Schlumberger

Company: Southern California Gas Company

Well: Ward 3

Field: Aliso Canyon

County: Los Angeles State: CALIFORNIA

County: Los Angeles
Field: Aliso Canyon
Location:
Well: Ward 3
Company: Southern California Gas Company

Ultrasonic Imager

CCL

7" 23 AND 26# casing

Location:				
			Elev.: K.B.	2233.87 ft
			G.L.	2226.04 ft
			D.F.	
Permanent Datum:	Ground Level	Elev.:	2226.04 f	
Log Measured From:	Kelly Bushing	7.83 ft	above Perm.Datum	
Drilling Measured From:	Kelly Bushing			

API Serial No.	Section:	Township:	Range:
040370019200	27	3N	16W

Logging Date		02-Sep-2016	
Run Number		One	
Depth Driller		6381.00 ft	
Schlumberger Depth		6240.00 ft	
Bottom Log Interval		6240.00 ft	
Top Log Interval		12.00 ft	
Casing Fluid Type		Water	
Salinity			
Density		9.2 lbm/gal	
Fluid Level		8.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		10.63 in	
From		1660.00 ft	
To		7100.00 ft	
Casing/Tubing Size		7 in	
Weight		23 lbm/ft	
Grade		N80	
From		6383.00 ft	
To		7100.00 ft	
Max Recorded Temperatures			
Logger on Bottom	Time	02-Sep-2016 11:07:00	
Unit Number	Location:	3017 Ventura Ca	
Recorded By		John Lopez	
Witnessed By		Mr Tom McMahon	

Disclaimer

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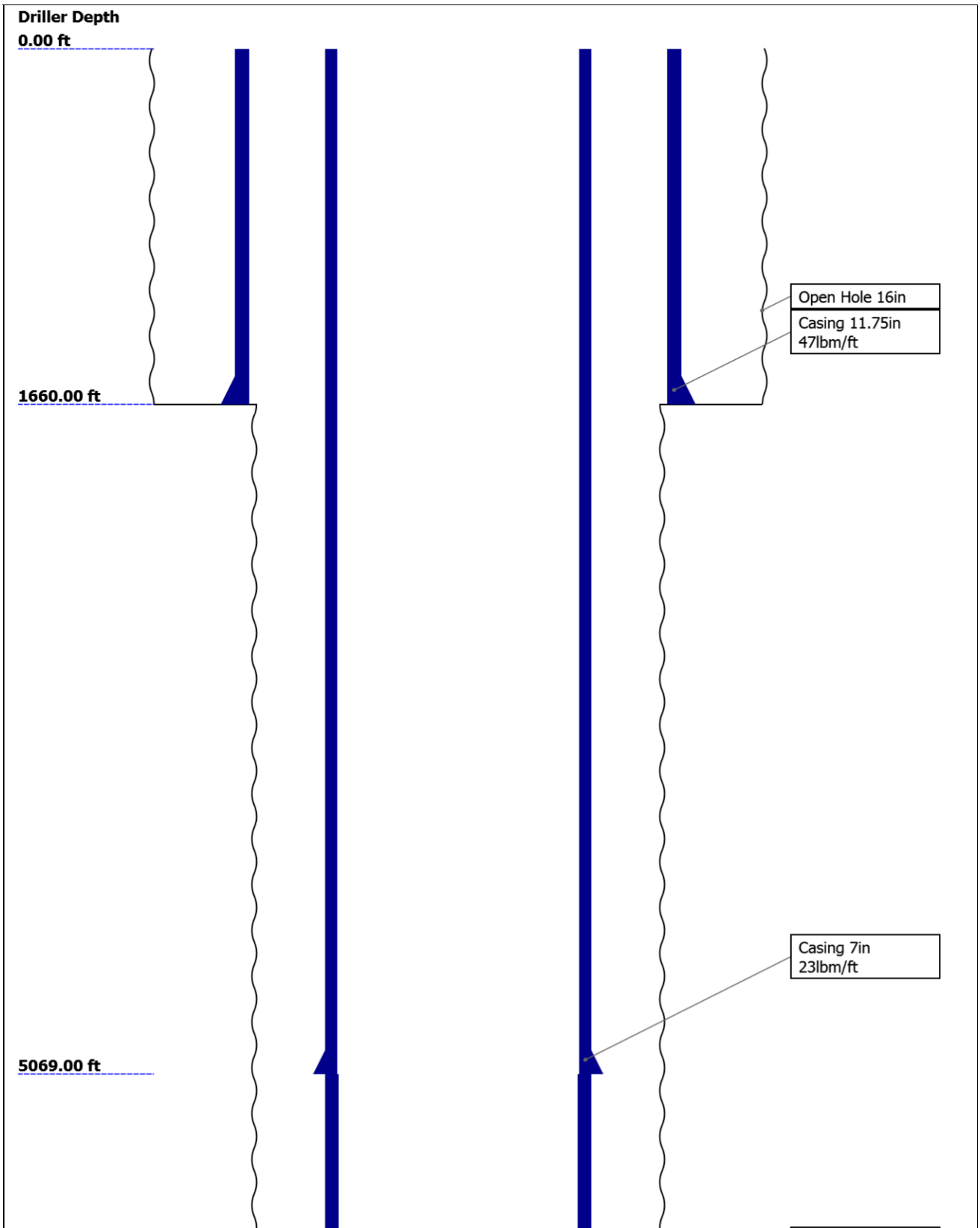
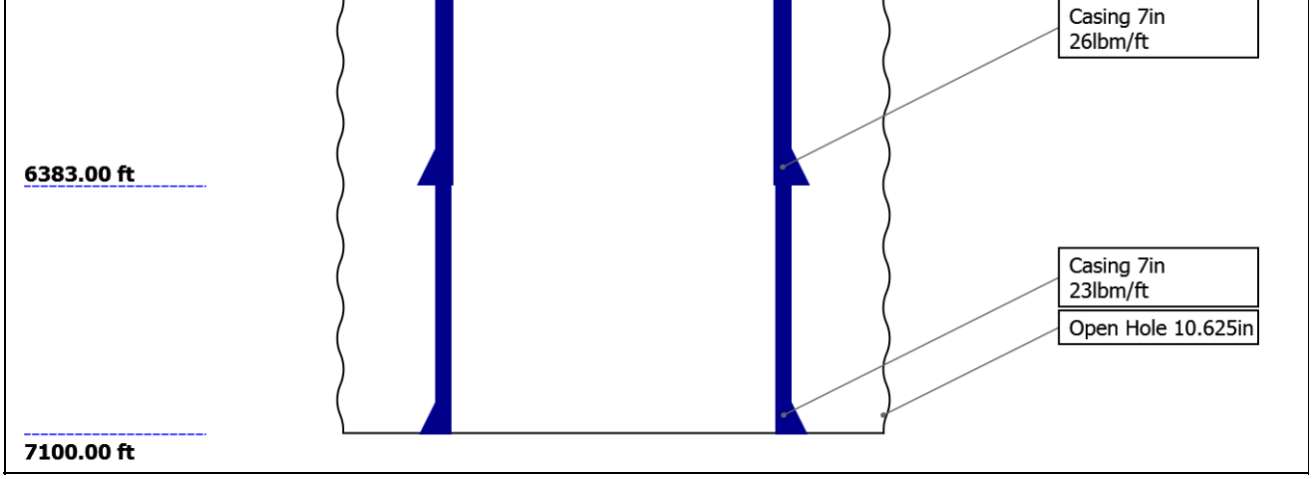
Well Sketch



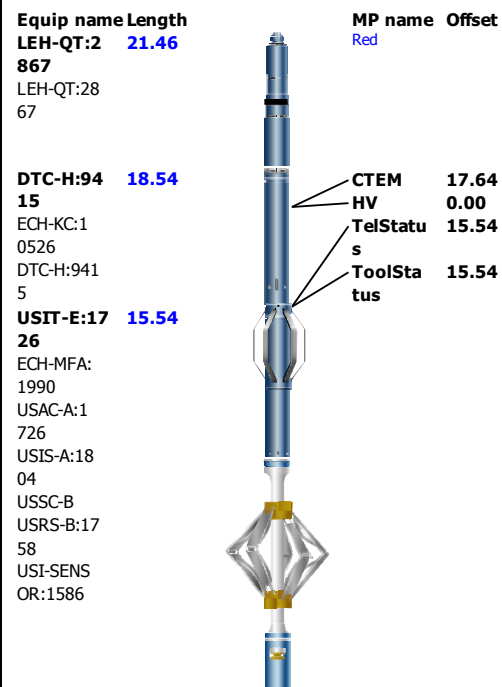


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	16	10.625				
Top Driller (ft)	0	1660				
Top Logger (ft)	0	1660				
Bottom Driller (ft)	1660	7100				
Bottom Logger (ft)	1660	7100				
Casing						
Size (in)	11.75	7	7	7		
Weight (lbm/ft)	47	23	26	23		
Inner Diameter (in)	11	6.366	6.276	6.366		
Grade	J55	J55	J55	N80		
Top Driller (ft)	0	0	5069	6383		
Top Logger (ft)	0	0	5069	6383		
Bottom Driller (ft)	1660	5069	6383	7100		
Bottom Logger (ft)	1660	5069	6383	7100		

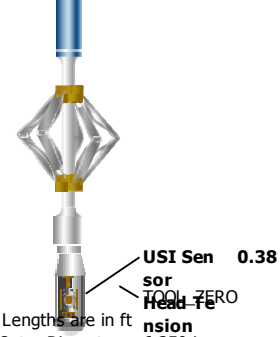
Remarks and Equipment Summary

2-Sep-2016: Toolstring



2-Sep-2016: Remarks

Rig: Rival 15
Toolstring ran as per toolsketch.
Two centralizers on USIS and one gemco used to centralize ultrasonic tool.
Thank you for choosing Schlumberger!
correlated to collars from Tiger Radial Bond Log dated July 11.2016
crew: Coupart, Martinez
fish at 6380 ft drill pipe measurements
Set down at 6240 feet, Logged from 6240 to surface and in Hi-res mode
Changed to a smaller USIT-Sub and ran back in hole, reached 6380 ft , but sub got debris in it and it stopped rotating
Rigged down and will come back tuesday to relog
Main pass run at 10 deg 1.5 inch resolution 2800 fph, Hi res pass run at 10 degree 0.6 inch resolution at 1000 fph



Lengths are in ft
Maximum Outer Diameter = 6.250 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Job Event Summary

Event	Time	Duration	Interval	Remark
Run 2				Sep-02-2016 07:09
Log[1]:Down	Sep-02-2016 07:49	01:05:08	88.65 - 6259.45 ft	fpm
Log[2]:Up	Sep-02-2016 08:56	02:21:58	6237.78 - 107.27 ft	MAIN PASS
Log[3]:Up	Sep-02-2016 11:21	00:13:58	300.53 - 5.98 ft	SURFACE PASS
Log[4]:Up	Sep-02-2016 12:07	00:18:48	6241.02 - 5941.73 ft	HI RES REPEAT
Log[5]:Up	Sep-02-2016 12:26	00:07:05	5812.08 - 5691.96 ft	HI RES REPEAT
Log[7]:Up	Sep-02-2016 12:45	01:33:56	4351.6 - 3708.88 ft	HI RES REPEAT
Log[8]:Up	Sep-02-2016 13:21	01:22:45	3267.53 - 1670.05 ft	HI RES REPEAT

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 2	Log[2]:Up	6237.78	107.27

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

Mud Impedance = "FreePipe Norm.".
Free Pipe normalization zone is : 5.31m(17.43ft) to 12.55m(41.18ft)
MUD_N_FRP = 1.05
DFD = 1.10g/cm3(9.20lbm/gal)
CZMD median computed in free pipe normalization interval = 1.85 MRayl

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

Composite 1

Main Pass 5 IN = 100 FT

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[2]:Up	Up	107.27 ft	6237.78 ft	02-Sep-2016 8:56:55 AM	02-Sep-2016 11:18:54 AM	ON	-3.00 ft	Yes
2-Sep-2016	Log[3]:Up	Up	5.98 ft	300.53 ft	02-Sep-2016 11:21:28 AM	02-Sep-2016 11:35:26 AM	ON	-3.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Ward 3
Composite 1:S003

Description: USI Composite Format: Log (LBV1_USI Composite 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:32:58

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)

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E[1]

USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5

Absent -4.799 -2.799 -0.800
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6

Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1] (in)

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

Ratio of Cement Measurements to Total (CEMR) USIT-E[1]
1 0

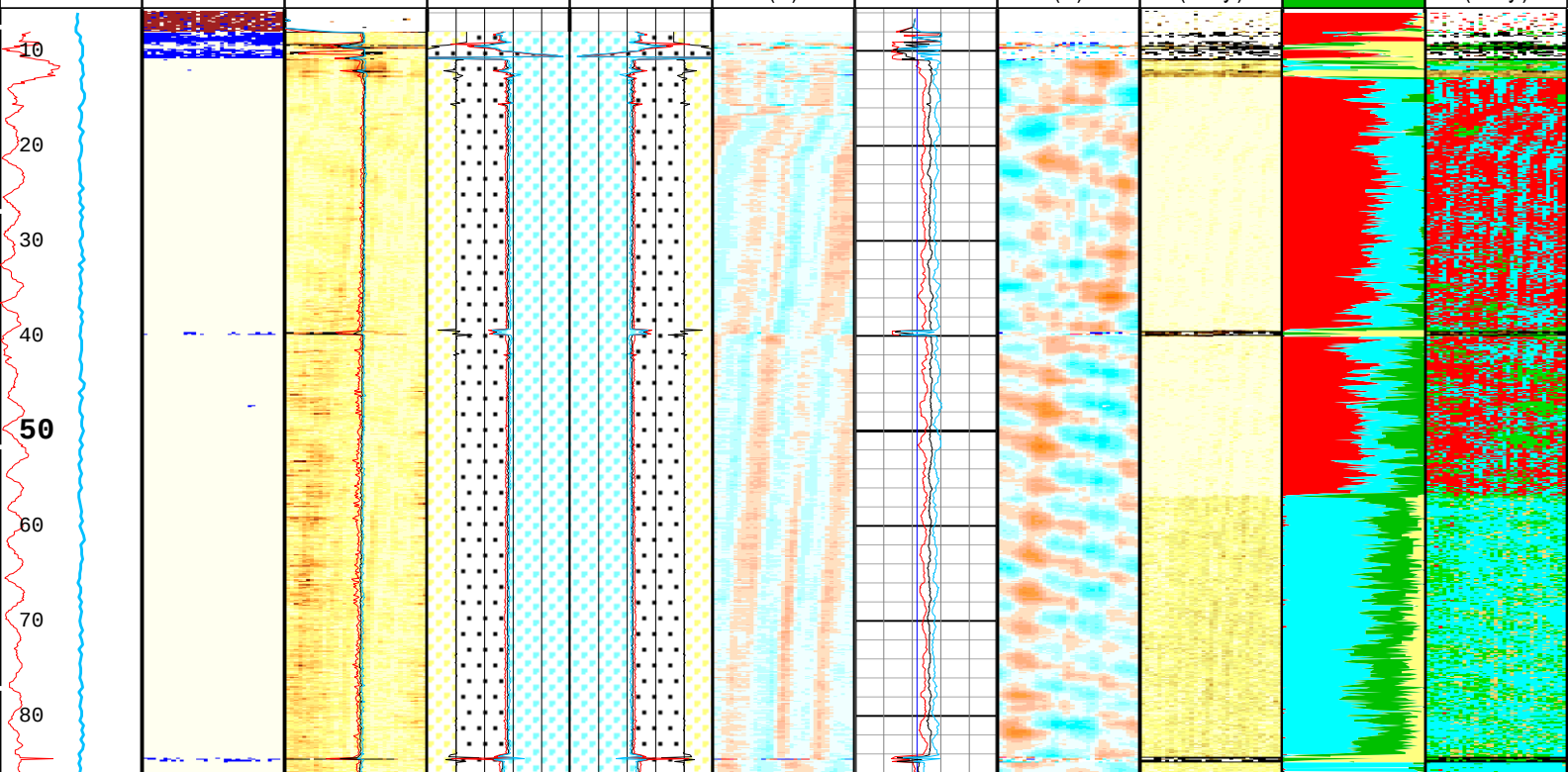
Micro-debonding Ratio (MDR) USIT-E[1]
1 0

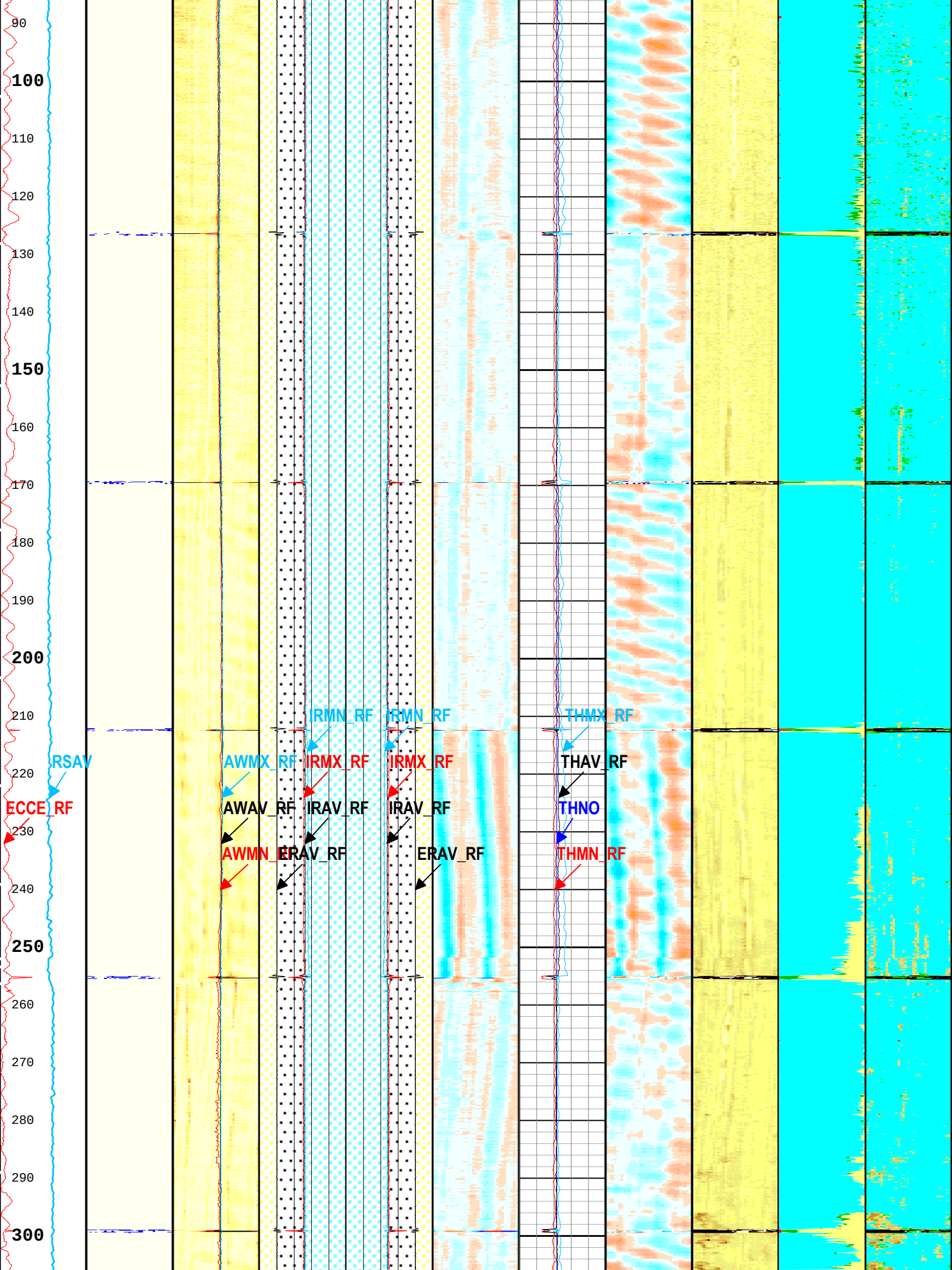
Ratio of Gas Measurements to Total (GASR) USIT-E[1]
1 0

Bonded
Gas
Liquid
Micro-debonding

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

Absent 2.599 4.563 6.527
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)

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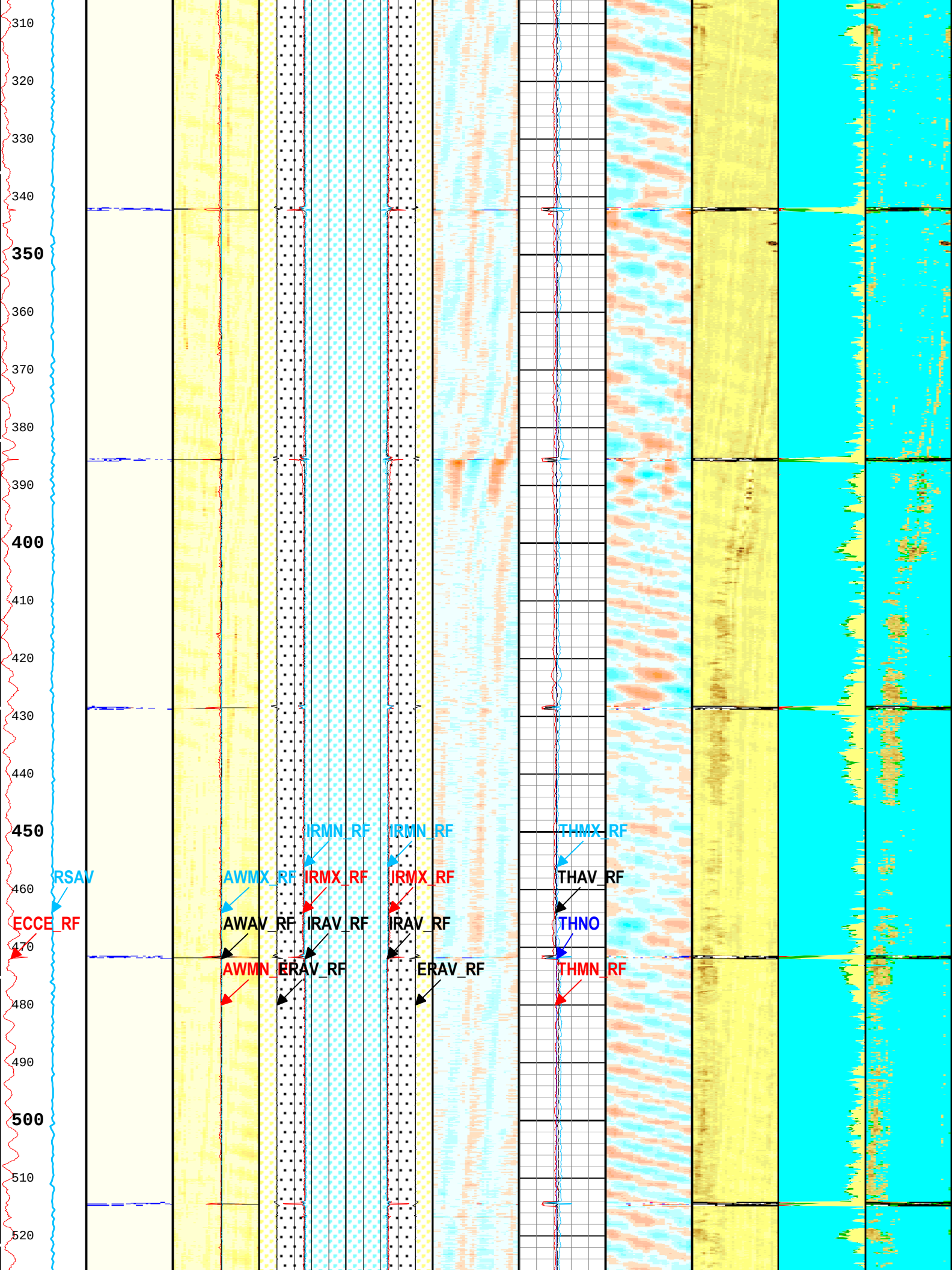
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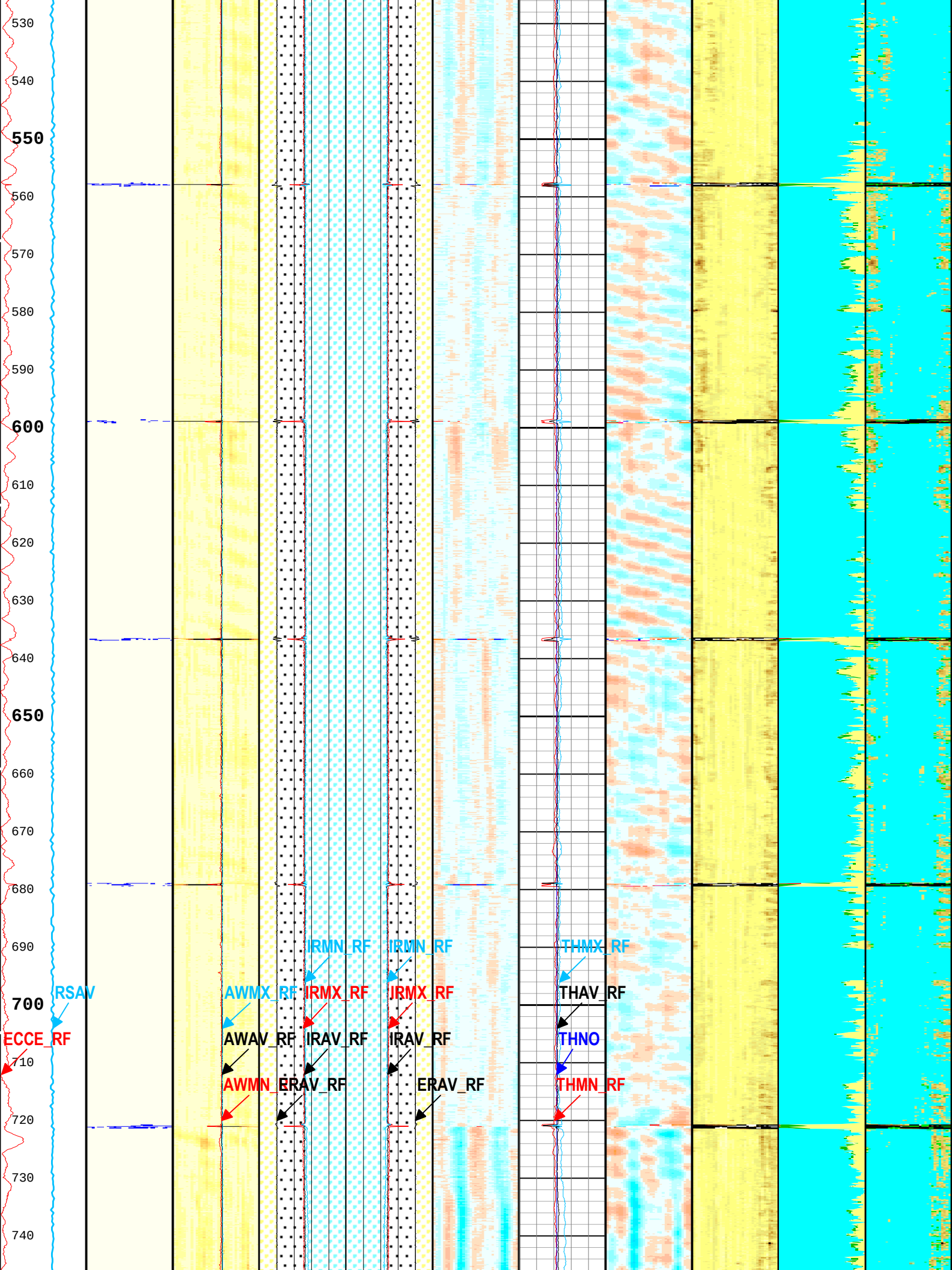
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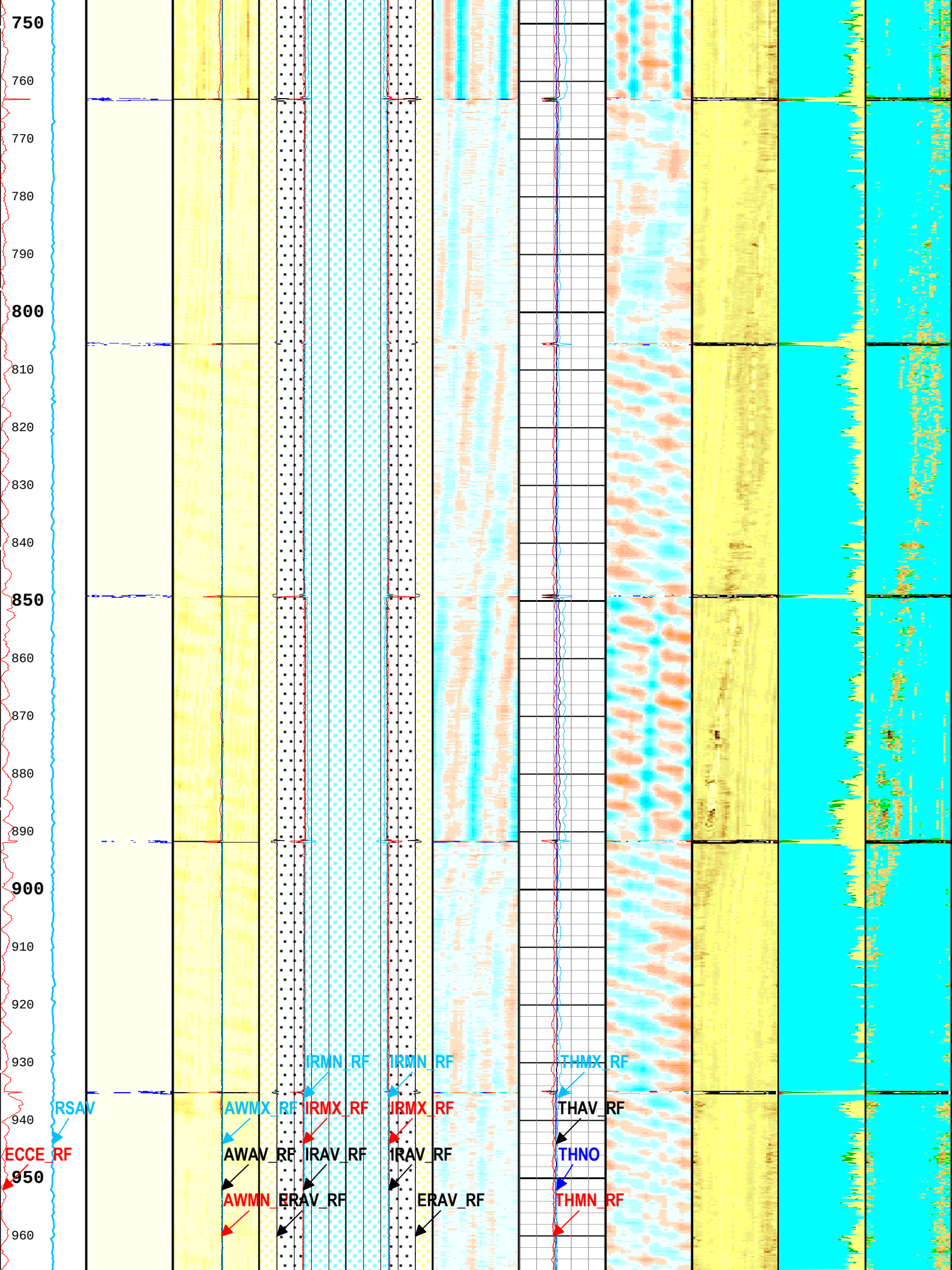
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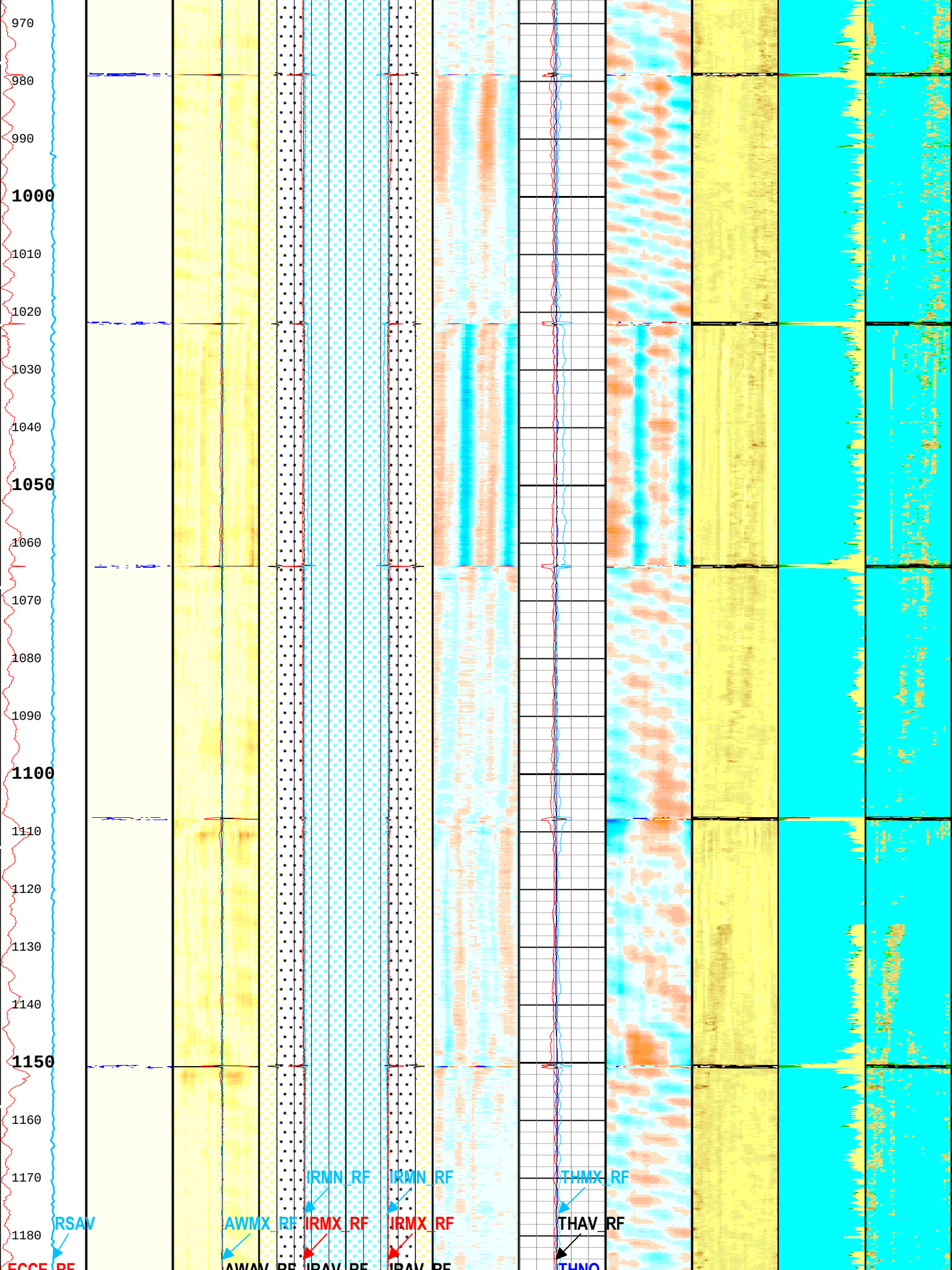
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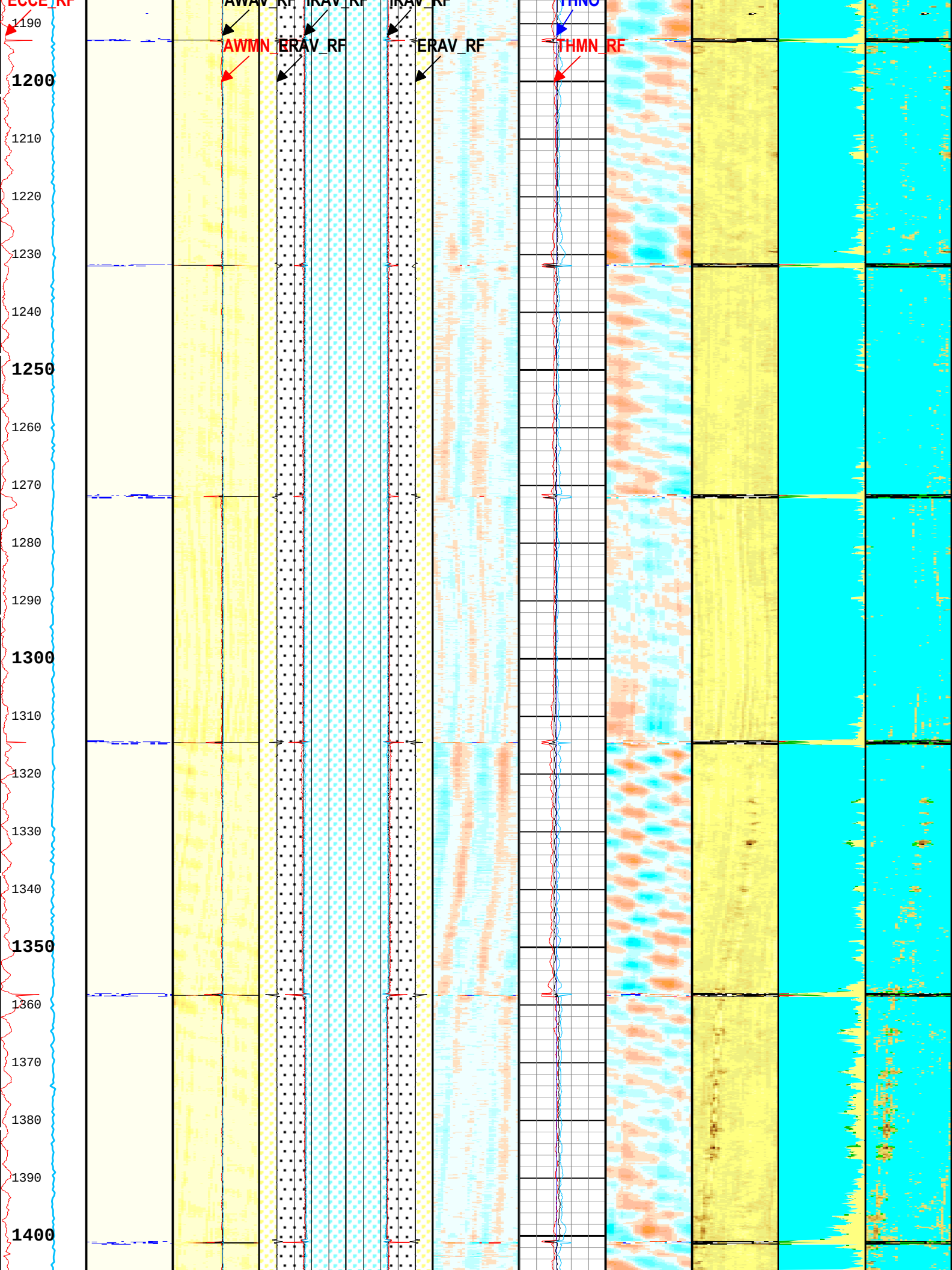
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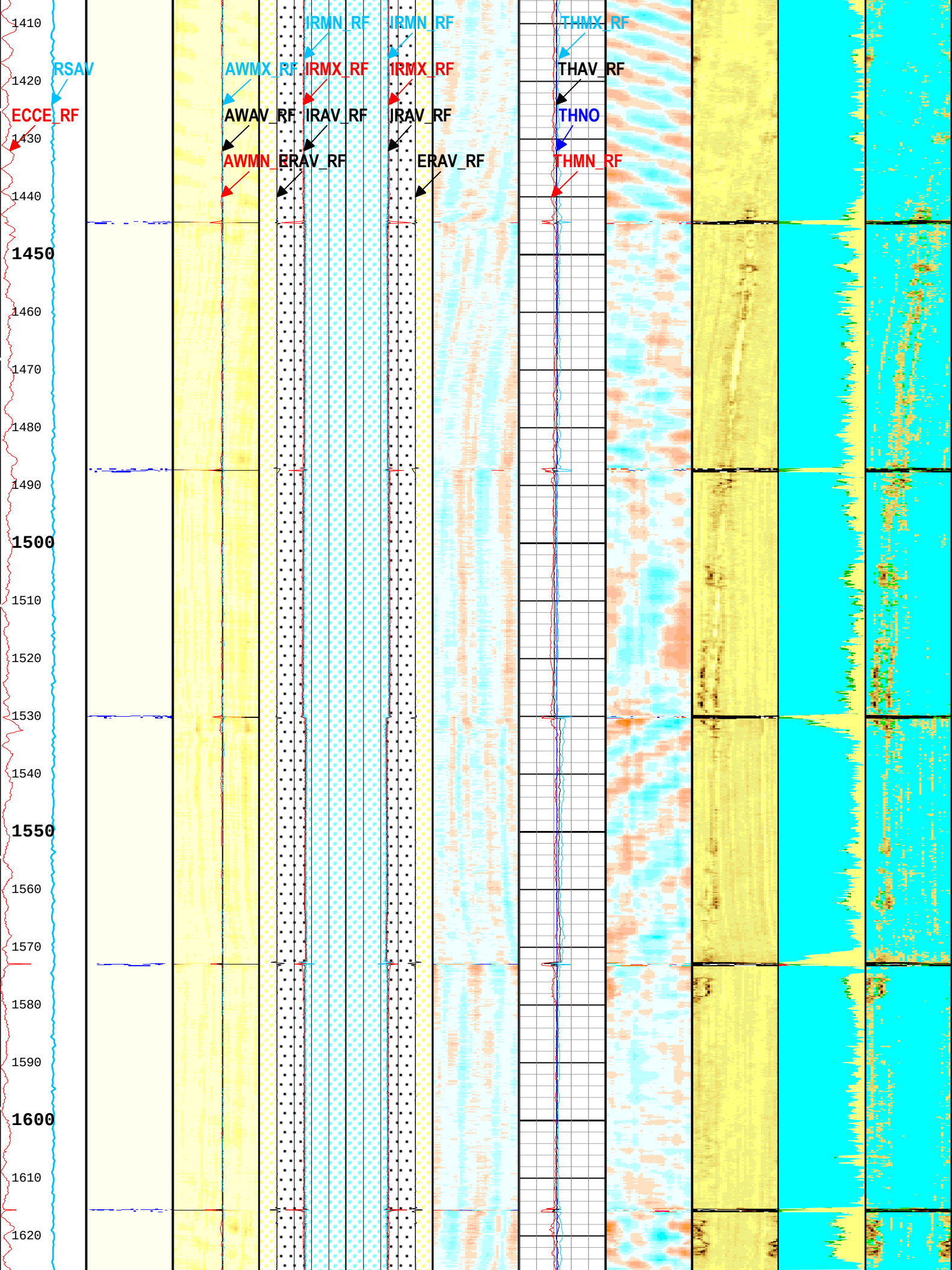
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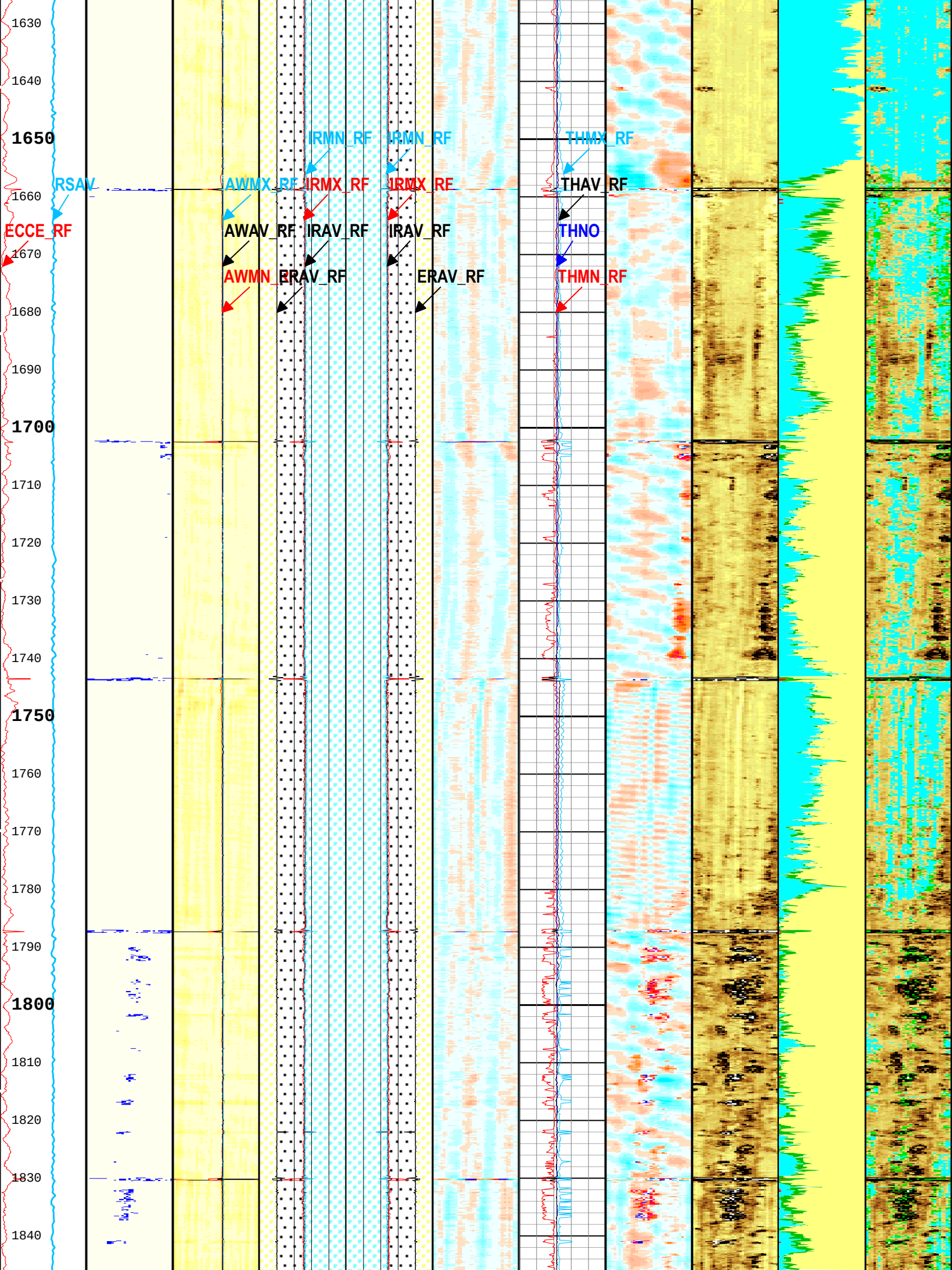
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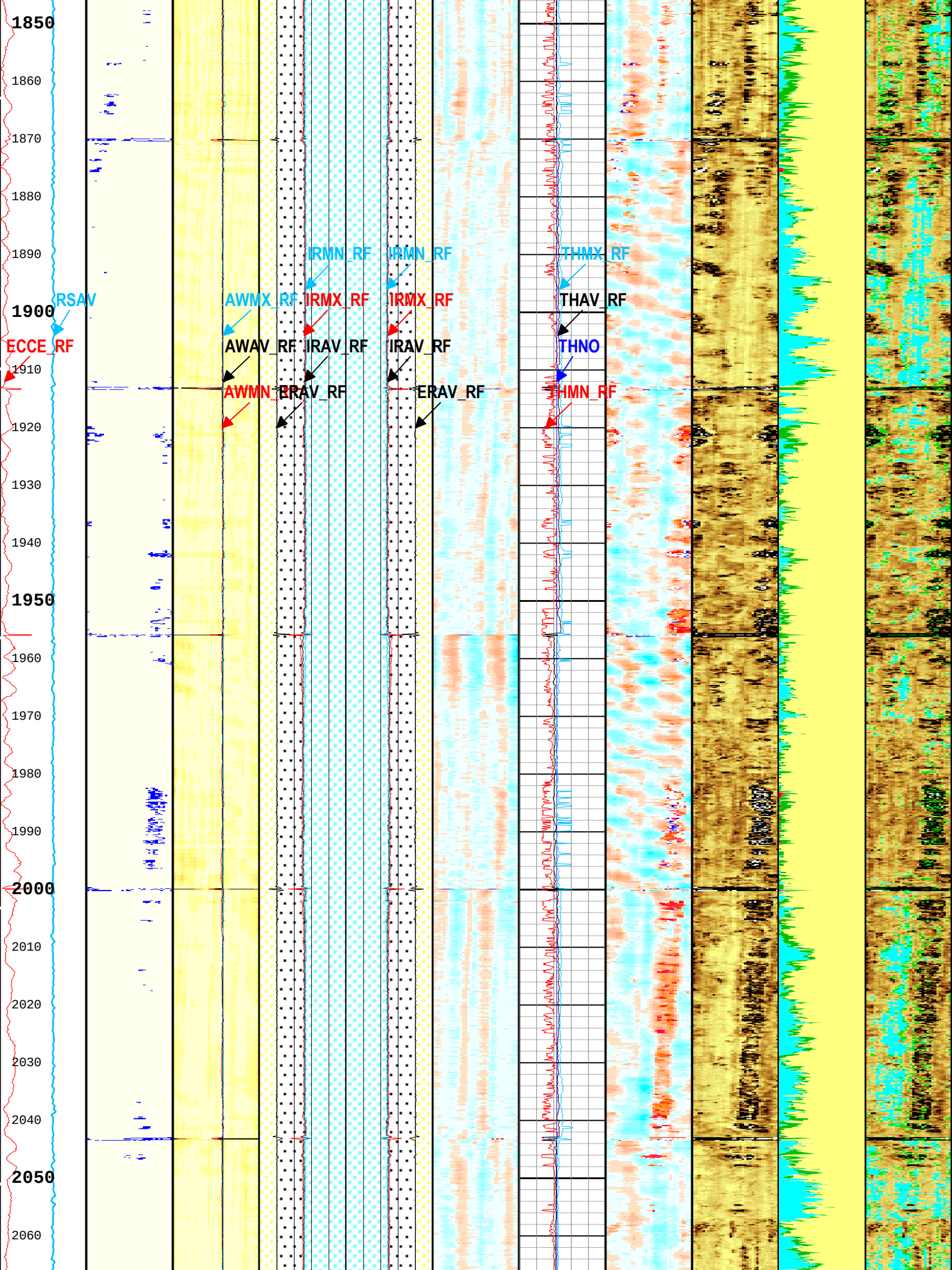
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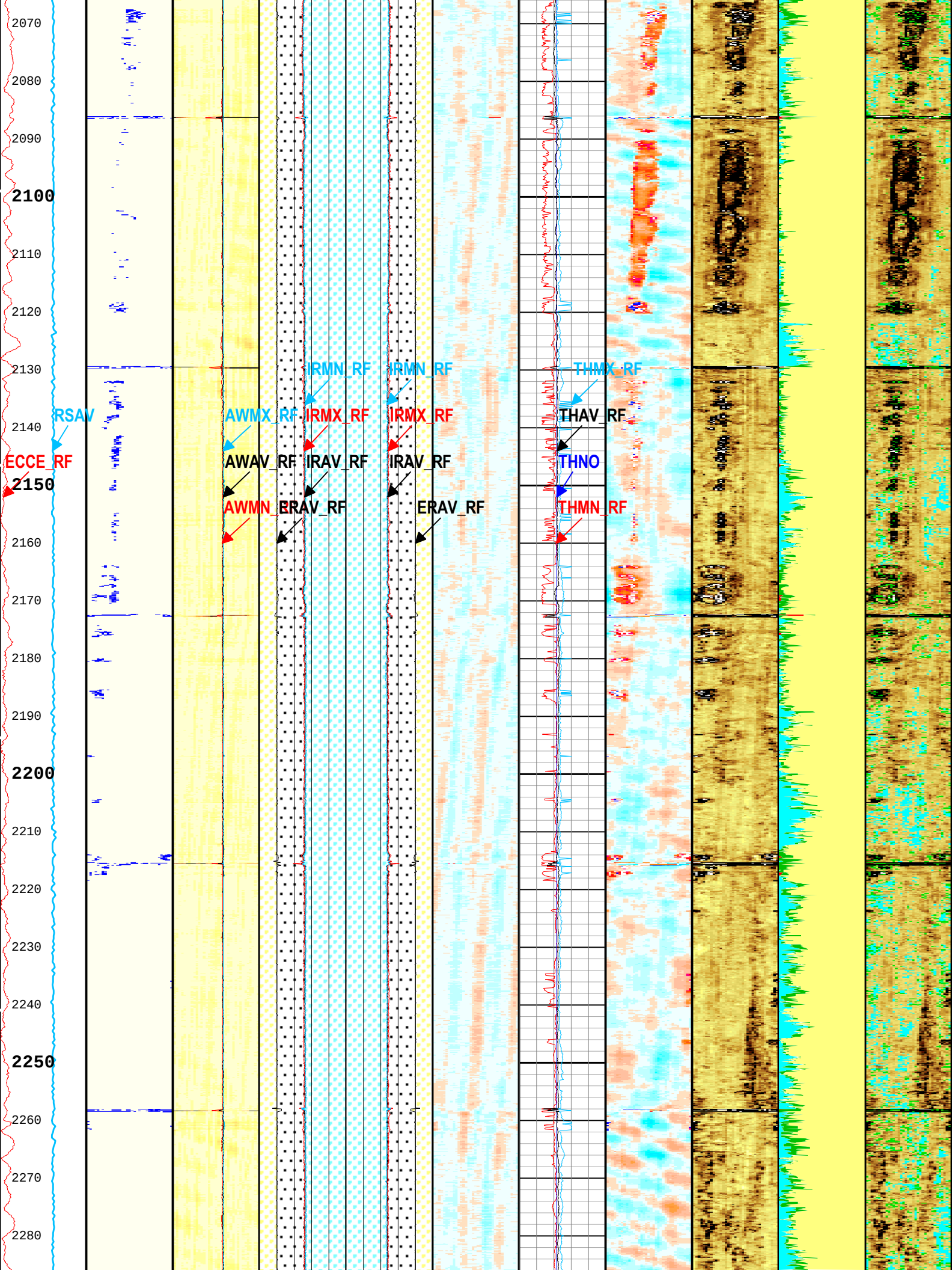
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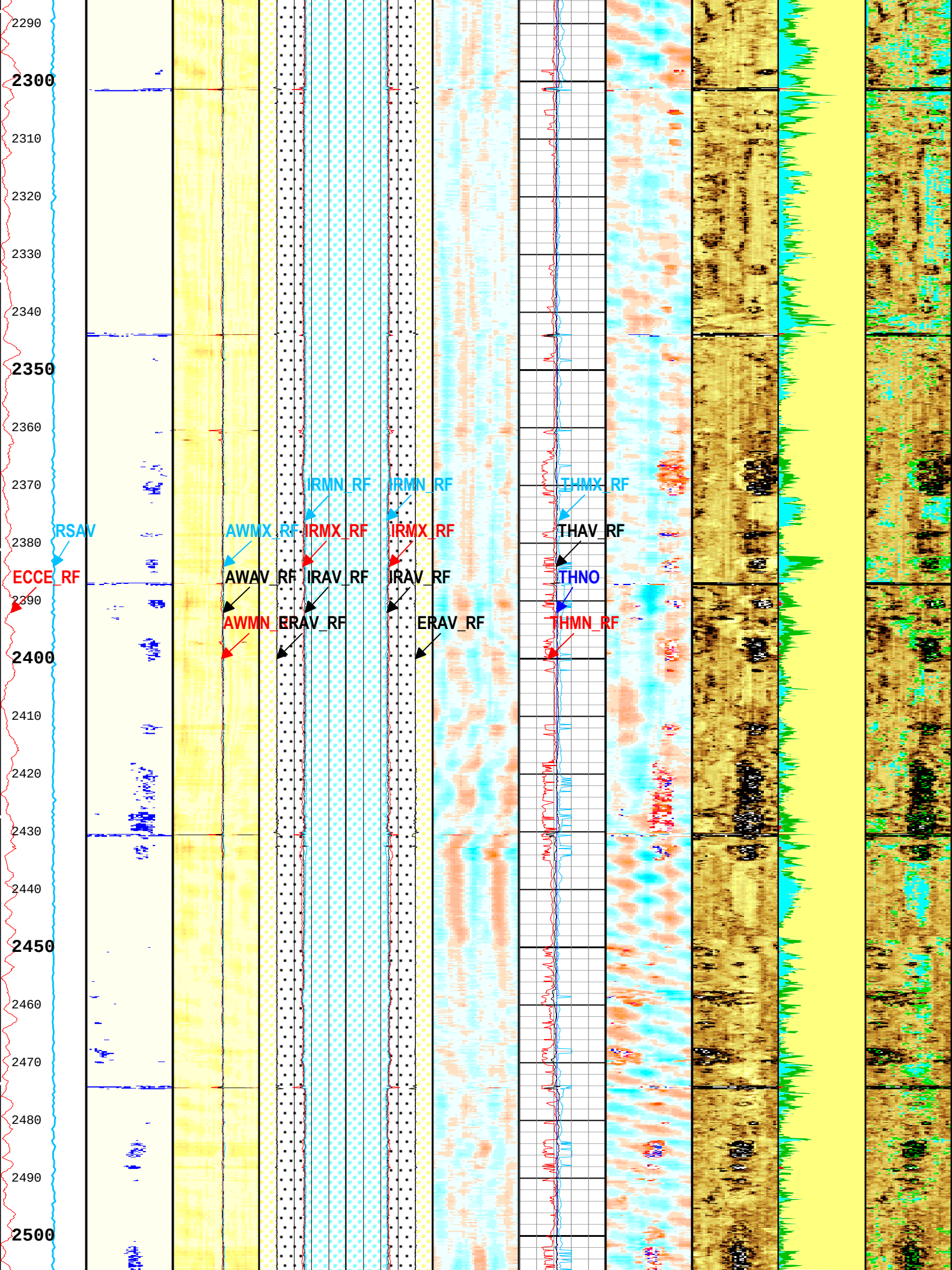
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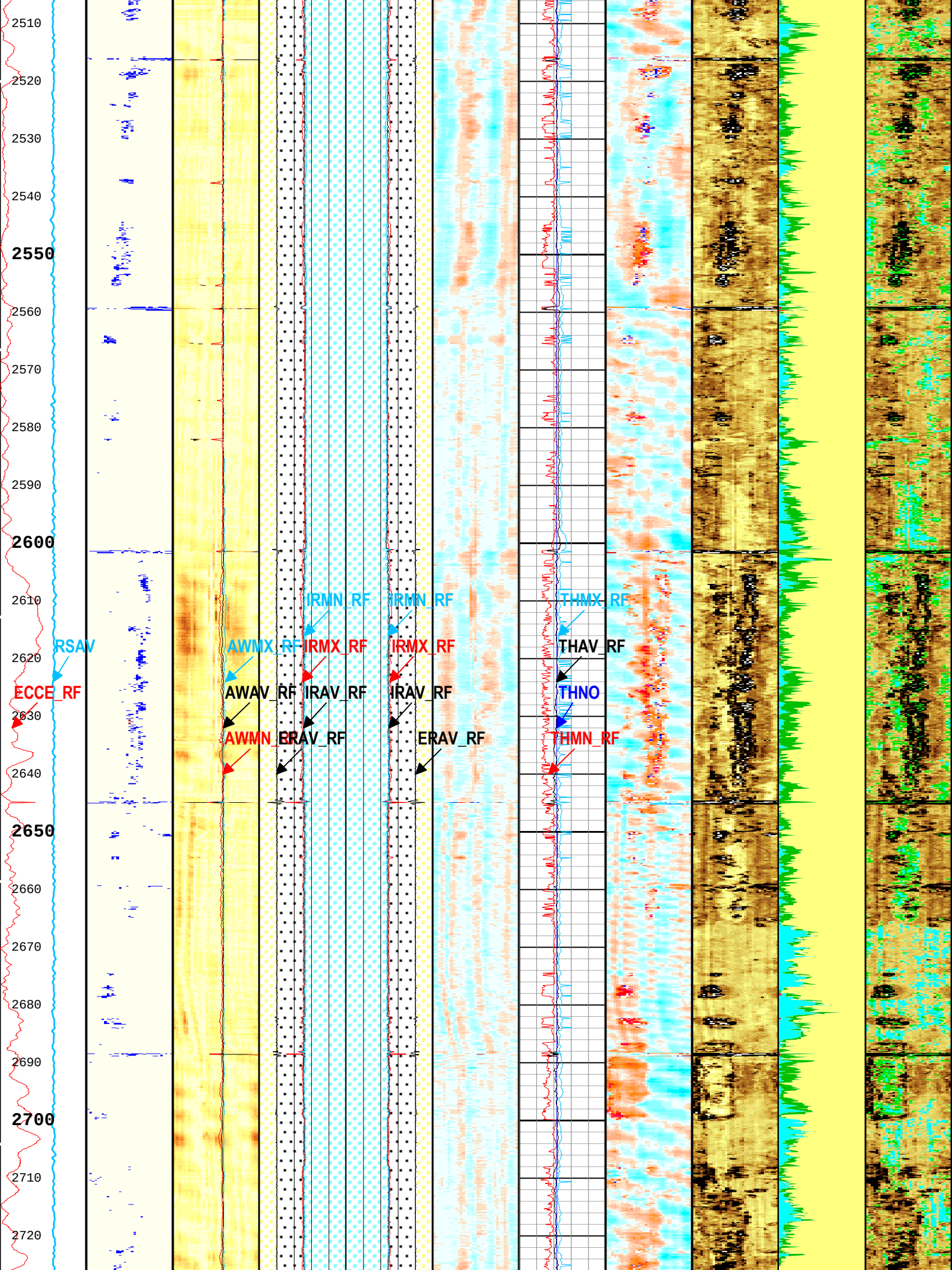
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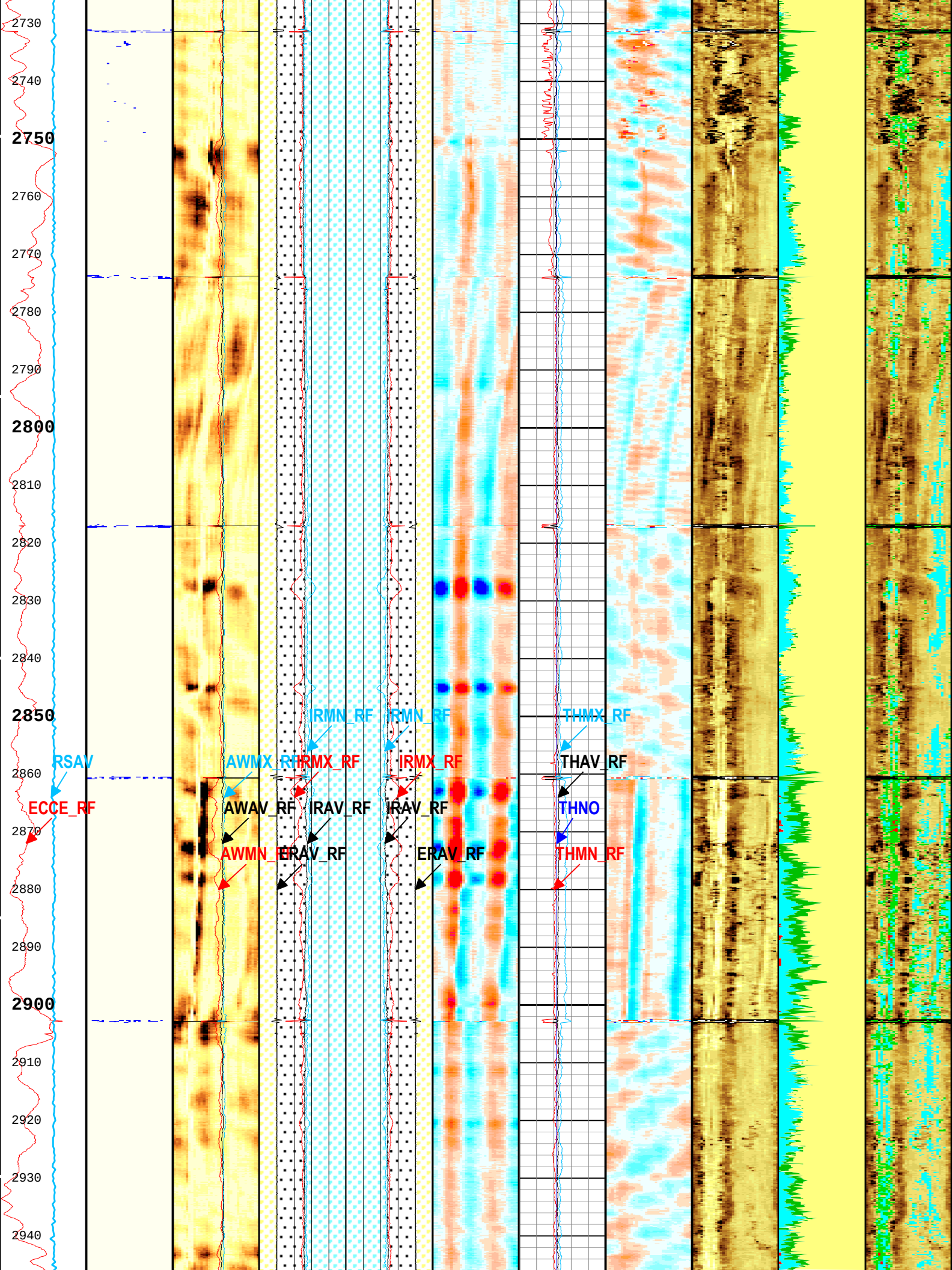
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AWAV_RF
AWMN_RF
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IRMX_RF
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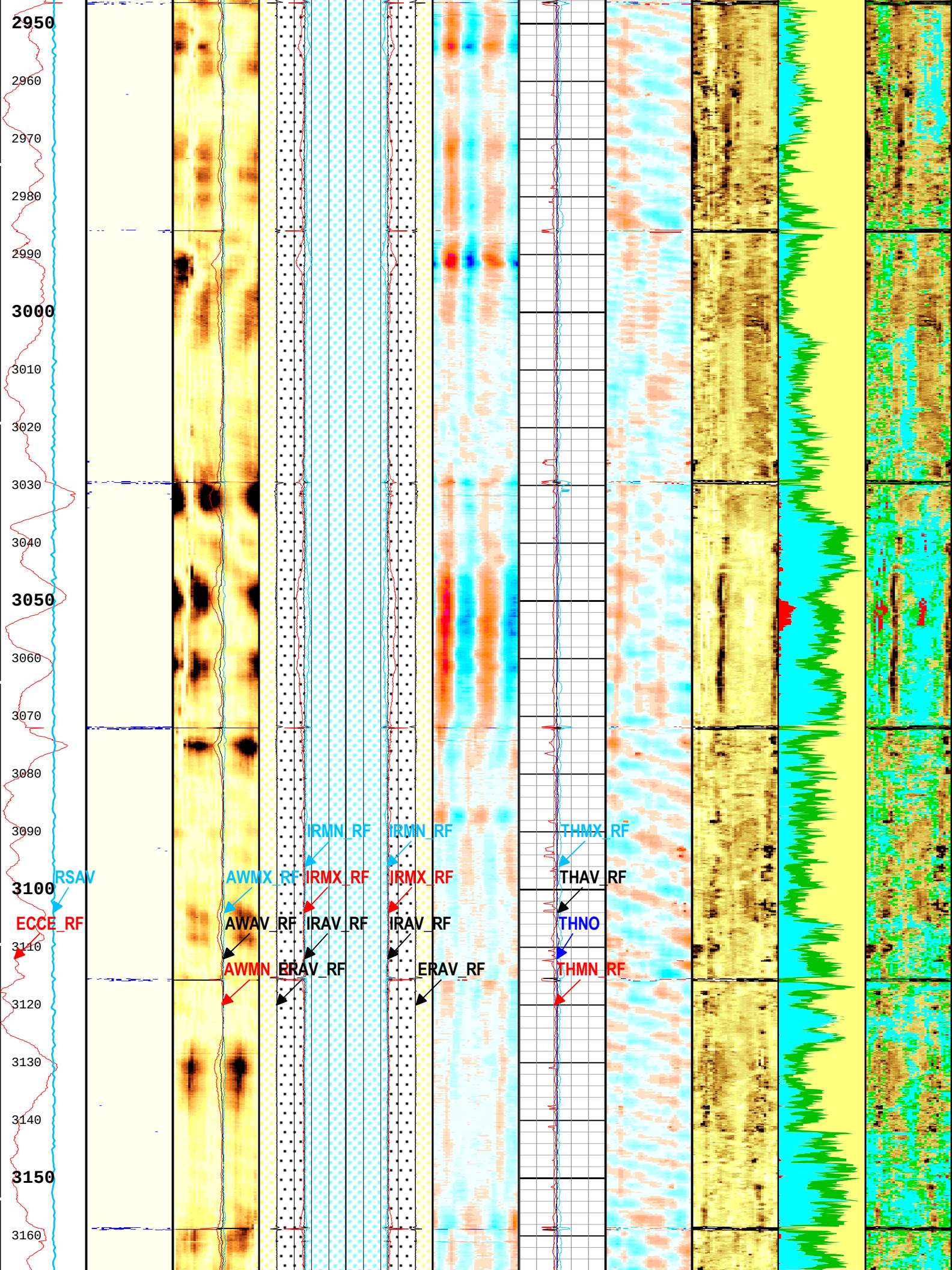
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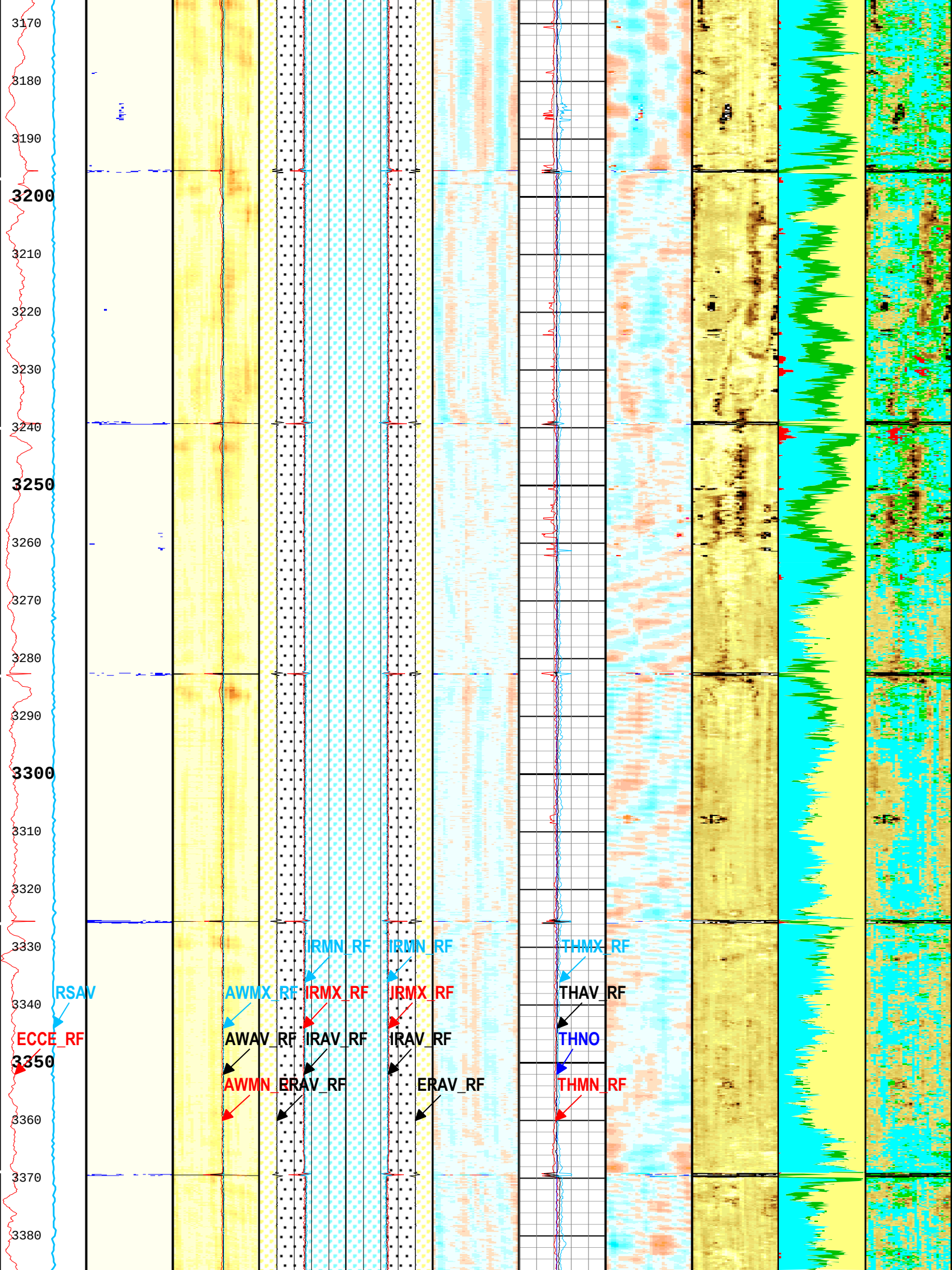
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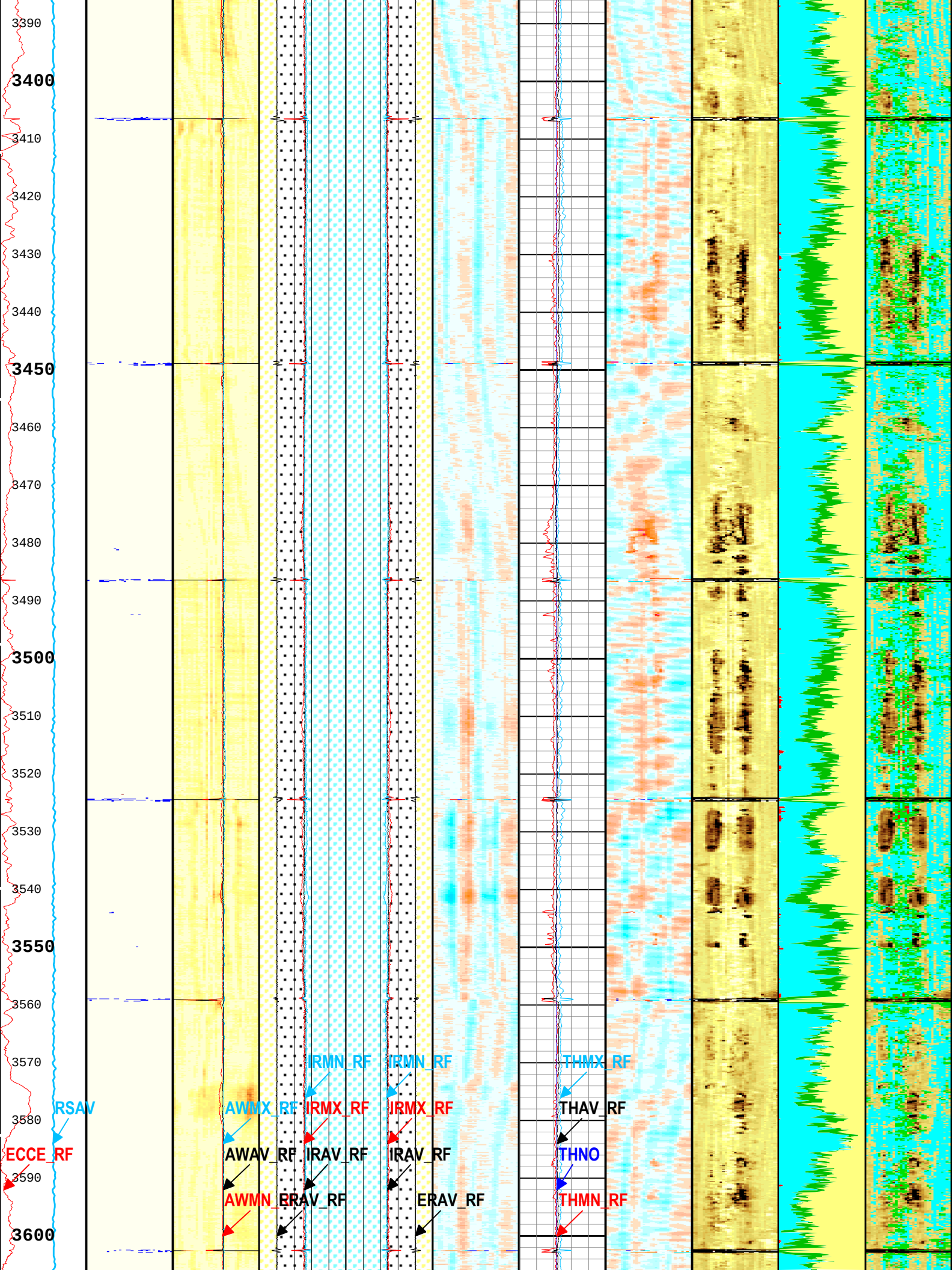
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RSAV
ECCE_RF
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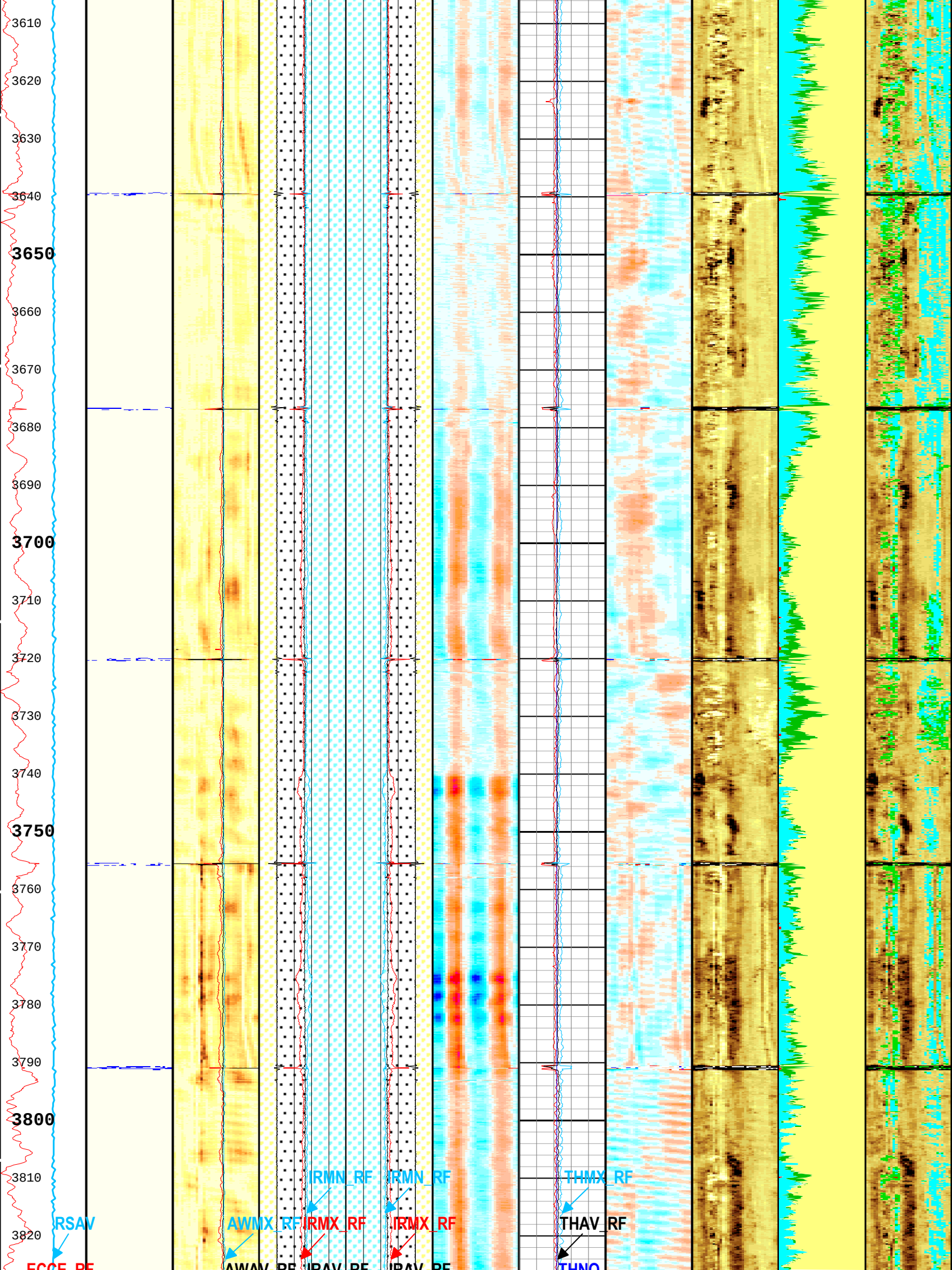
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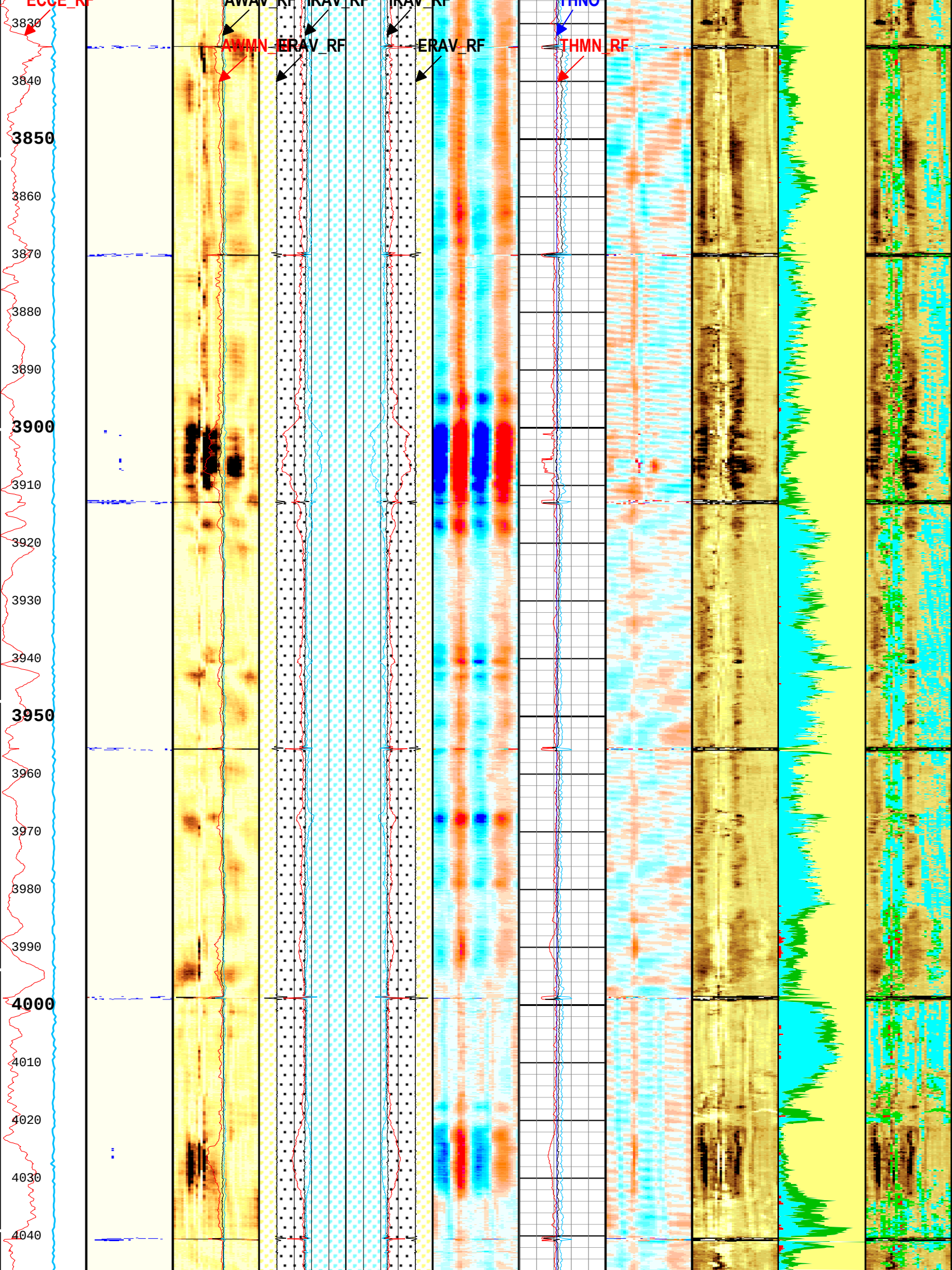
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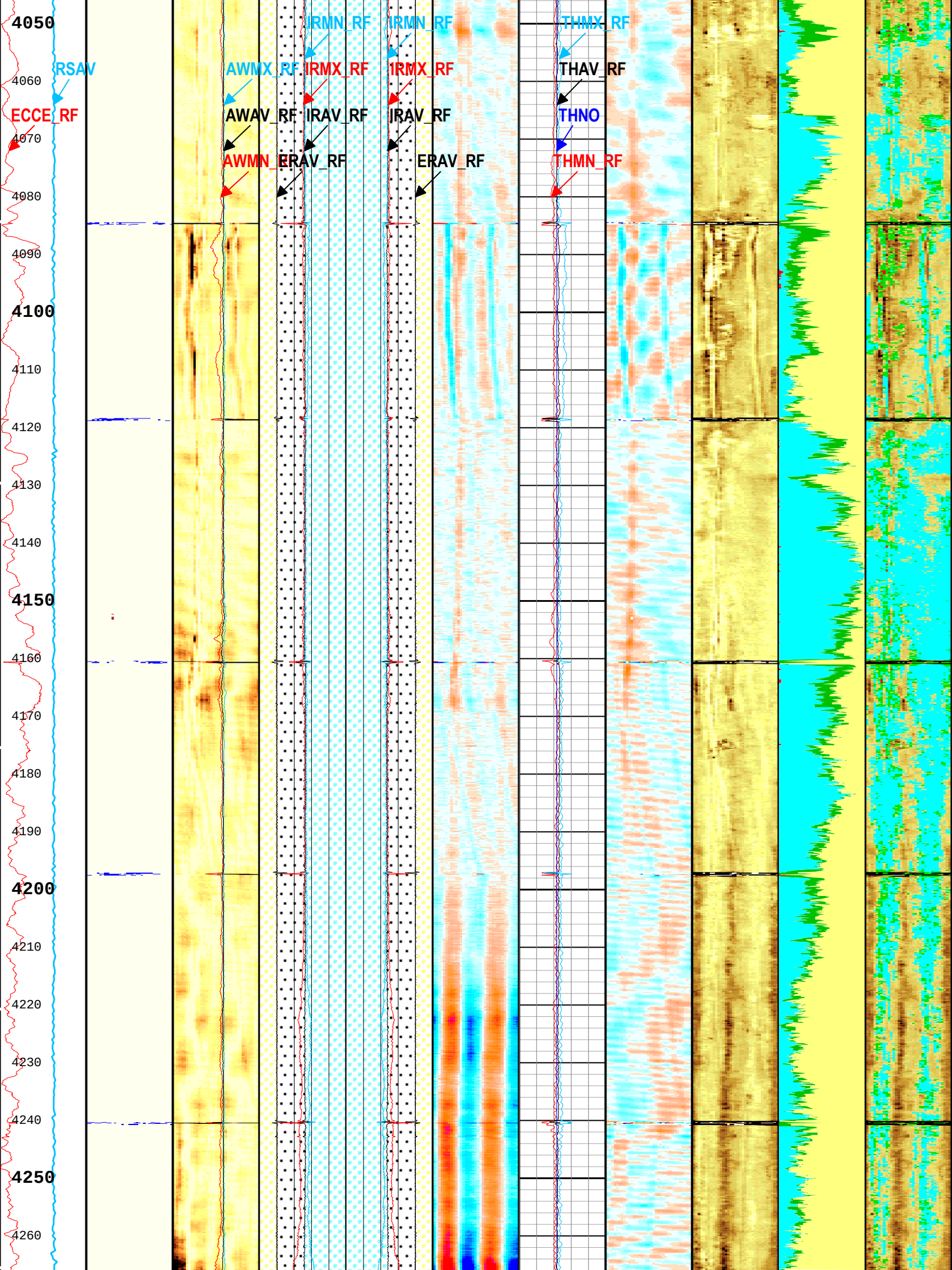
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AWAV_RF
AWMN_RF
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IRMX_RF
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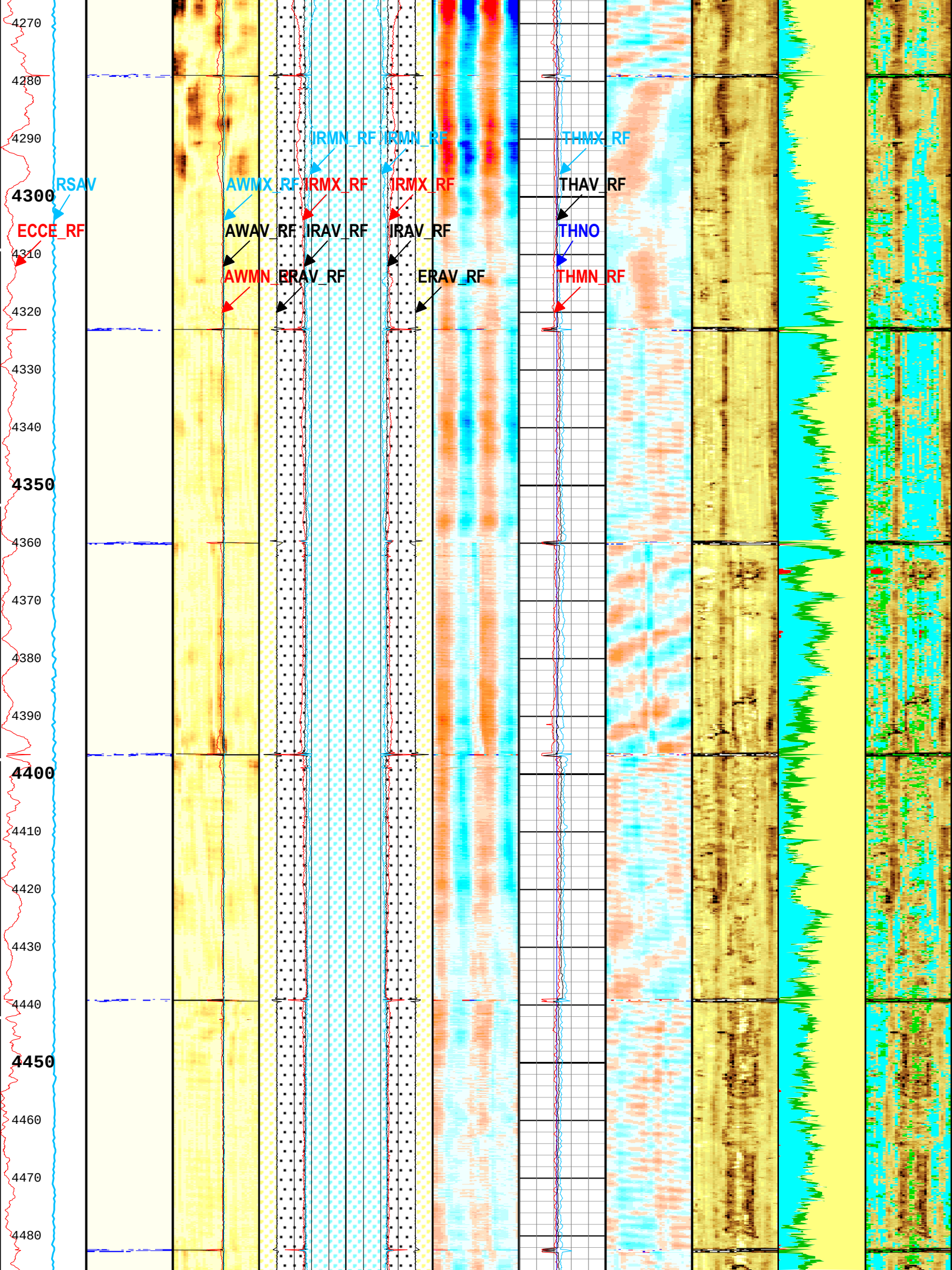
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RSAV
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AWMN_RF
IRMN_RF
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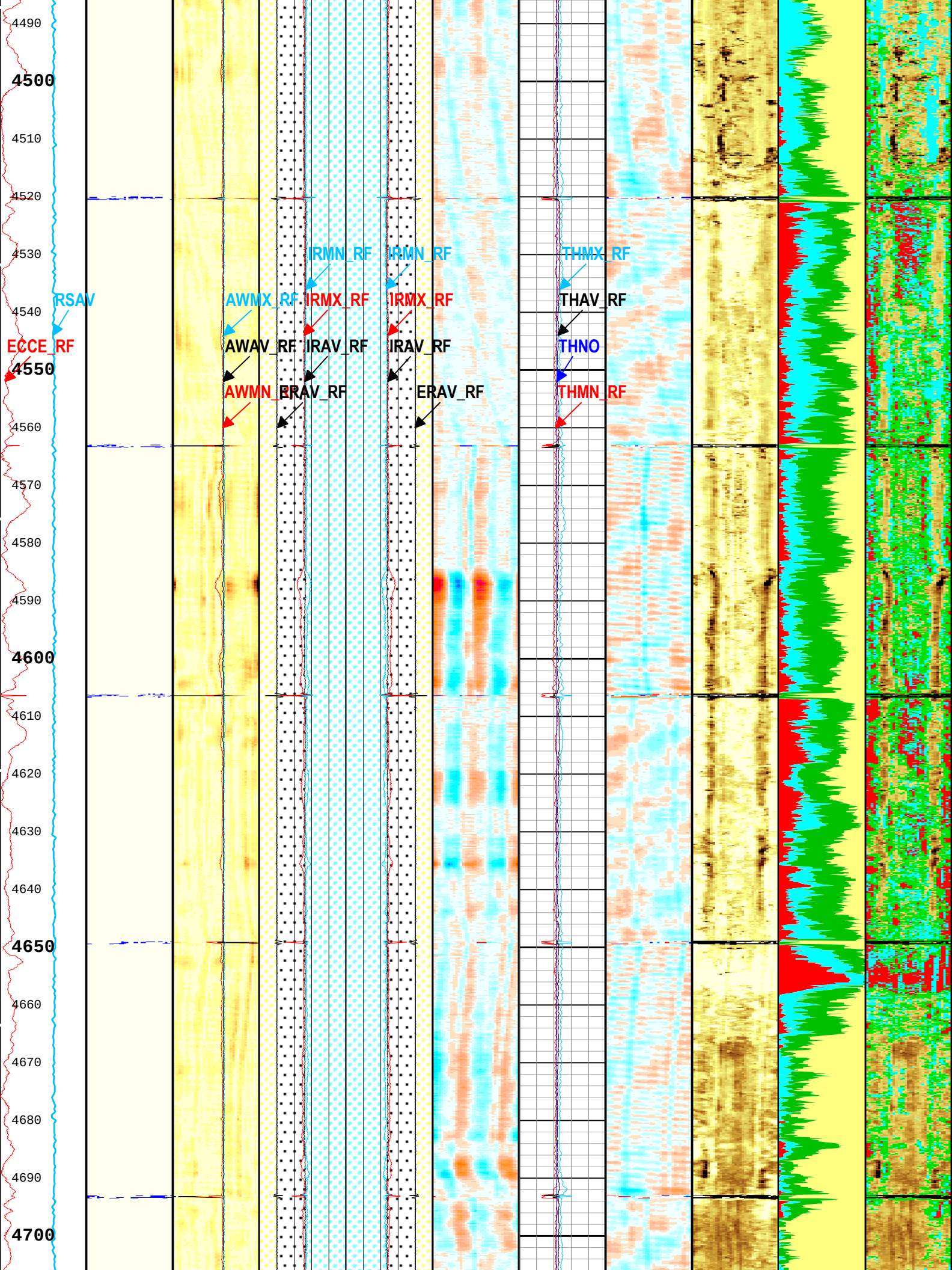
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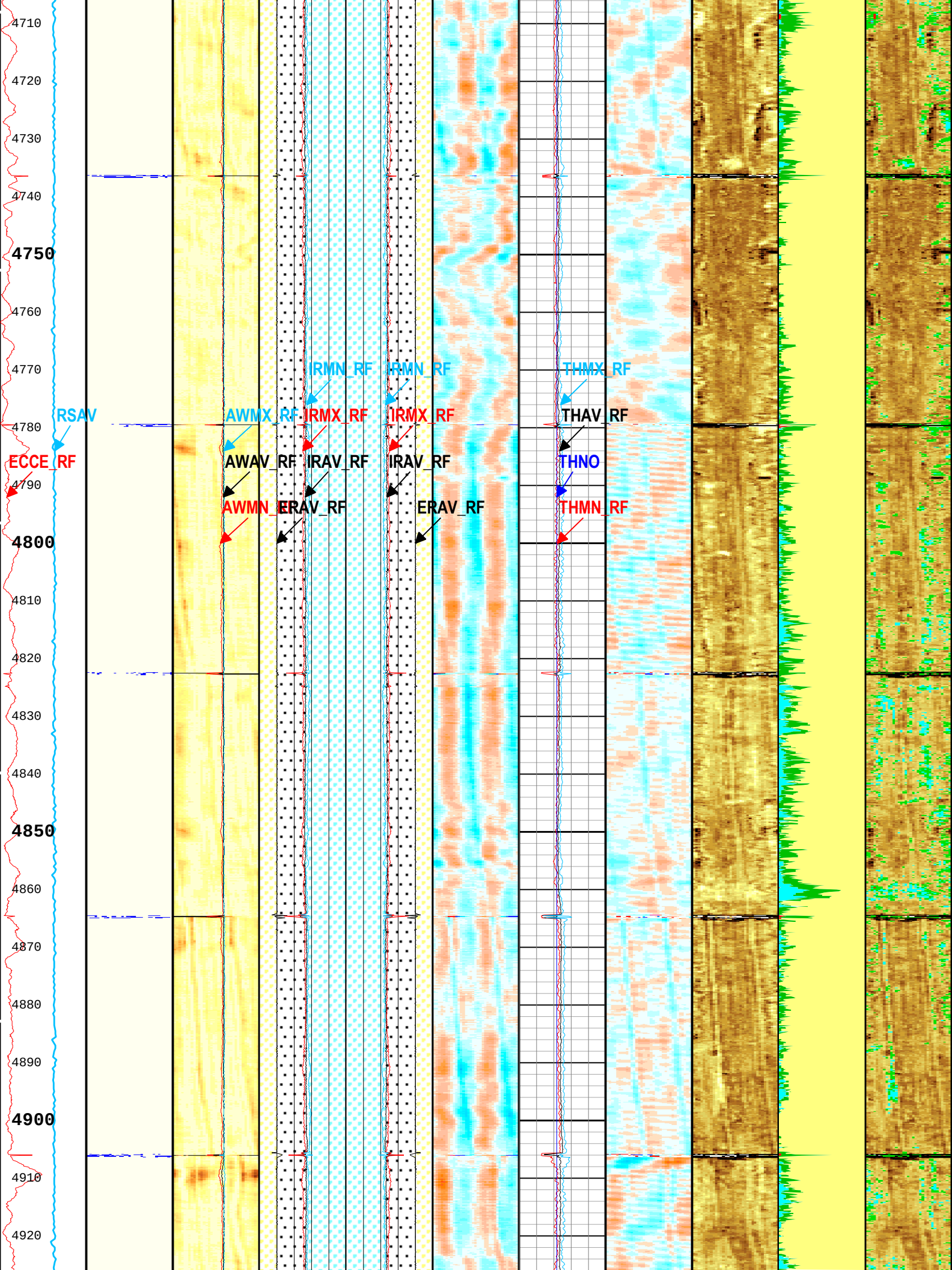
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IRMN_RF
IRMX_RF
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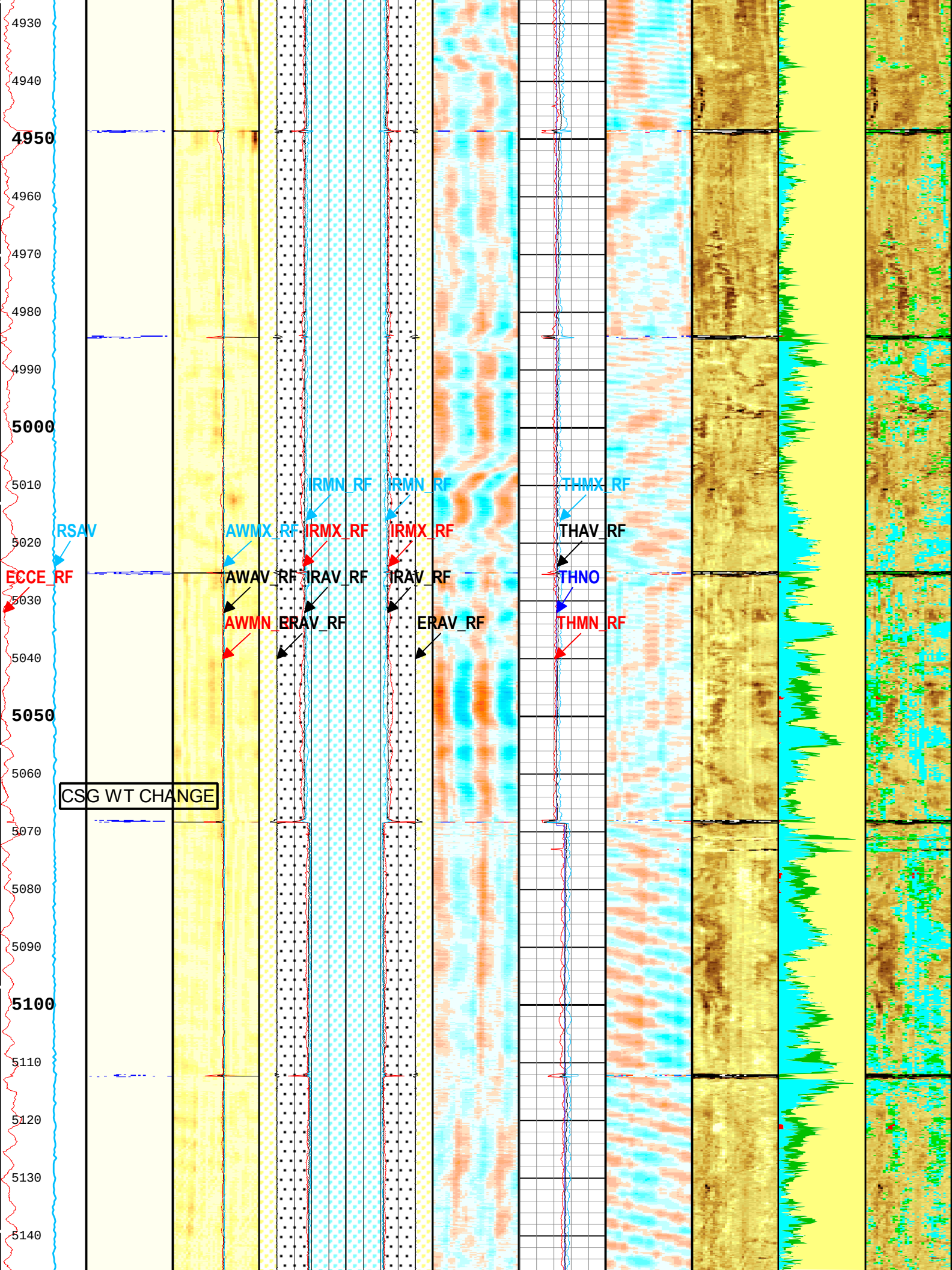
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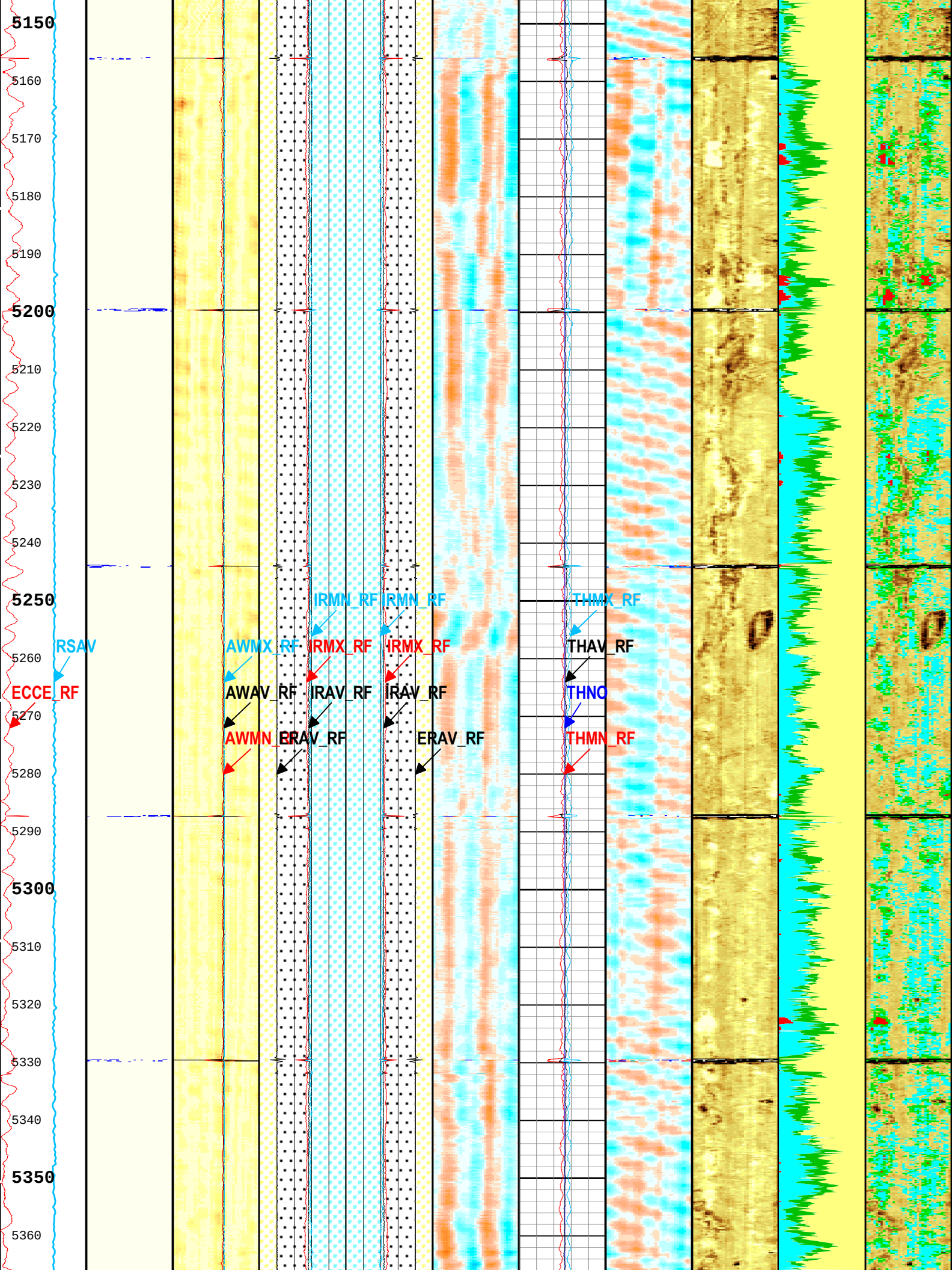
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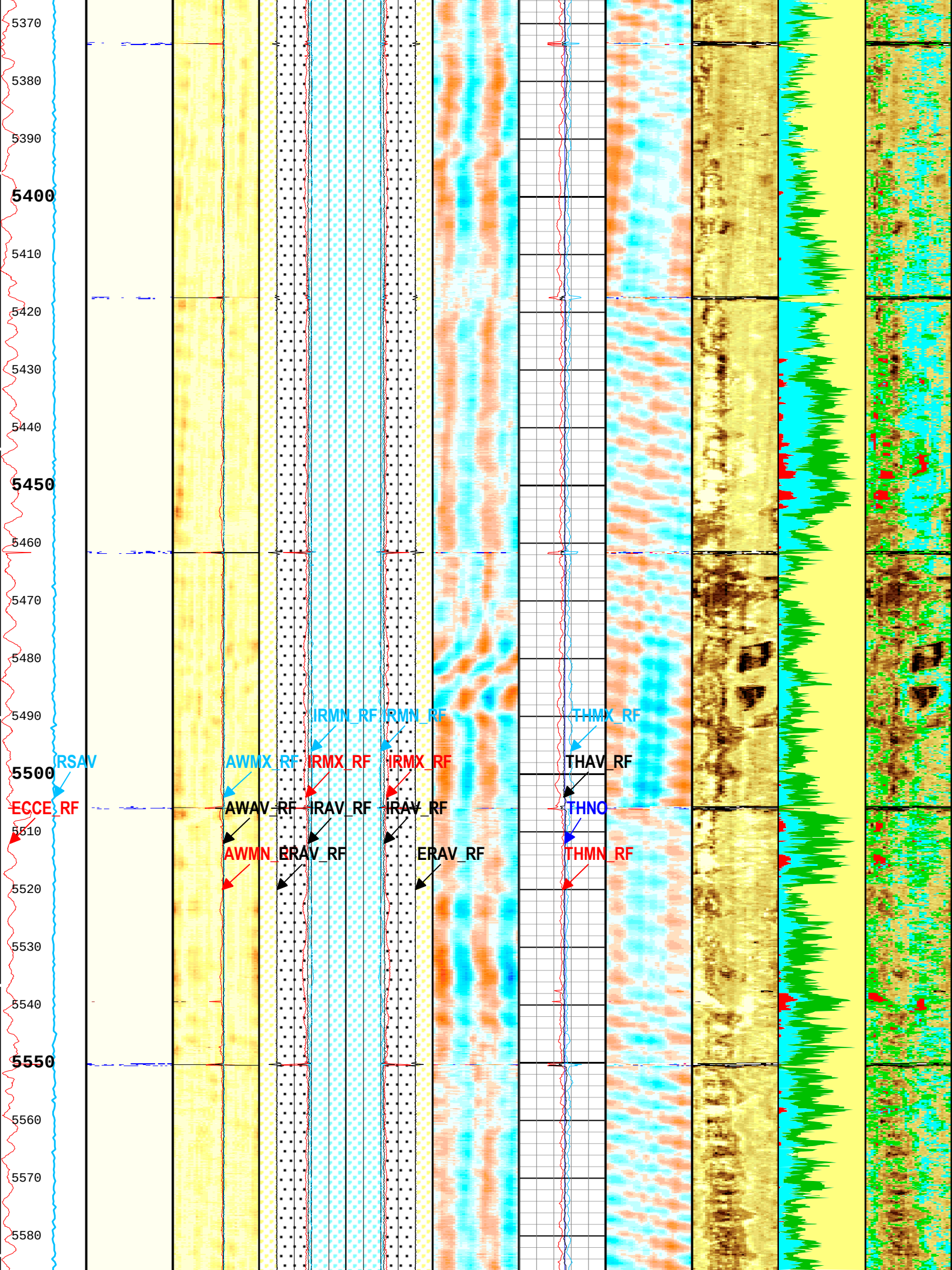
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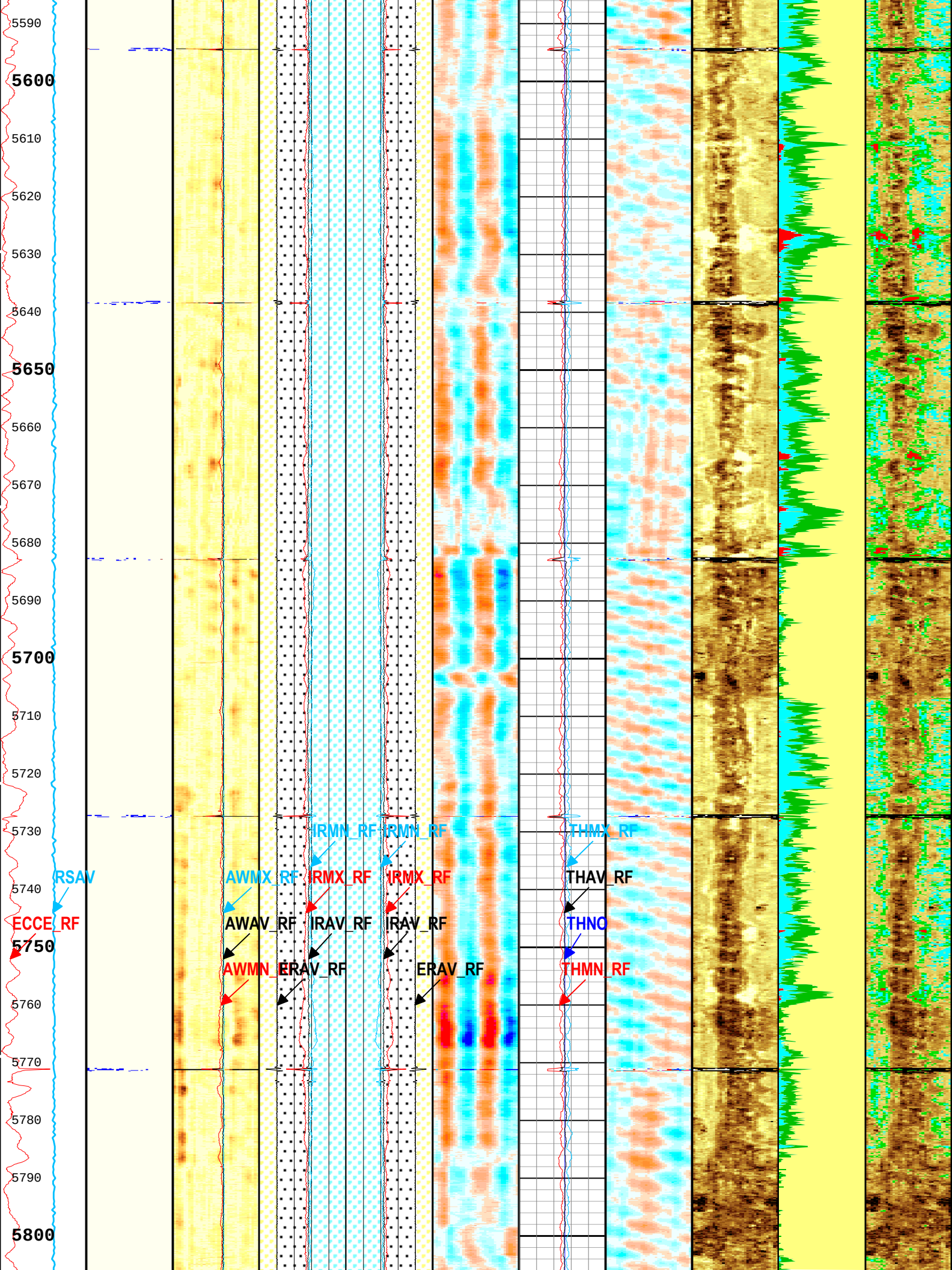
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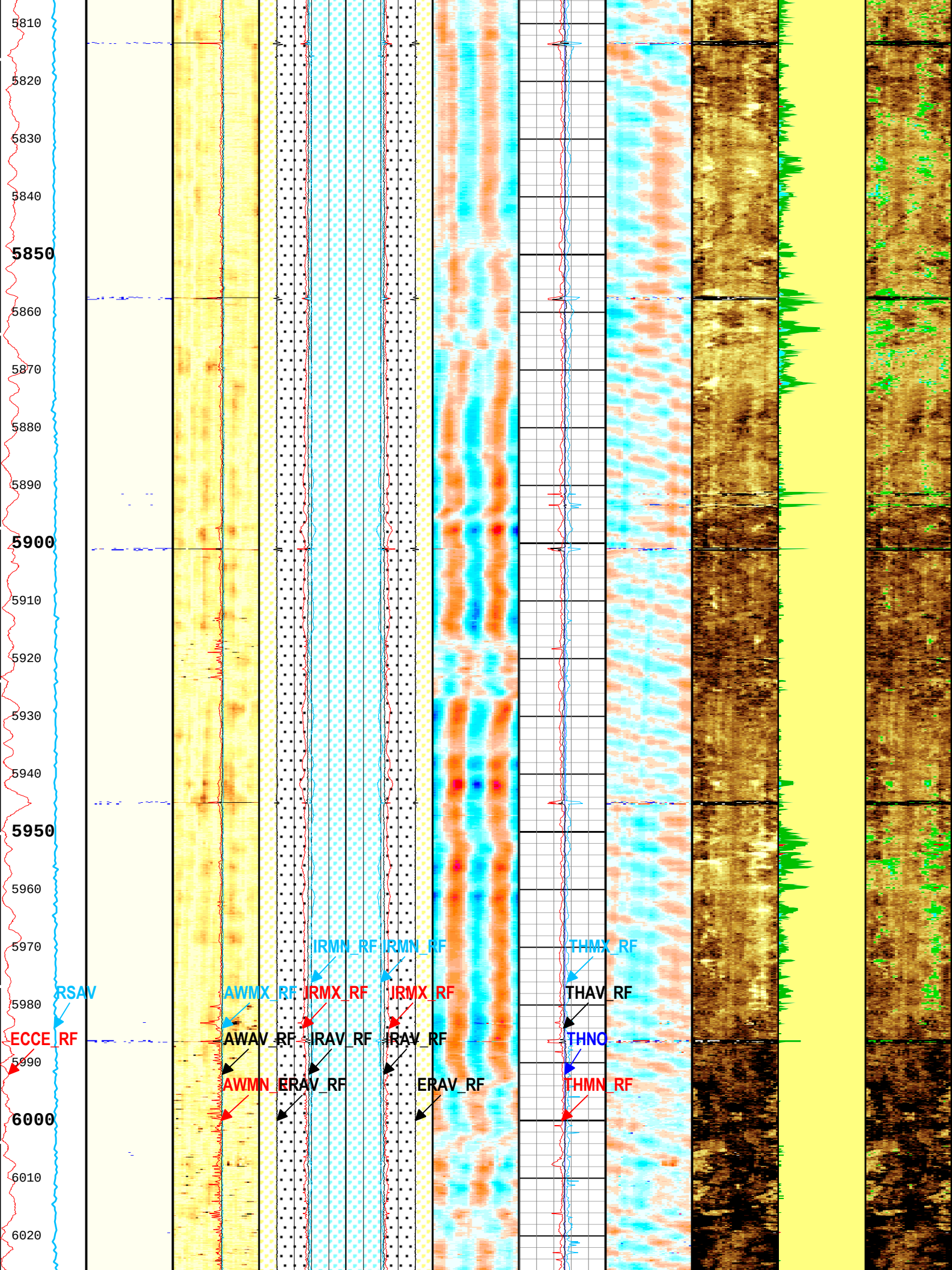
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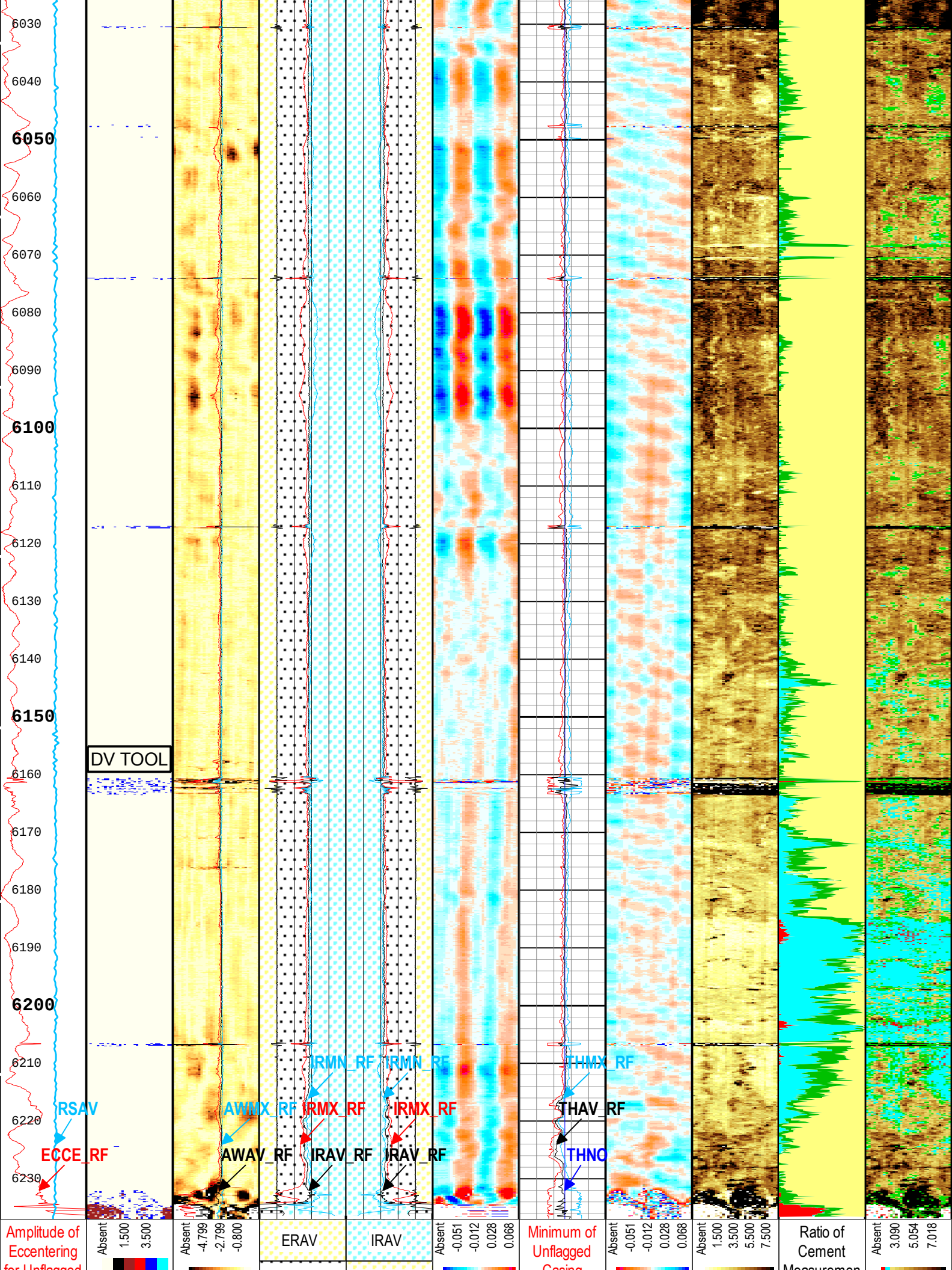
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6230
DV TOOL
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
THMX_RF
THAV_RF
THNO
Amplitude of Eccentering for Unflagged
Absent 1.500 3.500
Absent -4.799 -2.799 -0.800
ERAV
IRAV
Absent -0.051 -0.012 0.028 0.068
Minimum of Unflagged Casing
Absent -0.051 -0.012 0.028 0.068
Absent 1.500 3.500 5.500 7.500
Ratio of Cement Measurement
Absent 3.090 5.054 7.018

for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8

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

USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5

Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75

ERAV-IRAV

IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

ERAV

IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)

Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6

Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1] (in)

Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

Measurements to Total (CEMR) USIT-E[1]
1 0

Micro-debonding Ratio (MDR) USIT-E[1]
1 0

Ratio of Gas Measurements to Total (GASR) USIT-E[1]
1 0

Bonded

Gas

Liquid

Micro-debonding

Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

Absent 2.599 4.563 6.527

Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)

TIME_1900 - Time Marked every 60.00 (s)

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

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

UTIM Error
Pulse Origin Not Detected
WINLEN Error
Casing Thickness Error
Loop Processing Error

Description: USI Composite Format: Log (LBV1_USI Composite 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:32:58

Composite 1

Cement Log 2 IN = 100 FT

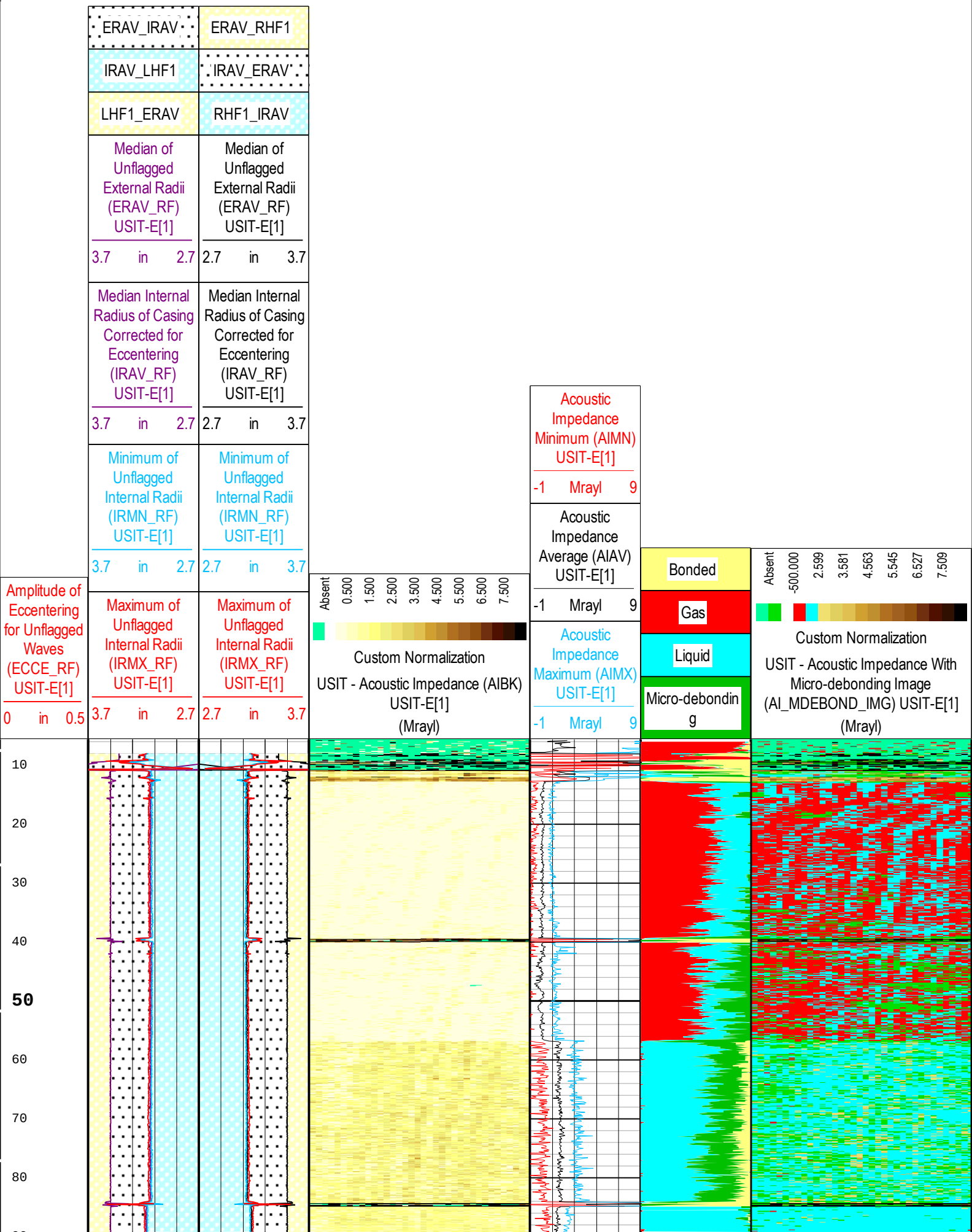
Composite Summary

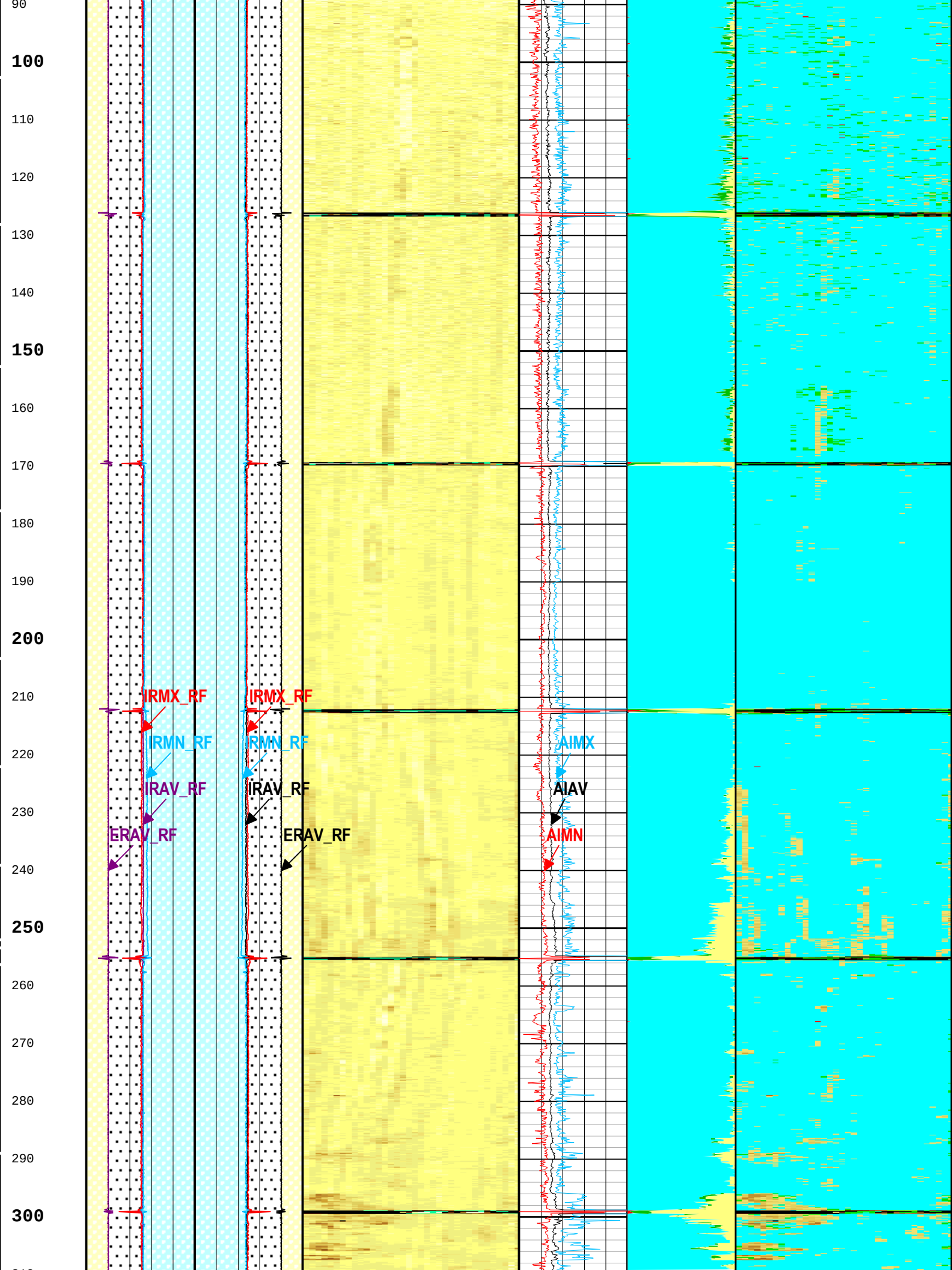
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[2]:Up	Up	107.27 ft	6237.78 ft	02-Sep-2016 8:56:55 AM	02-Sep-2016 11:18:54 AM	ON	-3.00 ft	Yes
2-Sep-2016	Log[3]:Up	Up	5.98 ft	300.53 ft	02-Sep-2016 11:21:28 AM	02-Sep-2016 11:35:26 AM	ON	-3.00 ft	Yes

All depths are referenced to toolstring zero

Description: USI Cement Format: Log (LBV1_USI Cement 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:33:41

TIME_1900 - Time Marked every 60.00 (s)

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290
300
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IRMN_RF
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ERAV_RF
IRMX_RF
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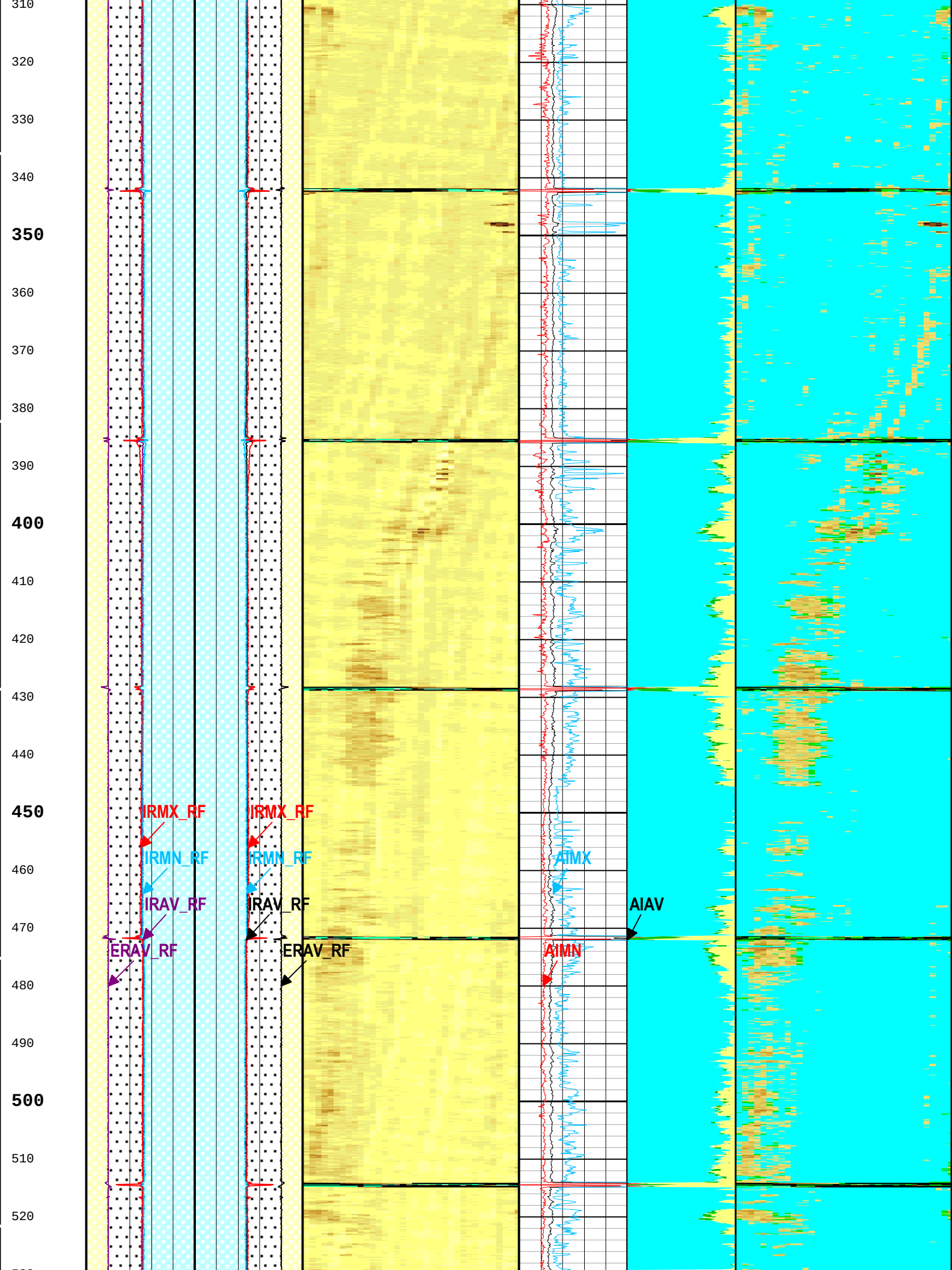
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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510
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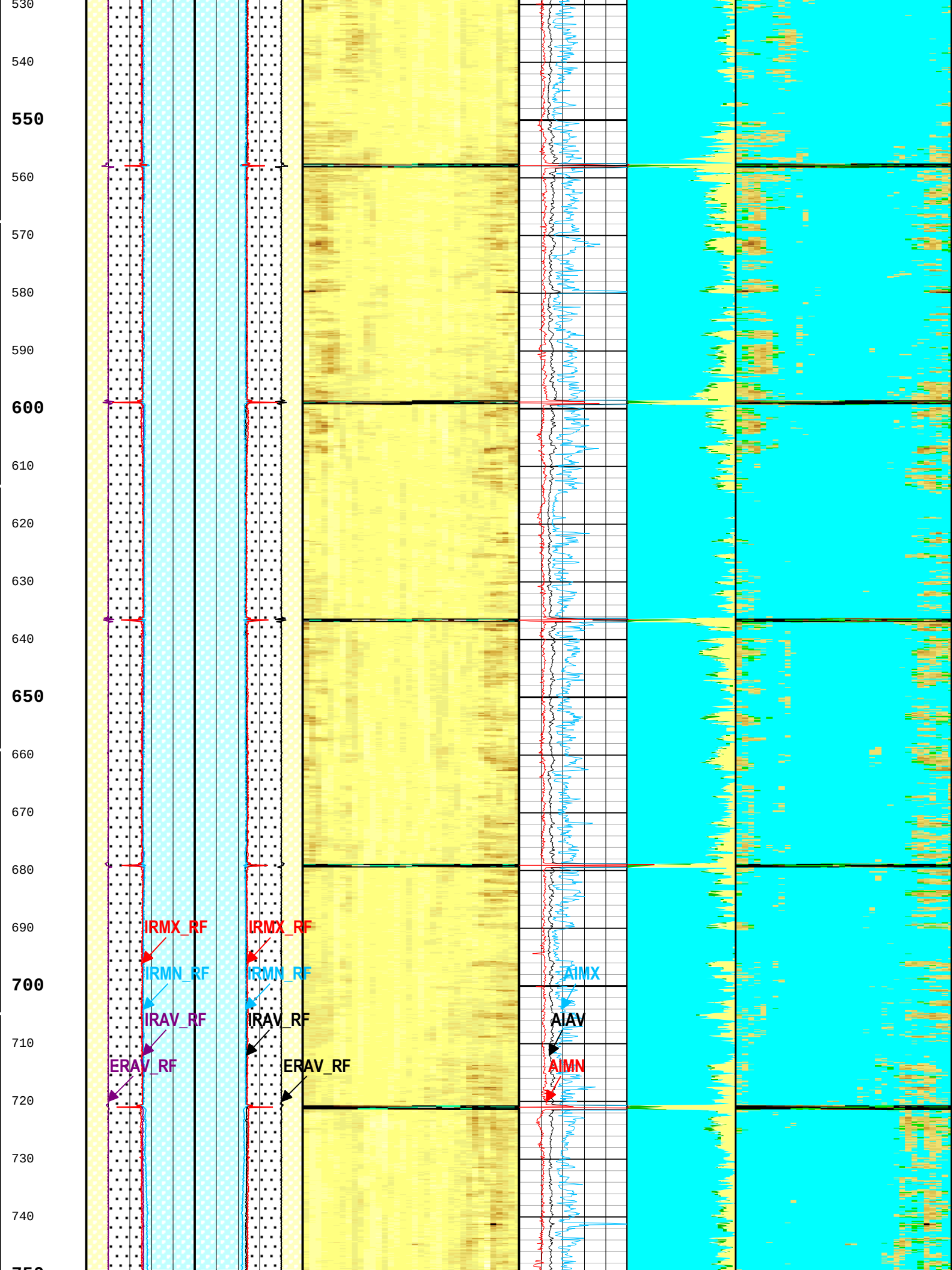
AIMN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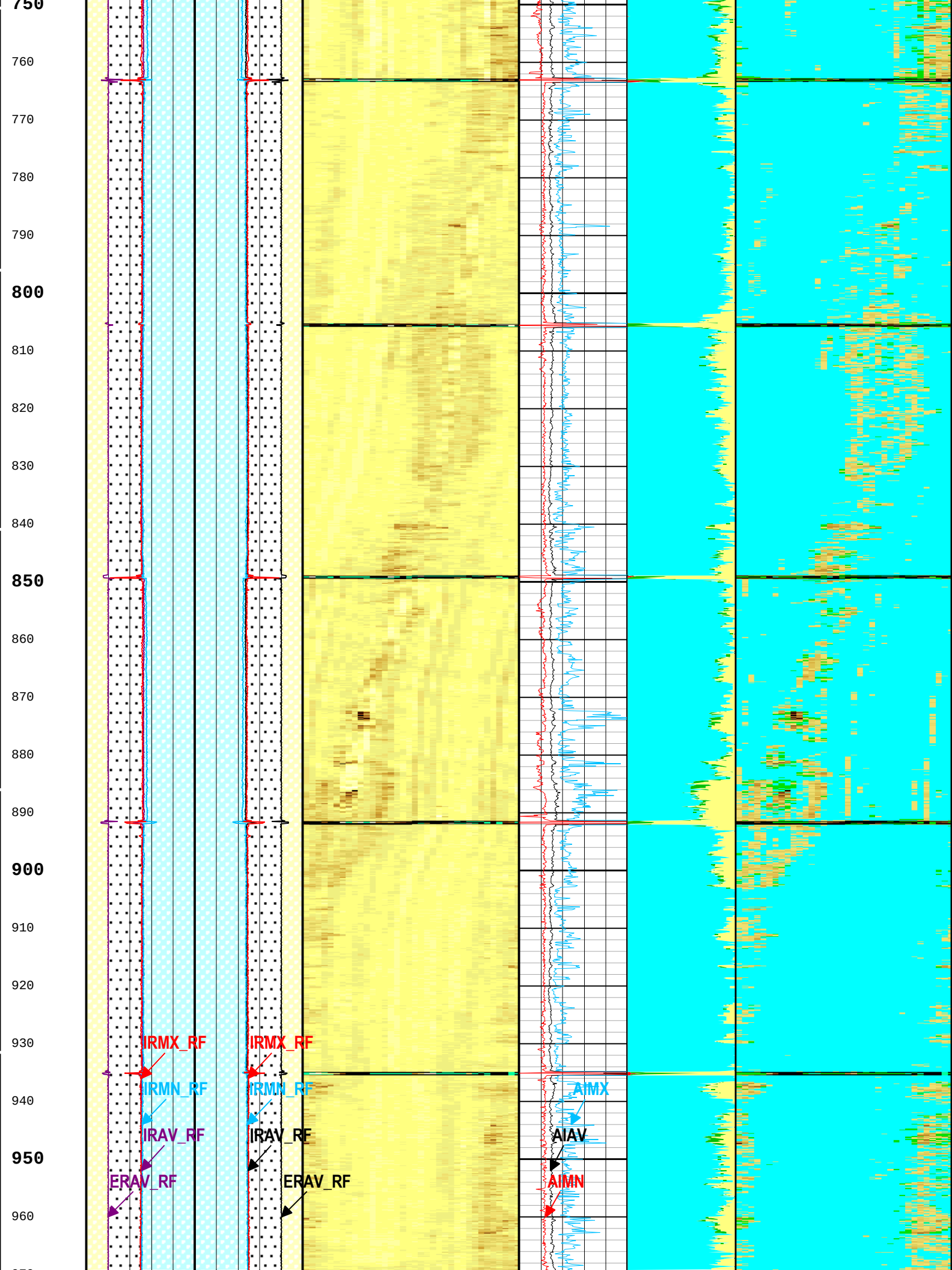
AIAV
AIMN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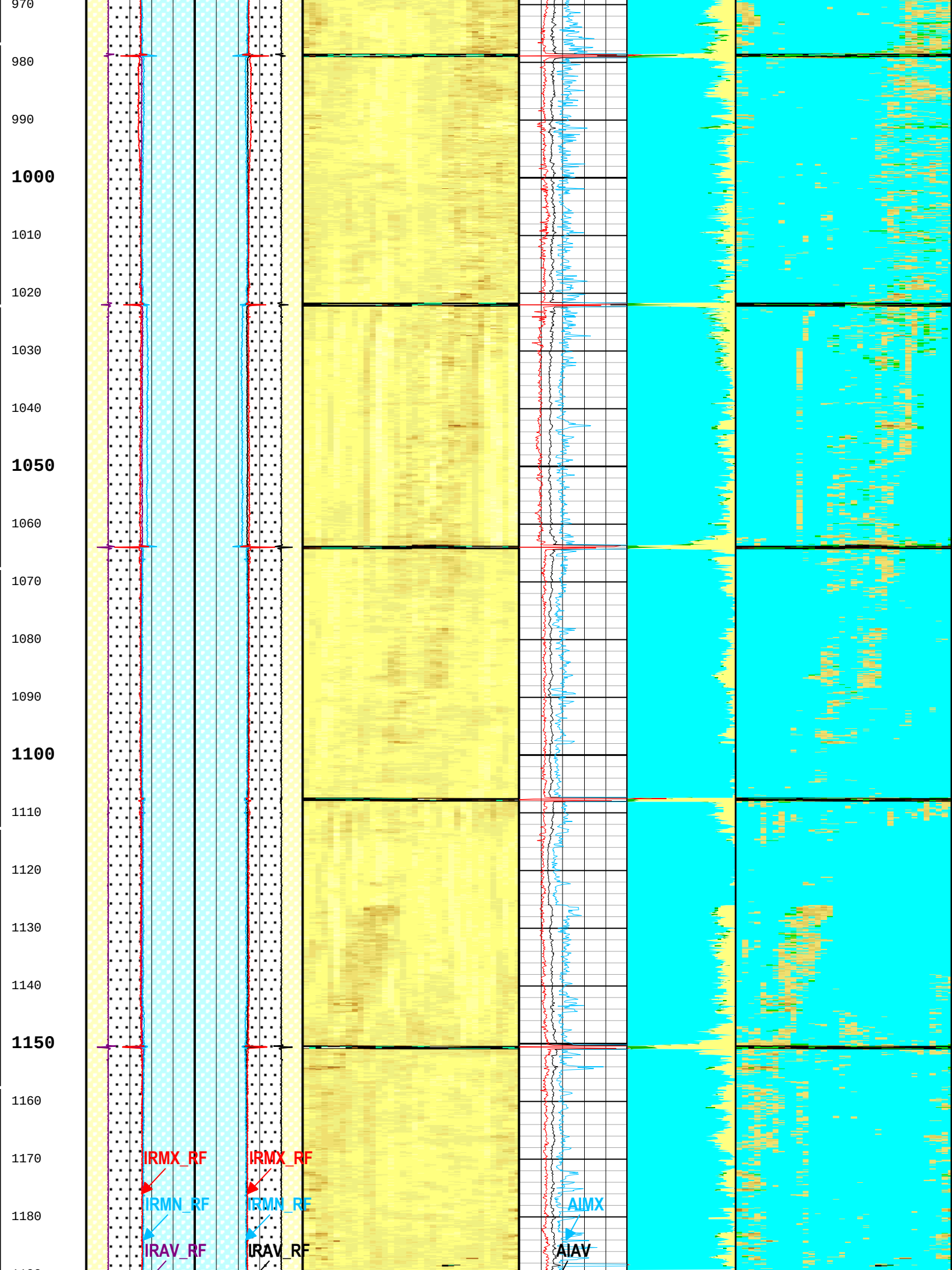
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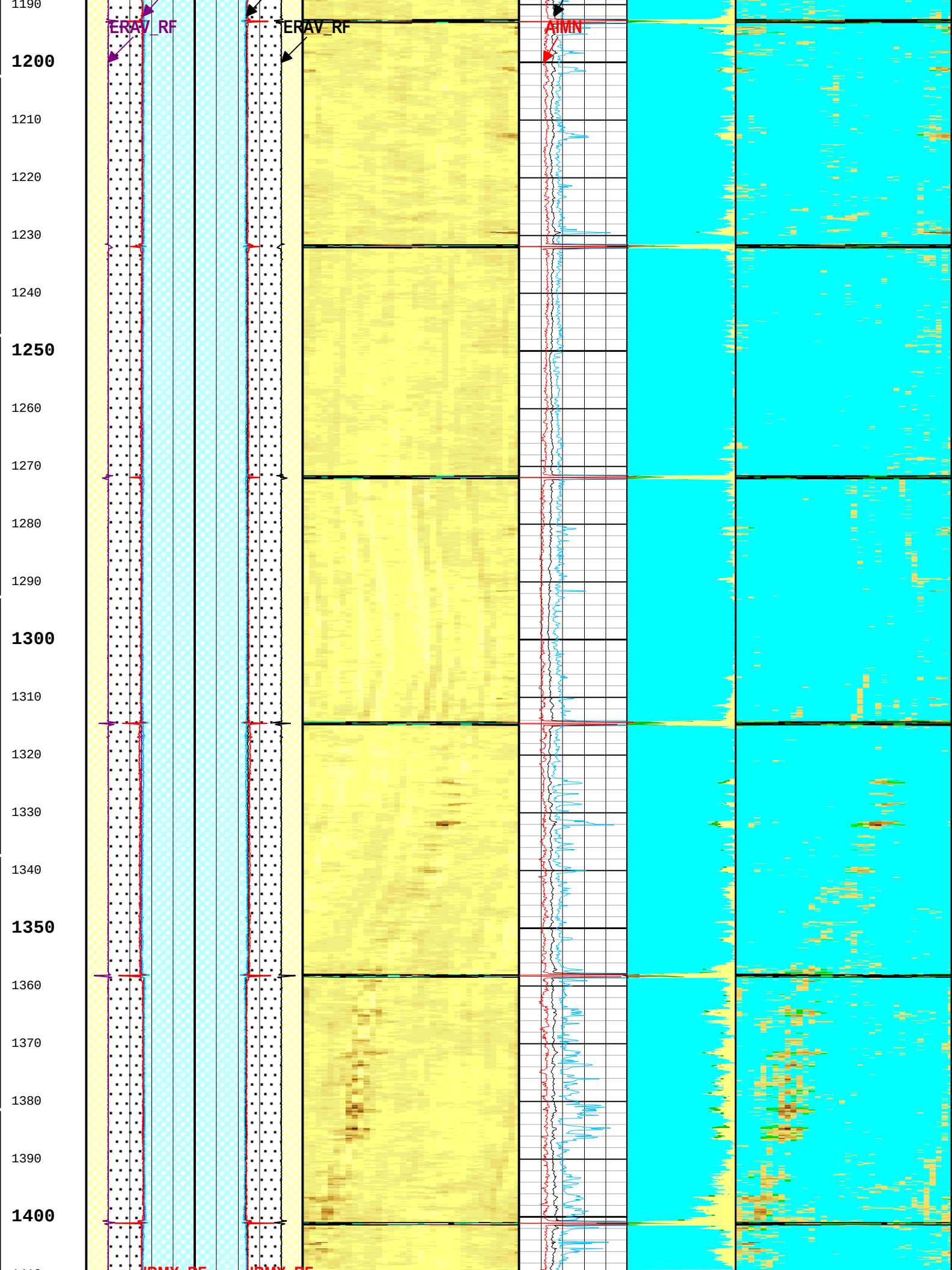
AIMX
AIAV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ERAV_RF
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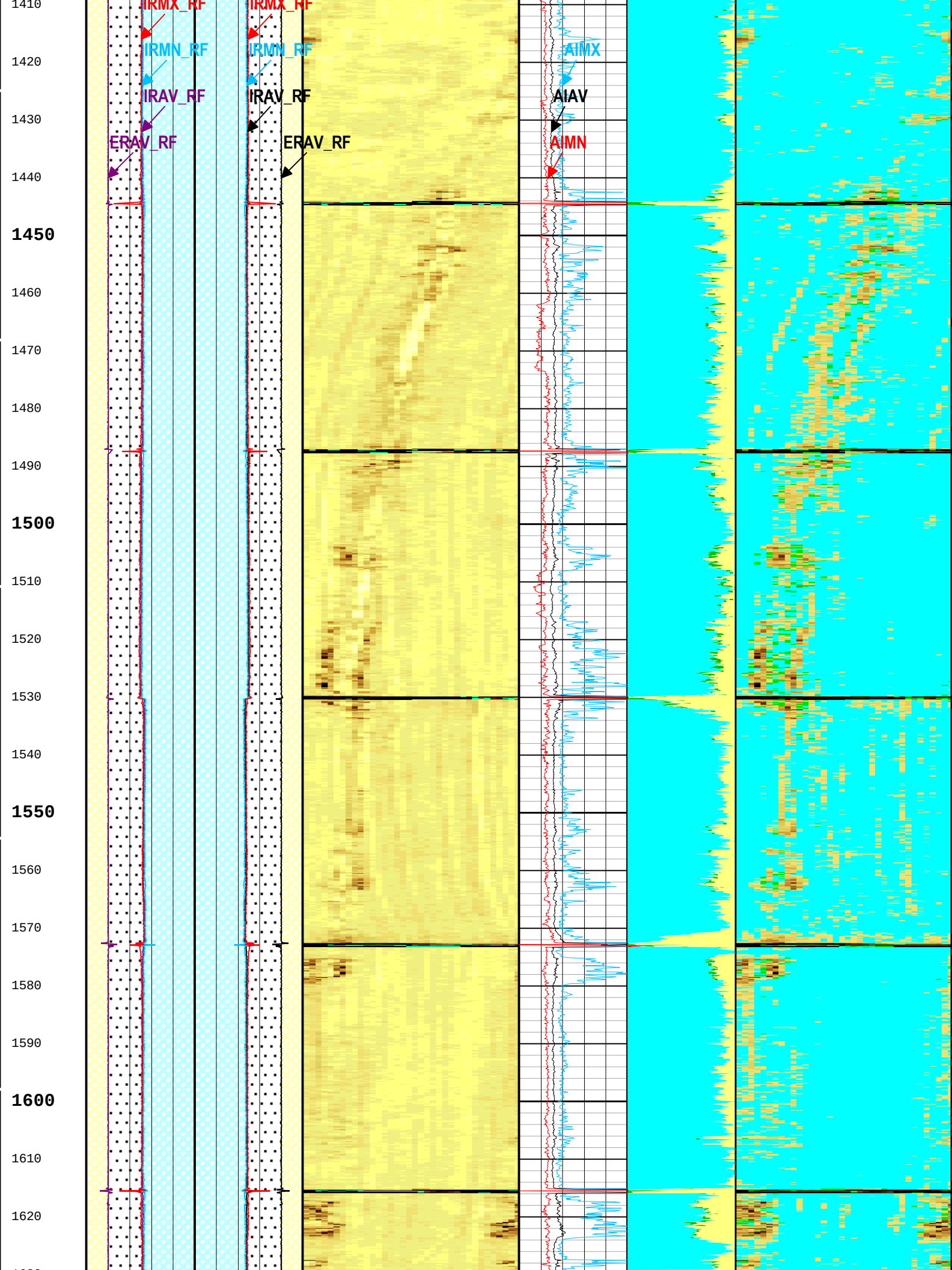
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IRMN_RF
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN
1410
1420
1430
1440
1450
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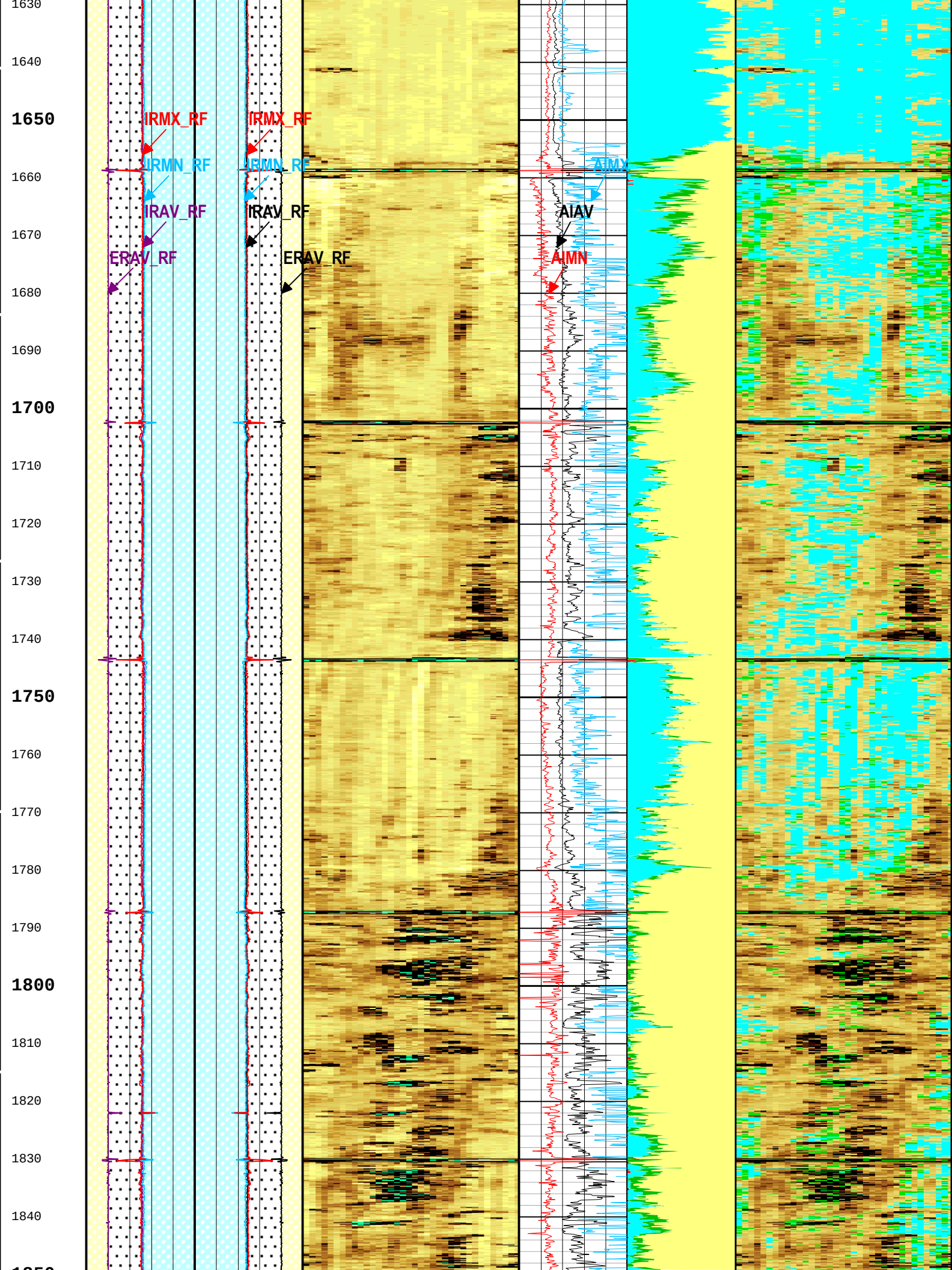
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1800
1810
1820
1830
1840
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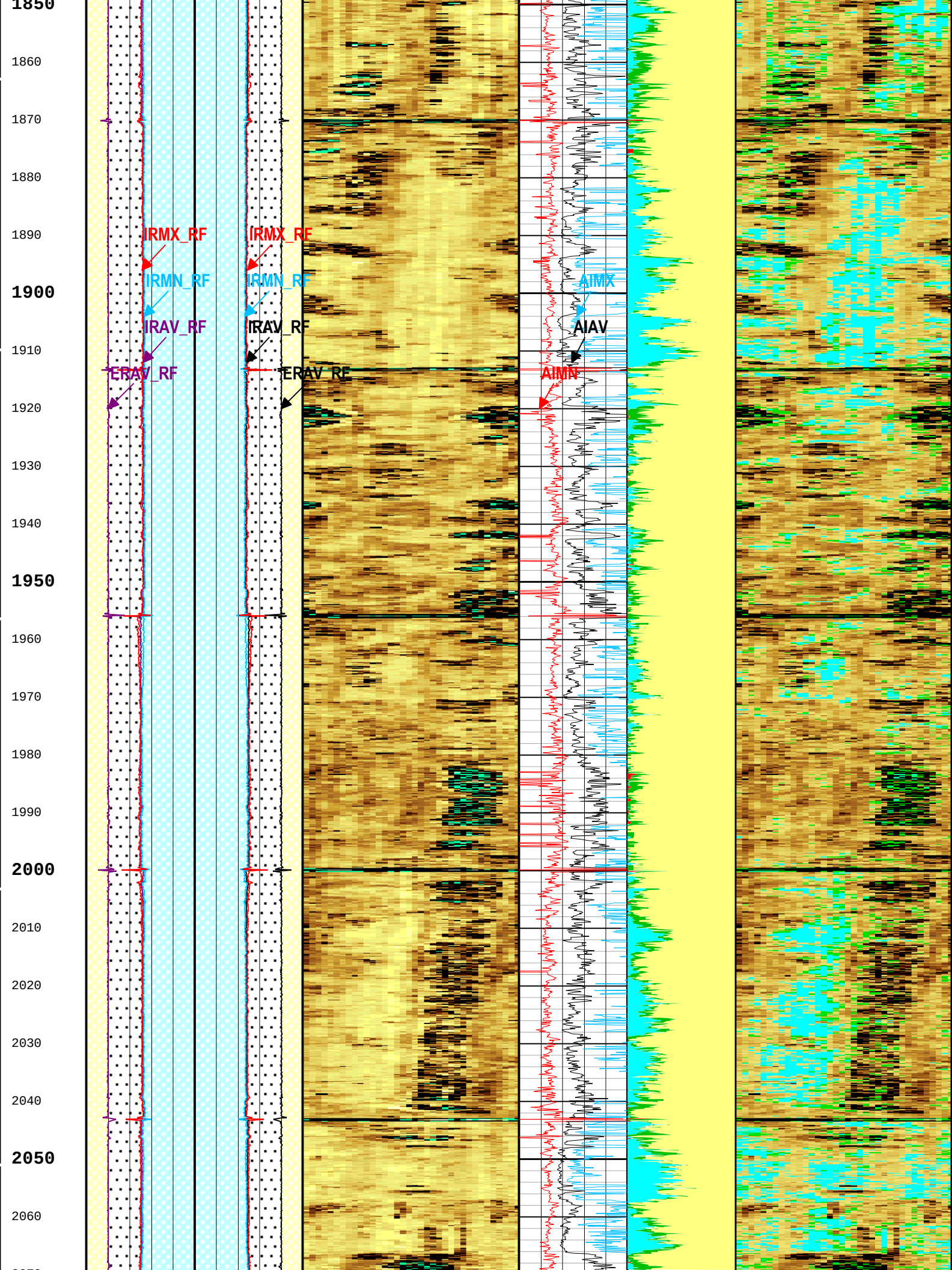
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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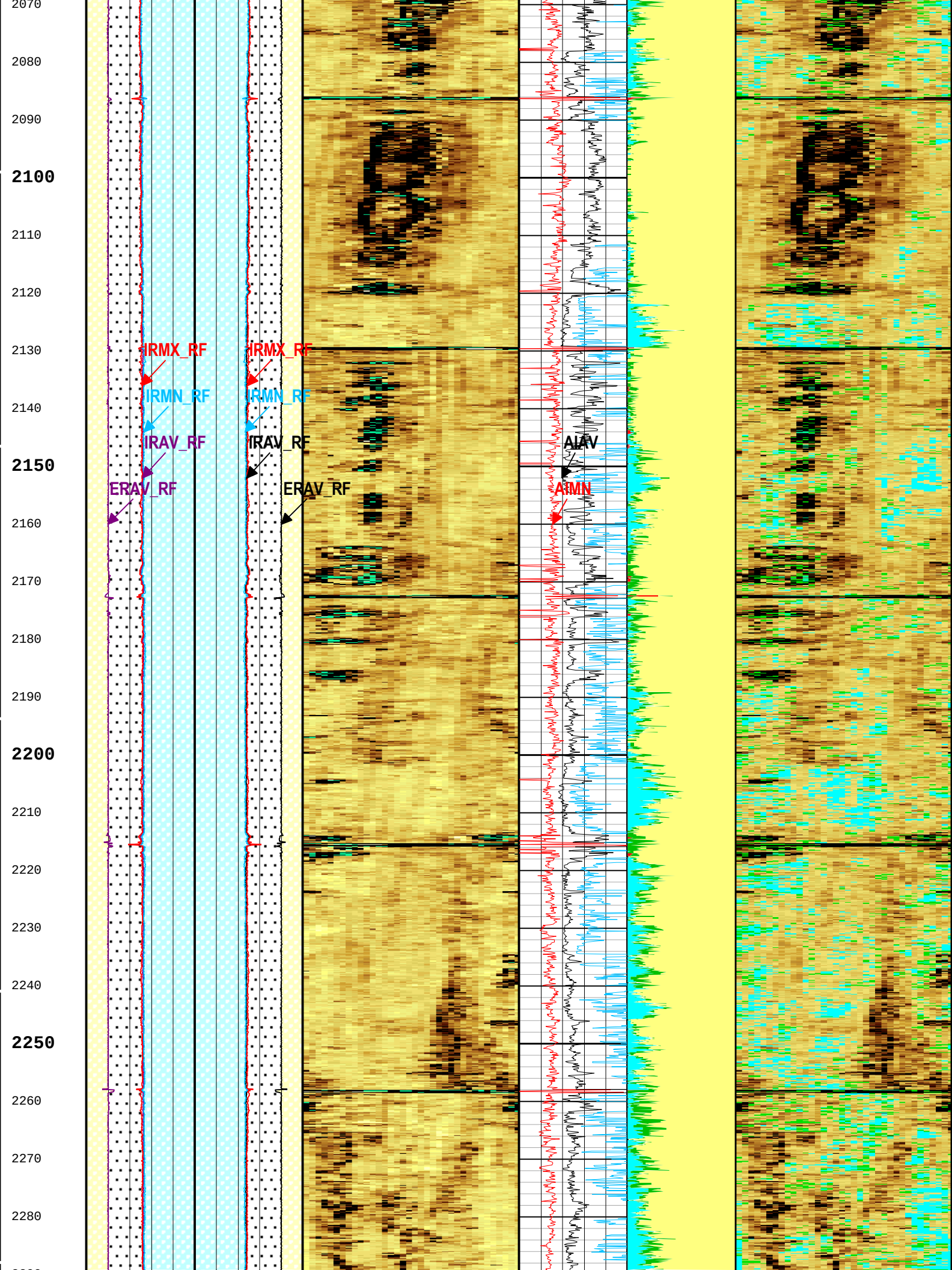
2020
2030
2040
2050
2060
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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2230
2240
2250
2260
2270
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IRAV_RF
ERAV_RF
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IRAV_RF
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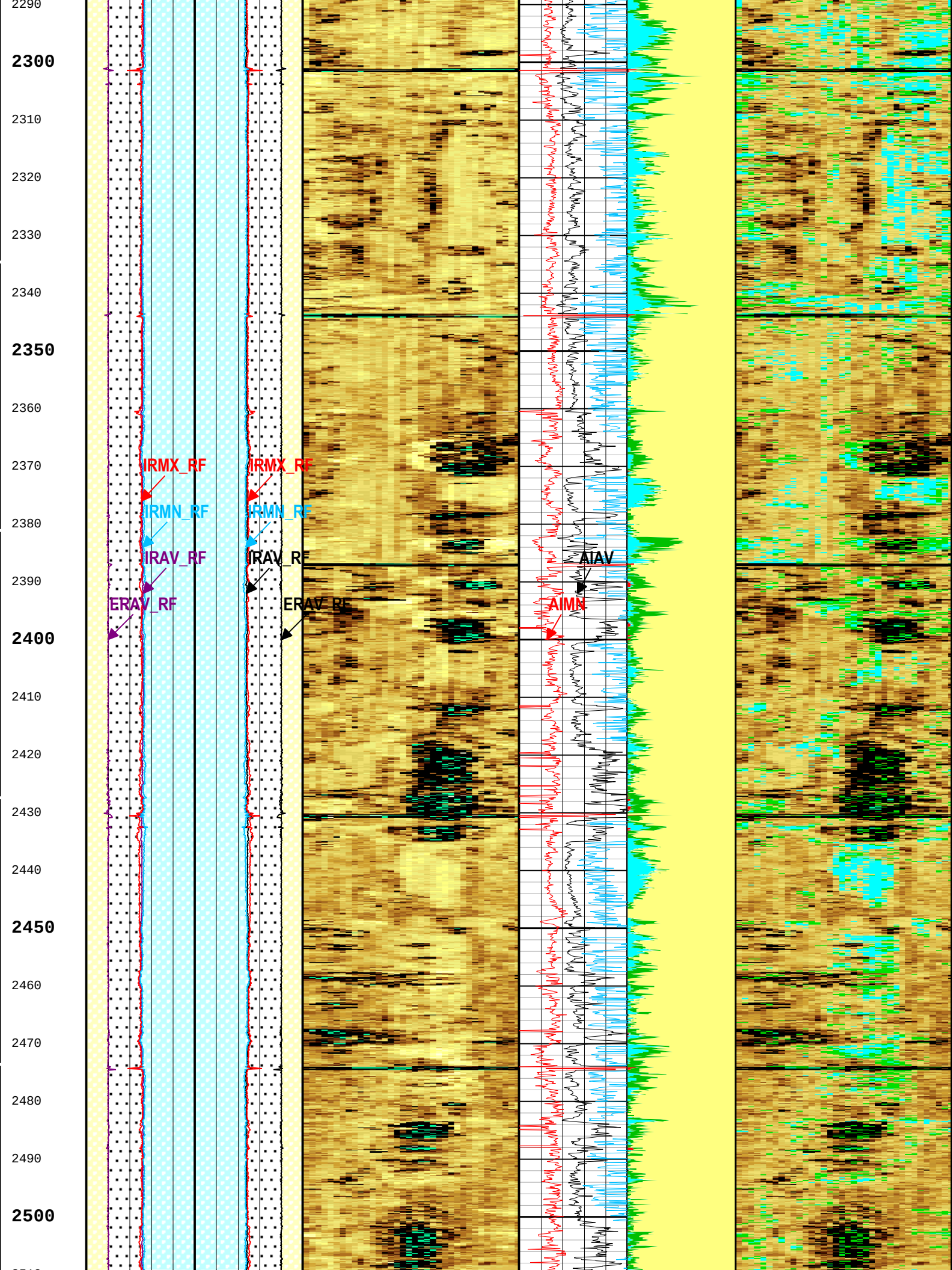
AIMN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2470
2480
2490
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IRAV_RF
ERAV_RF
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ERAV_RF
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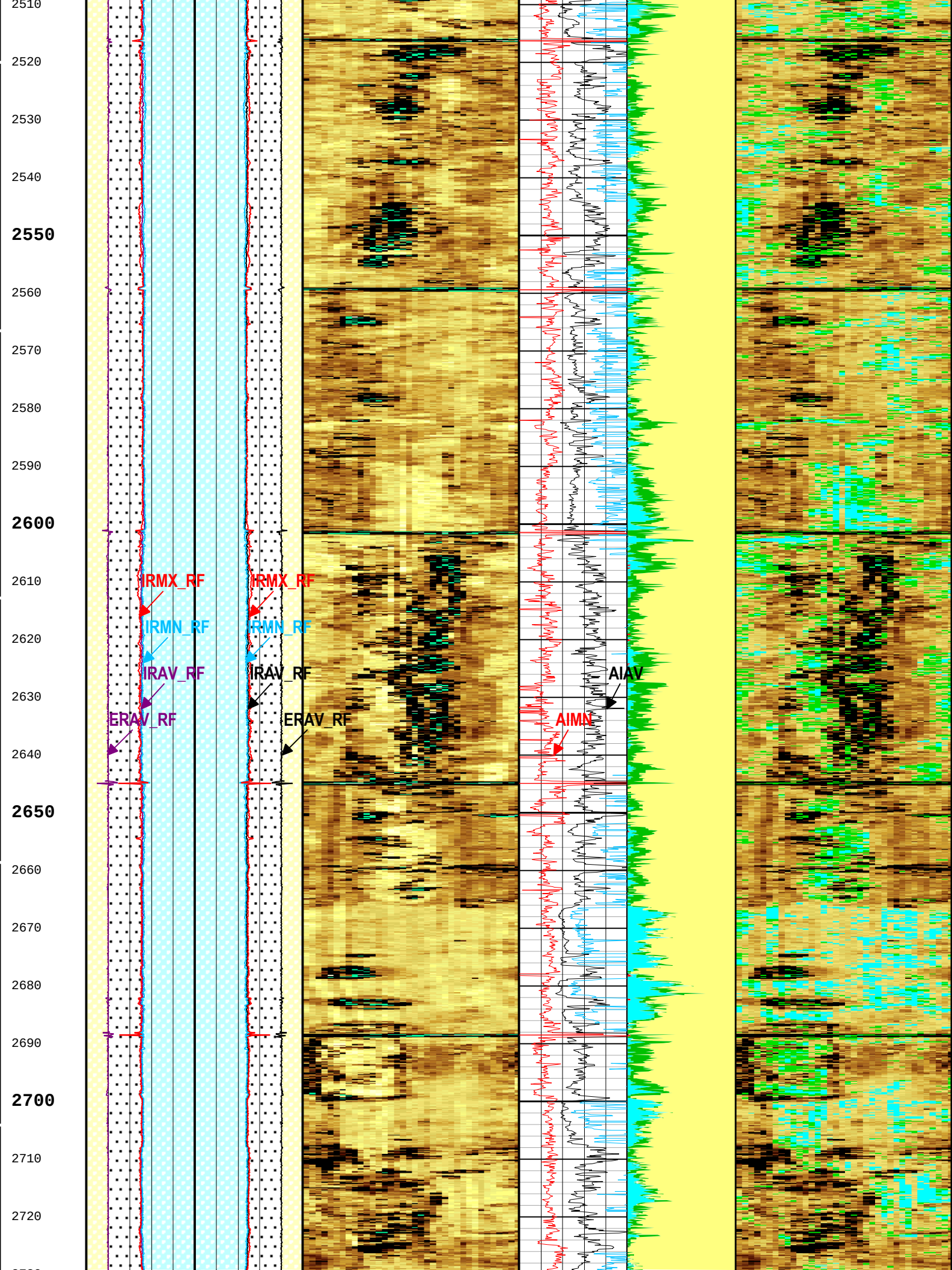
AIMN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2690
2700
2710
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ERAV_RF
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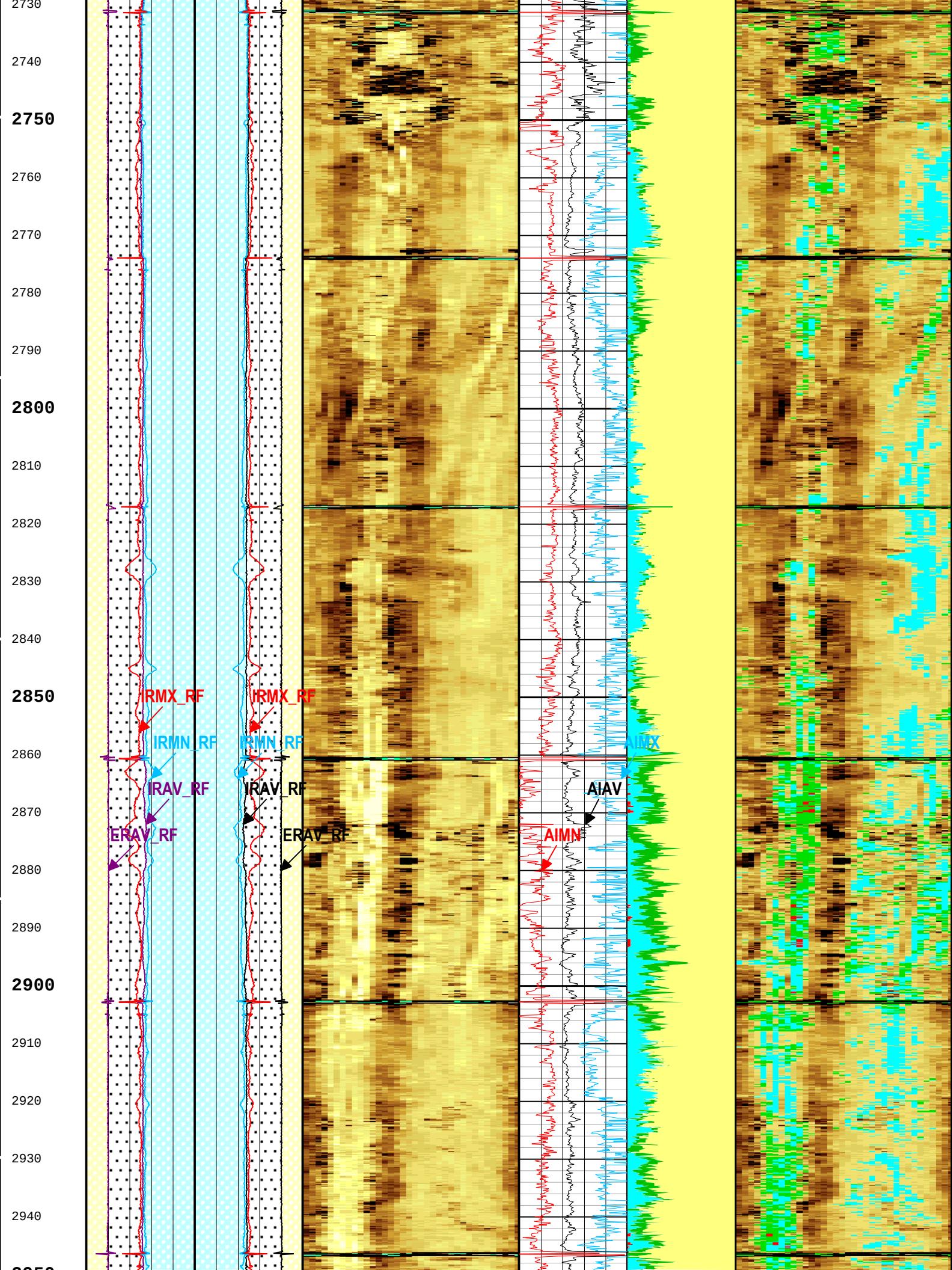
ERAV_RF
AIAV
AIMN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2900
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2930
2940
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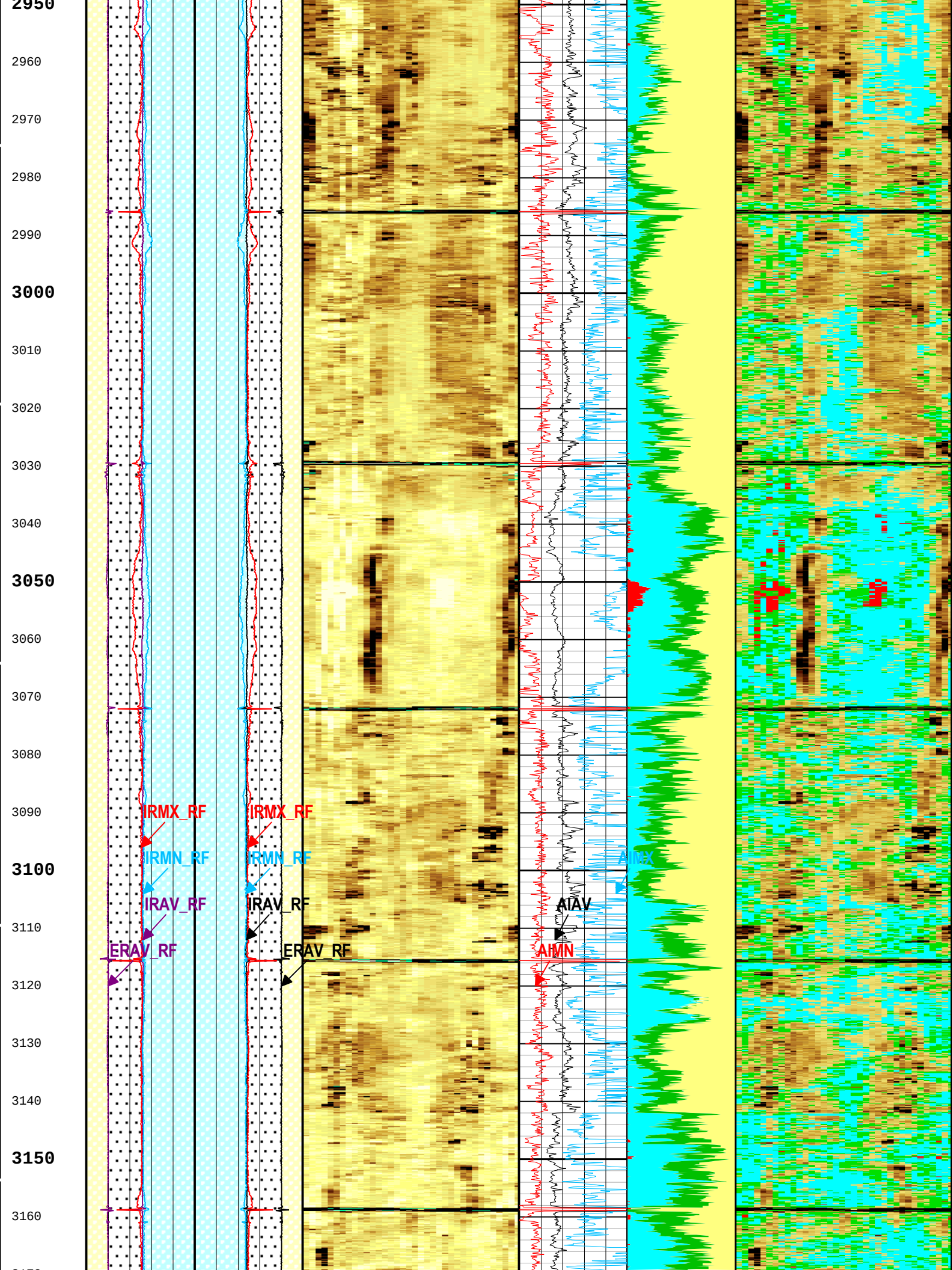
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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3140
3150
3160
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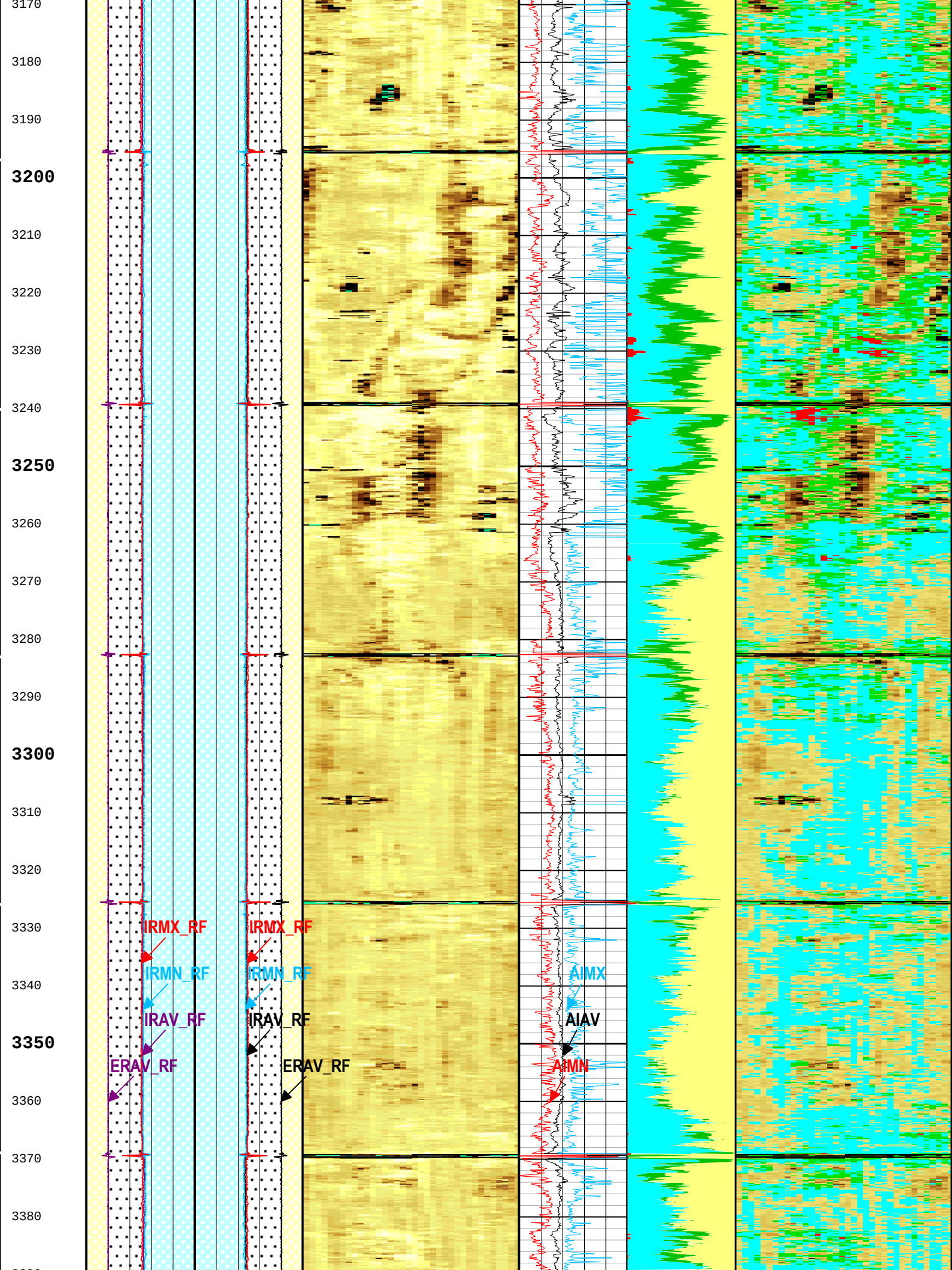
IRMN_RF
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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3330
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3360
3370
3380
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ERAV_RF
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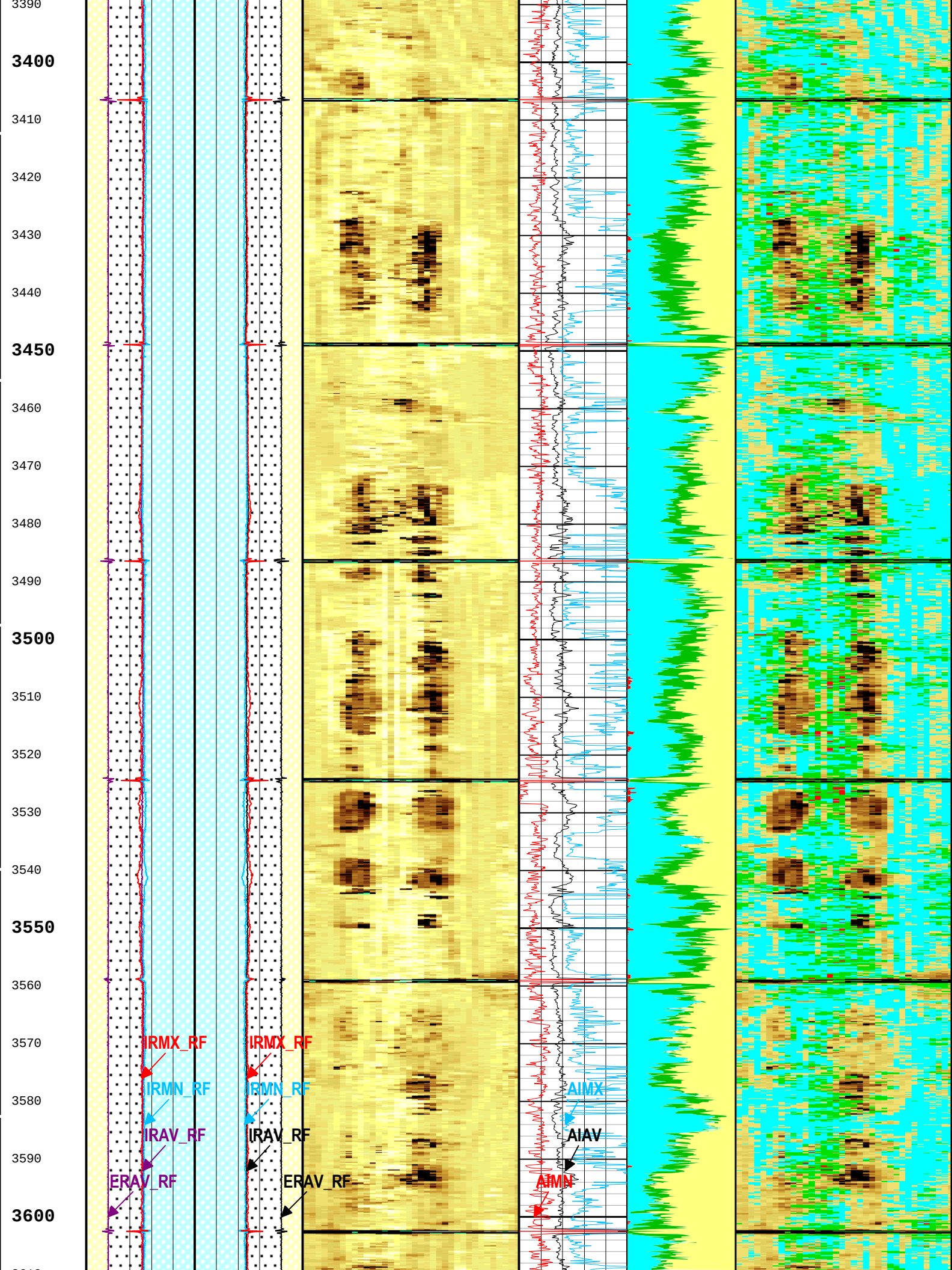
AIMN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3590
3600
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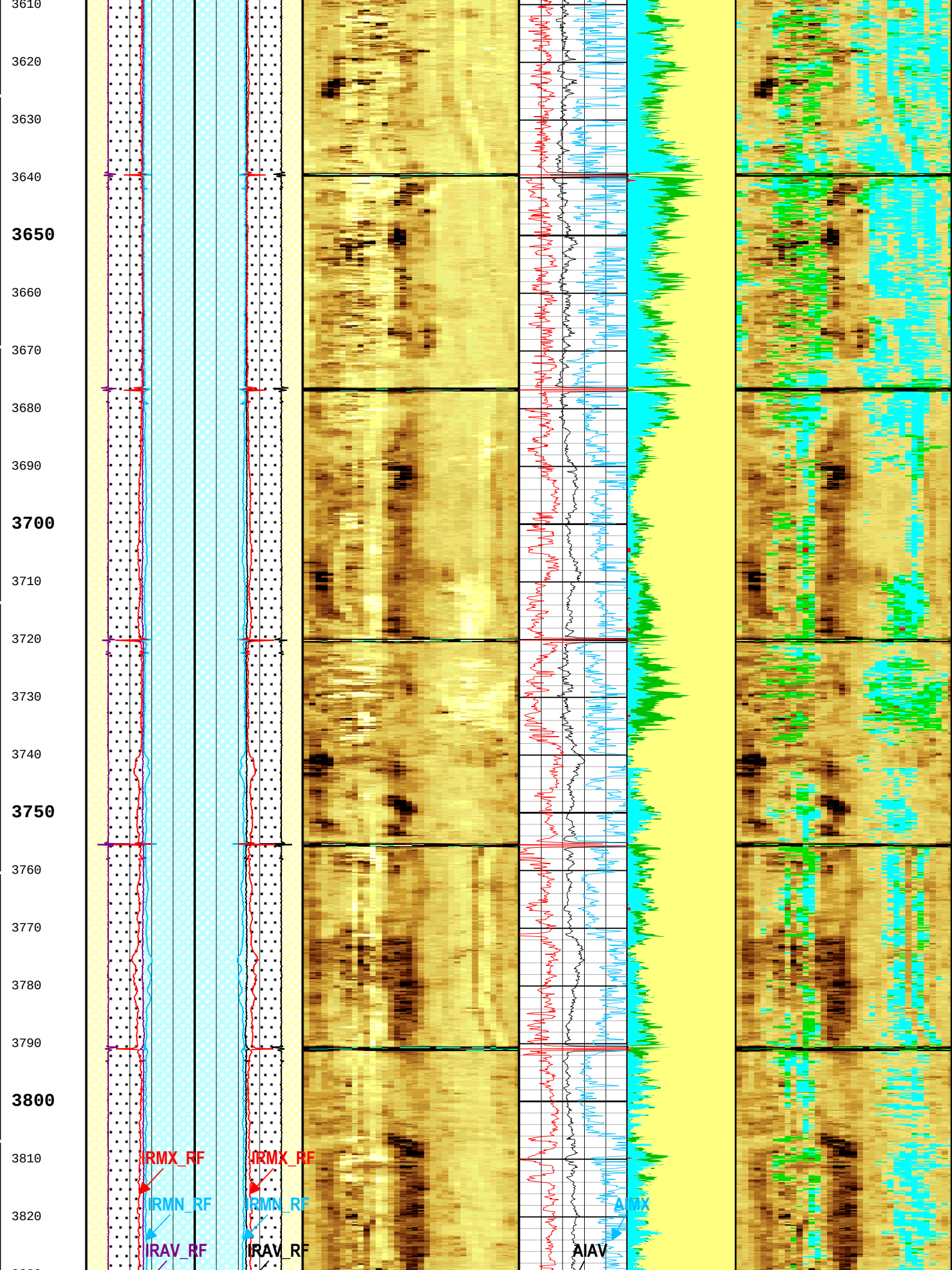
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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3780
3790
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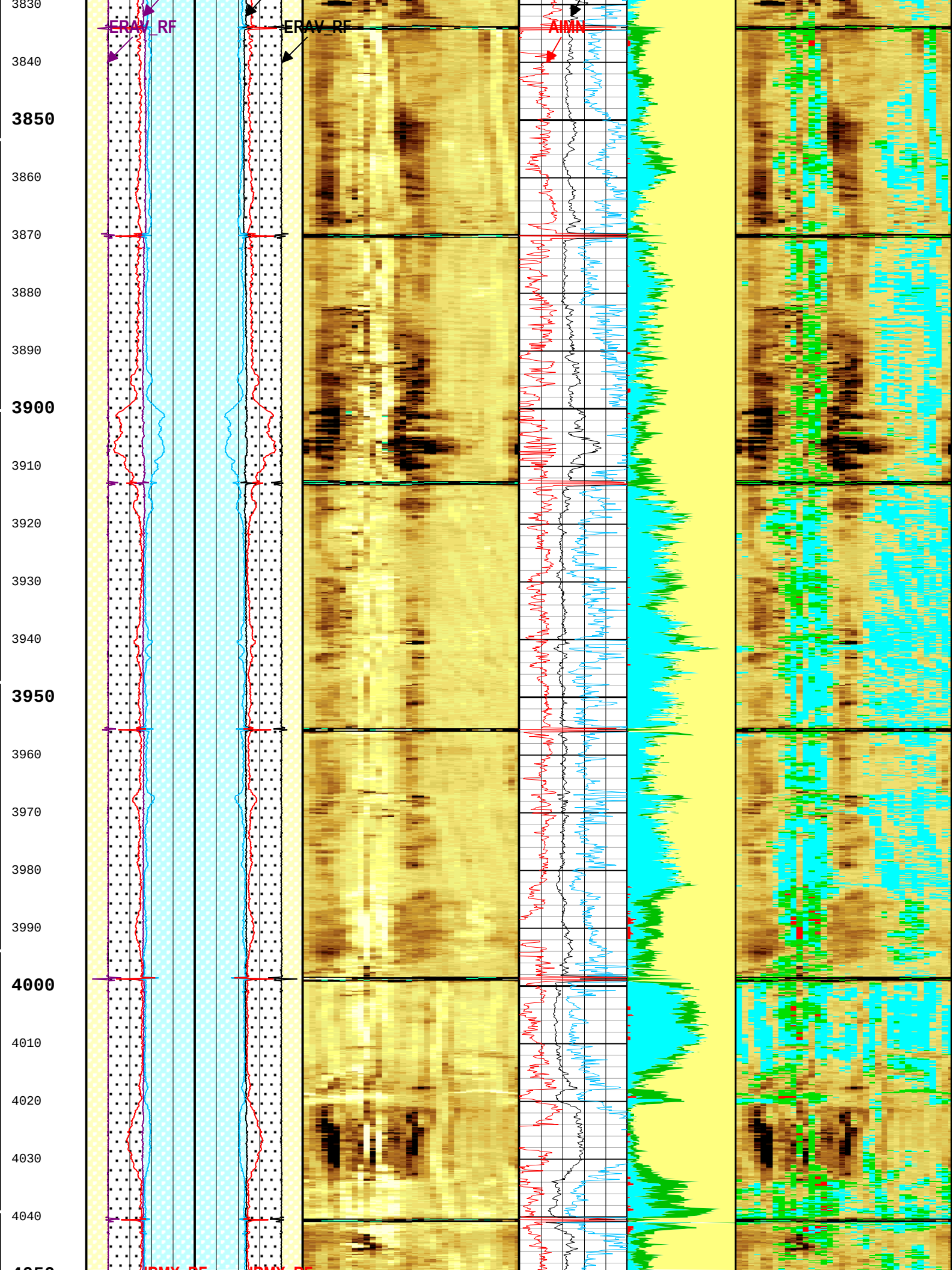
IRMX_RF
IRMN_RF
IRAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
AIMX
AIAV


ERAV_RF
ERAV_RF
AIMN
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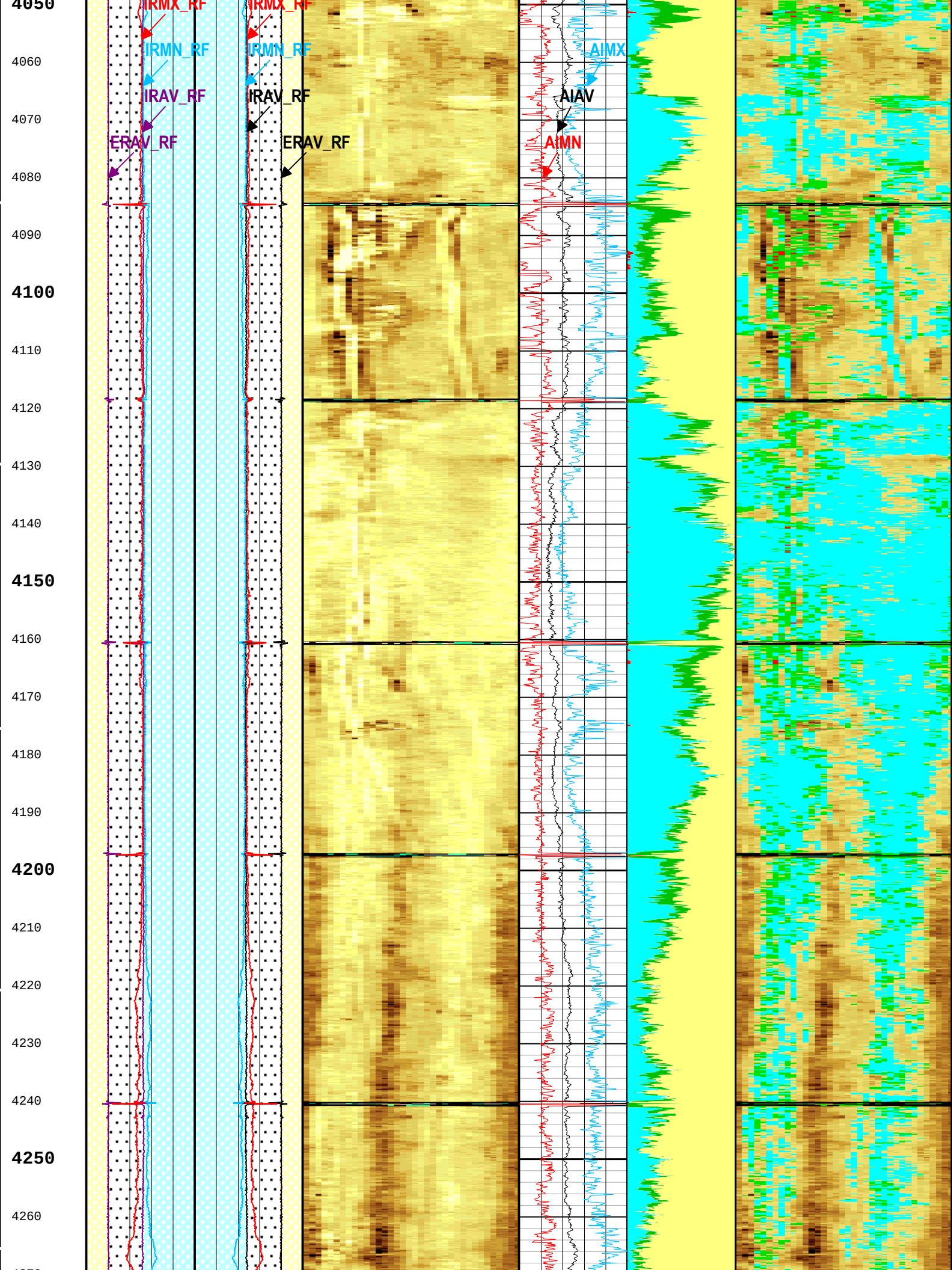
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN
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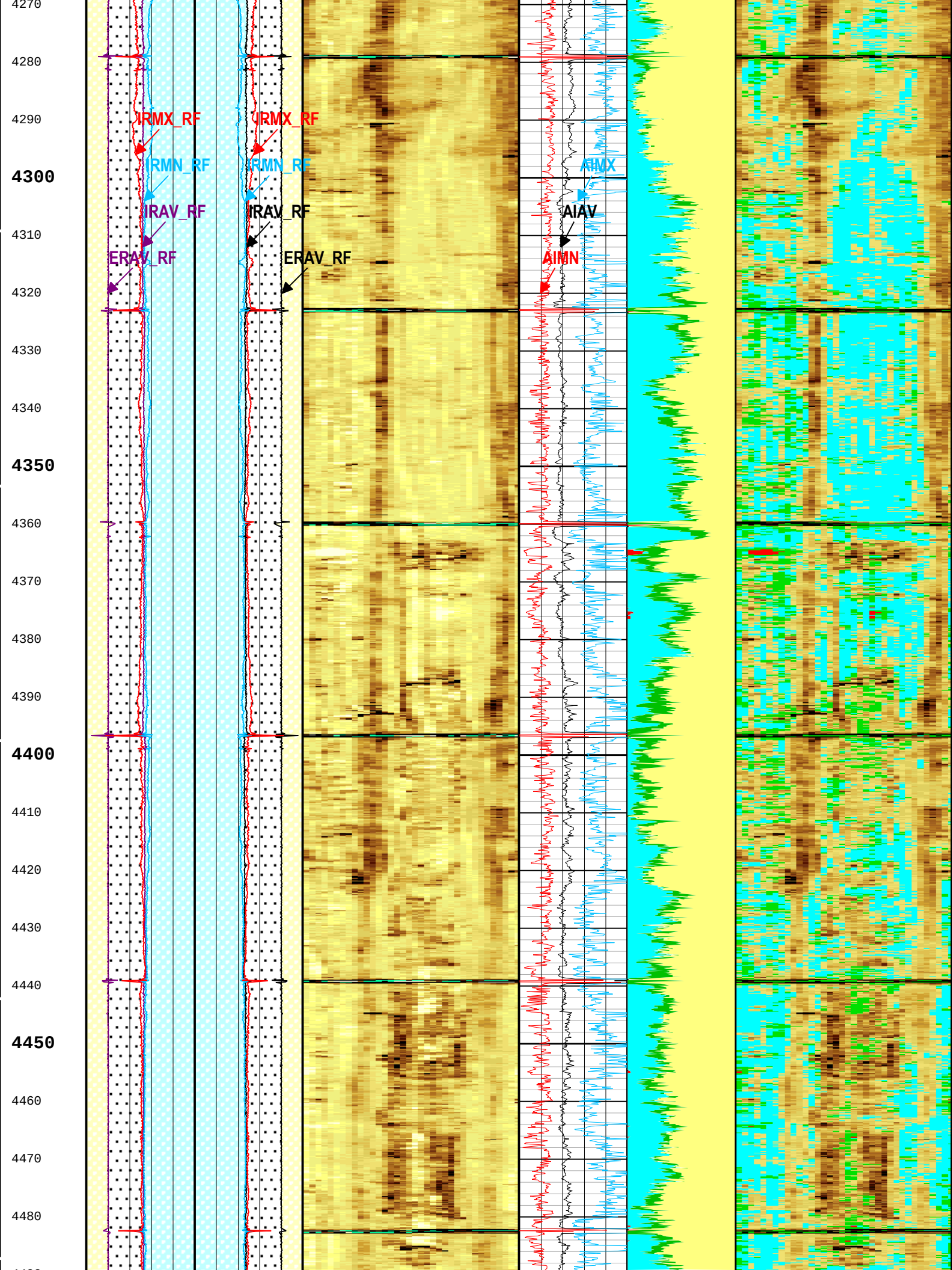
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4470
4480
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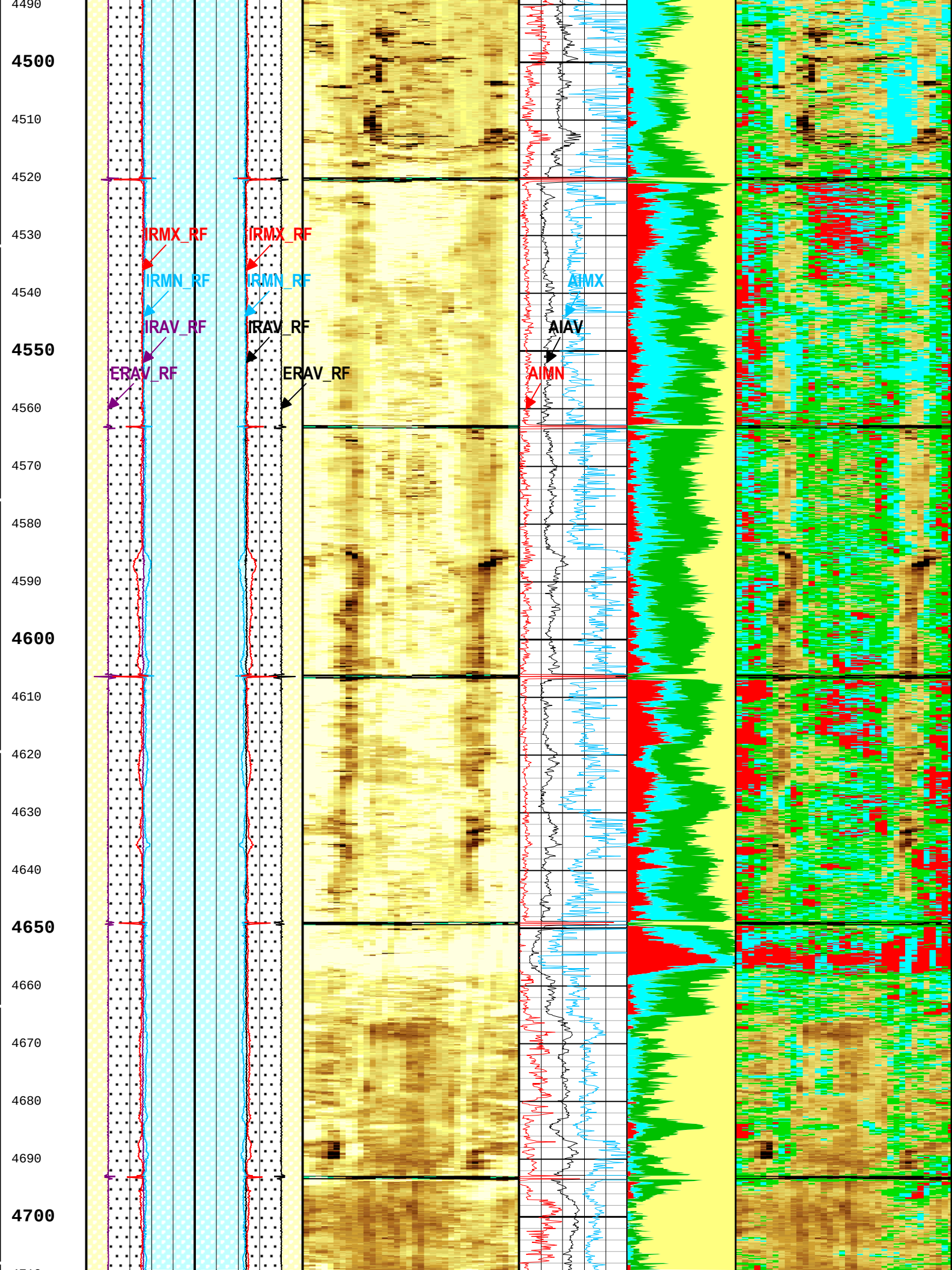
IRAV_RF
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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4660
4670
4680
4690
4700
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ERAV_RF
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IRMN_RF
IRAV_RF
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AIMX
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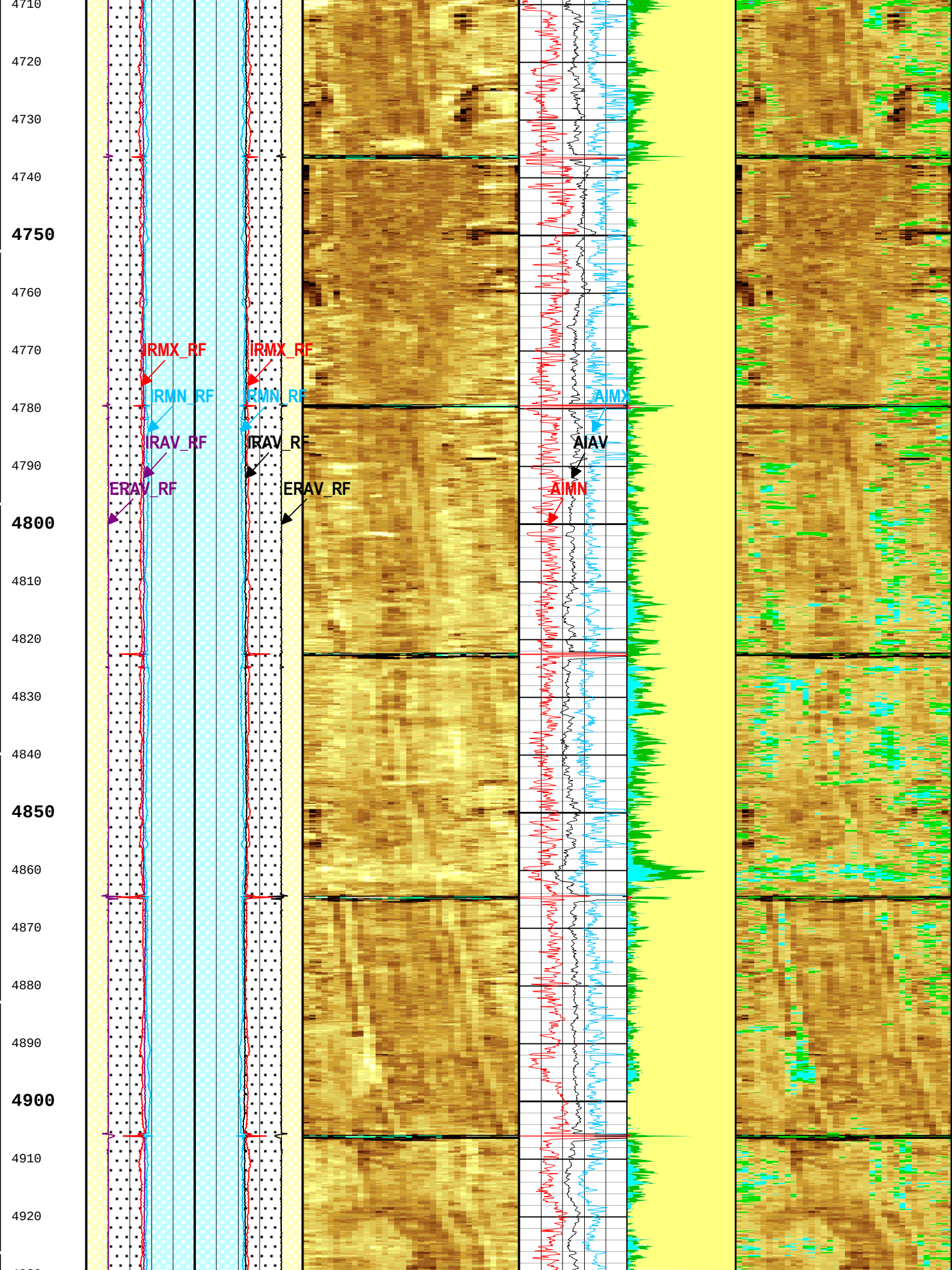
AIMN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4900
4910
4920
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IRAV_RF
ERAV_RF
IRMX_RF
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IRAV_RF
ERAV_RF
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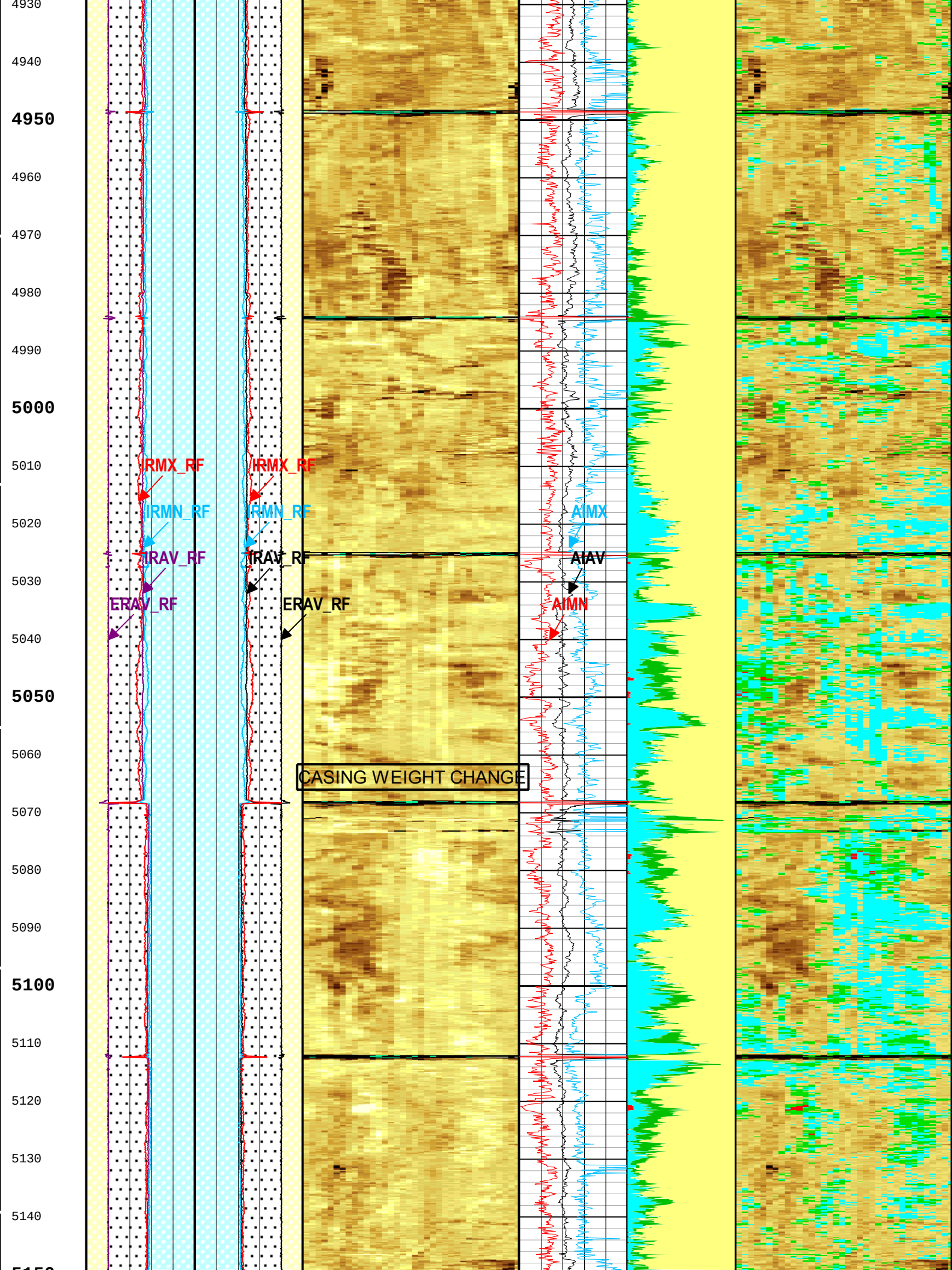
AIAV
AIMN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5110
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5140
IRMX_RF
IRMN_RF
IRAV_RF
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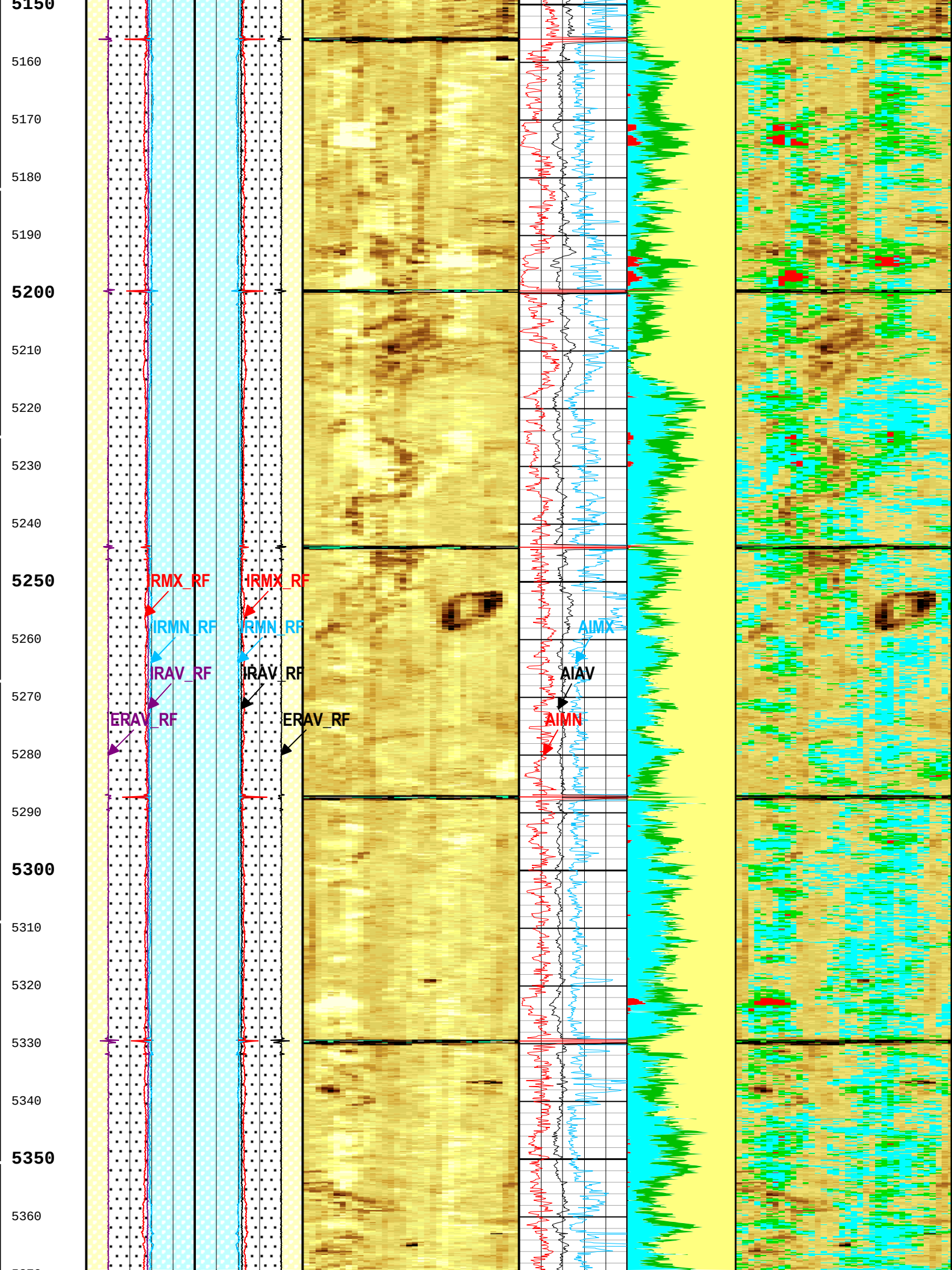
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN
CASING WEIGHT CHANGE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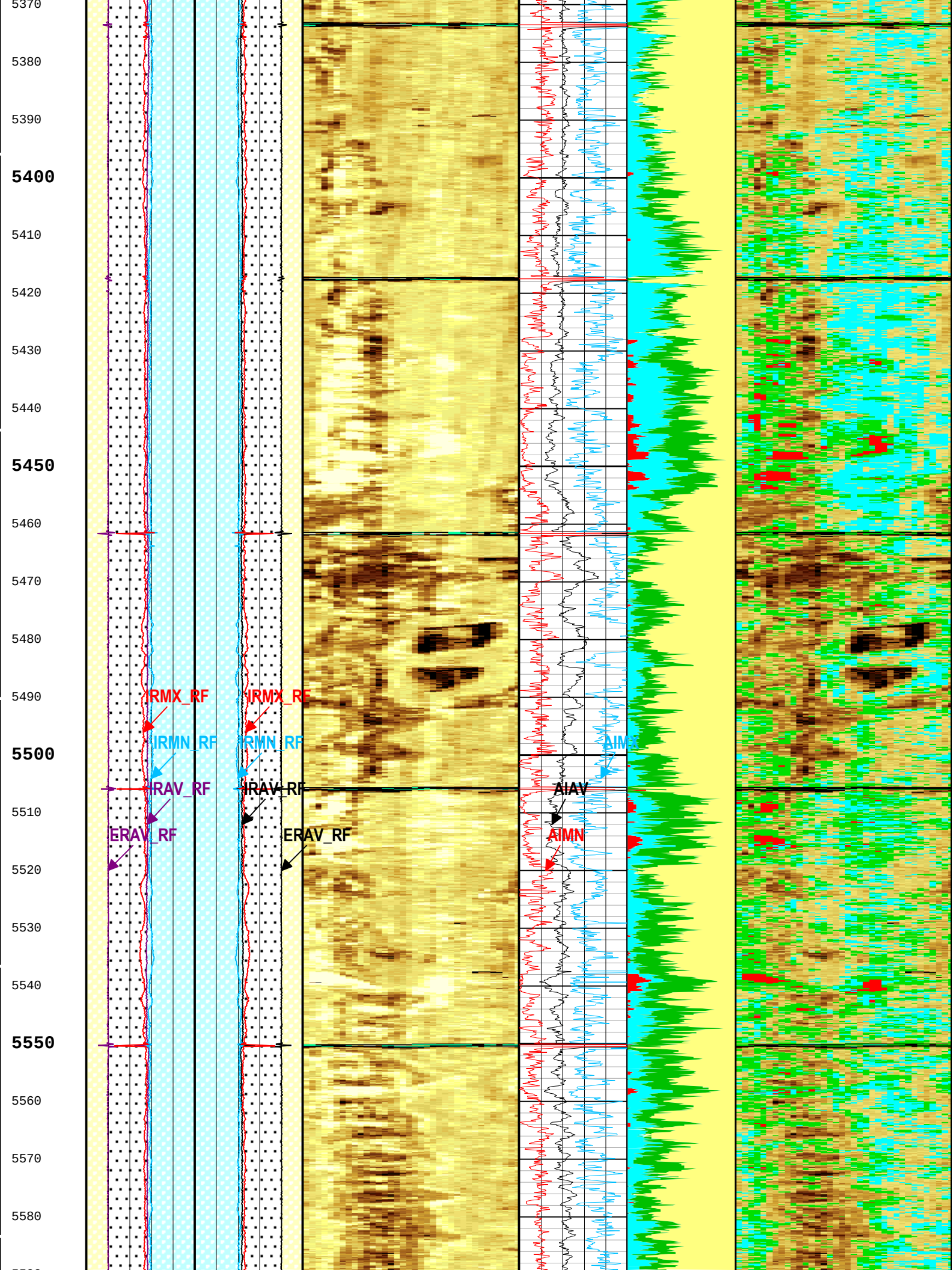
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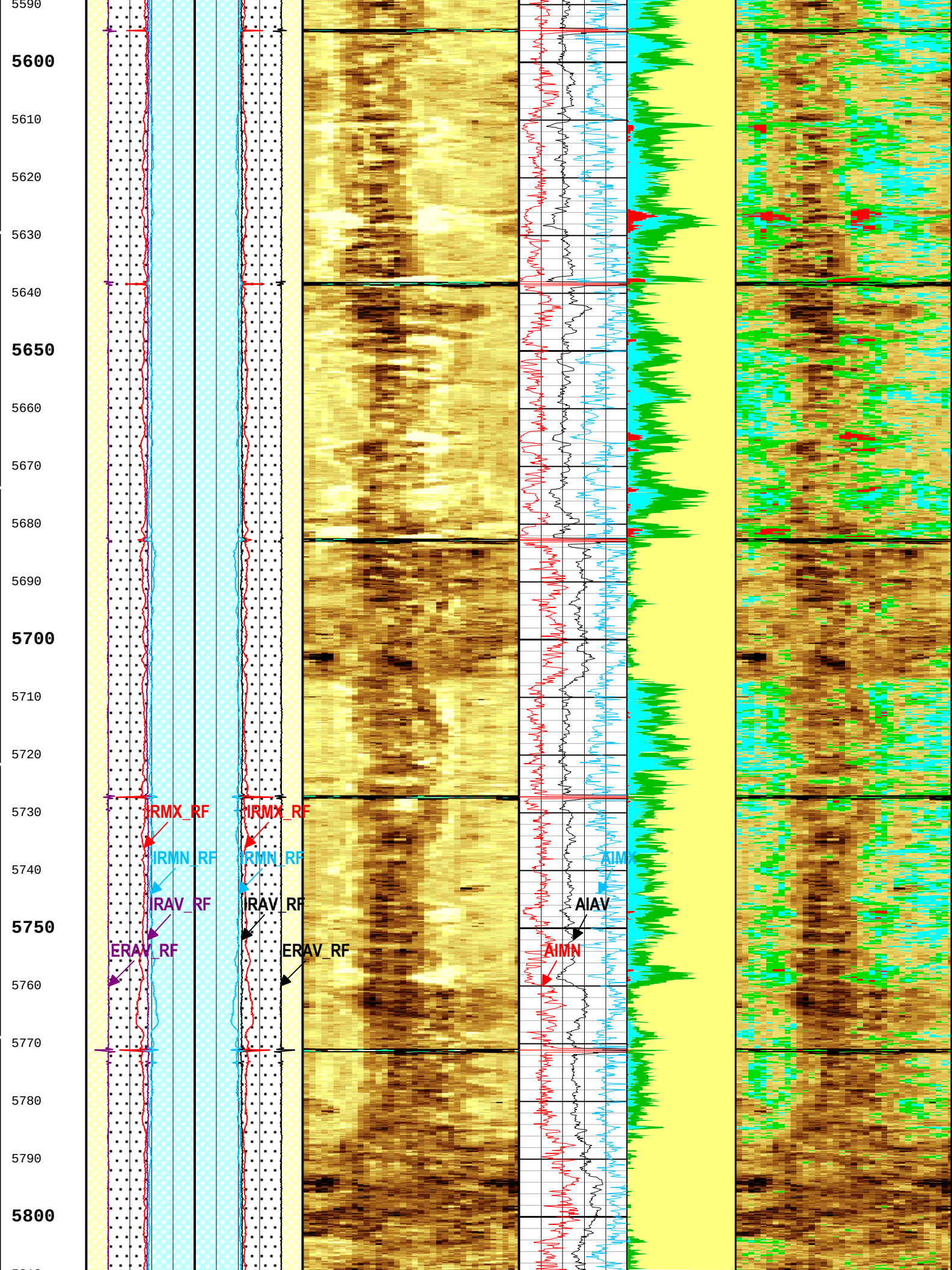
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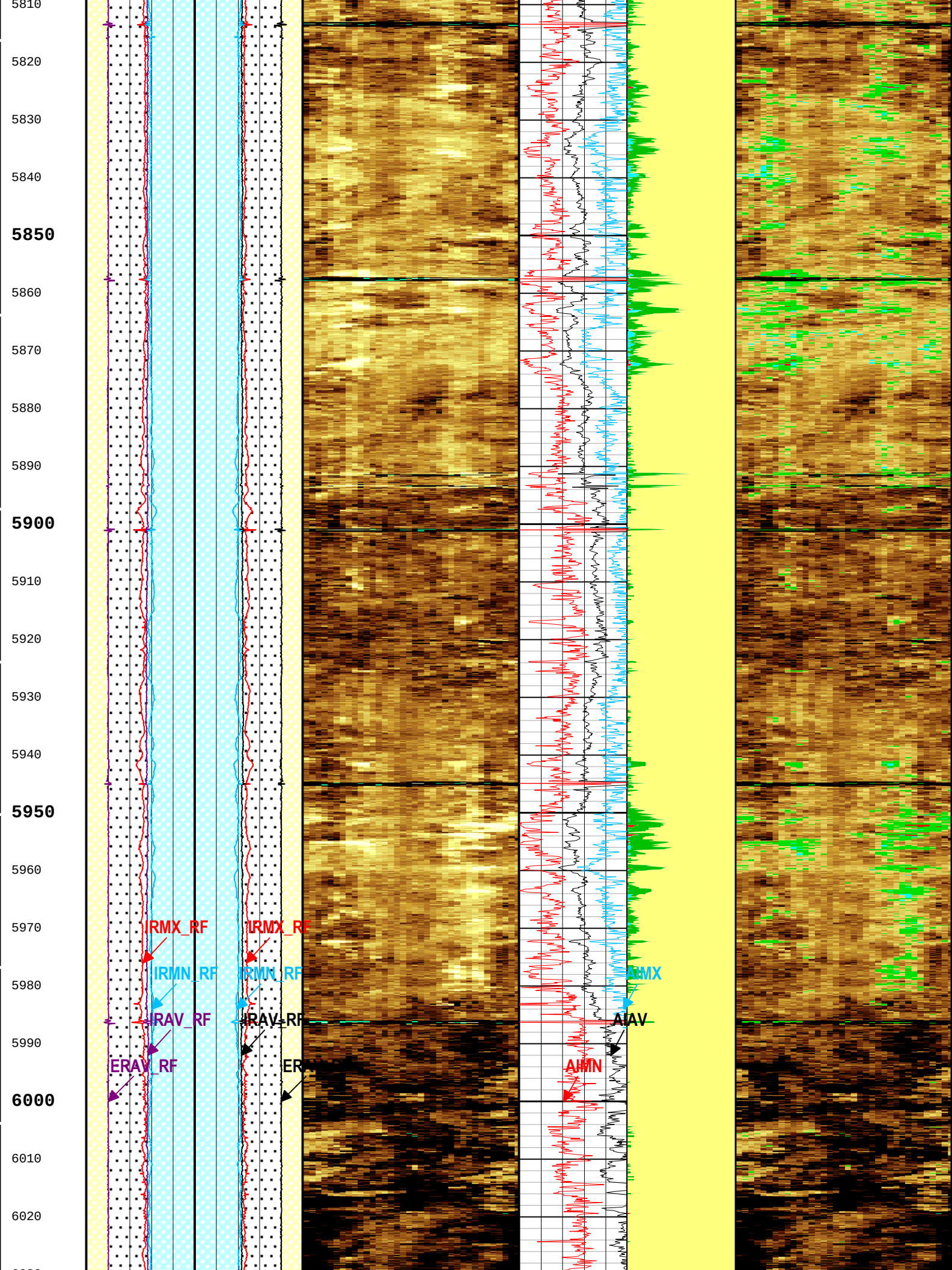
AIMN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6000
6010
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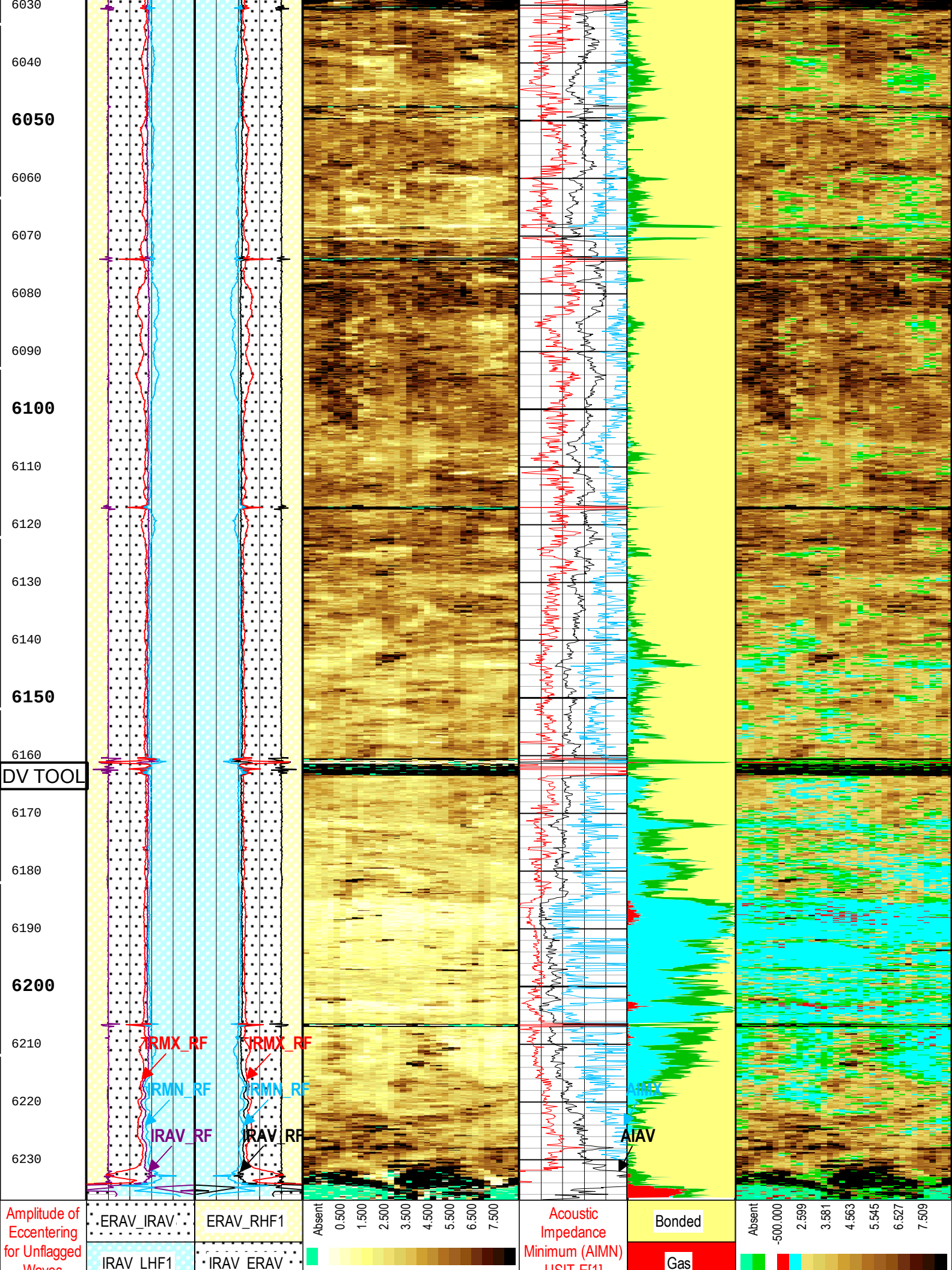
IRAV_RF
ER
AIMX
AIAV
AIMN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DV TOOL
6170
6180
6190
6200
6210
6220
6230
IRMX_RF
IRMN_RF
IRAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
AIMX
AIAV
Amplitude of Eccentering for Unflagged Waves
ERAV_IRAV
IRAV_LHF1
ERAV_RHF1
IRAV_ERAV
Absent
0.500
1.500
2.500
3.500
4.500
5.500
6.500
7.500
Acoustic Impedance Minimum (AIMN)
Bonded
Gas
Absent
-500.000
2.599
3.581
4.563
5.545
6.527
7.509

Waves (ECCE_RF) USIT-E[1]
0 in 0.5

LHF1_ERAV | RHF1_IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1]
(Mrayl)

USIT-E[1]
-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E[1]
-1 Mrayl 9

Acoustic Impedance Maximum (AIMX) USIT-E[1]
-1 Mrayl 9

Liquid

Micro-debonding

Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1]
(Mrayl)

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Cement Format: Log (LBV1_USI Cement 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:33:41

Composite 1

Corrosion 5 in = 100 ft

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[2]:Up	Up	107.27 ft	6237.78 ft	02-Sep-2016 8:56:55 AM	02-Sep-2016 11:18:54 AM	ON	-3.00 ft	Yes
2-Sep-2016	Log[3]:Up	Up	5.98 ft	300.53 ft	02-Sep-2016 11:21:28 AM	02-Sep-2016 11:35:26 AM	ON	-3.00 ft	Yes

All depths are referenced to toolstring zero

Log

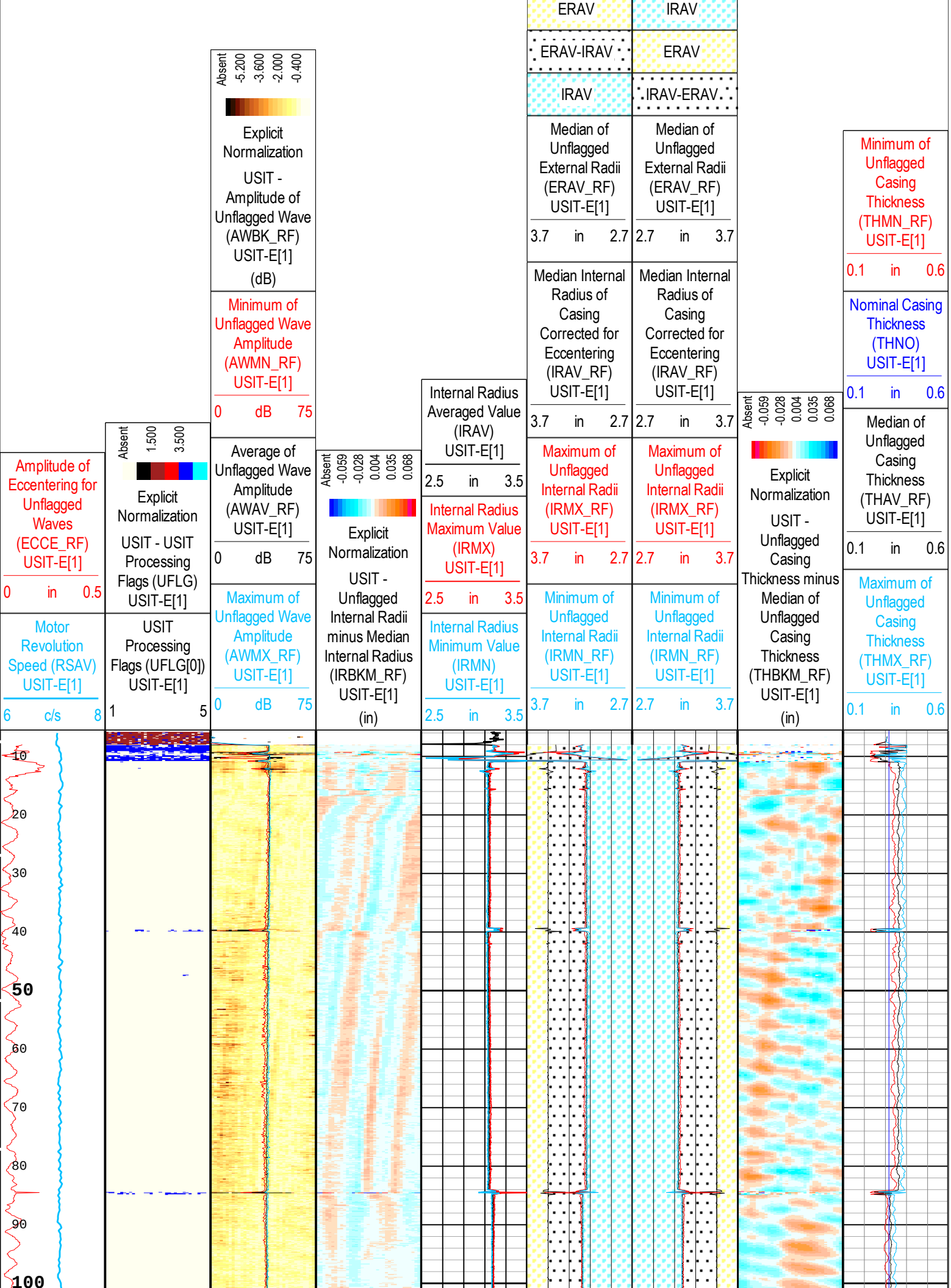
Company:Southern California Gas Company Well:Ward 3
Composite 1:S003

Description: USI Composite Format: Log (LBV1_USI Corrosion 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:34:14

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)


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E[1]
USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5
Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1]
(dB)
Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75
Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1]
(in)
Internal Radius Averaged Value (IRAV) USIT-E[1]
2.5 in 3.5
Internal Radius Maximum Value (IRMX) USIT-E[1]
2.5 in 3.5
Internal Radius Minimum Value (IRMN) USIT-E[1]
2.5 in 3.5
ERAV
ERAV-IRAV
IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7
IRAV
ERAV
IRAV-ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1]
(in)
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6
Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6
Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6
Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6
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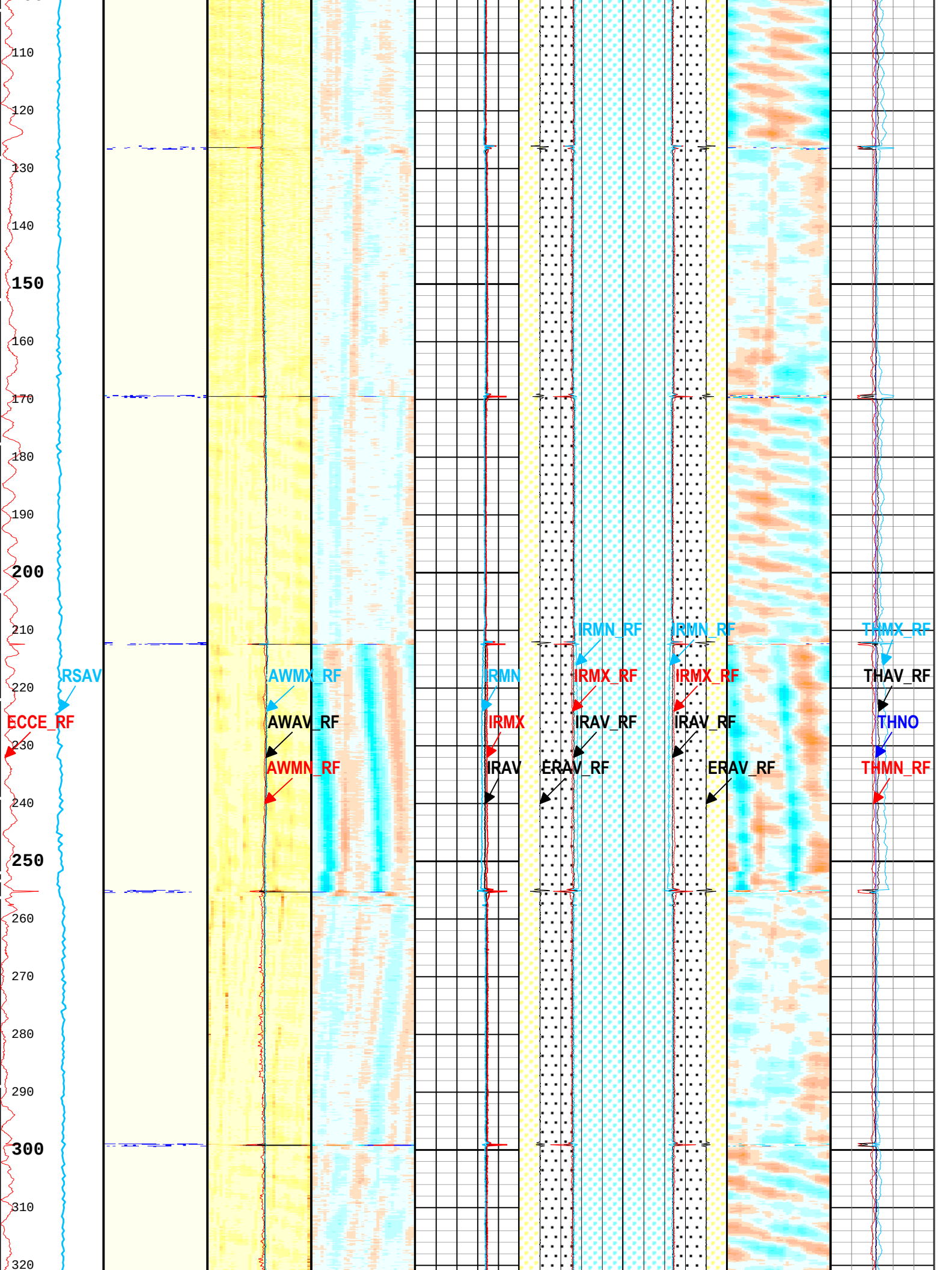
100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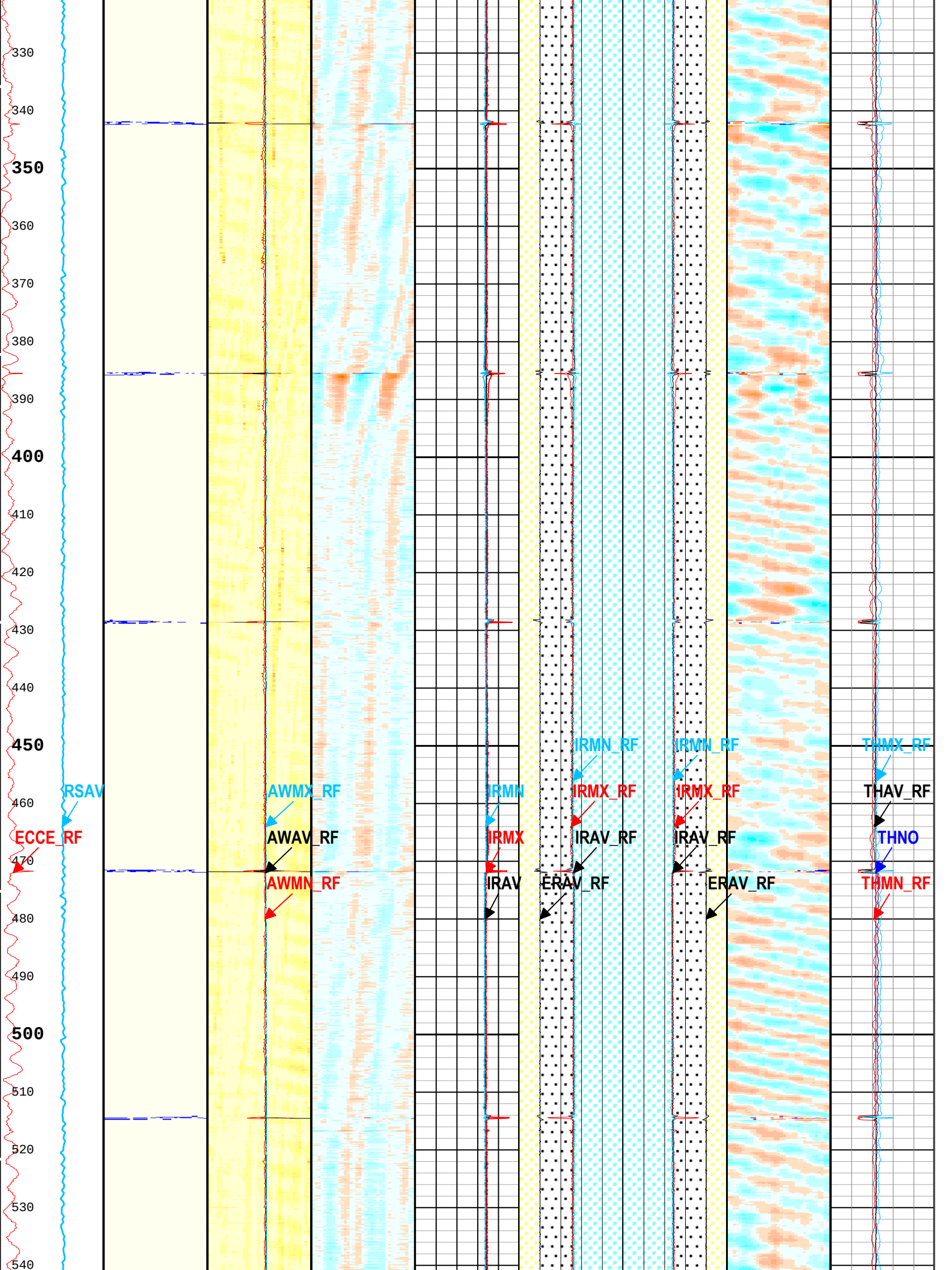
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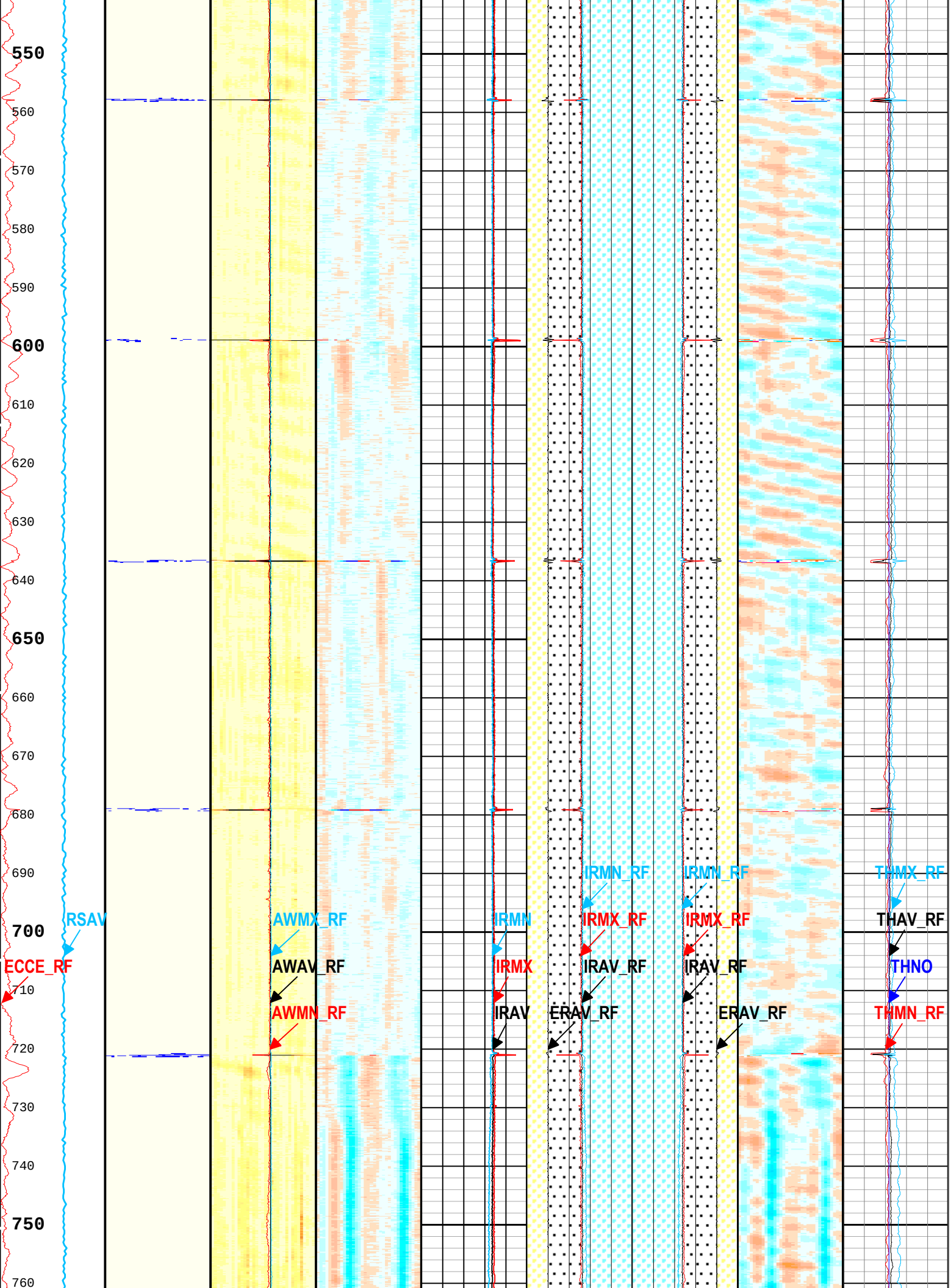
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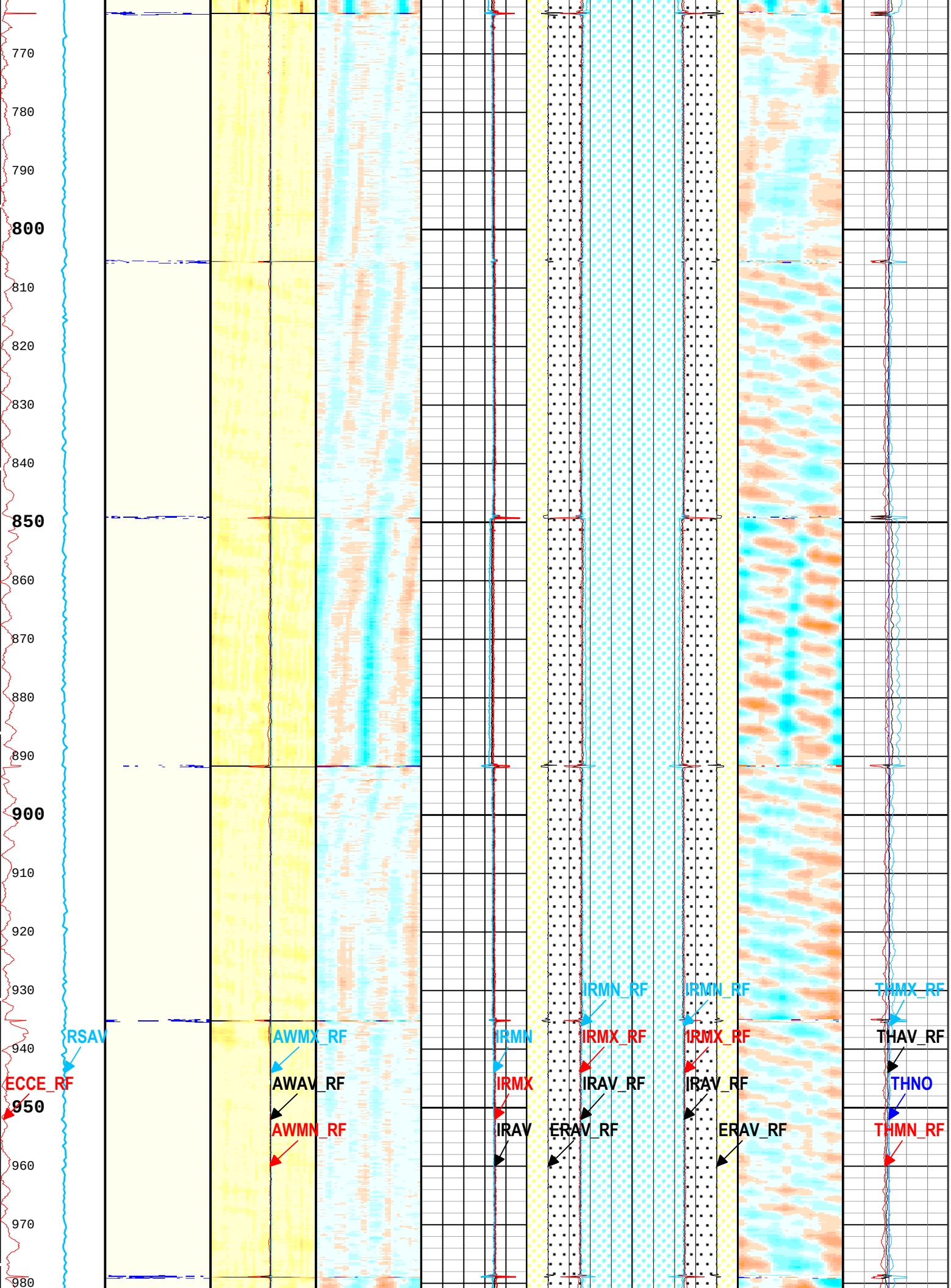
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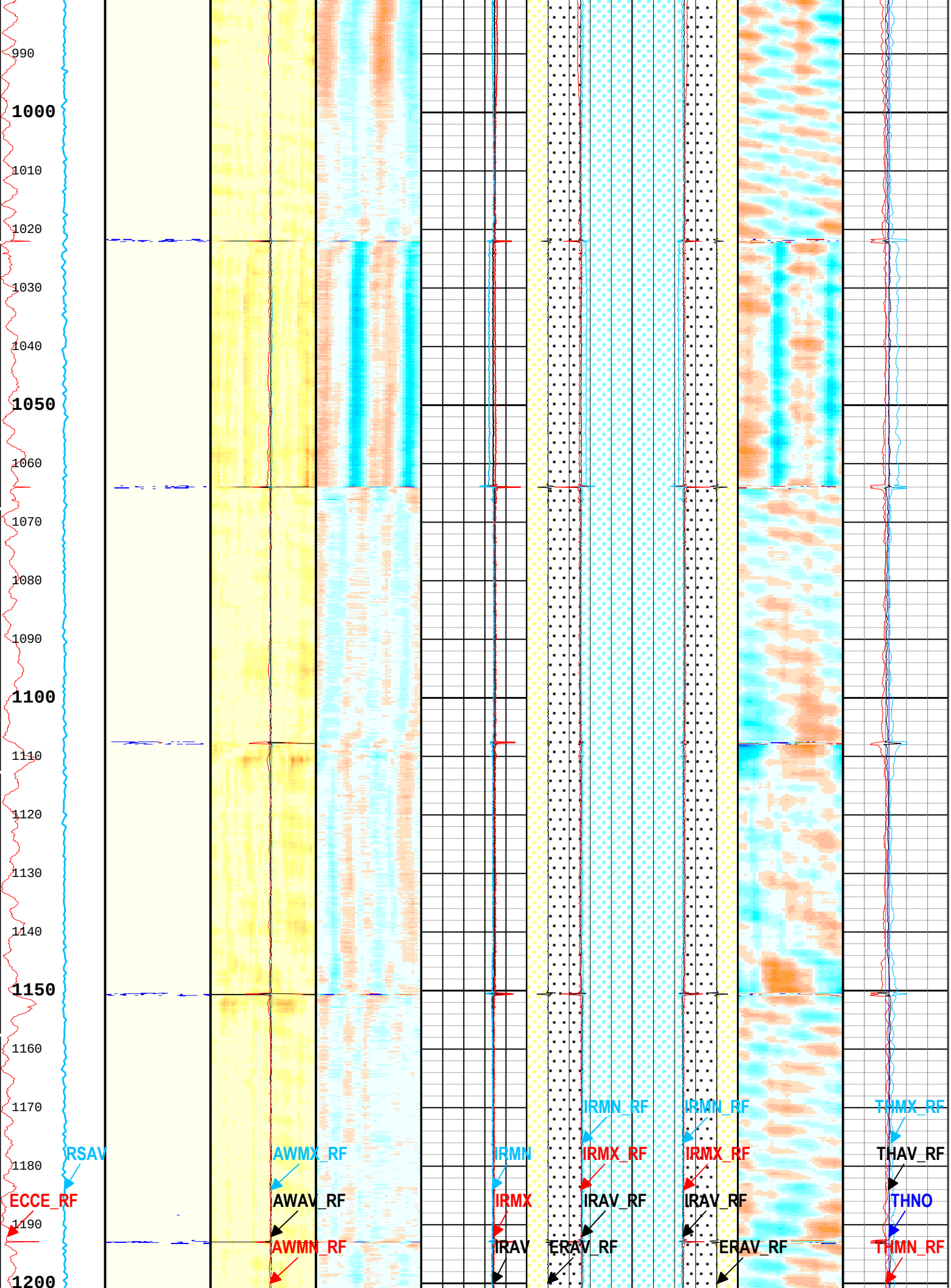
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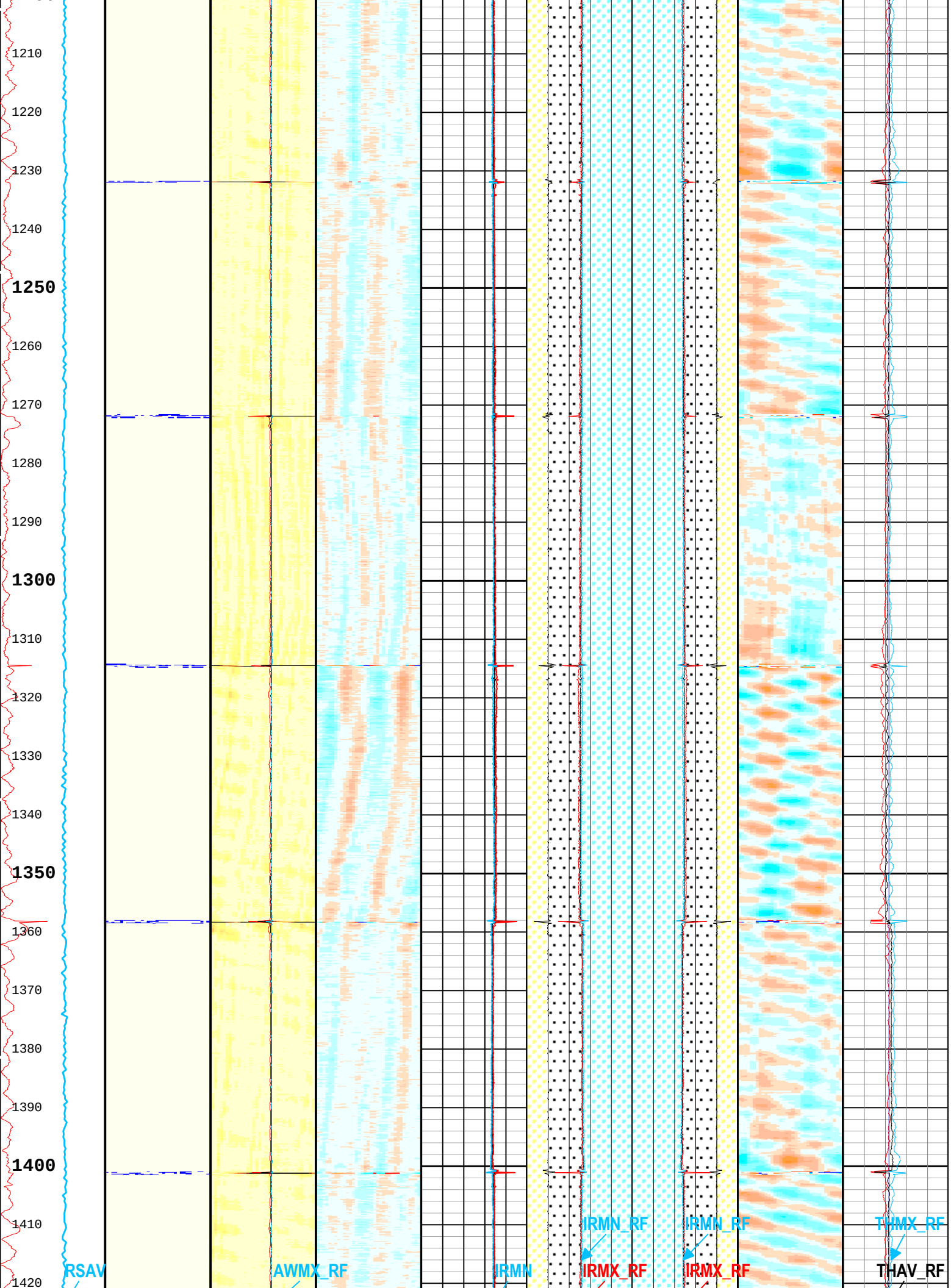
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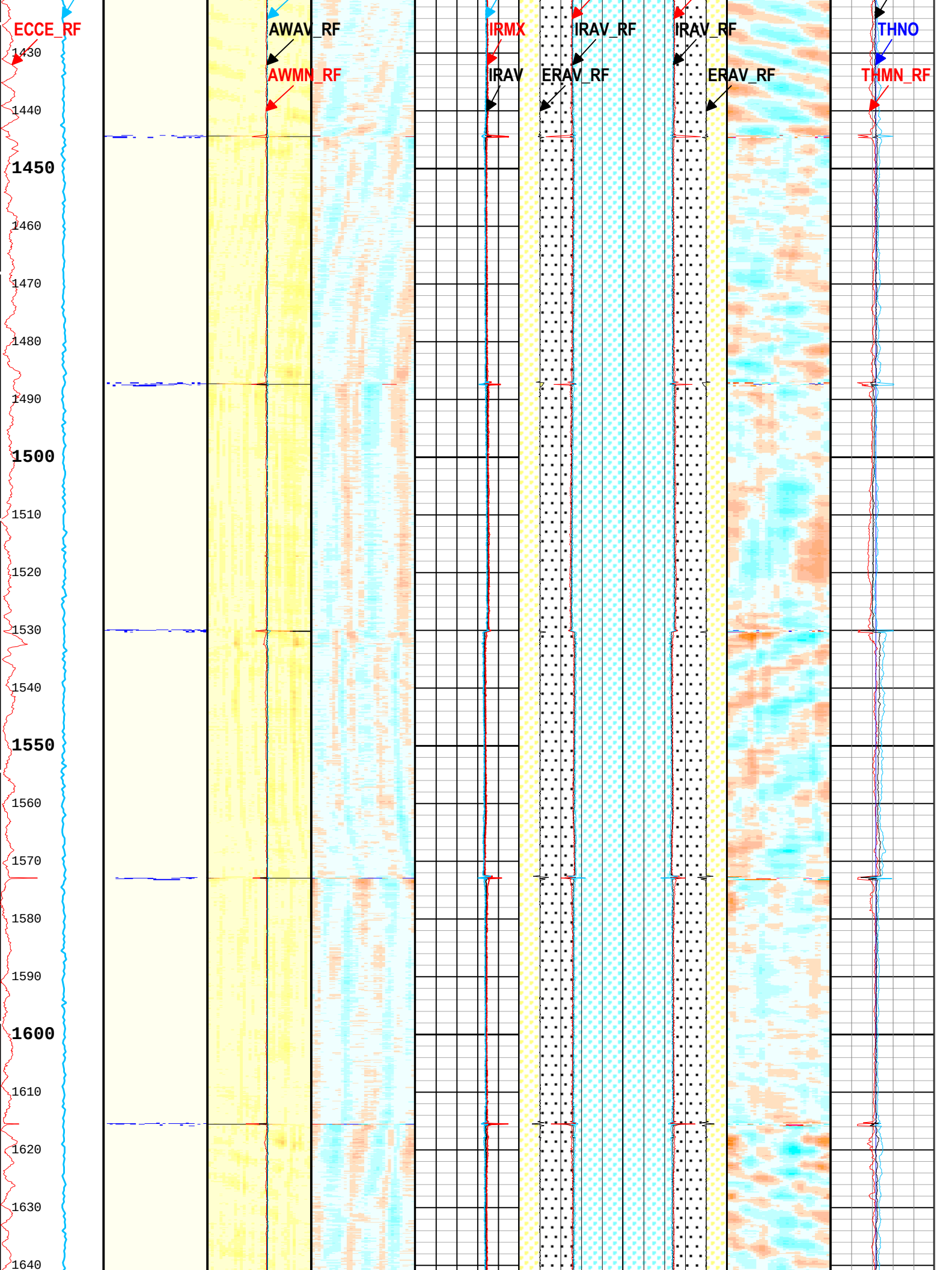
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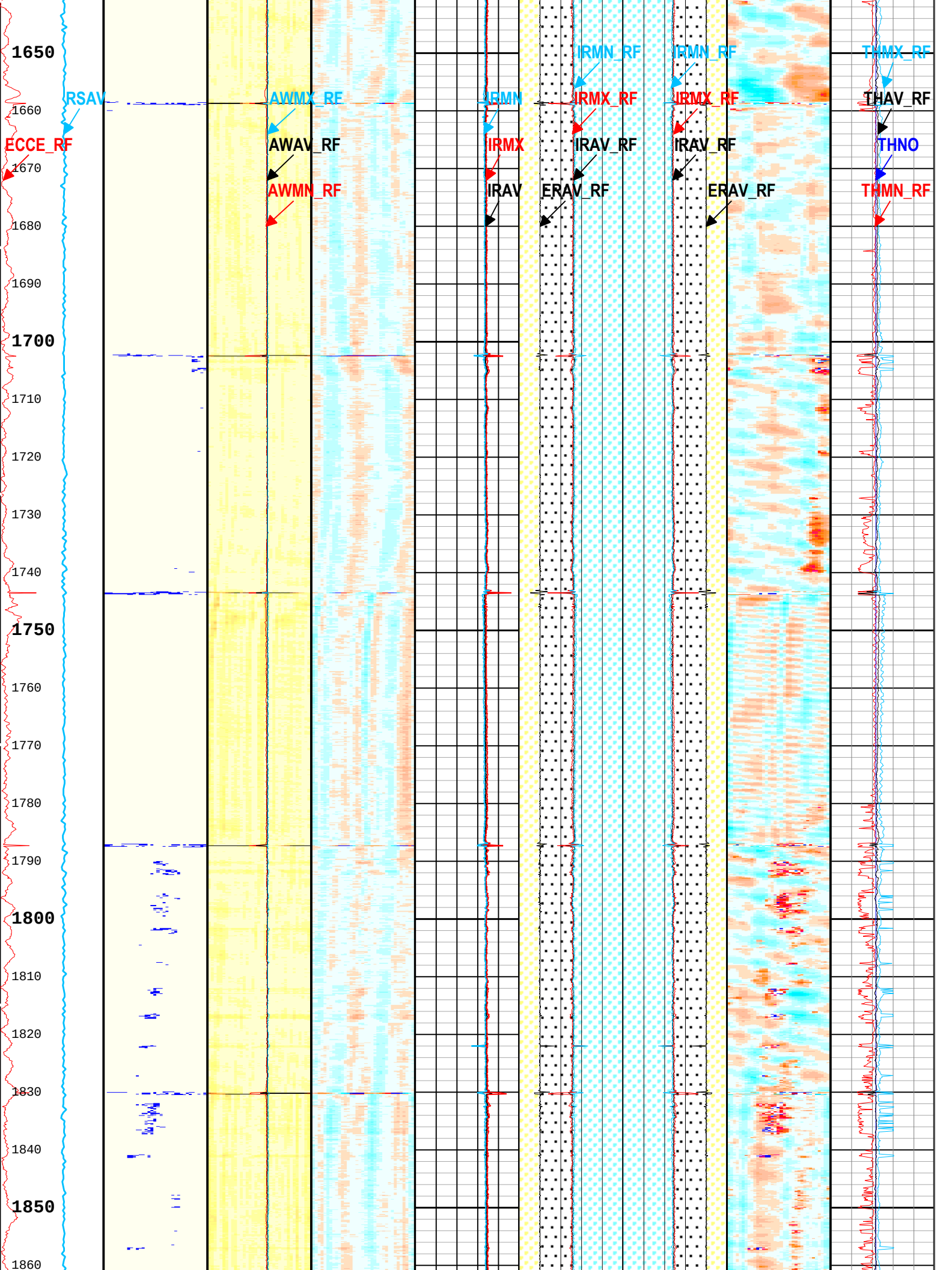
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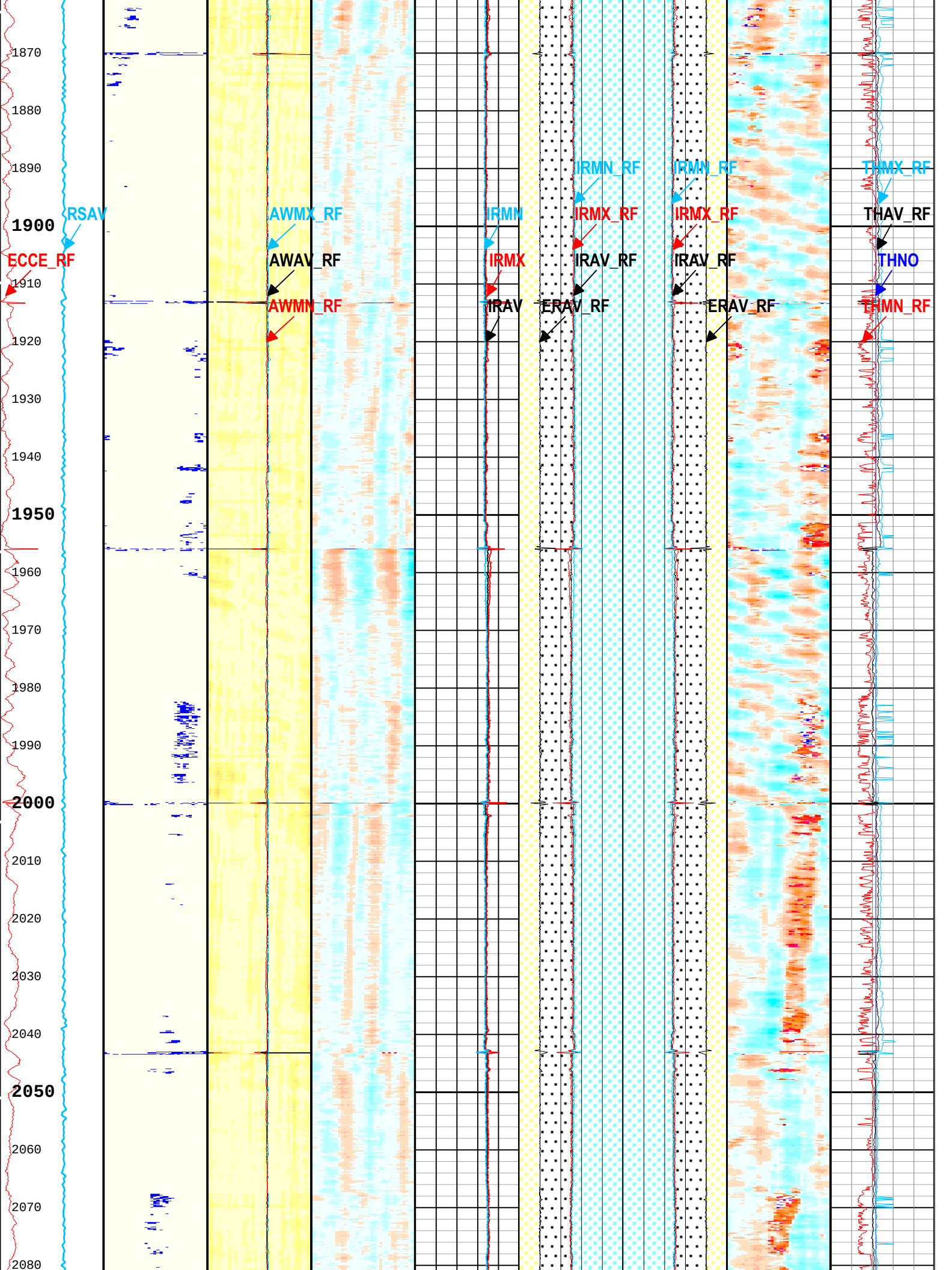
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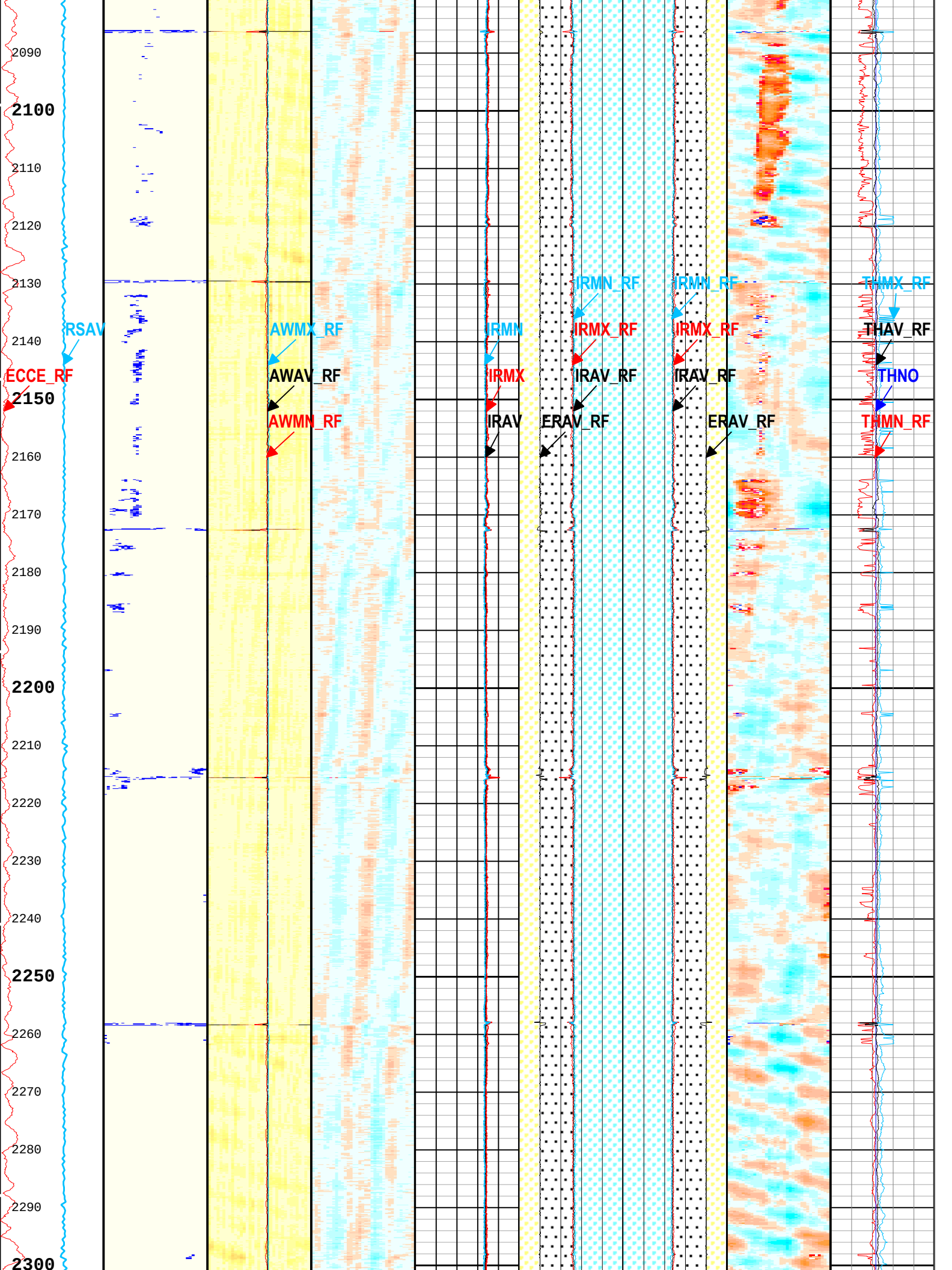
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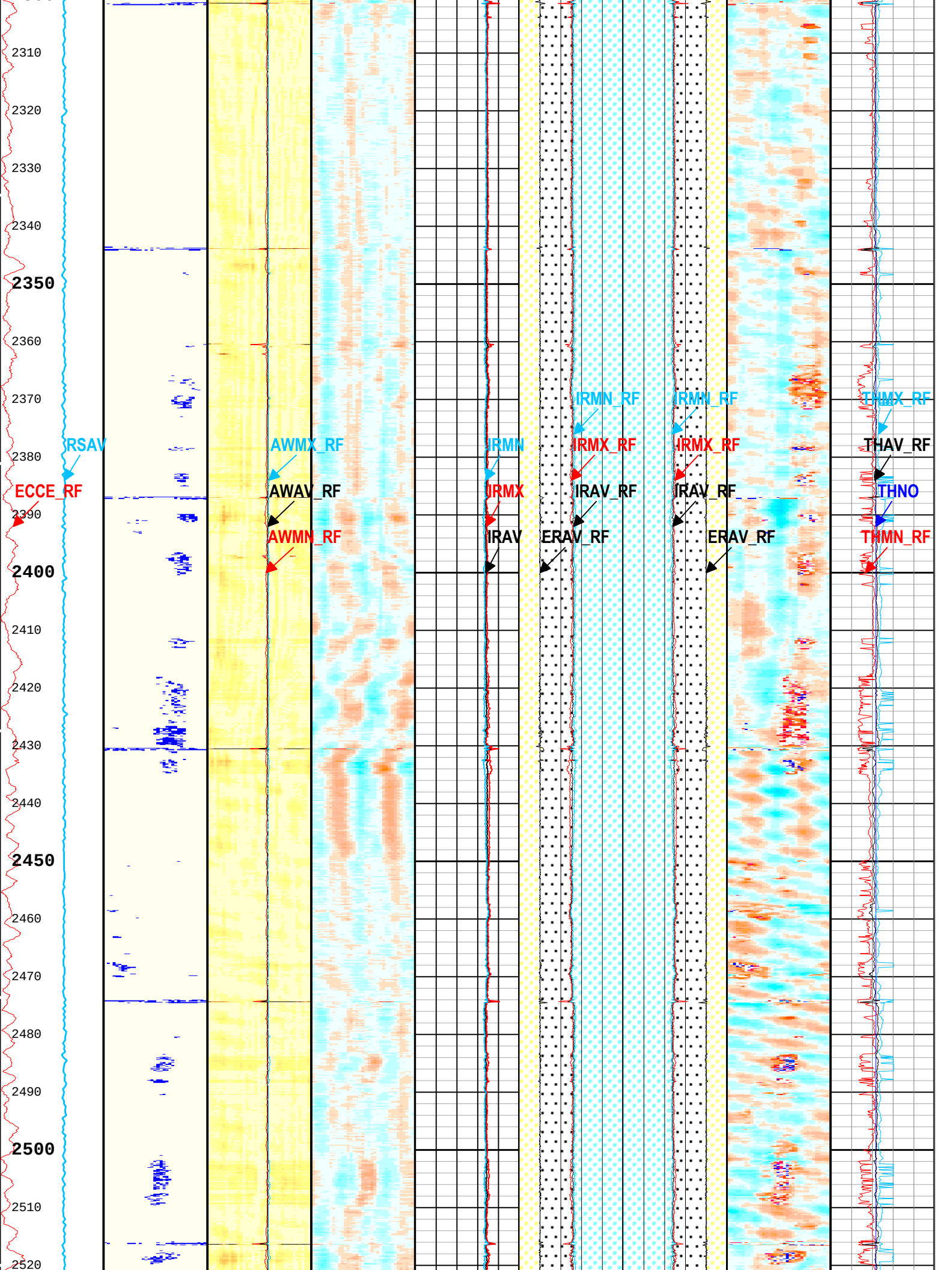
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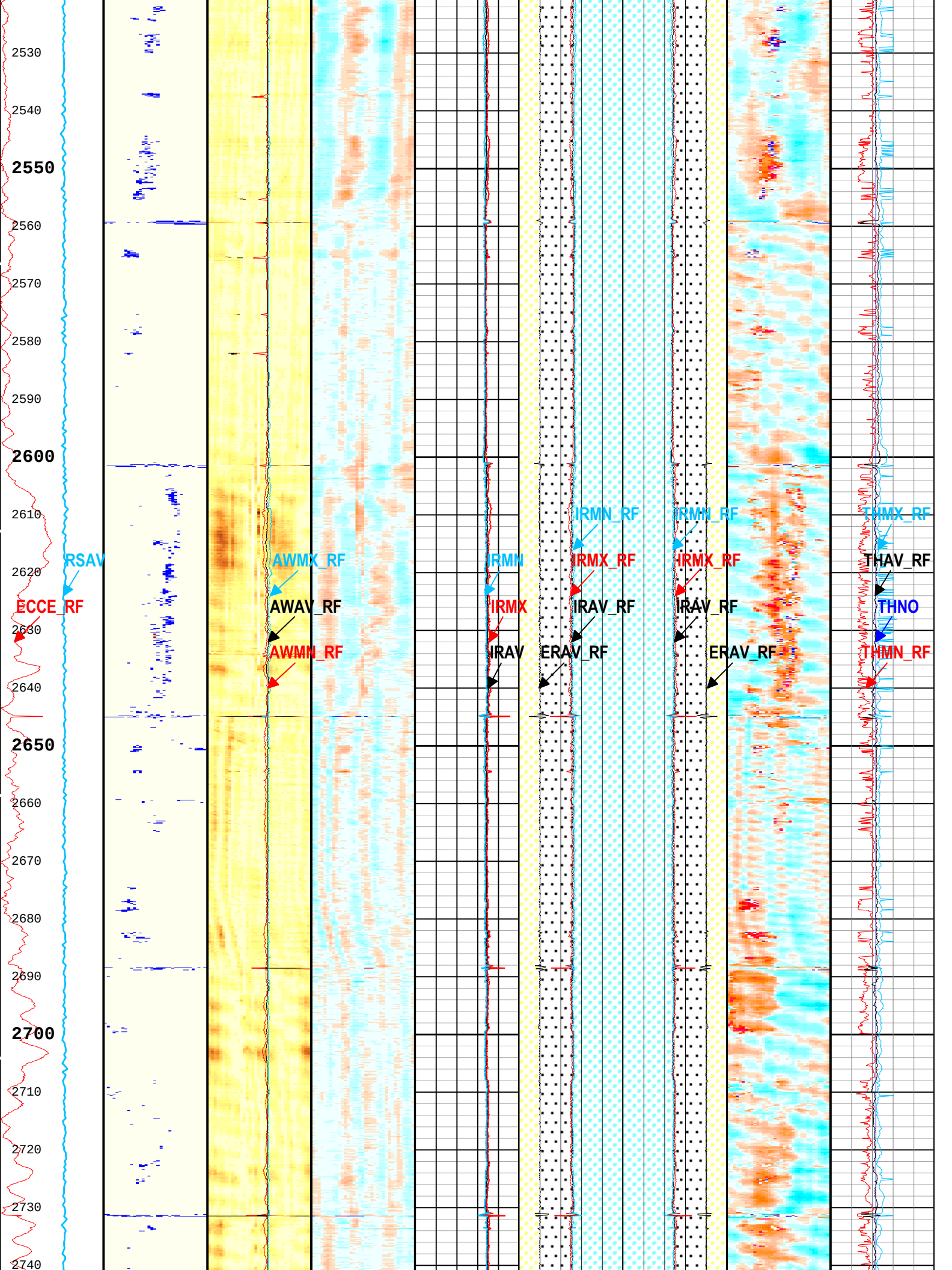
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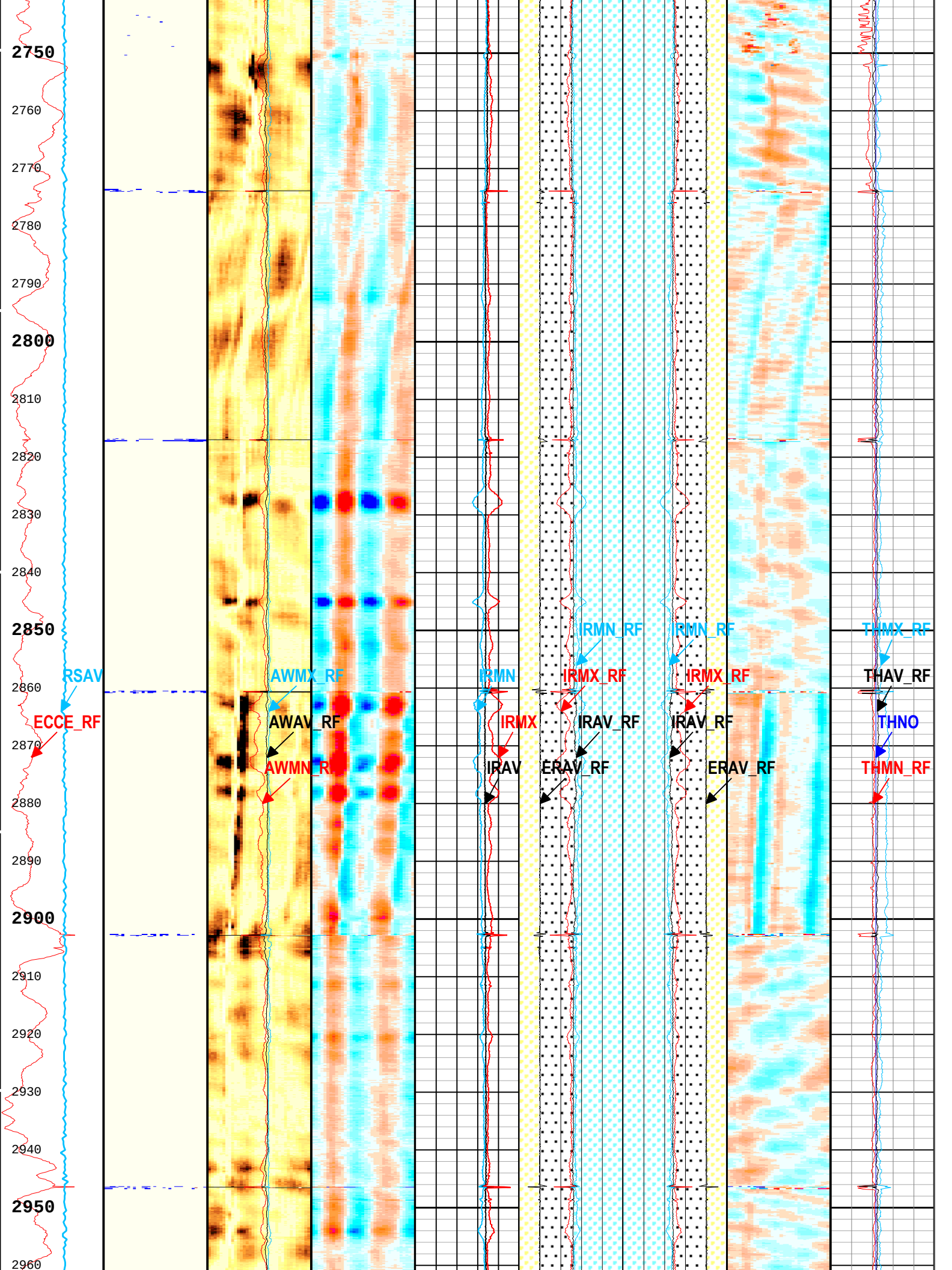
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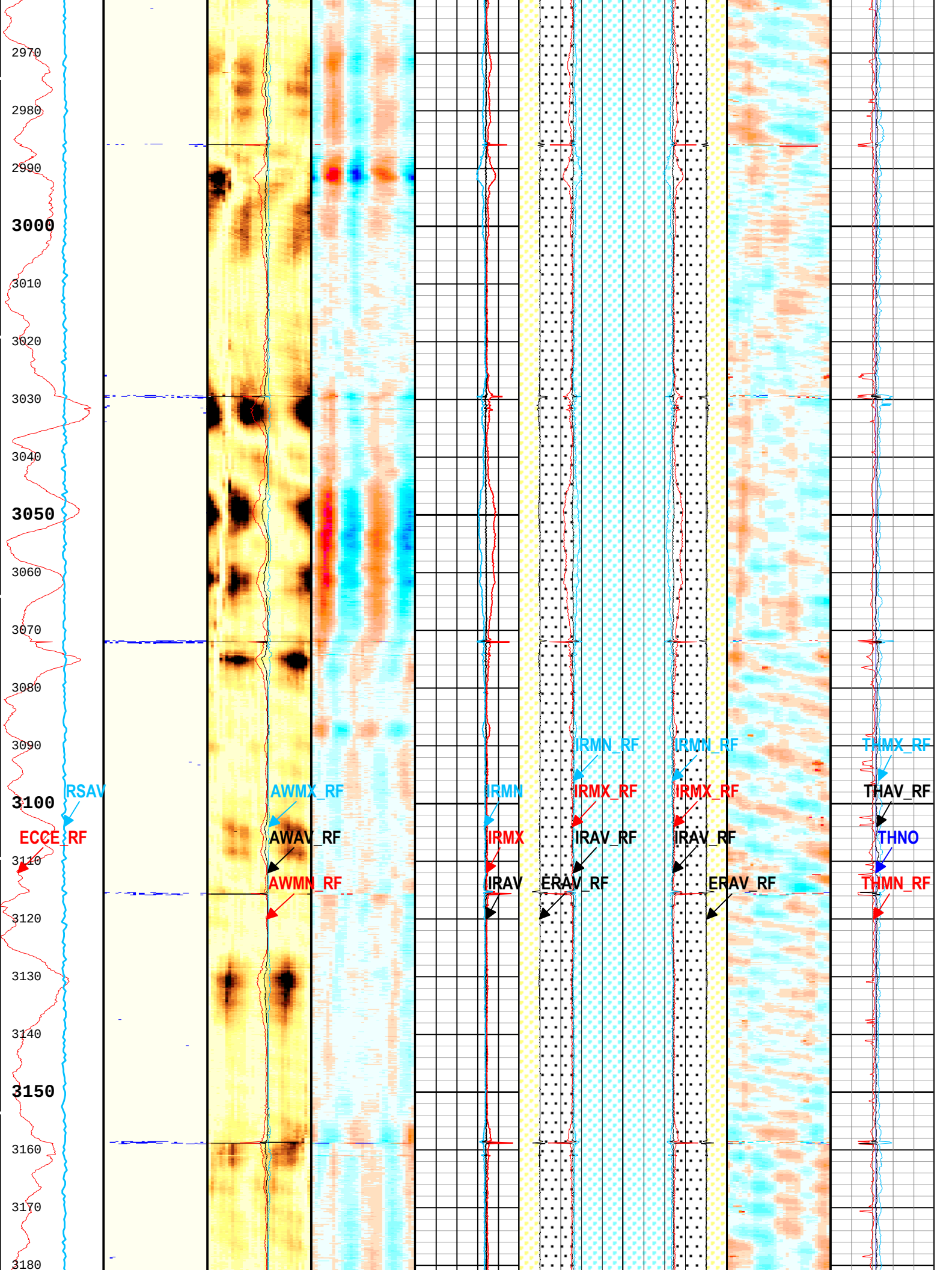
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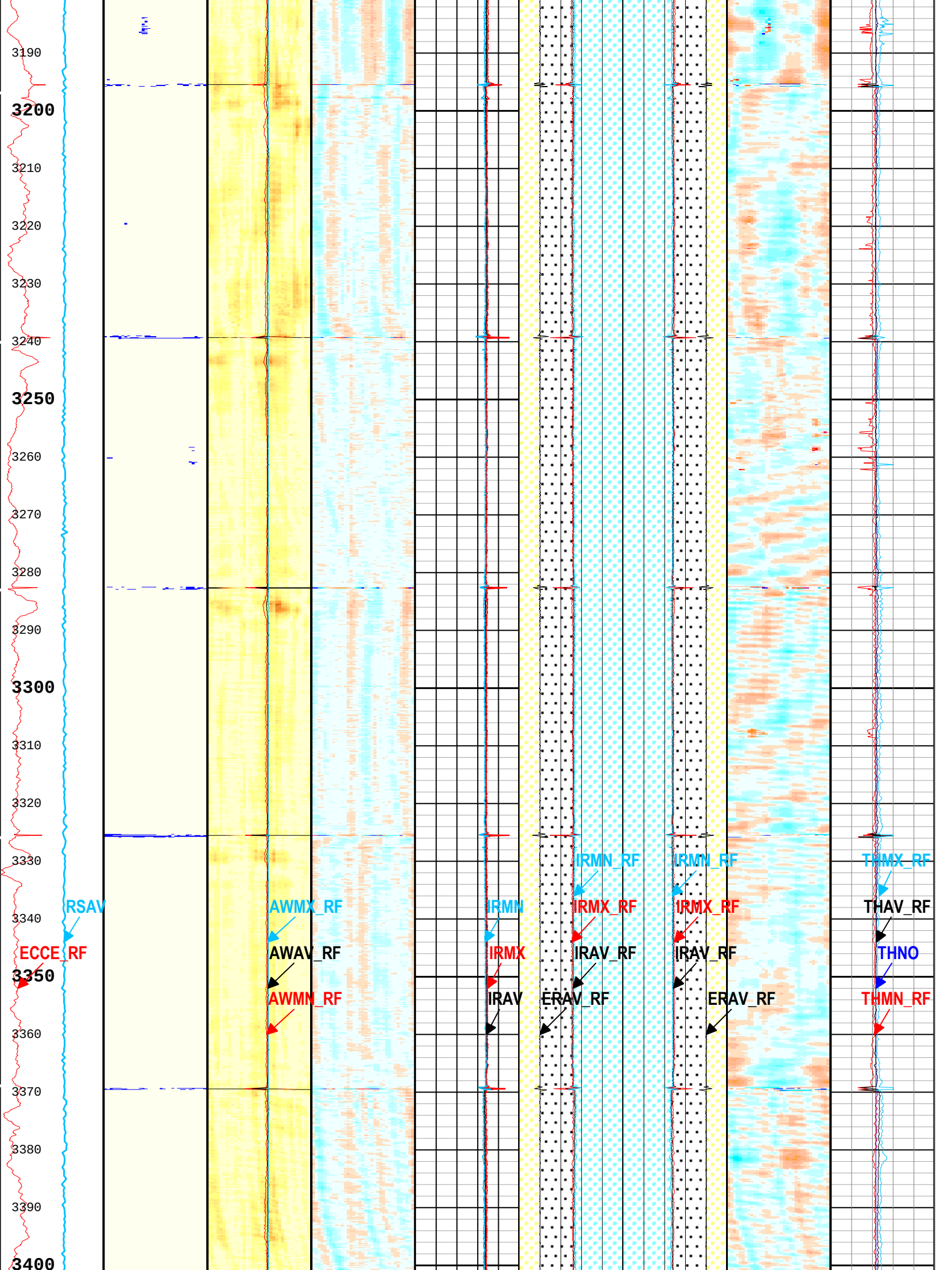
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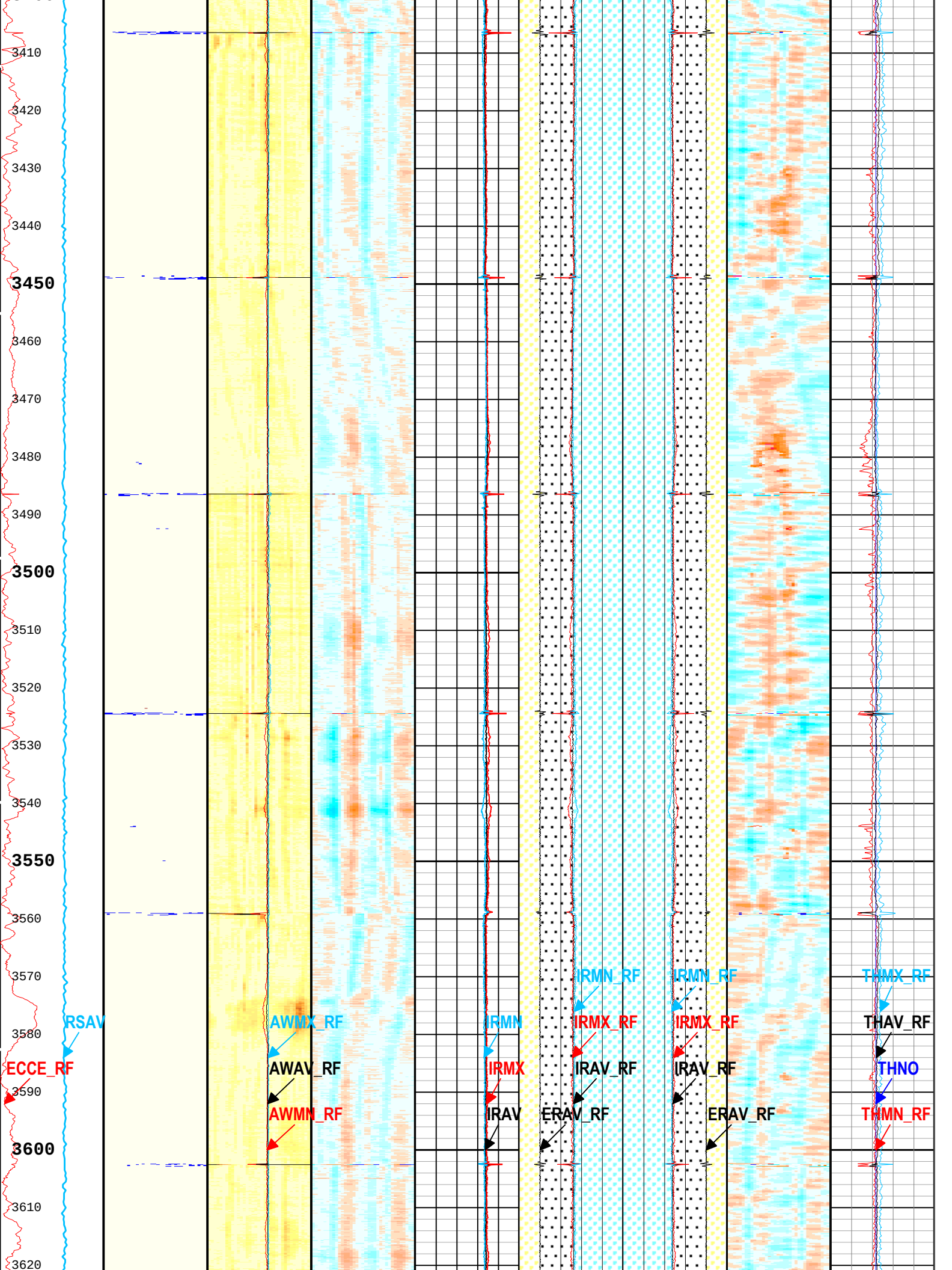
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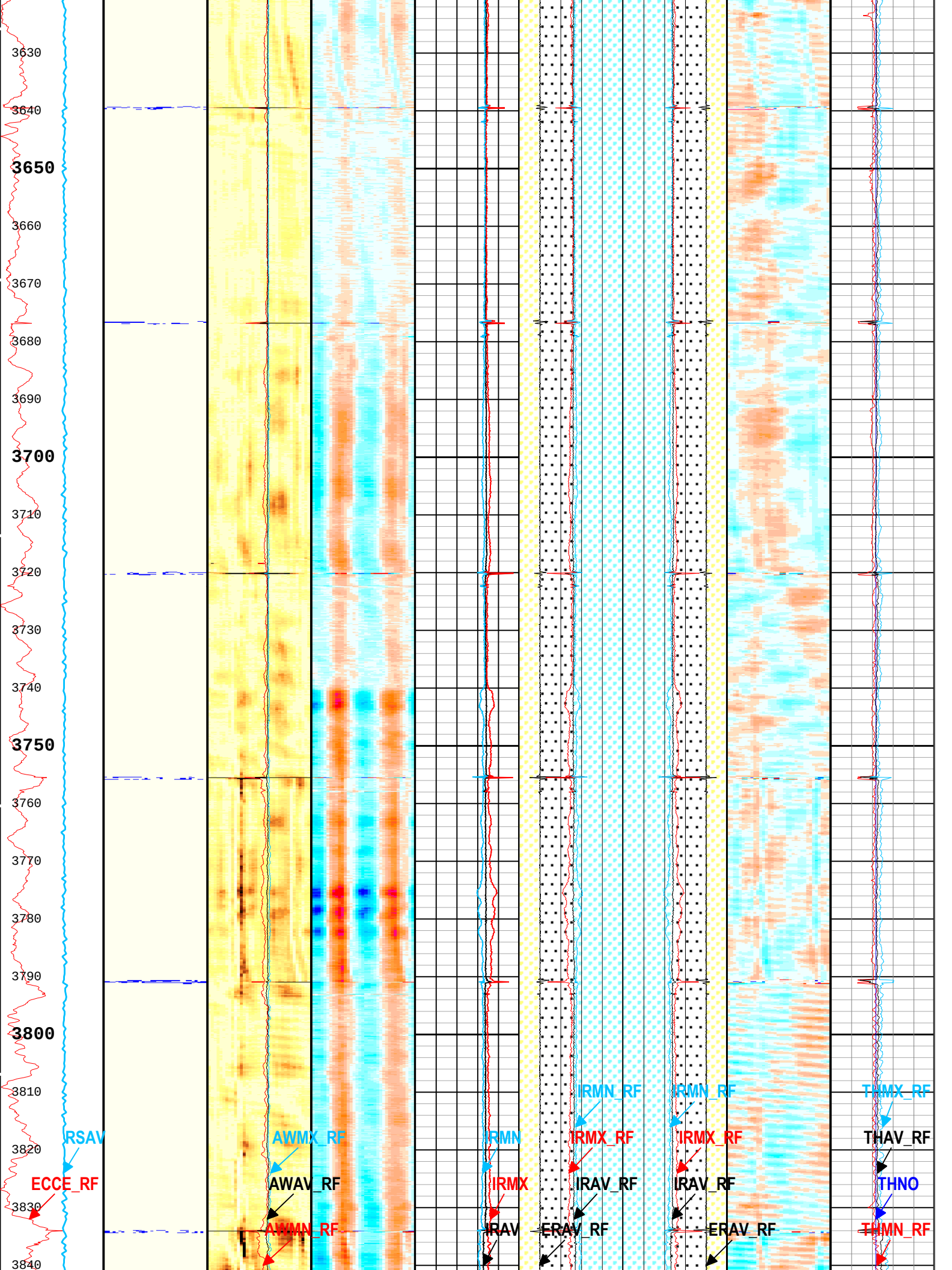
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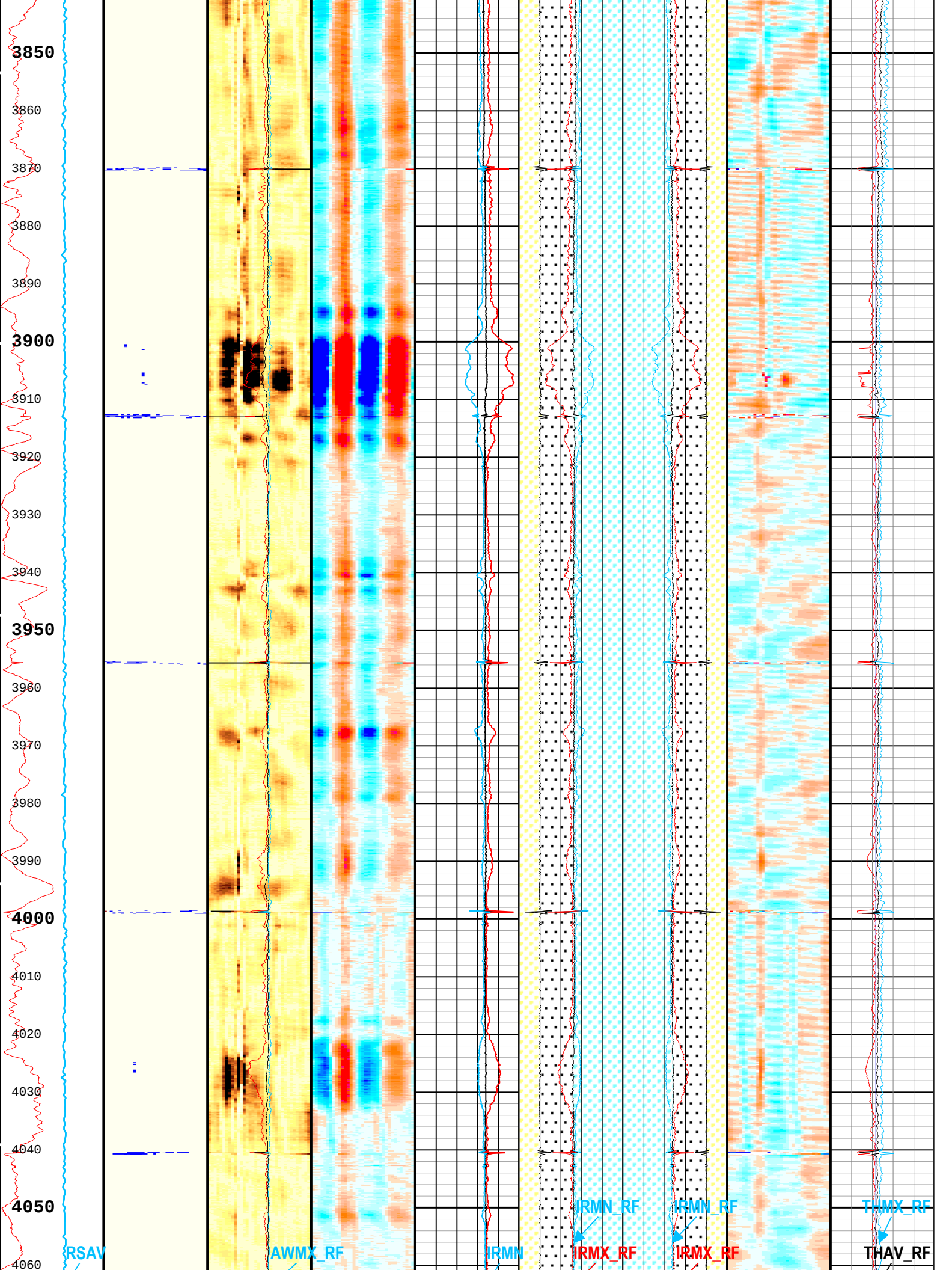
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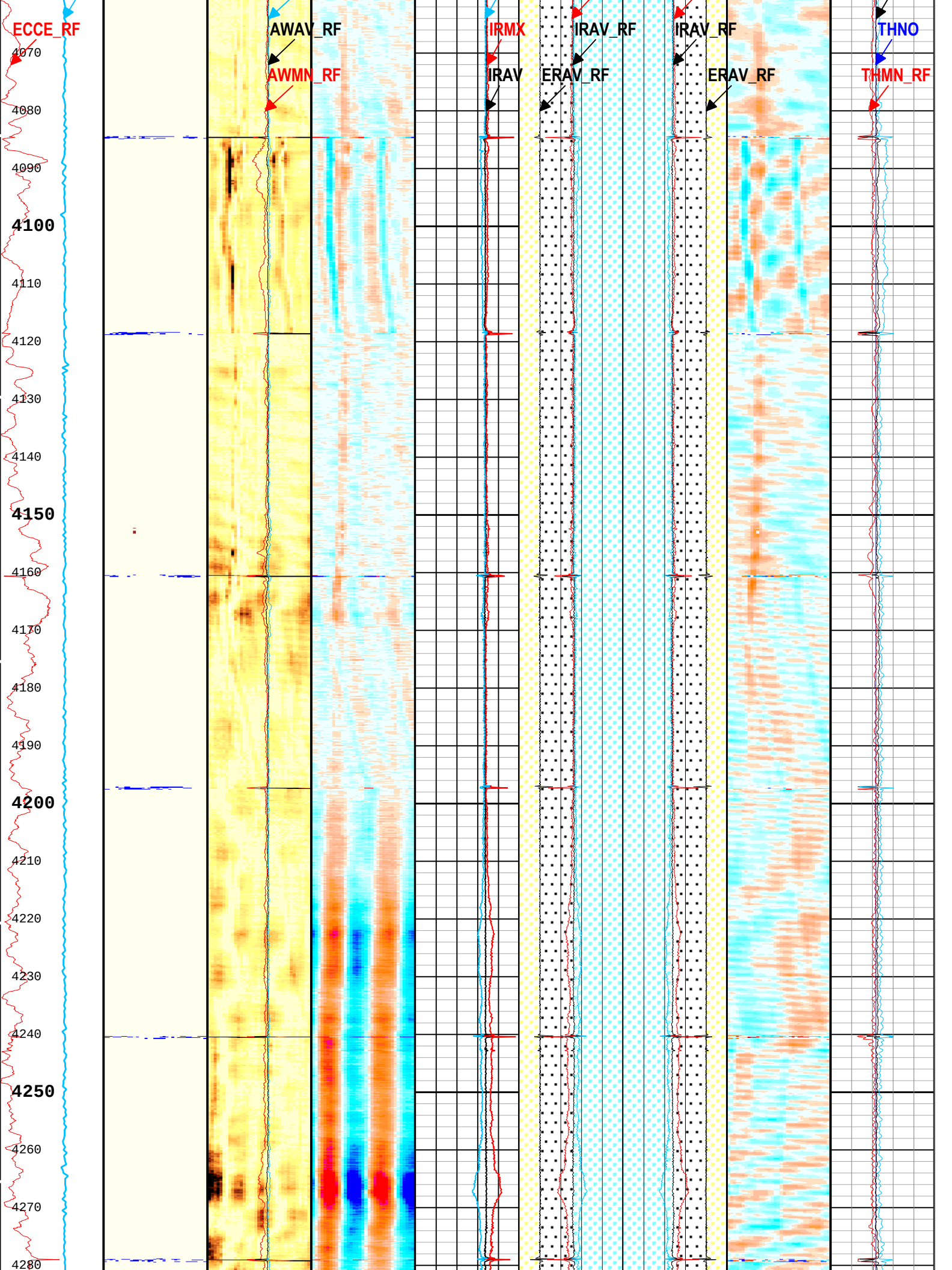
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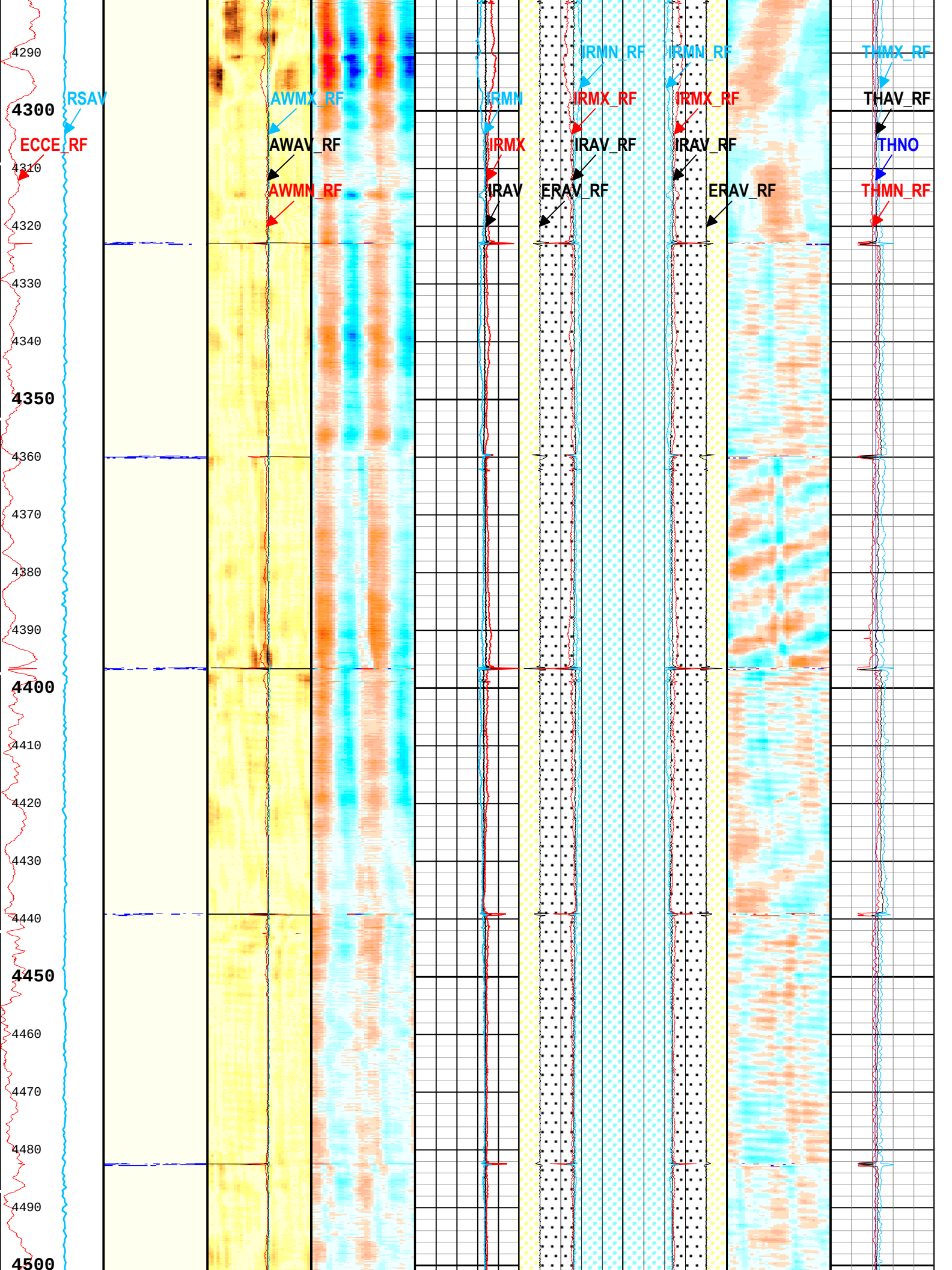
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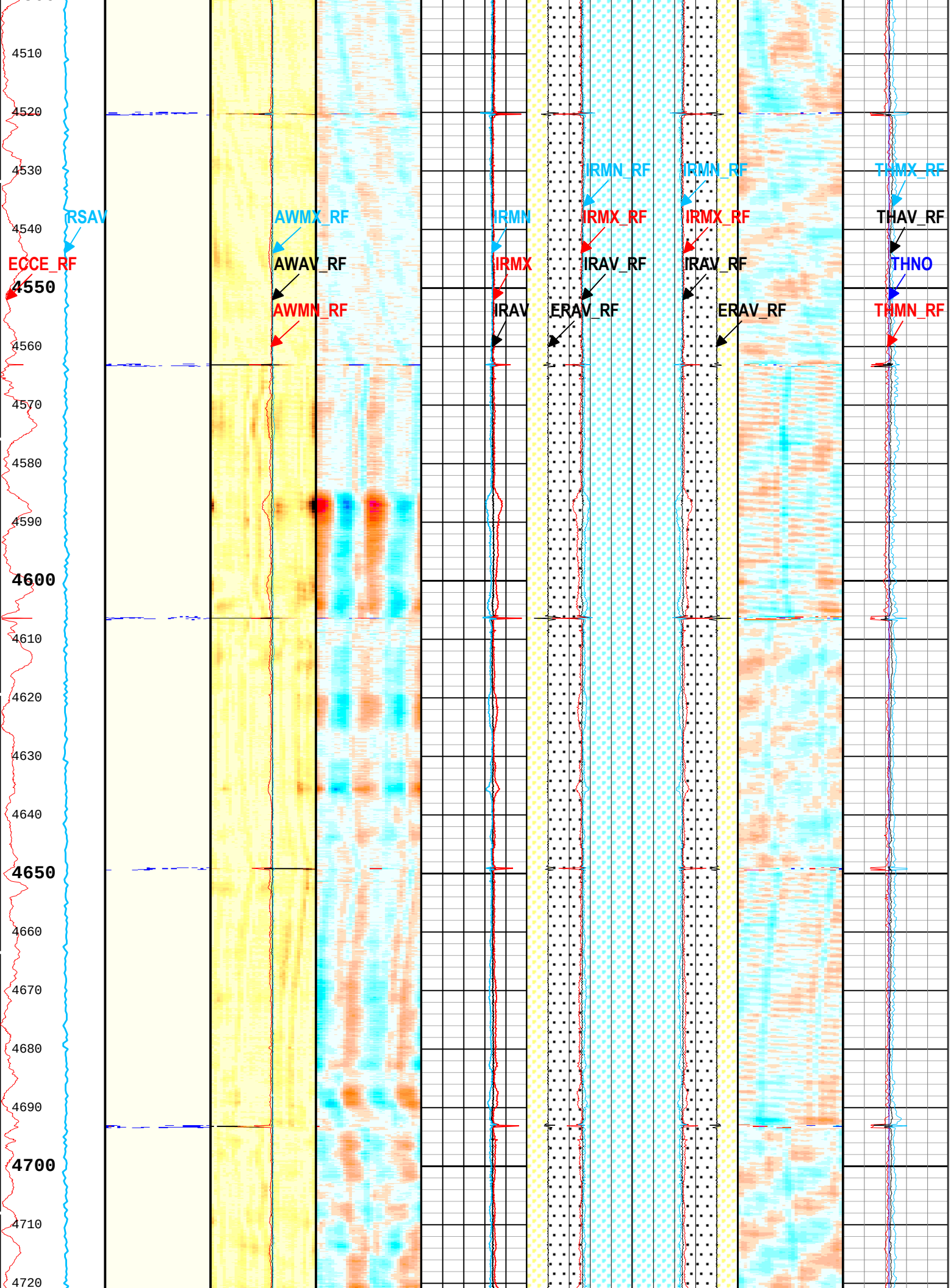
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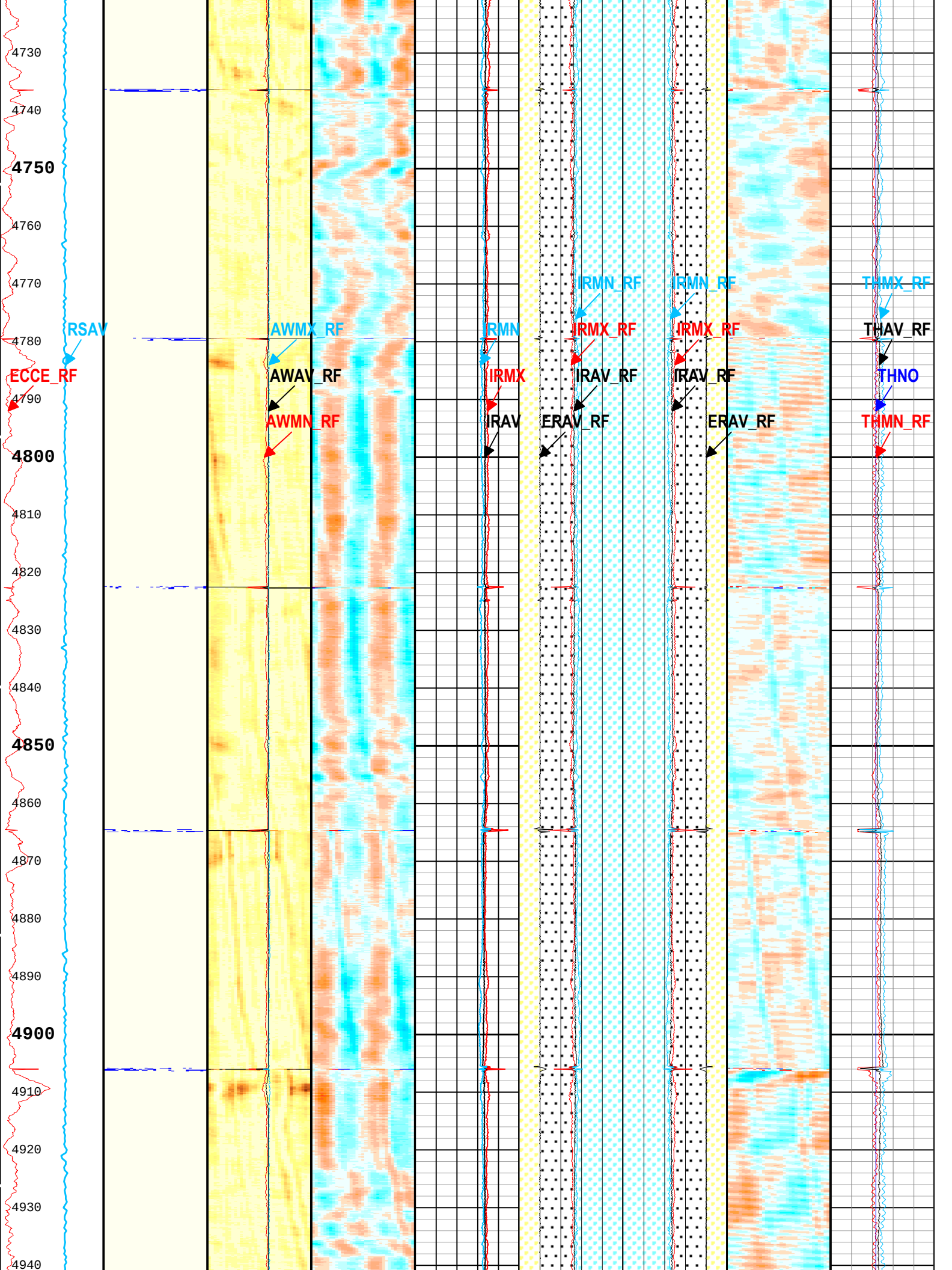
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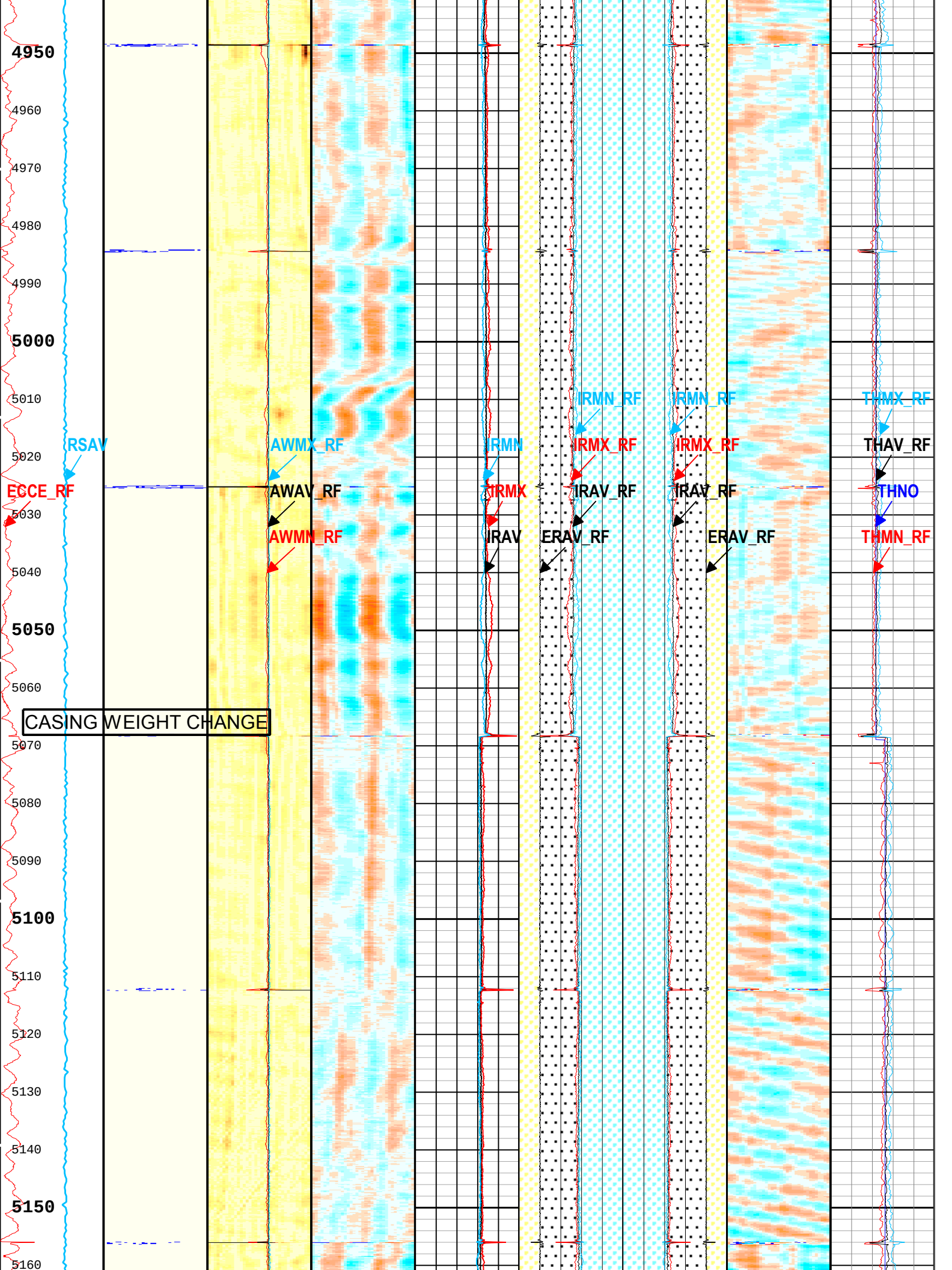
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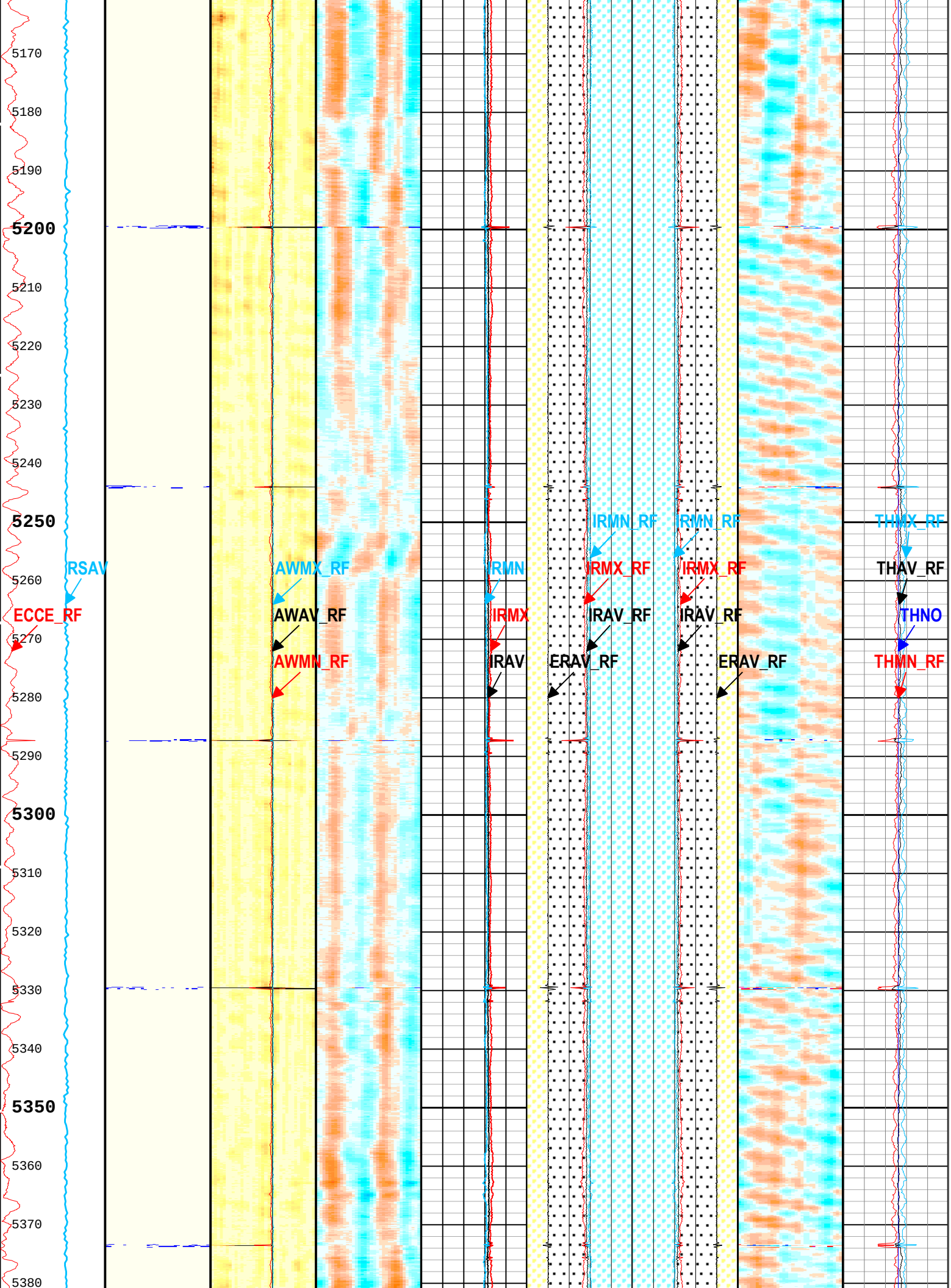
CASING WEIGHT CHANGE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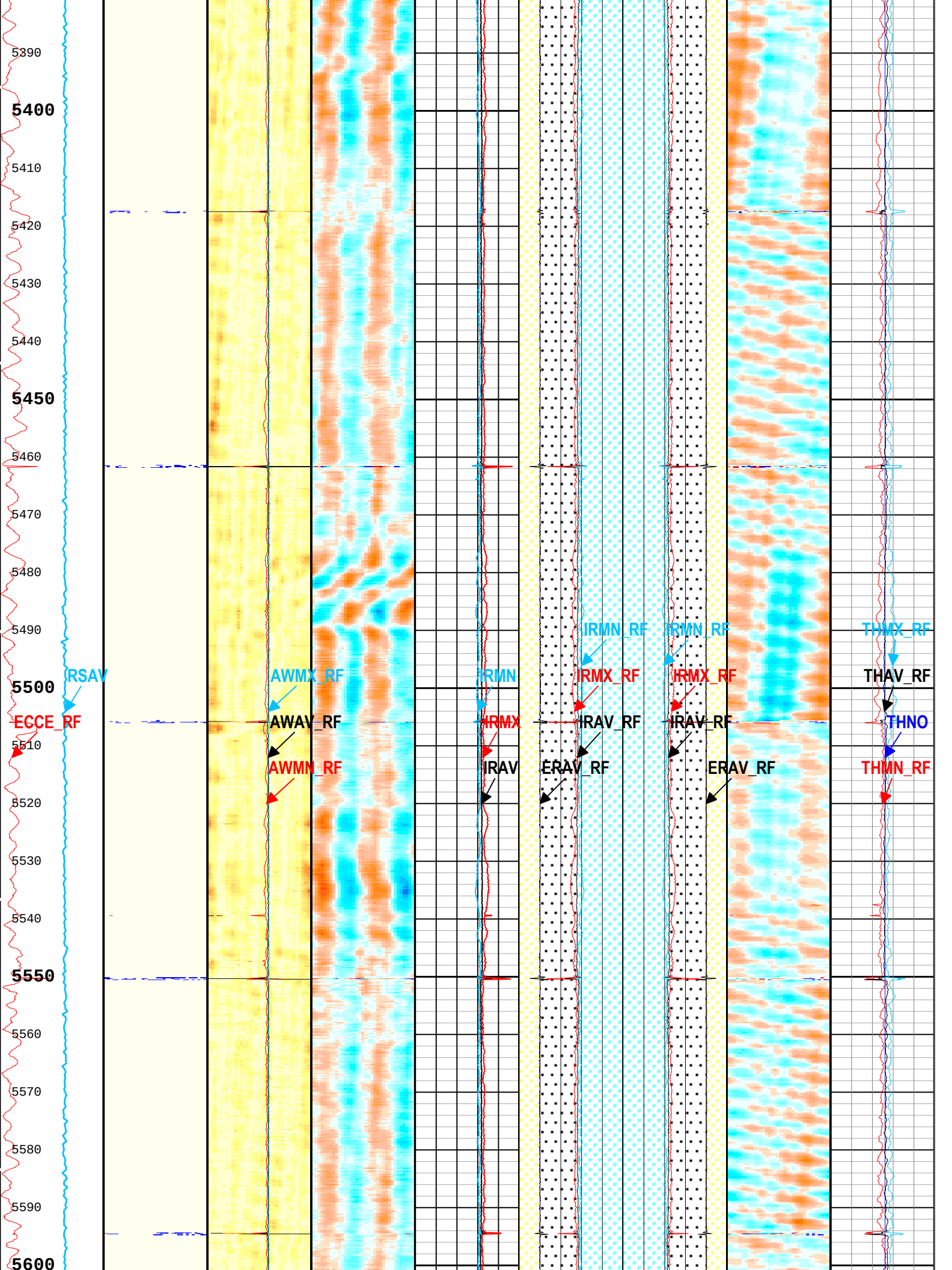
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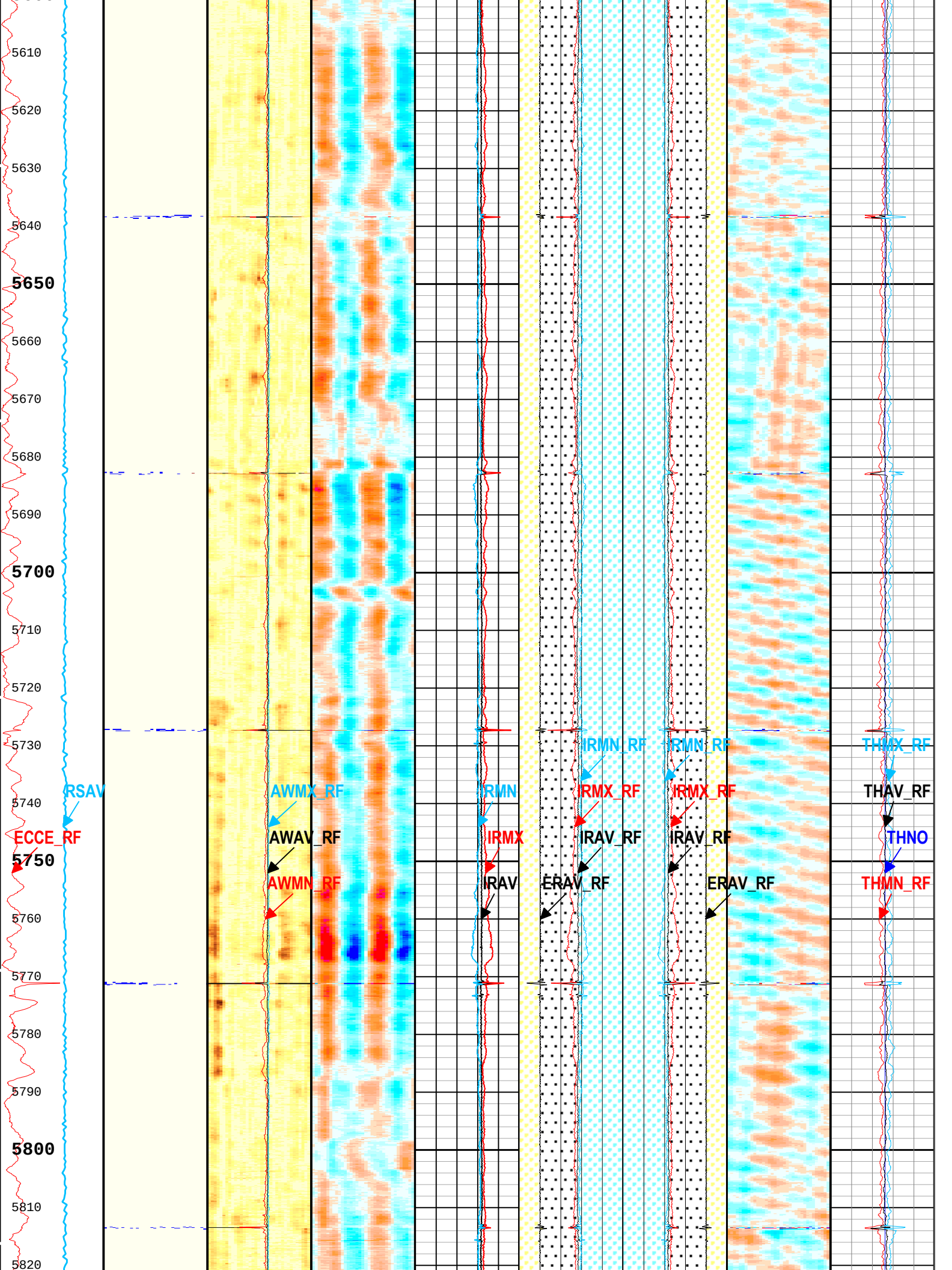
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RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
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IRMX
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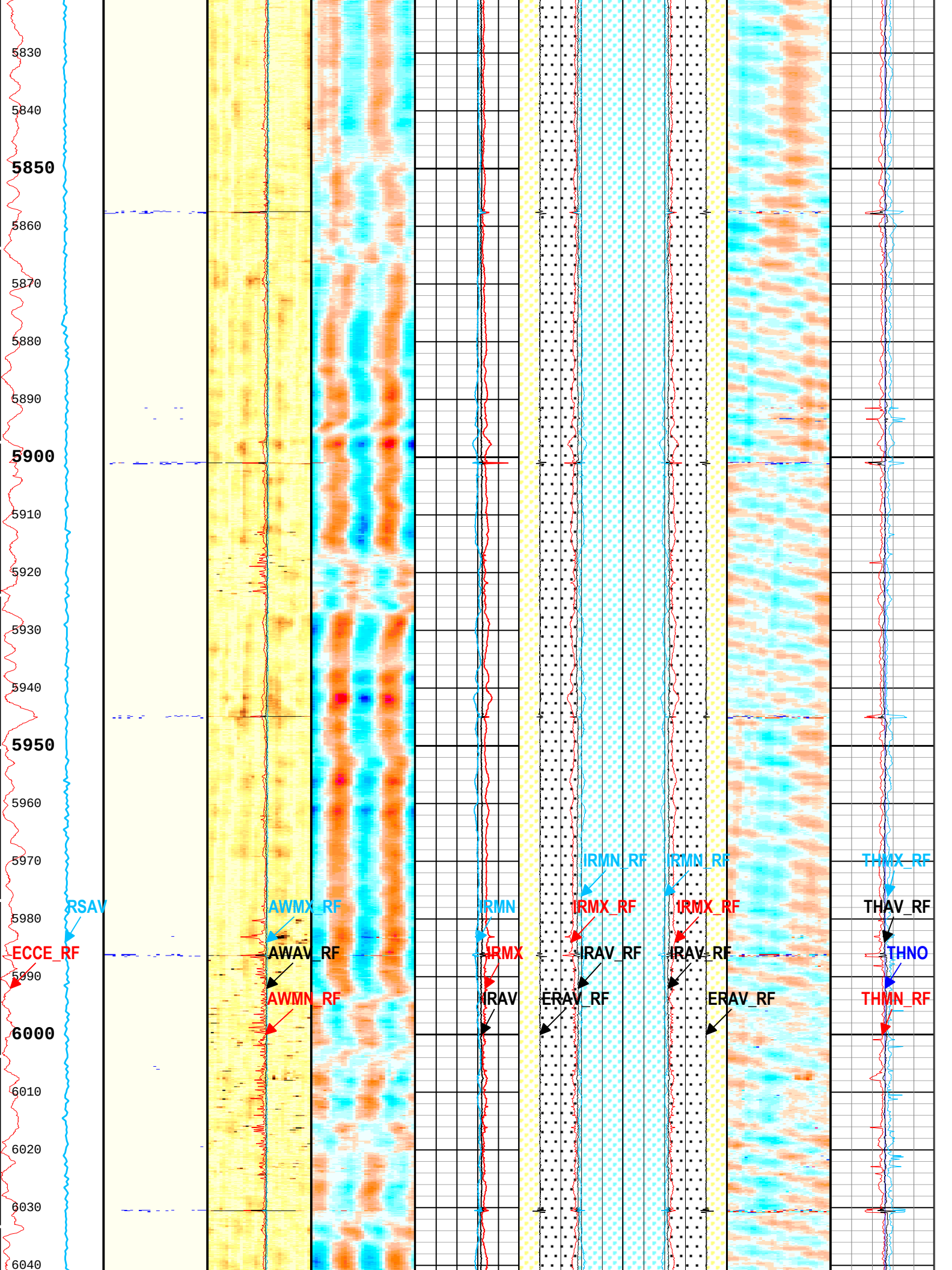
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RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
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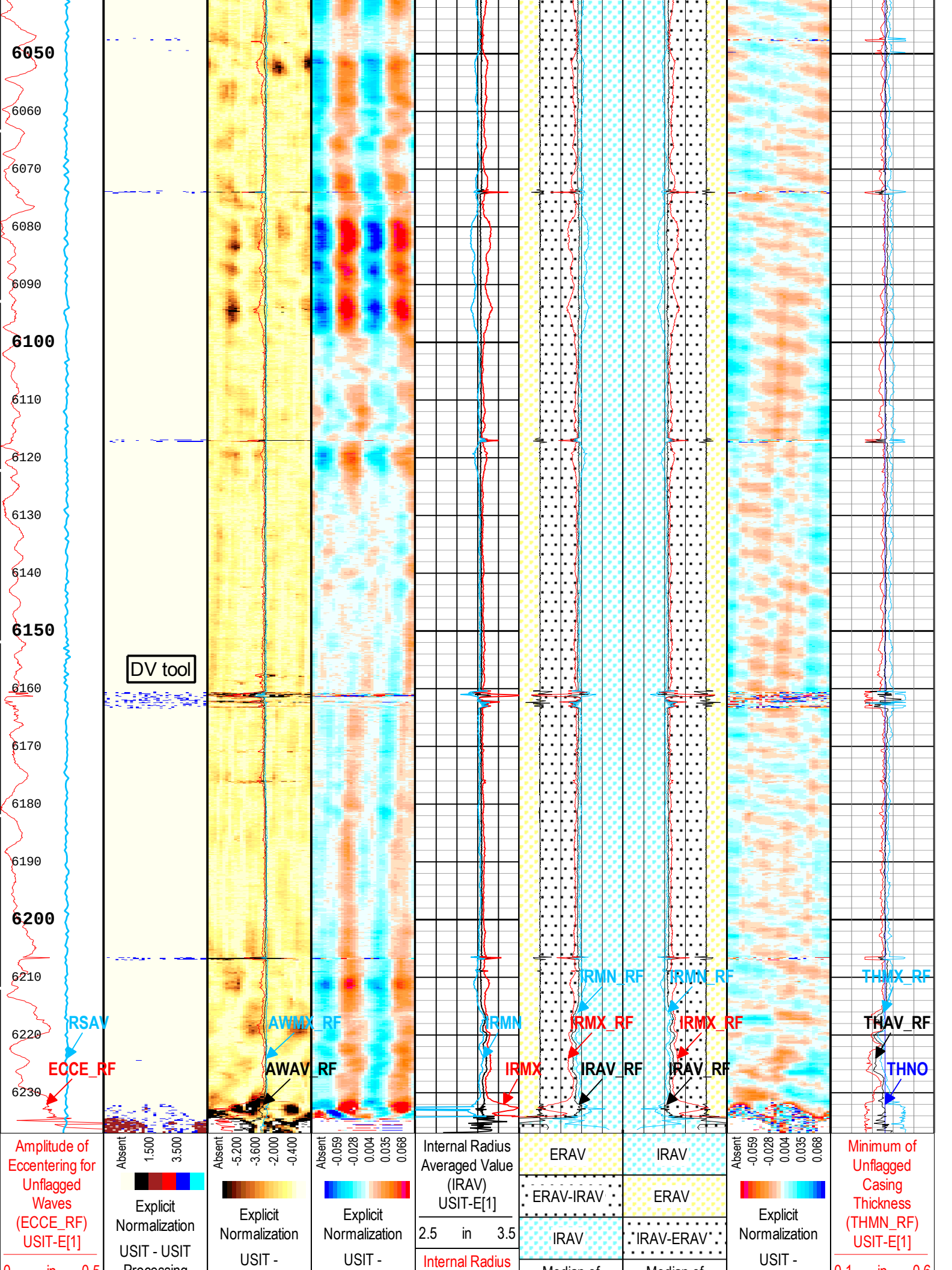
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6210
6220
6230
DV tool
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
IRMN
IRMX
IRMN_RF
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
THMX_RF
THAV_RF
THNO
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing
Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT -
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT -
Internal Radius Averaged Value (IRAV) USIT-E[1]
2.5 in 3.5
Internal Radius
ERAV
IRAV
ERAV-IRAV
ERAV
IRAV
IRAV-ERAV
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT -
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6

0 in 0.5

Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8

Processing Flags (UFLG) USIT-E[1]

USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5

Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75

Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)

Maximum Value (IRMX) USIT-E[1]
2.5 in 3.5

Internal Radius Minimum Value (IRMN) USIT-E[1]
2.5 in 3.5

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1] (in)

0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6

TIME_1900 - Time Marked every 60.00 (s)

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

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

- UTIM Error
- Pulse Origin Not Detected
- WINLEN Error
- Casing Thickness Error
- Loop Processing Error

Description: USI Composite Format: Log (LBV1_USI Corrosion 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:34:14

Composite 1

USI Compressed Goodwin

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[2]:Up	Up	107.27 ft	6237.78 ft	02-Sep-2016 8:56:55 AM	02-Sep-2016 11:18:54 AM	ON	-3.00 ft	Yes
2-Sep-2016	Log[3]:Up	Up	5.98 ft	300.53 ft	02-Sep-2016 11:21:28 AM	02-Sep-2016 11:35:26 AM	ON	-3.00 ft	Yes

All depths are referenced to toolstring zero

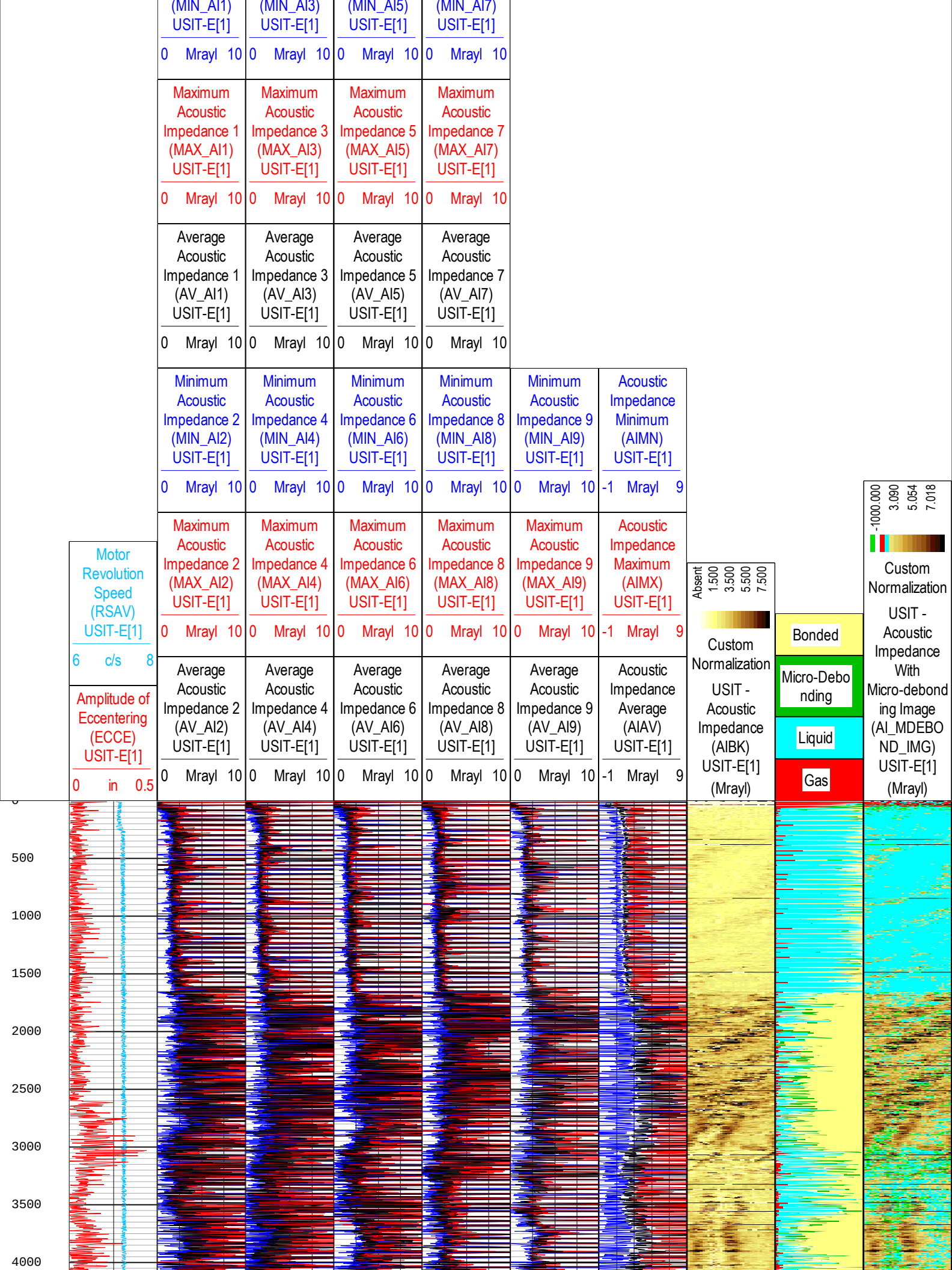
Log

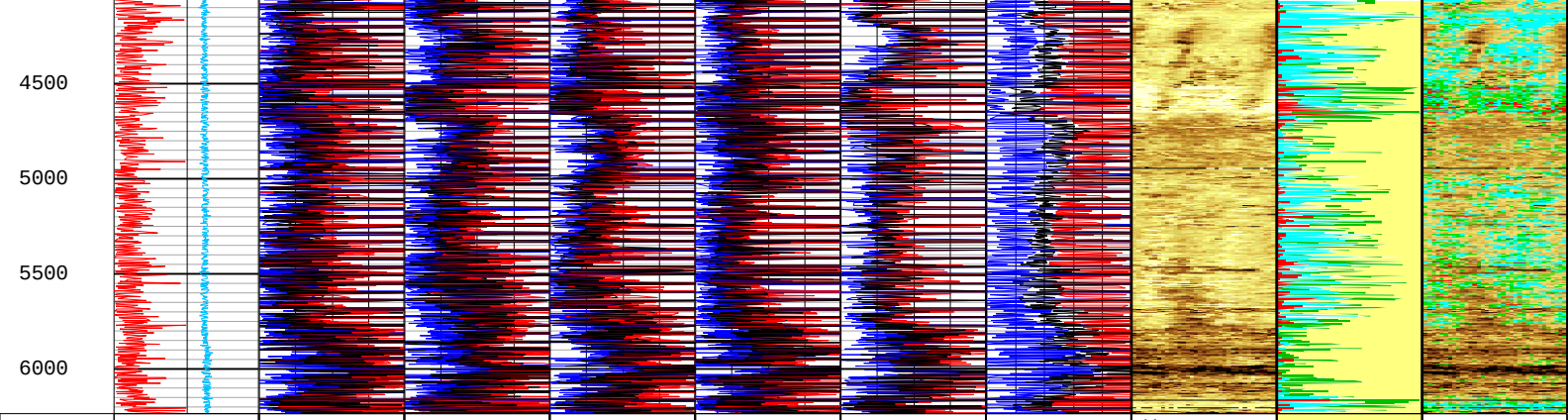
Company:Southern California Gas Company Well:Ward 3 Composite 1:S003

Description: USI Goodwin Format: Log (Import of USI Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:34:52

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 | Minimum Acoustic Impedance 3 | Minimum Acoustic Impedance 5 | Minimum Acoustic Impedance 7


(MIN_AI1) USIT-E[1] 0 Mrayl 10
(MIN_AI3) USIT-E[1] 0 Mrayl 10
(MIN_AI5) USIT-E[1] 0 Mrayl 10
(MIN_AI7) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 1 (AV_AI1) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 3 (AV_AI3) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 5 (AV_AI5) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 7 (AV_AI7) USIT-E[1] 0 Mrayl 10
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1] 0 Mrayl 10
Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1] 0 Mrayl 10
Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1] 0 Mrayl 10
Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1] 0 Mrayl 10
Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1] 0 Mrayl 10
Acoustic Impedance Minimum (AIMN) USIT-E[1] -1 Mrayl 9
Motor Revolution Speed (RSAV) USIT-E[1] 6 c/s 8
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E[1] 0 Mrayl 10
Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E[1] 0 Mrayl 10
Acoustic Impedance Maximum (AIMX) USIT-E[1] -1 Mrayl 9
Amplitude of Eccentering (ECCE) USIT-E[1] 0 in 0.5
Average Acoustic Impedance 2 (AV_AI2) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 4 (AV_AI4) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 6 (AV_AI6) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 8 (AV_AI8) USIT-E[1] 0 Mrayl 10
Average Acoustic Impedance 9 (AV_AI9) USIT-E[1] 0 Mrayl 10
Acoustic Impedance Average (AIAV) USIT-E[1] -1 Mrayl 9
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Bonded
Micro-Debonding
Liquid
Gas
-1000.000 3.090 5.054 7.018
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
0
500
1000
1500
2000
2500
3000
3500
4000



Motor Revolution Speed (RSAV) USIT-E[1] 6 c/s 8	Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1] 0 Mrayl 10	Acoustic Impedance Minimum (AIMN) USIT-E[1] -1 Mrayl 9	Absent 1.500 3.500 5.500 7.500 Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)	Bonded / Micro-Debonding / Liquid / Gas
Amplitude of Eccentering (ECCE) USIT-E[1] 0 in 0.5	Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E[1] 0 Mrayl 10	Acoustic Impedance Maximum (AIMX) USIT-E[1] -1 Mrayl 9		
	Average Acoustic Impedance 1 (AV_AI1) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 3 (AV_AI3) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 5 (AV_AI5) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 7 (AV_AI7) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 9 (AV_AI9) USIT-E[1] 0 Mrayl 10	Acoustic Impedance Average (AIAV) USIT-E[1] -1 Mrayl 9		
	Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1] 0 Mrayl 10				
	Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E[1] 0 Mrayl 10				
	Average Acoustic Impedance 2 (AV_AI2) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 4 (AV_AI4) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 6 (AV_AI6) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 8 (AV_AI8) USIT-E[1] 0 Mrayl 10				

-1000.000 3.090 5.054 7.018 Custom Normalization USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (Import of USI Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 02-Sep-2016 19:34:52

2-Sep-2016

10 inch = 100 ft Hi-Resolution Repeat

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[8]:Up	Up	1670.05 ft	3267.53 ft	02-Sep-2016 1:21:39 PM	02-Sep-2016 2:44:25 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Ward 3

2-Sep-2016: Log[8]:Up:S003

Description: USI Composite Format: Log (LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:34:57

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)

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.5 in 3.5

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.5 in 3.5

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.5 in 3.5

ERAV | IRAV
ERAV-IRAV | ERAV
IRAV | IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

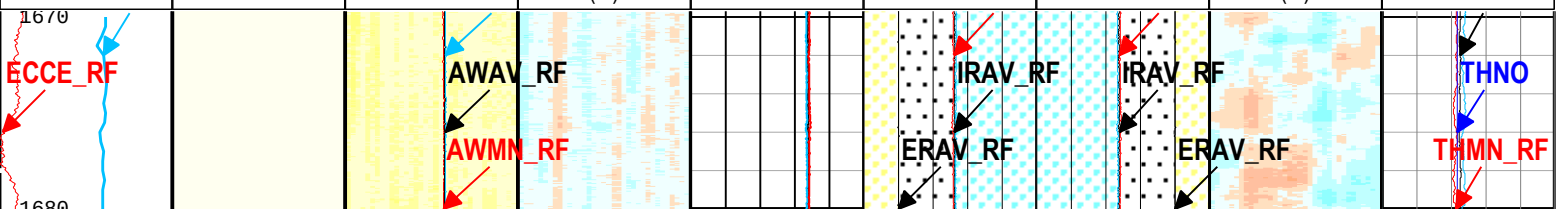
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

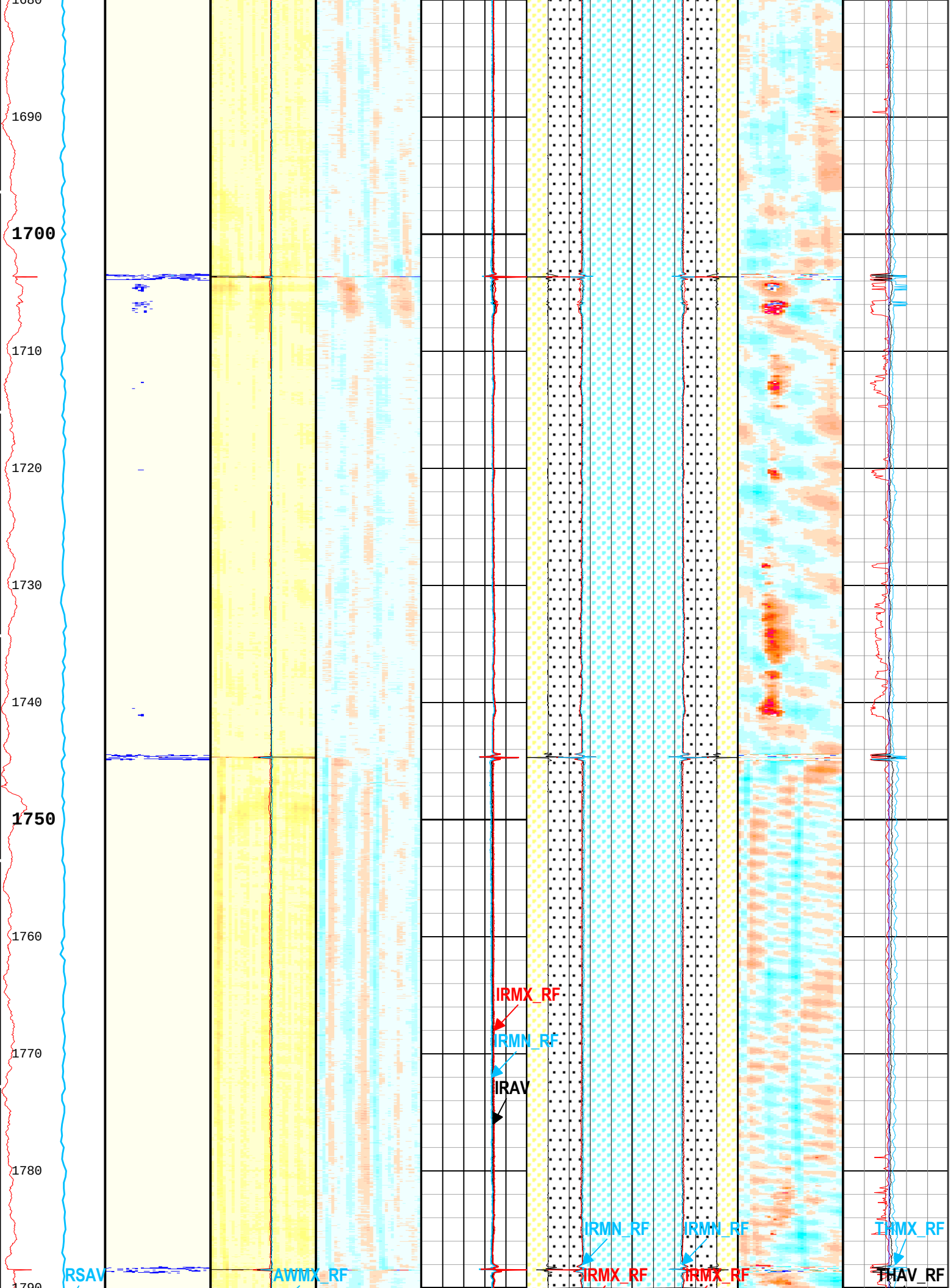
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

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1790
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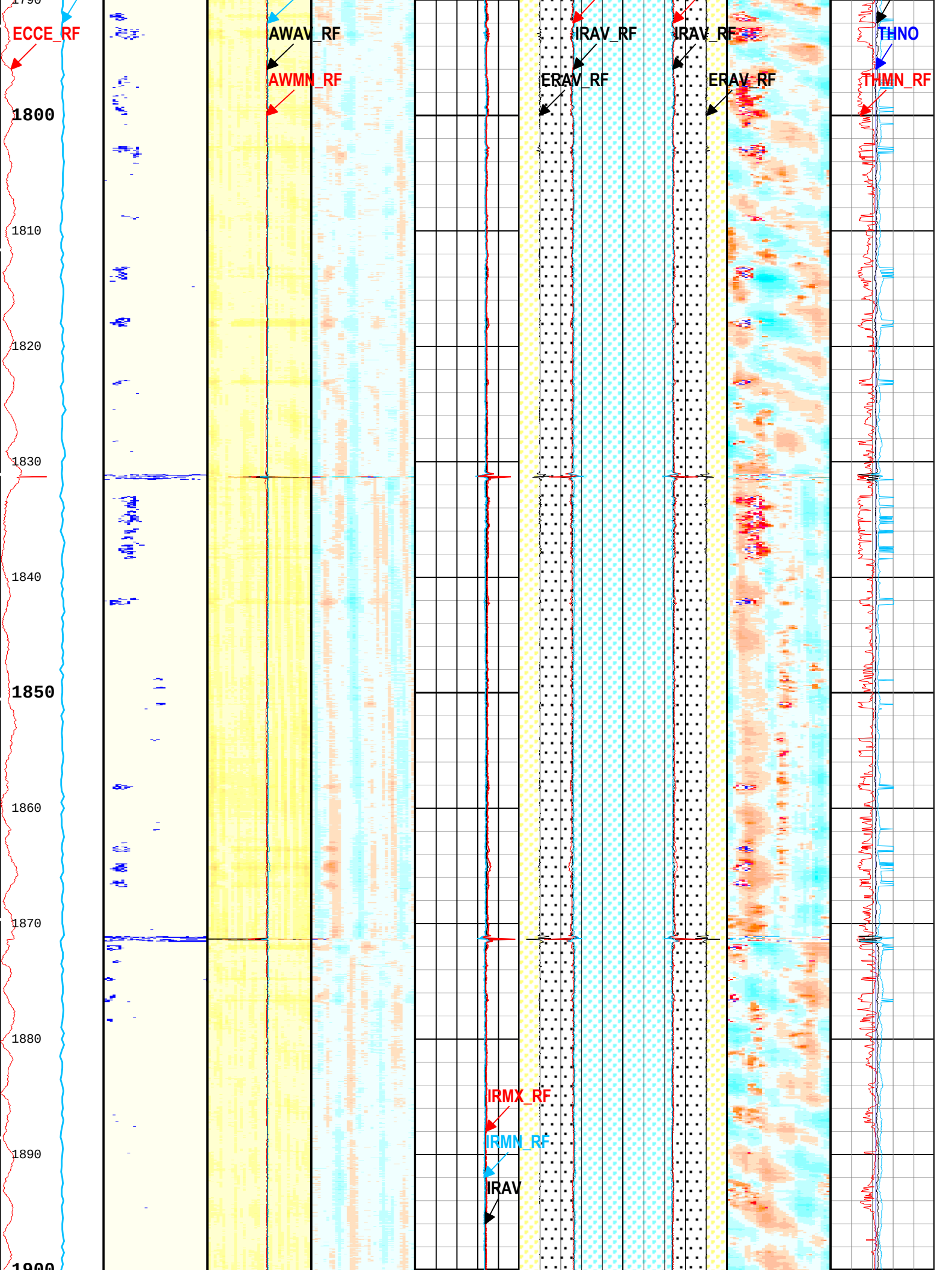
THAV_RF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THMN_RF
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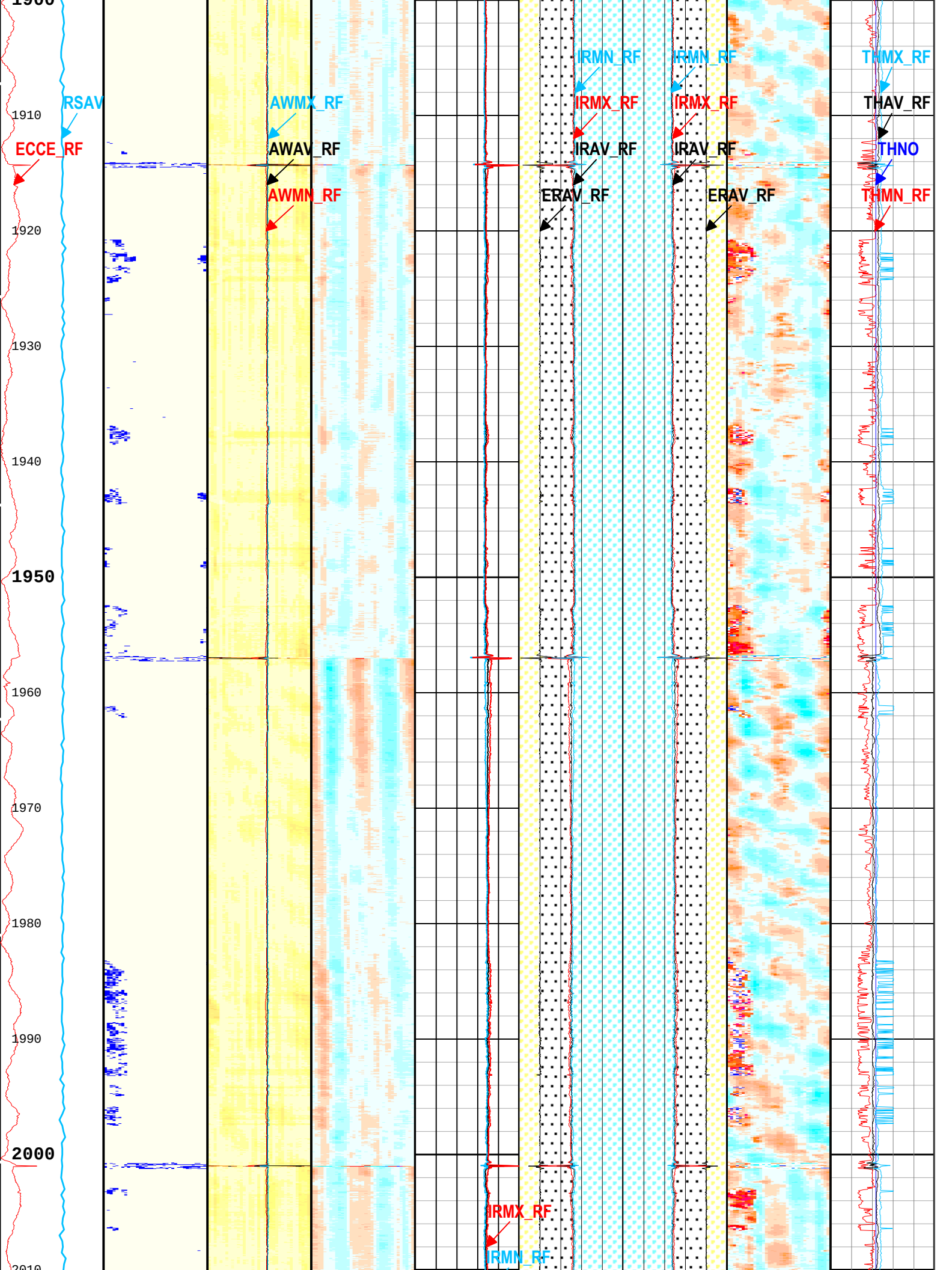
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1980
1990
2000
2010
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AWMX_RF
AWAV_RF
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IRAV_RF
ERAV_RF
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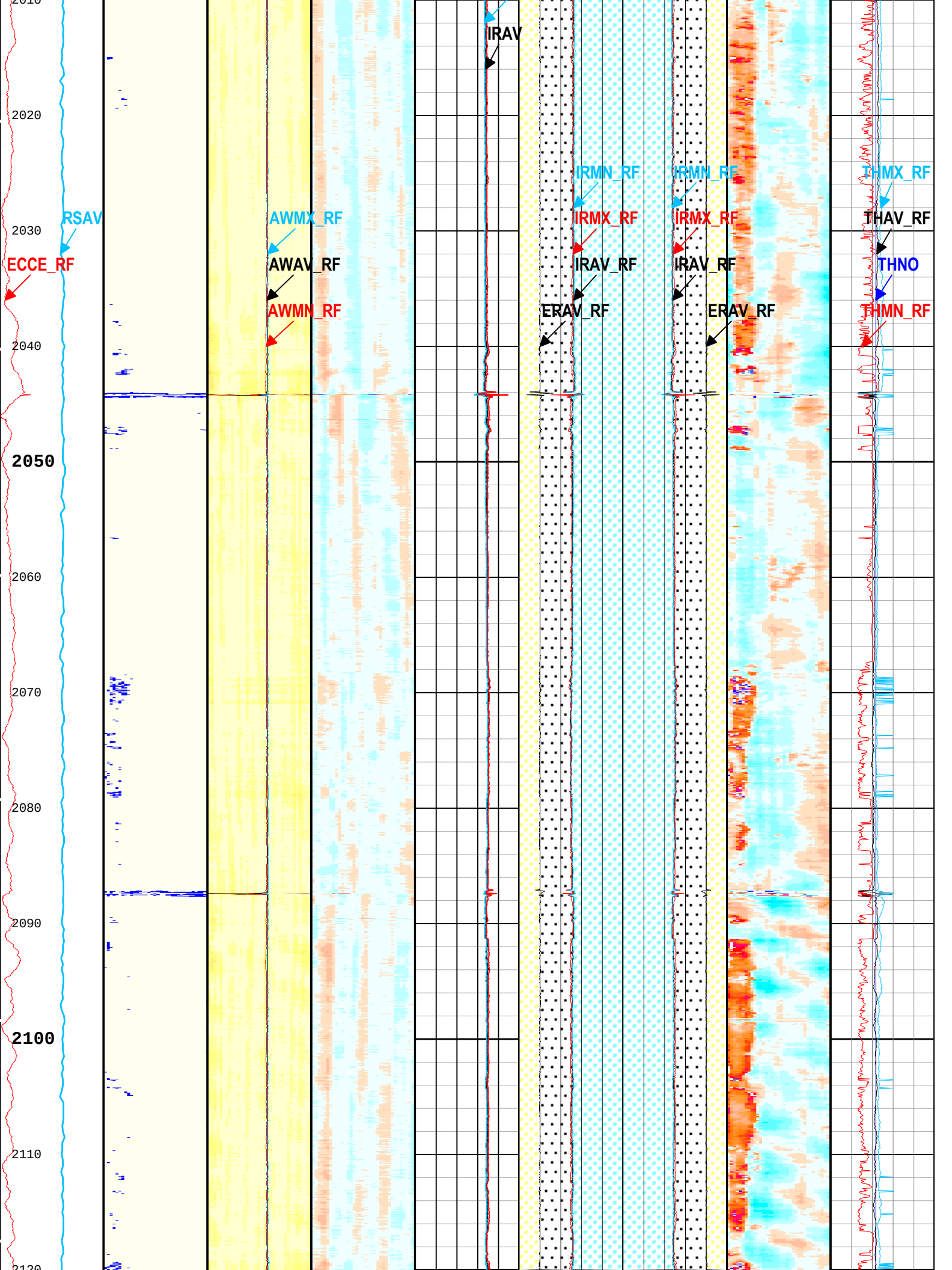
THMN_RF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AWMN_RF
IRAV
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IRMX_RF
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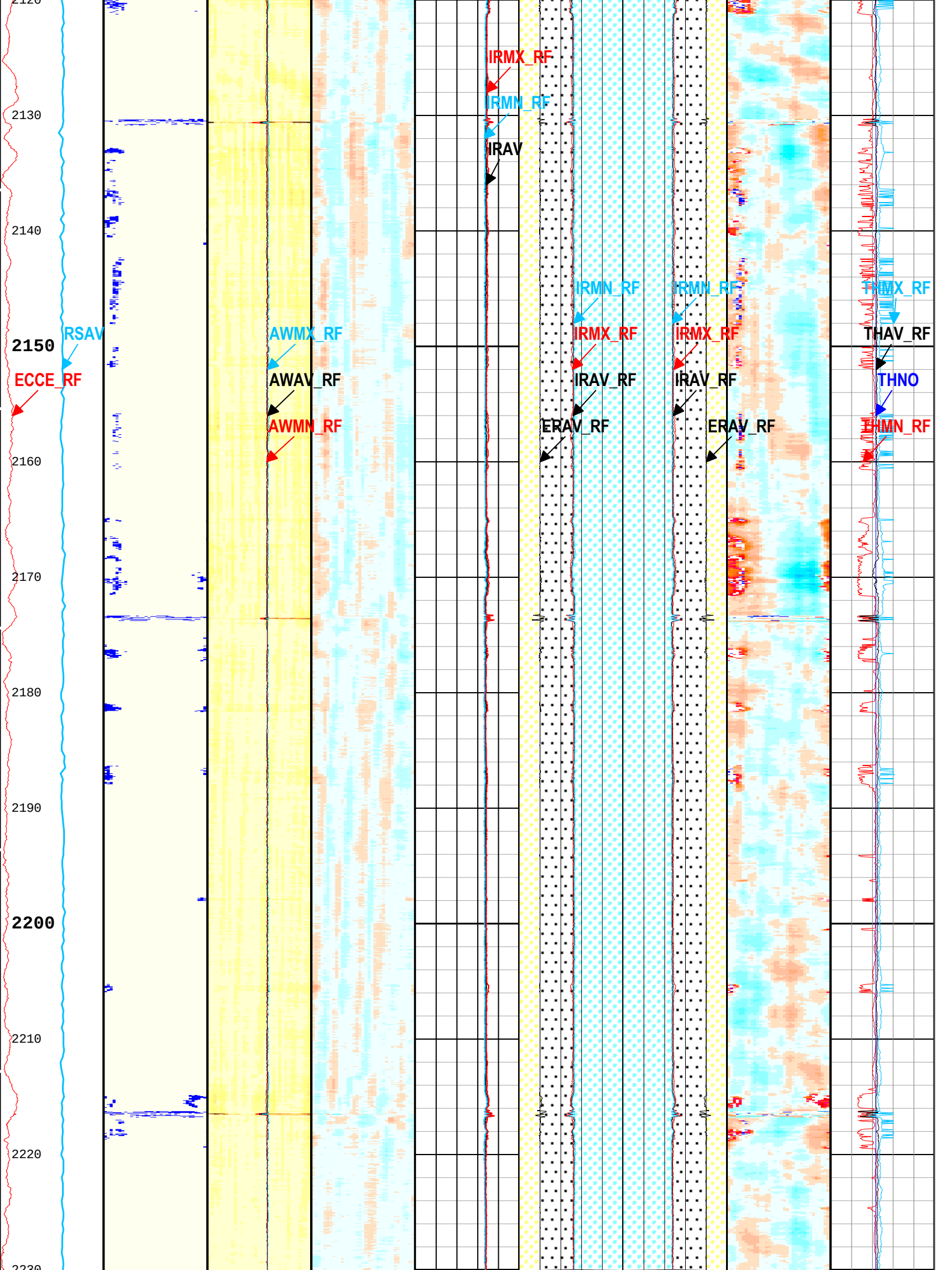
THMN_RF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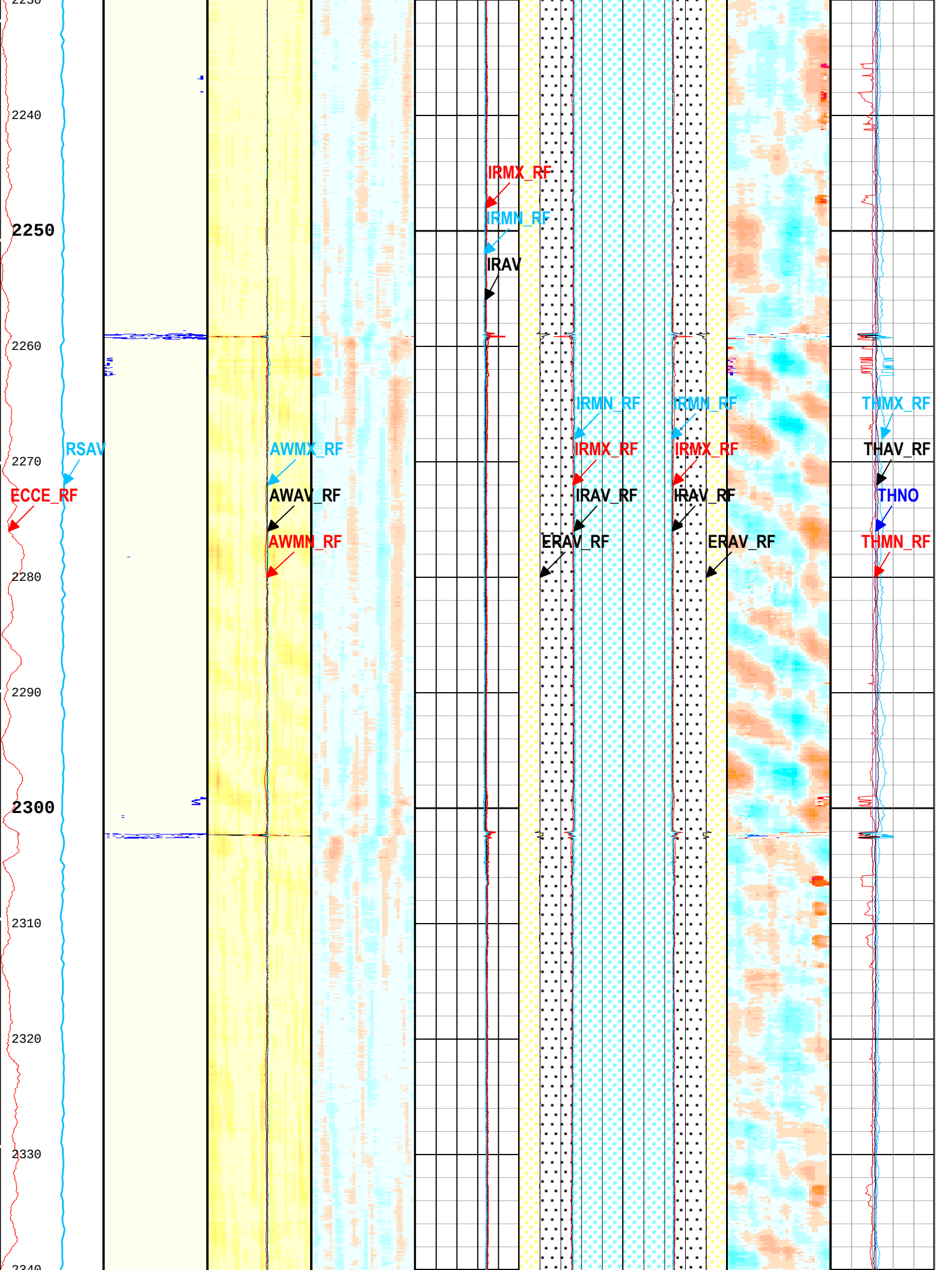
THNO
THMN_RF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THNO
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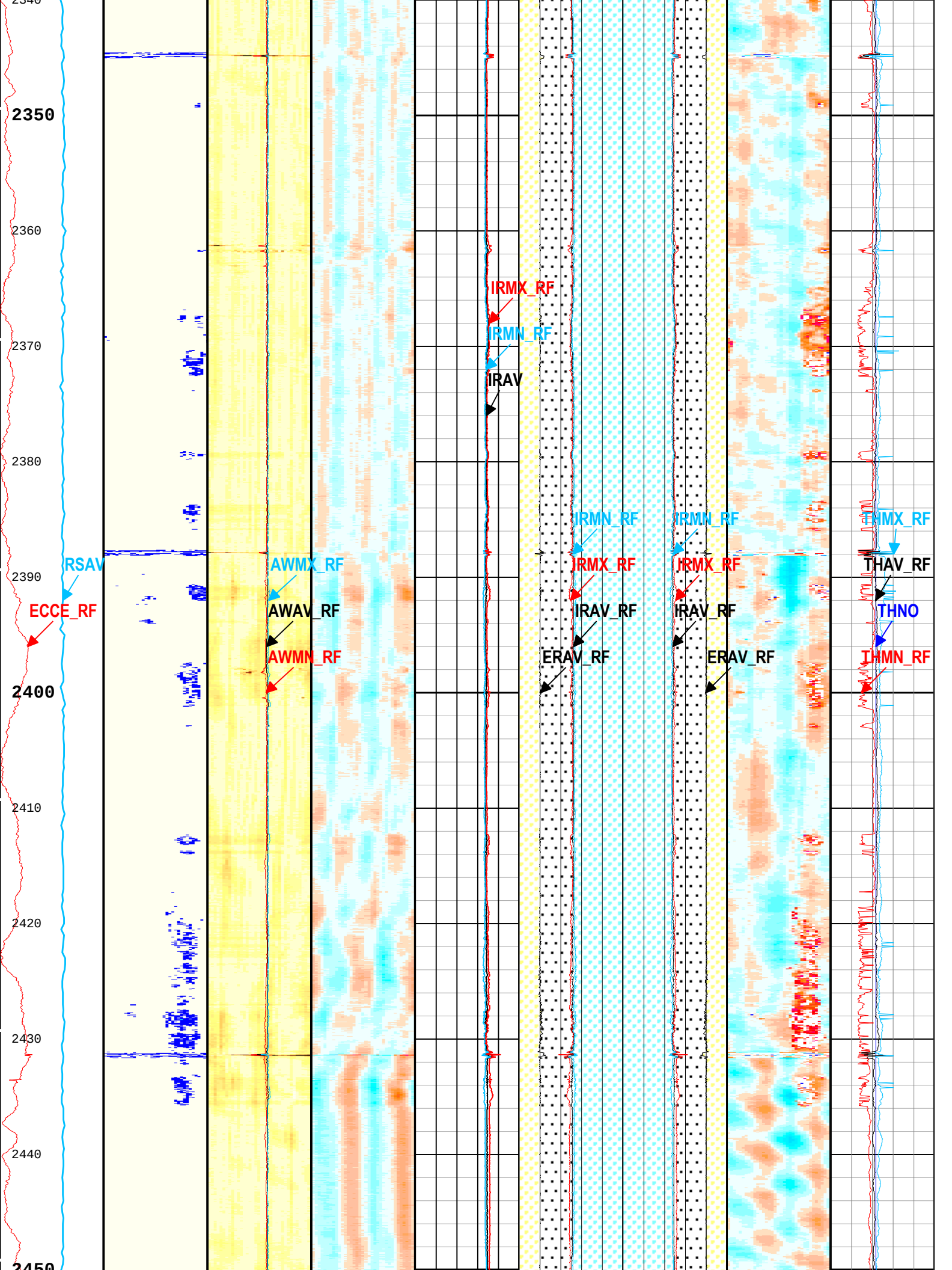
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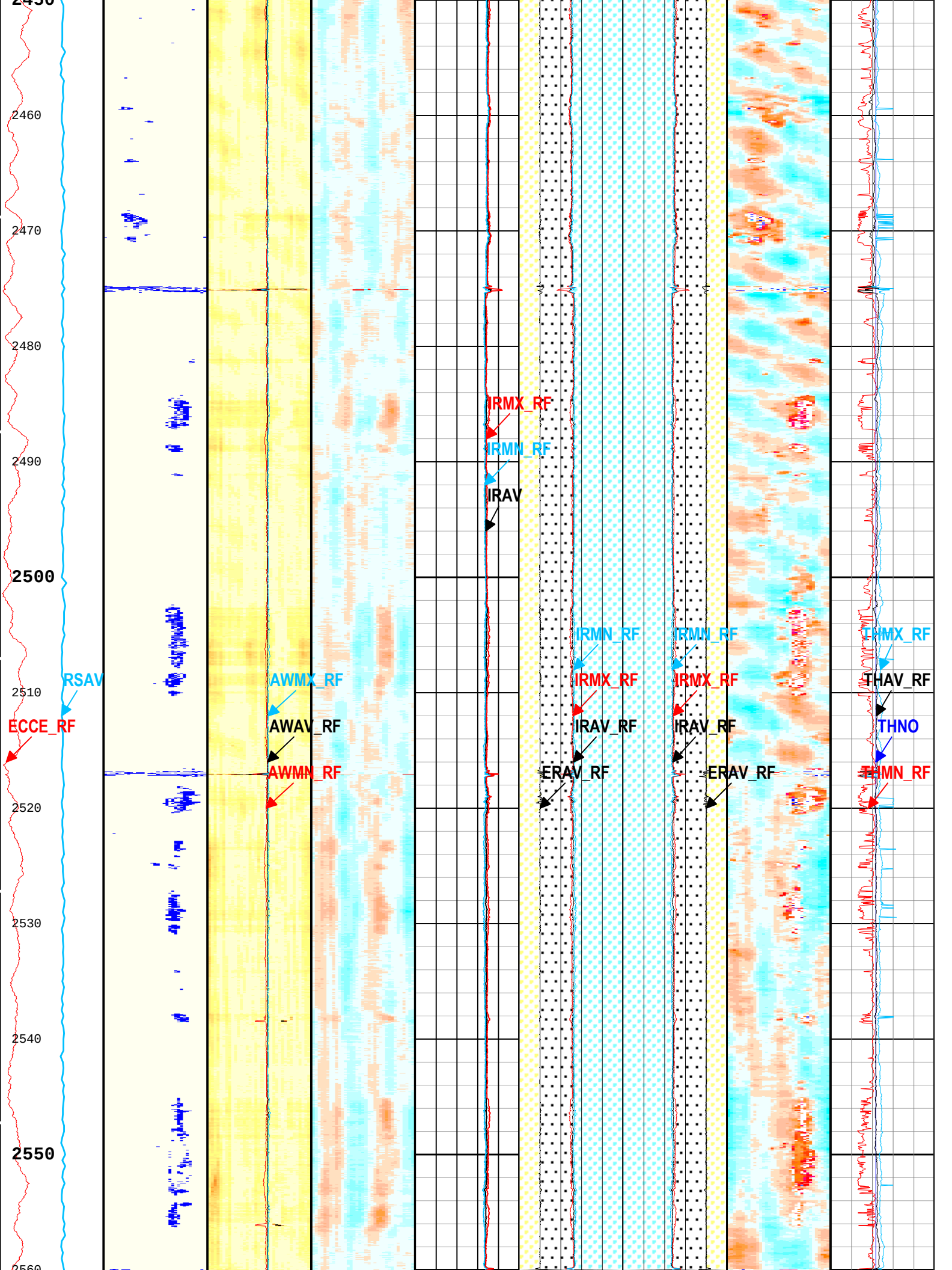
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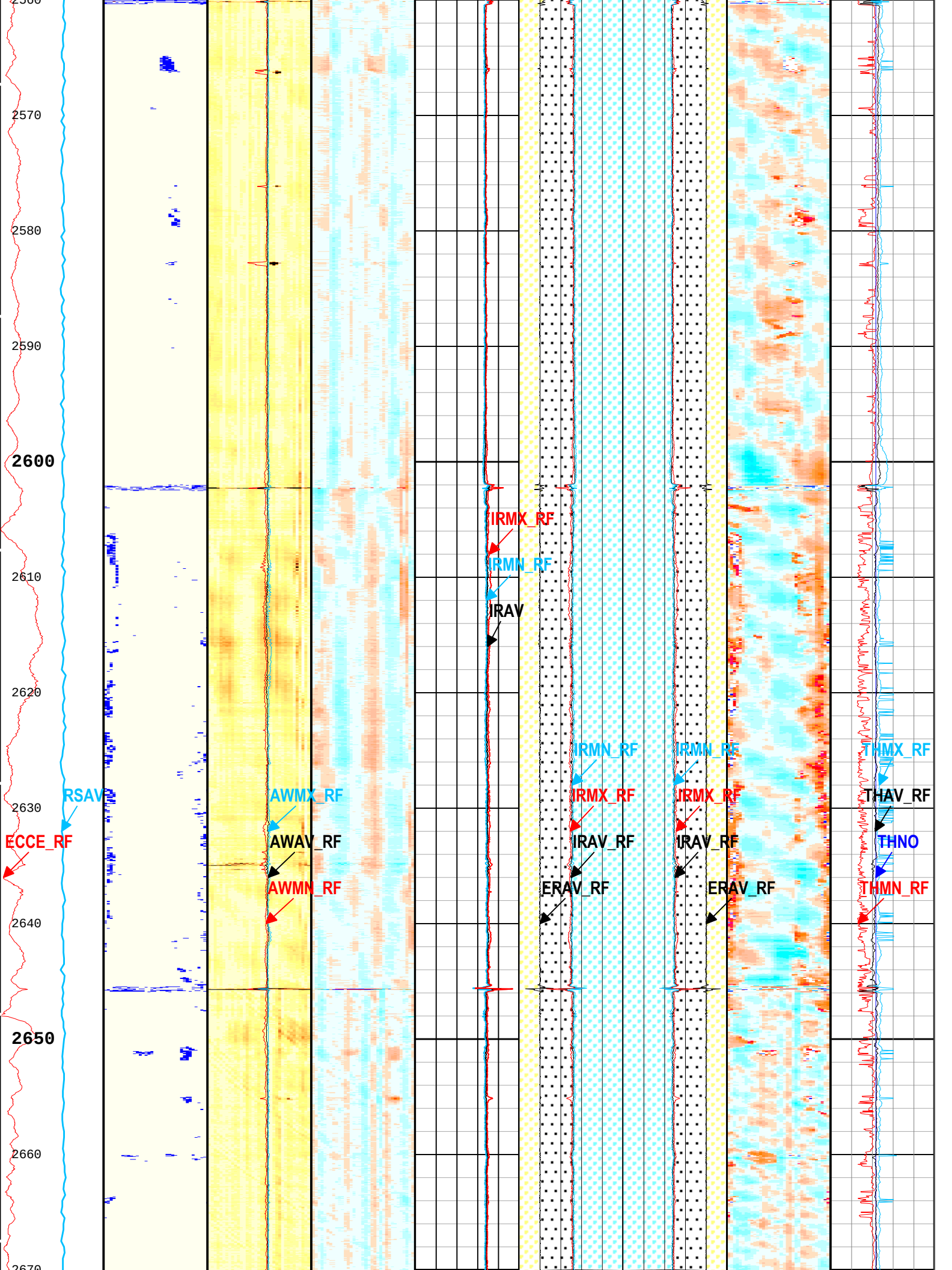
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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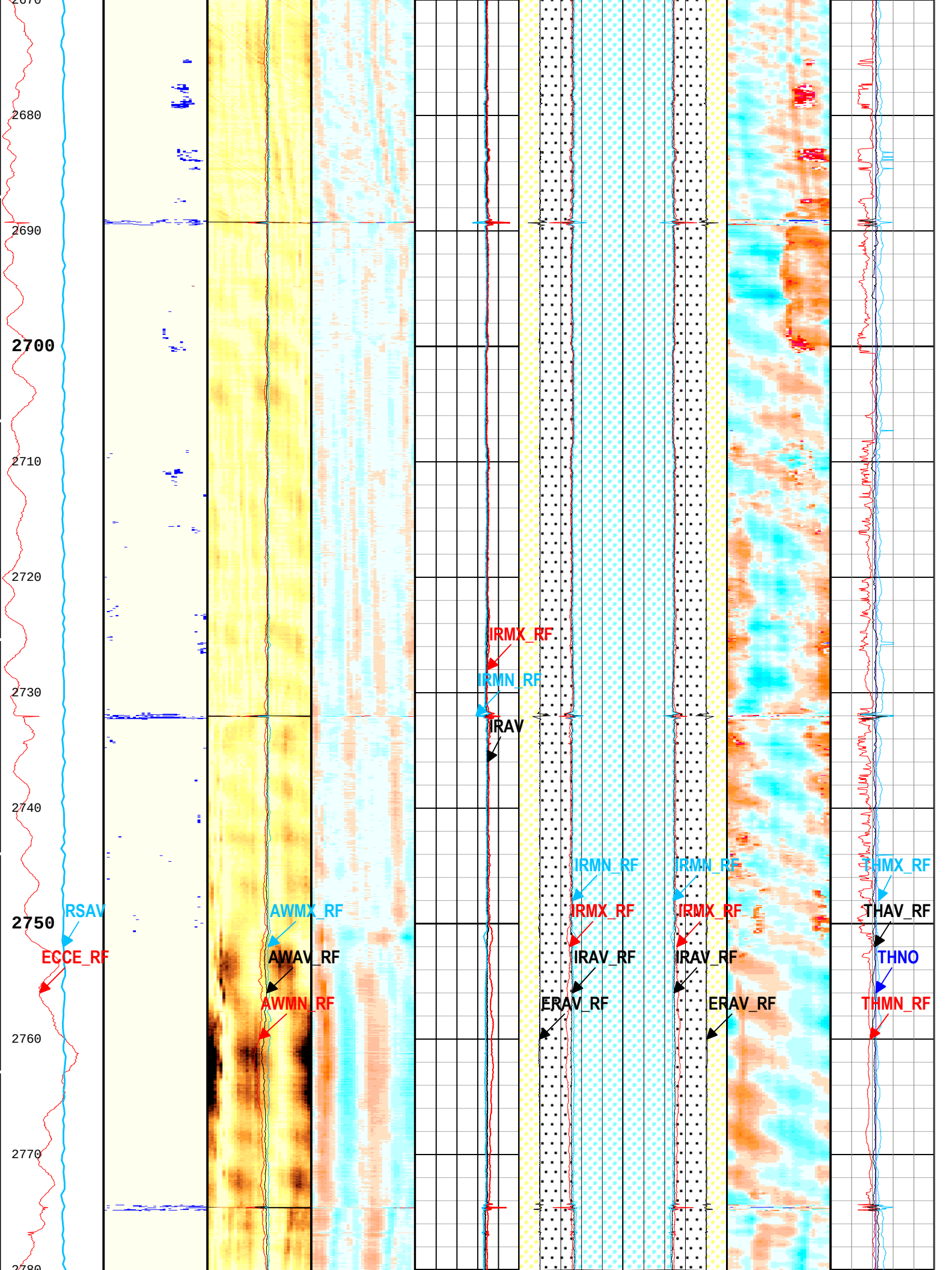
2580
2590
2600
2610
2620
2630
2640
2650
2660
2670
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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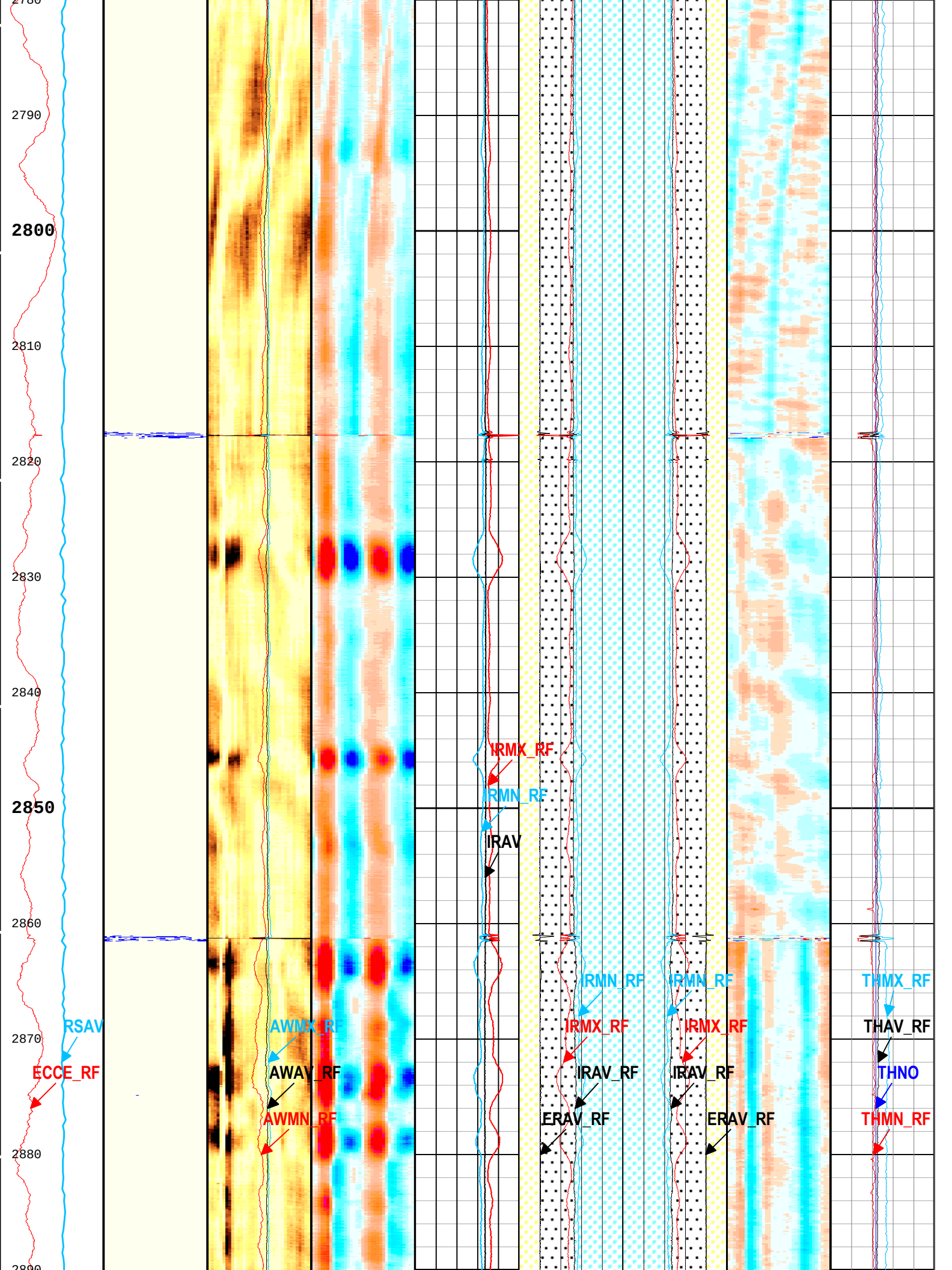
2690
2700
2710
2720
2730
2740
2750
2760
2770
2780
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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2820
2830
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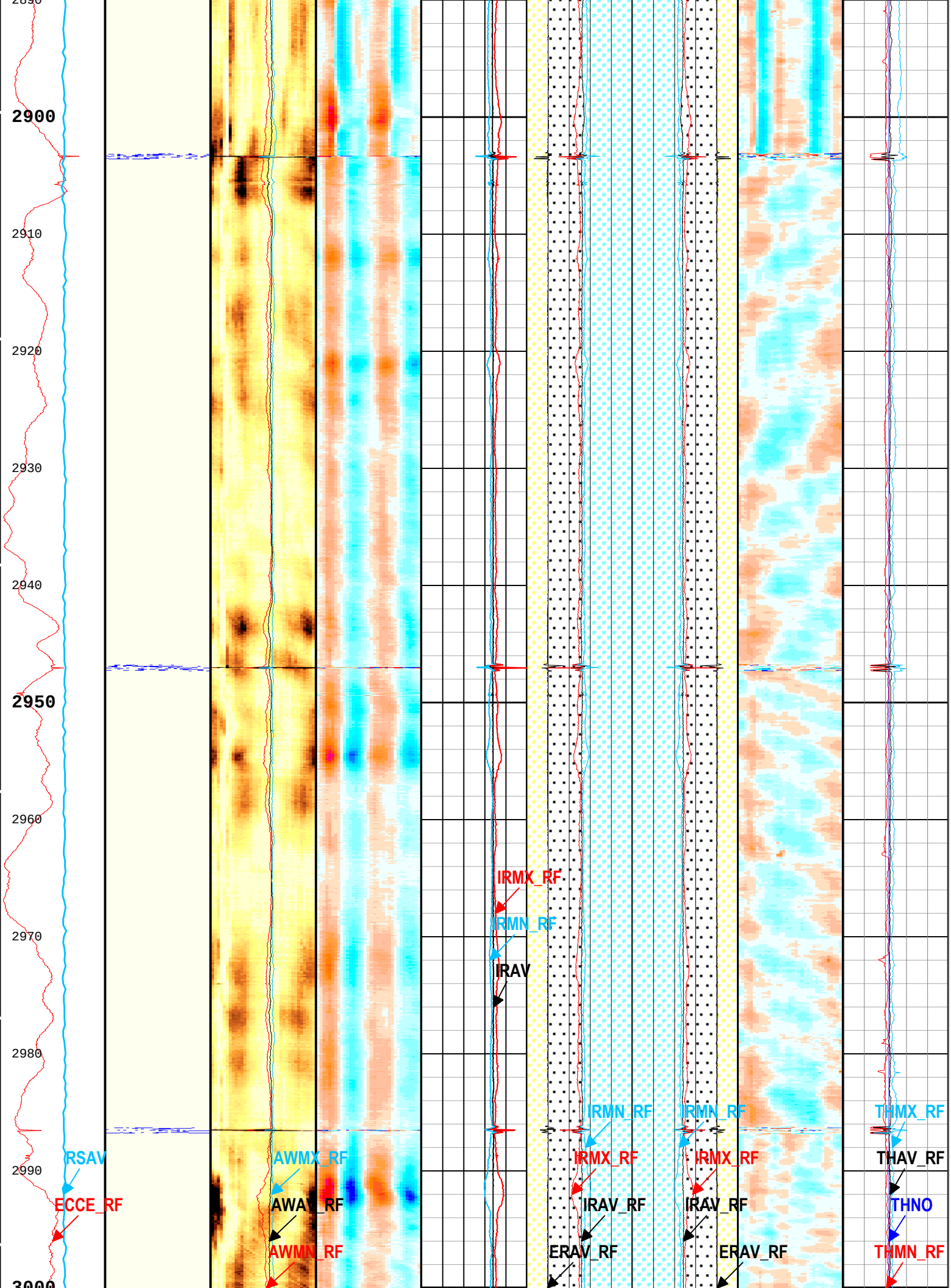
2860
2870
2880
2890
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF


2900
2910
2920
2930
2940
2950
2960
2970
2980
2990
3000
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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IRMX_RF
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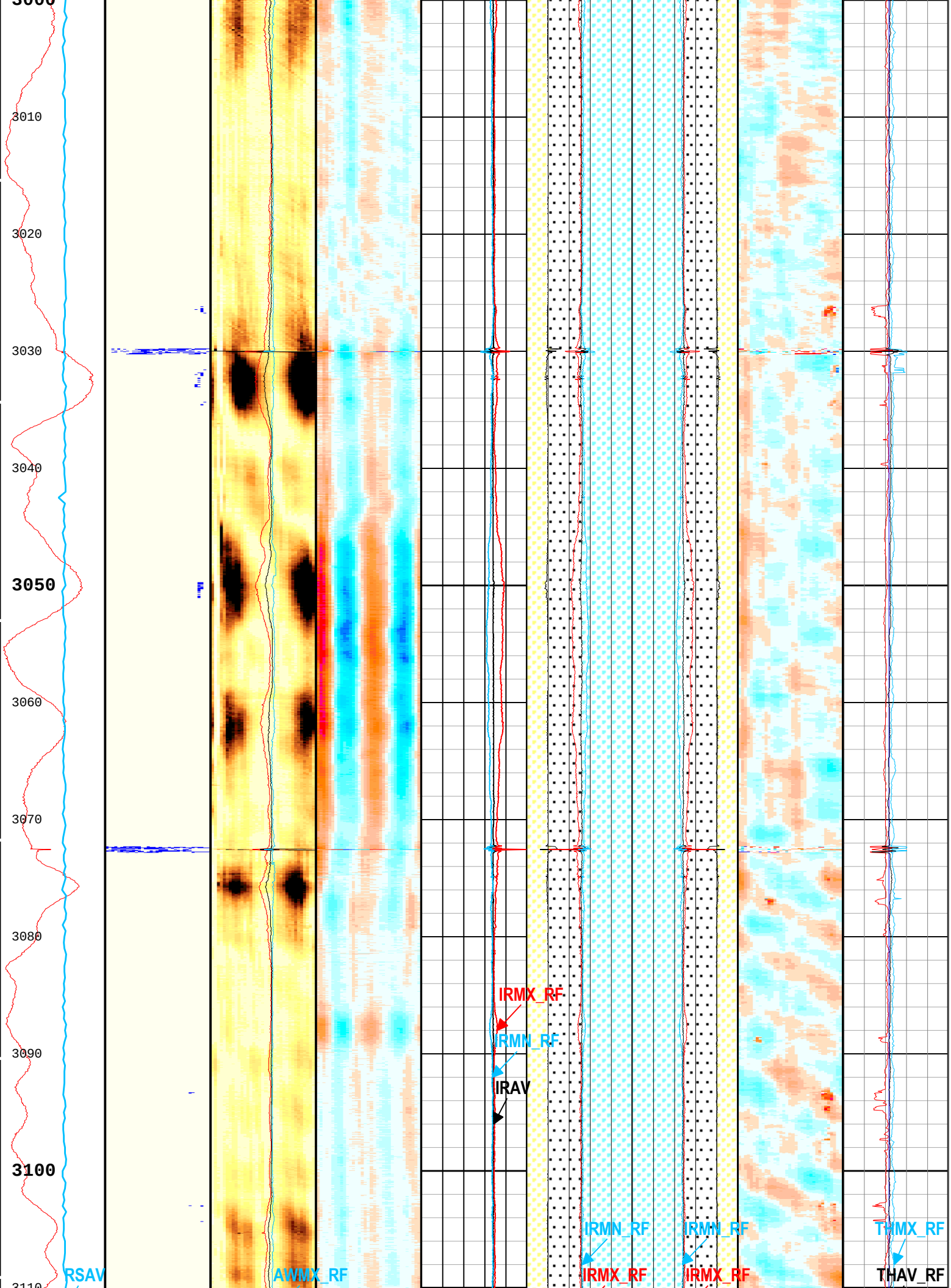
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF


3000
3010
3020
3030
3040
3050
3060
3070
3080
3090
3100
3110
RSAV
AWMX_RF
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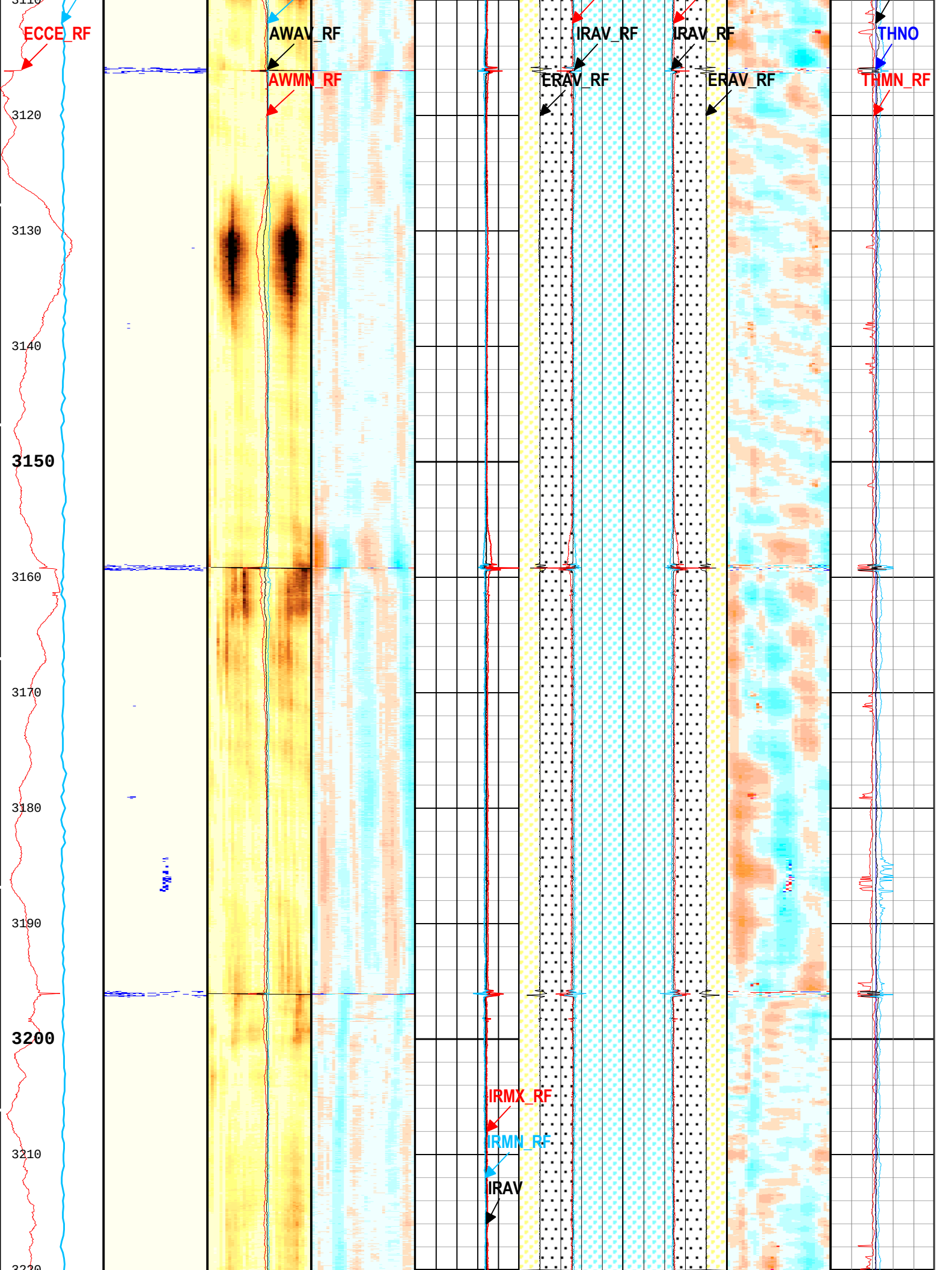
IRMX_RF
THMX_RF
THAV_RF


ECCE_RF
AWAV_RF
AWMN_RF
IRAV_RF
ERAV_RF
IRAV_RF
ERAV_RF
THNO
THMN_RF
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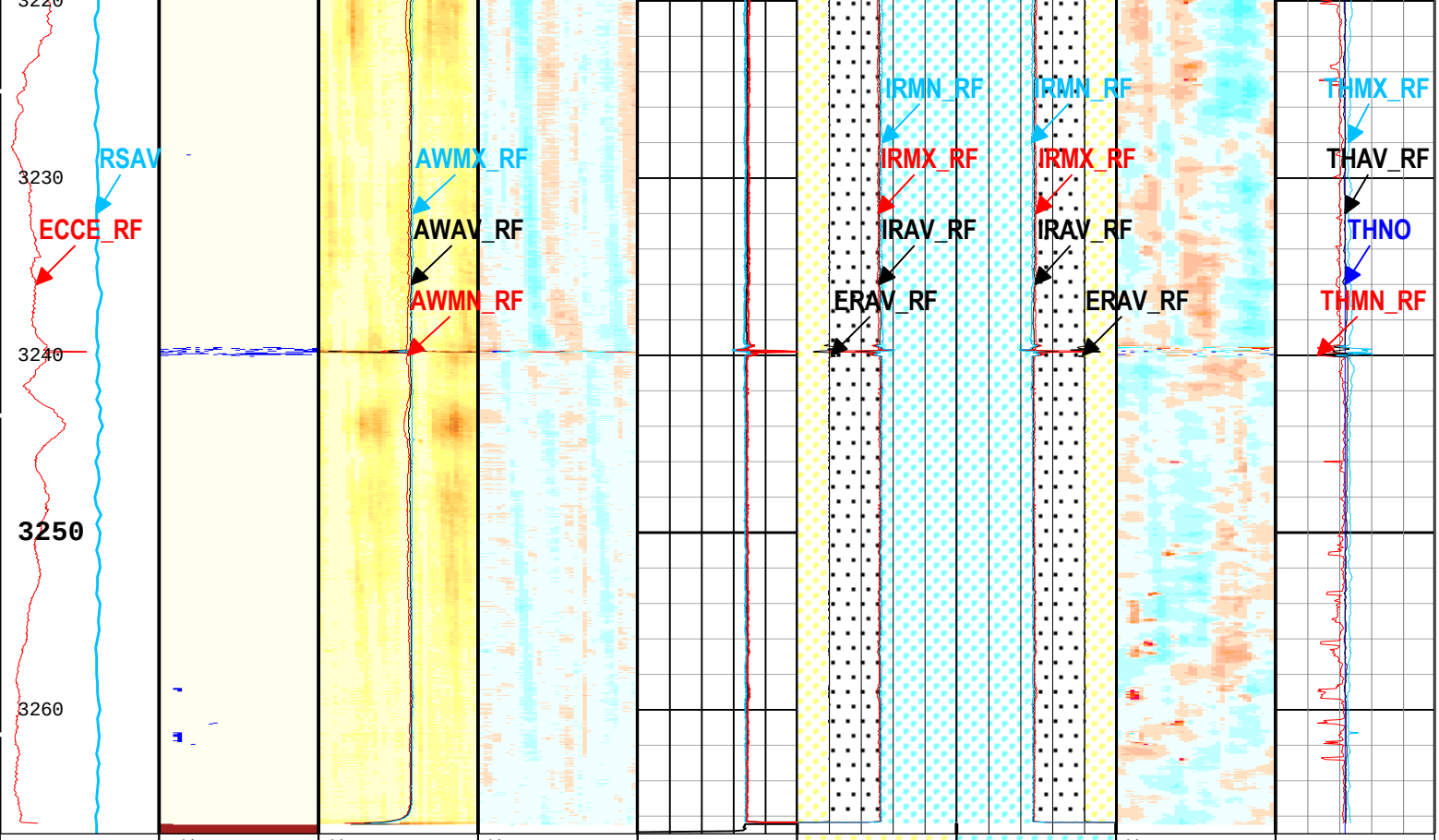
3150
3160
3170
3180
3190
3200
3210
3220
IRMX_RF
IRMN_RF
IRAV



Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.5 in 3.5

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.5 in 3.5

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.5 in 3.5

ERAV | IRAV
ERAV-IRAV | ERAV
IRAV | IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

TIME_1900 - Time Marked every 60.00 (s)

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

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

Description: USI Composite Format: Log (LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:34:57

2-Sep-2016

10 inch = 100 ft Hi-Resolution Repeat

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[7]:Up	Up	3708.88 ft	4351.60 ft	02-Sep-2016 12:45:03 PM	02-Sep-2016 1:18:59 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

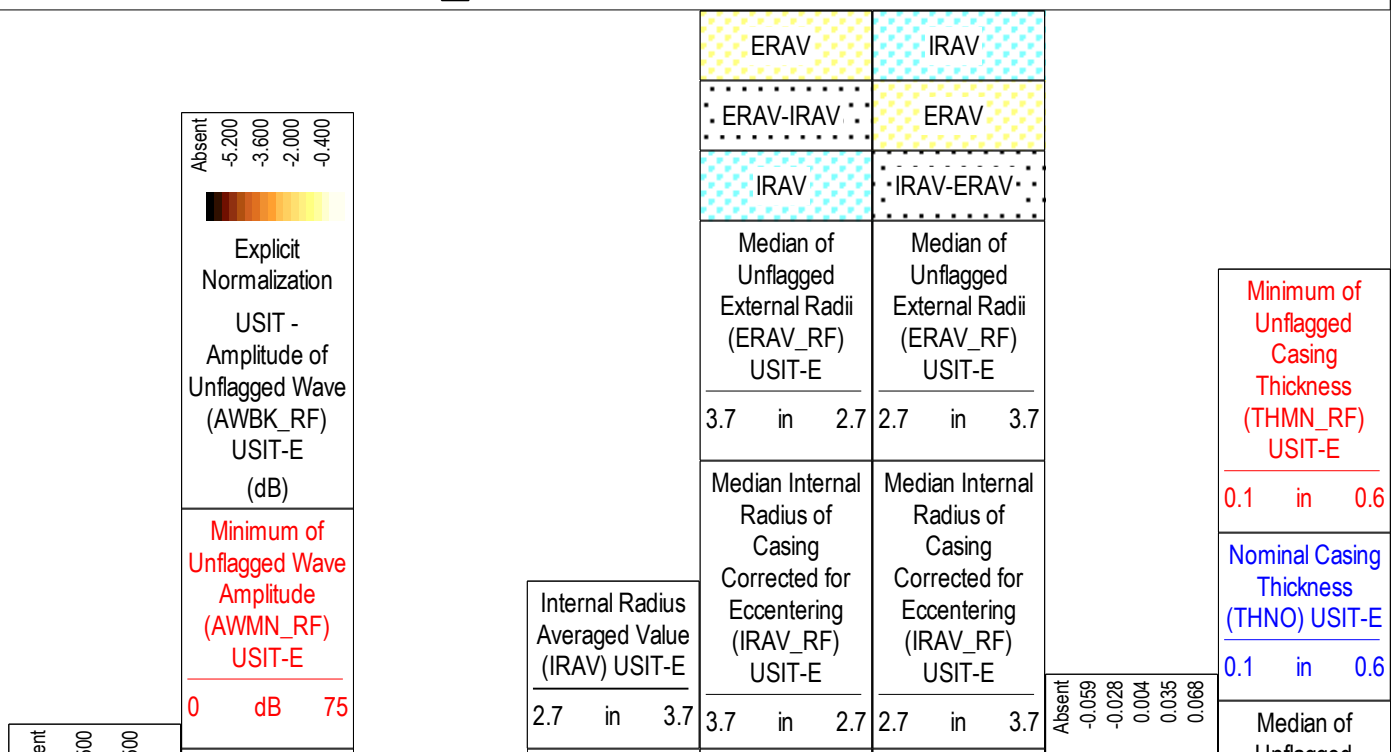
Company:Southern California Gas Company Well:Ward 3
2-Sep-2016: Log[7]:Up:S003

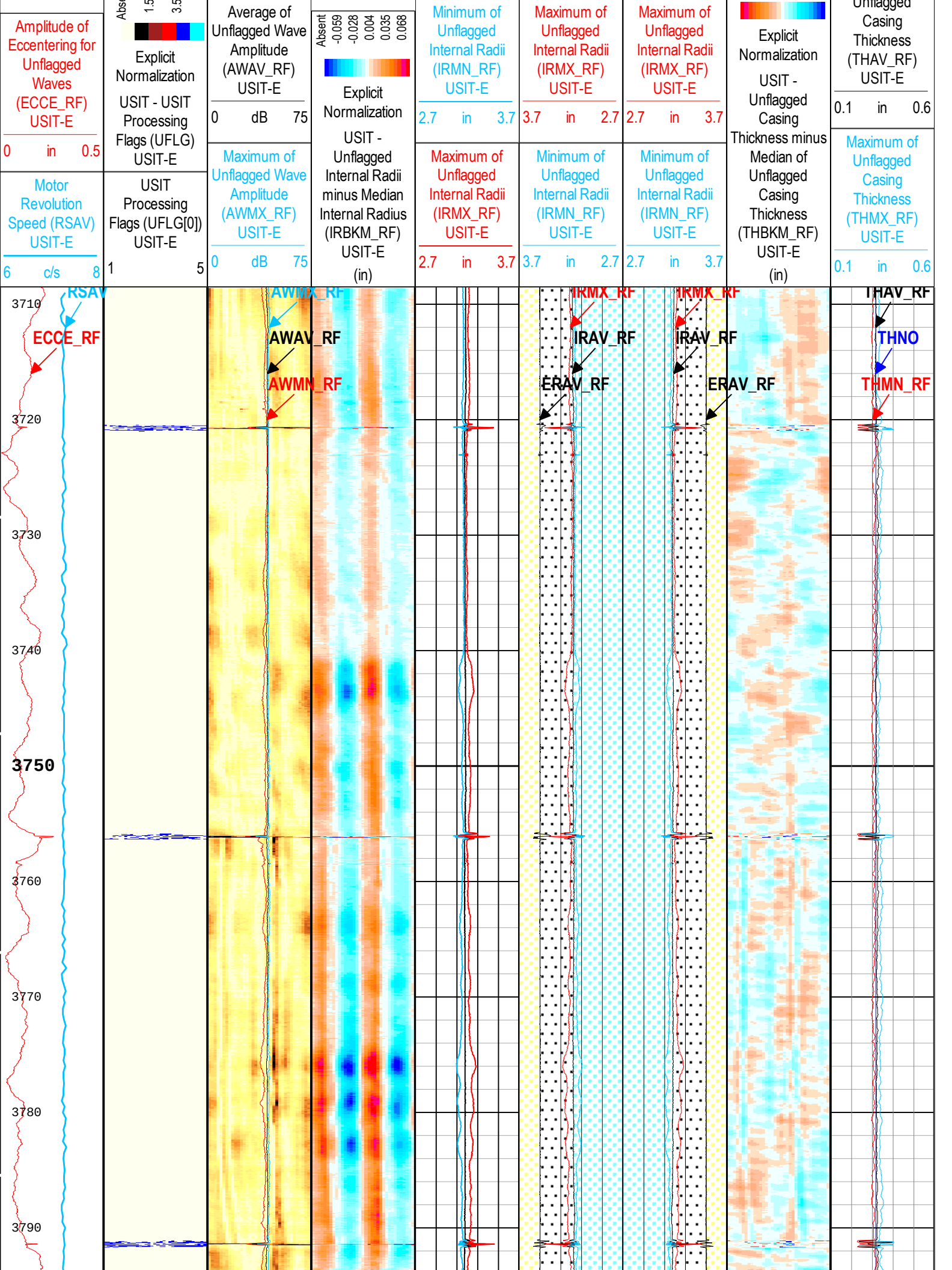
Description: USI Composite Format: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:19

TIME_1900 - Time Marked every 60.00 (s)

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

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




Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E
6 c/s 8
Absent 1.5 3.5
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
USIT Processing Flags (UFLG[0]) USIT-E
1 5
Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)
Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6
Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6
3710
3720
3730
3740
3750
3760
3770
3780
3790
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRAV_RF
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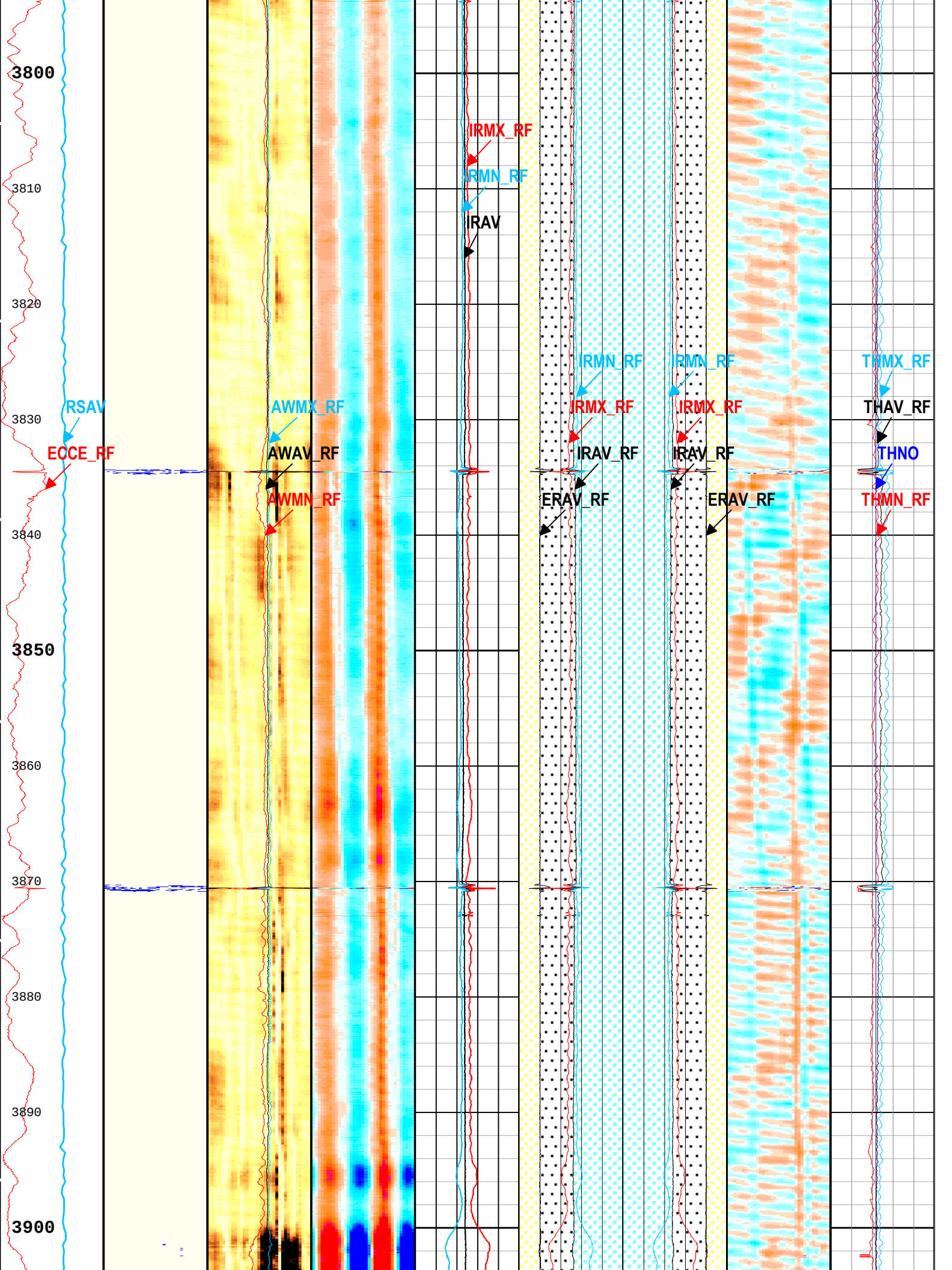
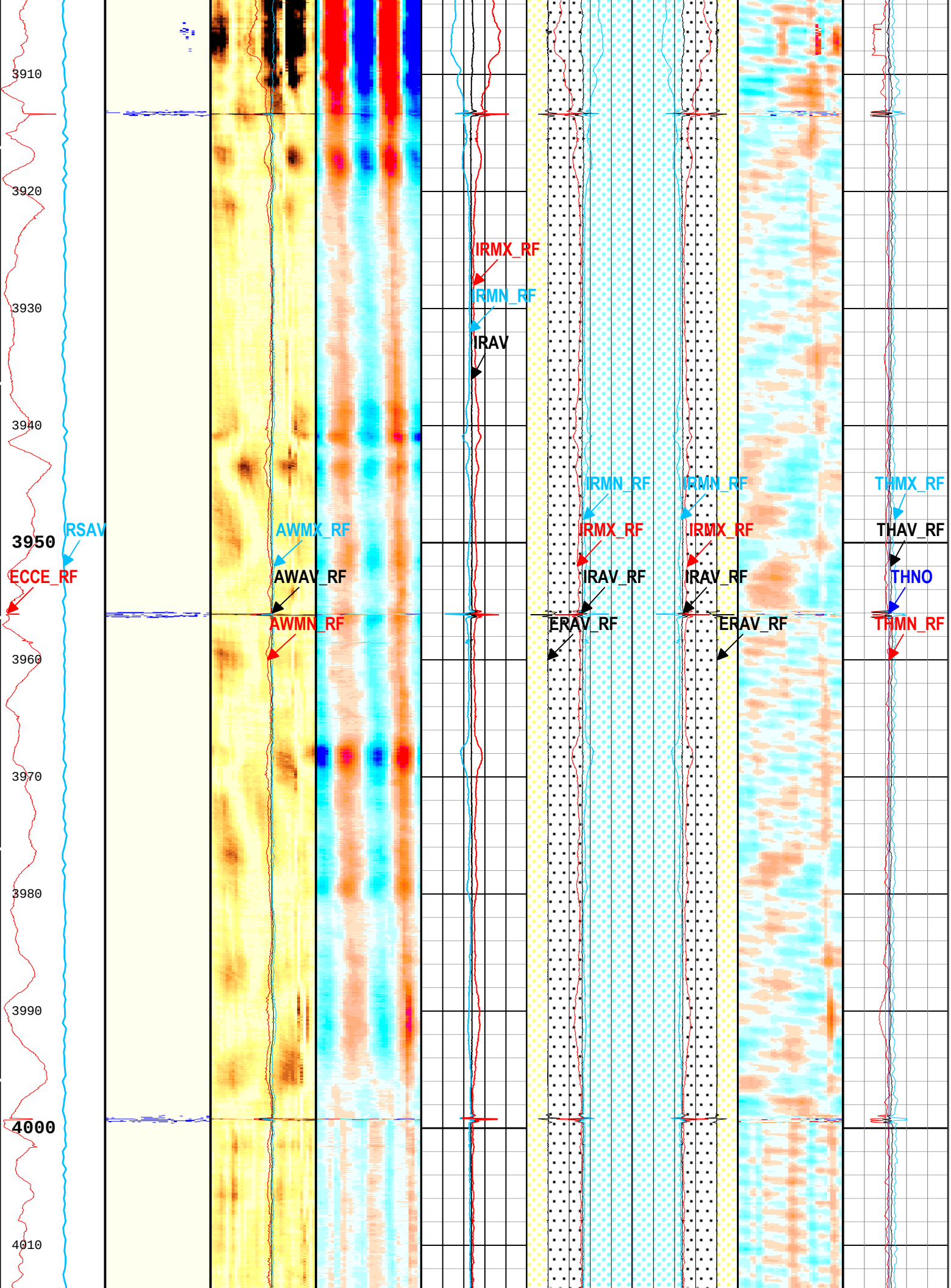
IRAV_RF
ERAV_RF
THAV_RF
THNO
THMN_RF


3800
3810
3820
3830
3840
3850
3860
3870
3880
3890
3900
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF


3910
3920
3930
3940
3950
3960
3970
3980
3990
4000
4010
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
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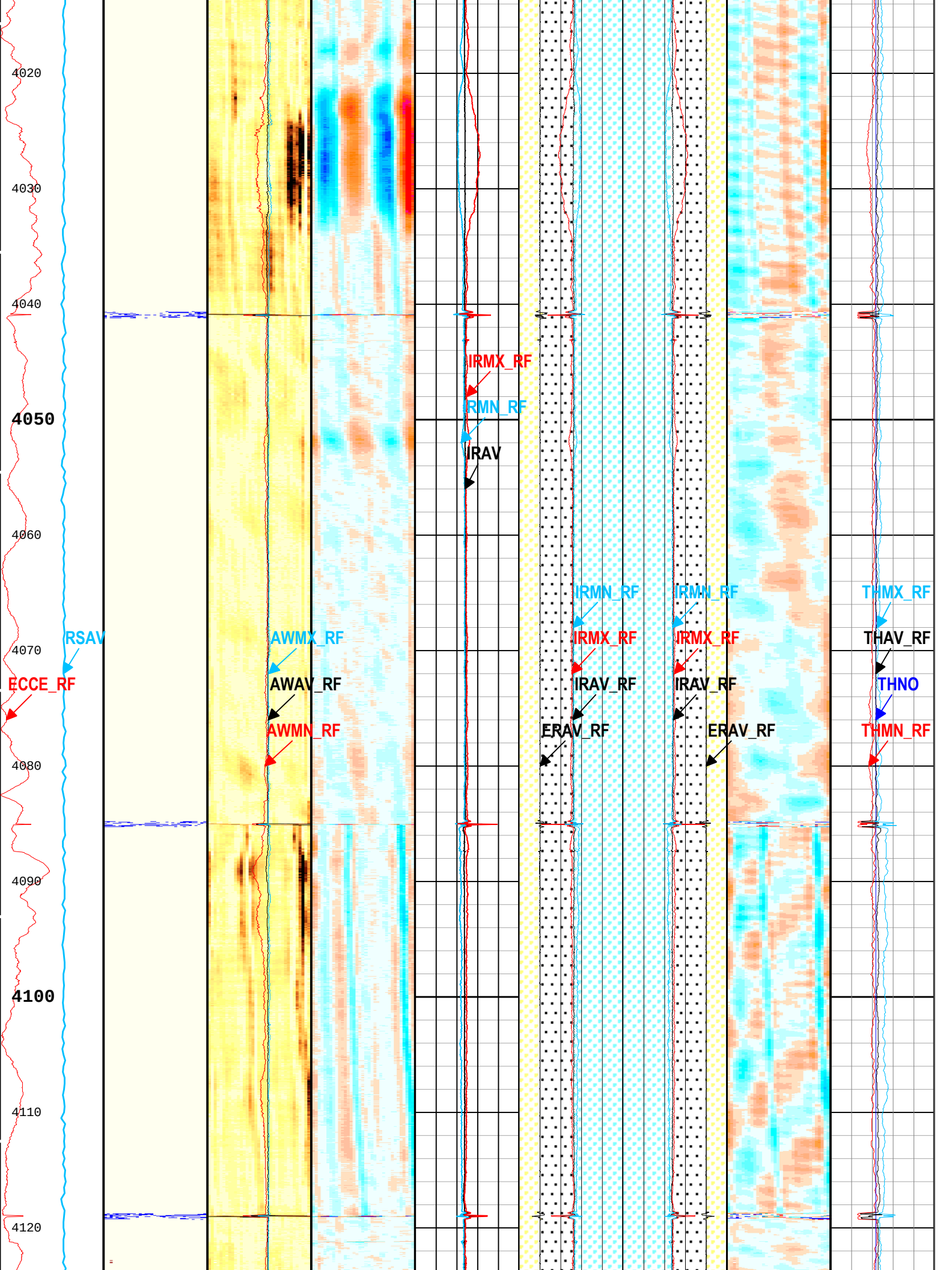
THAV_RF
THNO
THMN_RF


4020
4030
4040
4050
4060
4070
4080
4090
4100
4110
4120
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
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IRAV_RF
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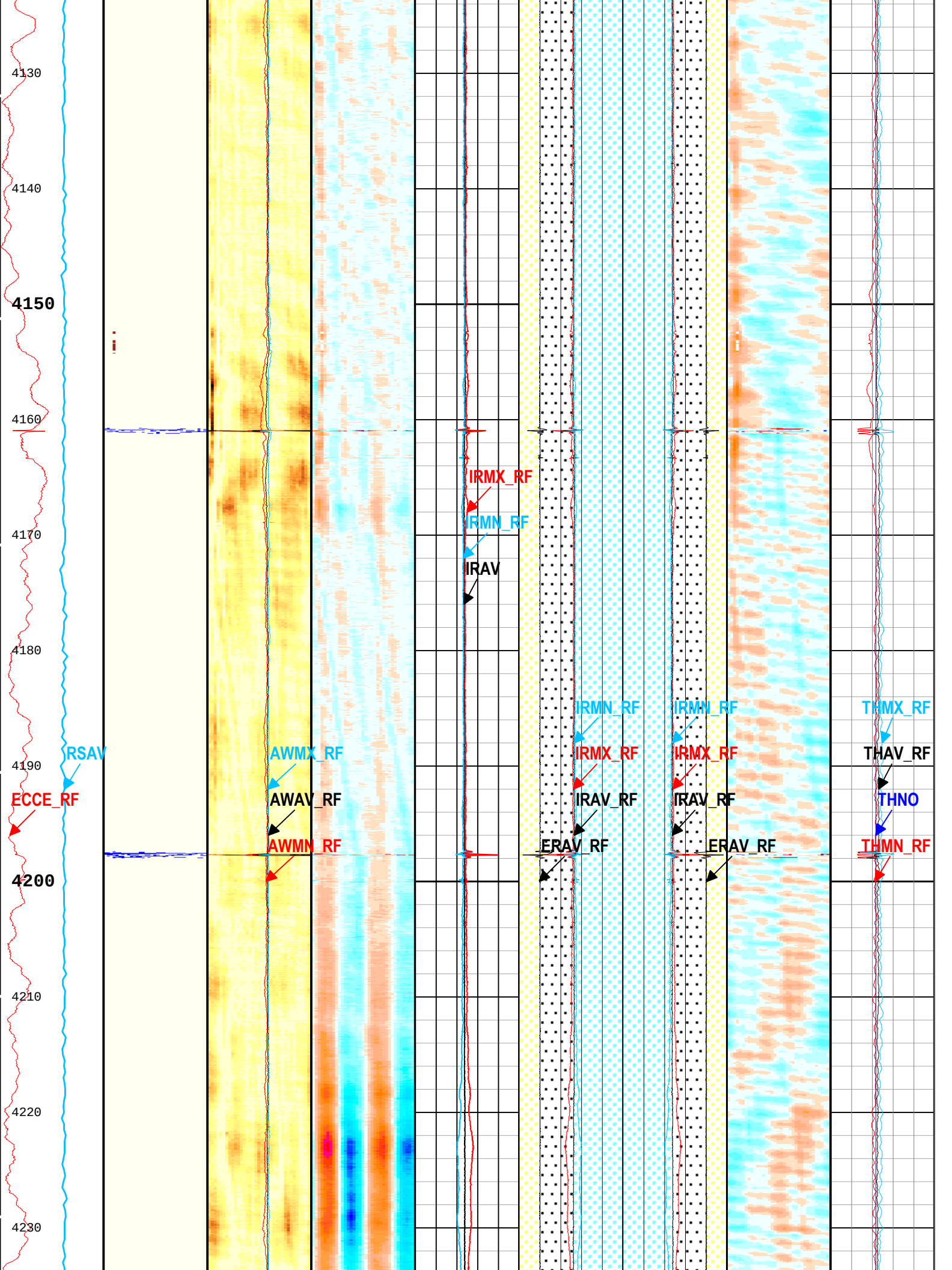
THAV_RF
THNO
THMN_RF


4130
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4210
4220
4230
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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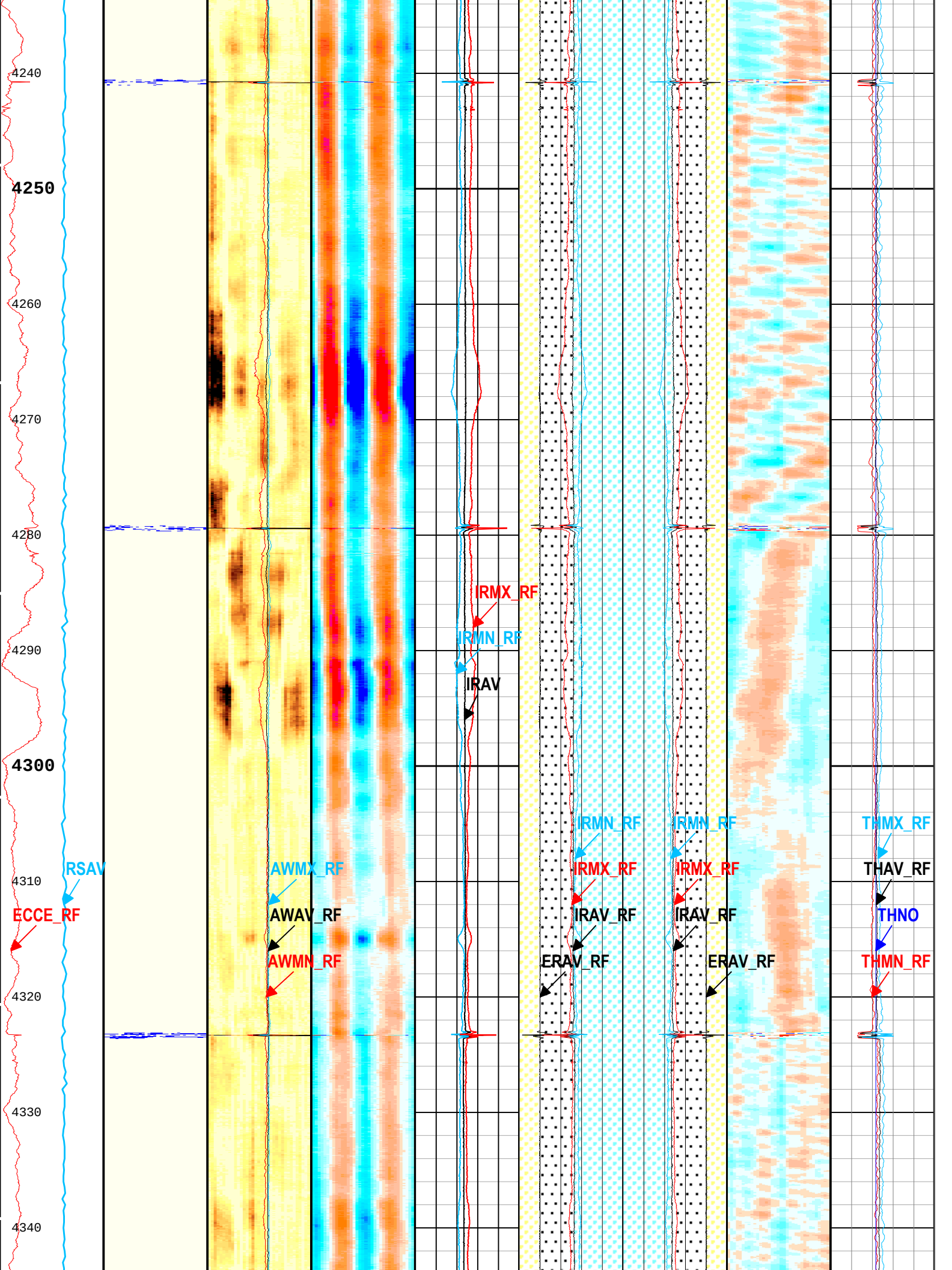
THAV_RF
THNO
THMN_RF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4270
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4340
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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IRMX_RF
IRAV_RF
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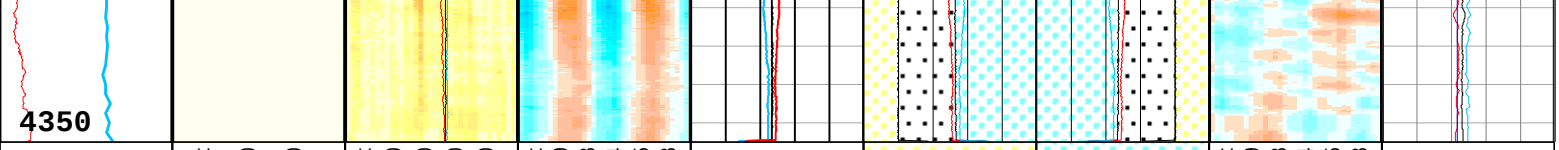
THAV_RF
THNO
THMN_RF



Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

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: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:20

Channel Processing Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BS	Bit Size	WLSESSION	10.625	in
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.317	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	55000	psi

DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
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	19.62	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.05	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
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	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6240	ft
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	35.2	us
WINE	Window End Time	USIT-E	91.59	us

2-Sep-2016

10 inch = 100 ft Hi-Resolution Repeat

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[5]:Up	Up	5691.96 ft	5812.08 ft	02-Sep-2016 12:26:49 PM	02-Sep-2016 12:33:55 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Ward 3

2-Sep-2016: Log[5]:Up:S003

Description: USI Composite Format: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:30

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

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

ERAV | IRAV
ERAV-IRAV | ERAV
IRAV | IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

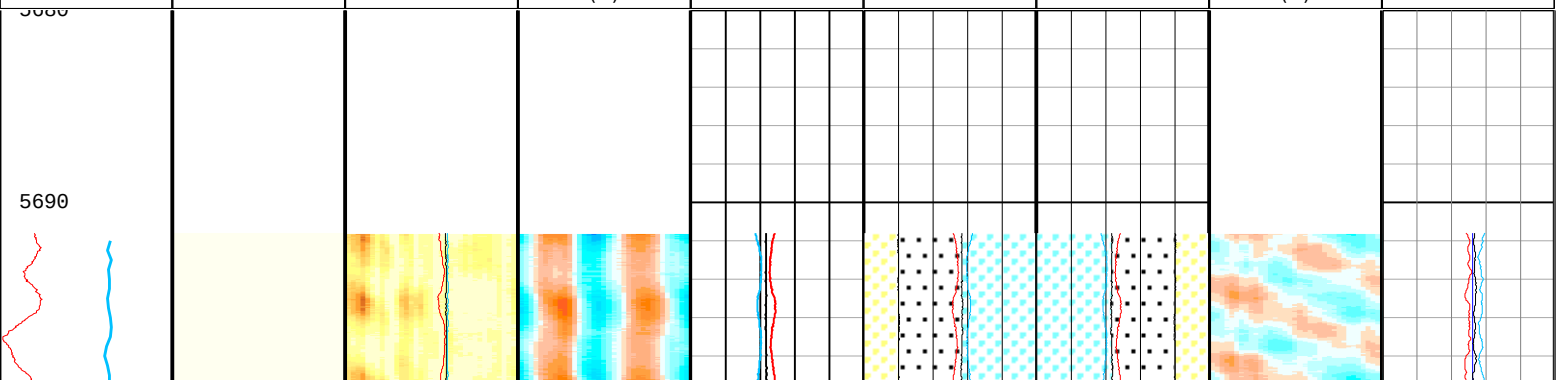
Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

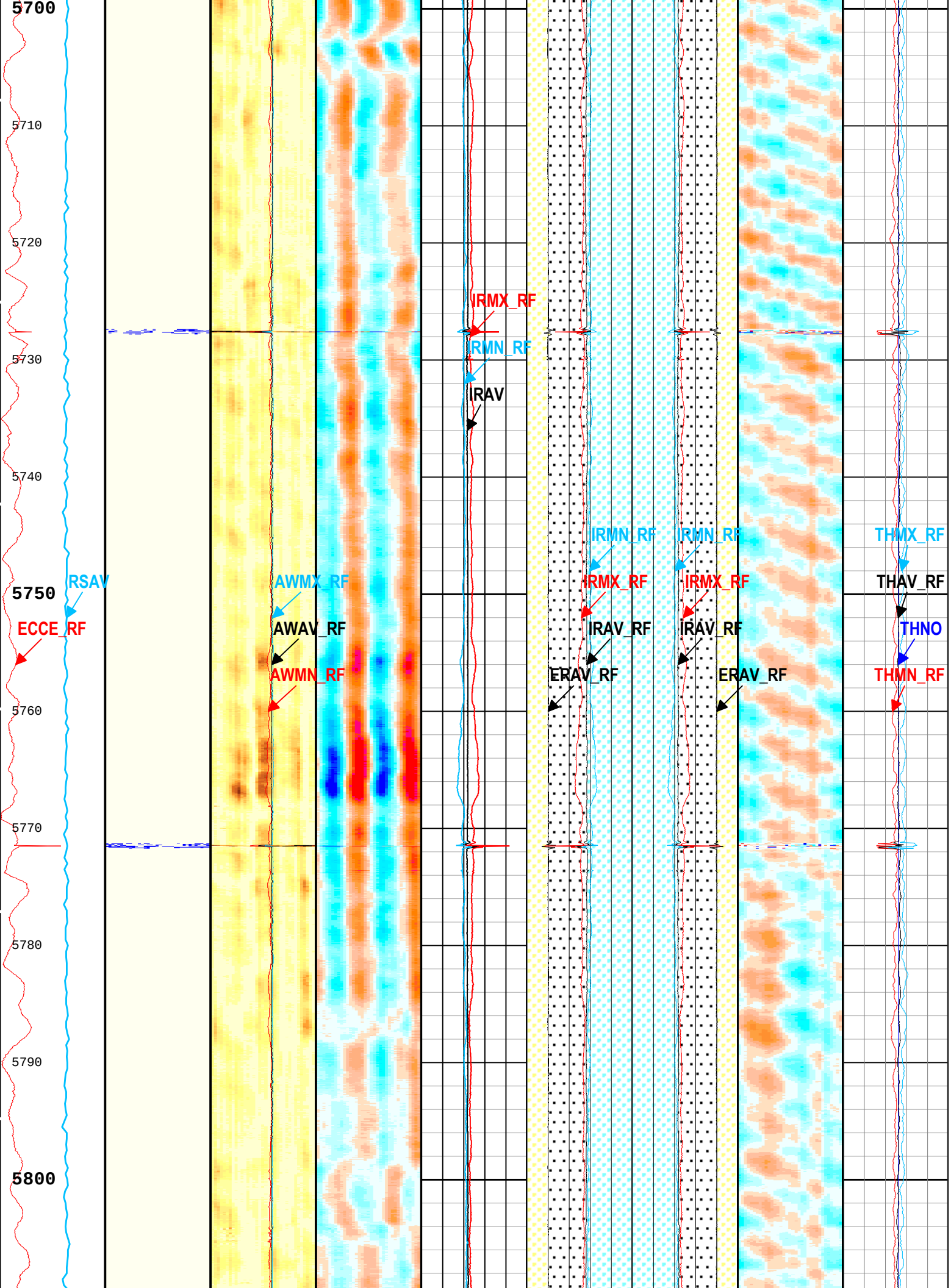
Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

5680

5690

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5710
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5760
5770
5780
5790
5800
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
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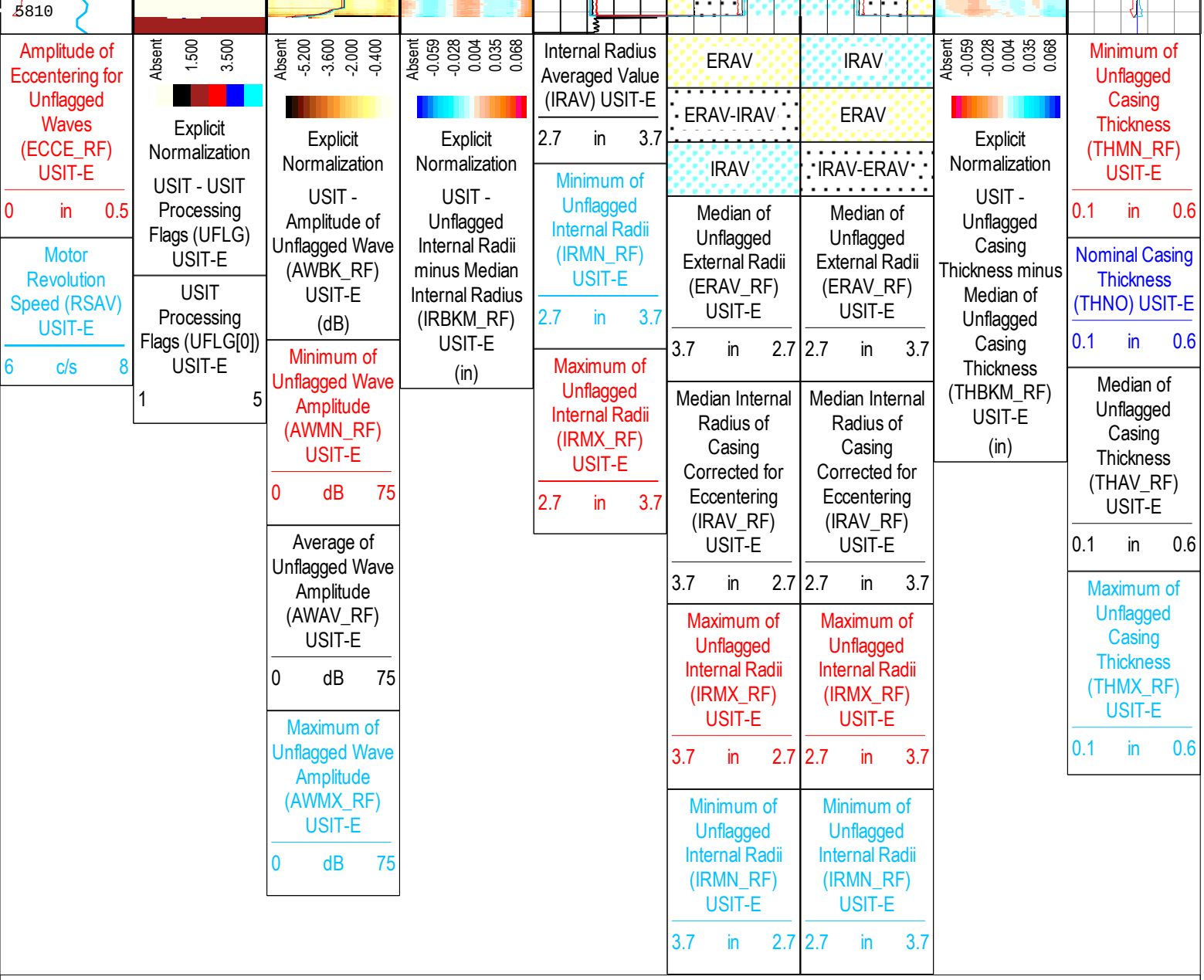
THAV_RF
THNO
THMN_RF



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: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:30

Channel Processing Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BS	Bit Size	WLSESSION	10.625	in
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	55000	psi
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	

DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
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	22.5	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.05	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
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	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6240	ft
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	35.2	us
WINE	Window End Time	USIT-E	91.59	us

2-Sep-2016

10 inch = 100 ft Hi-Resolution Repeat

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2-Sep-2016	Log[4]:Up	Up	5941.73 ft	6241.03 ft	02-Sep-2016 12:07:06 PM	02-Sep-2016 12:25:54 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Description: USI Composite Format: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:35

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

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

ERAV | IRAV
ERAV-IRAV | ERAV
IRAV | IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

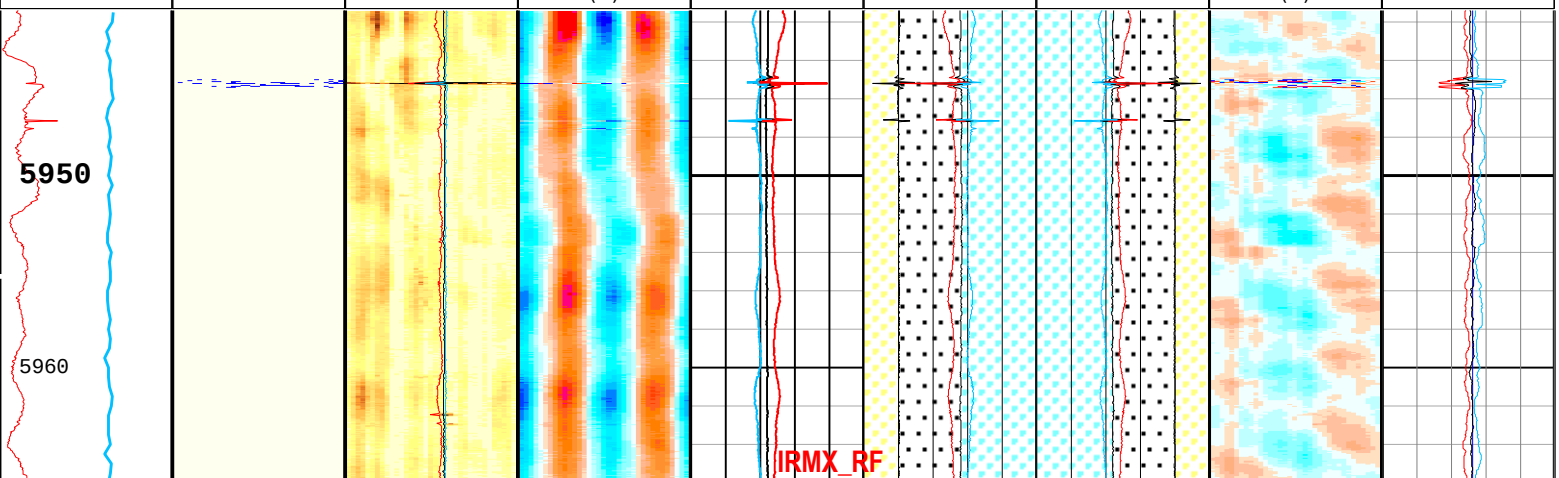
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

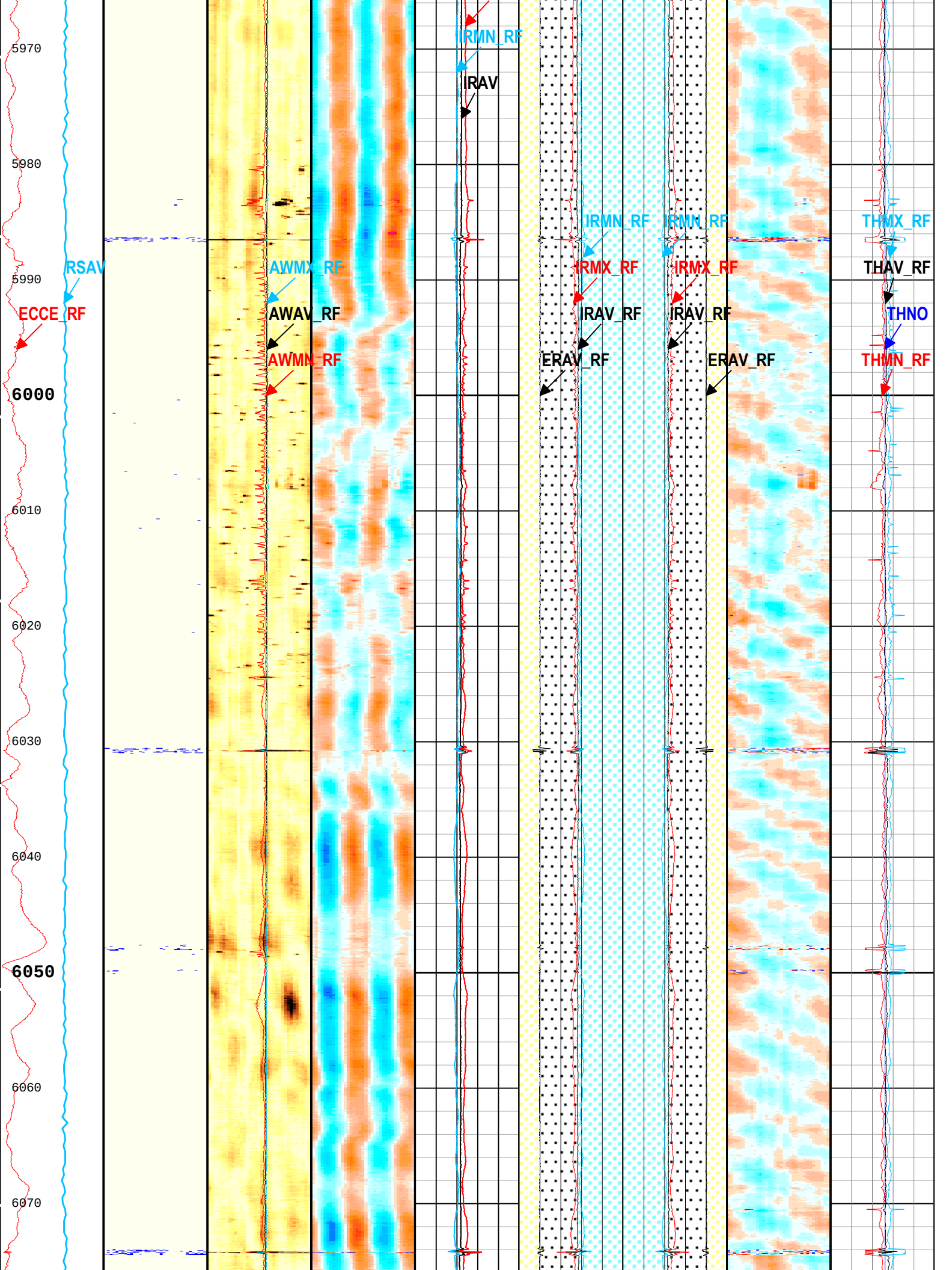
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

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IRMX_RF
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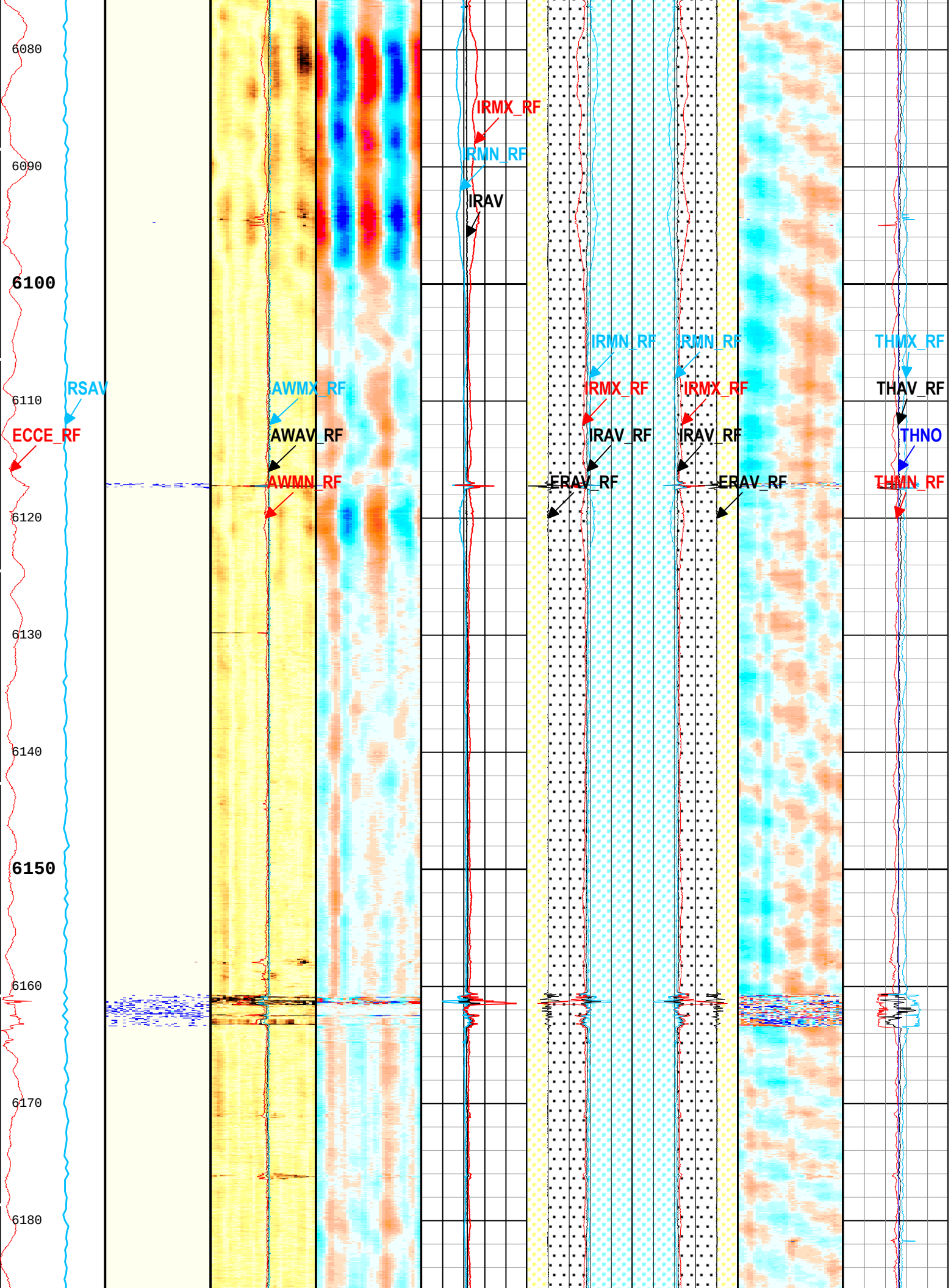
THAV_RF
THNO
THMN_RF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AWAV_RF
AWMN_RF
IRMX_RF
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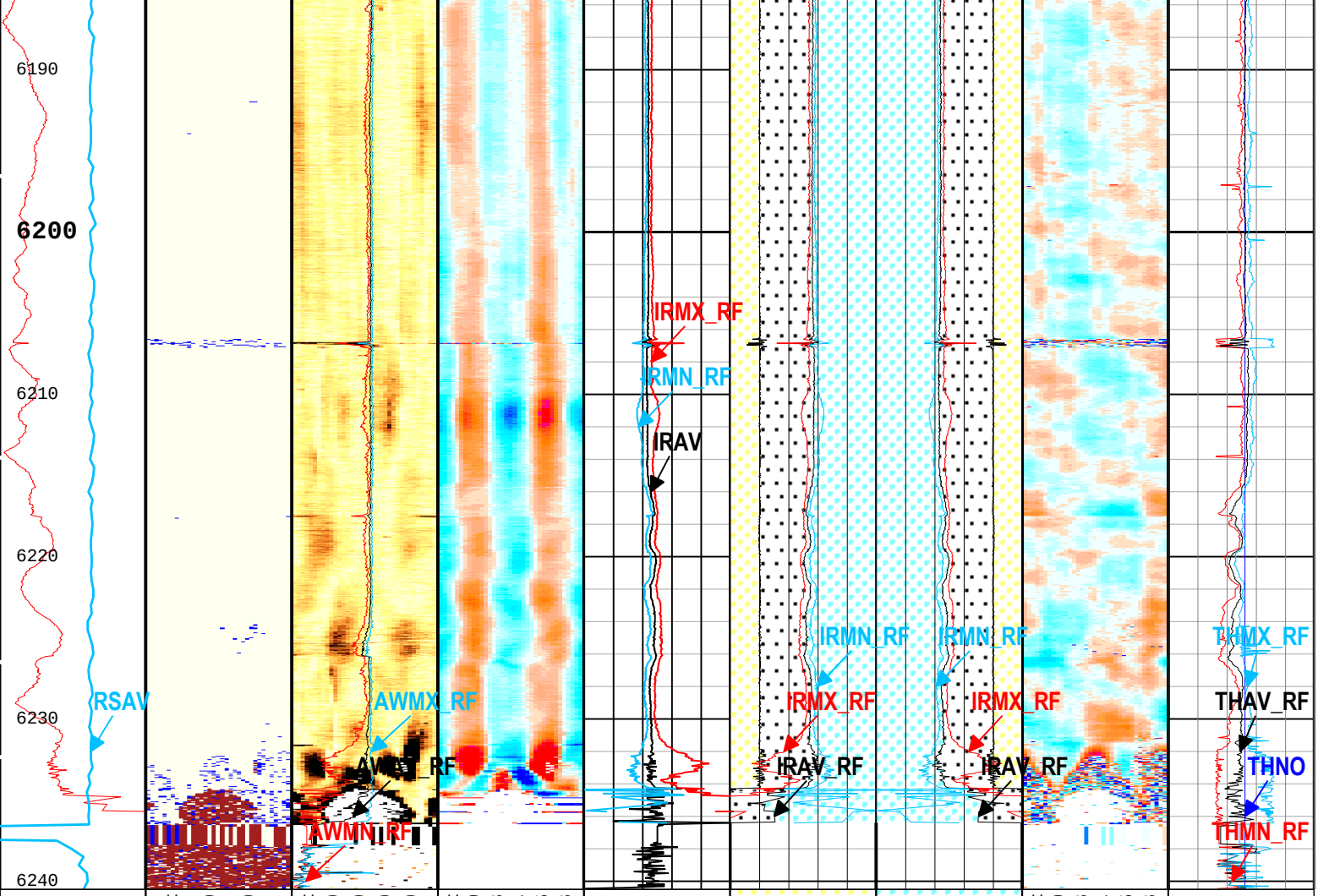
THMN_RF



Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

0 dB 75	Internal Radii (IRMN_RF) USIT-E 3.7 in 2.7	Internal Radii (IRMN_RF) USIT-E 2.7 in 3.7

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: Log (Copy of LBV1_USI Corrosion 7inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 02-Sep-2016 19:35:35

Channel Processing Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BS	Bit Size	WLSESSION	10.625	in
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	55000	psi
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
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	22.5	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.05	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
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	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

2-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	

MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6240	ft
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
WINB	38.4	02-Sep-2016 12:07:06	02-Sep-2016 12:25:30	6241.02	5947.62
WINB	35.2	02-Sep-2016 12:25:30	02-Sep-2016 12:25:54	5947.62	5941.73
WINE	78.4	02-Sep-2016 12:07:06	02-Sep-2016 12:08:09	6241.02	6229.28
WINE	91.59	02-Sep-2016 12:08:09	02-Sep-2016 12:25:54	6229.28	5941.73

All depth are at tool zero.

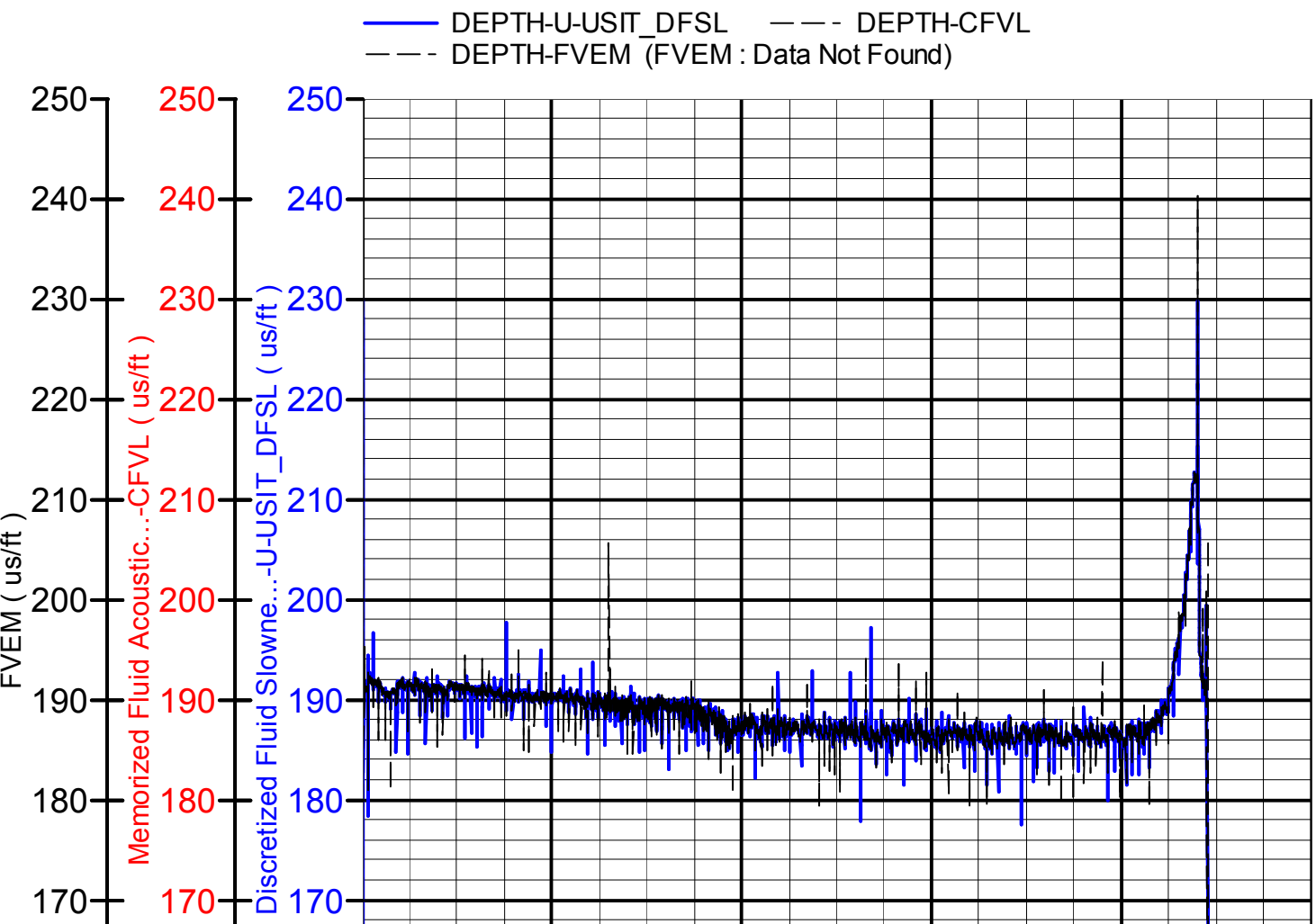
XYZ

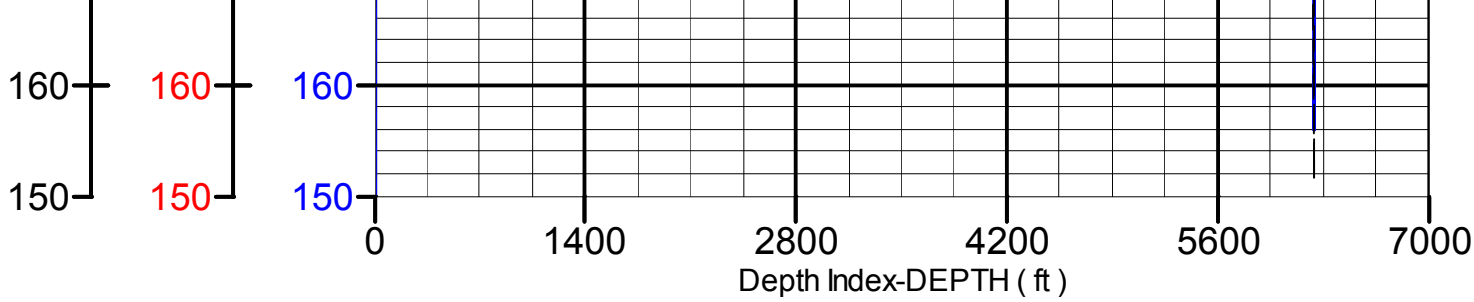
Company:Southern California Gas Company Well:Ward 3
Composite 1:S003

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 5.63 to 6237.50 ft





XYZ

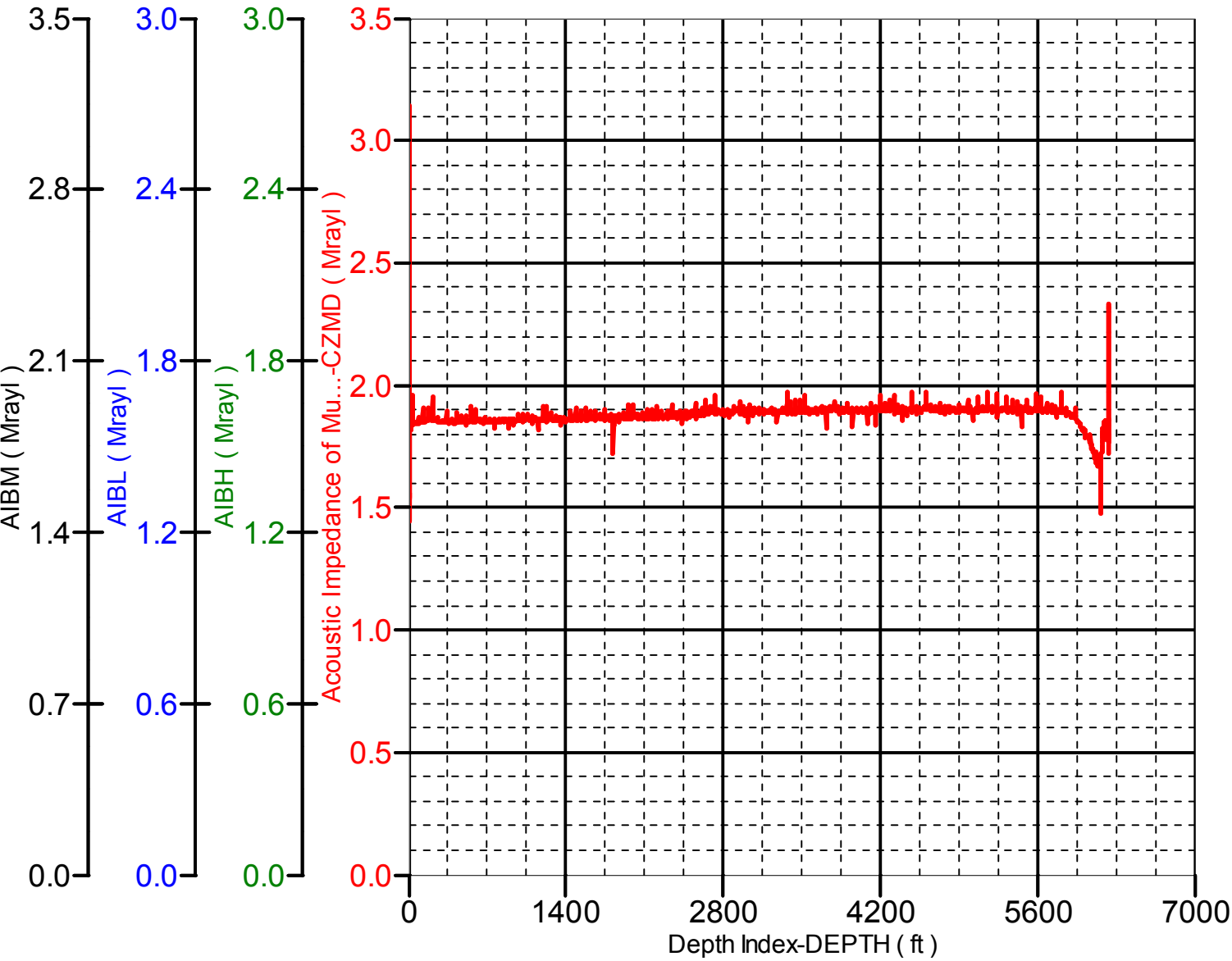
Company:Southern California Gas Company Well:Ward 3
Composite 1:S003

Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 5.63 to 6237.50 ft

DEPTH-CZMD
DEPTH-AIBH (AIBH : Data Not Found)
DEPTH-AIBL (AIBL : Data Not Found)
DEPTH-AIBM (AIBM : Data Not Found)



Company:	Southern California Gas Company
Well:	Ward 3
Field:	Aliso Canyon
County:	Los Angeles
State:	CALIFORNIA

Schlumberger

Ultrasonic Imager

CCL

7" 23 AND 26# casing