Co

We

Fie

Co

County: RIO BLANCO

Field: PICEANCE CREEK

Logging	
Run No	
Depth	
Schlu	
Bottom	
Top L	
Casin	
Casin	
Bit Siz	
Type	
MUD	Dens
	Fluid
	Sour
RM @	
RMF	
RMC	
Sourc	
RM @	
Maxim	
Circul	
Logge	
Unit N	
Recor	
Witne	

Schlumberger

mpany: **EXXONMOBIL PRODUCTION COMPANY**

ell: **PCU 297−11B1**
eld: **PICEANCE CREEK**
unty: **RIO BLANCO** State: **COLORADO**

Location: SESE 354' FSL 487' FEL
Well: PCU 297−11B1
Company: EXXONMOBIL PRODUCTION C

IMAGING BEHIND CASING
GAMMA RAY
USIT CASING COLLAR LOCATOR

LOCATION

SESE 354' FSL 487' FEL

Elev.: K.B. 7157.10 ft
G.L. 7131.00 ft
D.F. 7156.10 ft

Permanent Datum: GROUND LEVEL Elev.: 7131.00 ft
Log Measured From: KELLY BUSHING 26.10 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−103−11378−0(	11	2S	97W

		Run 1	Run 2	Run 3
ng Date				
Number				
Driller				
mberger Depth				
m Log Interval				
og Interval				
g Driller Size @ Depth			@	@
g Schlumberger				
ze				
Fluid In Hole				
sity	Viscosity			
Loss	PH			
ce Of Sample				
@ Measured Temperature			@	@
@ Measured Temperature			@	@
@ Measured Temperature			@	@
ce RMF	RMC			
@ MRT	RMF @ MRT		@	@
mum Recorded Temperatures				
ation Stopped	Time			
er On Bottom	Time			
Number	Location			
rded By				
ssed By				

		Run 1	Run 2	Run 3
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth			@	@
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density	Viscosity			
MUD Fluid Loss	PH			
MUD Source Of Sample				
RM @ Measured Temperature			@	@
RMF @ Measured Temperature			@	@
RMC @ Measured Temperature			@	@
Source RMF	RMC			
RM @ MRT	RMF @ MRT	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped	Time			
Logger On Bottom	Time			
Unit Number	Location			
Recorded By				
Witnessed By				

| | | |

RUN 1			RUN 2		
SERVICE ORDER #:		ARVO−00080	SERVICE ORDER #:		
PROGRAM VERSION:		17C0−154	PROGRAM VERSION:		
FLUID LEVEL:		10 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

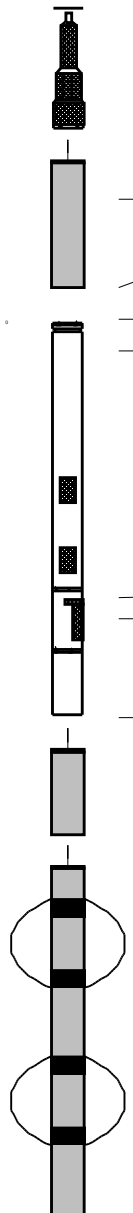
RUN 1 | RUN 2

SURFACE EQUIPMENT

GSR−U/Y
NCT−B
CNB−AB
NCS−VB

WITM (DTS)−A

DOWNHOLE EQUIPMENT



LEH−QT — 39.0
LEH−QT

DTC−H — 36.1
ECH−KC
DTCH0−A
DTCH1−A

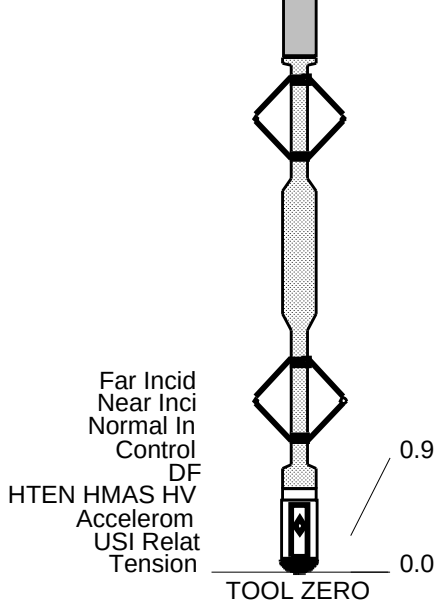
CTEM — 35.2
TelStatus
ToolStatu — 33.1
HGNS HTEM
HMCA — 33.1

HILTH−FTB — 33.1
HGNSD−H
HMCA−H
HGNH
NLS−KL
NSR−F
HACCZ−H 3577
HCNT−H
HGR
NPV−N

HGNS Gamm — 32.4
HGNS Neut — 26.5
HGNS Neut — 26.0
HGNS sens — 23.7

AH−107 — 23.7
AH−107

USIT−D — 21.7
ECH−MRA
USIC−D
USIS−A
USSC−B
IBCS_B−100158202
Top Transducer
Middle Top Transducer
Middle Bottom Transducer
Bottom Transducer



MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client:	EXXONMOBIL PRODUCTION COMPANY		Drawing Date: 10/11/2009
Well:	PCU 297−11B1		API #: 05−103−11378−00
Field:	PICEANCE CREEK	Rig Name:	H&P 215
State:	COLORADO	Reference Datum:	Kelly Bushing
Country:	USA	Elevation:	7131.0 ft

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					26.1	7.000		Casing String
					3966.0	9.875		Borehole Segment

					9006.0	7.000		Casing Shoe

Schlumberger

IBC_SLG_Composite

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION COMPANY | Well: PCU 297−11B1

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

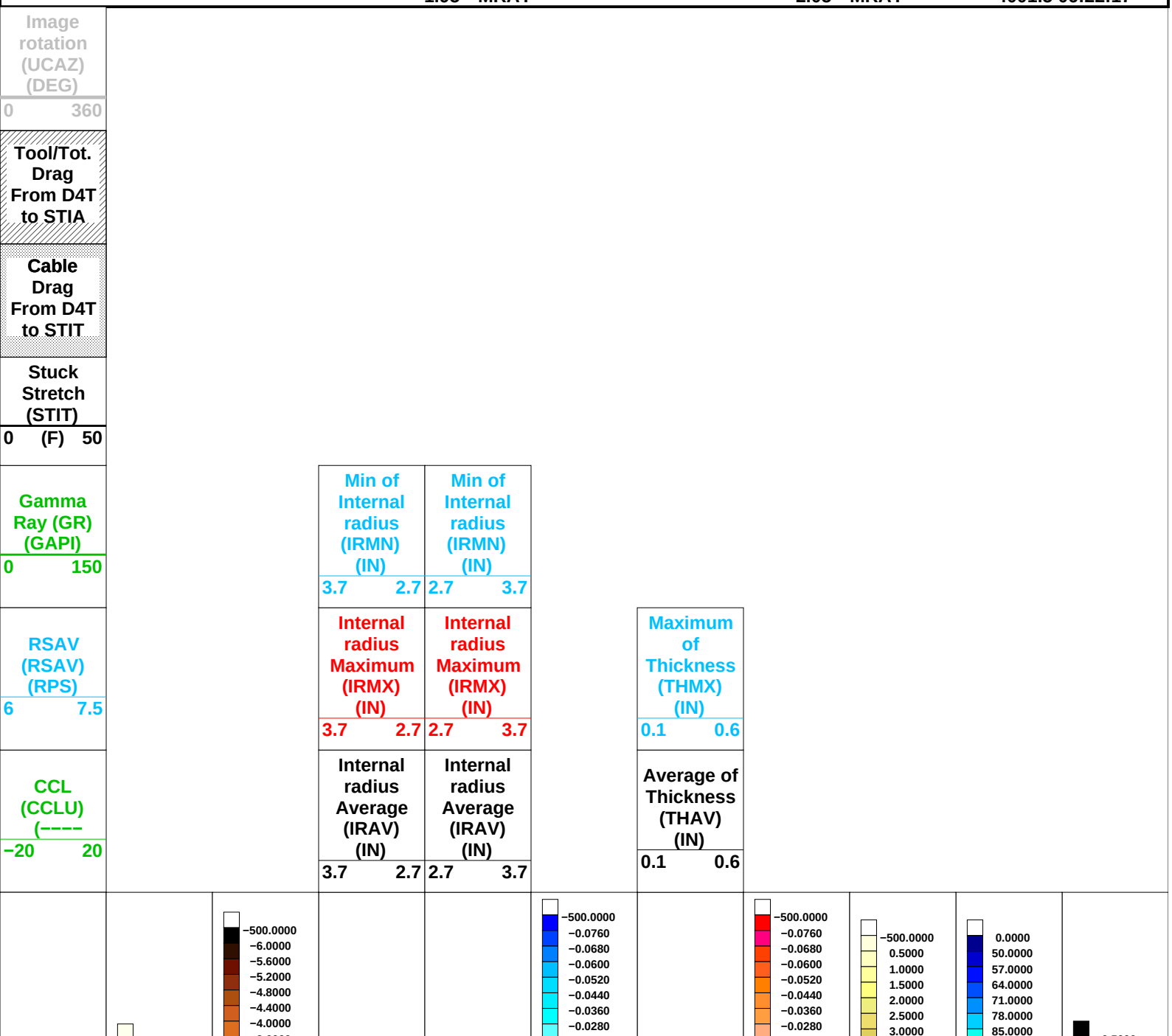
DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12	8914.0 FT	203.5 FT

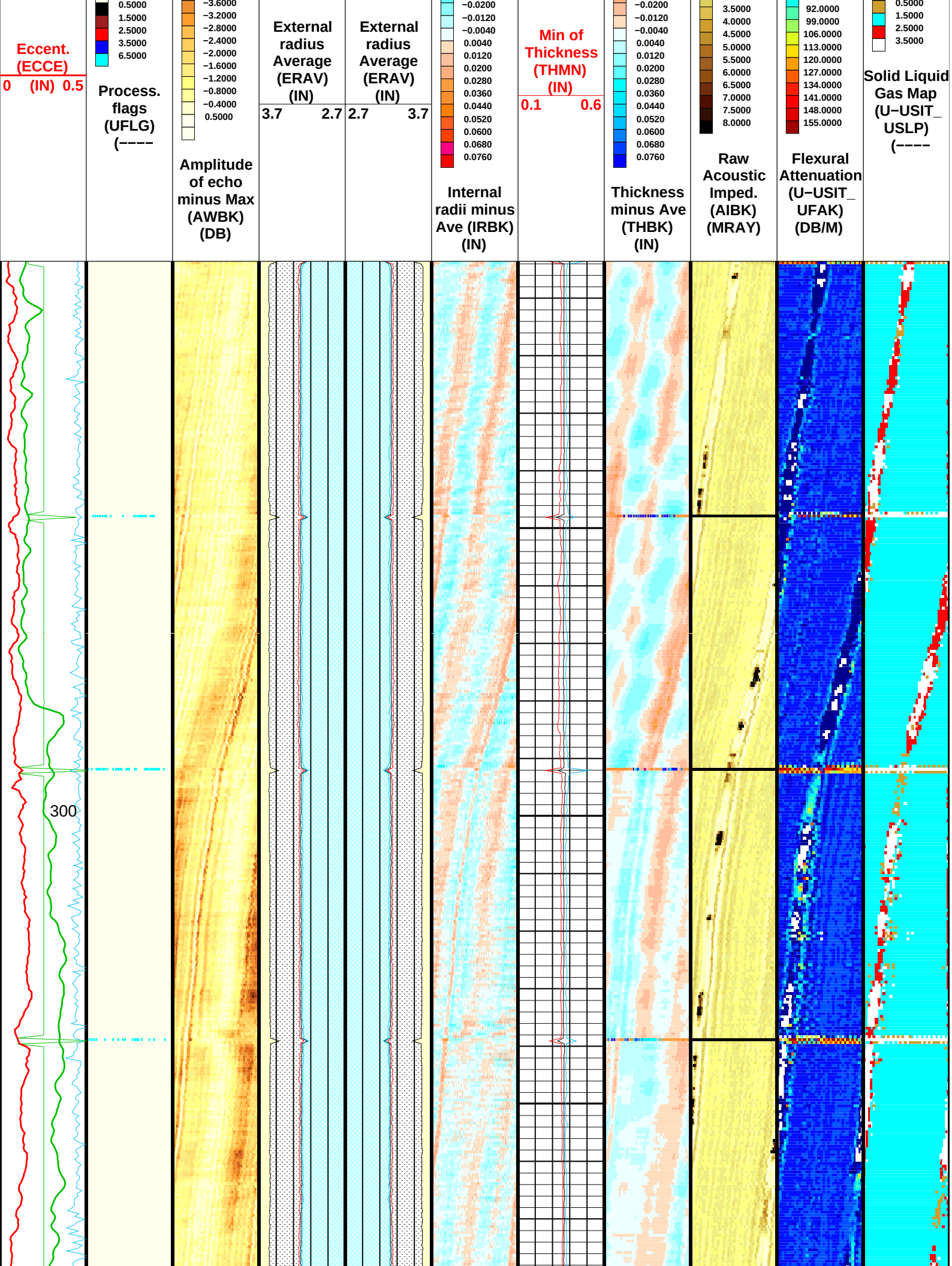
OP System Version: 17C0−154

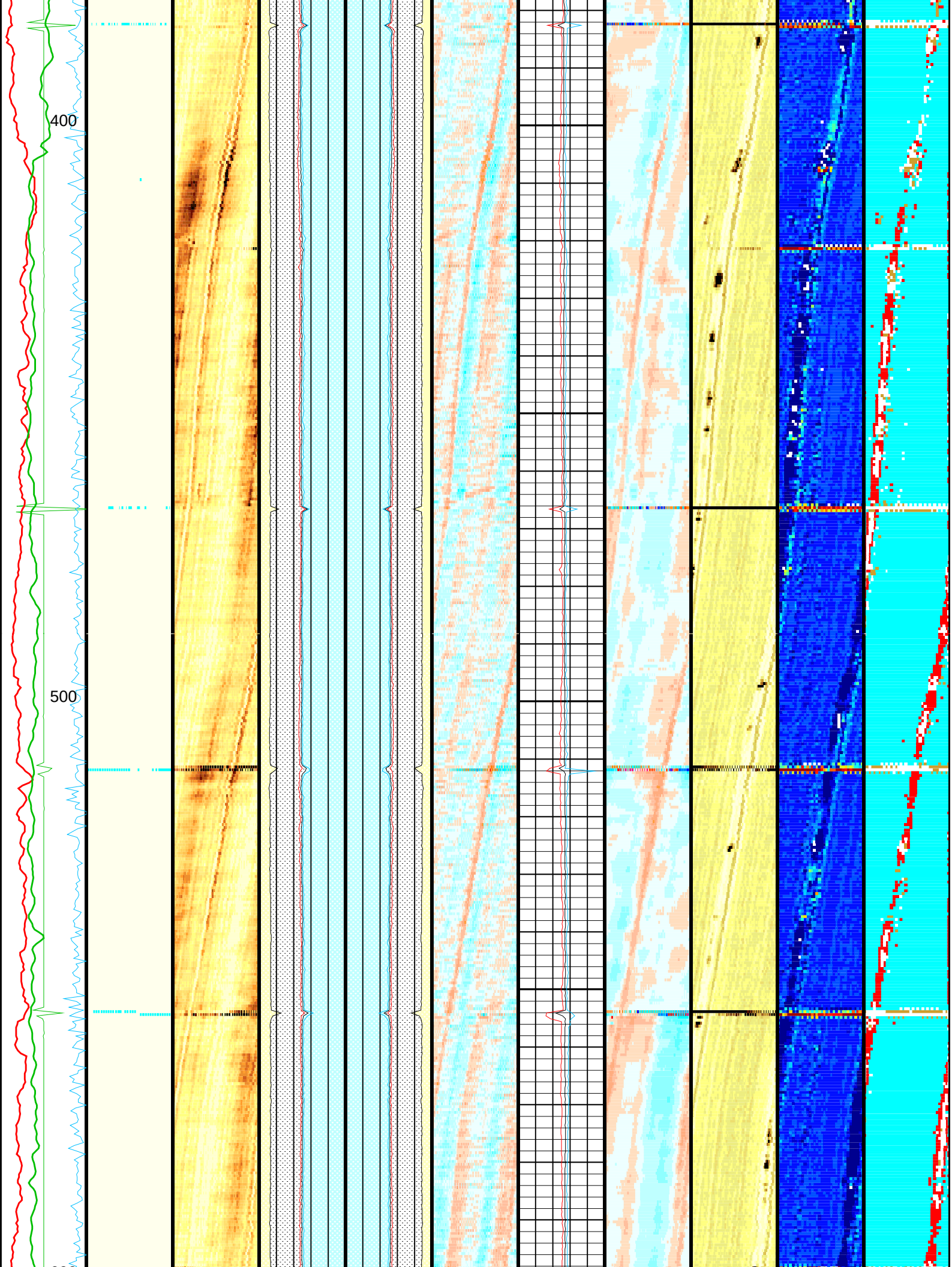
USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

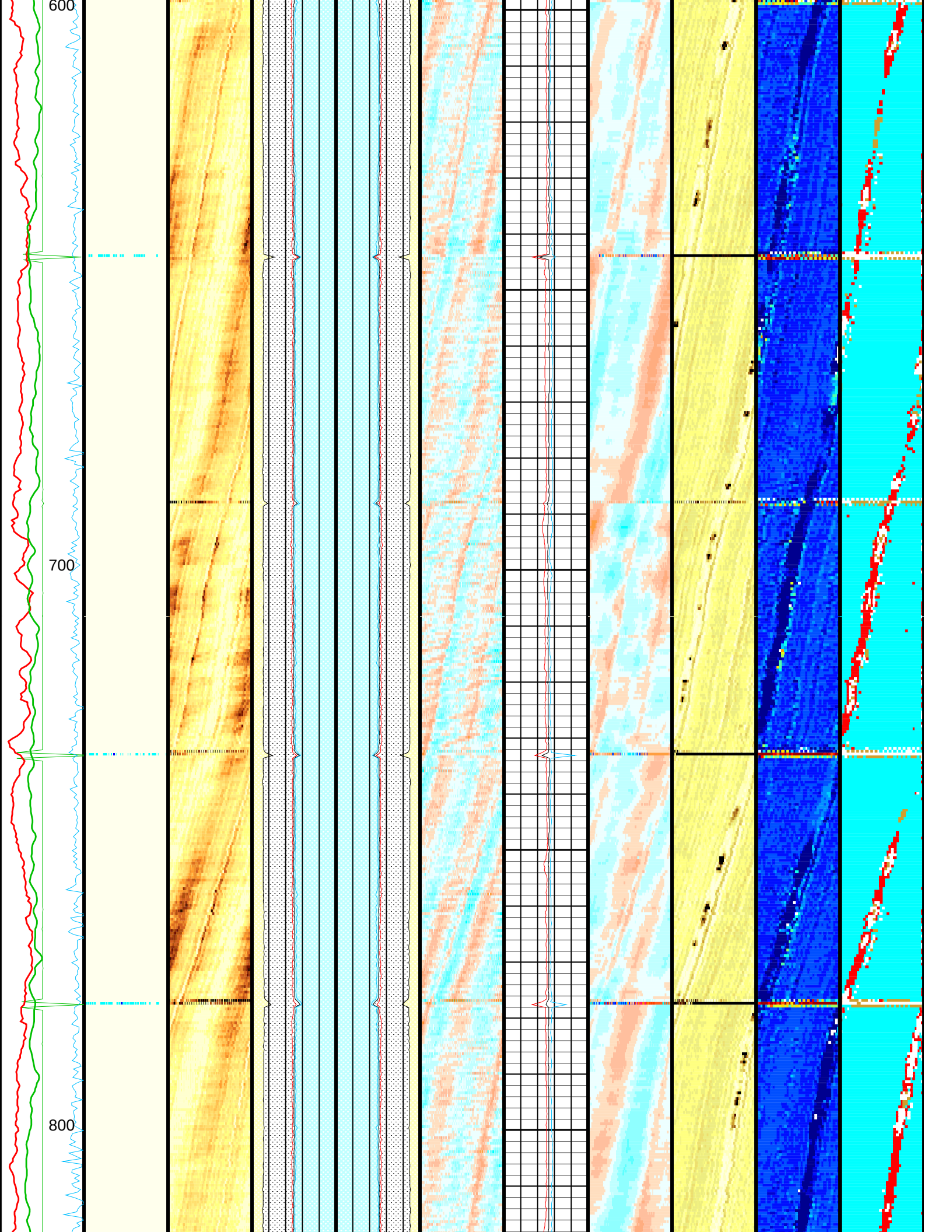
Changed Parameter Summary

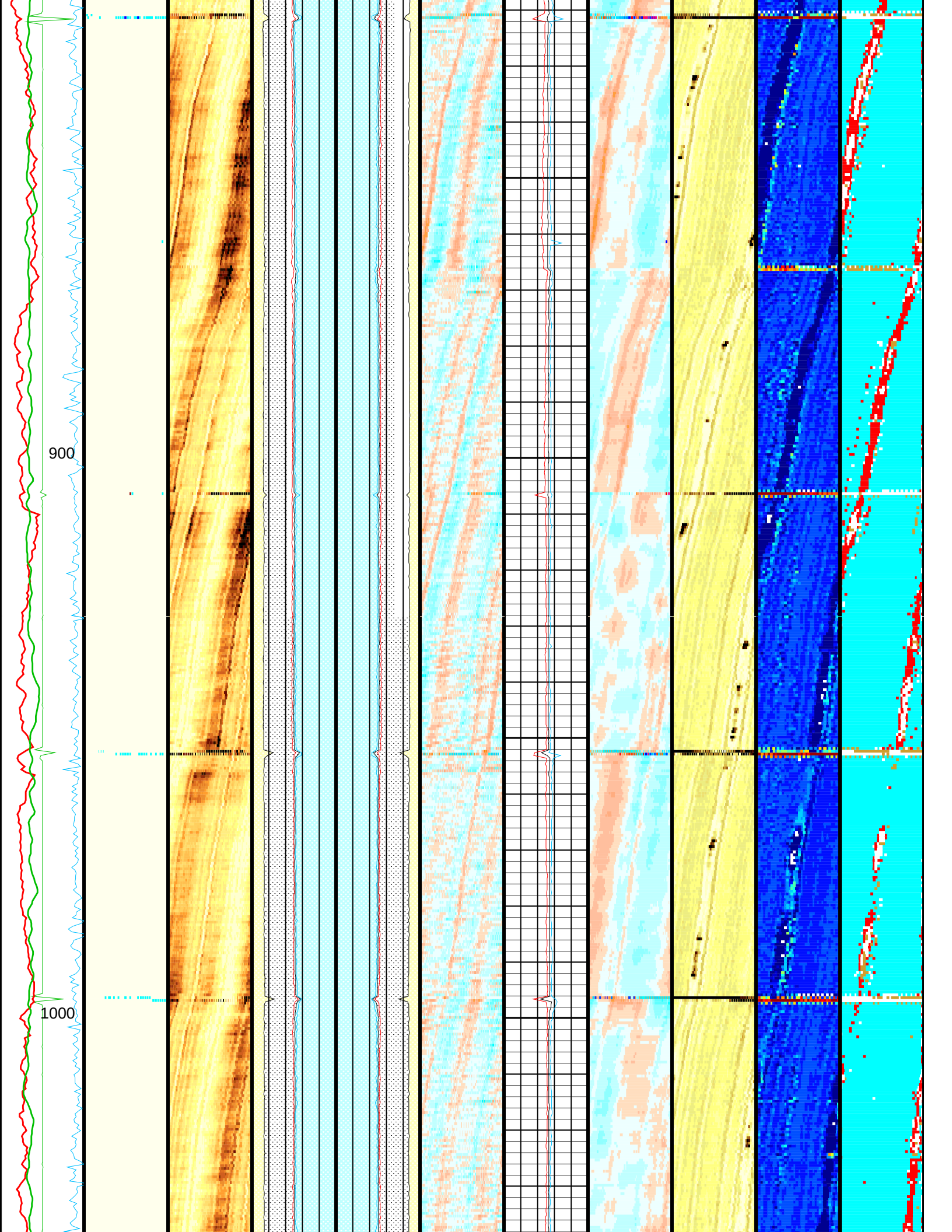
DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.9 MRAY	2.05 MRAY	7401.5 06:15:04
	2.05 MRAY	1.9 MRAY	5701.5 06:18:30
	1.95 MRAY	2.05 MRAY	4001.5 06:22:17

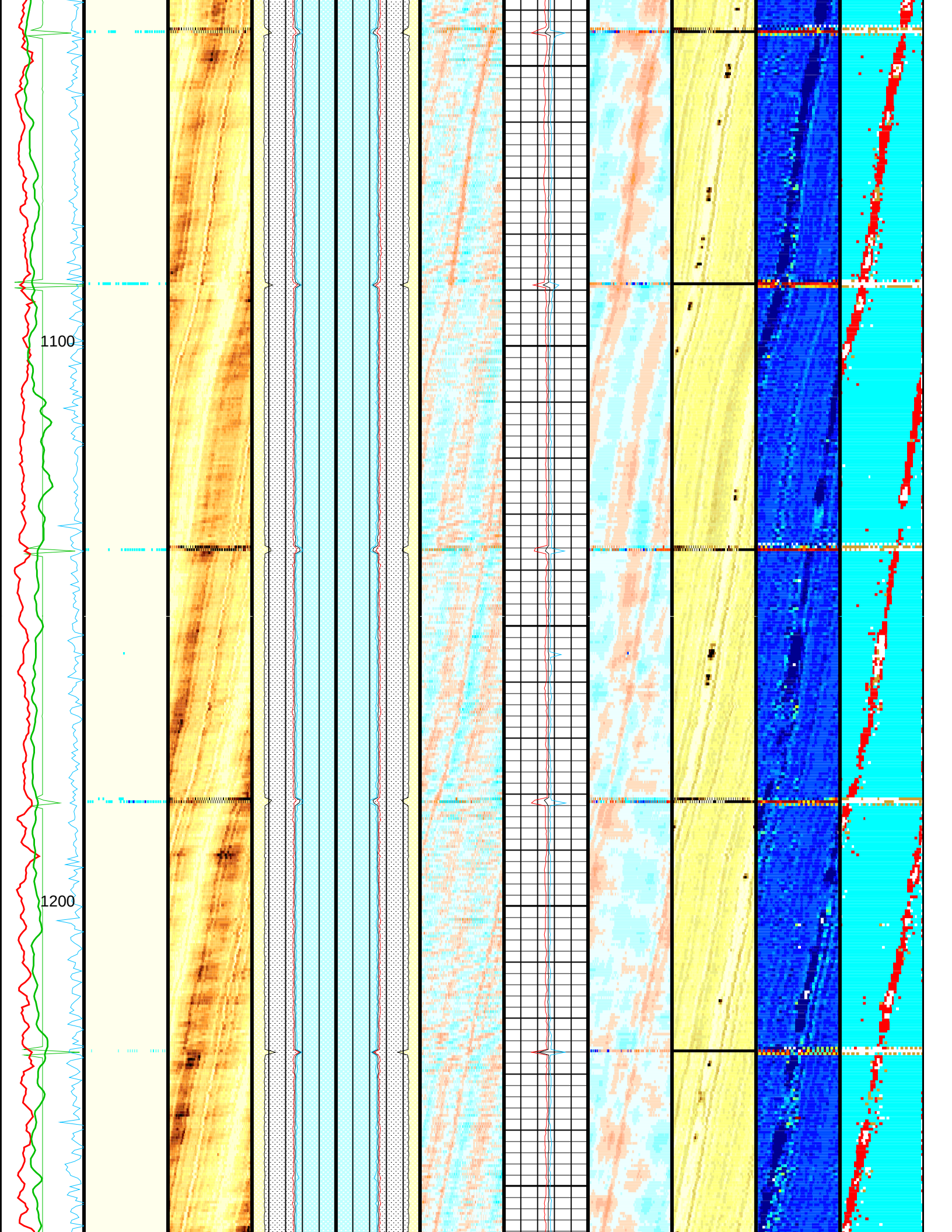


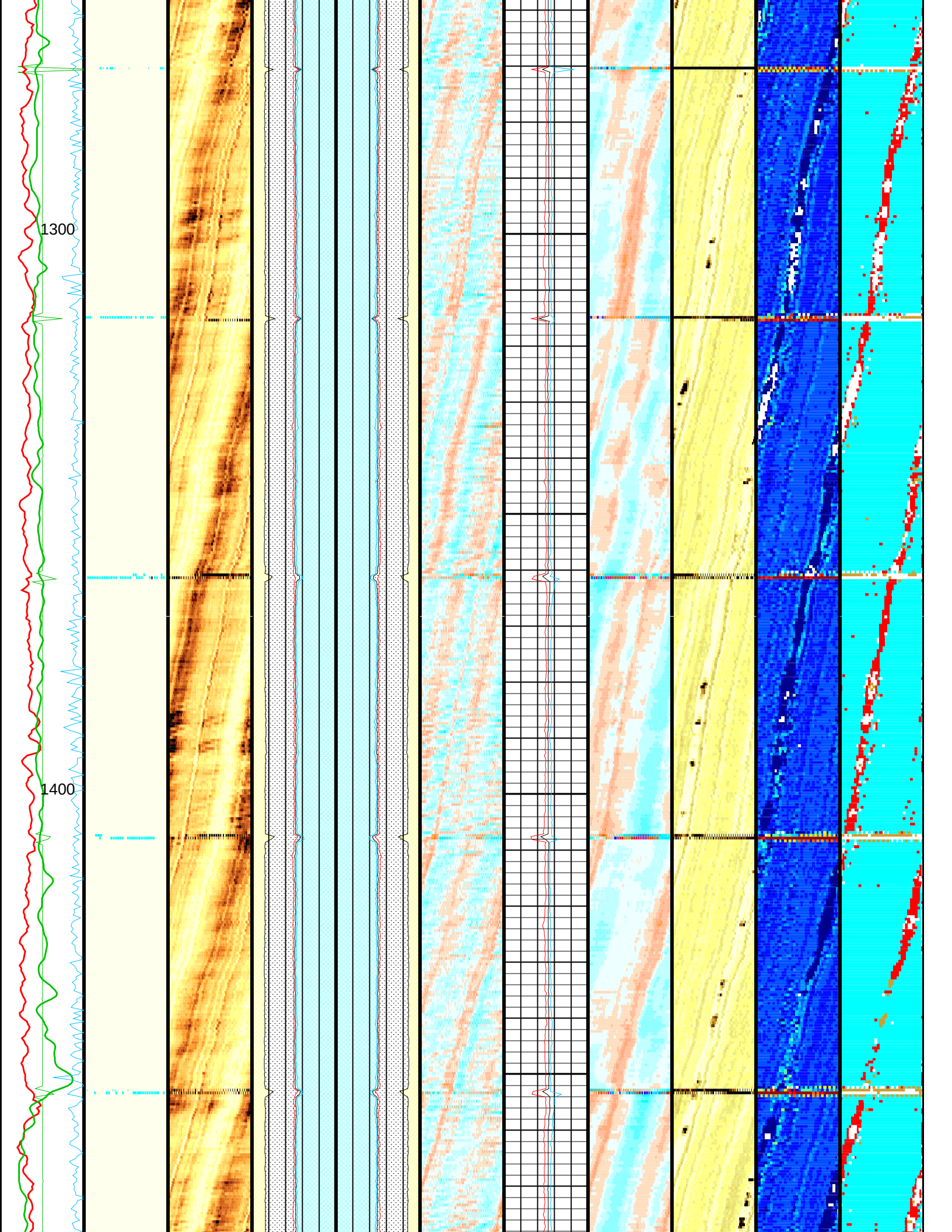

Eccent. (ECCE)
0 (IN) 0.5
300
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----
−3.6000
−3.2000
−2.8000
−2.4000
−2.0000
−1.6000
−1.2000
−0.8000
−0.4000
0.5000
Amplitude of echo minus Max (AWBK) (DB)
External radius Average (ERAV) (IN)
3.7 2.7
External radius Average (ERAV) (IN)
2.7 3.7
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Internal radii minus Ave (IRBK) (IN)
Min of Thickness (THMN) (IN)
0.1 0.6
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Thickness minus Ave (THBK) (IN)
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (----

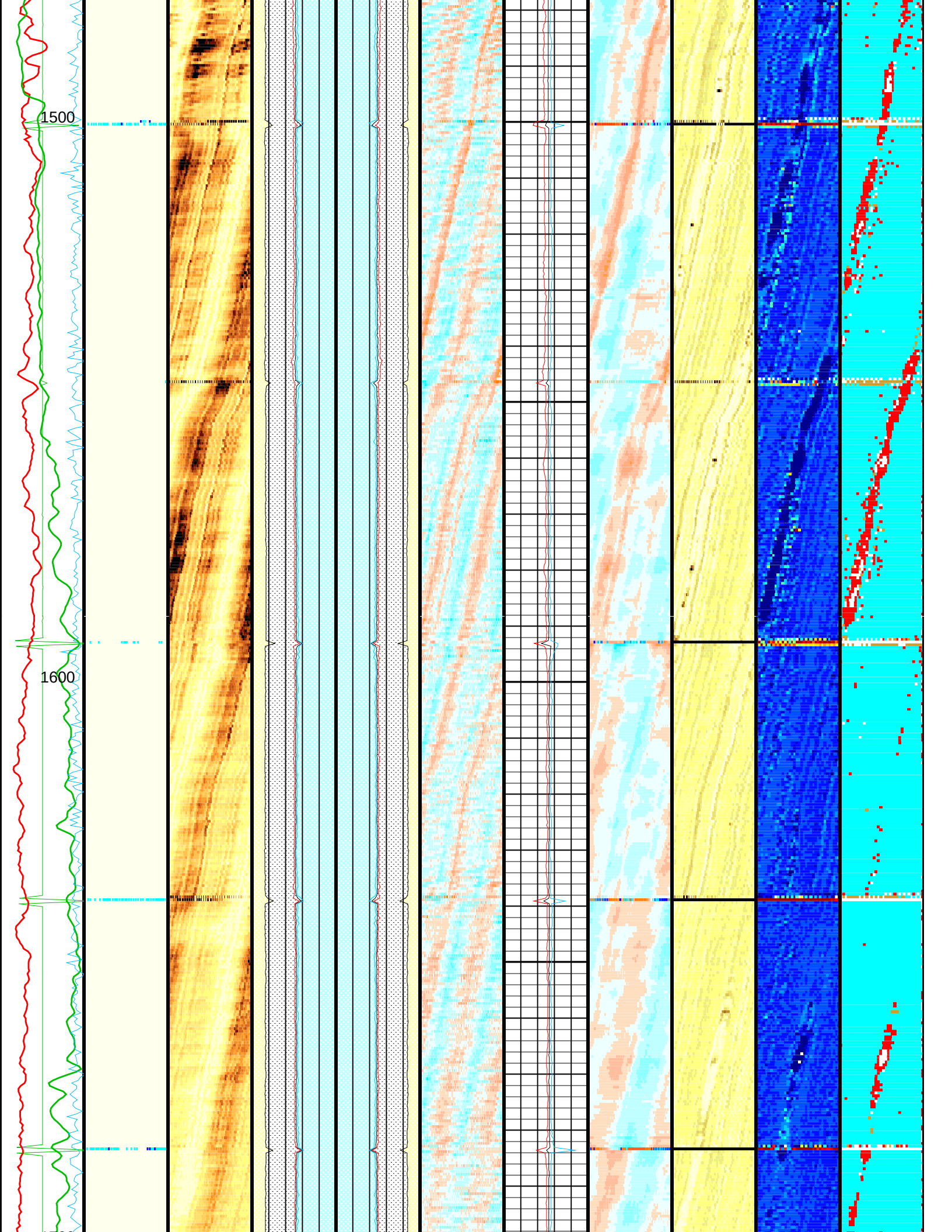

400
500

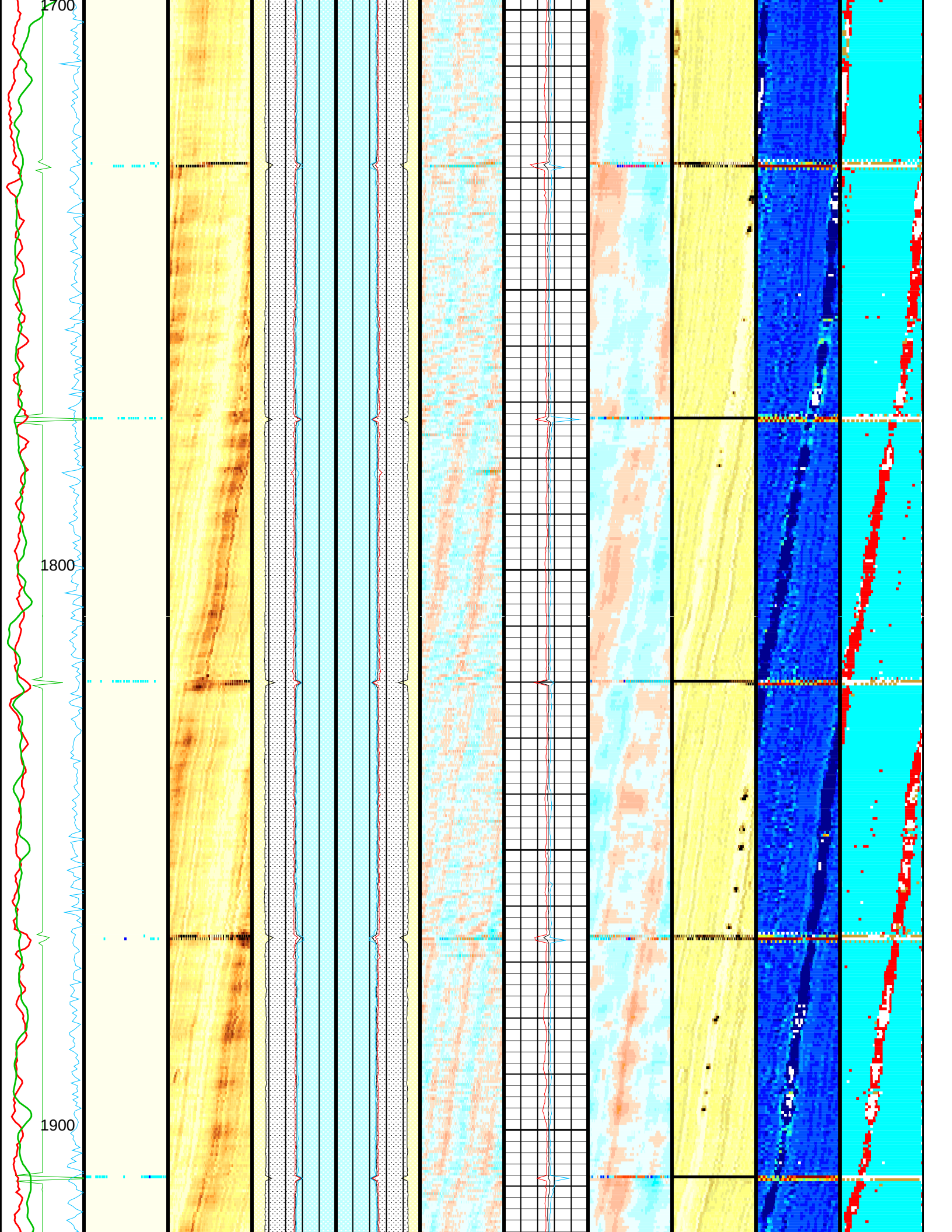

600
700
800

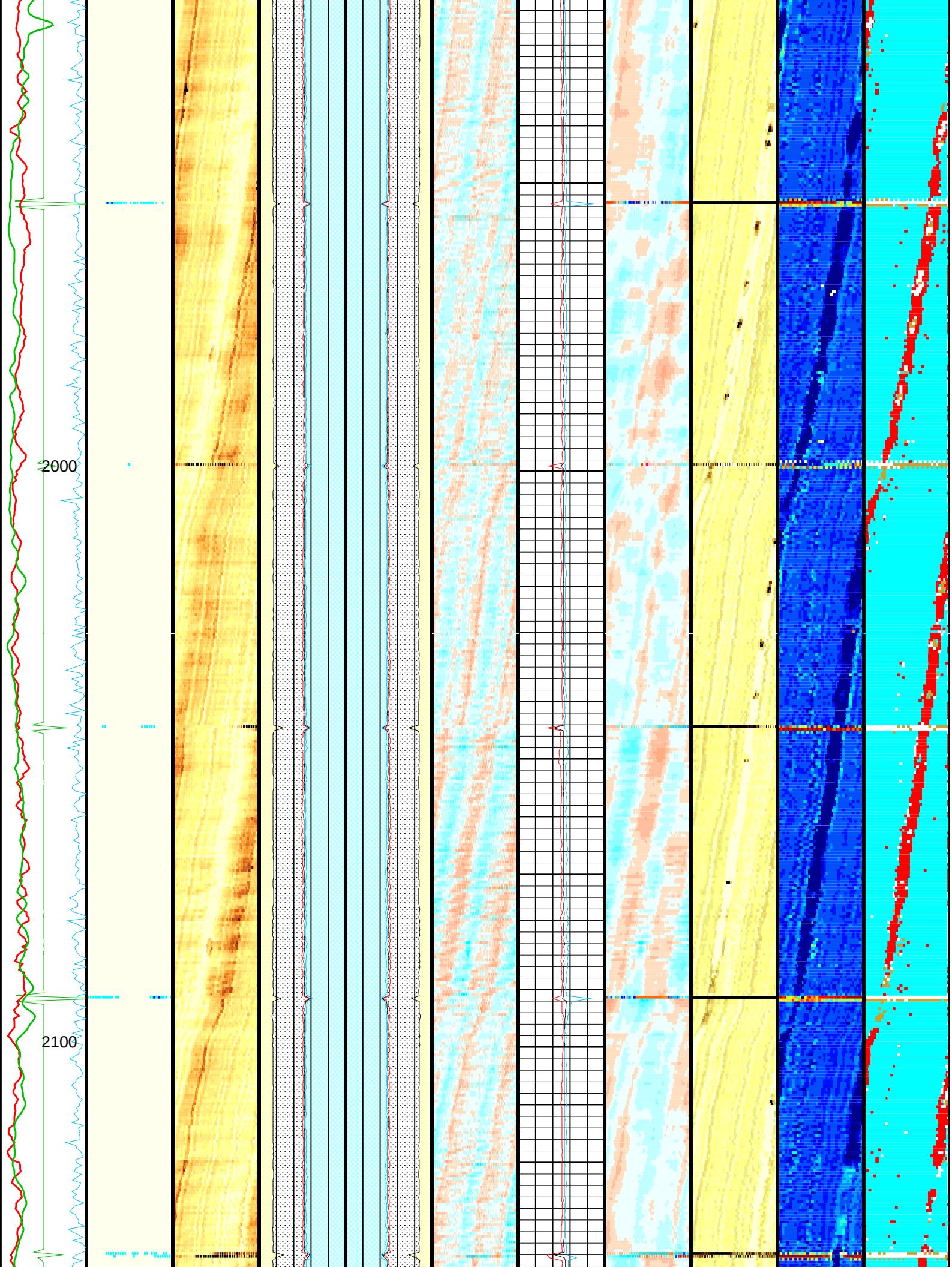

900
1000

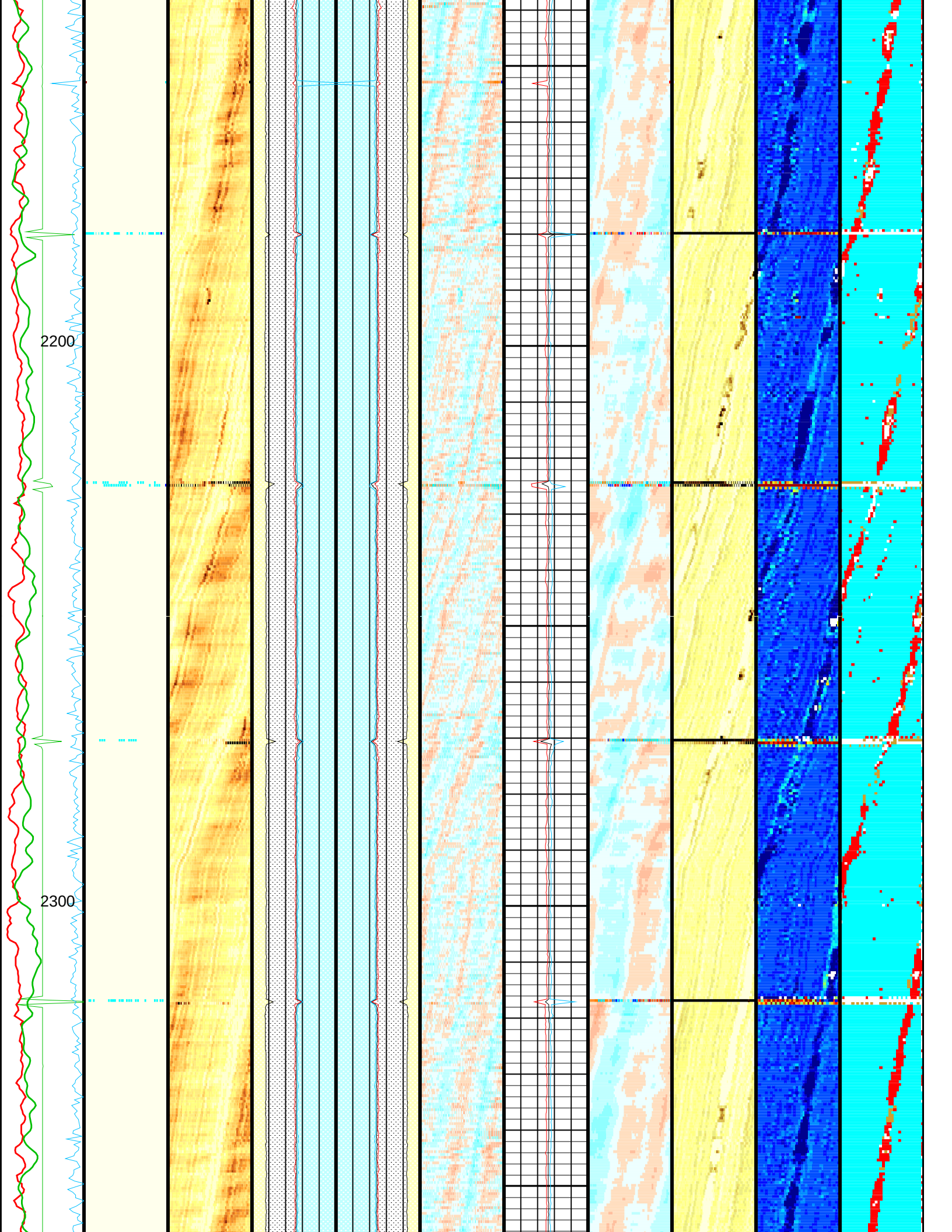

1100
1200

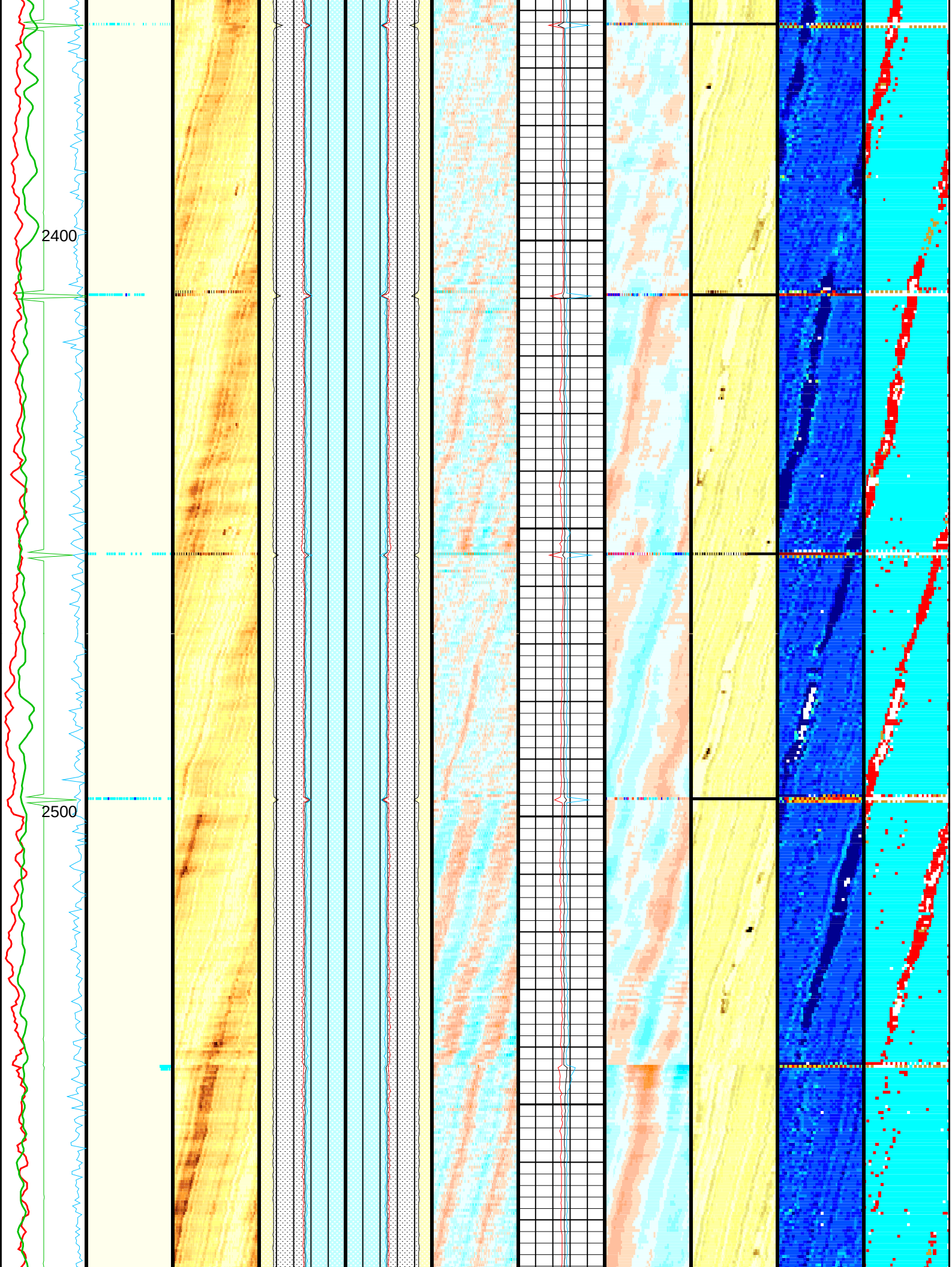

1300
1400

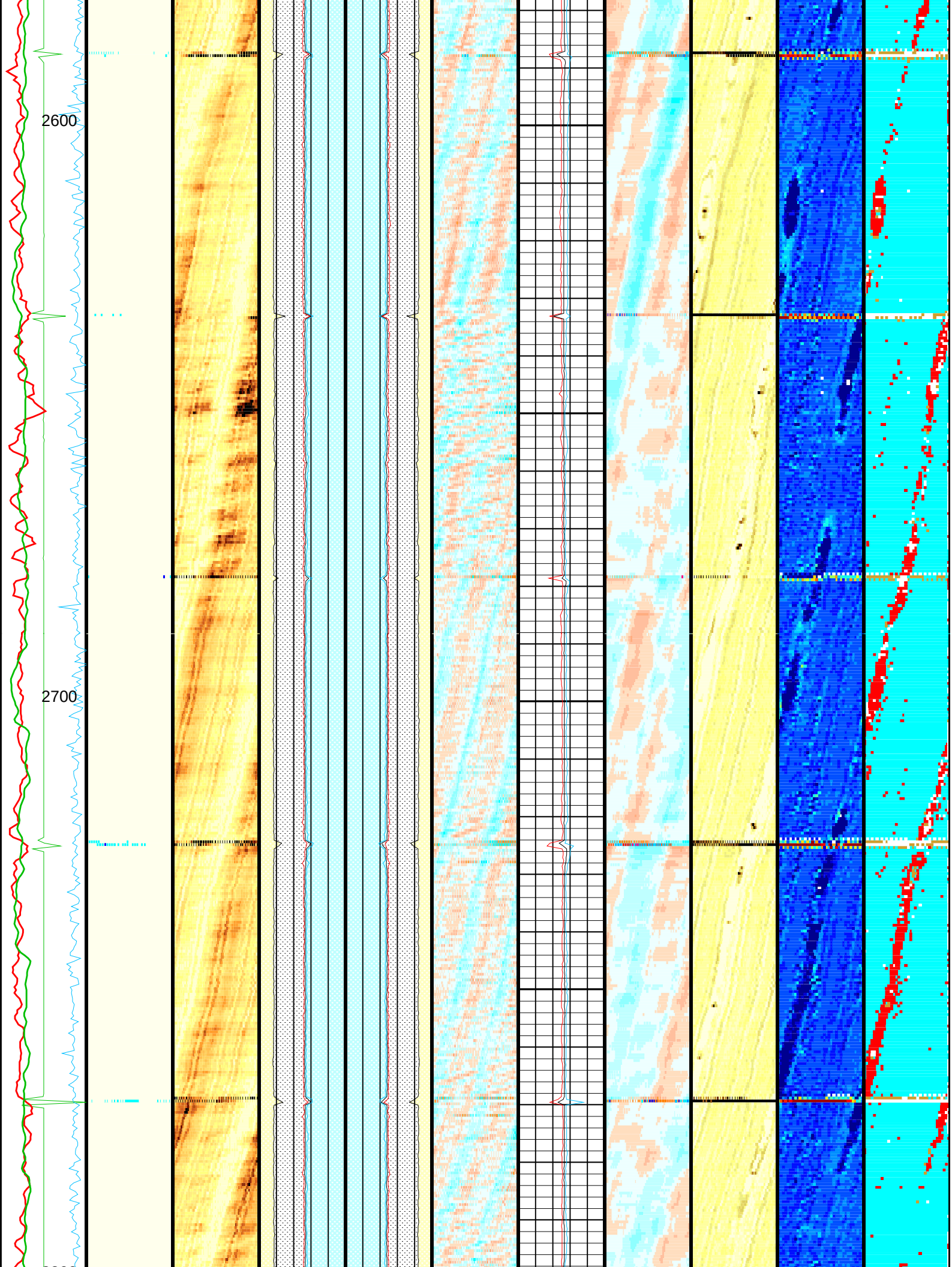

1500
1600

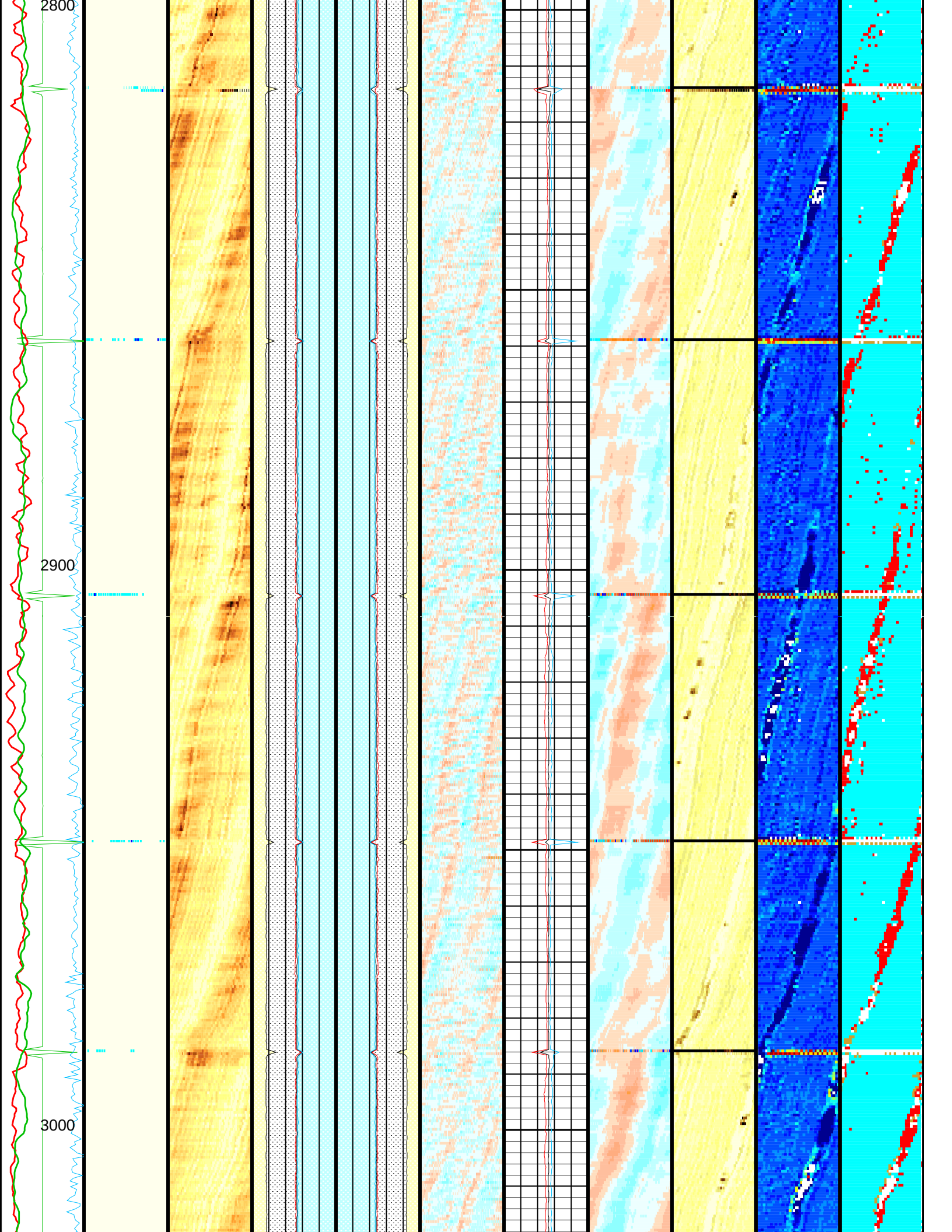

1700
1800
1900

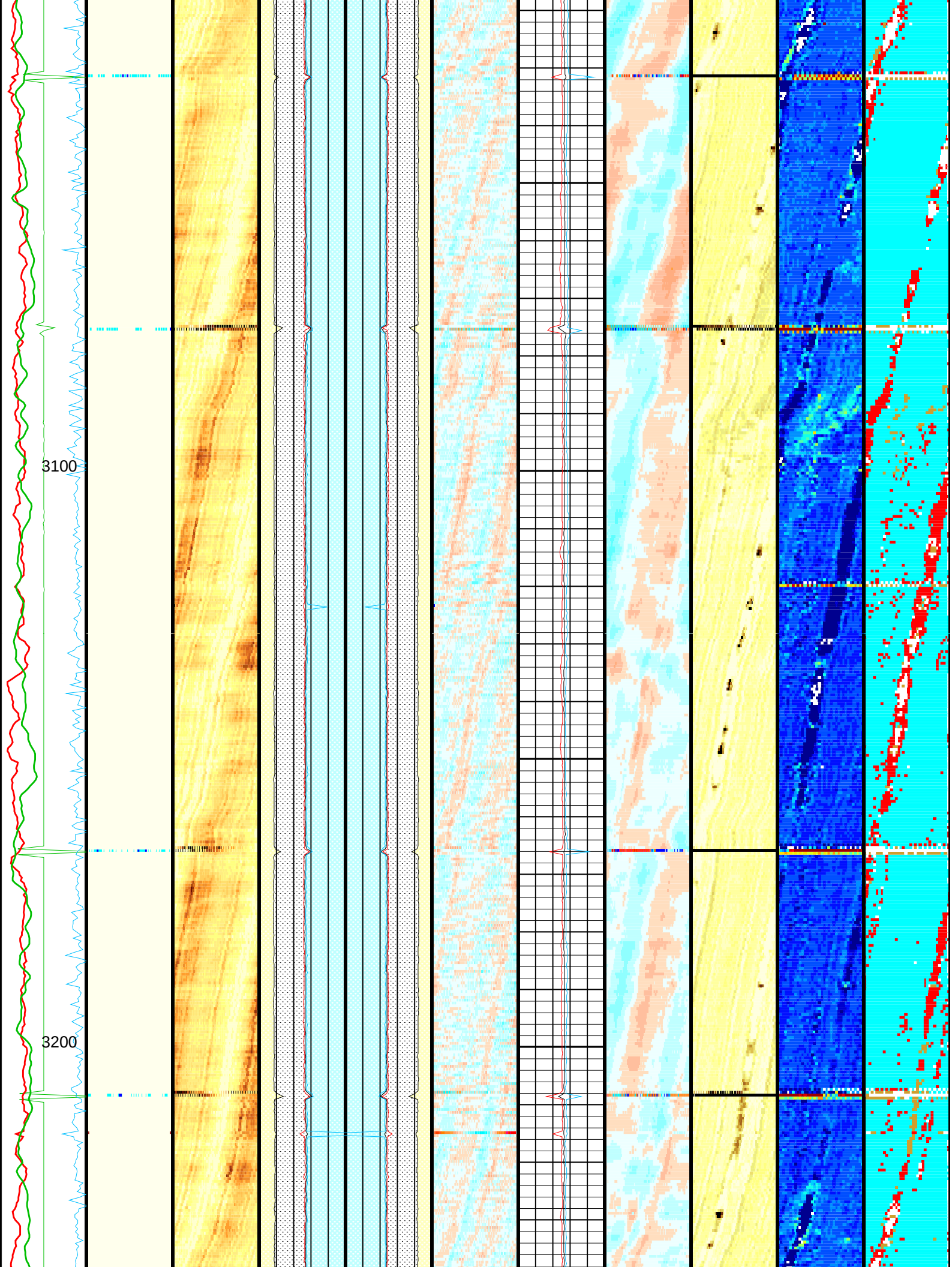

2000
2100

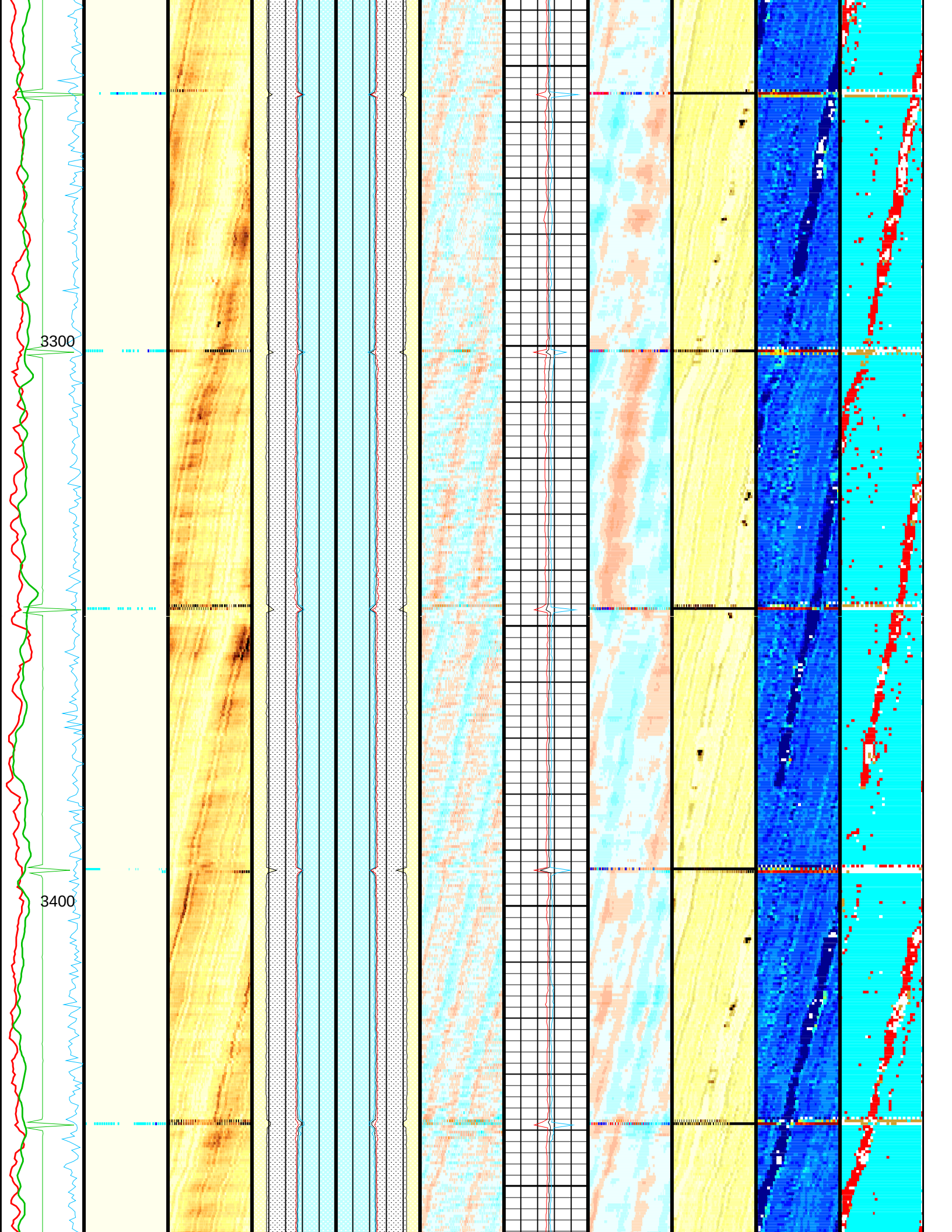

2200
2300

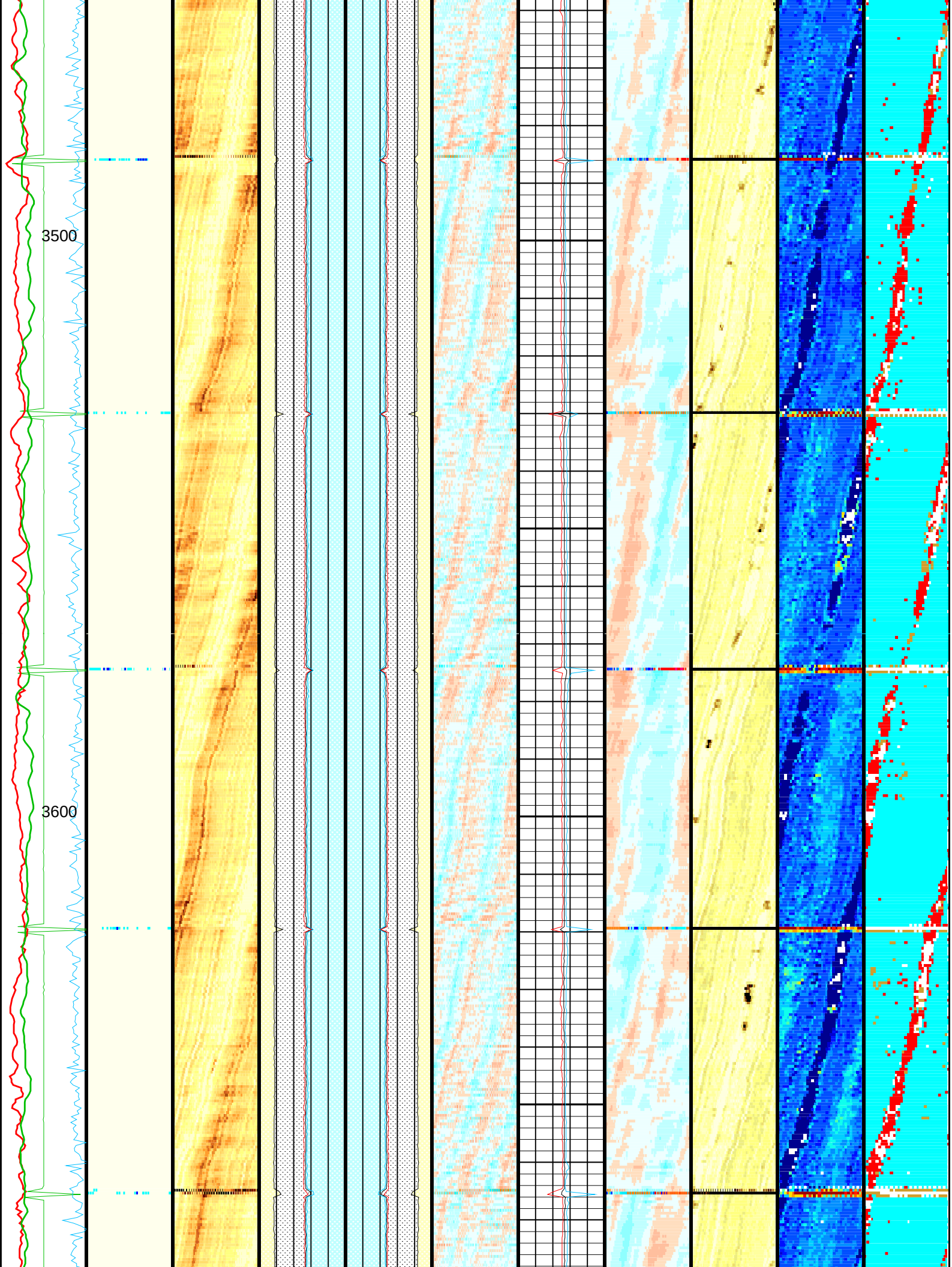

2400
2500

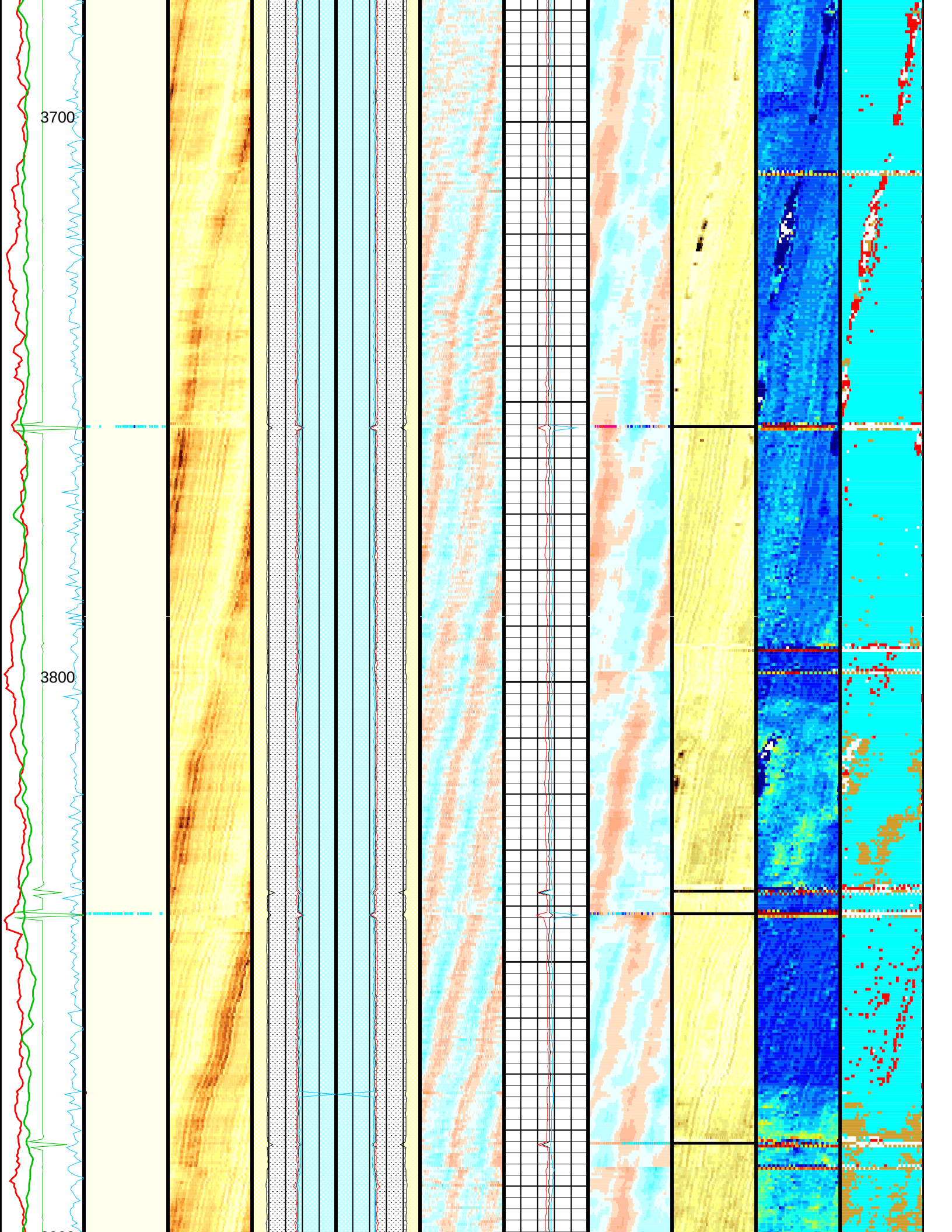

2600
2700

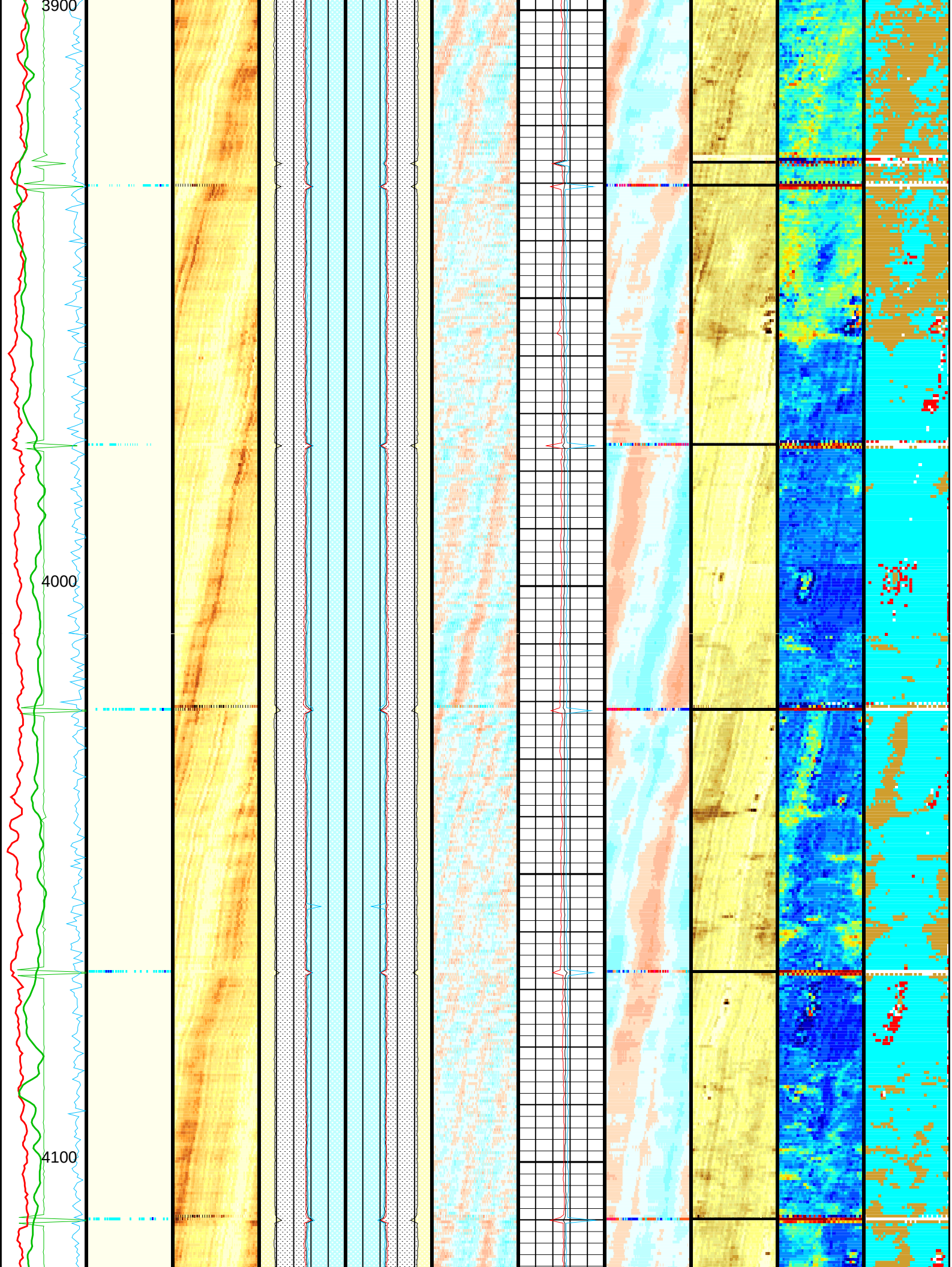

2800
2900
3000

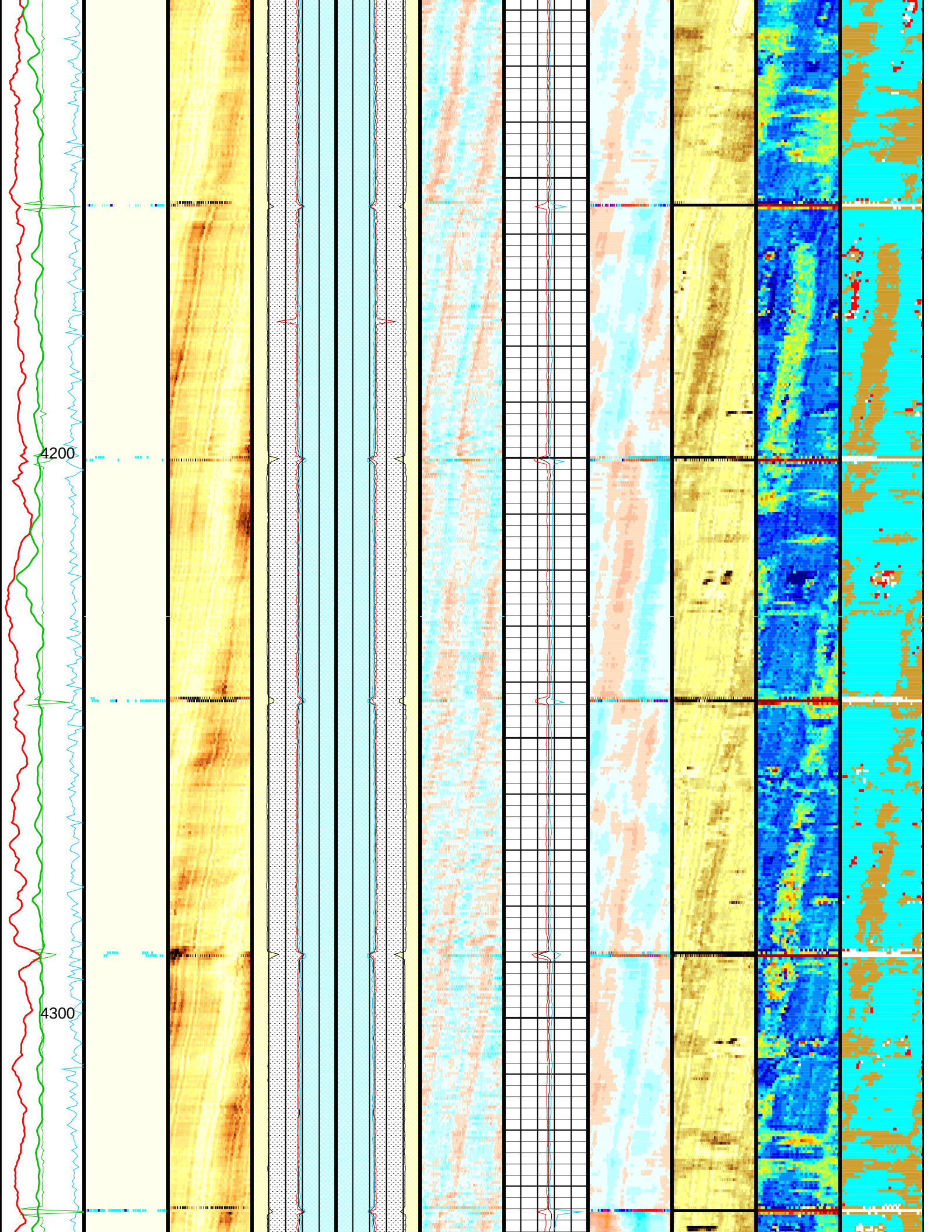

3100
3200

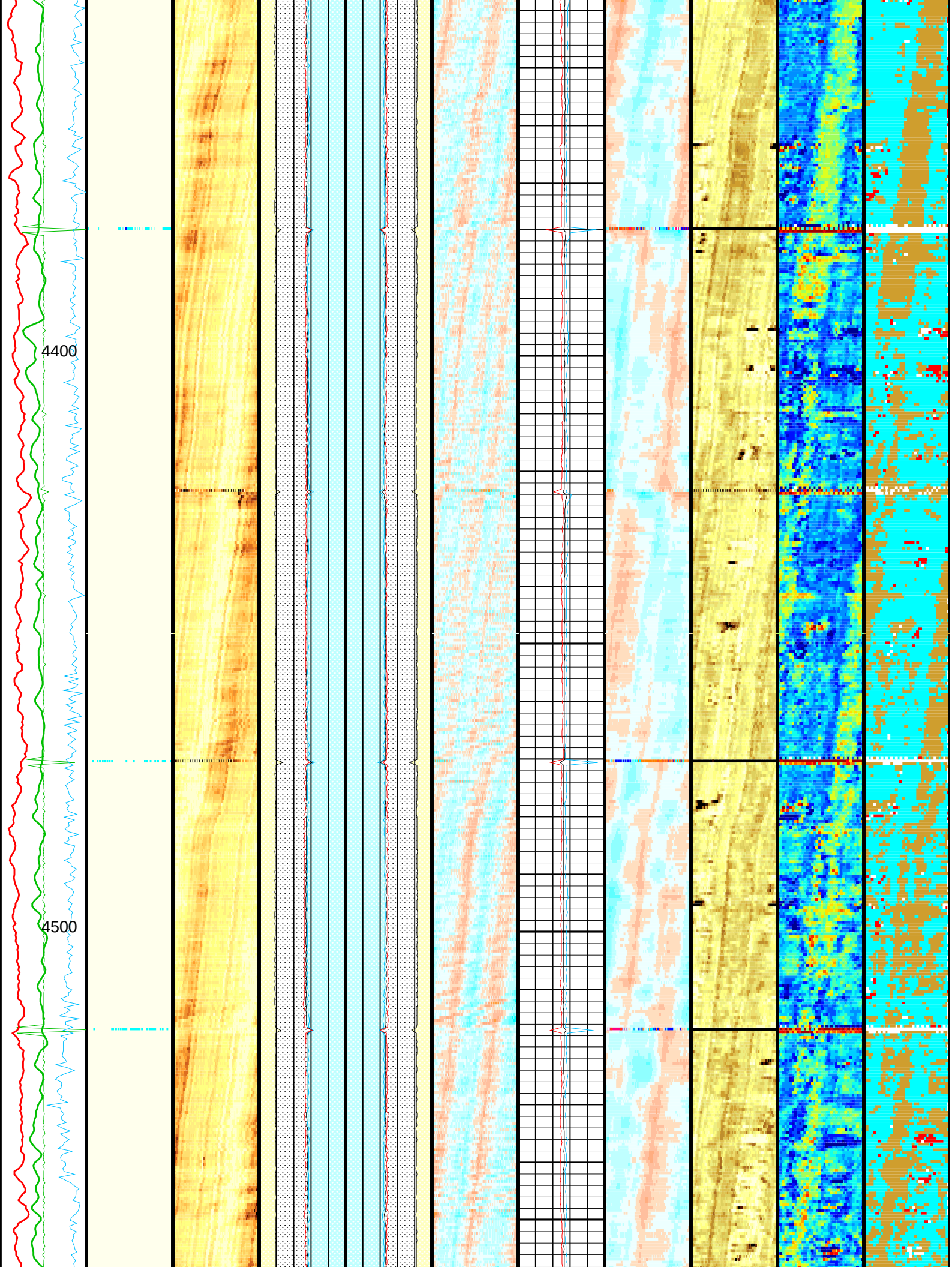

3300
3400

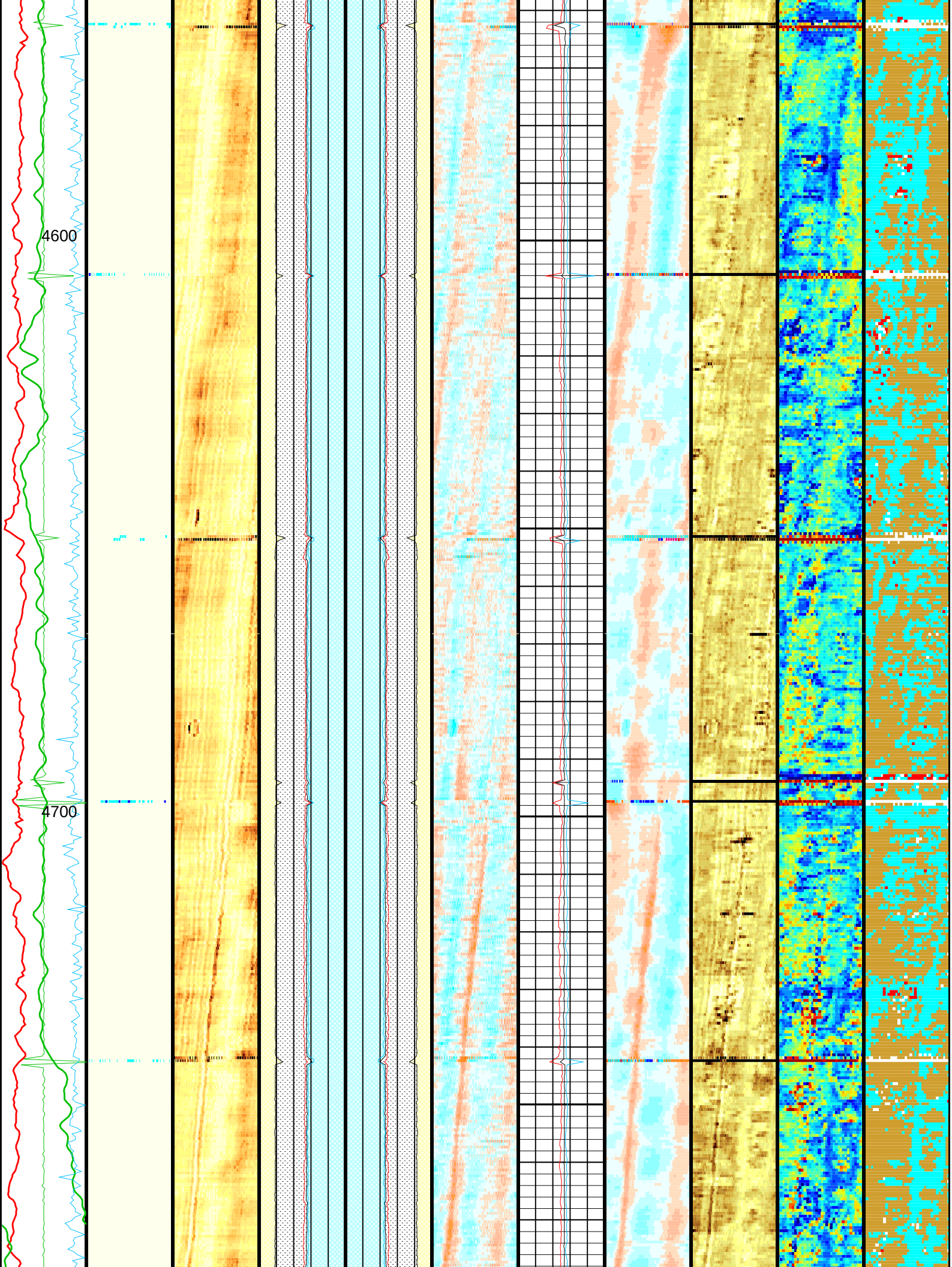

3500
3600

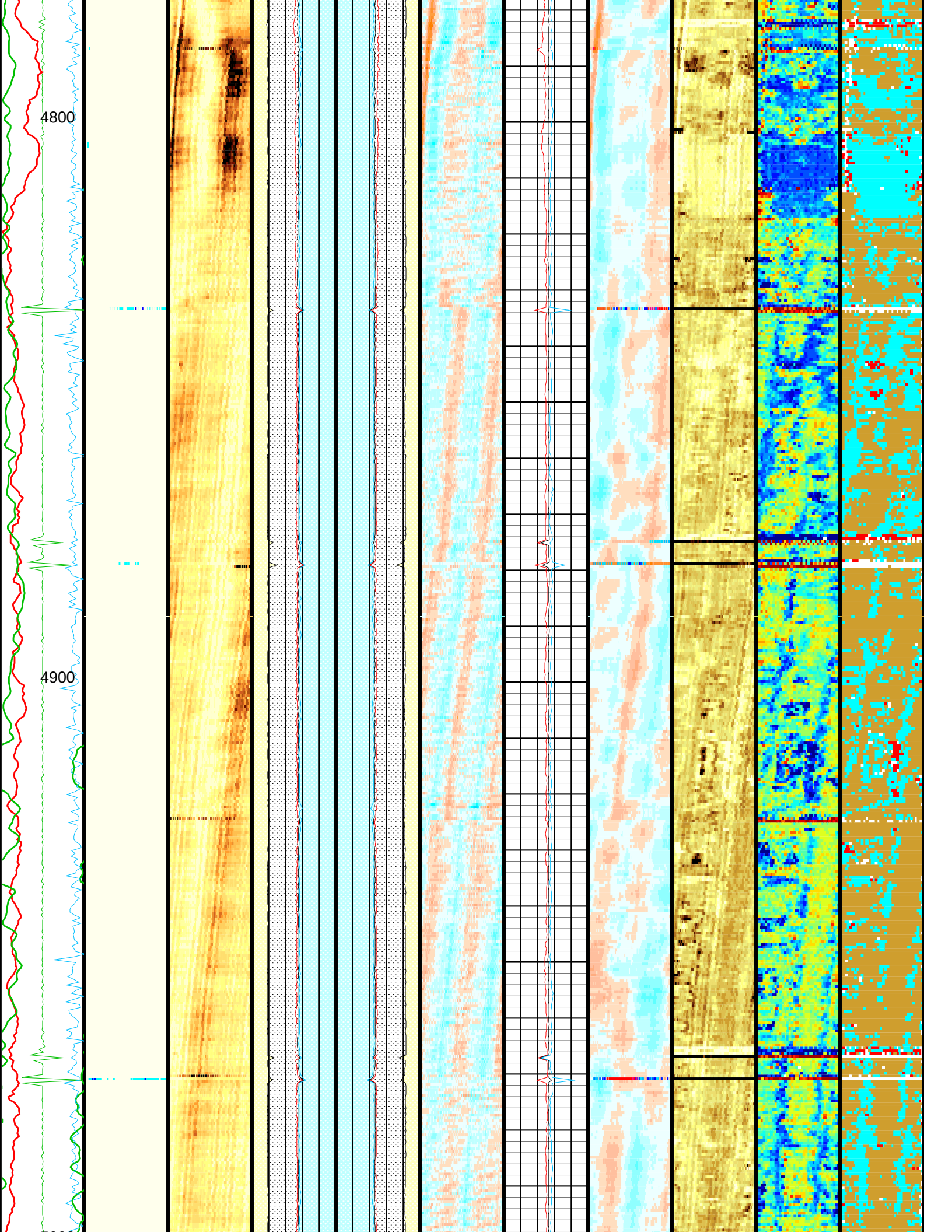

3700
3800

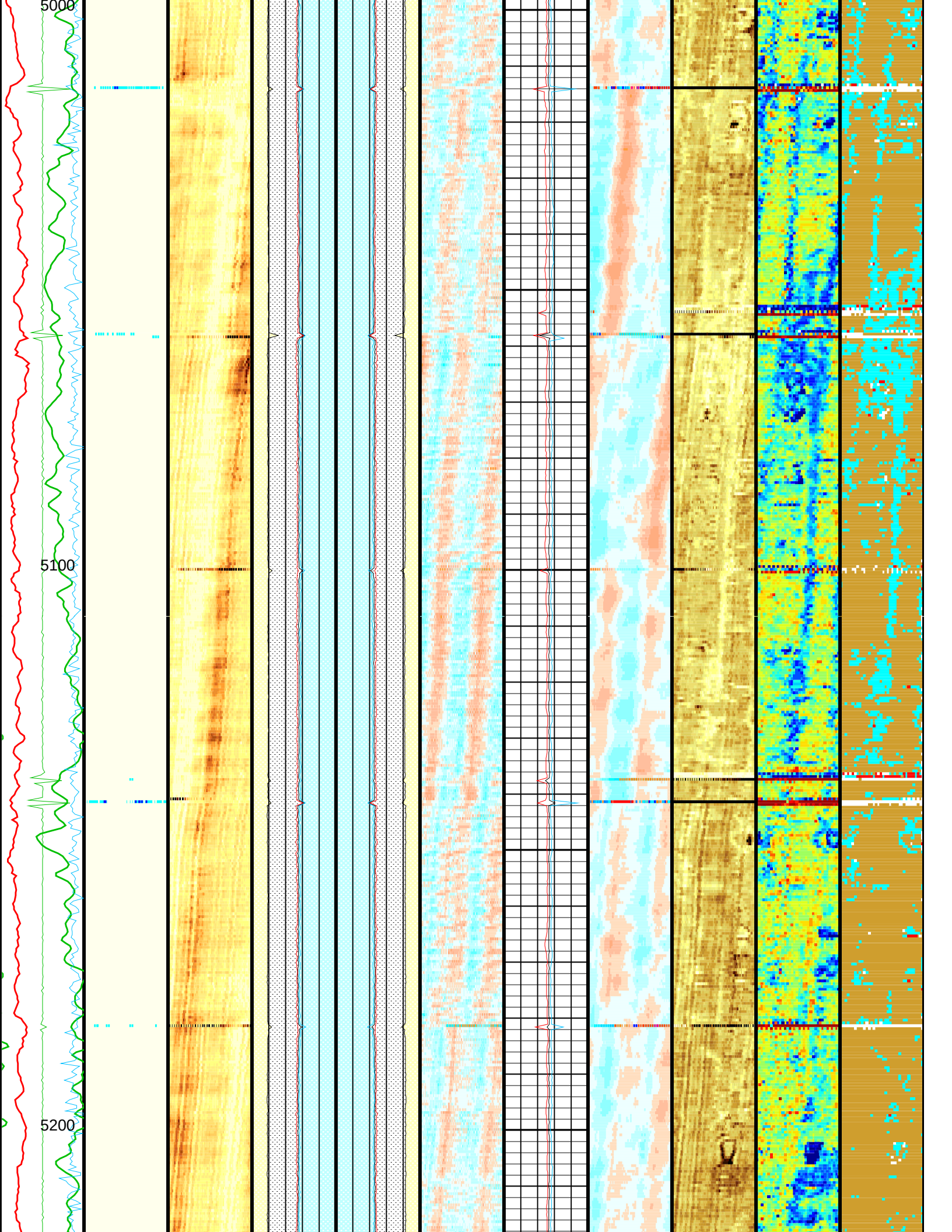

3900
4000
4100

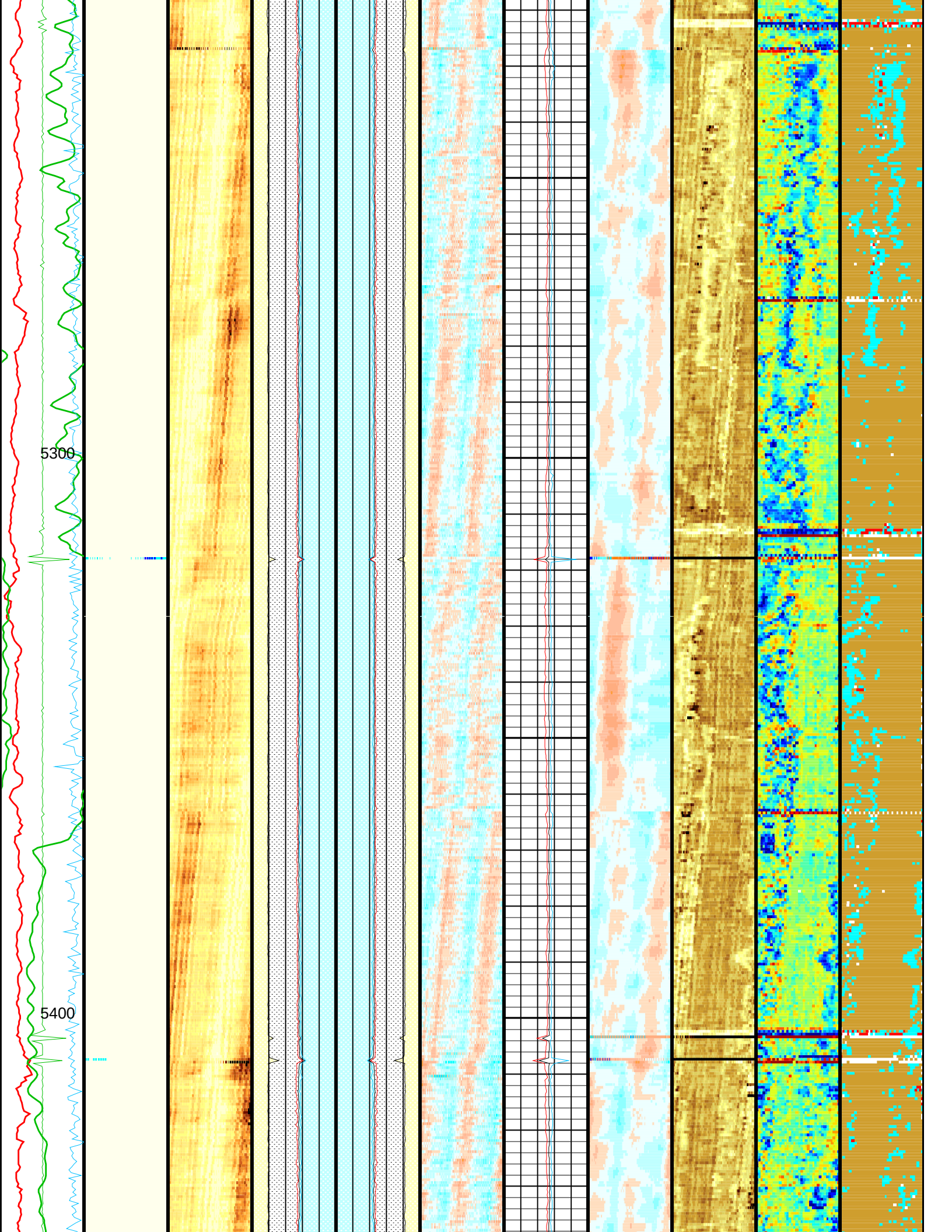

4200
4300

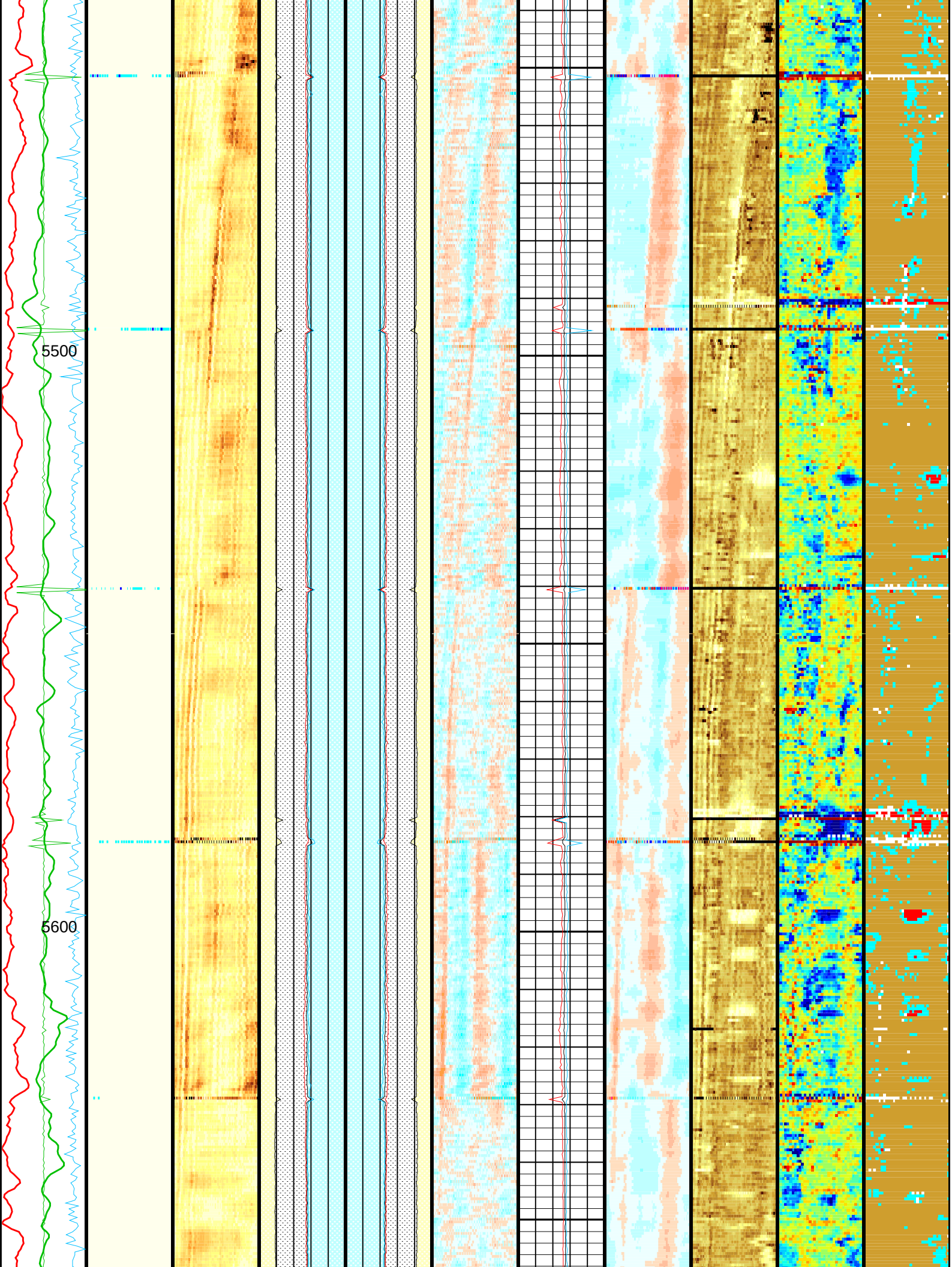

4400
4500

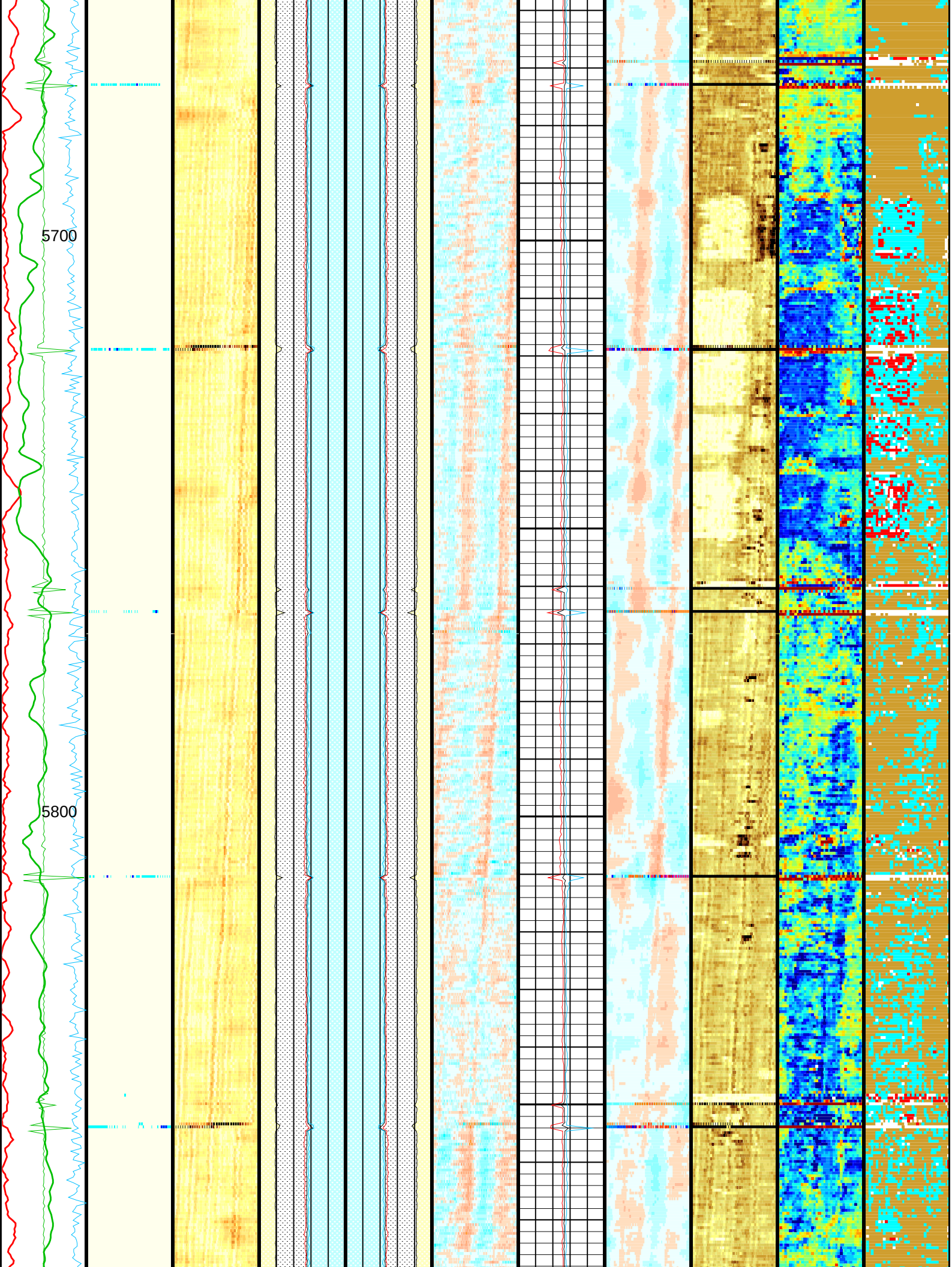

4600
4700

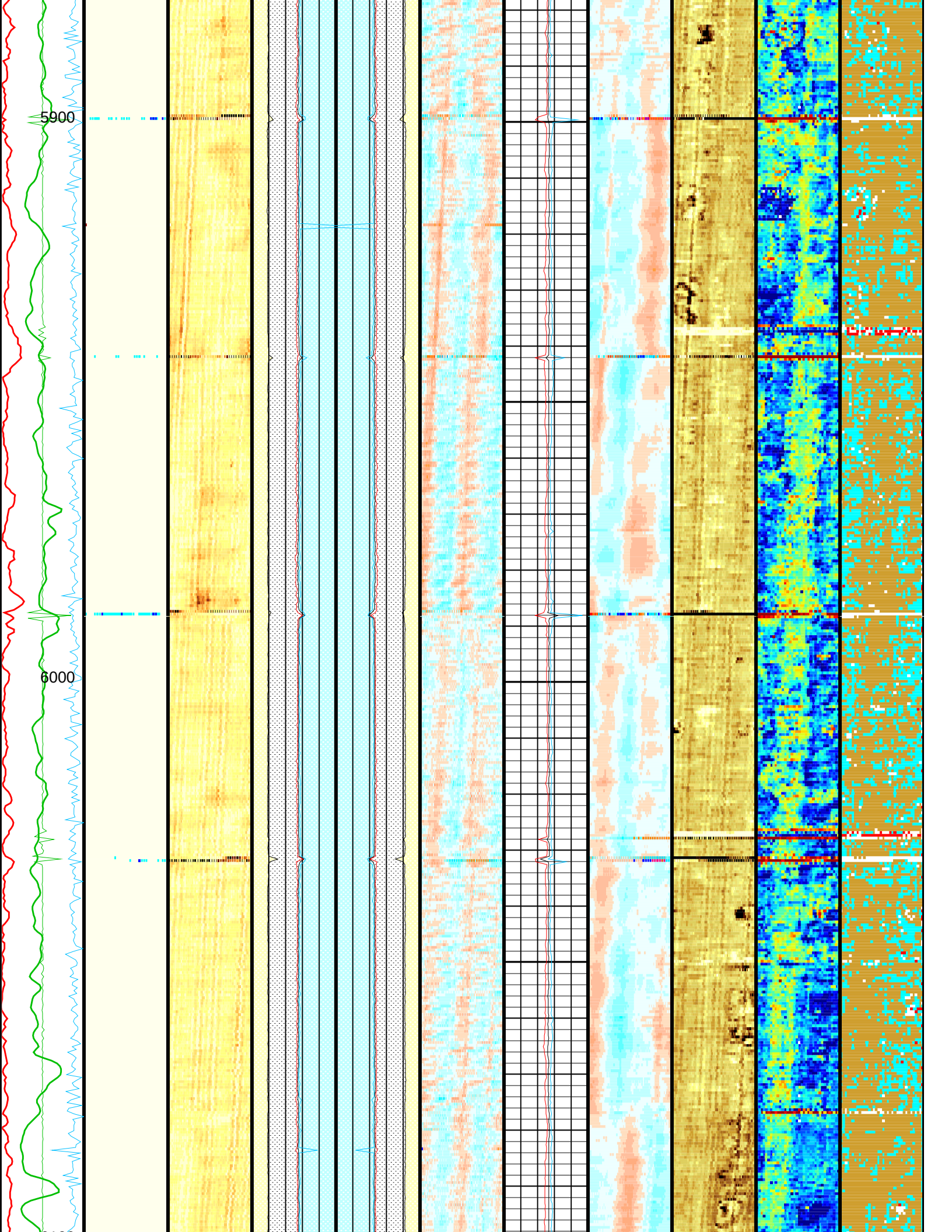

4800
4900

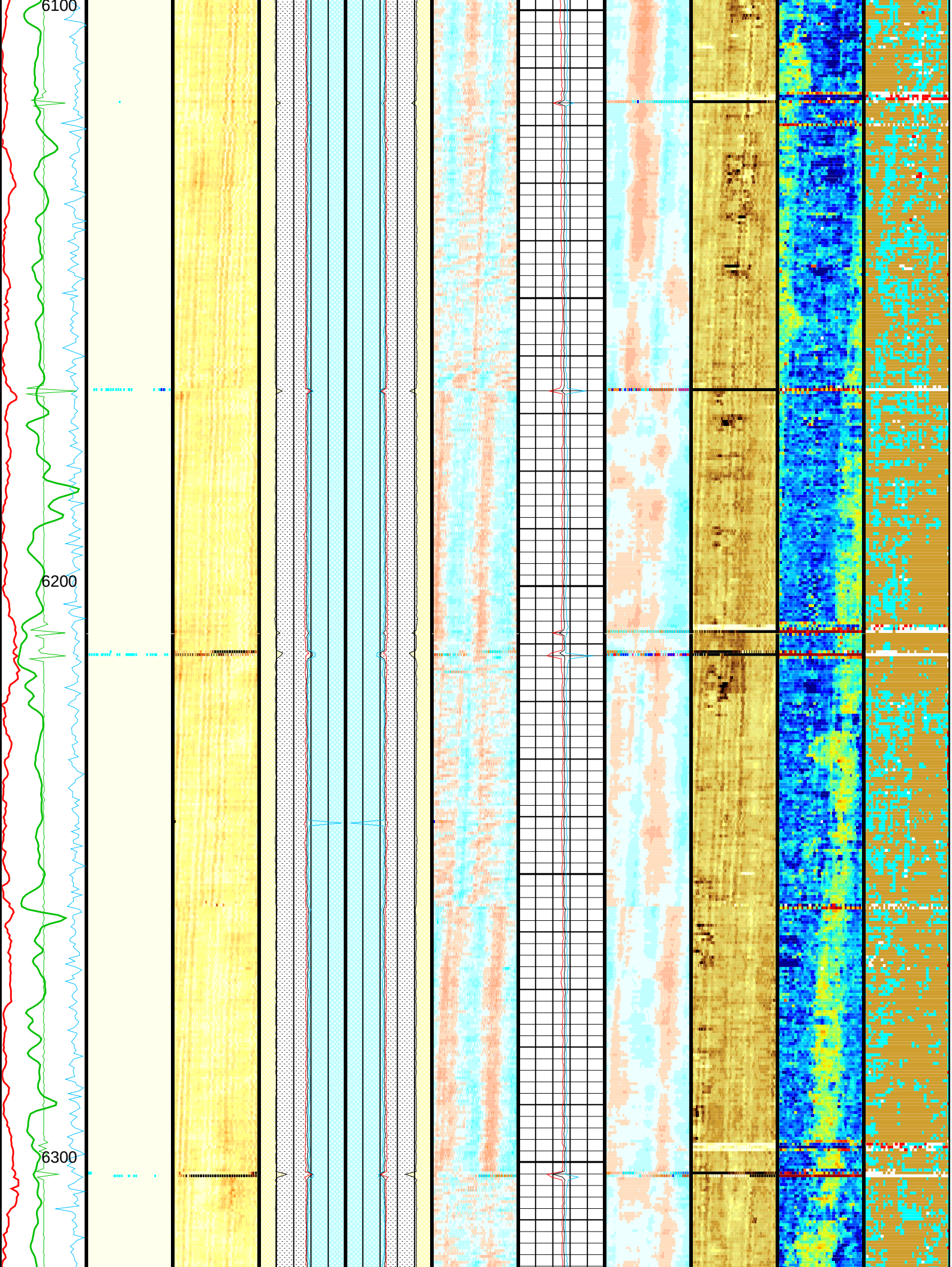

5000
5100
5200

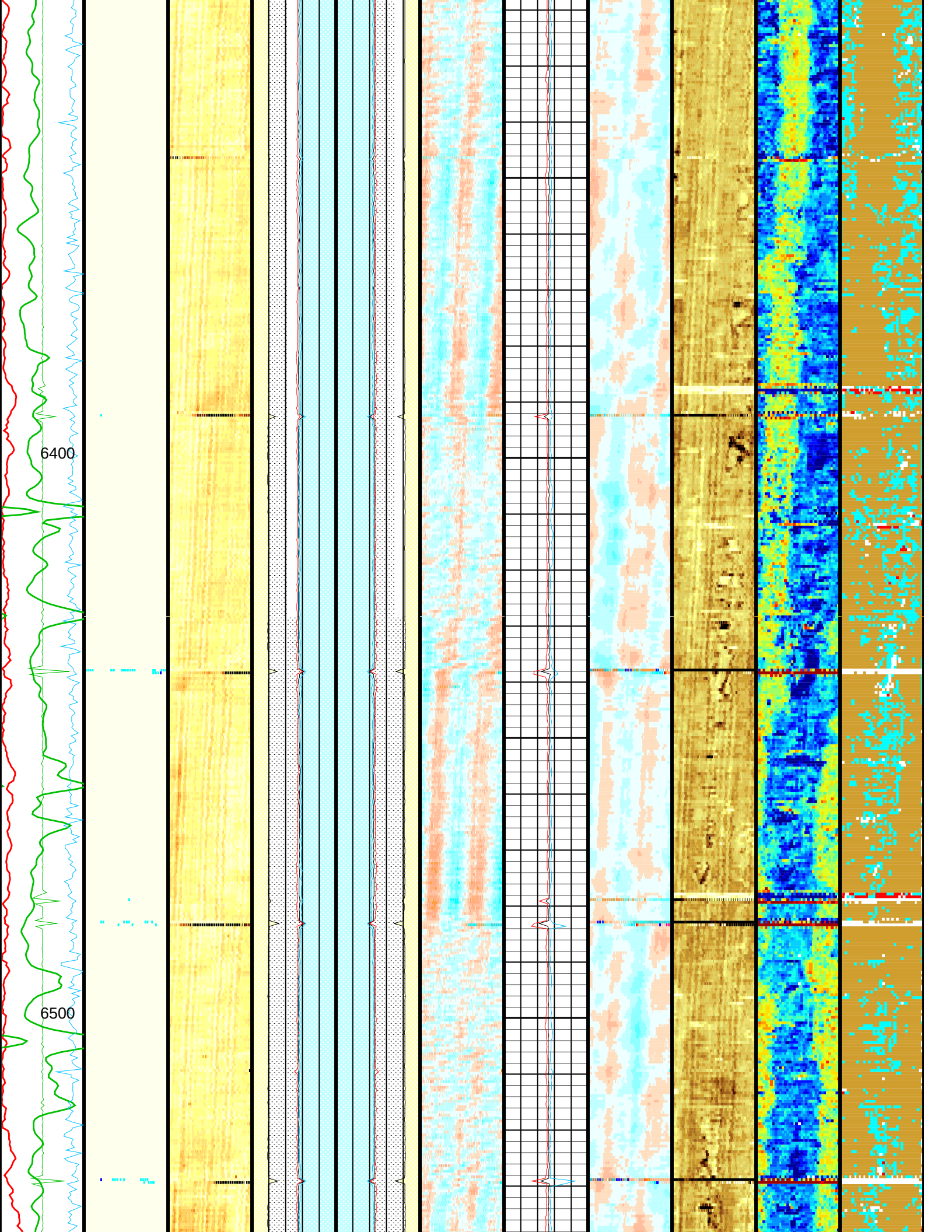

5300
5400

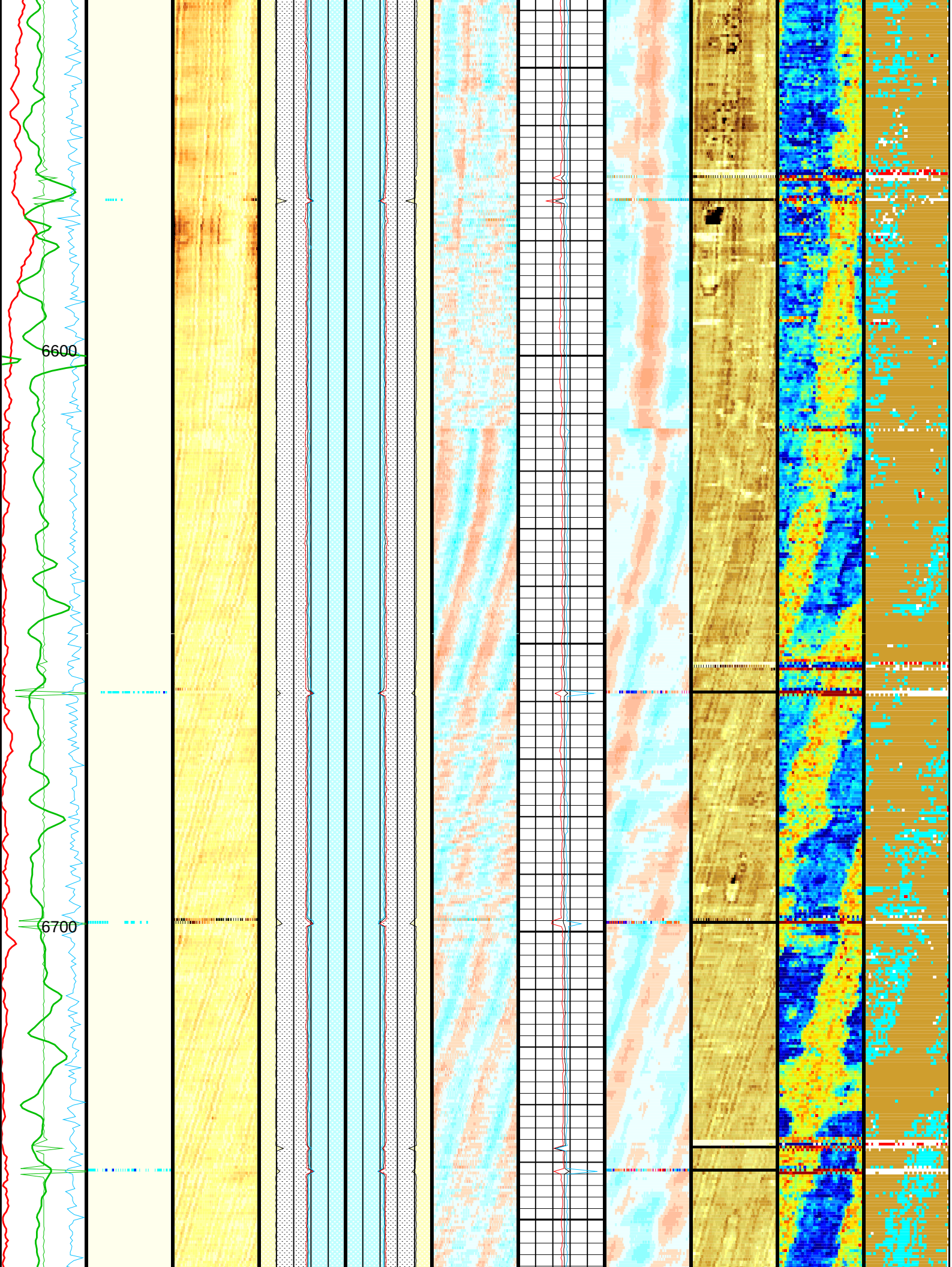

5500
5600

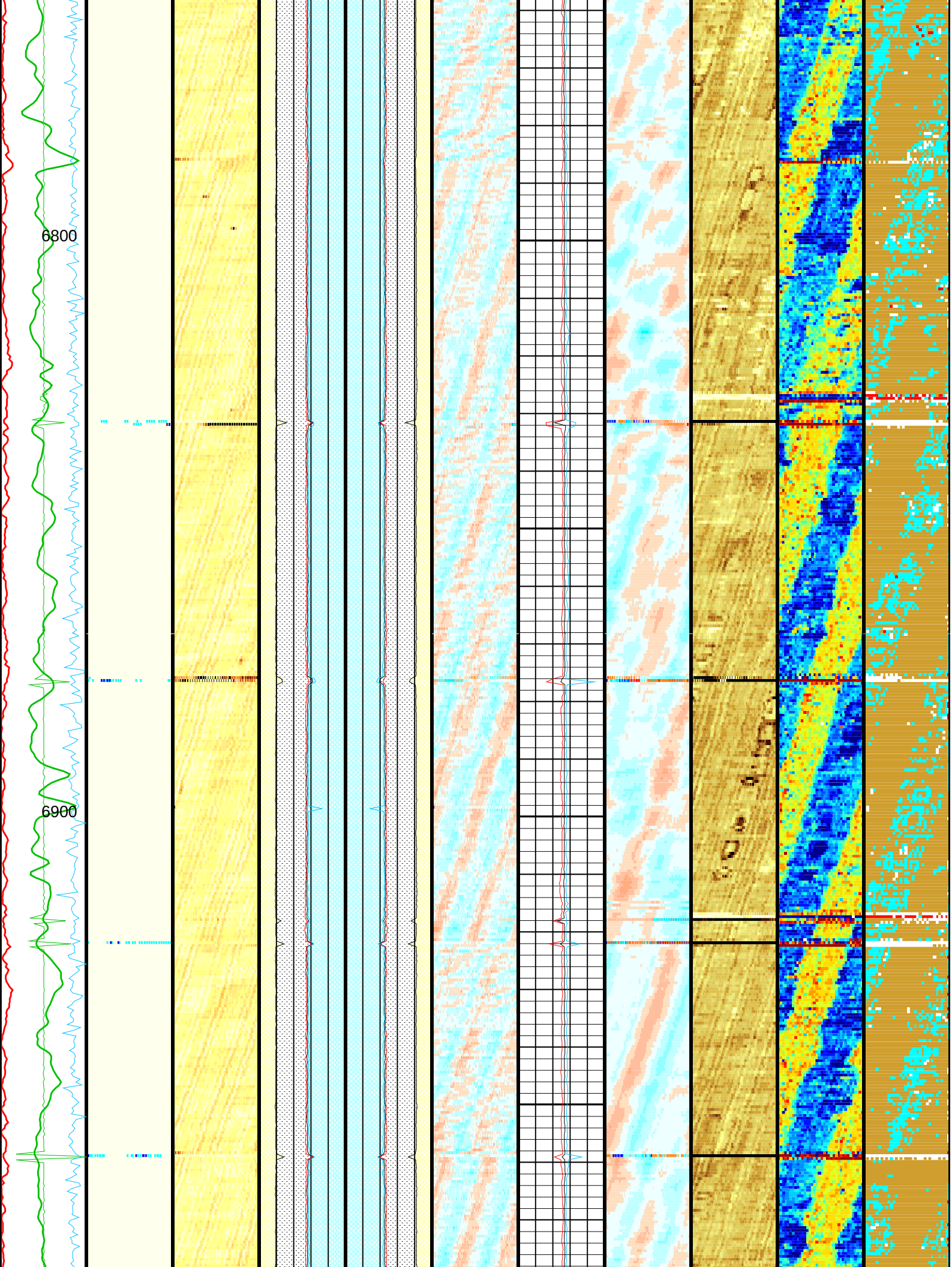

5700
5800

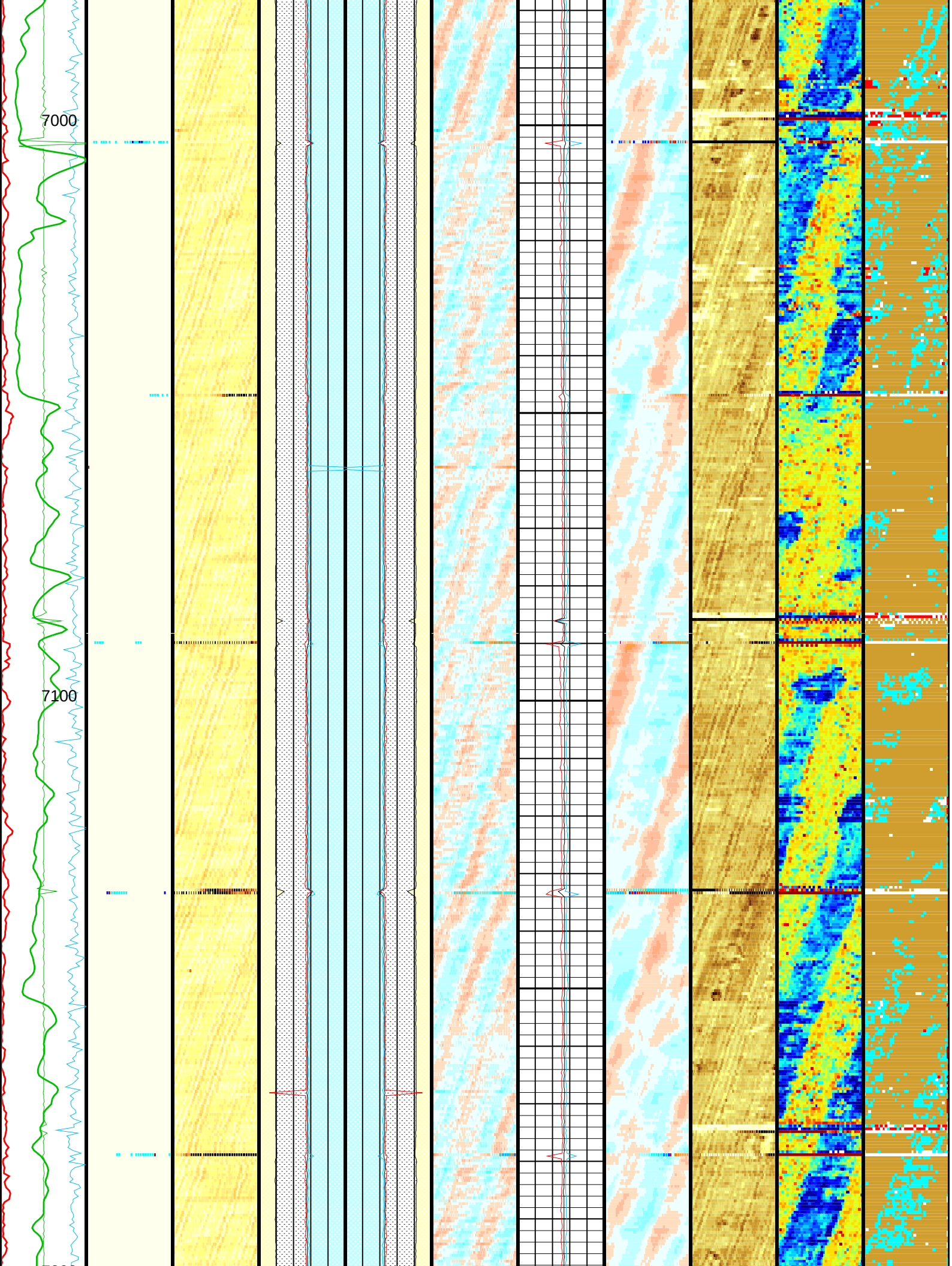

5900
6000

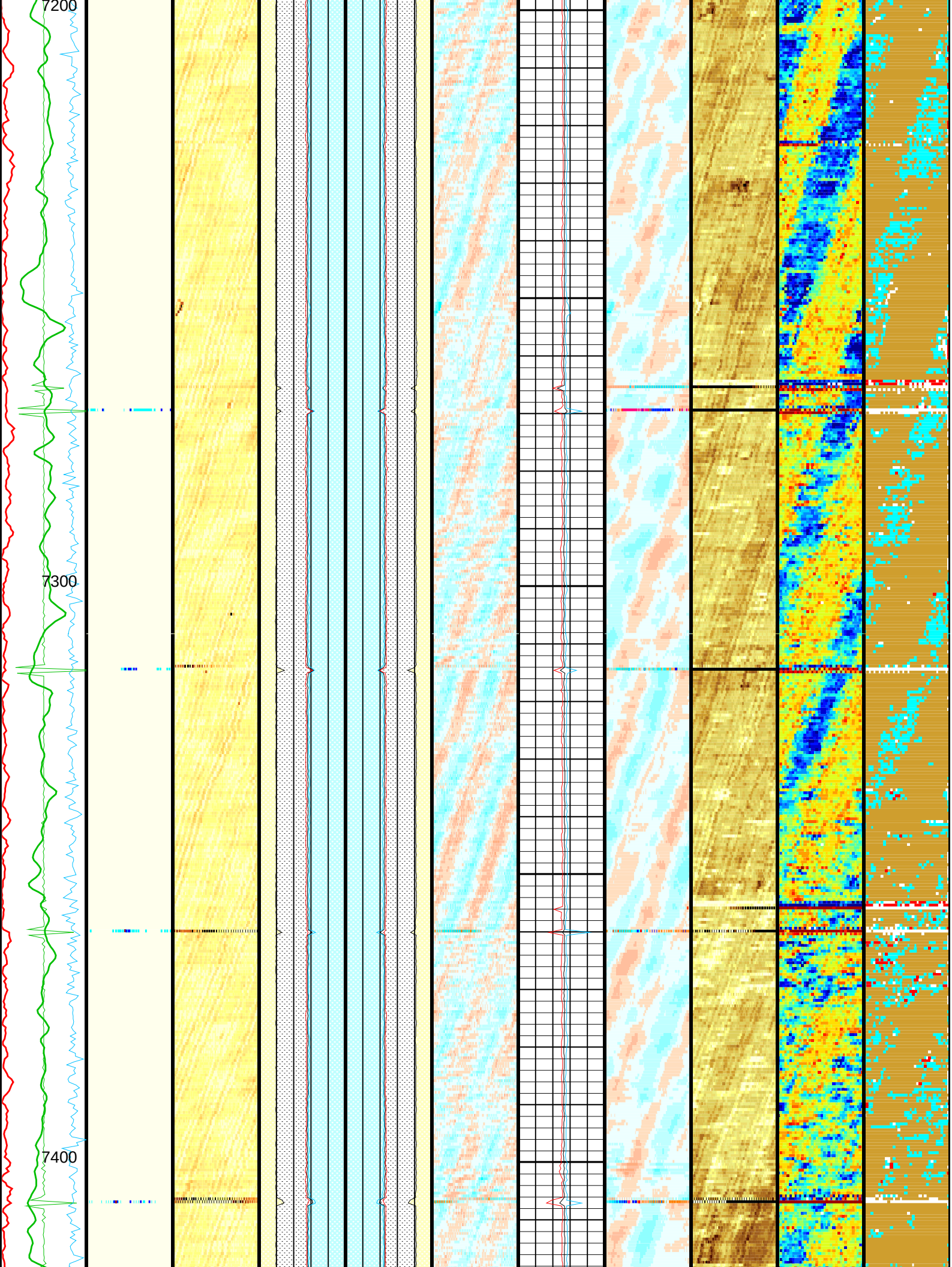

6100
6200
6300

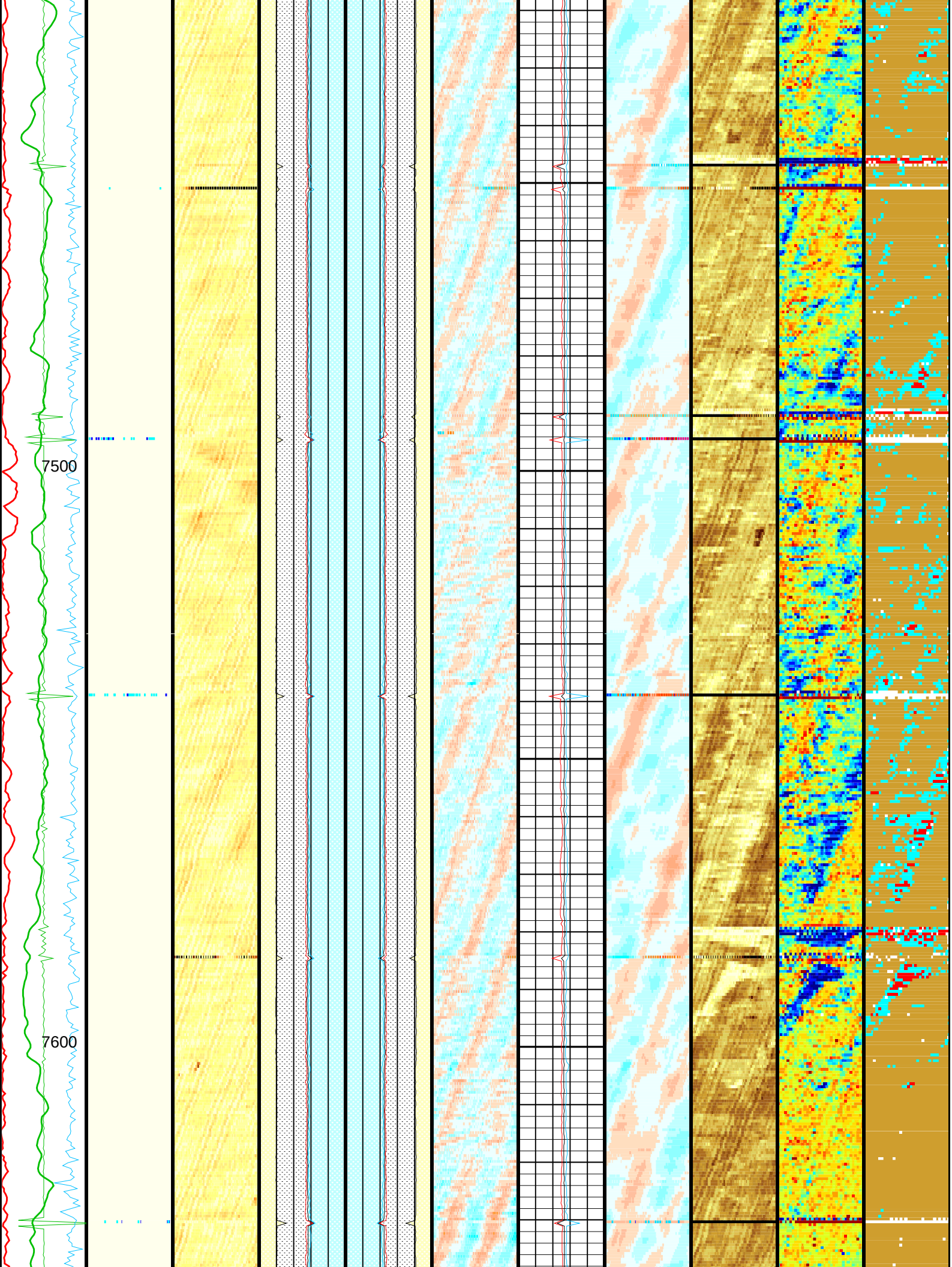

6400
6500

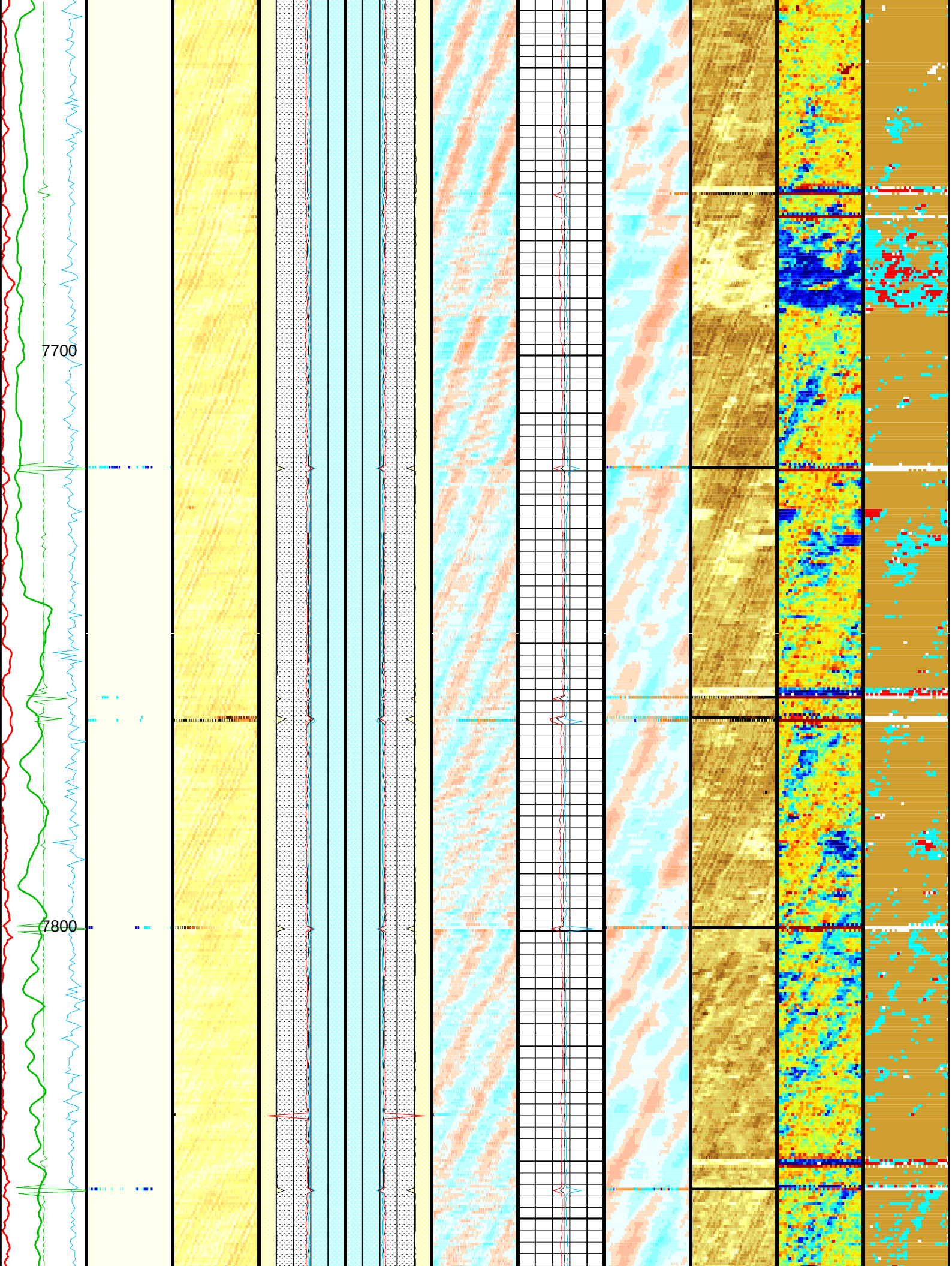

6600
6700

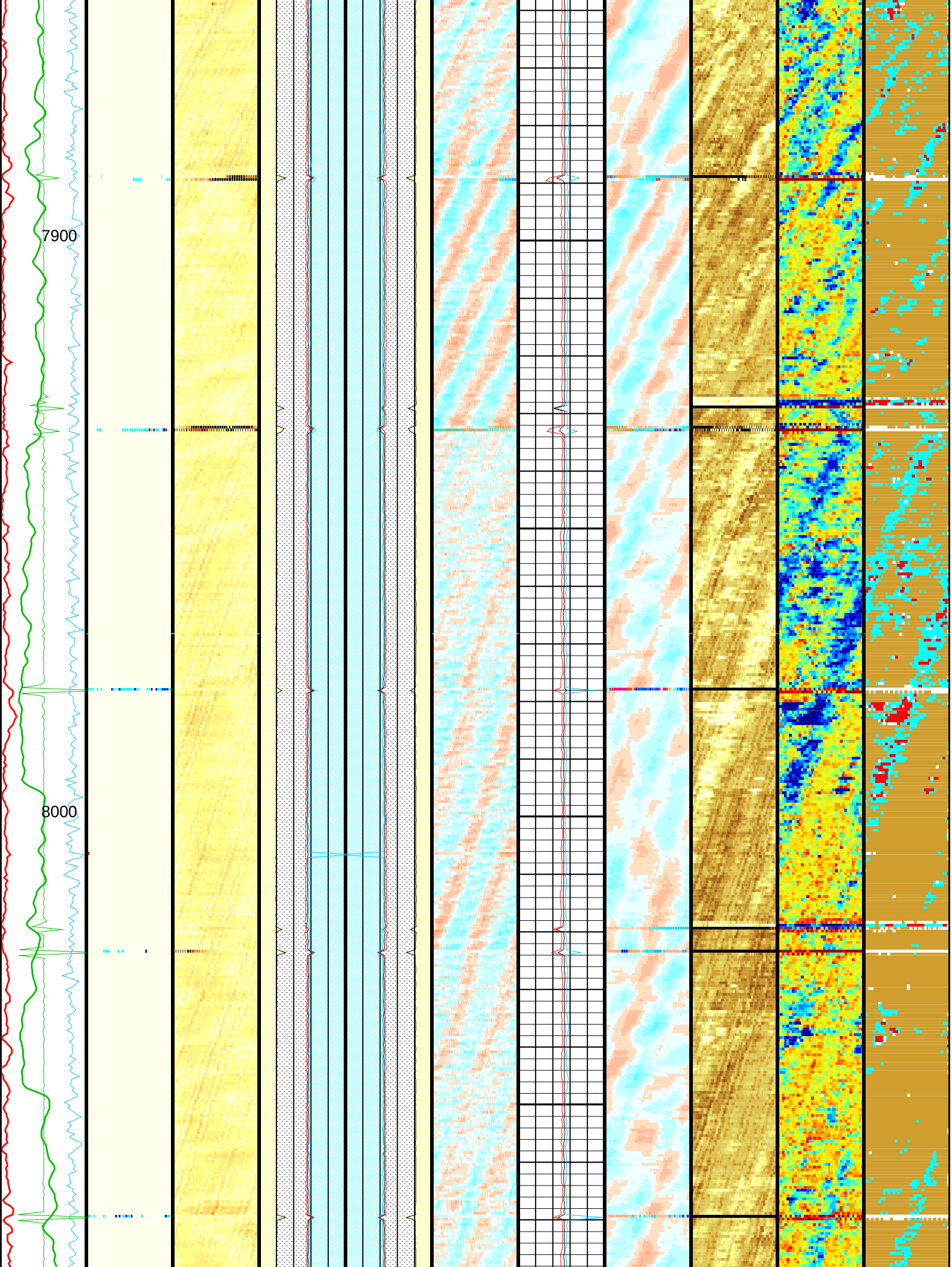

6800
6900

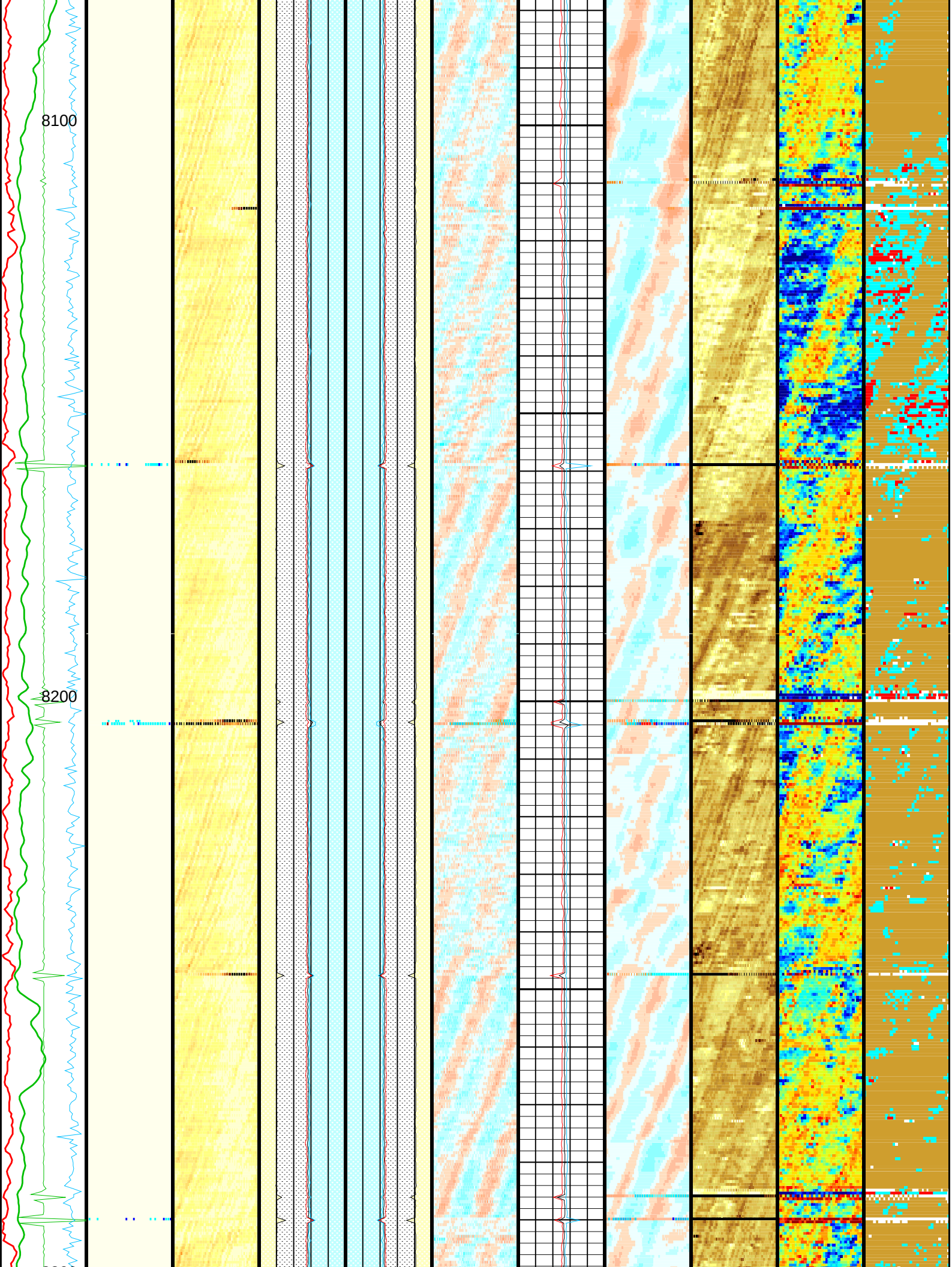

7000
7100

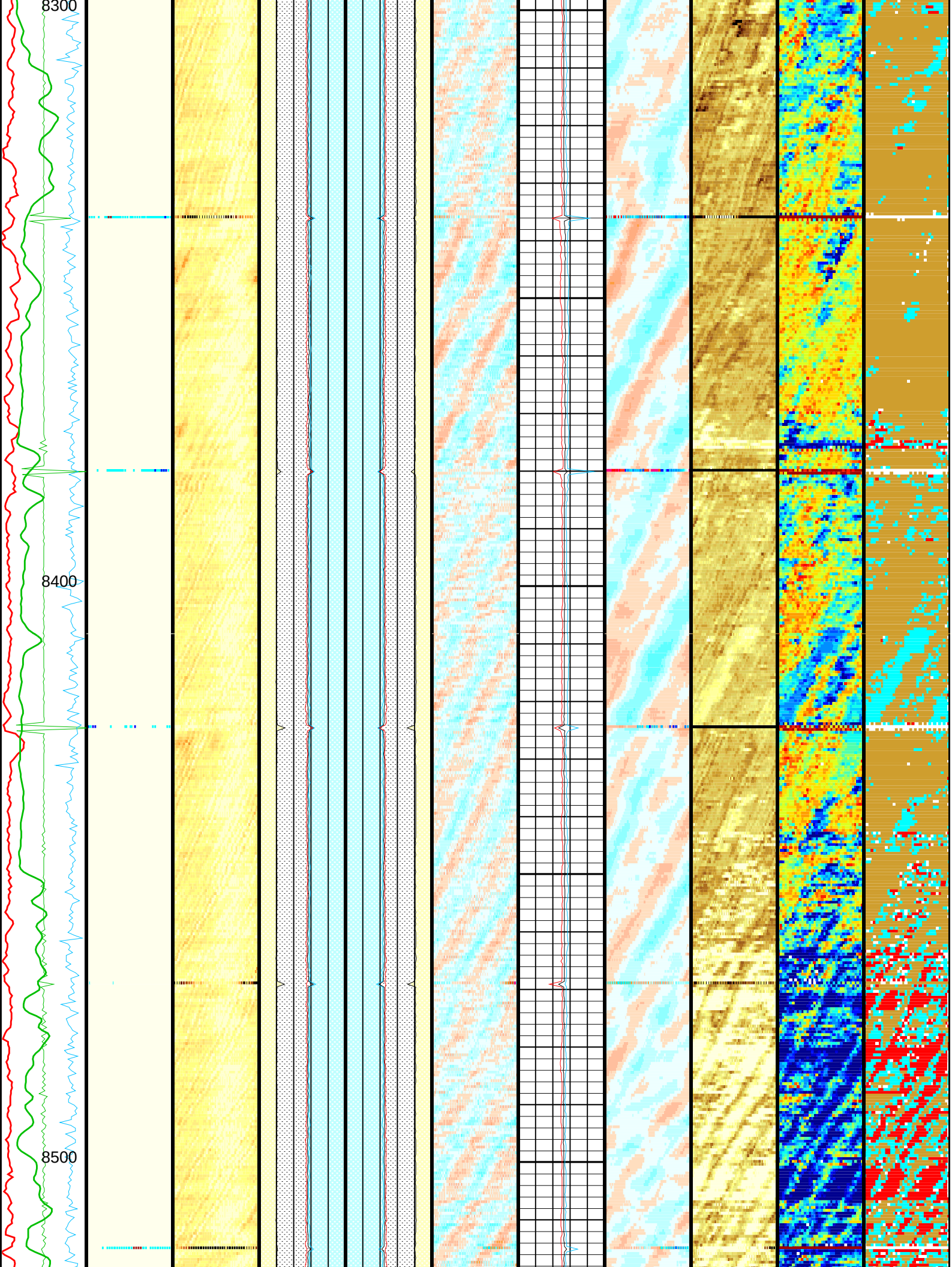

7200
7300
7400

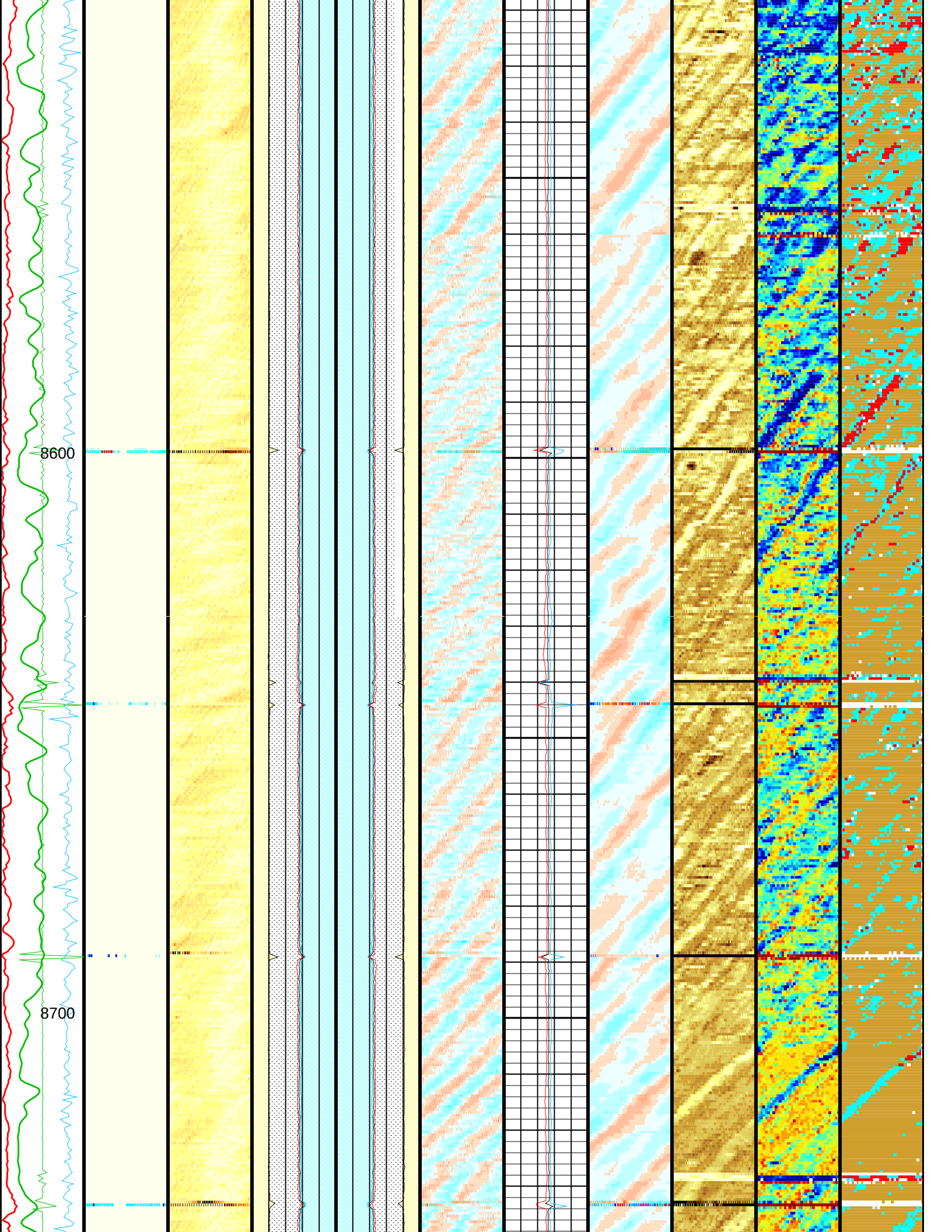

7500
7600

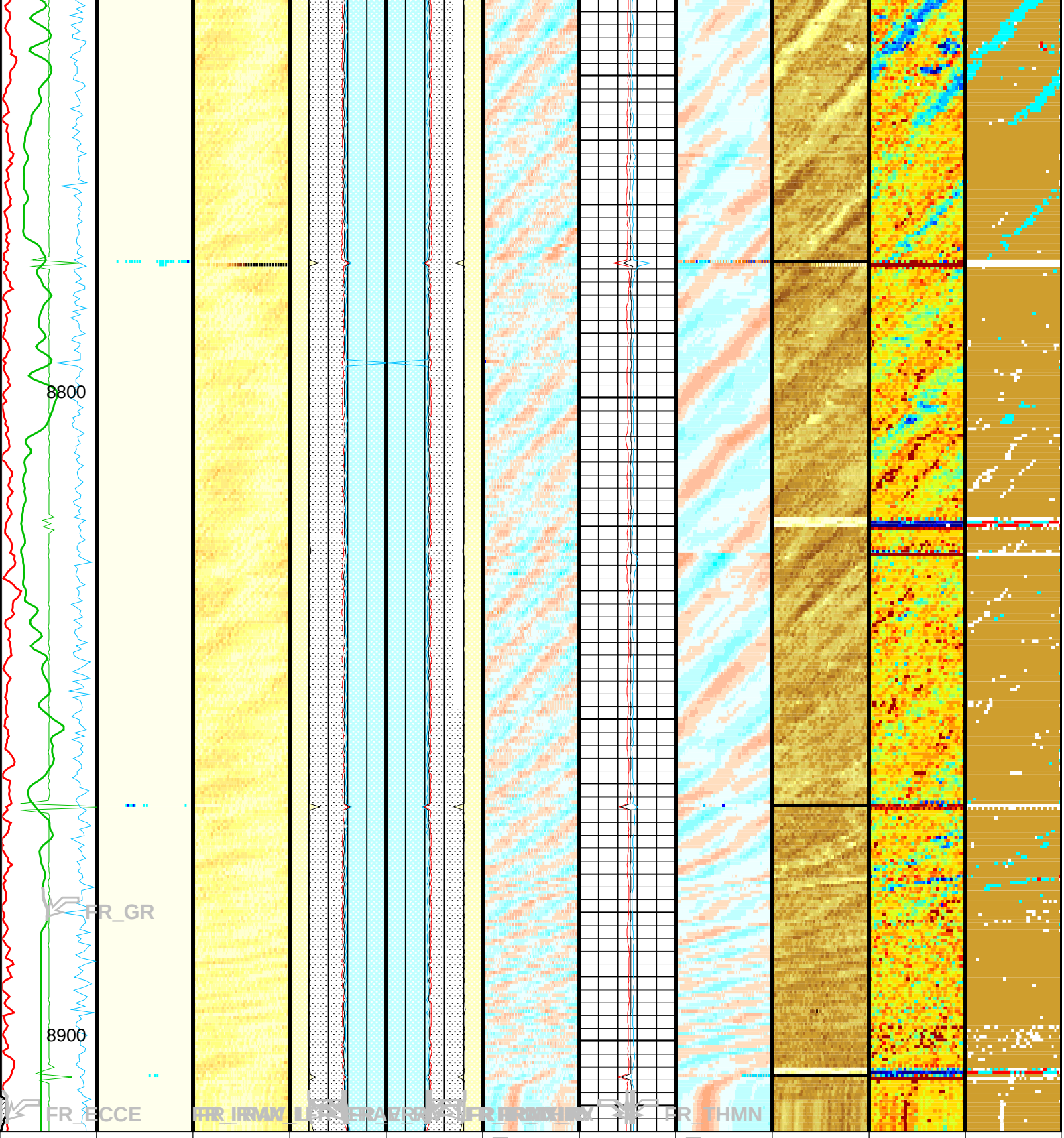

7700
7800


7900
8000


8100
8200


8300
8400
8500


8600
8700



Eccent. (ECCE)
0 (IN) 0.5

Process. flags (UFLG)
0.5000
1.5000
2.5000
3.5000
6.5000

−500.0000
−6.0000
−5.6000
−5.2000
−4.8000
−4.4000
−4.0000
−3.6000
−3.2000
−2.8000
−2.4000
−2.0000
−1.6000
−1.2000
−0.8000
−0.4000
0.5000

External radius Average (ERAV) (IN)
3.7 2.7

External radius Average (ERAV) (IN)
2.7 3.7

−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600

Min of Thickness (THMN) (IN)
0.1 0.6

−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000

Solid Liquid Gas Map (U−USIT_USLP)
0.5000
1.5000
2.5000
3.5000

	(----	Amplitude of echo minus Max (AWBK) (DB)			0.0680 0.0760 Internal radii minus Ave (IRBK) (IN)		0.0680 0.0760 Thickness minus Ave (THBK) (IN)	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U-USIT_ UFAK) (DB/M)	(----
CCL (CCLU) (---- -20 20			Internal radius Average (IRAV) (IN) 3.7 2.7	Internal radius Average (IRAV) (IN) 2.7 3.7		Average of Thickness (THAV) (IN) 0.1 0.6				
RSAV (RSAV) (RPS) 6 7.5			Internal radius Maximum (IRMX) (IN) 3.7 2.7	Internal radius Maximum (IRMX) (IN) 2.7 3.7		Maximum of Thickness (THMX) (IN) 0.1 0.6				
Gamma Ray (GR) (GAPI) 0 150			Min of Internal radius (IRMN) (IN) 3.7 2.7	Min of Internal radius (IRMN) (IN) 2.7 3.7						
Stuck Stretch (STIT) 0 (F) 50										
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: 11-Oct-2009 06:12

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	205	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	120	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	10	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	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	ULTRA_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	10.75	IN
U−USIT_OCSH	USIT Outer Casing Shoe	3966	FT
U−USIT_OCWE	USIT Outer Casing Weight	45.5	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	−8	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_B	
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_7_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	2.05	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	9006.00	FT
TDL	Total Depth − Logger	8913.00	FT
	System and Miscellaneous		
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	7.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12

Schlumberger

Goodwin
5" = 100’

Company: EXXONMOBIL PRODUCTION COMPANY | Well: PCU 297−11B1

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

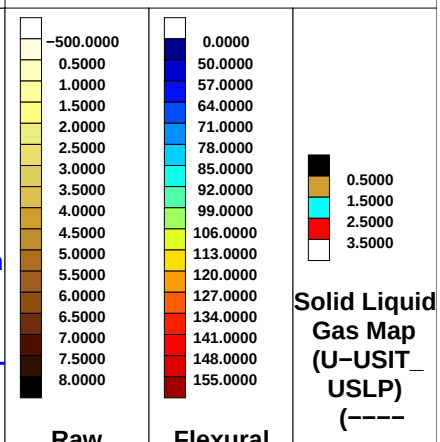
Output DLIS Files

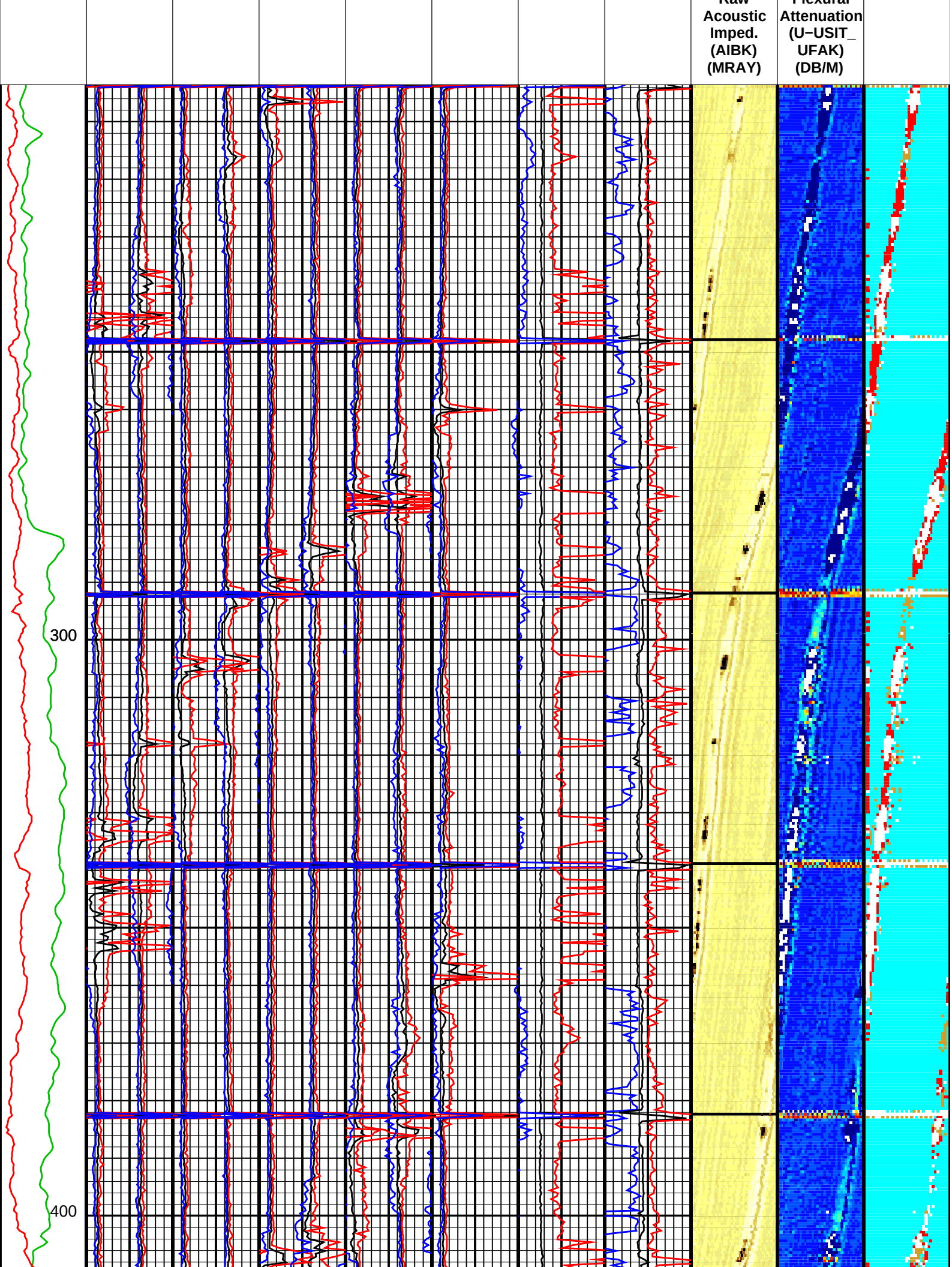
DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12	8914.0 FT	203.5 FT

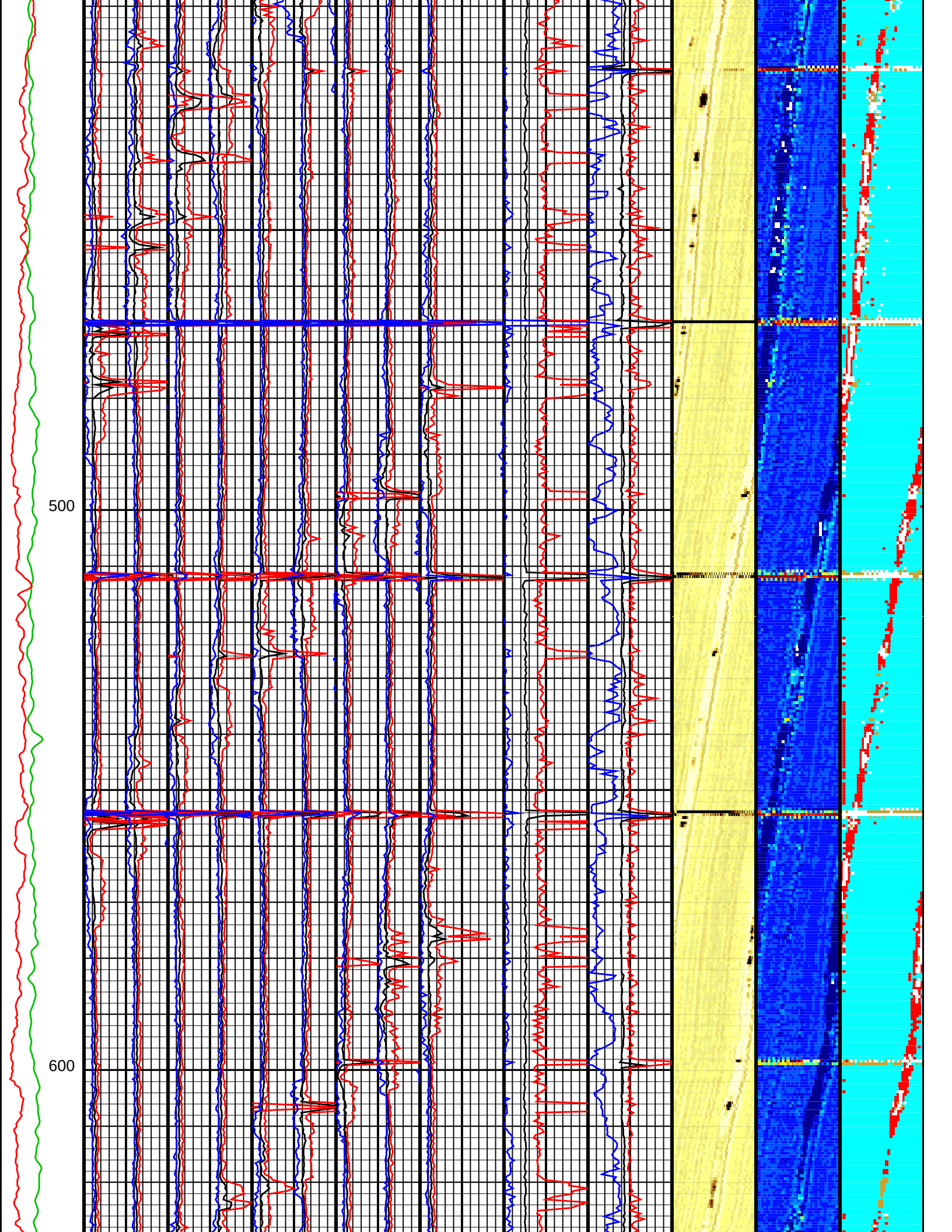
OP System Version: 17C0−154

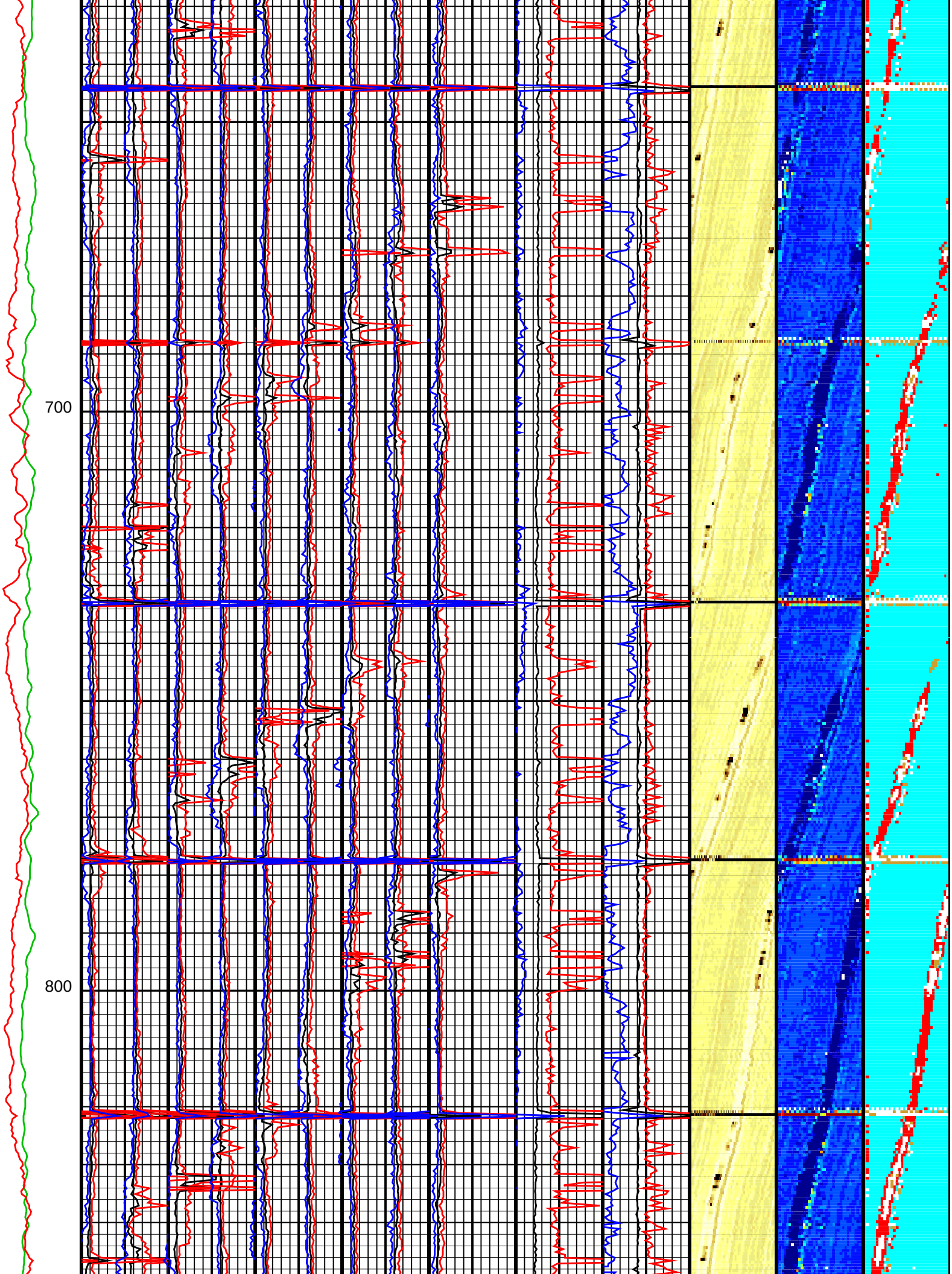
USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

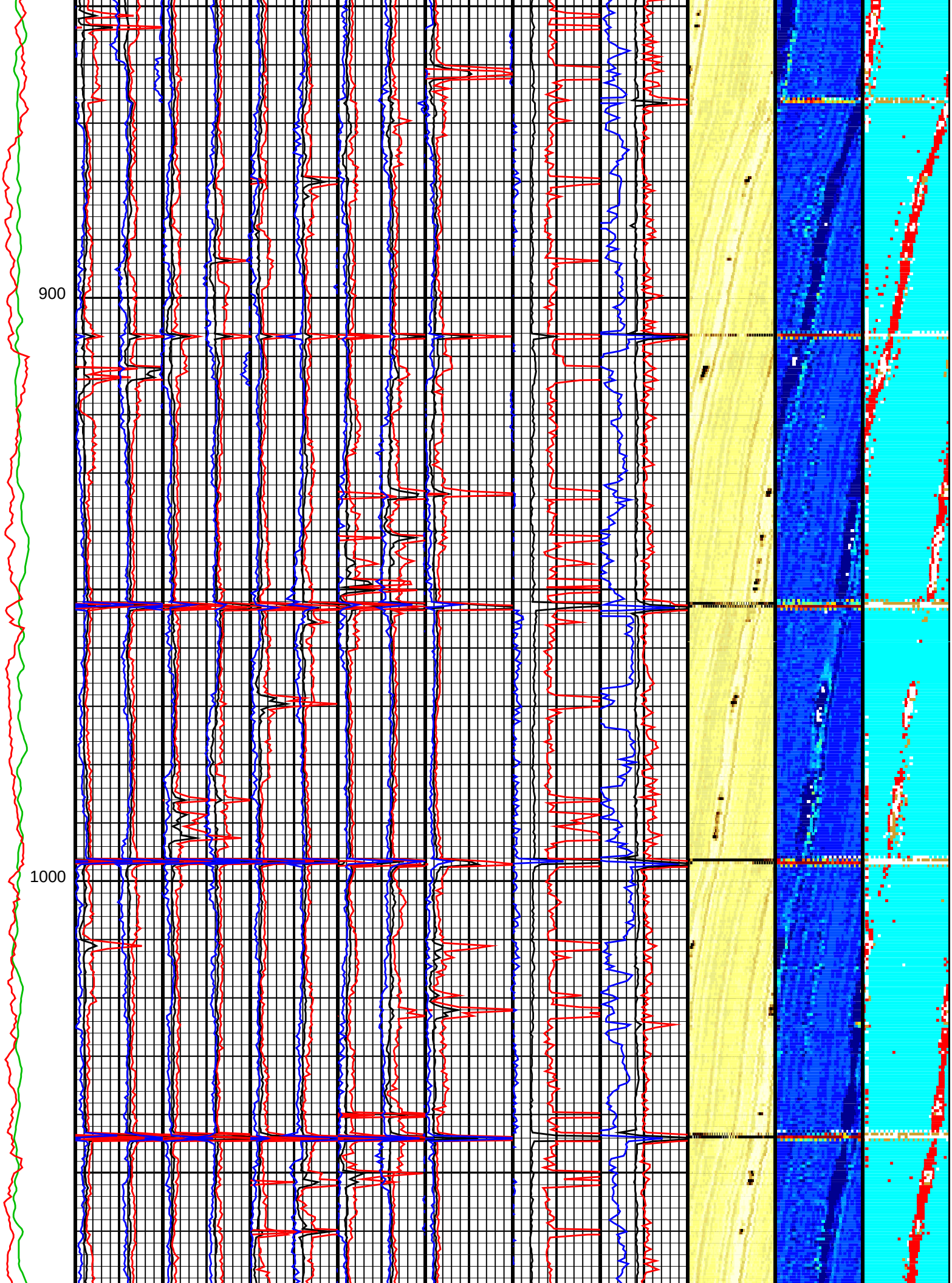
	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5				
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance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

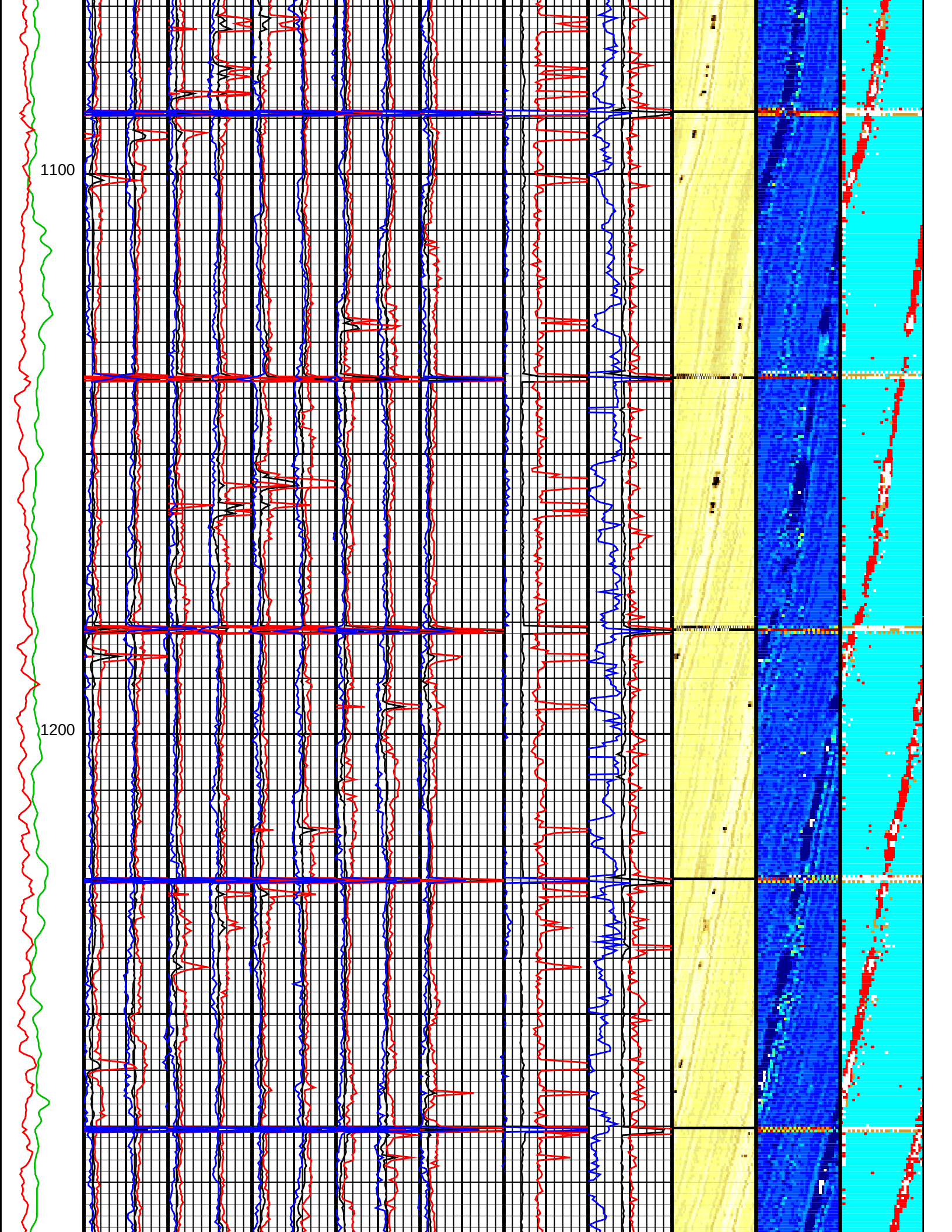


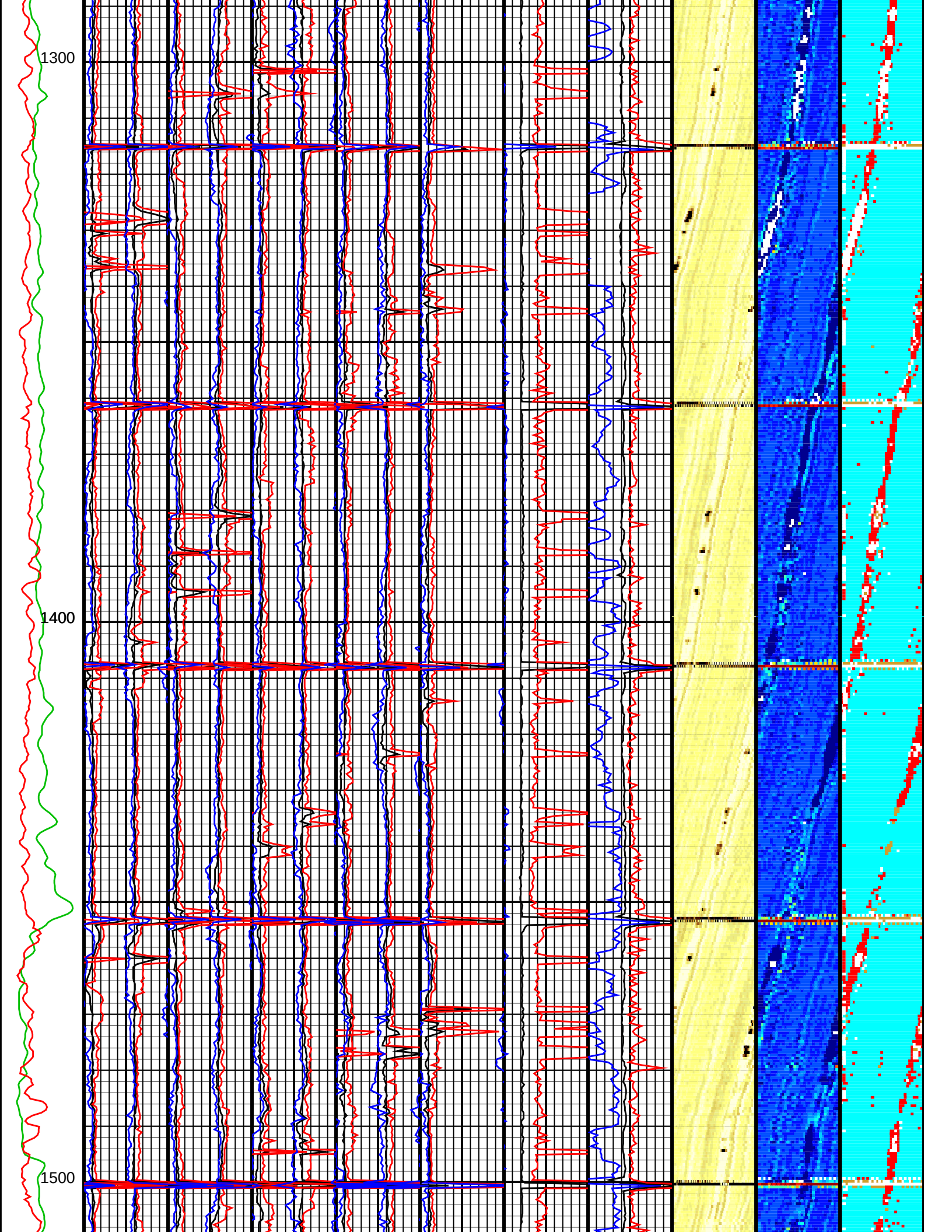

Raw Acoustic Imped. (AIBK) (MRAY)
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
300
400

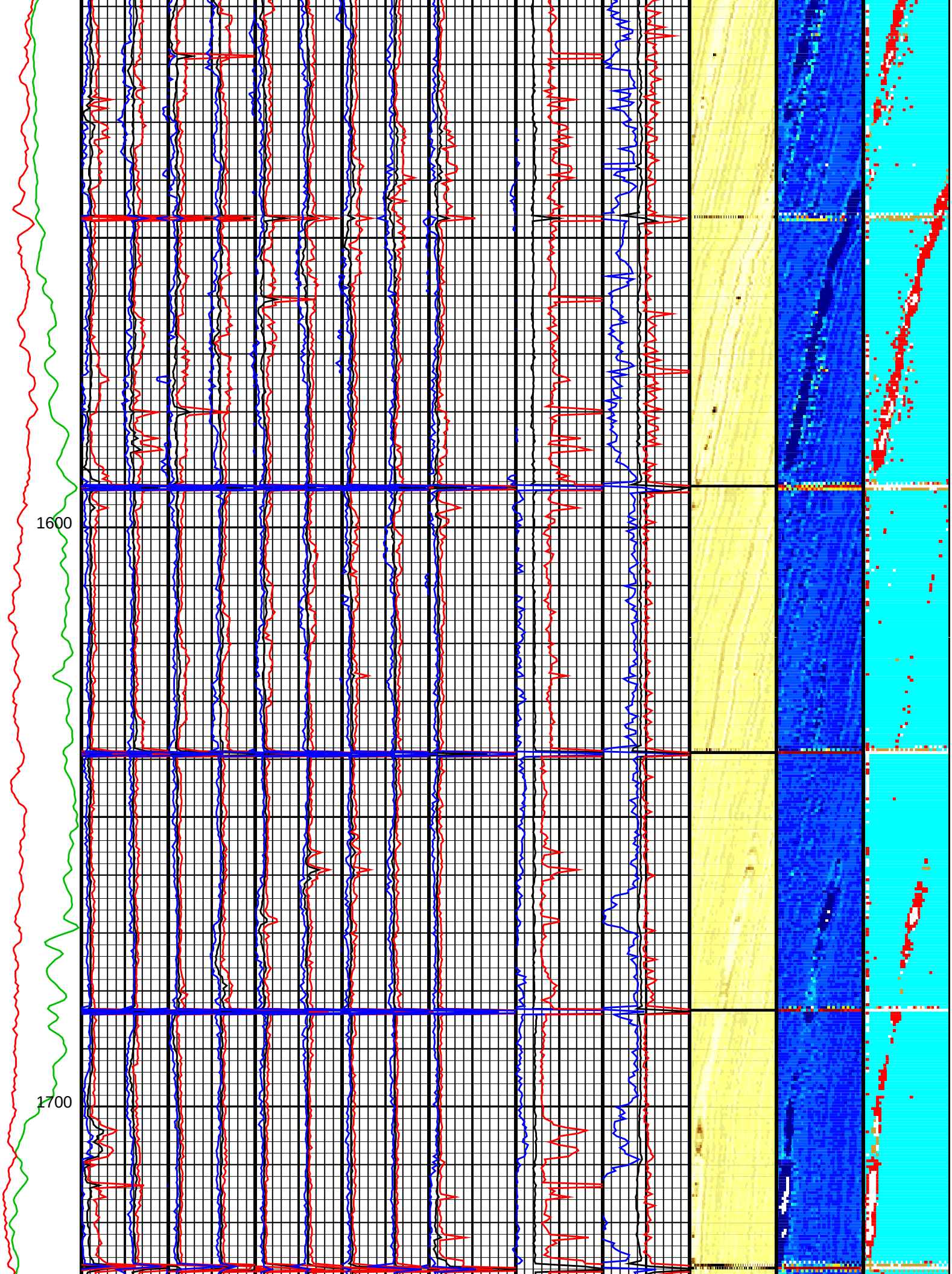

500
600

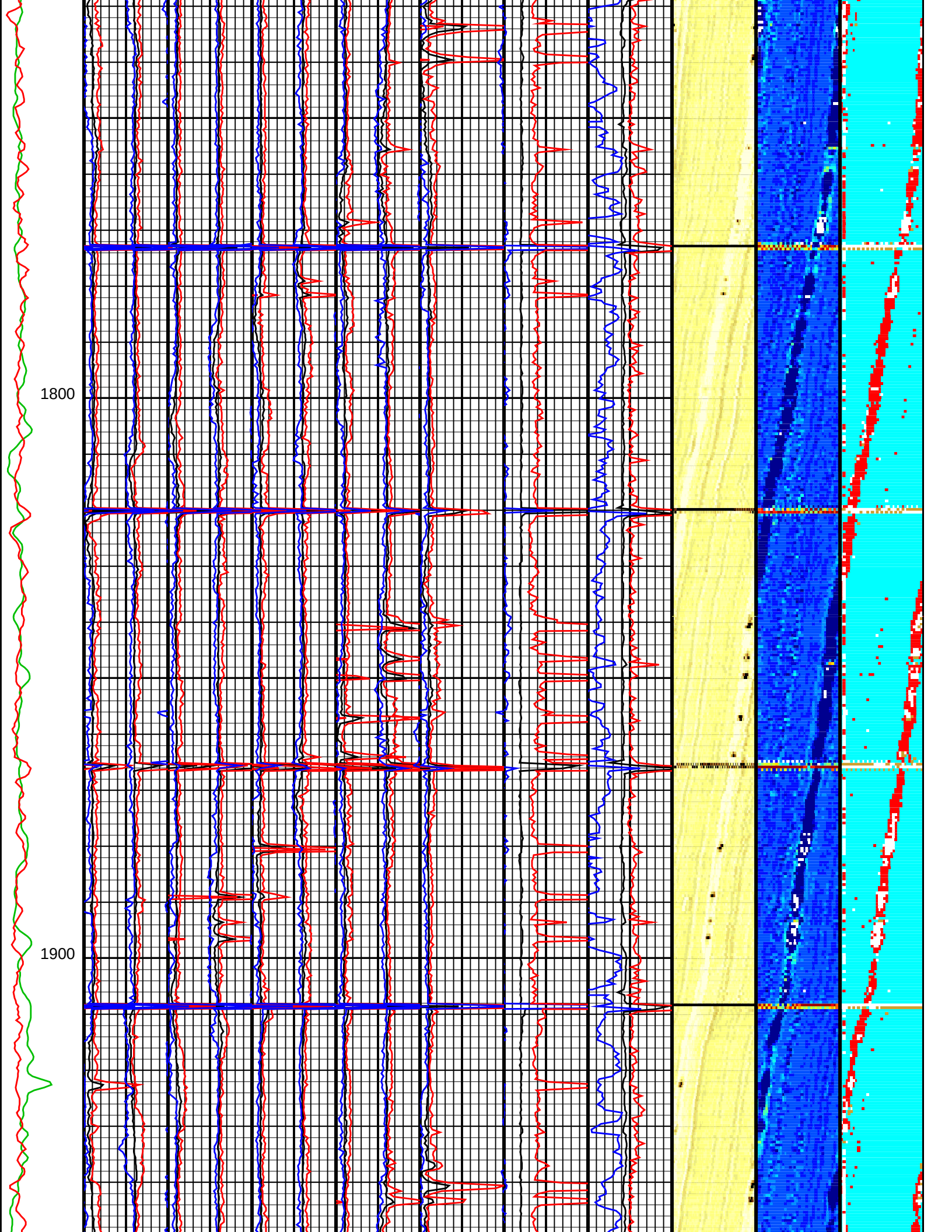

700
800

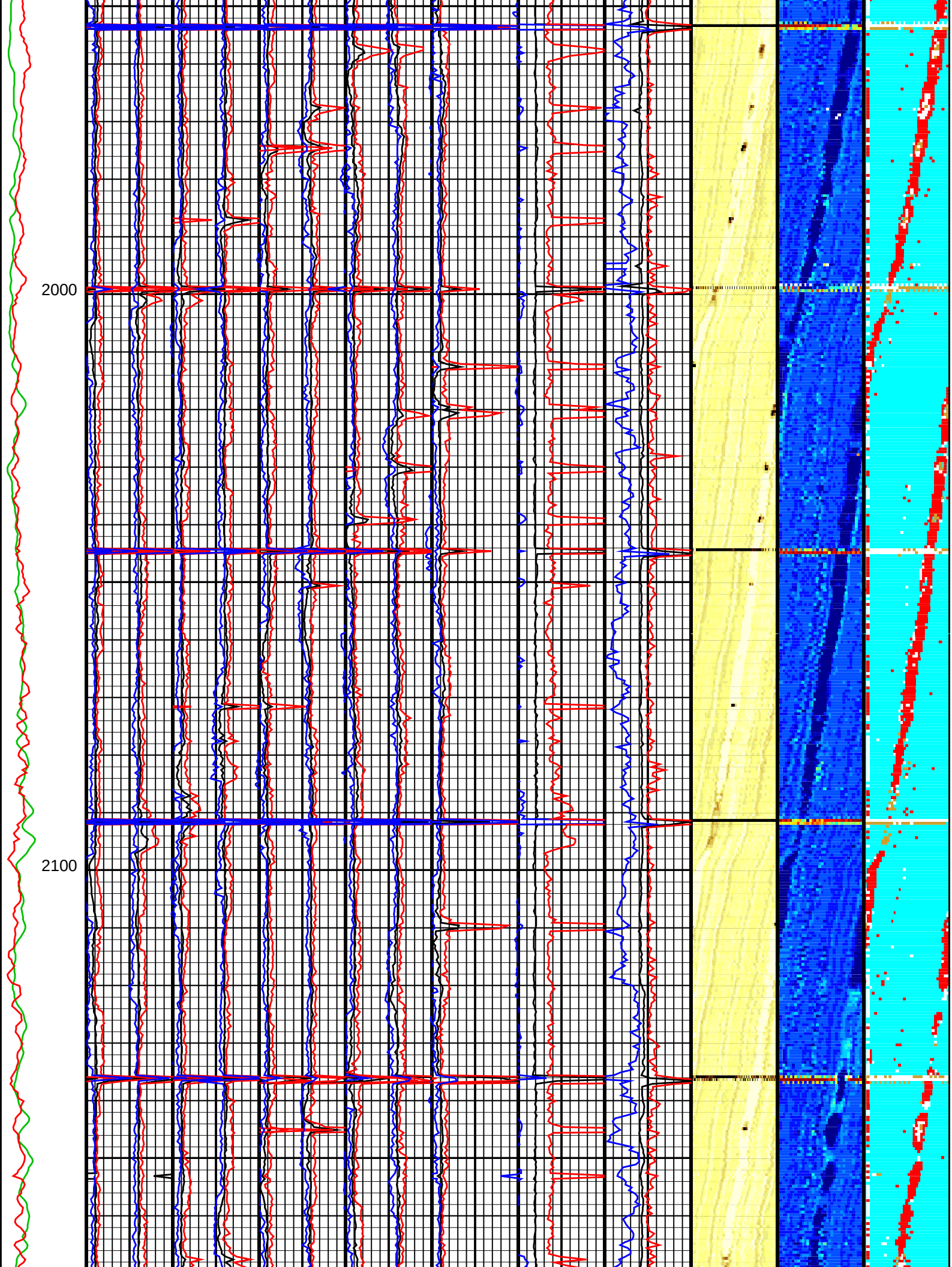

900
1000

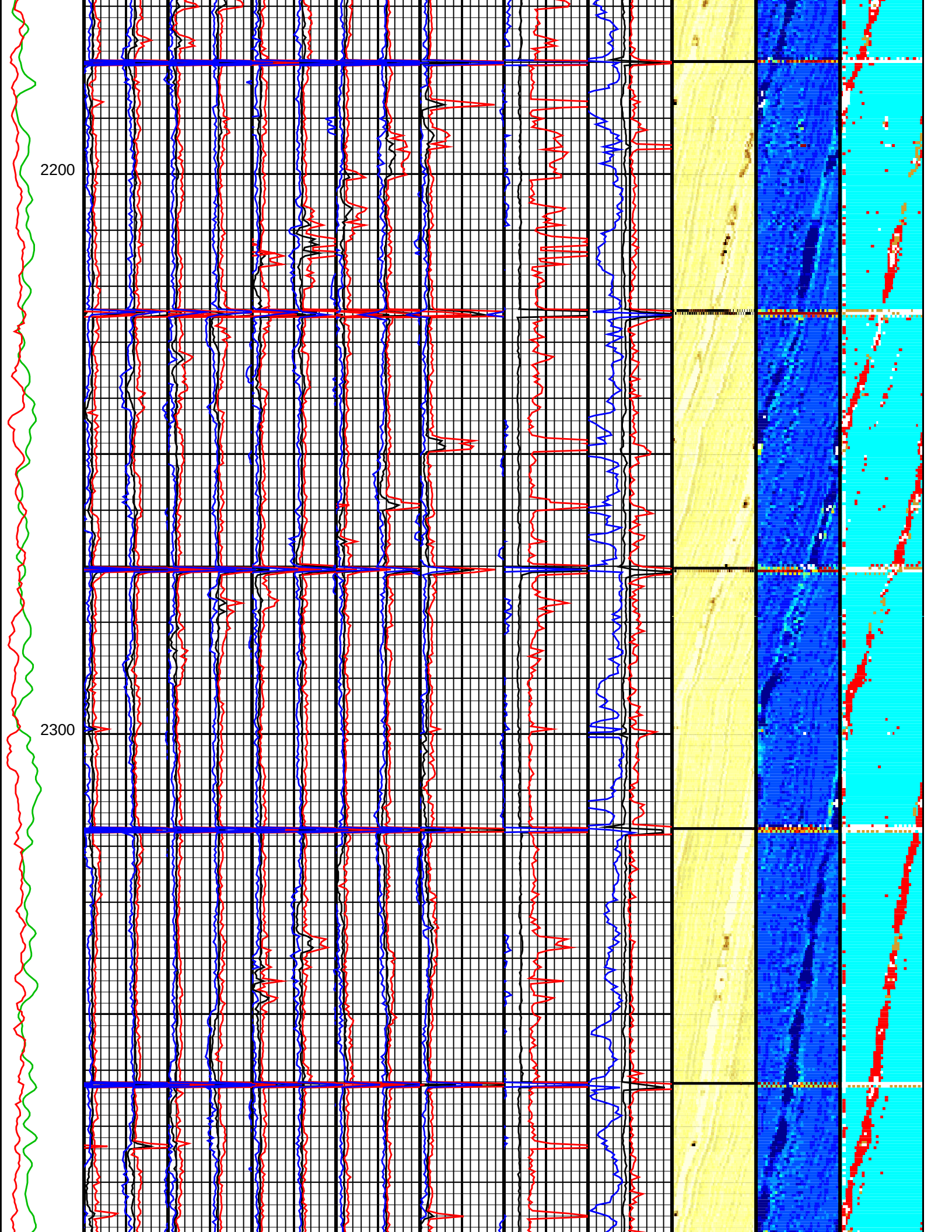

1100
1200

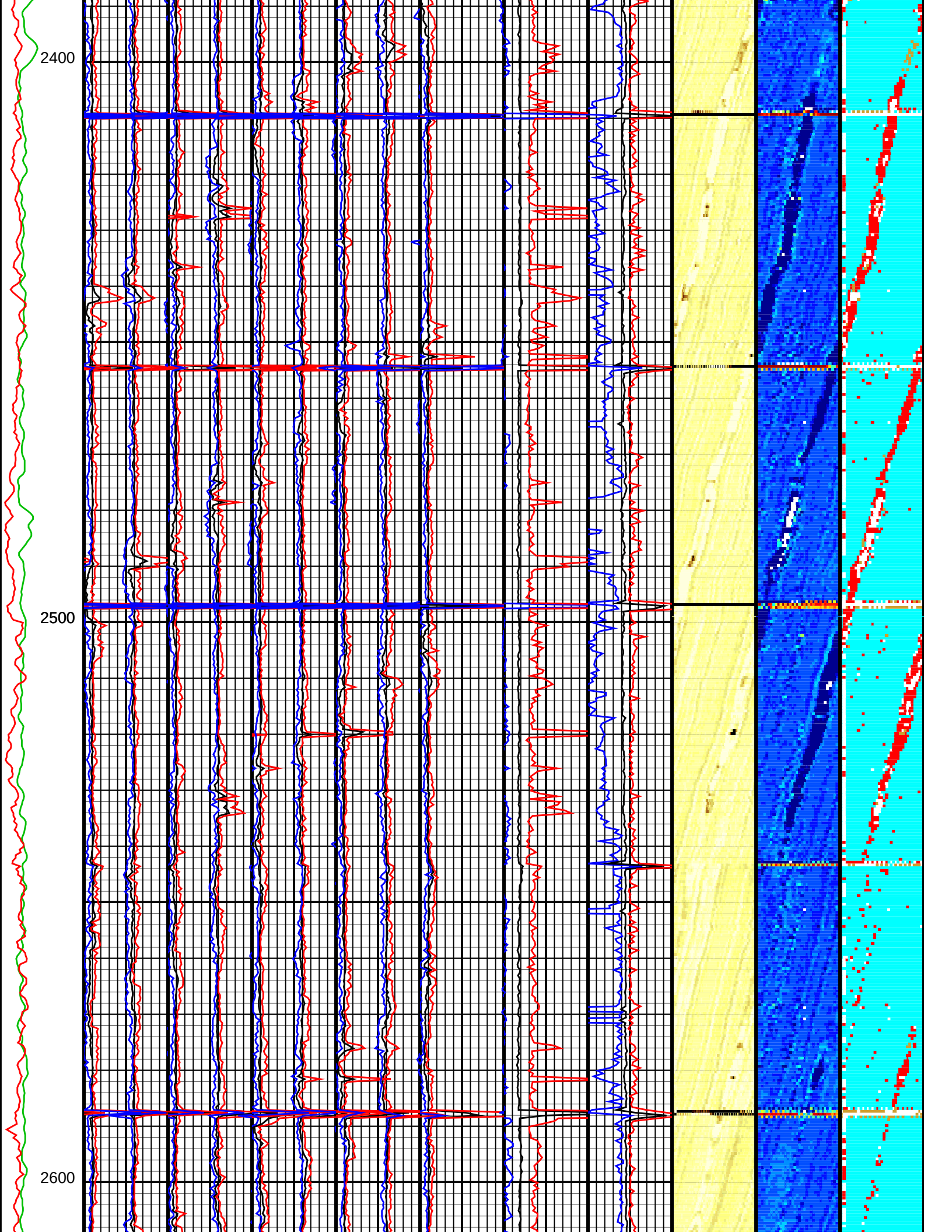

1300
1400
1500

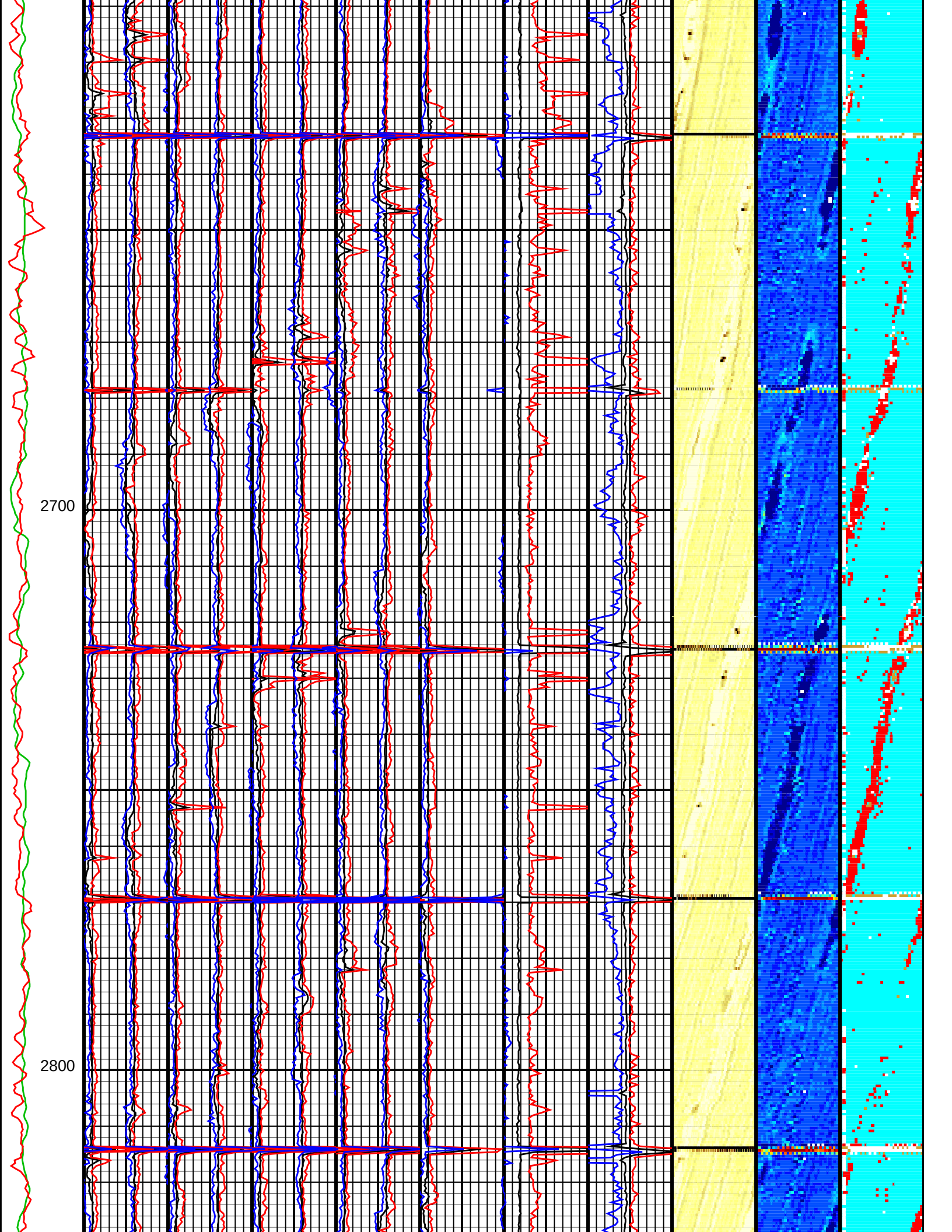

1600
1700

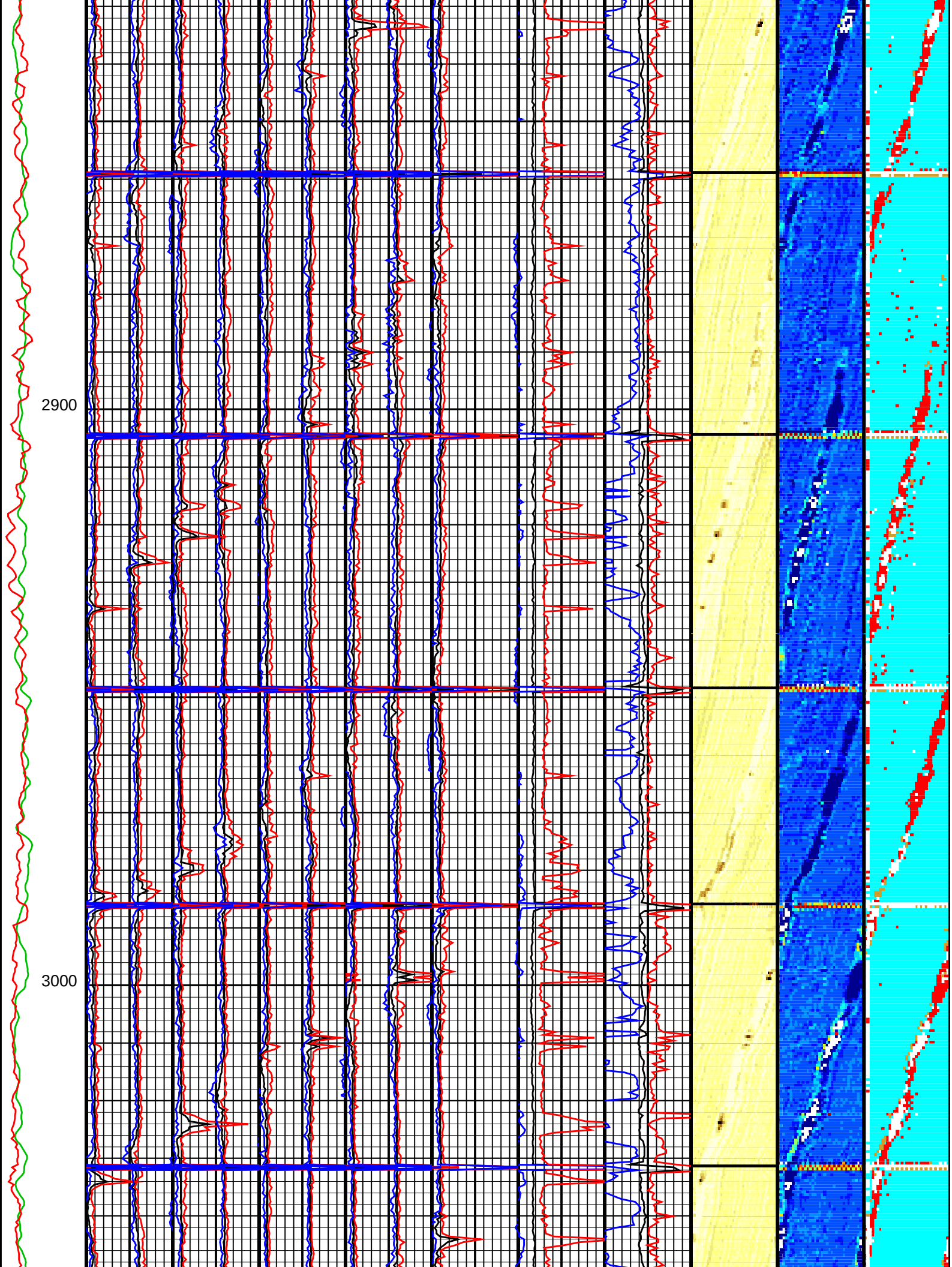

1800
1900

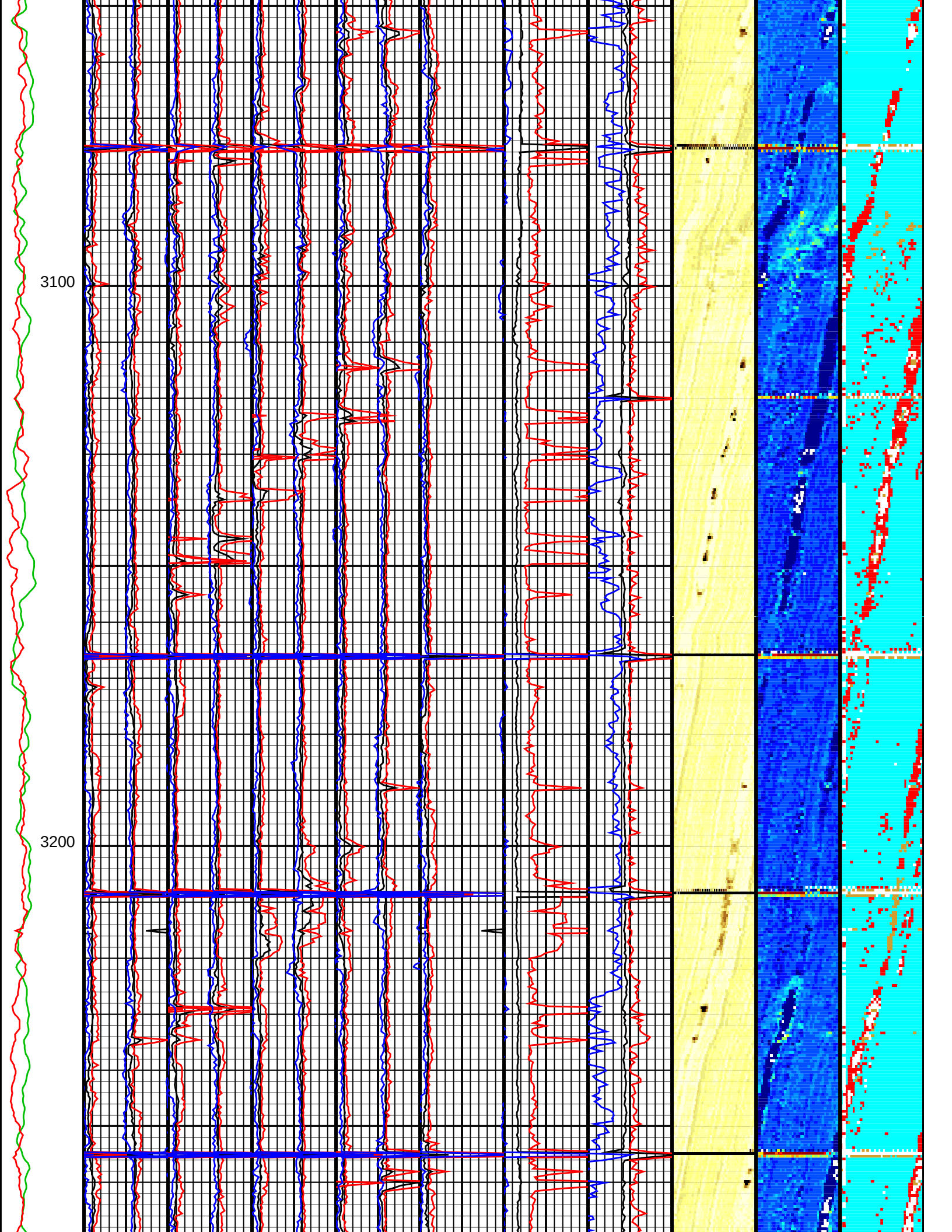

2000
2100

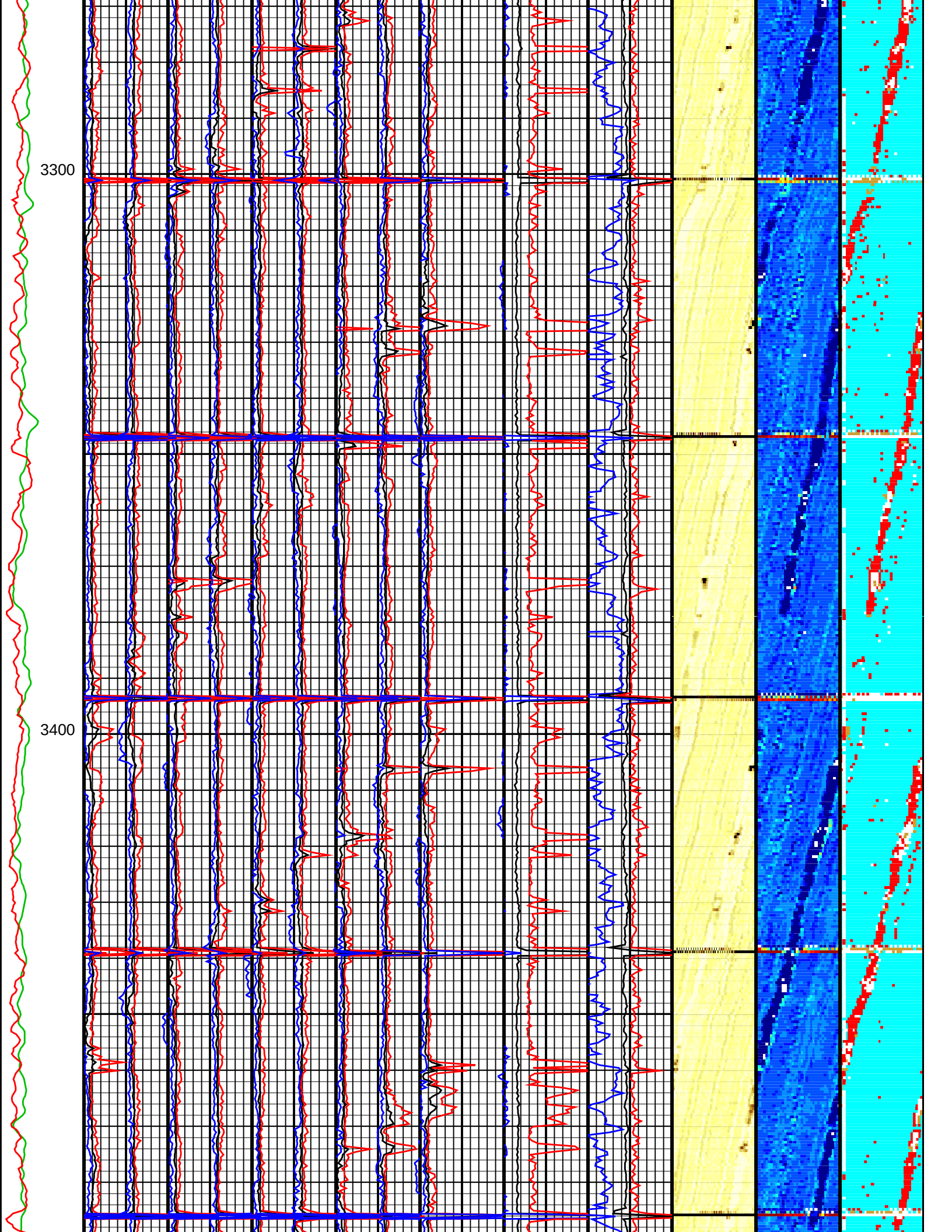

2200
2300

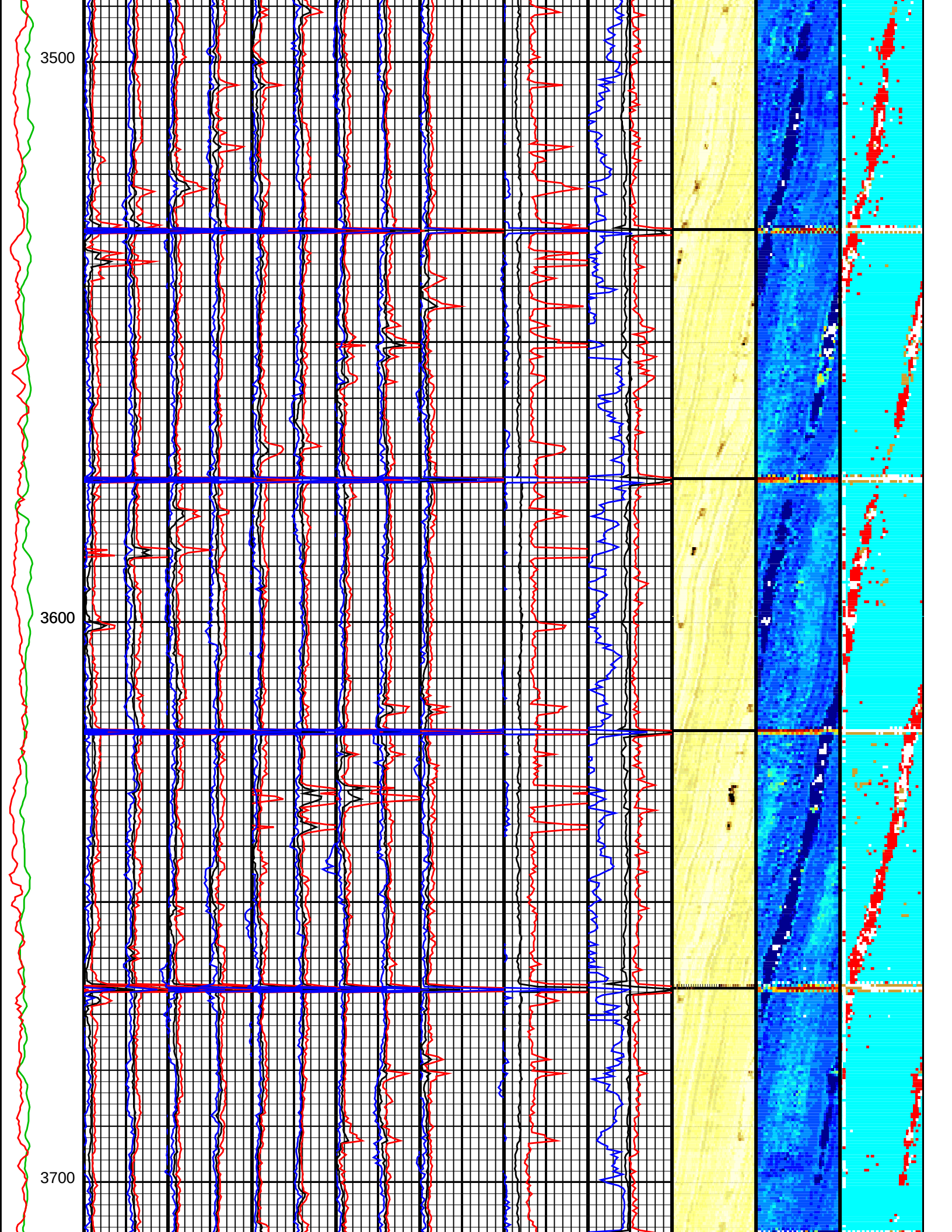

2400
2500
2600

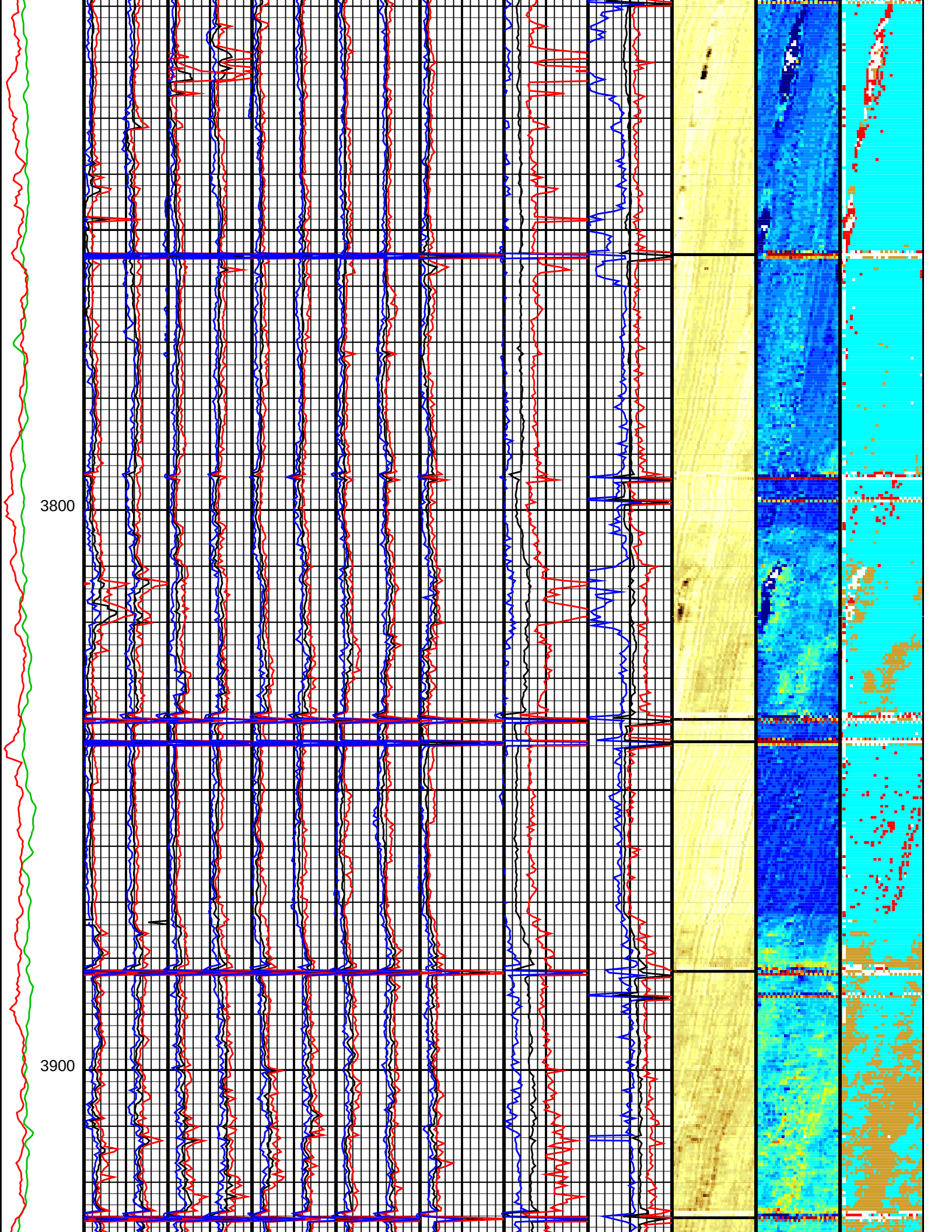

2700
2800

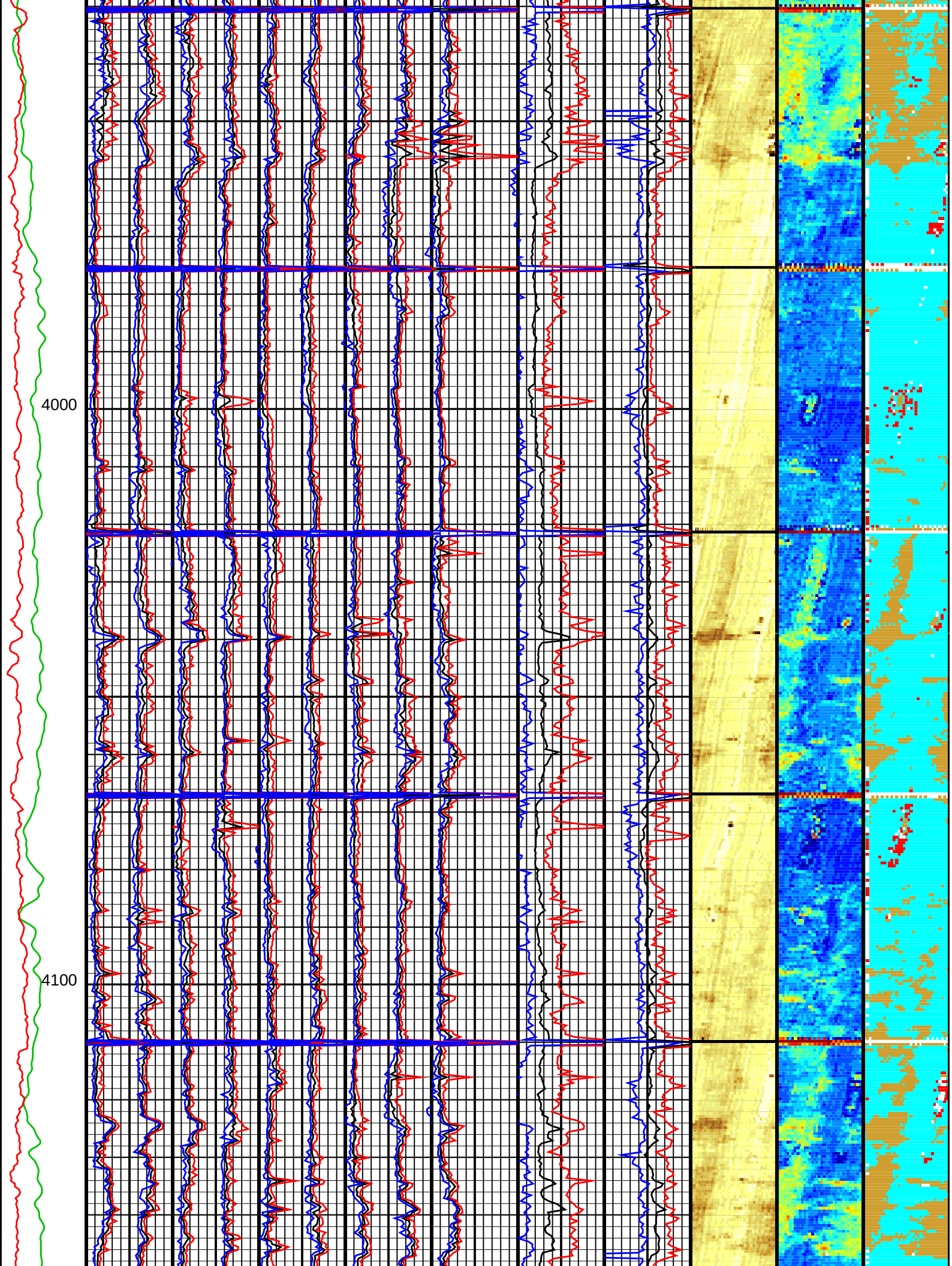

2900
3000

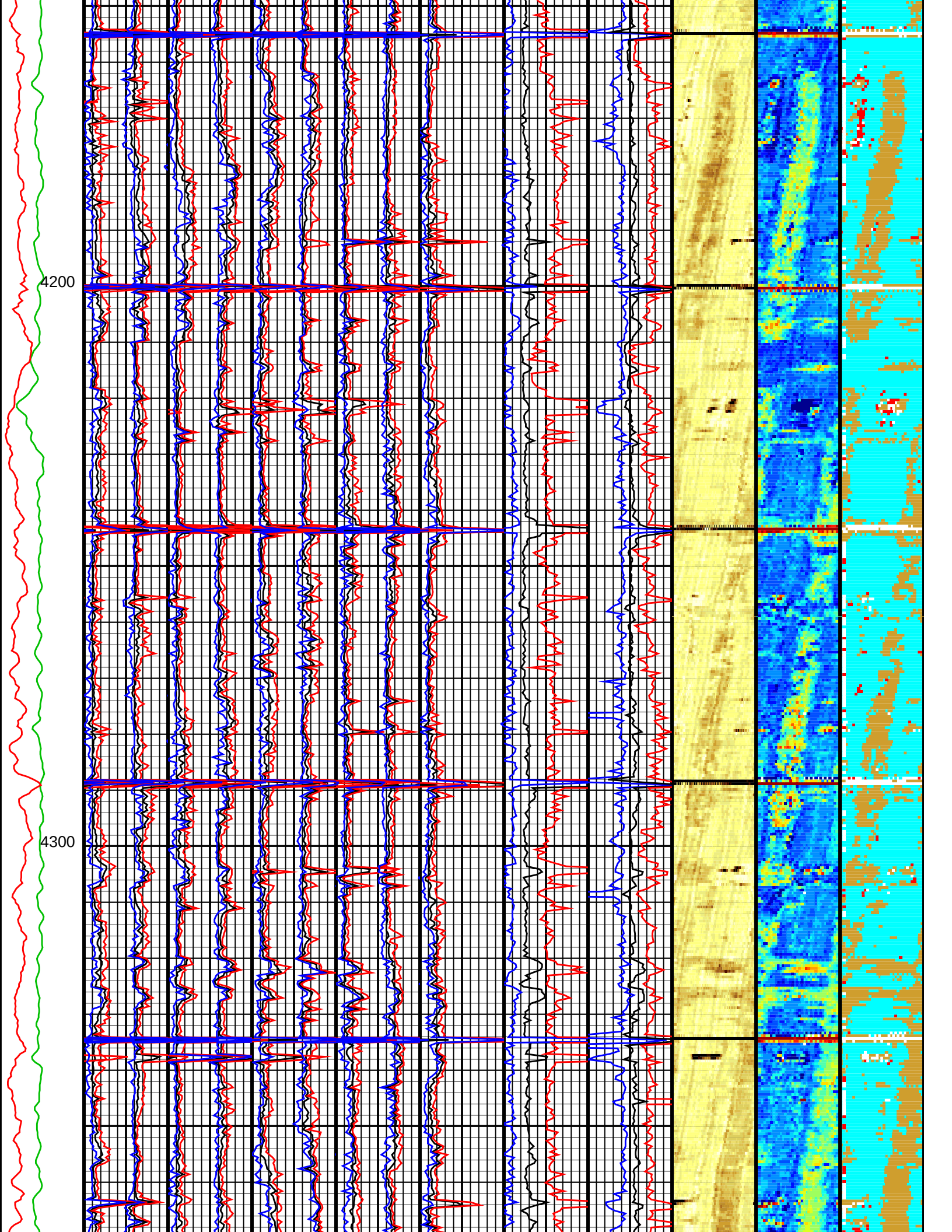

3100
3200

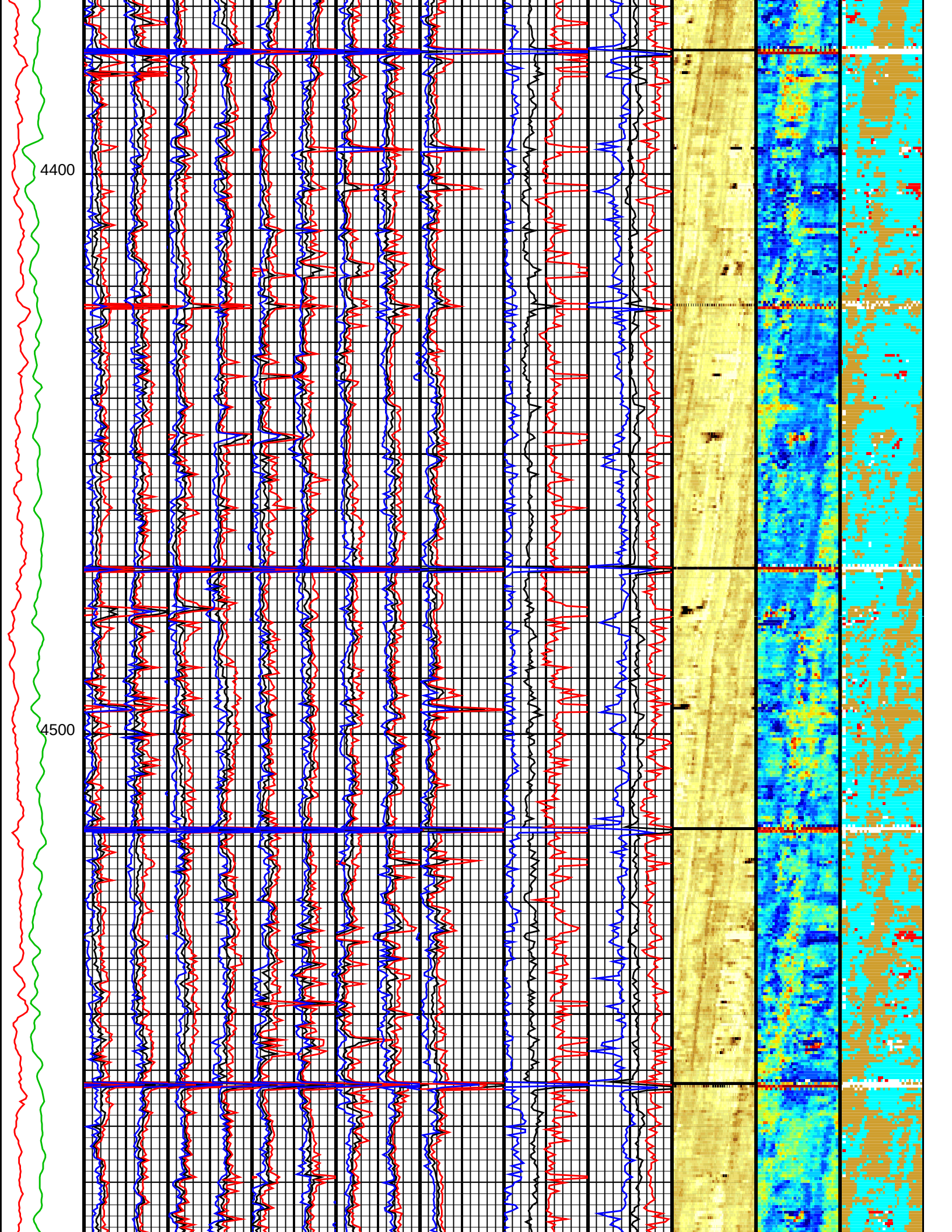

3300
3400

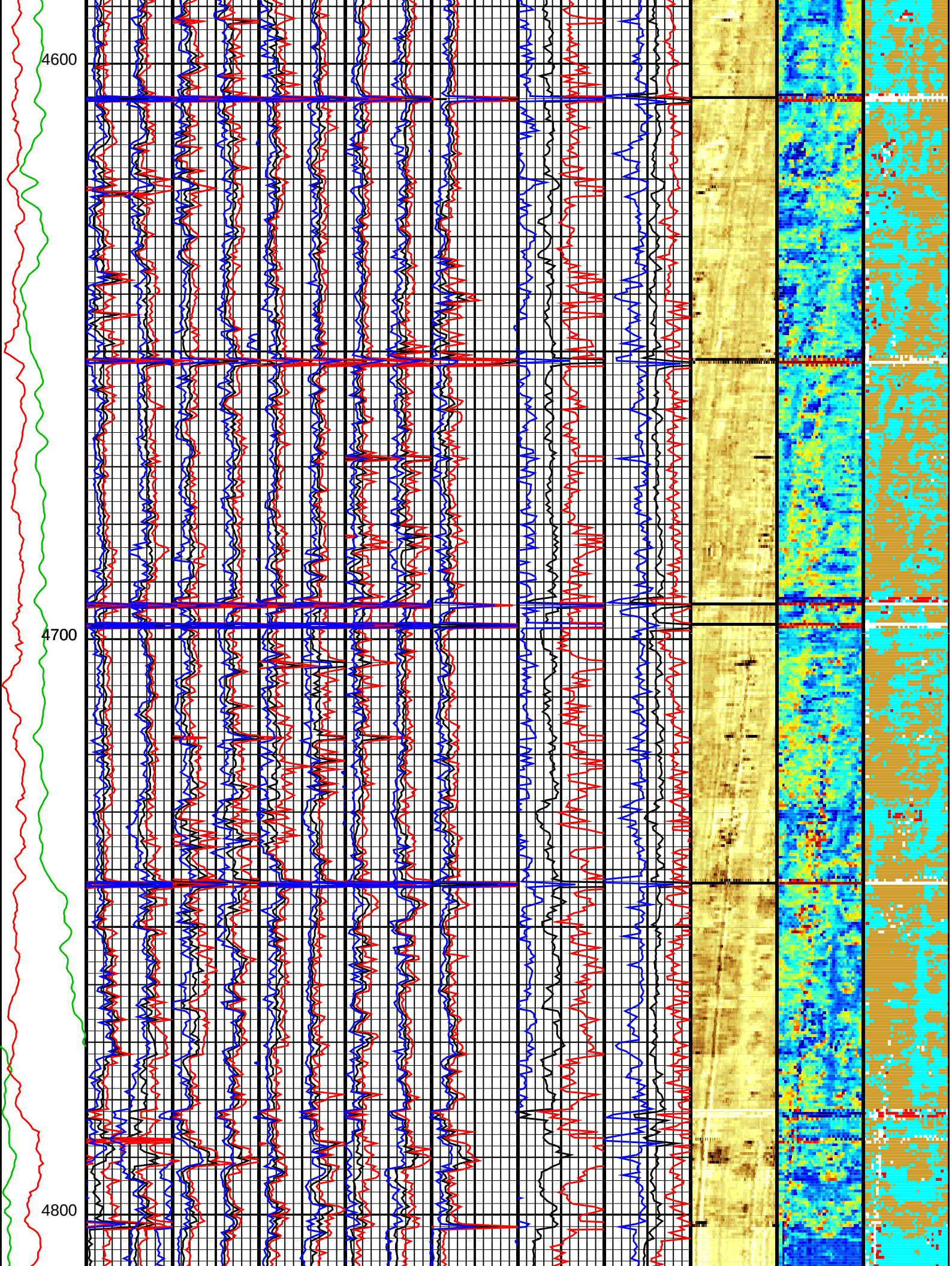

3500
3600
3700

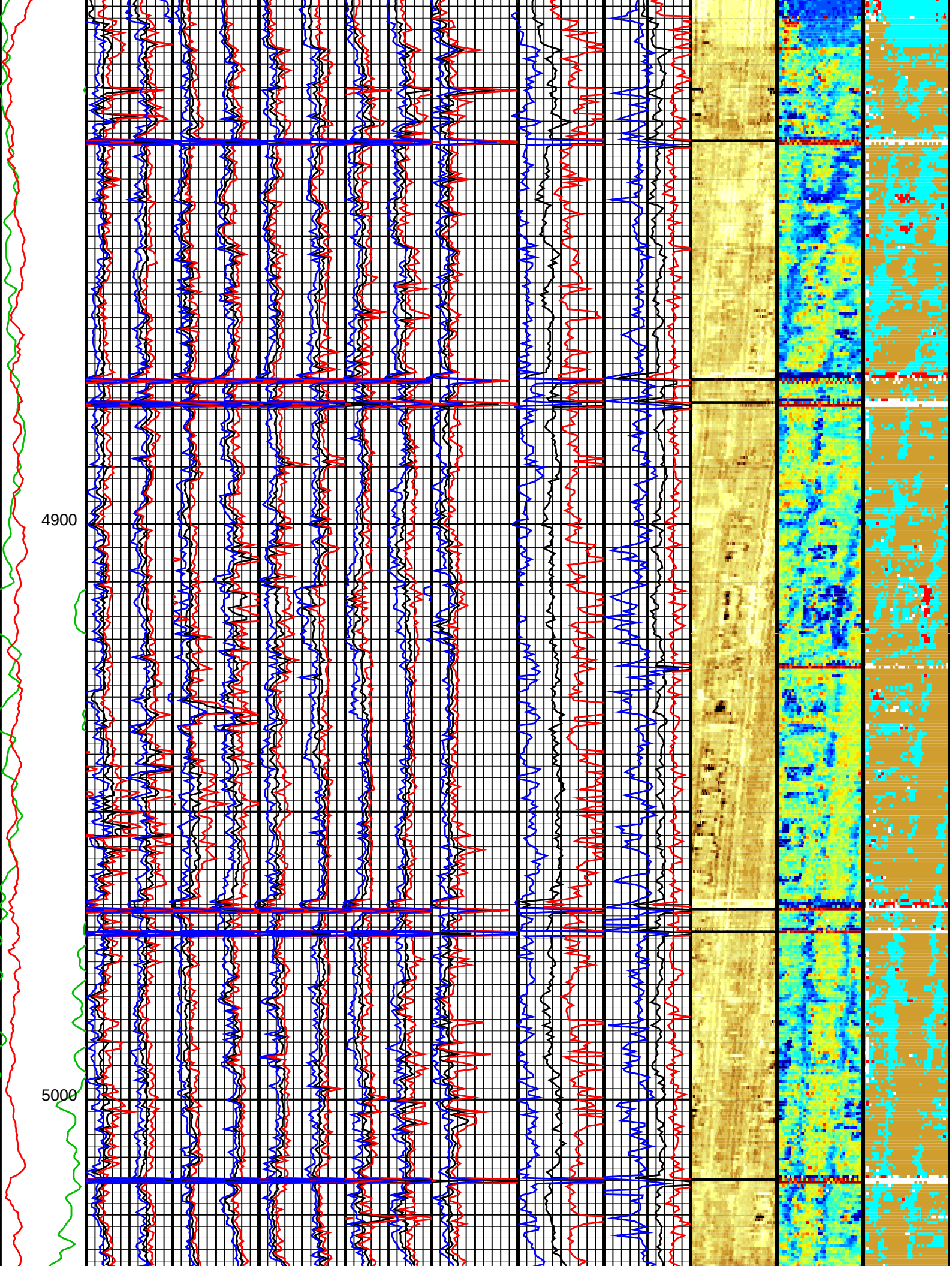

3800
3900

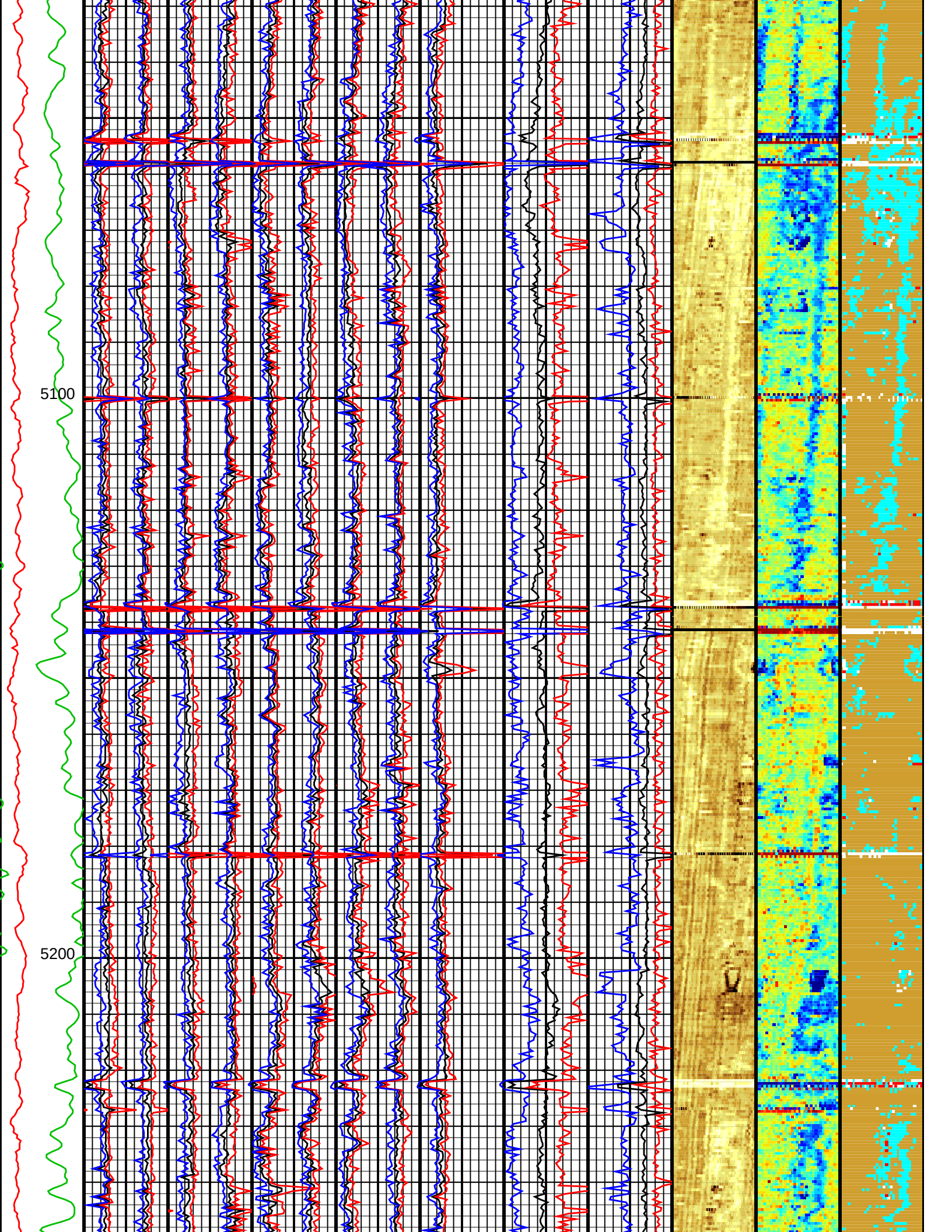

4000
4100

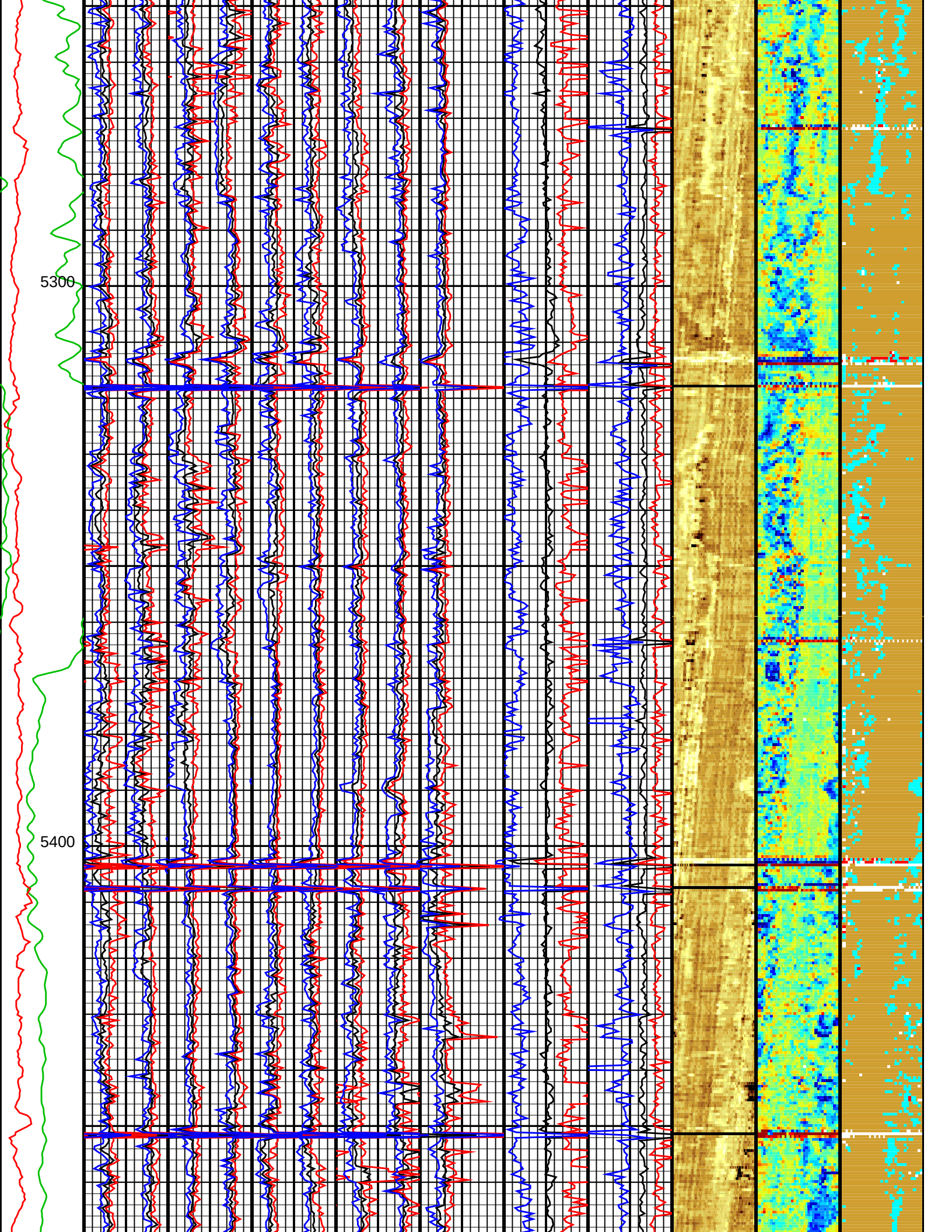

4200
4300

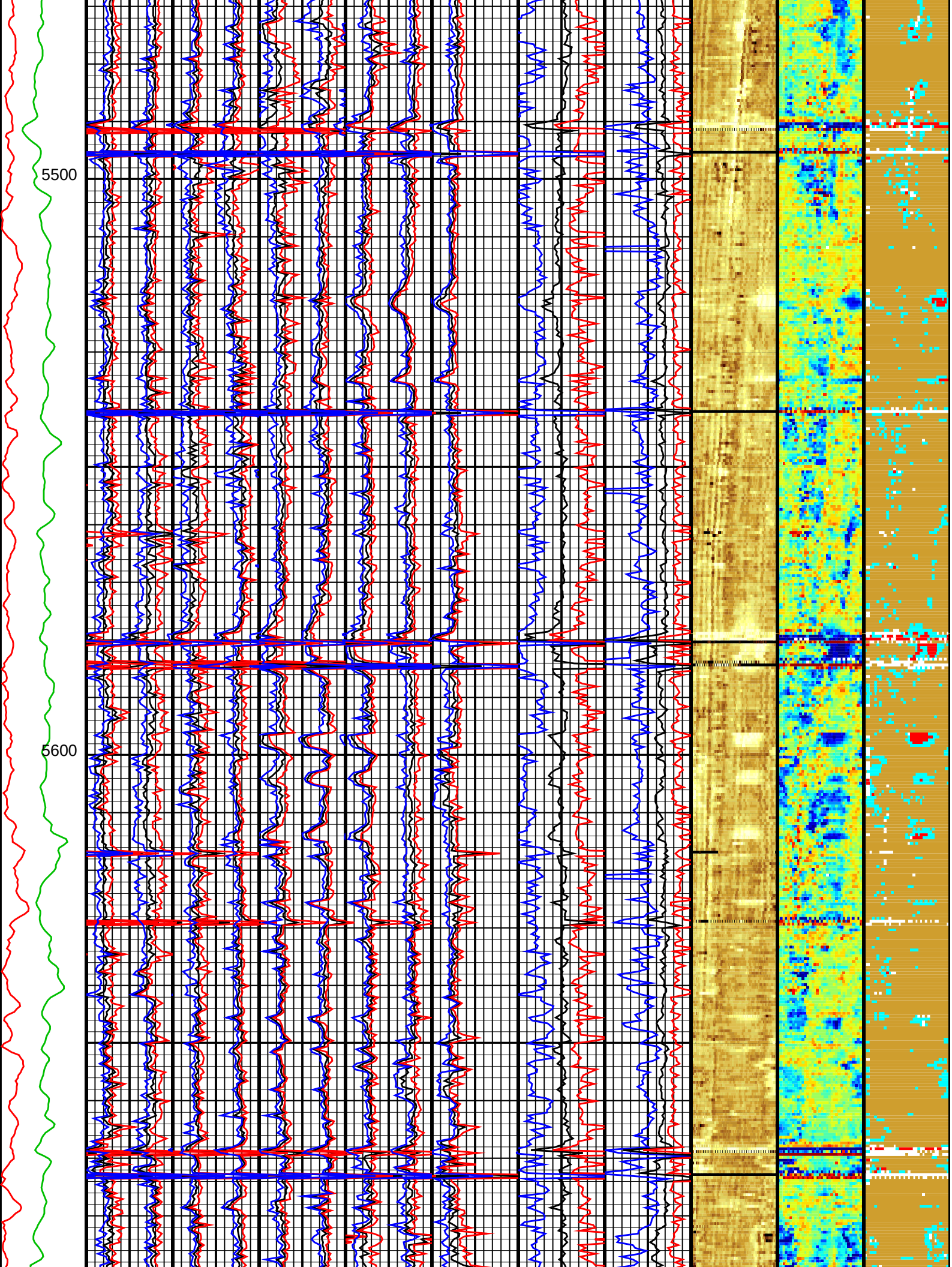

4400
4500

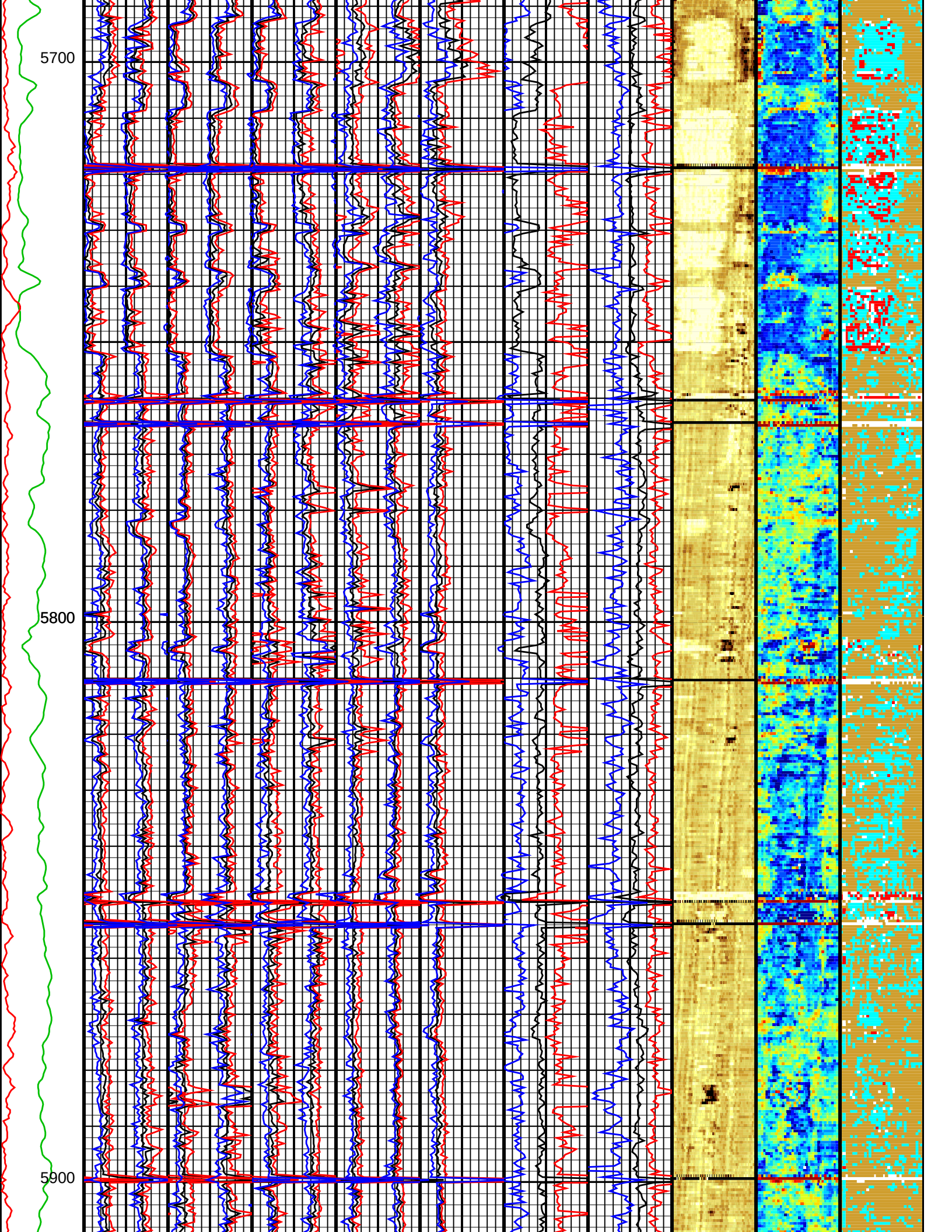

4600
4700
4800

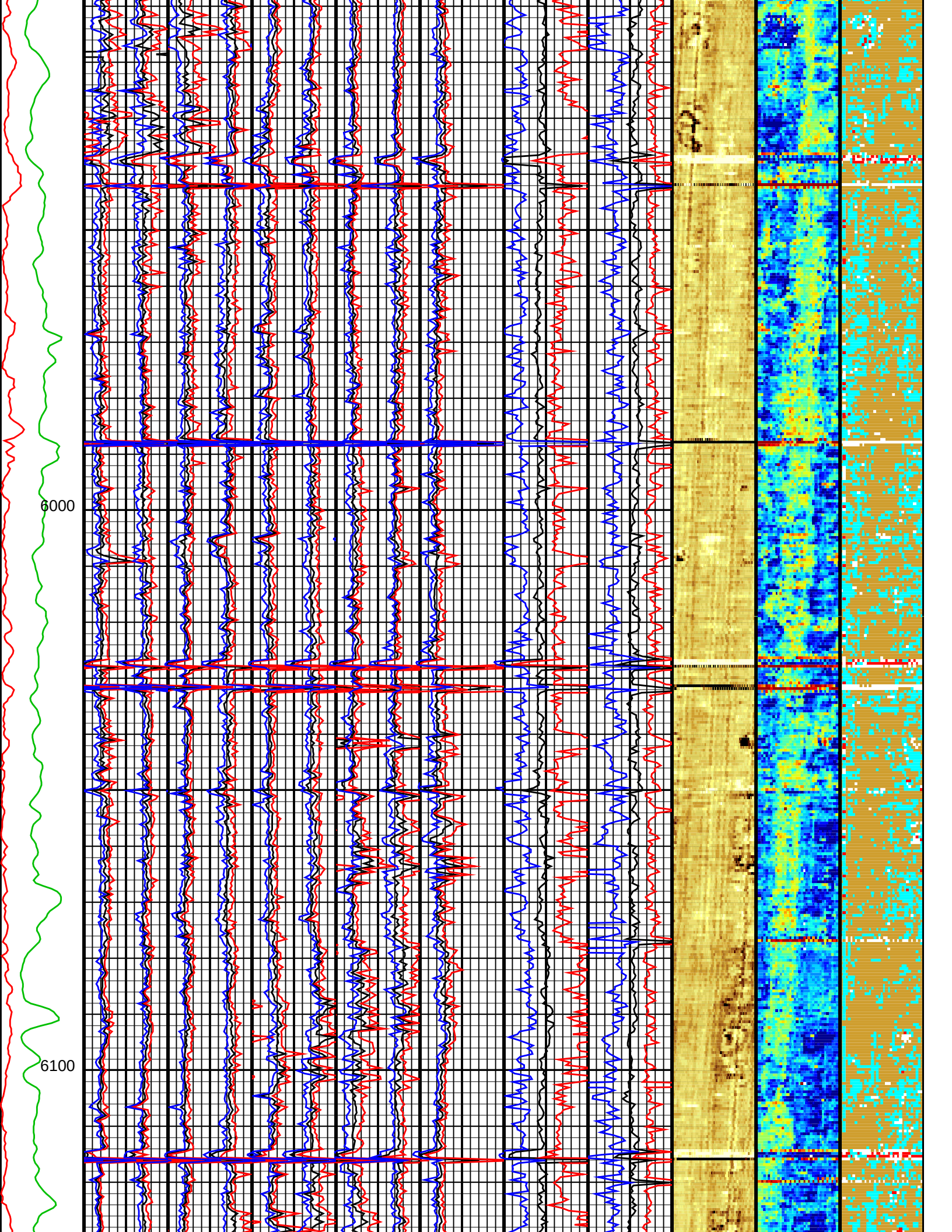

4900
5000

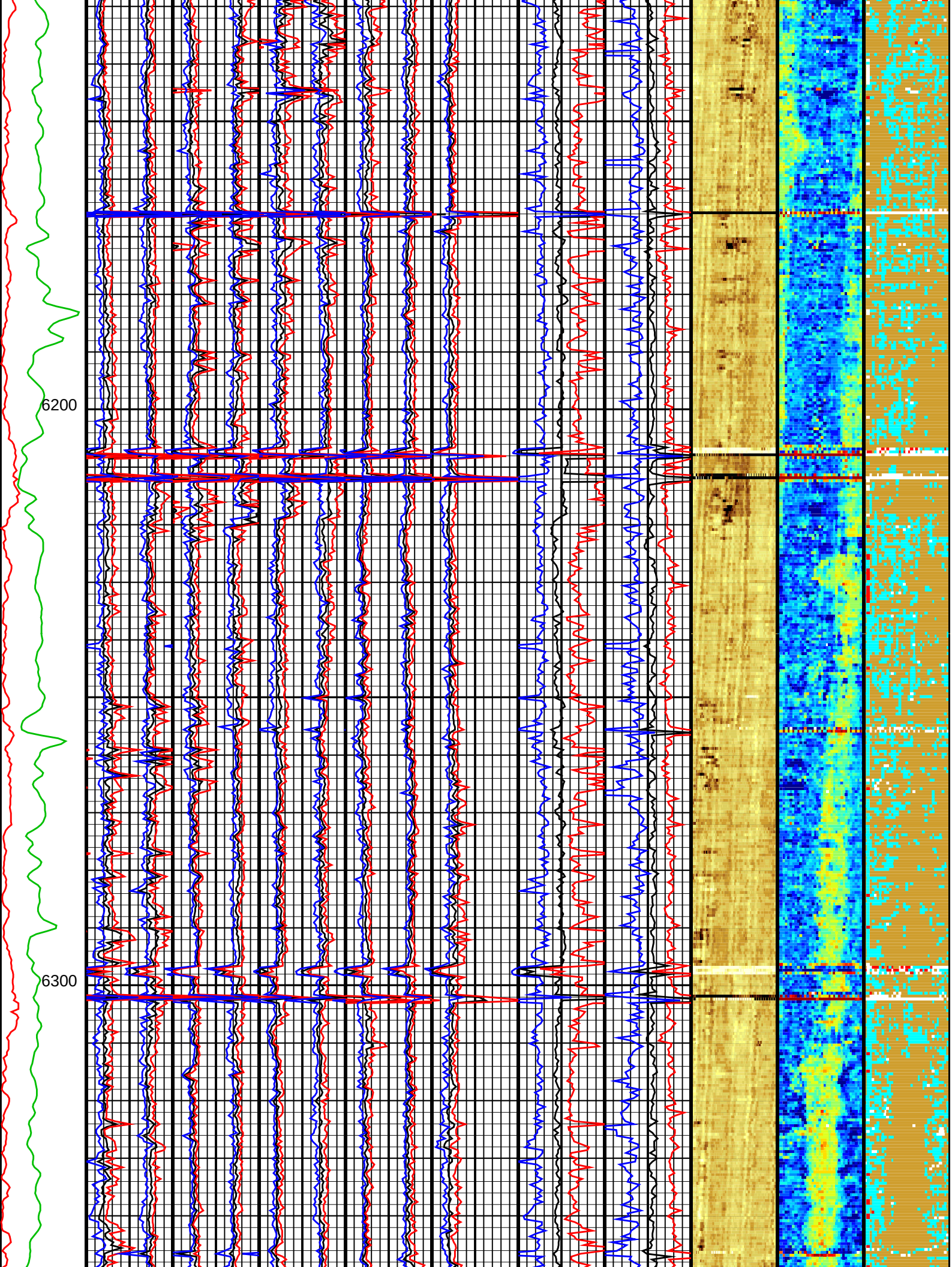

5100
5200

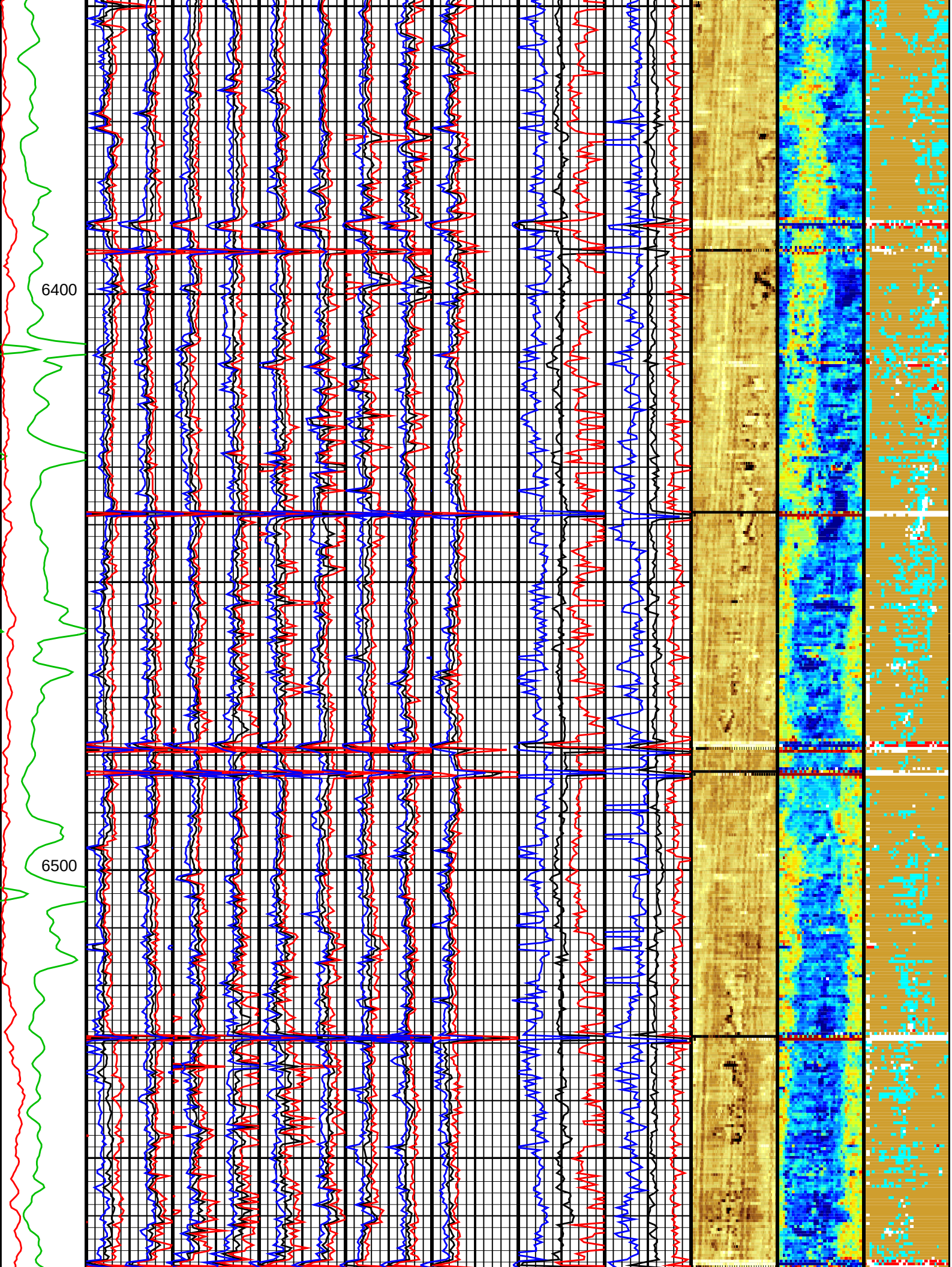

5300
5400

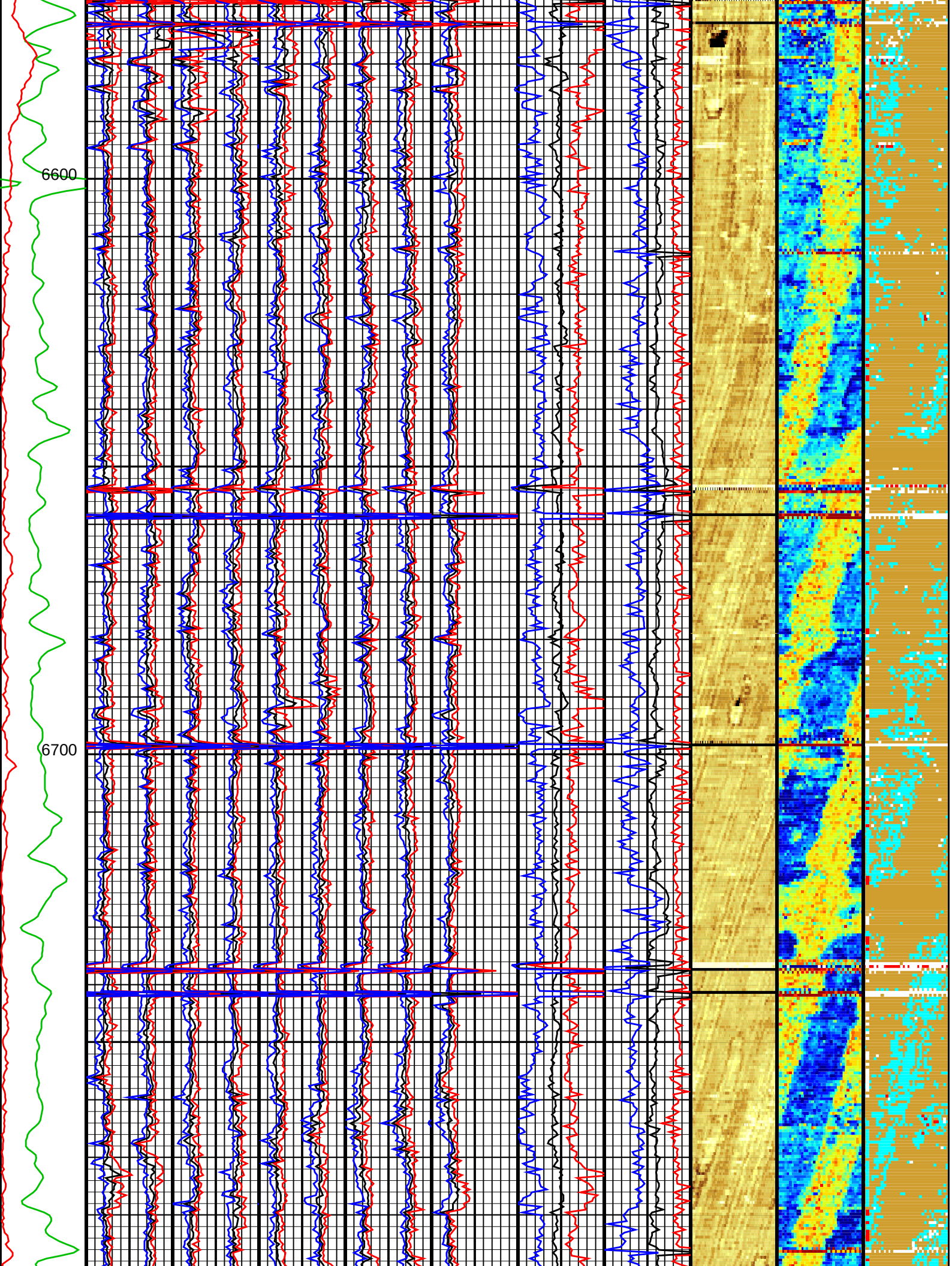

5500
5600

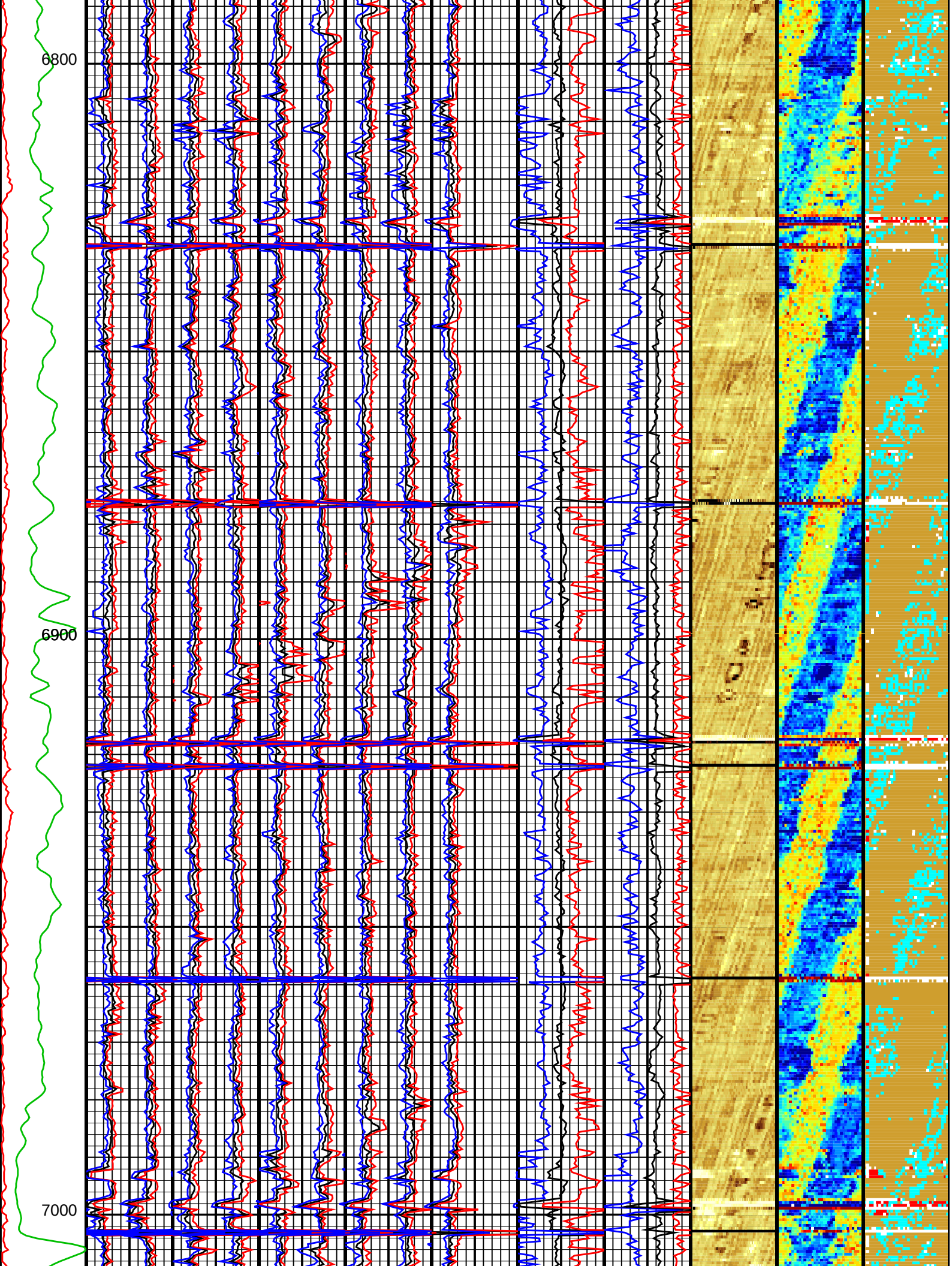

5700
5800
5900

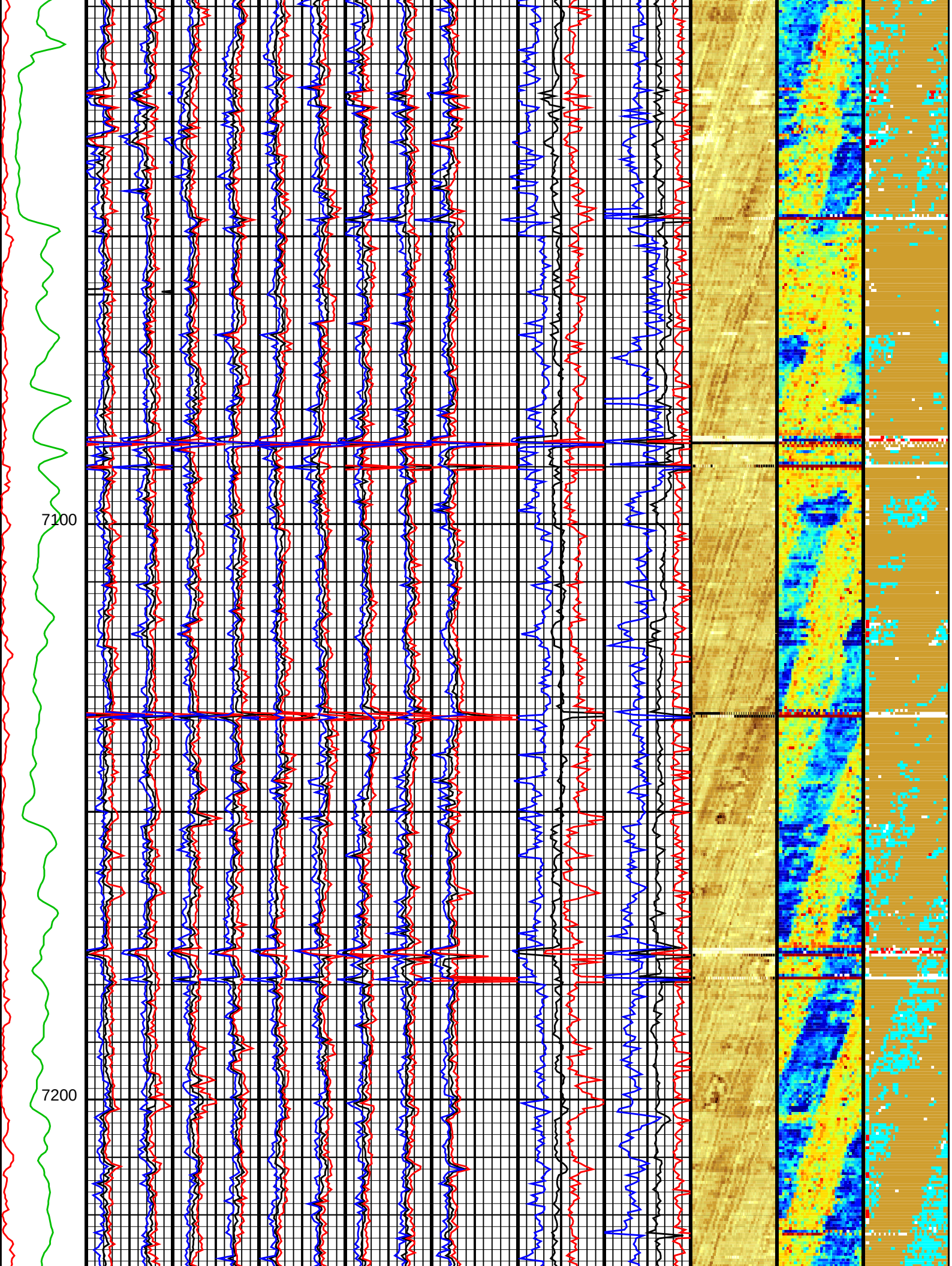

6000
6100

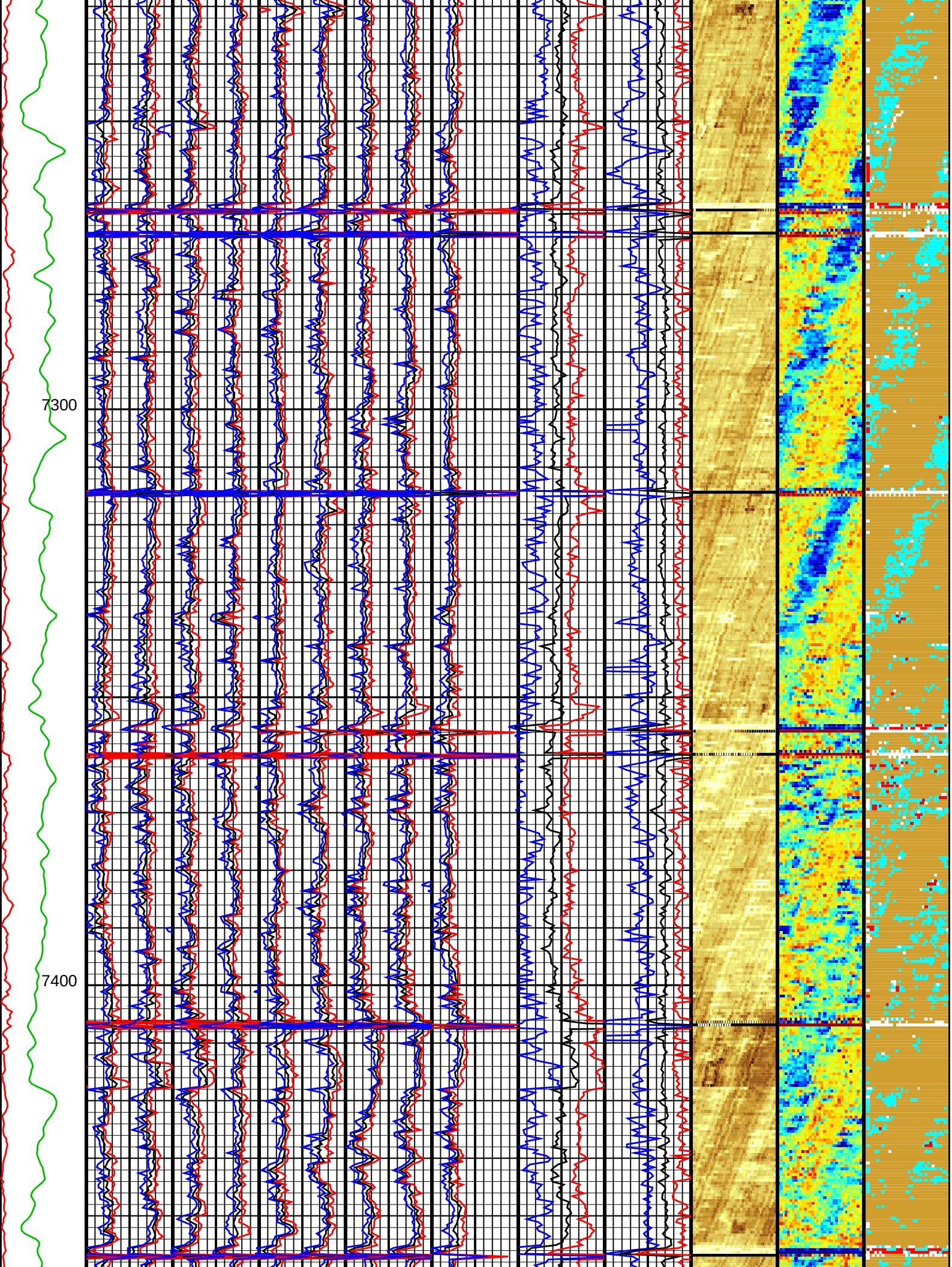

6200
6300

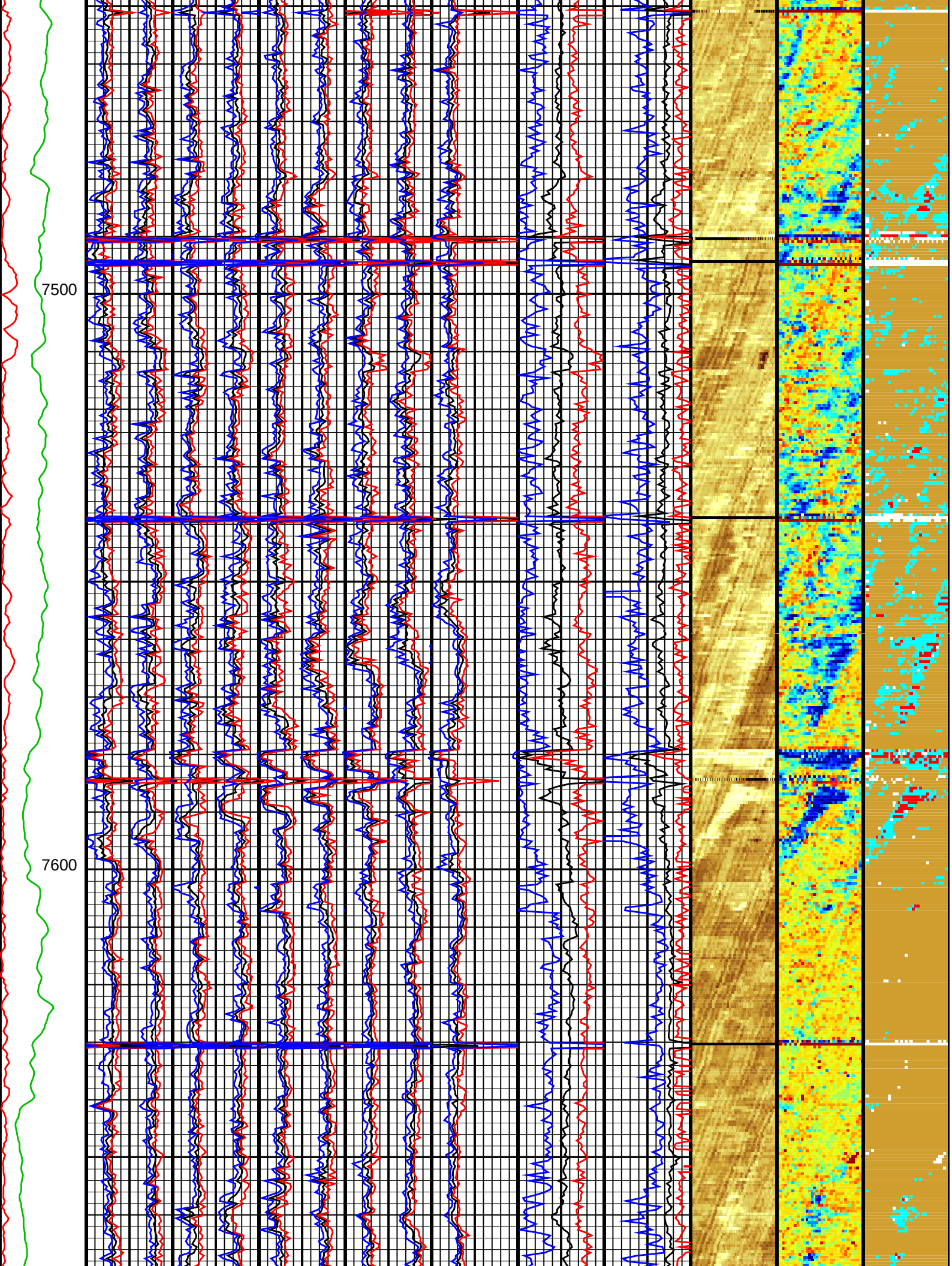

6400
6500

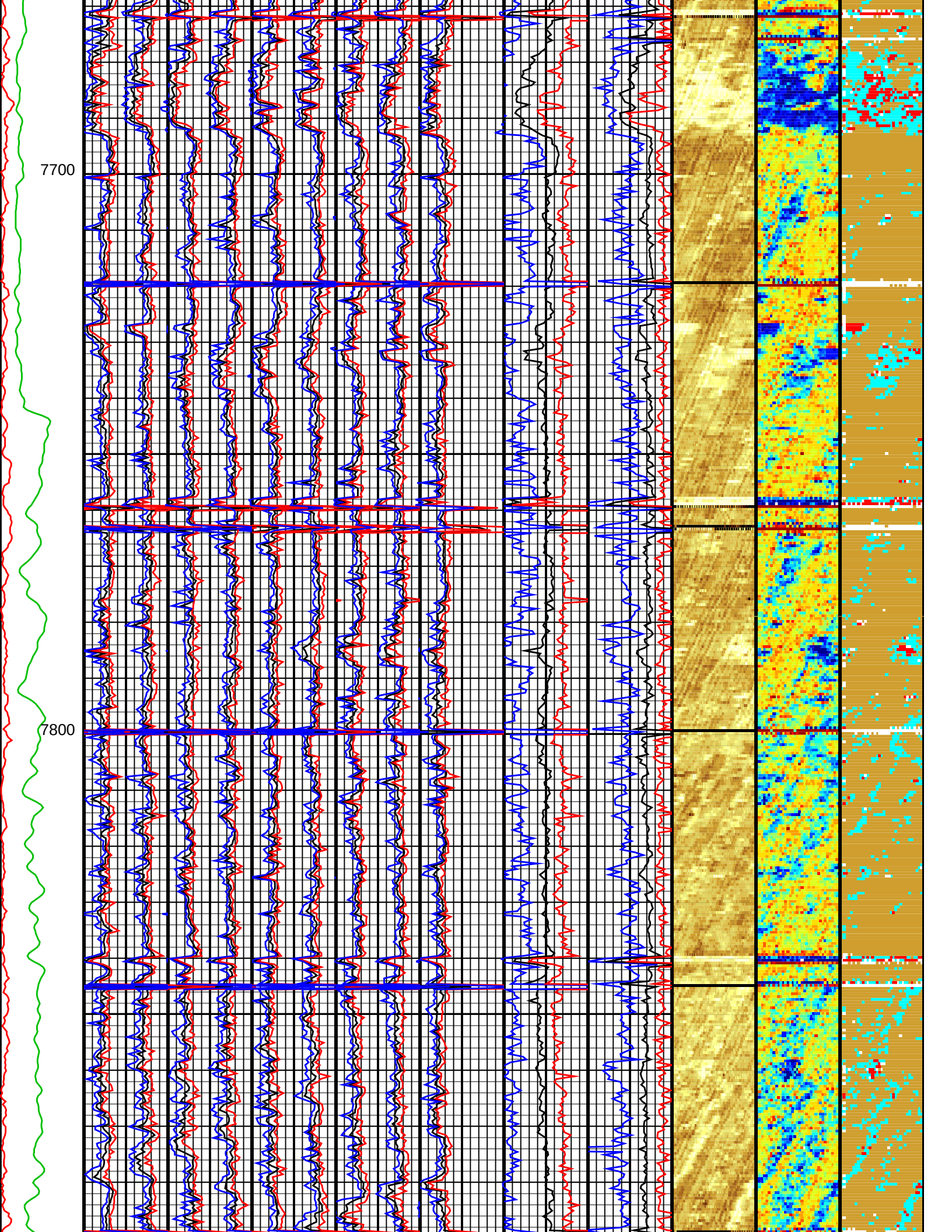

6600
6700

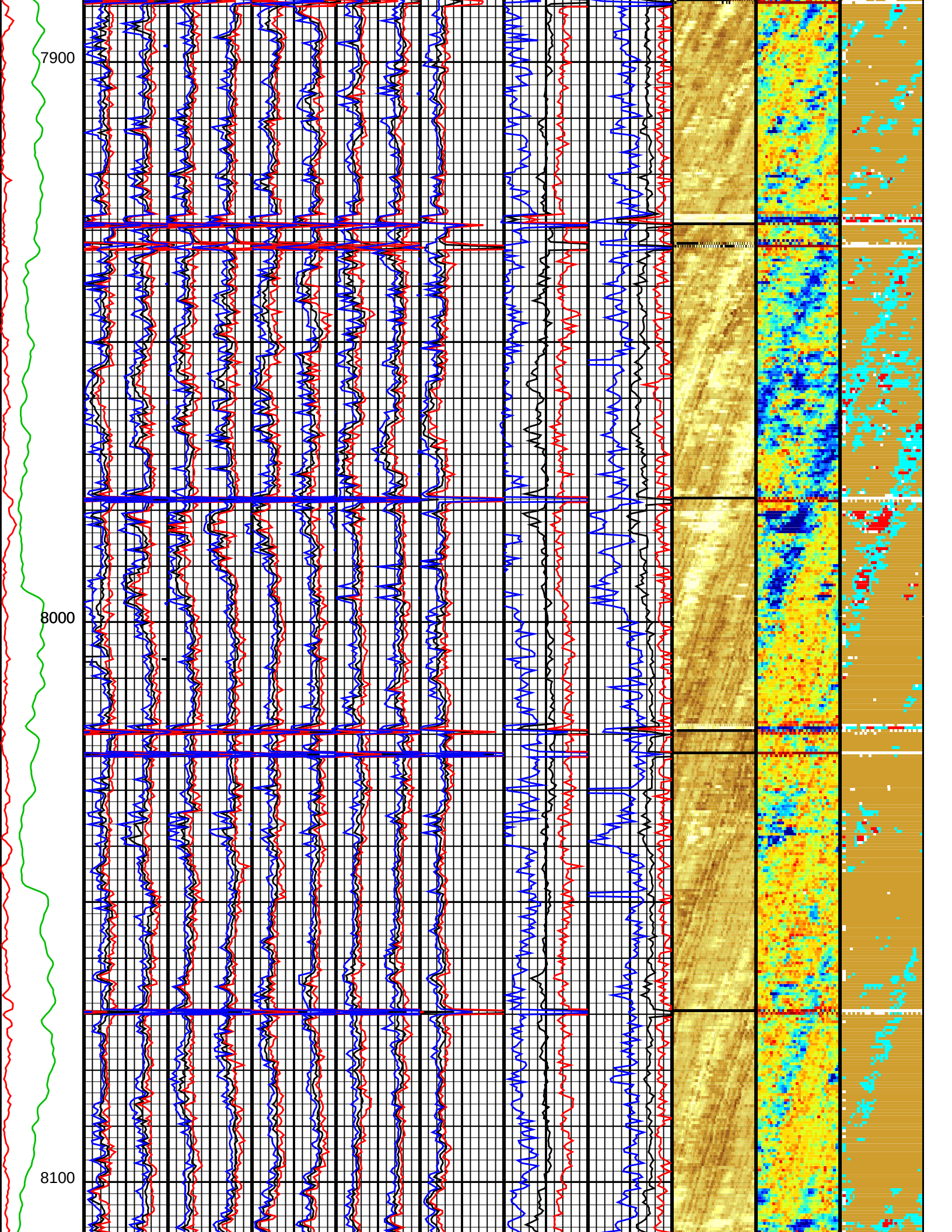

6800
6900
7000

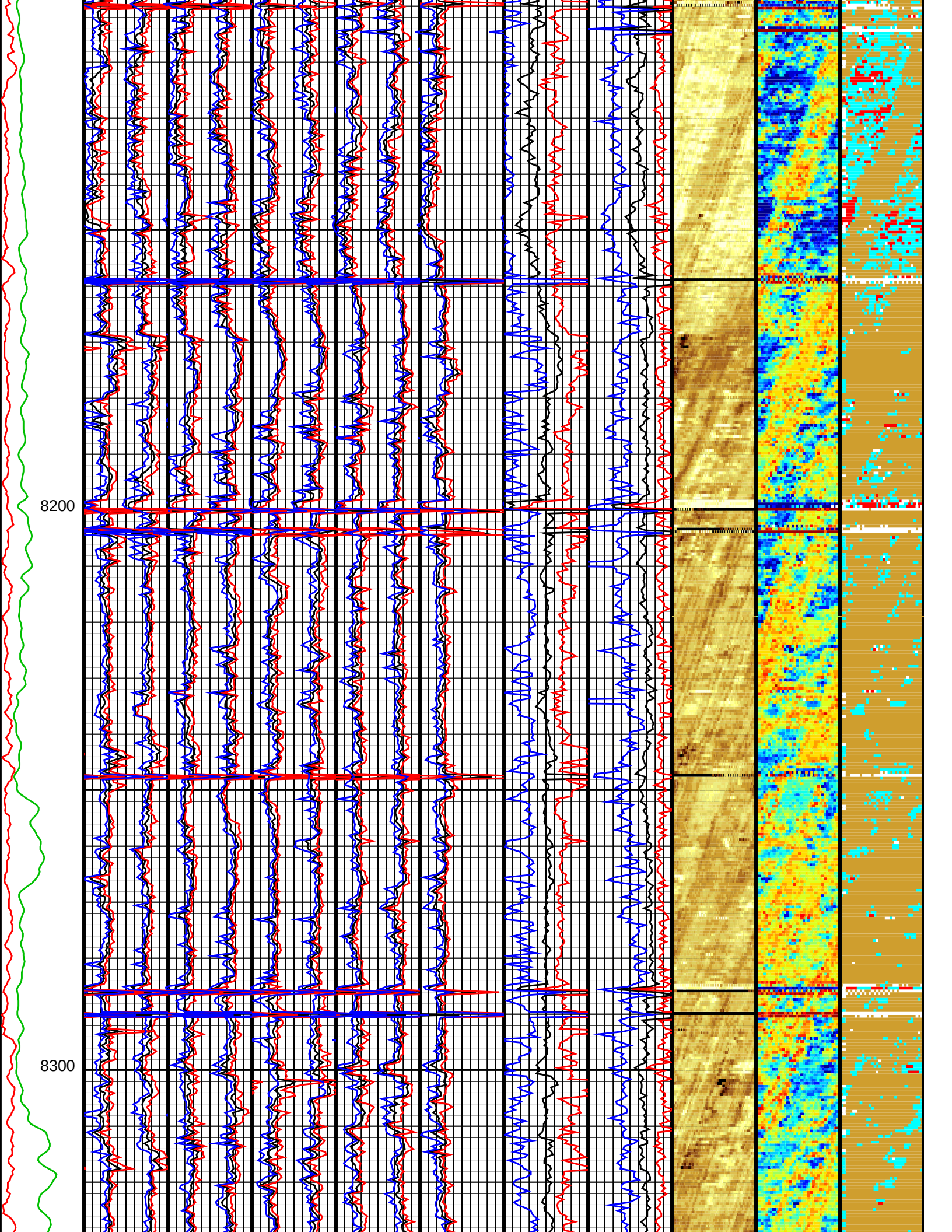

7100
7200

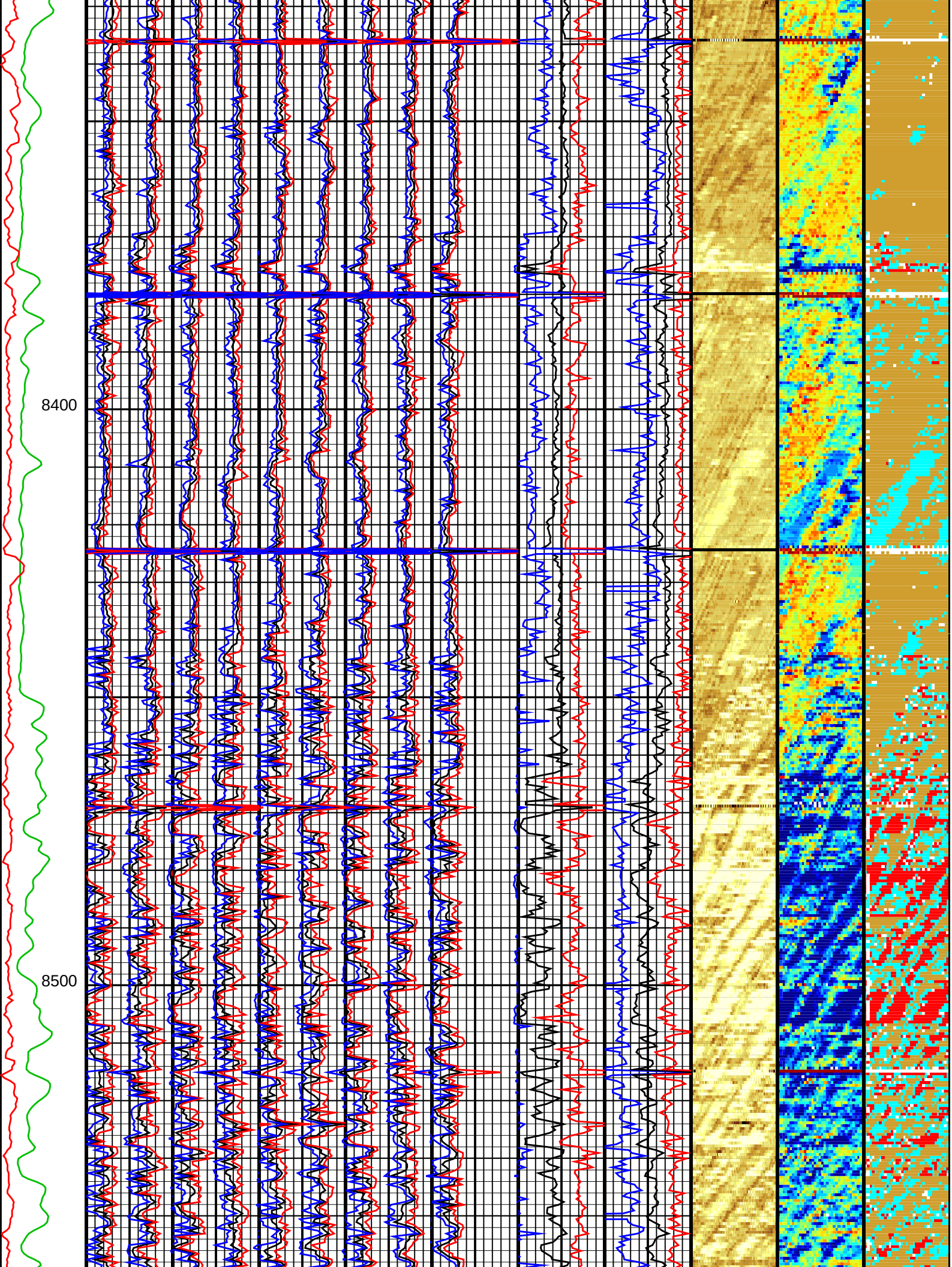

7300
7400

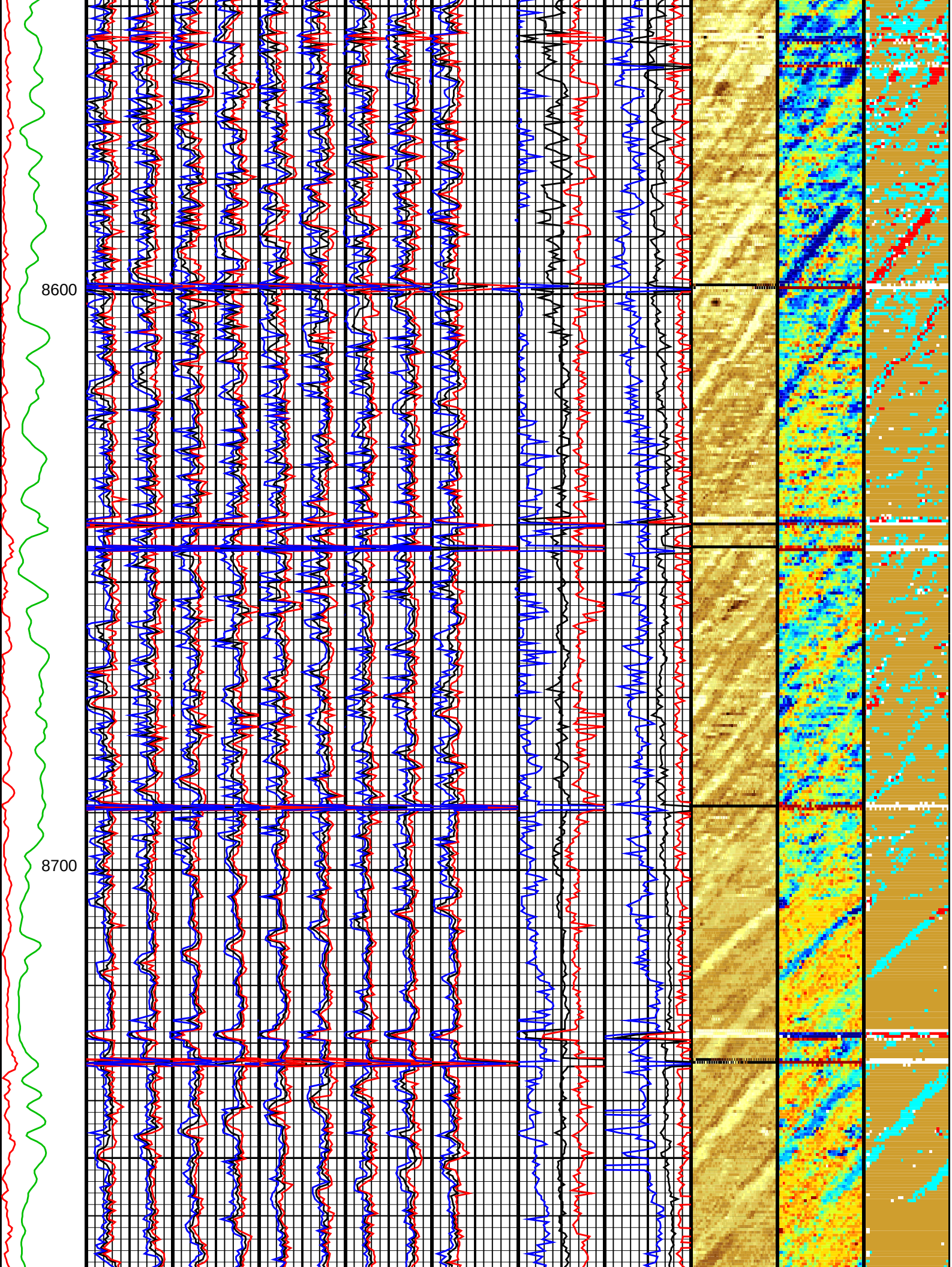

7500
7600

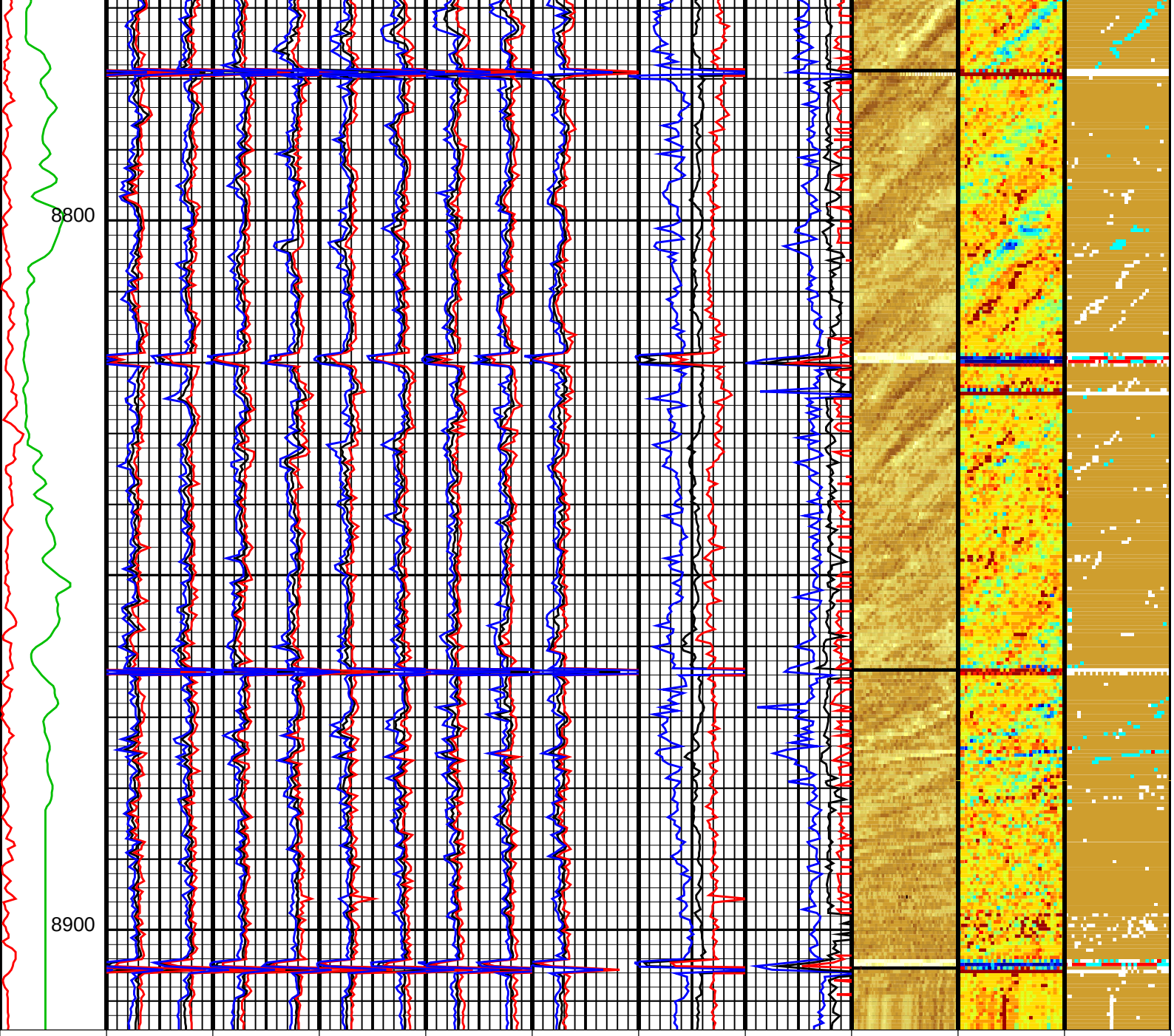

7700
7800


7900
8000
8100


8200
8300


8400
8500


8600
8700



Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	−500.0000, 0.5000, 1.0000, 1.5000, 2.0000, 2.5000, 3.0000, 3.5000, 4.0000, 4.5000, 5.0000, 5.5000, 6.0000, 6.5000, 7.0000, 7.5000, 8.0000 Raw Acoustic Imped. (AIBK) (MRAY)	0.0000, 50.0000, 57.0000, 64.0000, 71.0000, 78.0000, 85.0000, 92.0000, 99.0000, 106.0000, 113.0000, 120.0000, 127.0000, 134.0000, 141.0000, 148.0000, 155.0000 Flexural Attenuation (U−USIT_UFAK) (DB/M)	0.5000, 1.5000, 2.5000, 3.5000 Solid Liquid Gas Map (U−USIT_USLP) (−−−−
Gamma Ray (GR) (GAPI)	Average Acoustic Impedance #2 (AV_AI2)	Average Acoustic Impedance #4 (AV_AI4)	Average Acoustic Impedance #6 (AV_AI6)	Average Acoustic Impedance #8 (AV_AI8)	Maximum Acoustic Impedance #9 (MAX_AI9)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U−USIT_UFAV)			

0 150	(MRAY) −7.5 7.5	(MRAY) −7.5 7.5	(MRAY) −7.5 7.5	(MRAY) −7.5 7.5	(MRAY) 0 15	0 7.5	(DB/M) 0 150
	Maximum Acoustic Impedance #1 (MAX_ AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_ AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_ AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_ AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_ AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_ UFAX) (DB/M) 0 150
	Maximum Acoustic Impedance #2 (MAX_ AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_ AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_ AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_ AI8) (MRAY) −7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_ AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_ AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_ AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_ AI7) (MRAY) 0 15			
	Minimum Acoustic Impedance #2 (MIN_ AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_ AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_ AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_ AI8) (MRAY) −7.5 7.5			

Format: M_Goodwin **Vertical Scale: 5" per 100'** **Graphics File Created: 11−Oct−2009 06:12**

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_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12

Schlumberger

VDL

Company: EXXONMOBIL PRODUCTION COMPANY | Well: PCU 297−11B1

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12	8914.0 FT	203.5 FT

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	1.9 MRAY	2.05 MRAY	7401.5 06:15:04
	2.05 MRAY	1.9 MRAY	5701.5 06:18:30
	1.95 MRAY	2.05 MRAY	4001.5 06:22:17

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

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Raw Acoustic Imped. (AIBK) (MRAY)

0.5000
1.5000
2.5000
3.5000

Solid Liquid Gas Map (U−USIT_USLP) (−−−−

Min Amplitude Max

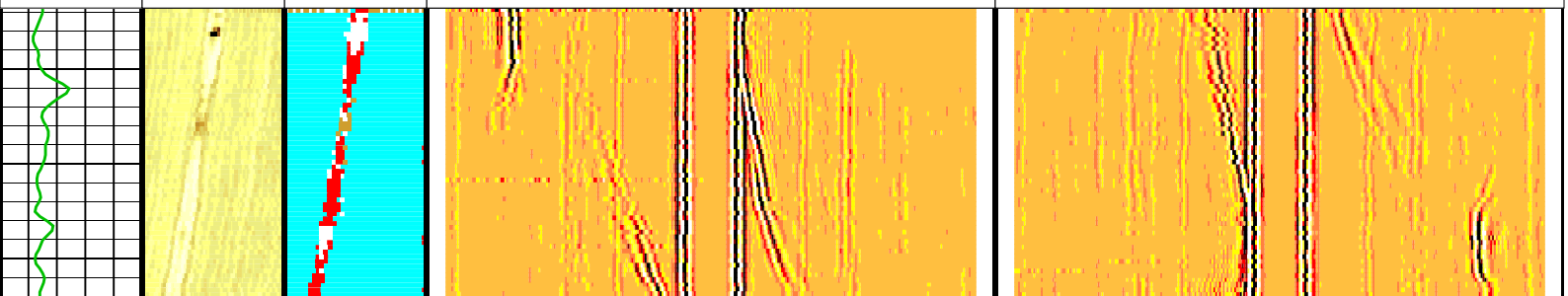
Far at 0 and 180 deg (U−USIT_VDWFF000)

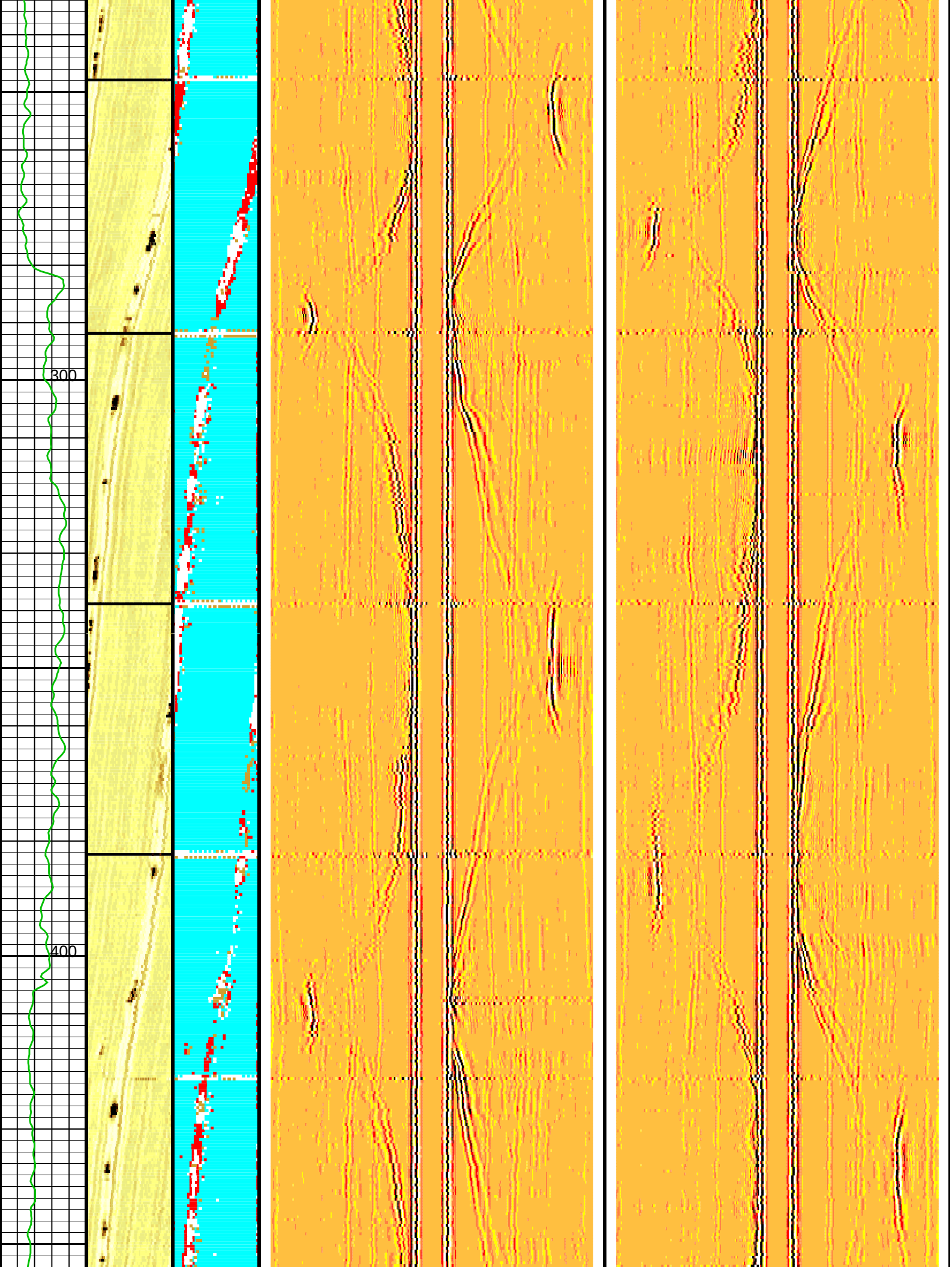
−150 (US) 150

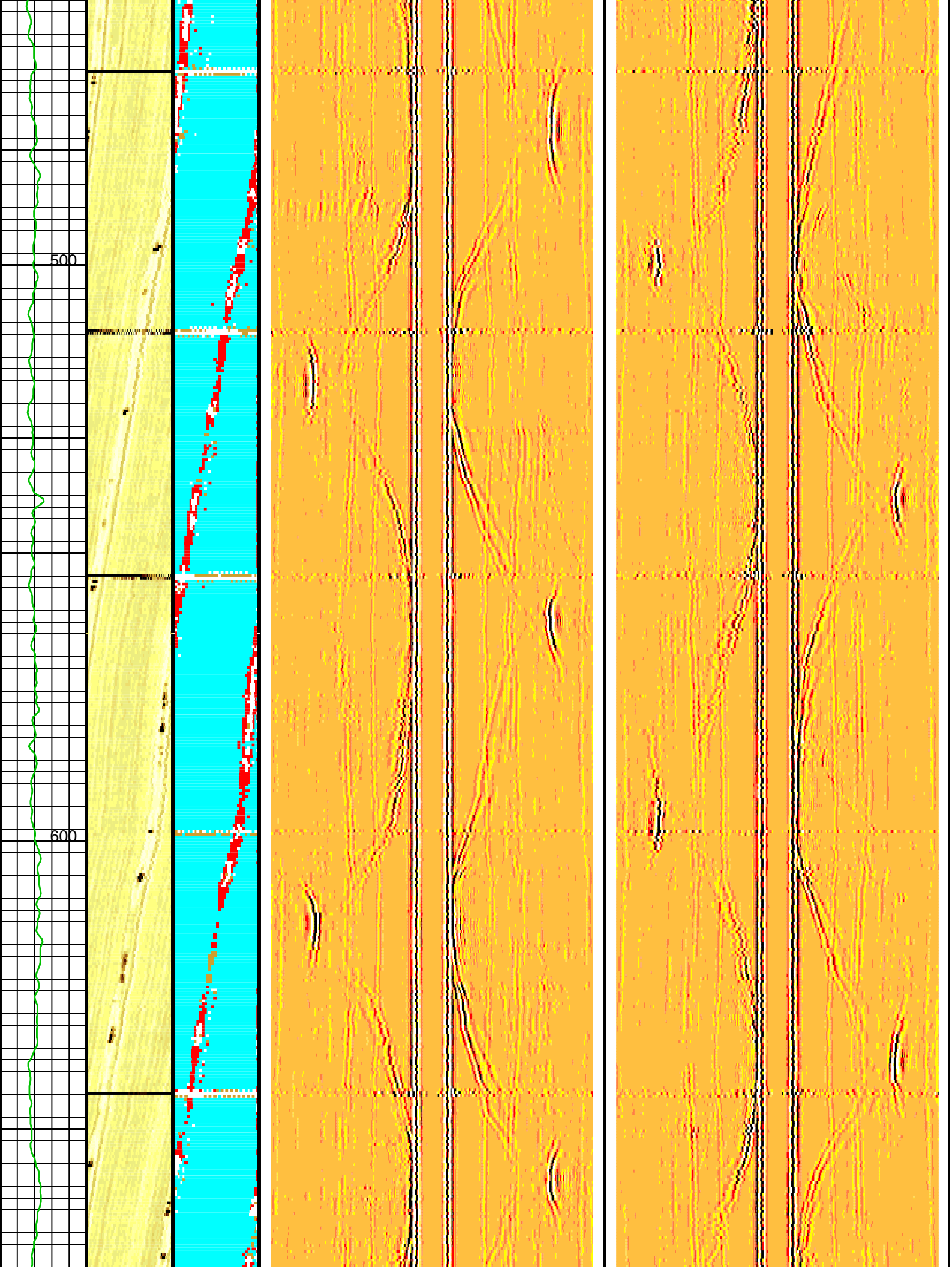
Min Amplitude Max

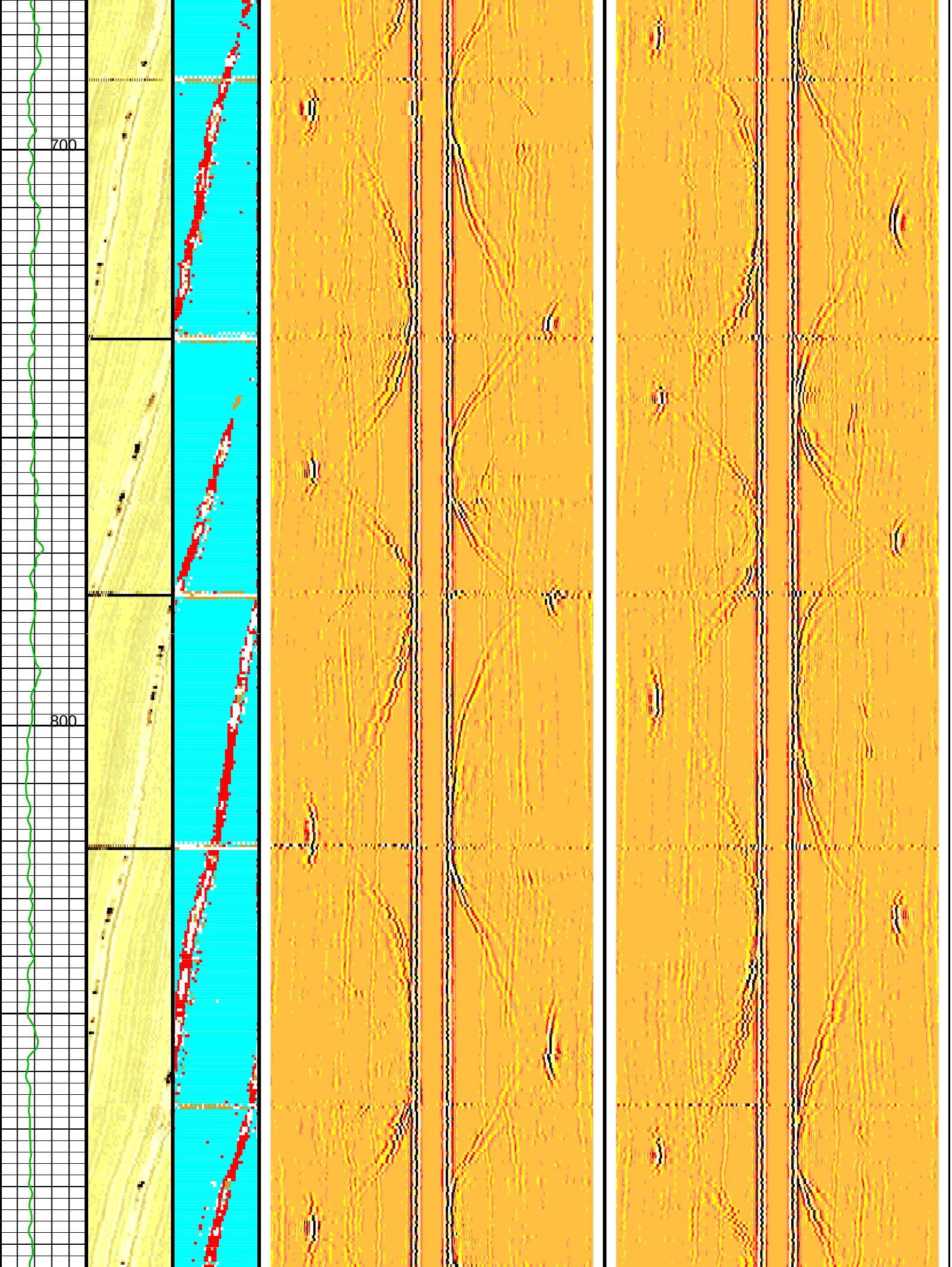
Far at 90 and 270 deg (U−USIT_VDWFF090)

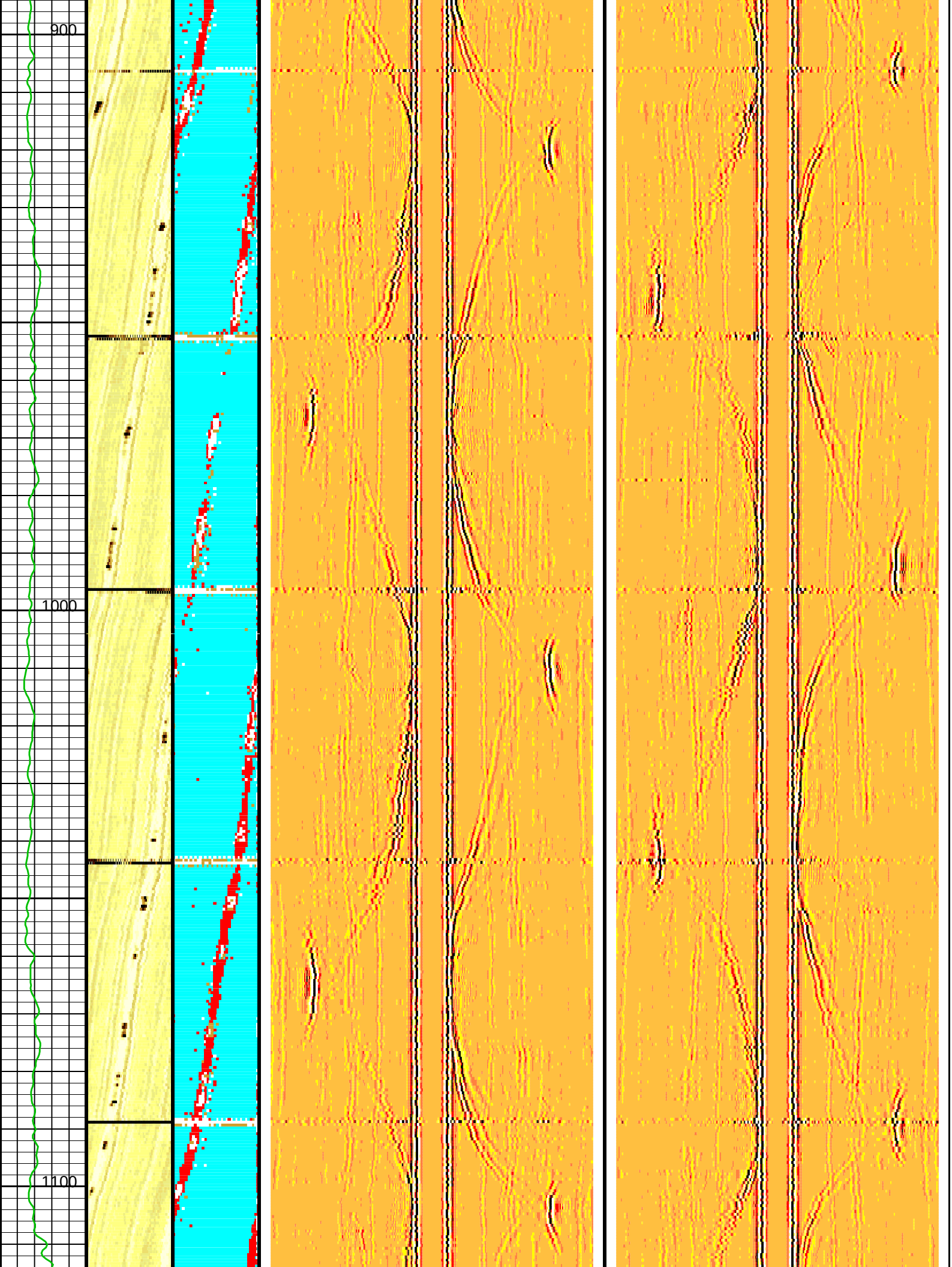
−150 (US) 150

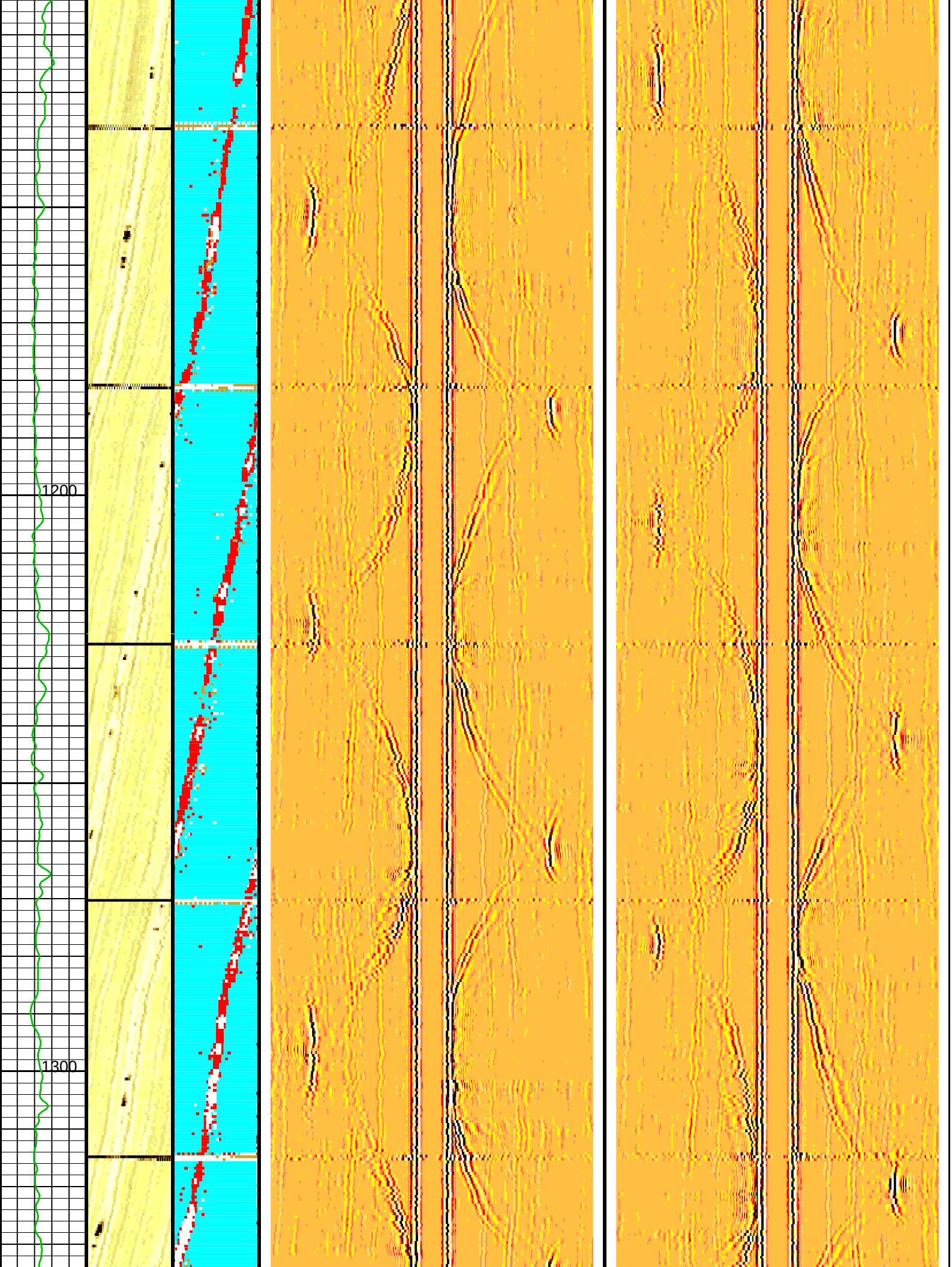


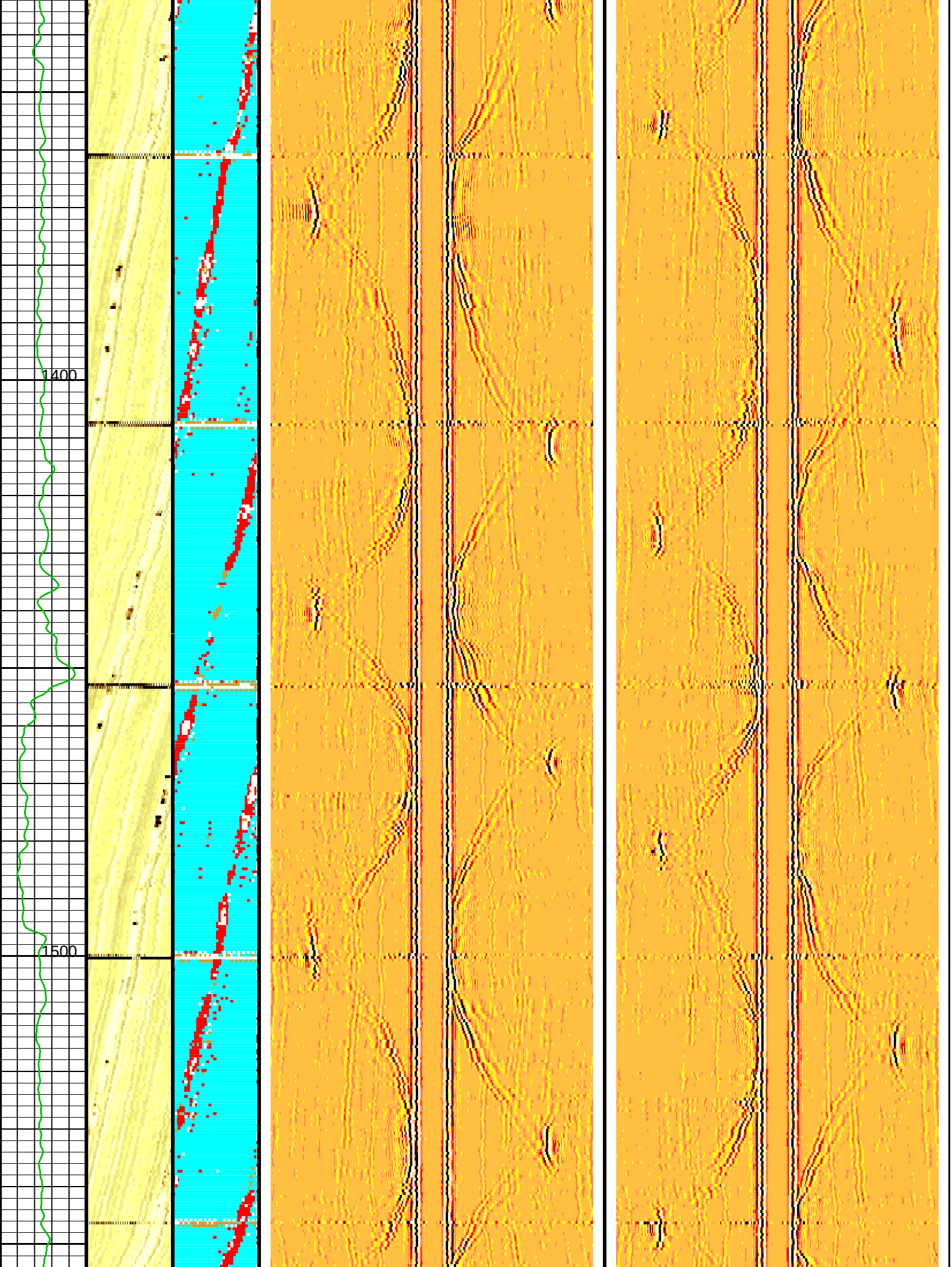

300
400

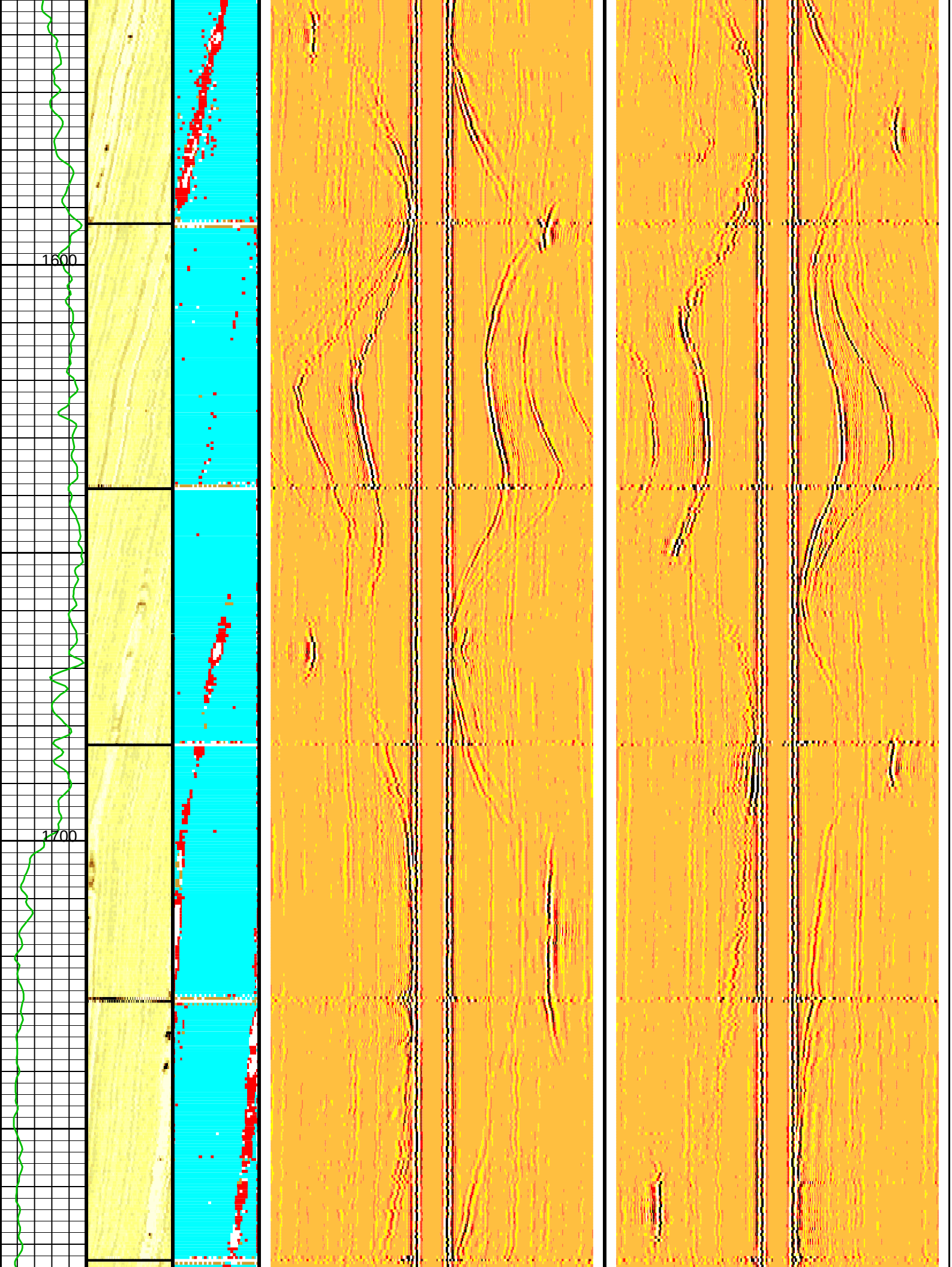

500
600

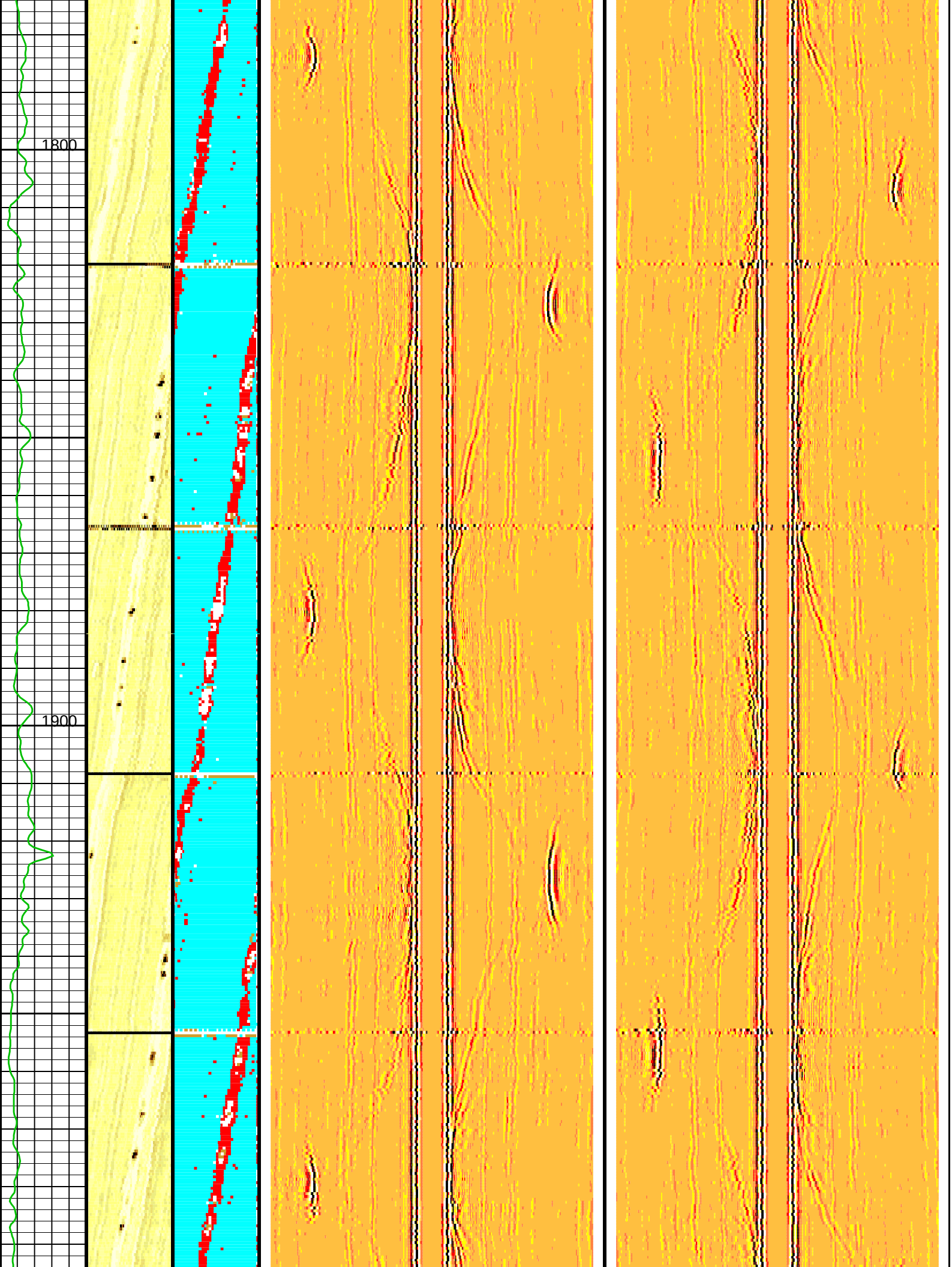

700
800

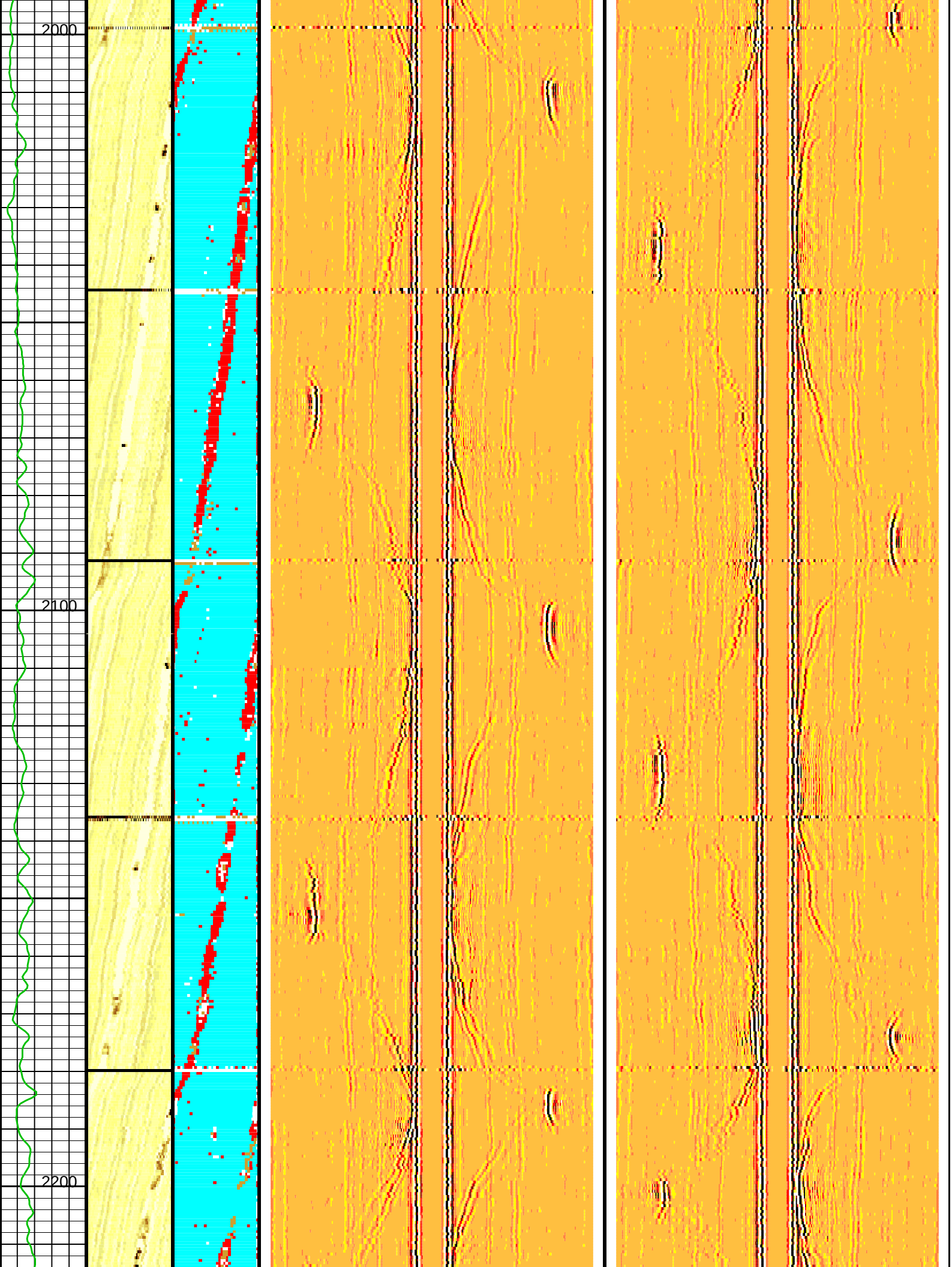

900
1000
1100

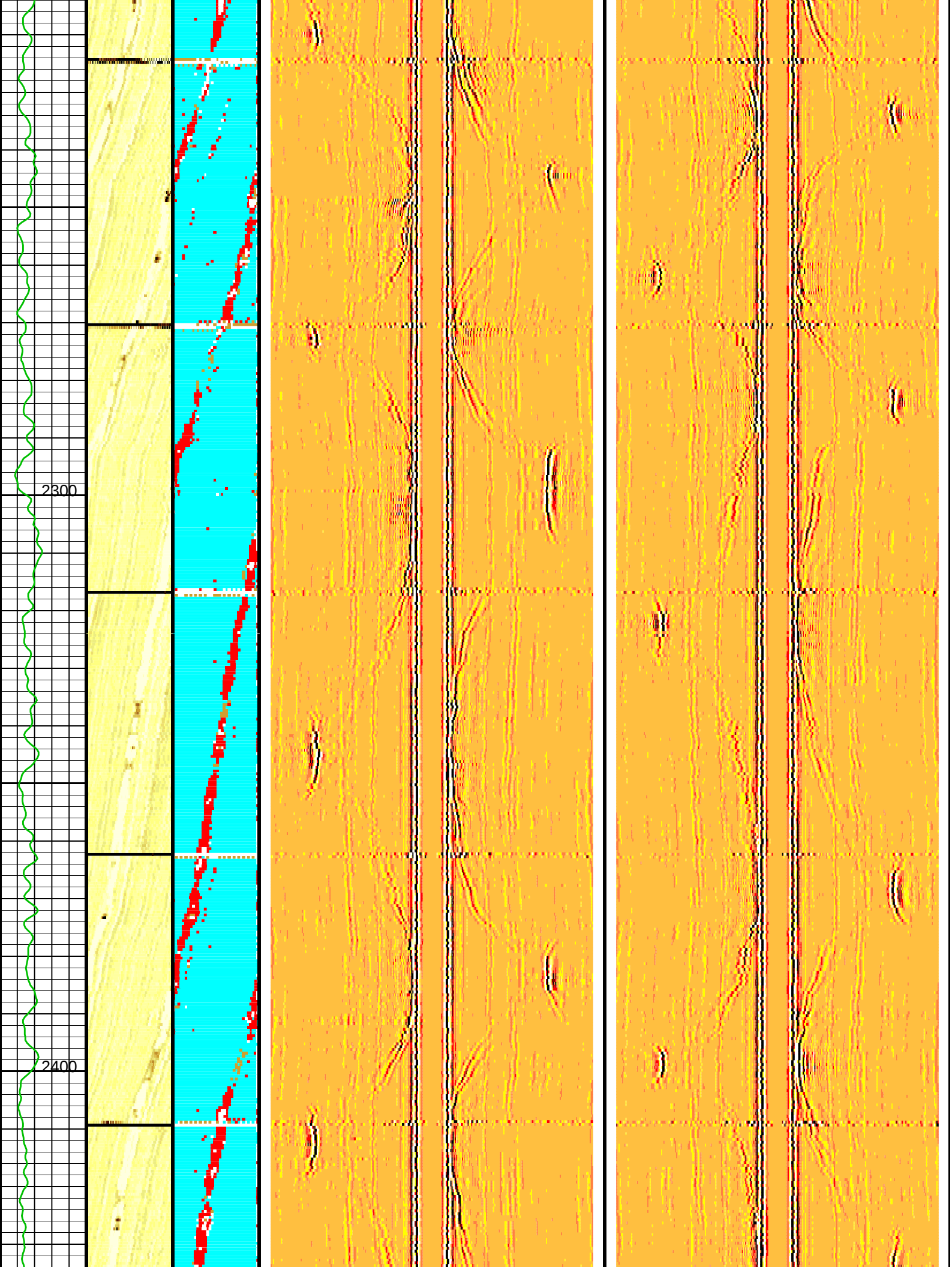

1200
1300

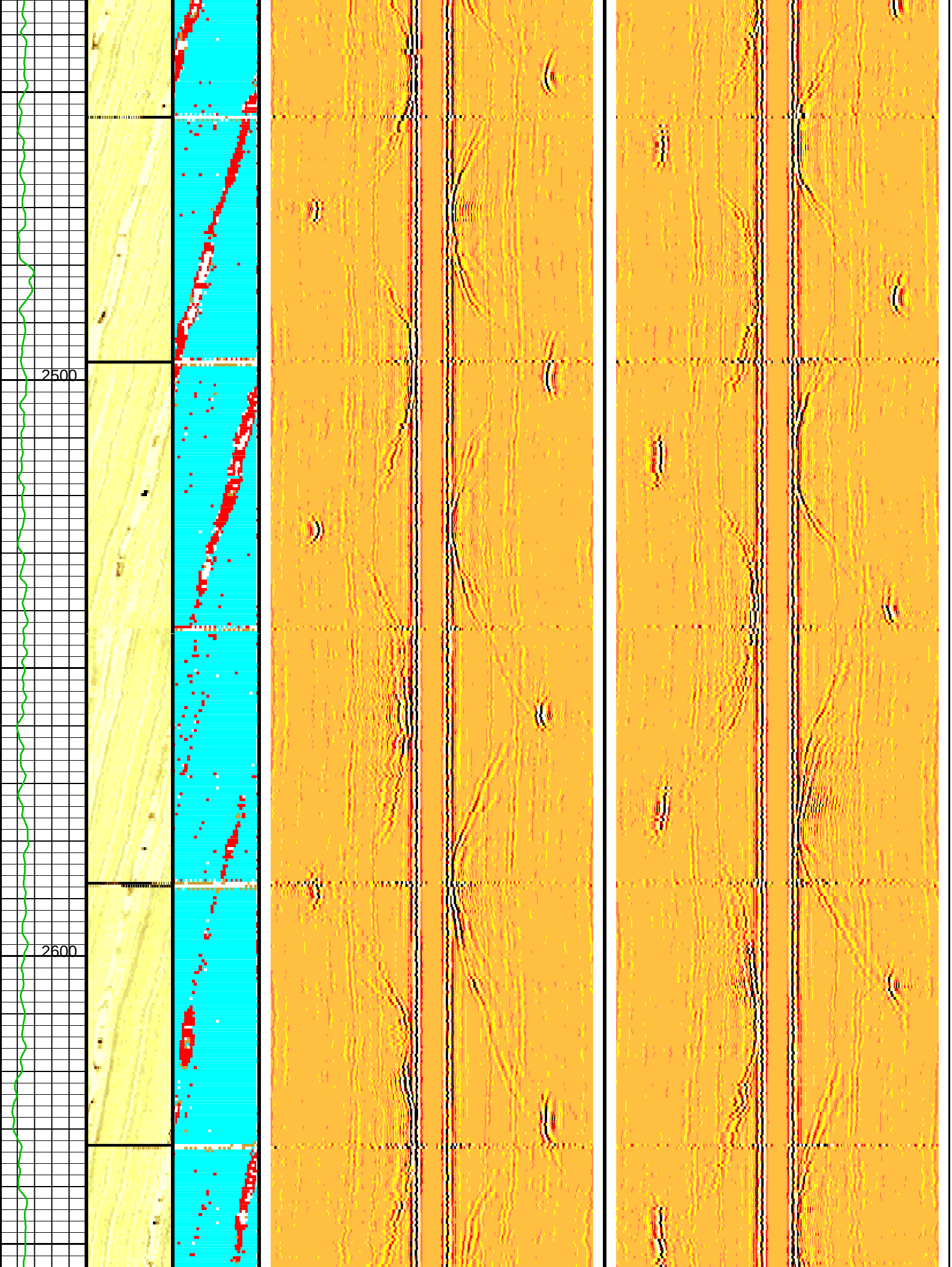

1400
1500

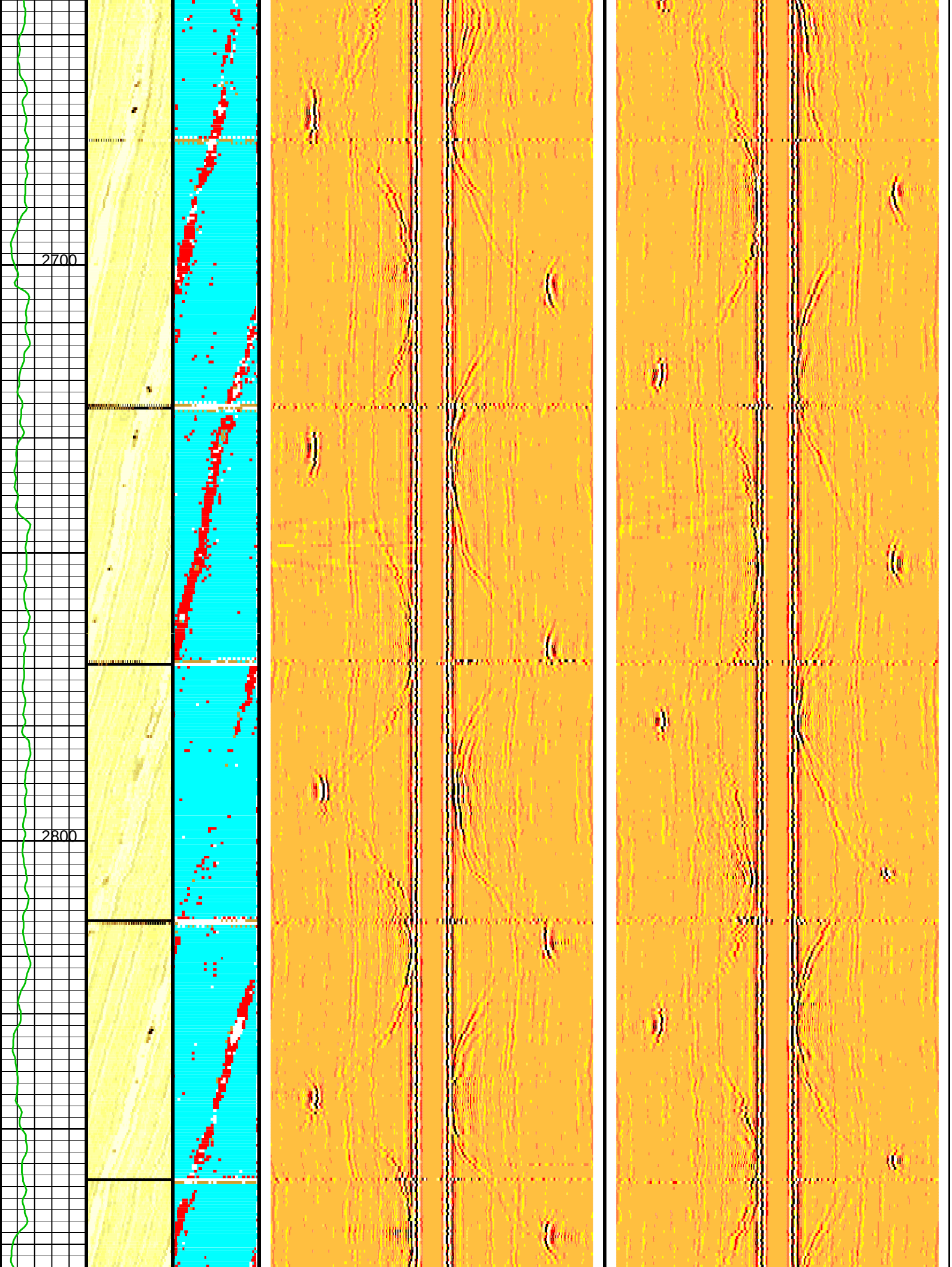

1600
1700

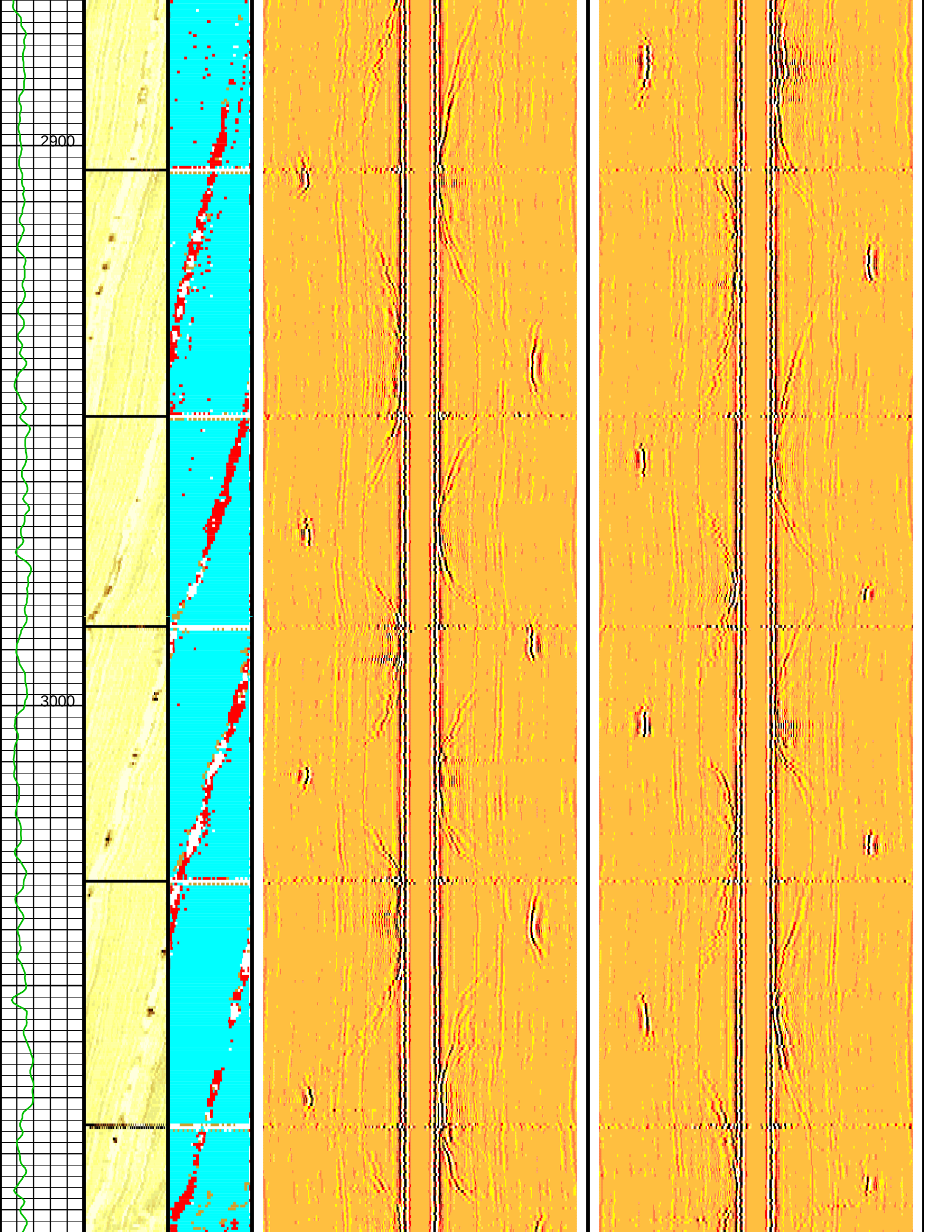

1800
1900

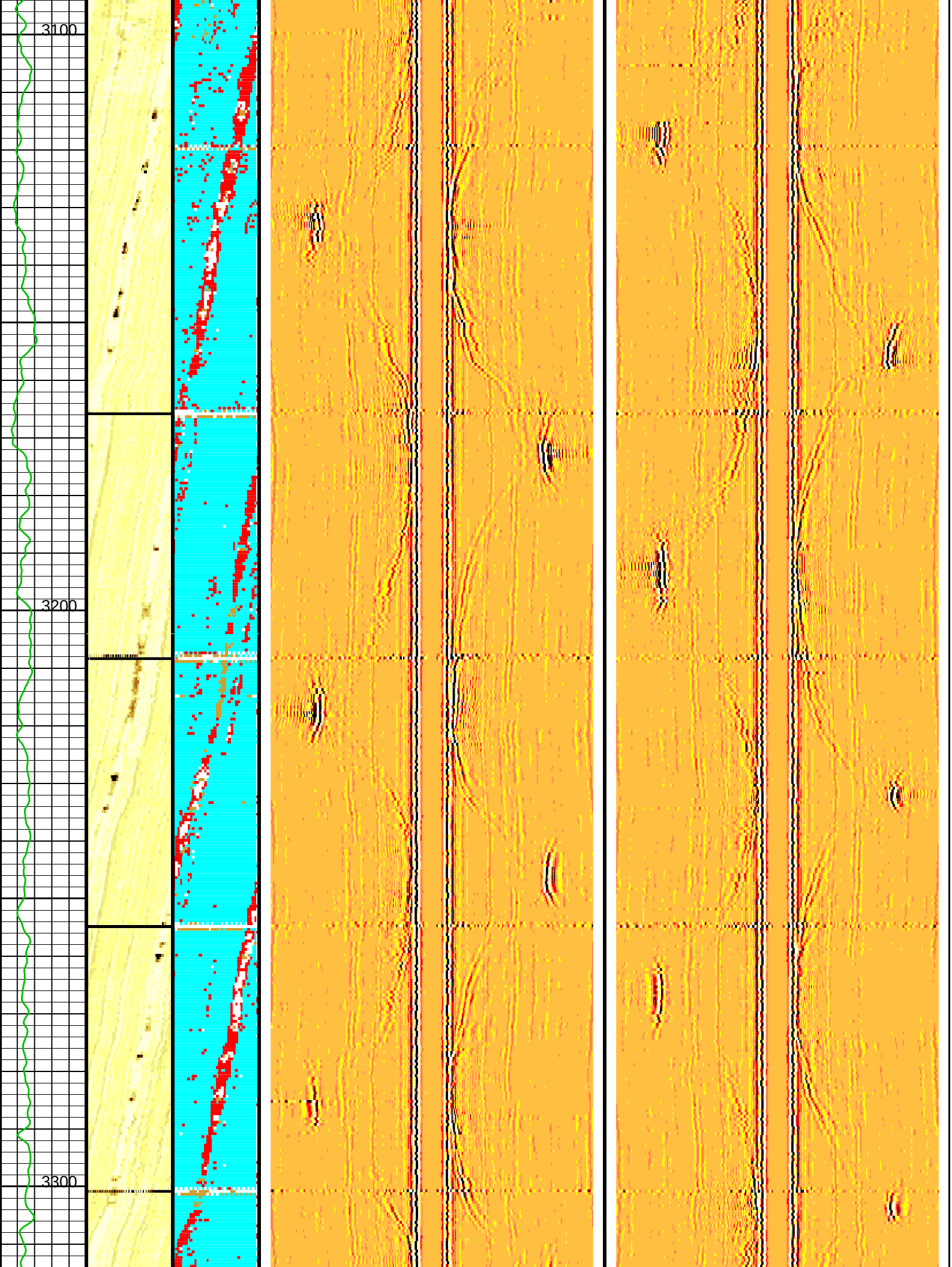

2000
2100
2200

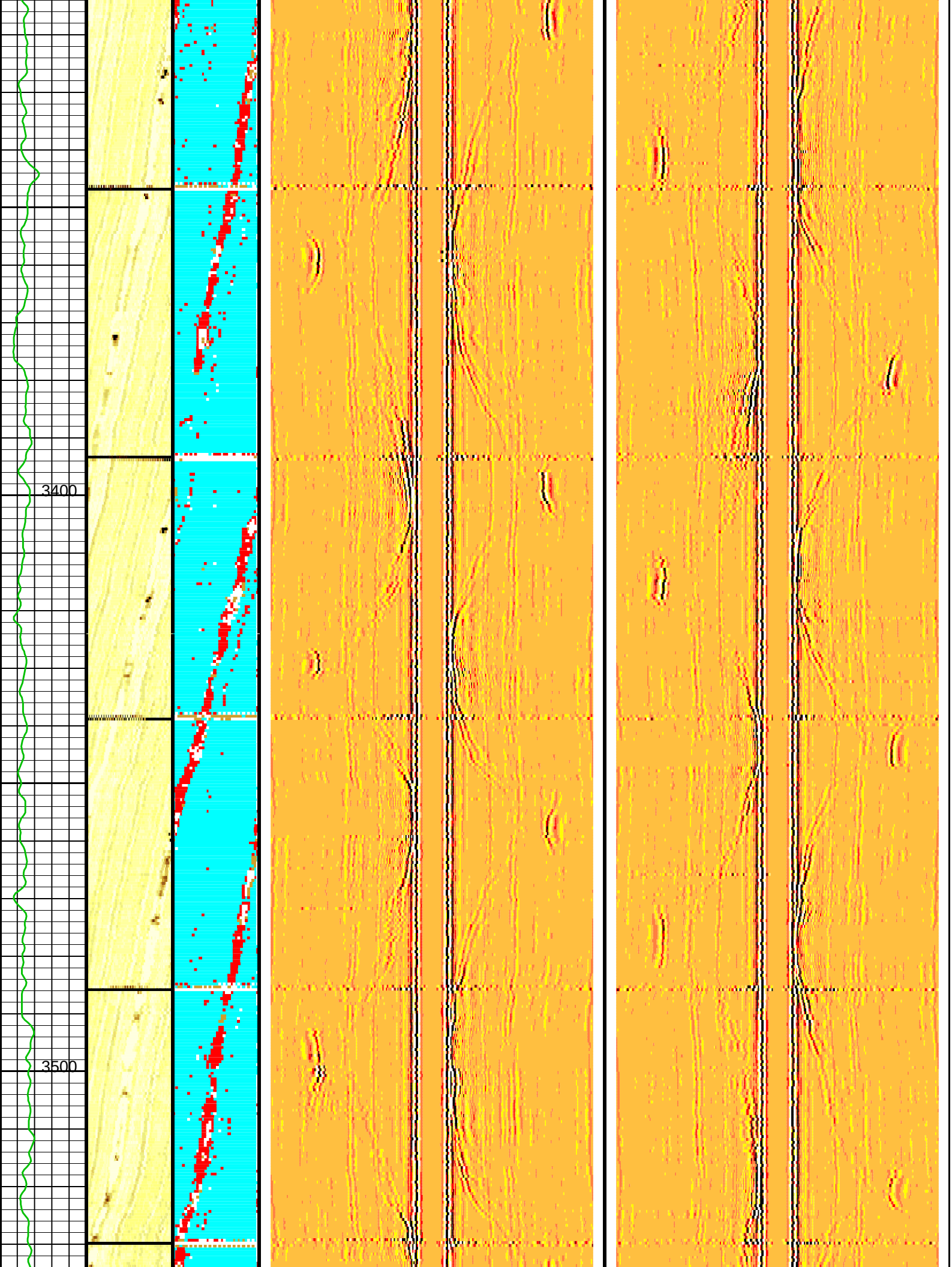

2300
2400

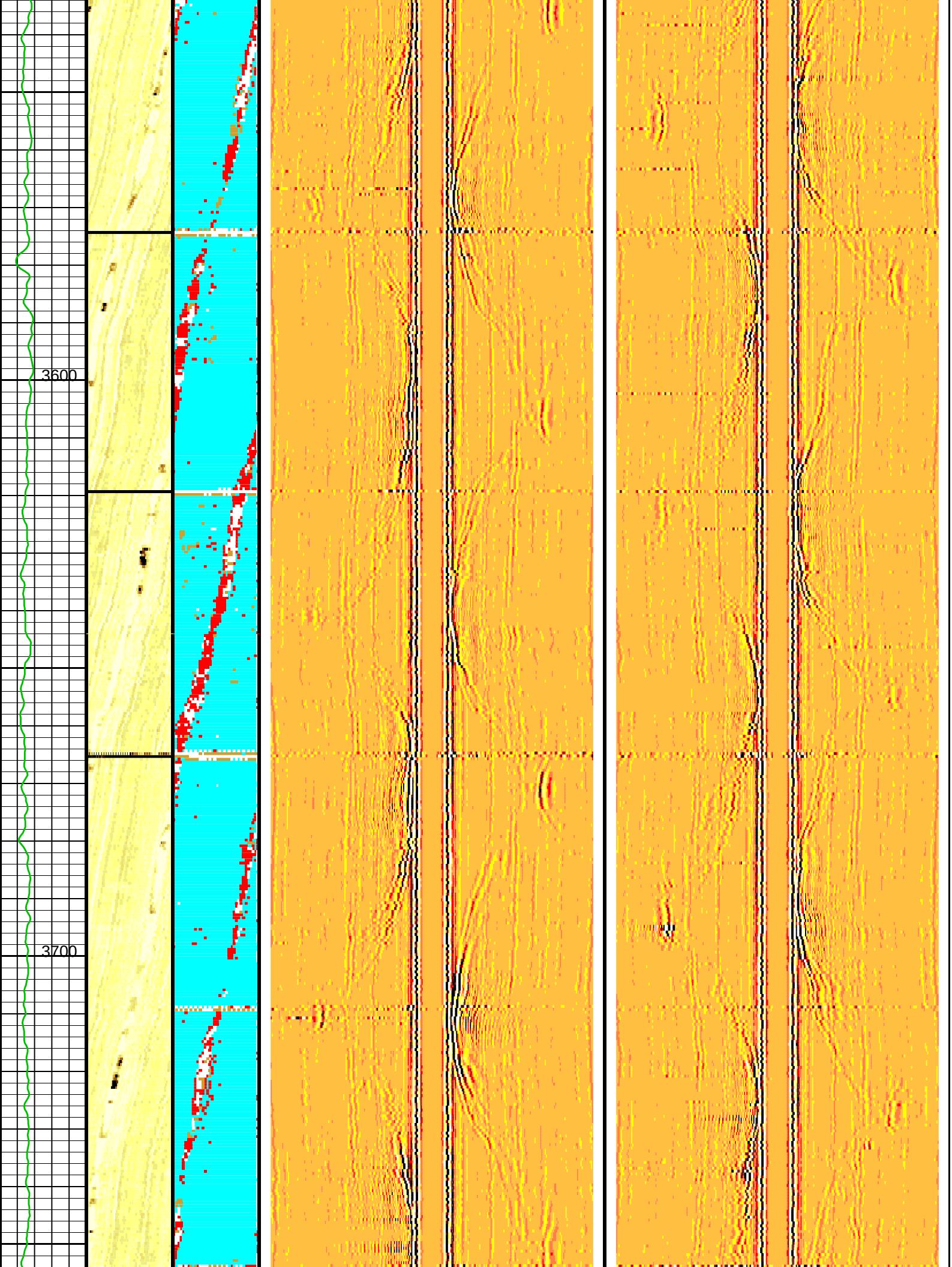

2500
2600

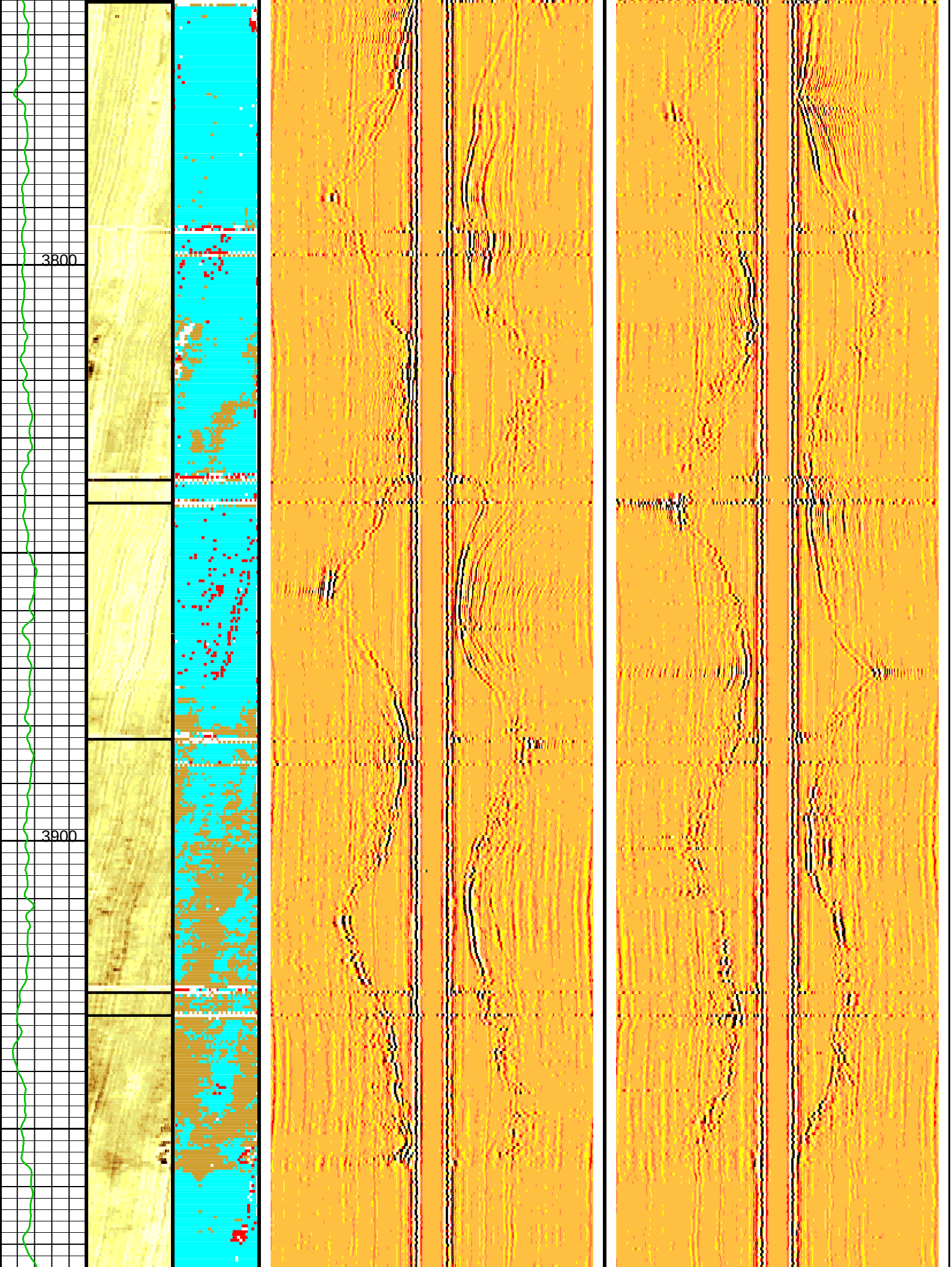

2700
2800

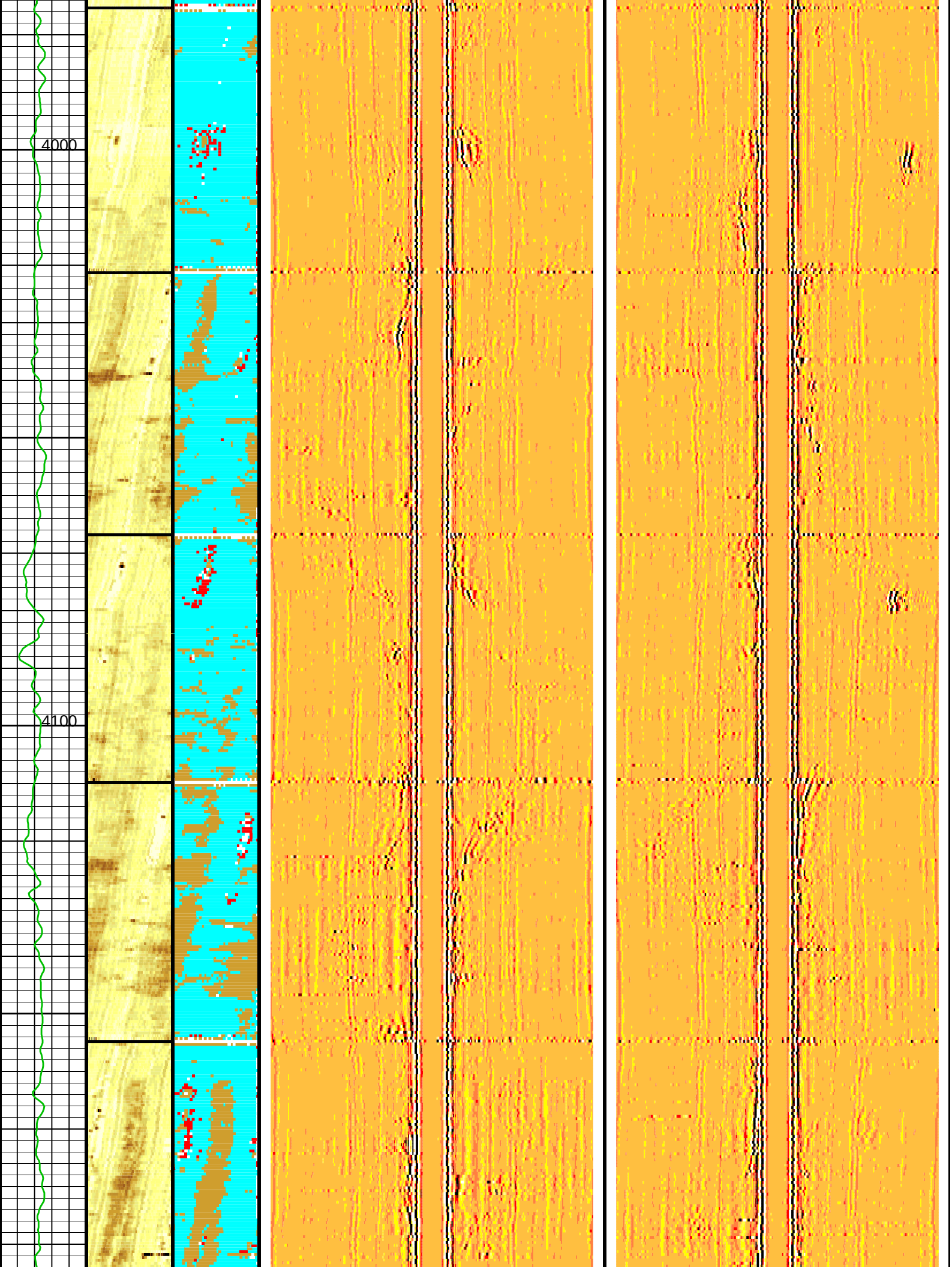

2900
3000

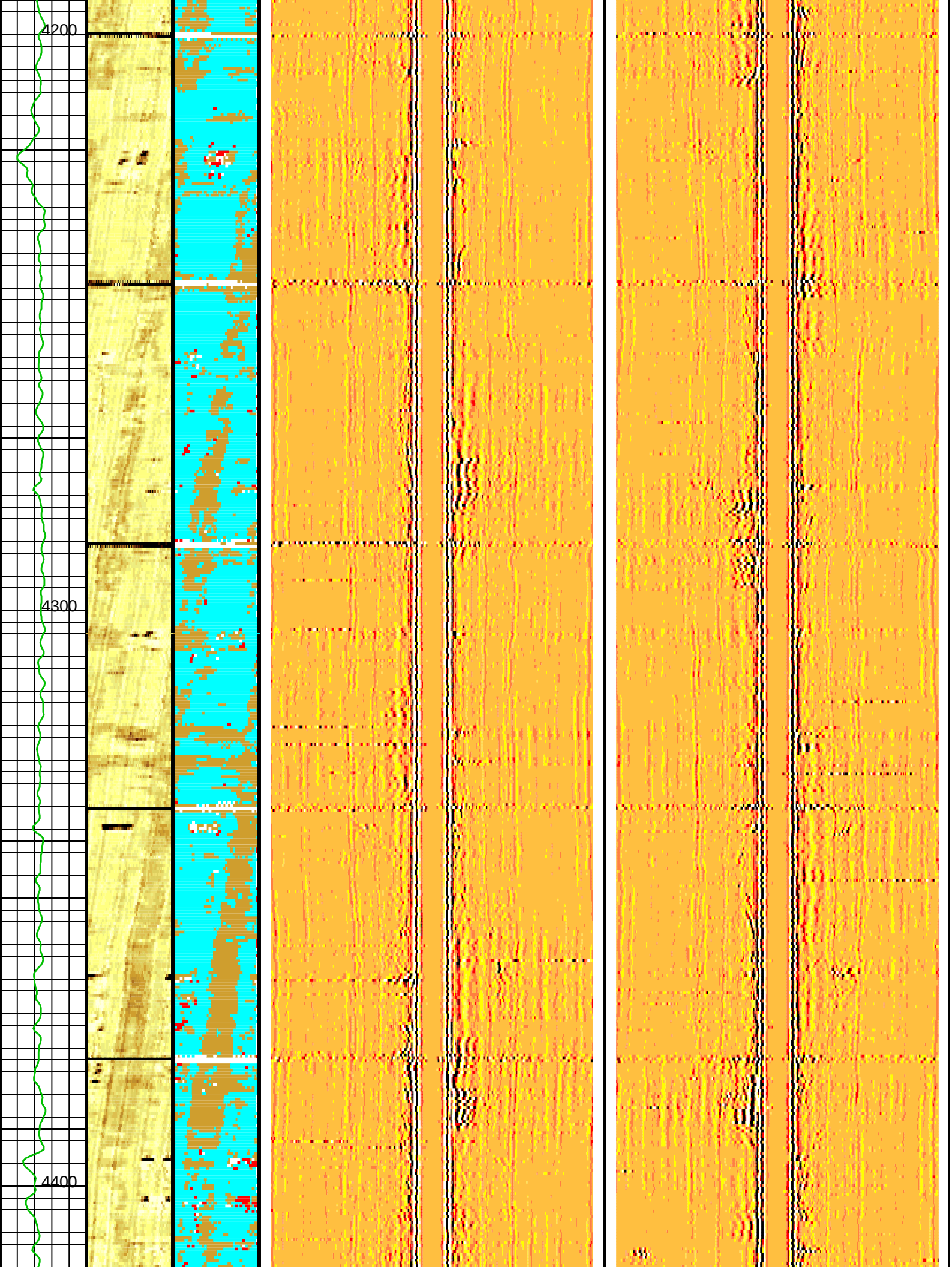

3100
3200
3300

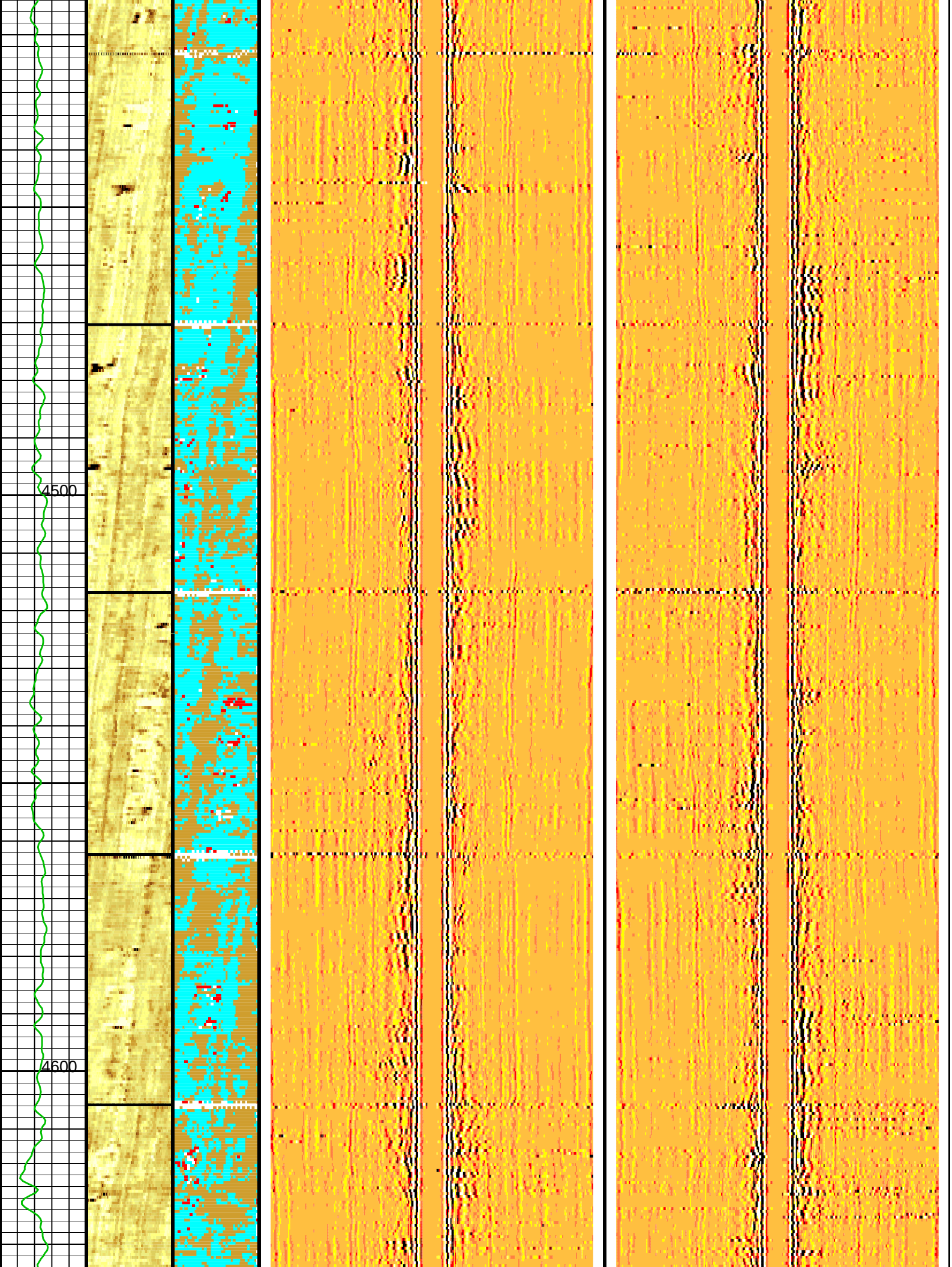

3400
3500

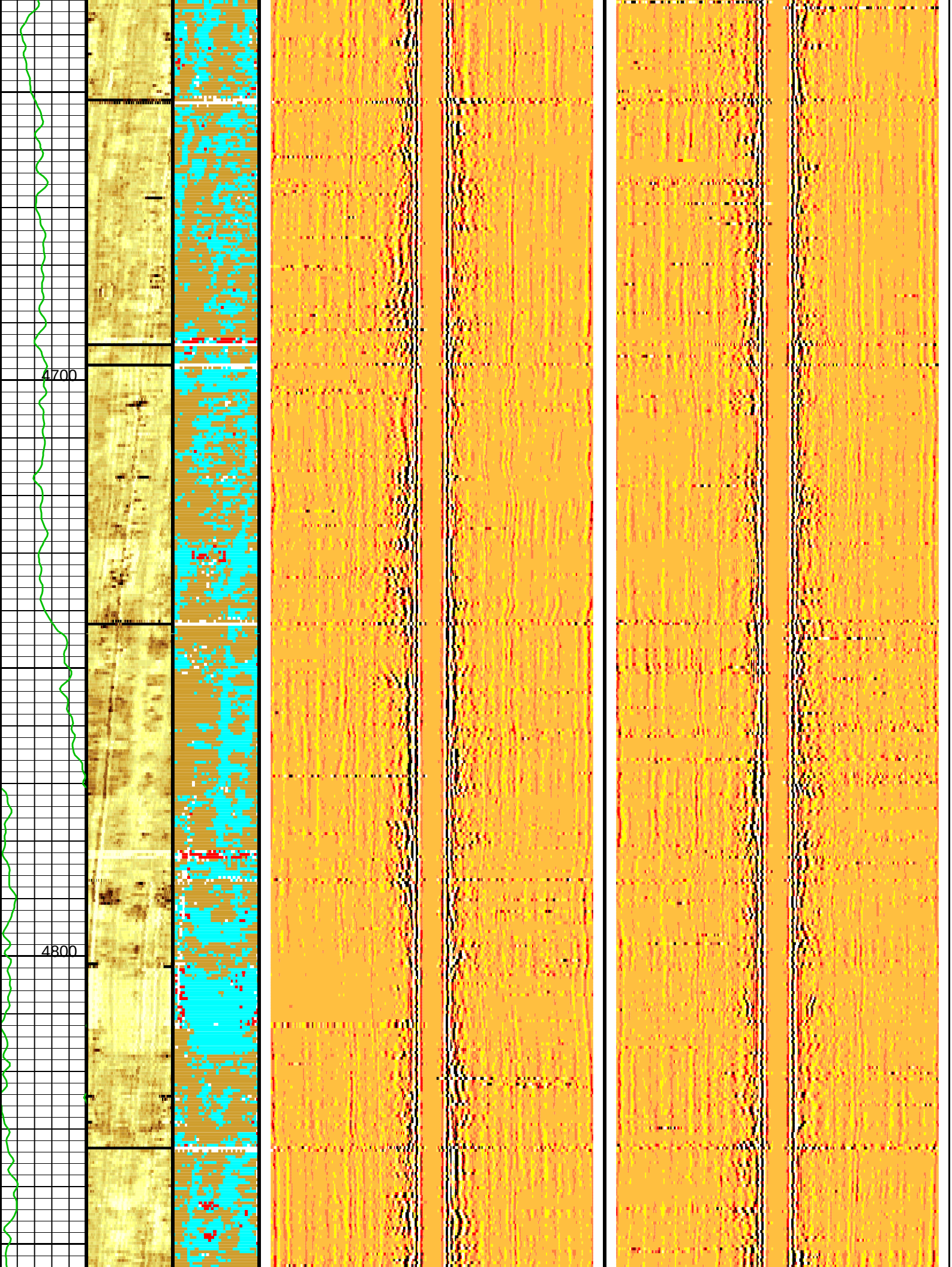

3600
3700

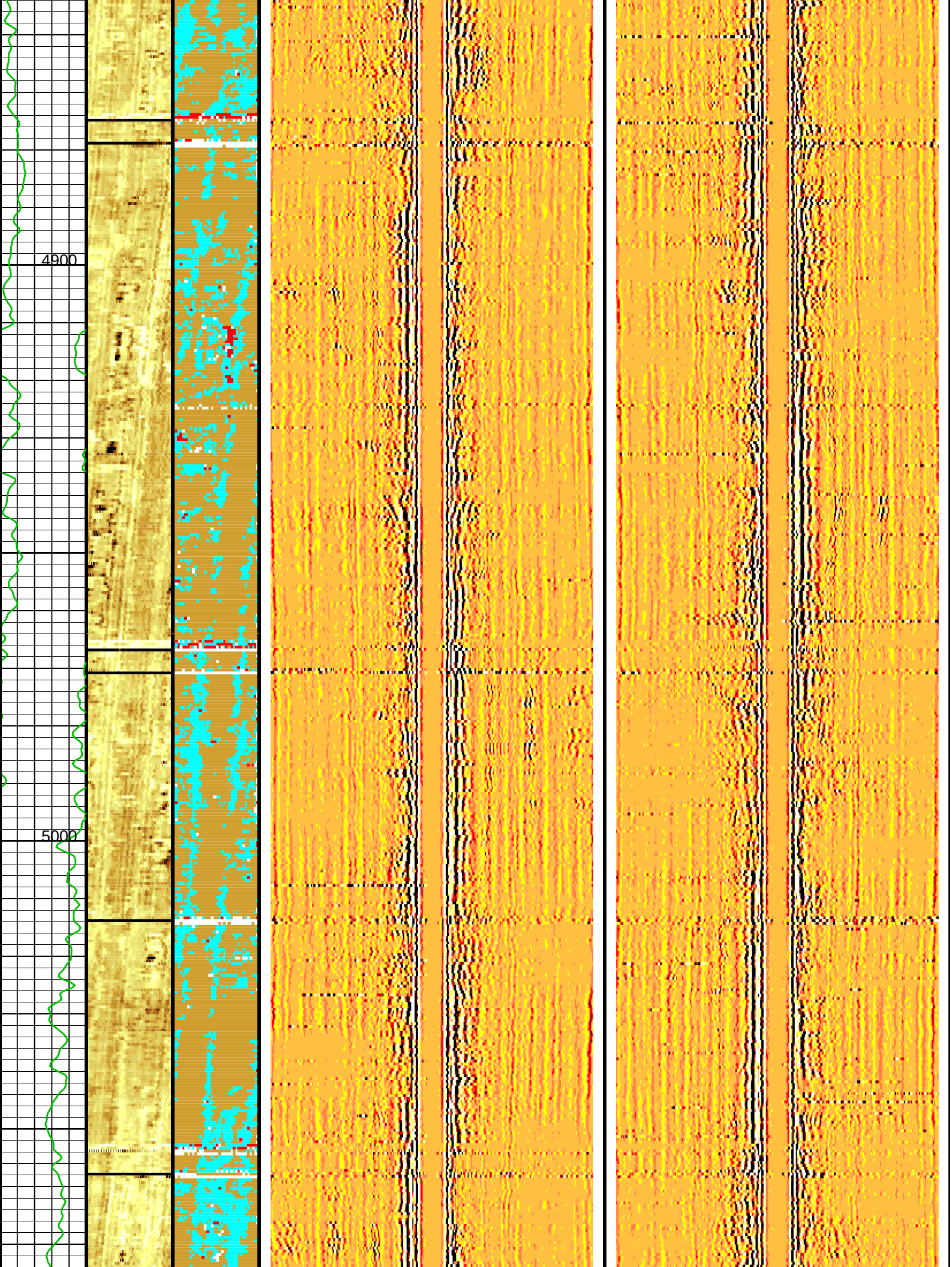

3800
3900

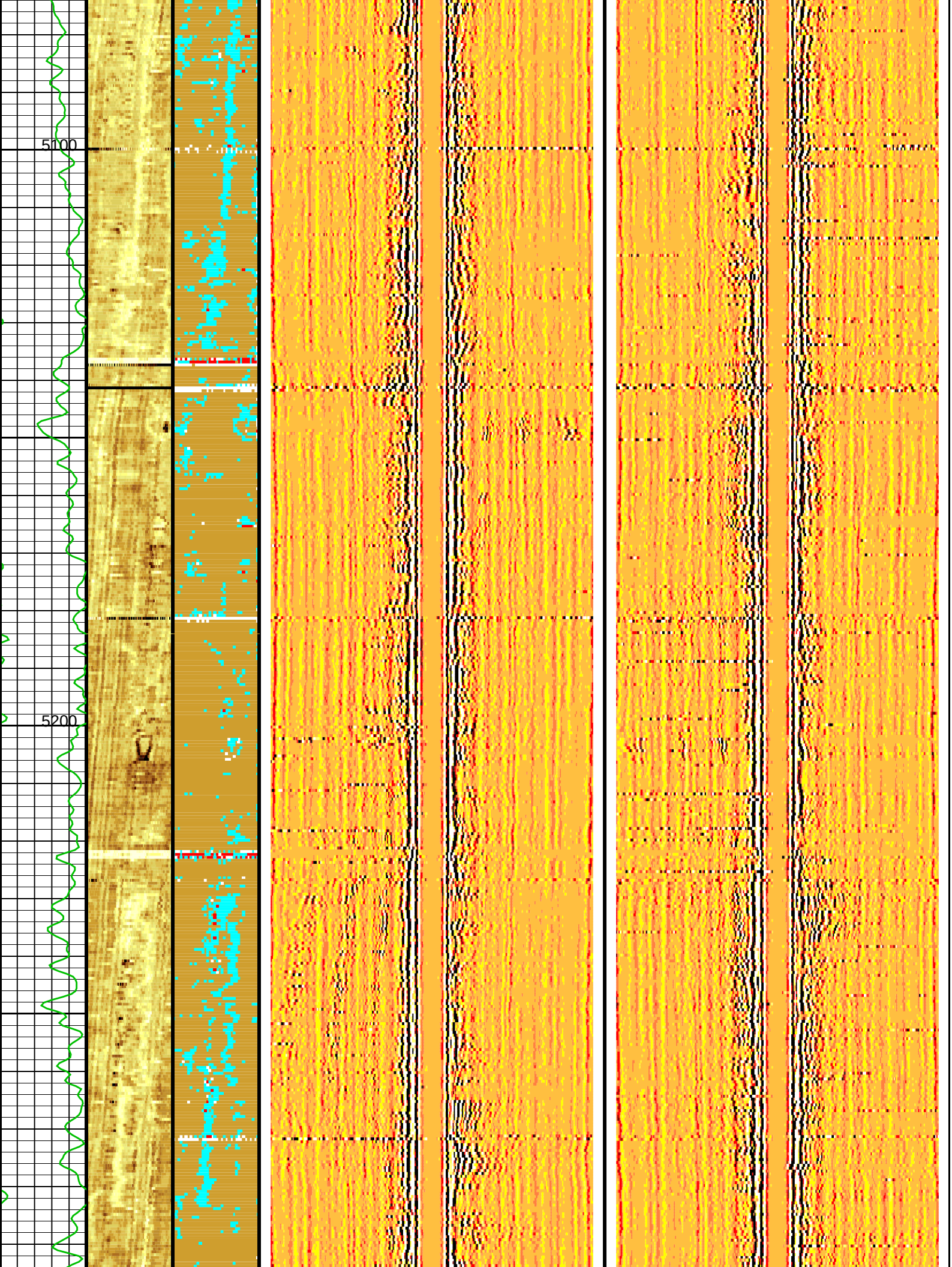

4000
4100

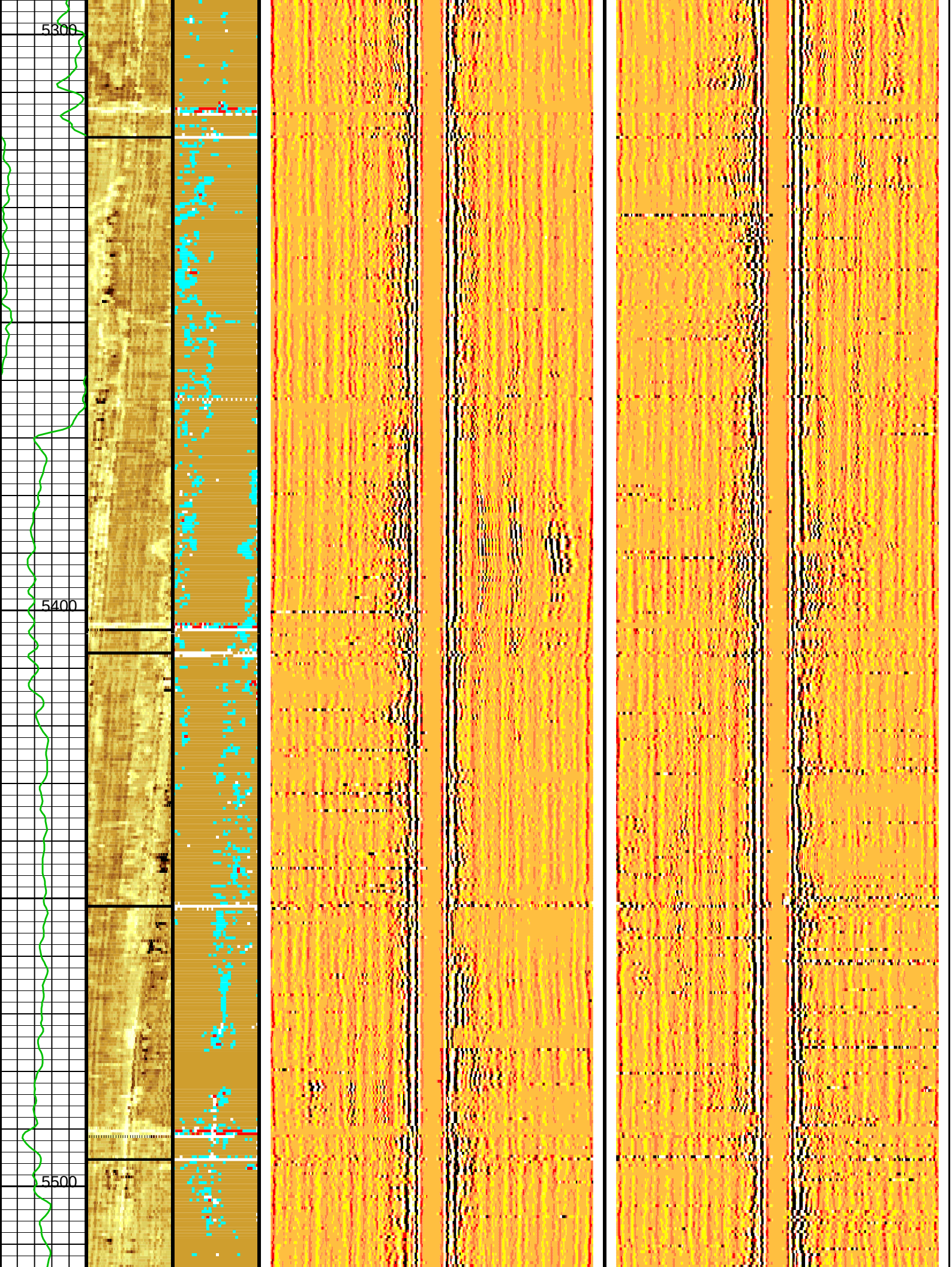

4200
4300
4400

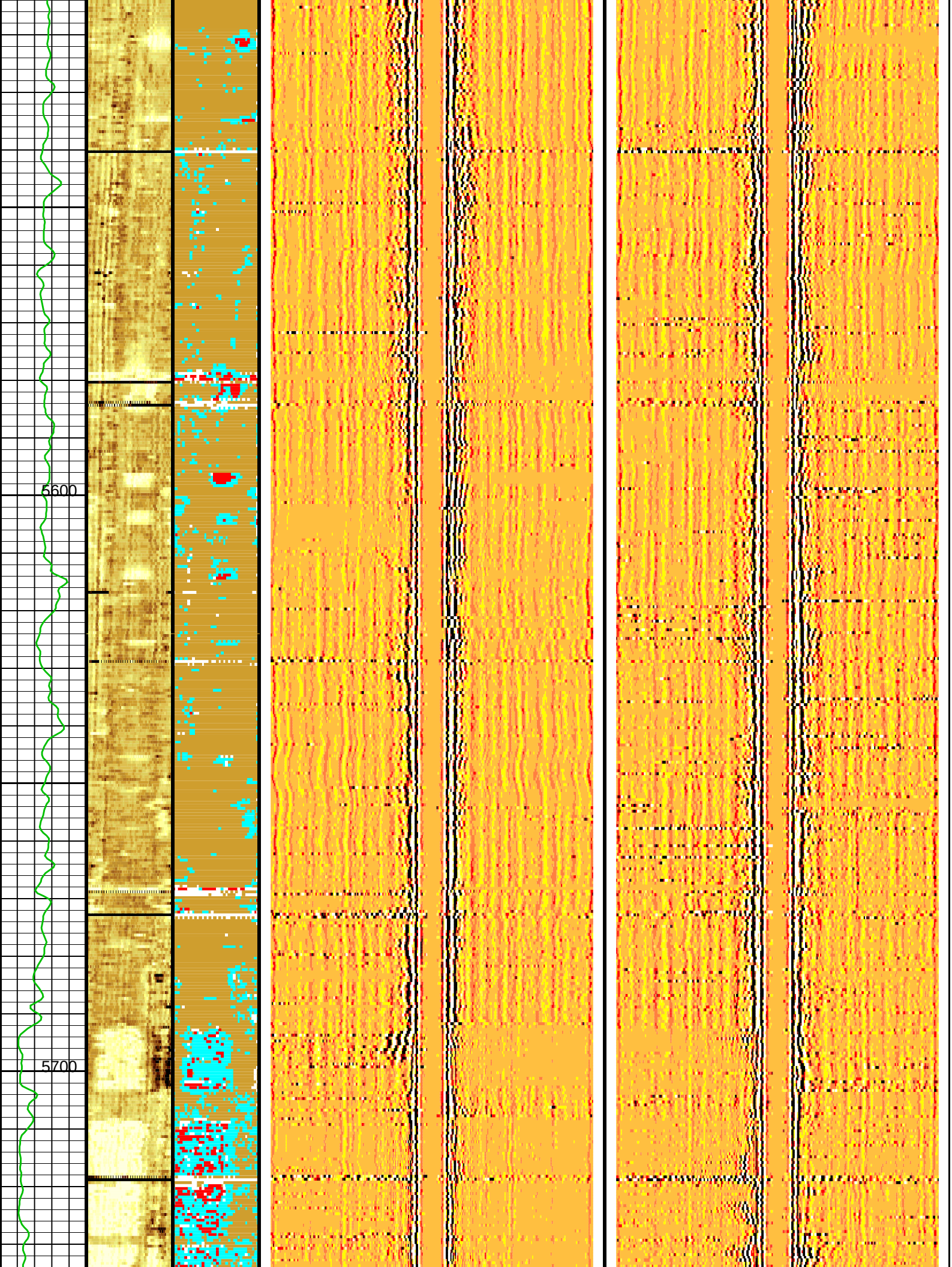

4500
4600

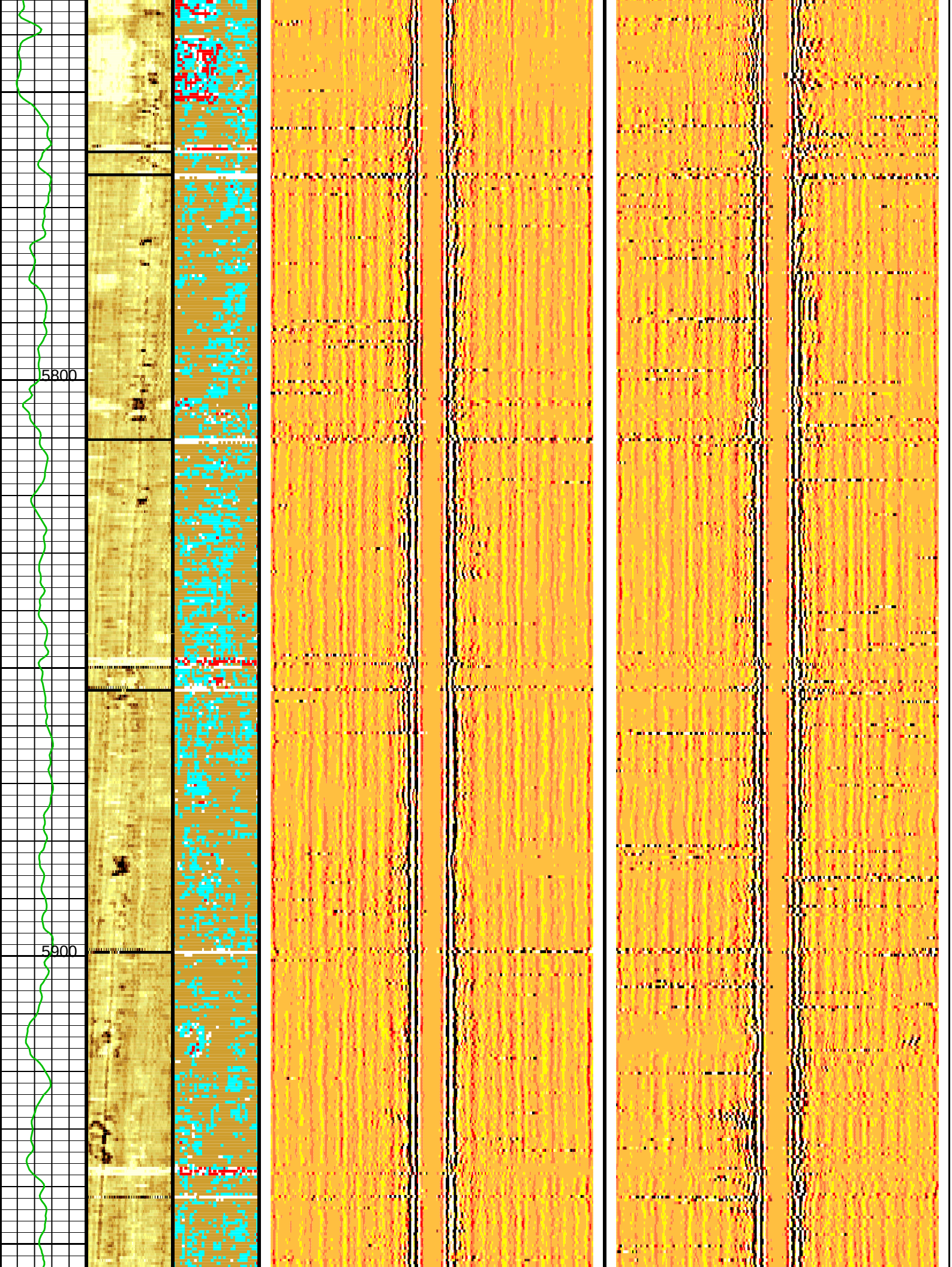

4700
4800

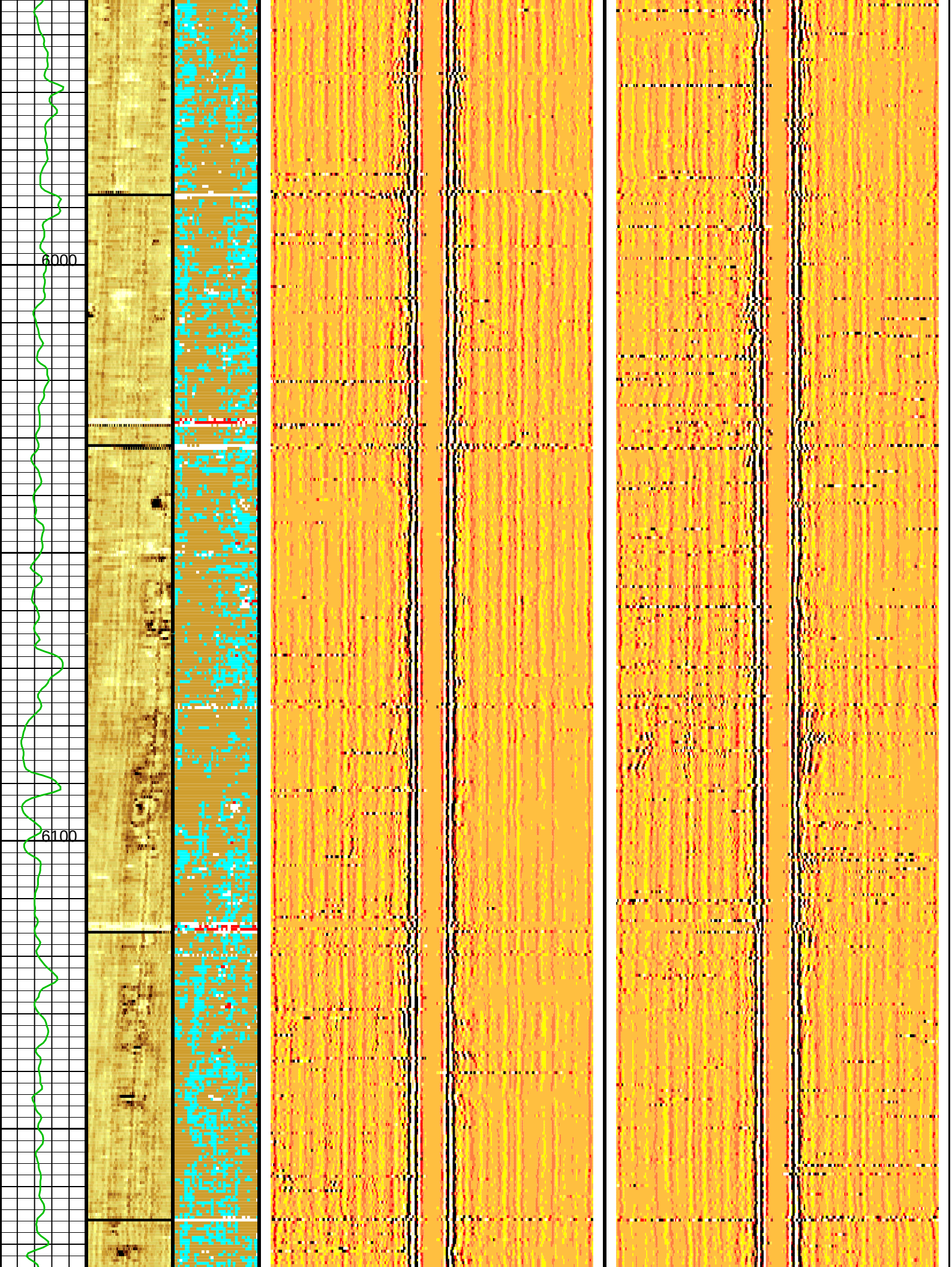

4900
5000

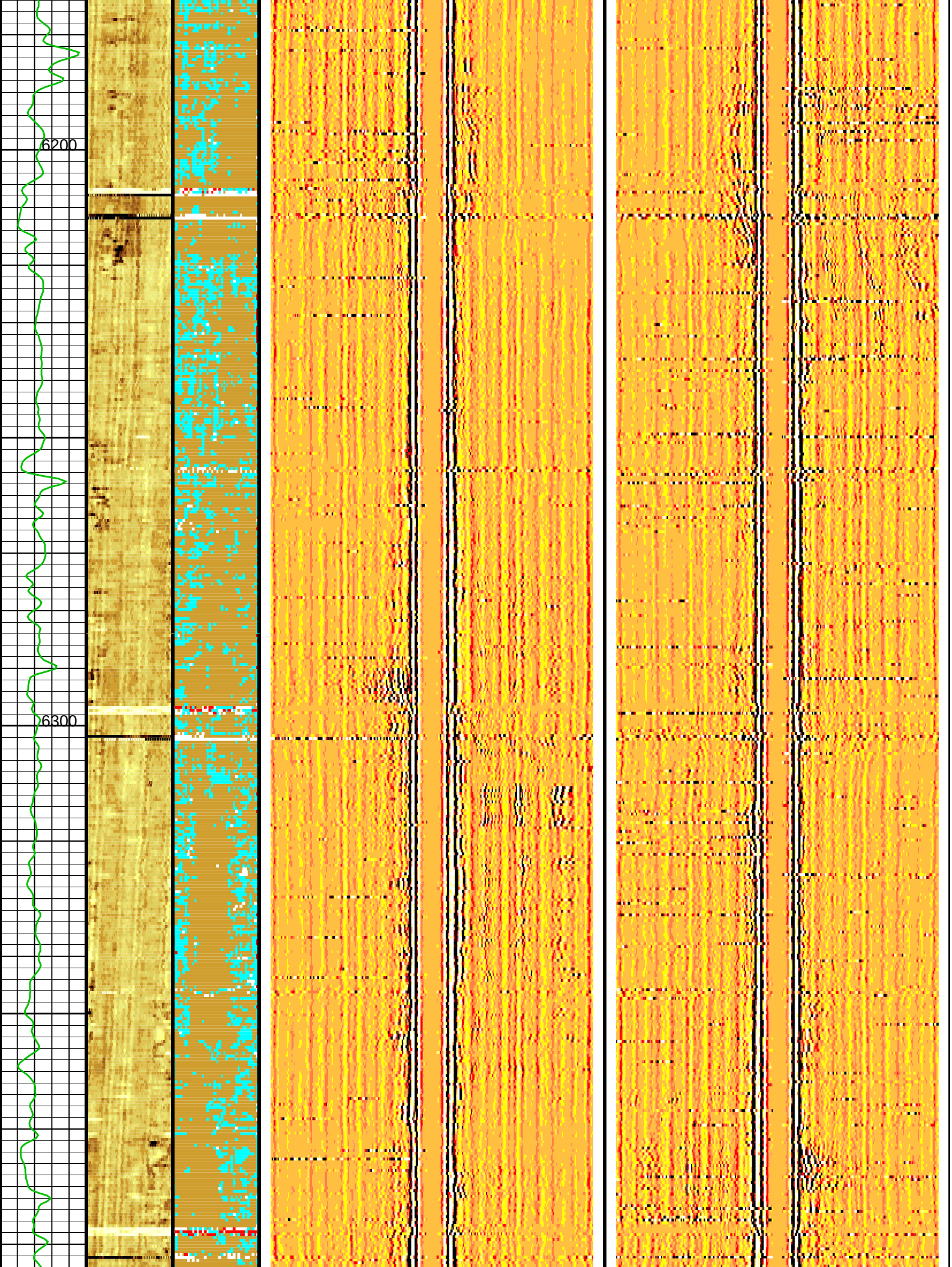

5100
5200

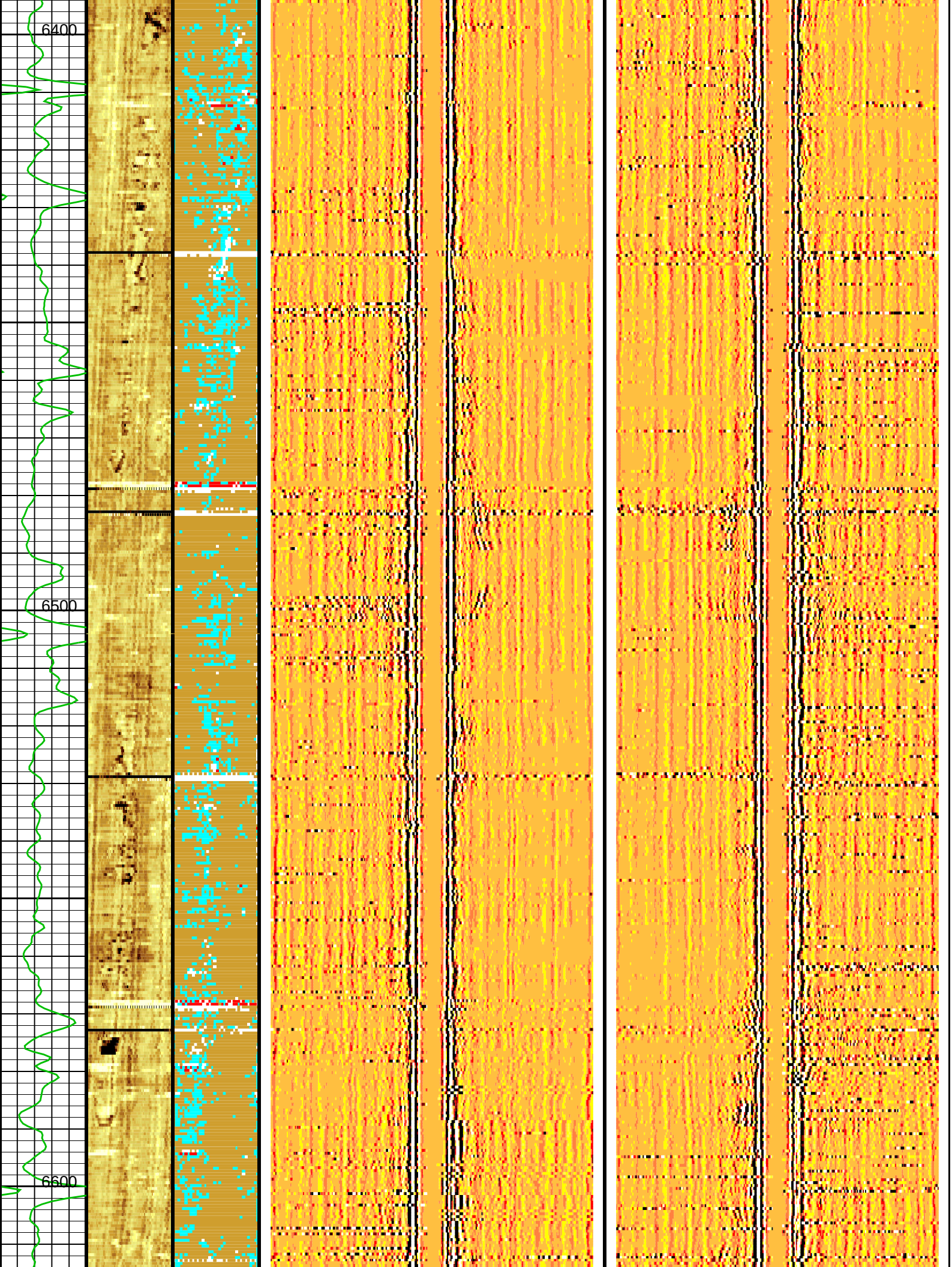

5300
5400
5500

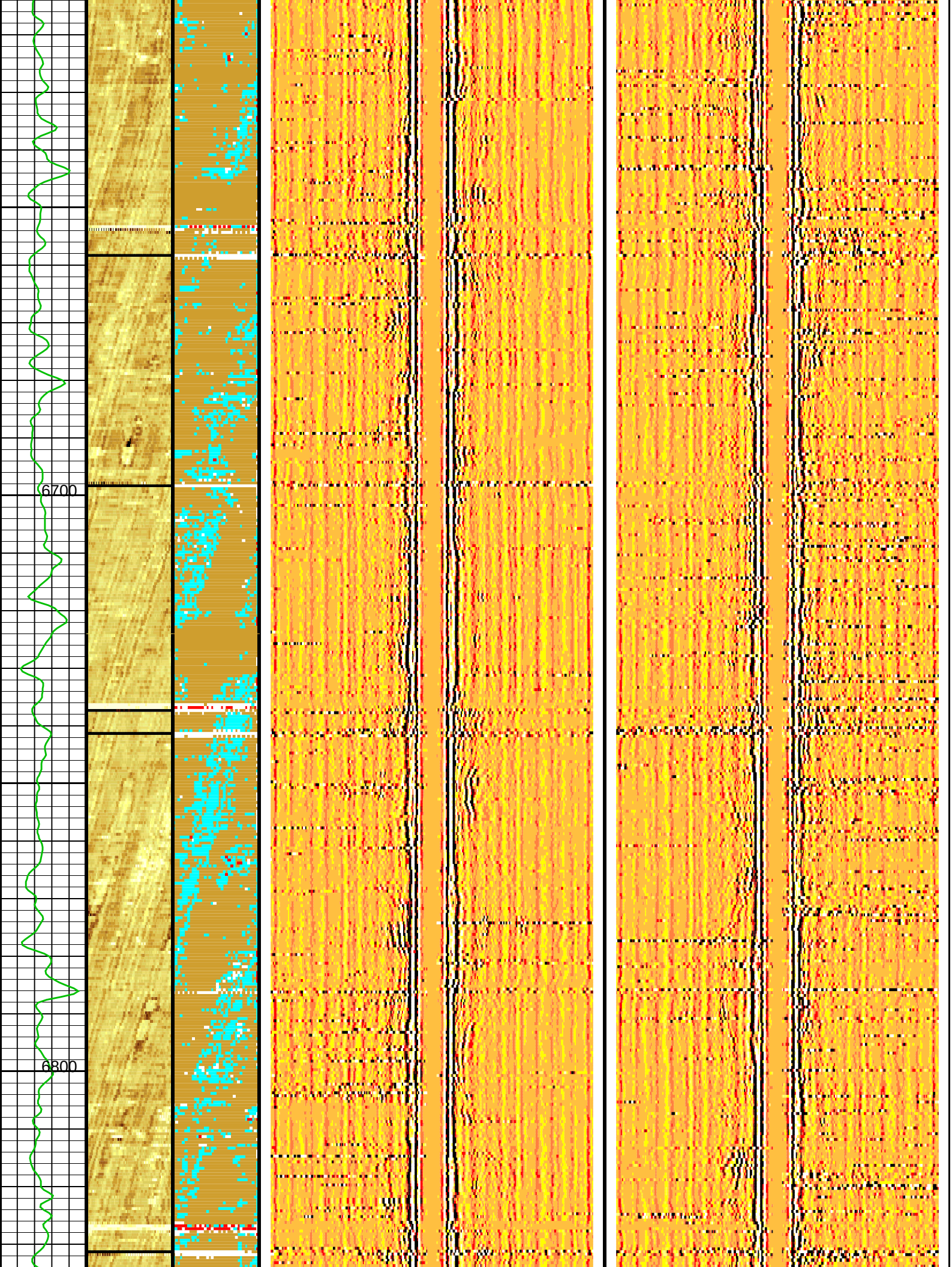

5600
5700

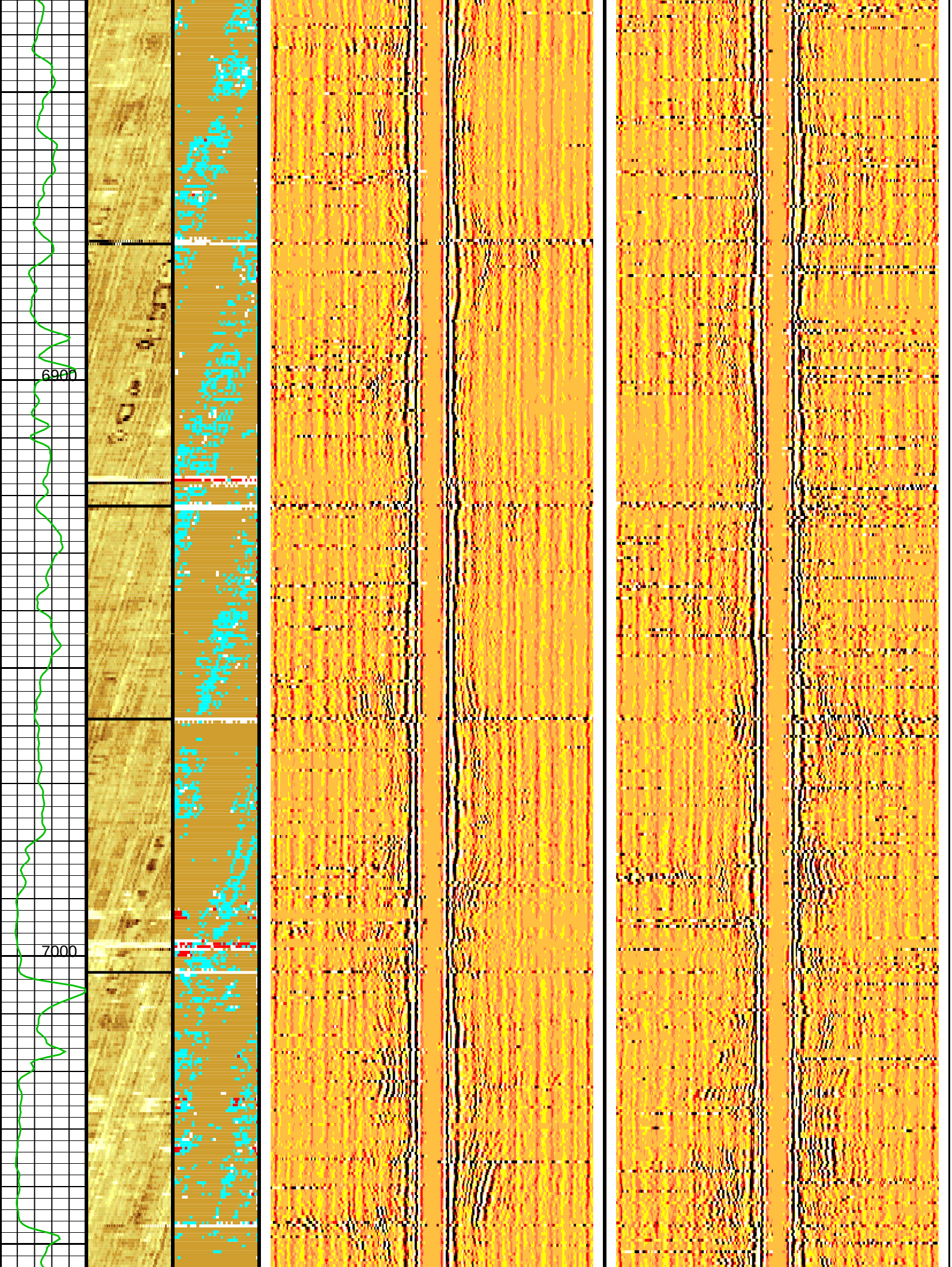

5800
5900

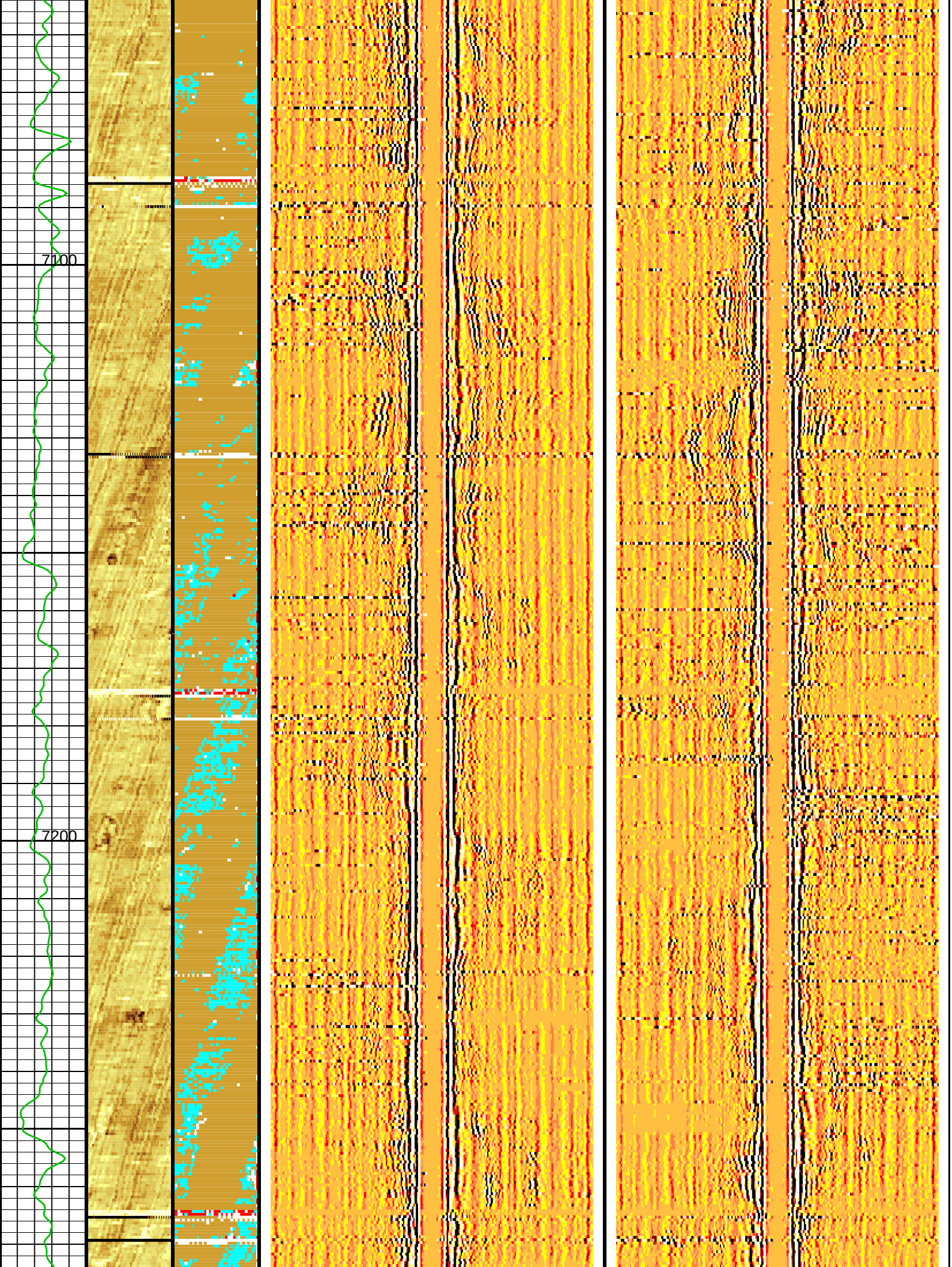

6000
6100

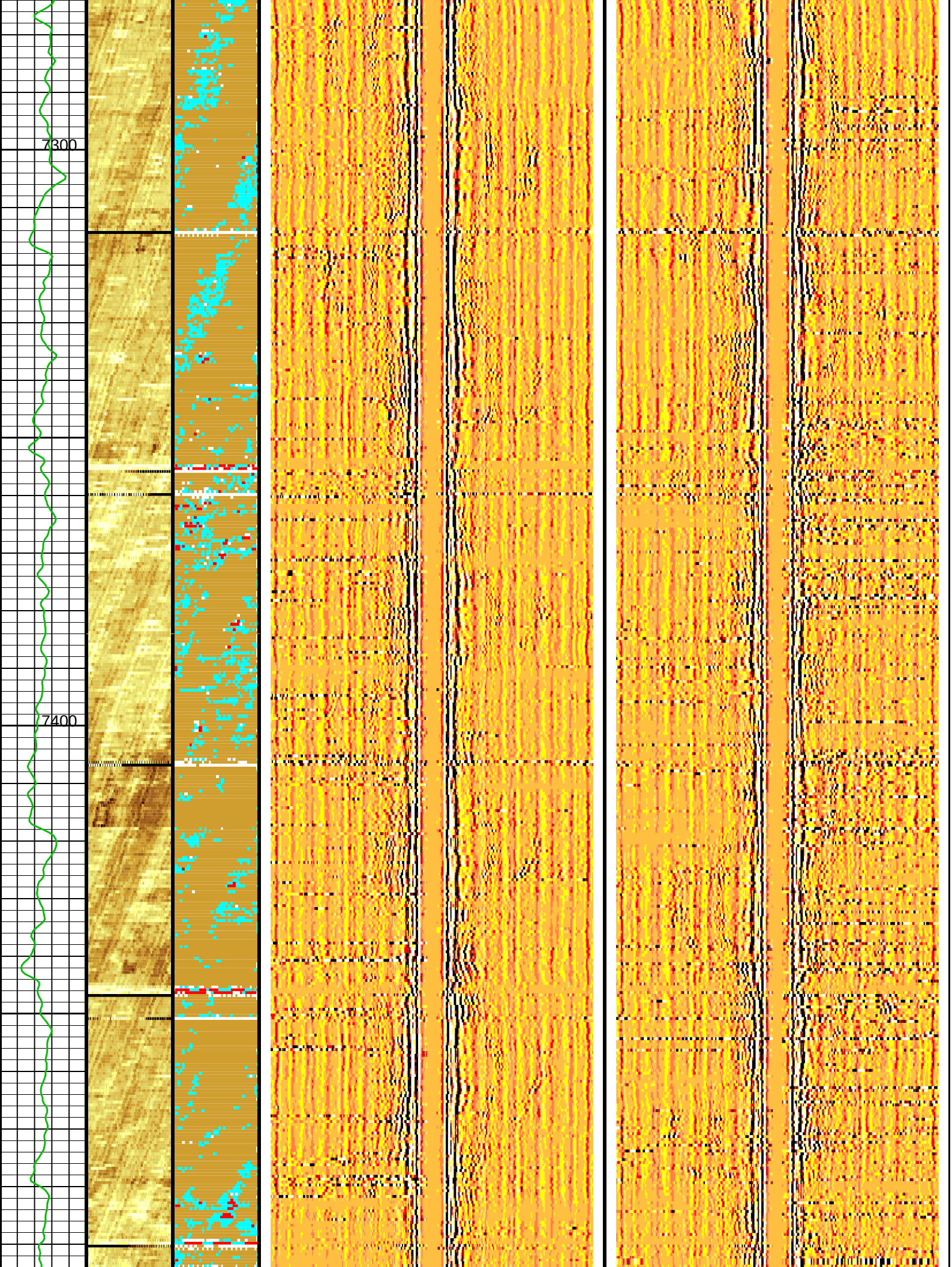

6200
6300

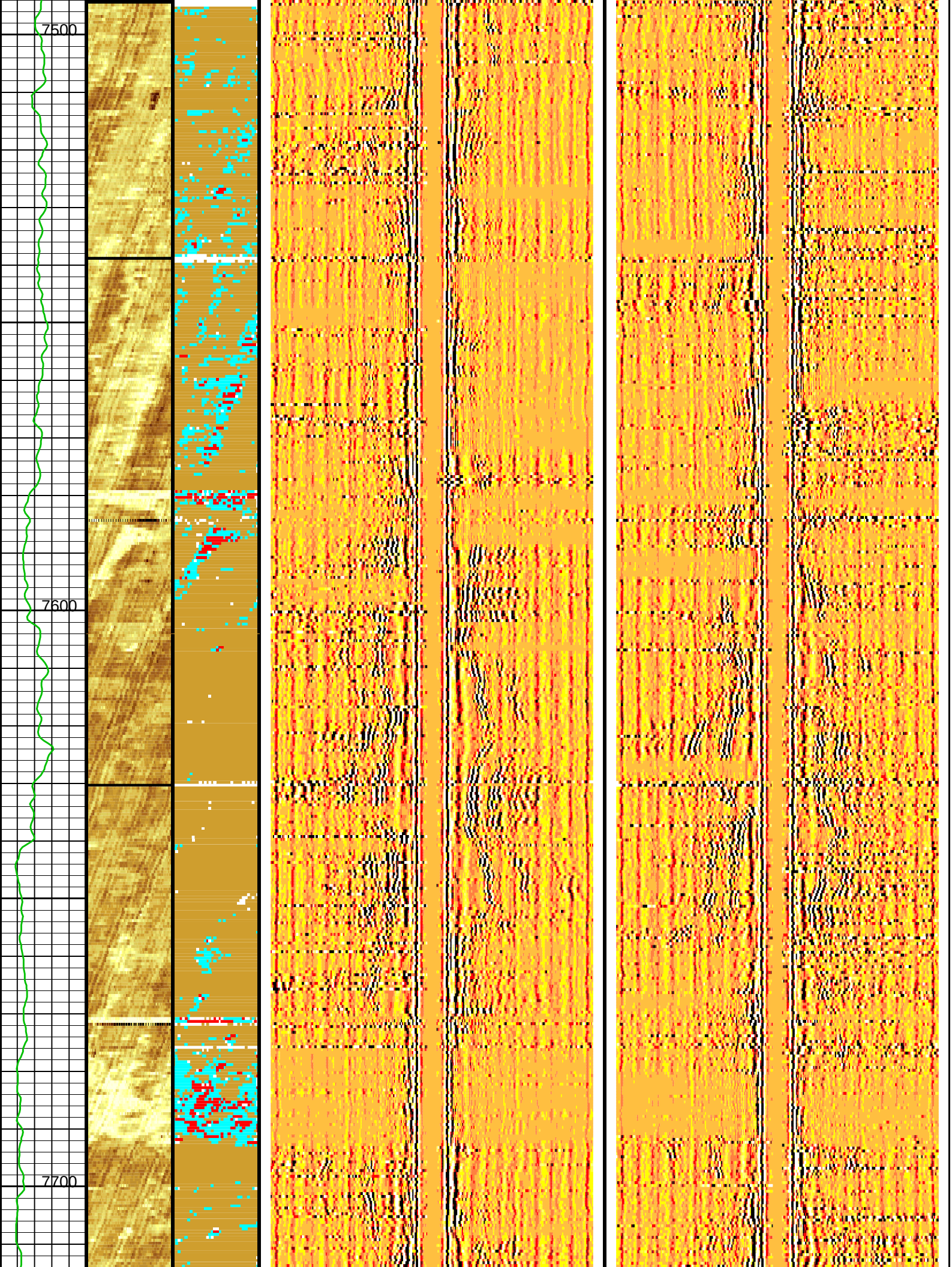

6400
6500
6600

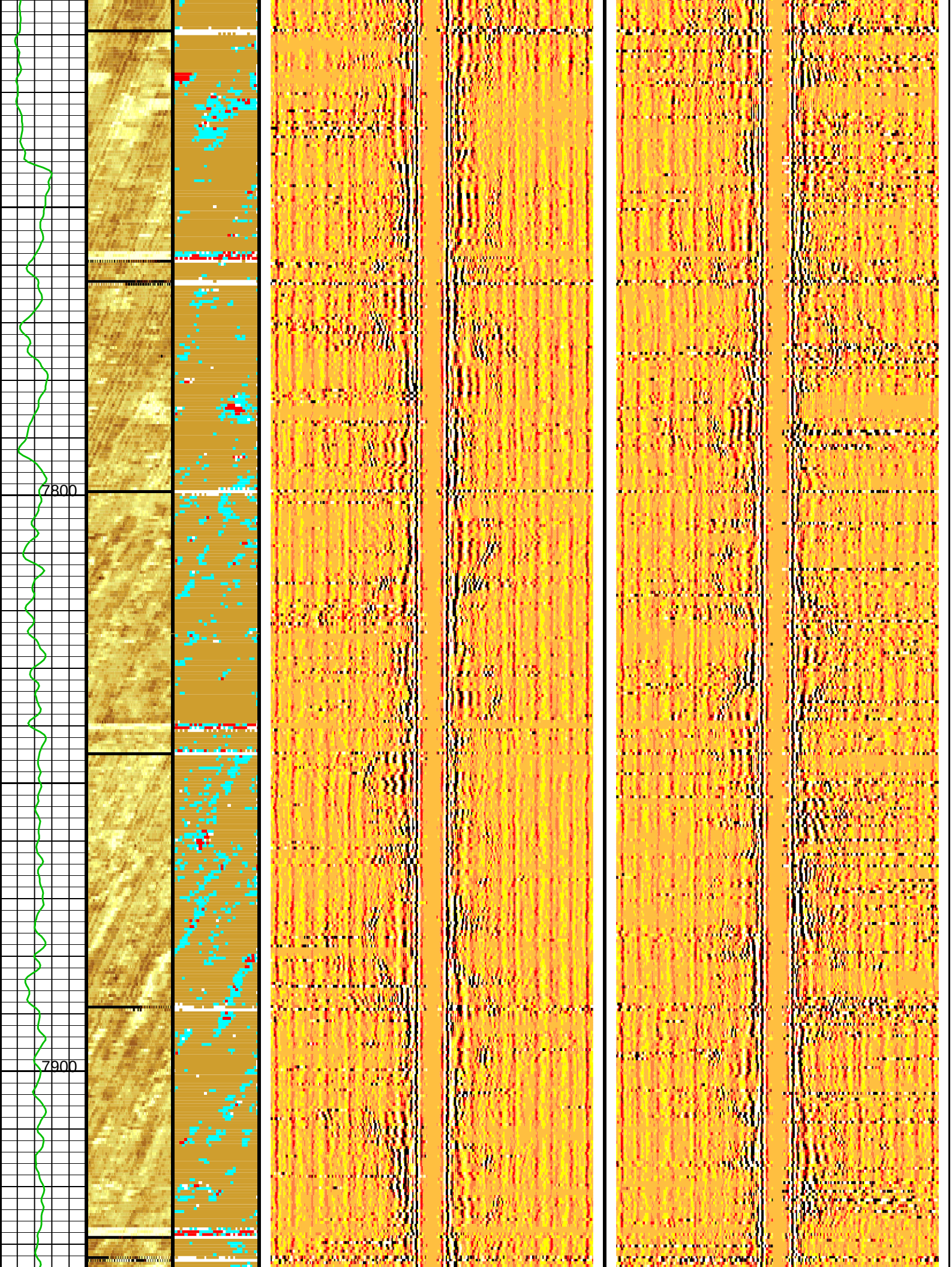

6700
6800

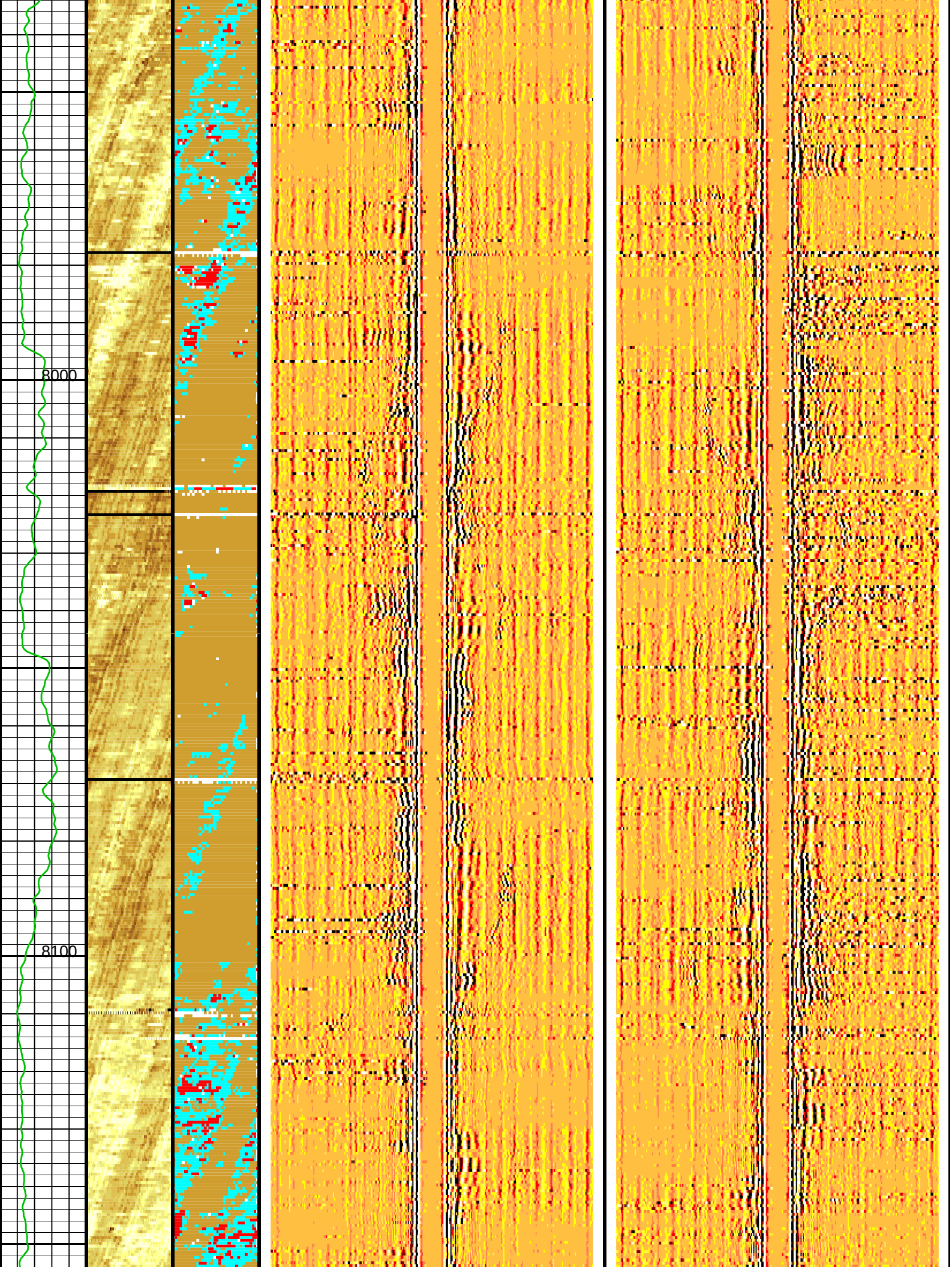

6900
7000

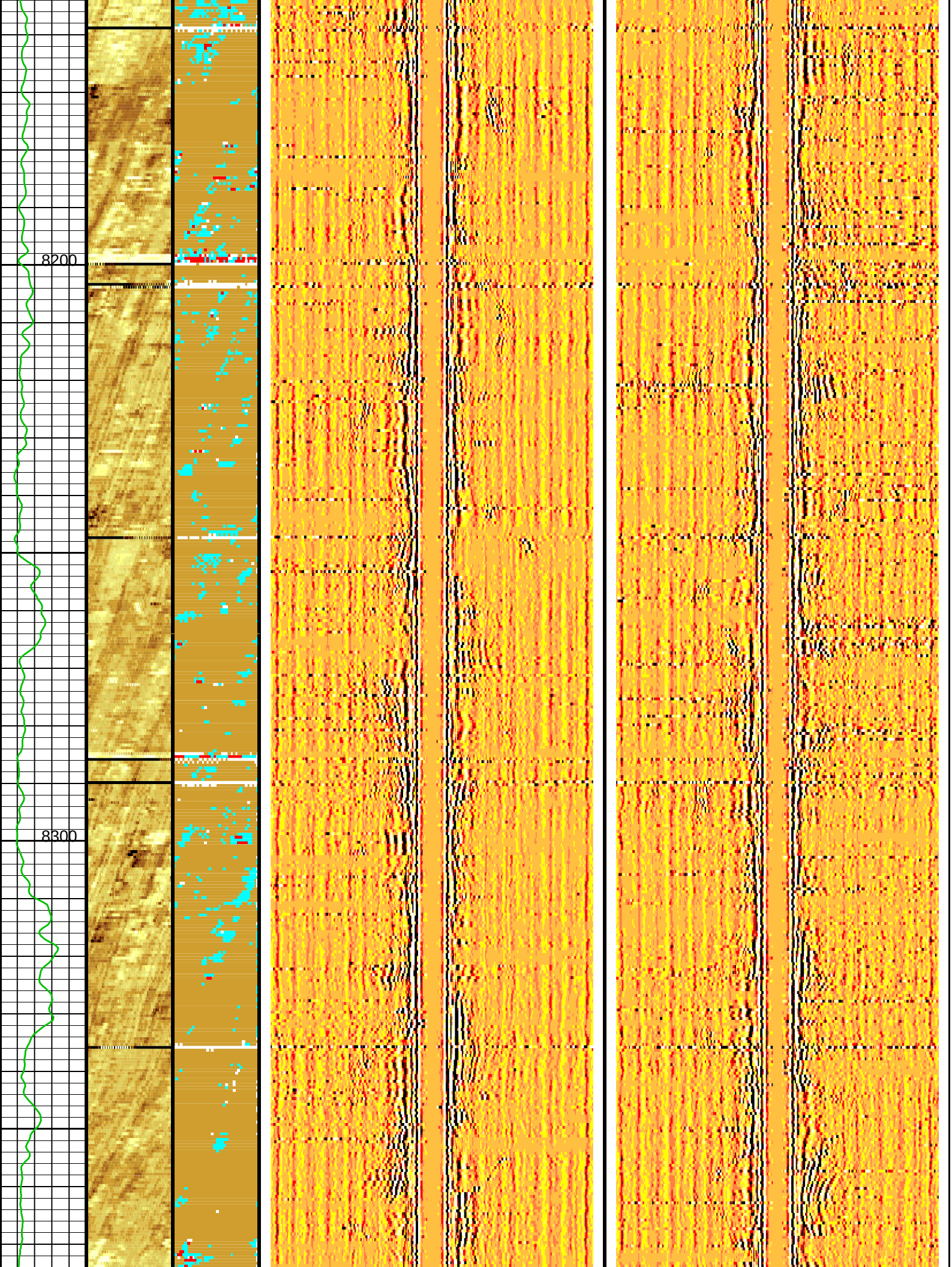

7100
7200

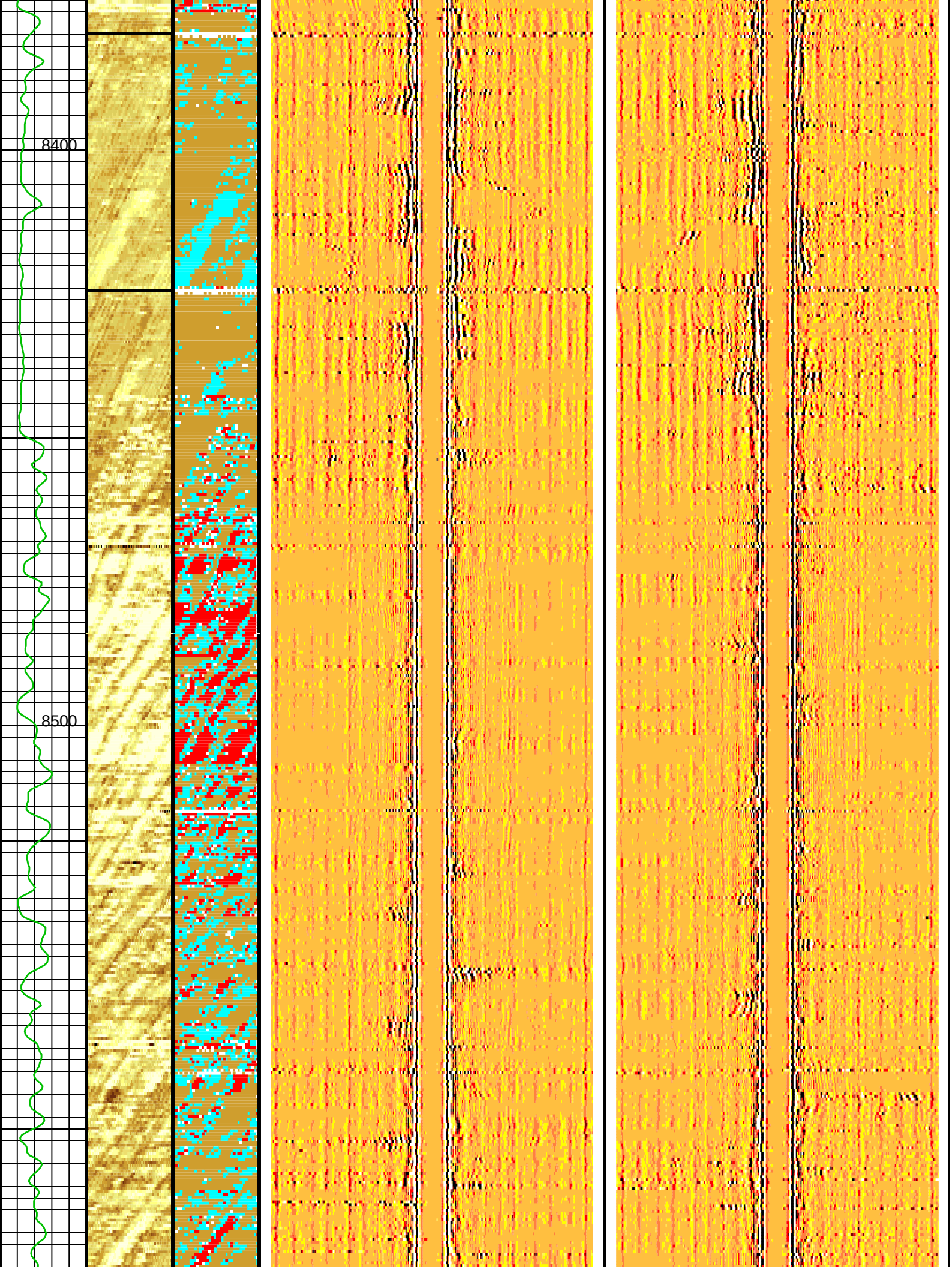

7300
7400

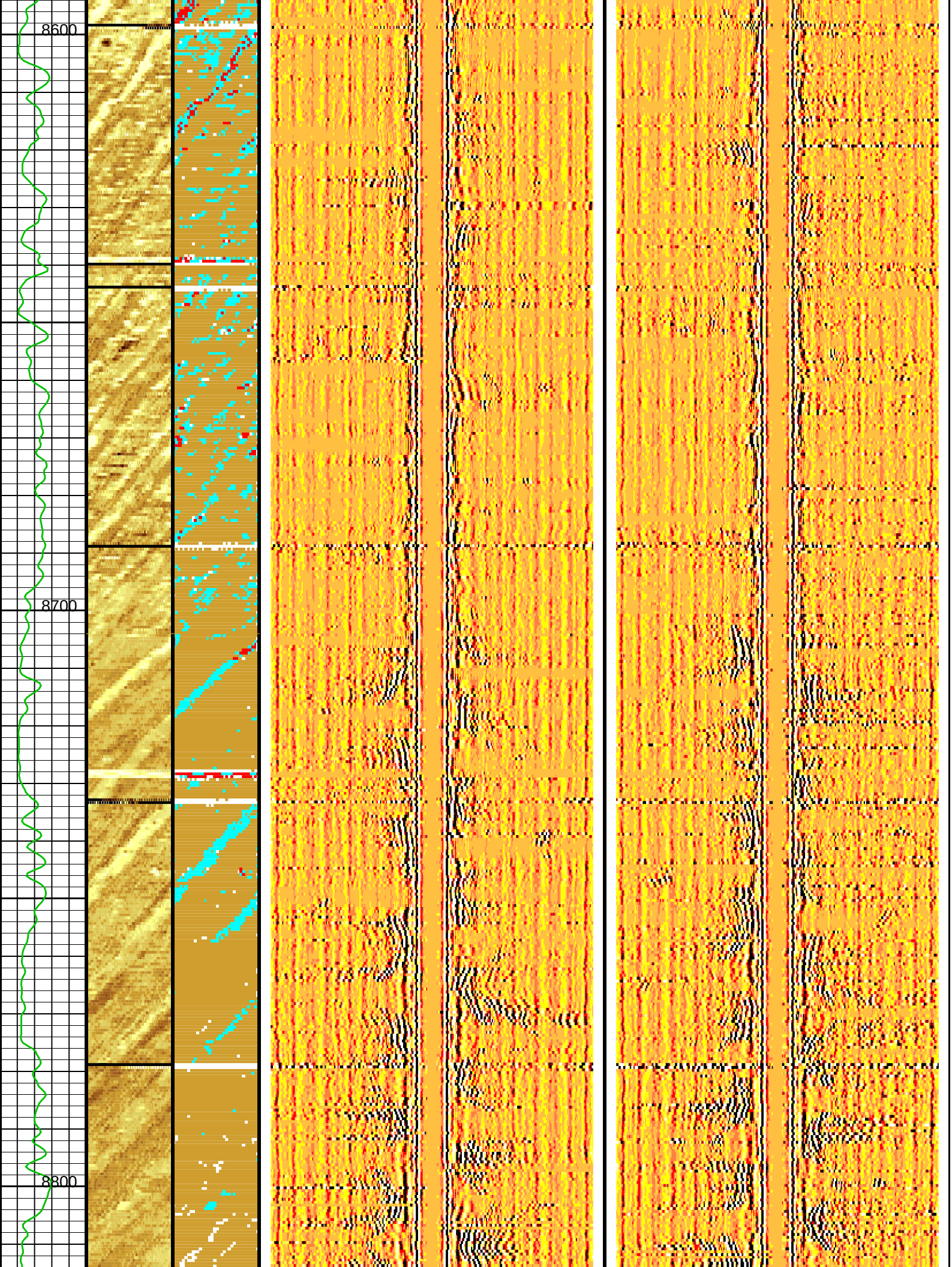

7500
7600
7700

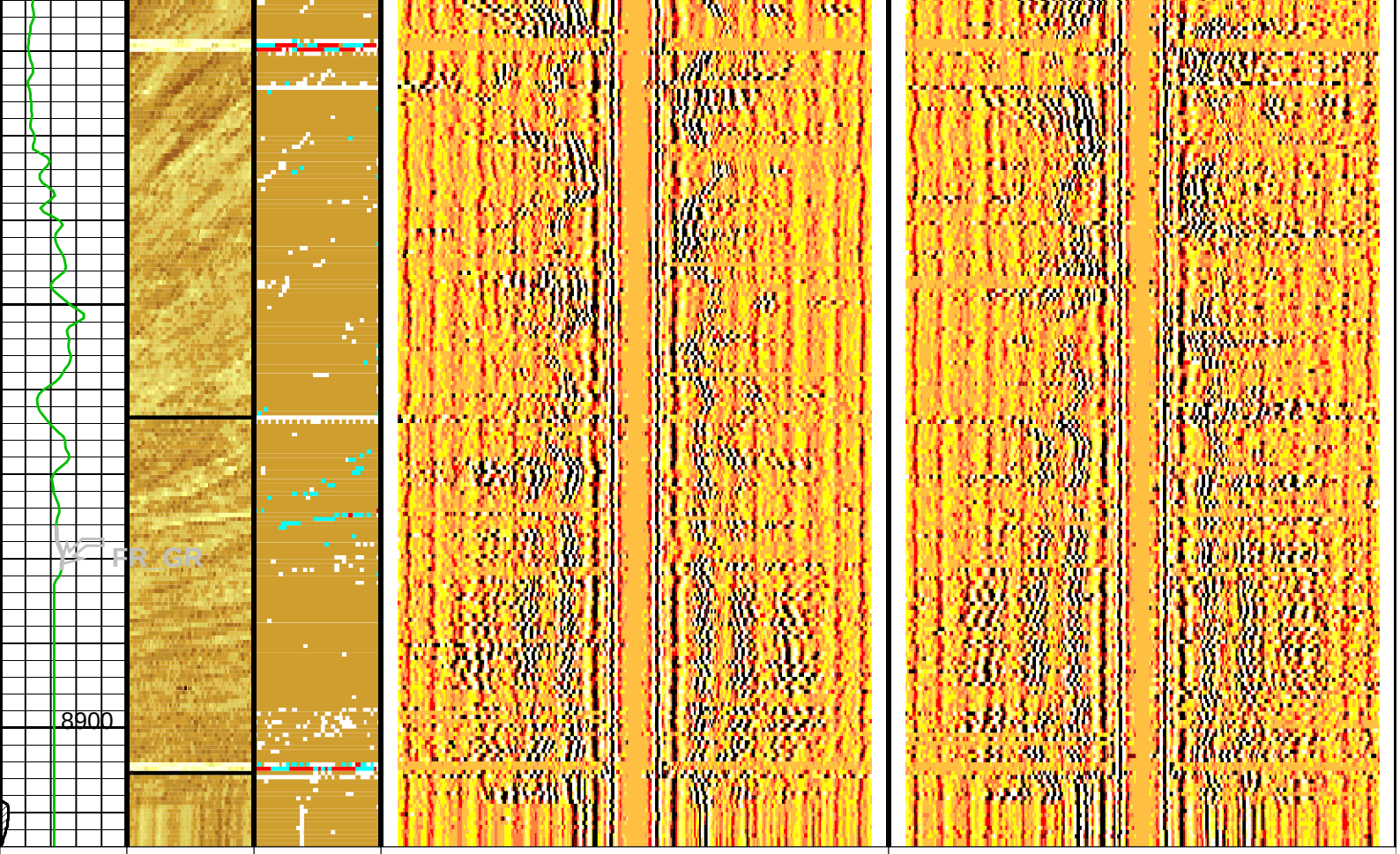

7800
7900


8000
8100


8200
8300


8400
8500


8600
8700
8800



Gamma Ray (GR) (GAPI)
0 150

Raw Acoustic Imped. (AIBK) (MRAY)

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Solid Liquid Gas Map (U−USIT_USLP) (−−−−

0.5000
1.5000
2.5000
3.5000

Far at 0 and 180 deg (U−USIT_VDWFF000) (US)
Min Amplitude Max
−150 150

Far at 90 and 270 deg (U−USIT_VDWFF090) (US)
Min Amplitude Max
−150 150

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	205	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	120	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	10	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	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	ULTRA_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	10.75	IN
U−USIT_OCSH	USIT Outer Casing Shoe	3966	FT
U−USIT_OCWE	USIT Outer Casing Weight	45.5	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	−8	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_B	
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_7_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	2.05	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	9006.00	FT
TDL	Total Depth − Logger	8913.00	FT
	System and Miscellaneous		
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	7.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	

Format: USI_IBC_VDL_WIDE Vertical Scale: 5" per 100' Graphics File Created: 11−Oct−2009 06:12

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_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12

Schlumberger

Goodwin
.1" = 100'

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION COMPANY **Well: PCU 297−11B1**

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12	8914.0 FT	203.5 FT

OP System Version: 17C0−154

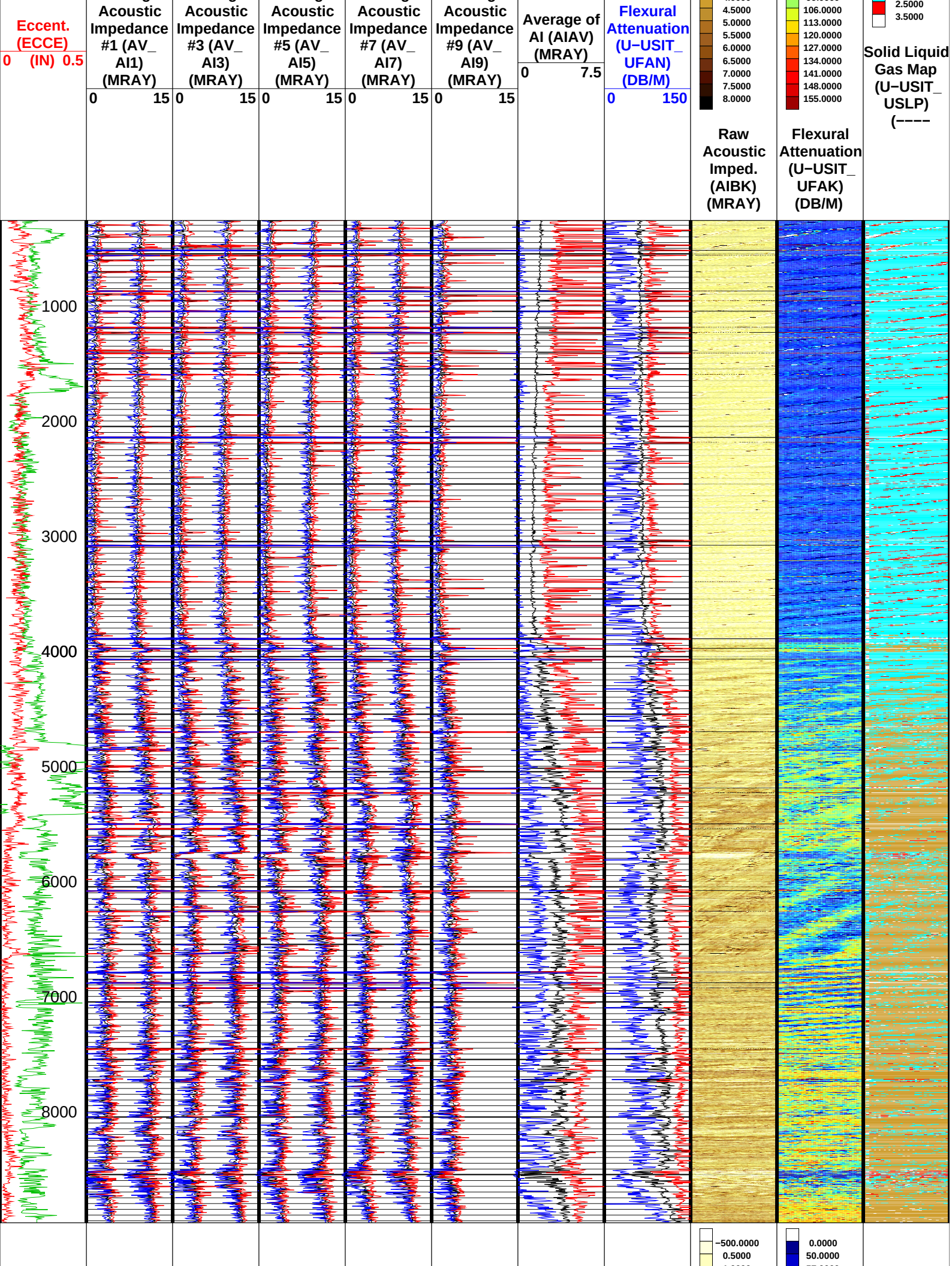
USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

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

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000

0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000

0.5000
1.5000


Eccent. (ECCE)
0 (IN) 0.5
Acoustic Impedance #1 (AV_AI1) (MRAY)
0 15
Acoustic Impedance #3 (AV_AI3) (MRAY)
0 15
Acoustic Impedance #5 (AV_AI5) (MRAY)
0 15
Acoustic Impedance #7 (AV_AI7) (MRAY)
0 15
Acoustic Impedance #9 (AV_AI9) (MRAY)
0 15
Average of AI (AIAV) (MRAY)
0 7.5
Flexural Attenuation (U−USIT_UFAN) (DB/M)
0 150
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000
Flexural Attenuation (U−USIT_UFAK) (DB/M)
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_USLP) (−−−−
1000
2000
3000
4000
5000
6000
7000
8000
−500.0000
0.5000
0.0000
50.0000

Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	1.0000 1.5000 2.0000 2.5000 3.0000 3.5000 4.0000 4.5000 5.0000 5.5000 6.0000 6.5000 7.0000 7.5000 8.0000 Raw Acoustic Imped. (AIBK) (MRAY)	57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000 Flexural Attenuation (U−USIT_UFAK) (DB/M)	0.5000 1.5000 2.5000 3.5000 Solid Liquid Gas Map (U−USIT_USLP) (−−−−
Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150			
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150			
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5						
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15						
	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5						

Format: M_Goodwin_Compressed Vertical Scale: 0.1" per 100' Graphics File Created: 11−Oct−2009 06:12

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_024LUP	FN:23	PRODUCER	10−Oct−2009 23:38	8907.0 FT	196.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_033PUP	FN:32	PRODUCER	11−Oct−2009 06:12

Schlumberger

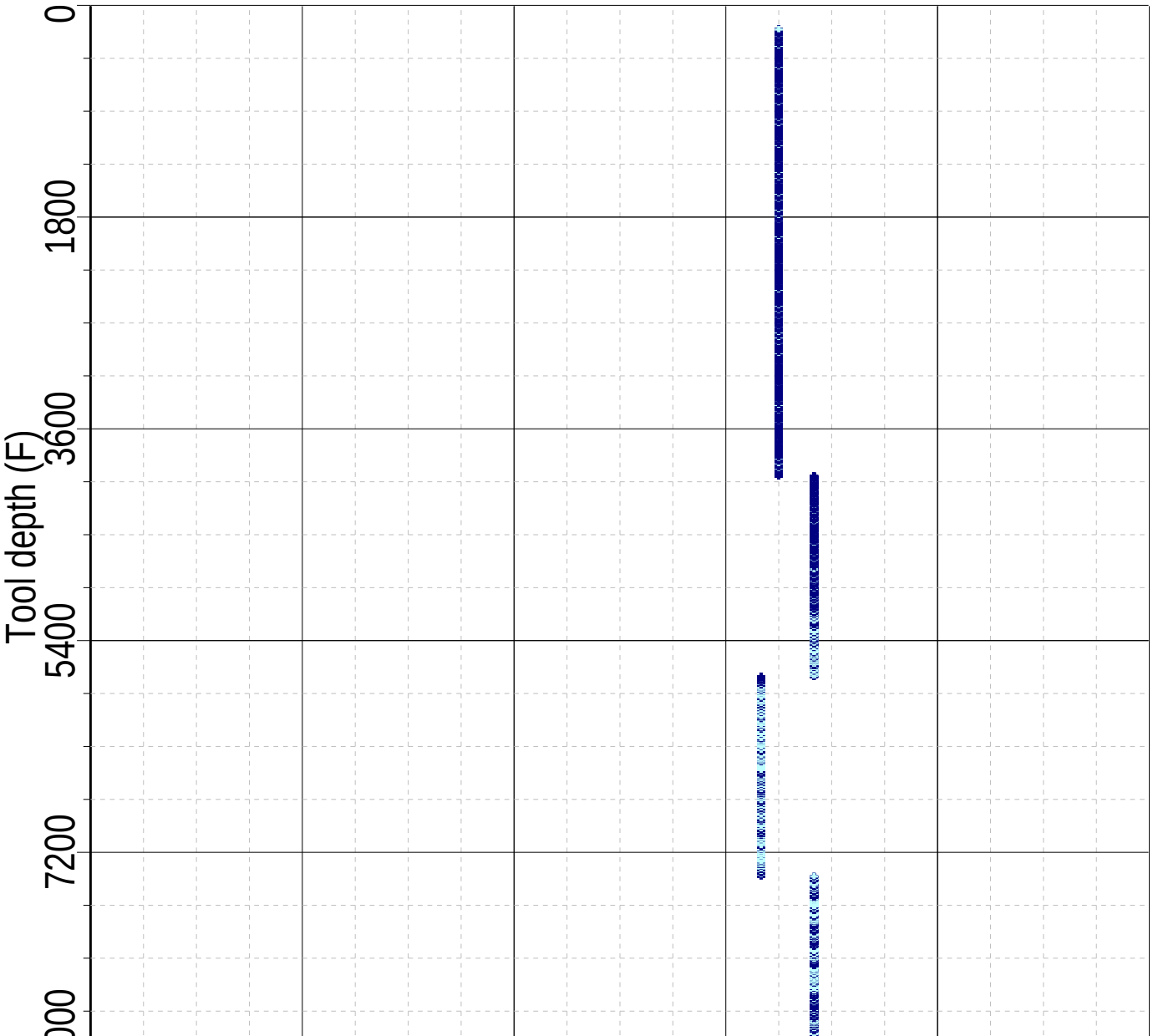
Fluid Properties

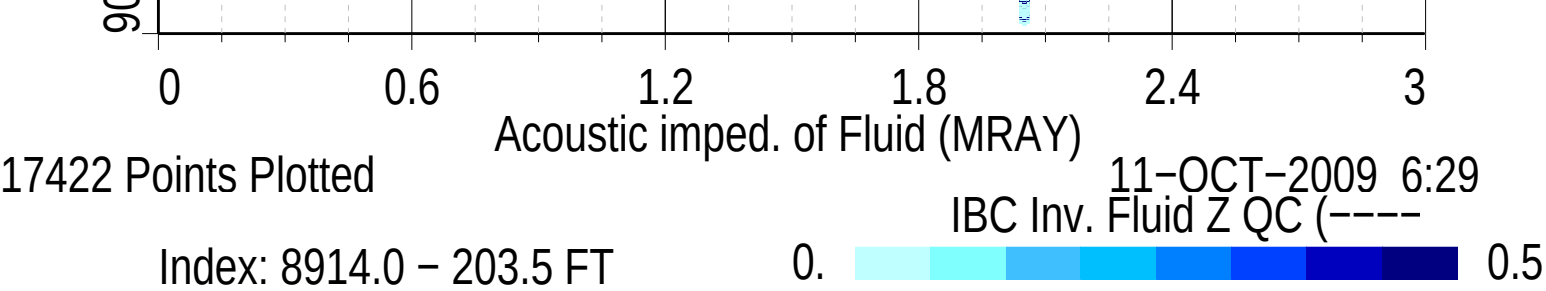
MAXIS Field Log

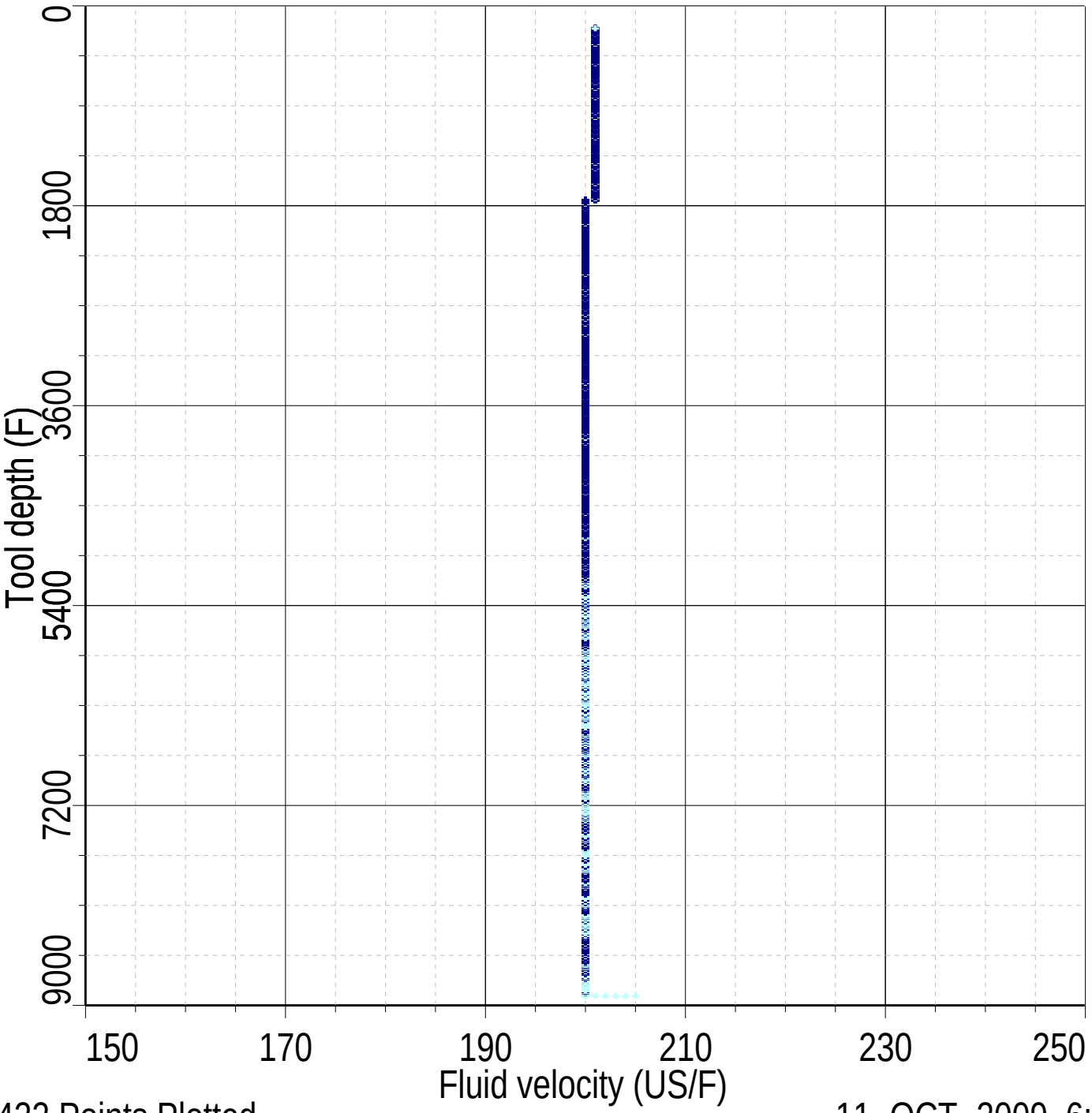
Index: 8914.0 − 203.5 FT

IBC Inv. Fluid Z QC (−−−−

0. 0.5







Schlumberger

CALIBRATIONS

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Detector Calibration							
Before: 30−Sep−2009 16:45							
Gamma Ray Background	30.00	N/A	32.18	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkgd)	165.0	N/A	170.9	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement							
Master: 31−Aug−2009 11:18 Before: 30−Sep−2009 16:53							
CNTC Background	26.93	26.93	27.41	N/A	N/A	4.040	CPS
CFTC Background	29.90	29.90	30.39	N/A	N/A	4.485	CPS
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement							
Master: 31−Aug−2009 11:18							
Thermal Near Corr. (Tank)	5800	5398	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2144	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.518	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration							
Before: 10−Oct−2009 21:06							
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	65.0	DEGF.
Thermal Housing Size	3.381	IN.
NSR−F serial number	0	

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	
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 − Bkgd) GAPI	Value
Before		32.18	Before		170.9
0 (Minimum)	30.00 (Nominal) 120.0 (Maximum)		157.1 (Minimum)	165.0 (Nominal) 206.3 (Maximum)	

Before: 30−Sep−2009 16:45

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.93	Master		29.90
Before		27.41	Before		30.39
5.000 (Minimum)	26.93 (Nominal) 40.00 (Maximum)		5.000 (Minimum)	29.90 (Nominal) 40.00 (Maximum)	

Master: 31−Aug−2009 11:18 Before: 30−Sep−2009 16:53

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		5398	Master		2144	Master		2.518
4700 (Minimum)	5800 (Nominal) 6900 (Maximum)		1900 (Minimum)	2400 (Nominal) 2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal) 2.540 (Maximum)	

Master: 31−Aug−2009 11:18

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: 10−Oct−2009 21:06

High resolution Integrated Logging Tool−DTS Master Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.93	Master		29.90
5.000 (Minimum)	26.93 (Nominal) 40.00 (Maximum)		5.000 (Minimum)	29.90 (Nominal) 40.00 (Maximum)	

Master: 31−Aug−2009 11:18

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
Master		5398	Master		2144	Master		2.518
4700 (Minimum)	5800 (Nominal) 6900 (Maximum)		1900 (Minimum)	2400 (Nominal) 2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal) 2.540 (Maximum)	

Master: 31−Aug−2009 11:18

DTS Telemetry Tool / Equipment Identification

Primary Equipment:	
DTC−H Auxiliary Cartridge	DTCH − A
DTC−H Telemetry Cartridge	DTCH − A
Auxiliary Equipment:	
DTCH Telemetry Cartridge Housing	ECH − KC

Company: **EXXONMOBIL PRODUCTION COMPANY**

Schlumberger

Well: **PCU 297−11B1**
Field: **PICEANCE CREEK**
County: **RIO BLANCO**
State: **COLORADO**

IMAGING BEHIND CASING
GAMMA RAY
USIT CASING COLLAR LOCATOR