

Schlumberger

Company: EnCana Oil & Gas (USA) Inc

Well: Echeverria 2A-2H

Field: Wattenberg

County: Weld State: Colorado

Cement and Casing Corrosion Analysis

County: Weld

Field: Wattenberg

Location: NENW Sec 2, Twp 2N, Rng 67W

Well: Echeverria 2A-2H

Company: EnCana Oil & Gas (USA) Inc

LOCATION

NENW Sec 2, Twp 2N, Rng 67W

SHL: 554' FNL X 1430' FWL

Lat/Long: 40.172930 X -104.861850

Elev.: K.B. 4872.00 ft

G.L. 4859.00 ft

D.F. 4871.00 ft

Permanent Datum: Ground Level

Log Measured From: Kelly Bushing

Drilling Measured From: Kelly Bushing

Elev.: 4859.00 ft

13.00 ft above Perm. Datum

API Serial No. 05-123-35811-0000

Section 2

Township 2N

Range 67W

Logging Date	27-Aug-2012			
Run Number	1			
Depth Driller	7410 ft			
Schlumberger Depth	7340 ft			
Bottom Log Interval	7340 ft			
Top Log Interval	200 ft			
Casing Fluid Type	Water Based Mud			
Salinity	600 ppm			
Density	10 lbm/gal			
Fluid Level	10 ft			
BIT/CASING/TUBING STRING				
Bit Size	8.750 in			
From	0 ft			
To	7410 ft			
Casing/Tubing Size	7.000 in			
Weight	26 lbm/ft			
Grade				
From	0 ft			
To	7410 ft			
Maximum Recorded Temperatures				
Logger On Bottom	Time		19:58	
Unit Number	Location			
Recorded By	Keri Loring/Avery Becker			
Witnessed By	Dennis Elrod			

Oil Density		Run 1	Run 2	Run 3
Water Salinity		600 ppm		
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
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/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom				
Unit Number				
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 28-AUG-2012 6:00:32

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B	Type: CMTD-B/A	Type: 7-39P-LXS
Serial Number:	Serial Number:	Serial Number:
Calibration Date:	Calibration Date:	Length: 17500 FT
Calibrator Serial Number:	Calibrator Serial Number:	Conveyance Method: Wireline
Calibration Cable Type: 7-46P	Number of Calibration Points: 0	Rig Type: LAND
Wheel Correction 1:		
Wheel Correction 2:		

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:	
Tool Zero Check At Surface:	


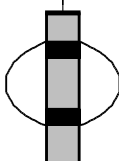

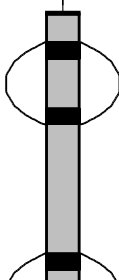
Depth Control Remarks

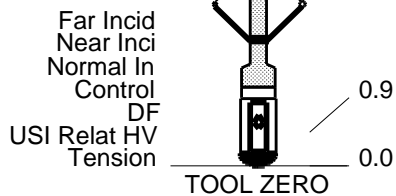
1.	
2.	
3.	
4.	
5.	
6.	

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OTHER SERVICES1 OS1: None OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Toolstring run as per tool sketch	
First run in hole depth control procedures followed	
Lead cement: 10# light from surface to 4052 ft, 12# from 4052 to 6490 ft	
Tail cement: 13# from 6490 to 7490 ft	

Rig: Ensign 135					
Schlumberger crew: Dave Marquez and Tyler Riter					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
BX19-00050 19C1-222 10 ft					
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT					
GSR-U/Y WITM (DTS)-A					
DOWNHOLE EQUIPMENT					
LEH-QT LEH-QT		40.9			
AH-CEN AH-CEN		38.0			
DTC-H ECH-KC DTCH0-A DTCH1-A	CTEM TelStatus ToolStatu	33.3 31.2			
SGT-N SGH-K 10316 SGC-TB 3039 SGD-TAB	Gamma Ray	30.3			
AH-107 AH-107		25.7			
USIT-D ECH-MRA USIC-D 947 AH-107 909 USIS-A 791 USSC-B IBCS_B-100158202 826 Top Transducer Middle Top Transducer Middle Bottom Transducer Bottom Transducer		23.7			



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

Company: EnCana Oil & Gas (USA) Inc Well: Echeverria 2A-2H

Input DLIS Files

DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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Output DLIS Files

DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37	7340.0 FT	199.0 FT
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OP System Version: 19C1-222

USIT-D	19C1-222	SGT-N	19C1-222
DTC-H	19C1-222		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2.15 MRAY	7340.0 05:38:21
	2.1 MRAY	1.95 MRAY	5700.0 05:41:33
	2 MRAY	2.1 MRAY	5490.0 05:41:54
	2.15 MRAY	2 MRAY	5300.0 05:42:14

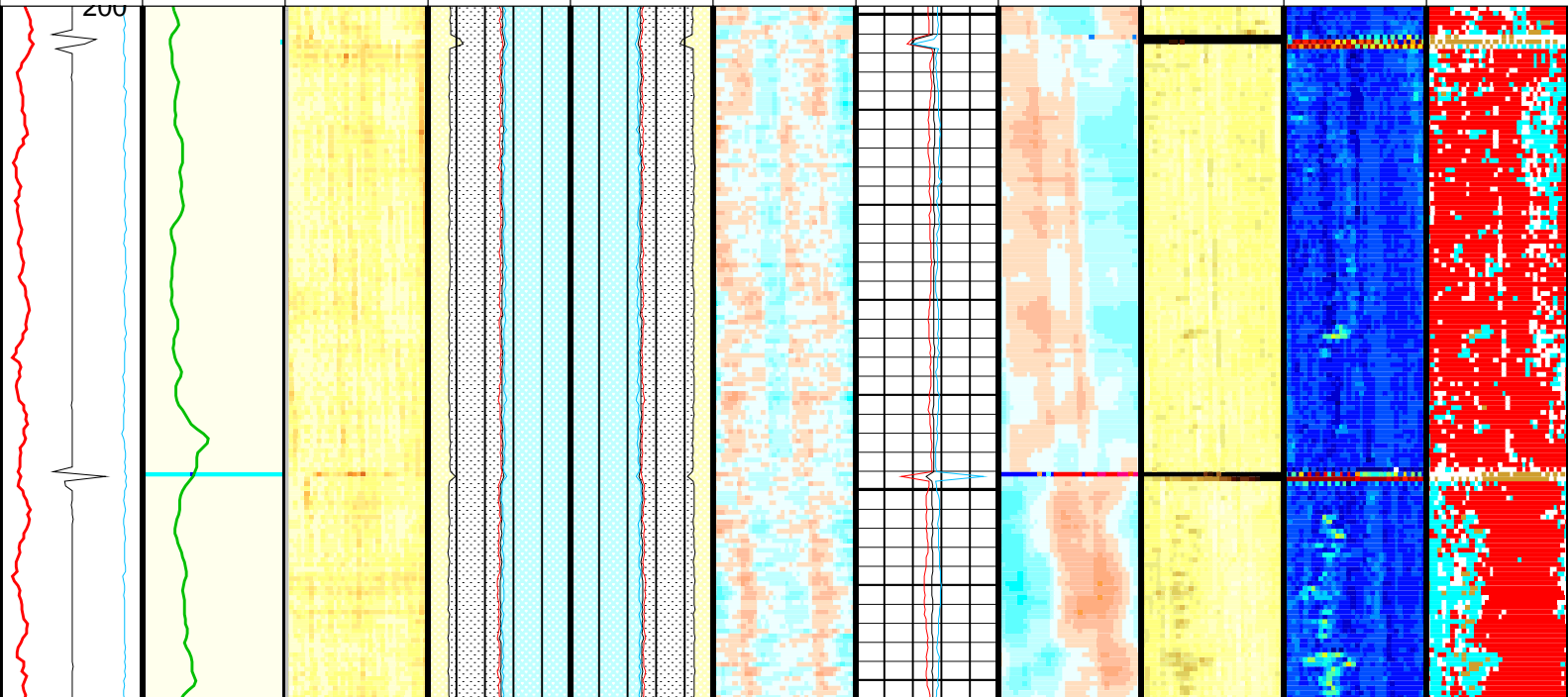
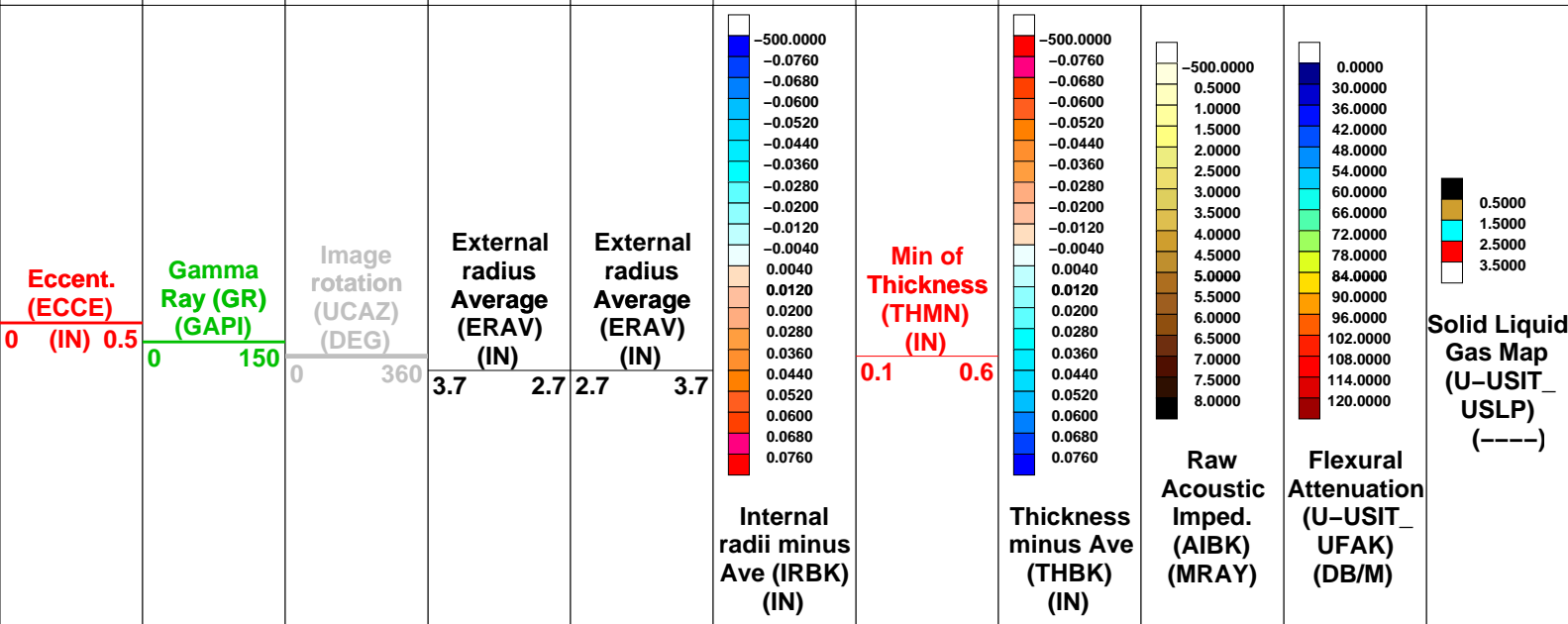
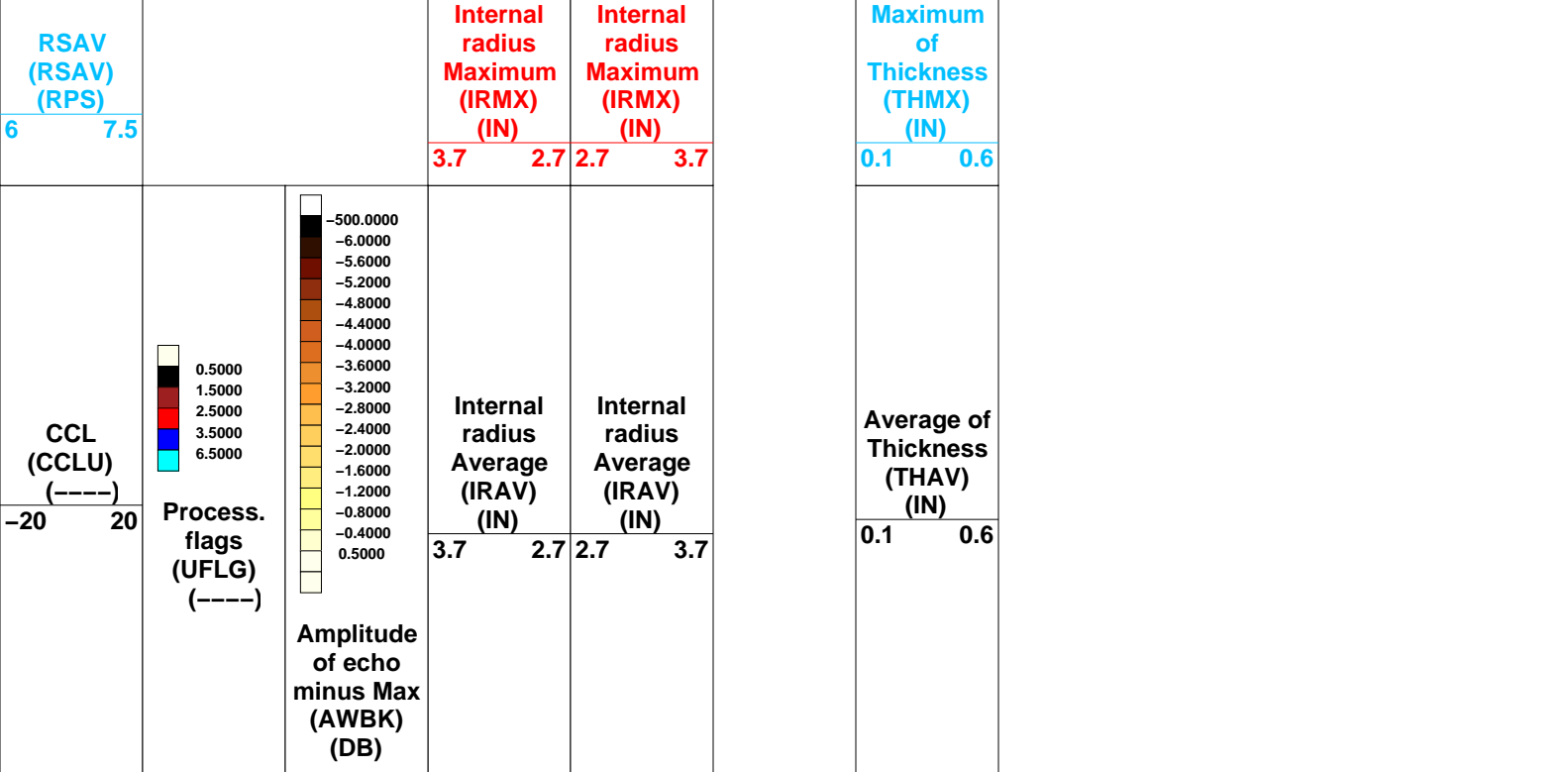
Tool/Tot.
Drag
From D4T
to STIA

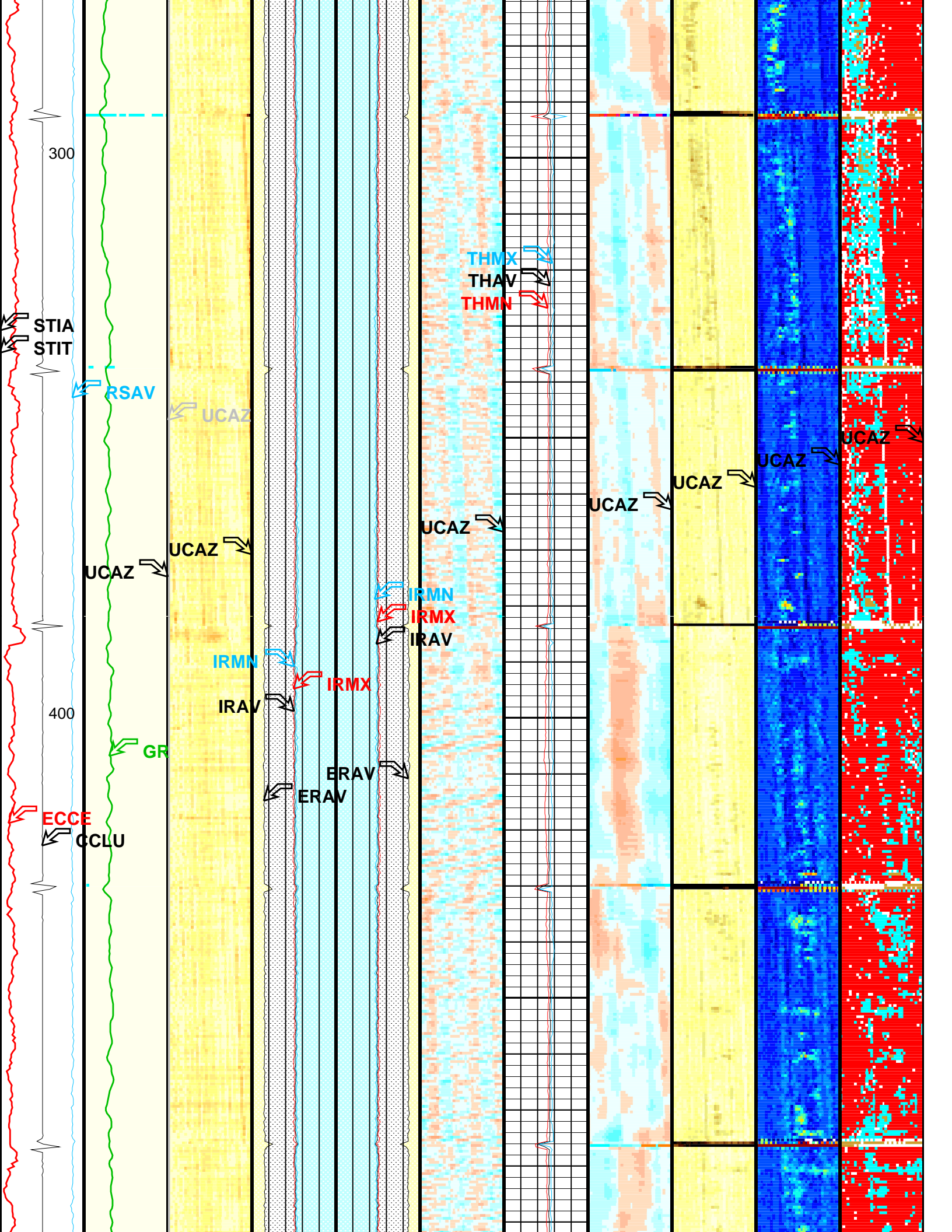
Cable
Drag
From D4T
to STIT

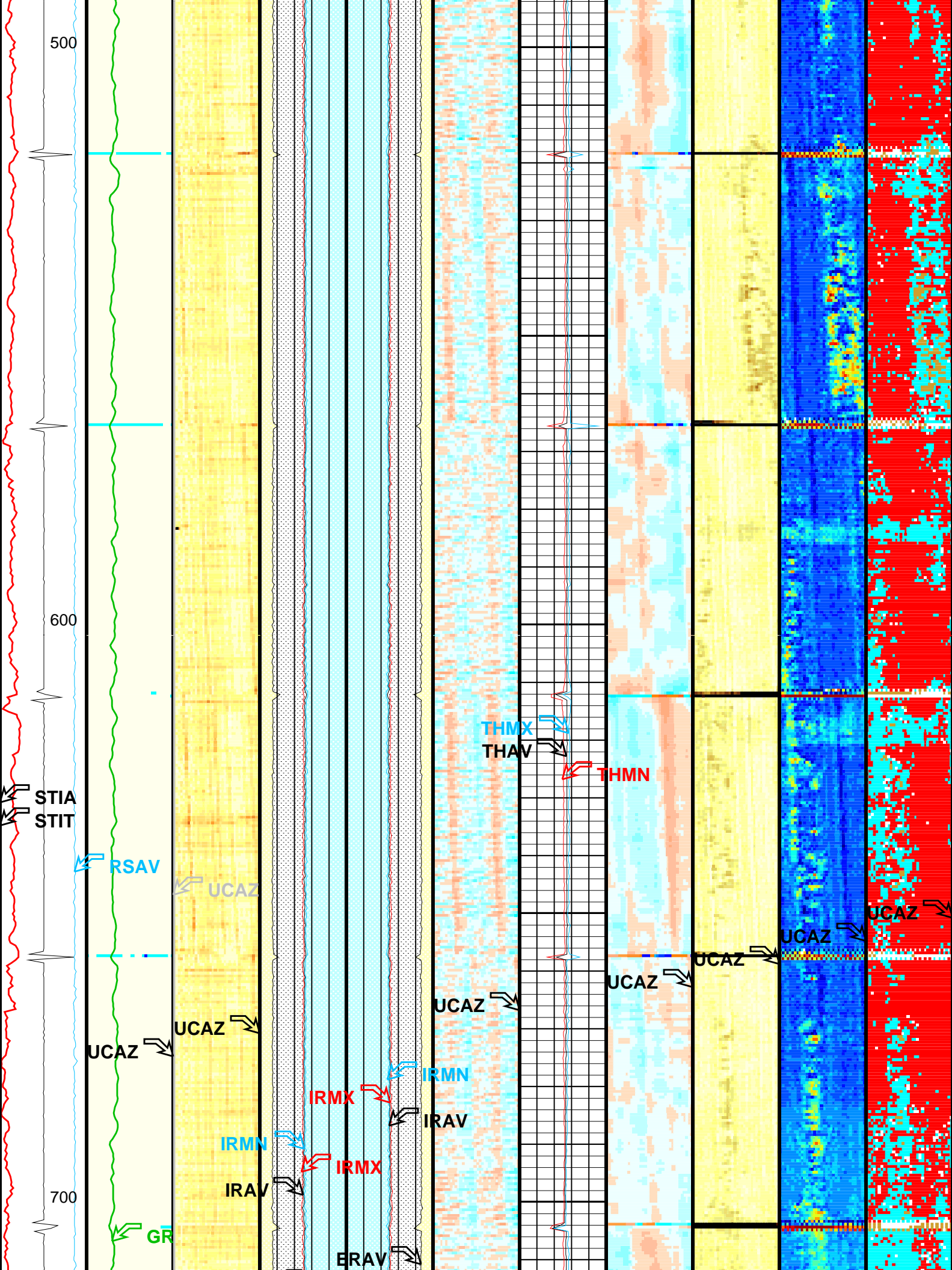
Stuck
Stretch
(STIT)

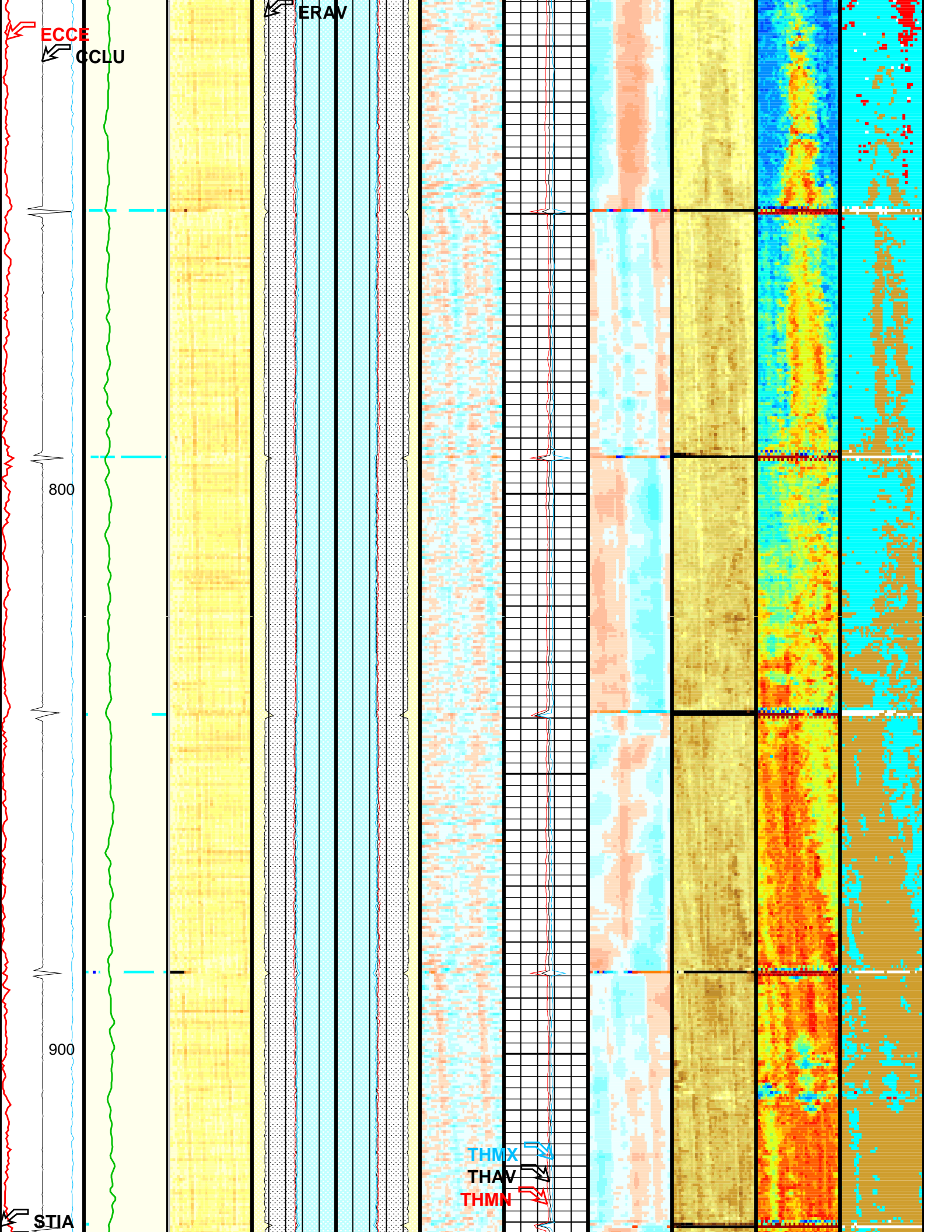
0 (F) 50

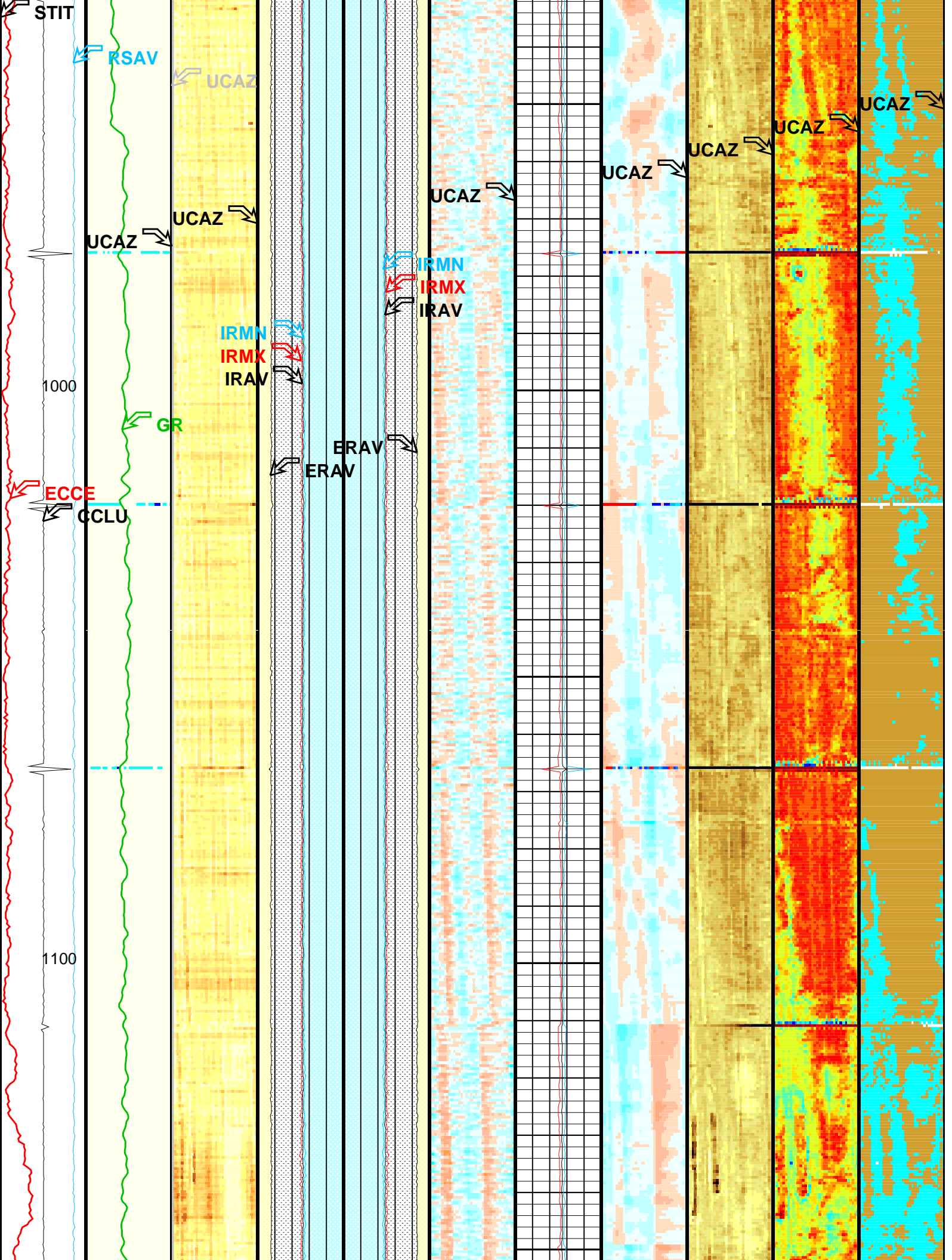
Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)
3.7	2.7
2.7	3.7

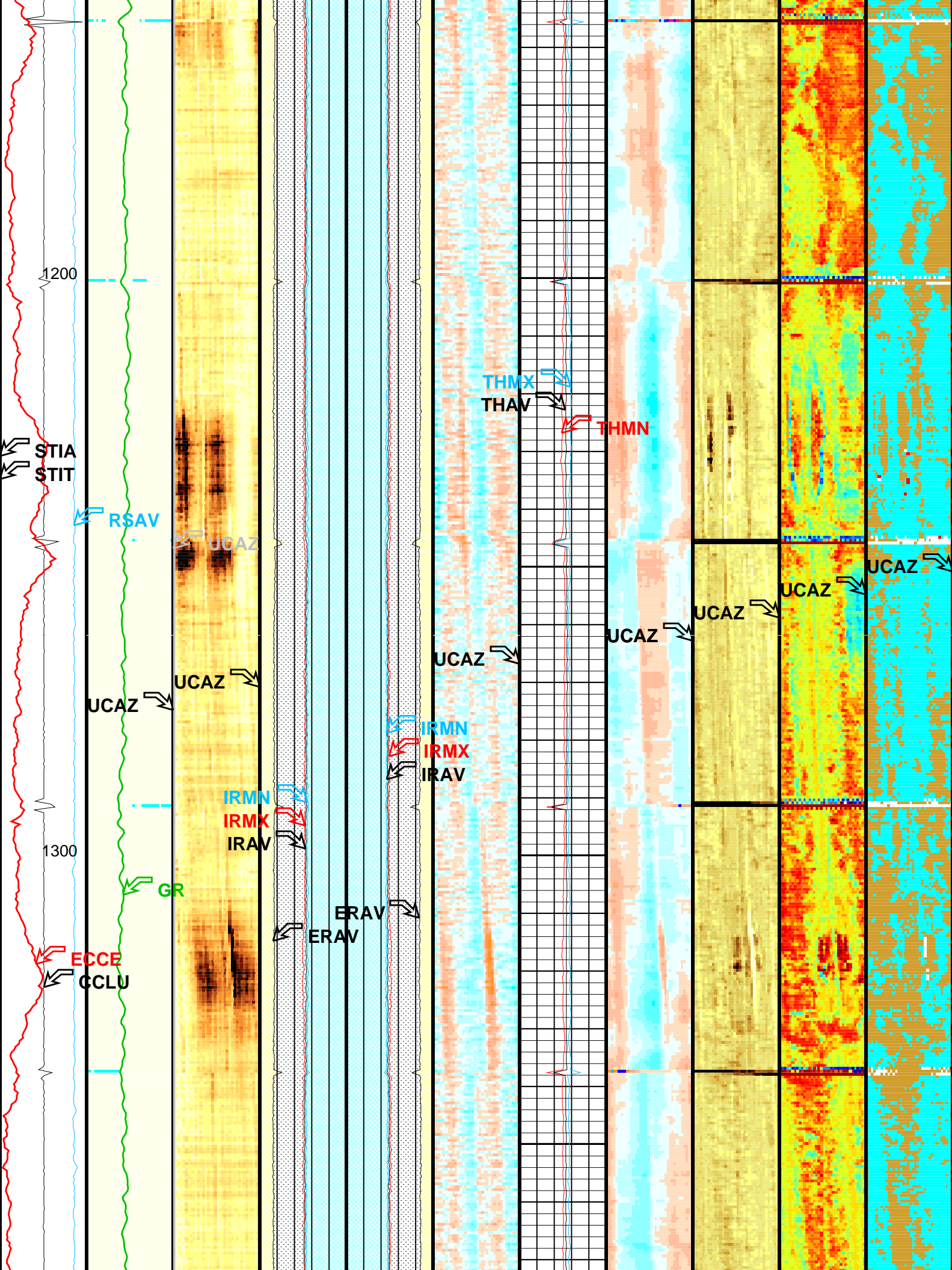


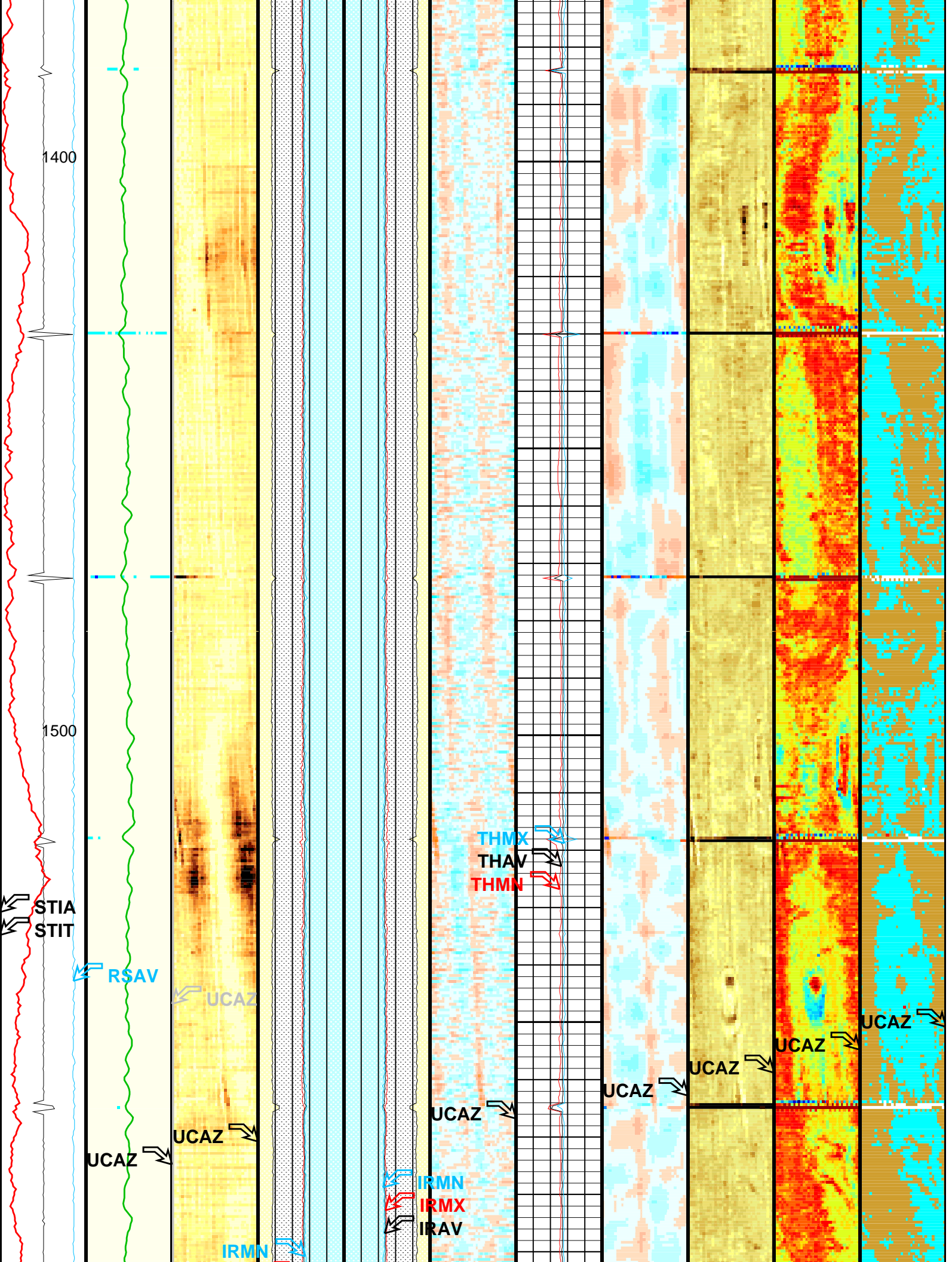


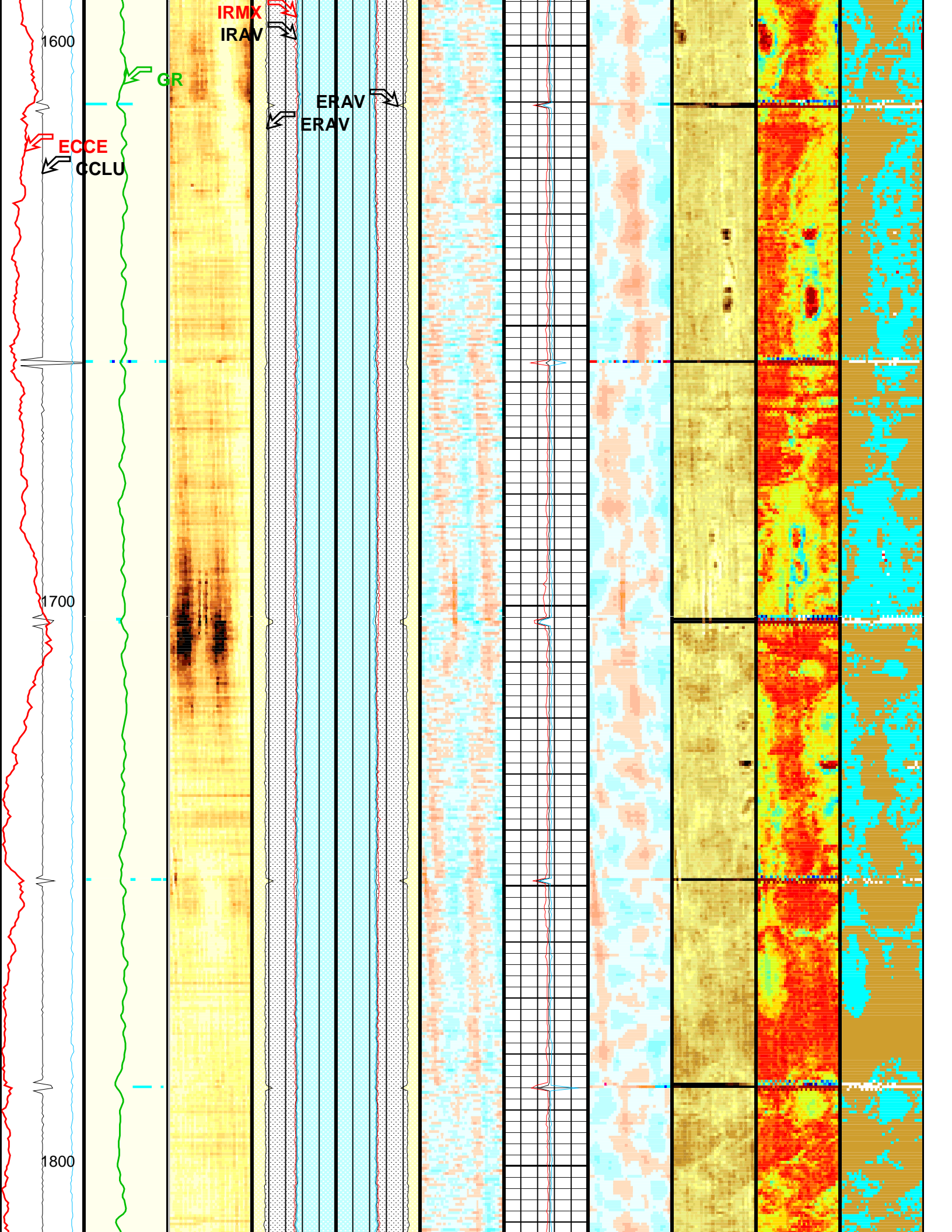


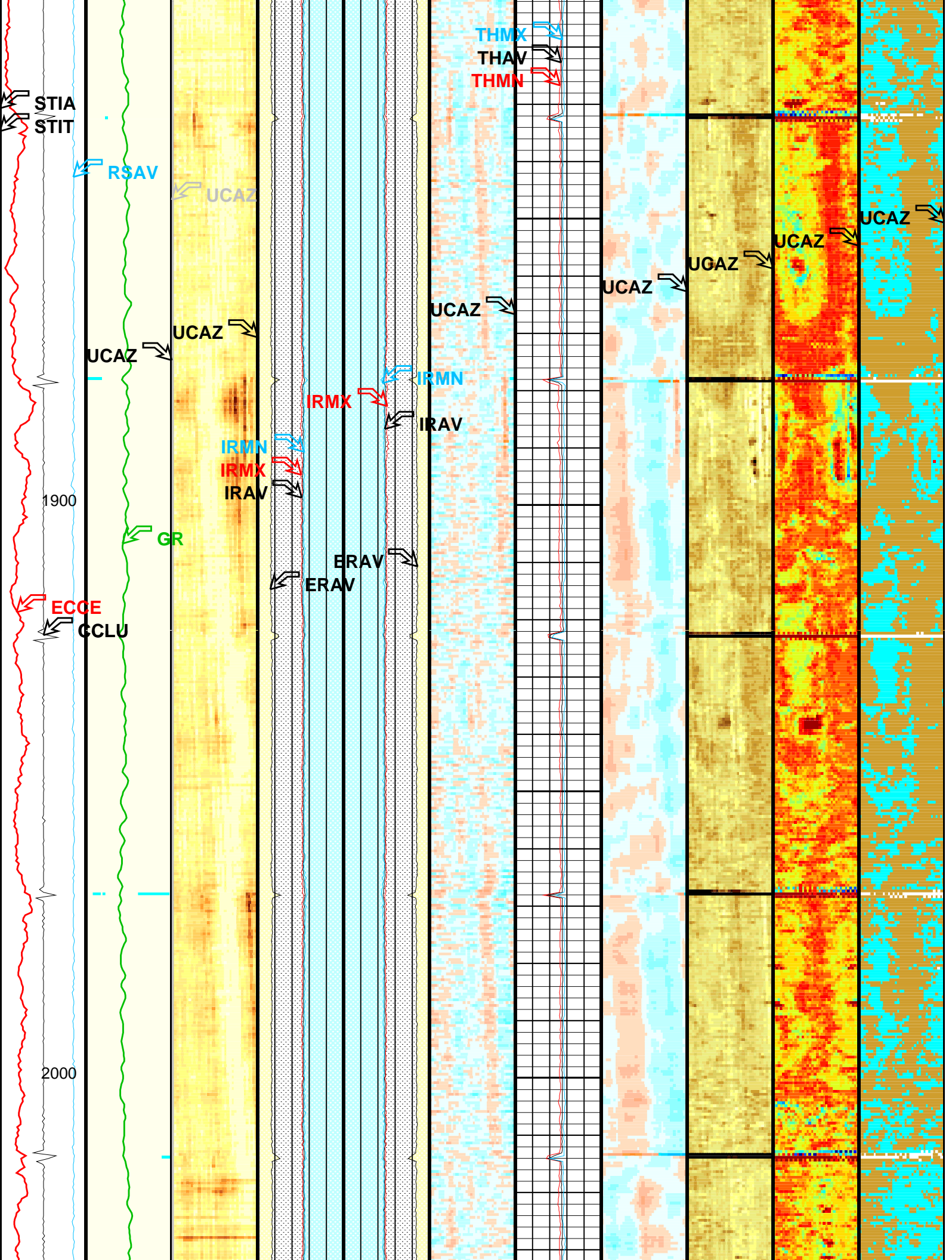


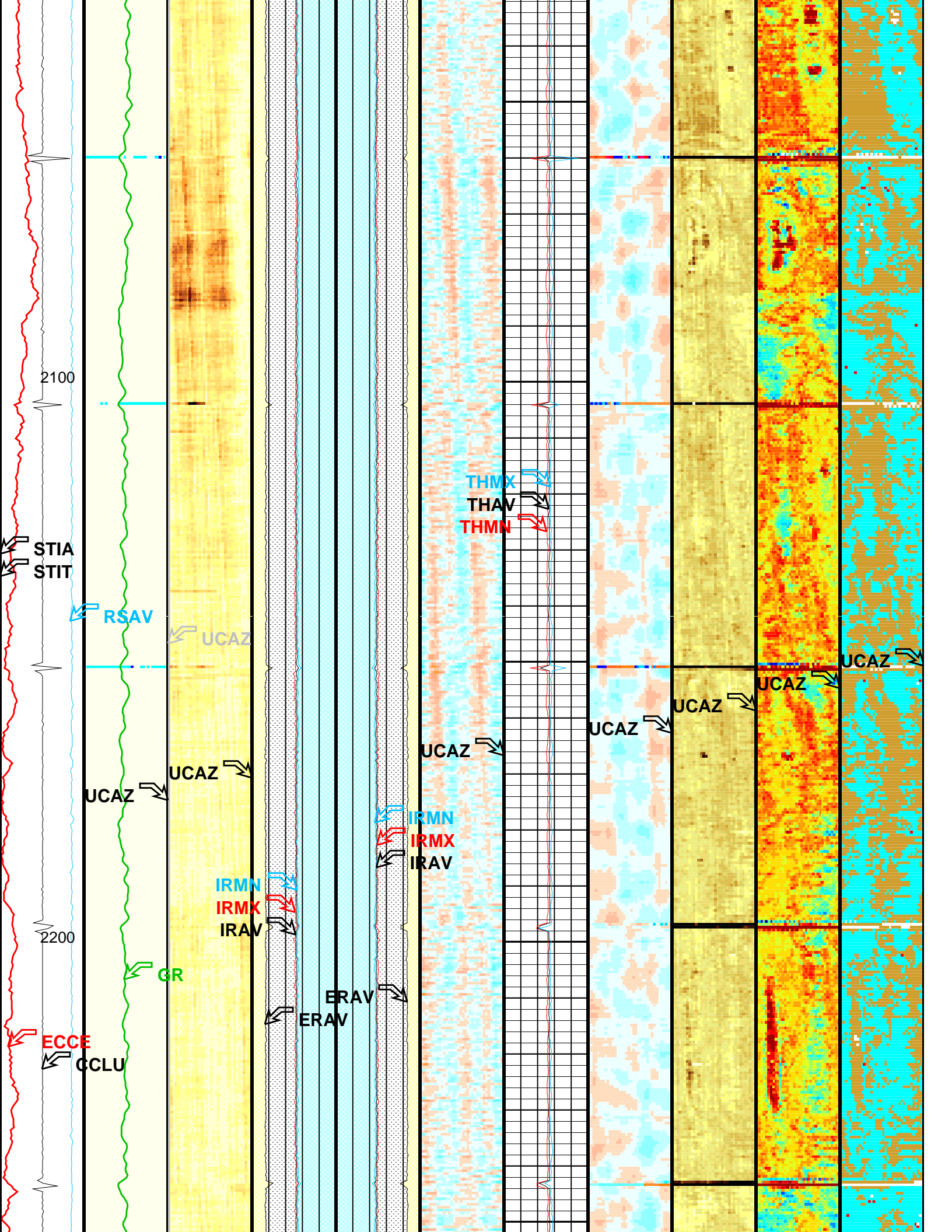


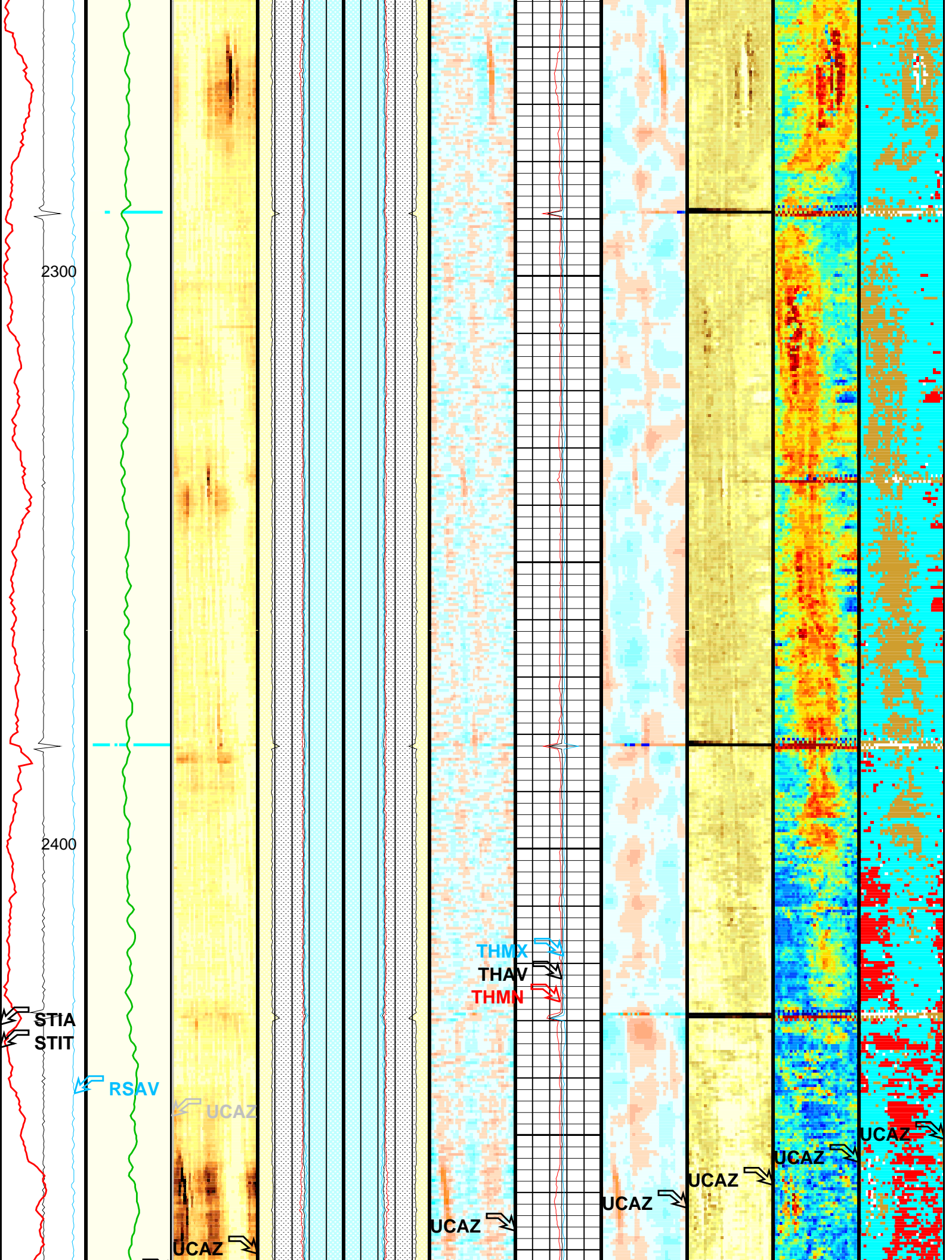


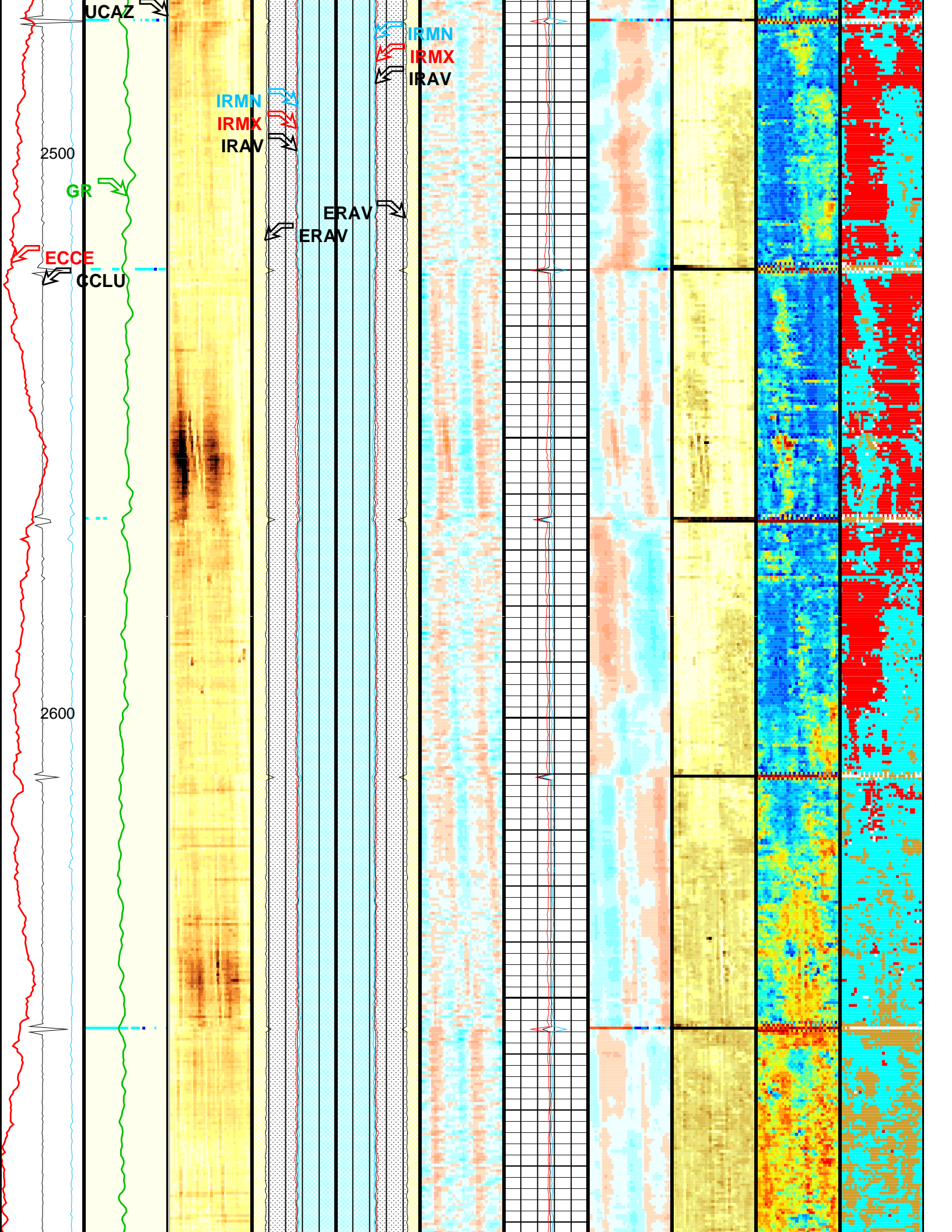


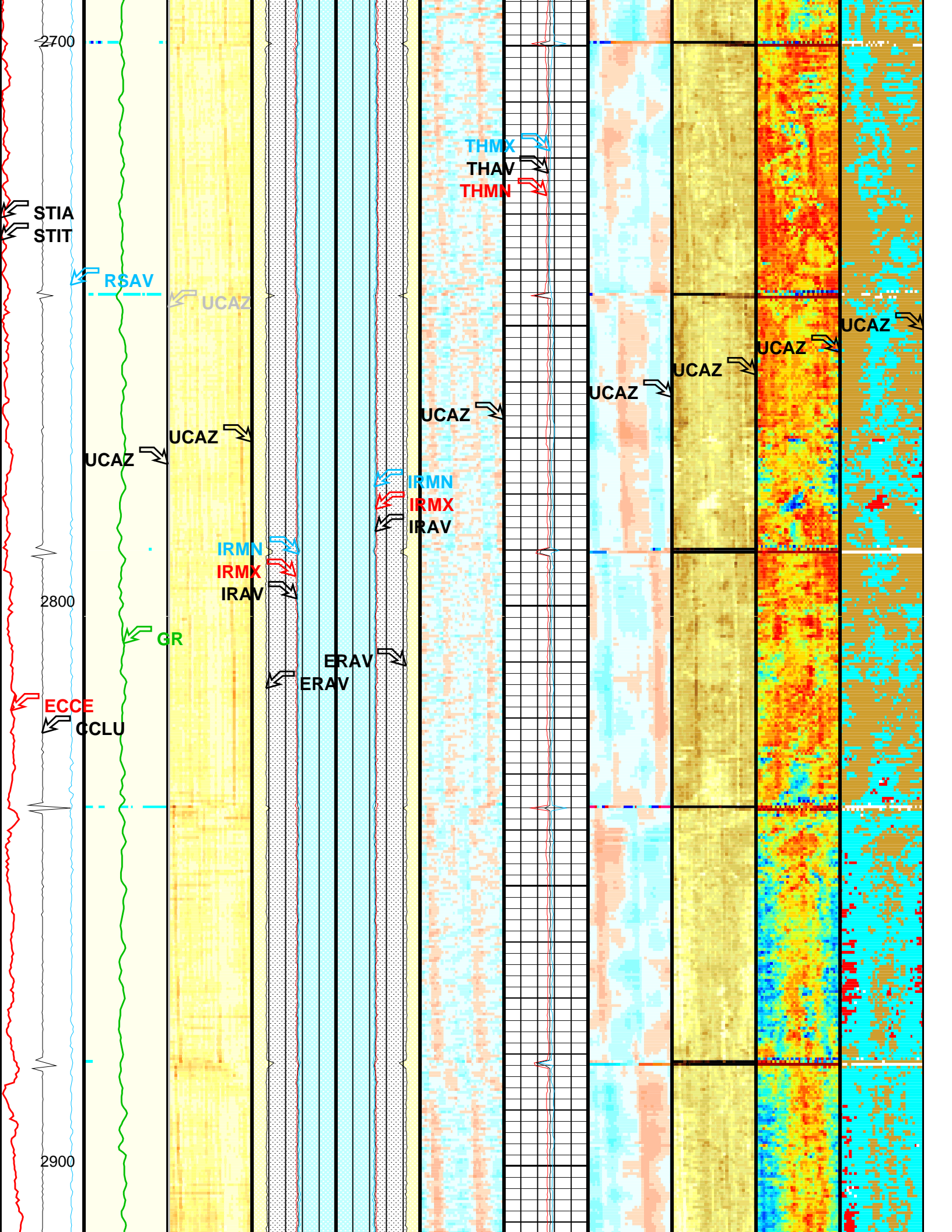


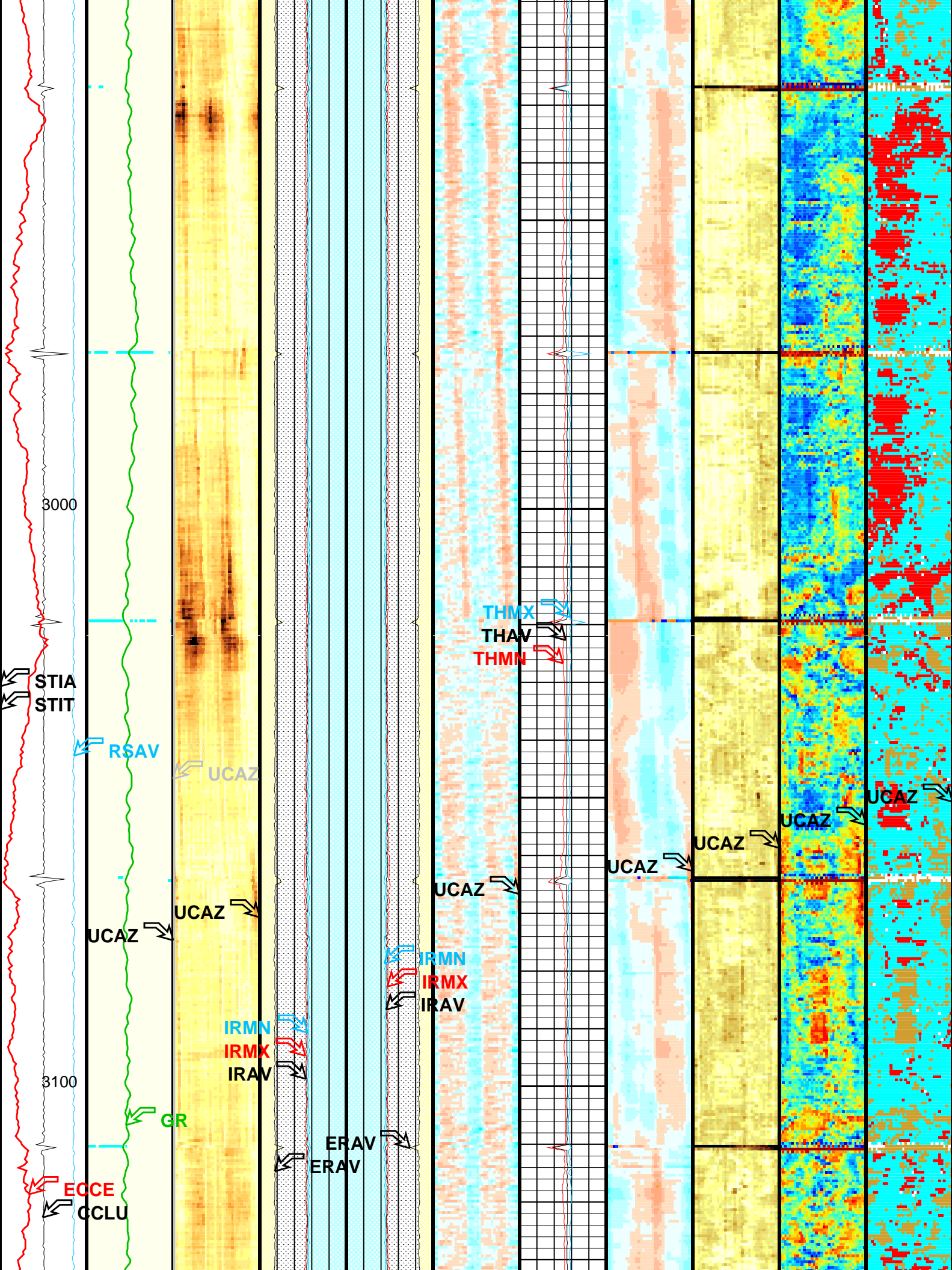


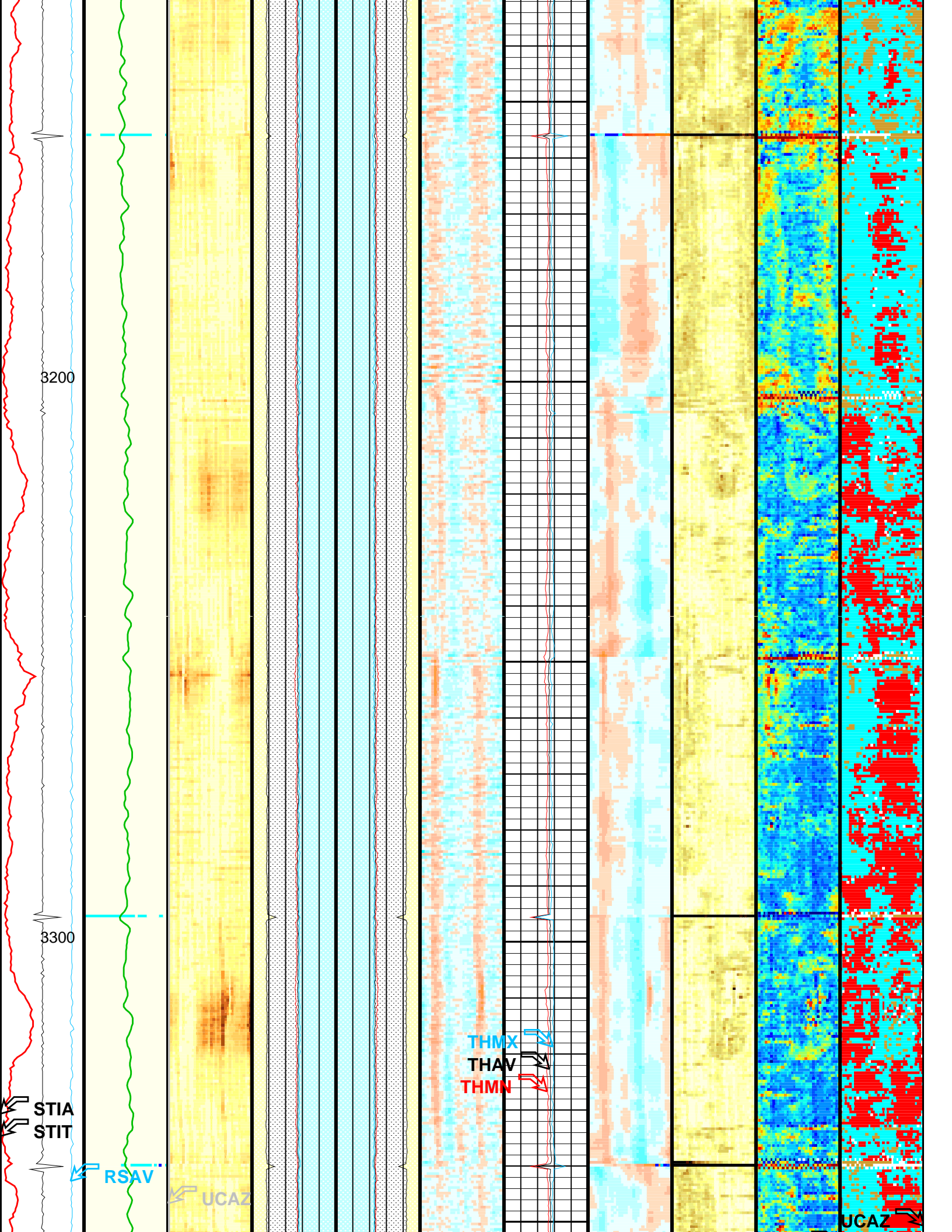


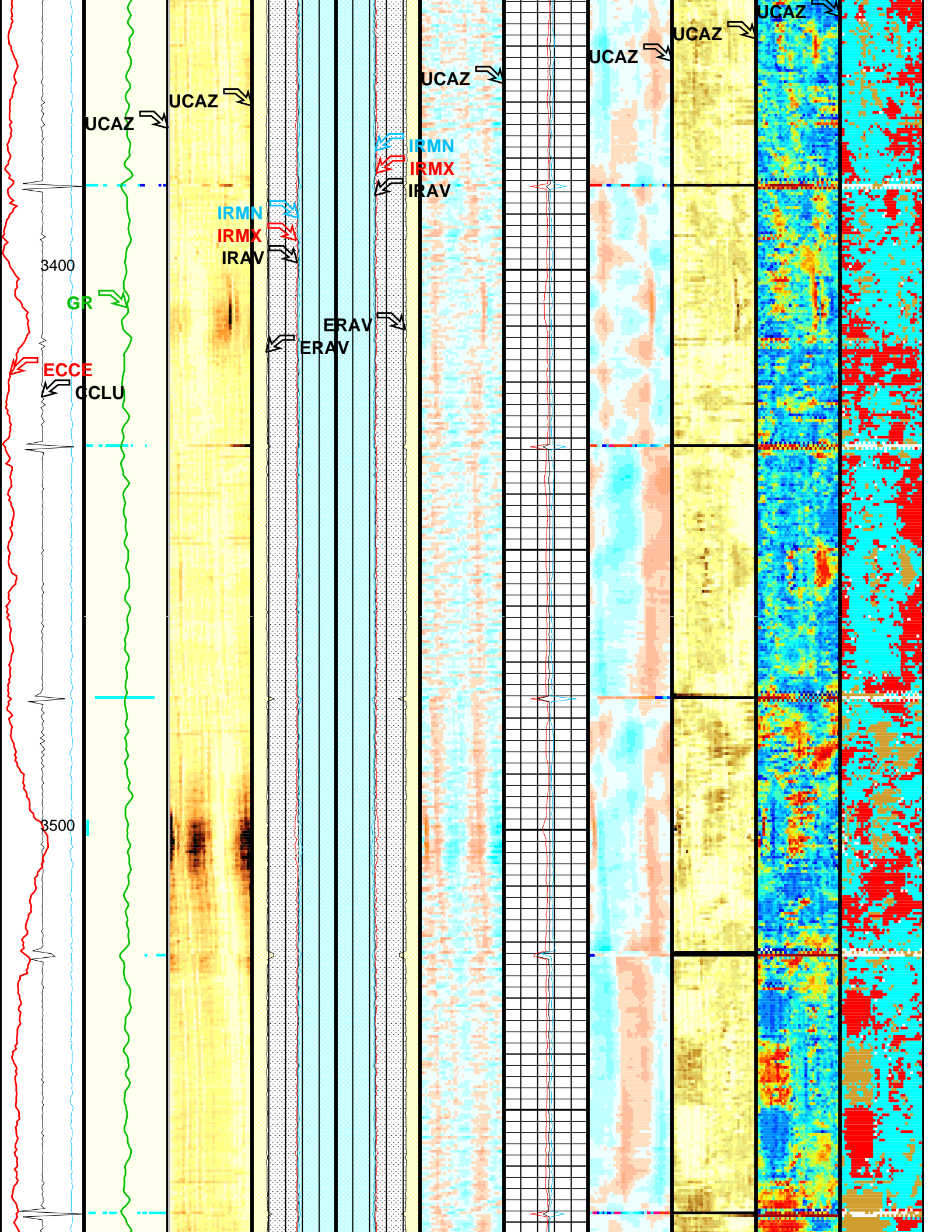


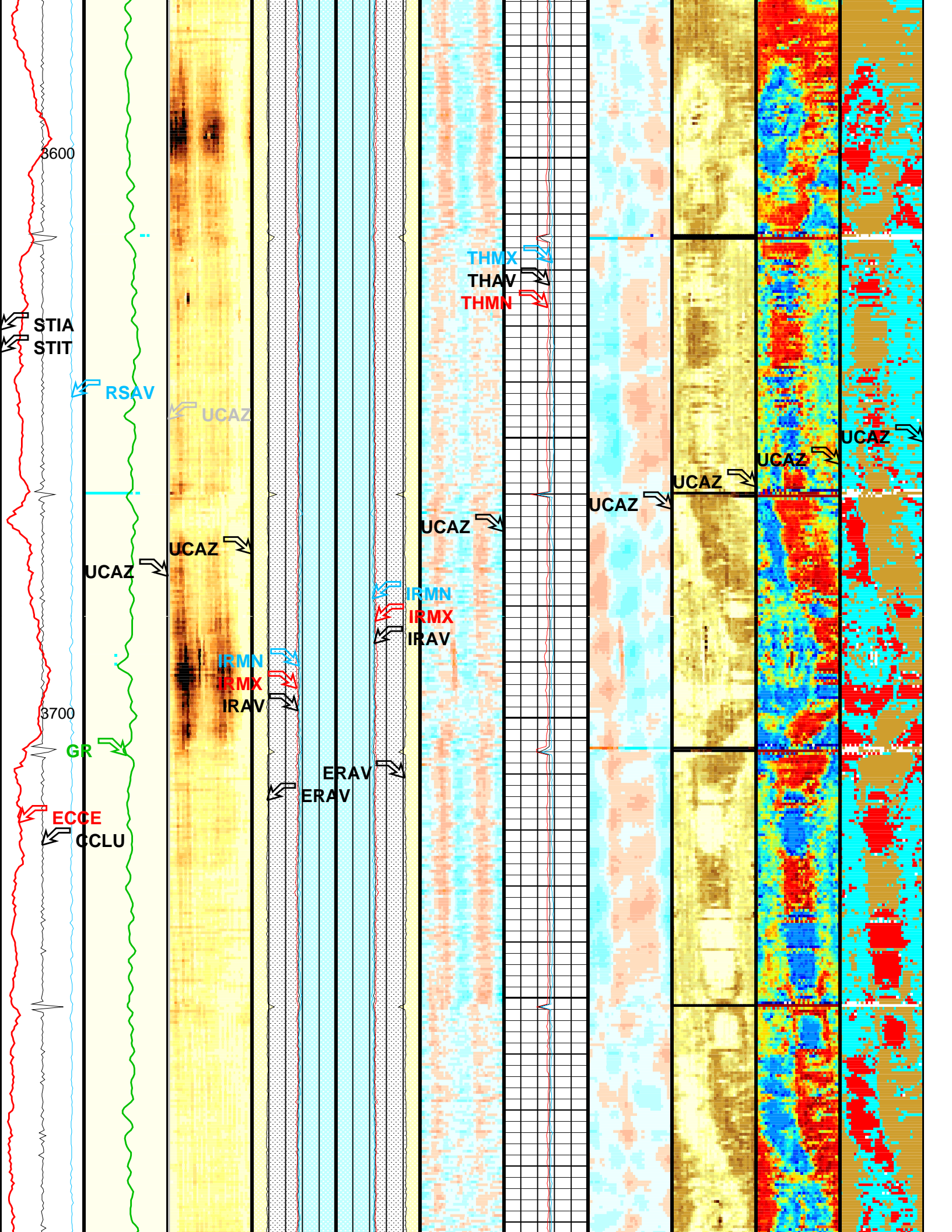


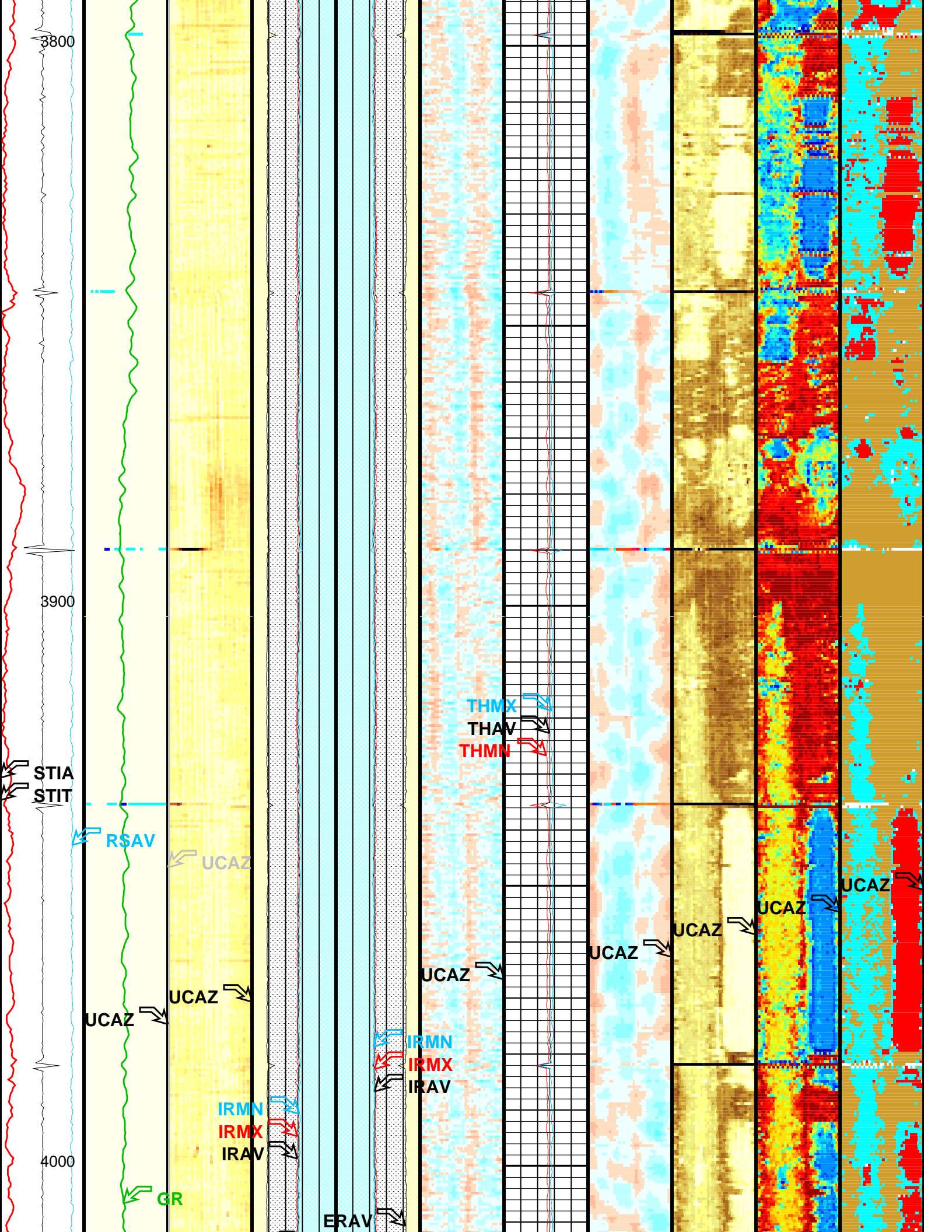


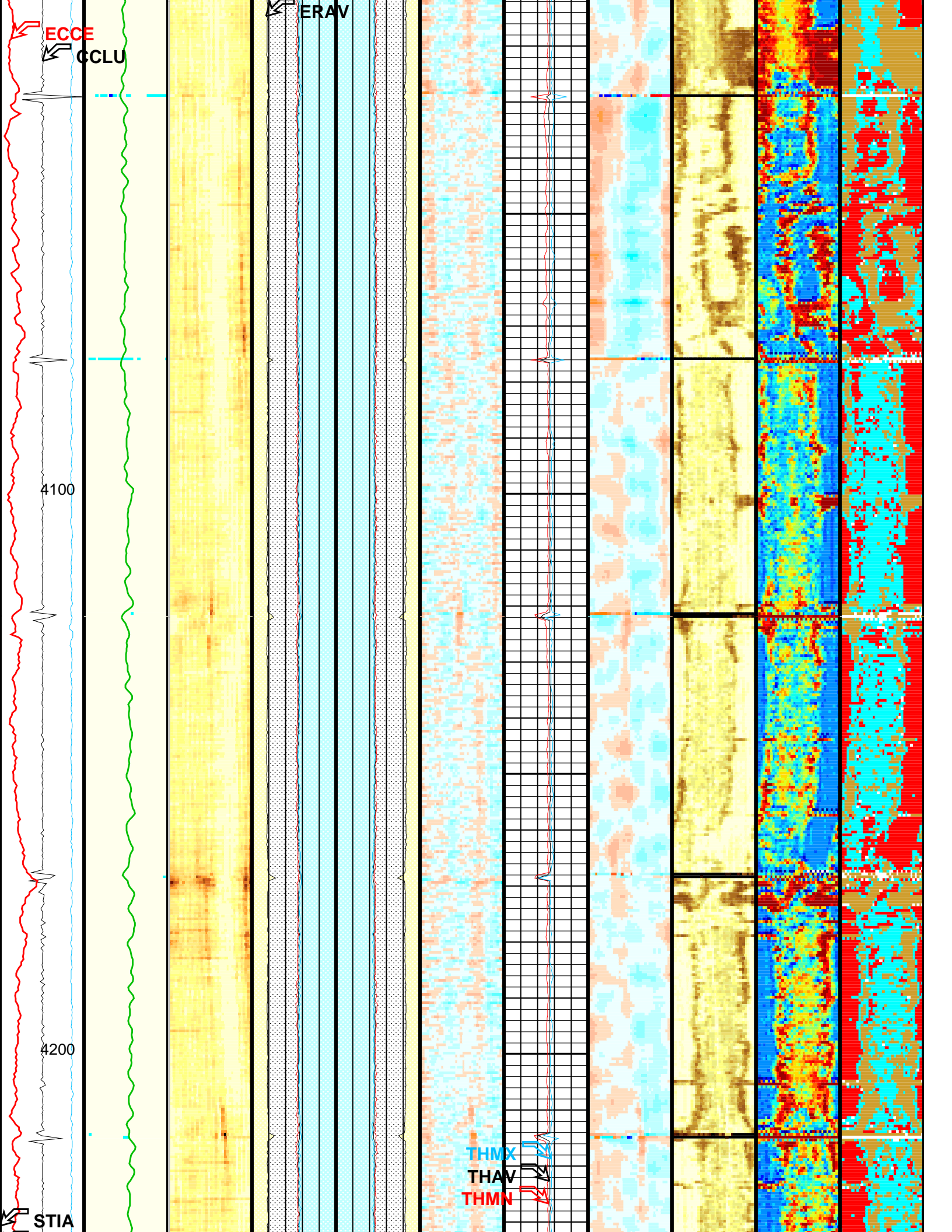


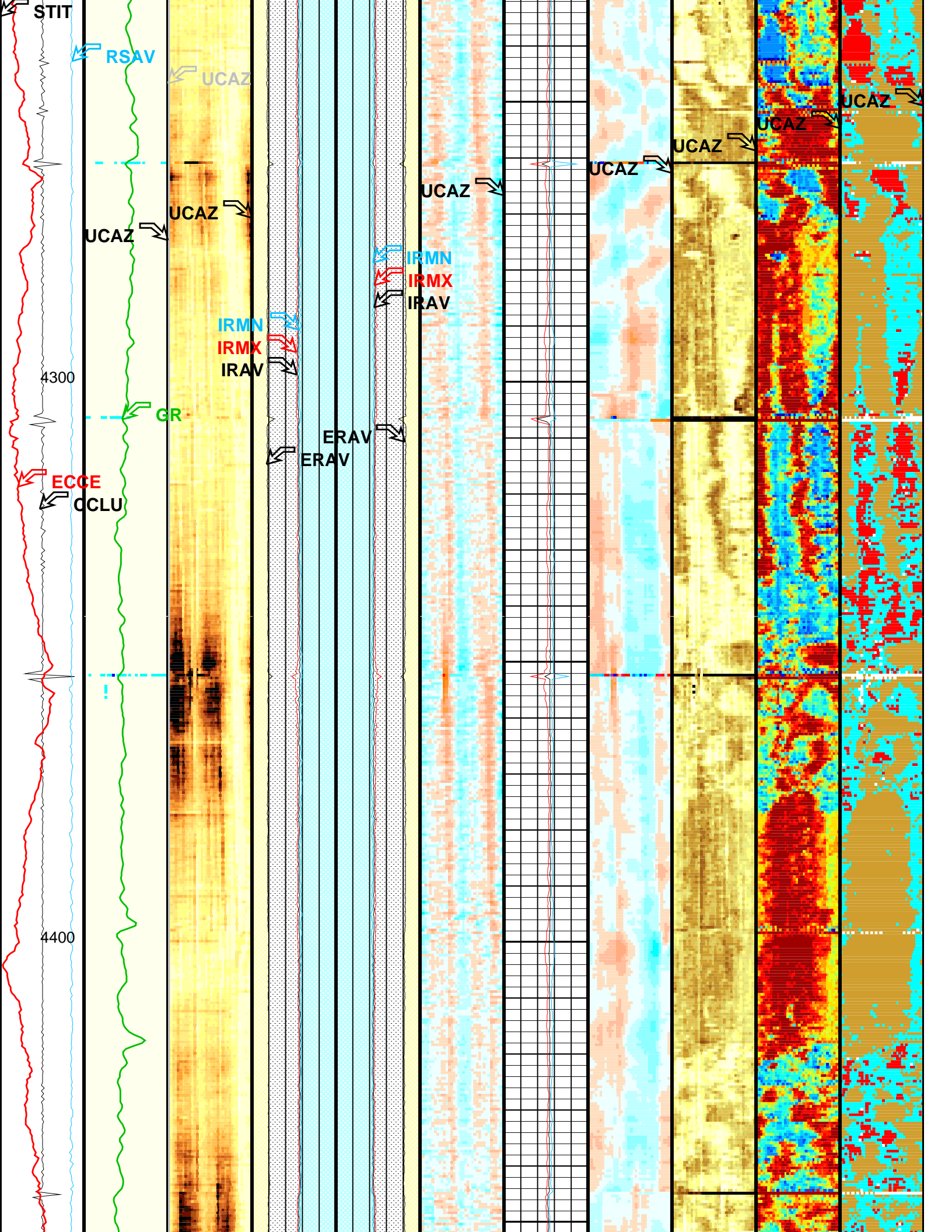


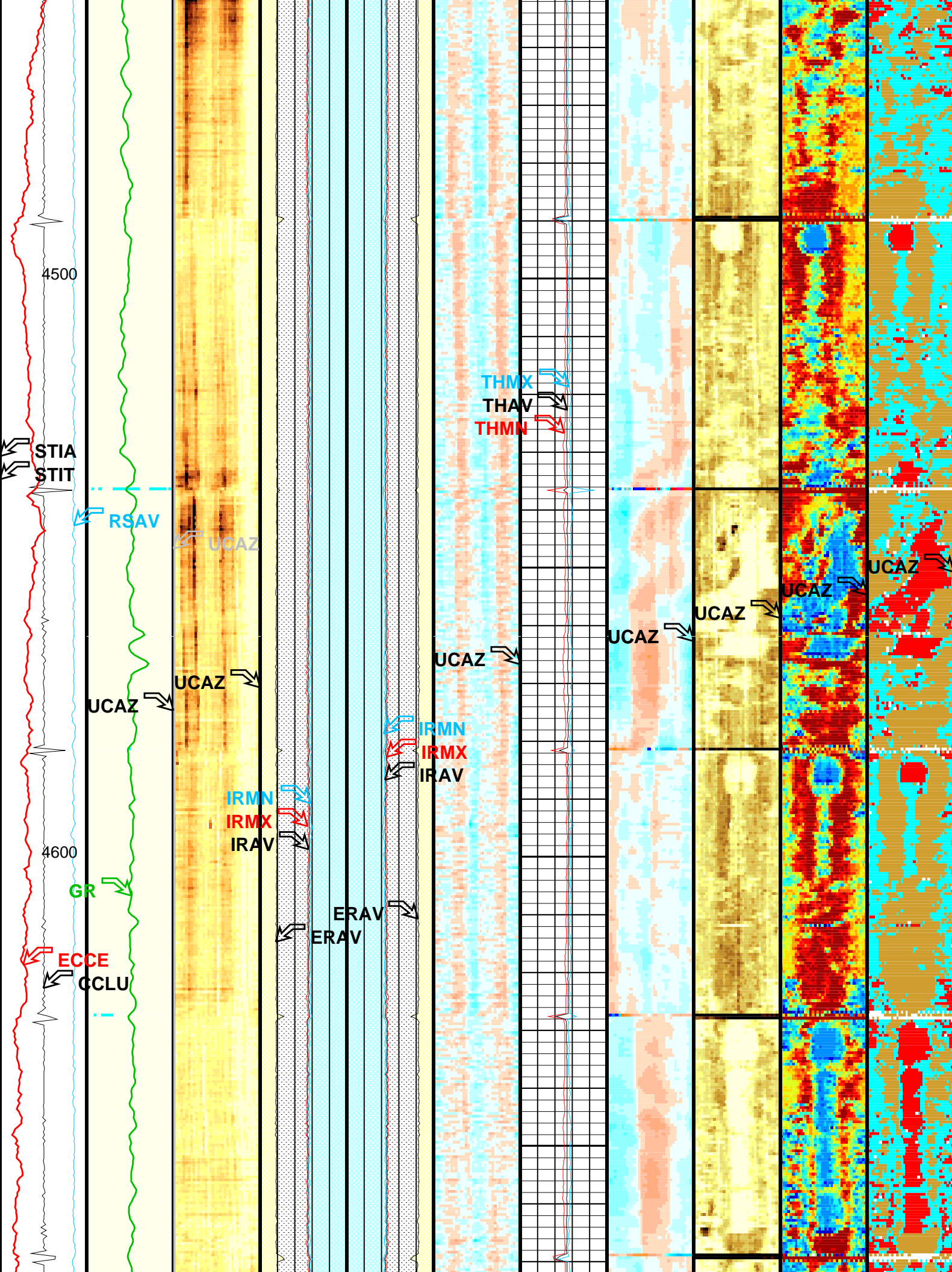


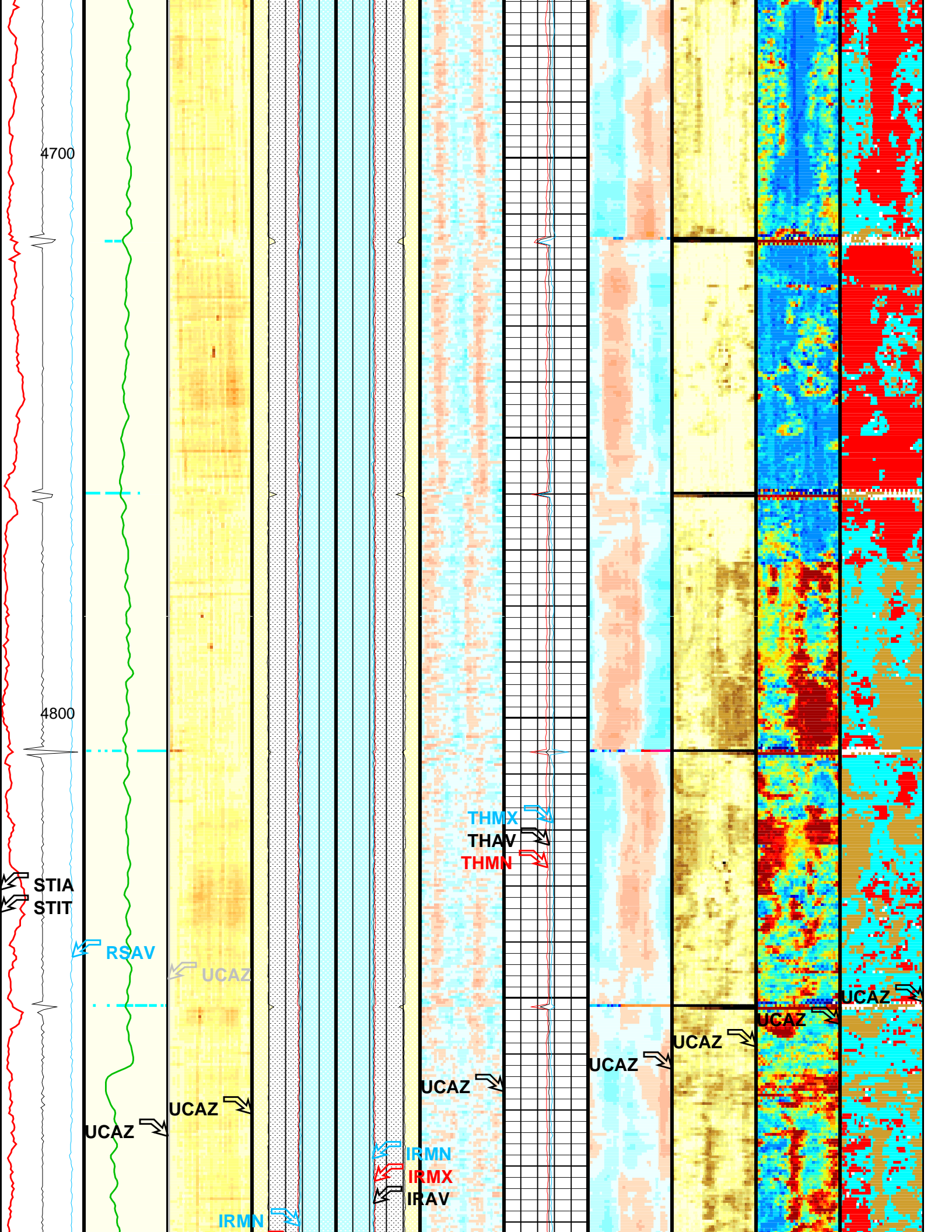


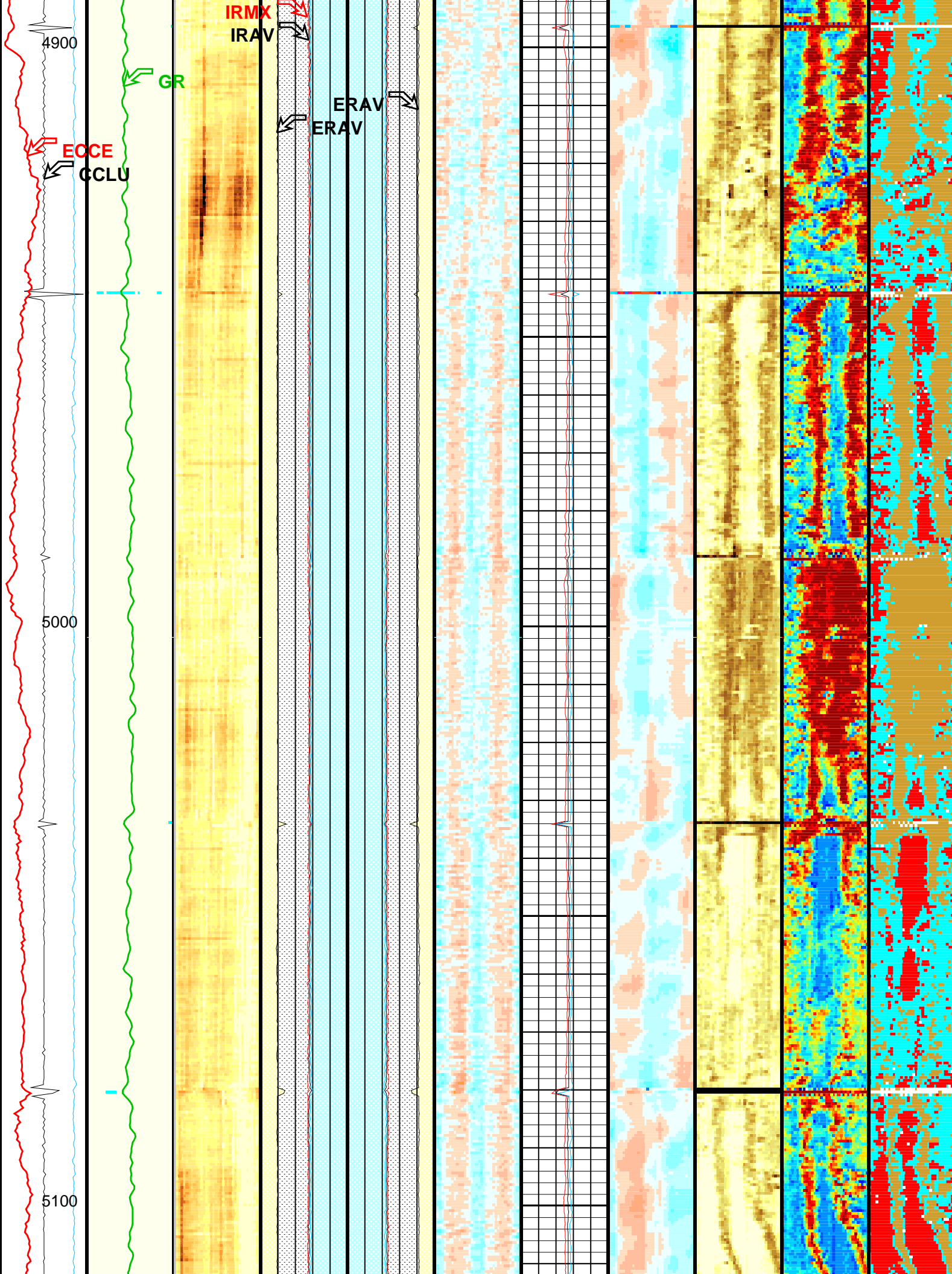


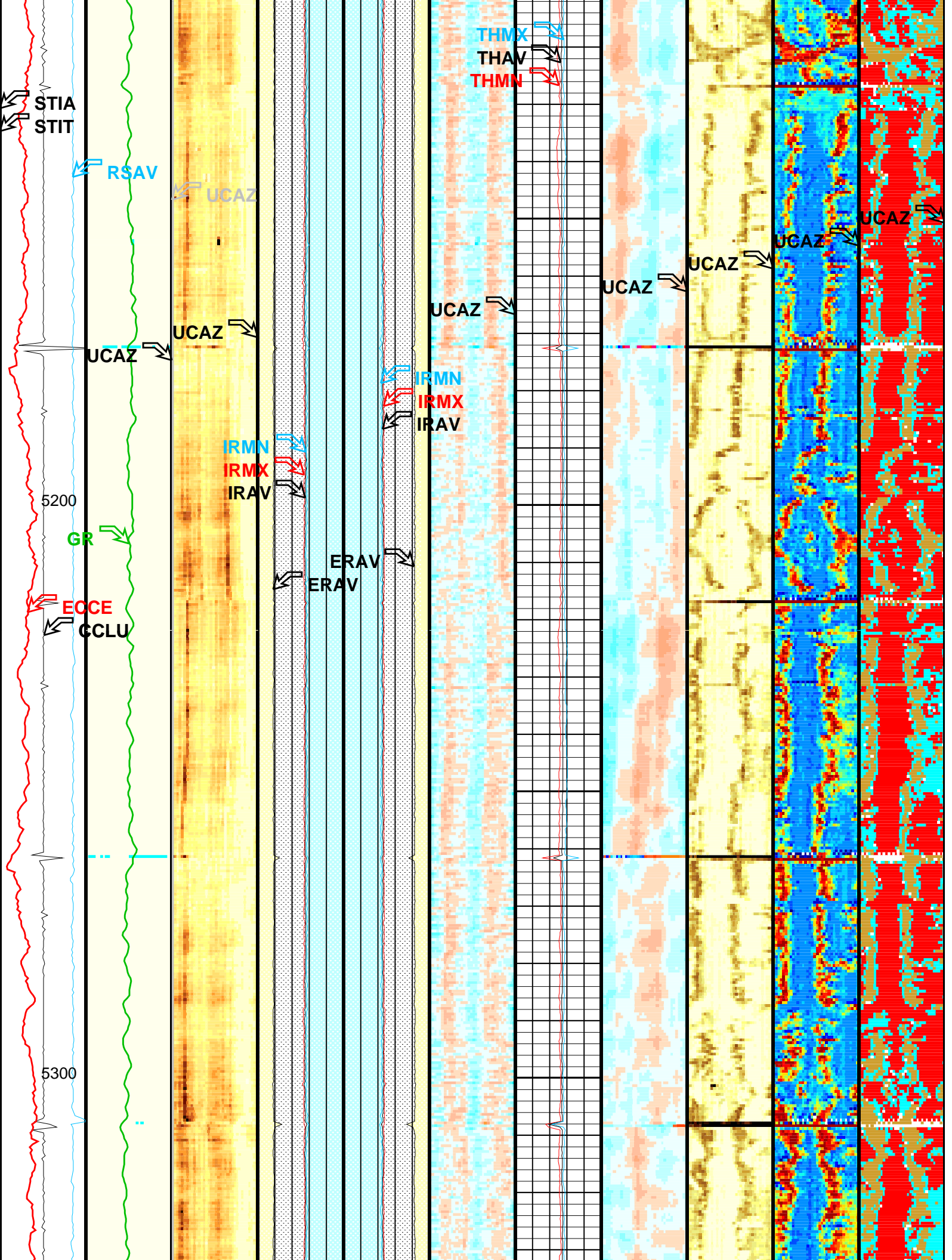


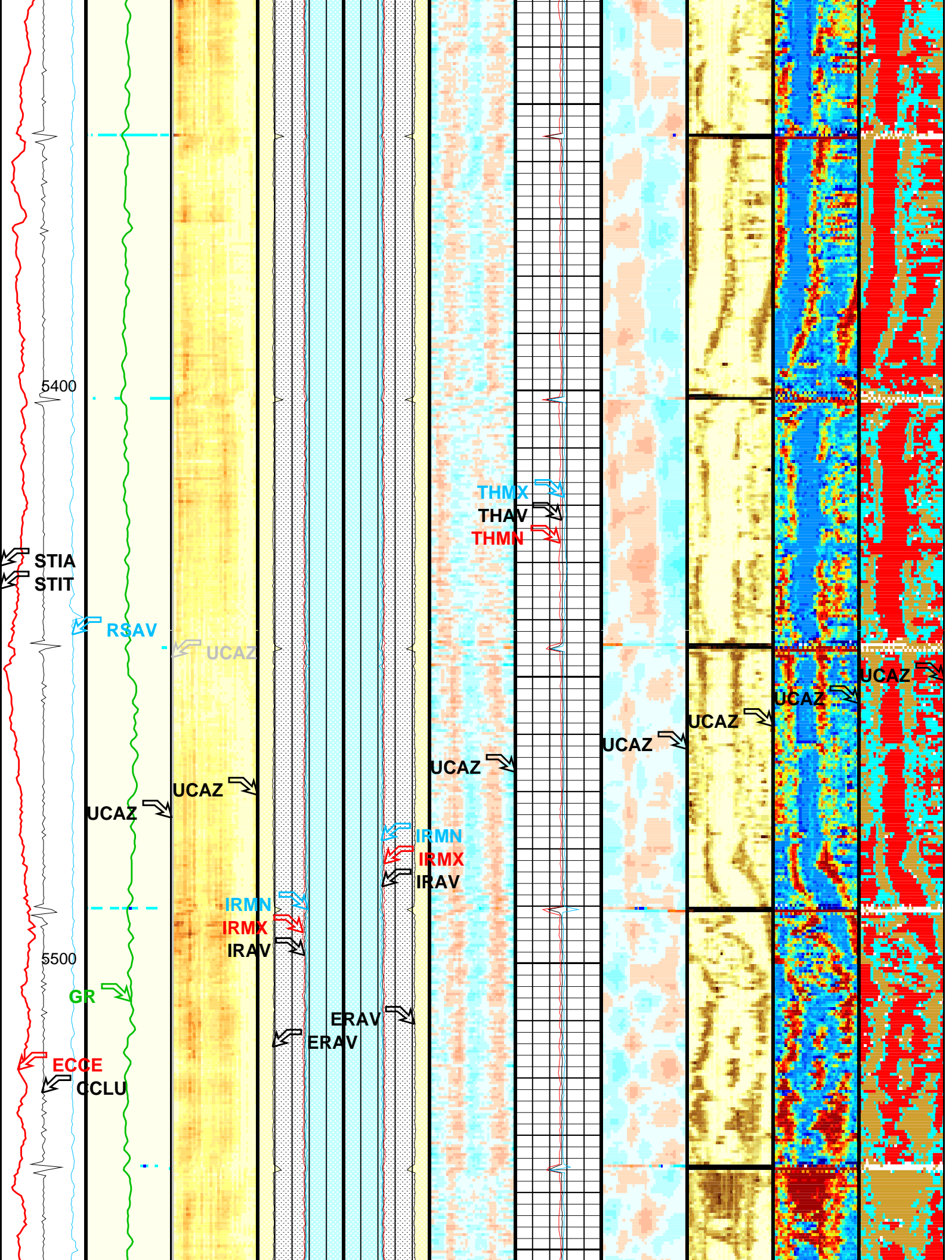


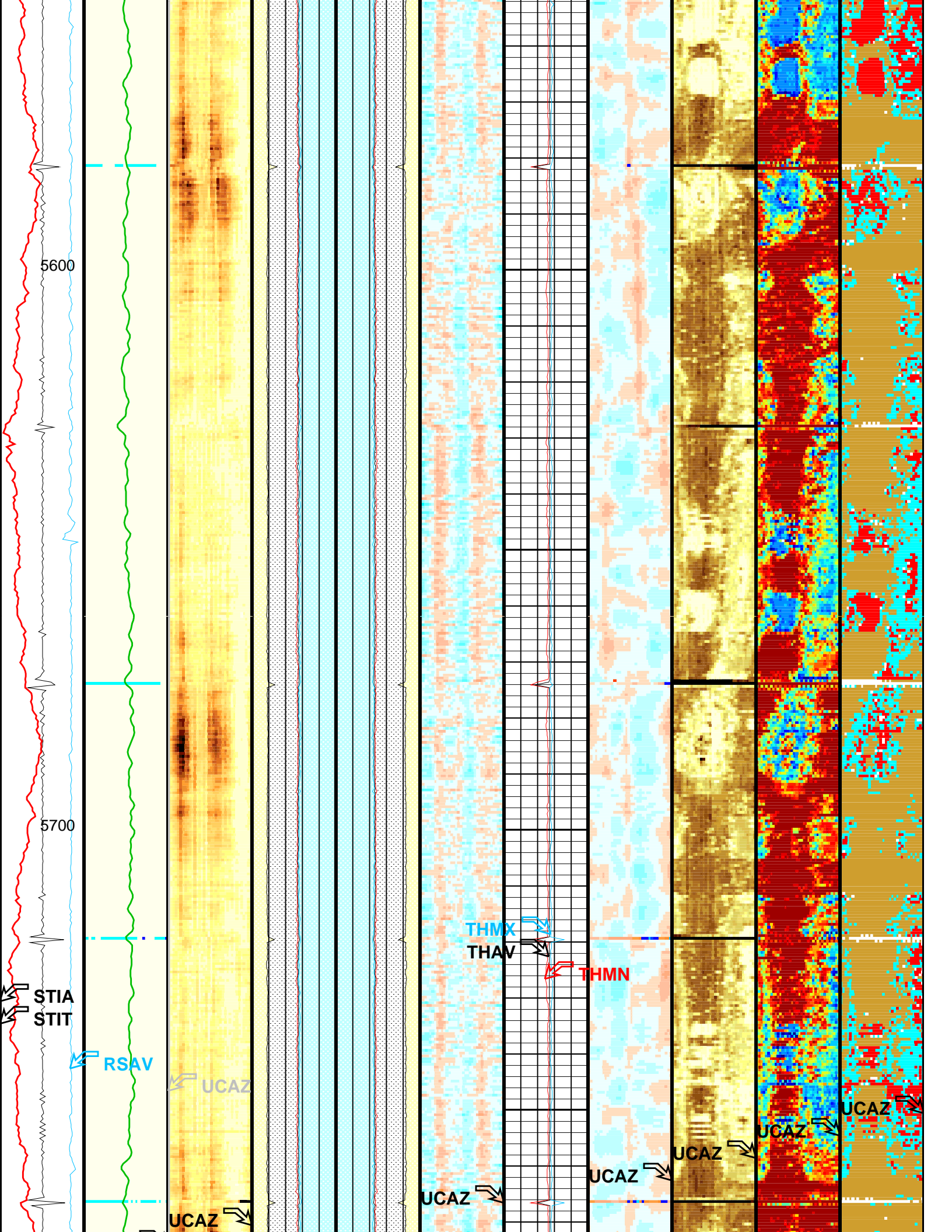


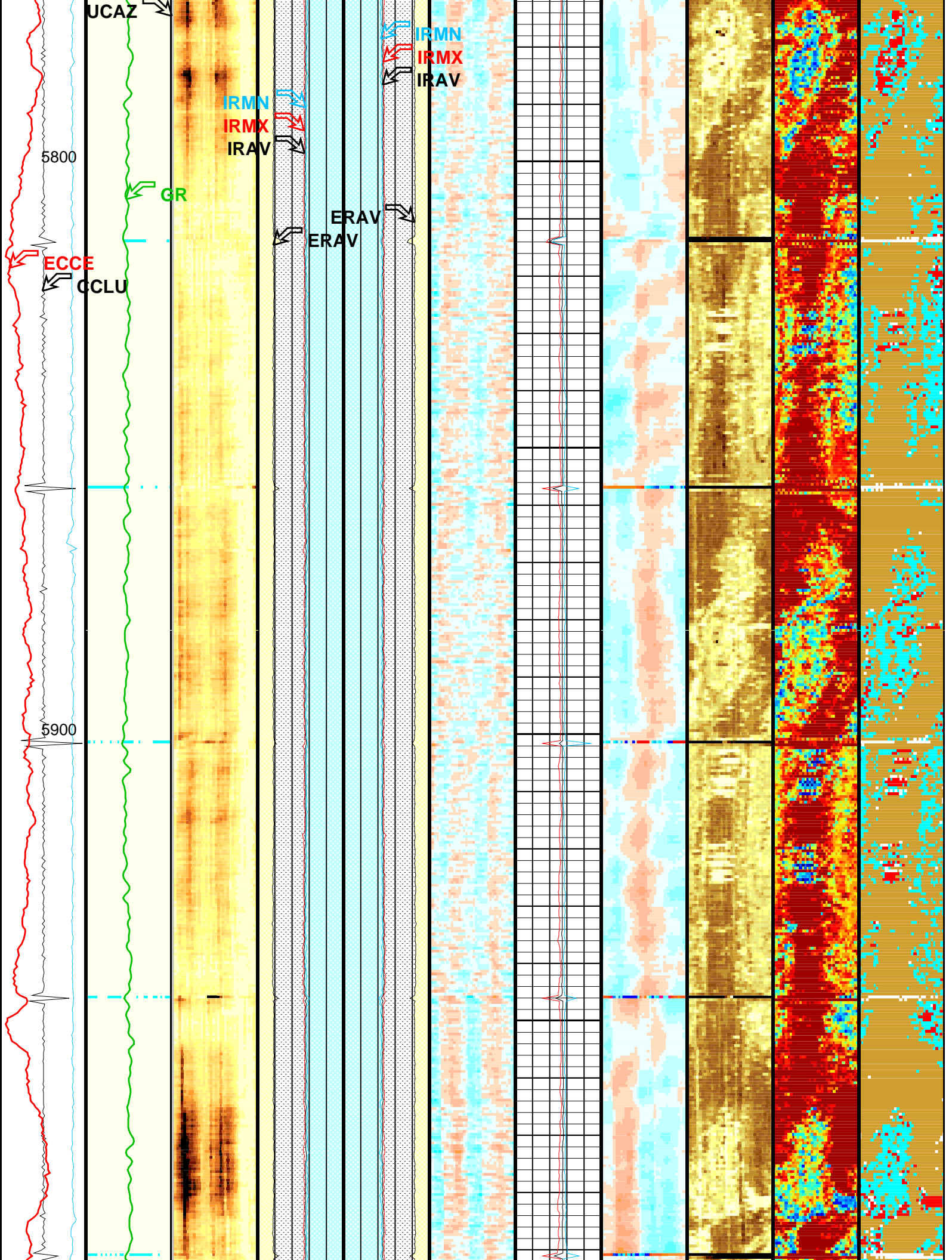


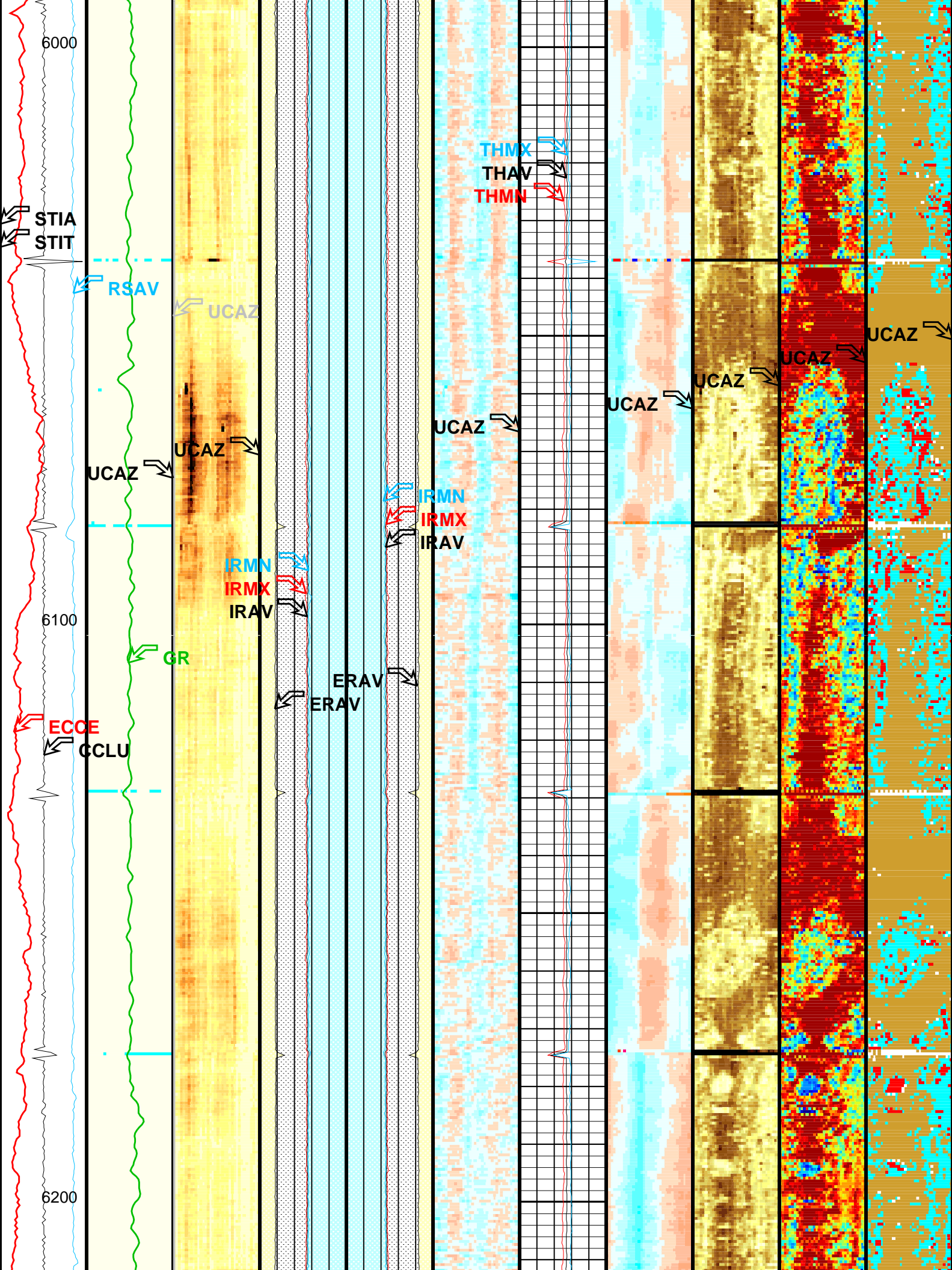


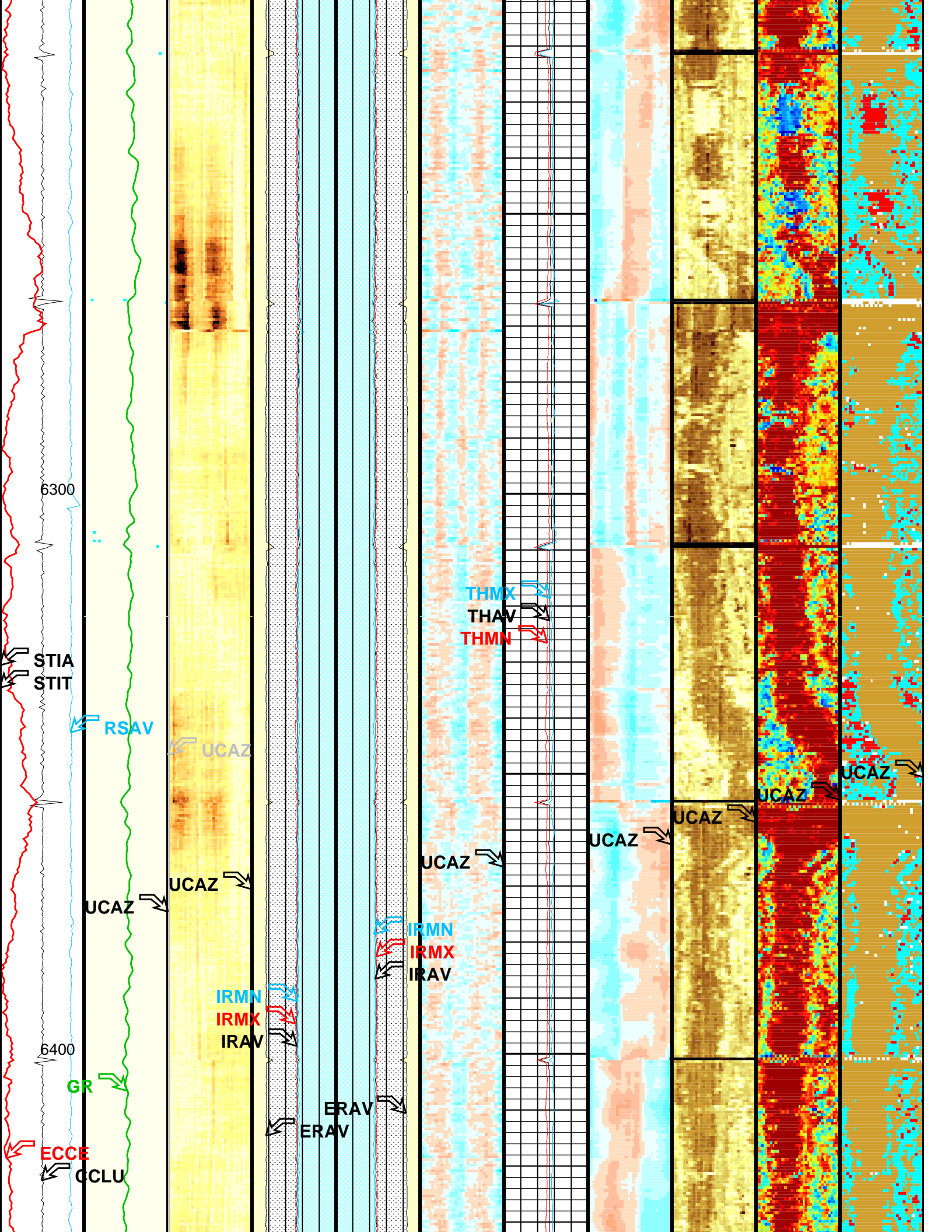


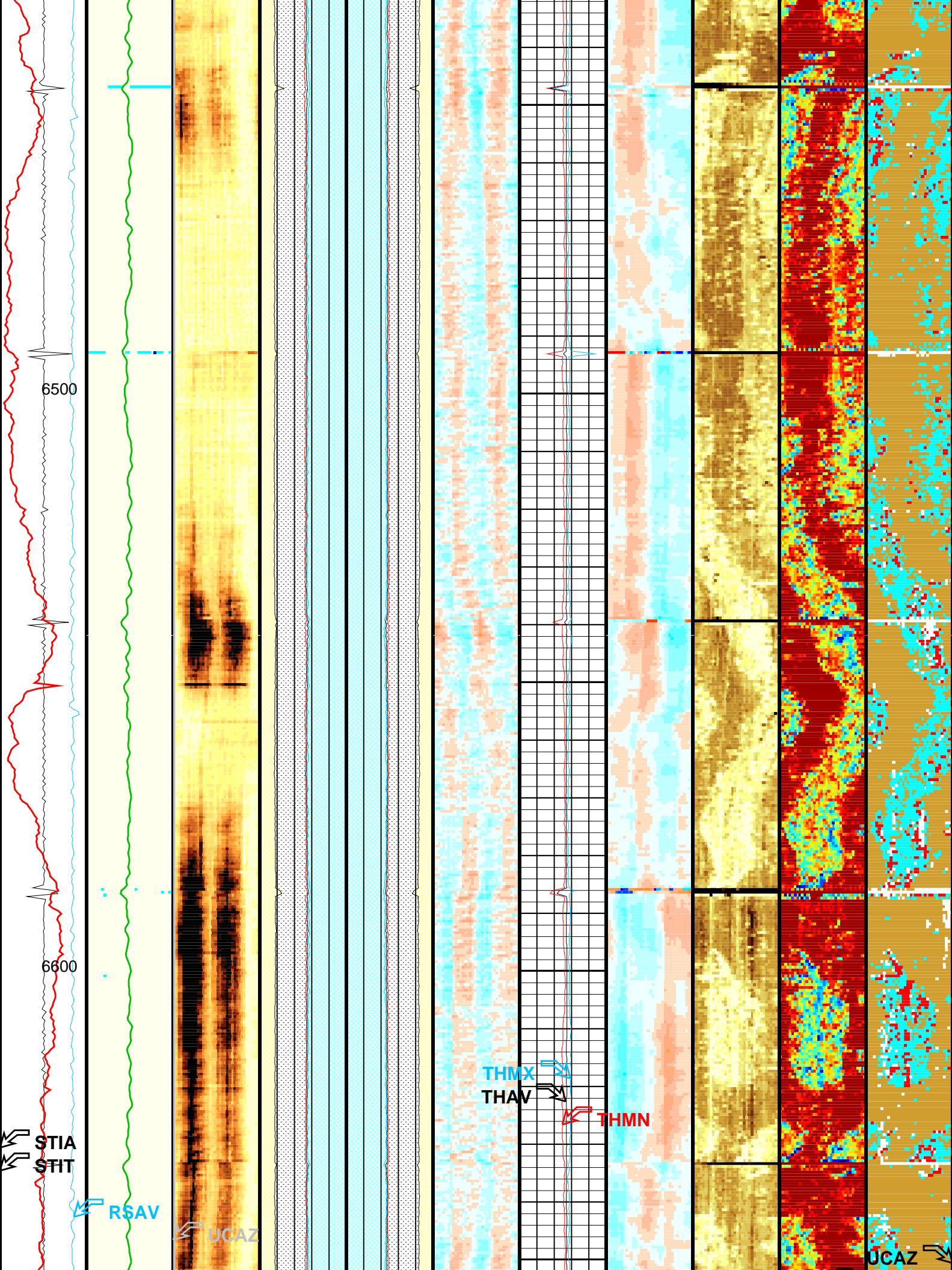


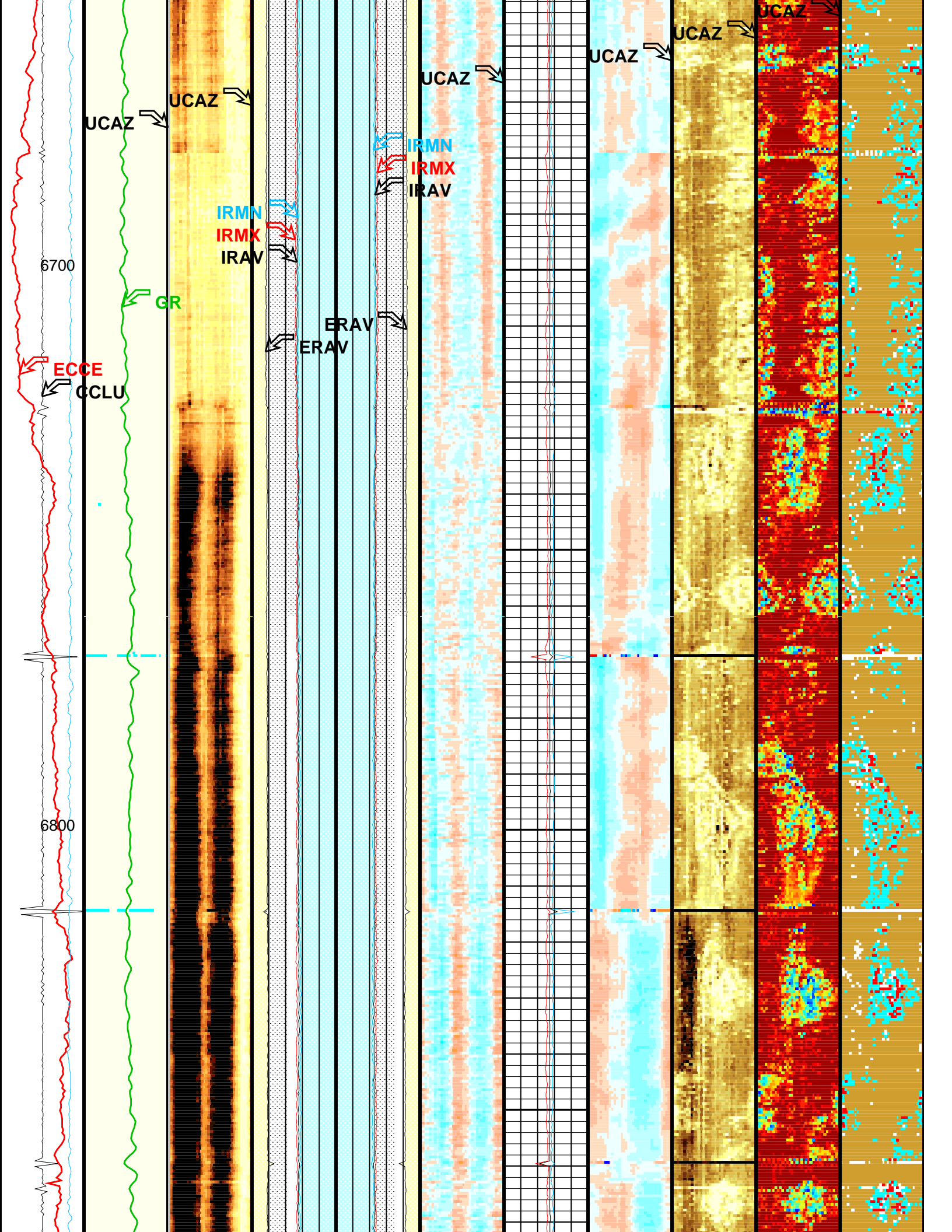


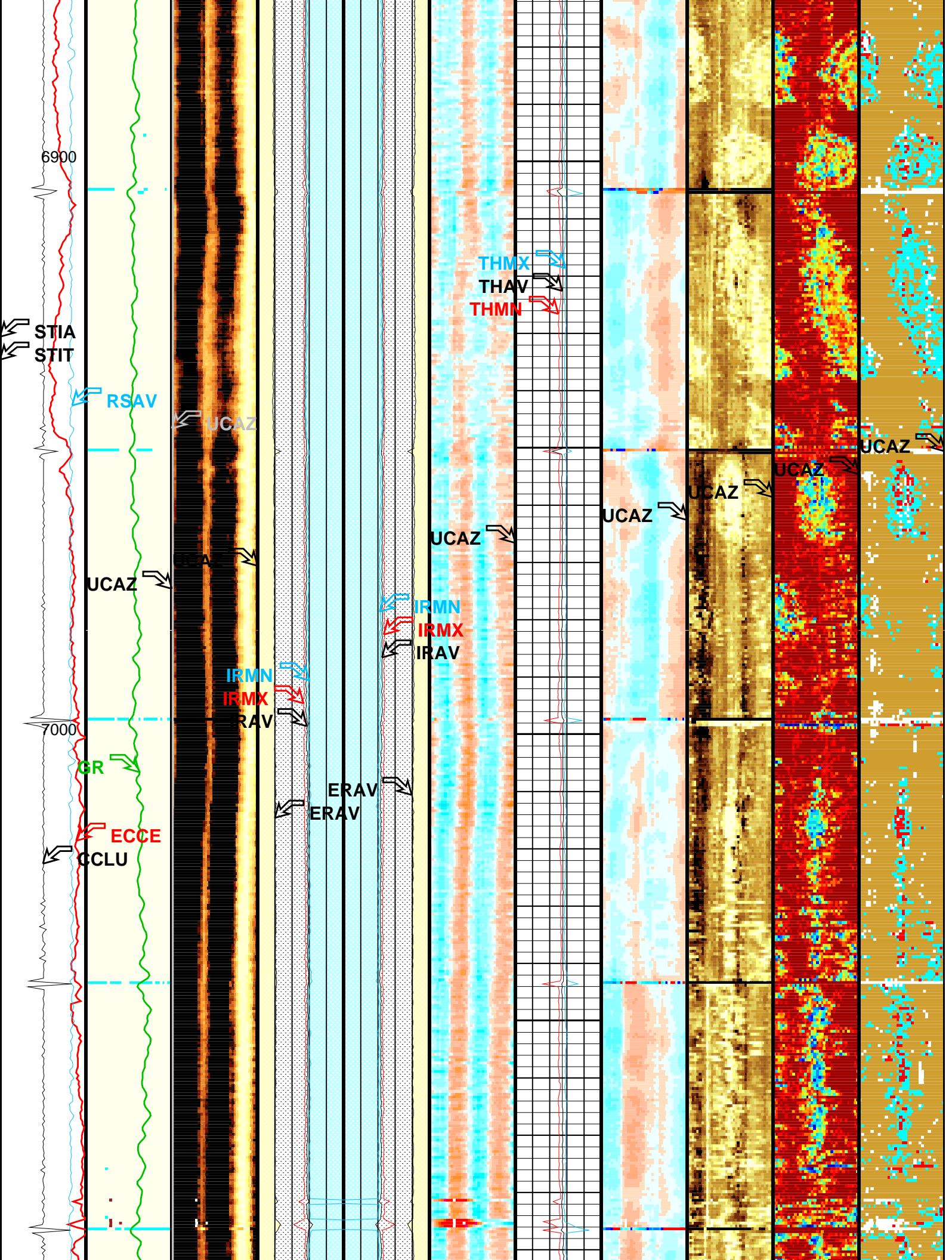


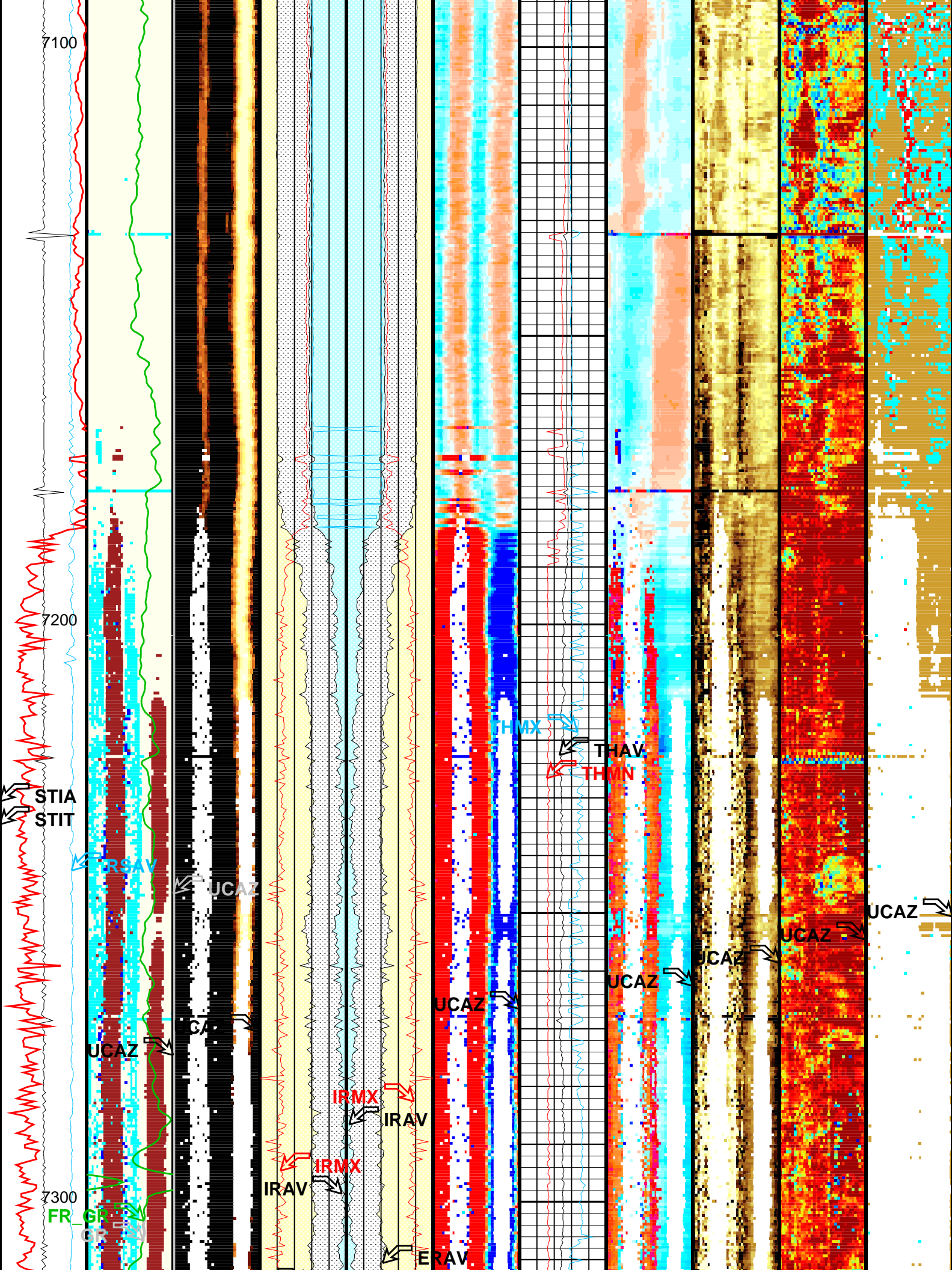


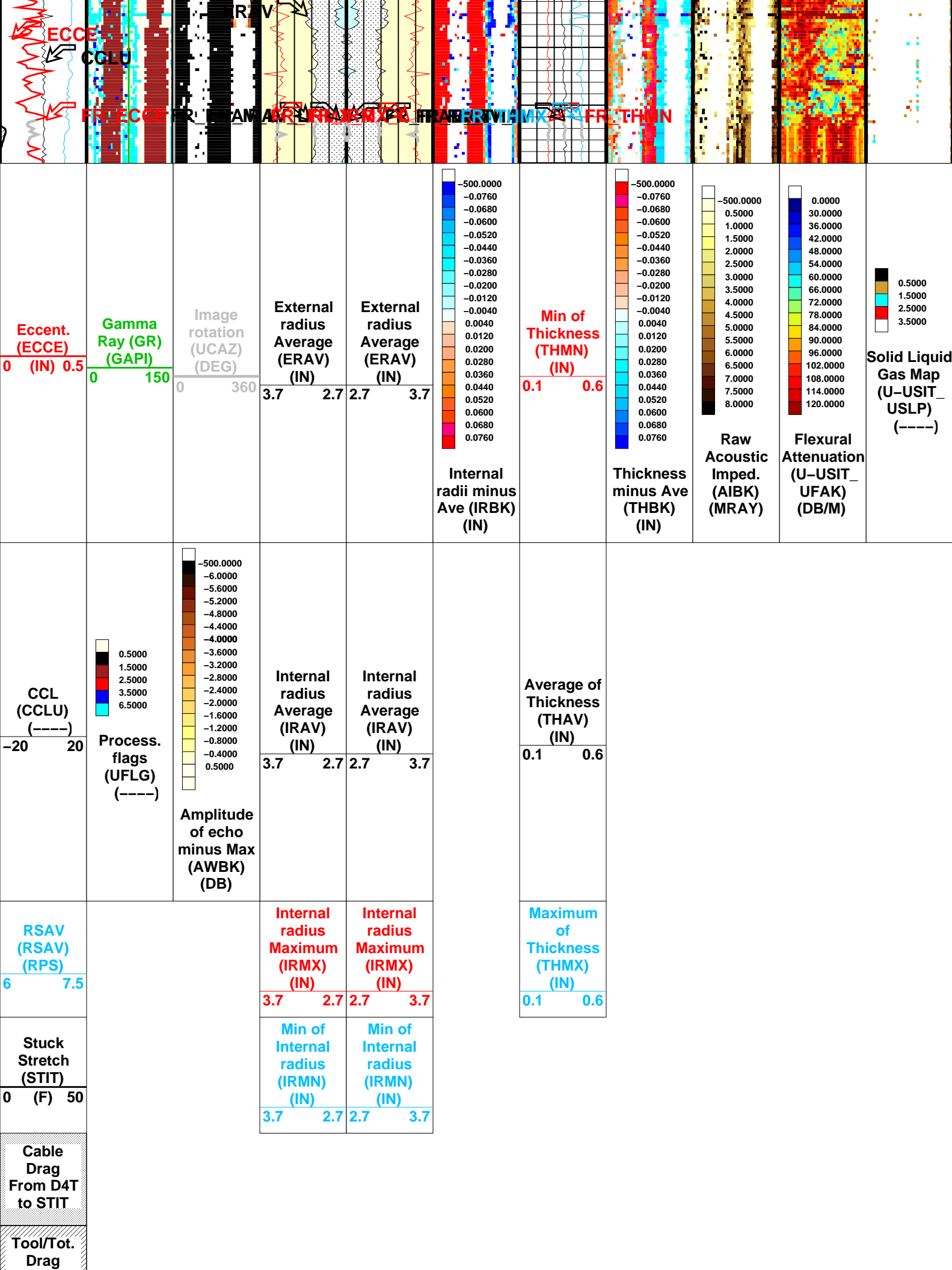












OP System Version: 19C1-222

USIT-D	19C1-222	SGT-N	19C1-222
DTC-H	19C1-222		

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
	Minimum Gain of Cartridge	-4	DB
	Maximum Gain of Cartridge	20	DB
AGMN	Bad Echo Rejection	ON	
AGMX	Casing Outer Diameter	7	IN
BERJ	Curves Unit Declared in Presentation Manager	IN	
CDIA	Casing Density	486.94	LBCF
CDUN	Casing Inner Diameter	6.276	IN
CSDE	Casing Yield Strength	0	PSI
CSID	Default Fluid Velocity	206	US/F
CYST	Diameter of Transducer Sensor	2.874	IN
DFVL	EMEX Voltage	130	V
DOT	FPM Data Interpolation Interval	0	FT
EMXV	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
FDII	Image Rotation	OFF	
FSOD	Mud Weight	10	LB/G
IMAR	USIT Remove Flagged Data Level	level2	
MW	Reference Calibrator Outer Diameter	7	IN
OPLEV	Reference Calibrator Standoff	1.1811	IN
RCOD	Reference Calibrator Thickness	0.2952	IN
RCSO	Number of Vertical Samples used for Micro-debonding Computation	5	
RCTH	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	0.5	
SDNV	Acoustic Impedance STD Vertical Threshold for Micro-debonding	0.3	
SDTHOR	Ultrasonic Subassembly Type	Sub_7_inch_S	
SDTVER	T^3 Processing Level	Vax_Loop	
SUBT	Maximum Search Thickness (percentage of nominal)	130	
TCUB	Minimum Search Thickness (percentage of nominal)	70	
THDH	Thickness Detection Policy	Fundamental	
THDL	Nominal Thickness of Casing	0.362	IN
THDP	Type of Mud	BRINE	
THNO	USIT Cement Type	LIGHT	
TMUC	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U-USIT_CEMT	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U-USIT_DFSZ	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U-USIT_IISR	USIT Outer Casing Diameter	0	IN
U-USIT_IIZR	USIT Outer Casing Shoe	0	FT
U-USIT_OCDI	USIT Outer Casing Weight	0	LB/F
U-USIT_OCSH	USIT Remove Flagged Data Window Begin	0	US
U-USIT_OCWE	USIT Remove Flagged Data Window End	511	US
U-USIT_RFWB	IBC Third Interface Echo Bin Processing	YES	
U-USIT_RFWE	IBC Third Interface Echo Cleaning	NONE	
U-USIT_TIEB	IBC Third Interface Echo Multi Tracking	NO	
U-USIT_TIEC	IBC Third Interface Echo Policy	BFEP	
U-USIT_TIEM	IBC Third Interface Echo Receivers	BOTH	
U-USIT_TIEP	Third Interface Echo Window End	110	US
U-USIT_TIER	USIT Bottom Transducer Position	UNKNOWN	
U-USIT_U3WE	USIT Deflector for Casing	NONE	
U-USIT_UBTP	USIT Flexural Attenuation Offset	13	DB/M
U-USIT_UDFC	Far Receiver Maximum Gain of Cartridge	48	DB
U-USIT_UFAO	Far Receiver Minimum Gain of Cartridge	-12	DB
U-USIT_UFGA			
U-USIT_UFGI			

U-USIT_UHCI	USIT IBC Hydraulic Communication Interval	06F1_02M	
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_lbc_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	
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	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	2.15	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	DEGF
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	DEGF
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	
KSP	Kill SP Shale Index (USE, KILL)	USE	
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	
RTLTF	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	STI	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	-50000.00	FT
TDL	Total Depth - Logger	-50000.00	FT
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	8.750	IN
BSAL	Borehole Salinity	600.00	PPM
CSIZ	Current Casing Size	7.000	IN
CWEI	Casing Weight	26.00	LB/F
DFD	Drilling Fluid Density	10.00	LB/G
DO	Depth Offset for Playback	6.0	FT
FLEV	Fluid Level	10.00	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	-50000	FT
TWS	Temperature of Connate Water Sample	100.00	DEGF

Input DLIS Files

DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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Output DLIS Files

DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37
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Company: EnCana Oil & Gas (USA) Inc

Well: Echeverria 2A-2H

Input DLIS Files

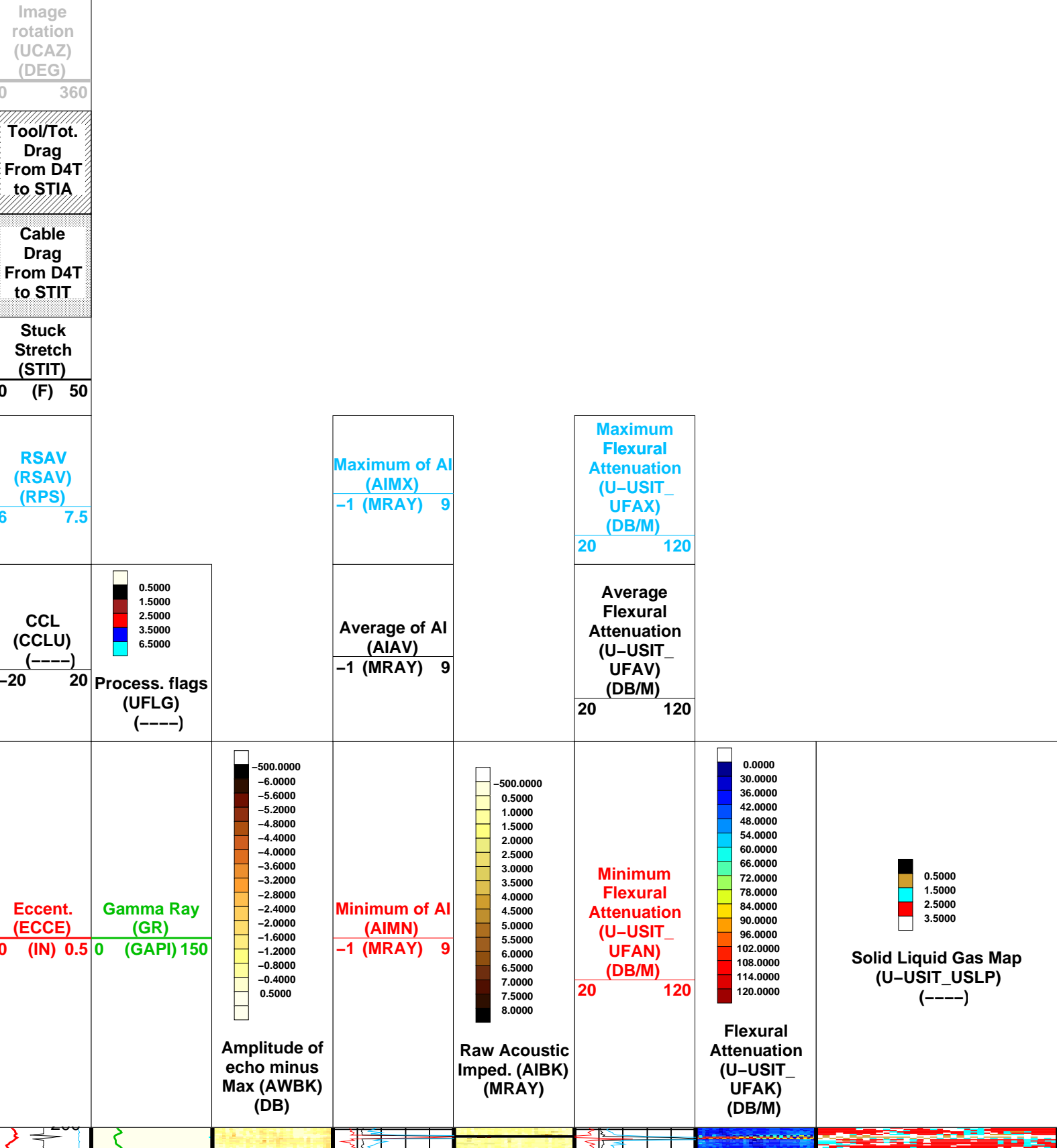
DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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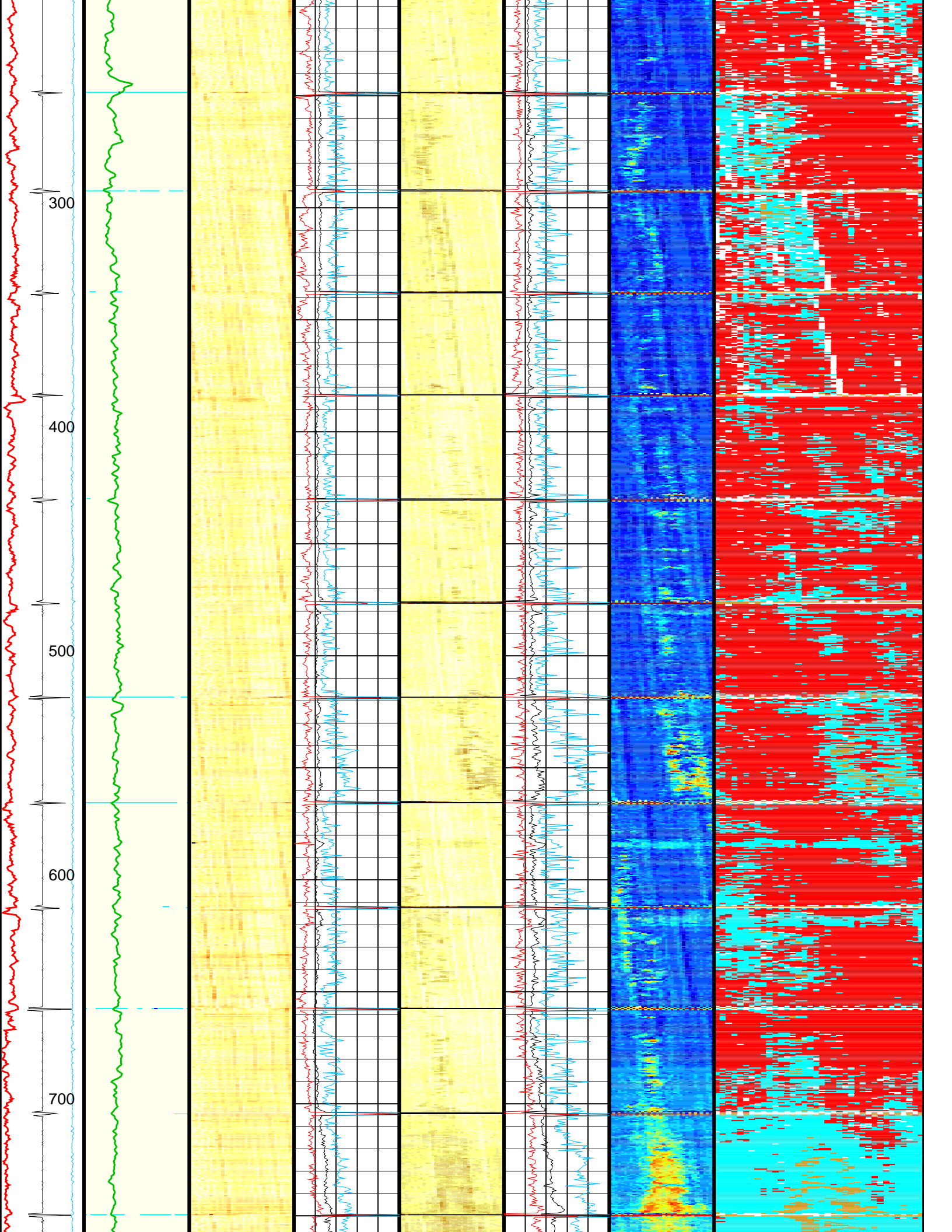
Output DLIS Files

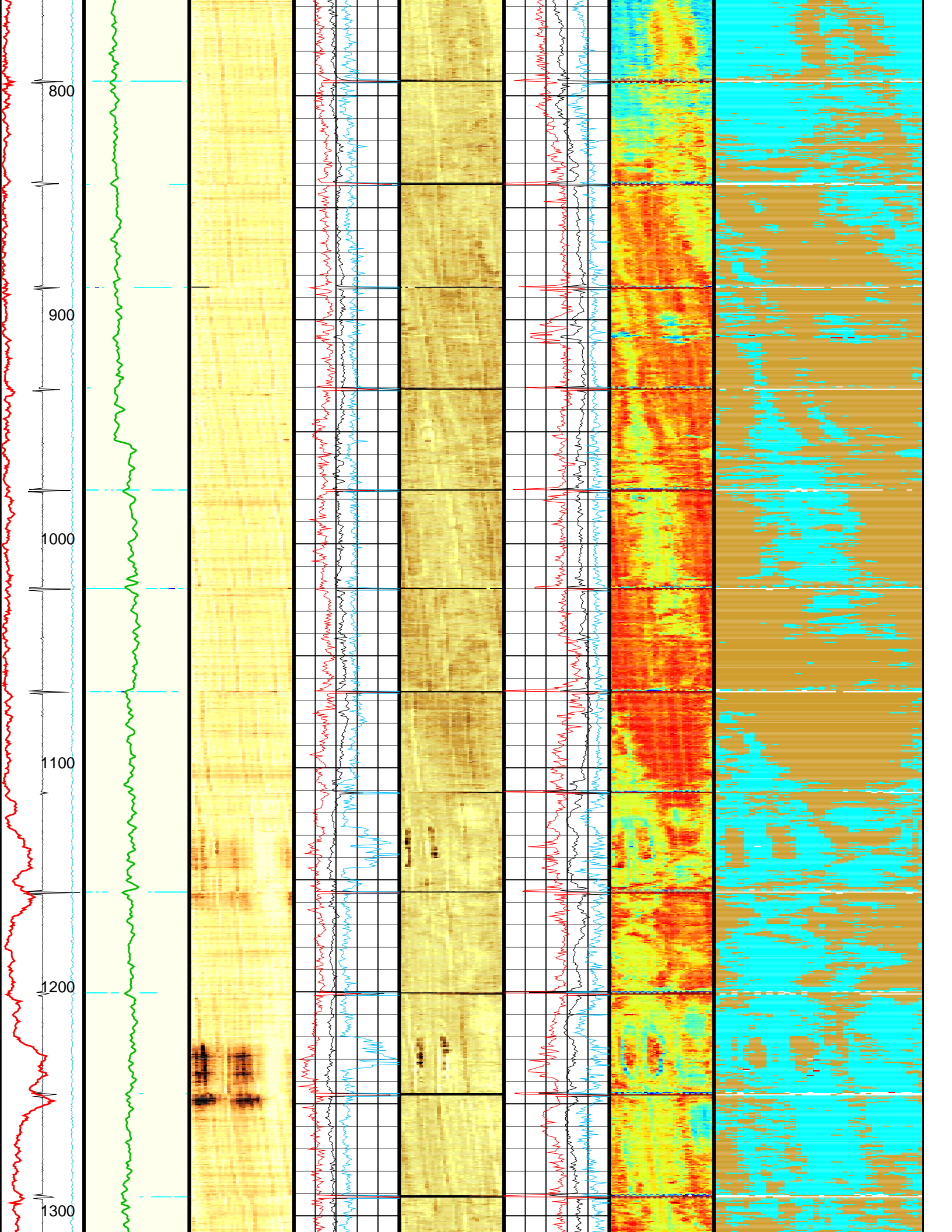
DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37	7340.0 FT	199.0 FT
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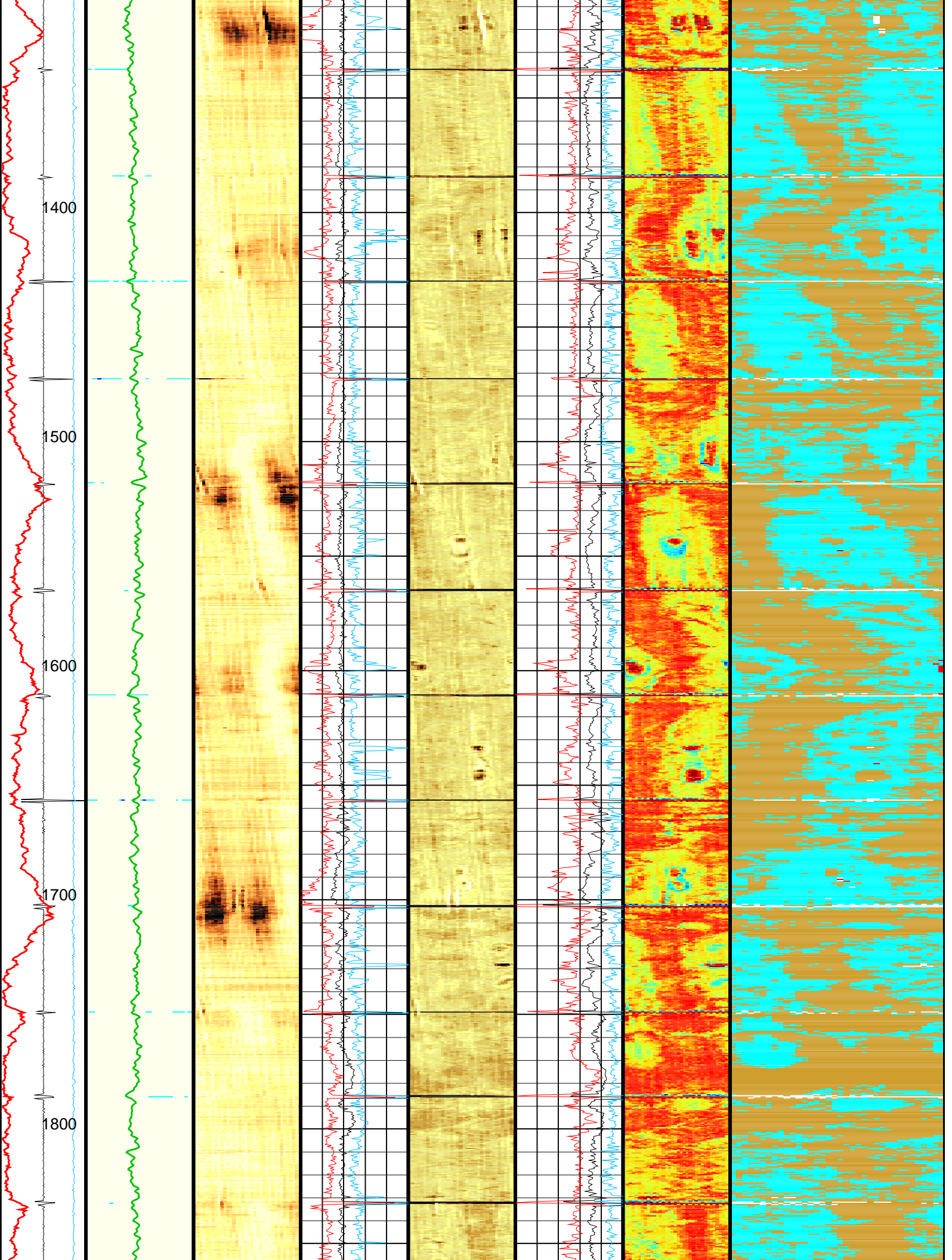
Changed Parameter Summary

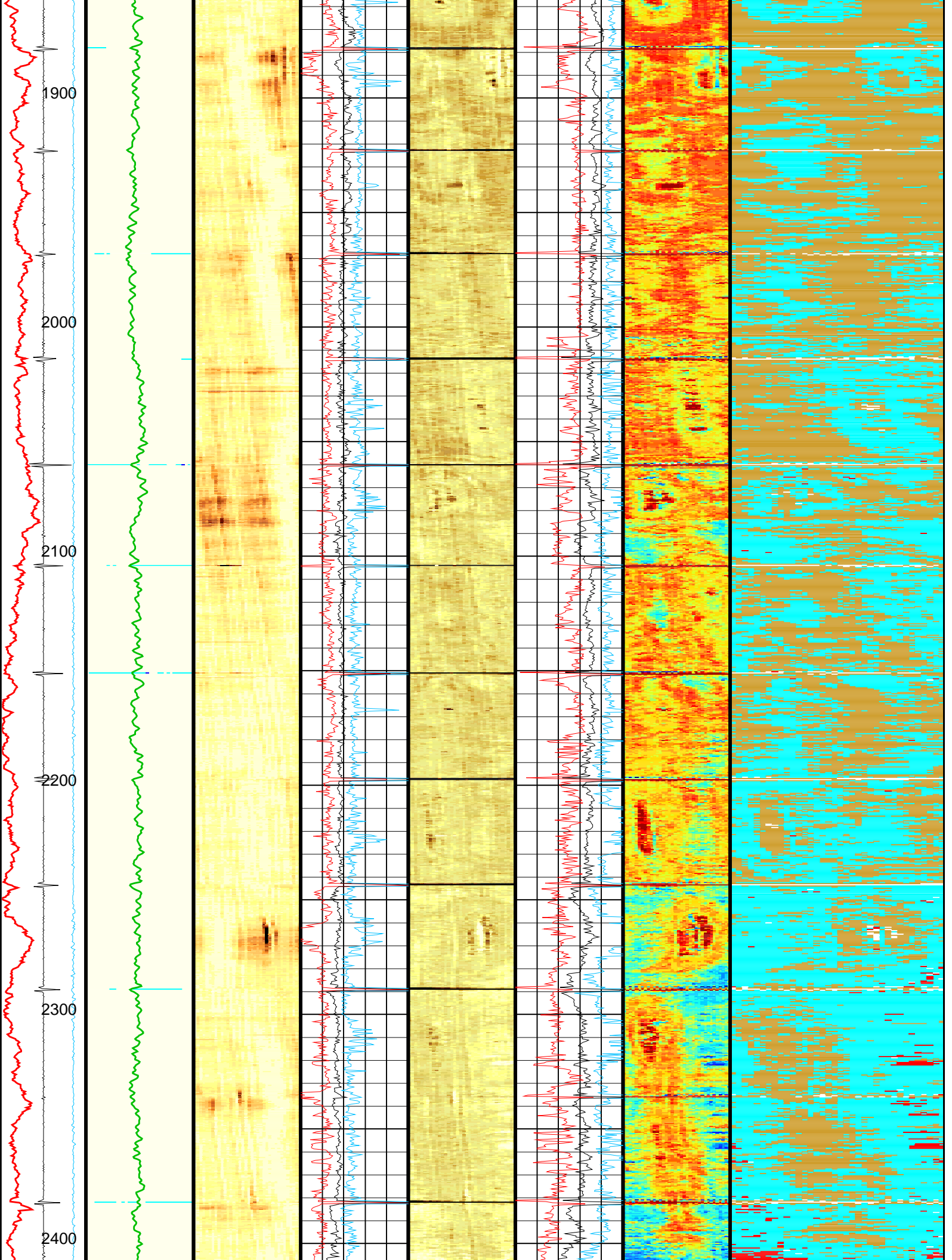
DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2.15 MRAY	7340.0 05:38:21
	2.1 MRAY	1.95 MRAY	5700.0 05:41:33
	2 MRAY	2.1 MRAY	5490.0 05:41:54
	2.15 MRAY	2 MRAY	5300.0 05:42:14

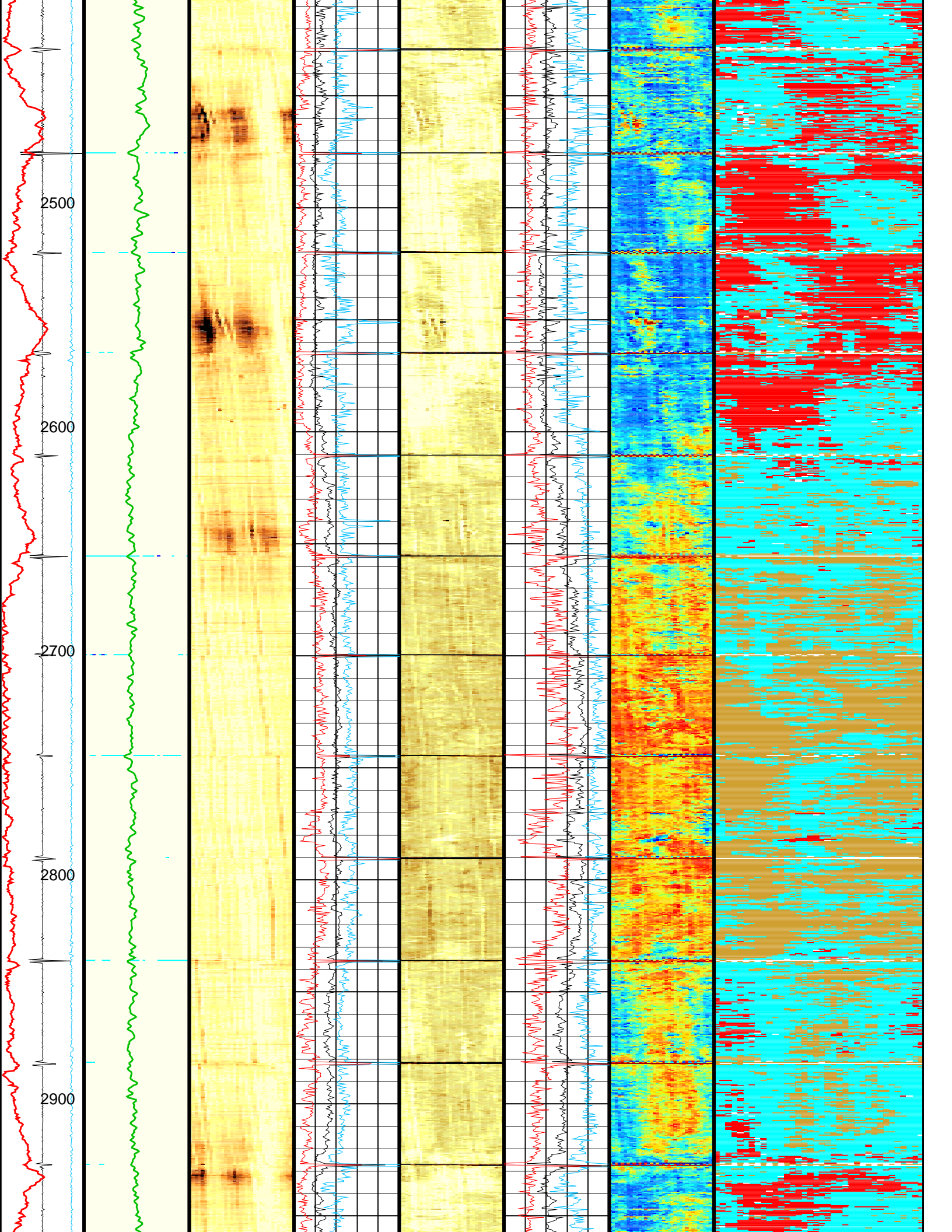


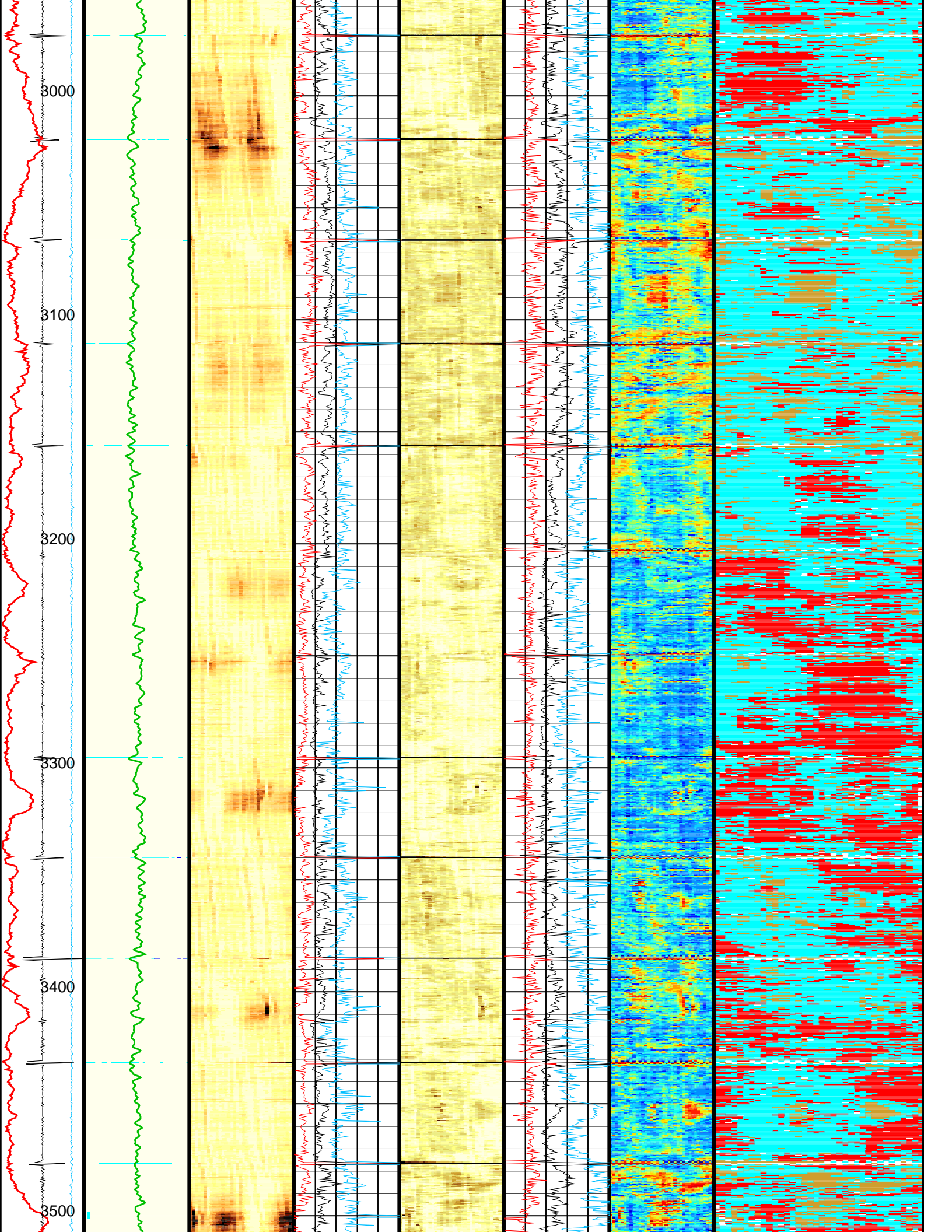


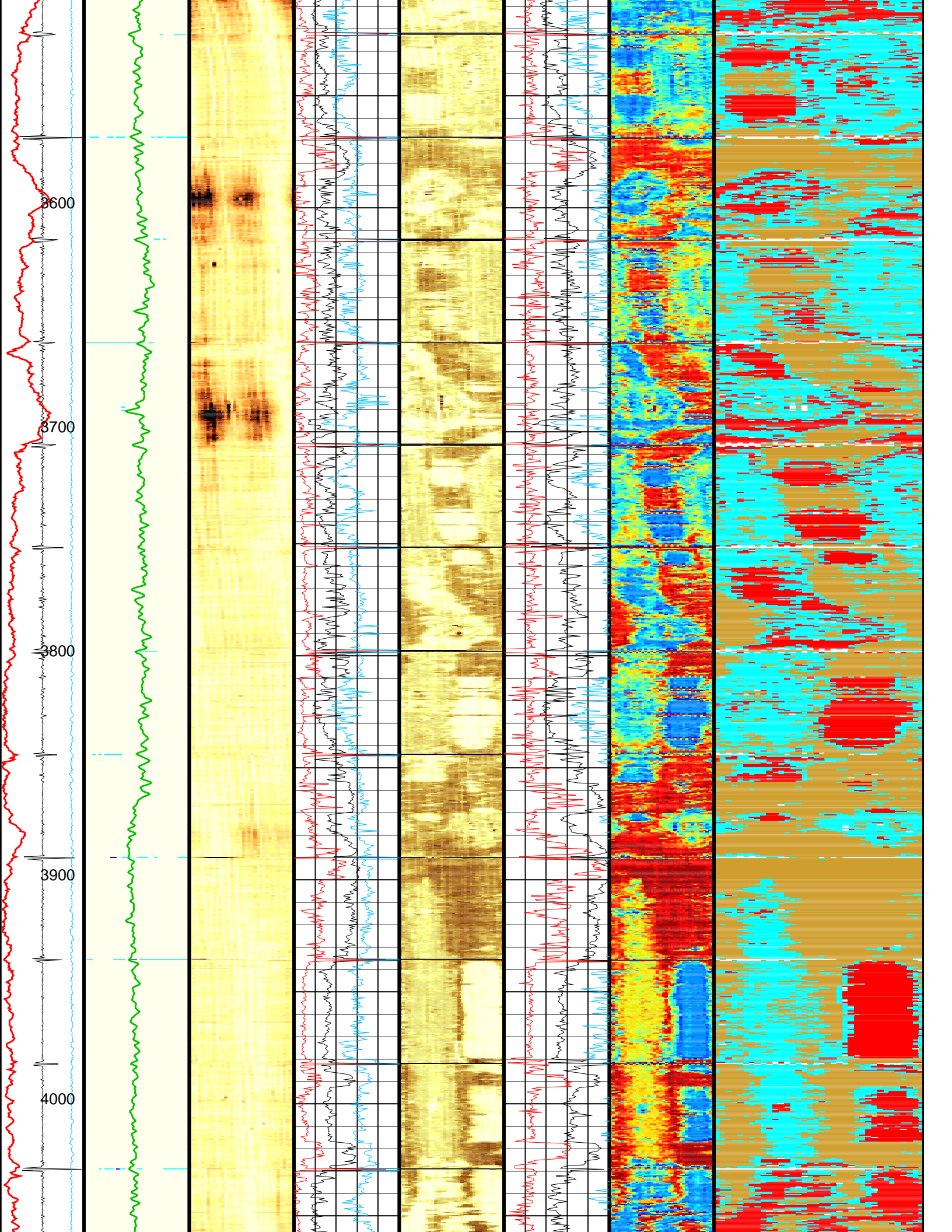


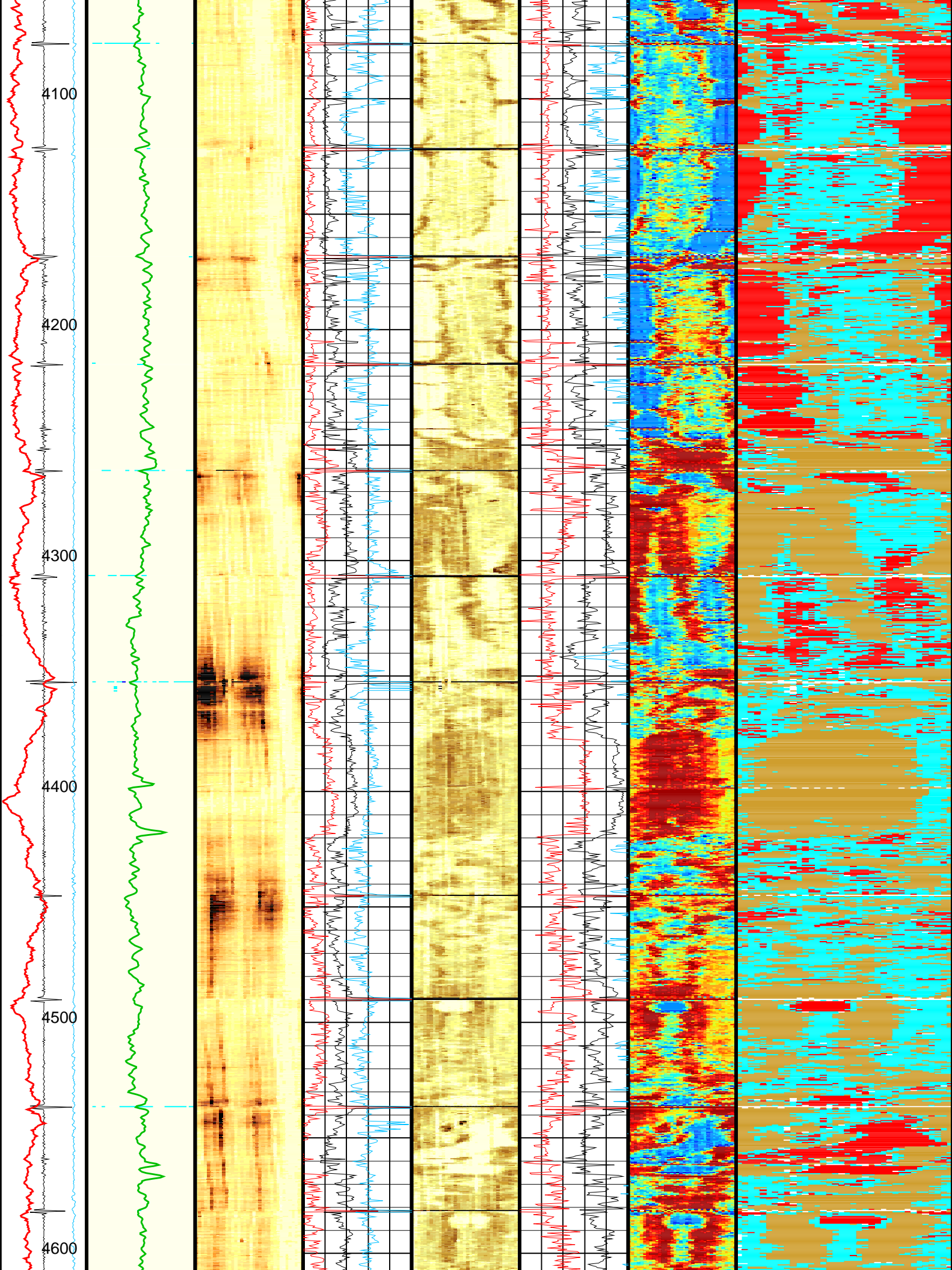


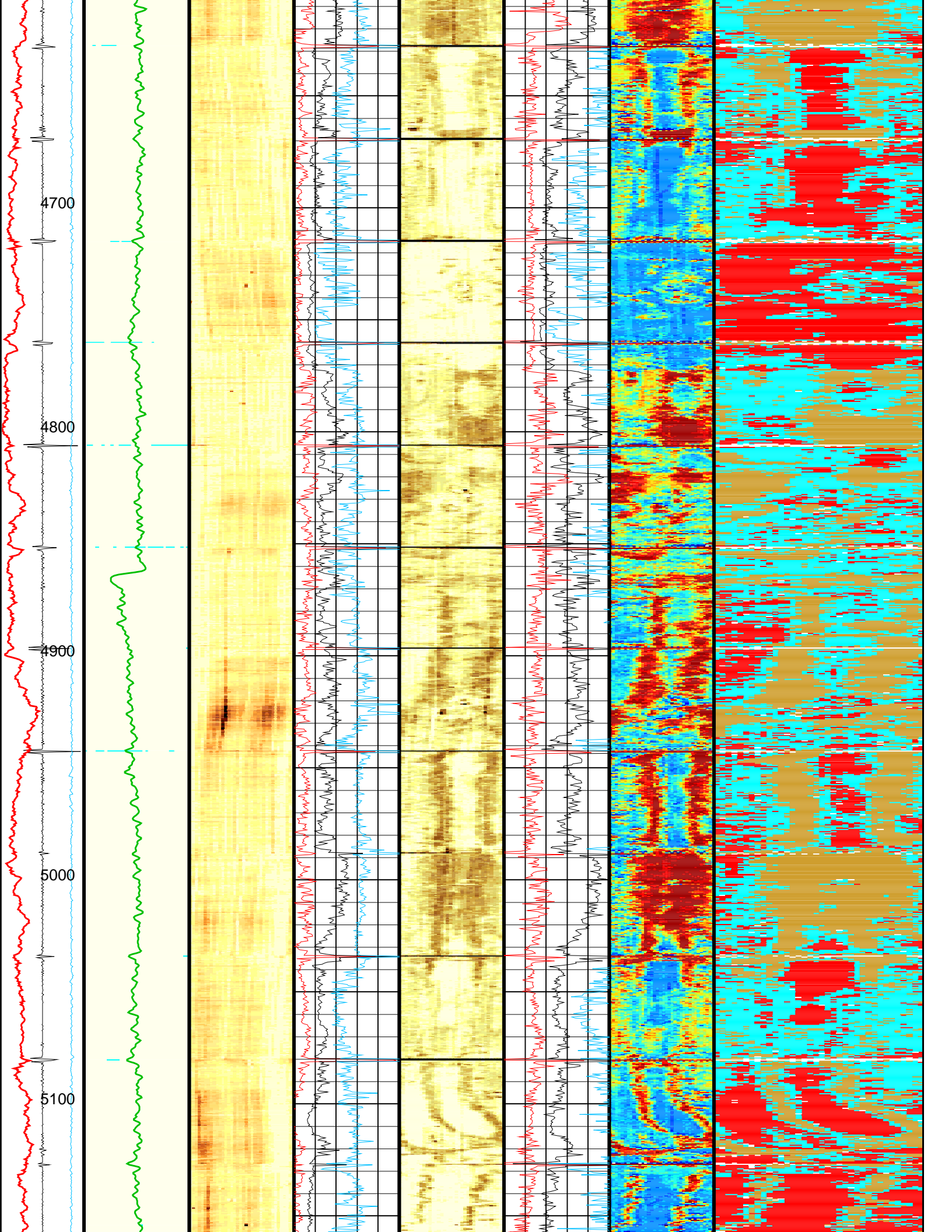


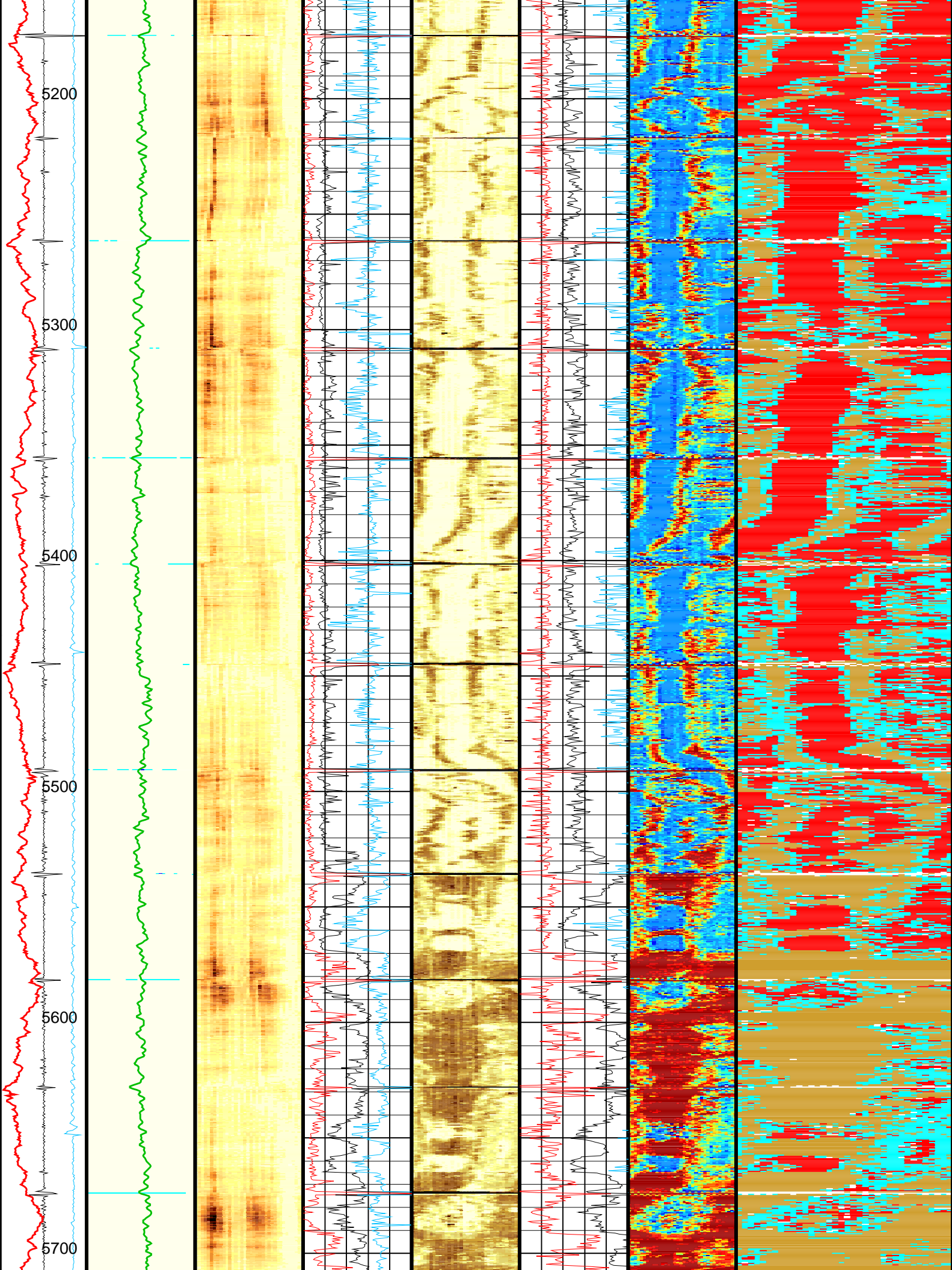


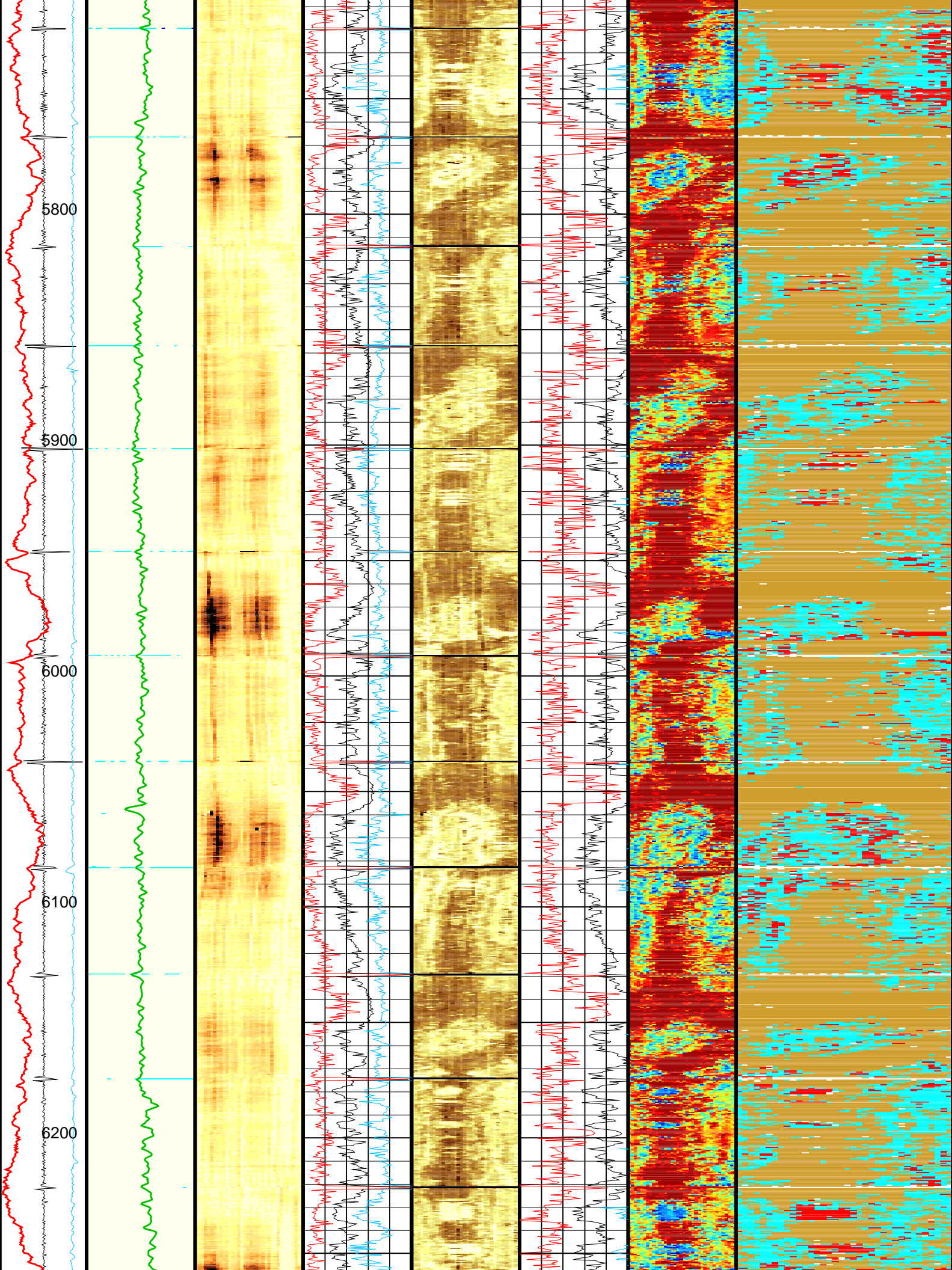


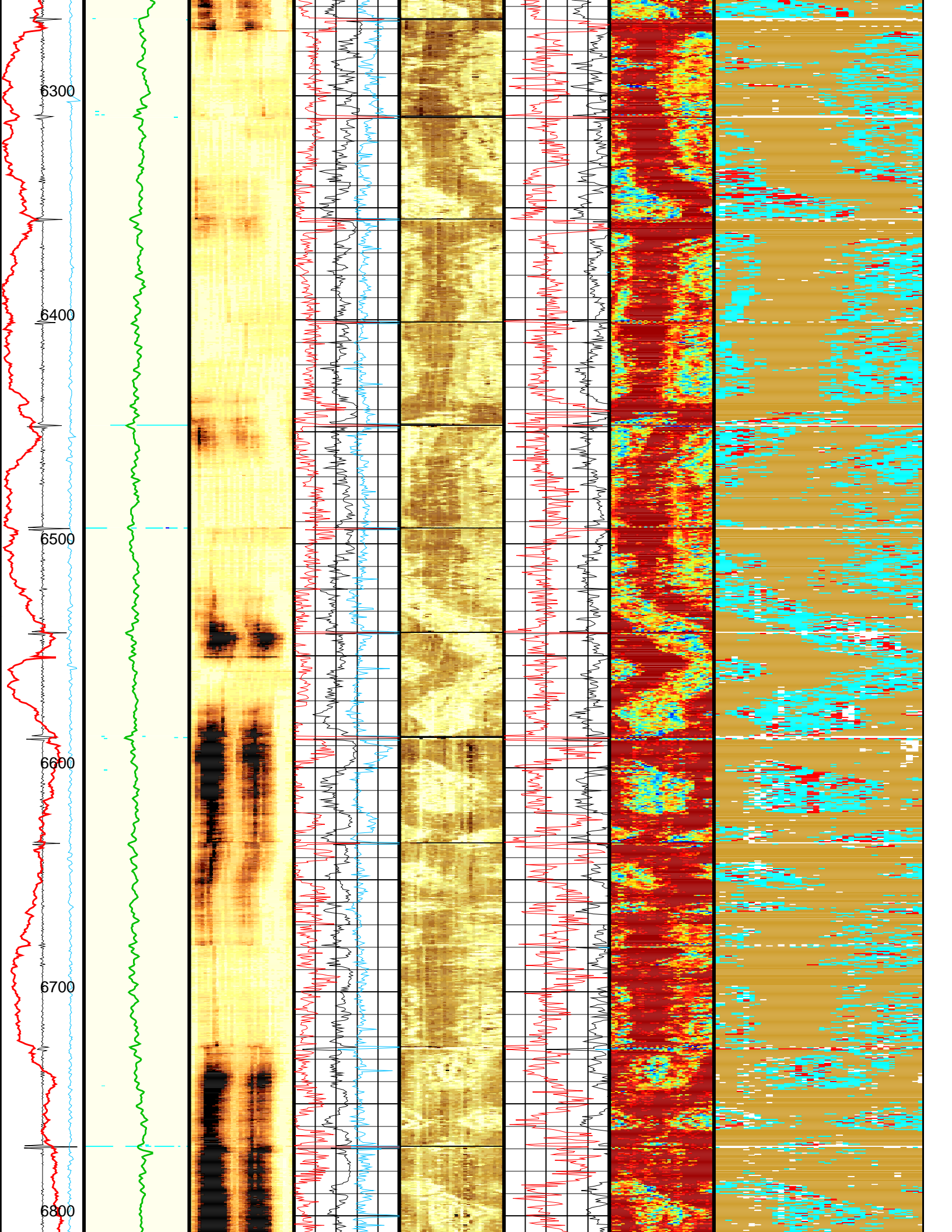


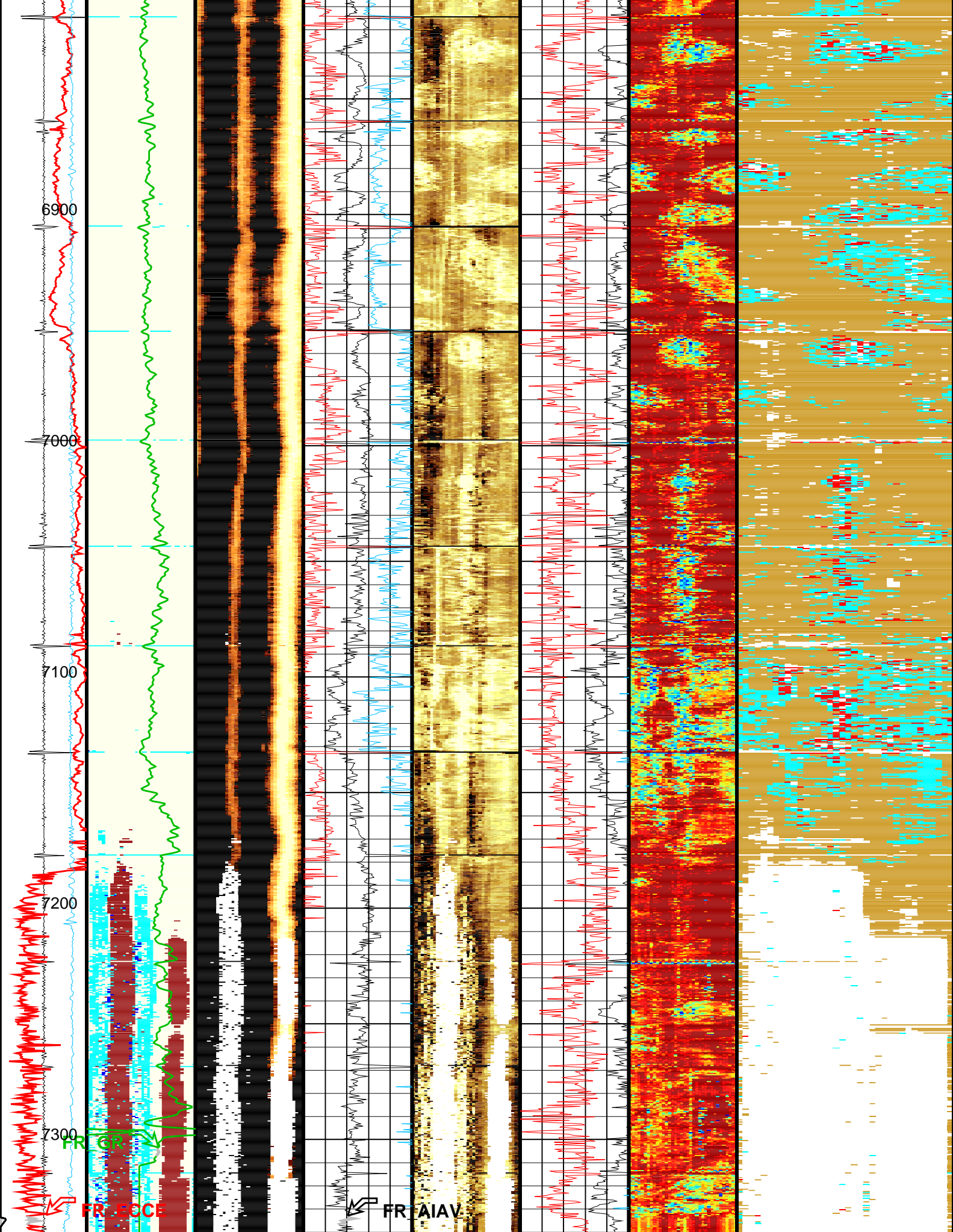


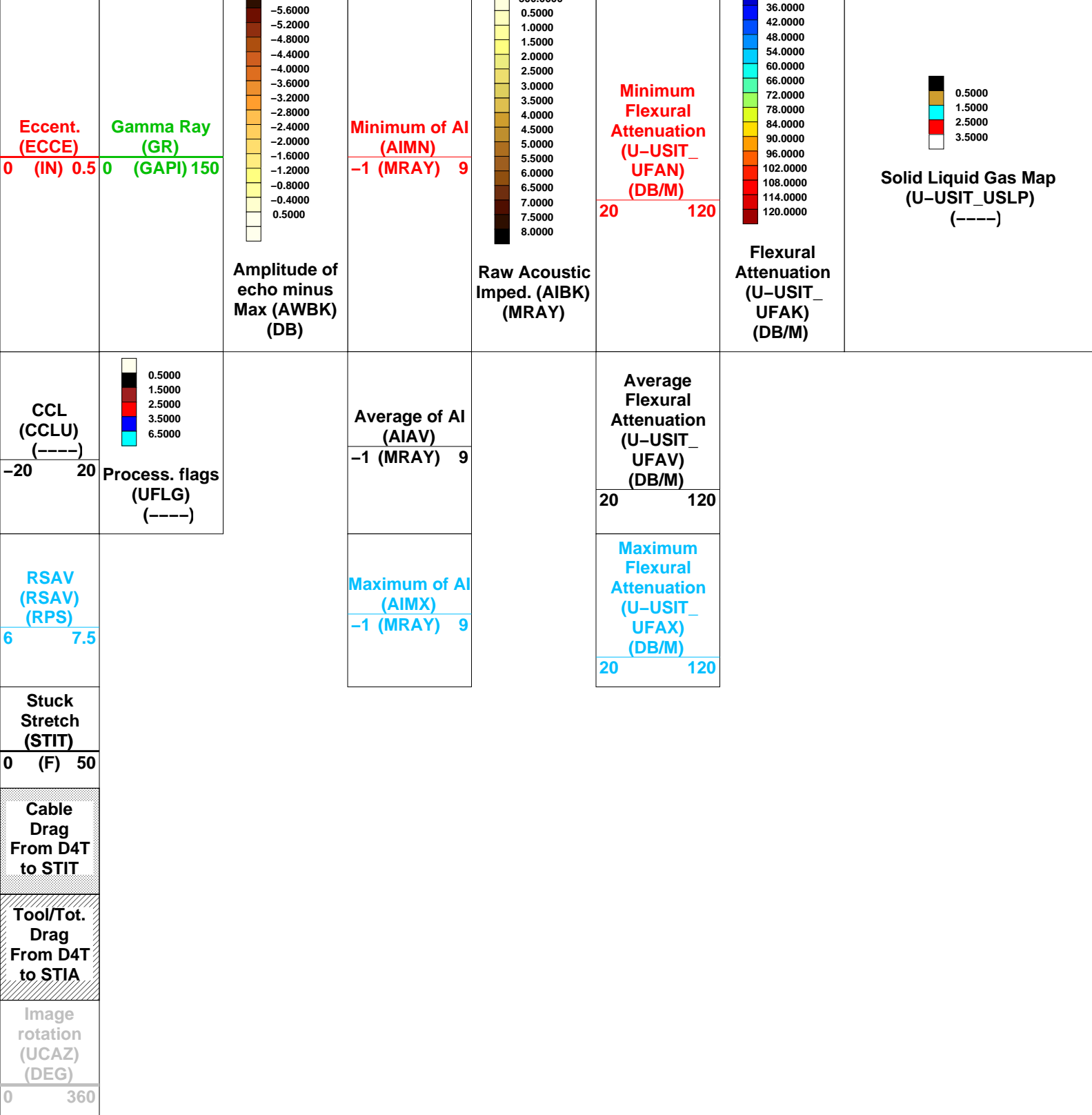












Format: 2 inch IBC SLG Vertical Scale: 2" per 100' Graphics File Created: 28-Aug-2012 05:37

OP System Version: 19C1-222			
USIT-D	19C1-222	SGT-N	19C1-222
DTC-H	19C1-222		

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	130 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	LIGHT
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0 MRAY
U-USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT
U-USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY
U-USIT_OCDI	USIT Outer Casing Diameter	0 IN
U-USIT_OCSH	USIT Outer Casing Shoe	0 FT
U-USIT_OCWE	USIT Outer Casing Weight	0 LB/F
U-USIT_TIEB	IBC Third Interface Echo Bin Processing	YES
U-USIT_TIEC	IBC Third Interface Echo Cleaning	NONE
U-USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO
U-USIT_TIEP	IBC Third Interface Echo Policy	BFEP
U-USIT_TIER	IBC Third Interface Echo Receivers	BOTH
U-USIT_U3WE	Third Interface Echo Window End	110 US
U-USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN
U-USIT_UFAO	USIT Flexural Attenuation Offset	13 DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_lbc_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	46.25 MRAY
ZINI	Initial Estimate of Cement Impedance	-1 MRAY
ZMUD	Acoustic Impedance of Mud	2.15 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	STI
STKT	STI Stuck Threshold	2.5 FT
TDD	Total Depth - Driller	-50000.00 FT
TDL	Total Depth - Logger	-50000.00 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_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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Output DLIS Files

DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37
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Input DLIS Files

Output DLIS Files

OP System Version: 19C1-222

USIT-D

19C1-222

SGT-N

19C1-222

DTC-H

19C1-222

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
ZMUD	1.95 MRAY	2.15 MRAY	7340.0 05:38:21
	2.1 MRAY	1.95 MRAY	5700.0 05:41:33
	2 MRAY	2.1 MRAY	5490.0 05:41:54
	2.15 MRAY	2 MRAY	5300.0 05:42:14

Tool/Tot.
Drag
From D4T
to STIA

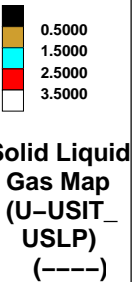
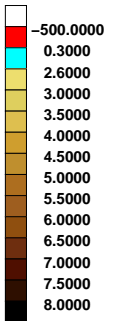
Cable
Drag
From D4T
to STIT

Stuck
Stretch
(STIT)

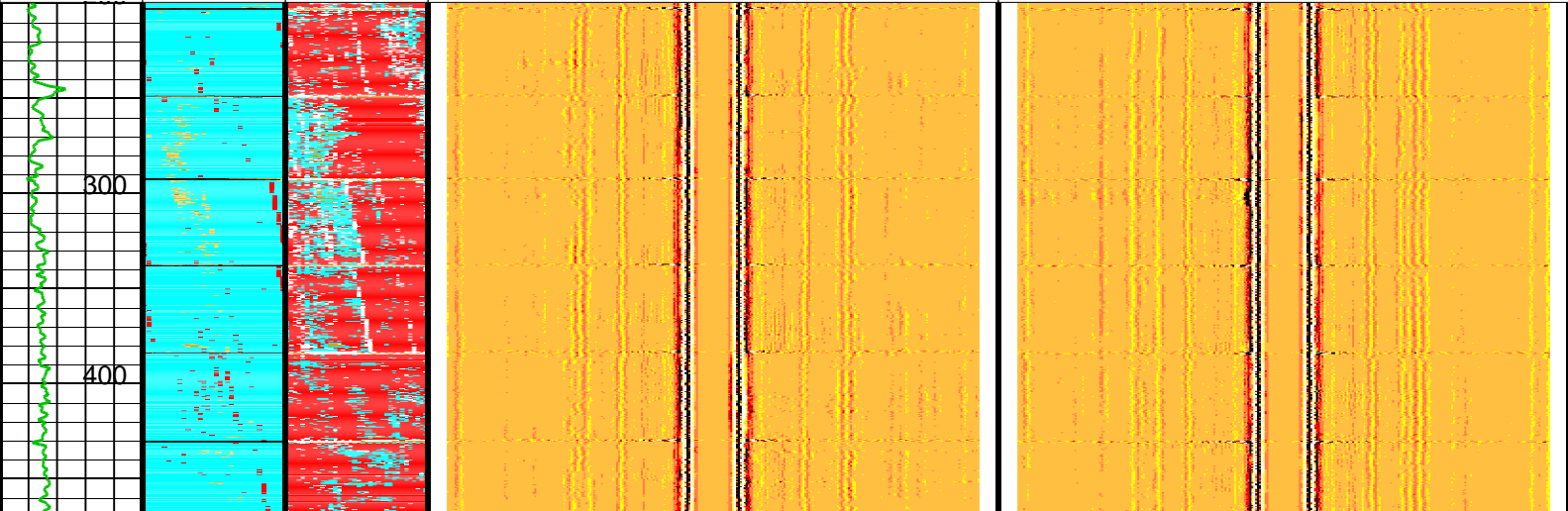
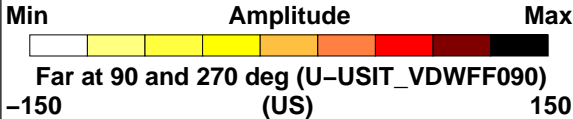
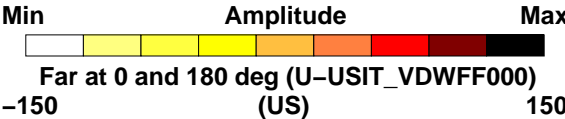
0 (F) 50

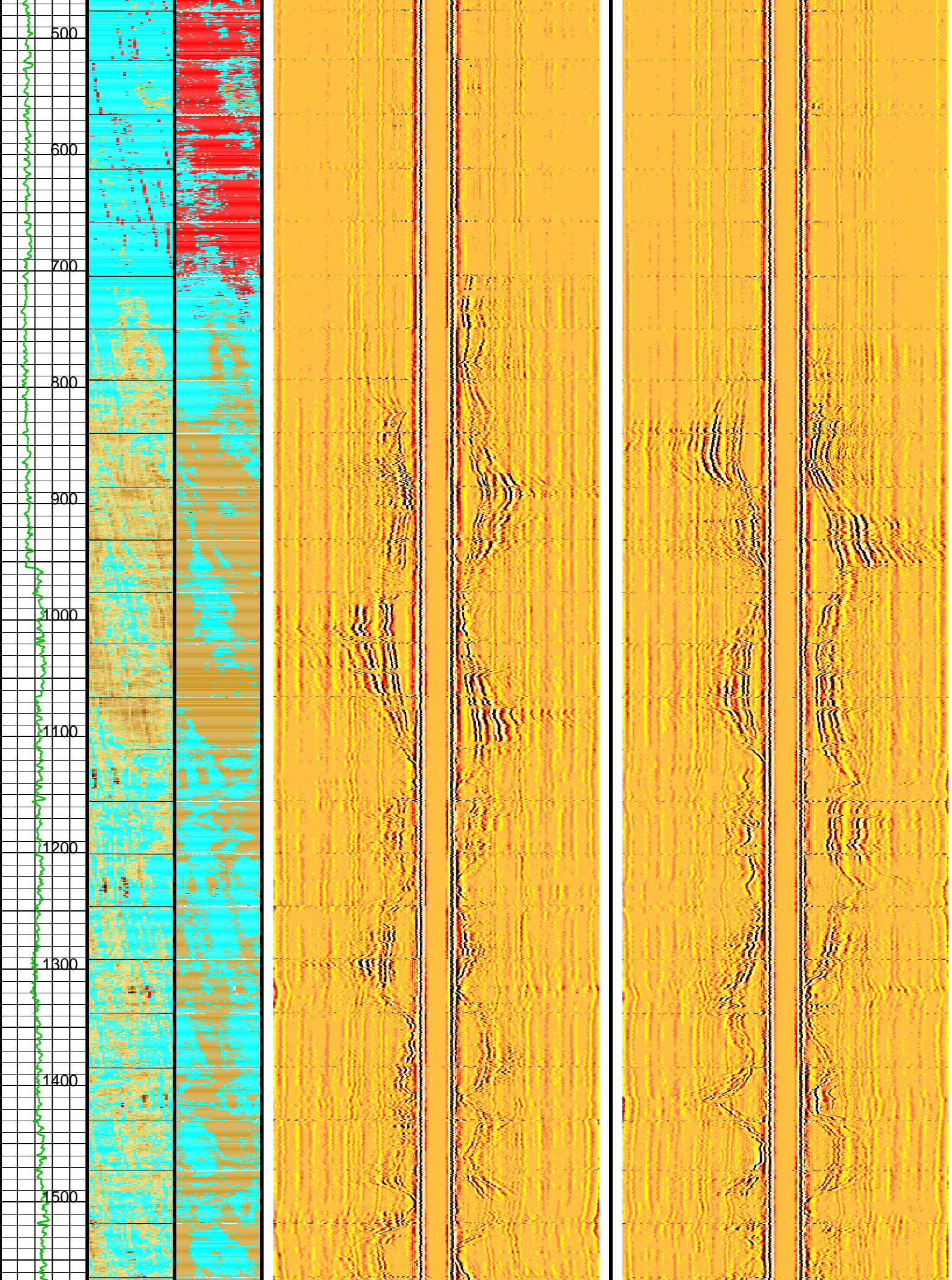
Gamma
Ray (GR)
(GAPI)

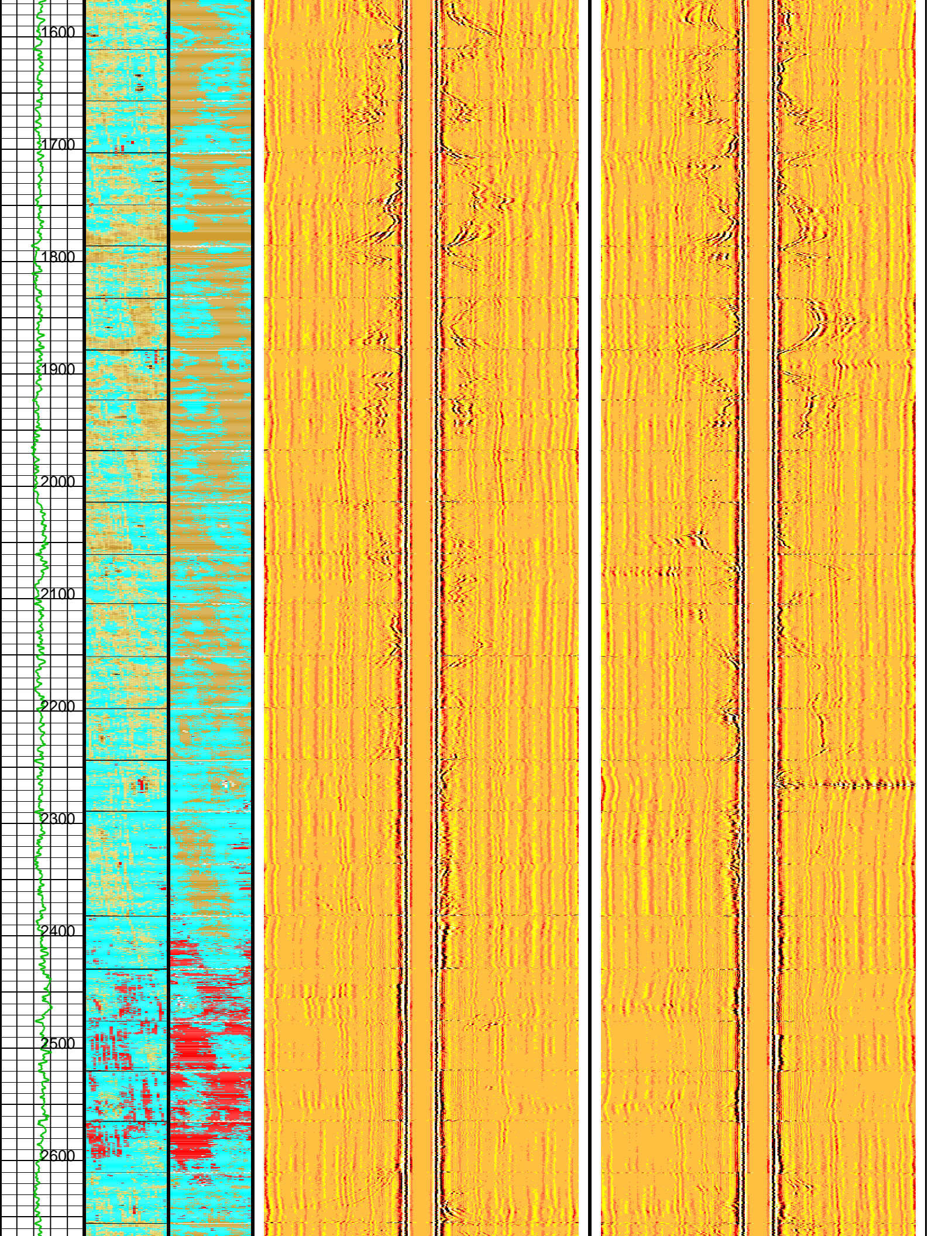
0 150

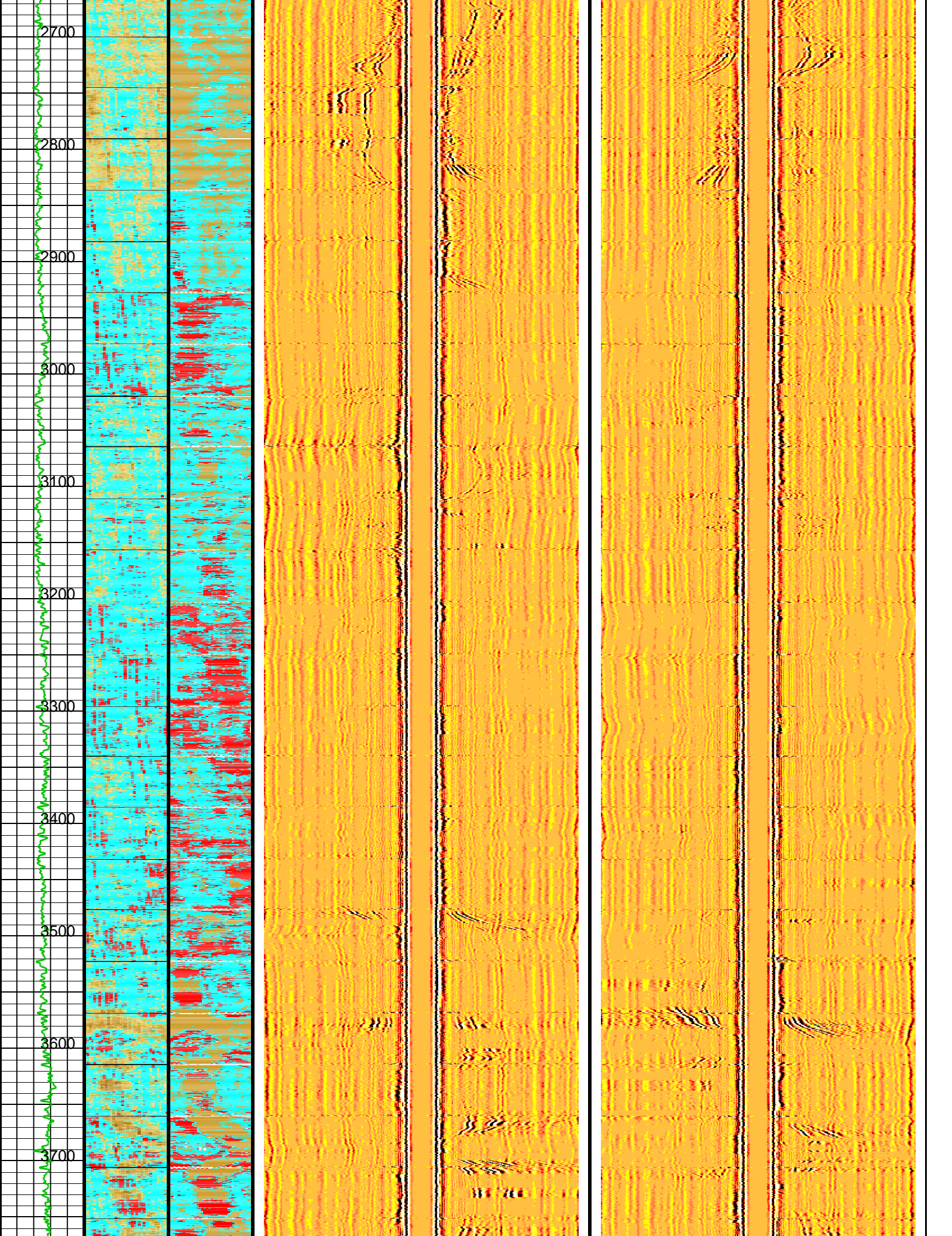


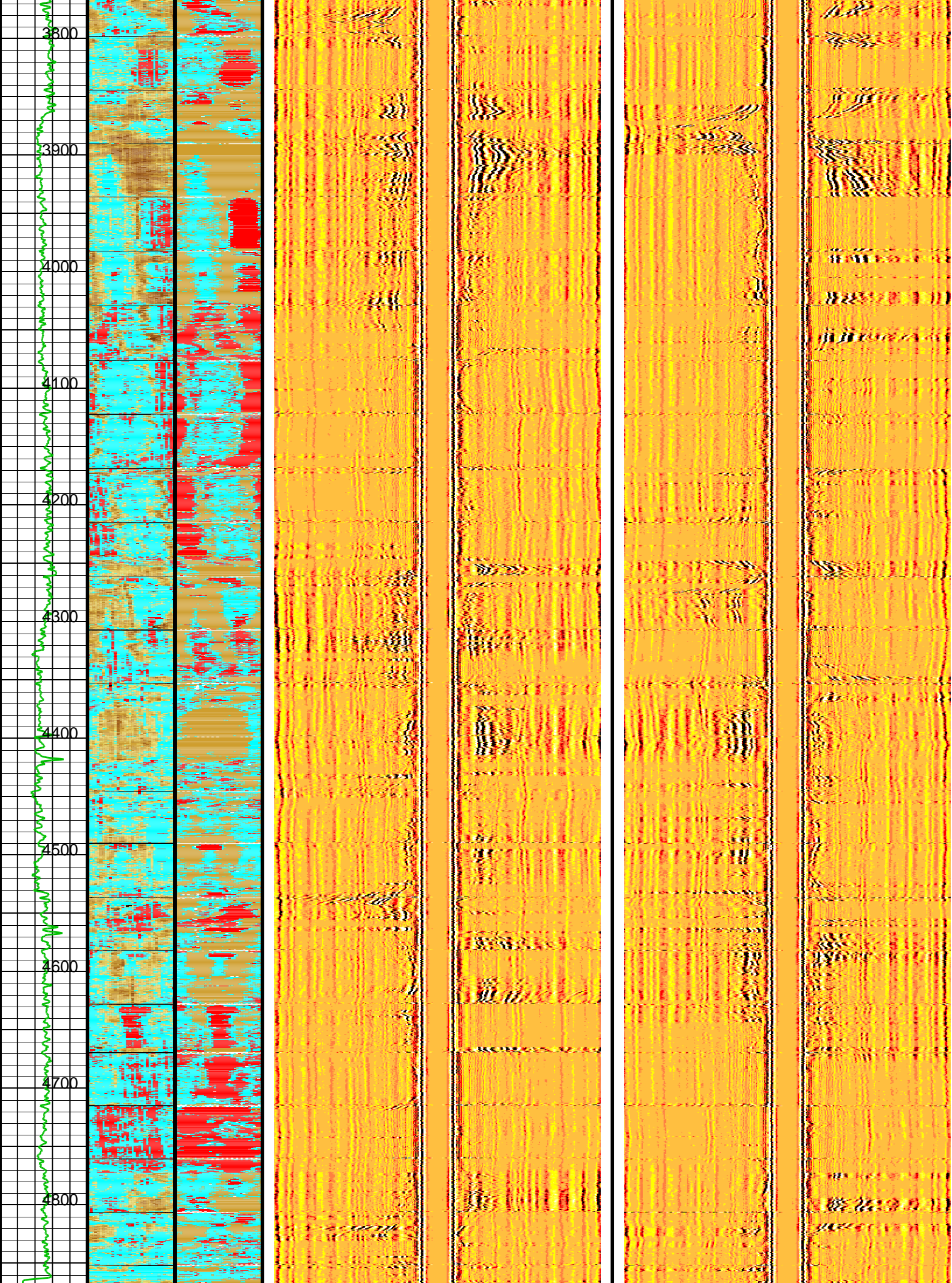
Cement
Map with
Impedance
Classificati
on (AIBK)
(MRAY)

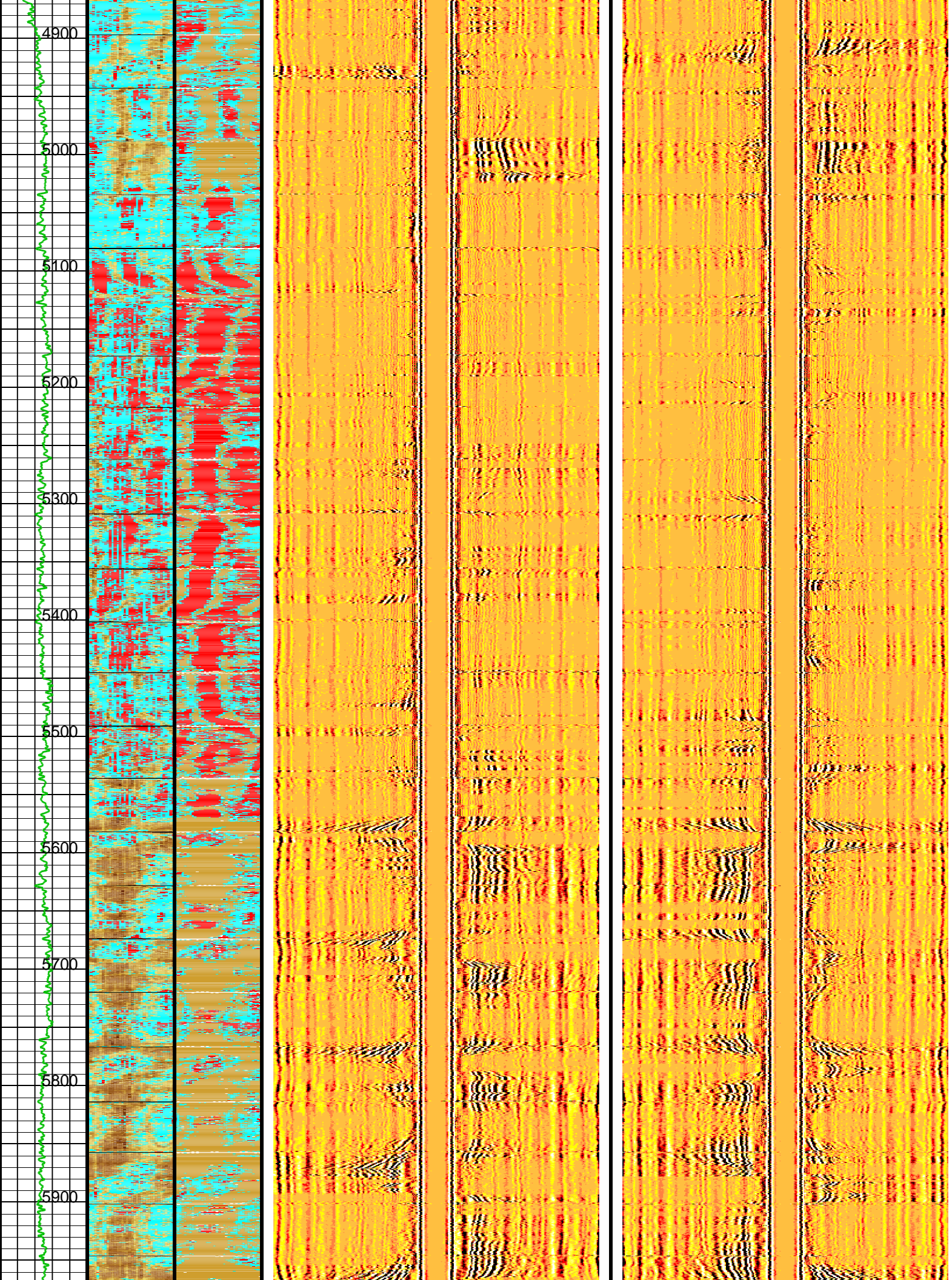


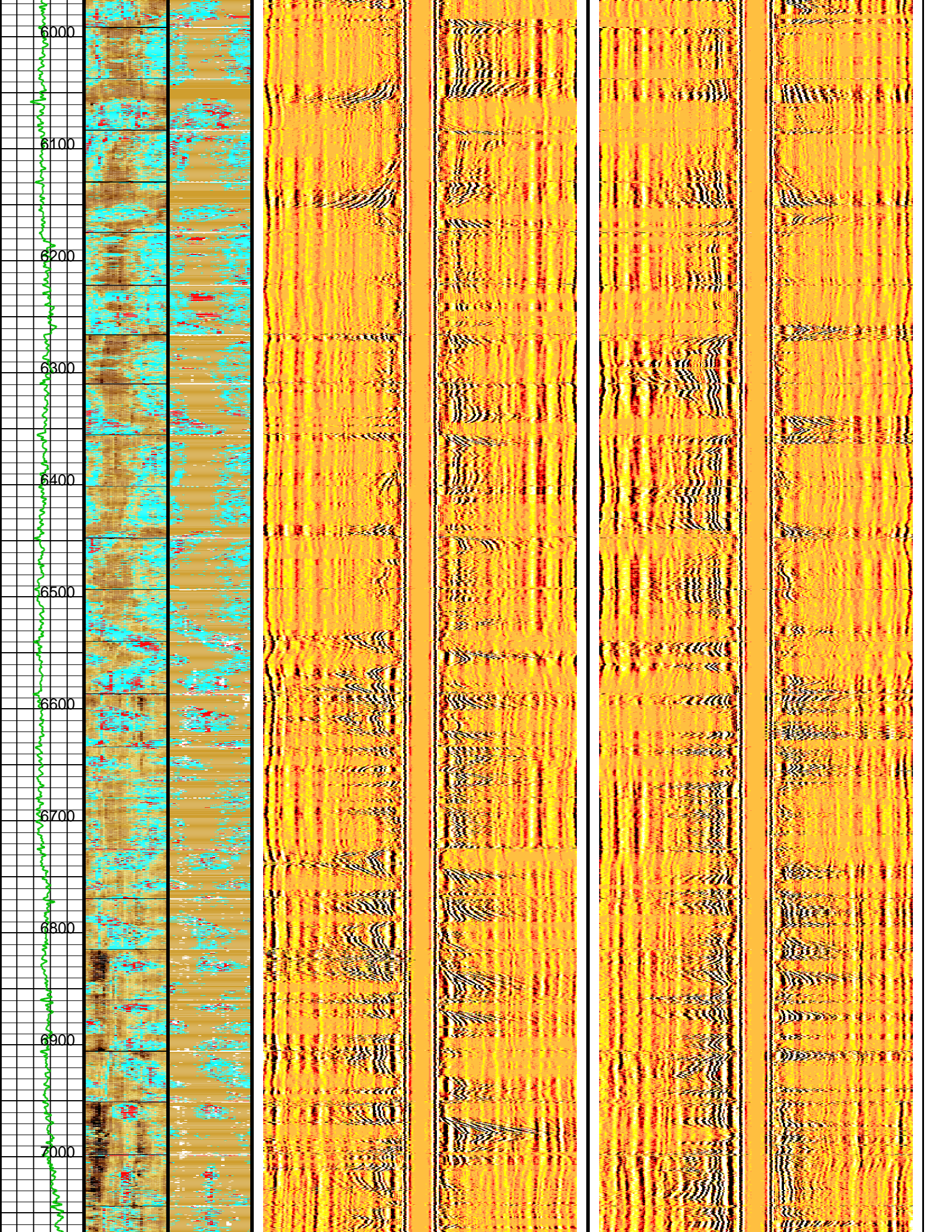


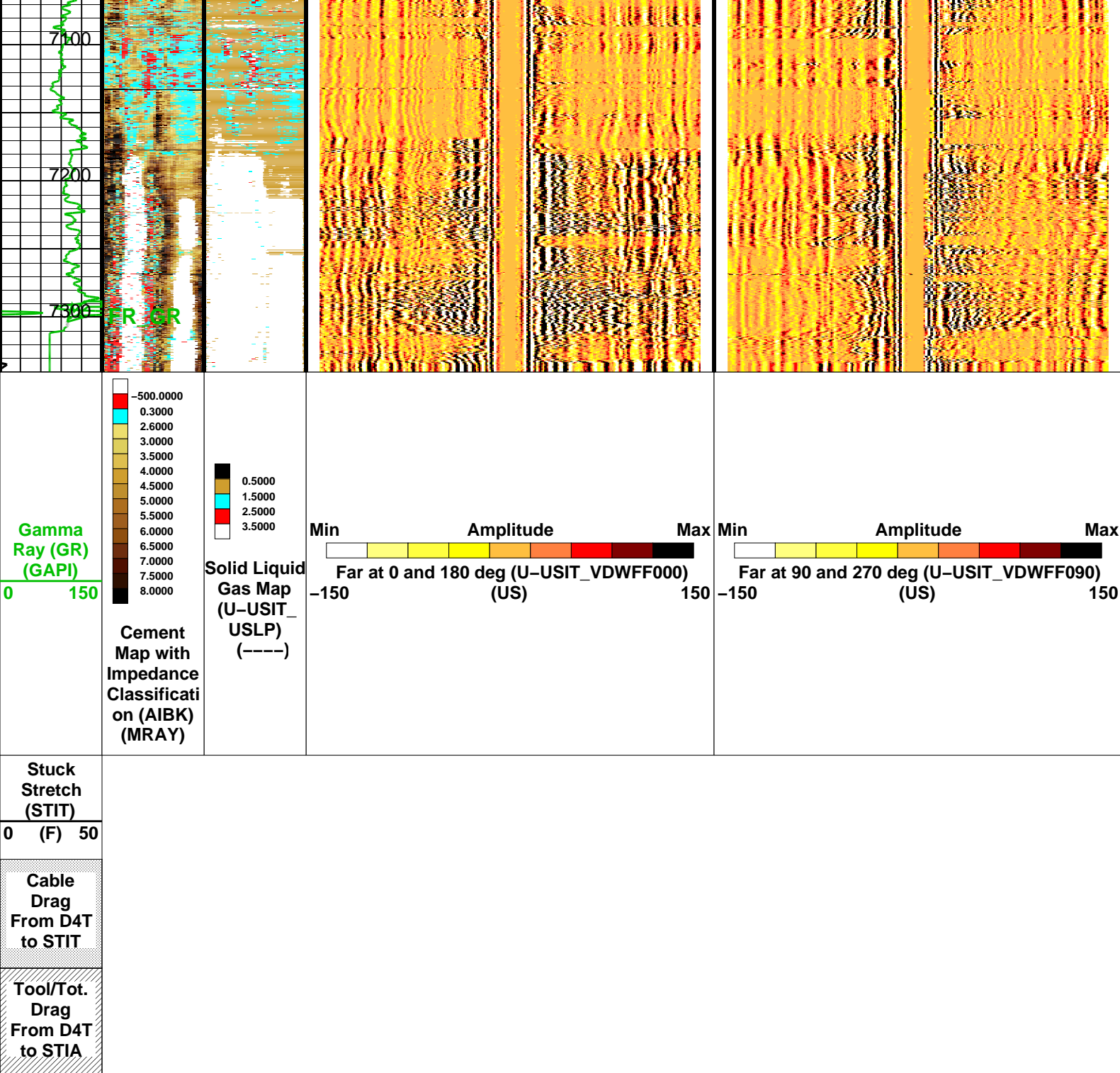












Parameters

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	130	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	Thickness Detection Policy	70	Fundamental
THNO	Nominal Thickness of Casing	0.362	IN
U-USIT_CEMT	USIT Cement Type	LIGHT	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U-USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U-USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U-USIT_OCDI	USIT Outer Casing Diameter	0	IN
U-USIT_OCSH	USIT Outer Casing Shoe	0	FT
U-USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U-USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U-USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U-USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U-USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U-USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U-USIT_U3WE	Third Interface Echo Window End	110	US
U-USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U-USIT_UFAO	USIT Flexural Attenuation Offset	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	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	2.15	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	STI	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	-50000.00	FT
TDL	Total Depth - Logger	-50000.00	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: 1 inch IBC VDL WIDE Vertical Scale: 1" per 100' Graphics File Created: 28-Aug-2012 05:37

OP System Version: 19C1-222

USIT-D	19C1-222	SGT-N	19C1-222
DTC-H	19C1-222		

Input DLIS Files

DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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Output DLIS Files

DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37		
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Company: EnCana Oil & Gas (USA) Inc Well: Echeverria 2A-2H

Input DLIS Files

DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
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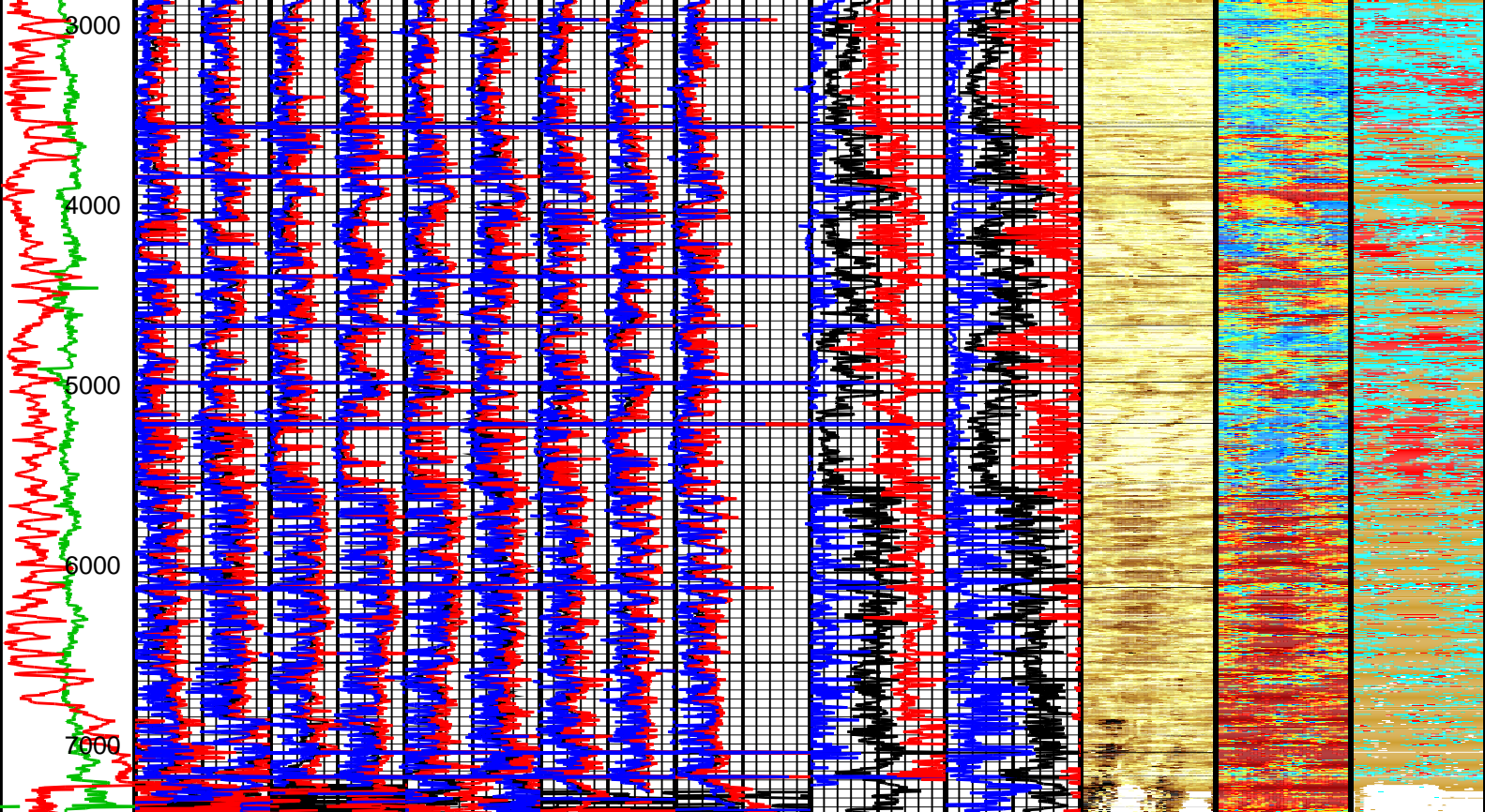
Output DLIS Files

DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37	7340.0 FT	199.0 FT
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OP System Version: 19C1-222

USIT-D	19C1-222	SGT-N	19C1-222
DTC-H	19C1-222		

	Minimum Acoustic Impedance	Minimum Acoustic Impedance	Minimum Acoustic Impedance	Minimum Acoustic Impedance
--	----------------------------------	----------------------------------	----------------------------------	----------------------------------



<div><div>Eccent. (ECCE)</div><div>0 (IN) 0.5</div></div>	<div>Average Acoustic Impedance #1 (AV_ AI1) (MRAY)</div>	<div>Average Acoustic Impedance #3 (AV_ AI3) (MRAY)</div>	<div>Average Acoustic Impedance #5 (AV_ AI5) (MRAY)</div>	<div>Average Acoustic Impedance #7 (AV_ AI7) (MRAY)</div>	<div>Average Acoustic Impedance #9 (AV_ AI9) (MRAY)</div>	<div>Average of AI (AIAV) (MRAY)</div>	<div>Minimum Flexural Attenuation (U-USIT_ UFAN) (DB/M)</div>	<div><div>-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</div><div>Raw Acoustic Imped. (AIBK) (MRAY)</div></div>	<div><div>0.0000 30.0000 36.0000 42.0000 48.0000 54.0000 60.0000 66.0000 72.0000 78.0000 84.0000 90.0000 96.0000 102.0000 108.0000 114.0000 120.0000</div><div>Flexural Attenuation (U-USIT_ UFAK) (DB/M)</div></div>	<div><div>0.5000 1.5000 2.5000 3.5000</div><div>Solid Liquid Gas Map (U-USIT_ USLP) (----)</div></div>
	<div>015</div>	<div>015</div>	<div>015</div>	<div>015</div>	<div>015</div>	<div>07.5</div>	<div>40140</div>			

<div><div>Gamma Ray (GR) (GAPI)</div><div>0150</div></div>	<div>Average Acoustic Impedance #2 (AV_ AI2) (MRAY)</div>	<div>Average Acoustic Impedance #4 (AV_ AI4) (MRAY)</div>	<div>Average Acoustic Impedance #6 (AV_ AI6) (MRAY)</div>	<div>Average Acoustic Impedance #8 (AV_ AI8) (MRAY)</div>	<div>Maximum Acoustic Impedance #9 (MAX_ AI9) (MRAY)</div>	<div>Minimum of AI (AIMN) (MRAY)</div>	<div>Average Flexural Attenuation (U-USIT_ UFAV) (DB/M)</div>	
	<div>-7.57.5</div>	<div>-7.57.5</div>	<div>-7.57.5</div>	<div>-7.57.5</div>	<div>015</div>	<div>07.5</div>	<div>40140</div>	

	<div>Maximum Acoustic Impedance #1 (MAX_ AI1) (MRAY)</div>	<div>Maximum Acoustic Impedance #3 (MAX_ AI3) (MRAY)</div>	<div>Maximum Acoustic Impedance #5 (MAX_ AI5) (MRAY)</div>	<div>Maximum Acoustic Impedance #7 (MAX_ AI7) (MRAY)</div>	<div>Minimum Acoustic Impedance #9 (MIN_ AI9) (MRAY)</div>	<div>Maximum of AI (AIMX) (MRAY)</div>	<div>Maximum Flexural Attenuation (U-USIT_ UFAX) (DB/M)</div>	
	<div>015</div>	<div>015</div>	<div>015</div>	<div>015</div>	<div>015</div>	<div>07.5</div>	<div>40140</div>	

	<div>Maximum Acoustic Impedance #2 (MAX_ AI2) (MRAY)</div>	<div>Maximum Acoustic Impedance #4 (MAX_ AI4) (MRAY)</div>	<div>Maximum Acoustic Impedance #6 (MAX_ AI6) (MRAY)</div>	<div>Maximum Acoustic Impedance #8 (MAX_ AI8) (MRAY)</div>				
	<div>-7.57.5</div>	<div>-7.57.5</div>	<div>-7.57.5</div>	<div>-7.57.5</div>				

Minimum Acoustic Impedance #1 (MIN_ AI1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_ AI3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_ AI5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_ AI7) (MRAY)
015	015	015	015
Minimum Acoustic Impedance #2 (MIN_ AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_ AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_ AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_ AI8) (MRAY)
-7.57.5	-7.57.5	-7.57.5	-7.57.5

Format: IBC Goodwin Compressed

Vertical Scale: 0.1" per 100'

Graphics File Created: 28-Aug-2012 05:37

OP System Version: 19C1-222

USIT-D

19C1-222

SGT-N

19C1-222

DTC-H

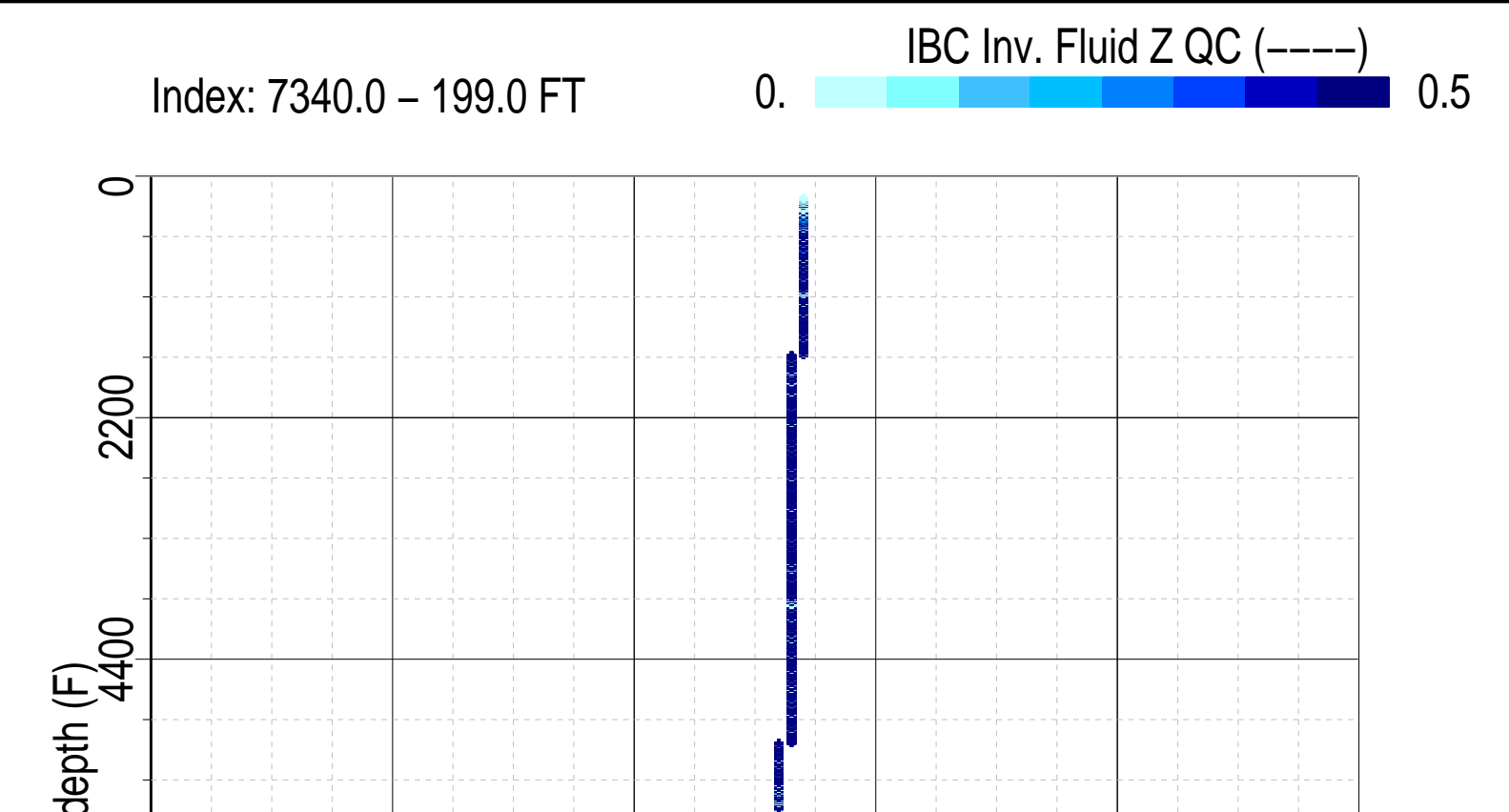
19C1-222

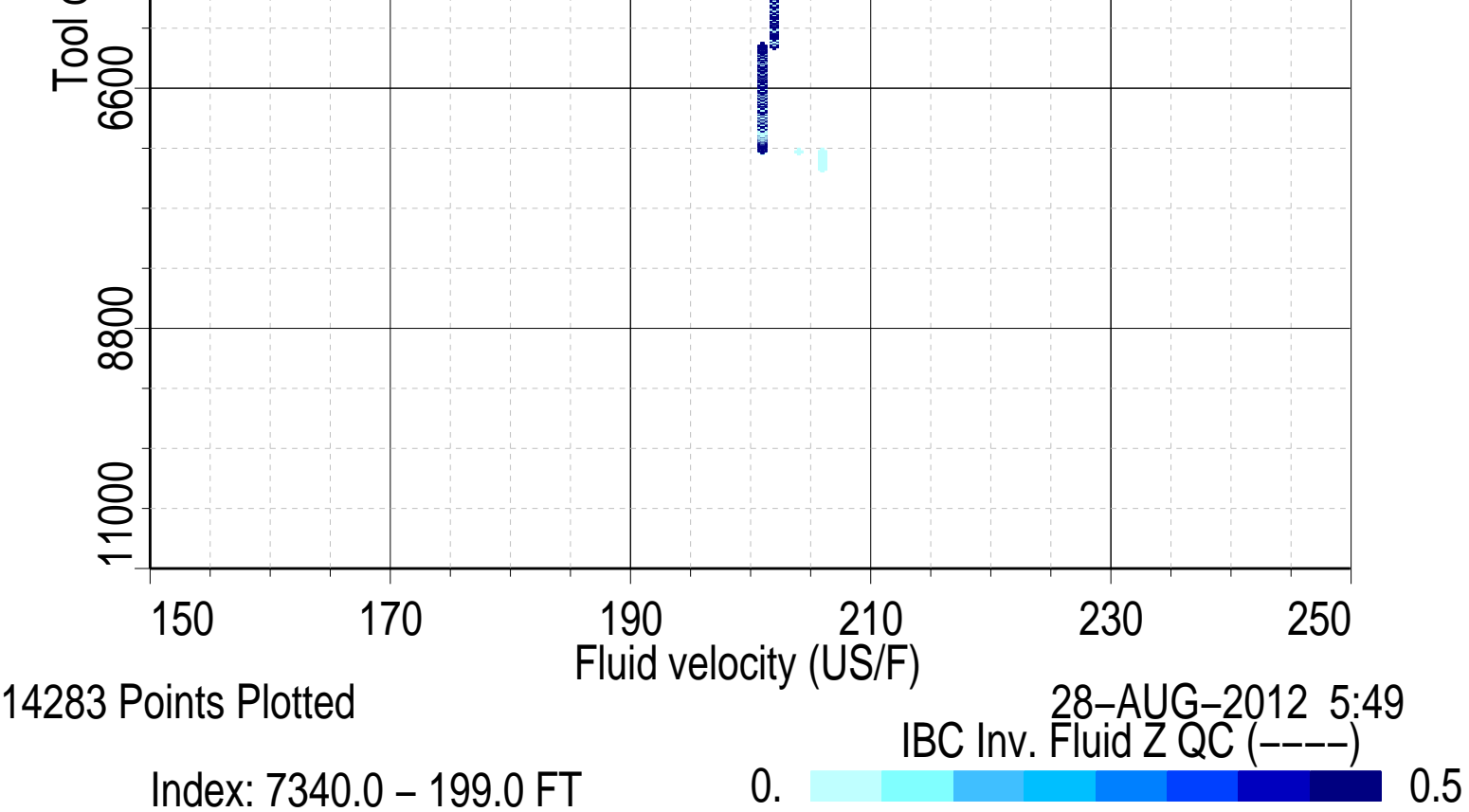
All USI Images are outside views

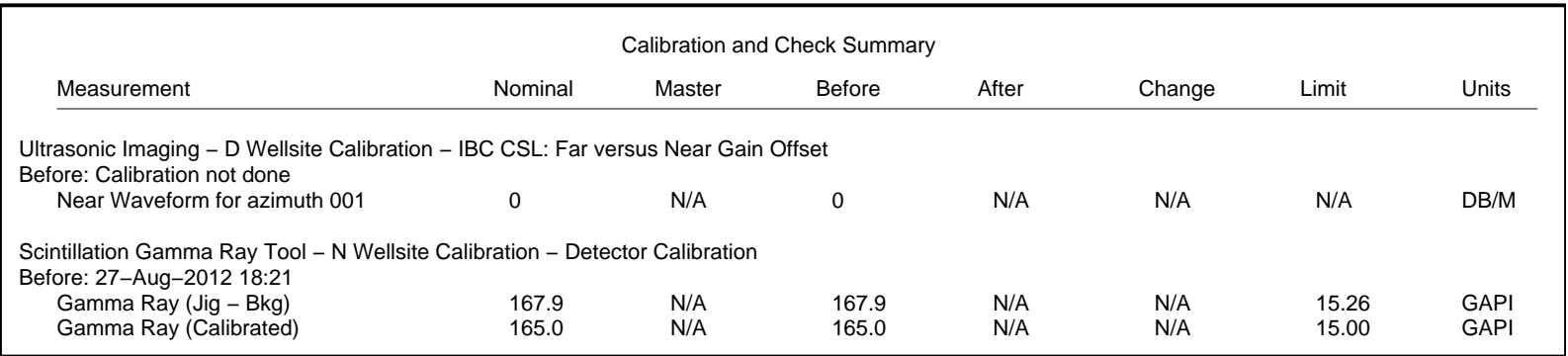
USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.


Input DLIS Files						
DEFAULT	USI_014LUP	FN:13	PRODUCER	28-Aug-2012 01:58	7334.0 FT	193.0 FT
Output DLIS Files						
DEFAULT	USI_017PUP	FN:16	PRODUCER	28-Aug-2012 05:37		










Ultrasonic Imaging – D / Equipment Identification	
Primary Equipment:	
IBC 7 Inch Sub	IBCS – 100
Ultrasonic Transducer	Bott –
Ultrasonic Transducer	Midd –
Ultrasonic Transducer	Midd –
Ultrasonic Transducer	Top –
USIT sonde	USIS – A
USIT Sonde Cartridge For 4 Transducers	USSC – B
USIT Acquisition Cartridge DTS/FTB	USIC – D
Auxiliary Equipment:	
USIT Housing/cartridge	ECH – MRA

Ultrasonic Imaging – D Wellsite Calibration			
IBC CSL: Far versus Near Gain Offset			
Phase	Near Waveform for azimuth 001	DB/M	Value
Before			0
	-200.0 (Minimum)	0 (Nominal)	200.0 (Maximum)
Before: Calibration not done			

Scintillation Gamma Ray Tool – N / Equipment Identification	
Primary Equipment:	
Scintillation Gamma Cartridge	SGC – TB
Scintillation Gamma Detector	SGD – TAB
Auxiliary Equipment:	
Scintillation Gamma Housing	SGH – K
Gamma Source Radioactive	GSR – U/Y

Scintillation Gamma Ray Tool – N Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background		GAPI	Value	Phase	Gamma Ray (Jig – Bkg)		GAPI	Value	Phase	Gamma Ray (Calibrated)		GAPI	Value
Before				71.45	Before				167.9	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			152.6 (Minimum)	167.9 (Nominal)	183.1 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	
Before: 27–Aug–2012 18:21														

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH – A
DTCH – A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH – KC

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

Schlumberger

Well: **Echeverria 2A-2H**

Field: **Wattenberg**

County: **Weld**

State: **Colorado**

Cement and Casing Corrosion Analysis