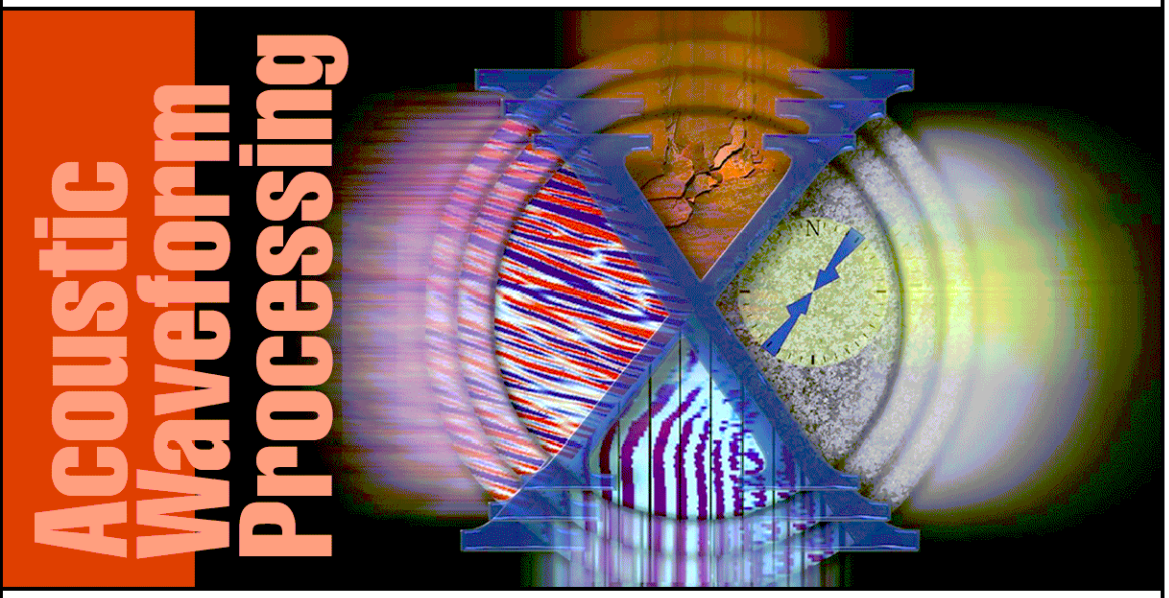
BAKER HUGHES

Baker Atlas

Acoustic Waveform Processing



MULTIPOLE ARRAY ACOUSTILOG SM

COMPANY SIERRA GEOTHERMAL POWER, INC.

WELL ALUM 25-29

FIELD ALUM

COUNTY ESMERALDA STATE NEVADA

LOCATION:

2235.18' FSL & 938.11' FWL

SEC 29 TWP 1N RGE 38.5E

ELEVATIONS:

KB 4919.57 FT DF N/A GL 4903.57 FT

DATE 23-NOV2009 ECC

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

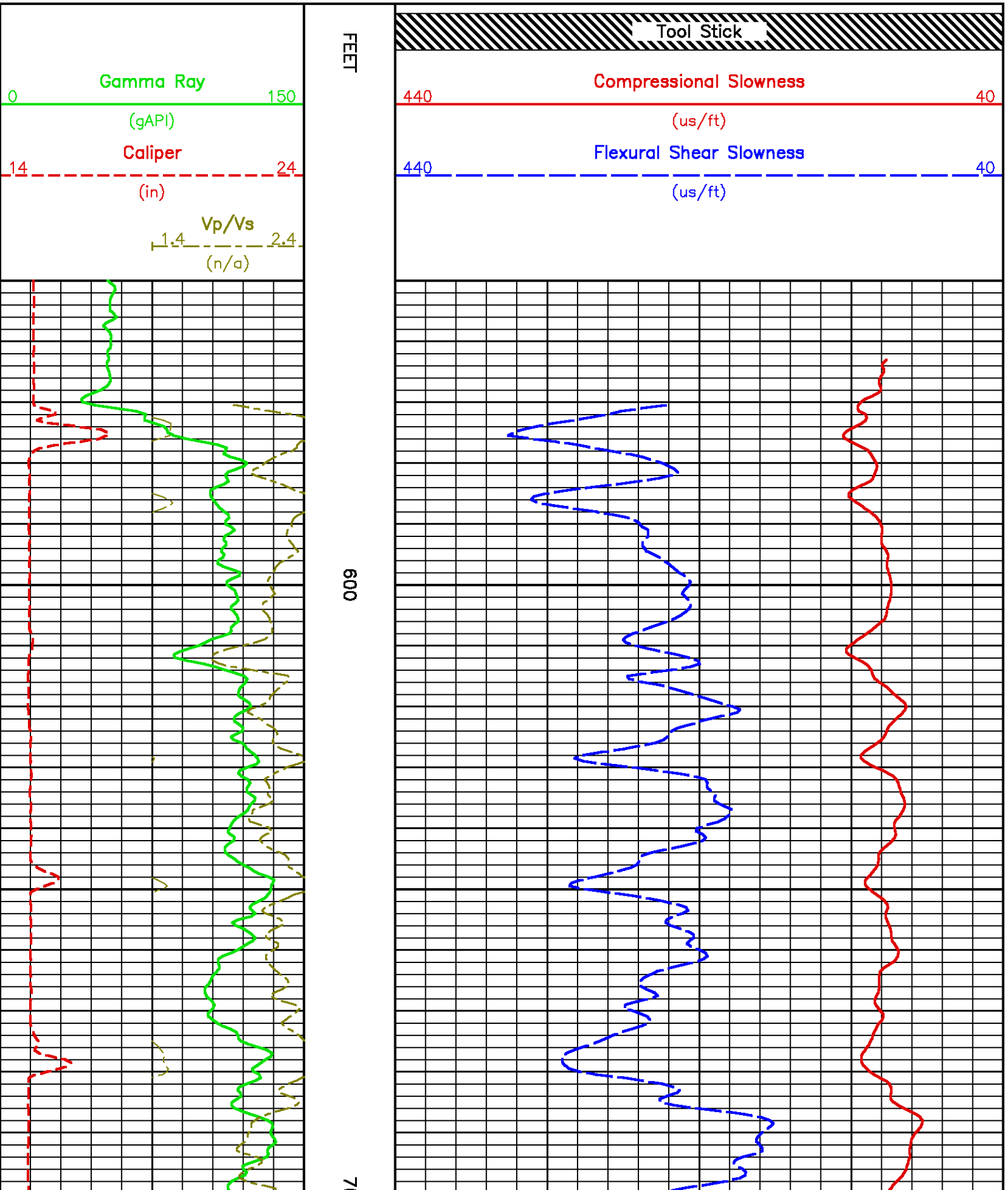
DATA MAY BE UNRELIABLE IN AREAS OF TENSION PULLS & WASHOUT

ANALYST: J. ADREON

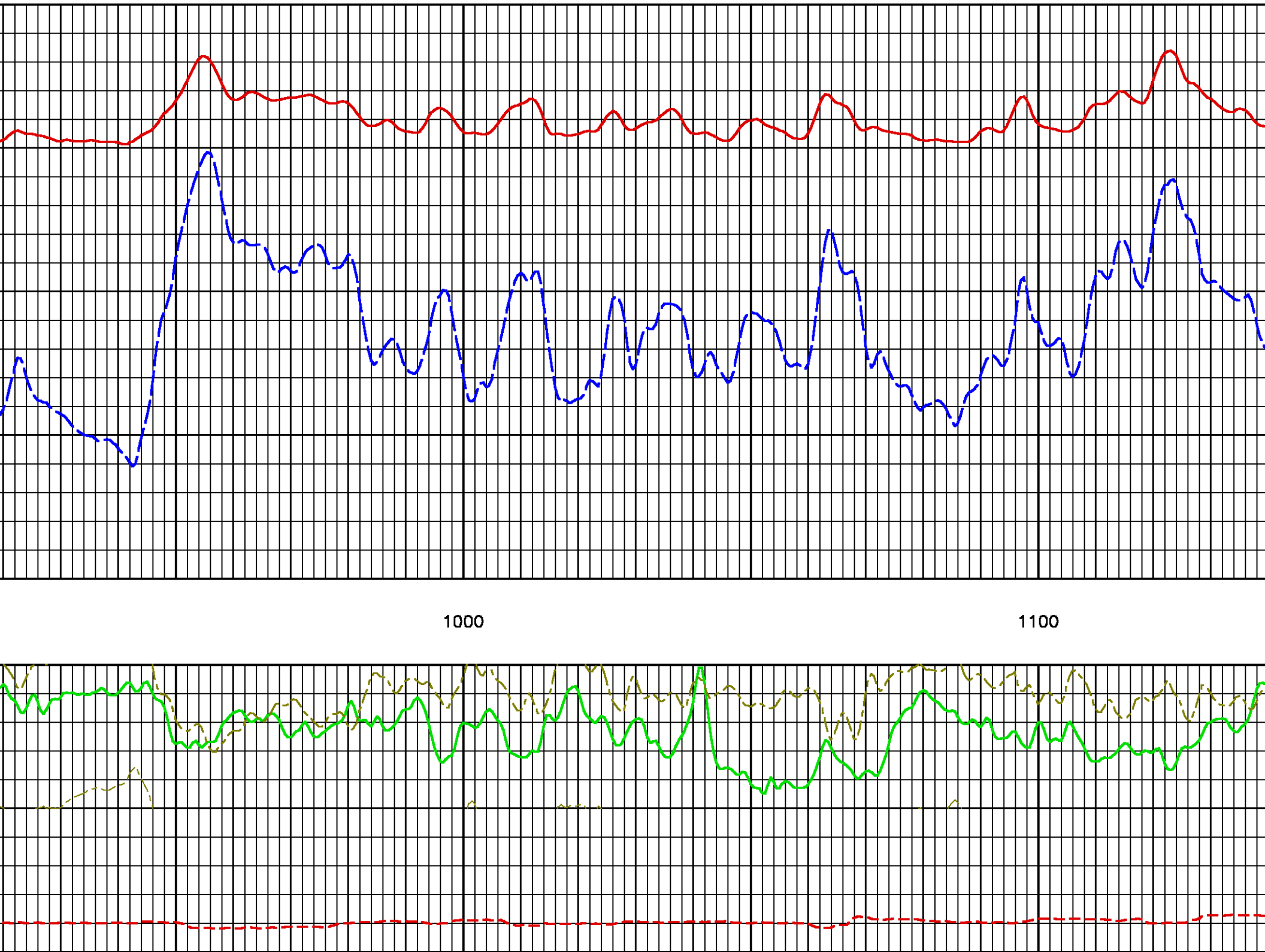
COMPRESSIONAL AND SHEAR WAVE SLOWNESS

Project : /geos/lac/adrejosl/sierra_xmac
User : adrejosl
Presentation : sunserv24:/geos/lac/adrejosl/sierra_xmac/dt.pdf [5"/100' Scale]
Plot Interval : 550 - 2316 Feet

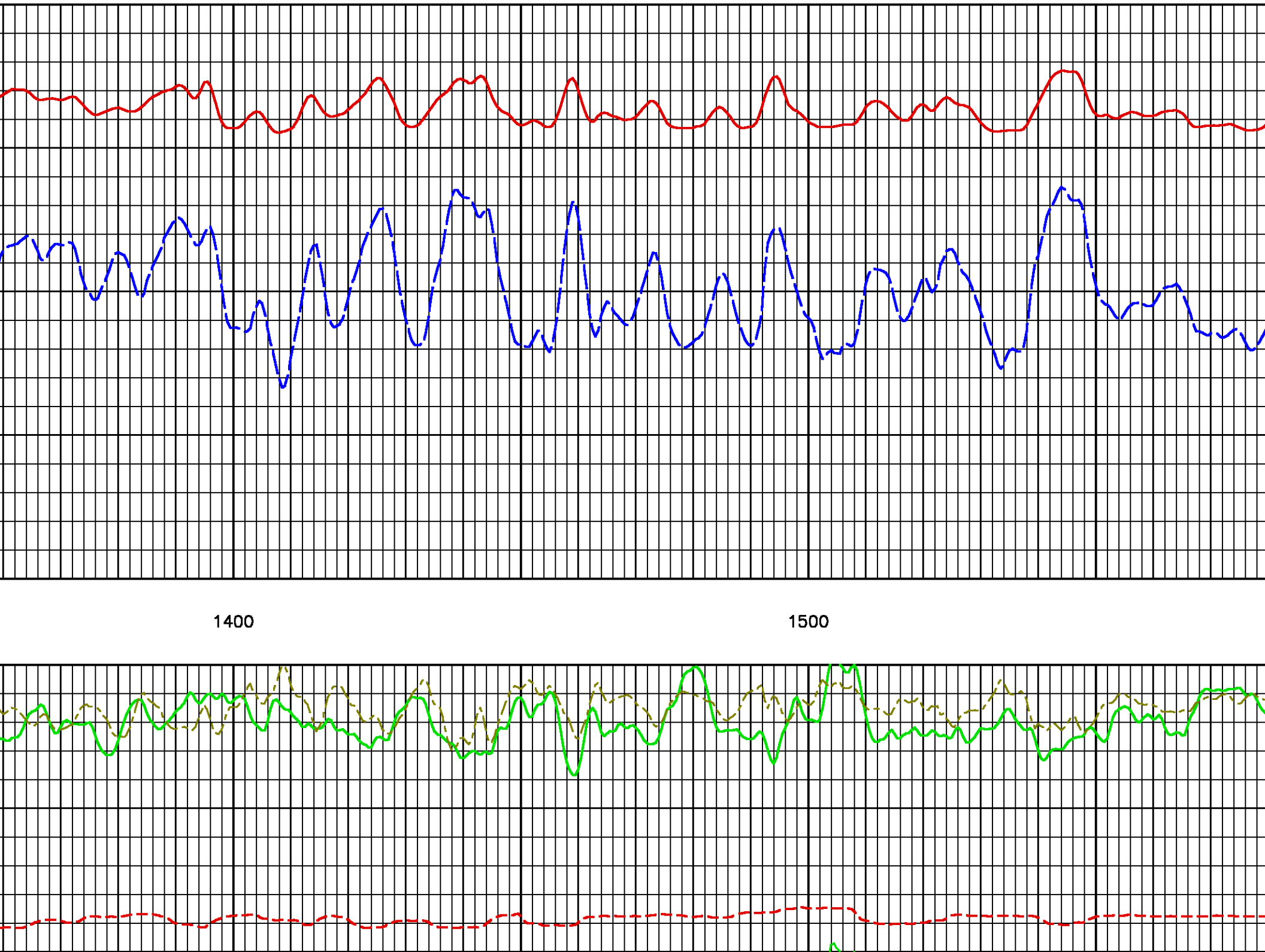
Data File 1	: F1 : sunserv24:/geos/lac/adrejosl/sierra_xmac/xmac.xtf
Created On	: Nov 15 12:51:25 2009
Company	: SIERRA GEOTHERMAL POWER, INC.
Well	: ALUM 25-29
Field	: ALUM
File Interval	: 472.5 - 2316 Feet
Oct	: k771l

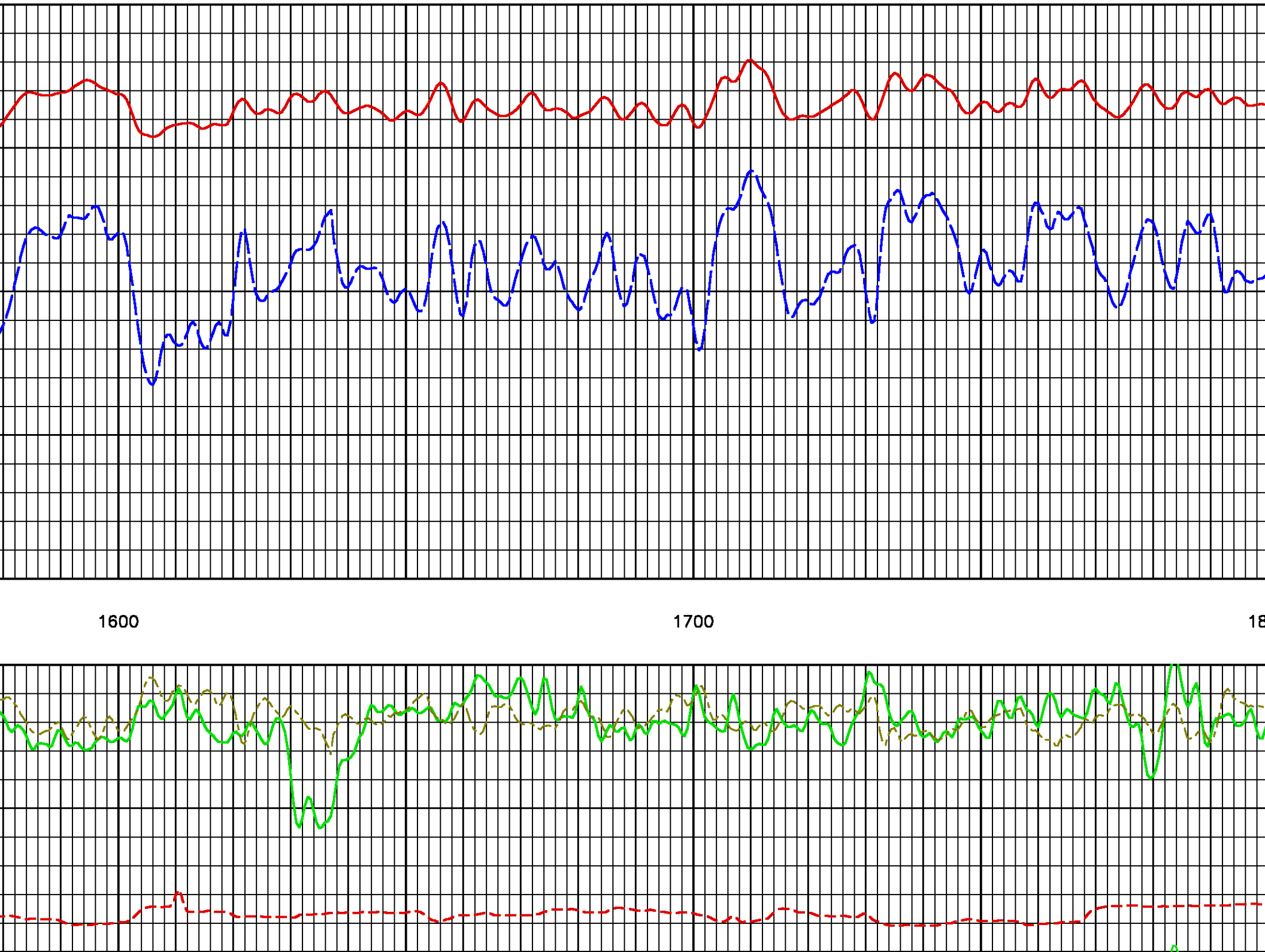


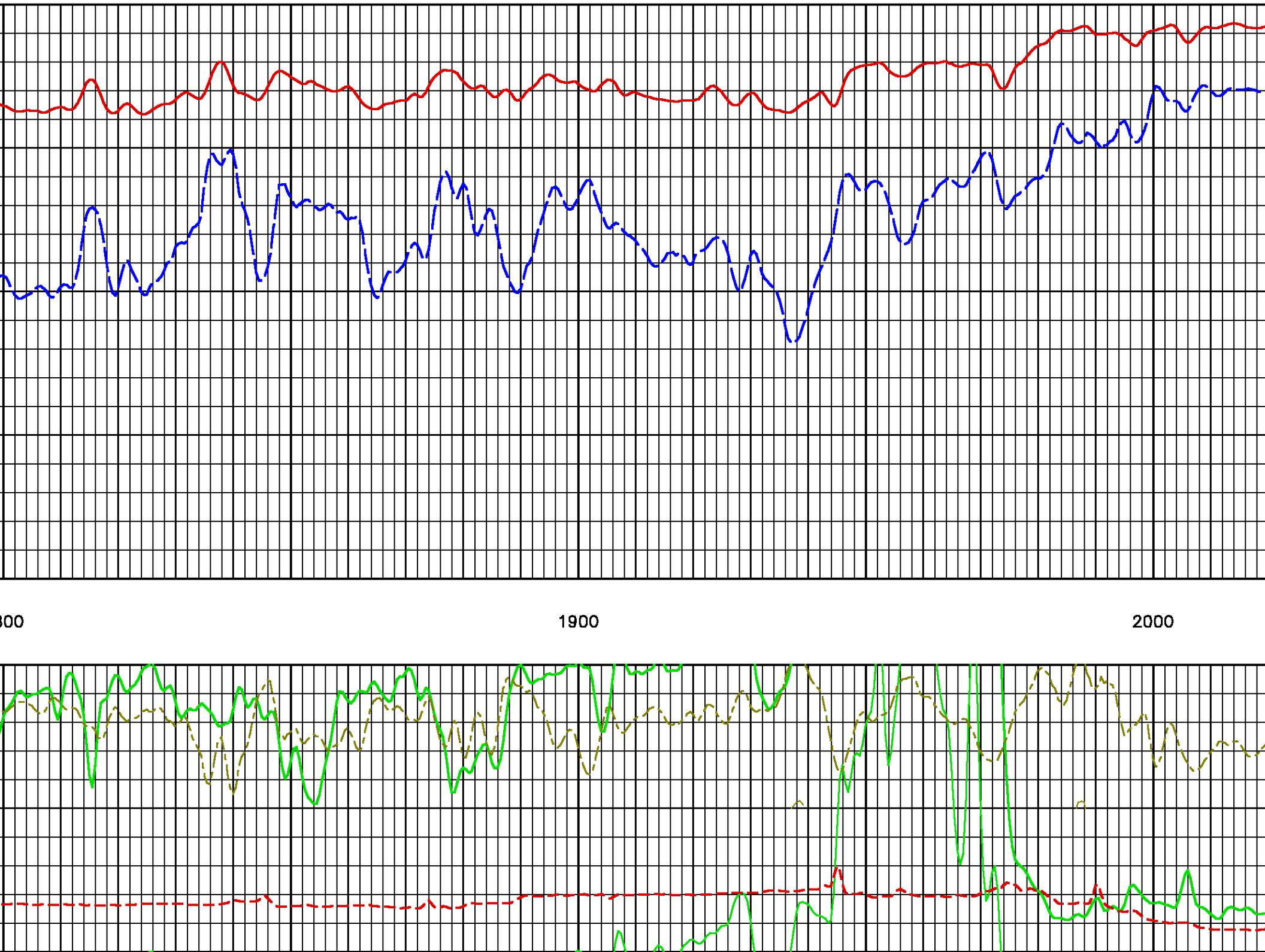
800
900

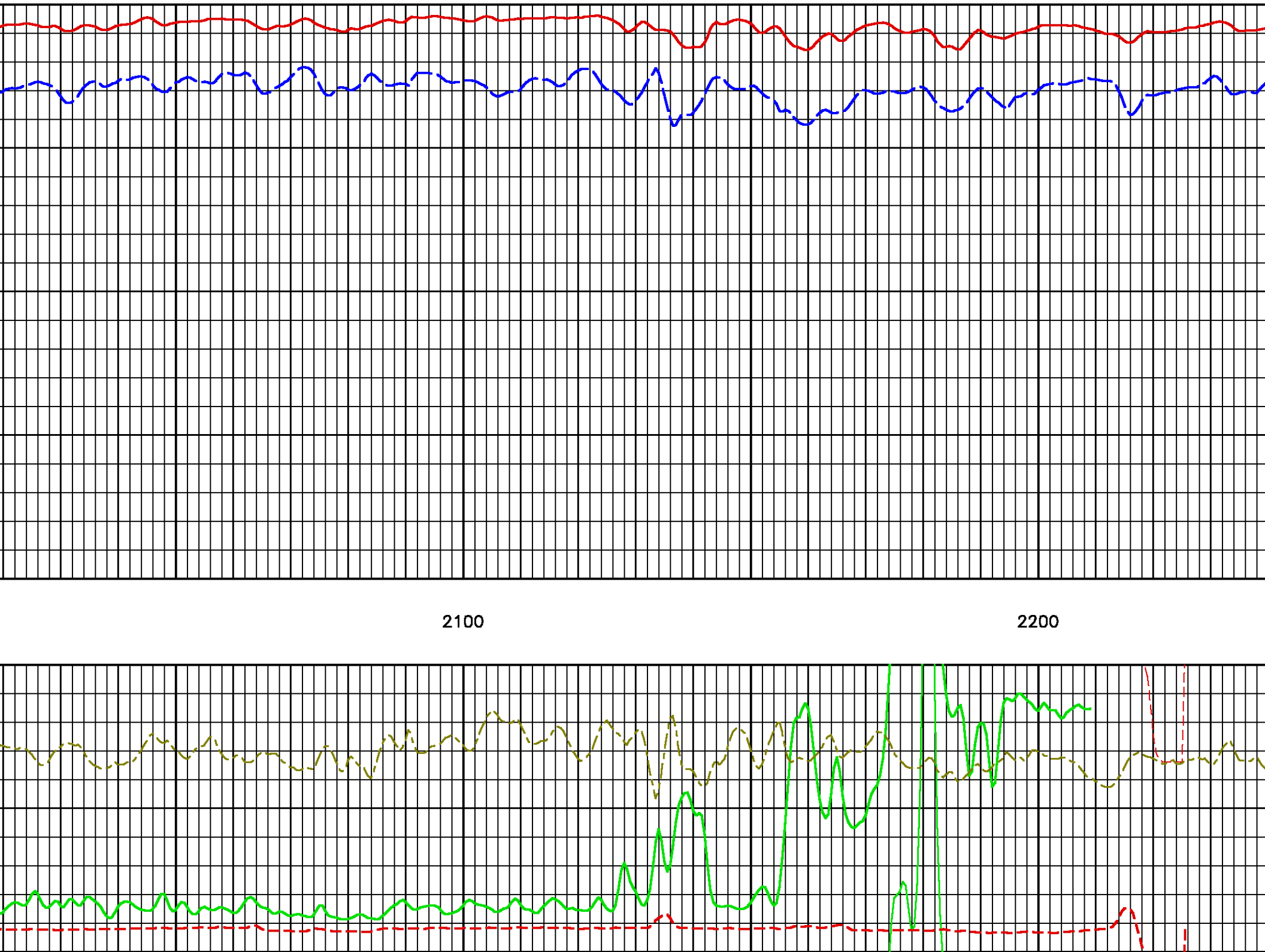

1000
1100

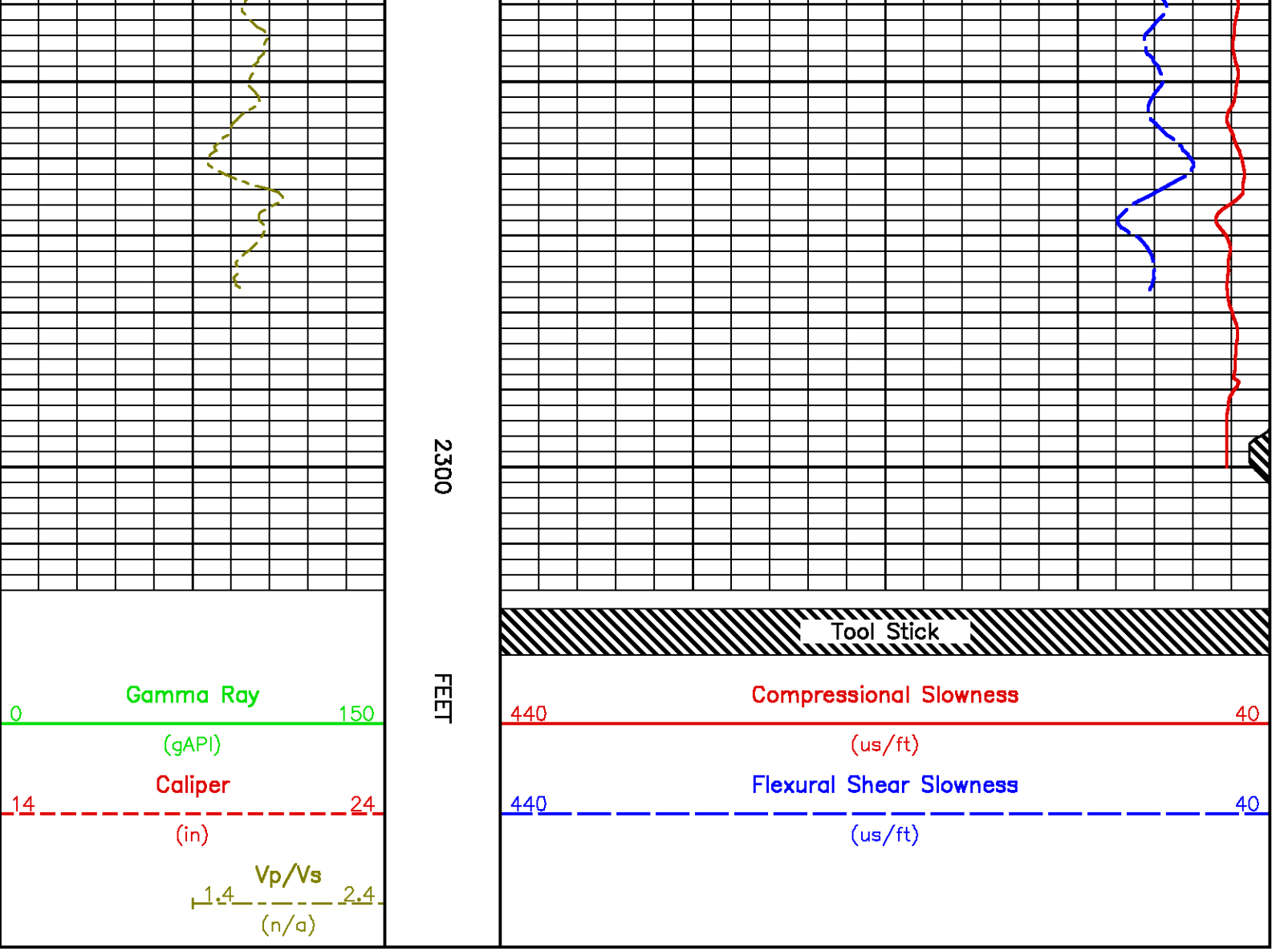
1200
1300


1400
1500


1600
1700
18

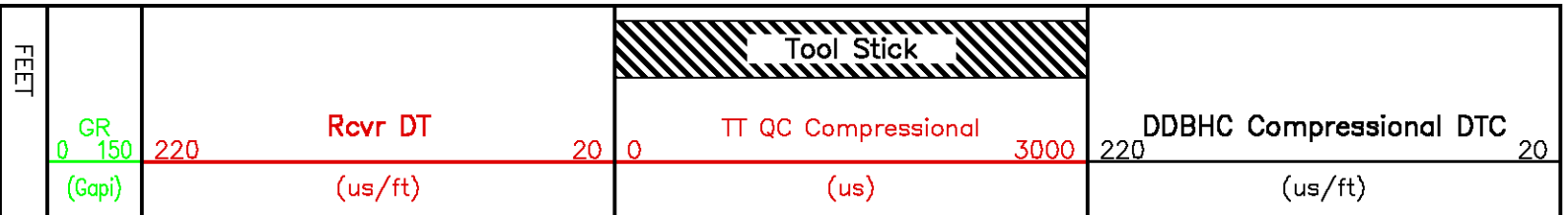

1900
2000

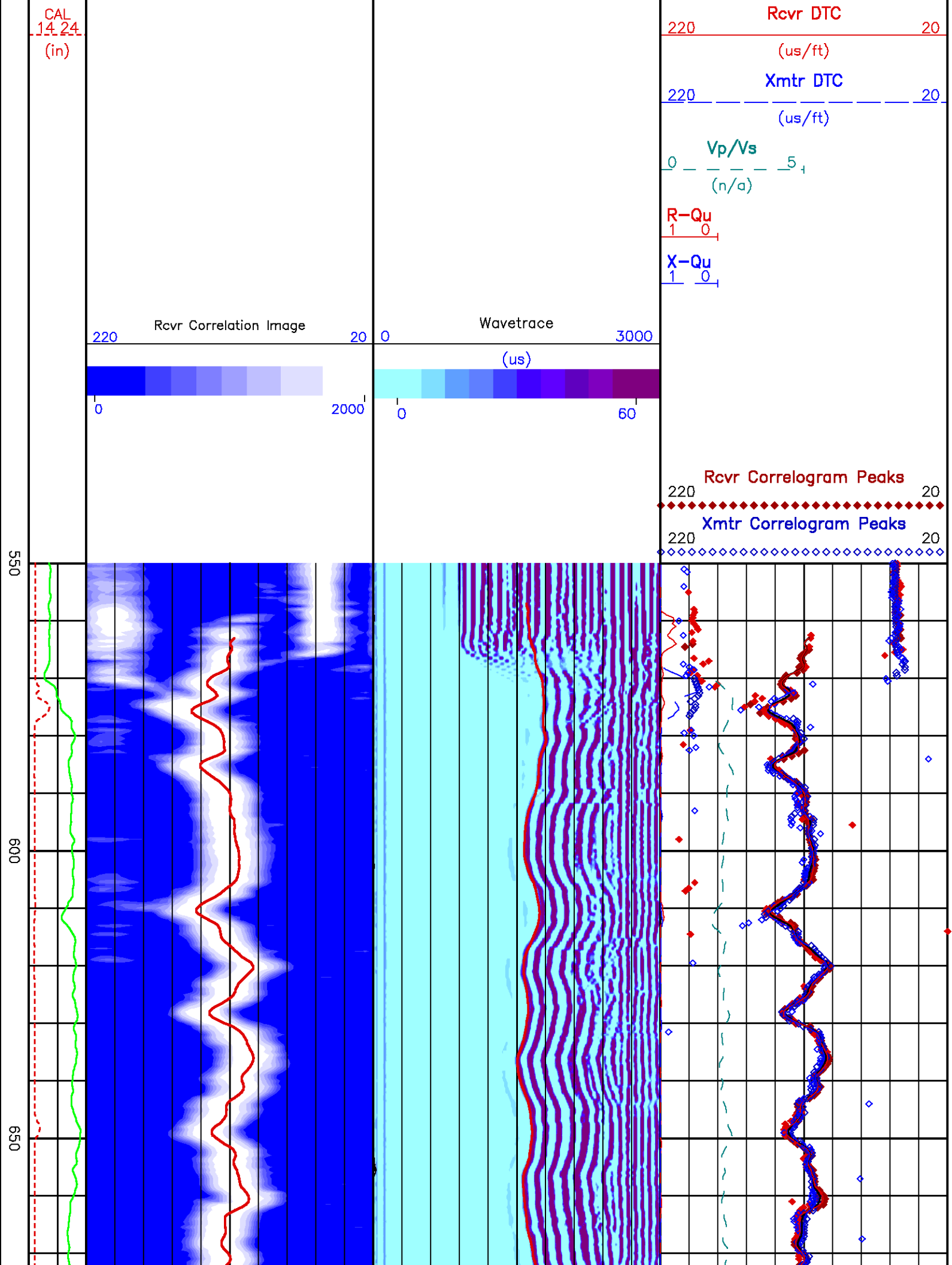

2100
2200

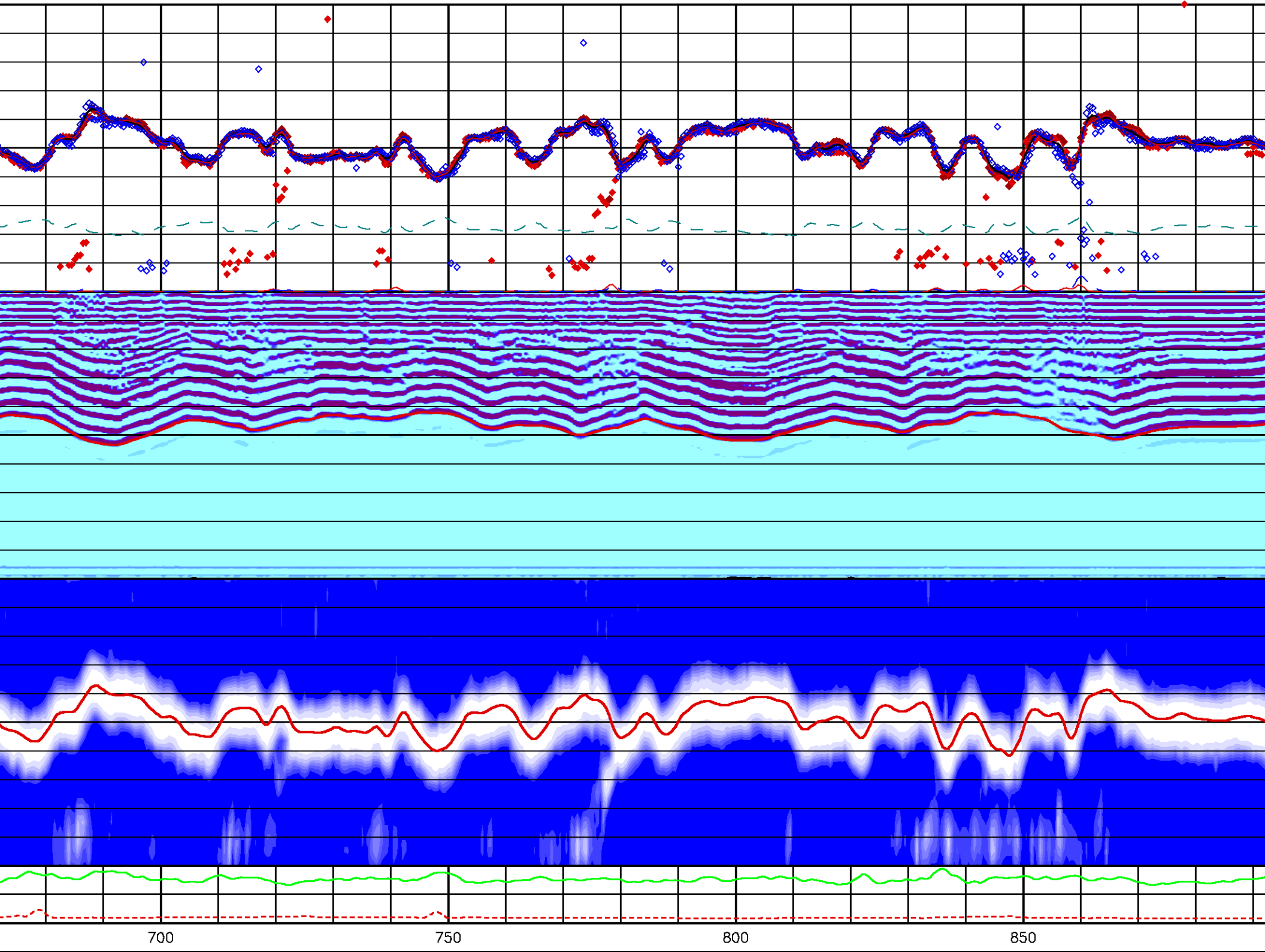


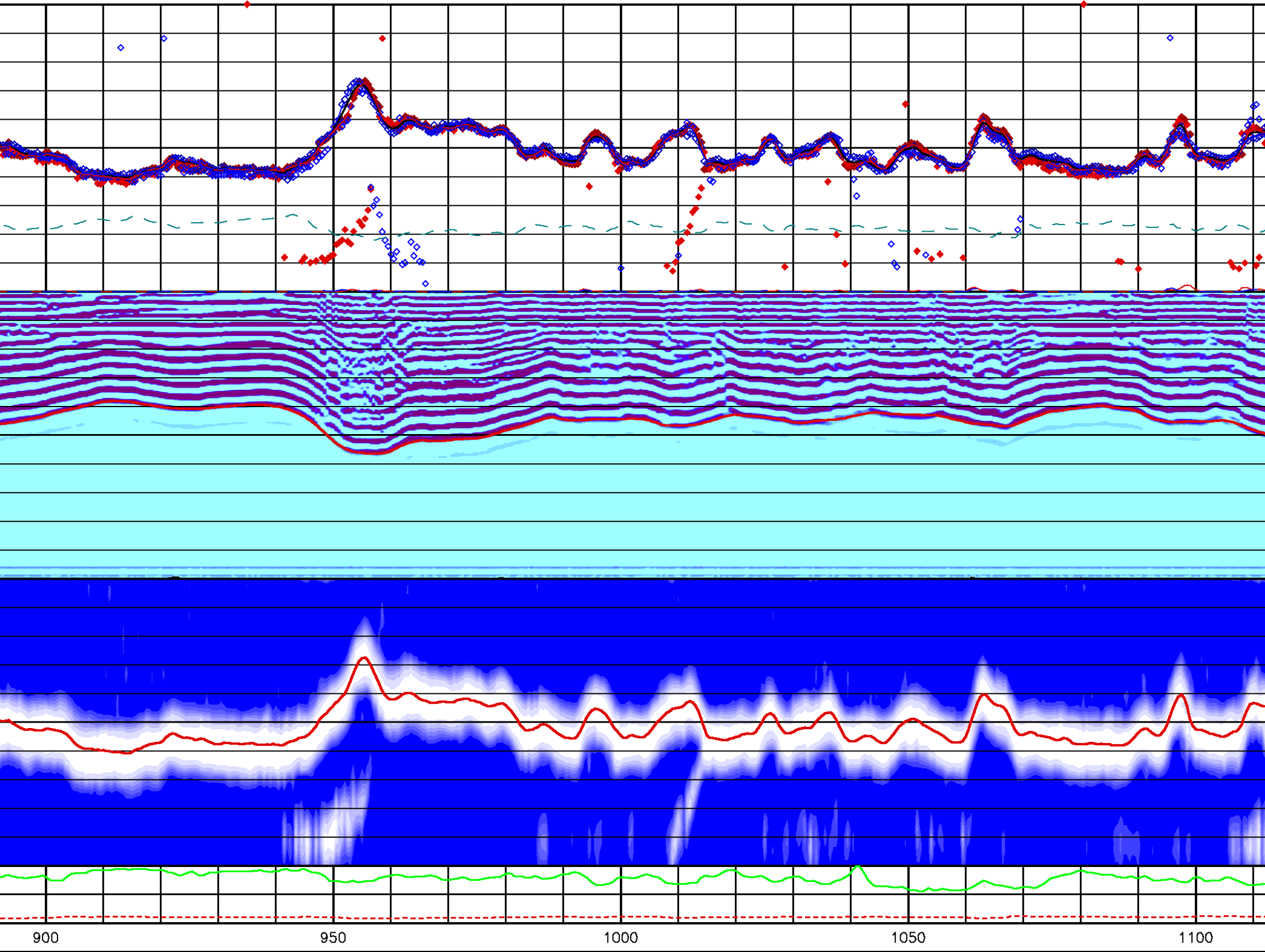
MONOPOLE QC PLOT

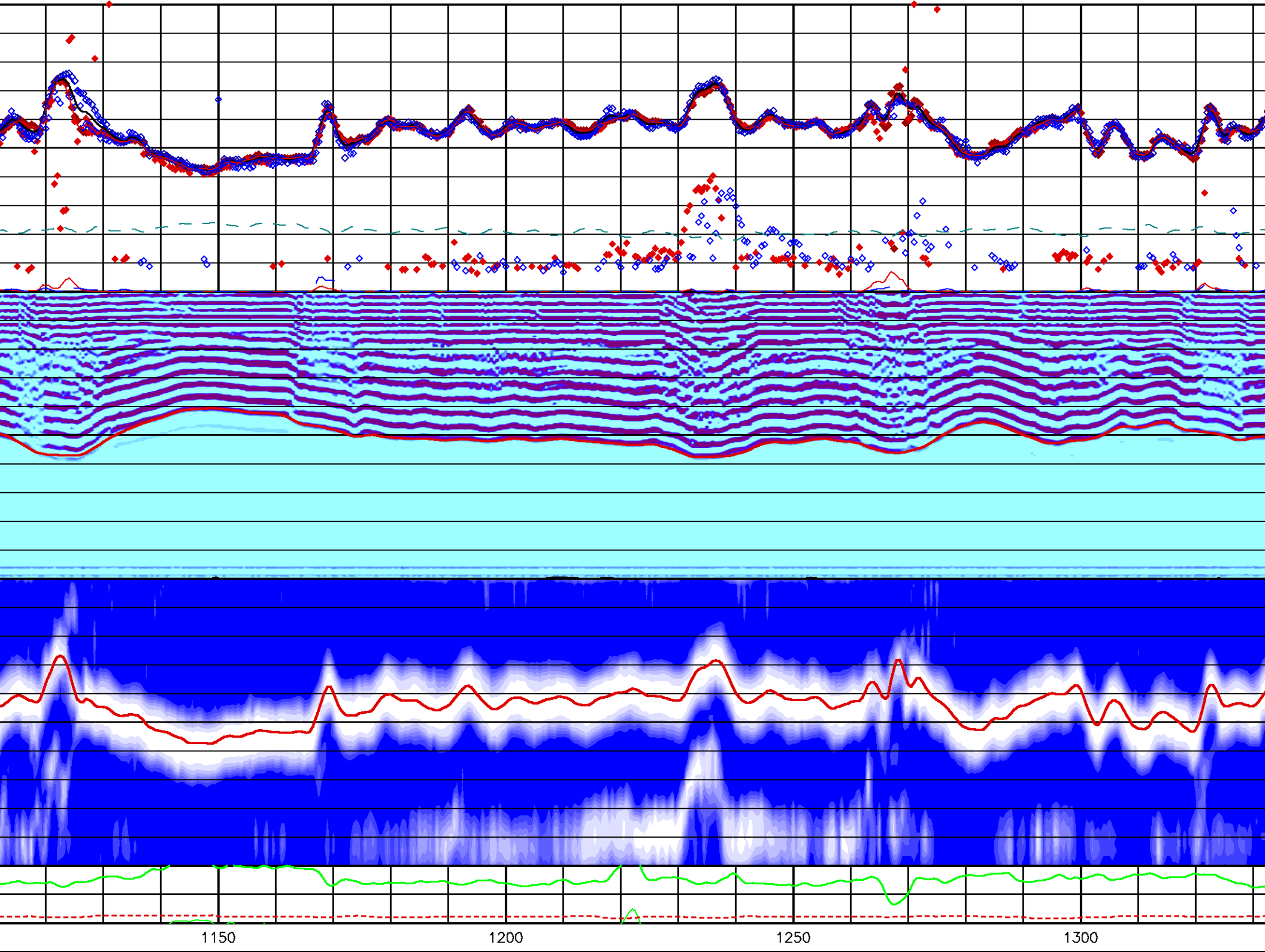
Project	: /geos/lac/adrejosl/sierra_xmac
User	: adrejosl
Presentation	: sunserv24:/geos/lac/adrejosl/sierra_xmac/monoii.pdf [5"/100' Scale]
Plot Interval	: 550 - 2316 Feet
Data File 1	: F1 : sunserv24:/geos/lac/adrejosl/sierra_xmac/xmac.xtf
Created On	: Nov 15 12:51:25 2009
Company	: SIERRA GEOTHERMAL POWER, INC.
Well	: ALUM 25-29
Field	: ALUM
File Interval	: 472.5 - 2316 Feet
Oct	: k771l

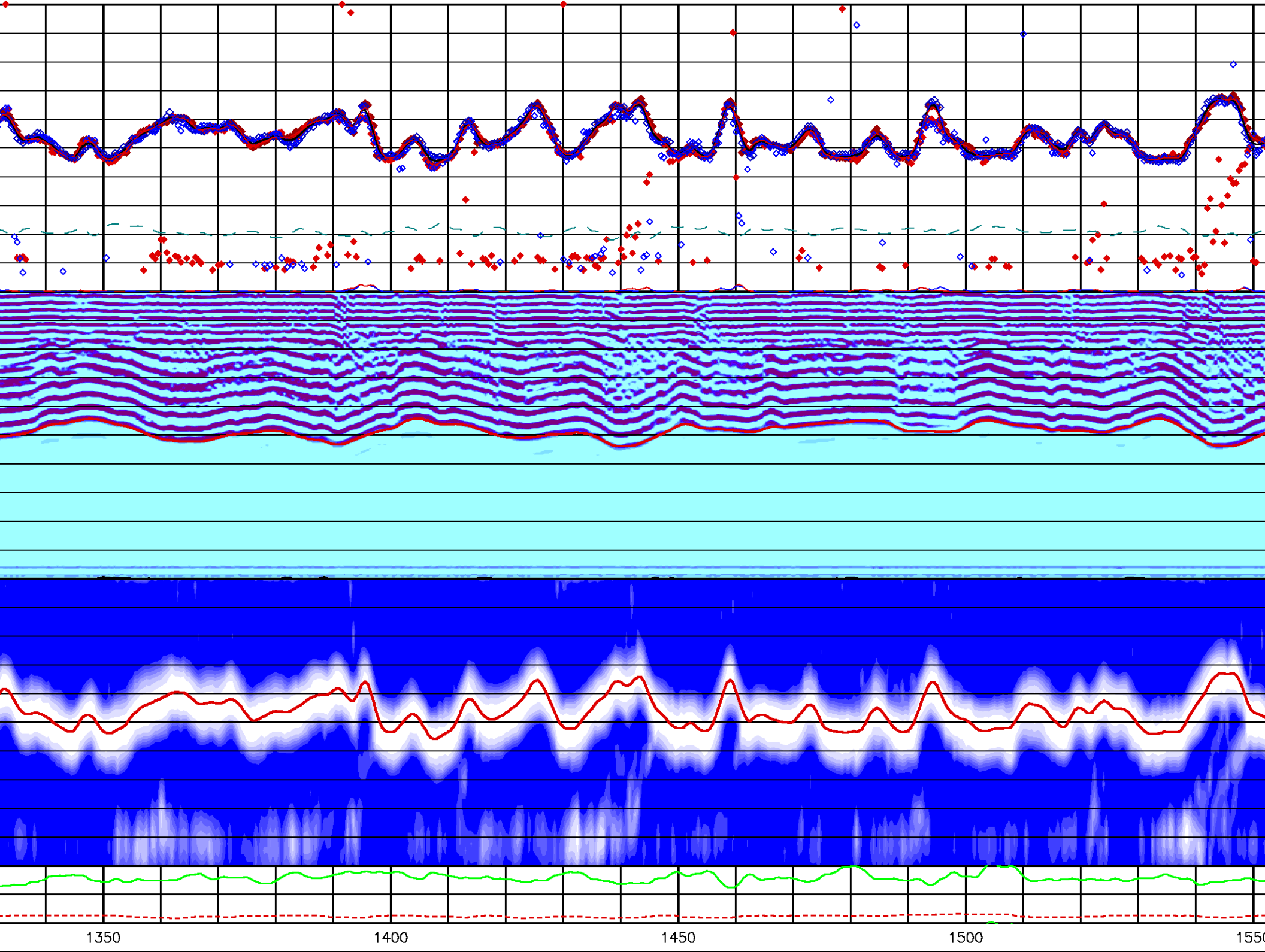


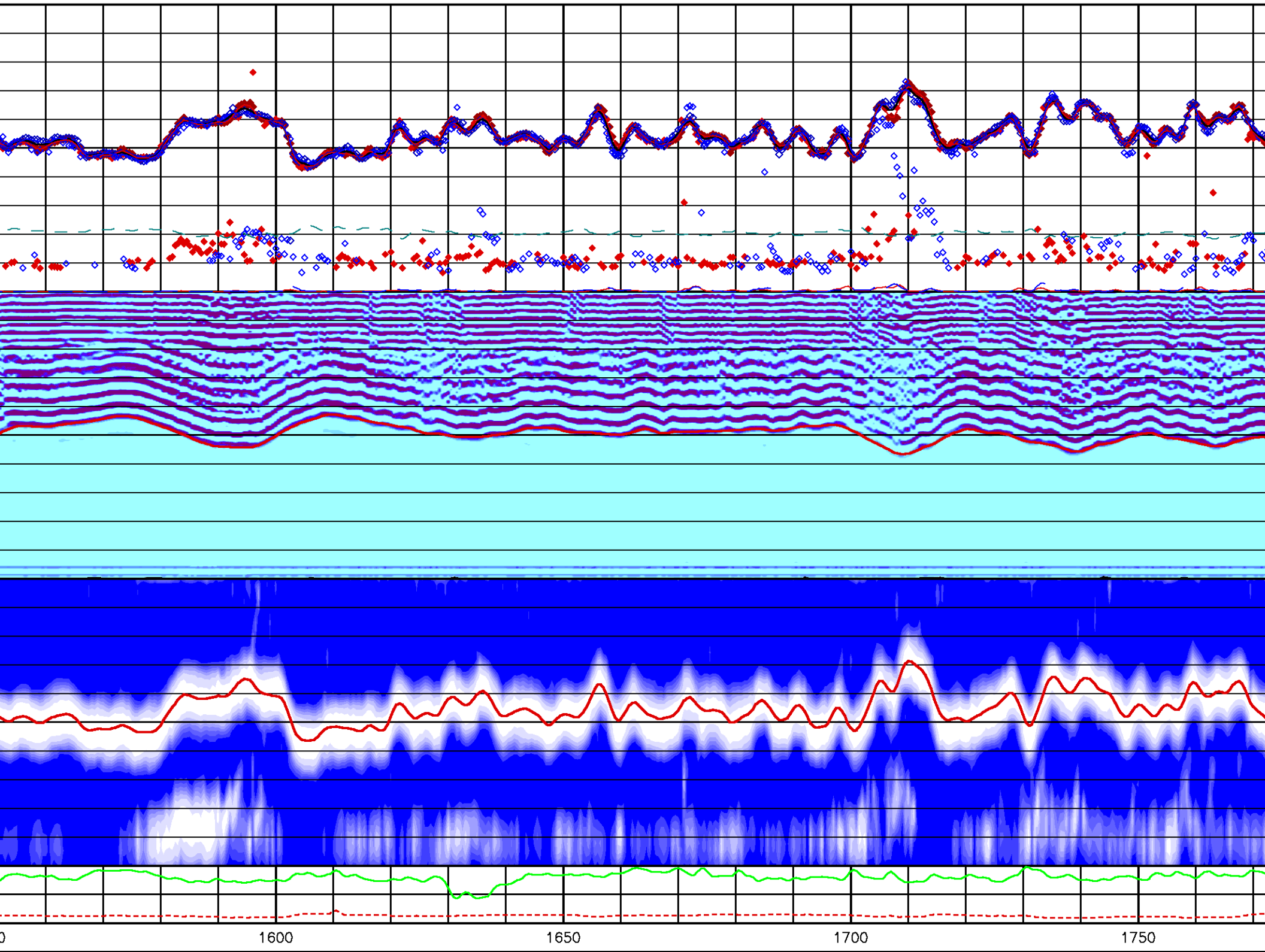

CAL
14 24
(in)
Rcvr DTC
220
20
(us/ft)
Xmtr DTC
220
20
(us/ft)
Vp/Vs
0
5
(n/a)
R-Qu
1
0
X-Qu
1
0
Rcvr Correlation Image
220
20
0
2000
Wavetrace
0
3000
(us)
0
60
Rcvr Correlogram Peaks
220
20
Xmtr Correlogram Peaks
220
20
550
600
650

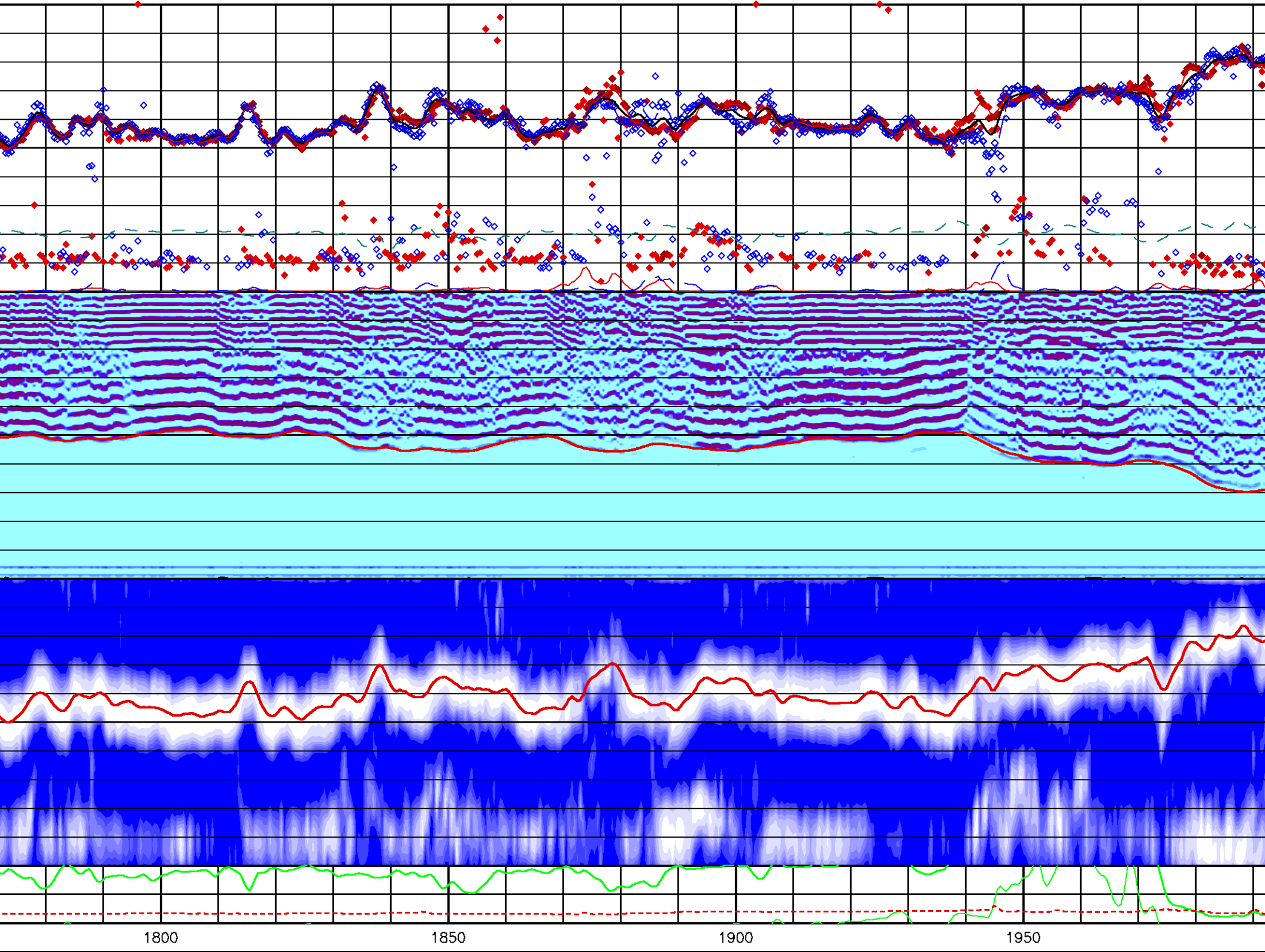

700
750
800
850

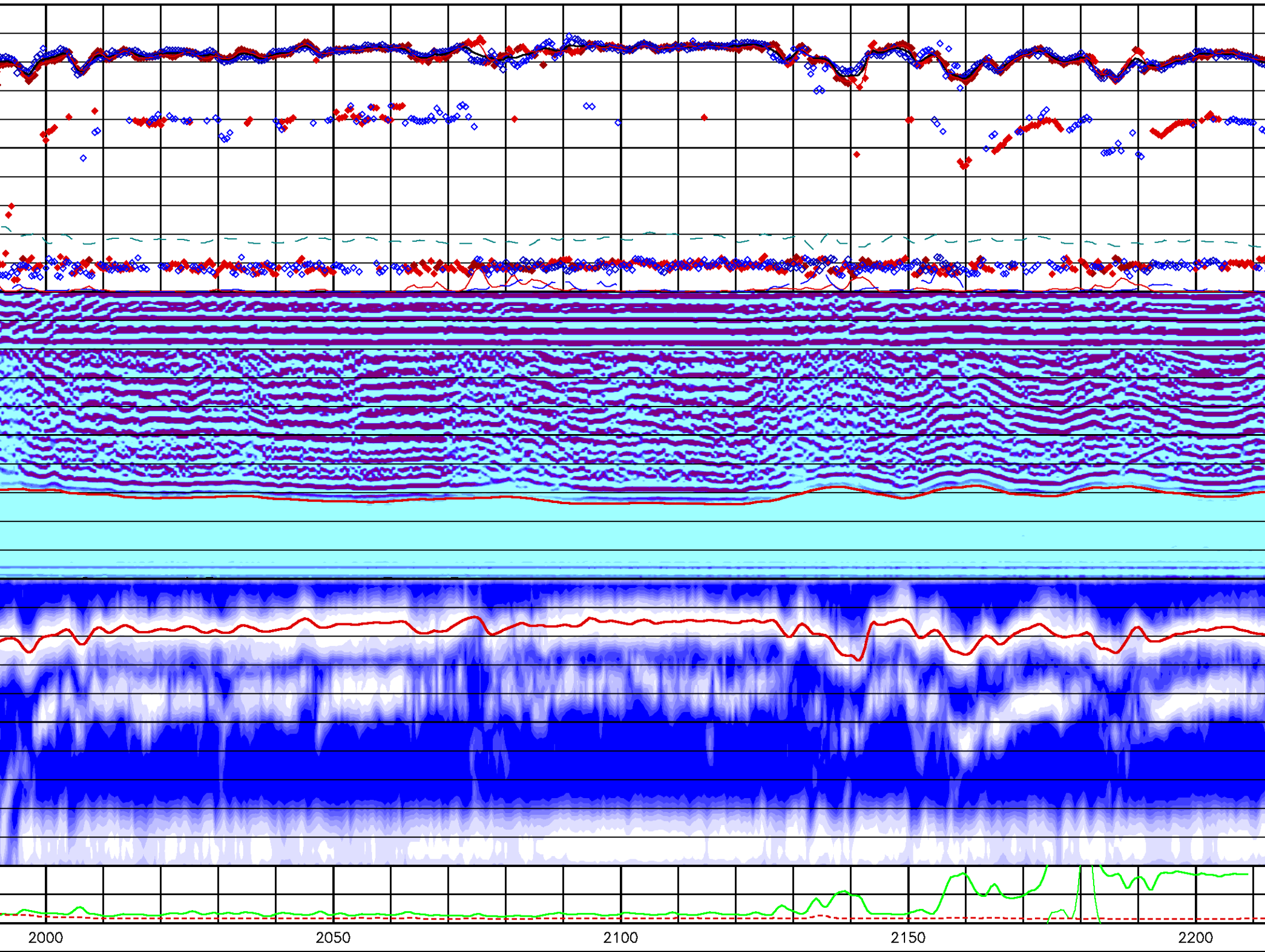

900
950
1000
1050
1100

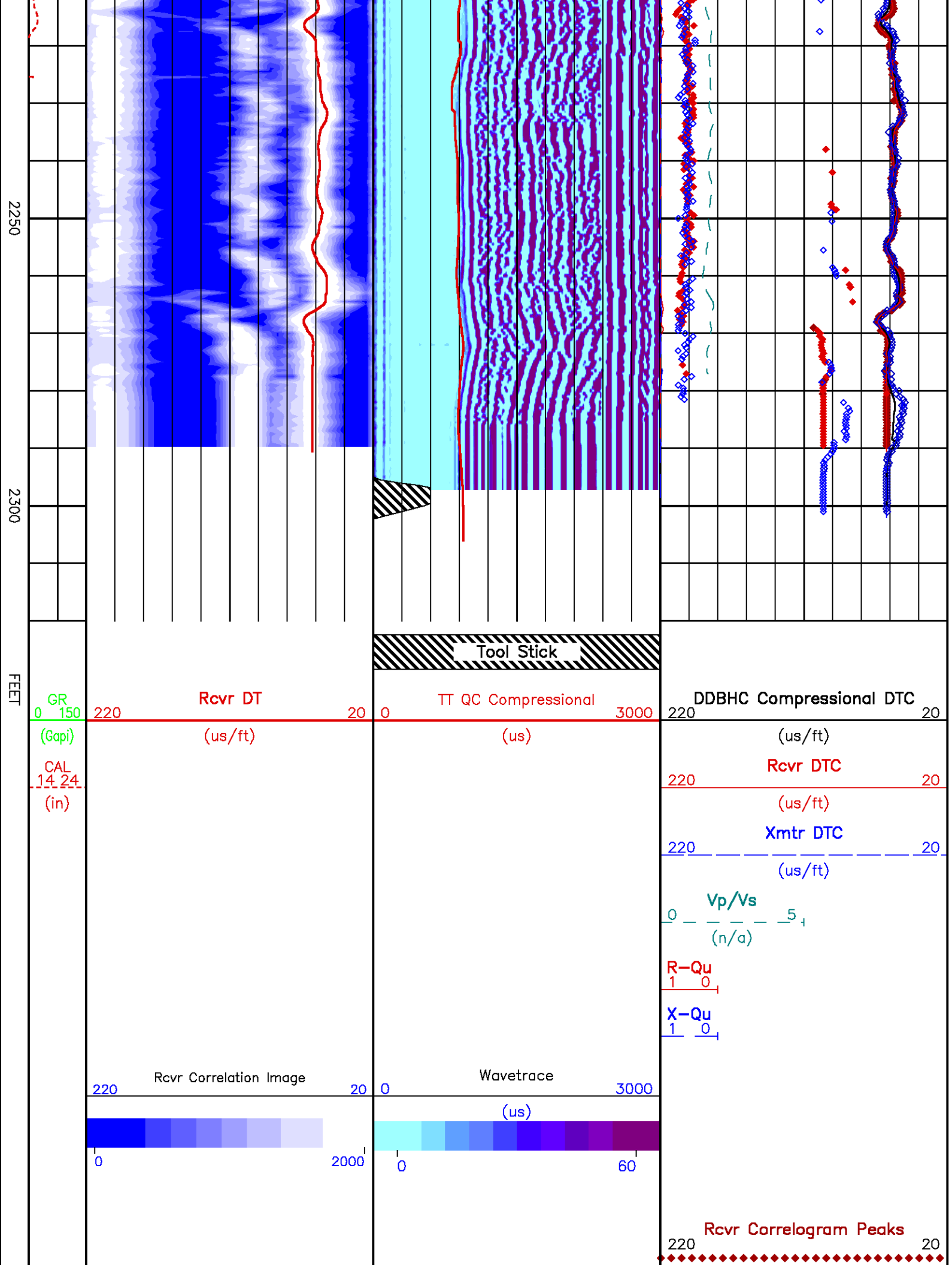

1150
1200
1250
1300


1350
1400
1450
1500


1600
1650
1700
1750


1800
1850
1900
1950

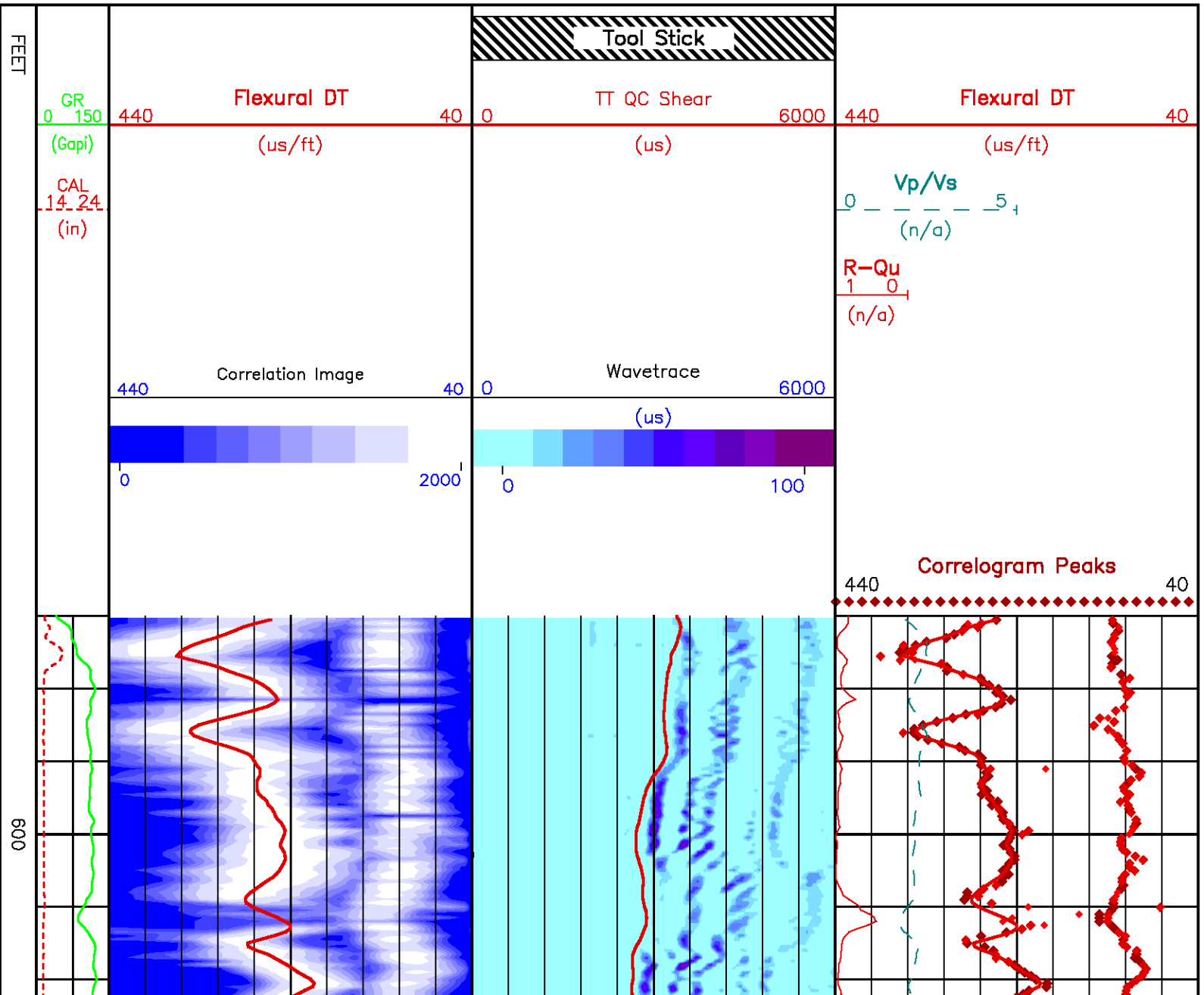

2000
2050
2100
2150
2200

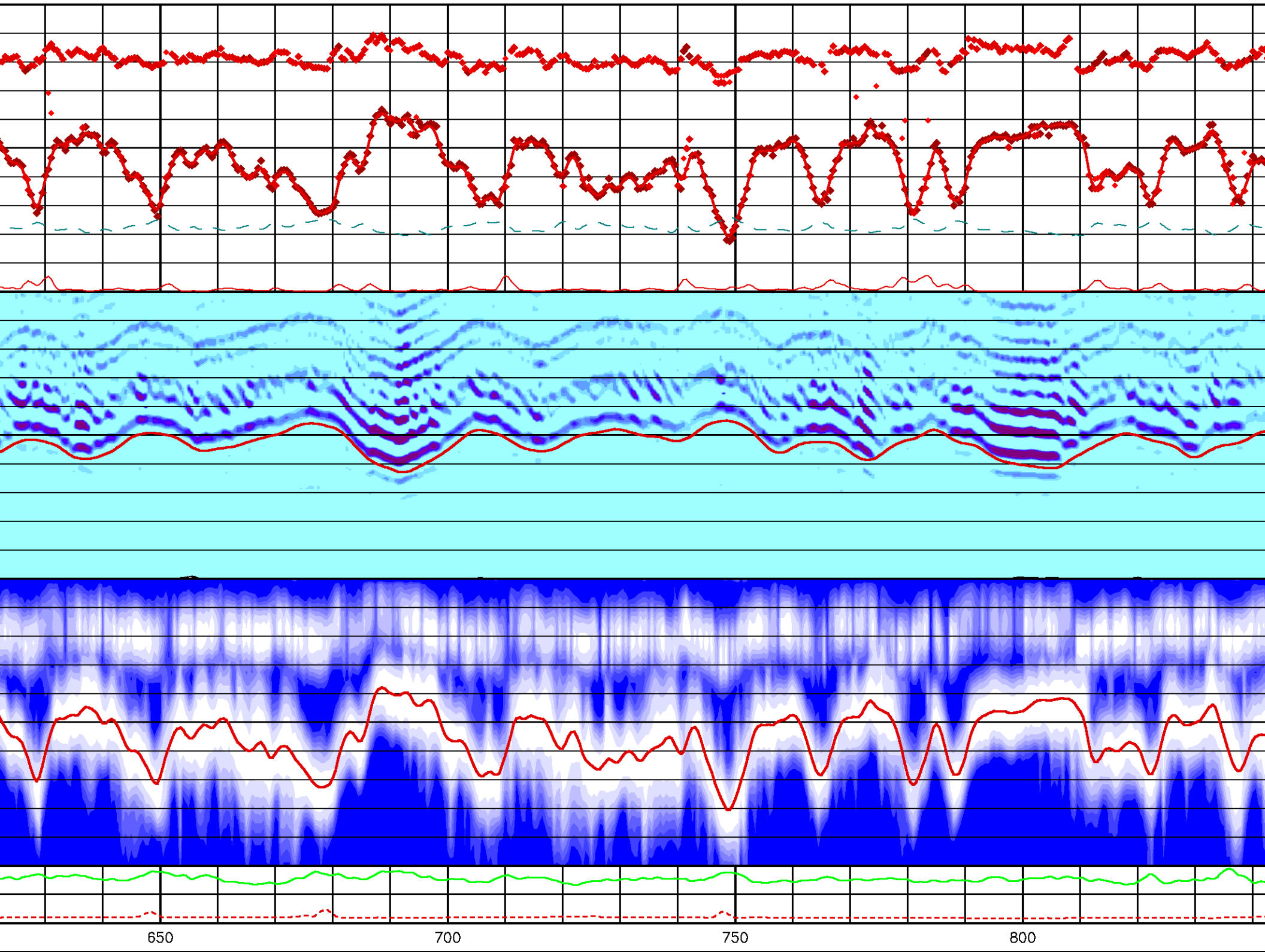

2250
2300
FEET
Tool Stick
GR
0 150
(Gapi)
CAL
14 24
(in)
Rcvr DT
220 20
(us/ft)
TT QC Compressional
0 3000
(us)
DDBHC Compressional DTC
220 20
(us/ft)
Rcvr DTC
220 20
(us/ft)
Xmtr DTC
220 20
(us/ft)
Vp/Vs
0 5
(n/a)
R-Qu
1 0
X-Qu
1 0
Rcvr Correlation Image
220 20
0 2000
Wavetrace
0 3000
(us)
0 60
Rcvr Correlogram Peaks
220 20

Xmtr Correlogram Peaks
220 20

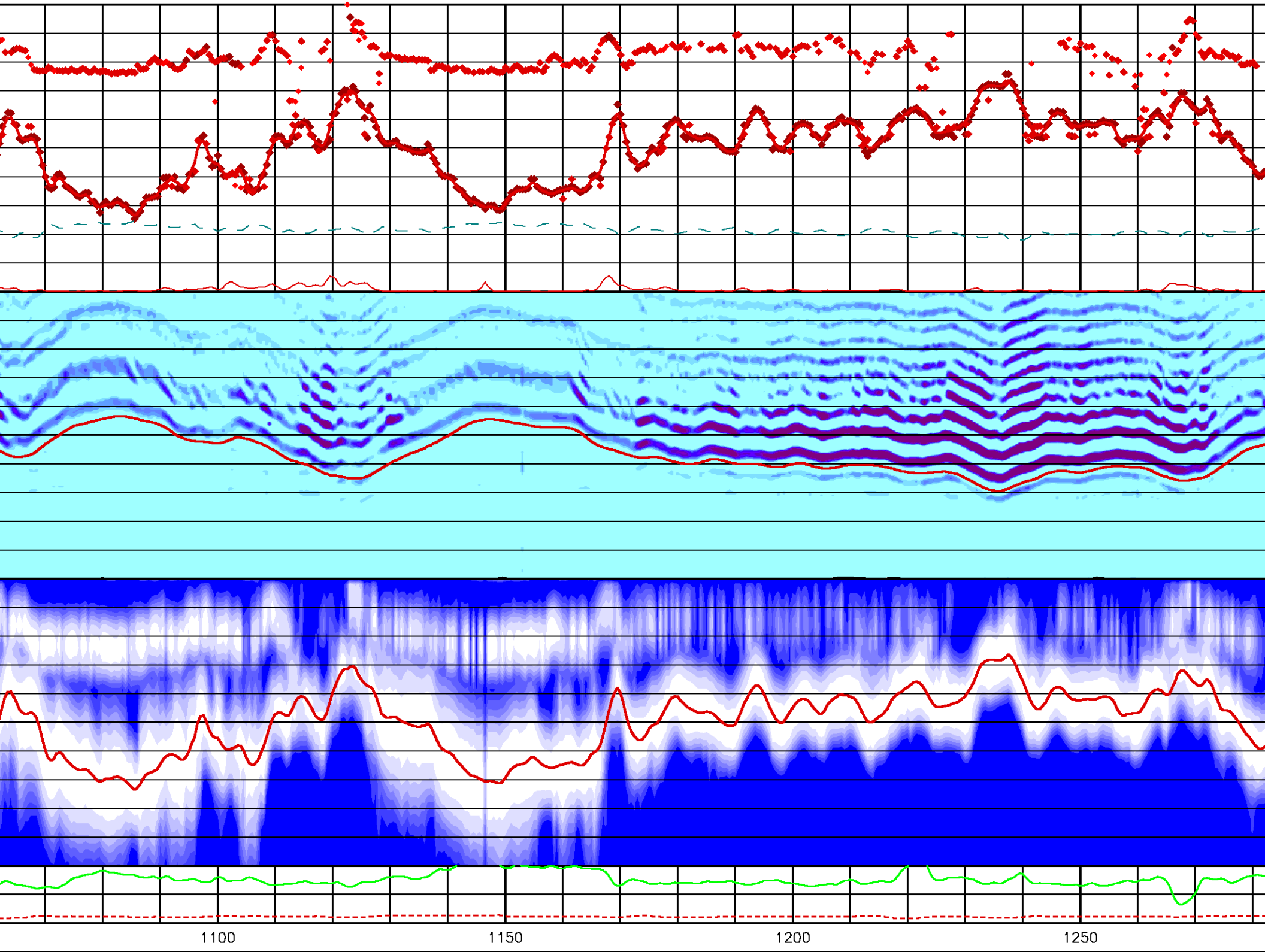
DIPOLE QC PLOT

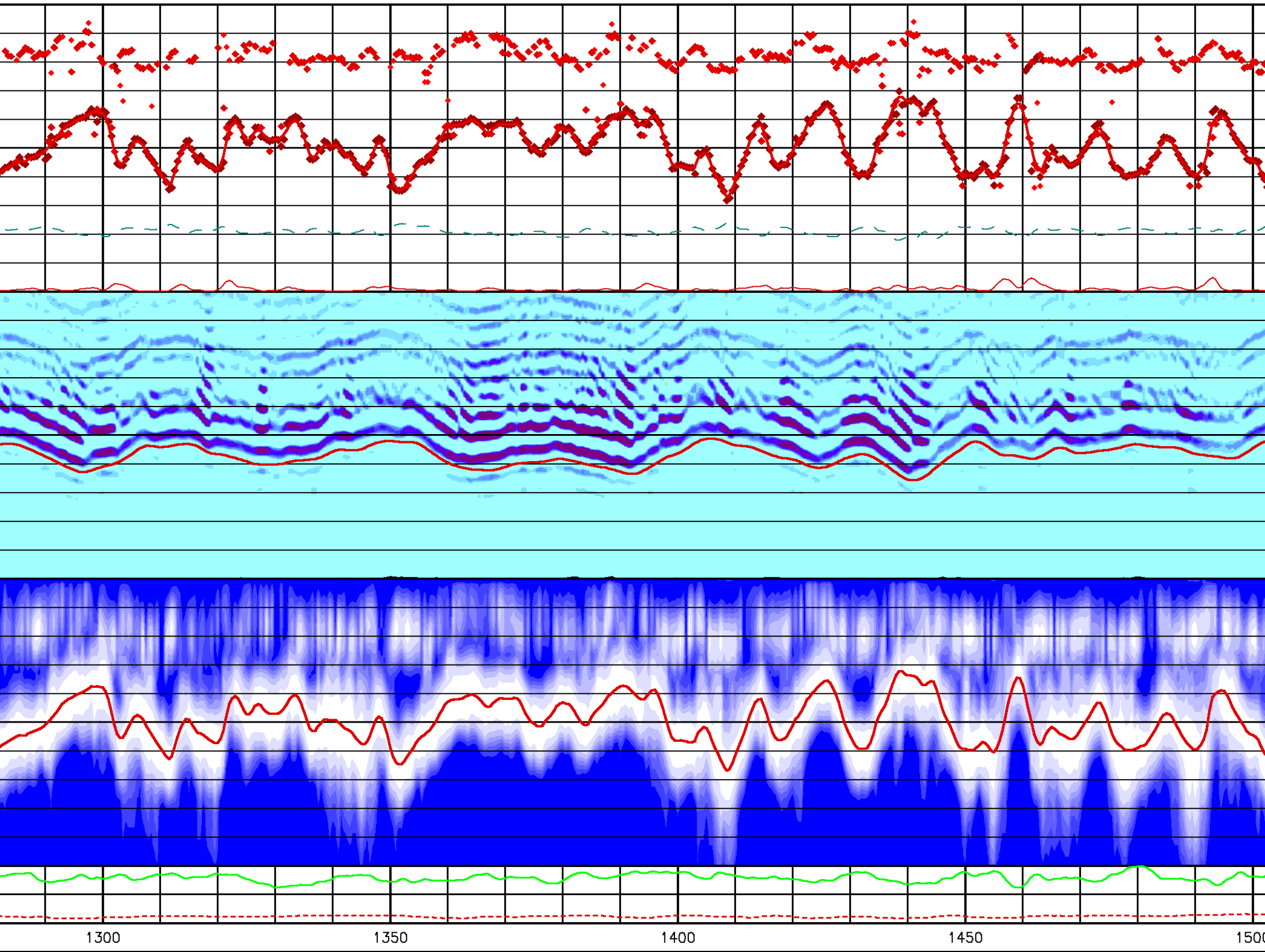
Project	: /geos/lac/adrejosl/sierra_xmac
User	: adrejosl
Presentation	: sunserv24:/geos/lac/adrejosl/sierra_xmac/dipoll.pdf [5"/100' Scale]
Plot Interval	: 570 – 2316 Feet
Data File 1	: F1 : sunserv24:/geos/lac/adrejosl/sierra_xmac/xmac.xtf
Created On	: Nov 15 12:51:25 2009
Company	: SIERRA GEOTHERMAL POWER, INC.
Well	: ALUM 25-29
Field	: ALUM
File Interval	: 472.5 – 2316 Feet
Oct	: k771l

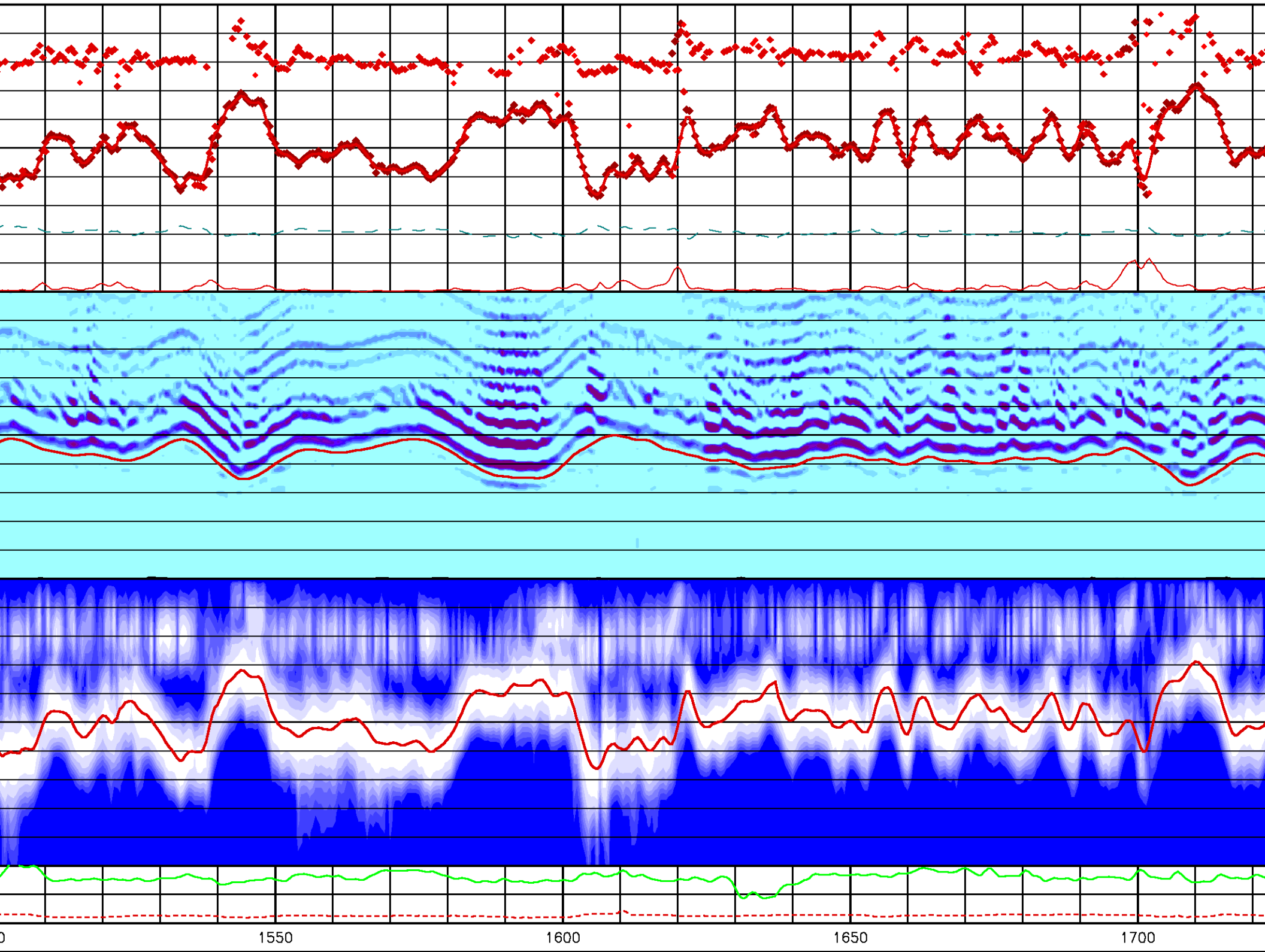


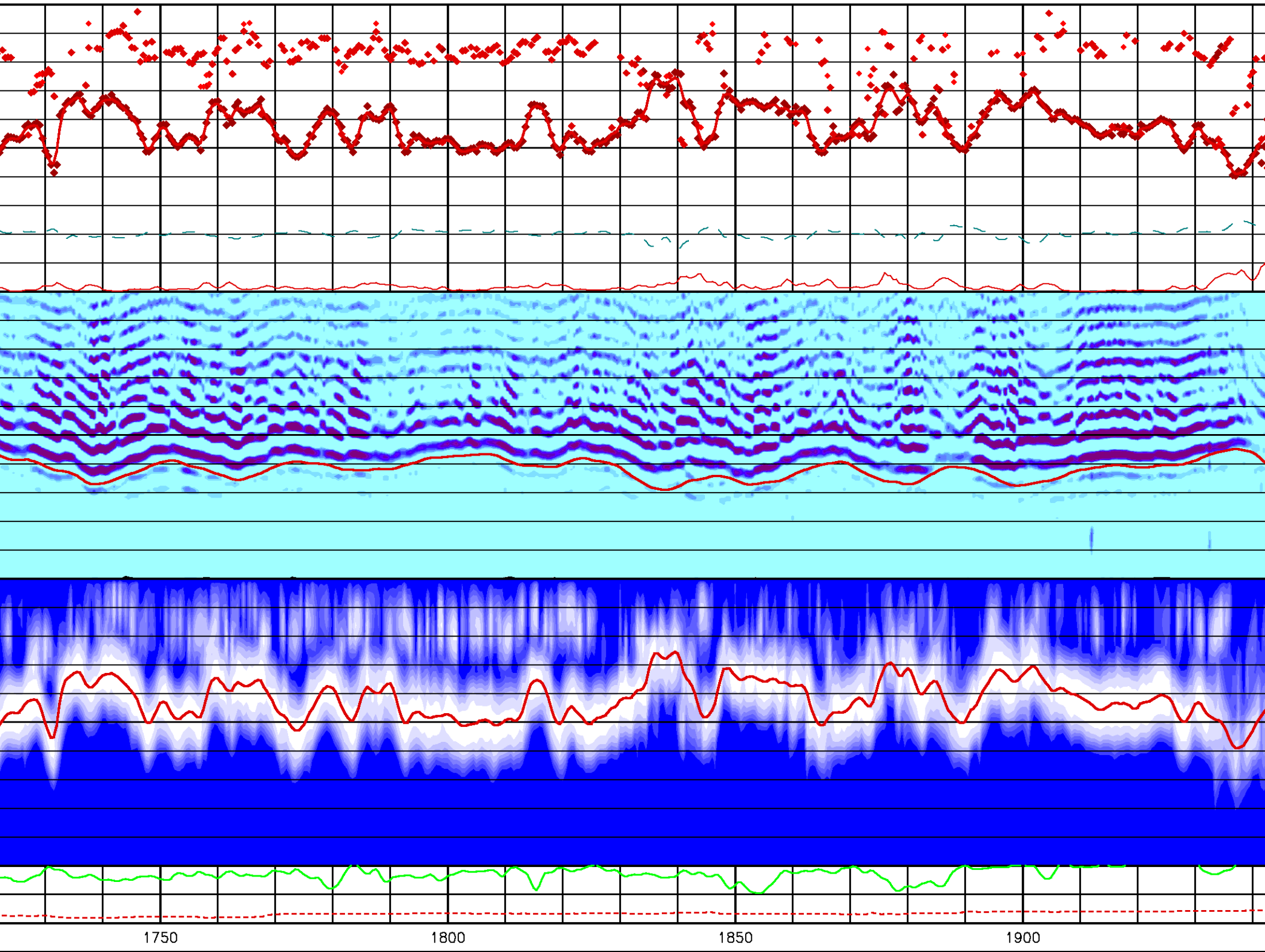

650
700
750
800

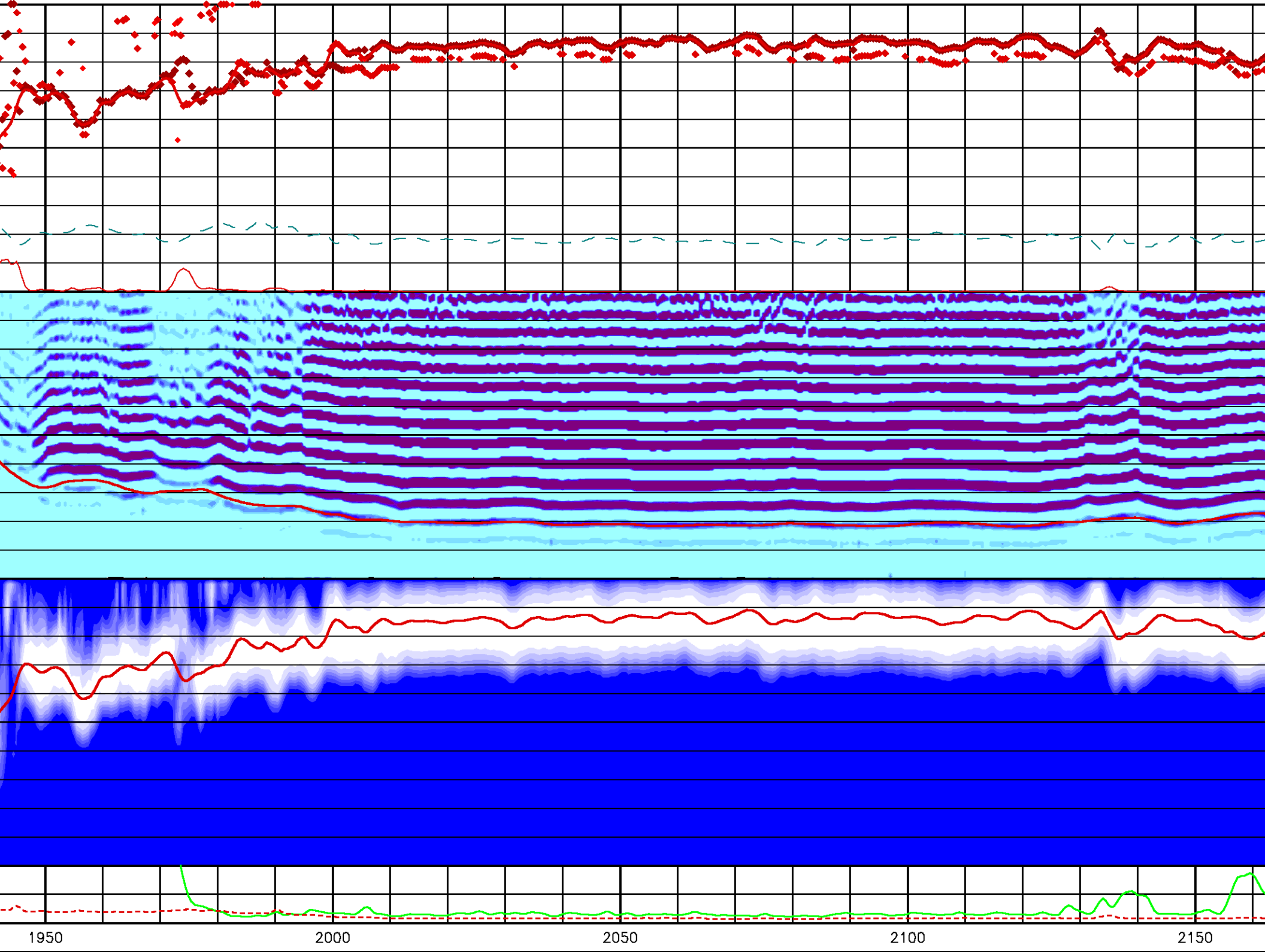
850
900
950
1000
1050

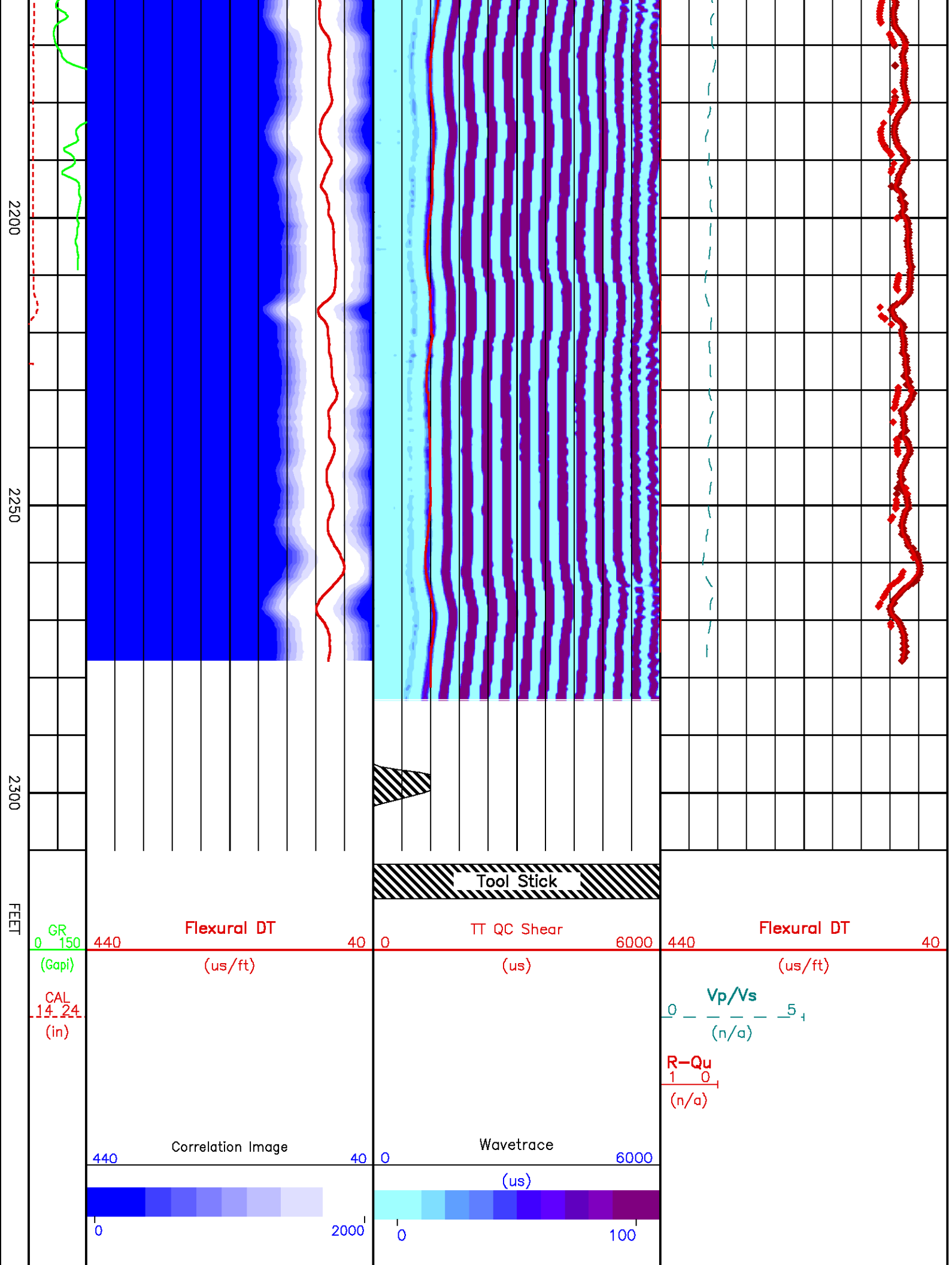

1100
1150
1200
1250


1300
1350
1400
1450
1500


1550
1600
1650
1700


1750
1800
1850
1900


1950
2000
2050
2100
2150


2200
2250
2300
FEET
Tool Stick
GR
0 150
(Gapi)
CAL
14 24
(in)
Flexural DT
440 40
(us/ft)
Correlation Image
440 40
0 2000
TT QC Shear
0 6000
(us)
Wavetrace
0 6000
(us)
0 100
Flexural DT
440 40
(us/ft)
Vp/Vs
0 5
(n/a)
R-Qu
1 0
(n/a)

PARAMETER SECTION

Source File: /geos/lac/adrejosl/sierra_xmac/waveavan.monor.inp

```
! time: Mon Nov 23 12:42:32 2009
!
! Input/Output curves
!
FILE = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
FILEOUT = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
!
! OWRITE=1: Overwrite, OWRITE=2: Recreate
!
OWRITE = 2,
!
TRWAV < TFWV01   ,
TRSTRT < TFST01   ,
TRGAIN < TFGN01   ,
CORCMB > Corcmbr,
TTOUT > TTCR,
DTOUT > DTCR,
SQINT > QCR,
CORPKS > Corpksr,
TRWAVF > Tfwv01f,
!
! Tool information( TRSP, TRID, RRSP unit: FEET; DEPREF unit: depth unit; RxDia, TxDia unit: INCHES
!
TOOLNAME = 'XMAC-ELITE-Monopole',
SERIES = '1678',
NUMRCVRS = 8,
TRSP = -12,
TRID = 1,
RRSP = 0.5,
DEPREF = 6,
RxDia = 2.66,
TxDia = 2.75,
!
! zone #1
!
480,2308,
!
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE
!
WHATFILT = 1,

!
! FREQUENCY RANGE
!
LOWF = 5186,
HIGHF = 19552,

!
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array
!
COARRAY =0,

!
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb
!
CMETHOD = 0,

NTH = 4,
CWBEGIN = 400,
CWEND = 2800,
CWLENGTH = 400,
CWSTEP = 200,
```

```
T4FLR = 0,
BTLCUT = 0,
DTMIN = 20,
DTMAX = 220,
DTSTEP = 5,
!
! DTUNIT = 0: us/ft, DTUNIT = 1: us/m
!
DTUNIT = 0,

RCVRS = /1,2,3,4,5,6,7,8,/,
TAPER = /16,35,155,235,/,
PSRATIO = /1.6,1.8,/,
EOZ
END
```

Source File: /geos/lac/adrejosl/sierra_xmac/waveavan.dipo.inp

```
! time: Mon Nov 23 15:15:24 2009
!
! Input/Output curves
!
FILE = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
FILEOUT = '/geos/lac/adrejosl/sierra_xmac/xmac.xtf',
!
! OWRITE=1: Overwrite, OWRITE=2: Recreate
!
OWRITE = 2,
!
TRWAV < TXXWV01 ,
TRSTRT < TXXST01 ,
TRGAIN < TXXGN01 ,
CORCMB > Corcmb,
TTOUT > TTsr,
DTOUT > DTs,
SQINT > Qs,
CORPKS > Corpks,
TRWAVF > Txxwv01f,
!
! Tool information( TRSP, TRID, RRSP unit: FEET; DEPREF unit: depth unit; RxDia, TxDia unit: INCHES
!
TOOLNAME = 'XMAC-ELITE-X_Dipole',
SERIES = '1678',
NUMRCVRS = 8,
TRSP = -10.25,
TRID = 3,
RRSP = 0.5,
DEPREF = 5.125,
RxDia = 2.66,
TxDia = 2.45,
!
! zone #1
!
570,1643,
!
! WHATFILT=0:FFT, WHATFILT=1:FIR, WHATFILT=2:NONE
!
WHATFILT = 1,

!
! FREQUENCY RANGE
!
LOWF = 500,
HIGHF = 2600,

!
! COARRAY = 0: Receiver array, COARRAY = 1: Transmitter array
!
COARRAY =0,

!
! CMETHOD = 0: Nroot, CMETHOD = 1: Semb
!
CMETHOD = 0,

NTH = 4,
CWBEGIN = 200,
CWEND = 5800,
CWLENGTH = 1400,
CWSTEP = 200,
```

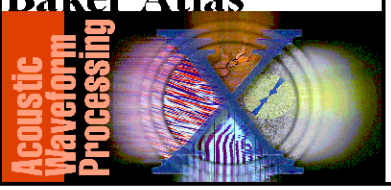
```
CWSTEP = 400,
T4FLR = 0,
BTLCUT = 0,
DTMIN = 40,
DTMAX = 440,
DTSTEP = 8,
!
! DTUNIT = 0: us/ft, DTUNIT = 1: us/m
!
DTUNIT = 0,

RCVRS = /1,2,3,4,5,6,7,8,/,
TAPER = /33,154,345,441,/,
PSRATIO = /1.6,1.8,/,
EOZ
!
! zone #2
!
1643,2284,
HIGHF = 2700,

CWEND = 4400,
TAPER = /33,71,240,428,/,
EOZ
END
```

BAKER HUGHES

Baker Atlas



COMPANY	SIERRA GEOTHERMAL POWER, INC.		FILE NO:
WELL	ALUM 25-29		
FIELD	ALUM		API NO:
COUNTY	ESMERALDA	STATE NEVADA	27-009-90074

LOCATION:

2235.18' FSL & 938.11' FWL

SEC 29 TWP 1N RGE 38.5E

ELEVATIONS:

KB 4919.57 FT
DF N/A
GL 4903.57 FT

DATE 23-NOV2009