

Company: Occidental Petroleum Corporation

Well: Sherwood L Federal #30-29D

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Bond Log
Gamma Ray - CCL

County: Weld
Field: Wattenberg
Location: NWNW
Well: Sherwood L Federal #30-29D
Company: Occidental Petroleum Corporation

Location:	NWNW	Elev.:	K.B.	4835.00 ft
	721 FNL 783FWL		G.L.	4820.00 ft
Permanent Datum:			D.F.	4835.00 ft
Log Measured From:		Ground Level		4820.00 f
Drilling Measured From:		Kelly Bushing		above Perm.Datum
API Serial No.	05-123-31135	Section:	30	Township:
				3N
				Range:
				66W

Logging Date	15-Nov-2022
Run Number	ONE
Depth Driller	8095.00 ft
Schlumberger Depth	8095.00 ft
Bottom Log Interval	7100.00 ft
Top Log Interval	55.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	7.88 in
From	618.00 ft
To	8095.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	N/A
From	0.00 ft
To	8083.00 ft
Max Recorded Temperatures	
Logger on Bottom	Time
Unit Number	Location:
Recorded By	
Witnessed By	

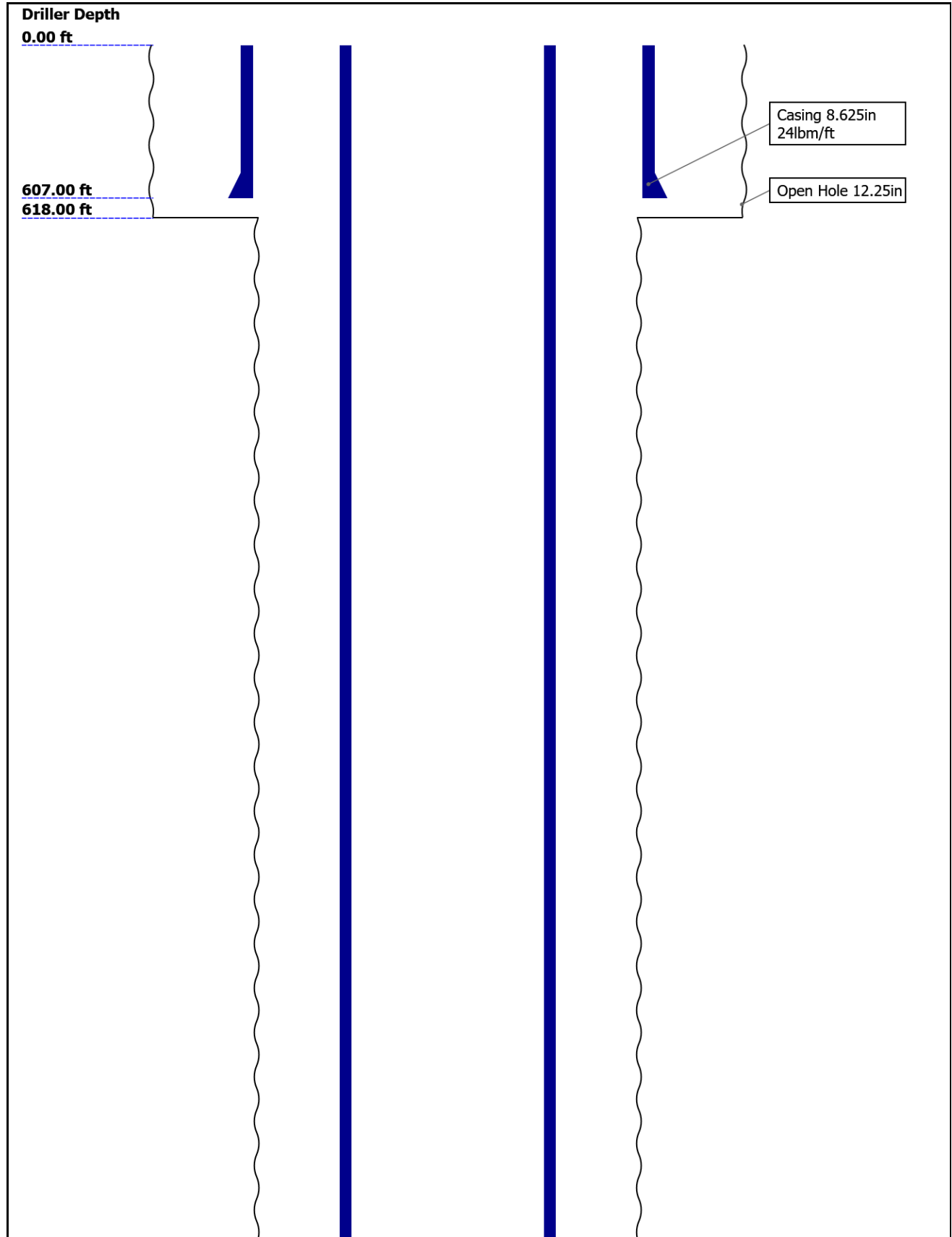
Disclaimer

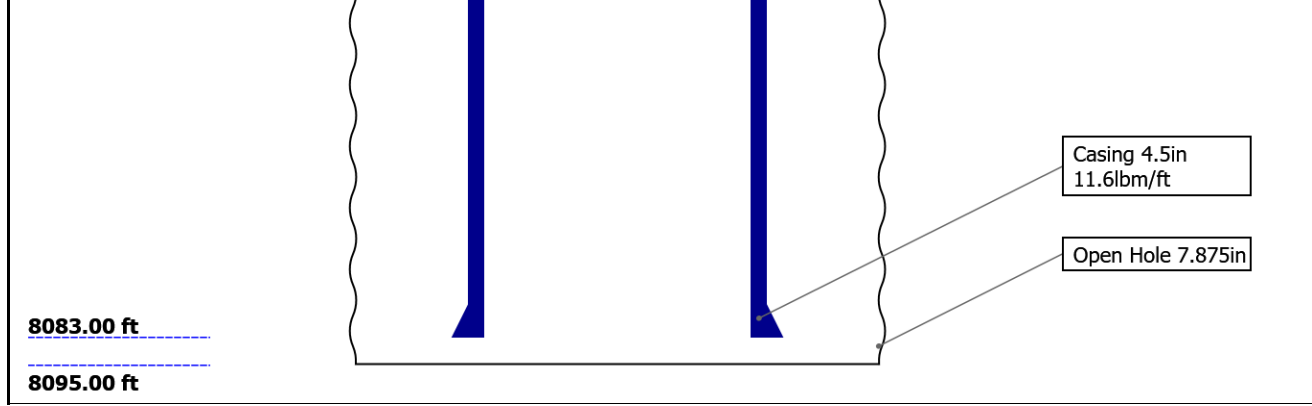
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA;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

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Well Sketch





Borehole Size/Casing/Tubing Record

Bit					
Bit Size (in)	12.25	7.875			
Top Driller (ft)	0	618			
Top Logger (ft)	0	618			
Bottom Driller (ft)	618	8095			
Bottom Logger (ft)	618	8095			
Casing					
Size (in)	8.625	4.5			
Weight (lbm/ft)	24	11.6			
Inner Diameter (in)	8.097	4			
Grade	J55	N/A			
Top Driller (ft)	0	0			
Top Logger (ft)	0	0			
Bottom Driller (ft)	607	8083			
Bottom Logger (ft)	607	8083			

Borehole Fluids

Parameter(unit)	ONE				
Fluid Type	Water				
Max Recorded Temperatures (degF)	NaN				
Source of Sample	Active Tank				
Salinity (ppm)	0				
Density (lbm/gal)	8.4				
Funnel Viscosity (s)					
Fluid Loss (cm3)					
PH					
Date/Time Circulation Stopped	NaN				
Date Logger on Bottom	15-Nov-2022				
Time Logger on Bottom	15:00:00				
Source RMF					
RMC	Pressed				
RM @ Meas Temp (ohm.m@degF)	0.2 @ 68				
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68				
RMC @ Meas Temp (ohm.m@degF)					
RM @ BHT (ohm.m@degF)	0.07 @ 210				

RM @ BHT (ohm.m@degF)	0.07 @ 212				
RMF @ BHT (ohm.m@degF)	0.05 @ 212				
RMC @ BHT (ohm.m@degF)	NaN @ 212				
Total Solid (%)					
High Gravity Solids (%)					

Remarks and Equipment Summary

ONE: Toolstring

ONE: Remarks

Equip name
LEH-QT 49.07
 LEH-QT

MP name
 Offset

Thank you for choosing Schlumberger

Log run for cement and casing evaluation

IBC-A sub was used with IBC-TX

Tool was run as per tool sketch

Log run under 500 psi

Crew: Derrick Hunter

EDTC-B: 45.58
8624
 EDTH-B:
 8423
 EDTG-A:
 77384
 EDTC-B:
 8624

CTEM 42.08
ACCZ 0.00
HV 0.00
Gamm 40.21
a Ray
TelSta 39.08
tus

ASLT-B: 39.08
8101
 ASLT-BB
 :8101

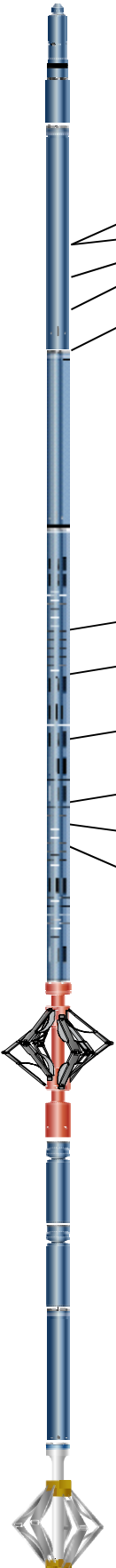
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VDL_U 31.55
P
RX_AR 30.05
RAY
VDL_L 28.55
OW
DT_DD 28.05
BHC
CBL_L 27.55
OW

CME-AF 24.43

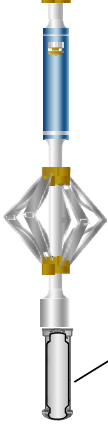
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USIT-E:9 16.64
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 ECH-MFA
 :1818
 USAC-A:
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 USIS-A:2
 735
 USSC-B
 IBCS-A:8
 15
 FAR-SEN
 SOR:4674



IBC-TX
 NEAR-SE
 NSOR:47
 76
 IBC-TX
 USI-SEN
 SOR:4605
 IBC-TX
 EMITTER
 -SENSOR
 :4825
 IBC-TX



USI Sensor Head Extension
 0.84
 TOOL_ZERO

Lengths are in ft
 Maximum Outer Diameter = 3.800 in
 Line: Sensor Location, Value: Gating Offset
 All measurements are relative to TOOL_ZERO

Depth Summary

ONE

Depth Measuring Device

Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

Tension Device

Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable

Type	7-46NT-XS		
Serial Number	ahosp		
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Workover rig		

ONE:Depth Control Parameters

Depth Control Remarks

Log Sequence	First Log In the Well	Schlumberger depth control procedures followed
Rig Up Length At Surface		IDW used as primary depth control system
Rig Up Length At Bottom		Z-Chart used as secondary depth control system
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 4	Log[2]:Down	4567.4	7101.19

Fluid Velocity = "Automatic".

CFVL equals DFSL channel

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

Mud Impedance = "Theoretical".
 CZMD uses theoretical results.
 MUD_N_THE=1.13
 DFD=1.01g/cm3(8.40lbm/gal)

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)
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Composite 1

Software Version

Acquisition System	Version
Maxwell 2022.1	12.1.217729.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.1_12.1.220972 Wireline_NPD-ThruBit-2022.1_12.1.220135

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	5436.73 ft	7107.90 ft	15-Nov-2022 10:06:56 PM	15-Nov-2022 10:34:39 PM	ON	9.90 ft	Yes
ONE	Log[4]:Up	Up	67.82 ft	6315.28 ft	15-Nov-2022 10:37:21 PM	16-Nov-2022 12:14:08 AM	ON	12.11 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Corporation Well:Sherwood L Federal #30-29D
 Composite 1:S038

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 22-Nov-2022 12:23:34

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)

Casing Collar Locator (CCLU) USIT-E[1]

Amplitude of Eccentricity (ECCE) USIT-E[1]

Motor Revolution Speed (RSAV) USIT-E[1]

Gamma Ray (ECGR_EDTC) EDTC-B[1]

Acoustic Impedance Minimum (AIMN) USIT-E[1]

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

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

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E[1]

Average Flexural Attenuation (U-USIT_UFAV) USIT-E[1]

Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E[1]

SLG Solid Index

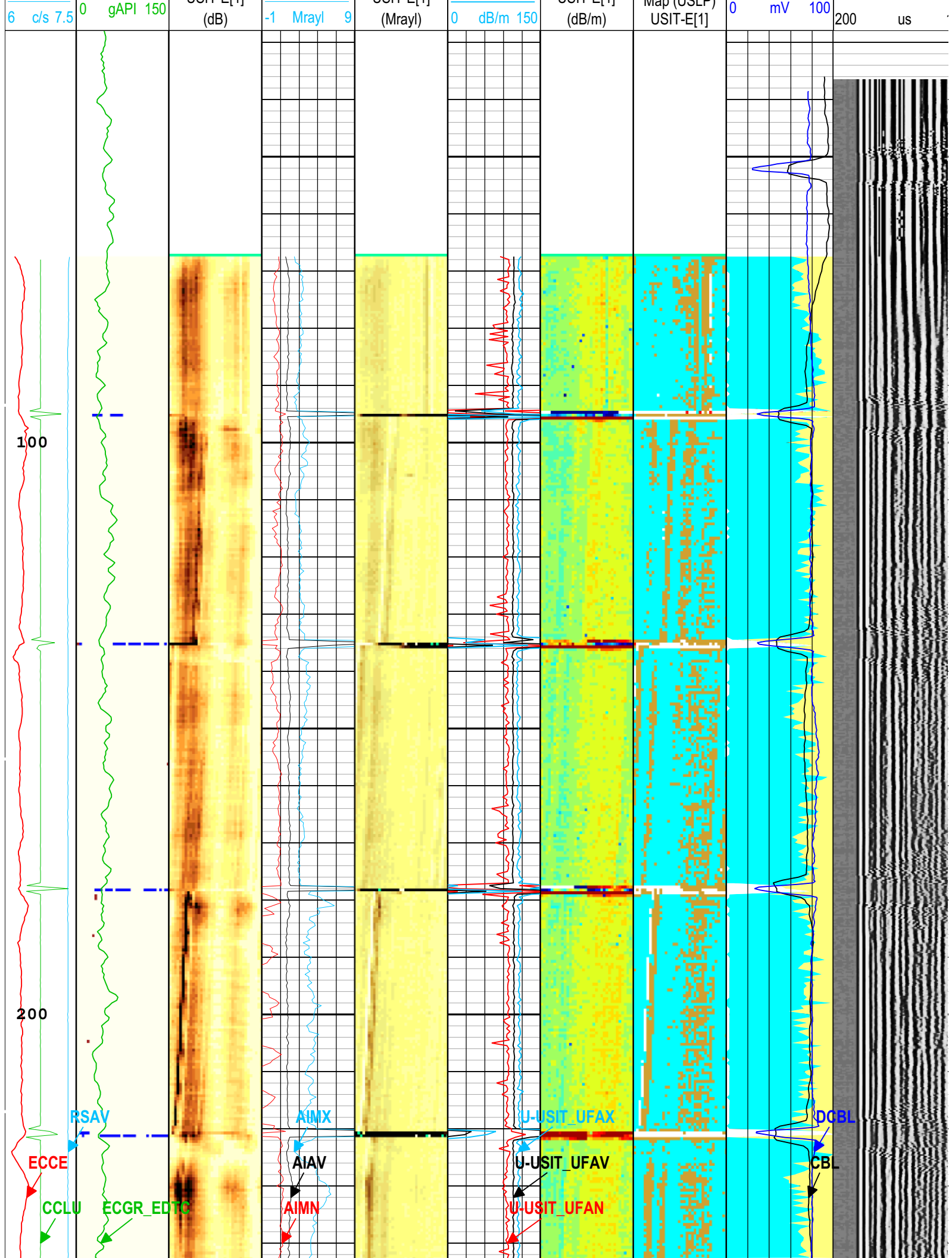
SLG Liquid Index

SLG Gas Index

SLG White Point Index

CBL Amplitude (CBL) ASLT-B[1]

Synthetic CBL from Discriminated Attenuation (DCBL) ASLT-B[1]



300

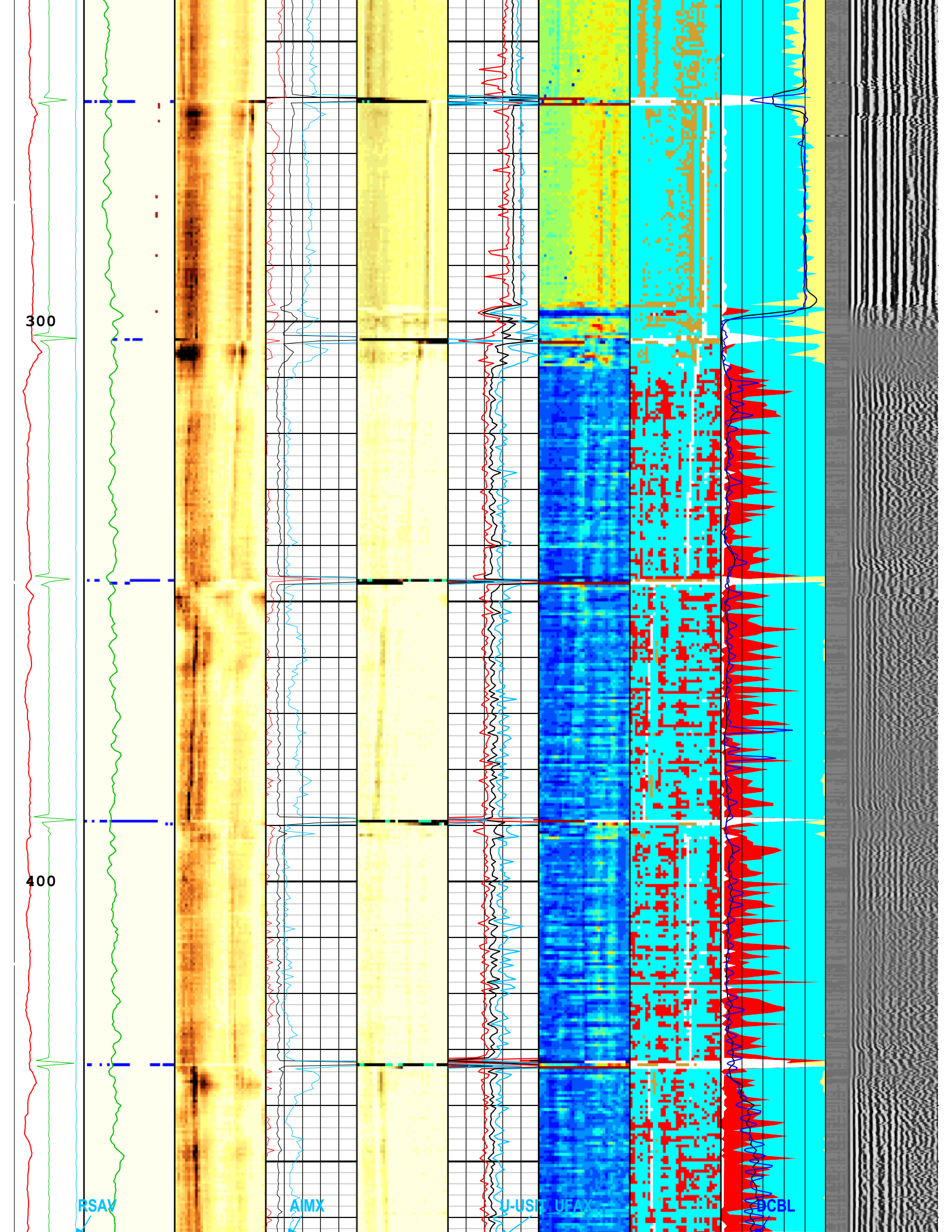
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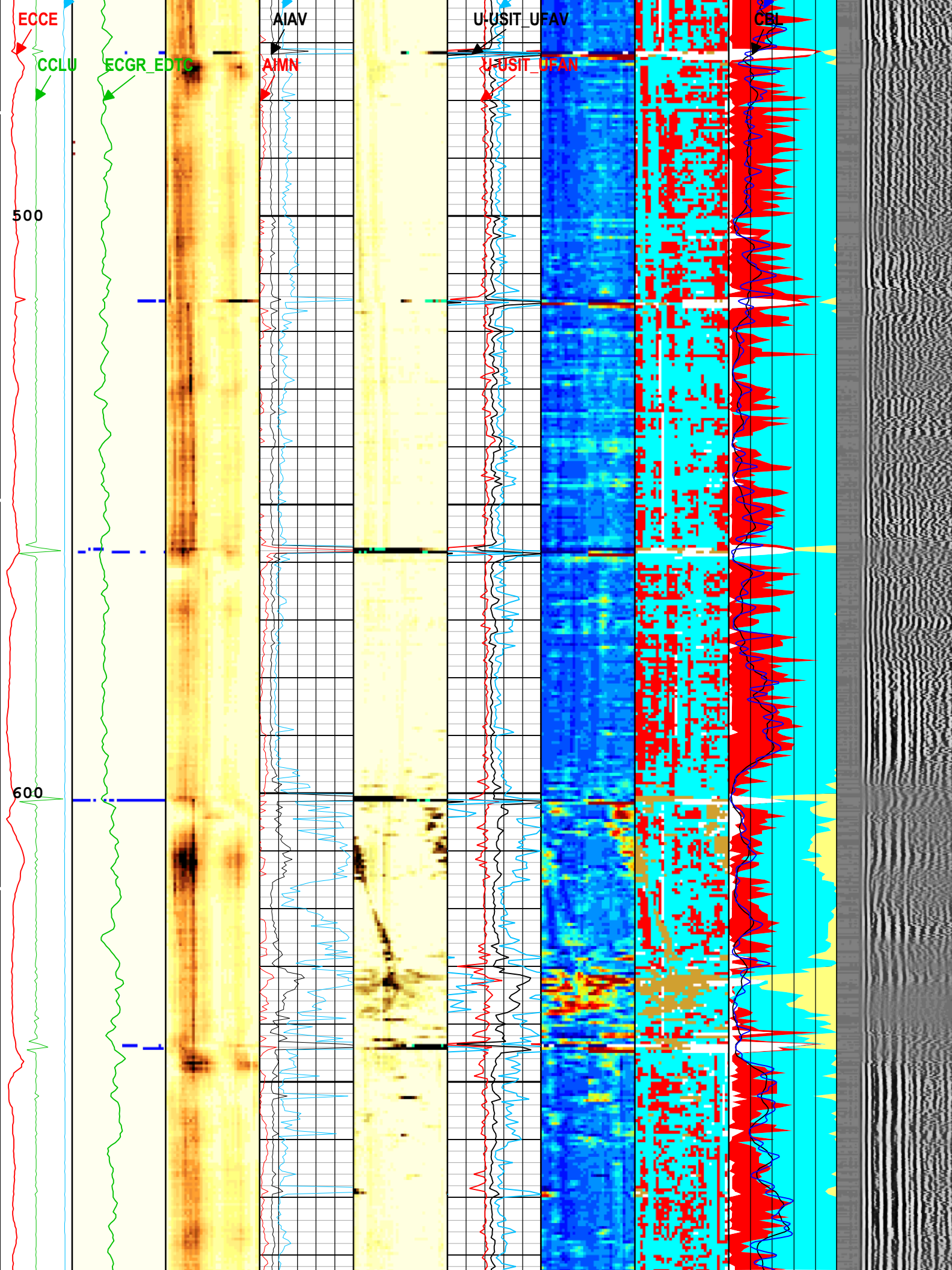
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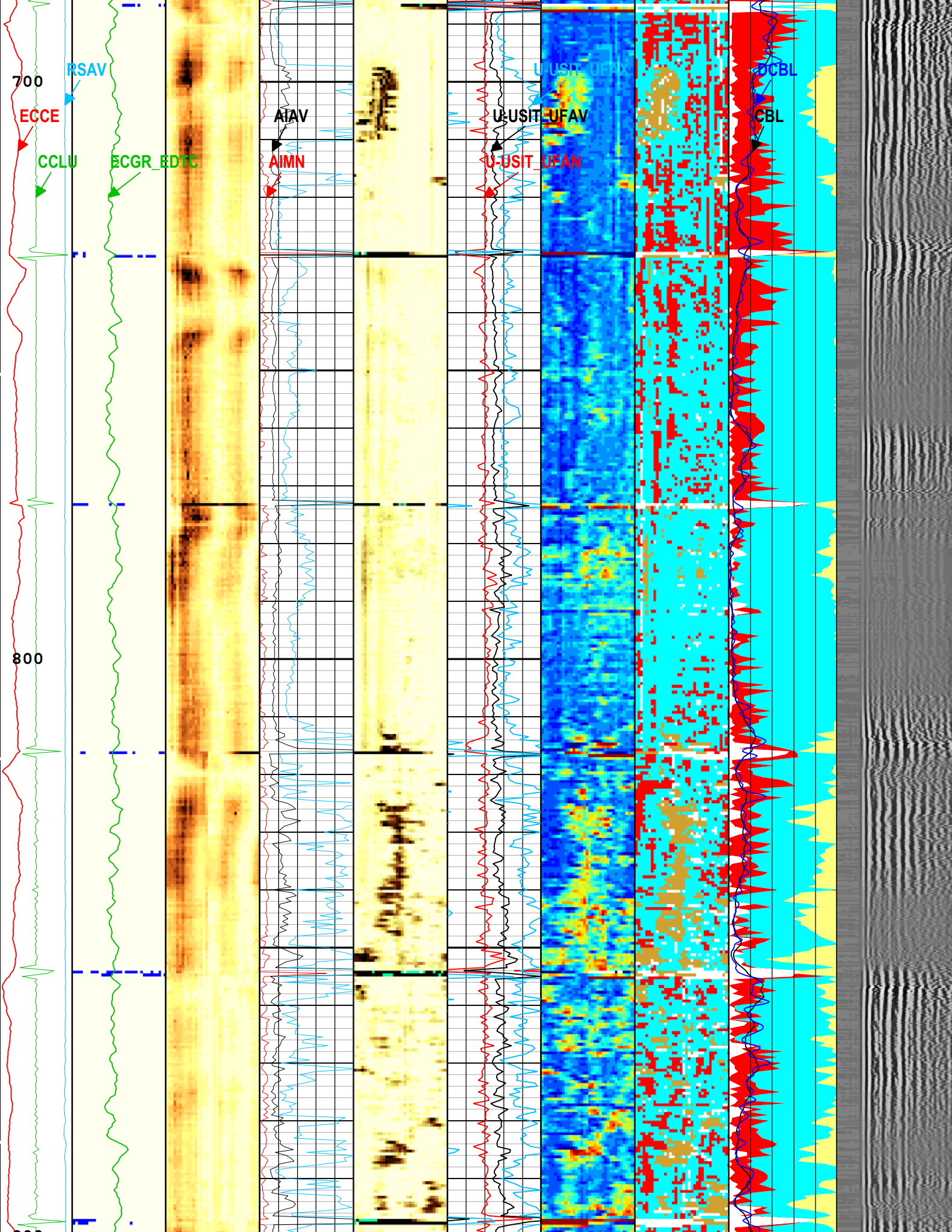
AIMX

J-USIT UFAX

BCBL







700

RSAV

ECCE

CCLU

ECGR_EDTC

AIAV

AIMN

U-USIT_UFAV

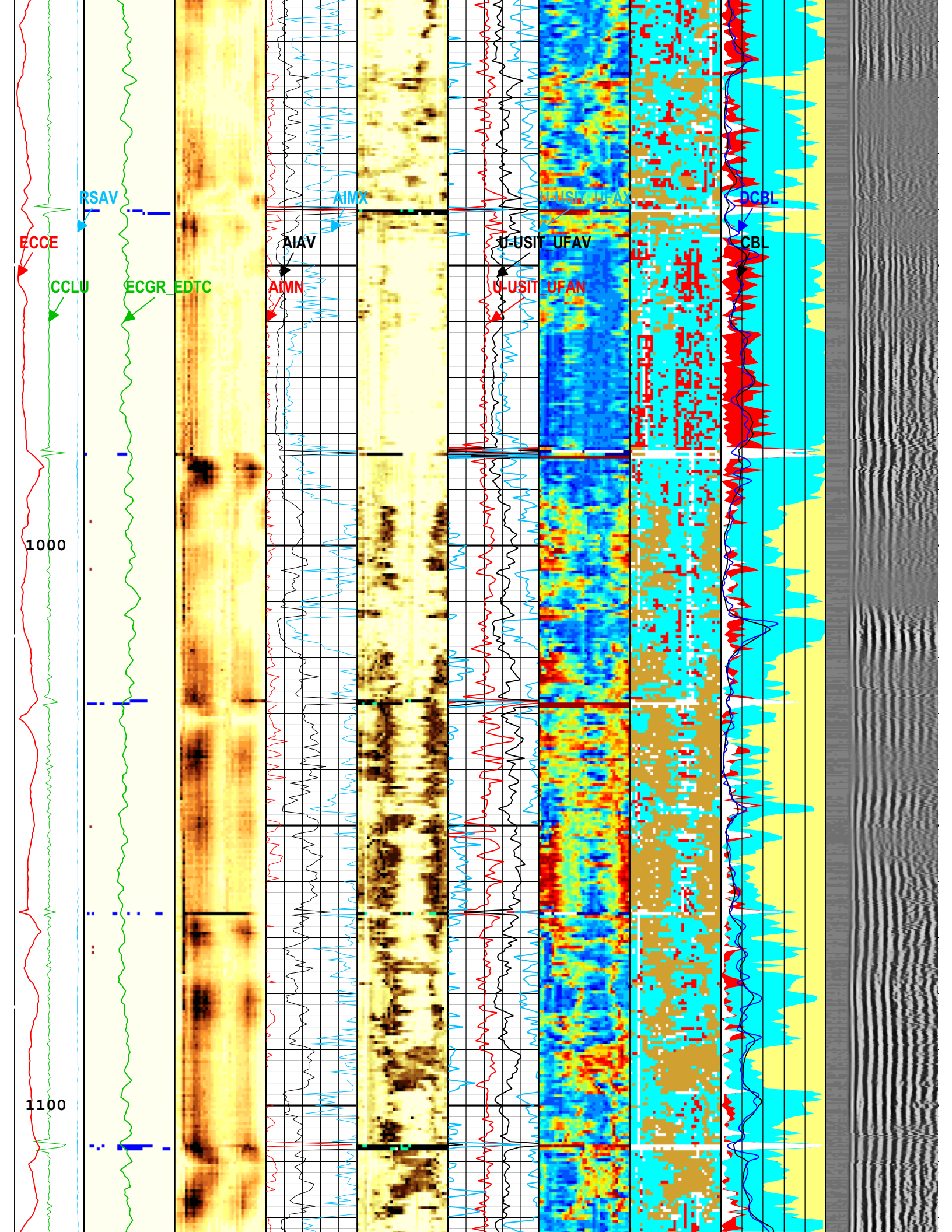
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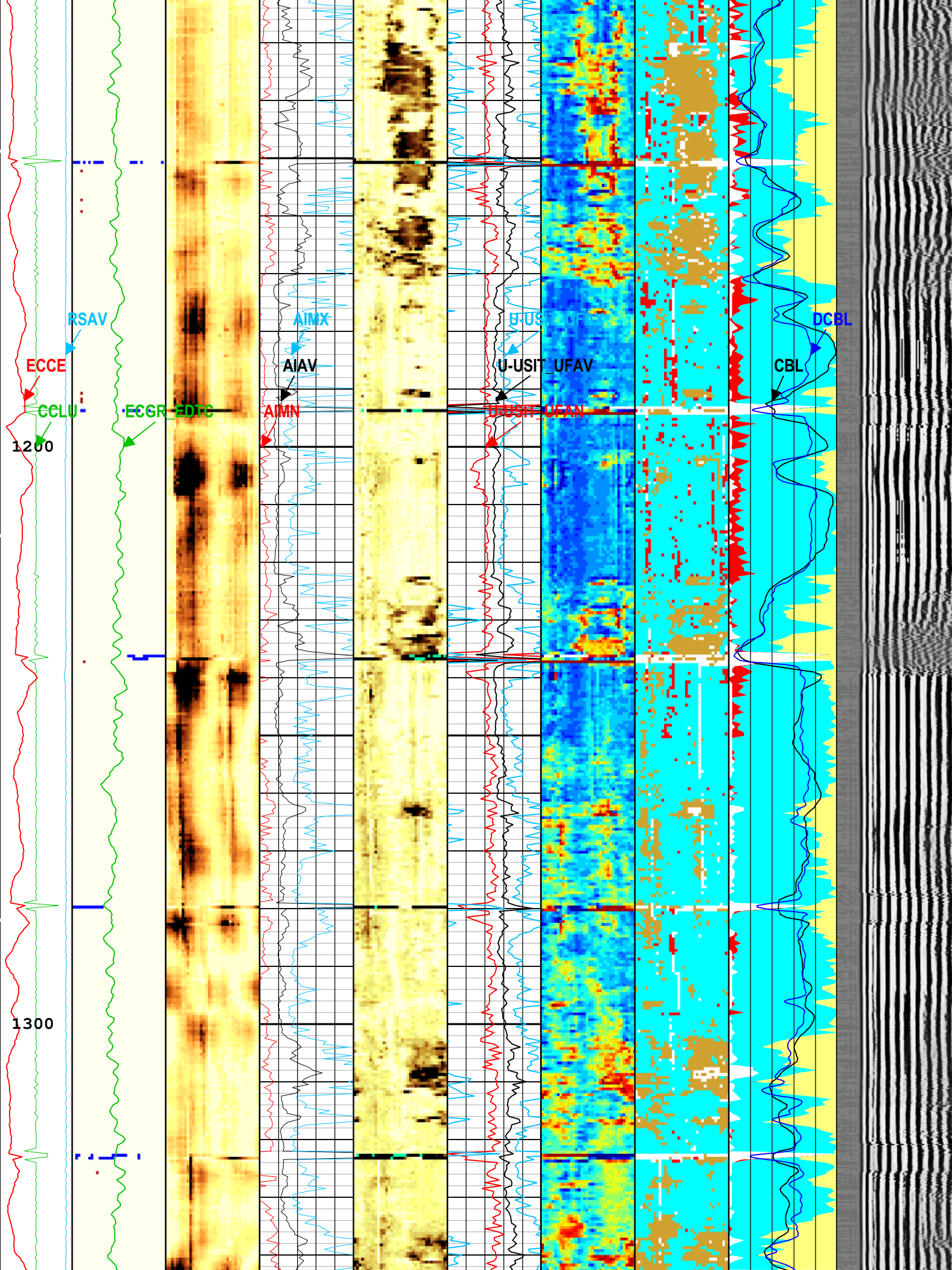
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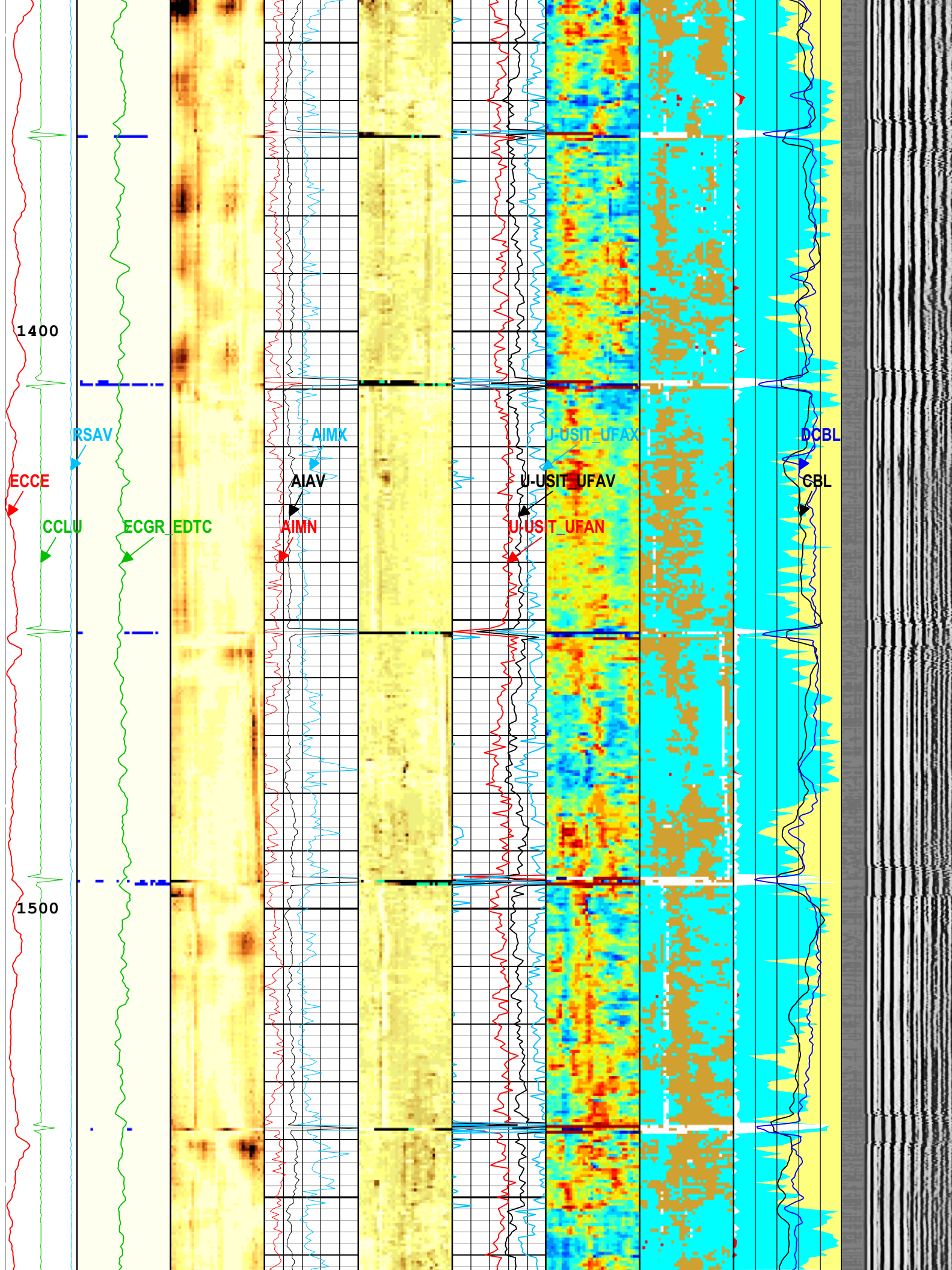
CBL

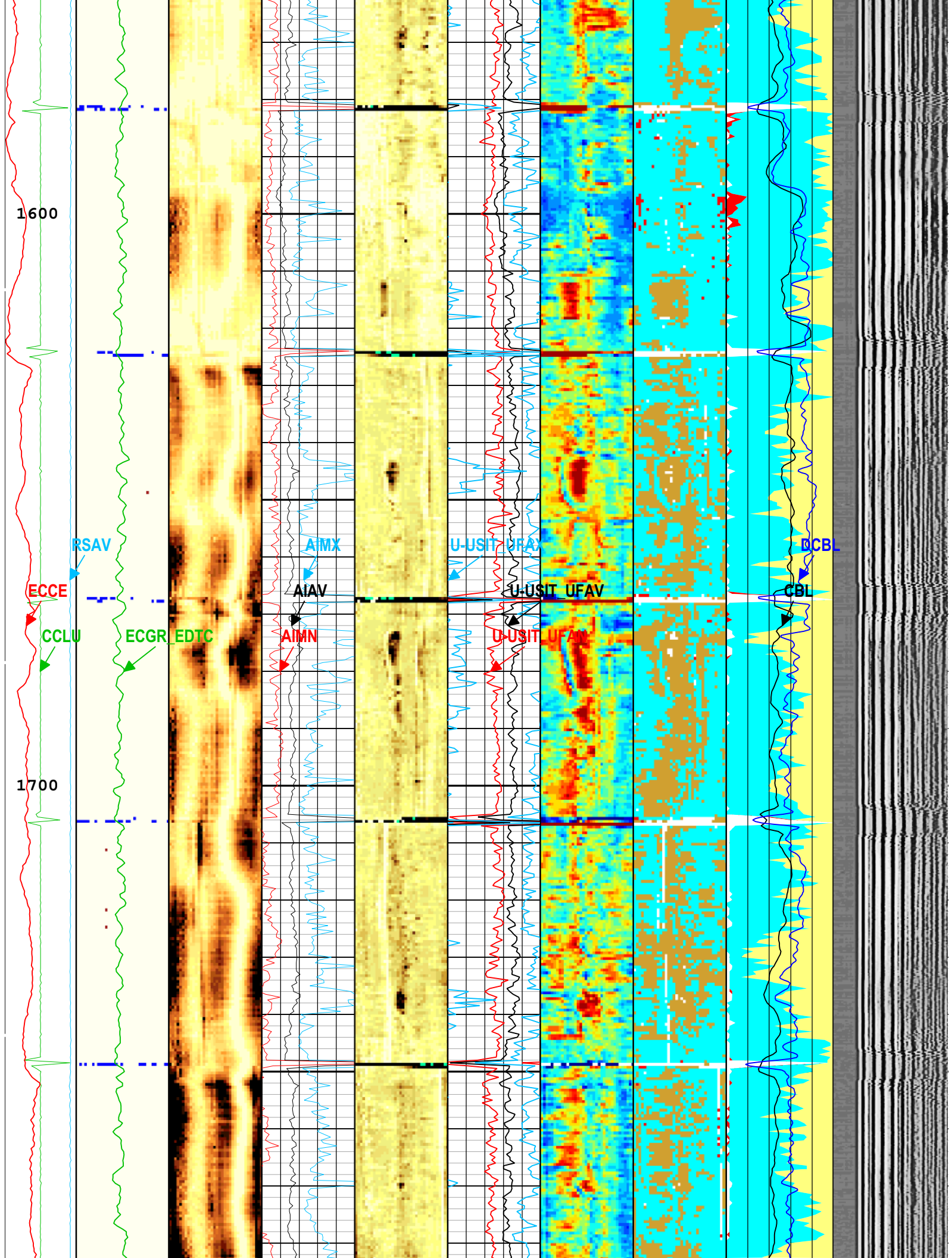
800

900





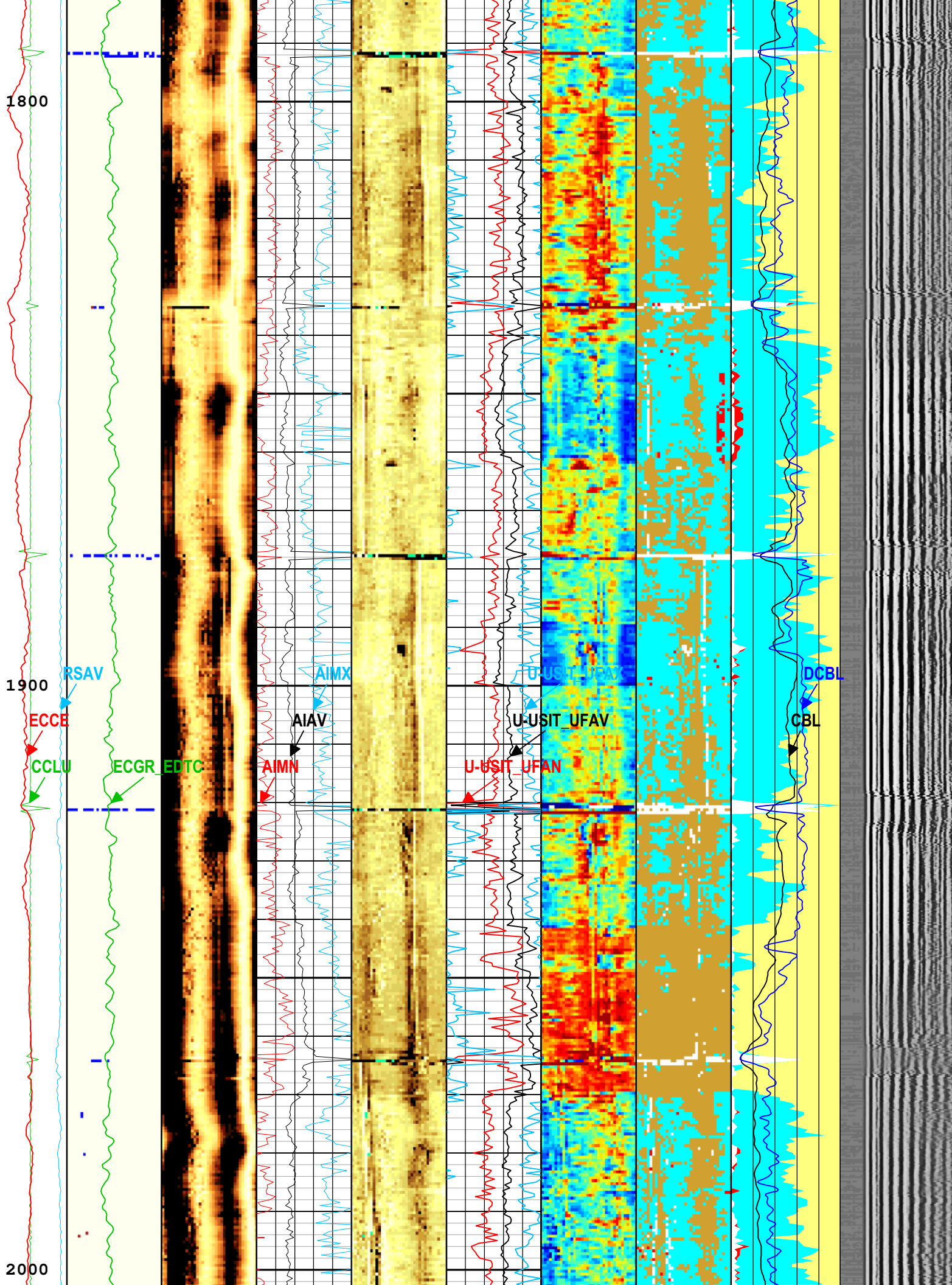




1800

1900

2000



RSAV

ECCE

CCLU

ECGR_EDTC

AIMN

AIAV

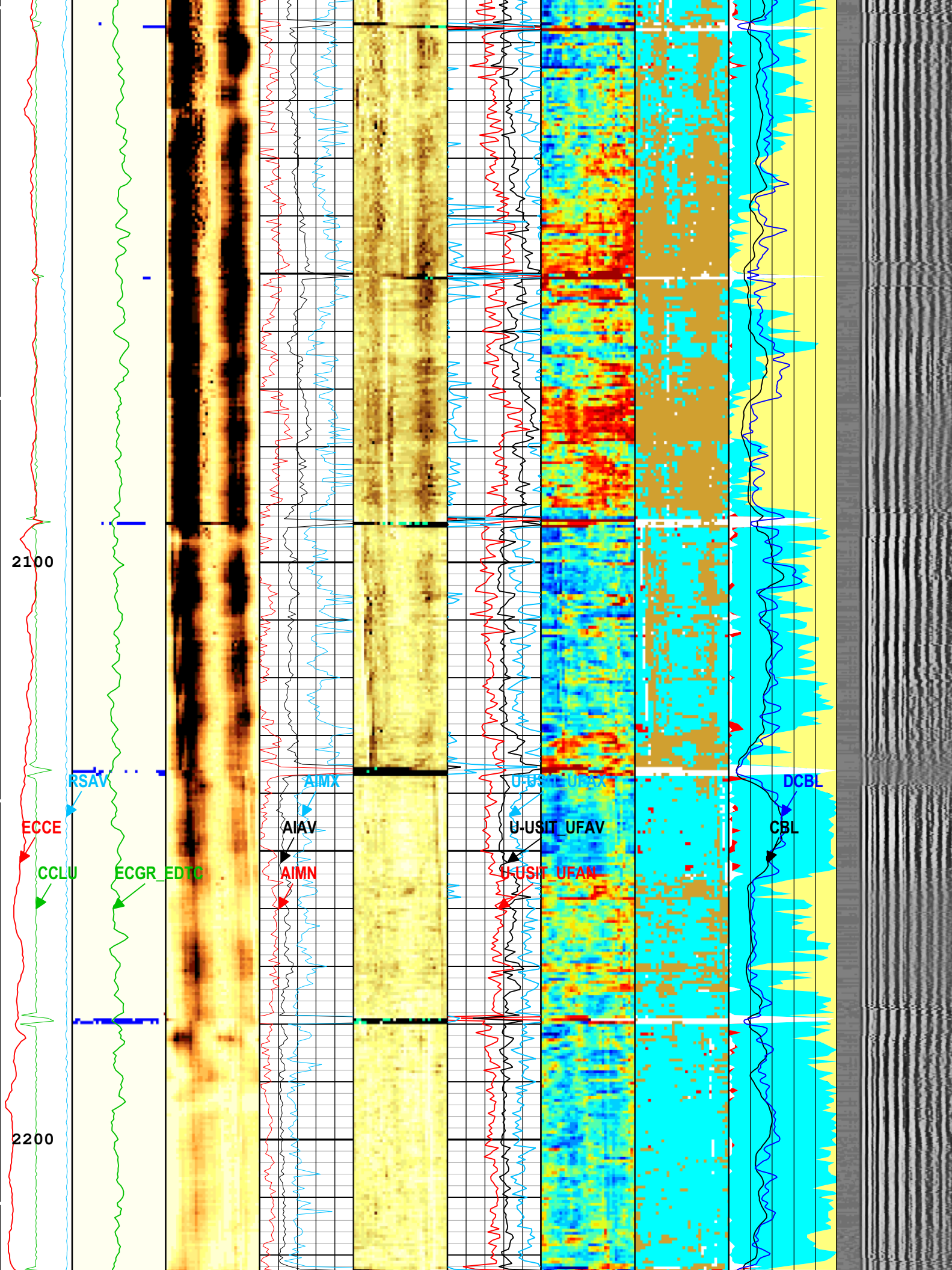
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U-USIT_UFAN

U-USIT_UFAV

DCBL

CBL



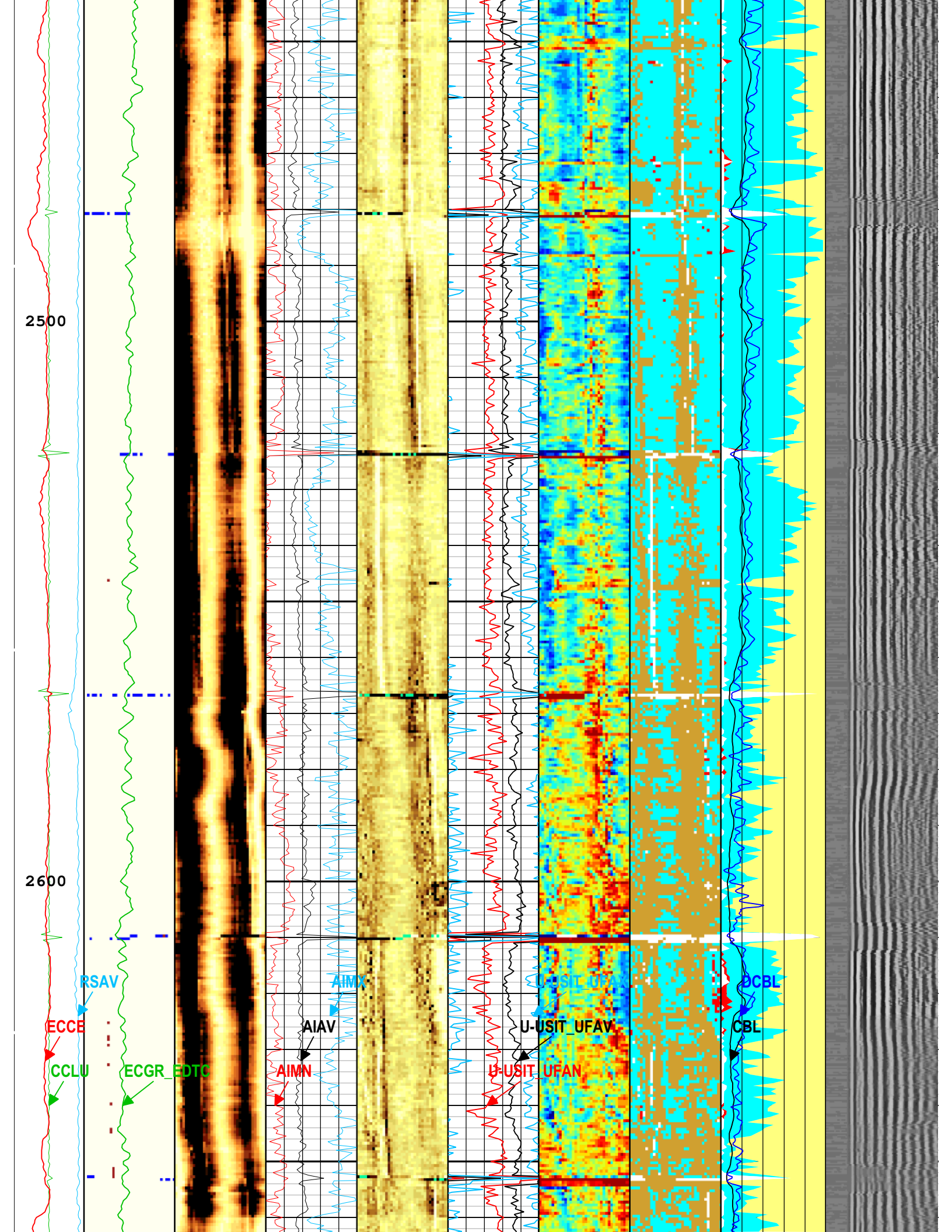
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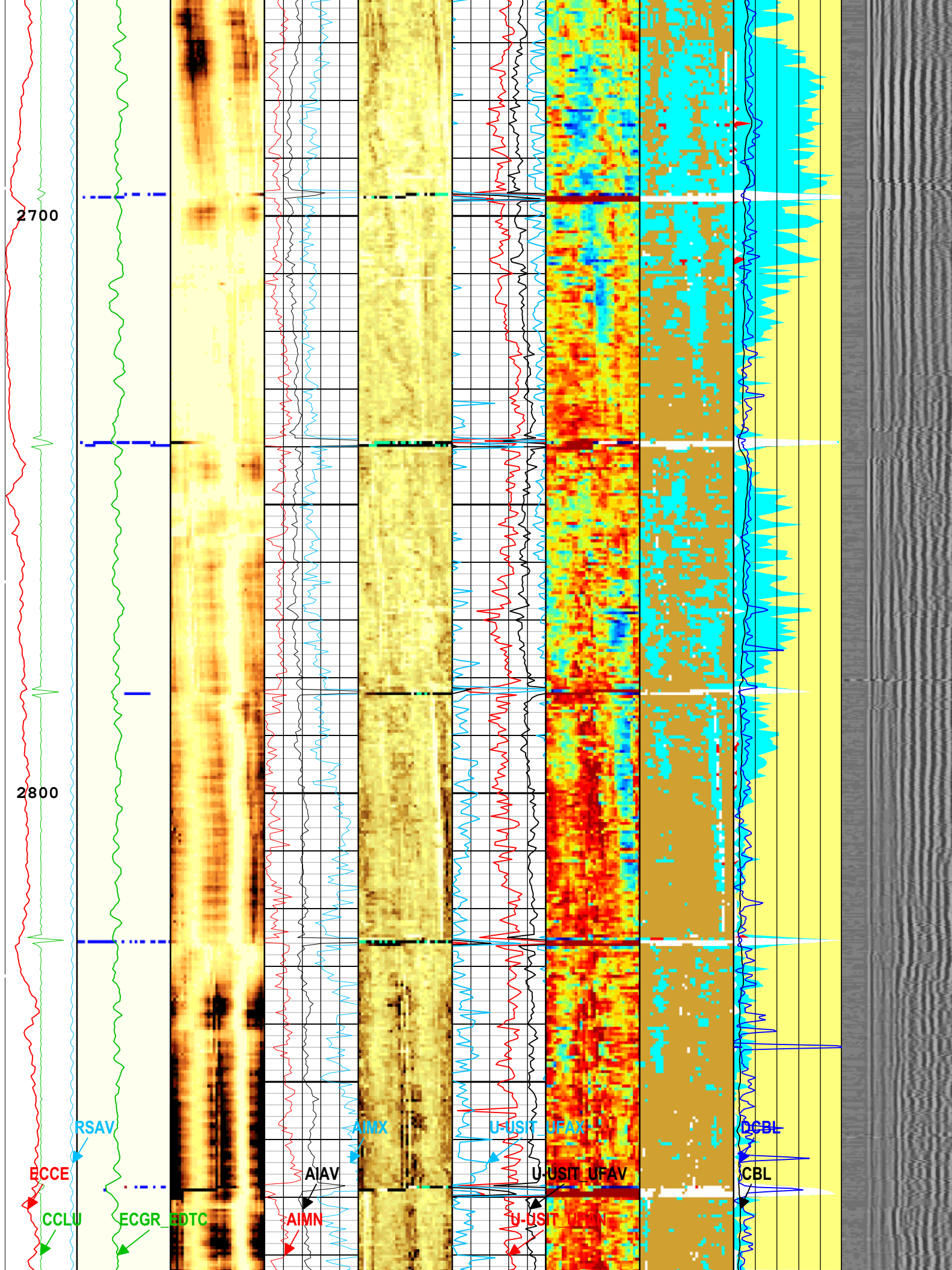
2600

RSAV
ECCE
CCLU
ECGR_EDTC

AIMN
AIAV
U-USIT_UFAN
U-USIT_UFAV

OCBL
CBL





2700

2800

ECCE

CCLU

RSAV

ECGR_EDTC

AIMN

AIMX

U-USIT

UFAV

U-USIT_UFAX

DCBL

CBL

2900

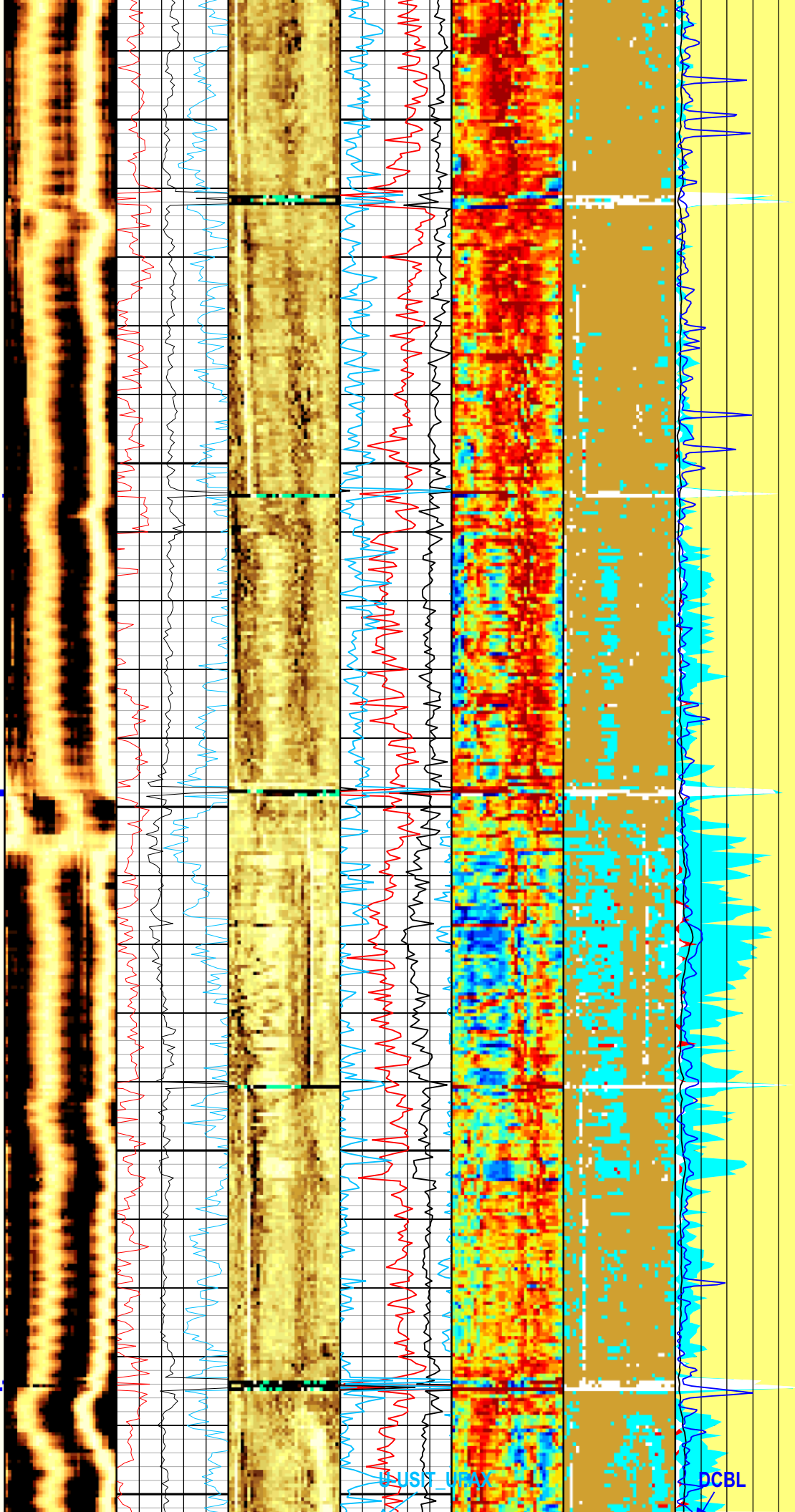
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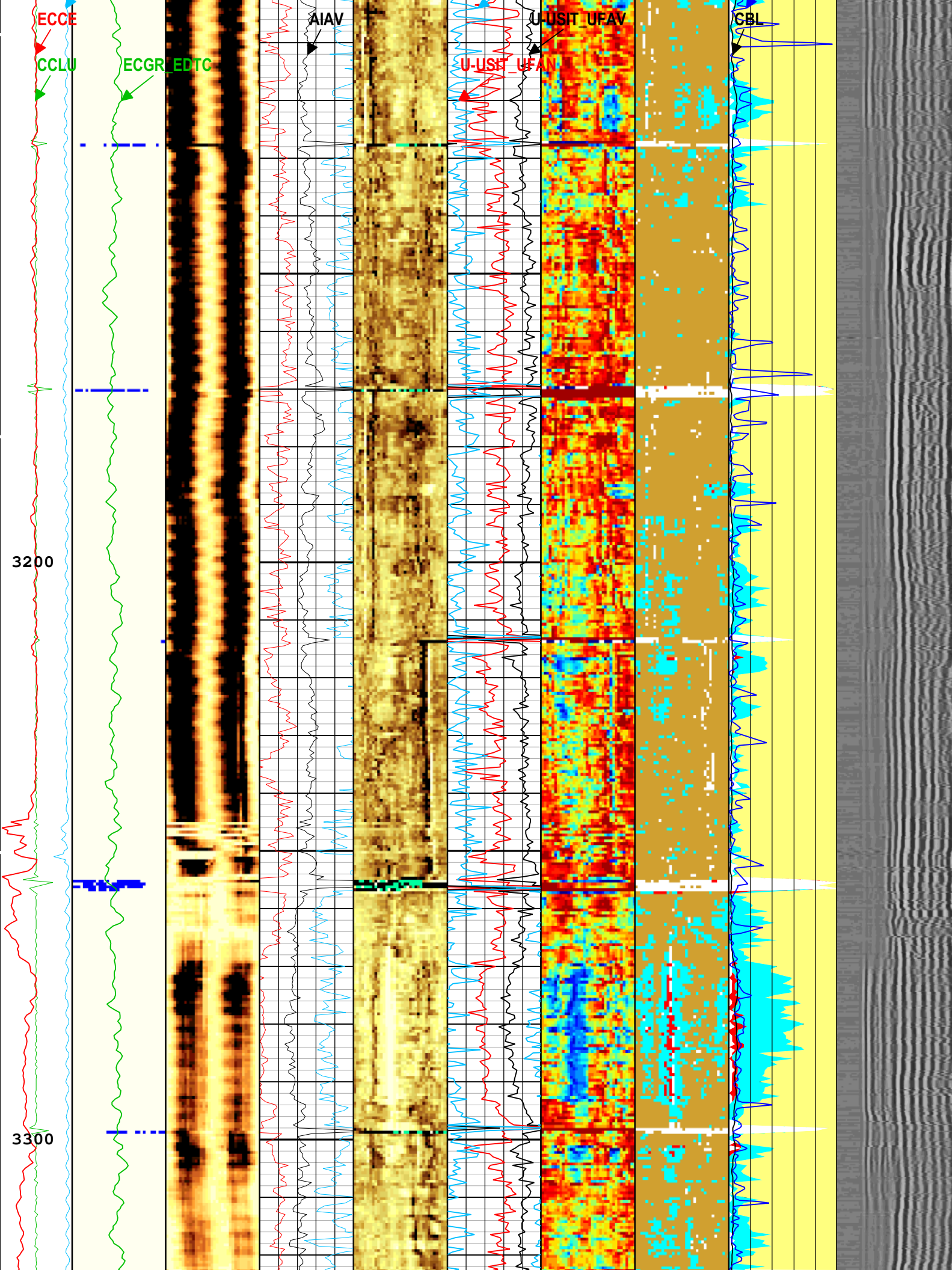
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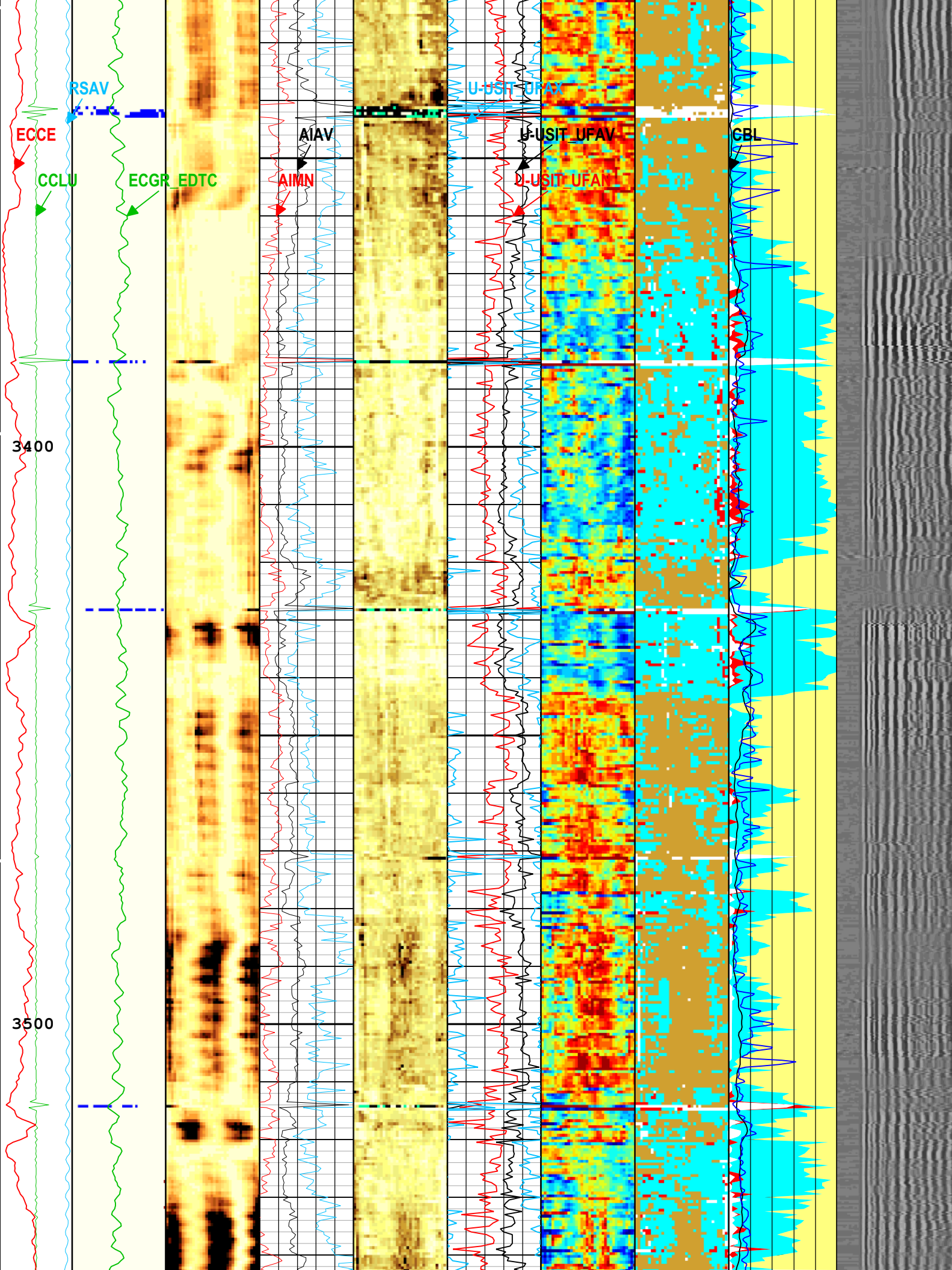
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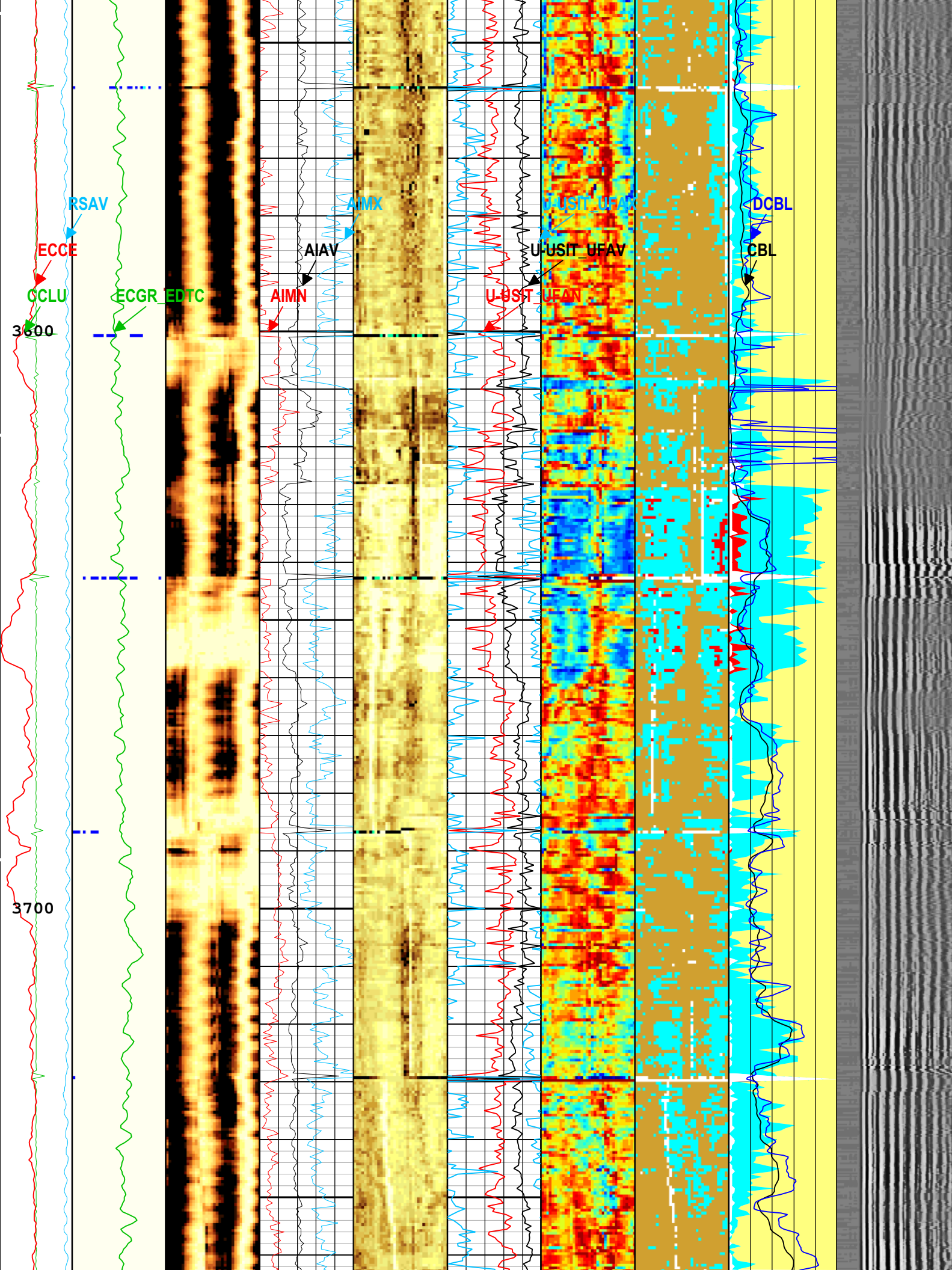
FLUST

DCBL









3800

3900

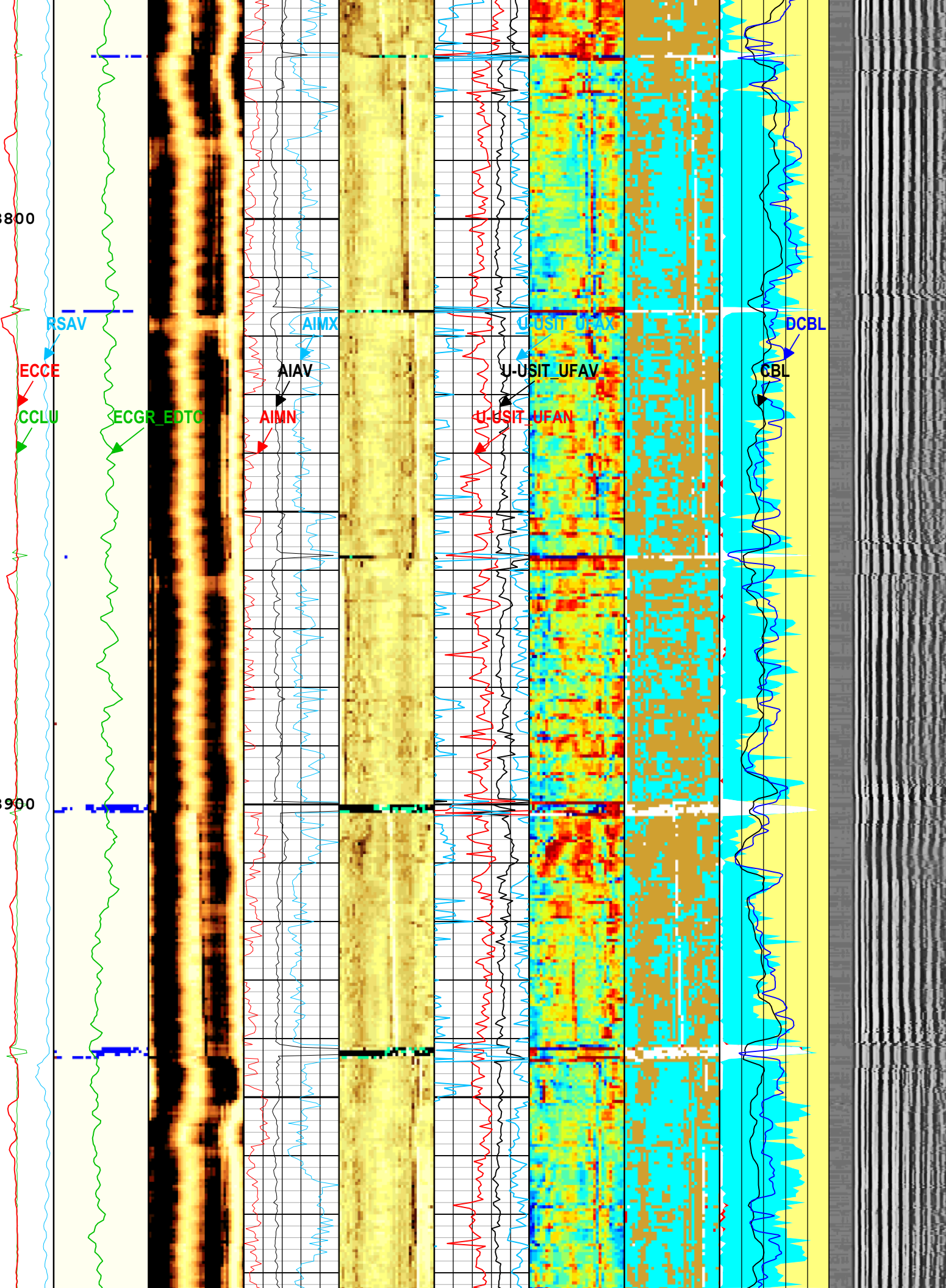
RSAV
ECCE
CCLU

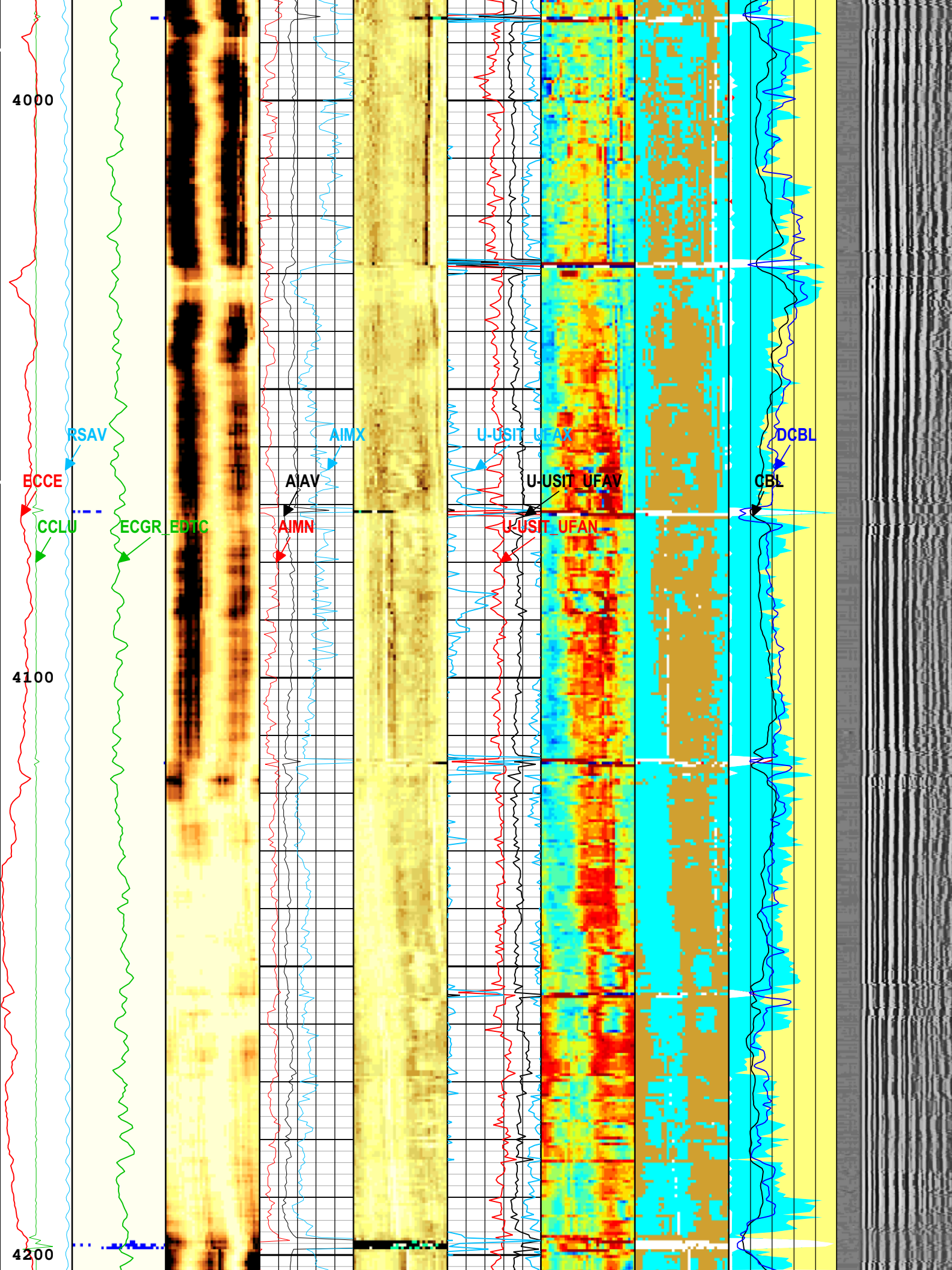
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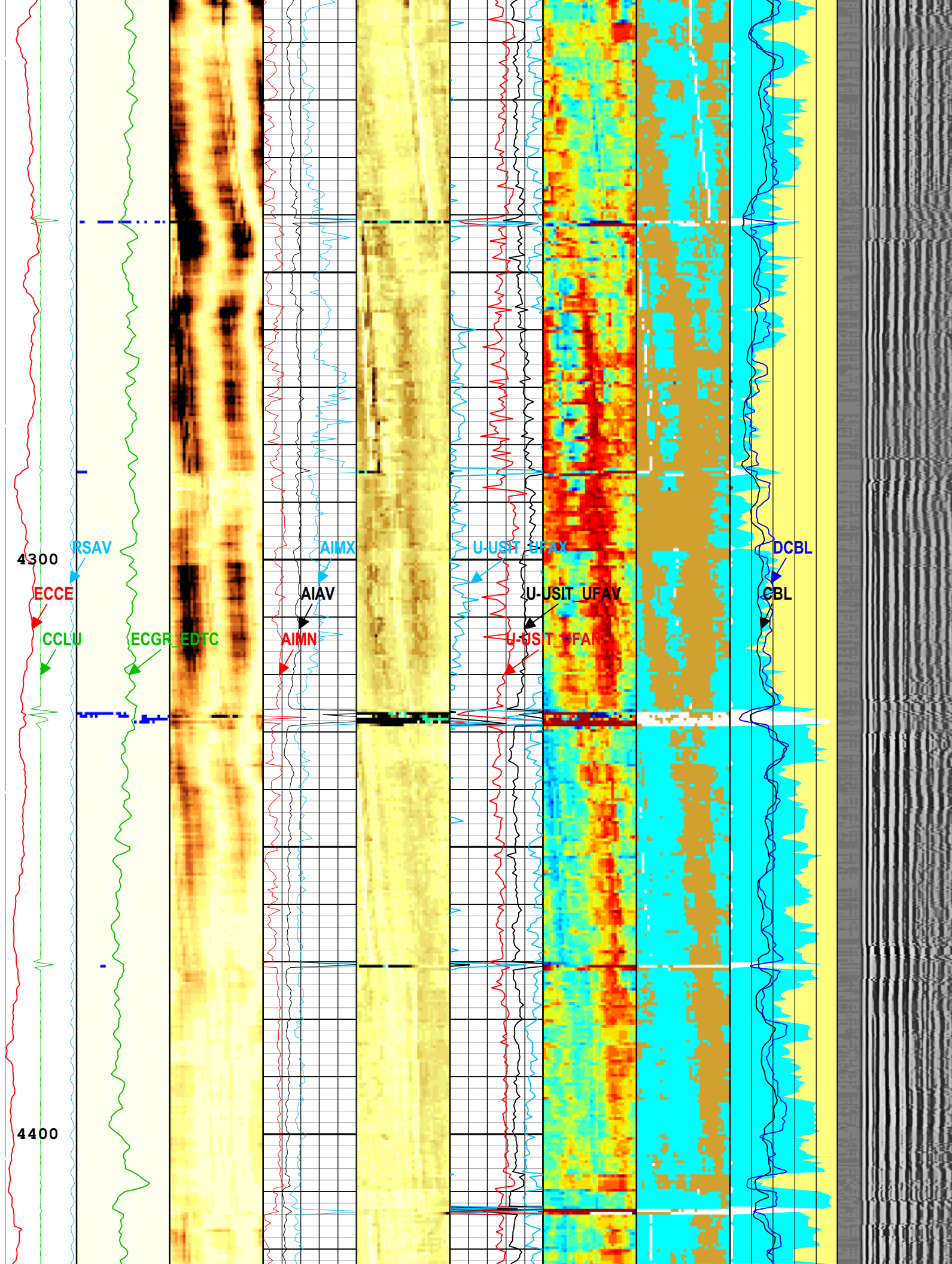
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AIAV
AIMN

U-USIT_UFAN
U-USIT_UFAV

DCBL
CBL







4500

4600

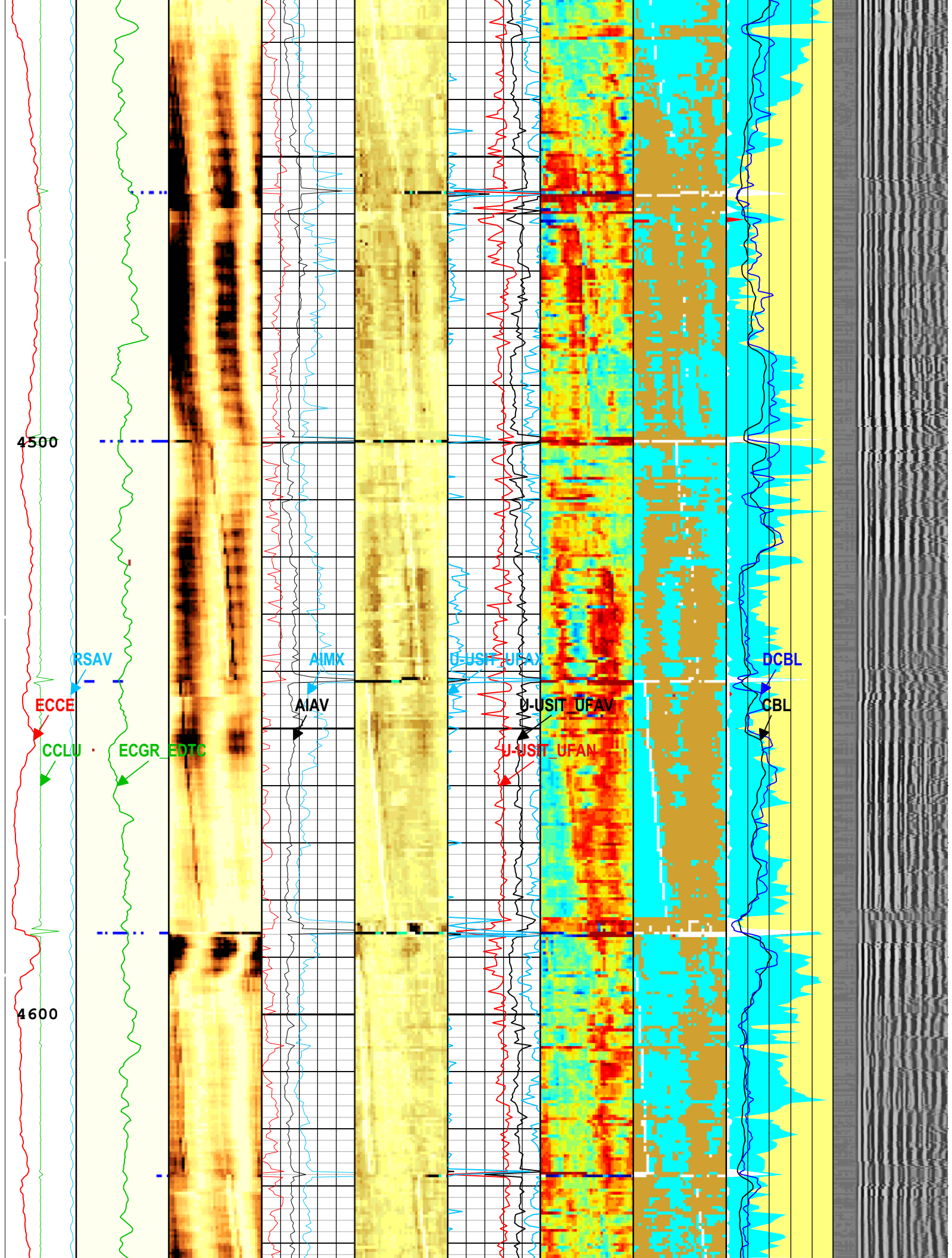
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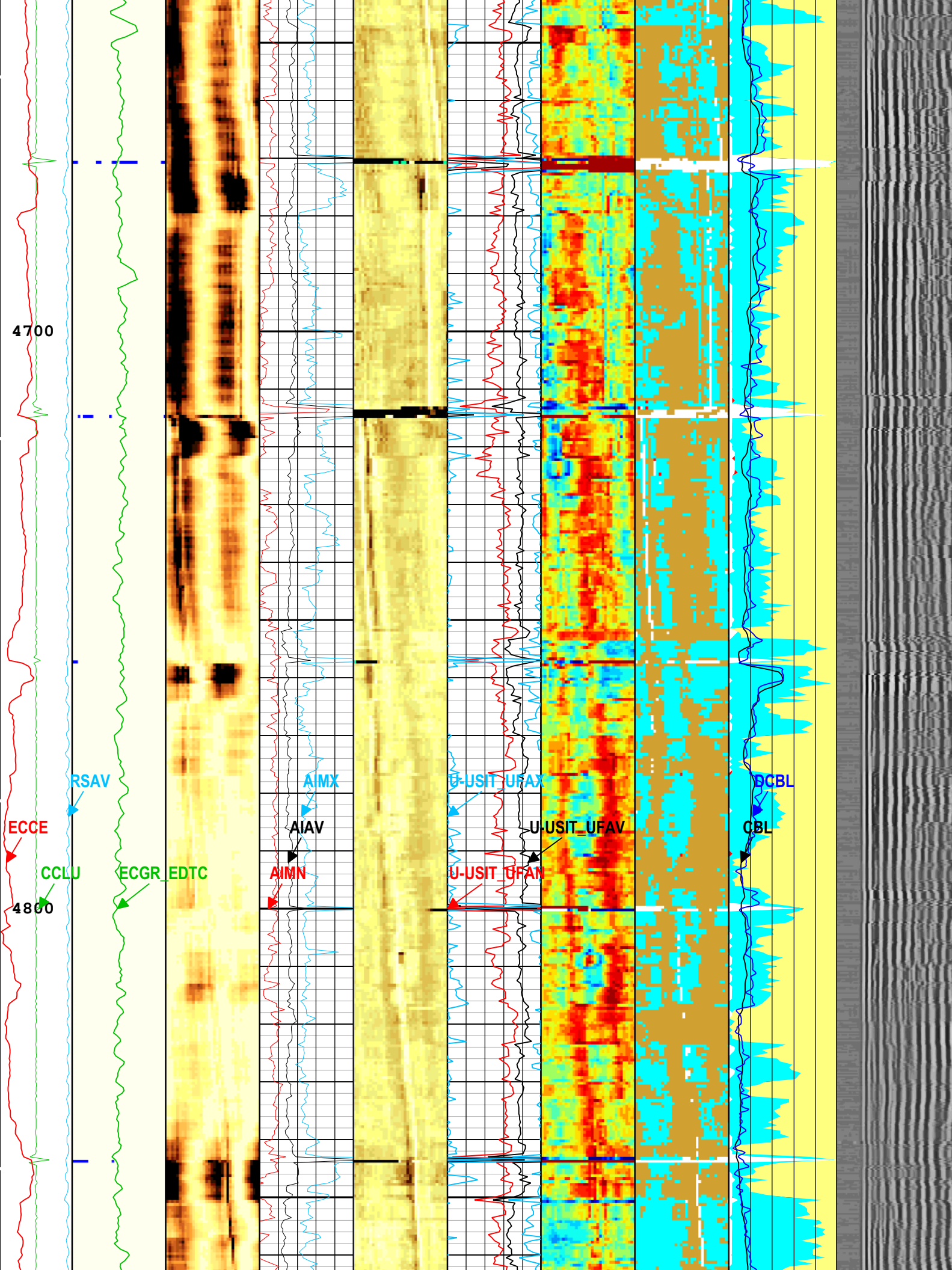
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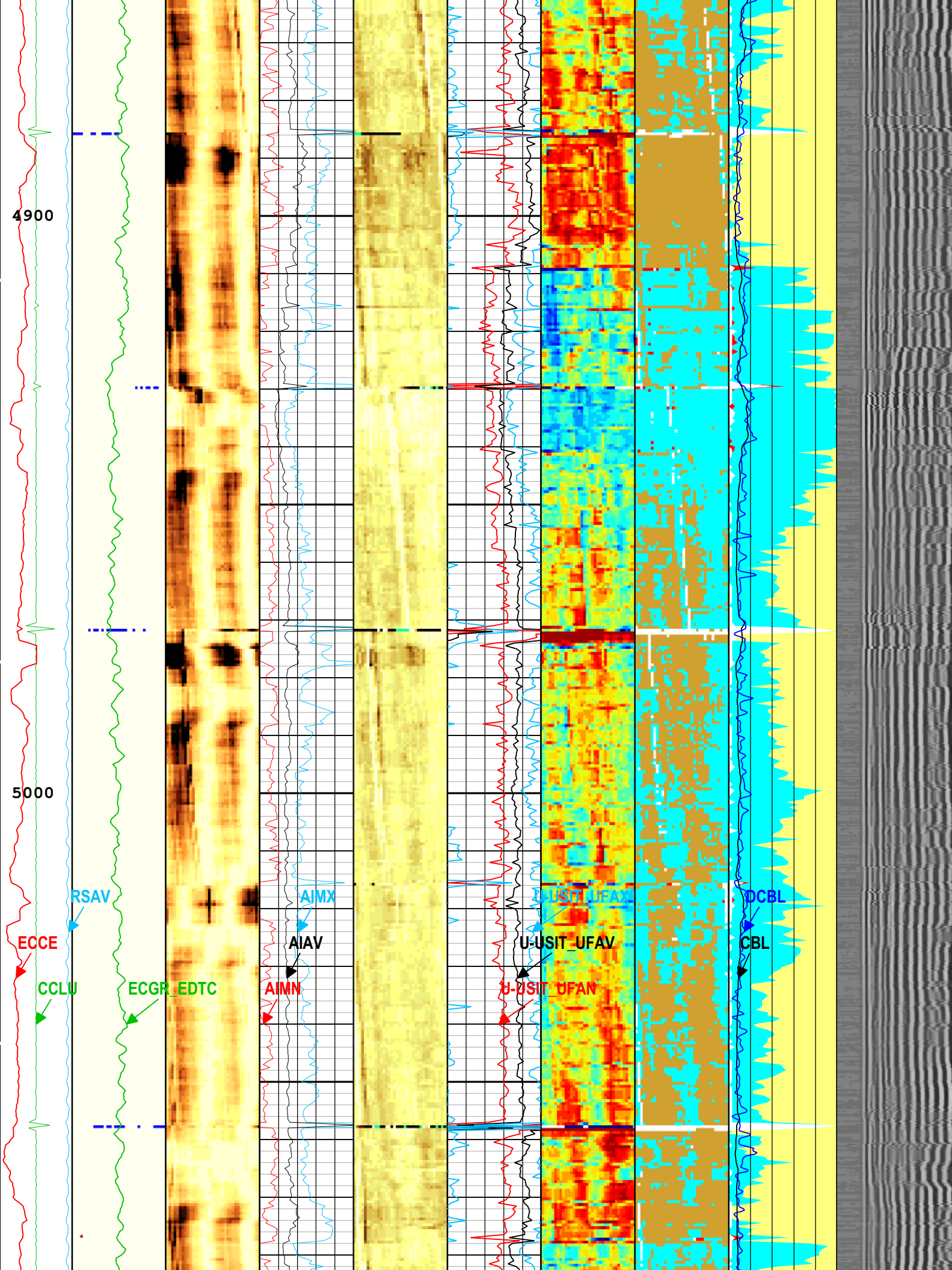
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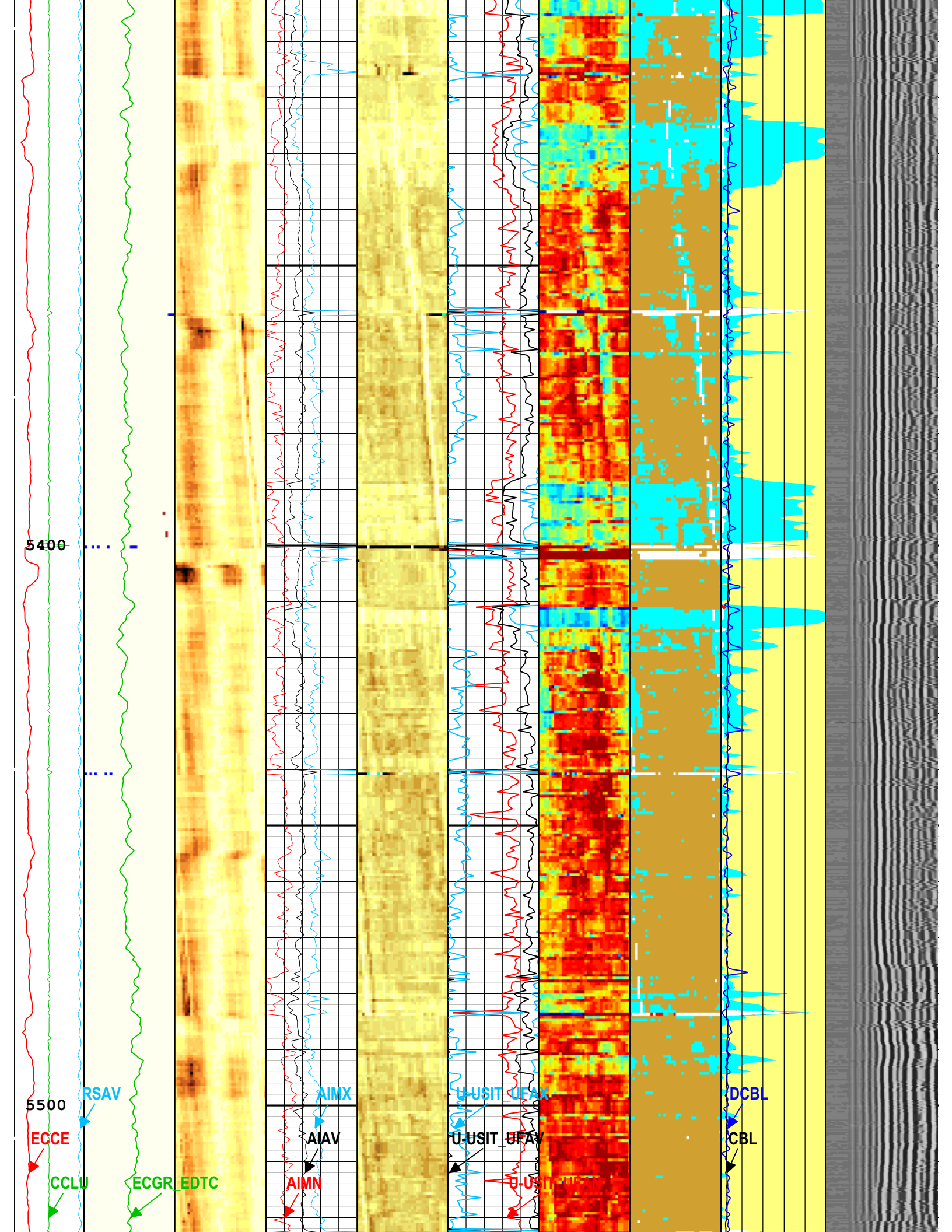
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U-USIT_UFAV
U-USIT_UFAN

DCBL
CBL









5600

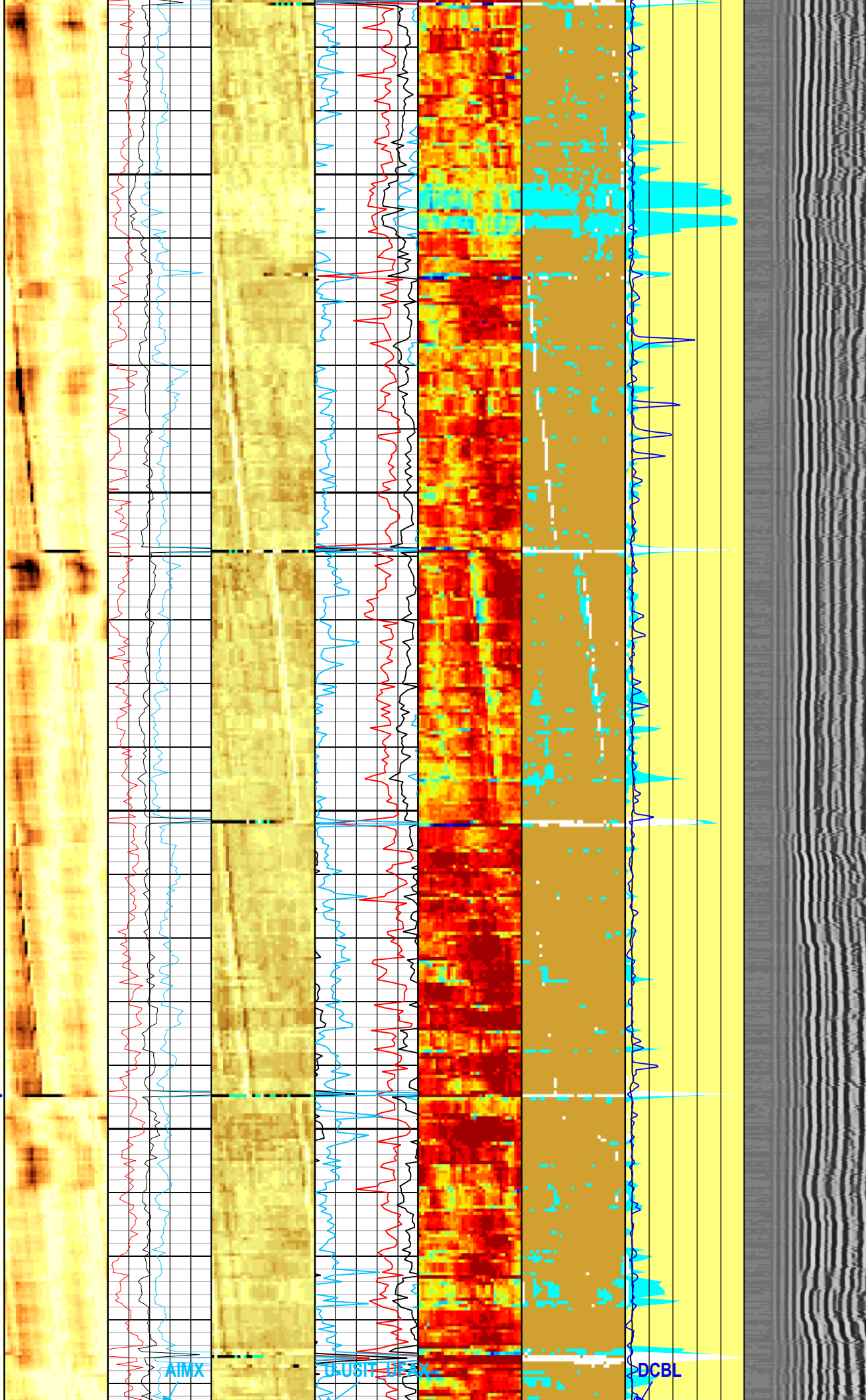
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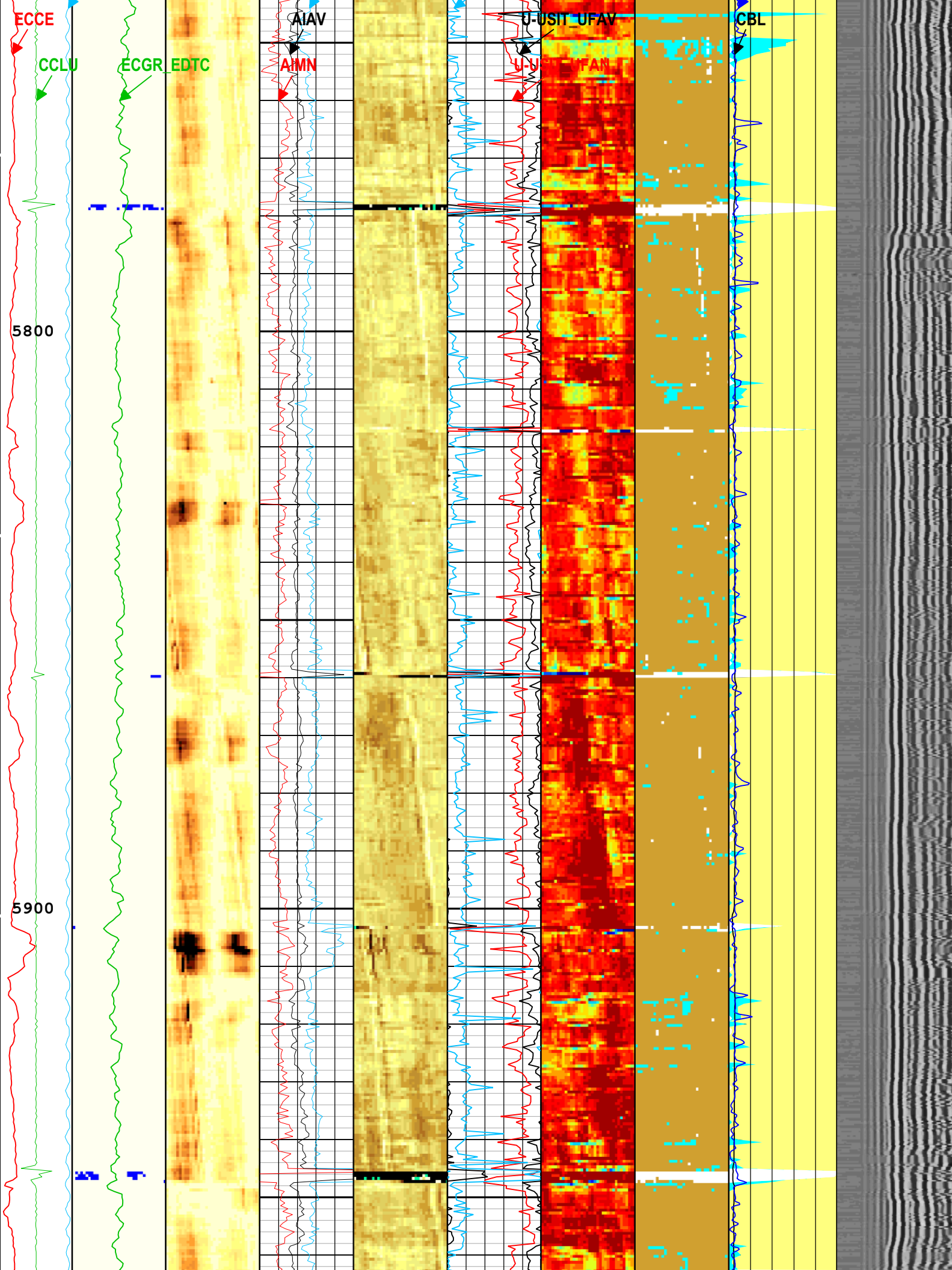
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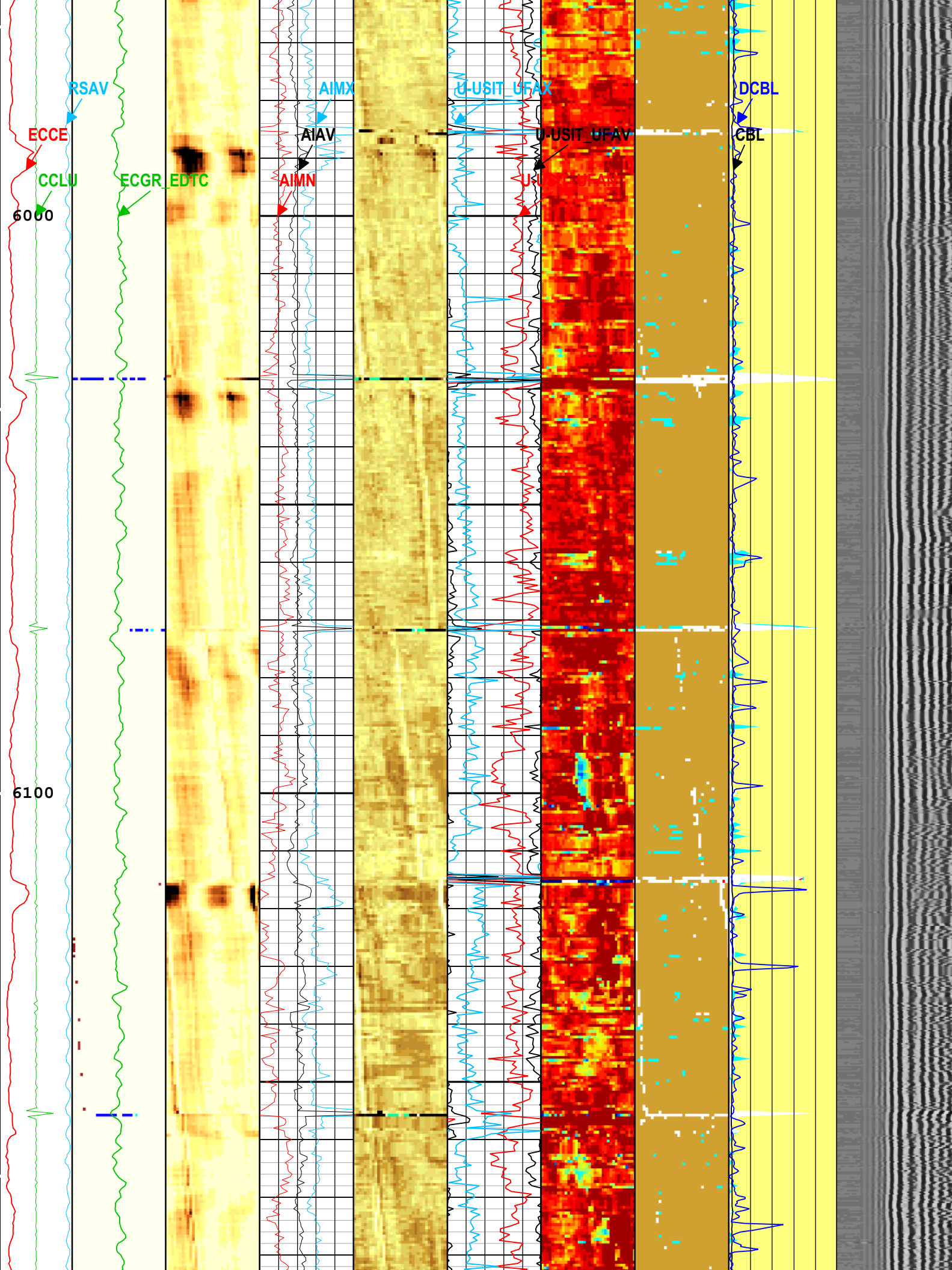
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LAUSH

DCBL







6200

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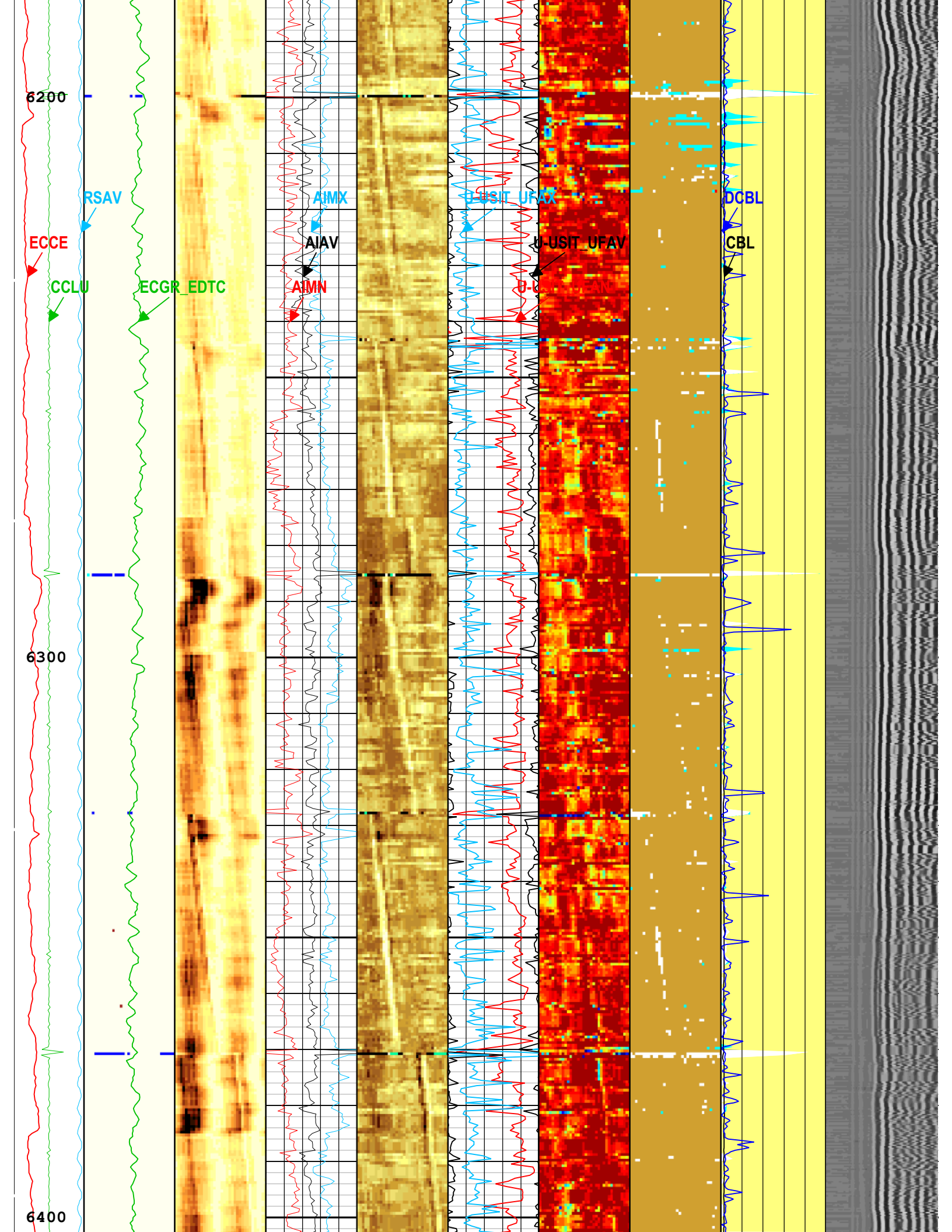
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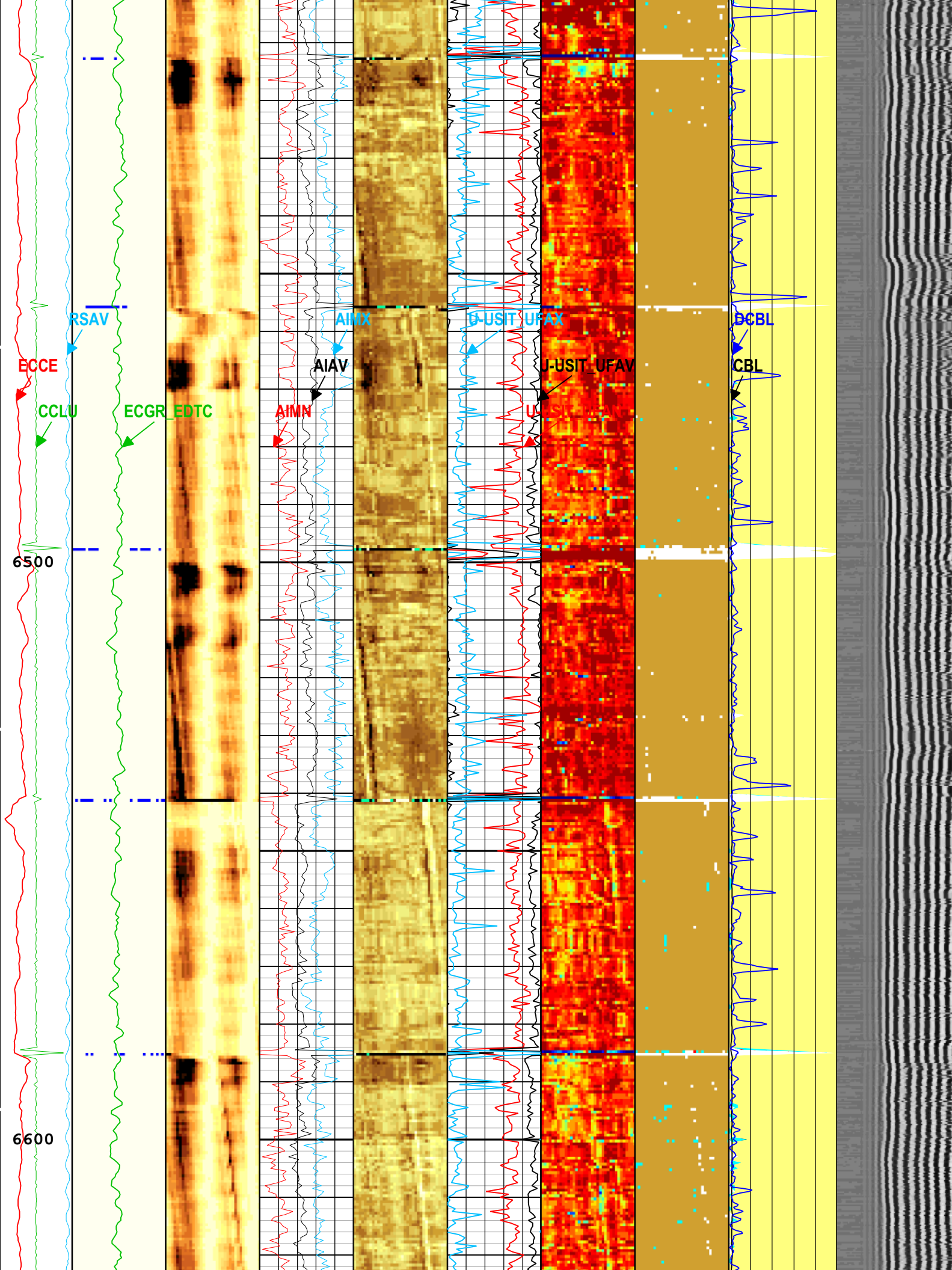
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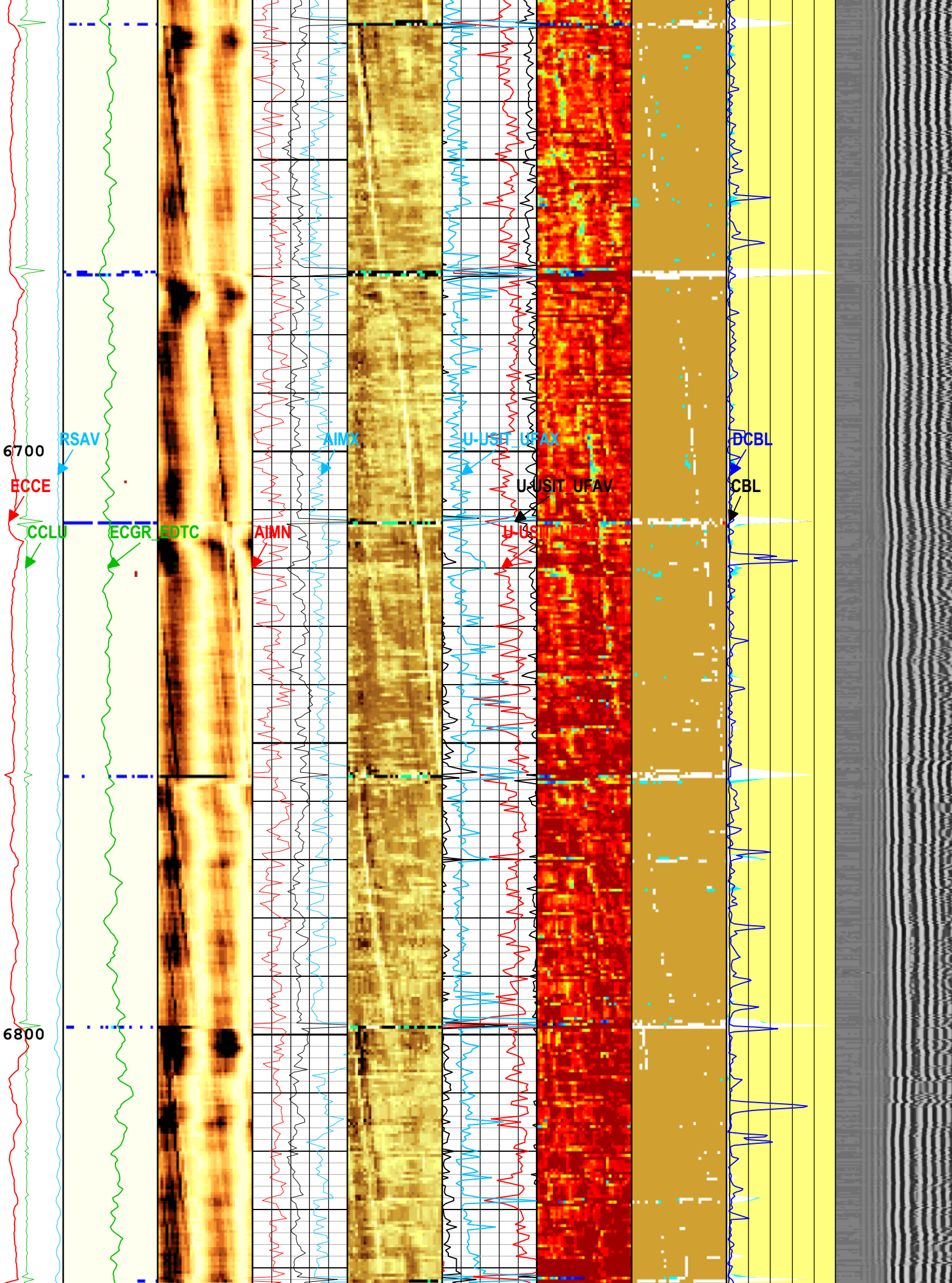
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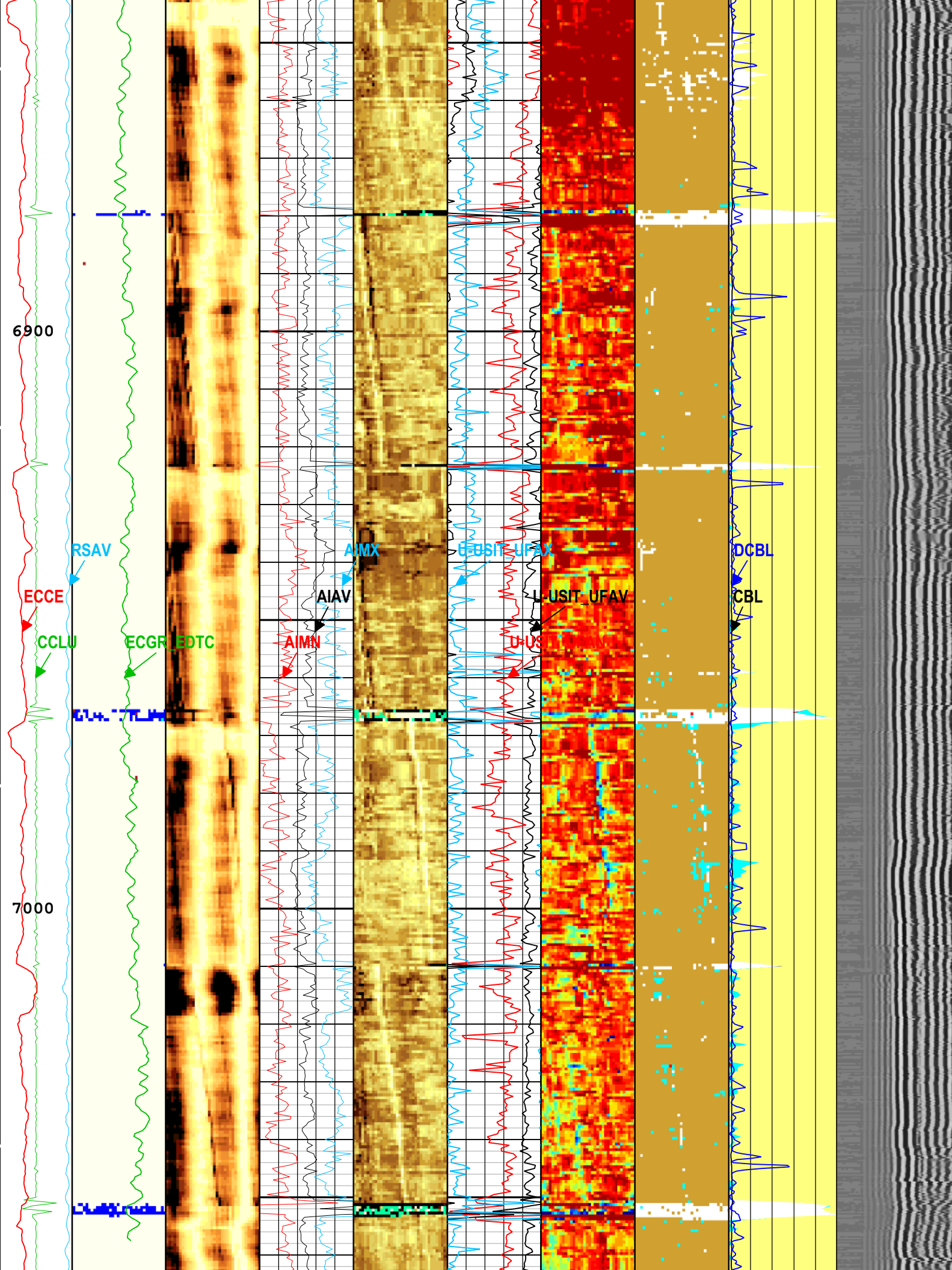
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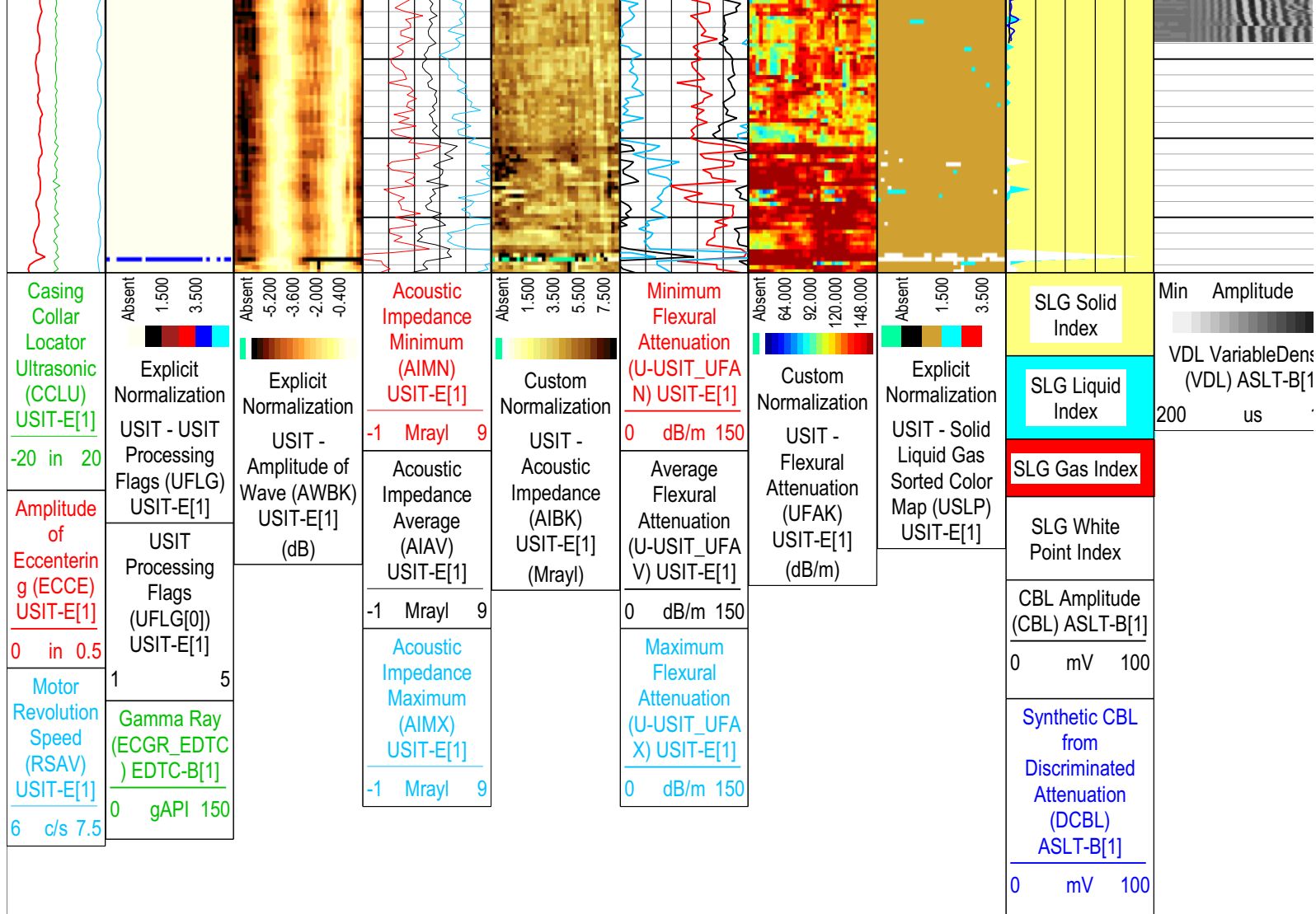
DCBL
 CBL











TIME_1900 - Time Marked every 60.00 (s)

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

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

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 22-Nov-2022 12:23:34

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBAF_D	CBL Adjustment Factor	ASLT-B	0.9	
CBLG	CBL Gate Width	ASLT-B	50	us
CBLO	Casing Bottom (Logger)	WLSESSION	8083	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	ASLT-B	80	mV
CDEN	Cement Density	USIT-E	0	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in

DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	ASLT-B	E1	
DFAD	Slim Sonic DFAD Computation Control	ASLT-B	Surface	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
FCF	CBL Fluid Compensation Factor	ASLT-B	1	
FD	Fluid Density	USIT-E	10	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO_CURR	Good Bond in Arbitrary Cement	ASLT-B	1.35	mV
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
IMAR	Image Rotation	USIT-E	Off	
MATT	Maximum Attenuation	ASLT-B	55.52	dB/m
MATT_CURR	Maximum Attenuation in Arbitrary Cement	ASLT-B	55.52	dB/m
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA	Minimum Sonic Amplitude	ASLT-B	0.49	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	ASLT-B	0.49	mV
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	1.13	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.13	
NFPI_L5	Near Free Pipe Sonic Amplitude for Lower Transmitter - Receiver 5	ASLT-B	0	
NFPI_U1	Near Free Pipe Sonic Amplitude for Upper Transmitter - Receiver 1	ASLT-B	0	
NMSG	Near Minimum Sliding Gate	ASLT-B	250	us
R42R	R4 to R2 Sensitivity Ratio	ASLT-B	0	dB/m
RUN_SNUM	Run Sequence Number	WSDRUN	4	
SFPI	Short Free Pipe Sonic Amplitude for Lower Transmitter - Receiver 6	ASLT-B	0	
SGAD	Sliding Gate Status	ASLT-B	Off	
SGDT	Sliding Gate Delta-T	ASLT-B	57	us/ft
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	125	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	85	%
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	-14	dB/m
UFSFLT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.51	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

ONEDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	12.25	28	618
BS	7.875	618	7097

All depth are actual.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	54	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4010	ft/h
MODE	SSLT Firing Mode	ASLT-B	Attenuation	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDM	SSLT VDL Display Mode	ASLT-B	R5	
VRES	Vertical Resolution	USIT-E	6.0 in	

ONETime Zoned Parameters

Pass Log[3]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	90	15-Nov-2022 22:06:56	15-Nov-2022 22:10:50	7097.84	6864.84
EMXV	100	15-Nov-2022 22:10:50	15-Nov-2022 22:34:39	6864.84	6275.64

Pass Log[4]:Up

EMXV	100	15-Nov-2022 22:40:21	16-Nov-2022 00:14:08	6275.63	55.84
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All depth are at tool zero.

XYZ

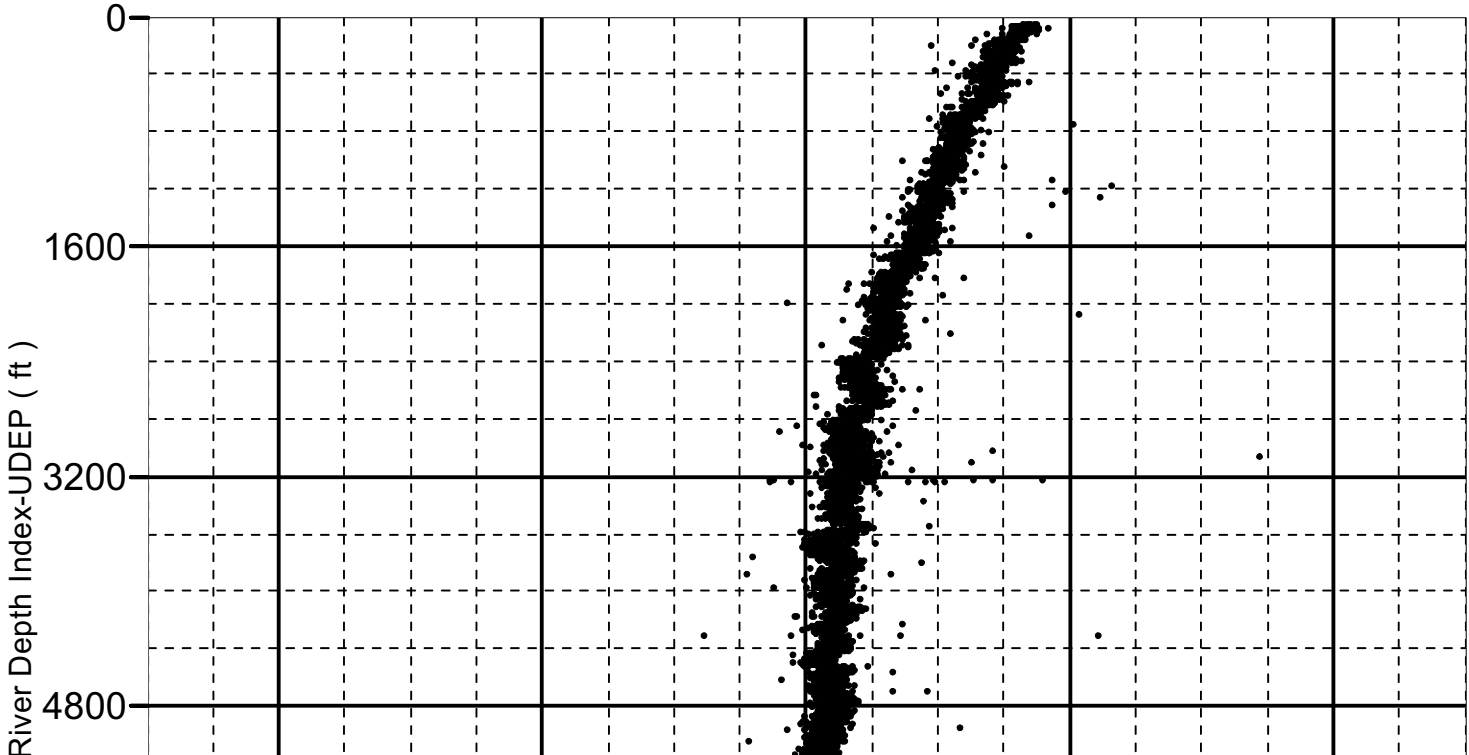
Company:Occidental Petroleum Corporation Well:Sherwood L Federal #30-29D
Composite 1:S038

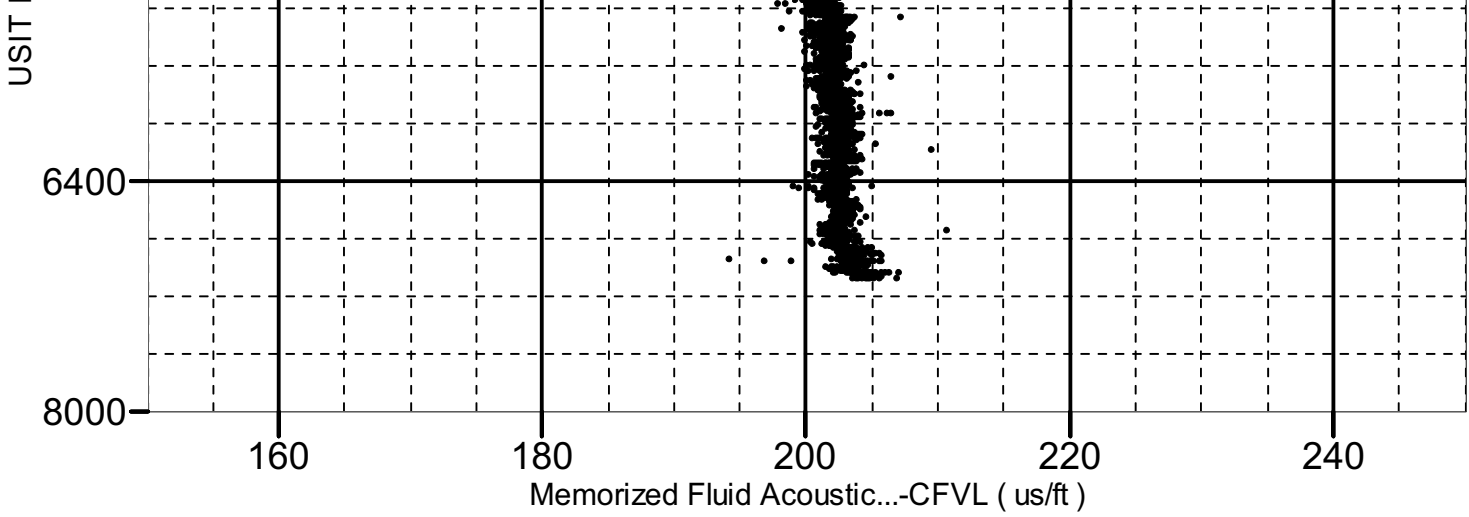
Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 67.00 to 7097.00 ft

● CFVL-UDEP



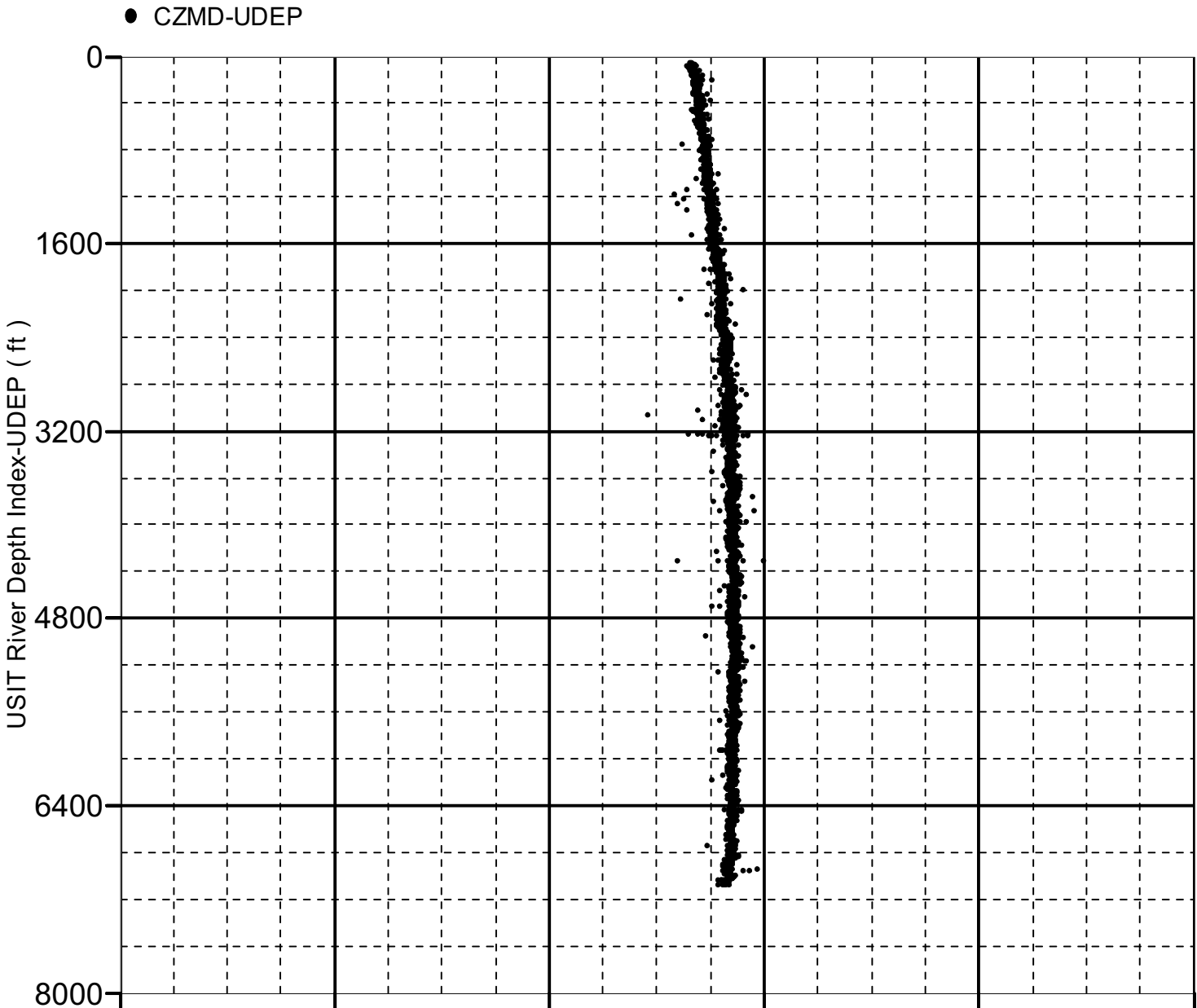


XYZ Company: Occidental Petroleum Corporation Well: Sherwood L Federal #30-29D Composite 1: S038

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 67.00 to 7097.00 ft



0.0

0.6

1.2

1.8

2.4

3.0

Acoustic Impedance of Mu...-CZMD (Mrayl)

Company: Occidental Petroleum Corporation

Schlumberger

Well: Sherwood L Federal #30-29D

Field: Wattenberg

County: Weld

State: Colorado

Isolation Scanner

Cement Bond Log

Gamma Ray - CCL