

Company: Noble Energy Inc.

Well: EMMY H25-724

Field: DJ BASIN

County: Weld State: Colorado

UltraSonic Summary Print

Weld
DJ BASIN
SW SE SEC:25 TWN:3N RNG: 65W
EMMY H25-724
Noble Energy Inc.

Location:		SW SE SEC:25 TWN:3N RNG: 65W	Elev.:	K.B.	4835.00 ft
Permanent Datum:				G.L.	4805.00 ft
Log Measured From:		Ground Level			
Drilling Measured From:		Kelly Bushing	30.00 ft		above Perm.Datum
API Serial No.	Section:	Township:	Range:		
05-123-46969	25	3N	65W		

Logging Date	02-Nov-2018
Run Number	ONE
Depth Driller	17338.00 ft
Schlumberger Depth	6720.00 ft
Bottom Log Interval	6720.00 ft
Top Log Interval	45.00 ft
Casing Fluid Type	BRINE
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.50 in
From	1975.00 ft
To	17338.00 ft
Casing/Tubing Size	5.5 in
Weight	20 lbm/ft
Grade	P110
From	0.00 ft
To	17322.90 ft
Max Recorded Temperatures	223 degF
Logger on Bottom	02-Nov-2018 13:30:00
Unit Number	2377
Recorded By	Justin Ray
Witnessed By	Bill Mansfield

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.

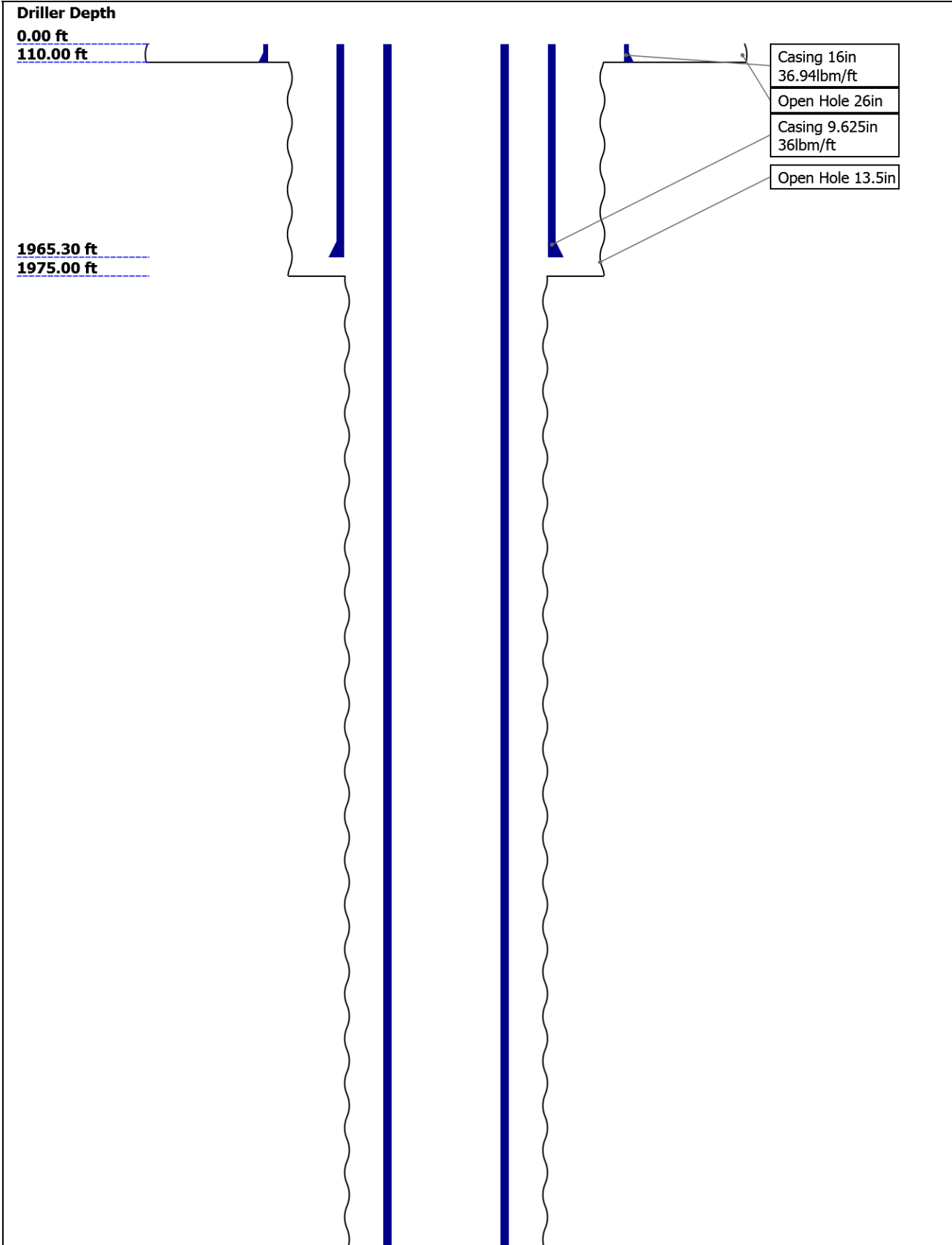
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in)
13. Tail

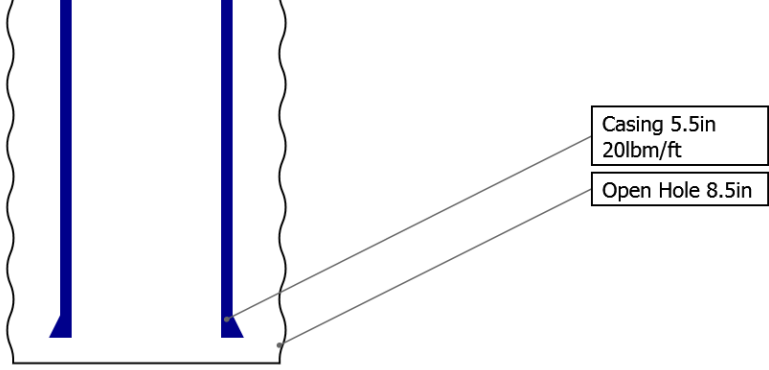
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Well Sketch



17322.90 ft

17338.00 ft



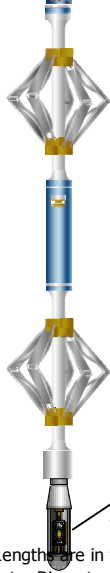
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	0	110	1975			
Top Logger (ft)	0	110	1975			
Bottom Driller (ft)	110	1975	17338			
Bottom Logger (ft)	110	1975	17338			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	36.94	36	20			
Inner Diameter (in)	15.572	8.921	4.778			
Grade	N/A	J55	P110			
Top Driller (ft)	0	0	0			
Top Logger (ft)	0	0	0			
Bottom Driller (ft)	110	1965.3	17322.9			
Bottom Logger (ft)	110	1965.3	17322.9			

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks	
<div><div><div>Equip nameLength</div><div>LEH-QT29.54</div><div>LEH-QT</div></div><div><div>EDTC-B:9316</div><div>EDTH-B:9373</div><div>EDTG-A:79527</div><div>EDTC-B:9316</div></div><div><div>AH-184[2]</div><div>AH-184[1]</div><div>USIT-E:1725</div><div>ECH-MFA:1991</div><div>USAC-A:1725</div><div>USAC-A:10</div></div></div> <div></div> <div><div>MP nameOffset</div><div>CTEM22.56</div><div>ACCZ0.00</div><div>HV0.00</div><div>Gamma20.69</div><div>Ray</div><div>TelStatu19.56</div><div>s5965</div><div>3763</div></div>	Toolstring ran as per tool sketch				
	Gemcos, boosters, and two knuckles ran for tool centralization				
	BHT: 223 Deg F				
	Main pass ran with 2500 PSI. Repeat pass ran with 0 PSI				
	Thank you for choosing Schlumberger				

USIS-A:18
26
USSC-B:99
2
USRS-AB:
373
USI-SENS
OR:1064
USI-TX



USI Sen 0.37
sor
TOOL_ZERO
Head Fe
nsion

Length in ft
Maximum Outer Diameter = 5.000 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

Length

24000.00 ft

Conveyance Type

Wireline

Rig Type

CRANE

ONE:Depth Control Parameters

Log Sequence

First Log In the Well

Rig Up Length At Surface

Rig Up Length At Bottom

Rig Up Length Correction

Stretch Correction

1.20 ft

Tool Zero Check At Surface

Depth Control Remarks

All Schlumberger depth control procedures followed

IDW used as primary depth control device

Z-Chart used as secondary depth control device

Log corrected to short joint at 6288.3-6299.3 FT

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[7]:Up	6726.11	44.80

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
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Mud Impedance = "FreePipe Norm."
Free Pipe normalization zone is : 14.05m(46.09ft) to 23.69m(77.72ft)
MUD_N_FRP = 1.06
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.51 MRayl

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

2500 PSI Main Pass

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Pass Summary

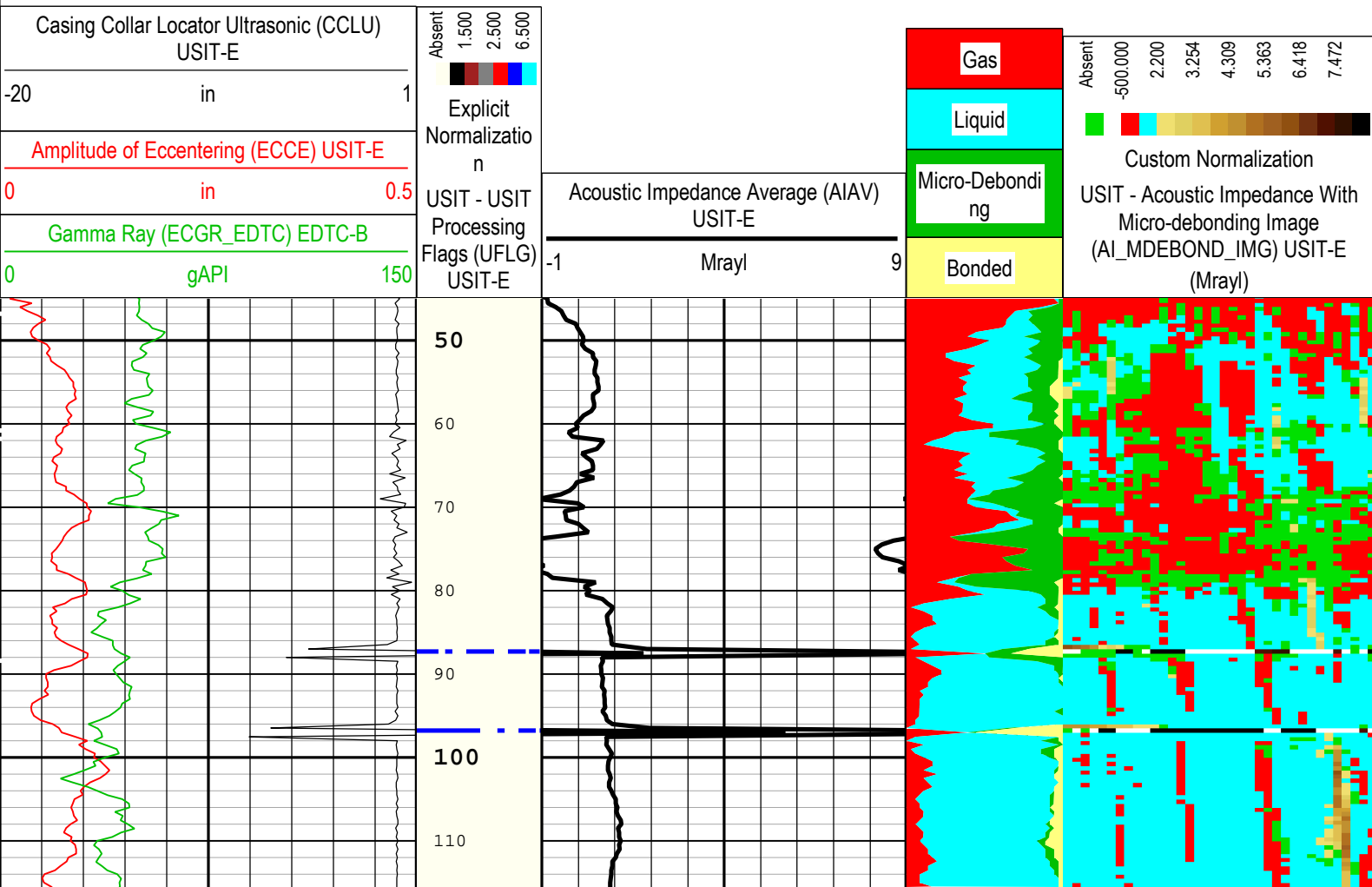
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Main[7]:Up	Up	44.80 ft	6726.11 ft	02-Nov-2018 1:47:53 PM	02-Nov-2018 2:39:15 PM	ON	2.27 ft	Yes

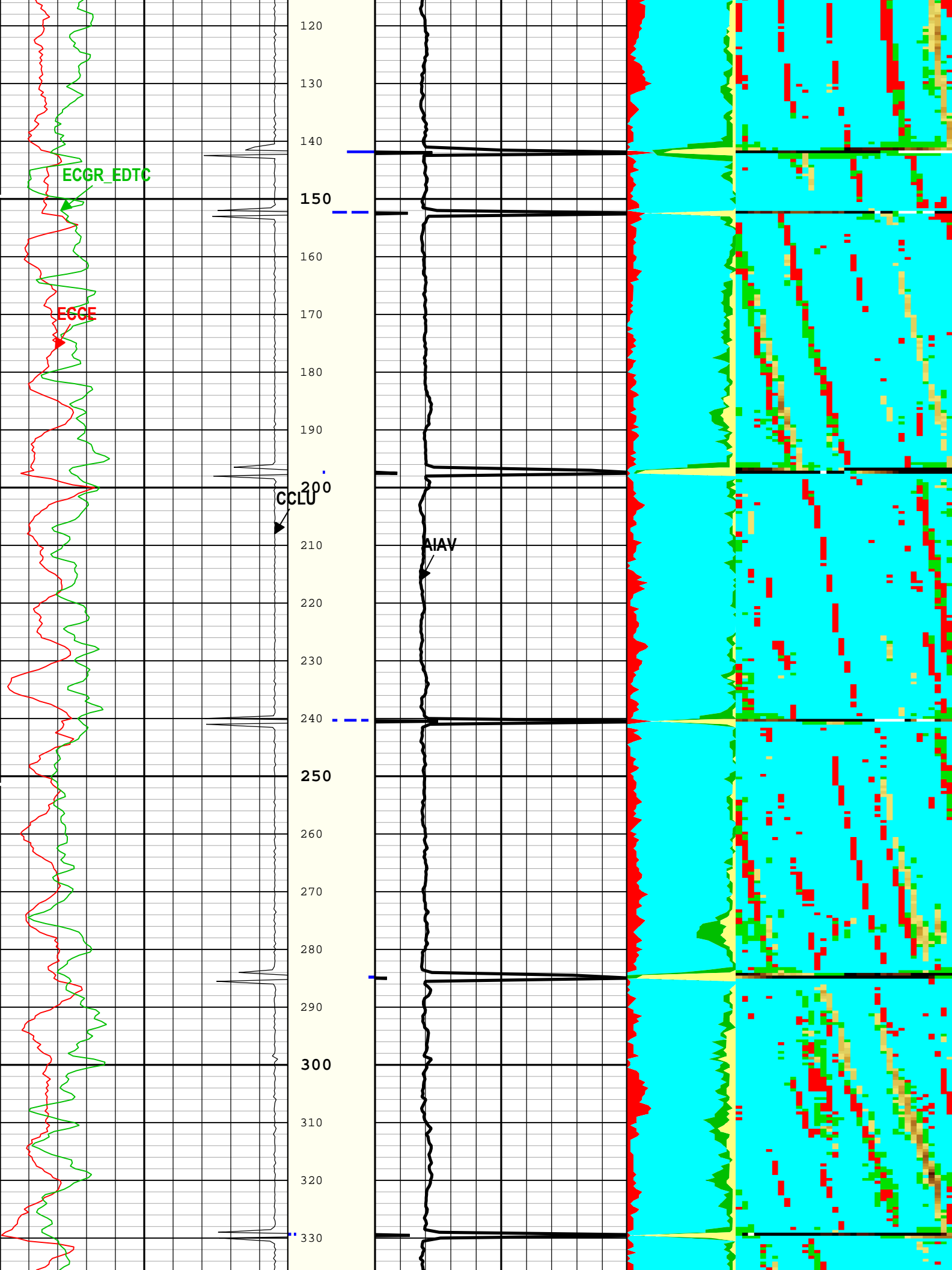
All depths are referenced to toolstring zero

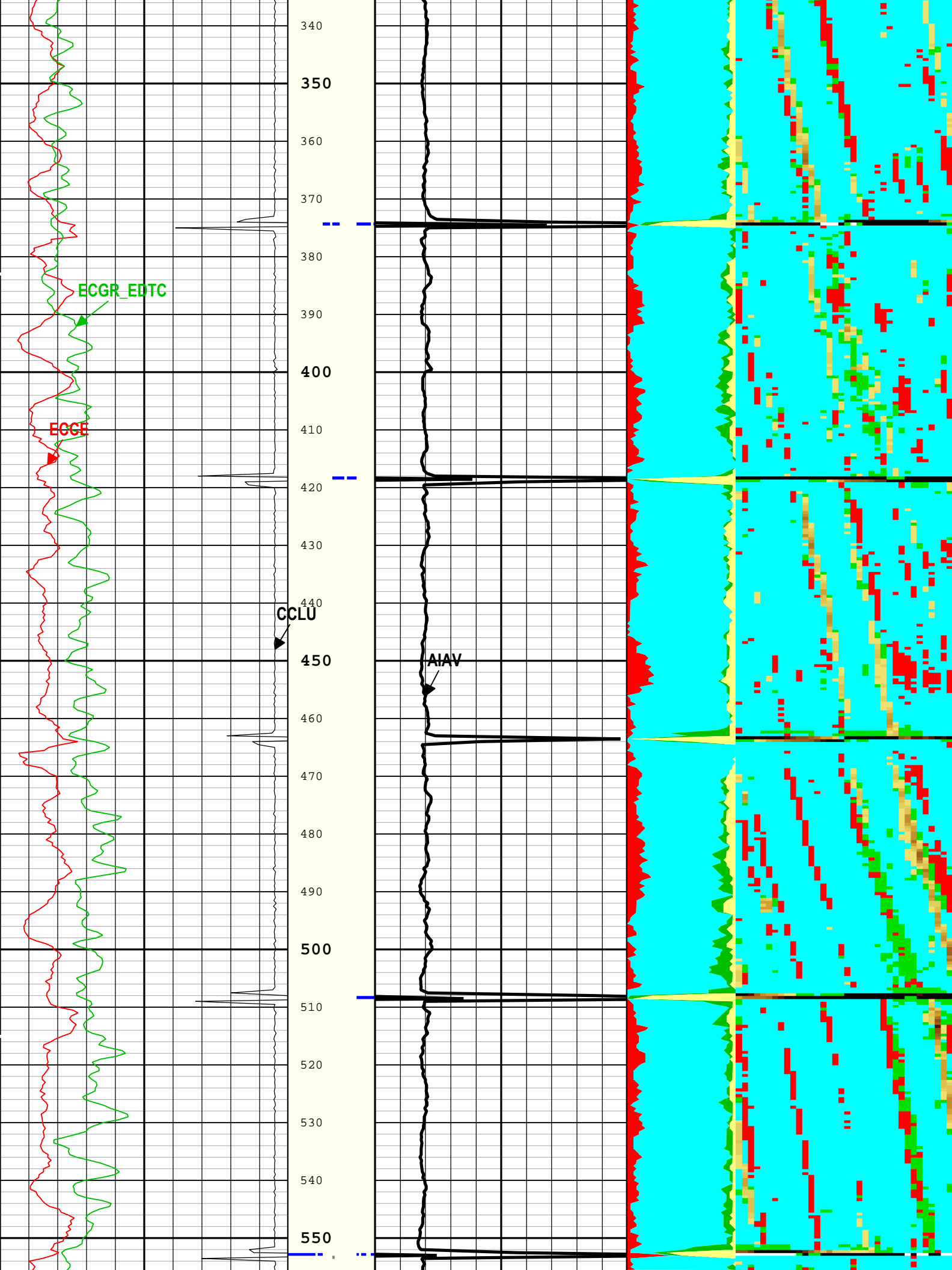
Log	Company:Noble Energy Inc. Well:EMMY H25-724 ONE: Main[7]:Up:S010
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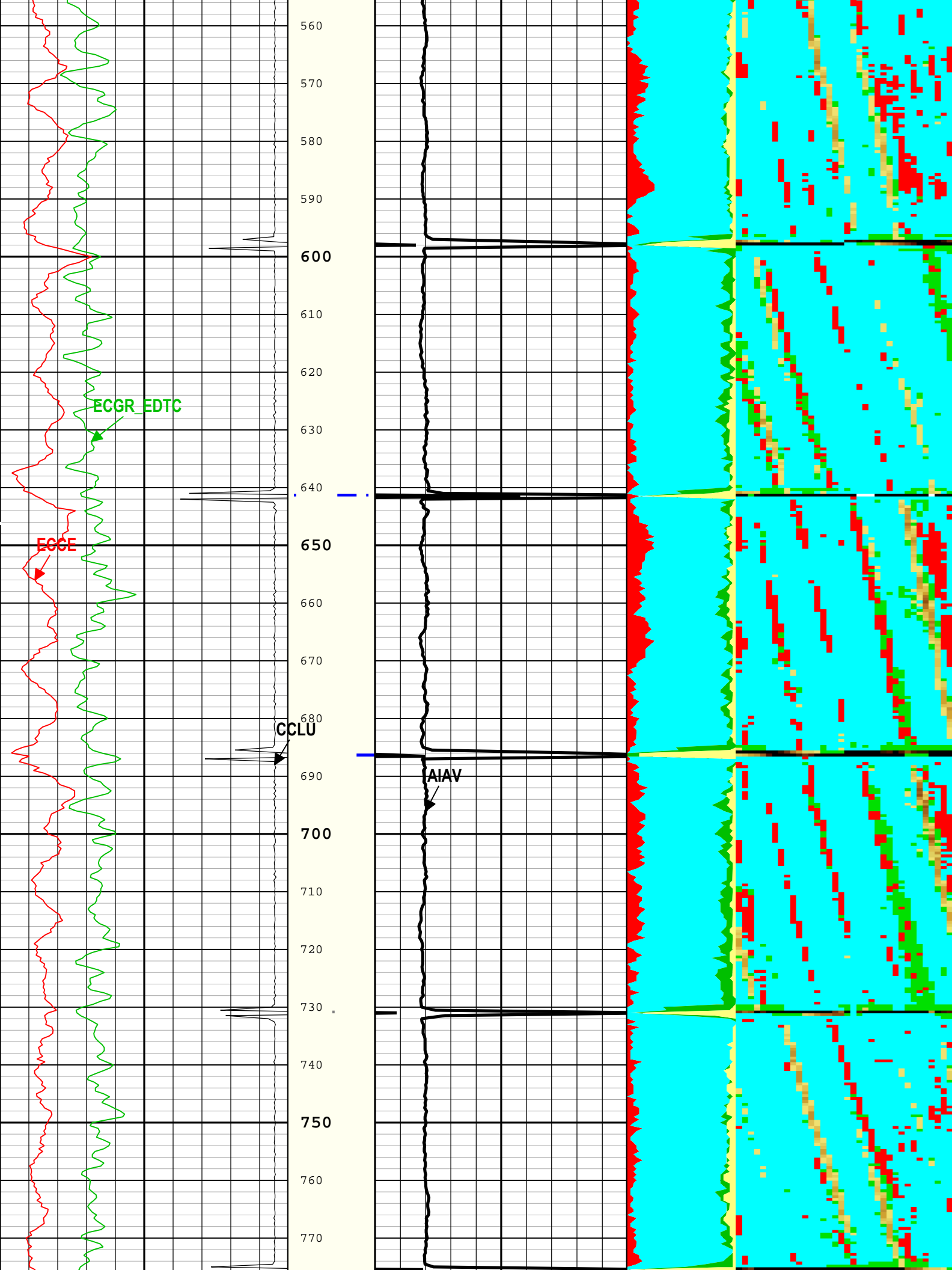
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Creation Date: 03-Nov-2018 16:12:27

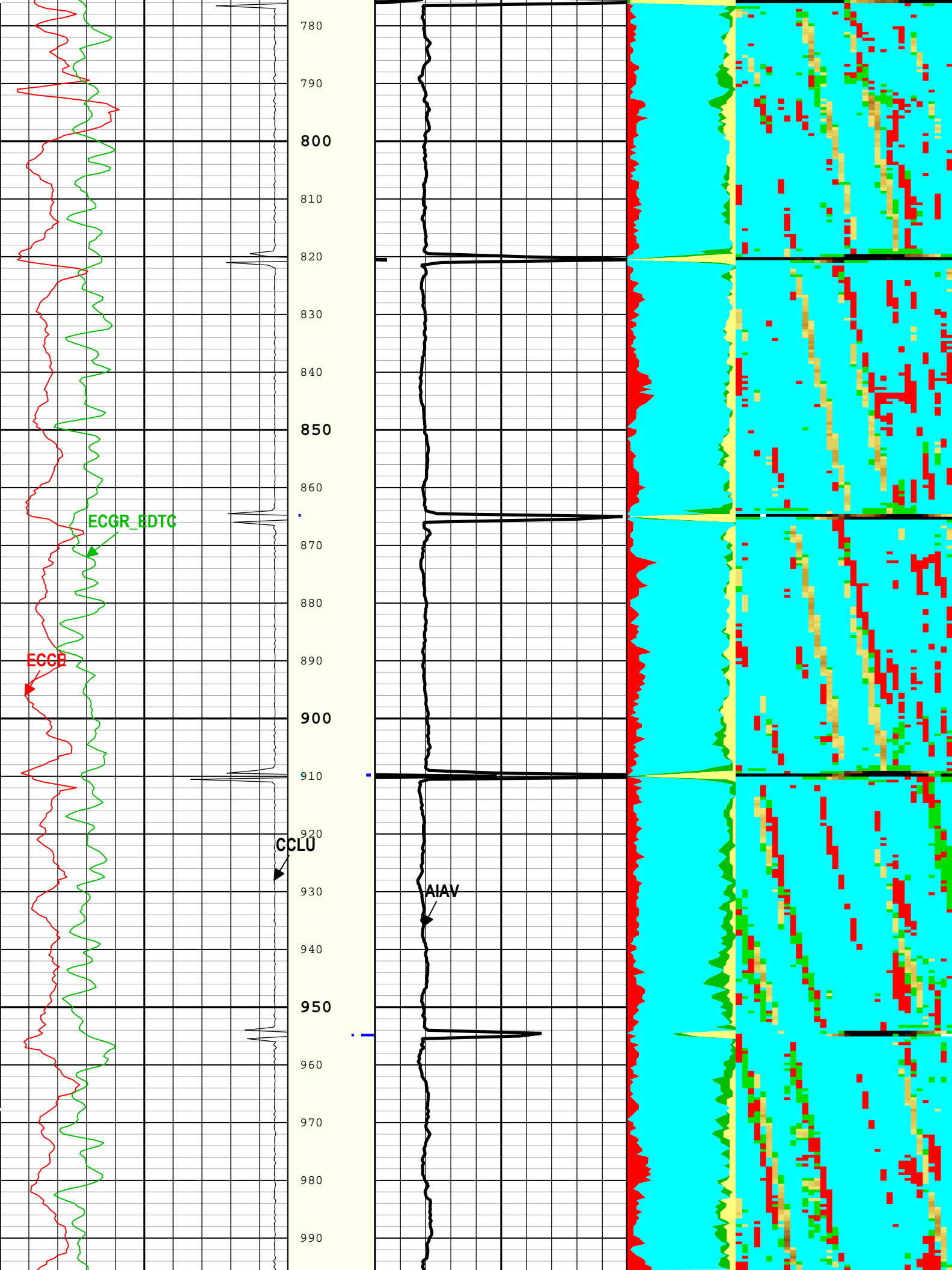
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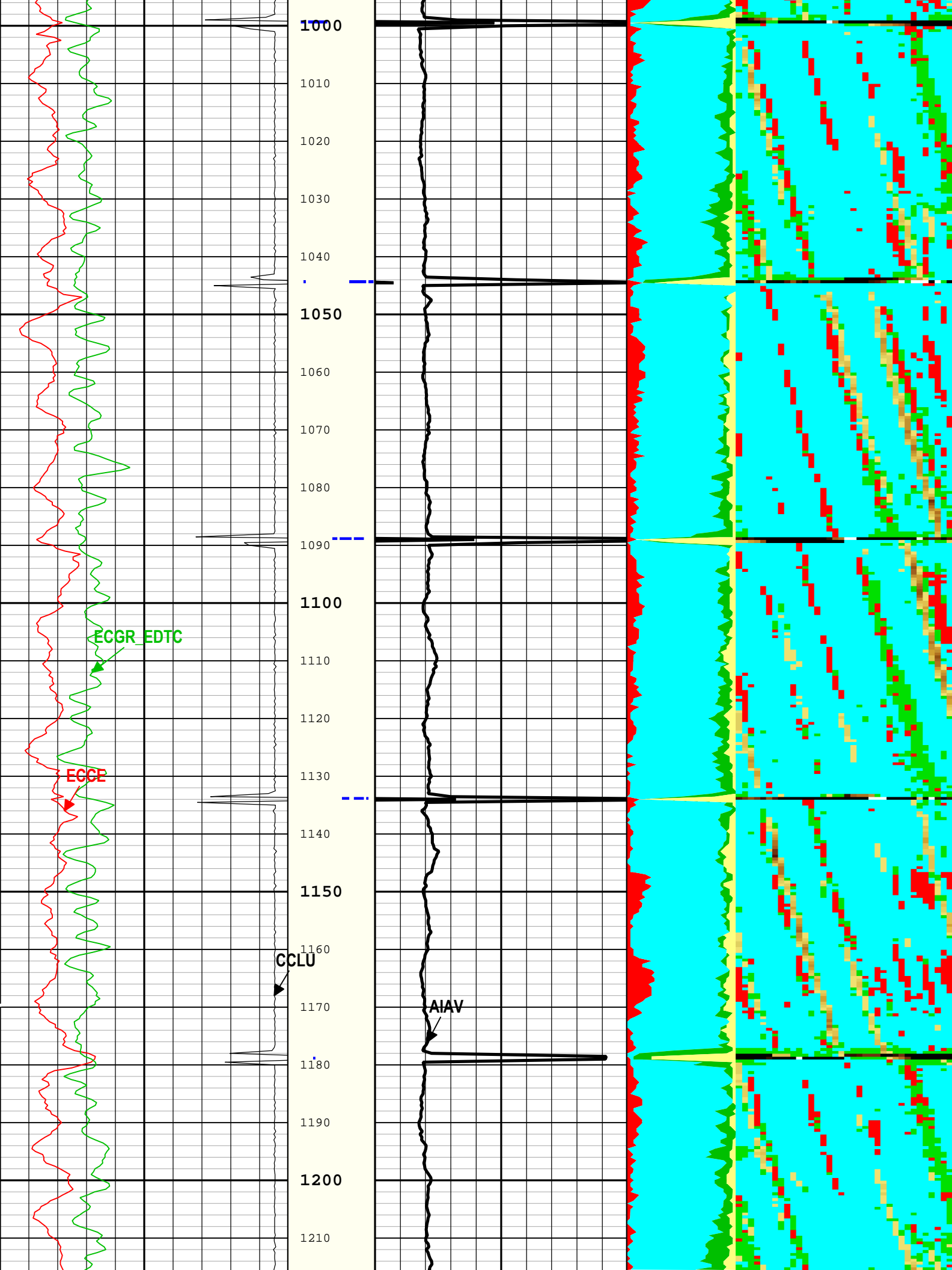


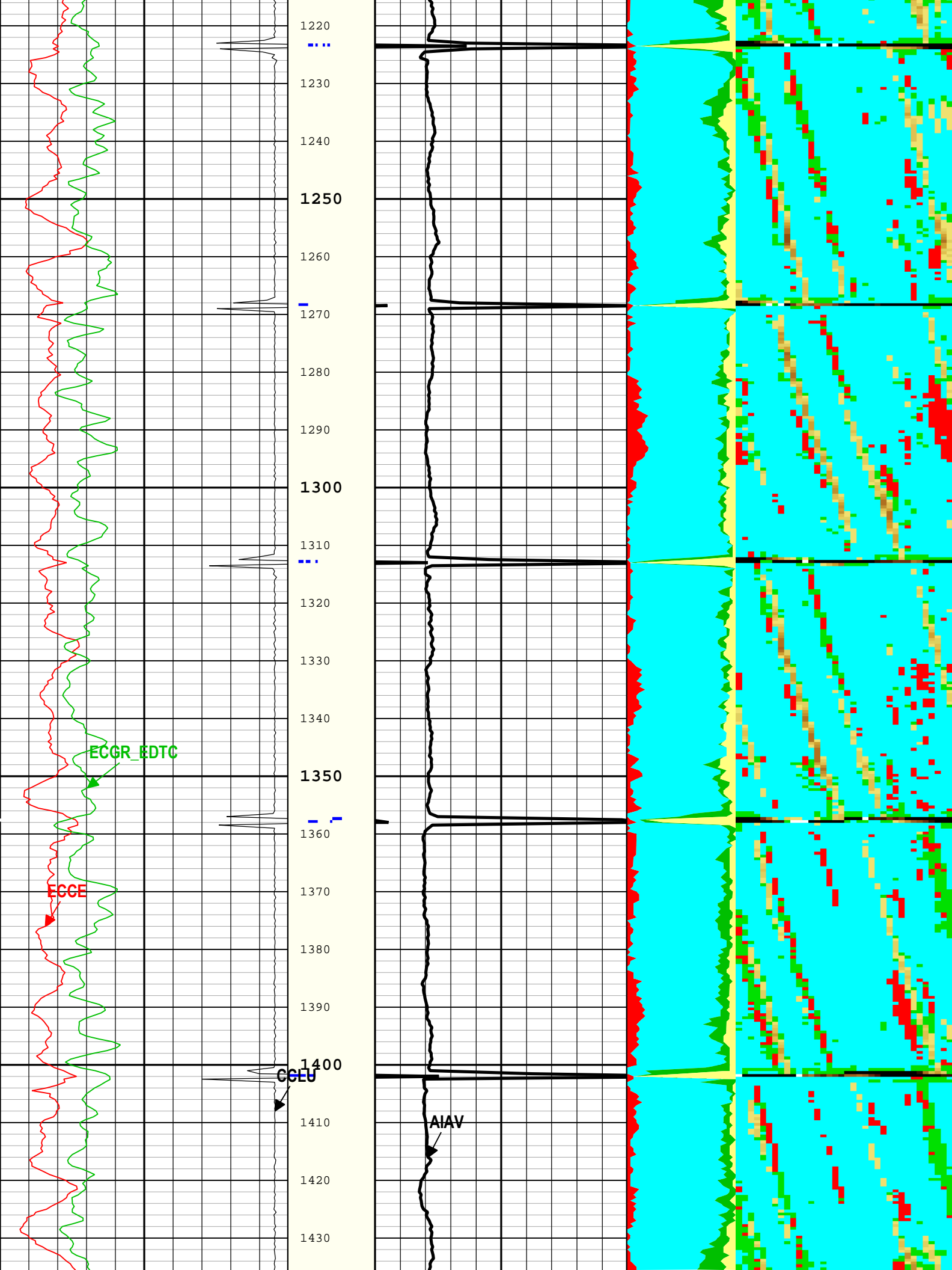


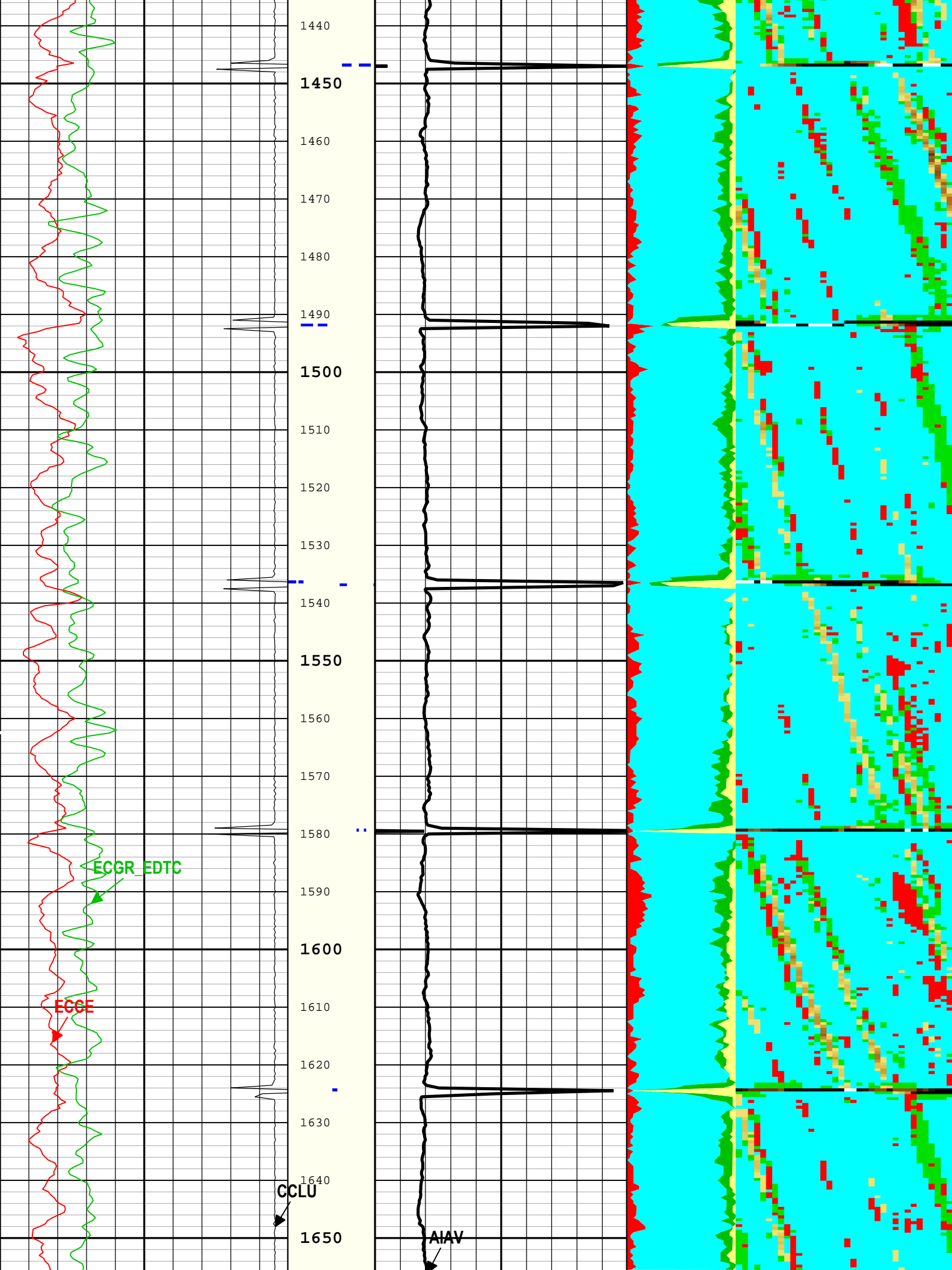


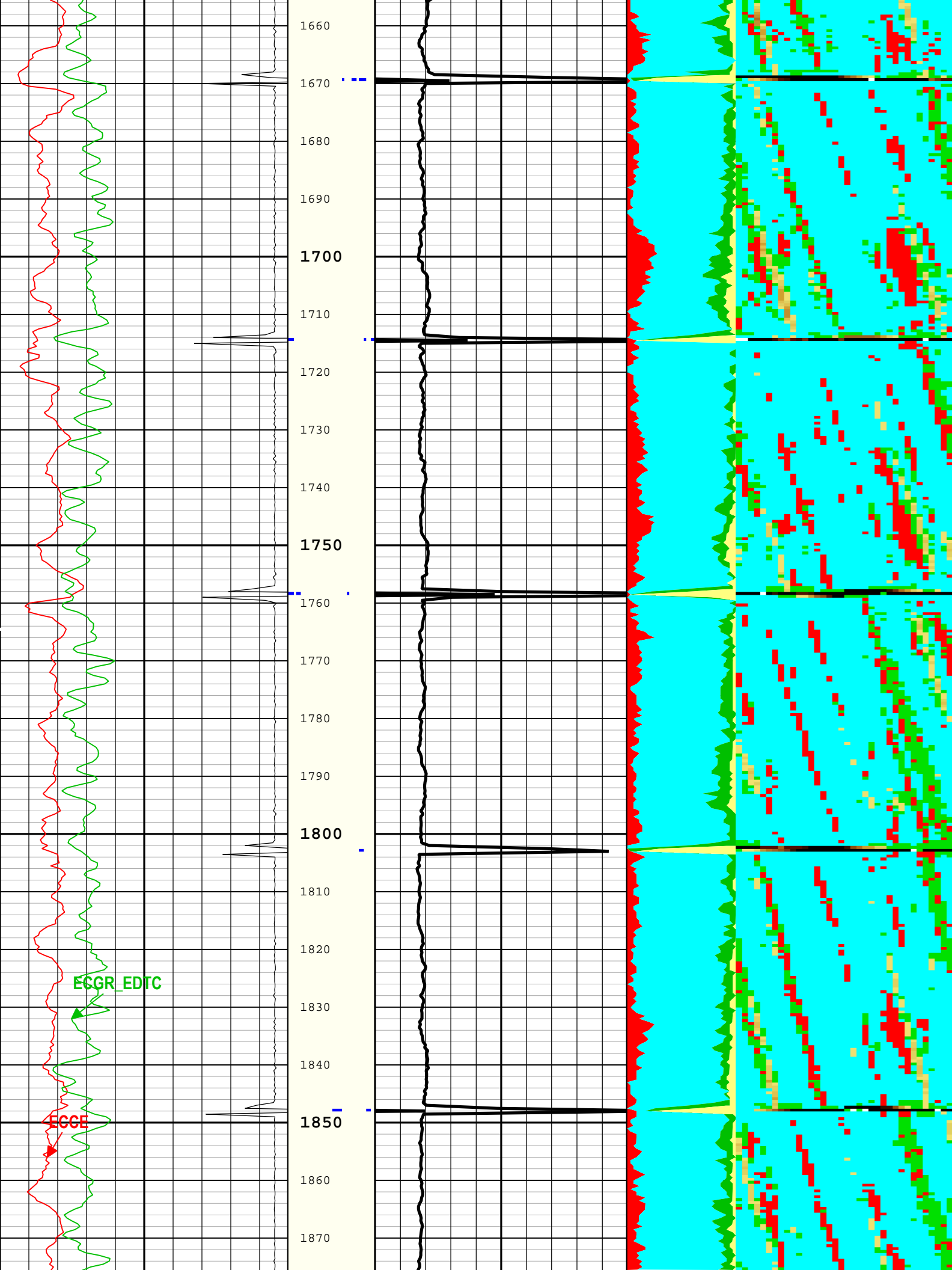


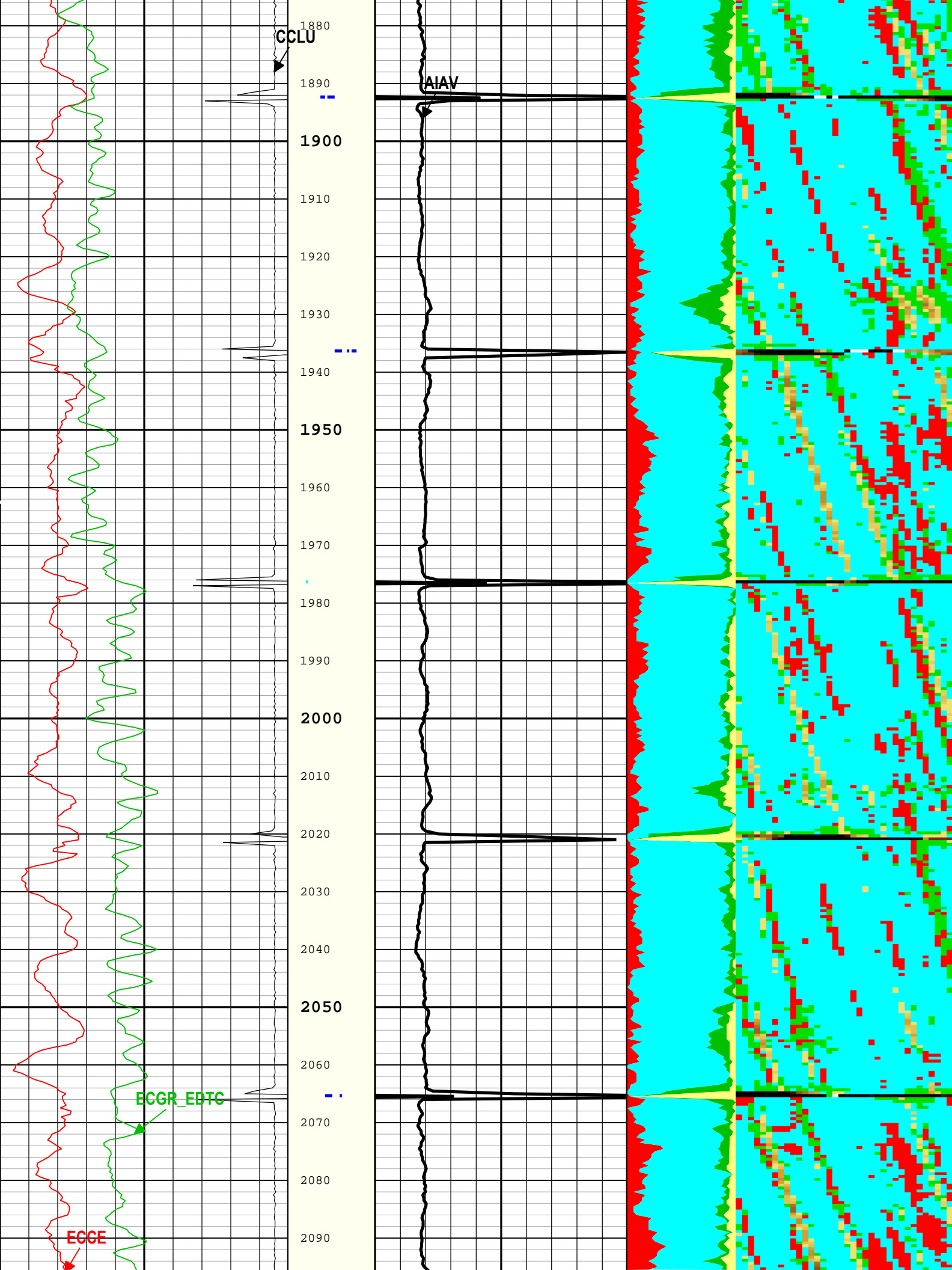


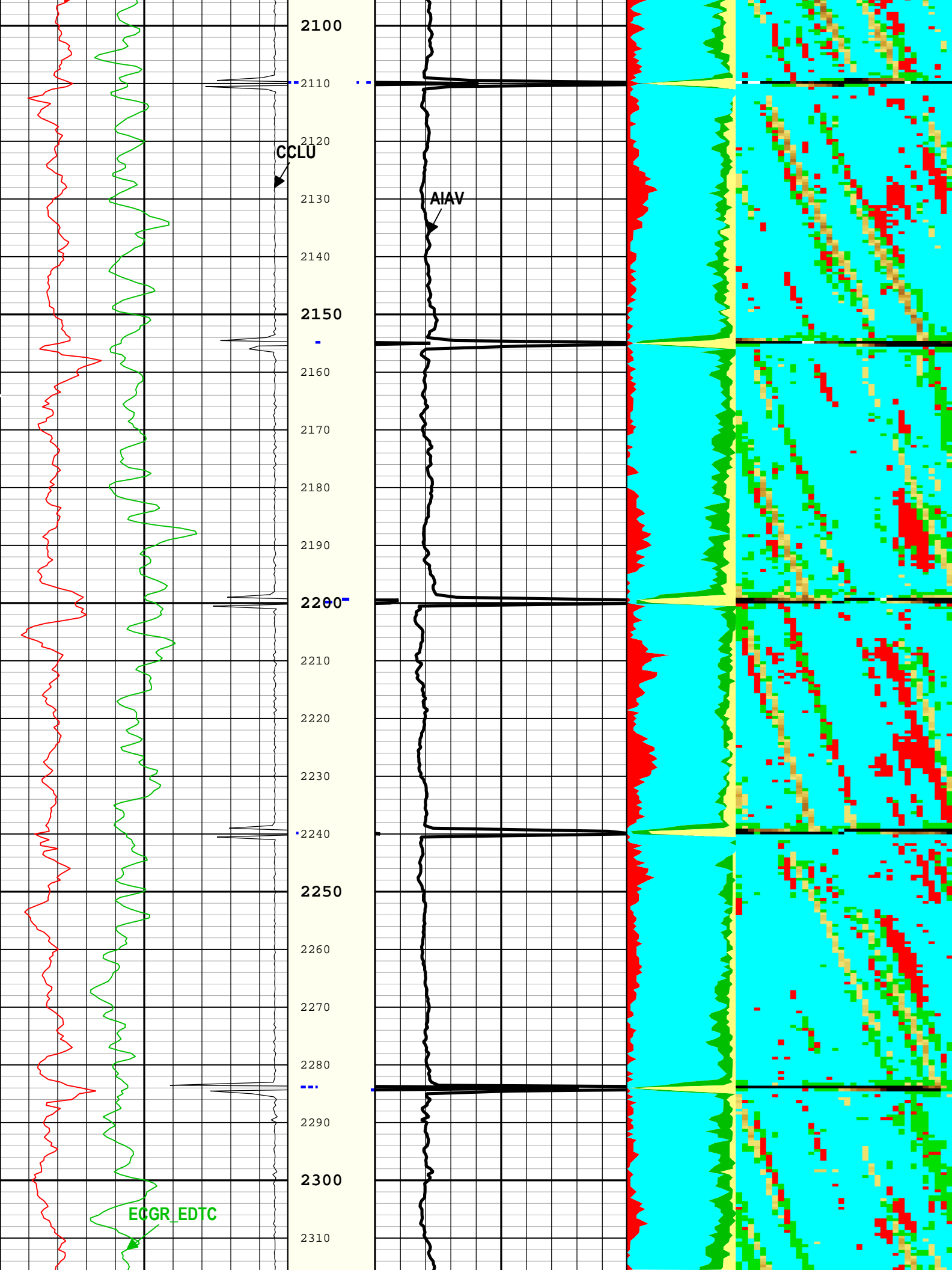


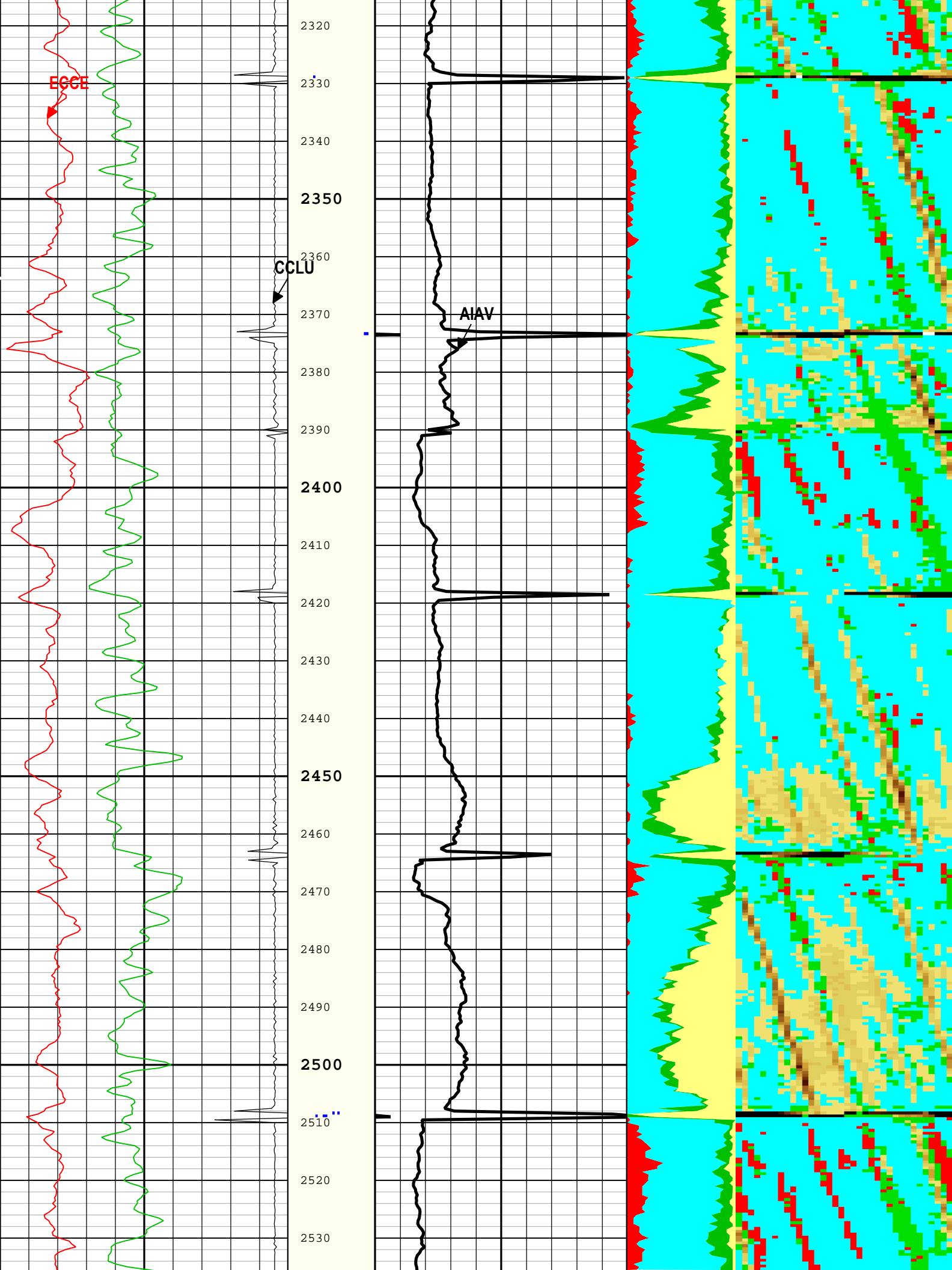


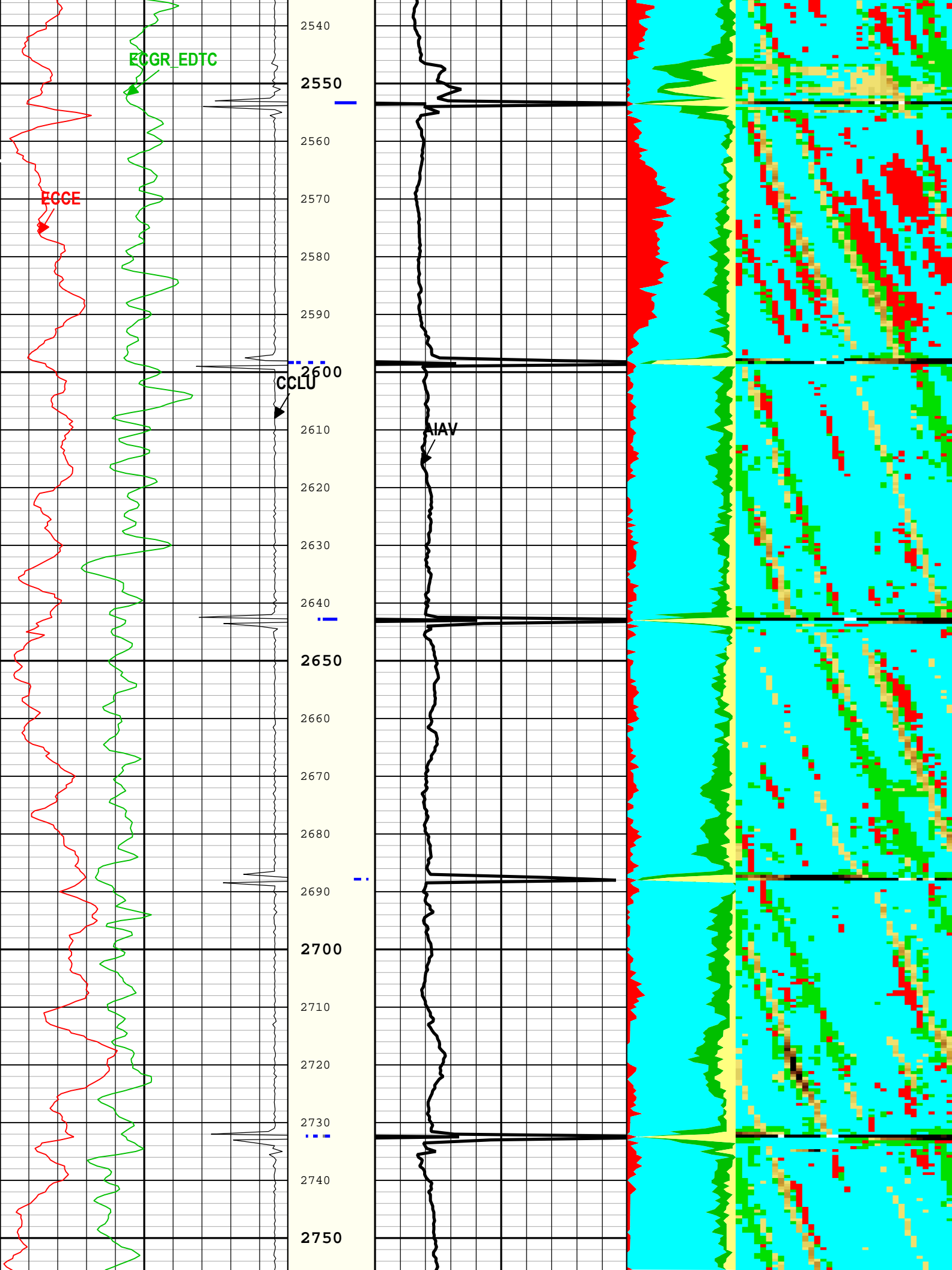


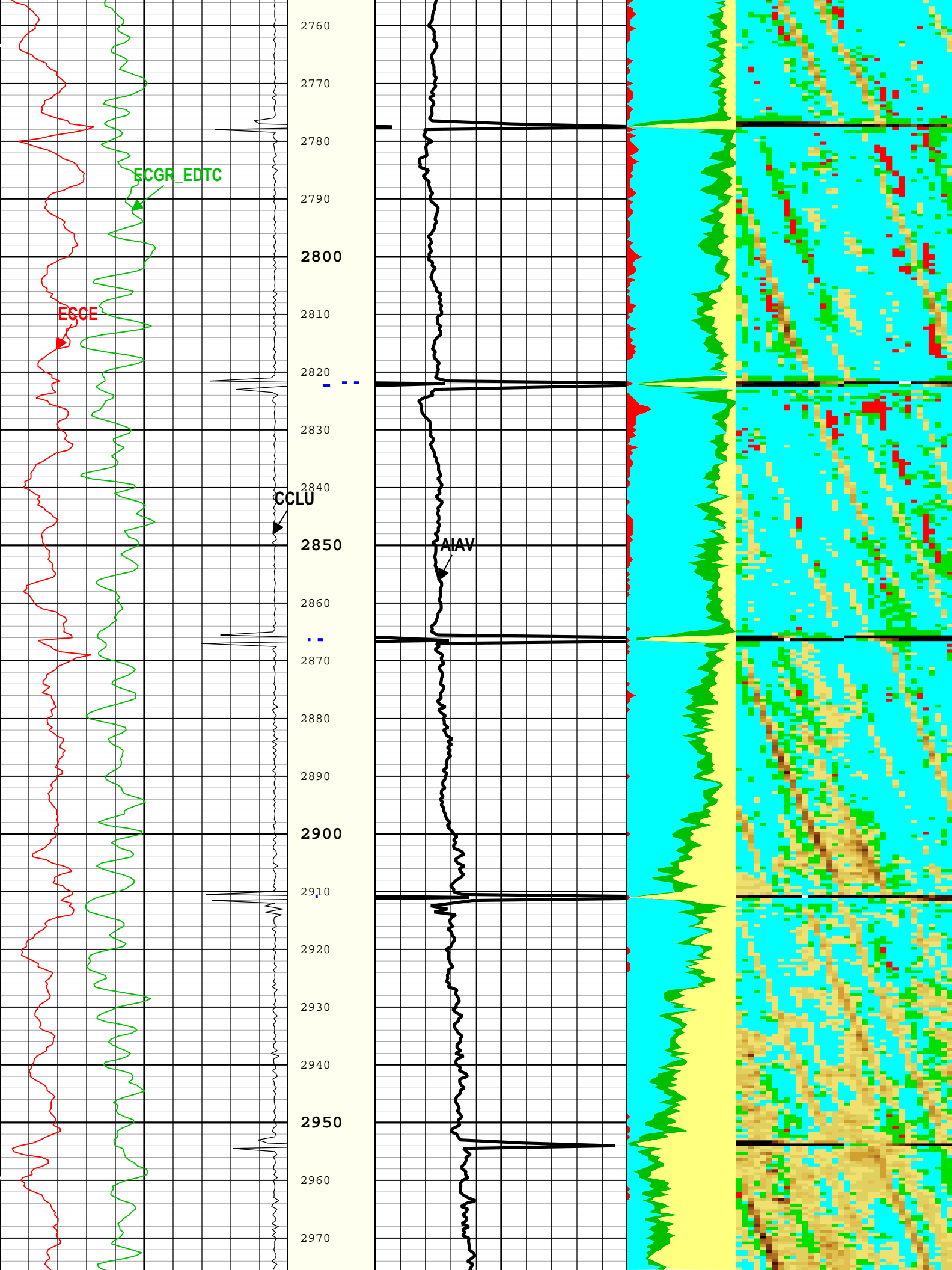


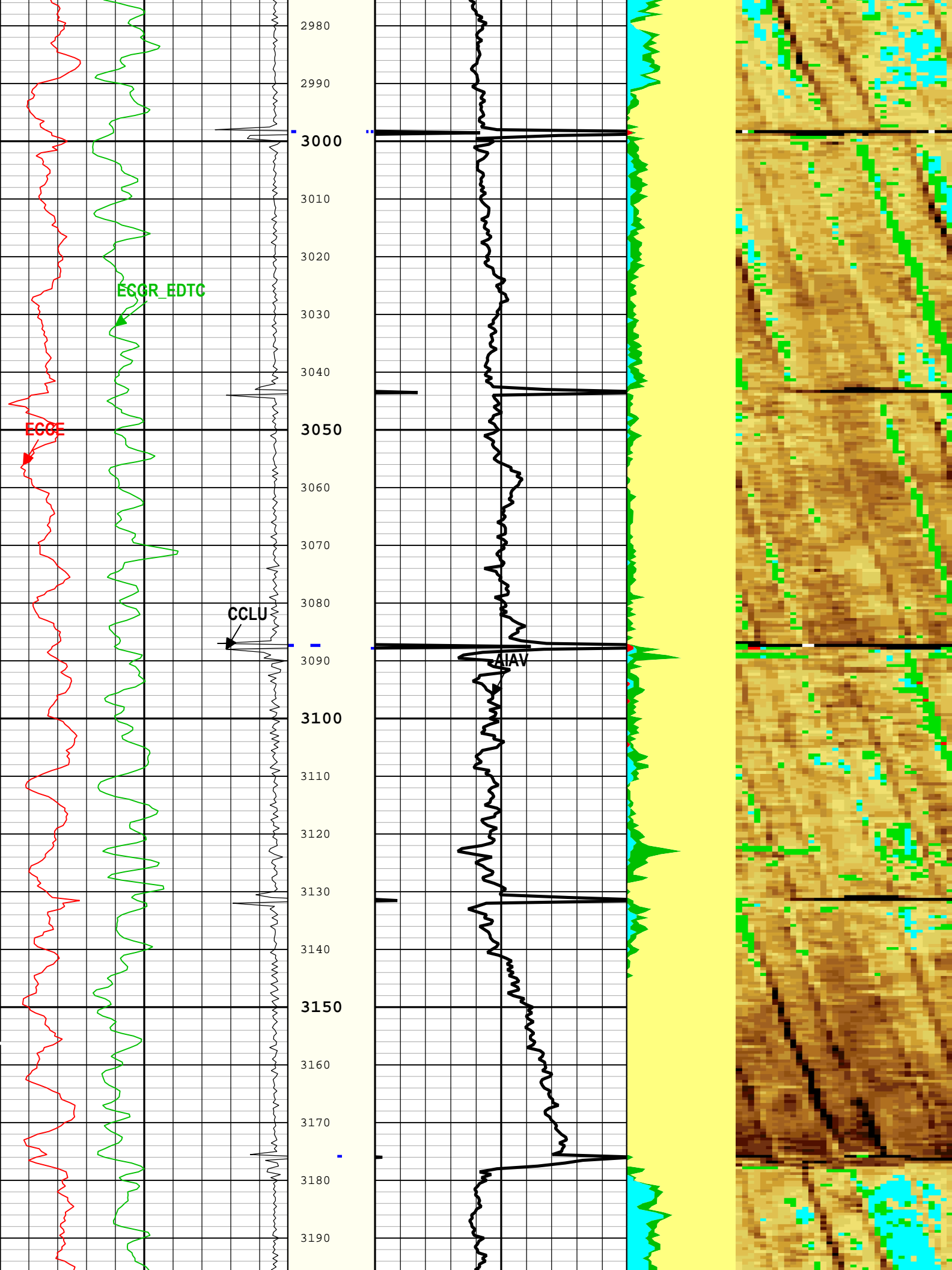


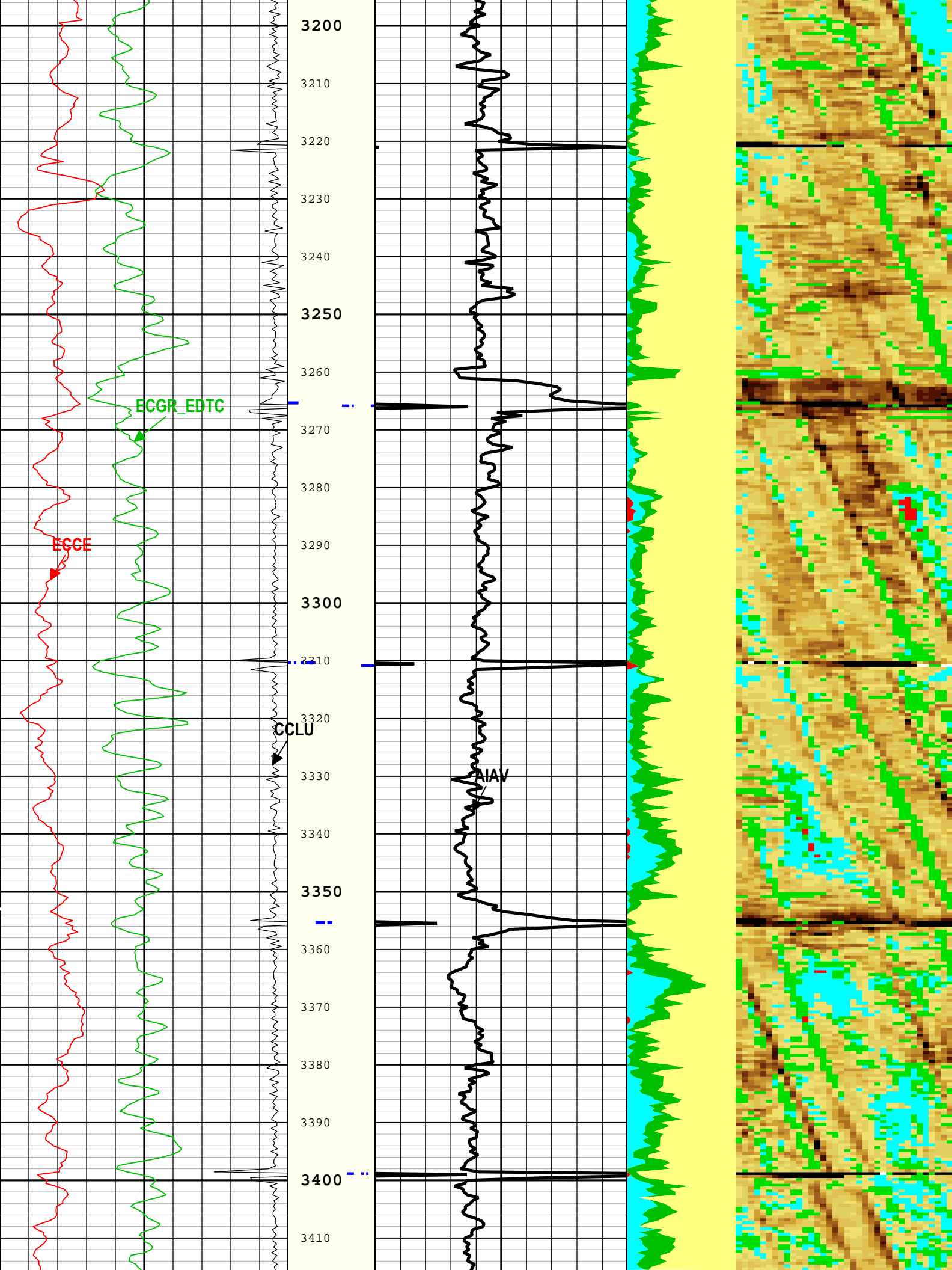


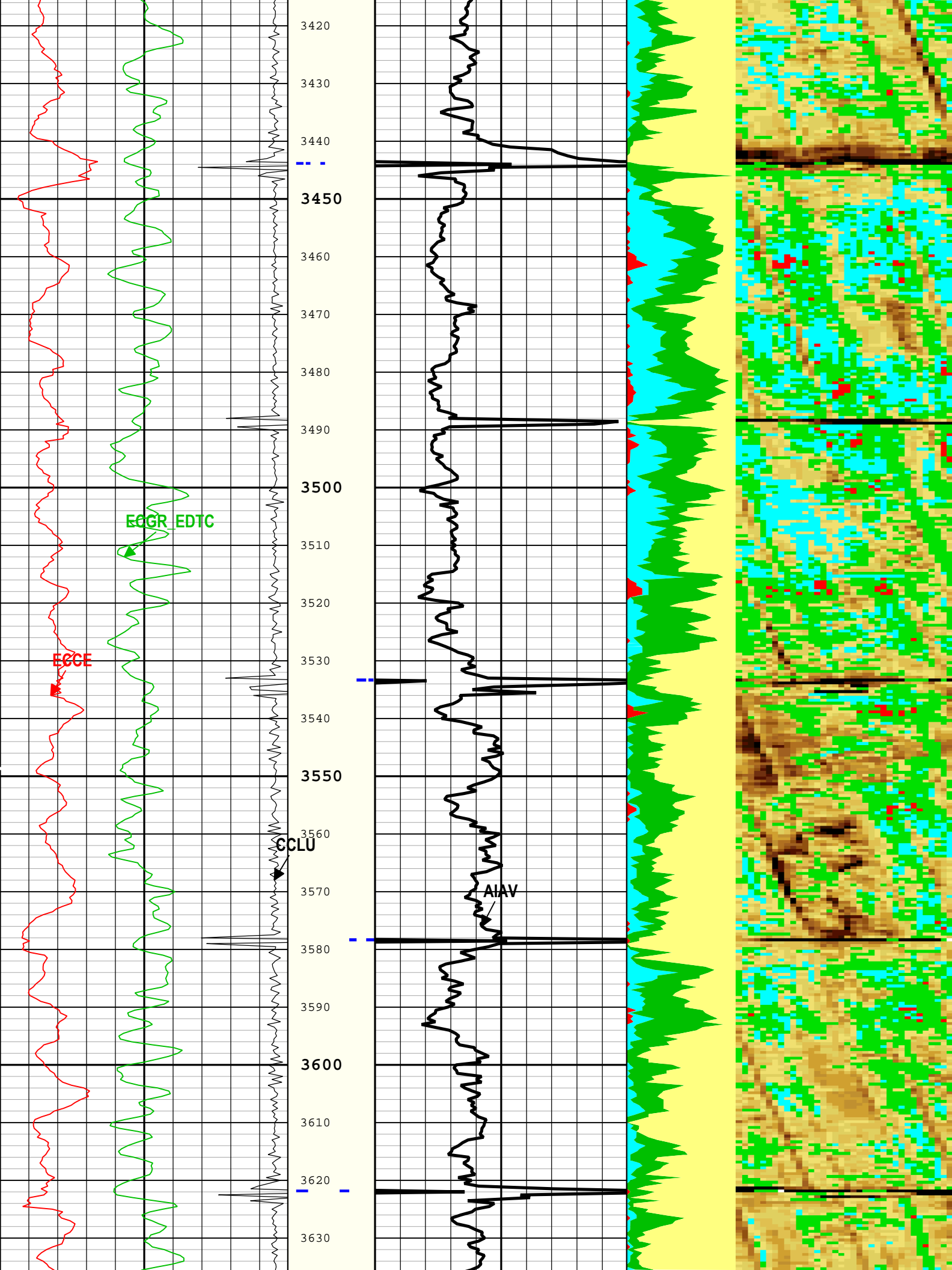


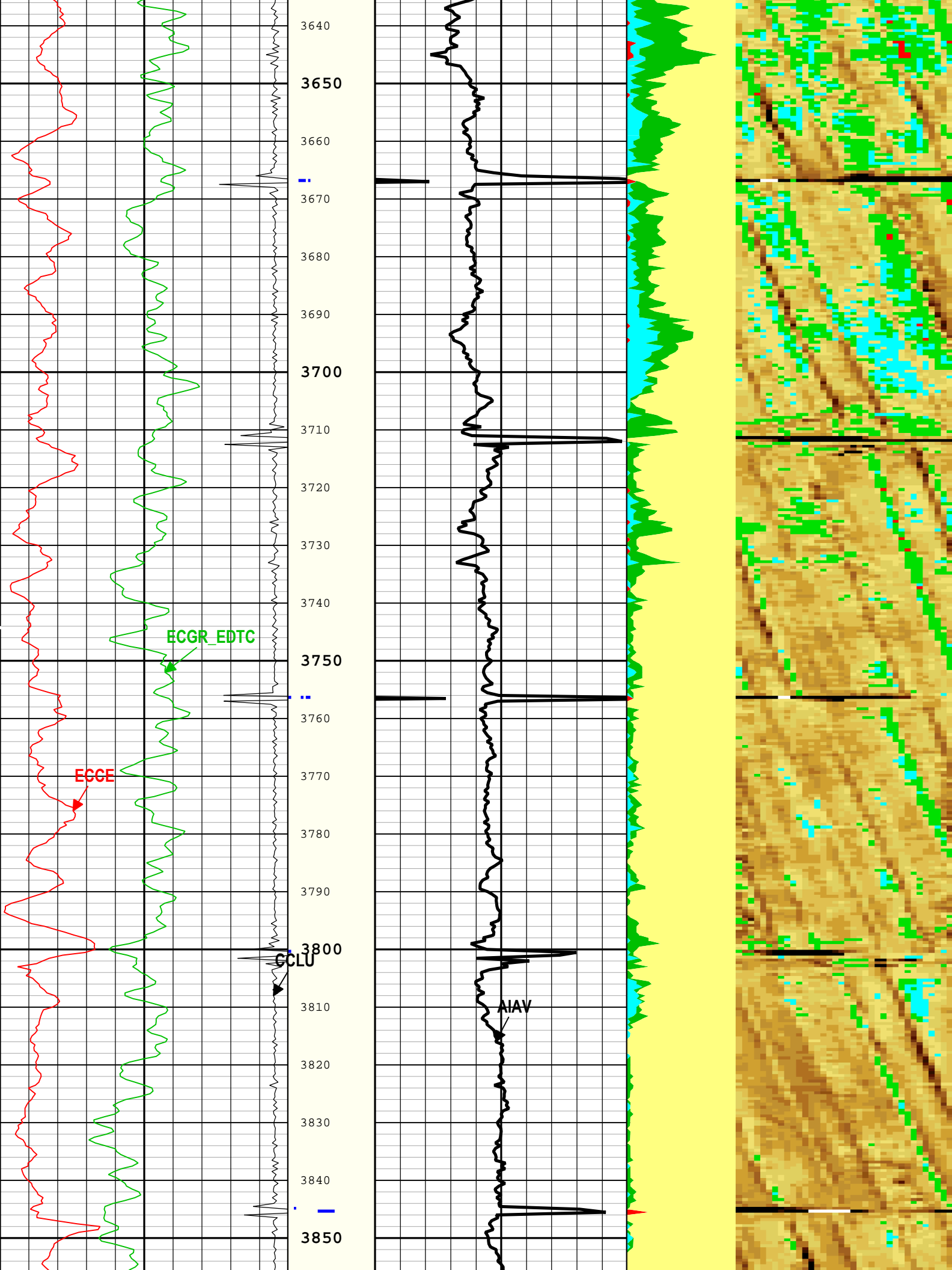


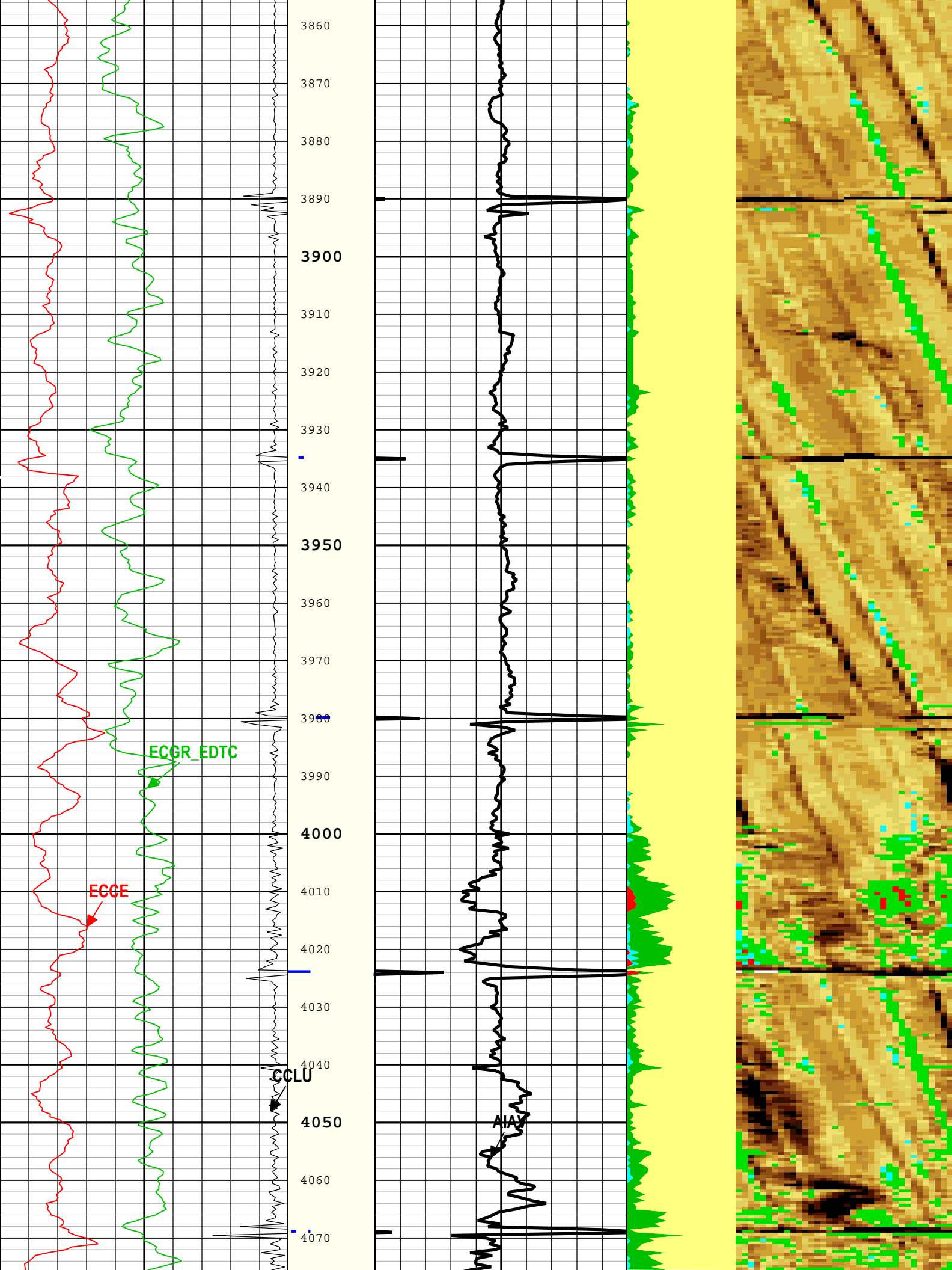


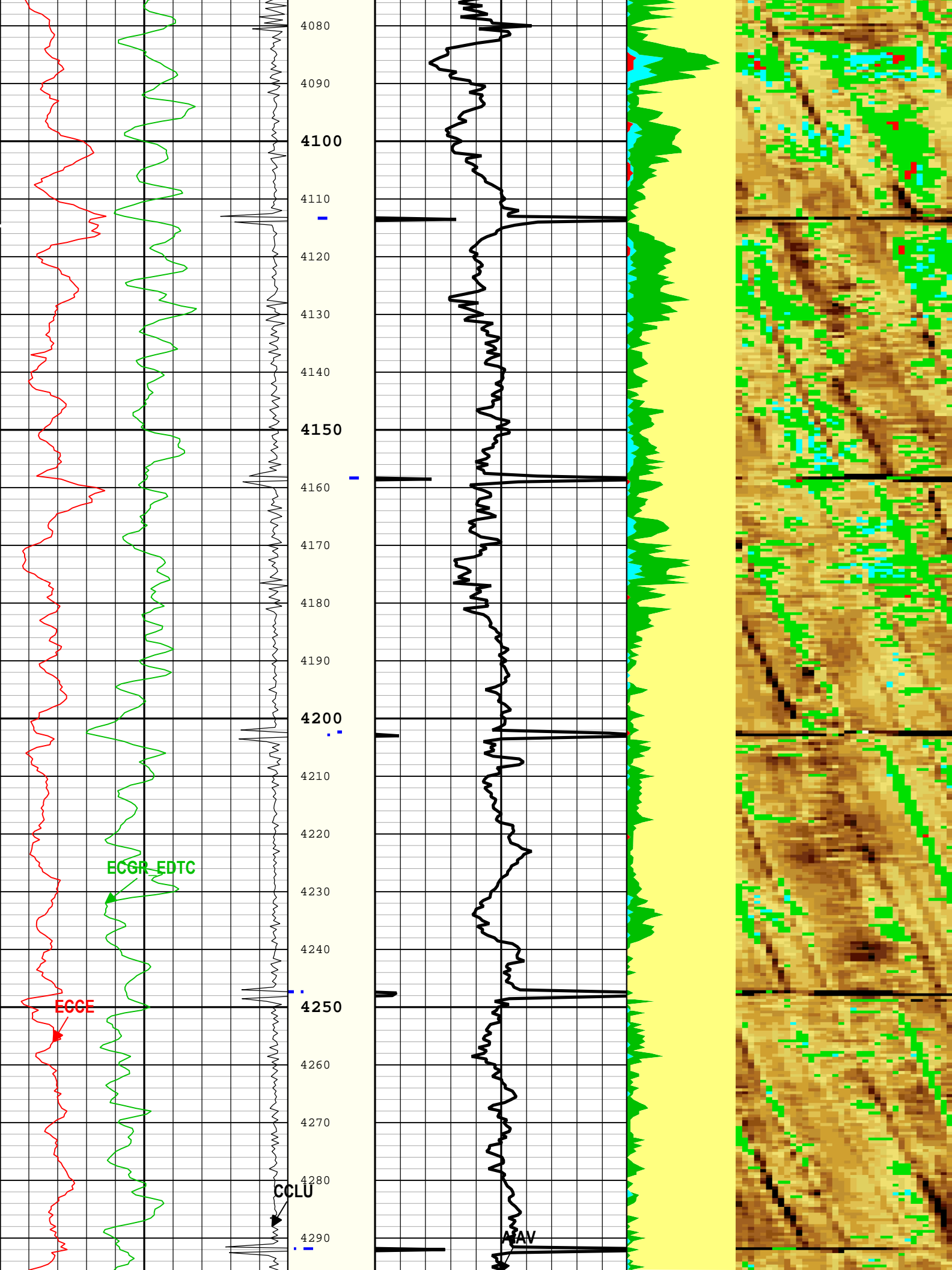


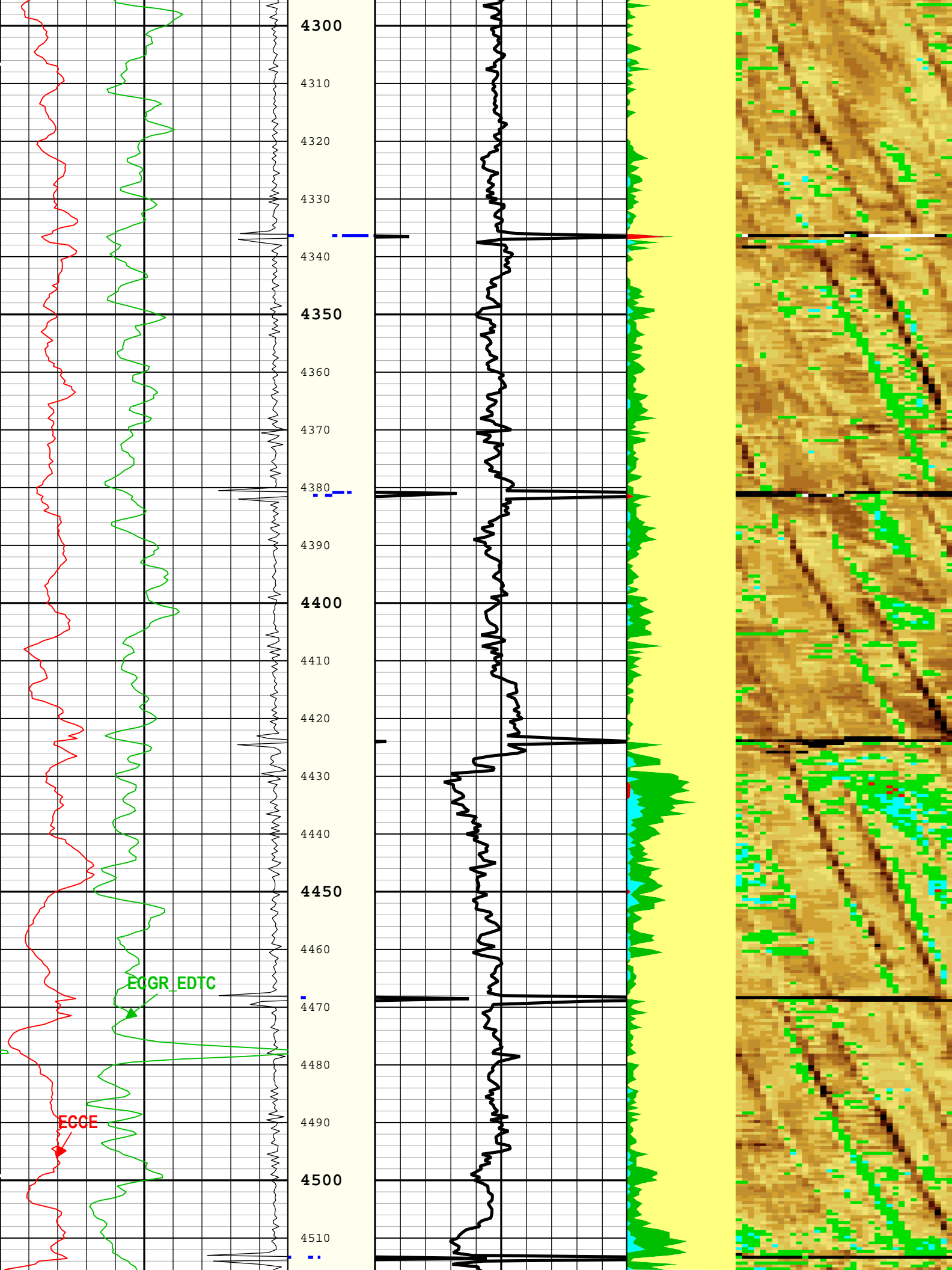


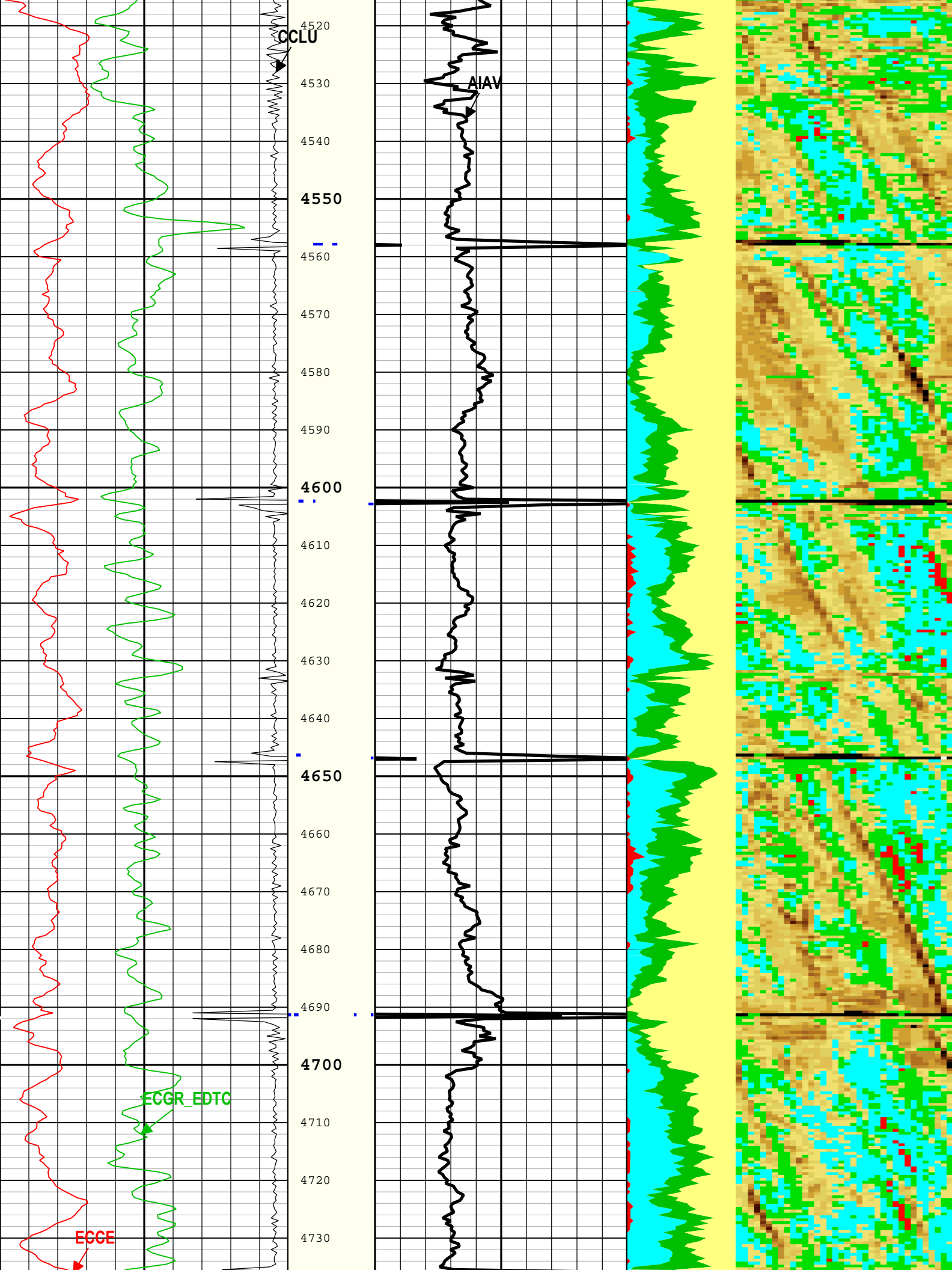


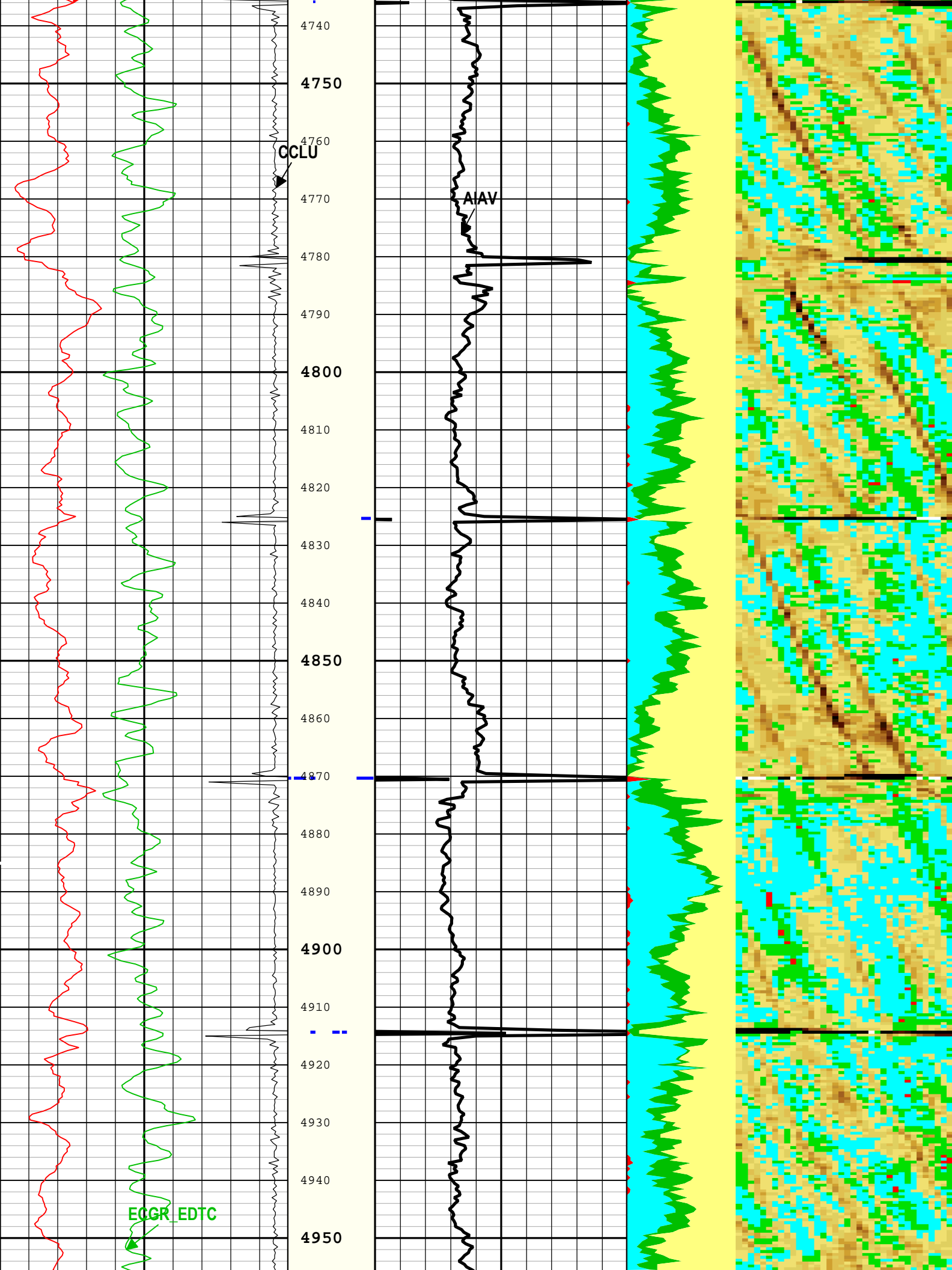


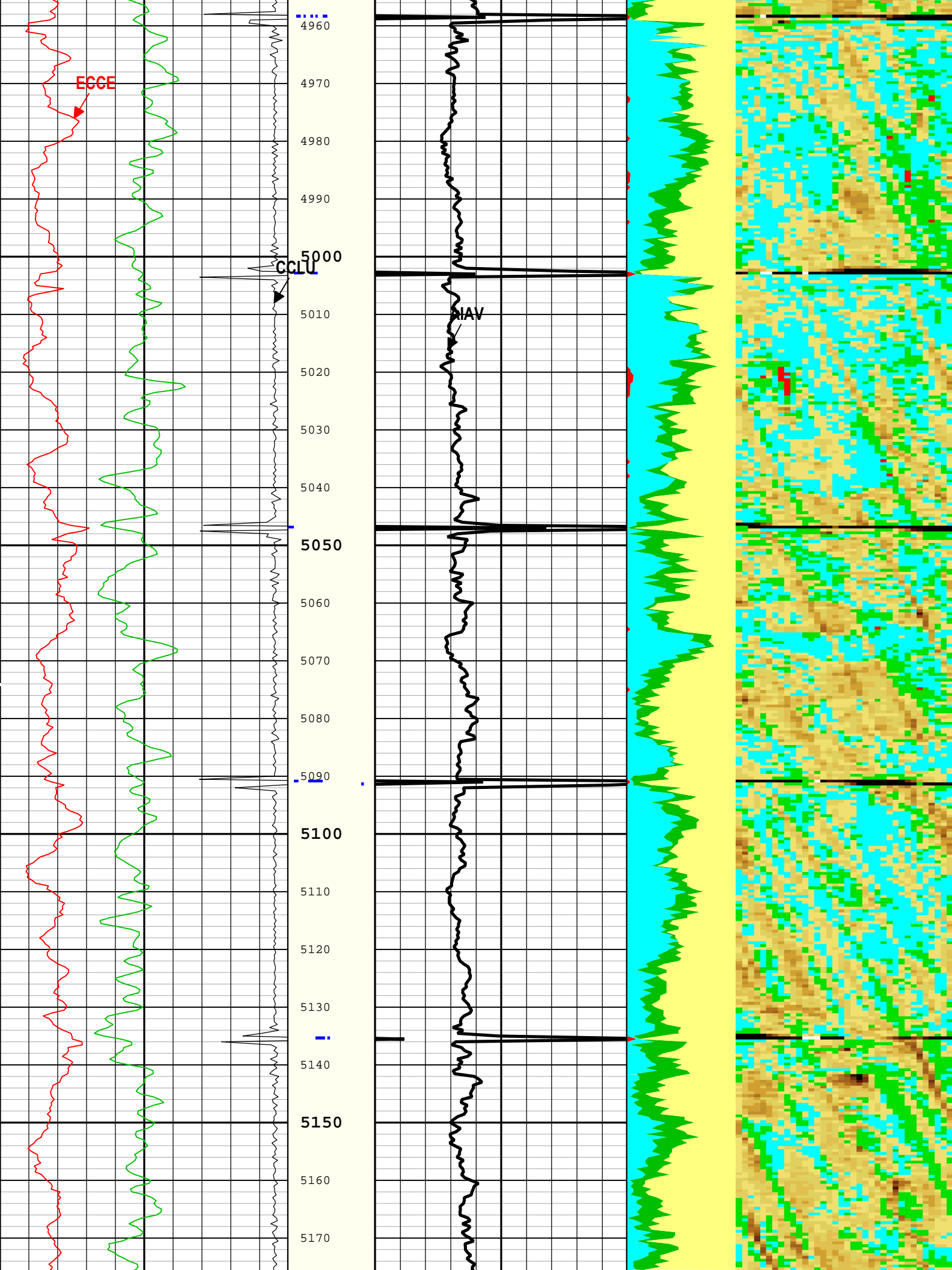


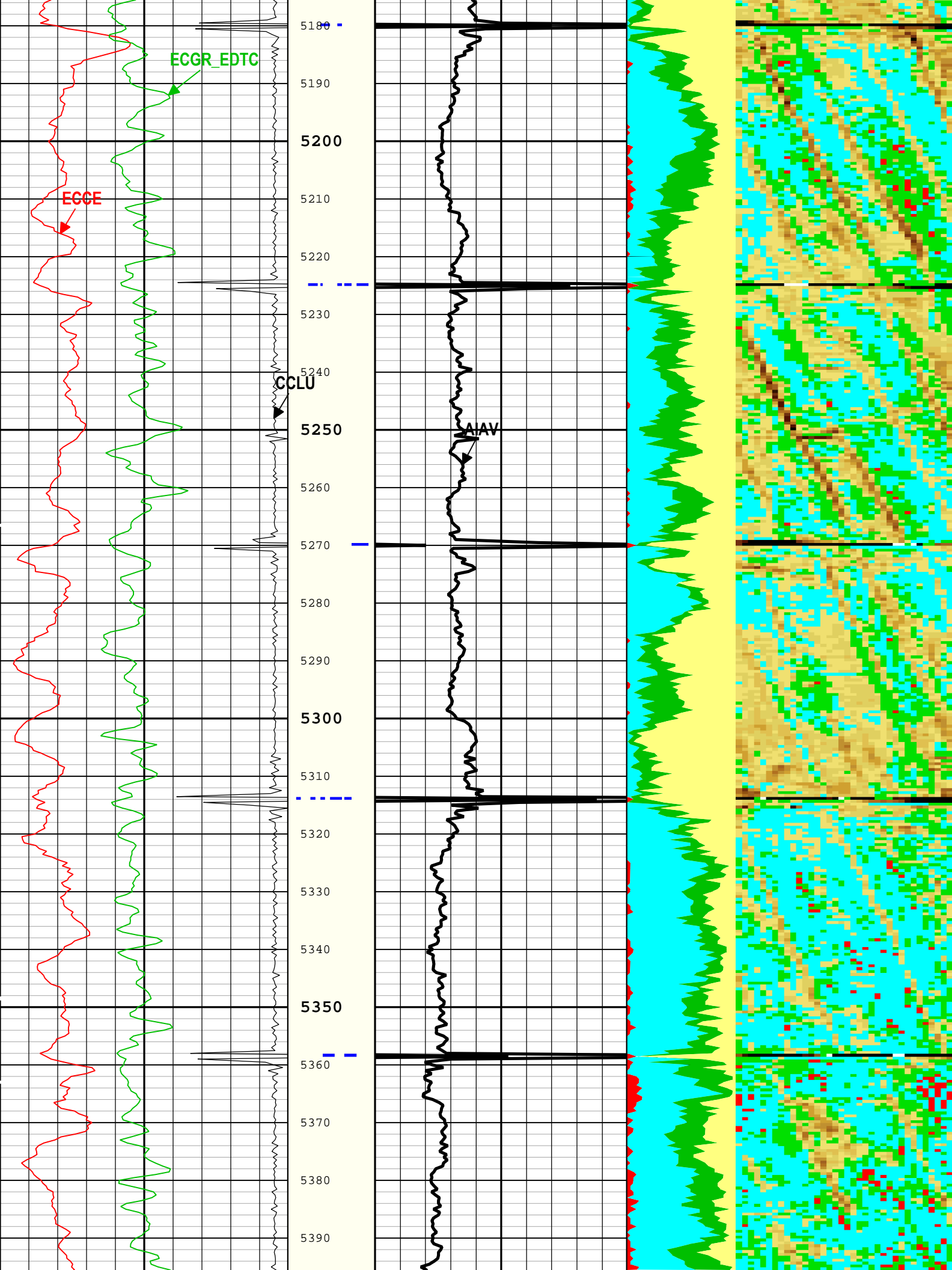


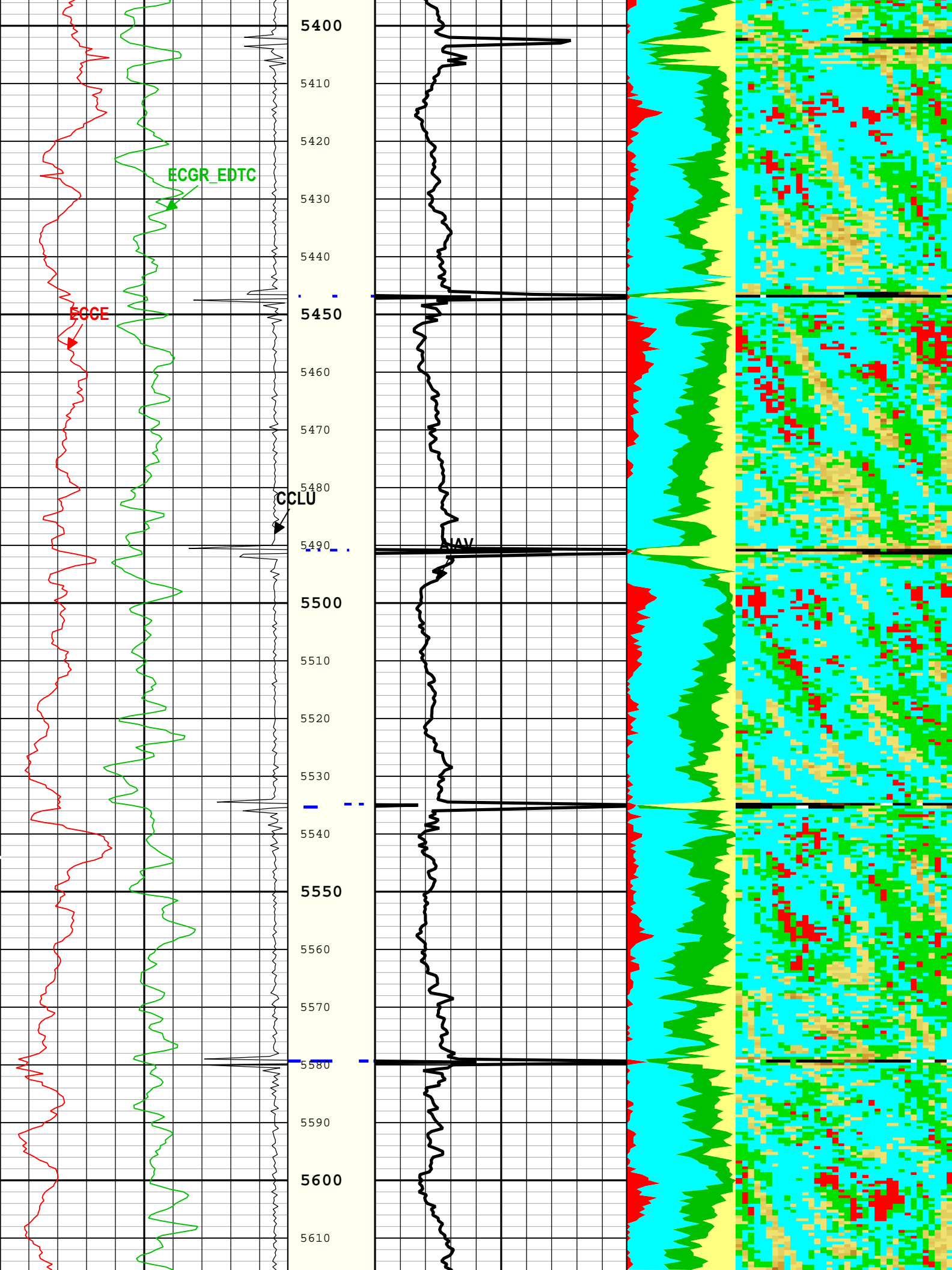


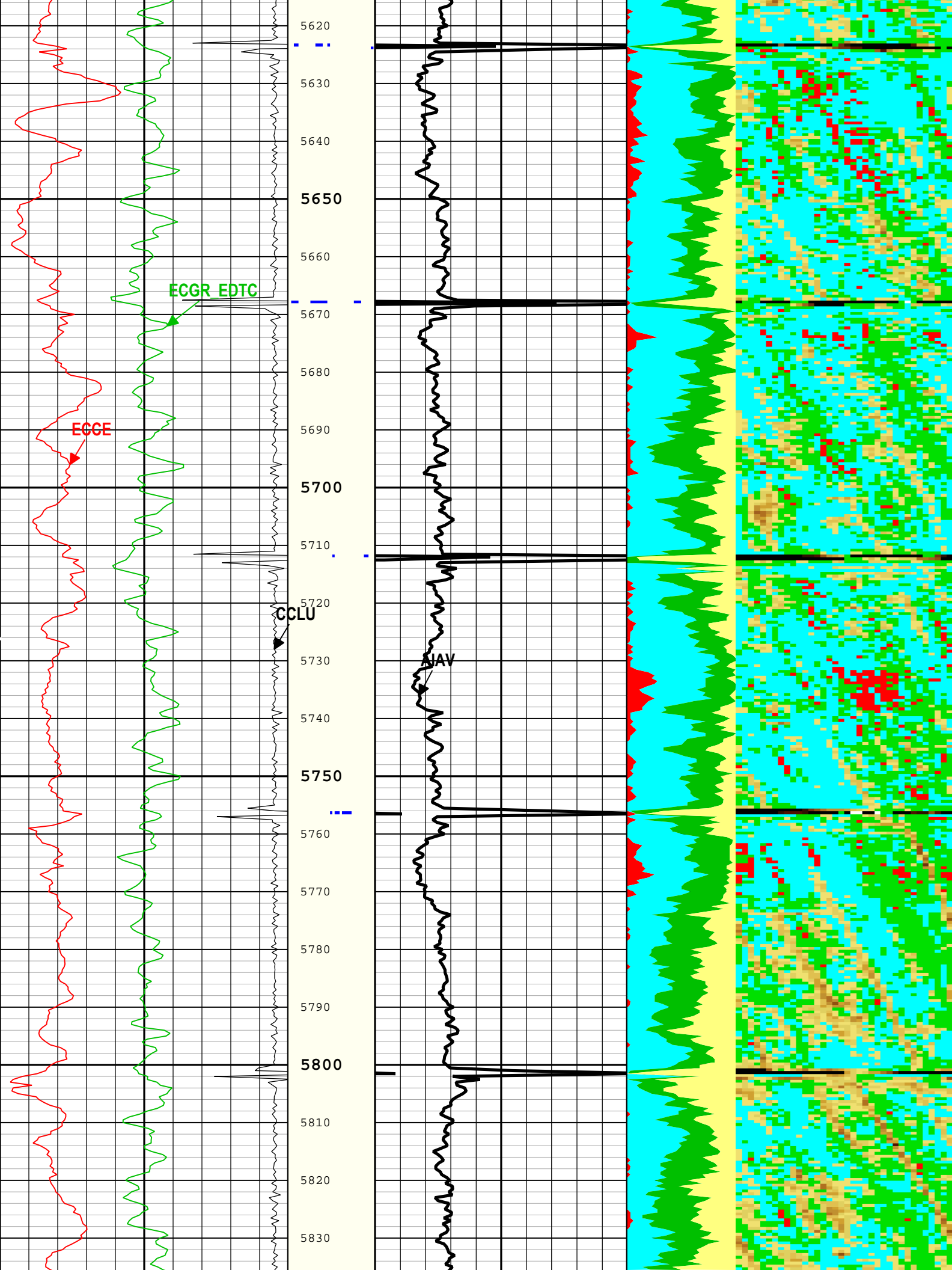


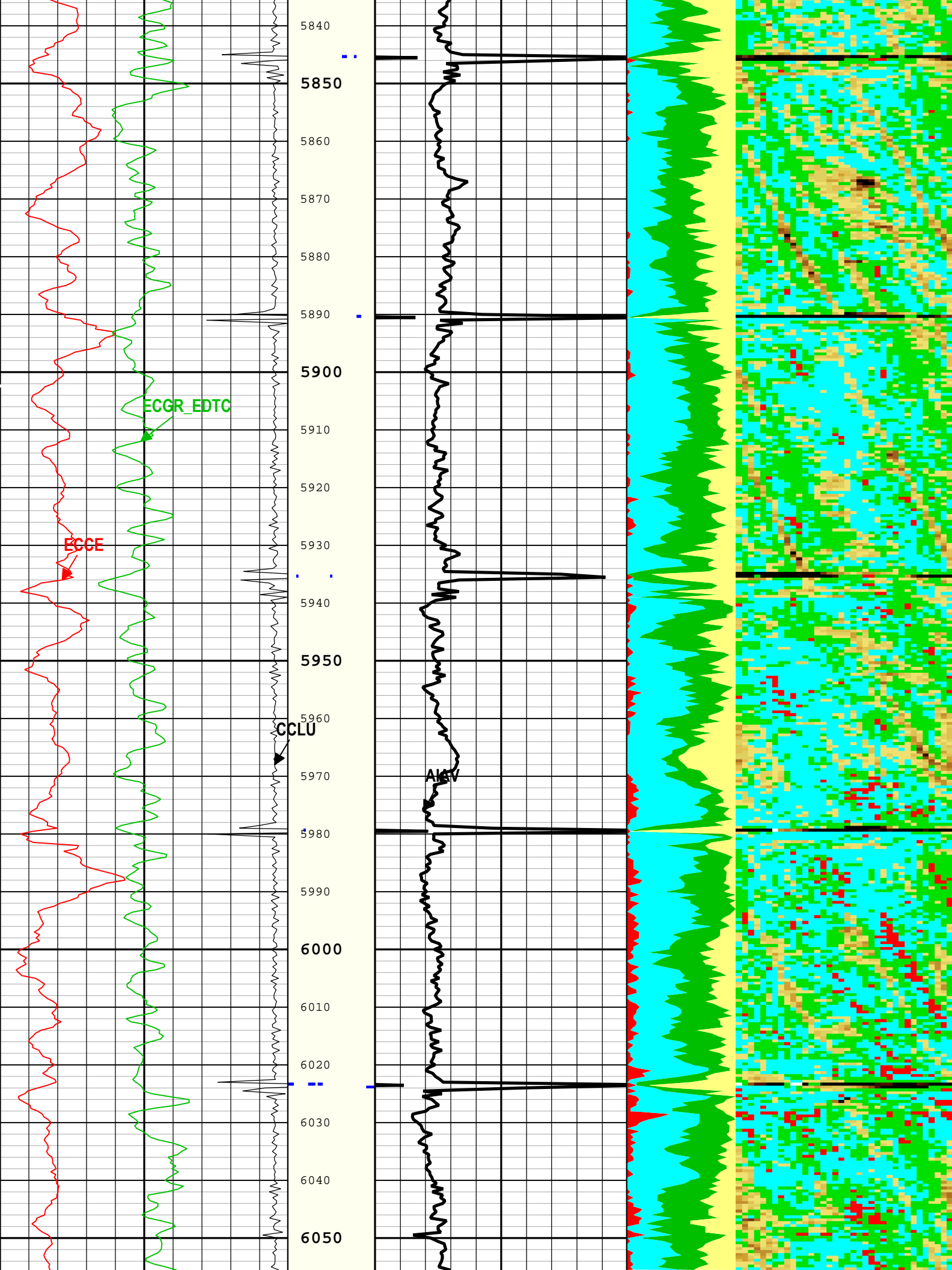


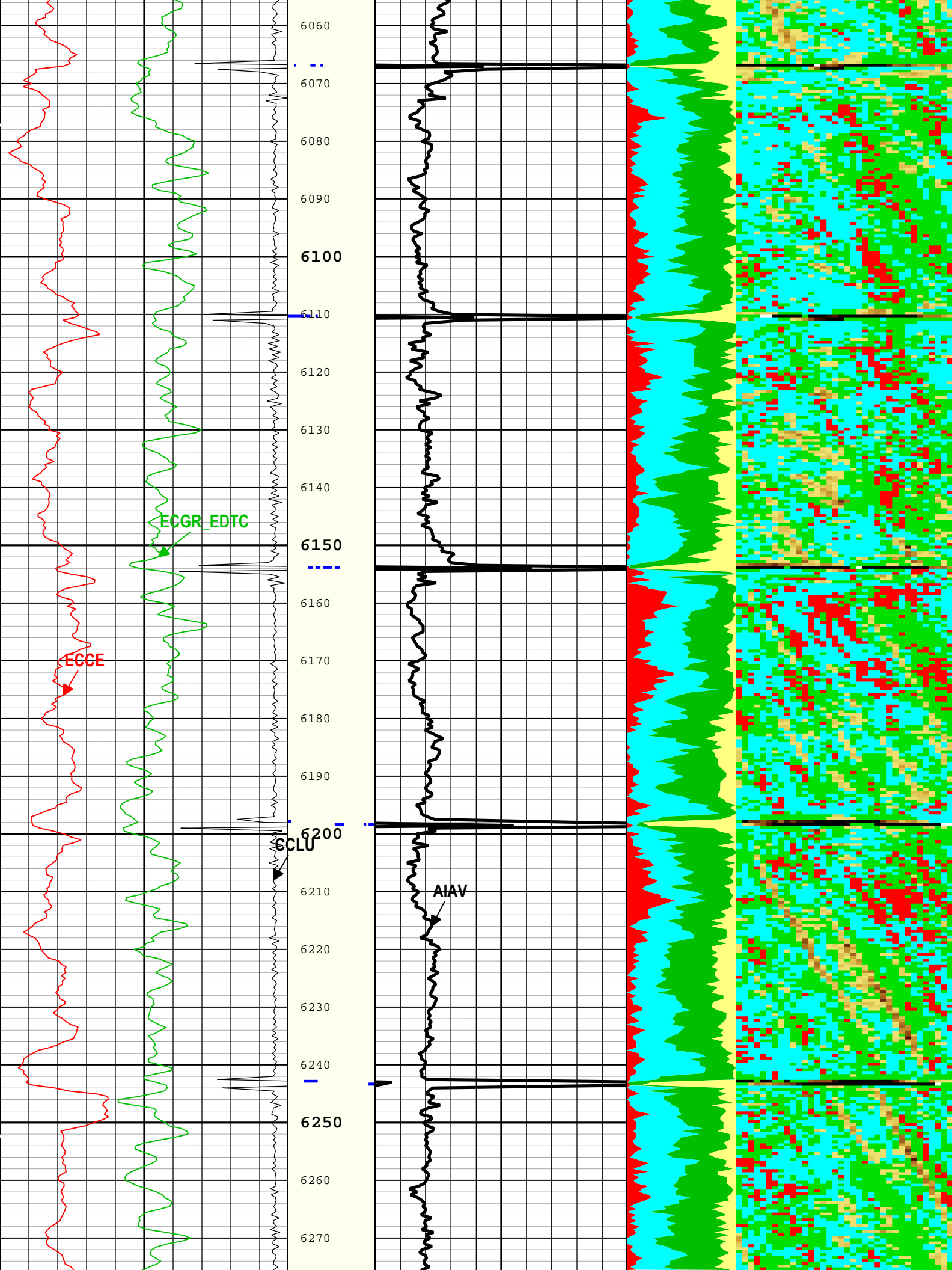


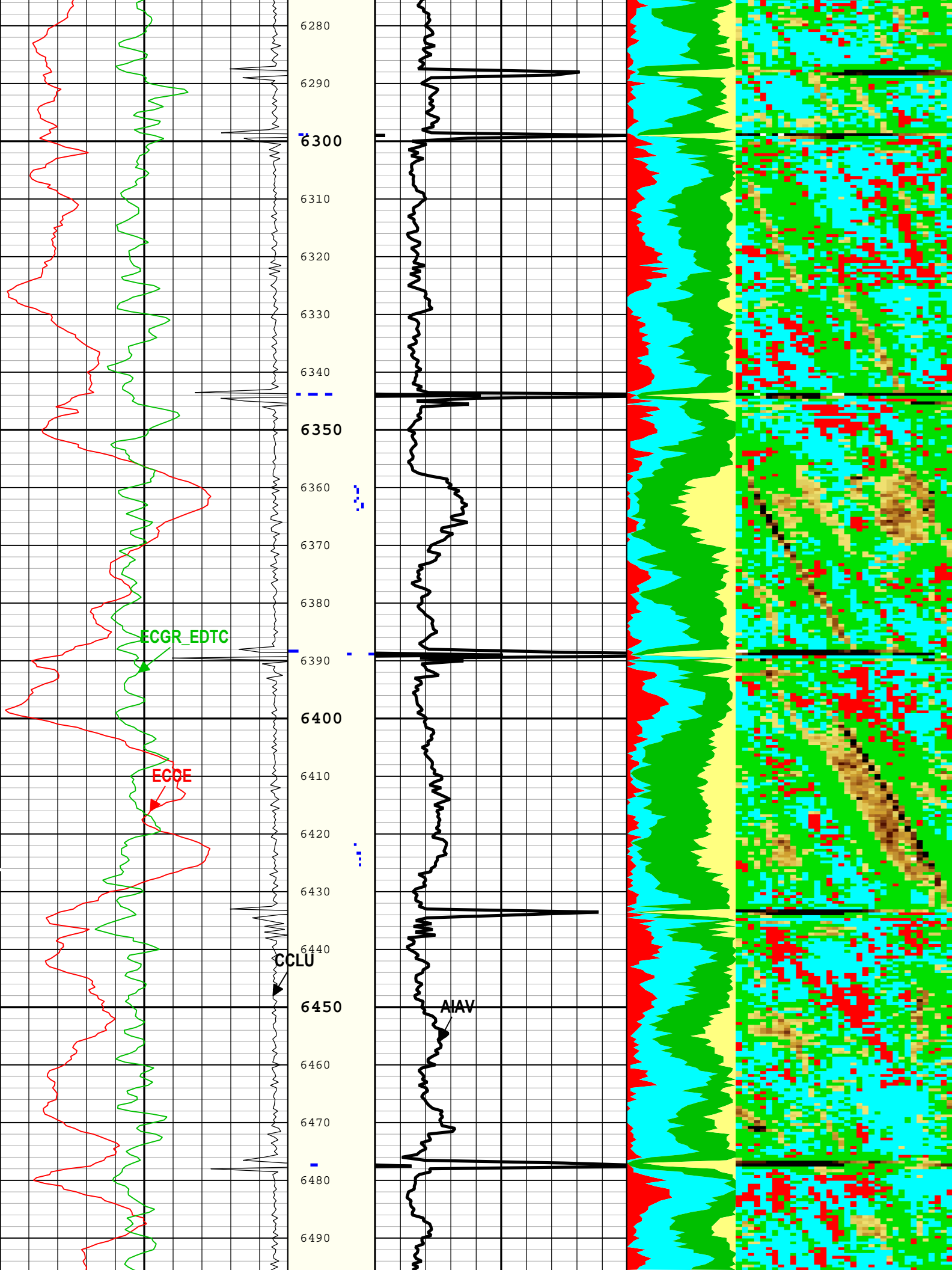


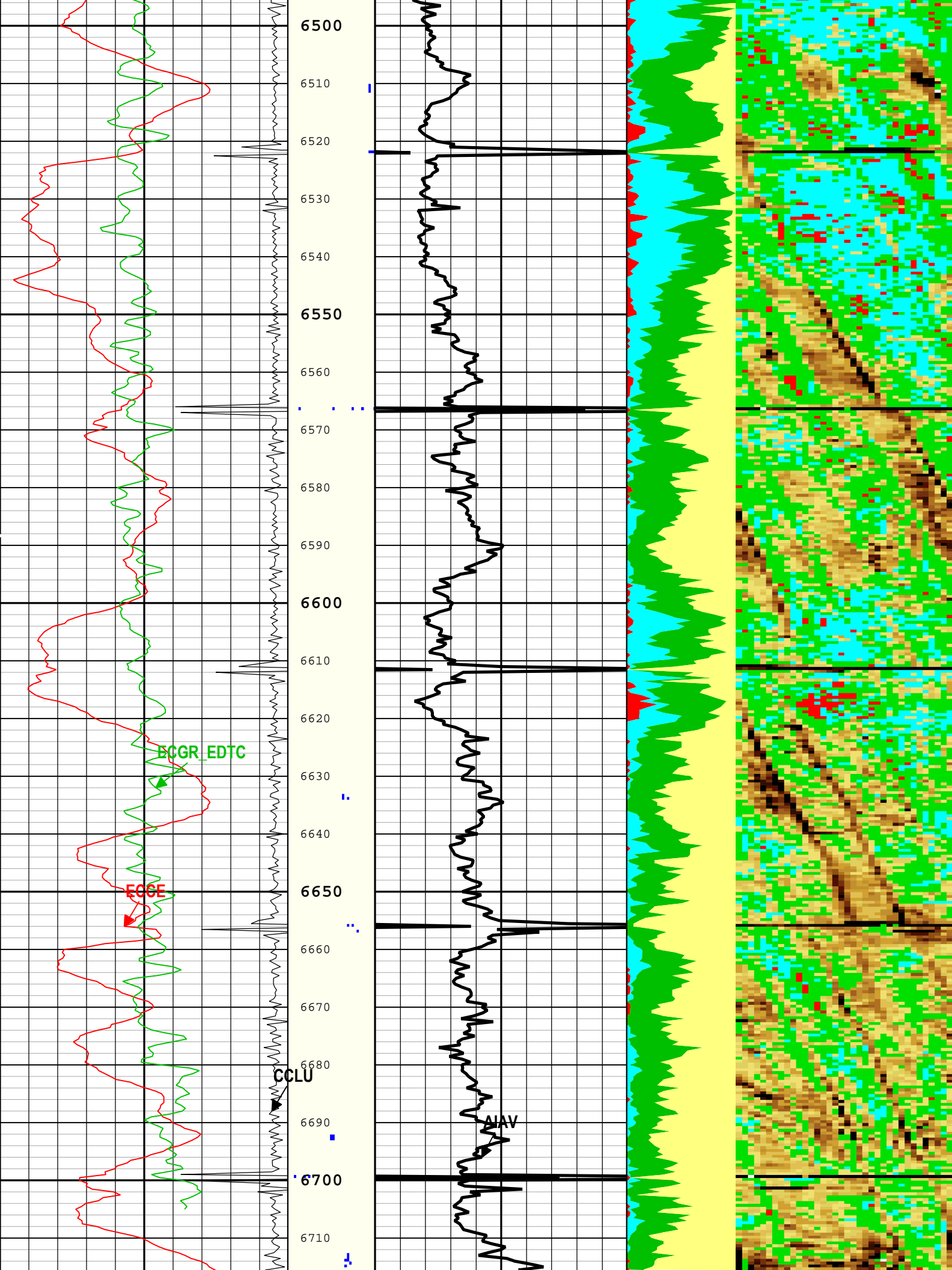












Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB

EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in	
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	20	02-Nov-2018 13:47:53	02-Nov-2018 13:48:19	6726.11	6696.98
EMXV	25	02-Nov-2018 13:48:19	02-Nov-2018 13:48:24	6696.98	6686.18
EMXV	30	02-Nov-2018 13:48:24	02-Nov-2018 14:39:15	6686.18	44.8

All depth are at tool zero.

ONE					
0 PSI Repeat Pass					

Software Version					
Acquisition System			Version		
Maxwell 2018 SP2			8.2.104493.3100		

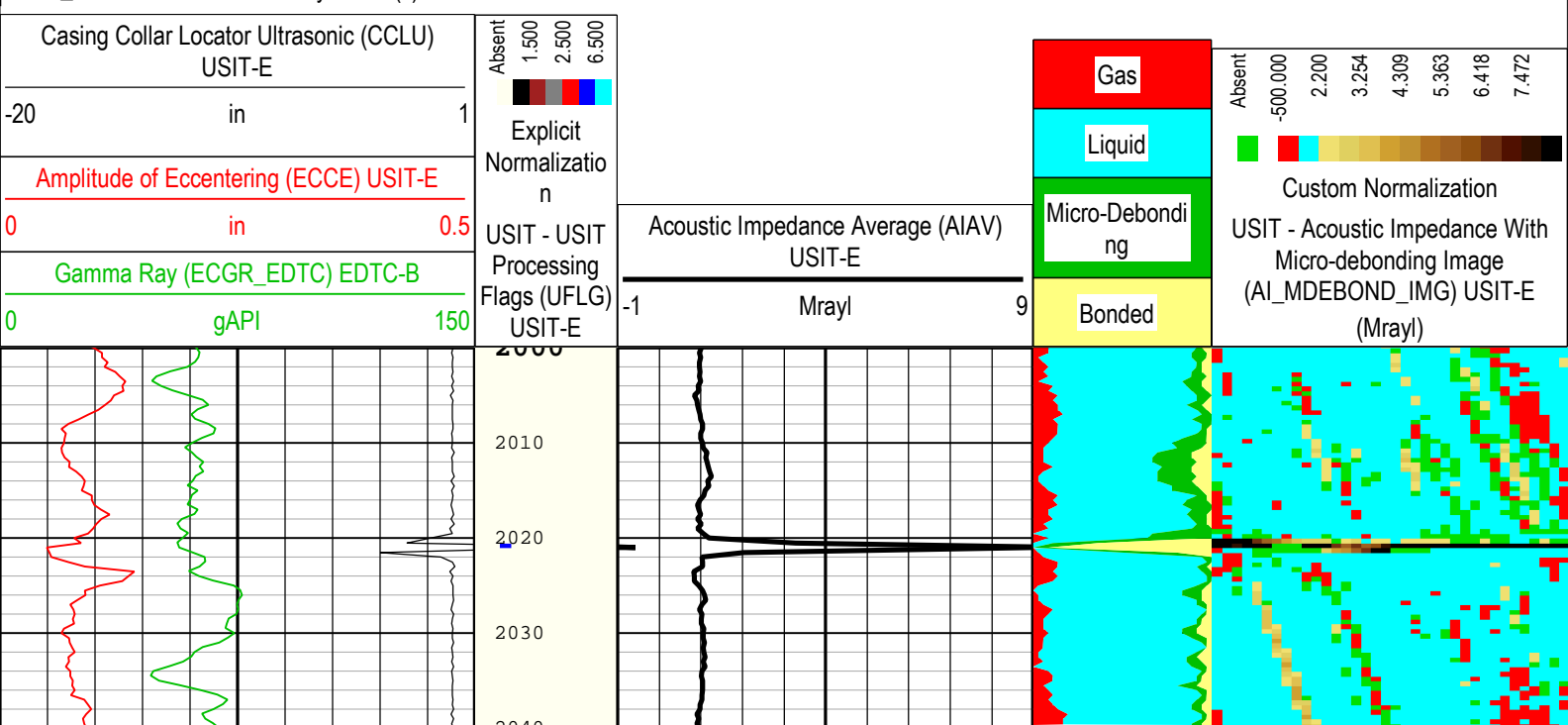
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Repeat[4]:Up	Up	1981.79 ft	2503.18 ft	02-Nov-2018 12:48:47 PM	02-Nov-2018 12:52:24 PM	ON	1.06 ft	Yes

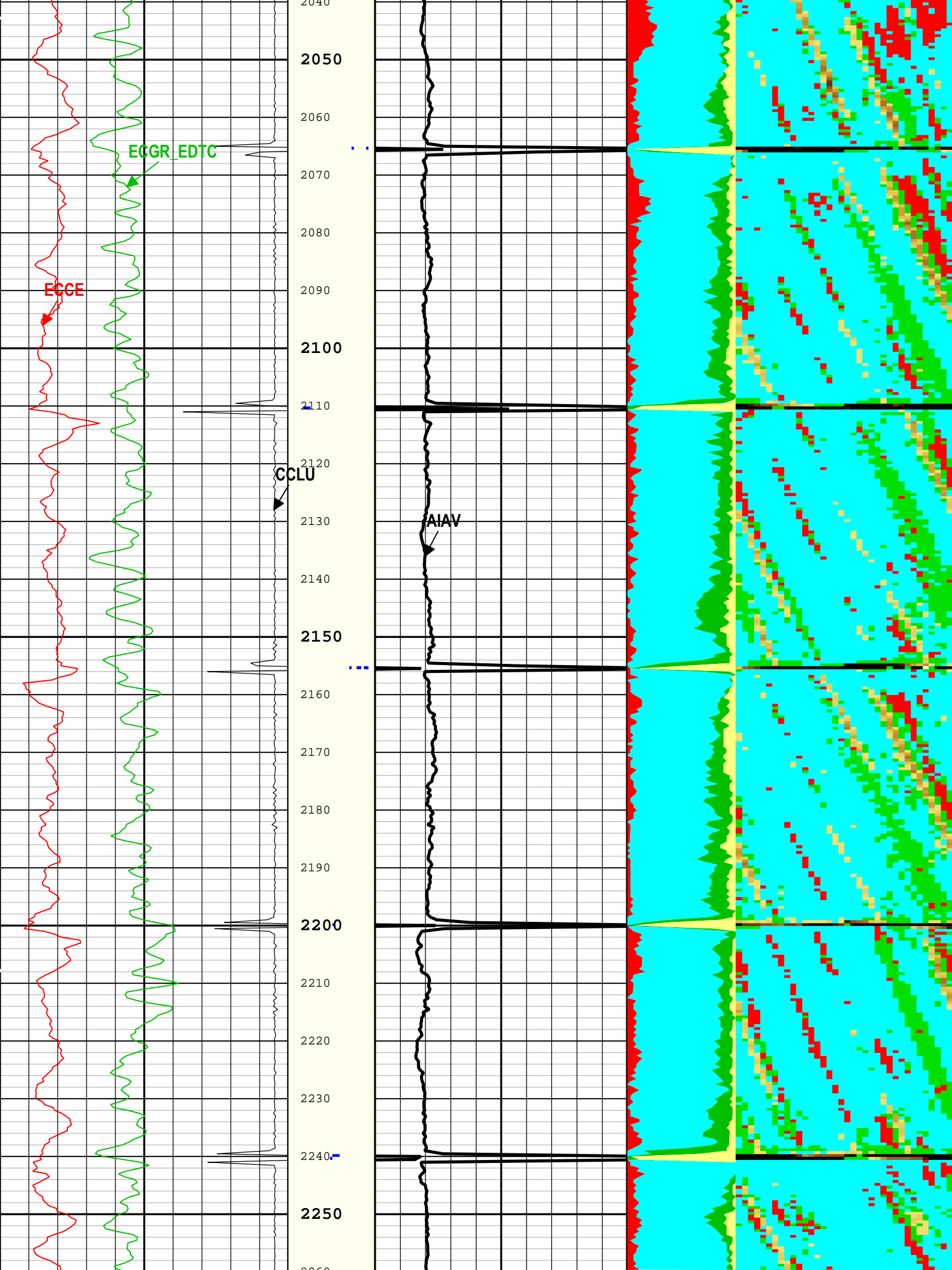
All depths are referenced to toolstring zero

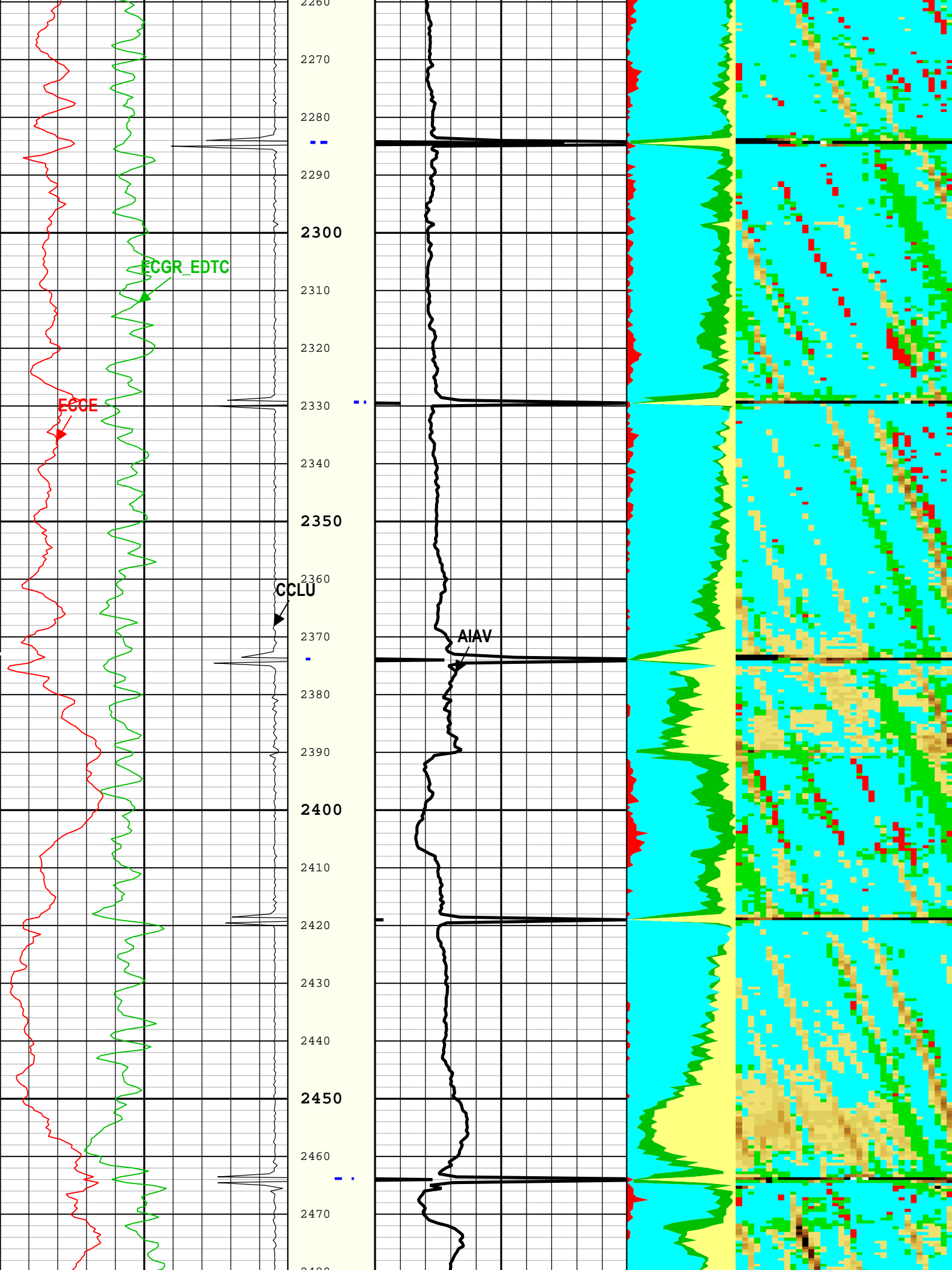
Log		Company:Noble Energy Inc. Well:EMMY H25-724 ONE: Repeat[4]:Up:S010							
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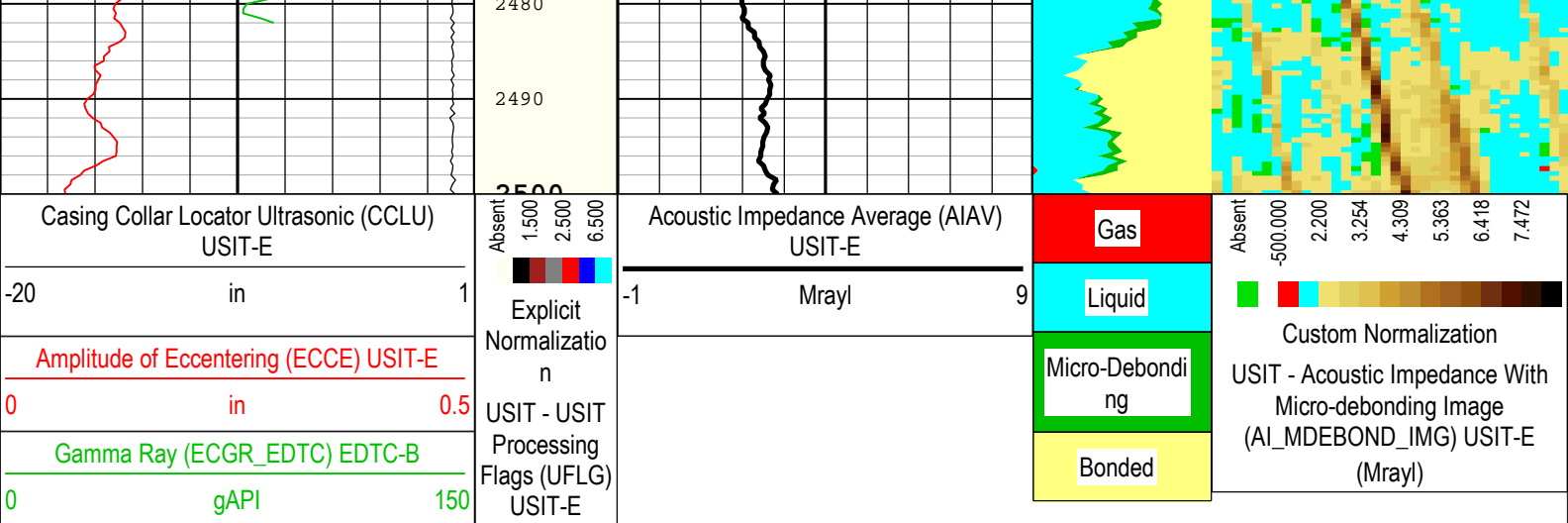
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Creation Date: 03-Nov-2018 16:13:30

TIME_1900 - Time Marked every 60.00 (s)









TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth

Creation Date: 03-Nov-2018 16:13:30

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	8.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	17322.9	ft
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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)	
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	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
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	1.55	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

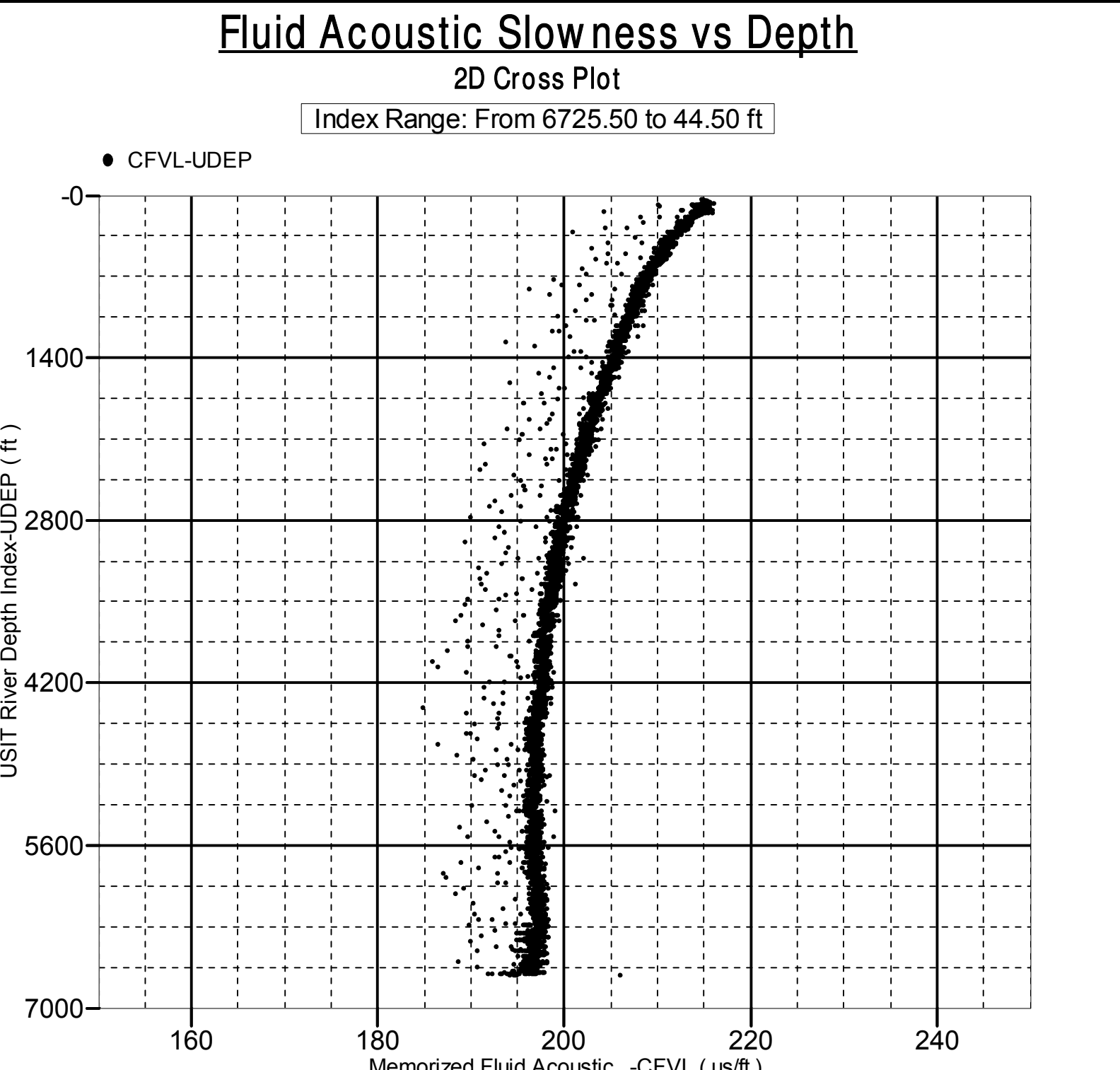
Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
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AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
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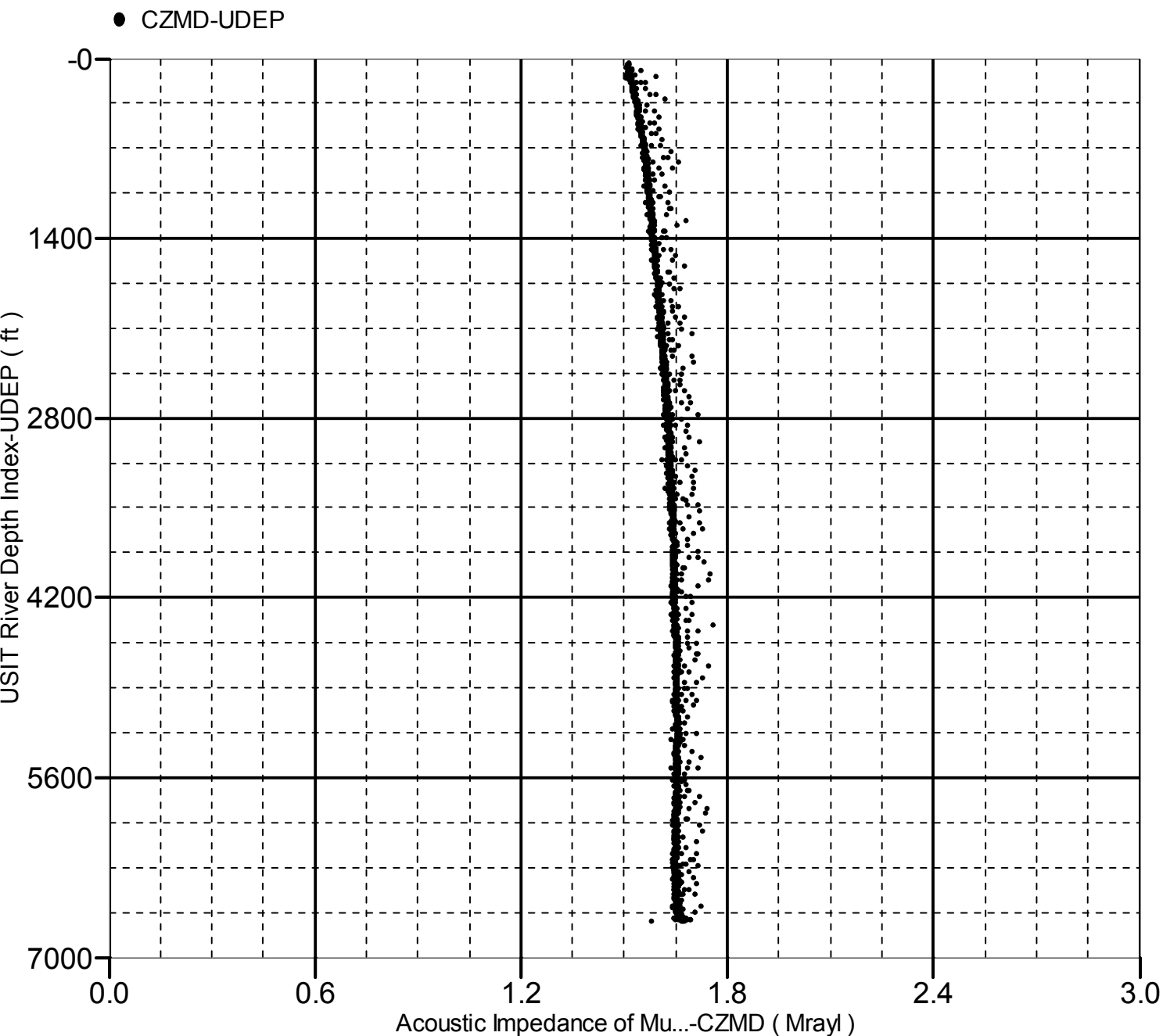
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	20	02-Nov-2018 12:48:47	02-Nov-2018 12:50:15	2503.18	2331.51
EMXV	25	02-Nov-2018 12:50:15	02-Nov-2018 12:52:24	2331.51	1981.79
All depth are at tool zero.					
XYZ		Company:Noble Energy Inc. Well:EMMY H25-724 ONE: Main[7]:Up:S010			



Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6725.50 to 44.50 ft



Company: Noble Energy Inc.

Schlumberger

Well: EMMY H25-724

Field: DJ BASIN

County:	Weld
State:	Colorado
UltraSonic Summary Print	