

County: RIO BLANCO
Field: PICEANCE CREEK
NW 1/4 Sec 52, T. 122 N., R. 10 W.

Loggin	
Run No	
Depth	
Schlum	
Bottom	
Top Lo	
Casing	
Salinity	
Density	
Fluid L	
BIT/C	
Bit Size	
From	
To	
Casing	
Weight	
Grade	
From	
To	
Maxim	
Logger	
Unit No	
Record	
Witness	



Company: EXXONMOBIL PRODUCTION CO.

Well: PCU 197-34A4

Location: NWSW 1730' FSL & 128' FWL

Company: EXXONMOBIL PRODUCTION CO.

Well: PCU 197-34A4

Location: NWSW 1730' FSL & 128' FWL

IMAGING BEHIND CASING
GAMMA RAY
CCLU

State: CO

PCU 197-34A4
PICEANCE CREEK
RIO BLANCO

Permanent Datum: GROUND LEVEL
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

Elev.: K.B. 6522.20 ft
G.L. 6492.00 ft
D.F. 6521.20 ft

Elev.: 6492.00 ft
30.20 ft above Perm. Datum

API Serial No. 05-103-11541
Section 34
Township 1S
Range 97W

Log Date 27-Jun-2010
Run Number 1
Driller 8504 ft
Schlumberger Depth 8380 ft
Log Interval 8380 ft
Log Interval 3200 ft
Fluid Type WBM

Level 8.4 lbm/gal
10 ft

9.875 in
3713 ft
8504 ft

7.000 in
26 lbm/ft

0 ft
8504 ft

209 degF
27-Jun-2010
5:30

Location
2379 VERNAL
RYAN STEWART
JOSH LOVE

Oil Density
Water Salinity
Gas Gravity
Bo
Bw
1/Bg
Bubble Point Pressure
Bubble Point Temperature
Solution GOR
Maximum Deviation
CEMENTING DATA
Primary/Squeeze
Casing String No
Lead Cement Type
Volume
Density
Water Loss
Additives
Tail Cement Type
Volume
Density
Water Loss
Additives

Run 1
Run 2
Run 3

Primary
11 lbm/gal

20 deg

Expected Cement Top

Logging Date
Run Number
Depth Driller
Schlumberger Depth
Bottom Log Interval
Top Log Interval
Casing Fluid Type
Salinity
Density
Fluid Level
BIT/CASING/TUBING STRING
Bit Size
From
To

Casing/Tubing Size
Weight
Grade
From
To

Maximum Recorded Temperatures
Logger On Bottom
Unit Number
Recorded By
Witnessed By

Location
Time

Location
Time

Location
Time

Location
Time

Location
Time

Location
Time

DEPTH SUMMARY LISTING

Date Created: 27-JUN-2010 9:54:36

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B	Type: CMTD-B/A	Type: 7-46P
Serial Number: 6214	Serial Number: 8093	Serial Number: 709025
Calibration Date: 1-JAN-10	Calibration Date: 03-JUN-10	Length: 24000 FT
Calibrator Serial Number: 33	Calibrator Serial Number: 100518	Conveyance Method: Wireline Rig Type: LAND
Calibration Cable Type: 7-46P	Number of Calibration Points: 10	
Wheel Correction 1: -8	Calibration RMS: 34	
Wheel Correction 2: -9	Calibration Peak Error: 62	

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	223.40 FT
Rig Up Length At Bottom:	223.10 FT
Rig Up Length Correction:	0.30 FT
Stretch Correction:	6.00 FT
Tool Zero Check At Surface:	0.30 FT

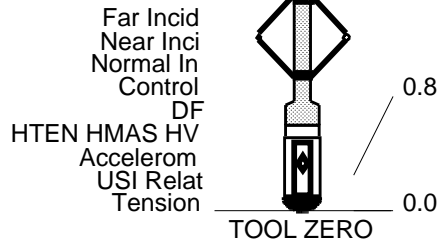
Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH POLICIES FOLLOWED
2. IDW USED AS PRIMARY METHOD OF DEPTH CONTROL
3. Z-CHART USED AS SECONDARY METHOD OF DEPTH CONTROL
4.
5.
6.

DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
TOOL RAN AS PER TOOL SKETCH	
TOOL CENTERED USING 2 X ILC AND 2 X GEMCO	
UFAO = -12 DB/M	
EXPECTED CASING THICKNESS 0.362 INCH	
EXPECTED CASING ID 6.276 INCH	
CEMENT: SINGLE SLURRY 11LB/G	
LOG CORRELATED TO DOWNLOG AT 8100 FT	
HORIZONTAL RESOLUTION: 5 DEG	
VERTICLE RESOLUTION : 6 INCH	
MICRODEBONDING NOTED IN REGIONS SHOWING GAS	



MAXIMUM STRING DIAMETER 7.5 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN FEET

Client: EXXONMOBIL PRODUCTION CO.
 Well: PCU 197-34A4
 Field: PICEANCE CREEK
 State: CO
 Country: USA

Rig Name: MAST
 Reference Datum: GROUND LEVEL
 Elevation: 6492.0 ft

Drawing Date: 6/27/2010
 API #: 05-103-11541

Production String	(in)			Well Schematic	(ft)			Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	7.000		Casing String
					3713.0	9.875		Borehole Segment

All Depths are Drillers Depths

8504.0

7.000

Casing Shoe

Schlumberger

IBC SLG COMPOSITE

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO.

Well: PCU 197-34A4

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	27-Jun-2010 06:03	8375.0 FT	190.7 FT
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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 10:17
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OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.72 MRAY	1.8 MRAY	6001.5 10:26:15

Image rotation (UCAZ) (DEG)
0 360

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)
0 (F) 50

Gamma Ray (GR) (GAPI)
0 150

CCL (CCLU) (----)
-20 20

RSV (RSV) (RPS)
6 7.5

CCL (CCLU) (----)
-20 20

Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)
3.7 2.7	2.7 3.7

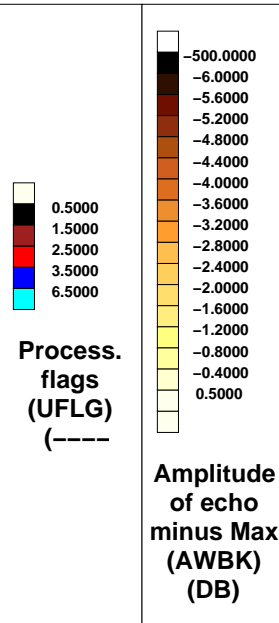
Internal radius Maximum (IRMX) (IN)	Internal radius Maximum (IRMX) (IN)
3.7 2.7	2.7 3.7

Maximum of Thickness (THMX) (IN)
0.1 0.6

Internal radius Average (IRAV) (IN)	Internal radius Average (IRAV) (IN)
3.7 2.7	2.7 3.7

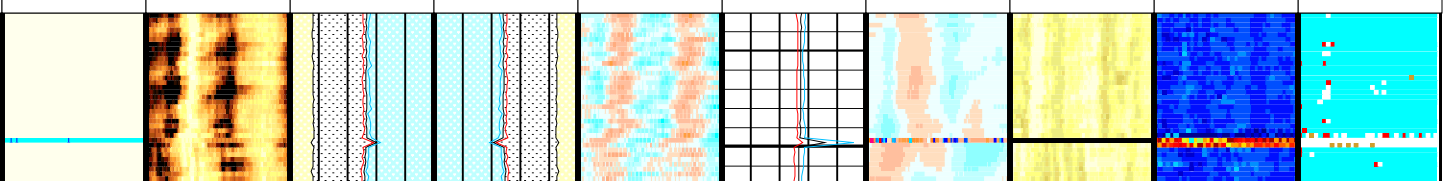
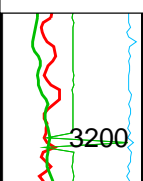
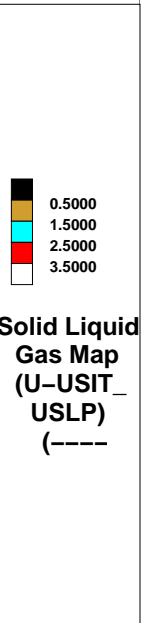
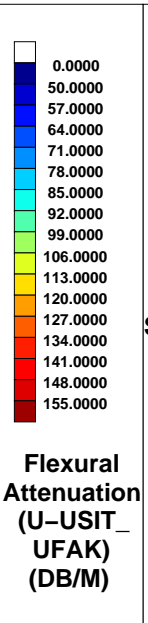
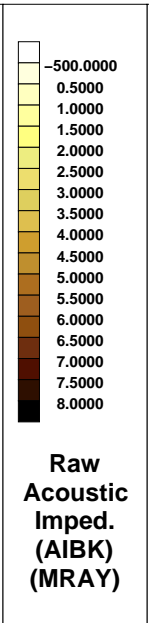
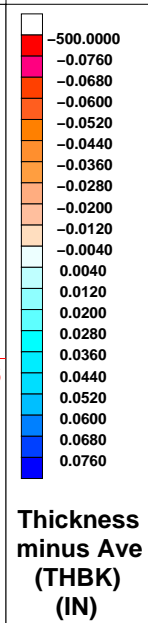
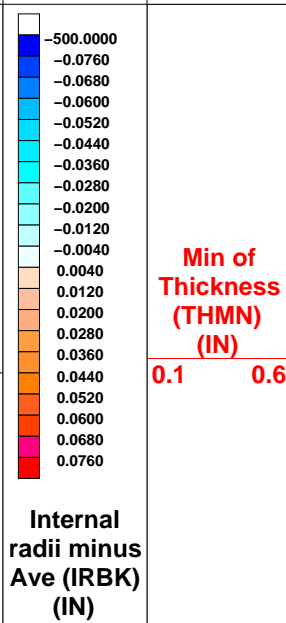
Average of Thickness (THAV) (IN)
0.1 0.6

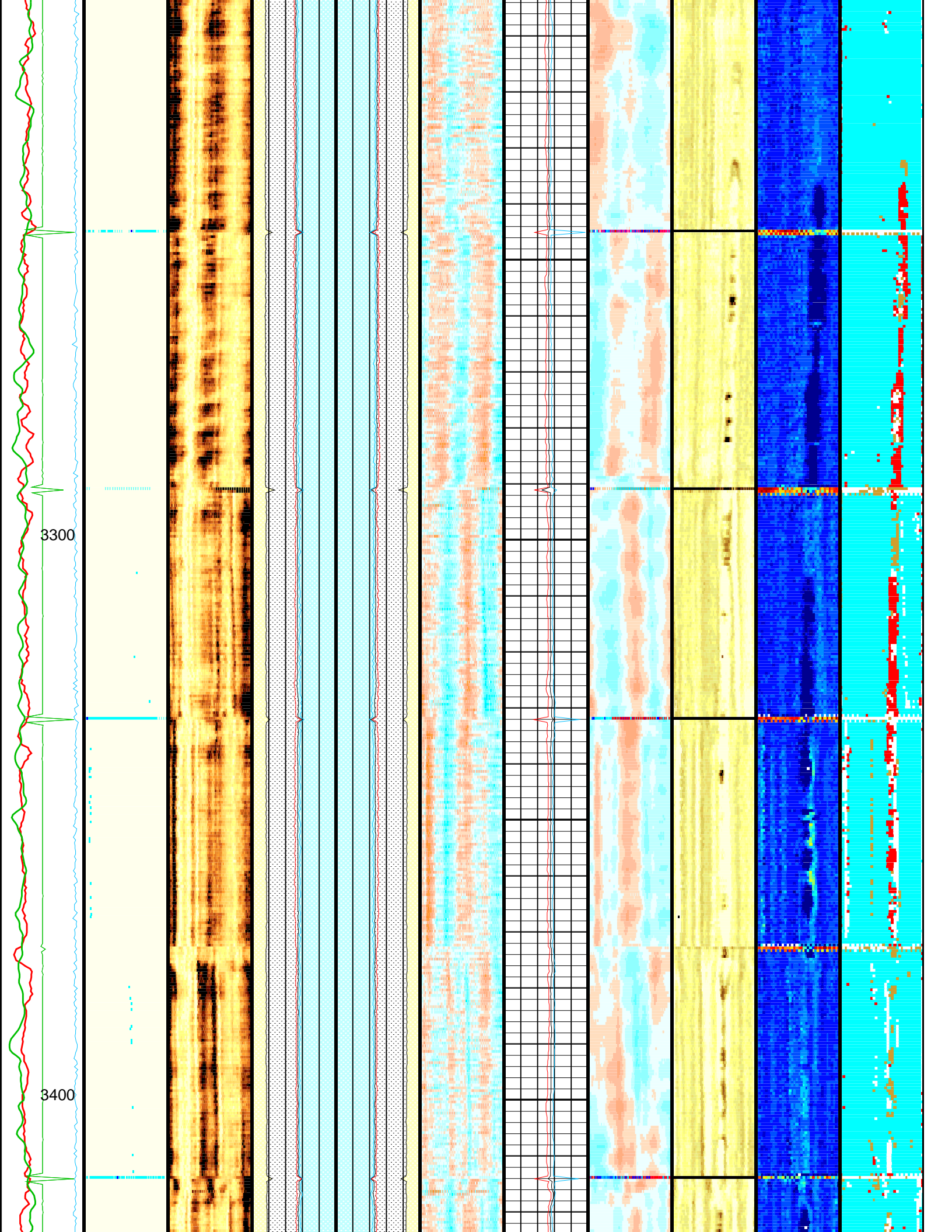
Eccent. (ECCE) (IN)
0 0.5

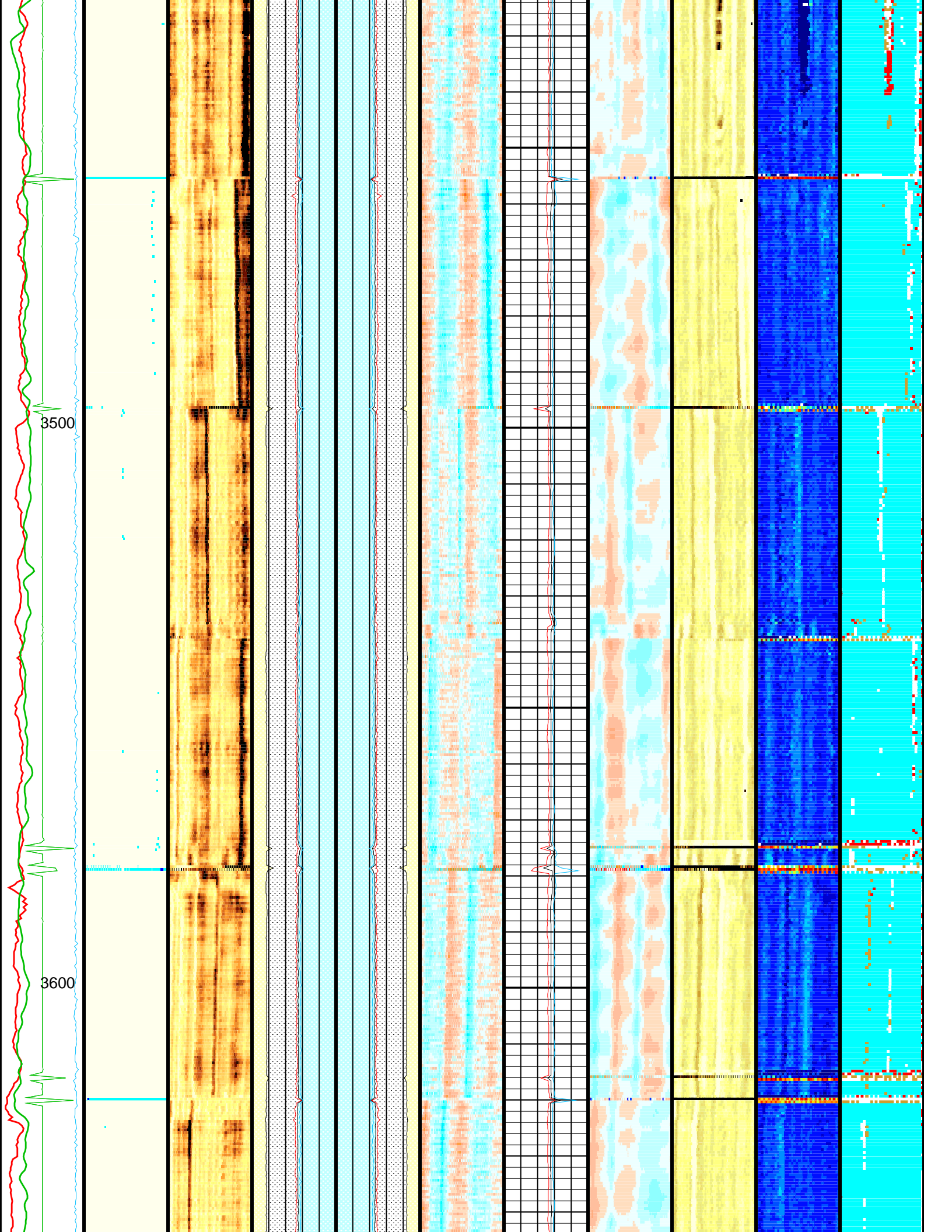


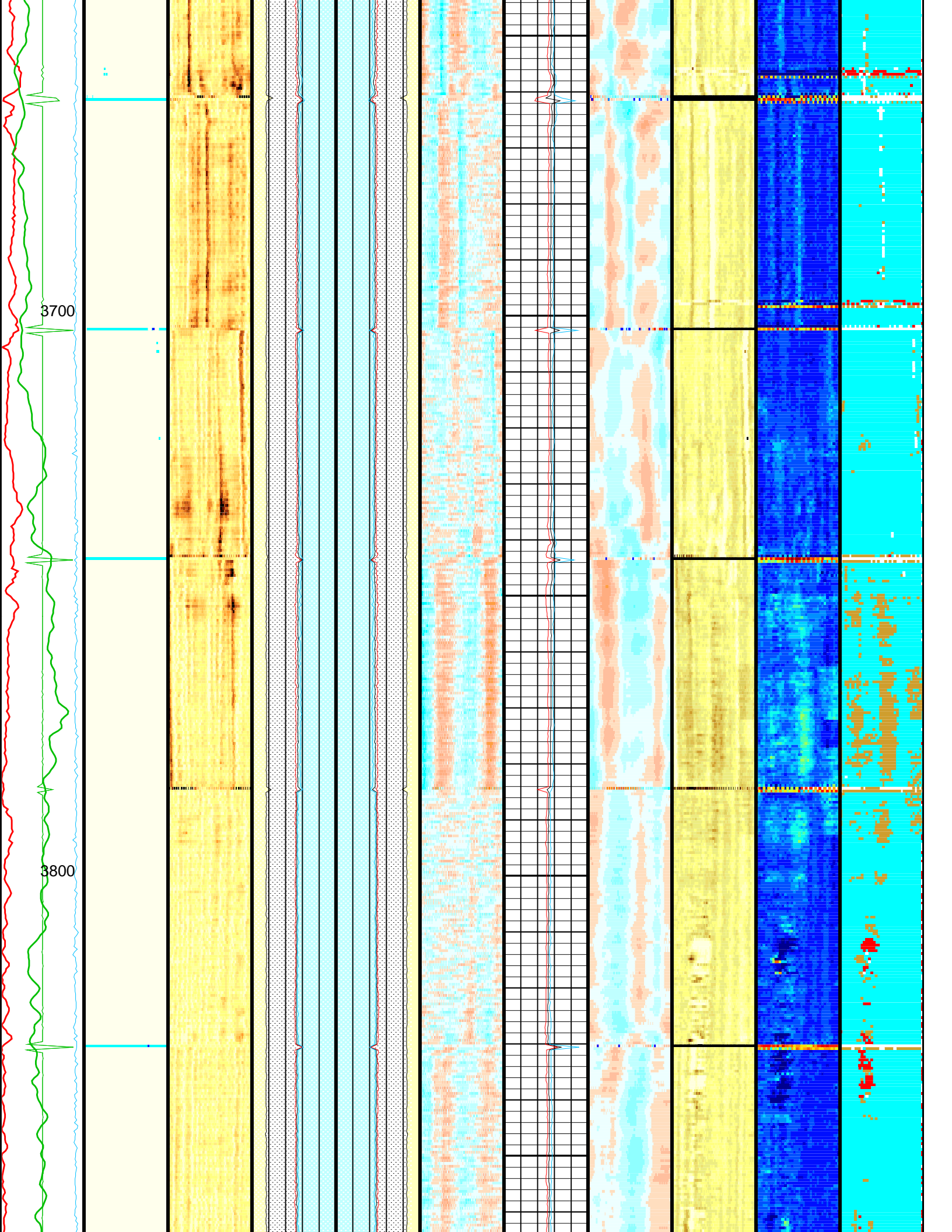
Process. flags (UFLG) (----)

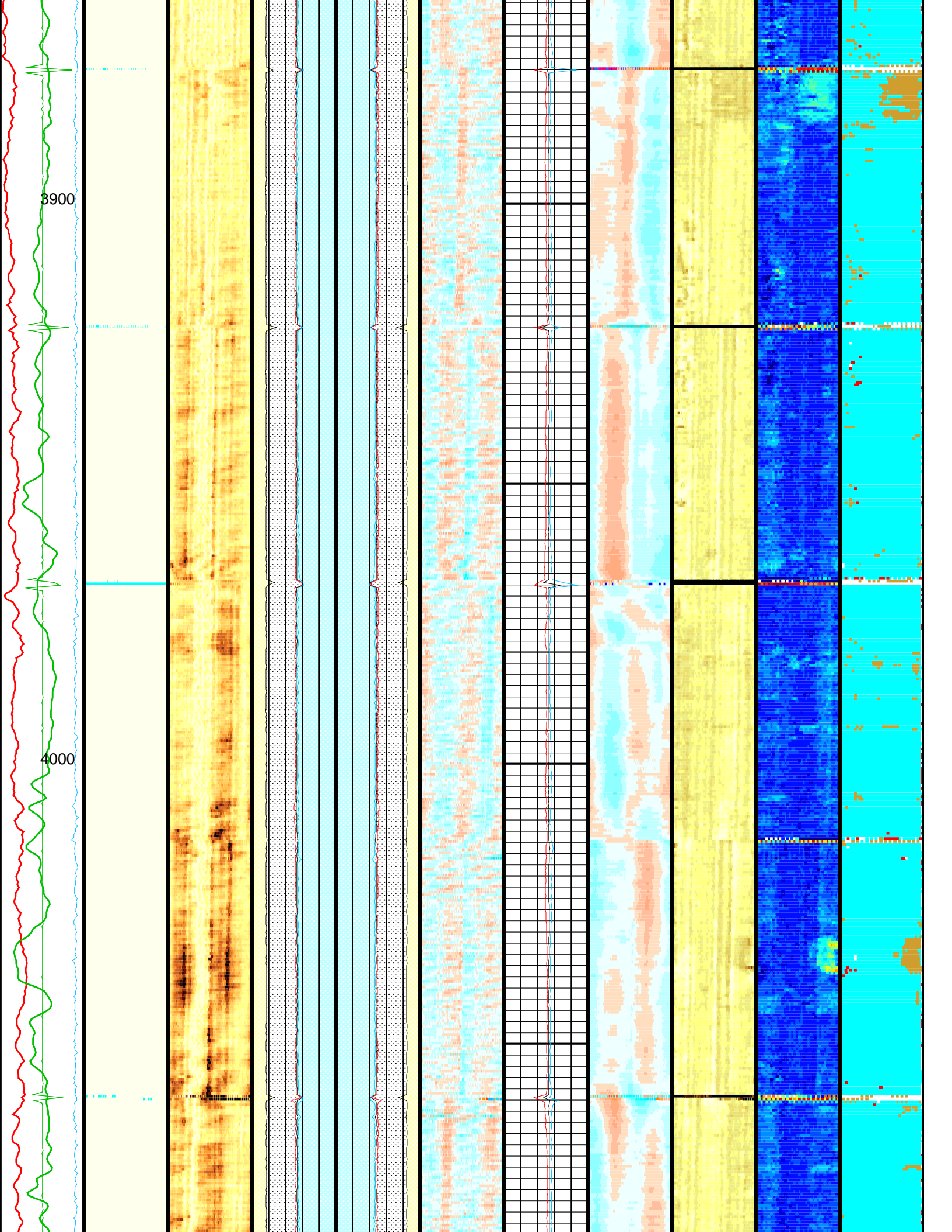
External radius Average (ERAV) (IN)	External radius Average (ERAV) (IN)
3.7 2.7	2.7 3.7

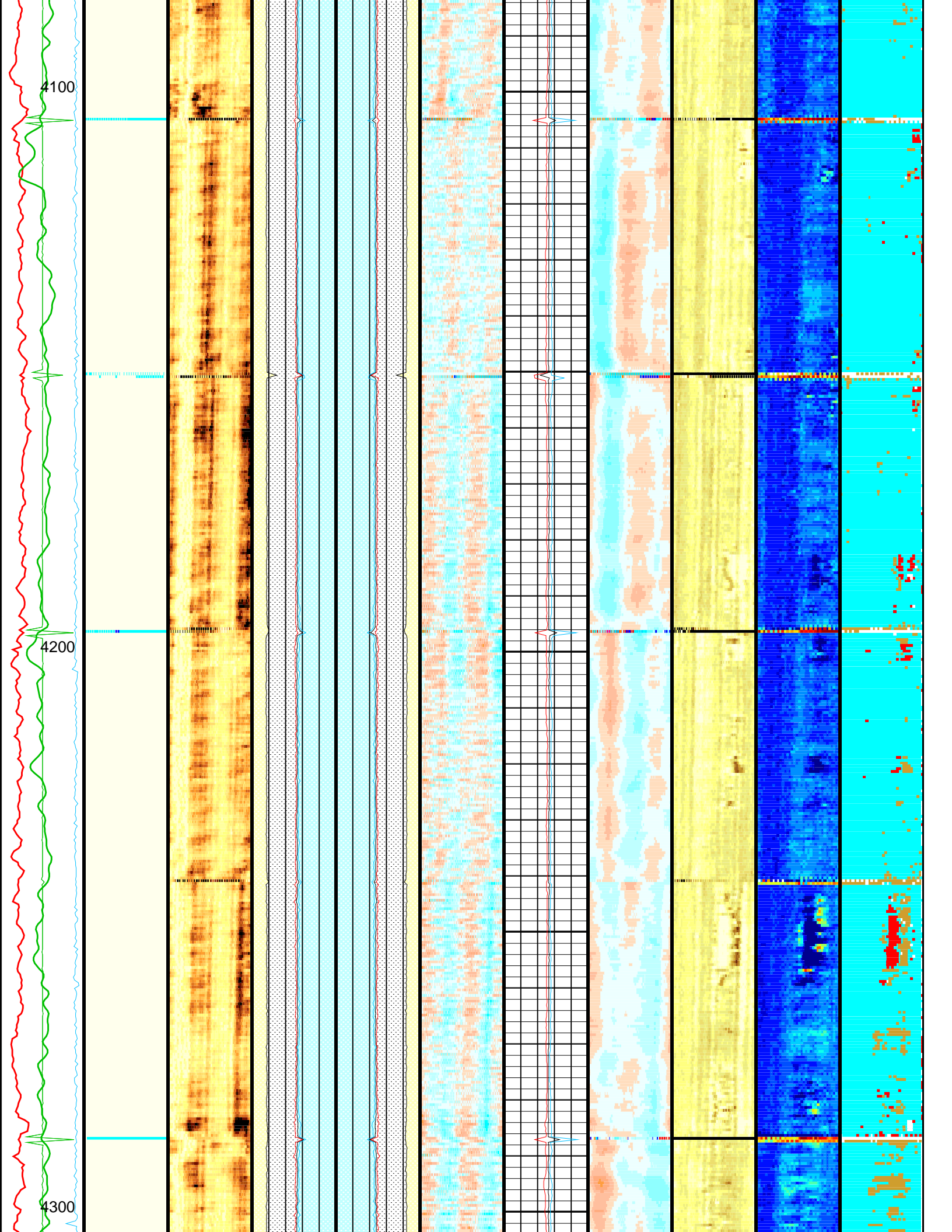


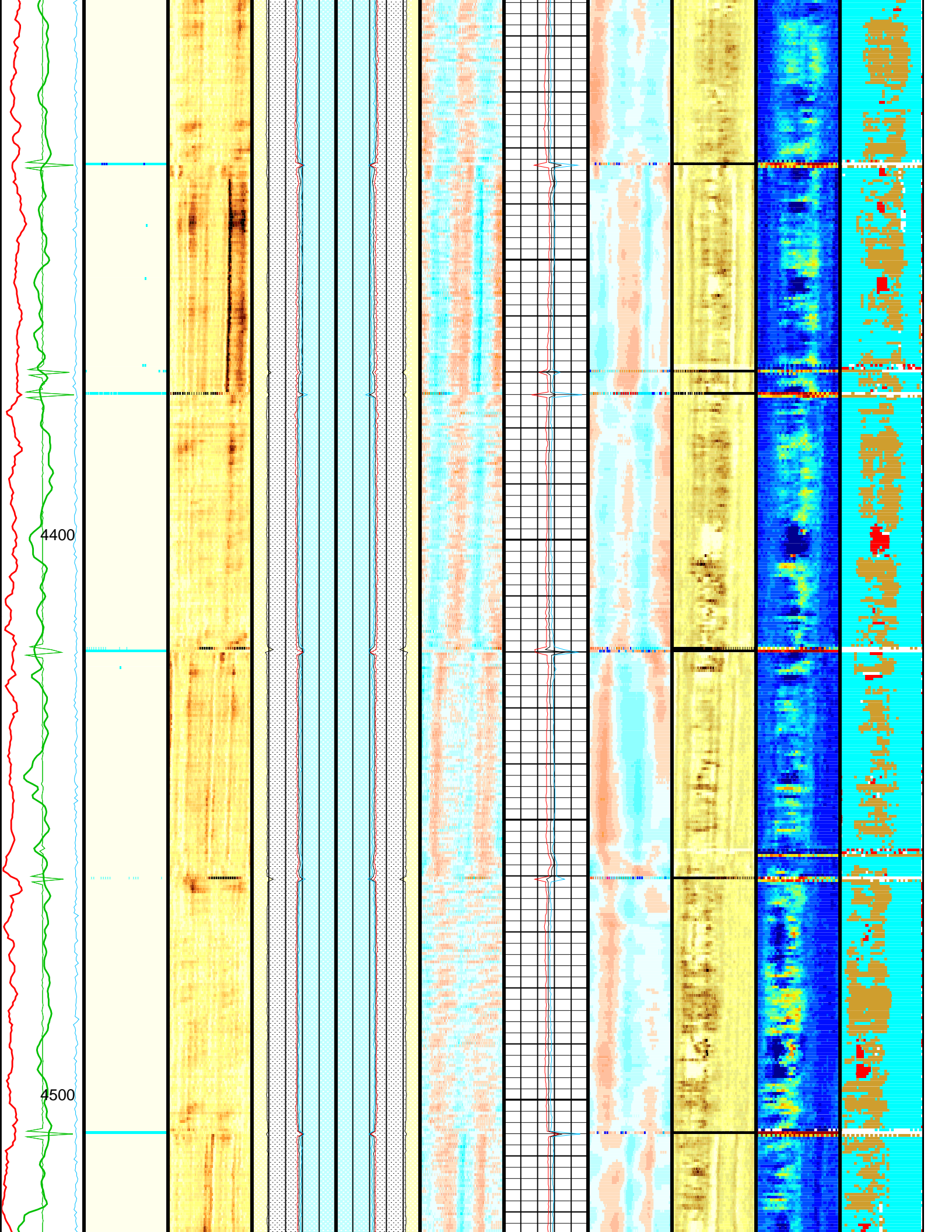


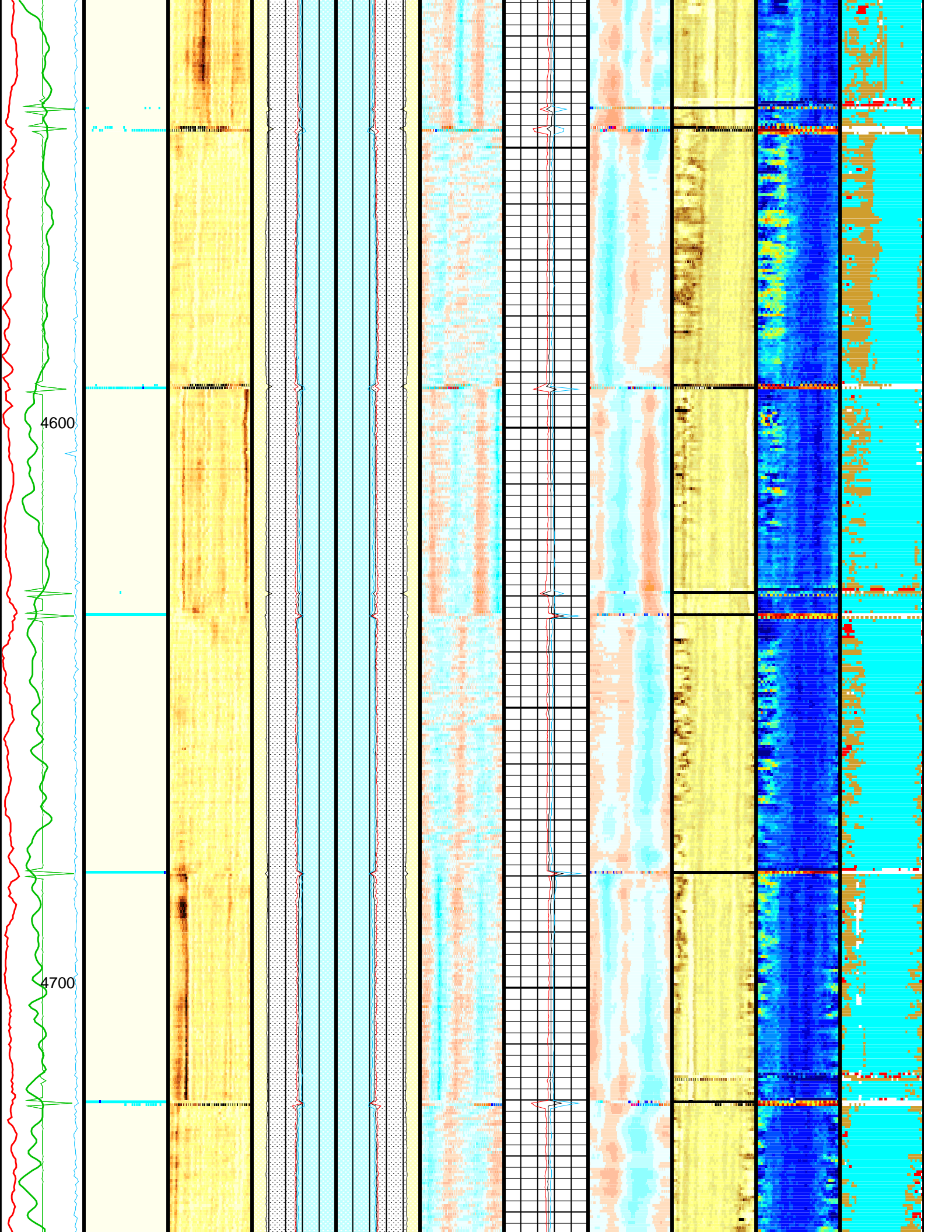


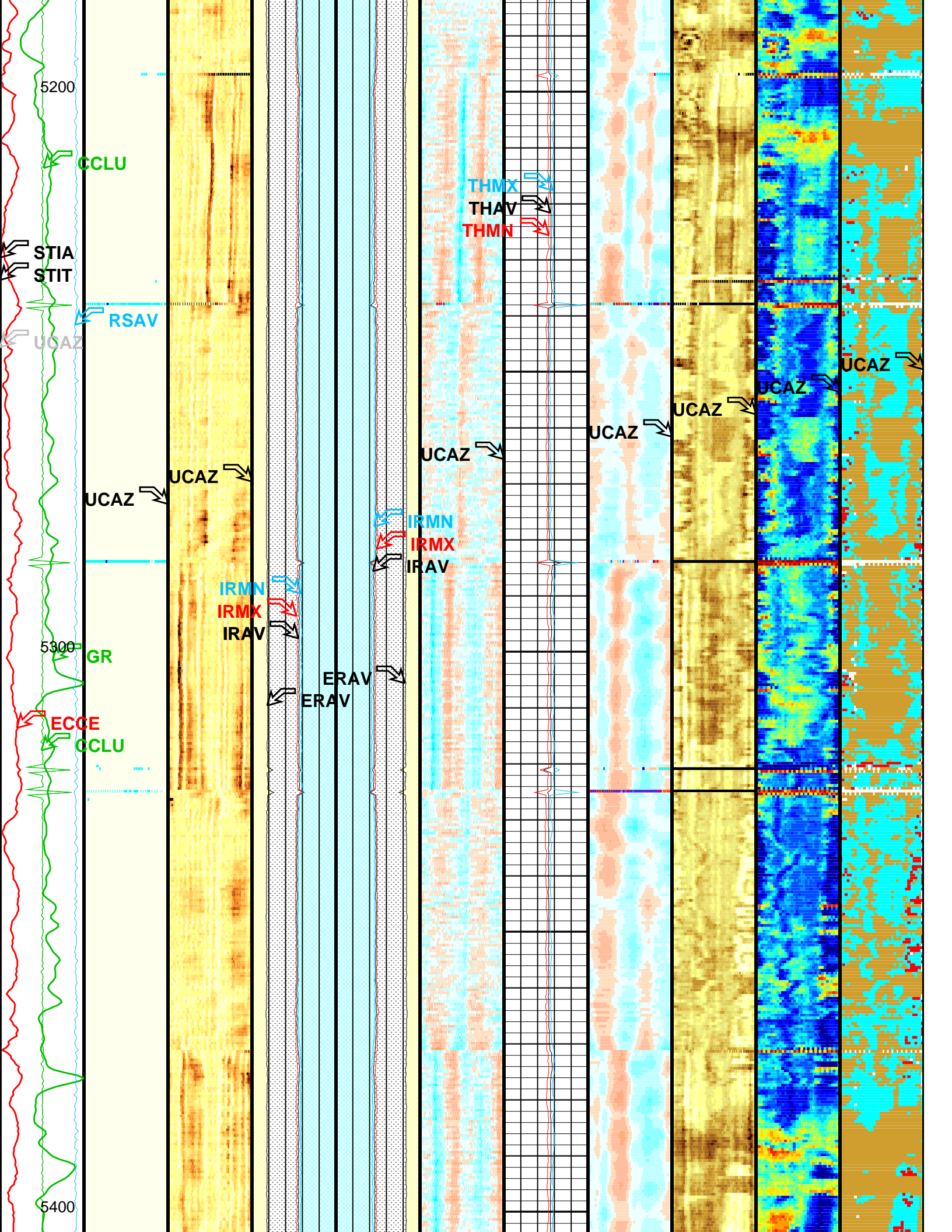


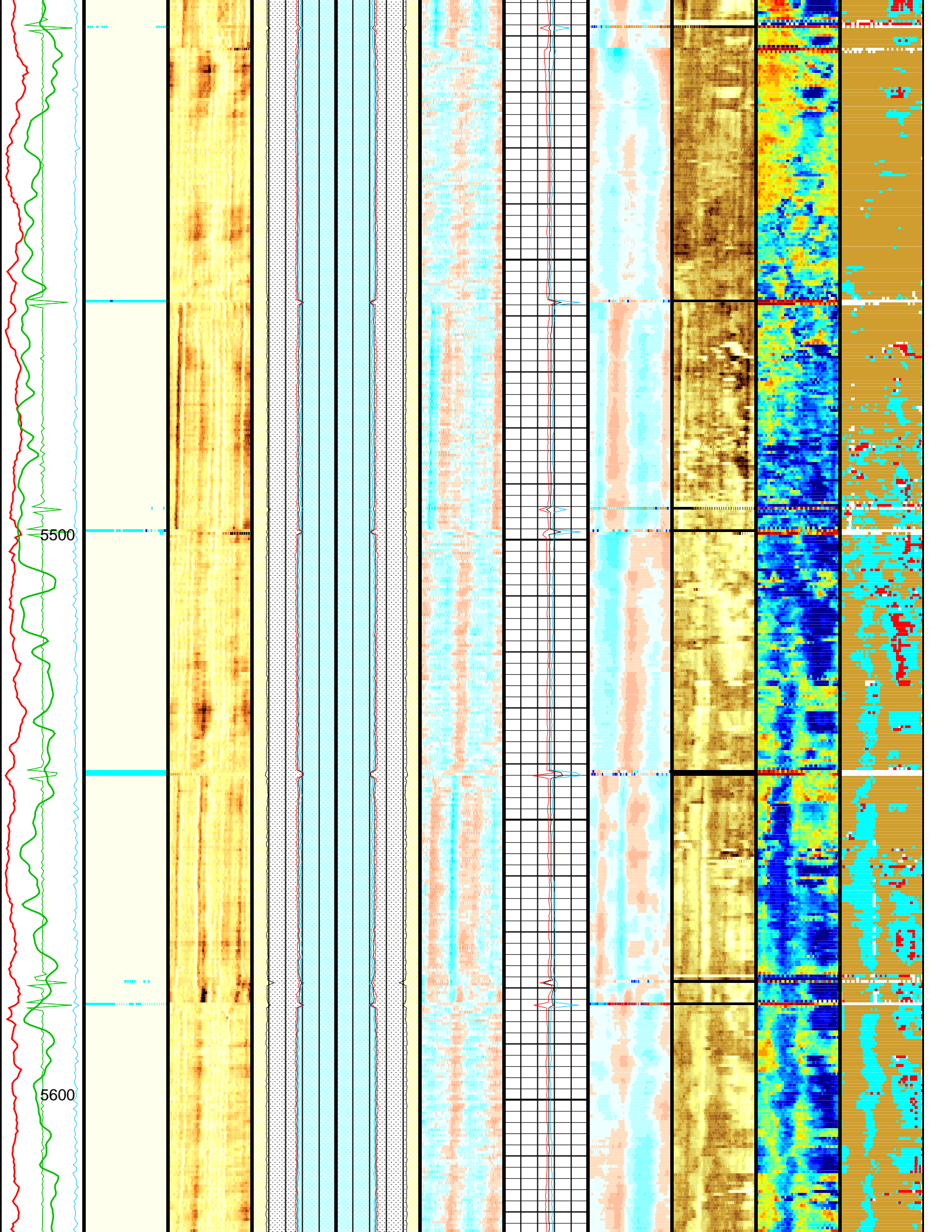


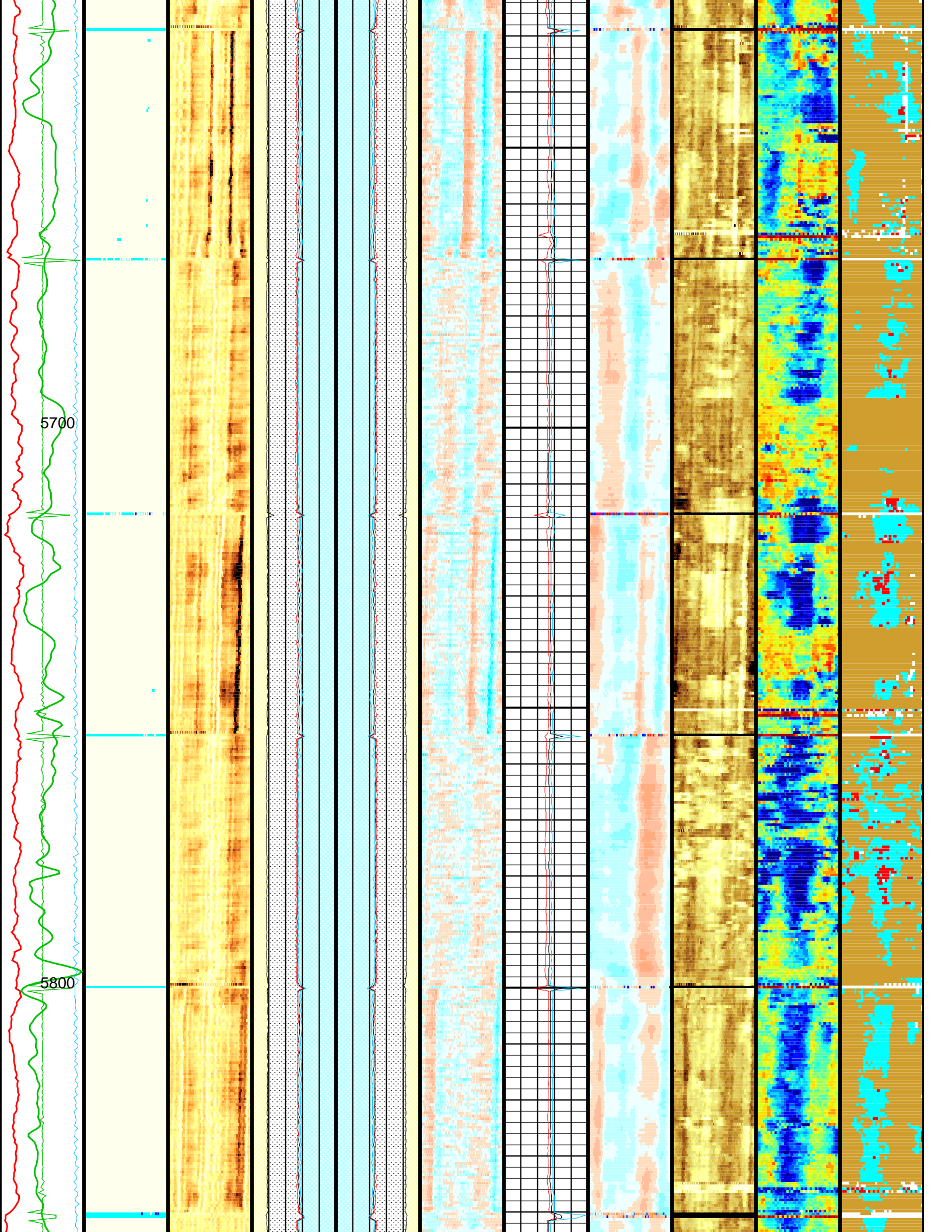


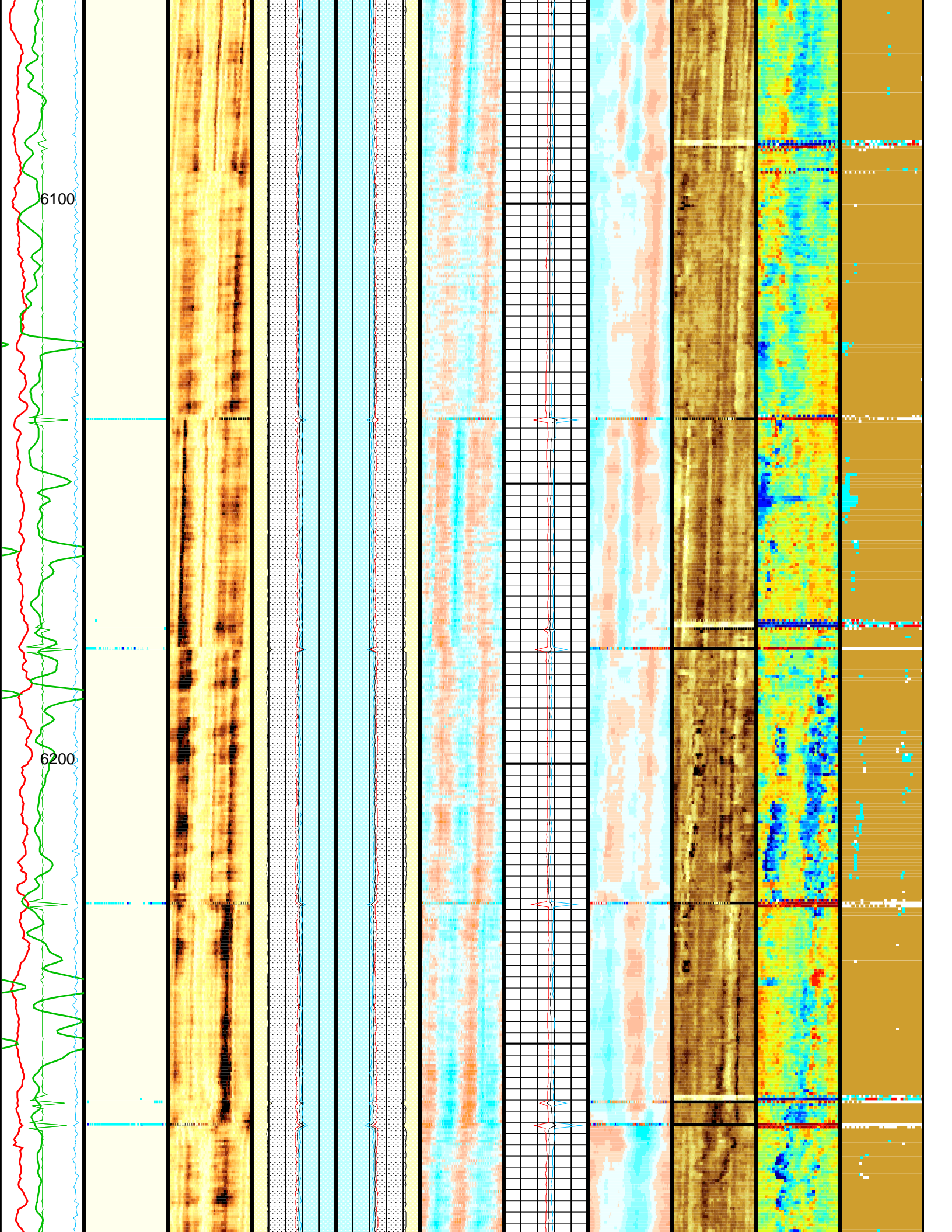


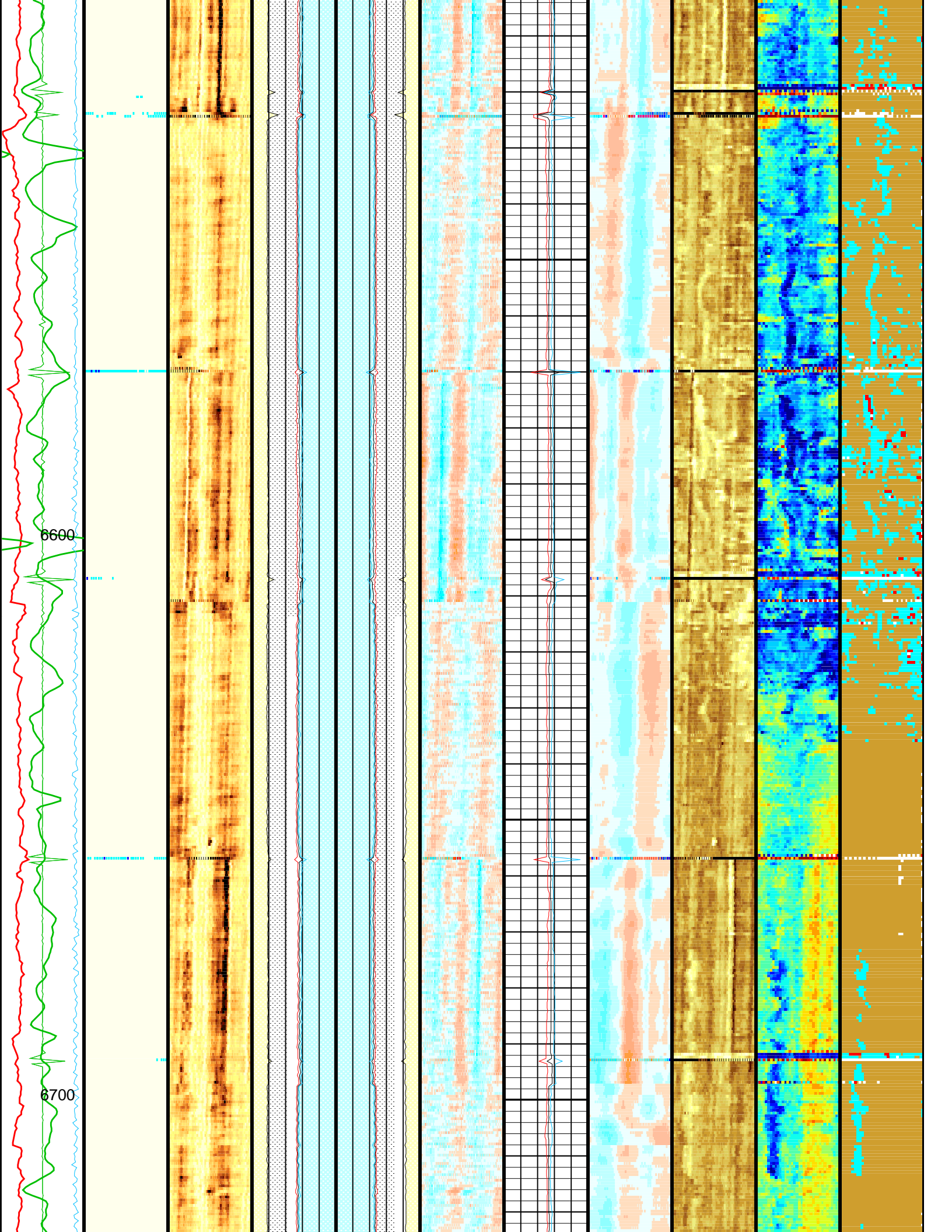


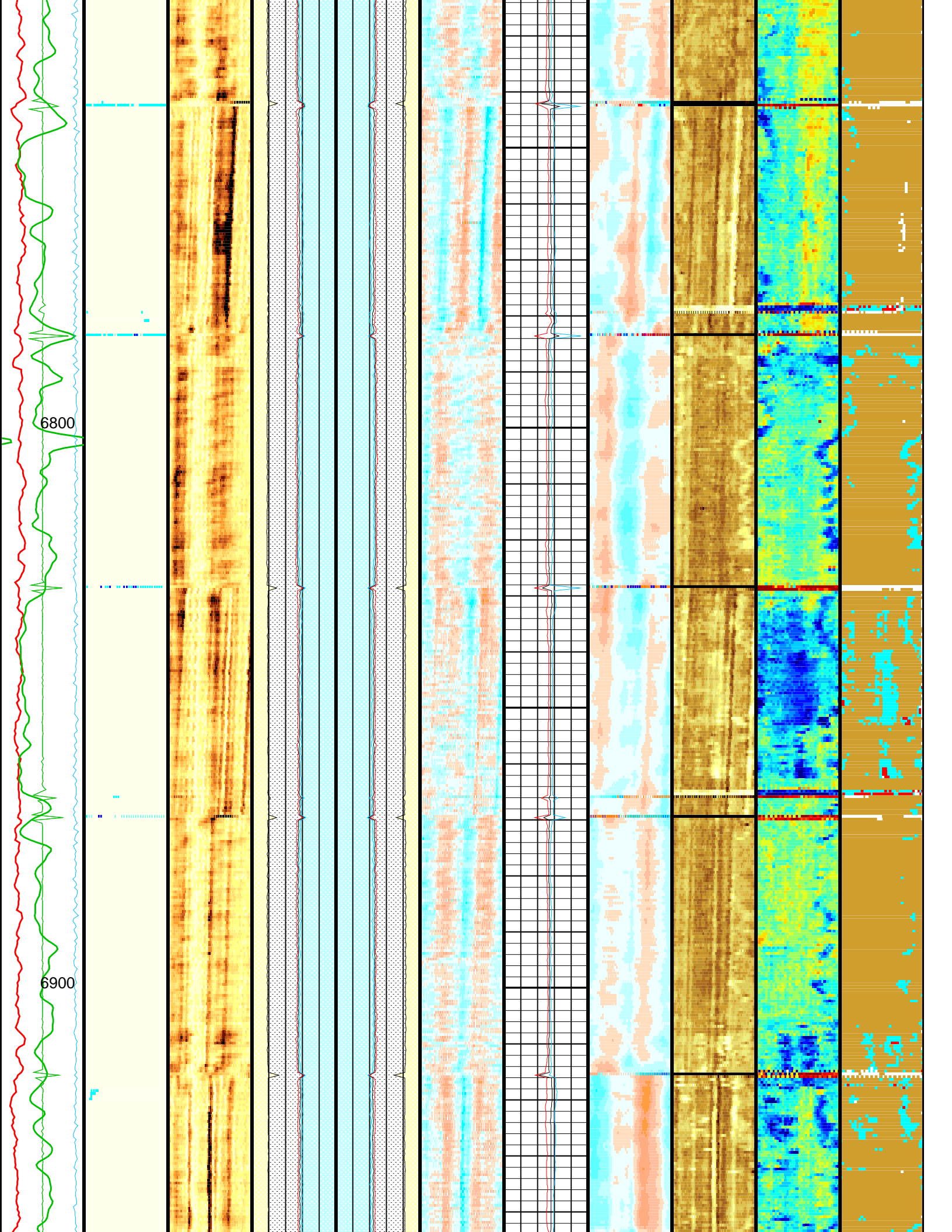


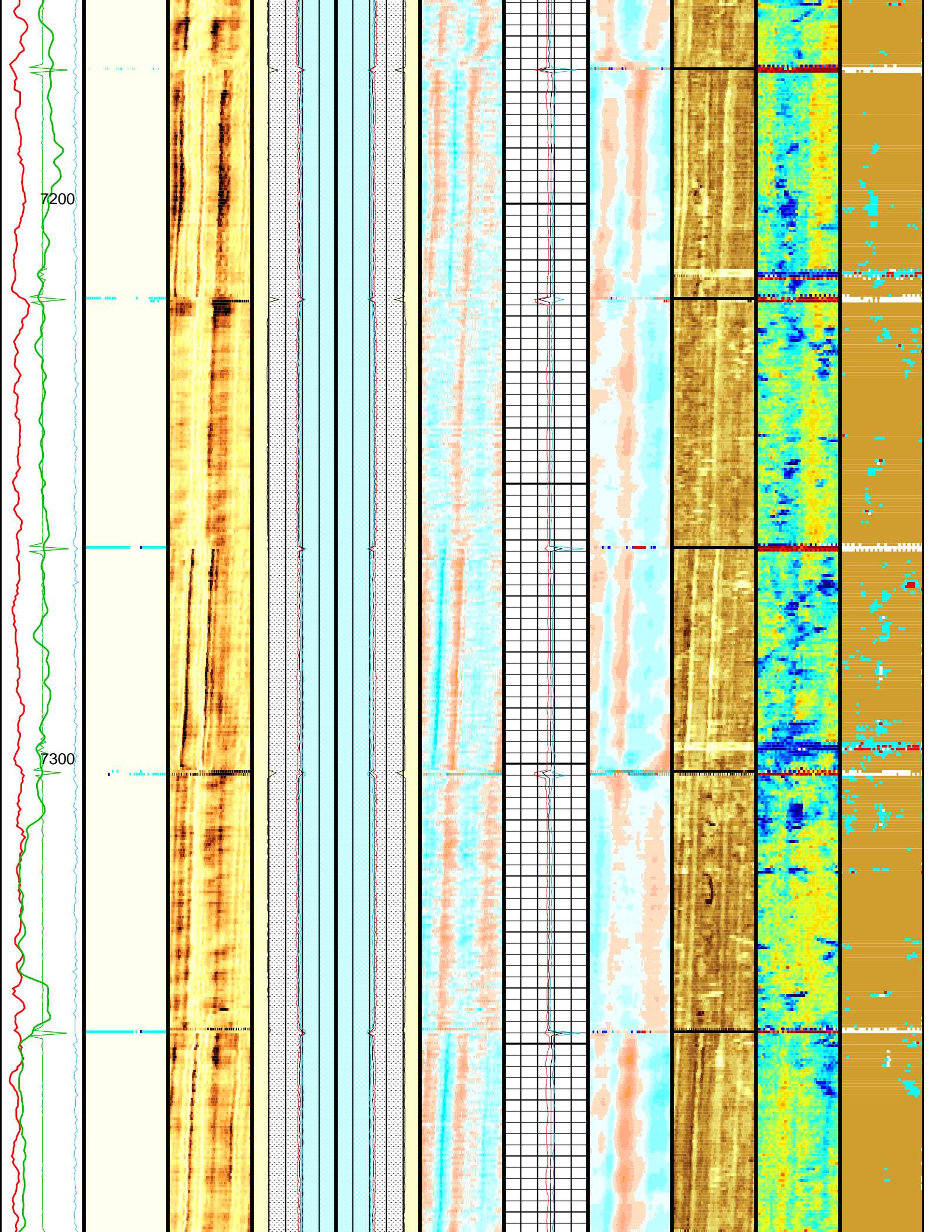


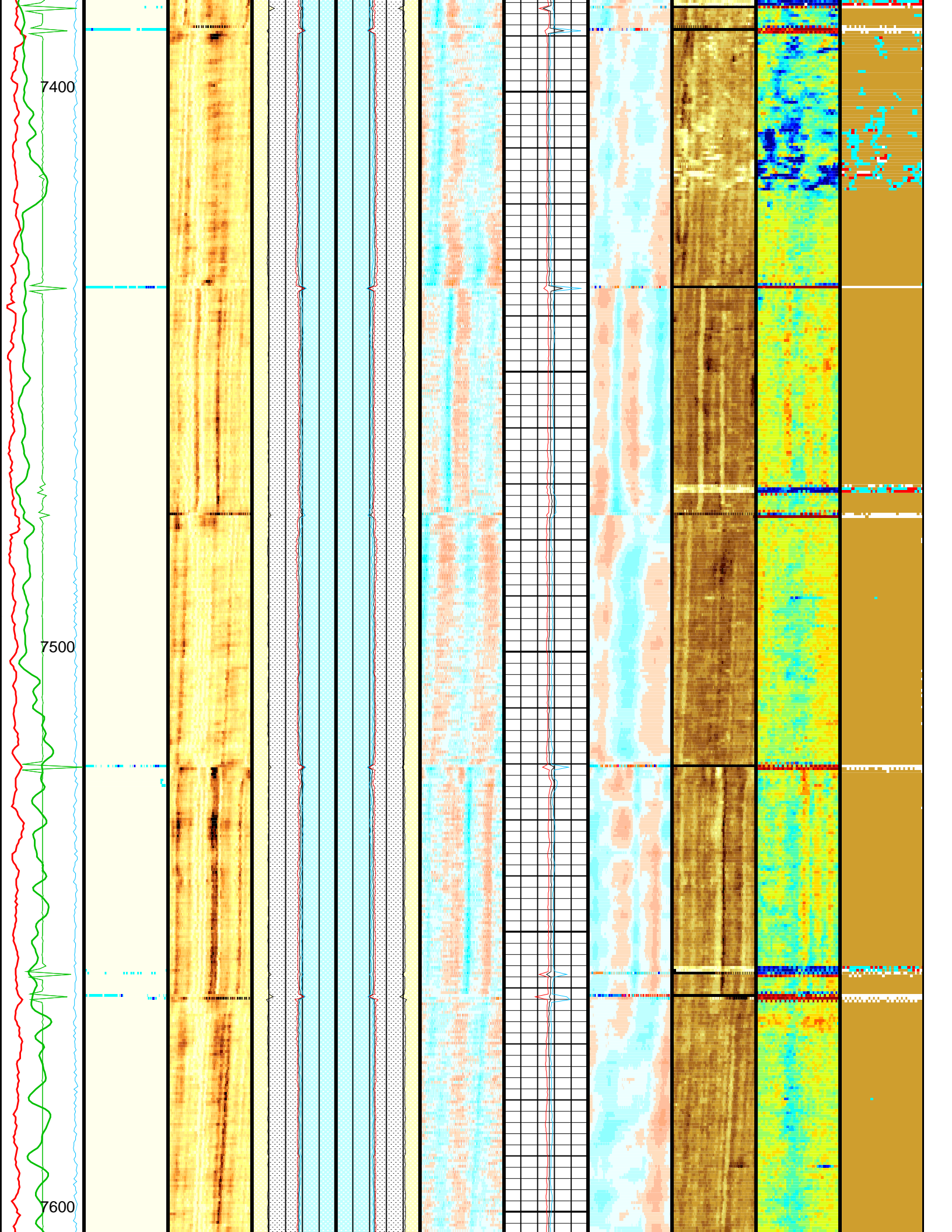


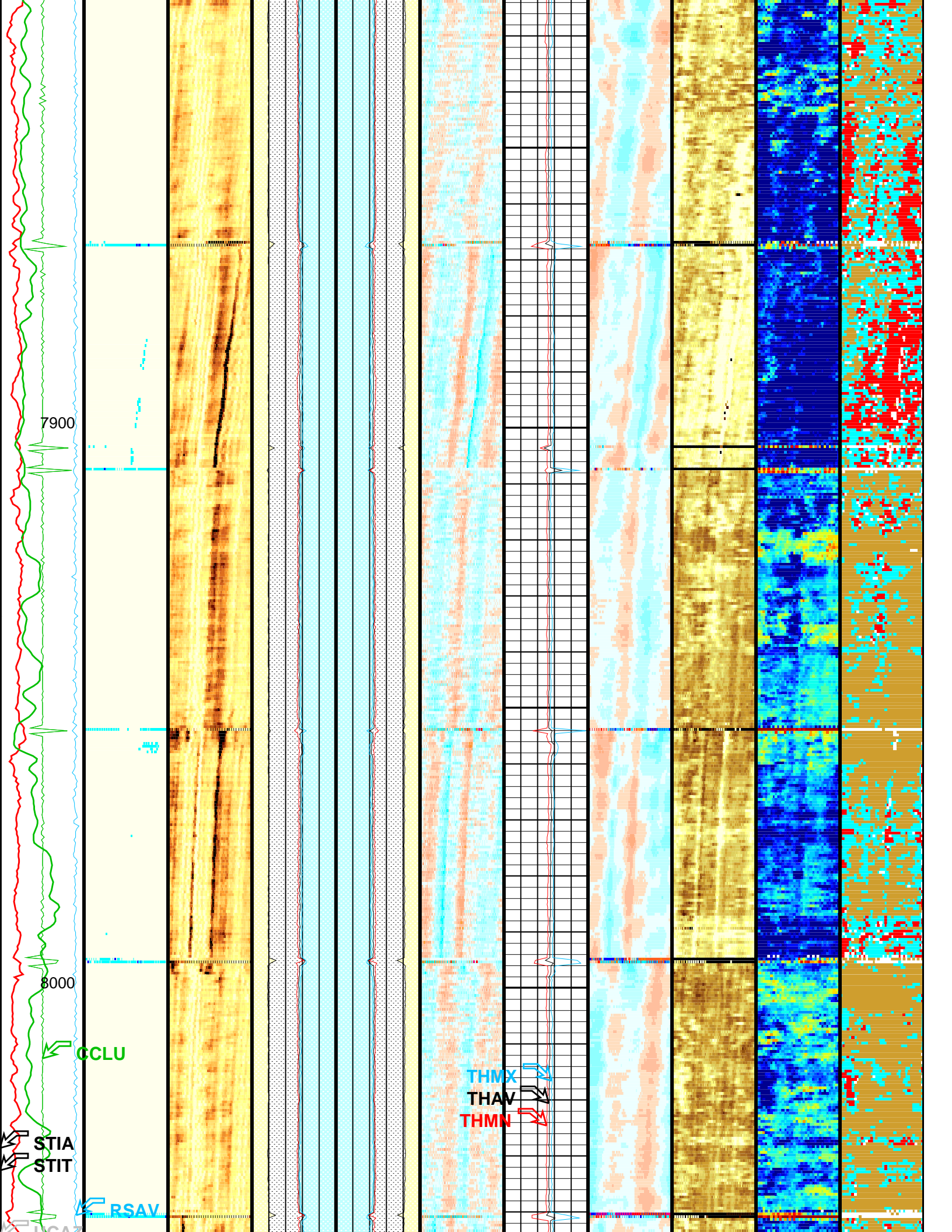


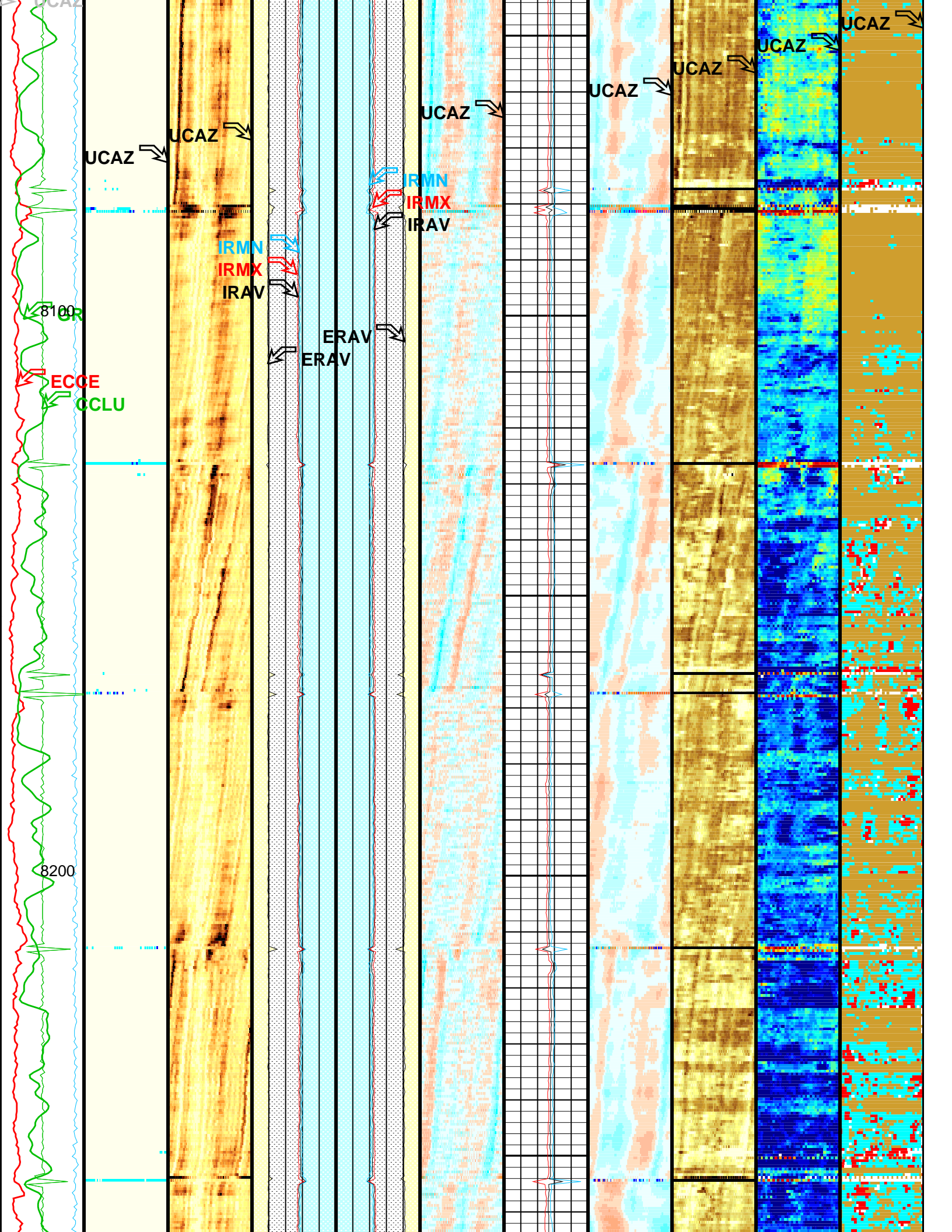


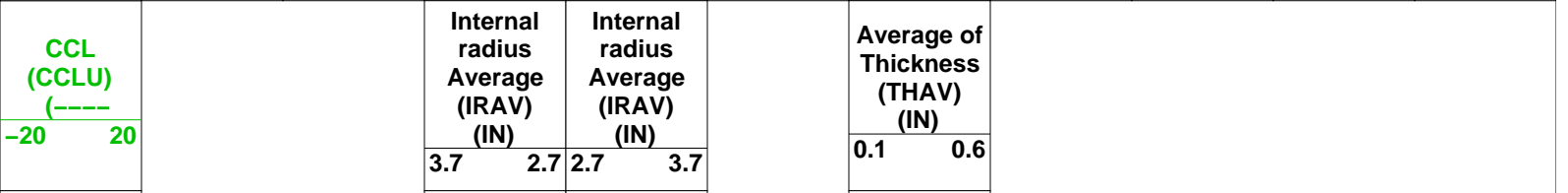
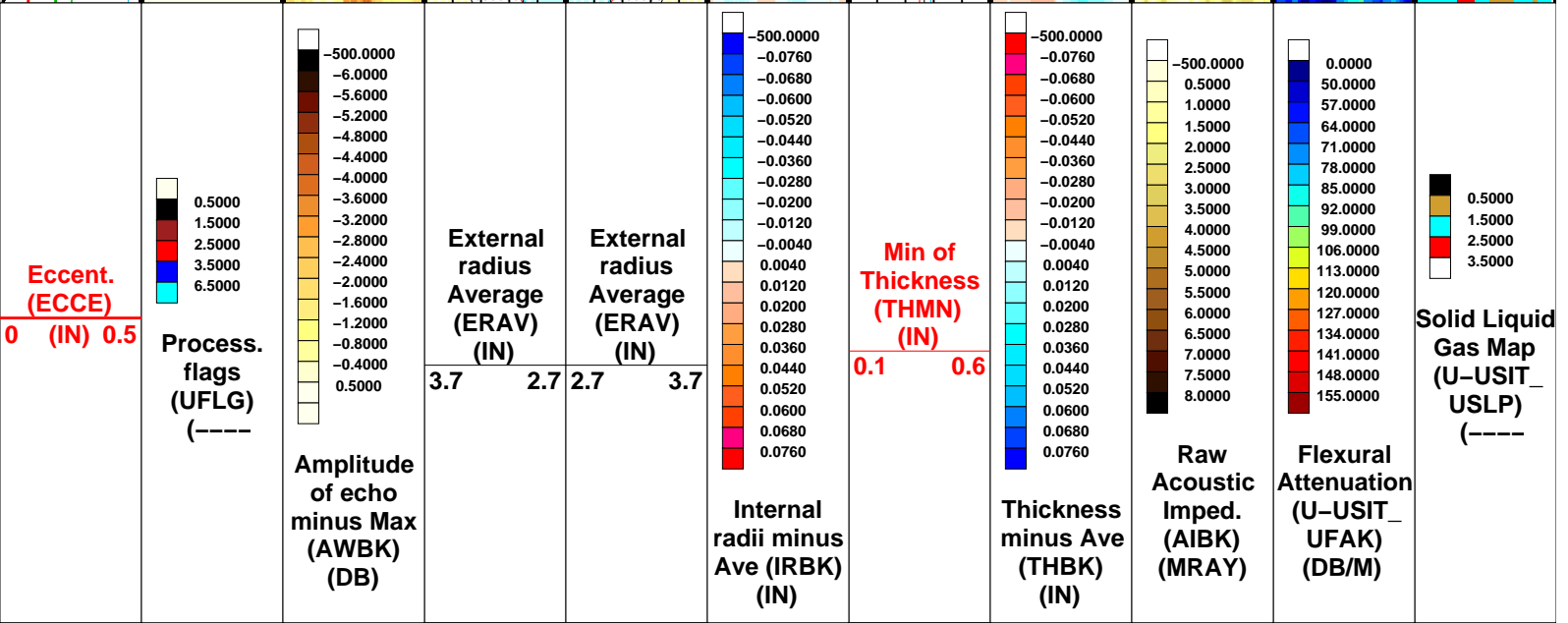
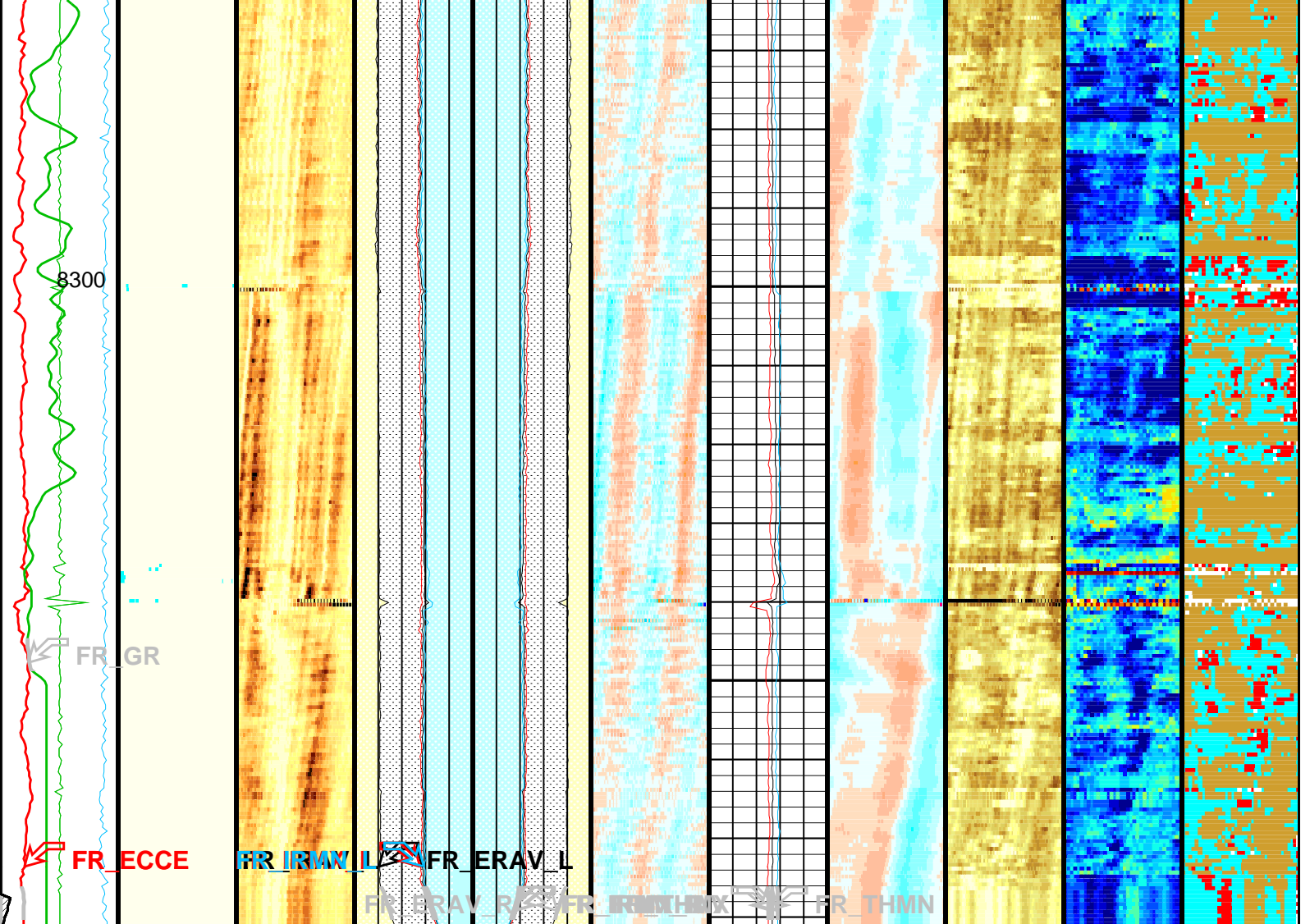












THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	Fundamental
THDP	Thickness Detection Policy	0.362	IN
THNO	Nominal Thickness of Casing	LIGHT	
U-USIT_CEMT	USIT Cement Type	0	MRAY
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	1.0_US_P_FT	
U-USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	0.050_MRAY	
U-USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0	IN
U-USIT_OCDI	USIT Outer Casing Diameter	0	FT
U-USIT_OCSH	USIT Outer Casing Shoe	0	LB/F
U-USIT_OCWE	USIT Outer Casing Weight	0	
U-USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U-USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U-USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U-USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U-USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U-USIT_U3WE	Third Interface Echo Window End	110	US
U-USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U-USIT_UFAO	USIT Flexural Attenuation Offset	-12	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_ibcs_A	
U-USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	8504.00	FT
TDL	Total Depth - Logger	8380.00	FT
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	6.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT USI_TLD_MCFL_CNL_004LUP FN:3 PRODUCER 27-Jun-2010 06:03 8375.0 FT 190.7 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_006PUP FN:5 PRODUCER 27-Jun-2010 10:17



GOODWIN 0.1 INCH

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO. Well: PCU 197-34A4

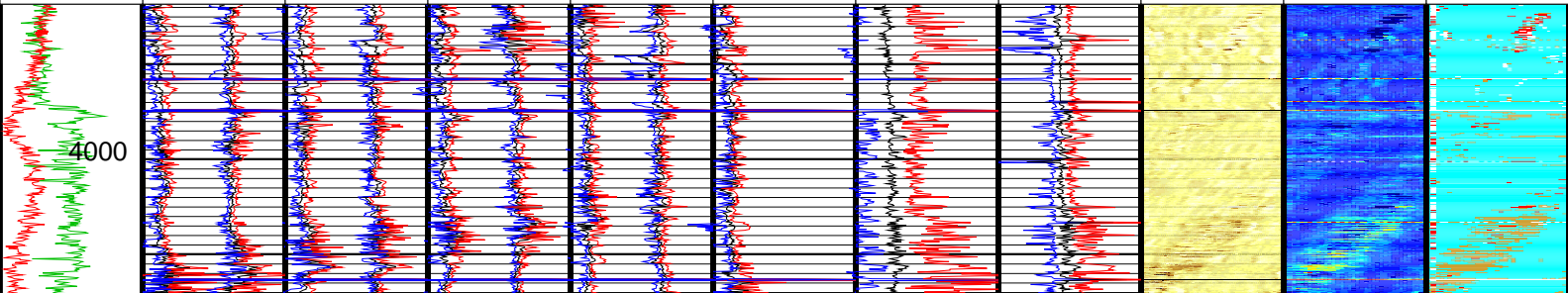
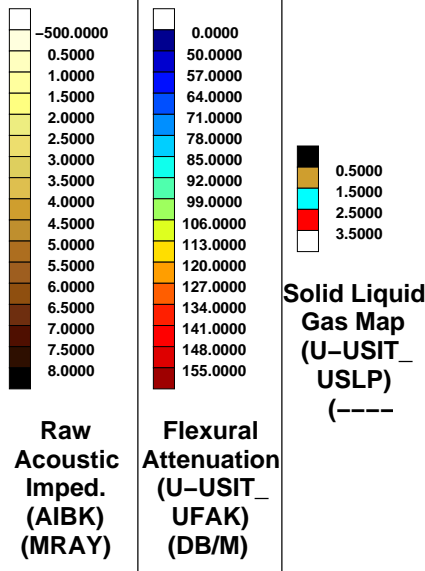
Input DLIS Files

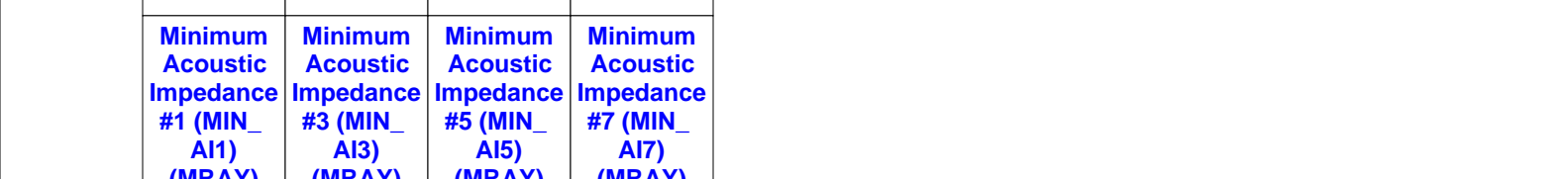
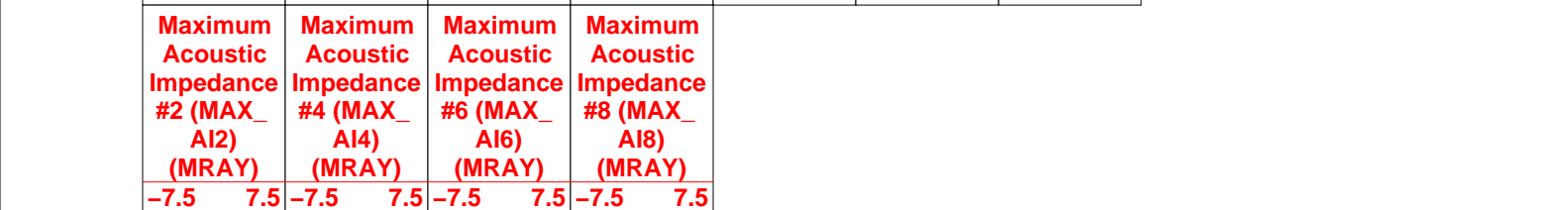
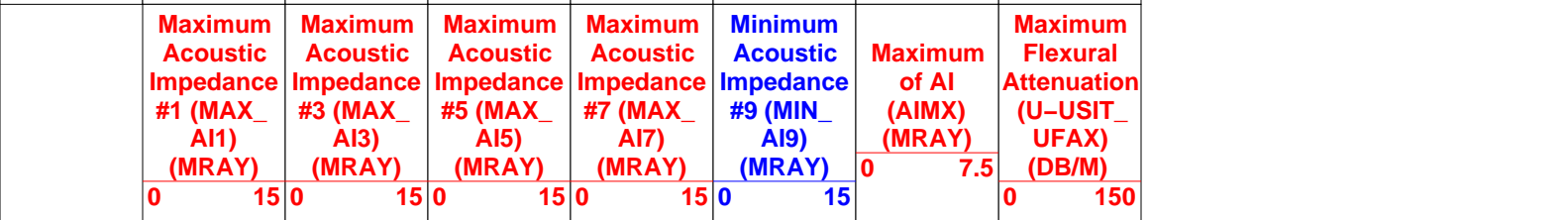
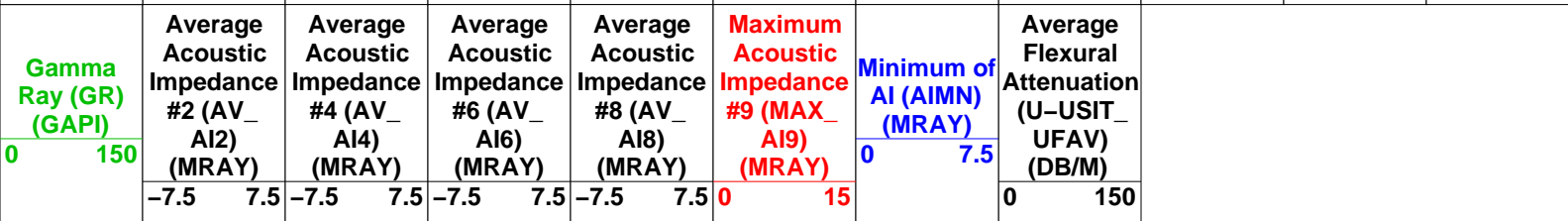
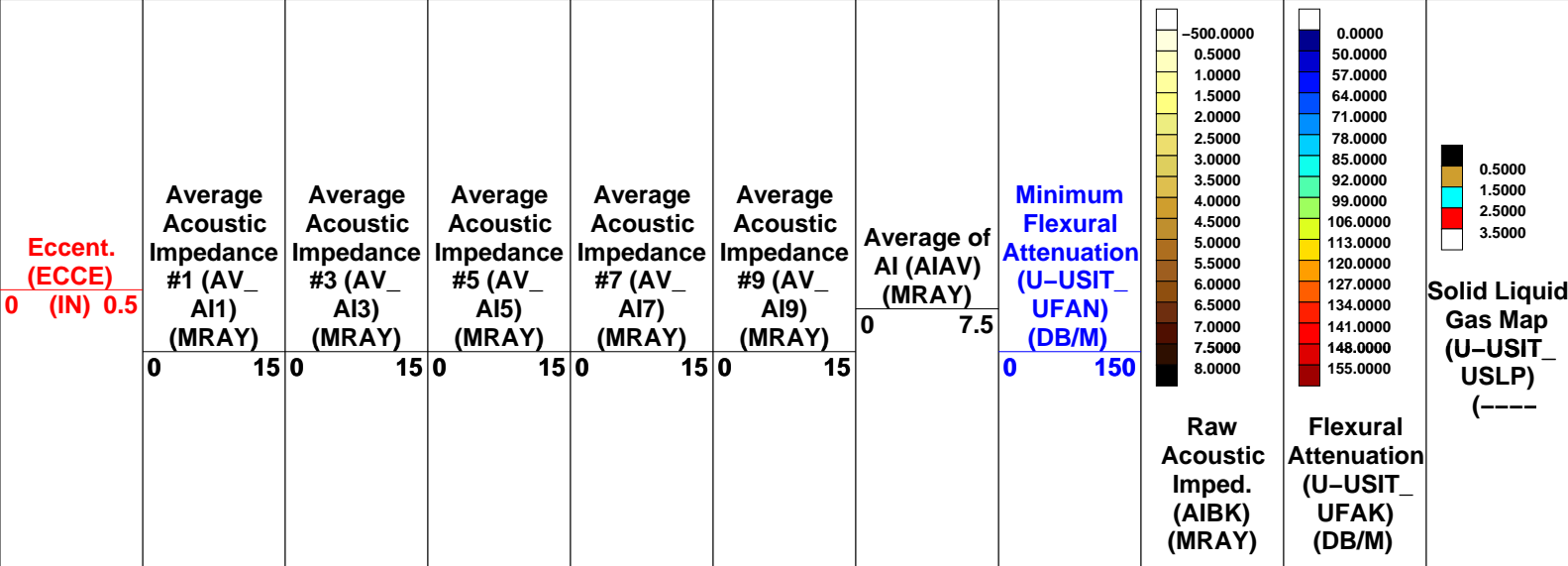
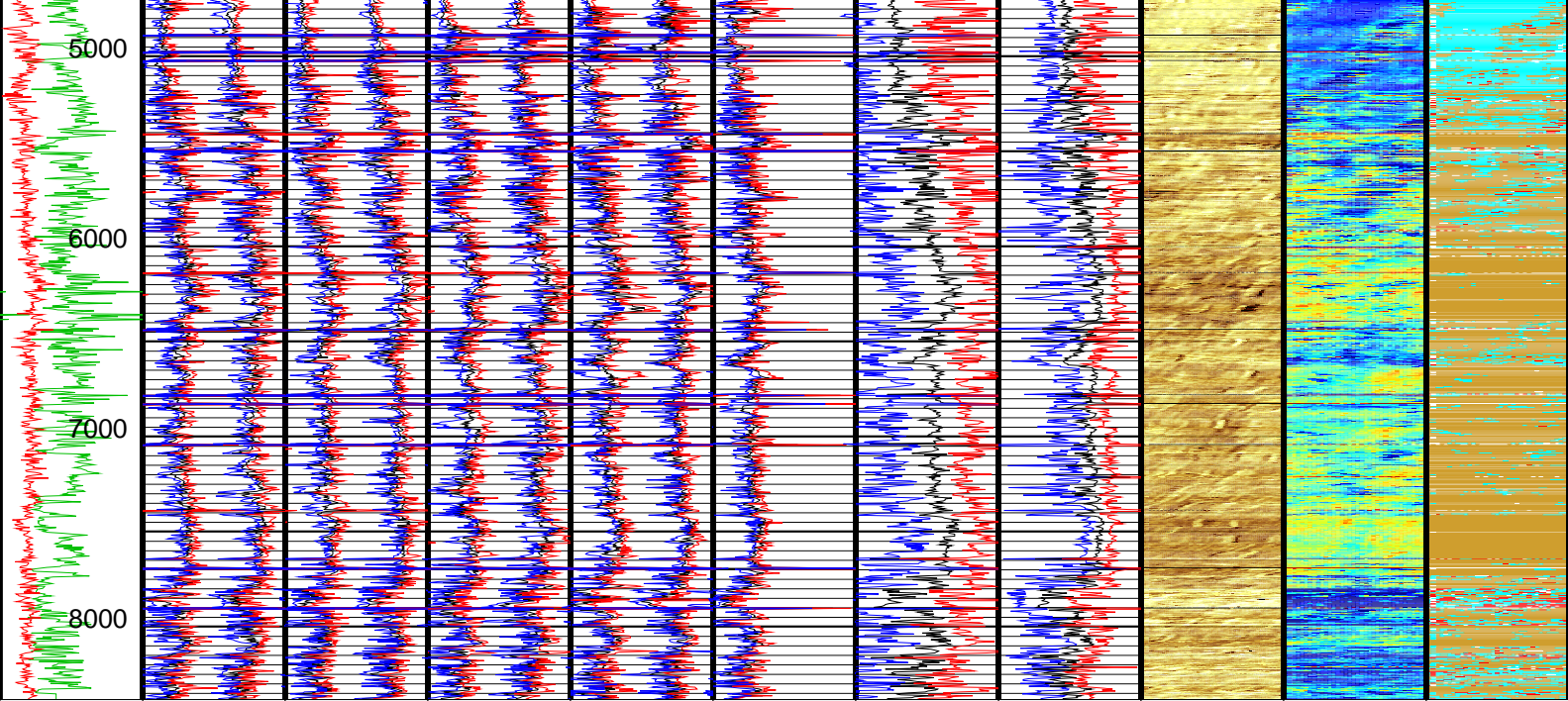
DEFAULT USI_TLD_MCFL_CNL_004LUP FN:3 PRODUCER 27-Jun-2010 06:03 8375.0 FT 190.7 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_006PUP FN:5 PRODUCER 27-Jun-2010 10:17

	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY)				
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5				
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY)				
	0 15	0 15	0 15	0 15				
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY)	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY)	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY)	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY)				
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5				
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY)	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY)	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY)	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY)	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY)	Maximum of AI (AIMX) (MRAY)	Maximum Flexural Attenuation (U-USIT_UFAX) (DB/M)	
	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150	
Gamma Ray (GR) (GAPI)	Average Acoustic Impedance #2 (AV_AI2) (MRAY)	Average Acoustic Impedance #4 (AV_AI4) (MRAY)	Average Acoustic Impedance #6 (AV_AI6) (MRAY)	Average Acoustic Impedance #8 (AV_AI8) (MRAY)	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U-USIT_UFAV) (DB/M)	
0 150	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5	0 15	0 7.5	0 150	
Eccent. (ECCE) (IN)	Average Acoustic Impedance #1 (AV_AI1) (MRAY)	Average Acoustic Impedance #3 (AV_AI3) (MRAY)	Average Acoustic Impedance #5 (AV_AI5) (MRAY)	Average Acoustic Impedance #7 (AV_AI7) (MRAY)	Average Acoustic Impedance #9 (AV_AI9) (MRAY)	Average of AI (AIAV) (MRAY)	Minimum Flexural Attenuation (U-USIT_UFAN) (DB/M)	
0 0.5	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150	





(MRAY)	0	15	0	(MRAY)	15	0	(MRAY)	15	0	(MRAY)	15
Minimum Acoustic Impedance #2 (MIN_A12) (MRAY)	-7.5	7.5	Minimum Acoustic Impedance #4 (MIN_A14) (MRAY)	-7.5	7.5	Minimum Acoustic Impedance #6 (MIN_A16) (MRAY)	-7.5	7.5	Minimum Acoustic Impedance #8 (MIN_A18) (MRAY)	-7.5	7.5

Format: M_Goodwin_Compressed Vertical Scale: 0.1" per 100' Graphics File Created: 27-Jun-2010 10:17

OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.
 Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	27-Jun-2010 06:03	8375.0 FT	190.7 FT
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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 10:17		
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GOODWIN 5 INCH

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO. Well: PCU 197-34A4

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	27-Jun-2010 06:03	8375.0 FT	190.7 FT
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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 10:17		
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OP System Version: 17C0-154

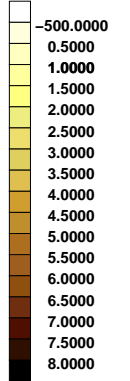
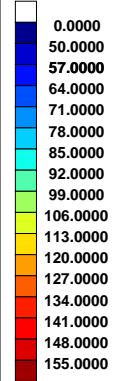
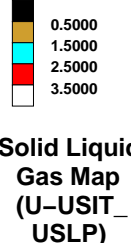
USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

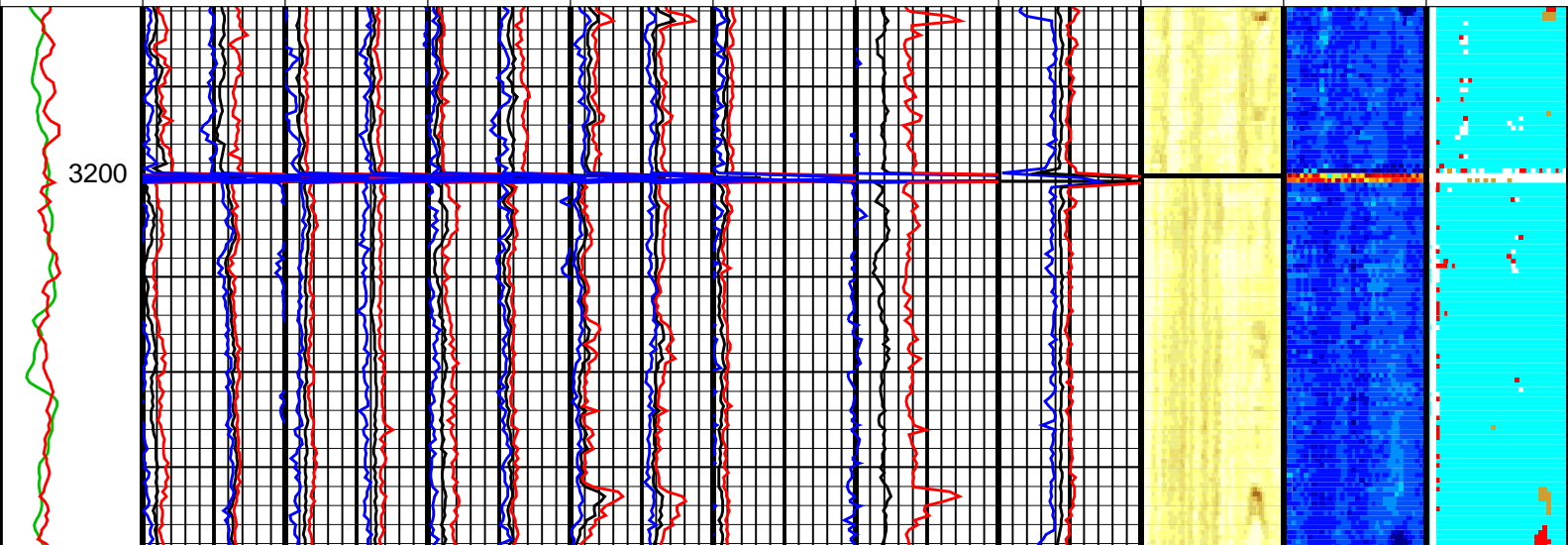
Minimum Acoustic Impedance #2 (MIN_A12)	Minimum Acoustic Impedance #4 (MIN_A14)	Minimum Acoustic Impedance #6 (MIN_A16)	Minimum Acoustic Impedance #8 (MIN_A18)
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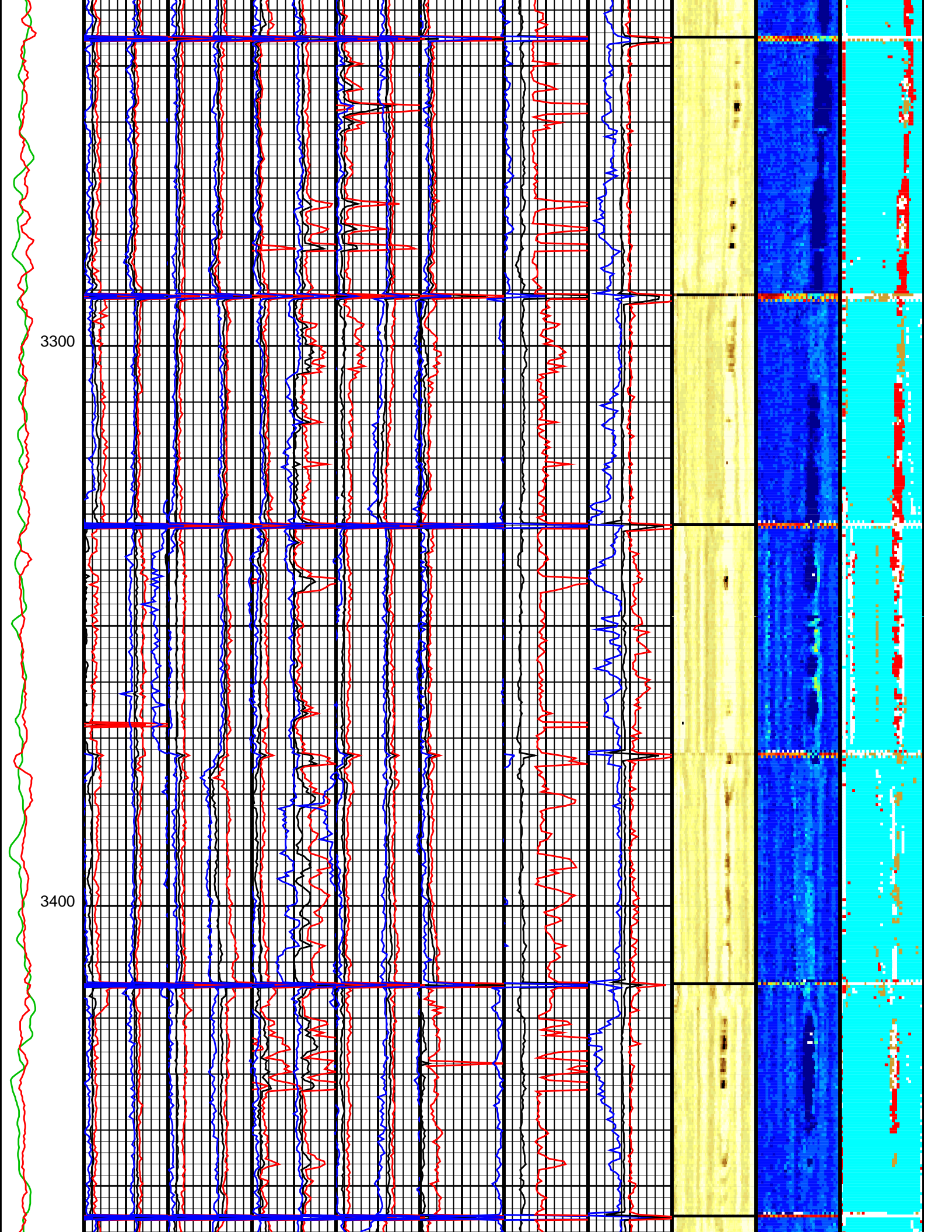
	A12) (MRAY)	A14) (MRAY)	A16) (MRAY)	A18) (MRAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_ A1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_ A3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_ A5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_ A7) (MRAY)			
	0 15	0 15	0 15	0 15			
	Maximum Acoustic Impedance #2 (MAX_ A2) (MRAY)	Maximum Acoustic Impedance #4 (MAX_ A4) (MRAY)	Maximum Acoustic Impedance #6 (MAX_ A6) (MRAY)	Maximum Acoustic Impedance #8 (MAX_ A8) (MRAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			

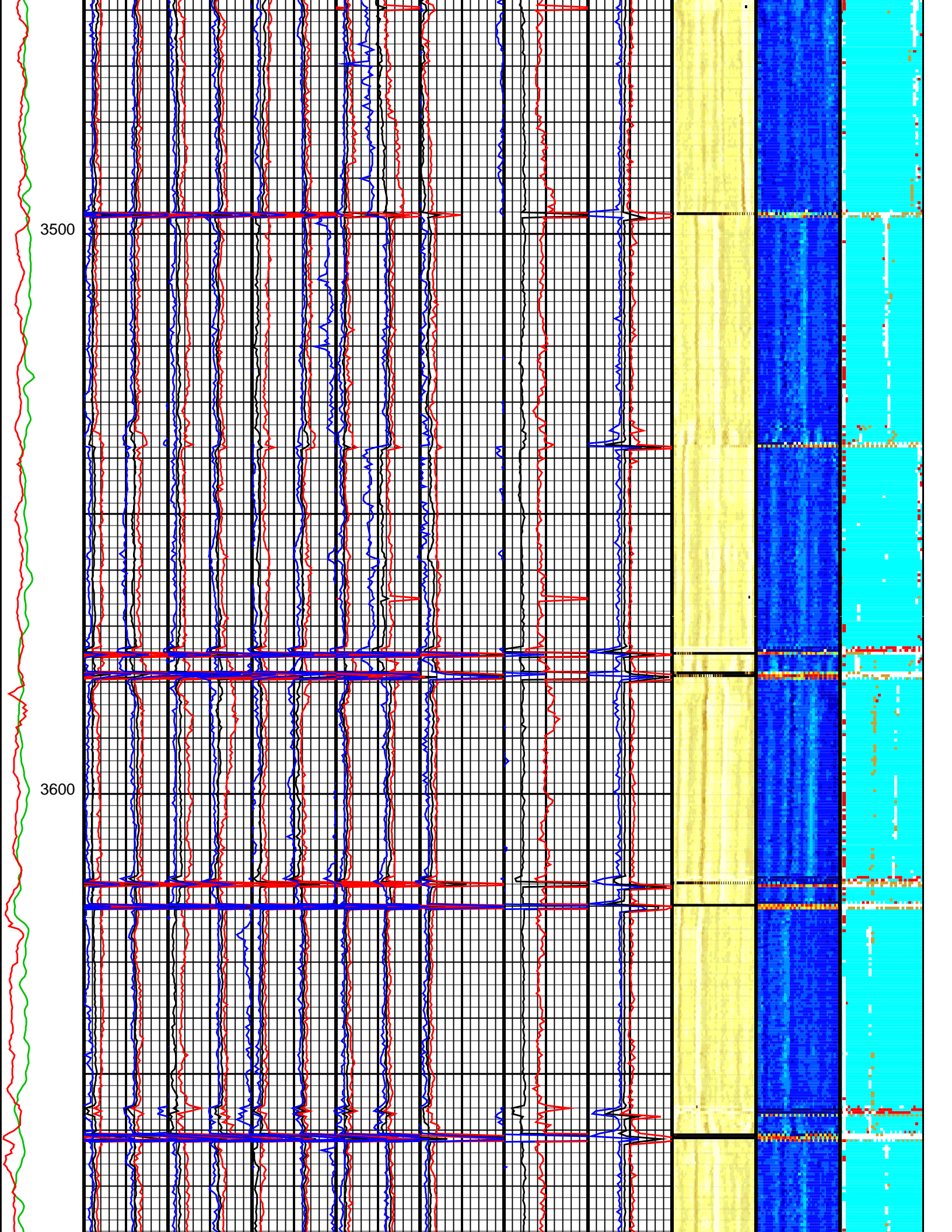
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	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150

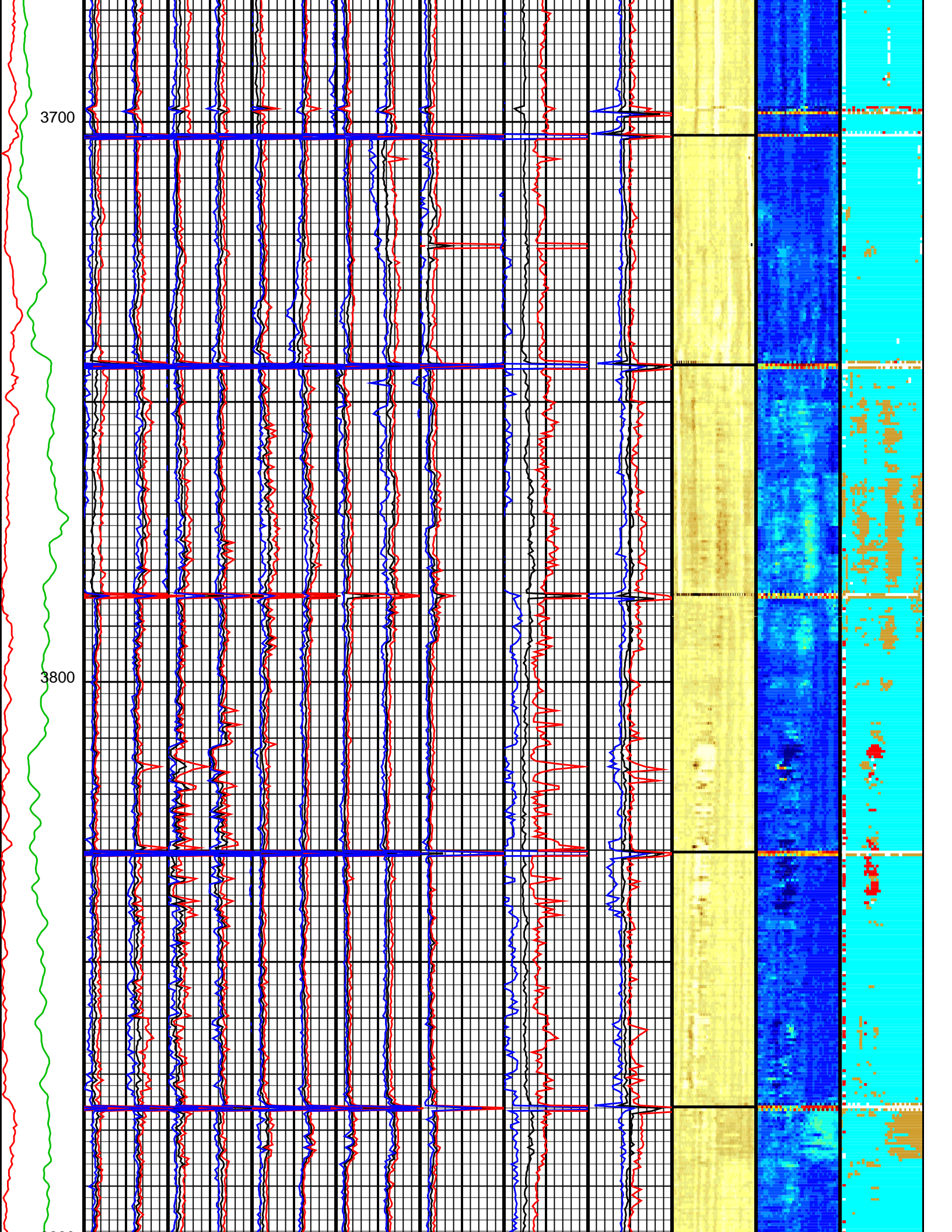
Gamma Ray (GR) (GAPI)	Average Acoustic Impedance #2 (AV_ A2) (MRAY)	Average Acoustic Impedance #4 (AV_ A4) (MRAY)	Average Acoustic Impedance #6 (AV_ A6) (MRAY)	Average Acoustic Impedance #8 (AV_ A8) (MRAY)	Maximum Acoustic Impedance #9 (MAX_ A9) (MRAY)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U-USIT_ UFAV) (DB/M)
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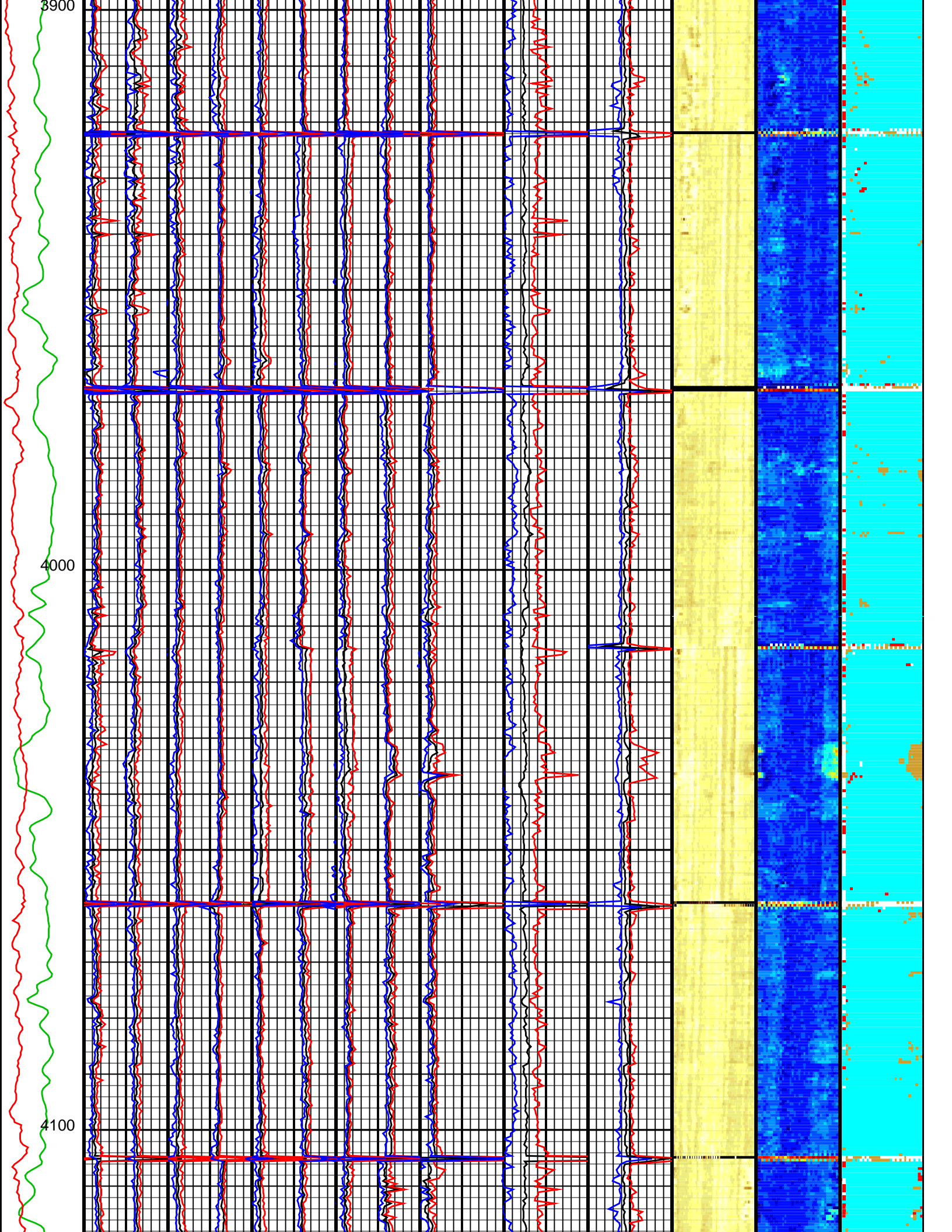
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0 (IN) 0.5	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150			

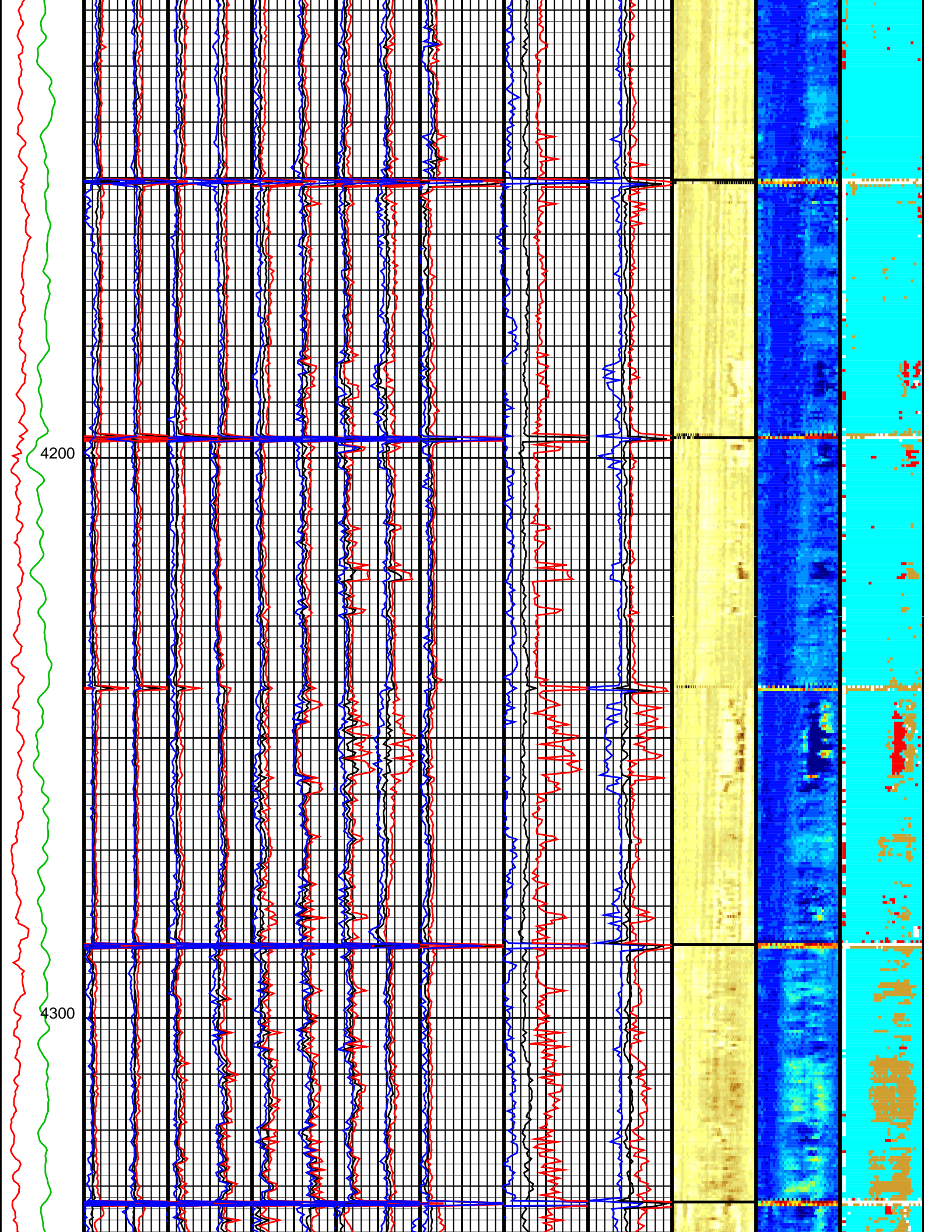


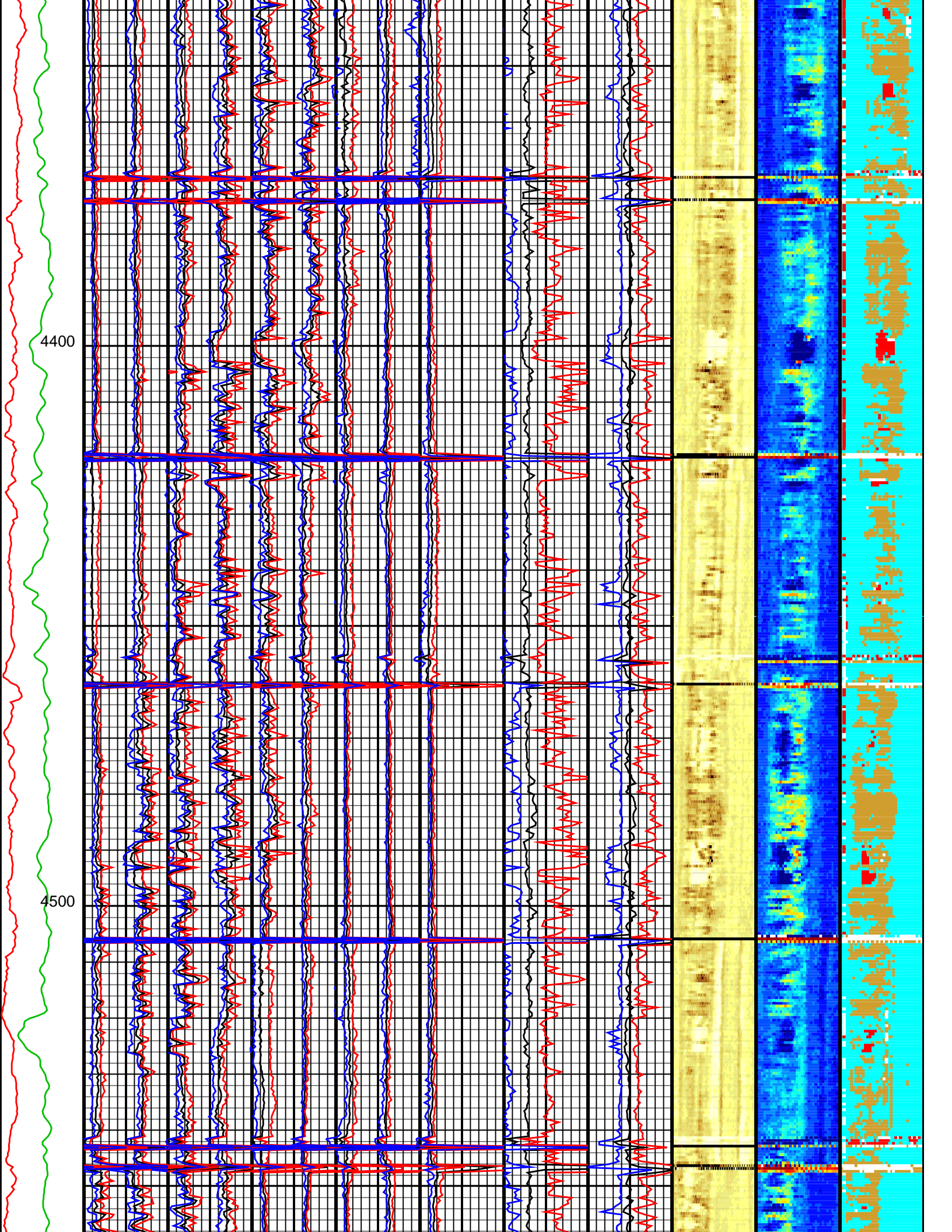


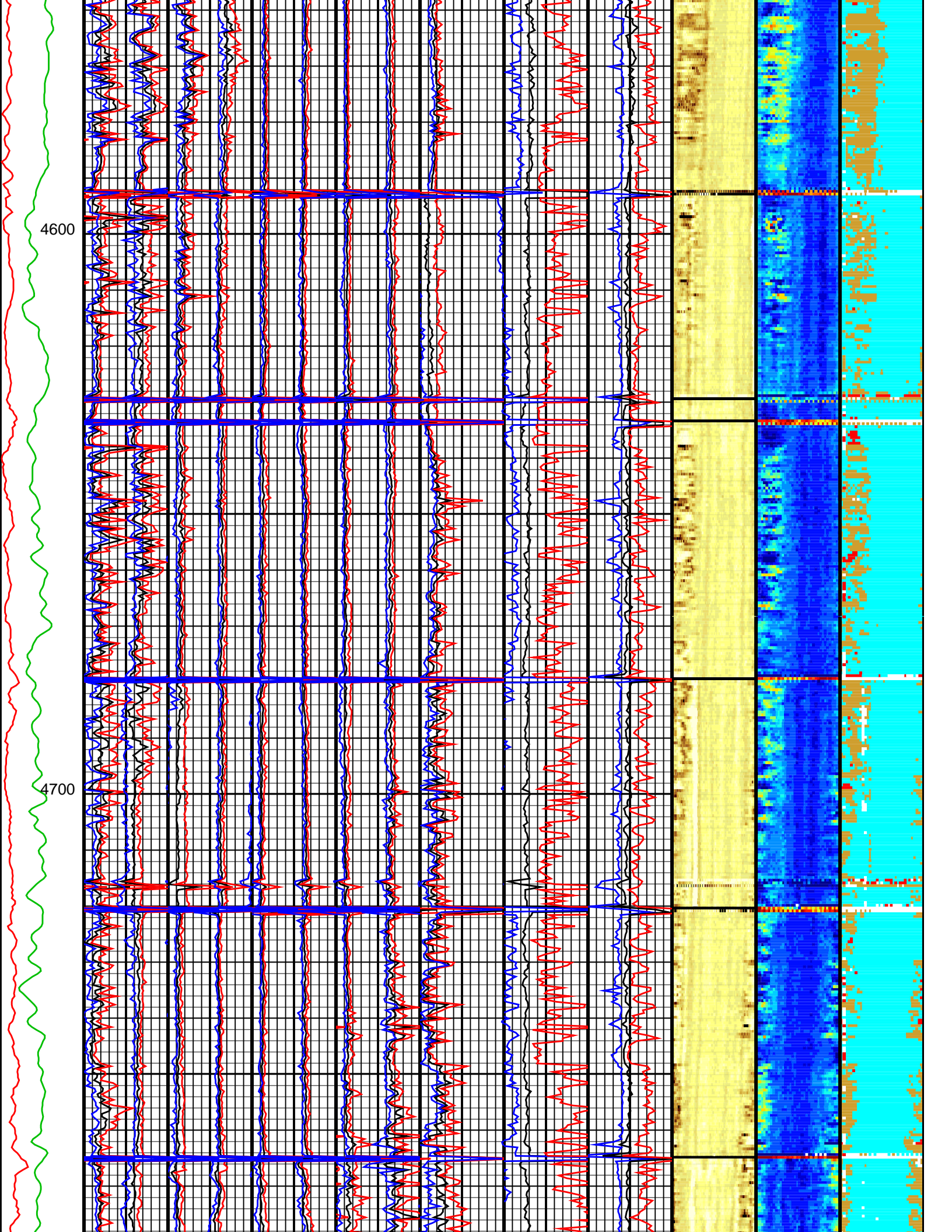


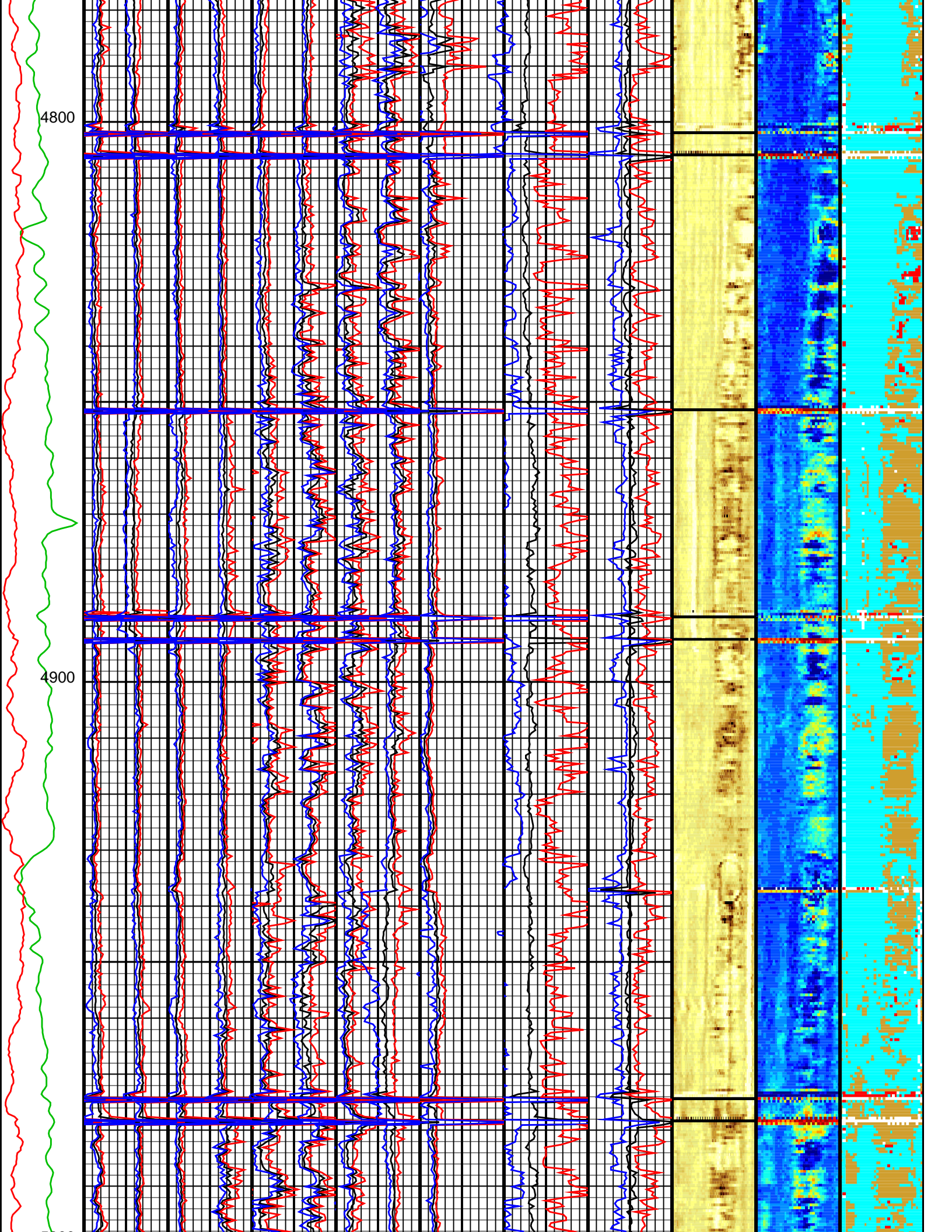


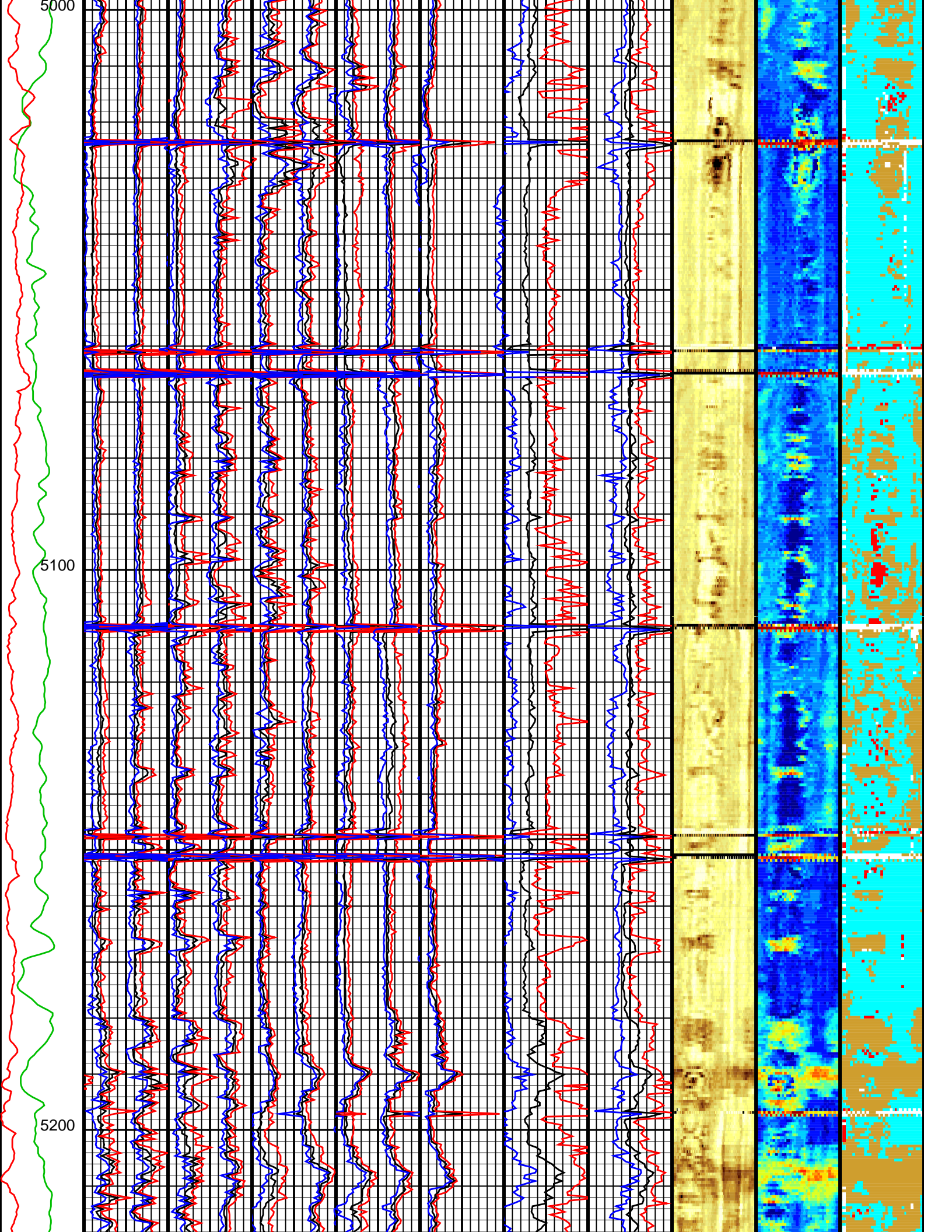


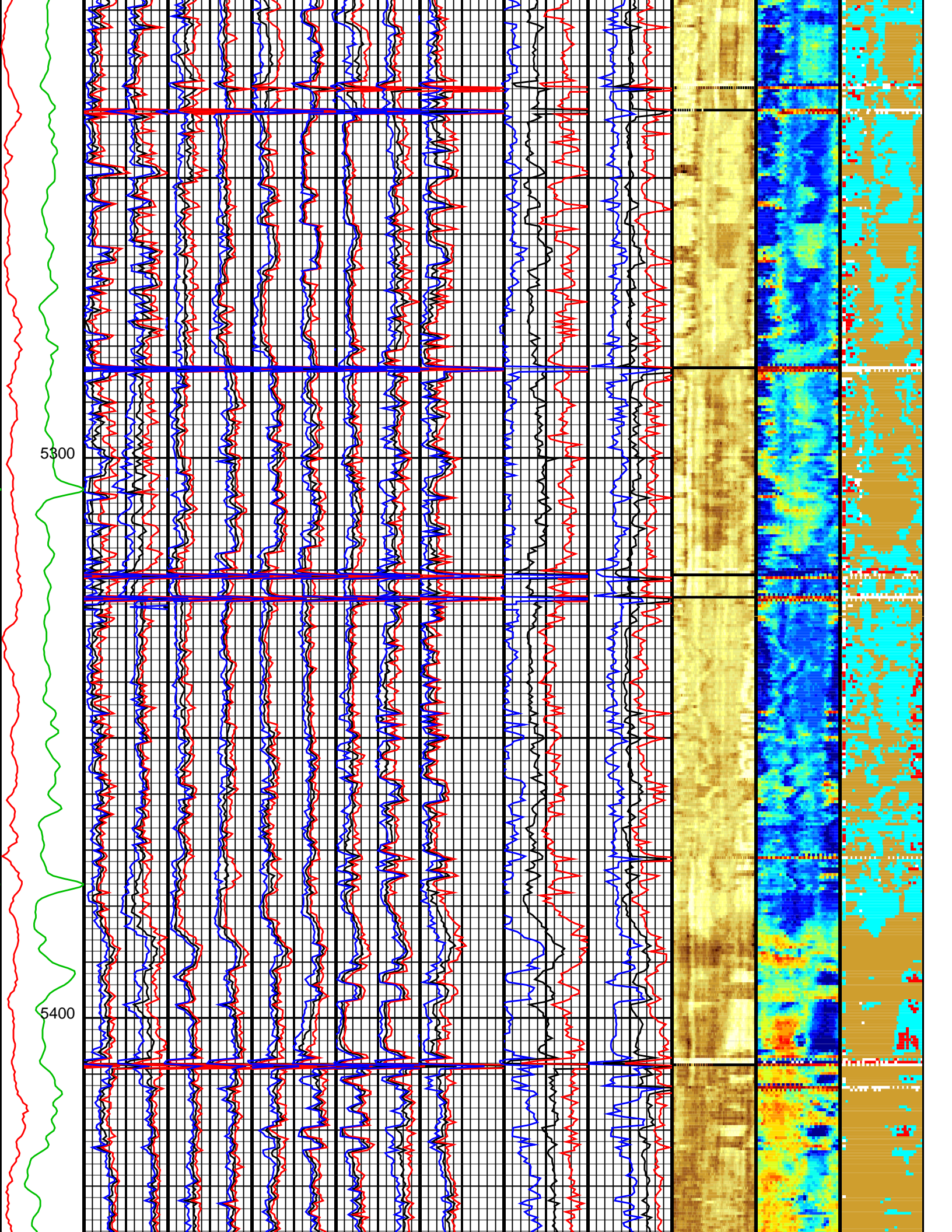


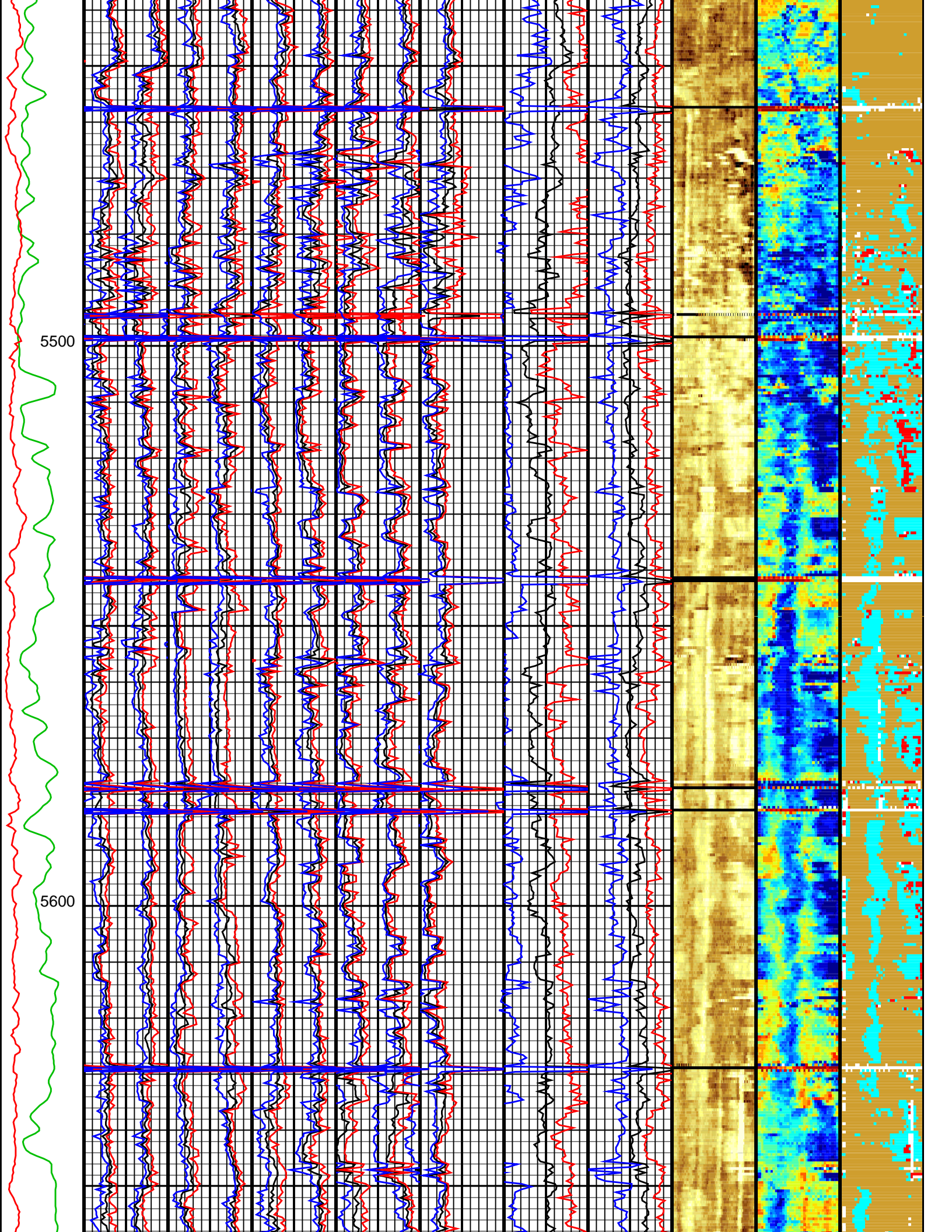


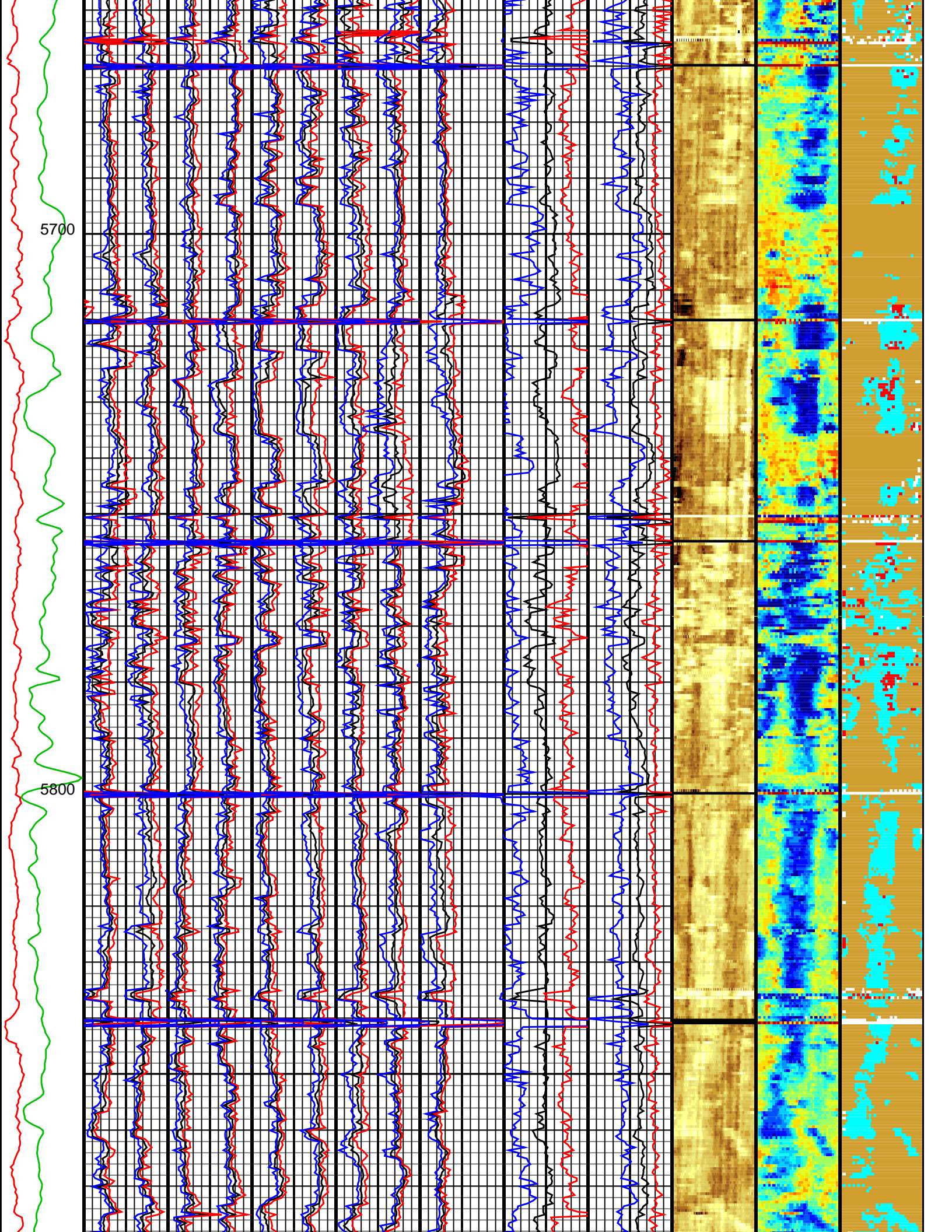


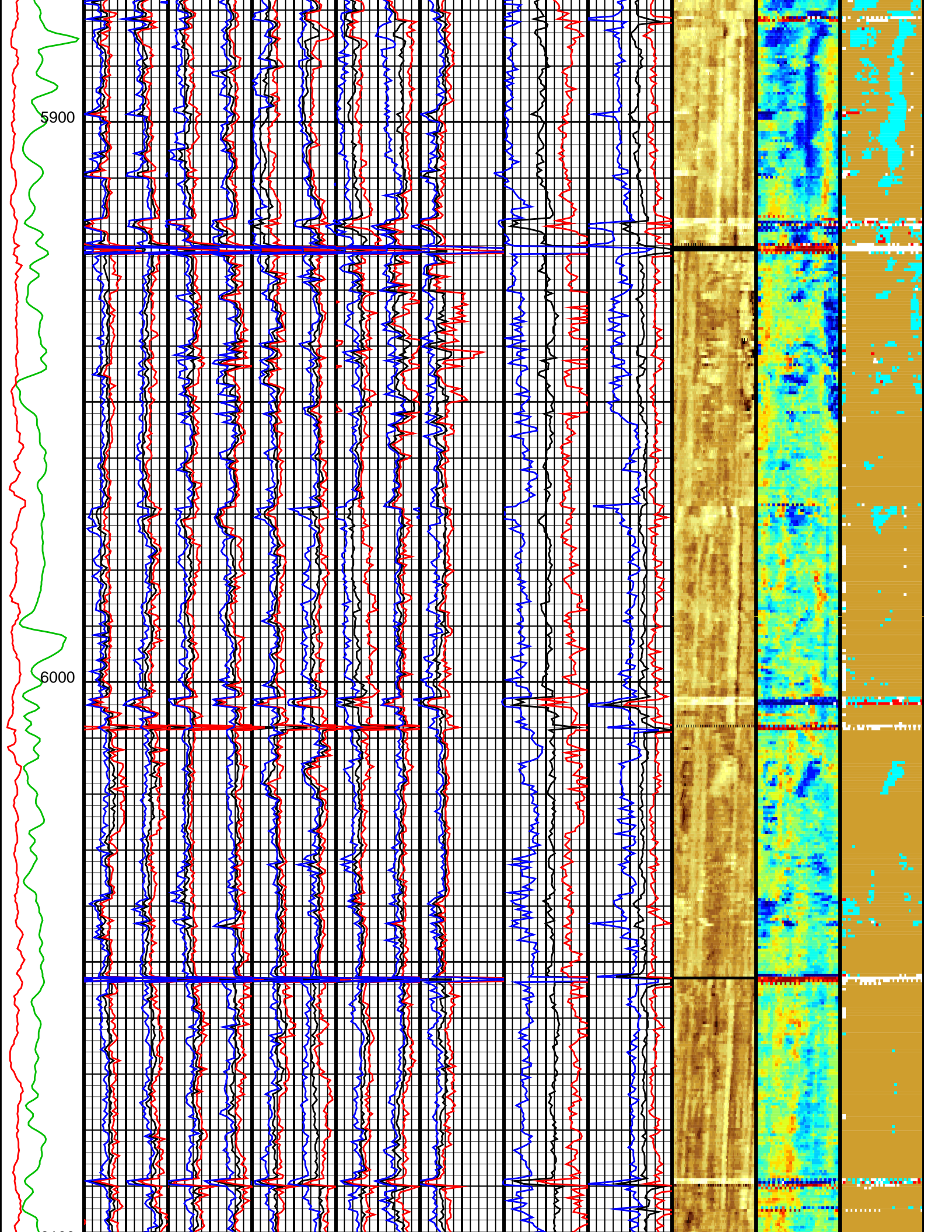


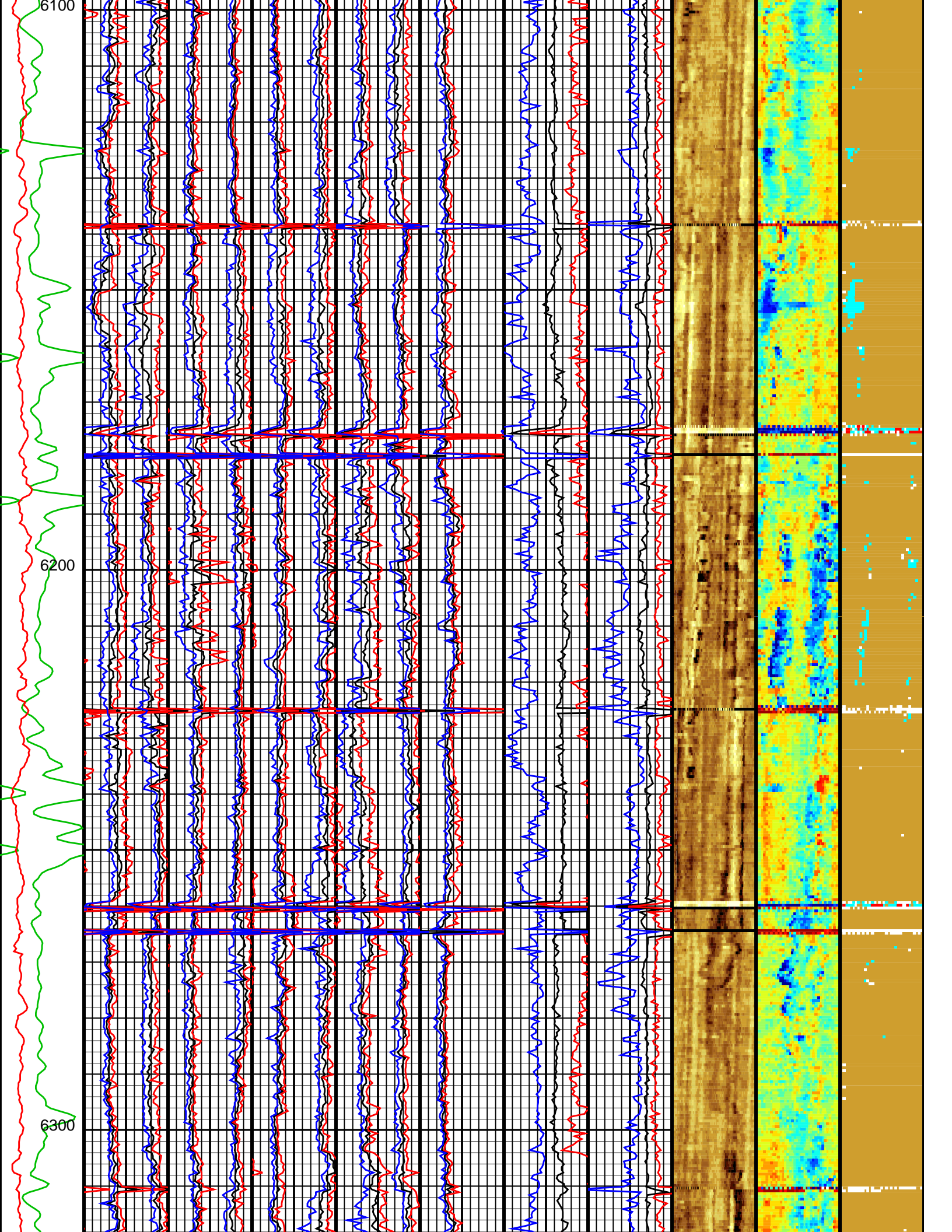


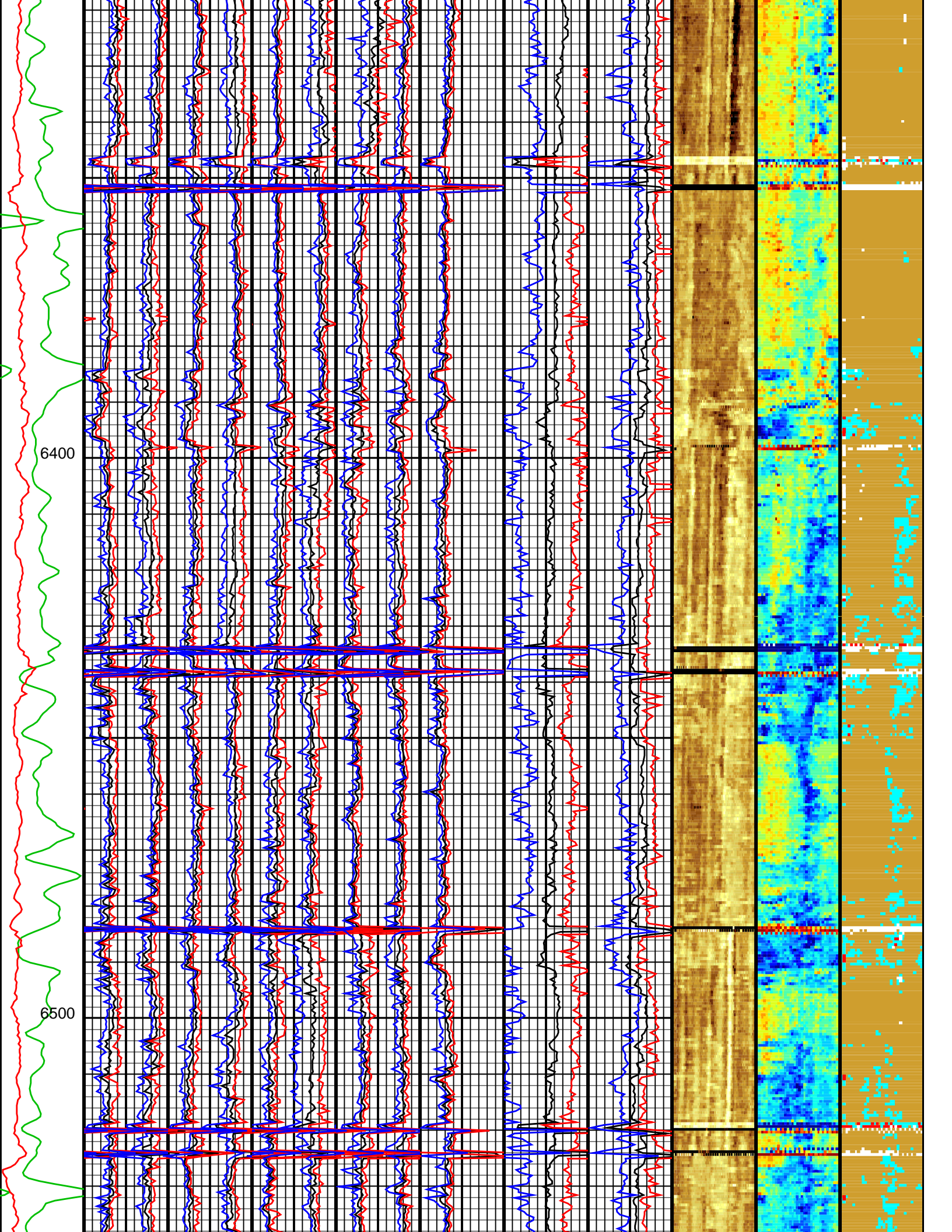


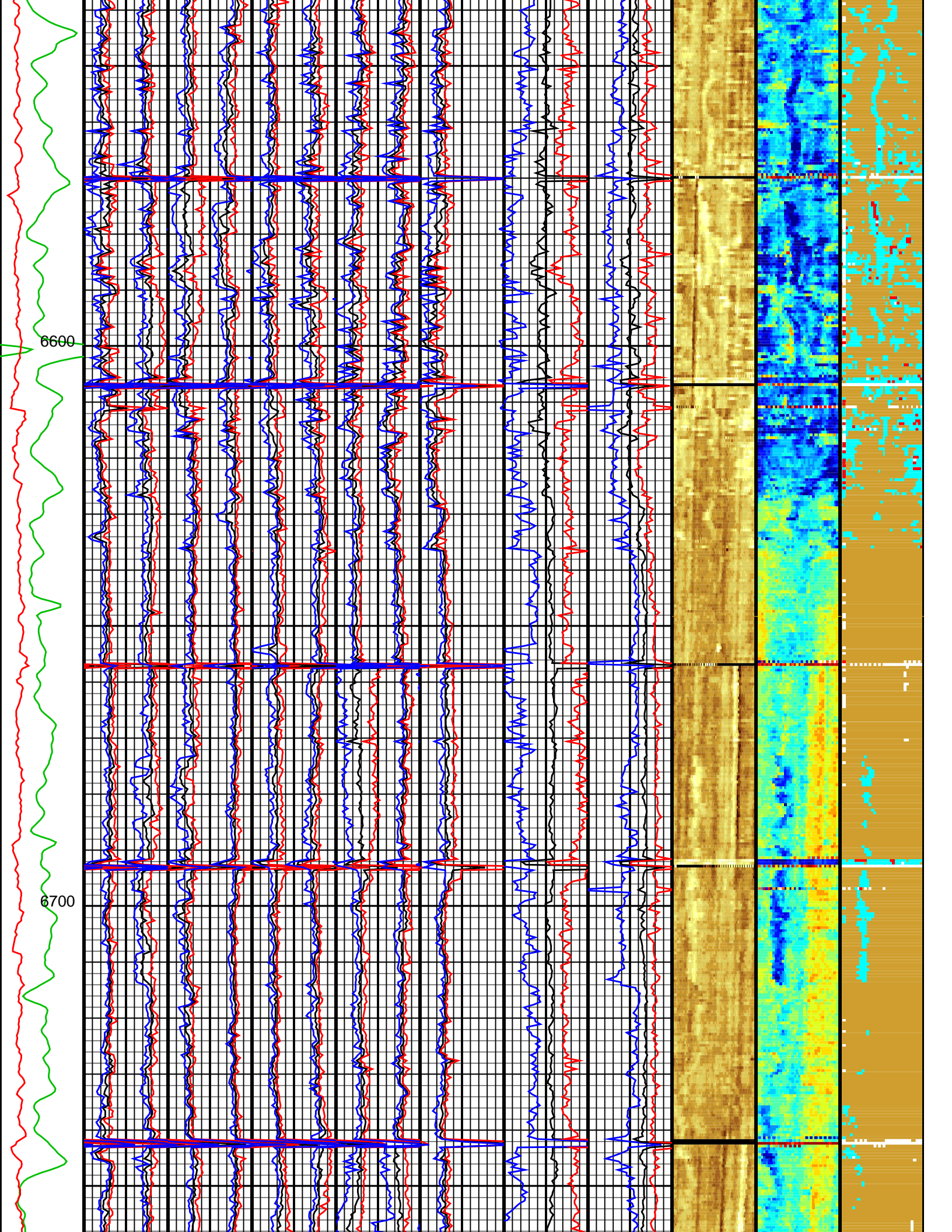


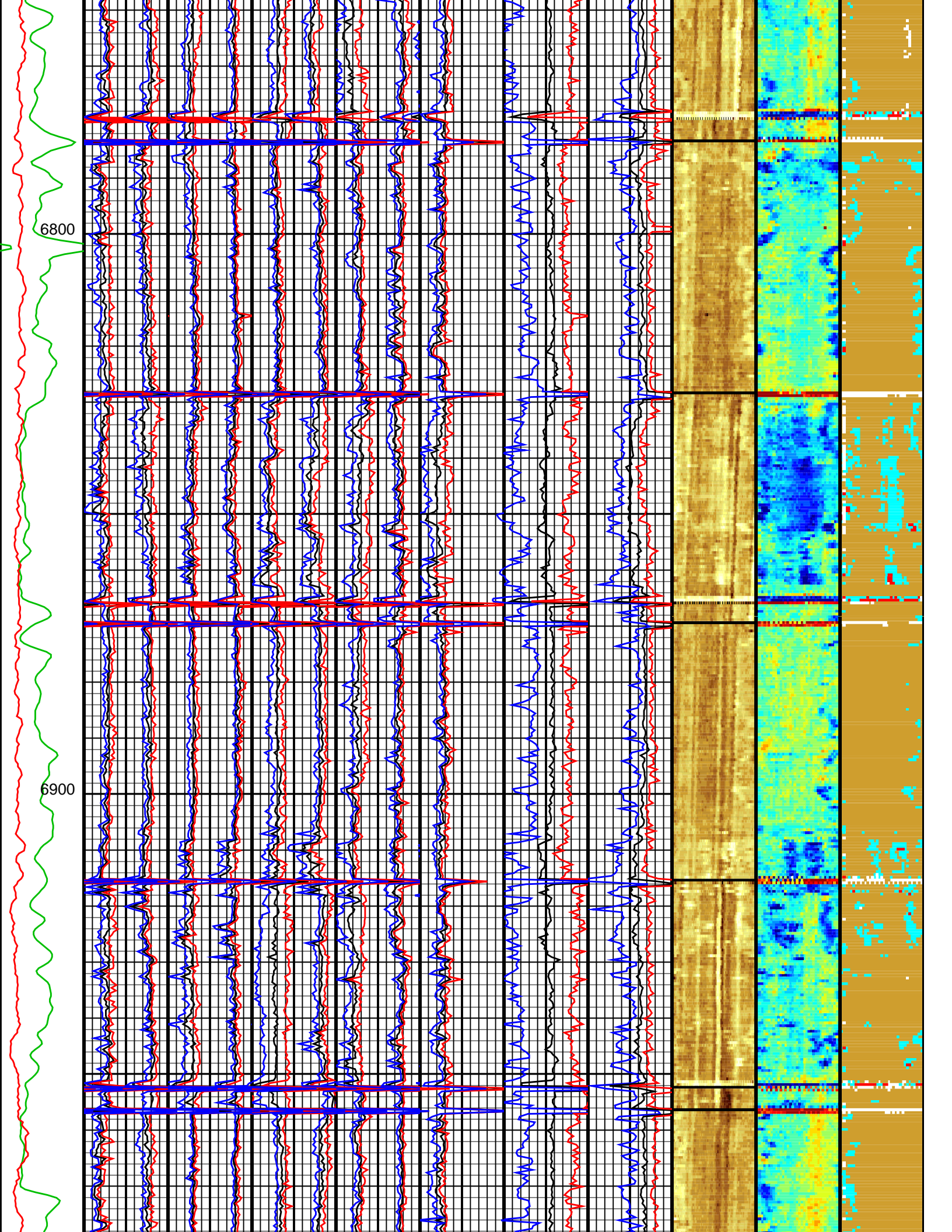


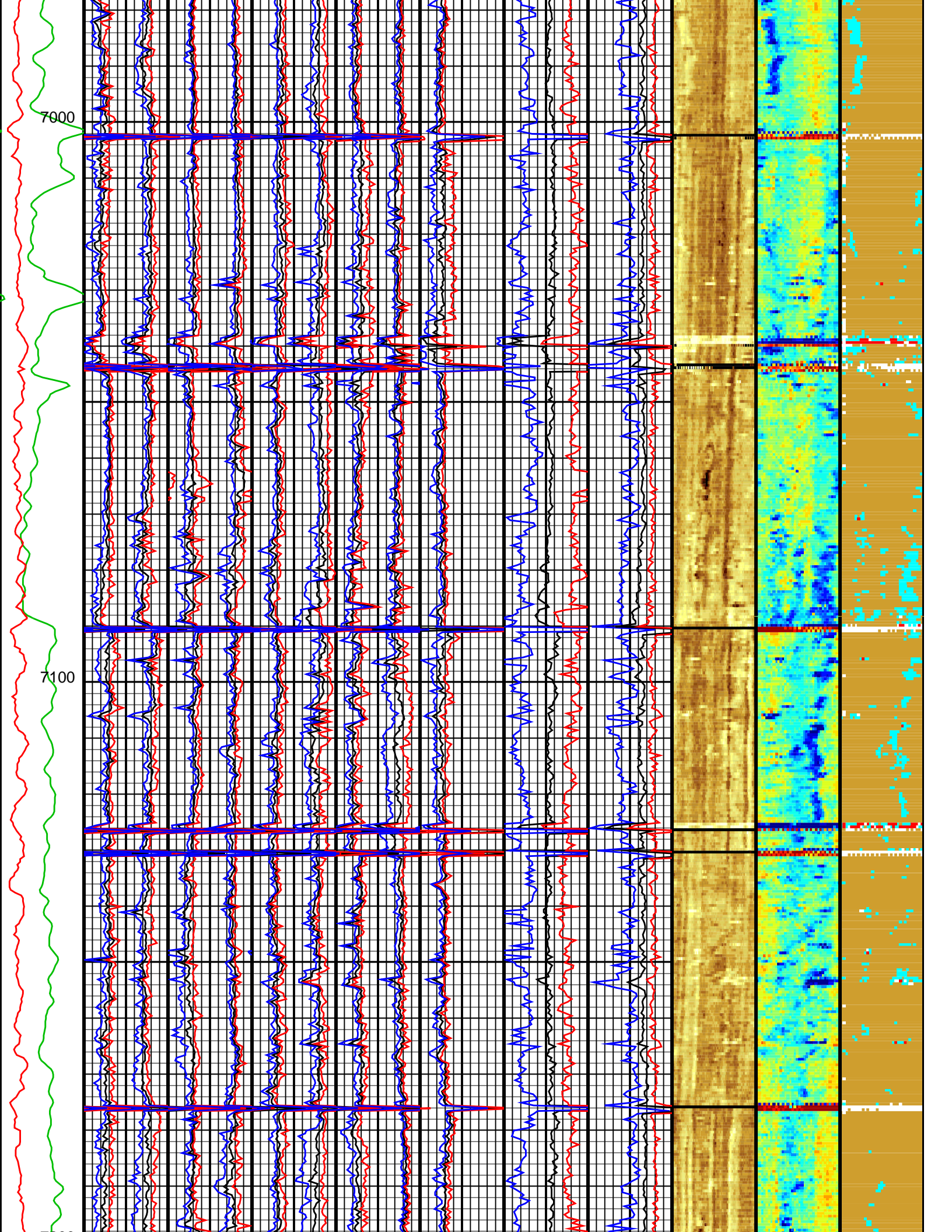


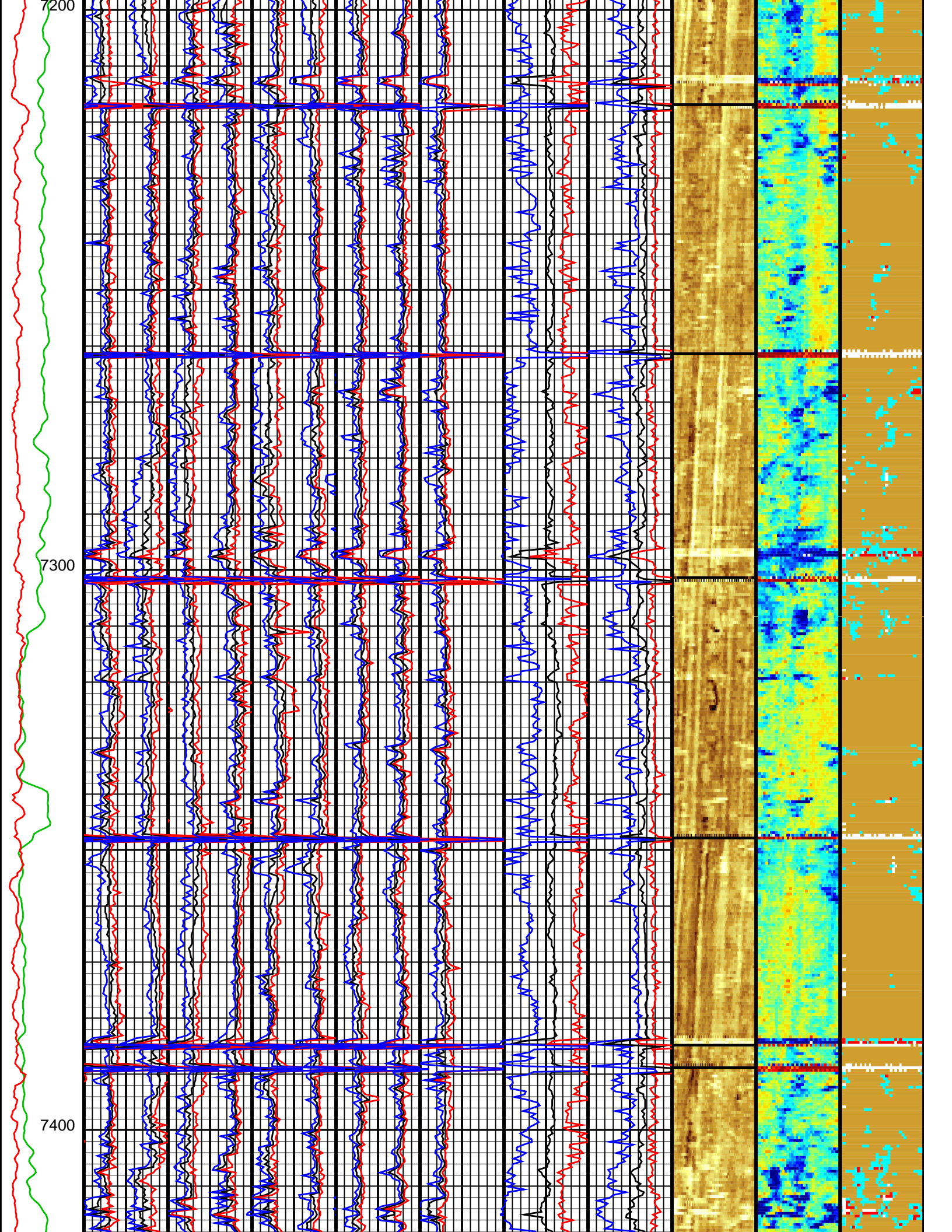


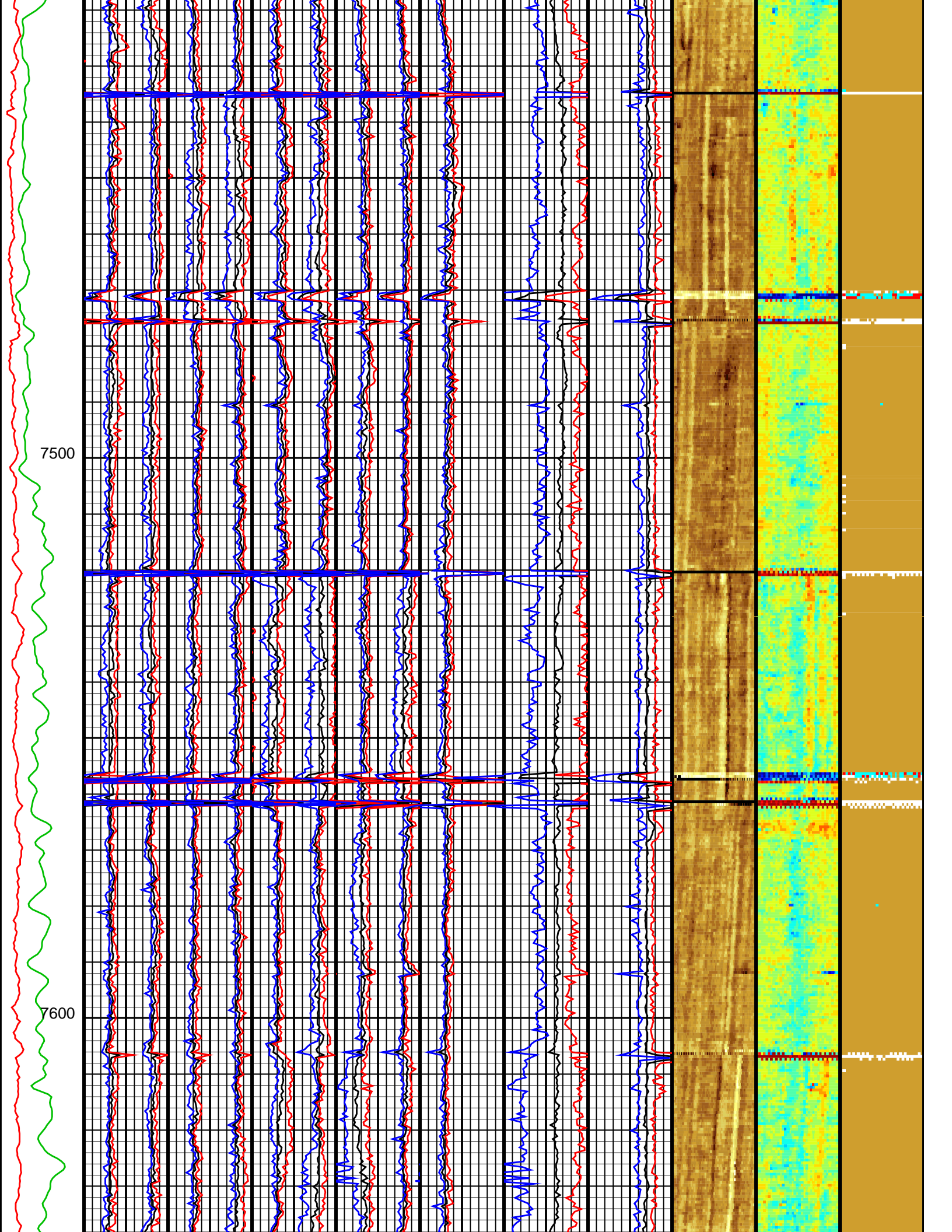


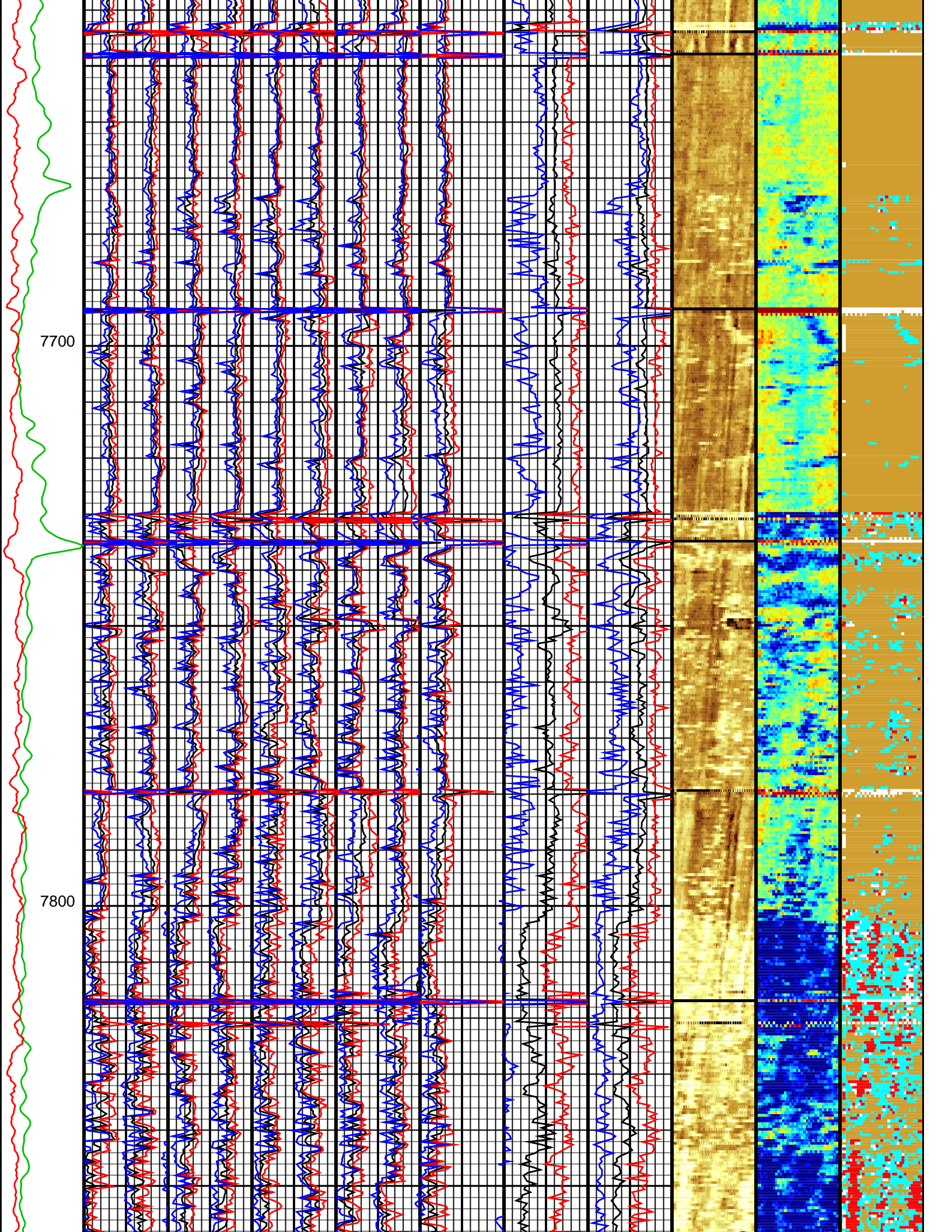


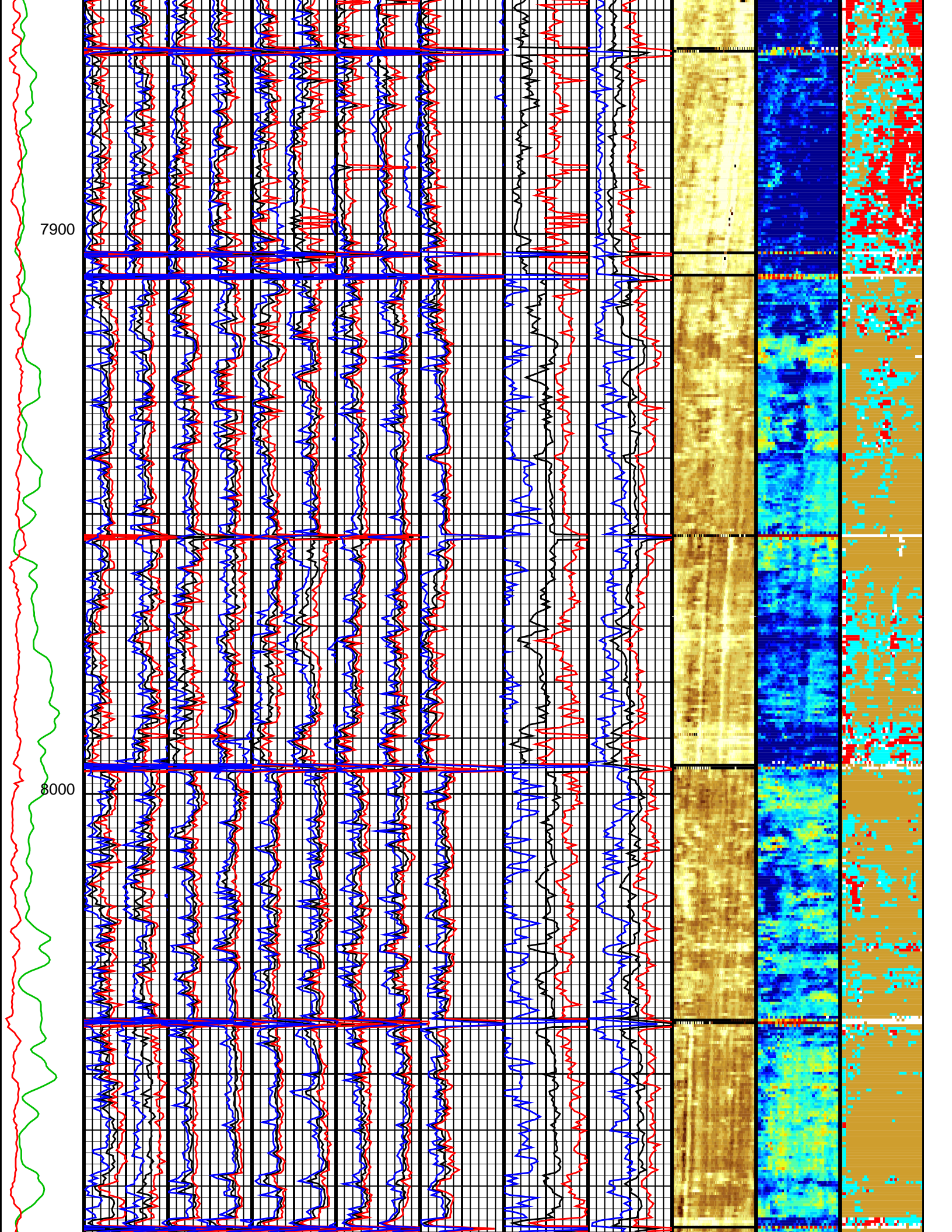


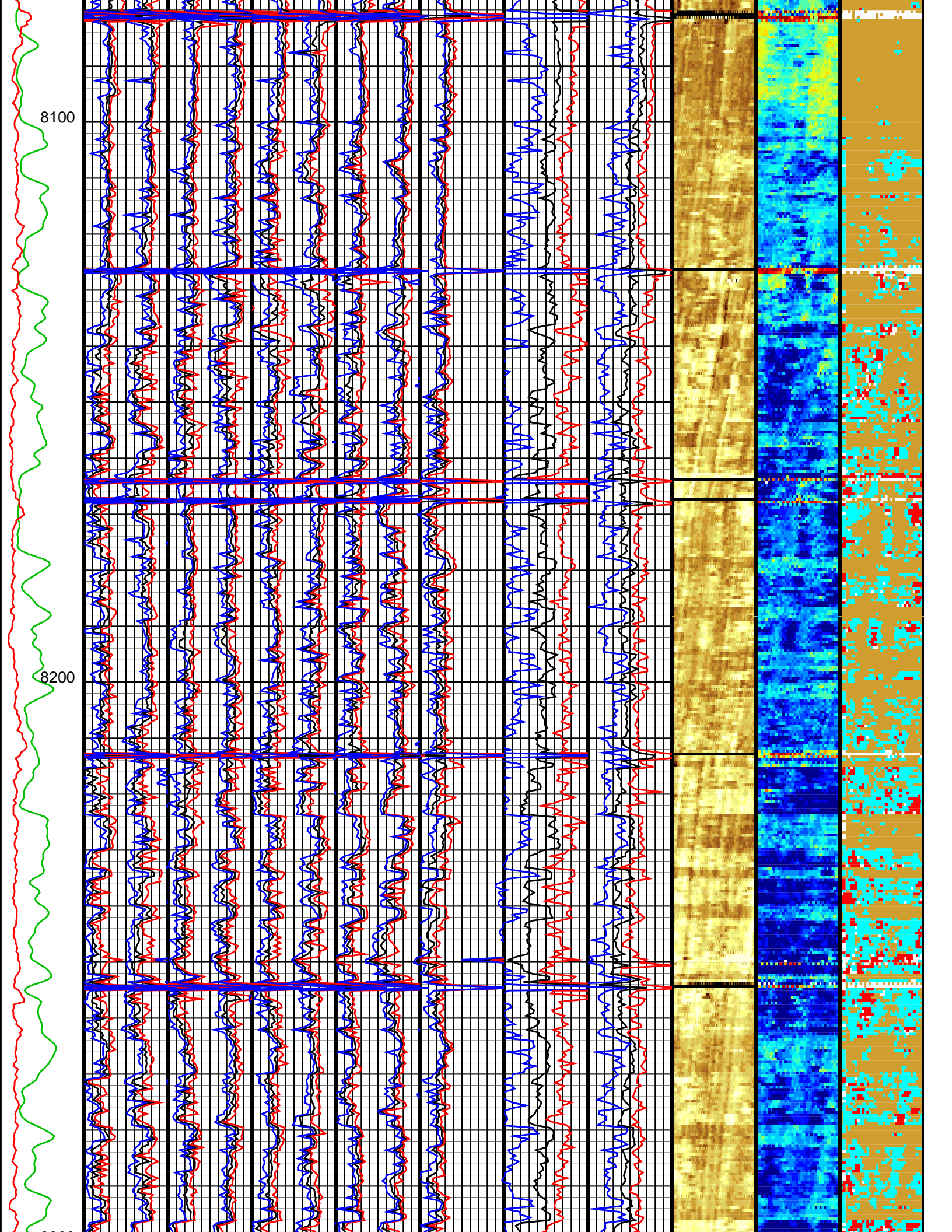


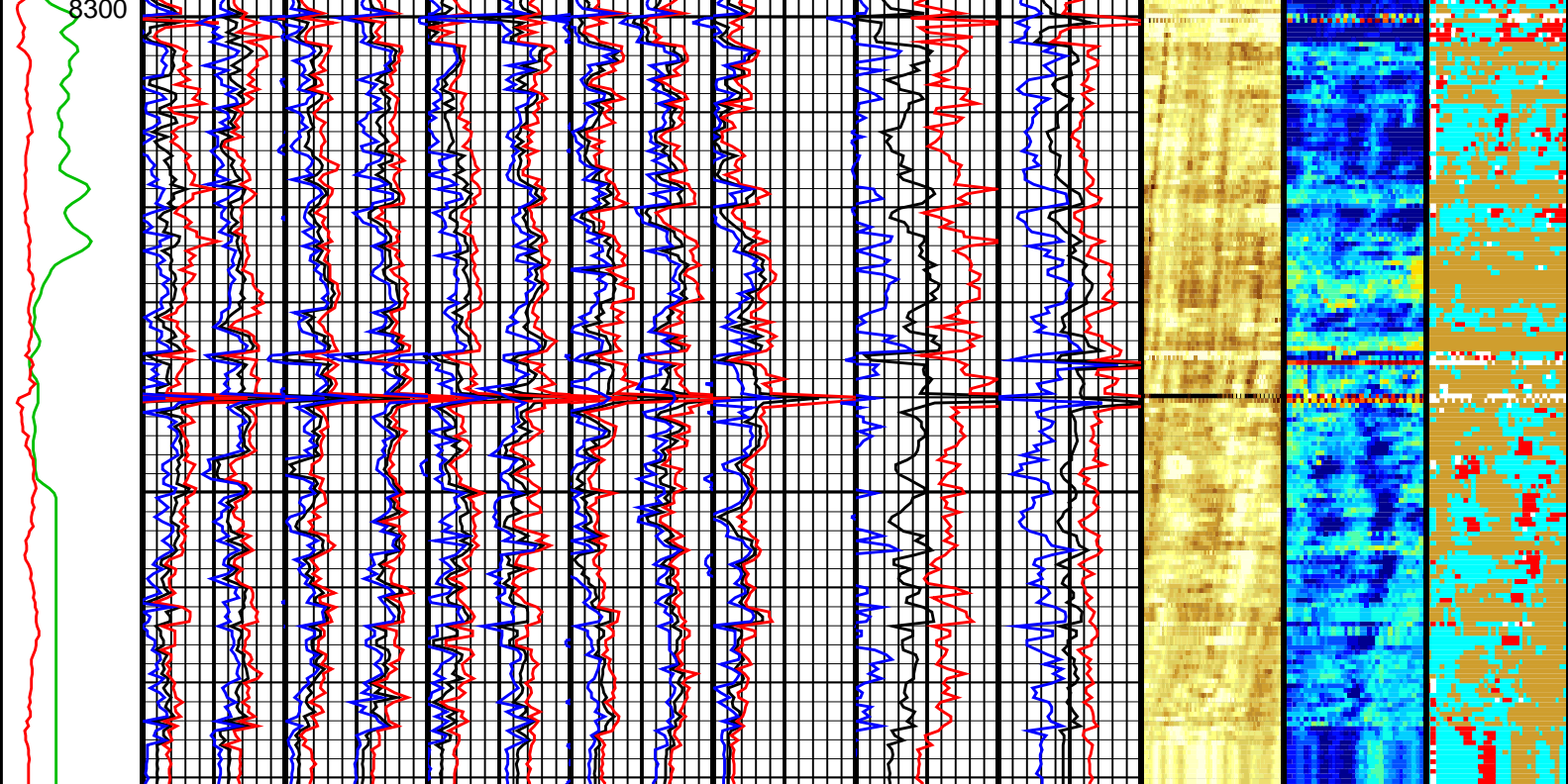












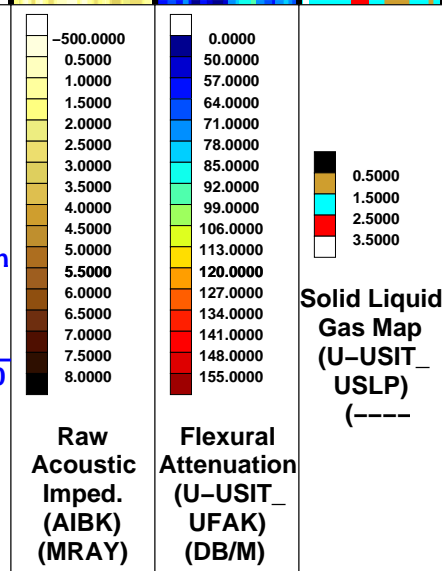
Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_A11) (MRAY)	Average Acoustic Impedance #3 (AV_A13) (MRAY)	Average Acoustic Impedance #5 (AV_A15) (MRAY)	Average Acoustic Impedance #7 (AV_A17) (MRAY)	Average Acoustic Impedance #9 (AV_A19) (MRAY)	Average of AI (AIAV) (MRAY)	Minimum Flexural Attenuation (U-USIT_UFAN) (DB/M)	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U-USIT_UFAK) (DB/M)	Solid Liquid Gas Map (U-USIT_USLP) (----)
	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150			

Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_A12) (MRAY)	Average Acoustic Impedance #4 (AV_A14) (MRAY)	Average Acoustic Impedance #6 (AV_A16) (MRAY)	Average Acoustic Impedance #8 (AV_A18) (MRAY)	Maximum Acoustic Impedance #9 (MAX_A19) (MRAY)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U-USIT_UFAV) (DB/M)
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5	0 15	0 7.5	0 150

Maximum Acoustic Impedance #1 (MAX_A11) (MRAY)	Maximum Acoustic Impedance #3 (MAX_A13) (MRAY)	Maximum Acoustic Impedance #5 (MAX_A15) (MRAY)	Maximum Acoustic Impedance #7 (MAX_A17) (MRAY)	Minimum Acoustic Impedance #9 (MIN_A19) (MRAY)	Maximum of AI (AIMX) (MRAY)	Maximum Flexural Attenuation (U-USIT_UFAX) (DB/M)
0 15	0 15	0 15	0 15	0 15	0 7.5	0 150

Maximum Acoustic Impedance #2 (MAX_A12) (MRAY)	Maximum Acoustic Impedance #4 (MAX_A14) (MRAY)	Maximum Acoustic Impedance #6 (MAX_A16) (MRAY)	Maximum Acoustic Impedance #8 (MAX_A18) (MRAY)
-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5

Minimum Acoustic Impedance #1 (MIN_A11) (MRAY)	Minimum Acoustic Impedance #3 (MIN_A13) (MRAY)	Minimum Acoustic Impedance #5 (MIN_A15) (MRAY)	Minimum Acoustic Impedance #7 (MIN_A17) (MRAY)
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Impedance #1 (MIN_ AI1) (MRAY)	Impedance #3 (MIN_ AI3) (MRAY)	Impedance #5 (MIN_ AI5) (MRAY)	Impedance #7 (MIN_ AI7) (MRAY)
0 15	0 15	0 15	0 15
Minimum Acoustic Impedance #2 (MIN_ AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_ AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_ AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_ AI8) (MRAY)
-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5

Format: M_Goodwin Vertical Scale: 5" per 100' Graphics File Created: 27-Jun-2010 10:17

OP System Version: 17C0-154

USIT-D 17C0-154 HILTH-FTB 17C0-154
DTC-H 17C0-154

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.
Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT USI_TLD_MCFL_CNL_004LUP FN:3 PRODUCER 27-Jun-2010 06:03 8375.0 FT 190.7 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_006PUP FN:5 PRODUCER 27-Jun-2010 10:17



MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO. Well: PCU 197-34A4

Input DLIS Files

DEFAULT USI_TLD_MCFL_CNL_004LUP FN:3 PRODUCER 27-Jun-2010 06:03 8375.0 FT 190.7 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_006PUP FN:5 PRODUCER 27-Jun-2010 10:17

OP System Version: 17C0-154

USIT-D 17C0-154 HILTH-FTB 17C0-154
DTC-H 17C0-154

Changed Parameter Summary

DLIS Name

New Value

Previous Value

Depth & Time

ZMUD

1.72 MRAY

1.8 MRAY

6001.5 10:26:15

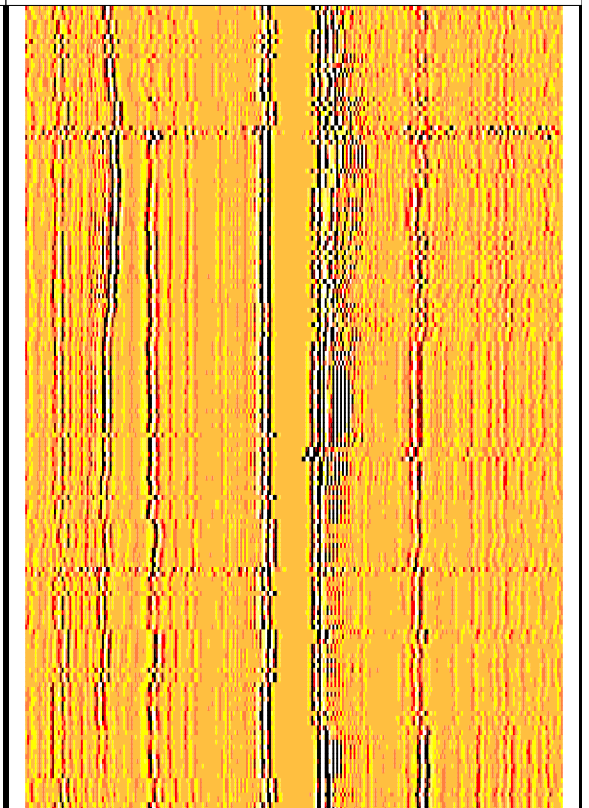
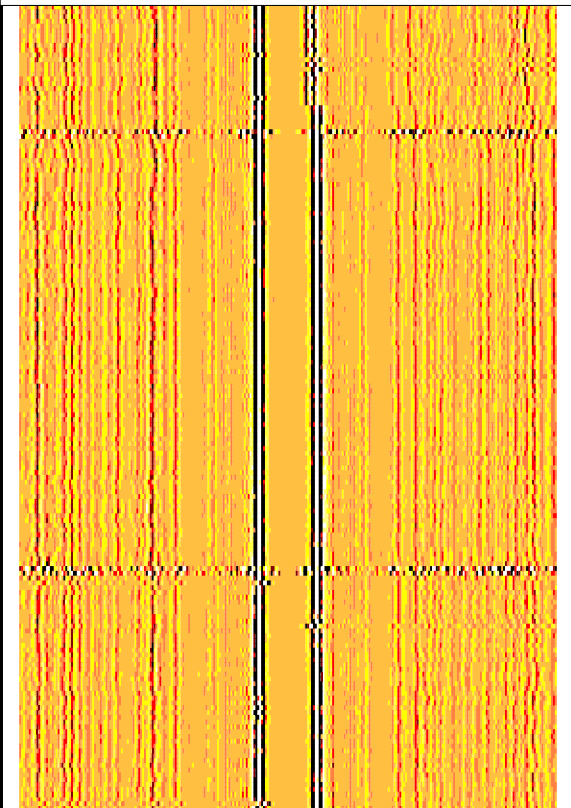
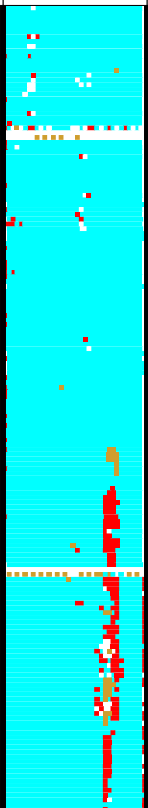
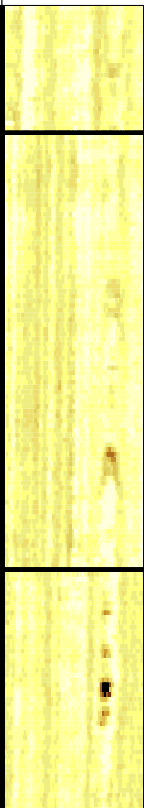
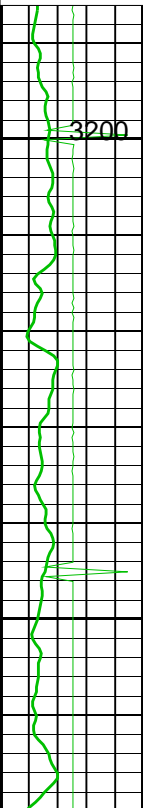
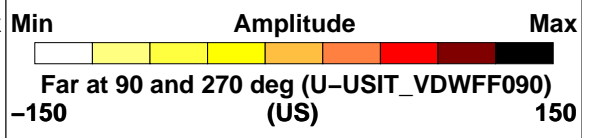
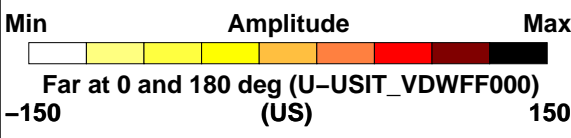
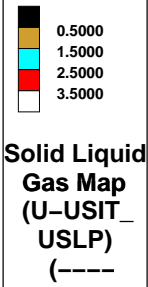
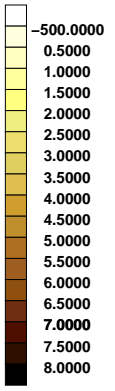
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to STIA

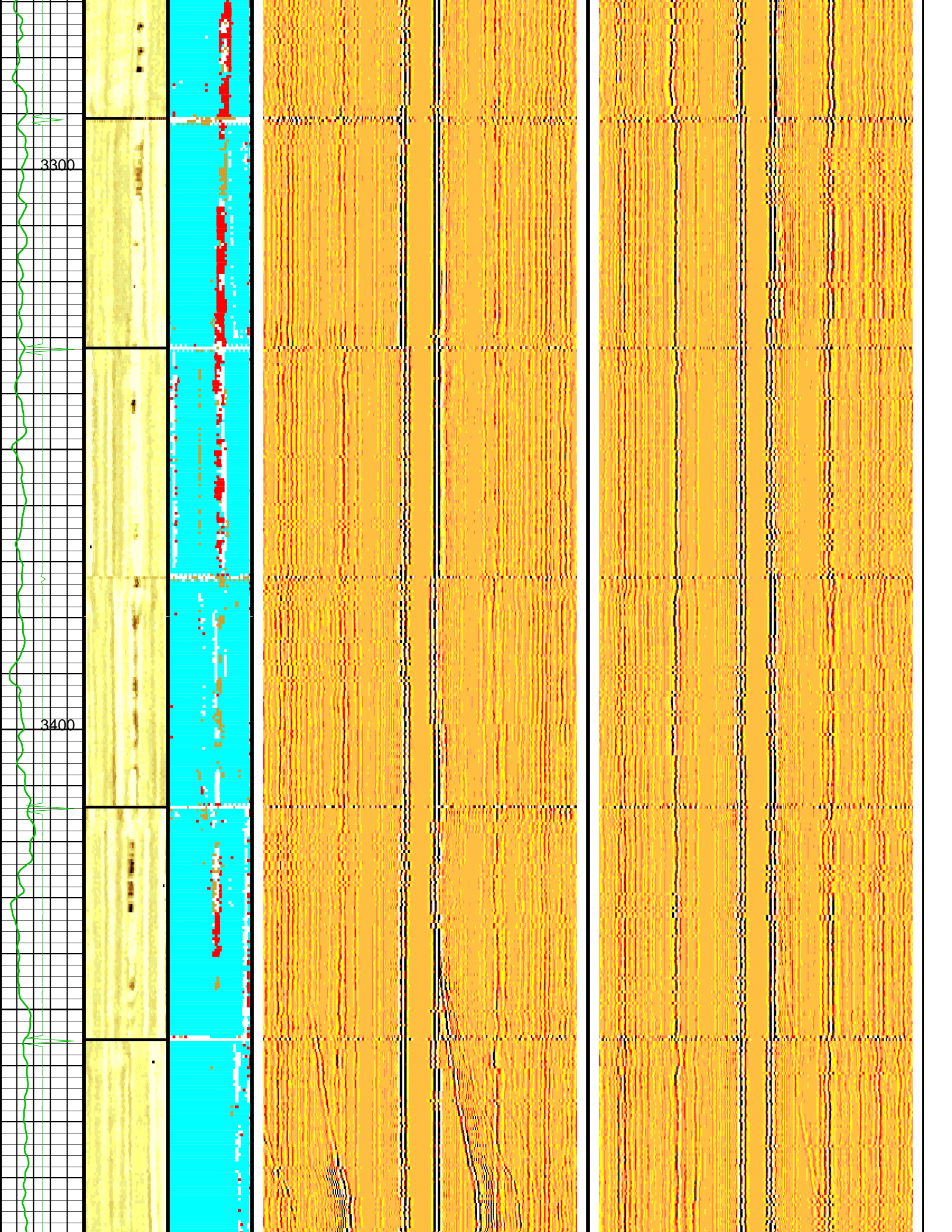
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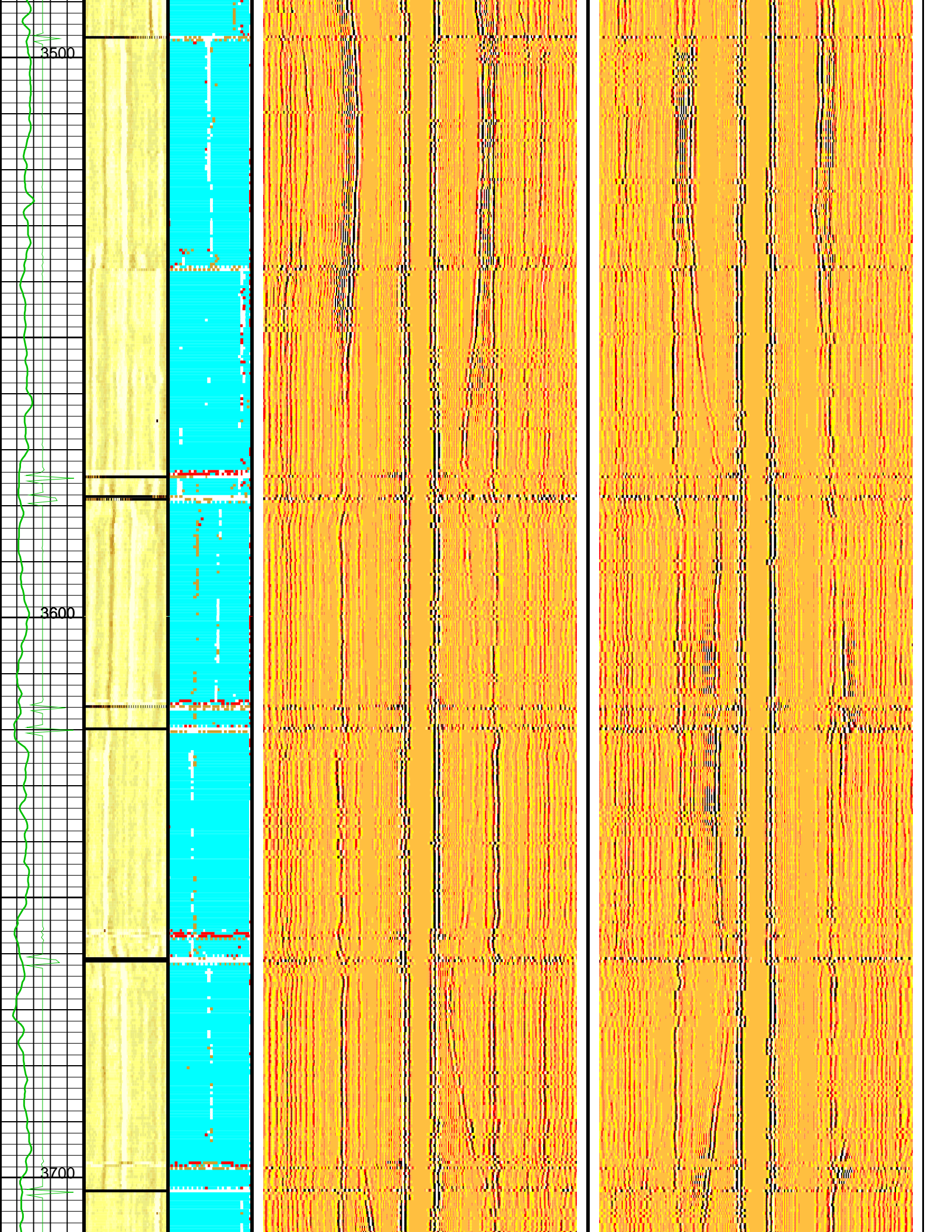
Stuck
Stretch
(STIT)
0 (F) 50

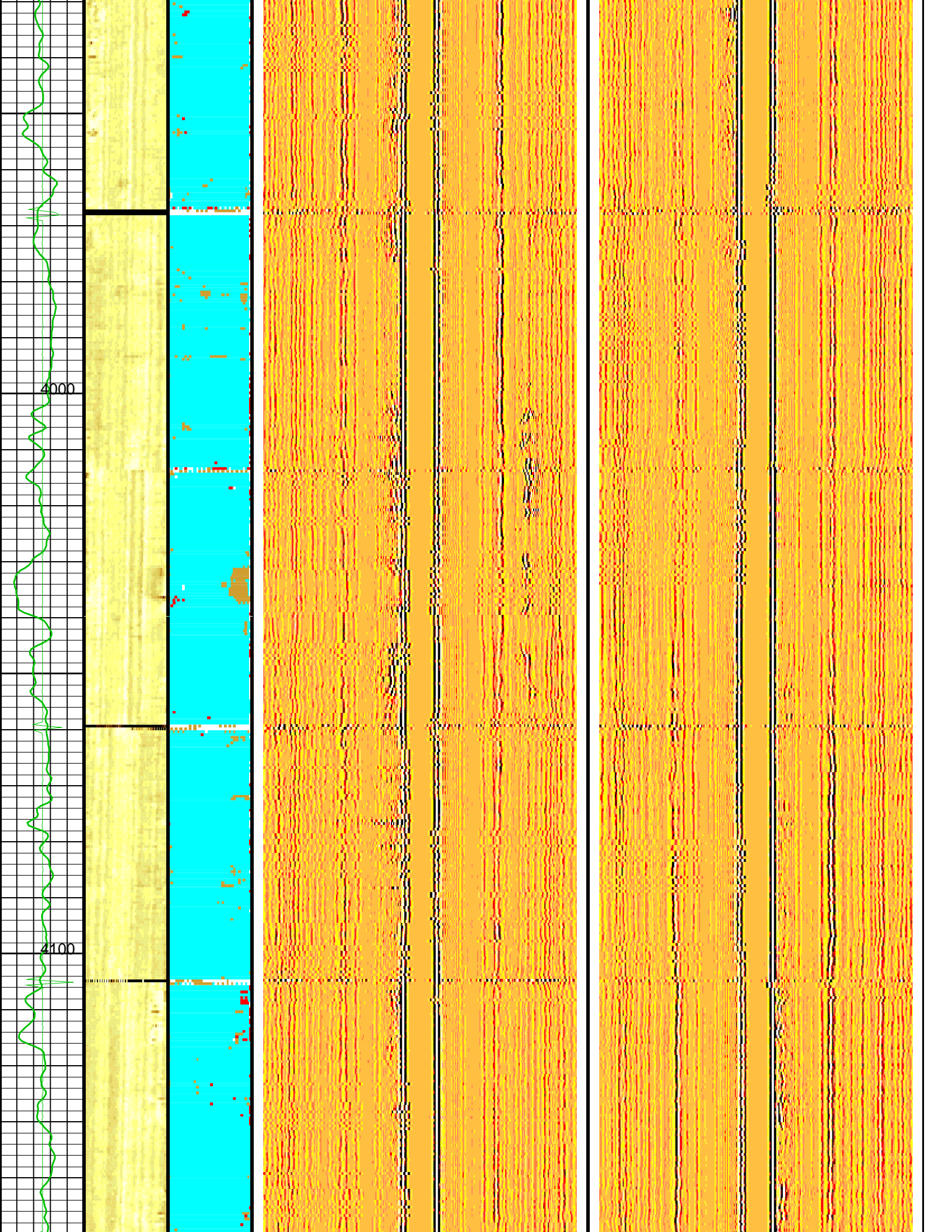
Gamma
Ray (GR)
(GAPI)
0 150

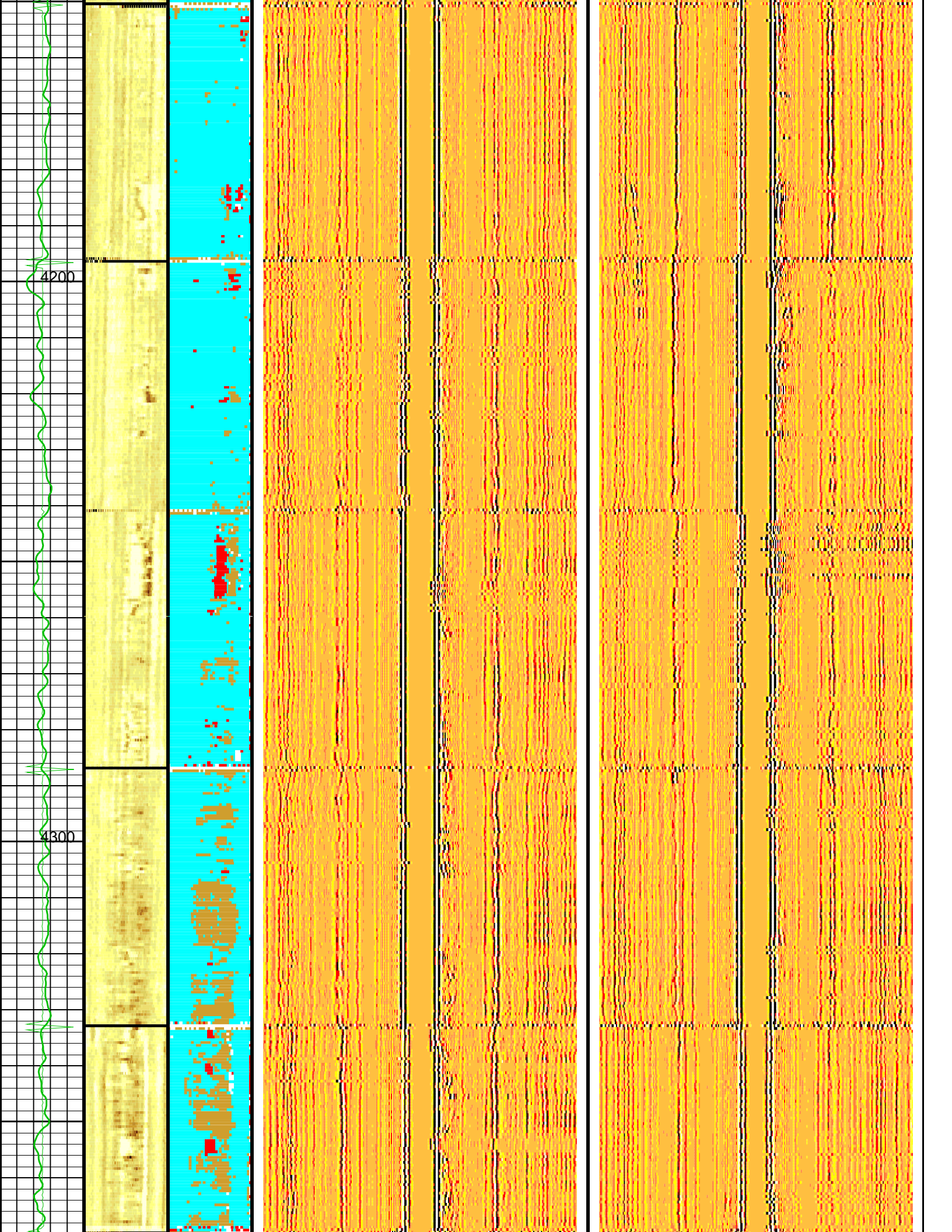
CCL
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(----
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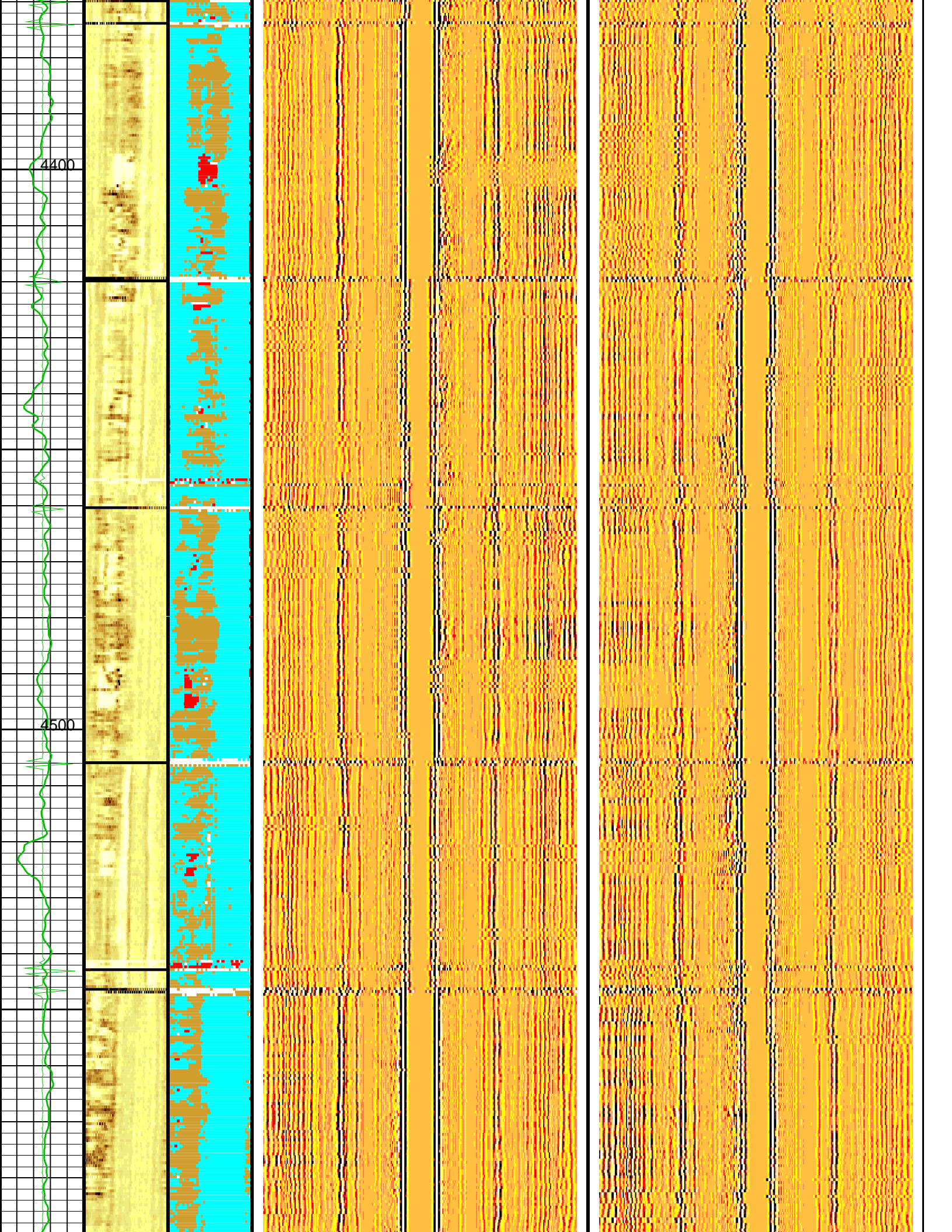


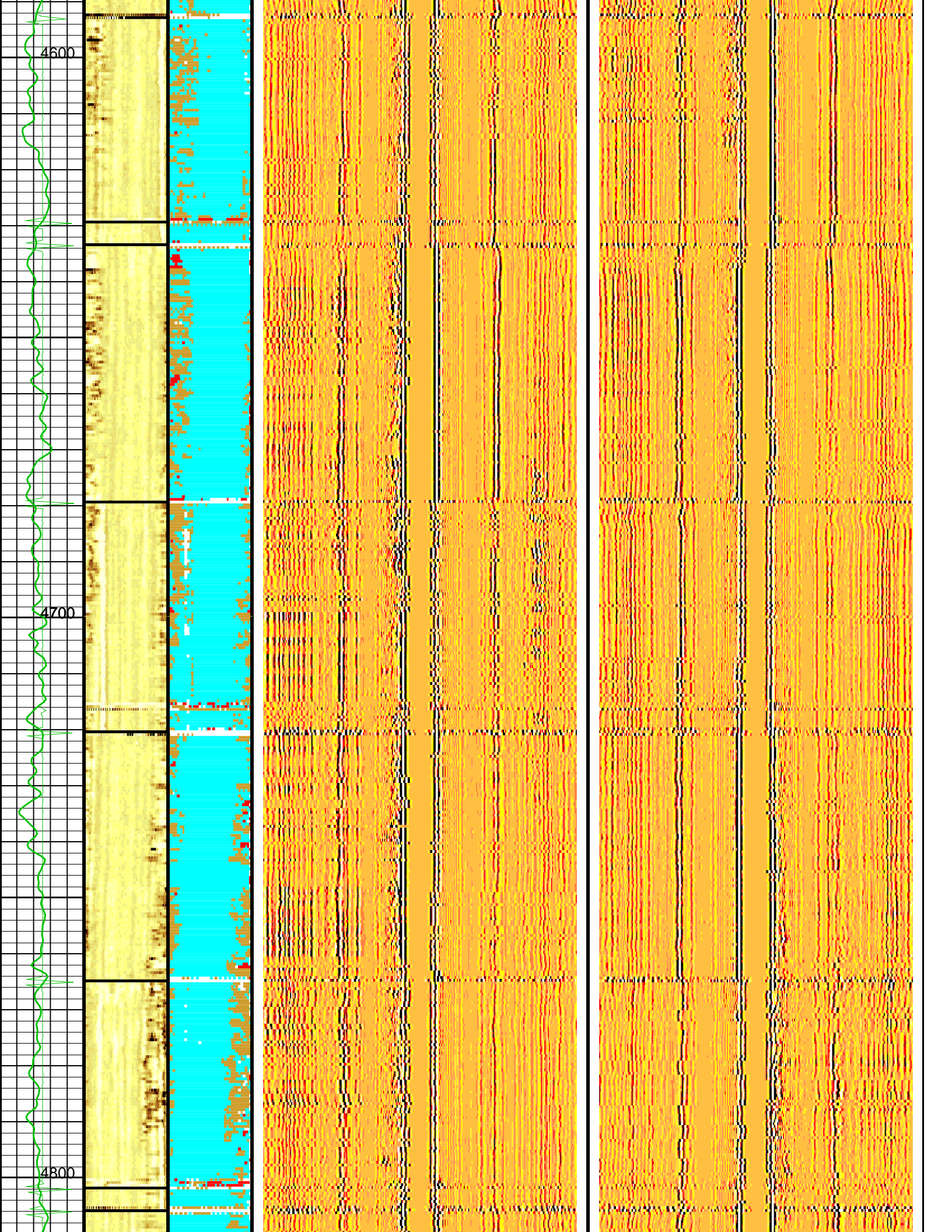


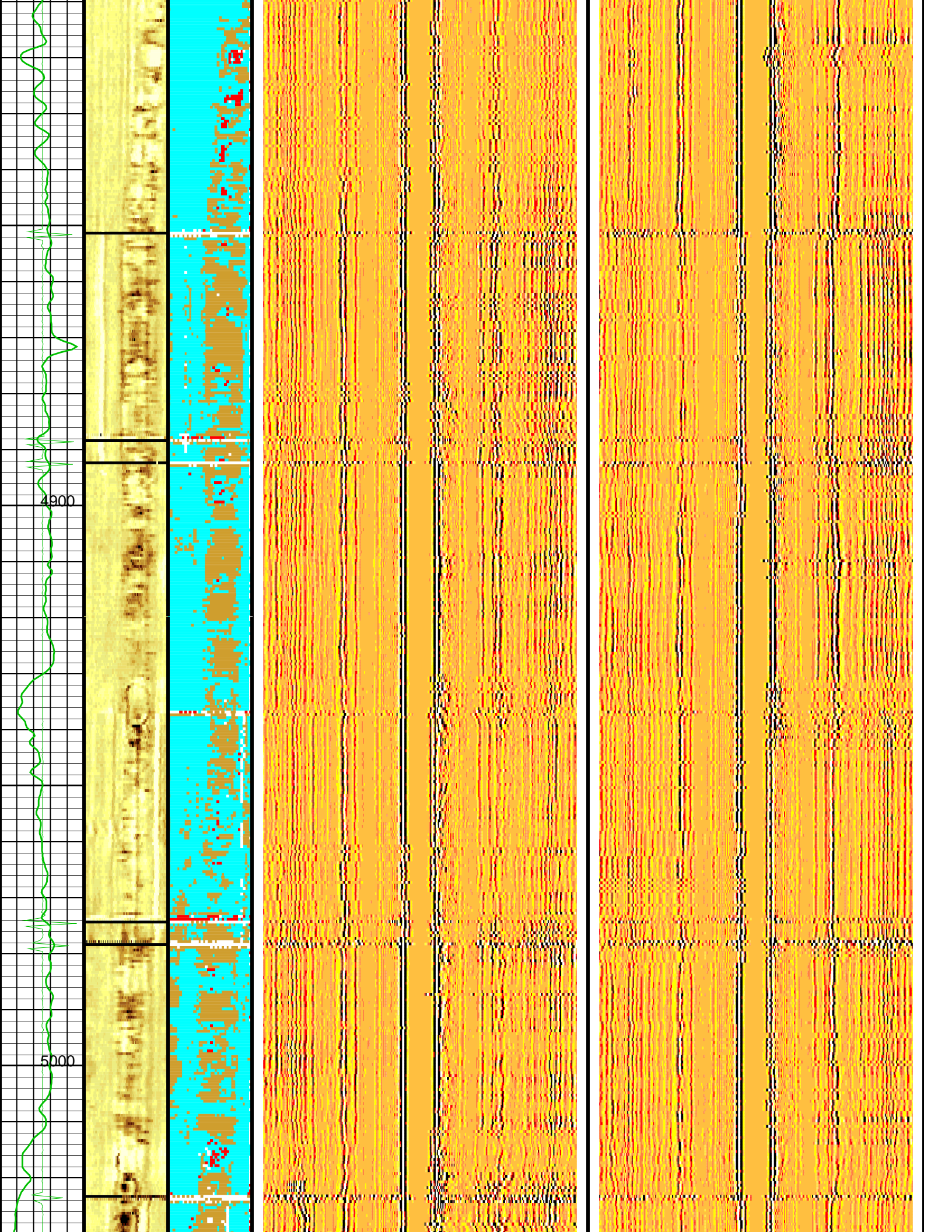


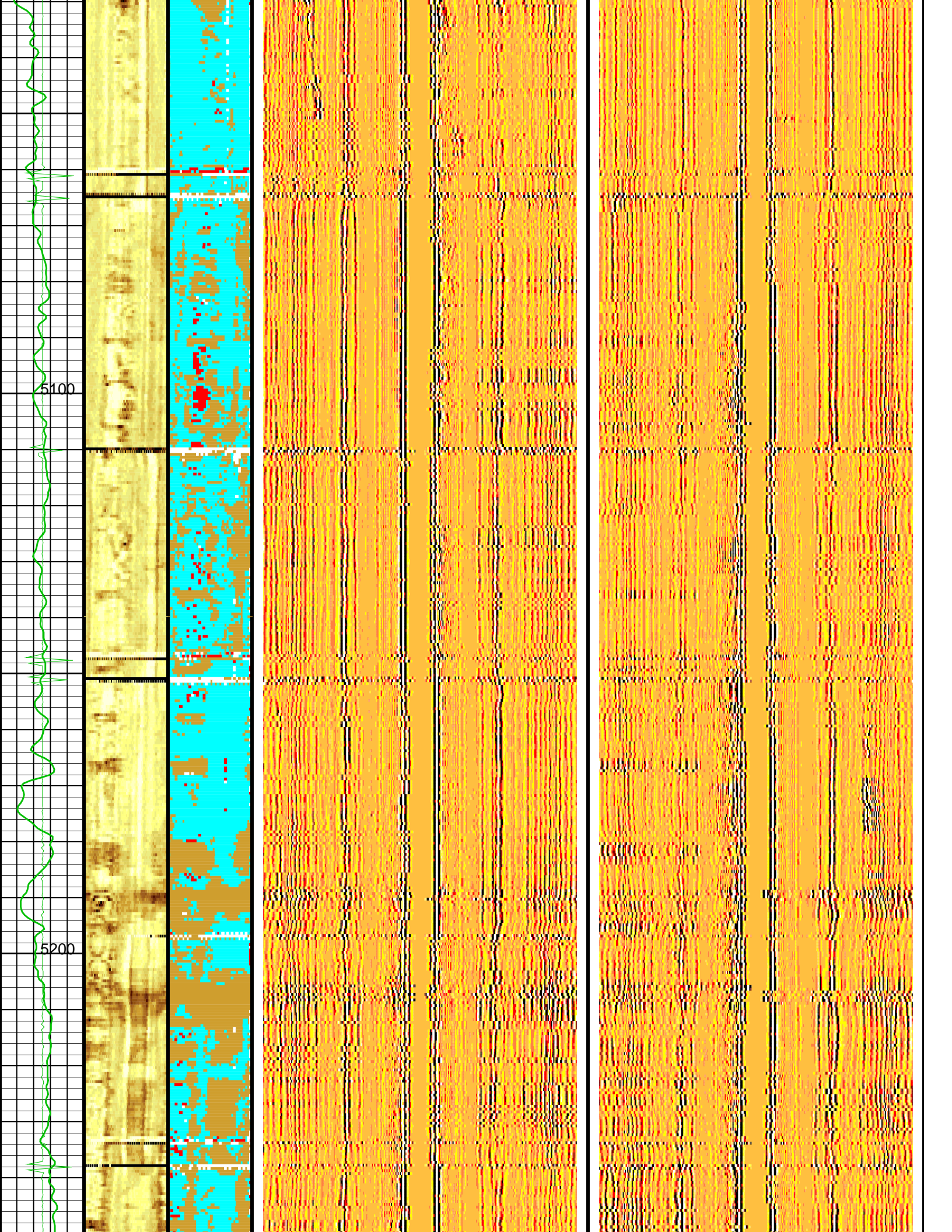


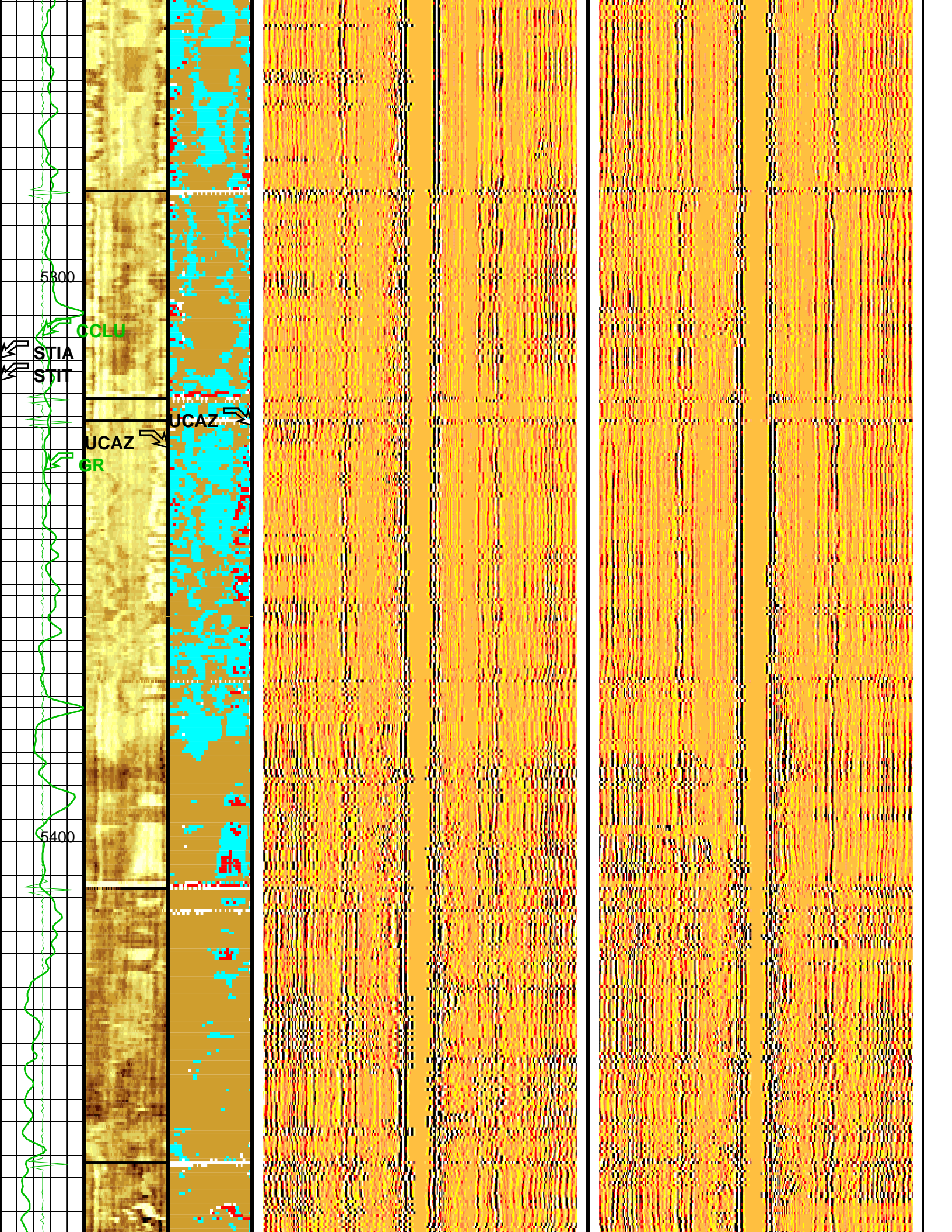












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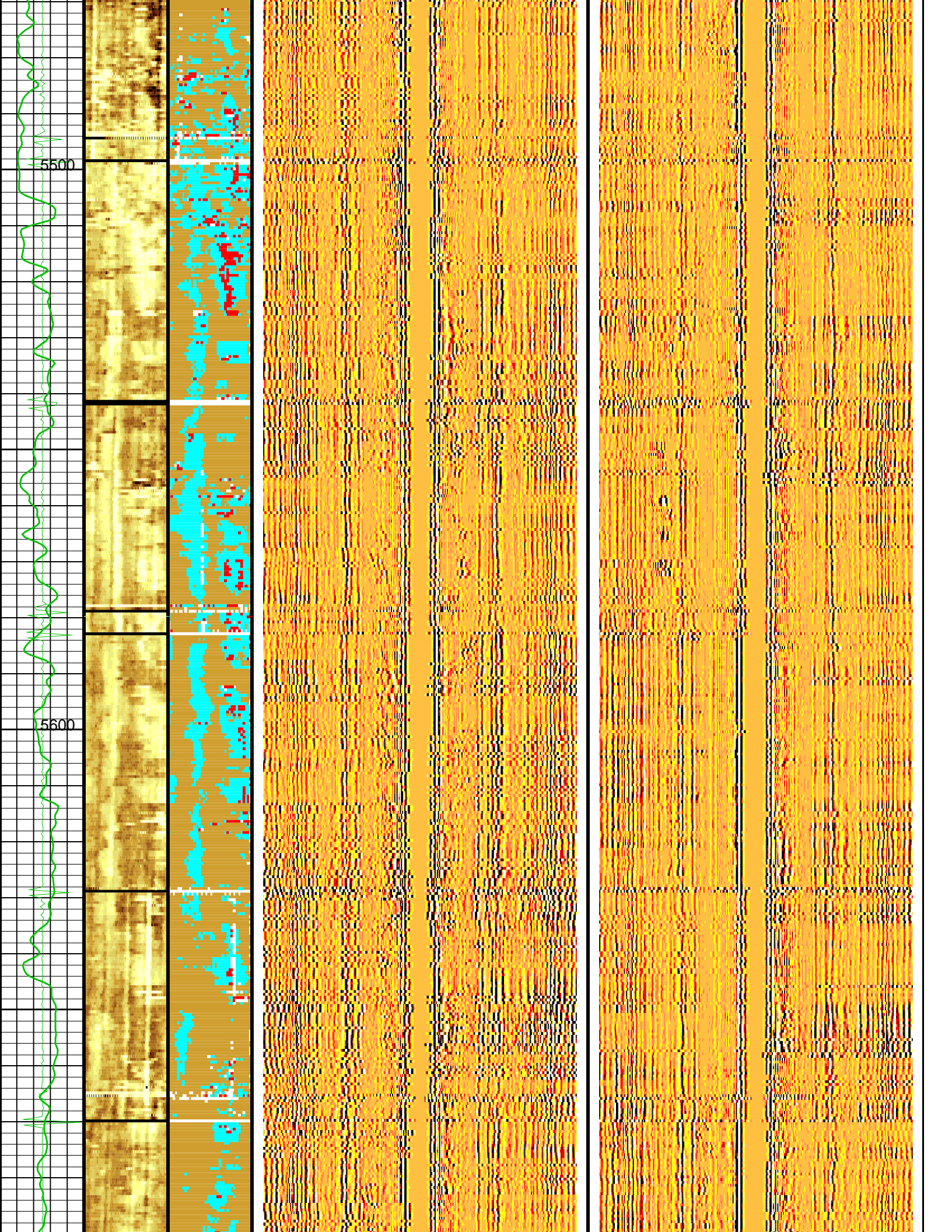
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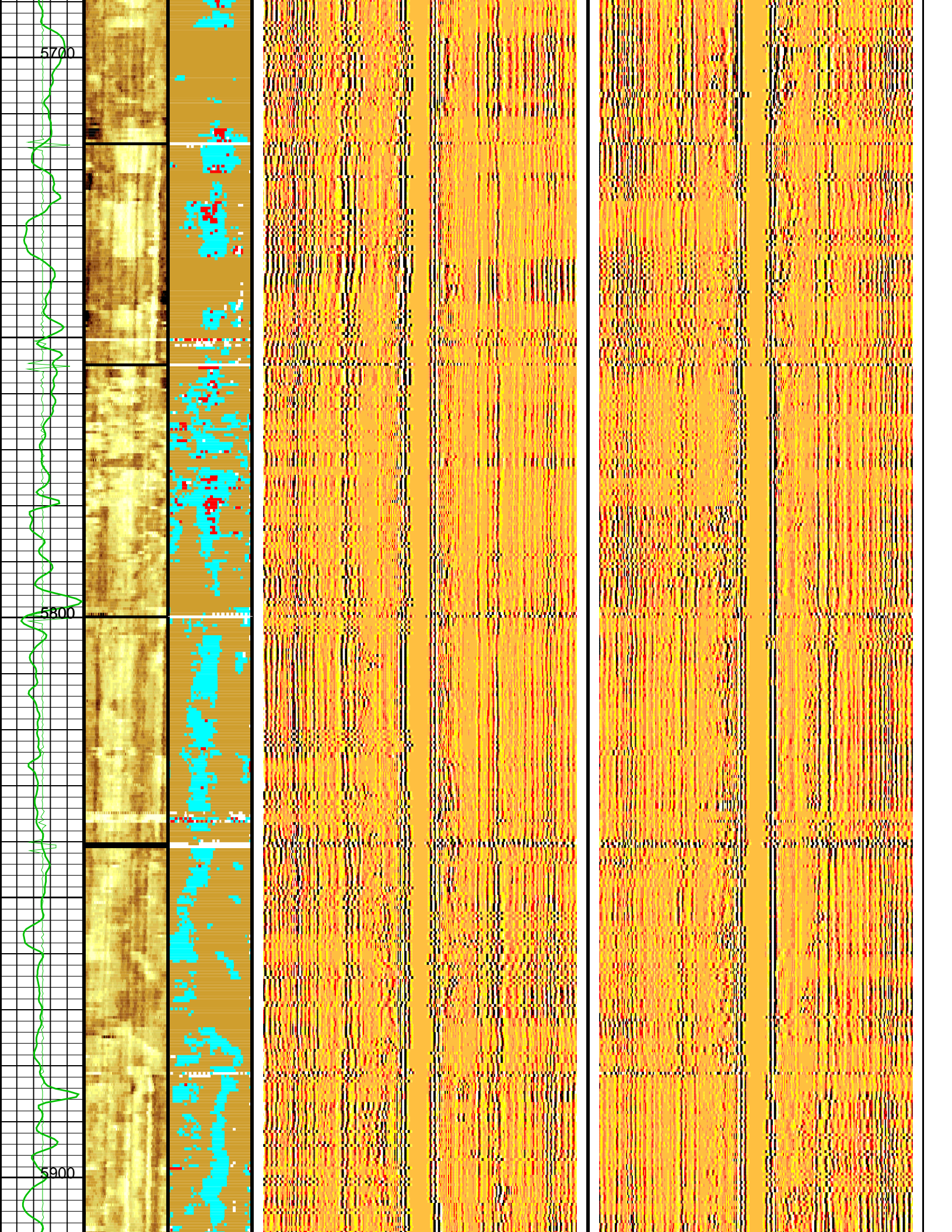
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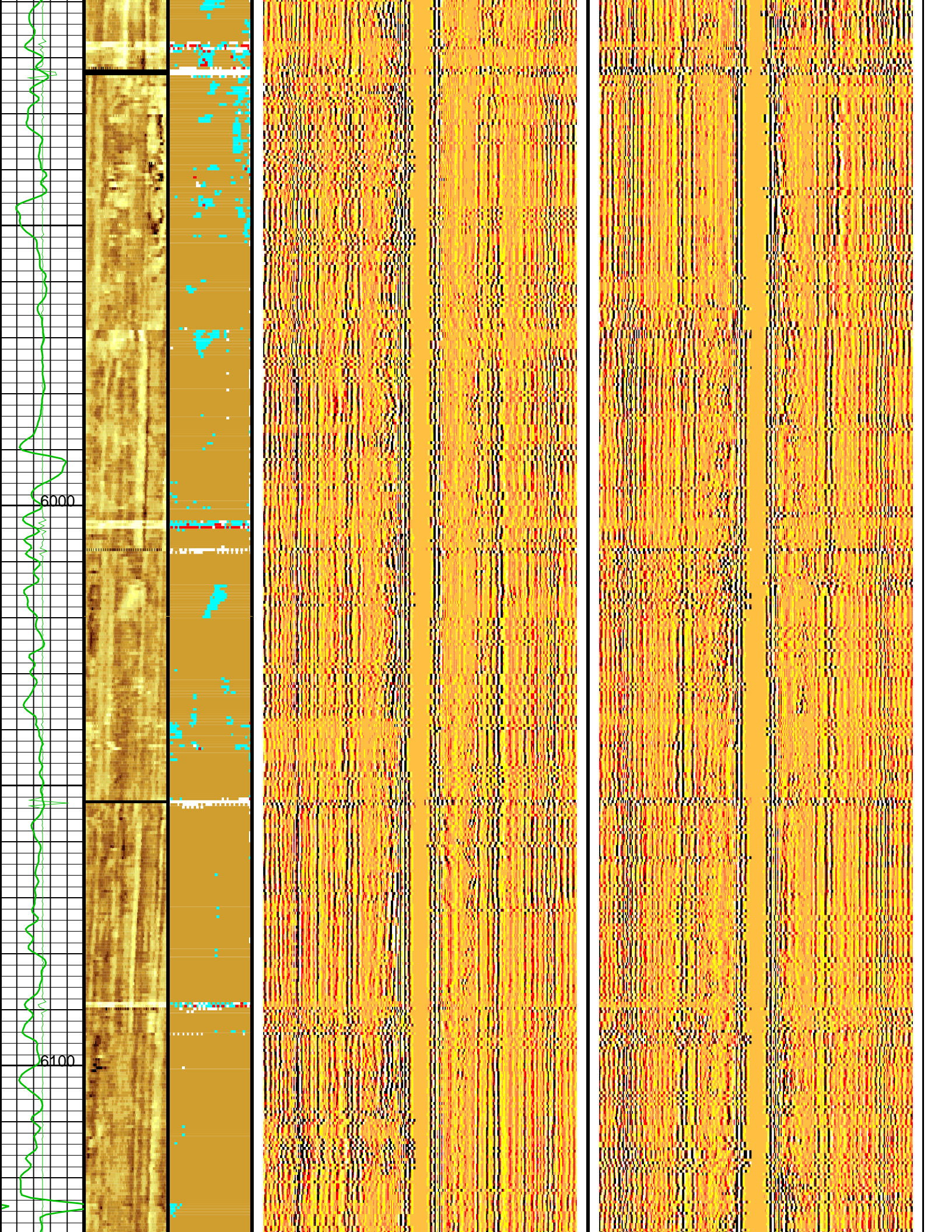
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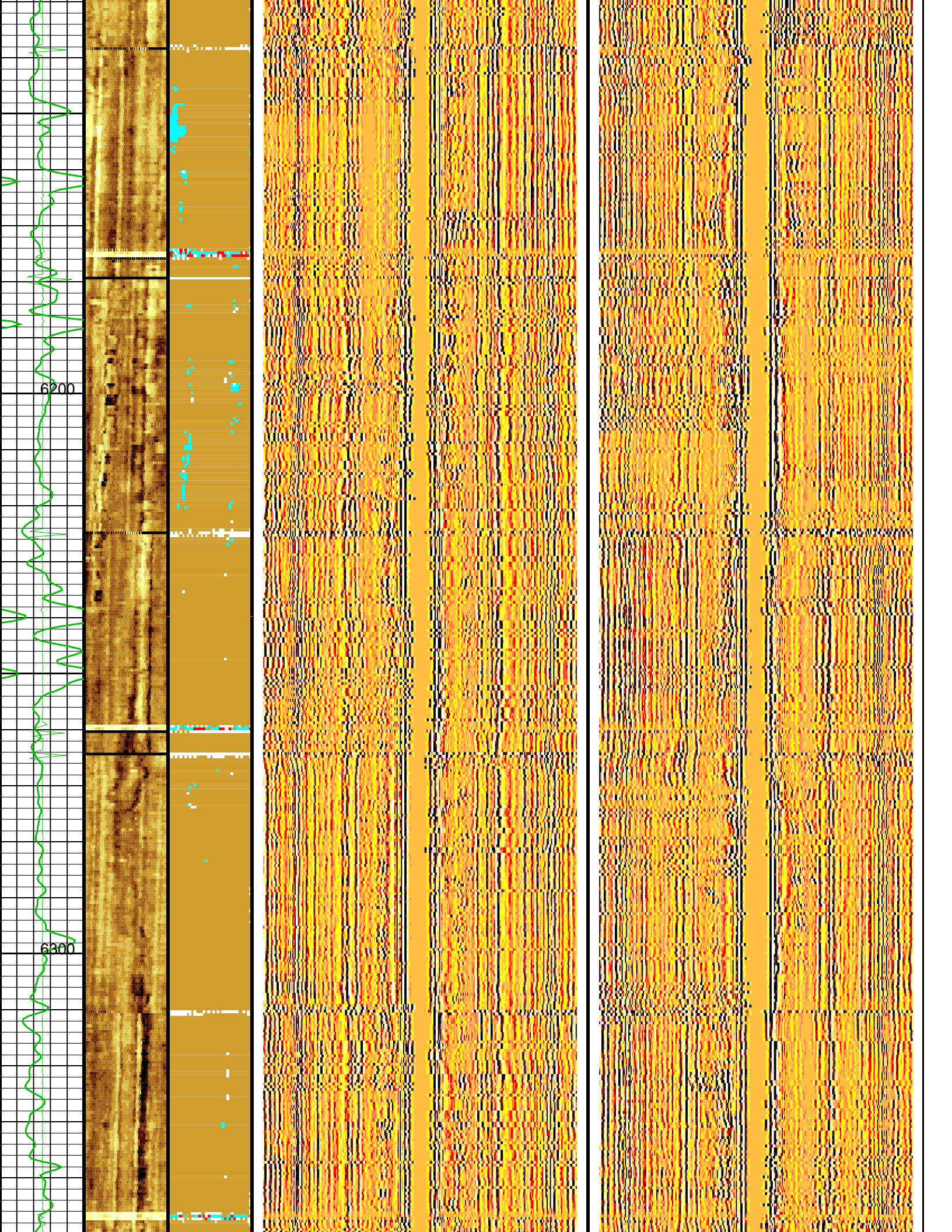
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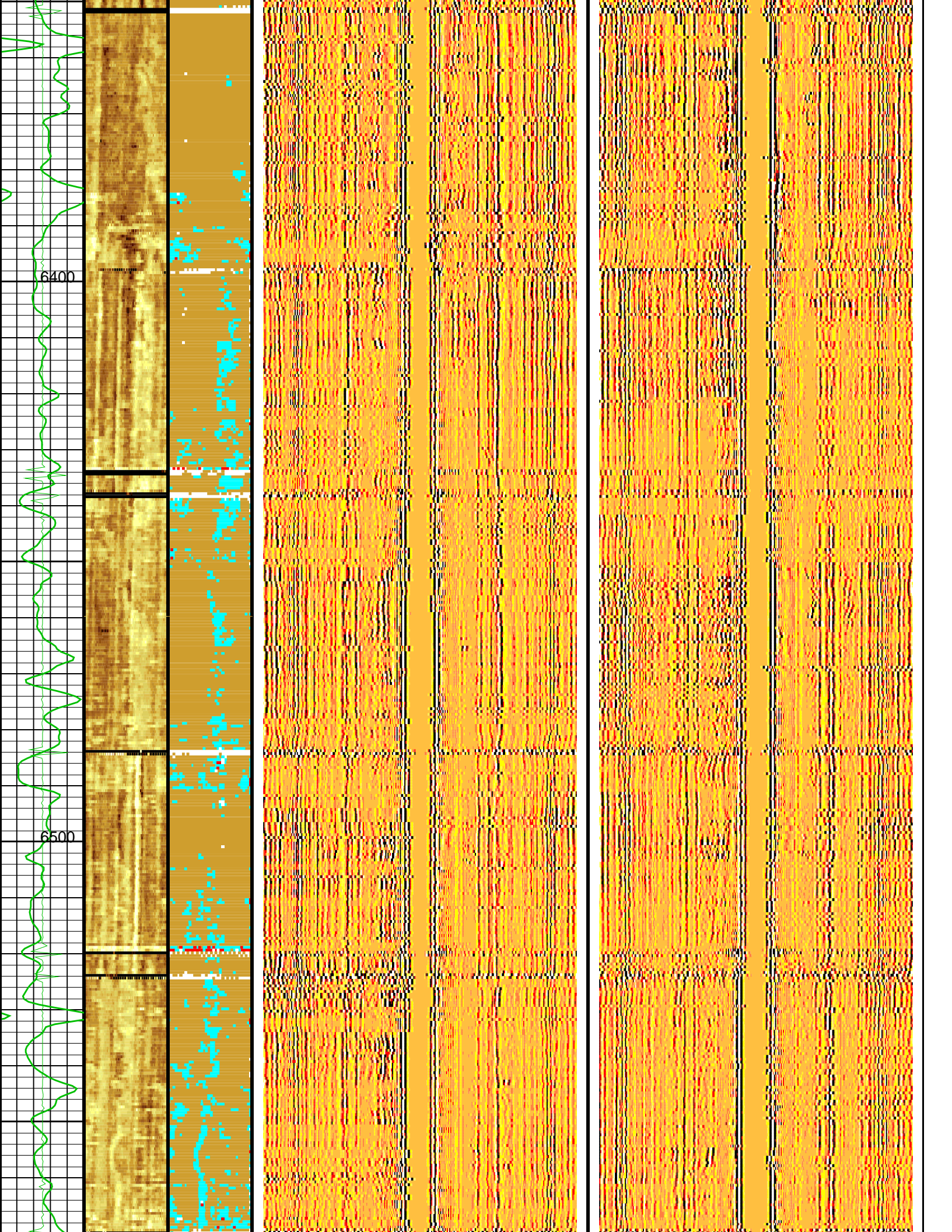
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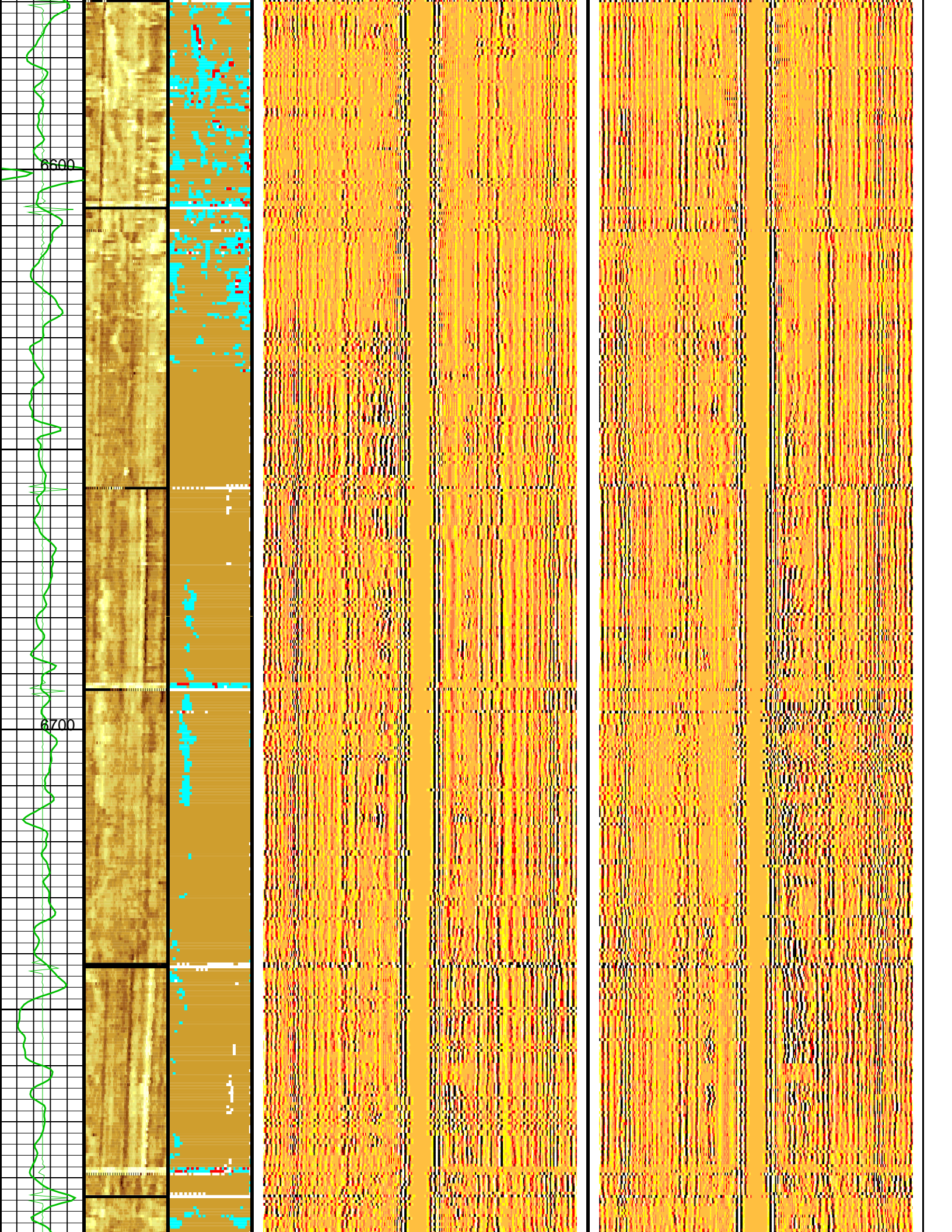


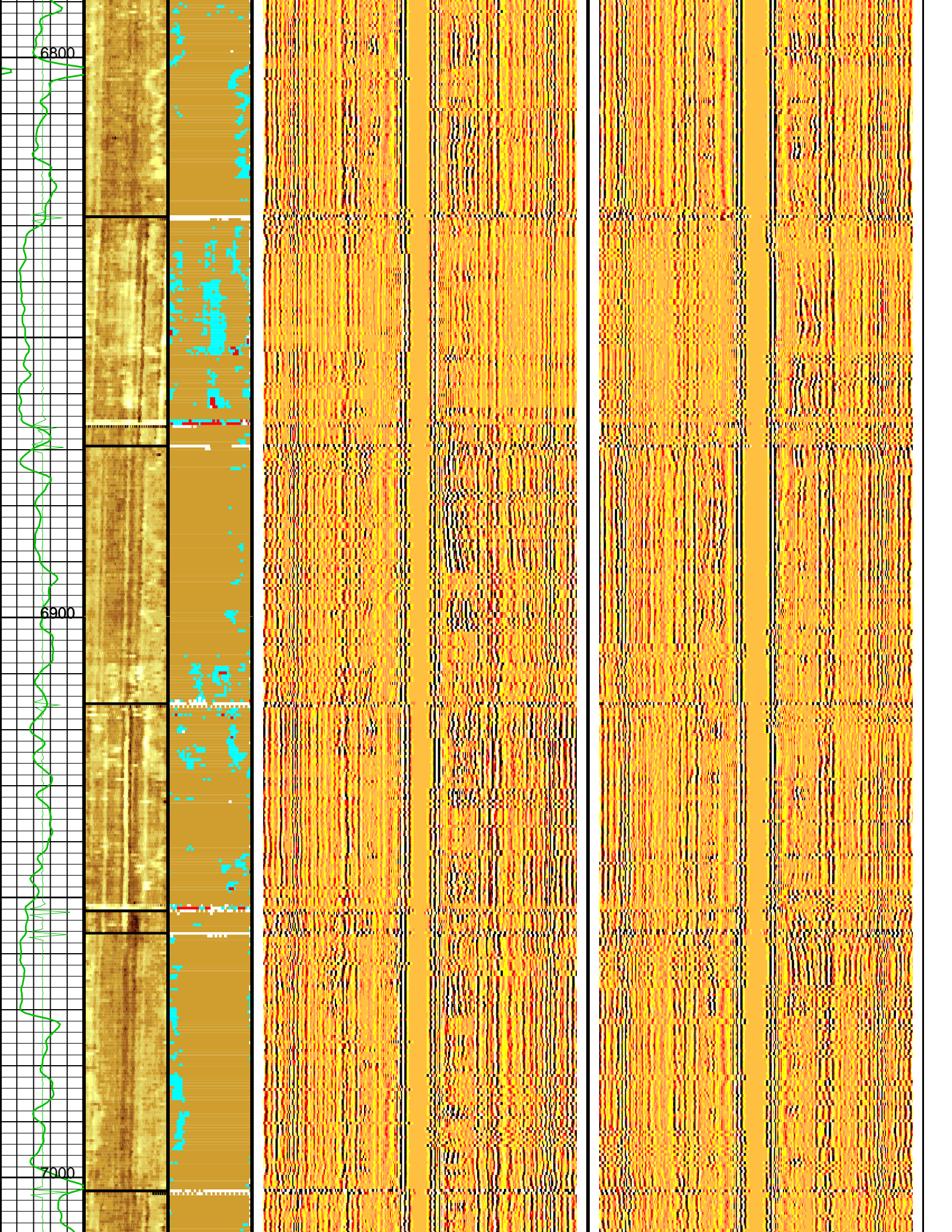


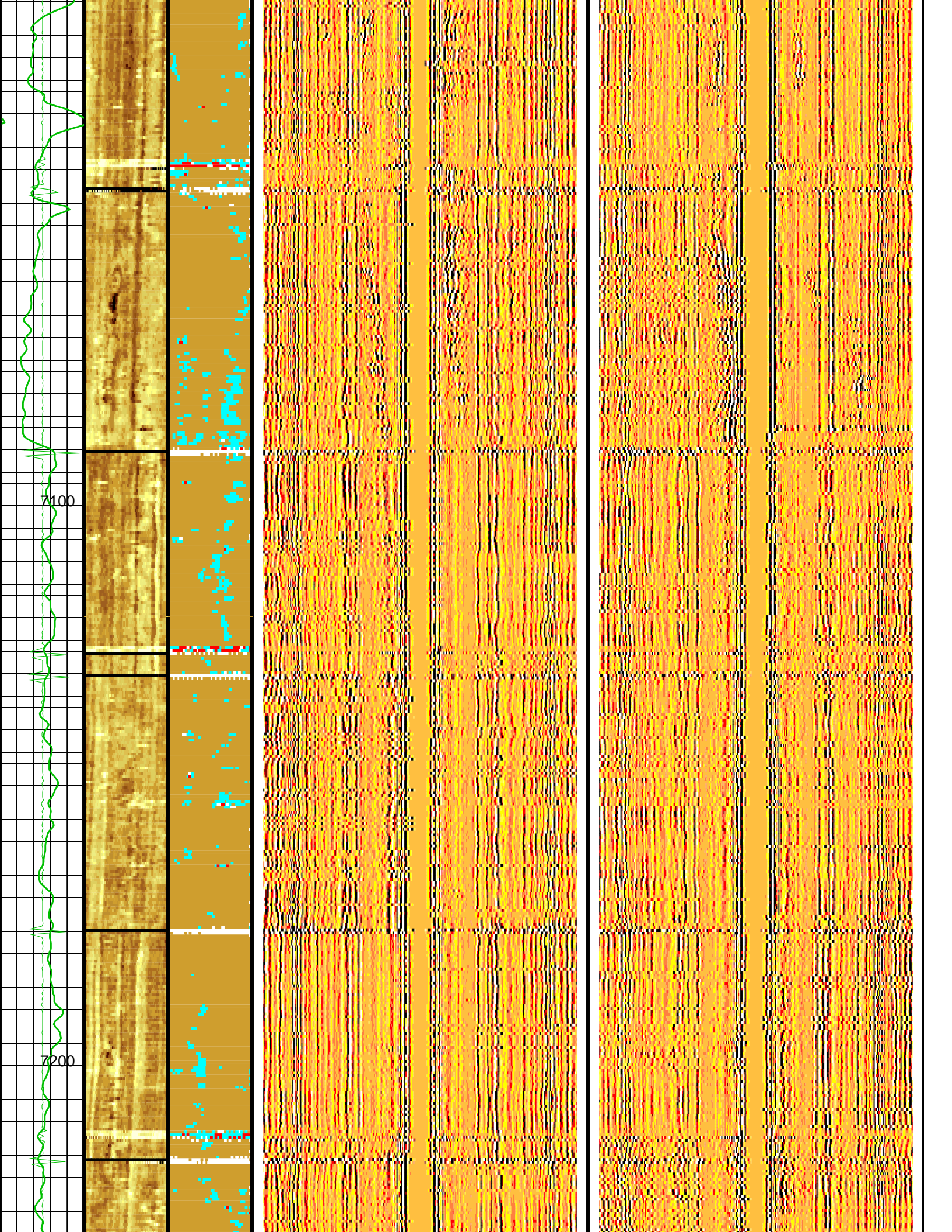


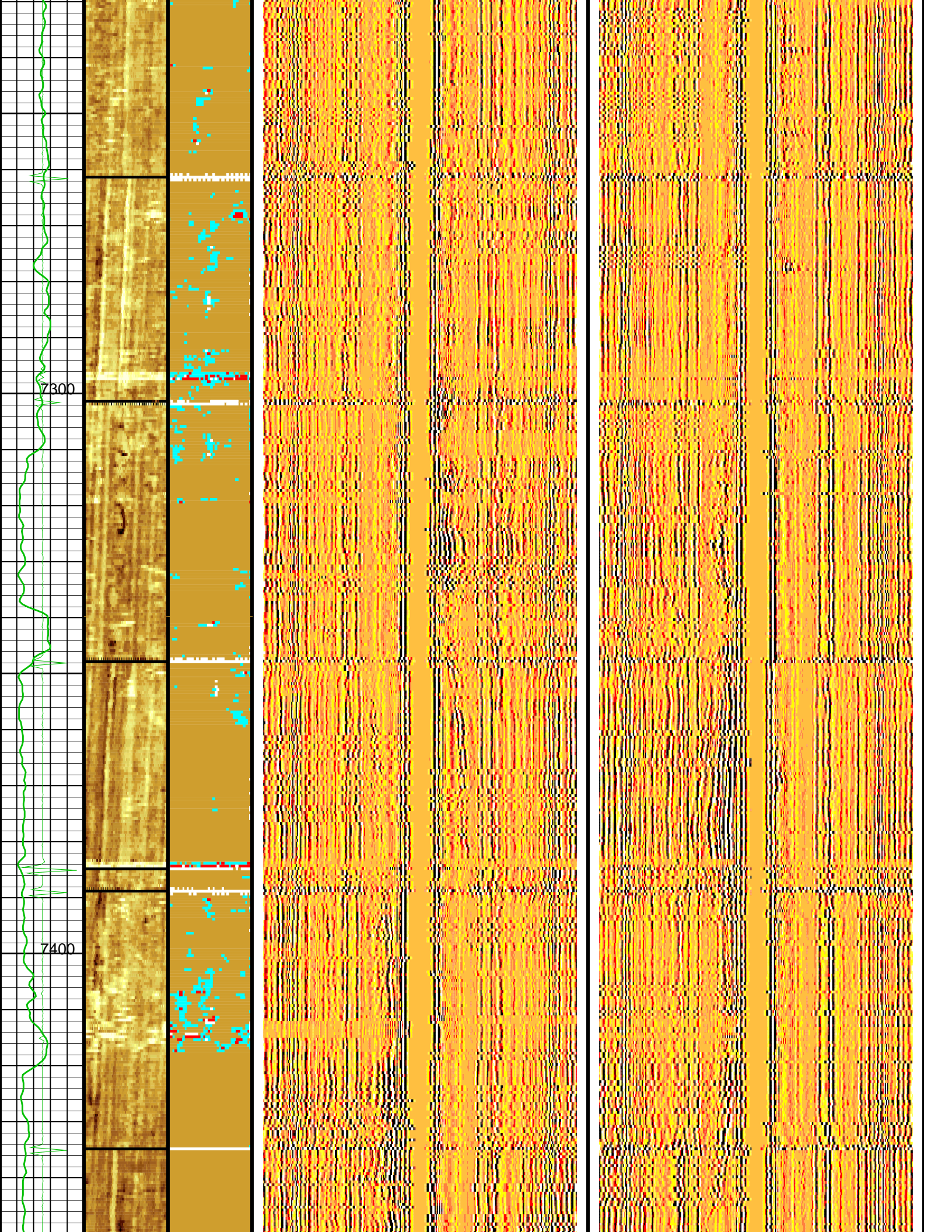


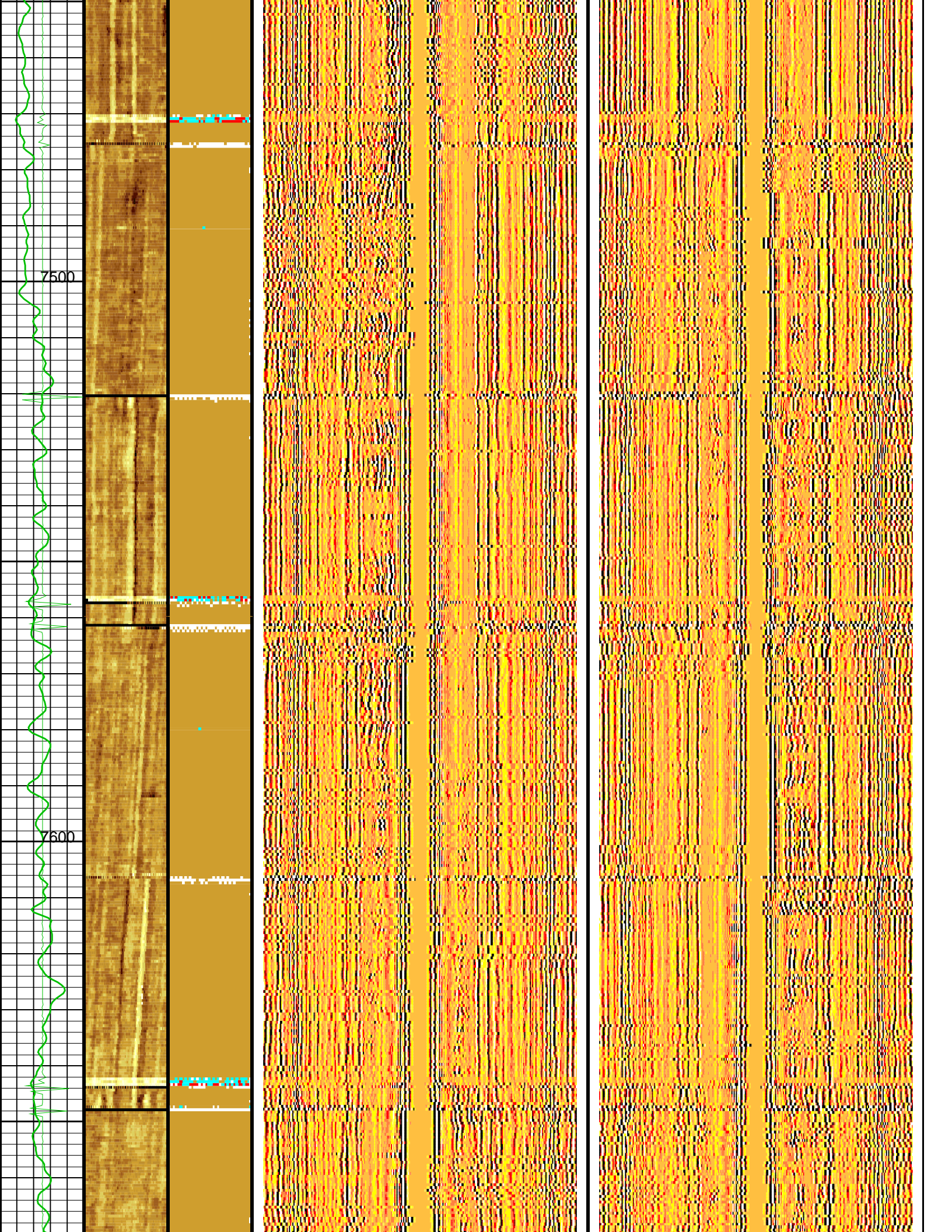


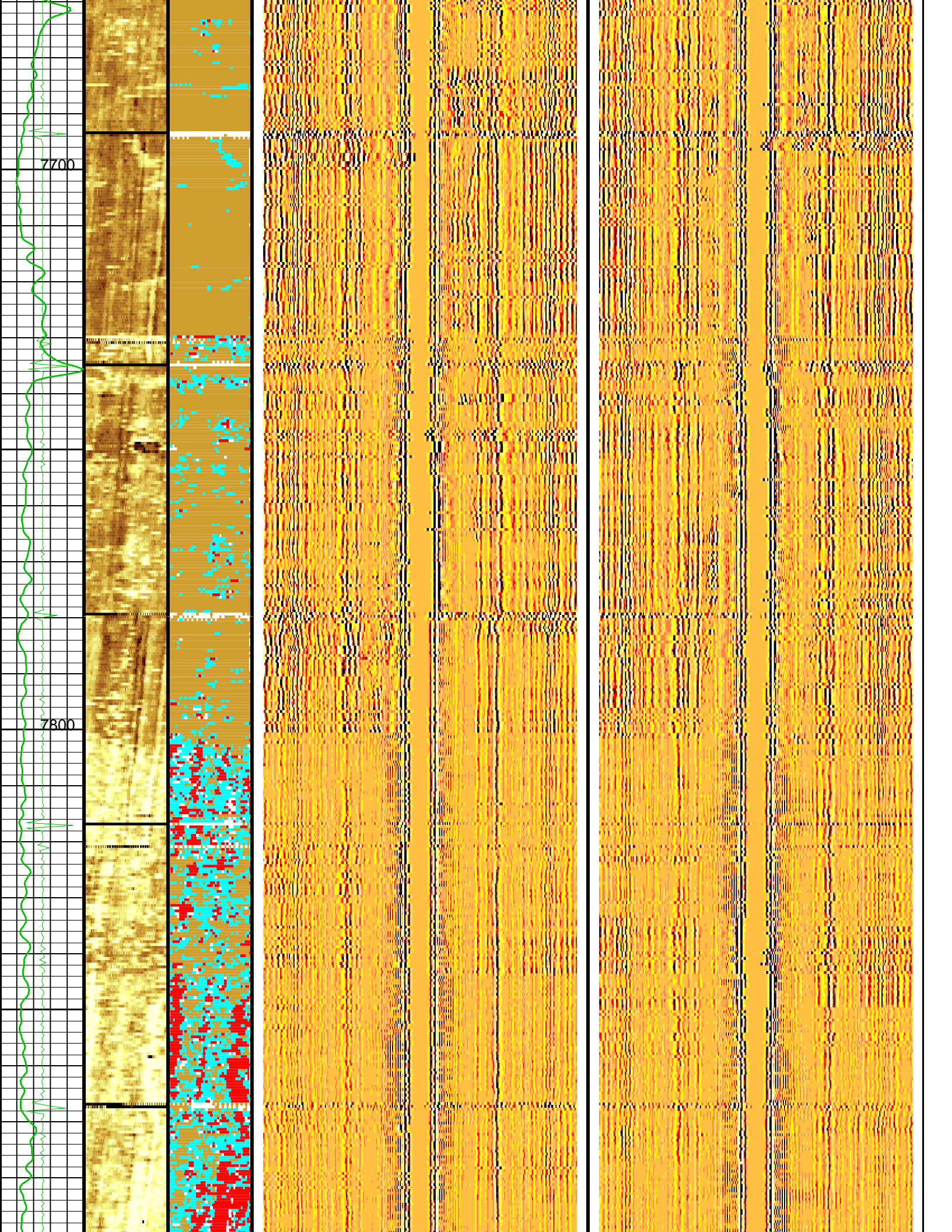


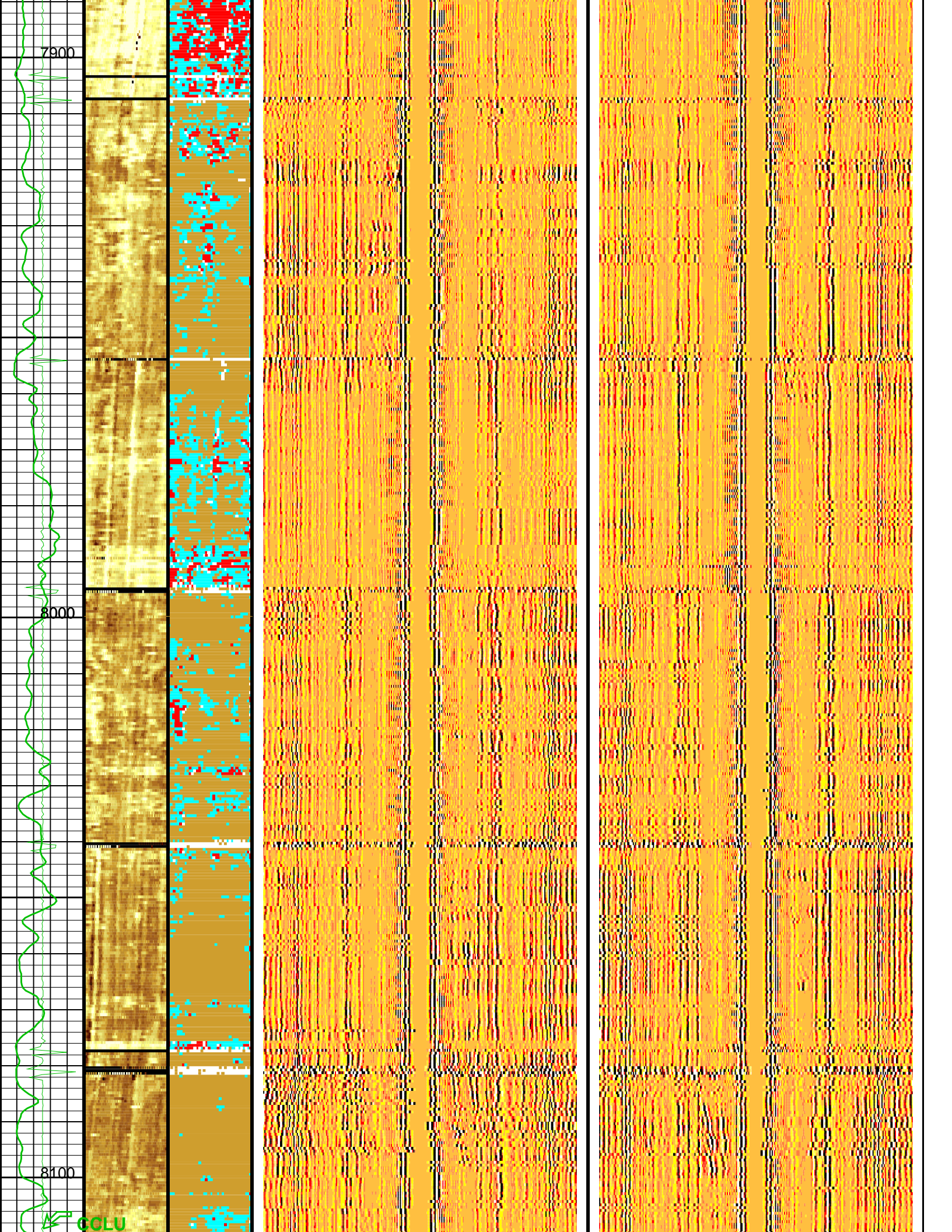










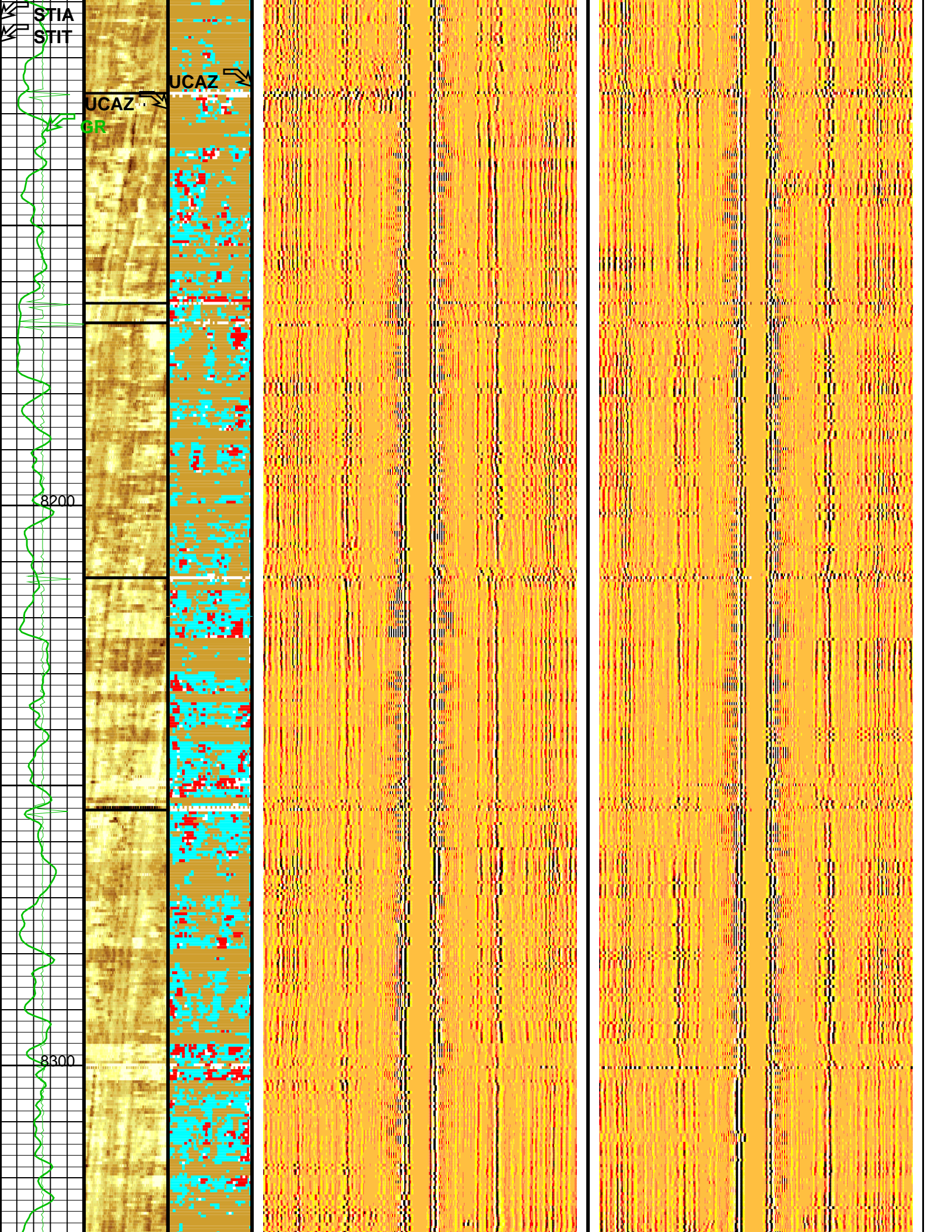


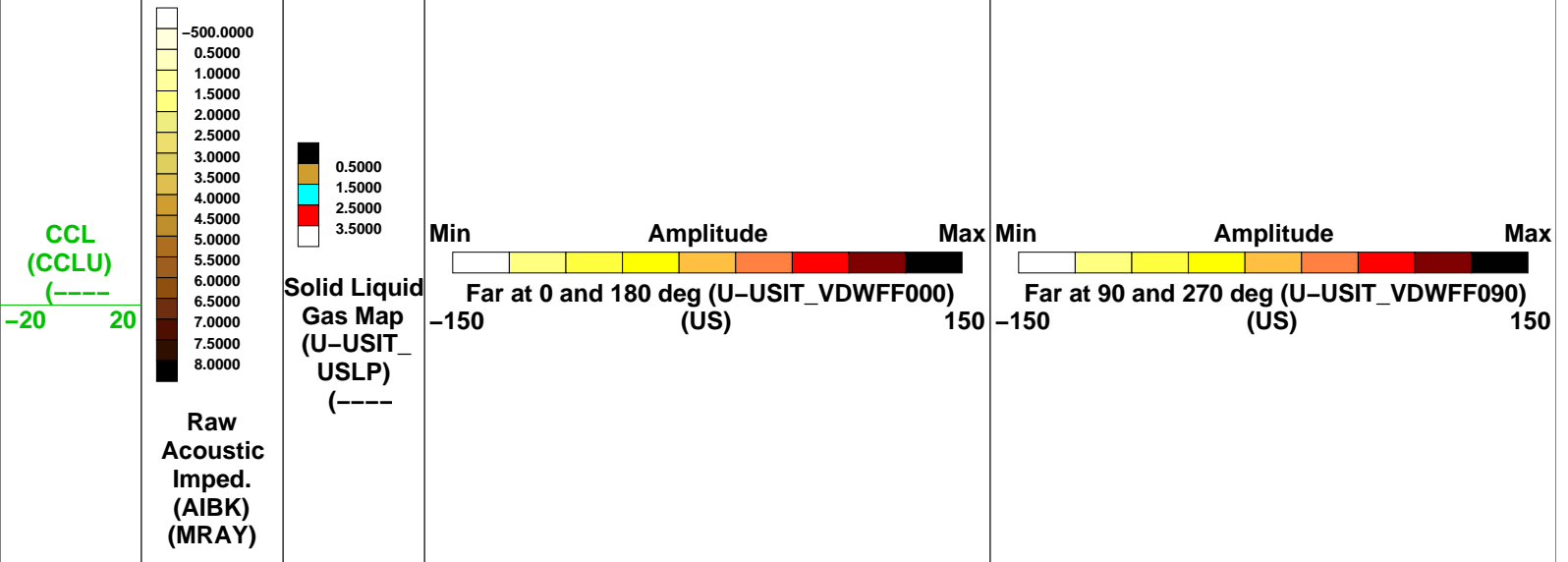
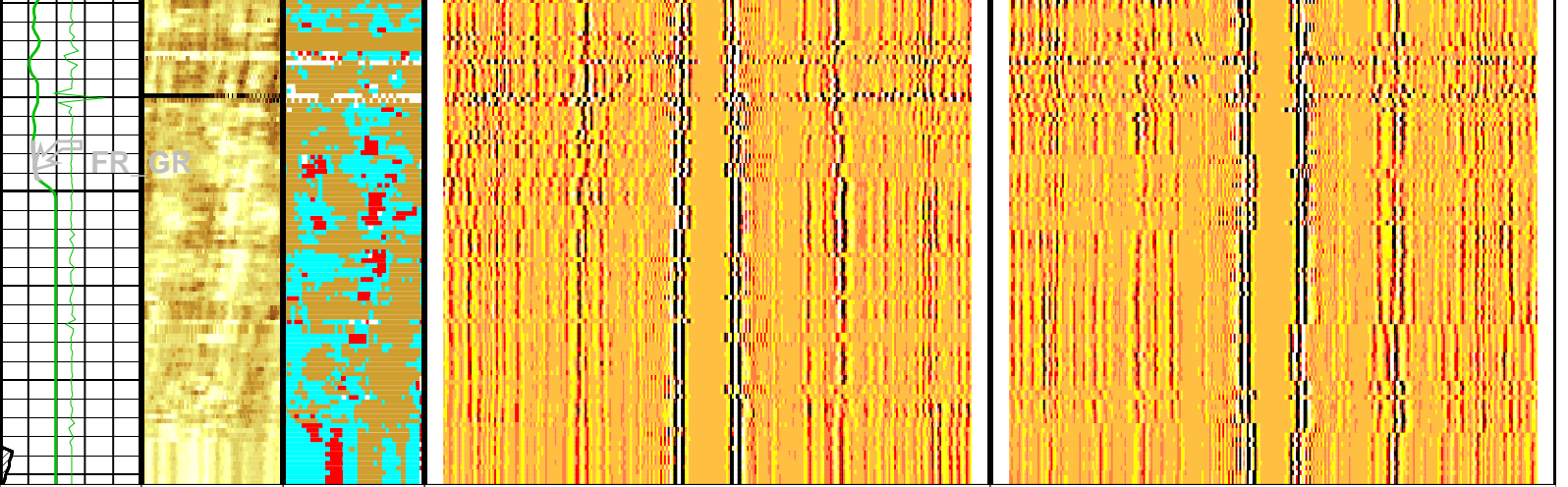
7900

8000

8100

CCLU





Gamma Ray (GR) (GAPI)	0 150
Stuck Stretch (STIT)	0 (F) 50
Cable Drag From D4T to STIT	
Tool/Tot. Drag From D4T to STIA	

Parameters

DLIS Name	Description	Value
USIT-D: Ultrasonic Imaging - D		
AGMN	Minimum Gain of Cartridge	-4 DB
AGMX	Maximum Gain of Cartridge	20 DB
BERJ	Bad Echo Rejection	ON
CDIA	Casing Outer Diameter	7 IN
CSDE	Casing Density	486.94 LBCF
CSID	Casing Inner Diameter	6.276 IN
DFVL	Default Fluid Velocity	206 US/F
DOT	Diameter of Transducer Sensor	1.756 IN
EMXV	EMEX Voltage	60 V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD
IMAR	Image Rotation	OFF
MW	Mud Weight	8.4 LBS/G

MW	mud weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
U-USIT_CEMT	USIT Cement Type	LIGHT	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U-USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U-USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U-USIT_OCDI	USIT Outer Casing Diameter	0	IN
U-USIT_OCSH	USIT Outer Casing Shoe	0	FT
U-USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U-USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U-USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U-USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U-USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U-USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U-USIT_U3WE	Third Interface Echo Window End	110	US
U-USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U-USIT_UFAO	USIT Flexural Attenuation Offset	-12	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_ibcs_A	
U-USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	8504.00	FT
TDL	Total Depth - Logger	8380.00	FT
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	6.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	

Format: USI_IBC_VDL_WIDE Vertical Scale: 5" per 100' Graphics File Created: 27-Jun-2010 10:17

OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	27-Jun-2010 06:03	8375.0 FT	190.7 FT
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Output DLIS Files

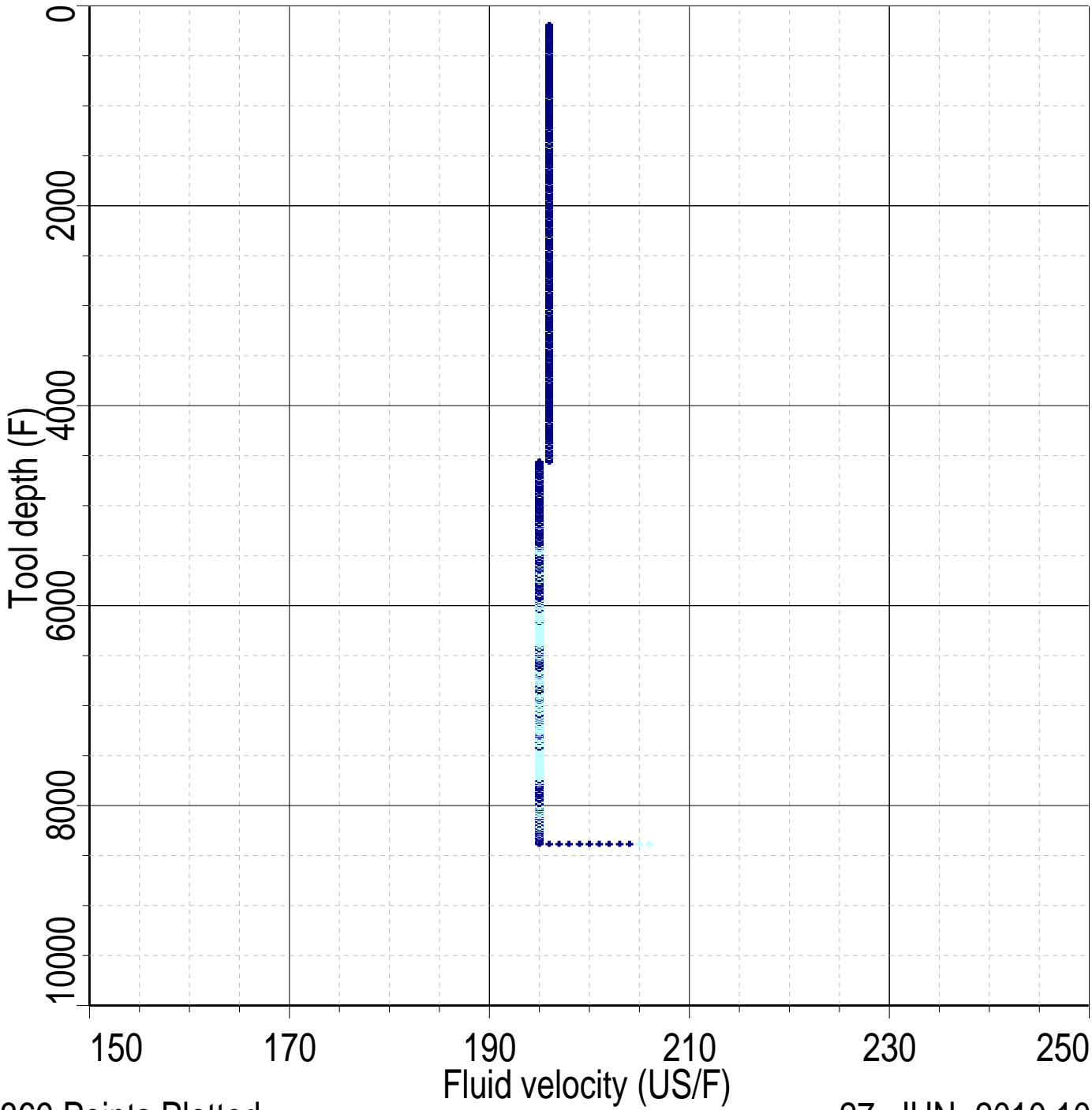
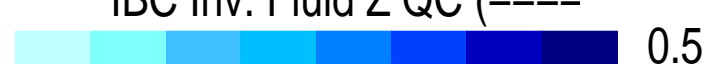
DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 10:17		
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FLUID PROPERTIES

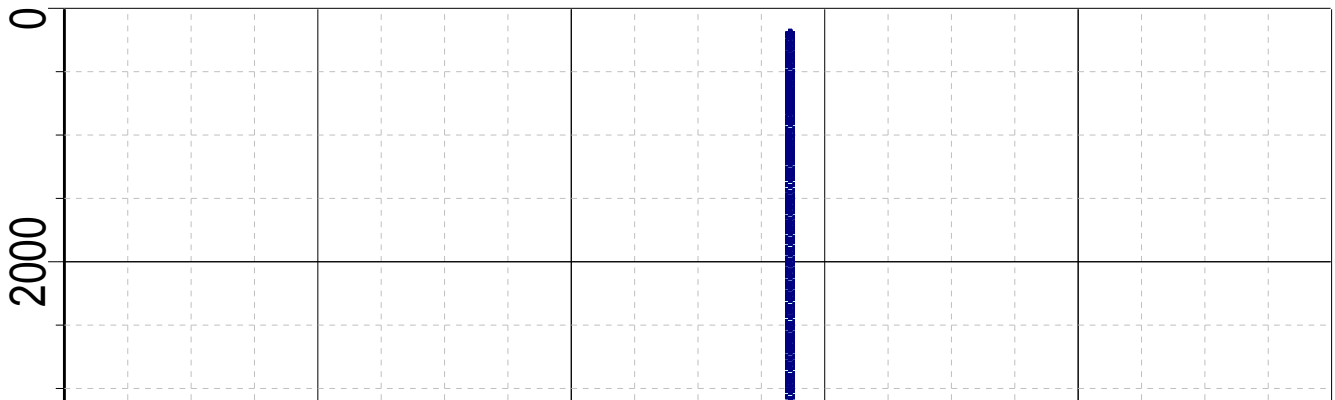
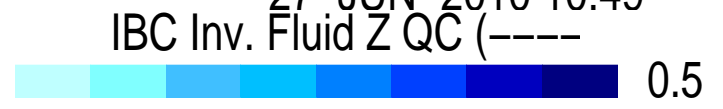
Index: 8381.0 – 197.0 FT

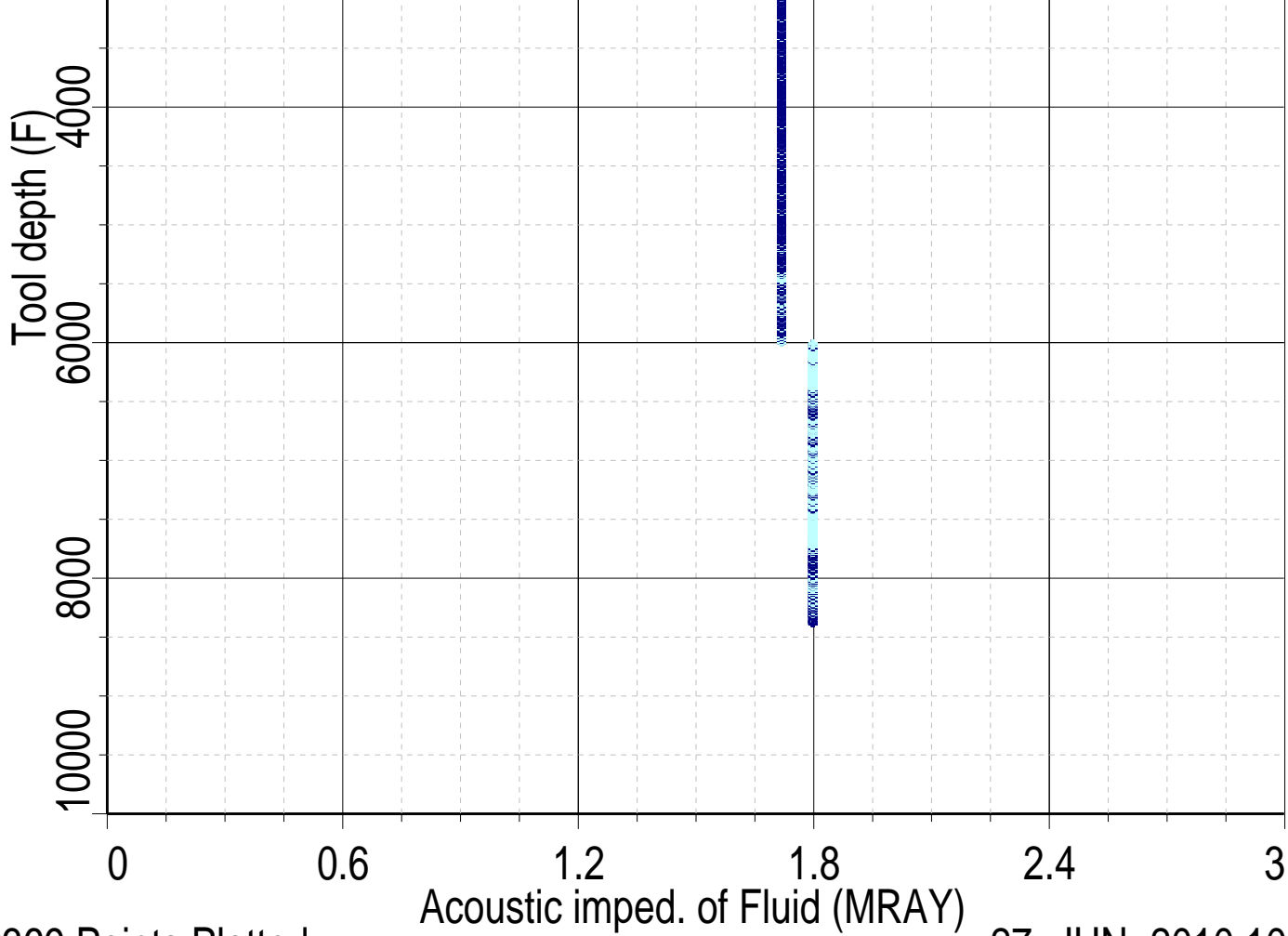
0.



Index: 8381.0 – 197.0 FT

0.





Schlumberger

REPEAT PASS

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO.

Well: PCU 197-34A4

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_003LUP	FN:2	PRODUCER	27-Jun-2010 05:47	8371.0 FT	8052.5 FT
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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	27-Jun-2010 10:14	8377.0 FT	8058.5 FT
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OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

Image rotation (UCAZ) (DEG)

0 360

Tool/Tot.

Drag
From D4T
to STIA

Cable
Drag
From D4T
to STIT

Stuck
Stretch
(STIT)

0 (F) 50

Gamma
Ray (GR)
(GAPI)

0 150

CCL
(CCLU)
(----)

-20 20

RSV
(RSV)
(RPS)

6 7.5

CCL
(CCLU)
(----)

-20 20

Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)
3.7 2.7	2.7 3.7

Internal radius Maximum (IRMX) (IN)	Internal radius Maximum (IRMX) (IN)
3.7 2.7	2.7 3.7

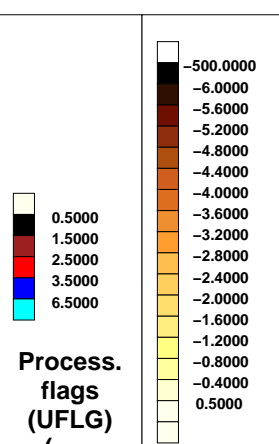
Maximum of Thickness (THMX) (IN)
0.1 0.6

Internal radius Average (IRAV) (IN)	Internal radius Average (IRAV) (IN)
3.7 2.7	2.7 3.7

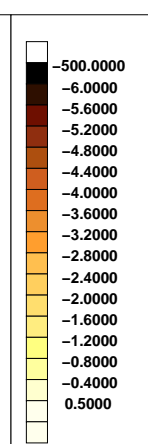
Average of Thickness (THAV) (IN)
0.1 0.6

Eccent.
(ECCE)
(IN)

0 0.5

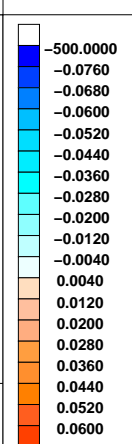


Process.
flags
(UFLG)
(----)



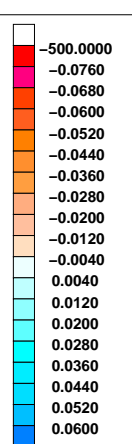
Amplitude
of echo
minus Max
(AWBK)
(DB)

External radius Average (ERAV) (IN)	External radius Average (ERAV) (IN)
3.7 2.7	2.7 3.7

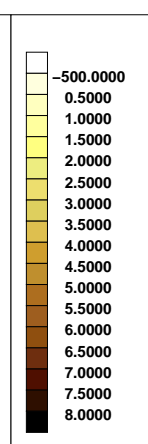


Internal
radii minus
Ave (IRBK)
(IN)

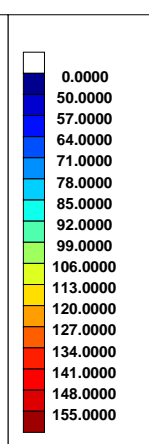
Min of Thickness (THMN) (IN)
0.1 0.6



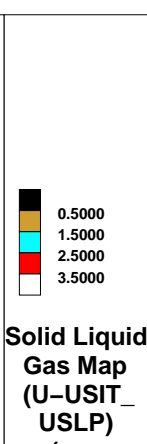
Thickness
minus Ave
(THBK)
(IN)



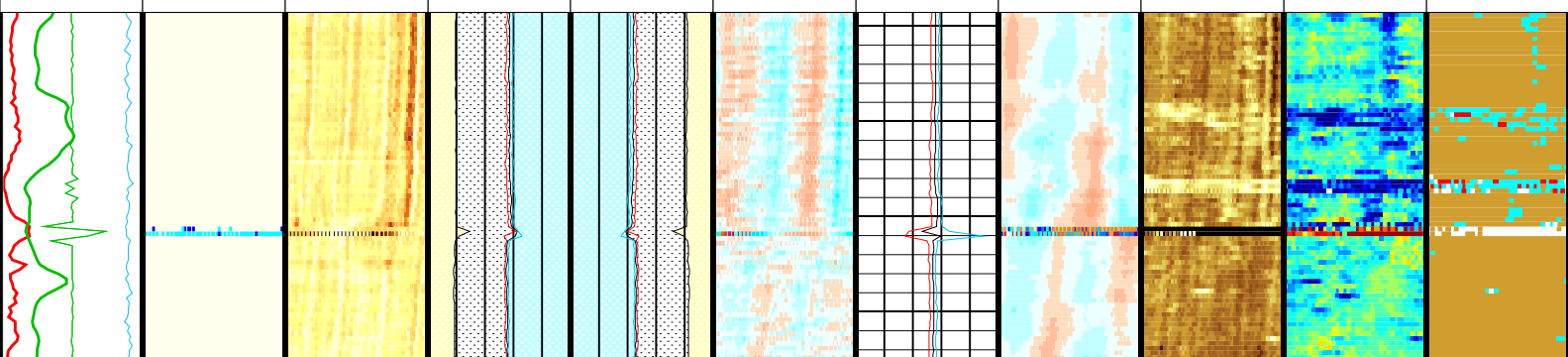
Raw
Acoustic
Imped.
(AIBK)
(MRAY)

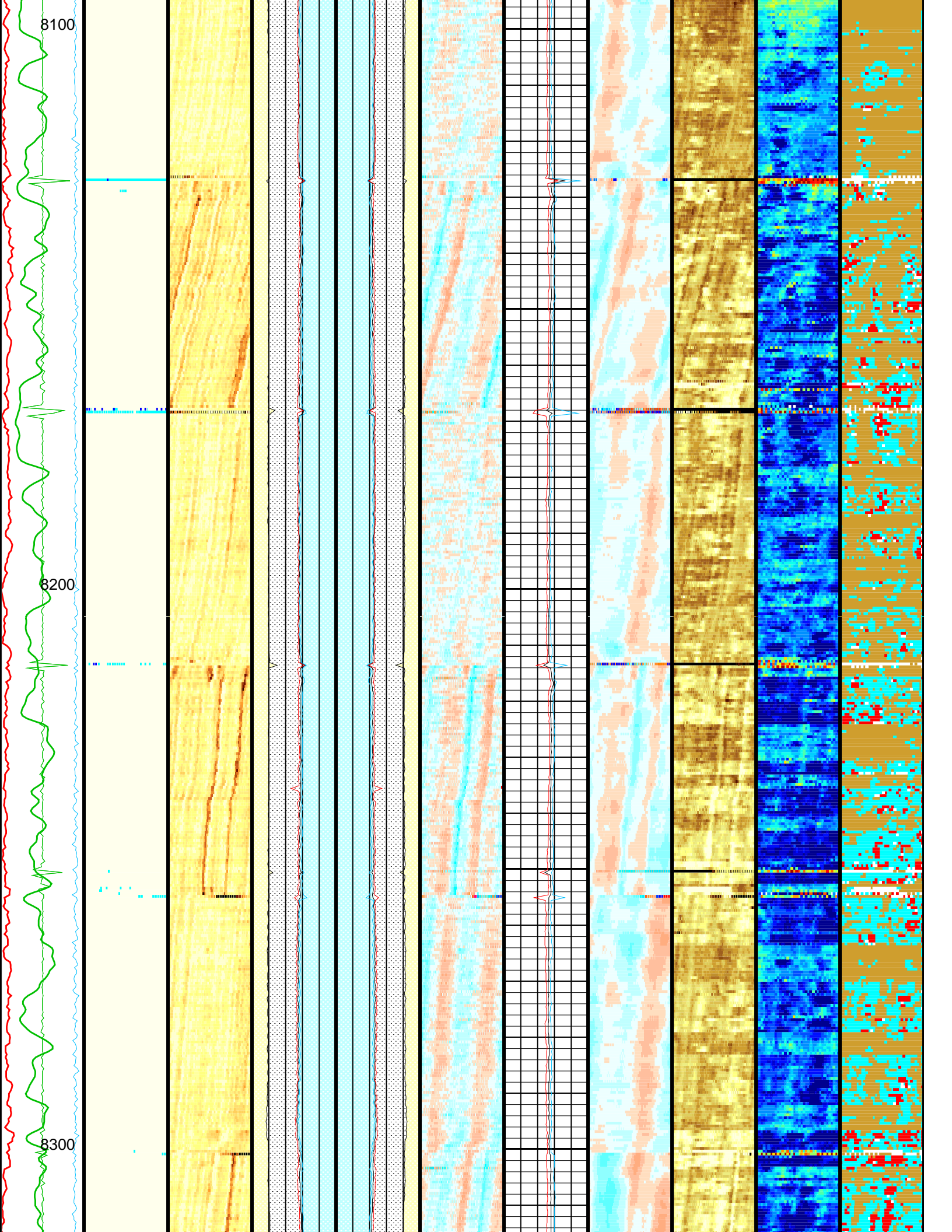


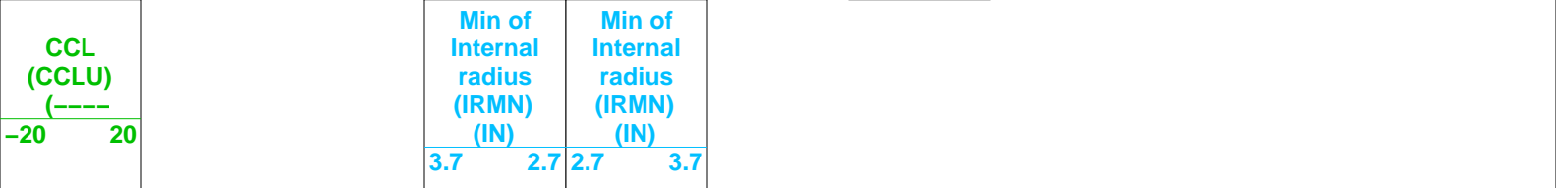
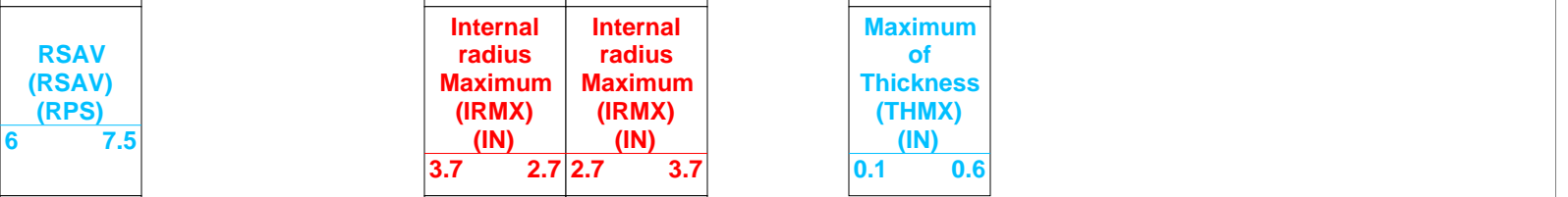
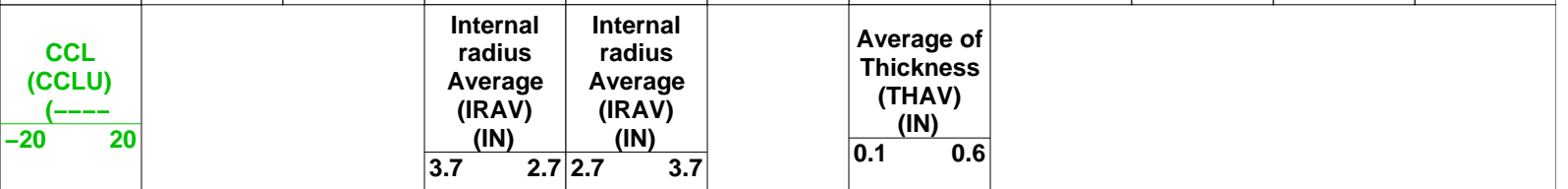
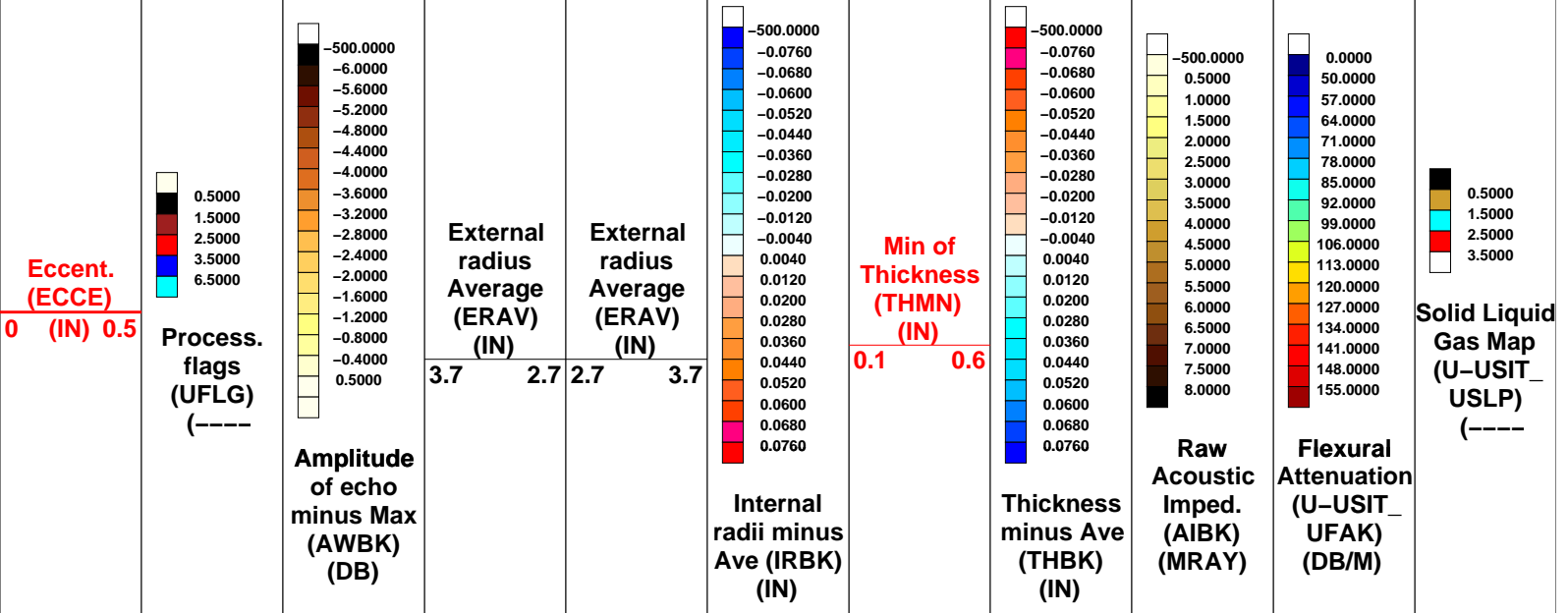
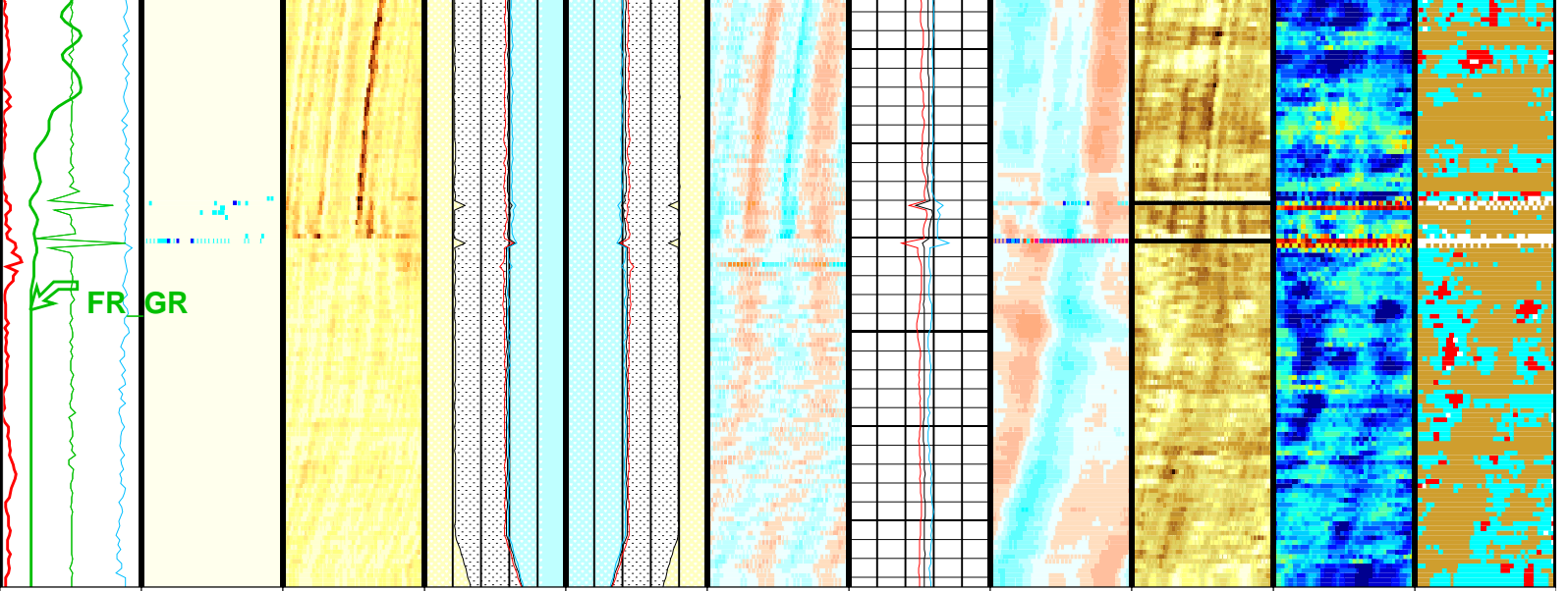
Flexural
Attenuation
(U-USIT_
UFAK)
(DB/M)



Solid Liquid
Gas Map
(U-USIT_
USLP)
(----)







Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T to STIA

Image rotation (UCAZ) (DEG)

0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 27-Jun-2010 10:14

OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.
 Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
USIT-D: Ultrasonic Imaging - D			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
U-USIT_CENT	USIT Cement Type	LIGHT	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U-USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U-USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U-USIT_OCDI	USIT Outer Casing Diameter	0	IN
U-USIT_OCSH	USIT Outer Casing Shoe	0	FT
U-USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U-USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U-USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U-USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U-USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U-USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U-USIT_U3WE	Third Interface Echo Window End	110	US
U-USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U-USIT_UFAO	USIT Flexural Attenuation Offset	-12	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_ibcs_A	

U-USIT_UTAN	USIT Transducer Angles	33_DEG	DEG
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	8504.00	FT
TDL	Total Depth - Logger	8380.00	FT
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	6.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT USI_TLD_MCFL_CNL_003LUP FN:2 PRODUCER 27-Jun-2010 05:47 8371.0 FT 8052.5 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_005PUP FN:4 PRODUCER 27-Jun-2010 10:14



CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration							
Before: 23-Jun-2010 14:06							
Gamma Ray Background	30.00	N/A	29.00	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	168.1	N/A	168.1	N/A	N/A	15.28	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement							
Master: 19-May-2010 12:23 Before: 23-Jun-2010 14:07							
CNTC Background	27.64	27.64	27.27	N/A	N/A	4.146	CPS
CFTC Background	28.93	28.93	27.90	N/A	N/A	4.340	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Ratio Measurement							
Master: 19-May-2010 12:23							
Thermal Near Corr. (Tank)	5800	5258	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2175	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.417	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration							
Before: 26-Jun-2010 11:48							
Z-Axis Acceleration	32.19	N/A	32.14	N/A	N/A	N/A	F/S2

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 61.8 DEGF.
 Thermal Housing Size 3.374 IN

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT Gamma-Ray Neutron Sonde-DTS	HGNS - H	
HGNS Gamma-Ray Device	HGR -	
HGNS Neutron Detector with Alpha Source	HCNT - H	
Z-Axis Accelerometer	HACC - H	3577
Neutron Logging Source	NLS - KL	
Neutron Source Radioactive	NSR - F	5138
Compensated Neutron Box	CNB - AB	
HTBC Communication Assembly DTS Mode	HMCA - H	

Auxiliary Equipment:

Neutron Calibration Tank	NCT - B
Gamma Source Radioactive	GSR - U/Y
HGNS Housing	HGNH -

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		29.00	Before		168.1	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	152.8 (Minimum)	168.1 (Nominal)	183.4 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 23-Jun-2010 14:06

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.64	Master		28.93
Before		27.27	Before		27.90
5.000 (Minimum)	27.64 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	28.93 (Nominal)	40.00 (Maximum)

Master: 19-May-2010 12:23

Before: 23-Jun-2010 14:07

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5258	Master		2175	Master		2.417
4700 (Minimum)	5800 (Nominal)	6900 (Maximum)	1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: 19-May-2010 12:23

High resolution Integrated Logging Tool-DTS

Wellsite Calibration

Accelerometer Calibration

Phase	Z-Axis Acceleration F/S2	Value
Before		32.14
31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)

Before: 26-Jun-2010 11:48

High resolution Integrated Logging Tool-DTS Master Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.64	Master		28.93
5.000 (Minimum)	27.64 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	28.93 (Nominal)	40.00 (Maximum)

Master: 19-May-2010 12:23

High resolution Integrated Logging Tool-DTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
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Master		5258	Master	2175	Master	2.417
4700 (Minimum)	5800 (Nominal)	6900 (Maximum)	1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	2.120 (Minimum)
						2.159 (Nominal)
						2.540 (Maximum)

Master: 19-May-2010 12:23

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Company: **EXXONMOBIL PRODUCTION CO.**

Schlumberger

Well: **PCU 197-34A4**
Field: **PICEANCE CREEK**
County: **RIO BLANCO**
State: **CO**

IMAGING BEHIND CASING
GAMMA RAY
CCLU