

Company: Crestone Peak Resources Operating LLC

Well: Ruegge 3F-4H-N165

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner  
Cement Evaluation  
Gamma Ray - CCL Log

County: Weld  
Field: Wattenberg  
Location: SESW SEC:4 TWN:1N RNG:65W  
Well: Ruegge 3F-4H-N165  
Company: Crestone Peak Resources Operating LLC

|                         |          |                           |        |      |                  |
|-------------------------|----------|---------------------------|--------|------|------------------|
| Location:               |          | SESW SEC:4 TWN:1N RNG:65W | Elev.: | K.B. | 4941.00 ft       |
| Permanent Datum:        |          |                           |        | G.L. | 4918.00 ft       |
| Log Measured From:      |          |                           |        | D.F. | 4941.00 ft       |
| Drilling Measured From: |          |                           |        |      | above Perm.Datum |
| API Serial No.          | Section: | Township:                 | Range: |      |                  |
| 05123465700000          | 4        | 1N                        | 65W    |      |                  |

Logging Date 28-Jun-2018

Run Number ONE

Depth Driller 11884.00 ft

Schlumberger Depth 7350.00 ft

Bottom Log Interval 7350.00 ft

Top Log Interval 50.00 ft

Casing Fluid Type Water

Salinity

Density 8.8 lbm/gal

Fluid Level 8.00 ft

BIT/CASING/TUBING STRING

Bit Size 8.50 in

From 2515.00 ft

To 11884.00 ft

Casing/Tubing Size 5.5 in

Weight 20 lbm/ft

Grade P110

From 23.00 ft

To 11868.82 ft

Max Recorded Temperatures 202.76 degF

Logger on Bottom 28-Jun-2018

Unit Number 3108

Recorded By Justin Ray

Witnessed By Satch Bowe

Disclaimer

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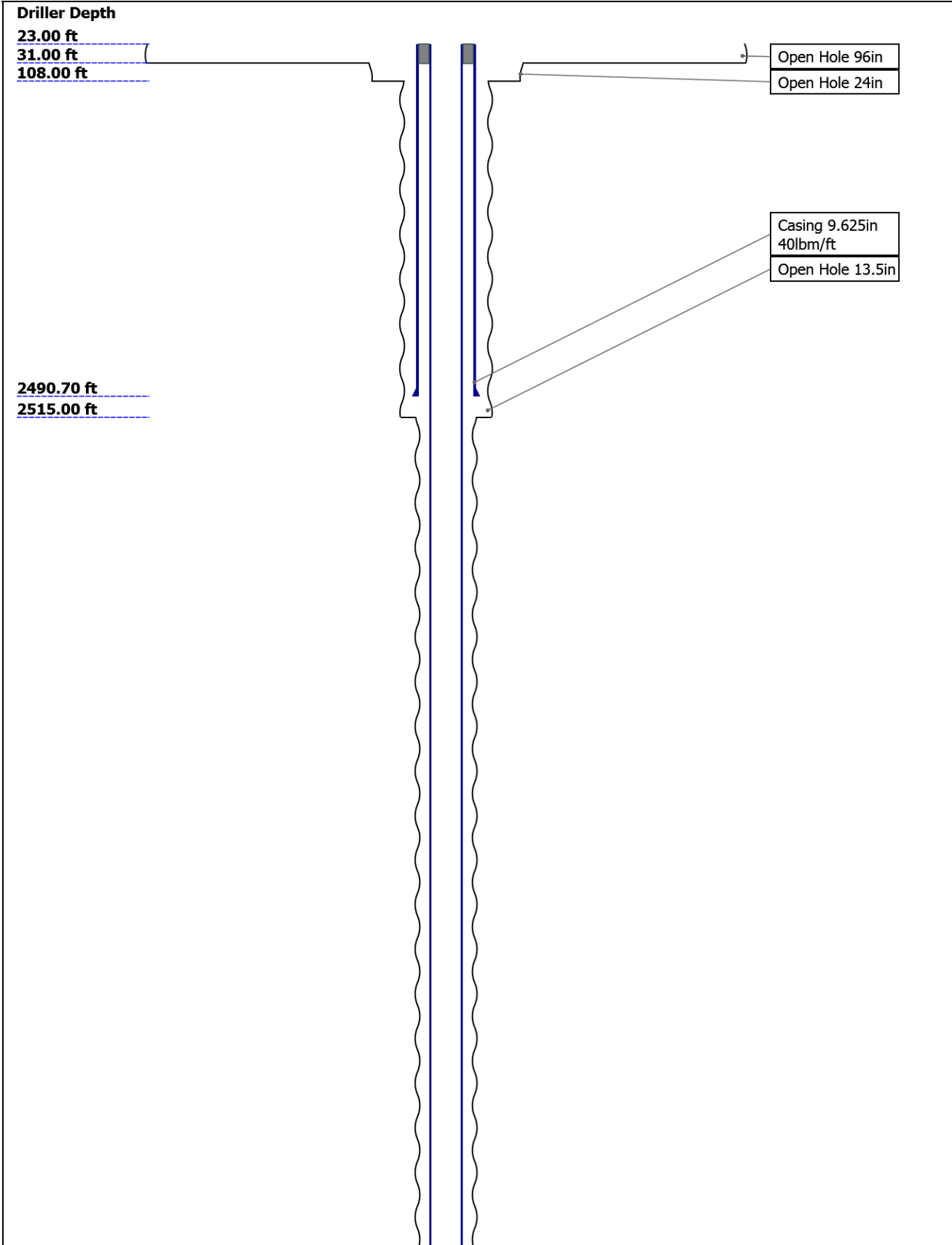
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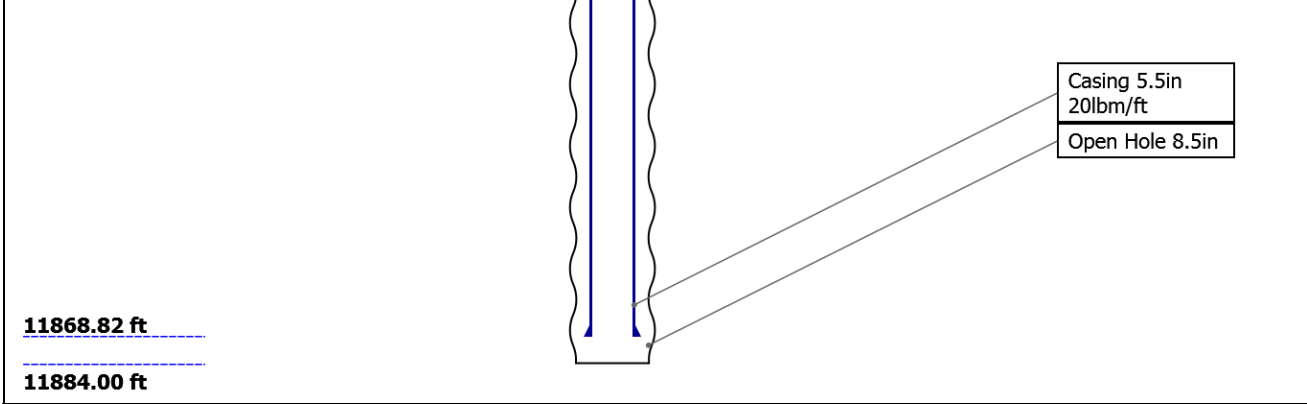
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Well Sketch



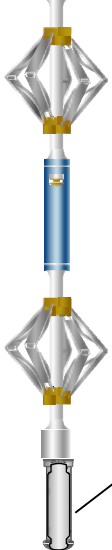


Borehole Size/Casing/Tubing Record

|                       |        |          |      |       |  |  |
|-----------------------|--------|----------|------|-------|--|--|
| Bit                   |        |          |      |       |  |  |
| Bit Size ( in )       | 96     | 24       | 13.5 | 8.5   |  |  |
| Top Driller ( ft )    | 23     | 31       | 108  | 2515  |  |  |
| Top Logger ( ft )     | 23     | 31       | 108  | 2515  |  |  |
| Bottom Driller ( ft ) | 31     | 108      | 2515 | 11884 |  |  |
| Bottom Logger ( ft )  | 31     | 108      | 2515 | 11884 |  |  |
| Casing                |        |          |      |       |  |  |
| Size ( in )           | 9.625  | 5.5      |      |       |  |  |
| Weight ( lbm/ft )     | 40     | 20       |      |       |  |  |
| Inner Diameter ( in ) | 8.835  | 4.778    |      |       |  |  |
| Grade                 | J55    | P110     |      |       |  |  |
| Top Driller ( ft )    | 23     | 23       |      |       |  |  |
| Top Logger ( ft )     | 23     | 23       |      |       |  |  |
| Bottom Driller ( ft ) | 2490.7 | 11868.82 |      |       |  |  |
| Bottom Logger ( ft )  | 2490.7 | 11868.82 |      |       |  |  |

Remarks and Equipment Summary

| ONE: Toolstring  |  |  | ONE: Remarks |  |
|--|--|--|--------------|--|
| <div><div><div><div><div>Equip name</div><div>Length</div></div><div>LEH-QT:2</div><div>30.16</div></div><div><div><div>353</div><div>LEH-QT:23</div><div>53</div></div></div><div><div><div>EDTC-B:9</div><div>247</div><div>EDTH-B:93</div><div>09</div><div>EDTG-A:7</div><div>9445</div><div>EDTC-B:92</div><div>47</div></div></div><div><div><div>AH-184[2]</div><div>20.74</div></div><div><div>AH-184[1]</div><div>18.74</div></div><div><div>USIT-E:93</div><div>16.74</div></div><div><div>0</div><div>ECH-MFA:1924</div><div>USAC-A:930</div><div>USIT-A:10</div></div></div><div><div><div>MP name</div><div>Offset</div></div><div><div>CTEM</div><div>23.74</div></div><div><div>ACCZ</div><div>0.00</div></div><div><div>HV</div><div>0.00</div></div><div><div>Gamma Ray</div><div>21.87</div></div><div><div>TelStatu</div><div>20.74</div></div><div><div>s</div><div>4880</div></div><div><div>5965</div></div></div></div><div><div><div>Tool string ran as per tool sketch</div><div>Gemcos, in line centralizers, boosters and two knuckles ran for tool centralization</div><div>All passes ran with 0 PSI surface induced pressure</div><div>Thank you for choosing Schlumberger</div></div></div></div> |  |  |              |  |

|  |   |  |
|--|---|--|
| USLS-A:18<br>20<br>USSC-B:79<br>9<br>IBCS-A:77<br>4<br>FAR-SENS<br>OR:4670<br>IBC-TX<br>NEAR-SEN<br>SOR:4642<br>IBC-TX<br>USI-SENS<br>OR:1358<br>IBC-TX<br>EMITTER-<br>SENSOR:4<br>561<br>IBC-TX |  <p><b>USI Sen 0.84<br/>sor<br/>Head Te<br/>nsion</b></p> <p>TOOL_ZERO</p> <p>Lengths are in ft<br/>         Maximum Outer Diameter = 6.250 in<br/>         Line: Sensor Location, Value: Gating Offset<br/>         All measurements are relative to TOOL_ZERO</p> |  |
|--|---|--|

| Depth Summary                      |                       |  |  |
|------------------------------------|-----------------------|--|--|
|                                    | ONE                   |  |  |
| Depth Measuring Device             |                       |  |  |
| Type                               | IDW-JA                |  |  |
| Serial Number                      | 5979                  |  |  |
| Calibration Date                   | 06-oct-2017           |  |  |
| Calibrator Serial Number           | IDWC-C-57             |  |  |
| Calibration Cable Type             | 7-39-AIXXS            |  |  |
| Wheel Correction 1                 | -3                    |  |  |
| Wheel Correction 2                 | -3                    |  |  |
| Tension Device                     |                       |  |  |
| Type                               | CMTD-B/A              |  |  |
| Serial Number                      | 1398                  |  |  |
| Calibration Date                   | 22-jun-2018           |  |  |
| Calibrator Serial Number           | 78796A                |  |  |
| Number of Calibration Points       | 10                    |  |  |
| Calibration Root Mean Square Error | 16                    |  |  |
| Calibration Peak Error             | 25                    |  |  |
| Logging Cable                      |                       |  |  |
| Type                               | 7-39P-LXS             |  |  |
| Serial Number                      | F713178               |  |  |
| Length                             | 10000.00 ft           |  |  |
| Conveyance Type                    | Wireline              |  |  |
| Rig Type                           | MAST                  |  |  |
| ONE:Depth Control Parameters       |                       | Depth Control Remarks                              |  |
| Log Sequence                       | First Log In the Well | All Schlumberger depth control procedures followed |  |
| Rig Up Length At Surface           |                       | IDW used as primary depth control                  |  |
| Rig Up Length At Bottom            |                       | Z-Chart used as secondary depth control            |  |
| Rig Up Length Correction           |                       |  |  |



|                            |          |
|----------------------------|----------|
| Stretch Correction         | 6.90 ft  |
| Tool Zero Check At Surface | 23.00 ft |

USIT - Fluid Properties Measurement

| Run Name | Pass Name | Start Depth(ft) | Stop Depth(ft) |
|----------|-----------|-----------------|----------------|
| Run 1    | Log[4]:Up | 7359.02         | 60.89          |

Fluid Velocity = "Automatic".  
CFVL equals DFSL channel

| Start Depth(ft) | Stop Depth(ft) | Start Value(us/ft) | End Value(us/ft) |
|-----------------|----------------|--------------------|------------------|
|-----------------|----------------|--------------------|------------------|

Mud Impedance = "Theoretical".  
CZMD uses theoretical results.  
MUD\_N\_THE=1.15  
DFD=1.05g/cm3(8.80lbm/gal)

| Start Depth(ft) | Stop Depth(ft) | Start Value(Mrayl) | End Value(Mrayl) |
|-----------------|----------------|--------------------|------------------|
|-----------------|----------------|--------------------|------------------|

ONE

IBC SLG Main Pass

Software Version

| Acquisition System | Version                             |
|--------------------|-------------------------------------|
| Maxwell 2018       | 8.0.95333.3100                      |
| Application Patch  | Wireline_NPD-PNX-2018CMZ_8.0.100887 |

Pass Summary

| Run Name | Pass Objective | Direction | Top      | Bottom     | Start                  | Stop                   | DSC Mode | Depth Shift | Include Parallel Data |
|----------|----------------|-----------|----------|------------|------------------------|------------------------|----------|-------------|-----------------------|
| ONE      | Log[4]:Up      | Up        | 60.89 ft | 7359.02 ft | 28-Jun-2018 3:01:14 PM | 28-Jun-2018 4:41:53 PM | ON       | 6.90 ft     | Yes                   |

All depths are referenced to toolstring zero

| Log | Company:Crestone Peak Resources Operating LLC      Well:Ruegge 3F-4H-N165<br>ONE: Log[4]:Up:S020 |
|-----|--|
|-----|--|

Description: USI IBC SLG    Format: Log ( IBC SLG )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 11-Jul-2018 19:58:00

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

4 - UFLG 4    UFLG 5    UFLG 6 Value within [3.5 - 6.5] - :

5 - UFLG 7    UFLG 8    UFLG 9 Value within [6.5 - 10 ] - :

■ UTIM Error

■ Pulse Origin Not Detected

■ WINLEN Error

■ Casing Thickness Error

■ Loop Processing Error

TIME\_1900 - Time Marked every 60.00 (s)

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-20 in 20

Amplitude of Eccentering (ECCE) USIT-E

0 in 0.5

Motor Revolution Speed

Absent 1.500 3.500

Explicit Normalization

USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E

1 5

Gamma Ray (ECGP, EDTC)

Absent -5.200 -3.600 -2.000 -0.400

Explicit Normalization

USIT - Amplitude of

Absent 0.750 1.750 2.750 3.750

Custom Normalization

USIT - Acoustic

Absent 0 7.500 15.000

Custom Normalization

USIT - Flexural Attenuation

Absent 42.000 66.000 90.000 114.000

Custom Normalization

USIT - Solid Liquid Gas

Absent 1.500 3.500

Explicit Normalization

USIT - Solid Liquid Gas

SLG Solid Index

SLG Liquid Index

SLG Gas Index

Acoustic Impedance Minimum (AIMN) USIT-E

-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E

-1 Mrayl 9

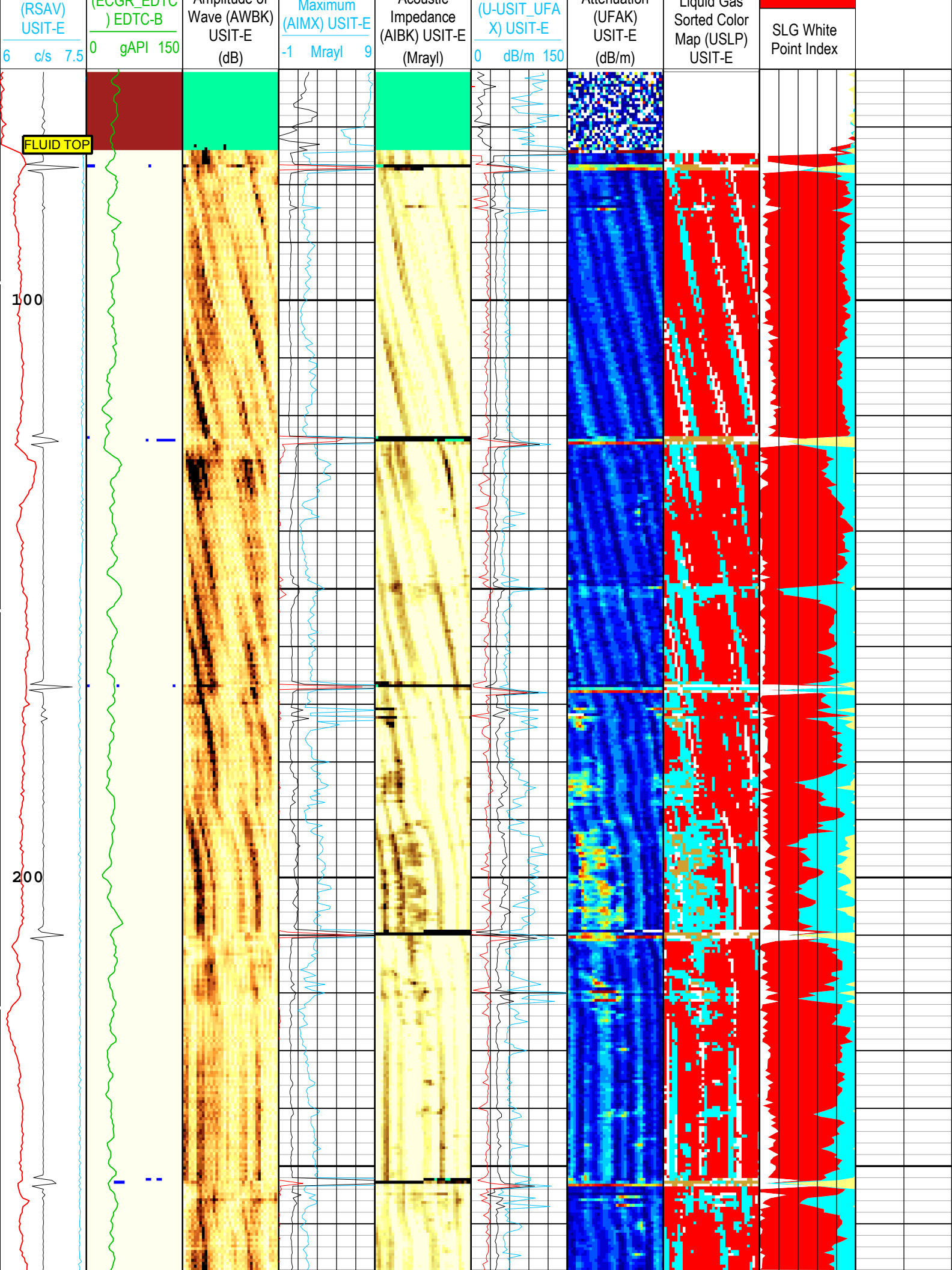
Minimum Flexural Attenuation (U-USIT\_UFA N) USIT-E

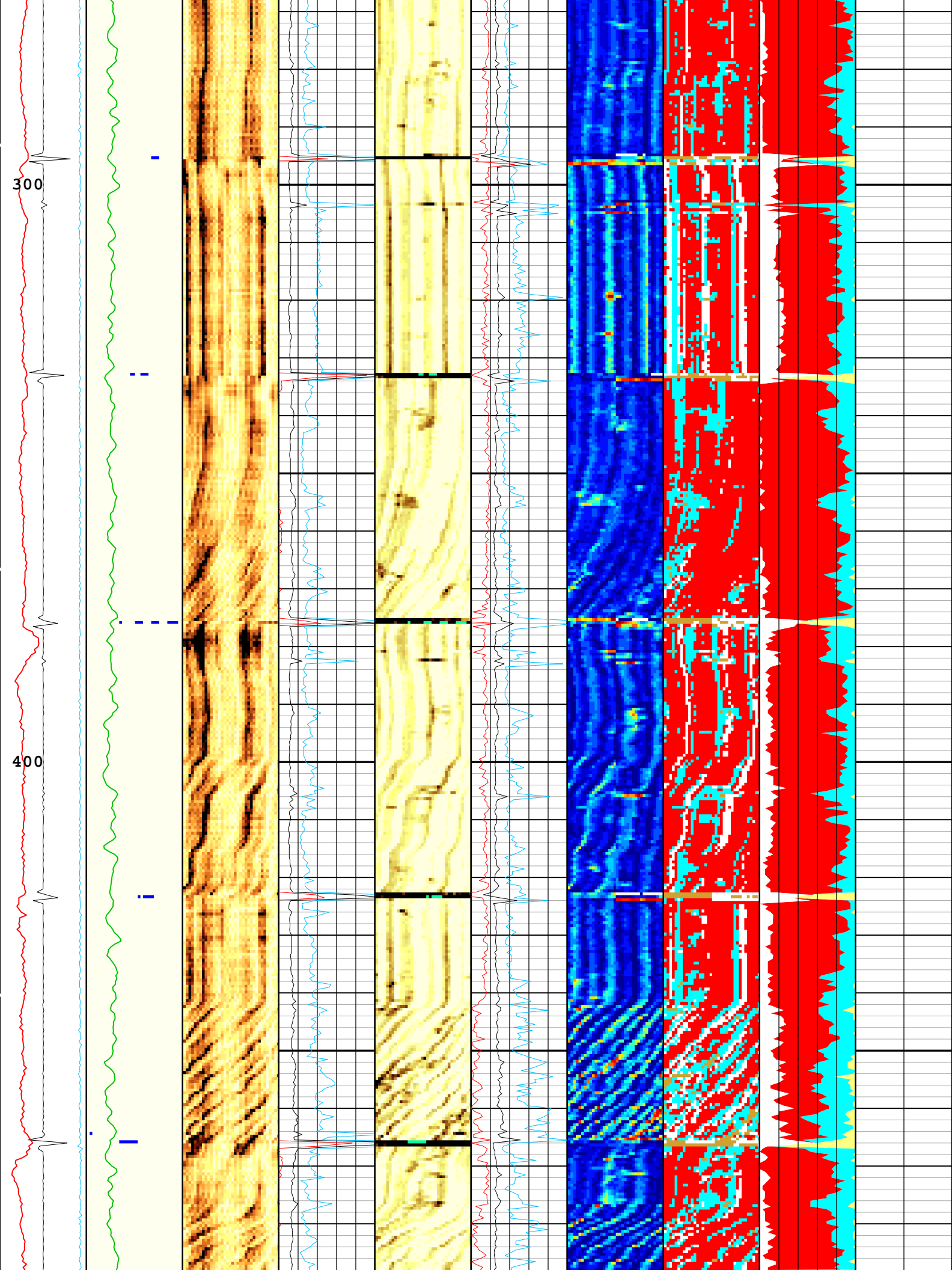
0 dB/m 150

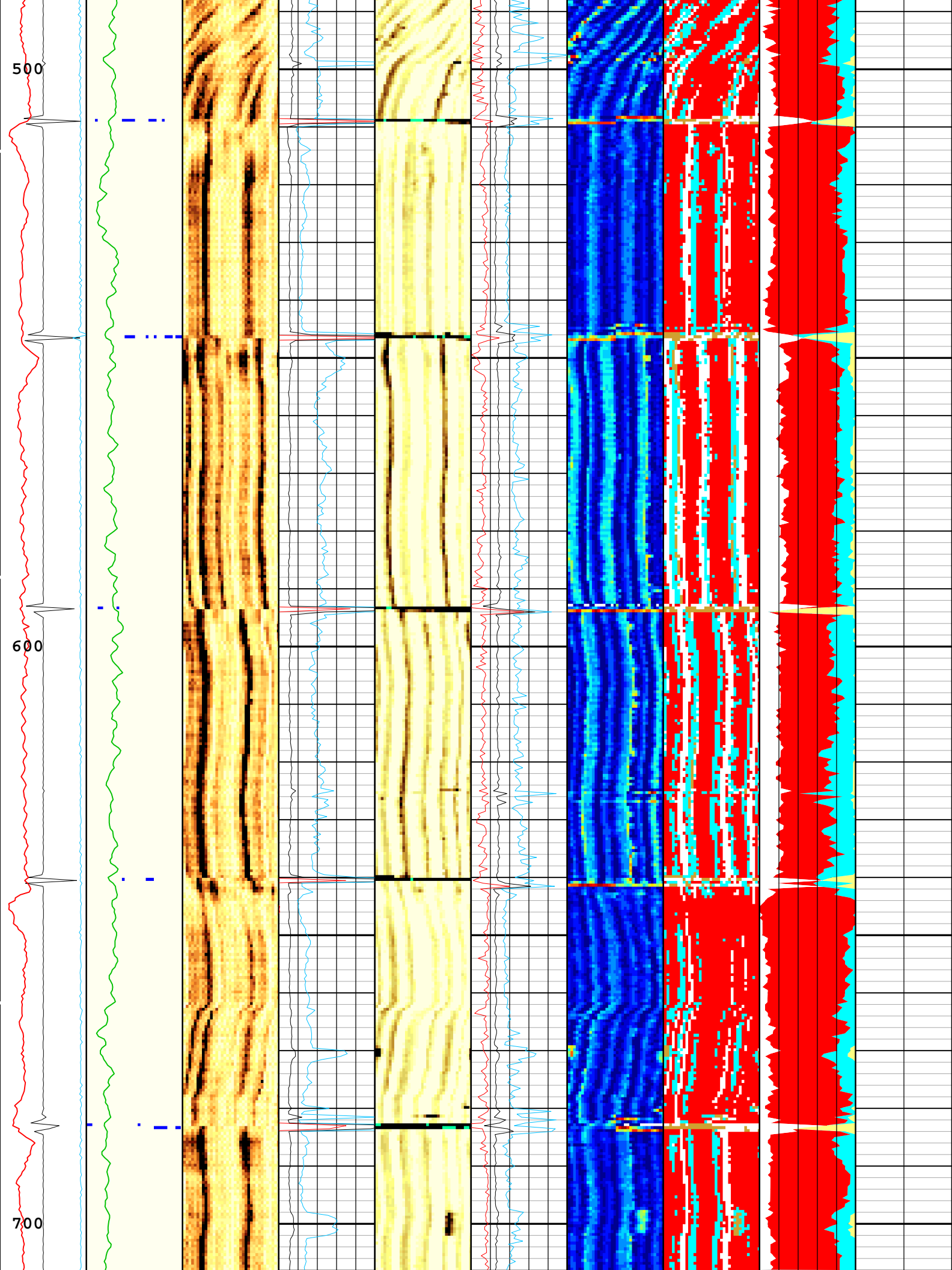
Average Flexural Attenuation (U-USIT\_UFA V) USIT-E

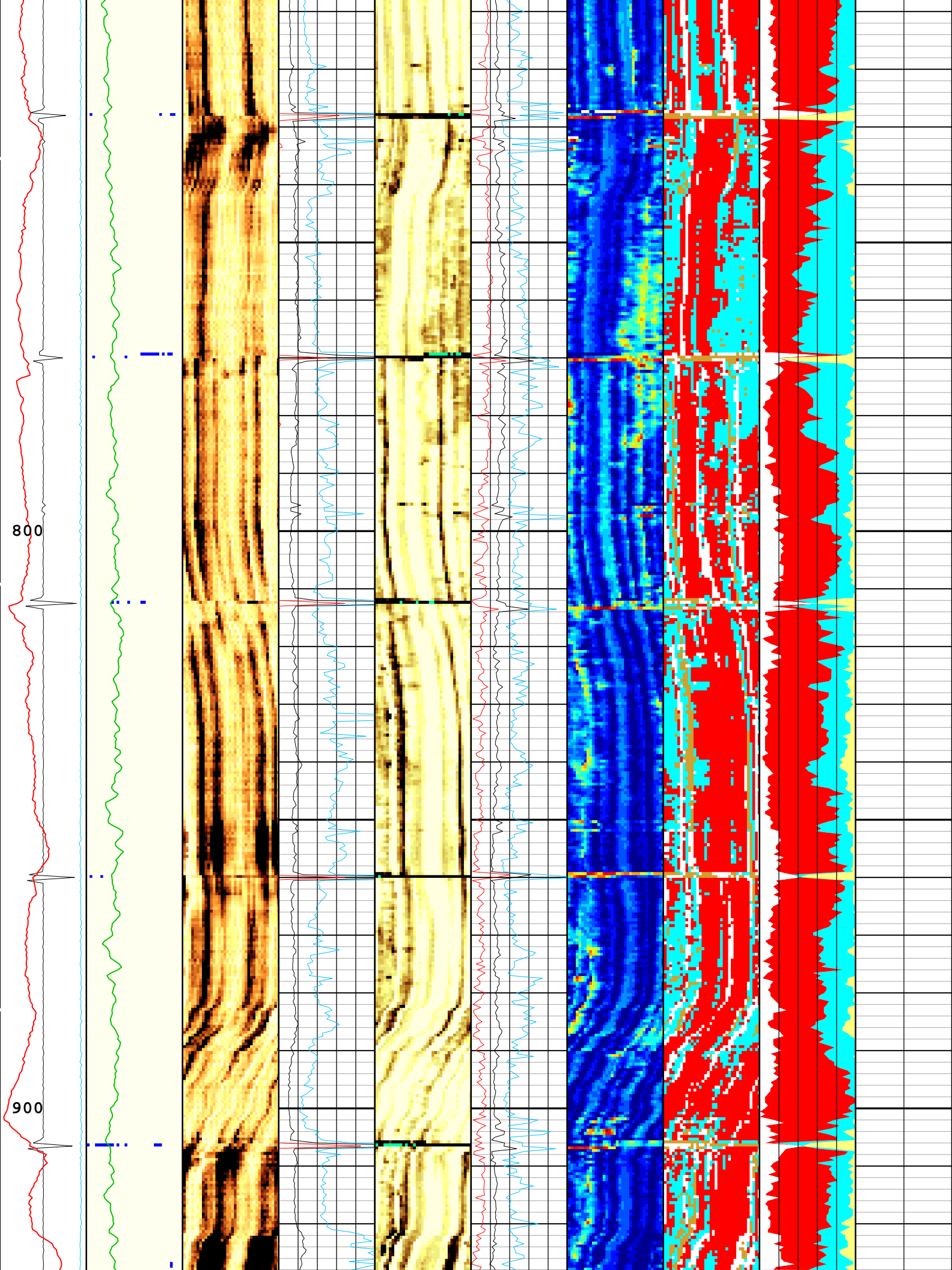
0 dB/m 150

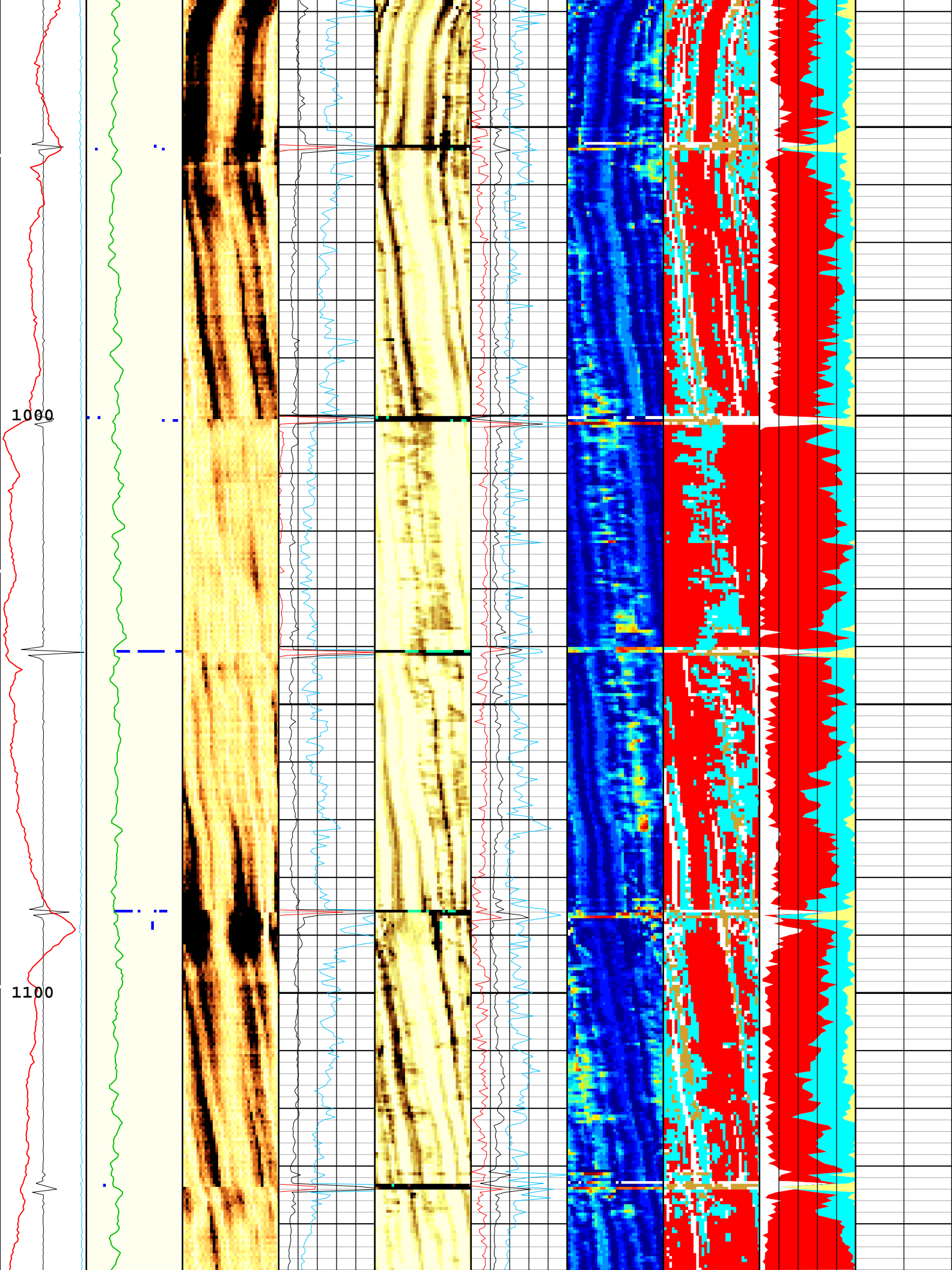
Maximum Flexural Attenuation



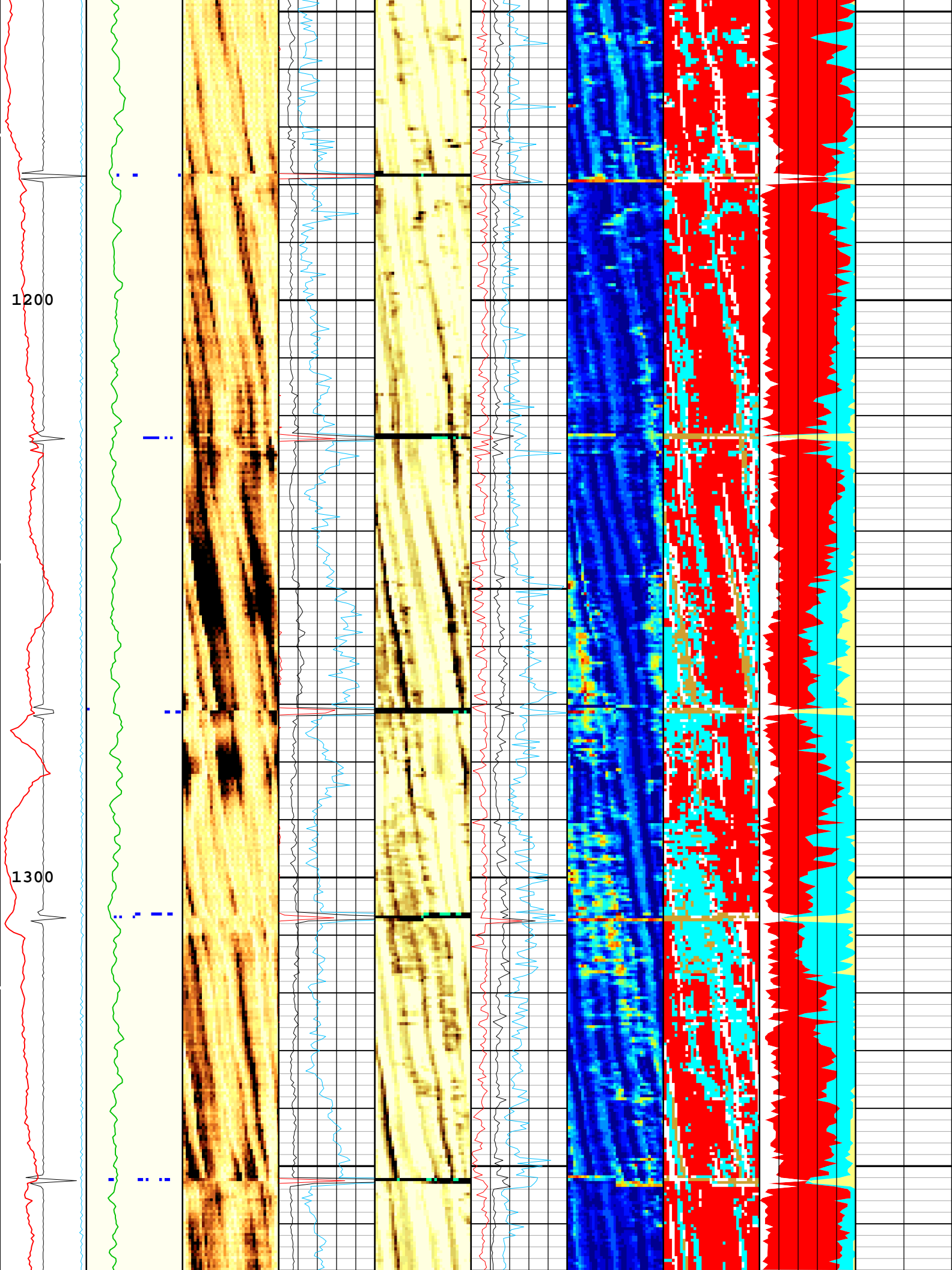


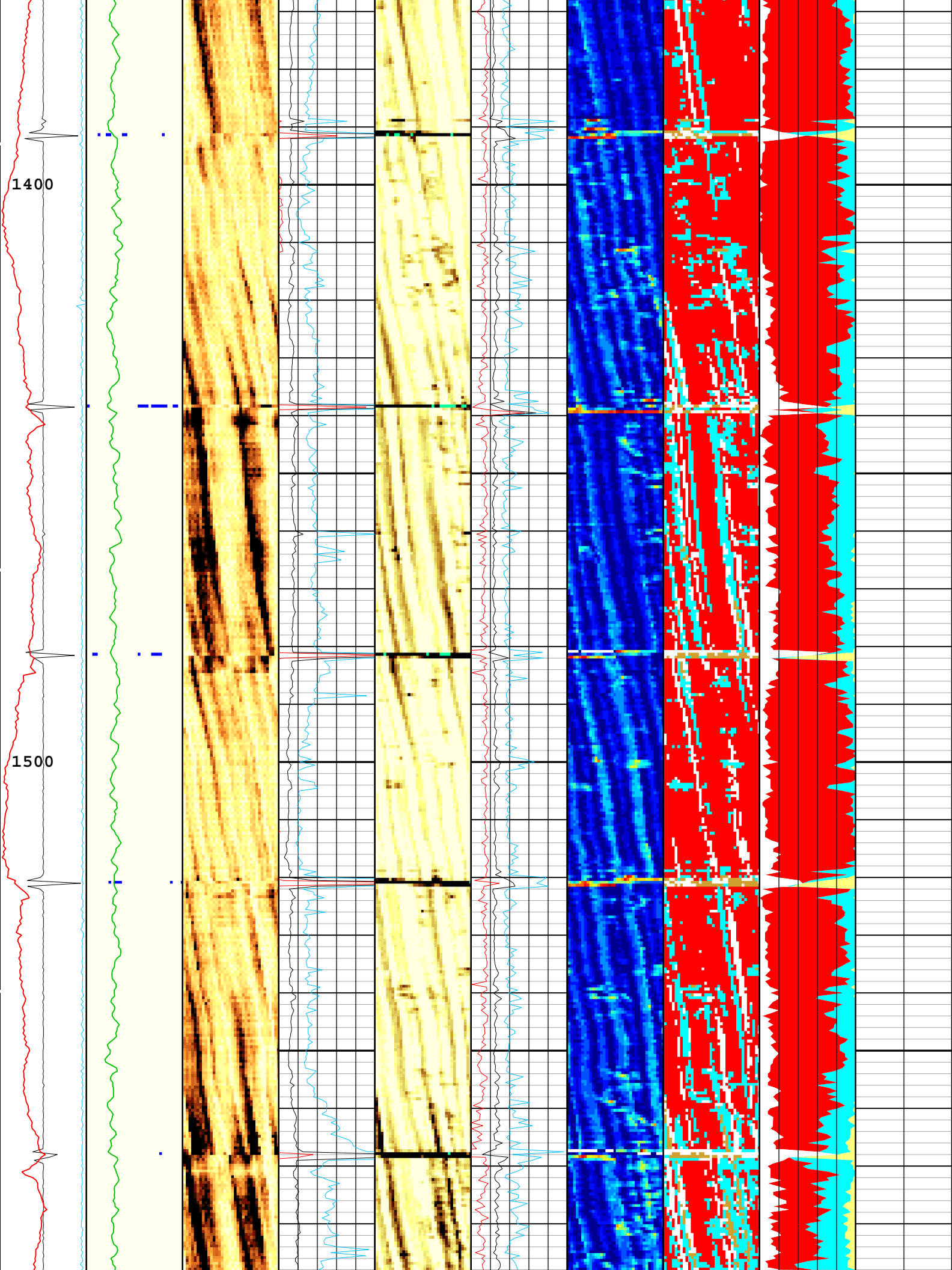




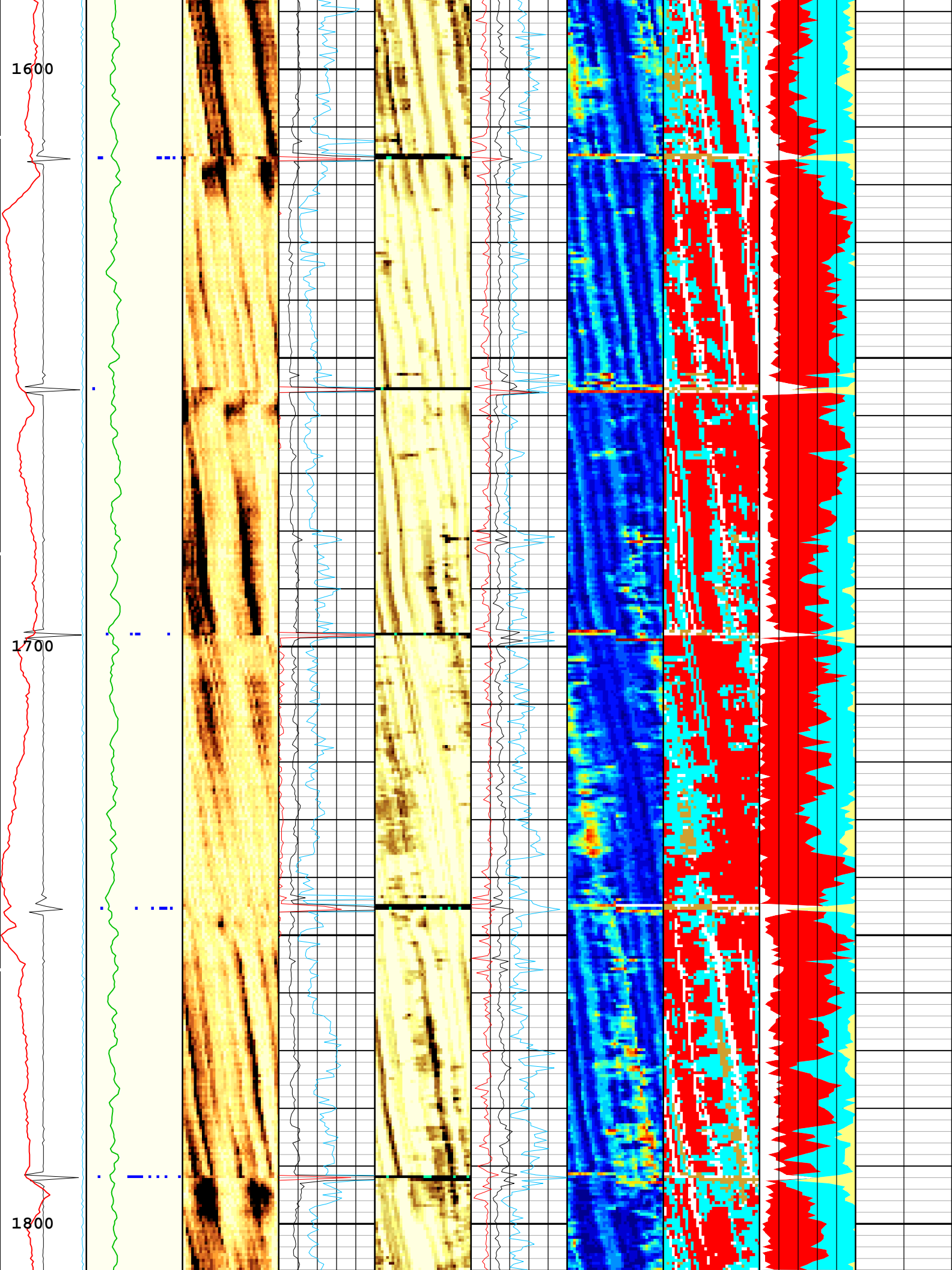


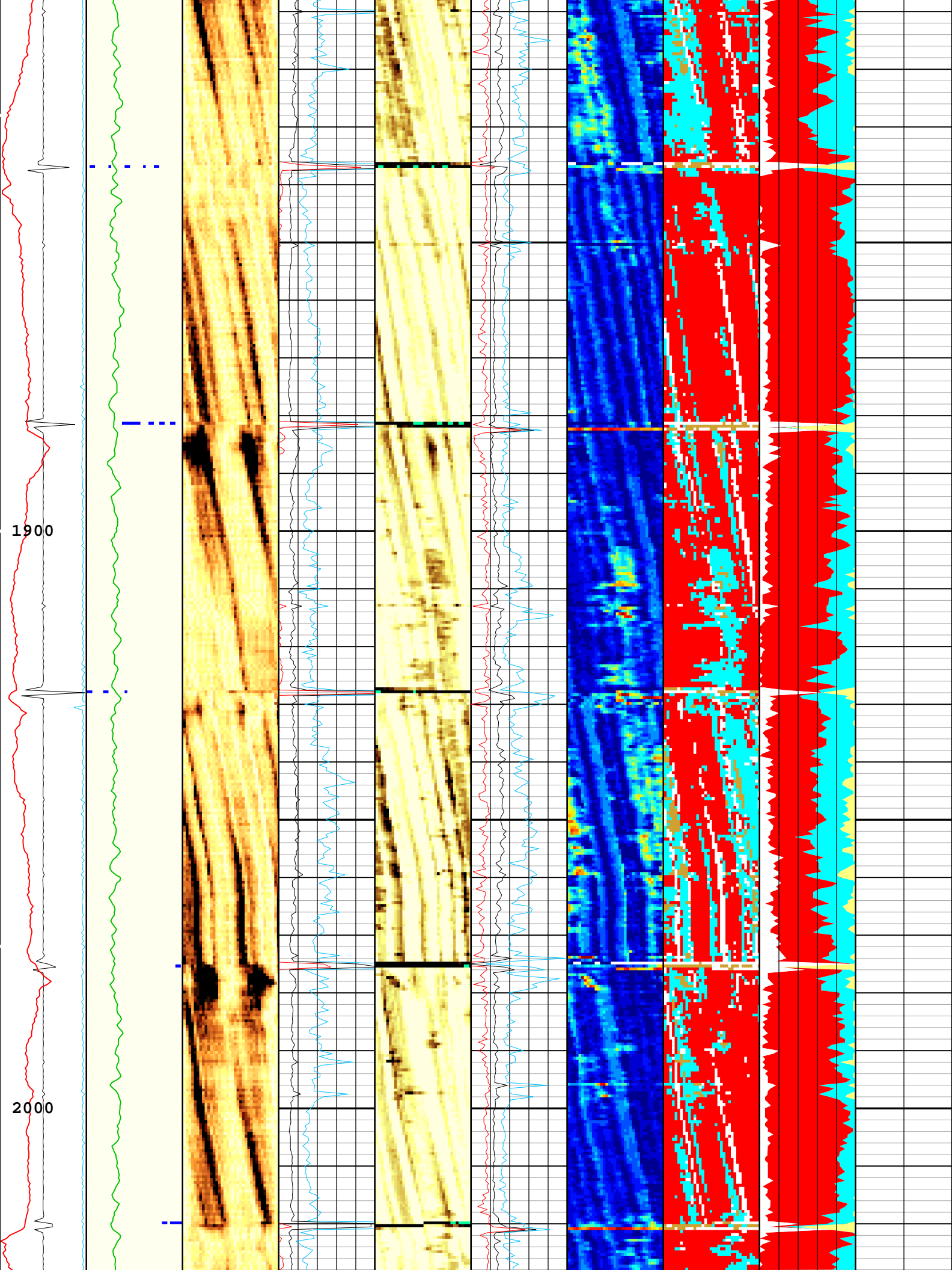


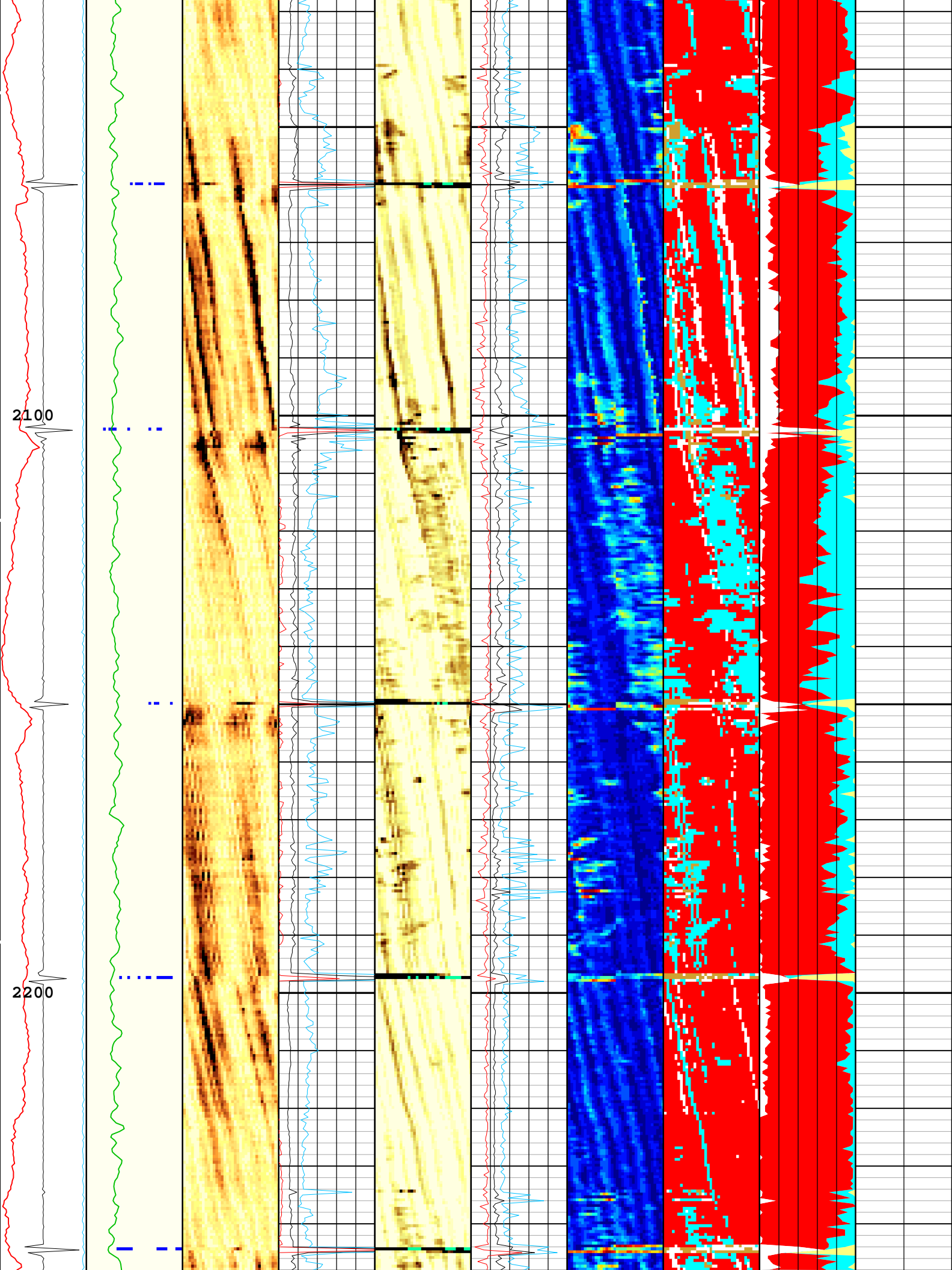


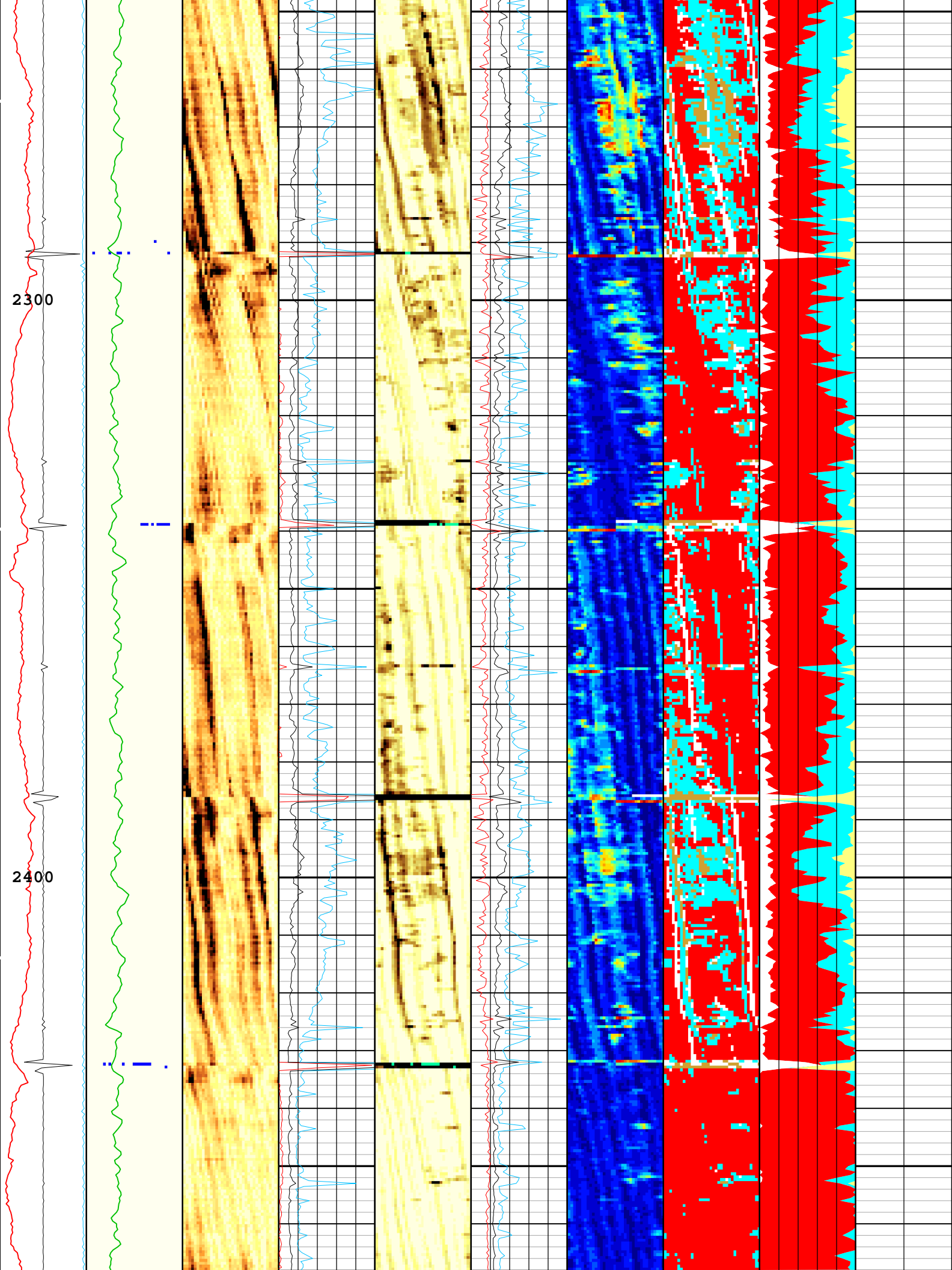


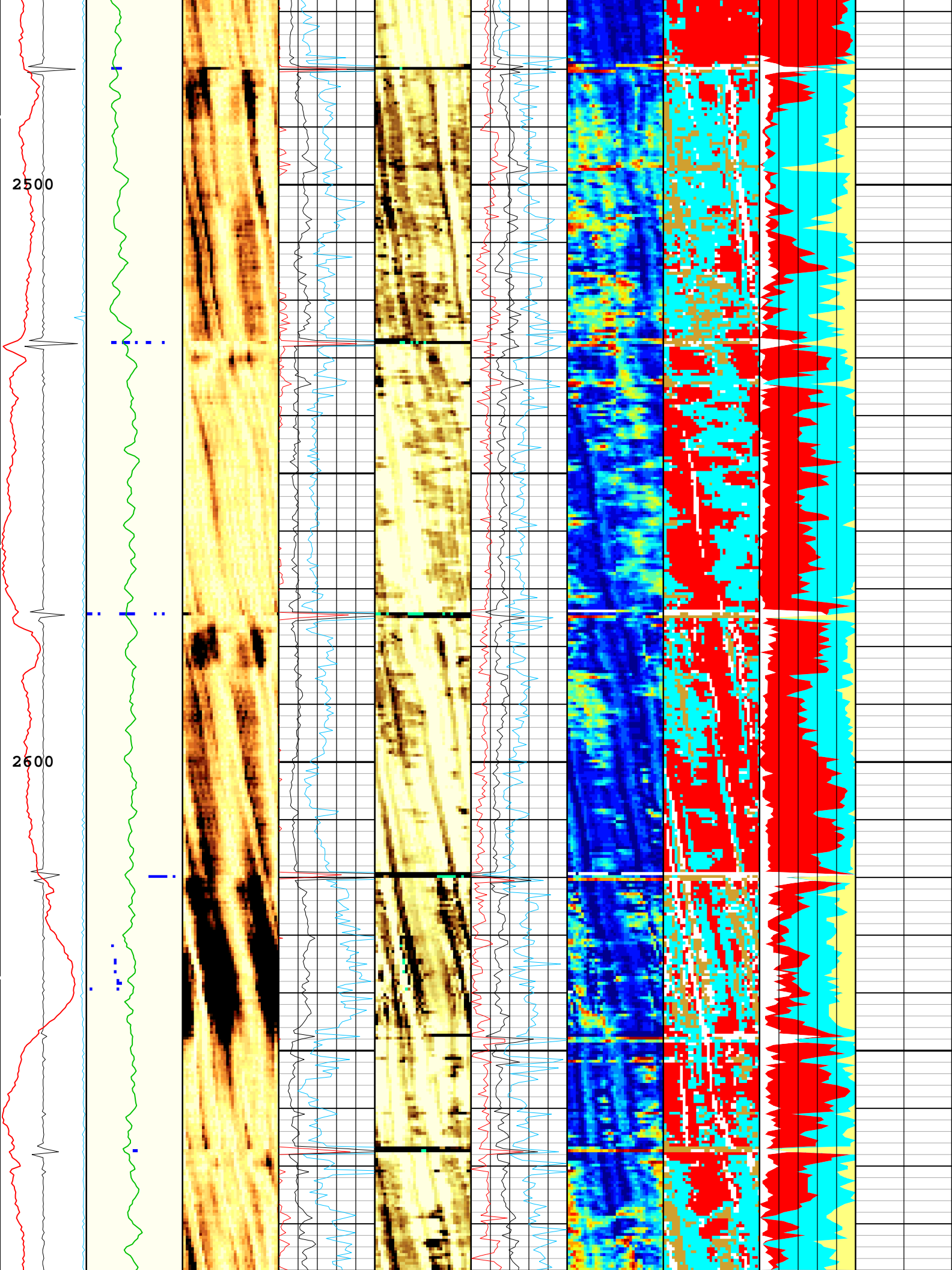




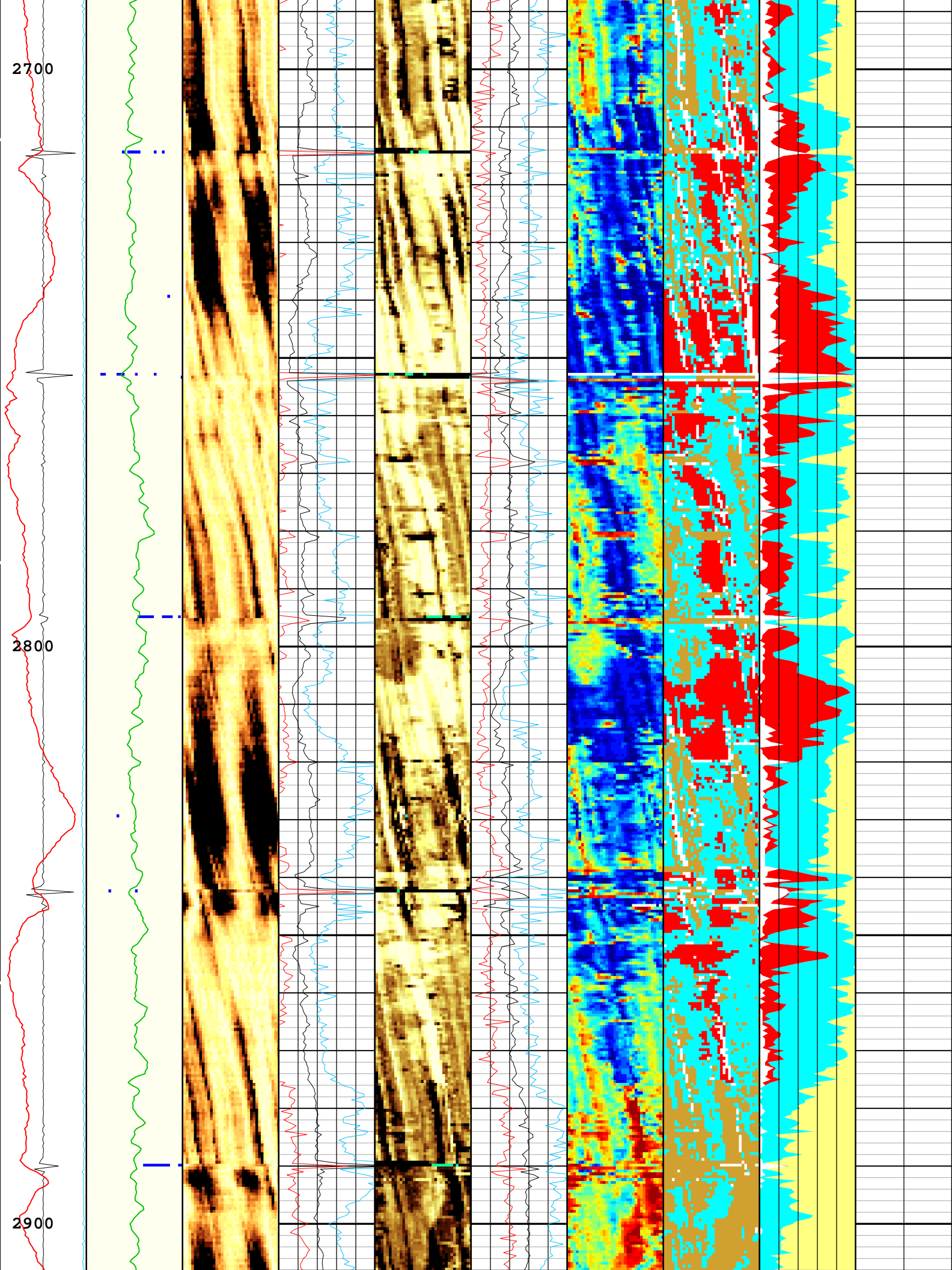


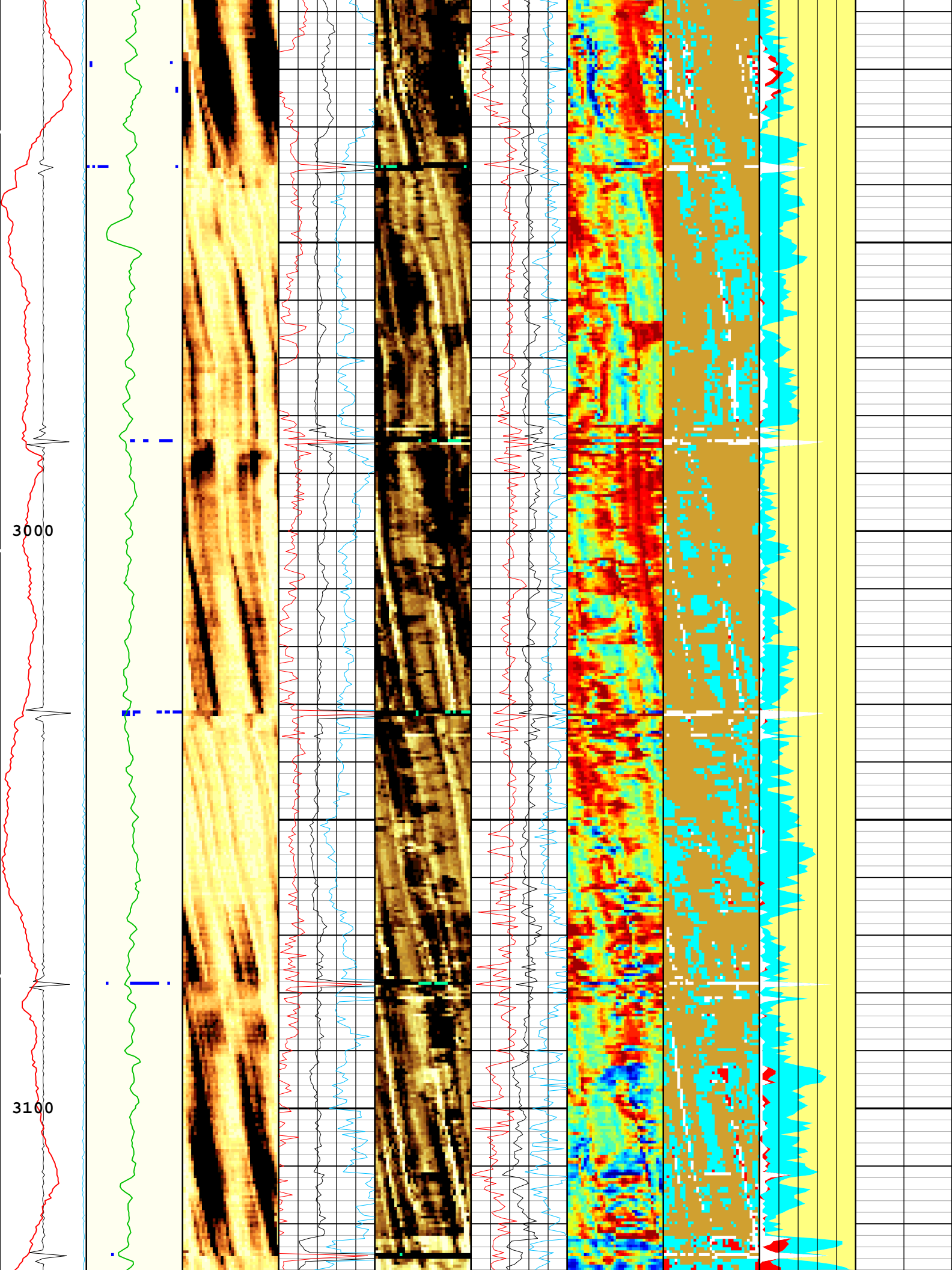


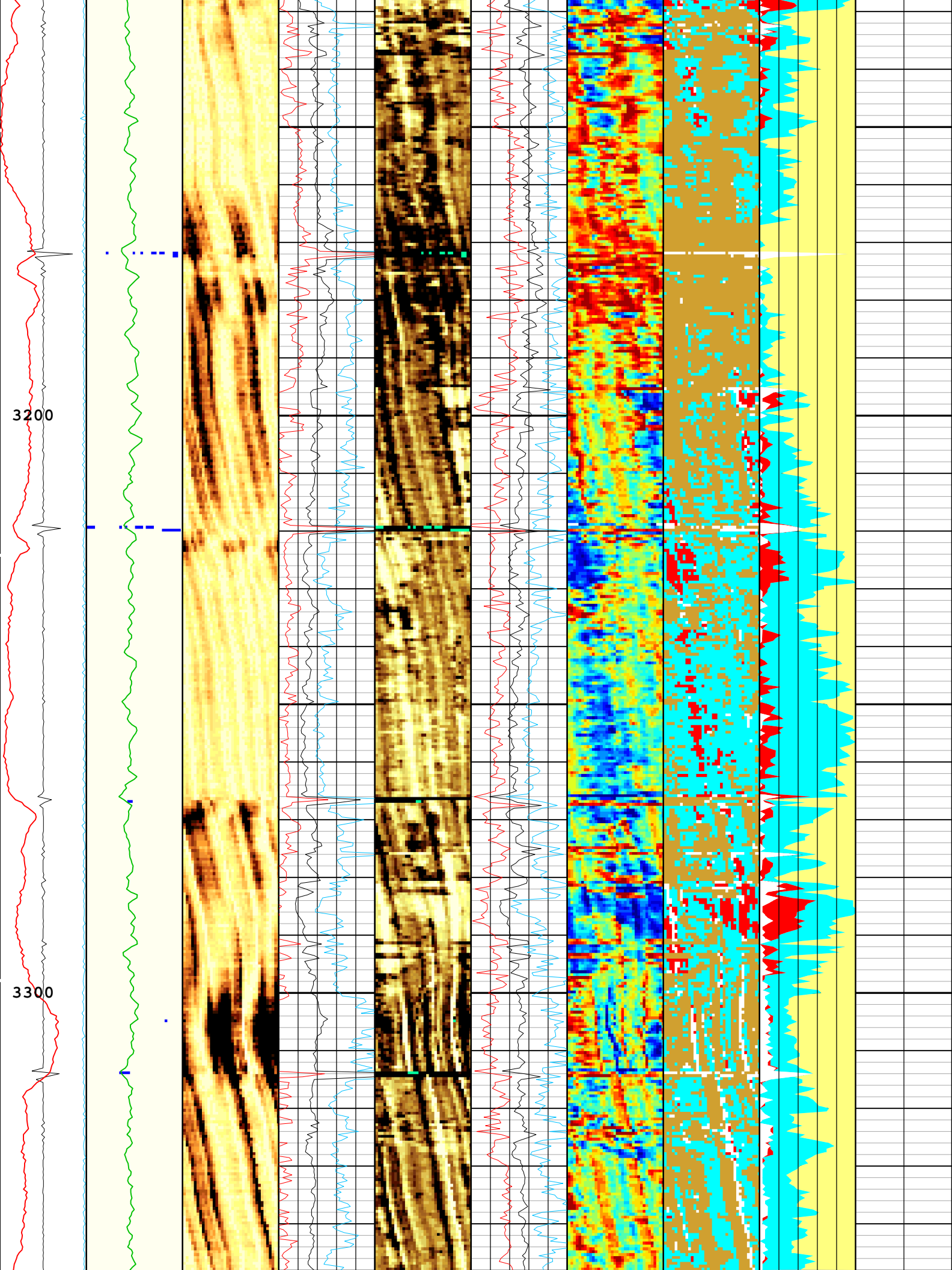




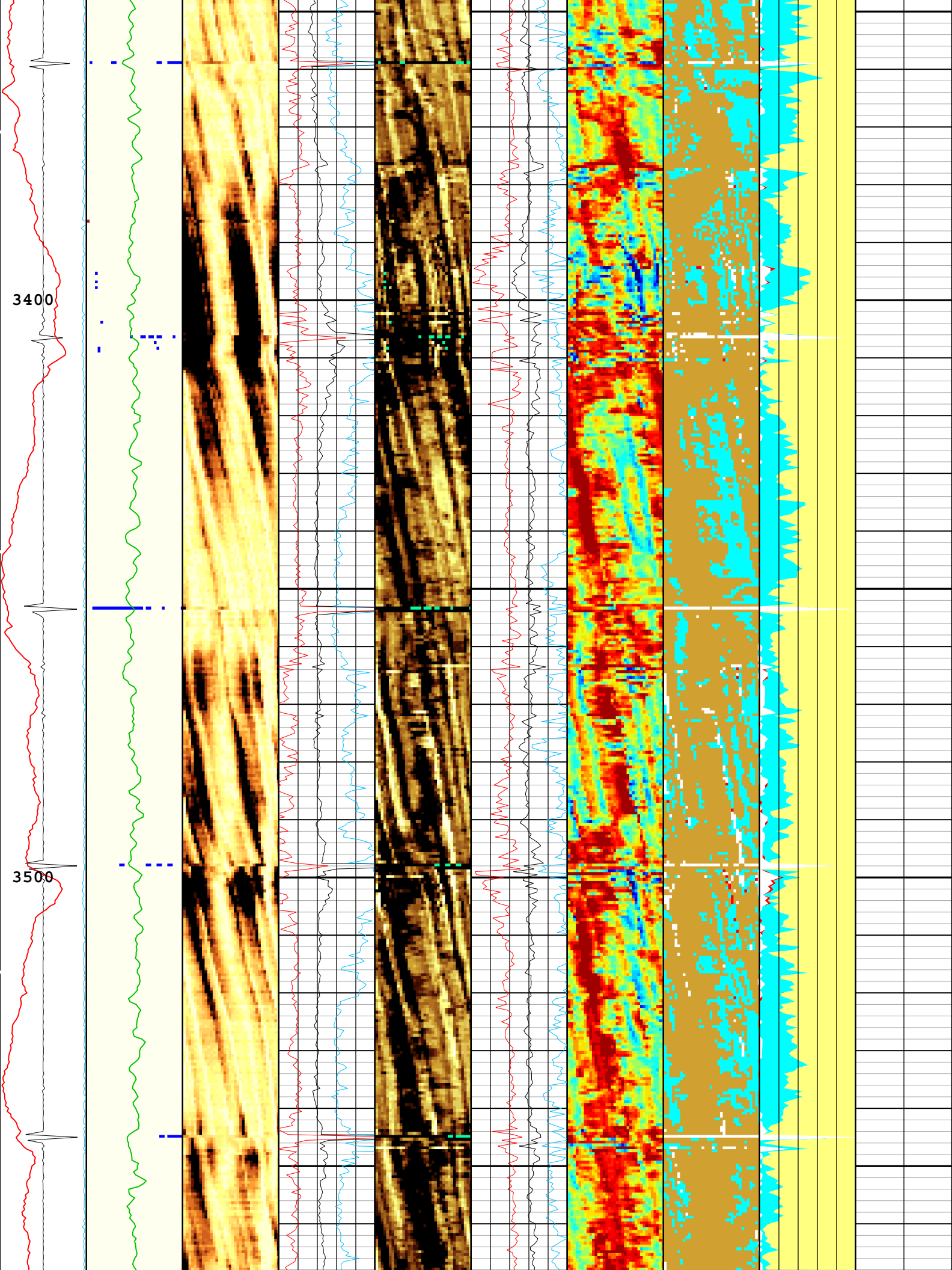


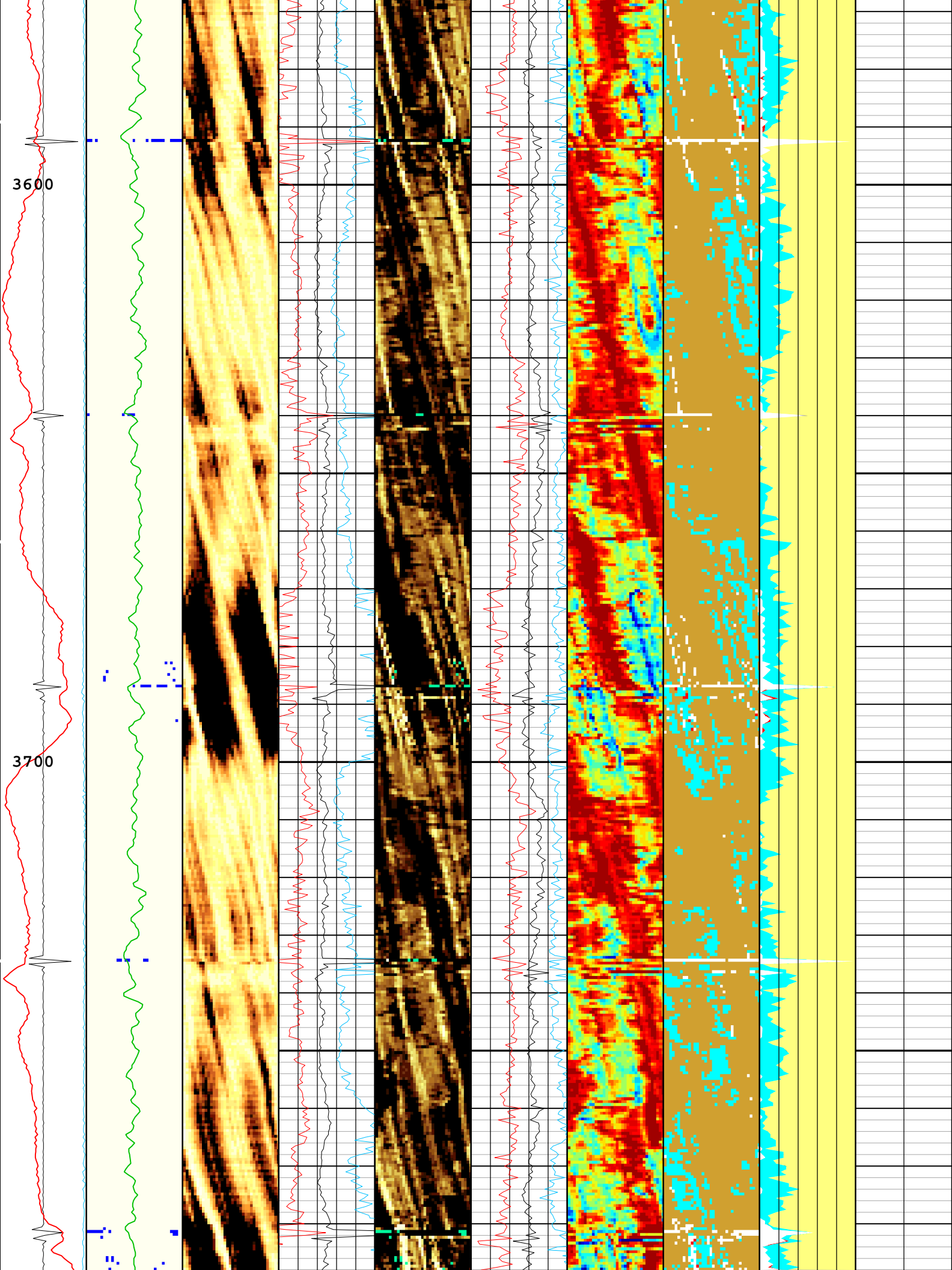


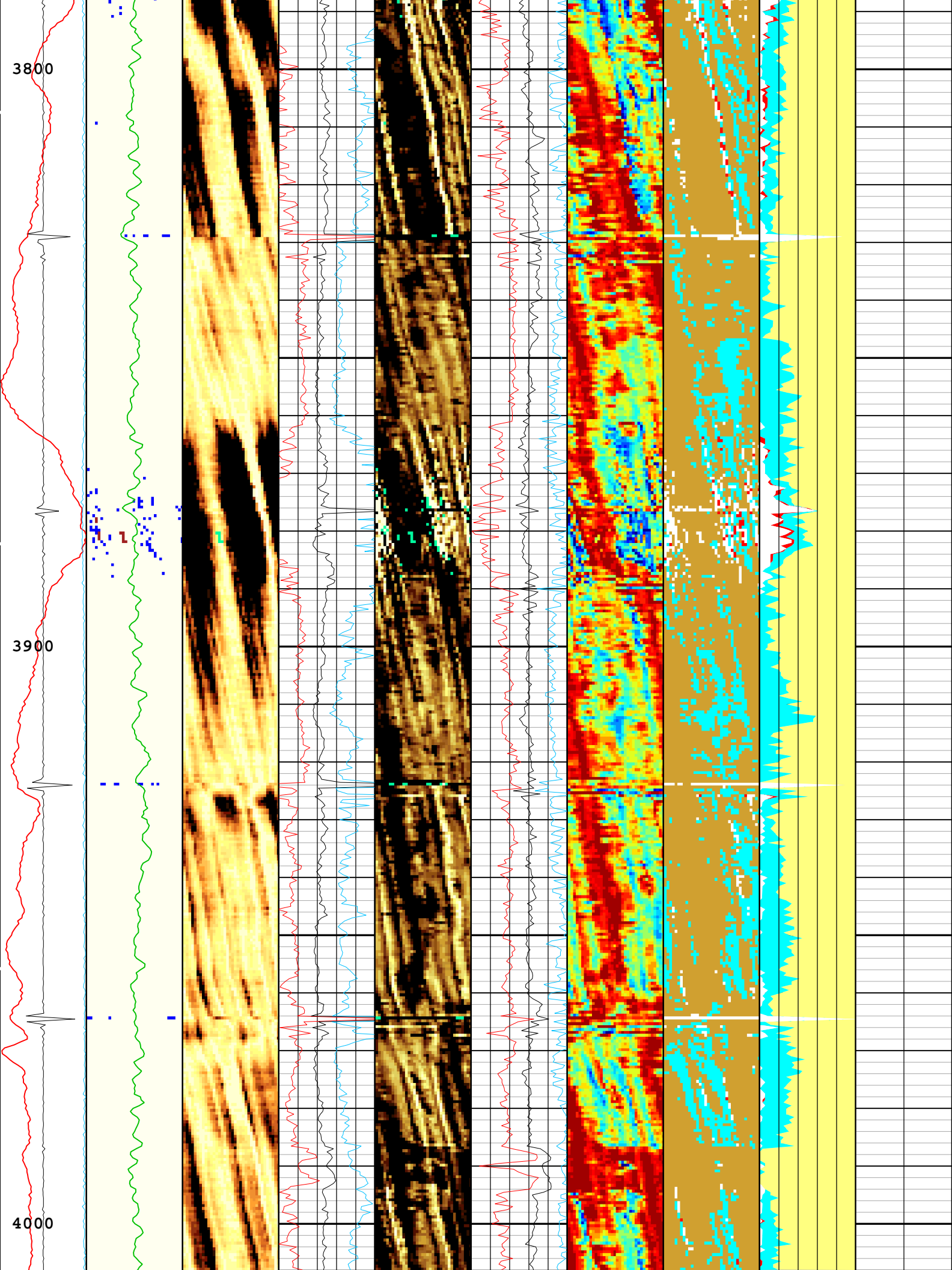


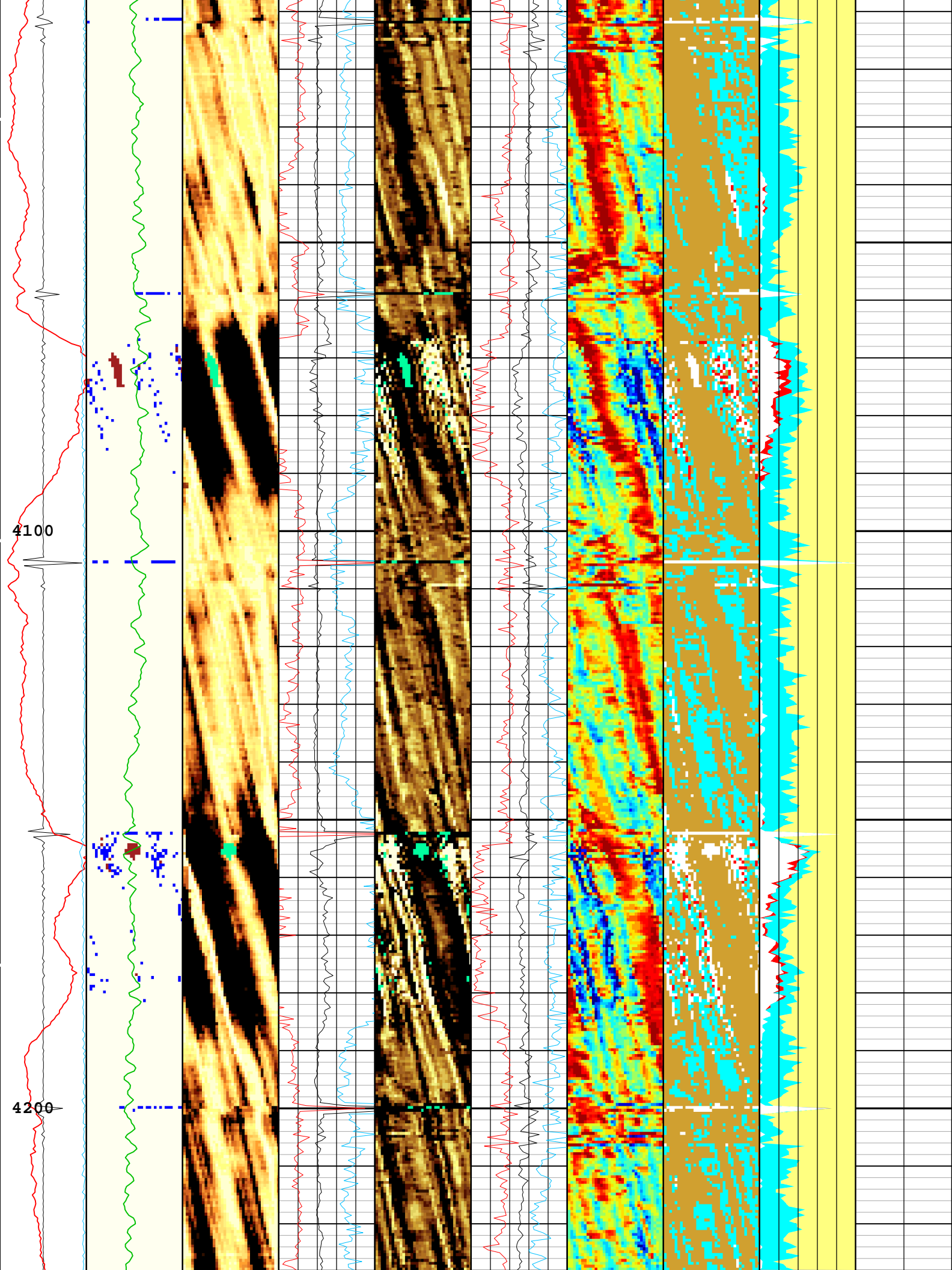


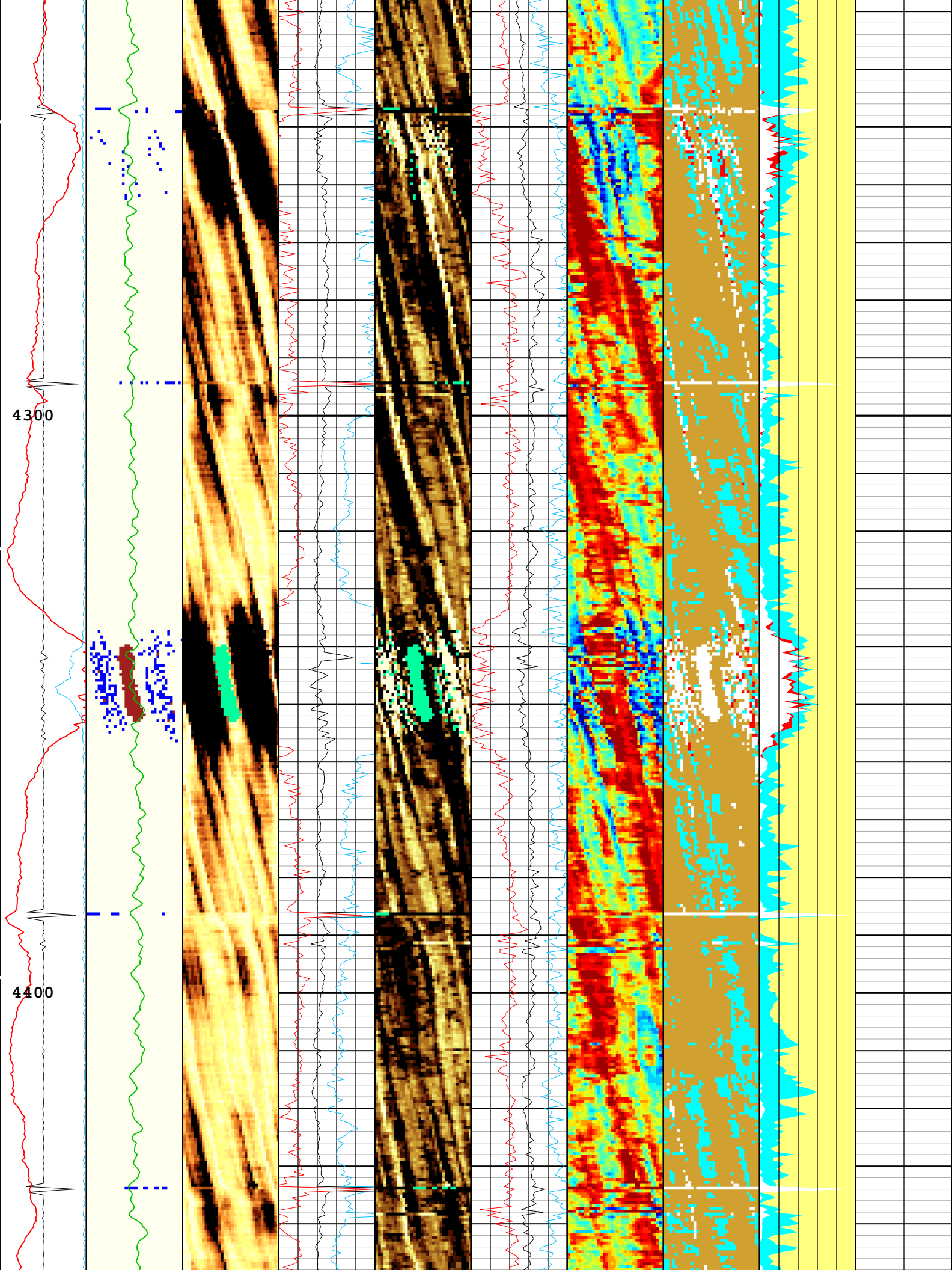




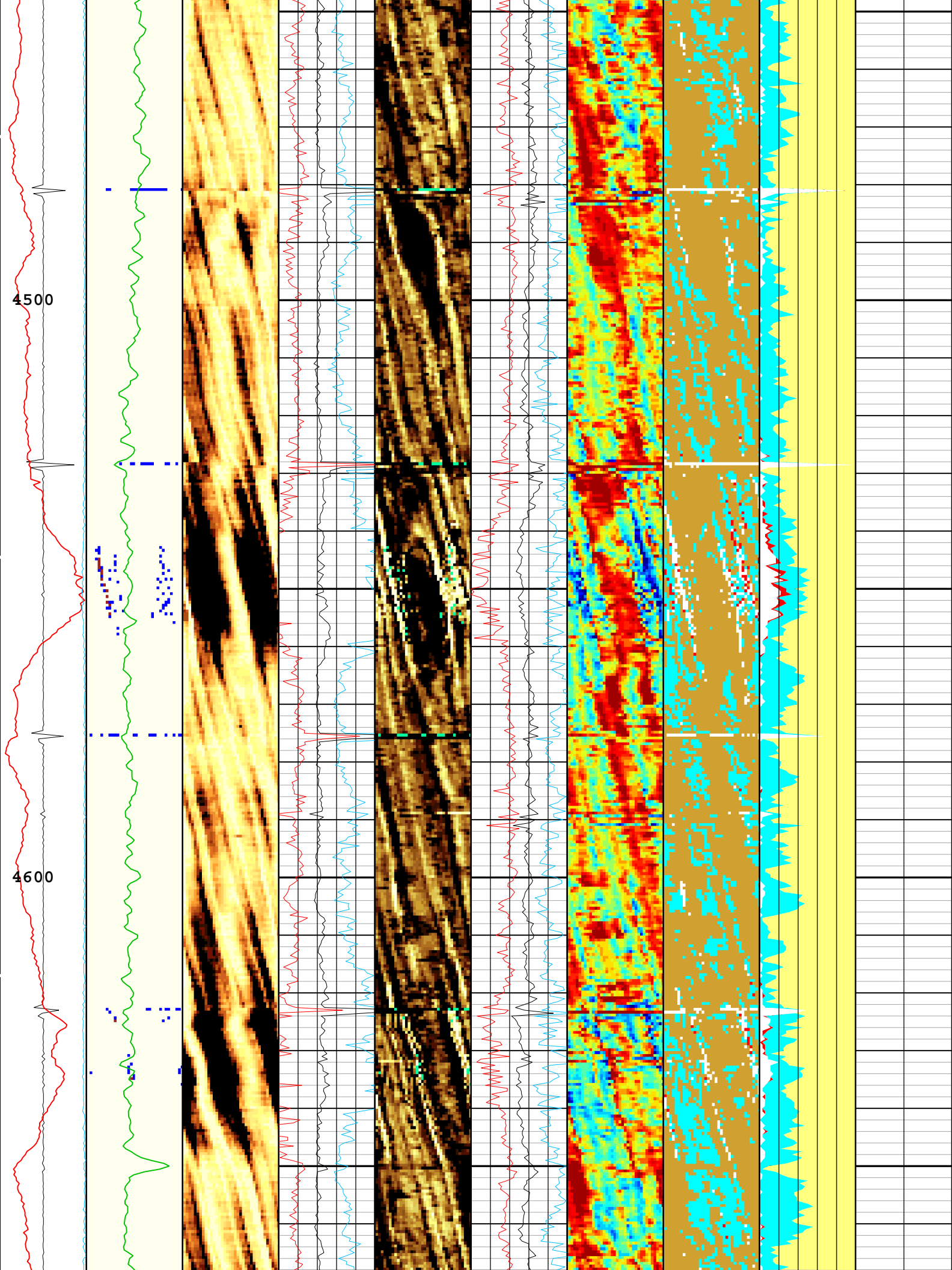


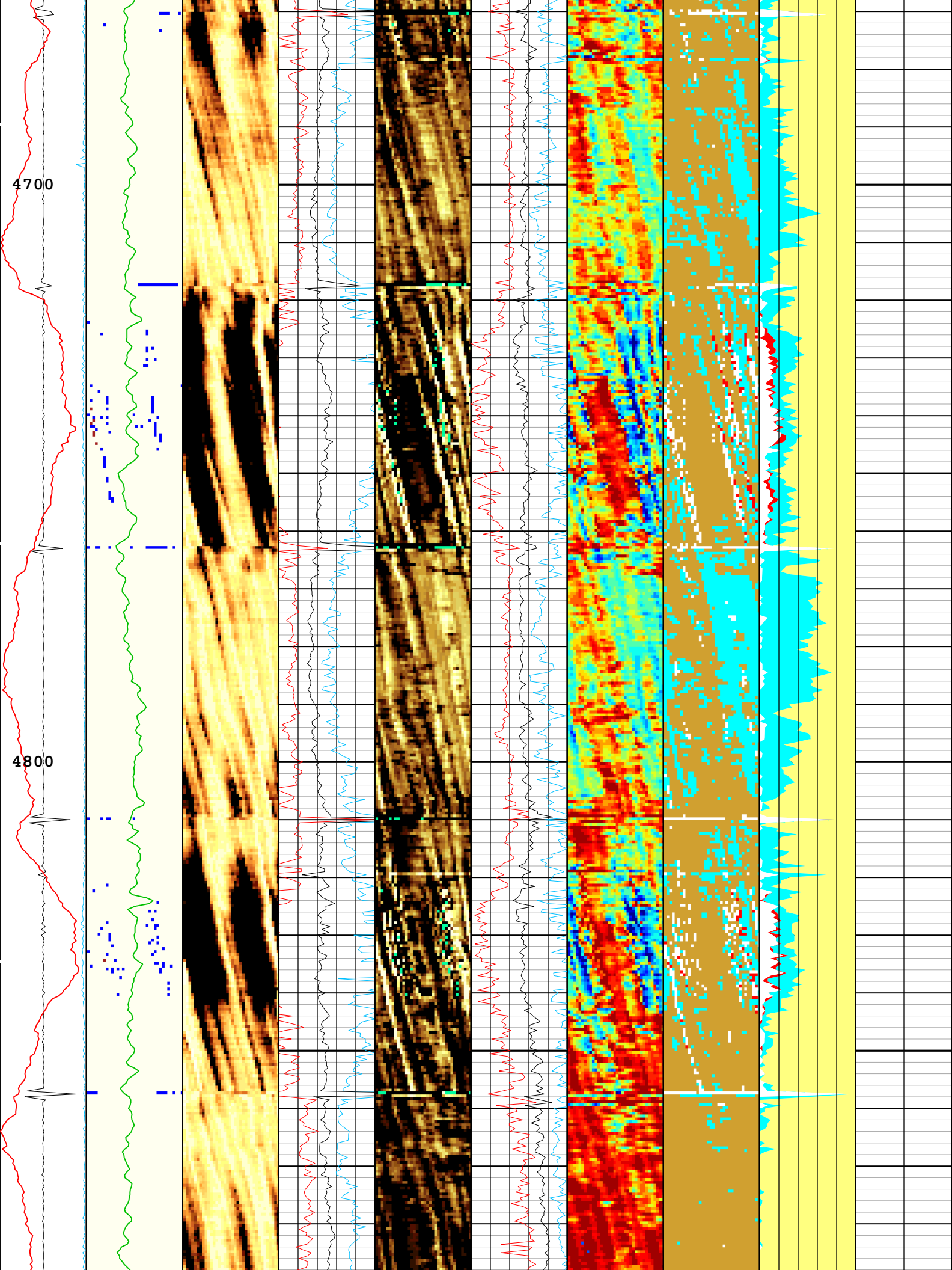


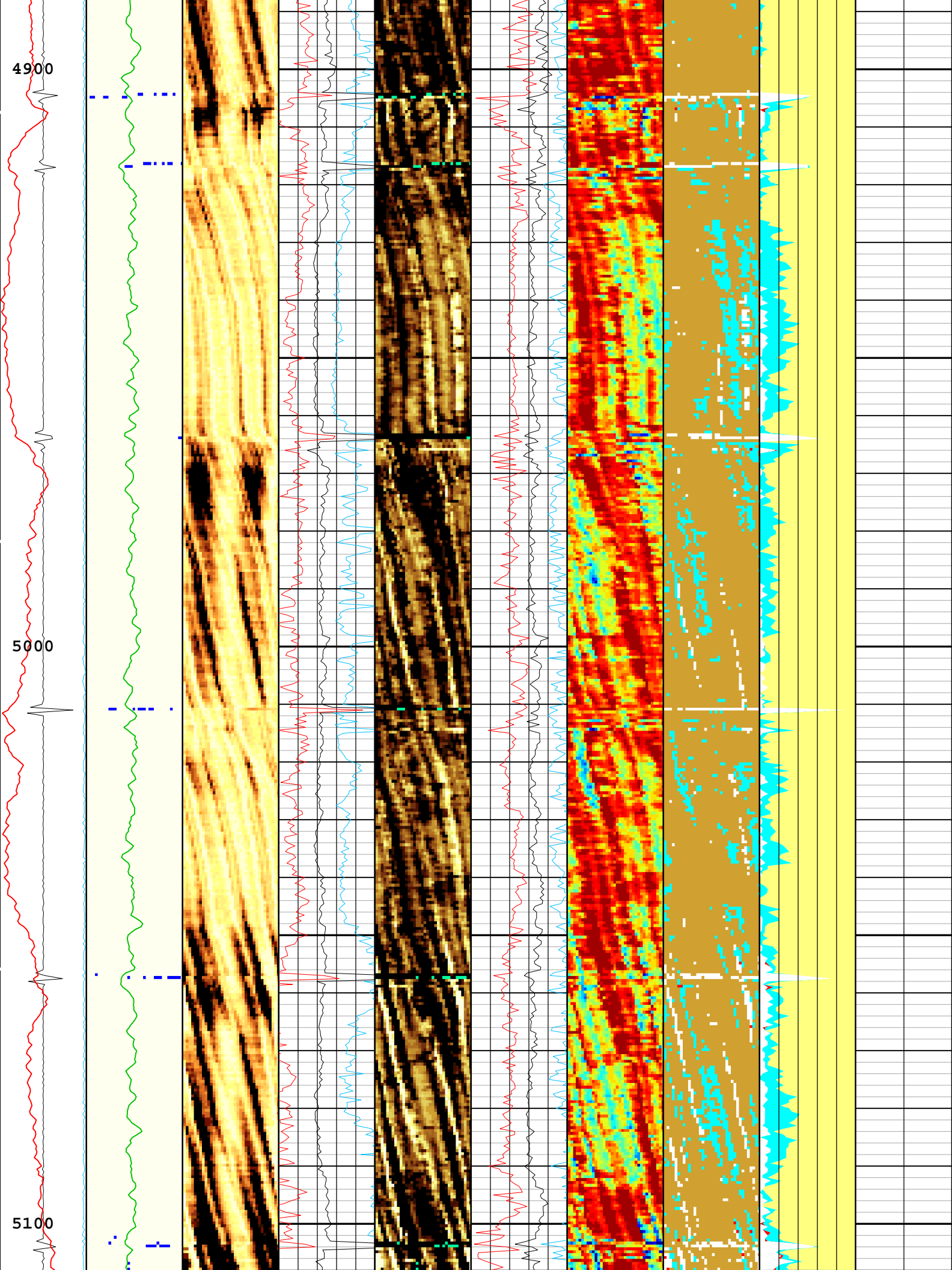




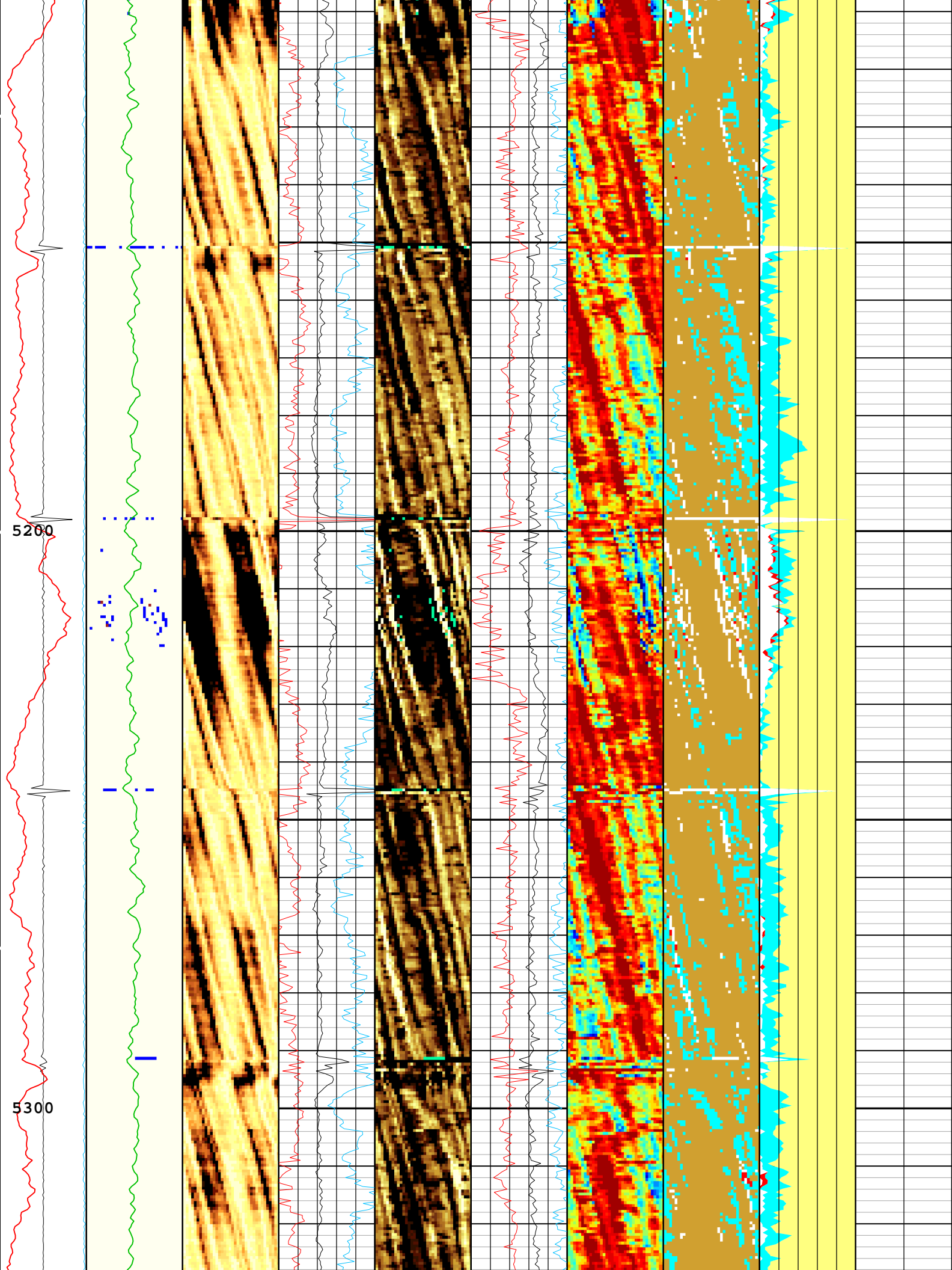


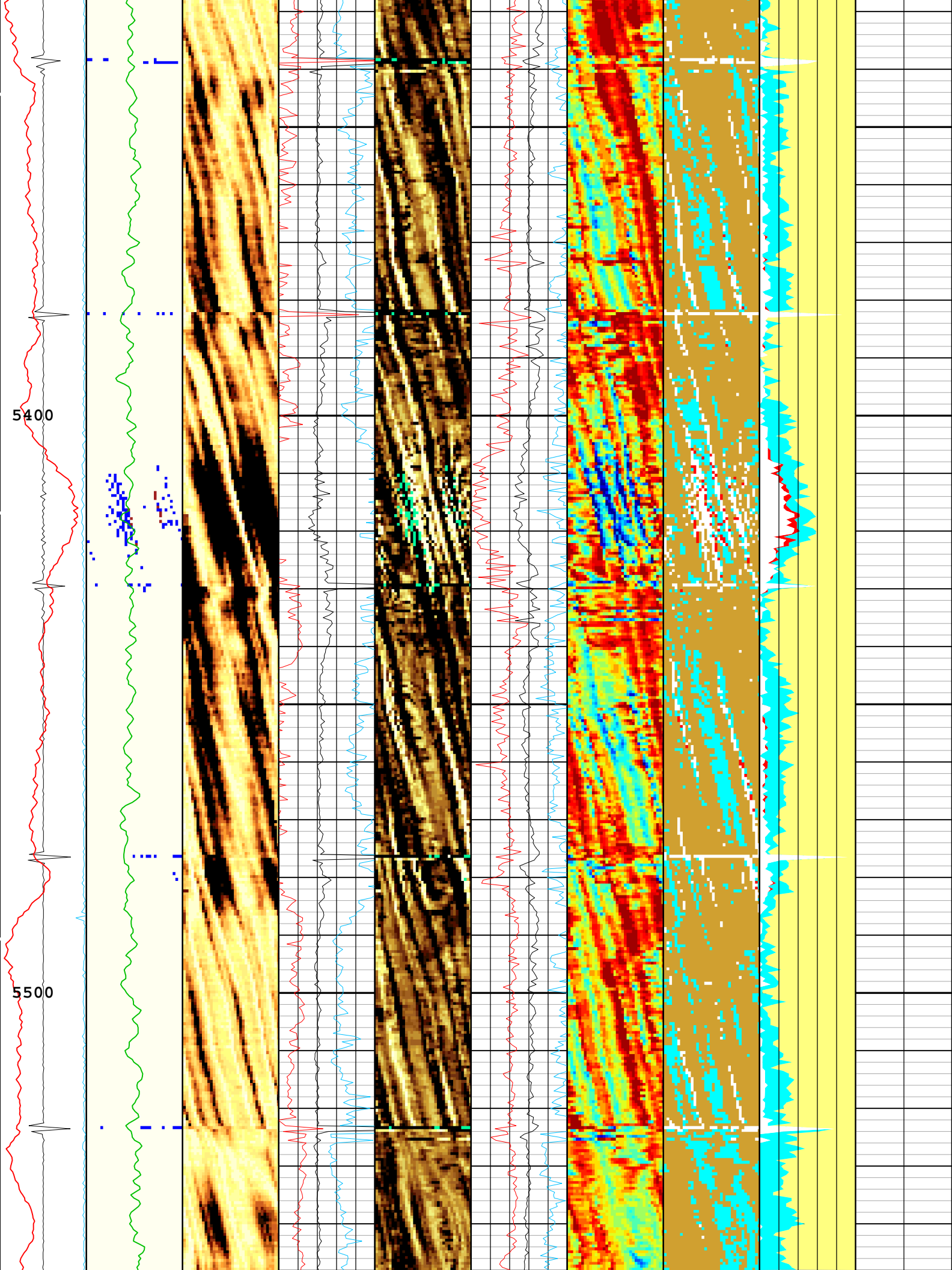


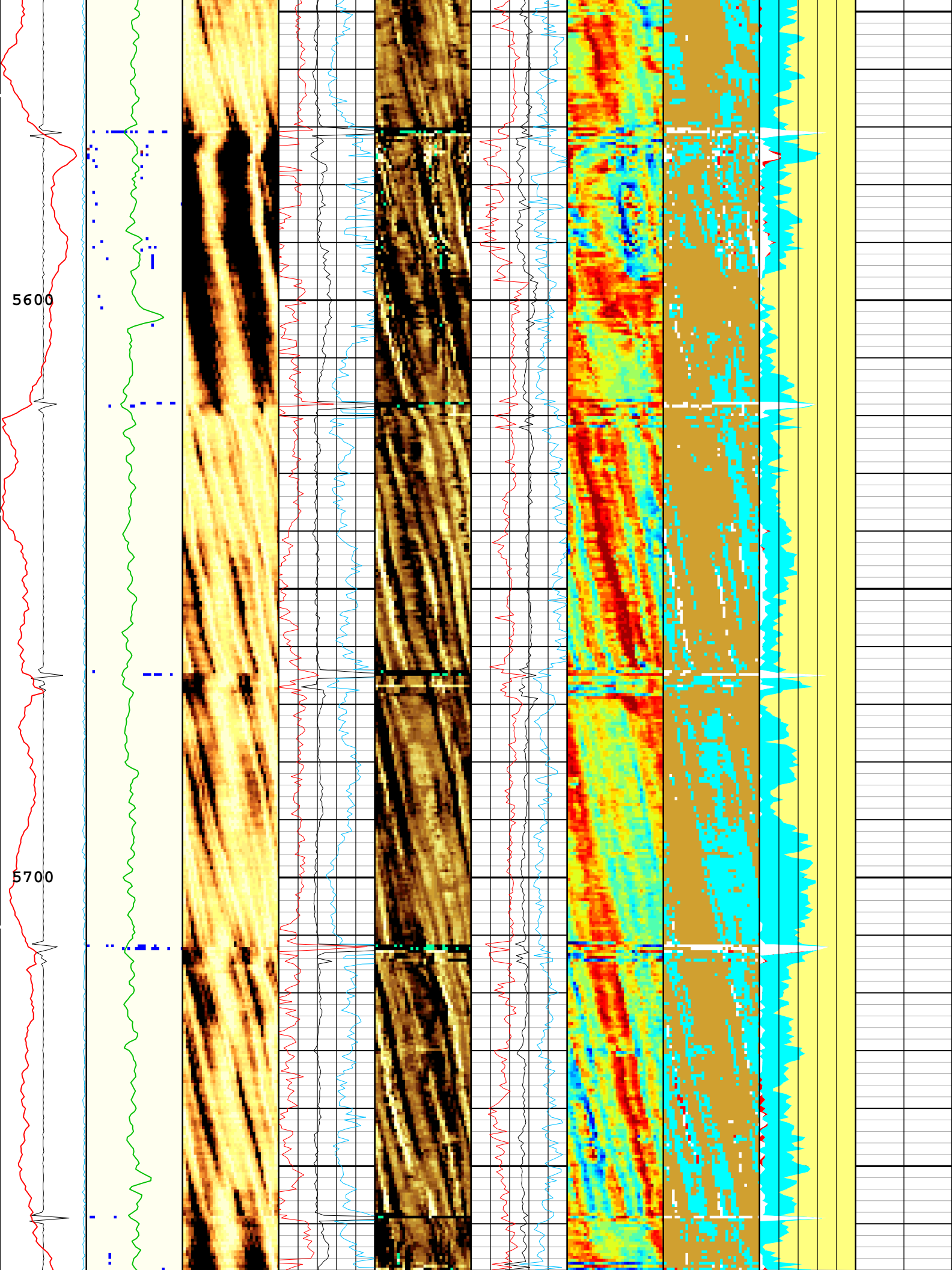


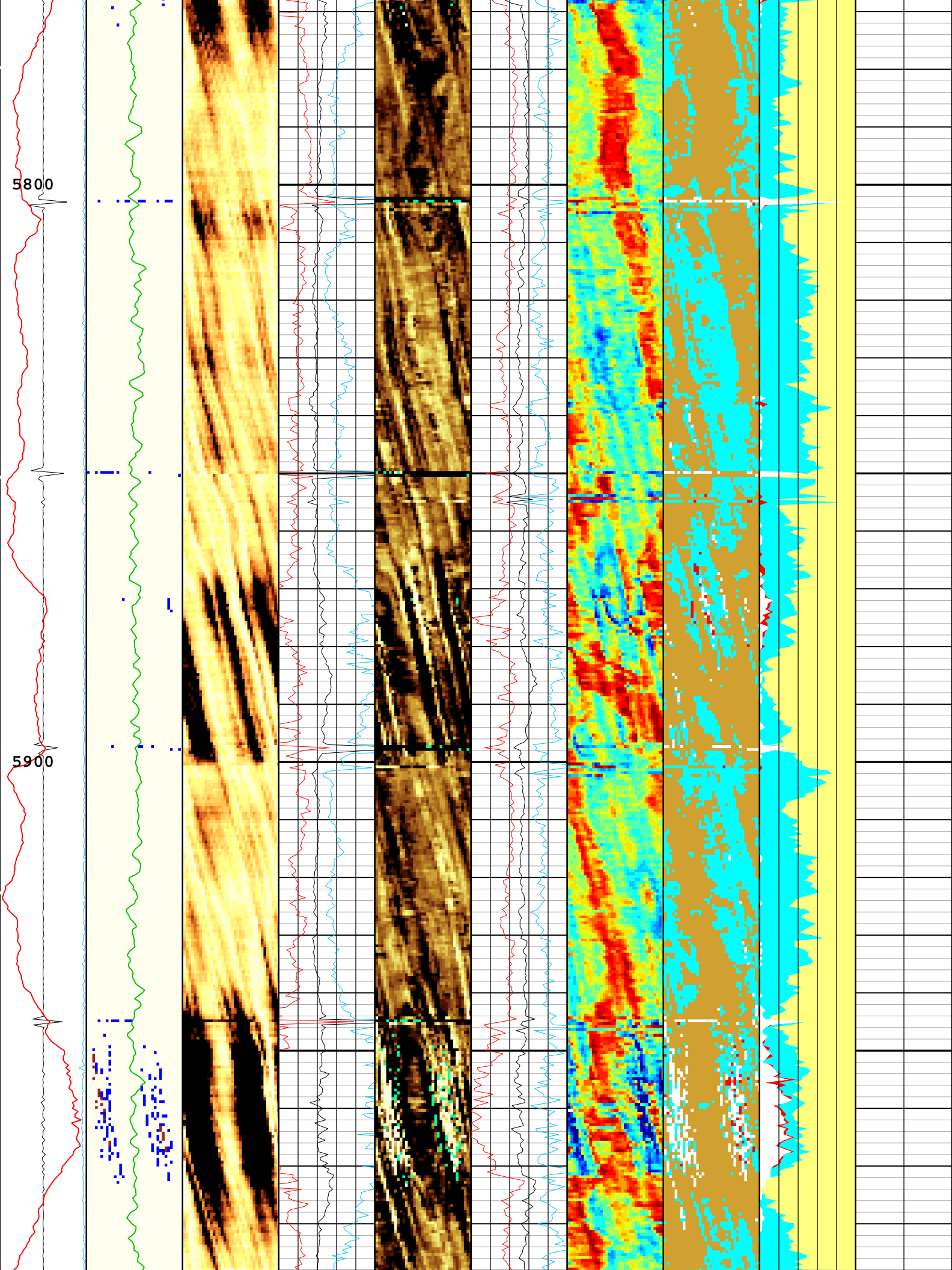


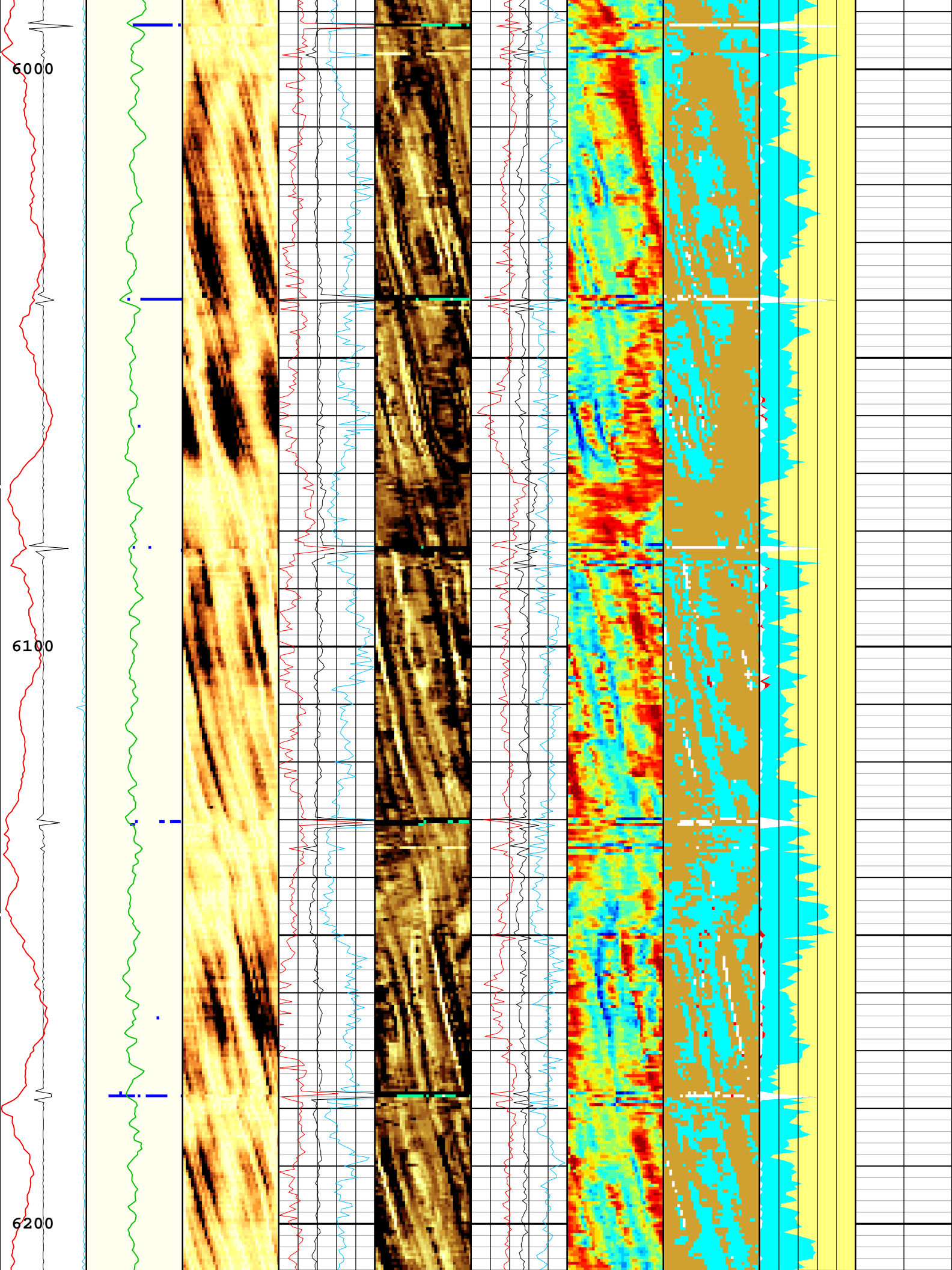




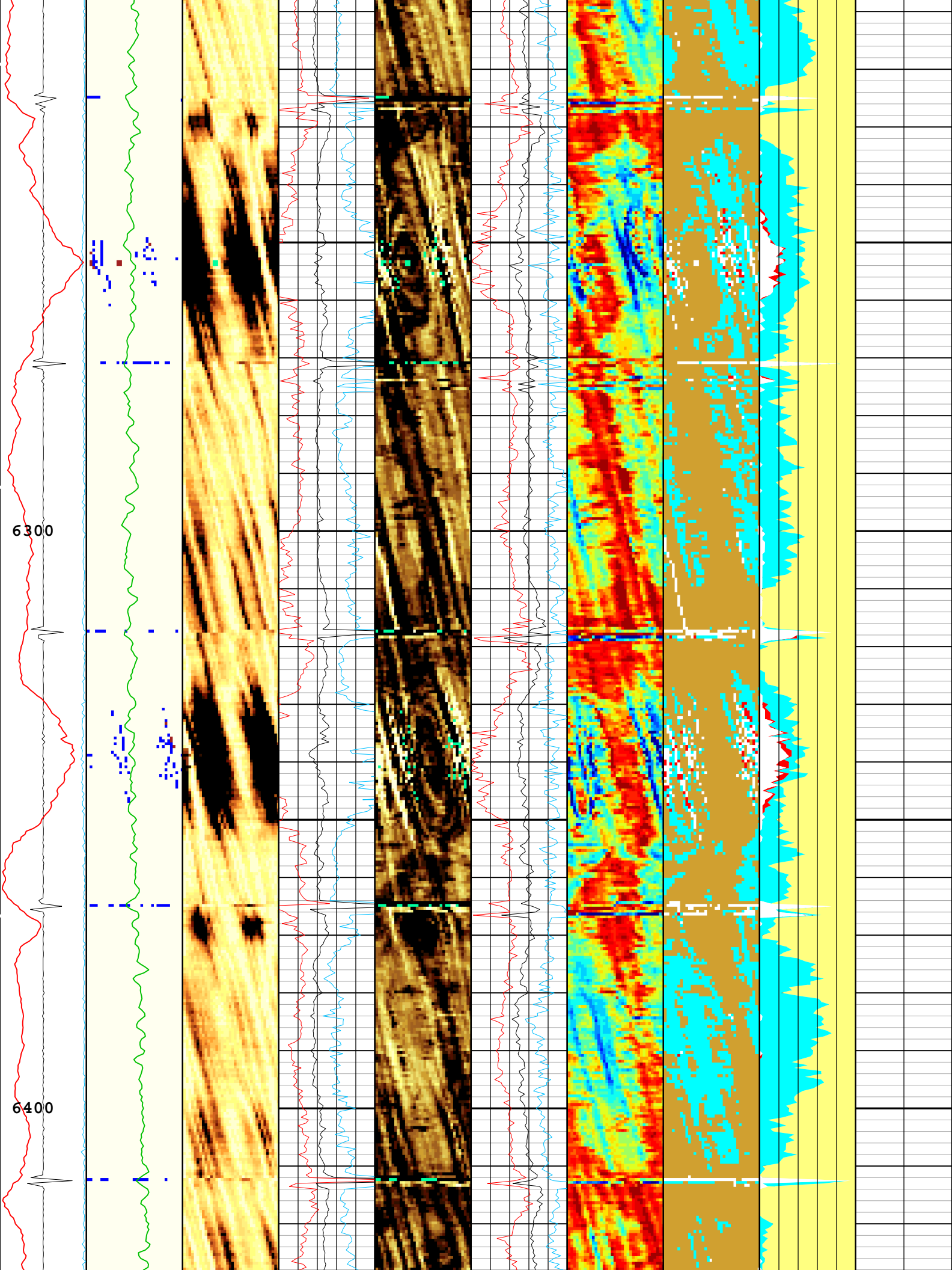


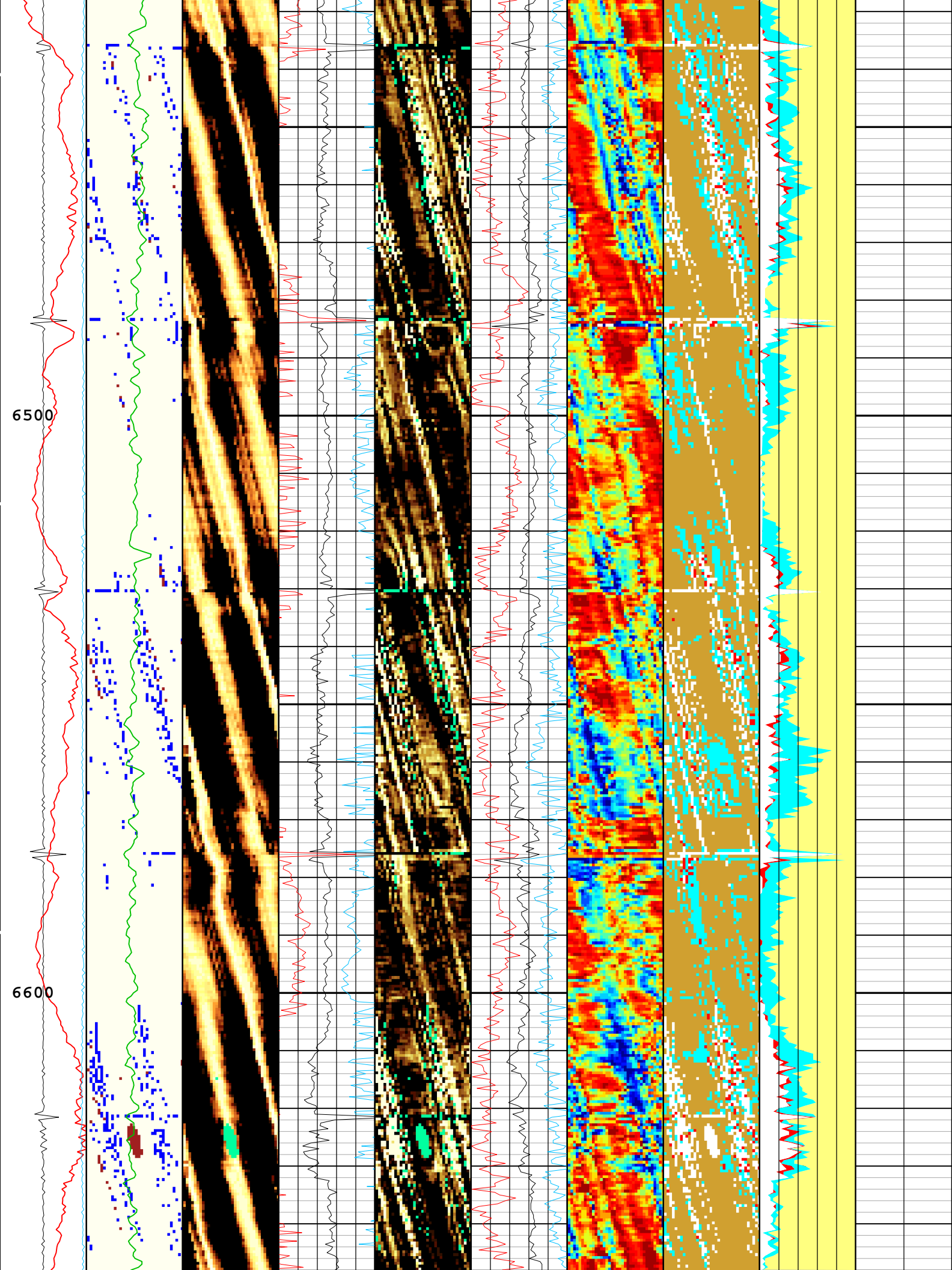


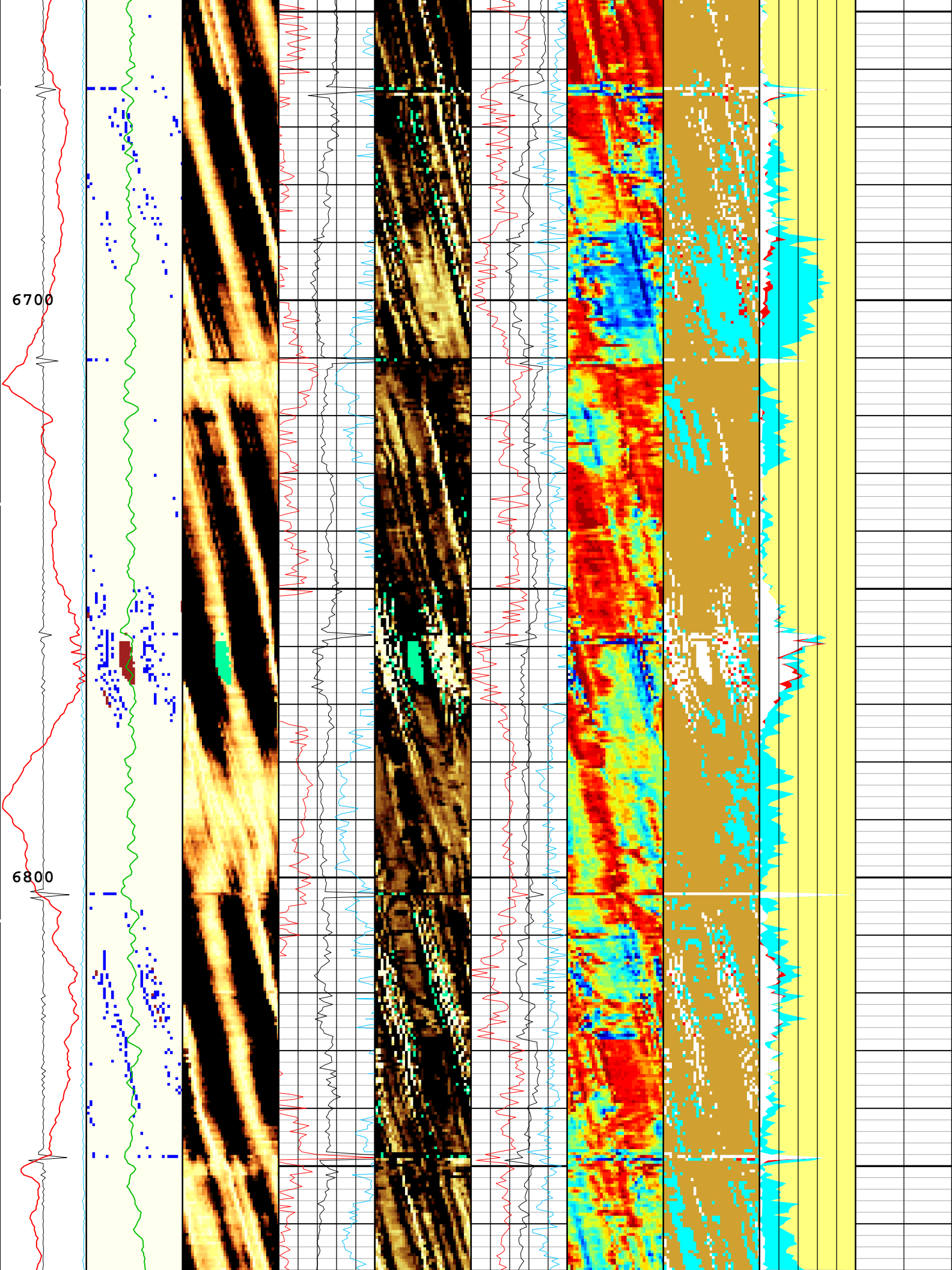




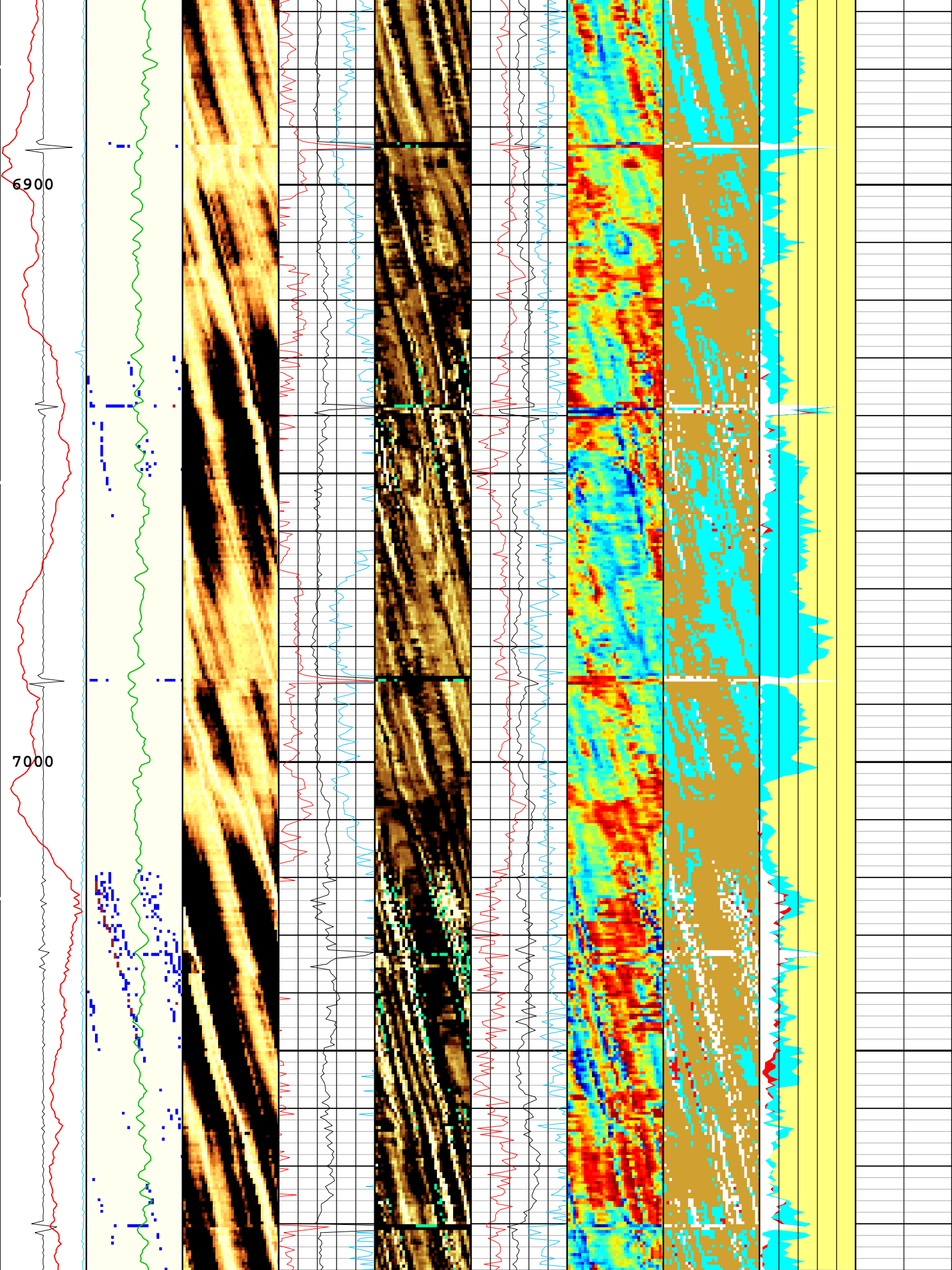


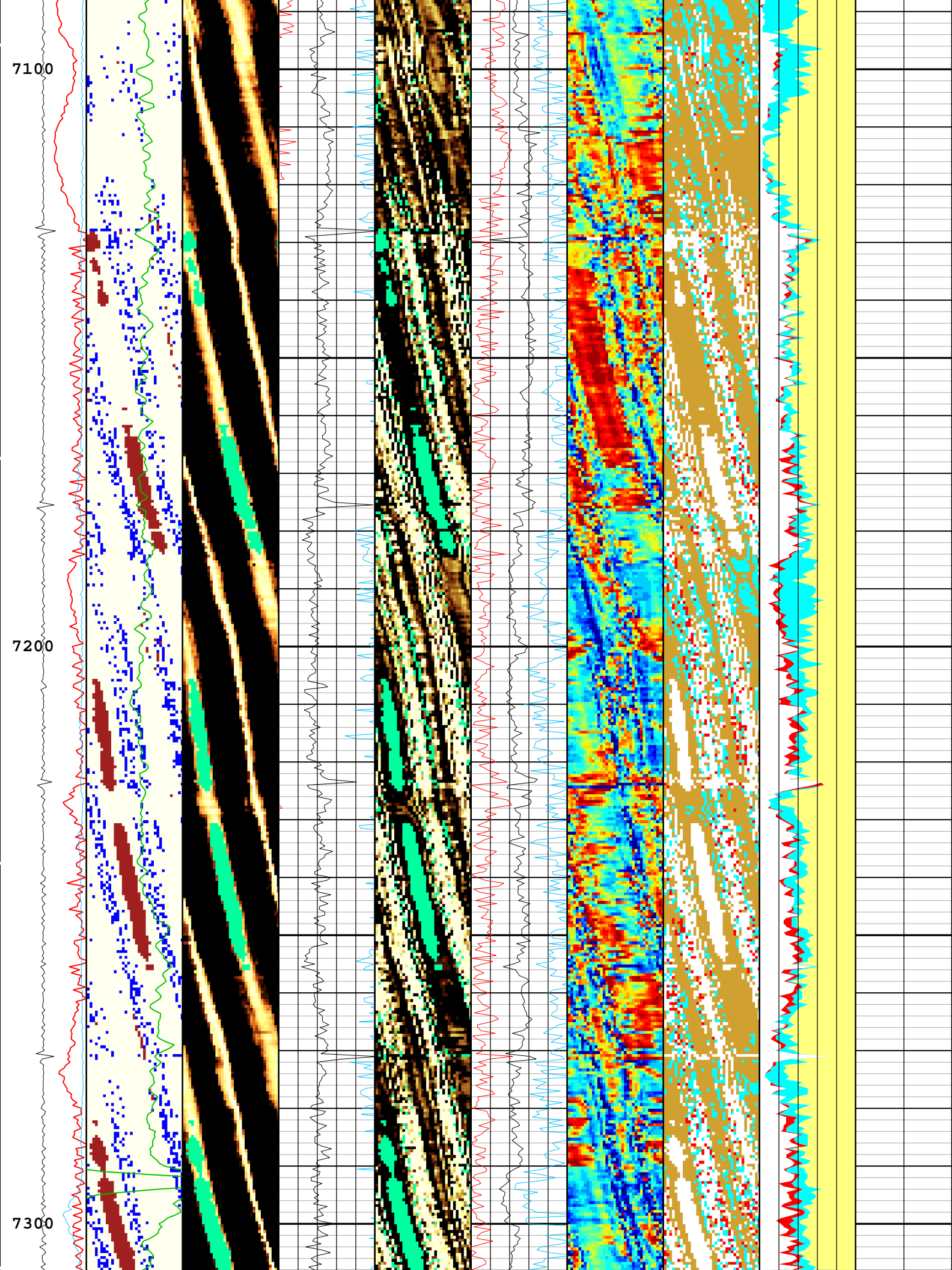


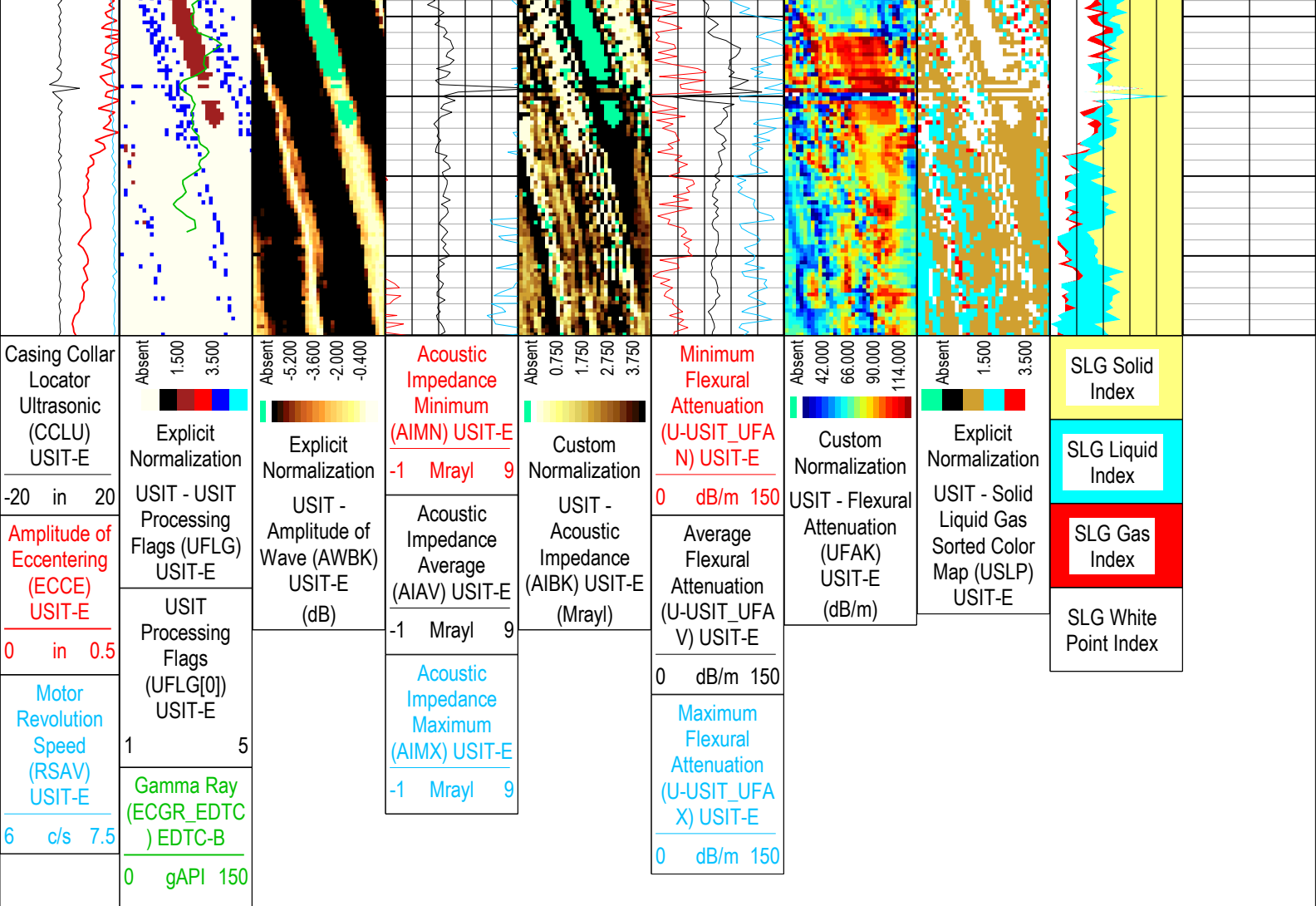












TIME\_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

- 1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :

5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :
- UTIM Error

Pulse Origin Not Detected

WINLEN Error

Casing Thickness Error

Loop Processing Error

Description: USI IBC SLG    Format: Log ( IBC SLG )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 11-Jul-2018 19:58:00

| Channel Processing Parameters |                                      |           |                        |         |
|-------------------------------|--------------------------------------|-----------|------------------------|---------|
| ONE: Parameters               |                                      |           |                        |         |
| Parameter                     | Description                          | Tool      | Value                  | Unit    |
| ISSBAR                        | Barite Mud Presence Flag             | Borehole  | No                     |         |
| BERJ                          | Bad Echo Rejection                   | USIT-E    | On                     |         |
| BHS                           | Borehole Status (Open or Cased Hole) | Borehole  | Cased                  |         |
| BS                            | Bit Size                             | WLSESSION | Depth Zoned            | in      |
| CASING_PRATIO                 | Casing Poisson Ratio                 | USIT-E    | Standard Poisson Ratio |         |
| CBLO                          | Casing Bottom (Logger)               | WLSESSION | 11868.82               | ft      |
| CDEN                          | Cement Density                       | USIT-E    | Depth Zoned            | lbm/gal |
| CDEN                          | Cement Density                       | EDTC-B    | 16.69                  | lbm/gal |
| CMTY(U-USIT_CEMT)             | Cement Type                          | USIT-E    | Light Cement           |         |
| DFD                           | Drilling Fluid Density               | Borehole  | 8.8                    | lbm/gal |
| DFT_CATEGORY                  | Drilling Fluid Type                  | Borehole  | Water                  |         |
| DTMP                          | Drilling Fluid Temperature           | Borehole  | 22C                    | °C      |

|                |  |          |                   |         |
|----------------|--|----------|-------------------|---------|
| DTMD           | Borehole Fluid Slowness                              | Borehole | 206               | us/ft   |
| FD             | Fluid Density  | USIT-E   | 10                | lbm/gal |
| FDII           | FPM Data Interpolation Interval                      | USIT-E   | 0                 | ft      |
| GCSE_DOWN_PASS | Generalized Caliper Selection for WL Log Down Passes | Borehole | BS(RT)            |         |
| GCSE_UP_PASS   | Generalized Caliper Selection for WL Log Up Passes   | Borehole | BS(RT)            |         |
| GR_MULTIPLIER  | Gamma Ray Multiplier                                 | EDTC-B   | 1                 |         |
| HEMA           | Hematite Presence Flag                               | Borehole | No                |         |
| IBC_FRP_OFFSET | IBC Flexural Offset from Free Pipe                   | USIT-E   | 12.23             | dB/m    |
| IBC_FVEL_SEL   | IBC Fluid Velocity Selection                         | USIT-E   | Automatic         |         |
| IBC_OFFSET_SEL | IBC Flexural Offset Selector                         | USIT-E   | UFAO              |         |
| IBC_ZMUD_SEL   | IBC Mud Impedance Selection                          | USIT-E   | Theoretical       |         |
| ICE_PROCESS    | ICE Processing                                       | USIT-E   | Yes               |         |
| IMAR           | Image Rotation                                       | USIT-E   | Off               |         |
| MEAS_WLEN      | Tcube Processing Window Length in Measurement Mode   | USIT-E   | 22.44             | us      |
| MUD_N_FRP      | Free Pipe Mud Normalization Factor                   | USIT-E   | 1.36              |         |
| MUD_N_THE      | Theoretical Mud Normalization Factor                 | USIT-E   | 1.15              |         |
| RCOD           | Reference Calibrator Outer Diameter                  | USIT-E   | 4.5               | in      |
| RCSO           | Reference Calibrator Standoff                        | USIT-E   | 0.842             | in      |
| RCTH           | Reference Calibrator Thickness                       | USIT-E   | 0.216             | in      |
| SOCN           | Standoff Distance                                    | EDTC-B   | 0.125             | in      |
| SOCO           | Standoff Correction Option                           | EDTC-B   | No                |         |
| THDH           | Maximum Search Thickness (percentage of nominal)     | USIT-E   | 130               | %       |
| THDL           | Minimum Search Thickness (percentage of nominal)     | USIT-E   | 70                | %       |
| TPOS_EDTC      | Tool Position: Centered or Eccentered                | EDTC-B   | Eccentered        |         |
| U-USIT_DFSZ    | Drilling Fluid Specific Acoustic Impedance           | USIT-E   | 1.6               | Mrayl   |
| U-USIT_UFAO    | SIT Flexural Attenuation Offset                      | USIT-E   | -10.51            | dB/m    |
| U-USIT_UIAP    | IBC Answer Product Enabled                           | USIT-E   | SolidLiquidGasMap |         |
| USI_RPLUS      | Ultrasonic R+ Processing                             | USIT-E   | No                |         |
| THDP           | Thickness Detection Policy                           | USIT-E   | Fundamental       |         |
| VCAS           | Ultrasonic Transversal Velocity in Casing            | USIT-E   | 51.4              | us/ft   |
| ZCAS           | Acoustic Impedance of Casing                         | USIT-E   | 46.25             | Mrayl   |
| ZINI           | Initial Estimate of Cement Impedance                 | USIT-E   | -1                | Mrayl   |
| ZMUD           | Acoustic Impedance of Mud                            | Borehole | 1.85              | Mrayl   |
| ZTCM           | Acoustic Impedance Threshold for Cement              | USIT-E   | 2.24              | Mrayl   |
| ZTGS           | Acoustic Impedance Threshold for Gas                 | USIT-E   | 0.3               | Mrayl   |

| Depth Zone Parameters |       |              |             |
|-----------------------|-------|--------------|-------------|
| Parameter             | Value | Start ( ft ) | Stop ( ft ) |
| BS                    | 24    | 60           | 108         |
| BS                    | 13.5  | 108          | 2515        |
| BS                    | 8.5   | 2515         | 7350        |
| CDEN                  | 15.44 | 60           | 6600        |
| CDEN                  | 16.27 | 6600         | 7350        |
| All depth are actual. |       |              |             |

| Tool Control Parameters |  |
|-------------------------|--|
|-------------------------|--|

| ONE: Parameters |                                      |        |        |      |
|-----------------|--------------------------------------|--------|--------|------|
| Parameter       | Description                          | Tool   | Value  | Unit |
| AGMN            | Minimum Gain of Cartridge            | USIT-E | -12    | dB   |
| AGMX            | Maximum Gain of Cartridge            | USIT-E | 18     | dB   |
| U-USIT_DDT5     | USIC Downhole Decimation for T5 only | USIT-E | 0_NONE |      |

|               |  |        |                  |    |
|---------------|--|--------|------------------|----|
| DOT(DOS)      | Distance between Opposite Transducer Faces | USIT-E | 1.756            | in |
| EMXV          | EMEX Voltage                               | USIT-E | 90               | V  |
| HRES          | Horizontal Resolution                      | USIT-E | 10 deg           |    |
| IBC_ACQTYPE   | IBC Acquisition type                       | USIT-E | 1 MHz            |    |
| IBC_FLEXDBP   | IBC Flex Duration Before Peak              | USIT-E | 30               | us |
| ICE2_ACQ      | Ultrasonic ICE2 Acquisition                | USIT-E | Yes              |    |
| MOTOR_PROTECT | Motor Protection                           | USIT-E | On               |    |
| UACLV_PERM    | Ultrasonic ACLV Permanent                  | USIT-E | Yes              |    |
| U-USIT_UFWB   | Far Receiver Window Begin Time             | USIT-E | 137              | us |
| U-USIT_UFWE   | Far Receiver Window End Time               | USIT-E | 177              | us |
| U-USIT_UNWB   | Near Receiver Window Begin Time            | USIT-E | 106              | us |
| U-USIT_UNWE   | Near Receiver Window End Time              | USIT-E | 146              | us |
| USFR          | Ultrasonic Sampling Frequency              | USIT-E | 666667           | Hz |
| UPAT          | USIT Emission Pattern                      | USIT-E | Pattern 375 KHz  |    |
| UWKM          | USIT Working Mode                          | USIT-E | 10 deg at 6.0 in |    |
| USSP          | Ultrasonic Service                         | USIT-E | IBC              |    |
| U-USIT_UTAN   | Transducer Angles                          | USIT-E | 33_DEG           |    |
| VRES          | Vertical Resolution                        | USIT-E | 6.0 in           |    |
| WINB          | Window Begin Time                          | USIT-E | 31.88            | us |
| WINE          | Window End Time                            | USIT-E | 71.88            | us |

ONE

IBC SLG Composite Main Pass

| Pass Summary |                |           |          |            |                        |                        |          |             |                       |
|--------------|----------------|-----------|----------|------------|------------------------|------------------------|----------|-------------|-----------------------|
| Run Name     | Pass Objective | Direction | Top      | Bottom     | Start                  | Stop                   | DSC Mode | Depth Shift | Include Parallel Data |
| ONE          | Log[4]:Up      | Up        | 60.89 ft | 7359.02 ft | 28-Jun-2018 3:01:14 PM | 28-Jun-2018 4:41:53 PM | ON       | 6.90 ft     | Yes                   |

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating LLC

Well:Ruegge 3F-4H-N165

ONE: Log[4]:Up:S020

Description: USI IBC SLG Composite    Format: Log ( IBC SLG Composite )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth  
Creation Date: 11-Jul-2018 19:58:42

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - :

2 - UFLG 2 Value within [1.5 - 2.5] - :

3 - UFLG 3 Value within [2.5 - 3.5] - :

4 - UFLG 4    UFLG 5    UFLG 6 Value within [3.5 - 6.5] - :

5 - UFLG 7    UFLG 8    UFLG 9 Value within [6.5 - 10 ] - :

UTIM Error

Pulse Origin Not Detected

WINLEN Error

Casing Thickness Error

Loop Processing Error

TIME\_1900 - Time Marked every 60.00 (s)

Casing Collar Locator Ultrasonic (CCLU) USIT-E

20 in 20

Explicit Normalization USIT - USIT Processing Flags (UFLG)

Absent 1.500 3.500

External Radii Average (ERAV) USIT-E

3 in 2

External Radii Average (ERAV) USIT-E

2 in 3

Internal Radius Averaged Value (IRAV) USIT-E

3 in 2

Internal Radius Averaged Value (IRAV) USIT-E

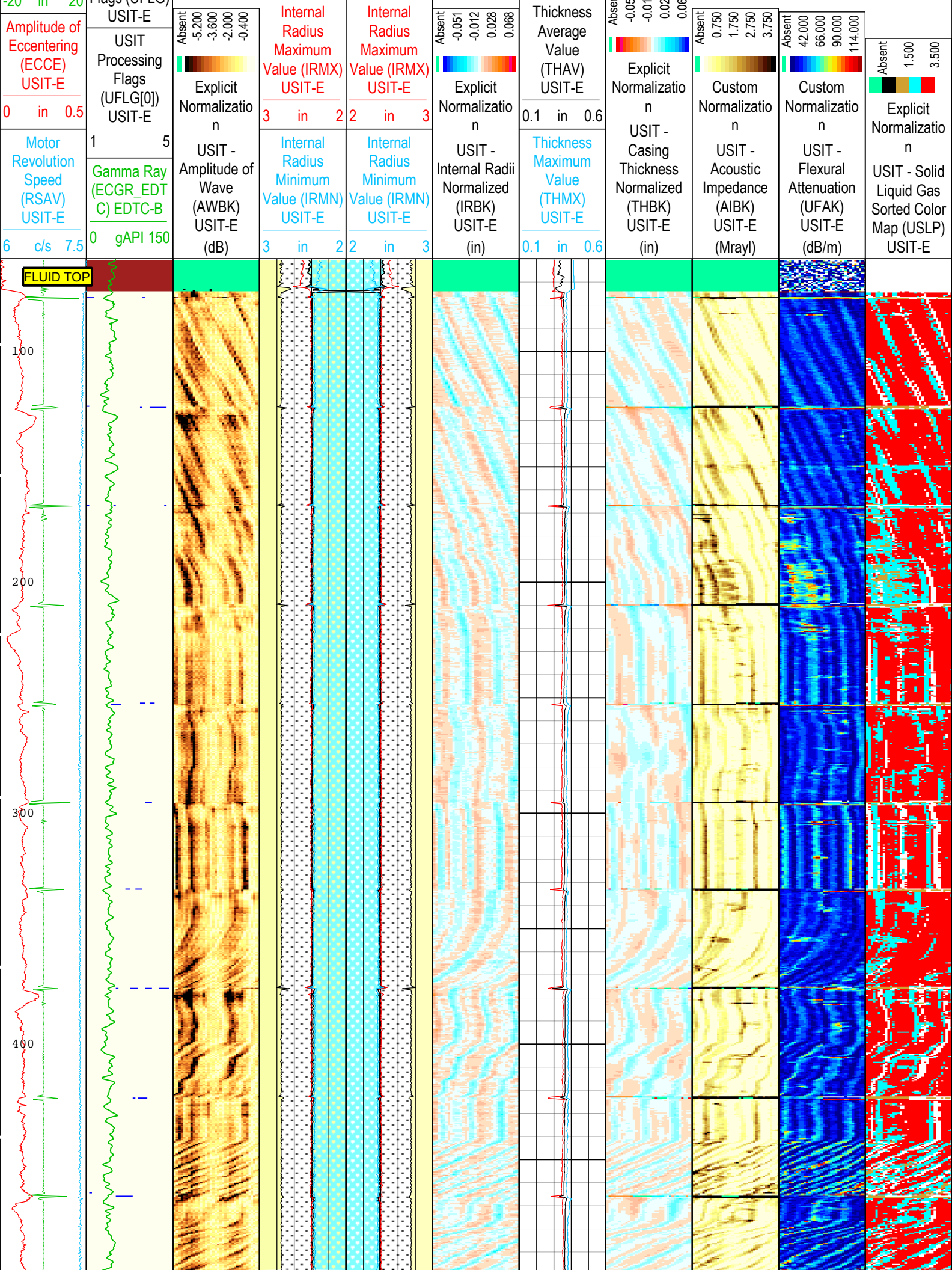
2 in 3

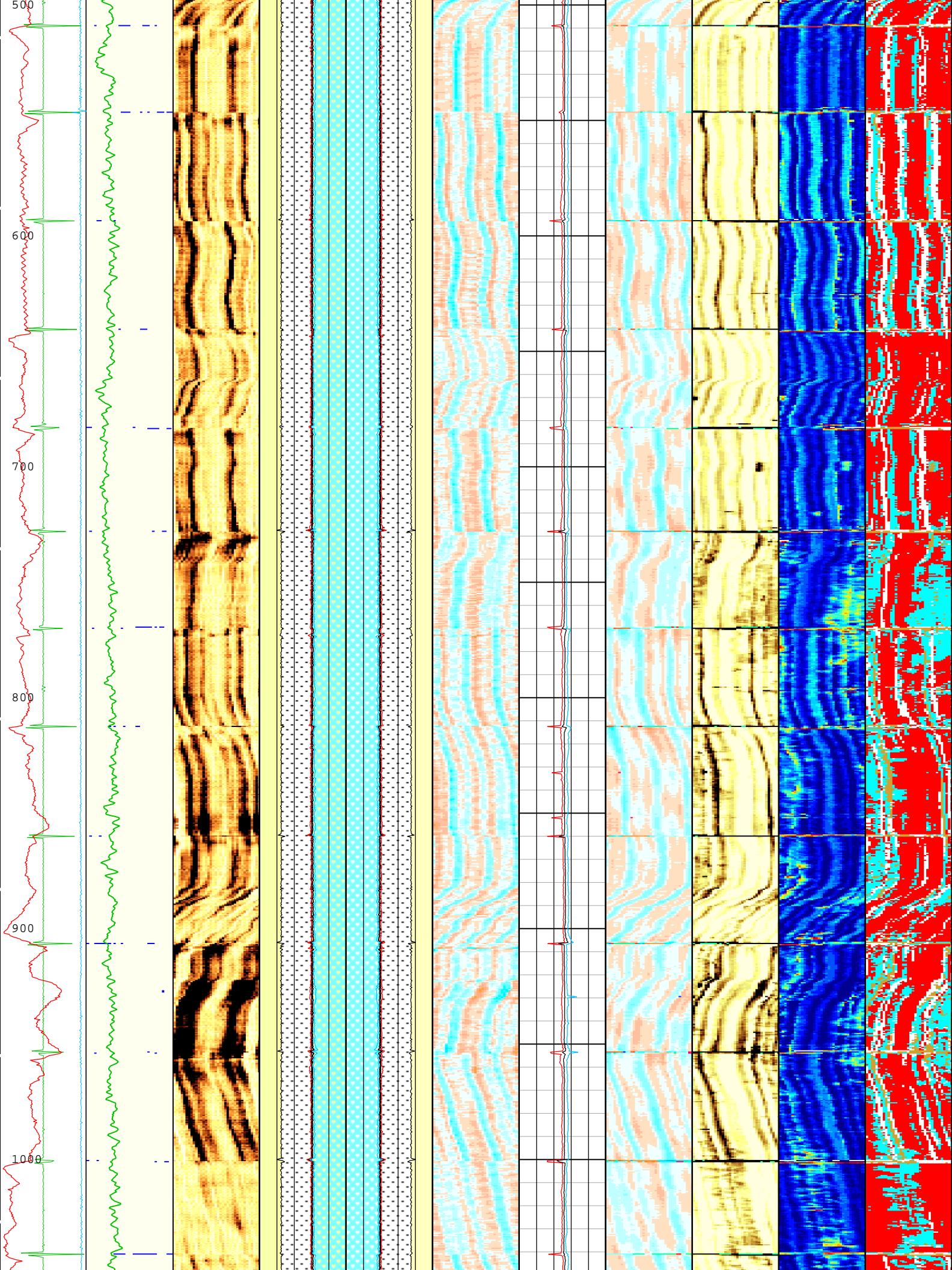
Thickness Minimum Value (THMN) USIT-E

0.1 in 0.6

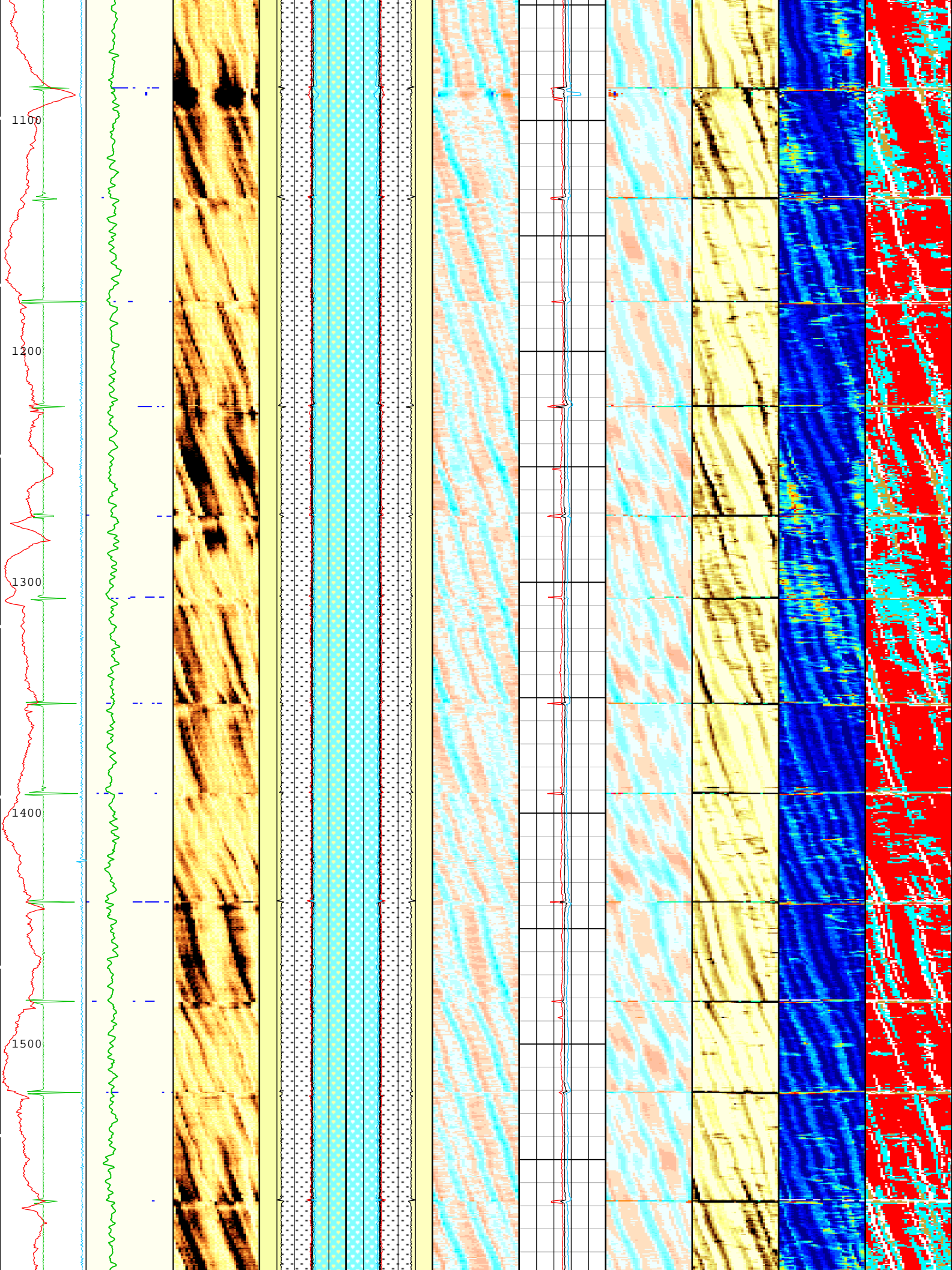
71 11 2 8 8

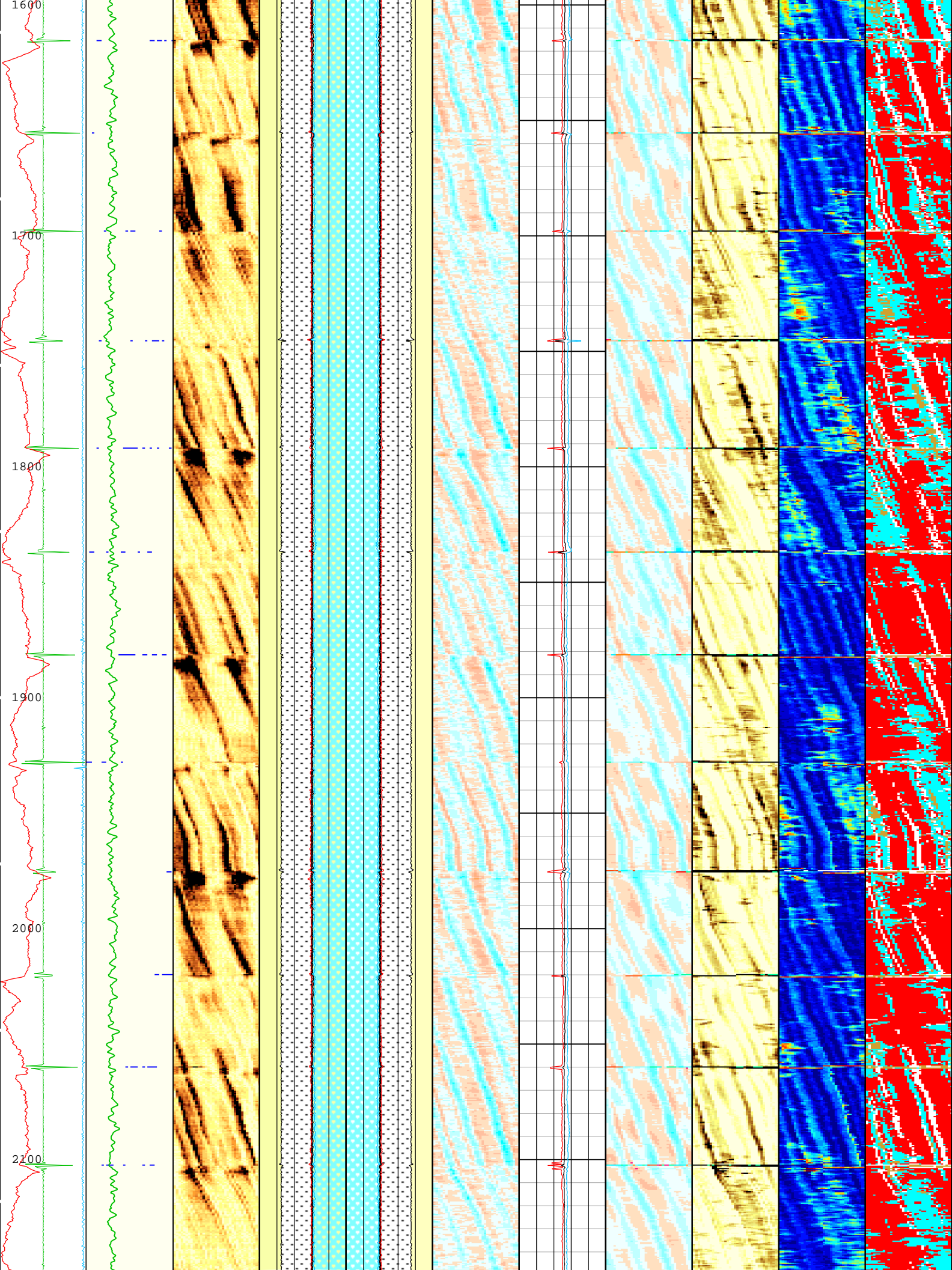




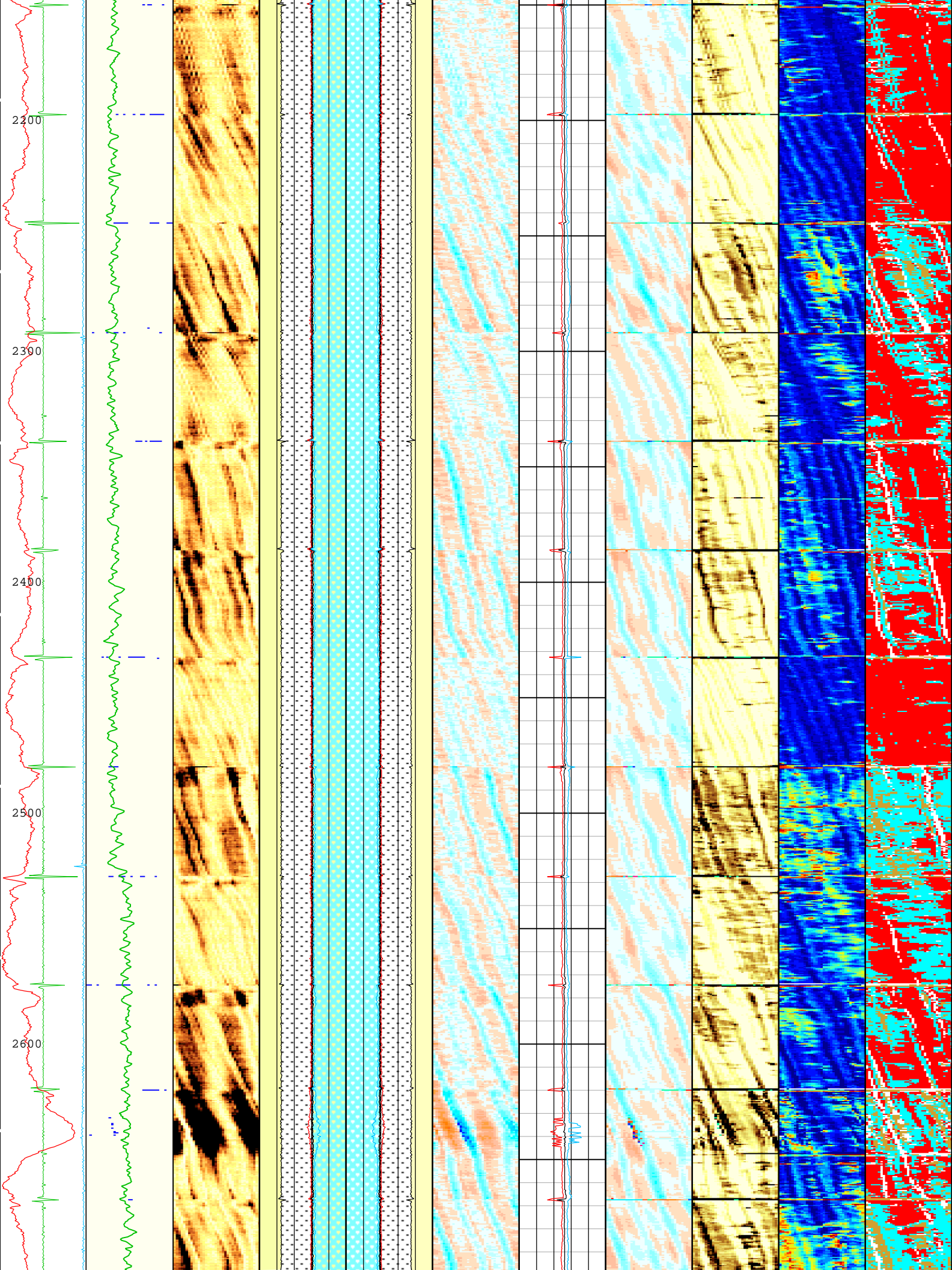




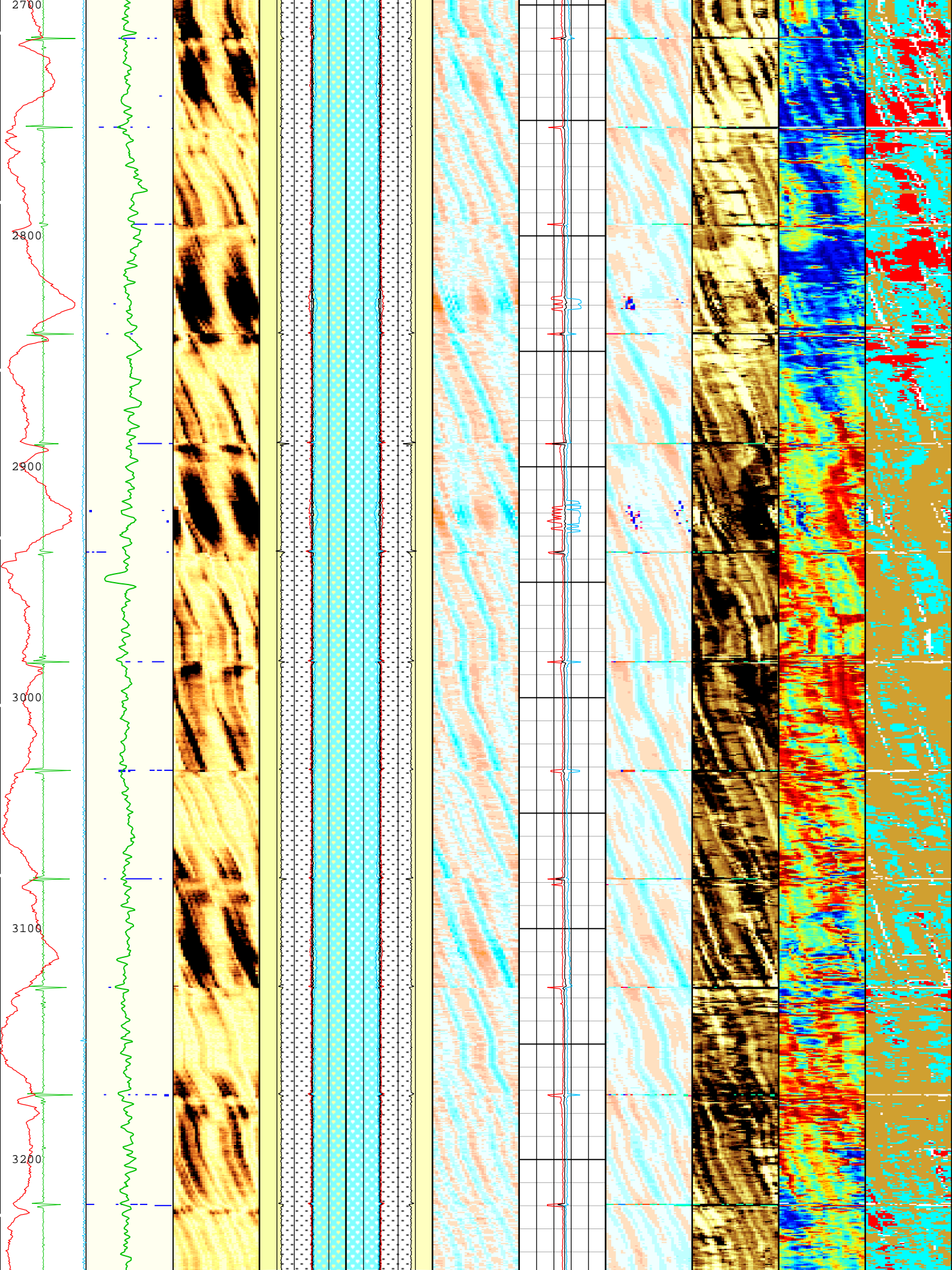


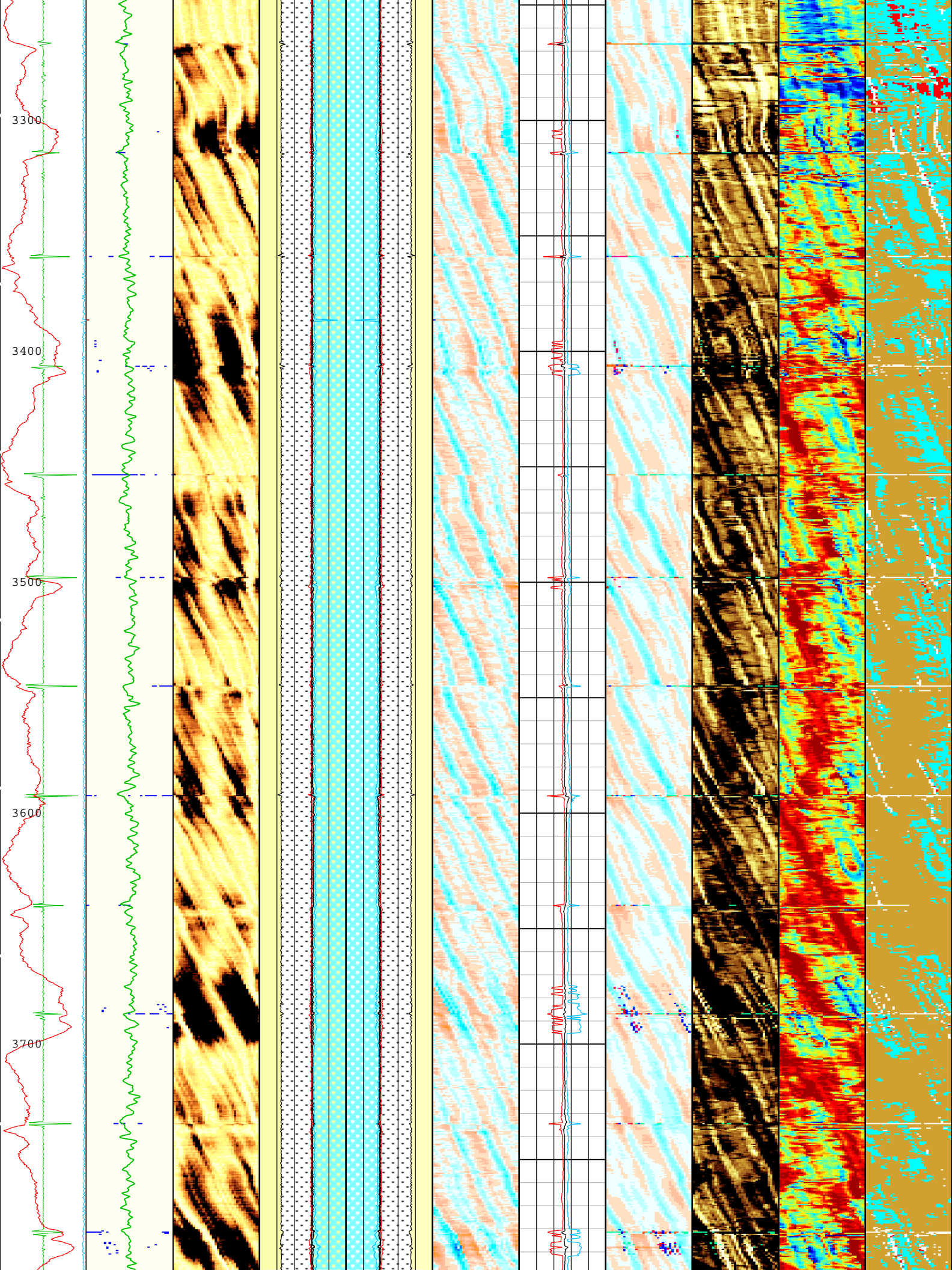




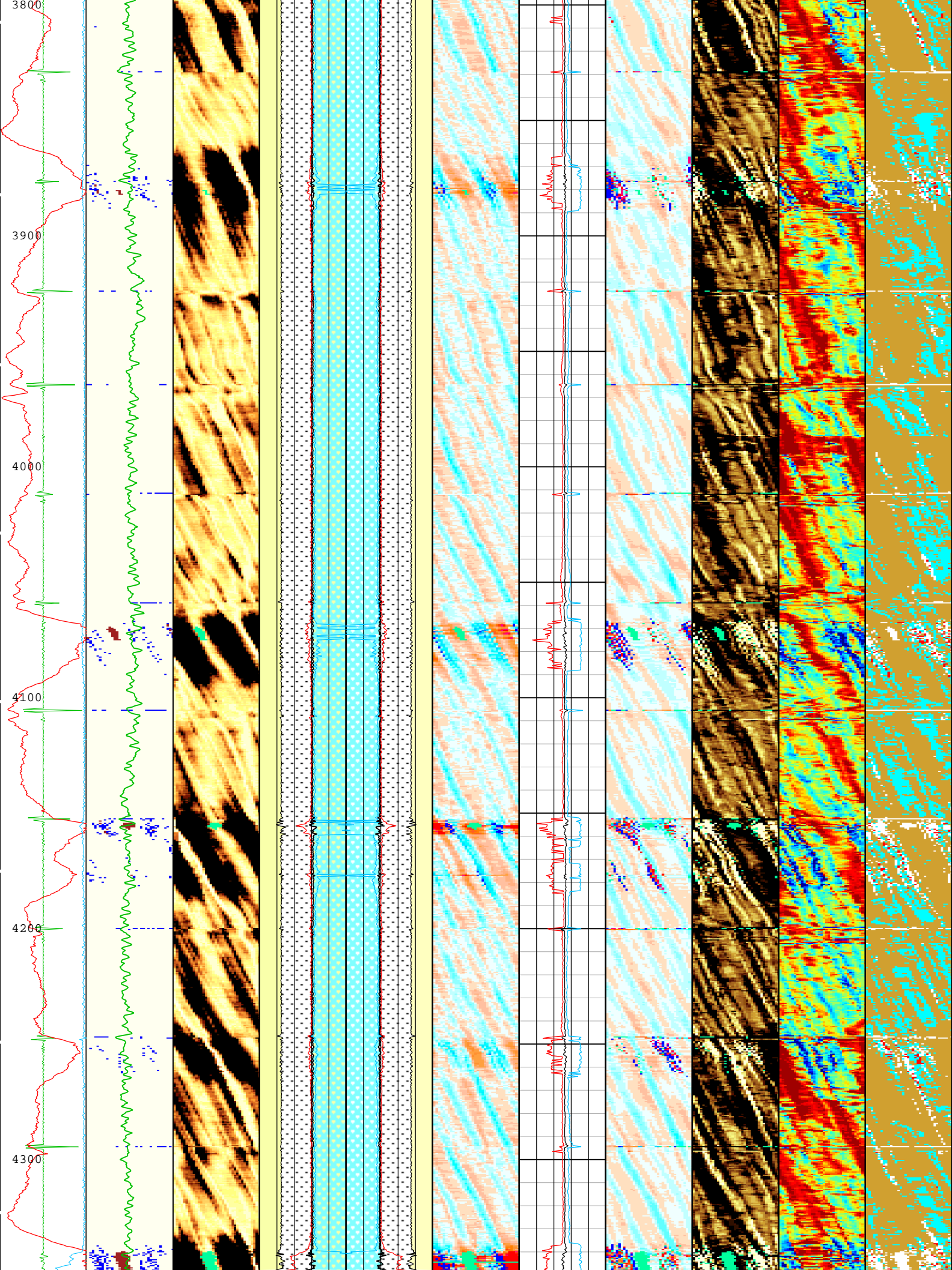


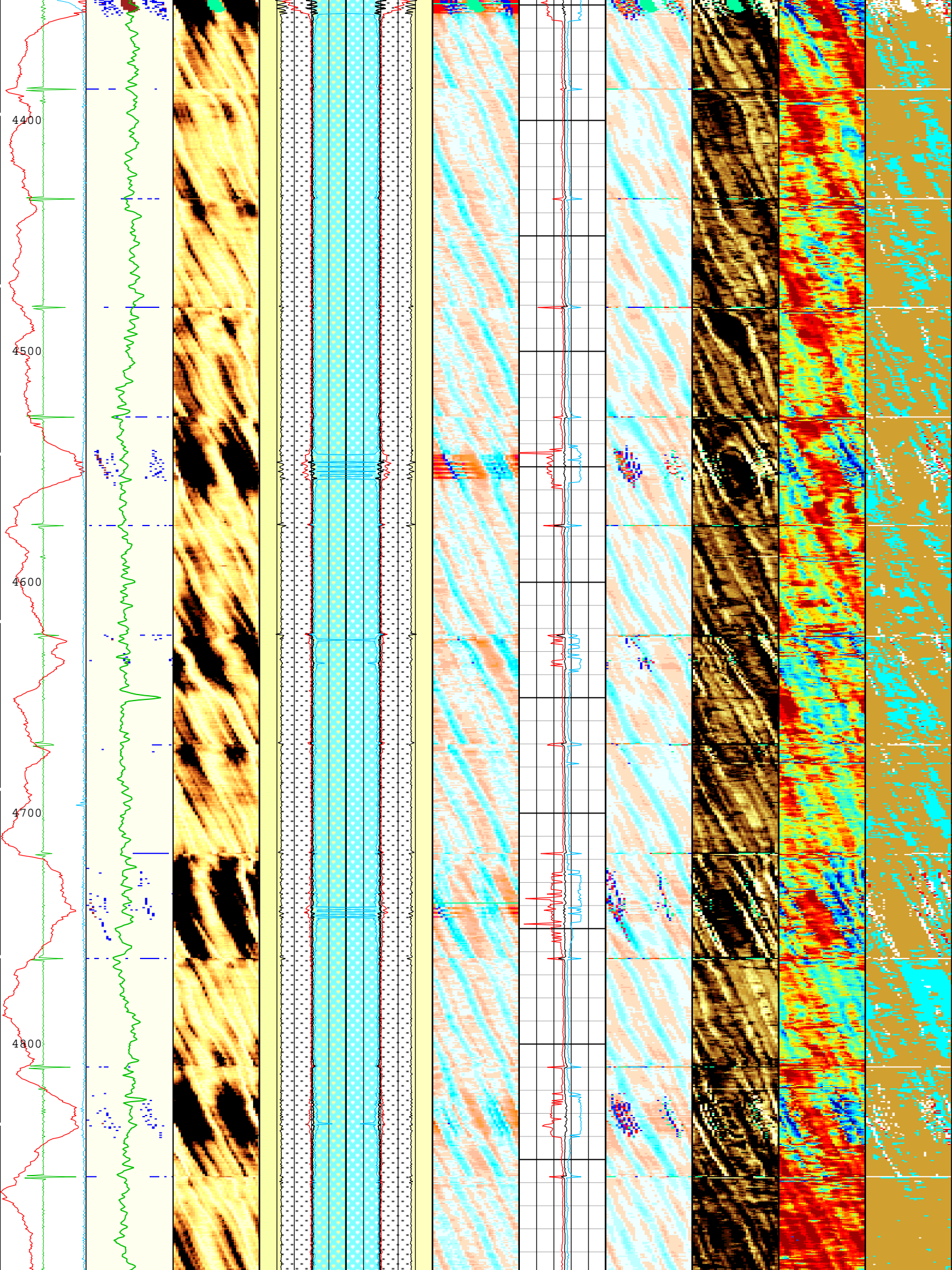




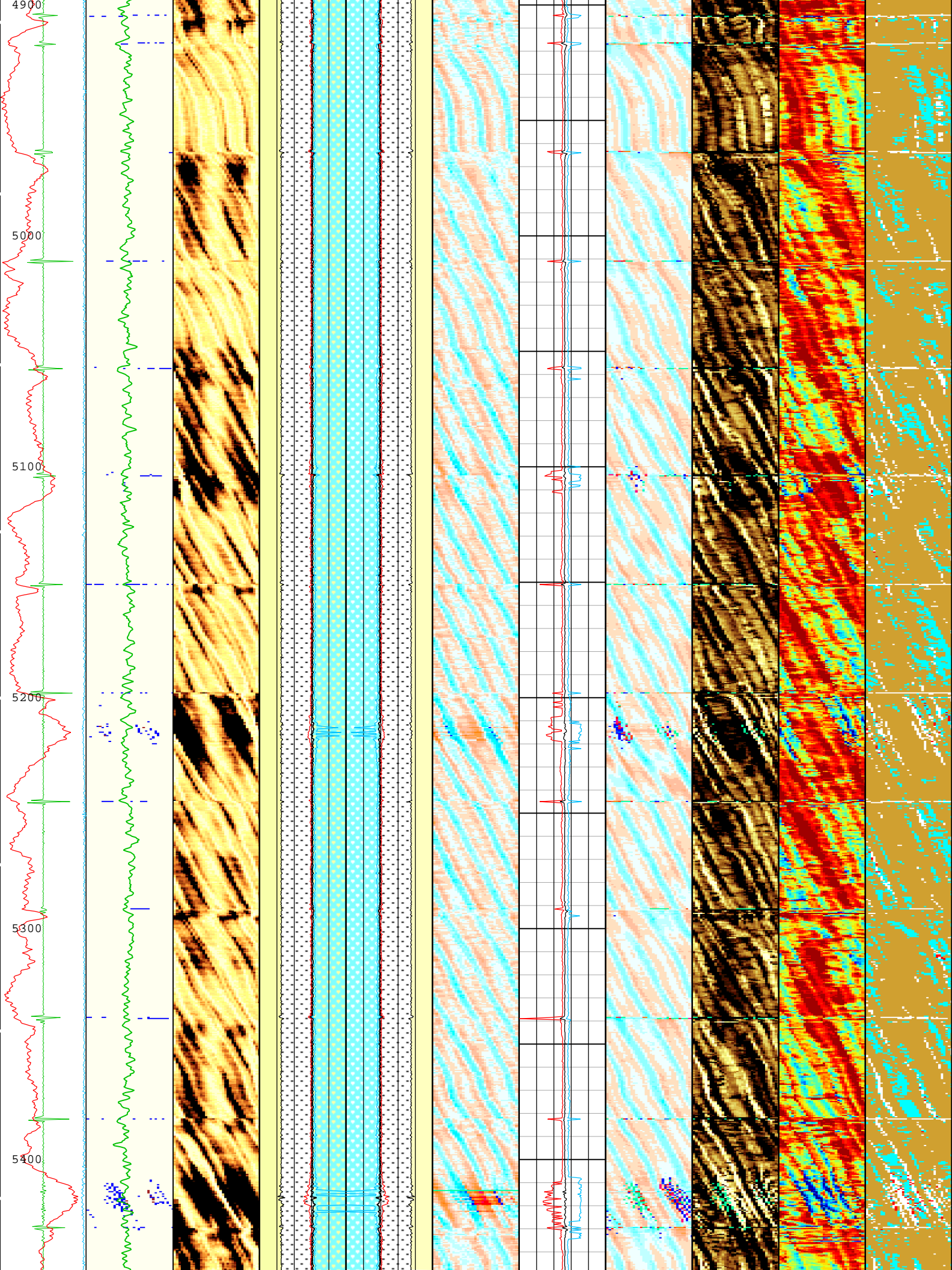




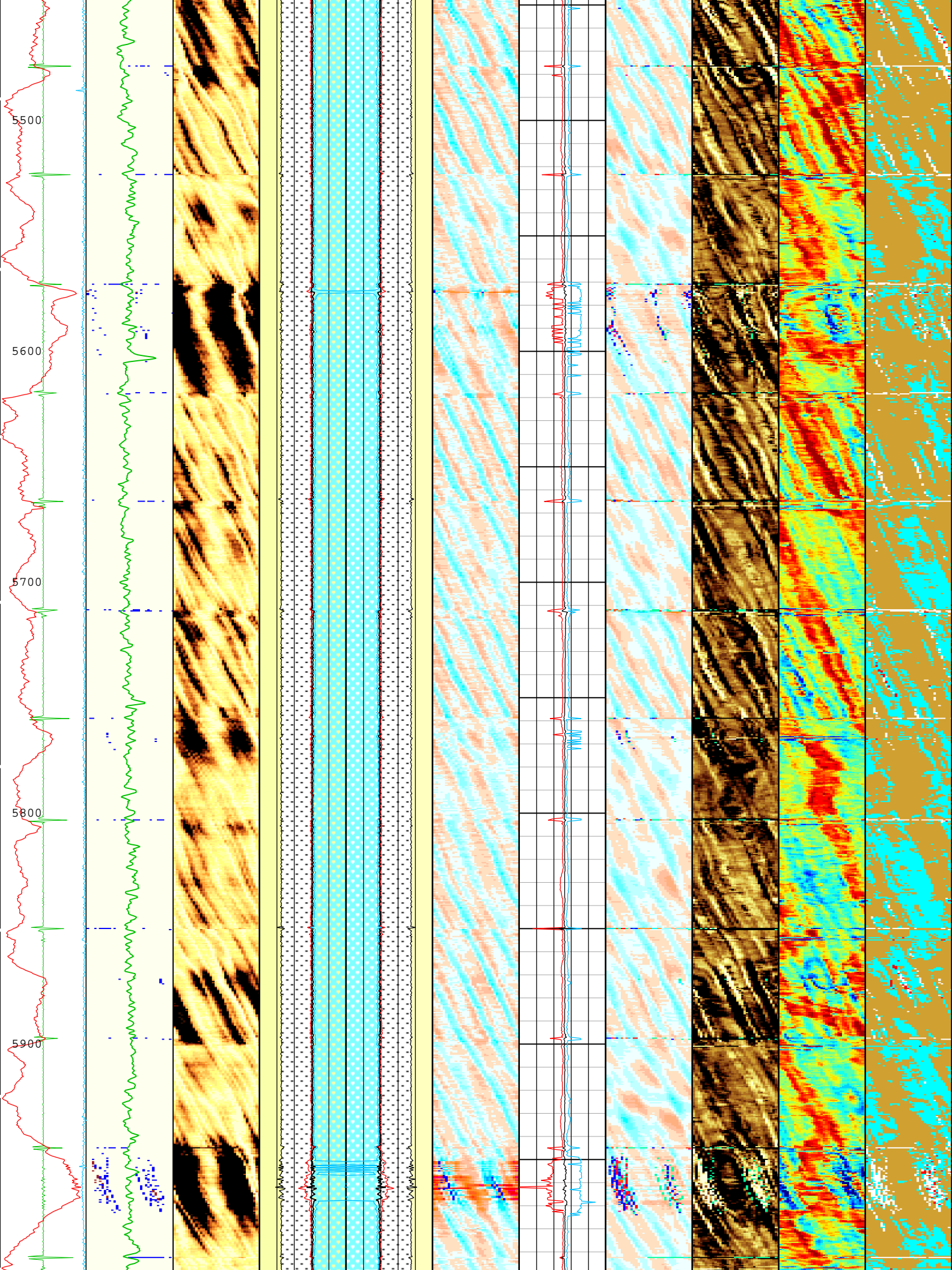


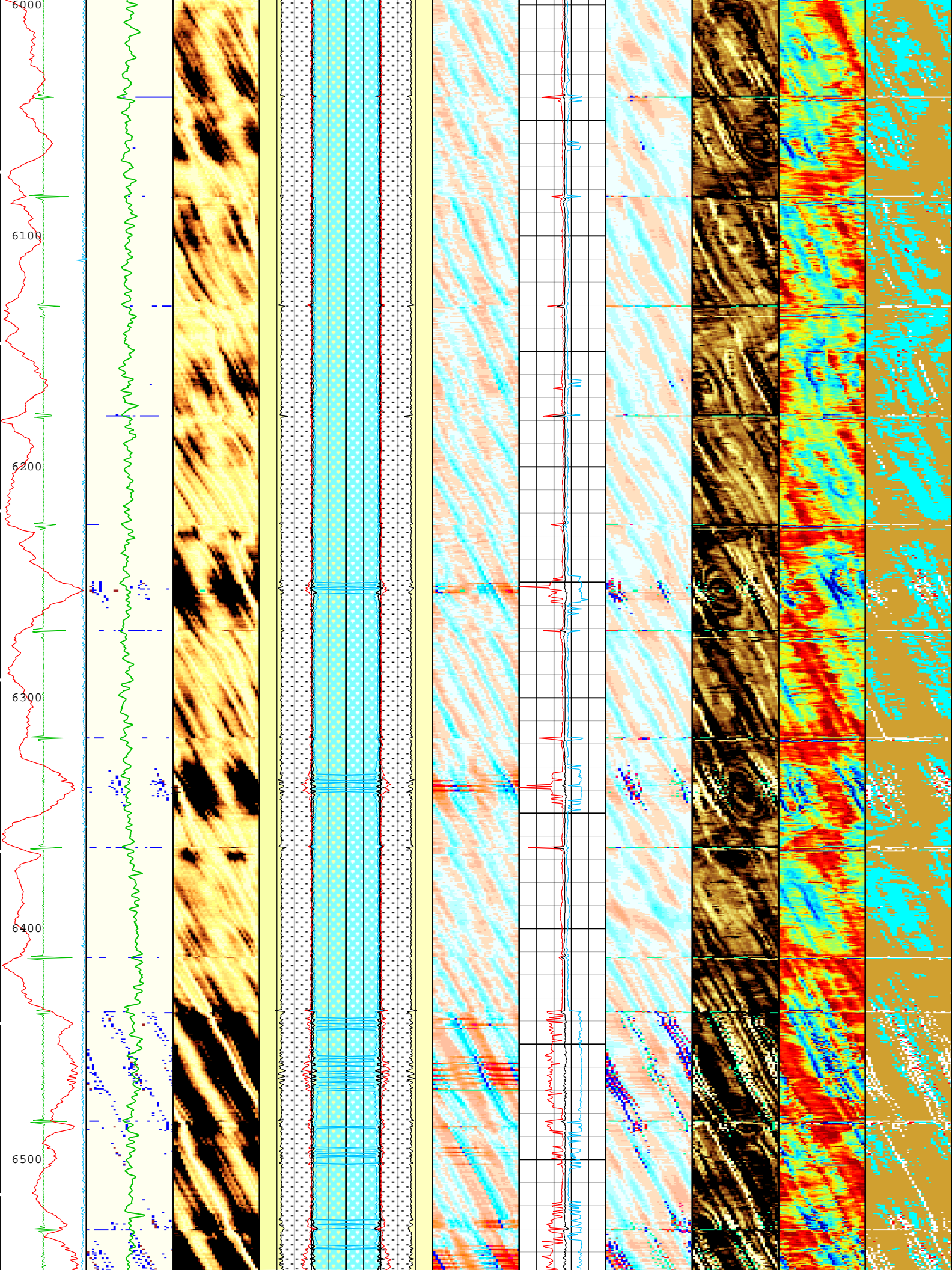




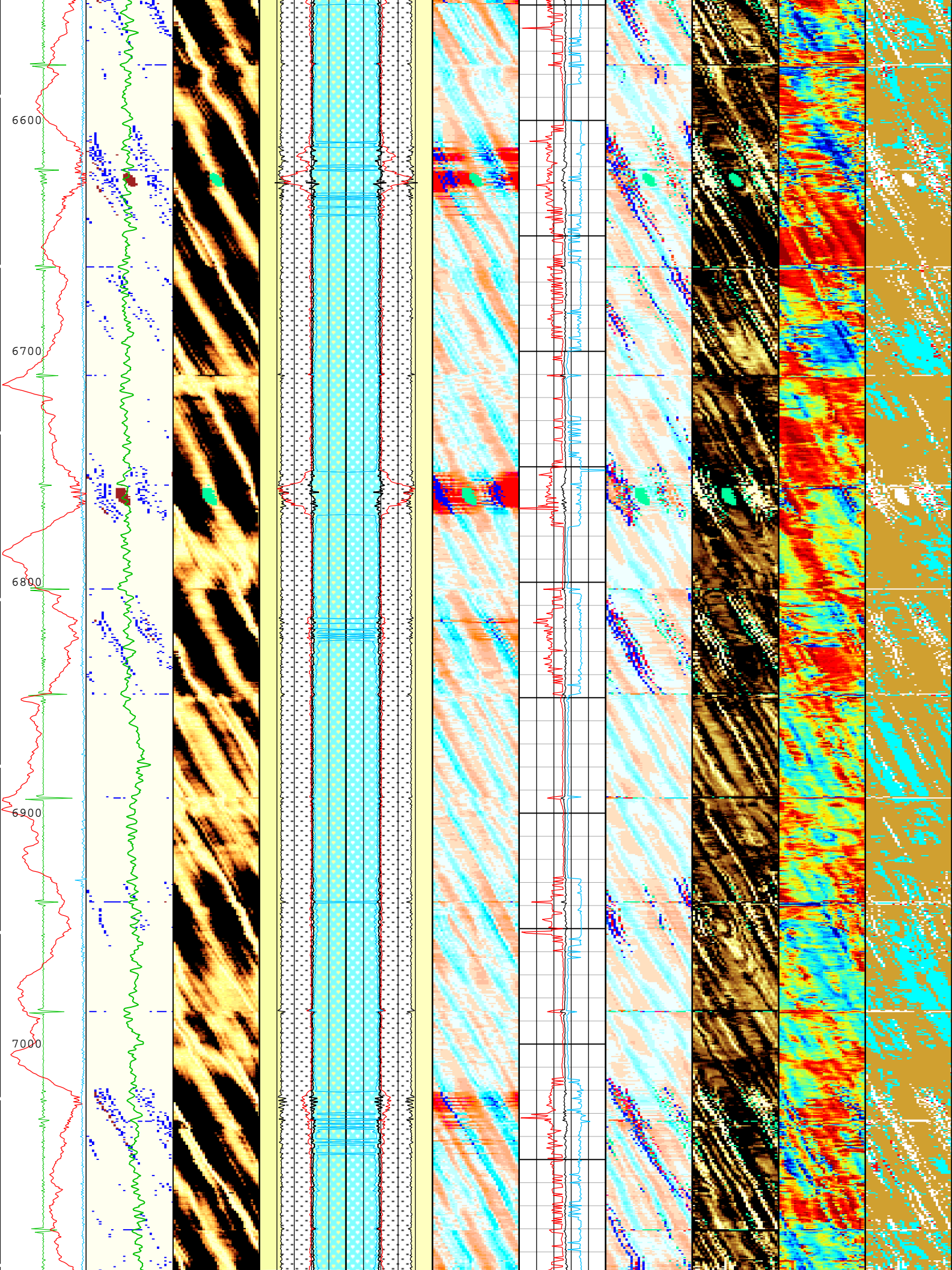


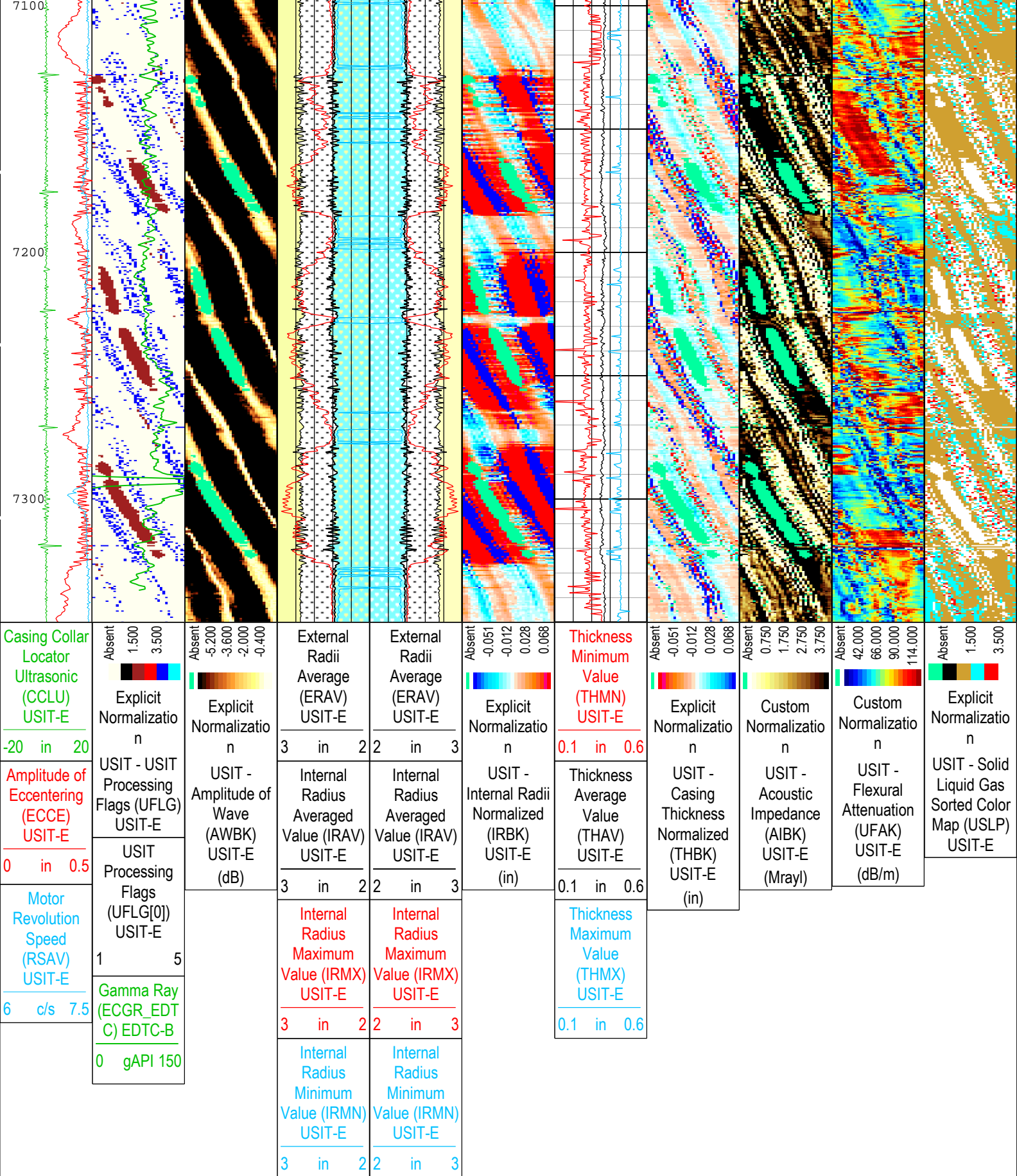












| Channel Processing Parameters |  |           |                   |         |
|-------------------------------|--|-----------|-------------------|---------|
| ONE: Parameters               |  |           |                   |         |
| Parameter                     | Description  | Tool      | Value             | Unit    |
| ISSBAR                        | Barite Mud Presence Flag                             | Borehole  | No                |         |
| BHS                           | Borehole Status (Open or Cased Hole)                 | Borehole  | Cased             |         |
| BS                            | Bit Size   | WLSESSION | Depth Zoned       | in      |
| CBLO                          | Casing Bottom (Logger)                               | WLSESSION | 11868.82          | ft      |
| CDEN                          | Cement Density                                       | USIT-E    | Depth Zoned       | lbm/gal |
| CDEN                          | Cement Density                                       | EDTC-B    | 16.69             | lbm/gal |
| CMTY(U-USIT_CEMT)             | Cement Type  | USIT-E    | Light Cement      |         |
| DFD                           | Drilling Fluid Density                               | Borehole  | 8.8               | lbm/gal |
| DFT_CATEGORY                  | Drilling Fluid Type                                  | Borehole  | Water             |         |
| DTMD                          | Borehole Fluid Slowness                              | Borehole  | 206               | us/ft   |
| FD                            | Fluid Density  | USIT-E    | 10                | lbm/gal |
| GCSE_DOWN_PASS                | Generalized Caliper Selection for WL Log Down Passes | Borehole  | BS(RT)            |         |
| GCSE_UP_PASS                  | Generalized Caliper Selection for WL Log Up Passes   | Borehole  | BS(RT)            |         |
| HEMA                          | Hematite Presence Flag                               | Borehole  | No                |         |
| IBC_FRP_OFFSET                | IBC Flexural Offset from Free Pipe                   | USIT-E    | 12.23             | dB/m    |
| IBC_FVEL_SEL                  | IBC Fluid Velocity Selection                         | USIT-E    | Automatic         |         |
| IBC_OFFSET_SEL                | IBC Flexural Offset Selector                         | USIT-E    | UFAO              |         |
| IBC_ZMUD_SEL                  | IBC Mud Impedance Selection                          | USIT-E    | Theoretical       |         |
| ICE_PROCESS                   | ICE Processing                                       | USIT-E    | Yes               |         |
| IMAR                          | Image Rotation                                       | USIT-E    | Off               |         |
| MEAS_WLEN                     | Tcube Processing Window Length in Measurement Mode   | USIT-E    | 22.44             | us      |
| MUD_N_FRP                     | Free Pipe Mud Normalization Factor                   | USIT-E    | 1.36              |         |
| MUD_N_THE                     | Theoretical Mud Normalization Factor                 | USIT-E    | 1.15              |         |
| U-USIT_DFSZ                   | Drilling Fluid Specific Acoustic Impedance           | USIT-E    | 1.6               | Mrayl   |
| U-USIT_UFAO                   | SIT Flexural Attenuation Offset                      | USIT-E    | -10.51            | dB/m    |
| U-USIT_UIAP                   | IBC Answer Product Enabled                           | USIT-E    | SolidLiquidGasMap |         |
| ZMUD                          | Acoustic Impedance of Mud                            | Borehole  | 1.85              | Mrayl   |
| ZTCM                          | Acoustic Impedance Threshold for Cement              | USIT-E    | 2.24              | Mrayl   |
| ZTGS                          | Acoustic Impedance Threshold for Gas                 | USIT-E    | 0.3               | Mrayl   |

| Depth Zone Parameters |       |              |             |
|-----------------------|-------|--------------|-------------|
| Parameter             | Value | Start ( ft ) | Stop ( ft ) |
| BS                    | 24    | 60           | 108         |
| BS                    | 13.5  | 108          | 2515        |
| BS                    | 8.5   | 2515         | 7350        |
| CDEN                  | 15.44 | 60           | 6600        |
| CDEN                  | 16.27 | 6600         | 7350        |
| All depth are actual. |       |              |             |

| Tool Control Parameters |                           |        |       |      |
|-------------------------|---------------------------|--------|-------|------|
| ONE: Parameters         |                           |        |       |      |
| Parameter               | Description               | Tool   | Value | Unit |
| AGMN                    | Minimum Gain of Cartridge | USIT-E | -12   | dB   |
| AGMX                    | Maximum Gain of Cartridge | USIT-E | 18    | dB   |
| EMXV                    | EMEX Voltage              | USIT-E | 90    | V    |



|             |                                 |        |                  |    |
|-------------|---------------------------------|--------|------------------|----|
| EMXV        | EMEX Voltage                    | USIT-E | 30               | v  |
| IBC_ACQTYPE | IBC Acquisition type            | USIT-E | 1 MHz            |    |
| IBC_FLEXDBP | IBC Flex Duration Before Peak   | USIT-E | 30               | us |
| ICE2_ACQ    | Ultrasonic ICE2 Acquisition     | USIT-E | Yes              |    |
| U-USIT_UFWB | Far Receiver Window Begin Time  | USIT-E | 137              | us |
| U-USIT_UFWE | Far Receiver Window End Time    | USIT-E | 177              | us |
| U-USIT_UNWB | Near Receiver Window Begin Time | USIT-E | 106              | us |
| U-USIT_UNWE | Near Receiver Window End Time   | USIT-E | 146              | us |
| UPAT        | USIT Emission Pattern           | USIT-E | Pattern 375 KHz  |    |
| UWKM        | USIT Working Mode               | USIT-E | 10 deg at 6.0 in |    |
| U-USIT_UTAN | Transducer Angles               | USIT-E | 33_DEG           |    |
| VRES        | Vertical Resolution             | USIT-E | 6.0 in           |    |
| WINB        | Window Begin Time               | USIT-E | 31.88            | us |
| WINE        | Window End Time                 | USIT-E | 71.88            | us |

ONE

IBC Goodwin Compressed

Pass Summary

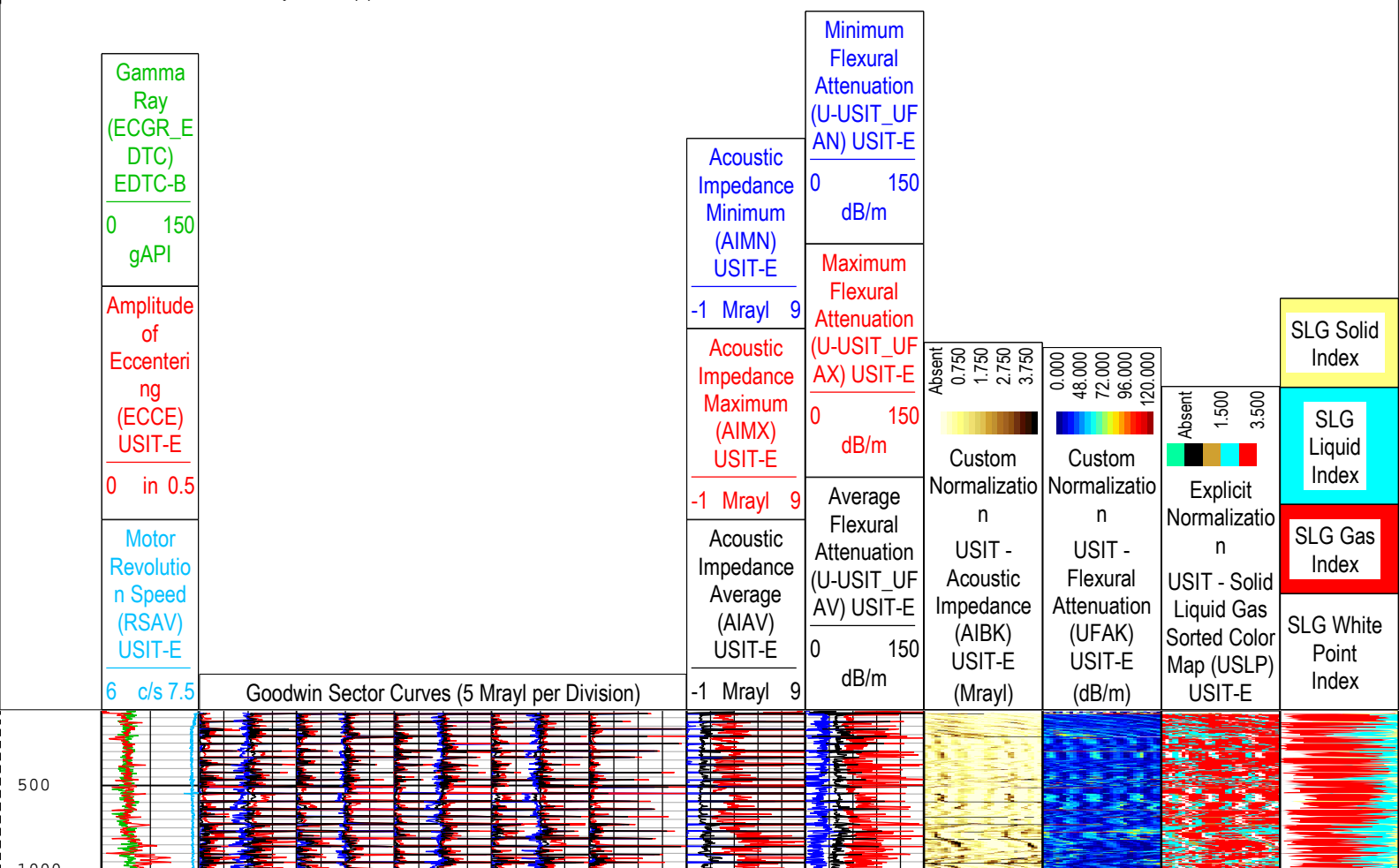
| Run Name | Pass Objective | Direction | Top      | Bottom     | Start                  | Stop                   | DSC Mode | Depth Shift | Include Parallel Data |
|----------|----------------|-----------|----------|------------|------------------------|------------------------|----------|-------------|-----------------------|
| ONE      | Log[4]:Up      | Up        | 60.89 ft | 7359.02 ft | 28-Jun-2018 3:01:14 PM | 28-Jun-2018 4:41:53 PM | ON       | 6.90 ft     | Yes                   |

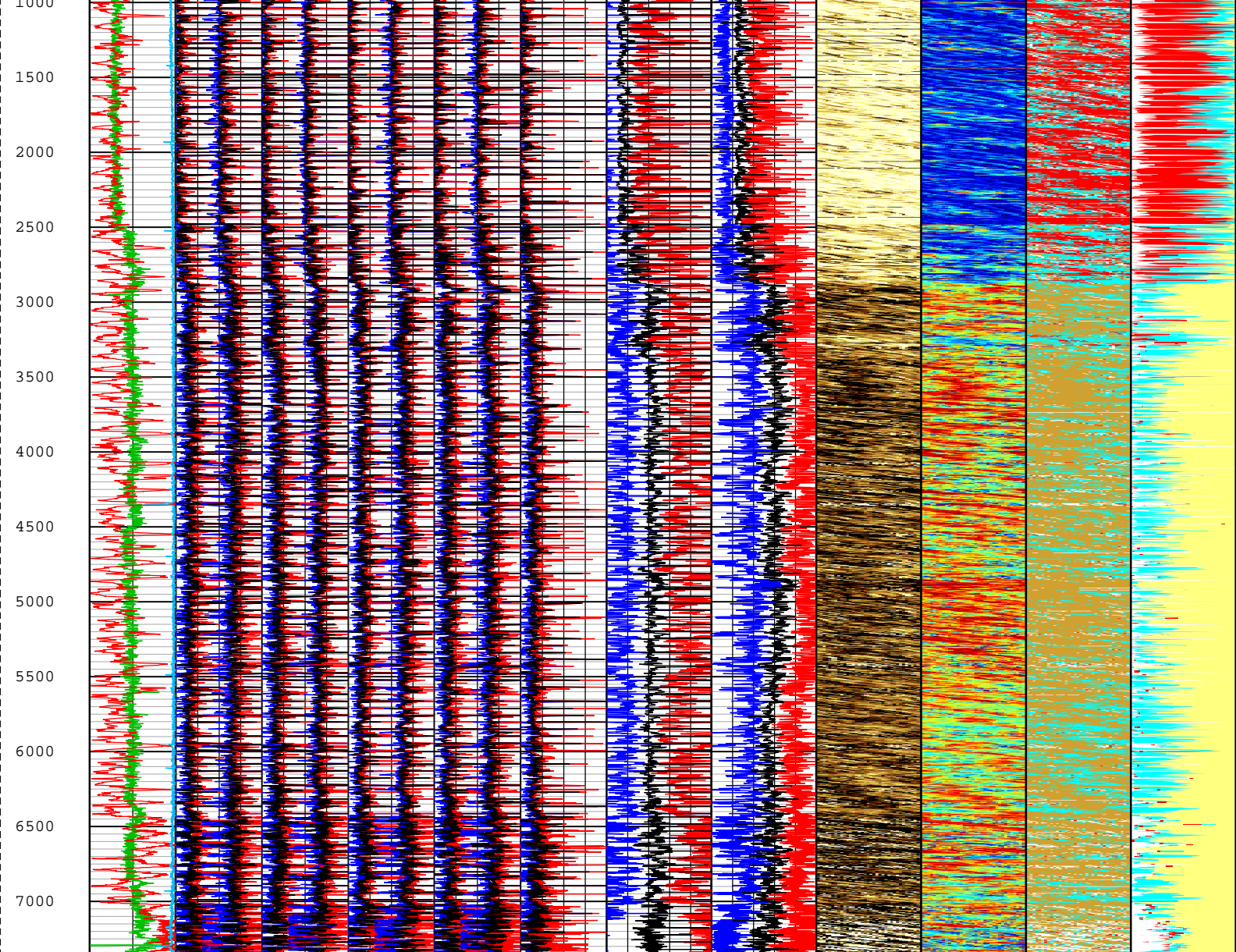
All depths are referenced to toolstring zero

|     |   |                        |                     |
|-----|---|------------------------|---------------------|
| Log | Company:Crestone Peak Resources Operating LLC | Well:Ruegge 3F-4H-N165 | ONE: Log[4]:Up:S020 |
|-----|---|------------------------|---------------------|

Description: USI Goodwin    Format: Log ( IBC Goodwin )    Index Scale: 0.1 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 11-Jul-2018 19:59:21

TIME\_1900 - Time Marked every 60.00 (s)





Gamma Ray  
(ECGR\_E  
DTC)  
EDTC-B

0 150  
gAPI

Amplitude  
of  
Eccenteri  
ng  
(ECCE)  
USIT-E

0 in 0.5

Motor  
Revolutio  
n Speed  
(RSAV)  
USIT-E

6 c/s 7.5

Goodwin Sector Curves (5 Mrayl per Division)

Acoustic  
Impedance  
Minimum  
(AIMN)  
USIT-E

-1 Mrayl 9

Acoustic  
Impedance  
Maximum  
(AIMX)  
USIT-E

-1 Mrayl 9

Acoustic  
Impedance  
Average  
(AIAV)  
USIT-E

-1 Mrayl 9

Minimum  
Flexural  
Attenuation  
(U-USIT\_UF  
AN) USIT-E

0 150  
dB/m

Maximum  
Flexural  
Attenuation  
(U-USIT\_UF  
AX) USIT-E

0 150  
dB/m

Average  
Flexural  
Attenuation  
(U-USIT\_UF  
AV) USIT-E

0 150  
dB/m

Absent  
0.750  
1.750  
2.750  
3.750

Custom  
Normalizatio  
n

USIT -  
Acoustic  
Impedance  
(AIBK)  
USIT-E  
(Mrayl)

0.000  
48.000  
72.000  
96.000  
120.000

Custom  
Normalizatio  
n

USIT -  
Flexural  
Attenuation  
(UFAK)  
USIT-E  
(dB/m)

Absent  
1.500  
3.500

Explicit  
Normalizatio  
n

USIT - Solid  
Liquid Gas  
Sorted Color  
Map (USLP)  
USIT-E

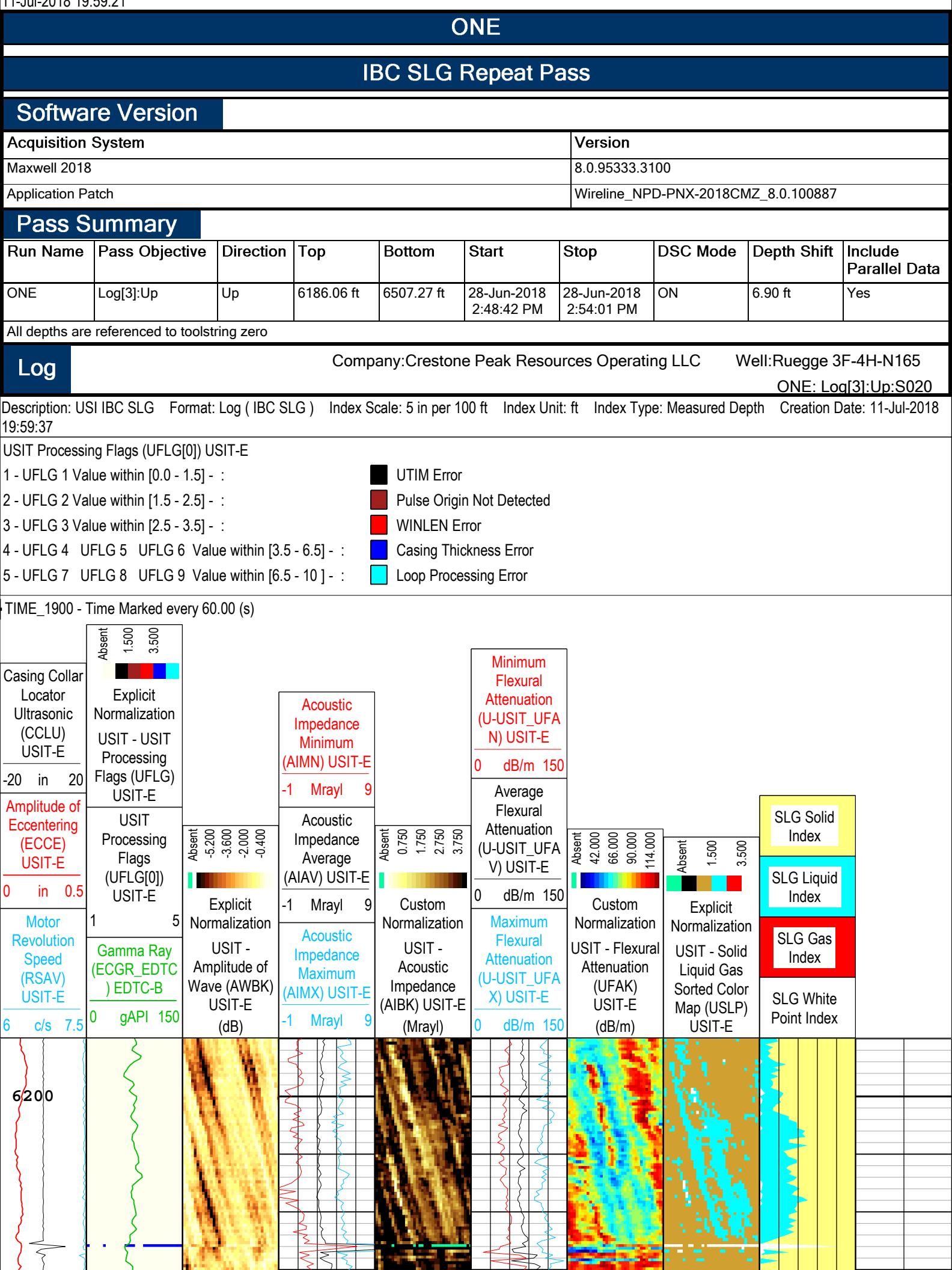
SLG Solid  
Index

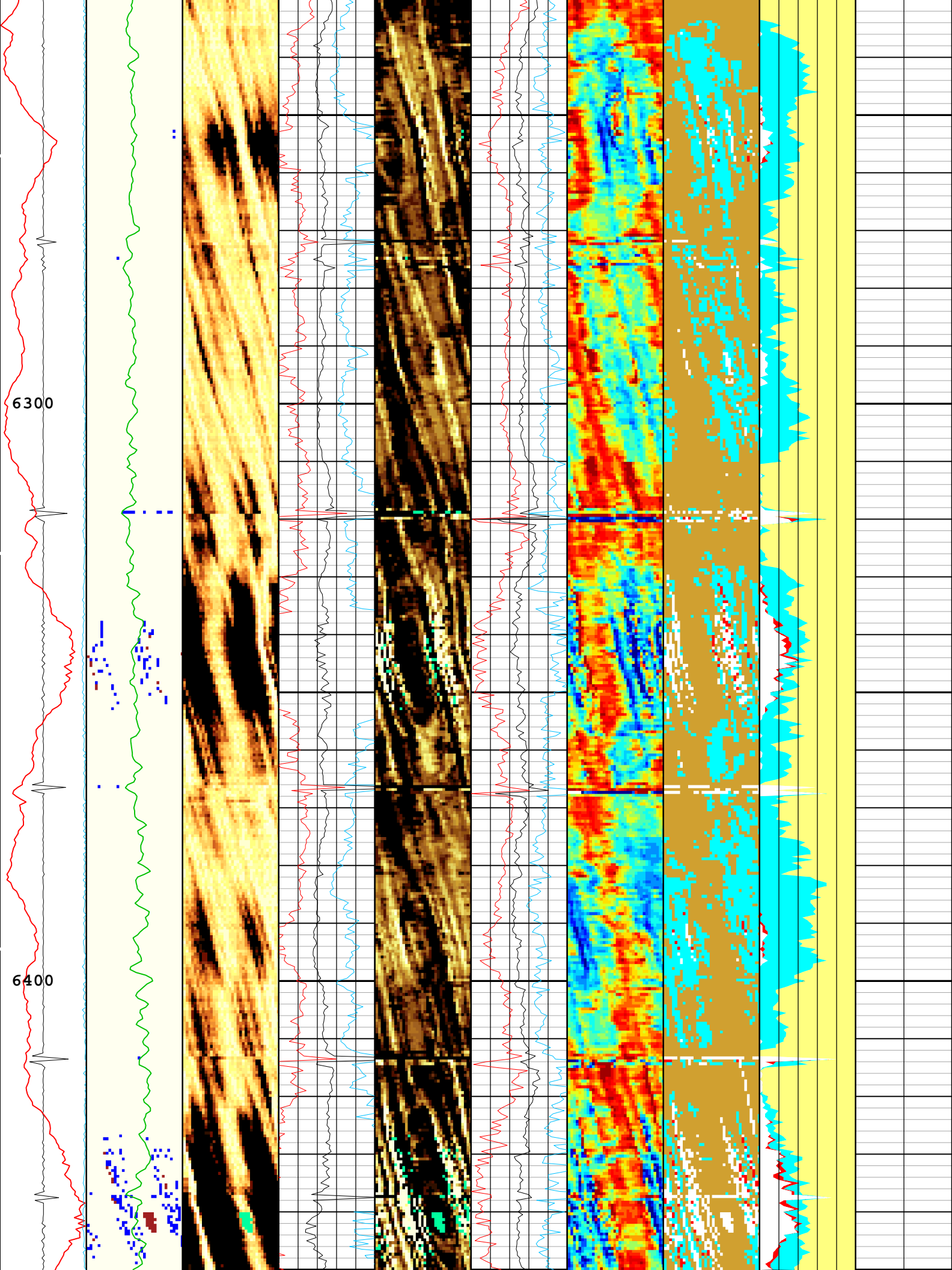
SLG  
Liquid  
Index

SLG Gas  
Index

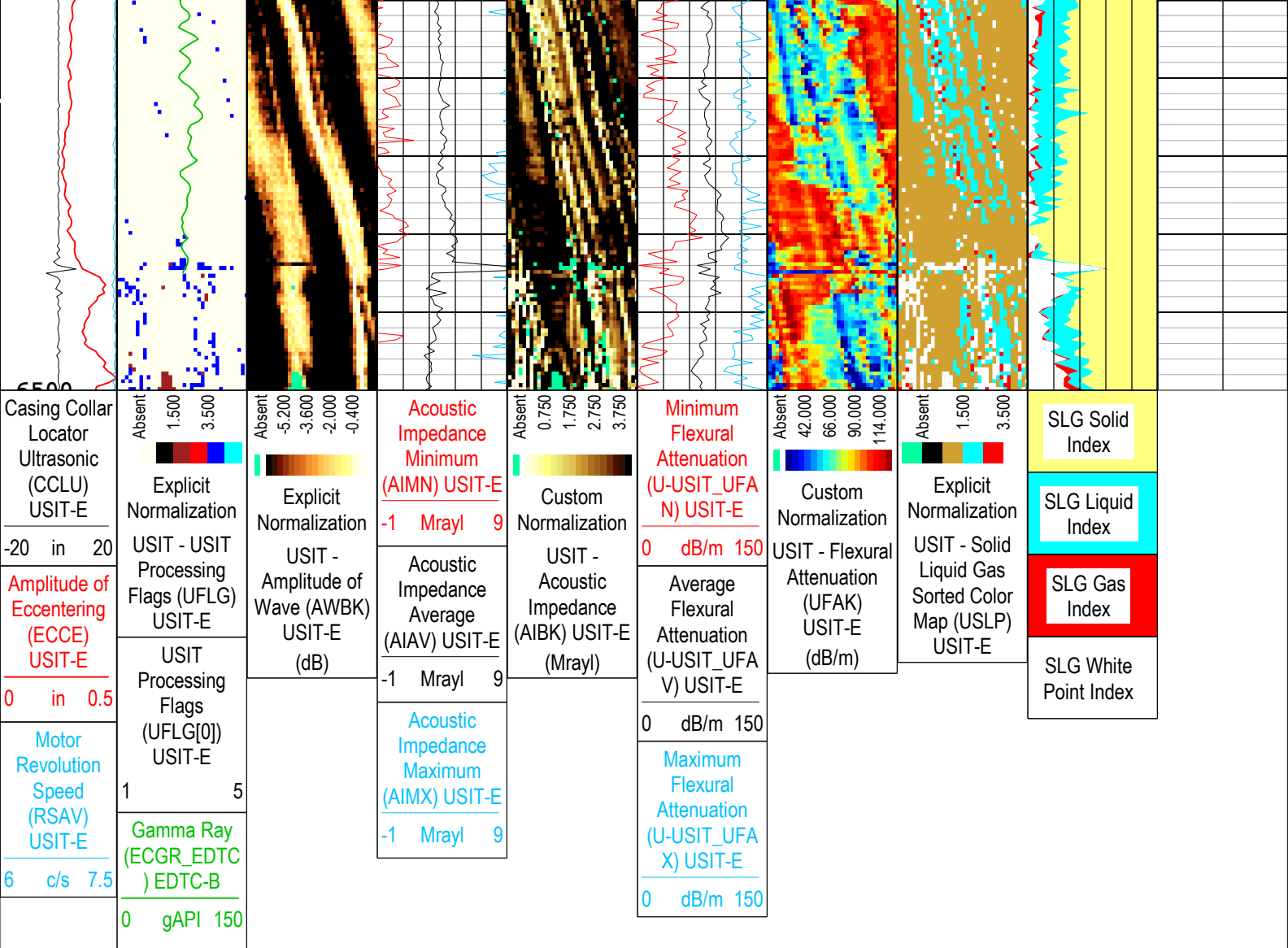
SLG White  
Point  
Index

TIME\_1900 - Time Marked every 60.00 (s)









TIME\_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

- |   |                           |
|---|---------------------------|
| 1 - UFLG 1 Value within [0.0 - 1.5] - :               | UTIM Error                |
| 2 - UFLG 2 Value within [1.5 - 2.5] - :               | Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - :               | WINLEN Error              |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : | Casing Thickness Error    |
| 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :  | Loop Processing Error     |

Description: USI IBC SLG    Format: Log ( IBC SLG )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 11-Jul-2018 19:59:37

| Channel Processing Parameters |                                      |           |                        |         |
|-------------------------------|--------------------------------------|-----------|------------------------|---------|
| ONE: Parameters               |                                      |           |                        |         |
| Parameter                     | Description                          | Tool      | Value                  | Unit    |
| ISSBAR                        | Barite Mud Presence Flag             | Borehole  | No                     |         |
| BERJ                          | Bad Echo Rejection                   | USIT-E    | On                     |         |
| BHS                           | Borehole Status (Open or Cased Hole) | Borehole  | Cased                  |         |
| BS                            | Bit Size                             | WLSESSION | 8.5                    | in      |
| CASING_PRATIO                 | Casing Poisson Ratio                 | USIT-E    | Standard Poisson Ratio |         |
| CBLO                          | Casing Bottom (Logger)               | WLSESSION | 11868.82               | ft      |
| CDEN                          | Cement Density                       | USIT-E    | 15.44                  | lbm/gal |
| CDEN                          | Cement Density                       | EDTC-B    | 16.69                  | lbm/gal |
| CMTY(U-USIT_CEMT)             | Cement Type                          | USIT-E    | Light Cement           |         |
| DFD                           | Drilling Fluid Density               | Borehole  | 8.8                    | lbm/gal |

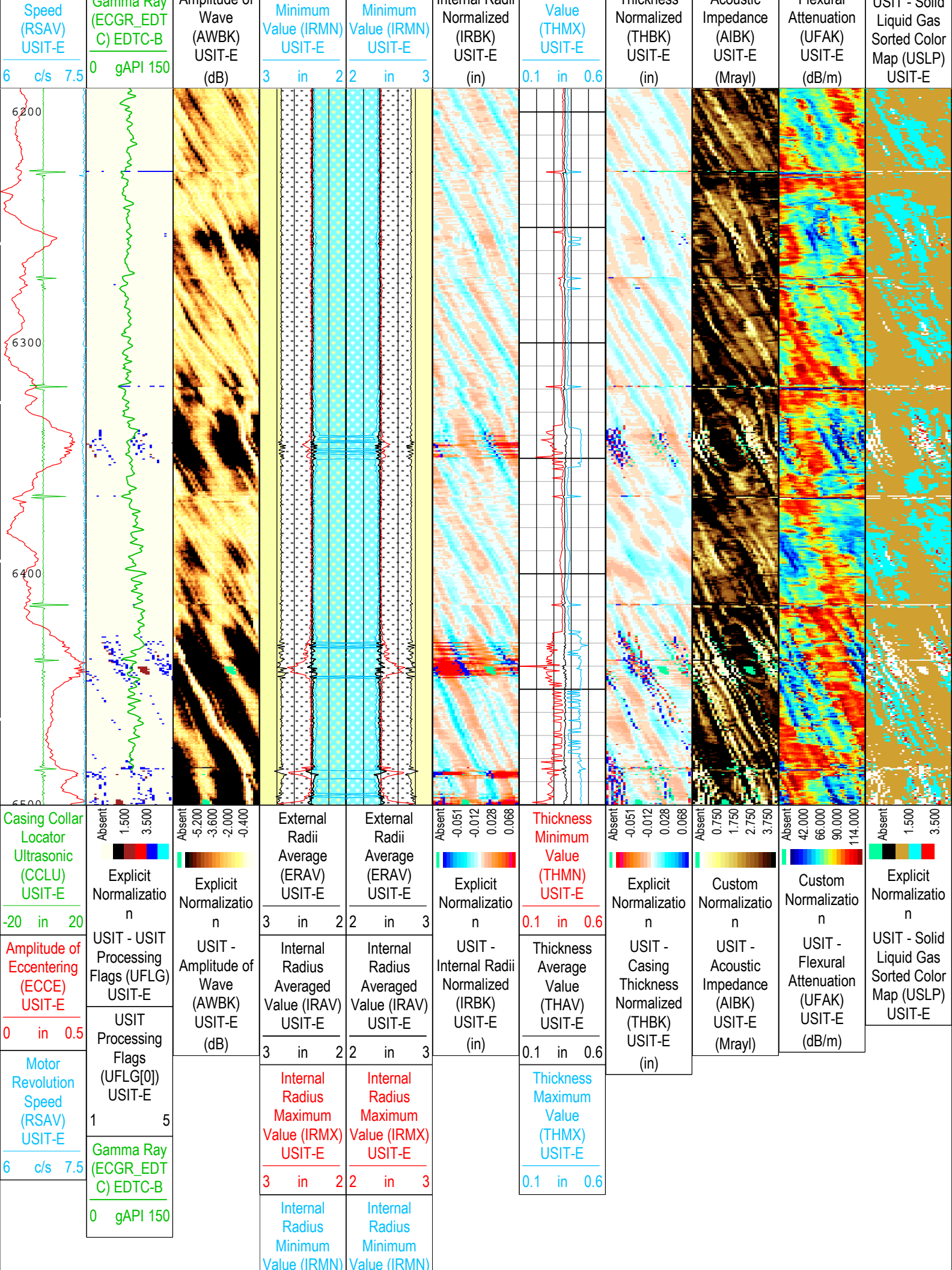







|                |  |          |                   |         |
|----------------|--|----------|-------------------|---------|
|                | Drilling Fluid Density                               | Borehole | Water             |         |
| DFT_CATEGORY   | Drilling Fluid Type                                  | Borehole | Water             |         |
| DTMD           | Borehole Fluid Slowness                              | Borehole | 206               | us/ft   |
| FD             | Fluid Density  | USIT-E   | 10                | lbm/gal |
| FDII           | FPM Data Interpolation Interval                      | USIT-E   | 0                 | ft      |
| GCSE_DOWN_PASS | Generalized Caliper Selection for WL Log Down Passes | Borehole | BS(RT)            |         |
| GCSE_UP_PASS   | Generalized Caliper Selection for WL Log Up Passes   | Borehole | BS(RT)            |         |
| GR_MULTIPLIER  | Gamma Ray Multiplier                                 | EDTC-B   | 1                 |         |
| HEMA           | Hematite Presence Flag                               | Borehole | No                |         |
| IBC_FRP_OFFSET | IBC Flexural Offset from Free Pipe                   | USIT-E   | 12.23             | dB/m    |
| IBC_FVEL_SEL   | IBC Fluid Velocity Selection                         | USIT-E   | Automatic         |         |
| IBC_OFFSET_SEL | IBC Flexural Offset Selector                         | USIT-E   | UFAO              |         |
| IBC_ZMUD_SEL   | IBC Mud Impedance Selection                          | USIT-E   | Theoretical       |         |
| ICE_PROCESS    | ICE Processing                                       | USIT-E   | Yes               |         |
| IMAR           | Image Rotation                                       | USIT-E   | Off               |         |
| MEAS_WLEN      | Tcube Processing Window Length in Measurement Mode   | USIT-E   | 22.44             | us      |
| MUD_N_FRP      | Free Pipe Mud Normalization Factor                   | USIT-E   | 1.36              |         |
| MUD_N_THE      | Theoretical Mud Normalization Factor                 | USIT-E   | 1.15              |         |
| RCOD           | Reference Calibrator Outer Diameter                  | USIT-E   | 4.5               | in      |
| RCSO           | Reference Calibrator Standoff                        | USIT-E   | 0.842             | in      |
| RCTH           | Reference Calibrator Thickness                       | USIT-E   | 0.216             | in      |
| SOCN           | Standoff Distance                                    | EDTC-B   | 0.125             | in      |
| SOCO           | Standoff Correction Option                           | EDTC-B   | No                |         |
| THDH           | Maximum Search Thickness (percentage of nominal)     | USIT-E   | 130               | %       |
| THDL           | Minimum Search Thickness (percentage of nominal)     | USIT-E   | 70                | %       |
| TPOS_EDTC      | Tool Position: Centered or Eccentered                | EDTC-B   | Eccentered        |         |
| U-USIT_DFSZ    | Drilling Fluid Specific Acoustic Impedance           | USIT-E   | 1.6               | Mrayl   |
| U-USIT_UFAO    | SIT Flexural Attenuation Offset                      | USIT-E   | -10.51            | dB/m    |
| U-USIT_UIAP    | IBC Answer Product Enabled                           | USIT-E   | SolidLiquidGasMap |         |
| USI_RPLUS      | Ultrasonic R+ Processing                             | USIT-E   | No                |         |
| THDP           | Thickness Detection Policy                           | USIT-E   | Fundamental       |         |
| VCAS           | Ultrasonic Transversal Velocity in Casing            | USIT-E   | 51.4              | us/ft   |
| ZCAS           | Acoustic Impedance of Casing                         | USIT-E   | 46.25             | Mrayl   |
| ZINI           | Initial Estimate of Cement Impedance                 | USIT-E   | -1                | Mrayl   |
| ZMUD           | Acoustic Impedance of Mud                            | Borehole | 1.85              | Mrayl   |
| ZTCM           | Acoustic Impedance Threshold for Cement              | USIT-E   | 2.24              | Mrayl   |
| ZTGS           | Acoustic Impedance Threshold for Gas                 | USIT-E   | 0.3               | Mrayl   |

Tool Control Parameters

| ONE: Parameters |  |        |        |      |
|-----------------|--|--------|--------|------|
| Parameter       | Description                                | Tool   | Value  | Unit |
| AGMN            | Minimum Gain of Cartridge                  | USIT-E | -12    | dB   |
| AGMX            | Maximum Gain of Cartridge                  | USIT-E | 18     | dB   |
| U-USIT_DDT5     | USIC Downhole Decimation for T5 only       | USIT-E | 0_NONE |      |
| DOT(DOS)        | Distance between Opposite Transducer Faces | USIT-E | 1.756  | in   |
| EMXV            | EMEX Voltage                               | USIT-E | 90     | V    |
| HRES            | Horizontal Resolution                      | USIT-E | 10 deg |      |
| IBC_ACQTYPE     | IBC Acquisition type                       | USIT-E | 1 MHz  |      |
| IBC_FLEXDBP     | IBC Flex Duration Before Peak              | USIT-E | 30     | us   |
| ICE2_ACQ        | Ultrasonic ICE2 Acquisition                | USIT-E | Yes    |      |
| MOTOR_PROTECT   | Motor Protection                           | USIT-E | On     |      |





| USIT Processing Flags (UFLG[0]) USIT-E                |   |
|---|---|
| 1 - UFLG 1 Value within [0.0 - 1.5] - :               |  UTIM Error                |
| 2 - UFLG 2 Value within [1.5 - 2.5] - :               |  Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - :               |  WINLEN Error              |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : |  Casing Thickness Error    |
| 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10 ] - : |  Loop Processing Error     |

TIME\_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Composite    Format: Log ( IBC SLG Composite )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth  
Creation Date: 11-Jul-2018 19:59:49

| Channel Processing Parameters |  |
|-------------------------------|--|
|-------------------------------|--|

## ONE: Parameters

| Parameter         | Description  | Tool      | Value             | Unit    |
|-------------------|--|-----------|-------------------|---------|
| ISSBAR            | Barite Mud Presence Flag                             | Borehole  | No                |         |
| BHS               | Borehole Status (Open or Cased Hole)                 | Borehole  | Cased             |         |
| BS                | Bit Size   | WLSESSION | 8.5               | in      |
| CBLO              | Casing Bottom (Logger)                               | WLSESSION | 11868.82          | ft      |
| CDEN              | Cement Density                                       | USIT-E    | 15.44             | lbm/gal |
| CDEN              | Cement Density                                       | EDTC-B    | 16.69             | lbm/gal |
| CMTY(U-USIT_CEMT) | Cement Type  | USIT-E    | Light Cement      |         |
| DFD               | Drilling Fluid Density                               | Borehole  | 8.8               | lbm/gal |
| DFT_CATEGORY      | Drilling Fluid Type                                  | Borehole  | Water             |         |
| DTMD              | Borehole Fluid Slowness                              | Borehole  | 206               | us/ft   |
| FD                | Fluid Density  | USIT-E    | 10                | lbm/gal |
| GCSE_DOWN_PASS    | Generalized Caliper Selection for WL Log Down Passes | Borehole  | BS(RT)            |         |
| GCSE_UP_PASS      | Generalized Caliper Selection for WL Log Up Passes   | Borehole  | BS(RT)            |         |
| HEMA              | Hematite Presence Flag                               | Borehole  | No                |         |
| IBC_FRP_OFFSET    | IBC Flexural Offset from Free Pipe                   | USIT-E    | 12.23             | dB/m    |
| IBC_FVEL_SEL      | IBC Fluid Velocity Selection                         | USIT-E    | Automatic         |         |
| IBC_OFFSET_SEL    | IBC Flexural Offset Selector                         | USIT-E    | UFAO              |         |
| IBC_ZMUD_SEL      | IBC Mud Impedance Selection                          | USIT-E    | Theoretical       |         |
| ICE_PROCESS       | ICE Processing                                       | USIT-E    | Yes               |         |
| IMAR              | Image Rotation                                       | USIT-E    | Off               |         |
| MEAS_WLEN         | Tcube Processing Window Length in Measurement Mode   | USIT-E    | 22.44             | us      |
| MUD_N_FRP         | Free Pipe Mud Normalization Factor                   | USIT-E    | 1.36              |         |
| MUD_N_THE         | Theoretical Mud Normalization Factor                 | USIT-E    | 1.15              |         |
| U-USIT_DFSZ       | Drilling Fluid Specific Acoustic Impedance           | USIT-E    | 1.6               | Mrayl   |
| U-USIT_UFAO       | SIT Flexural Attenuation Offset                      | USIT-E    | -10.51            | dB/m    |
| U-USIT_UIAP       | IBC Answer Product Enabled                           | USIT-E    | SolidLiquidGasMap |         |
| ZMUD              | Acoustic Impedance of Mud                            | Borehole  | 1.85              | Mrayl   |
| ZTCM              | Acoustic Impedance Threshold for Cement              | USIT-E    | 2.24              | Mrayl   |
| ZTGS              | Acoustic Impedance Threshold for Gas                 | USIT-E    | 0.3               | Mrayl   |

| Tool Control Parameters |  |
|-------------------------|--|
|-------------------------|--|

## ONE: Parameters

| Parameter | Description               | Tool   | Value | Unit |
|-----------|---------------------------|--------|-------|------|
| AGMN      | Minimum Gain of Cartridge | USIT-E | -12   | dB   |
| AGMX      | Maximum Gain of Cartridge | USIT-E | 18    | dB   |



|             |                                 |        |                  |    |
|-------------|---------------------------------|--------|------------------|----|
| EMXV        | EMEX Voltage                    | USIT-E | 90               | V  |
| IBC_ACQTYPE | IBC Acquisition type            | USIT-E | 1 MHz            |    |
| IBC_FLEXDBP | IBC Flex Duration Before Peak   | USIT-E | 30               | us |
| ICE2_ACQ    | Ultrasonic ICE2 Acquisition     | USIT-E | Yes              |    |
| U-USIT_UFWB | Far Receiver Window Begin Time  | USIT-E | 137              | us |
| U-USIT_UFWE | Far Receiver Window End Time    | USIT-E | 177              | us |
| U-USIT_UNWB | Near Receiver Window Begin Time | USIT-E | 106              | us |
| U-USIT_UNWE | Near Receiver Window End Time   | USIT-E | 146              | us |
| UPAT        | USIT Emission Pattern           | USIT-E | Pattern 375 KHz  |    |
| UWKM        | USIT Working Mode               | USIT-E | 10 deg at 6.0 in |    |
| U-USIT_UTAN | Transducer Angles               | USIT-E | 33_DEG           |    |
| VRES        | Vertical Resolution             | USIT-E | 6.0 in           |    |
| WINB        | Window Begin Time               | USIT-E | 31.88            | us |
| WINE        | Window End Time                 | USIT-E | 71.88            | us |

XYZ

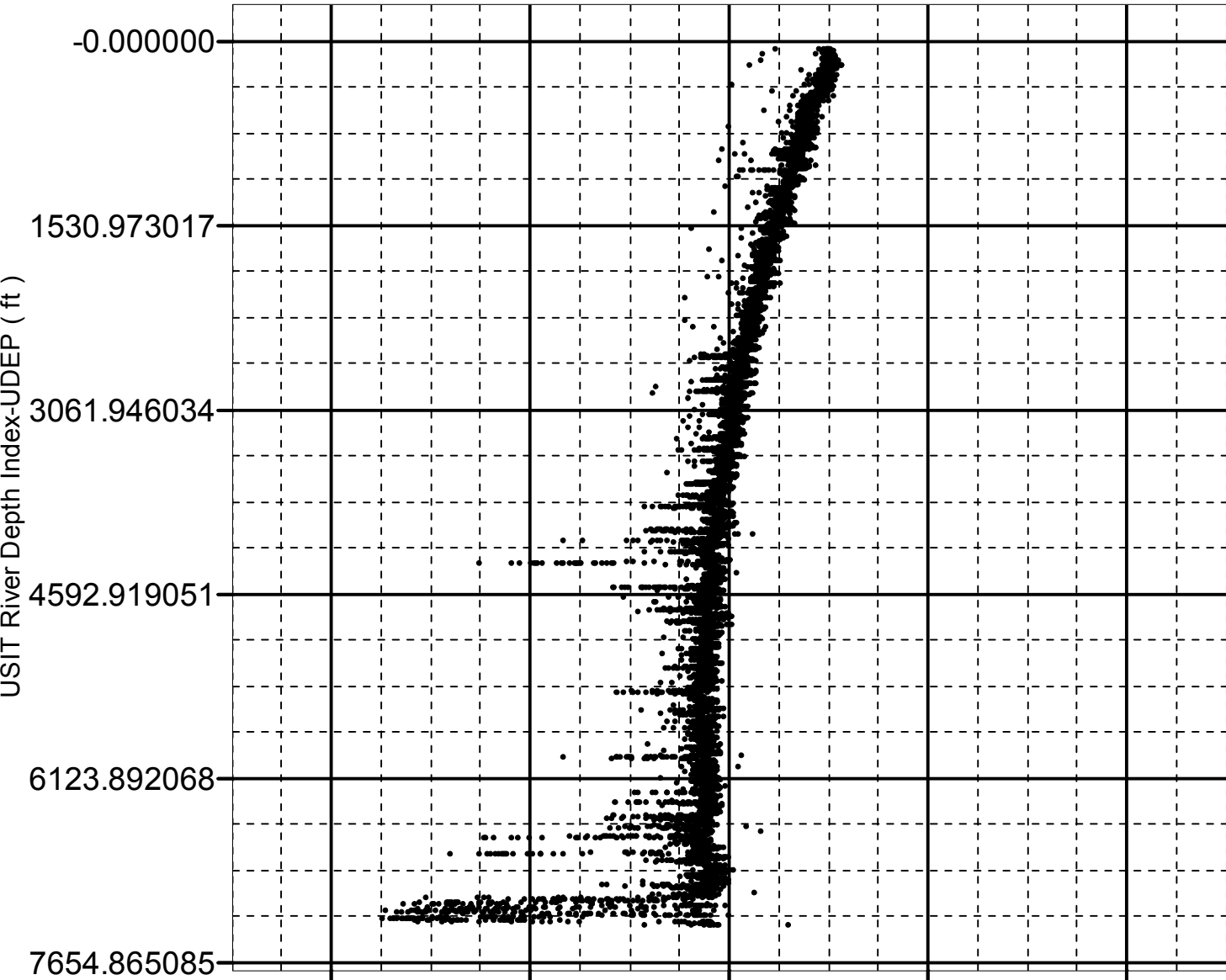
Company:Crestone Peak Resources Operating LLC Well:Ruegge 3F-4H-N165  
ONE: Log[4]:Up:S020

# Fluid Acoustic Slowness vs Depth

## 2D Cross Plot

Index Range: From 7358.00 to 60.50 ft

● CFVL-UDEP



160

180

200

220

240

Memorized Fluid Acoustic...-CFVL ( us/ft )

XYZ

Company:Crestone Peak Resources Operating LLC Well:Ruegge 3F-4H-N165

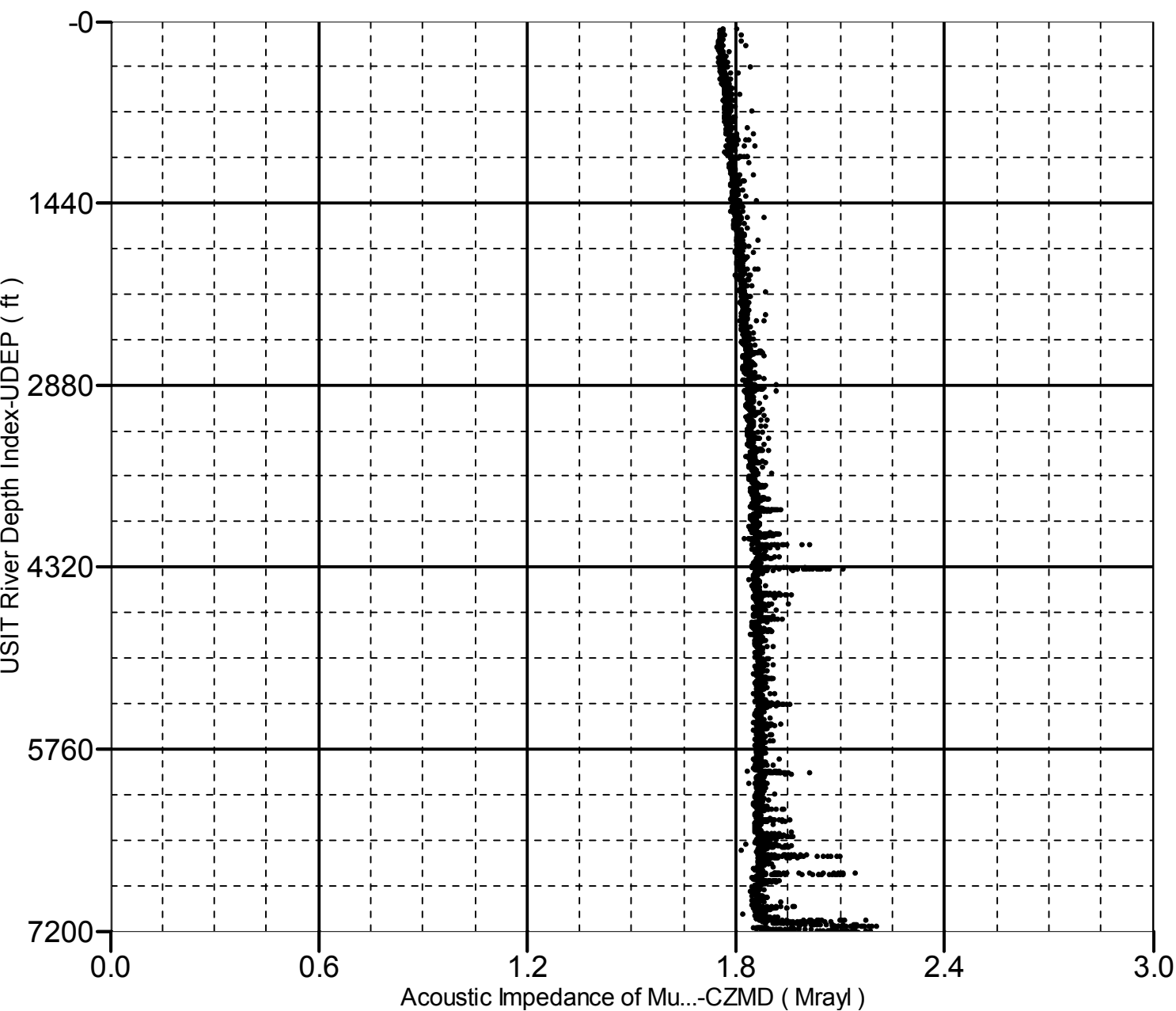
ONE: Log[4]:Up:S020

# Acoustic Impedance of Mud vs Depth

## 2D Cross Plot

Index Range: From 7358.00 to 60.50 ft

● CZMD-UDEP



Company: Crestone Peak Resources Operating LLC

**Schlumberger**

Well: Ruegge 3F-4H-N165

Field: Wattenberg

|                     |          |
|---------------------|----------|
| County:             | Weld     |
| State:              | Colorado |
| Isolation Scanner   |          |
| Cement Evaluation   |          |
| Gamma Ray - CCL Log |          |