REALTIME LOG

BAKER HUGHES

Multiple Propagation Resistivity
Azimuthal Gamma Ray

Scale: 1:240 MD

Company: Mid-Con Energy Operating Inc.

Well: Holland 1-12H

Field: Pawnee

County: Trego **State:** Kansas

Status: Final Print

API Number: 15-195-22811-0100

Surface Location:
Latitude: 39° 0' 58.128" N
Longitude: 99° 43' 7.530" W
SEC: 12 SE TWP: 12 S RNG: 22 W

Other Services:
Directional
Reservoir Navigation

Permanent Datum (P.D.):	Ground Level	Elevation:	2327.20 ft.
Log Measured From:	Kelly Bushing	10.00 ft.	Above P.D.
Depth Reference:	Driller's Depth		

Elevations:
KB: 2337.20 ft.
DF: N/A
GL: 2327.20 ft.

Interval Logged		Dates		Magnetic Field Reference			
Top:	3353.0 ft.	Date From:	15/Sep/12	Dip Angle:	66.64 °	Azi Reference North:	Grid
Bottom:	7476.0 ft.	Date To:	07/Oct/12	Total		Mag to Reference	
		Spud Date:	05/Sep/12	Field Strength:	52674.0 nT	North Correction:	6.88 °

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
8.750 in.	Surface	4475.0 ft.	9.625 in.	N/A	Surface	1500.0 ft.
6.125 in.	4476.0 ft.	7476.0 ft.	7.000 in.	N/A	1500.0 ft.	4475.0 ft.

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Based	Surface	4475.0 ft.	8.750 in.	1074.0 ft.	1.1 ° / 240.0 °	90.7 ° / 350.6 °
Water Based	4475.0 ft.	7476.0 ft.	6.125 in.	3001.0 ft.	90.7 ° / 305.6 °	88.4 ° / 348.8 °
					/	/
					/	/
					/	/
					/	/

Acquisition System	Software Version	Other		
Advantage	2.20U3	Rig:	Trinidad 215	/ Trinidad Drilling
PATS	6.4.1.34	Job No:	4945920	
		District: / Unit:	Oklahoma	/ S2K10242815

Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval Top (ft.)	Logged Interval Bottom (ft.)	Bit Depth Interval From (ft.)	Bit Depth Interval To (ft.)	Date / Time Start	Date / Time End	Circ. Time (hrs.)
1	1	1	8.750	Roller Cone	6.000	Steerable	3353.0	4428.0	3401.0	4475.0	15/Sep/2012 13:38	18/Sep/2012 12:30	52.6
2	2	2	6.125	Roller Cone	6.000	Steerable	4428.0	5473.0	4475.0	5514.0	19/Sep/2012 19:58	22/Sep/2012 10:30	45.7
3	3	3	6.125	Roller Cone	6.000	Steerable	5473.0	6549.0	5514.0	6592.0	22/Sep/2012 12:11	26/Sep/2012 02:45	73.7
4	4	4	6.125	Roller Cone	6.000	Steerable	6549.0	6767.0	6592.0	6811.0	26/Sep/2012 03:45	27/Sep/2012 15:30	24.5
5	5	5	6.125	Roller Cone	6.000	Steerable	6767.0	7344.0	6811.0	7407.0	27/Sep/2012 17:09	09/30/12 21:20	47.4
6	6	6	6.125	Roller Cone	6.000	Steerable	7344.0	7450.0	7407.0	7476.0	01/Oct/2012 01:30	06/Oct/2012 14:00	8.6

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart

	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Sairav Parab	14/Sep/2012	07/Oct/2012	David Luttrell	14/Sep/2012	22/Sep/2012	Wes Thornhill	22/Sep/2012	30/Sep/2012
Jose Rodriguez	15/Sep/2012	06/Oct/2012	Andrew Sims	15/Sep/2012	05/Oct/2012	Gary Igleheart	30/Sep/2012	07/Oct/2012

Witness

Name	LWD Run Number
Ryan Logsdon	1, 2, 3, 4, 5, 6

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
18/Sep/2012 07:30	1	4077.0	Water Based	9.0	18	9.5	4.2	0/95.4	Flow Line	6000	N/A
21/Sep/2012 07:30	2	4477.0	Water Based	9.0	18	9.5	4.2	0/99	Flow Line	6000	N/A
23/Sep/2012 07:30	3	5815.0	Water Based	8.4	18	9.5	6.4	0/99	Flow Line	6000	N/A
27/Sep/2012 07:30	4	6806.0	Water Based	9.0	26	9.5	2.5	0/95.2	Flow Line	400	N/A
28/Sep/2012 07:30	5	7050.0	Water Based	8.8	25	9.5	6.4	0/96.5	Flow Line	400	N/A
01/Oct/2012 17:30	6	7476.0	Water Based	8.9	27	9.0	6.4	0/95.7	Flow Line	400	N/A

Mud Resistivity Record

				Surface				Downhole		
Date / Time	LWD Run No.	Measured Depth (ft.)	Surface Temp (deg F)	Rm (ohm.m)	Rmf (ohm.m)	Rmc (ohm.m)	BHCT (deg F)	Rm @ BHCT (ohm.m)	Rmf @ BHCT (ohm.m)	Rmc @ BHCT (ohm.m)
21/Sep/2012 07:00	2	4077.0	78	1.50	1.50	1.50	128	0.93	0.93	0.93
23/Sep/2012 12:01	3	5896.0	87	1.50	1.50	1.50	134	0.99	0.99	0.99
27/Sep/2012 12:01	4	6806.0	75	1.50	1.50	1.50	134	1.11	1.11	1.11
28/Sep/2012 23:00	5	7050.0	70	1.50	1.50	1.50	134	0.81	0.81	0.81
01/Oct/2012 01:45	6	7422.0	87	1.50	1.50	1.50	139	0.95	0.95	0.95

Mnemonics

Curve	Description	Units
GRAX	Average Gamma Ray Apparent, 0.5 ft average	API
INNX	Survey Inclination	deg
ROP	Rate of Penetration	ft / hr
GRTVDX	Gamma Ray True Vertical Depth	ft
GRAUX	Gamma Ray Apparent – Up Quadrant	API
GRADX	Gamma Ray Apparent – Down Quadrant	API
RPCHX	Compensated and Corrected Resistivity, 2 Mhz, Long Space, Phase Difference	ohm.m
RACHX	Compensated and Corrected Resistivity, 2 Mhz, Long Space, Attenuation	ohm.m

Equipment and Service Data

LWD Run	Tool	Serial Number	Measurement	Bit Offset	Max O.D.	Min I.D.

No.				(ft)	(in.)	(in.)
1	SRIG	10433831	Gamma	47.21	6.750	2.569
1	DIR	12168817	Directional	42.21	6.750	2.569
2	DIR	11592386	Directional	47.14	4.750	2.569
2	GAM	11592386	Gamma	42.46	4.750	1.750
2	MPR	11592386	Multiple Propagation Resistivity	33.97	4.750	1.750
2	APR	11592383	Azimuthal Propagation Resistivity	33.97	4.750	1.750
2	AP	11592386	Annular Pressure	38.40	4.750	1.750
3	DIR	11592386	Directional	47.14	4.750	1.750
3	GAM	11592386	Gamma	42.46	4.750	1.750
3	MPR	11592386	Multiple Propagation Resistivity	33.97	4.750	1.750
3	APR	11592386	Azimuthal Propagation Resistivity	33.97	4.750	1.750
3	AP	11592386	Annular Pressure	38.40	4.750	1.750
4	DIR	11592386	Directional	45.23	4.750	1.750
4	GAM	11592386	Gamma	40.55	4.750	1.750
4	MPR	11592386	Multiple Propagation Resistivity	32.06	4.750	1.750
4	APR	11592386	Azimuthal Propagation Resistivity	32.06	4.750	1.750
4	AP	11592386	Annular Pressure	36.49	4.750	1.750
5	DIR	11592386	Directional	40.91	4.750	1.750
5	GAM	11592386	Gamma	36.23	4.750	1.750
5	MPR	11592386	Multiple Propagation Resistivity	27.74	4.750	1.750
5	APR	11592386	Azimuthal Propagation Resistivity	27.74	4.750	1.750
5	AP	11592386	Annular Pressure	32.17	4.750	1.750
6	DIR	12517557	Directional	38.43	4.750	1.750
6	GAM	12517557	Gamma	25.27	4.750	1.750
6	MPR	12517557	Multiple Propagation Resistivity	32.46	4.750	1.750
6	APR	12517557	Azimuthal Propagation Resistivity	27.74	4.750	1.750
6	AP	12517557	Annular Pressure	27.90	4.750	1.750

Service and Tool Mnemonics

Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module
GAM	Gamma	Collar based Azimuthal Gamma Ray Module
MPR	Resistivity	Collar based Multiple Propagation Resistivity Module
AP	Annular Pressure	Annular Pressure Sensor
APR	Azimuthal Restivity	Azimuthal Propagation Resistivity Module

Comments

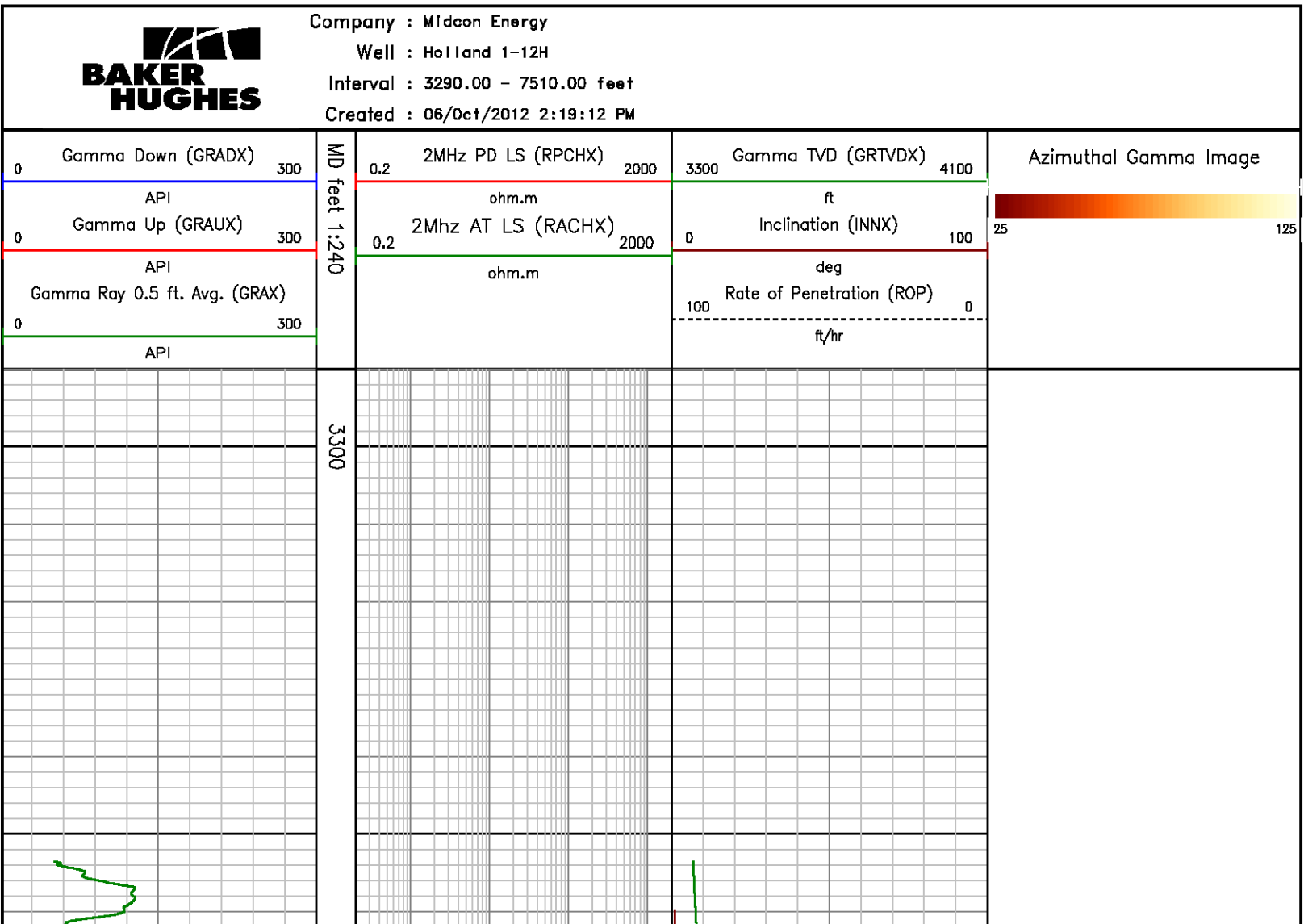
1) Baker Hughes Inteq run 1 utilized 6 3/4 NaviGamma Service (Directional and Gamma Ray) behind an 8 3/4 inch bit and steerable assembly from 3353 to 4475 feet MD (3353 to 3999 feet TVD).

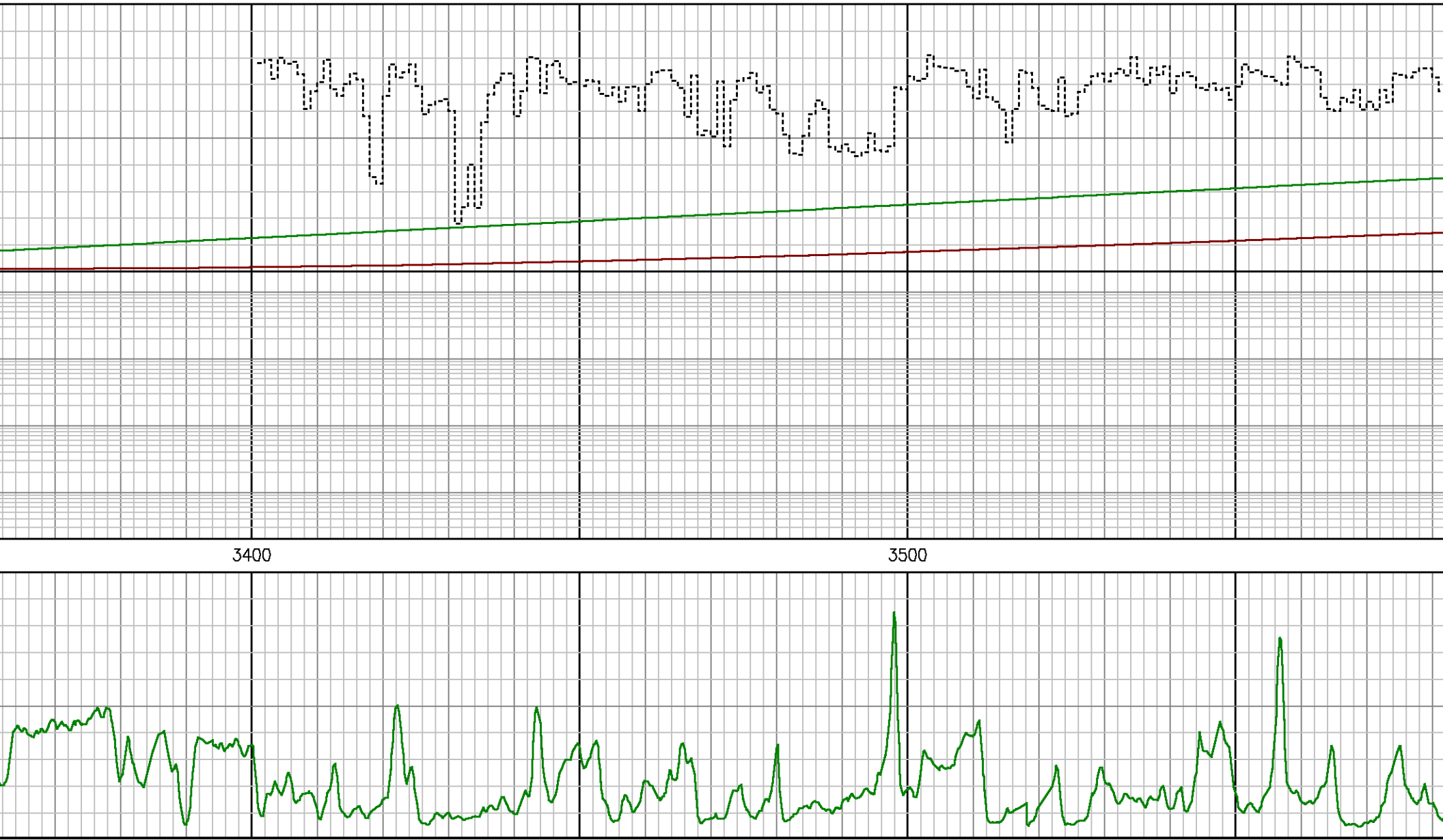
2) Baker Hughes Inteq runs 2 through x utilized 4 3/4 Multiple Propagation Resistivity Service (Azitrak) behind a 6 1/8 inch bit and steerable assembly from 4476 to 7476 feet MD (3999 to 3997 feet TVD).

3) Depth measurements were obtained from a depth control system not supplied by Baker Hughes INTEQ. Due to the lack of control by Baker Hughes INTEQ logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to INTEQ are being used to present logging data.

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	3353	8.750	1	The interval from 3353 to 3401 feet MD (3353 to 3400 feet TVD) was logged due to Gamma Ray sensor to bit offset at the start of well logging.
2	4428	6.125	1	The interval from 4428 to 4476 feet MD (4001 to 3999 feet TVD) was logged upto 53 hours after being drilled due to a trip out of hole to run the casing and pickup lateral assembly.
3	5473	6.125	2	The interval from 5473 to 5514 feet MD (4009 to 4011 feet TVD) was logged up to 9 hours after being drilled due to a trip out of hole to change the bit.
4	6547	6.125	3	The interval from 6547 to 6592 feet MD (4022 to 4023 feet TVD) was logged up to 10 hours after being drilled due to a trip out of hole to change the bit.
5	6767	6.125	4	The interval from 6767 to 6811 feet MD (4007 to 4002 feet TVD) was logged up to 13 hours after being drilled due to a trip out of hole to pick up an Agitator and change the bit.
6	7344	6.125	5	The interval from 7344 to 7407 feet MD (3944 to 3995 feet TVD) was logged up to 42.3 hours after being drilled due to a trip out of hole to pick up an Agitator and change the bit.
7	7476	6.125	6	The interval from 7452 to 7476 feet MD (3997 to 3997 feet TVD) was not logged due to Gamma Ray sensor to bit offset at well TD.

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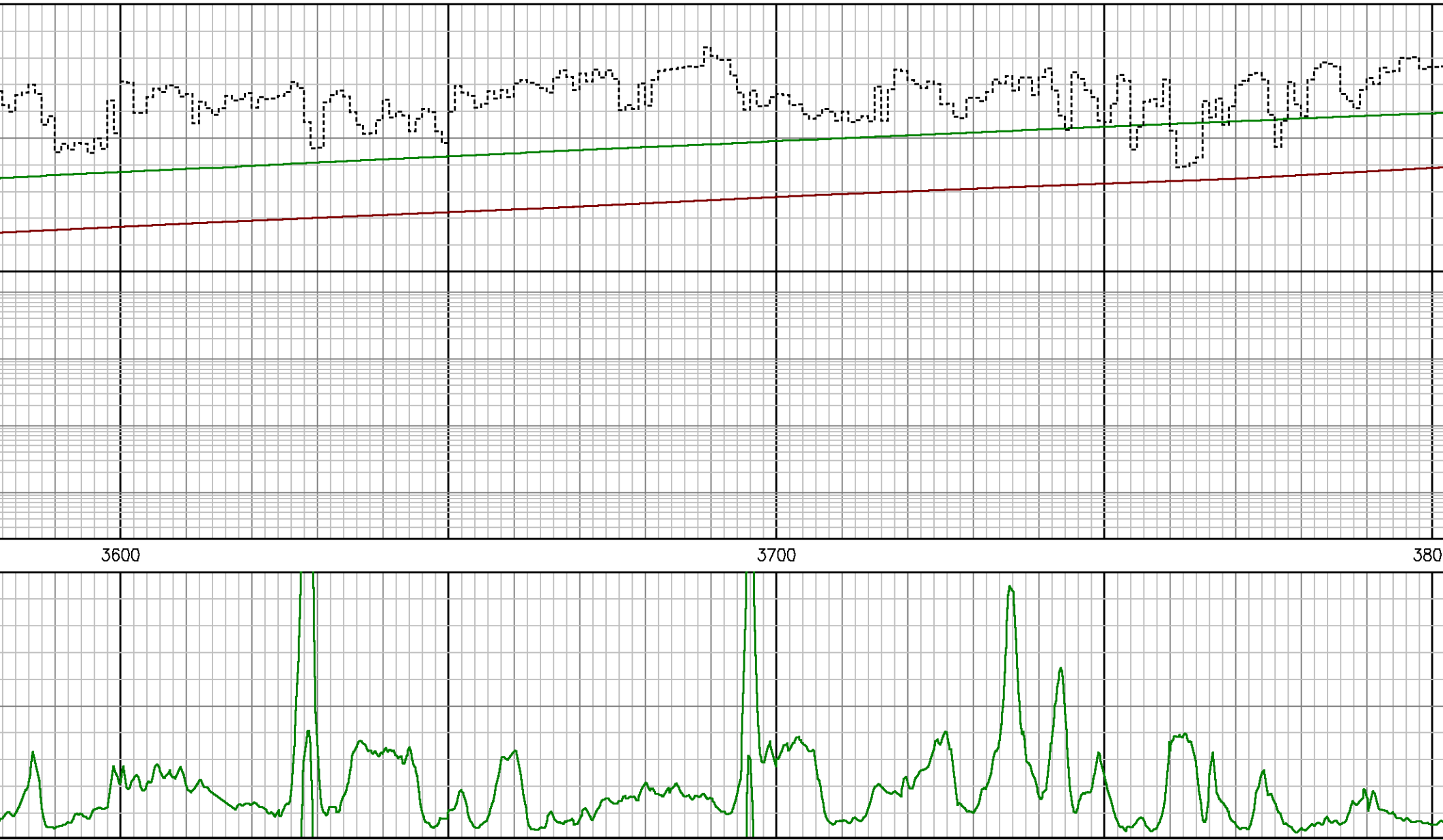
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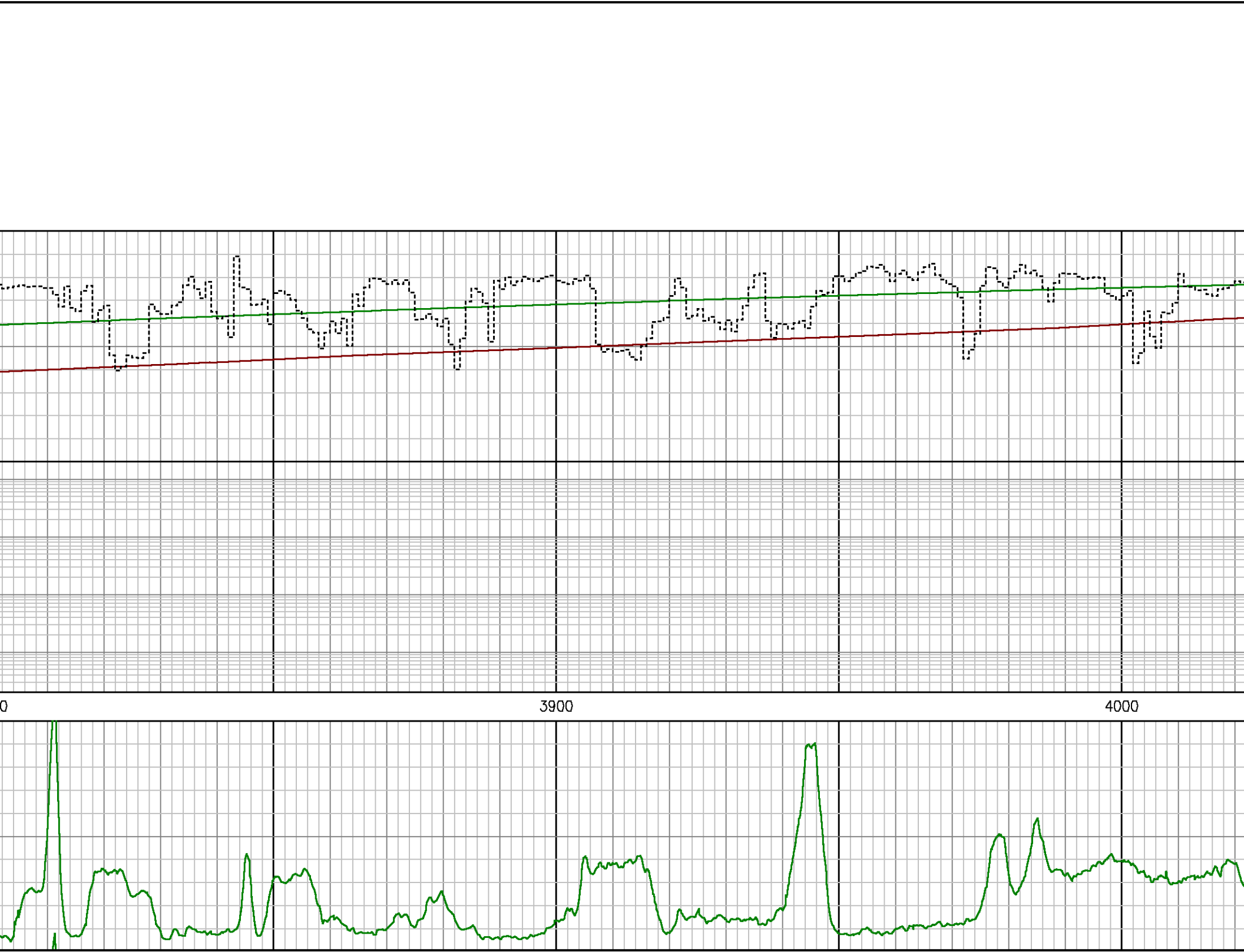
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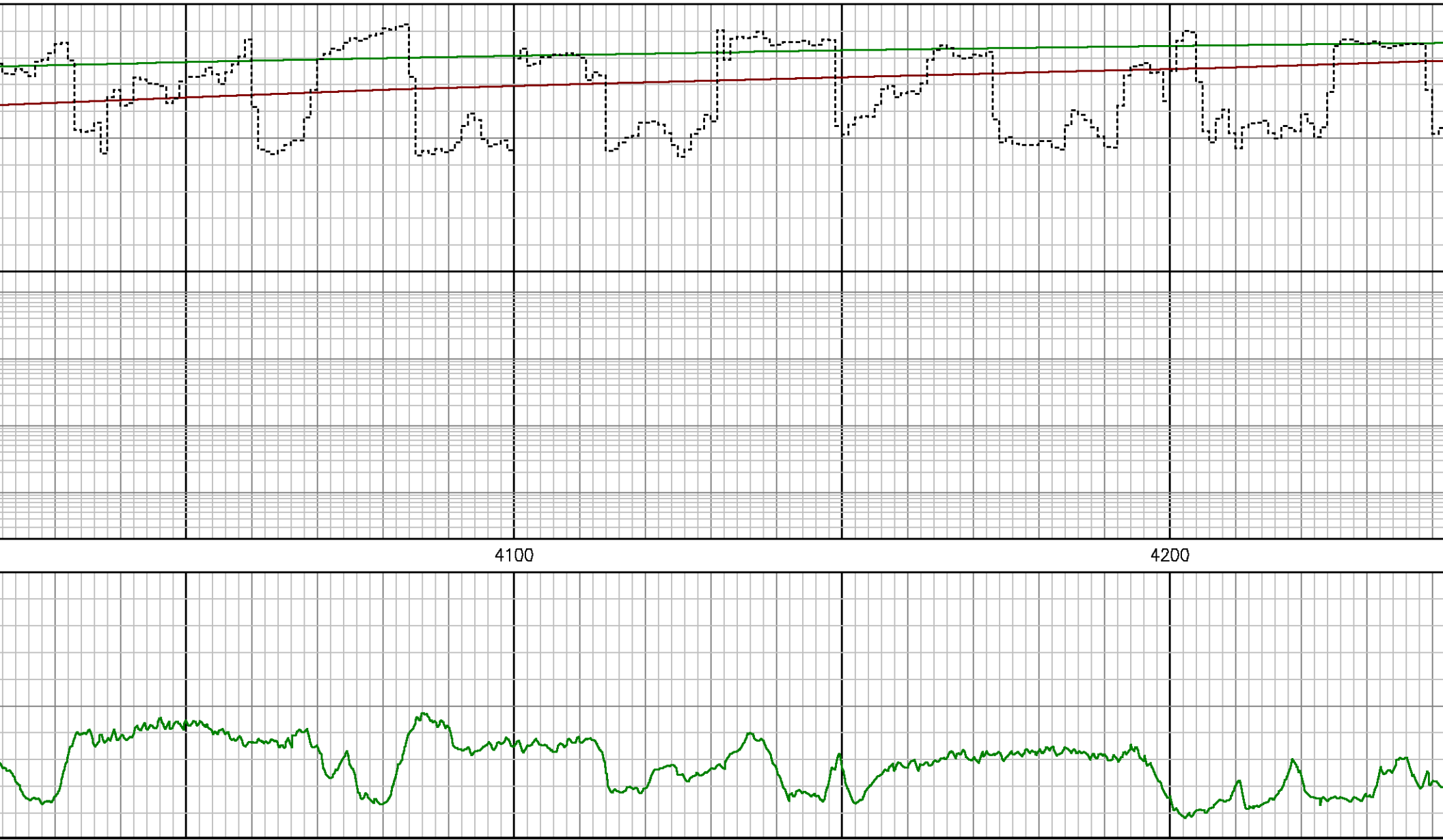
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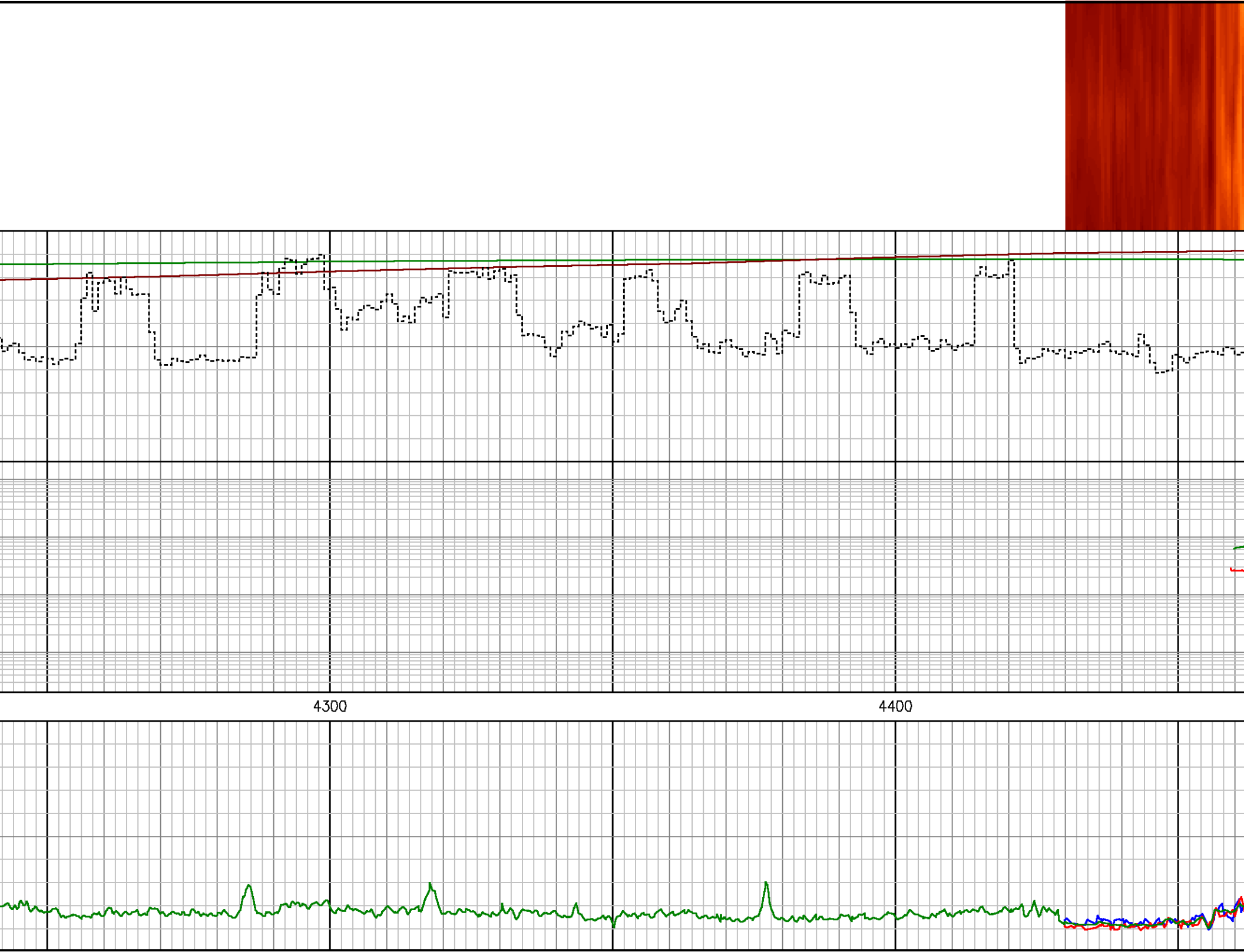
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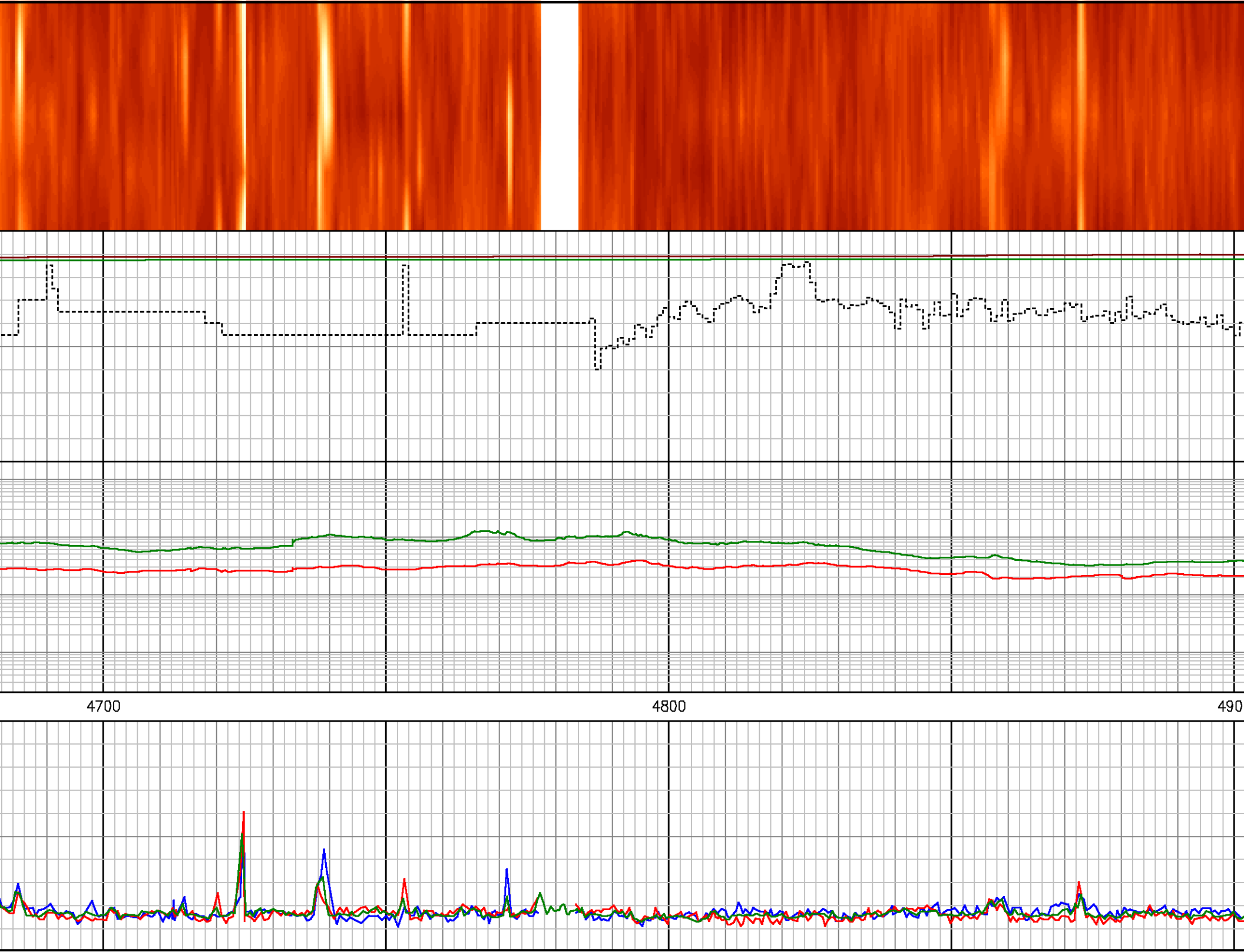
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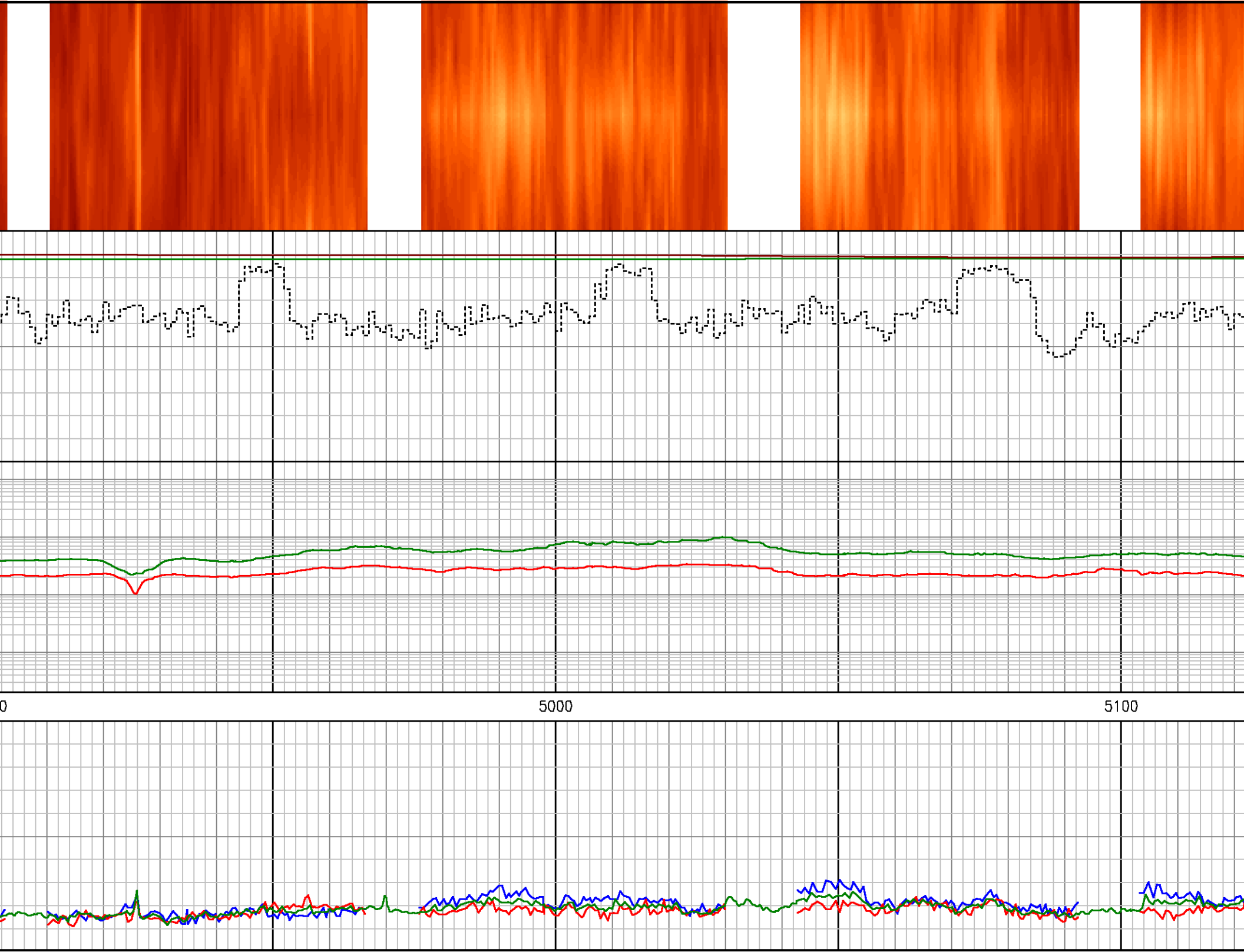
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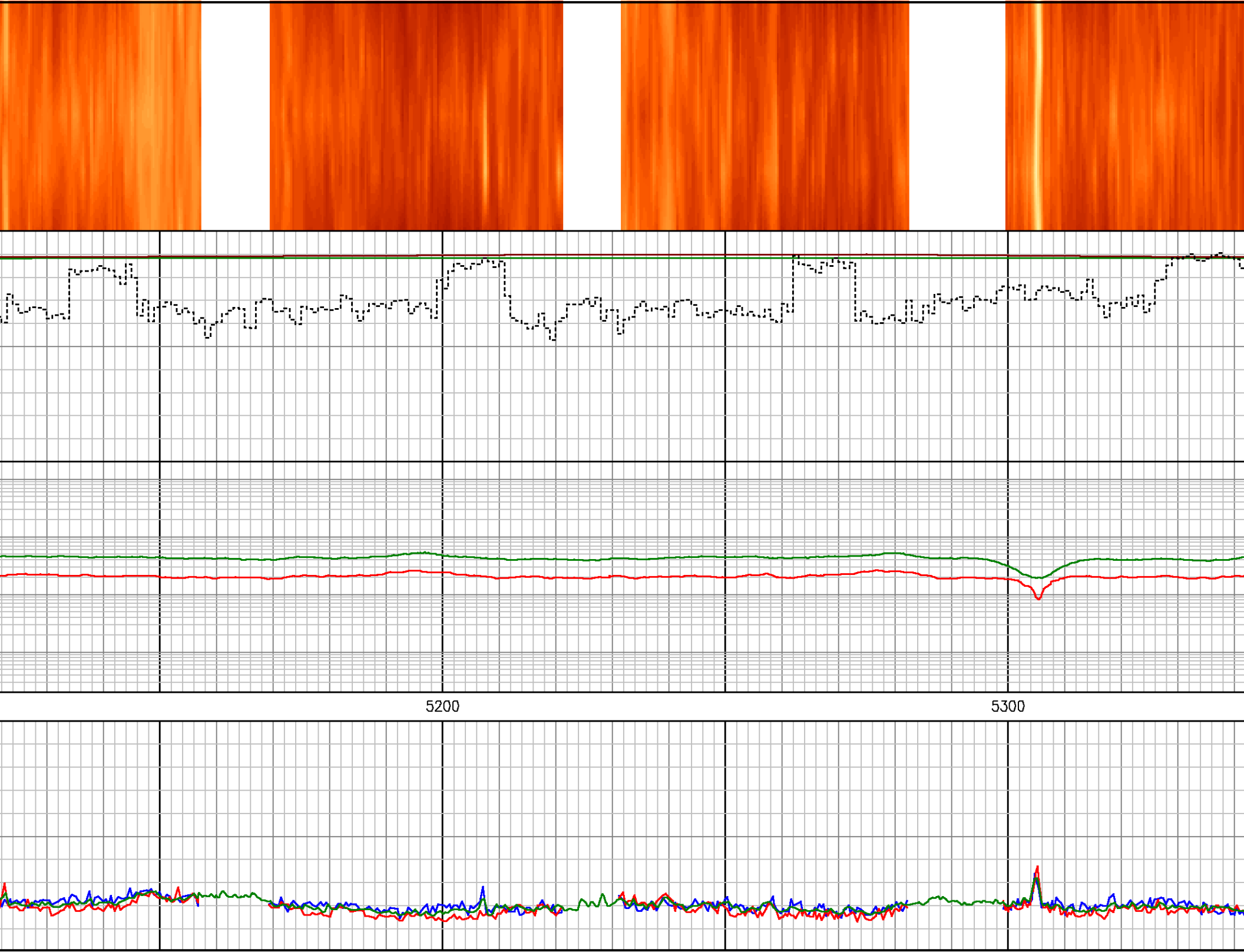
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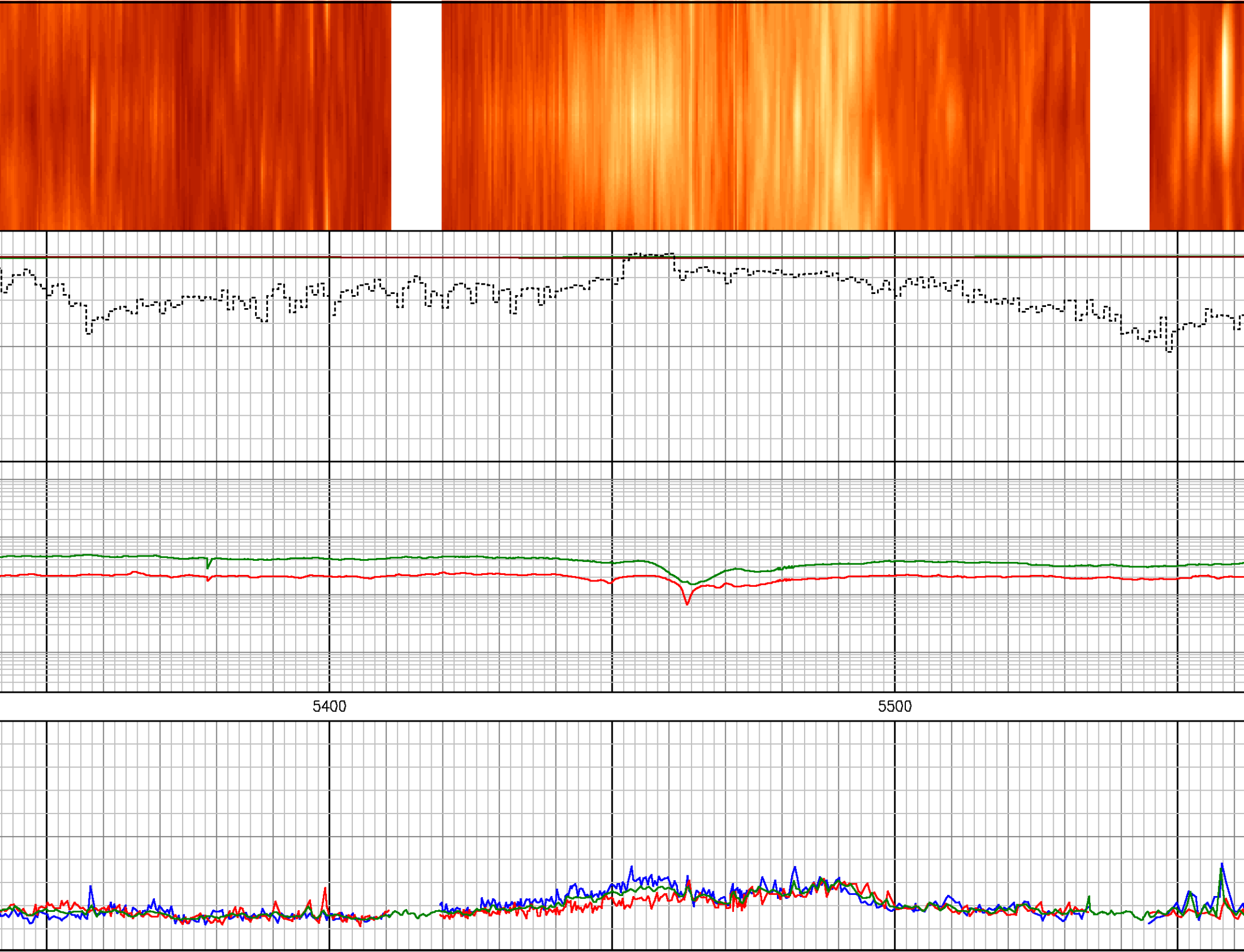
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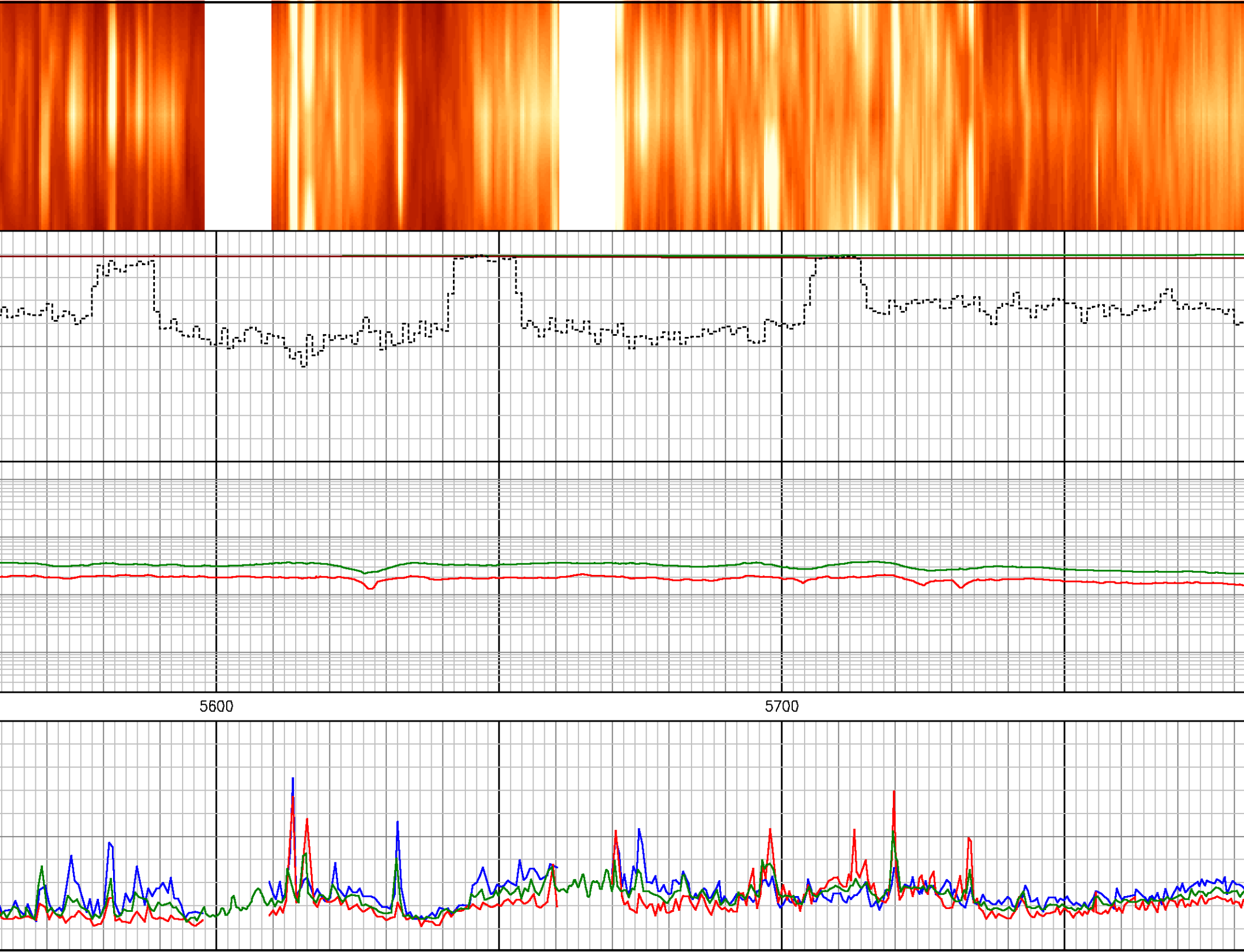
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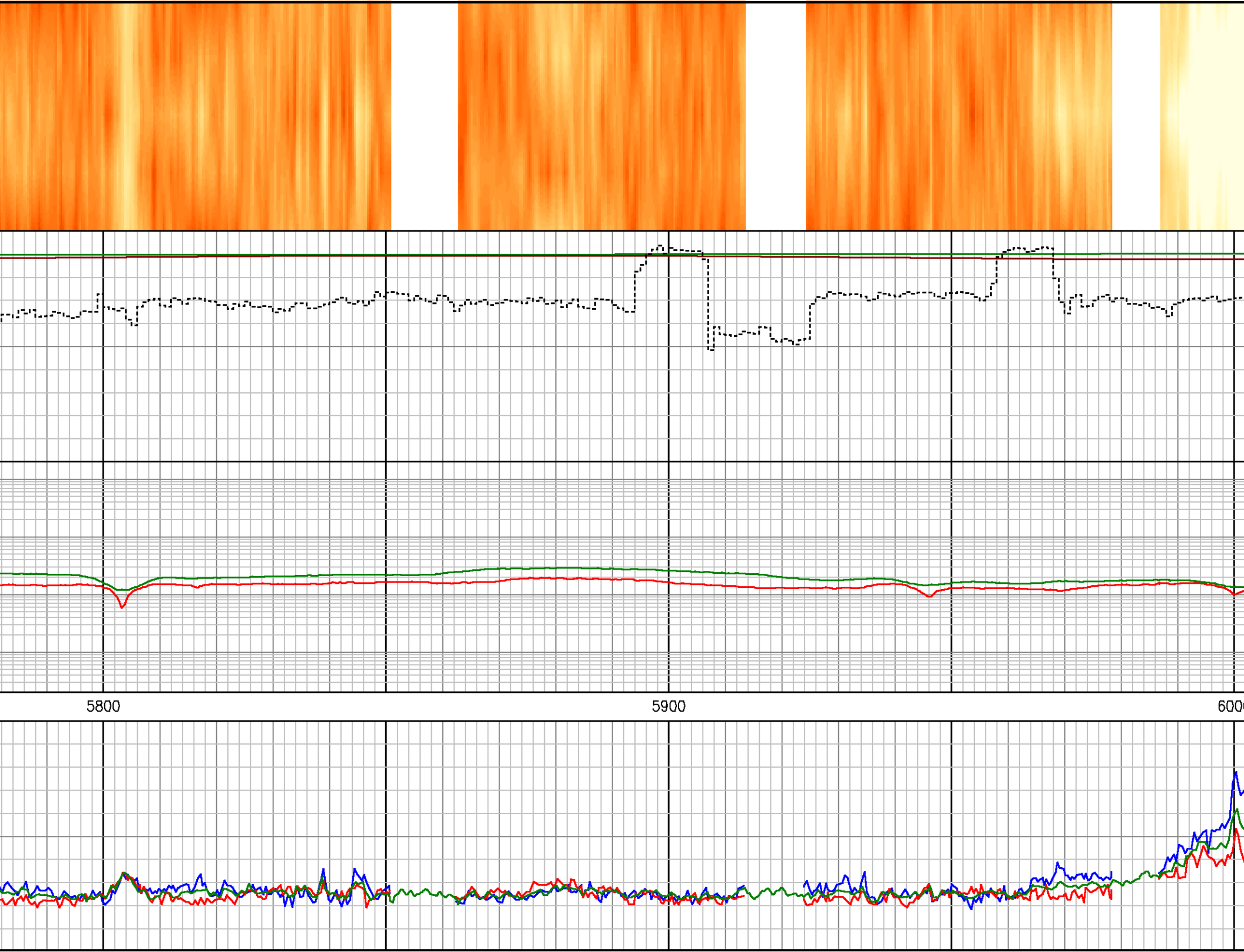
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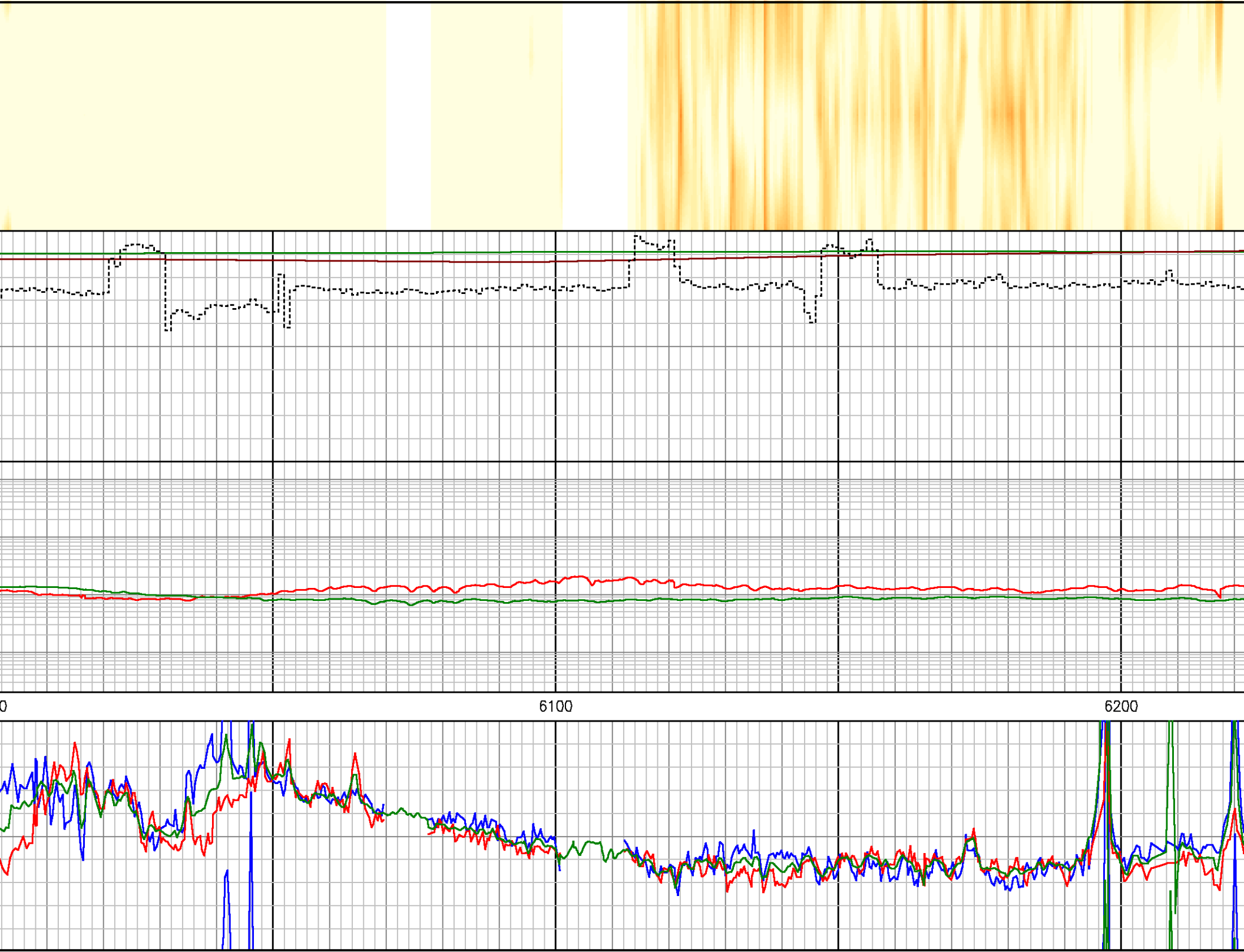
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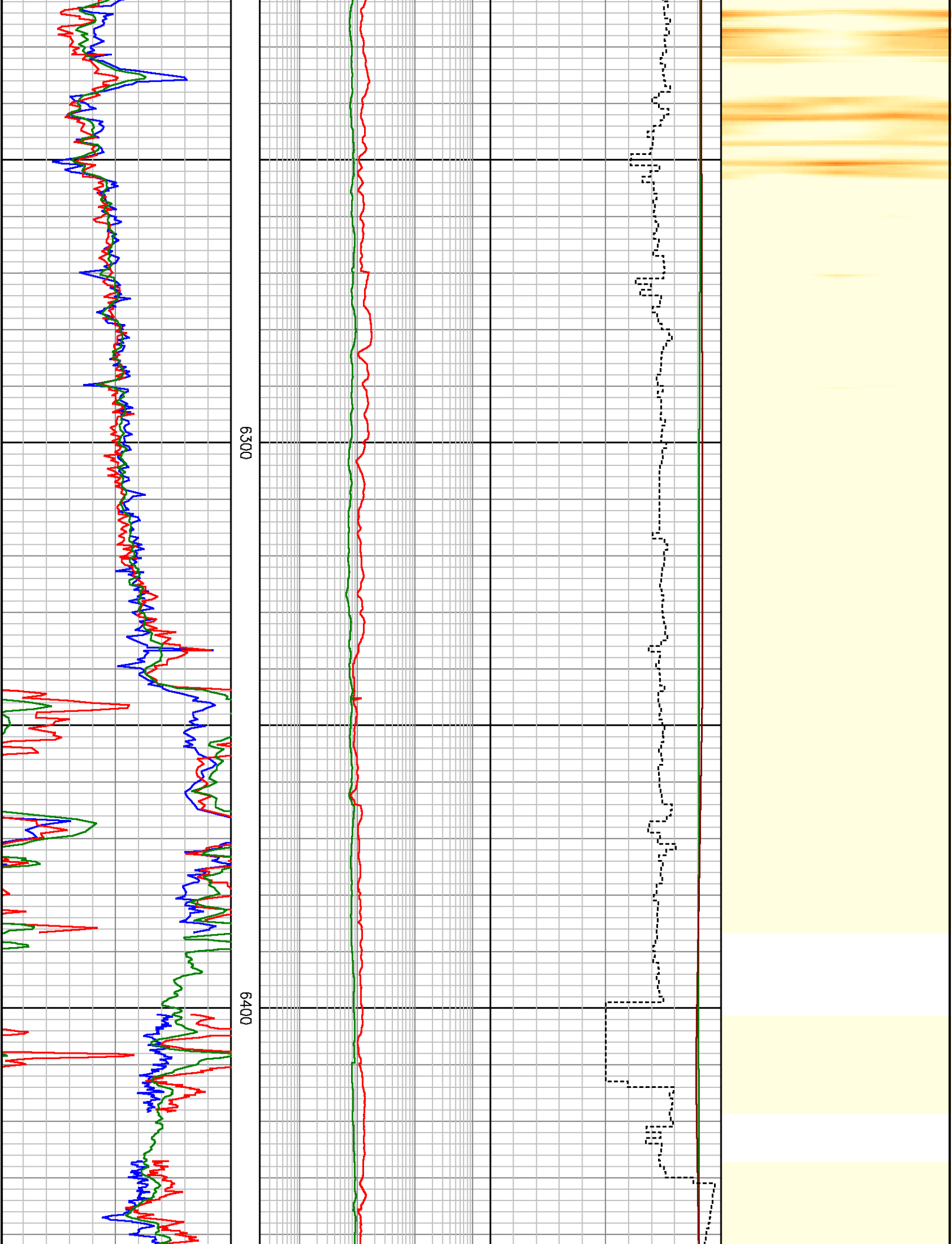
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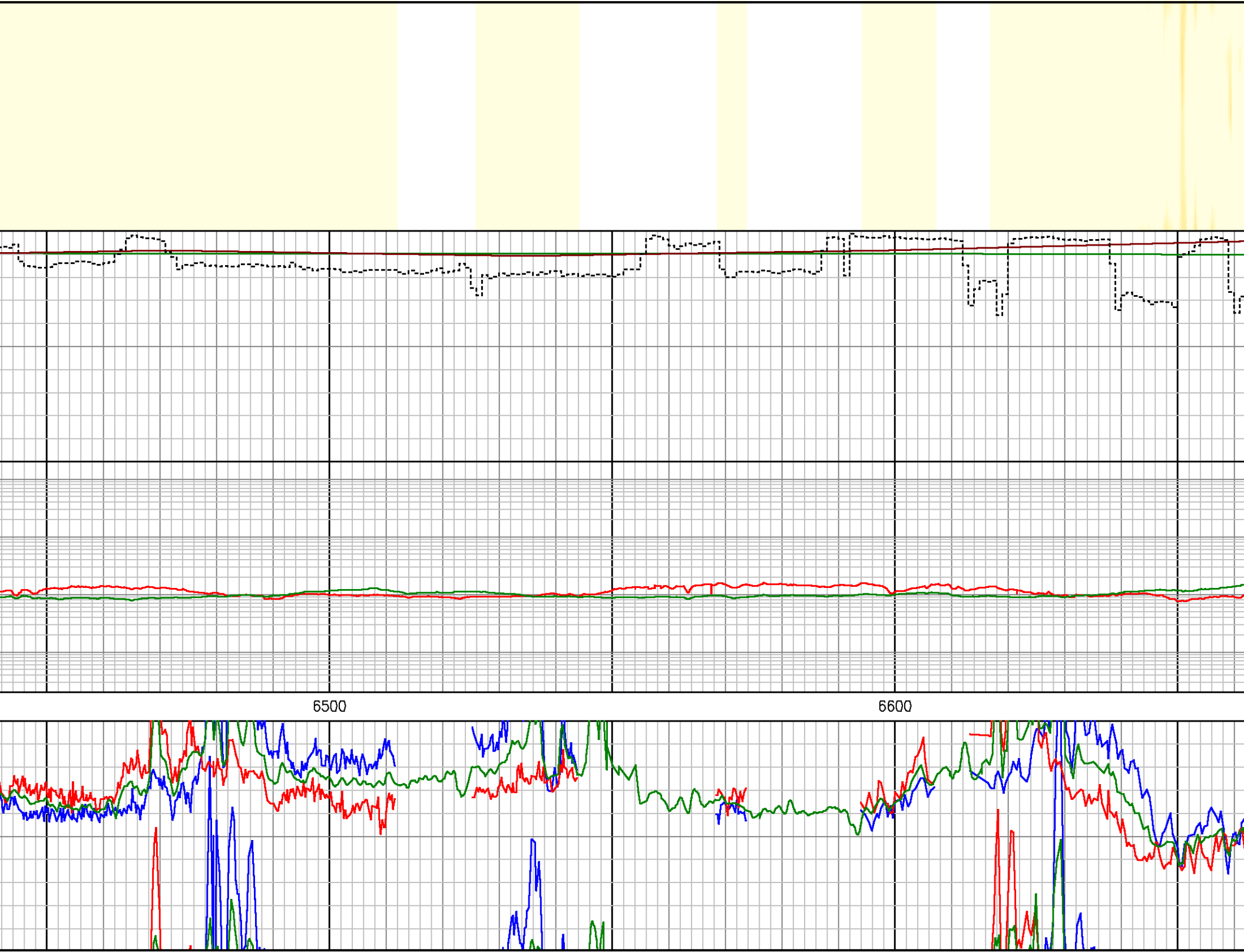
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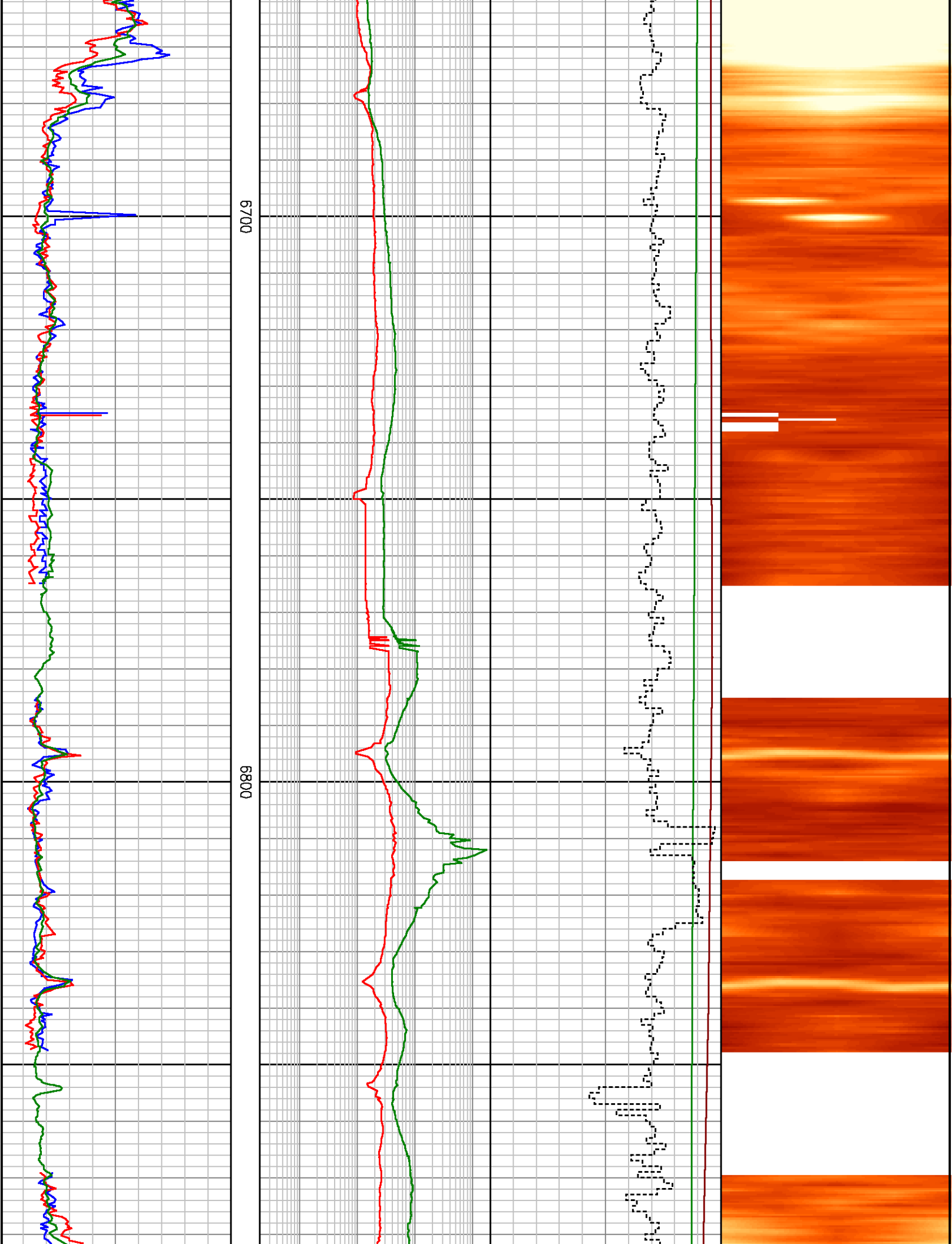
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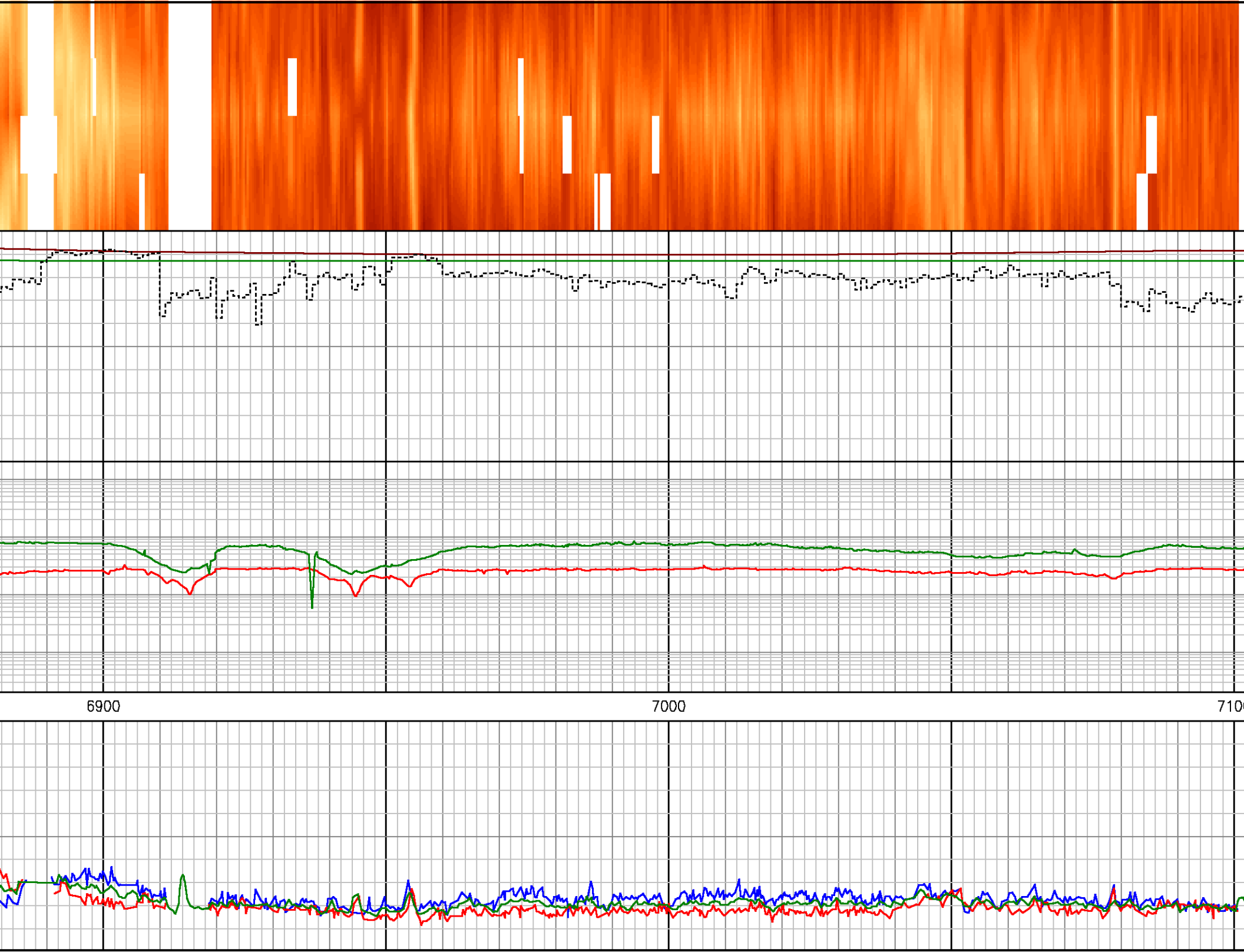
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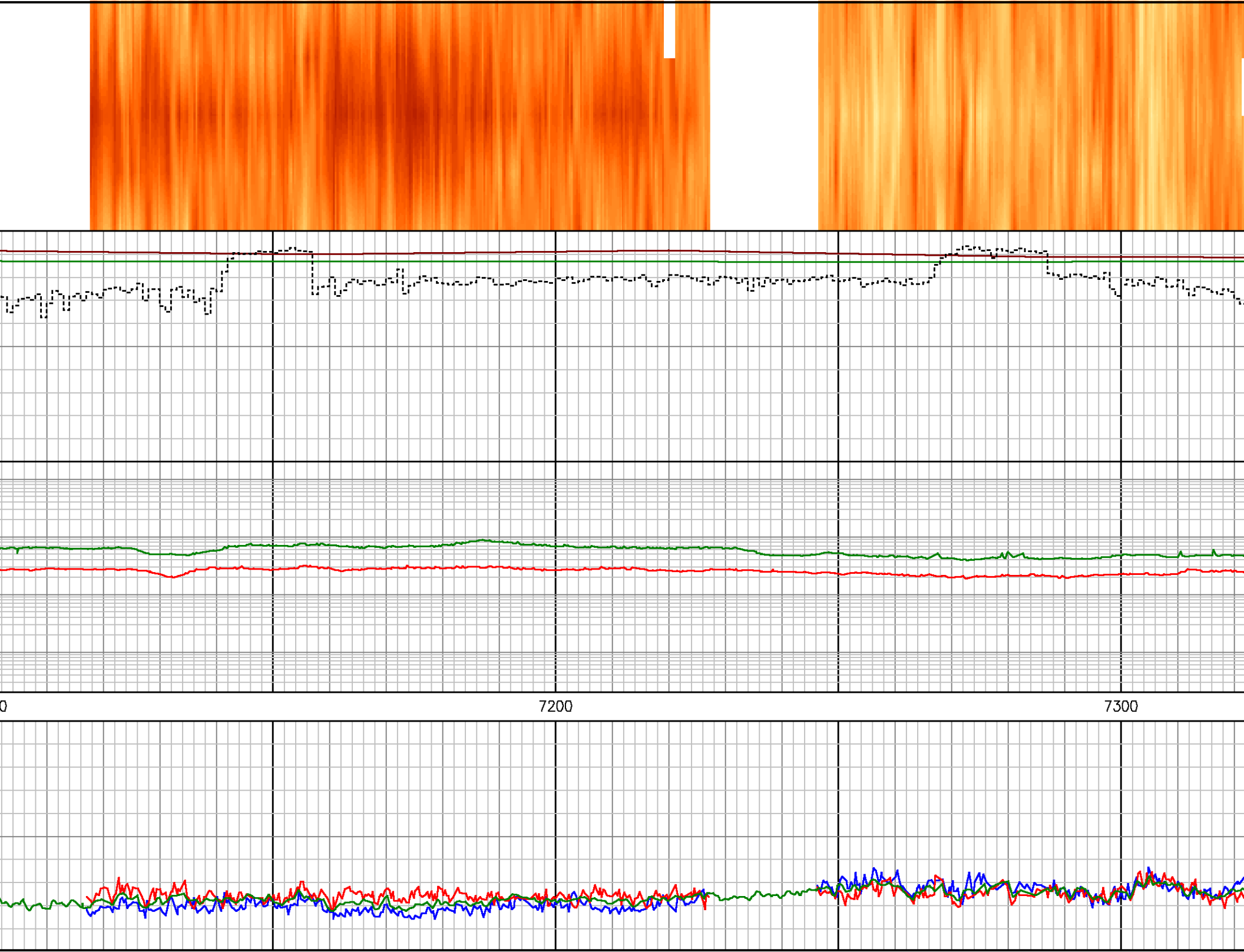
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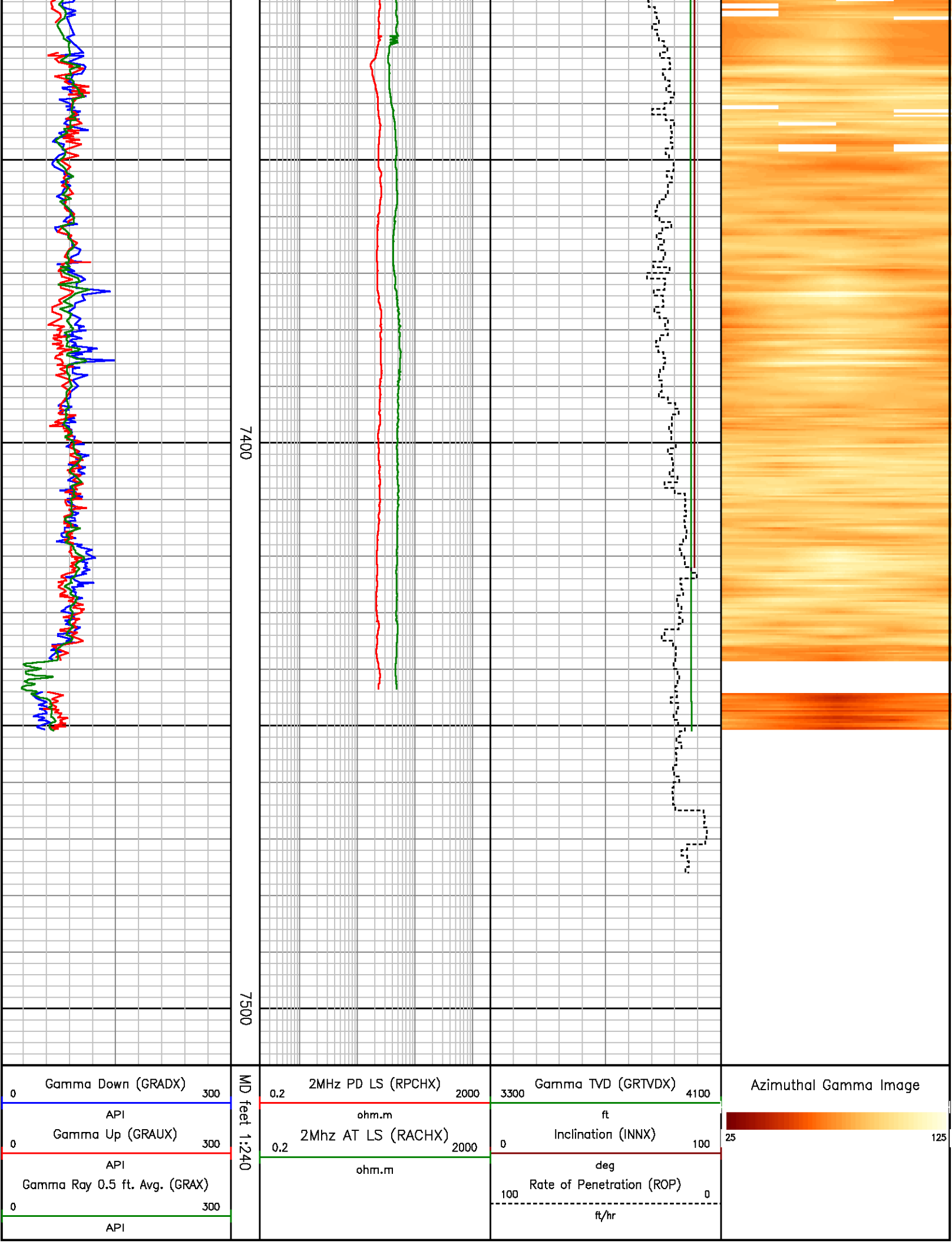
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Gamma Down (GRADX)
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API
Gamma Up (GRAUX)
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300
API
Gamma Ray 0.5 ft. Avg. (GRAX)
0
300
API
MD feet 1:240
2MHz PD LS (RPCHX)
0.2
2000
ohm.m
2Mhz AT LS (RACHX)
0.2
2000
ohm.m
Gamma TVD (GRTVDX)
3300
4100
ft
Inclination (INNX)
0
100
deg
Rate of Penetration (ROP)
100
0
ft/hr
Azimuthal Gamma Image
25
125