

RIOMETER RECORDS OF 30 MHz COSMIC NOISE

AT SYOWA STATION, ANTARCTICA IN 1983

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1. Introduction

Observations of cosmic radio noise with a standard riometer (relative ionospheric opacity meter) at 30 MHz have been carried out at Syowa Station, Antarctica, since February 1966 by members of the Radio Research Laboratories. A report has been prepared which includes hourly values and chart records of cosmic noise absorption in the period from January 1 to December 31, 1983. Copies of the data are available to users on request. The request should be addressed to:

Radio Research Laboratories,
Ministry of Posts and Telecommunications
2-1, Nukui-Kitamachi 4-chome, Koganei-shi
Tokyo 184, Japan.

2. Location

Syowa Station			
Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69°00'S	39°35'E	-70.0°	80.2°

3. Observers

Ichiro YAMAZAKI (Radio Research Laboratories)
Takashi TANAKA (Radio Research Laboratories)

4. Instrumentation

The receiver of the riometer which has a center frequency of 30 MHz and a bandwidth of 3.5 kHz is connected to a vertically directed five-element Yagi antenna whose elements are oriented in the east-west direction. The antenna is designed to match a 50 ohm coaxial transmission line (8D-2V) of 80 m in length.

The noise power output is recorded on a strip chart recorder with a 1 mm/min chart speed. Noise power levels of 1, 2, 3 and 4 dB from a reference noise diode are also recorded once a day for calibration.

5. Remarks

The cosmic noise power level shows a diurnal variation due to the passage of the radio source across the zenith. If the ionosphere is in a quiet condition the diurnal variation of the cosmic noise power is easily extracted from the chart recordings. On account of the revolution of the earth, the time (local time) when the same radio source passes the zenith becomes earlier by about 4 min on each day and returns to its initial state in a year.

The hourly values of ionospheric absorption given in the CNA tables are the deviations (in dB) of cosmic noise intensity from its monthly reference level. The reference level is calculated from the diurnal variations of selected quiet days in the month.

Note in the strip chart recordings that time (45° east meridian time; UT + 3 hours) goes from right to left in the period from 1 January to 31 March, 1983, while it goes from left to right after 1 April, 1983. Geomagnetic H-component at Syowa Station is also recorded on the charts in the period after 1 April, 1983. The H-component increases upward in the figure and is calibrated at each hour with a depression of 200 nT.

Bibliography relevant to
 riometer records of 30 MHz cosmic noise at Syowa Station, Antarctica.

Observing Period	Observers	Literature		
		JARE Data Reports		
		Volume	Pages	Year
Feb. 1967 - Feb. 1968	Ose, M. Nishimuta, I.	2 (Ionosphere 1)	62	1968
Feb. 1968 - Jan. 1969	Ishizawa, K.	7 (Ionosphere 3)	65	1970
1969	Ota, Y.	8 (Ionosphere 4)	74	1970
1970	Shiro, I. Sakamoto, T.	14 (Ionosphere 5)	62	1971
1971	Ogata, T. Ose, M.	18 (Ionosphere 7)	62	1972
1972	Isozaki, S. Miyazaki, S.	20 (Ionosphere 8)	76	1973
1973	Nishimuta, I. Yabuuma, H.	24 (Ionosphere 11)	74	1974
1974	Yamazaki, I. Shiro, I.	29 (Ionosphere 13)	84	1975
1975	Sugiuchi, H. Komiya, N.	35 (Ionosphere 15)	84	1976
1976	Ose, M. Yamakoshi, A. Sasaki, T.	41 (Ionosphere 17)	87	1977
1977	Ose, M. Nishiyama, N. Sakamoto, J.	46 (Ionosphere 19)	82	1978
1978	Ose, M. Igarashi, K. Tsuzurahara, S.	51 (Ionosphere 20)	86	1979
1979	Ose, M. Ojima, S. Komiya, N.	56 (Ionosphere 22)	84	1980
1980	Ose, M. Nozaki, K.	70 (Ionosphere 26)	97	1982
1981	Ose, M. Kurihara, N.	80 (Ionosphere 27)	94	1983
1982	Kuratani, Y. Igarashi, K.	87 (Ionosphere 29)	86	1984

Table 1. 30MHz cosmic noise absorption at the first minute of each hour.

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

January

1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				0.2	0.3	0.2		0.1	0.1	0.6	0.2				0.4	0.3			0.2					
2	0.1	0.5	0.3					0.1												0.2	0.1			
3												0.1	0.2	0.4			0.1	0.4						
4				0.1										0.4					0.2					
5				0.4	0.2	0.2																		
* 6																		0.1						
7					0.1		0.2																	
* 8																								
9								0.2													0.3			
10					0.1	0.3	0.1				1.2	0.1												
11																								
12					0.1										0.1									
13				0.5		0.4	0.1	0.5																
* 14			0.3																					
15				0.1												0.4	0.2							
16		0.5	0.5	0.3			0.1										0.2	0.4		0.1		0.1		
17				0.2														0.1						
18						0.1						0.2	0.3	0.2	0.1									
* 19	0.5	2.5	2.2	2.2	1.1	1.2	0.4	0.2											0.5	0.1	0.2	0.8	1.0	
20				0.3	0.4			0.3																
21		0.3	1.3	0.9	0.9	0.2					0.6	0.1					0.2		0.3	0.6	0.4	0.4		
22	0.4	0.9	0.6	0.9	0.1	0.8	0.3				0.4	0.5		0.3	0.4	0.2			0.3	0.2				
23				1.2	0.5	0.2	0.3						1.0	0.3										
24		0.1	0.5	0.3										0.1										
25		0.1	0.5	0.3										0.1							0.1	0.1	0.1	0.4
26	0.3	0.7	0.5	0.3	0.8	1.0	0.2	0.1							0.4	0.3	0.3		0.6	0.4	0.2	0.1		
27				0.7	0.1		0.1												0.2	0.4	0.3			
28	0.1								0.1										0.1	0.9	0.4			0.3
29		0.1	0.1																					
30											0.4	0.1				0.2								
31		0.2	0.2	0.3	0.1	0.1	0.2												0.7	0.1				
Mean	0.04	0.19	0.22	0.28	0.15	0.16	0.06	0.04	0.03	0.12	0.08	0.03	0.01	0.04	0.04	0.04	0.03	0.03	0.10	0.10	0.06	0.04	0.03	0.02

Open spaces without figures correspond to quiet level

* : Quiet day

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

February 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		0.3	0.3			0.2		0.1		0.5	0.1													
2				0.2																				
3				0.1						0.1														
4							0.1		0.6	0.7	0.6	0.3	0.1			0.4	0.6	0.8	1.0	1.8	1.6	3.5	2.1	1.0
5	0.2							0.1	0.2	0.5	1.6	0.1		0.5	1.3				0.3	0.2	0.2	0.1		0.7
6		1.4	0.4	0.3	0.2		1.2		0.2		0.3	1.1	0.7	0.6	0.3	0.4	0.4							
7				0.2	0.5	0.7	0.8	0.1			0.1		0.2	0.3		0.3								
8				0.7	0.7	0.2	0.7		0.1	0.3	0.2		0.2	0.5	0.2			0.7	0.5	0.3	0.3			
9			0.1	0.3	0.2	0.2		0.4	0.3						0.6	0.3	0.2	0.4	1.4	0.5	0.4	0.5	0.2	1.4
10	0.5	0.2		0.1	0.1		1.6	0.7	0.4	0.1	0.4	0.2	0.5	0.4	0.4	0.1	0.2	0.4	0.2					
11			0.1	0.2			0.1			0.1						0.2	0.6			0.3				
12	0.8	0.2	0.2		0.1	0.2	0.2				0.3	0.4	0.2	0.2	0.7	0.1								
13						0.4	0.2		0.4	0.6		1.1	0.5	0.6	0.5	0.3	1.1	0.5						
14	0.2	0.3	0.3	0.3	1.0				0.3	0.3	0.3	2.0	1.6	0.9	0.5	0.5	1.0	0.8	0.8	0.6	0.4			
15			0.4	0.5				0.3	0.3	0.4	0.3		0.6	0.5	0.1	0.3	0.2	0.7	0.5					
16			0.3	0.1	0.5		1.8		0.1	0.4		0.5	0.4	1.0	1.8	0.4	0.1	0.1			0.2	0.1		
17		0.3	0.4	0.7	0.2	0.2	0.3	0.3	0.2	0.3	1.0	0.8	0.5	0.4		0.3	1.0	0.8	0.6	0.7	0.1	0.2		
18	0.2	0.2	0.1	0.6	1.9	1.1	1.2	0.8	0.2	0.3	1.0	0.9	0.2		0.2	0.3	1.0	0.9	0.4	0.1	0.1			0.1
19		0.1	0.1	0.1							0.5	0.9	0.7	0.6	0.1	0.2	0.8	0.6	0.2			0.2	0.1	
20			0.1	0.7	2.6	0.4	0.2		0.1	0.1	0.9	0.4	0.1	0.1	0.4	0.1	0.2	0.4	0.5	0.2			0.1	0.3
21	0.3	0.6	0.1	0.4	0.8	0.6		0.4		1.8	1.8	1.1	0.2	0.2	0.2	0.4		0.5	0.2	0.5				
22		0.4	0.6	0.1	0.2	0.2		0.1	0.1			0.2				C	C	C						0.3
23	0.1	0.7	0.6	0.5	0.5	0.1	0.4	0.1	0.7	0.2				0.3	0.2			0.2						
24			1.5	0.2	0.7	0.4	0.1	1.1	0.9	0.3		0.5	0.2		0.1	0.5	0.9	0.3			0.2			
25						0.3	0.3				C			0.7	0.9	0.6	0.5	0.4	0.2	0.1	0.1			
26							0.2							0.3	0.1									
27			0.1					0.3																
28																			0.1					
29																			0.4					
30																								
31																								
Mean	0.08	0.16	0.20	0.22	0.36	0.18	0.33	0.17	0.18	0.25	0.32	0.37	0.25	0.28	0.28	0.20	0.27	0.34	0.29	0.20	0.12	0.17	0.08	0.13

Open spaces without figures correspond to quiet level

* : Quiet day

C : Failure of equipment

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

March 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		0.1			0.1		0.1	0.3	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1							0.1	0.1
2							1.5	0.3	0.2	0.2		0.1	0.3	0.1	0.1	0.1								
3		1.3	0.4	0.4	0.4	0.1	0.2	0.6	0.2	0.4	0.2	1.9	2.0	1.3	0.4	0.2	0.9	0.2						
4		0.3	0.9	1.5		0.1	0.2	0.1		0.1	1.2	0.4	0.2	0.1				0.1	0.1					0.7
5	0.2	0.3	0.2			0.5	0.5		0.9	1.1	2.0	0.6	0.4	0.4	1.3	1.2	0.5							
6		0.5	0.3	0.2																				
* 7							0.2			0.2	0.1													
8				0.1		0.6	1.1										0.7	0.3	0.1					
9					0.1	1.0	0.5	0.1																
* 10											0.2	0.1												
11				0.1	0.4	0.2	0.1							0.2	0.2		0.1	0.1	0.3					
12		0.2	0.8	0.1		1.3	0.2			0.5	0.8	0.7	0.5	0.2		1.3	0.8	0.6	0.2	0.2	0.2	0.2	0.7	
13	0.2	1.0	0.3									0.8	0.6	0.4	0.6	0.8	0.7	0.8	0.5					
14			0.1			0.2		0.4	1.4	0.2		2.0	5.0	3.9	1.2	0.2	0.3	0.2	0.4	0.3				0.2
15	0.2	0.1				0.1	0.1	0.3		0.2	0.1	0.7	0.3	0.1	0.6	0.2	0.1	0.4						
16			0.3				0.2		0.9	0.1					0.2		0.2	0.8	1.2					
17			0.2	0.3	0.3	0.1	1.0	0.6	1.0	0.9	0.1	0.5	1.2	0.5	0.7	1.2	0.7	0.1	0.1					
18			0.1	0.7	1.0					1.1	0.9		0.3									0.1		0.2
19	0.2	0.1	0.2	0.3	0.3	0.3	0.2	1.6	1.1	1.1	0.7	1.0	0.5	0.7	0.5	0.8	0.2	0.5	0.3					
20		0.4	0.1	0.3		2.5	2.0	0.1	1.5	1.2	1.1	1.2	0.4		0.1	0.1	0.3	0.1	0.3	0.1			0.9	0.3
21					1.6	1.4				0.3	0.3	0.2		0.2	0.2		0.2			0.1			0.1	0.4
22	0.6		0.3	0.3	0.1	0.1		1.0	0.5	0.1			0.3	0.2	0.2	0.1	0.2				0.1			
23	0.3	0.3			0.4	0.2				0.5	1.2	0.9	0.6	0.6	0.5	0.7	0.9	0.5		0.4	0.2	0.1		
24	0.2	0.4	0.5	0.2		0.1	0.8	0.8	0.4	0.2	0.2		0.1	0.2		0.1	0.2	0.1	0.2					
25							0.1	0.6	0.7	1.2	0.1	0.6	1.1	0.1	0.2	0.8	0.3	0.2	0.2					
* 26	0.1								0.3															
* 27																								
28			0.1	0.1				0.1	1.2	0.2	0.2				0.4	0.1		0.5				0.2	0.1	0.1
29		0.2			1.8		0.1		0.1	0.2	0.5	0.7	0.1	0.1	0.3	0.1	0.1		0.1		0.1	0.1	0.1	0.1
30		0.1	0.4	0.1				0.4	2.6	1.0	0.2	1.4	0.7	0.1	1.0	0.4	0.5							0.2
31		0.1	0.1	0.5		0.8	0.3		1.0	2.1	0.7	0.4	0.9	2.9	2.7	2.7	1.1	1.5	0.8	0.1				0.3
Mean	0.06	0.17	0.17	0.16	0.20	0.30	0.30	0.22	0.44	0.42	0.35	0.45	0.50	0.39	0.36	0.35	0.26	0.23	0.16	0.04	0.01	0.02	0.06	0.08

Open spaces without figures correspond to quiet level

* : Quiet day

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

April

1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		0.1		0.5		0.1		0.5	0.4	1.2	3.3	2.1	0.9	1.1	3.1	2.3	1.5	1.5	0.2					
2					0.9	0.2	0.3	0.9	0.8	0.9	1.3		0.4	0.6	0.9	1.3	0.7		0.5					
3			0.5	0.1	0.2	0.8		0.2	1.5	1.0	0.5	0.2	0.1	0.4	0.3		1.6	1.0	0.6					
4		0.3	0.3	0.1		0.2	0.1	0.2	0.1	2.1						0.4	0.5		0.2					
5						1.3	0.1				0.5	0.1												
6						0.2		0.1	0.5	0.8	0.5	0.1	0.5	1.1	1.3	0.9								0.4
7		0.5		0.5					0.2	2.0	1.2	0.1	0.3	1.0	0.9	0.8	1.4	1.9						
8		1.9	2.0	1.0	0.1			1.2	0.3	2.3	1.5		1.2	1.2	0.6	0.7	0.1	1.2	1.8	0.7				
9					0.5	0.2	0.1	0.1		0.3	0.2						0.4	0.2						
10			4.3	2.6	0.2	0.3	0.7	0.7	0.1	3.0	1.1	0.2	2.8	1.2	1.4	2.0	0.5	1.6	0.3		0.5			
11		0.5	0.3		0.3			0.5	0.7	1.1			0.3	0.2										
12						0.2	0.3			0.2	0.5	0.2		1.4	0.7	0.1		0.7	0.2					
13				0.5	1.8	0.5	1.0	0.3	2.3	1.5	1.6	1.9	0.5	1.1	1.5		0.2	0.2						
14			0.6			1.0		0.5	1.5	1.7	0.5	0.8	3.0	2.5	0.8	1.0	1.0	0.5						0.7
15	0.3	0.2			5.0	0.5	1.0		0.3	1.2	0.5	2.8	4.2	2.5	0.7	0.3	0.2					C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	0.5		1.0	1.7	0.7							0.1	1.3
17	0.2	0.9	0.1	0.5		0.8	0.9	0.7	1.7	2.0	1.2	1.5	2.2	1.7	1.3	0.9	0.6	0.3		0.4	0.2	0.1		
18	2.3	0.1	0.1			0.4		0.3	1.0	0.1	0.3	0.1					0.7	0.2	0.1		0.2			
19			1.0						0.3	0.5	0.7		0.7	2.6	1.0	0.7	0.7	0.9						
20					0.4	1.1	0.2	0.8		0.1		0.5	0.6											
21			0.1		0.3	0.4	0.3	0.3		0.5	0.4	0.2				0.1								0.5
22	0.4	0.1	0.6	0.2	0.2	0.2	0.2	0.3	0.5		0.2	0.6	0.7	1.7	1.4	0.5	0.2		0.2	0.1				
23								0.7	0.1	0.4	0.3	0.4	0.2	0.3	0.6		0.2	0.5	0.5	0.2				
24		0.8	0.5	0.2				0.5	0.7	0.3	0.2	0.7	0.2	0.1	0.9	0.1		0.1						
25	0.6	0.5	0.1	0.4	0.2	1.0	1.2	0.2	0.1	0.7	2.0	1.0	0.8	S	1.1	1.0	0.2	0.6						0.7
26	0.3		0.2	0.3	1.2	0.7	0.5		0.7	2.6	1.2	1.2	1.3	1.0	1.3	1.5		0.1						
27	0.2	0.2			0.5	2.7	0.3	0.3	1.6	2.1	0.4	0.4	2.0	1.1	0.5	0.7		0.9	0.5		0.3	0.2		
28							2.0	1.3	0.7	0.5	0.2		S	S	S	S	S							
29					0.9	1.0			0.4	0.2	1.0	0.2	0.9	2.2	1.6	0.7	0.3	S						
30	0.2	0.2			1.8	0.3	0.2	0.1	0.3	1.8	1.8	3.0	4.7	1.8	0.3	0.3	0.9	0.2						
31																								
Mean	0.15	0.22	0.33	0.23	0.50	0.48	0.36	0.35	0.57	1.06	0.17	0.60	0.94	0.93	0.44	0.57	0.40	0.42	0.15	0.04	0.04	0.01	0.01	0.12

Open spaces without figures correspond to quiet level

* : Quiet day

C : Failure of equipment

S : Interference

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

May

1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		0.1	0.1	0.1	0.2		0.7	0.7	0.3			0.7	0.5	2.5	1.0	3.0	3.0	0.3	1.2	0.1				
2	0.7	0.2			0.2		0.2	0.2			0.7				S	S	S							
3			0.1										S	S										
4									0.3	0.3	0.5	1.9	1.0	0.5	0.4	0.7	0.2	0.2						0.1
5	0.3	0.1			0.2				0.1	0.9	0.3			0.1	0.2	2.0	0.3	2.2	0.6		0.3			
6									0.3	4.5	0.7	1.3	1.1	2.4	S	S	0.2	0.5	0.5		0.1			
7										0.7	1.5	0.7					0.5	0.3						
8	0.1				0.6	0.1					0.4	0.2				0.8	0.2							0.3
9				0.2					0.2	0.4	0.2	0.5												
10															0.4							0.1	0.1	
11					0.1				0.6	1.1	2.0	0.4	1.5	0.5	0.6	0.1	0.3	0.1	0.2					0.2
12		0.2	2.0	0.5	1.2	0.7	0.2	0.1	0.7	1.3	0.3	2.8	2.7	1.9	1.2	1.0	0.5	0.5	0.5					
13	2.2	0.5		1.7	0.2	0.4	0.4	0.4	0.7	1.3	0.3	4.1	2.2	2.3	4.0	1.9	0.2							0.1
14		0.5	1.0	0.5	0.5	0.4	3.2	0.8	0.1	0.3	3.1	0.4	0.2	1.2	0.6	0.7		0.4				0.2	0.6	
15		0.2	0.5	0.5	2.1	2.6	1.1	0.2	1.2	1.0	1.5	2.0	1.2	0.9	0.2	1.0	2.7	0.2	0.2					
16	0.5	0.2			0.8	0.5	0.2				0.7	1.4	S		0.1	1.2	0.4	0.1	0.3	0.2				
17	1.2	0.2	0.7	0.1	1.4	0.6									S	S	S				0.2	0.8		2.7
18	0.2	0.4				0.5	0.1			0.1	0.5	0.1	0.8	0.2		0.5	0.4	0.5						
19		0.1								0.2	0.7	0.3	0.6	1.8	0.6	0.1	0.1	0.1	0.4					
20																								
21		0.5	0.5																					
22										0.3	1.0	0.7	3.3	2.4	1.1	0.3	1.4	0.7	0.4			0.5	0.2	0.1
23	0.3	0.2	0.5	0.6	0.5	0.2	0.3	0.1	0.8	0.8	1.8	0.7	7.7	2.7	1.0	0.9	1.1	1.0	0.2				0.7	0.9
24			0.7	0.5	0.4	0.9	1.8	1.0	1.0	0.8	2.5	3.5	1.0	0.9	1.3	2.2	0.9	0.9	0.1		0.1			
25	1.4					0.5	0.1																	
26																								
27	0.5		0.8	0.5	0.2		1.5	1.3	0.2	0.2	1.0	0.3	1.9	1.1	0.7	0.3								
28				0.2			0.2	0.4	0.2	0.1														
29																								
30												0.1												
31						0.5	0.4	0.2	0.6	0.4	2.2	2.1	1.2	0.7	0.8	1.5	0.8	0.2	0.1			0.1		
Mean	0.23	0.10	0.22	0.17	0.26	0.25	0.33	0.17	0.21	0.43	0.70	0.78	0.86	0.71	0.45	0.58	0.42	0.26	0.15	0.01	0.01	0.04	0.03	0.16

Open spaces without figures correspond to quiet level

* : Quiet day

S : Interference

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

June 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								0.3	2.8	1.1	0.3	0.3	1.2	1.5	0.8	0.3	0.4	0.5	0.9	1.0				
2													0.5	0.2			0.4	0.7	0.4					
3					0.1	0.2	0.1							0.1	0.5		0.2					0.1		
4				0.4								1.5	1.1									0.3		
5															0.1	0.2					0.2	0.3		
6													1.0	0.4									0.2	
7																								
8										1.0			0.2	0.5	0.8	0.5	0.4	0.2	0.2					
9				0.1		0.3							1.2	4.6	1.2	2.8	1.5							0.7
10			1.7	1.9	1.0	1.0	1.5	2.5	2.0	2.6	2.5	2.0	2.0	0.9	0.7	2.8	0.7	0.2	0.2					
11						0.8	0.5	0.9	1.7	4.2	1.6	2.0	1.4	1.3	0.5	0.2					0.2			
12			0.6	0.3	0.3	0.9	1.2	0.5	0.5	0.3	0.5	0.1	0.1	0.2			0.4	0.3						
13							2.0	1.2	0.2	0.2		0.3	2.3	2.3	0.8		1.1	1.0	0.4			0.1	0.1	
14		0.5	0.2					0.4	1.4	0.3		0.1	0.9	2.7	2.1	1.4	0.9	0.1			0.7	0.5		
15	0.6		0.3	0.5	0.5	6.2	1.4	0.9	1.2	1.1	1.5	1.2	0.5	1.0	5.2	3.5	1.6	1.0	0.6	0.2			0.4	
16	1.0	0.1	0.3	0.3		0.4									0.3	0.5	1.2	0.1				0.5	0.2	
17		0.2		0.1						0.2	2.2	1.2	0.2	0.2	0.2	0.1		0.1	0.4	0.1			0.2	
18		0.3	0.4	0.3	0.5		0.7	0.6	1.2	0.9	1.8	4.1	3.6	1.7	0.2	0.8	0.5	0.5	0.3					
19	0.1		0.2	0.3	0.1	0.1		0.4	1.5	1.3	2.0	2.6	0.8	0.9	0.6	1.5	1.5	0.9						
20					2.6	0.2	0.4	1.2	0.5		2.6	4.0	4.2	2.5	1.1	0.7	0.7		0.3	1.0	0.1			
21			0.2	1.5	0.8	1.0		1.3	1.2	1.0	3.3	1.7	0.7		2.1	1.1	0.6	0.3	0.2	0.2	0.4		0.1	0.2
22			0.7	0.3						2.2	1.7	1.8	1.7	4.6	4.6	3.1	1.3	0.5	2.7		0.5		0.1	0.1
23	0.1			0.1	0.6			0.1	2.5	2.0	3.0	1.9	5.4	4.4	3.0	3.9	1.5	1.2				0.1		
24	0.1					0.4	0.6	0.5	0.7	1.4	1.0	0.9	0.1		0.9	0.8	0.5	0.3	0.5					
25														0.2	0.4		0.1							
26				0.1						0.8		0.5	0.5	0.4				0.1						
27			0.1	0.2		0.2					0.5	0.5		0.6		0.5	0.5	0.2	0.2					
28				0.2											0.5	0.5	0.2	0.2		0.5	0.3			
29			0.2			0.2	0.9	1.0	1.2	1.6	2.6	5.1	2.0	2.1	2.6	2.2	1.6	0.9	0.5	0.5				
30																			0.3	0.2			0.2	
31																								
Mean	0.06	0.03	0.10	0.20	0.26	0.39	0.29	0.36	0.63	0.72	0.92	1.14	1.17	0.99	1.03	0.86	0.52	0.29	0.25	0.10	0.09	0.04	0.05	0.03

Open spaces without figures correspond to quiet level

* : Quiet day

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

July 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					0.3		1.0					0.1	0.5		0.5	0.2		0.2	0.1					
2																								
3													0.1	1.3	0.5	0.2	0.2							
4																								
5					0.2									0.9	0.5							0.2	0.1	
6							0.6	0.2		0.1	0.5	0.5				0.4	0.6	1.4						
7		0.1						1.0	0.2					1.1	1.5	1.2	3.0	1.0						
8		0.3	0.1			0.3	0.4	1.3			1.6	3.5	4.0	1.2	0.8	1.0	0.2	0.6	0.3					
9		0.3		0.2	0.1	0.1		2.1							2.7	1.9	0.5	0.6	0.2					
10	0.5	0.6	0.2	0.6	0.2	0.1	0.2	0.7				1.1	1.5	1.2	0.1									
11												0.2	0.1	0.1	0.5	1.0	0.3							
12	1.0	1.5	0.8										0.1	0.1	0.5	1.0	0.3							
13	0.2	0.2			0.2	1.6	1.3	1.7	2.2	4.3	4.4	5.5	4.5	5.5	4.3	2.1	0.6	0.5	0.2	0.2	0.5			
14								0.1	0.2	0.5		1.7	1.7	1.1	0.6	1.0	1.4	0.9	1.0	0.5		0.2	0.2	
15																						0.2	0.2	
16						0.1	0.3	0.3	0.6	0.9	0.5							0.1						
17	0.1	0.2	0.4	0.2	0.5	1.0	1.1	0.5	1.0	1.0	0.7	1.5	1.0	2.0	2.1	1.8	1.5	0.3	0.5					
18	0.5	1.0	1.2	1.4	1.0	1.0	4.2	3.0	1.5	4.2	3.2	1.7	2.5	2.0	2.7	0.6	0.3	0.5						
19			1.0	1.2	1.0	1.6	1.0	1.2	1.0	1.4	1.0	0.5	0.2	4.2	2.7	1.5	0.7	1.2			0.9	0.2		
20	0.4	0.5	0.1	0.3	0.2	0.2	0.4	0.3		1.5	1.1	2.5	2.2	0.5										
21			0.1	0.9				0.5	1.2	0.1	0.7		0.2	0.6	0.7	0.4	1.0	0.2	0.2		0.5	0.4		
22			0.5	0.1	1.2	1.0	0.5						1.0	0.5	0.5	0.2								
23	0.1		1.2									1.2	1.2	1.0	0.5	0.4	0.4							
24		0.2	2.1				0.8	0.7	0.6	0.5	0.3	0.2	0.2	1.1	1.2			0.2	0.7					0.2
25		0.1		0.4	0.7	1.2	0.2	0.1	1.0	0.6	0.6	2.2	4.0	2.7	0.9	0.9	0.8	0.2	0.5		0.1	0.1	0.1	0.1
26										1.6	1.3	2.1	0.7	0.2	0.1		0.5	0.5	0.5	0.1				
27		0.2										2.6	1.0	0.2	2.2	1.8	0.7	0.1	0.2	0.3	0.2			
28				0.7						1.3	1.1				0.5	0.3	0.6	0.1	0.2			0.3		
29							0.5	1.7	2.2	0.9	2.0	2.5	1.5	0.5	0.2	2.1	2.3	2.0	1.2	0.1	0.2			
30					0.1	2.2	2.6	1.5	0.7	5.2	2.4	2.1	1.2	3.2	3.2	6.0	0.7							
31	2.1	0.3		1.3	0.6	0.5	0.4		1.5	1.1	1.0		0.5	1.0	0.3					0.3				
Mean	0.15	0.17	0.24	0.23	0.20	0.35	0.50	0.54	0.48	0.81	0.72	1.02	0.96	1.03	0.96	0.80	0.57	0.37	0.19	0.06	0.08	0.04	0.01	0.01

Open spaces without figures correspond to quiet level

* : Quiet day

10

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

August 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								0.2		0.1	0.4	1.0	1.2	1.0	0.7	0.1			0.2					
2					1.0	1.2		0.5	0.2	0.3	2.2	0.5	0.5			0.2			0.5	0.2				
3			1.6	0.2	0.2												0.2							
4	0.7	0.2	0.5		0.7	0.3	0.6	0.2	0.5	0.1		0.5	0.2	0.6	0.4									
5																								
6																								
7							0.2						0.1											
8		0.8	0.5	0.1	0.5	0.7	0.2	1.2	0.4			0.2			0.9	1.3	1.0	1.2	0.2	0.2	0.3			
9					1.7	1.2	0.2	0.1	0.1					0.9	0.4	0.1	0.2	0.1	0.6					
10										0.2						0.7	0.3	0.1						
11									S				S										S	
12	S	S	S	S	S						1.0	1.6	0.5	0.5		0.1								
13				0.2				0.3	0.7	1.6	0.5	2.0	2.5	1.8	0.5	0.2	1.5	0.1						
14		2.1		0.8	0.8	2.5				1.2	0.6		0.2											
15				0.5	0.1	1.9	0.4			0.8	0.8	0.2	0.2			2.2	0.5		0.1			0.2		
16																								
17	0.3	0.7	0.3	0.6	0.9	0.6	0.2							0.2	0.2									
18																								
19															0.1									
20								0.3	1.3								0.6			0.3				0.7
21	0.3	0.2		0.1	0.1	0.5	3.9	0.4	1.0	0.9	0.9	1.3	1.0	2.2	1.7	1.2	2.1					0.2	0.1	
22			0.4		0.1	0.3	0.2				0.2	0.3	0.1			0.6	0.2							
23						0.2	0.1	1.0	4.0	0.6		0.2	6.0	2.9	0.7	0.2	0.3		0.6	0.2				0.9
24				0.2	1.0	2.5	0.2	0.6	0.7	0.5	1.5	1.3	1.2	0.5	1.2	1.2	1.0	0.9	0.5					
25		0.1	0.5	0.5	0.2	0.3	1.0	0.5	2.1	0.5	0.1	4.5	7.8	0.7	2.2	1.2	0.9		1.2	0.2				
26			0.1	1.0	0.5	0.5	1.0	0.4	0.7	5.1	1.6	1.5	0.8	4.4	3.7	3.7	1.2	0.1	0.2					
27				0.1	0.5	0.1											0.1	0.1						
28				0.2	0.6	0.1	0.6	0.9	0.1	0.4			0.6	1.0	1.0	0.7	0.3	0.5	0.2			0.1		
29				S	S	1.0	0.9	1.5	0.7	S	S	S	S	S	S	0.2			0.1	0.1				
30	0.2		0.1			0.4				0.5	2.9	1.0	0.1	0.1	0.1	0.2	0.2			0.3				
31		0.5	0.1	0.5	0.5	0.1	2.0	0.6	2.6	2.1	7.2	2.5	1.9	2.0	1.5	0.8	0.6		0.4					
Mean	0.04	0.14	0.13	0.15	0.29	0.48	0.36	0.27	0.51	0.47	0.65	0.60	0.80	0.60	0.49	0.48	0.36	0.10	0.15	0.04	0.01	0.01	0.01	0.05

Open spaces without figures correspond to quiet level

* : Quiet day
S : Interference

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

September 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	0.8	0.1	0.4	1.3	0.5	0.3	0.8	2.6	0.7	0.6	0.2			0.6	0.8	0.5	0.5	0.2				0.2		
2			0.2		0.2	0.2	1.1	0.6											0.4					
3						0.1			0.6	3.5	1.1	0.5	0.2											
4																								
5				0.9	0.1																			
6							0.7	1.0	0.5		0.2													
7																			0.5			0.2		
8				0.5			0.5	0.5	0.2			0.5	0.9		1.5	0.6	0.5							
9				0.2	0.1	0.2	0.5	0.5																
10	0.1	0.5	0.5	0.8	0.1		0.6				0.8	0.5			0.1	0.1					0.6	0.5		
11		0.1		0.7	0.5	0.6	1.0			0.1	0.5													
12			0.5	0.3			0.5	2.2	0.1	2.6	1.0	1.1	3.5	1.4	0.2	1.0	0.7	0.2	0.8	0.1				
13	0.3	0.2	0.2	0.7	2.6	1.5	1.4					0.7	0.6	0.2	0.2	0.5	2.2	0.7	0.2	0.2				
14		0.5	0.6	0.5	0.6	0.1								0.2	0.1									
15												0.2	0.1	0.3										
16			0.1						0.1	0.8	S	1.5	0.3	0.2	0.2	0.2	1.0							
17	0.1	1.0	0.9	0.2	1.1	1.0	0.5	0.5	0.5	6.7	4.8	0.2	5.2	3.0	1.2	0.4		0.4						
18				1.3	0.7		S		1.0	0.7	0.7	1.0	0.9	1.1	0.2									
19					1.0	2.6	0.5	2.5	0.5	0.6	0.6	0.4	0.7	0.4	0.5	0.7			0.1					
20	0.3	0.3	0.2	3.2	1.5	1.3				1.1	0.8	0.8	1.4	2.6	0.9	0.2	0.7	0.6	1.2	0.1				
21				0.2	0.3	1.0	1.4	1.4	0.4	0.6	1.0		0.7	0.2					0.2	1.0	0.2			
22				0.5	1.0	0.9	0.9	0.2	0.5	1.0	1.2	0.2	0.7			2.1	1.0	0.5	0.3		0.2	0.2		
23			0.4																		0.2	0.2		
24																		0.3		0.1				
25							0.3					0.2												
26	0.3	0.3	2.6	3.1	1.6	1.0	2.2	3.1	2.3	0.8	5.9	2.6	1.1	3.5	1.5	0.6		0.6	0.6	0.1				
27	0.1	1.8	0.7	0.6	0.6	2.6	0.5	0.2		1.0	1.2	1.0	1.6	0.7	0.3	0.4	0.7							
28	0.2	1.0	1.4	0.7	3.0	3.4	1.6											0.2						
29	0.2	0.9	0.8	1.0	1.1	1.0		0.7				S	S	S	0.3	0.3	0.2							
30							0.1	0.1																
31																								
Mean	0.08	0.21	0.30	0.55	0.53	0.59	0.50	0.53	0.24	0.67	0.66	0.38	0.59	0.48	0.26	0.25	0.25	0.12	0.14	0.05	0.03	0.03	0.01	0.03

Open spaces without figures correspond to quiet level

* : Quiet day

S : Interference

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

October 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			0.2	1.0	1.2	0.6	0.3														0.5			
2		0.6	1.7	0.6	1.0	1.2	0.5	0.5	2.5	1.7	0.5	0.5	1.7	0.1	0.1	0.3		0.5	0.1		0.6			
3	0.3	0.2		0.7	0.5	0.2		0.2	0.5	0.5	5.0	2.2	1.5	0.1	1.1	1.1		0.2	0.1					
4		0.1		2.0	0.4	0.5	0.3		0.8	0.5		0.2	0.8	0.5	1.9	0.7	0.1							0.2
5		0.2	0.2												0.2	0.1								
6				1.7	0.7	0.6	0.5	0.5	0.2	0.2	0.6	0.6	0.2		0.2	0.5		0.2						
7		0.2	0.8	0.5	0.4			1.5	0.9	0.5	0.5		0.2	0.2	0.2			0.2						
8		0.2	0.2	1.1	1.5	0.5	0.5	0.1	0.1						0.1									
9		0.3	0.1	0.3	0.5	0.8	0.1														0.1	0.1		
10											0.5								0.1	0.2	0.1	0.1		
11		0.2	0.5		0.7	0.7	0.7	0.2		0.2	2.2	1.5	0.3	0.3		0.1				1.0	1.0	0.5		
12								0.7	0.3	0.5						0.5								
13					0.5	1.8	0.5	0.5	2.0	0.2	1.0	1.7	0.6	0.4	0.3						0.1	0.1	0.4	0.5
14					0.2					0.5	1.8	0.5	0.3			0.1	0.1	0.2	0.3		0.1	0.1	0.4	0.5
15	0.2		0.4	0.2	0.1				0.5	2.7	1.1	0.4	0.3	0.4	0.4	2.1	0.5	0.2	0.3	0.4	0.5	0.2	0.4	0.3
16		0.2	1.5	0.9	0.8	0.7		0.3	1.0	1.1							0.2	0.2	0.1	0.2				
17			0.6	0.1	0.2	0.4		0.9	0.7	0.1	0.6	1.1	0.6	0.2	1.0	0.5						0.1		0.4
18			9.0	1.0	2.0	0.5	0.3		1.0	2.5	0.5	0.7	0.7	0.2	0.3							0.1	0.1	0.5
19	1.0	0.9	1.0	1.7	1.0	1.5	1.0	0.8	0.9	1.3	0.3			0.7	0.2	0.2								
20								0.3	0.7	0.2	0.2	0.2				0.1			0.2	0.4	0.5	0.2		
21		0.2	0.1	0.5									0.5				0.3				0.5	0.3	0.3	0.5
22	0.5	0.1	0.1	3.5	0.9	0.8	0.6	0.4	0.7	7.9	0.7			0.2	0.3		0.3	0.5	0.1	0.1	0.3			
23		0.8	0.3		0.6	0.6	0.2			0.3	0.5			0.3	0.2			0.4	0.2					0.1
24		0.1	0.1	0.1	1.6	1.5				1.1	0.5	0.6	0.2	0.1	0.1	0.8	1.0	0.5						
25	0.9	0.3	0.1	1.0	0.1																			
26		0.5	1.0	1.4	0.9	0.8	0.2		0.6															
27								0.2																0.3
28				0.3	0.1	1.0	0.5																	
29				0.6	0.2	0.3	0.5	0.6	0.2		0.6	0.7	0.1	0.5	1.5	0.9	0.1	0.2				0.2	0.3	0.3
30	0.1	0.2	1.5	1.2	2.2	1.0	1.7	1.7	0.5	0.2	0.8	1.2	1.2	0.4	1.0	0.5	0.2	0.2	0.1		0.1	0.2	0.2	0.1
31		0.2	0.5	0.1	0.4	0.6	0.2					0.2	0.5	0.2	0.9	0.6	0.8	1.2	0.5					
Mean	0.09	0.17	0.64	0.66	0.60	0.53	0.27	0.30	0.45	0.71	0.56	0.41	0.31	0.15	0.32	0.29	0.11	0.13	0.09	0.07	0.13	0.05	0.03	0.10

Open spaces without figures correspond to quiet level

* : Quiet day

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

November 1983

Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		0.1	0.3			0.2	3.0	1.0						0.2	0.5		0.6							
2		0.5	0.2					3.2	1.0	0.7	0.5			0.5	0.5		0.5	0.5						
3	0.4	0.5		0.9	1.5	0.6																		
4	1.0	0.7	0.6			0.1	0.1													0.4	0.3			
5		0.5	0.7		0.2	0.2																		
6																0.5								
7			1.3	0.2							0.6	0.3								0.1	0.2			
8					0.2	0.3	0.2	0.6	0.5	0.2	0.5	0.2	0.3	0.2	0.5	0.2	0.2	0.1	0.7					
9	1.0	0.7	0.5	0.1		0.1	1.0	0.6	0.7	1.1	0.5	0.2	0.3	0.7	0.6	0.3	0.2	0.4						4.5
10	0.6		1.2	0.3	0.2	0.6	0.5		0.5	0.5	2.5	0.6	0.1		0.7	0.2	0.1	1.0	0.2				0.5	
11	0.2	0.1	0.7		0.7		0.2	0.2		0.6	0.2	0.5	0.7	0.9	1.0	0.5	0.1	0.7	0.2					0.2
12	1.0	0.2	0.6	1.5	0.5	0.2	0.3	0.5	0.5	0.6	0.2	0.5	0.7	0.9	1.0	0.5		0.1			0.1			
13	1.7	0.1	0.1			0.1		0.6	0.7	0.1	1.1	1.5	0.1	0.5	0.5	1.1								
14	0.6	0.6						0.2	0.3	0.5	0.7	1.4	1.3	0.6	0.2	0.1	0.4	0.1			1.6	0.2		0.1
15	0.2					0.2										0.1		0.5						
16	1.0	1.6	0.6	0.3	2.0	2.5	0.5	0.4	0.6	0.3	0.5	0.7	0.3	0.4	0.2		0.2			1.5	0.1	0.5	0.9	0.3
17	0.3	2.0	0.6	0.4	1.2		1.7	0.2			1.5	1.1	0.5	0.6	2.9	2.2	0.2	0.1	0.1	0.1	0.5	0.1		0.1
18	1.0	2.0	1.1		1.3	0.4	1.5	0.6	1.4	1.3				0.2	0.2	0.4	0.1	0.1	0.1	0.3	0.2	0.2	0.6	1.5
19	2.2	1.5	1.0	0.6	1.4	0.6	0.5	0.5	0.4	0.3	0.8	0.2	0.1	0.2	0.2	0.4	0.1	0.1	0.3	0.2	0.2	0.2	0.6	1.5
20	5.0	0.5	1.2	0.1	0.7	0.1	2.8	1.0	0.3		0.4	0.8	0.6	1.0	0.2	1.7	1.7	1.2	0.4				0.6	0.5
21		0.4	1.9	1.0	0.4	0.1	0.5	0.3															0.2	
22		0.6	0.4	2.0	1.5	0.4		0.7		C	0.1	0.1	0.1											
23		0.6	0.6																					
24			0.1	0.5	1.0			0.1		0.1		1.0	0.4	0.3	0.3	0.3			0.4	0.4				
25		0.5			0.5	0.5	0.2		0.1	0.2		0.1	0.1	0.2	0.2	0.2	0.2	0.3						
26			0.5	0.4	0.5	0.5	2.5	0.6		0.3	2.0	0.8	0.1			0.1		0.7	0.7	0.3			0.2	
27			1.0		0.2												0.2	0.5	0.3					
28														0.1		0.1	1.4					0.2	0.1	
29						0.5			0.4	0.3					0.3	0.2		0.6						
30	0.2	0.8	0.5		0.5	0.2			0.1				0.7	0.2	0.7		0.2	0.2	0.9	0.5	0.2		0.2	0.2
31																								
Mean	0.54	0.48	0.52	0.27	0.48	0.28	0.51	0.37	0.25	0.22	0.39	0.28	0.21	0.21	0.31	0.25	0.22	0.26	0.13	0.12	0.12	0.04	0.10	0.24

Open spaces without figures correspond to quiet level

* : Quiet day

C : Failure of equipment

SYOWA STATION

45° EAST MERIDIAN TIME (U.T. + 3 hours)

December 1983

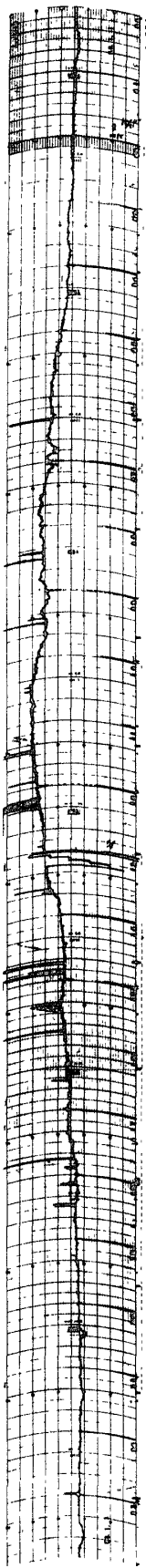
Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	0.2	0.6		0.8	0.8	1.3	0.1	0.1		0.2			0.2			0.5	0.2						0.2		
2	0.2	0.1		0.5	0.5	0.7	0.5	1.0	0.7	0.9	0.3	0.2				0.2	0.2	0.2	0.2	0.1		0.2	0.2		
3		0.2	0.1	0.5	0.2									0.2	0.2	0.1	0.2	0.1	0.2			0.3	0.5	0.2	
4		0.6	0.2			0.2	0.2														0.2	1.1	0.4	0.5	
5					0.4	0.5	0.2					0.2		0.1	0.5	0.5		0.1	0.4	0.2		0.5	0.5	0.6	
6	0.5		0.1	0.1	0.1	0.3		0.1	0.2	1.5	0.7			0.3	1.1	0.6	0.5	0.3	0.1						
7			0.3	0.5	0.5	0.3		2.1	0.2				0.2	0.5	0.5	1.0	1.4	0.2				0.2	0.7	0.5	
8	0.1	1.0	0.6	0.1	1.0	0.5	0.2	0.2	1.5	0.6	0.1		0.3	0.1		0.2			0.7	0.2	0.1				
9																									
10		0.3	0.2	0.1		0.5		0.2		0.7	0.1	0.3	0.1	1.2	0.9		0.6	0.3						0.4	
11							0.2																		
12		0.5			0.1	0.7					0.2	0.2						0.2	0.2		0.2				
13						0.5	0.6	0.9		0.7	0.2	0.2			0.5	0.5	0.2	0.2	0.1	0.1				0.2	
14	1.0	1.9		1.2	0.8	0.6	0.1		0.1	0.7	1.5	0.5	0.2	0.4	0.8	0.8	1.2	0.4	1.2		0.5	0.7	0.1		
15	2.1		0.1		1.3	0.6	0.7	0.5		1.0	0.8	0.2		0.5	0.5	0.5	0.3	0.2	0.2						
16	0.2	1.0	1.1	1.2	0.6	0.8	1.5		0.2	0.2	0.1	0.3	0.1											0.2	
17			0.8	0.6	0.5																			0.5	
18	0.5	0.1		1.4	2.0	0.5															0.7	0.8	1.6	0.2	
19				0.8	0.3	0.1	0.1	0.2	0.2			0.1											0.5	0.2	
20	0.1		0.2				0.1																		
21																								0.1	
22				0.1										0.1	0.4	0.5	0.2			0.3					
23							0.2			0.7	0.1			0.3	0.5	0.1									
24		0.1	0.1		0.2													0.7							
25			0.1			1.1		0.2								0.3									
26				0.2	0.7		0.1																		
27	1.2	0.1		1.5	0.2	0.2	0.2	0.2																1.1	
28	0.1	0.1				0.8												0.2	0.4						
29		0.6	0.6		0.4	1.0	0.1				0.2						0.3	0.1	0.7	0.1	0.1				
30		0.5	0.1		1.0				0.4			0.4	0.2	0.3	1.3	1.0	0.1							0.3	
31		0.1		0.4	0.5		0.5	0.2	0.3	0.2			0.2	0.5	1.0	1.4	1.0	0.6	0.5	0.8	0.2	0.2	0.3	0.5	
Mean	0.20	0.25	0.14	0.32	0.39	0.36	0.18	0.19	0.12	0.23	0.13	0.08	0.06	0.15	0.26	0.26	0.20	0.12	0.15	0.06	0.06	0.15	0.15	0.16	

Open spaces without figures correspond to quiet level

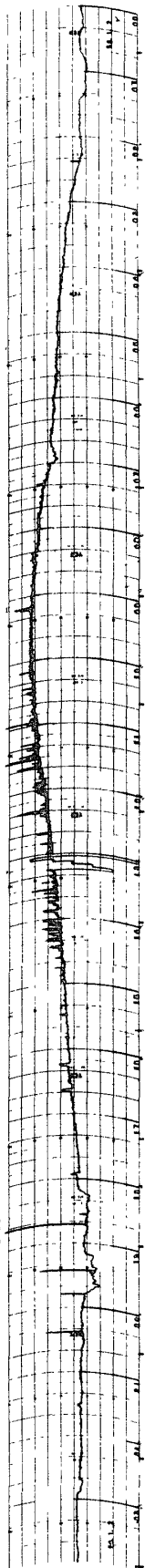
* : Quiet day

JAN 1983

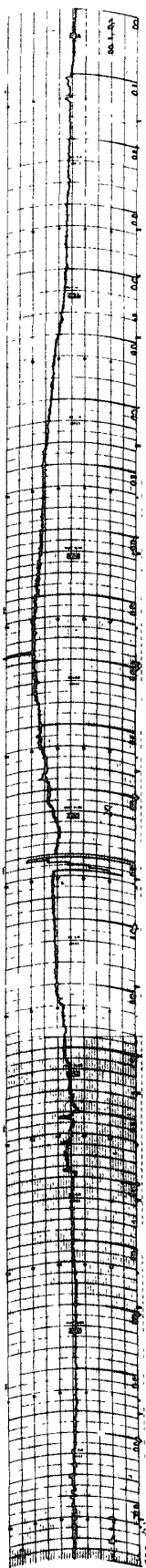
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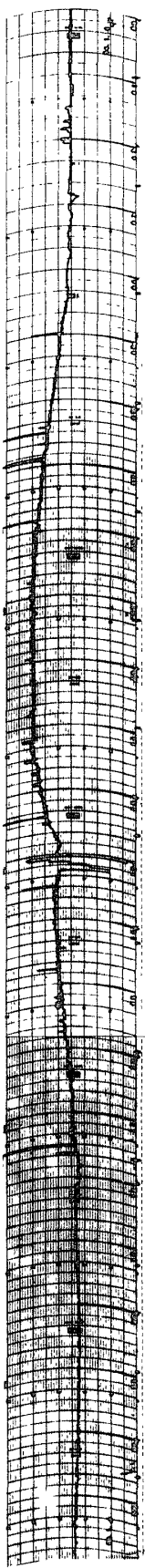
2



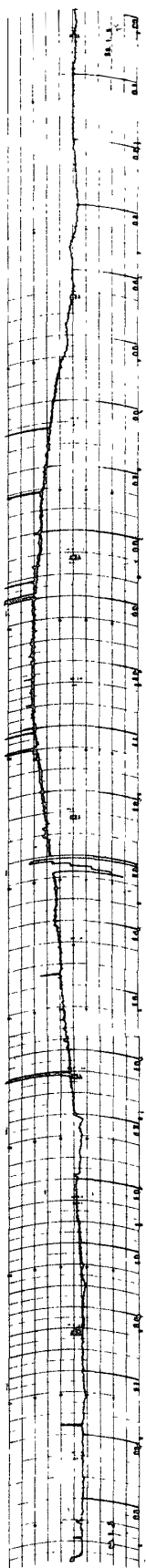
3



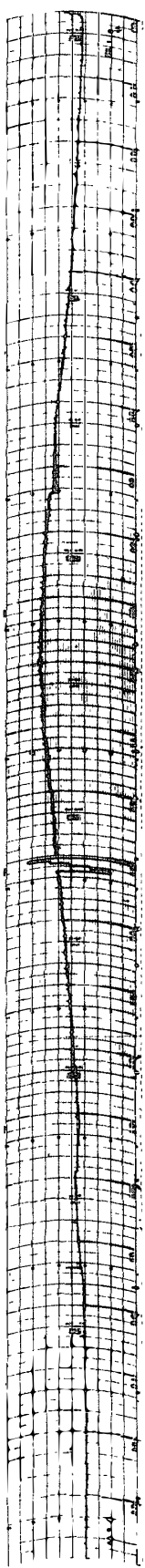
4



5



6

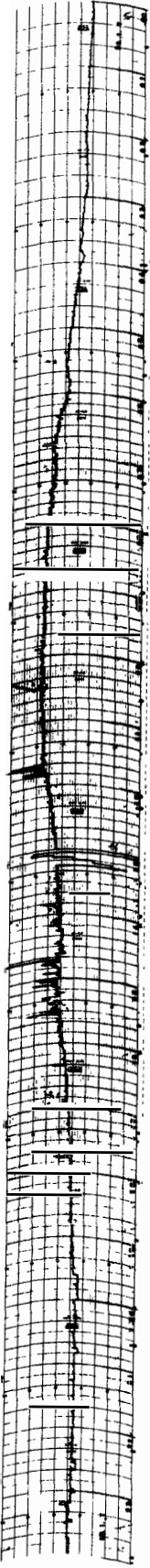


24 20 16 12 08 04 00

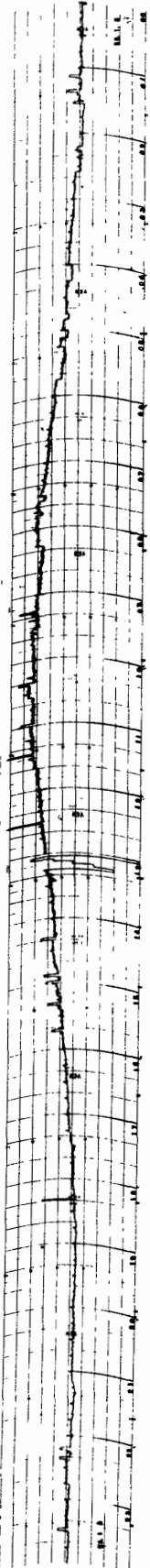
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JAN 1983

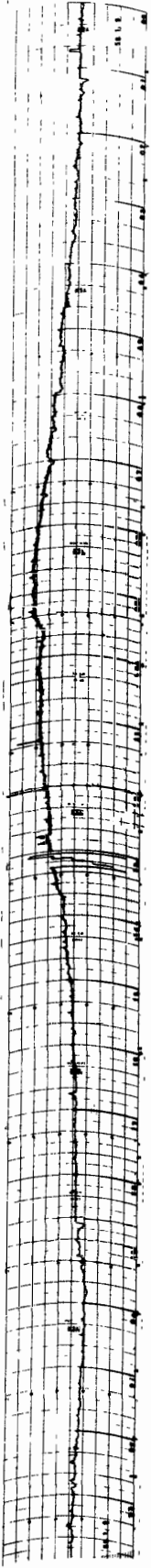
7



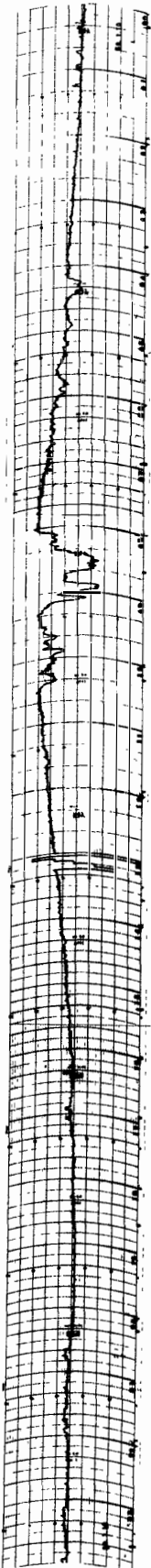
8



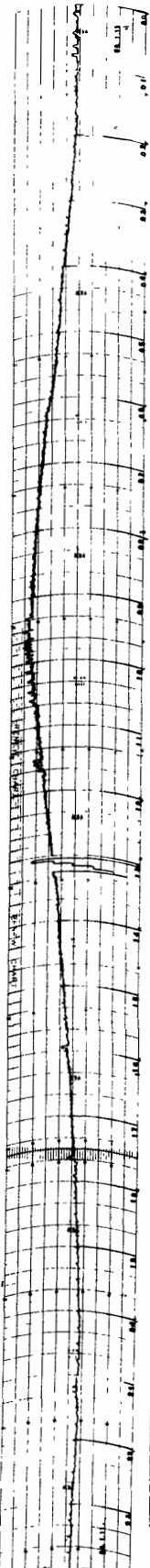
9



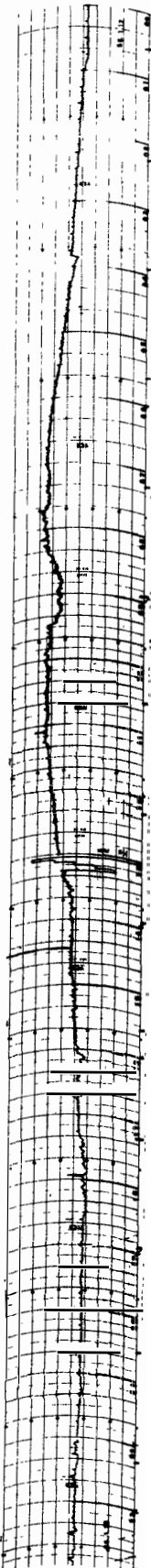
10



11



12



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JAN 1983

13

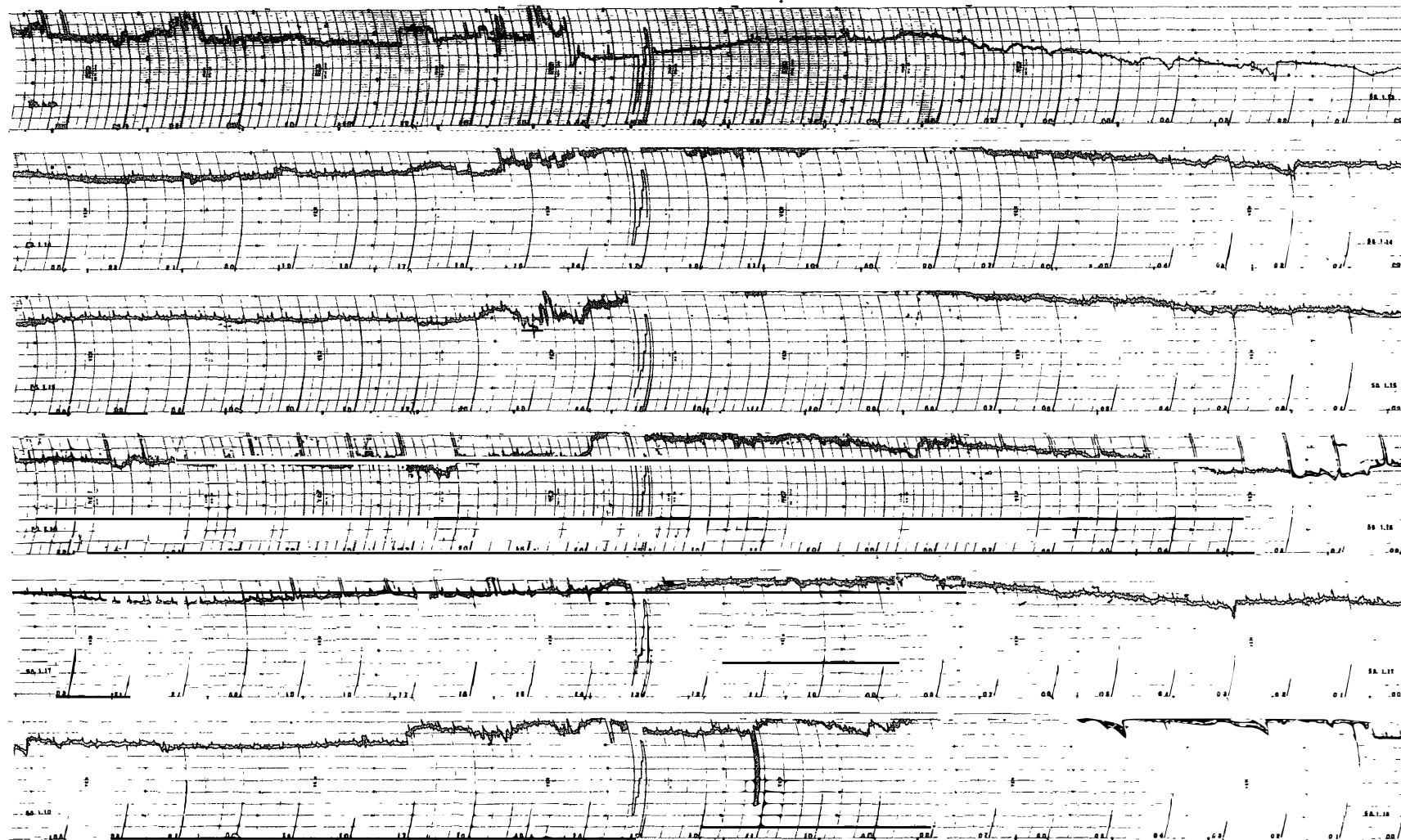
14

15

16

17

18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JAN 1983

19

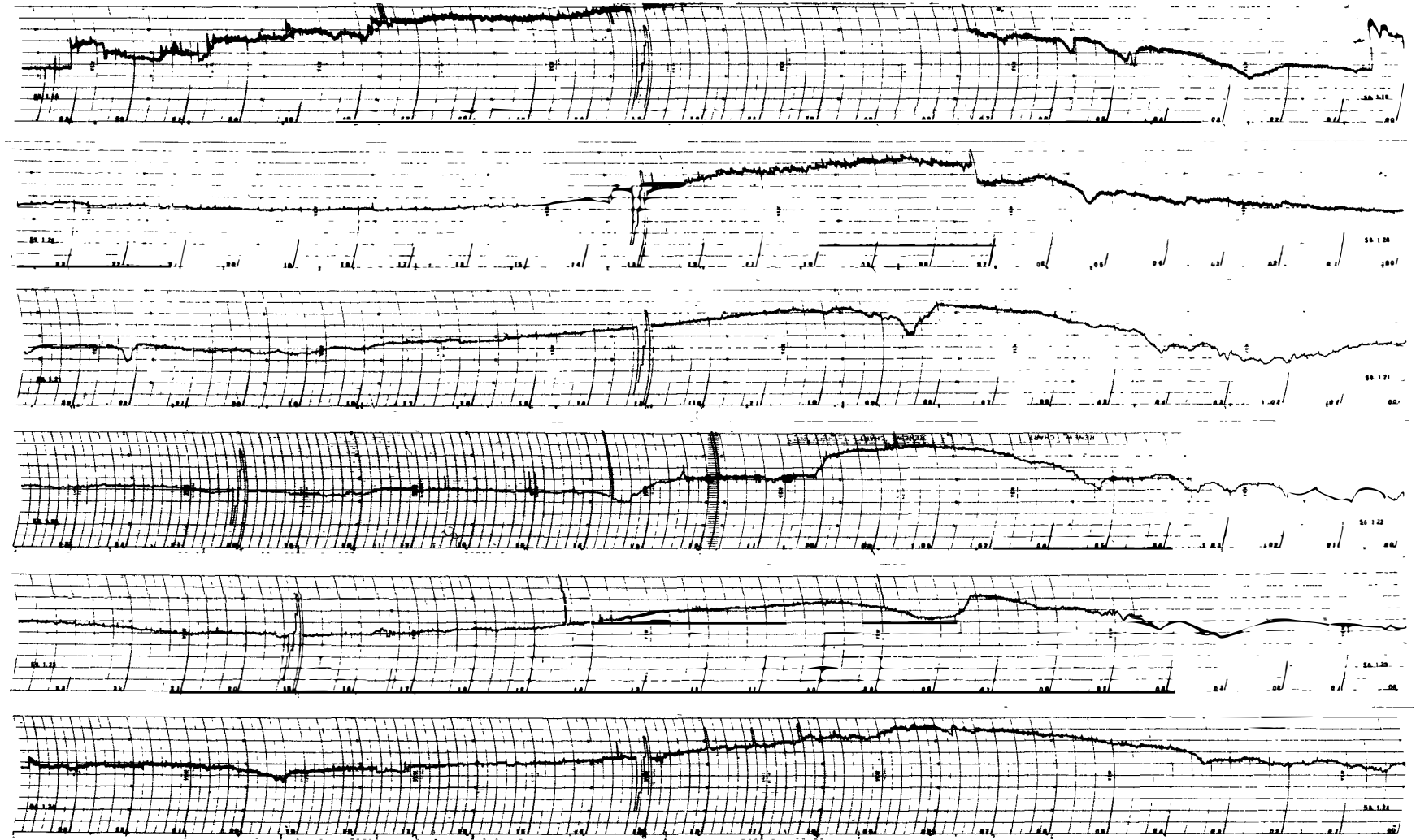
20

21

22

23

24

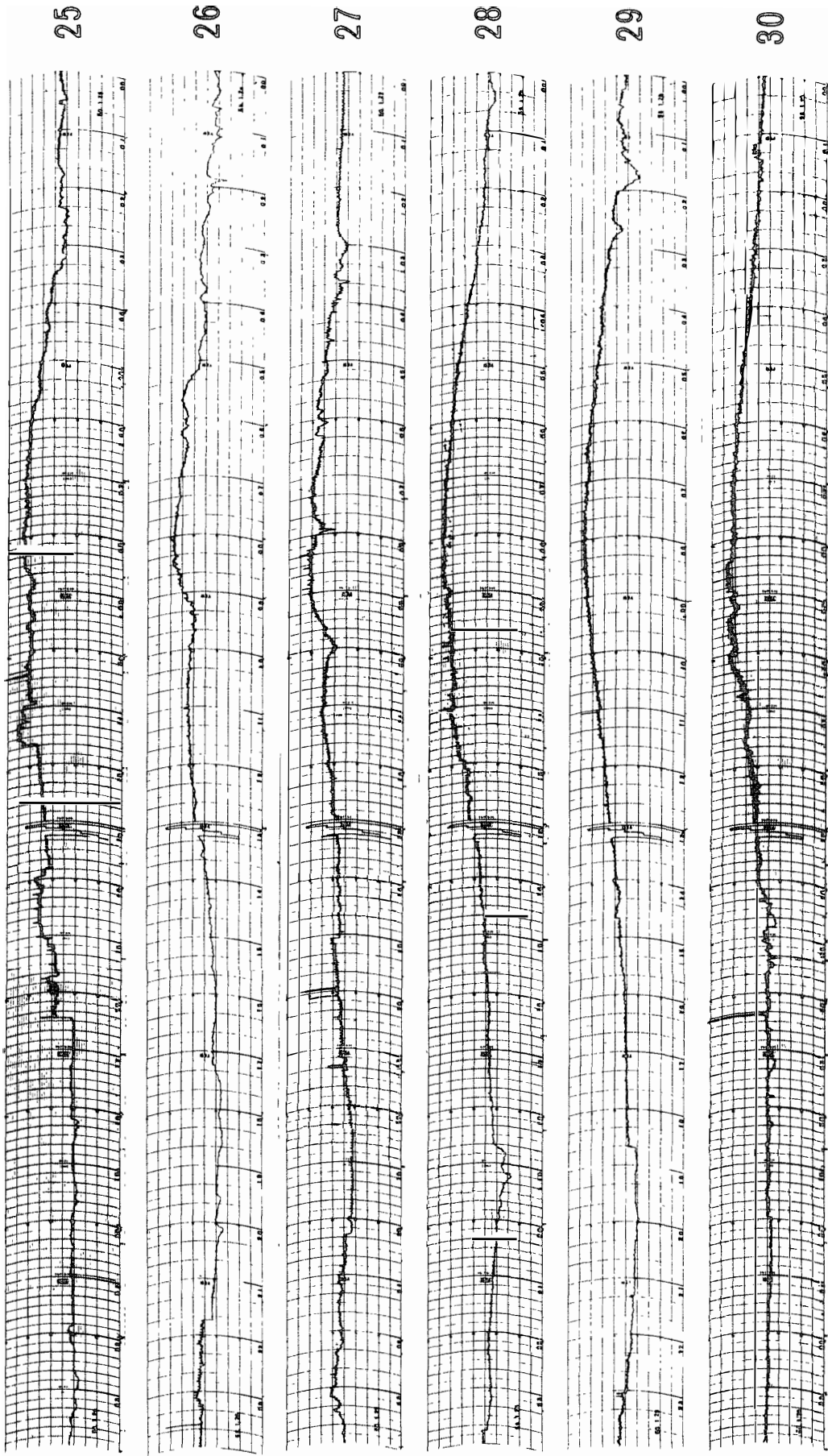


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

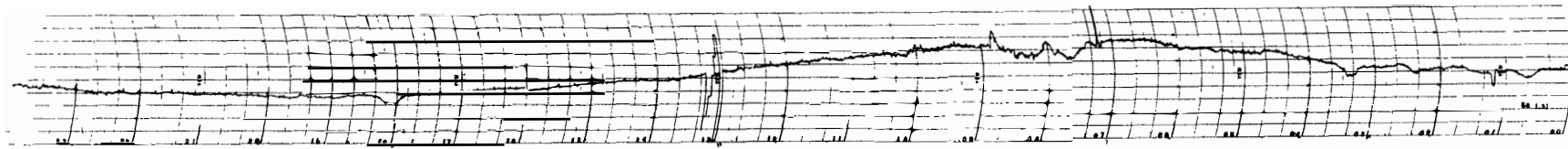
30 MHz COSMIC NOISE

JAN 1983



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



31

JAN 31 1983

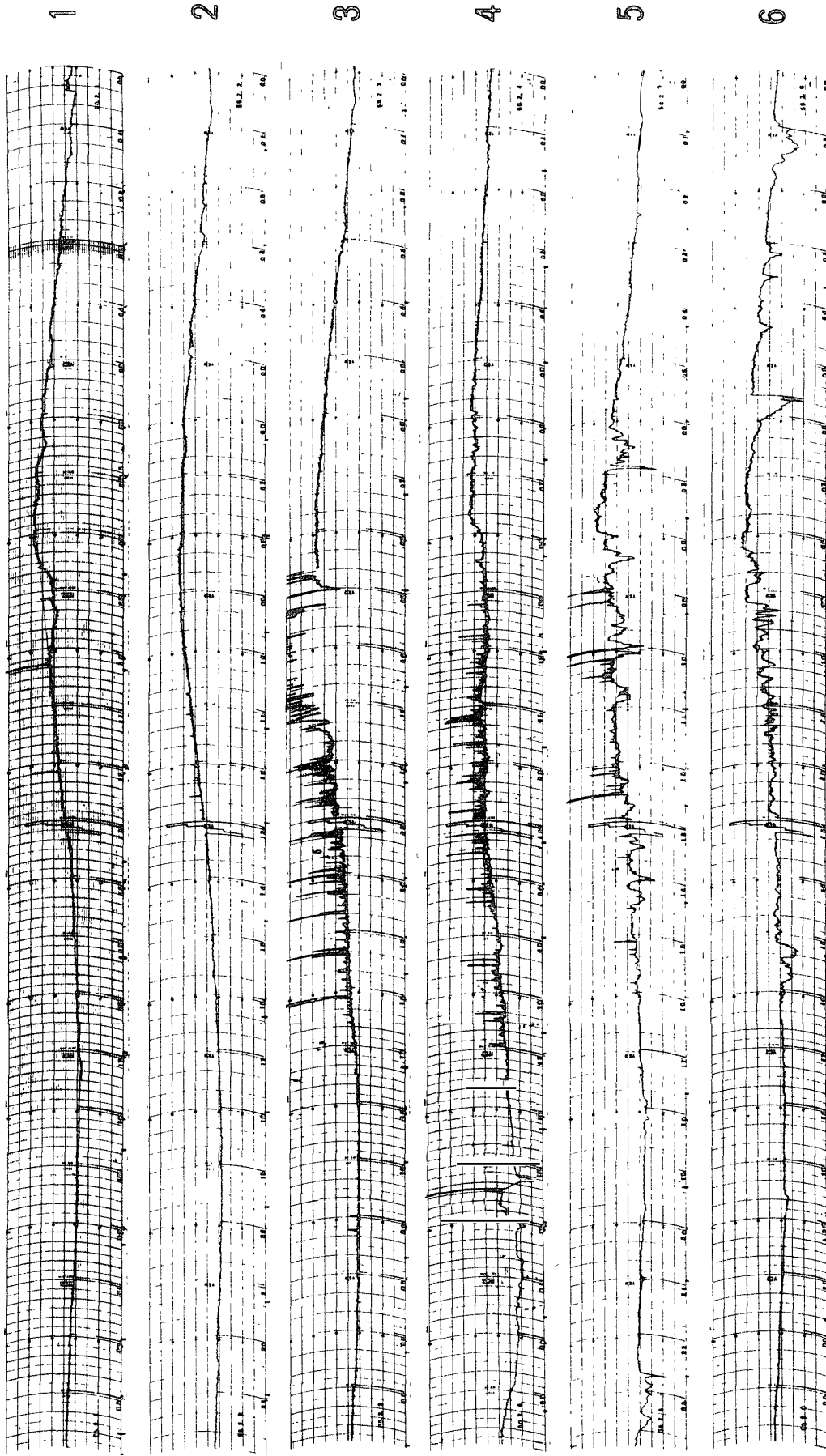
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

FEB

1983



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

FEB 1983

7

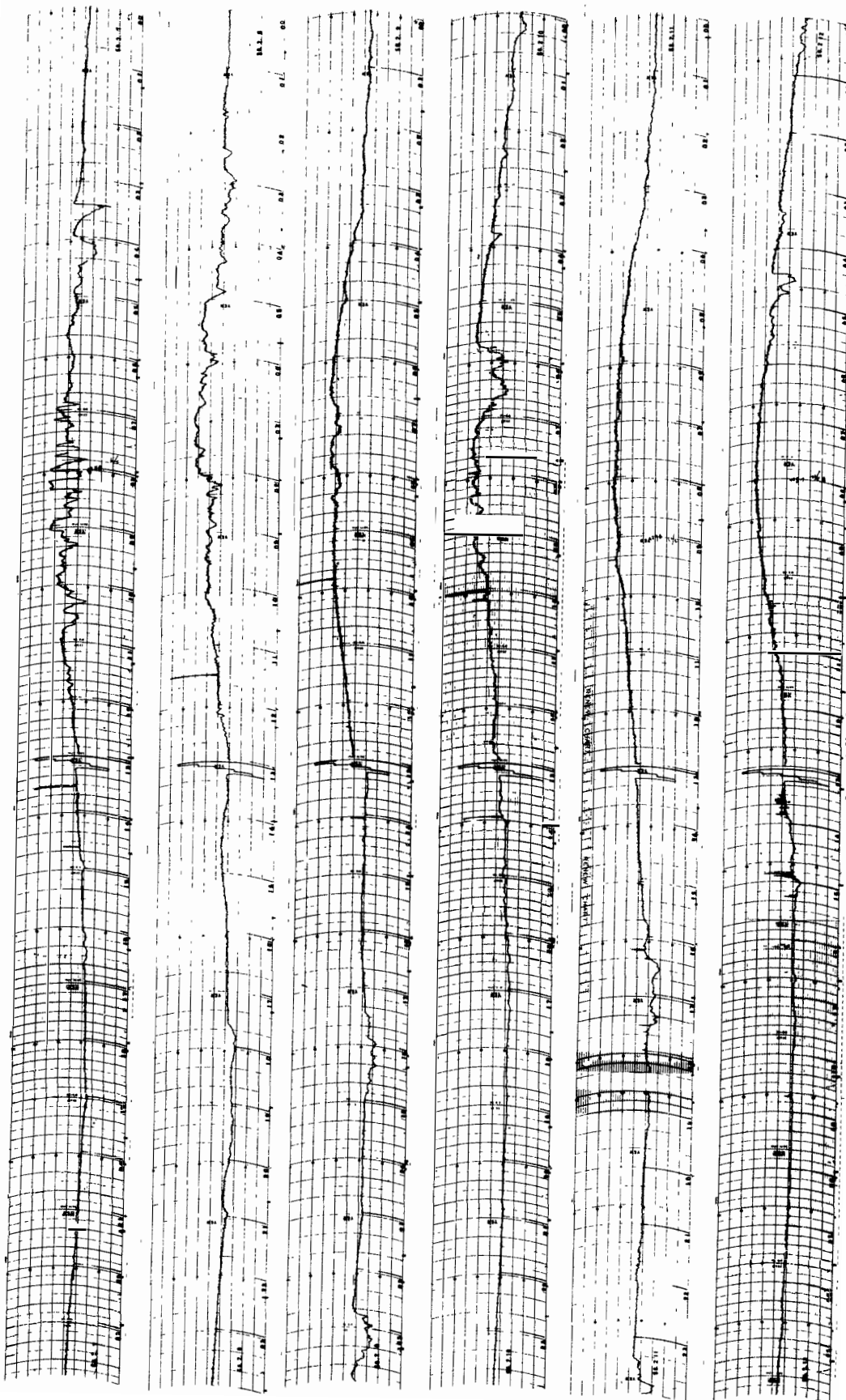
8

9

10

11

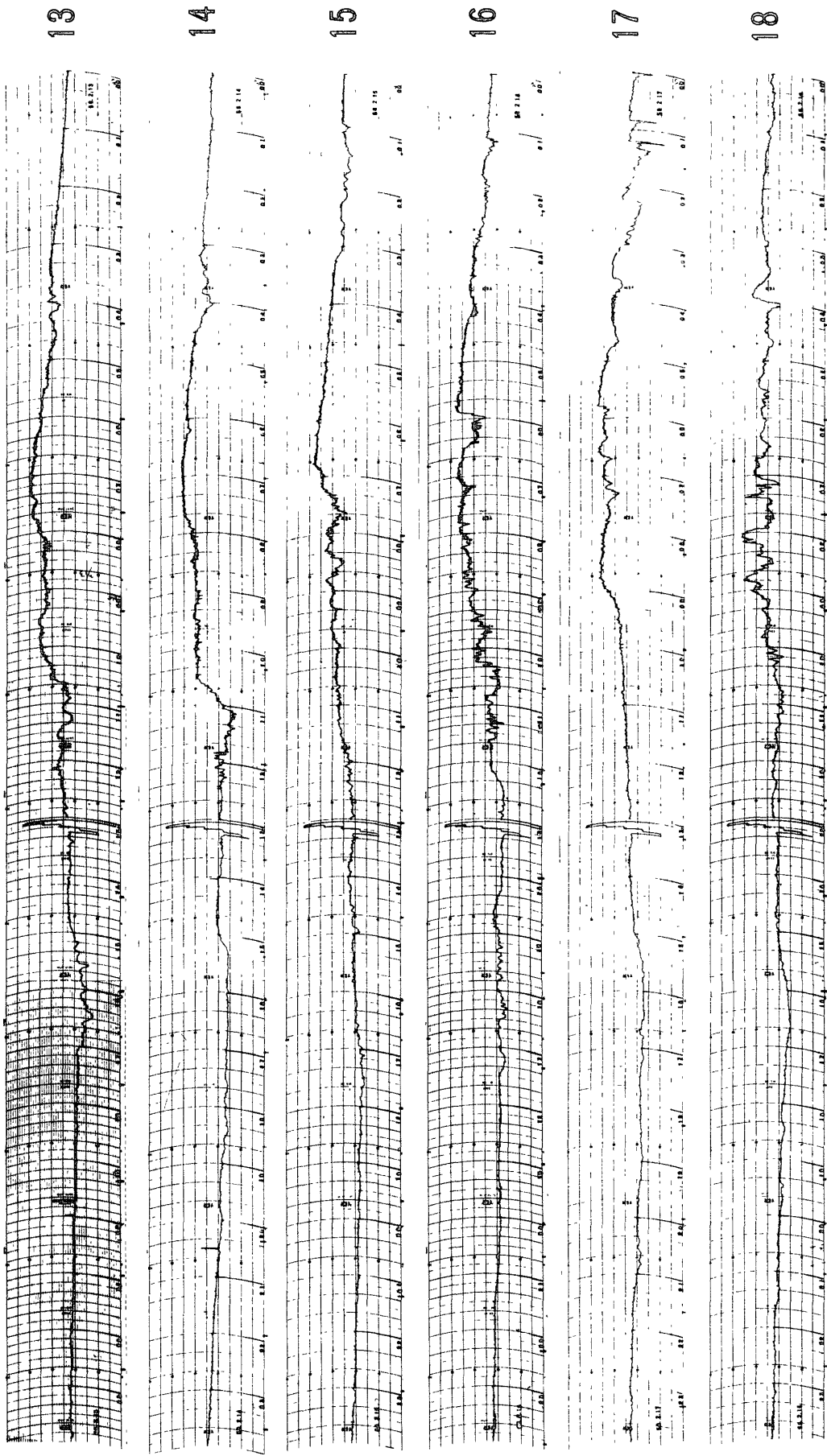
12



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1983



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1983

19

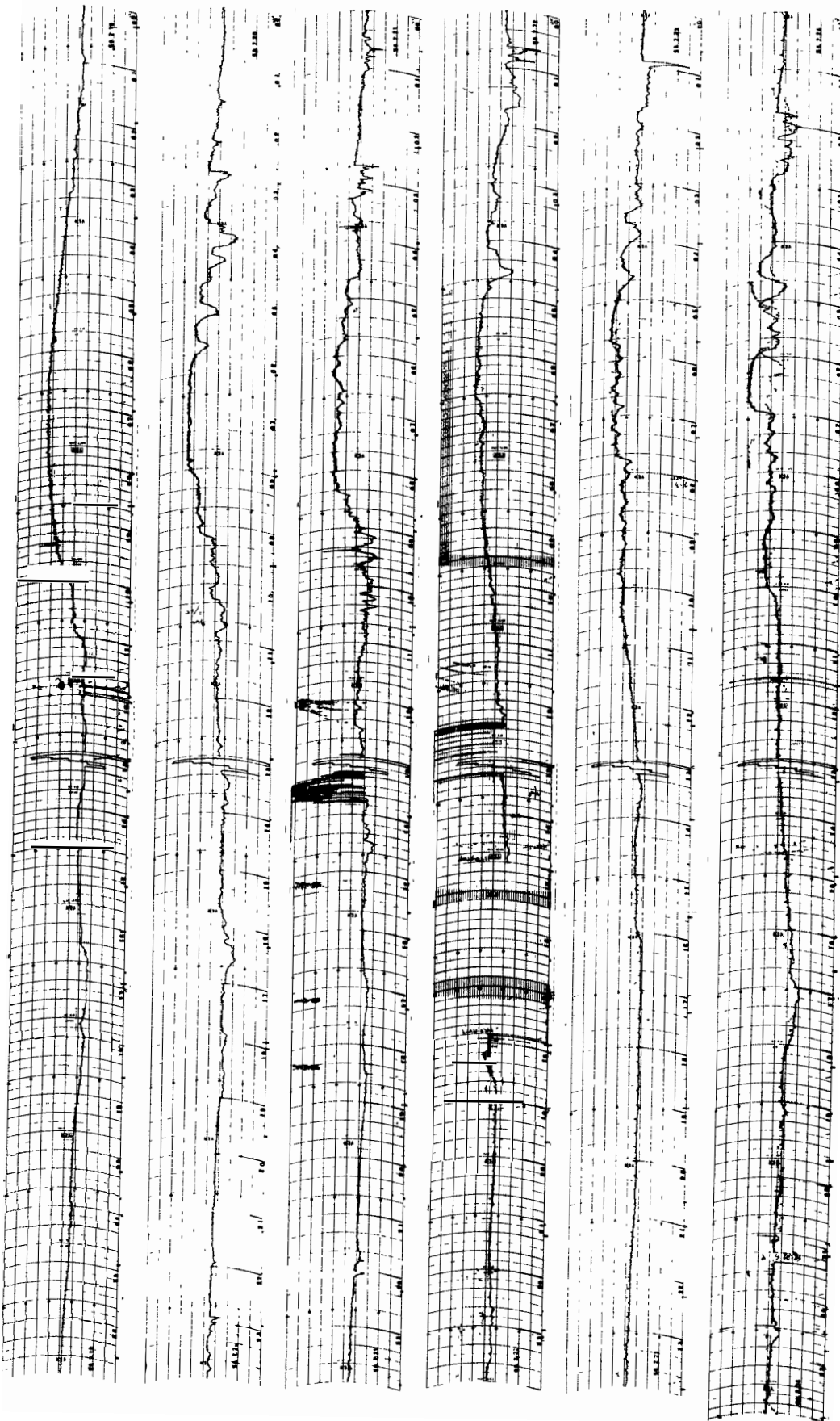
20

21

22

23

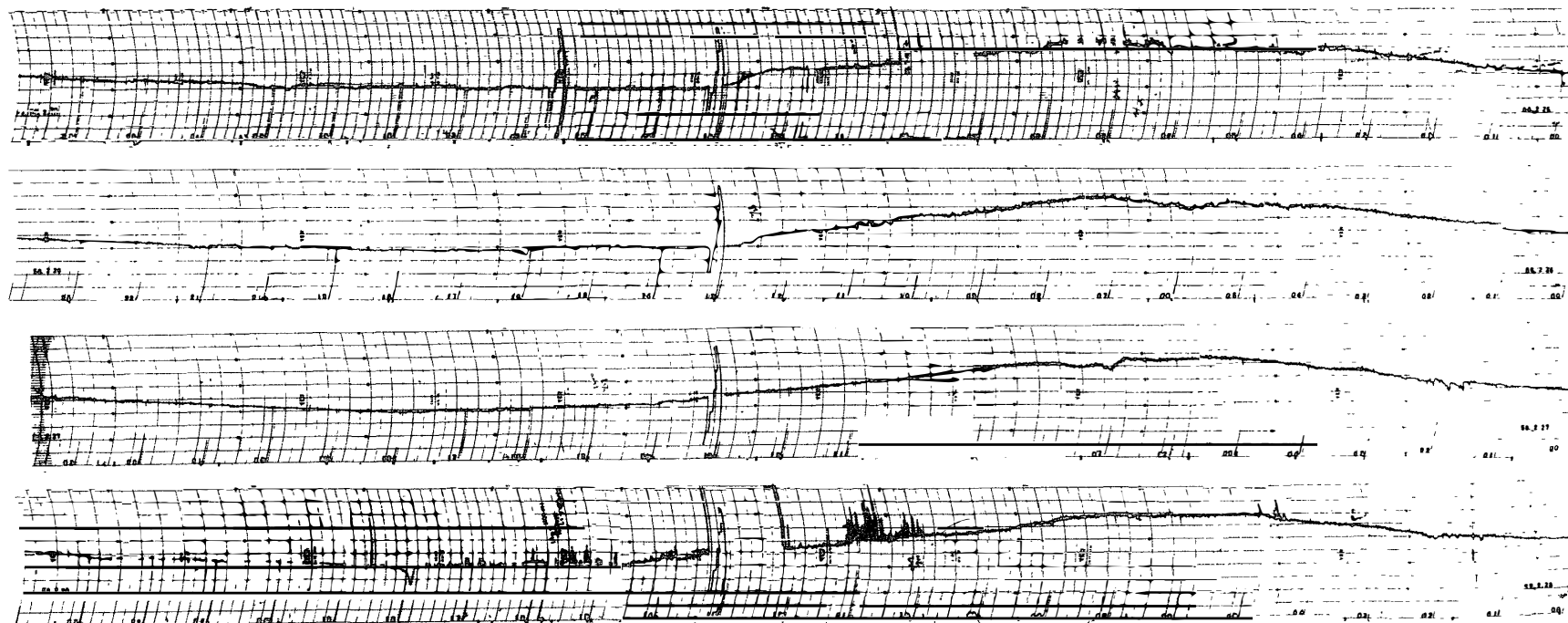
24



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1983



25
26
27
28

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

Cosmic noise level obscured or equipment malfunction.
February 22 1450 - 1750 Failure of equipment
 25 0910 - 1020 "

MAR 1983

1

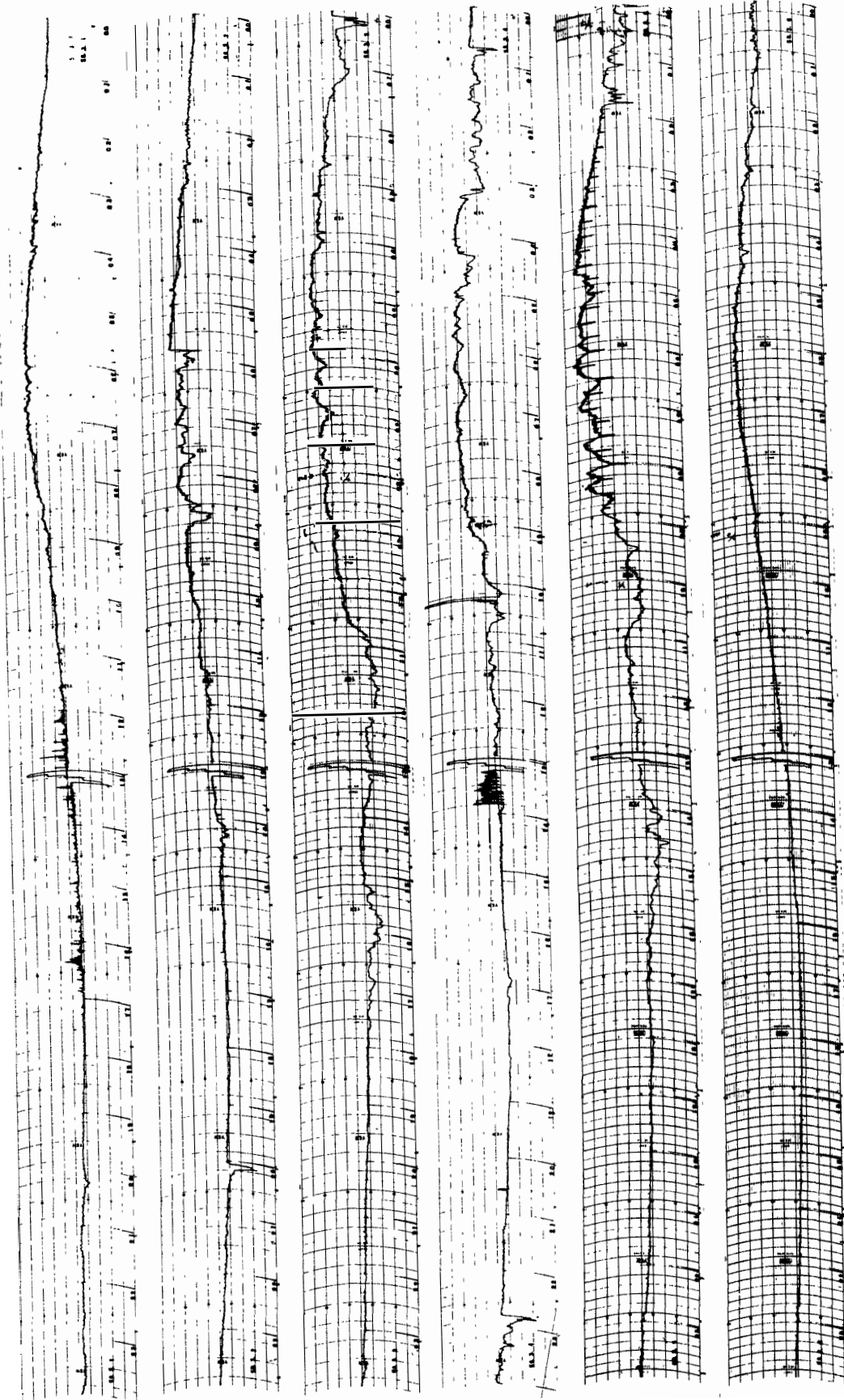
2

3

4

5

6

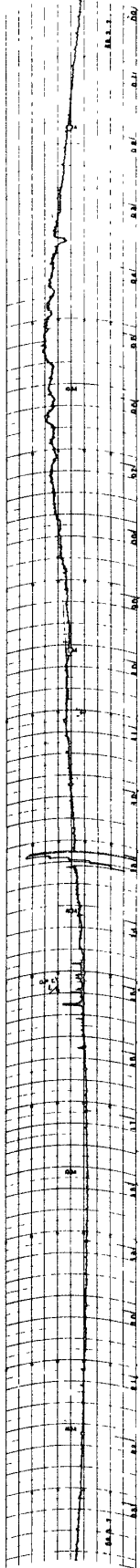


24 20 16 12 08 04 00

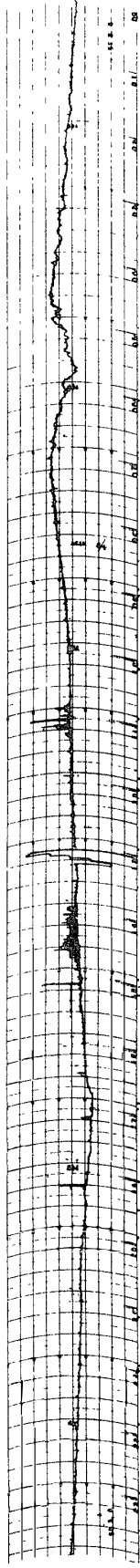
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1983

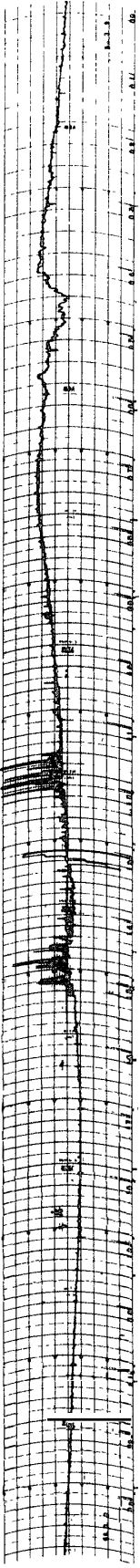
7



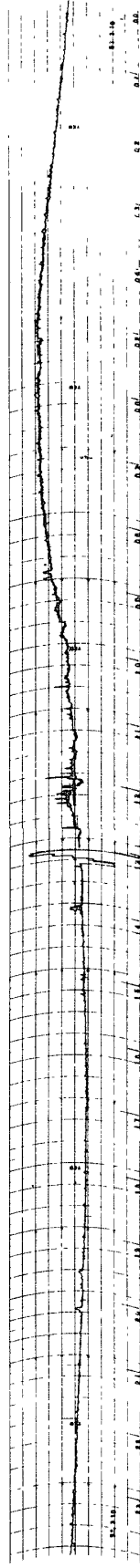
8



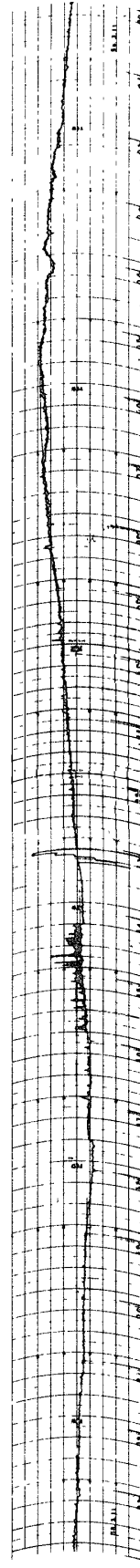
9



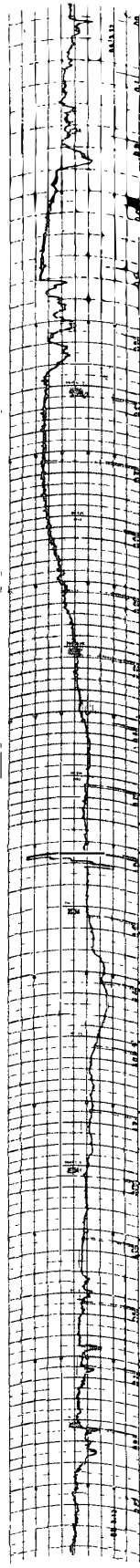
10



11



12



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1983

13

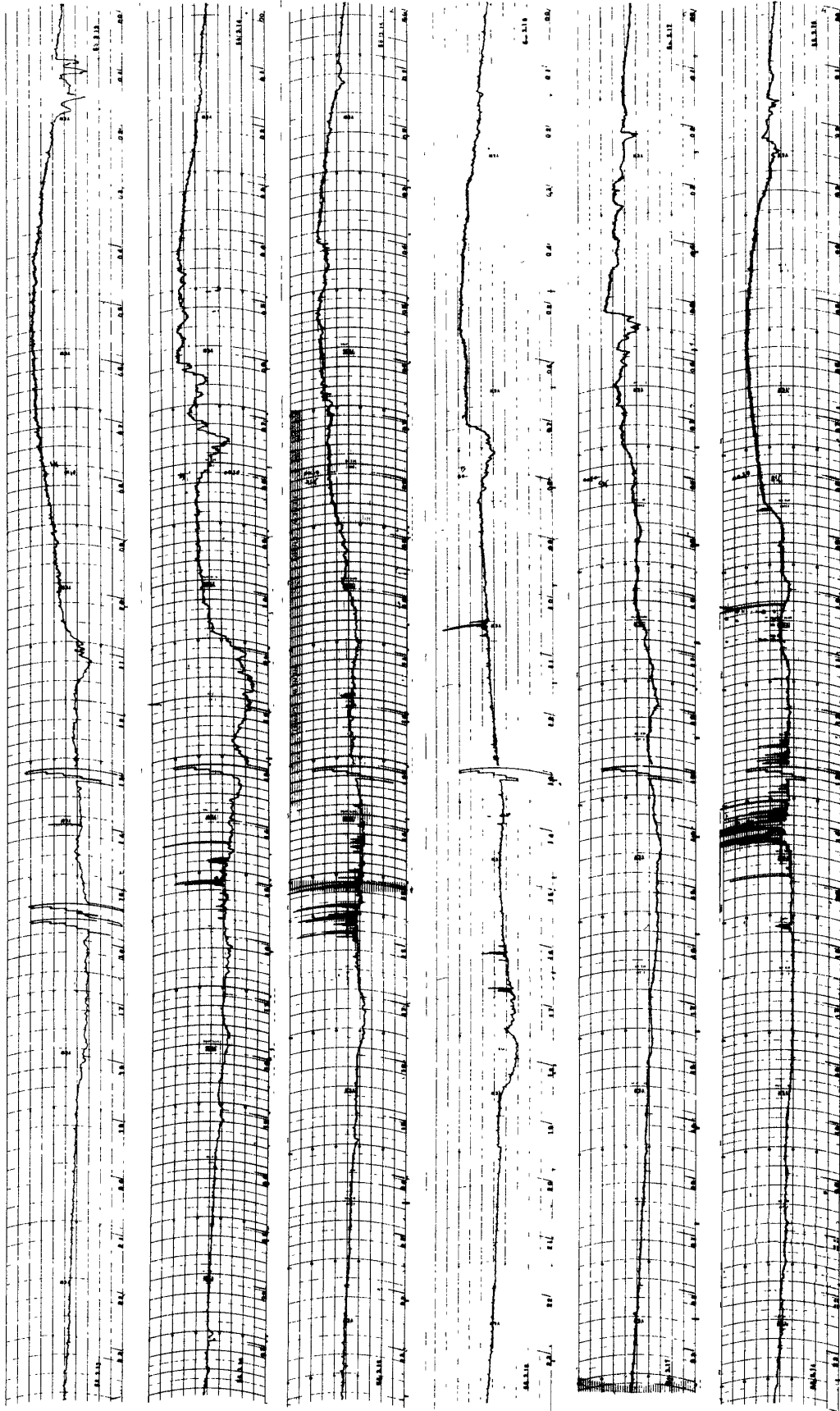
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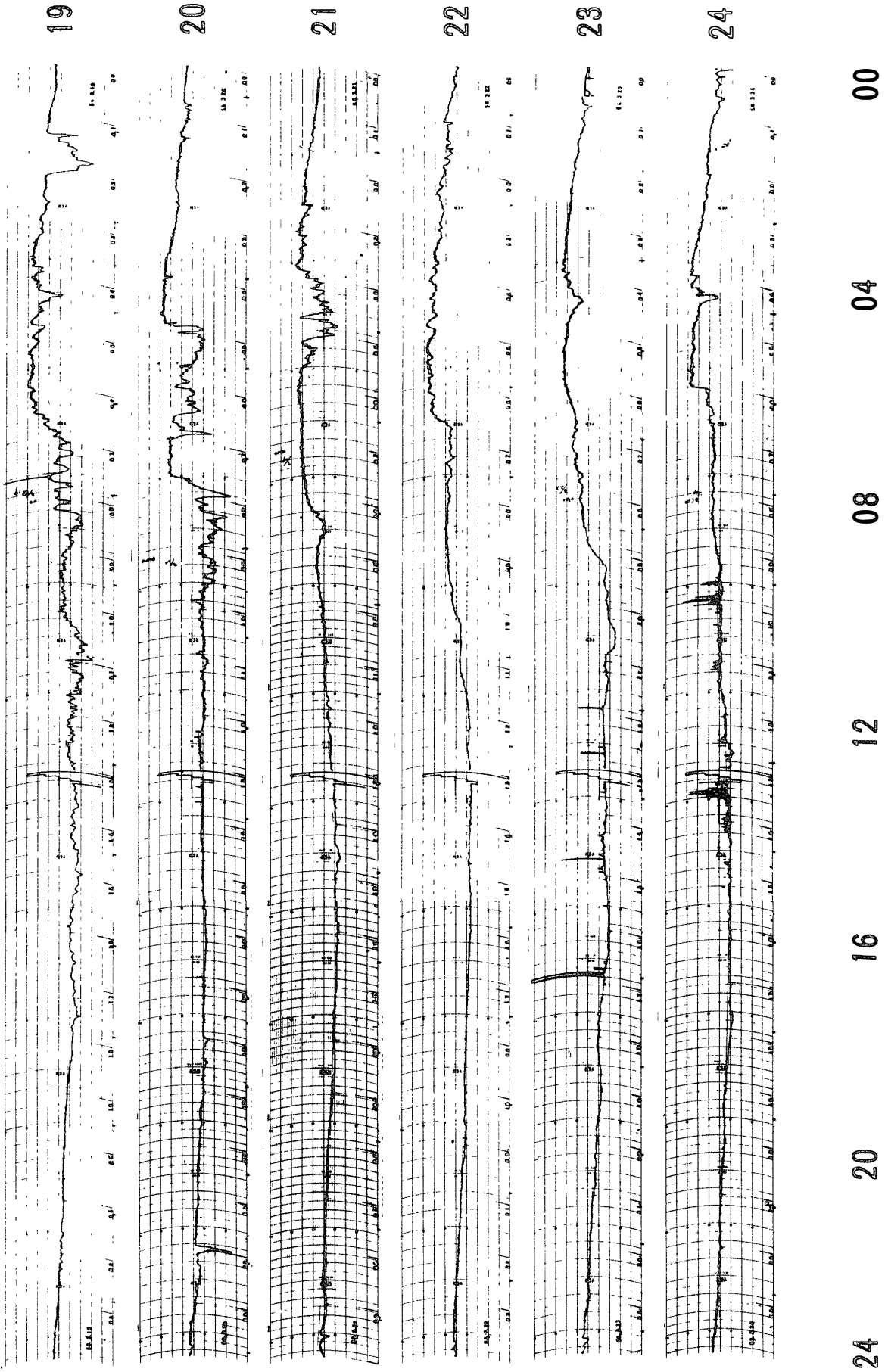
18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1983



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1983

25

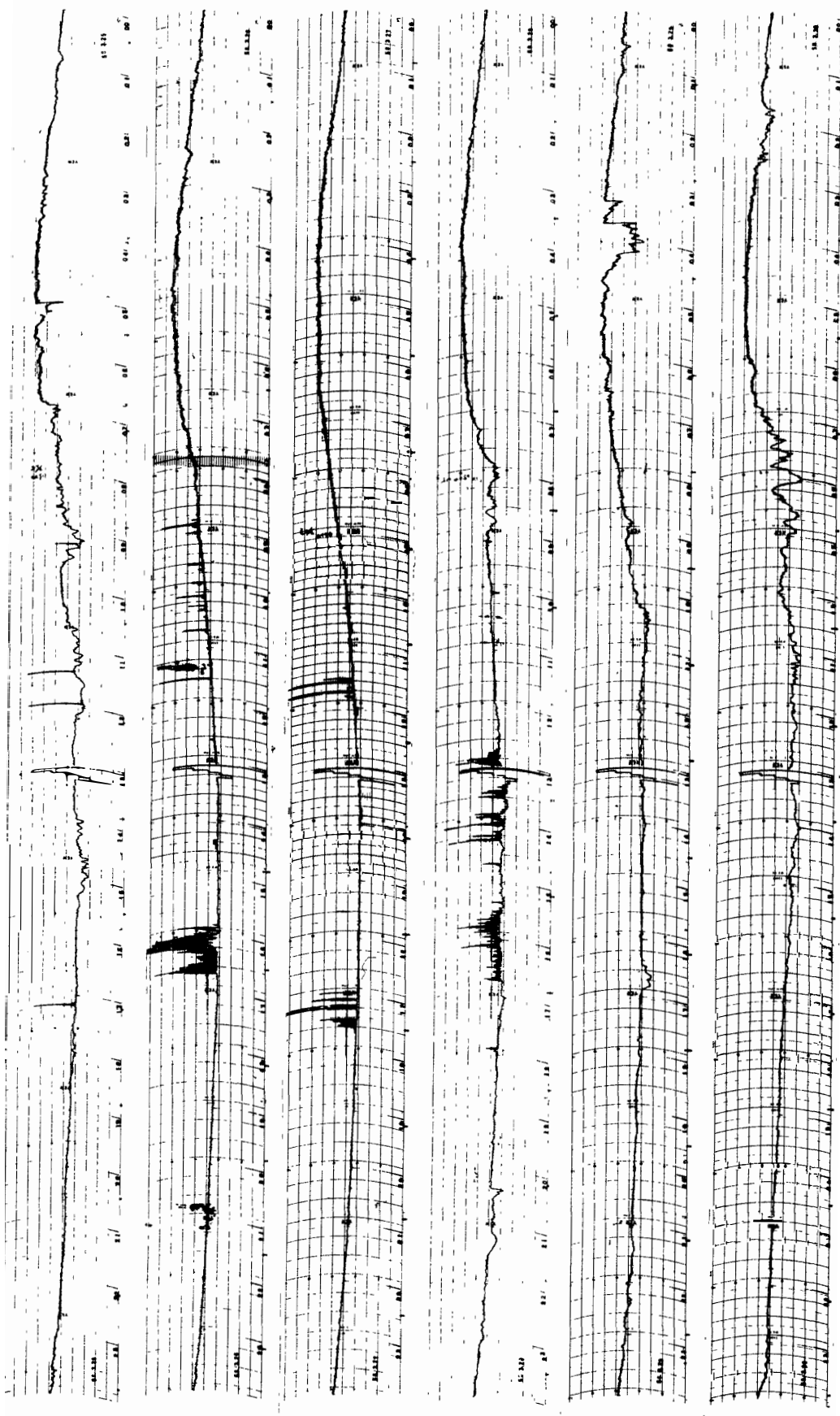
26

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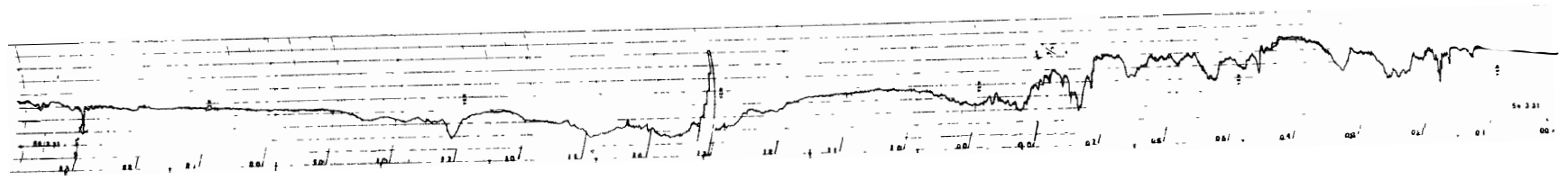
29

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



31

MAR 1983

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR 1983

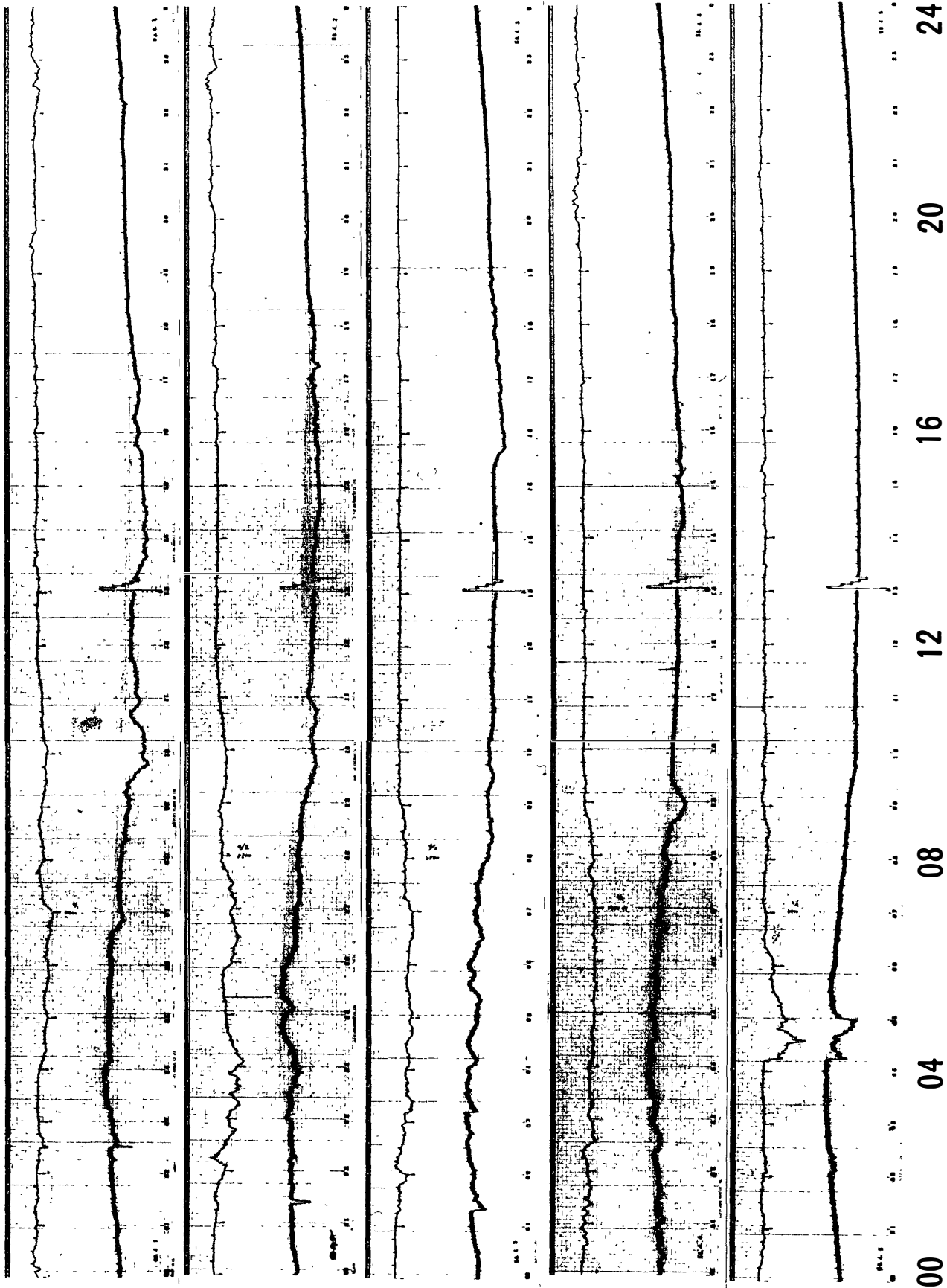
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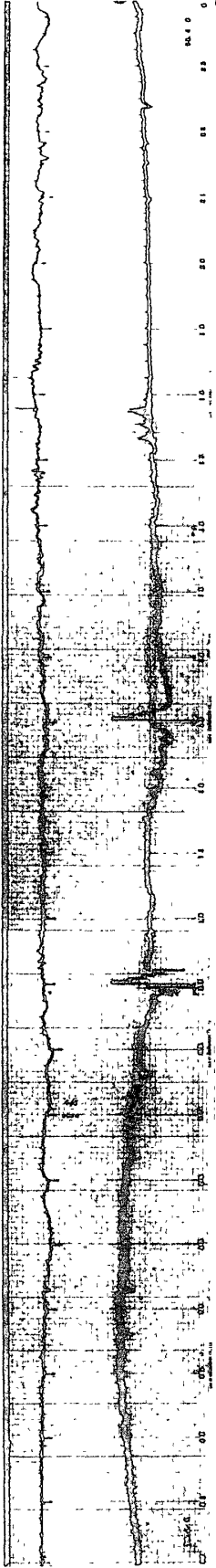
5



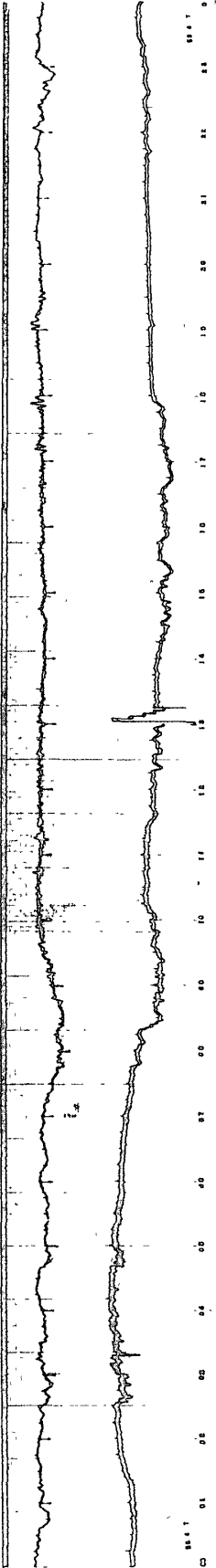
30 MHz COSMIC NOISE

APR 1983

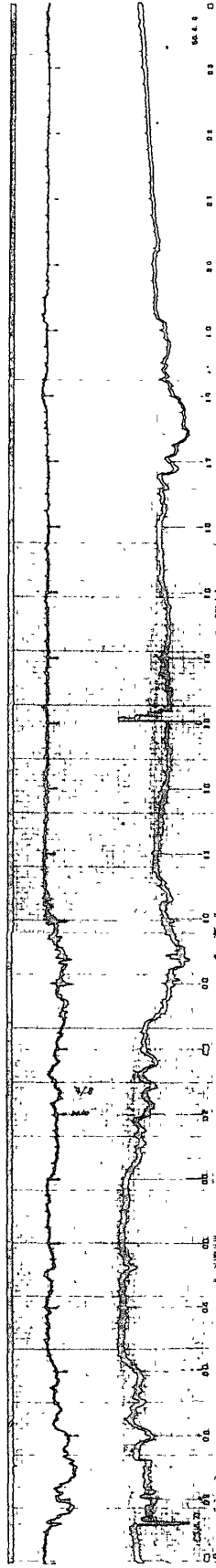
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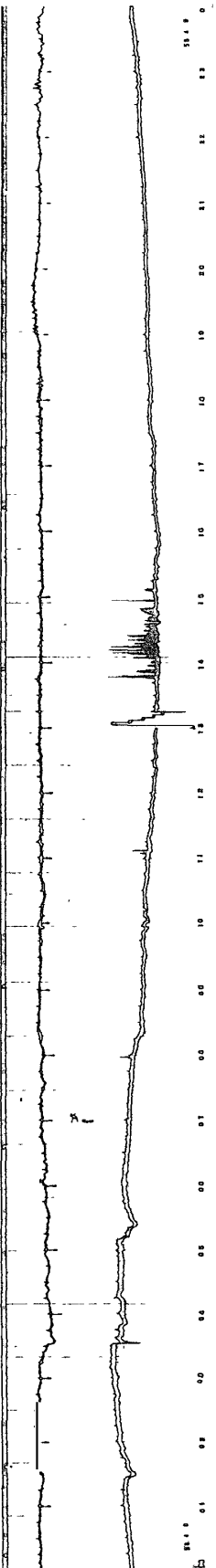
7



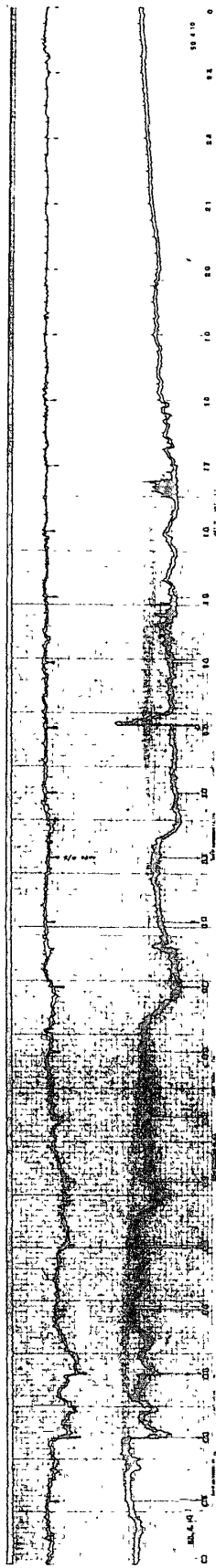
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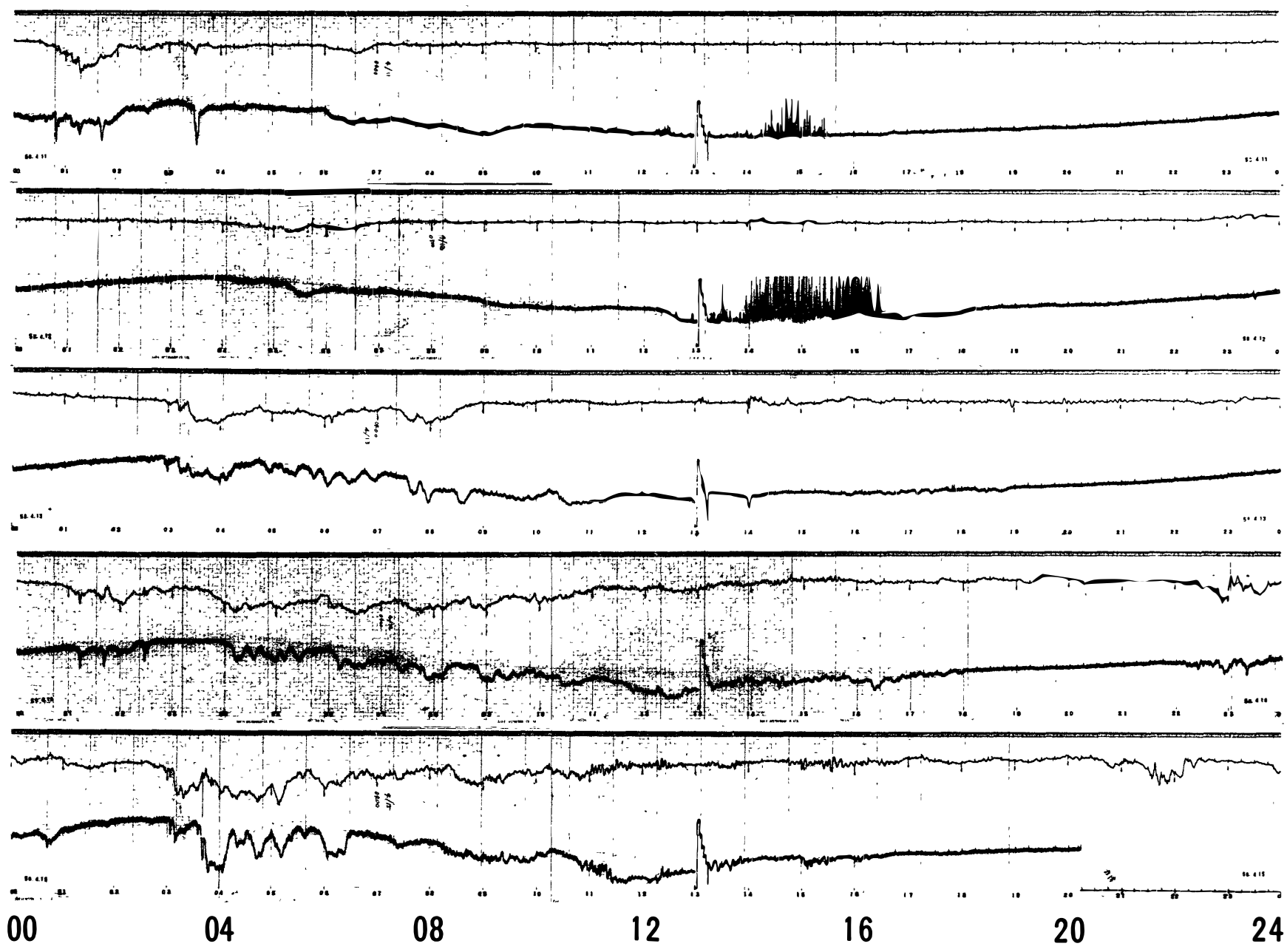


00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

APR 1983

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45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR 1983

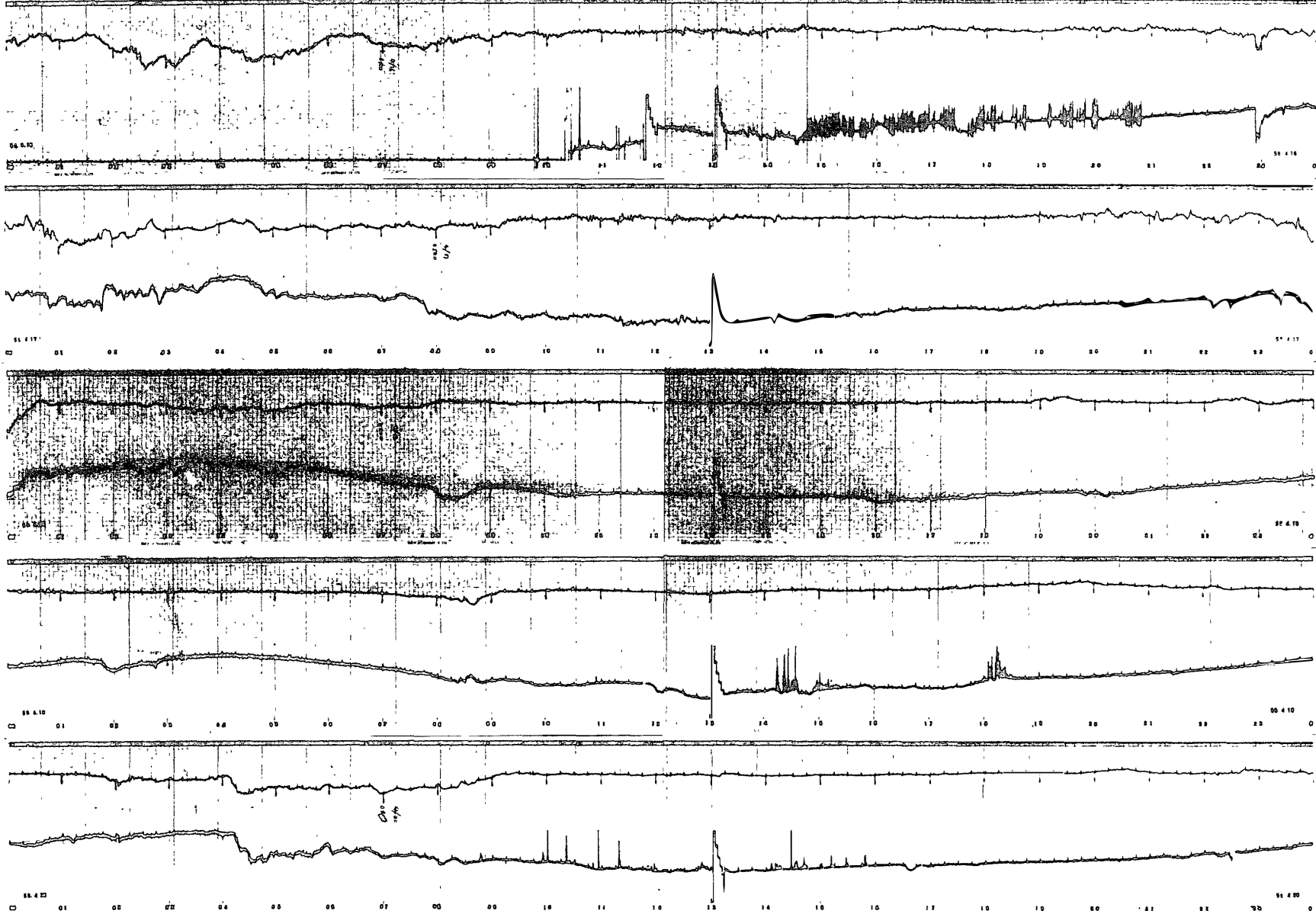
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR. 1983

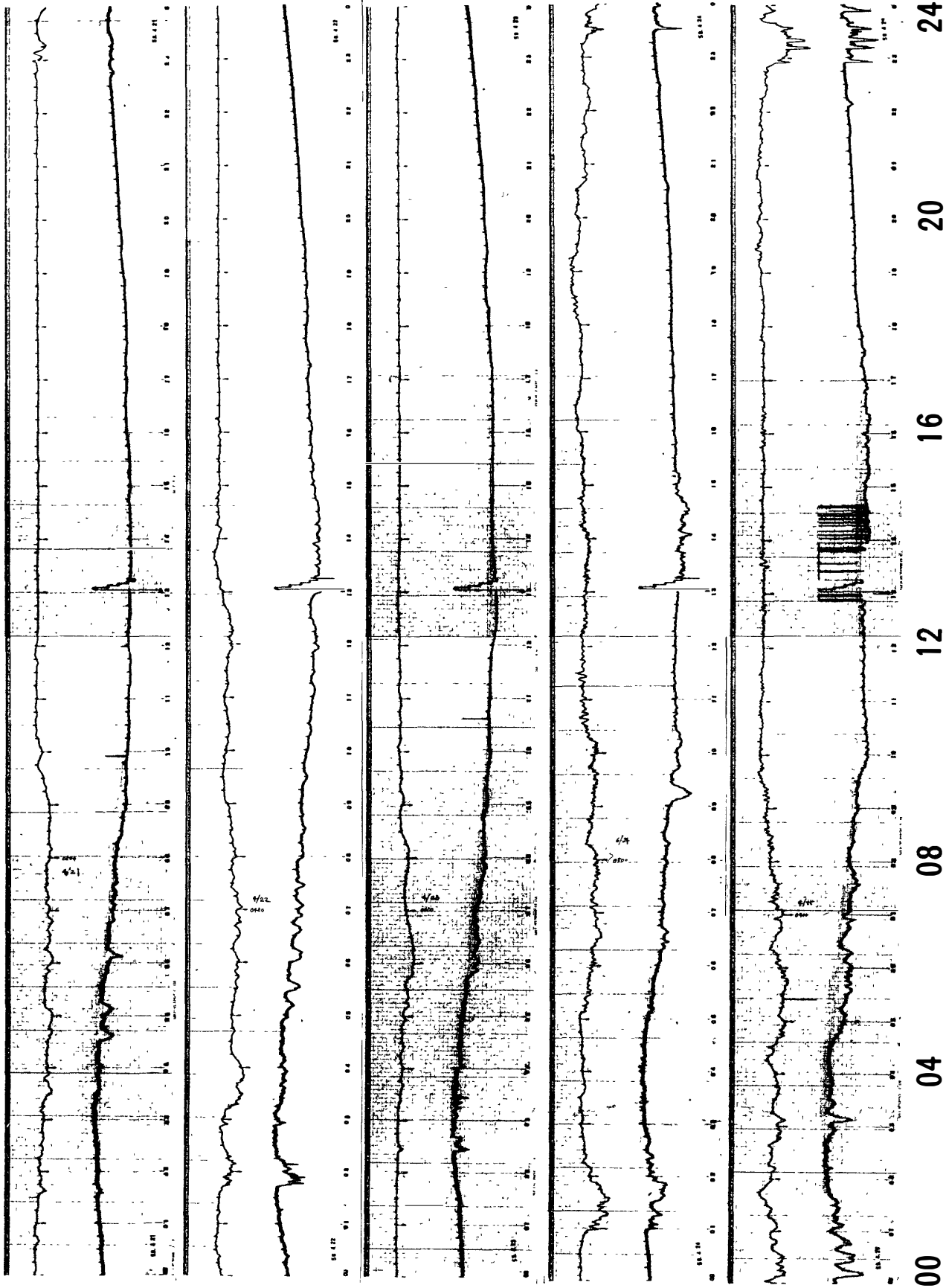
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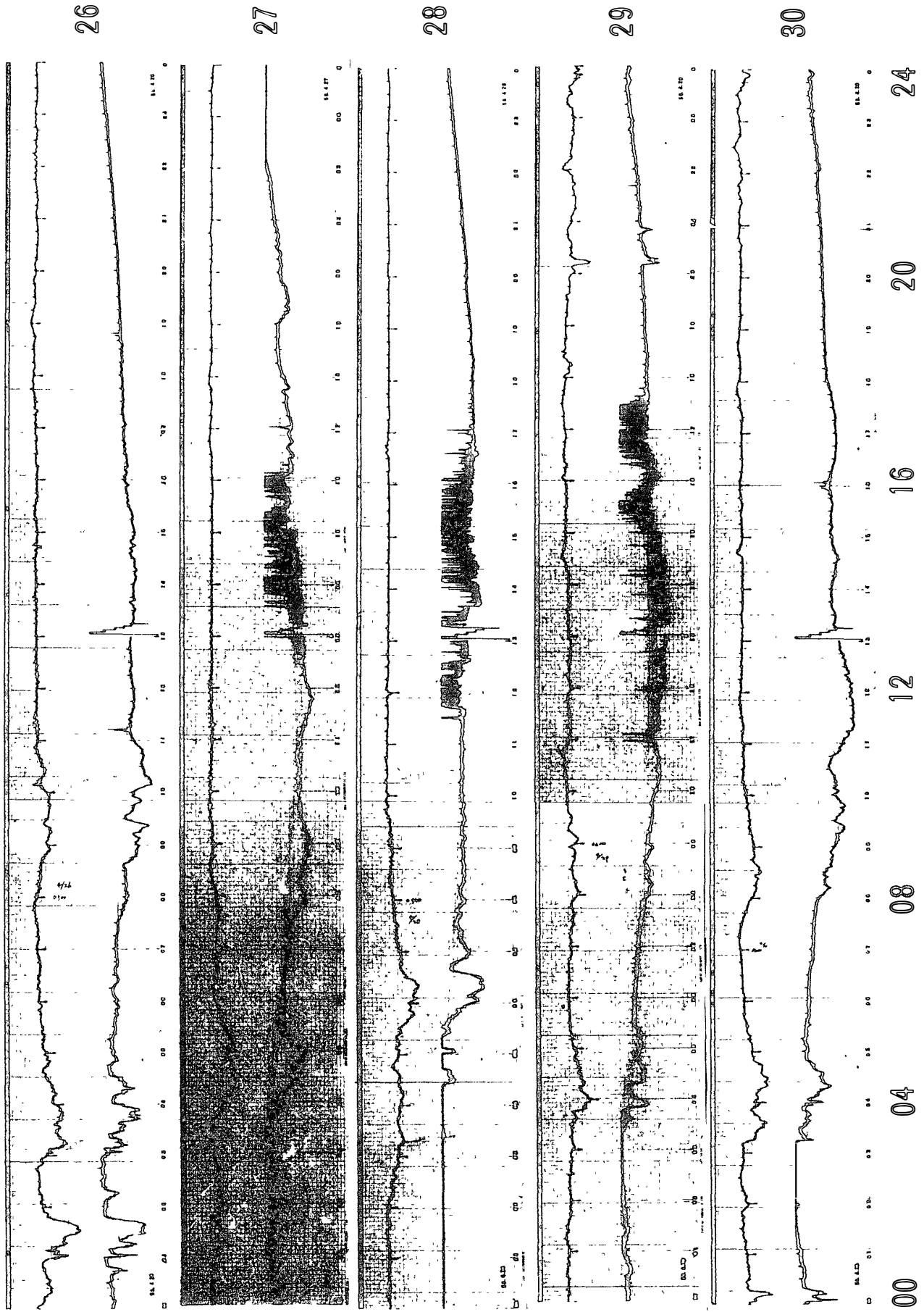
24

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45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

APR. 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

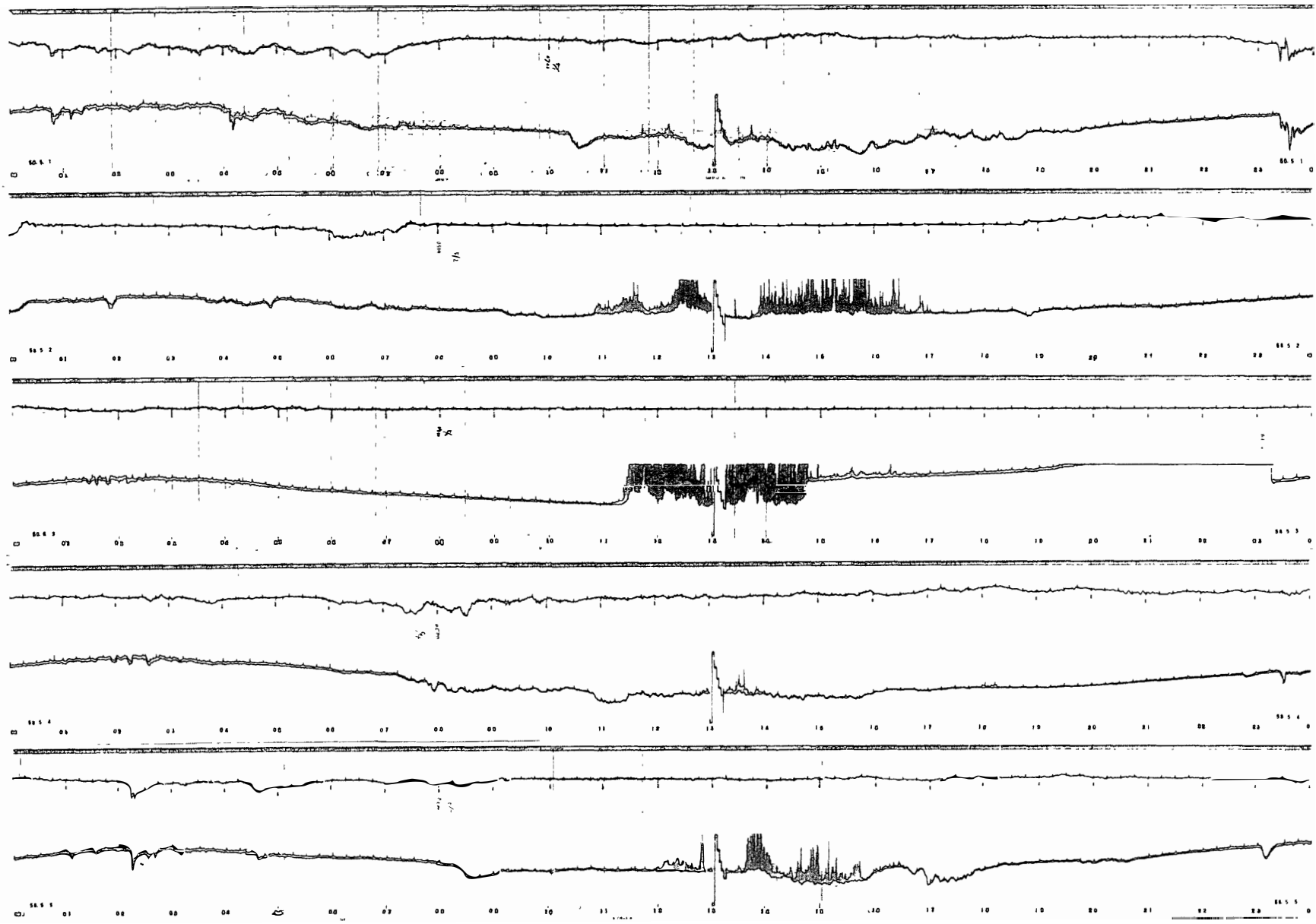
Cosmic noise level obscured or equipment malfunction.

April 15 2015 - Failure of equipment
1025

APR 1983

MAY 1983

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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

MAY 1983

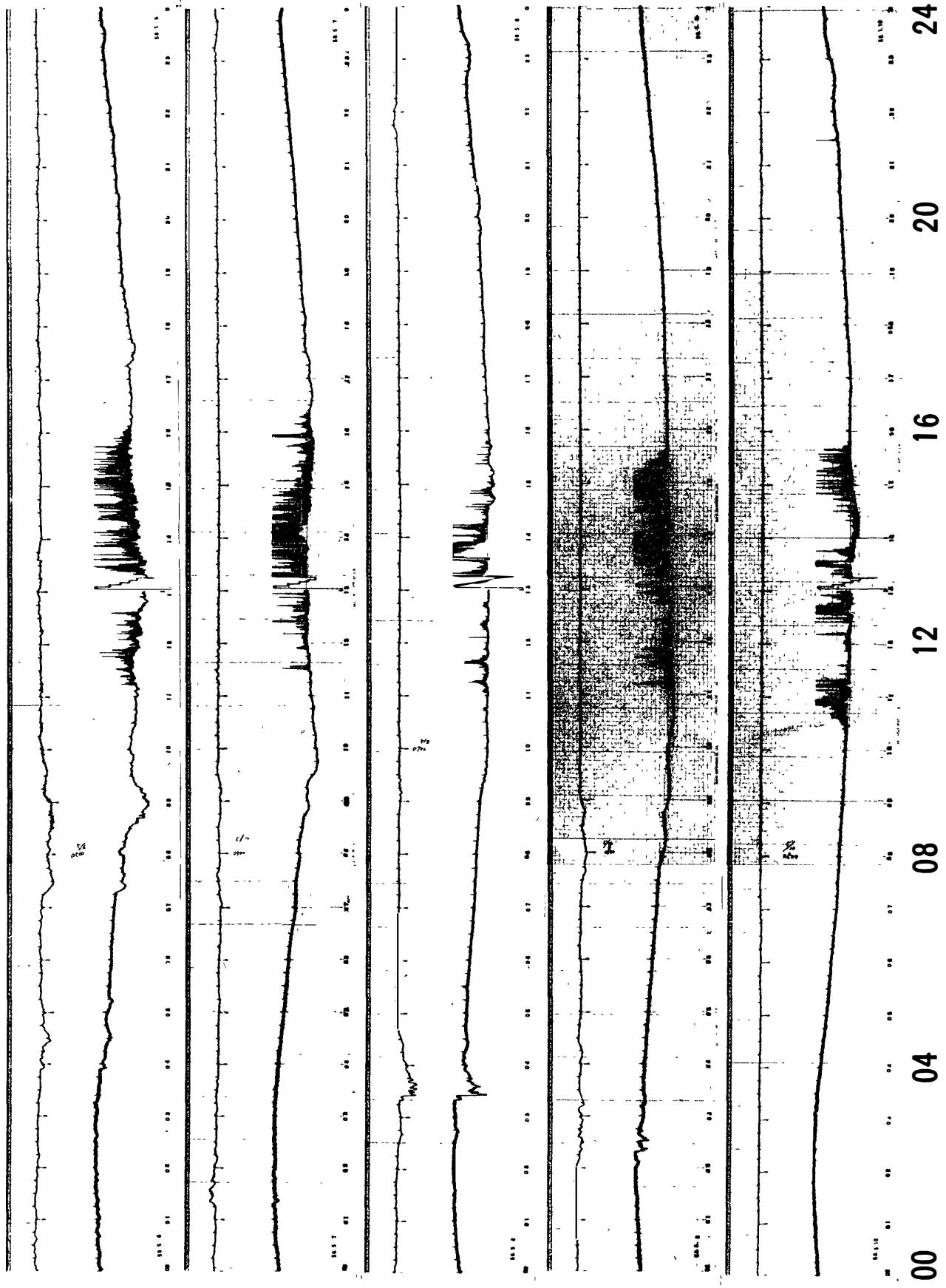
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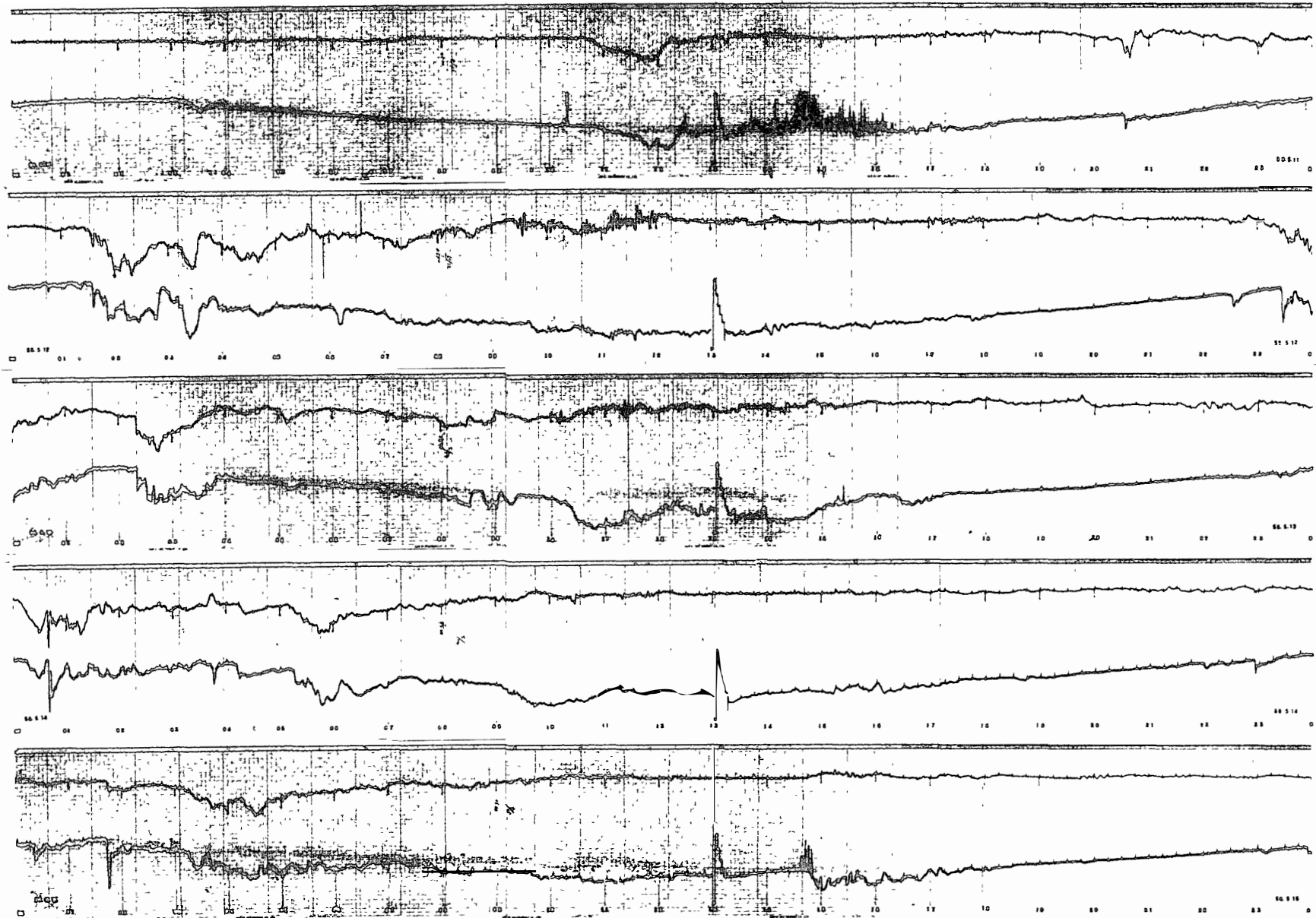
10



00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1983



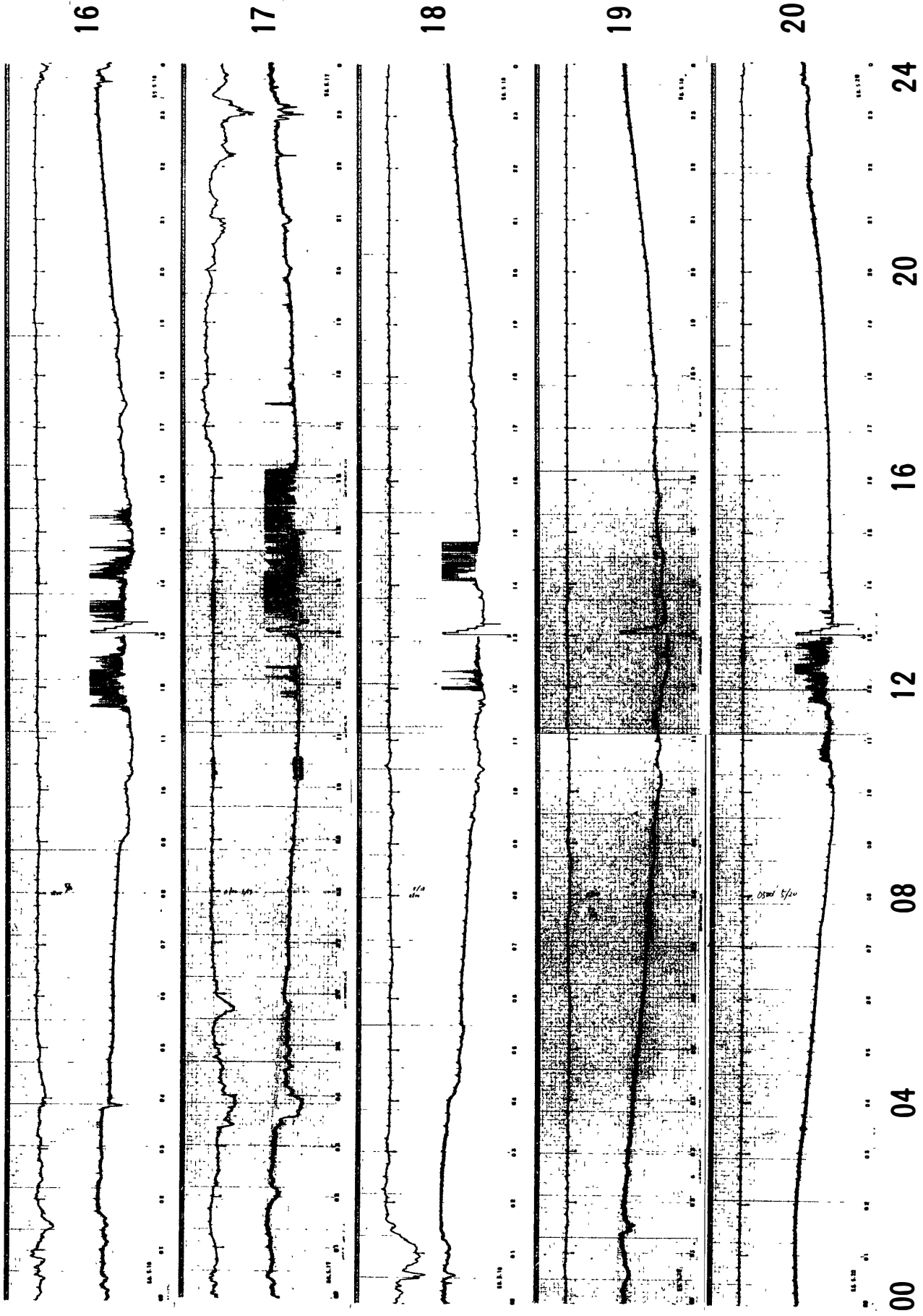
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

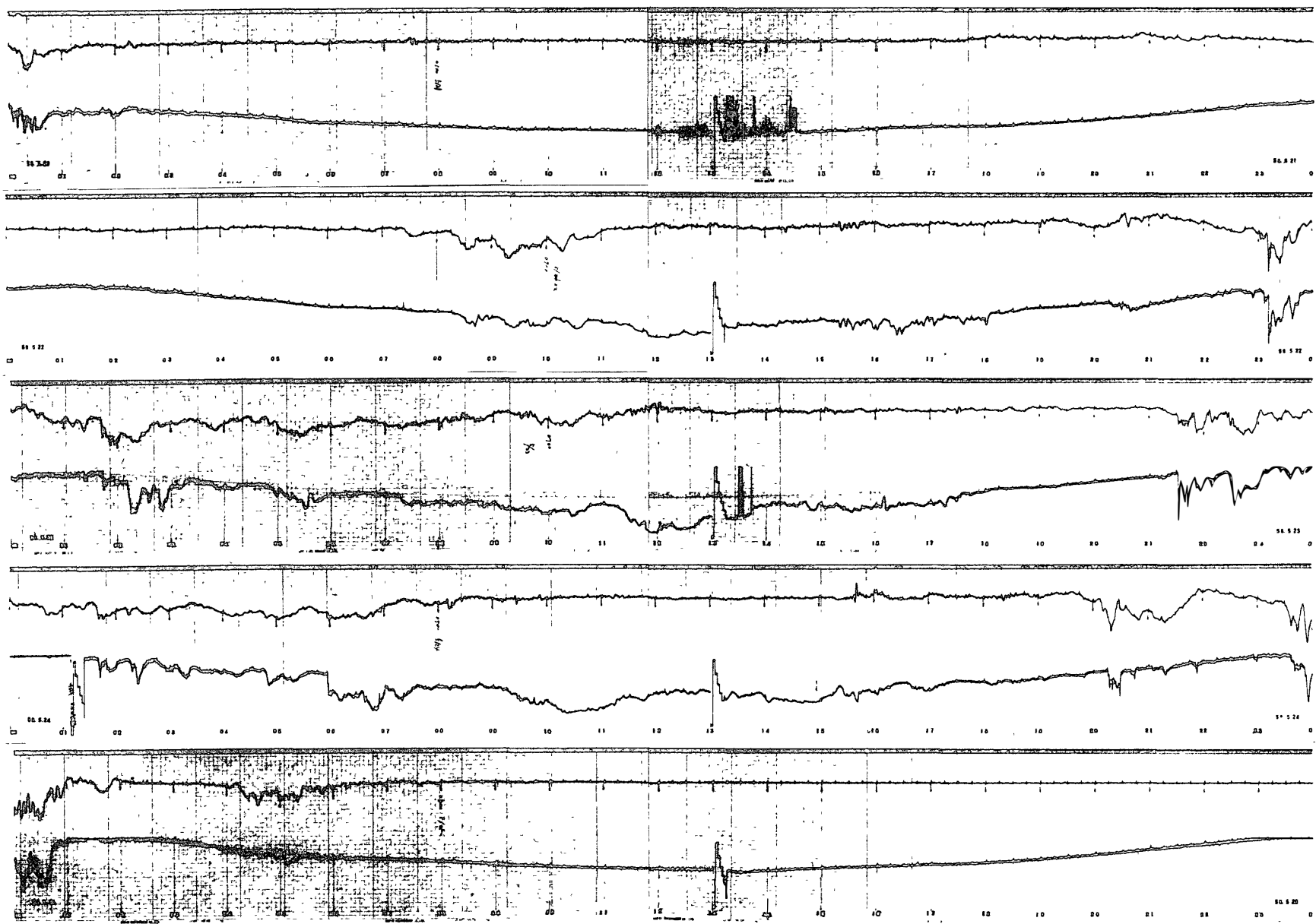
30 MHz COSMIC NOISE

MAY 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1983



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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

44

MAY 1983

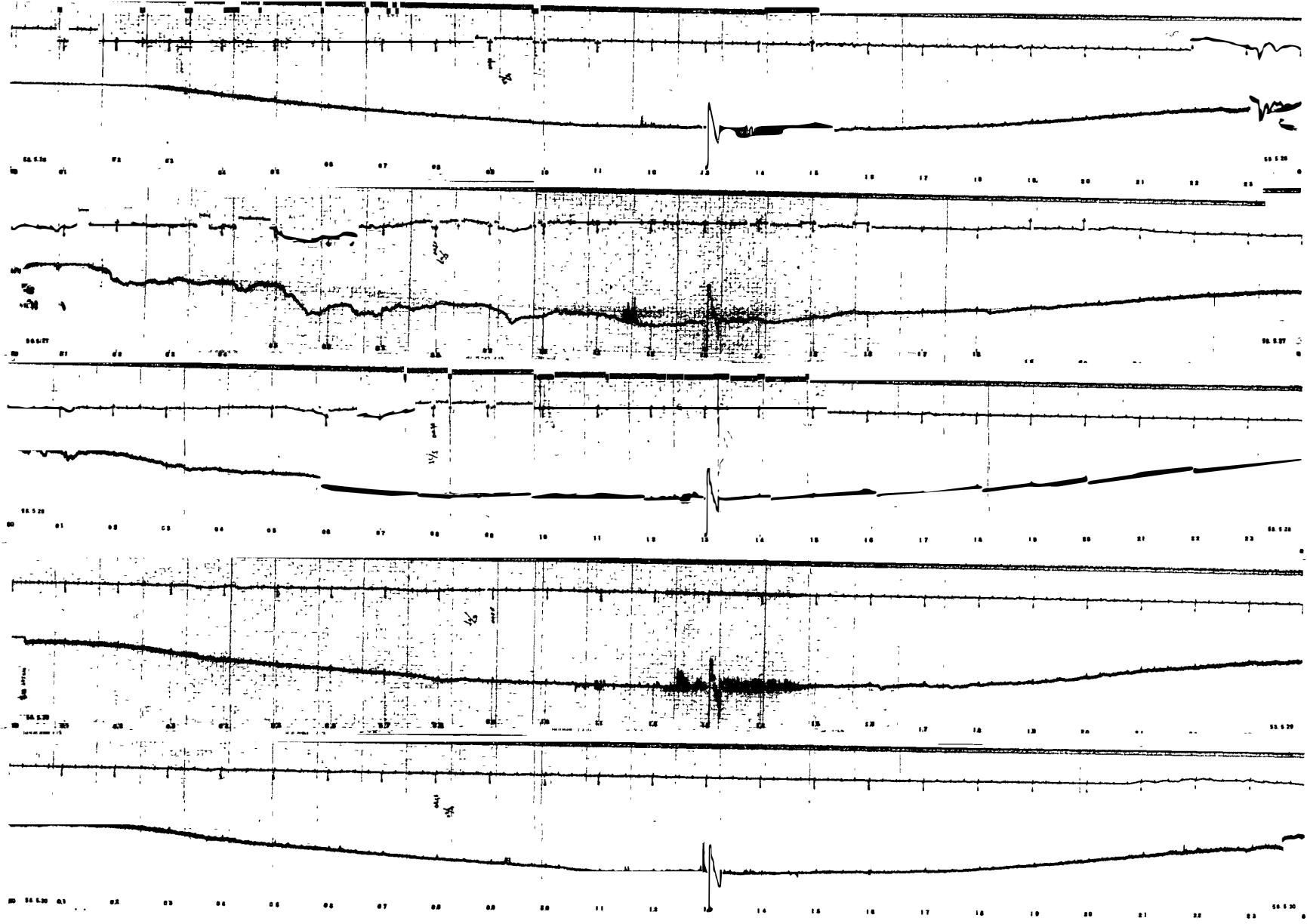
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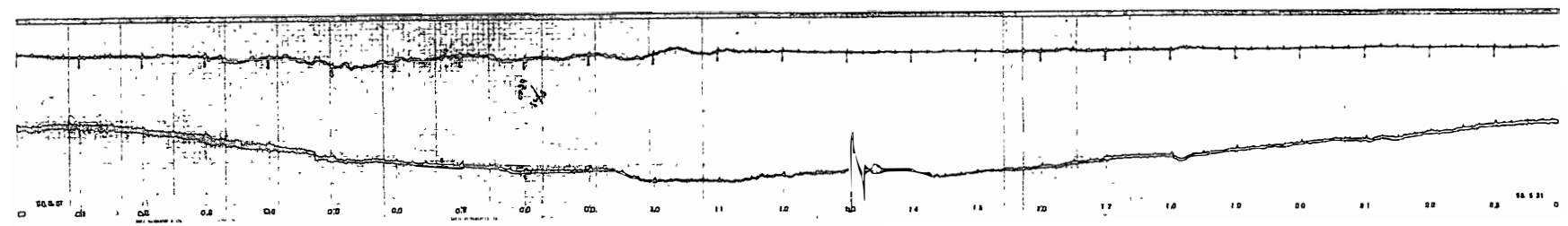


00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

— 45 —



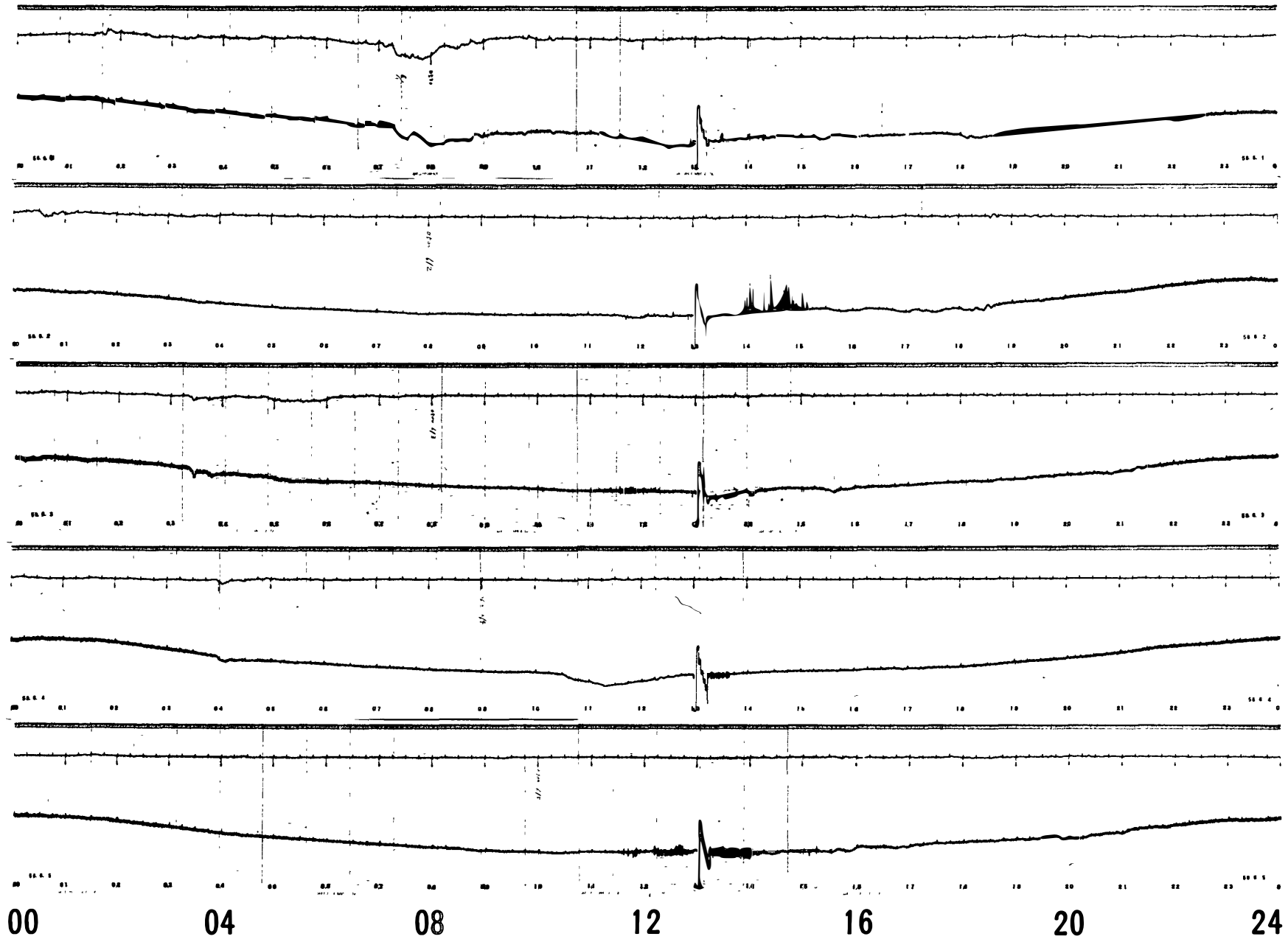
00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

31

MAY 1983

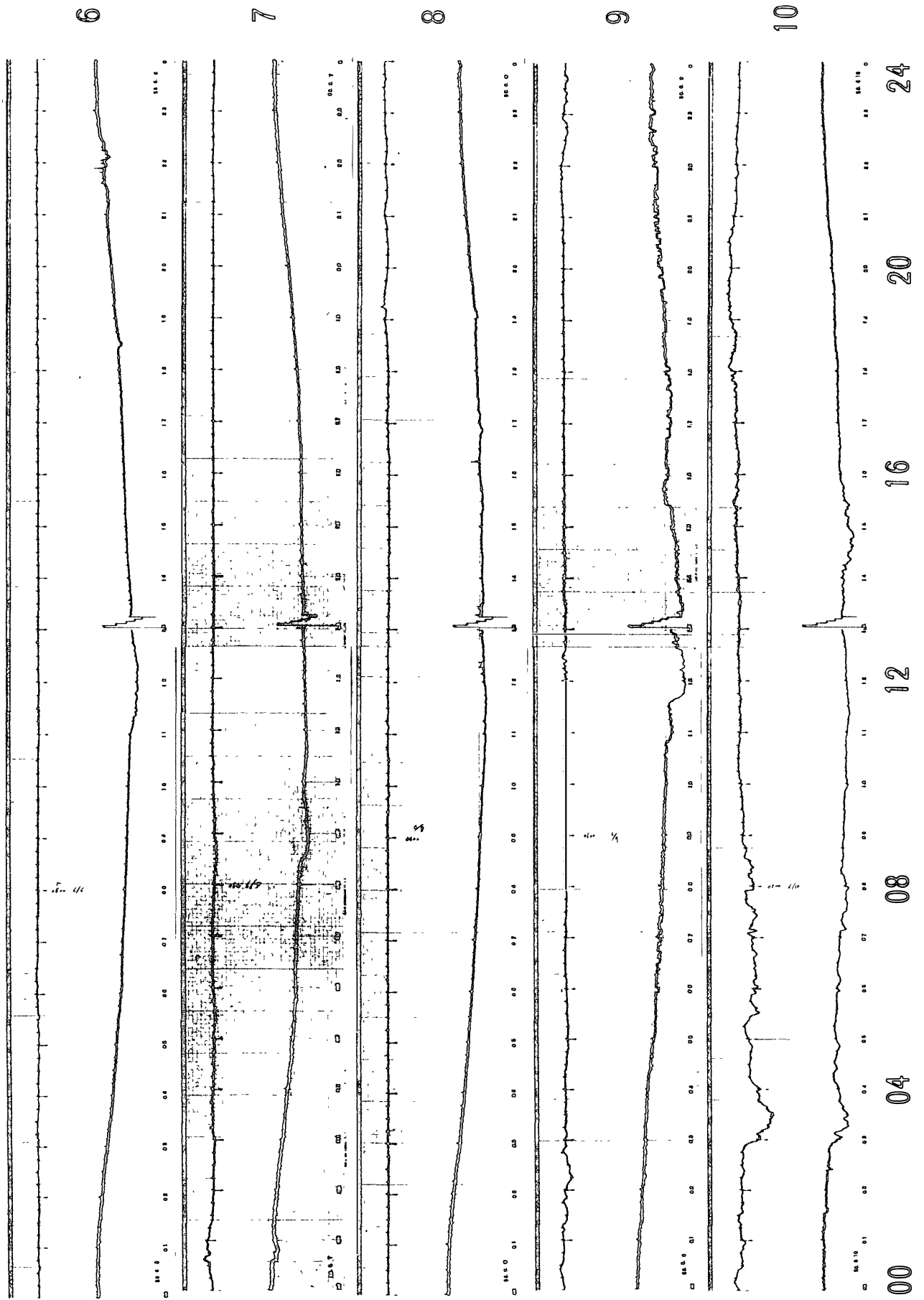
JUNE 1983



45° EAST MERIDIAN TIME IN HOURS

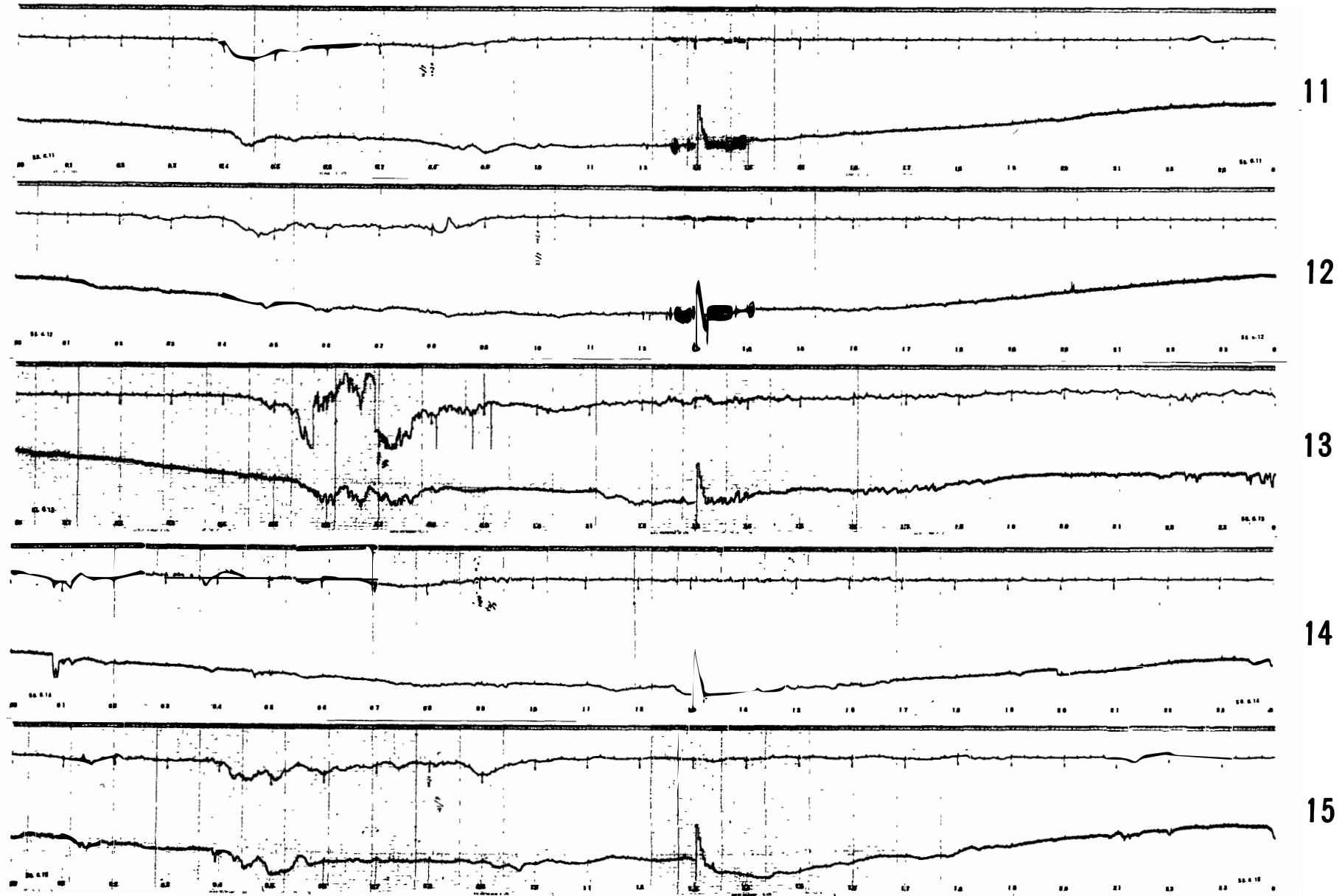
30 MHz COSMIC NOISE

JUNE 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUNE 1983

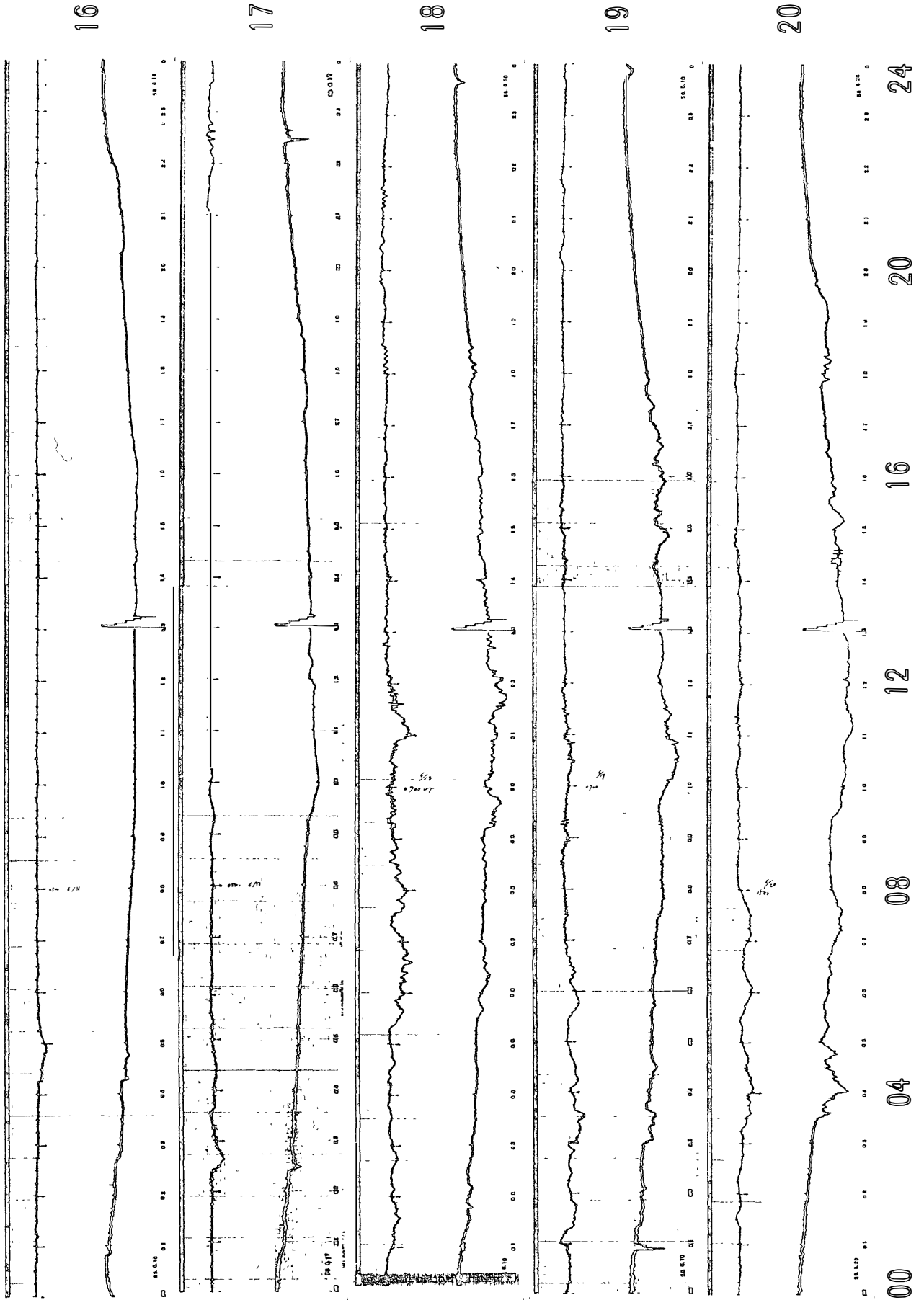


00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JUNE 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUNE 1983

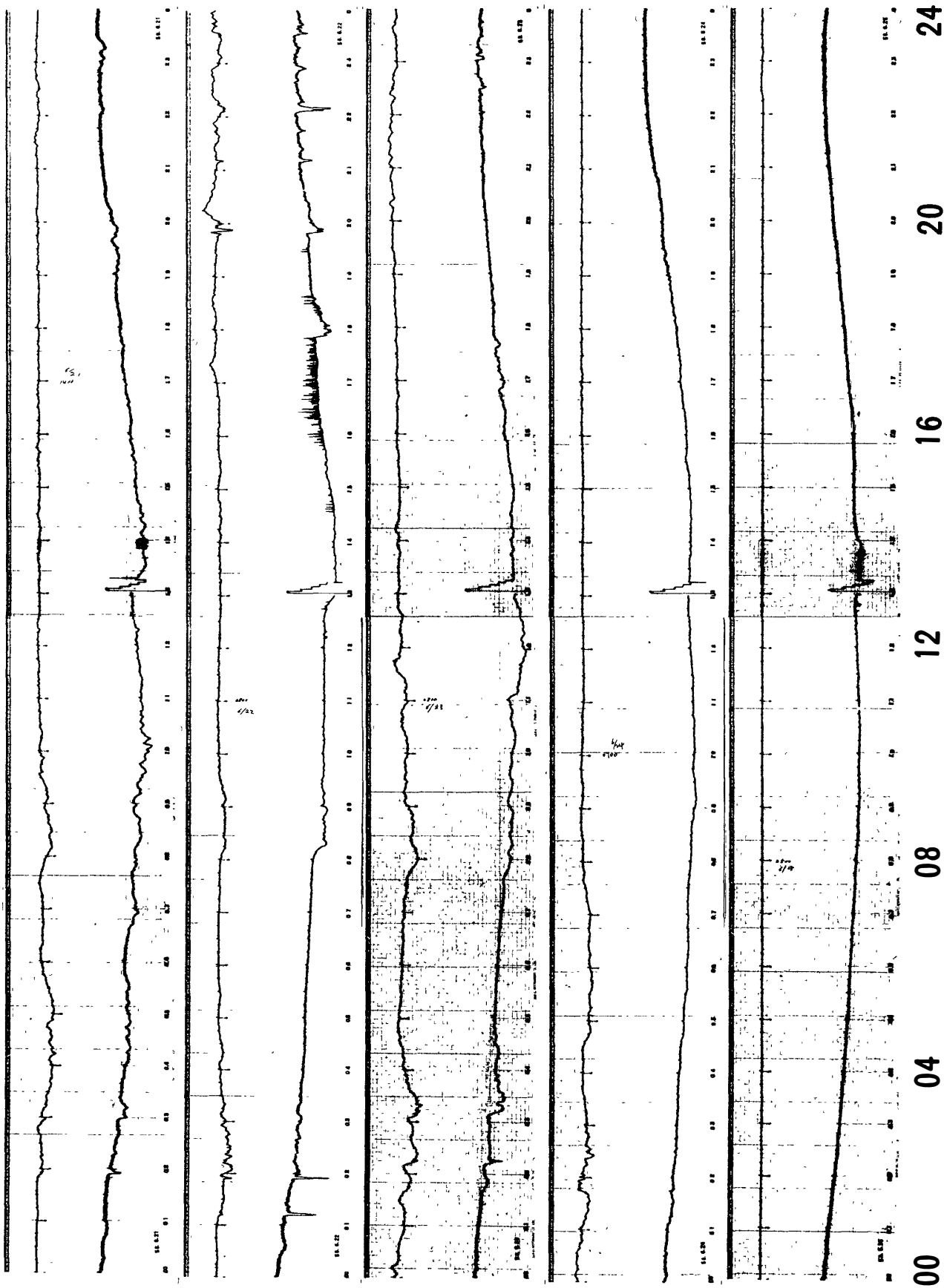
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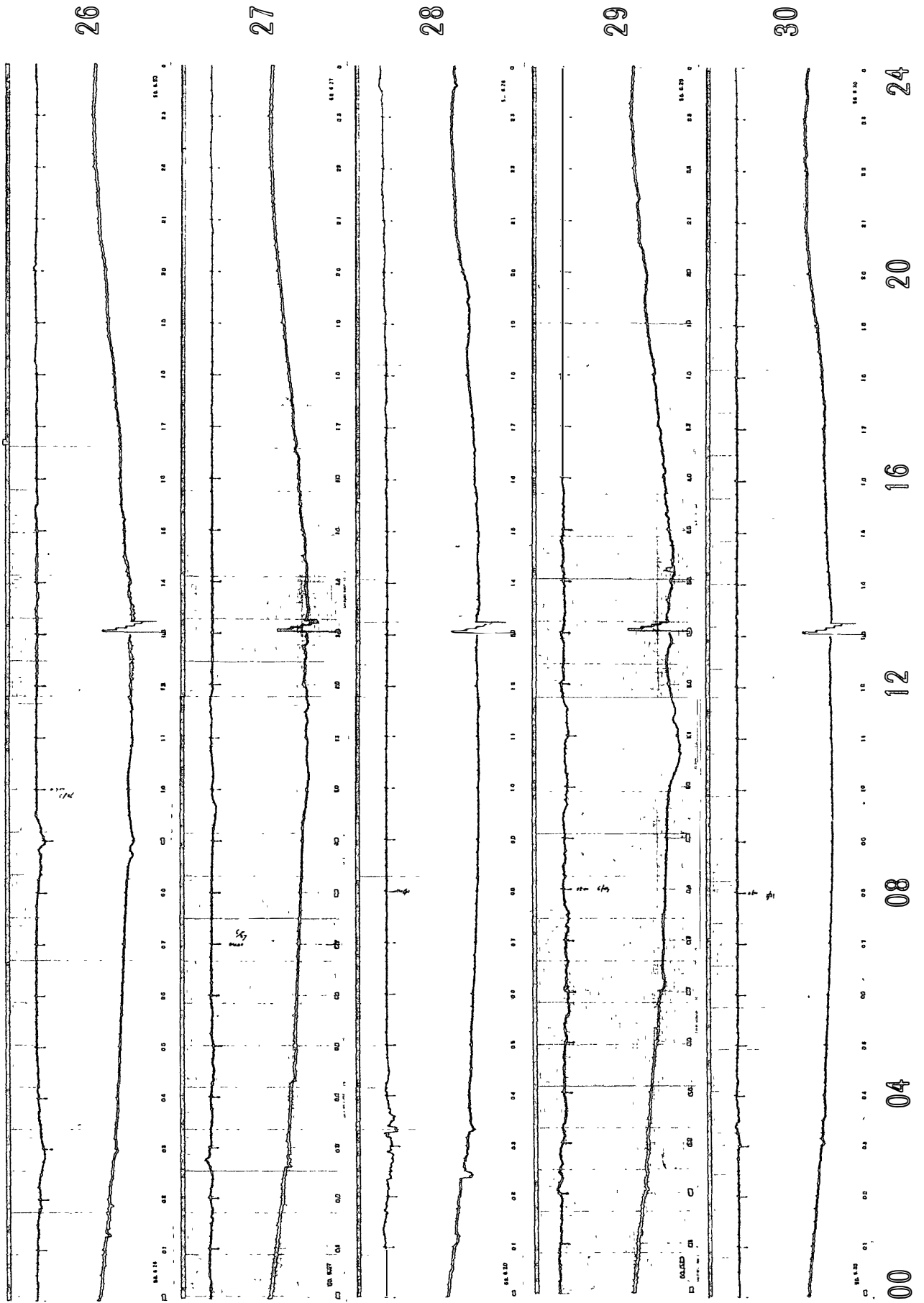
25



00 04 08 12 16 20 24

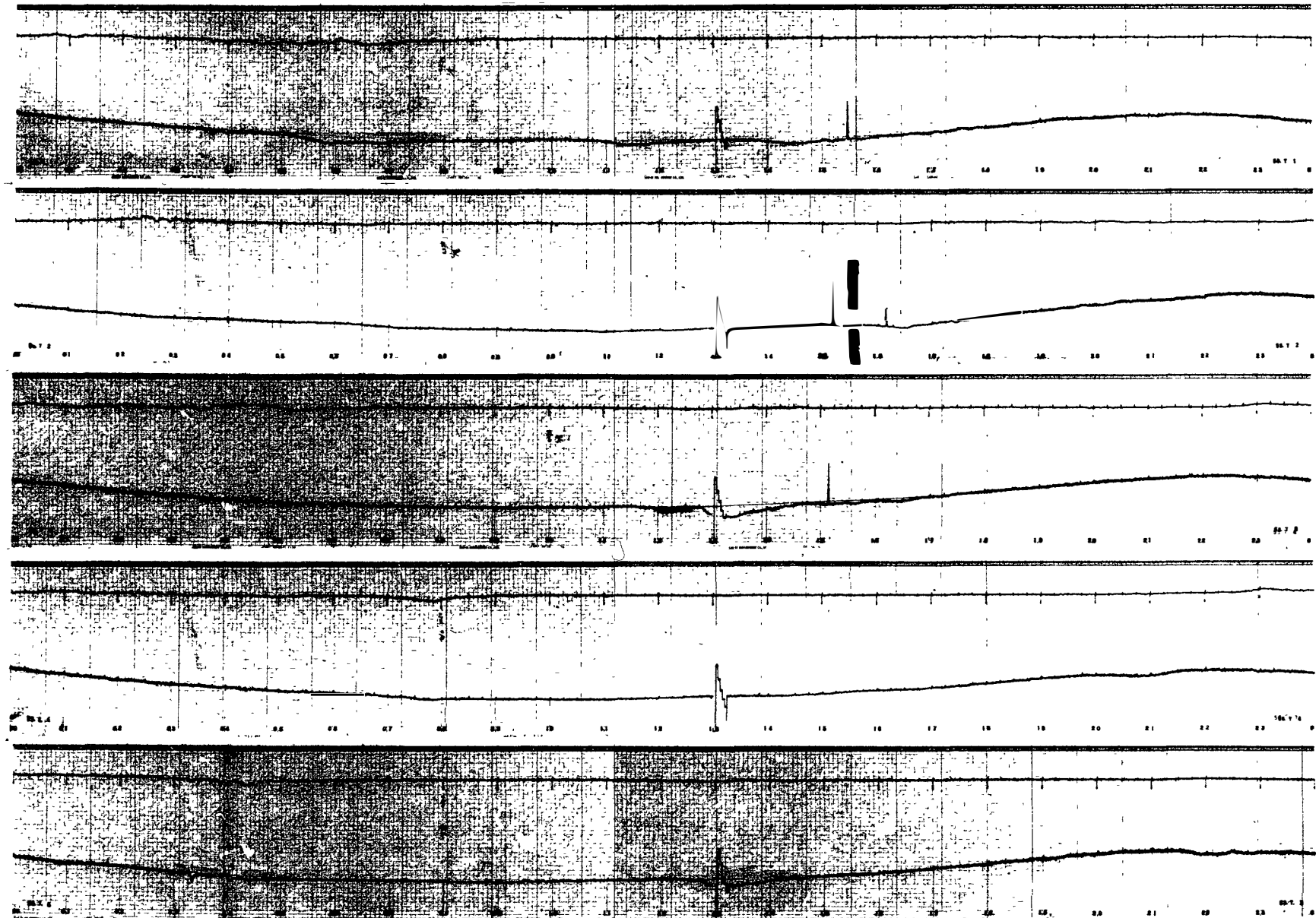
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUNE 1983



45° FAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JULY 1983



00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JULY 1983

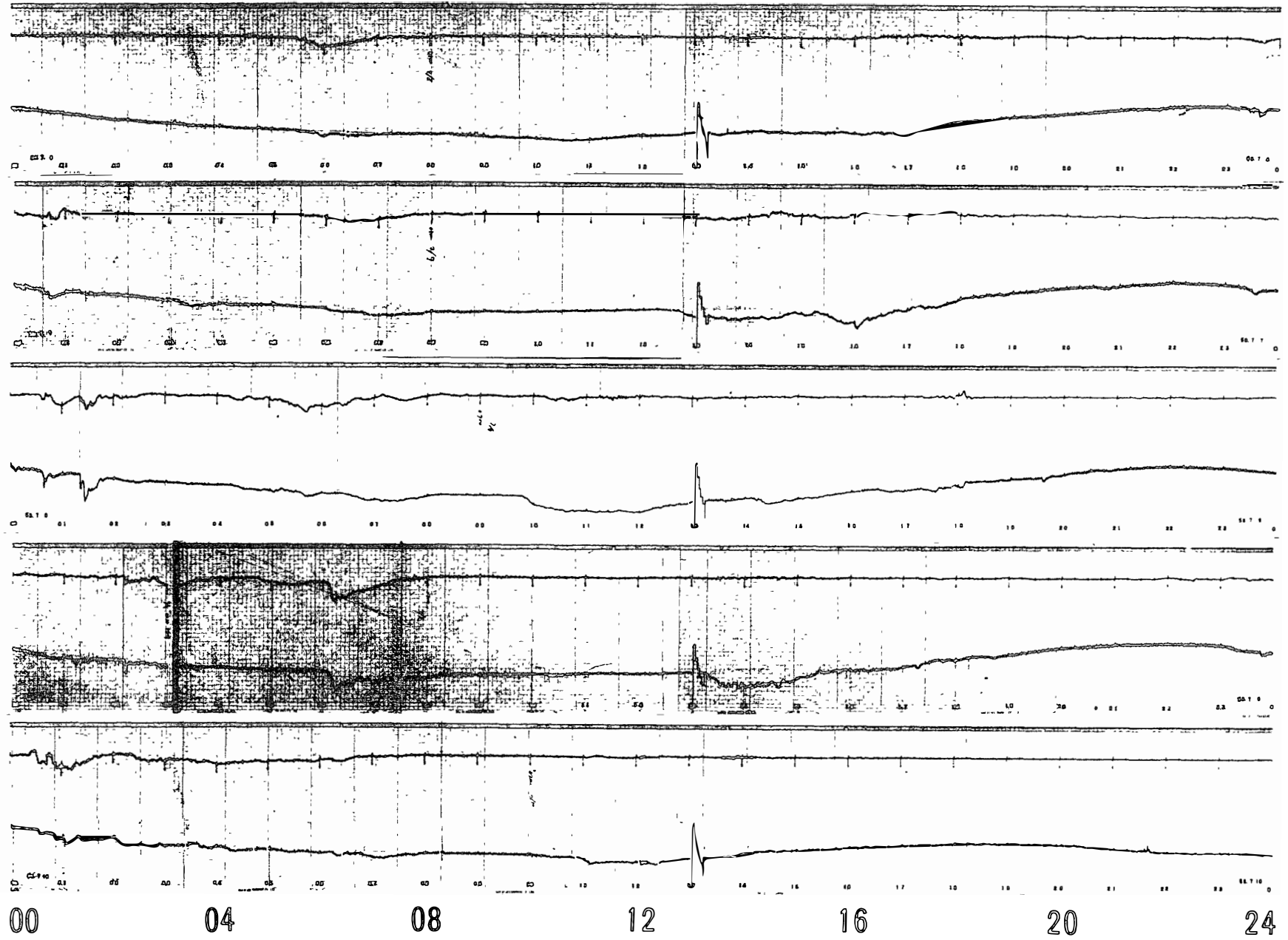
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JULY 1983

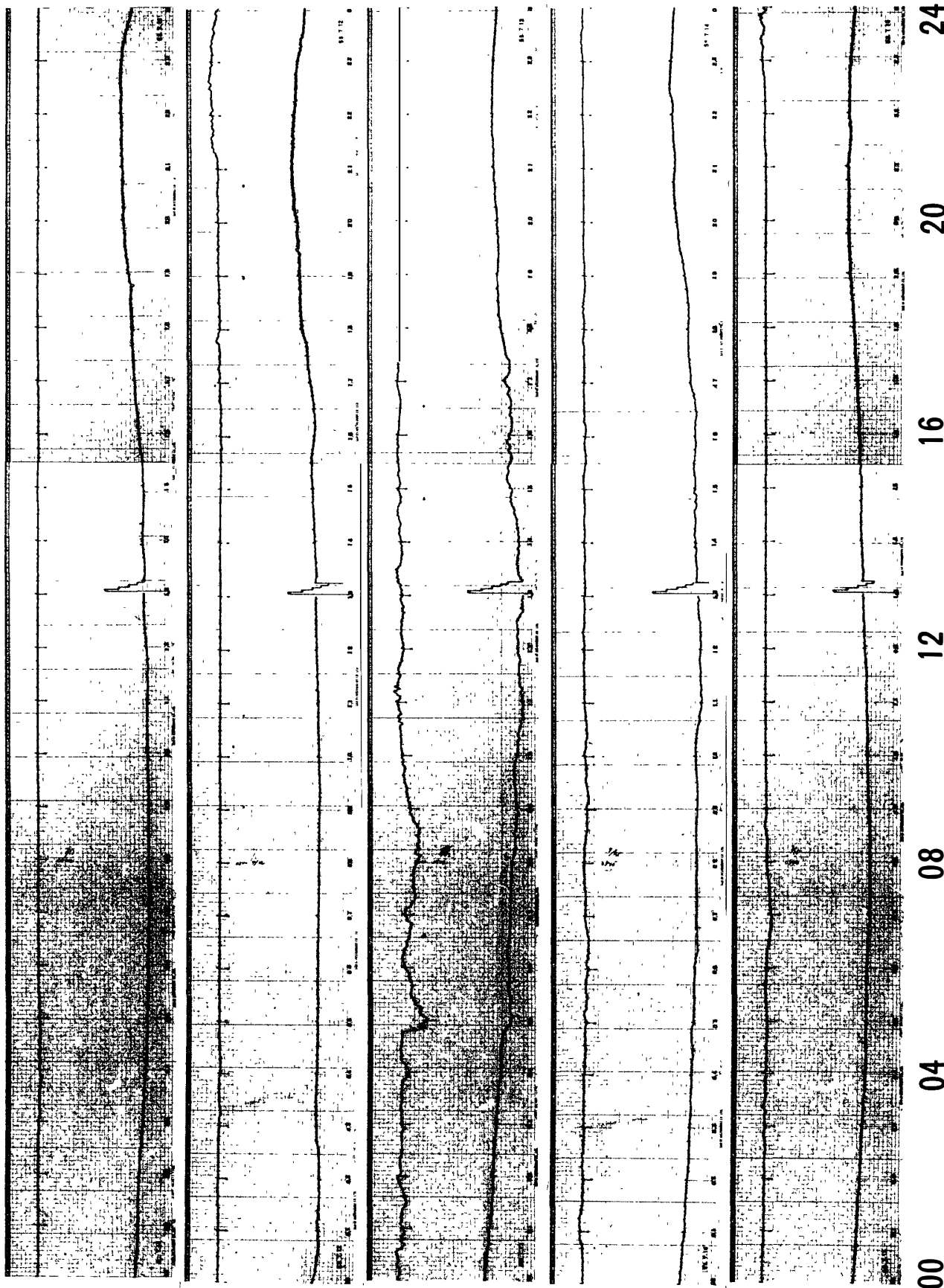
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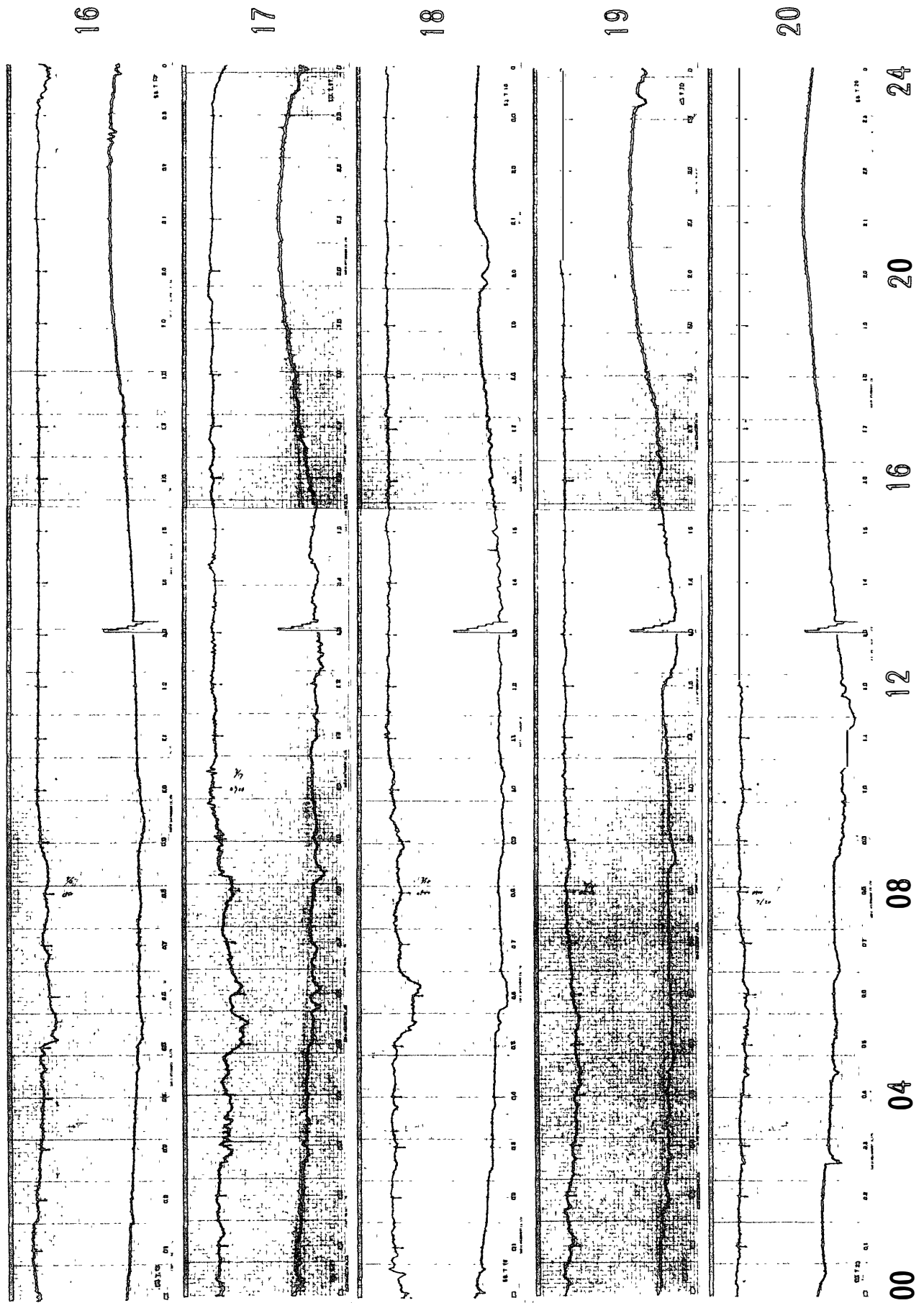
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00 04 08 12 16 20 24

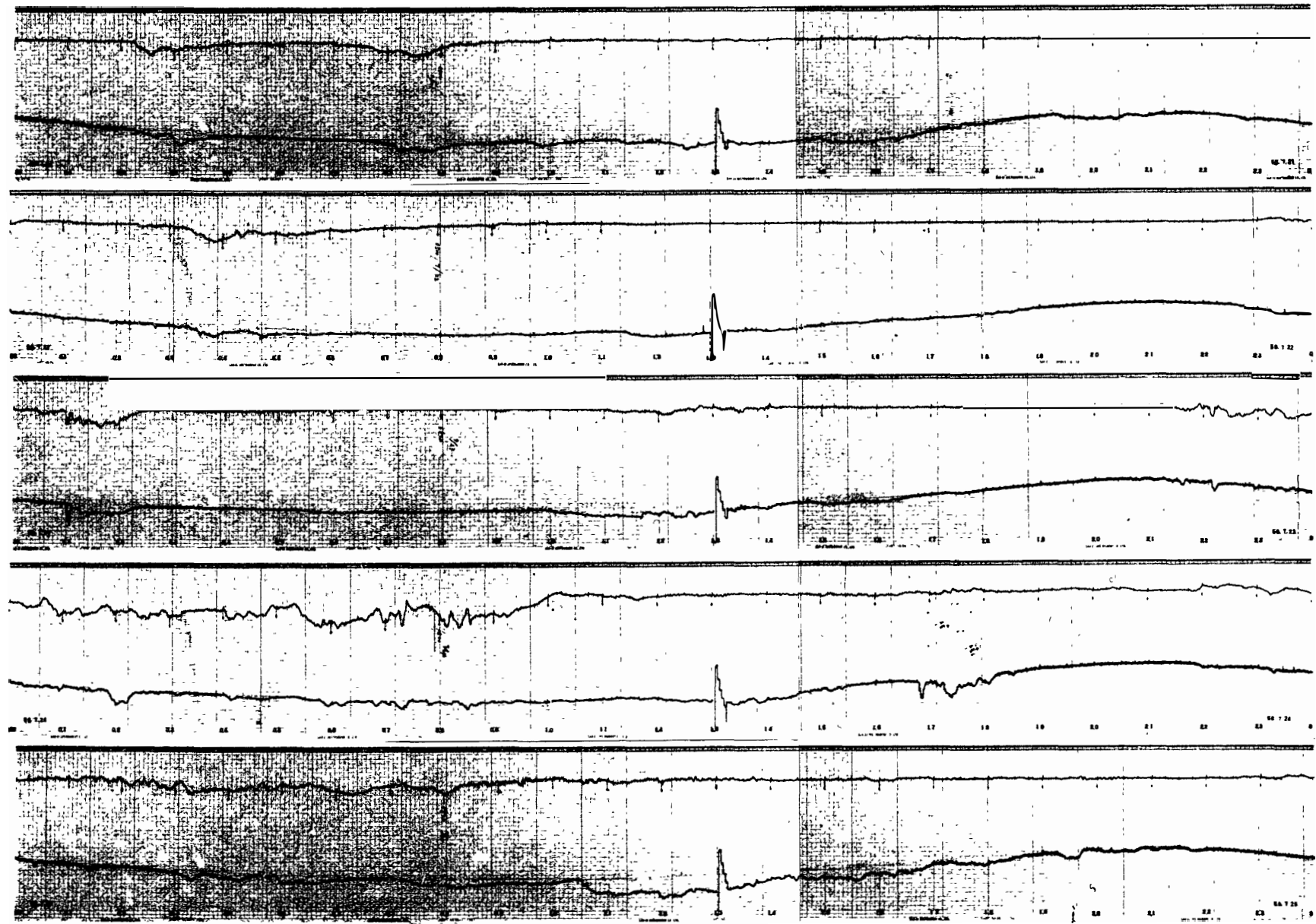
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JULY 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JULY 1983



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00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JULY, 1983

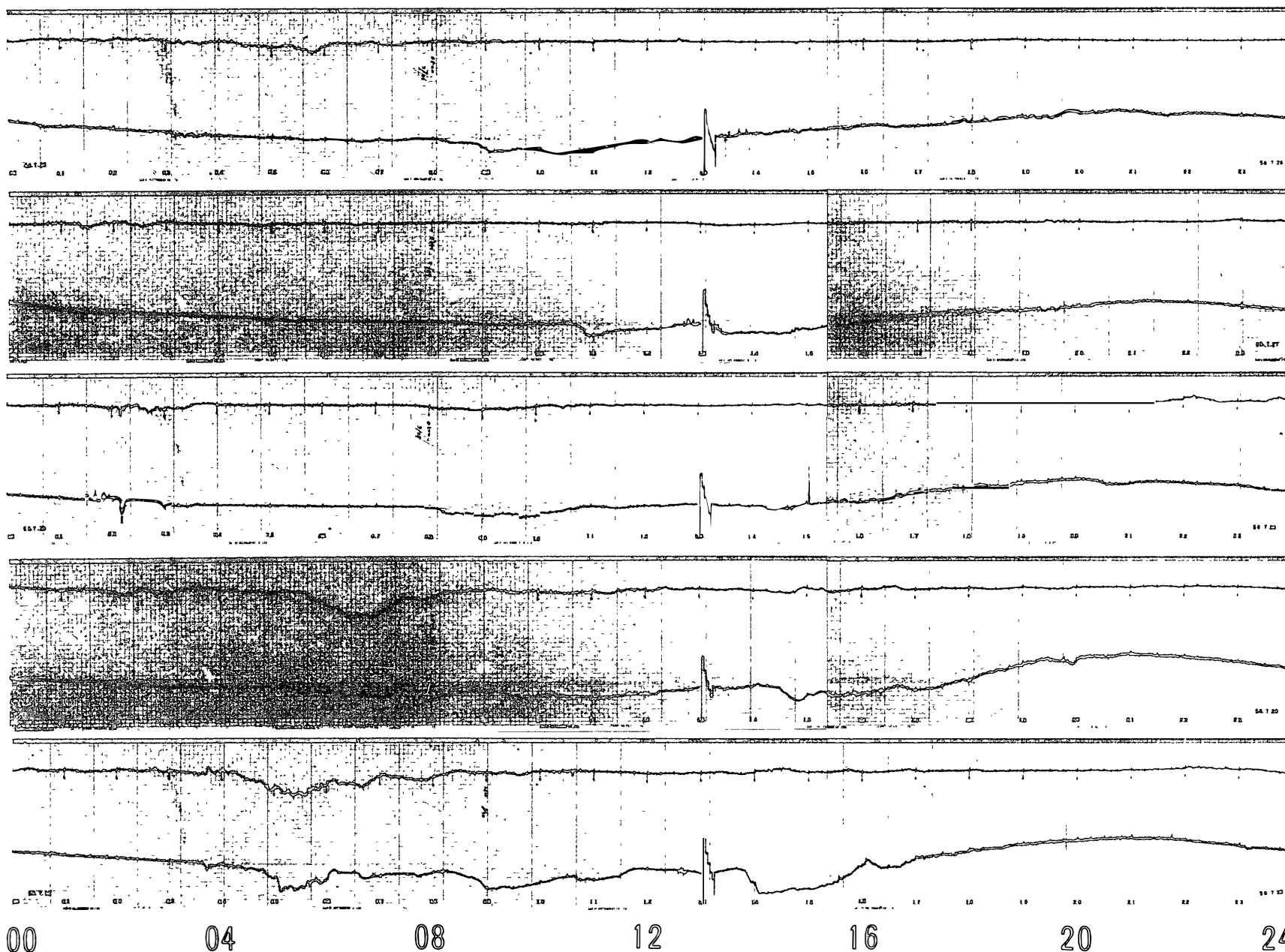
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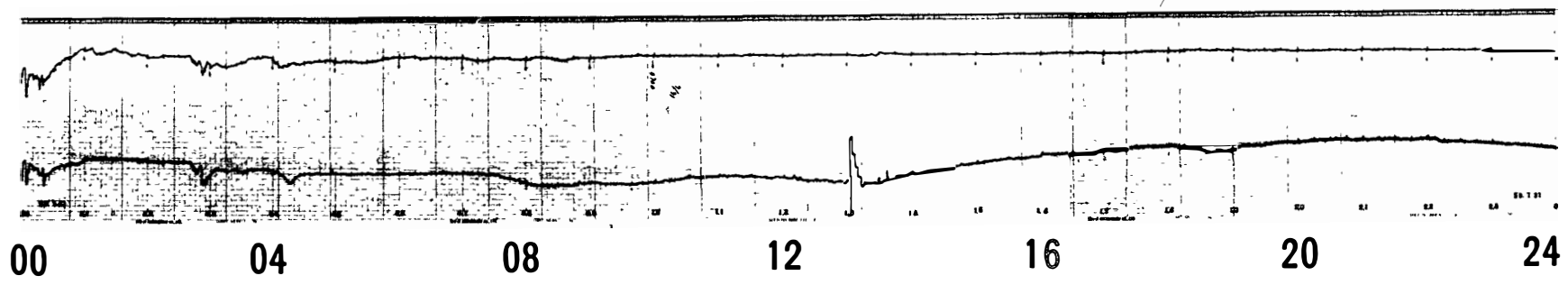
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45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



45° EAST MERIDIAN TIME IN HOURS

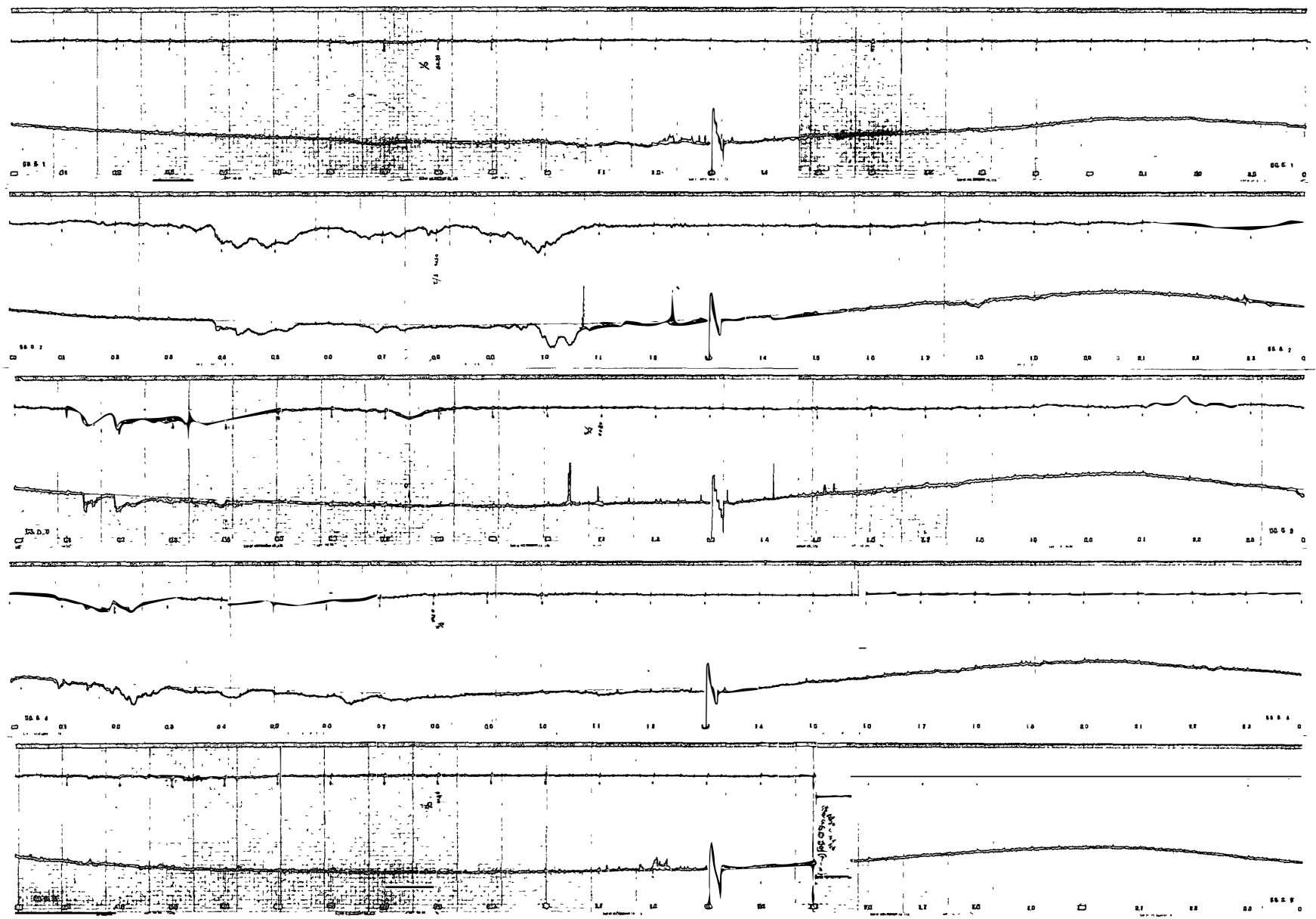
30 MHz COSMIC NOISE

31

JULY 1983

AUG 1983

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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

AUG 1983

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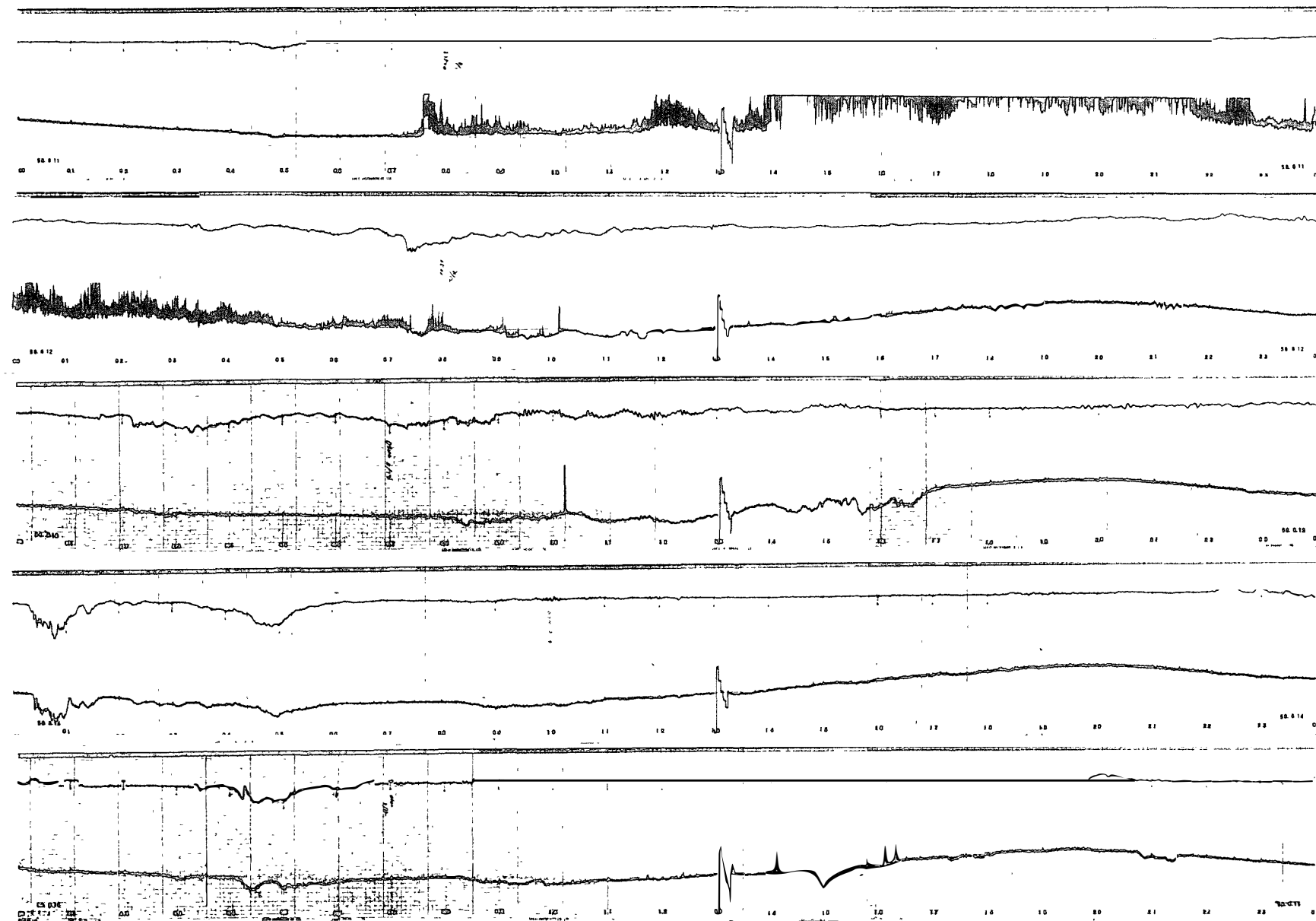
10



30 MHz COSMIC NOISE

45° EAST MERIDIAN TIME IN HOURS

AUG 1983



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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

AUG 1983

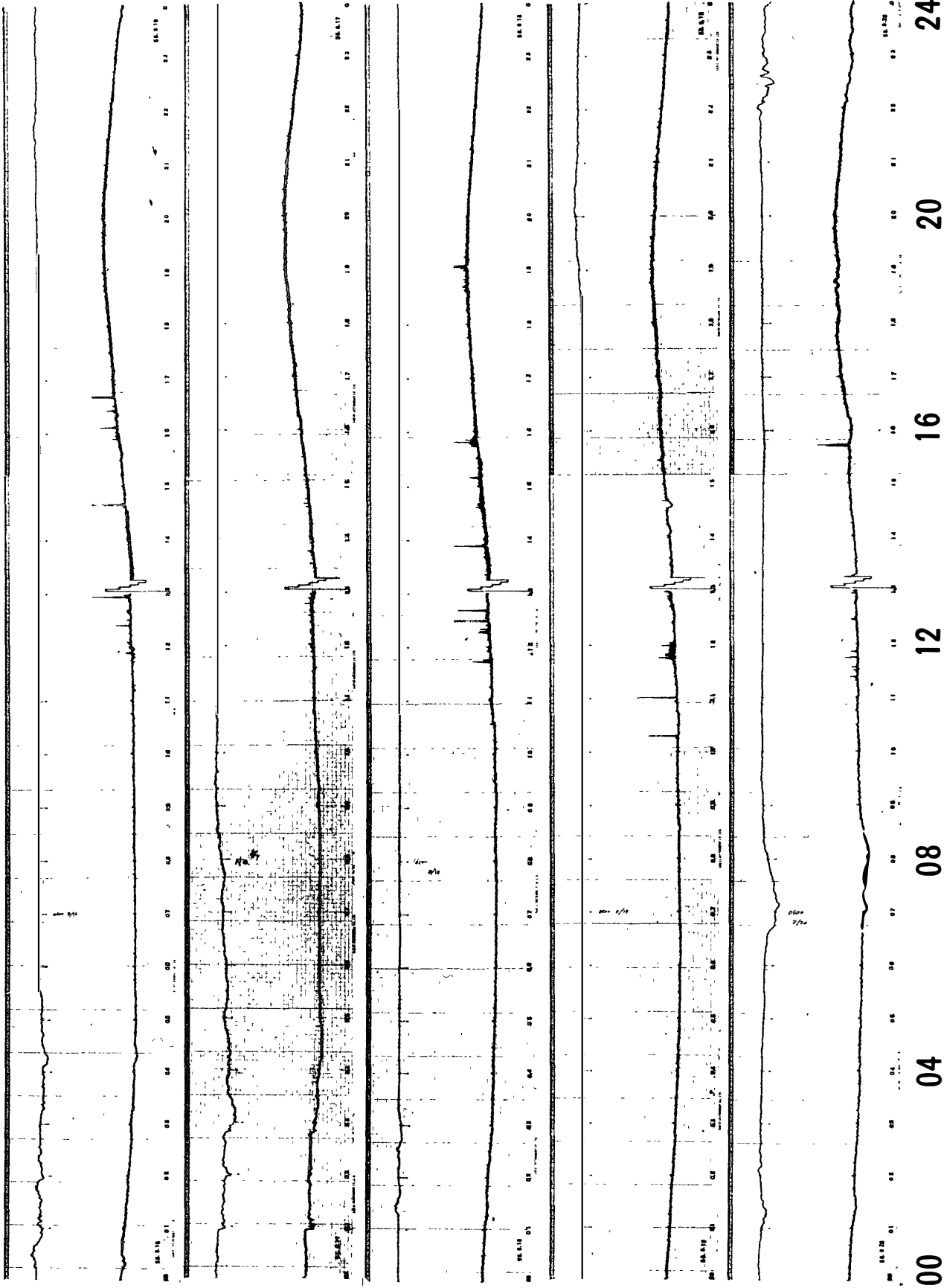
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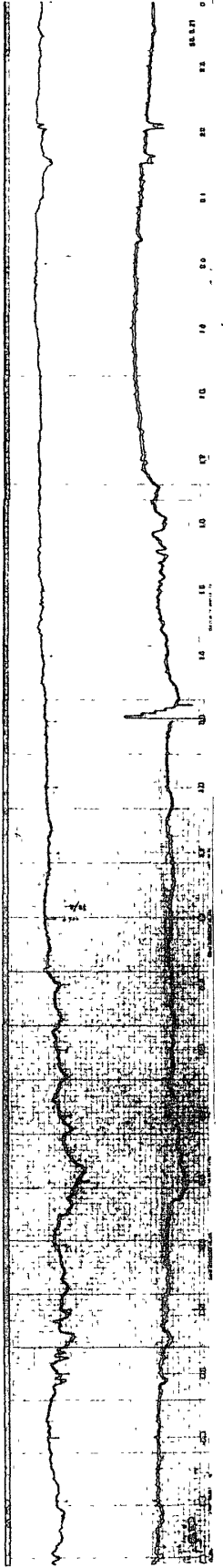


00 04 08 12 16 20 24

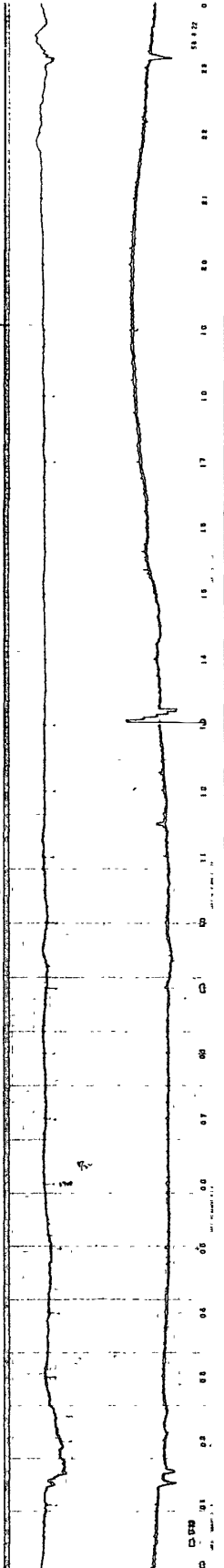
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

AUG 1983

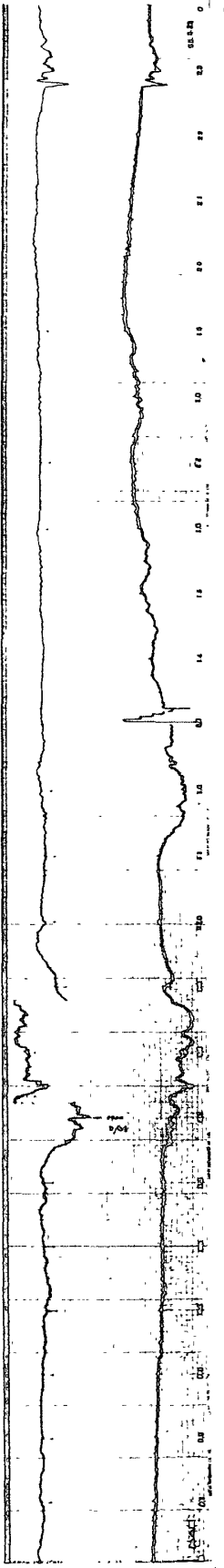
21



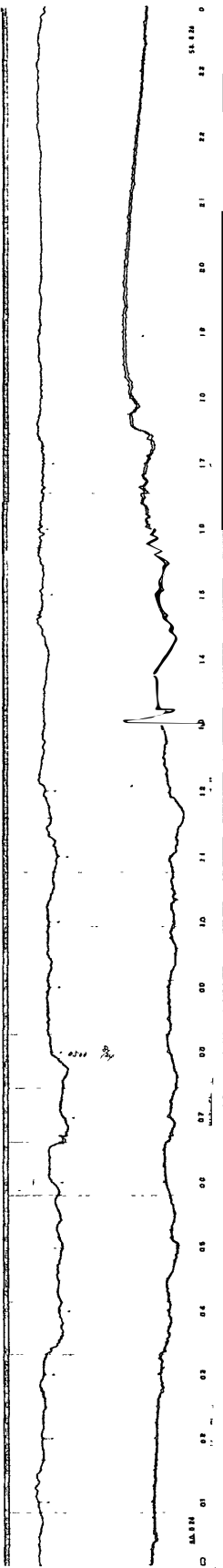
22



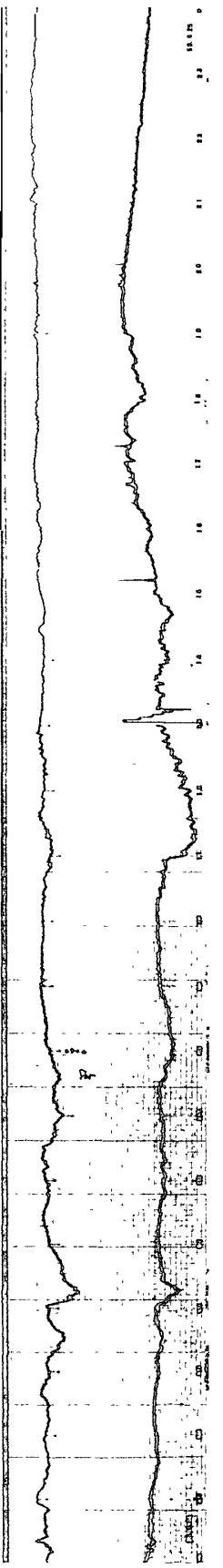
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

AUG 1983

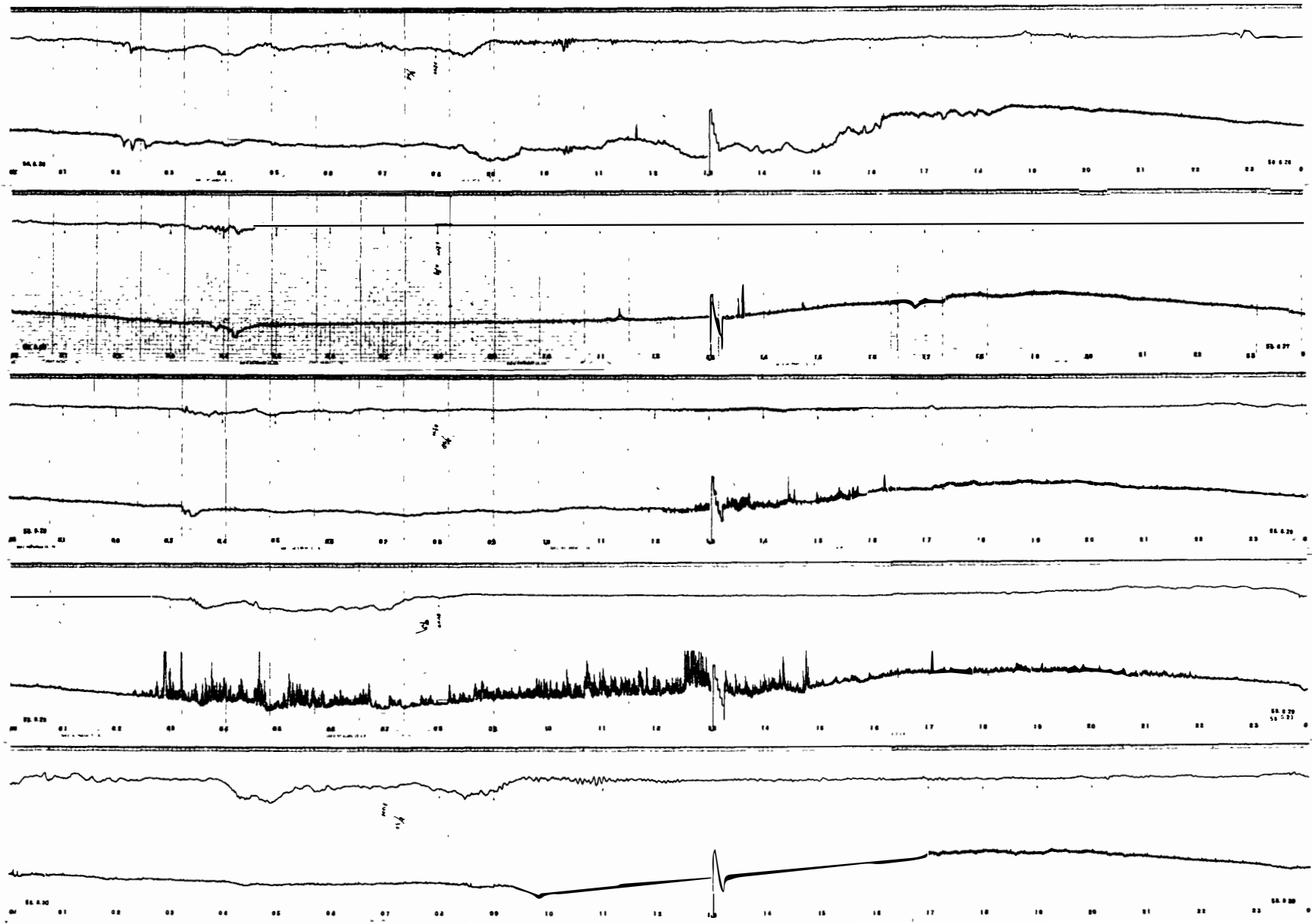
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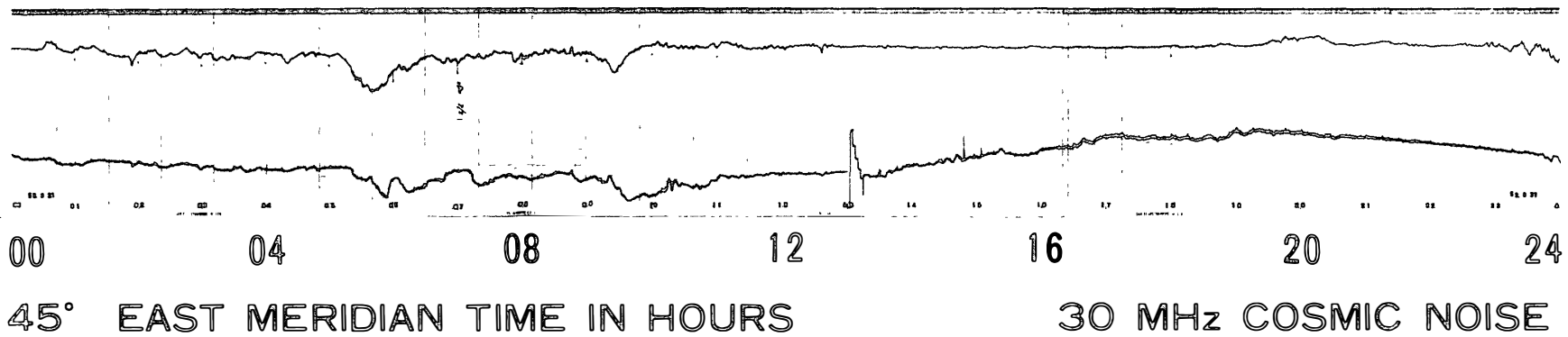
30



00 04 08 12 16 20 24

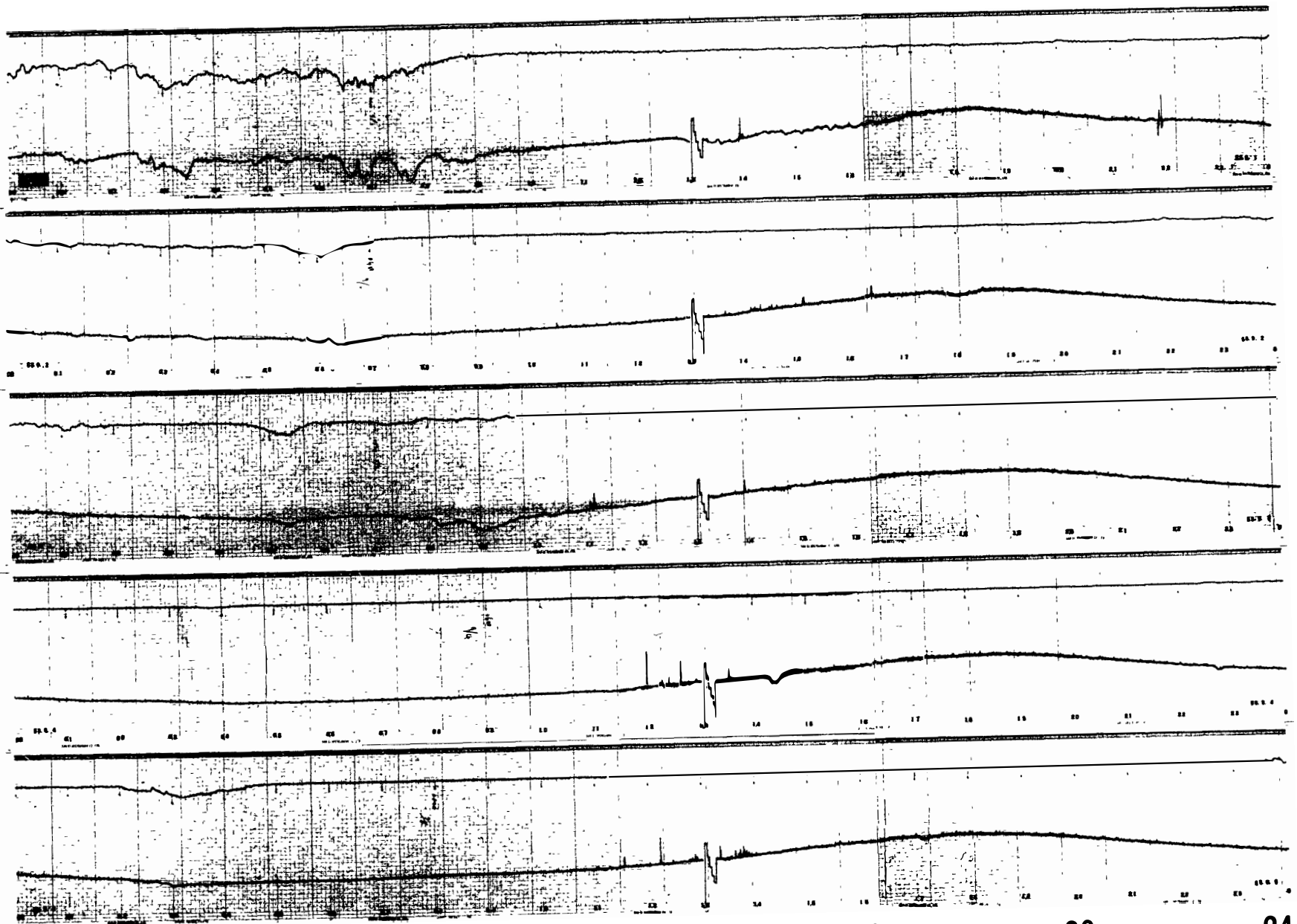
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



AUG 1983

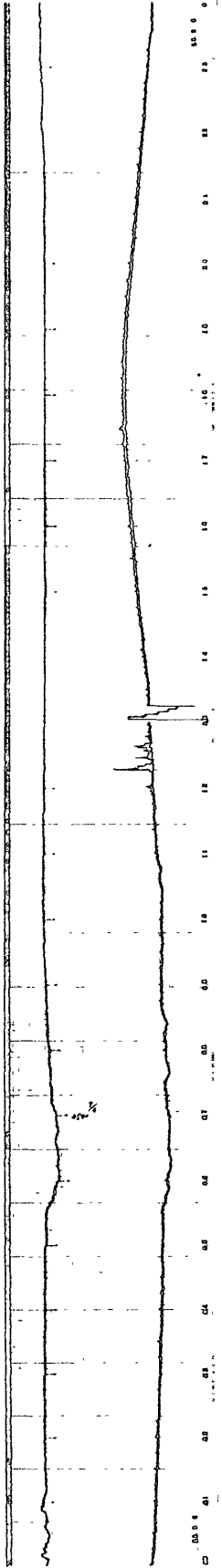
SEP 1983



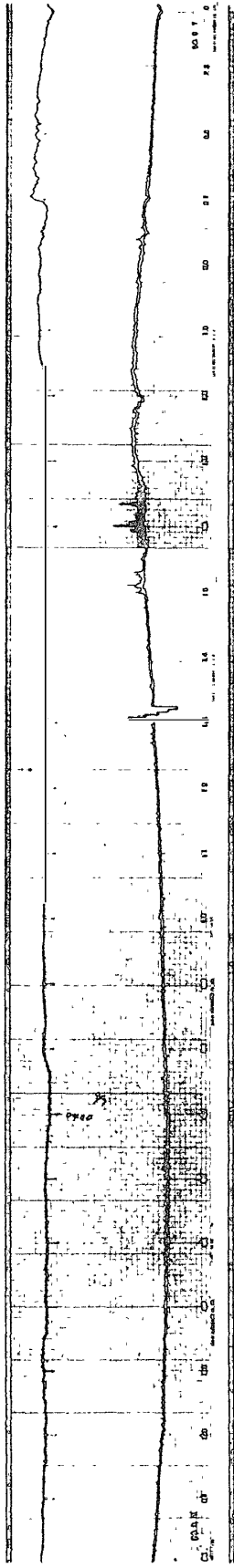
00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEP 1983

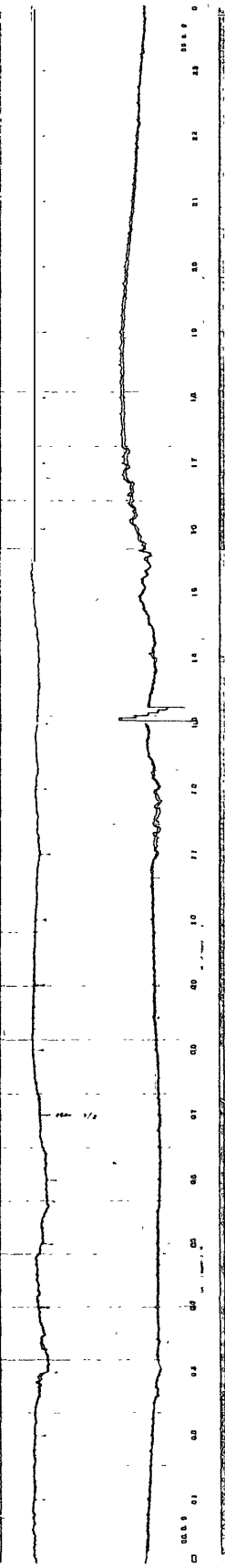
6



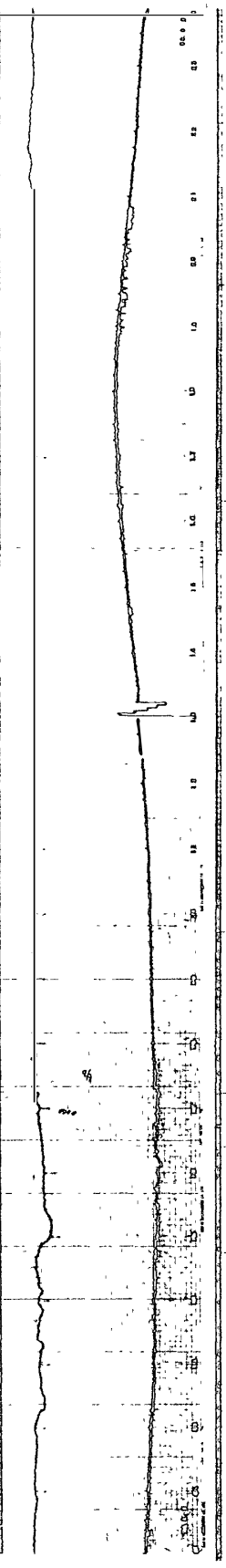
7



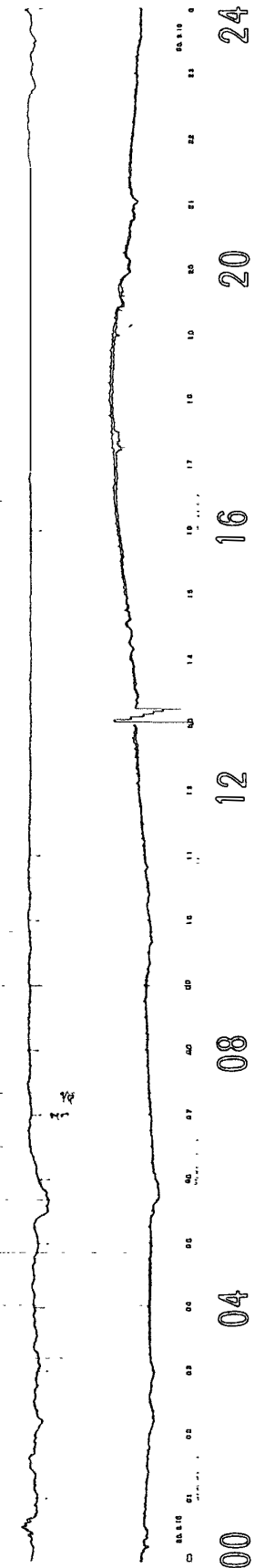
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00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEP 1983

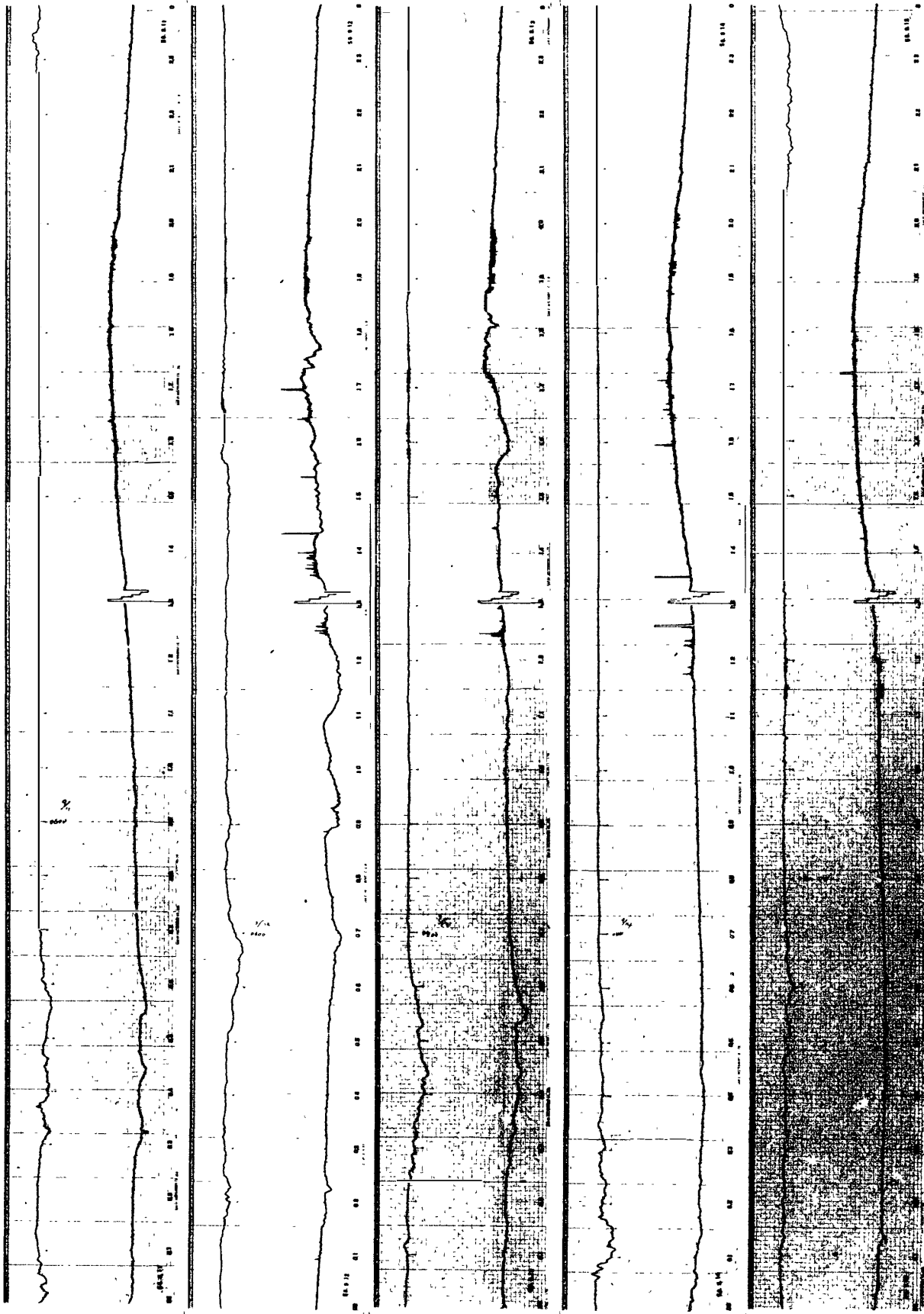
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEP 1983

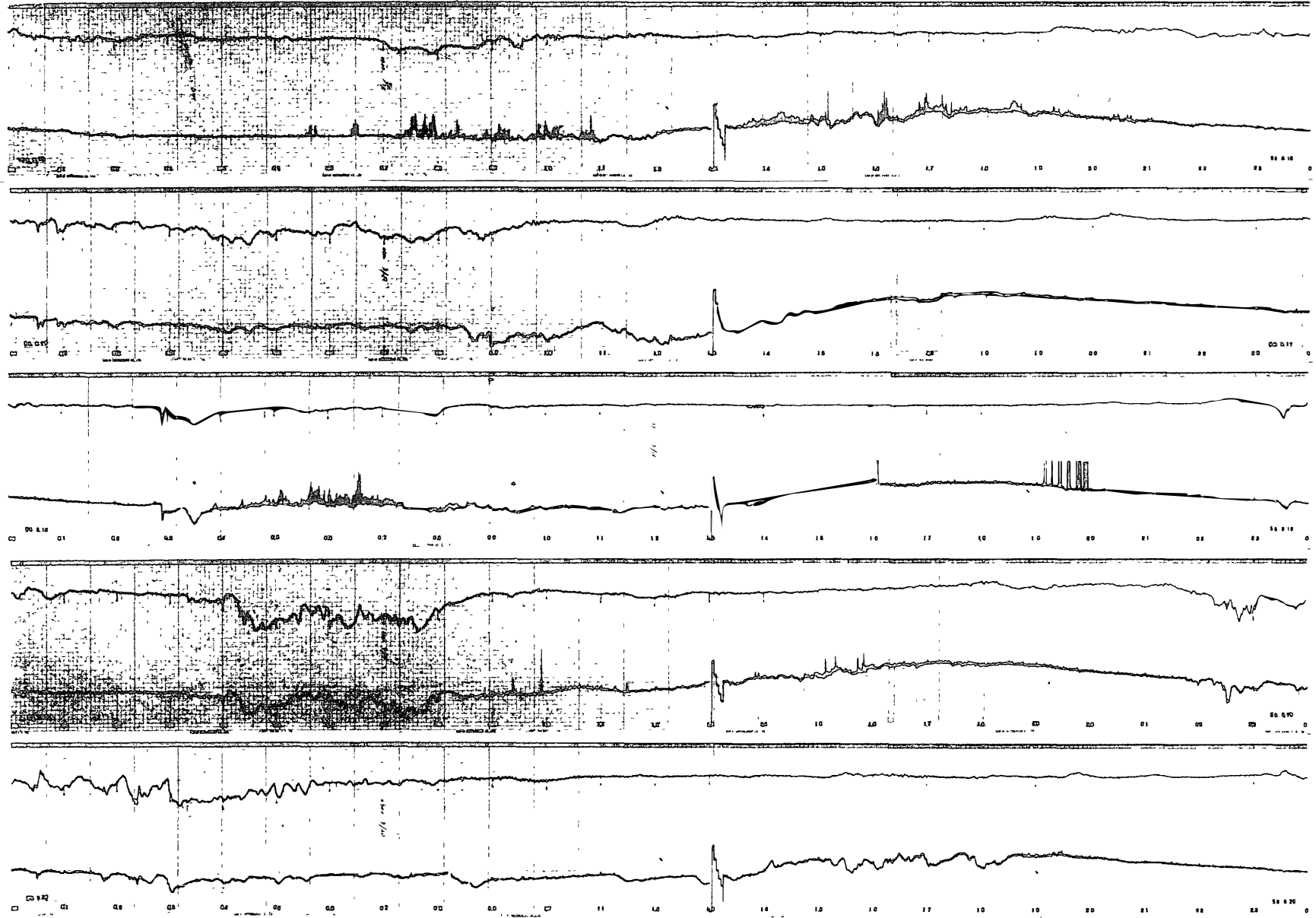
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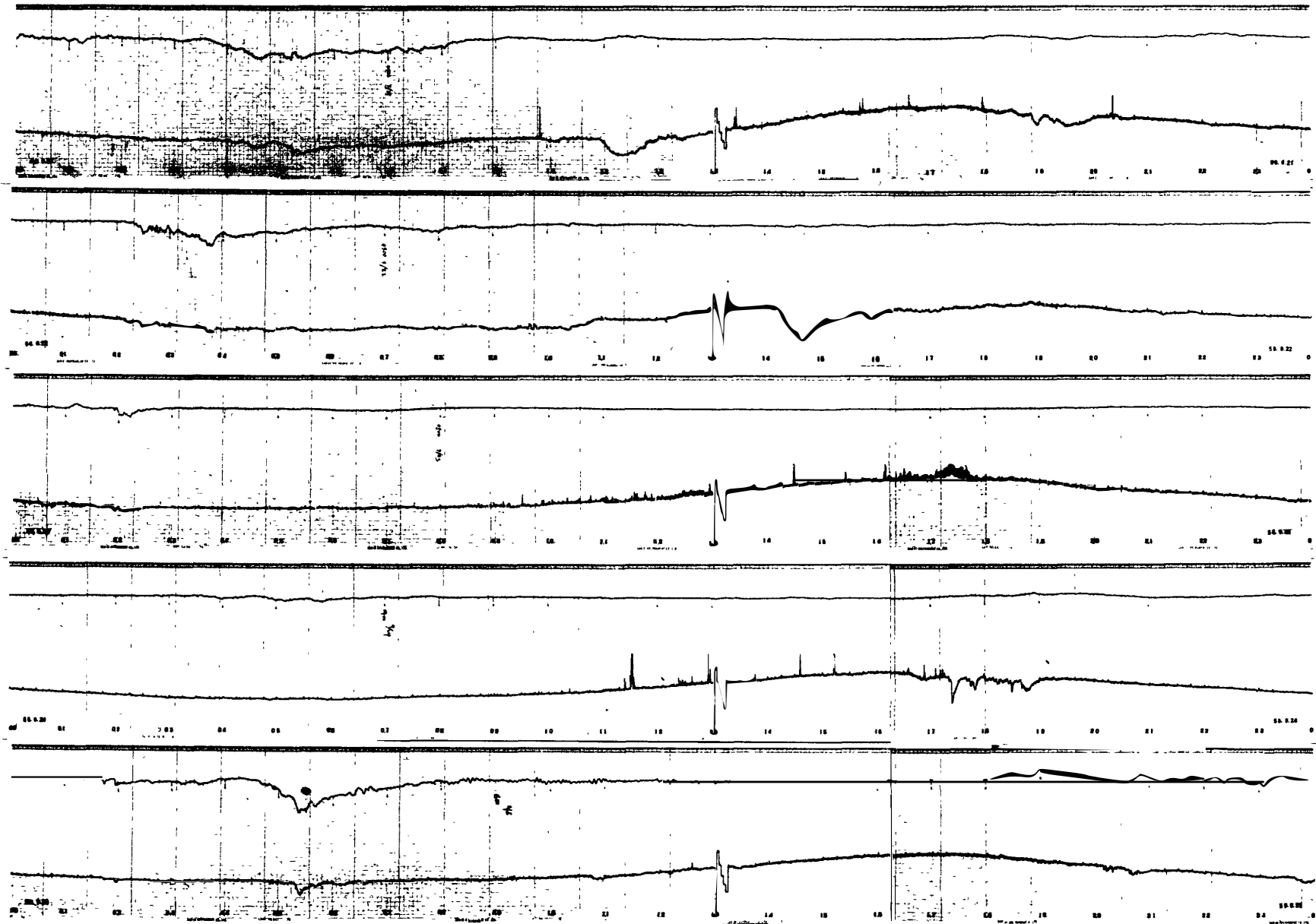
00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

SEP 1983

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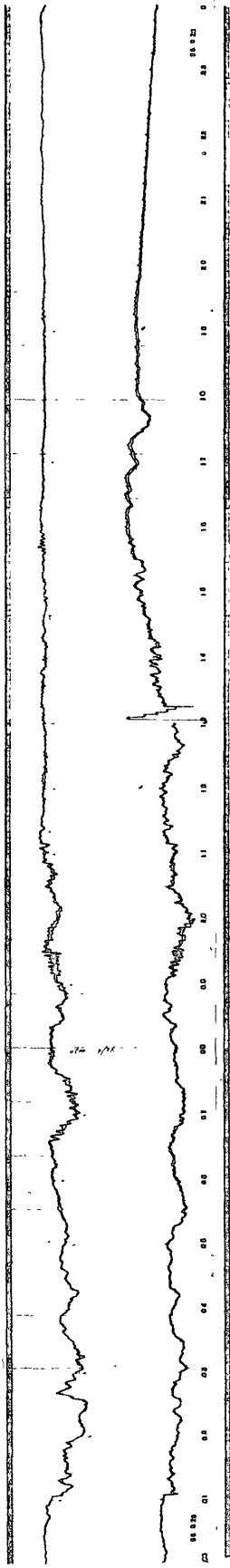
00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

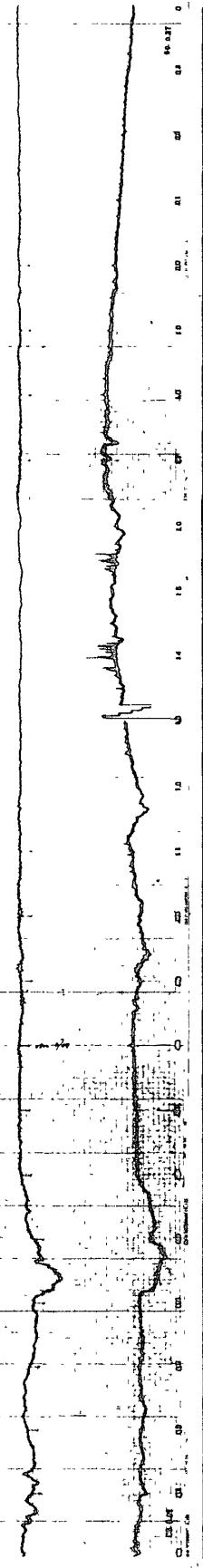
30 MHz COSMIC NOISE

SEP 1983

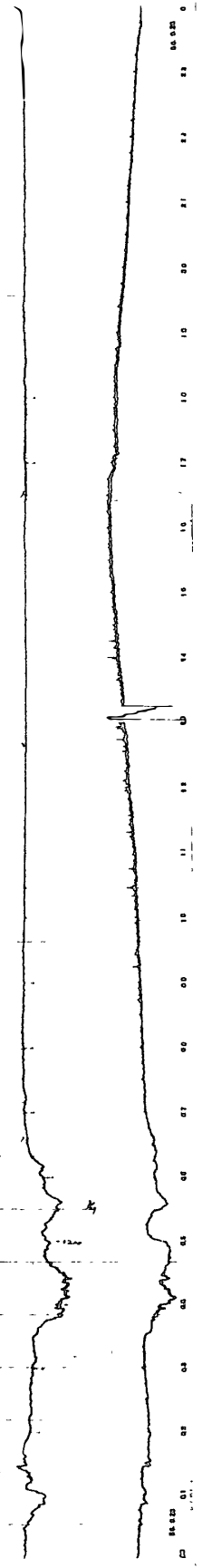
26



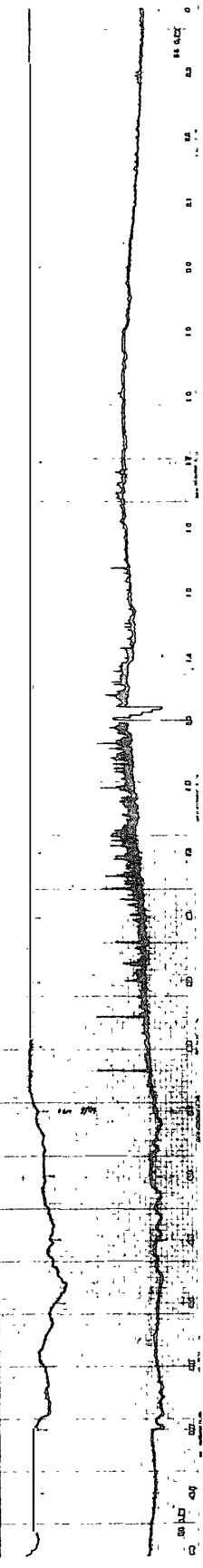
27



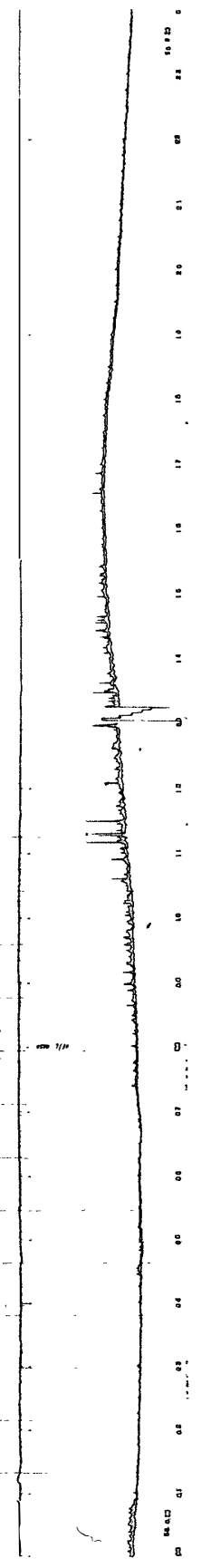
28



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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1983

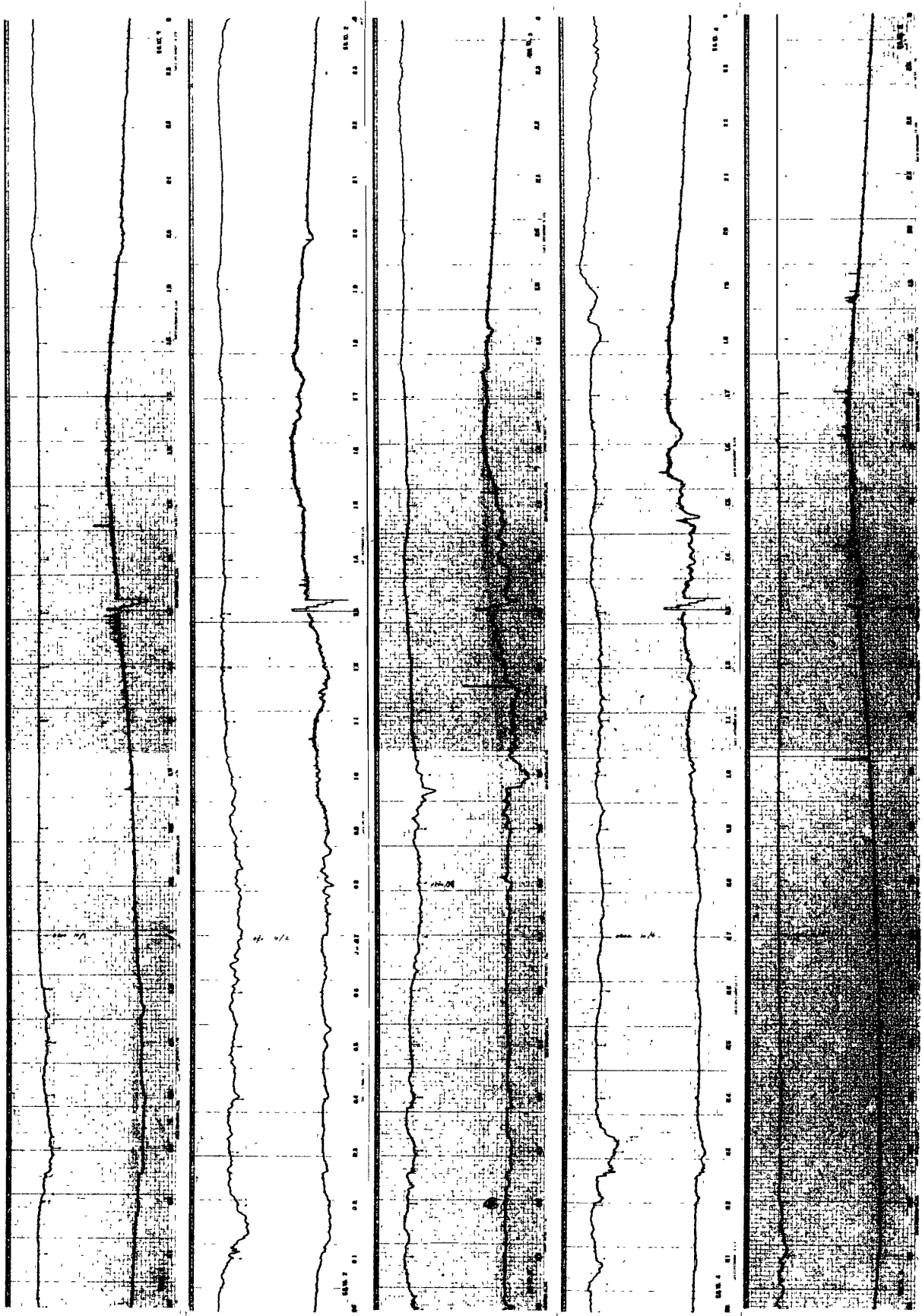
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1983

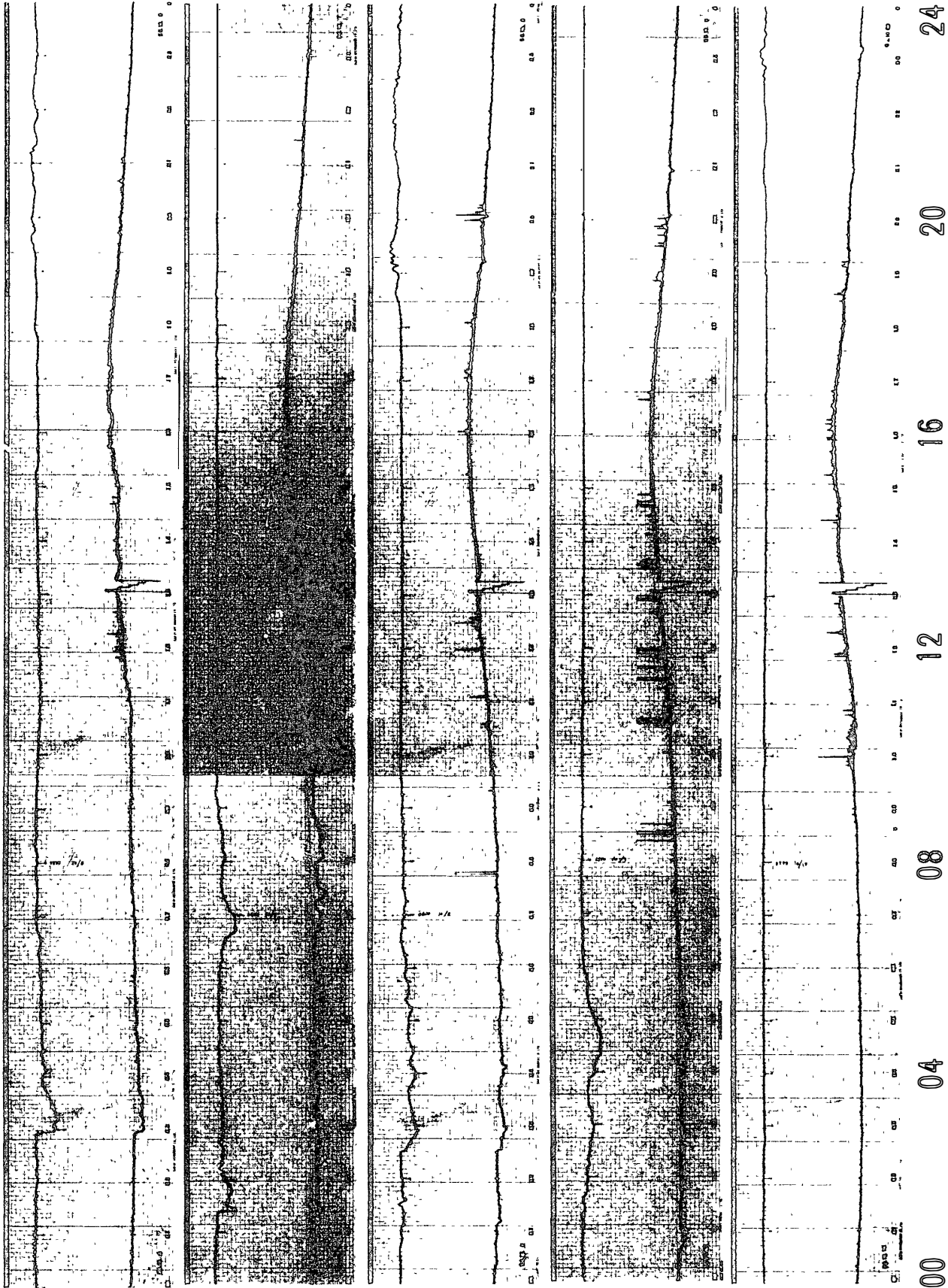
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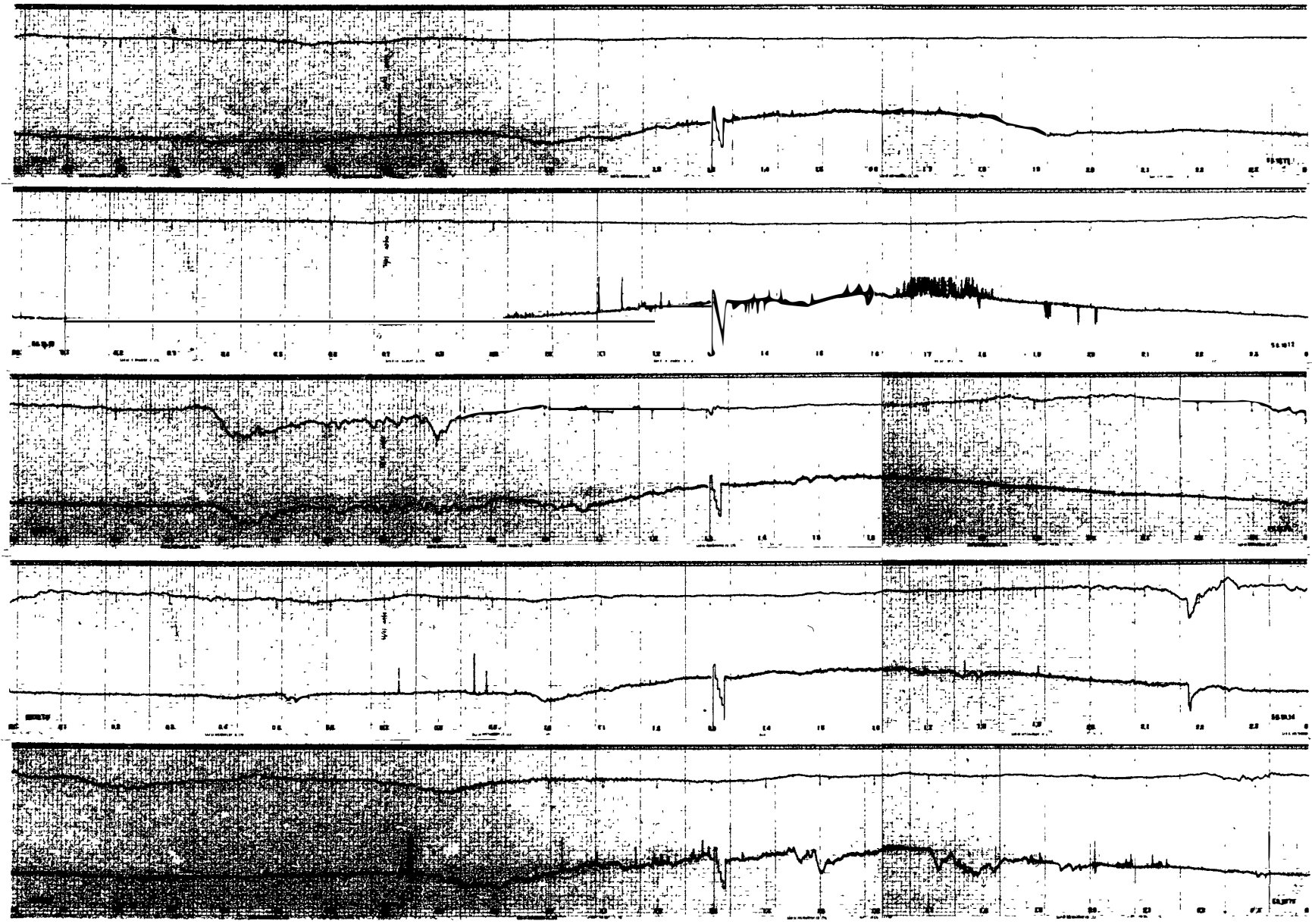
10



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1983

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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

OCT 1983

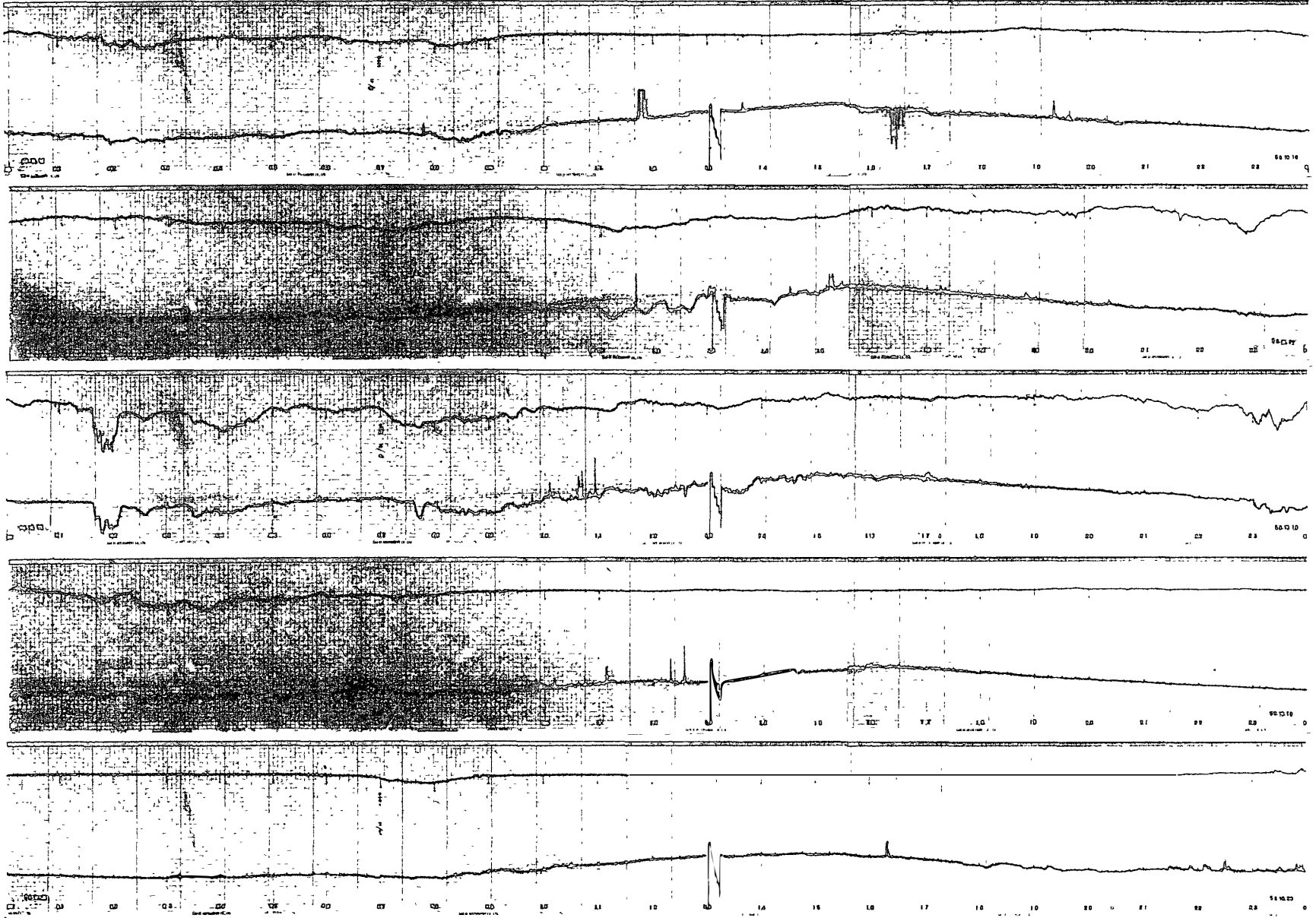
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

—76—

OCT 1983

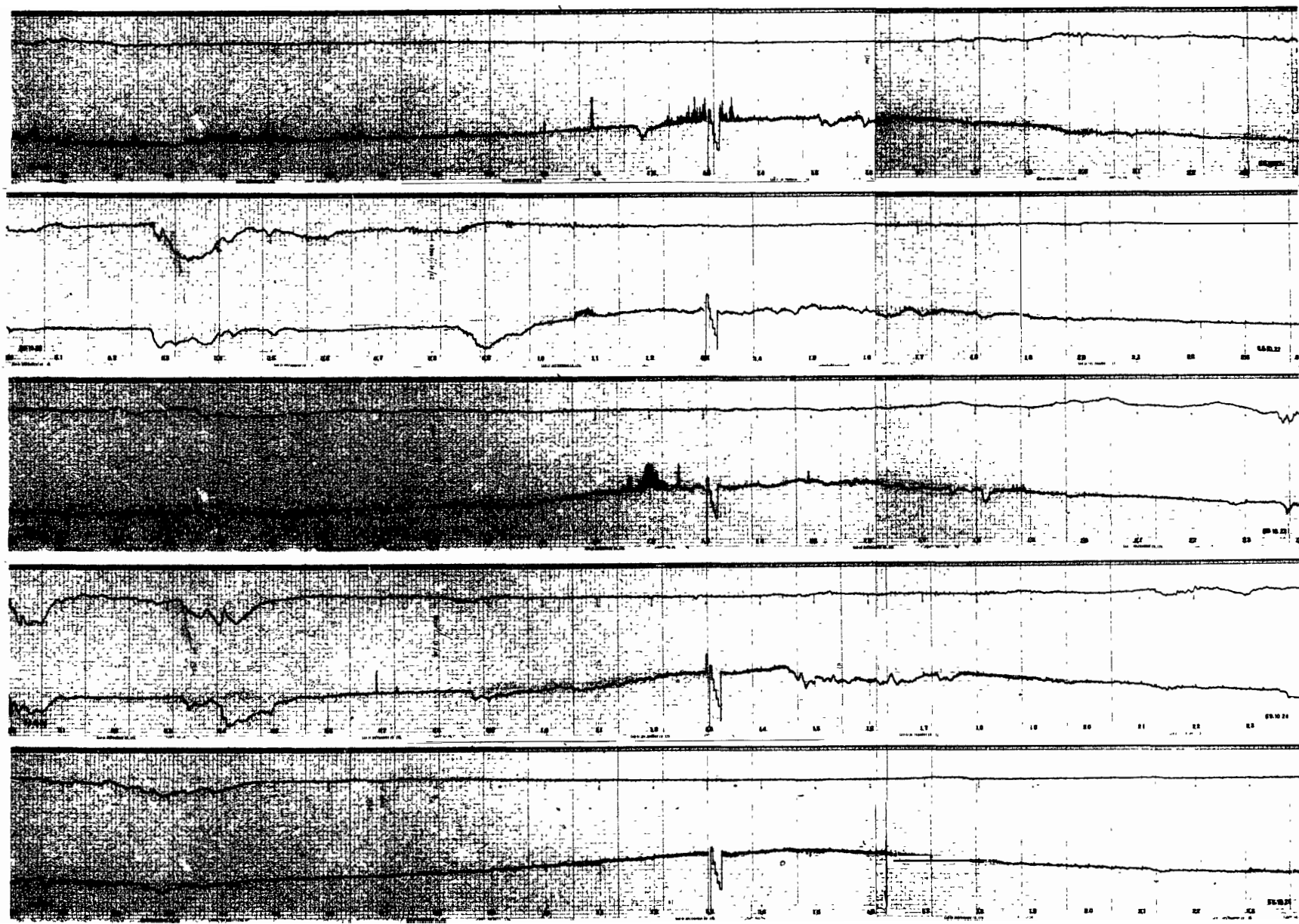
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

OCT 1983

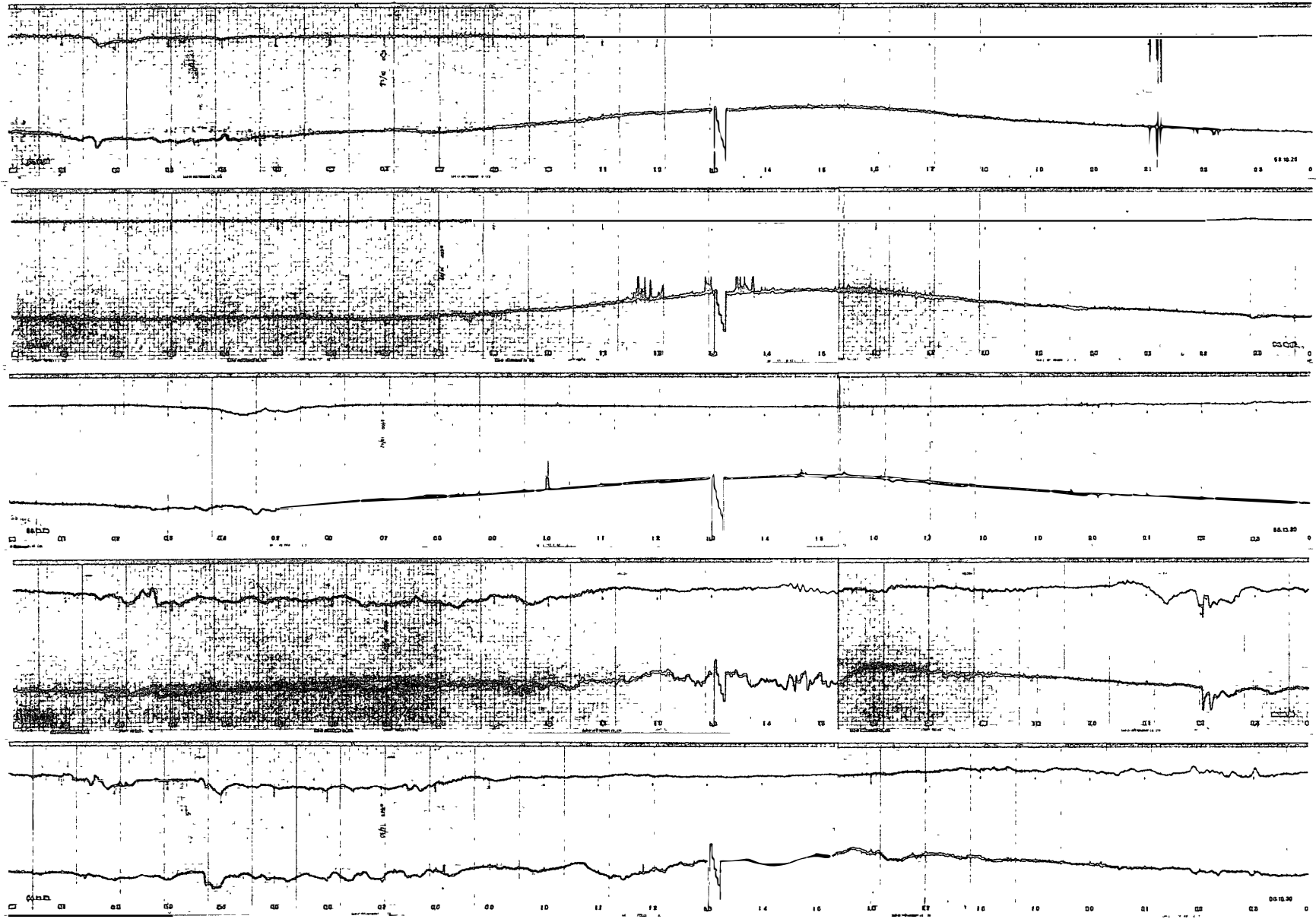
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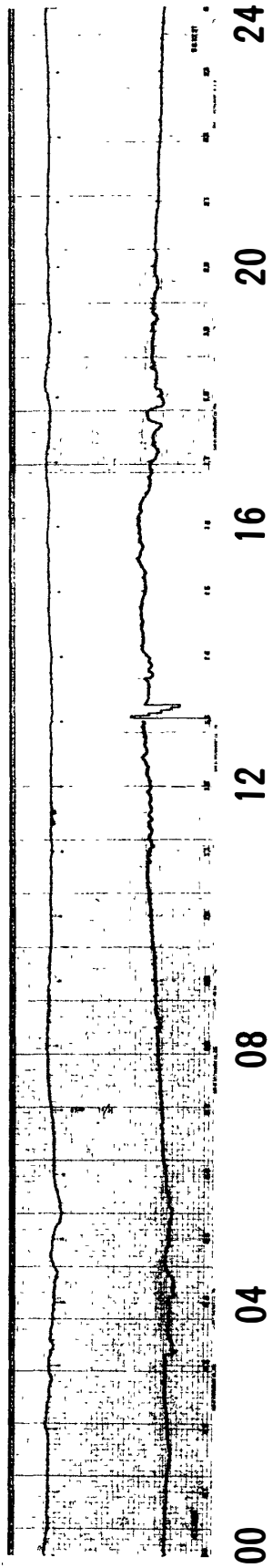
00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

OCT 1983

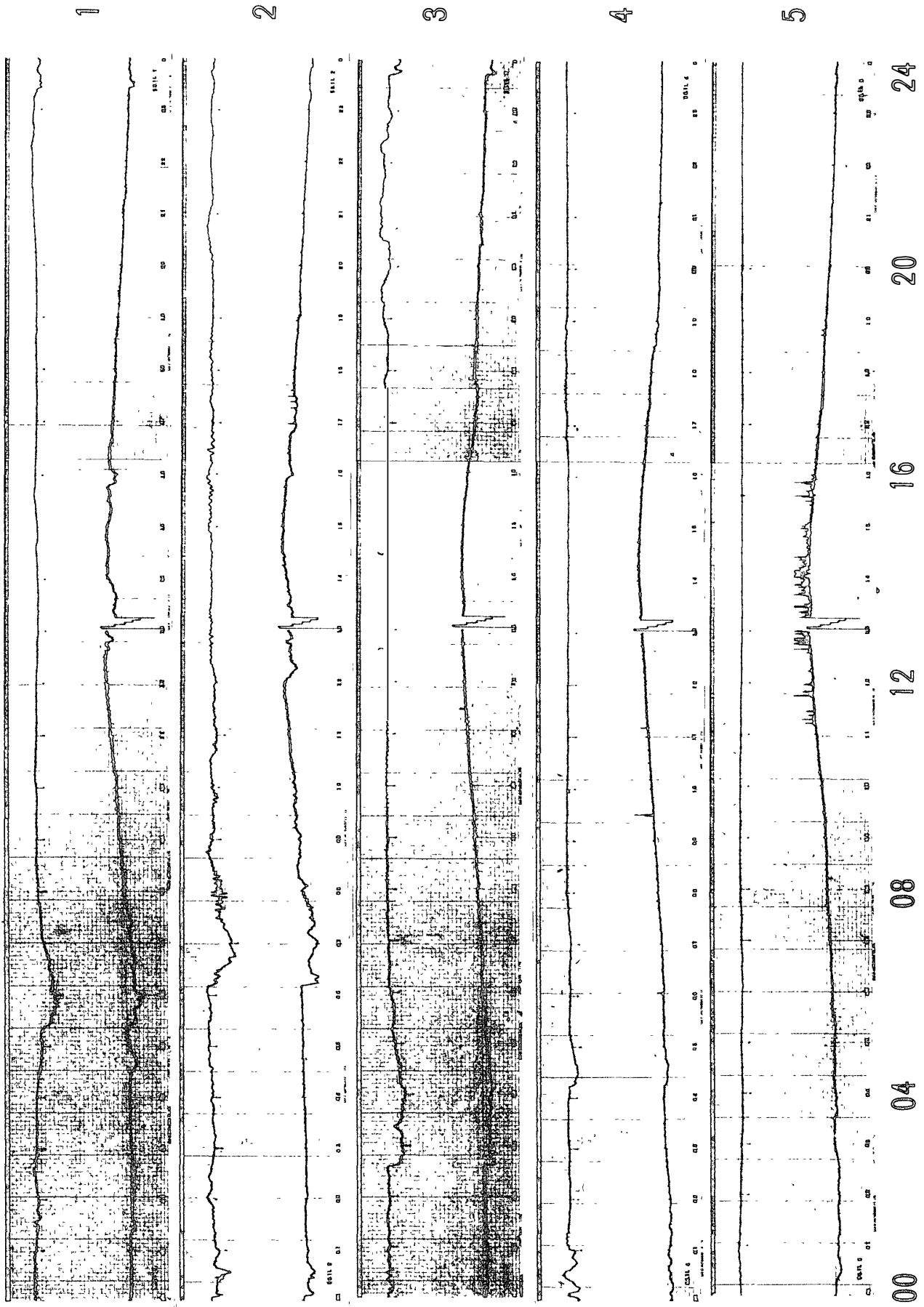
31



30 MHz COSMIC NOISE

45° EAST MERIDIAN TIME IN HOURS

NOV 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1983

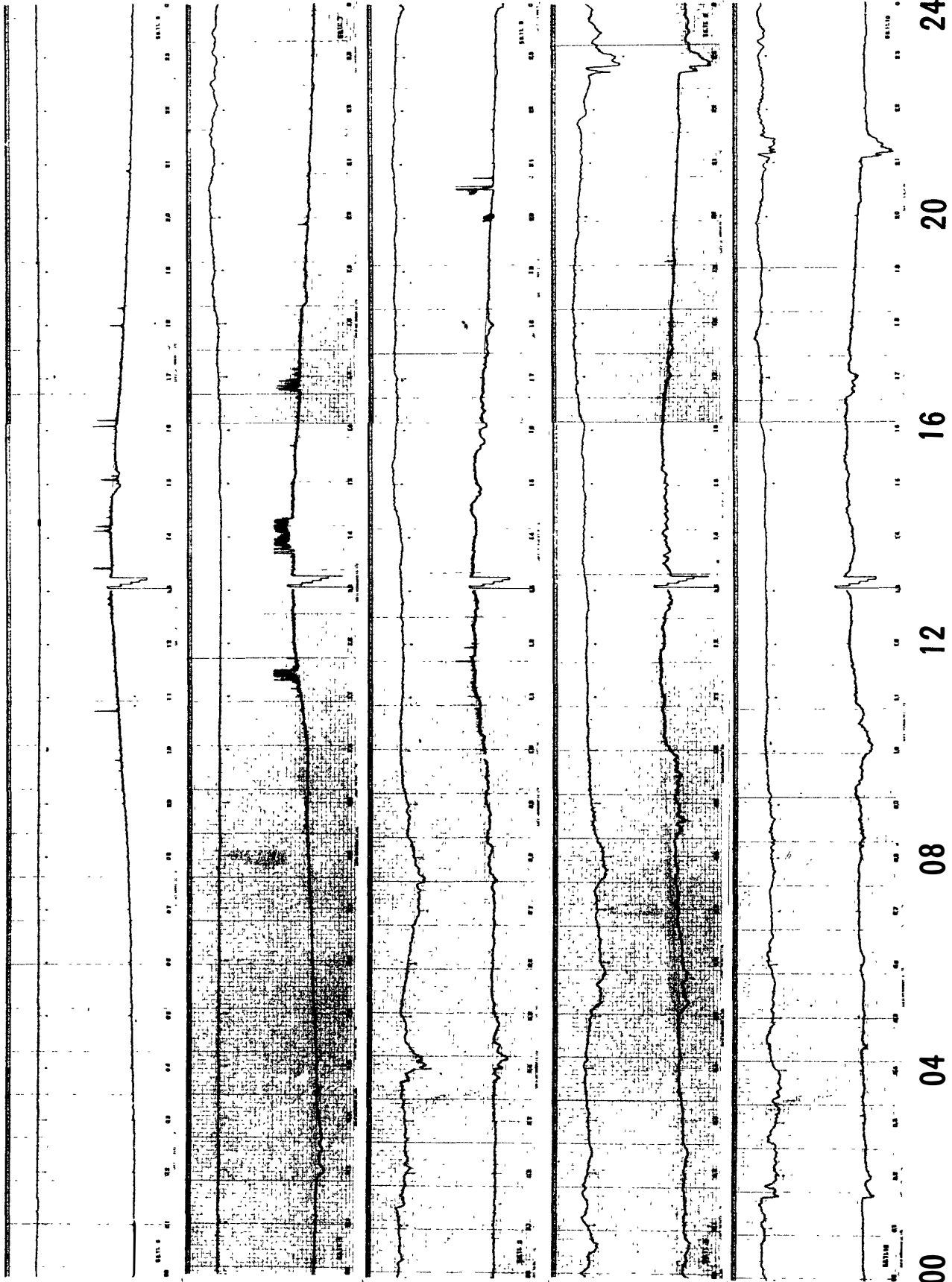
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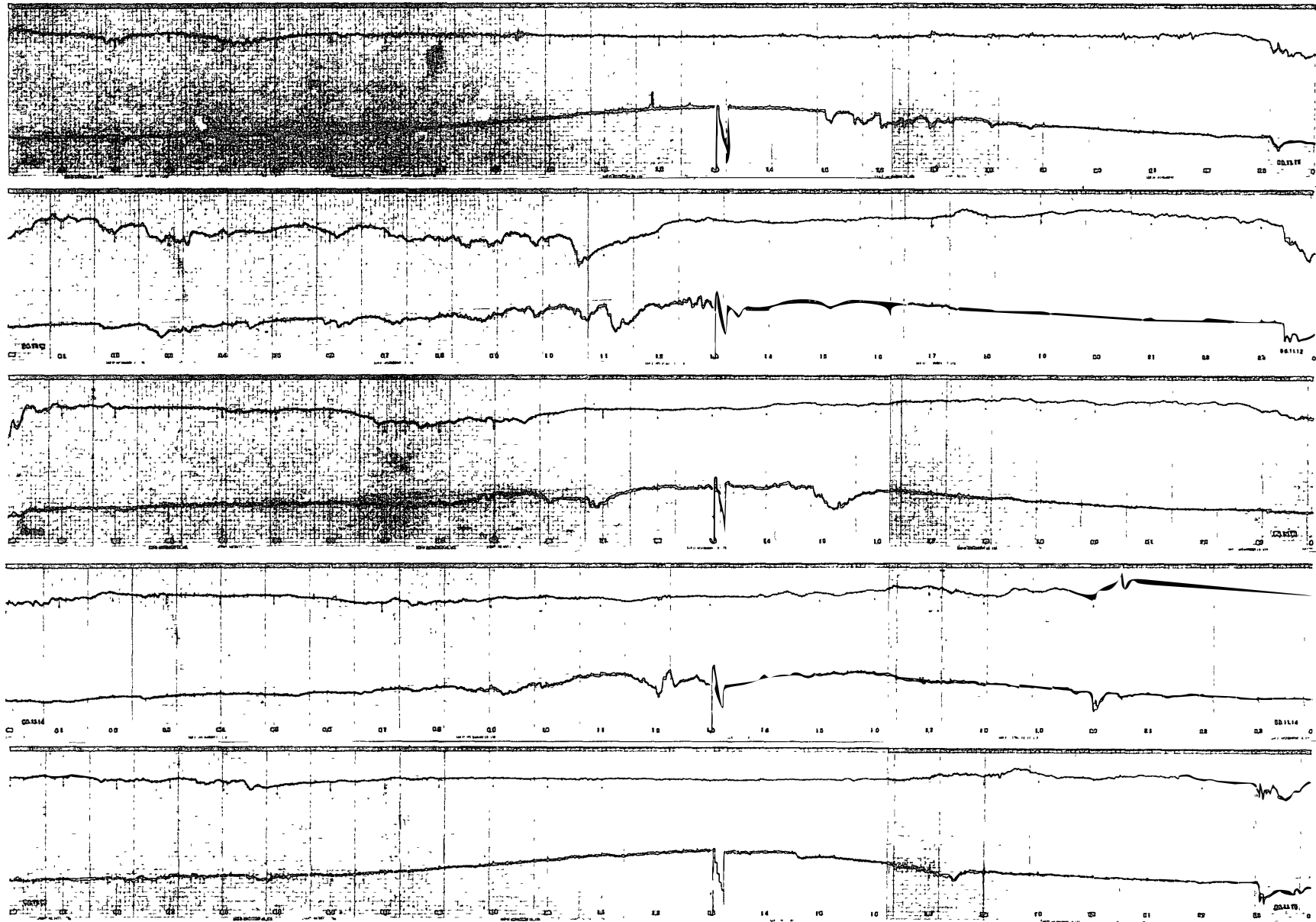
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



NOV 1983

00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

NOV 1983

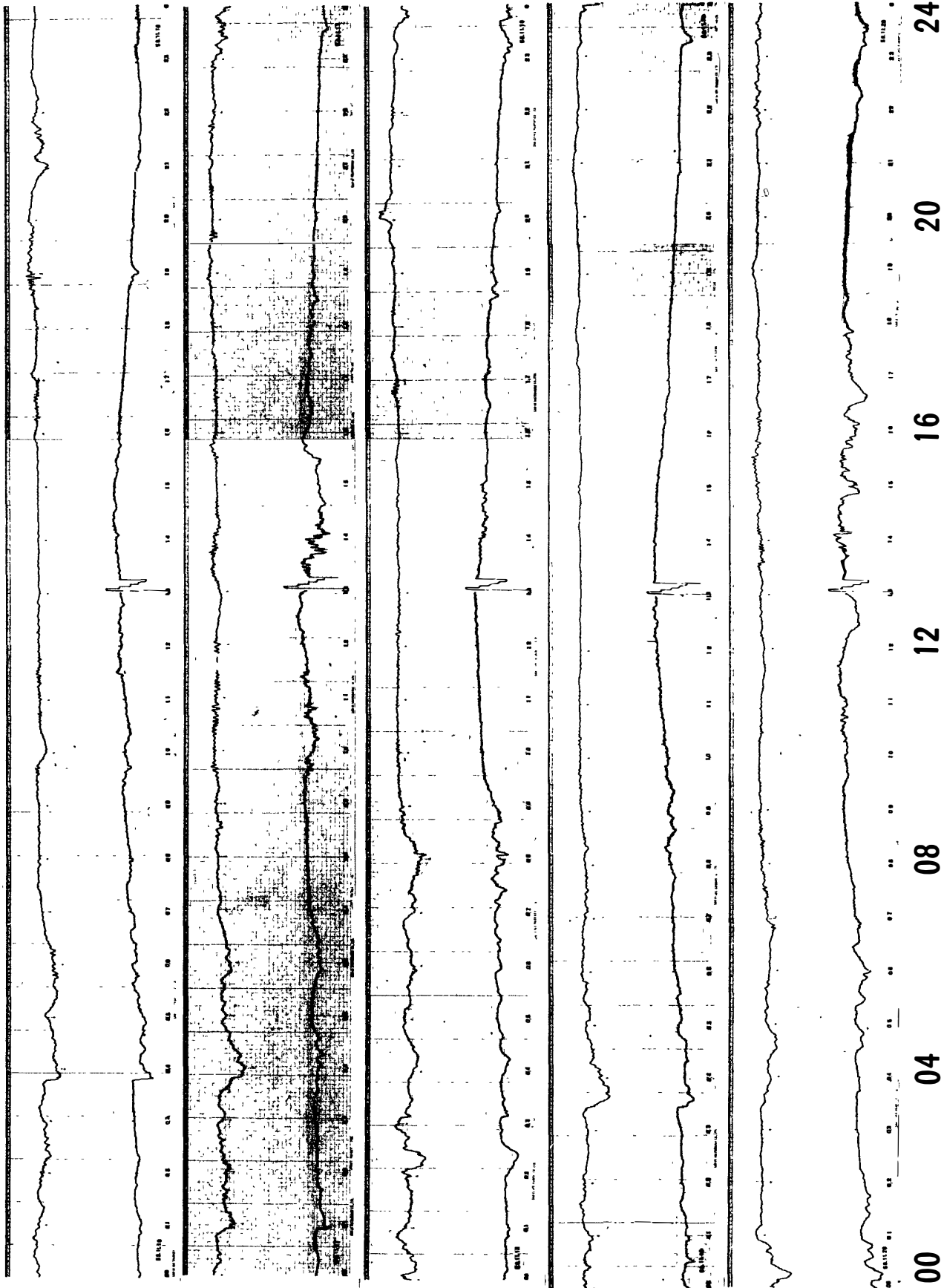
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00 04 08 12 16 20 24
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1983

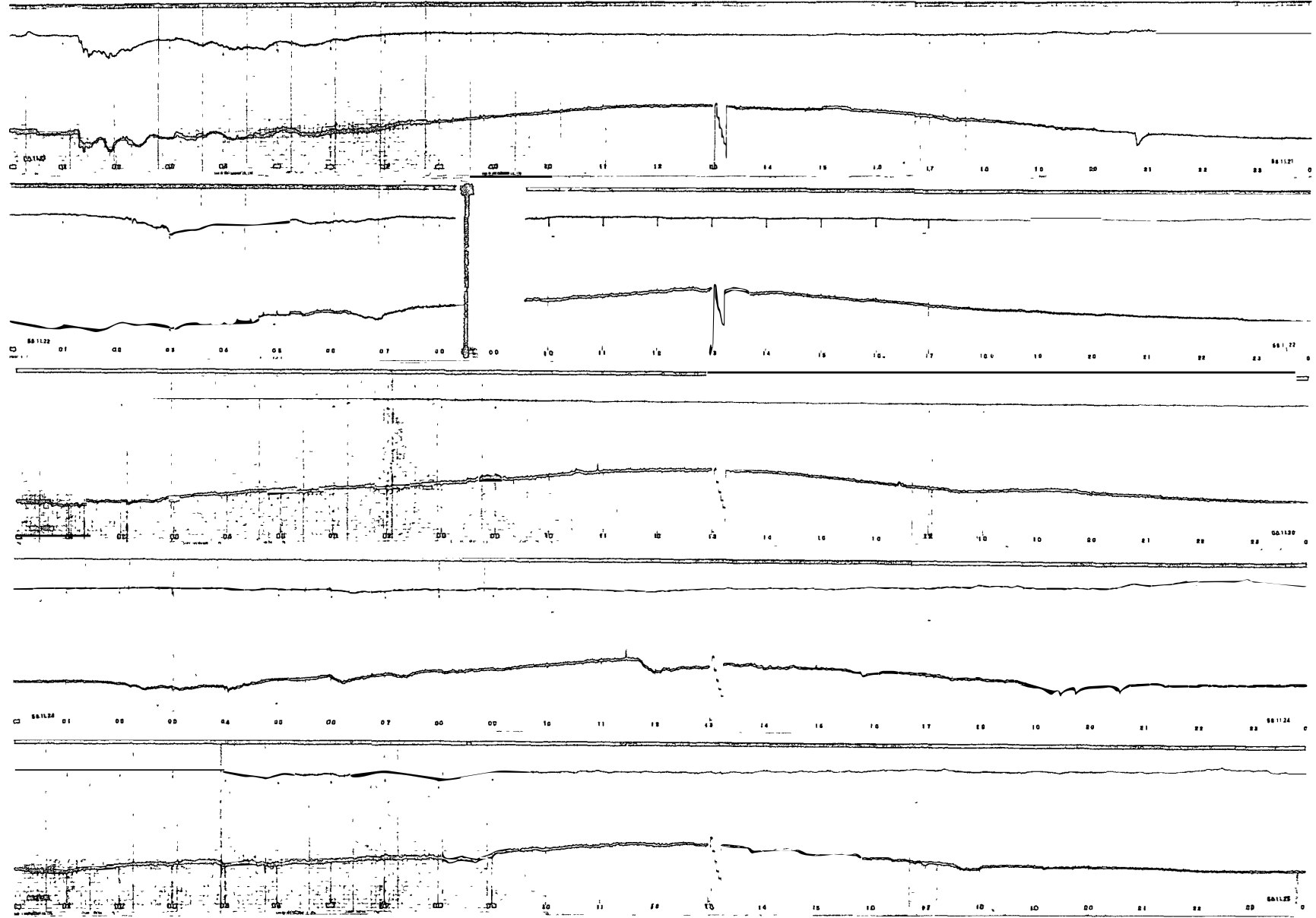
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

NOV 1983

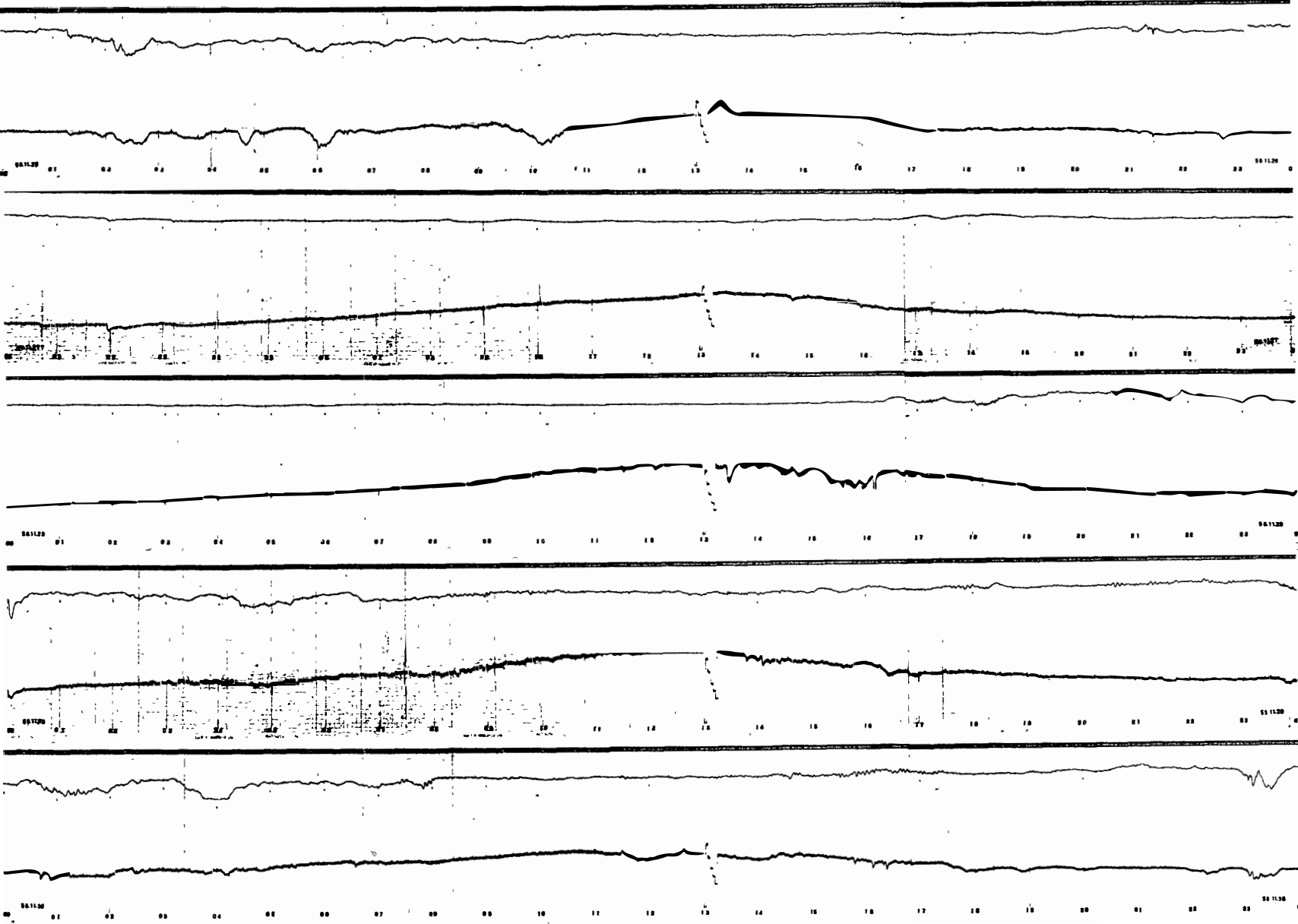
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00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

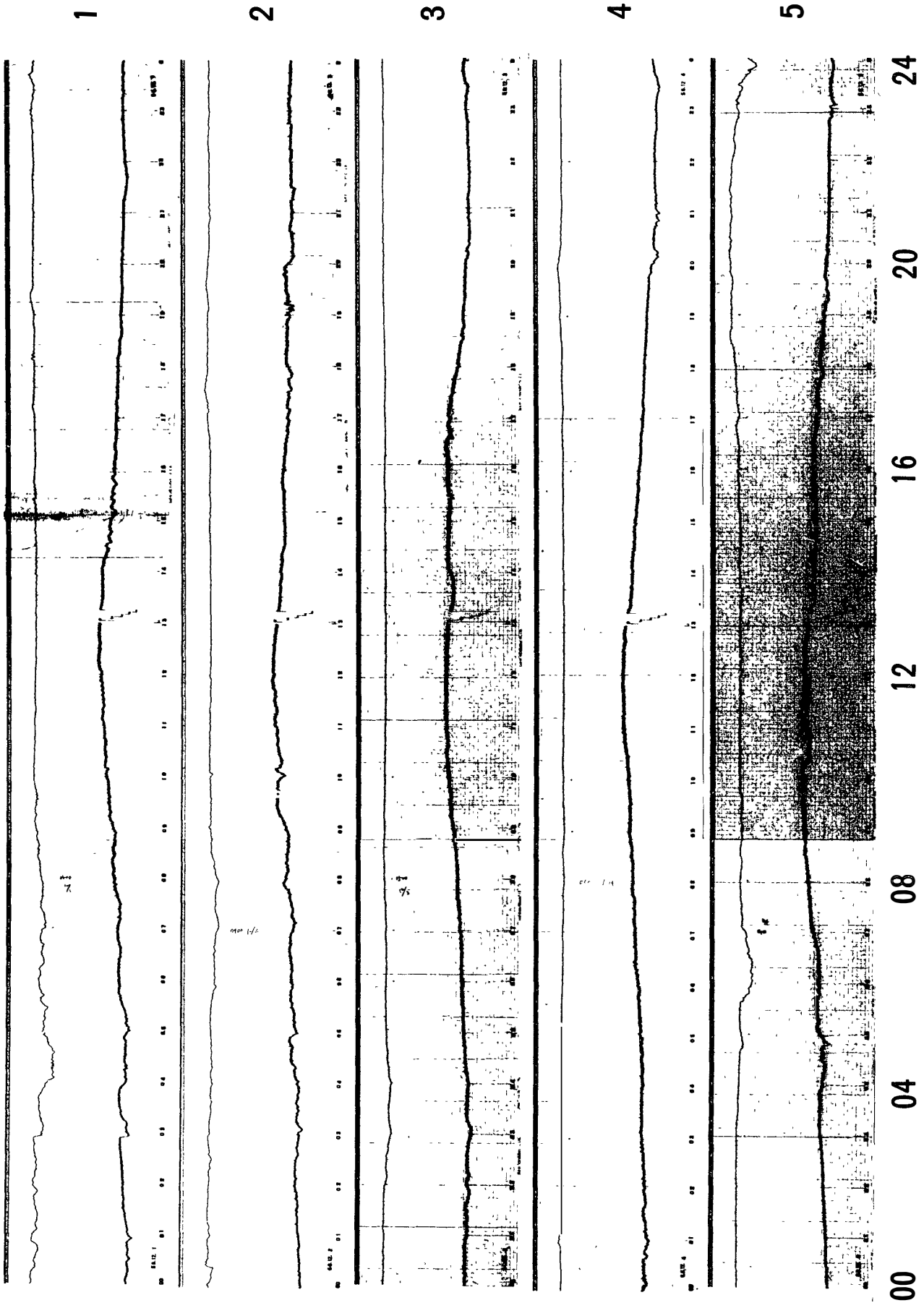
30 MHz COSMIC NOISE

Cosmic noise level obscured or equipment malfunction.

November 22 0818 - 0933 Failure of equipment

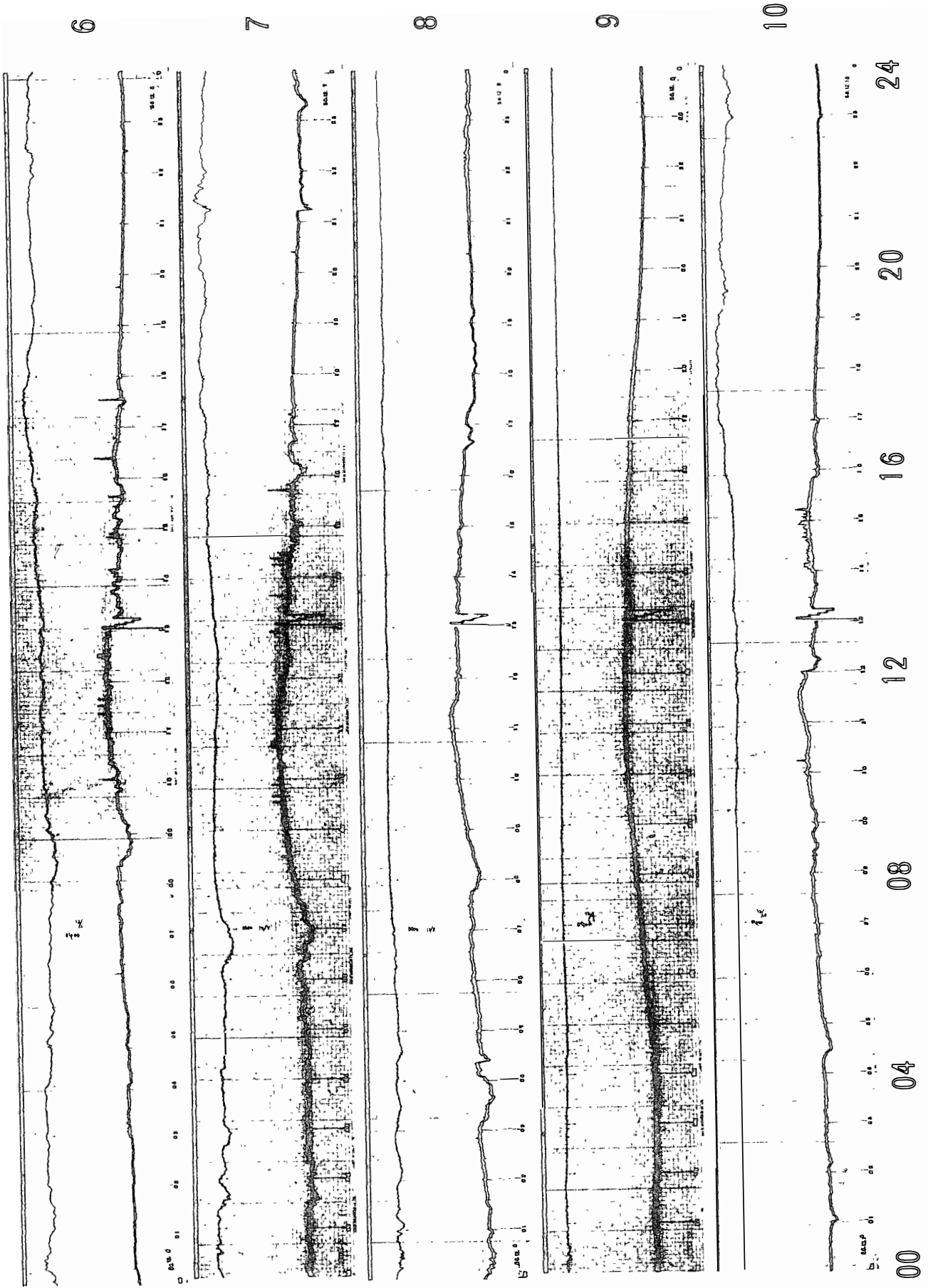
NOV 1983

DEC 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

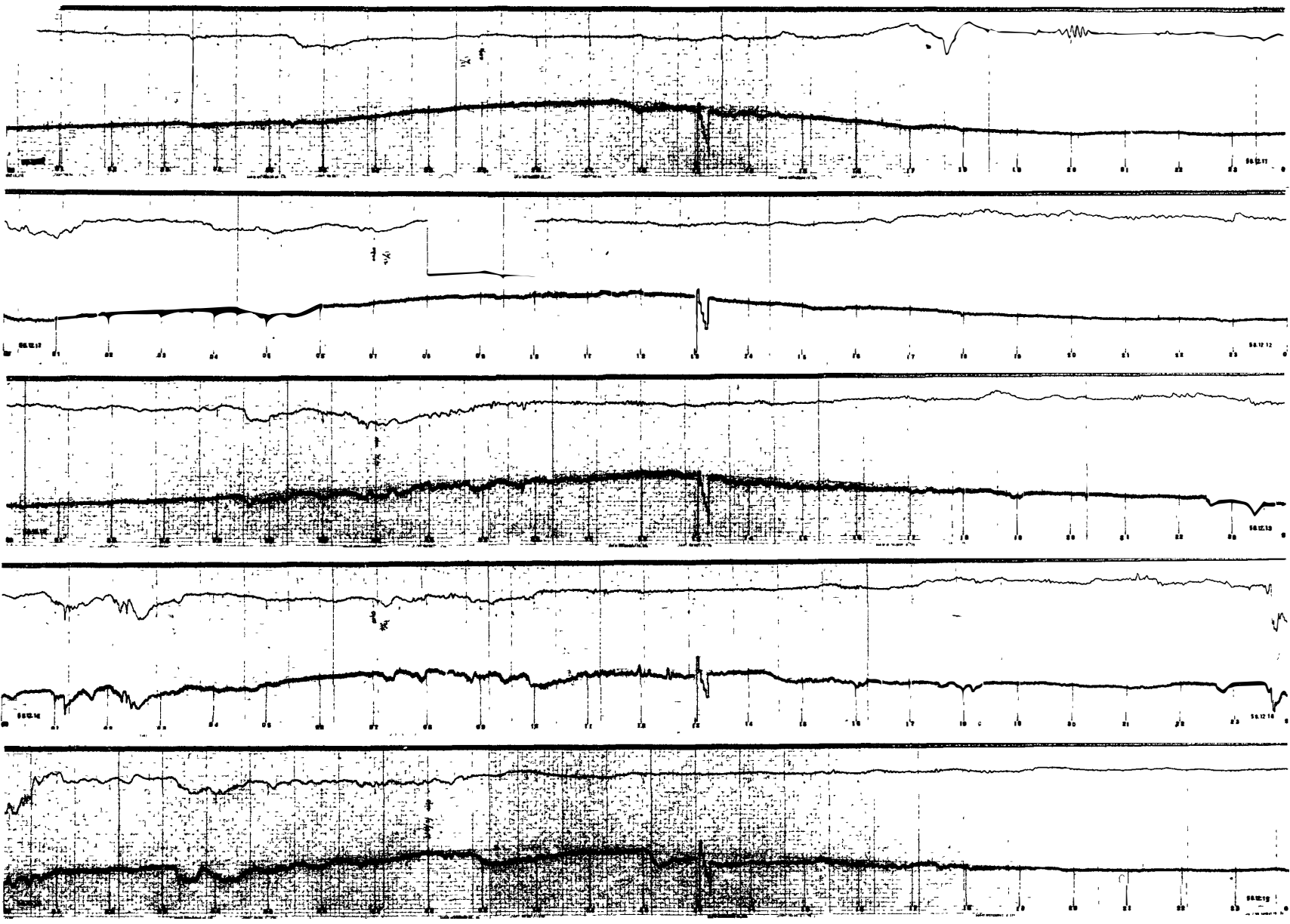
DEC 1983



45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

DEC 1983

11
12
13
14
15



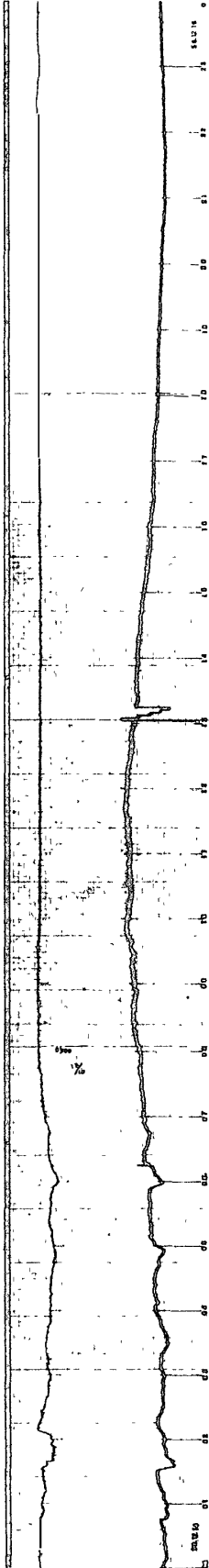
00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

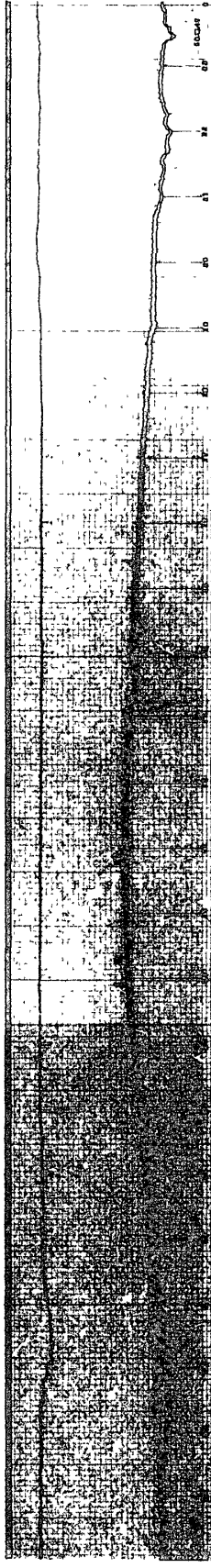
30 MHz COSMIC NOISE

DEC 1983

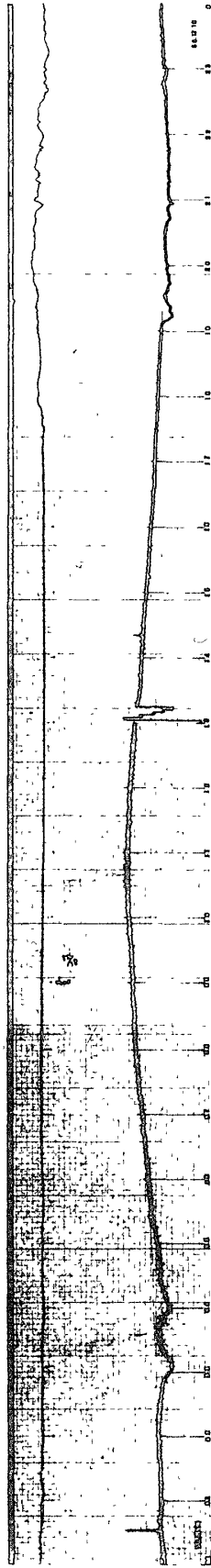
16



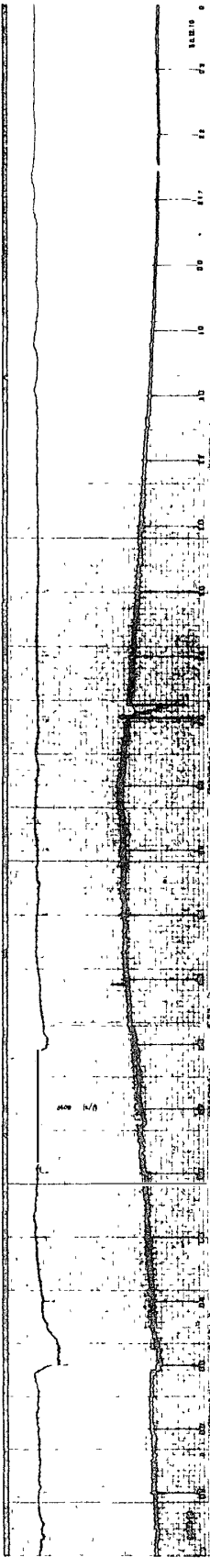
17



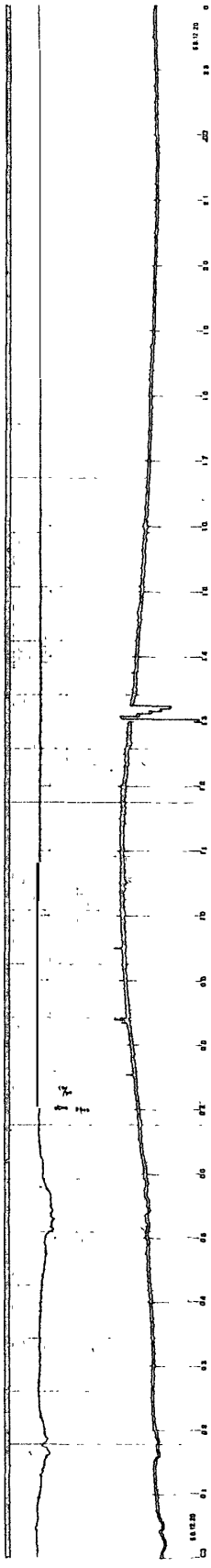
18



19



20



00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

DEC 1983

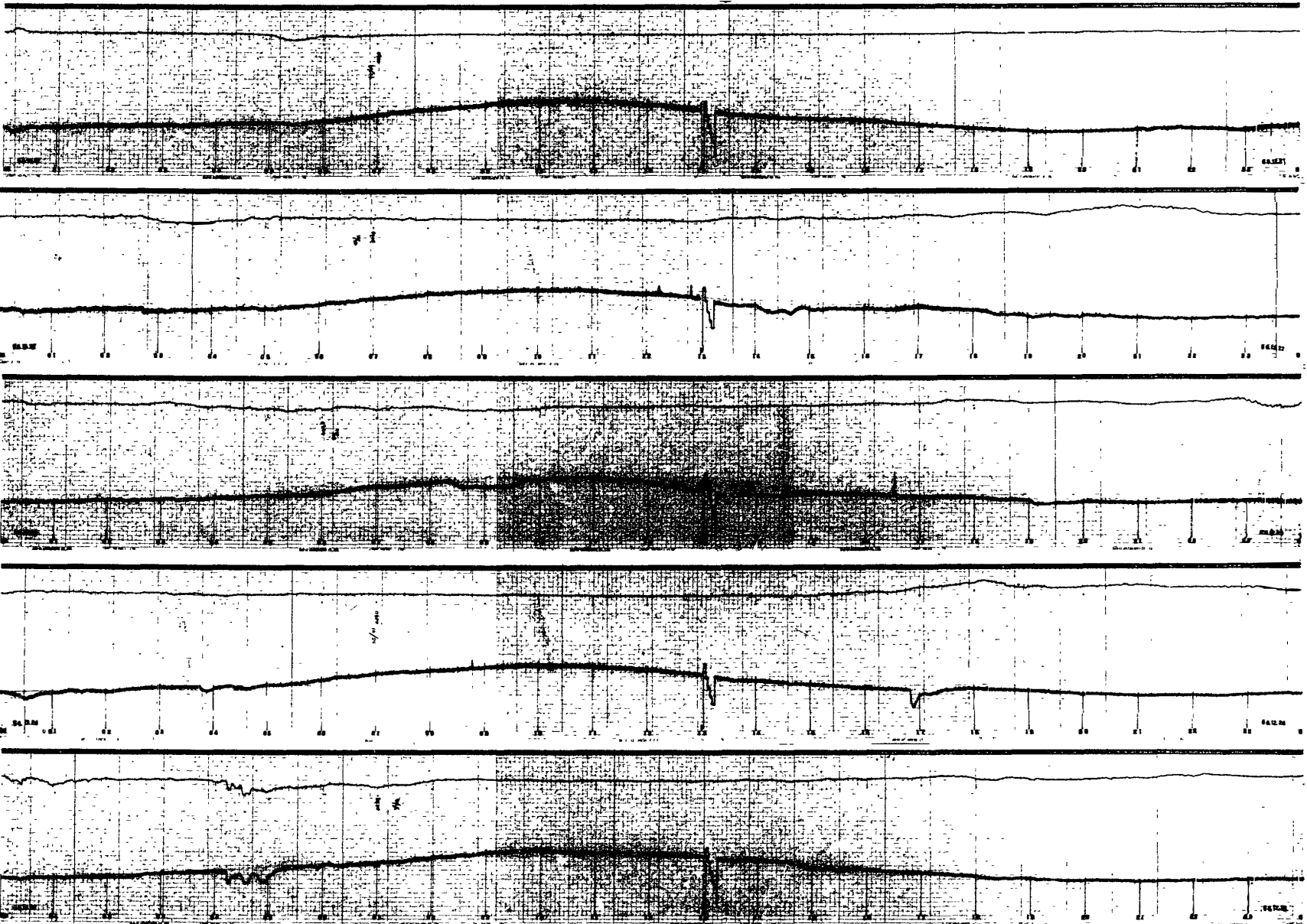
21

22

23

24

25



00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1983

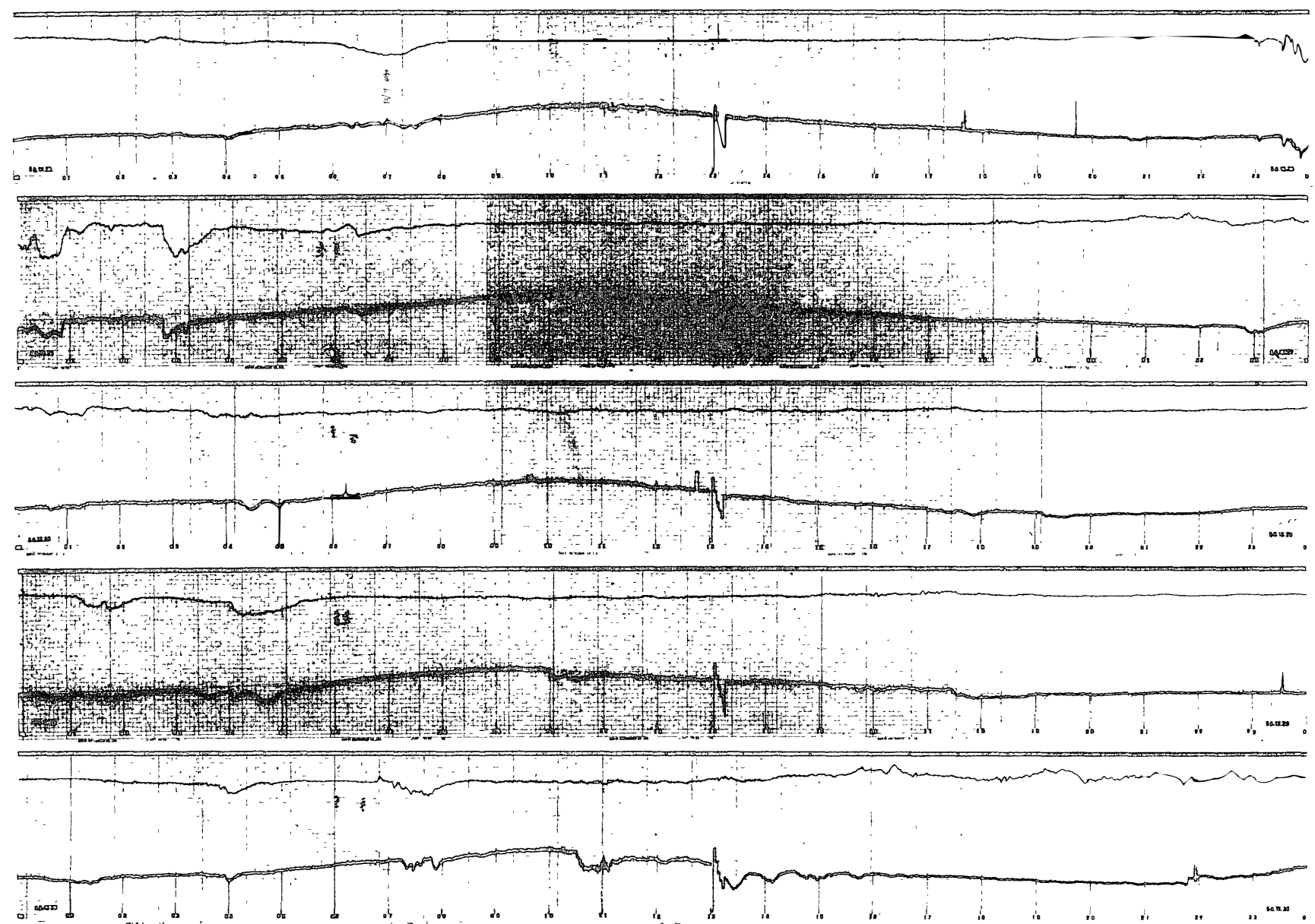
26

27

28

29

30



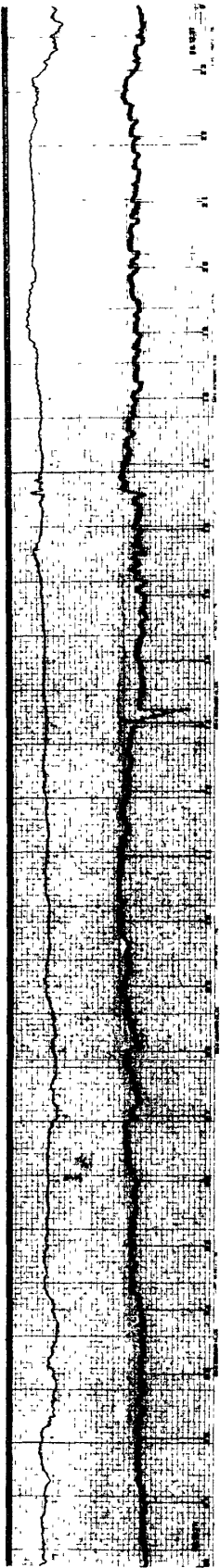
00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1983

31



00 04 08 12 16 20 24

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE