

Company: Noble Energy Inc

Well: Bison Ridge Y22-719

Field: Wattenberg

County: Weld Country: US

UltraSonic Summary Print

County:	Weld			
Field:	Wattenberg			
Location:	SHL: NWSE Sec. 10, T2N, R64W		Elev.:	K.B. 4953.00 ft
	2640' FSL & 589' FEL			G.L. 4923.00 ft
	Lat: 40.15182 / Long: -104.5352			D.F. 4953.00 ft
Well:	Bison Ridge Y22-719			
Company:	Noble Energy Inc			
	Location:	Permanent Datum:	Ground Level	Elev.:
		Log Measured From:	Kelly Bushing	30.00 ft
		Drilling Measured From:	Kelly Bushing	above Perm.Datum
	API Serial No.	Max.Hole Deviation	Longitude:	Latitude:
	05-123-45369		-104.53520 degrees	40.151820 degrees
Logging Date	23-Jan-2018			

Run Number	One		
Depth Driller	17193.00 ft		
Schlumberger Depth	17193.00 ft		
Bottom Log Interval	6700.00 ft		
Top Log Interval	60.00 ft		
Casing Fluid Type	Calcium Chloride Brine		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.50 in		
From	2041.00 ft		
To	17193.00 ft		
Casing/Tubing Size	5.5 in		
Weight	20 lbm/ft		
Grade	N/A		
From	0.00 ft		
To	17183.20 ft		
Max Recorded Temperatures	220 degF		
Logger on Bottom	23-Jan-2018	13:02:00	
Unit Number	9108	Fort Morgan, CO	
Recorded By	Benjamin Mammon		
Witnessed By	Bill Mansfield		

Disclaimer

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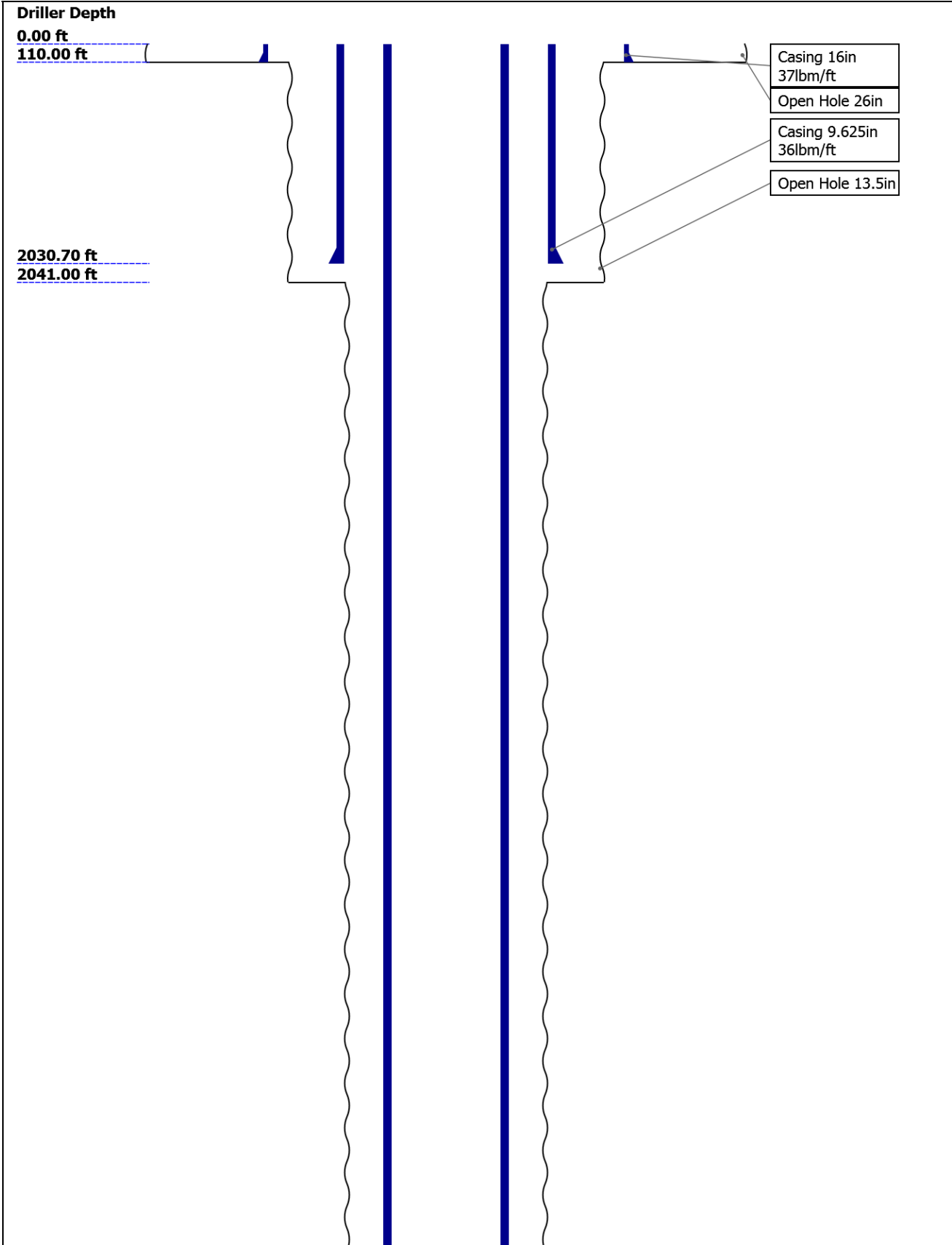
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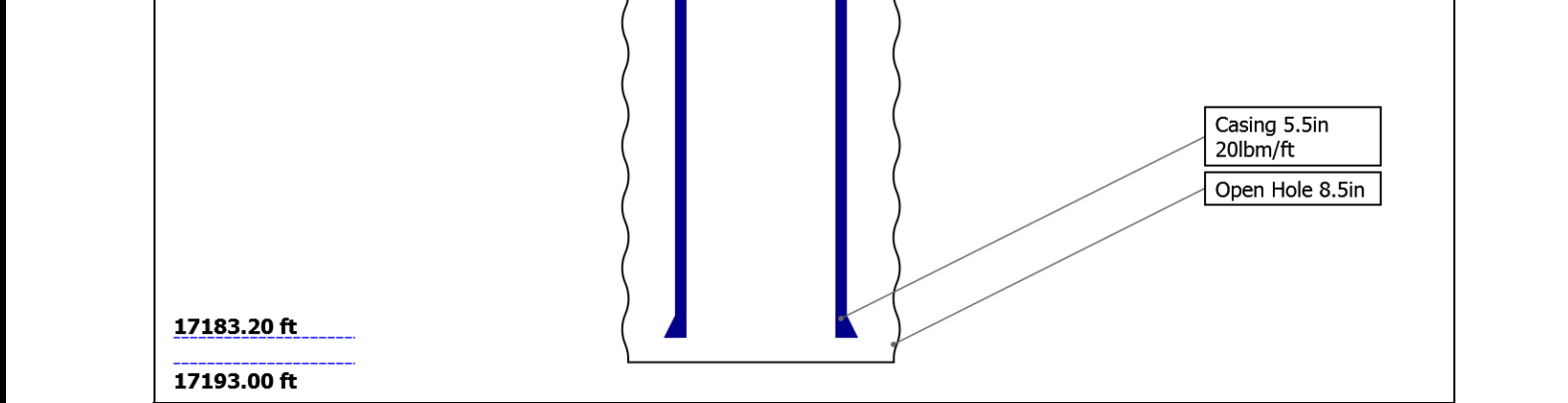
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	0	110	2041			
Top Logger (ft)	0	110	2041			
Bottom Driller (ft)	110	2041	17193			
Bottom Logger (ft)	110	2041	17193			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	37	36	20			
Inner Diameter (in)	15.571	8.921	4.778			
Grade	N/A	N/A	N/A			
Top Driller (ft)	0	0	0			
Top Logger (ft)	0	0	0			
Bottom Driller (ft)	110	2030.7	17183.2			
Bottom Logger (ft)	110	2030.7	17183.2			

Operational Run Summary

Parameter (unit)	One					
Date Log Started	23-Jan-2018					
Time Log Started	12:39:10					
Date Log Finished	23-Jan-2018					
Time Log Finished	14:41:02					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)						
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.500					
Logging Unit Number	9108					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Benjamin Marmon					

Witnessed By	Bill Mansfield					
Service Order Number	DX2A-00002					

Borehole Fluids

Parameter(unit)	One					
Fluid Type	Water					
Fluid Name	Calcium Chloride Brine					
Max Recorded Temperatures (degF)	220					
Source of Sample	Active Tank					
Salinity (ppm)	0					
Density (lbm/gal)	8.4					
Funnel Viscosity (s)	26					
Fluid Loss (cm3)						
PH						
Date/Time Circulation Stopped	NaN					
Date Logger on Bottom	23-Jan-2018					
Time Logger on Bottom	13:02:00					
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 @ 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	Length	MP name Offset	This is the first log in the well.
LEH-QT:2	33.83		Toolstring ran as per tool sketch.
353			Log up correlated to log down.
LEH-QT:23			Main Pass logged at 2500 PSI.
53			Repeat Pass logged at 0 PSI.
SAH-F:18	30.91		BHT = 220 degF
17			
EDTC-B:8	26.06		
424			
EDTH-B:84			
32			
EDTG-A:7			
7303			
EDTC-B:84			
24			
AH-184[19.56		
2]			
AH-184[17.56		
2]			

All measurements are relative to TOOL ZERO

Depth Control Remarks

All Schlumberger depth control procedures followed during logging operations.

IDW used as primart depth control device.

ZChart used as secondary depth control device.

Start Depth(ft)	Stop Depth(ft)
76.05	63.93

Start Value(us/ft)	End Value(us/ft)
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7.06ft)

1.69 MRayl

Start Value(Mrayl)	End Value(Mrayl)
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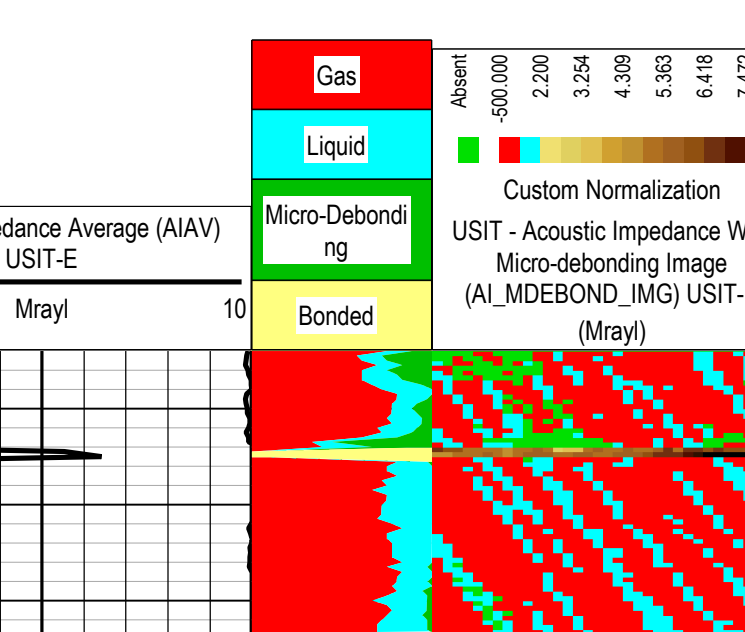
Main Pass

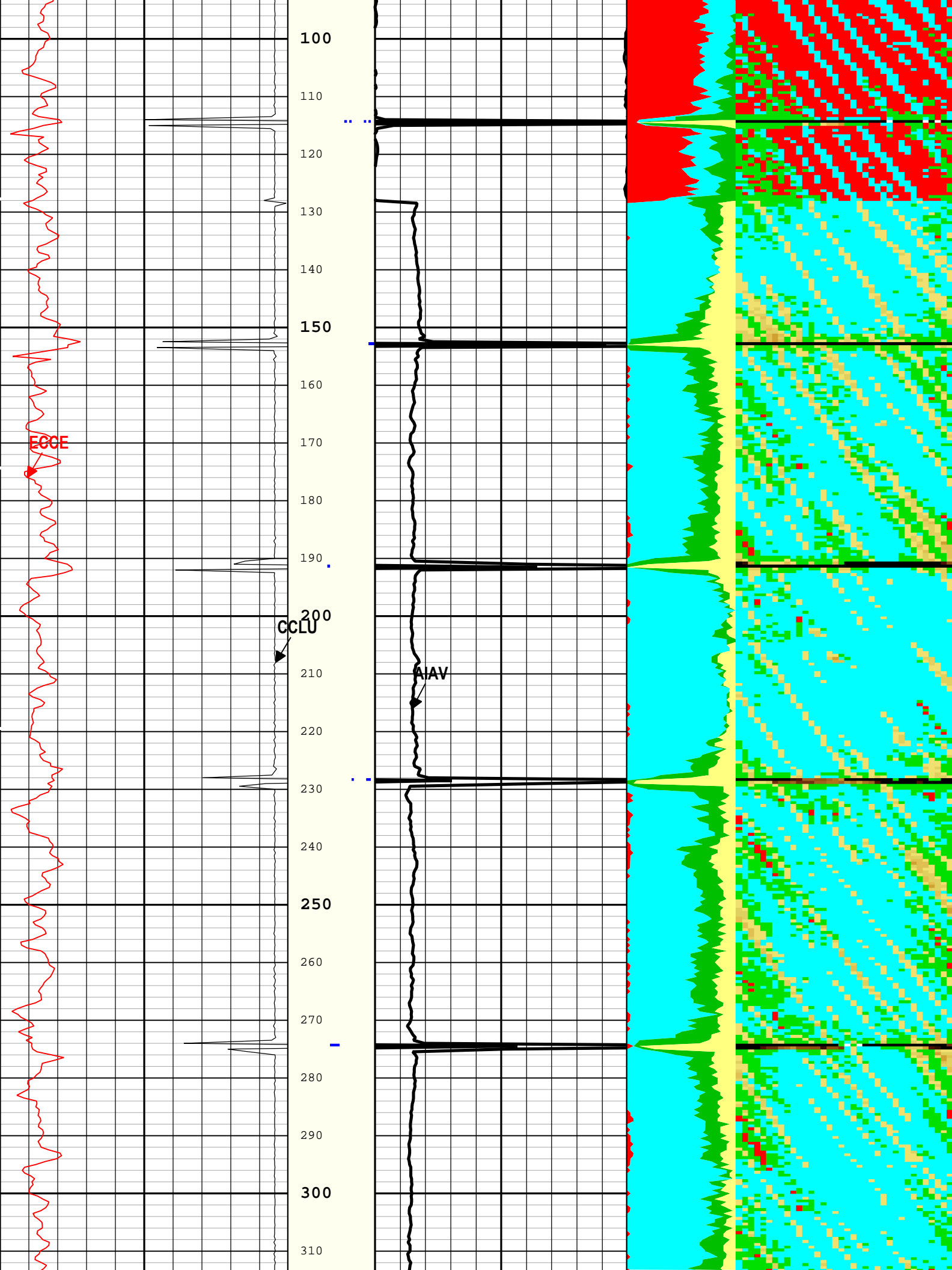
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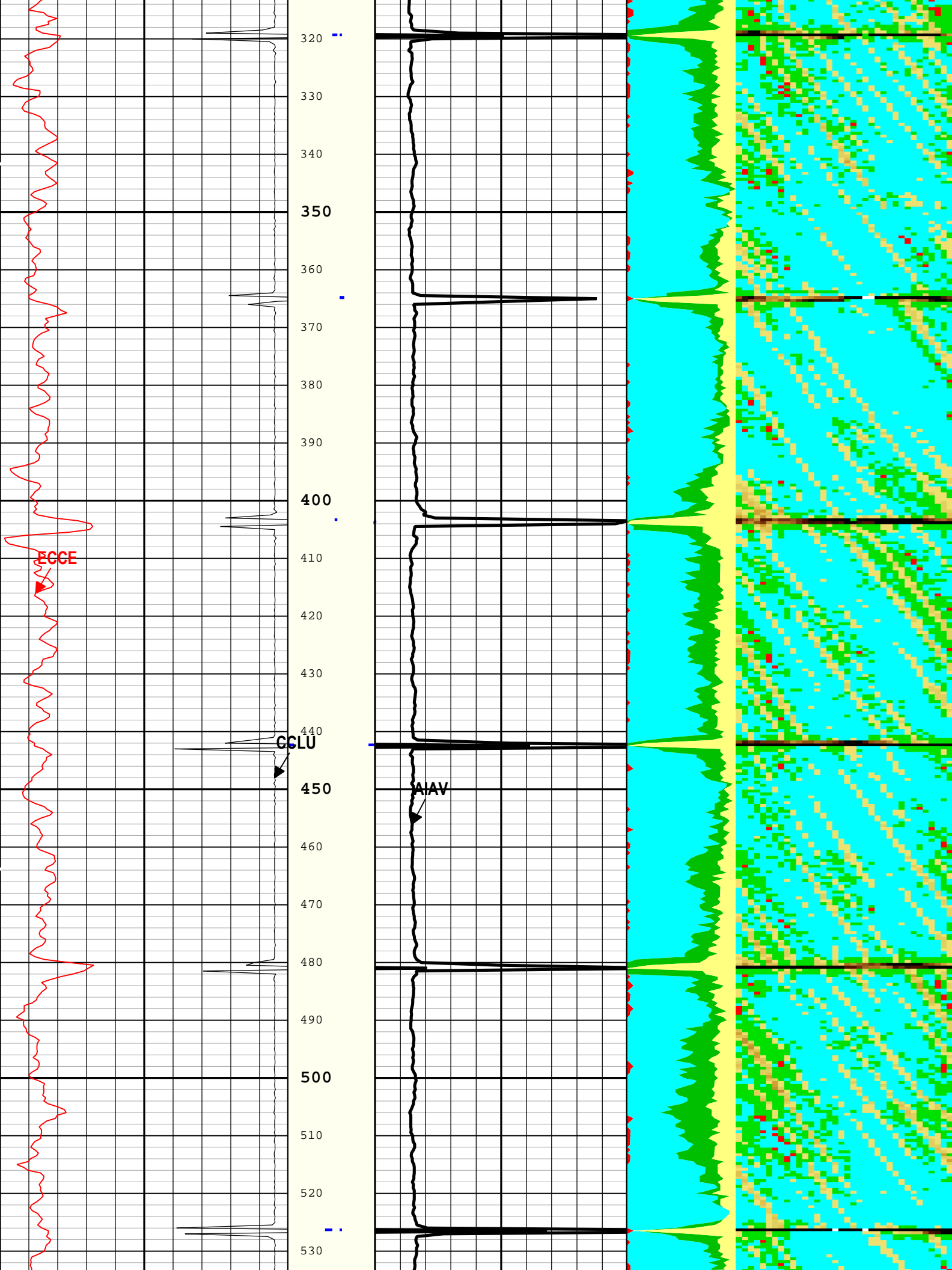
Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
23-Jan-2018 1:02:41 PM	23-Jan-2018 2:40:43 PM	ON	4.25 ft	No

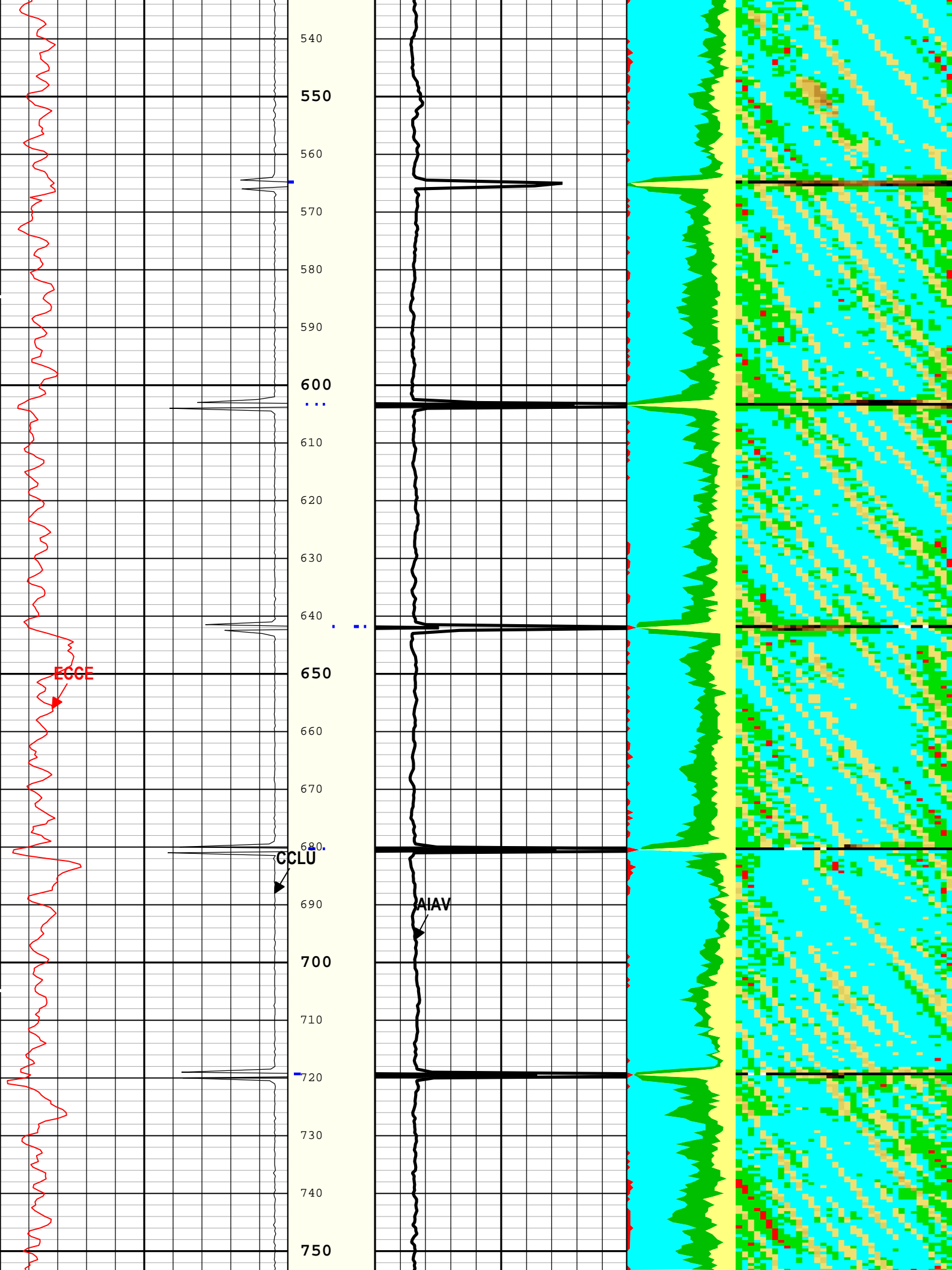
Company:Noble Energy Inc Well:Bison Ridge Y22-719
One: Log[3]:Up:S00

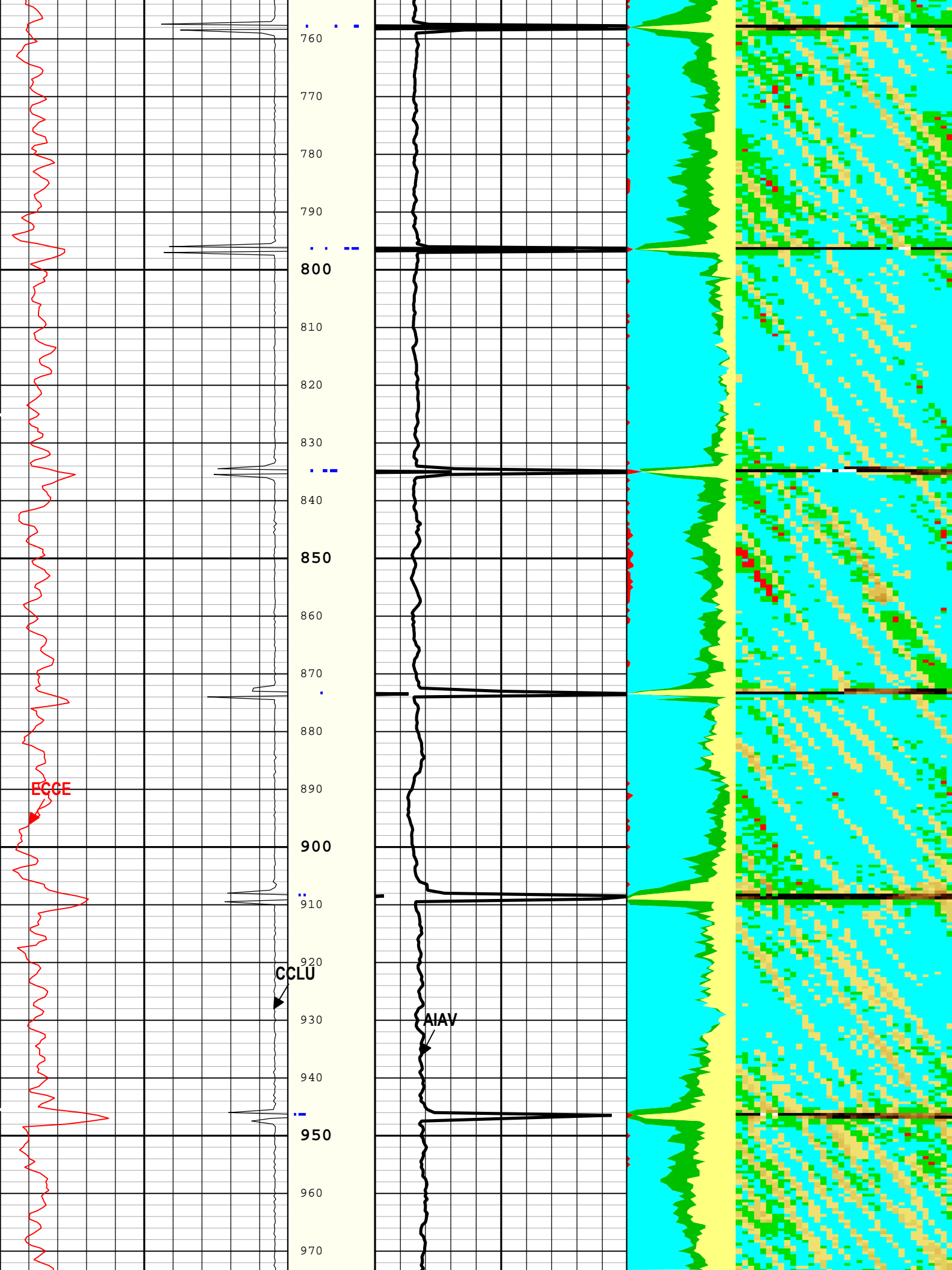
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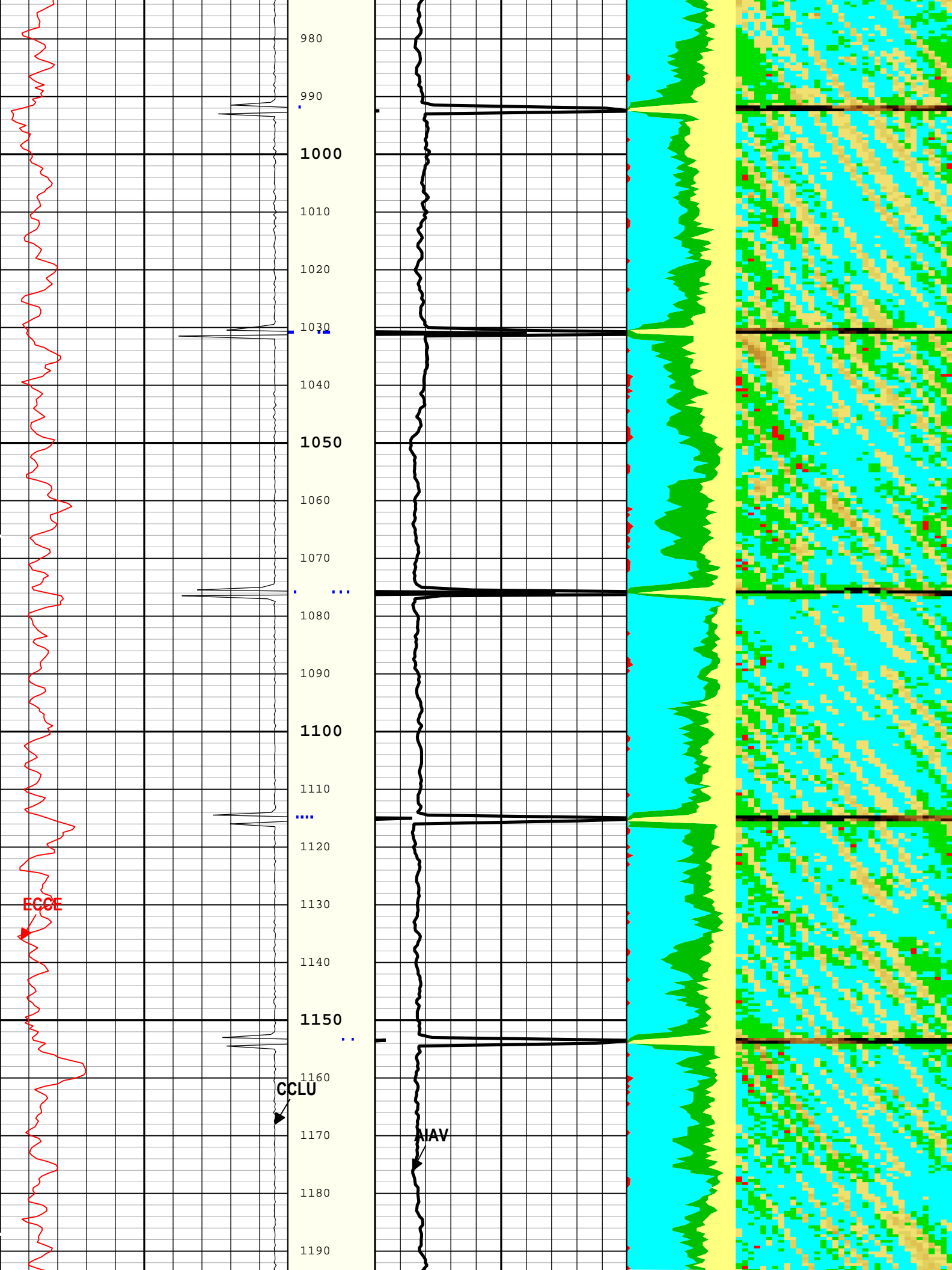


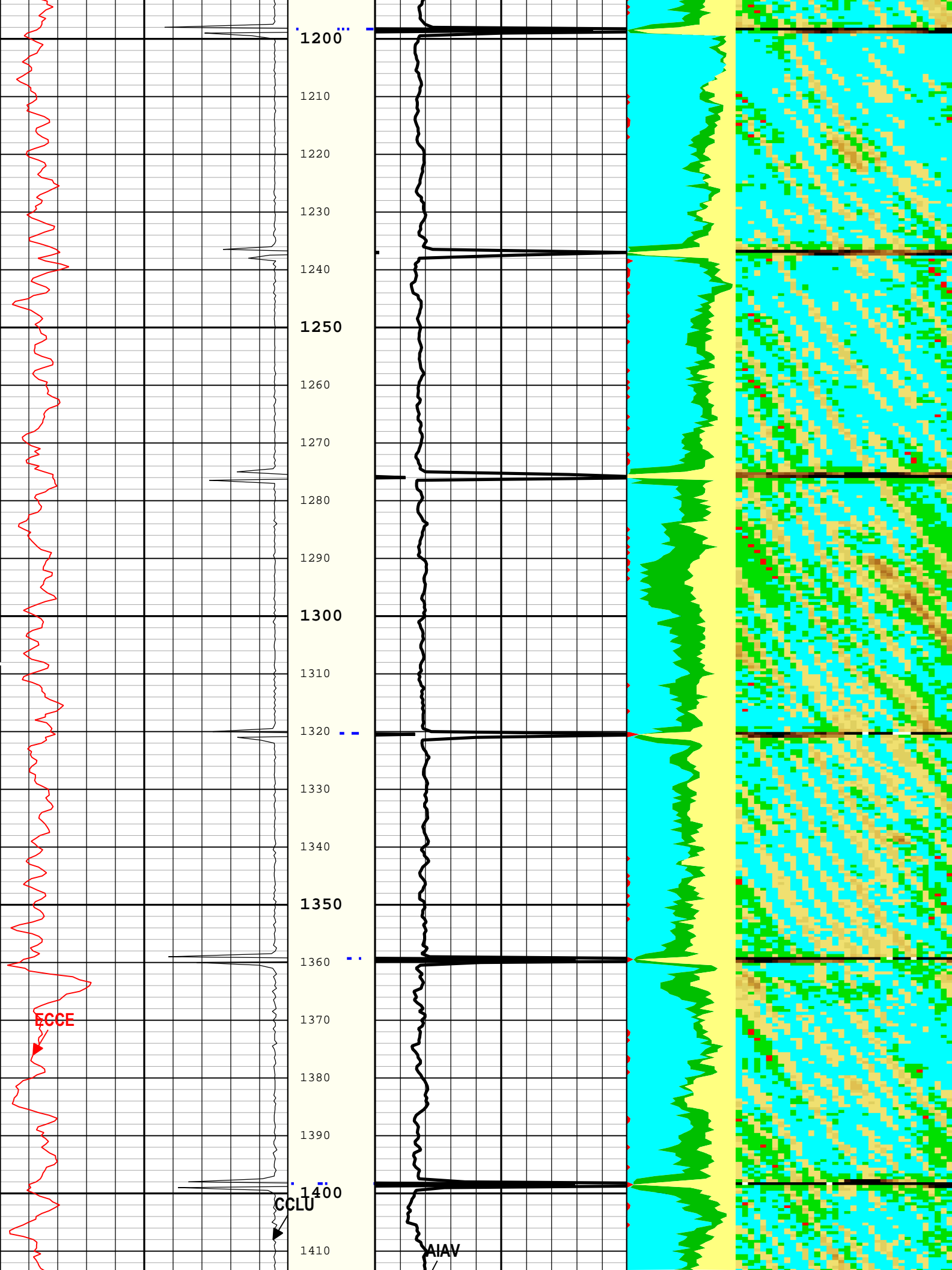


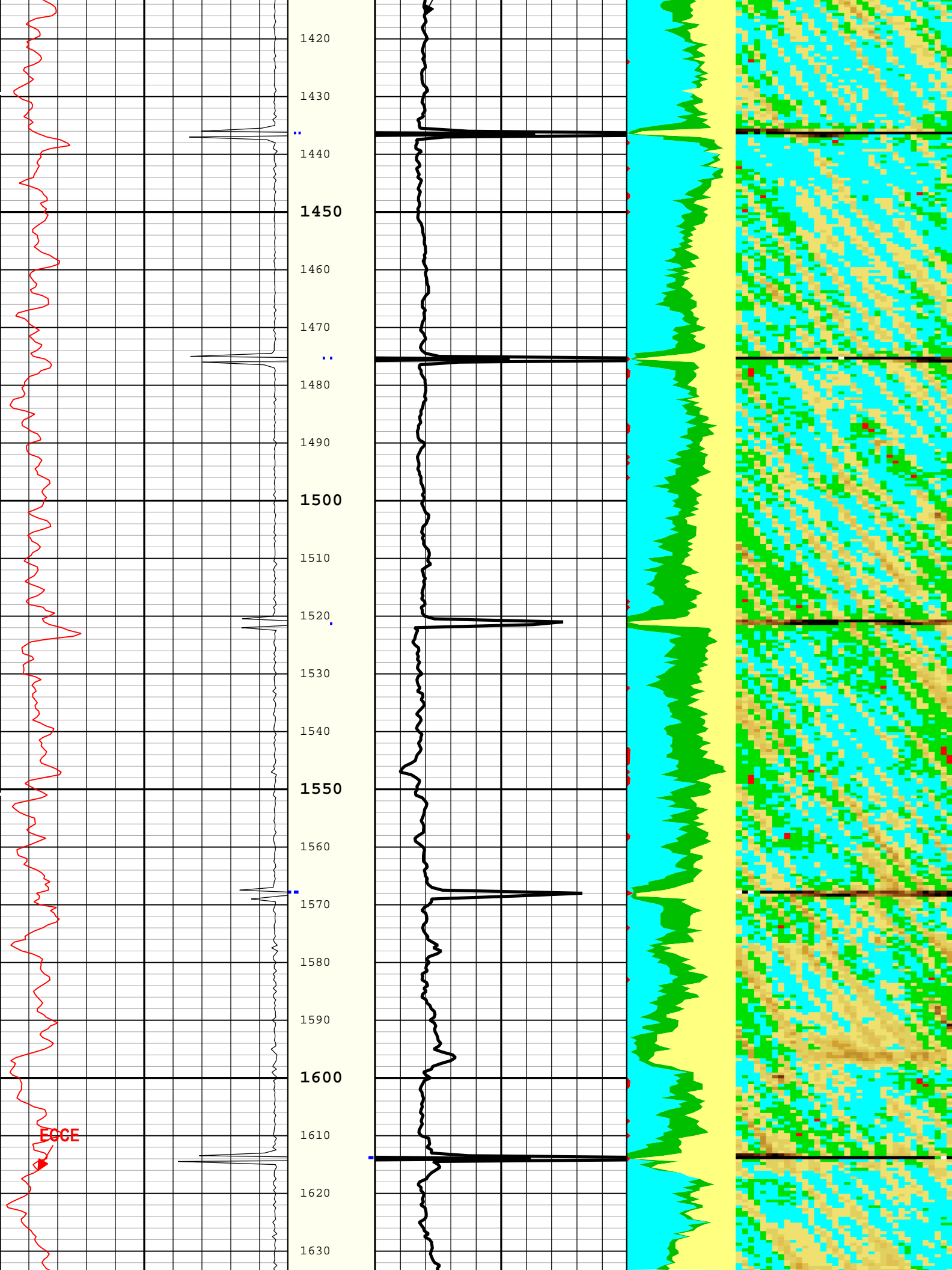


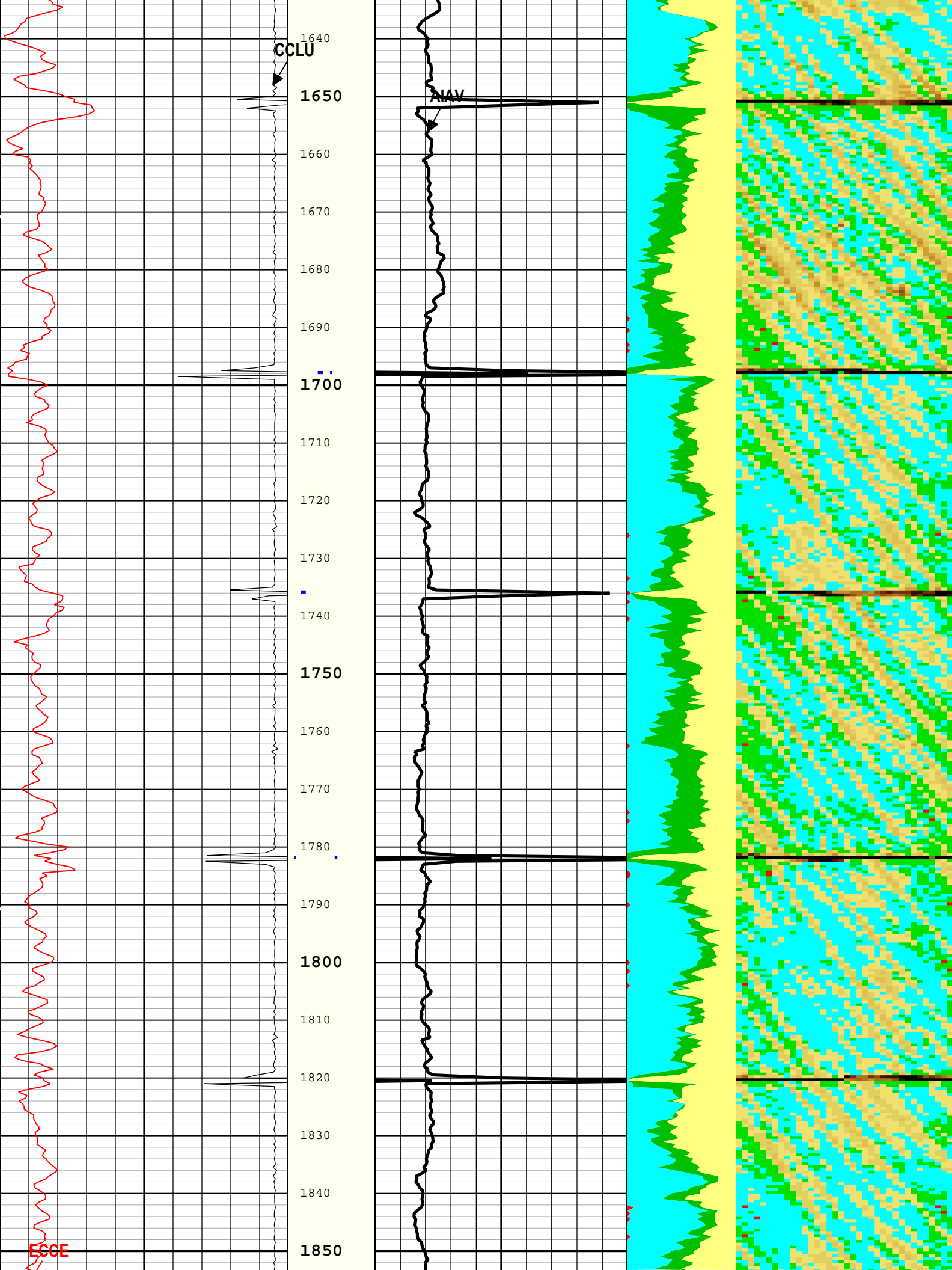


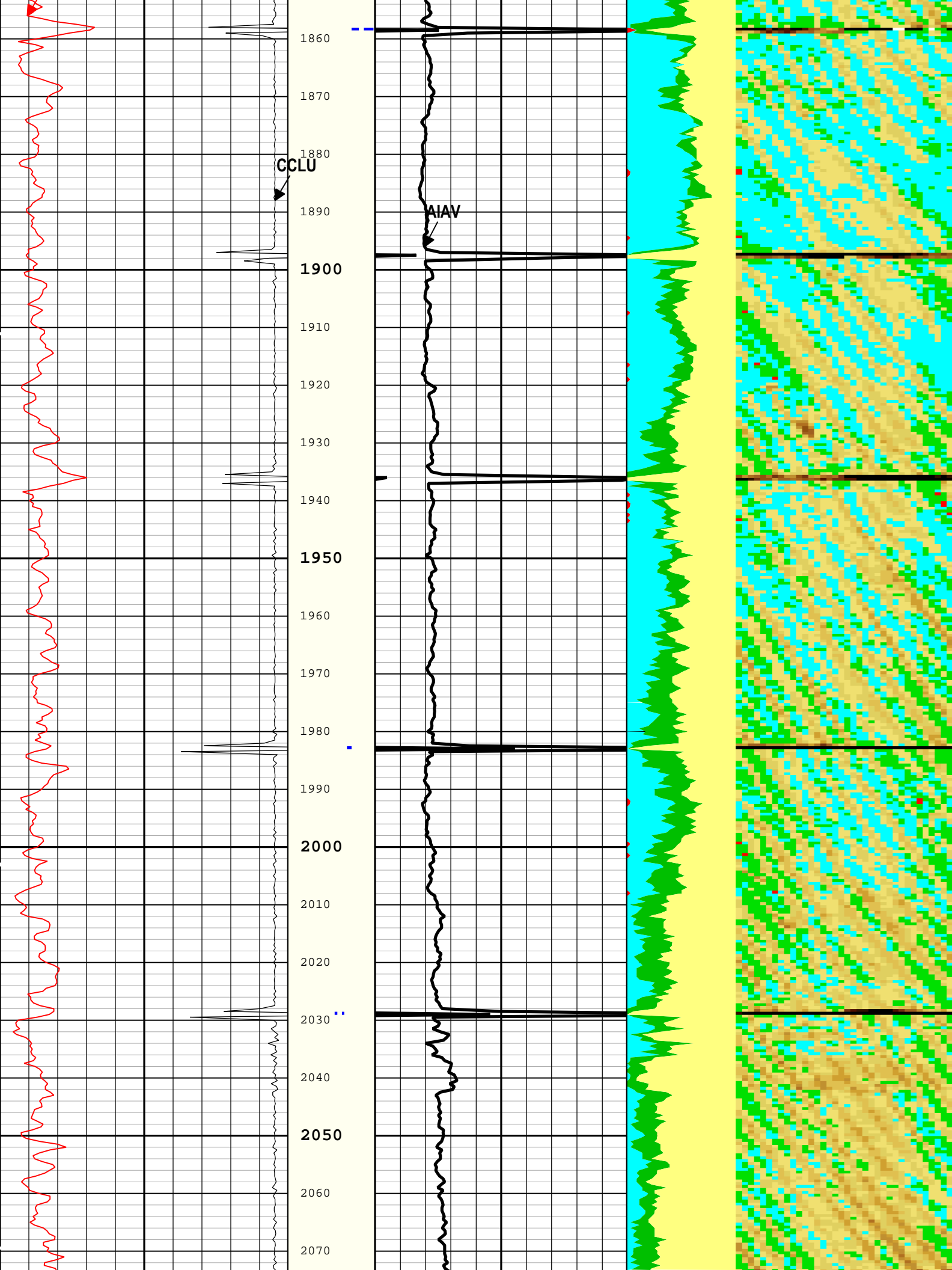


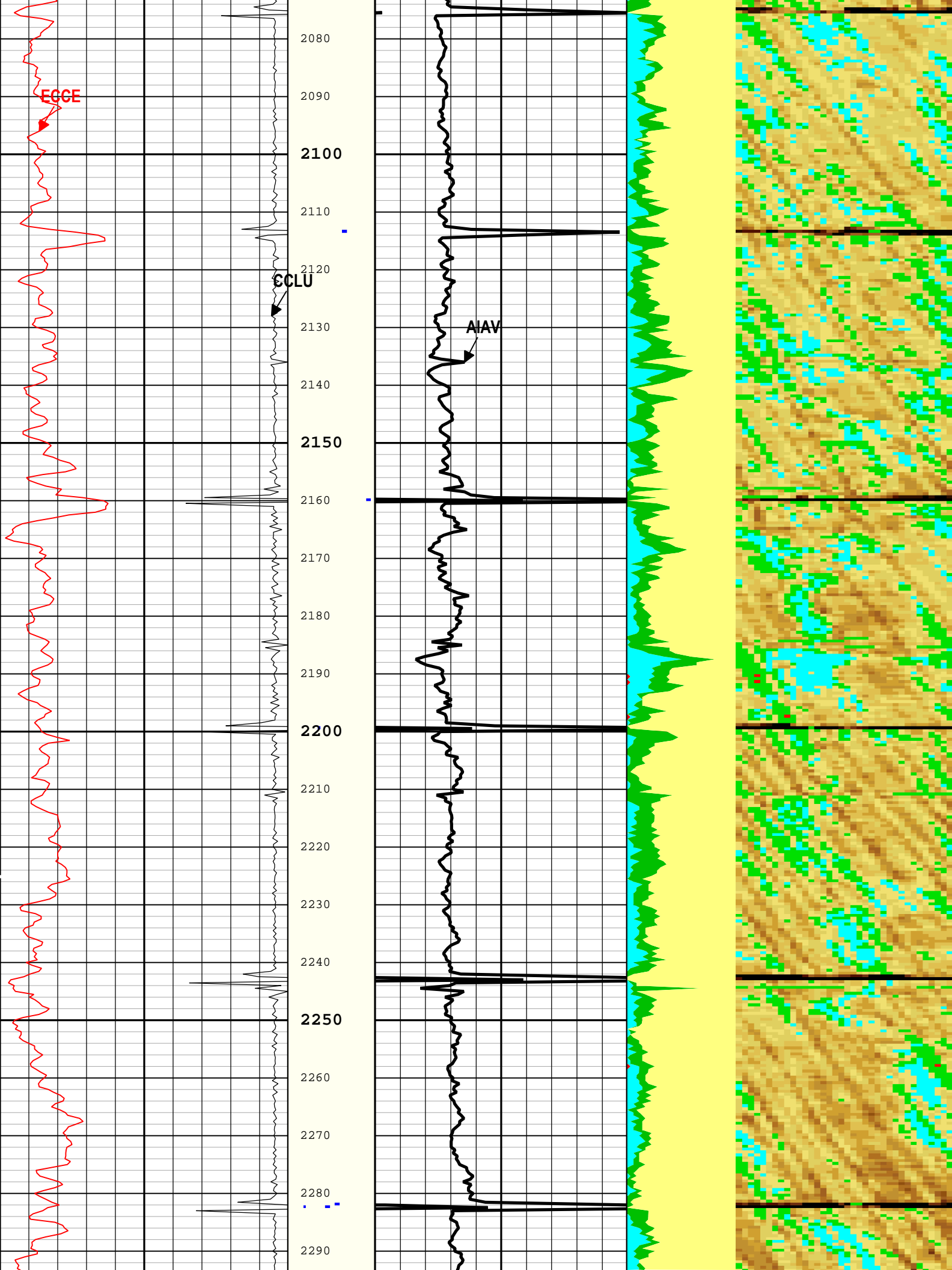


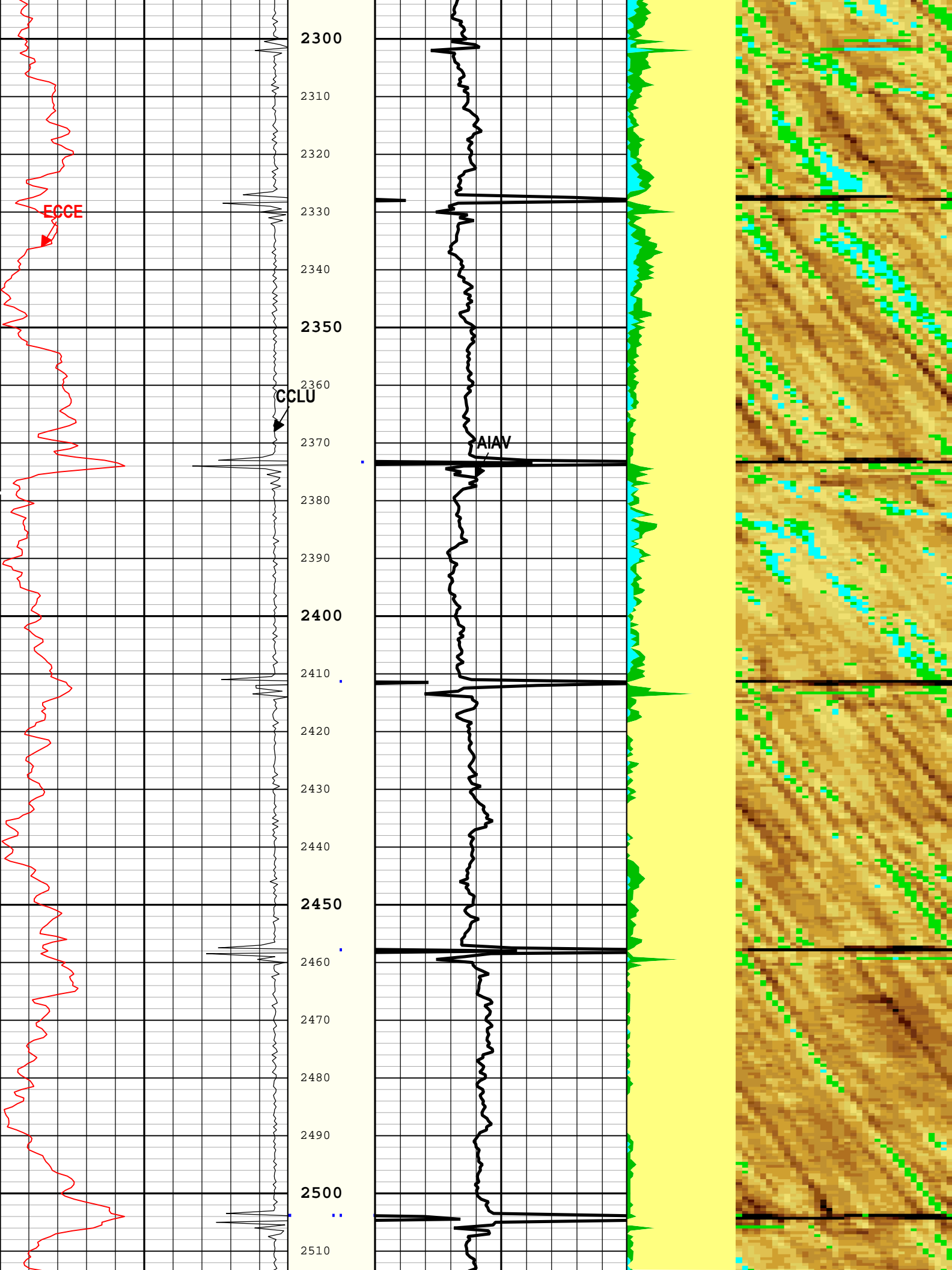


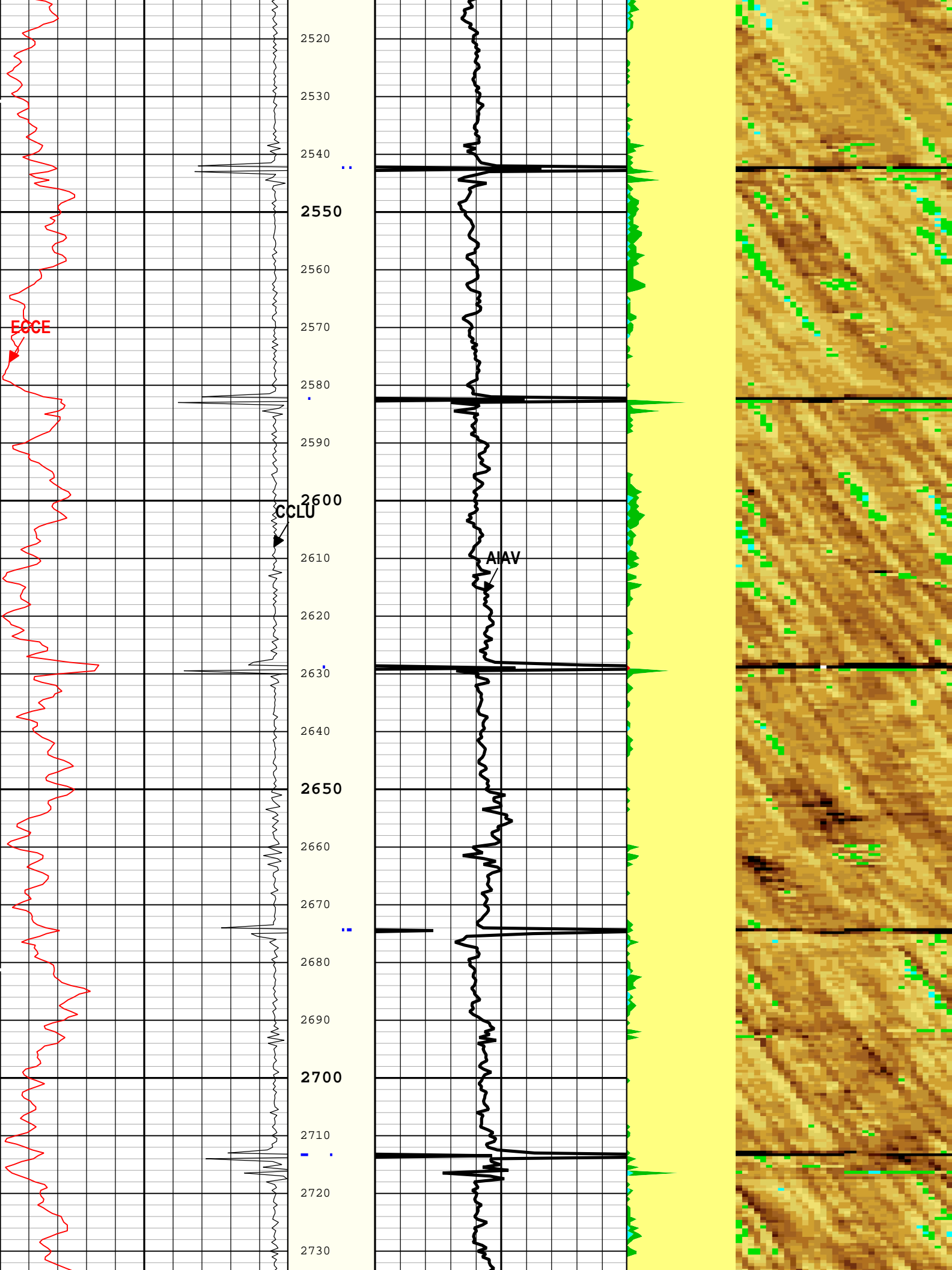


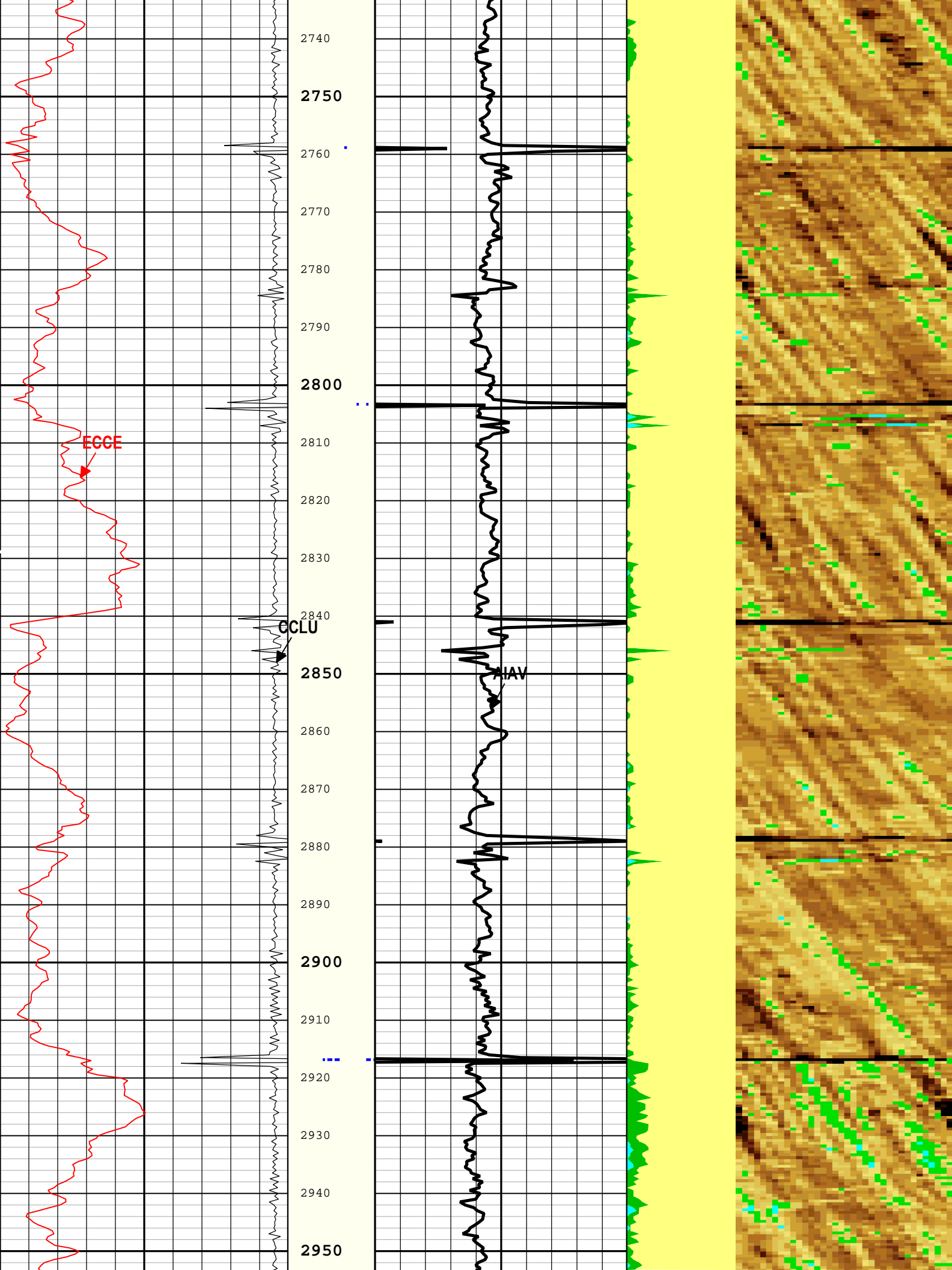


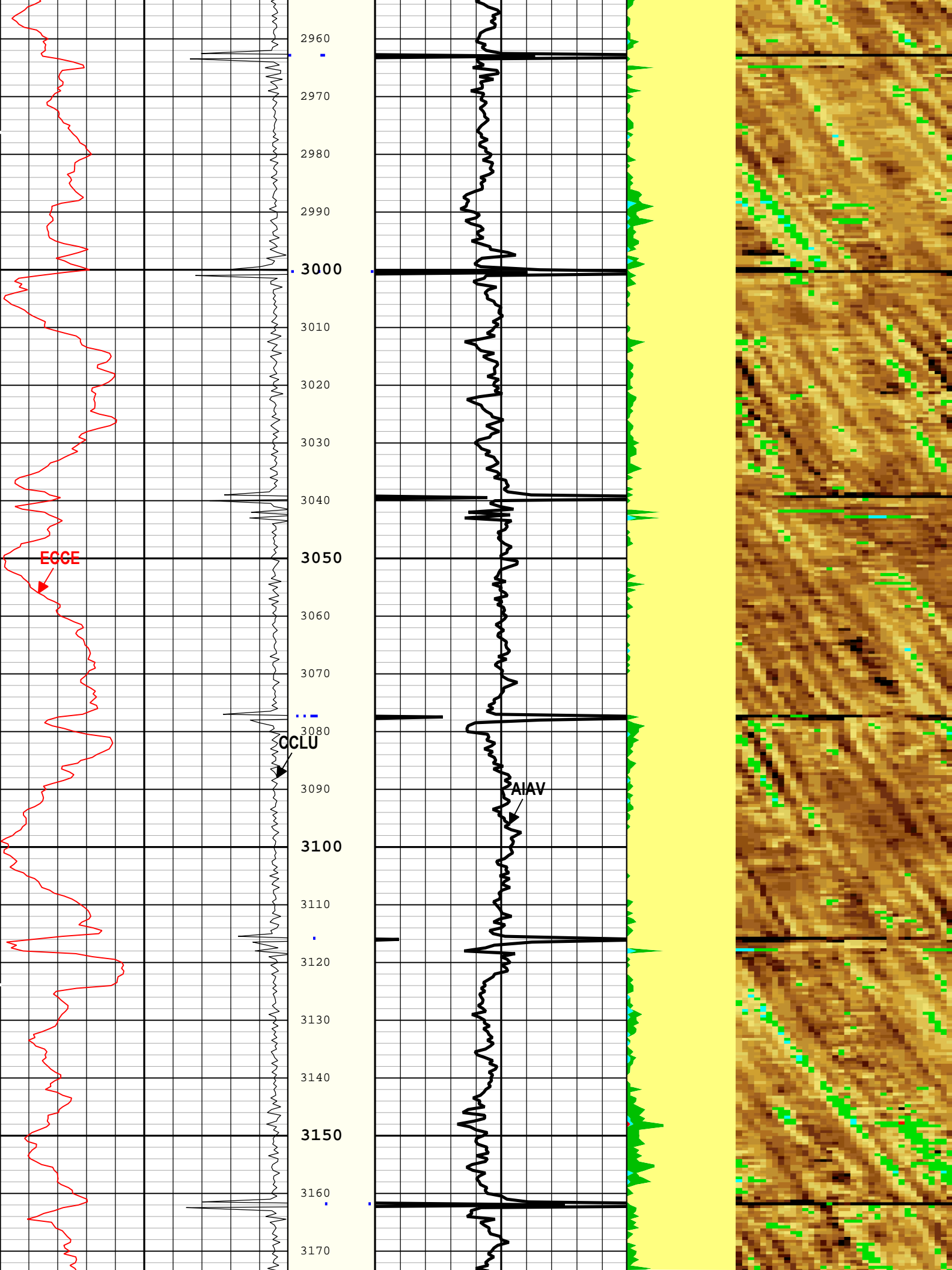


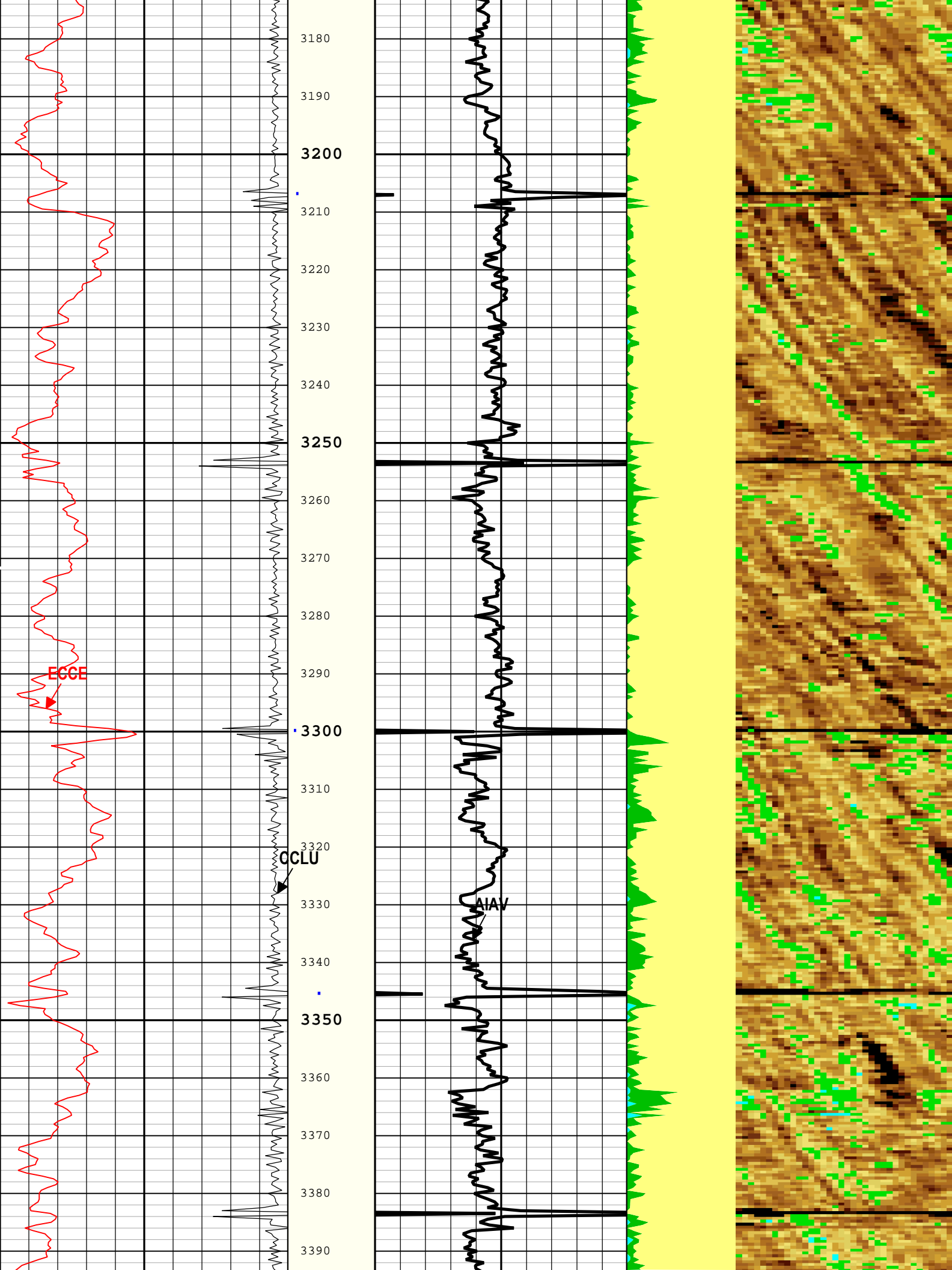


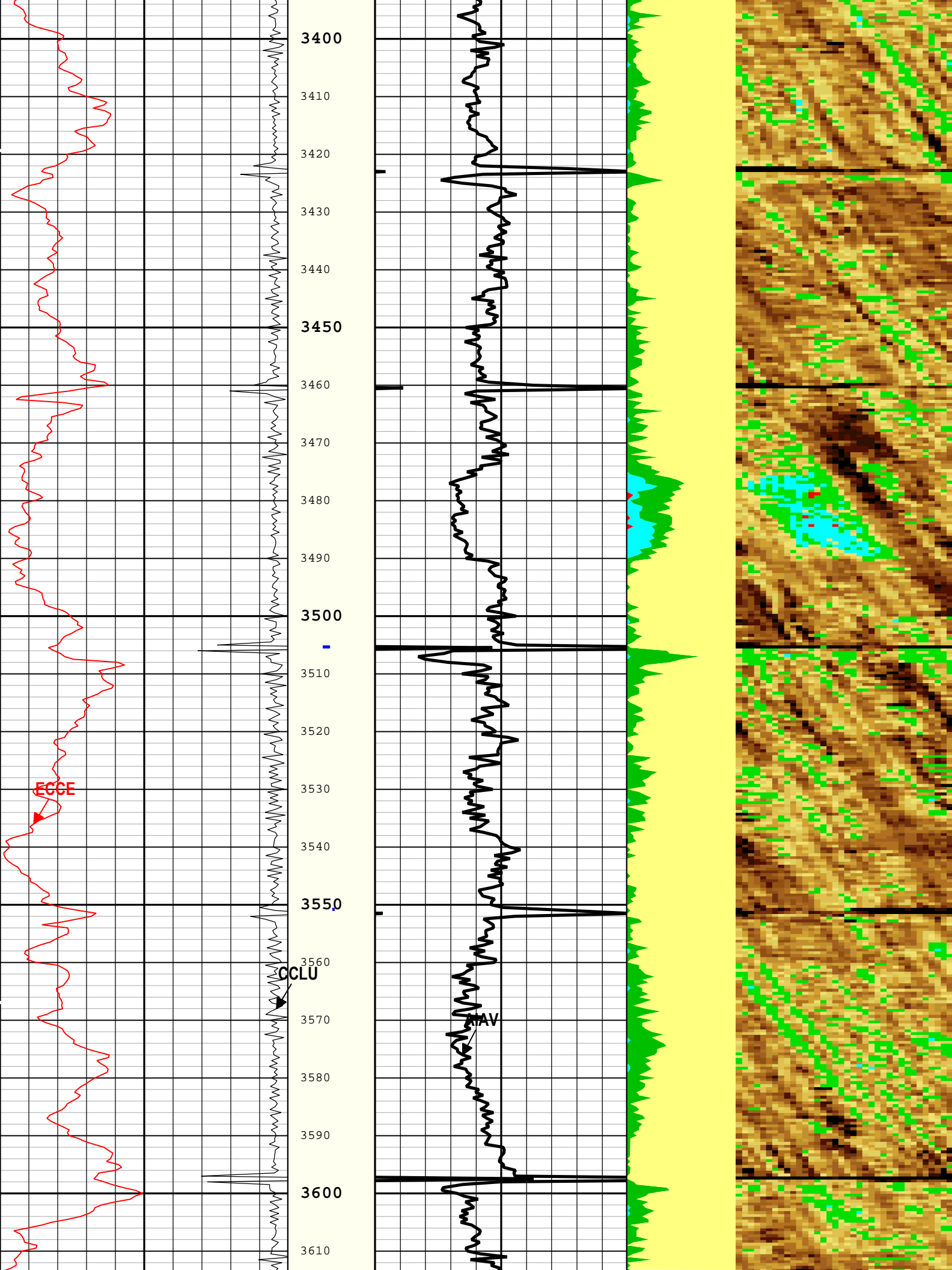


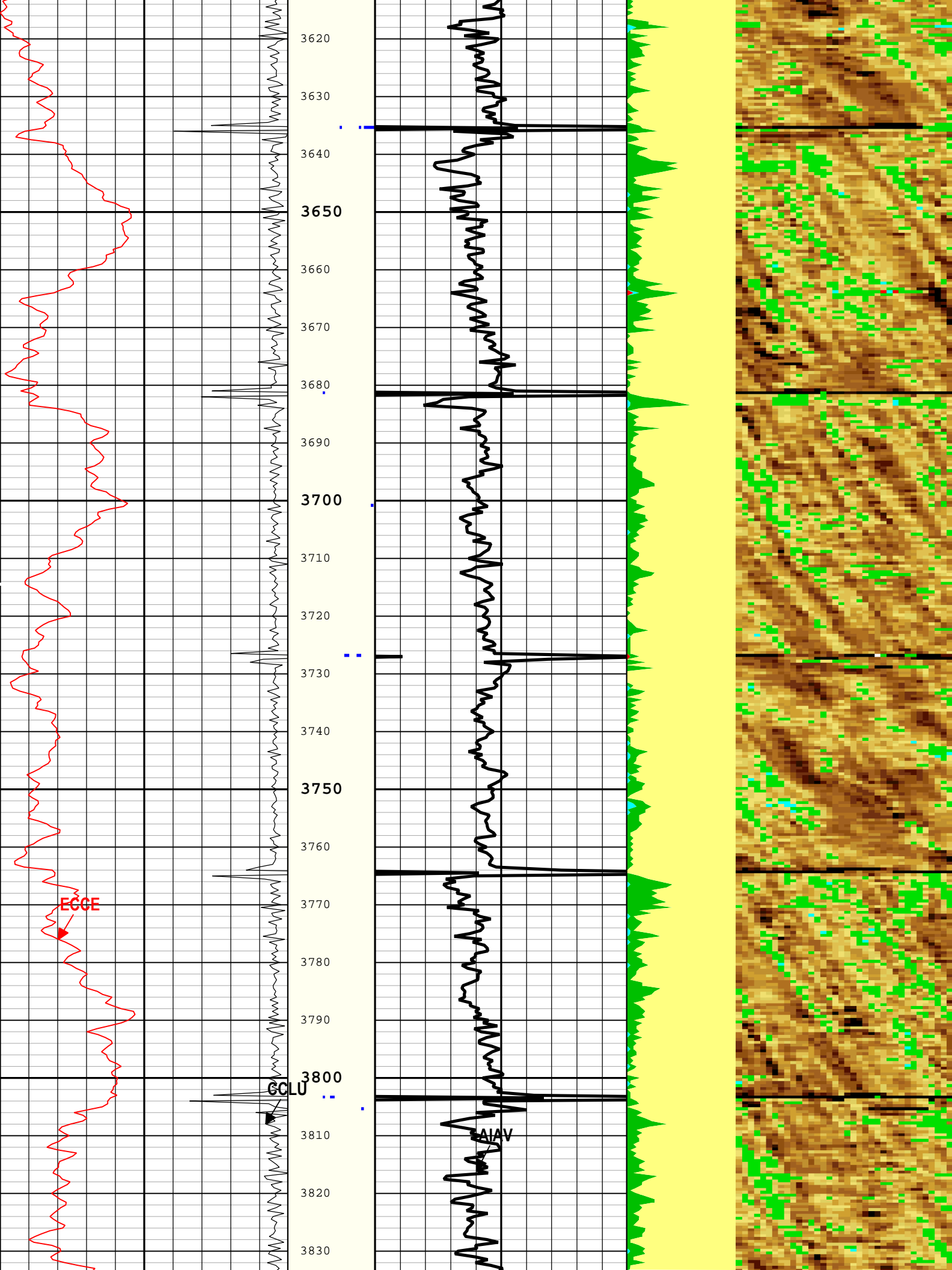


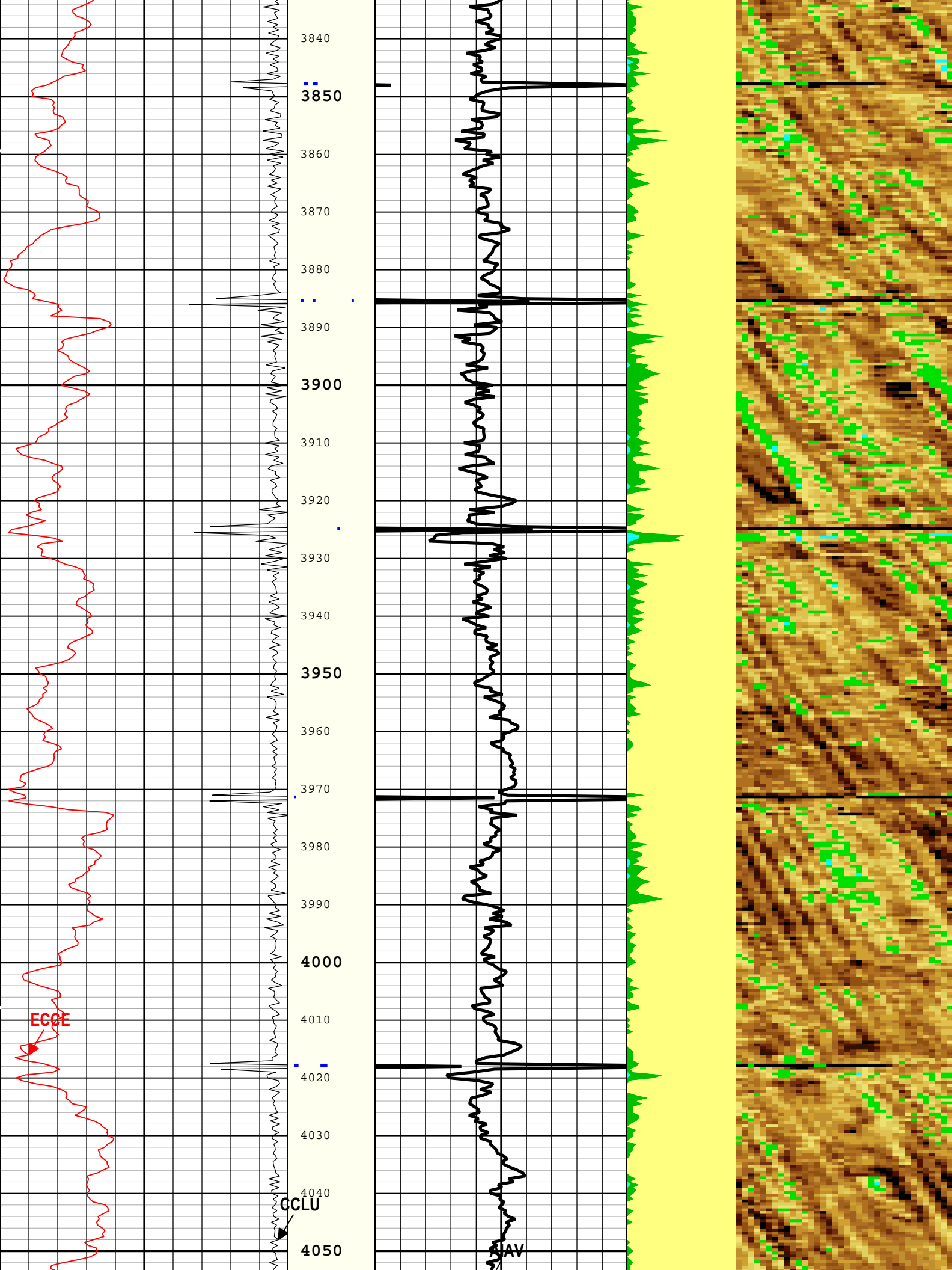


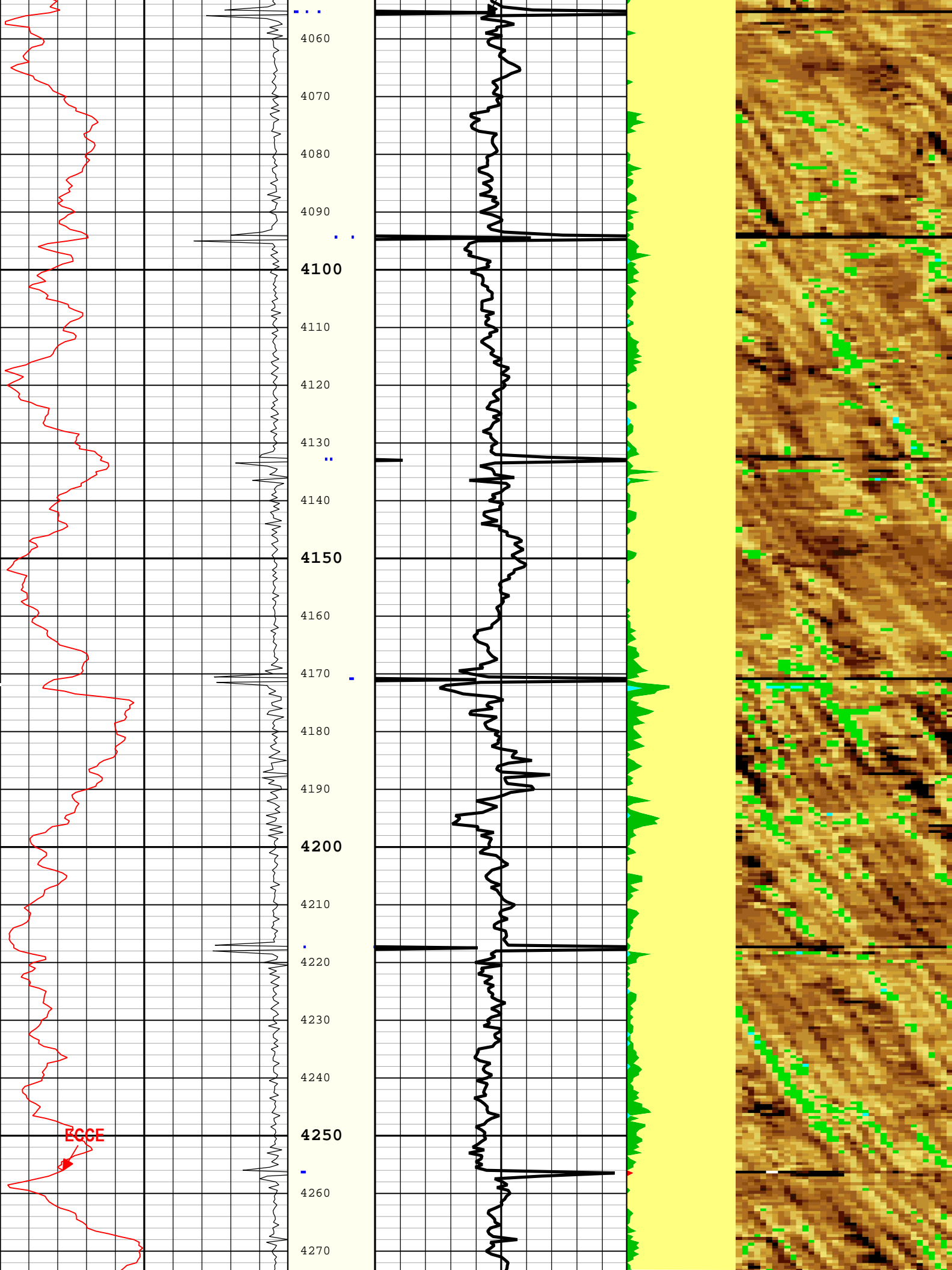


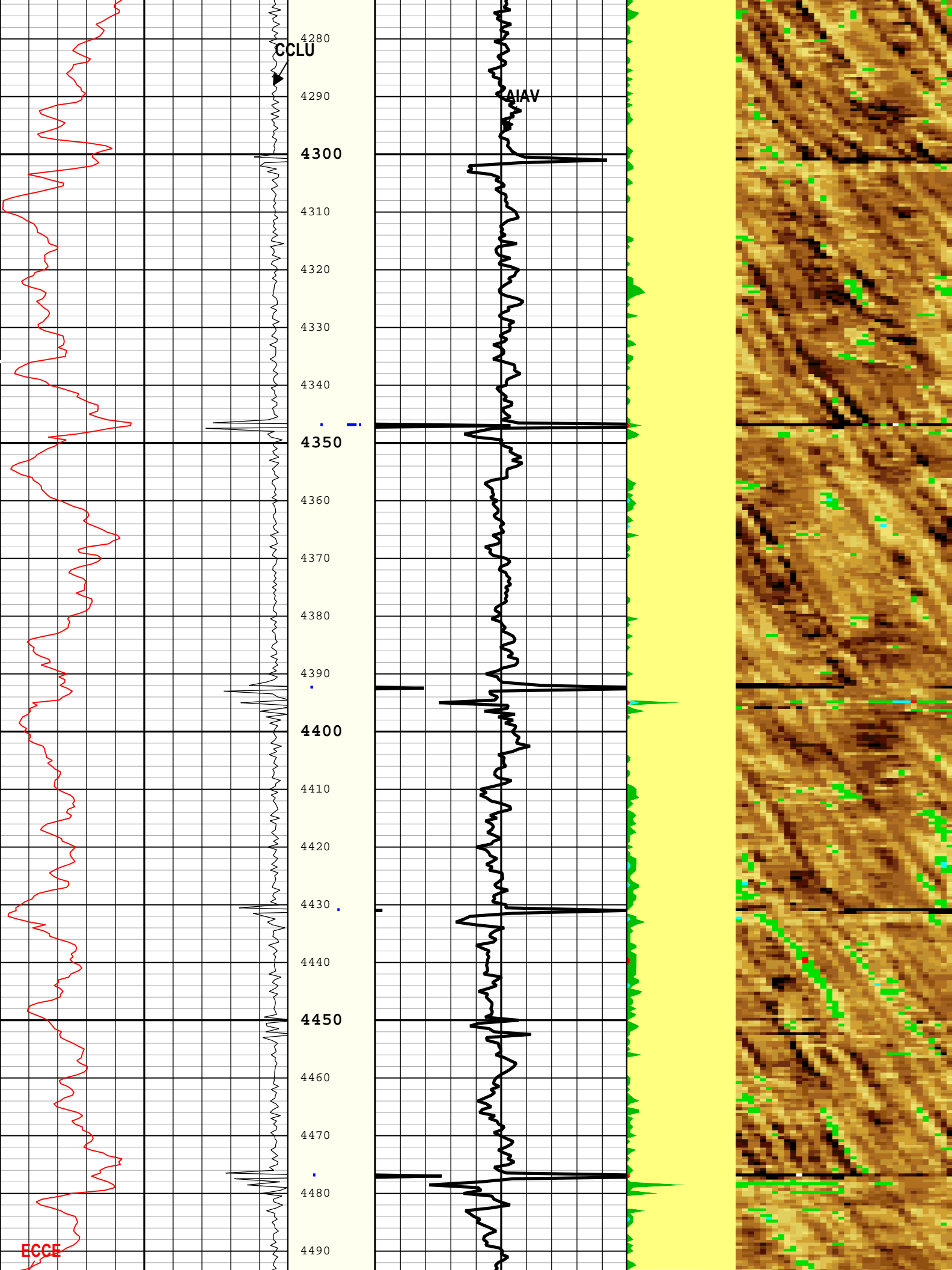


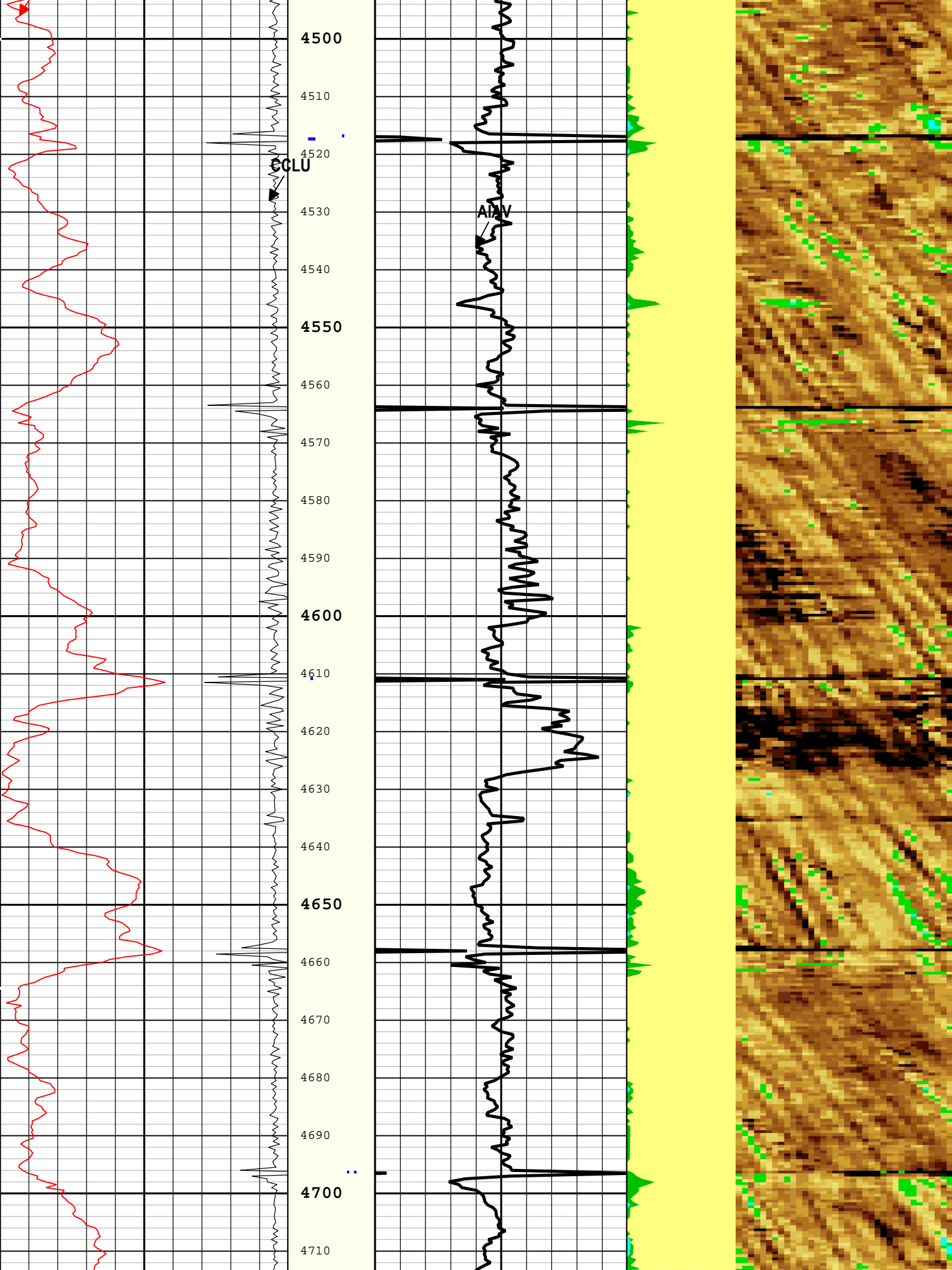


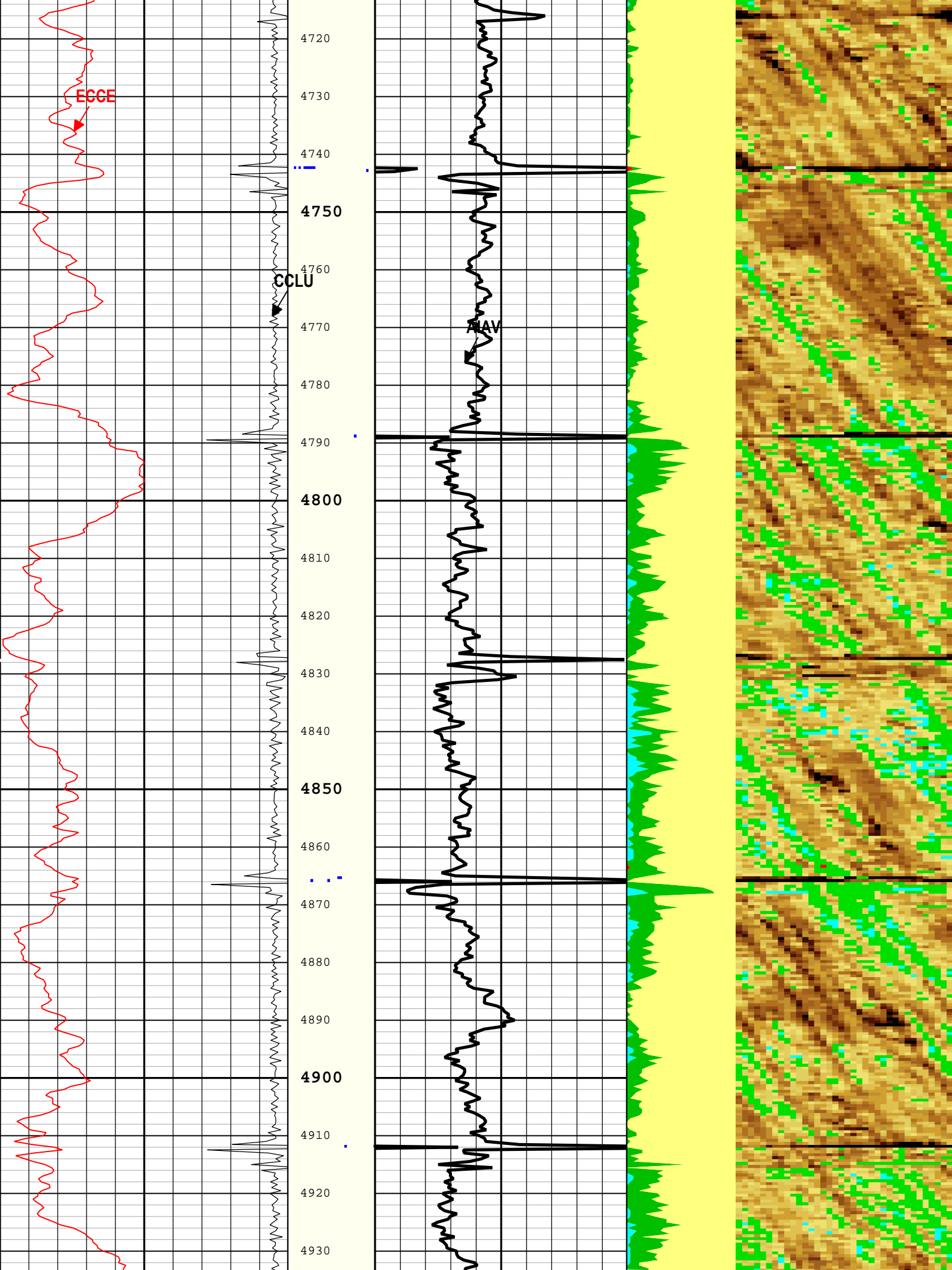


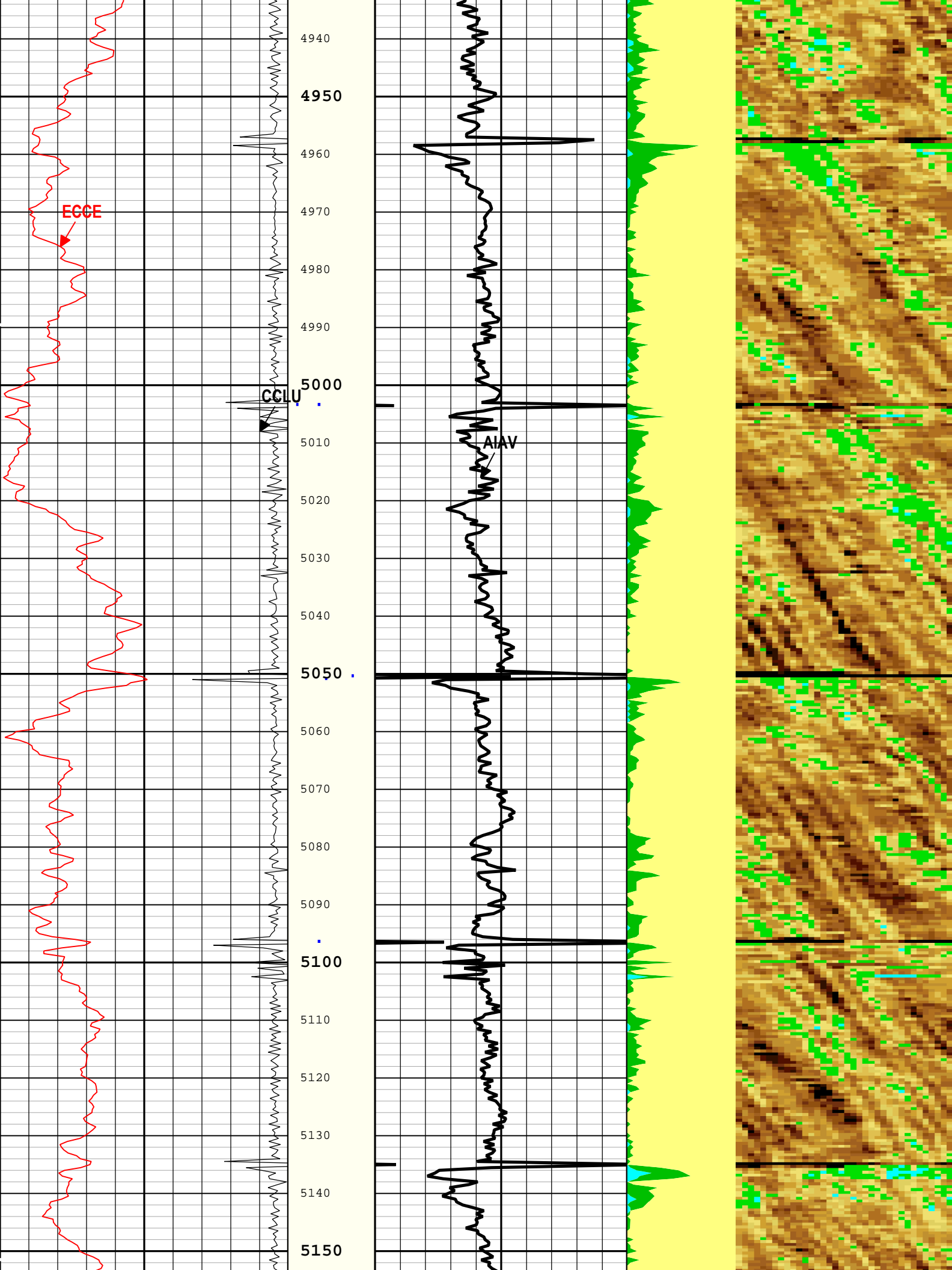


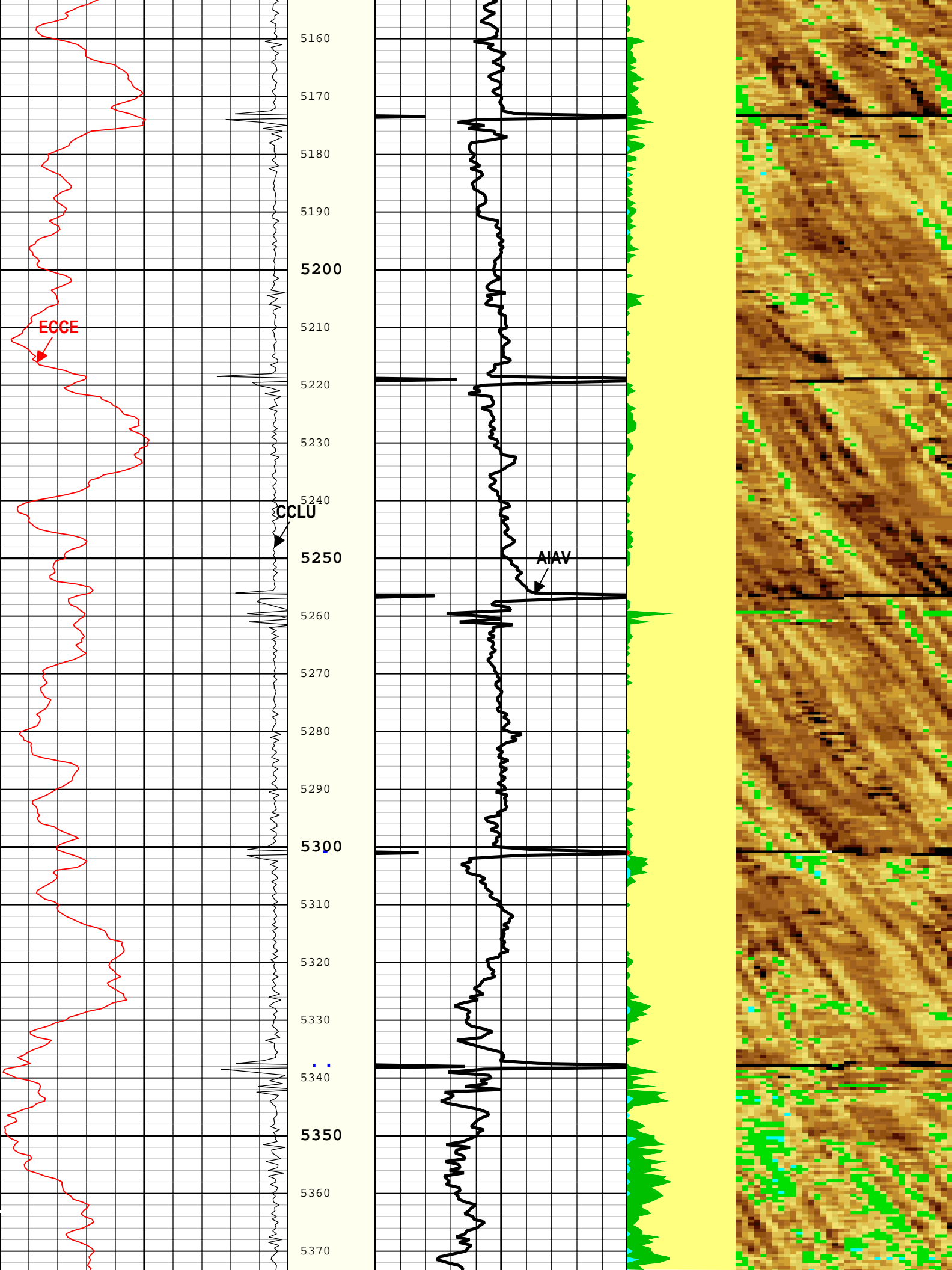


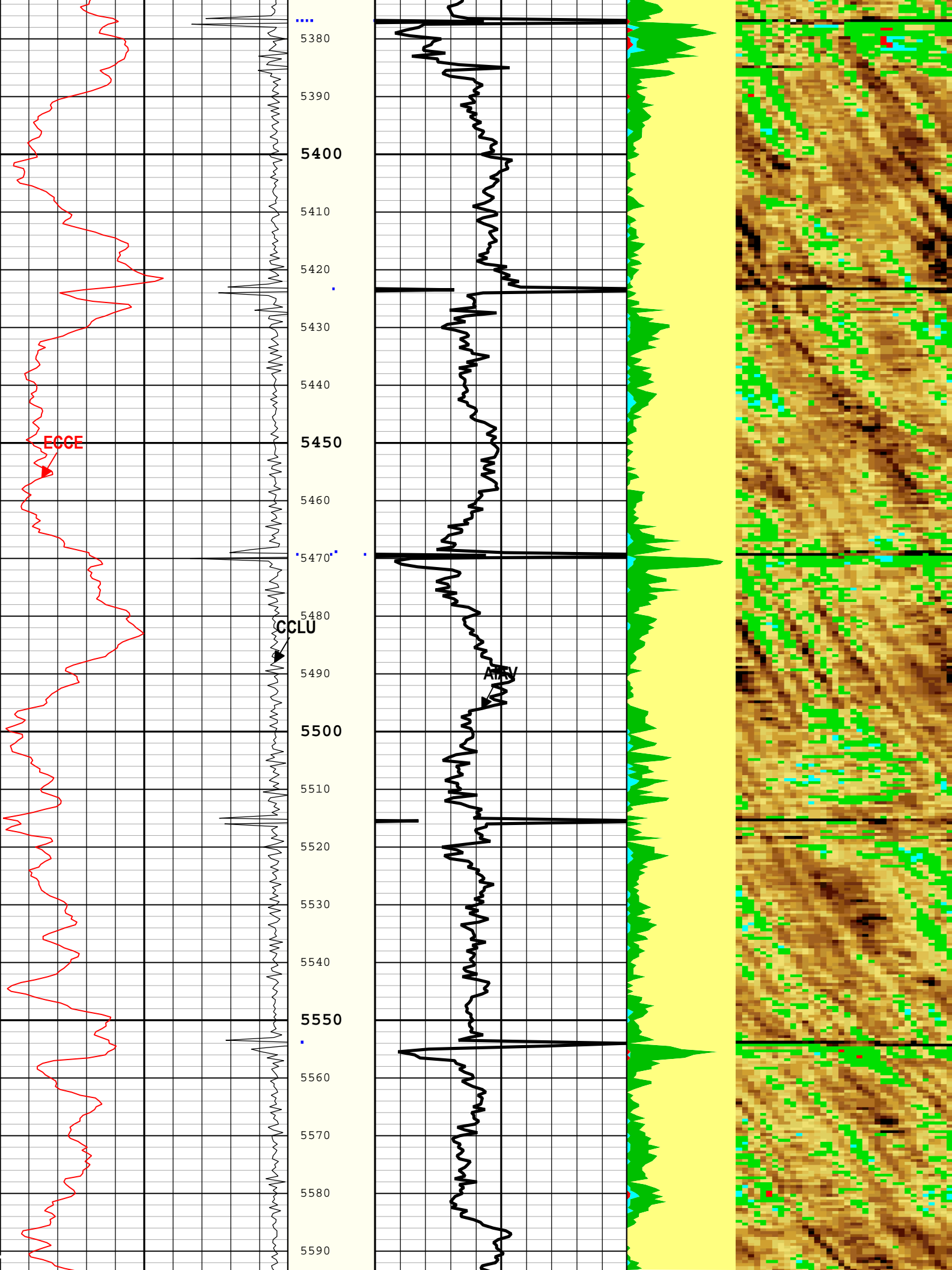


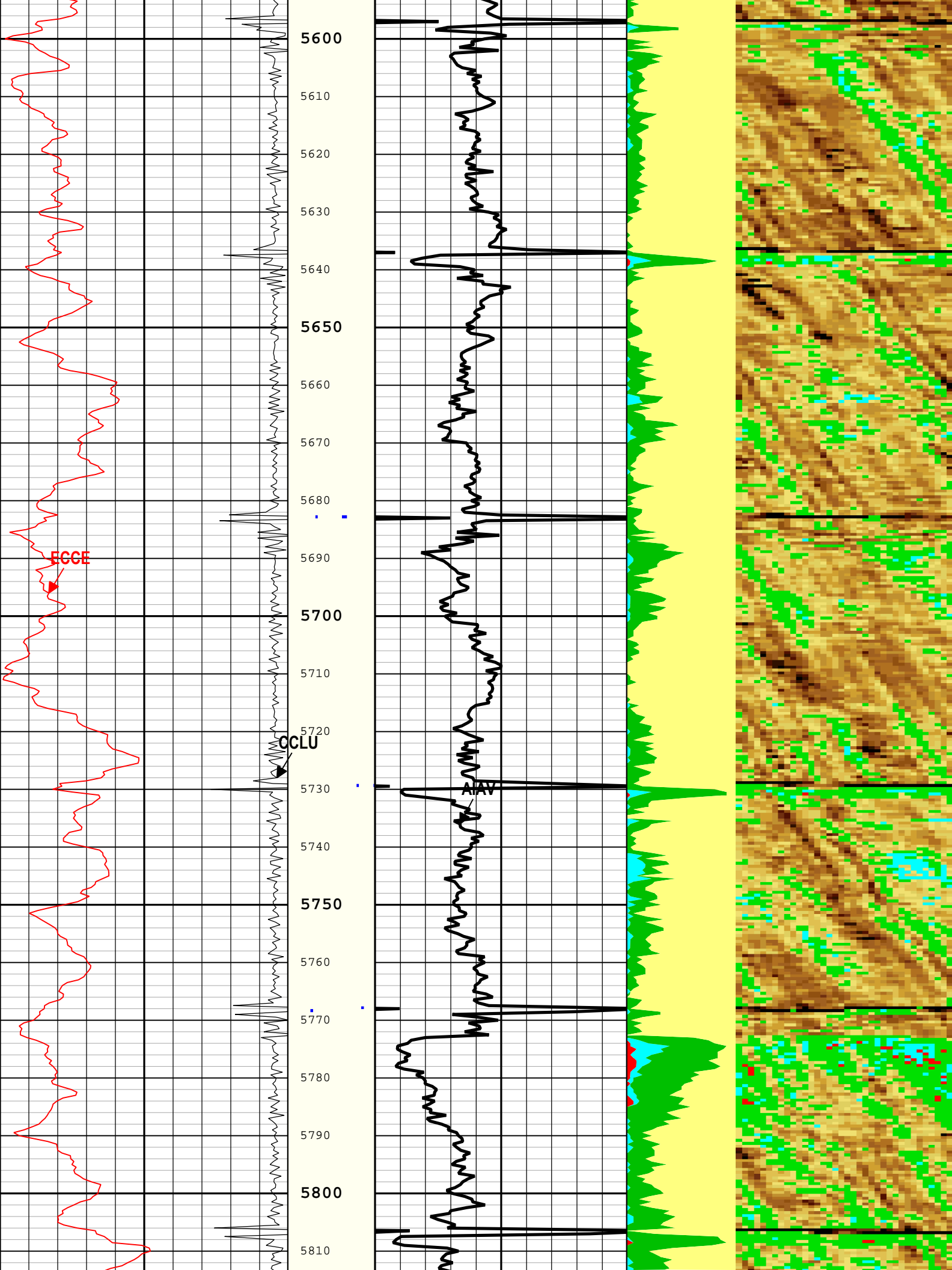


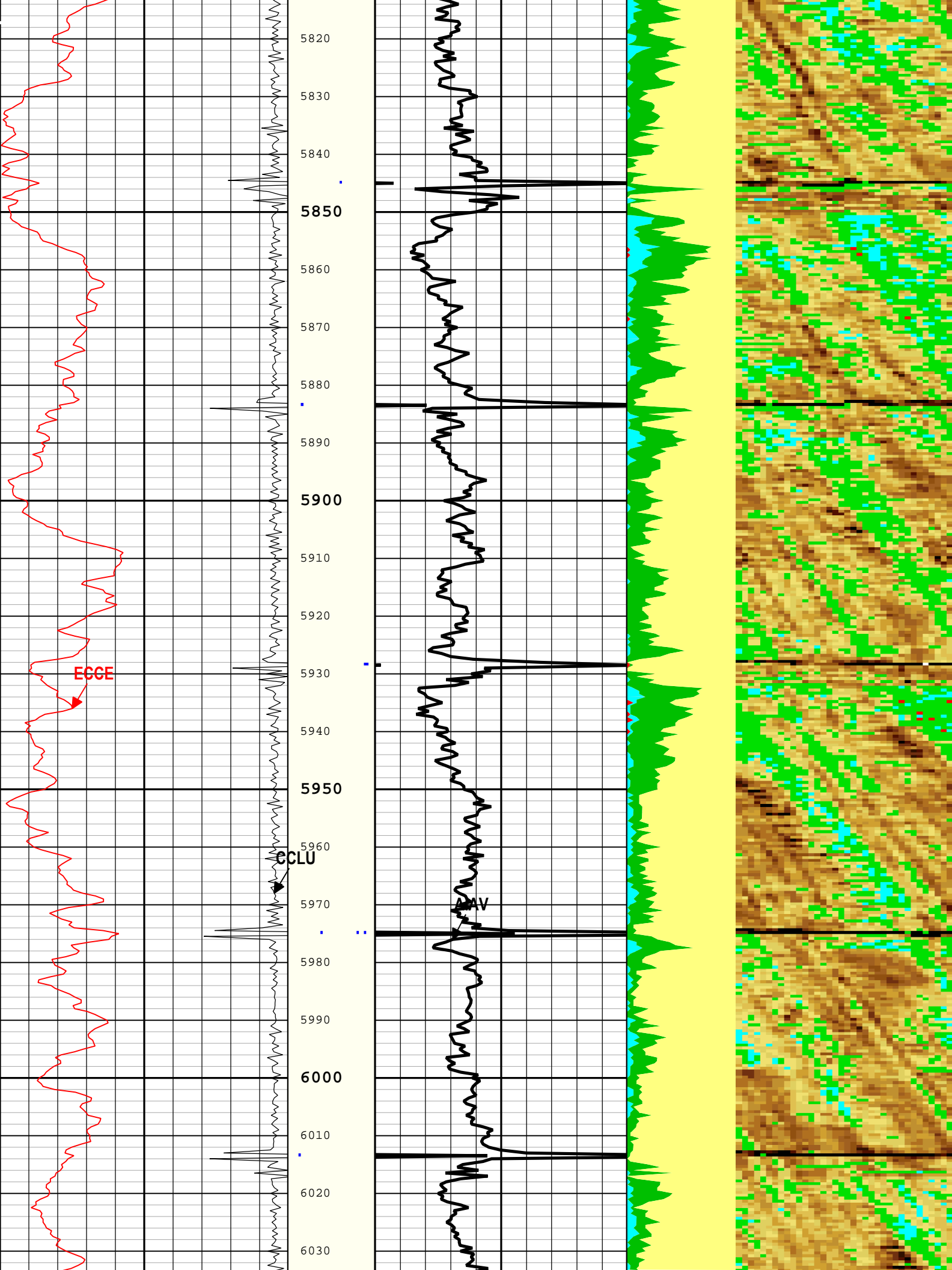


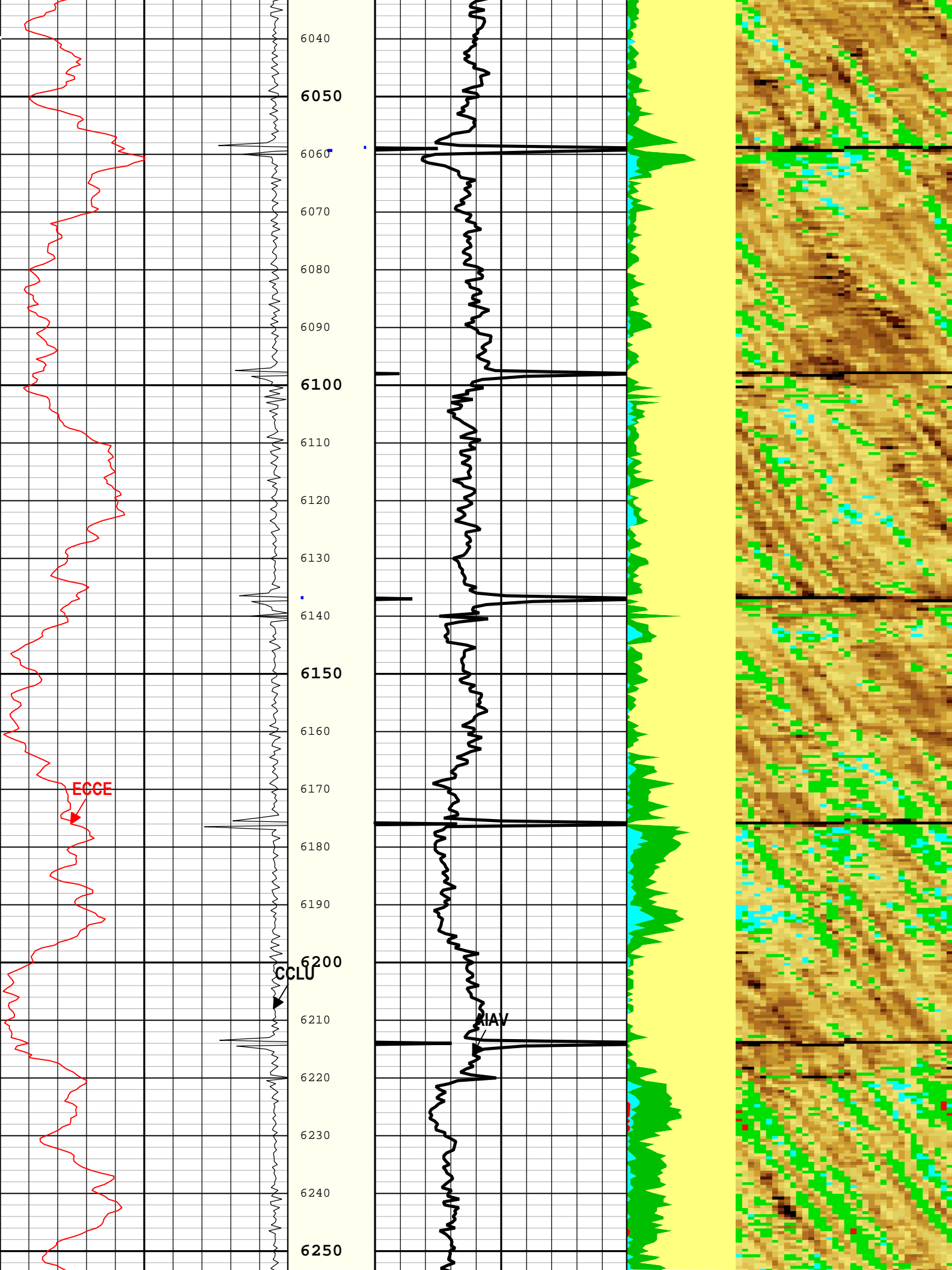


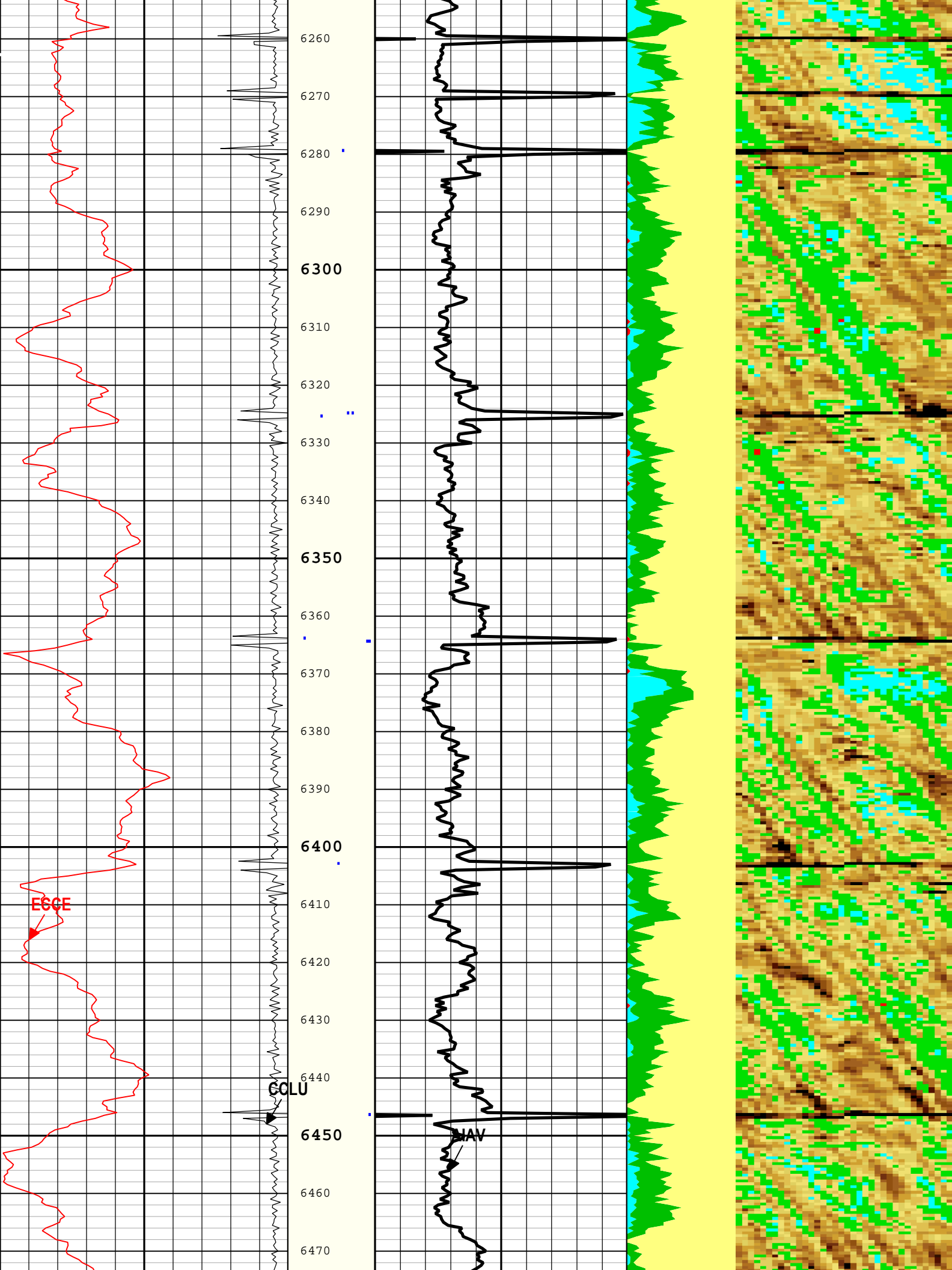


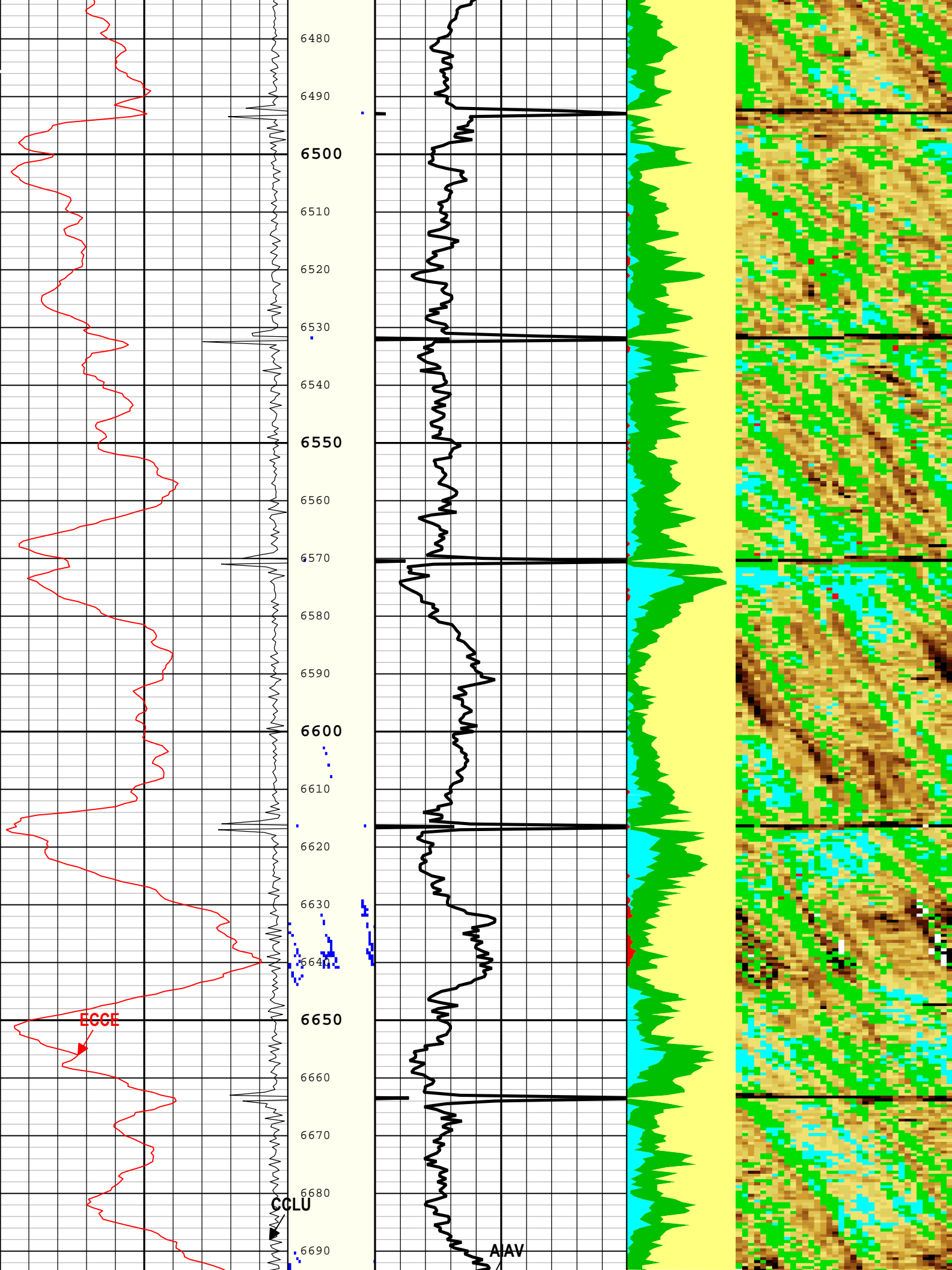












UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	65	23-Jan-2018 13:02:41	23-Jan-2018 13:03:37	7076.05	7058.72
EMXV	80	23-Jan-2018 13:03:37	23-Jan-2018 14:40:43	7058.72	63.93
WINB	31.88	23-Jan-2018 13:02:41	23-Jan-2018 13:43:34	7076.05	6804.42
WINB	24.3	23-Jan-2018 13:43:34	23-Jan-2018 14:40:43	6804.42	63.93
WINE	71.88	23-Jan-2018 13:02:41	23-Jan-2018 13:43:13	7076.05	6881.52
WINE	220	23-Jan-2018 13:43:13	23-Jan-2018 13:43:18	6881.52	6861.83
WINE	112.55	23-Jan-2018 13:43:18	23-Jan-2018 13:43:32	6861.83	6810.82
WINE	107.18	23-Jan-2018 13:43:32	23-Jan-2018 13:43:39	6810.82	6786.46
WINE	89.53	23-Jan-2018 13:43:39	23-Jan-2018 13:43:48	6786.46	6752.14
WINE	74.18	23-Jan-2018 13:43:48	23-Jan-2018 14:40:43	6752.14	63.93

All depth are at tool zero.

One

0 PSI Repeat Pass

Software Version	
Acquisition System	Version
Maxwell 2017 SP3	7.3.92069.3100
Application Patch	Wireline_NPD-ICE2-2017SP3_7.3.93033

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	4648.71 ft	4726.04 ft	23-Jan-2018 12:52:29 PM	23-Jan-2018 1:02:16 PM	ON	0.00 ft	No

All depths are referenced to toolstring zero

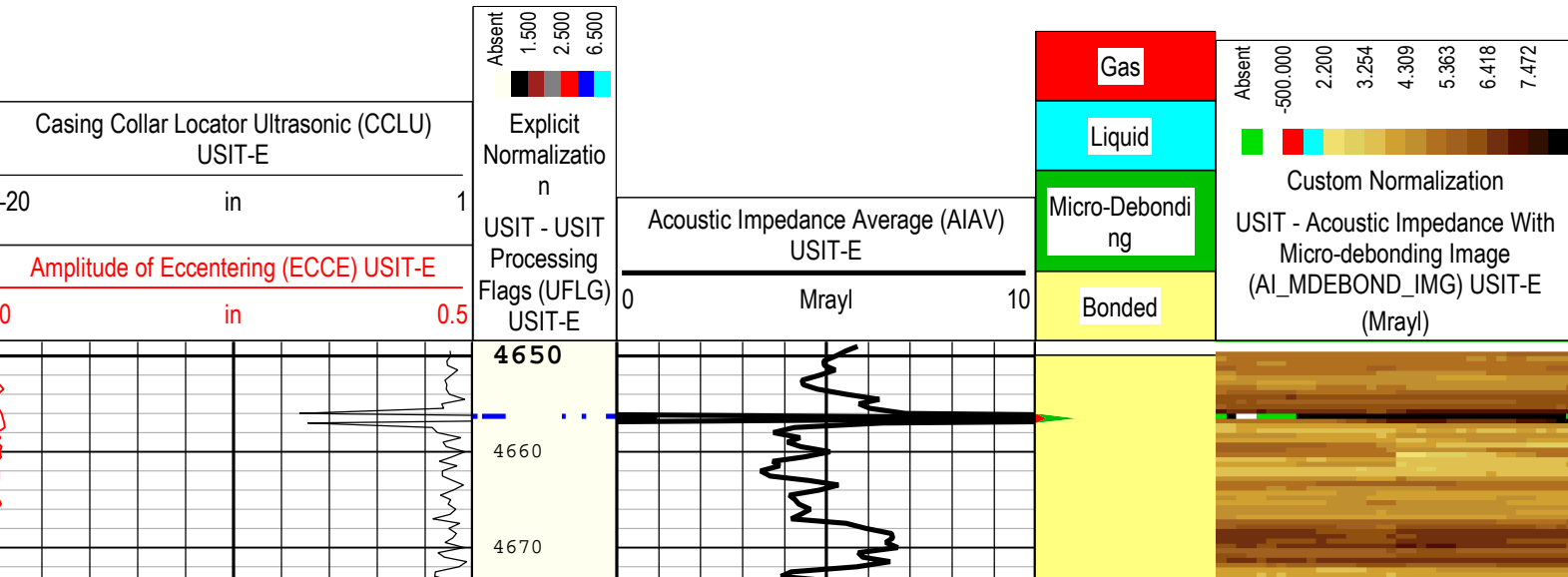
Log

Company:Noble Energy Inc Well:Bison Ridge Y22-719

One: Log[2]:Up:S005

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: 23-Jan-2018 15:49:45

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: 23-Jan-2018 15:49:45				

Channel Processing Parameters				
One: Parameters				
Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BS	Bit Size	WLSESSION	8.5	in
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
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
HEMA	Hematite Presence Flag	Borehole	No	
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	1.15	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.01	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	1.48	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
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	65	V

HRES	Horizontal Resolution	USIT-E	10 deg	
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

XYZ

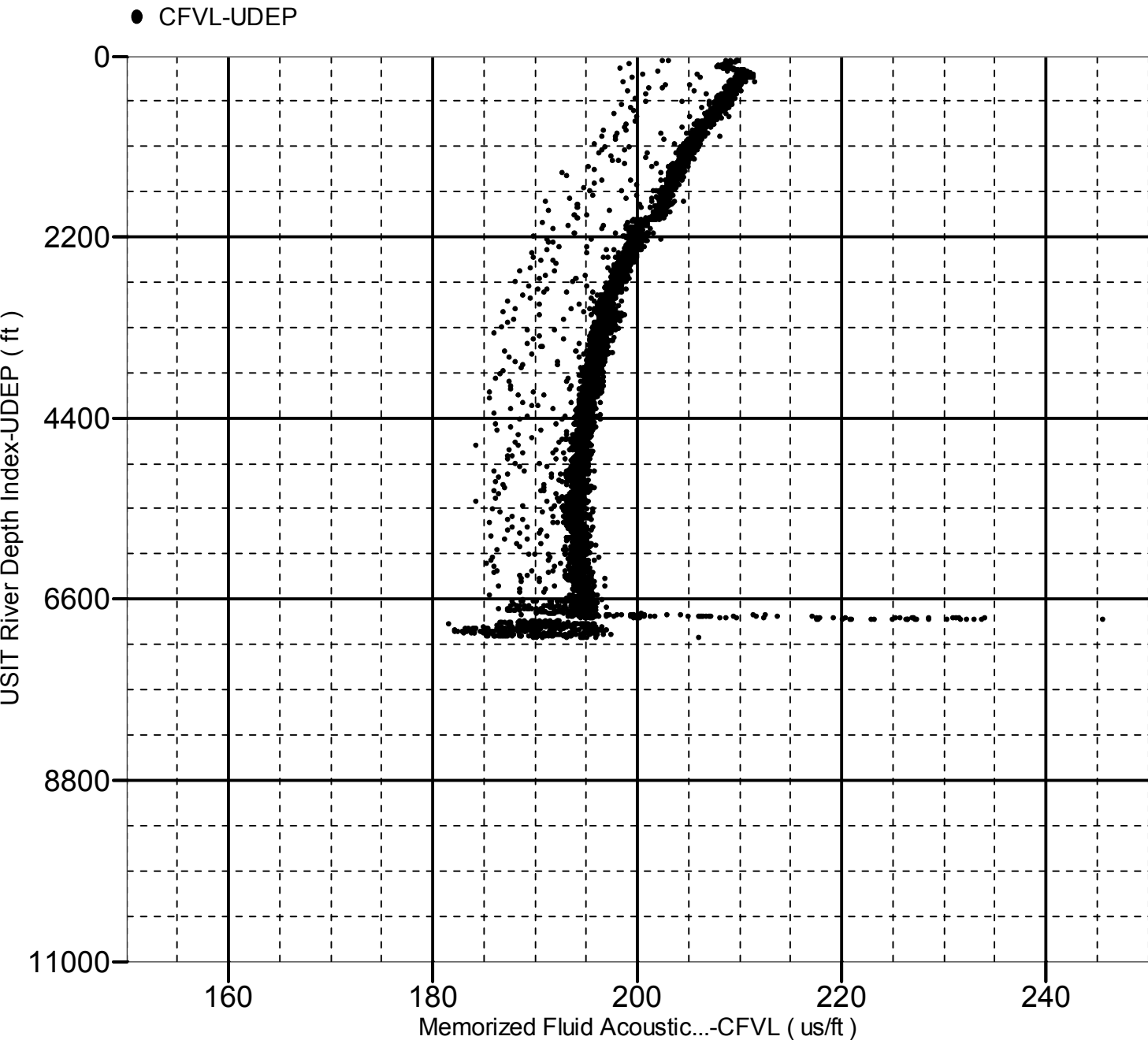
Company:Noble Energy Inc Well:Bison Ridge Y22-719

One: Log[3]:Up:S005

Fluid Acoustic Slow ness vs Depth

2D Cross Plot

Index Range: From 7075.50 to 64.00 ft



XYZ

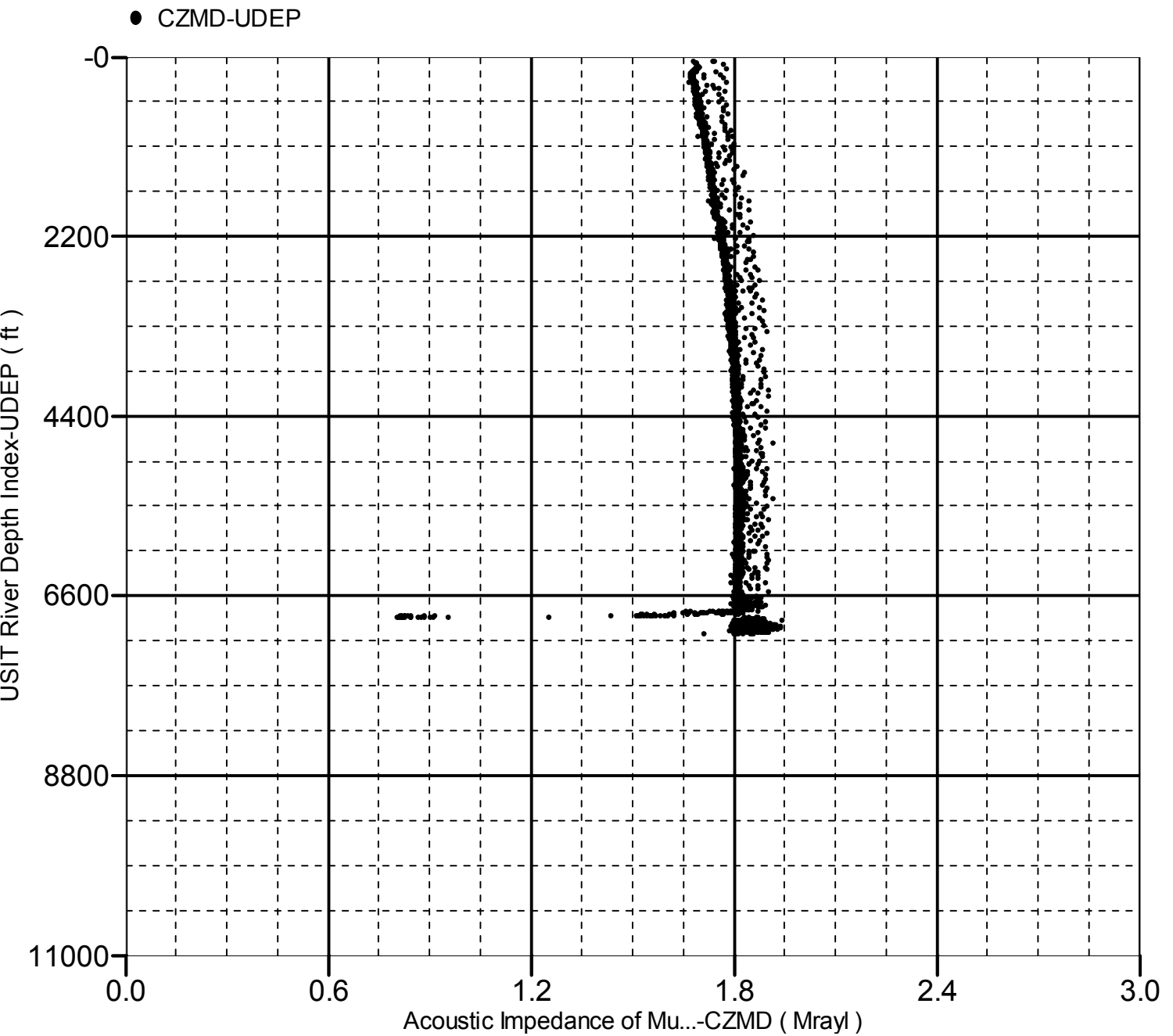
Company:Noble Energy Inc Well:Bison Ridge Y22-719

One: Log[3]:Up:S005

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 7075.50 to 64.00 ft



Company:	Noble Energy Inc	Schlumberger
Well:	Bison Ridge Y22-719	
Field:	Wattenberg	
County:	Weld	
Country:	US	

UltraSonic Summary Print

