

Company: ANTERO RESOURCES CORPORATION

Well: CSF 21C-07-07-91

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

ISOLATION SCANNER  
CEMENT EVALUATION & CORROSION  
GAMMA RAY

County: GARFIELD

Field: MAMM CREEK

Location: SHL: 2081' FNL & 1975' FWL

Well: CSF 21C-07-07-91

Company: ANTERO RESOURCES CORPORATION

LOCATION

SHL: 2081' FNL & 1975' FWL

Elev.: K.B. 6859.00 ft  
G.L. 6837.00 ft  
D.F. 6558.00 ft

Permanent Datum: \_\_\_\_\_  
Log Measured From: KELLY BUSHING  
Drilling Measured From: KELLY BUSHING

GROUND LEVEL \_\_\_\_\_  
Elev.: 6837.00 ft  
22.00 ft above Perm. Datum

API Serial No. 05-045-17084-000C

Section 7

Township 7S

Range 91W

		Run 1	Run 2	Run 3
PVT DATA				
Oil Density				
Water Salinity				
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	FOAM			
Volume				
Density	11 lbm/gal			
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				

Logging Date 14-Feb-2011

Run Number 1

Depth Driller 9451 ft

Schlumberger Depth 7440 ft

Bottom Log Interval 7439.2 ft

Top Log Interval 3800 ft

Casing Fluid Type FRESH WATER

Salinity

Density 8.4 lbm/gal

Fluid Level 0 ft

BIT/CASING/TUBING STRING

Bit Size 7.875 in

From 22 ft

To 12435 ft

Casing/Tubing Size 5.500 in

Weight 23 lbm/ft

Grade

From 22 ft

To 12435 ft

Maximum Recorded Temperatures 215 degF

Logger On Bottom 14-Feb-2011

Unit Number 2105

Location GRAND JUNCTION, CO

Recorded By M. ARNETT

Witnessed By GEORGE

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				
Location				
Recorded By				
Witnessed By				

## DEPTH SUMMARY LISTING

Date Created: 14-FEB-2011 17:19:11

## Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46P XS
Serial Number:	6214	Serial Number:	2537	Serial Number:	2105
Calibration Date:	20-jan-2011	Calibration Date:	20-JAN-2011	Length:	13500 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	1159	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-8	Calibration RMS:	41		
Wheel Correction 2:	-6	Calibration Peak Error:	67		

## Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	CBL (MESA WL)
Reference Log Run Number:	1
Reference Log Date:	23-NOV-2008
Subsequent Trip Down Log Correction:	

### Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE, Z-CHART USED AS SECONDARY
- 3.
- 4.
- 5.
- 6.

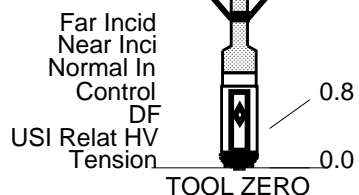
## DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1 OS1: NONE OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS A SUBSEQUENT TRIP TO WELL	
LOG CORRELATED WITH: CBL RAN	
TOOLSTRING RUN AS PER TOOLSKETCH	
USIT SONDE RAN WITH TWO CENTRALIZERS WITH SMALL HOLE KIT	
CASING: 5.5", 23 LB/FT	
MAX TEMP: 215 DEGE	



RIG: PSW 33					
YOUR CREW: ROGER & KEN					
THANK YOU FOR CHOOSING SCHLUMBERGER!					
RUN 1			RUN 2		
SERVICE ORDER #: BCVF-00081			SERVICE ORDER #:		
PROGRAM VERSION: 17C0-154			PROGRAM VERSION:		
FLUID LEVEL: 0 ft			FLUID LEVEL:		
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 2845		35.2			
DTC-H ECH-KC 9080 DTCH0-A DTCH1-A	CTEM	31.3			
	TelStatus ToolStatu	29.2			
SGT-N SGH-K SGC-TB SGD-TAB	Gamma Ray	28.3			
AH-107 AH-107 2		23.7			
USIT-D ECH-MRA 6726 USIS-D 1846 USIS-A 1804 USSC-B 745 IBCS_A-100158201 783 Top Transducer Middle Top Transducer Middle Bottom Transducer Bottom Transducer		21.7			



MAXIMUM STRING DIAMETER 3.38 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

**Schlumberger**

## MAIN PASS SLG 2000 PSI

MAXIS Field Log

Company: ANTERO RESOURCES CORPORATION

Well: CSF 21C-07-07-9

### Input DLIS Files

DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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### Output DLIS Files

DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42	7439.0 FT	993.5 FT
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44	7439.0 FT	993.5 FT

### OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		

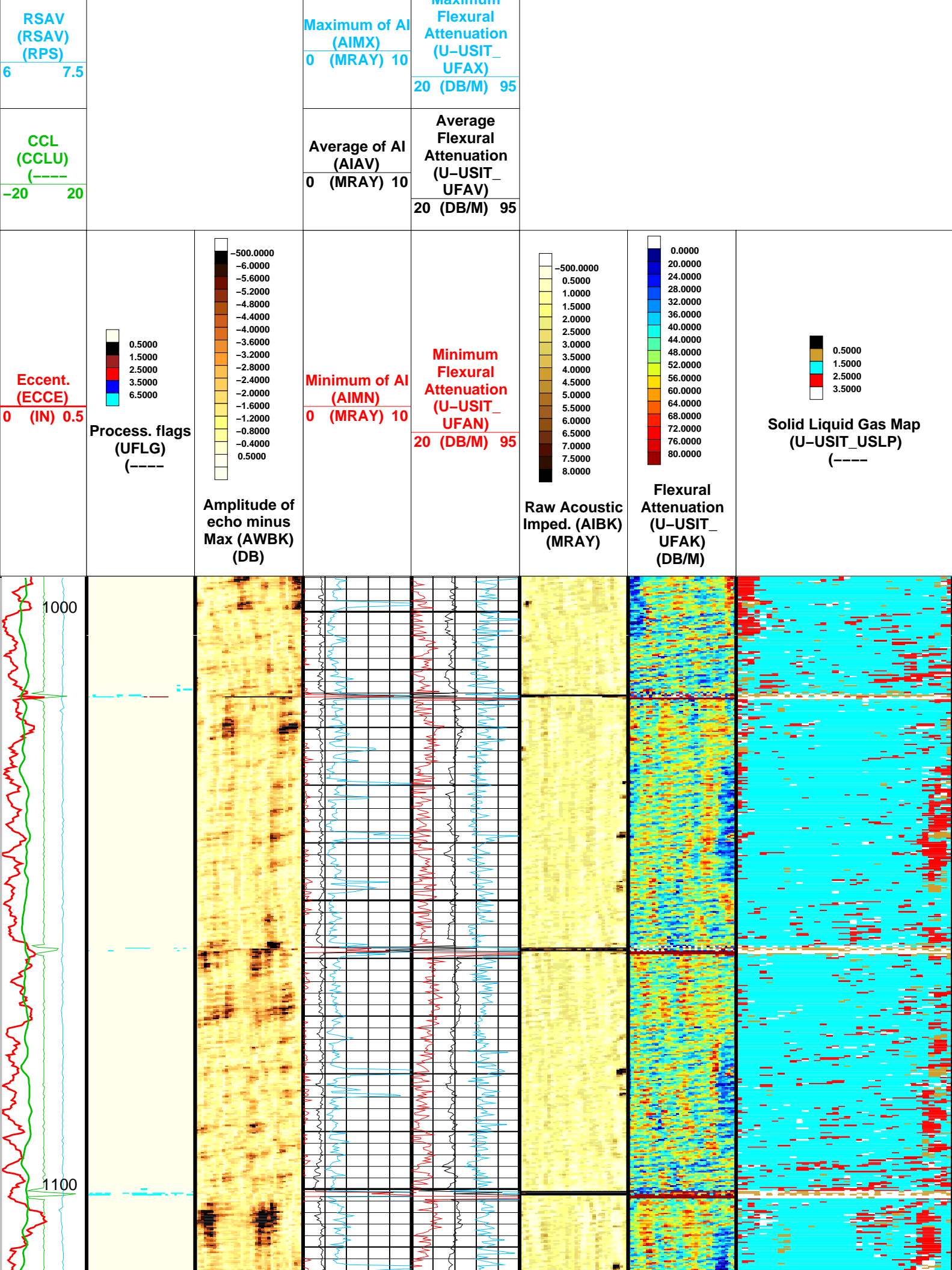
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rotation  
(UCAZ)  
(DEG)

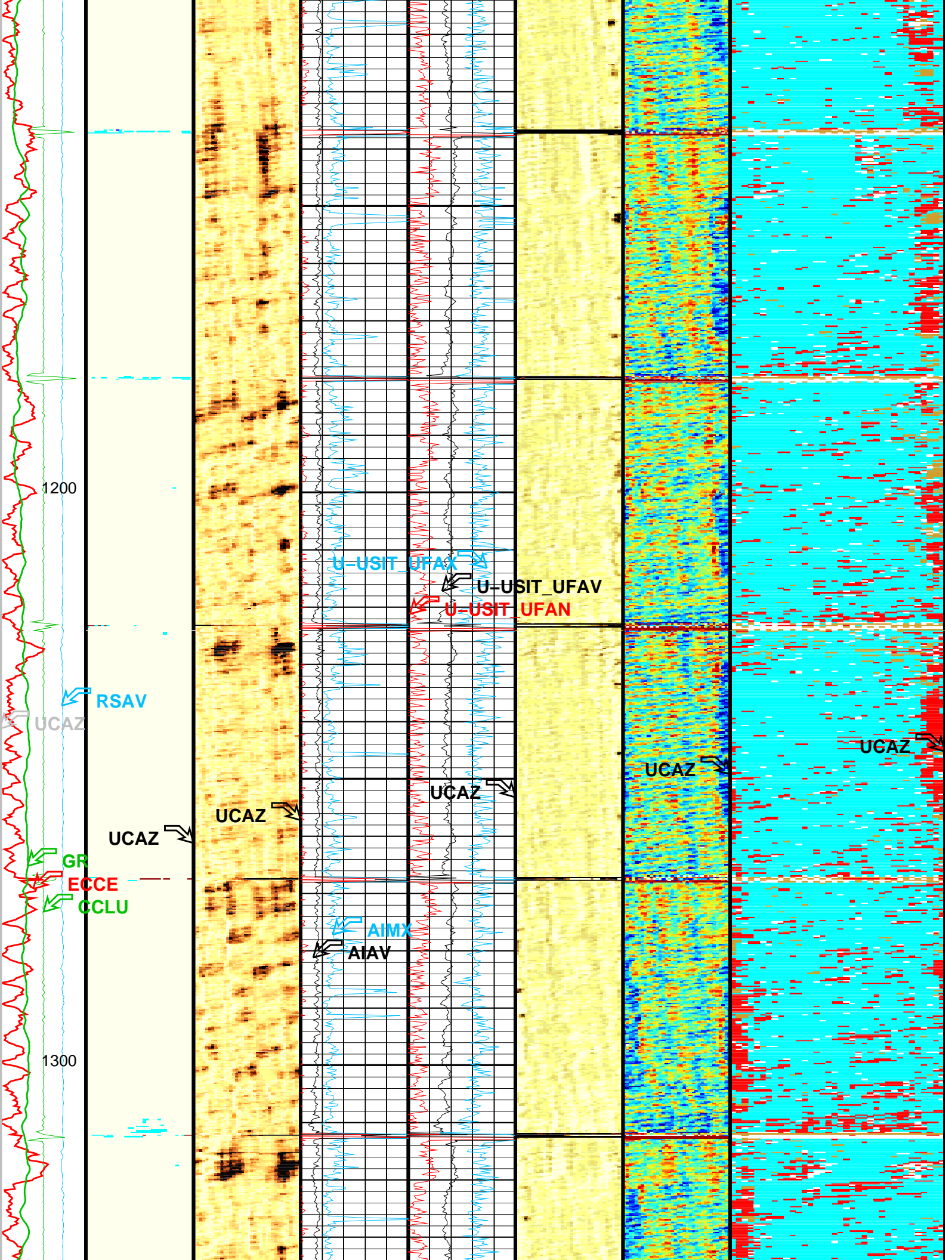
0 360

Gamma  
Ray (GR)  
(GAPI)

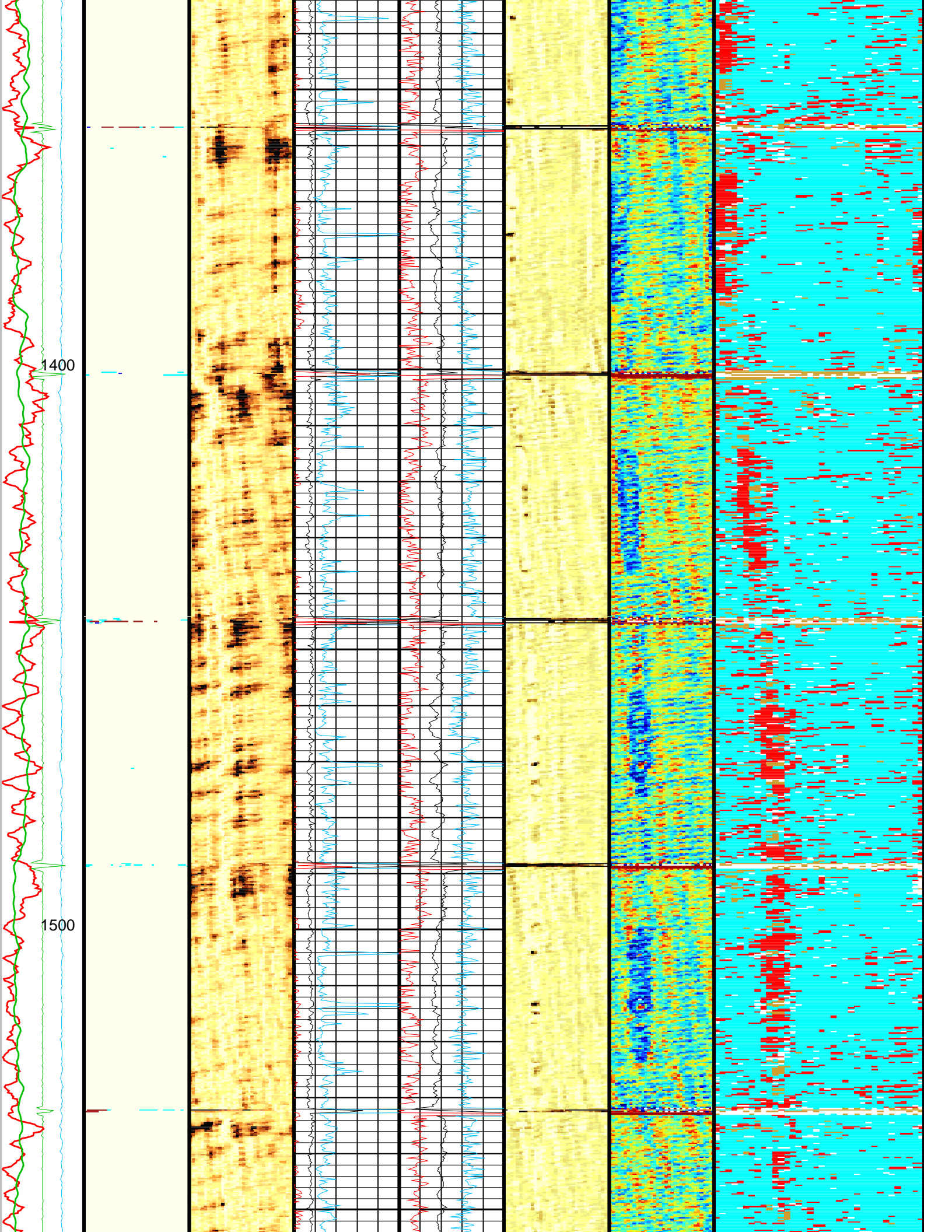
0 150

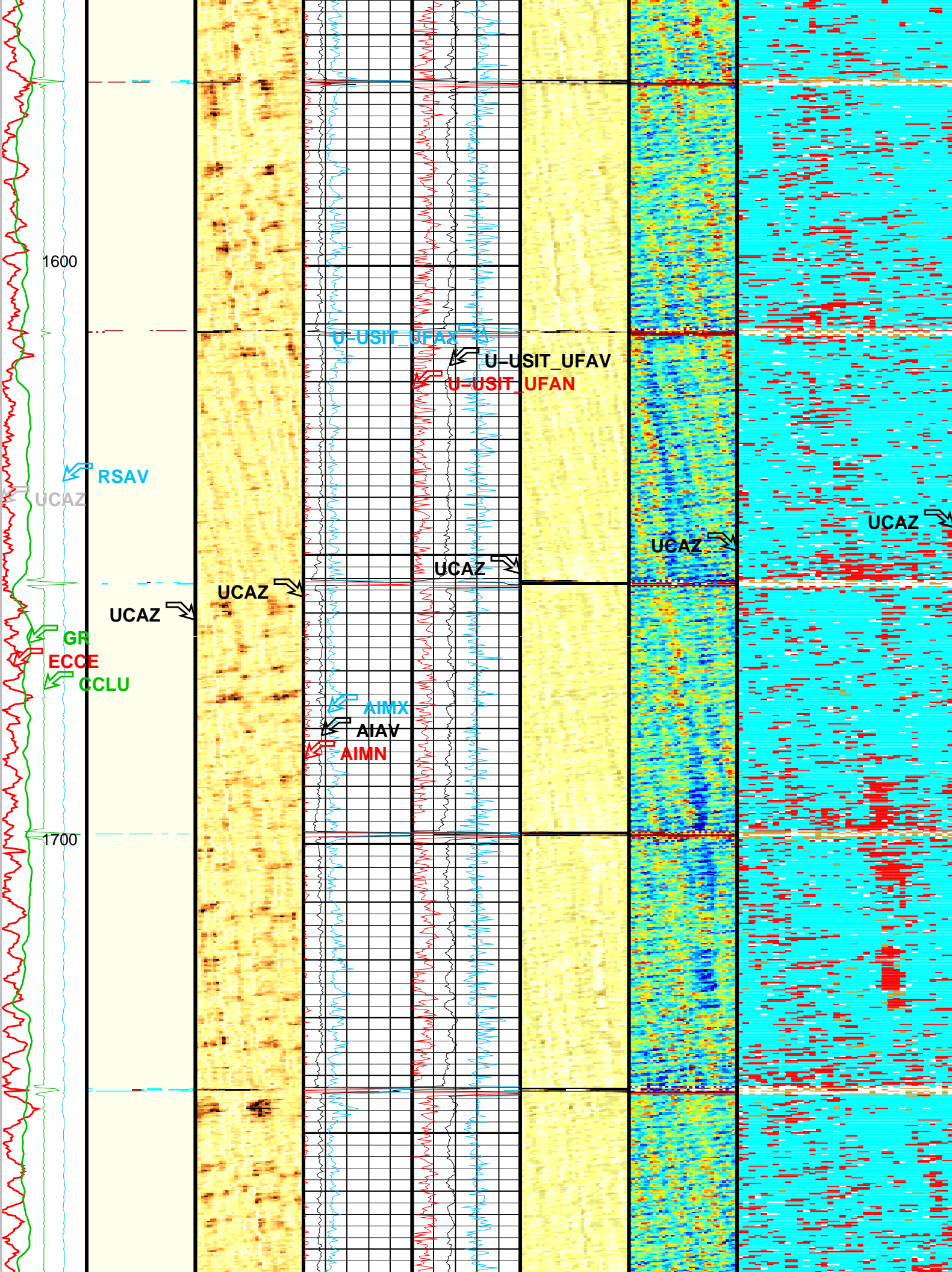
Maximum



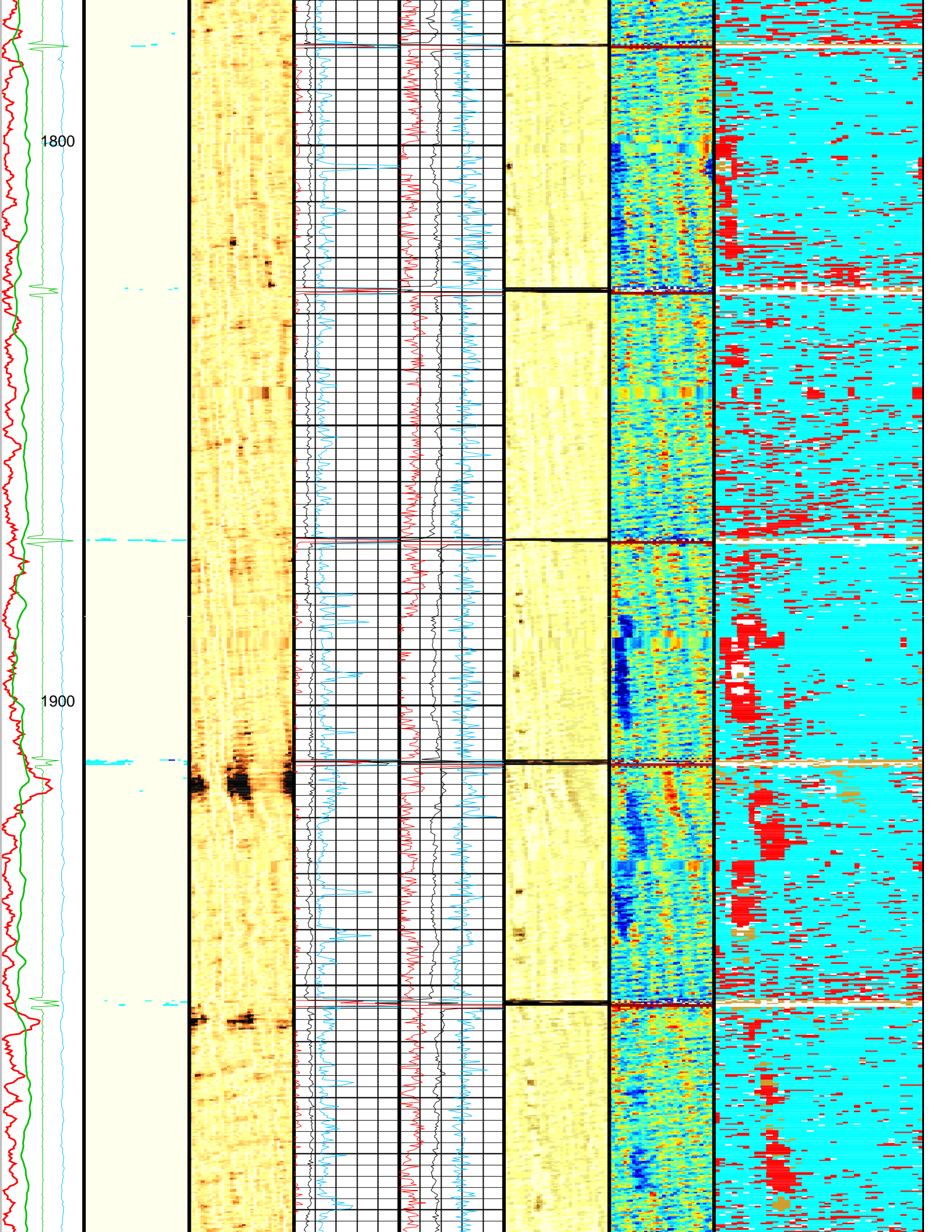


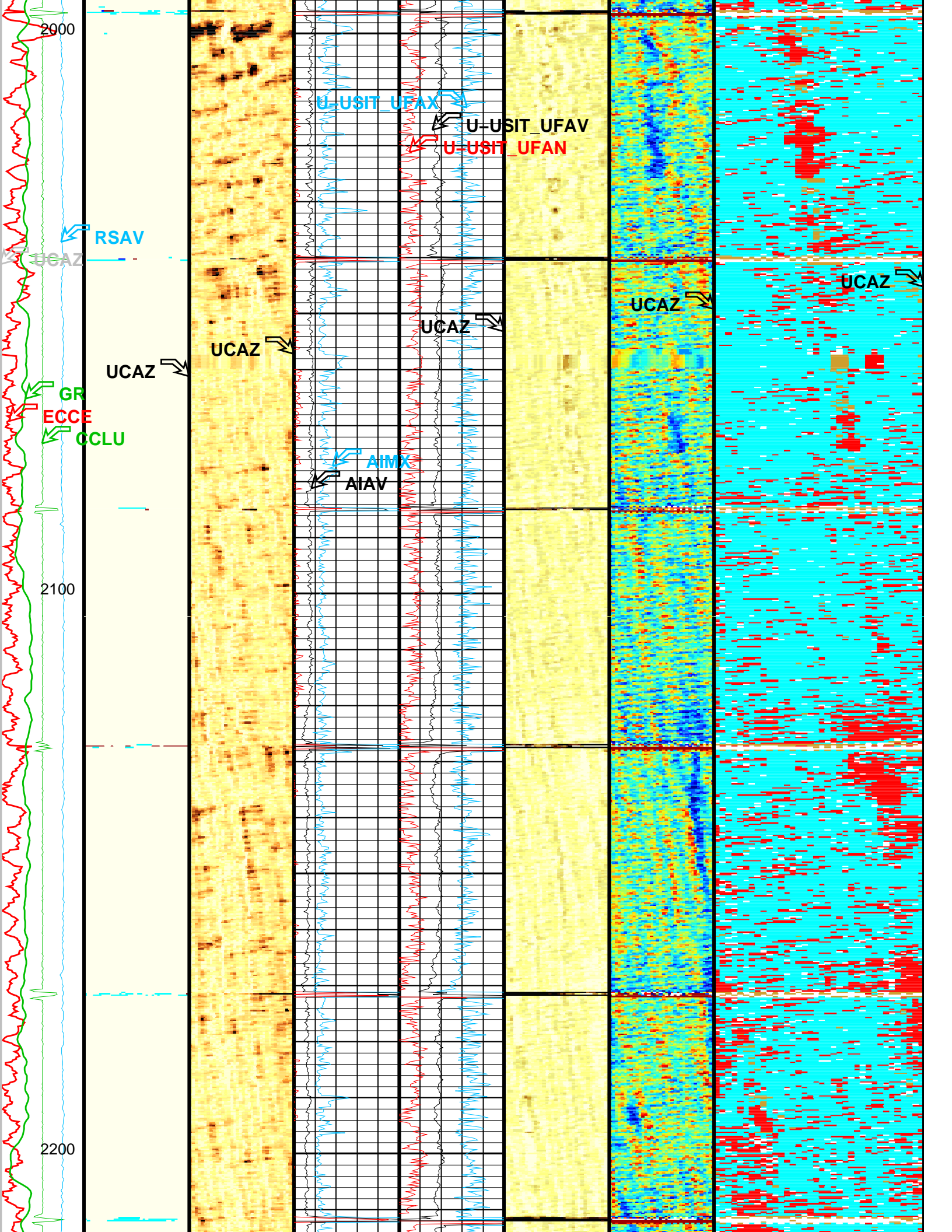




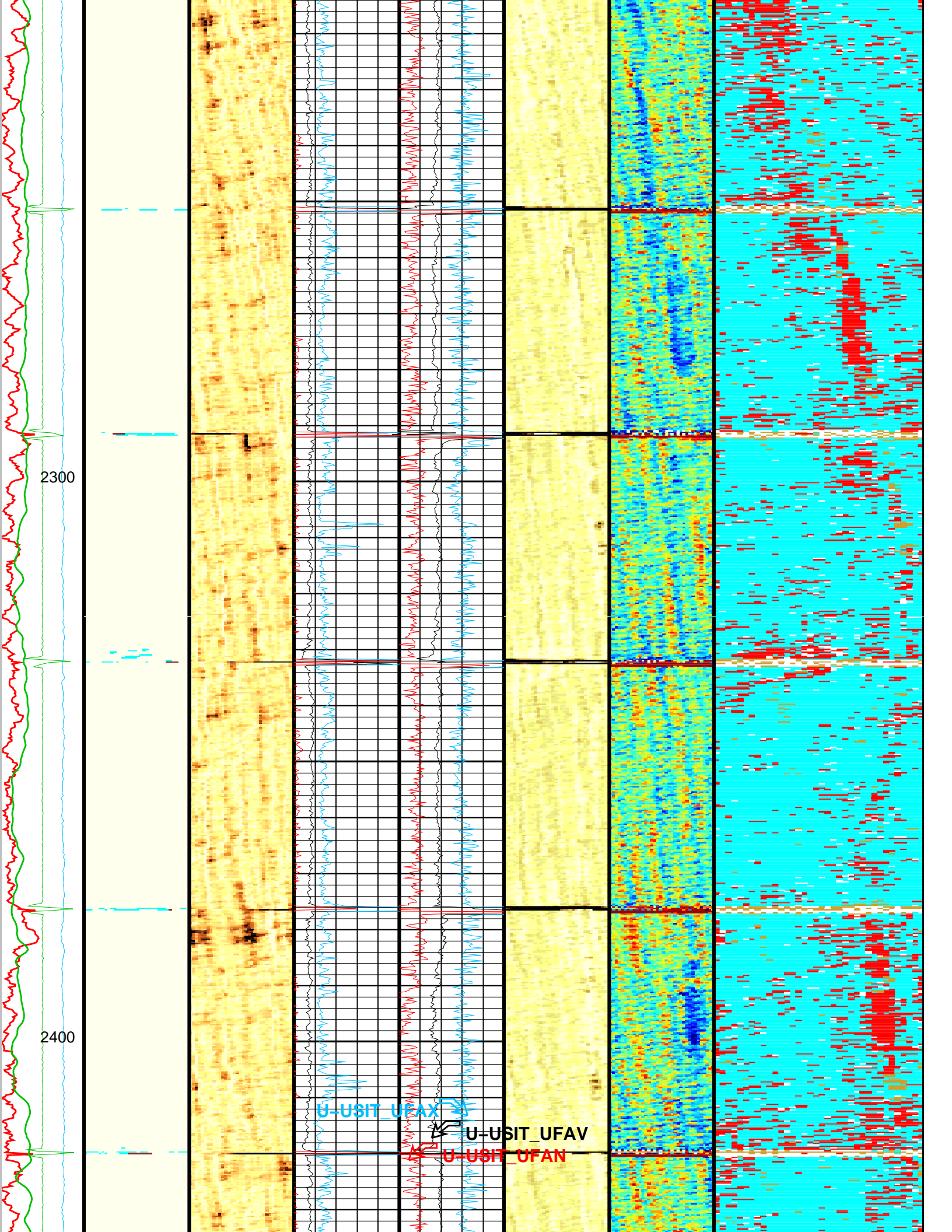


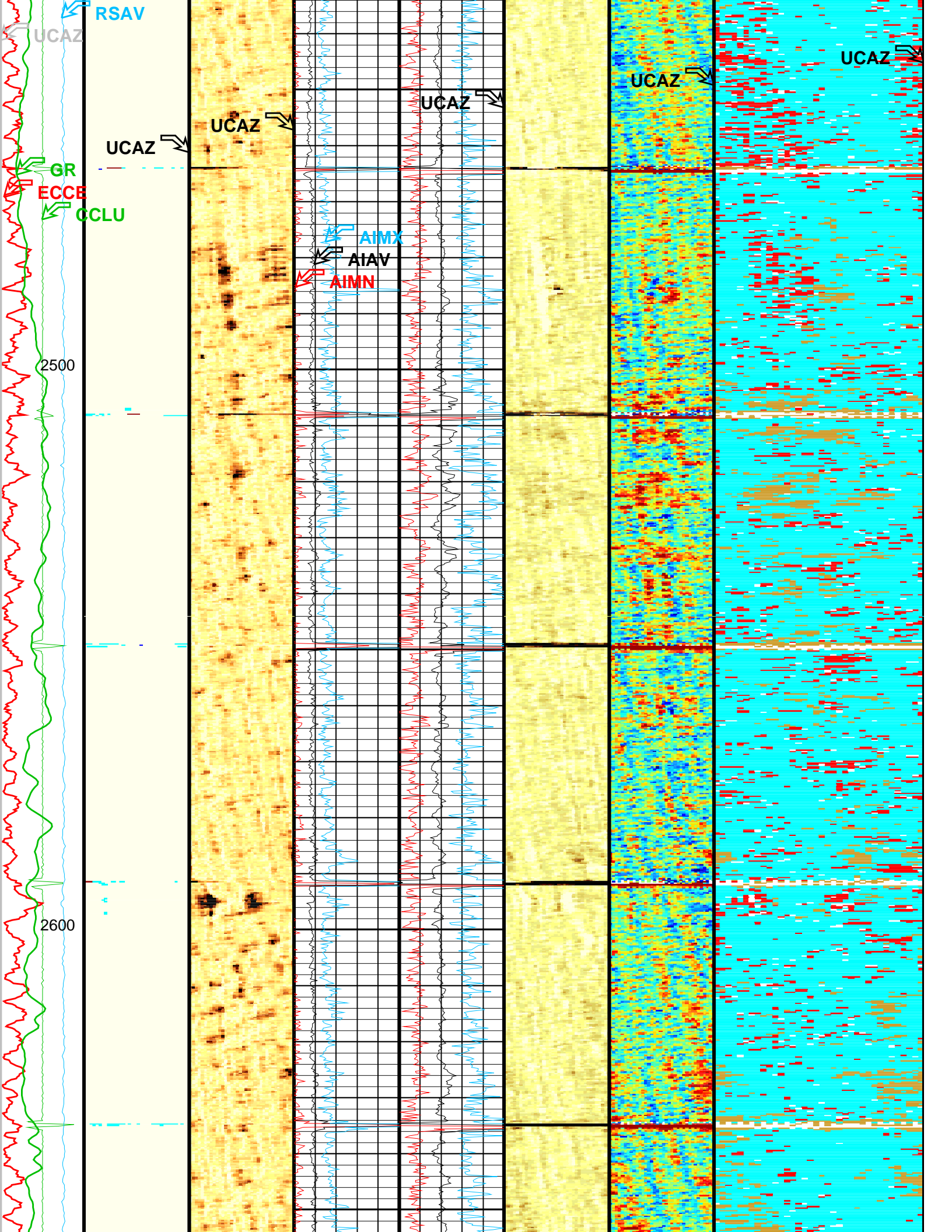




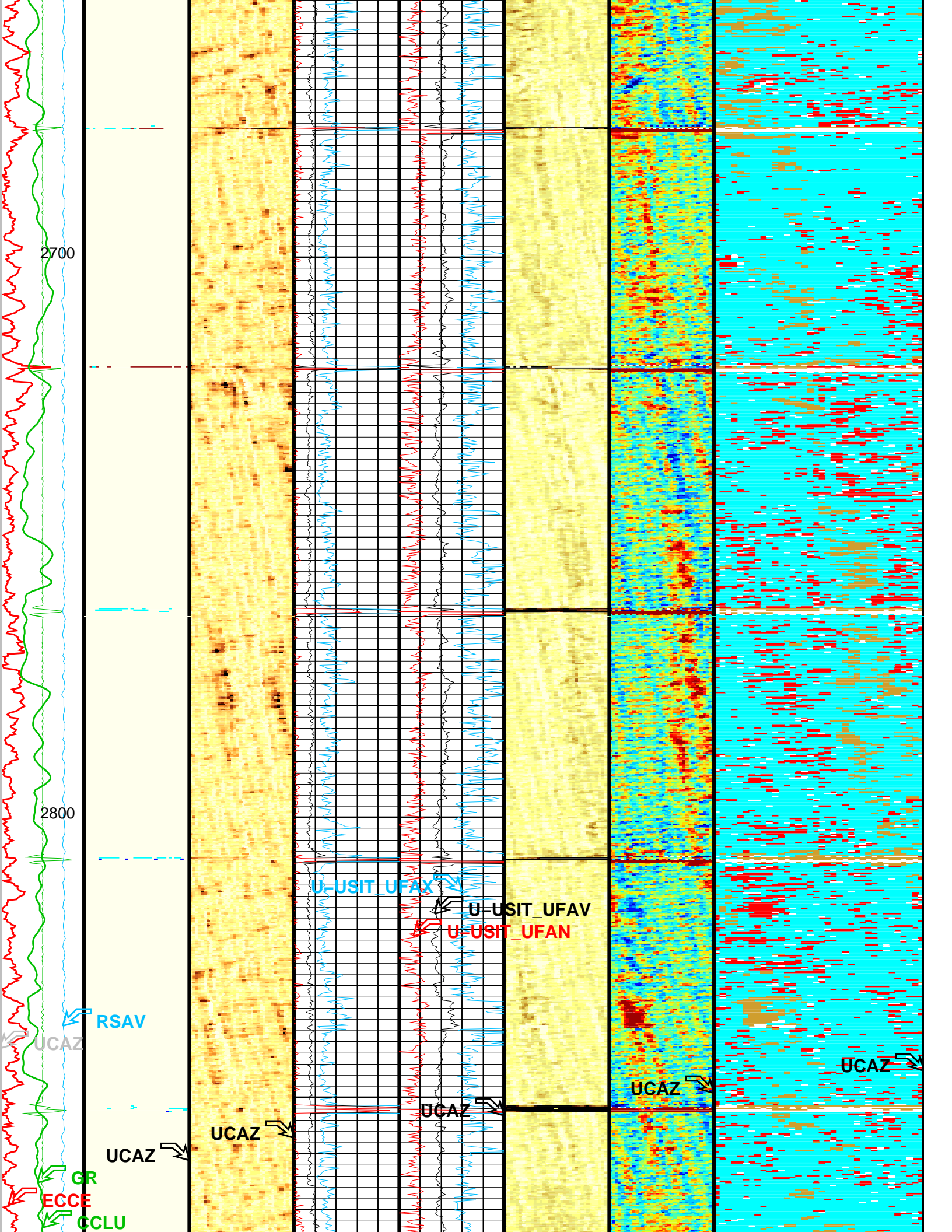


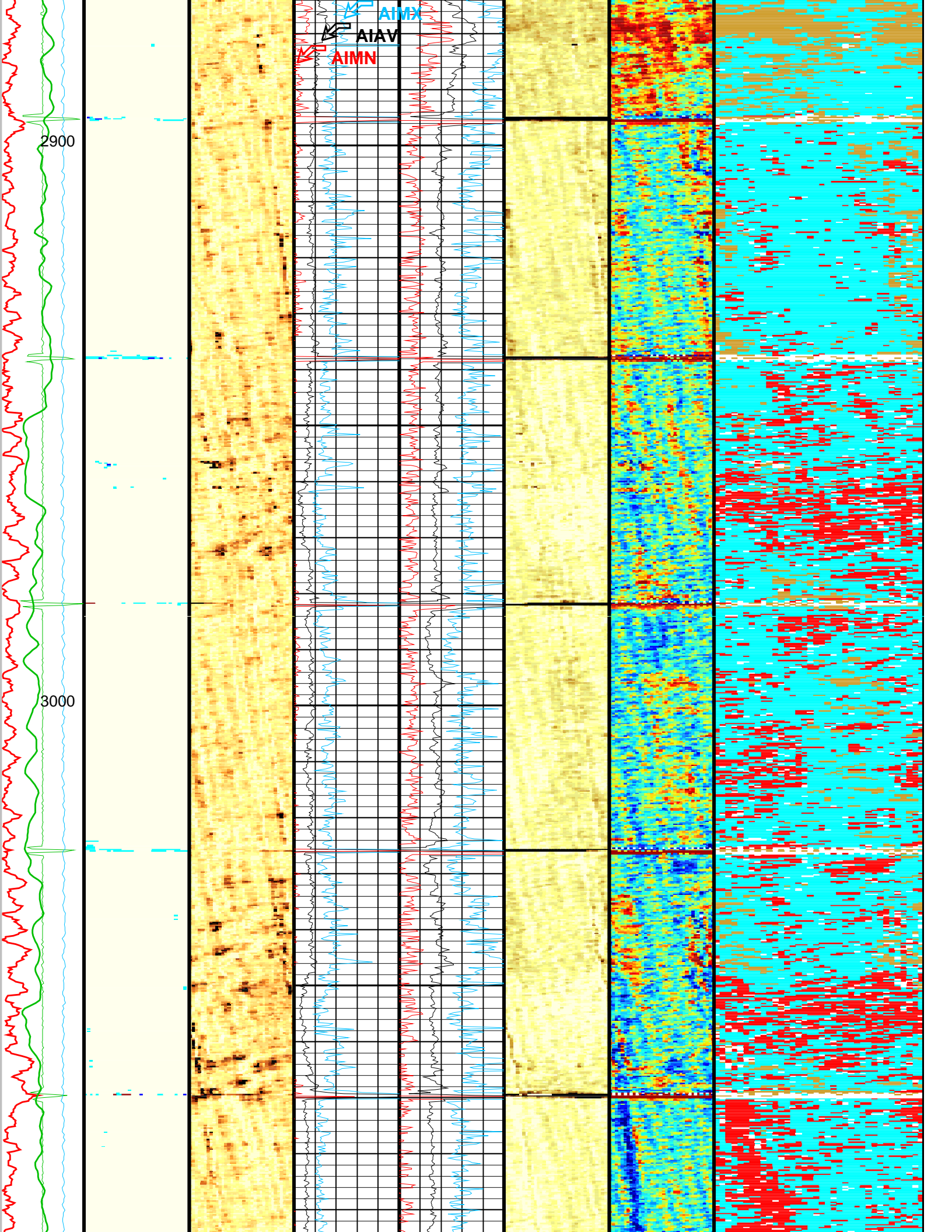




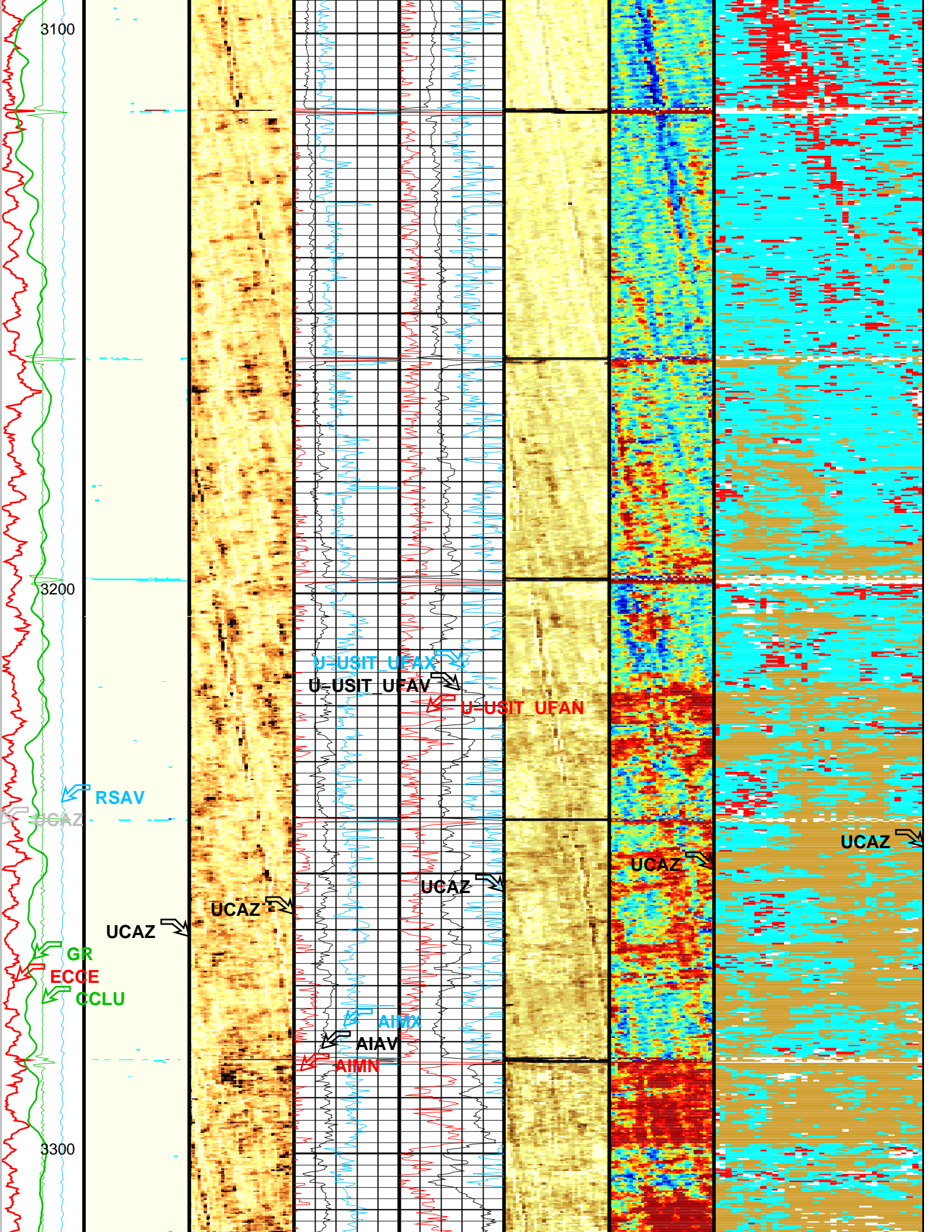


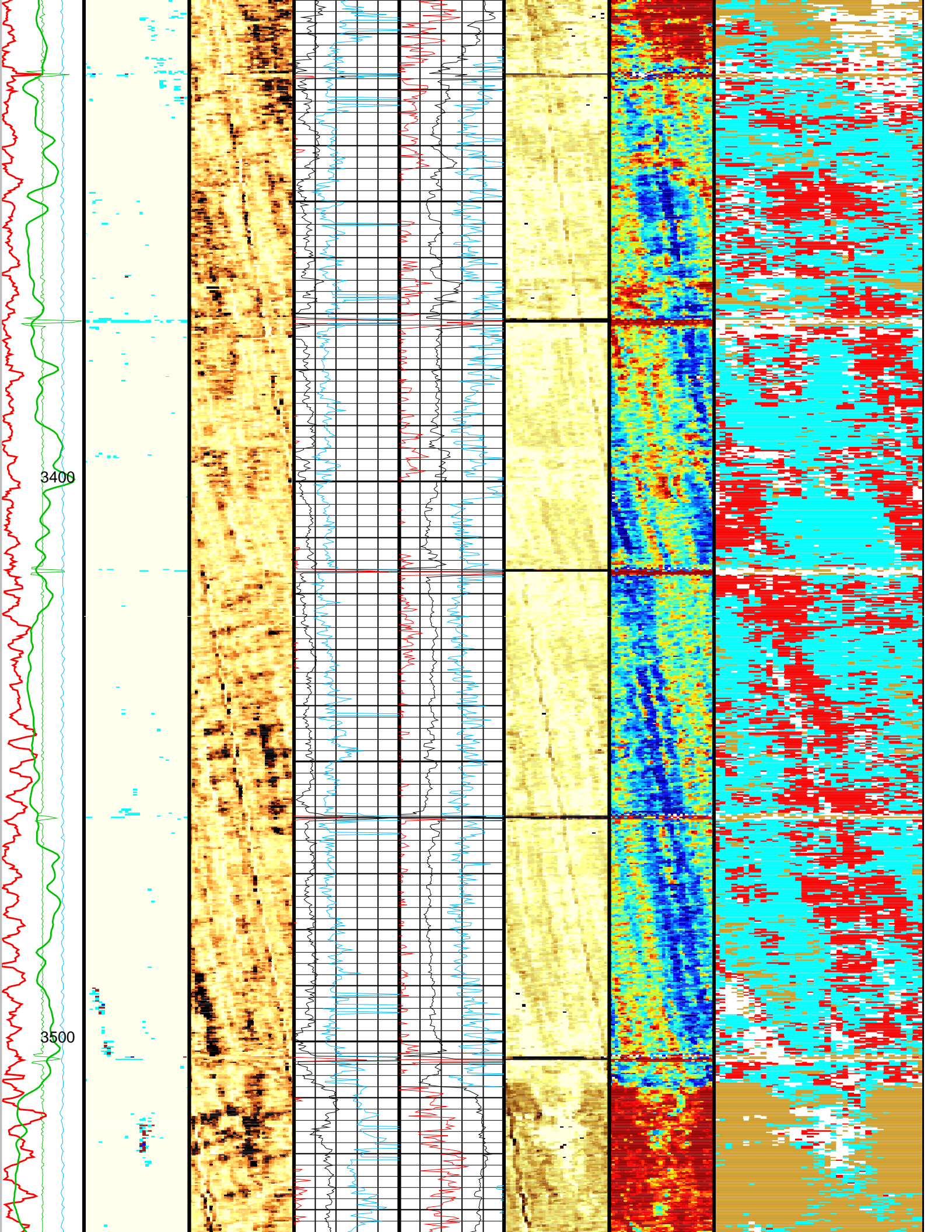




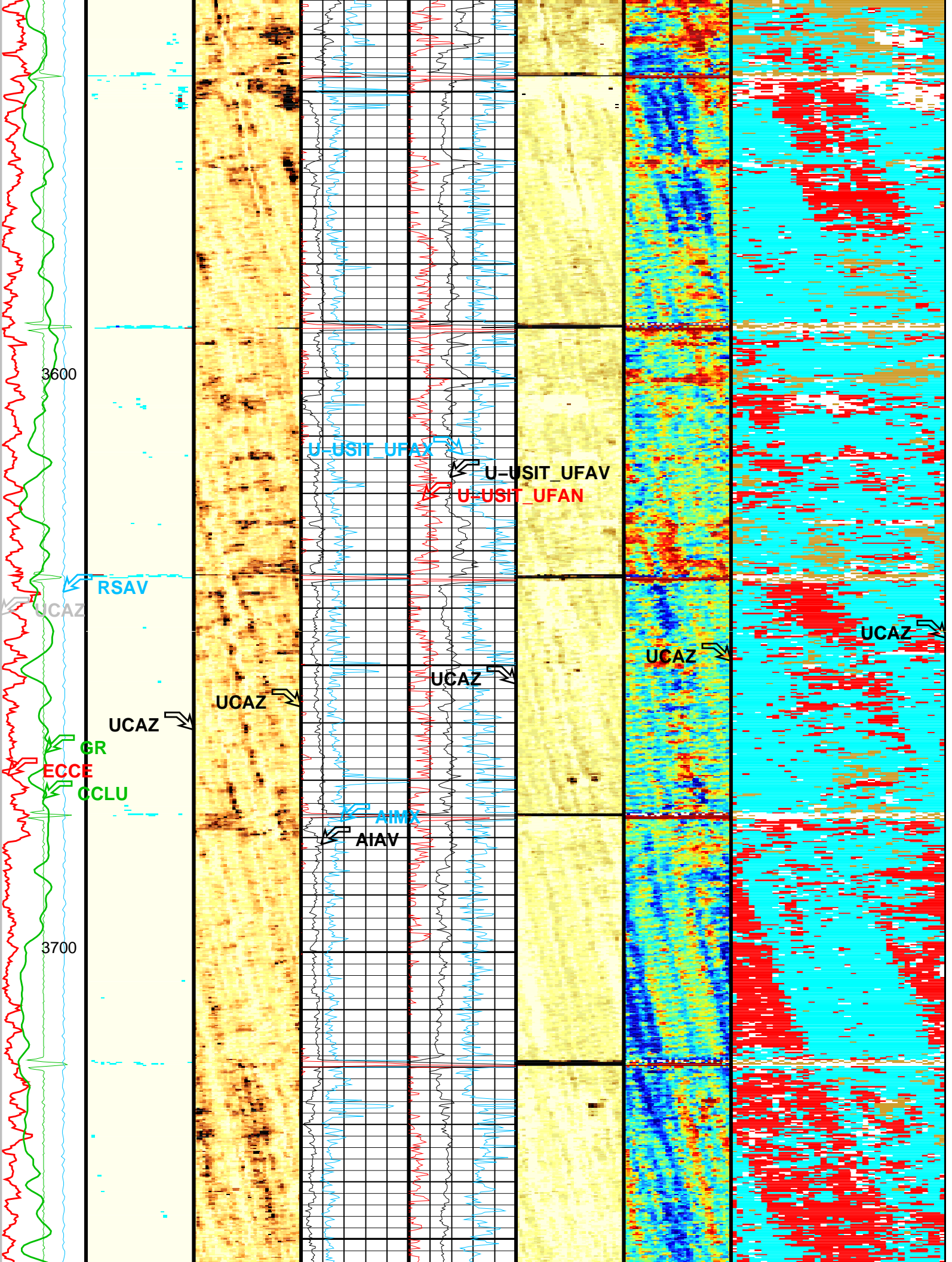


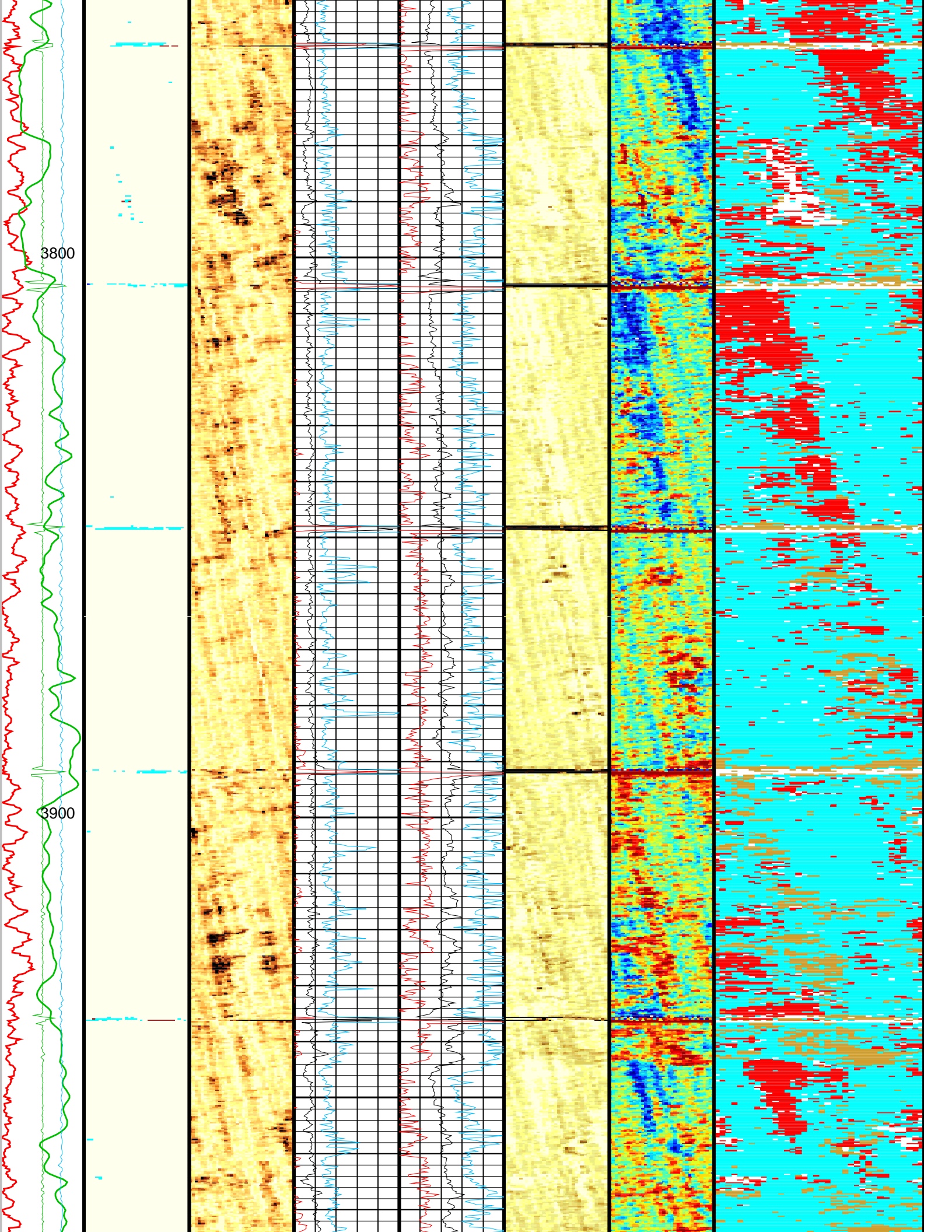




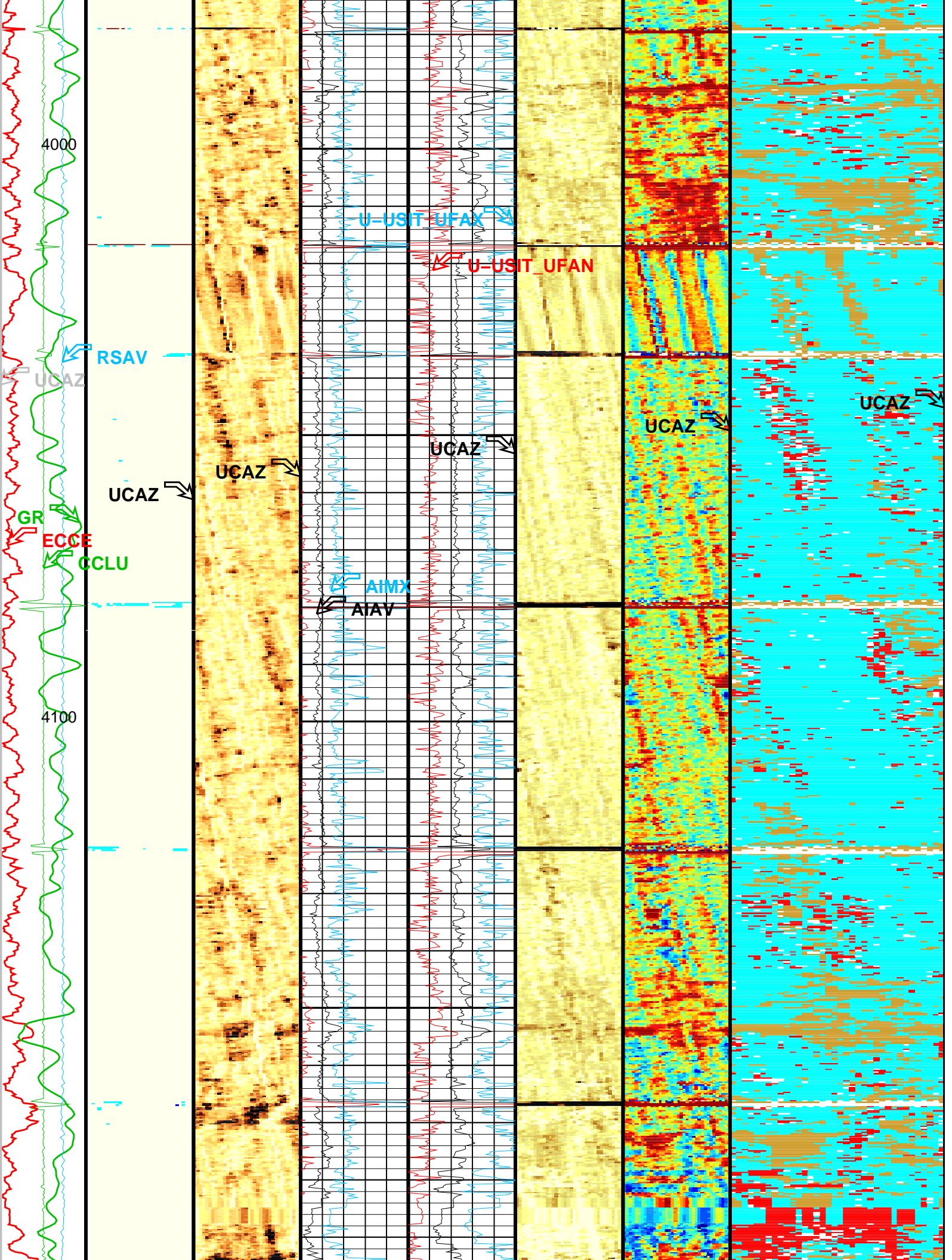


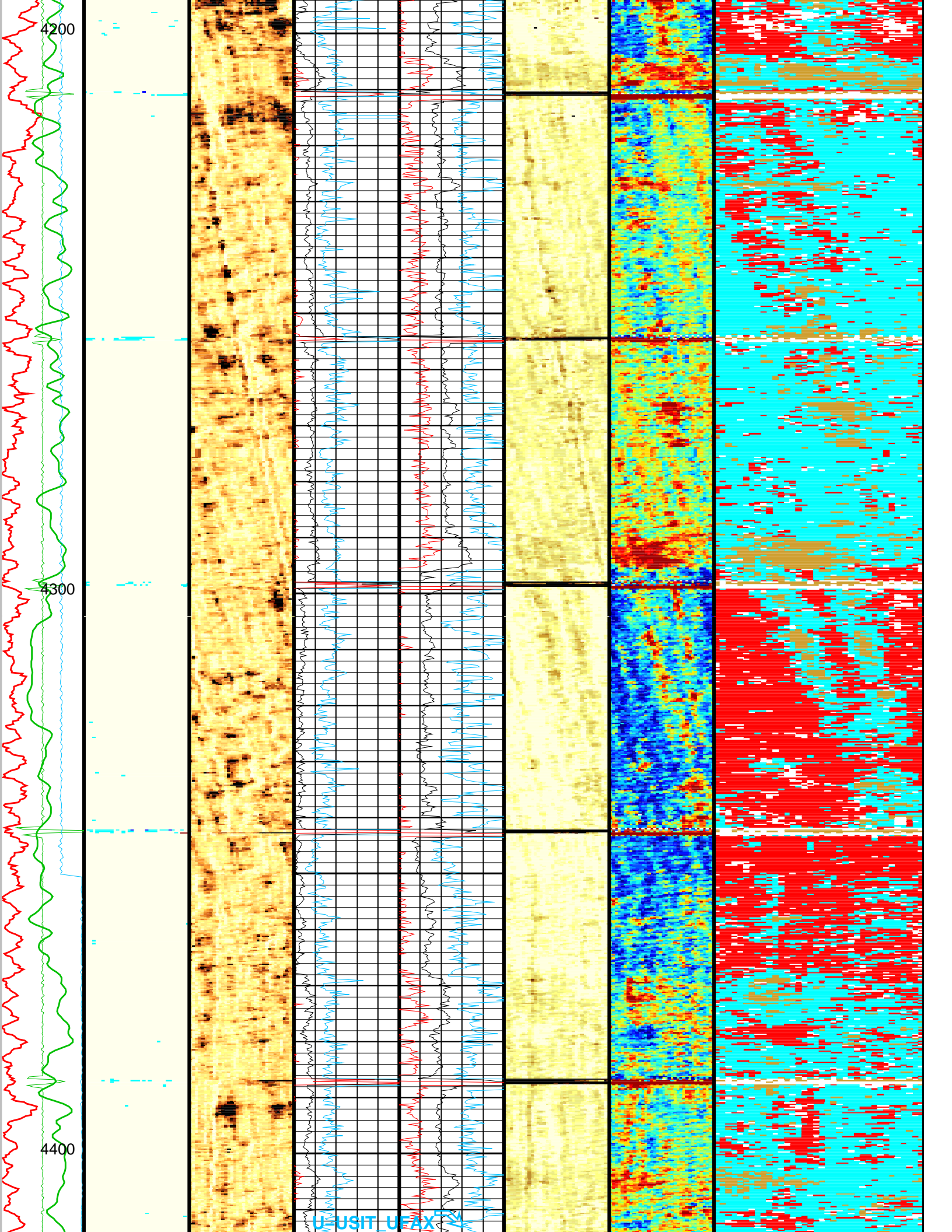




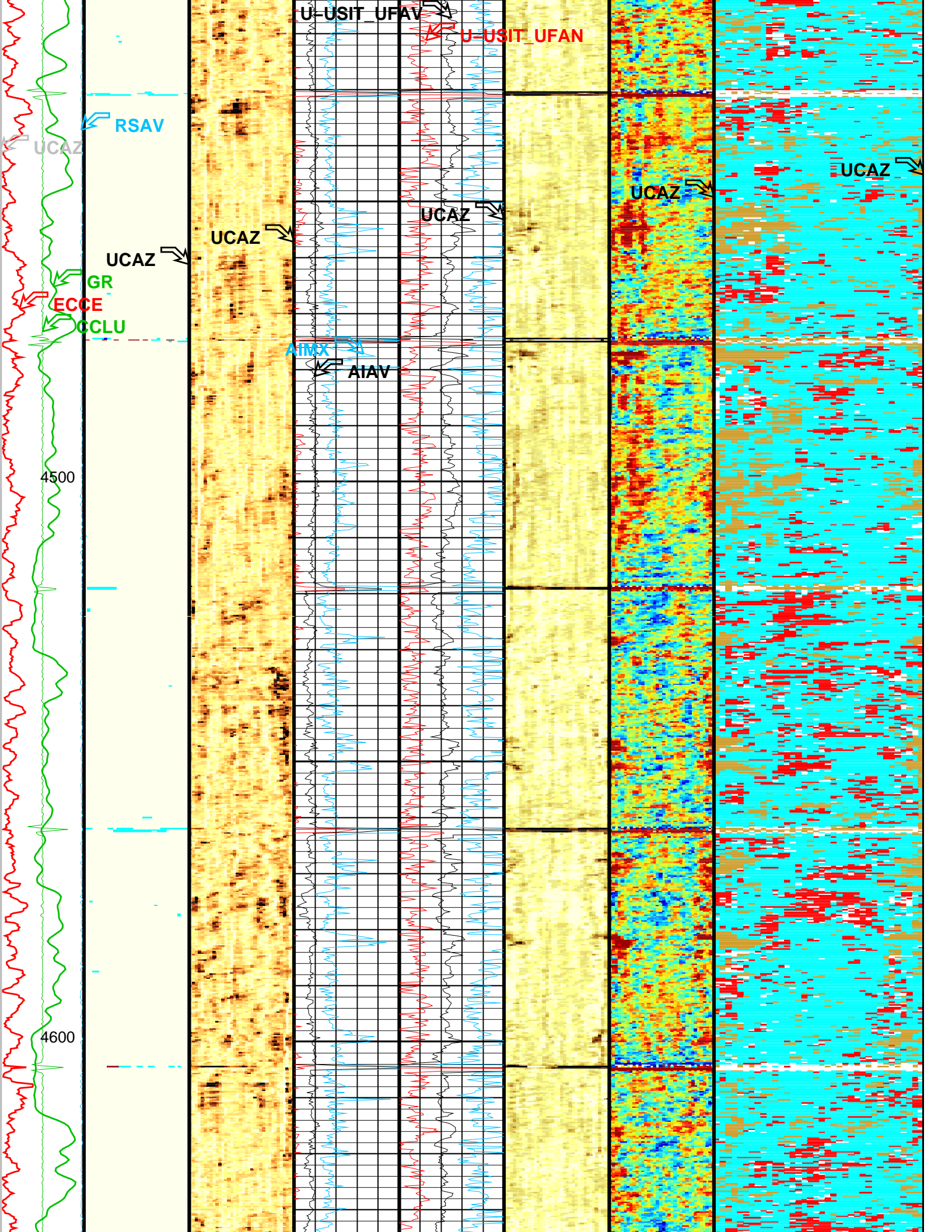


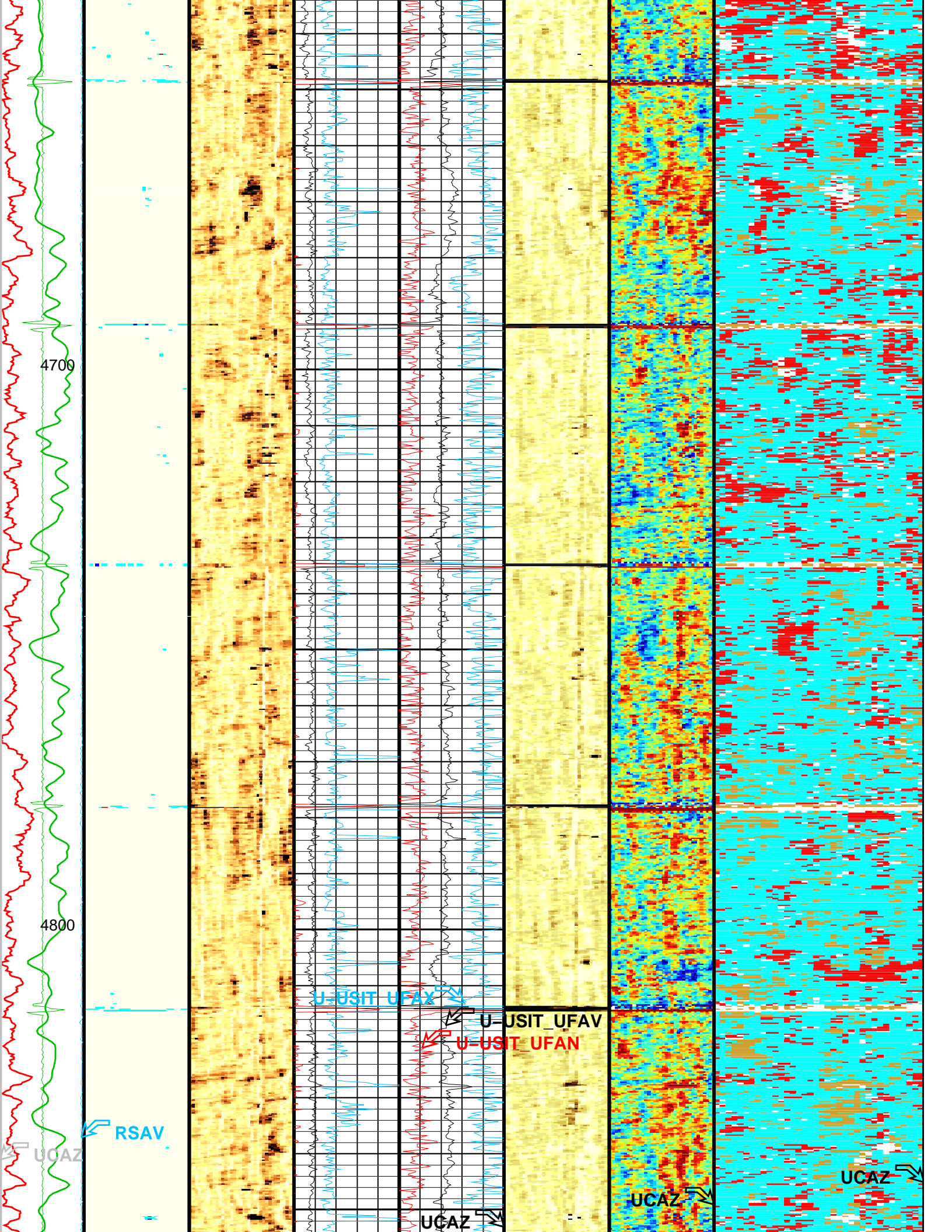




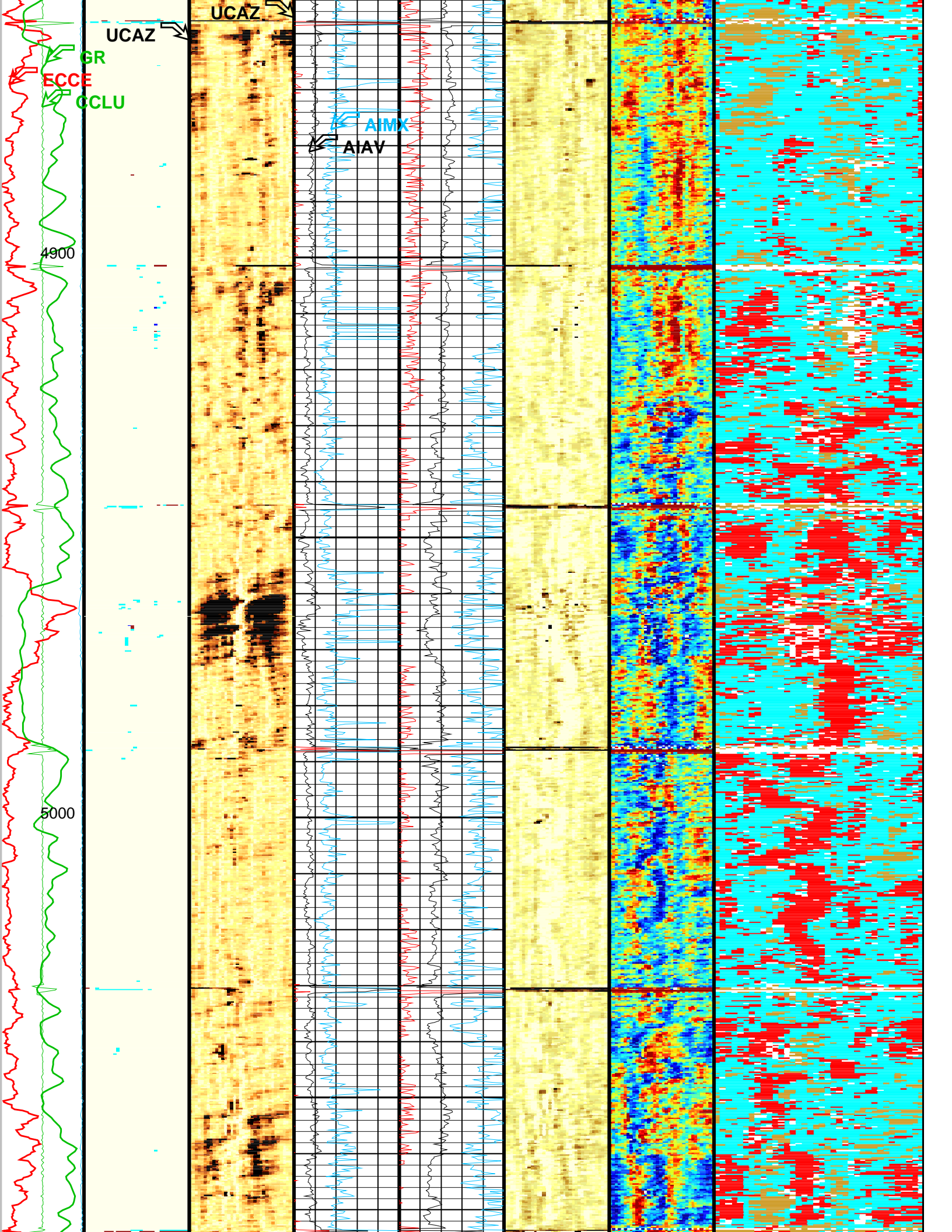


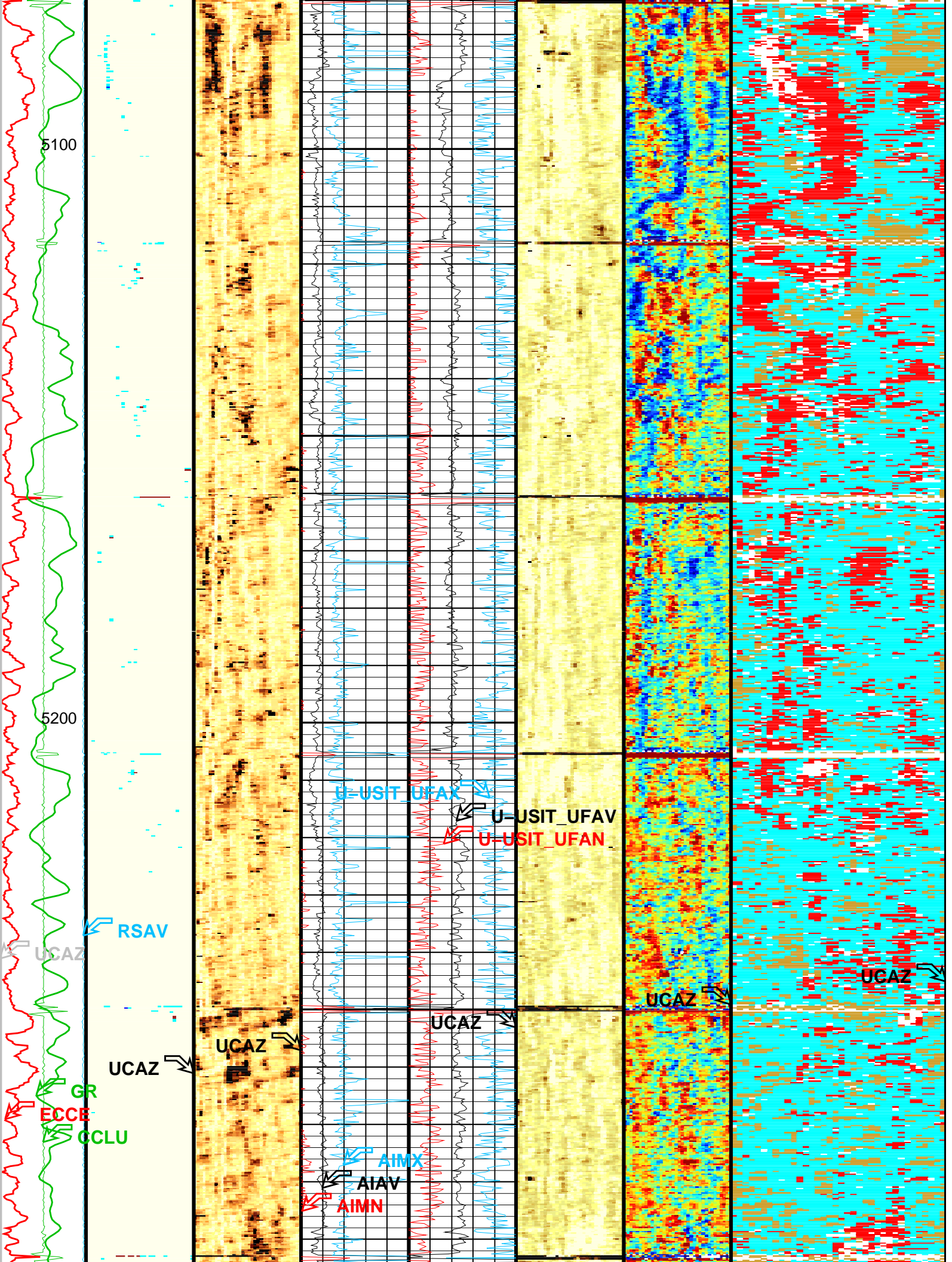




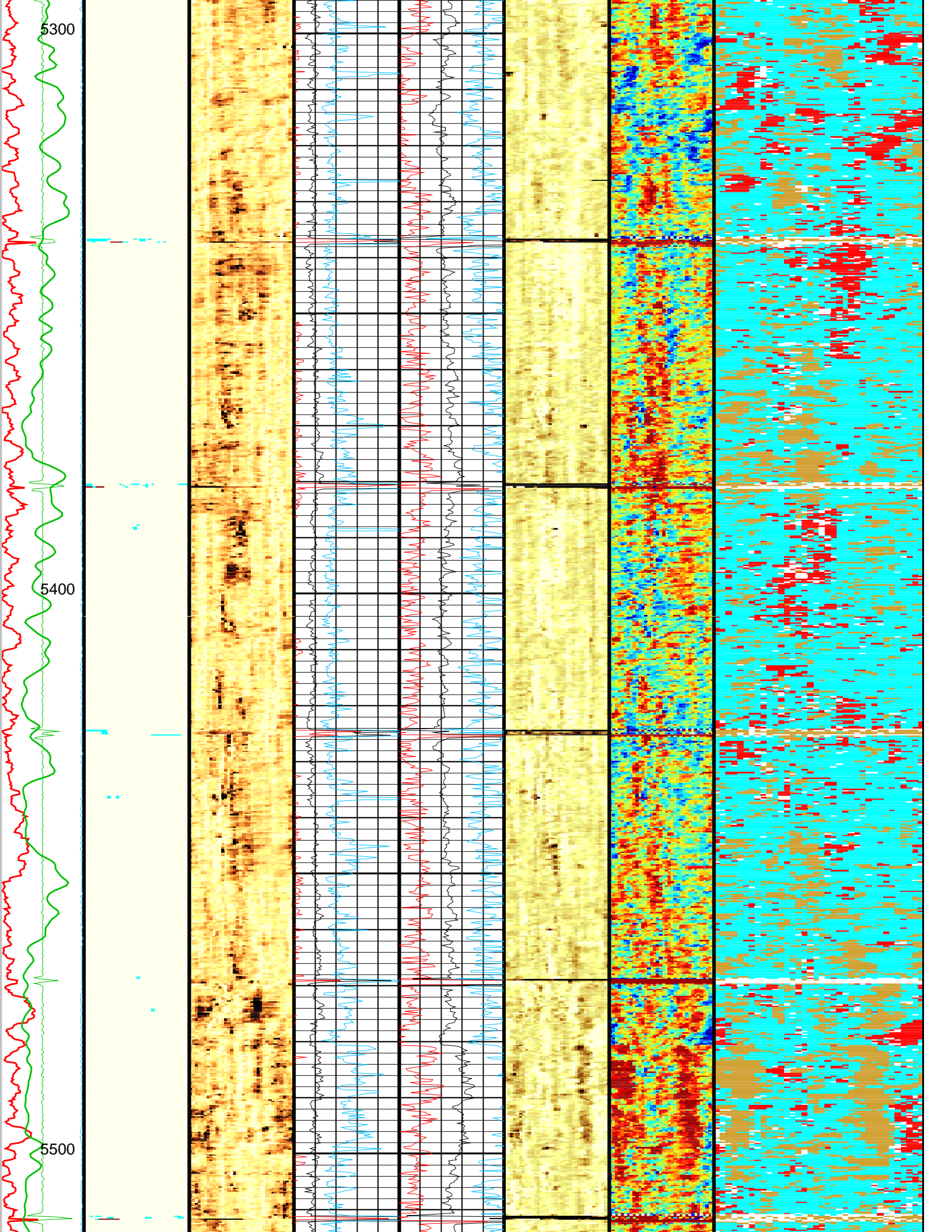


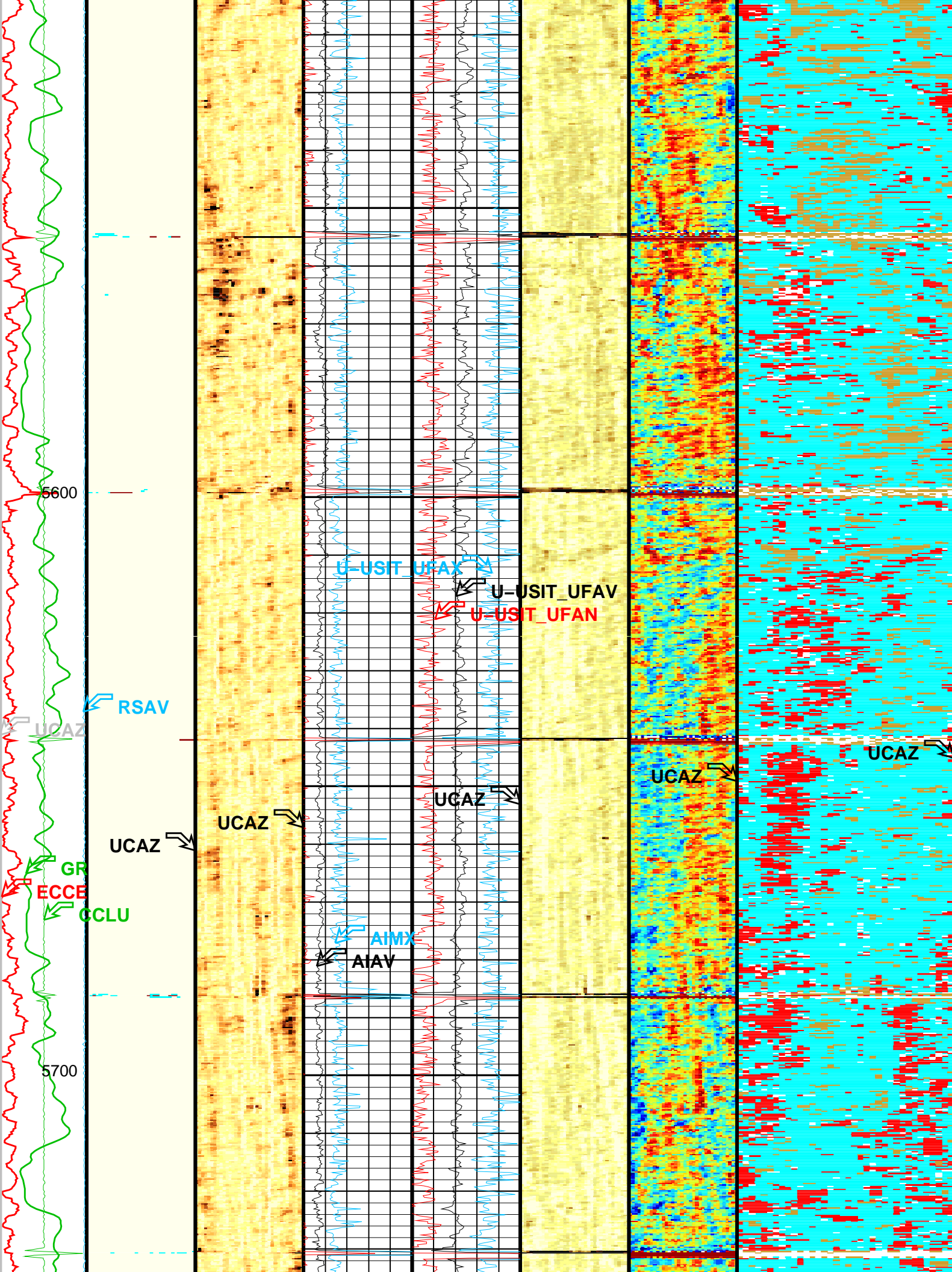




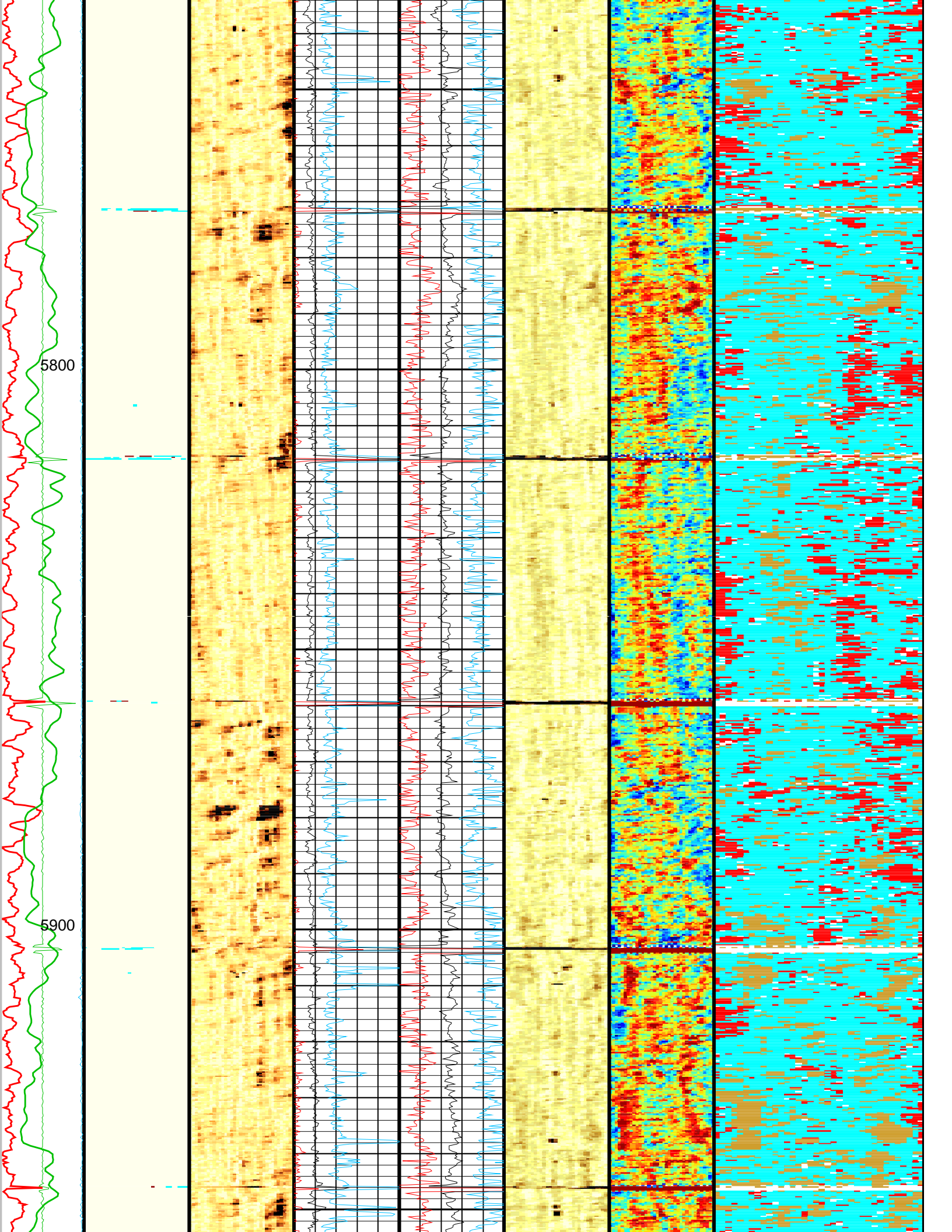


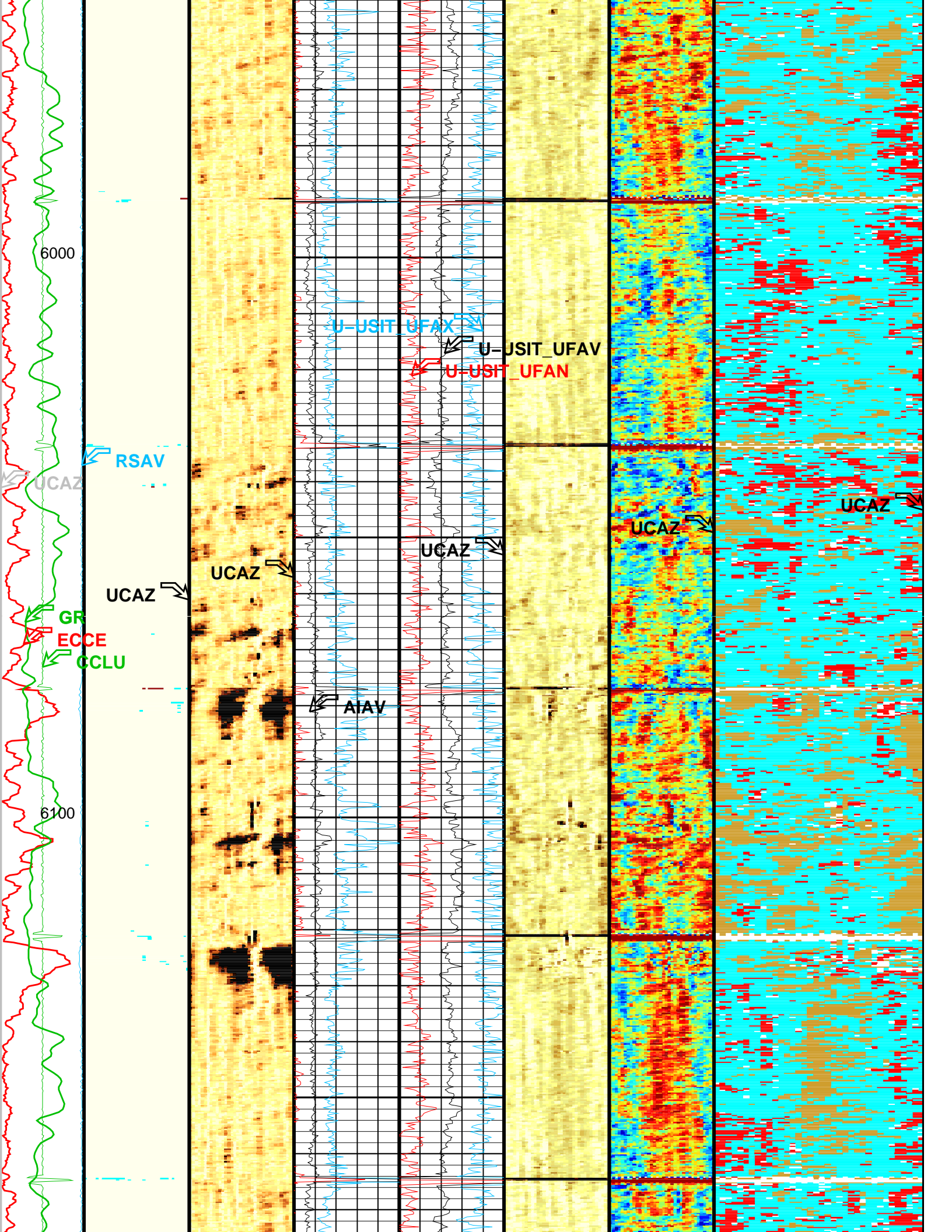




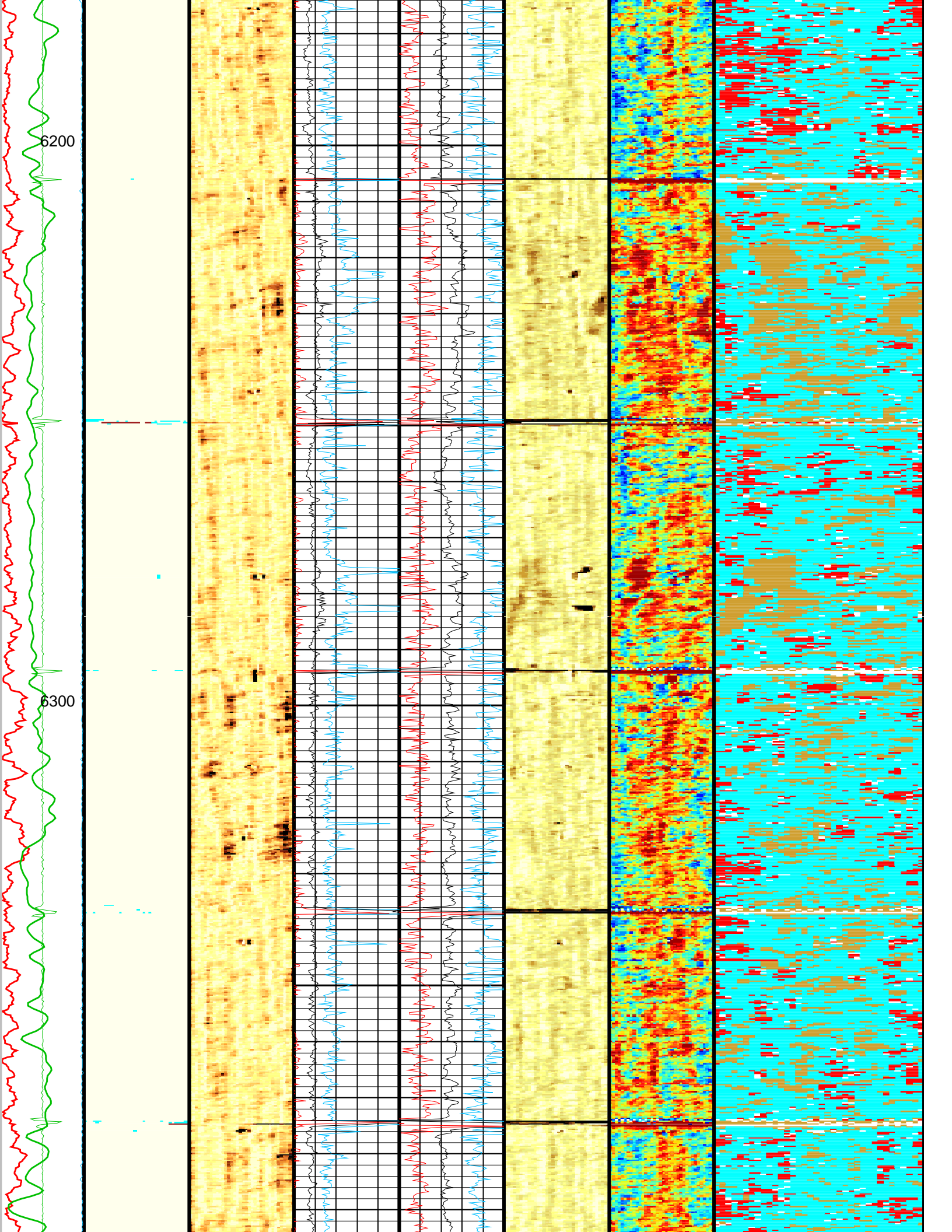


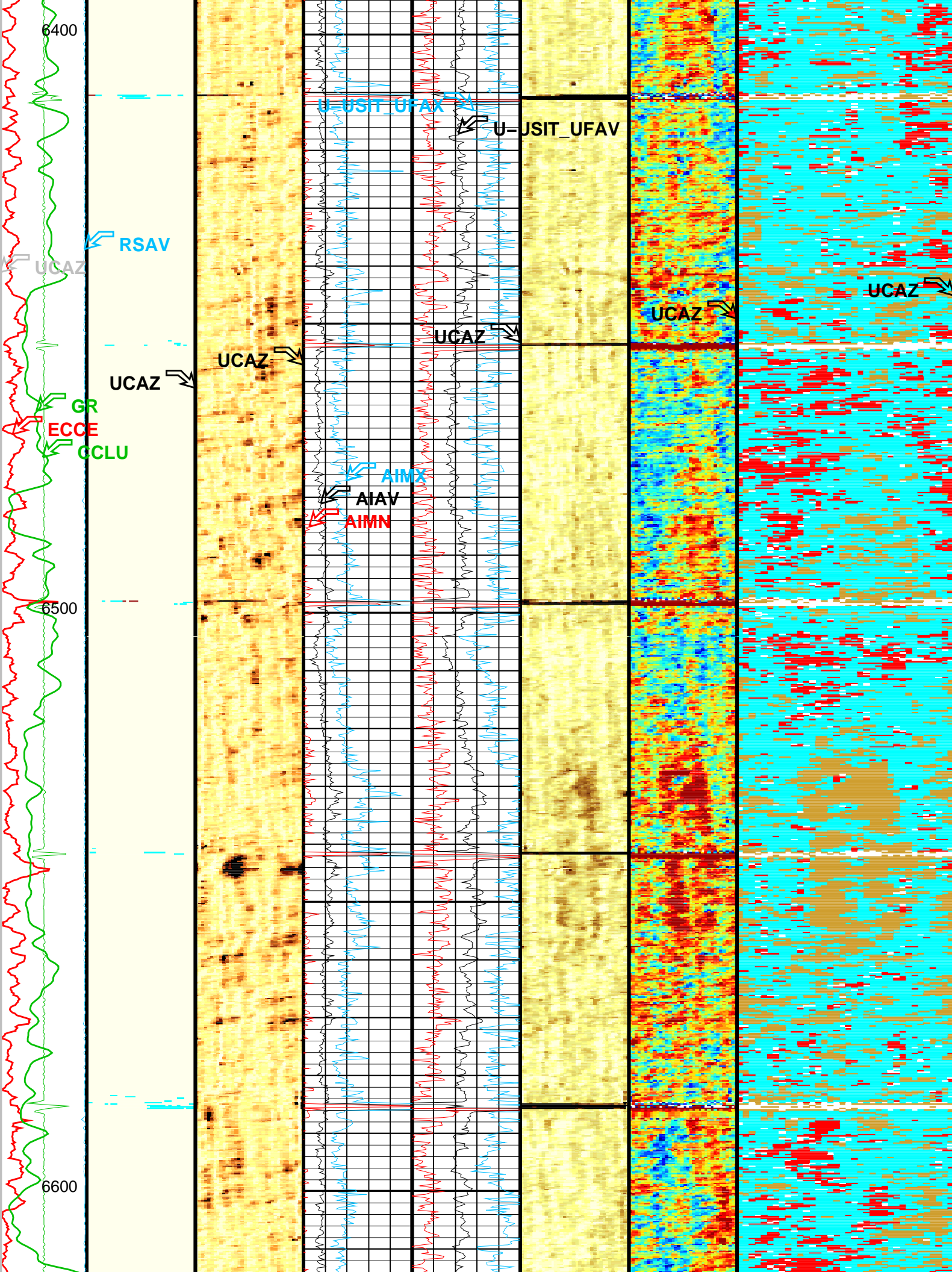




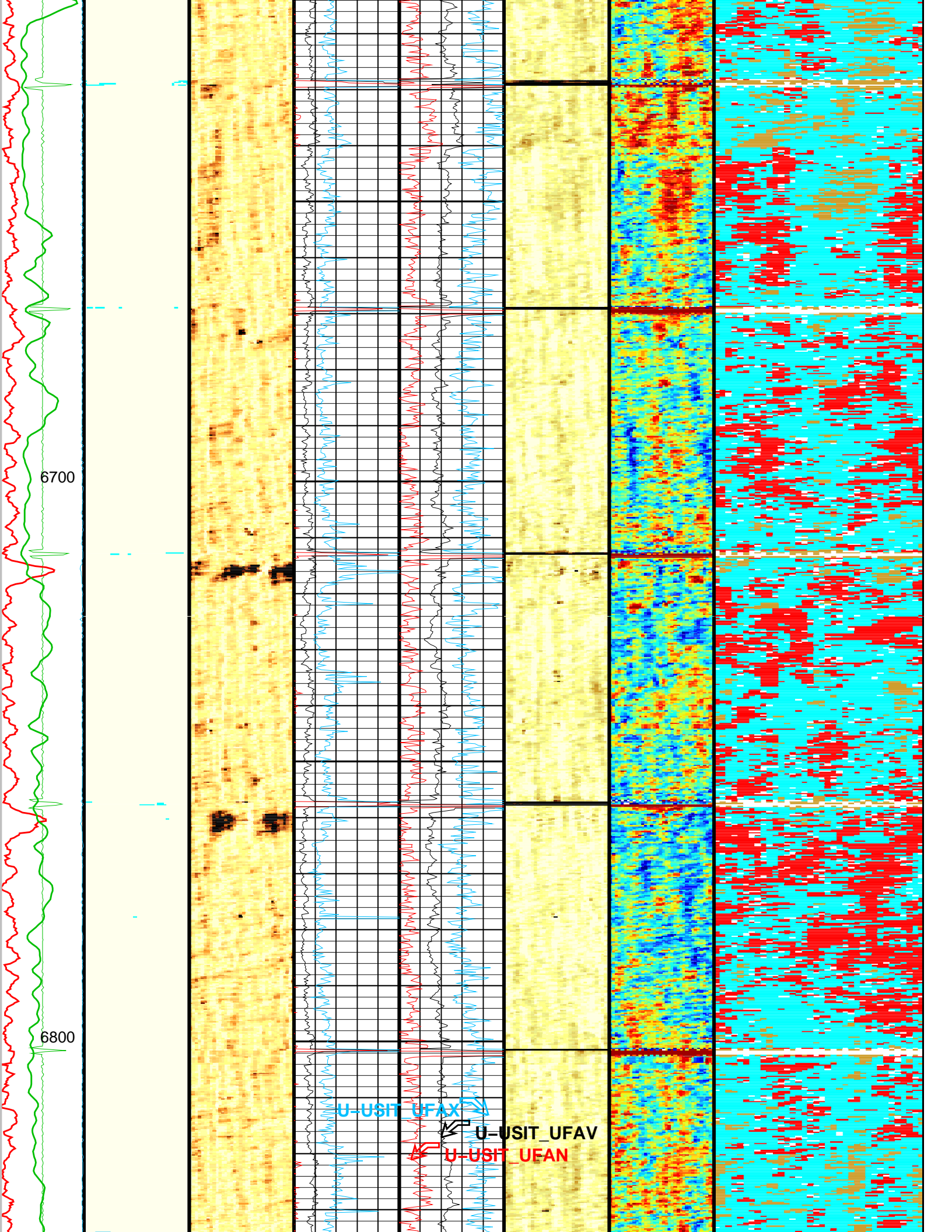


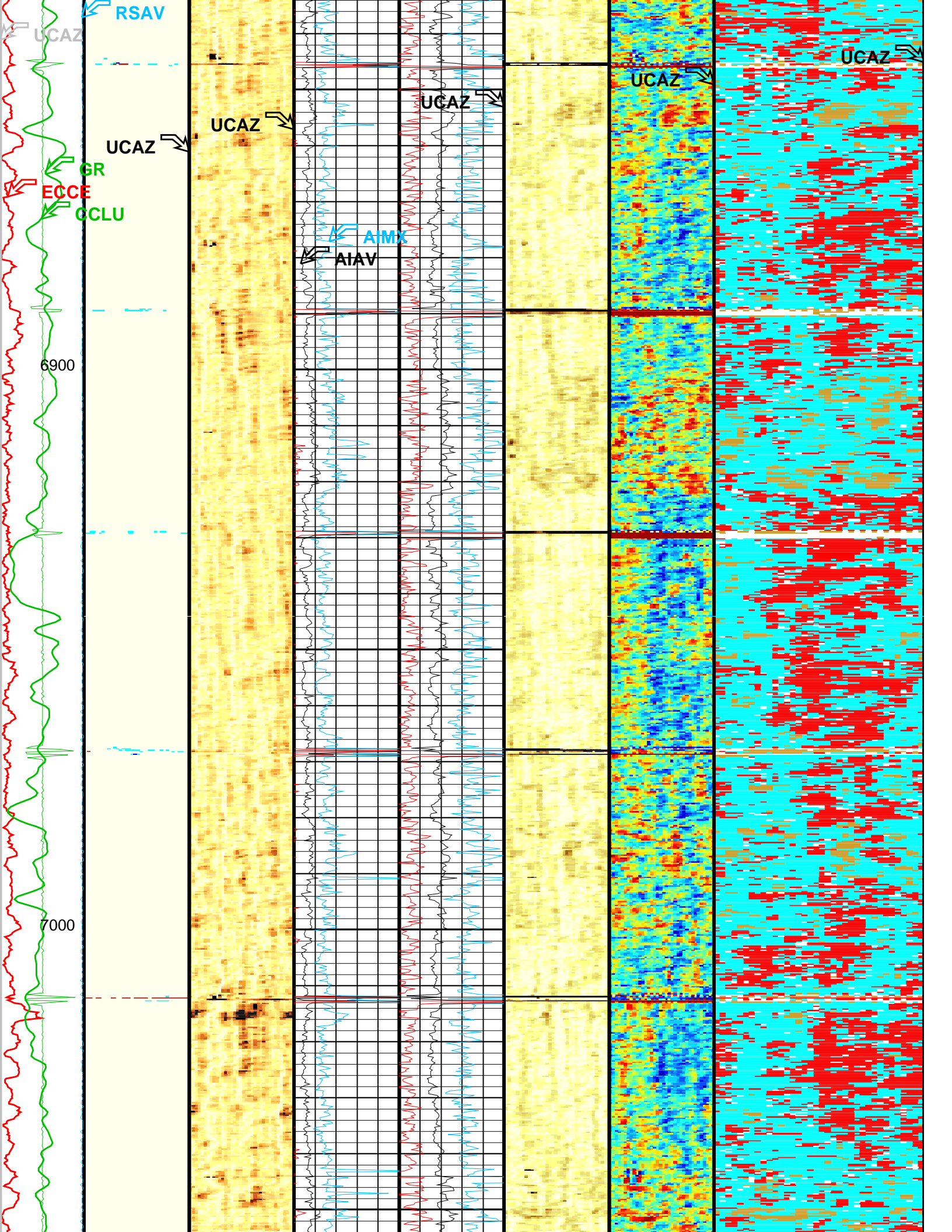




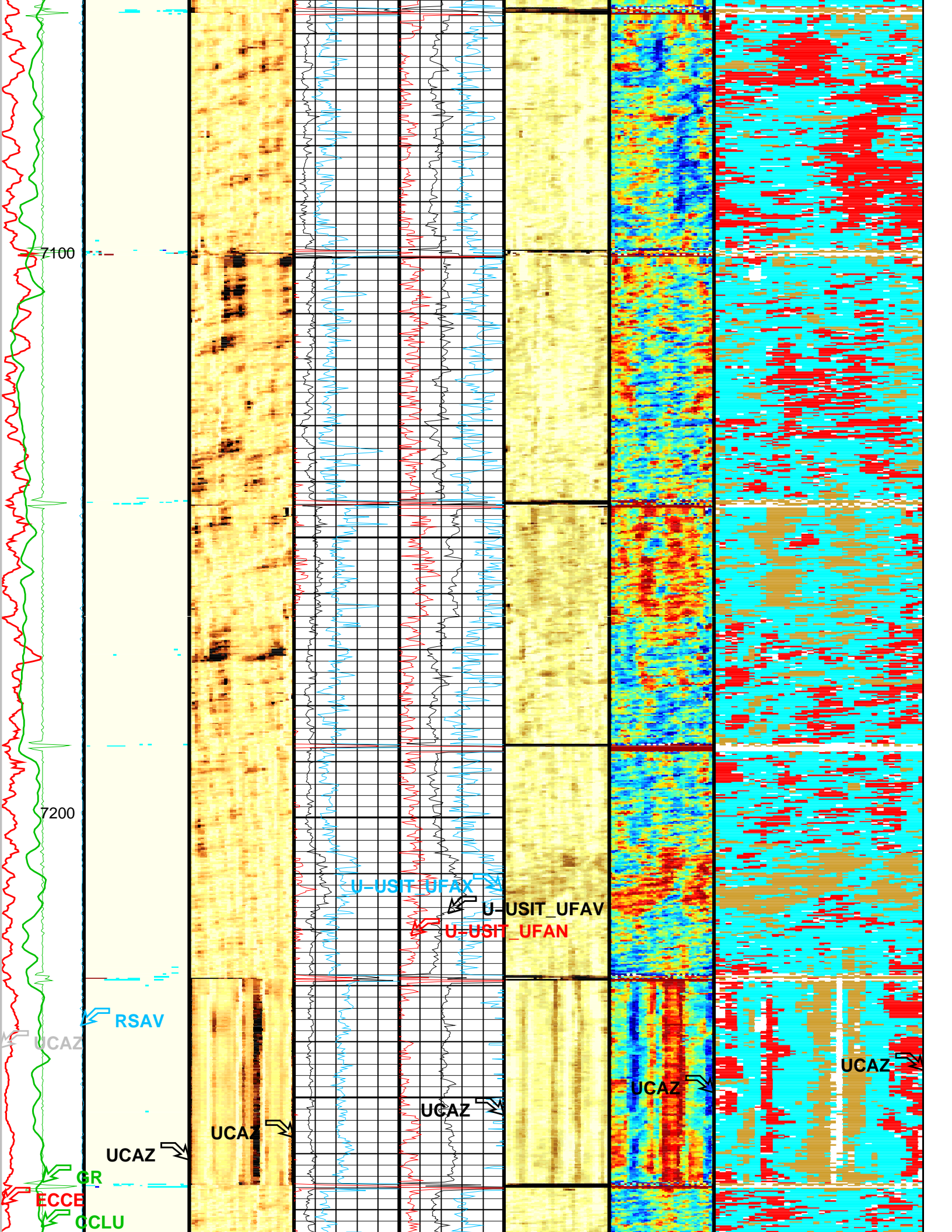


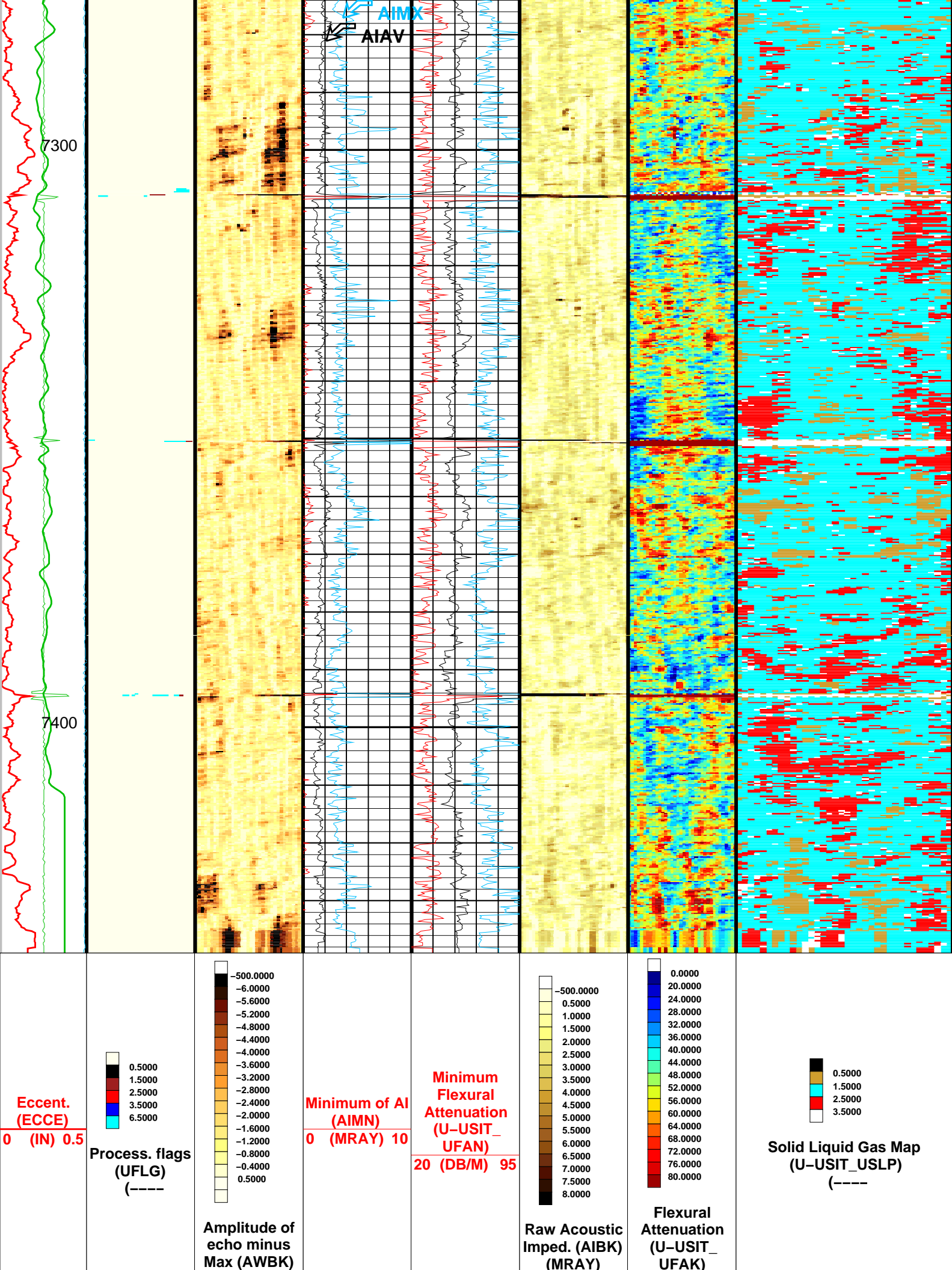














		(DB)			(DB/M)	
CCL (CCLU) (---- -20 20			Average of AI (AIAV) 0 (MRAY) 10	Average Flexural Attenuation (U-USIT_ UFAV) 20 (DB/M) 95		
RSV (RSV) (RPS) 6 7.5			Maximum of AI (AIMX) 0 (MRAY) 10	Maximum Flexural Attenuation (U-USIT_ UFAX) 20 (DB/M) 95		
Gamma Ray (GR) (GAPI) 0 150						
Image rotation (UCAZ) (DEG) 0 360						

Format: USI\_IBC\_SLG      Vertical Scale: 5" per 100'      Graphics File Created: 16-Feb-2011 18:42

## OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	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	5.5 IN
CSDE	Casing Density	486.94 LBCF
CSID	Casing Inner Diameter	4.67 IN
DFVL	Default Fluid Velocity	195 US/F
DOT	Diameter of Transducer Sensor	1.756 IN
EMXV	EMEX Voltage	60 V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI
IMAR	Image Rotation	OFF
MW	Mud Weight	8.4 LB/G
RCOD	Reference Calibrator Outer Diameter	4.5 IN
RCSO	Reference Calibrator Standoff	0.8425 IN
RCTH	Reference Calibrator Thickness	0.2165 IN
TCUB	T^3 Processing Level	Vax_Loop
THDH	Maximum Search Thickness (percentage of nominal)	130
THDL	Minimum Search Thickness (percentage of nominal)	70
THDP	Thickness Detection Policy	Fundamental
THNO	Nominal Thickness of Casing	0.415 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_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	-11	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_lbc_A	
U-USIT_UTAN	USIT Transducer Angles	38_DEG	
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
USPS: USIT Pipe Stats			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THNO	Nominal Thickness of Casing	0.415	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
BS	Bit Size	7.875	IN
CWEI	Casing Weight	23.00	LB/F
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	

### Input DLIS Files

DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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### Output DLIS Files

DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44

**Schlumberger**

**MAIN PASS CEMENT  
2000 PSI**

## Input DLIS Files

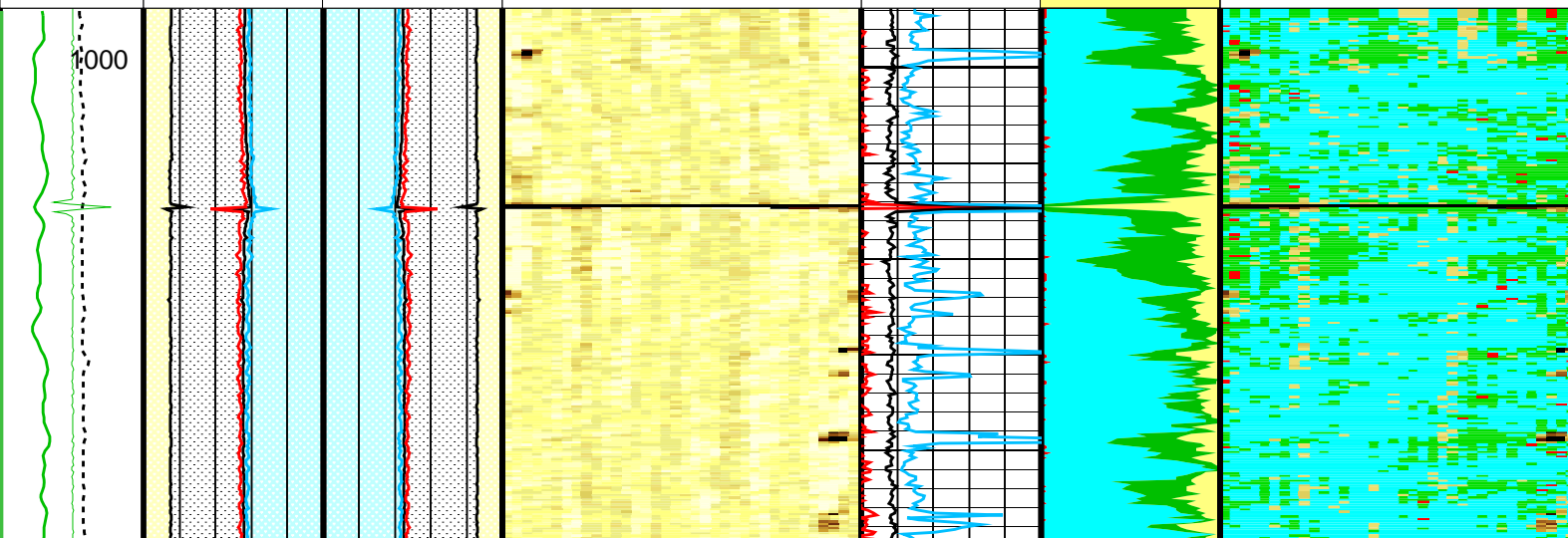
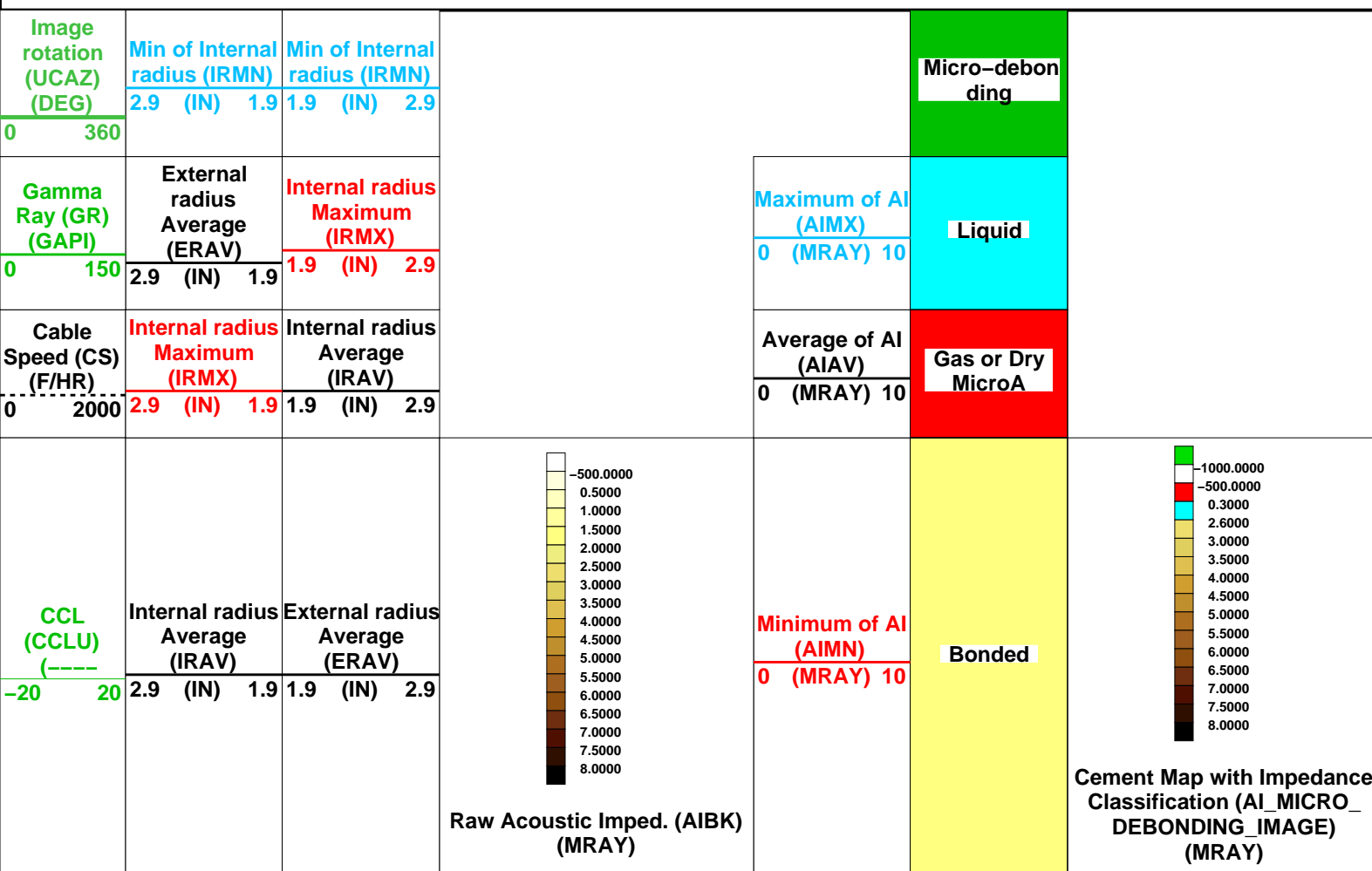
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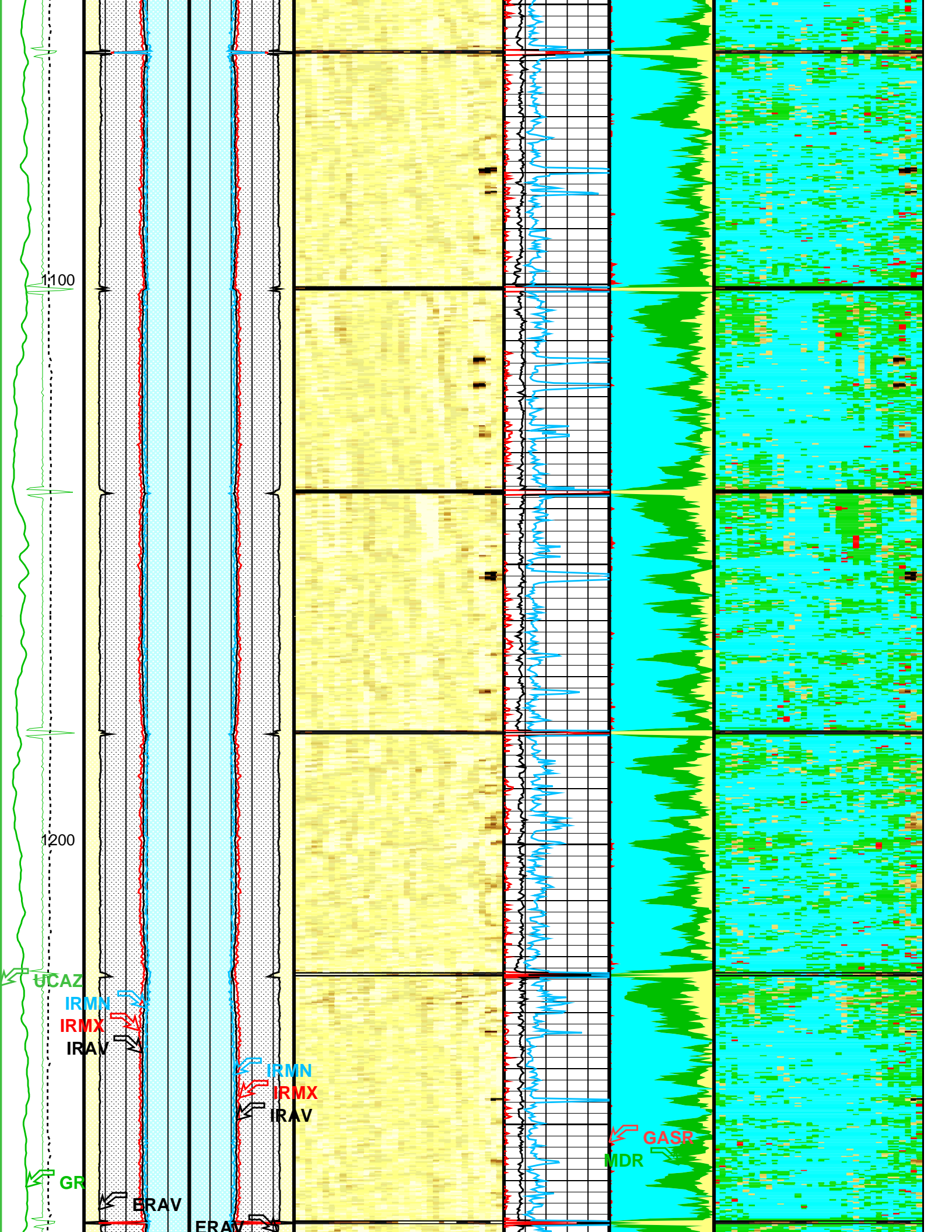
## Output DLIS Files

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RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44	7439.0 FT	993.5 FT

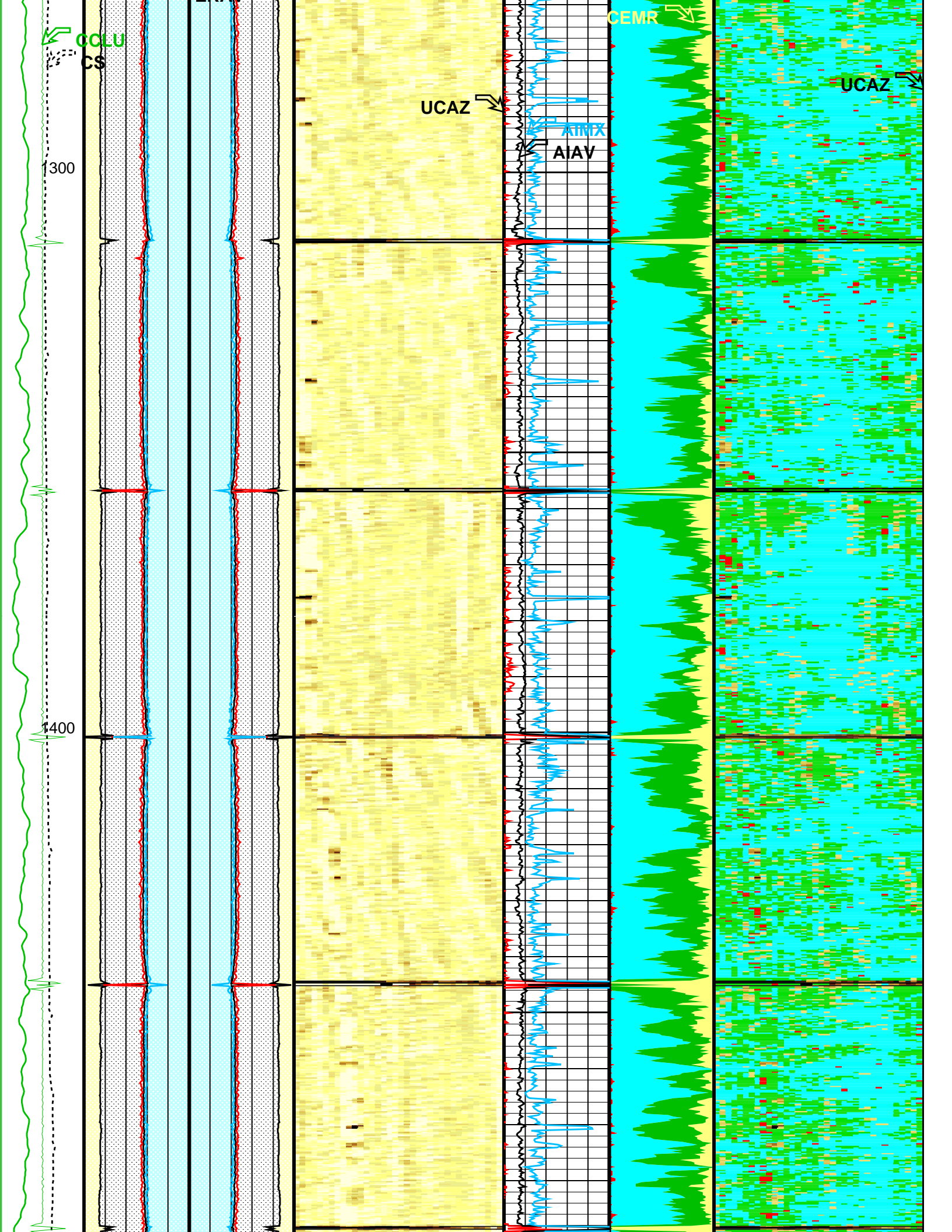
## OP System Version: 17C0-154

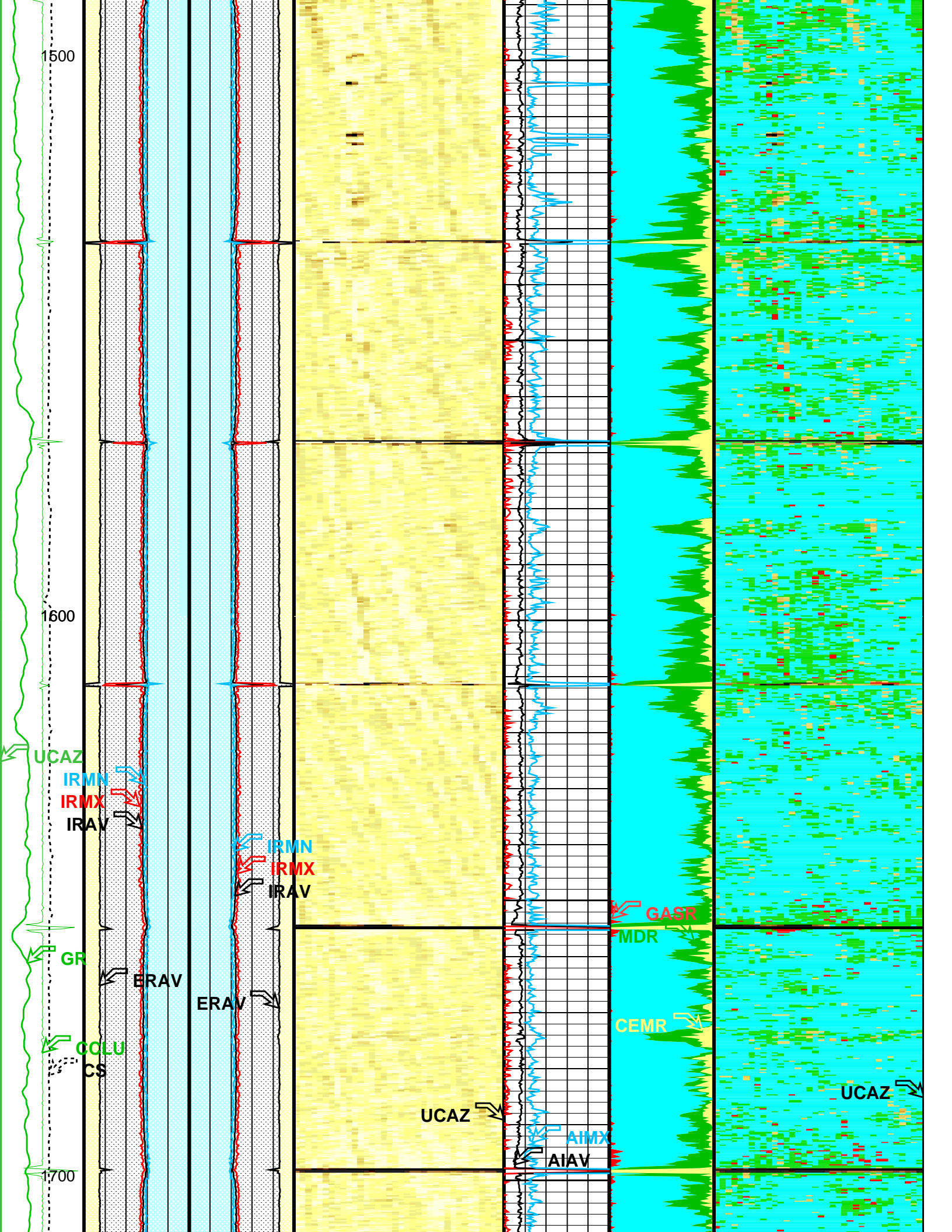
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DTC-H	17C0-154		



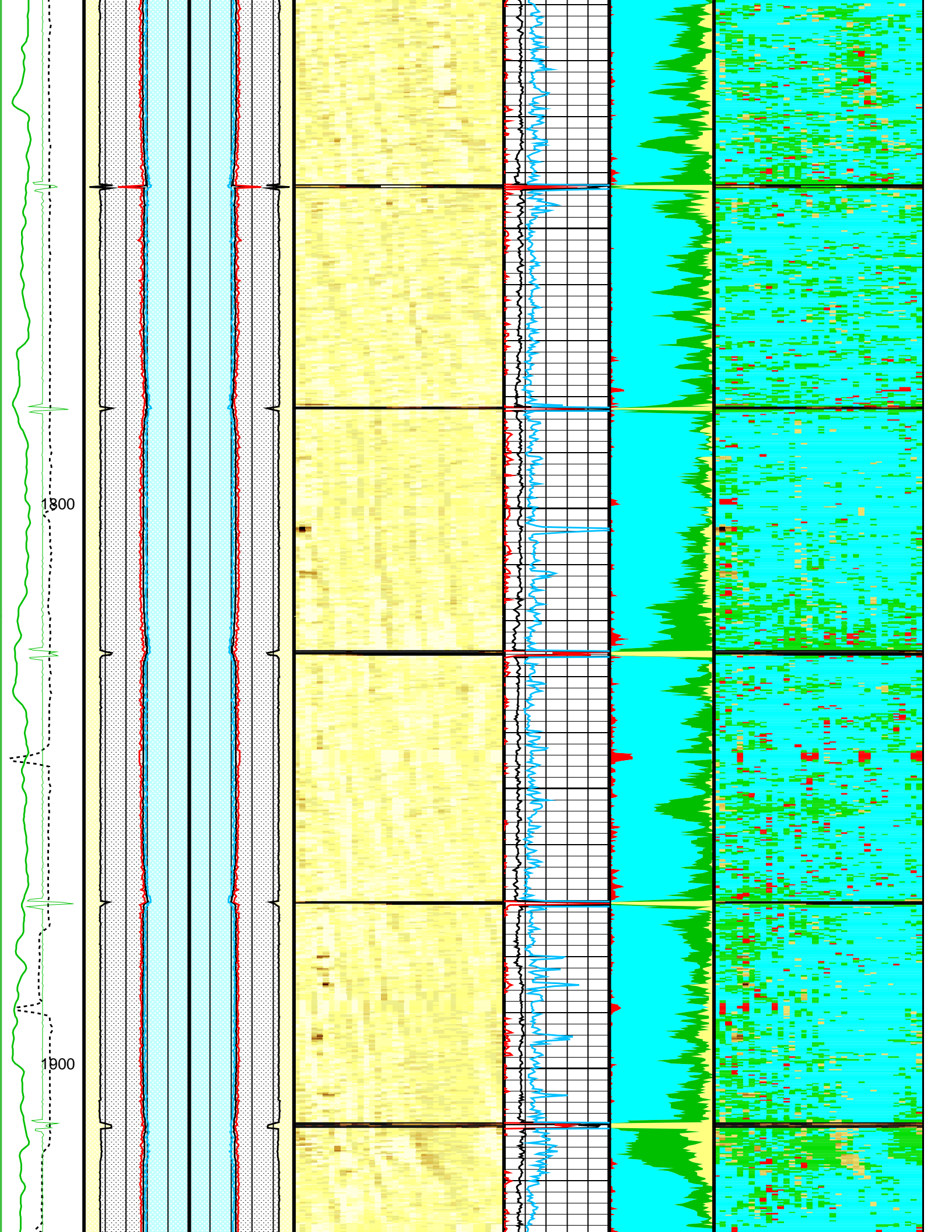


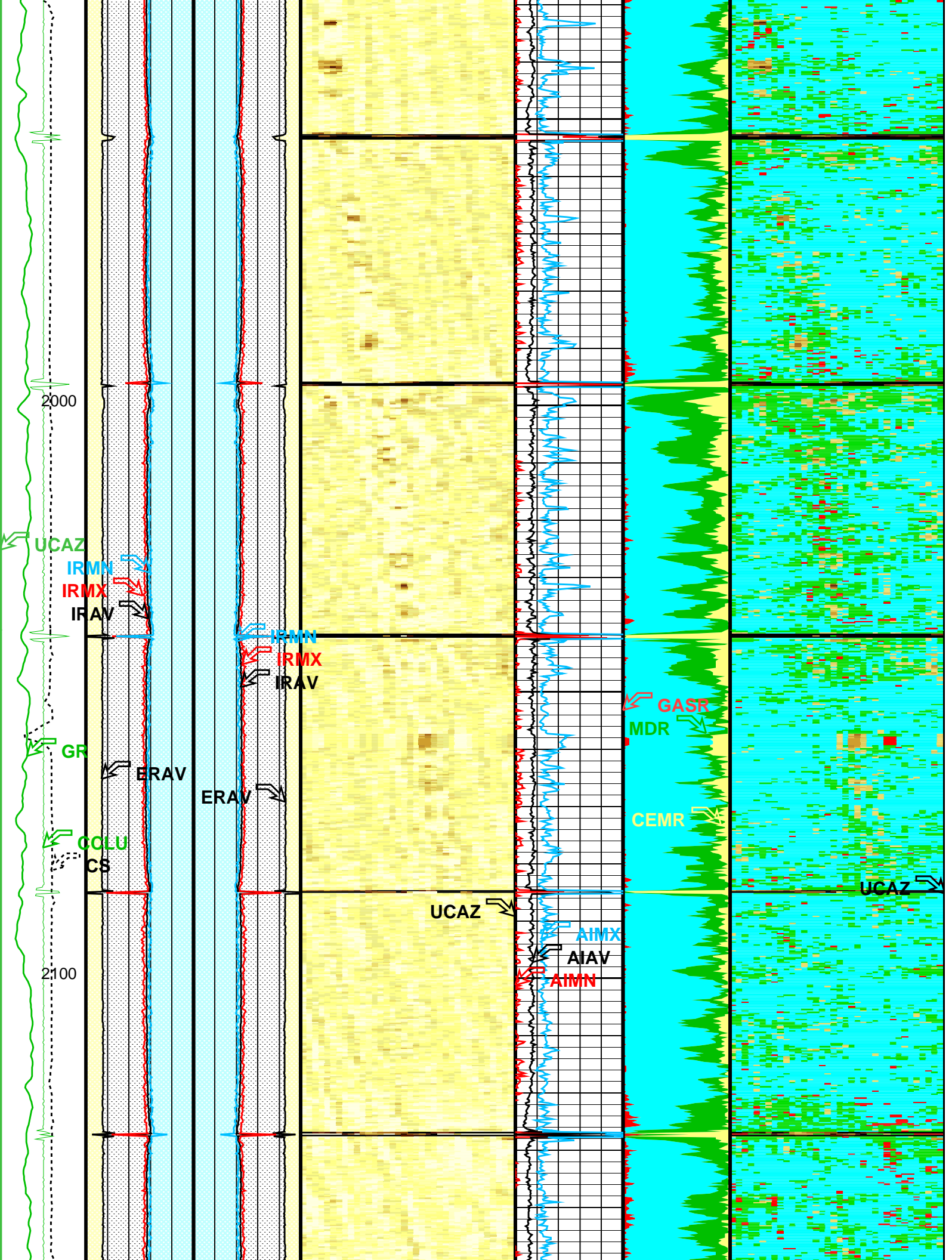




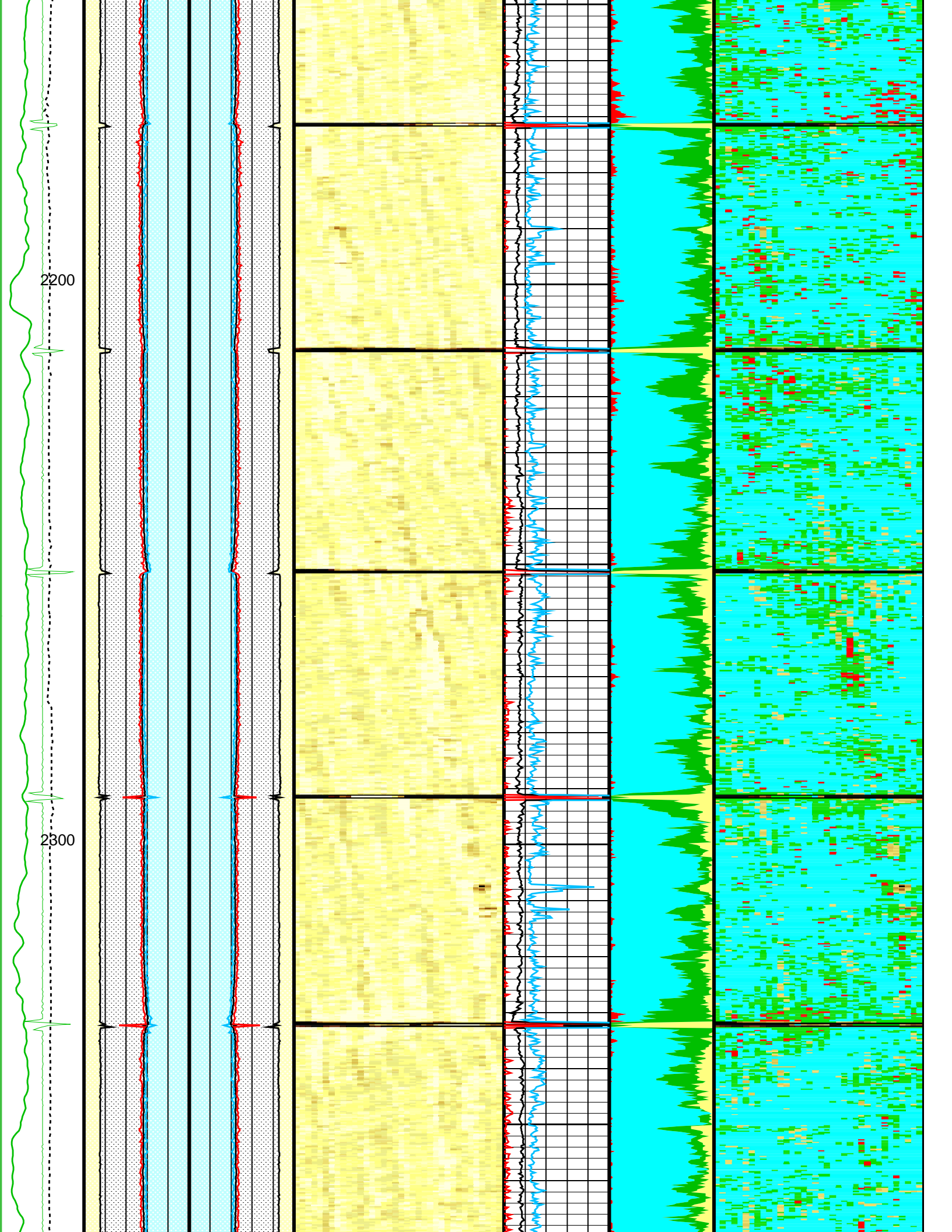


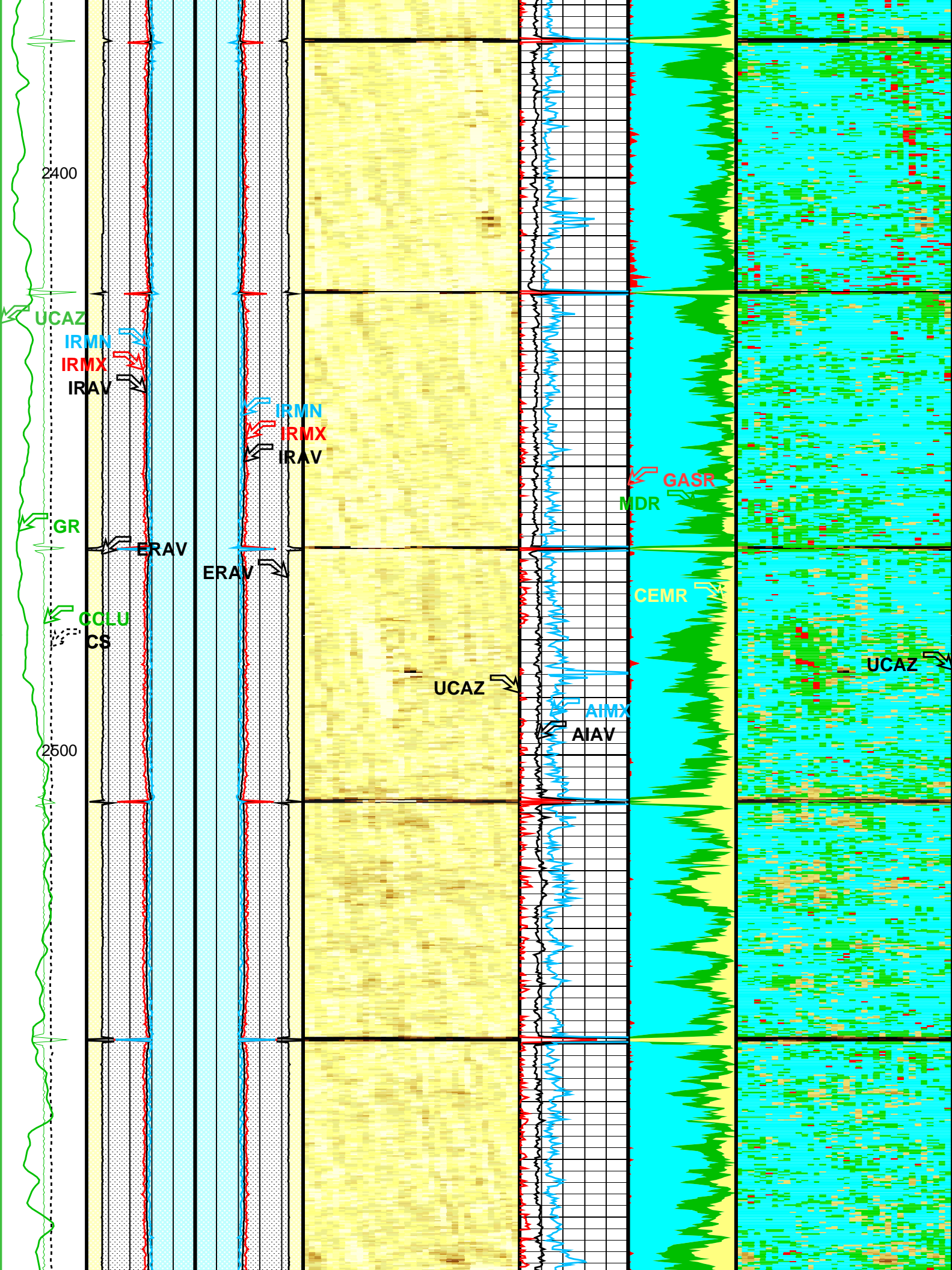




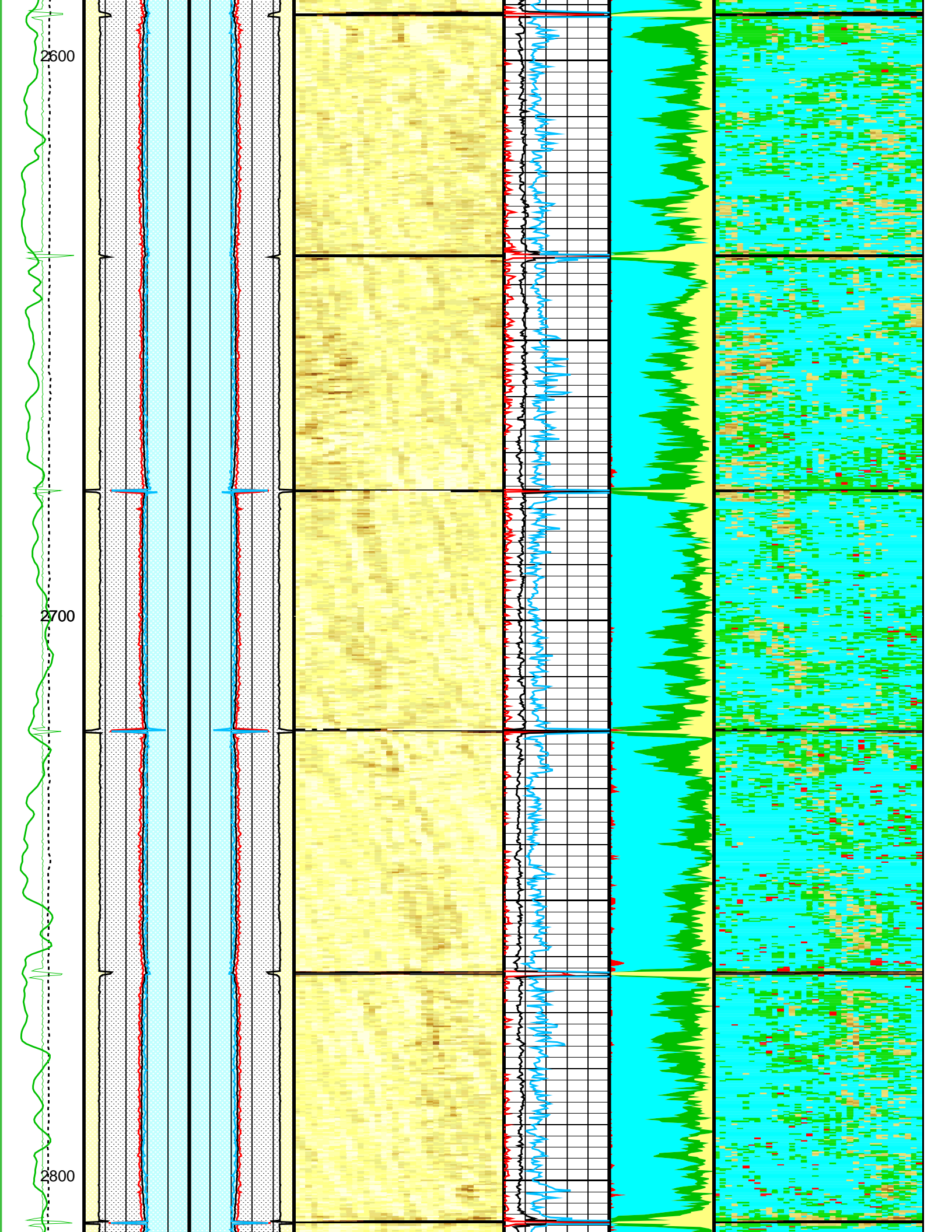


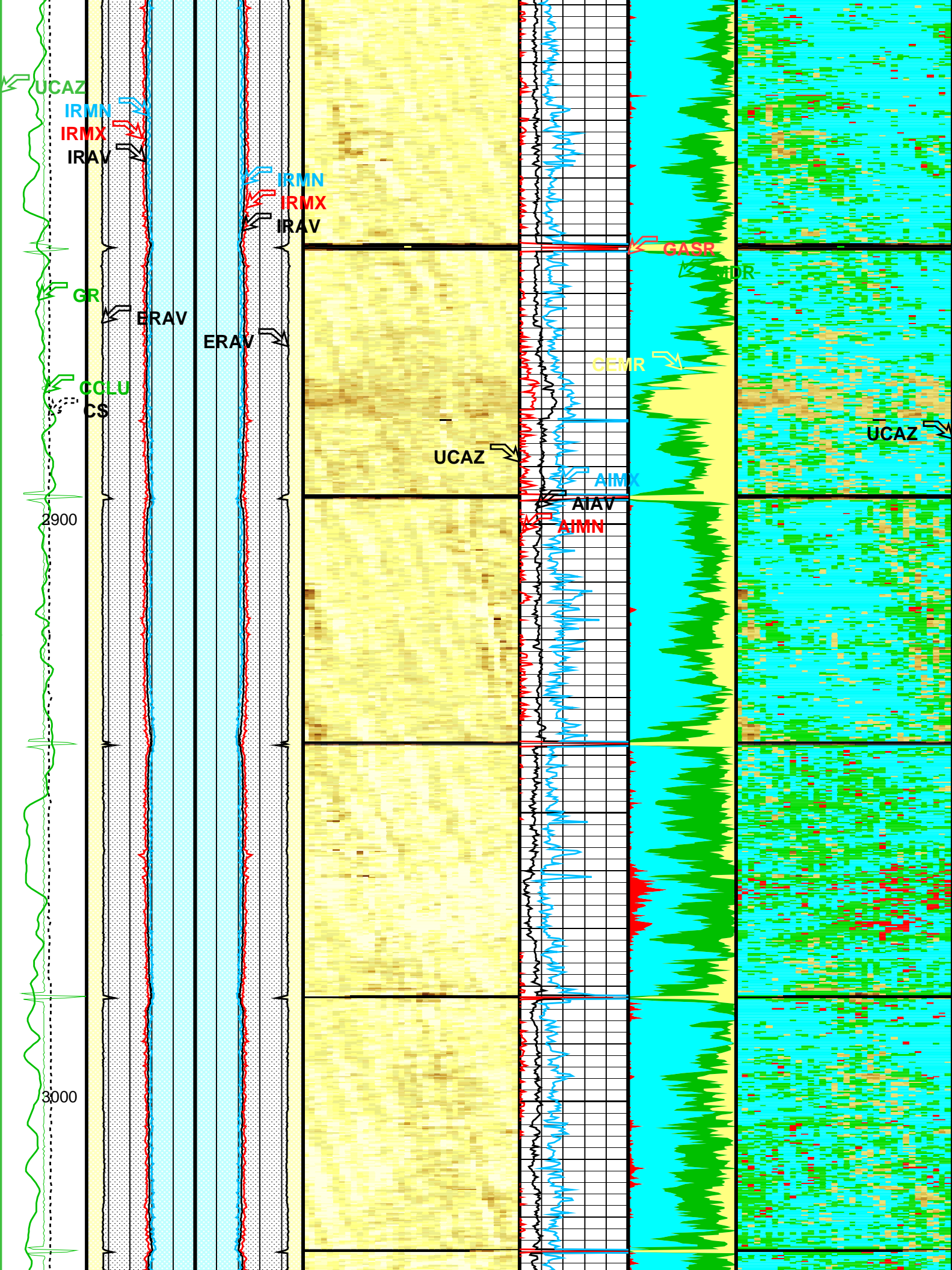




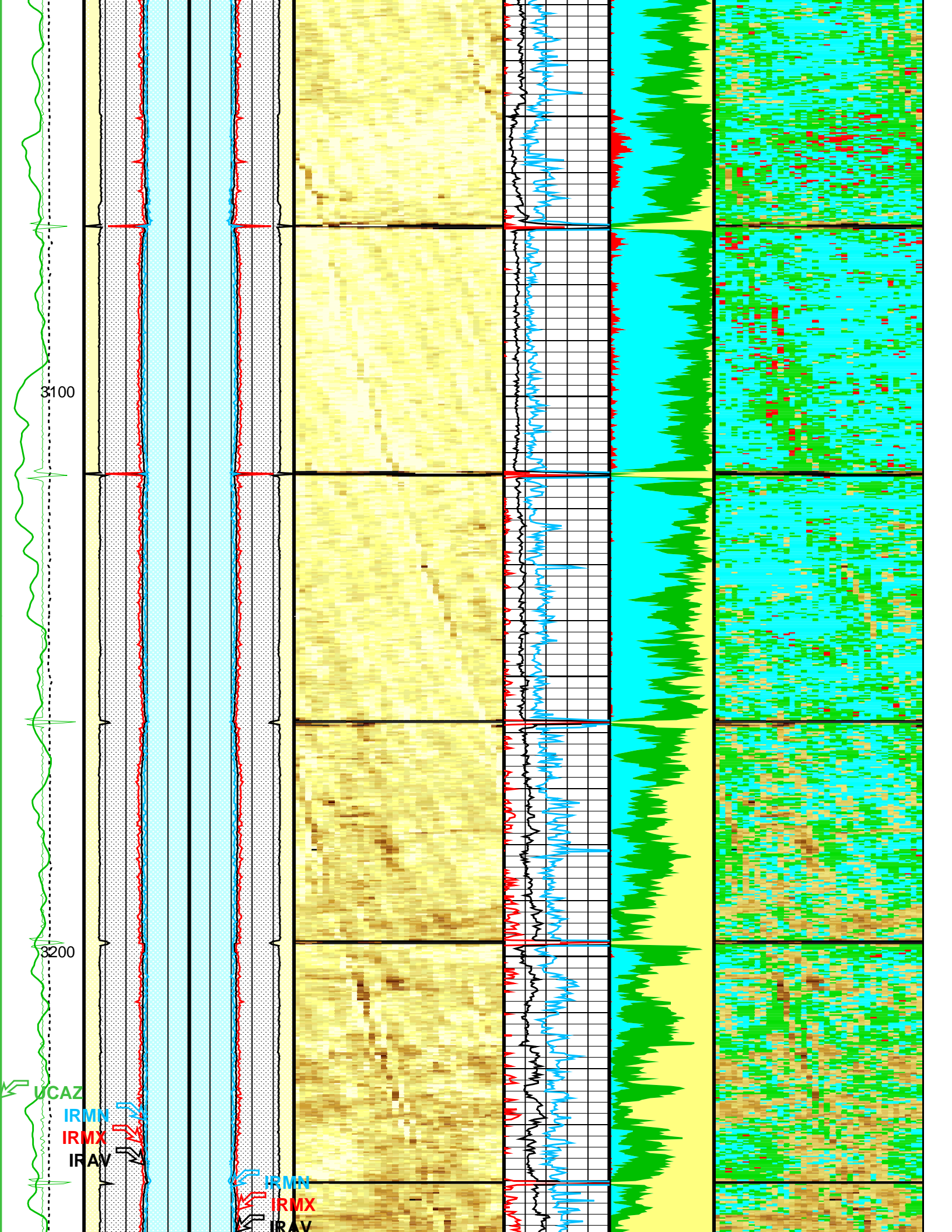


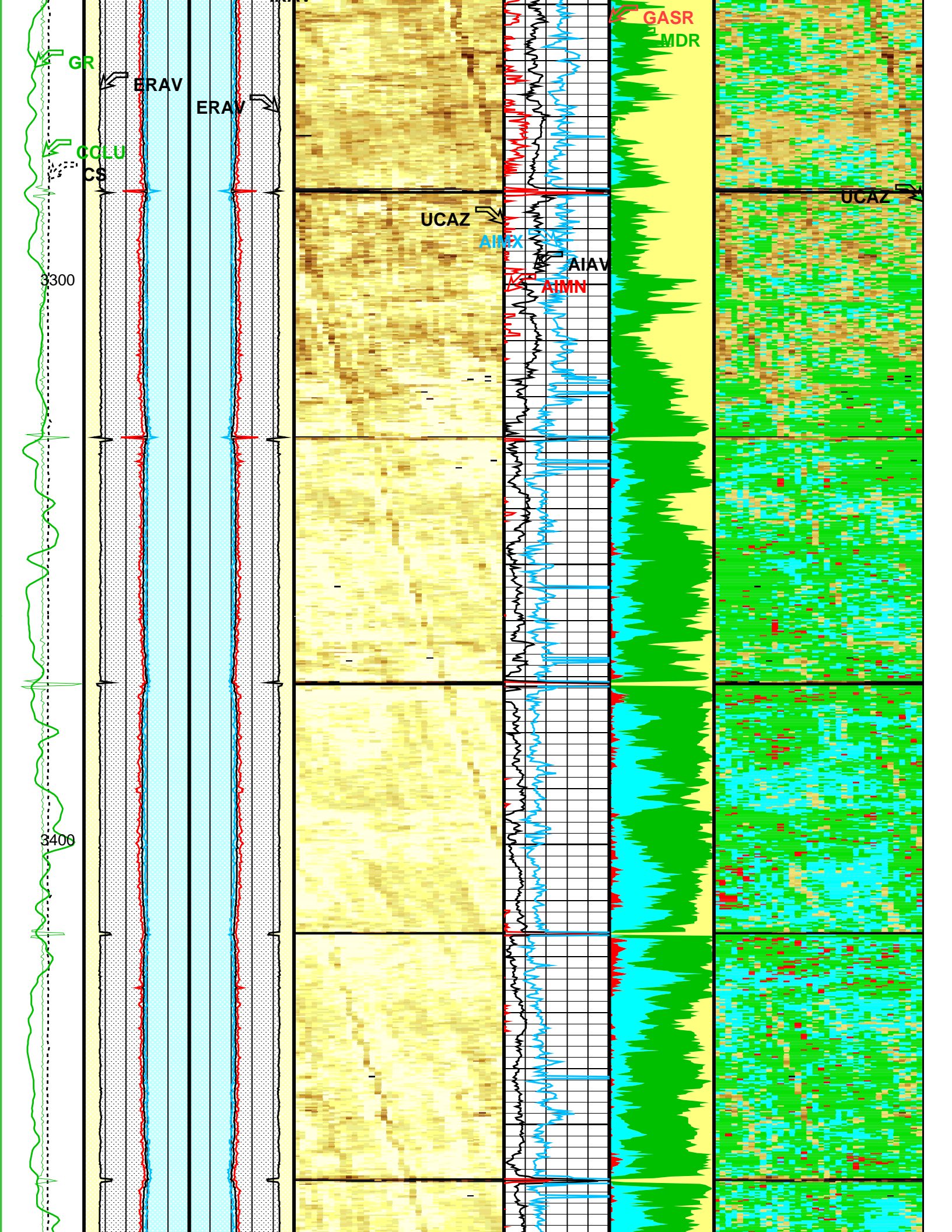




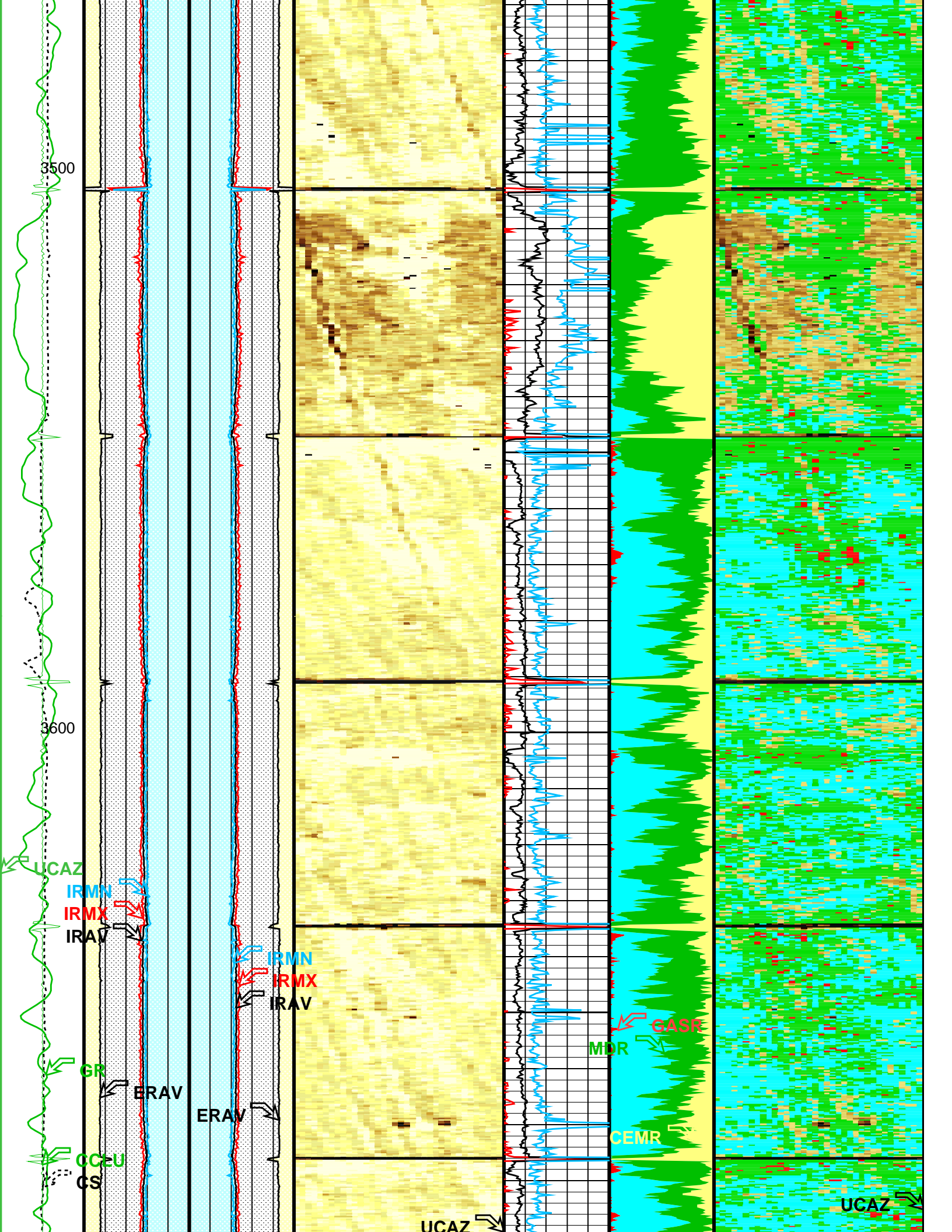


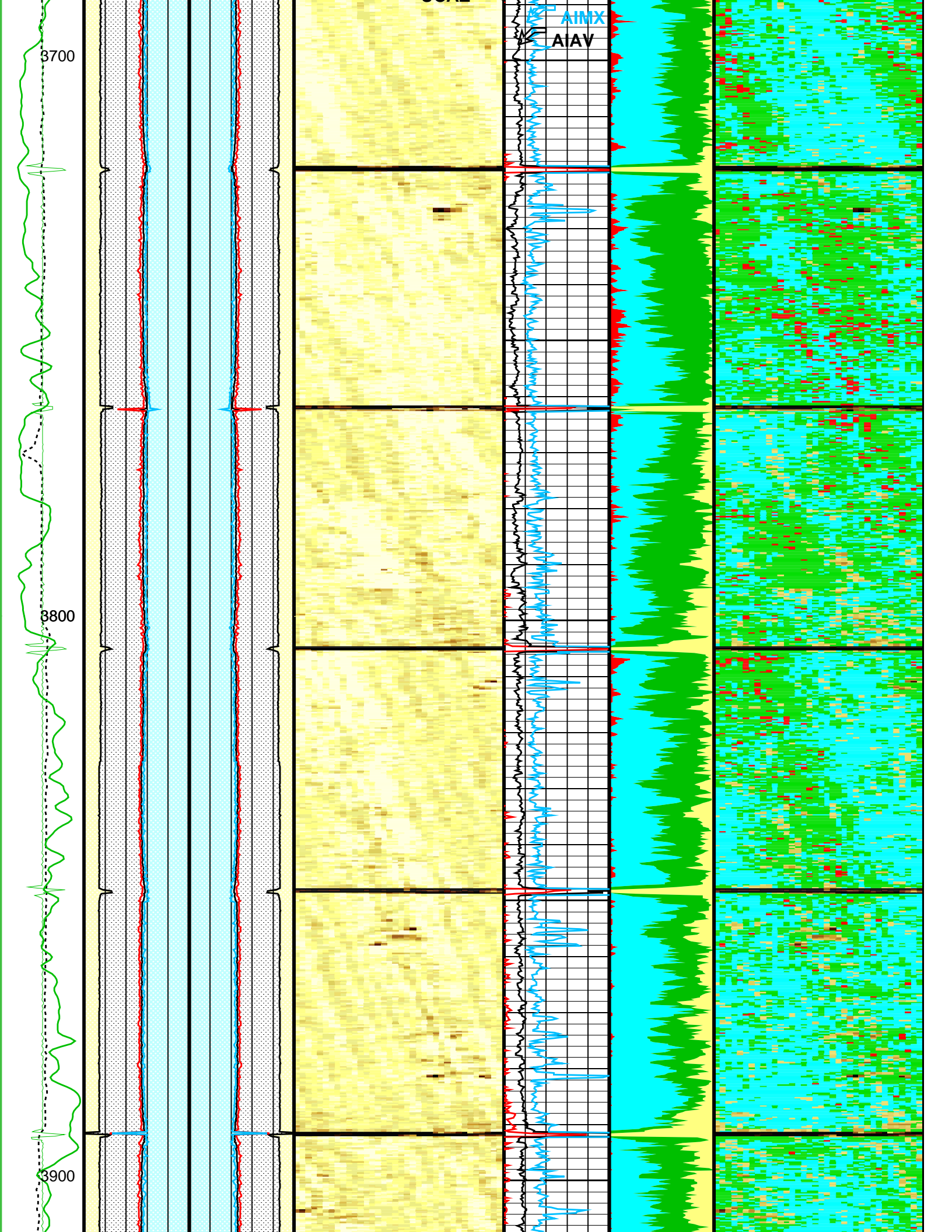




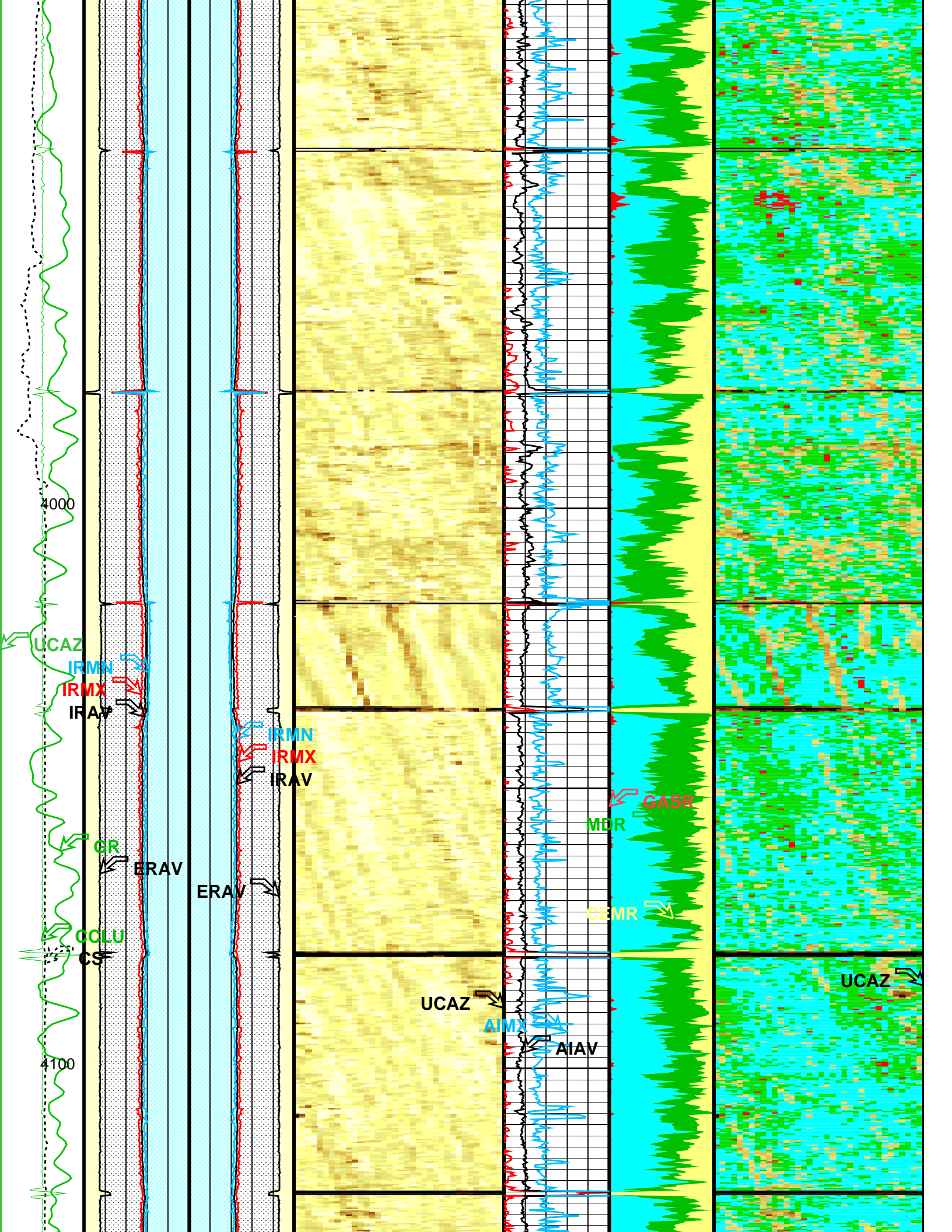


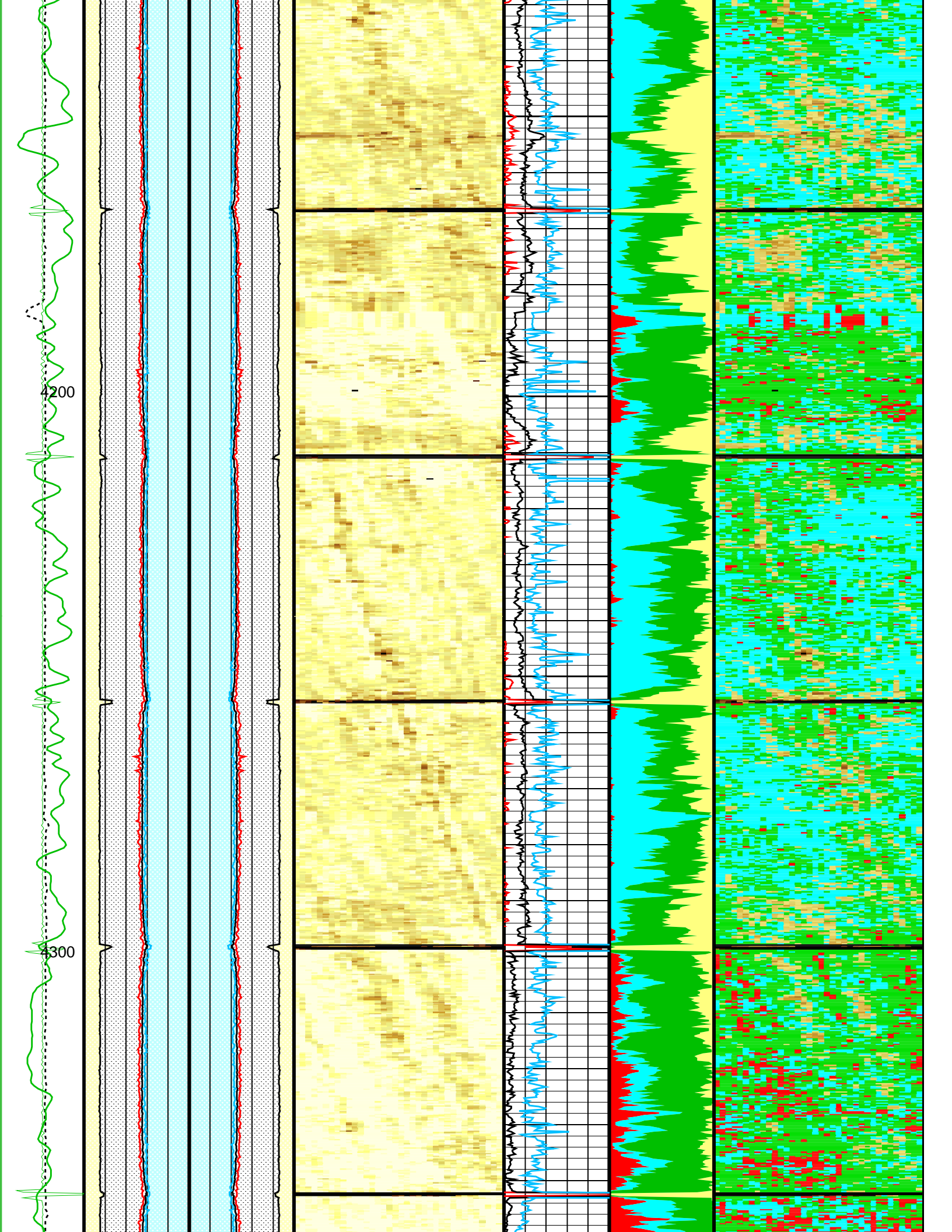




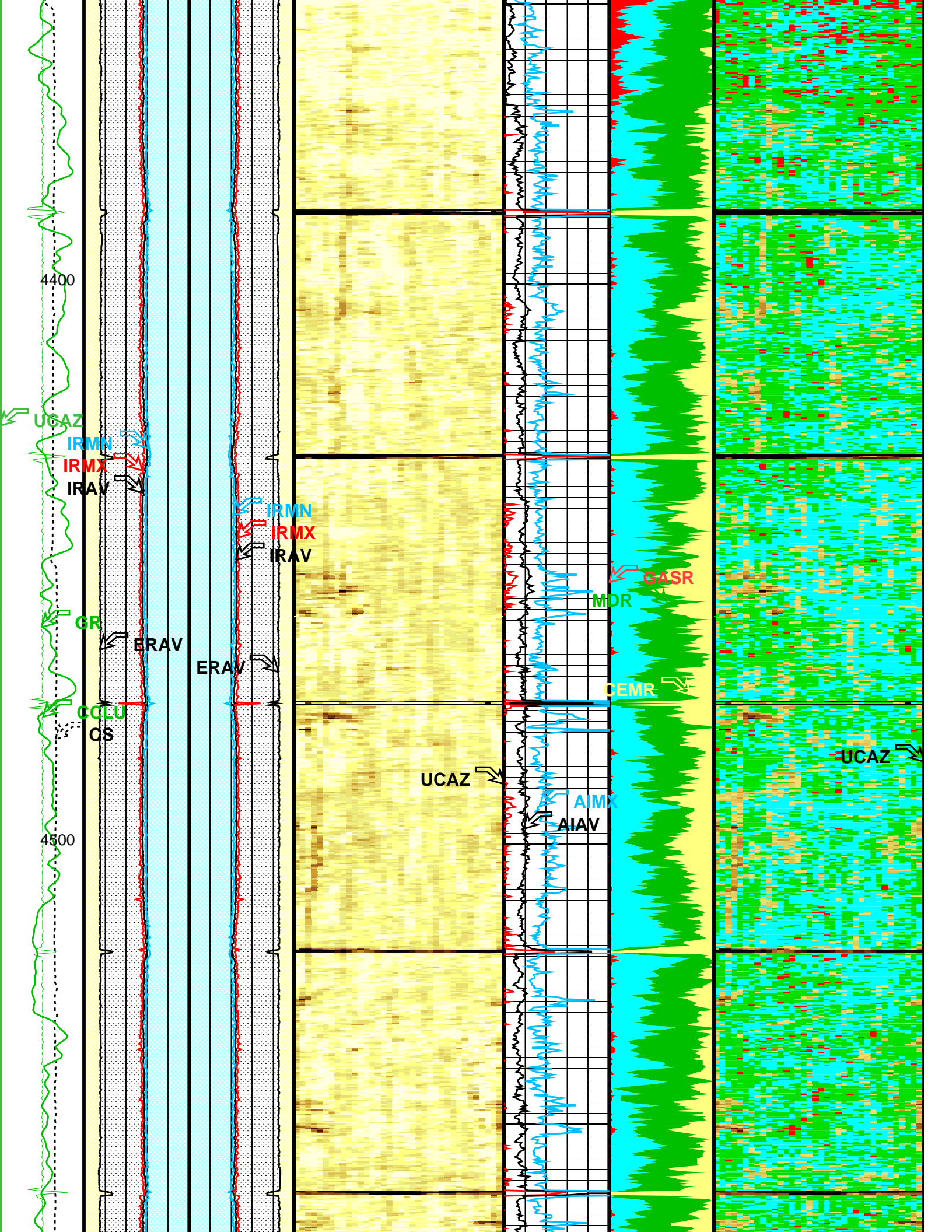


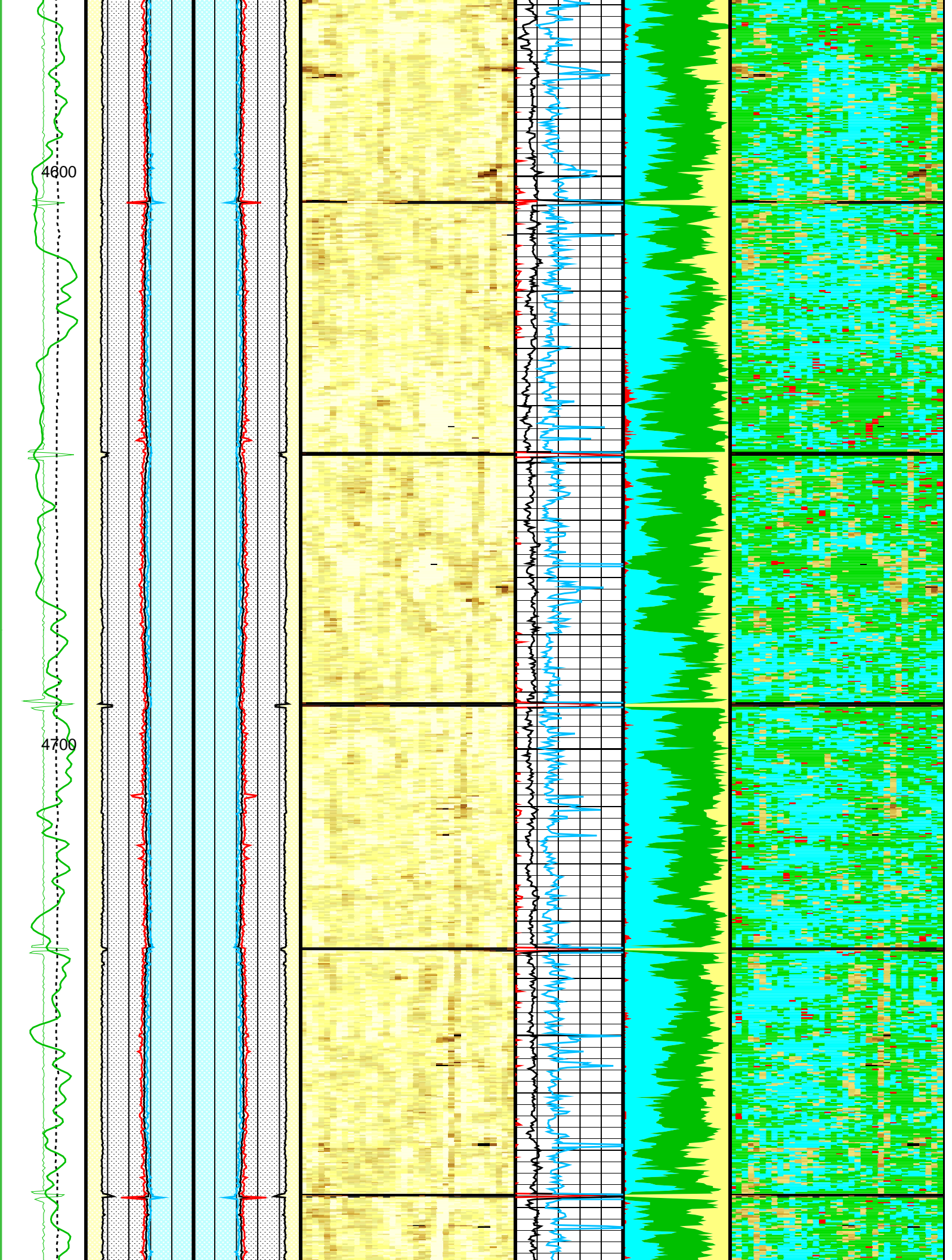




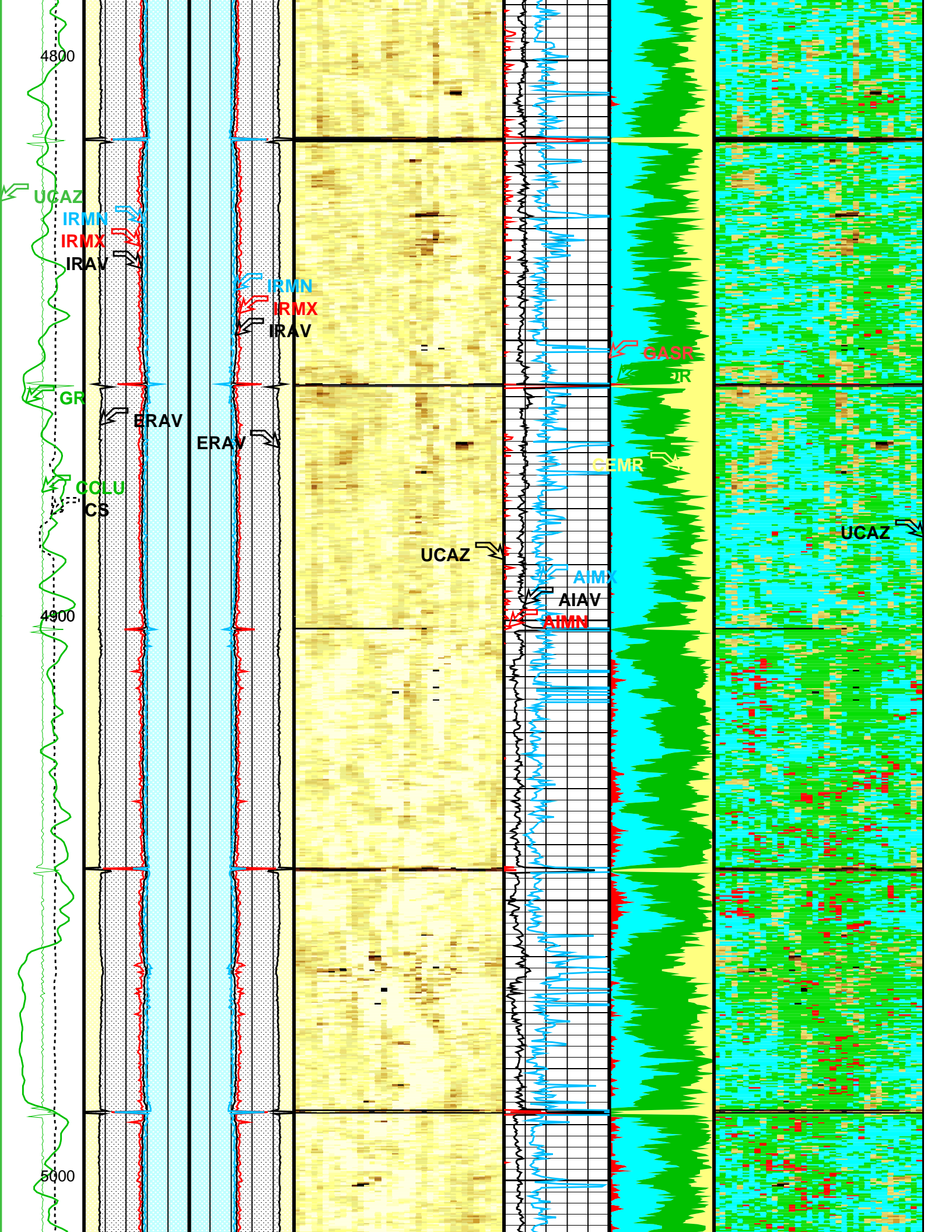


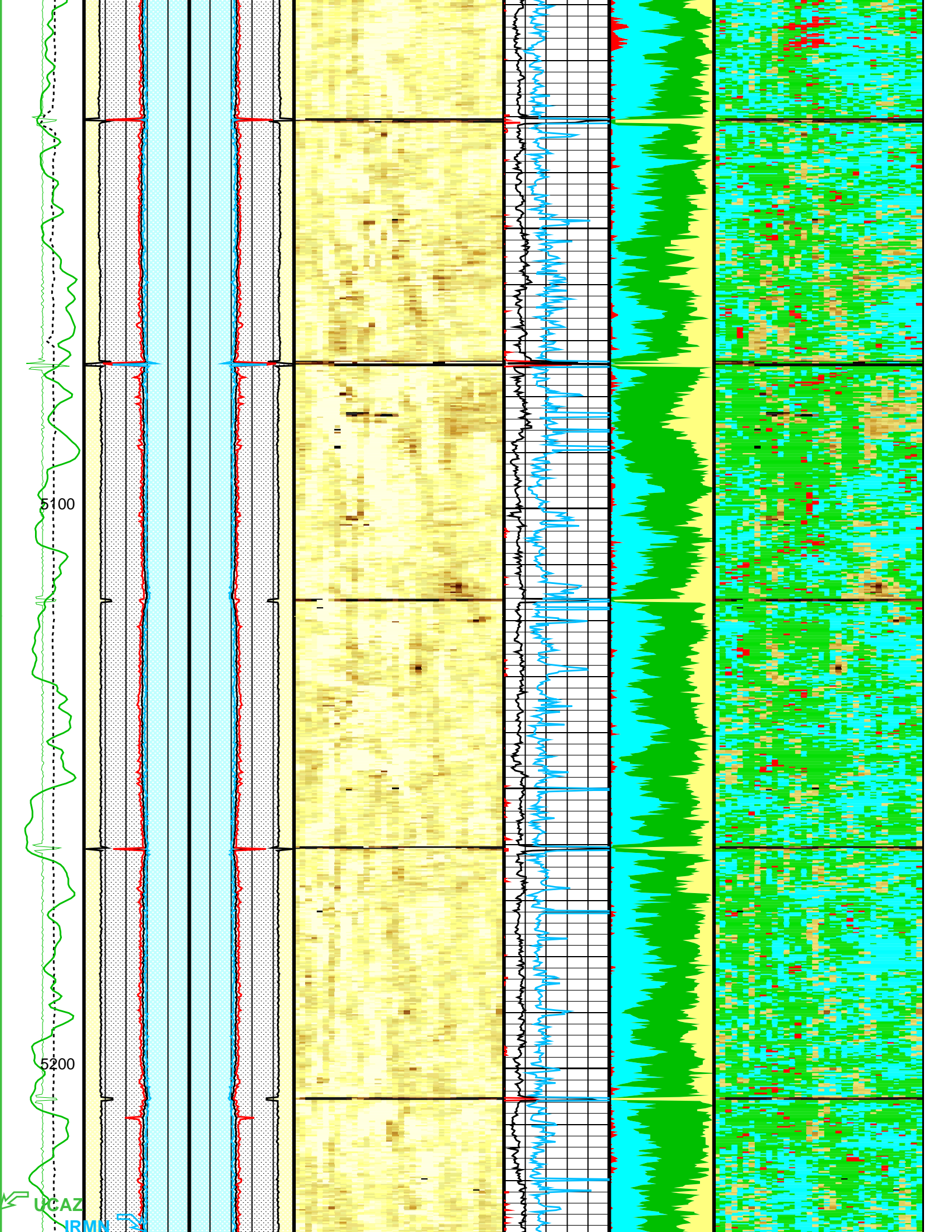




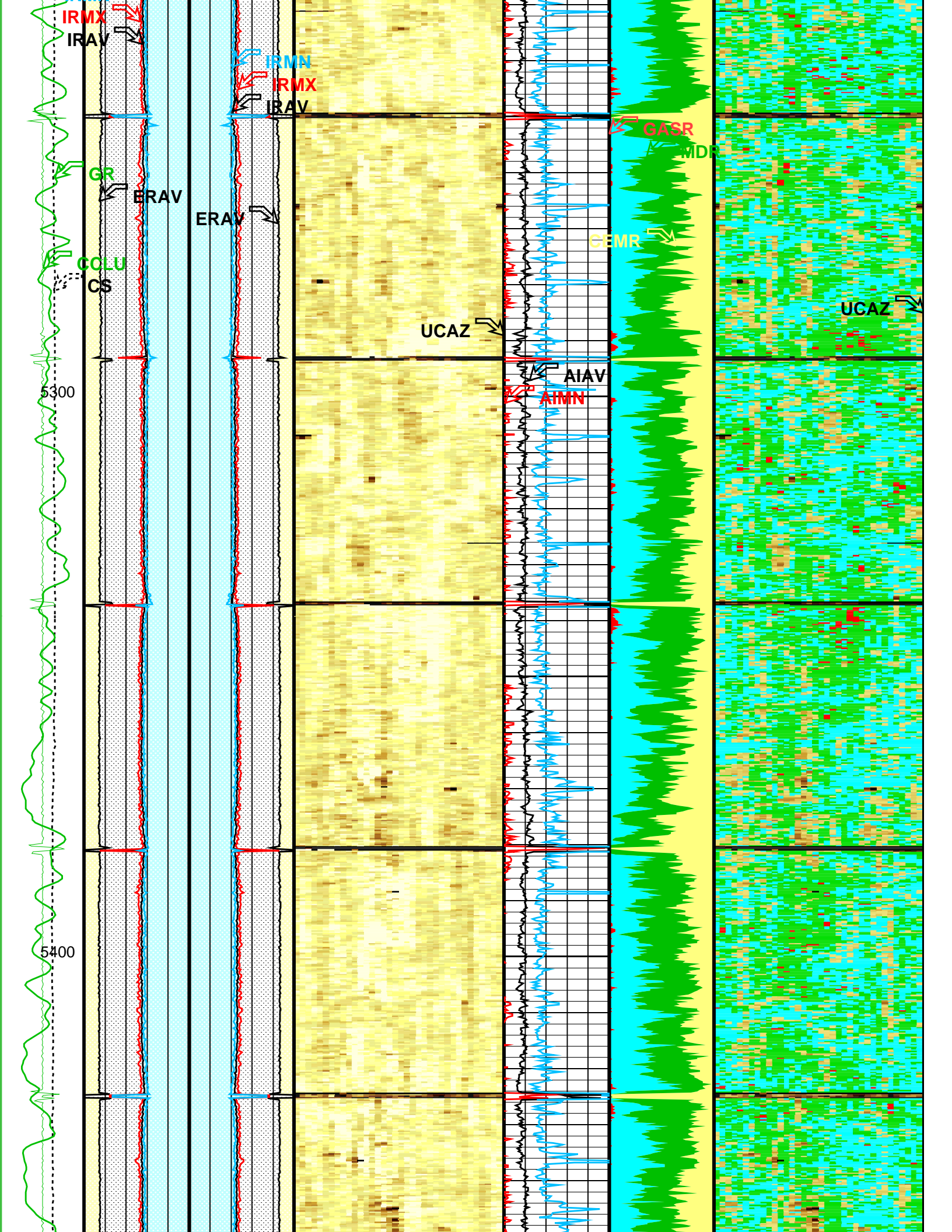


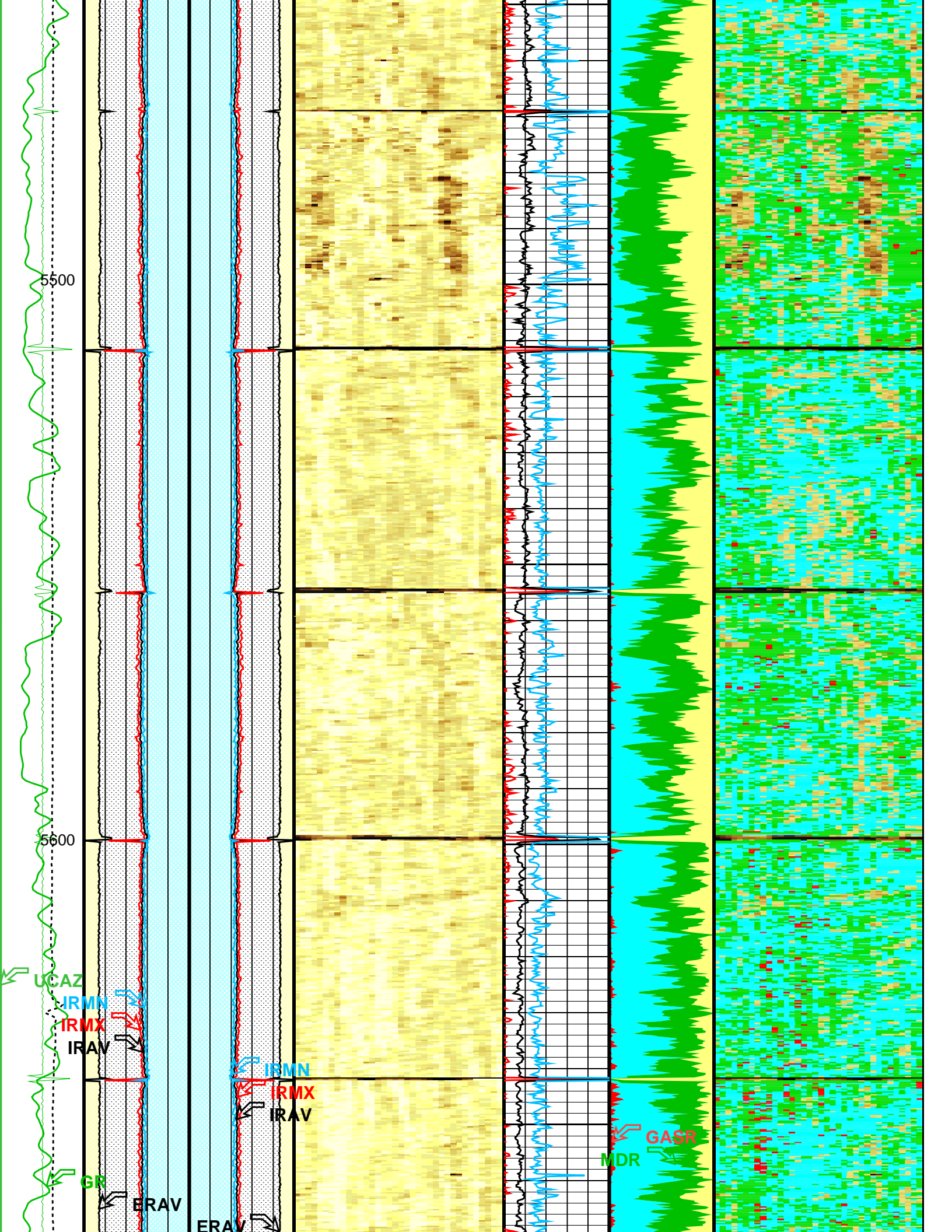




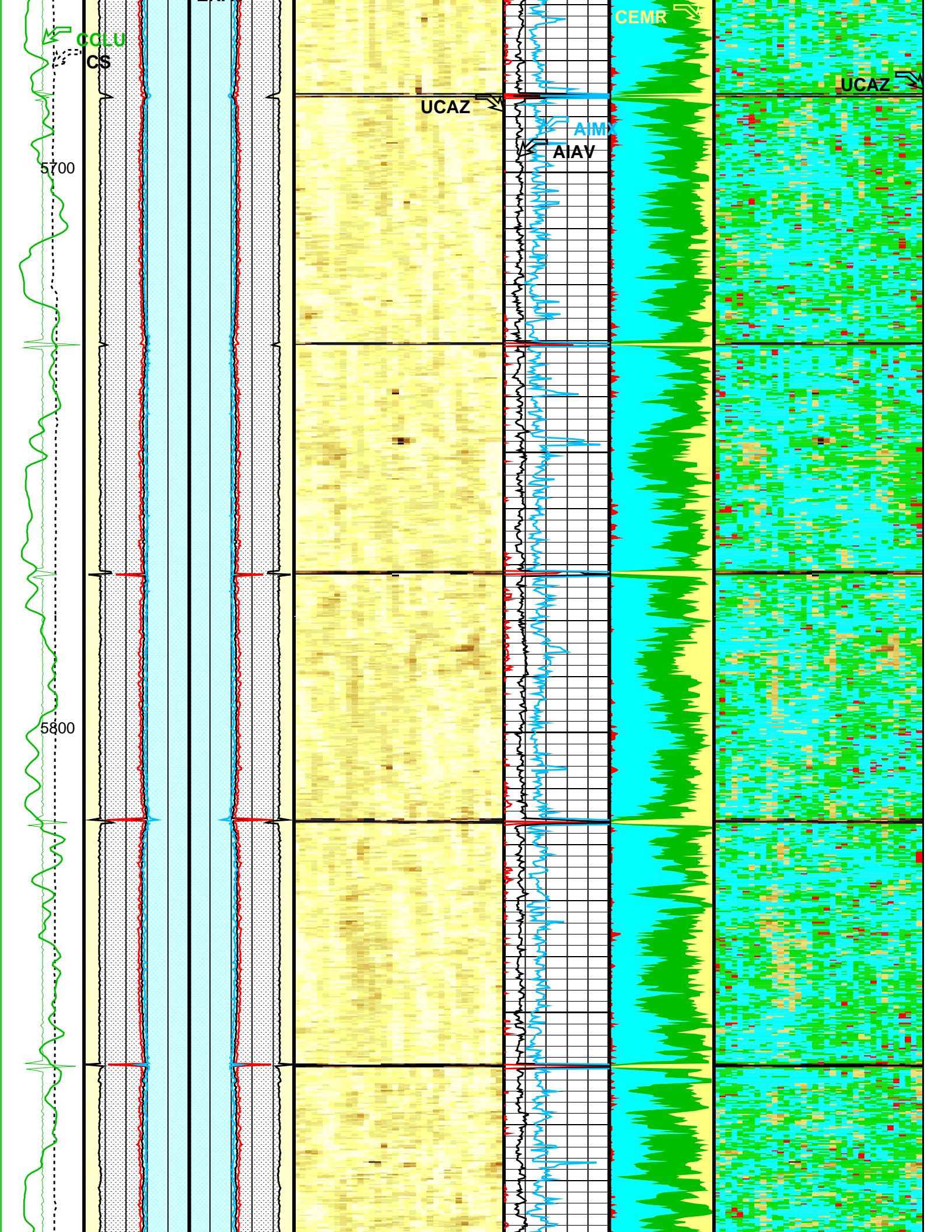


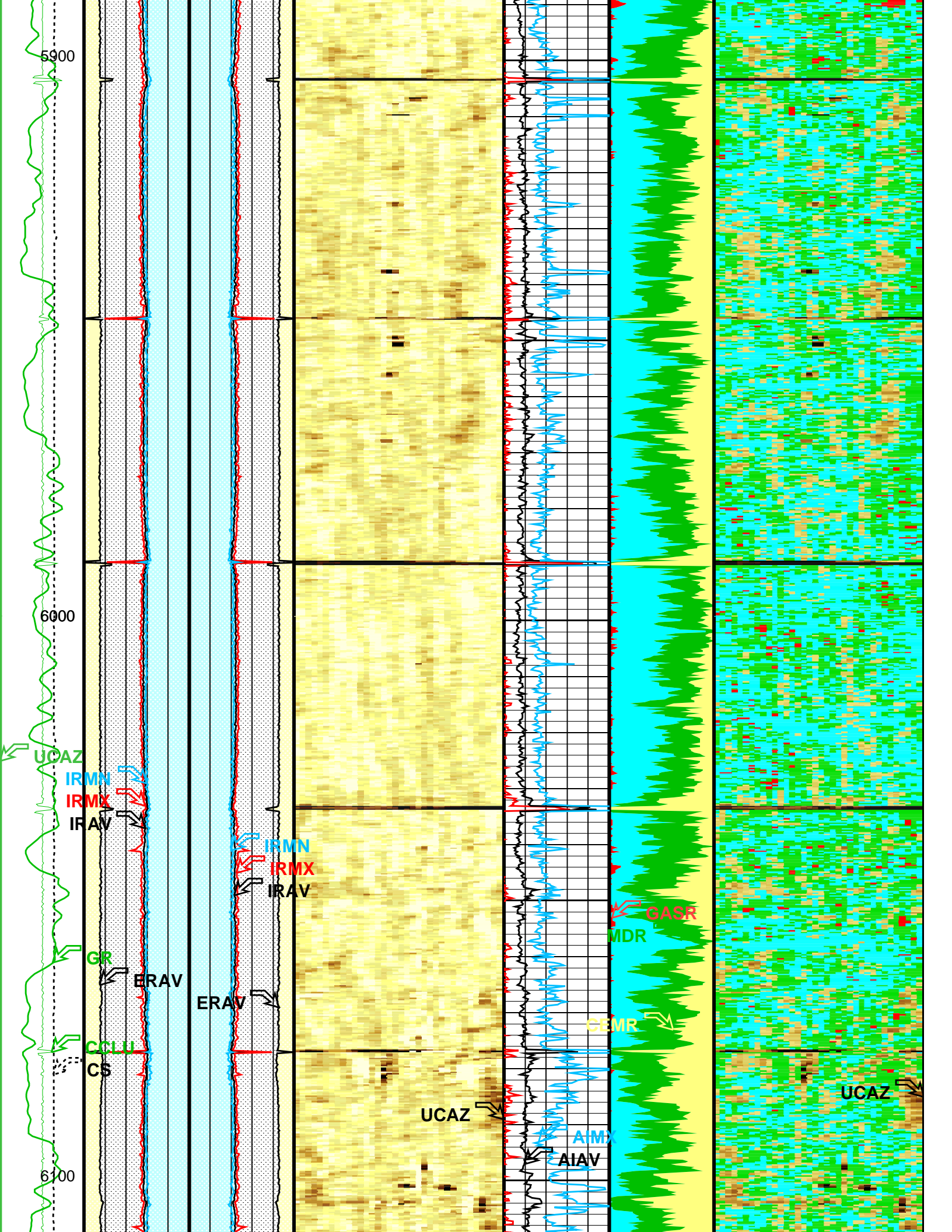




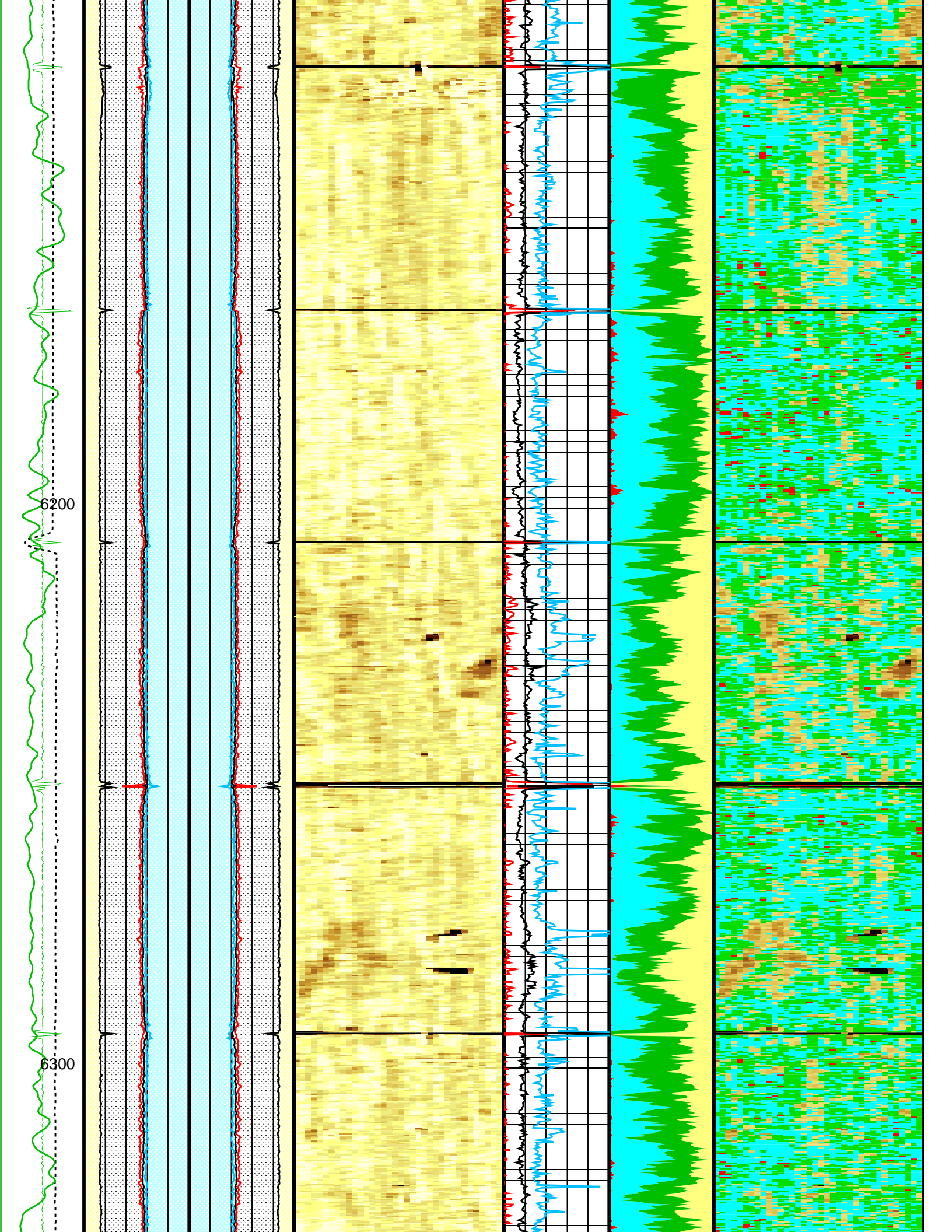


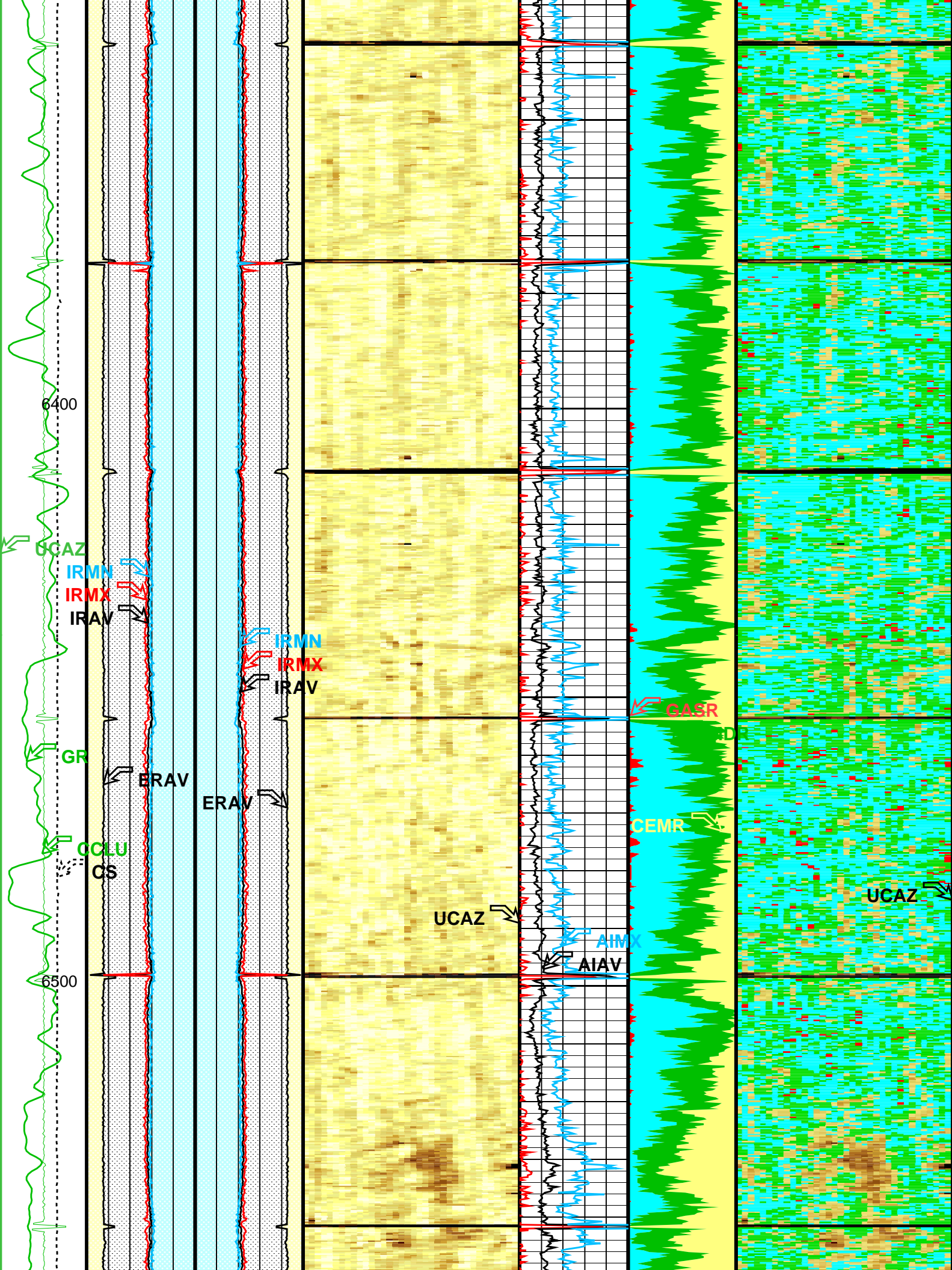




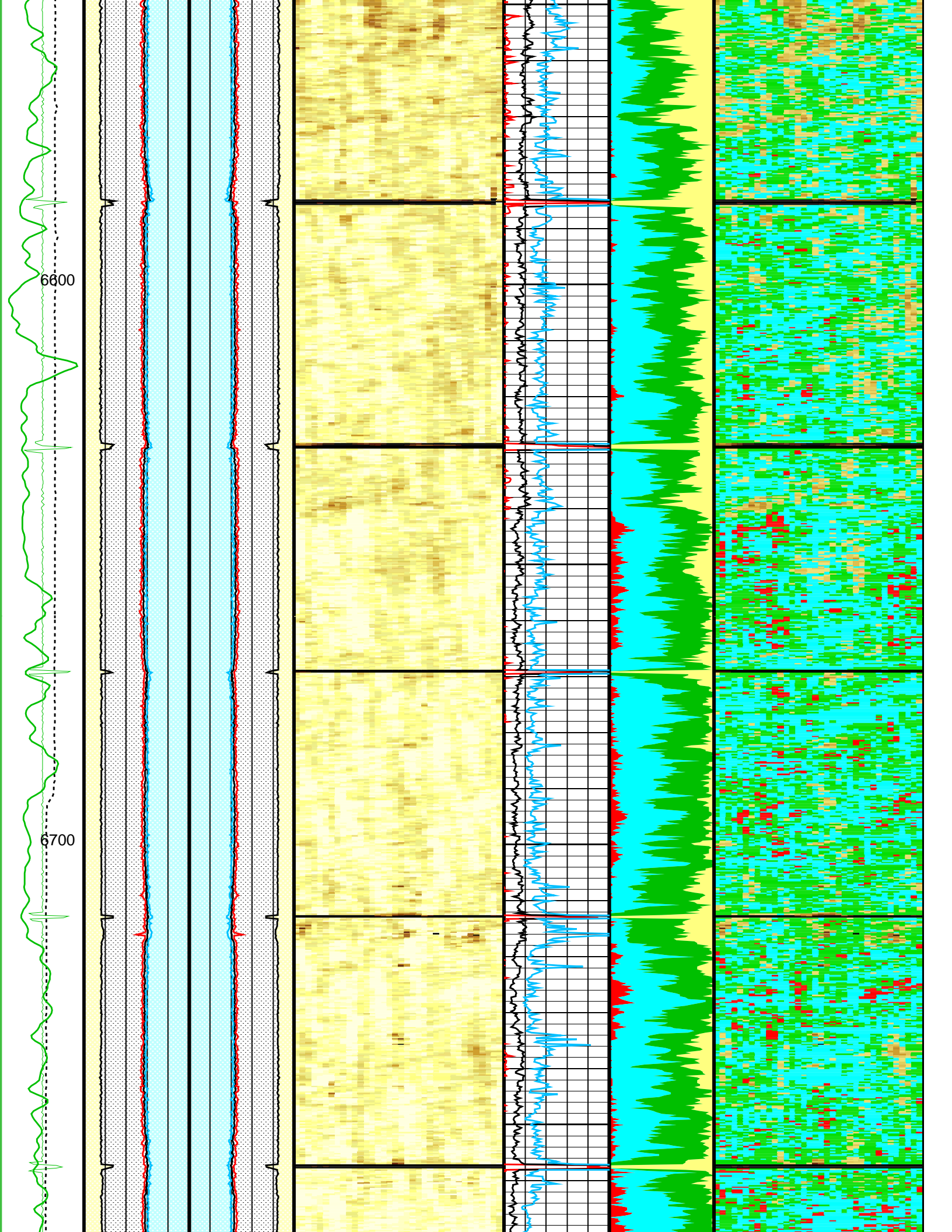


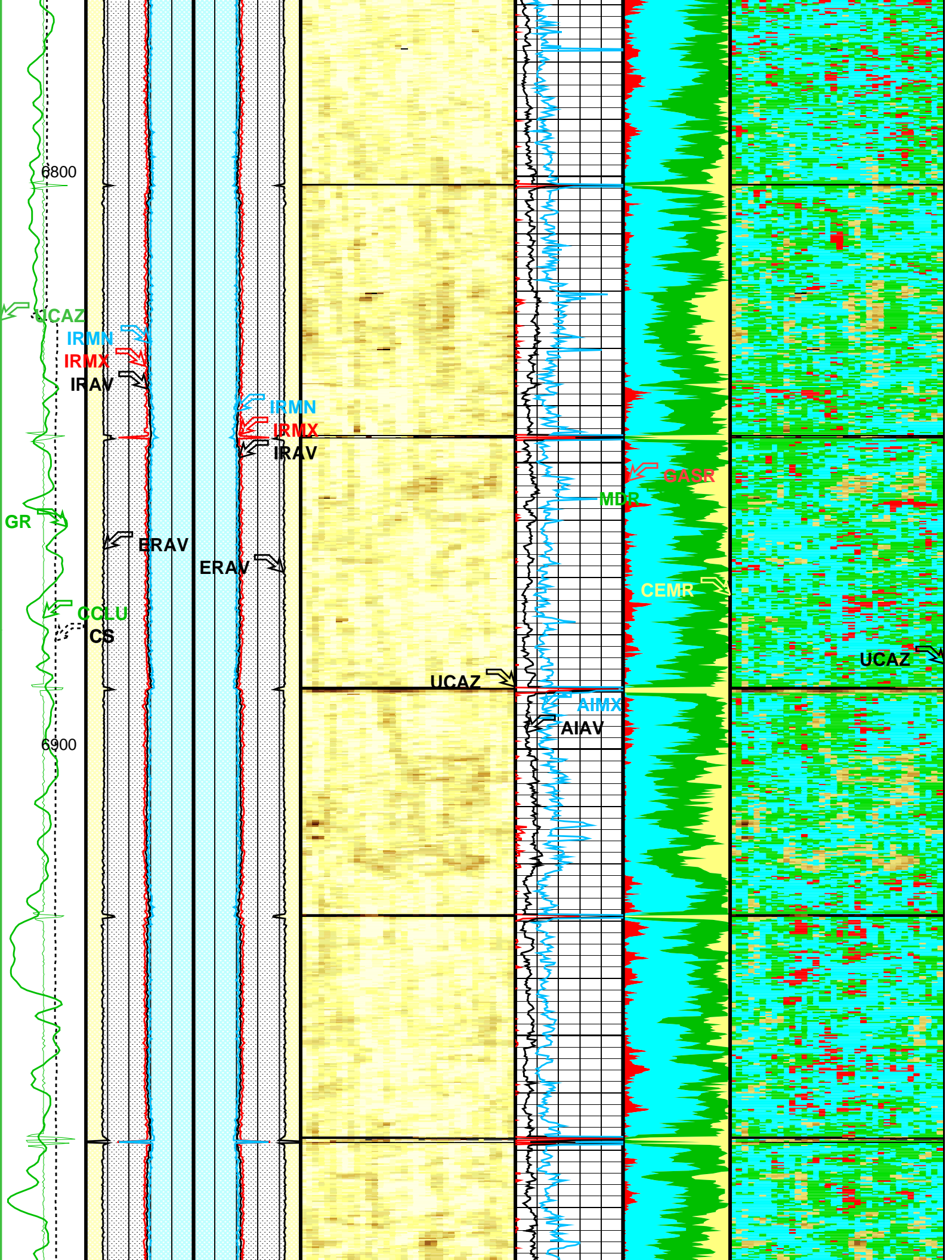




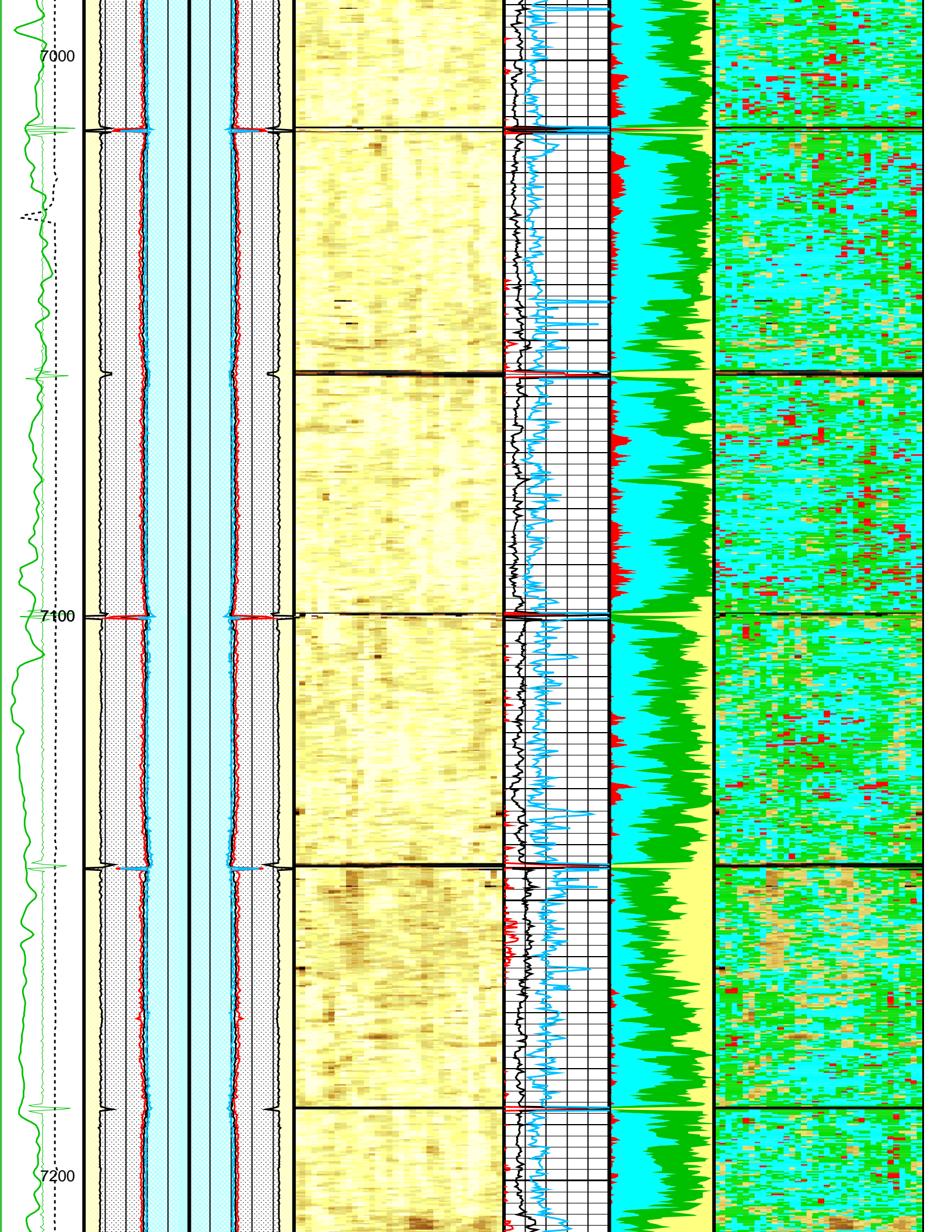


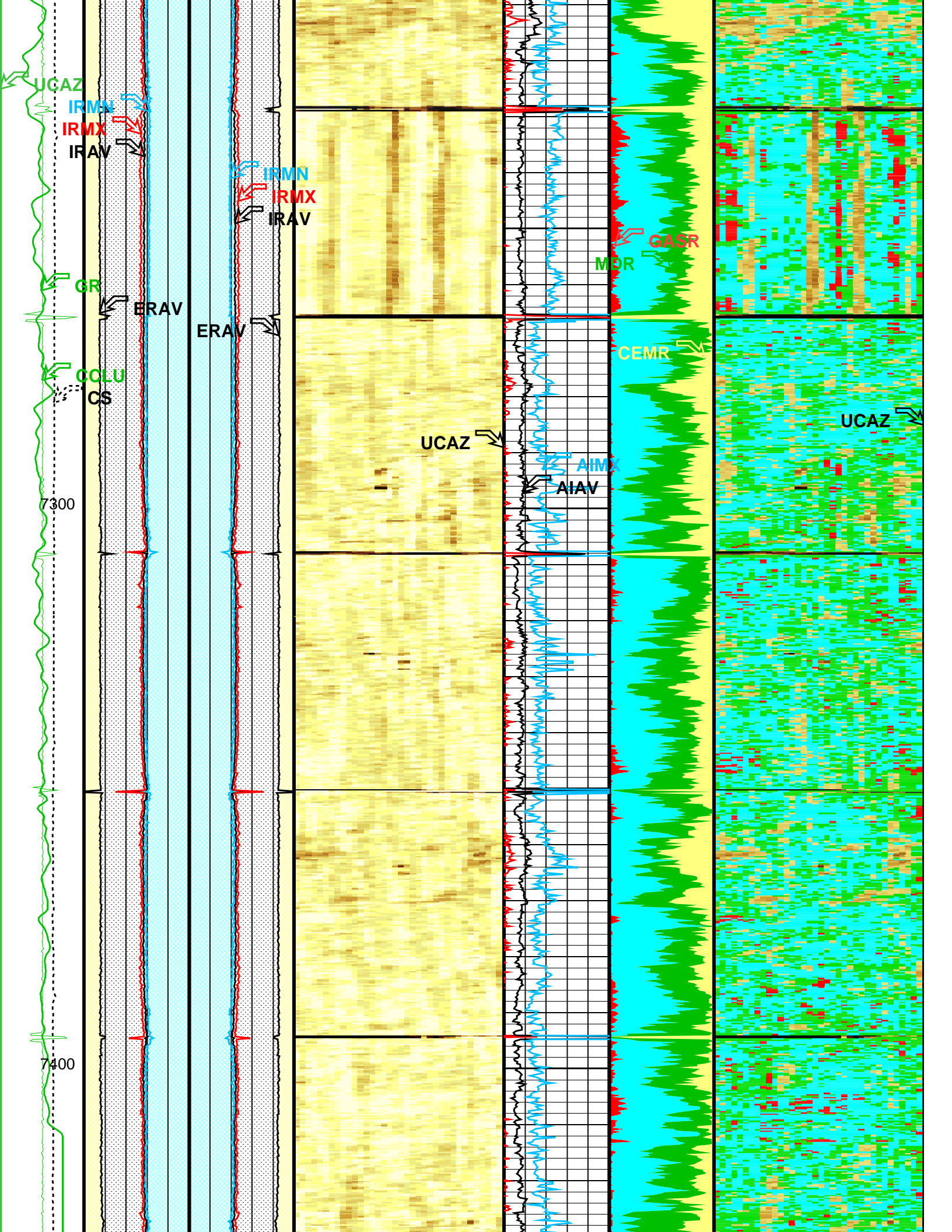




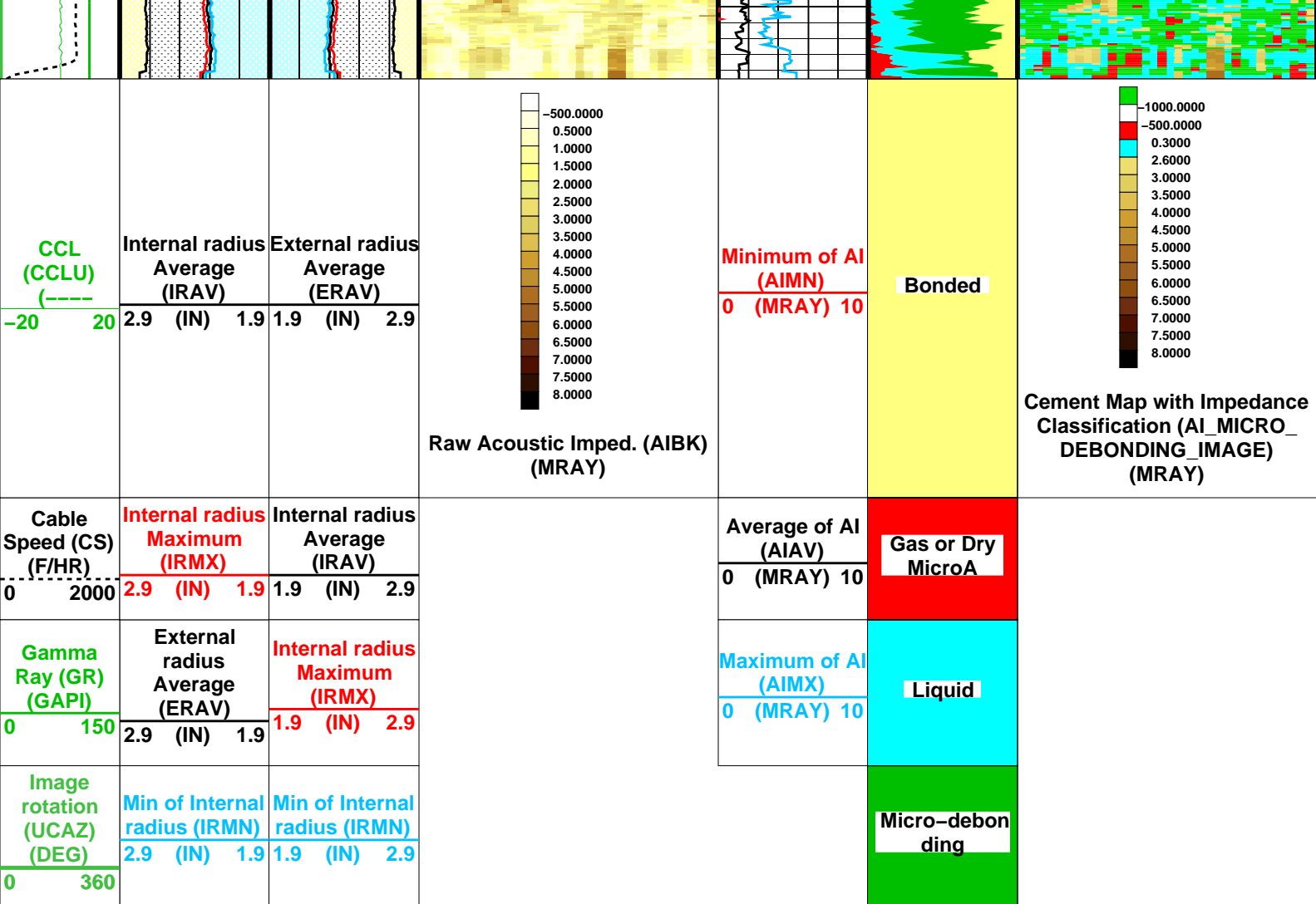












Format: USI\_Cement      Vertical Scale: 5" per 100'      Graphics File Created: 16-Feb-2011 18:42

## OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	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	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G

RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
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	
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	0.415	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
USPS: USIT Pipe Stats			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THNO	Nominal Thickness of Casing	0.415	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
CWEI	Casing Weight	23.00	LB/F
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	

### Input DLIS Files

DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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### Output DLIS Files

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RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44

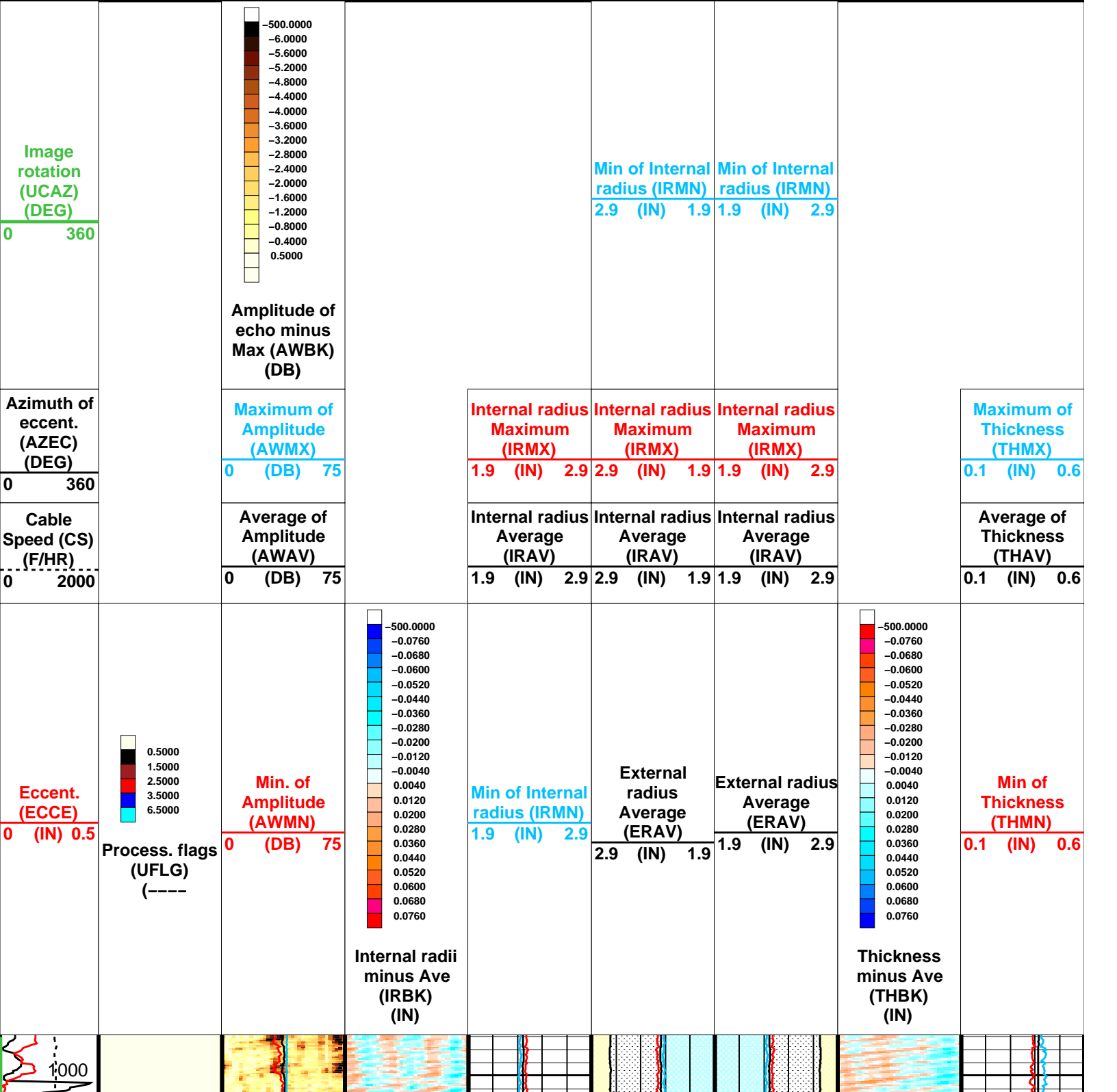
**Schlumberger**

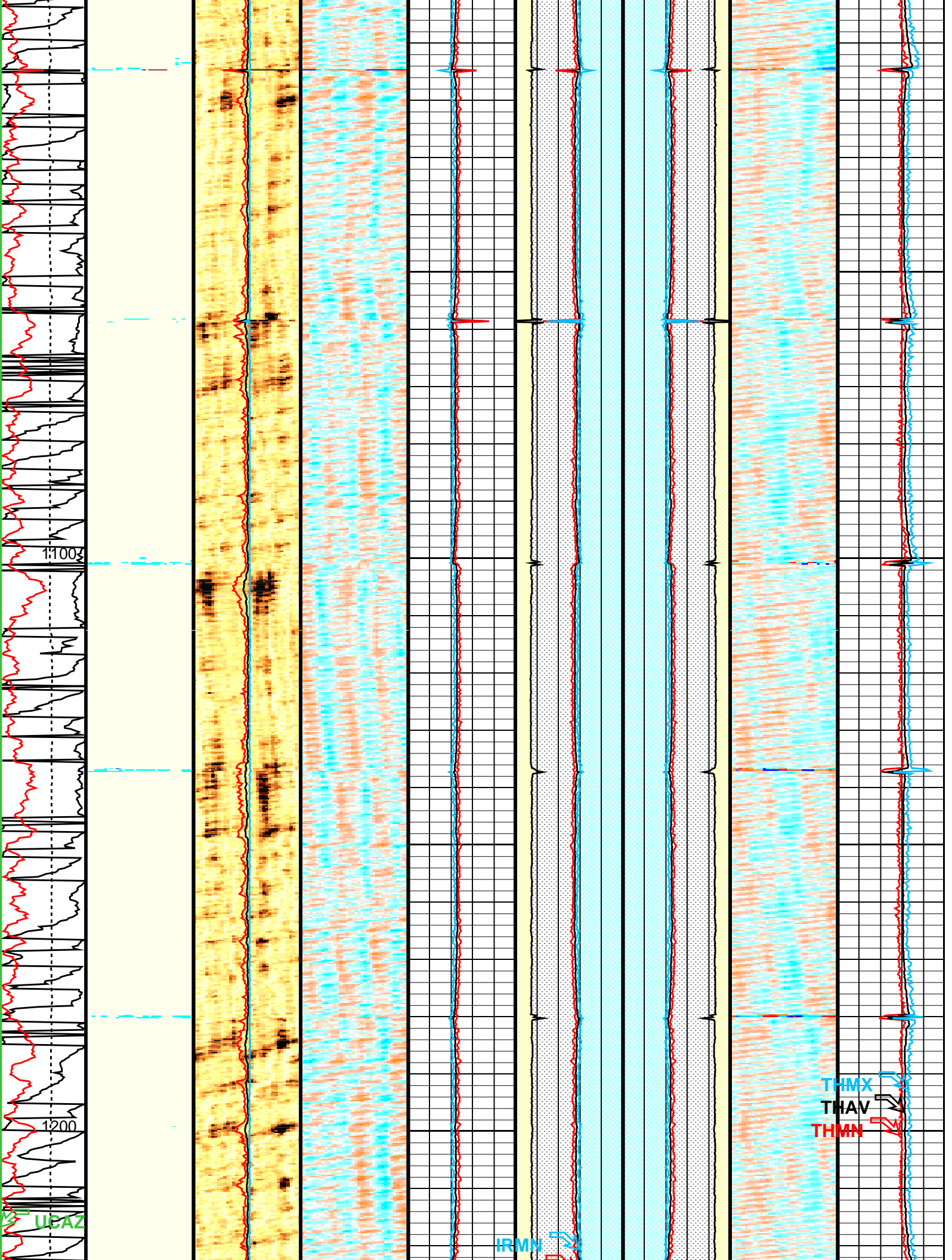
**MAIN PASS CORROSION  
2000 PSI**



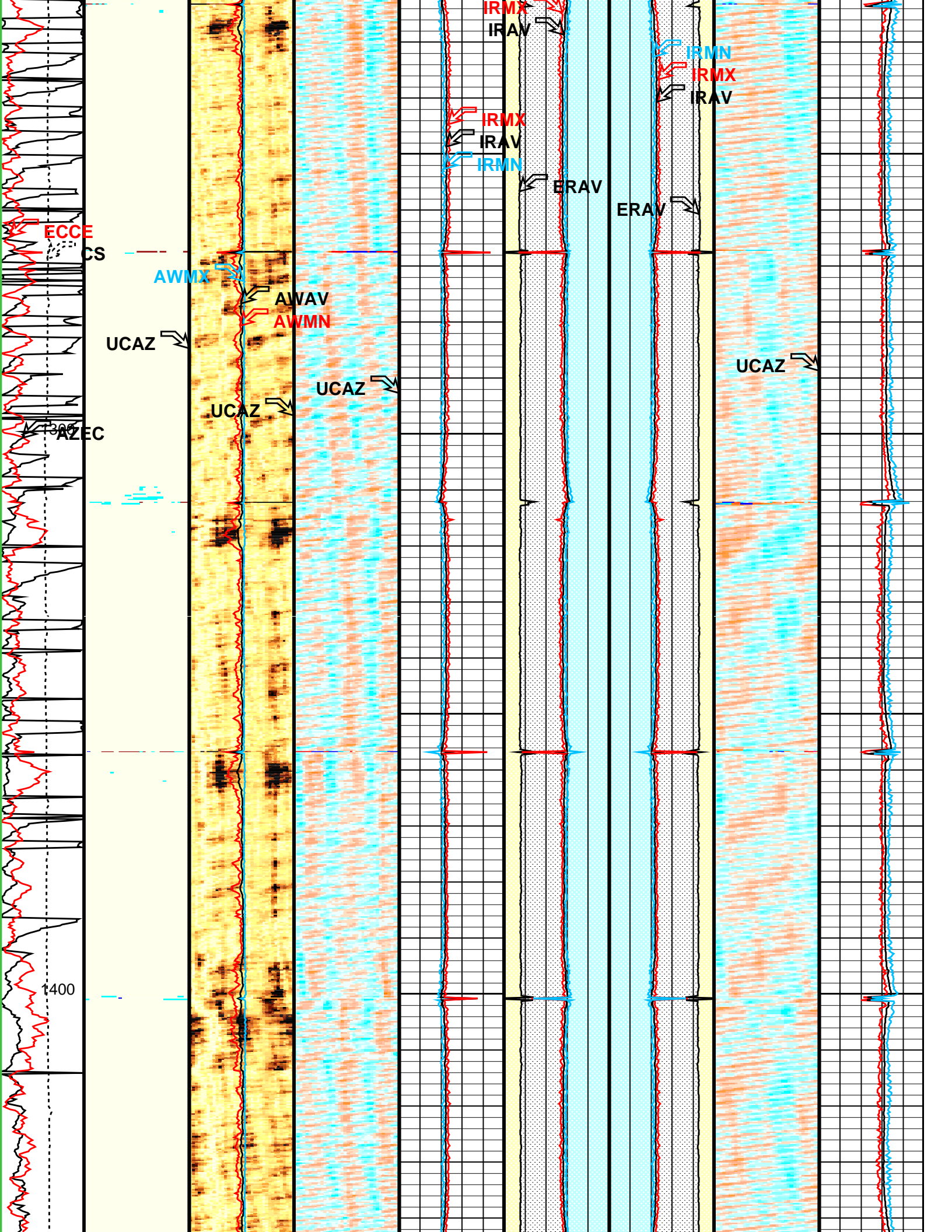
Input DLIS Files						
DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
Output DLIS Files						
DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42	7439.0 FT	993.5 FT
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44	7439.0 FT	993.5 FT

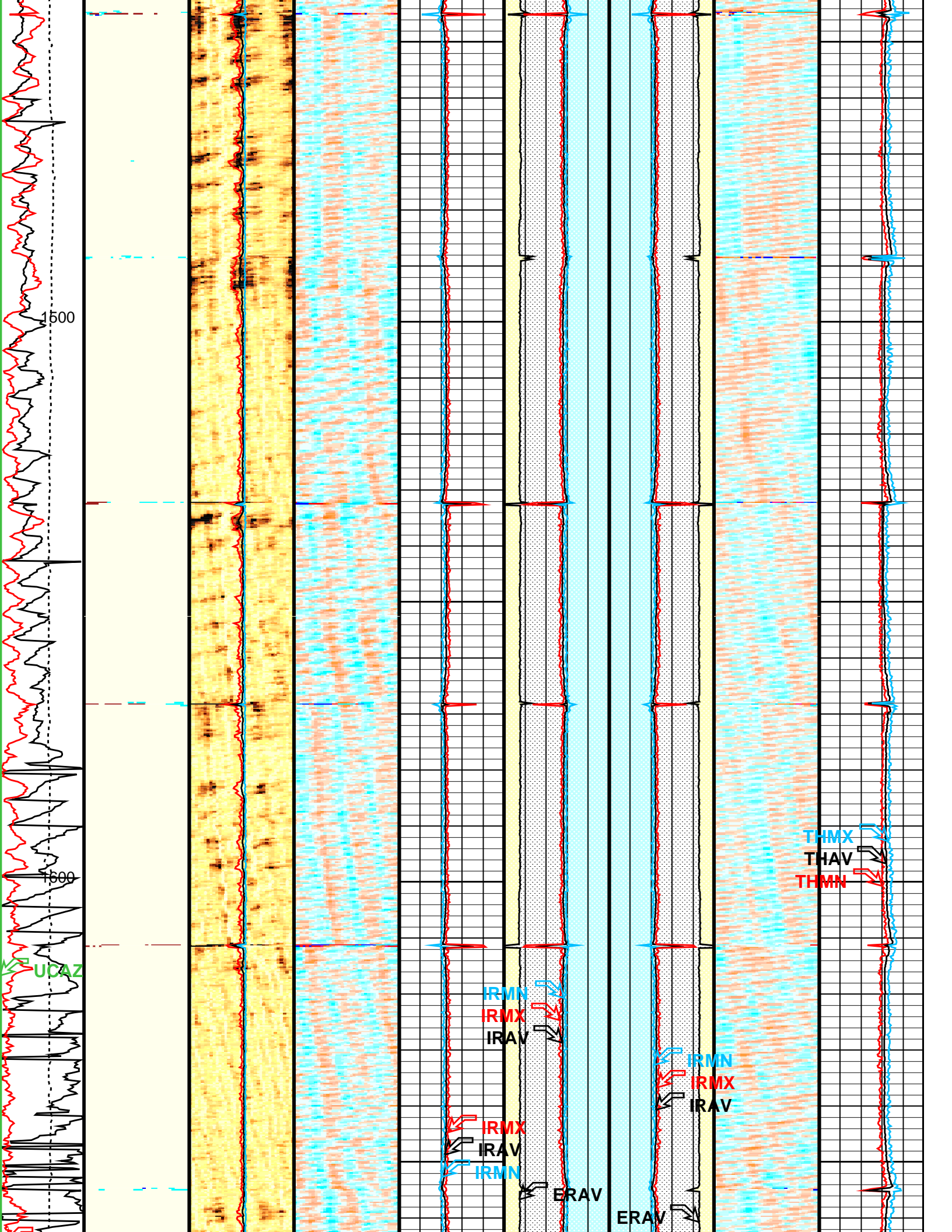
OP System Version: 17C0-154			
USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		



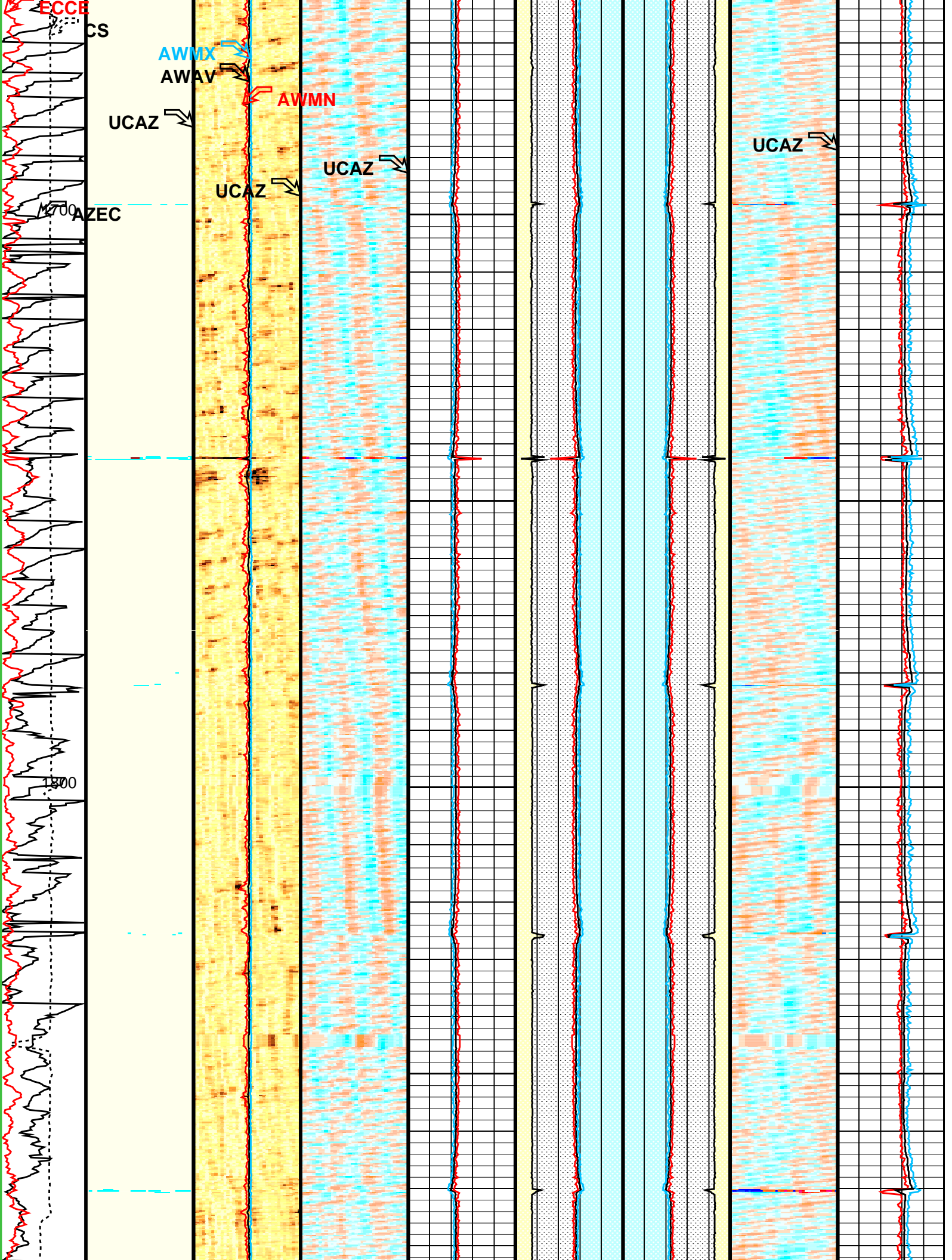


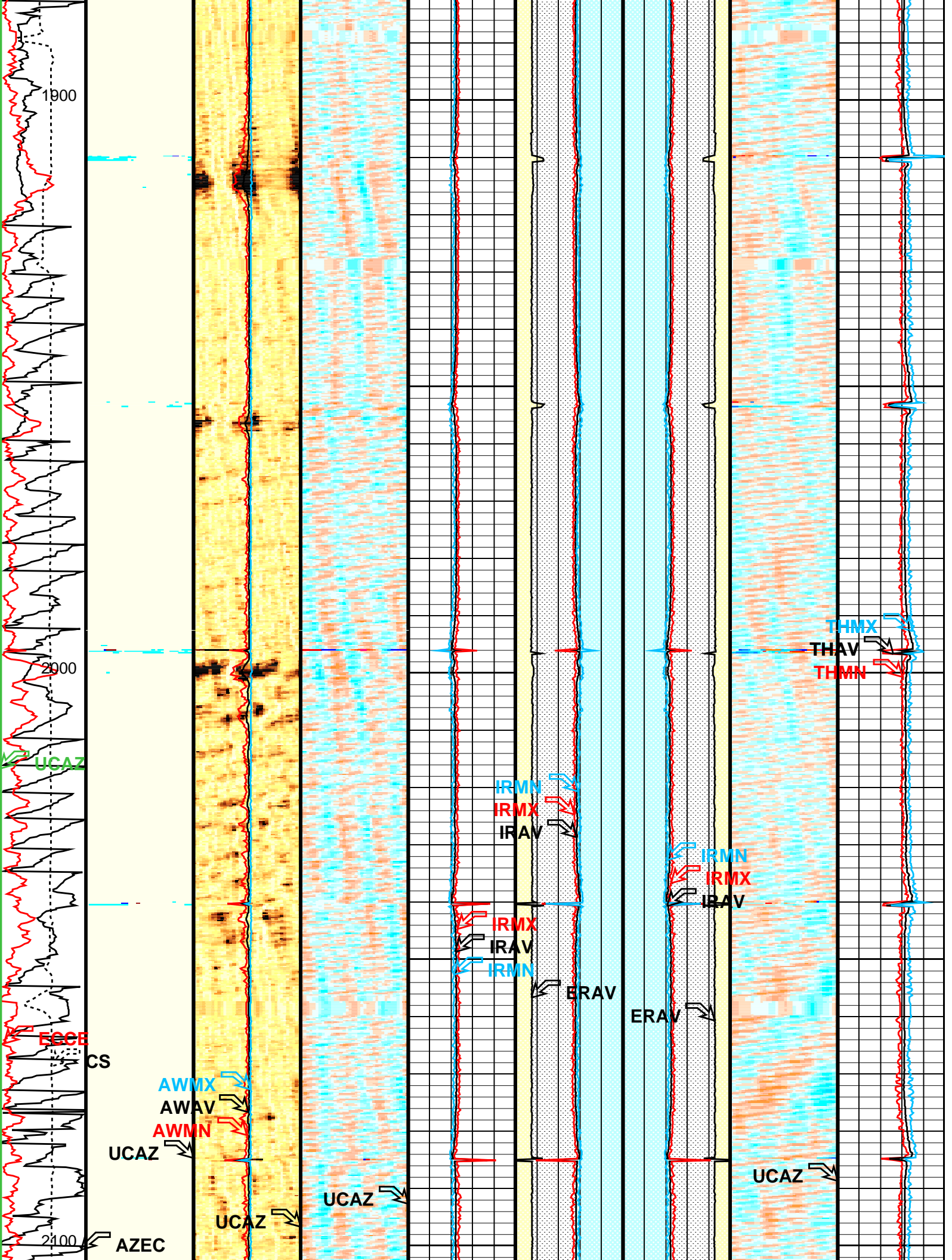




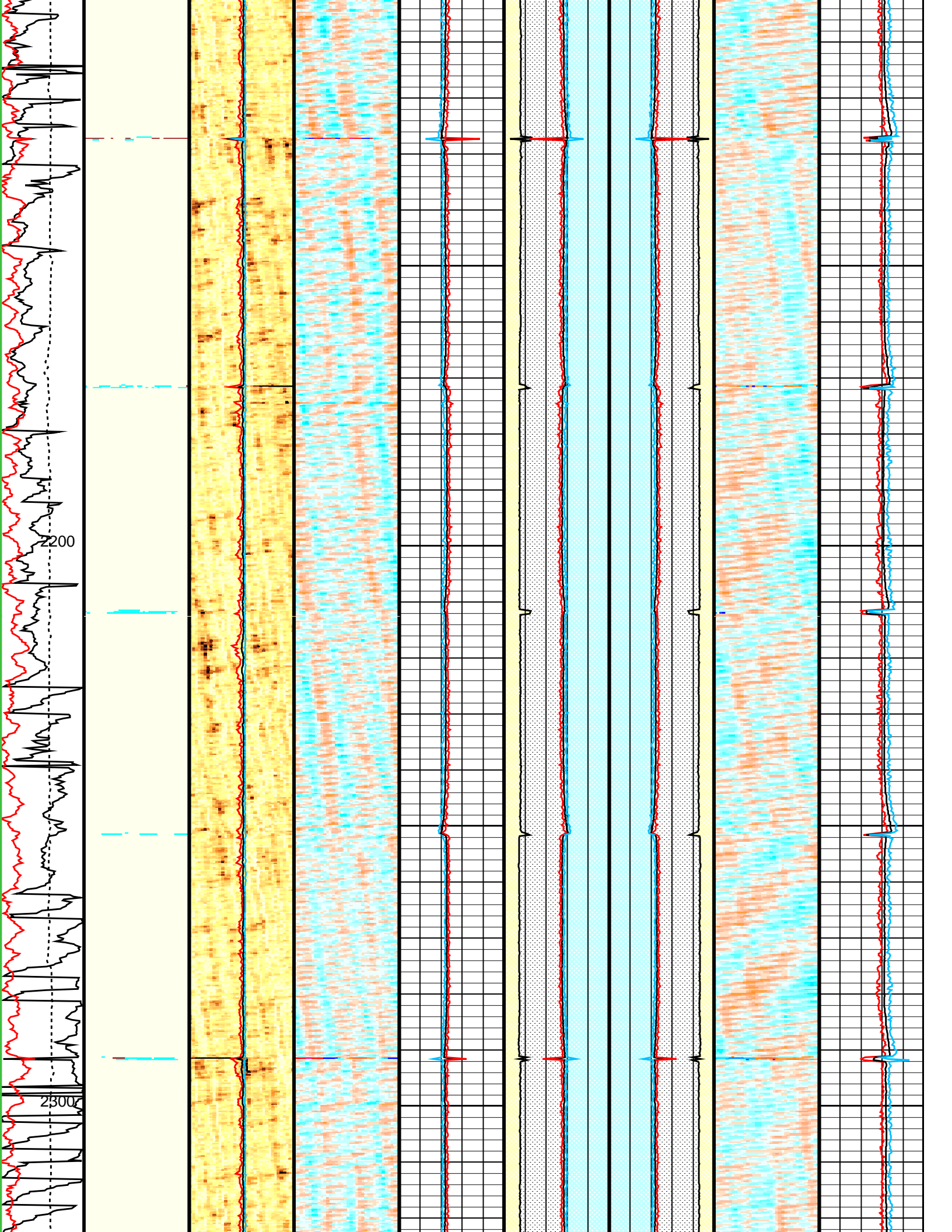


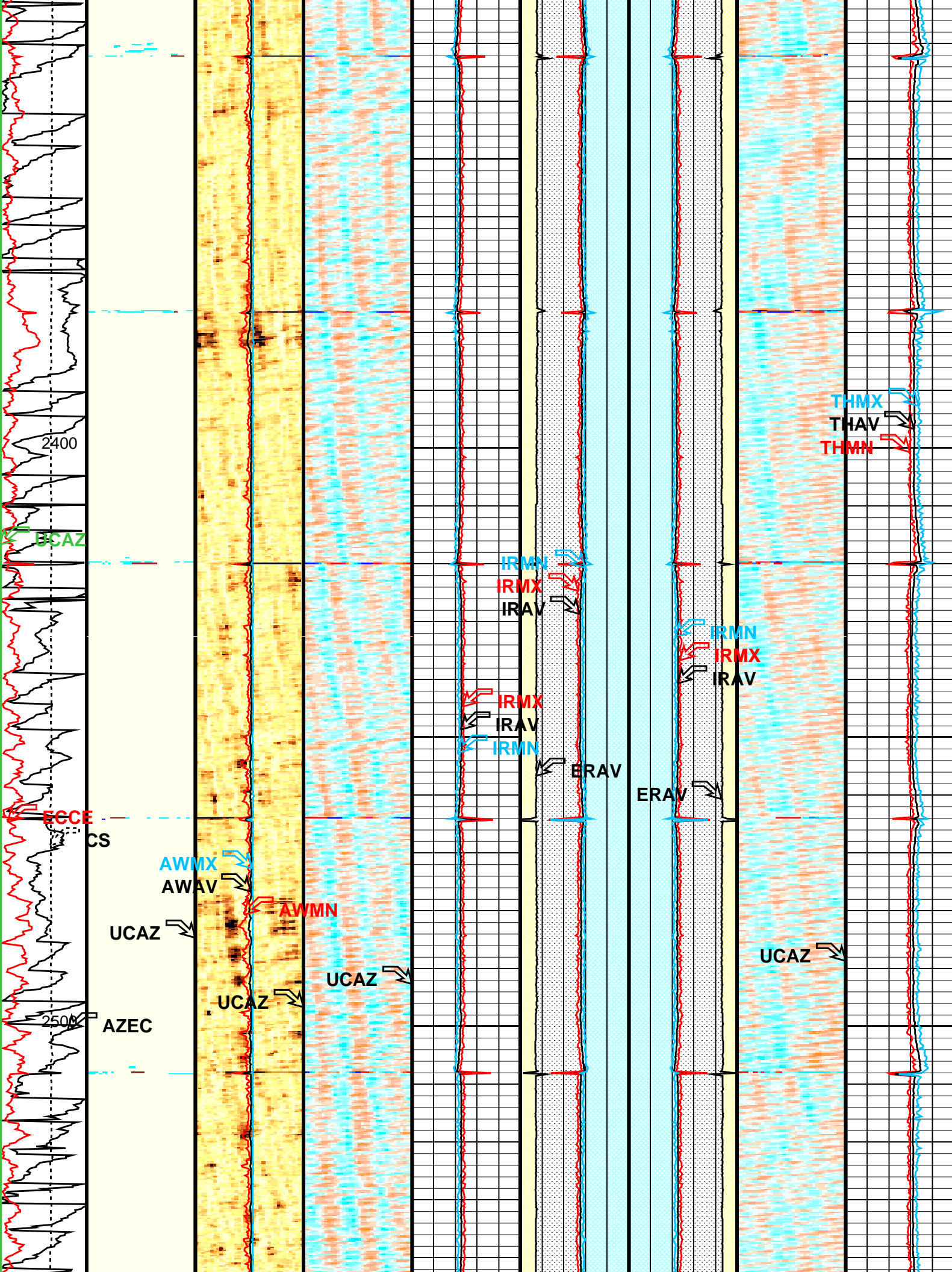




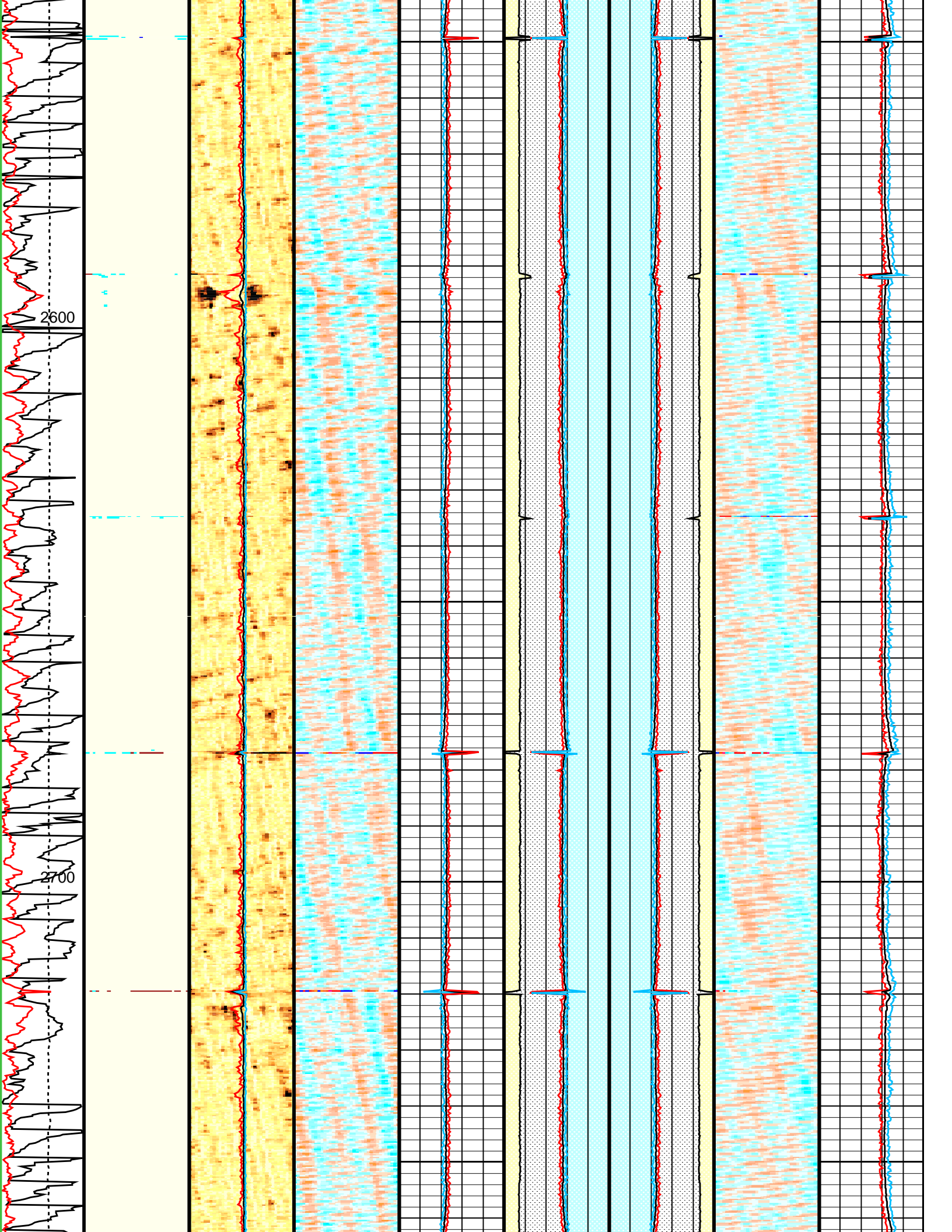


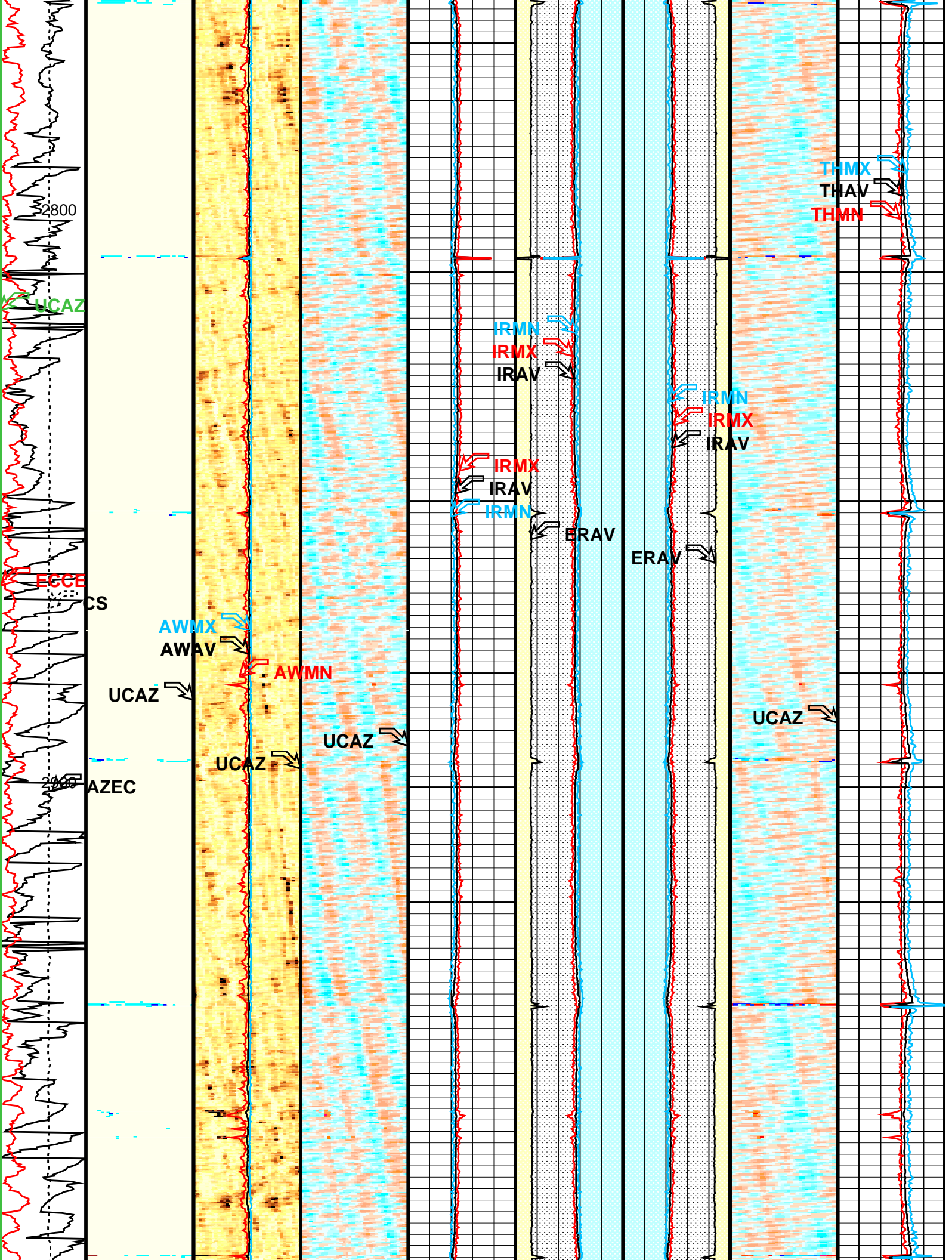




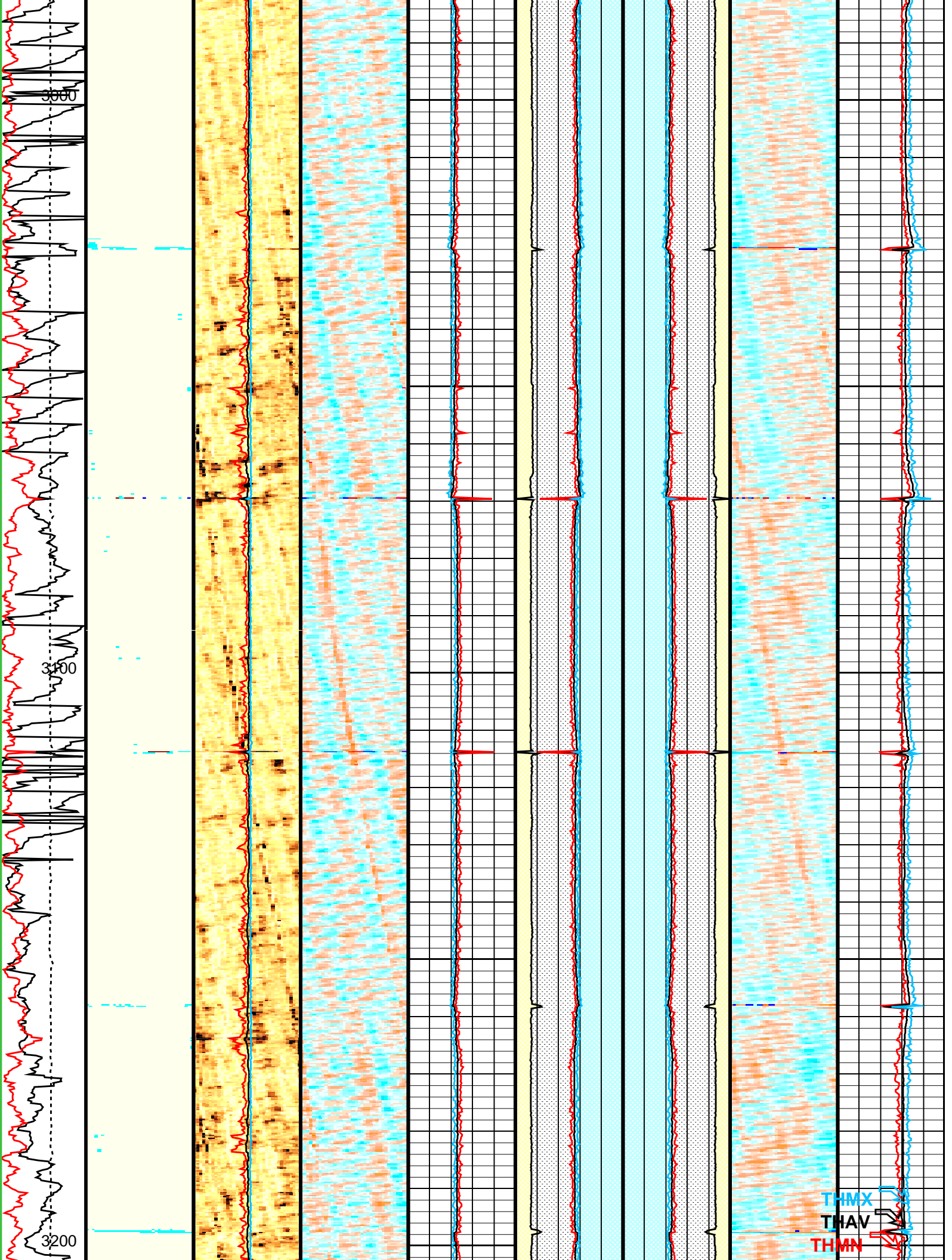


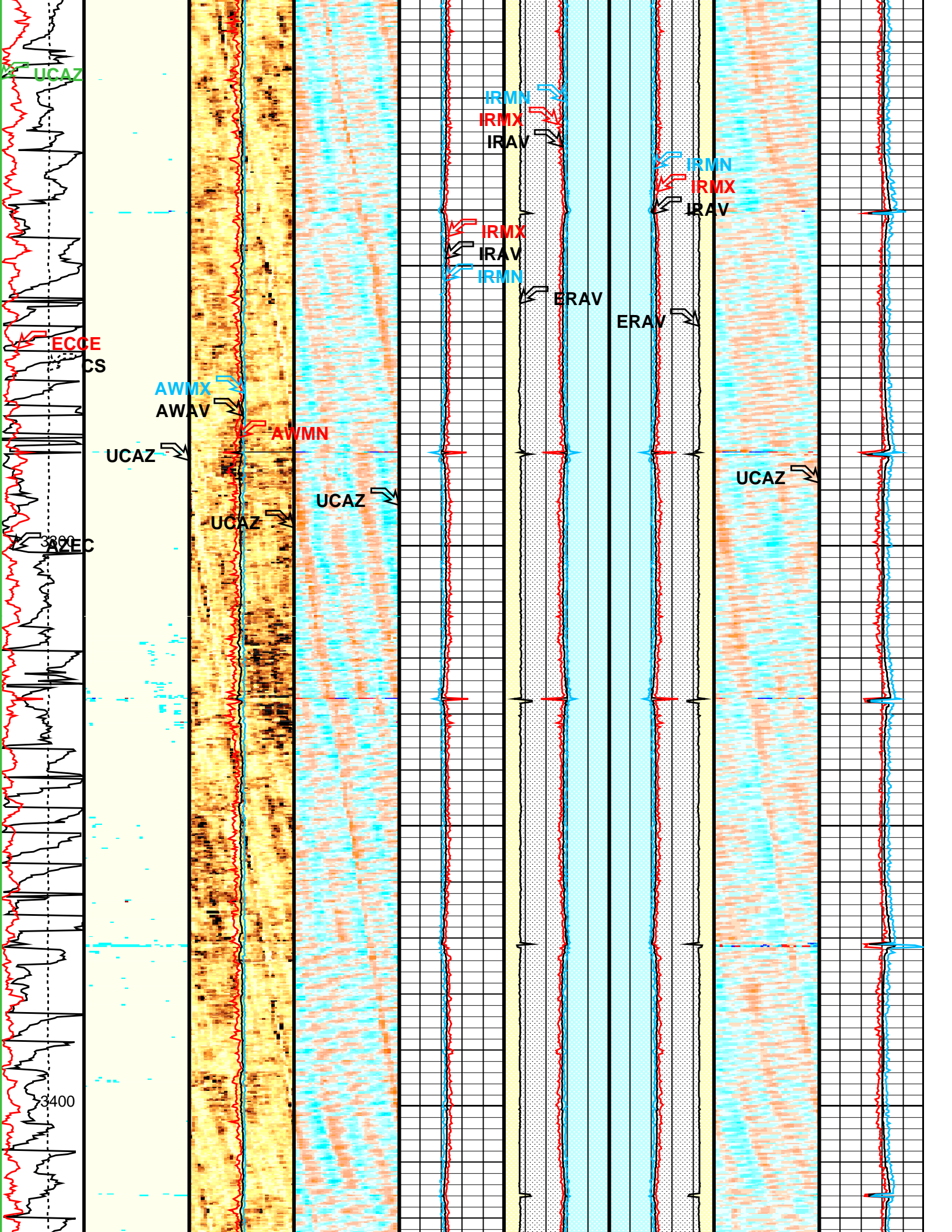




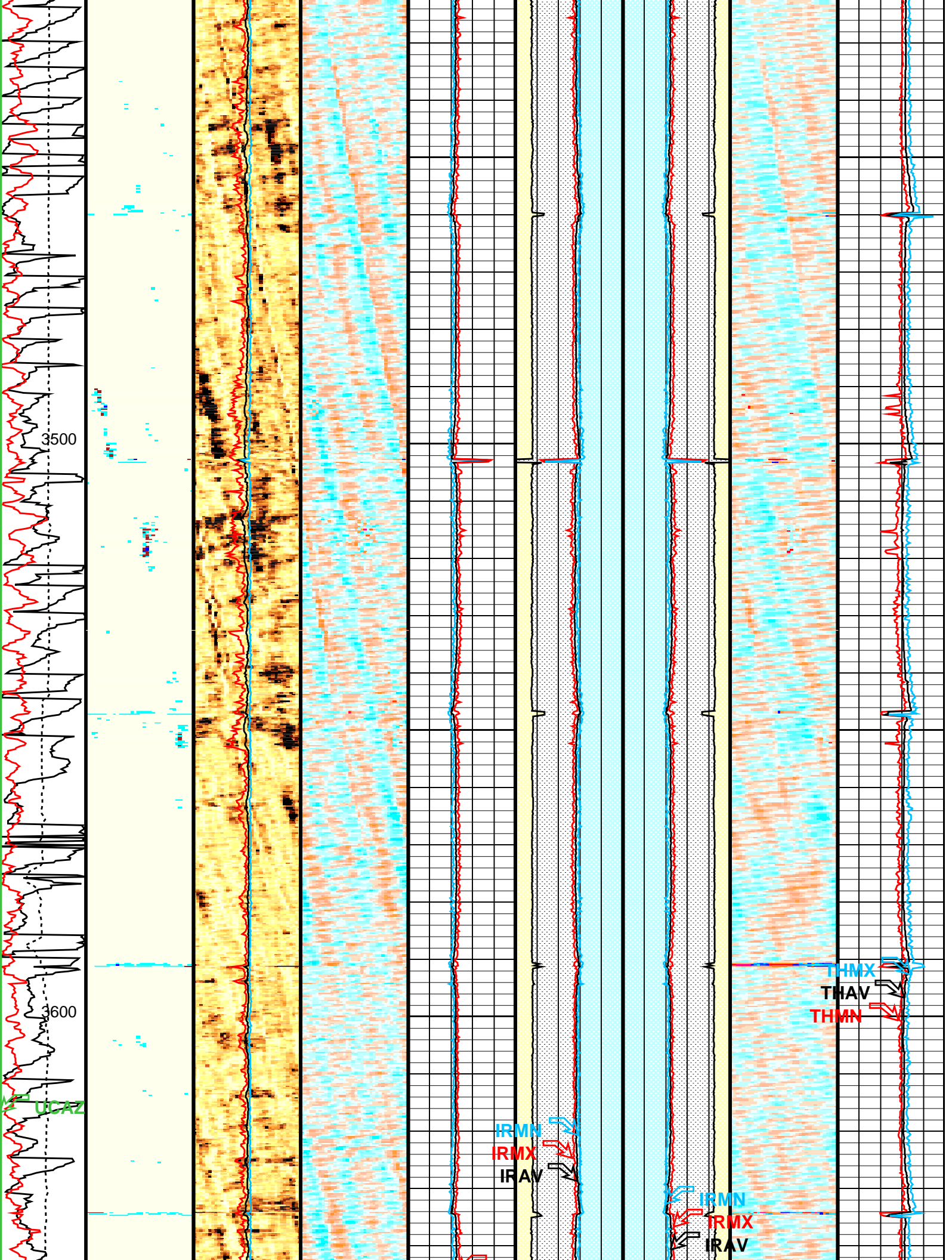


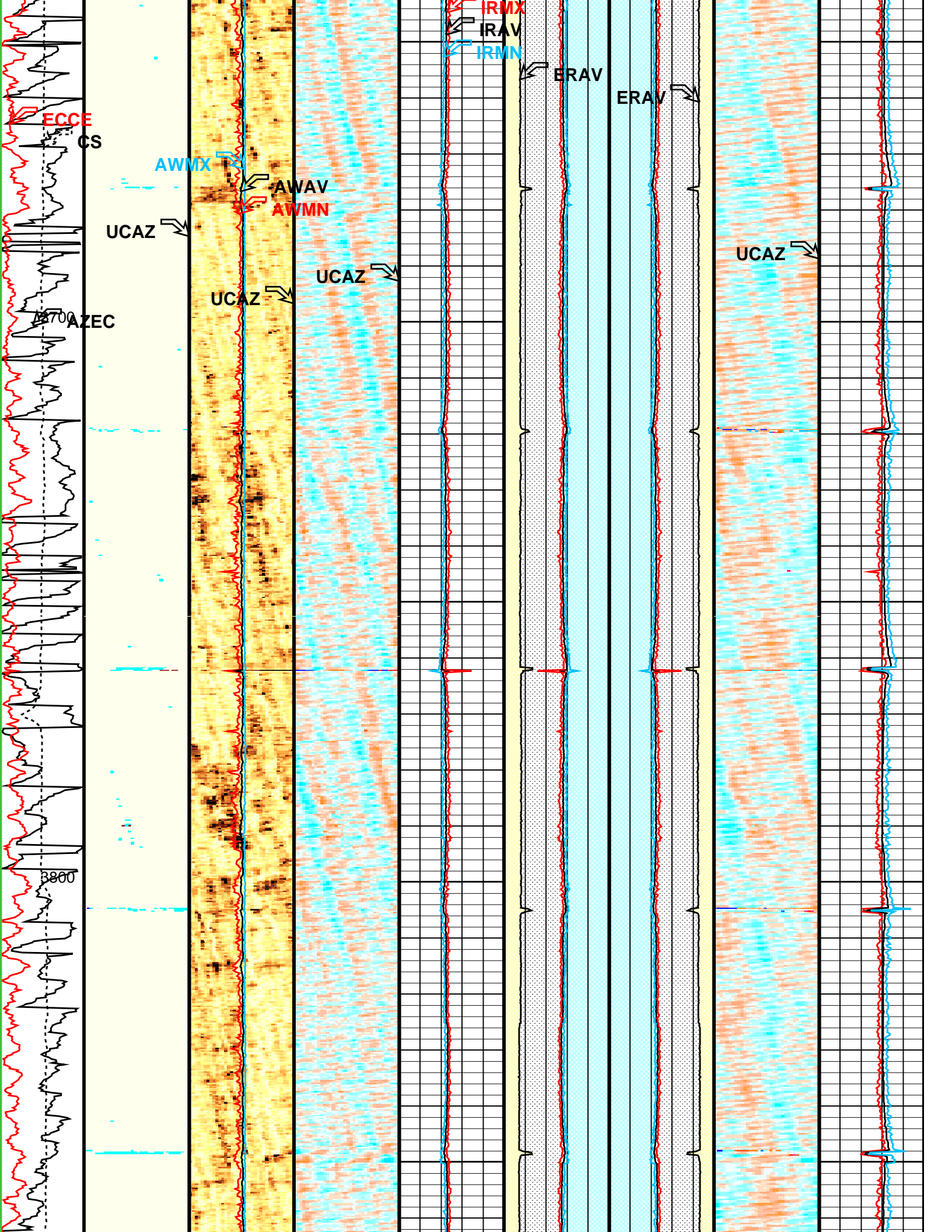




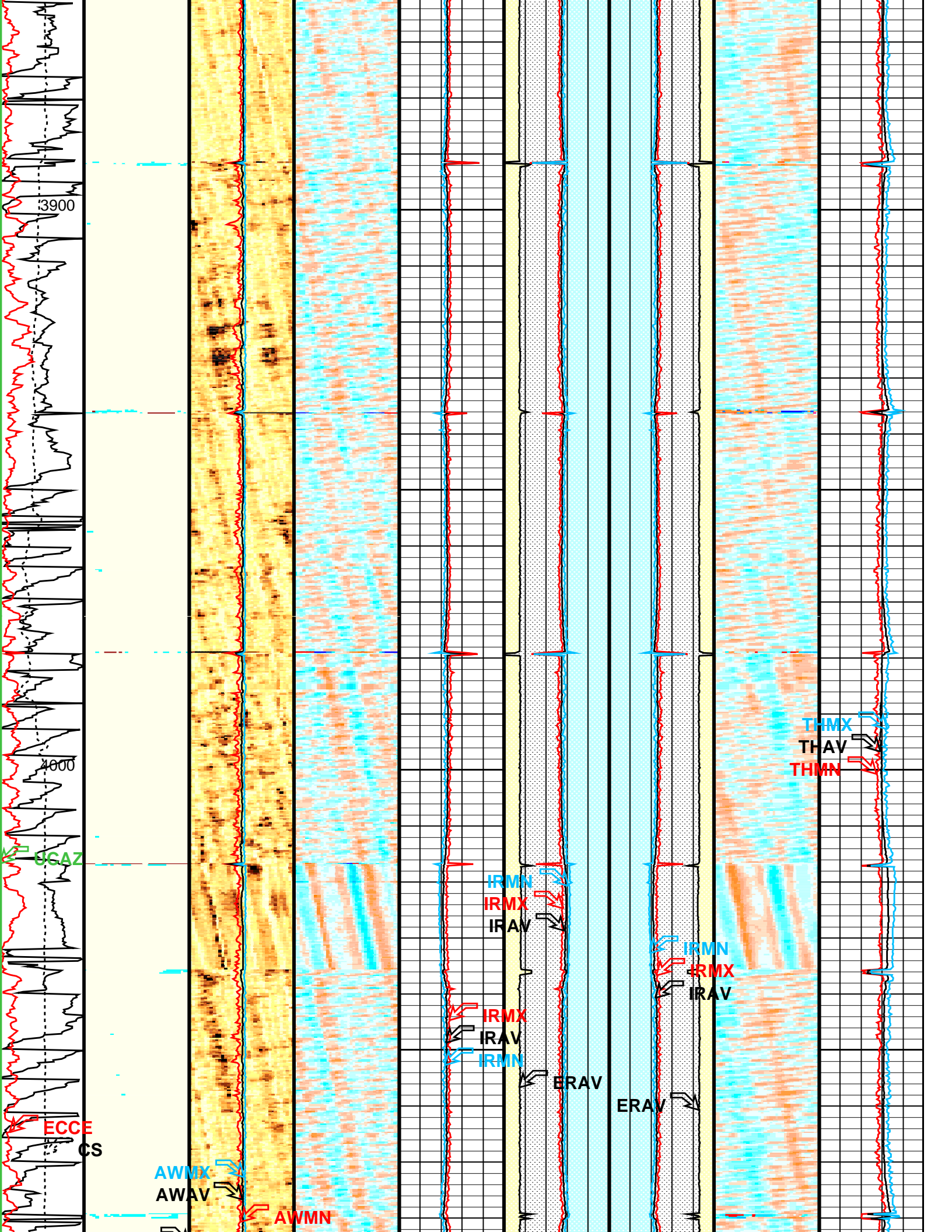


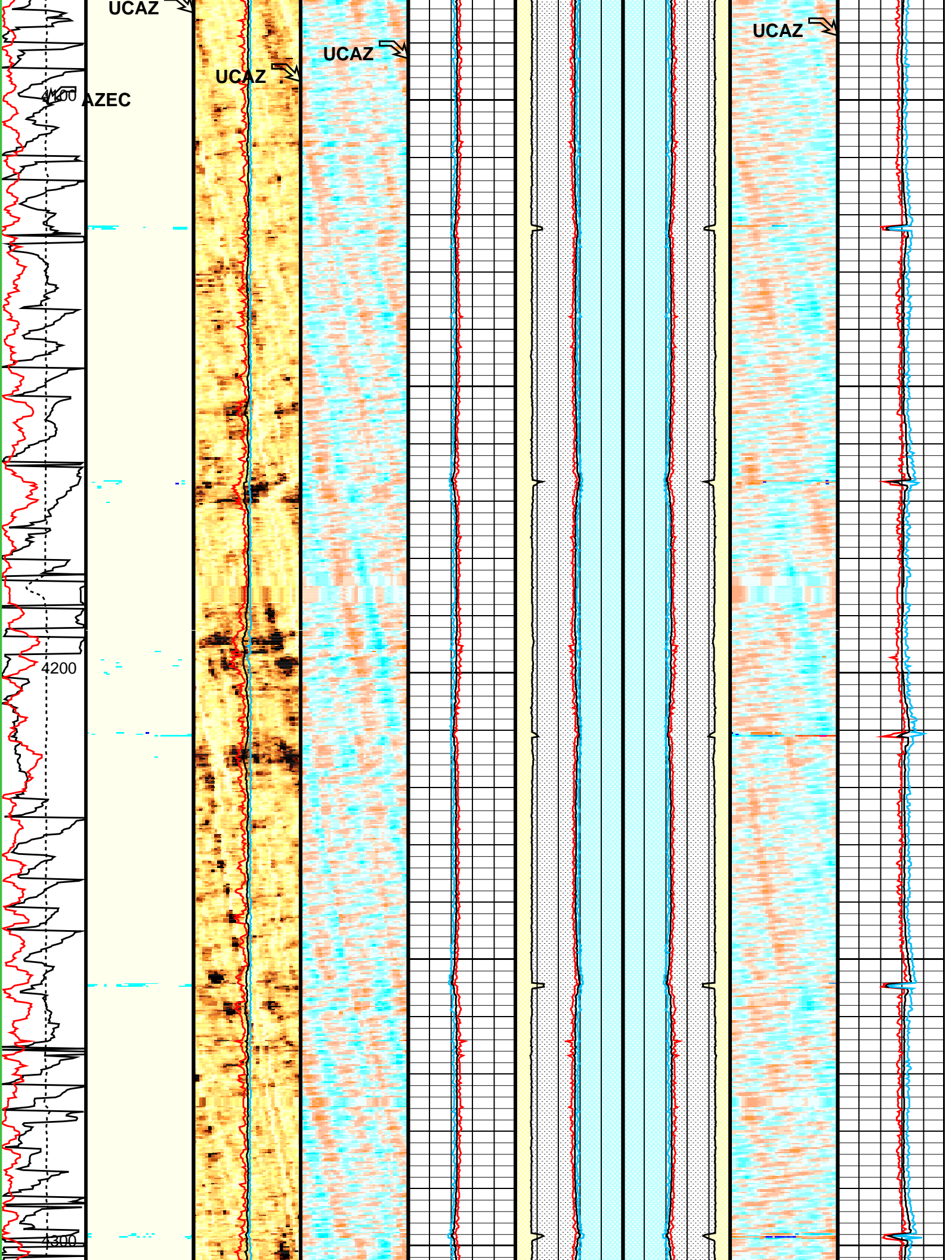




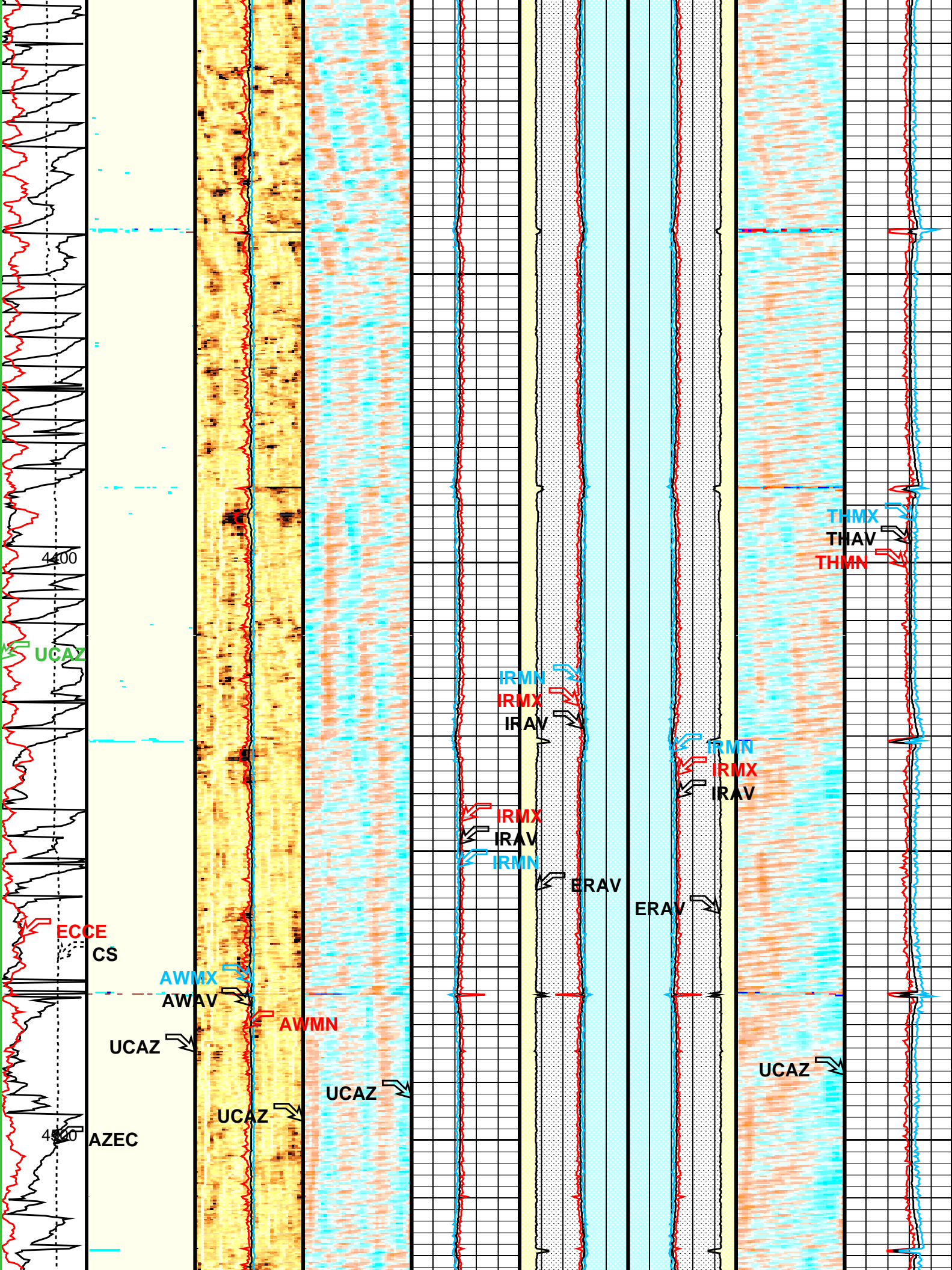


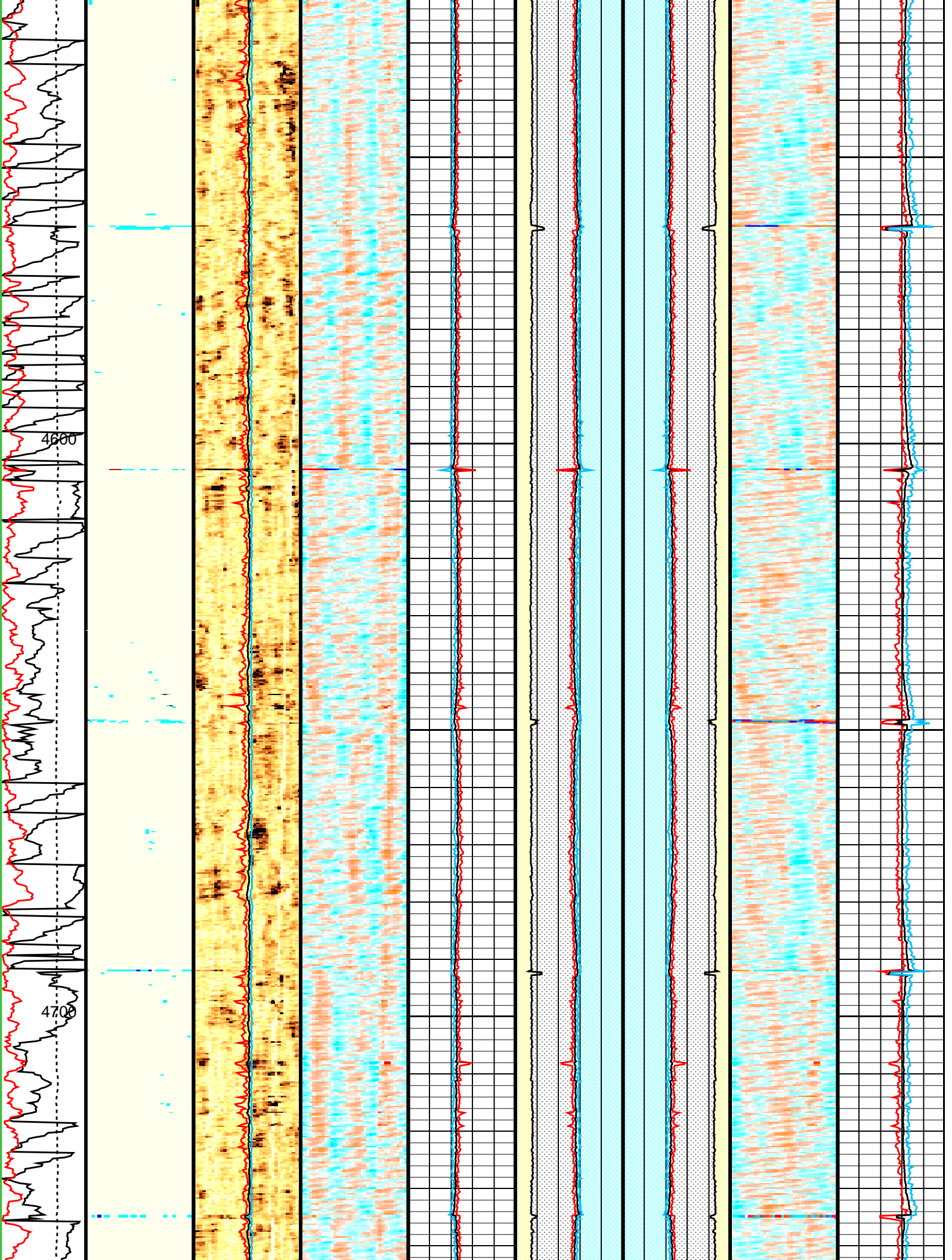




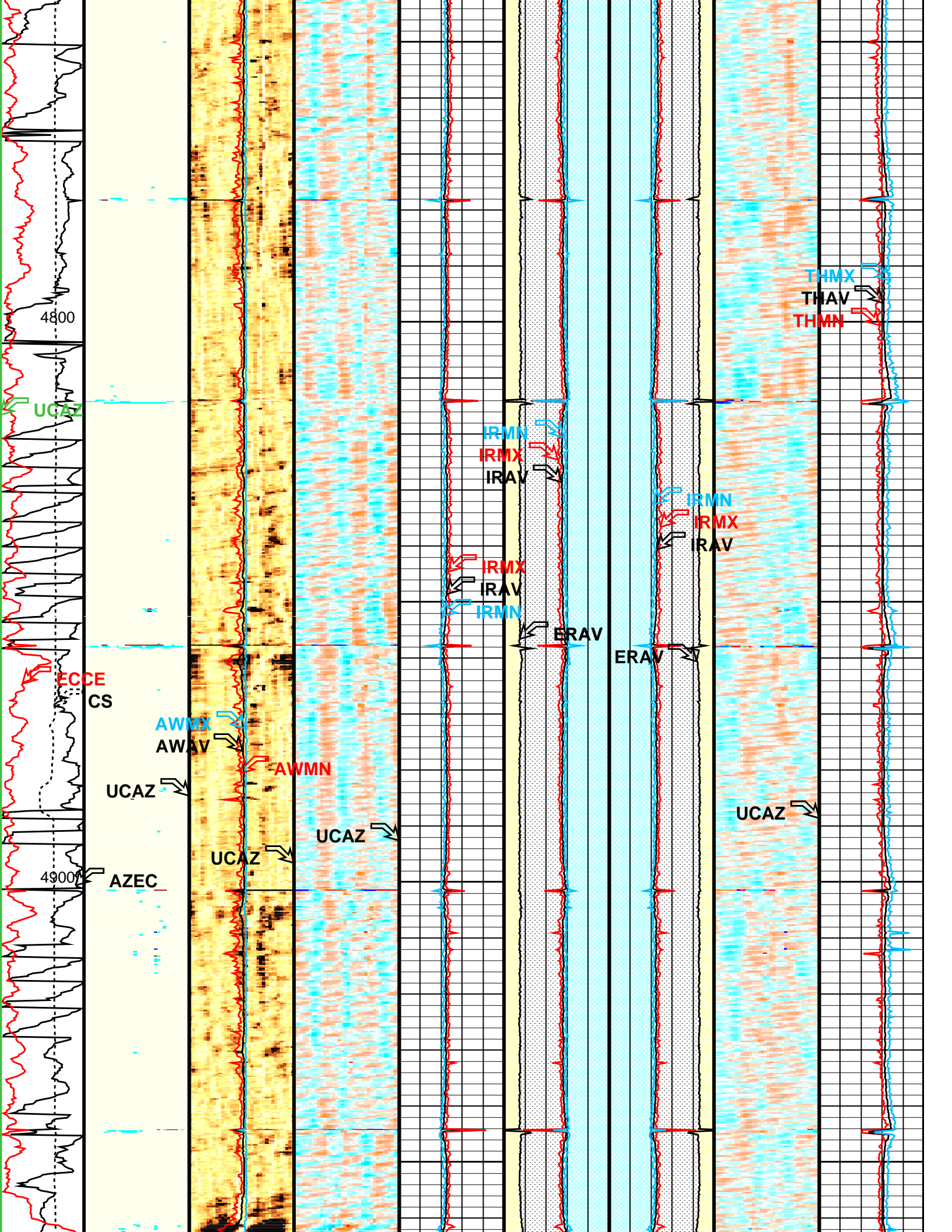


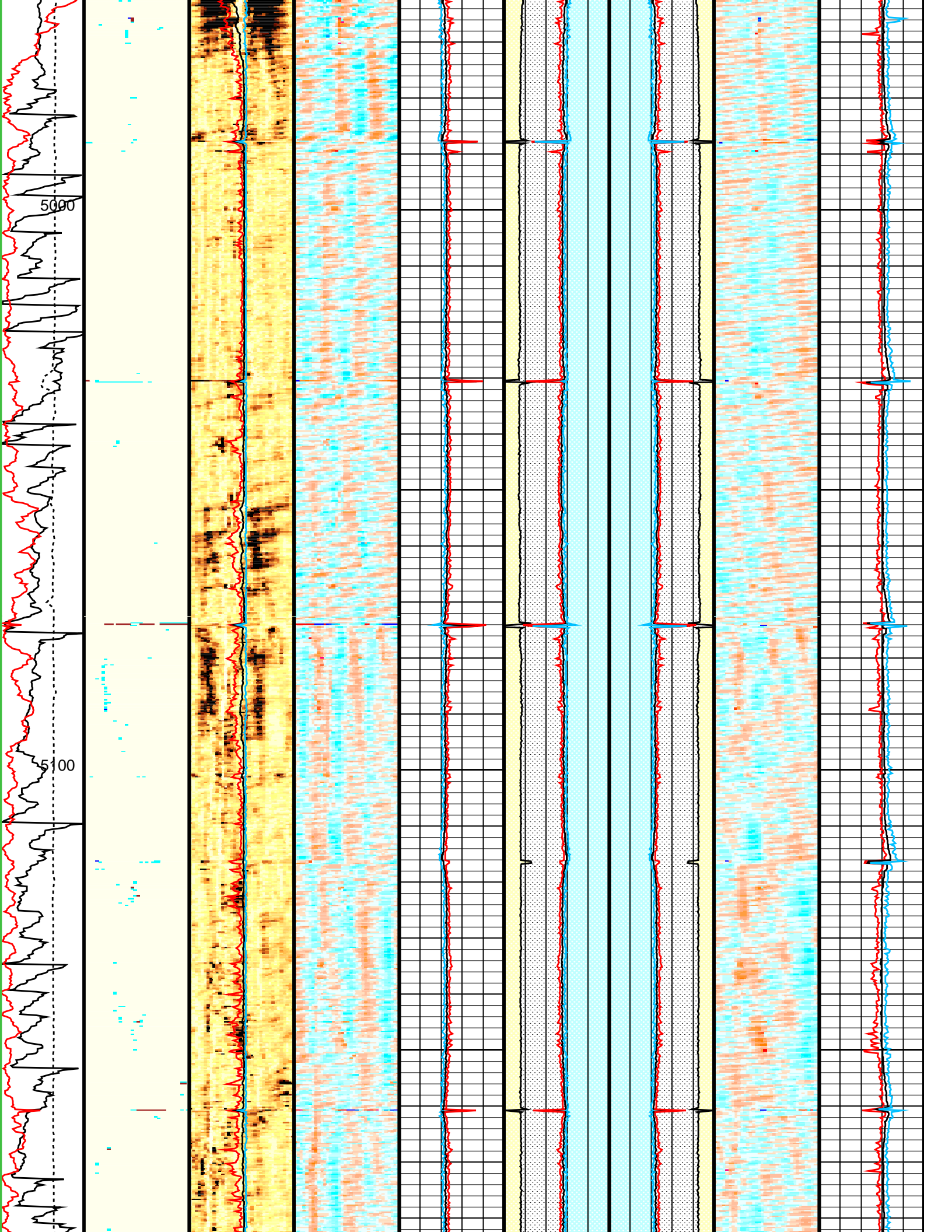




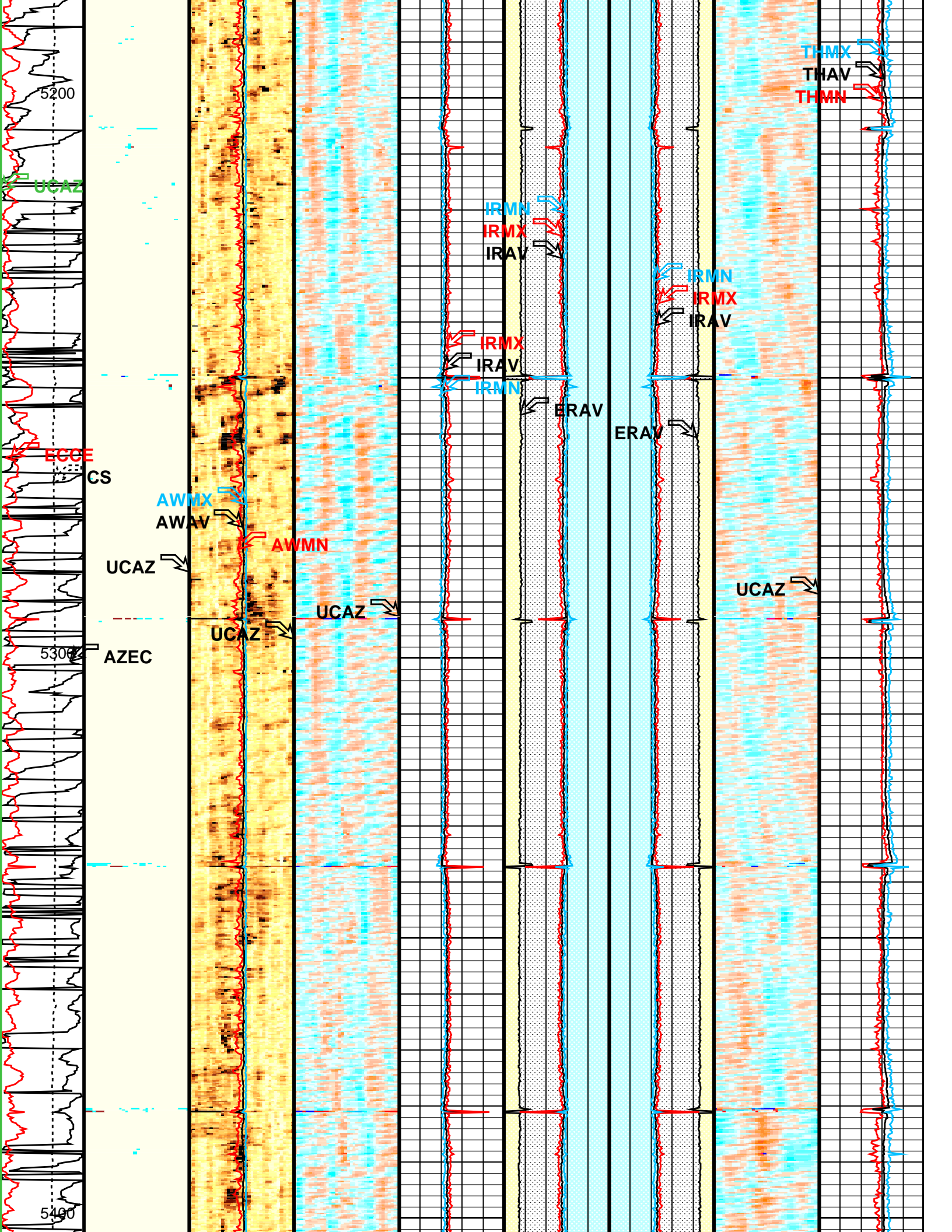


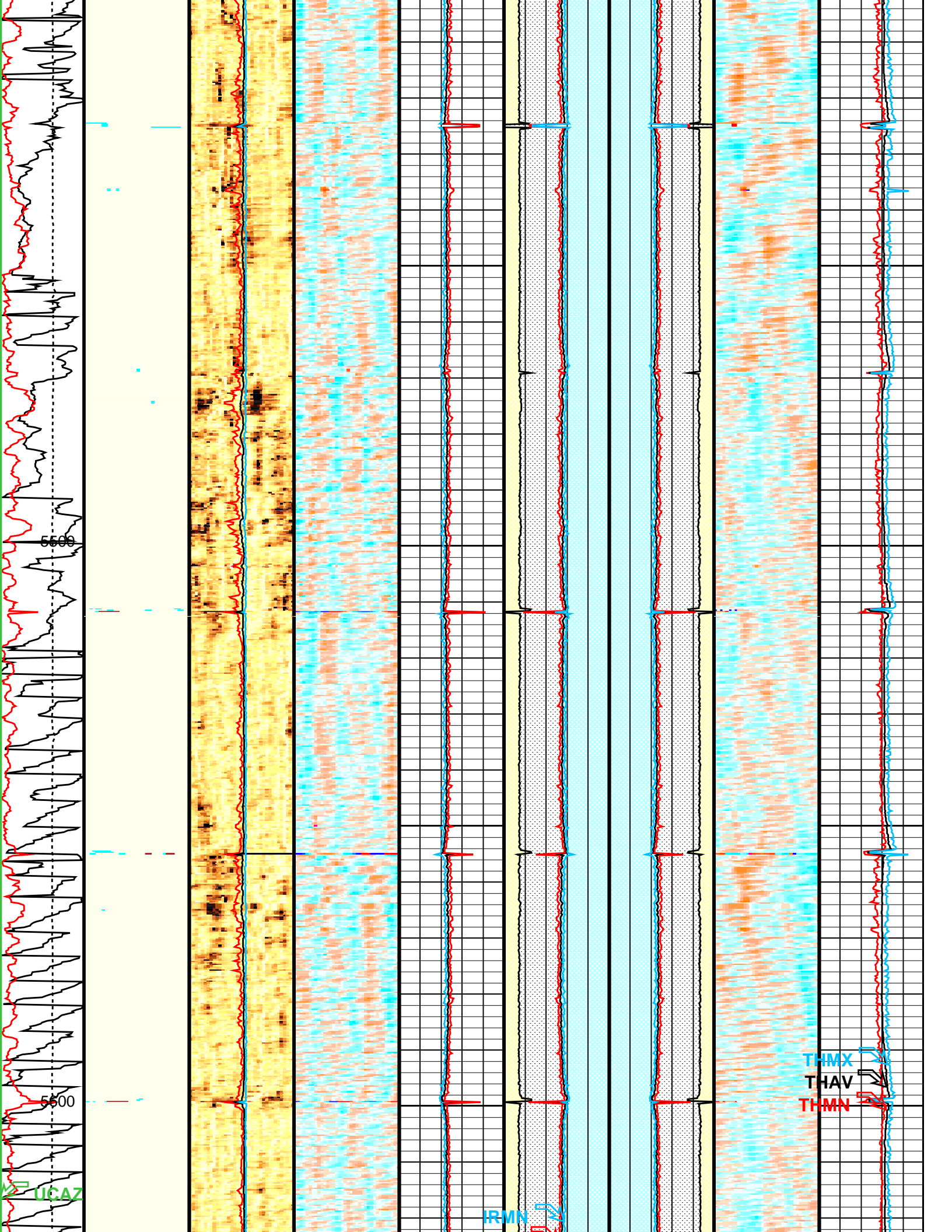




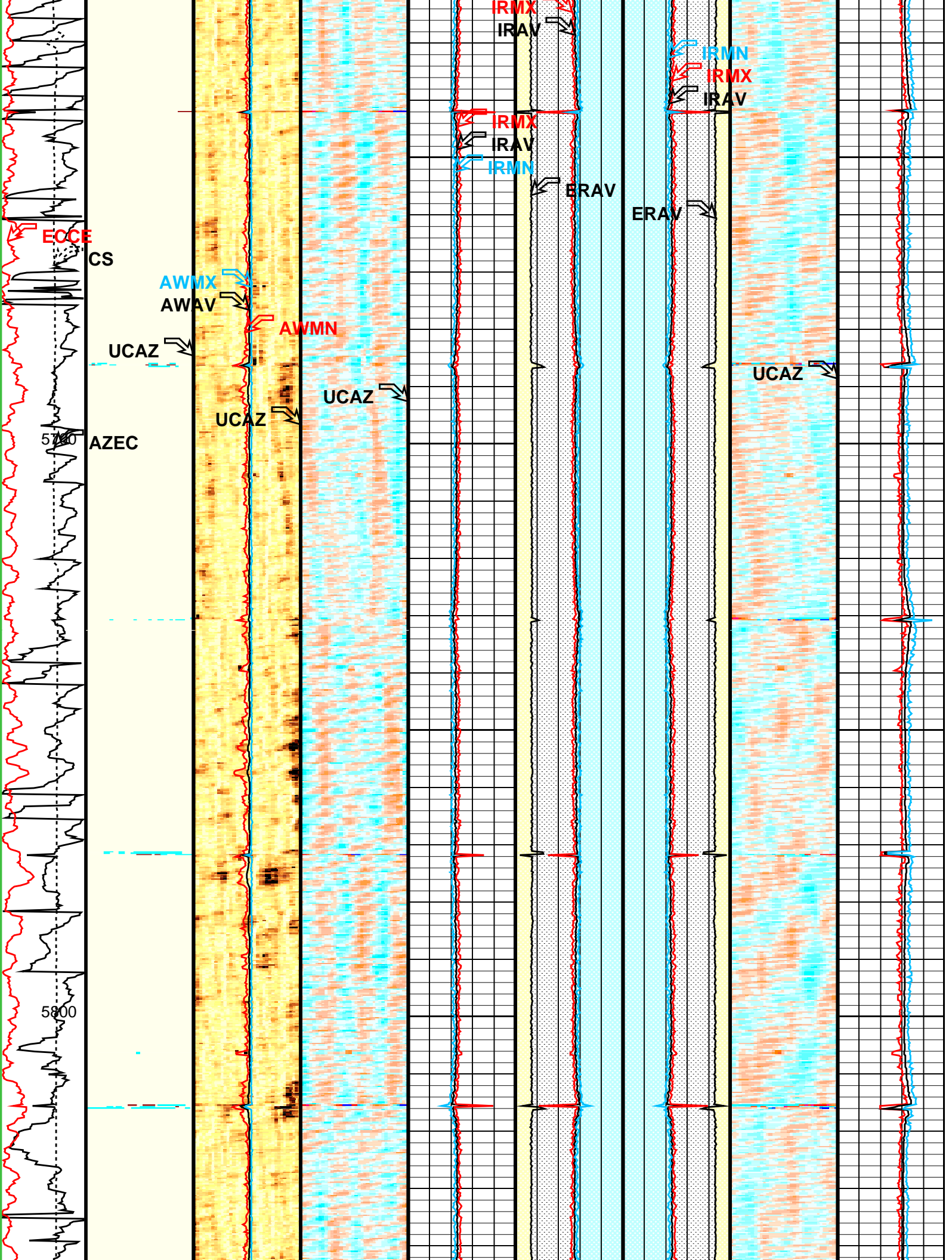


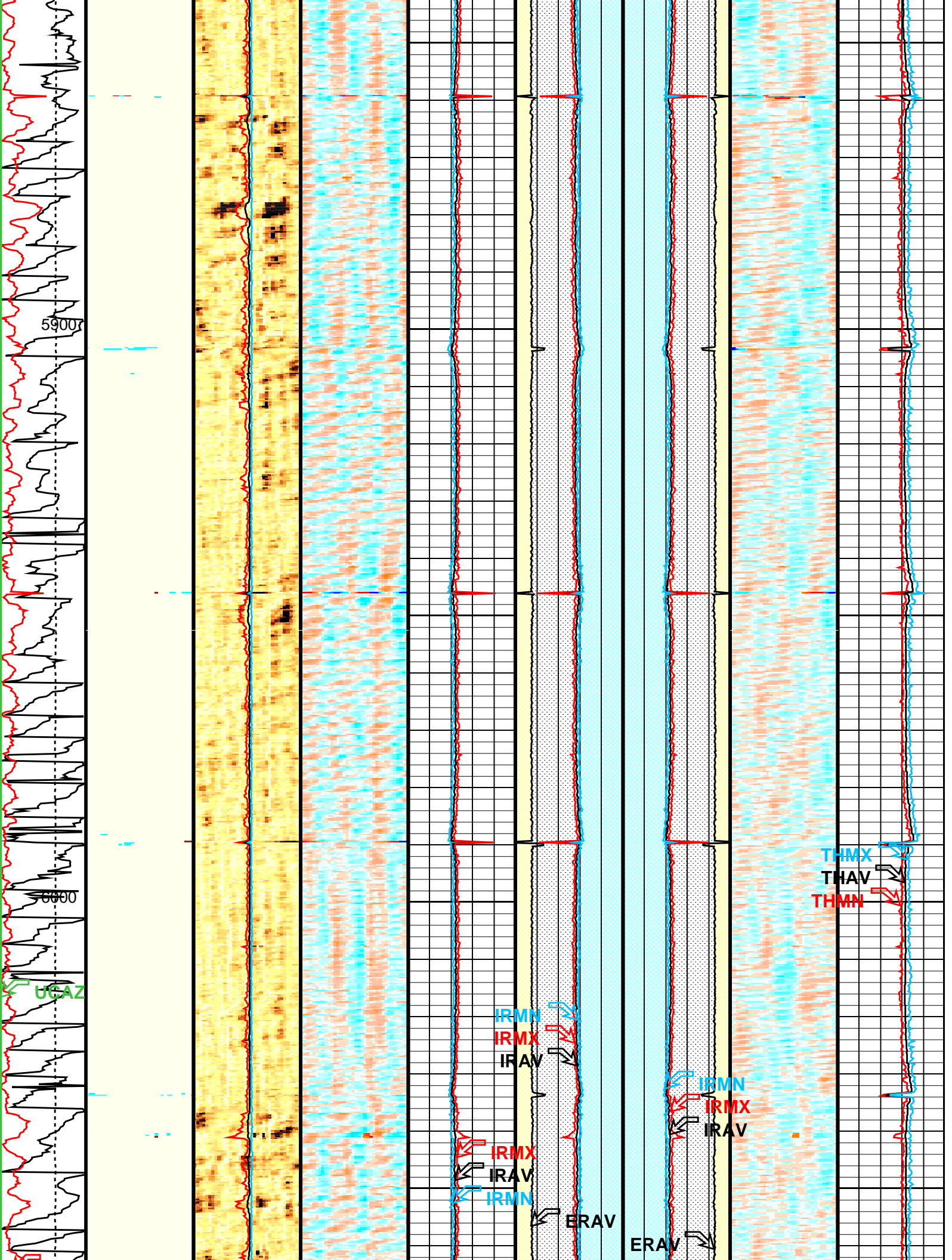




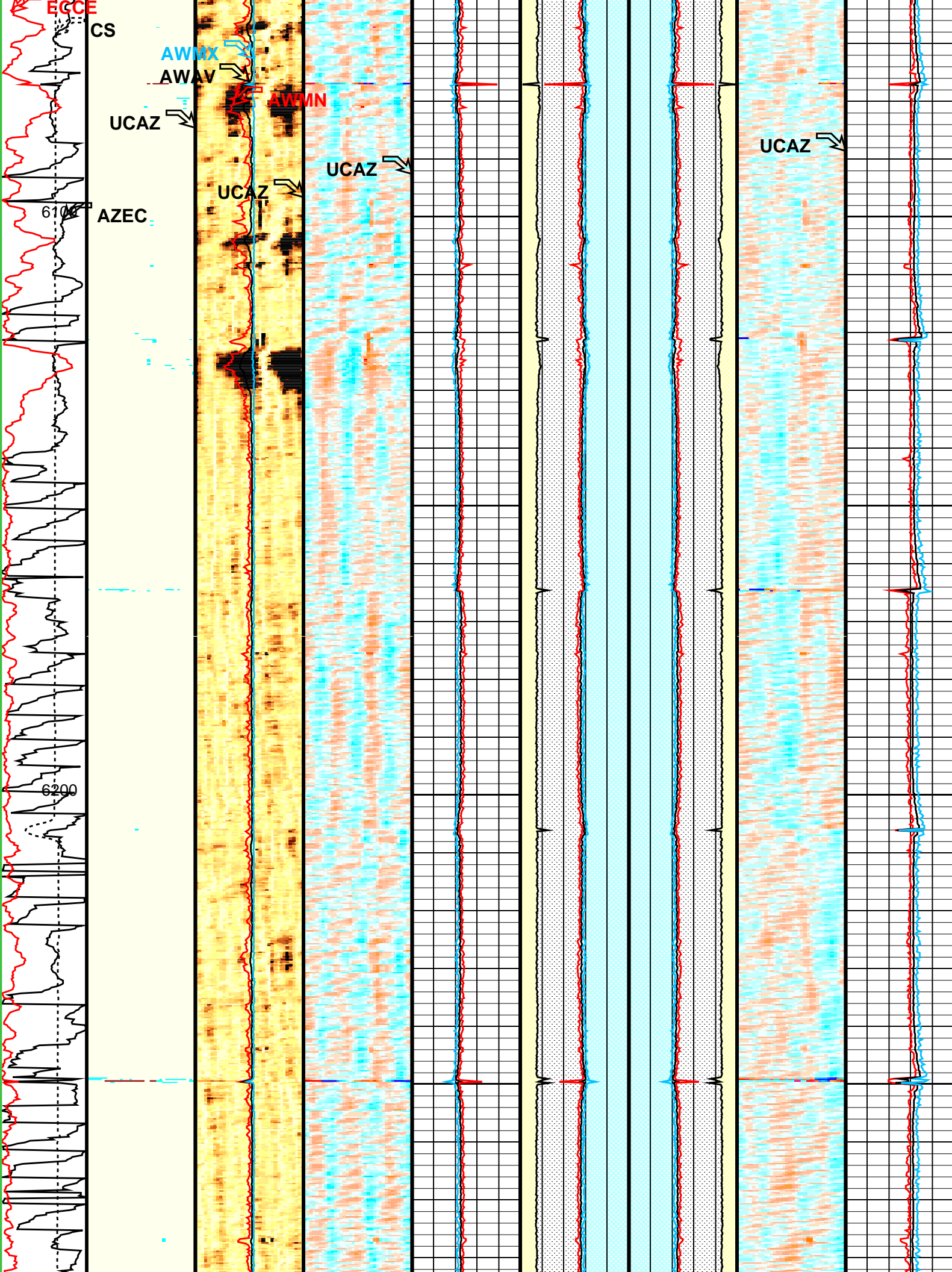


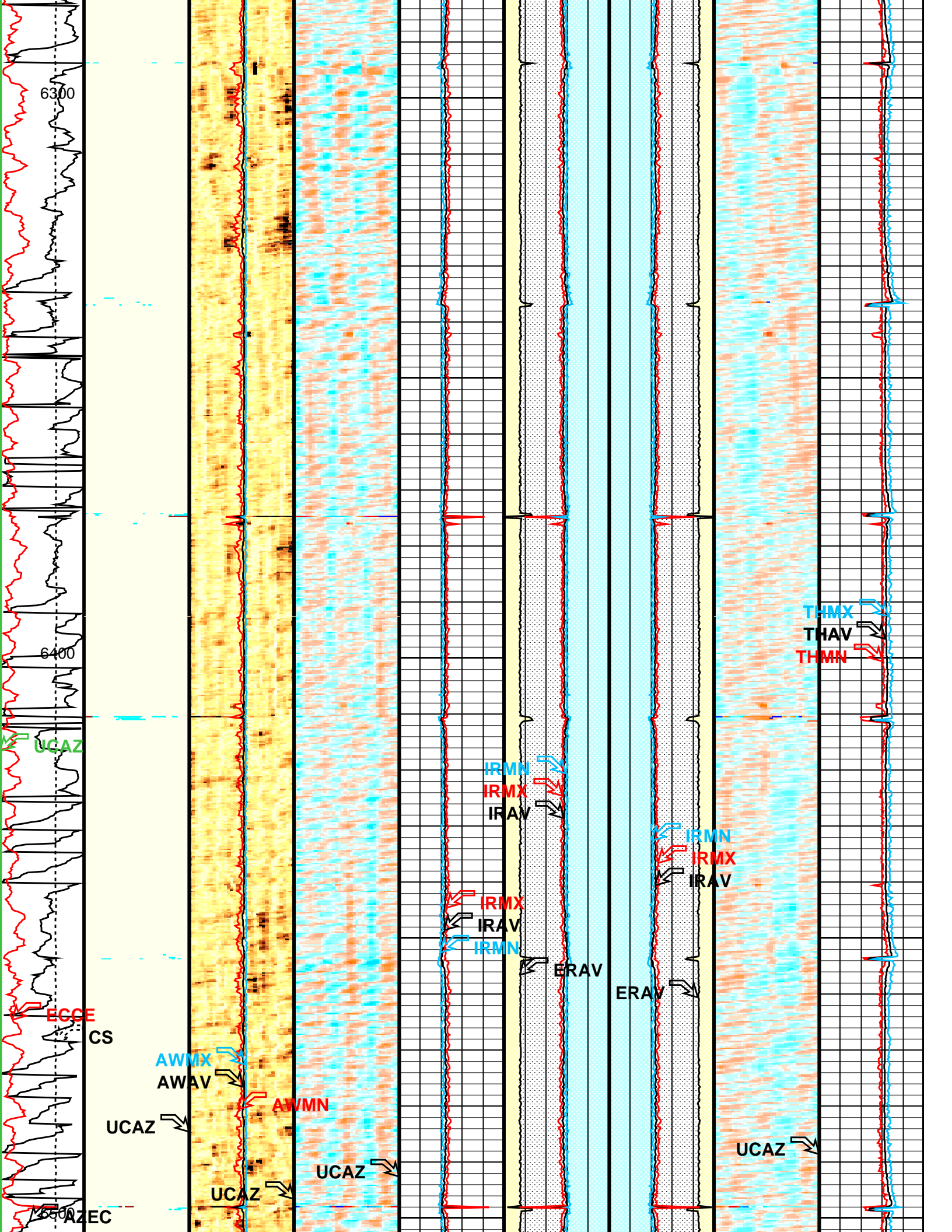




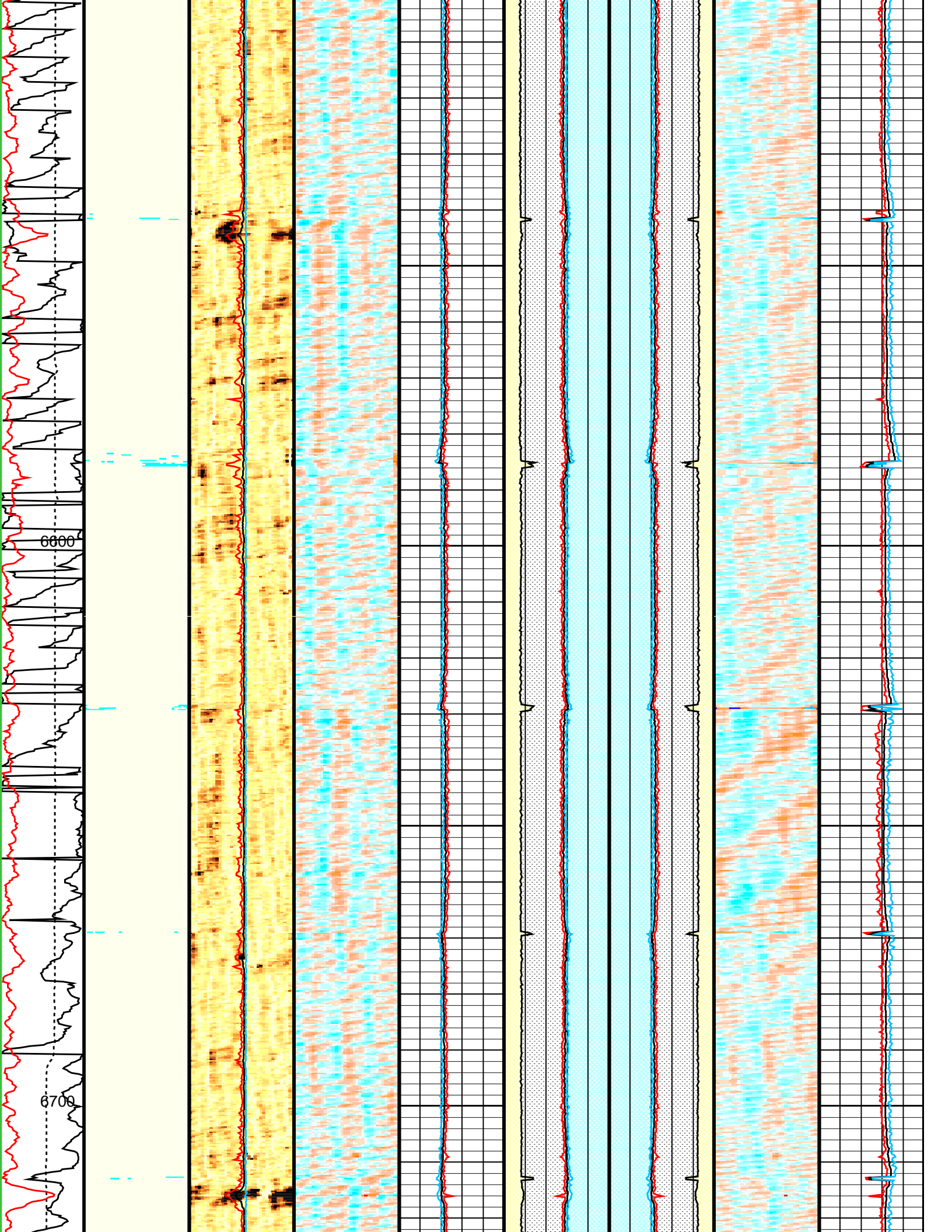


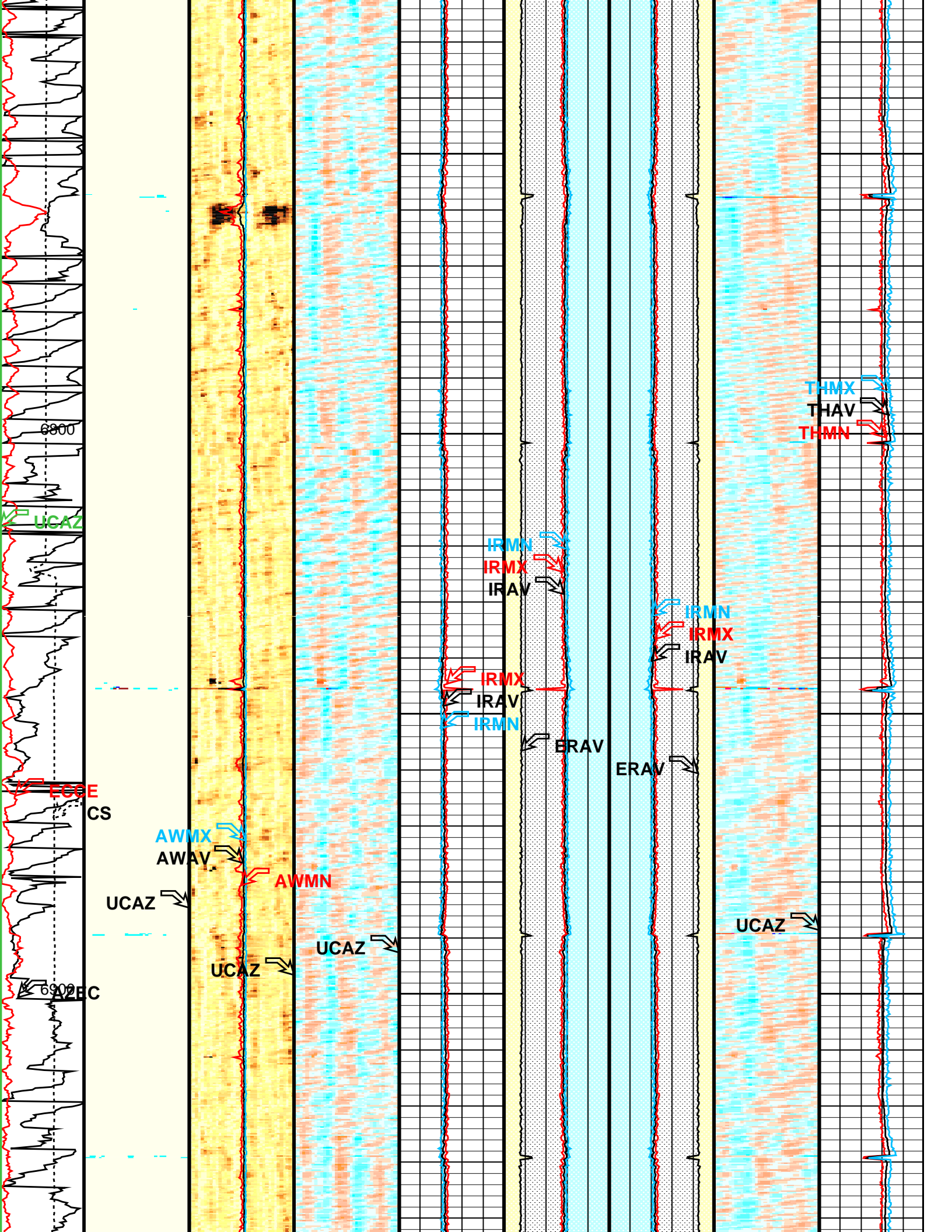




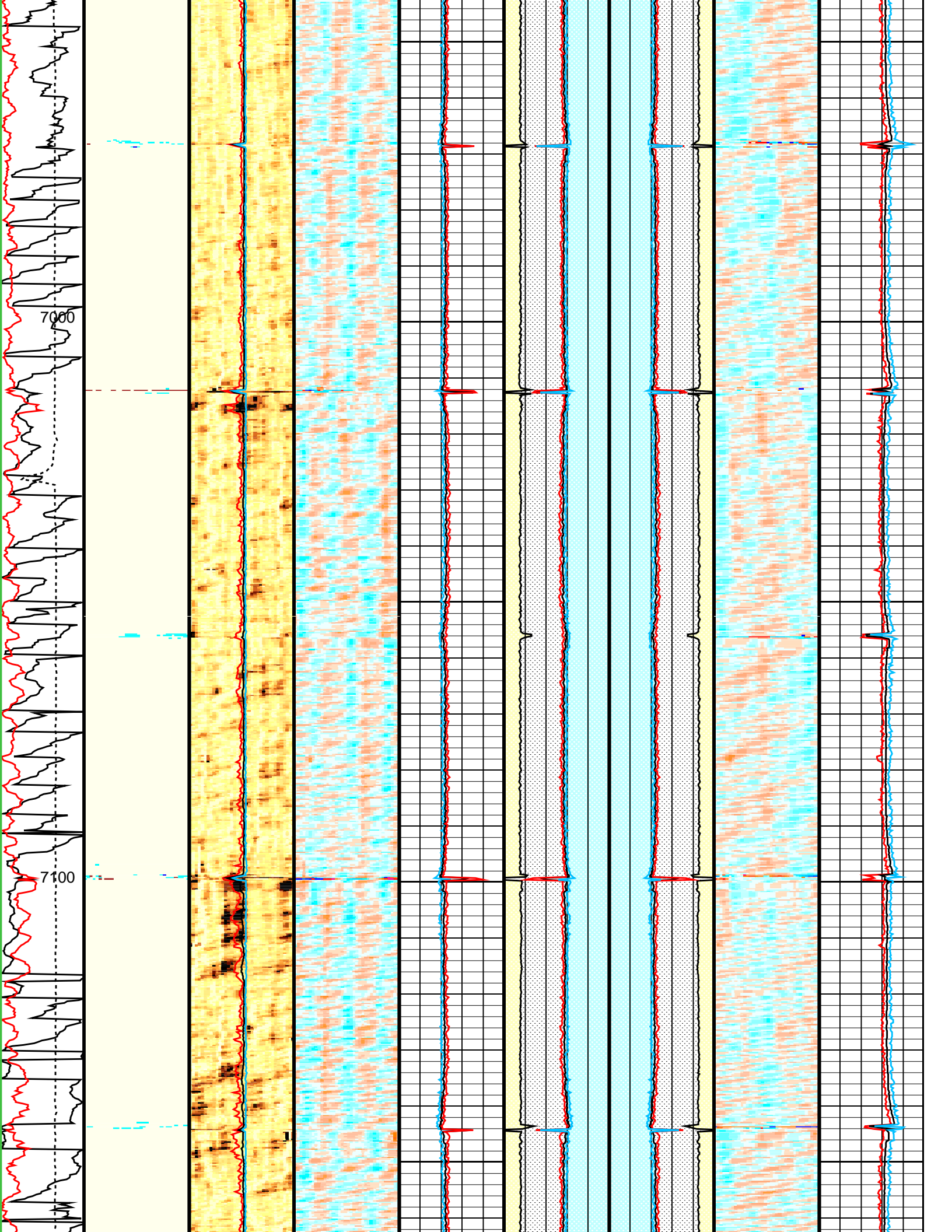


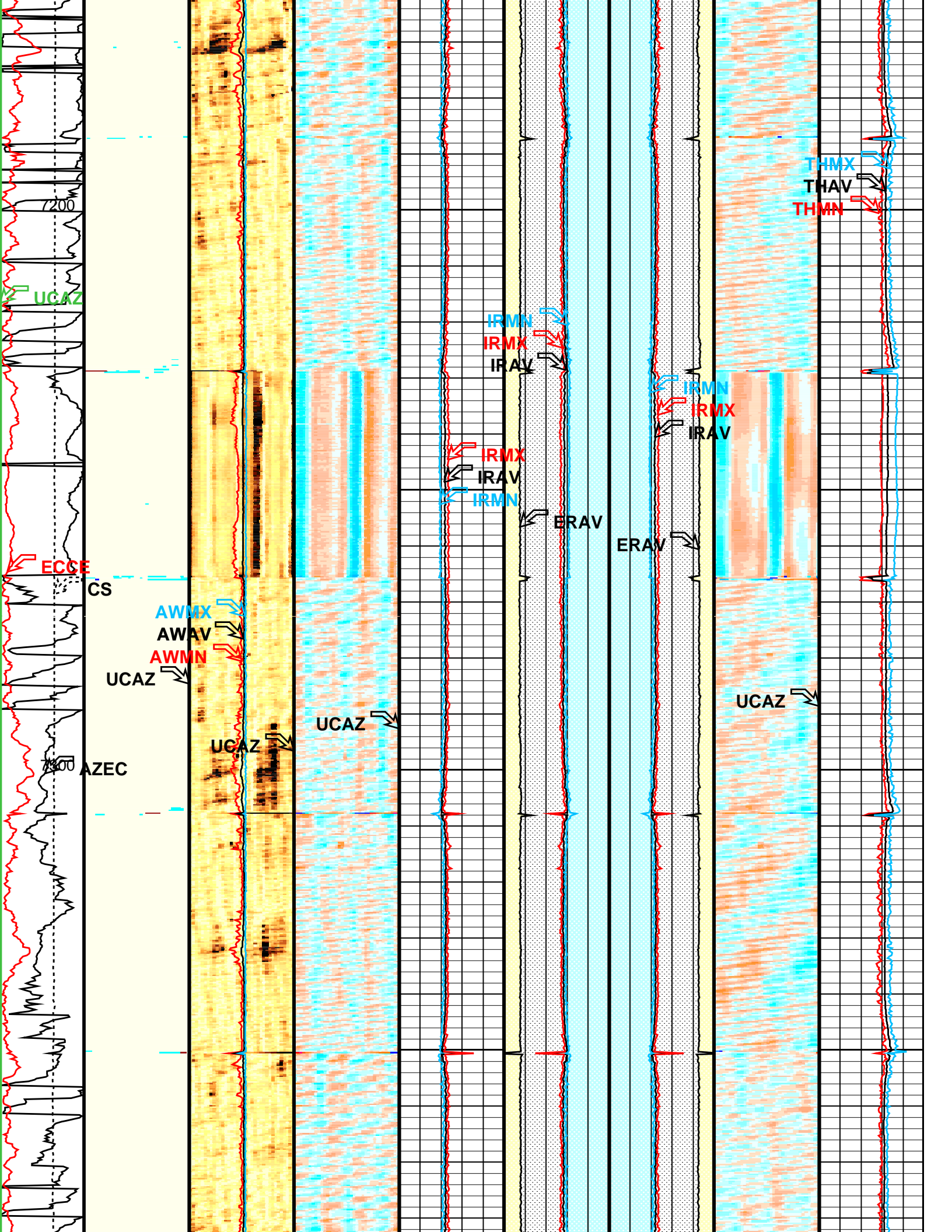




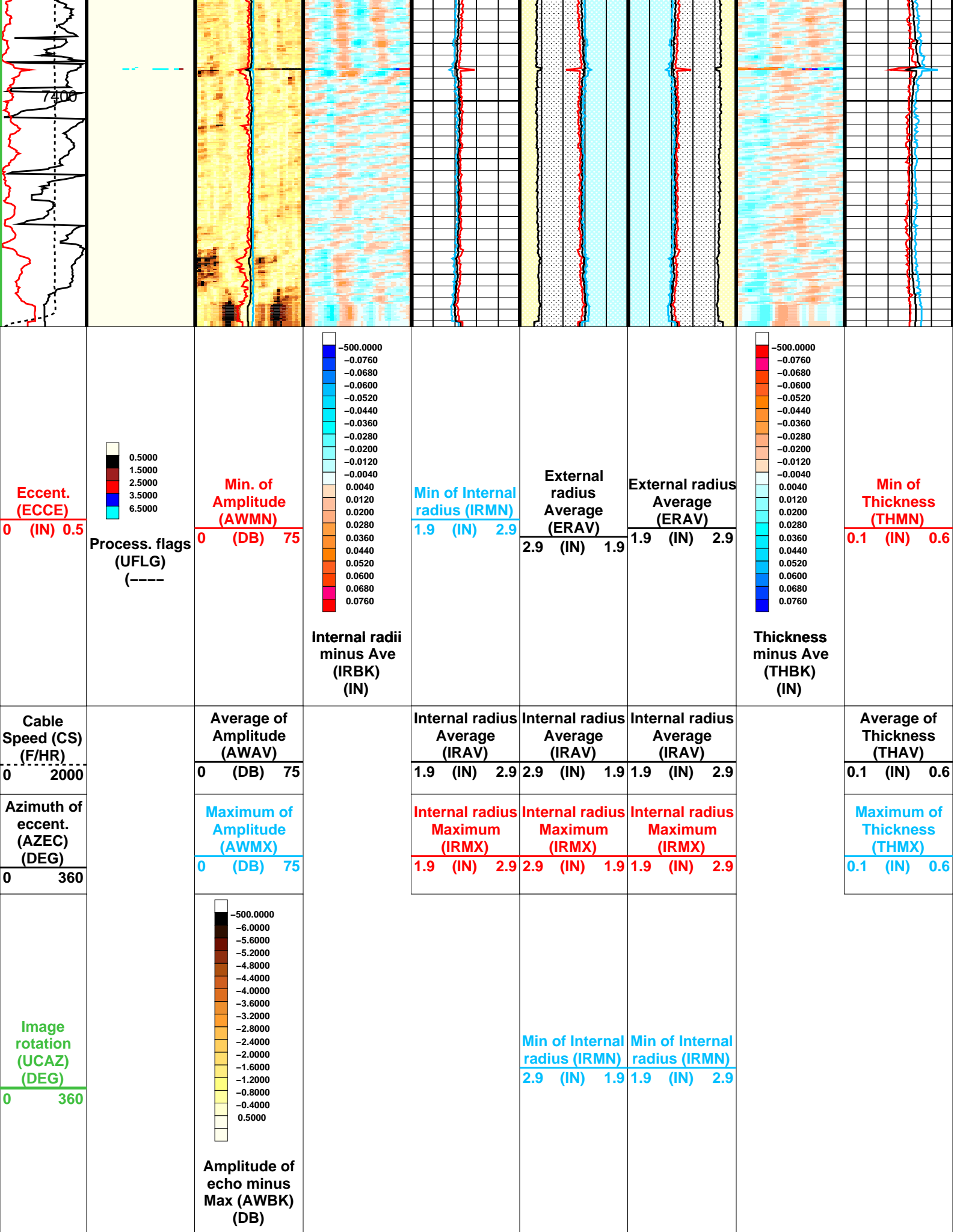












USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		

All USI Images are outside views

COMPUTATION FLAGS LABELLING

(0 – 1.5)	UFLG 1	UTIM error
(1.5 – 2.5)	UFLG 2	Pulse origin not detected
(2.5 – 3.5)	UFLG 3	WINLEN error
(3.5 – 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 – 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

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	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.415	IN
UMAO	USIT Measurement Angular Offset	–10	DEG
USTO	Ultrasonic Time Offset	–2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	–1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
USPS: USIT Pipe Stats			
AGMN	Minimum Gain of Cartridge	–4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN



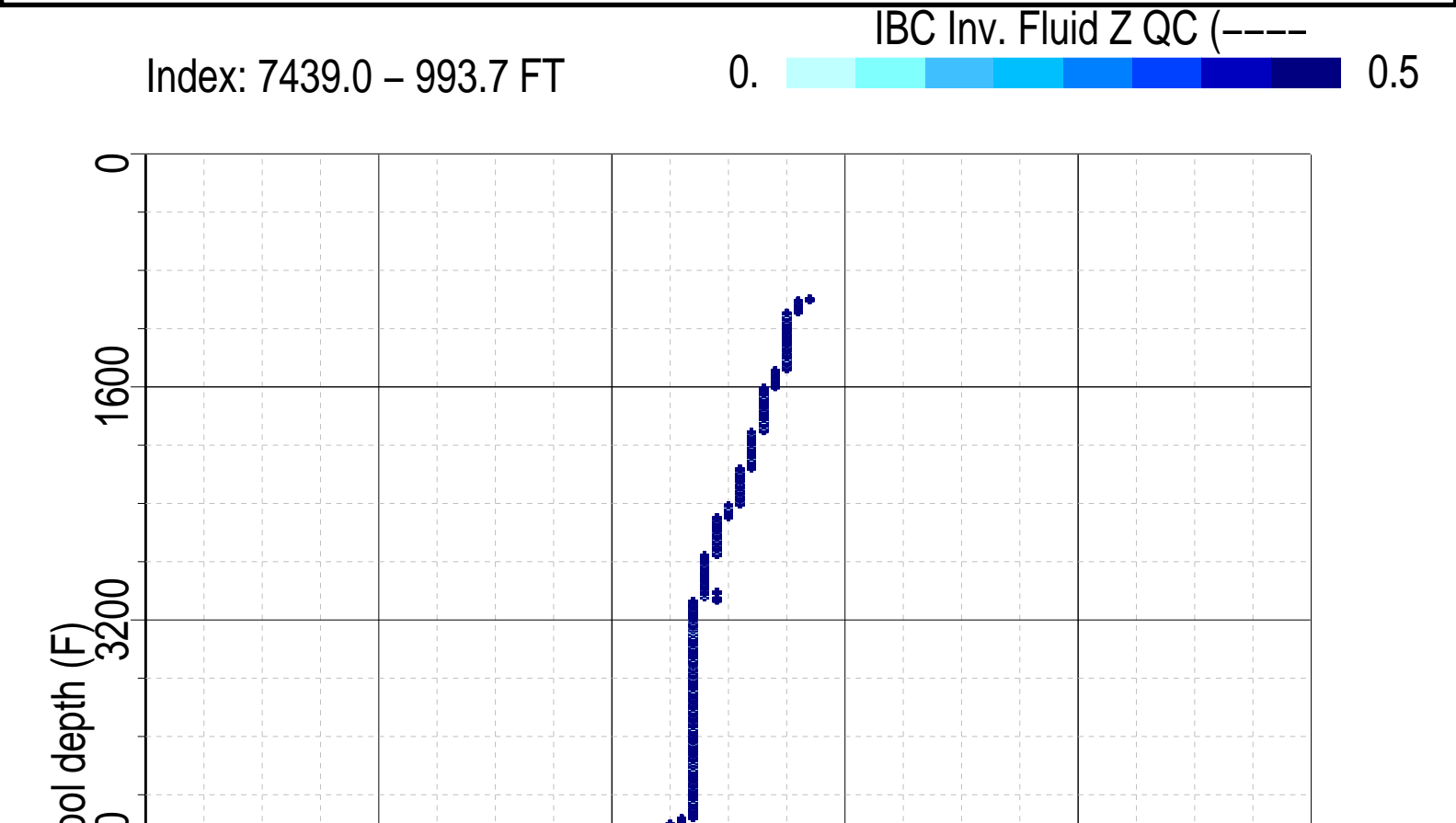
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THNO	Nominal Thickness of Casing	0.415	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
CWEI	Casing Weight	23.00	LB/F
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	

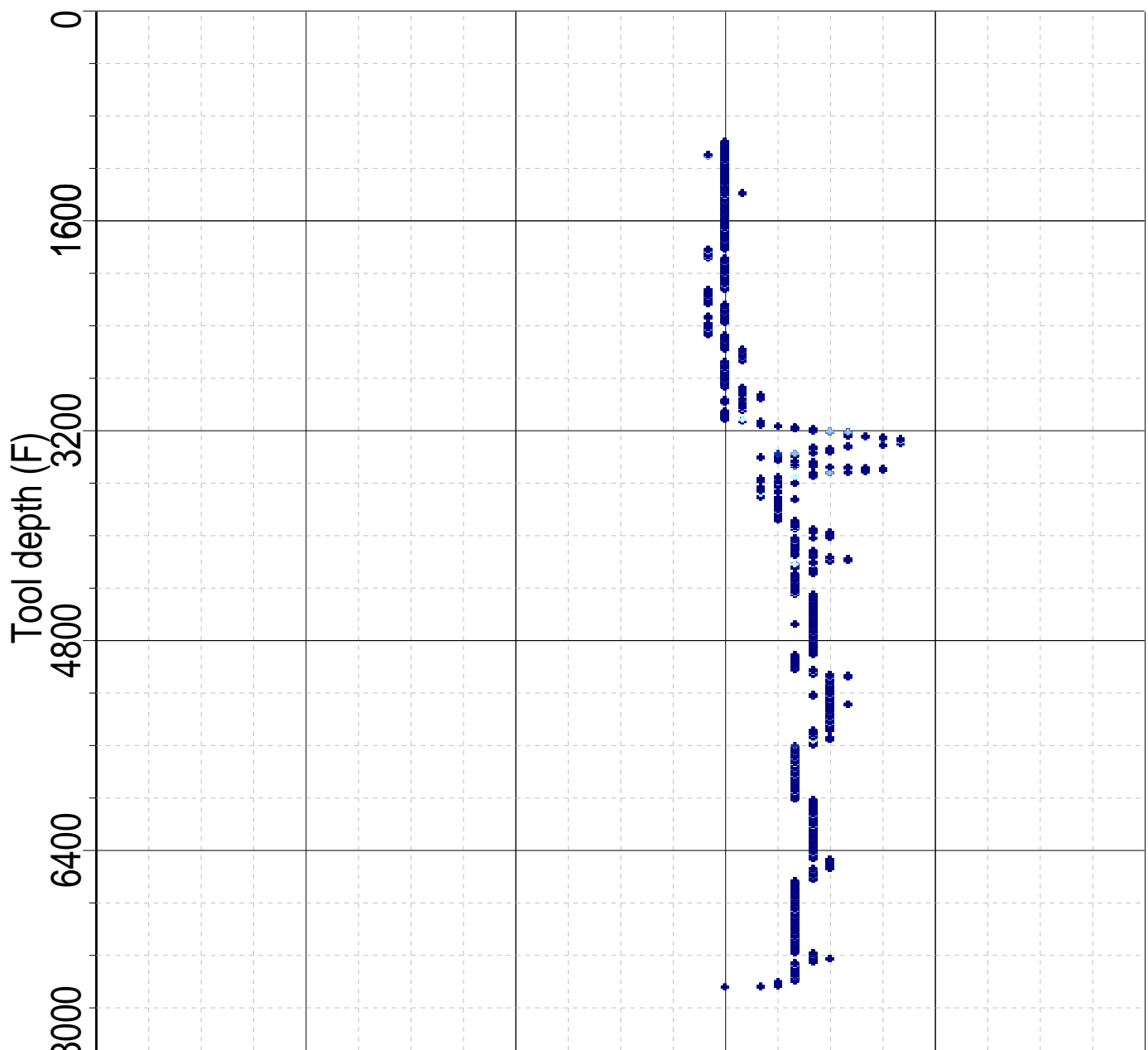
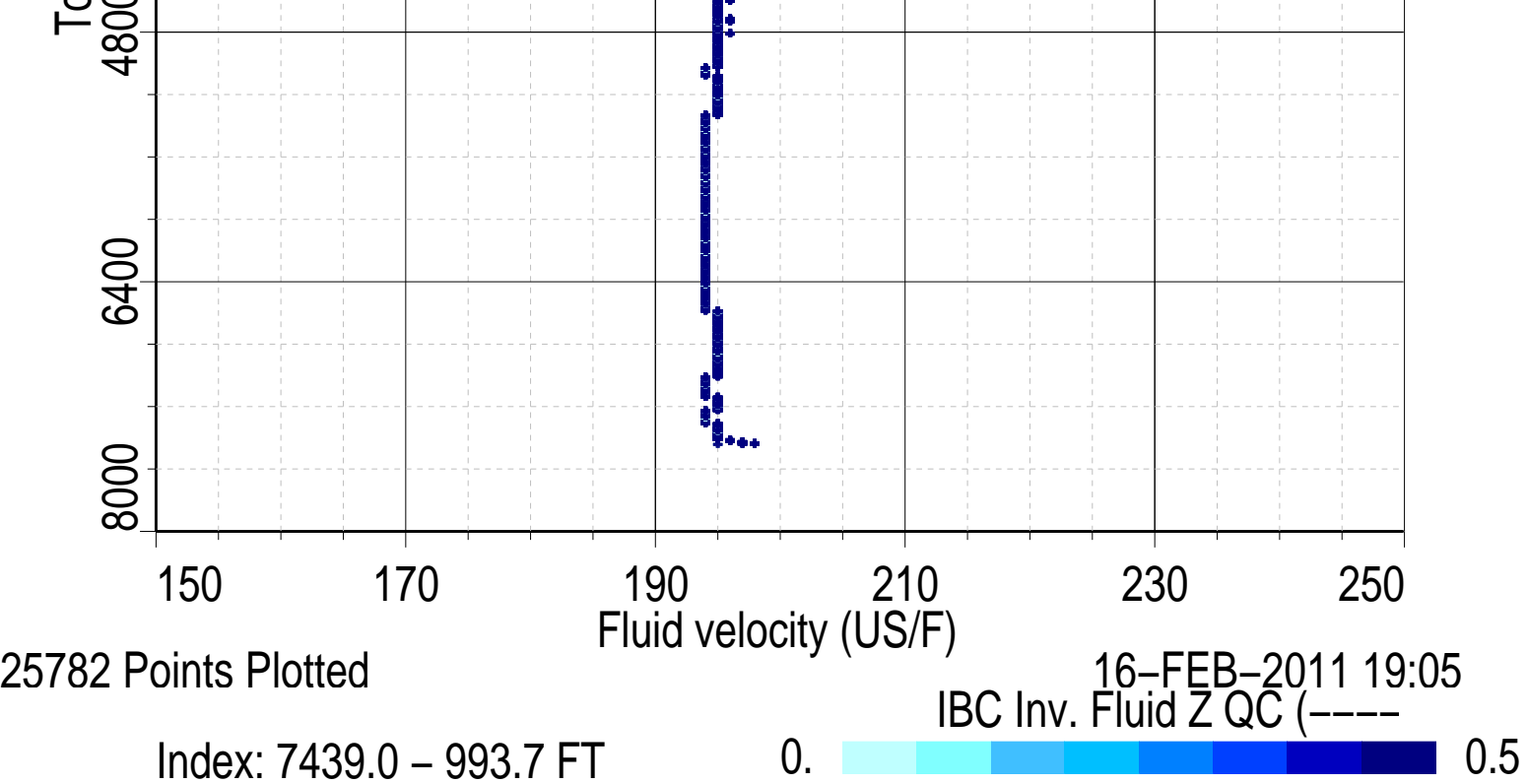
Input DLIS Files						
DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
Output DLIS Files						
DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42		
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44		



# FLUID PROPERTIES 2000 PSI

MAXIS Field Log







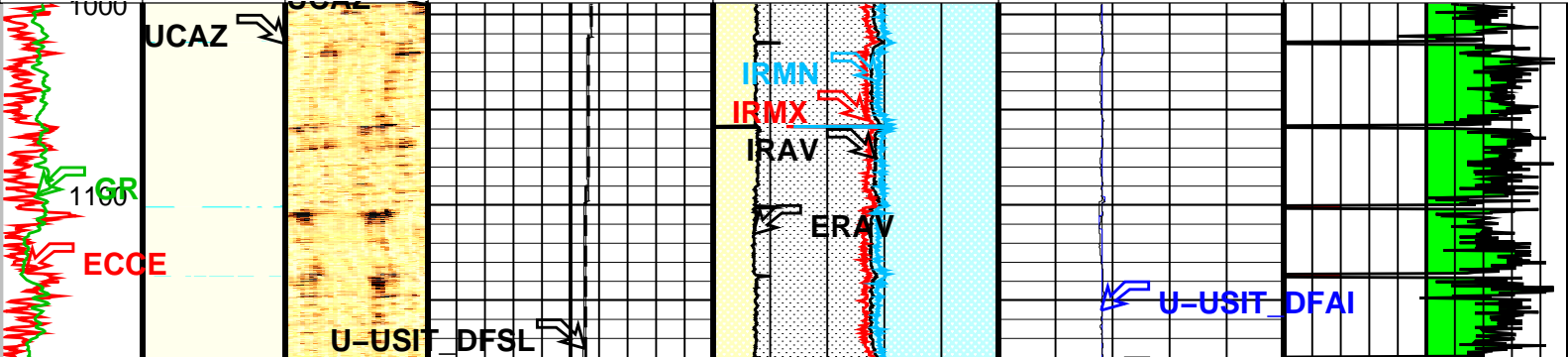
Company: ANTERO RESOURCES CORPORATION

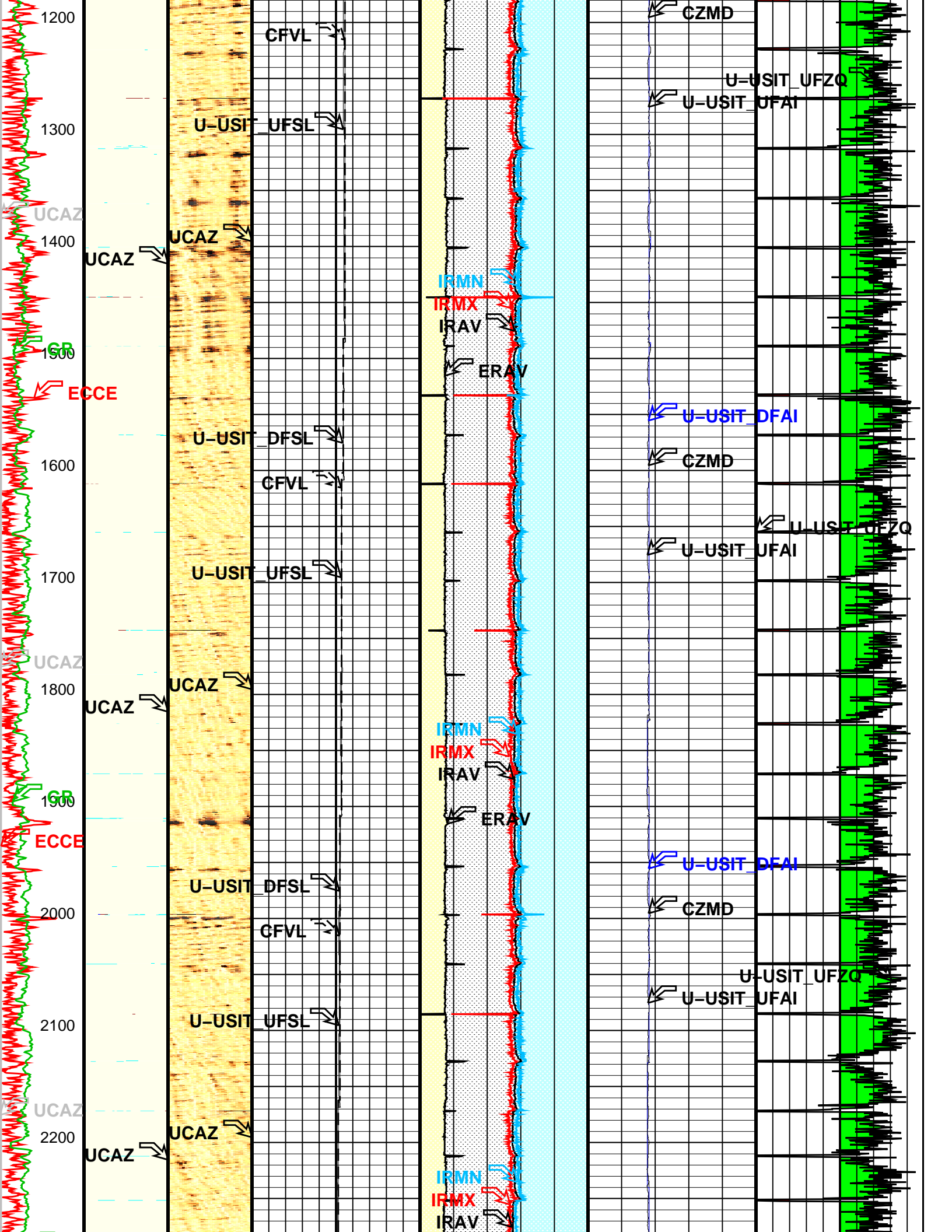
Well: CSF 21C-07-07-9

Input DLIS Files						
DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
Output DLIS Files						
DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42	7439.0 FT	993.5 FT
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44	7439.0 FT	993.5 FT

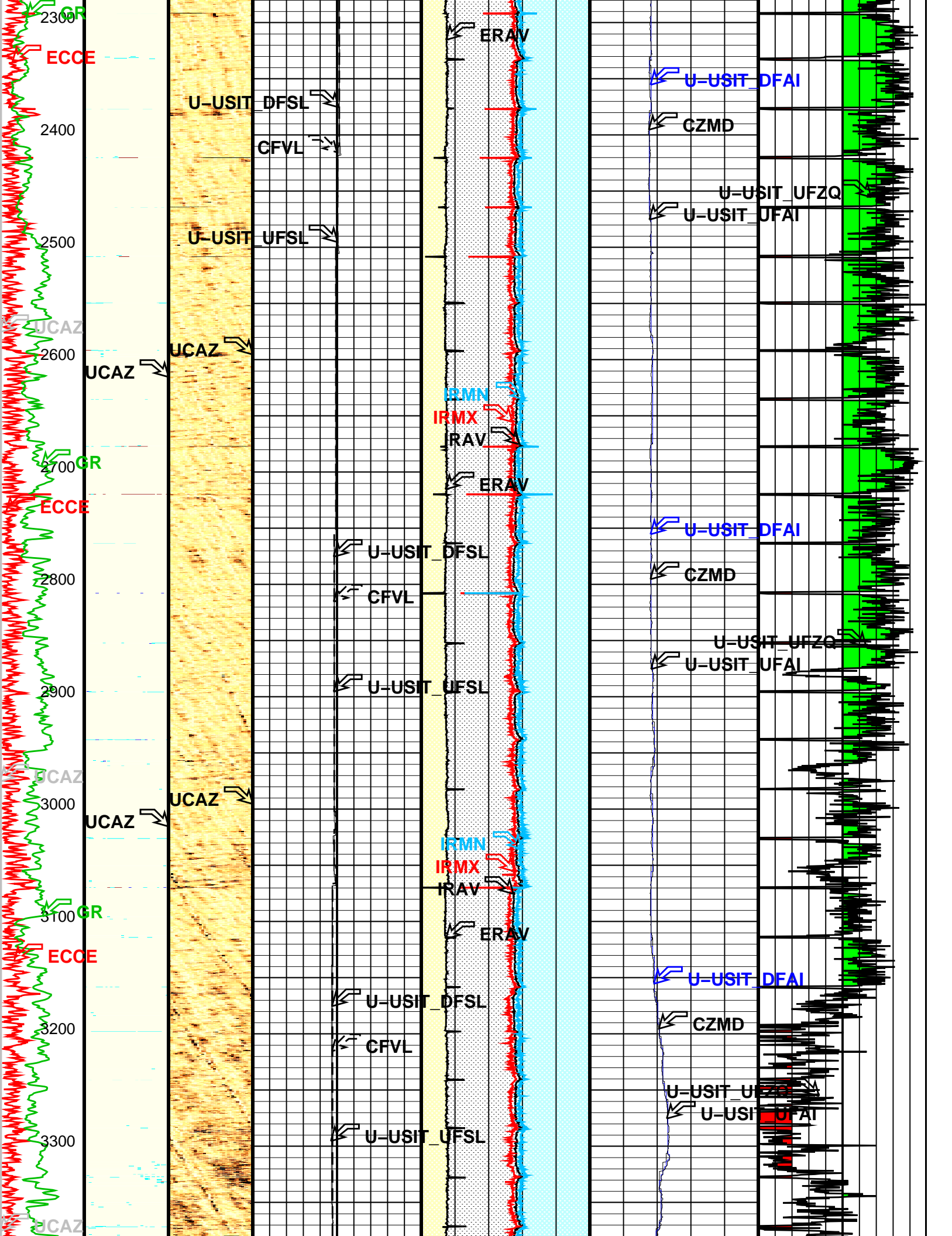
OP System Version: 17C0-154			
USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		

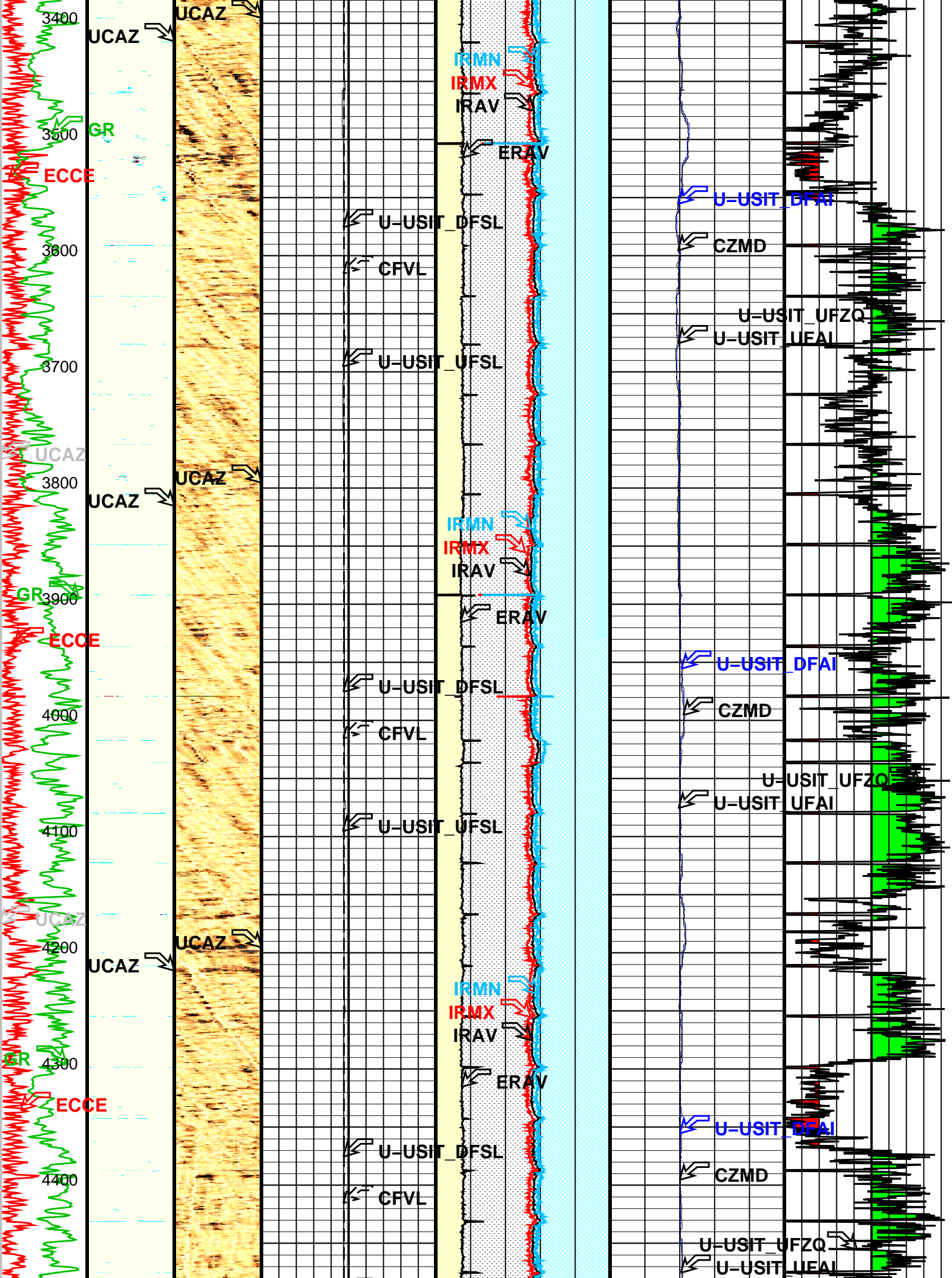
				Min of Internal radius (IRMN)						
				2.9 (IN) 1.9						
Image rotation (UCAZ) (DEG)	Fluid Slowness (Inverted) (U-USIT_UFSL)		Internal radius Maximum (IRMX)		Fluid Acoustic Impedance (Inverted) (U-USIT_UFAI)					
	150 (US/F)	250	2.9 (IN) 1.9		0 (MRAY)	5				
0 360										
Gamma Ray (GR) (GAPI)	Discretized Fluid Slowness (Inverted) (U-USIT_DFSL)		Internal radius Average (IRAV)		Discretized Fluid Acoustic Impedance (Inverted) (U-USIT_DFAI)		Low			
	150 (US/F)	250	2.9 (IN) 1.9		0 (MRAY)	5				
0 150							High			
Eccent. (ECCE)	Process. flags (UFLG) (----	Amplitude of echo minus Max (AWBK) (DB)	Computed Fluid velocity (CFVL)		External radius Average (ERAV)		Computed Acoustic imp. of Fluid (CZMD)		Inverted Fluid Acoustic Impedance QC (U-USIT_UFZQ)	
			150 (US/F)	250	2.9 (IN) 1.9		0 (MRAY)	5	0 (----	36
0 (IN) 0.5										



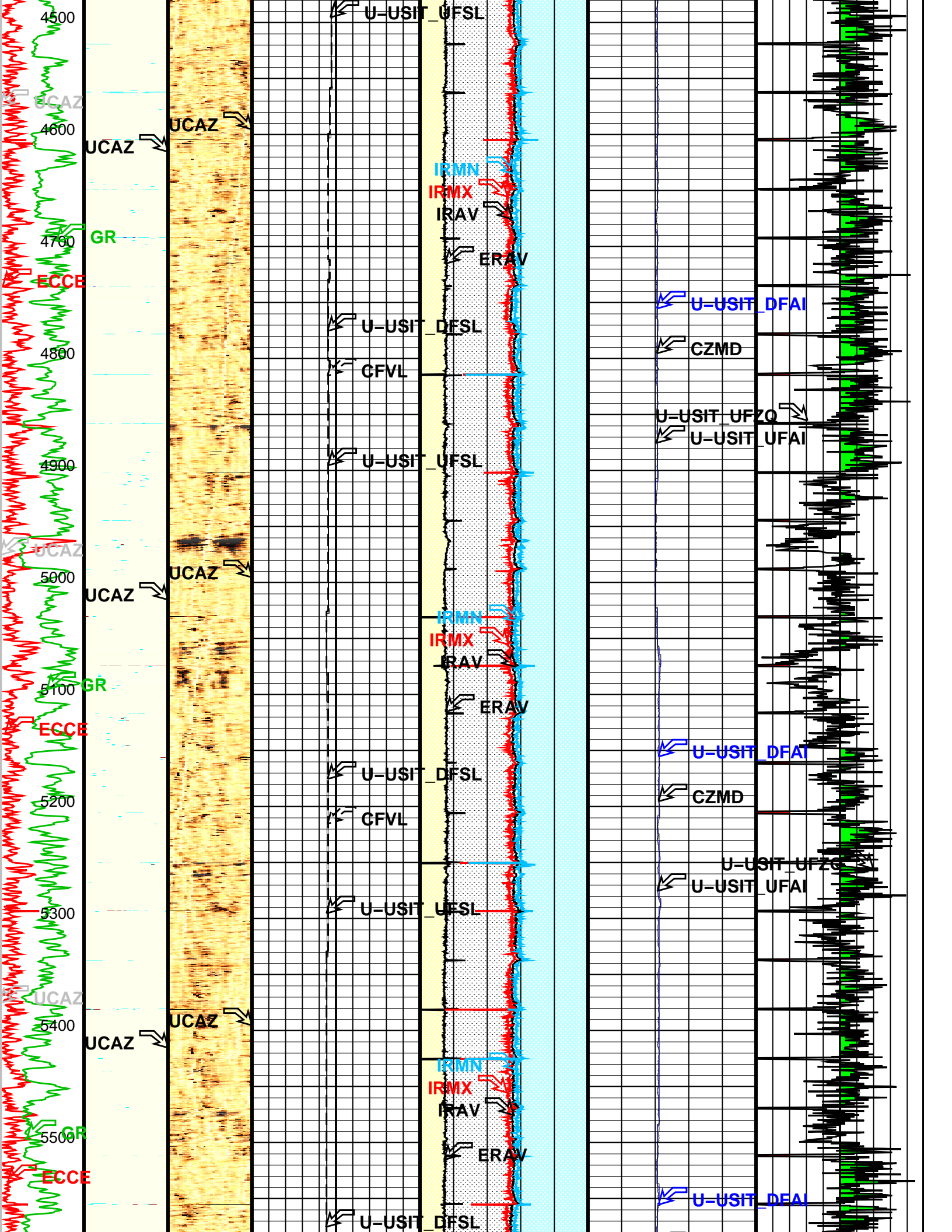


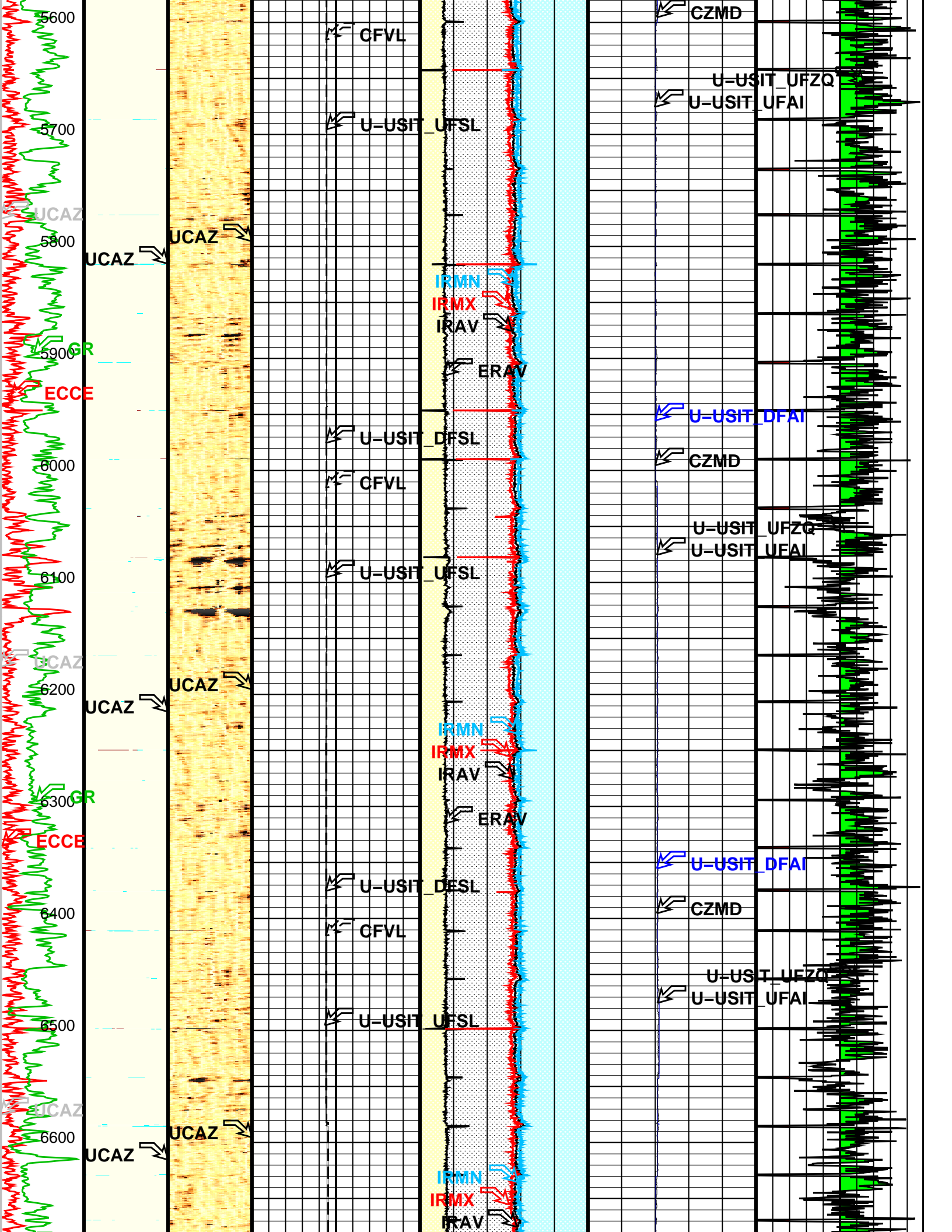




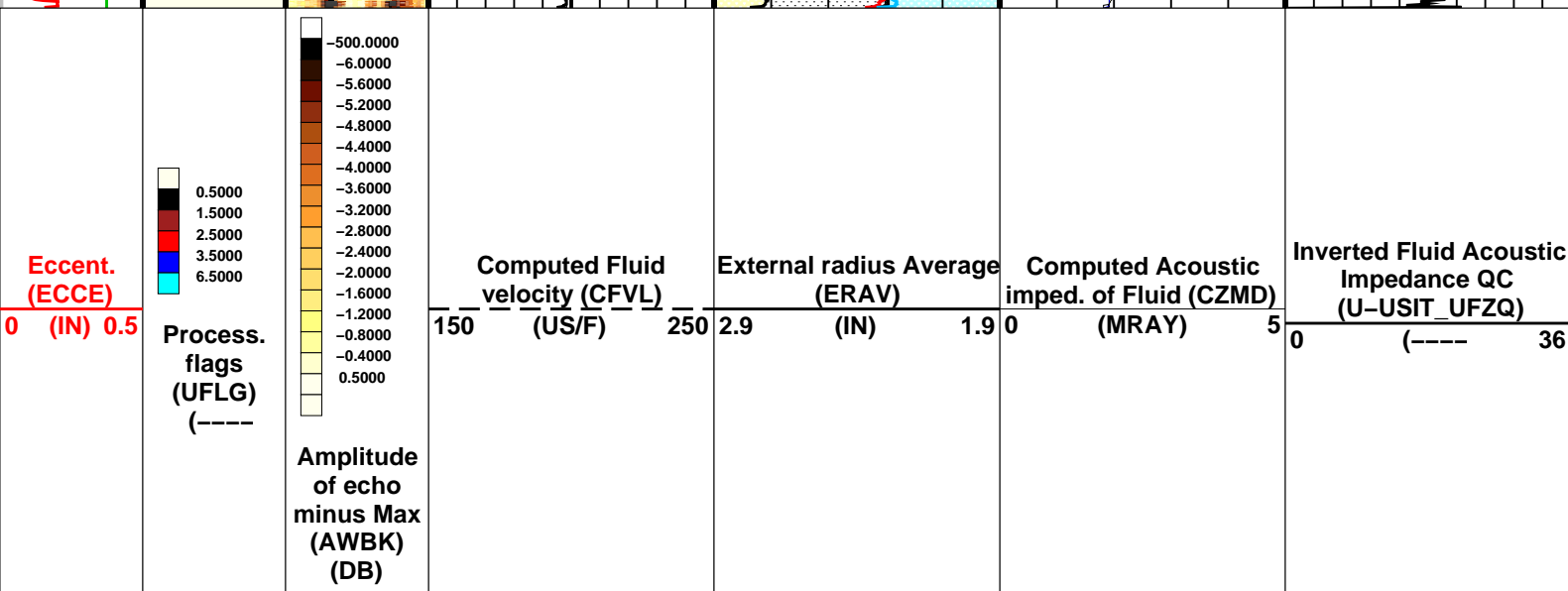












Ray (GR) (GAPI)	Slowness (Inverted) (U-USIT_DFSL)	(IRAV)	(Inverted) (U-USIT_ DFAI)	Low	High
0 150	150 (US/F) 250	2.9 (IN) 1.9	0 (MRAY) 5		
Image rotation (UCAZ) (DEG)	Fluid Slowness (Inverted) (U-USIT_ UFSL)	Internal radius Maximum (IRMX)	Fluid Acoustic Impedance (Inverted) (U-USIT_UFAI)		
0 360	150 (US/F) 250	2.9 (IN) 1.9	0 (MRAY) 5		
		Min of Internal radius (IRMN)			
		2.9 (IN) 1.9			

Format: USI\_IBC\_QC\_FPM

Vertical Scale: 1" per 100'

Graphics File Created: 16-Feb-2011 18:42

OP System Version: 17C0-154			
USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		

All USI Images are outside views

COMPUTATION FLAGS LABELLING			
(0 – 1.5)	UFLG 1		UTIM error
(1.5 – 2.5)	UFLG 2		Pulse origin not detected
(2.5 – 3.5)	UFLG 3		WINLEN error
<hr/>			
(3.5 – 6.5)	UFLG 4	UFLG 5 UFLG 6	CASING THICKNESS error
<hr/>			
(6.5 – 10)	UFLG 7	UFLG 8 UFLG 9	LOOP PROCESSING error

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	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	



THNO	Thickness Detection Policy	Fundamental	0.415	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		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		-11	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap		
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_A		
U-USIT_UTAN	USIT Transducer Angles		38_DEG	
UMAO	USIT Measurement Angular Offset		-10	DEG
USTO	Ultrasonic Time Offset		-2	US
USUB	Ultrasonic Subassembly Identifier		Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF		
VCAS	Ultrasonic Transversal Velocity in Casing		51.4	US/F
WLEN	T^3 Processing Length		24.886	US
ZCAS	Acoustic Impedance of Casing		46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance		-1	MRAY
ZMUD	Acoustic Impedance of Mud		1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement		2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas		0.3	MRAY
USPS: USIT Pipe Stats				
AGMN	Minimum Gain of Cartridge		-4	DB
AGMX	Maximum Gain of Cartridge		20	DB
BERJ	Bad Echo Rejection		ON	
CDIA	Casing Outer Diameter		5.5	IN
CSDE	Casing Density		486.94	LBCF
CSID	Casing Inner Diameter		4.67	IN
DFVL	Default Fluid Velocity		195	US/F
DOT	Diameter of Transducer Sensor		1.756	IN
EMXV	EMEX Voltage		60	V
IMAR	Image Rotation		OFF	
MW	Mud Weight		8.4	LB/G
RCOD	Reference Calibrator Outer Diameter		4.5	IN
RCSO	Reference Calibrator Standoff		0.8425	IN
RCTH	Reference Calibrator Thickness		0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop		
THDH	Maximum Search Thickness (percentage of nominal)		130	
THDL	Minimum Search Thickness (percentage of nominal)		70	
THNO	Nominal Thickness of Casing		0.415	IN
UMAO	USIT Measurement Angular Offset		-10	DEG
USTO	Ultrasonic Time Offset		-2	US
USUB	Ultrasonic Subassembly Identifier		Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF		
VCAS	Ultrasonic Transversal Velocity in Casing		51.4	US/F
WLEN	T^3 Processing Length		24.886	US
ZCAS	Acoustic Impedance of Casing		46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance		-1	MRAY
ZMUD	Acoustic Impedance of Mud		1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement		2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas		0.3	MRAY
System and Miscellaneous				
BS	Bit Size		7.875	IN
CWEI	Casing Weight		23.00	LB/F
DO	Depth Offset for Playback		0.0	FT
PP	Playback Processing	RECOMPUTE		

### Input DLIS Files

DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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### Output DLIS Files

DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44

Company: ANTERO RESOURCES CORPORATION

Well: CSF 21C-07-07-9

## Input DLIS Files

DEFAULT	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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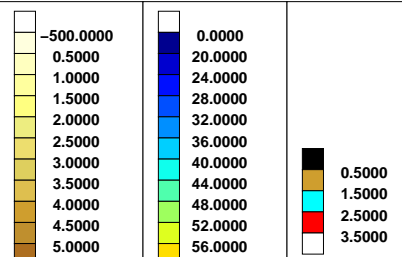
## Output DLIS Files

DEFAULT	USI_059PUP	FN:98	PRODUCER	16-Feb-2011 18:42	7439.0 FT	993.5 FT
RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44	7439.0 FT	993.5 FT

## OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	17C0-154
DTC-H	17C0-154		

	Minimum Acoustic Impedance #2 (MIN_ AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_ AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_ AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_ AI8) (MRAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_ AI1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_ AI3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_ AI5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_ AI7) (MRAY)			
	0 15	0 15	0 15	0 15			
	Maximum Acoustic Impedance #2 (MAX_ AI2) (MRAY)	Maximum Acoustic Impedance #4 (MAX_ AI4) (MRAY)	Maximum Acoustic Impedance #6 (MAX_ AI6) (MRAY)	Maximum Acoustic Impedance #8 (MAX_ AI8) (MRAY)			
	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5			
	Maximum Acoustic Impedance #1 (MAX_ AI1) (MRAY)	Maximum Acoustic Impedance #3 (MAX_ AI3) (MRAY)	Maximum Acoustic Impedance #5 (MAX_ AI5) (MRAY)	Maximum Acoustic Impedance #7 (MAX_ AI7) (MRAY)	Minimum Acoustic Impedance #9 (MIN_ AI9) (MRAY)	Maximum of AI (AIMX) (MRAY)	Maximum Flexural Attenuation (U-USIT_ UFAX) (DB/M)
	0 15	0 15	0 15	0 15	0 15	0 7.5	0 150
Gamma Ray (GR) (GAPI)	Average Acoustic Impedance #2 (AV_ AI2) (MRAY)	Average Acoustic Impedance #4 (AV_ AI4) (MRAY)	Average Acoustic Impedance #6 (AV_ AI6) (MRAY)	Average Acoustic Impedance #8 (AV_ AI8) (MRAY)	Maximum Acoustic Impedance #9 (MAX_ AI9) (MRAY)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U-USIT_ UFAV) (DB/M)
0 150	-7.5 7.5	-7.5 7.5	-7.5 7.5	-7.5 7.5	0 15	0 7.5	0 150
	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average of	Minimum Flexural Attenuation
Eccent-							







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

Format: M\_Goodwin\_Compressed      Vertical Scale: 0.1" per 100'      Graphics File Created: 16-Feb-2011 18:42

## OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	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	SPLICE_SPLICE_USI_058	FN:1	PRODUCER	16-Feb-2011 18:33	7439.0 FT	993.2 FT
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### Output DLIS Files

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RTB	USI_059PUP	FN:99	PRODUCER	16-Feb-2011 18:44

REPEAT PASS SLIC



Company: ANTERO RESOURCES CORPORATION Well: CSF 21C-07-07-9

Input DLIS Files

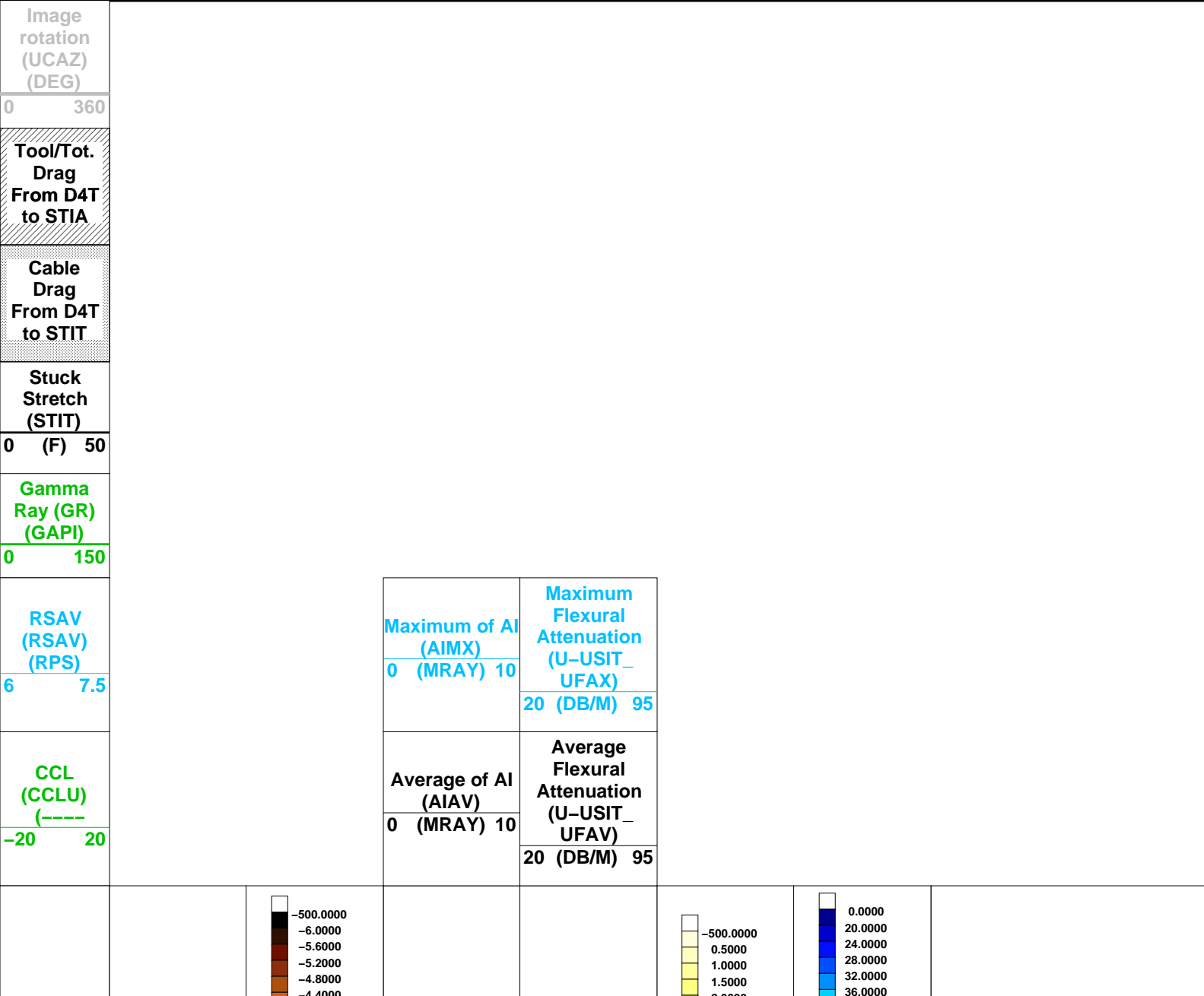
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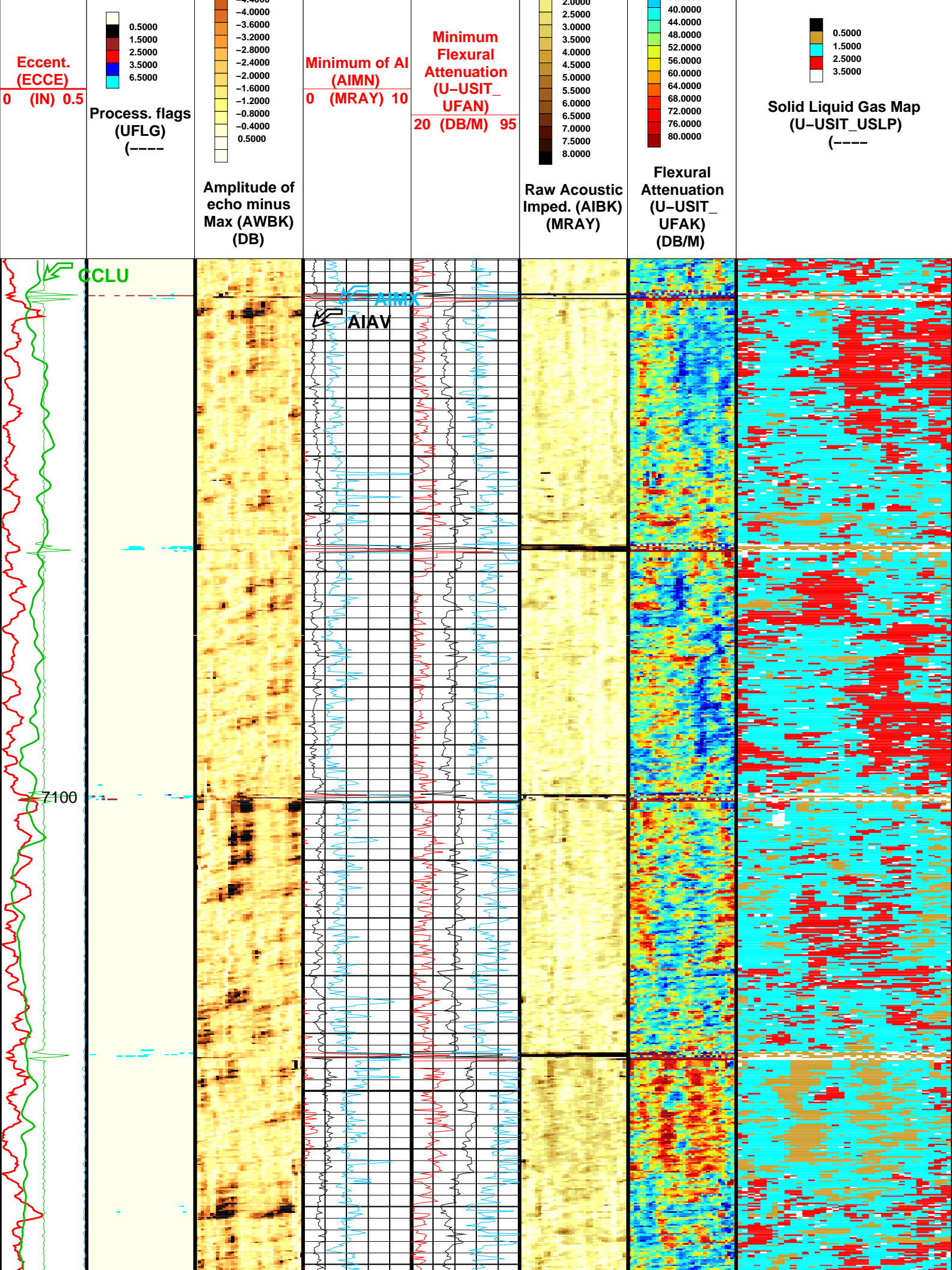
Output DLIS Files

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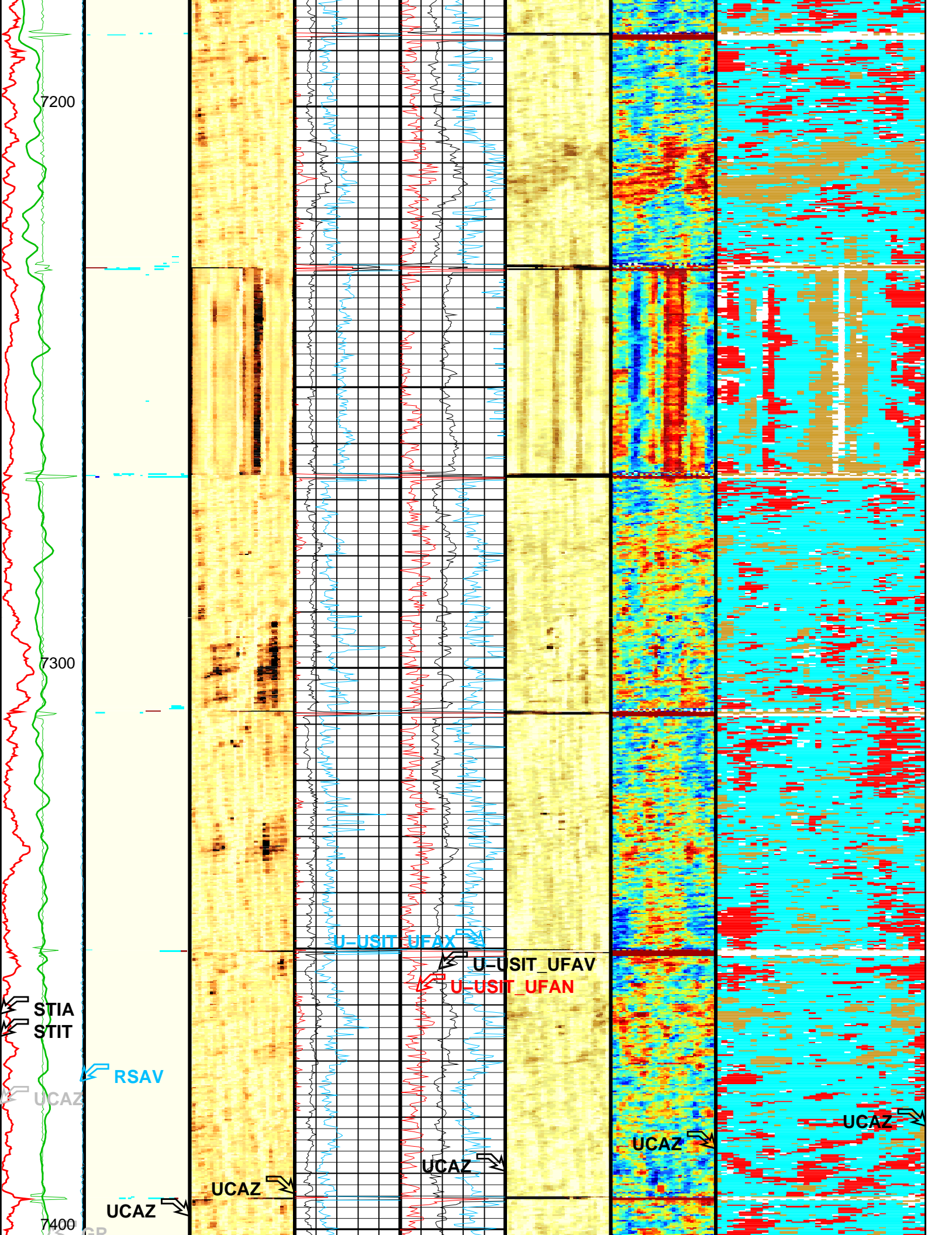
OP System Version: 17C0-154

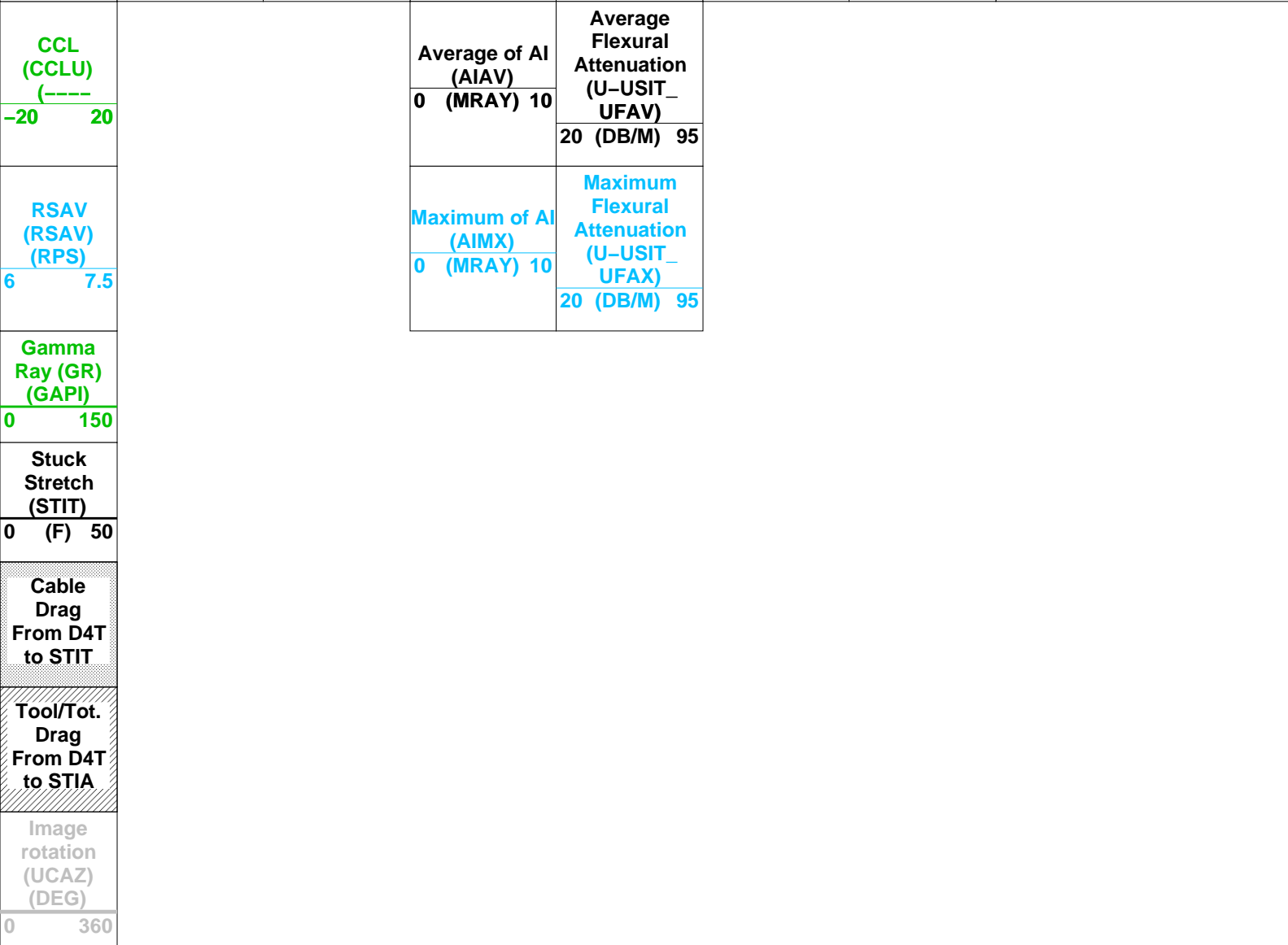
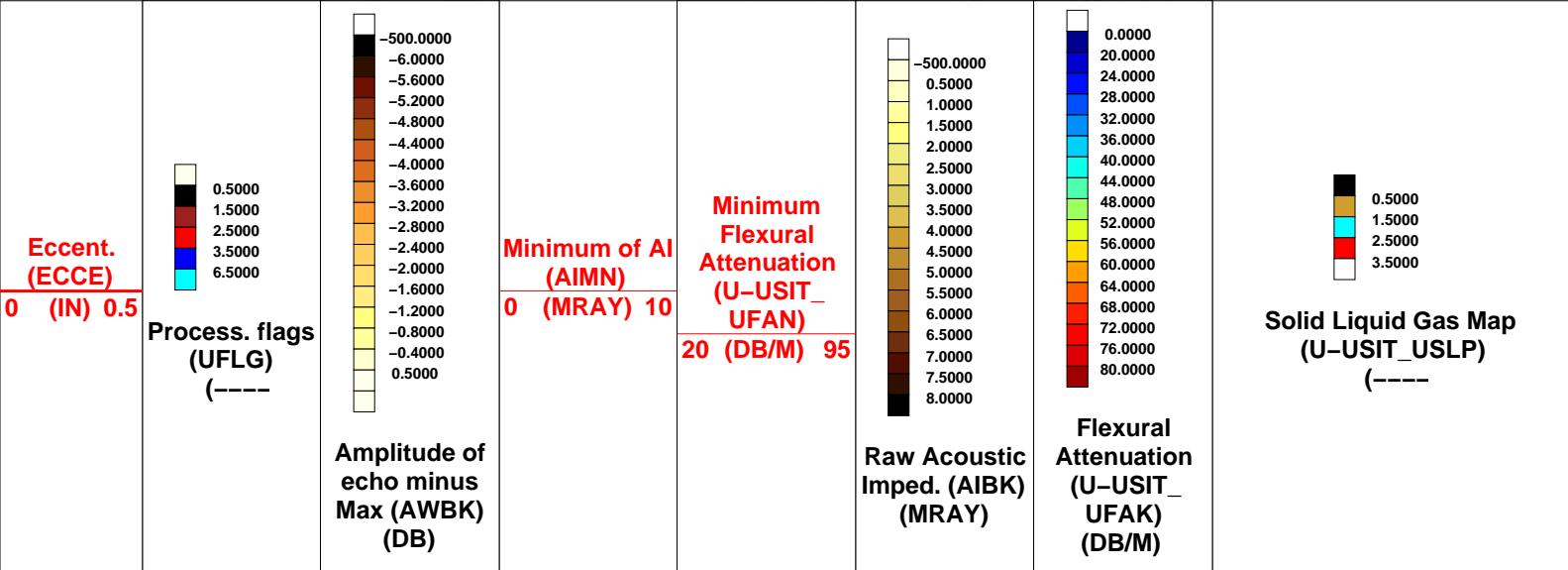
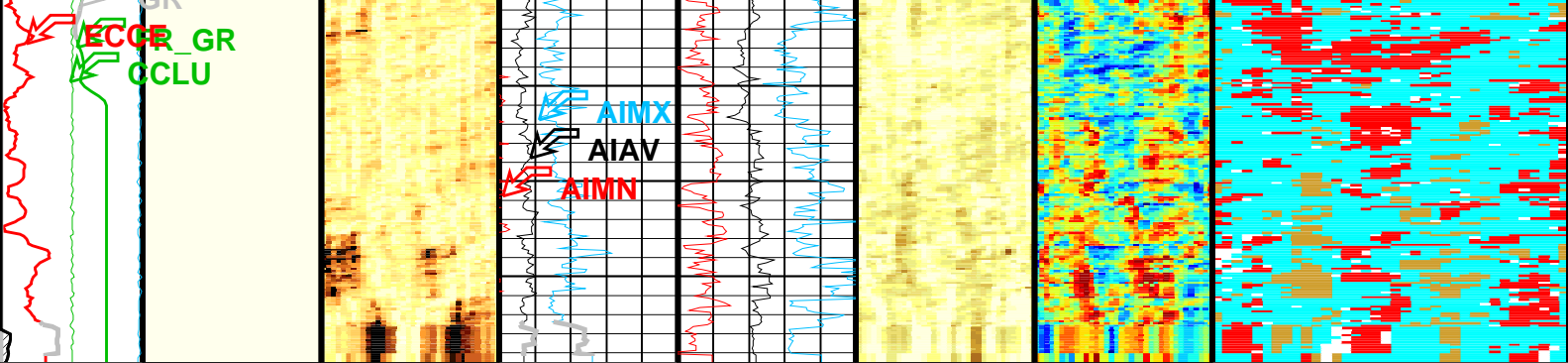
USIT-D 17C0-154 SGT-N 17C0-154  
DTC-H 17C0-154













## OP System Version: 17C0-154

USIT-D	17C0-154	SGT-N	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	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN
DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.415	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	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	-11	DB/M
U-USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U-USIT_UIST	Ultrasonic IBC Sonde Type	Sub_ibcs_A	
U-USIT_UTAN	USIT Transducer Angles	38_DEG	
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY

## USPS: USIT Pipe Stats

AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	5.5	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	4.67	IN

DFVL	Default Fluid Velocity	195	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	60	V
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
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THDL	Minimum Search Thickness (percentage of nominal)	70	
THNO	Nominal Thickness of Casing	0.415	IN
UMAO	USIT Measurement Angular Offset	-10	DEG
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	10DEG_3IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	24.886	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.8	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.3	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	9451.00	FT
TDL	Total Depth - Logger	7440.00	FT
System and Miscellaneous			
BS	Bit Size	7.875	IN
CWEI	Casing Weight	23.00	LB/F
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	

### Input DLIS Files

DEFAULT	USI_018PUP	FN:29	PRODUCER	14-Feb-2011 17:11	7439.0 FT	3799.5 FT
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### Output DLIS Files

DEFAULT	USI_060PUP	FN:100	PRODUCER	16-Feb-2011 19:09
RTB	USI_060PUP	FN:101	PRODUCER	16-Feb-2011 19:11

**Schlumberger**

## CALIBRATIONS

MAXIS Field Log

#### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Scintillation Gamma Ray Tool - N Wellsite Calibration - Detector Calibration							
Before: 12-Feb-2011 15:17							
Gamma Ray (Jig - Bkg)	141.9	N/A	141.9	N/A	N/A	12.90	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

#### Scintillation Gamma Ray Tool - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge  
Scintillation Gamma Detector

SGC - TB  
SGD - TAB






Auxiliary Equipment:  
Scintillation Gamma Housing  
Gamma Source Radioactive

SGH – K  
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			48.69	Before			141.9	Before			165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		129.0 (Minimum)	141.9 (Nominal)	154.8 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	

Before: 12-Feb-2011 15:17

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 9080

Company: ANTERO RESOURCES CORPORATION



Well: CSF 21C–07–07–91  
Field: MAMM CREEK  
County: GARFIELD  
State: COLORADO

ISOLATION SCANNER  
CEMENT EVALUATION & CORROSION  
GAMMA RAY