

Schlumberger

Company: Encana Oil & Gas (USA) Inc

Well: Flanigan 2B-6H

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner
Cement Evaluation

County: Weld
Field: Wattenberg
Location: NW/NW Sec. 6, T1N, R64W
Well: Flanigan 2B-6H
Company: Encana Oil & Gas (USA) Inc

LOCATION

NW/NW Sec. 6, T1N, R64W
SHL: 266 FNL X 927 FWL

Elev.: K.B. 4949.00 ft
G.L. 4936.00 ft
D.F. 4948.00 ft

Permanent Datum: _____
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Ground Level _____
Elev.: 4936.00 ft
13.00 ft above Perm. Datum

API Serial No.
05-123-35691-0000

Section
6

Township
1N

Range
64W

Logging Date	7-Aug-2012			
Run Number	1			
Depth Driller	11495 ft			
Schlumberger Depth	7200 ft			
Bottom Log Interval	7200 ft			
Top Log Interval	200 ft			
Casing Fluid Type	Gel and Chemical			
Salinity				
Density	9.5 lbm/gal			
Fluid Level	50 ft			
BIT/COASING/TUBING STRING				
Bit Size	8.750 in			
From				
To				
Casing/Tubing Size	7.000 in			
Weight	26 lbm/ft			
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom	Time	15:00		
Unit Number	Location	2135	Ft Morgan, CO	
Recorded By	Tim Hoffman			
Witnessed By	Bill Laforce			

	Run 1	Run 2	Run
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bq			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	90 deg		
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type			
Volume			
Density			
Water Loss			
Additives			
Tail Cement Type			
Volume			
Density			
Water Loss			
Additives			
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/COASING/TUBING STRING			
Bit Size			
From			
To			
Casing/Tubing Size			
Weight			
Grade			
From			
To			
Maximum Recorded Temperatures			
Logger On Bottom	Time		
Unit Number	Location		
Recorded By			
Witnessed By			

DEPTH SUMMARY LISTING

Date Created: 7-AUG-2012 17:12:53

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46P XS
Serial Number:	4938	Serial Number:	1919	Serial Number:	
Calibration Date:	11-Apr-2012	Calibration Date:	1-Aug-2012	Length:	24000 FT
Calibrator Serial Number:		Calibrator Serial Number:	100513	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	7-46P XS	Number of Calibration Points:	10		
Wheel Correction 1:	-6	Calibration RMS:	39		
Wheel Correction 2:	-6	Calibration Peak Error:	74		

Depth Control Parameters

Log Sequence: First Log In the Well

Rig Up Length At Surface: 0.00 FT

Rig Up Length At Bottom: 0.00 FT

Rig Up Length Correction: 0.00 FT

Stretch Correction: 6.00 FT

Tool Zero Check At Surface:

Depth Control Remarks

1. All Schlumberger depth policies followed
2. IDW used as primary depth reference. Z-Chart used as secondary
- 3.
- 4.
- 5.
- 6.

DISCLAIMER

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OTHER SERVICES1

OS1: None

OS2:

OS3:

OS4:

OS5:

OTHER SERVICES2

OS1:

OS2:

OS3:

OS4:

OS5:

REMARKS: RUN NUMBER 1

This is the first run in hole

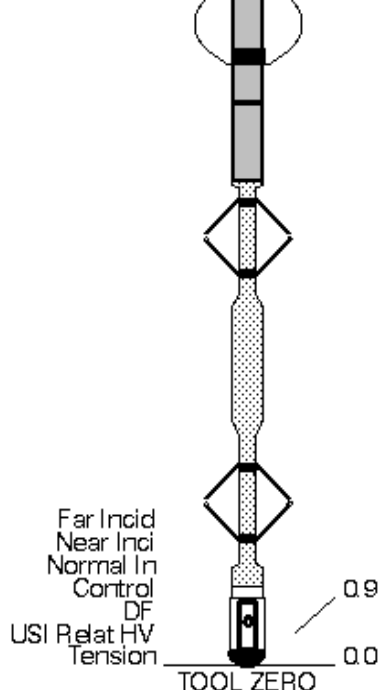
Toolstring run as per tool sketch

TD not tagged due to hole deviation. Logged up from 7200'

Borehole deviation increased near TD towards horizontal, causing tool eccentricity

Cement design for well:

REMARKS: RUN NUMBER 2



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

Company: Encana Oil & Gas (USA) Inc

Well: Ranigan 2B-6H

Input DLIS Files

DEFAULT	USI_011LUP	FN:10	PRODUCER	07-Aug-2012 14:57	7201.0 FT	190.5 FT
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Output DLIS Files

DEFAULT	USI_020PUP	FN:19	PRODUCER	07-Aug-2012 18:59	7207.0 FT	196.5 FT
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OP System Version: 19C0-187

USIT-D	19C0-187	SGT-N	19C0-187
DTC-H	19C0-187		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2 MRAY	7207.0 18:59:15
	2 MRAY	1.95 MRAY	4100.0 19:02:46
	2.1 MRAY	2 MRAY	3800.0 19:03:01
	2.15 MRAY	2.1 MRAY	3500.0 19:03:17

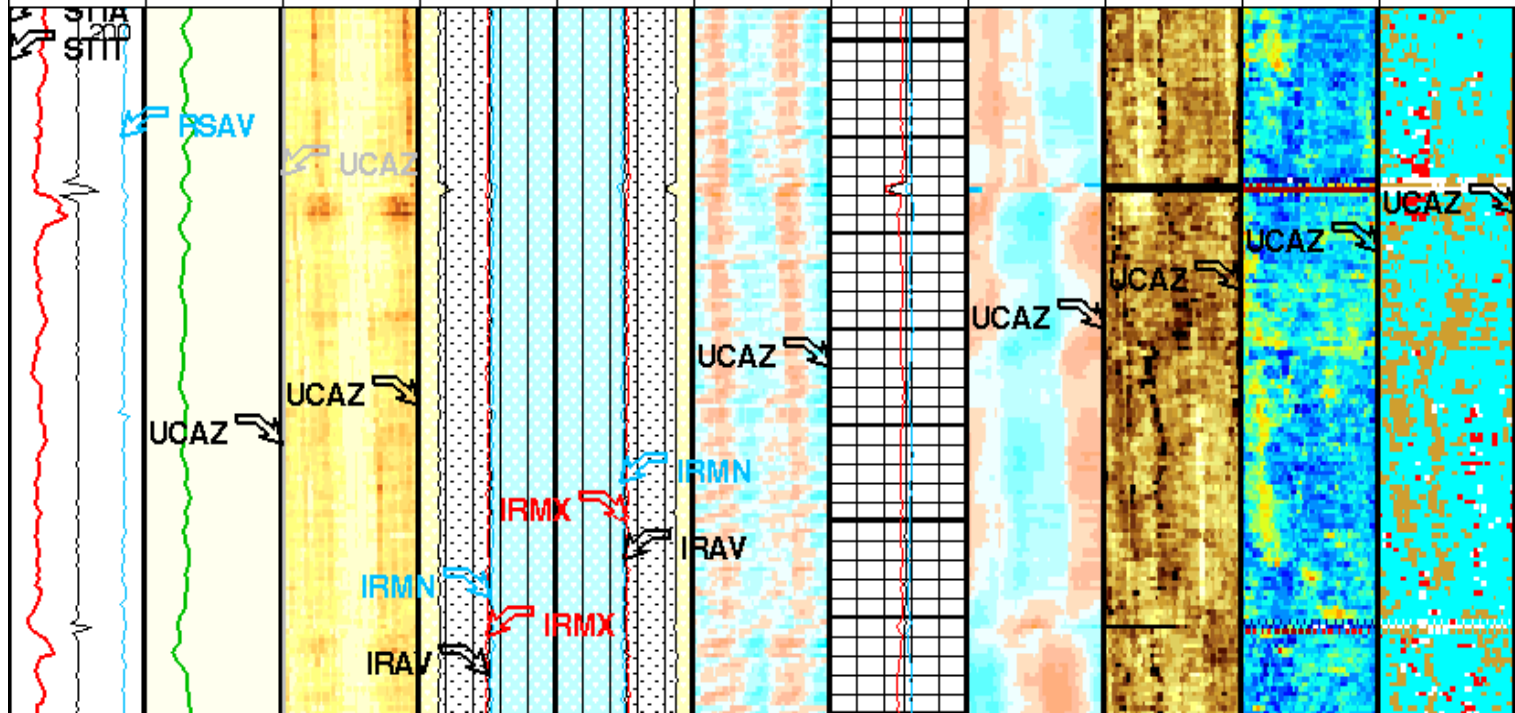
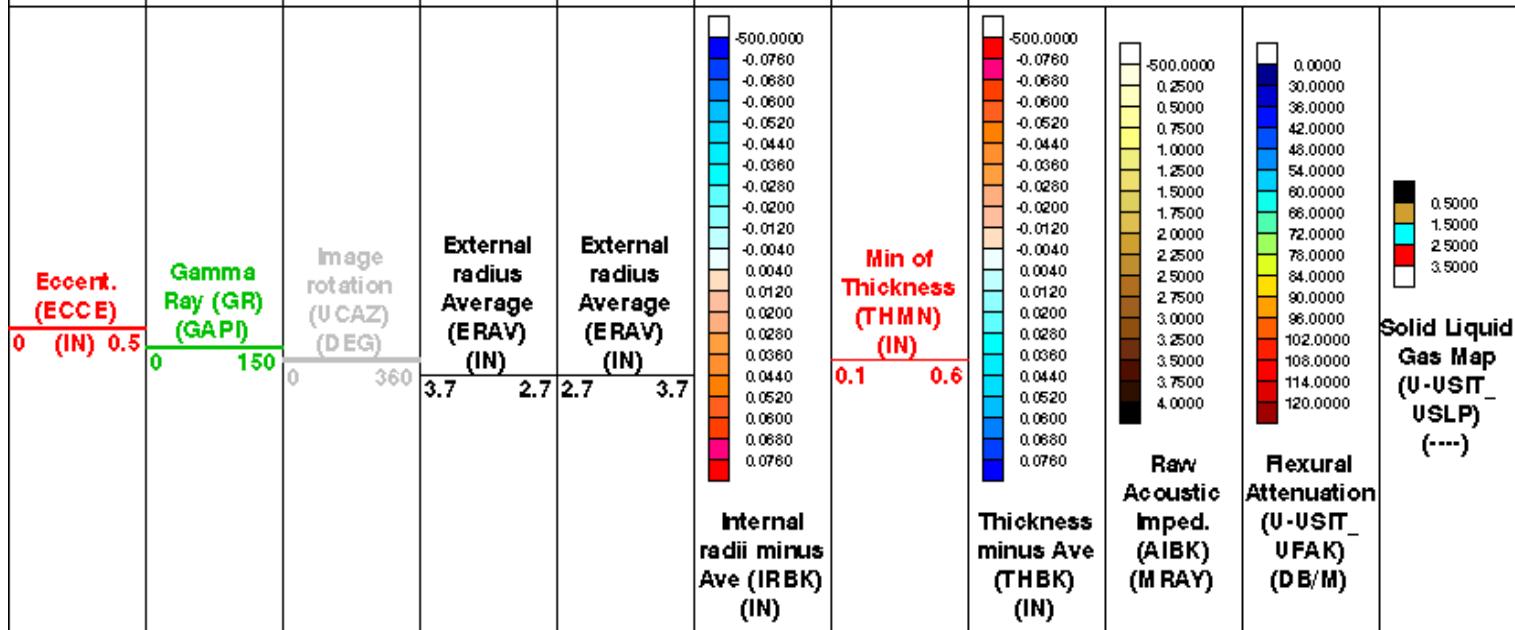
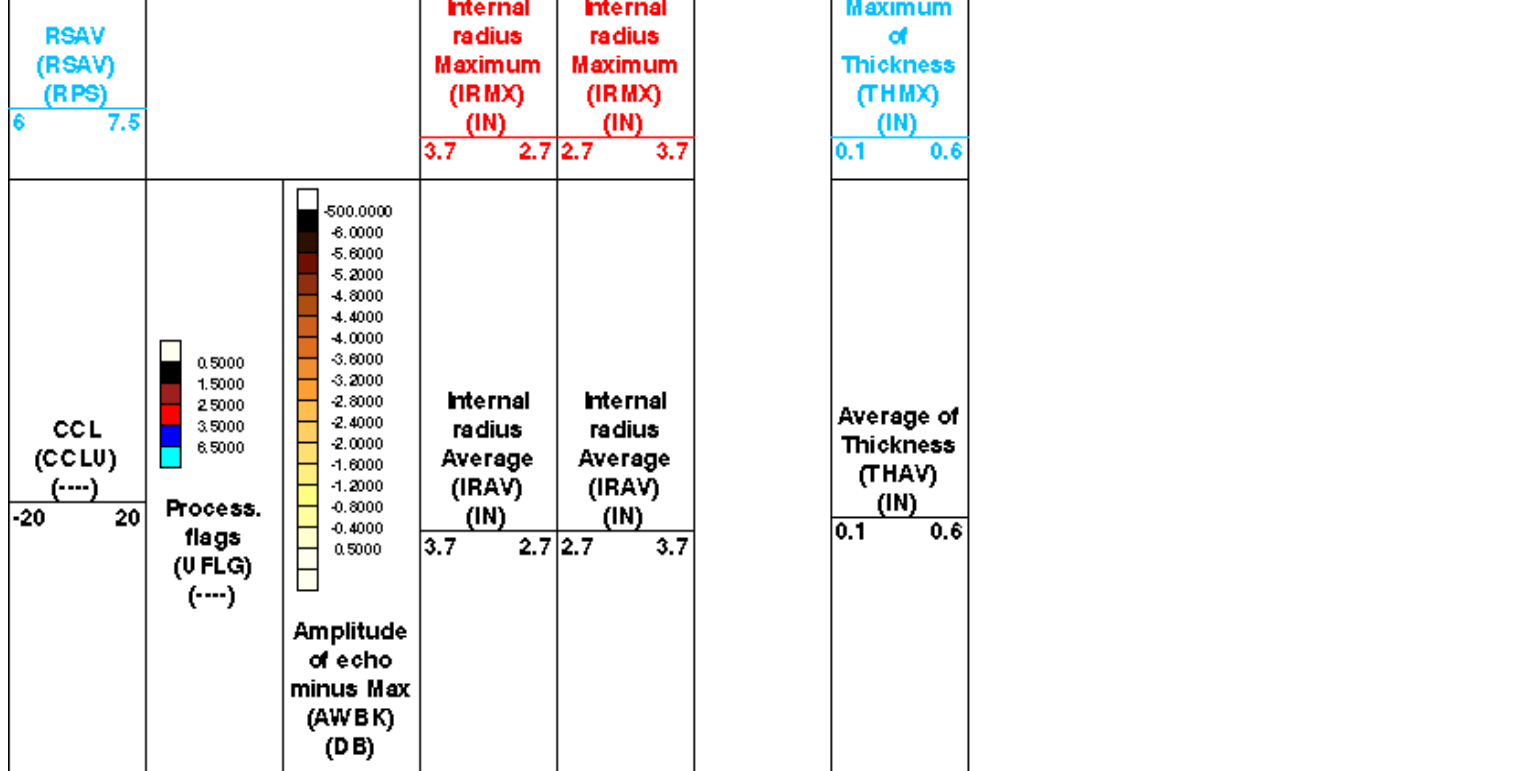
Tool/Tot.
Drag
From D4T
to STIA

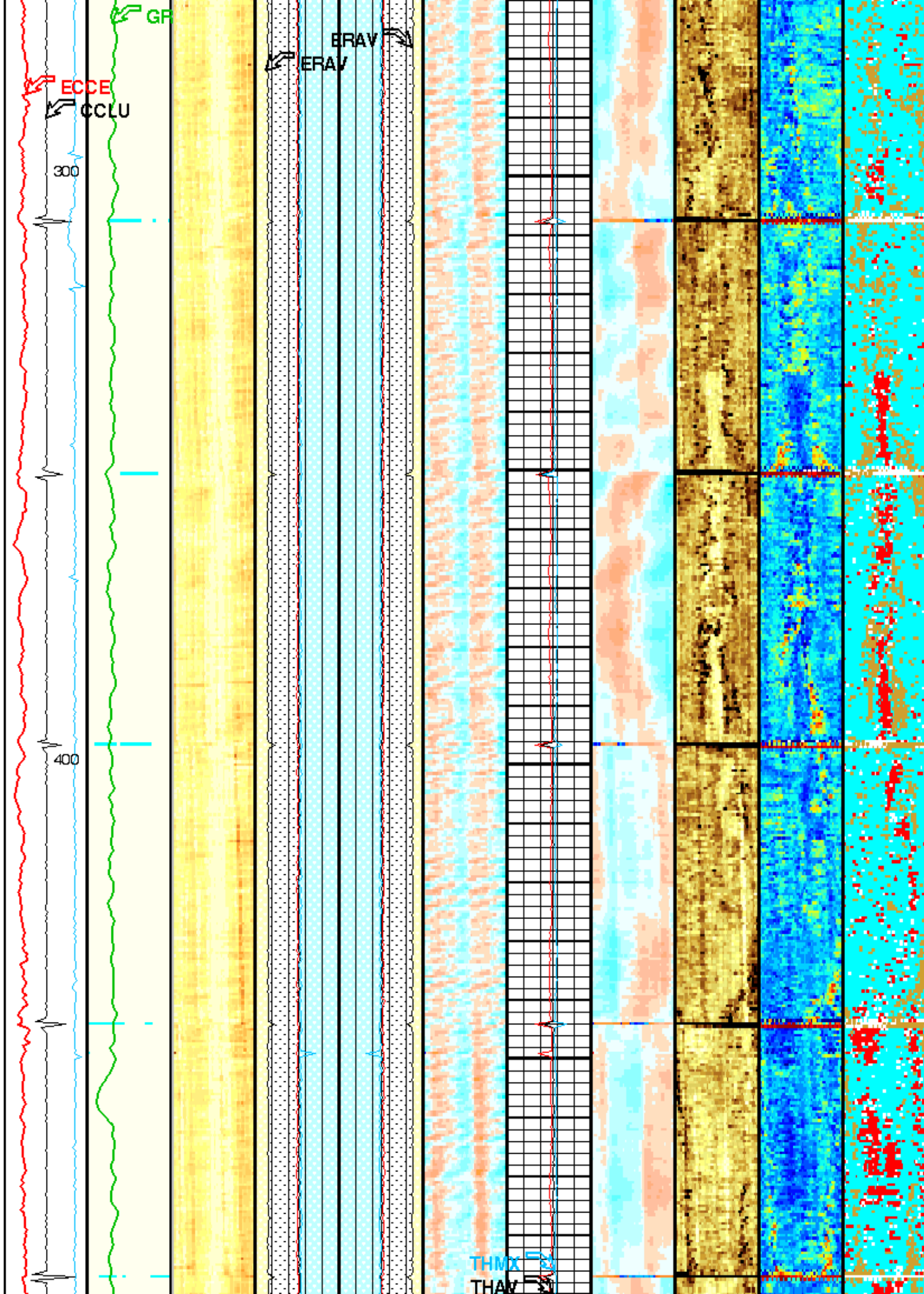
Cable
Drag
From D4T
to STIT

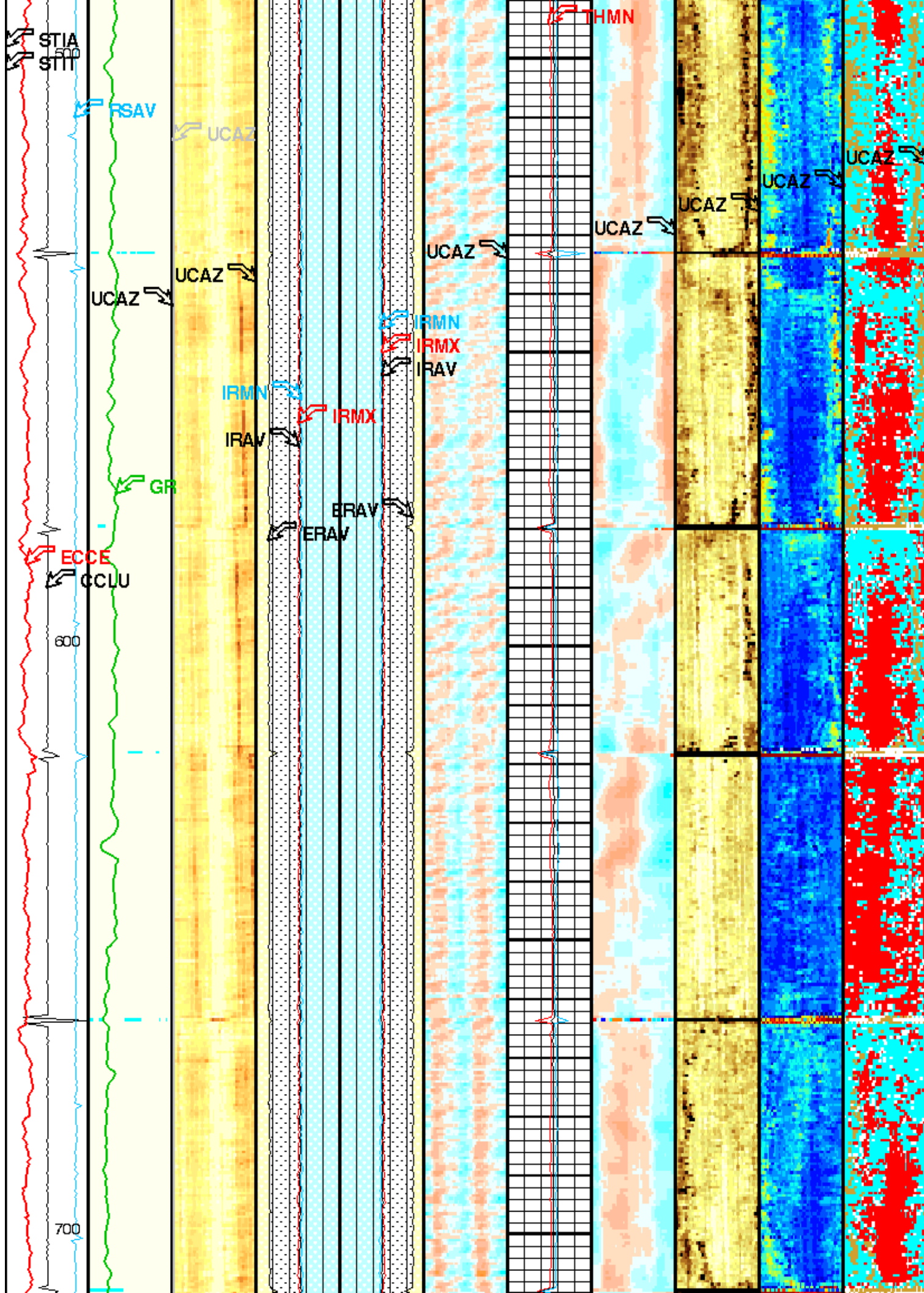
Stuck
Stretch
(STIT)

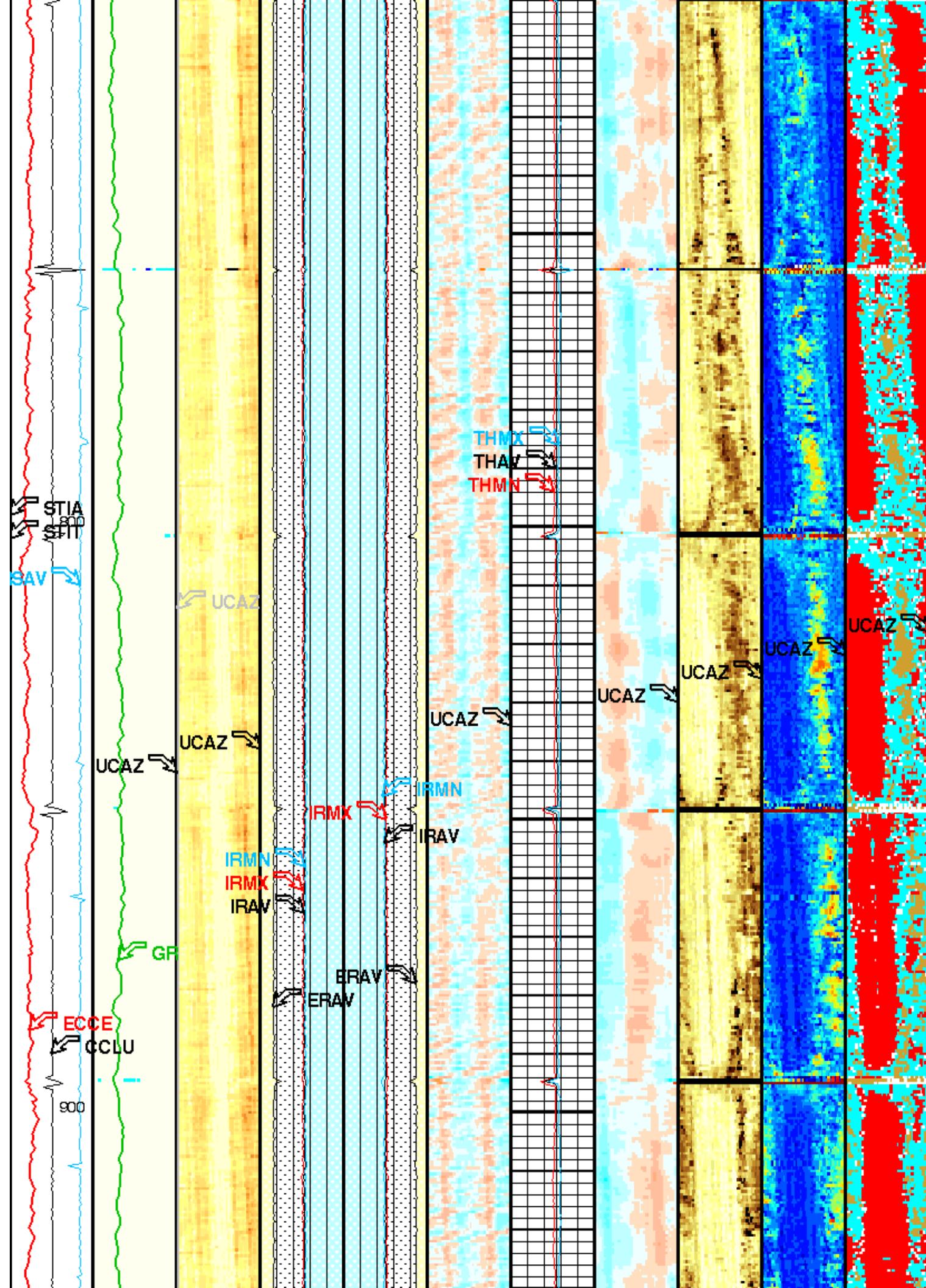
0 (F) 50

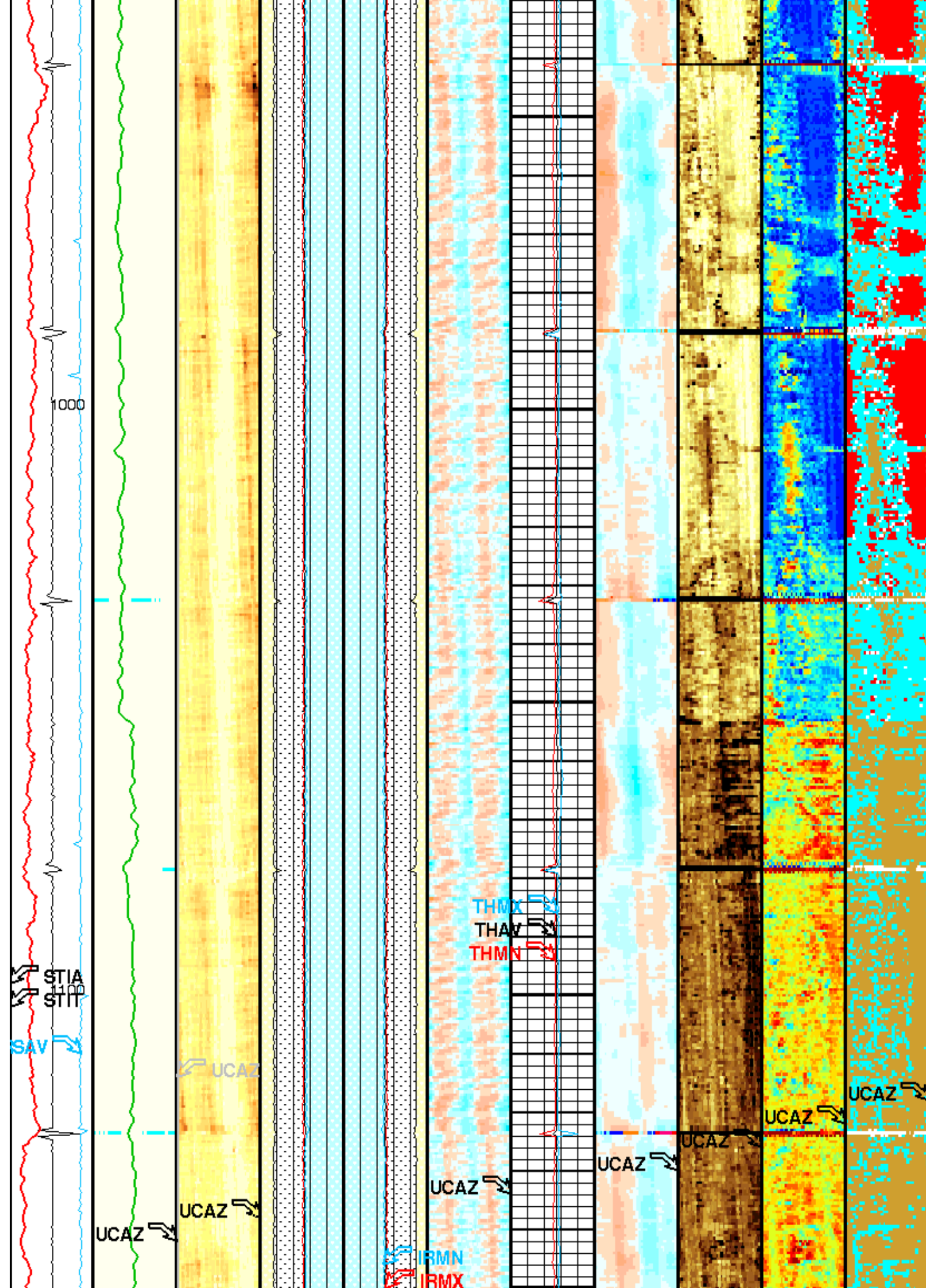
Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)
3.7 2.7	2.7 3.7

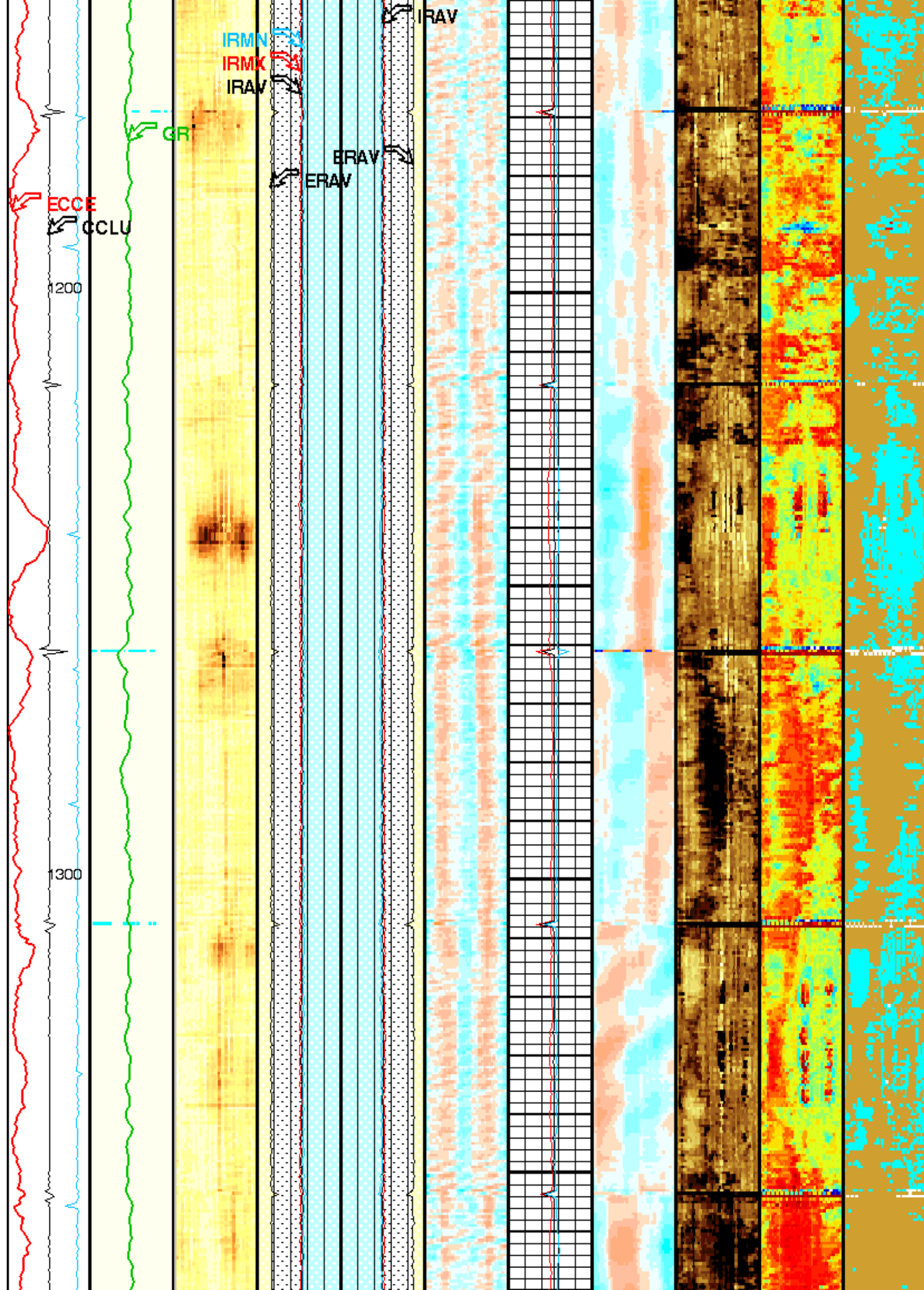


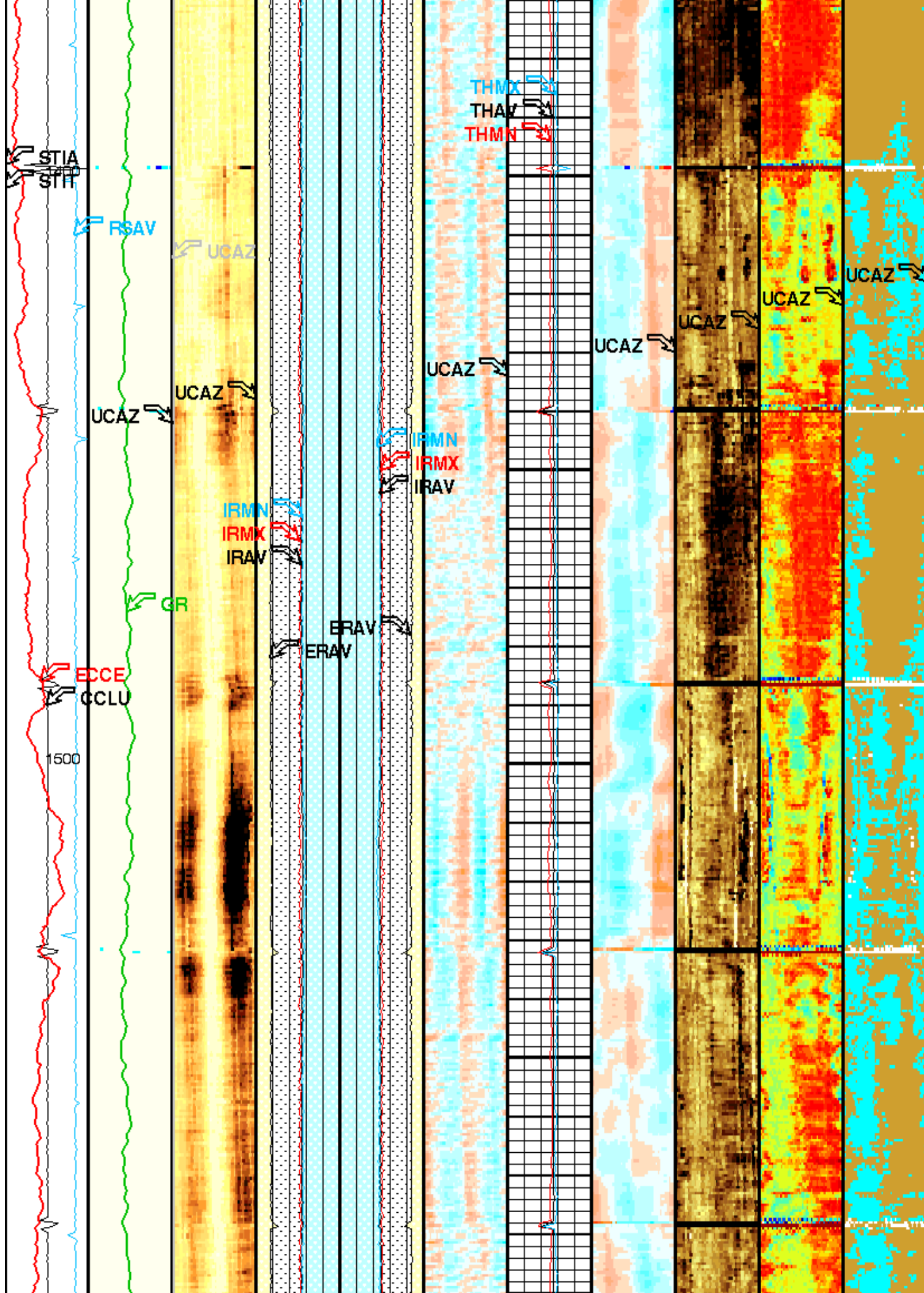


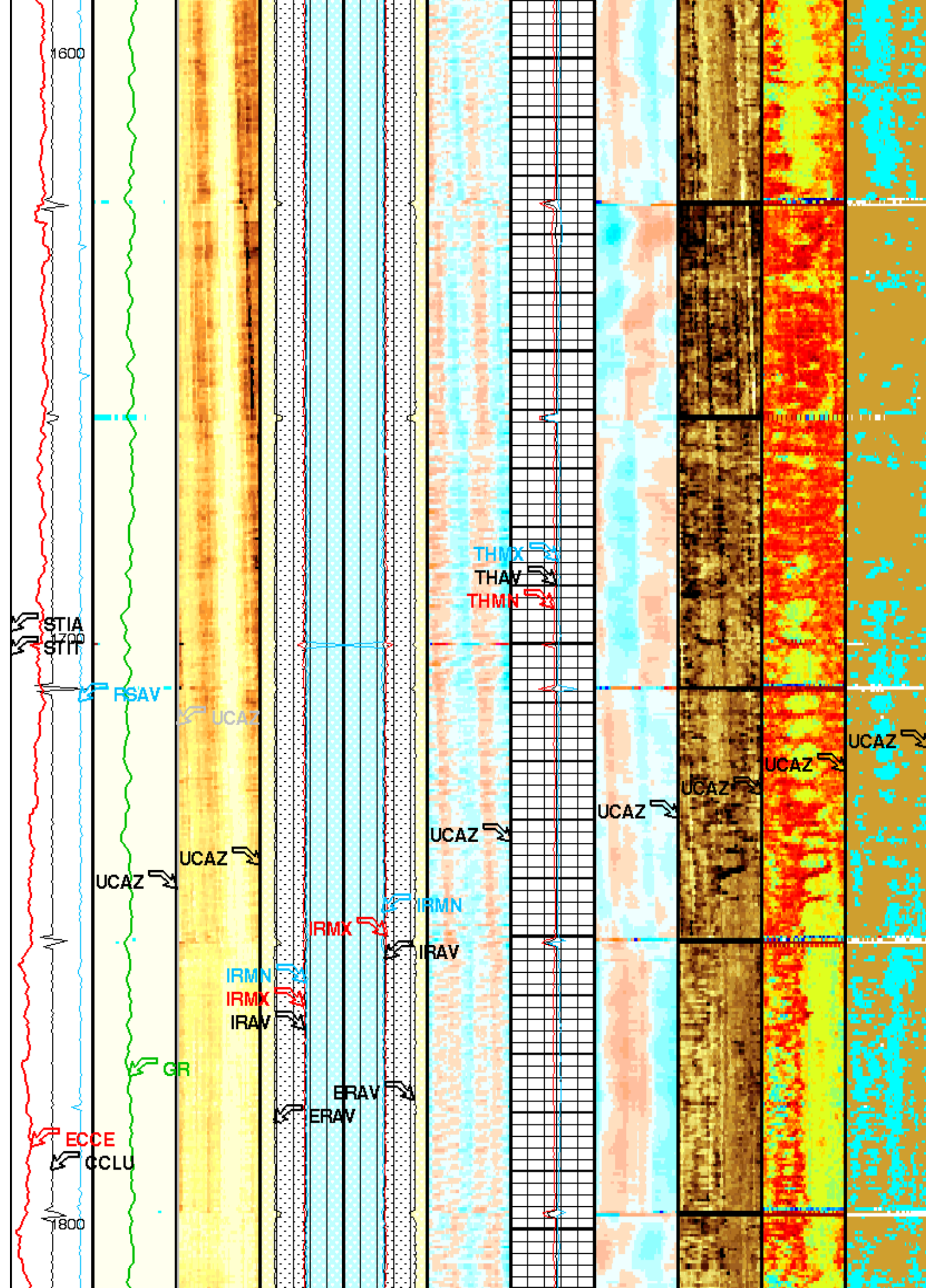


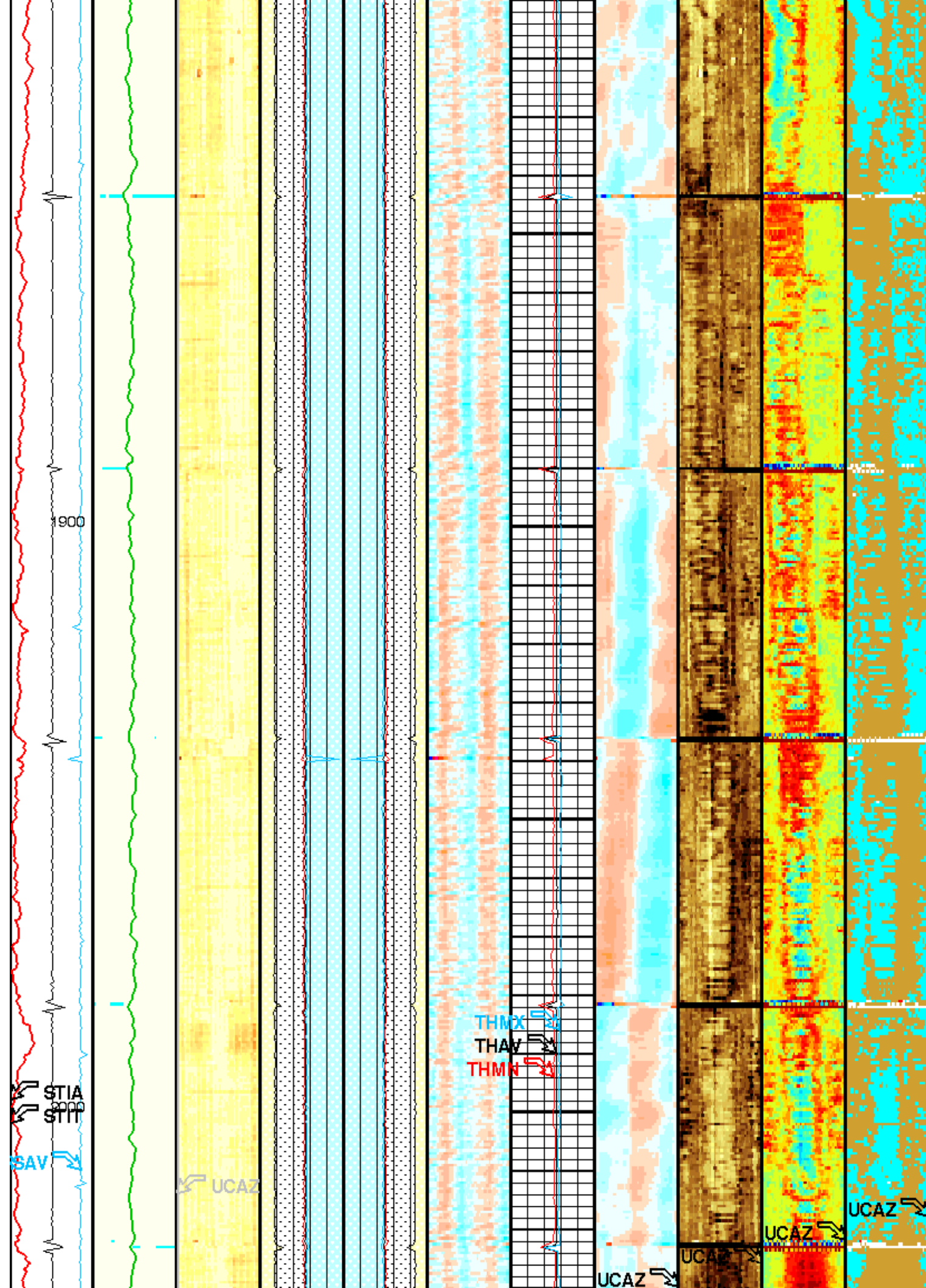


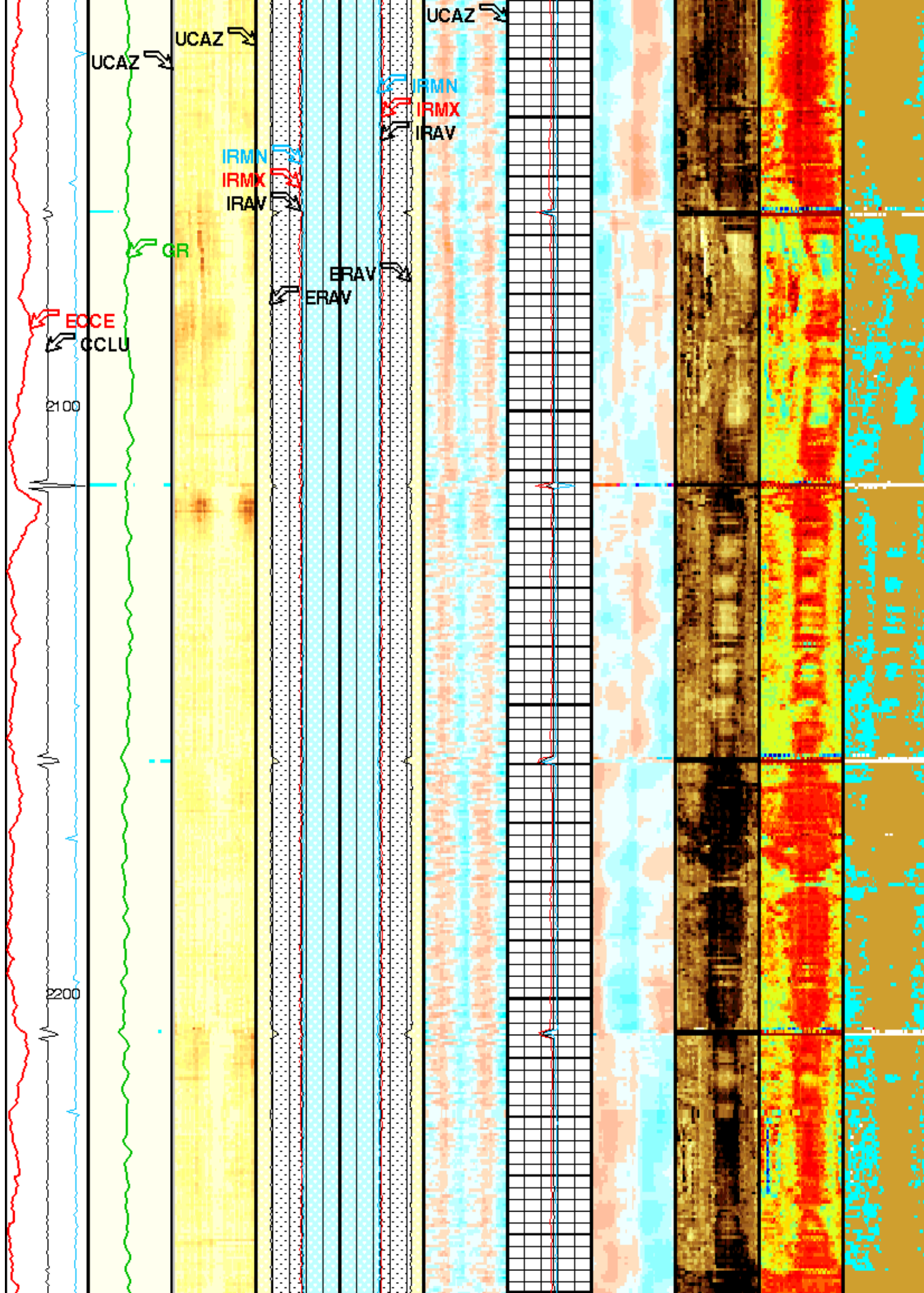


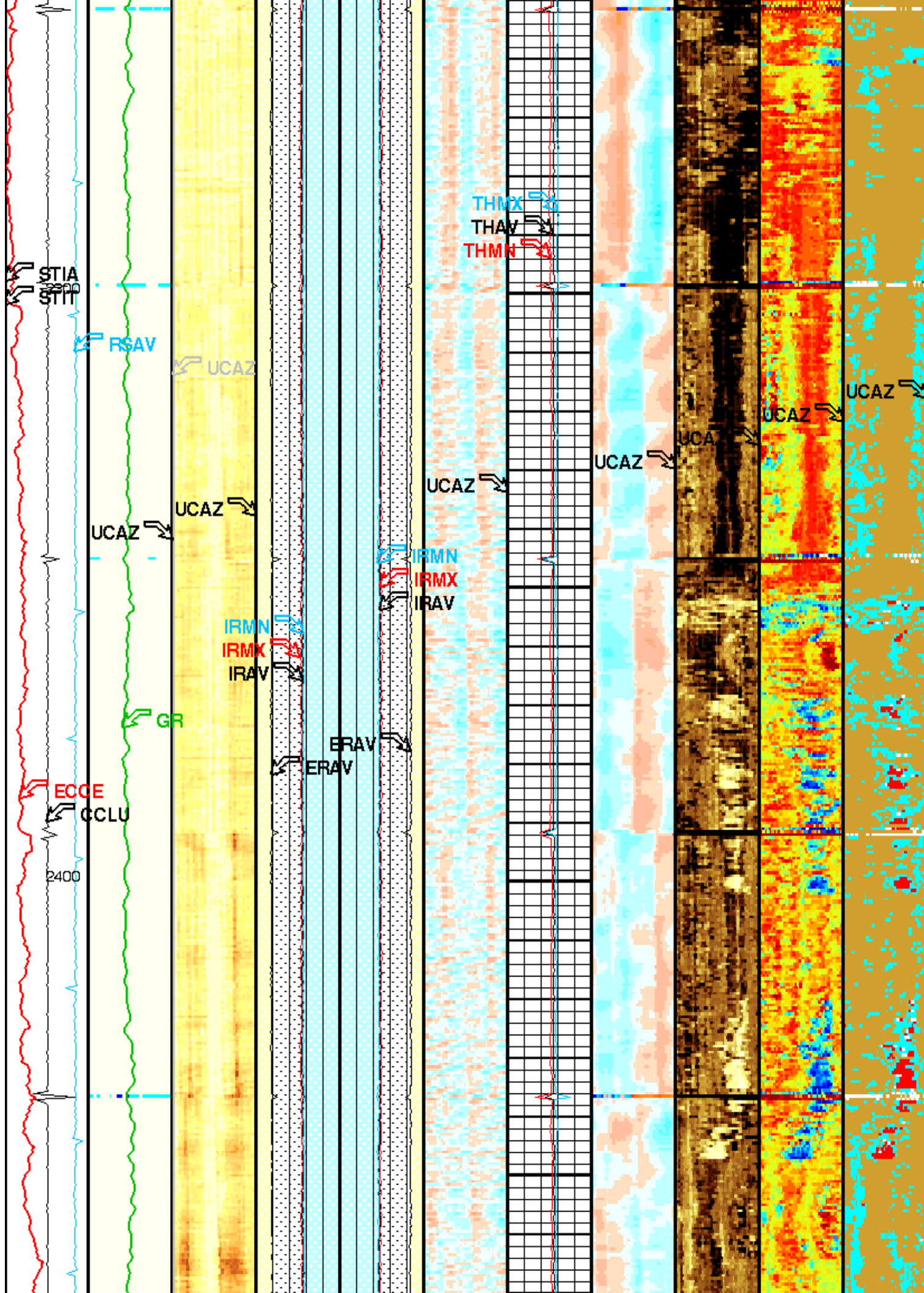


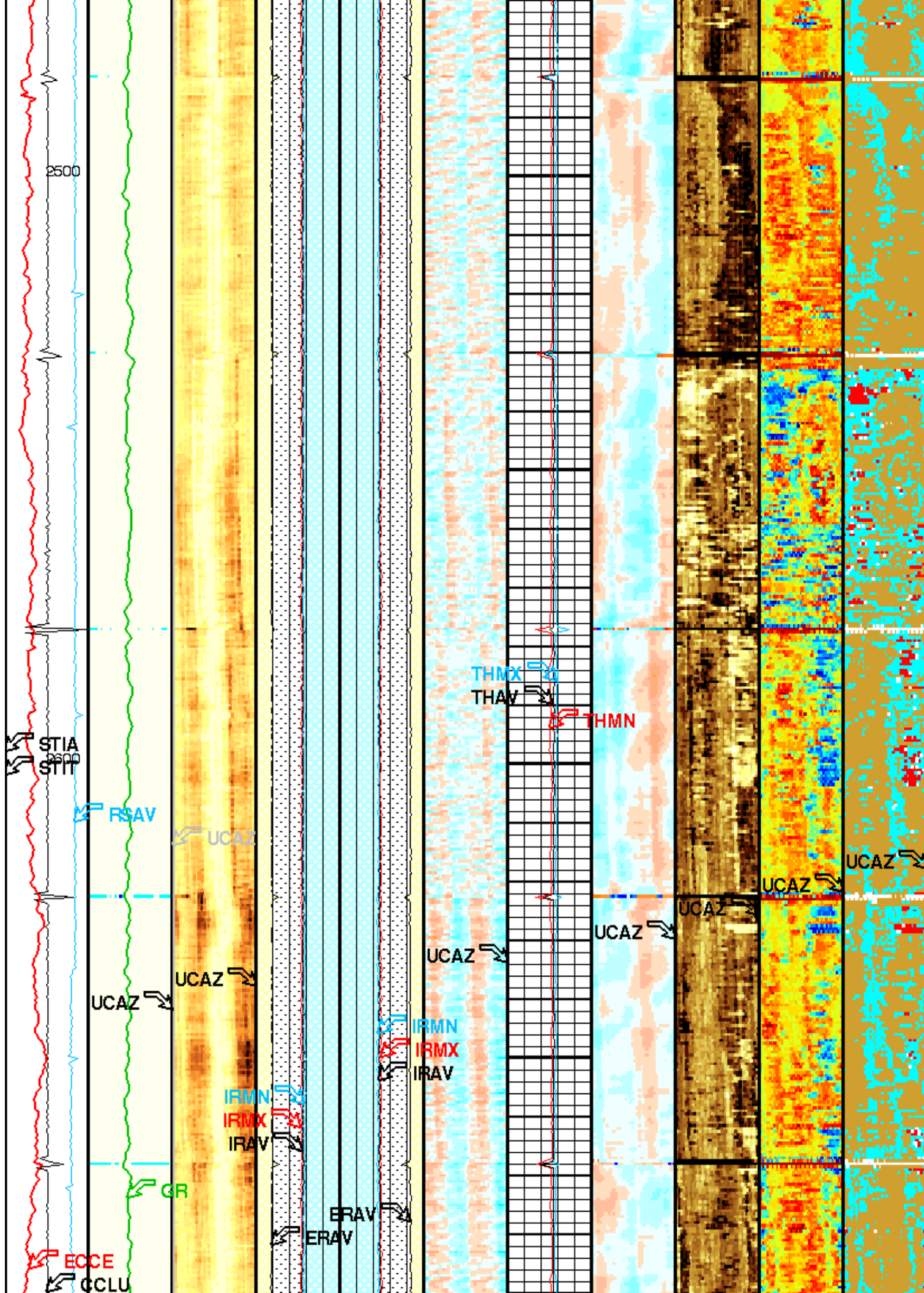


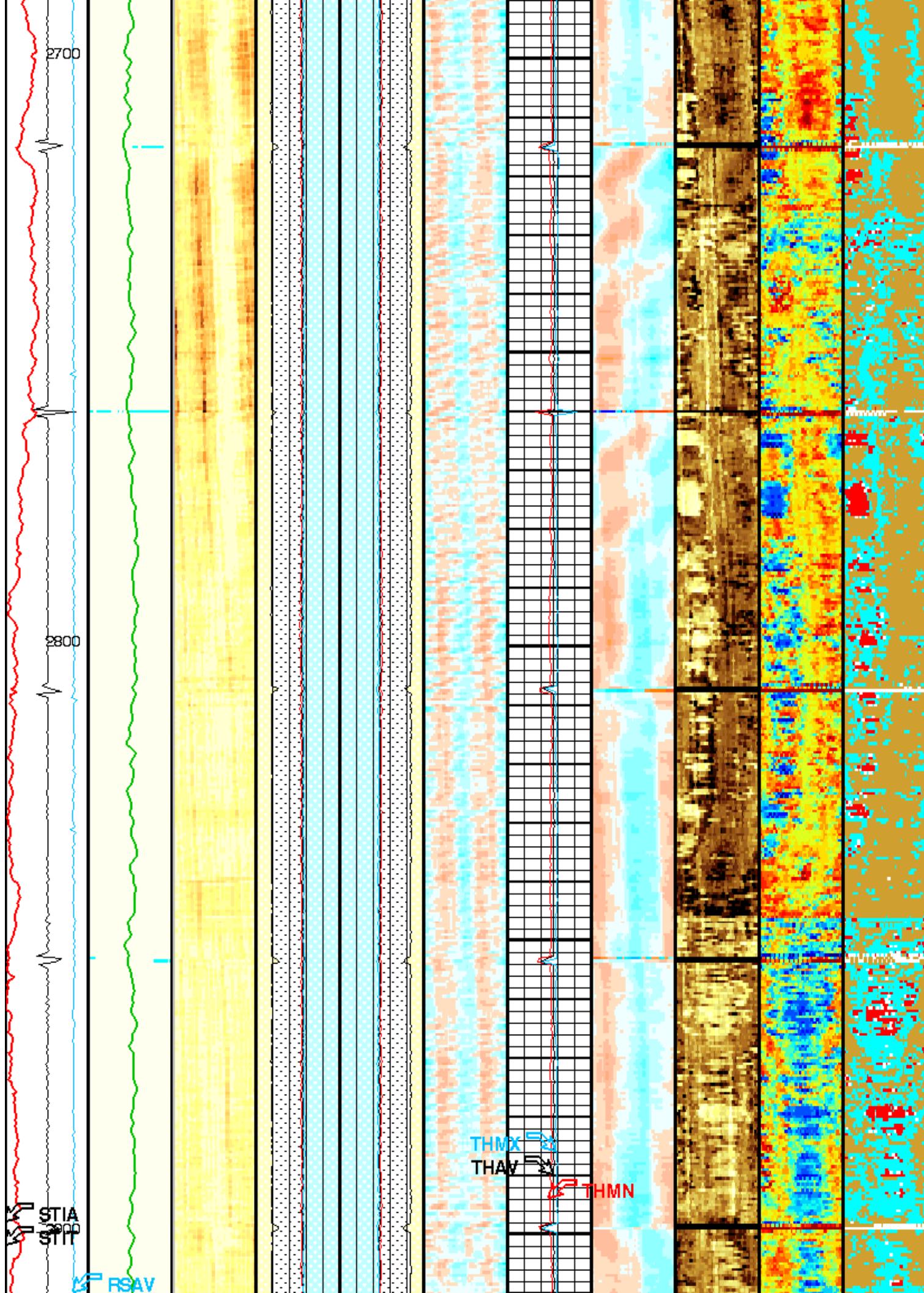


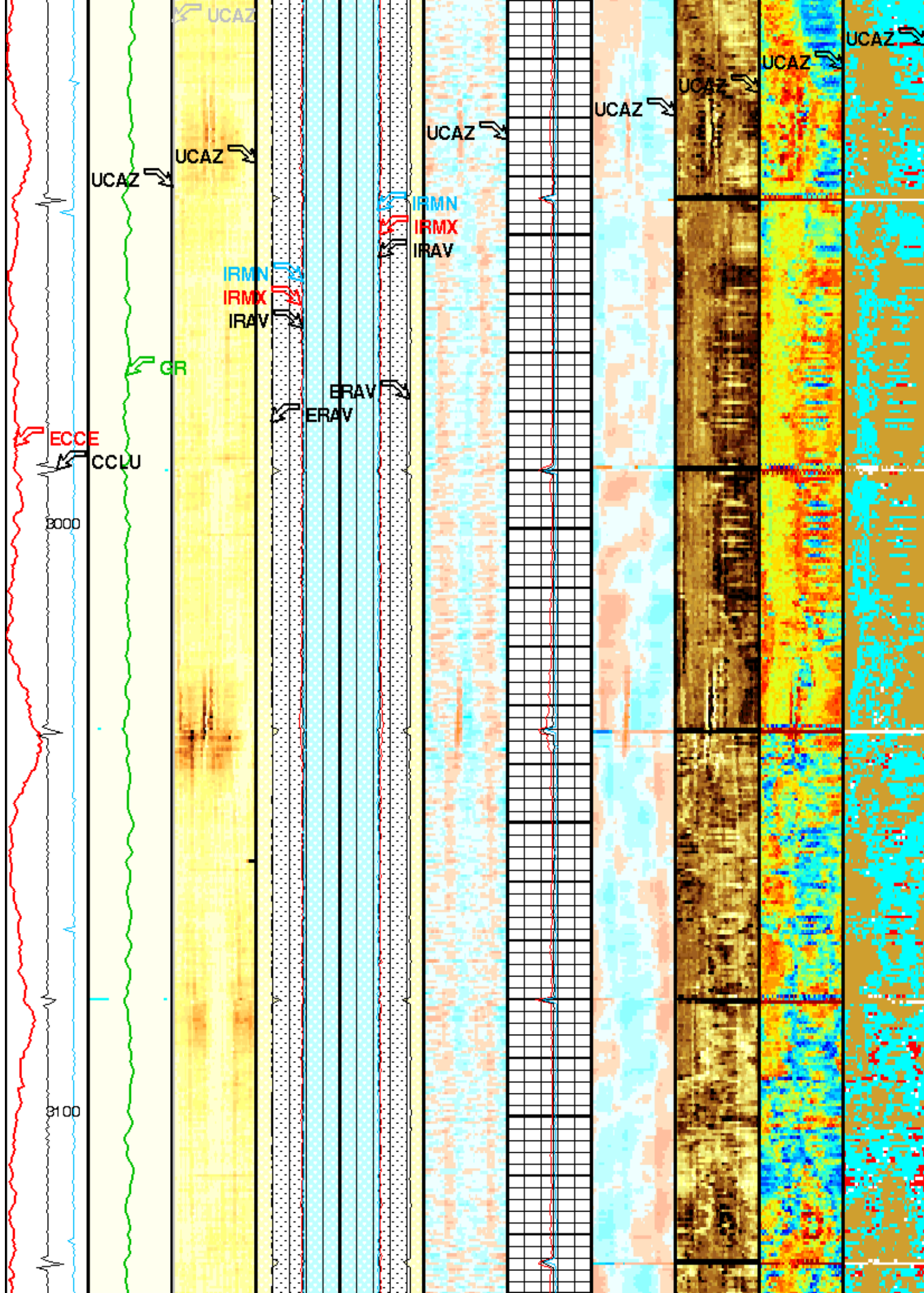


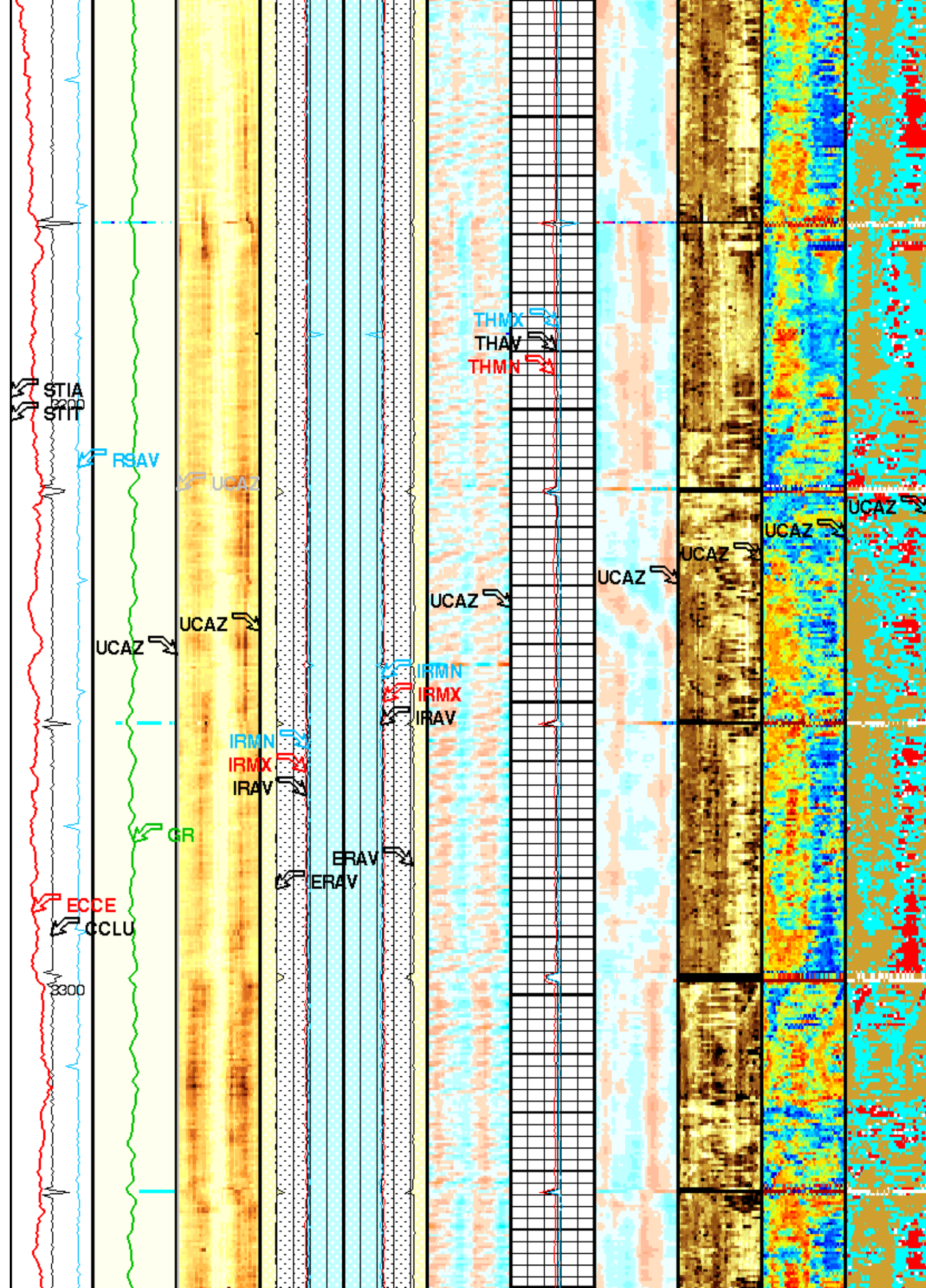


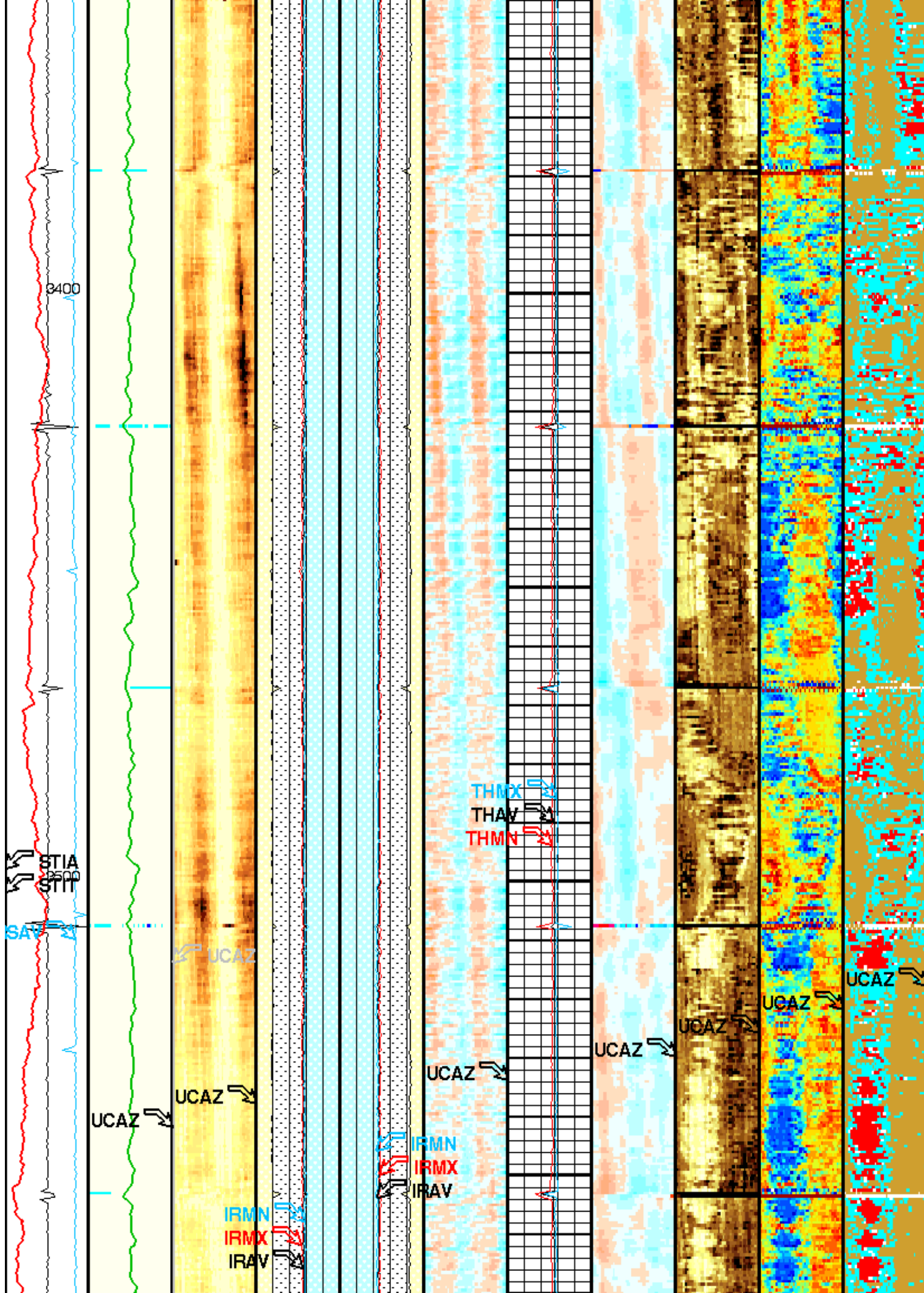


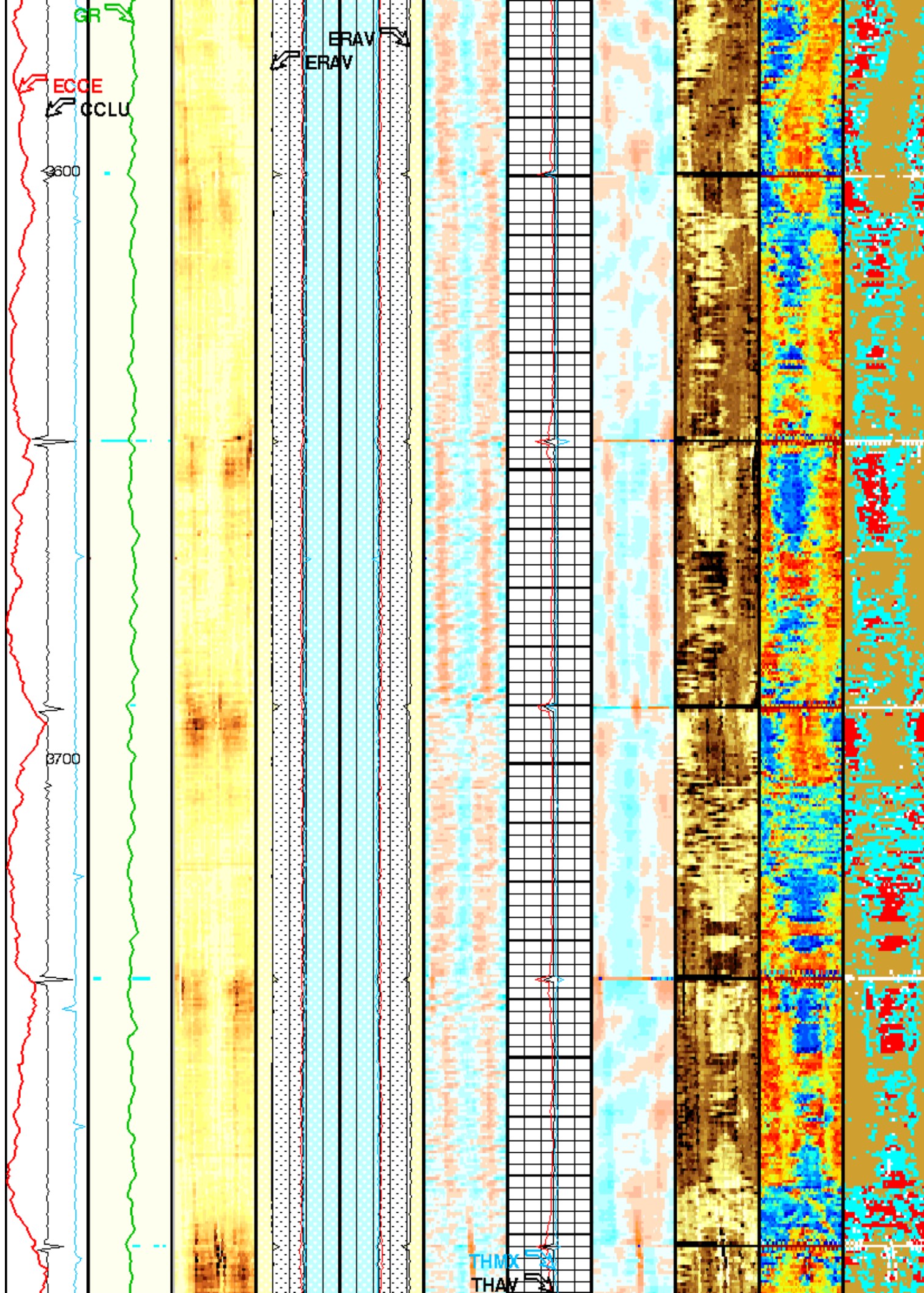


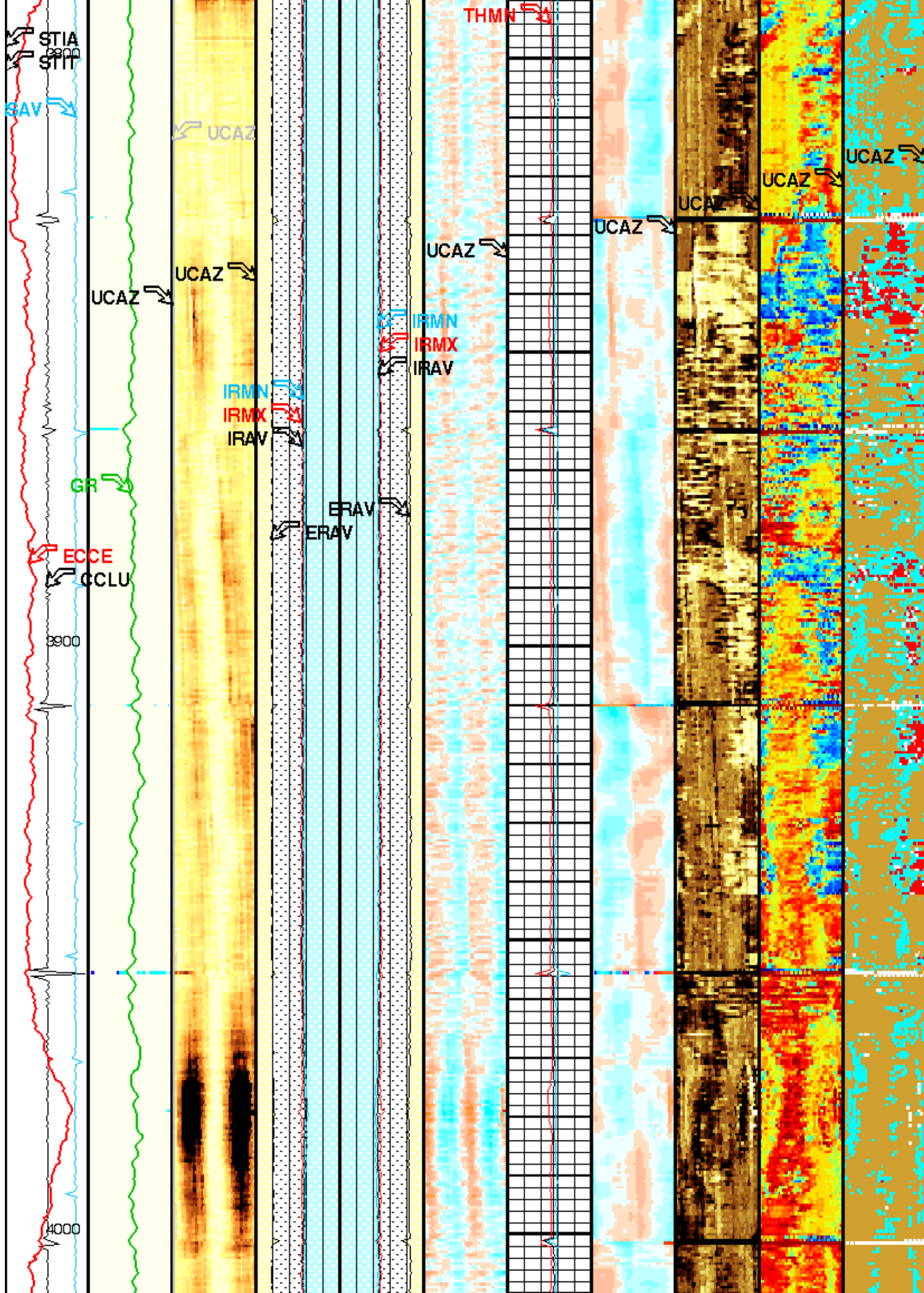


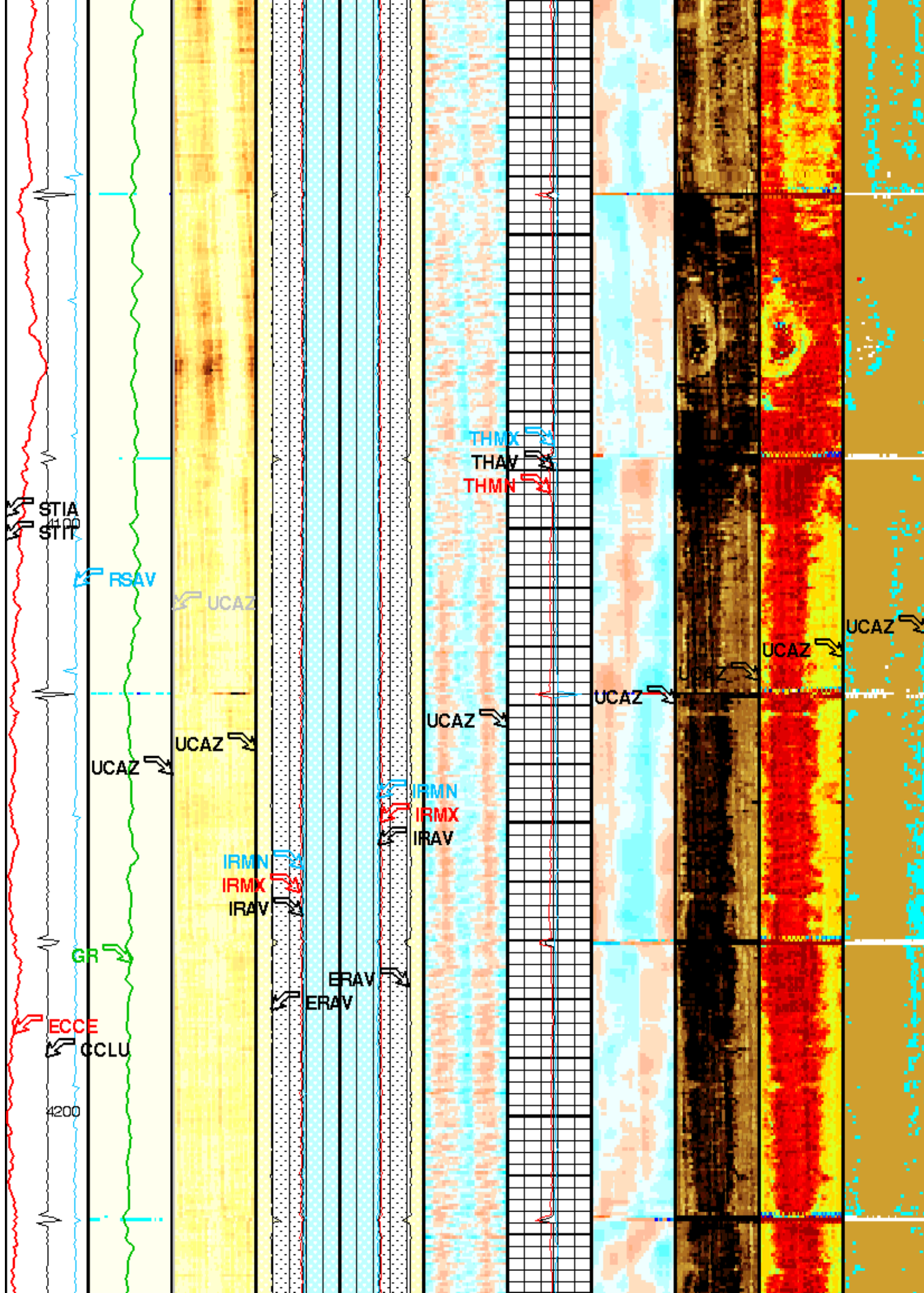


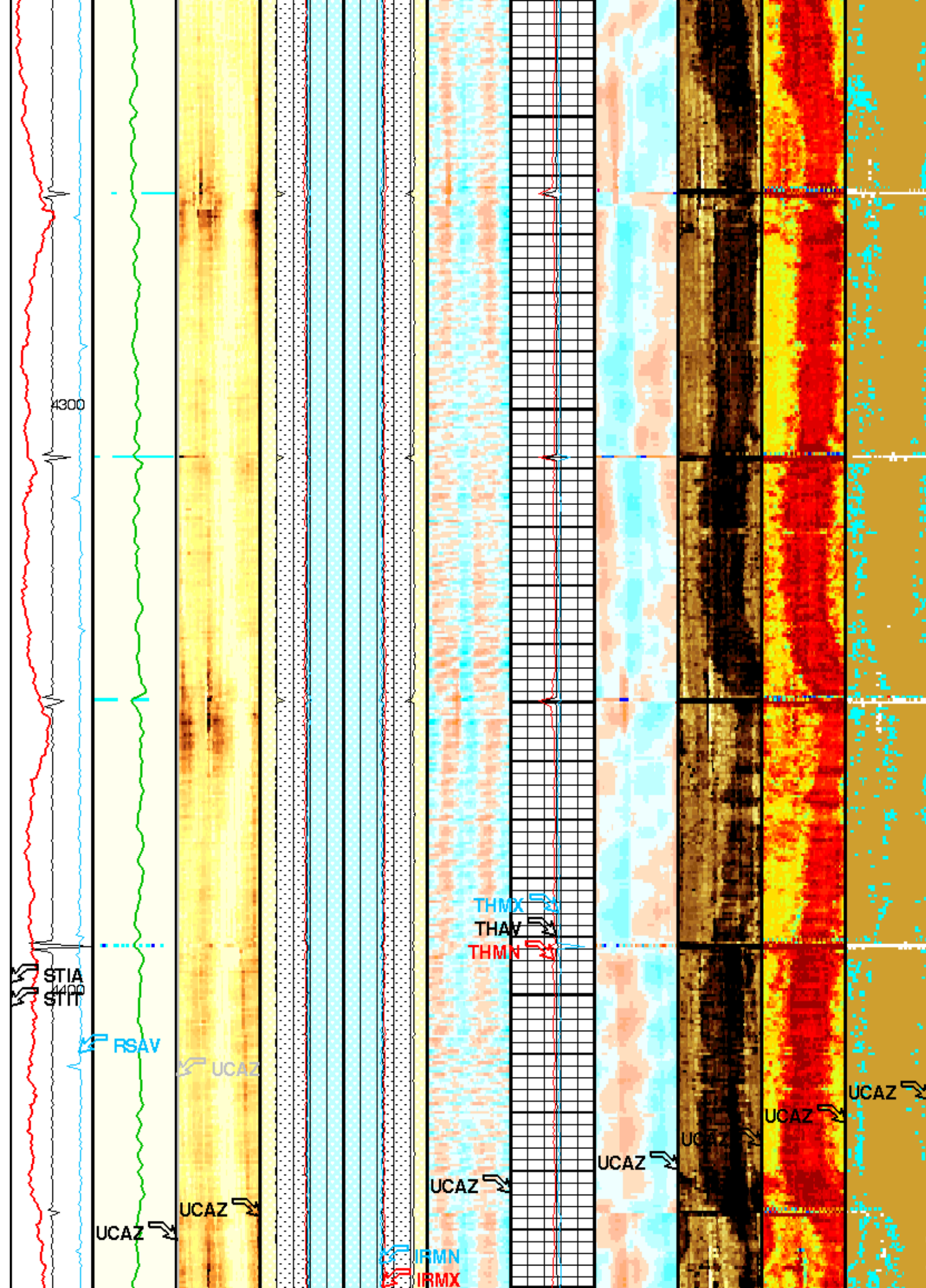


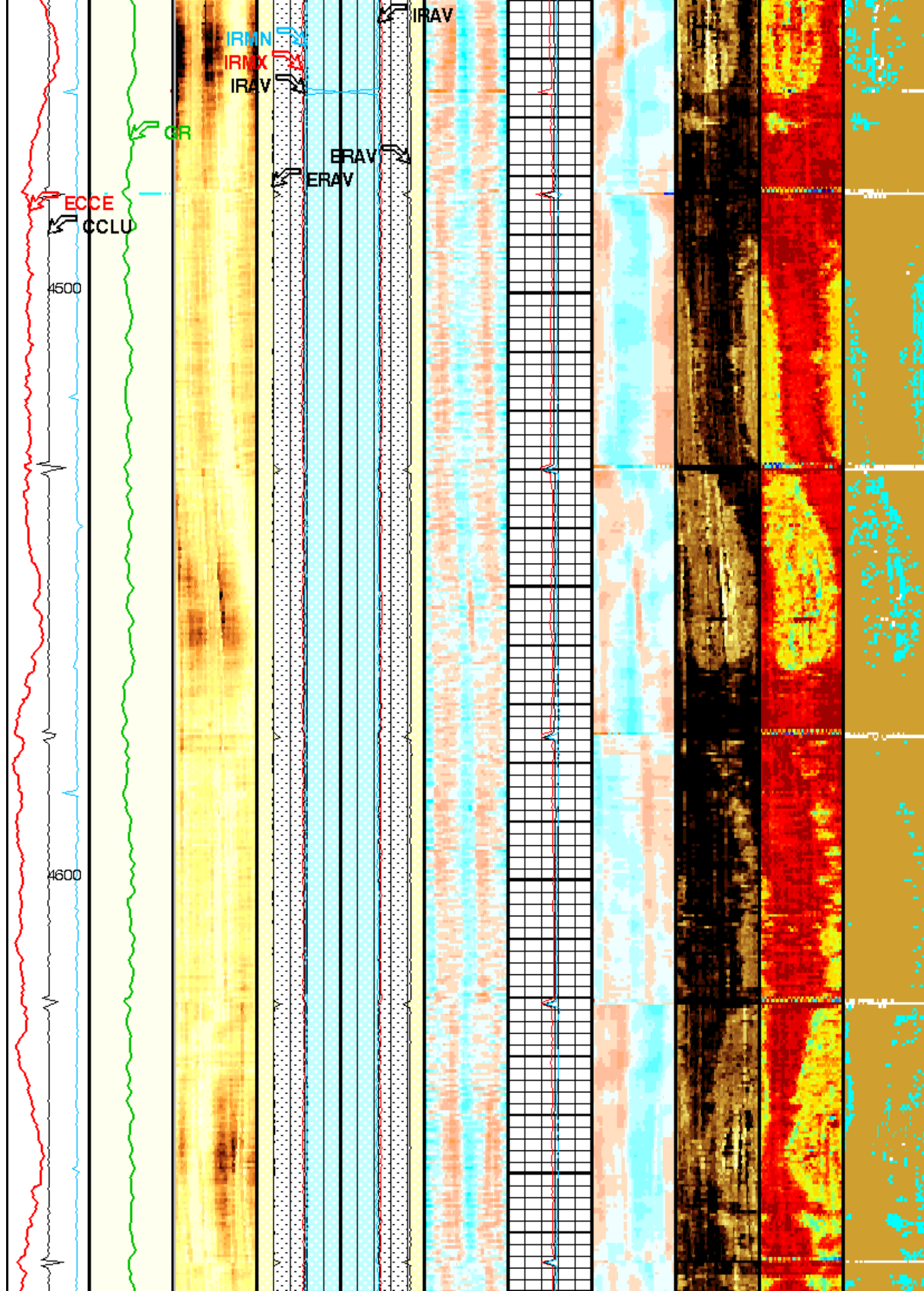


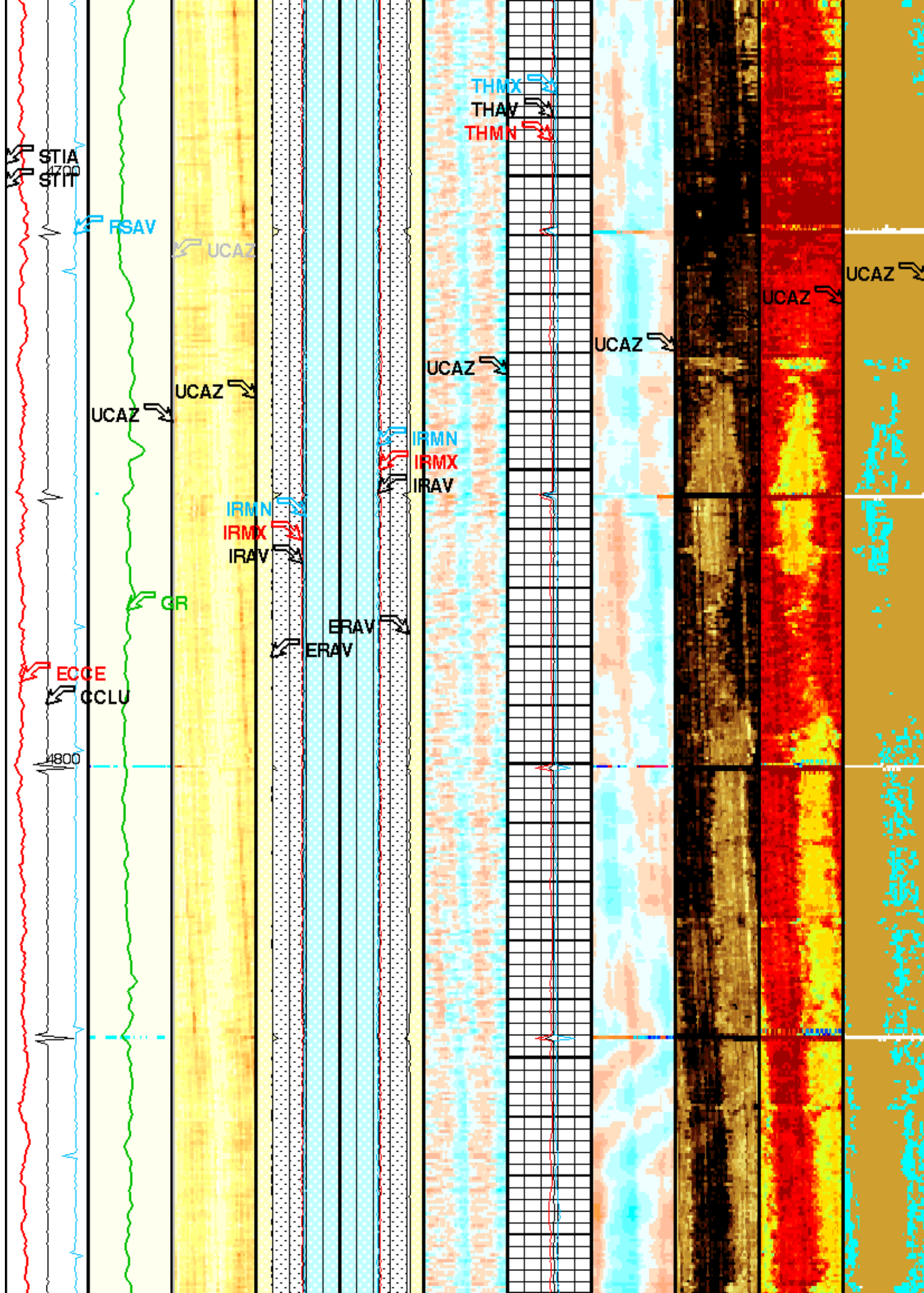


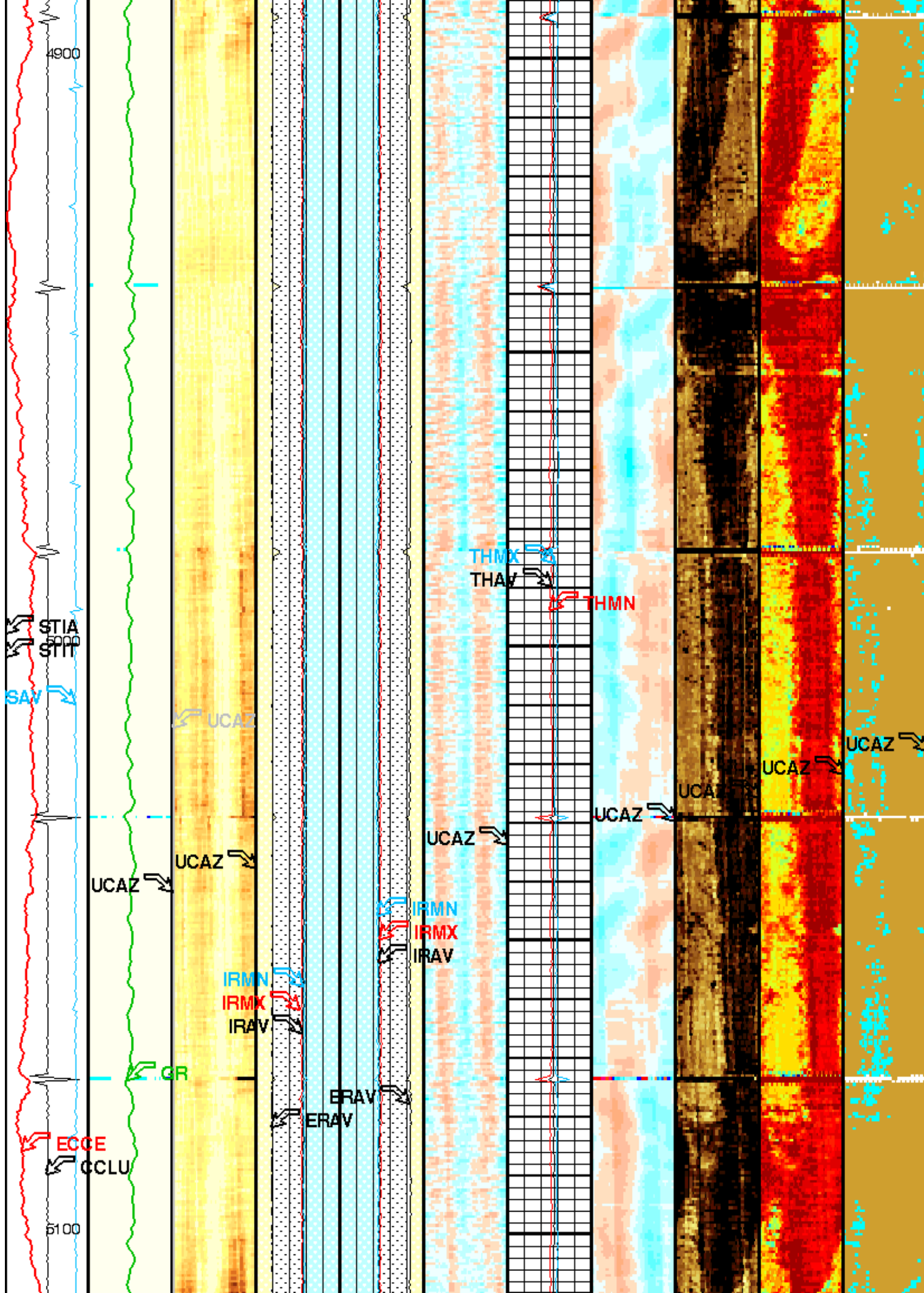


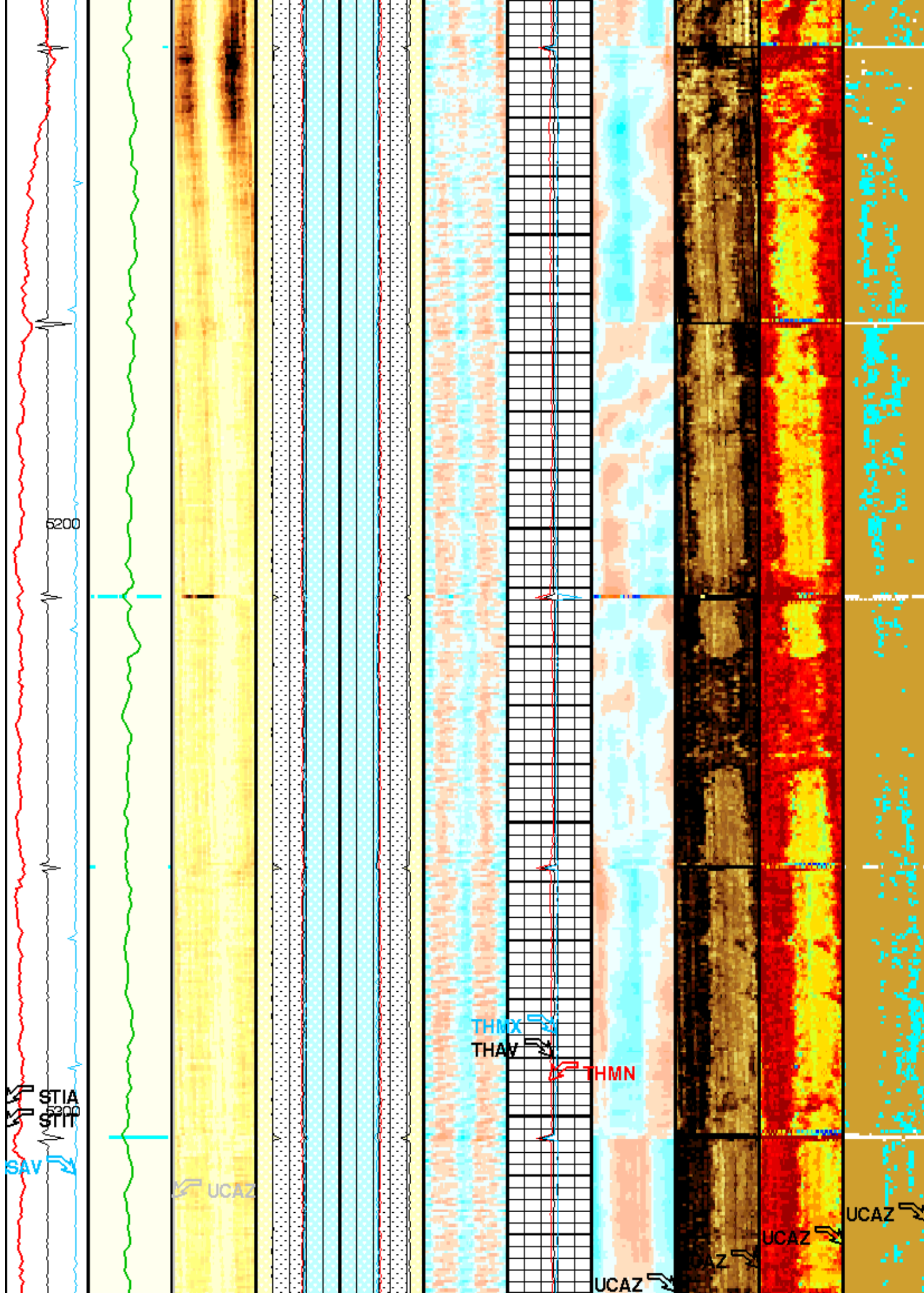


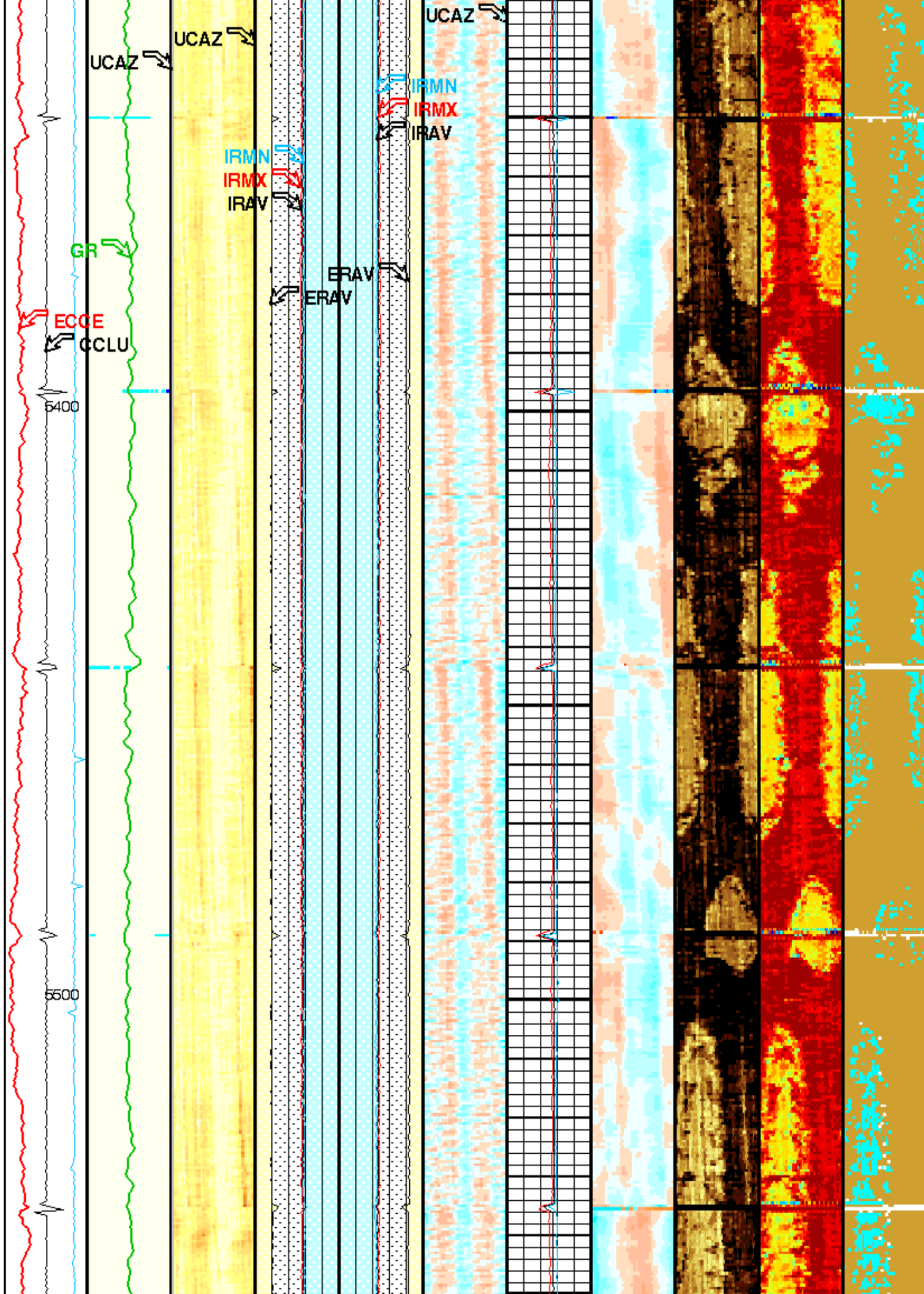


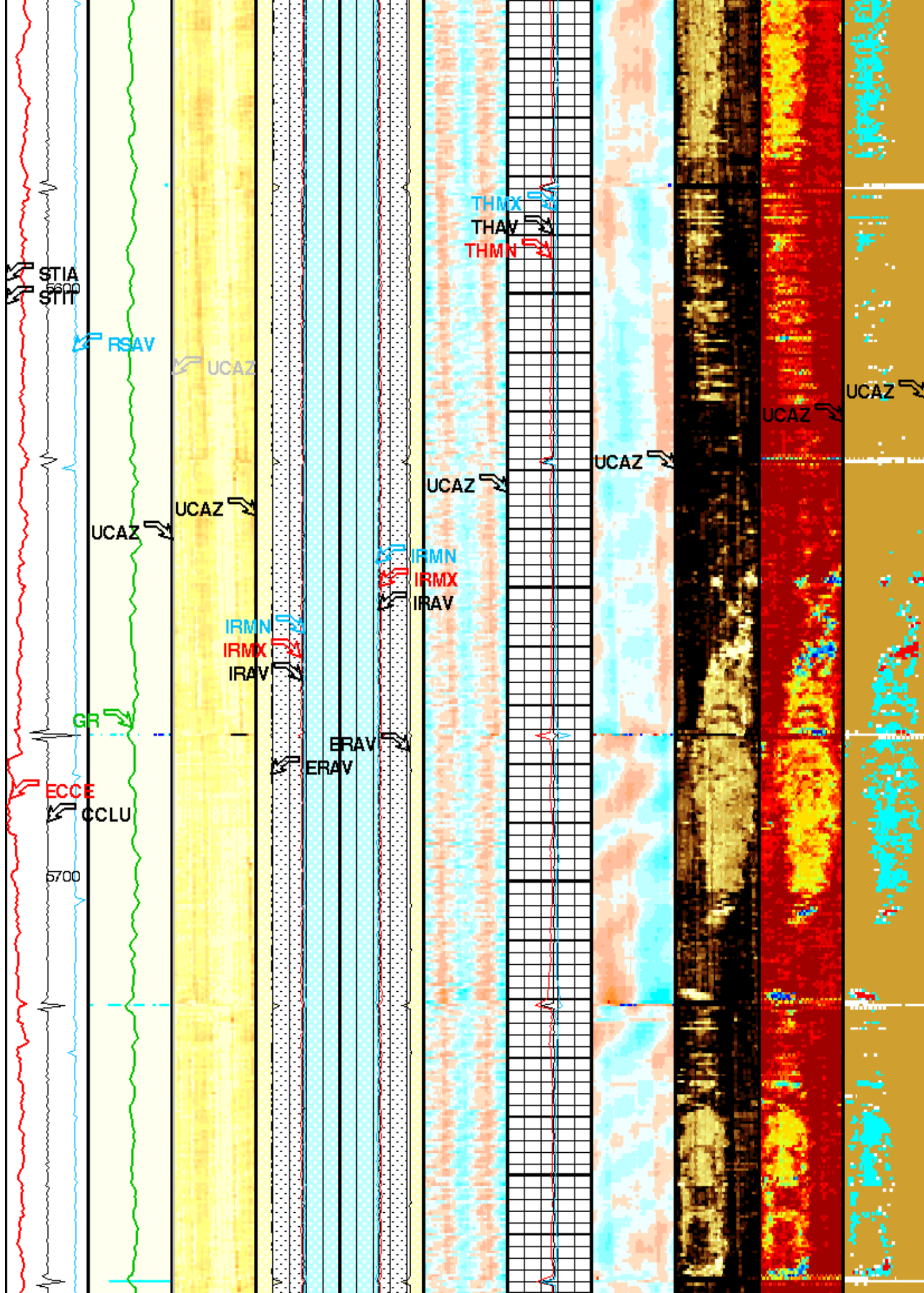


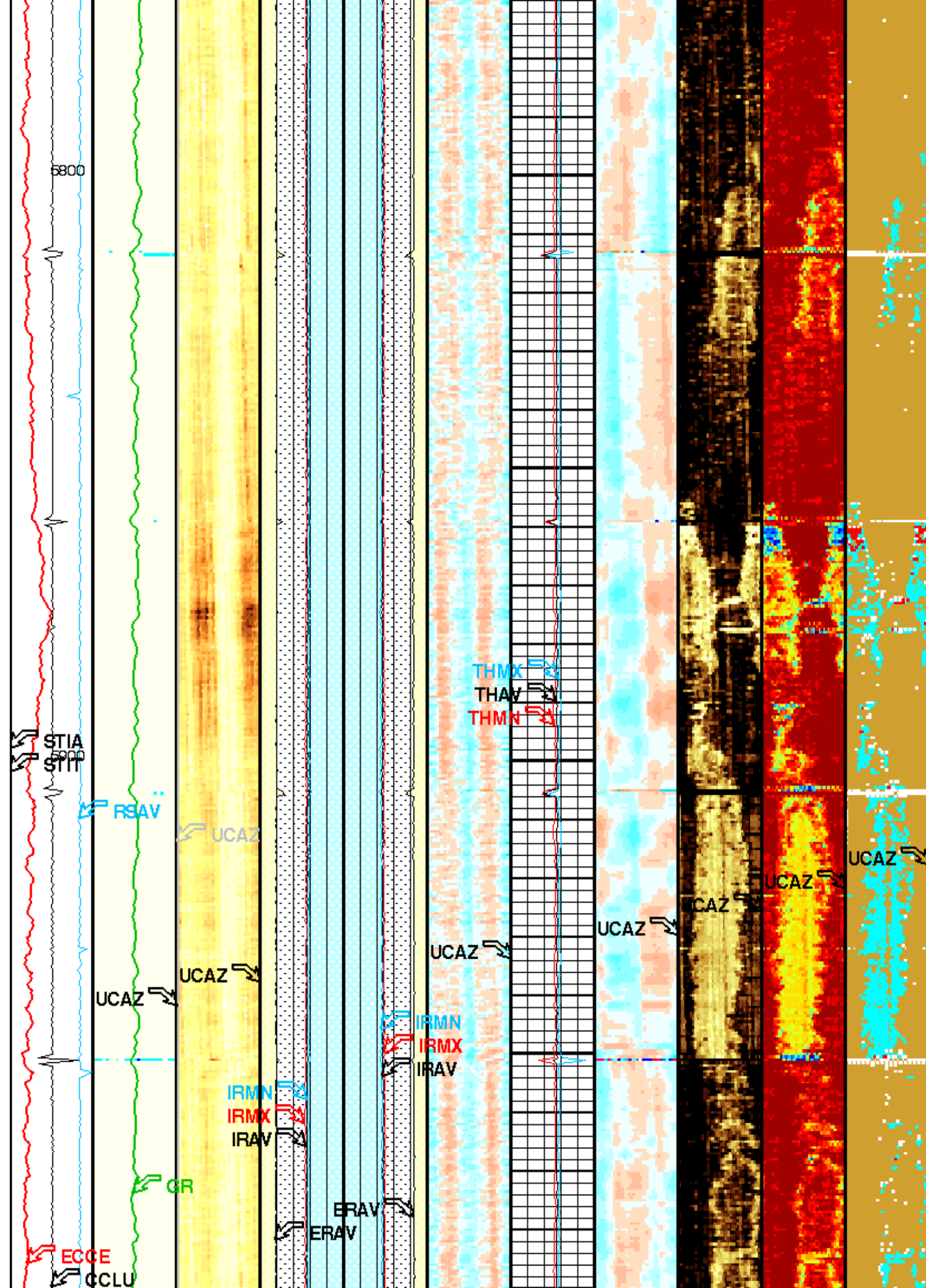


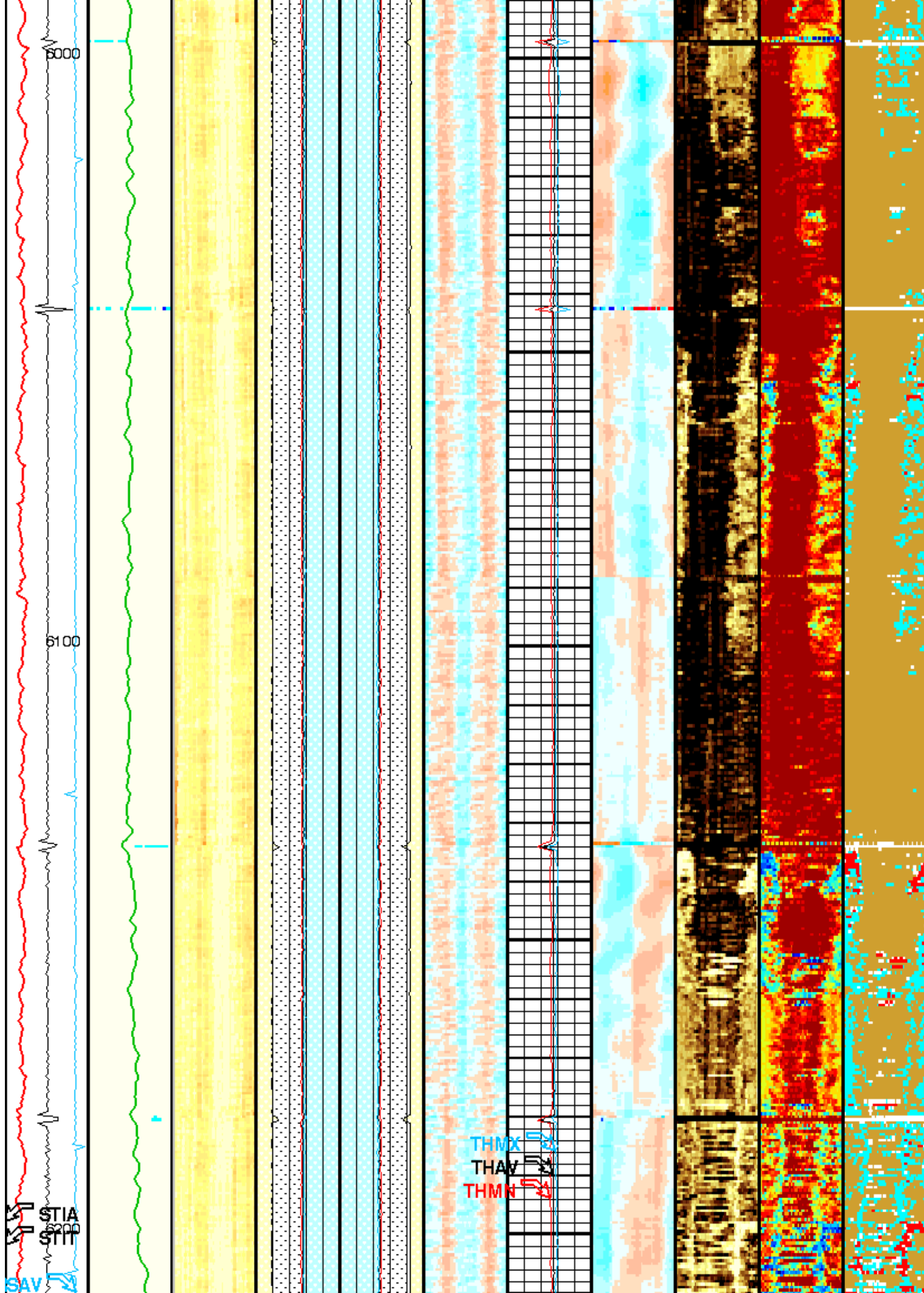


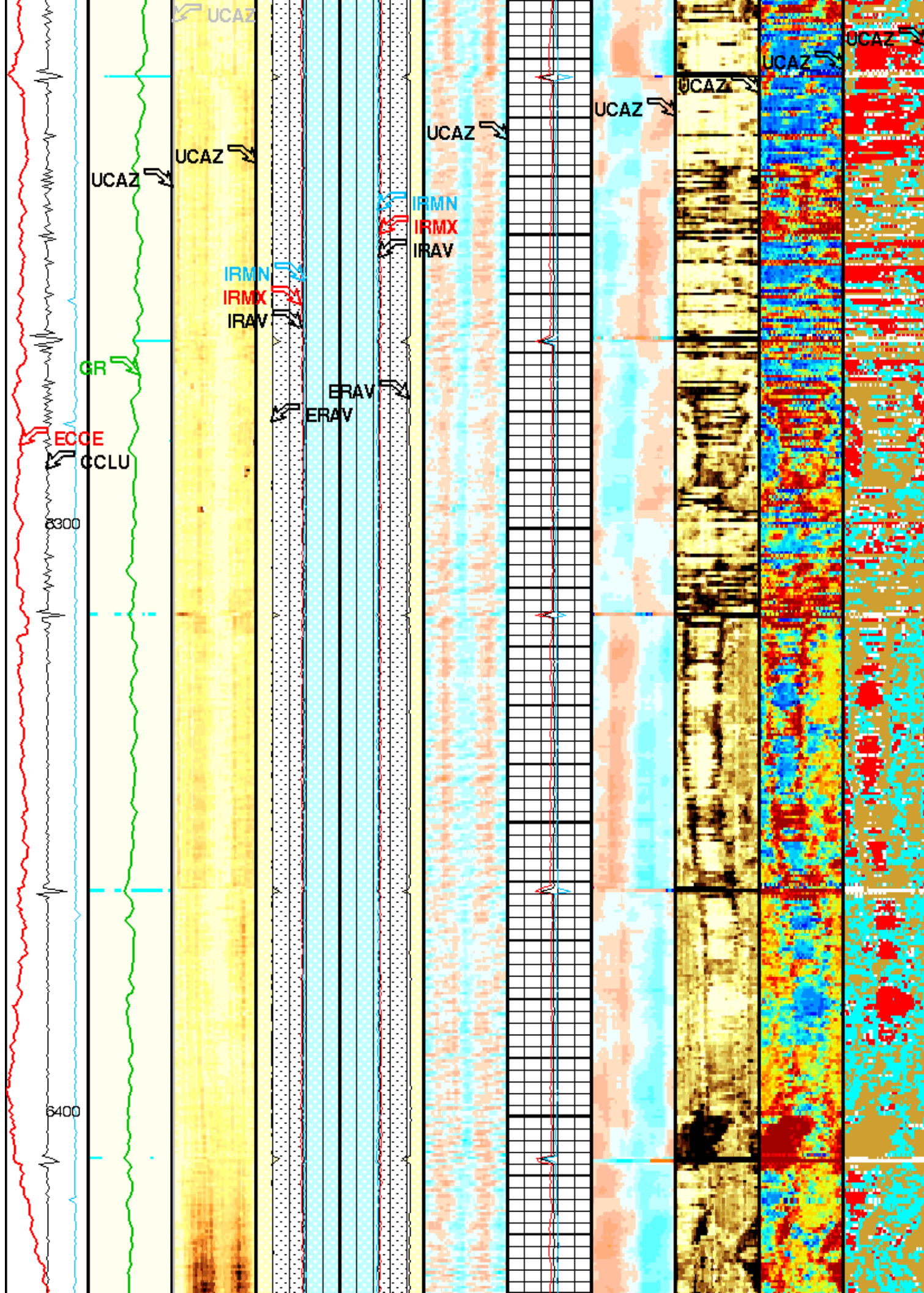


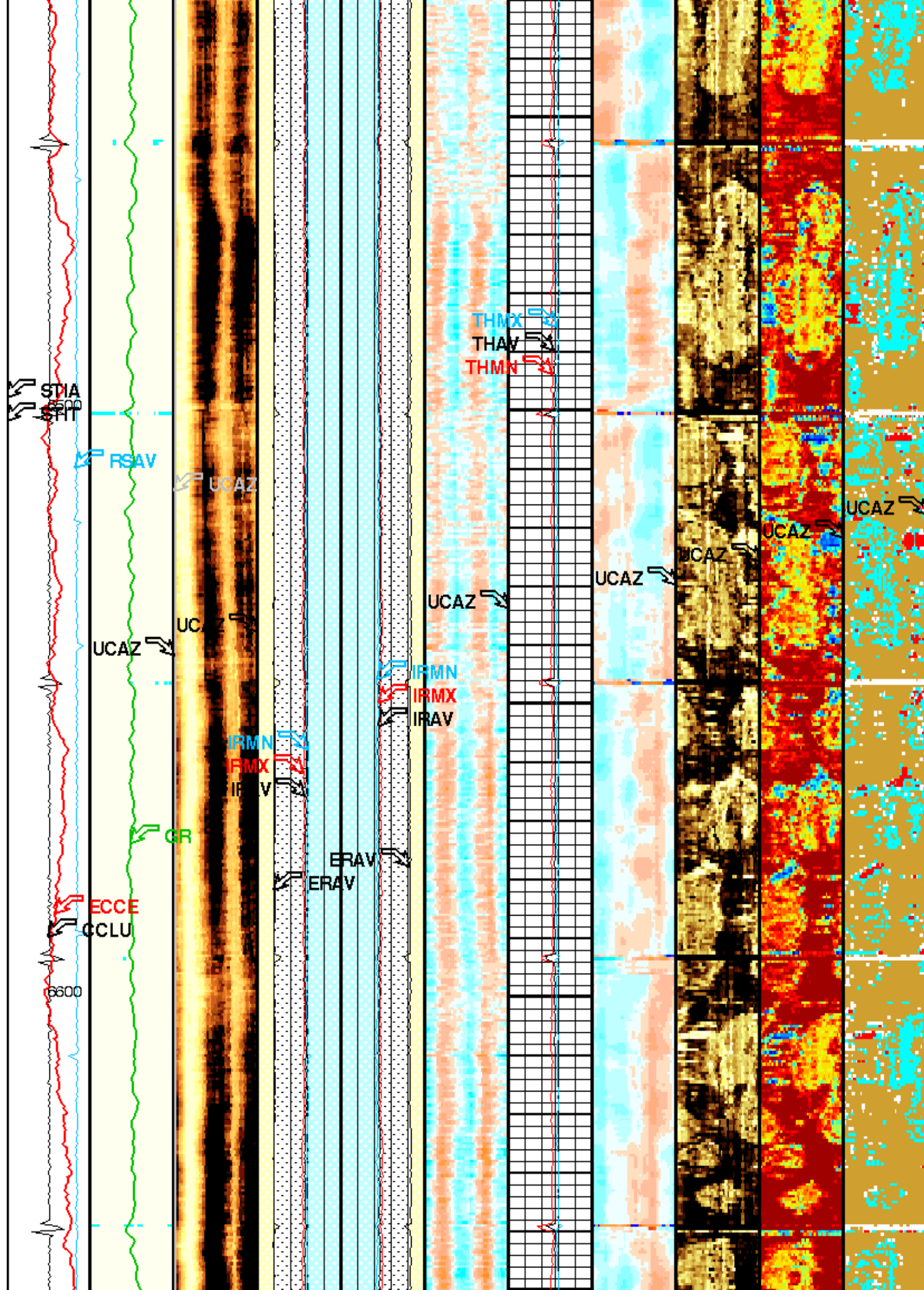


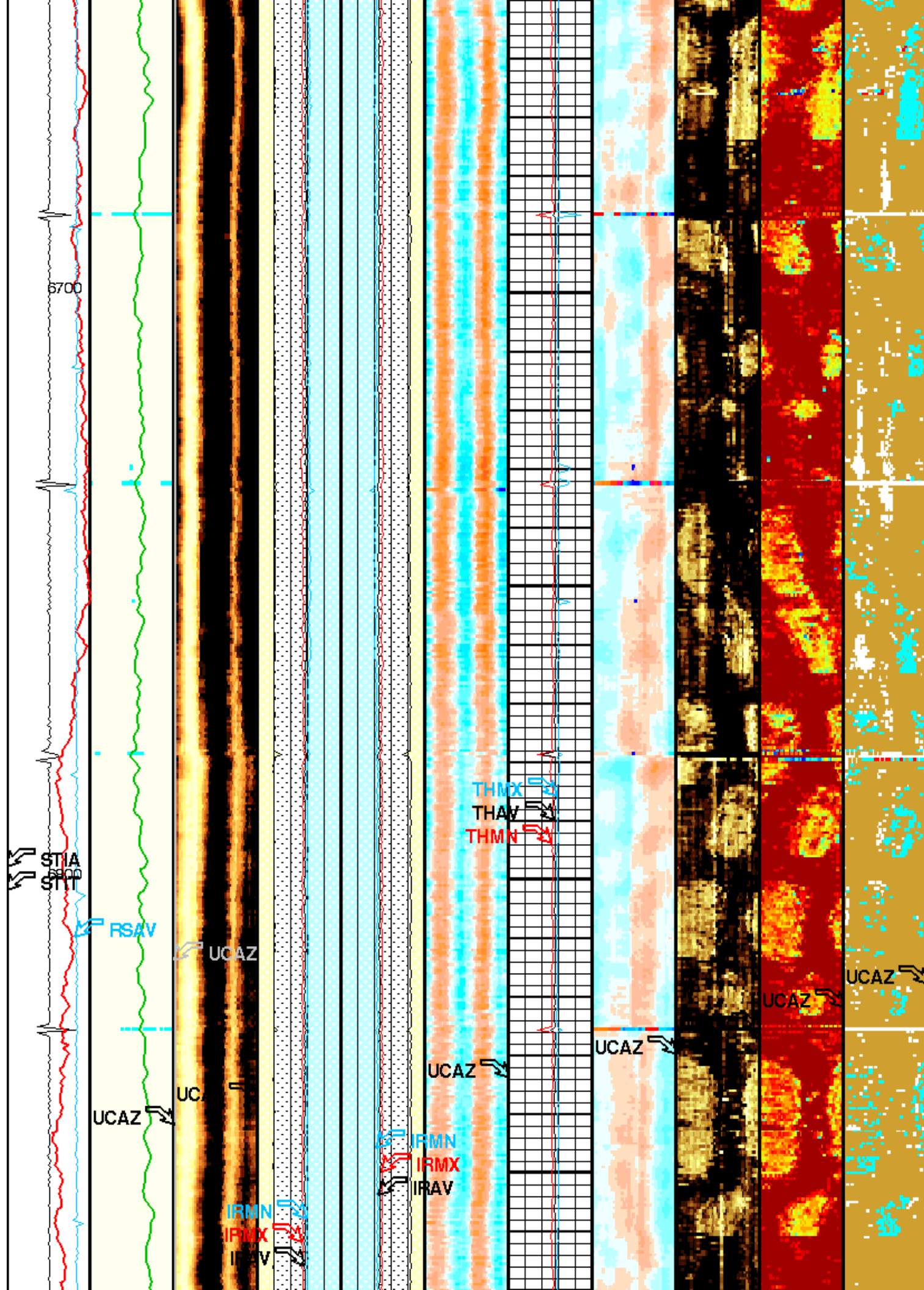


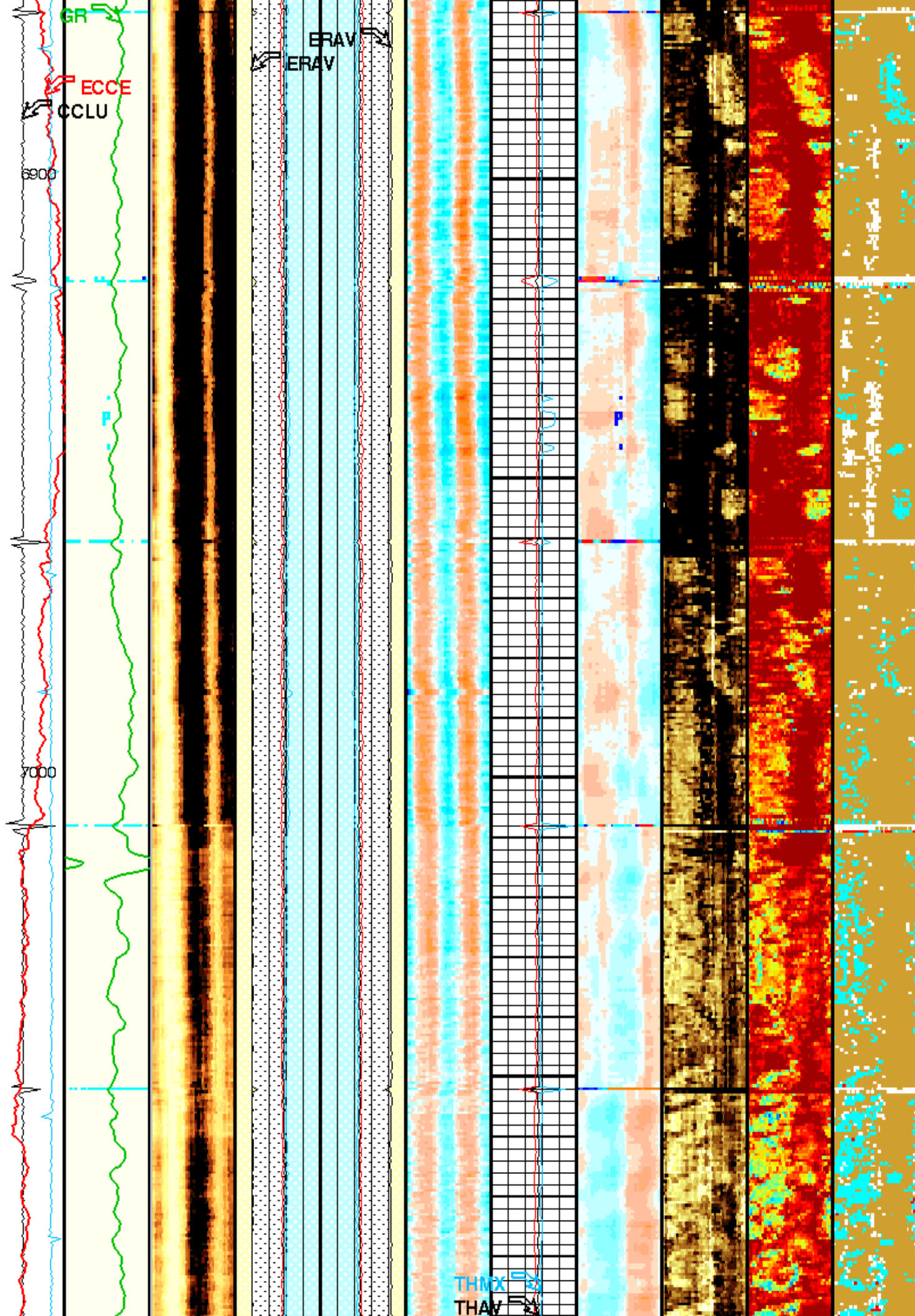


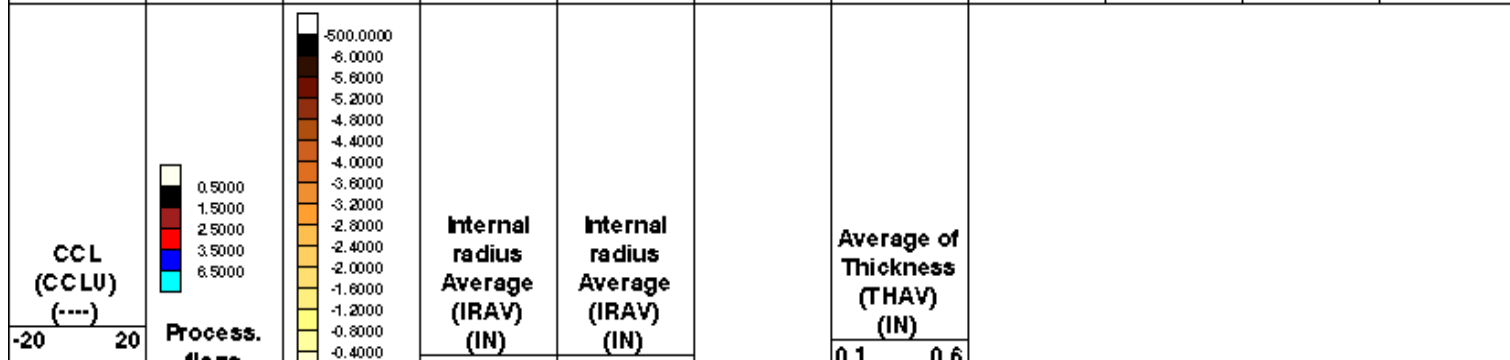
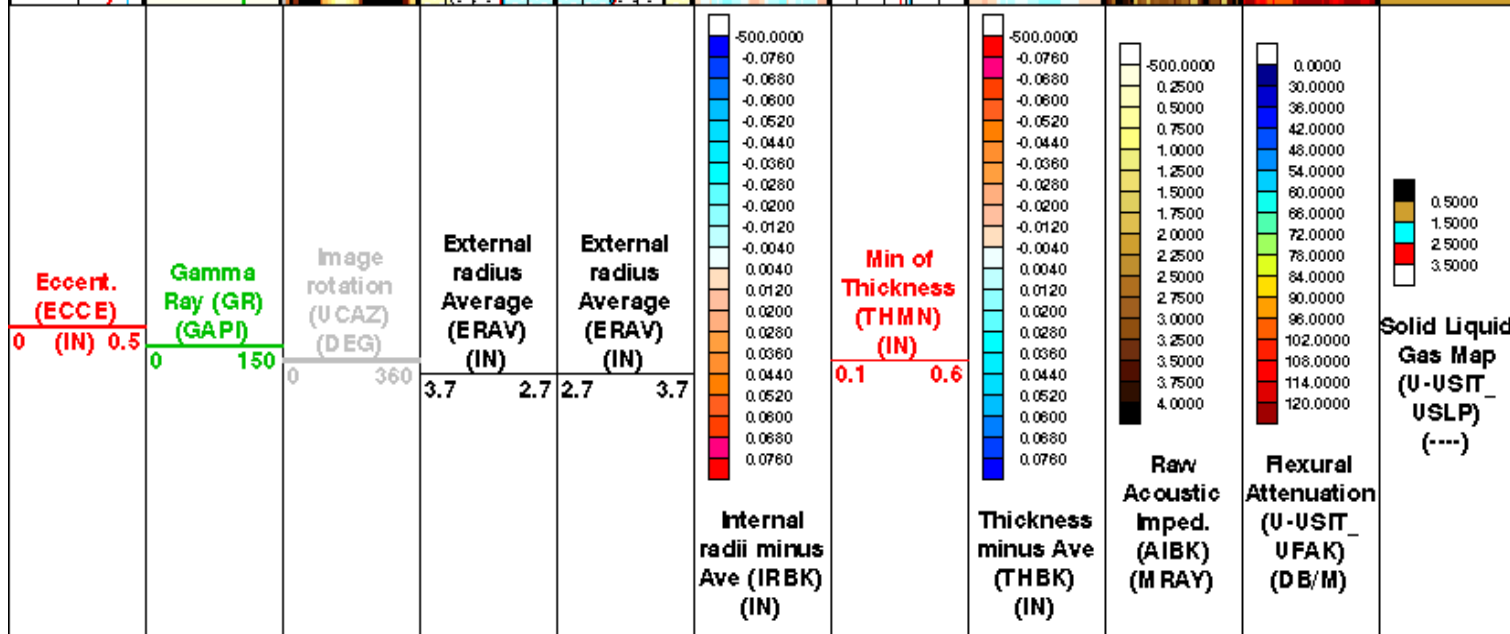
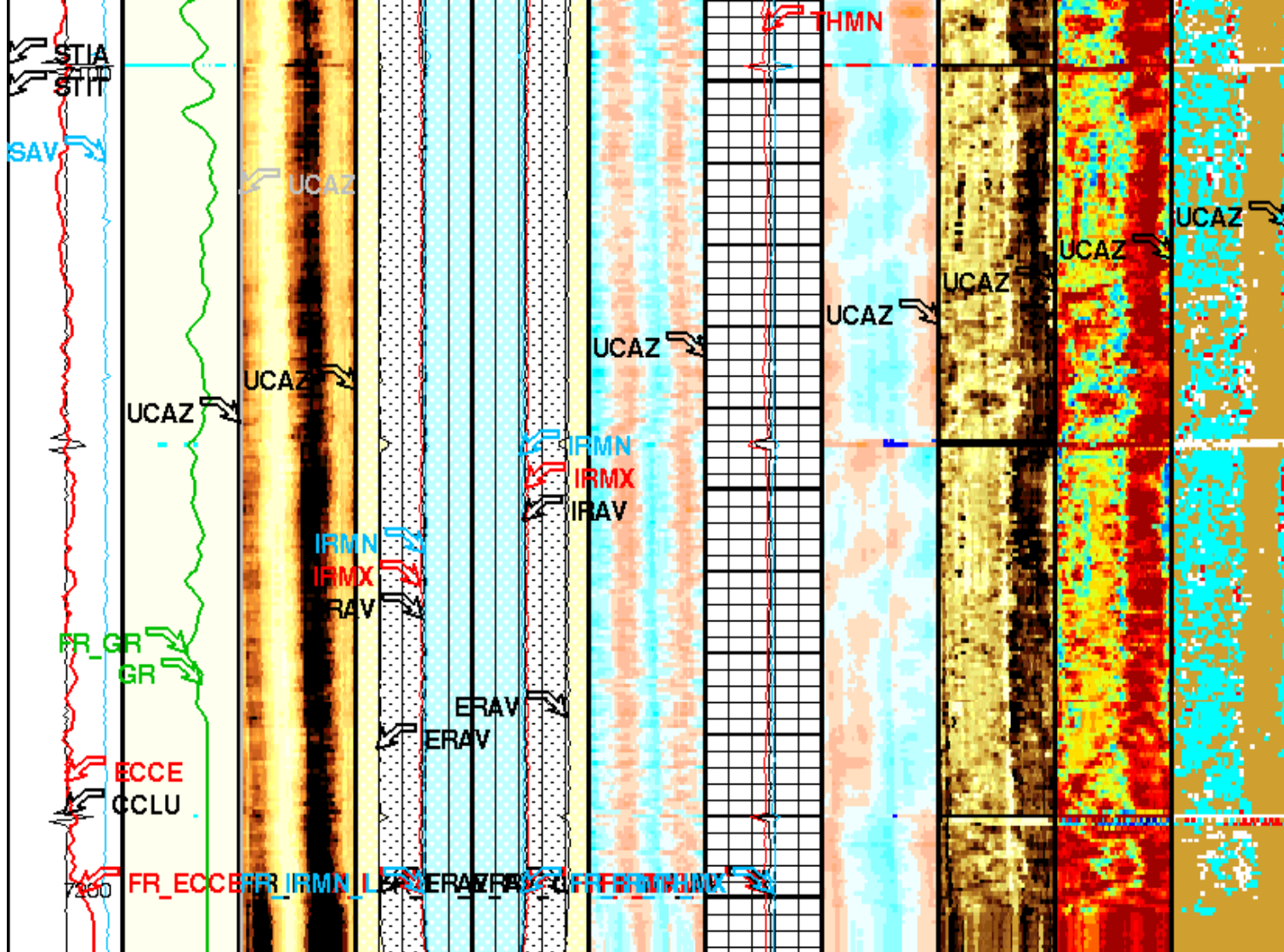












	Images (U FLG) (----	0.5000	3.7	2.7	2.7	3.7	
		Amplitude of echo minus Max (AWBK) (DB)					
RSBV (RSBV) (RPS)			Internal radius Maximum (IRMX) (IN)	Internal radius Maximum (IRMX) (IN)		Maximum of Thickness (THMX) (IN)	
6	7.5		3.7	2.7	2.7	3.7	0.1
Stuck Stretch (STIT)			Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)			
0	(F)	50	3.7	2.7	2.7	3.7	
Cable Drag From D4T to STIT							
Tool/Tot. Drag From D4T to STIA							

Format: 5 inch IBC CEMENT COMPOSITE

Vertical Scale: 5" per 100'

Graphics File Created: 07-Aug-2012 18:59

OP System Version: 19C0-187

USIT-D 19C0-187
DTC-H 19C0-187

SGT-N 19C0-187

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			
	T 3 Processing Length for FPM	26.648	US
	Corrosion range maximum	0.076	IN
	Corrosion range minimum	-0.076	IN
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
CDUN	Curves Unit Declared in Presentation Manager	IN	
CSDE	Casing Density	486.94	LBC/F
CSID	Casing Inner Diameter	6.276	IN
CYST	Casing Yield Strength	0	PSI
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	110	V
FDII	FPM Data Interpolation Interval	0	FT
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_USL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.5	LB/G

OPLEV	USIT Remove Flagged Data Level	level2	
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
SDNV	Number of Vertical Samples used for Micro-debonding Computation	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	0.5	
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	0.3	
SUBT	Ultrasonic Subassembly Type	Sub 7 inch S	
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
TMUC	Type of Mud	WBM	
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	0	IN
U-USIT_OCSH	USIT Outer Casing Shoe	0	FT
U-USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U-USIT_RFWB	USIT Remove Flagged Data Window Begin	0	US
U-USIT_RWE	USIT Remove Flagged Data Window End	511	US
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_UDFC	USIT Deflector for Casing	NONE	
U-USIT_UFAO	USIT Flexural Attenuation Offset	13	DB/M
U-USIT_UFGA	Far Receiver Maximum Gain of Cartridge	48	DB
U-USIT_UFGI	Far Receiver Minimum Gain of Cartridge	-12	DB
U-USIT_UHCI	USIT IBC Hydraulic Communication Interval	06FT_02M	
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_ibcs_B	
U-USIT_UNGA	Near Receiver Maximum Gain of Cartridge	48	DB
U-USIT_UNGI	Near Receiver Minimum Gain of Cartridge	-12	DB
U-USIT_URTP	USIT Radial Transducer Position	UNKNOWN	
U-USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	-10	DEG
UPAT	Emission Pattern	Pattern_375K	
USIT_USAC_TASK_ALLOW	USIT USAC Allow Task after Power Up	YES	
USIT_USAC_TASK_TIMEOUT	USIT USAC Task Timeout (in seconds) FOR TEST REPORT	600	
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub 7 inch	
UWKIM	Ultrasonic Working Mode	10DEG_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	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	2	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
SGT-N: Scintillation Gamma Ray Tool - N			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	212	DEG F
DPPM	Density Porosity Processing Mode	STAN	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEG F
SOGR	SGT Standoff Distance	0	IN
FEQL: Formation Evaluation Quick Look			
CSXO	Coefficient of Sxo	1	
DLLM	DPOR Lower Limit for Mineral Detection	0.35	CFCF
EDSE	EPT Data Selector	STANDARD	
FEPT	EPT Option Flag	NONE	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHI	
GDCL	Grain Density Clean Reading	0	G/C3
GDSH	Grain Density Shale Reading	2.9	G/C3
GRCL	Gamma Ray Clean Reading	0	GAPI
GRSH	Gamma Ray Shale Reading	200	GAPI
GULM	Gamma Ray Upper Limit for Mineral Detection	999	GAPI
KGR	Kill GR Shale Index (USE, KILL)	USE	
KPN	Kill NPES Shale Index (USE, KILL)	USE	
KRH	Kill RHGA Shale Index (USE, KILL)	USE	
KSR	Kill SR Shale Index (USE, KILL)	USE	

ROF	Run of Core Index (COL, RLL)	COL	
LSWB	SWB Limit Selector (NO LIMIT, LIMIT)	NO LIMIT	
MDET	Mineral Flag (NONE, COAL, SALT)	NONE	
NLIM	Neutron Limit for Mineral Detection	0.01	CFCF
NPCL	NPES Clean Reading	0	CFCF
NPSH	NPES Shale Reading	0.5	CFCF
RWB	Bound Water Resistivity	0.1	OHMM
RXOF	RXO Presence Flag	ABSENT	
SDGC	Clean Grain Density Selector	GDCL	
SEXP	N in Water Saturation Equation	2	
SIS	Three Mineral Shale Index Selector	NOT_USED	
SPCL	SP Clean Reading	-200	MV
SPSB	SP Shale Baseline	0	MV
SPSH	SP Shale Reading	0	MV
SWMN	Sw Minimum	0.05	CFCF
TPCN	Time Propagation of non-shale	7.2	NS/M
TPM1	Time Propagation, Matrix-1 <Limestone>	9.8	NS/M
TPM2	Time Propagation, Matrix-2 <Sandstone>	7.2	NS/M
TPM3	Time Propagation, Matrix-3 <Dolomite>	8.7	NS/M
TPSH	Time Propagation of Shale	8.9	NS/M
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
FCD	Future Casing (Outer) Diameter	0	IN
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
PERT: Preliminary Evaluation - Real Time			
ARTS	AIT Rt Selection (for ALLRES computation)	AIT_TwoResA60	
BDPS	Bulk Density Processing Selector	Standard	
BHS	Borehole Status	CASED	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
CLIM	Caliper Limit for Bad Hole	999	IN
CNPS	Corrected Neutron Porosity Selector	NPHI	
DRUL	DRHO Upper Limit	999	G/C3
FCAL	Caliper Presence Flag	PRESENT	
FCGR	CGR Presence Flag	PRESENT	
FEXP	Form Factor Exponent	2	
FLDT	Bulk Density Presence Flag	PRESENT	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHI	
FSON	Sonic Presence Flag	ABSENT	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PMAX	PHI Maximum	0.5	CFCF
POUT	Porosity Output Lithology	LIMESTONE	
RG21	RHO Grain (2-Mineral Model, Min-1)	2.71	G/C3
RG22	RHO Grain (2-Mineral Model, Min-2)	2.644	G/C3
RG23	RHO Grain (2-Mineral Model, Min-3)	2.877	G/C3
RG31	RHO Grain (3-Mineral Model, Min-1)	2.71	G/C3
RG32	RHO Grain (3-Mineral Model, Min-2)	2.644	G/C3
RG33	RHO Grain (3-Mineral Model, Min-3)	2.877	G/C3
RTCO	RTCO - Rt Invasion Correction	YES	
RTLF	RT Limit Flag	NO LIMIT	
RWF	Resistivity of Free Water	0.02	OHMM
SHT	Surface Hole Temperature	68	DEGF
UF	U Fluid	0.398	
UM21	U Matrix (2-Mineral Model, Min-1)	13.77	
UM22	U Matrix (2-Mineral Model, Min-2)	4.779	
UM23	U Matrix (2-Mineral Model, Min-3)	8.997	
UM31	U Matrix (3-Mineral Model, Min-1)	13.77	
UM32	U Matrix (3-Mineral Model, Min-2)	4.779	
UM33	U Matrix (3-Mineral Model, Min-3)	8.997	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	11495.00	FT
TDL	Total Depth - Logger	7200.00	FT
System and Miscellaneous			
ALTDPCAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.000	IN
CWEI	Casing Weight	26.00	LB/F

DFD	Drilling Fluid Density	9.50	LB/G
DO	Depth Offset for Playback	6.0	FT
FLEV	Fluid Level	50.00	FT
MST	Mud Sample Temperature	-50000.00	DEGF
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	11495	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Input DLIS Files

DEFAULT USI_011LUP FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT

Output DLIS Files

DEFAULT USI_020PUP FN:19 PRODUCER 07-Aug-2012 18:59

Company: Encana Oil & Gas (USA) Inc Well: Ranigan 2B-6H

Input DLIS Files

DEFAULT USI_011LUP FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT

Output DLIS Files

DEFAULT USI_020PUP FN:19 PRODUCER 07-Aug-2012 18:59 7207.0 FT 196.5 FT

OP System Version: 19C0-187

USIT-D 19C0-187 SGT-N 19C0-187
DTC-H 19C0-187

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2 MRAY	7207.0 18:59:15
	2 MRAY	1.95 MRAY	4100.0 19:02:46
	2.1 MRAY	2 MRAY	3800.0 19:03:01
	2.15 MRAY	2.1 MRAY	3500.0 19:03:17

Image
rotation
(U CAZ)
(DEG)

0 360

Tool/Tot.
Drag
From D4T
to STIA

Cable
Drag
From D4T
to STIT

Stuck
Stretch
(STIT)

0 (F) 50

RSV
(RSV)
(RPS)

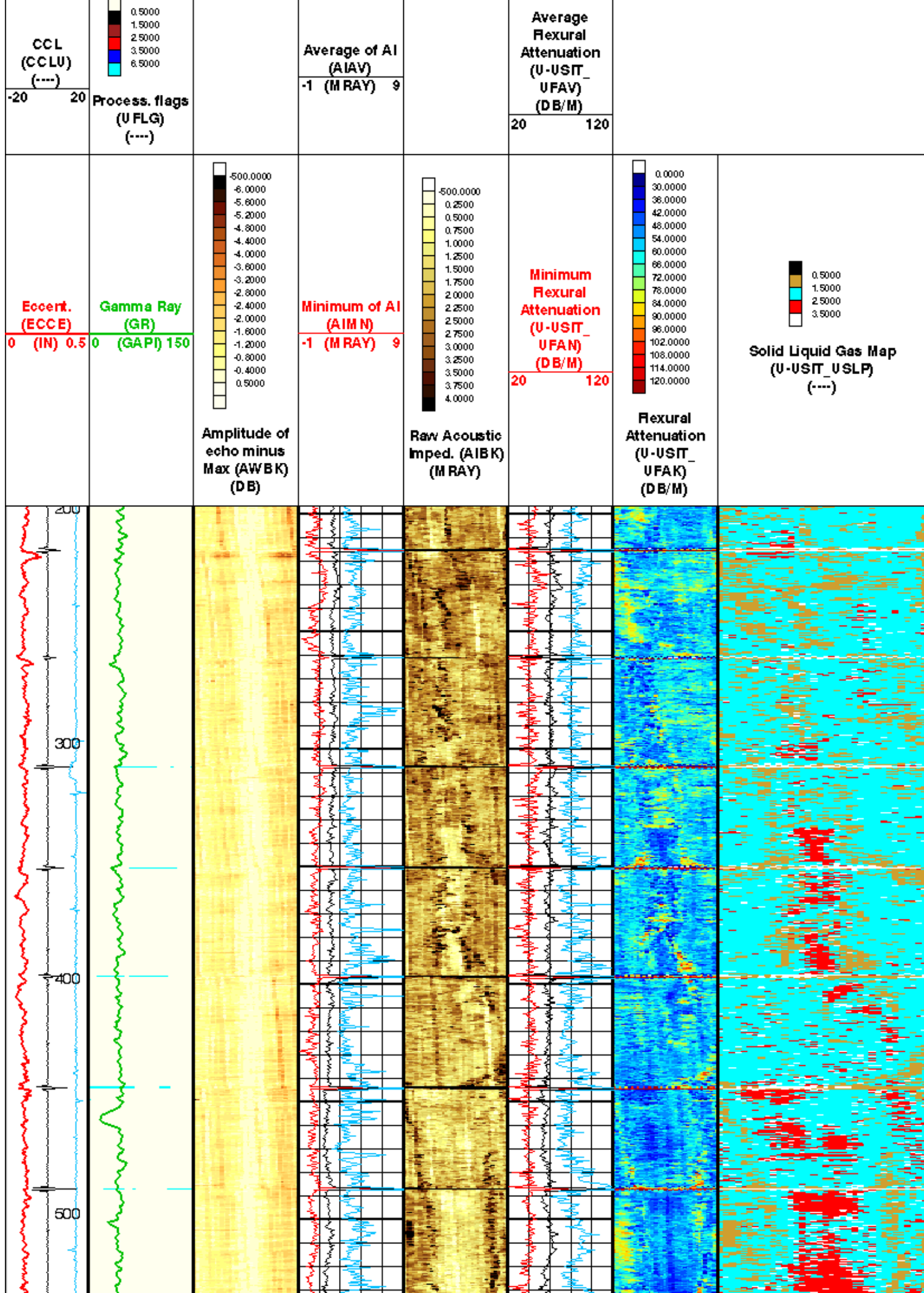
6 7.5

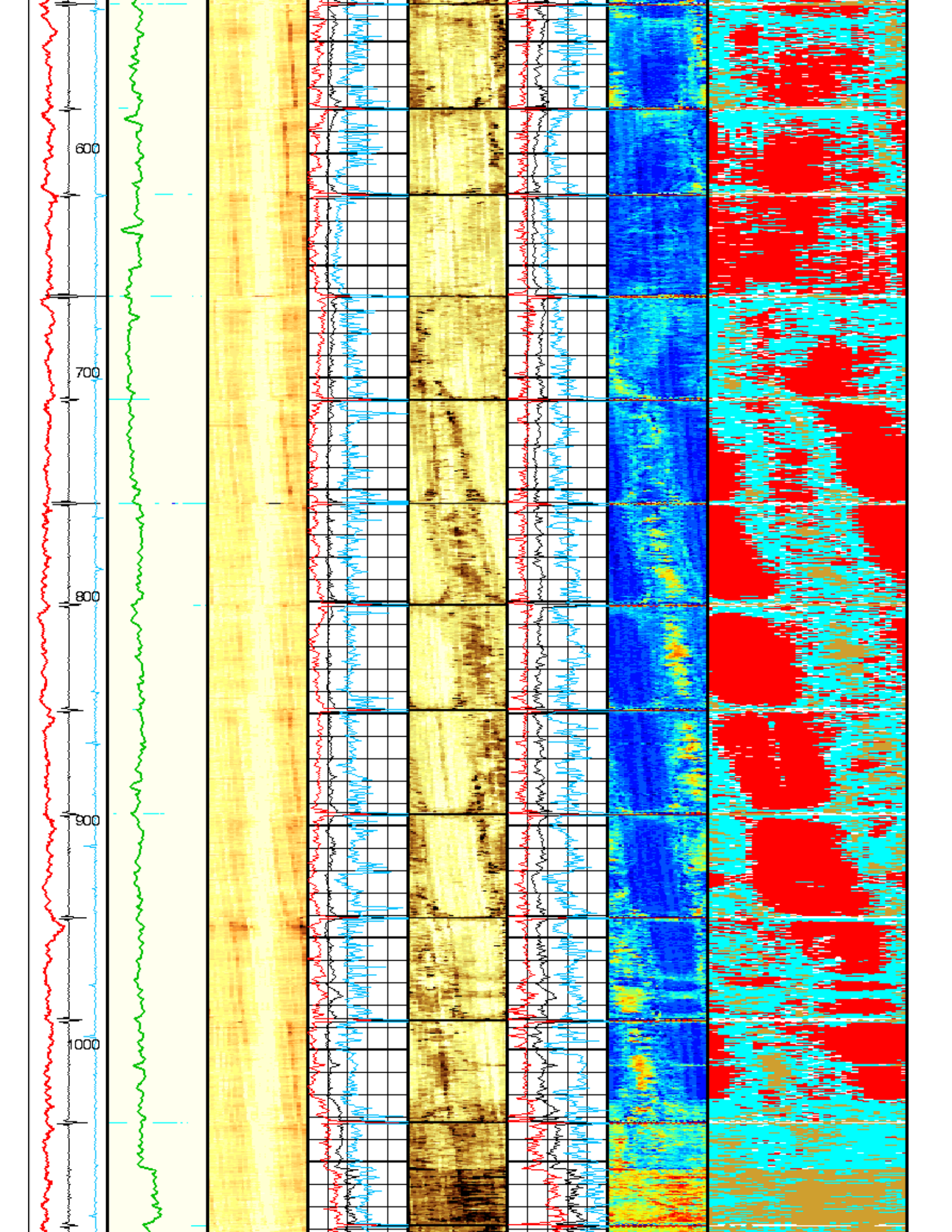
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(AIMX)

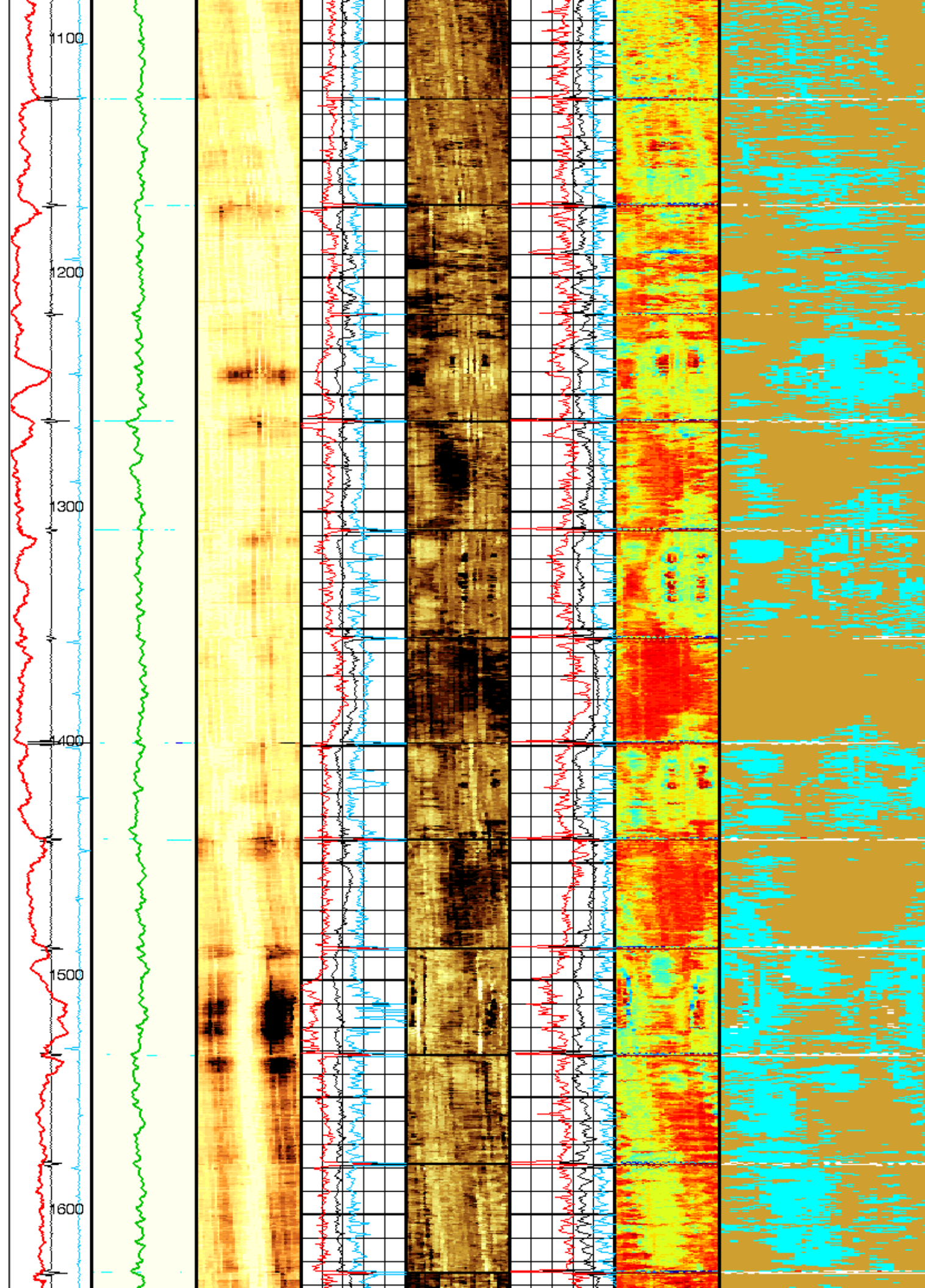
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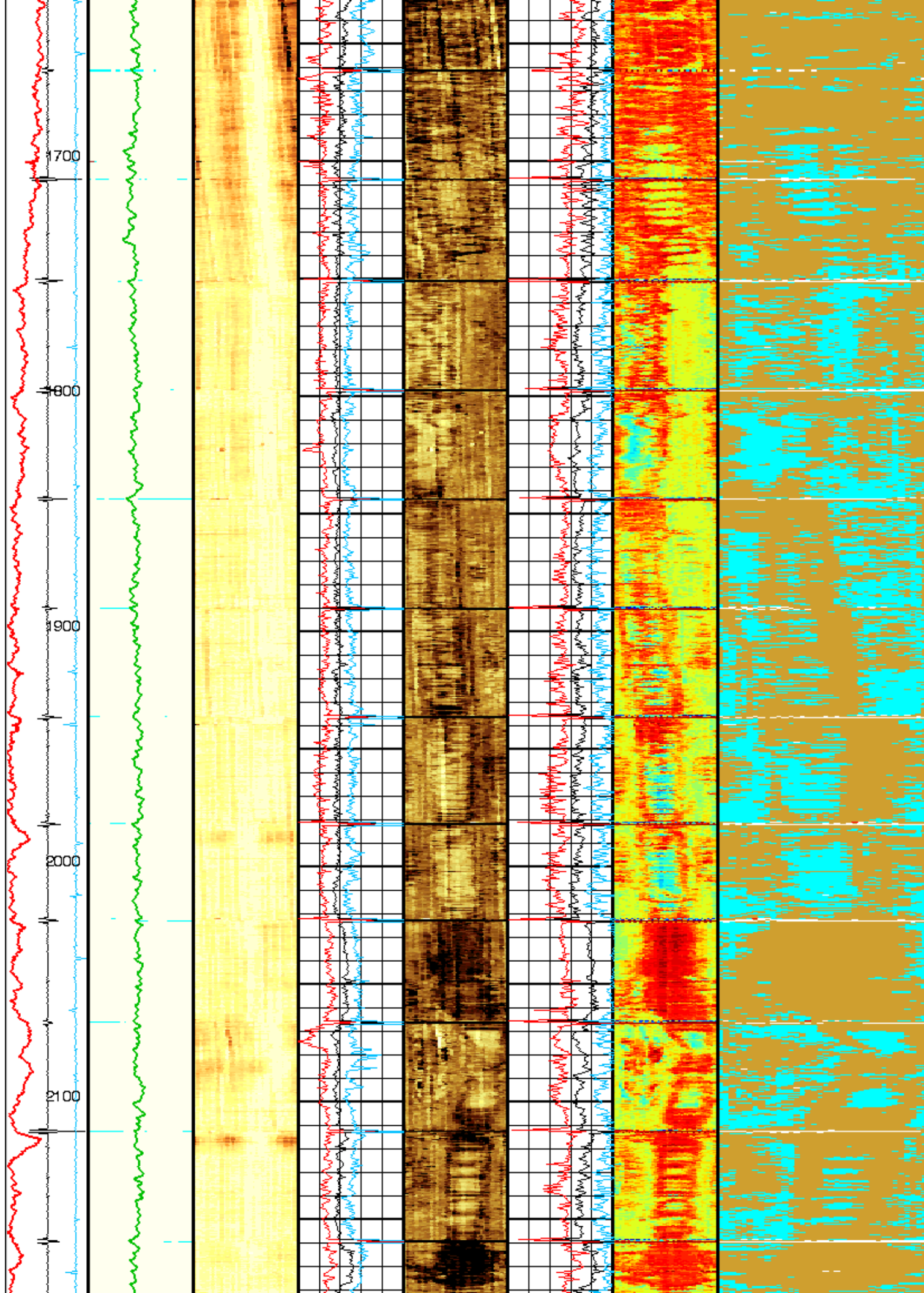
Maximum
Flexural
Attenuation
(U-USIT_
UFAX)
(DB/M)

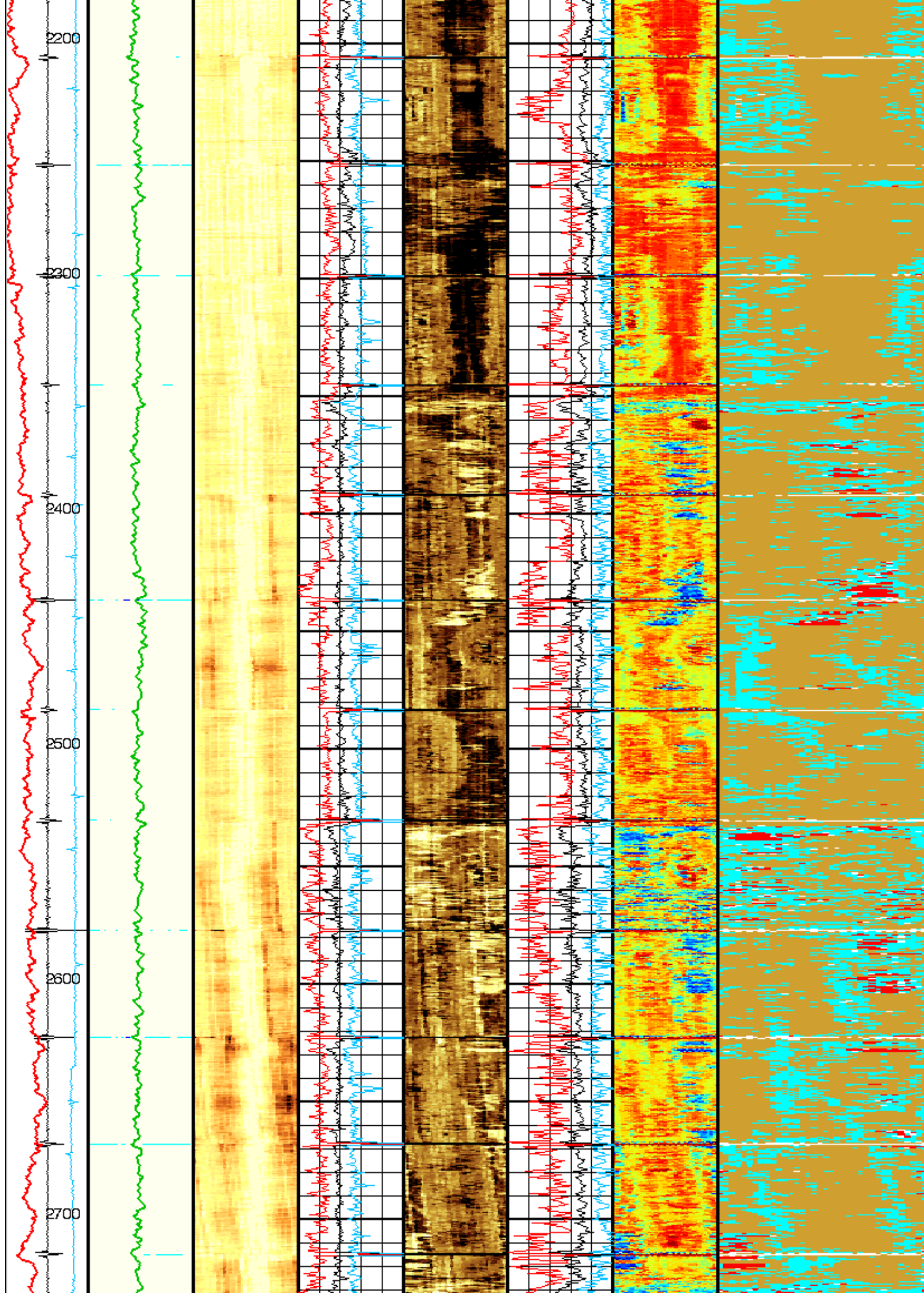
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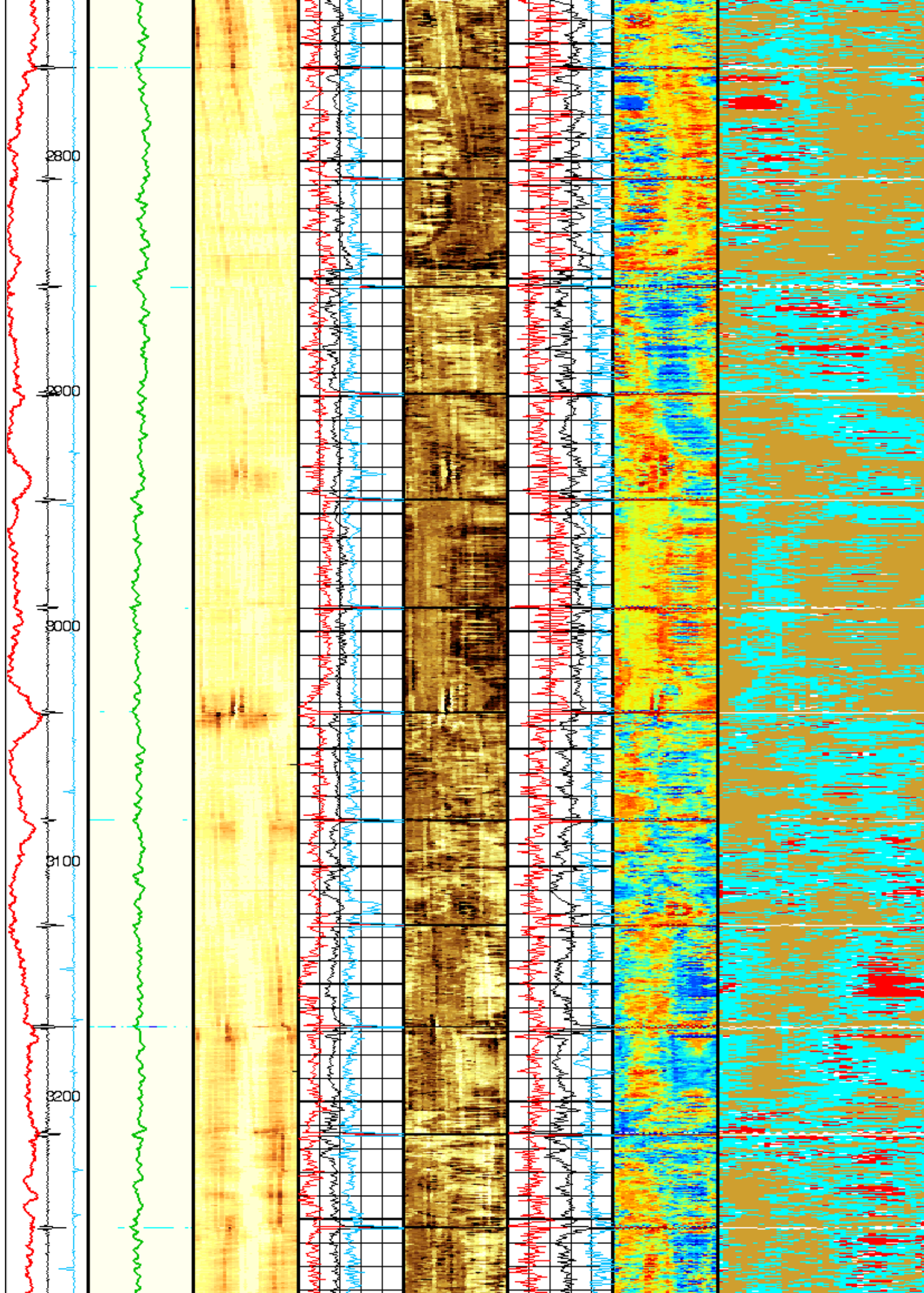


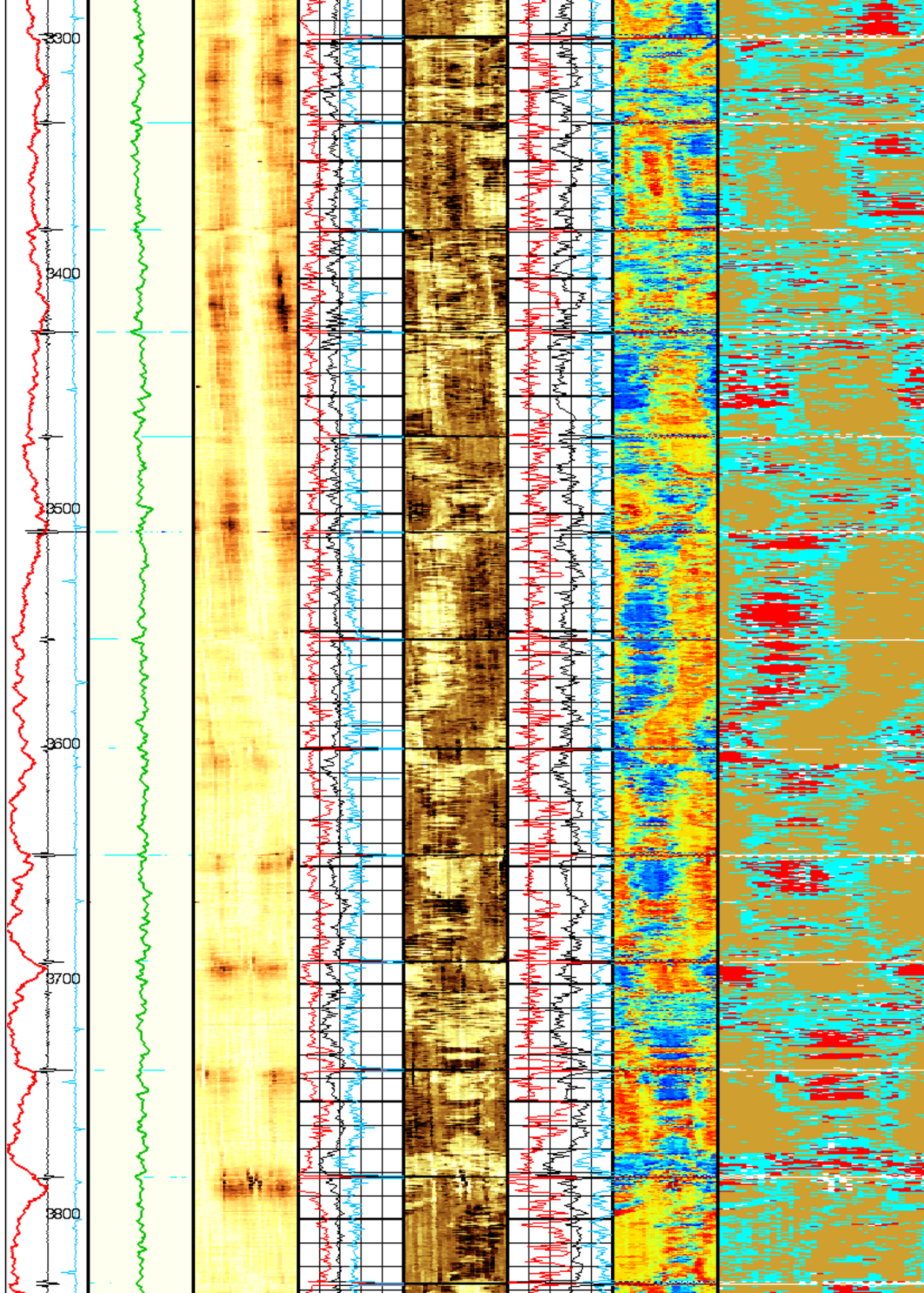


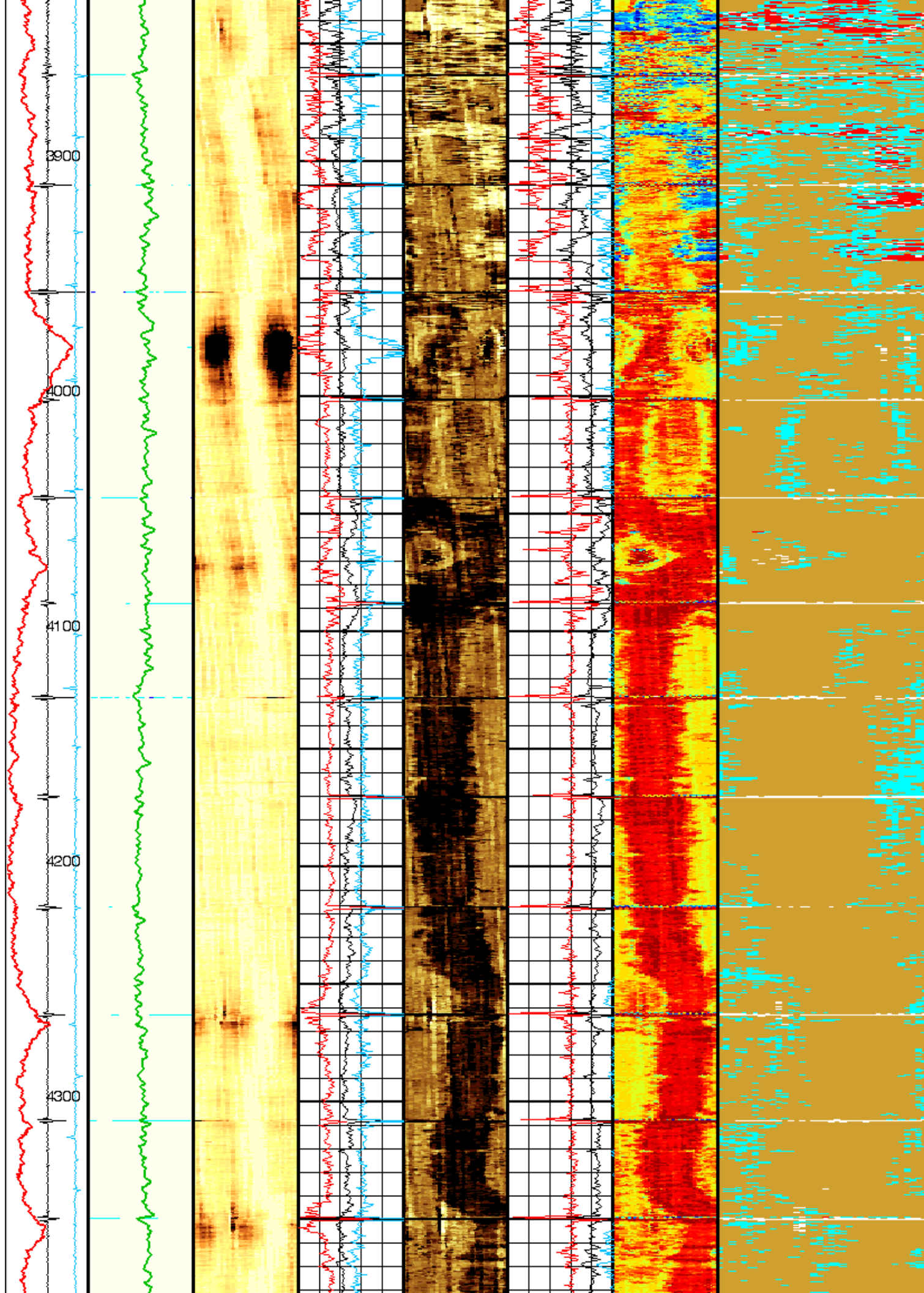


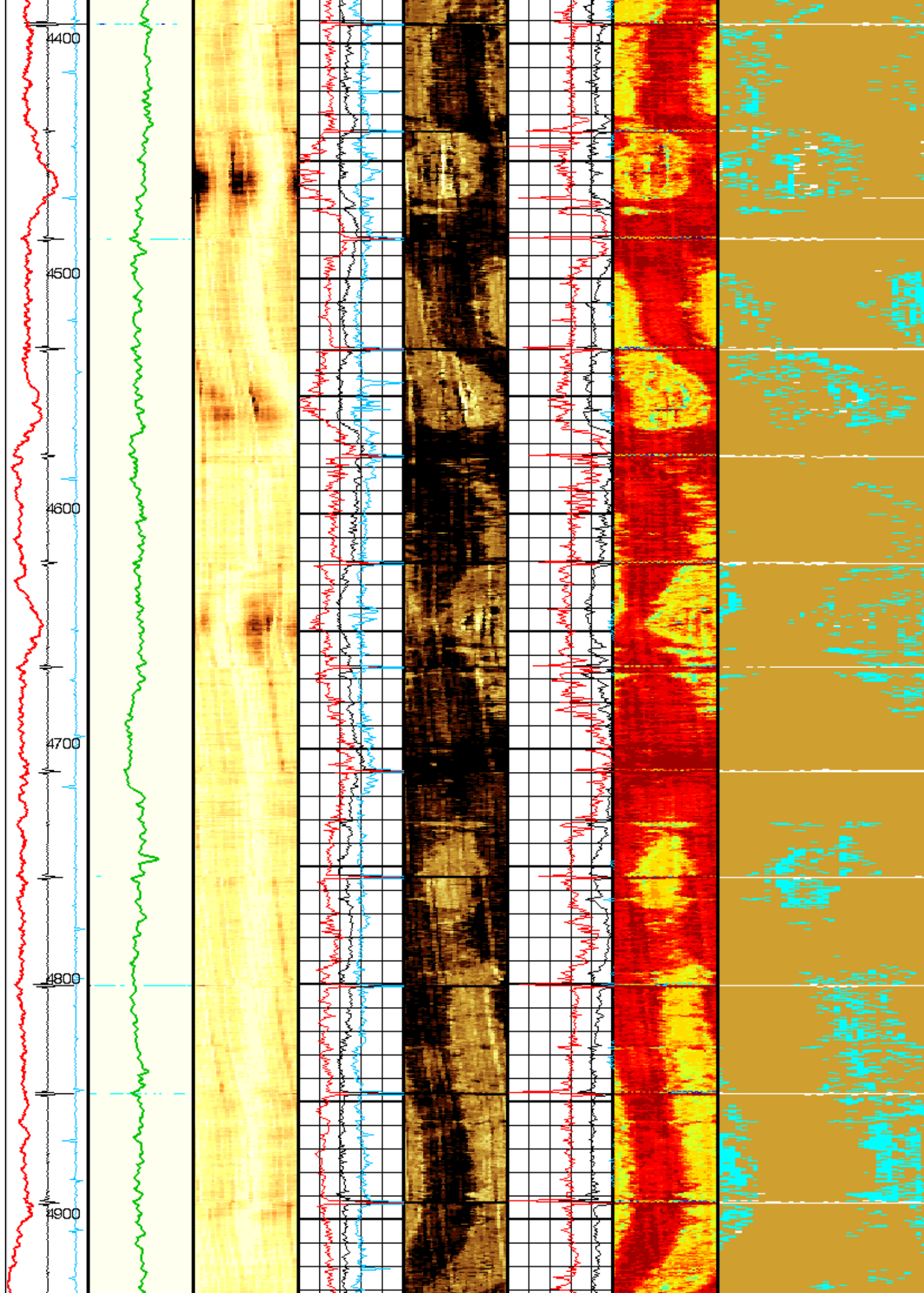


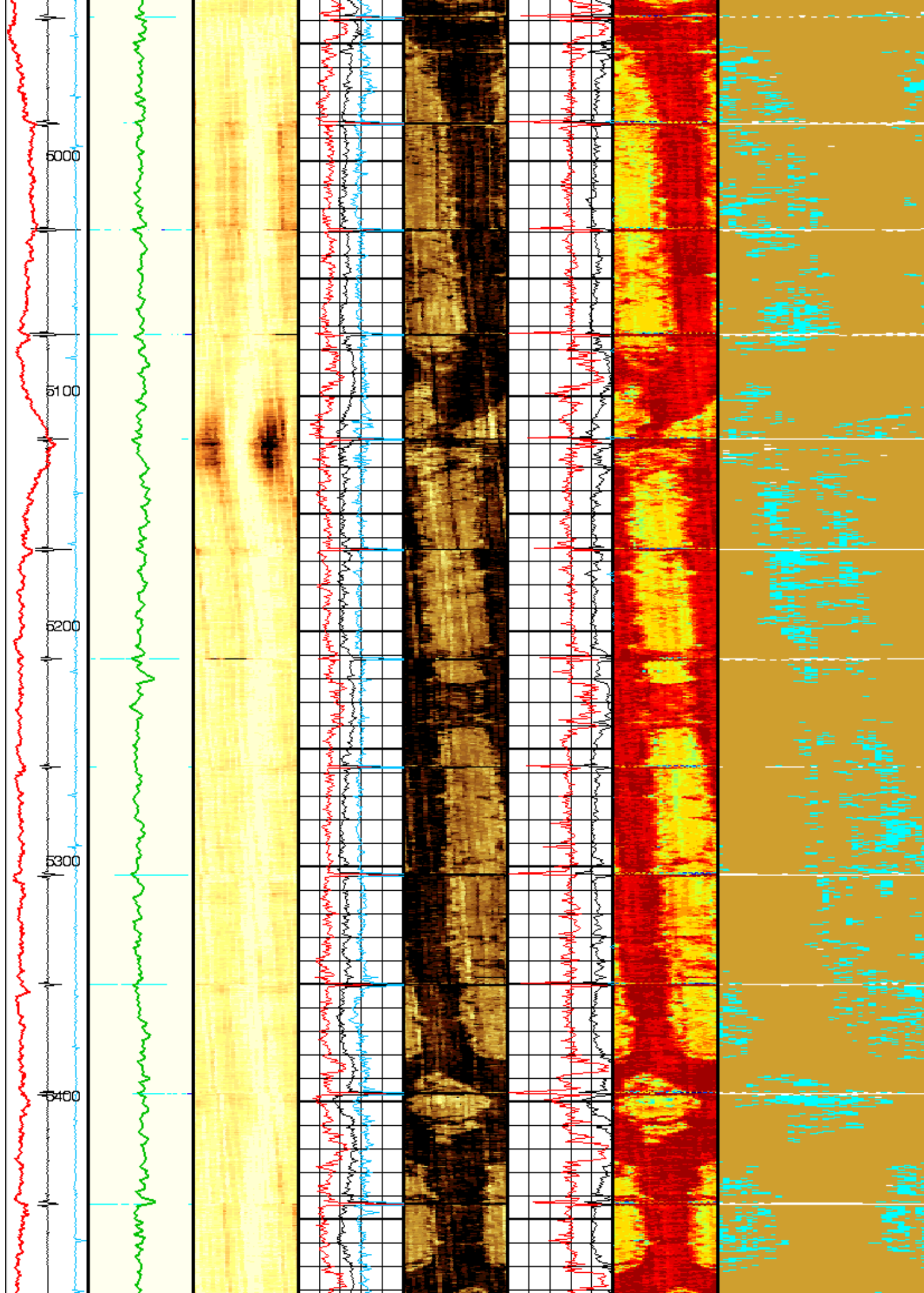


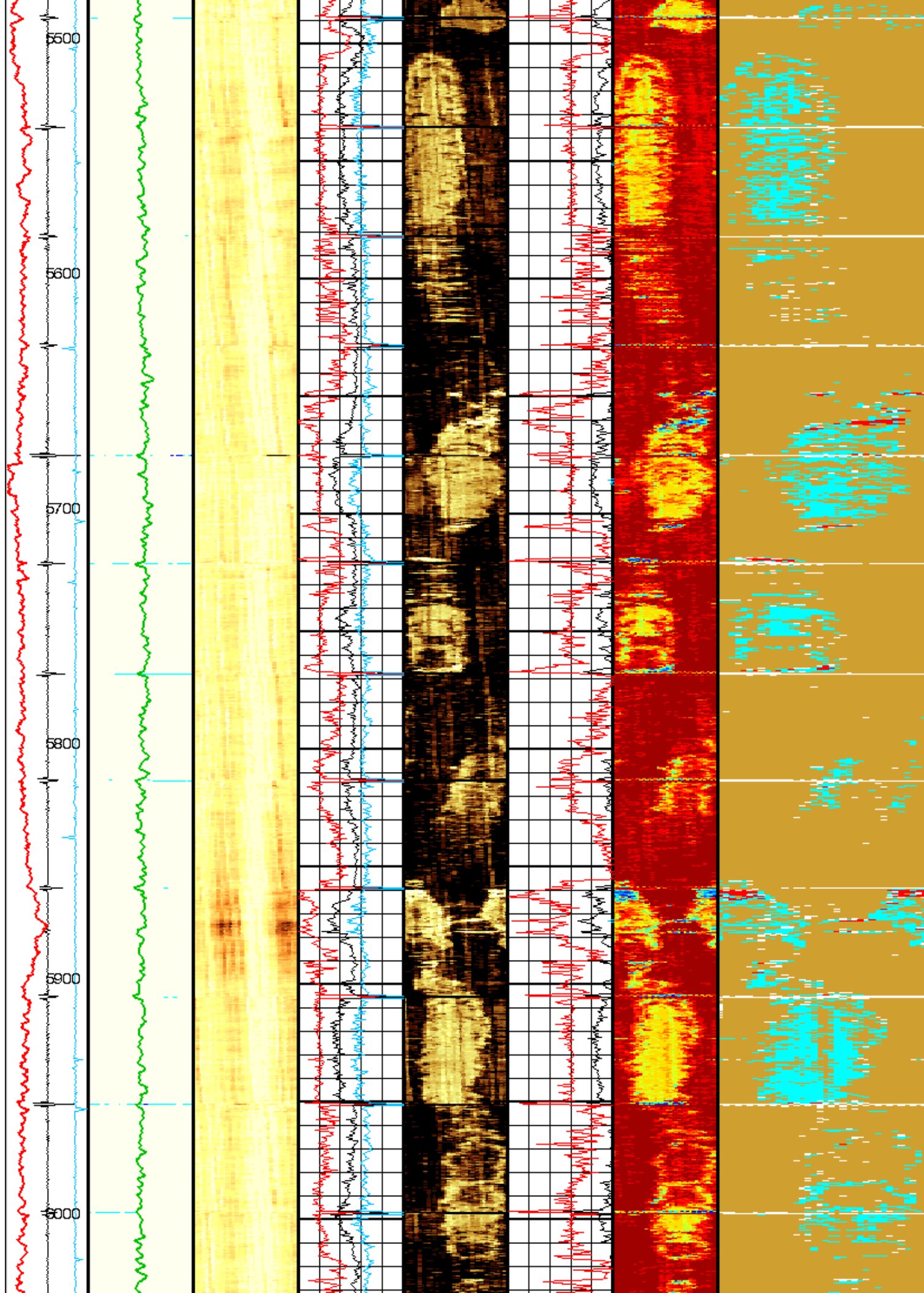


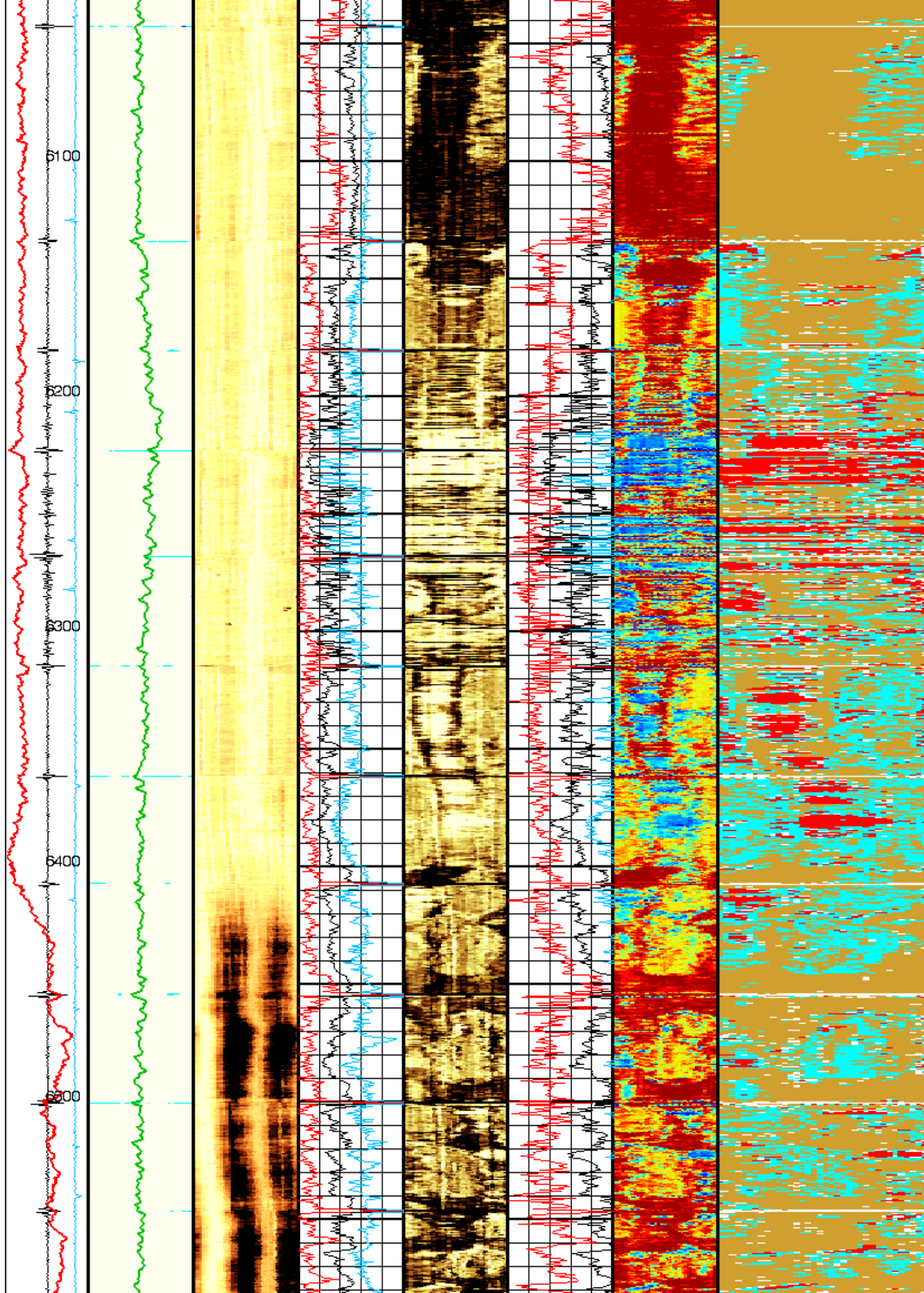


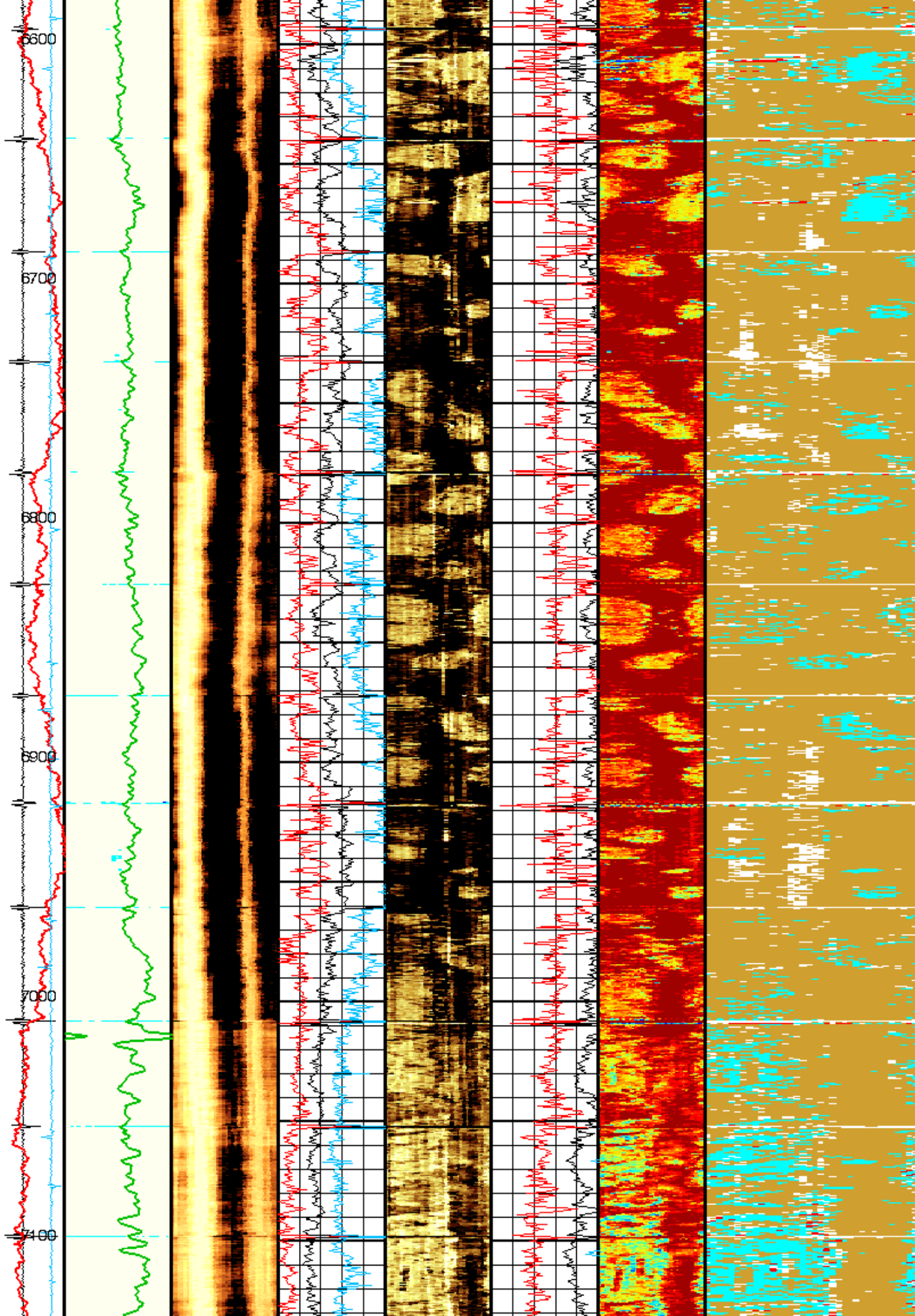


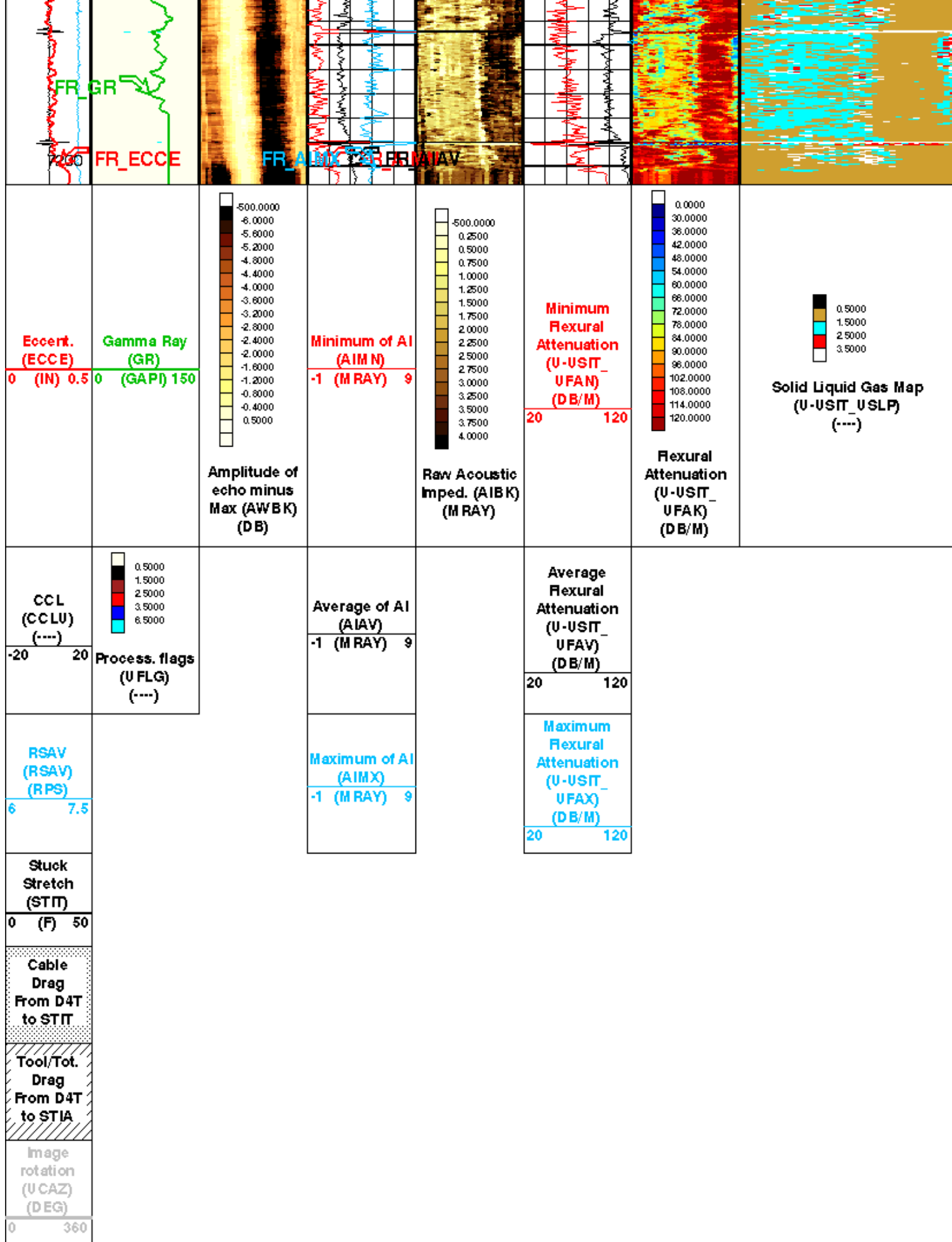












All USI Images are outside views

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	2.874	IN
EMXV	EMEX Voltage	110	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.5	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_CENT	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_IZR	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	BFEF	
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	13	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	10DEG_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	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	2	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	11495.00	FT
TDL	Total Depth - Logger	7200.00	FT
System and Miscellaneous			
BS	Bit Size	8.750	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	6.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT USI_011LUP FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT

Output DLIS Files

DEFAULT USI_020PUP FN:19 PRODUCER 07-Aug-2012 18:59

Company: Encana Oil & Gas (USA) Inc Well: Ranigan 2B-6H

Input DLIS Files

DEFAULT USI_011LUP FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT

Output DLIS Files

DEFAULT USI_020PUP FN:19 PRODUCER 07-Aug-2012 18:59 7207.0 FT 196.5 FT

OP System Version: 19C0-187

USIT-D 19C0-187 SGT-N 19C0-187
DTC-H 19C0-187

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2 MRAY	7207.0 18:59:15
	2 MRAY	1.95 MRAY	4100.0 19:02:46
	2.1 MRAY	2 MRAY	3800.0 19:03:01
	2.15 MRAY	2.1 MRAY	3500.0 19:03:17

Tool/Tot.
Drag
From D4T
to STIA

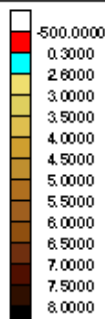
Cable
Drag
From D4T
to STIT

Stuck
Stretch
(STIT)

0 (F) 50

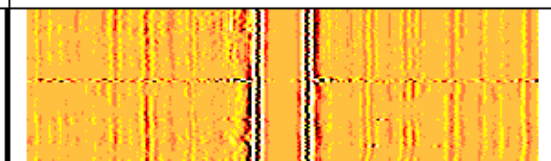
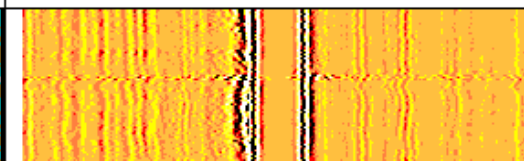
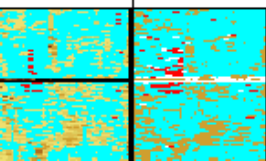
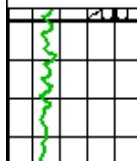
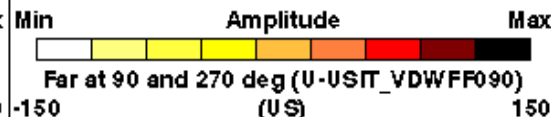
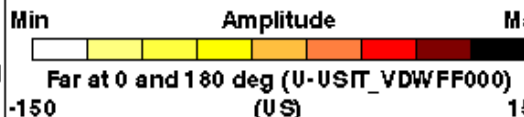
Gamma
Ray (GR)
(GAPI)

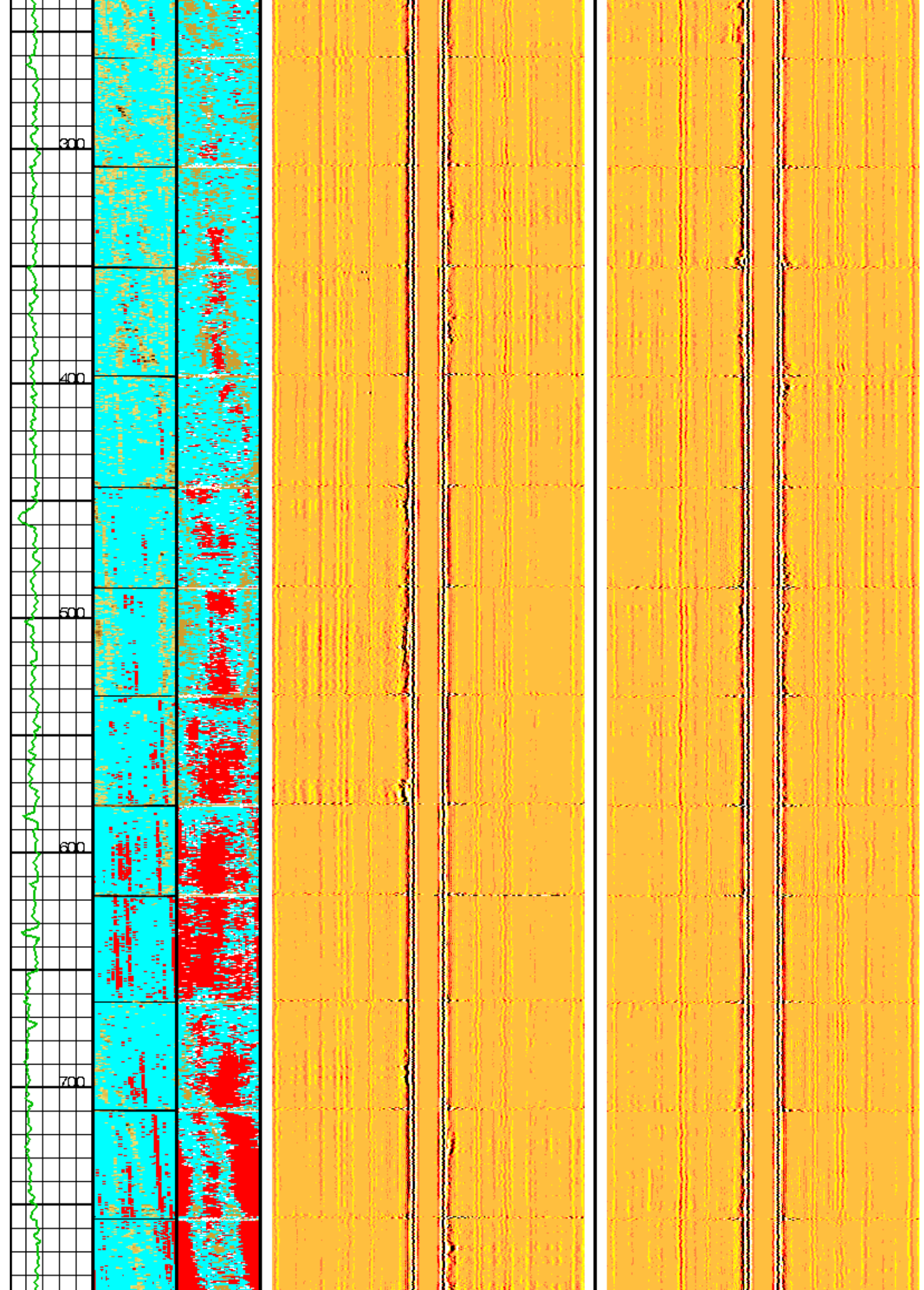
0 150

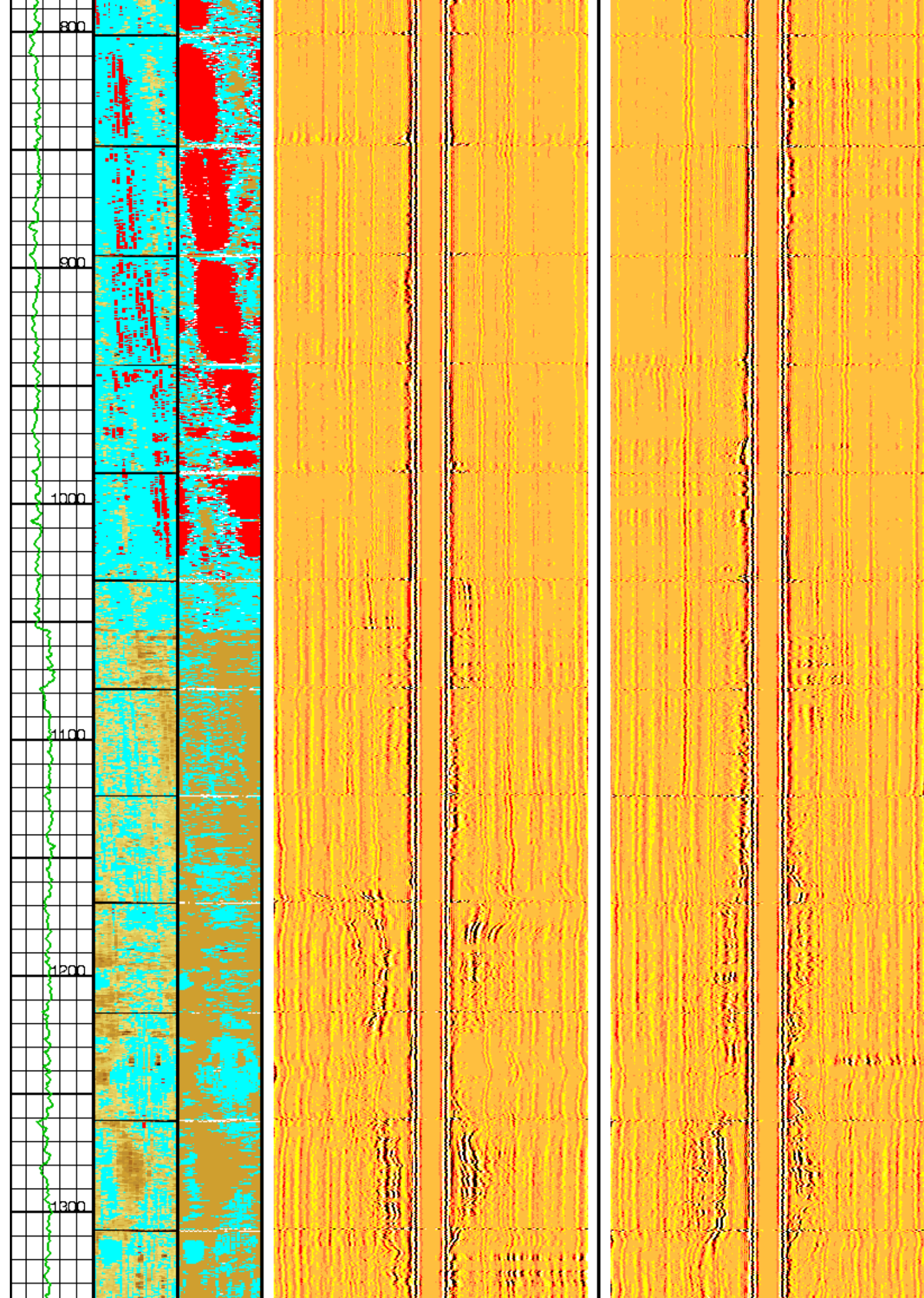


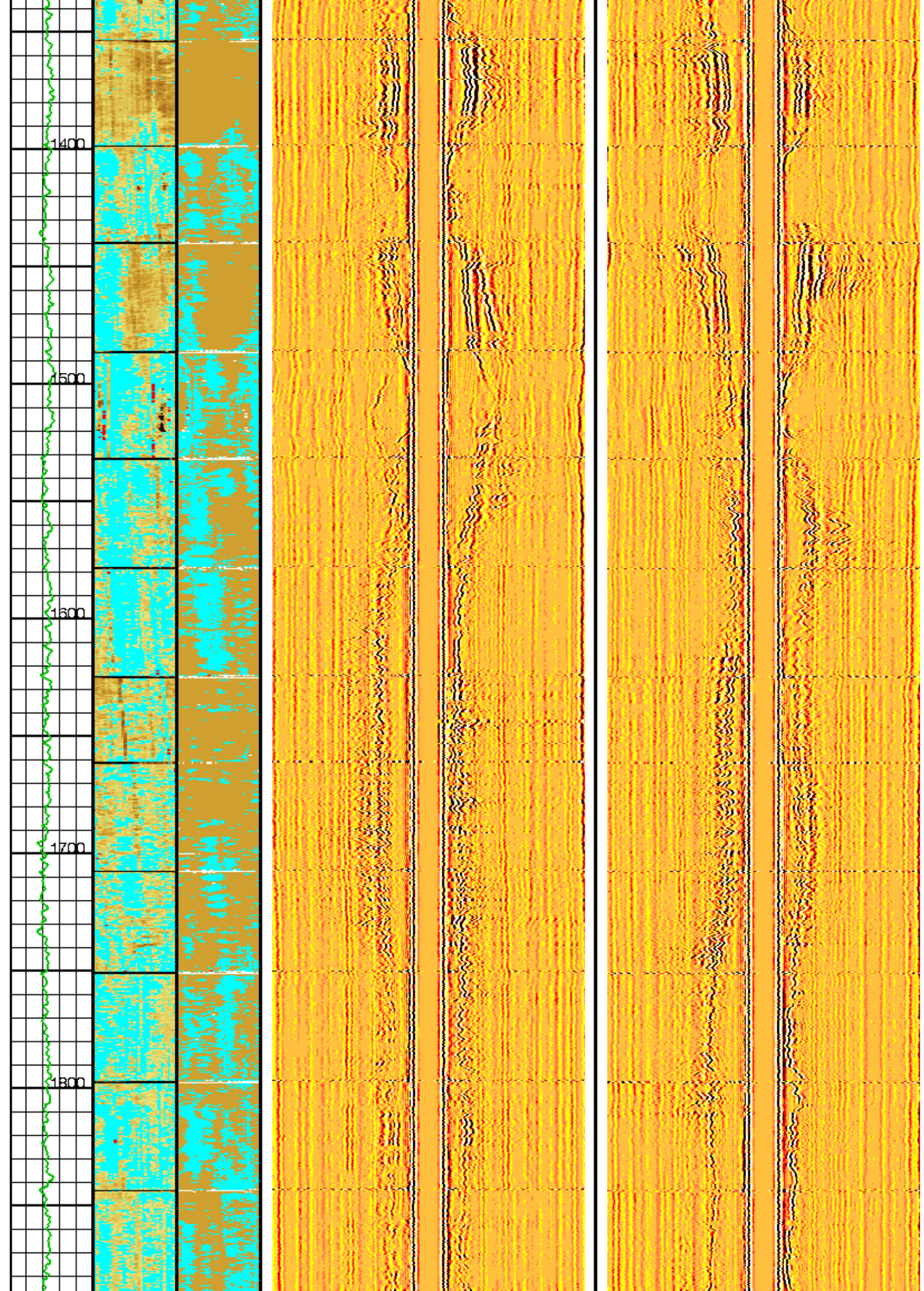
Cement
Map with
Impedance
Classificati
on (AIBK)
(M RAY)

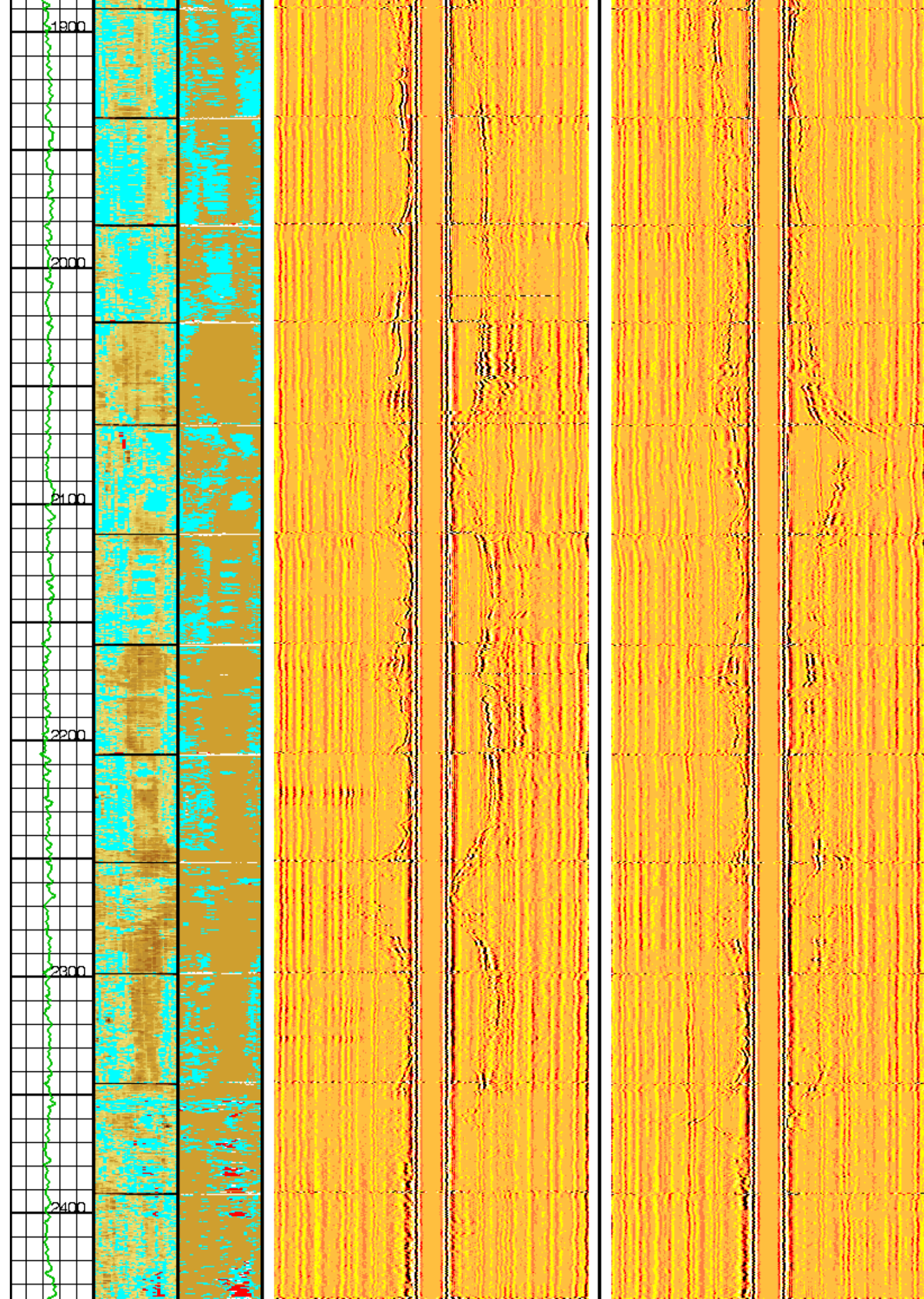
Solid Liquid
Gas Map
(U-USIT_
USLP)
(---)

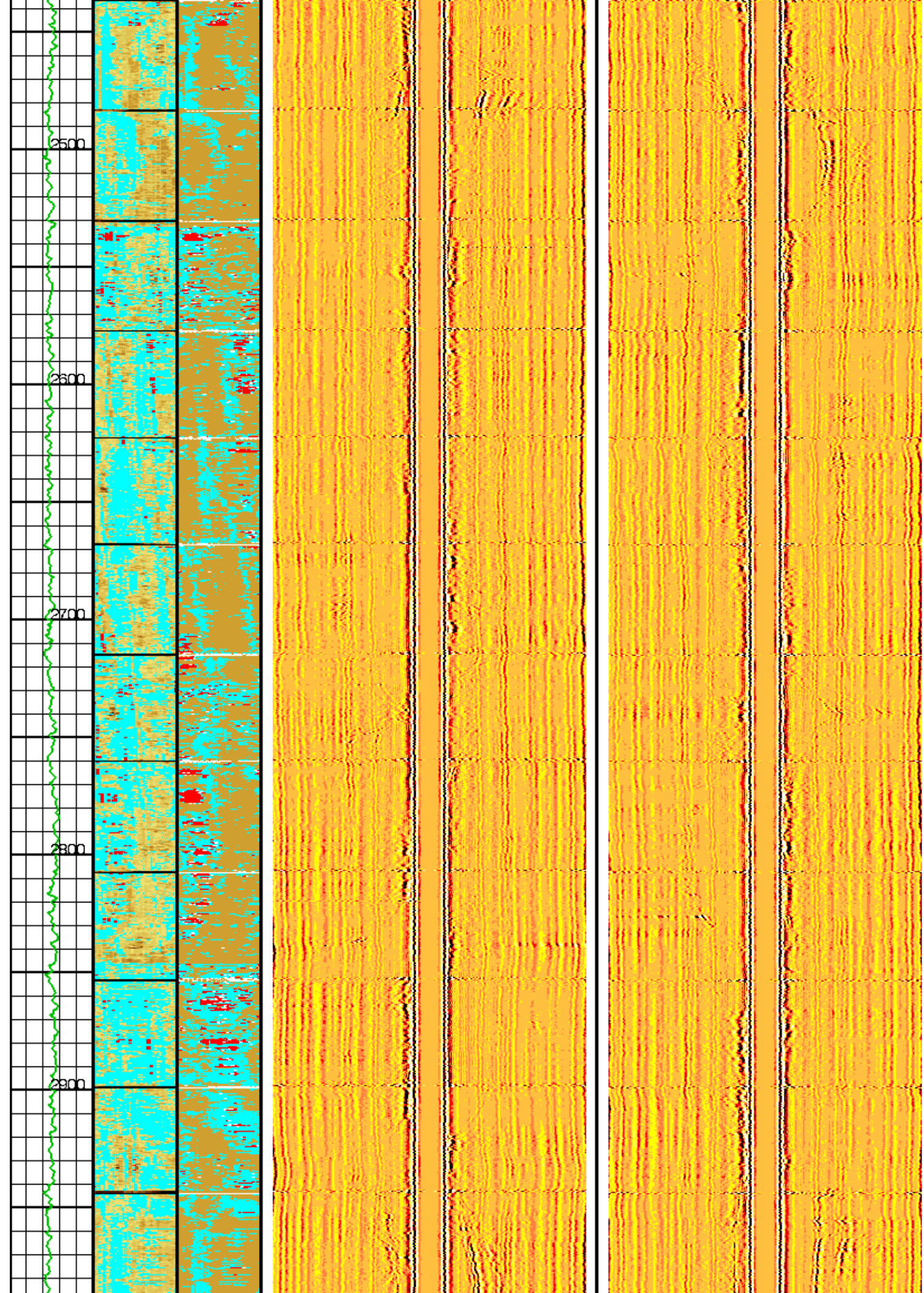


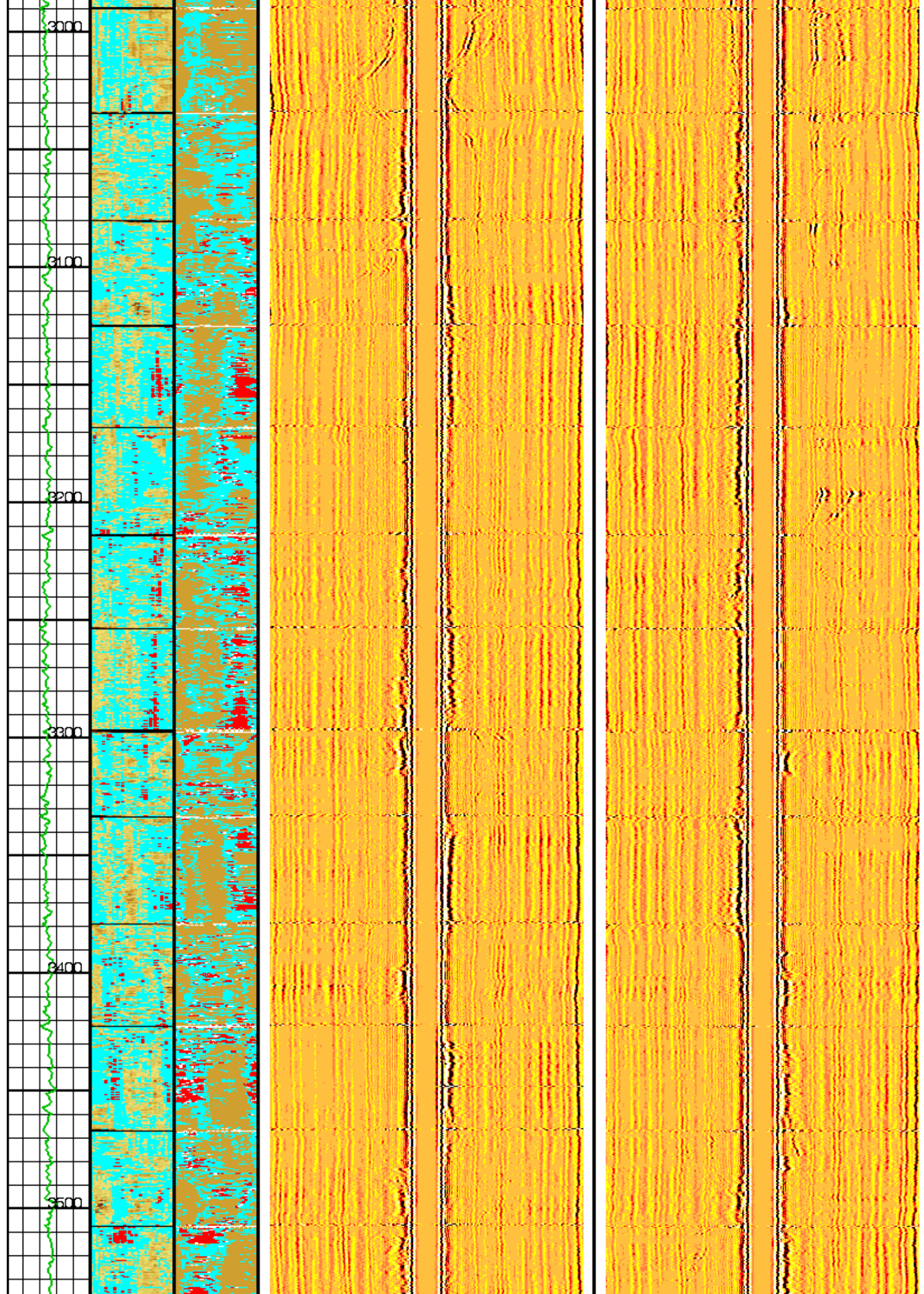


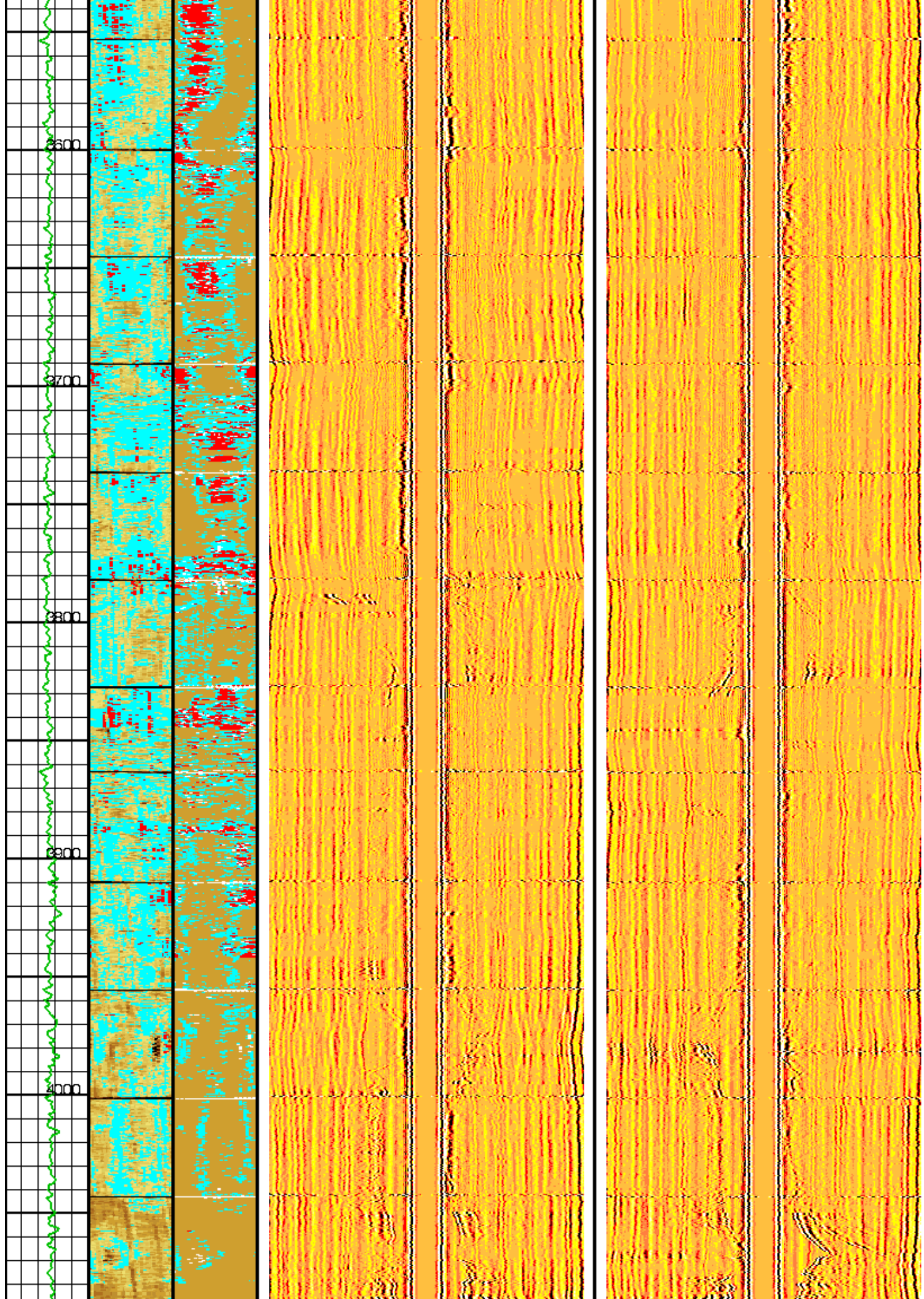


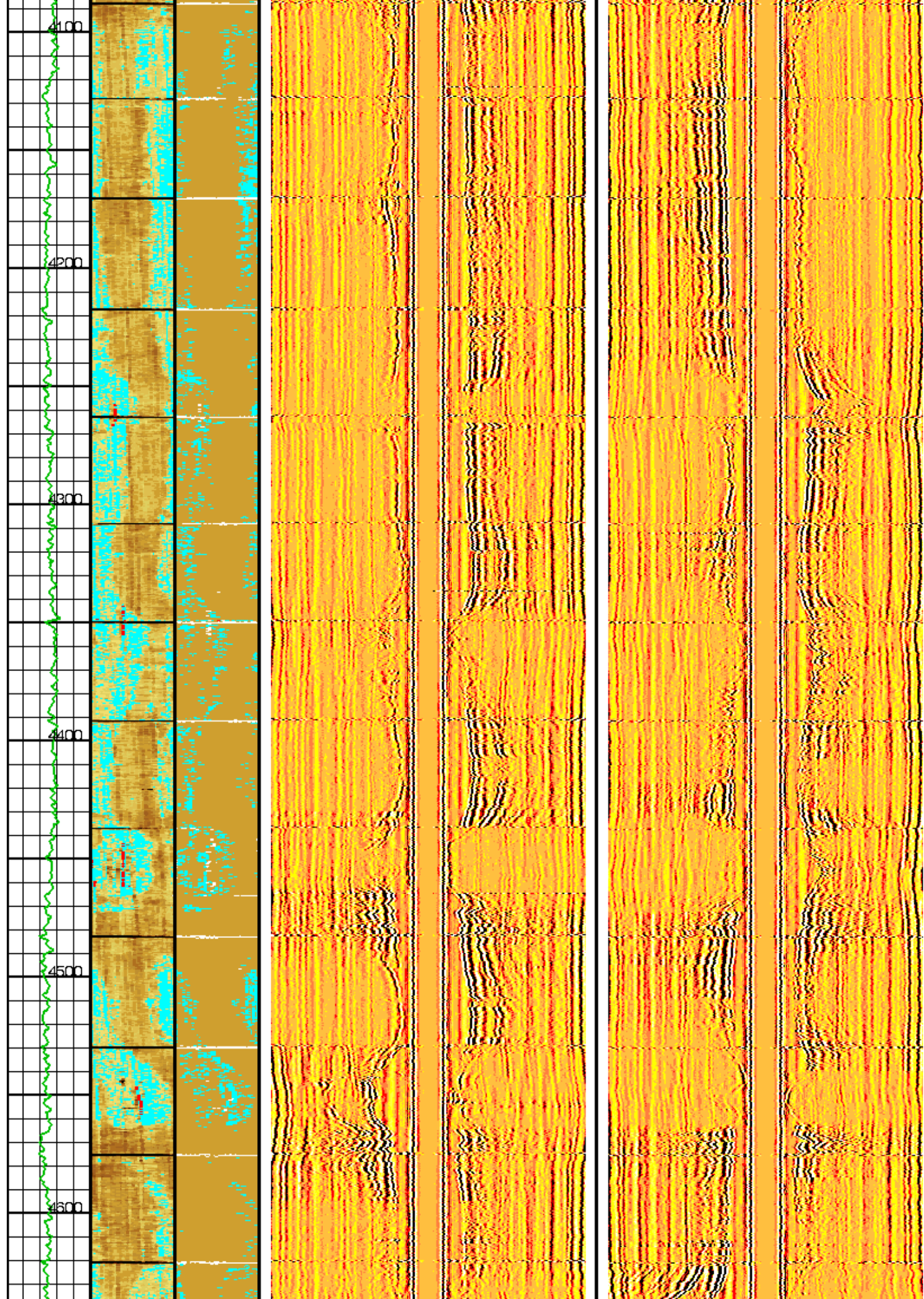


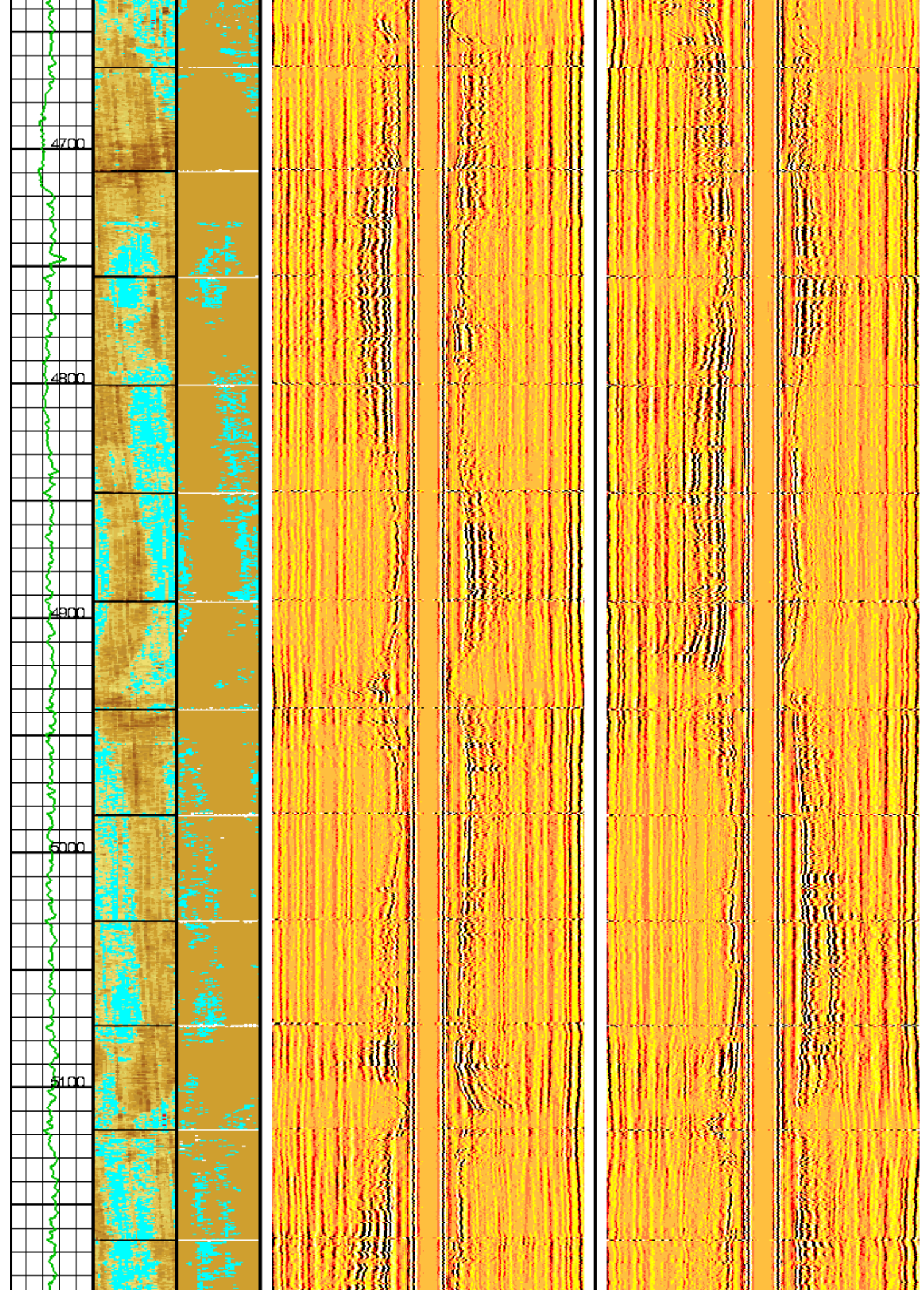


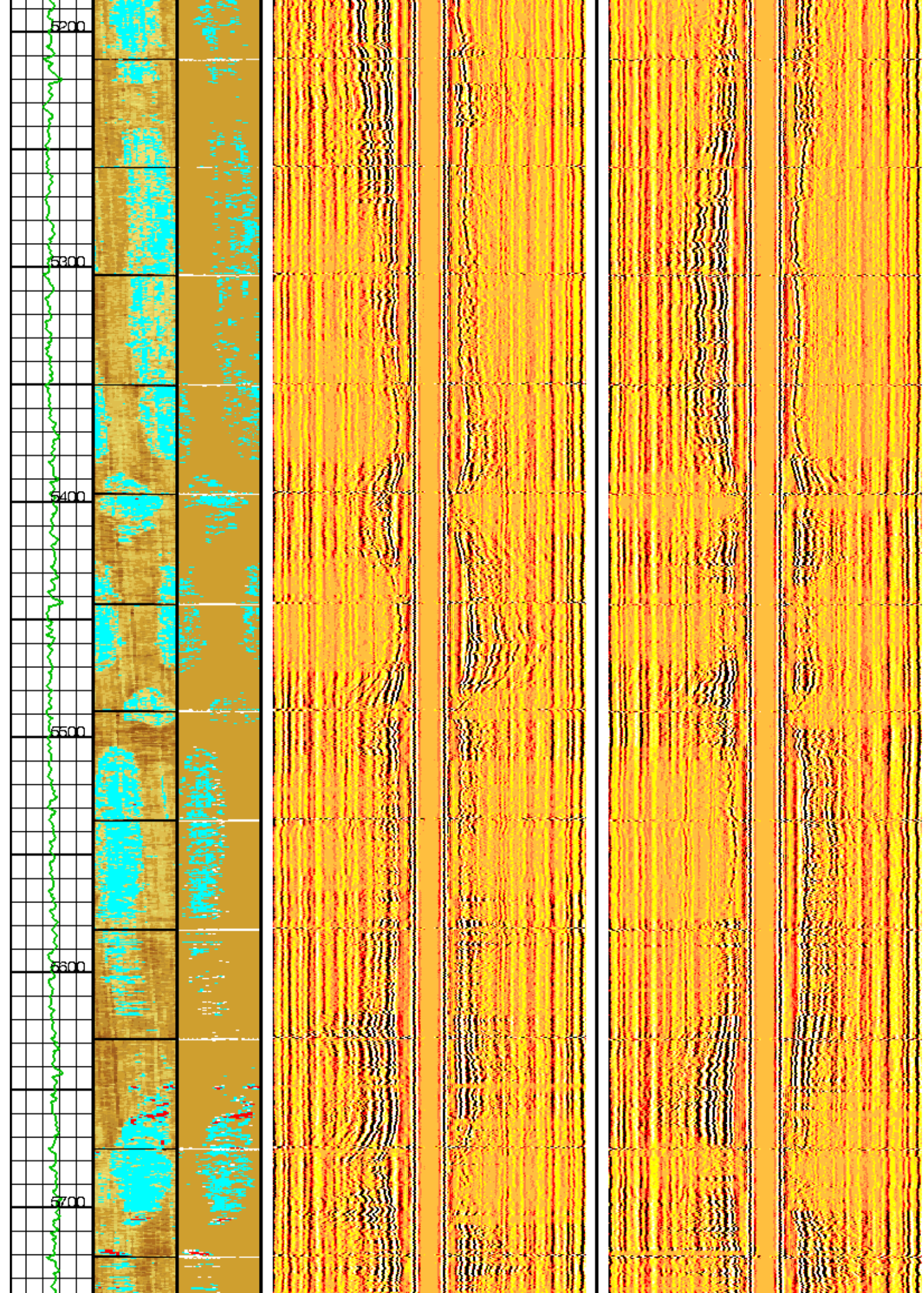


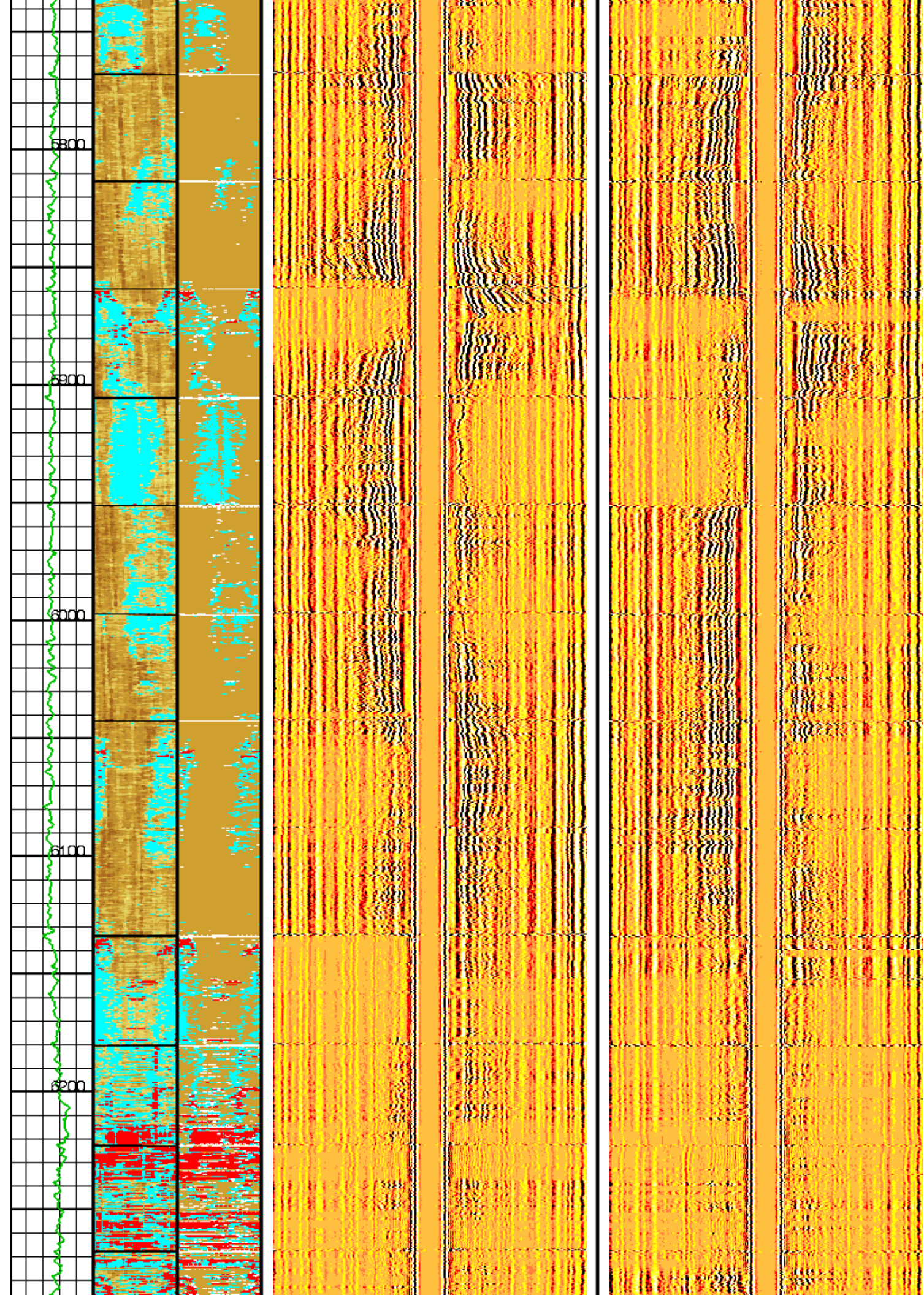


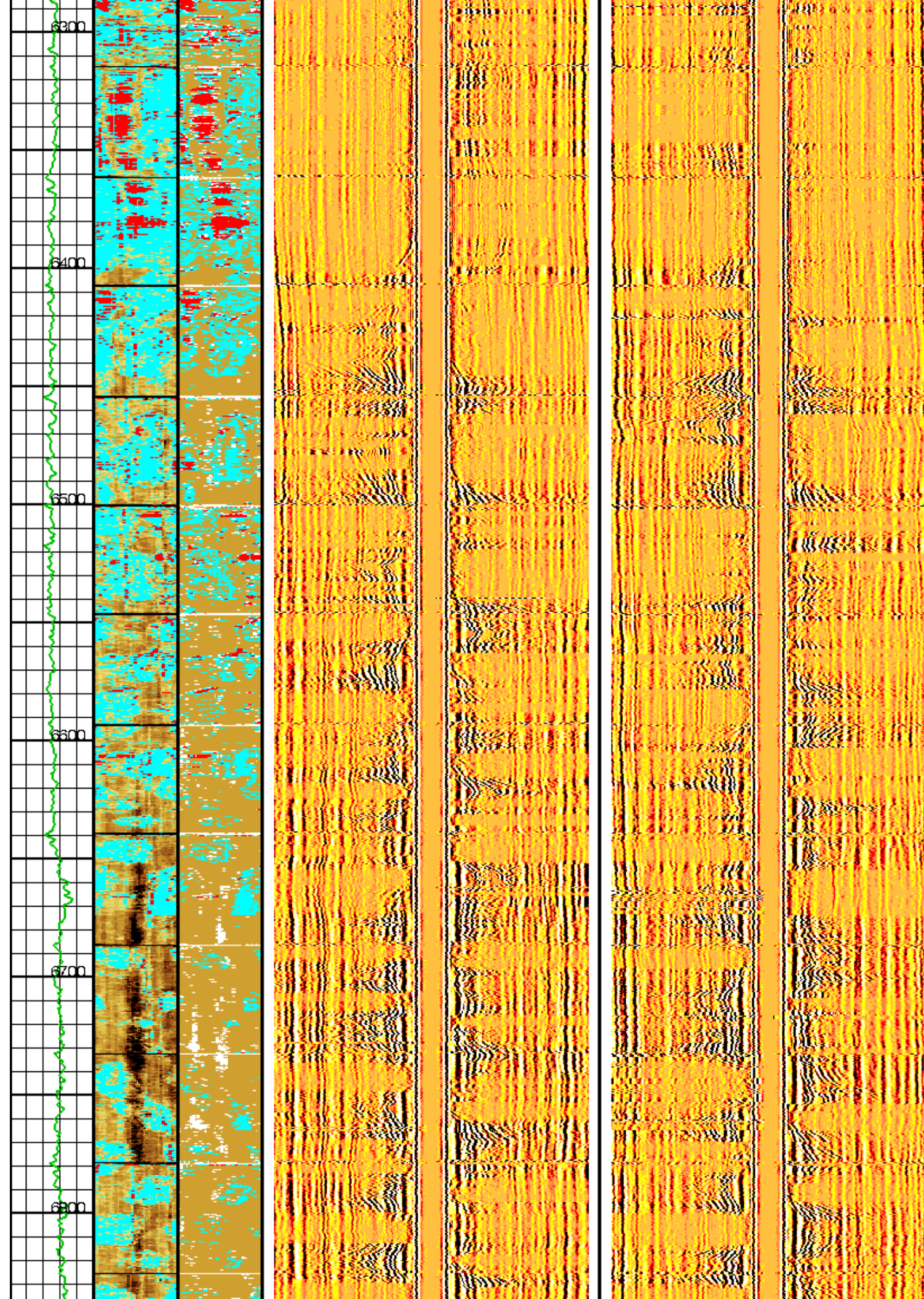


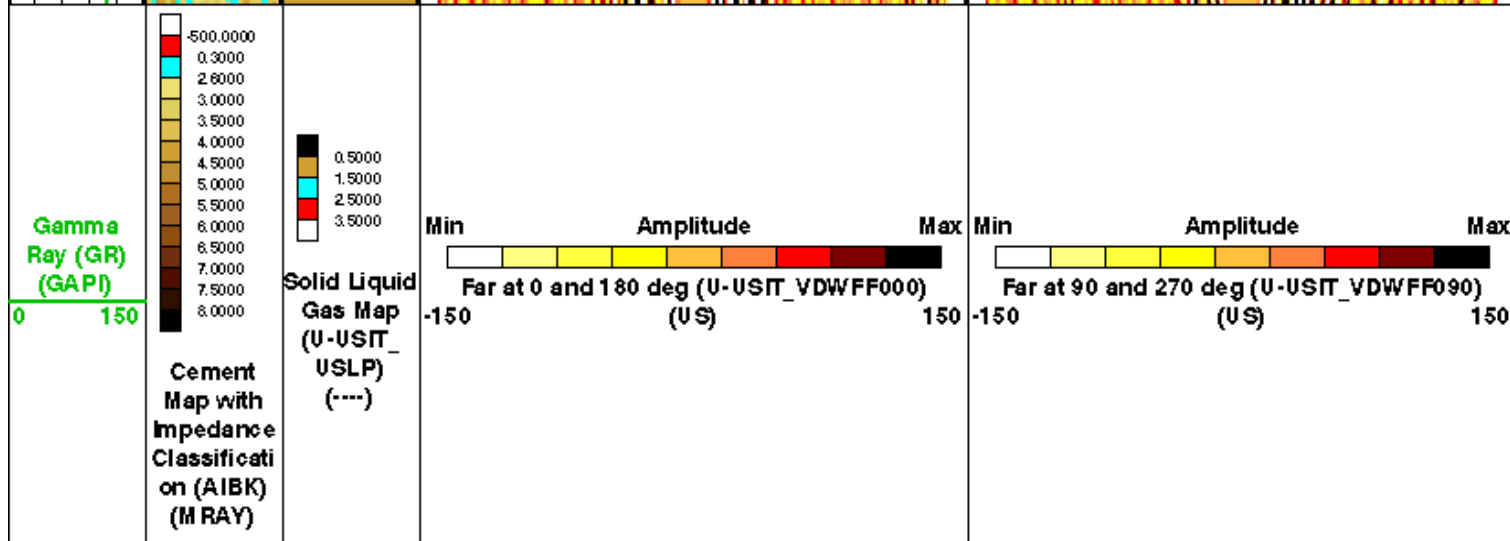
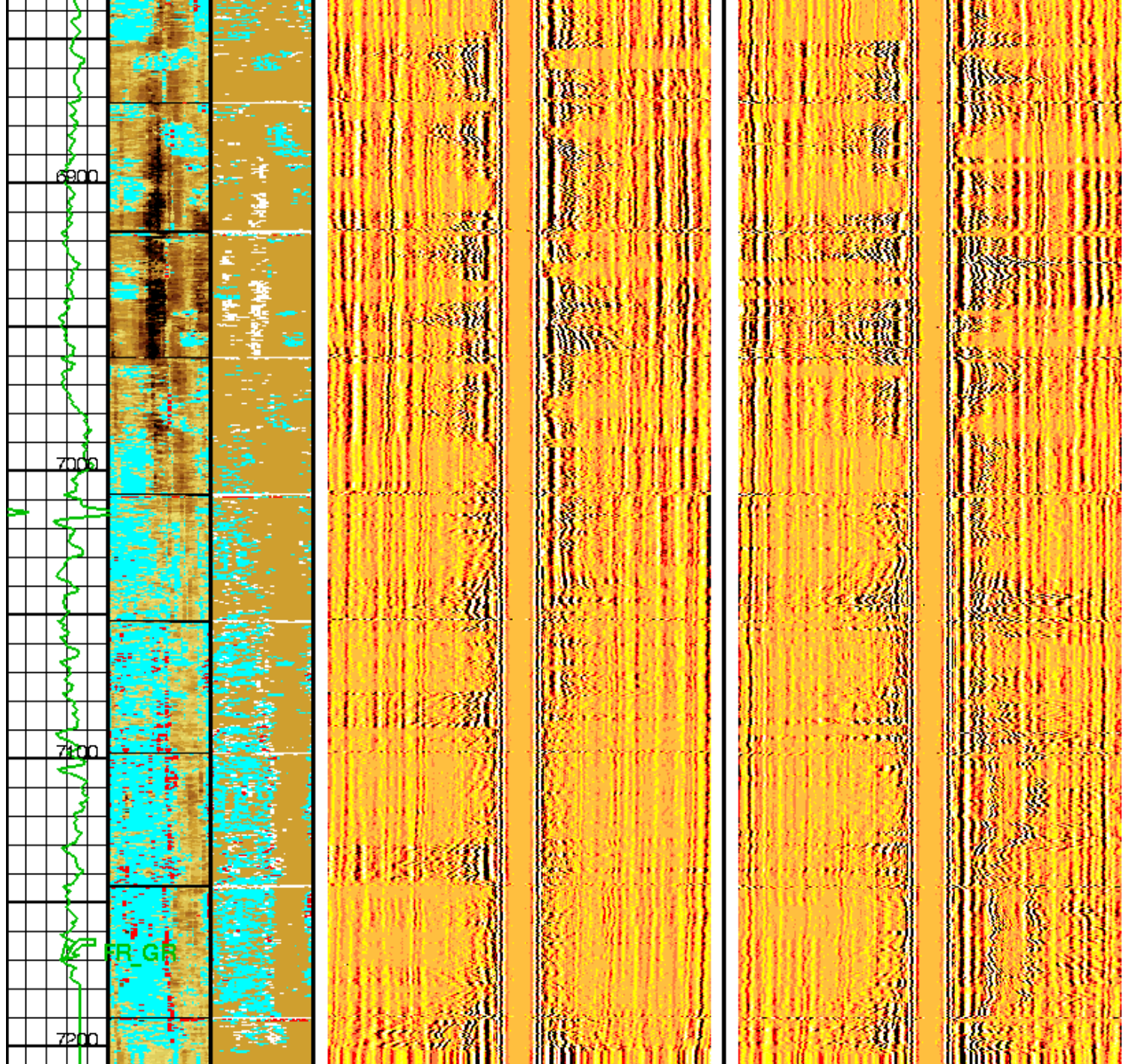












Cable
Drag
From D4T
to STIT

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 LB/CF
CSID	Casing Inner Diameter	6.276 IN
DFVL	Default Fluid Velocity	206 US/F
DOT	Diameter of Transducer Sensor	2.874 IN
EMXV	EMEX Voltage	110 V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD
IMAR	Image Rotation	OFF
MW	Mud Weight	9.5 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_IZR	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	13 DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub Ibc B
U-USIT_UTAN	USIT Transducer Angles	33_DEG
U-MAO	USIT Measurement Angular Offset	-10 DEG
USTO	Ultrasonic Time Offset	-2 US
USUB	Ultrasonic Subassembly Identifier	Sub 7_inch
UWKM	Ultrasonic Working Mode	10DEG_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	46.2537 MRAY
ZINI	Initial Estimate of Cement Impedance	-1 MRAY
ZMUD	Acoustic Impedance of Mud	2 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	11495.00 FT
TDL	Total Depth - Logger	7200.00 FT
System and Miscellaneous		
BS	Bit Size	8.750 IN
CWEI	Casing Weight	26.00 LB/F
DO	Depth Offset for Playback	6.0 FT
PP	Playback Processing	RECOMPUTE

Format: 2 inch IBC VDL WIDE Vertical Scale: 2" per 100'

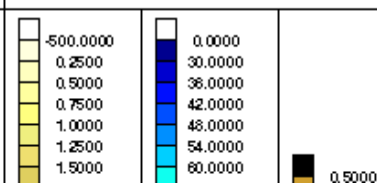
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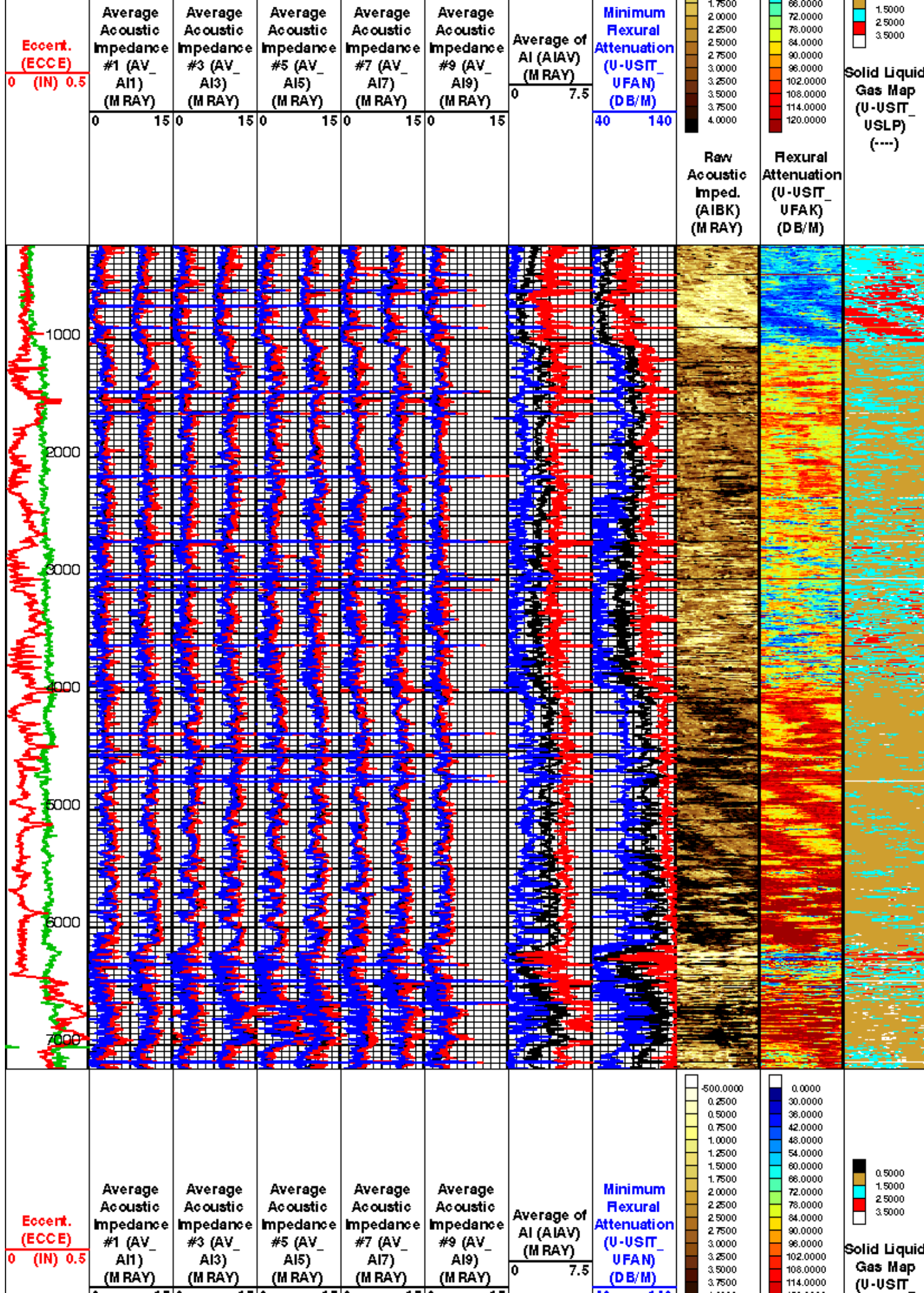
OP System Version: 19C0-187

USIT-D DTC-H	19C0-187 19C0-187	SGT-N 19C0-187
Input DLIS Files		
DEFAULT	USI_011LUP	FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT
Output DLIS Files		
DEFAULT	USI_020PUP	FN:19 PRODUCER 07-Aug-2012 18:59

Company: Encana Oil & Gas (USA) Inc				Well: Fanigan 2B-6H		
Input DLIS Files						
DEFAULT	USI_011LUP	FN:10	PRODUCER	07-Aug-2012 14:57	7201.0 FT	190.5 FT
Output DLIS Files						
DEFAULT	USI_020PUP	FN:19	PRODUCER	07-Aug-2012 18:59	7207.0 FT	196.5 FT
OP System Version: 19C0-187						
USIT-D	19C0-187	SGT-N	19C0-187			
DTC-H	19C0-187					

	Minimum Acoustic Impedance #2 (MIN_AI2) (M RAY)	Minimum Acoustic Impedance #4 (MIN_AI4) (M RAY)	Minimum Acoustic Impedance #6 (MIN_AI6) (M RAY)	Minimum Acoustic Impedance #8 (MIN_AI8) (M RAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_AI1) (M RAY)	Minimum Acoustic Impedance #3 (MIN_AI3) (M RAY)	Minimum Acoustic Impedance #5 (MIN_AI5) (M RAY)	Minimum Acoustic Impedance #7 (MIN_AI7) (M RAY)			
	0 15	0 15	0 15	0 15			
	Maximum Acoustic Impedance #2 (MAX_AI2) (M RAY)	Maximum Acoustic Impedance #4 (MAX_AI4) (M RAY)	Maximum Acoustic Impedance #6 (MAX_AI6) (M RAY)	Maximum Acoustic Impedance #8 (MAX_AI8) (M RAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			
	Maximum Acoustic Impedance #1 (MAX_AI1) (M RAY)	Maximum Acoustic Impedance #3 (MAX_AI3) (M RAY)	Maximum Acoustic Impedance #5 (MAX_AI5) (M RAY)	Maximum Acoustic Impedance #7 (MAX_AI7) (M RAY)	Minimum Acoustic Impedance #9 (MIN_AI9) (M RAY)	Maximum of AI (AIMX) (M RAY)	Maximum Flexural Attenuation (U-USIT_UFAX) (DB/M)
	0 15	0 15	0 15	0 15	0 15	0 7.5	40 140
Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (M RAY)	Average Acoustic Impedance #4 (AV_AI4) (M RAY)	Average Acoustic Impedance #6 (AV_AI6) (M RAY)	Average Acoustic Impedance #8 (AV_AI8) (M RAY)	Maximum Acoustic Impedance #9 (MAX_AI9) (M RAY)	Minimum of AI (AIMN) (M RAY)	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	40 140





	0	15	0	15	0	15	0	15	40	140	Raw Acoustic Imped. (AIBK) (M RAY)	Flexural Attenuation (U-USIT_ UFAK) (DB/M)	USLP) (----
Gamma Ray (GR) (GAPI)	Average Acoustic Impedance #2 (AV_ AI2) (M RAY)	Average Acoustic Impedance #4 (AV_ AI4) (M RAY)	Average Acoustic Impedance #6 (AV_ AI6) (M RAY)	Average Acoustic Impedance #8 (AV_ AI8) (M RAY)	Maximum Acoustic Impedance #9 (MAX_ AI9) (M RAY)	Minimum of AI (AIMN) (M RAY)	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	40 140						
	Maximum Acoustic Impedance #1 (MAX_ AI1) (M RAY)	Maximum Acoustic Impedance #3 (MAX_ AI3) (M RAY)	Maximum Acoustic Impedance #5 (MAX_ AI5) (M RAY)	Maximum Acoustic Impedance #7 (MAX_ AI7) (M RAY)	Minimum Acoustic Impedance #9 (MIN_ AI9) (M RAY)	Maximum of AI (AIMX) (M RAY)	Maximum Flexural Attenuation (U-USIT_ UFAK) (DB/M)						
	0 15	0 15	0 15	0 15	0 15	0 7.5	40 140						
	Maximum Acoustic Impedance #2 (MAX_ AI2) (M RAY)	Maximum Acoustic Impedance #4 (MAX_ AI4) (M RAY)	Maximum Acoustic Impedance #6 (MAX_ AI6) (M RAY)	Maximum Acoustic Impedance #8 (MAX_ AI8) (M RAY)									
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5									
	Minimum Acoustic Impedance #1 (MIN_ AI1) (M RAY)	Minimum Acoustic Impedance #3 (MIN_ AI3) (M RAY)	Minimum Acoustic Impedance #5 (MIN_ AI5) (M RAY)	Minimum Acoustic Impedance #7 (MIN_ AI7) (M RAY)									
	0 15	0 15	0 15	0 15									
	Minimum Acoustic Impedance #2 (MIN_ AI2) (M RAY)	Minimum Acoustic Impedance #4 (MIN_ AI4) (M RAY)	Minimum Acoustic Impedance #6 (MIN_ AI6) (M RAY)	Minimum Acoustic Impedance #8 (MIN_ AI8) (M RAY)									
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5									

Format: IBC Goodwin Compressed Vertical Scale: 0.1" per 100' Graphics File Created: 07-Aug-2012 18:59

OP System Version: 19C0-187

USIT-D 19C0-187 SGT-N 19C0-187
DTC-H 19C0-187

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_011LUP FN:10 PRODUCER 07-Aug-2012 14:57 7201.0 FT 190.5 FT

Output DLIS Files

DEFAULT USI_020DUP FN:10 PRODUCER 07-Aug-2012 18:59

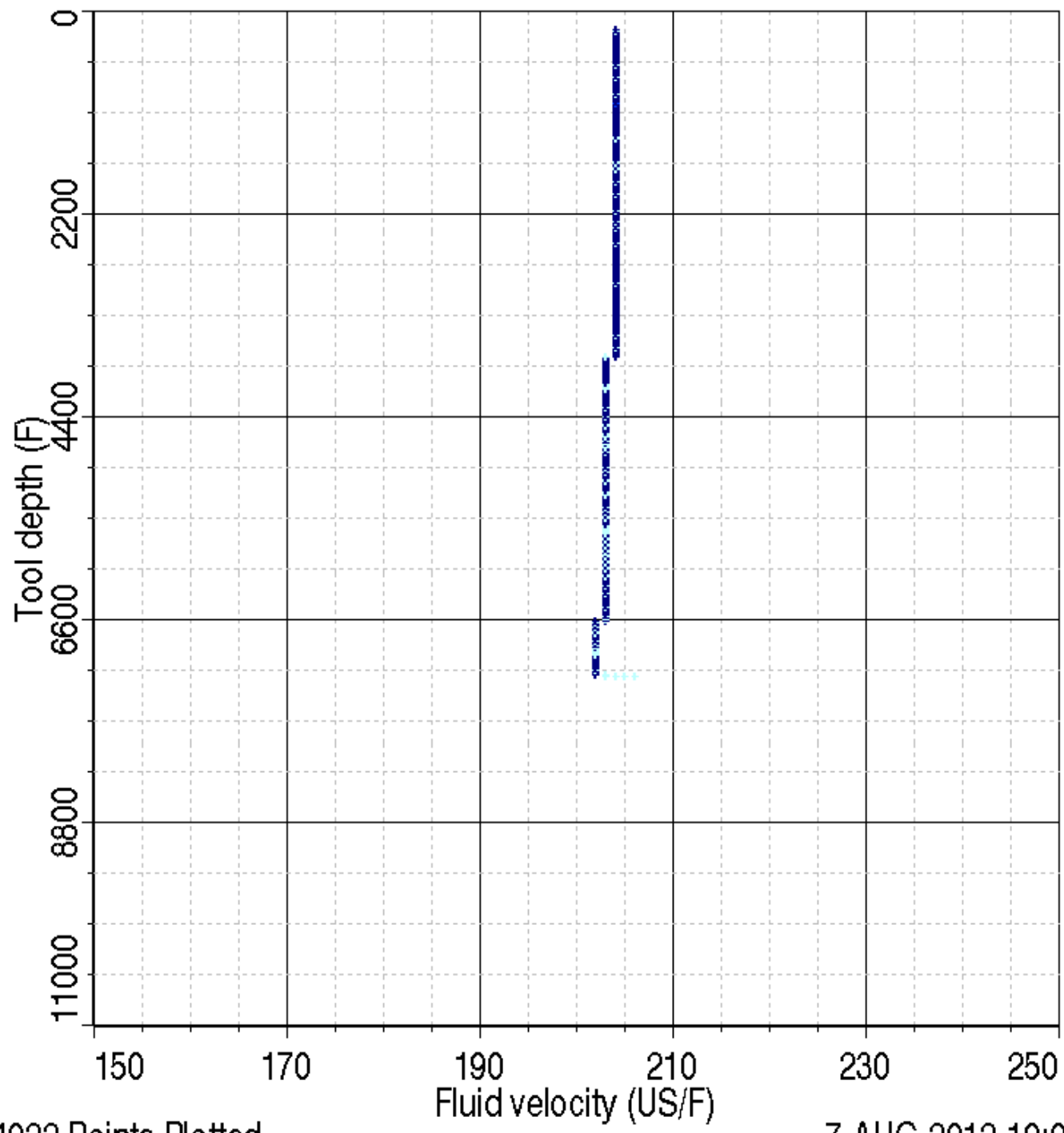
IBC Inv. Fluid Z QC (----)

Index: 7207.0 - 196.5 FT

0.



0.5



14022 Points Plotted

7-AUG-2012 19:06

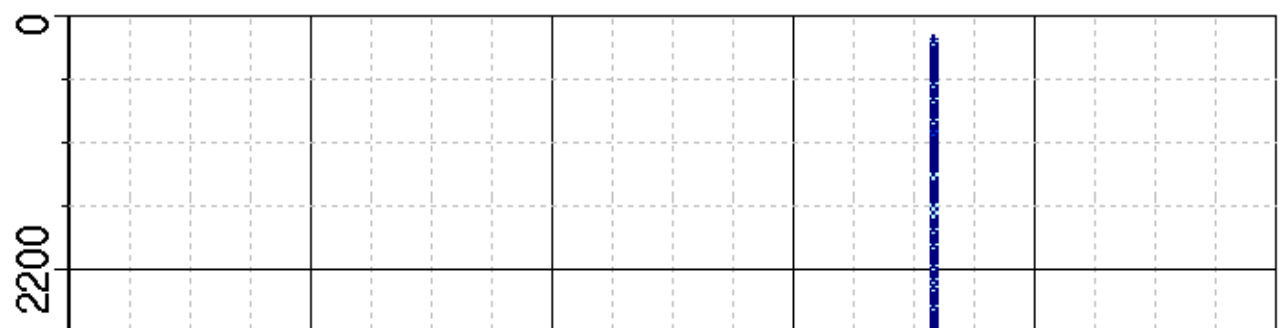
IBC Inv. Fluid Z QC (----)

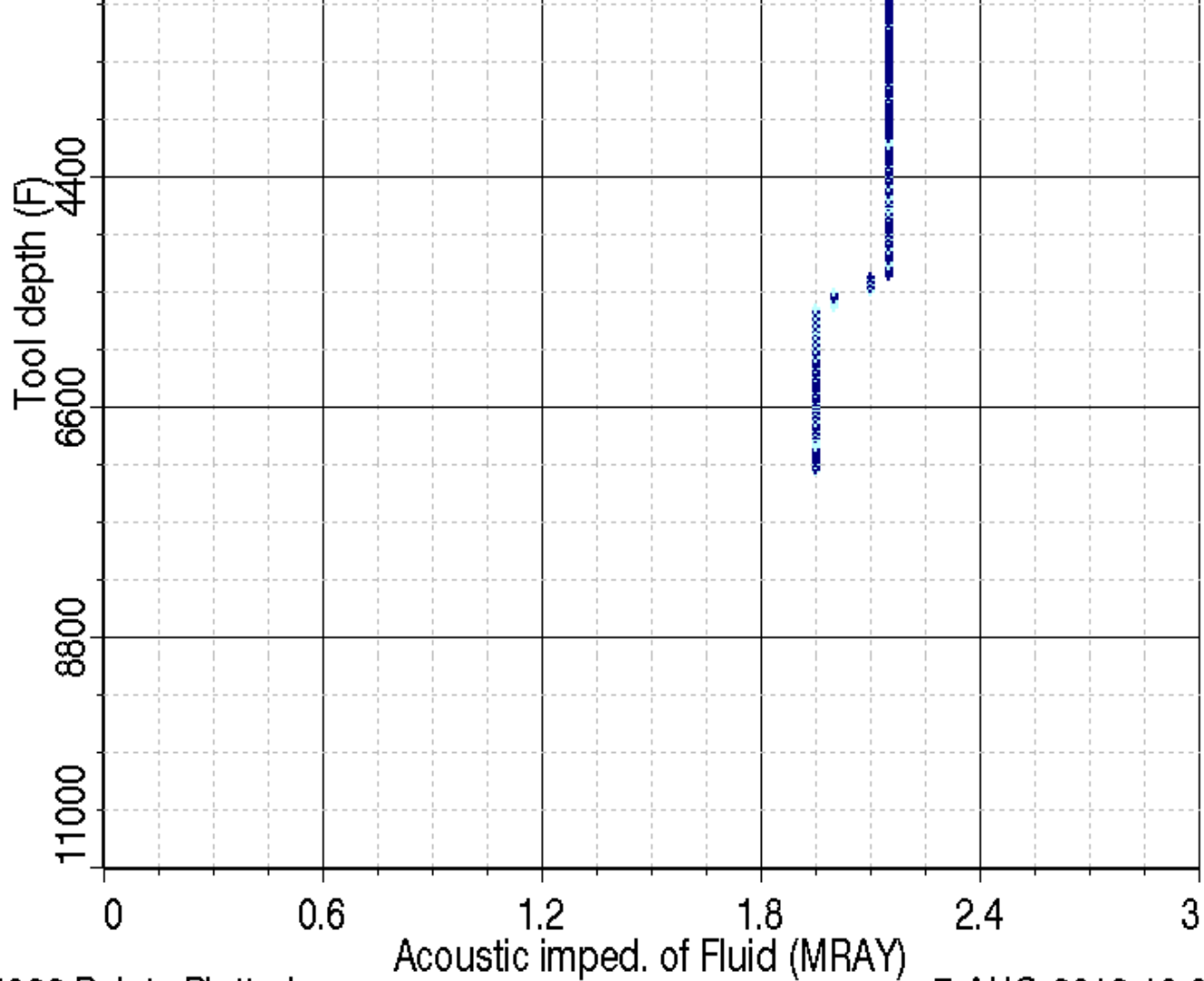
Index: 7207.0 - 196.5 FT

0.



0.5





14022 Points Plotted

7-AUG-2012 19:06

Company: **Encana Oil & Gas (USA) Inc**

Schlumberger

Well: **Flanigan 2B-6H**

Field: **Wattenberg**

County: **Weld**

State: **Colorado**

Isolation Scanner
Cement Evaluation