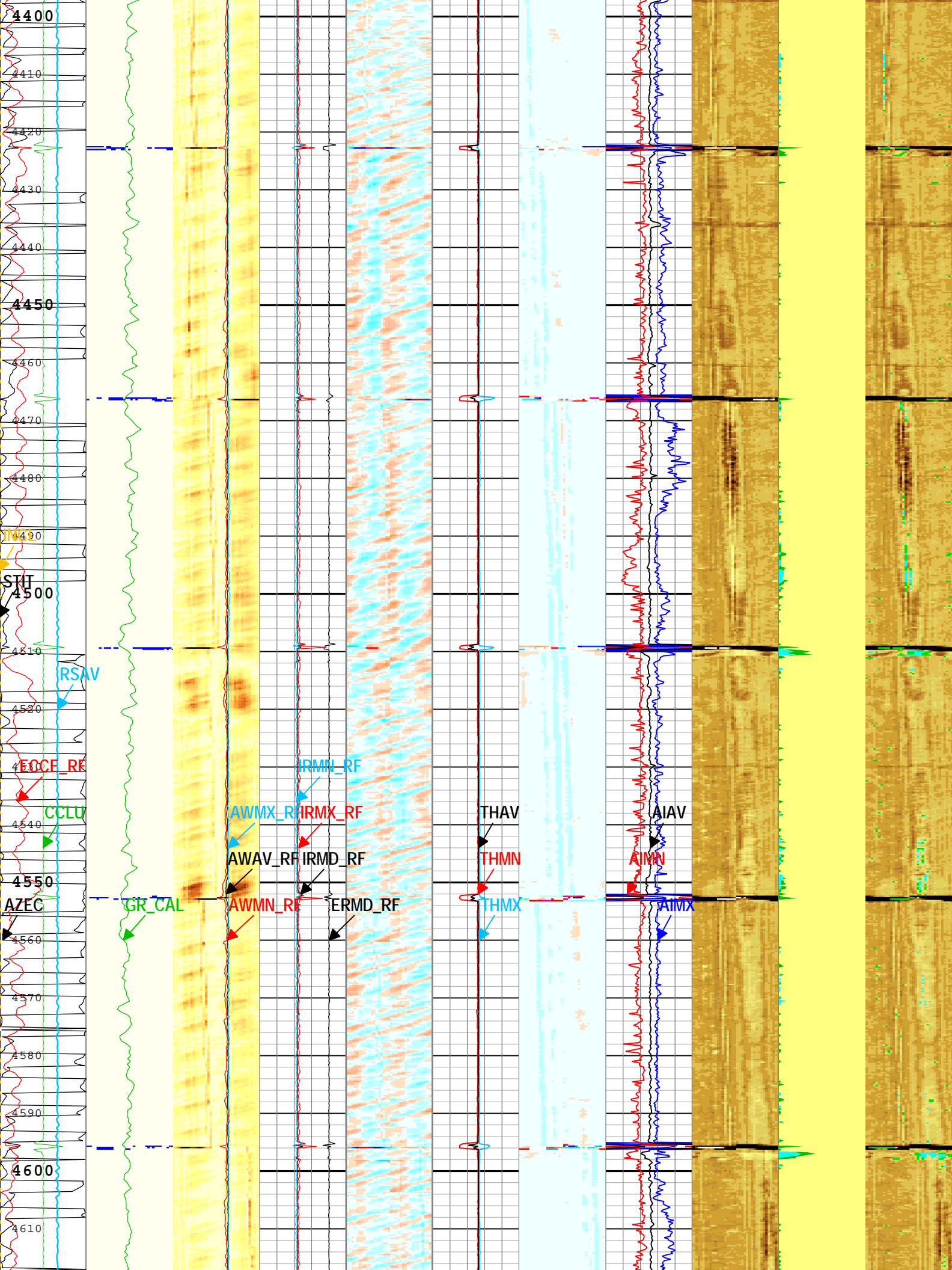


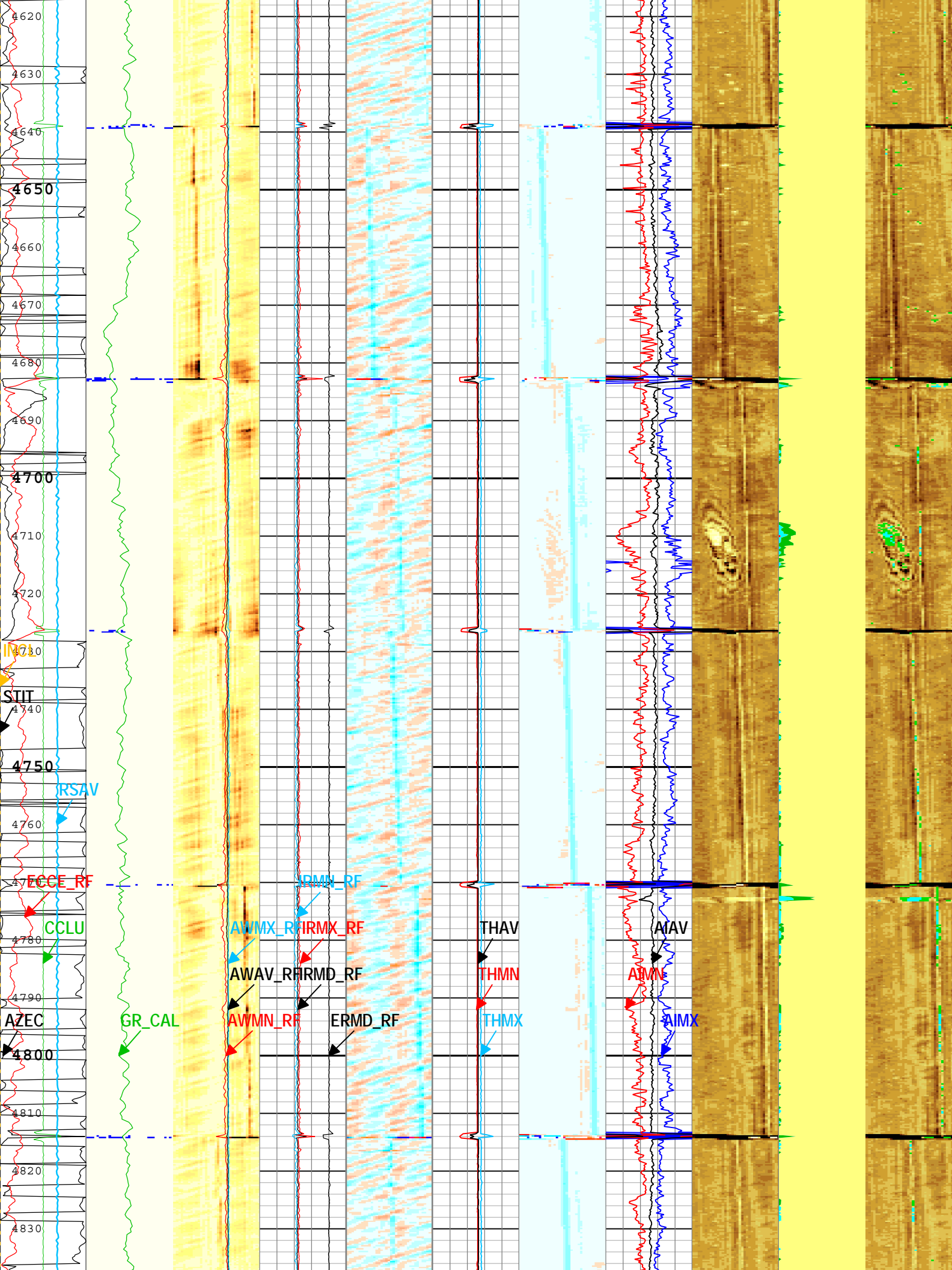


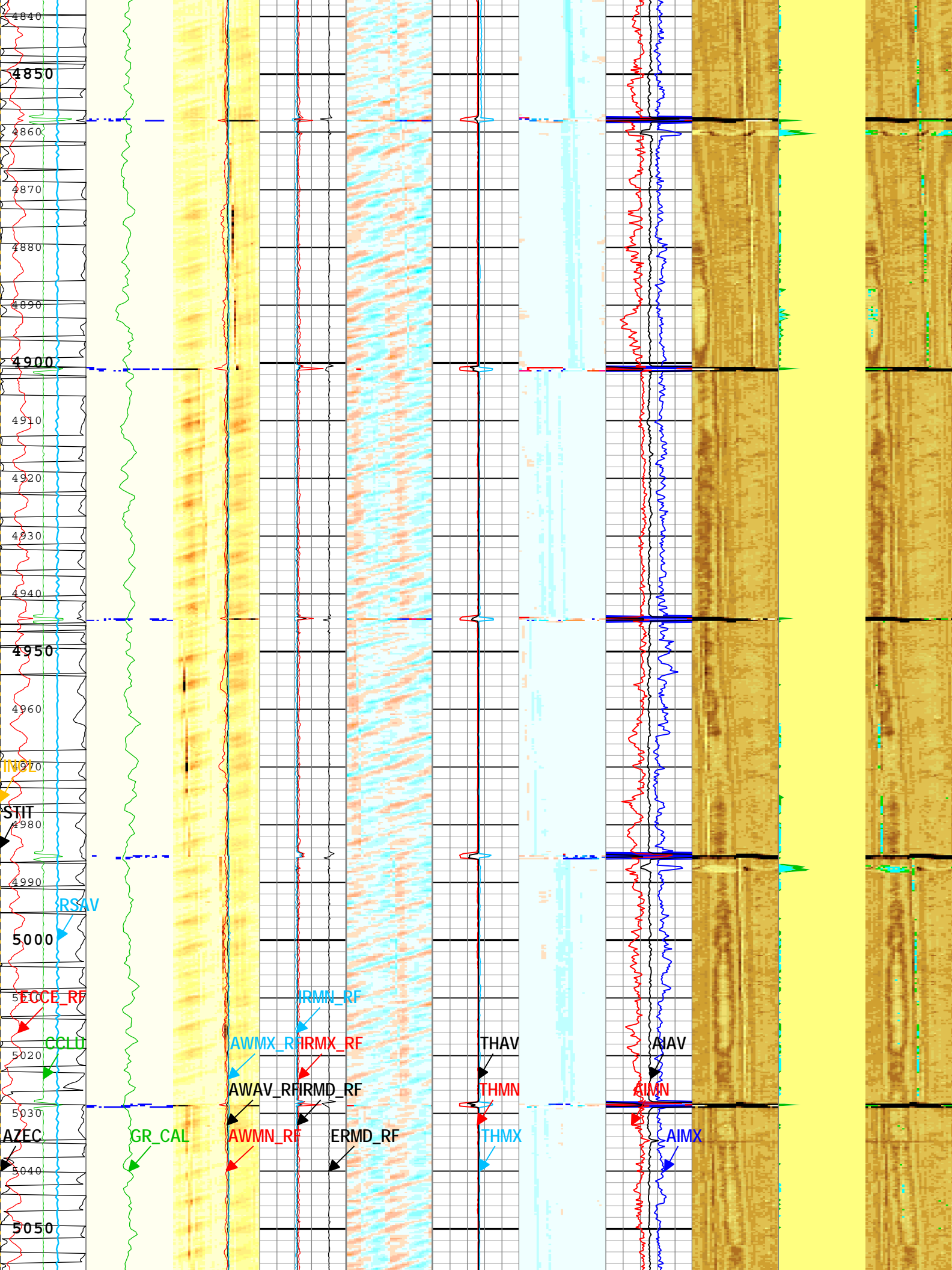


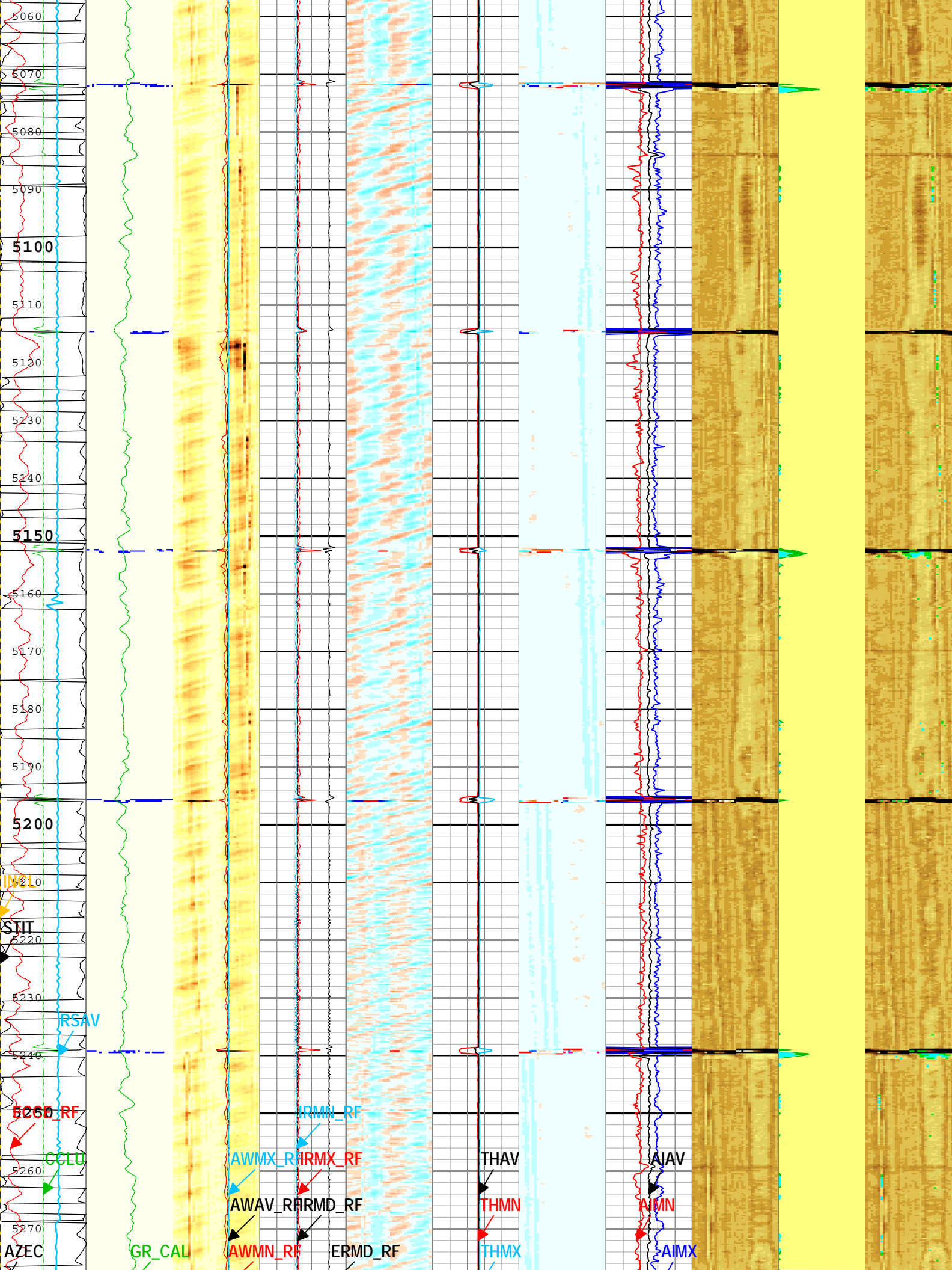


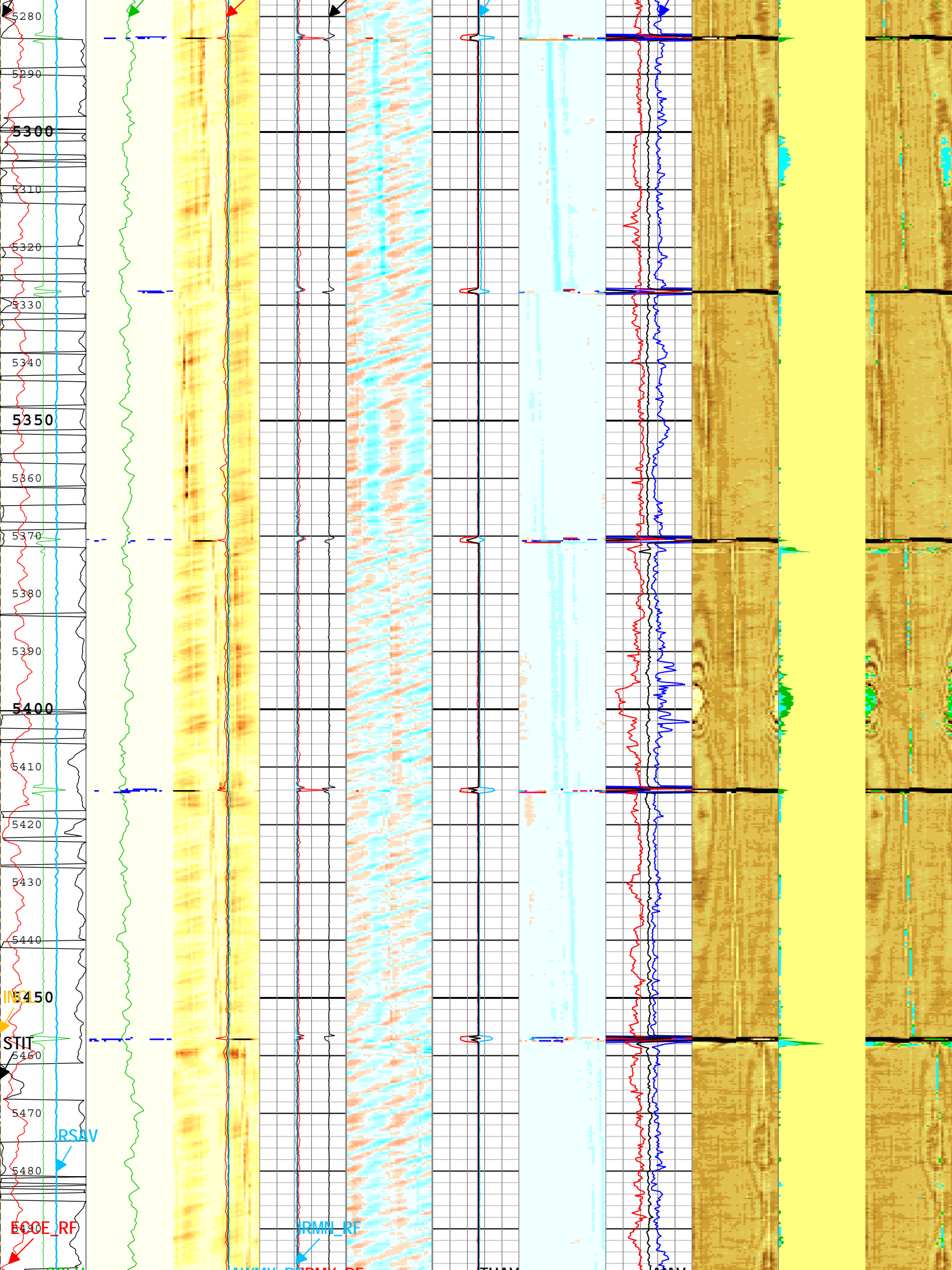


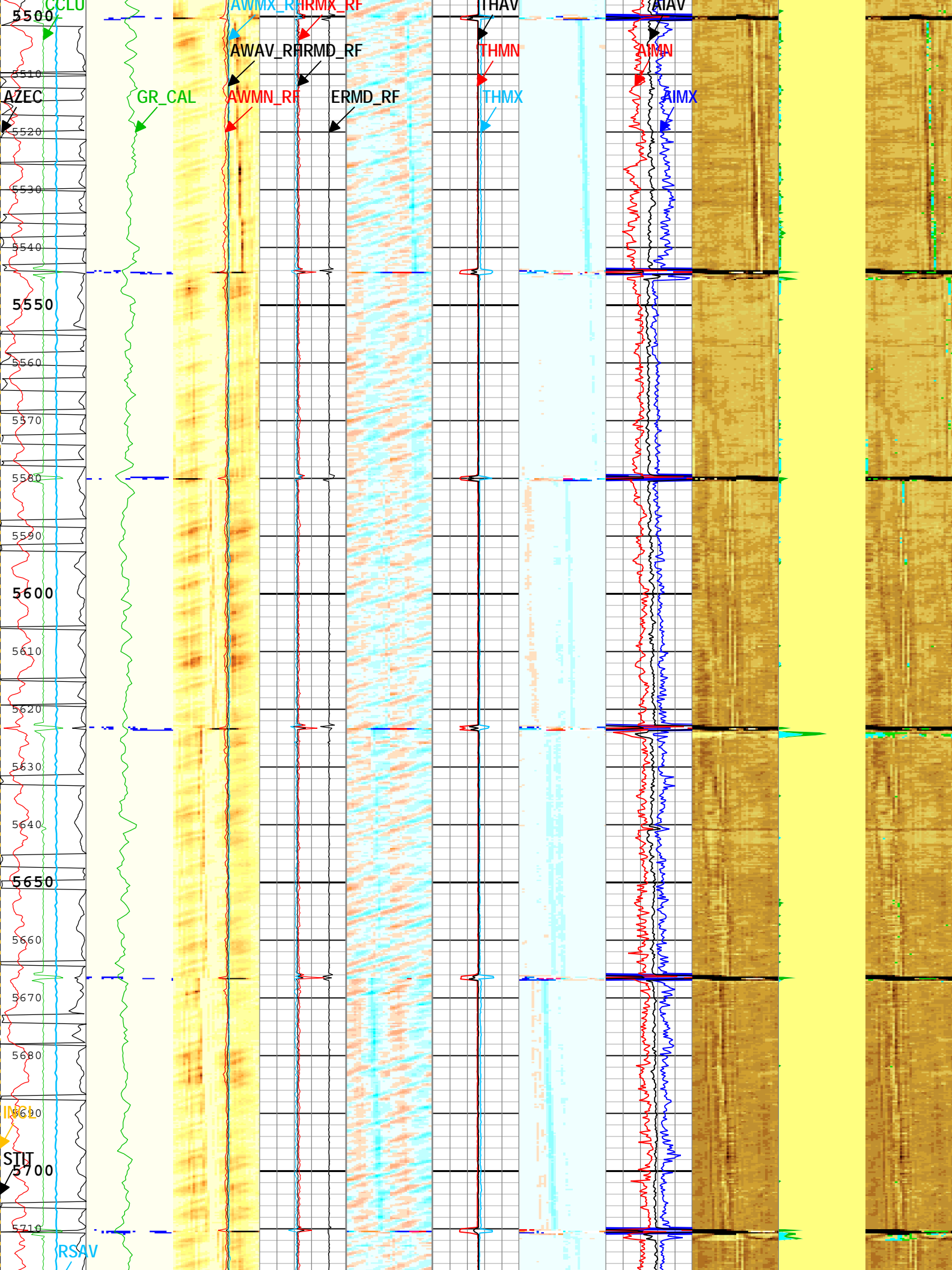


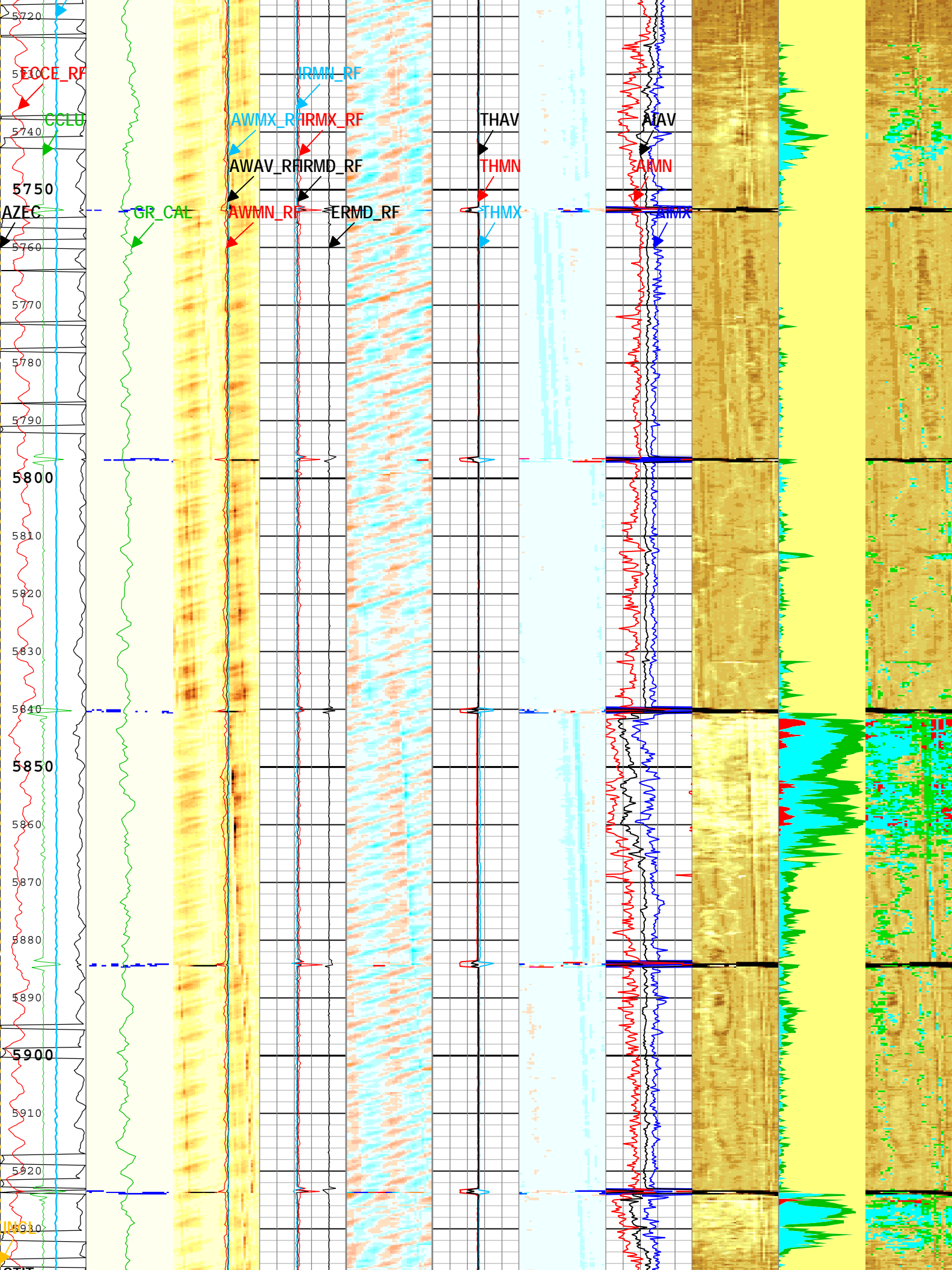


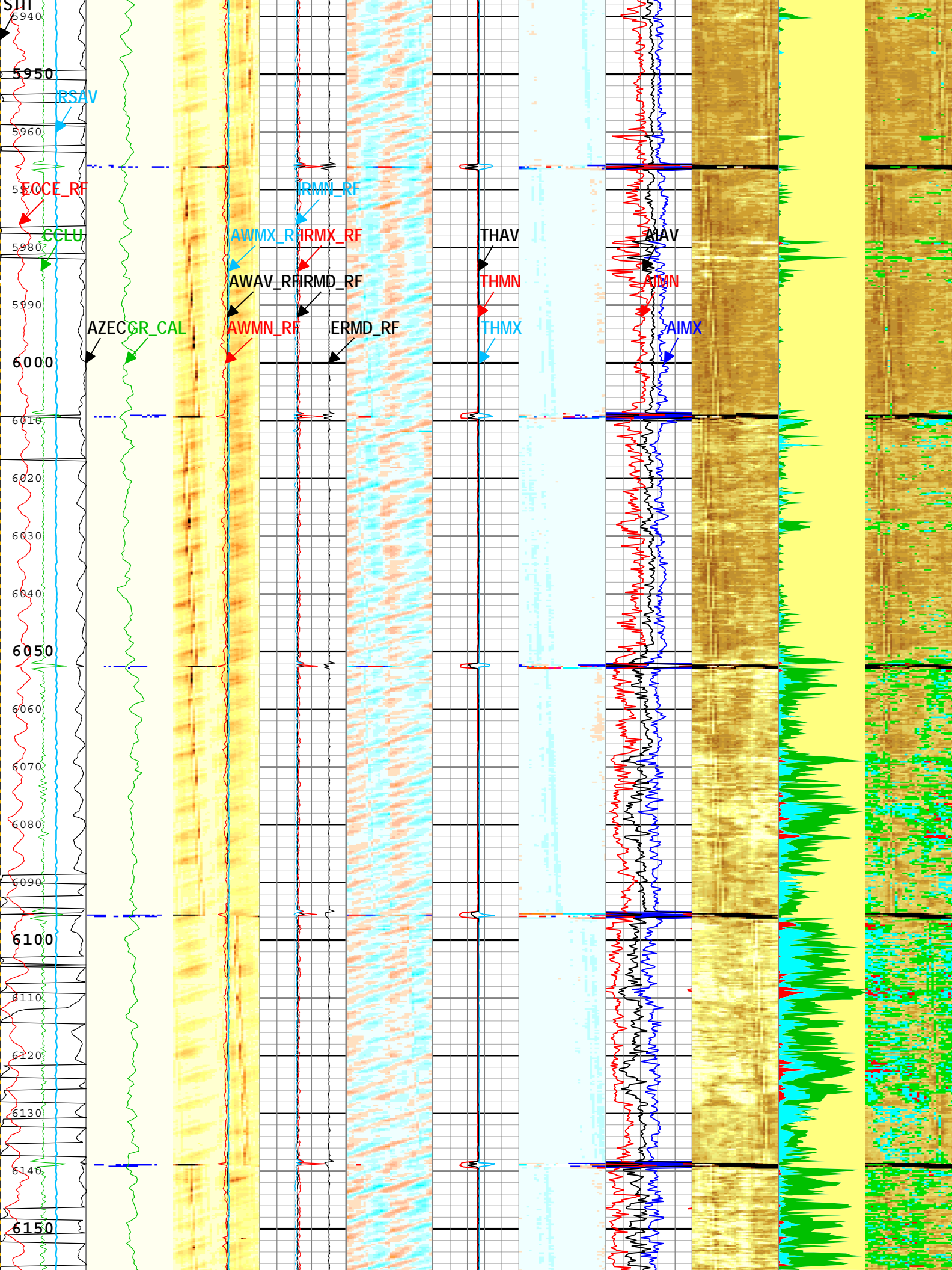


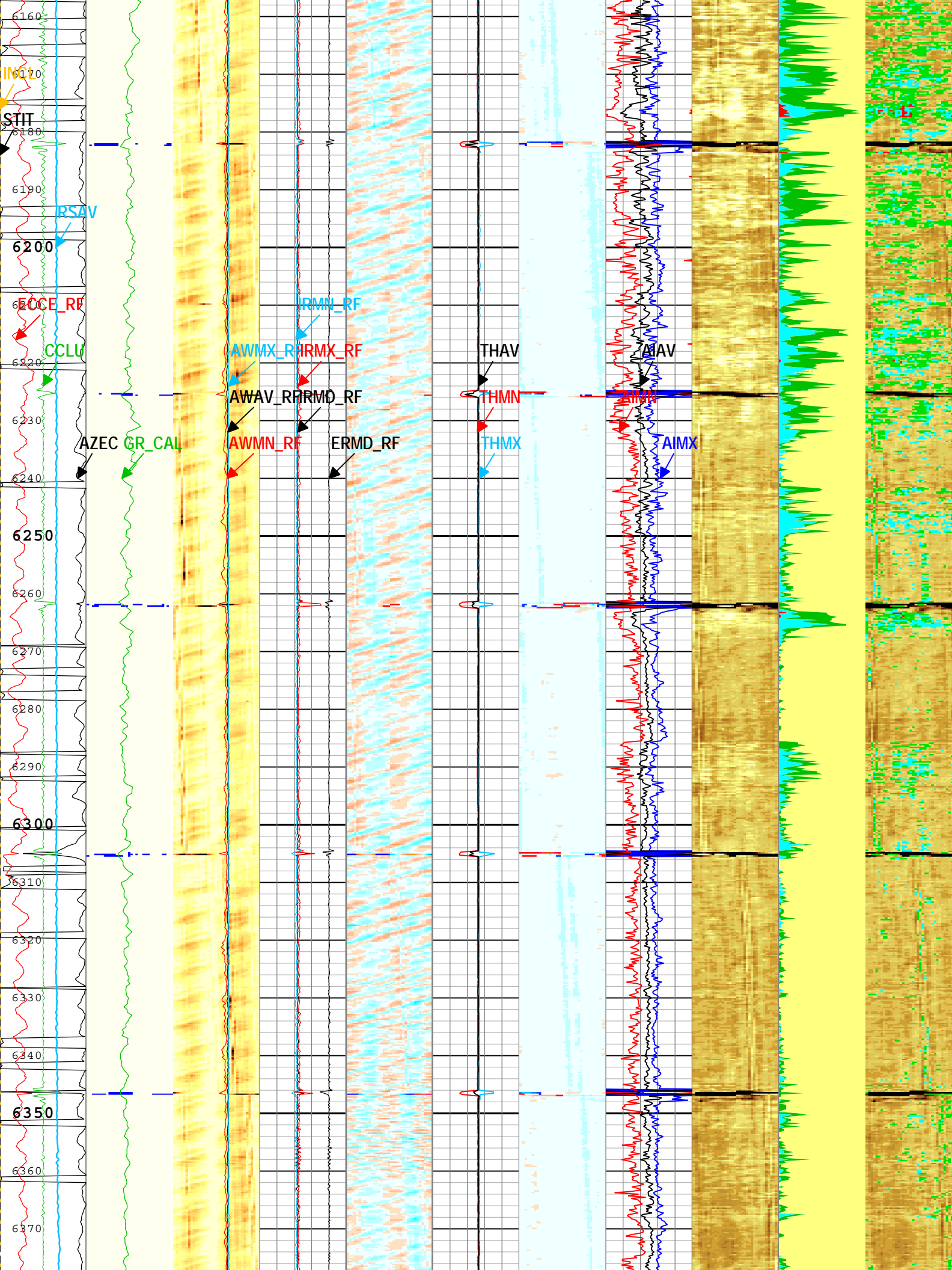


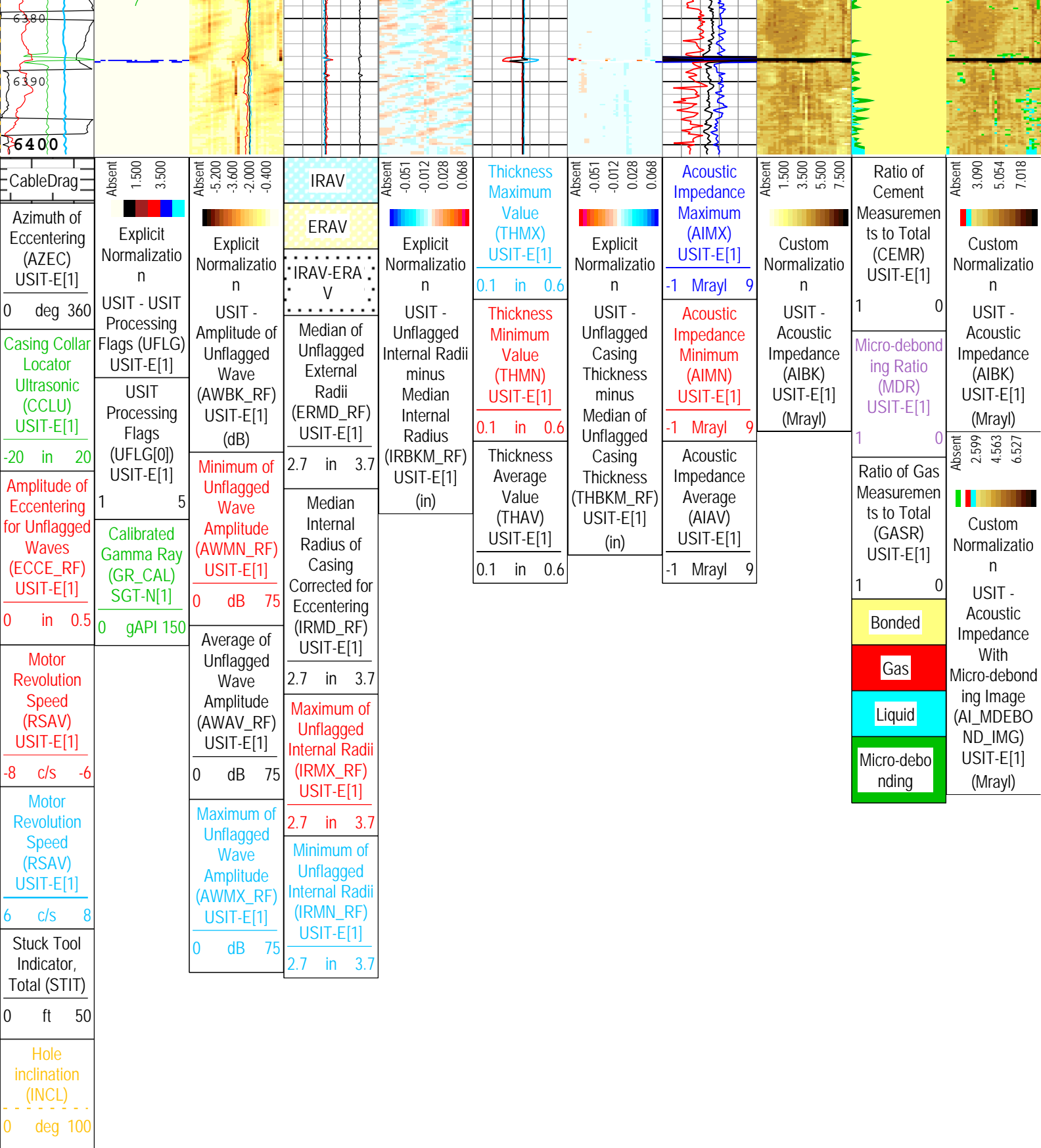












TIME_1900 - Time Marked every 60.00 (s)

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

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

Description: USI Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14 Aug 2014 09:56:53

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	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	
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	4000	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	6402
ZMUD	1.78	0	400
ZMUD	1.8	400	800
ZMUD	1.82	800	990
ZMUD	1.83	990	1050
ZMUD	1.86	1050	1250
ZMUD	1.88	1250	2500
ZMUD	1.9	2500	2900
ZMUD	1.92	2900	3200
ZMUD	1.95	3200	6402

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	48	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	125	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	6400	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

USI Goodwin

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Main[4]:Up	5273.82	9.87

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	400	1.78	1.78
400	800	1.8	1.8
800	990	1.82	1.82
990	1050	1.83	1.83
1050	1250	1.86	1.86
1250	2500	1.88	1.88
2500	2900	1.9	1.9
2900	3200	1.92	1.92
3200	6402	1.95	1.95

USI Goodwin Compressed

Log

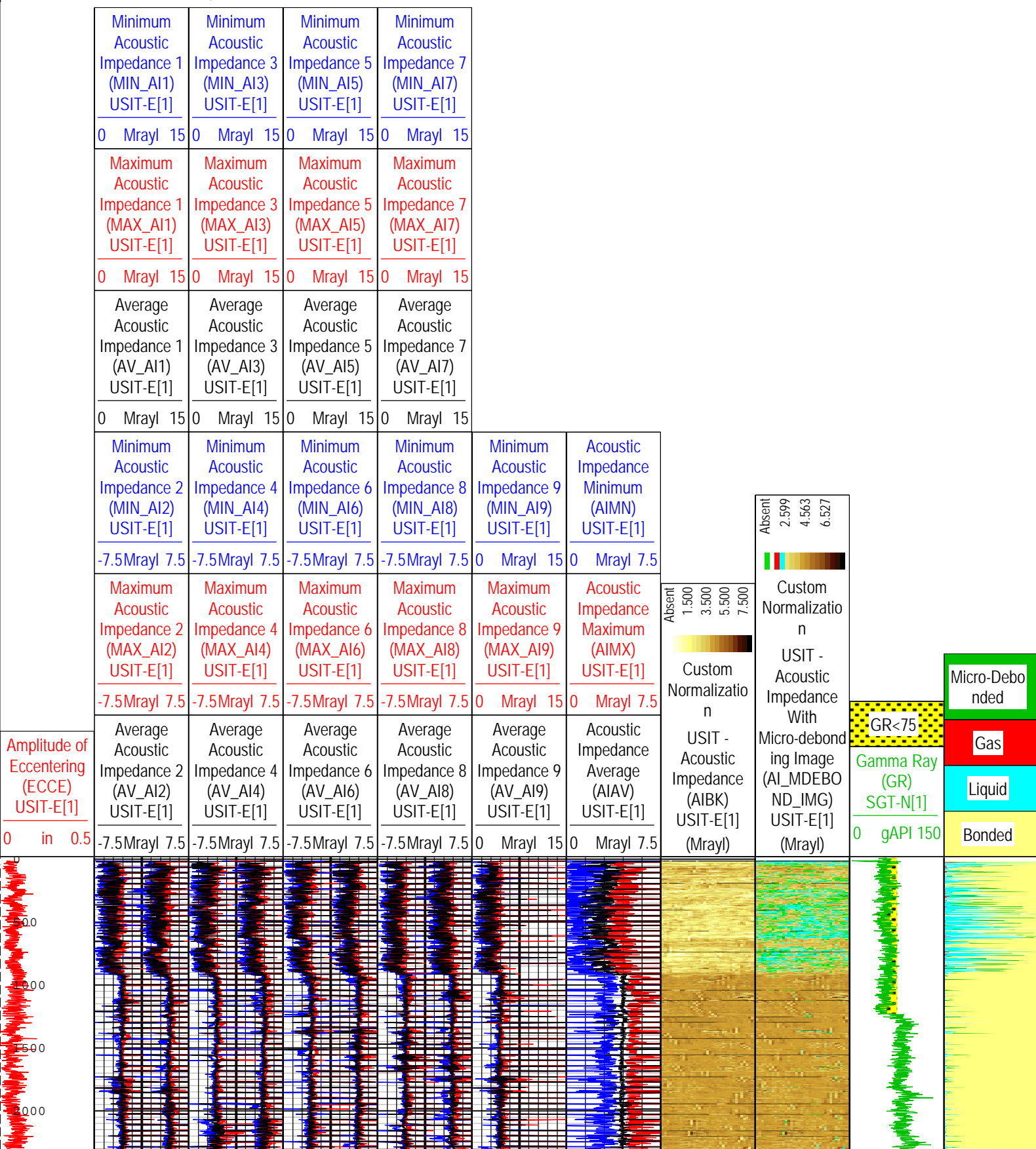
Company:Anadarko Petroleum Company

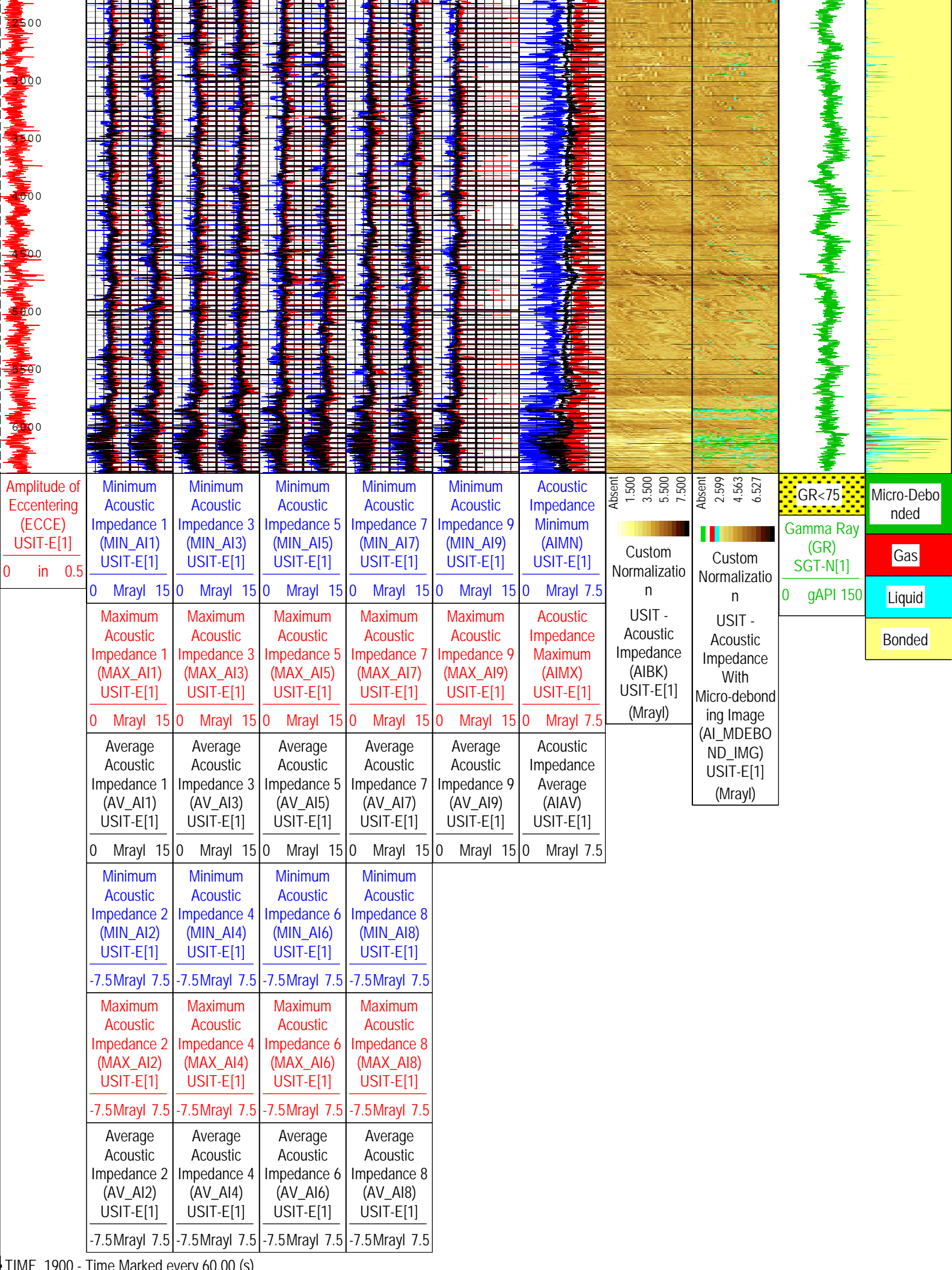
Well:Benson Farms 11N-19HZ

Composite 1:S004

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 09:57:05

TIME_1900 - Time Marked every 60.00 (s)





Copy of USI Composite			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Main[2]:Up	6398.63	17.25
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	400	1.78	1.78
400	800	1.8	1.8
800	990	1.82	1.82
990	1050	1.83	1.83
1050	1250	1.86	1.86
1250	2500	1.88	1.88
2500	2900	1.9	1.9
2900	3200	1.92	1.92
3200		1.95	1.95
Run 1			
0 PSI Pass			
Log	Company:Anadarko Petroleum Company Well:Benson Farms 11N-19HZ Run 1: Main[2]:Up:S004		

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] - :

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

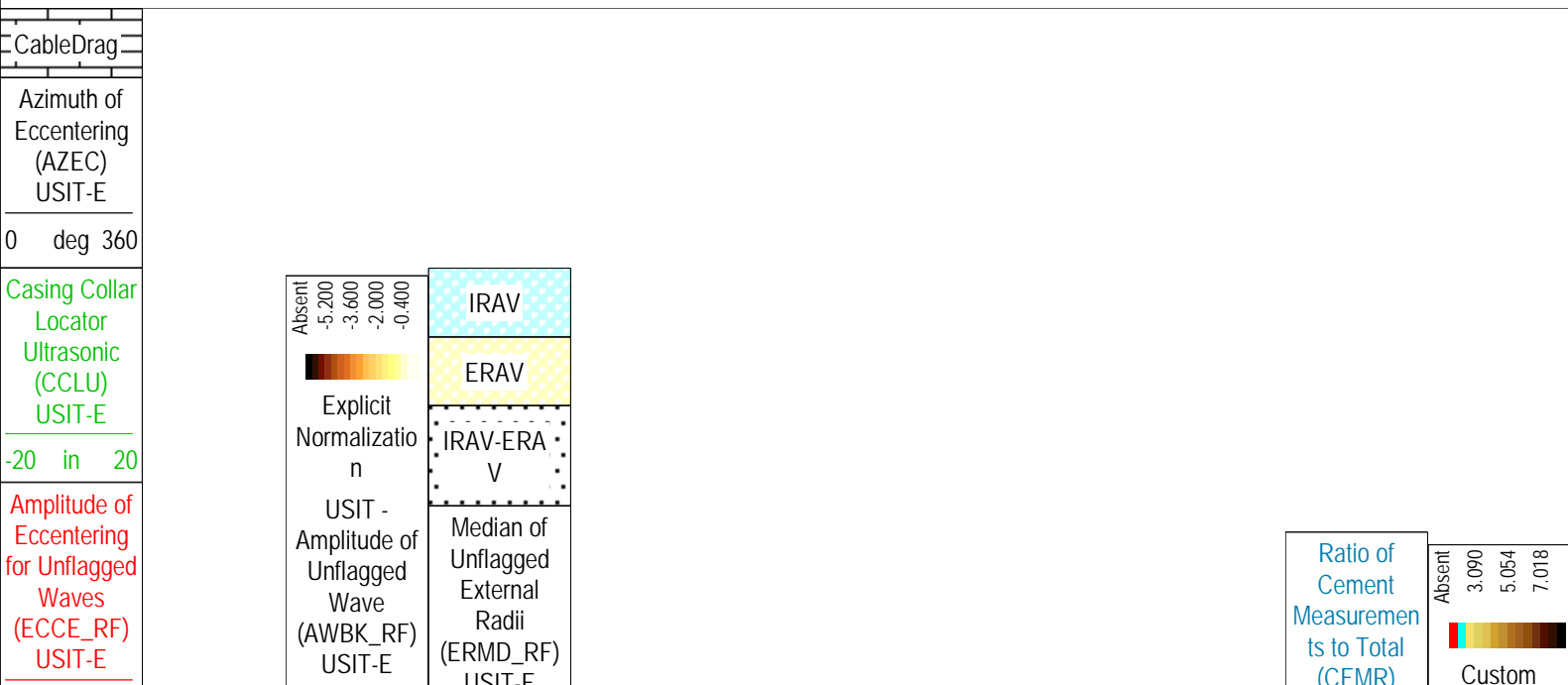
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

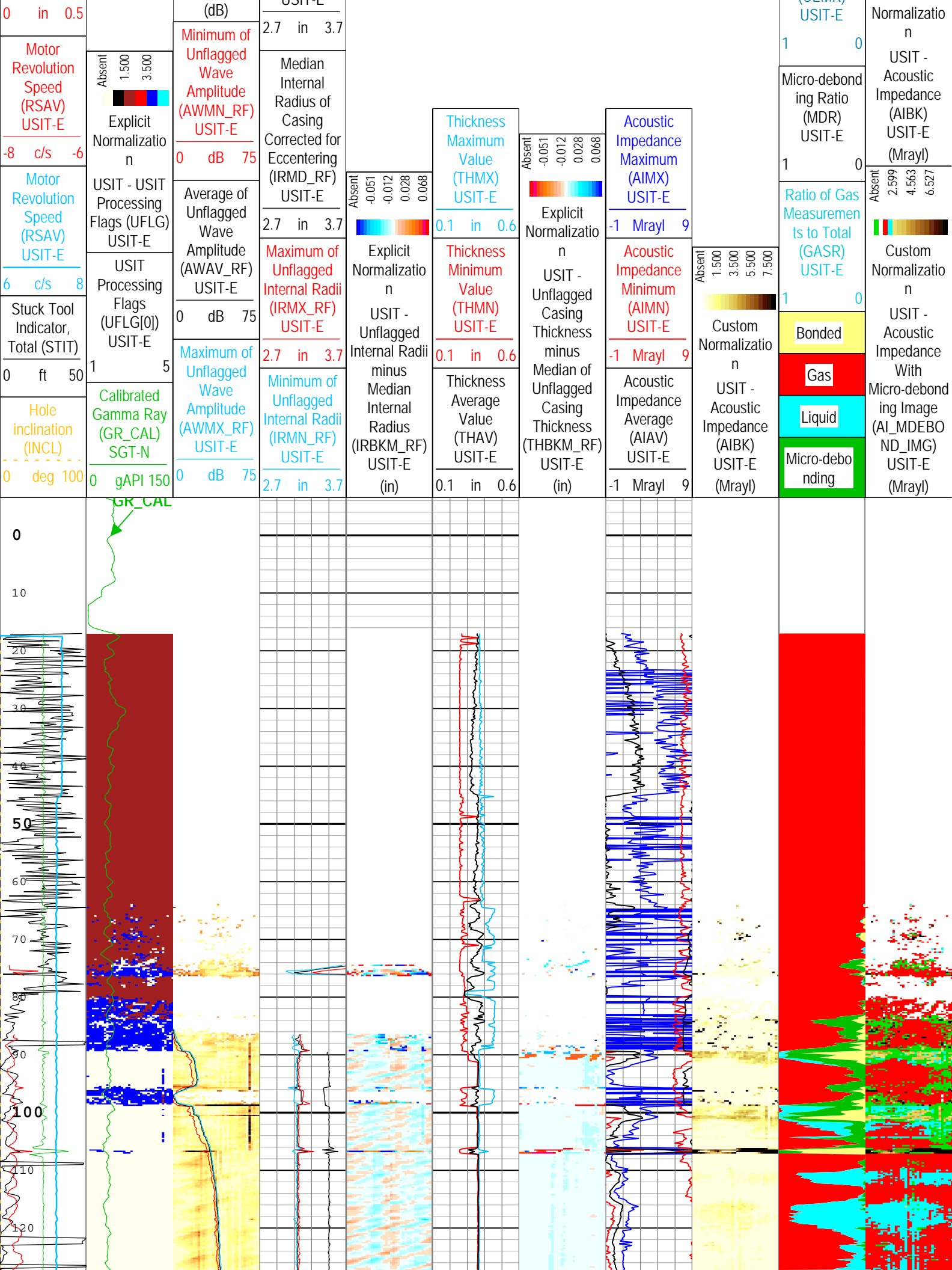
■ Pulse Origin Not Detected

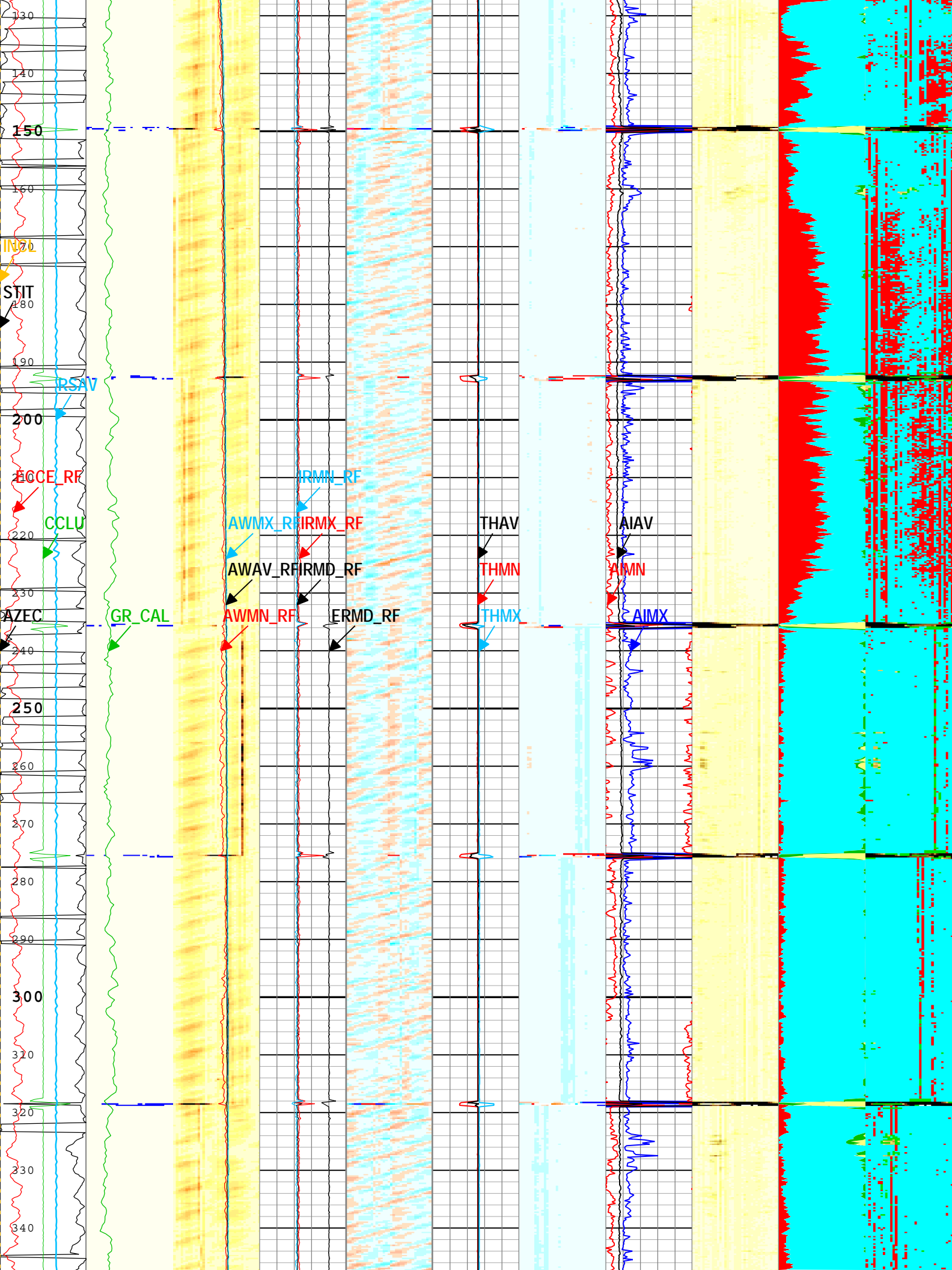
■ WINLEN Error

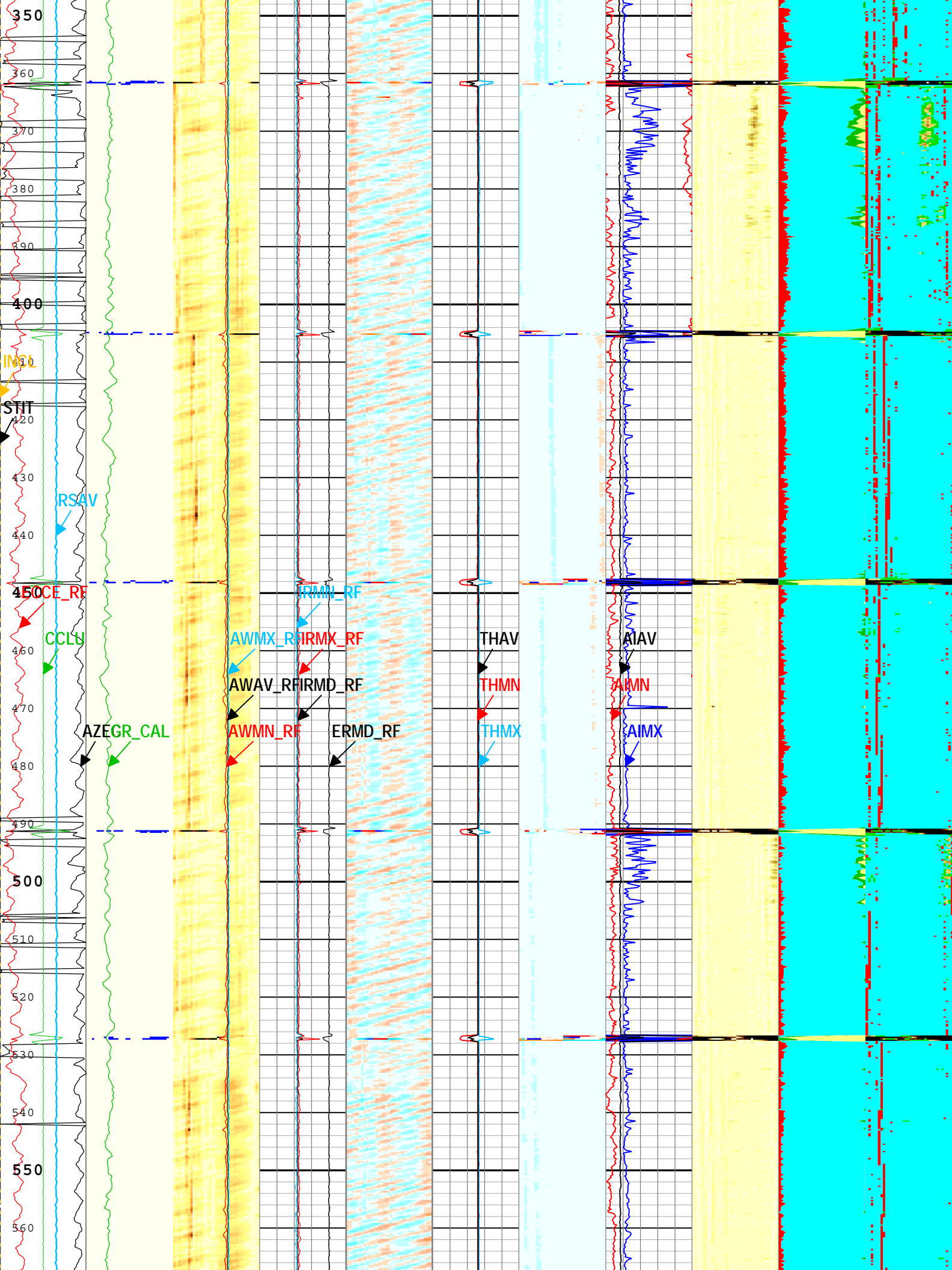
■ Casing Thickness Error

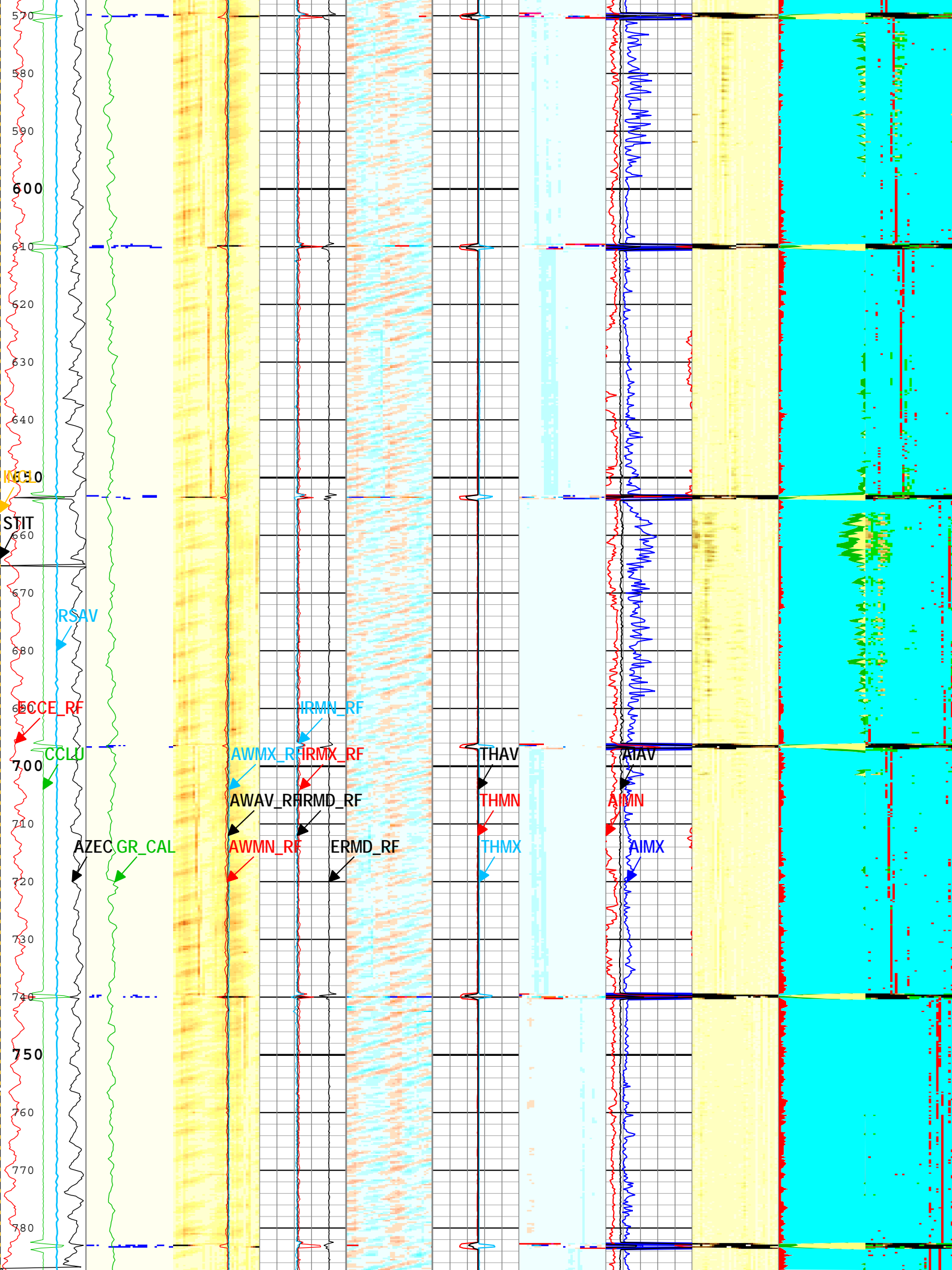
■ Loop Processing Error

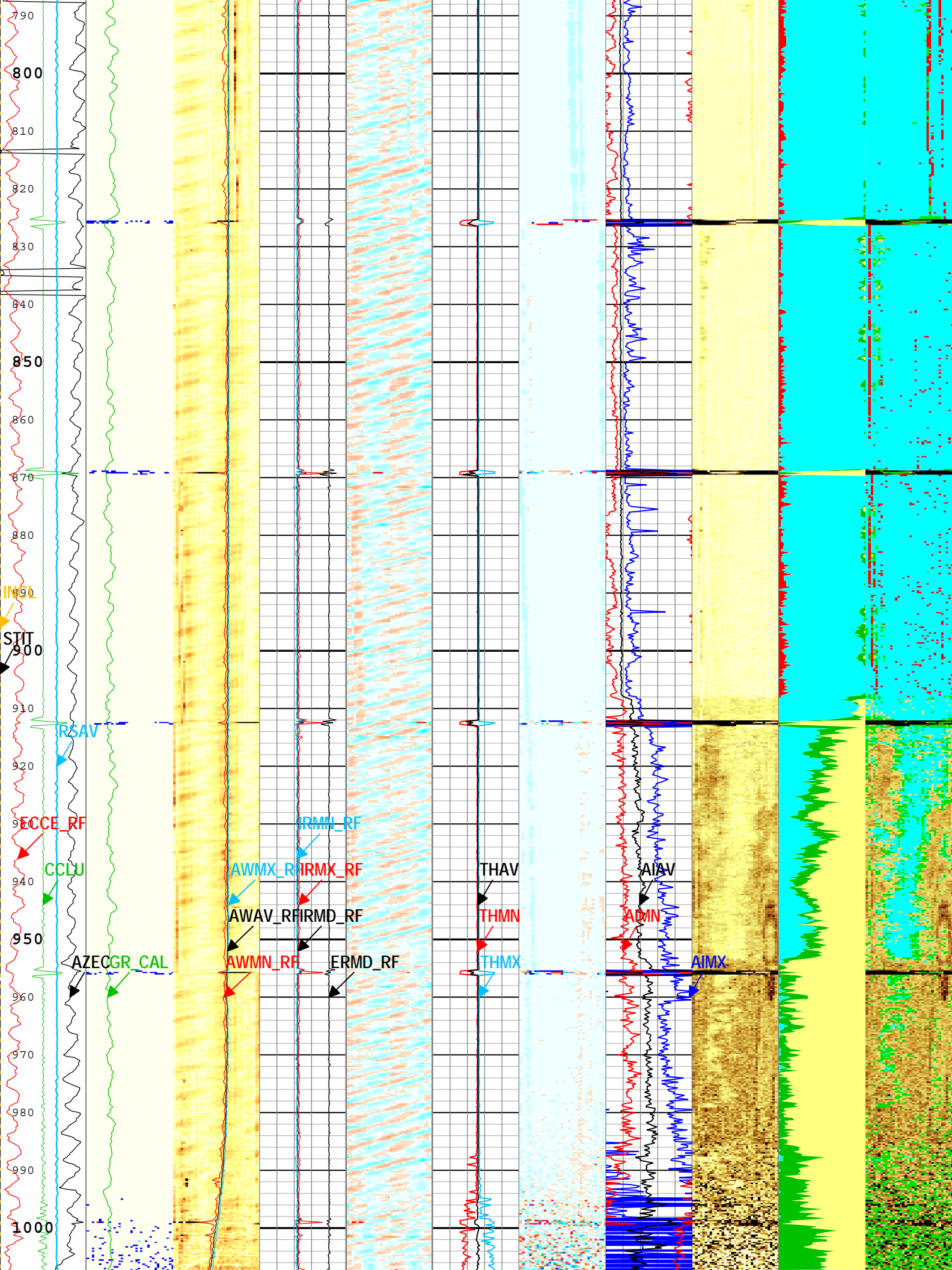


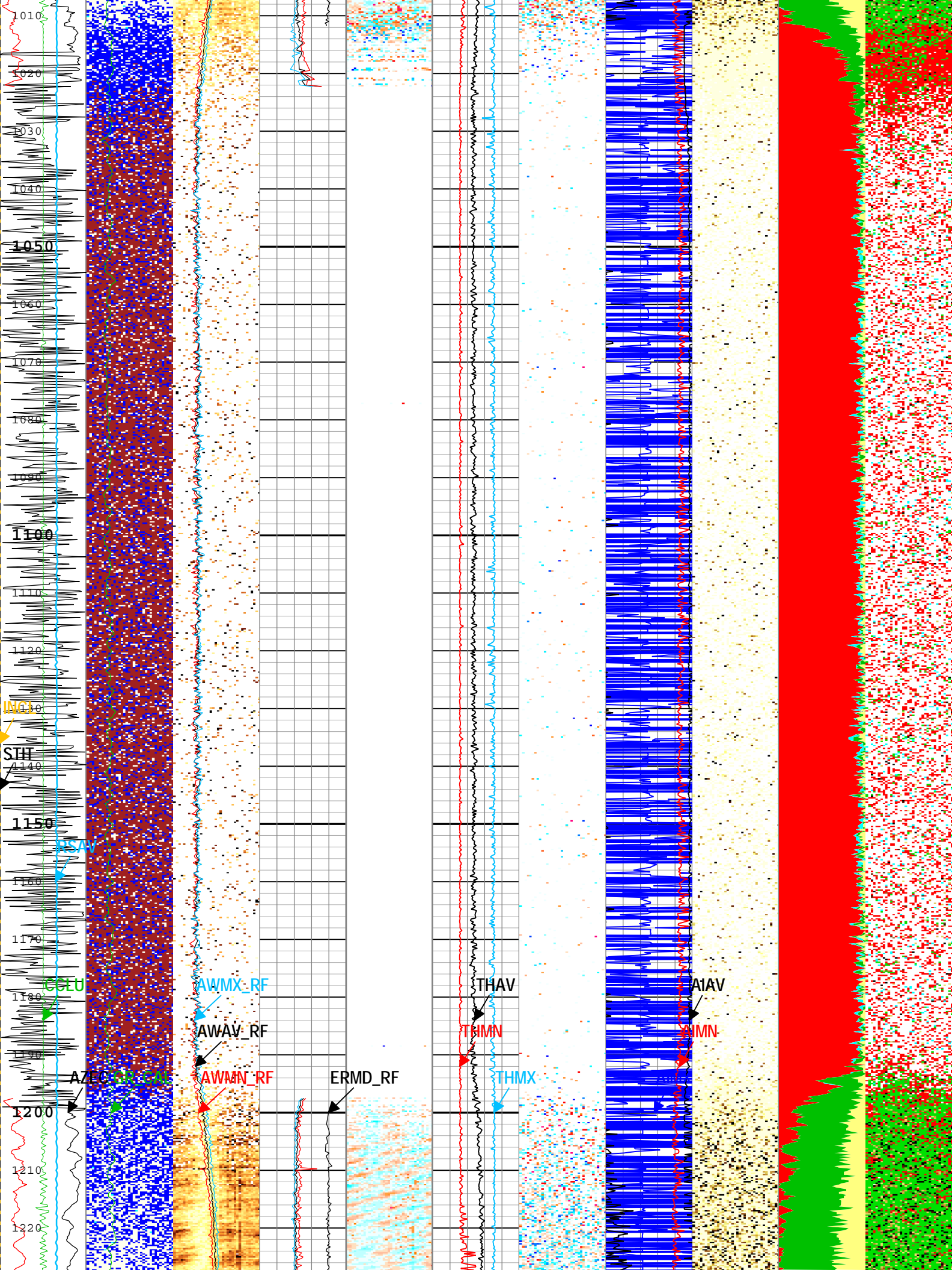


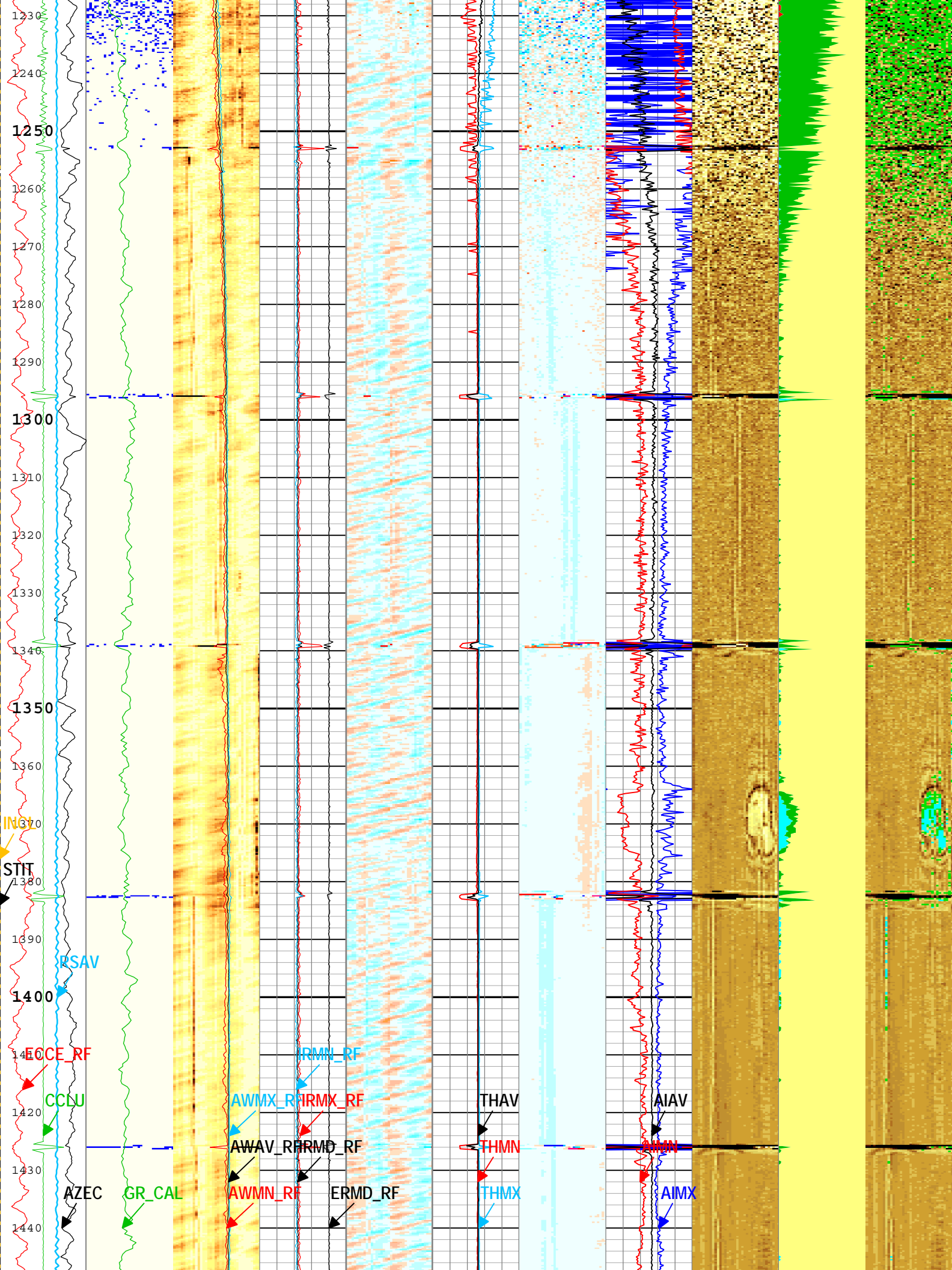


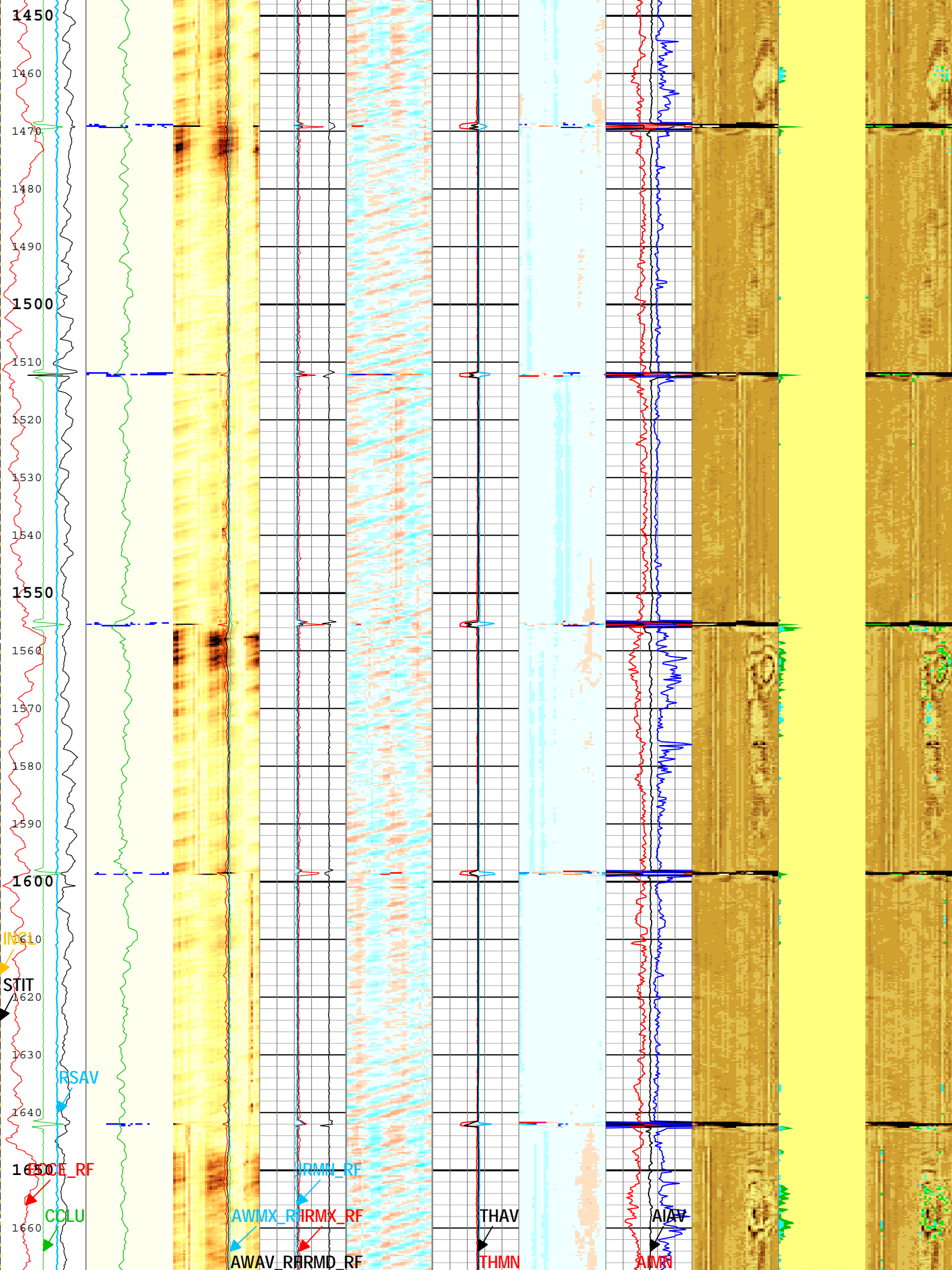


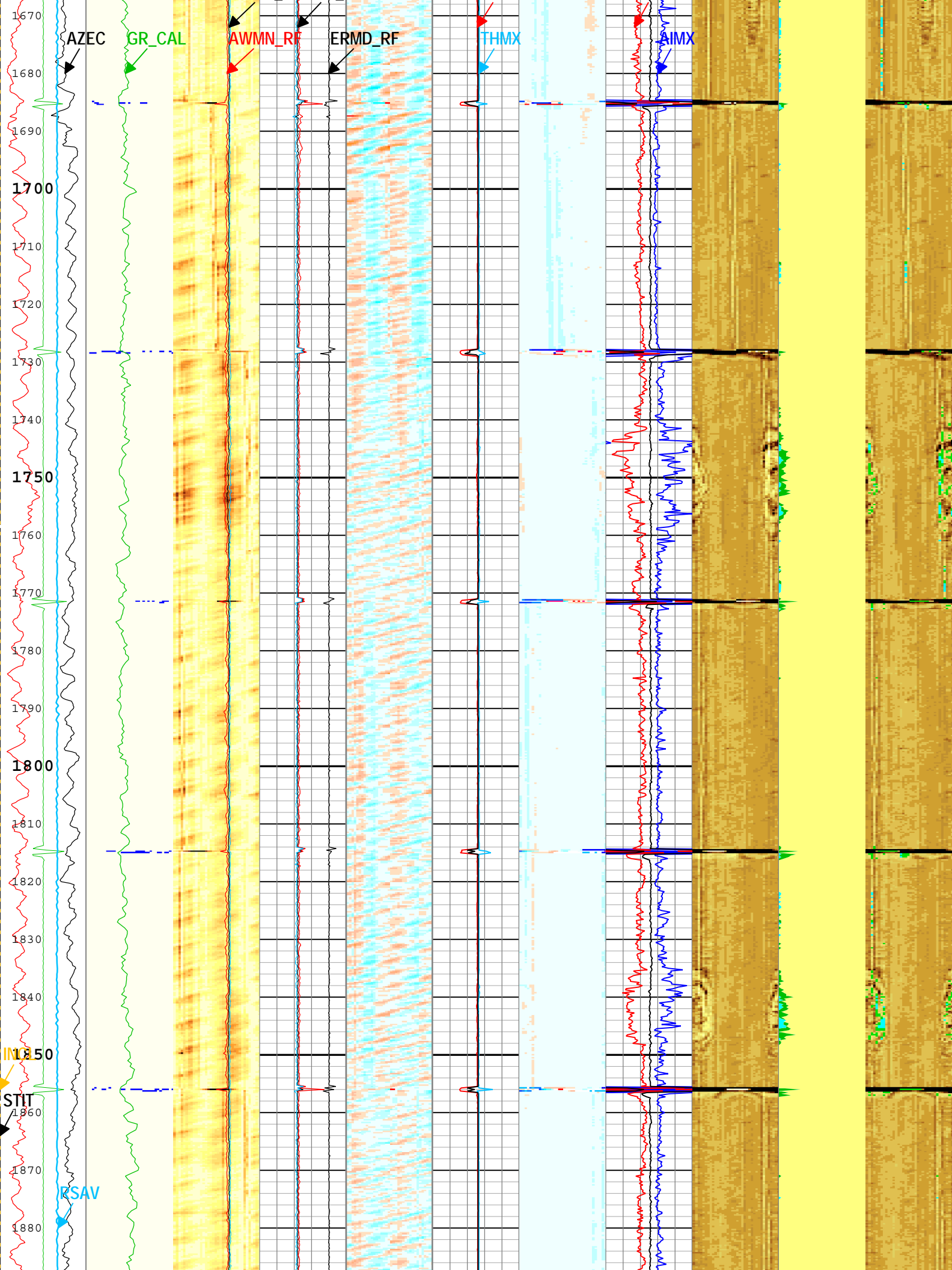


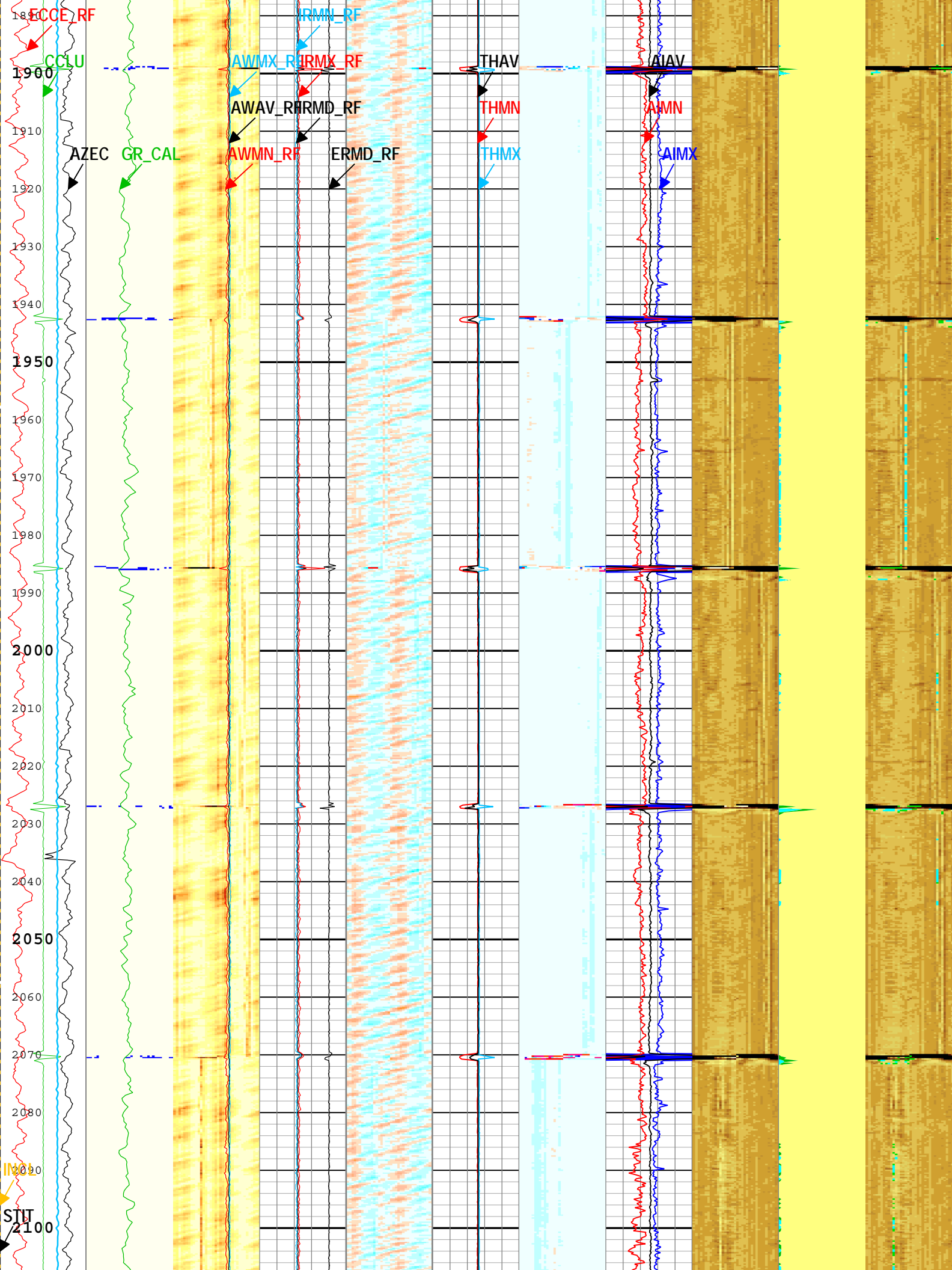


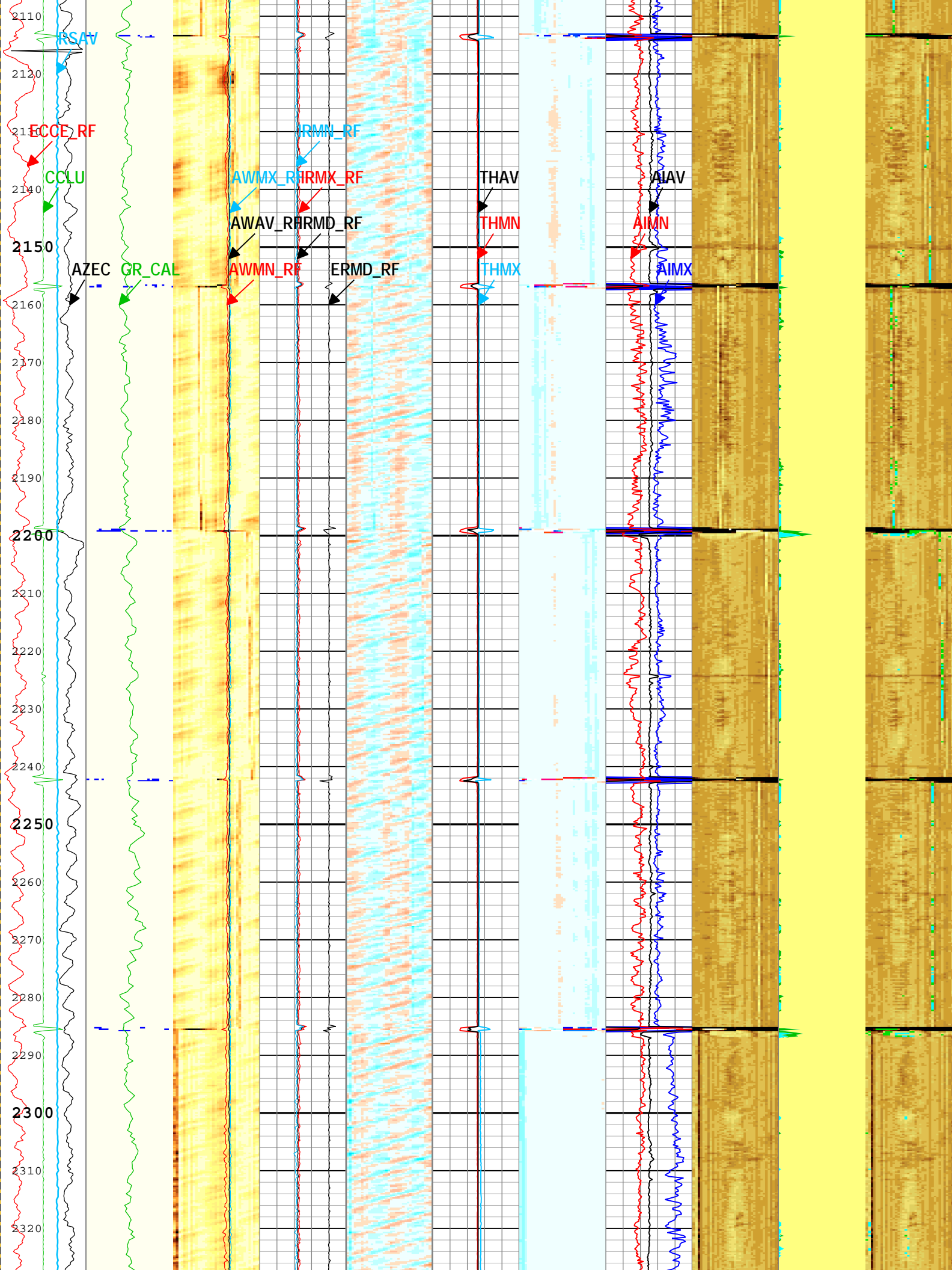


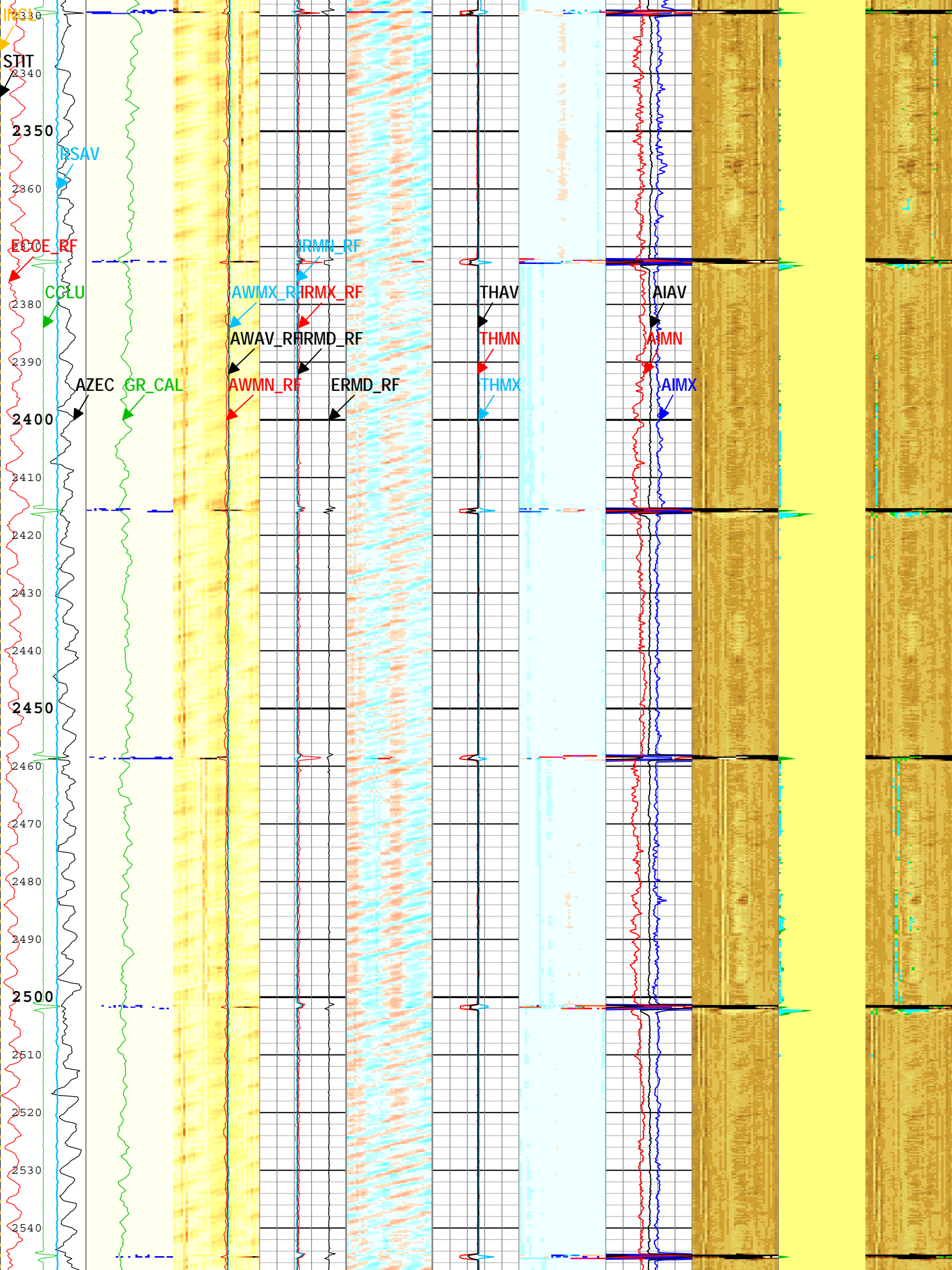


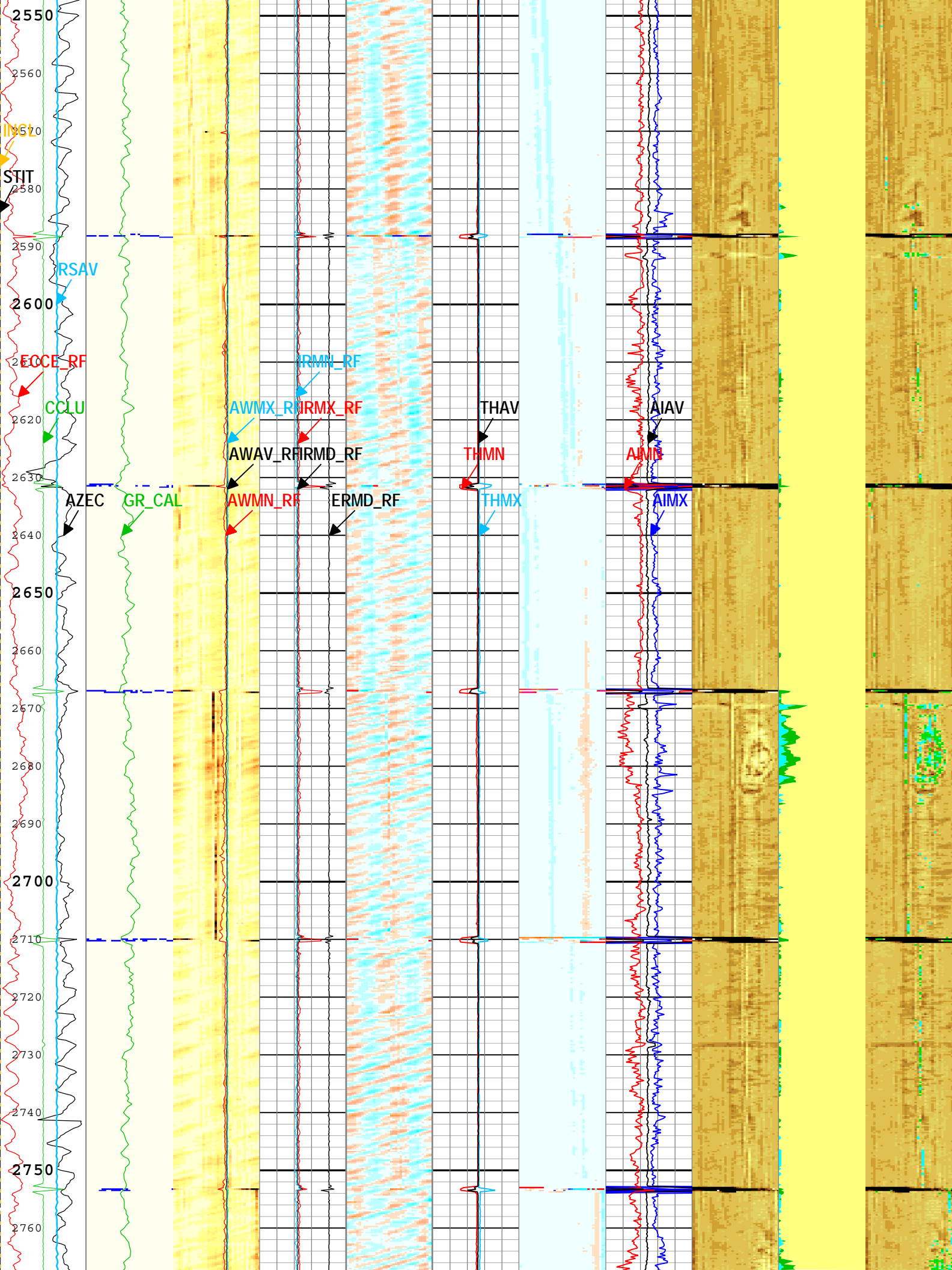


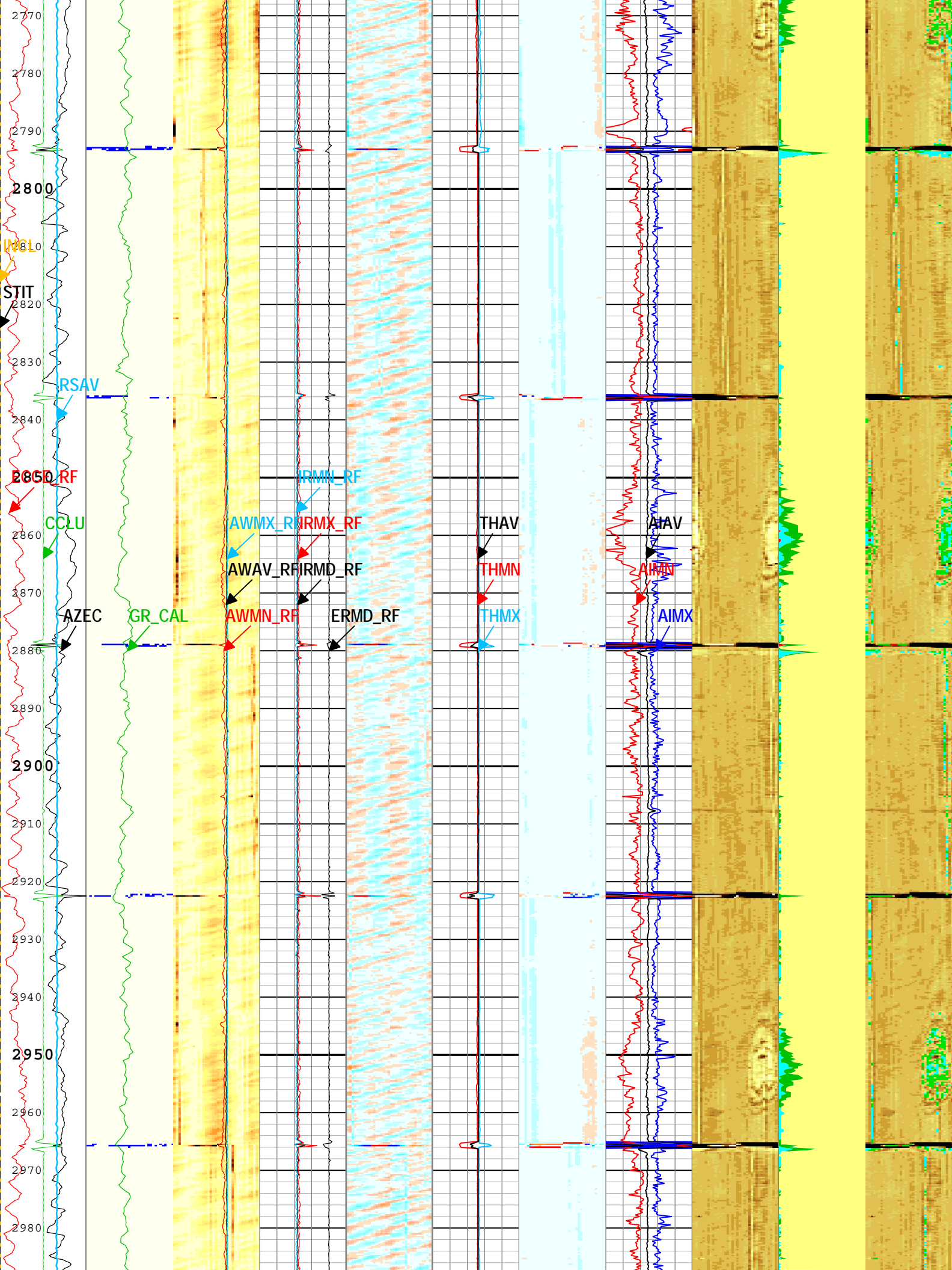


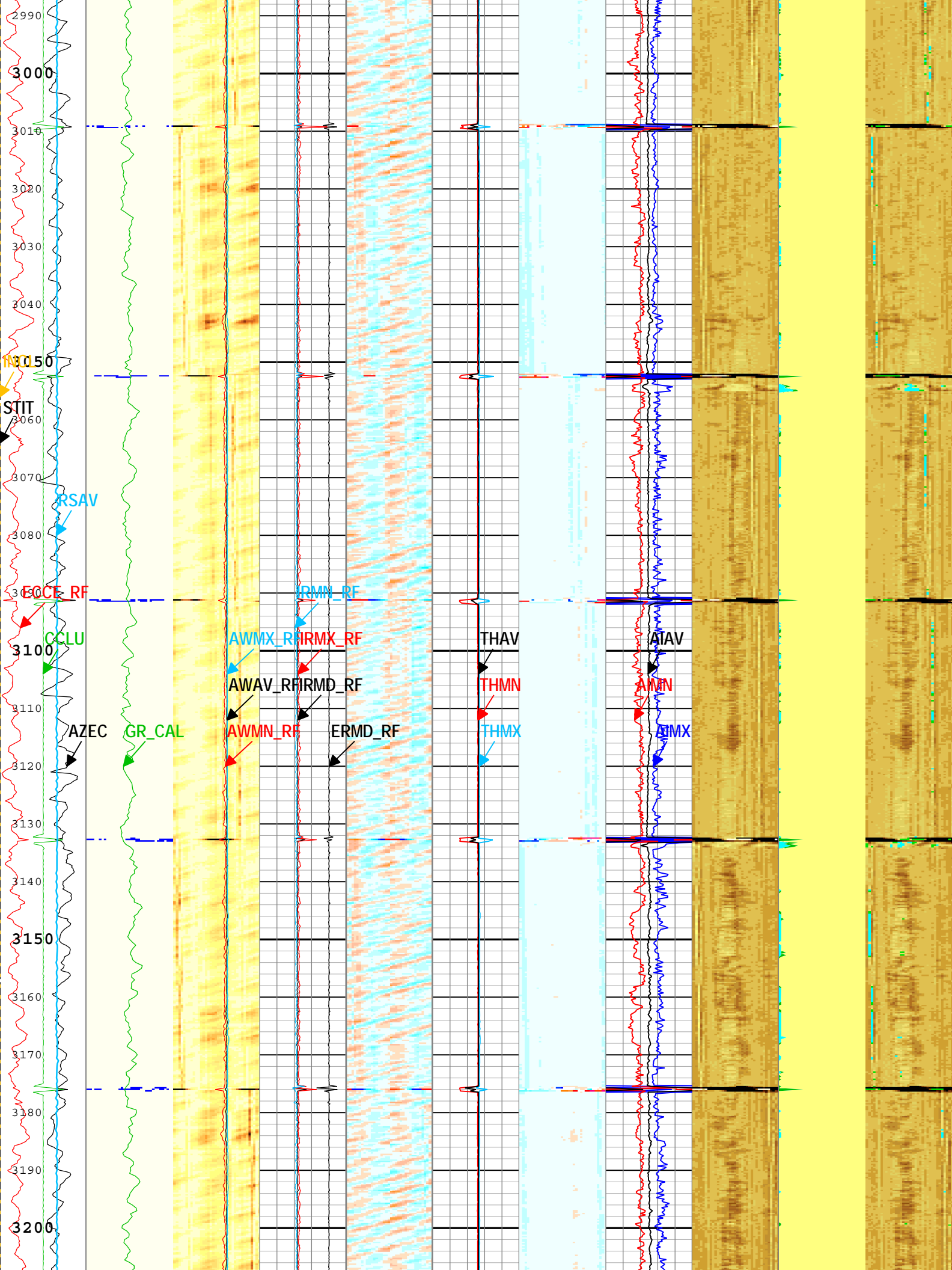


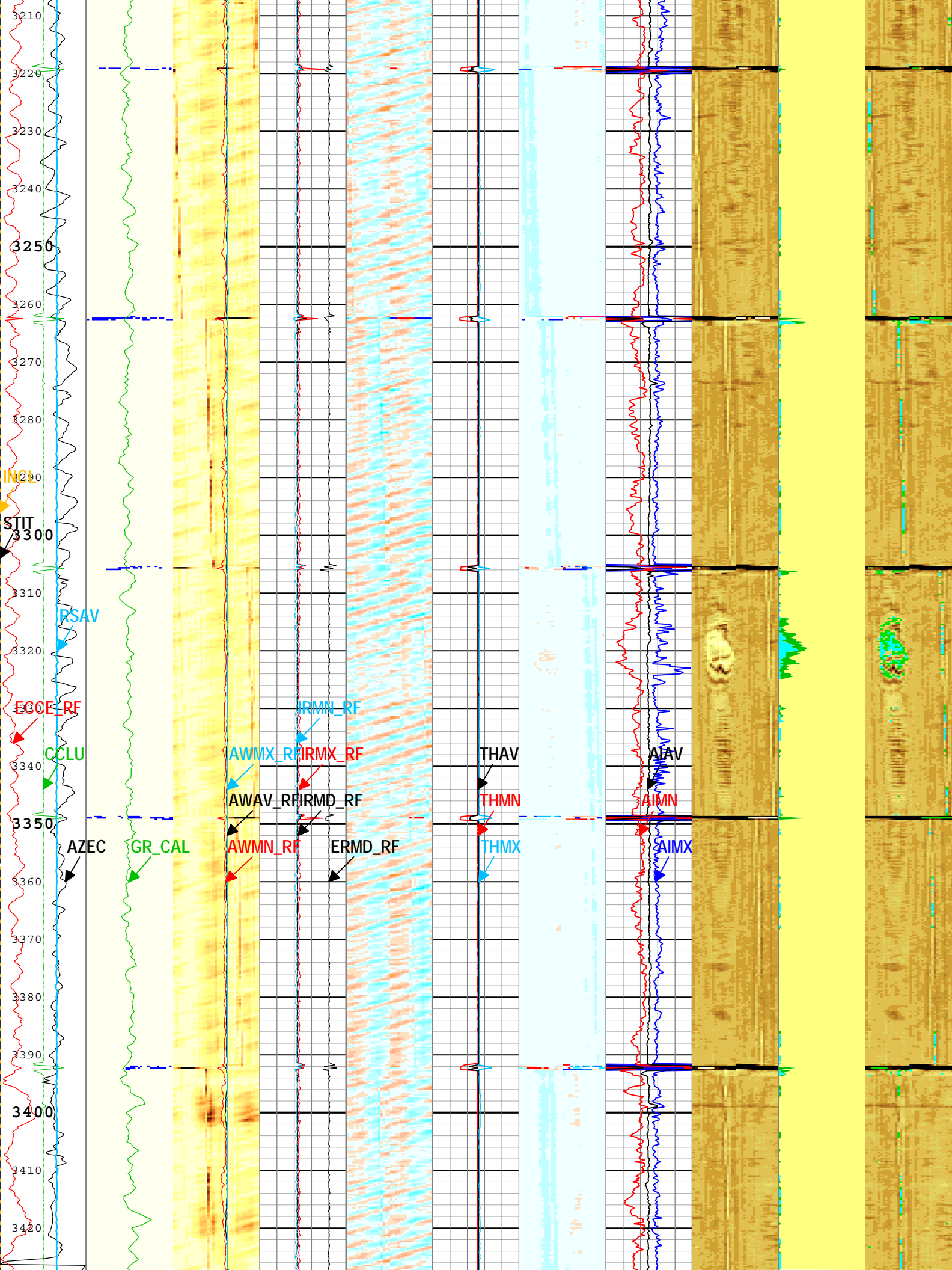


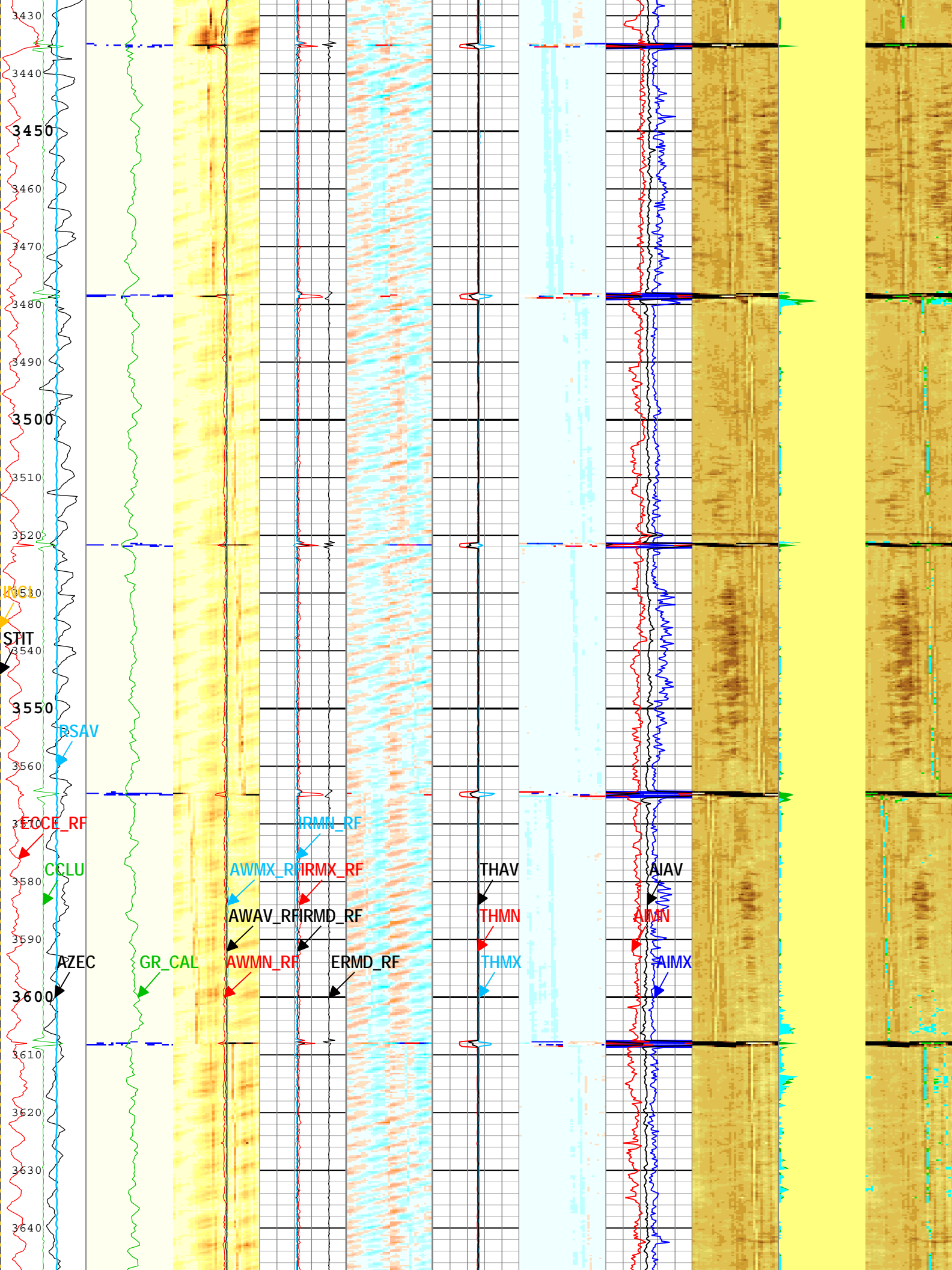


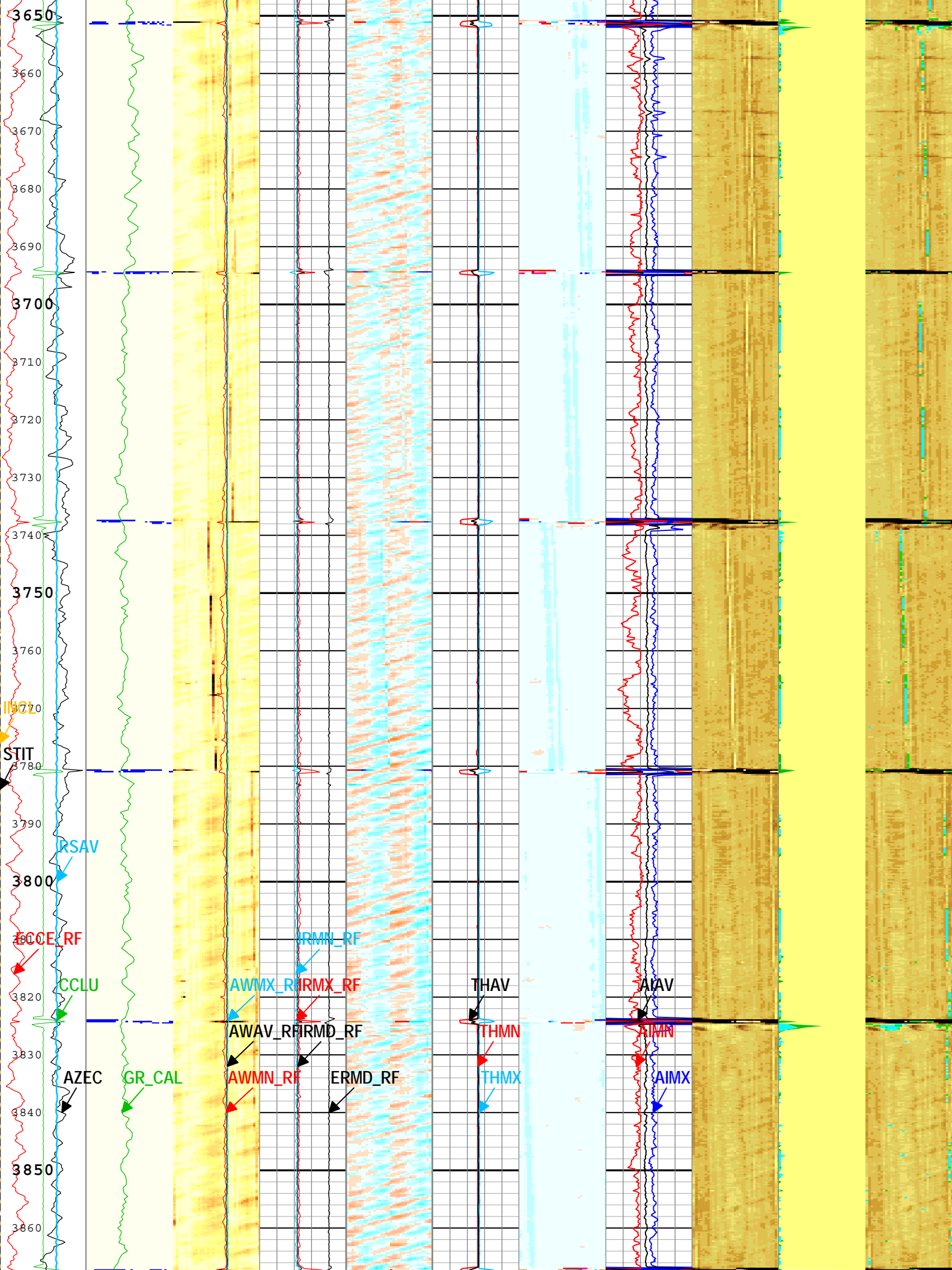


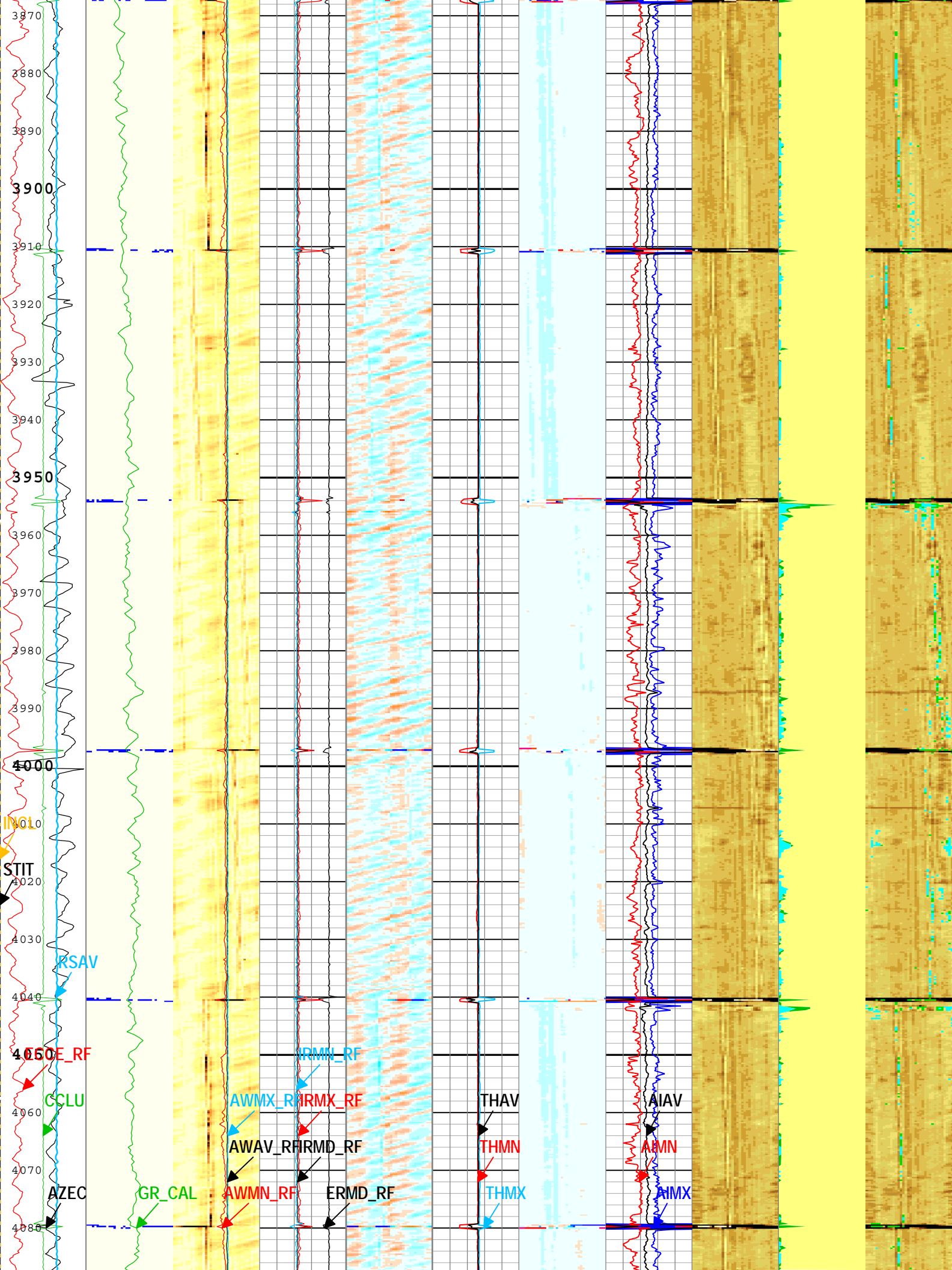


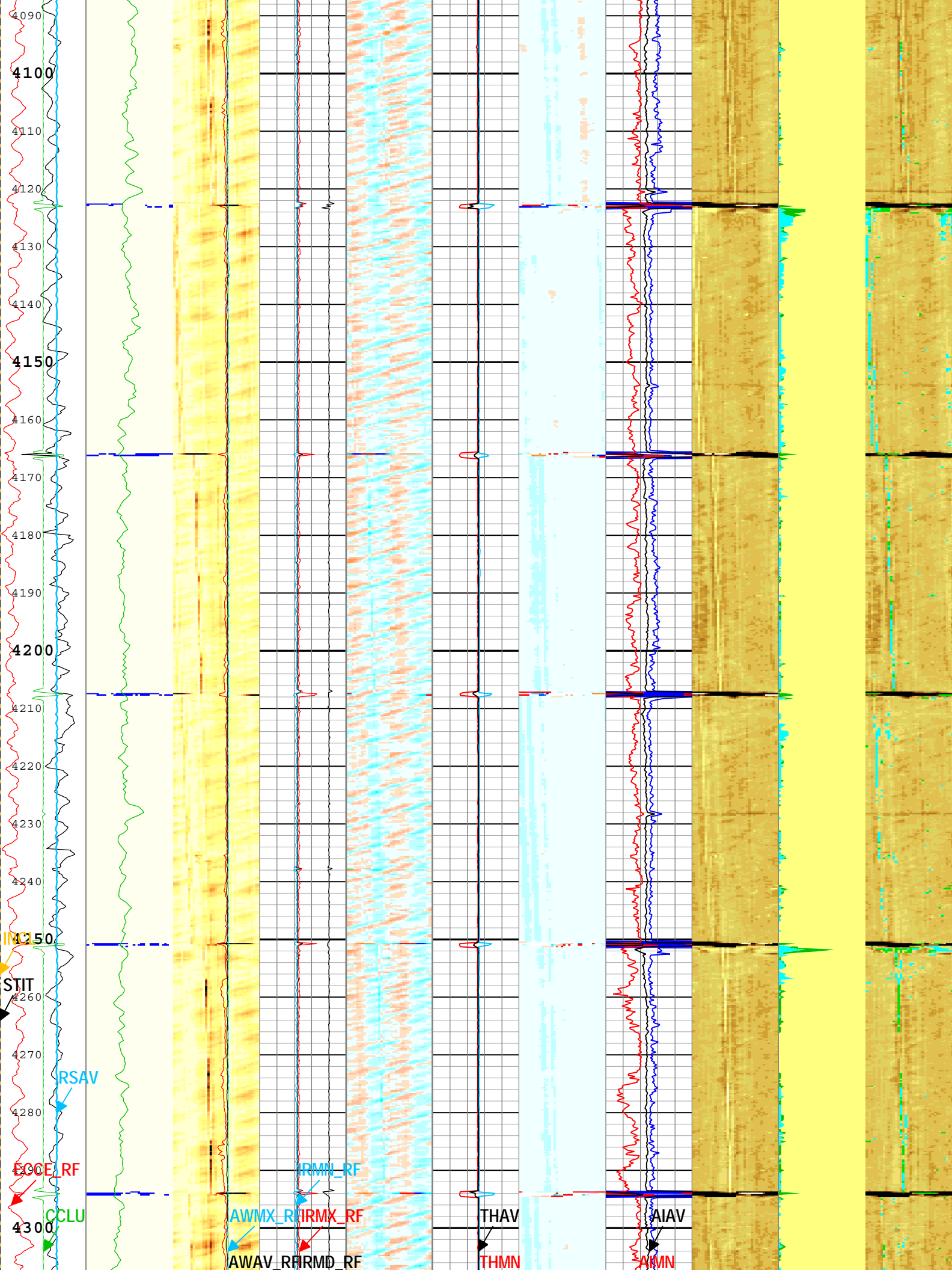


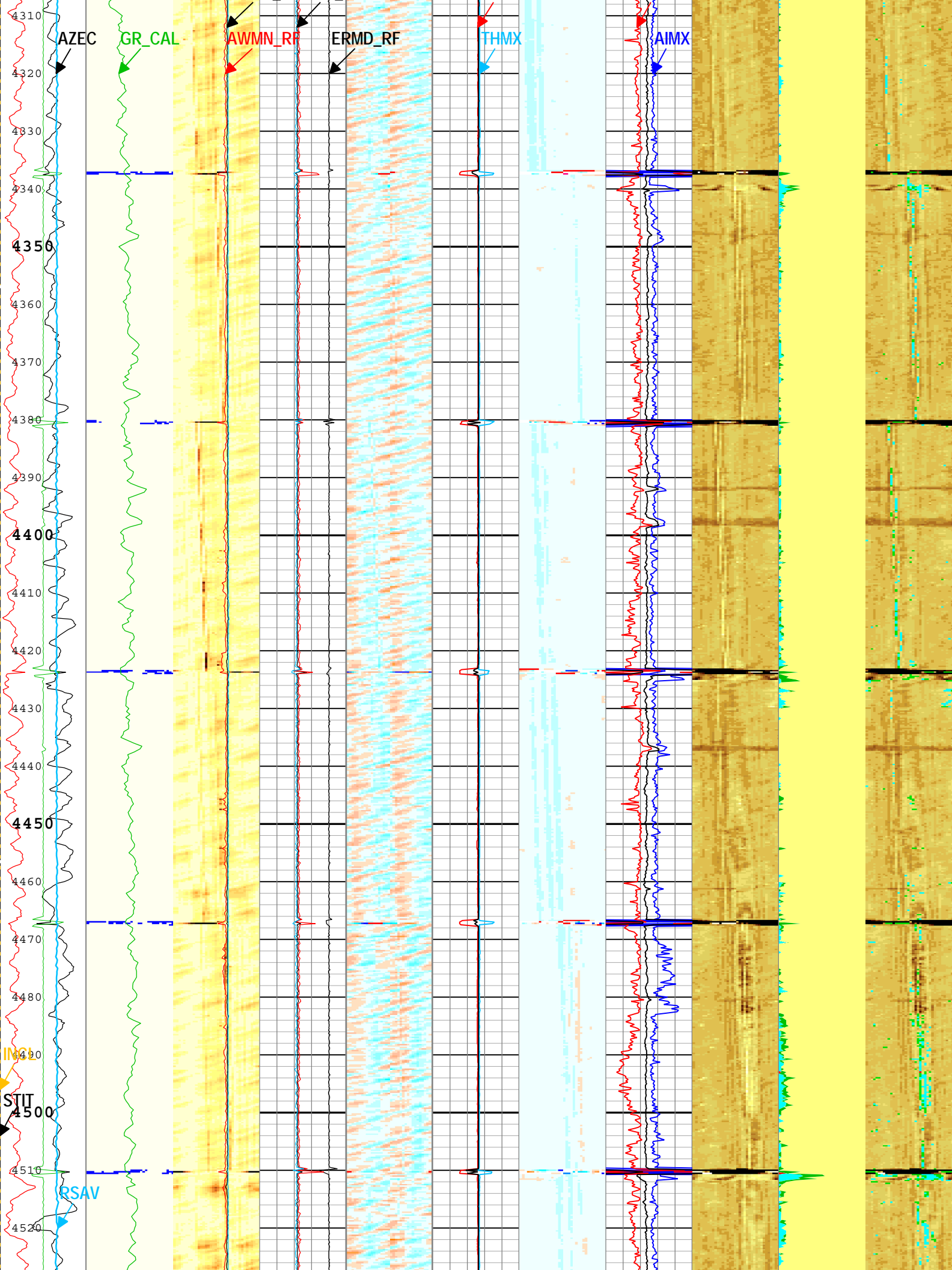


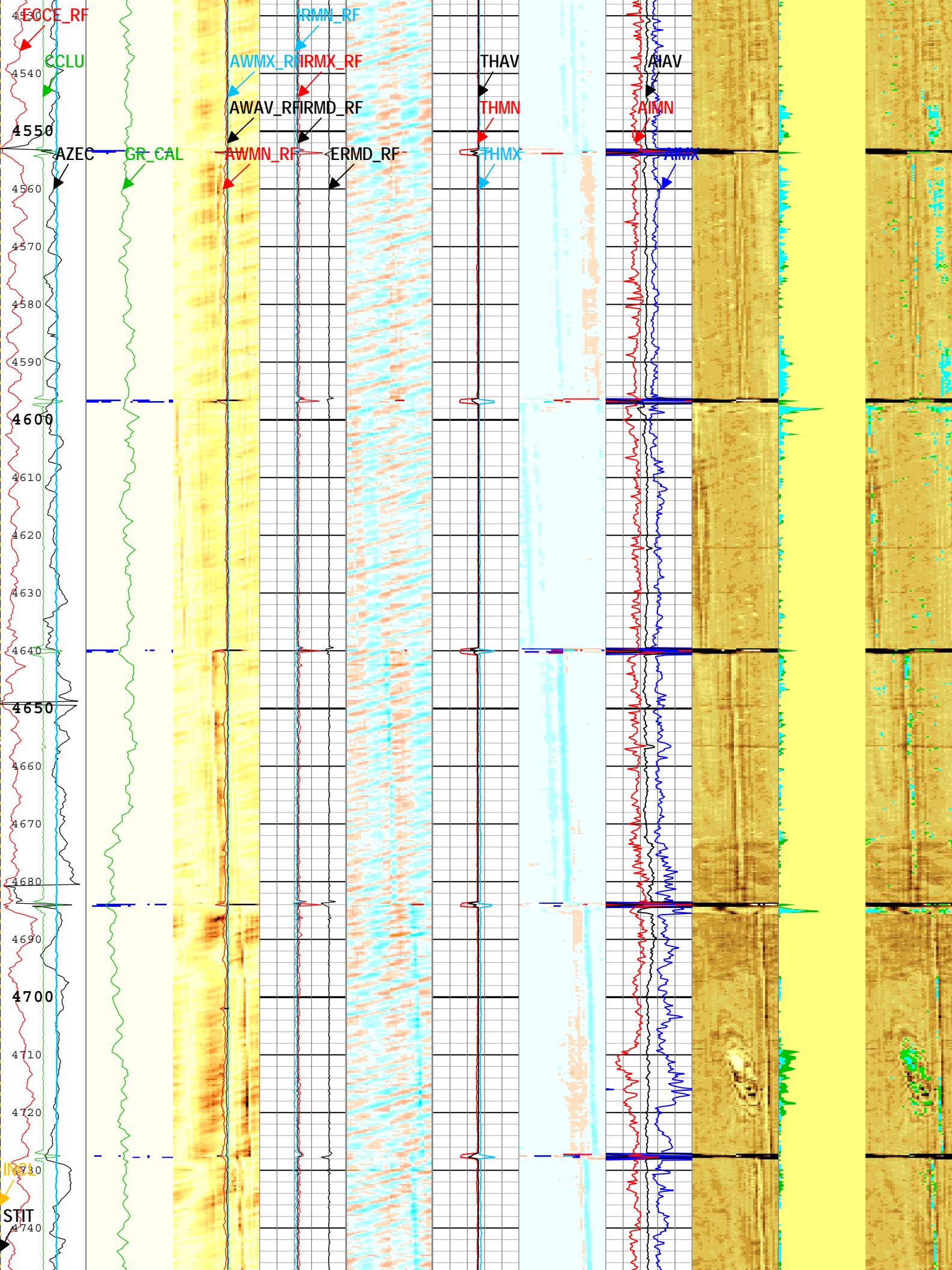


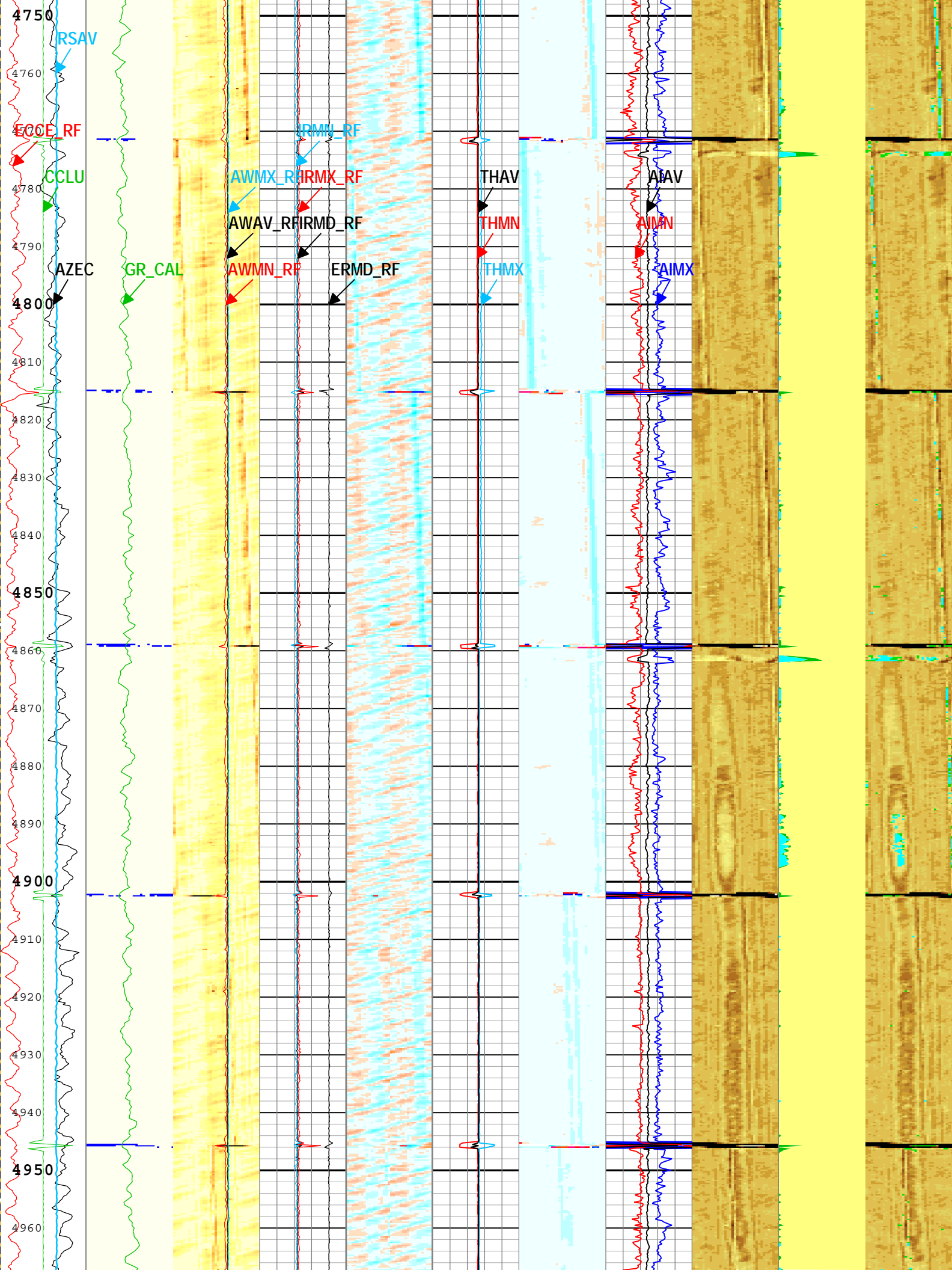


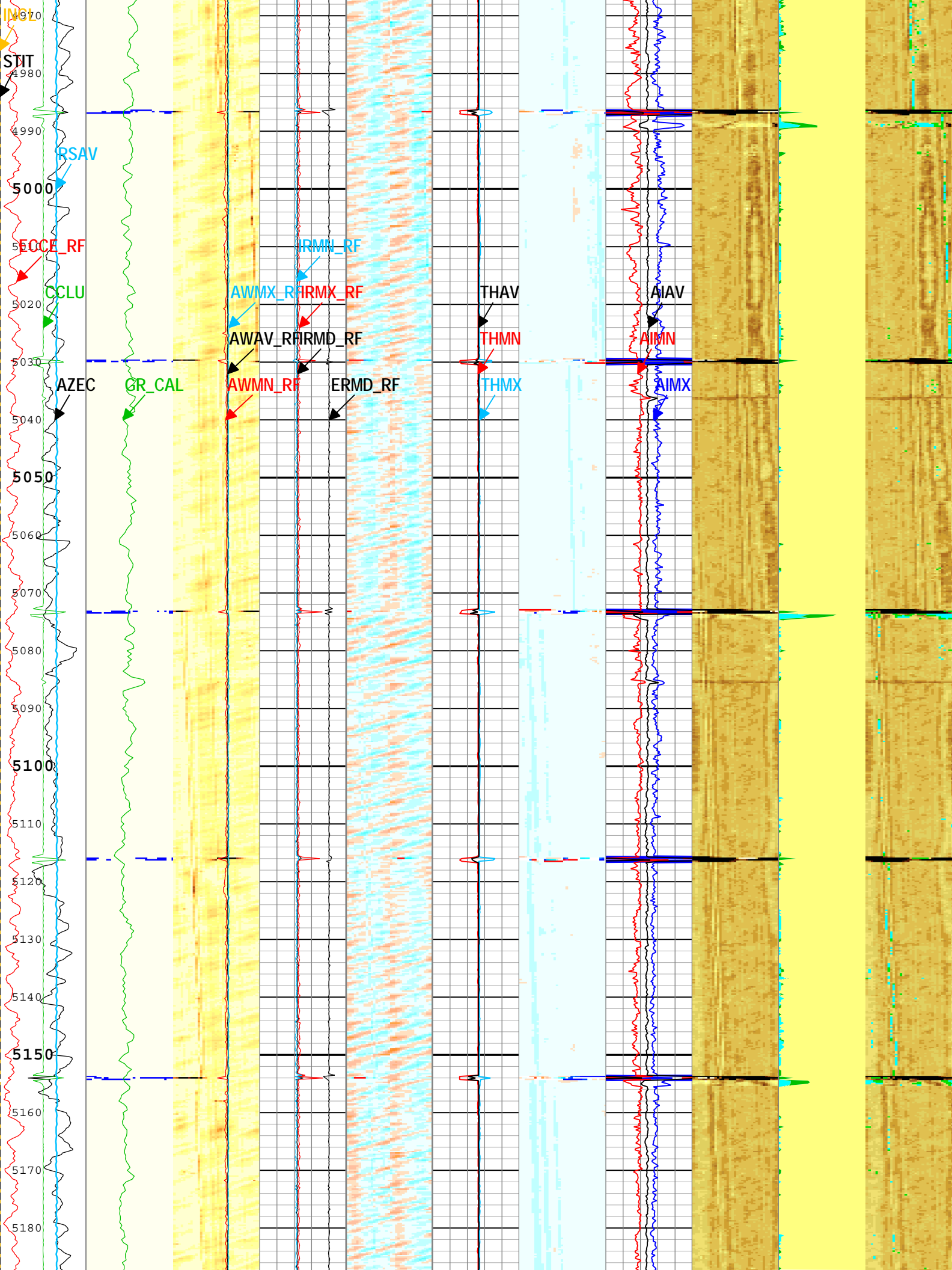


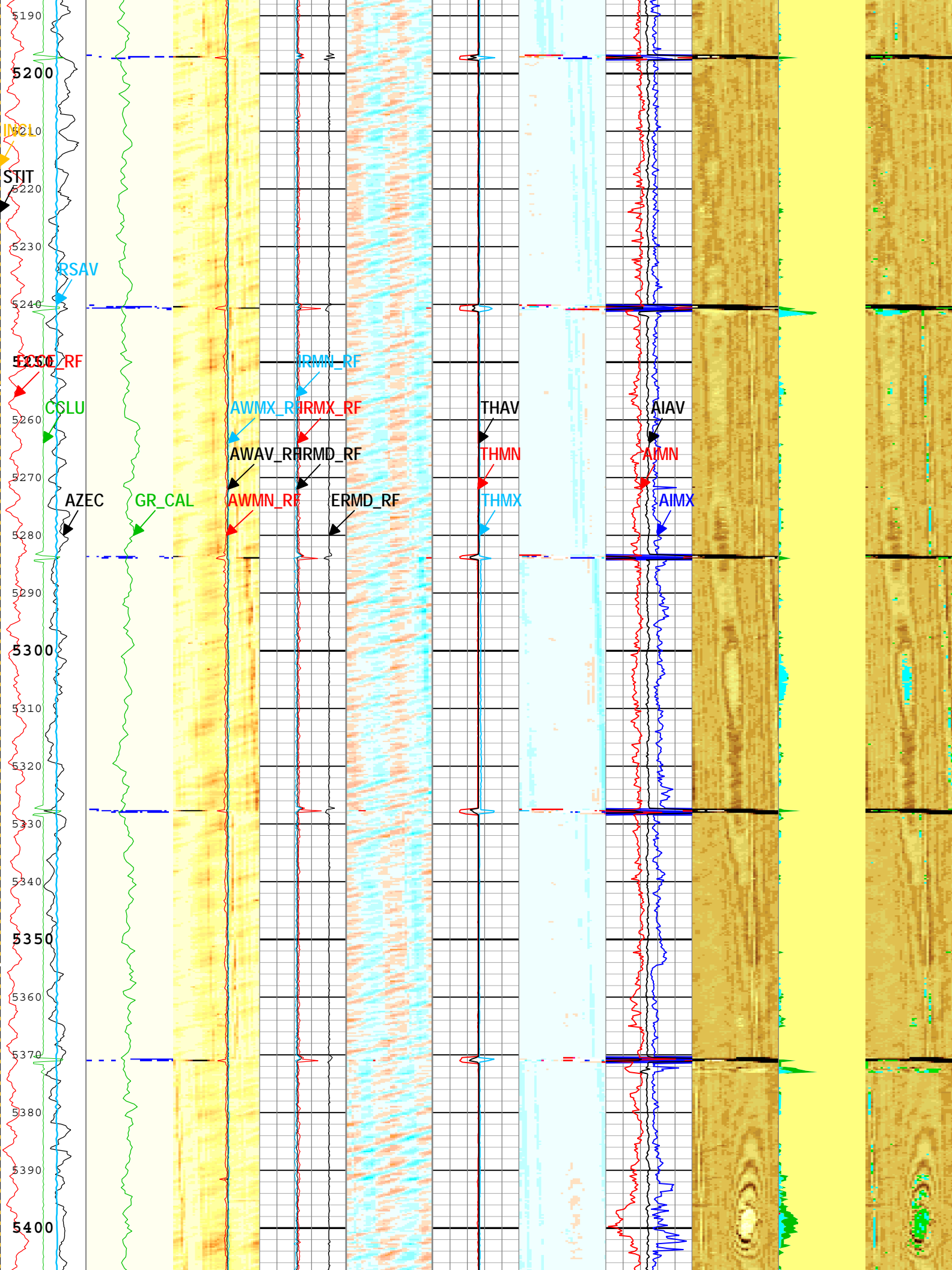


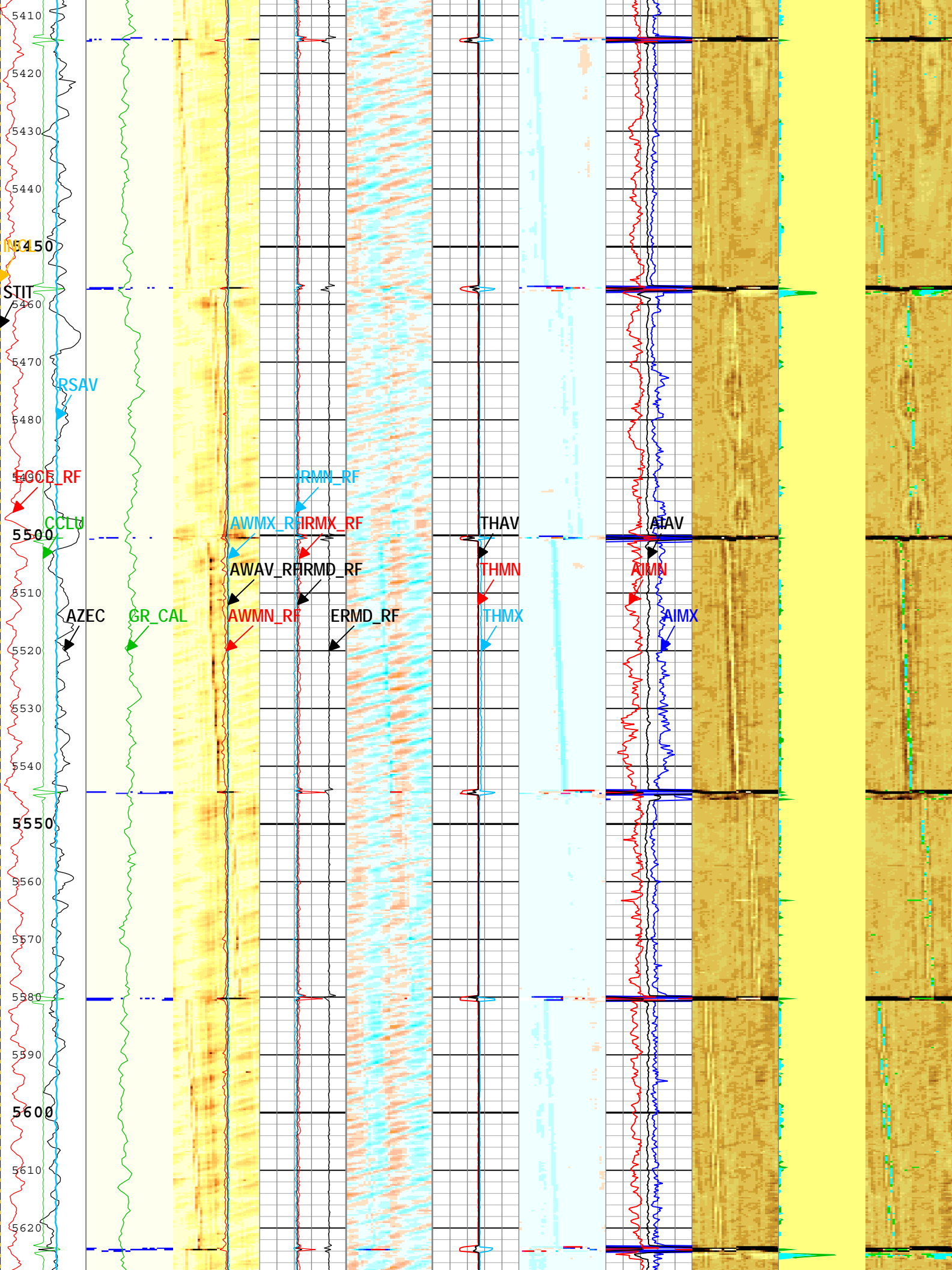


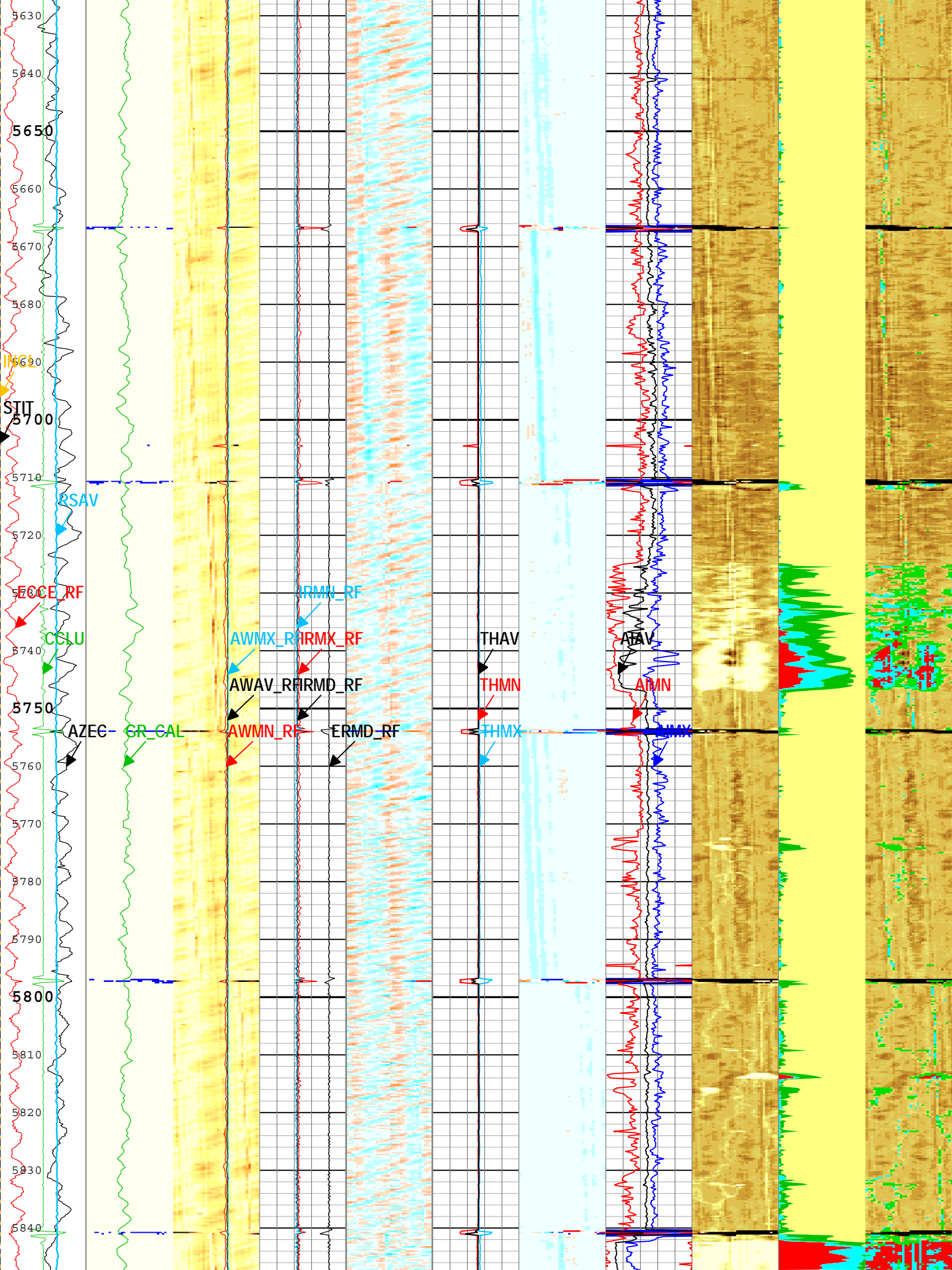


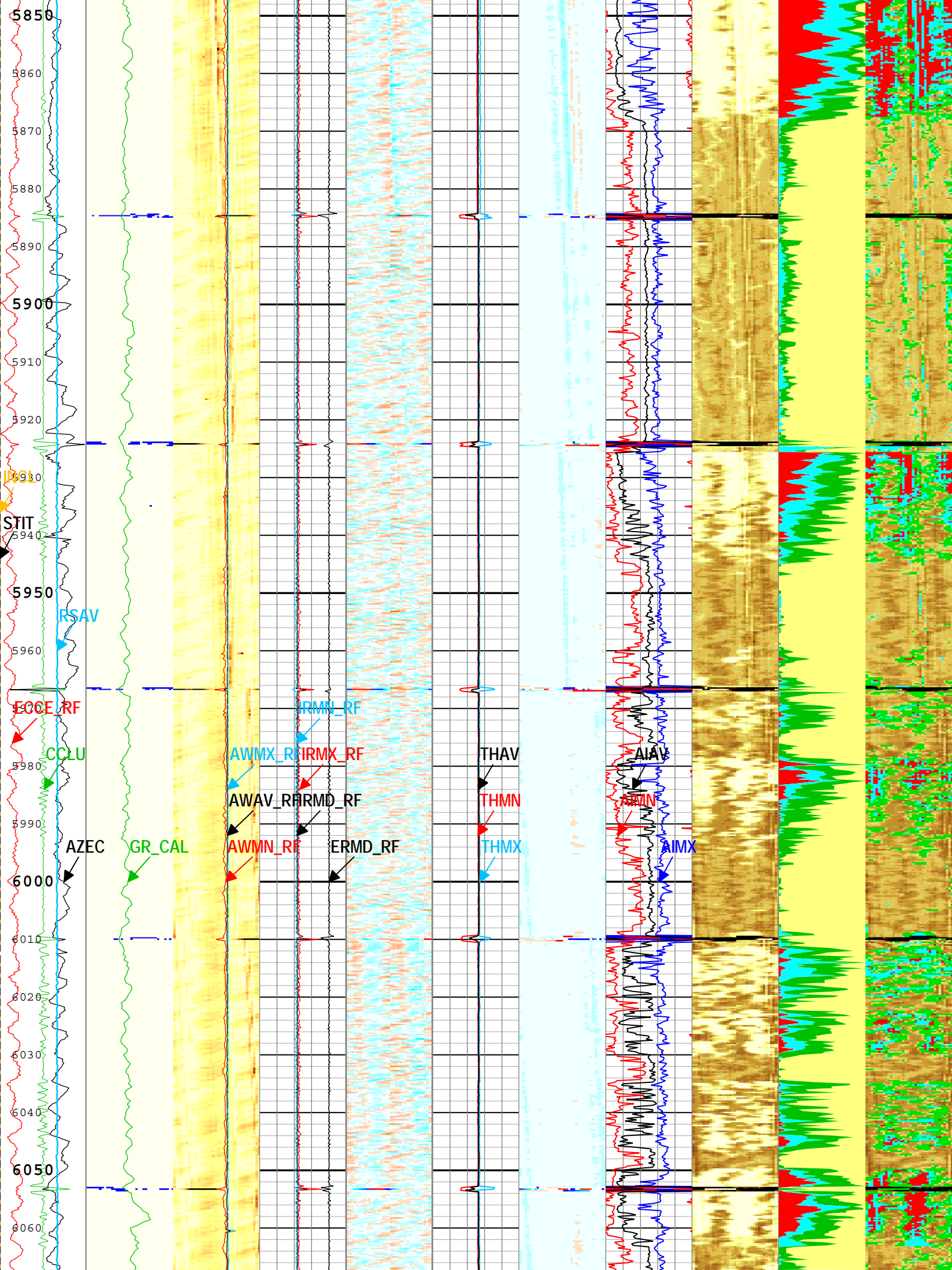


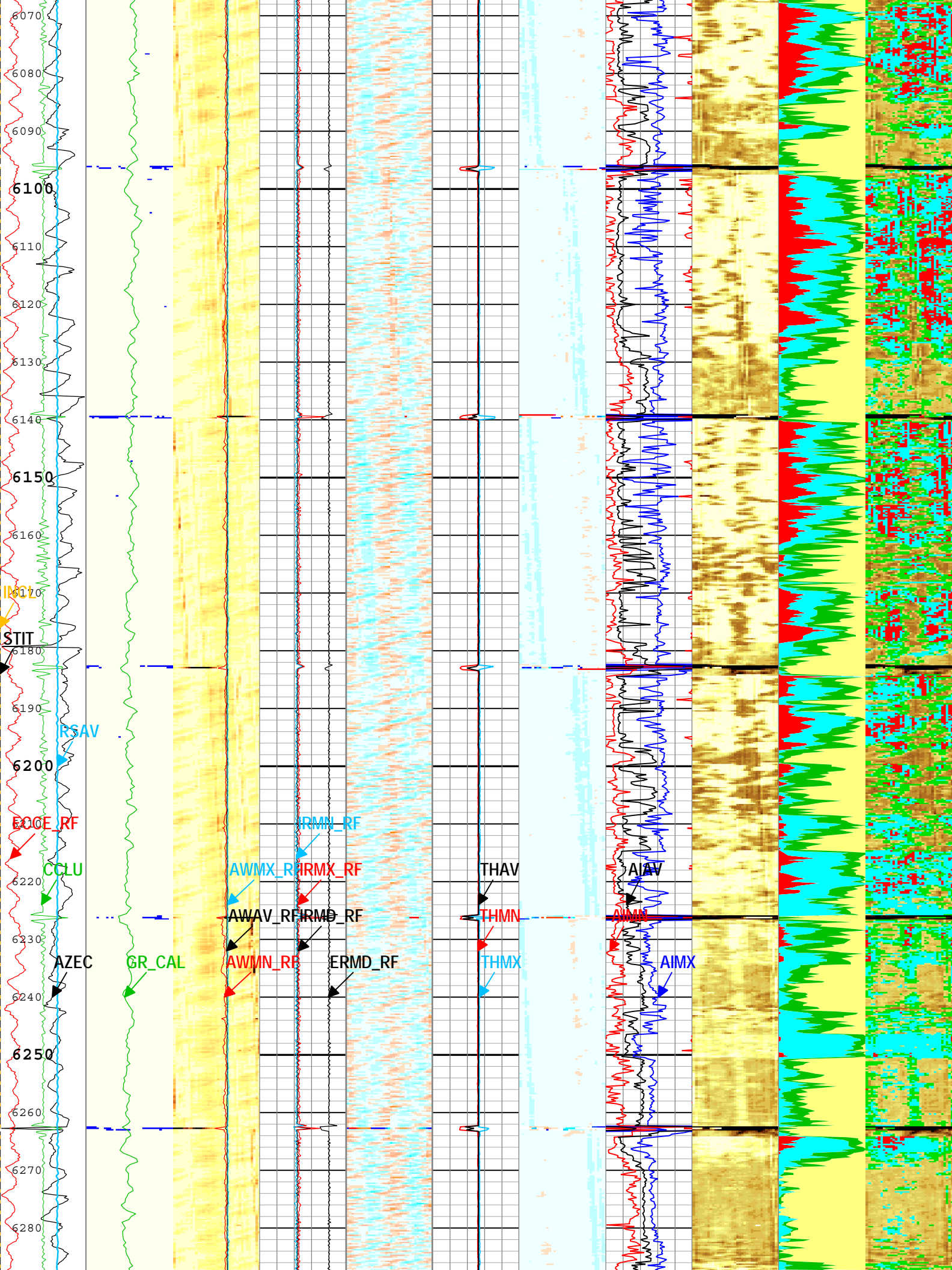


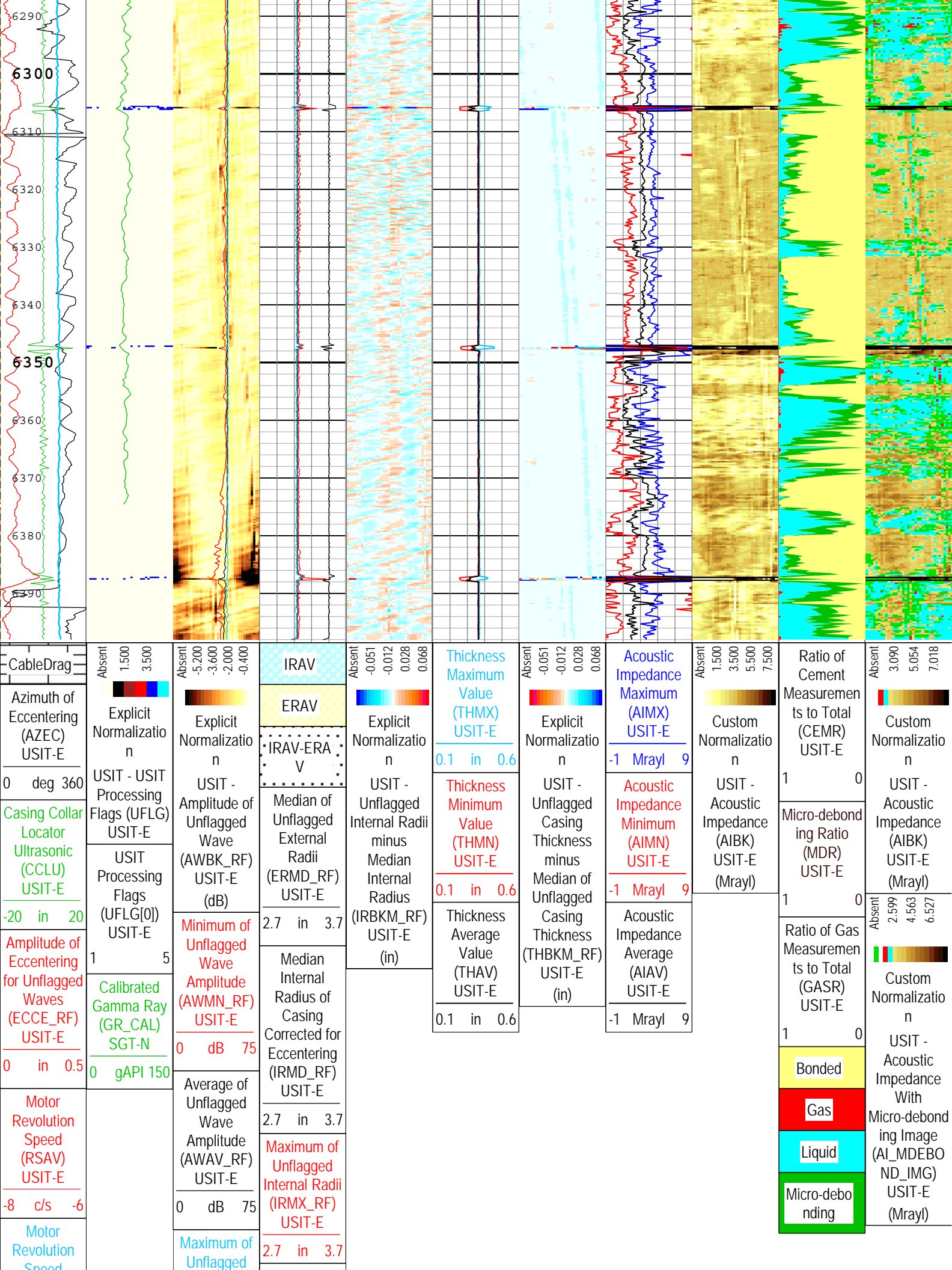

















Speed (RSAV) USIT-E	Wave Amplitude (AWMX_RF) USIT-E		Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E	
6 c/s 8	0 dB	75	2.7 in	3.7
Stuck Tool Indicator, Total (STIT)				
0 ft 50				
Hole inclination (INCL)				
0 deg 100				

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 Composite Format: USI Composite Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 09:57:09

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	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	4000	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	6398.5
ZMUD	1.78	0	400
ZMUD	1.8	400	800
ZMUD	1.82	800	990
ZMUD	1.83	990	1050
ZMUD	1.86	1050	1250
ZMUD	1.88	1250	2500
ZMUD	1.9	2500	2900
ZMUD	1.92	2900	3200
ZMUD	1.95	3200	6398.5
All depth are actual.			

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	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	125	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	6400	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

USI Goodwin			
USIT - Fluid Properties Measurement			
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Main[2]:Up	6398.63	17.25
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	400	1.78	1.78
400	800	1.8	1.8
800	990	1.82	1.82
990	1050	1.83	1.83
1050	1250	1.86	1.86
1250	2500	1.88	1.88
2500	2900	1.9	1.9
2900	3200	1.92	1.92
3200		1.95	1.95
Run 1			
USI Goodwin Compressed			
Log	Company:Anadarko Petroleum Company		Well:Benson Farms 11N-19HZ
	Run 1: Main[2]:Up:S004		

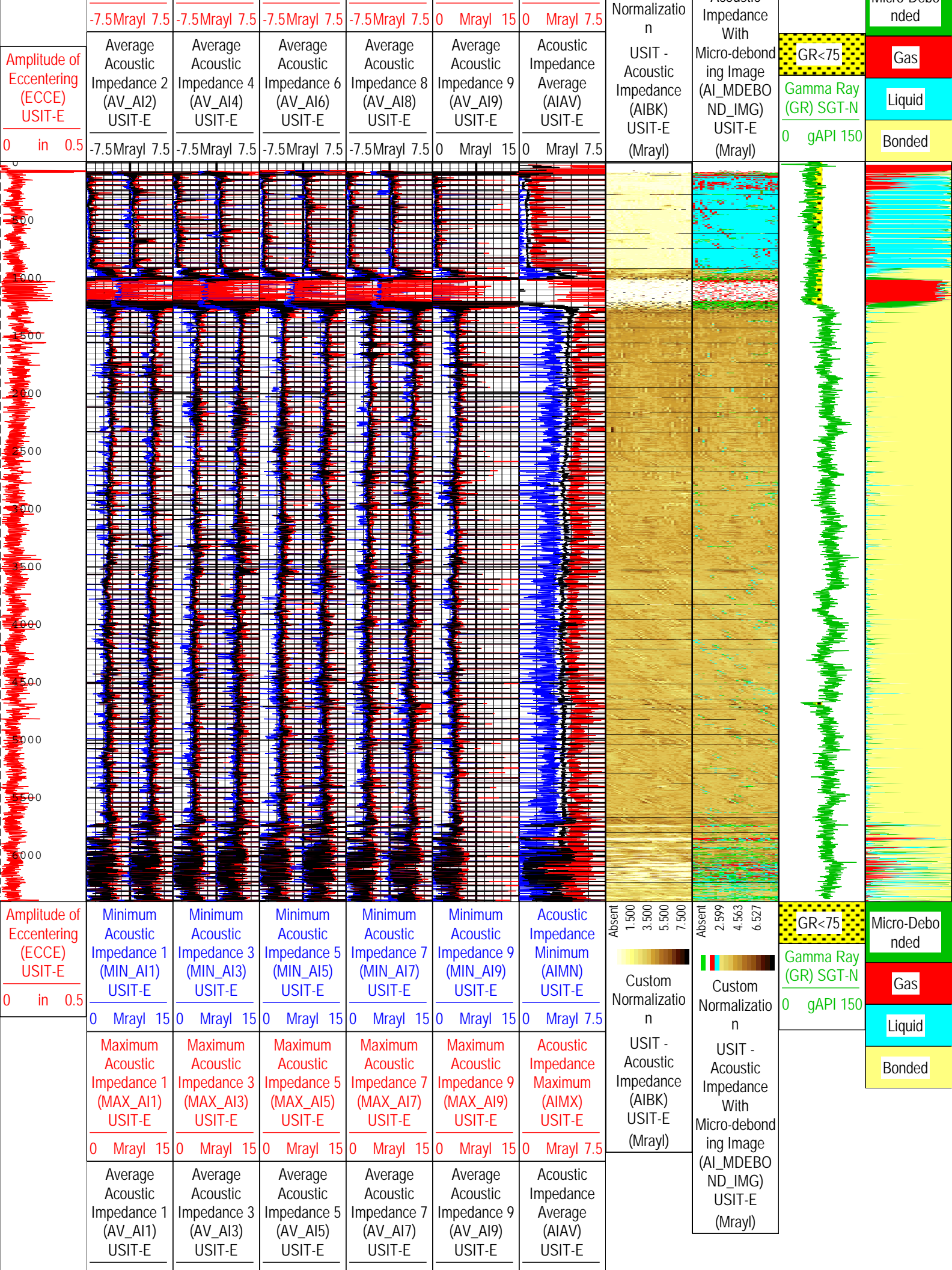
Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 14-Aug-2014 09:57:20

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 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	Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E	Acoustic Impedance Maximum (AIMX) USIT-E

Absent
1.500
3.500
5.500
7.500
Custom

Absent
2.599
4.563
6.527
Custom Normalization
USIT - Acoustic



0	Mrayl	15	0	Mrayl	15	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											
-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							
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							

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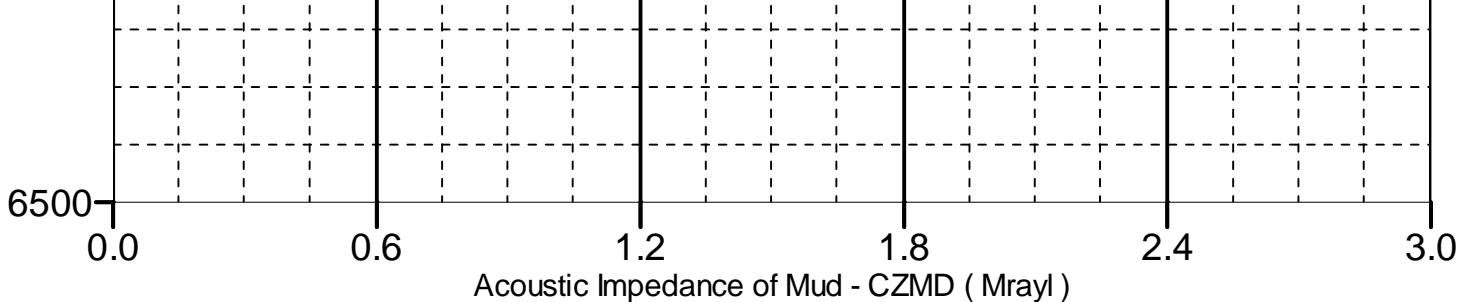
XYZ	Company:Anadarko Petroleum Company	Well:Benson Farms 11N-19HZ
	Run 1: Main[4]:Up:S004	

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 5273.50 to 9.50 ft





XYZ

Company: Anadarko Petroleum Company

Well: Benson Farms 11N-19HZ

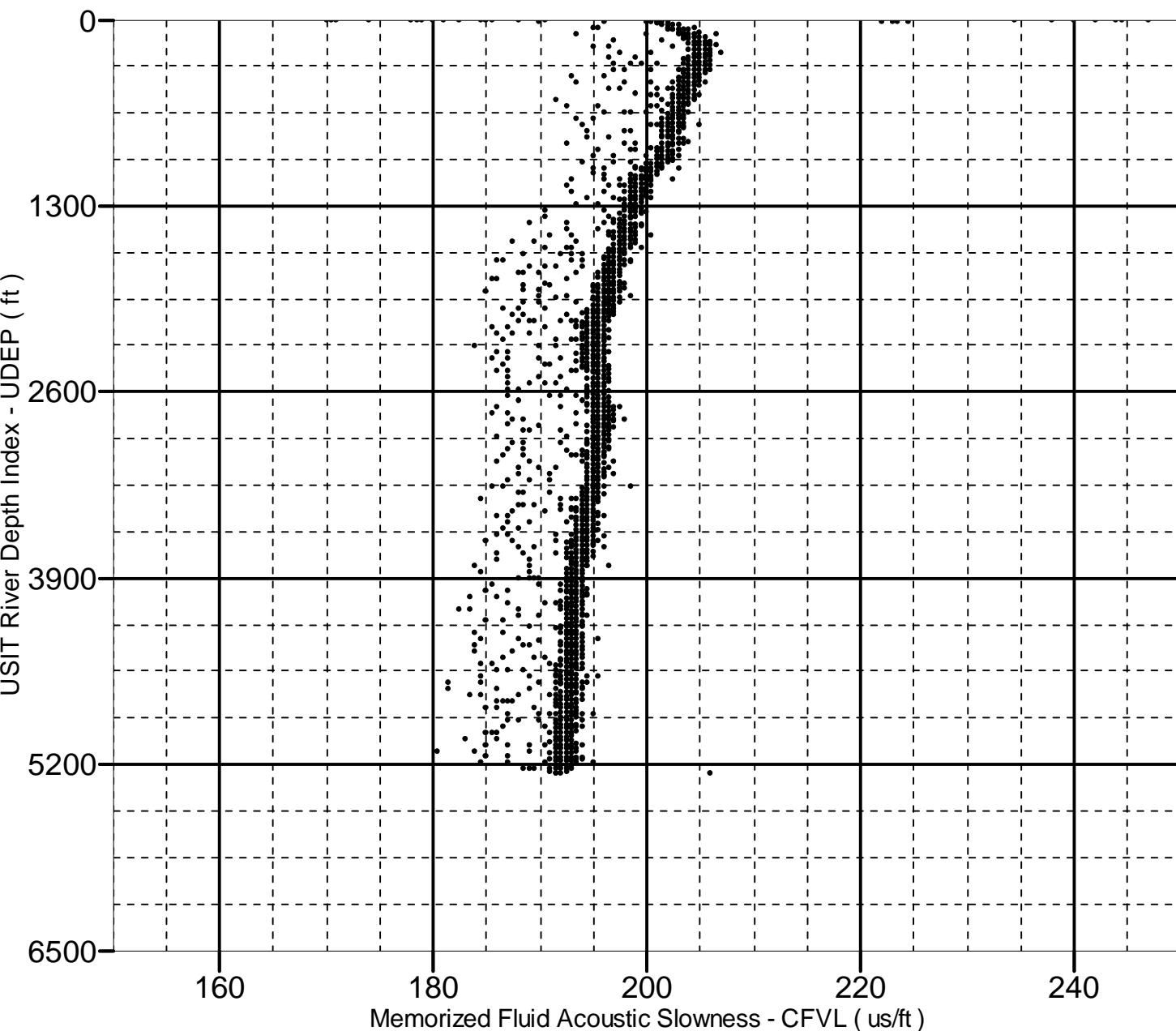
Run 1: Main[4]:Up:S004

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 5273.50 to 9.50 ft

● CFVL-UDEP



Company:	Anadarko Petroleum Company	Schlumberger
Well:	Benson Farms 11N-19HZ	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Ultrasonic Imager		
Cement Evaluation		
Gamma Ray - CCL		