

RIOMETER RECORDS OF 30 MHz COSMIC NOISE

AT SYOWA STATION, ANTARCTICA IN 1982

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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 of 1966 by members from 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, 1982. 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°	79.4°

3. Observers

Yasukazu KURATANI (Radio Research Laboratories)

Kiyoshi IGARASHI (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 state 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 deviation (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.

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

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

SYOWA STATION

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

January 1982

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				0.5	0.6	0.4	0.1								0.2						0.1	0.1	0.3	0.1
2	0.2				0.3	0.2	0.2		0.1	0.1	0.1			0.2									0.2	
3	0.1																						0.1	
4	0.1			0.2																				
5			0.1		0.5	0.1																		
6			0.6	1.3	0.3	0.4	0.3	0.3	0.2															
7												0.1												0.2
8	1.0	0.2			0.5	0.5	0.2							0.3	0.5								0.3	0.3
9	0.4	0.7	0.5		0.3	0.6	0.1	0.2				0.1												
10		0.1	0.2		0.2	0.2																		
11	0.5	0.1						0.1									0.1							
12						0.1																		
13																								
14																								
15		0.4	0.2	0.3				0.3									0.7	1.0	0.7	0.5	0.2			
16		0.2	0.8	0.1									0.3	0.2					0.3	0.3			0.2	0.3
17				0.1			0.2												0.1			0.1	0.1	0.1
18			0.1					0.1														0.1	0.3	0.2
19	0.6	0.6	0.1															0.2		0.1				
20				0.9	0.3																			
21																								
22																					0.1	0.1	0.1	
23		0.1	0.1								0.1		0.2	0.3	0.2	0.2		0.2	0.5	0.3		0.1	0.1	
24		0.1	0.1	0.2									C	C	C	C		C	C	C		C	C	C
25			0.1	0.3					0.1	0.2							0.1			0.2	0.1			
26			0.1	0.3	0.2	0.2																	0.1	0.3
27		0.2	0.6	0.2	0.2	0.5	0.3		0.2	0.1				0.1	0.9			0.8	0.5					
28			0.6	0.2	0.5		0.1										1.1	0.6	0.2					0.1
29																								
30						0.2	0.3		S		S	S	S	S			0.1	0.1						
31					0.2	3.2	6.7	6.0	S	S	S	S	S	S	0.6	1.9	2.5	4.7	6.1	6.2	6.2	6.0	6.5	3.7
Mean	0.09	0.08	0.13	0.13	0.13	0.21	0.27	0.22	0.01	0.01	0.01	0.01	0.01	0.02	0.07	0.08	0.15	0.27	0.27	0.24	0.23	0.21	0.26	0.17

Open spaces without figures correspond to quiet level.

* : Quiet day
 S : Interference
 C : Failure of equipment

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	0.5		0.2	1.7	1.2	1.3	1.5	1.0	0.4	S	S	S	S	S	S	S	5.7	2.7	3.9	2.6	2.4	2.1	1.6	0.8
2	0.3		0.1	0.4	0.4	0.4	0.2	0.2	0.1		S	S	S	1.4	2.9	5.3	3.7	4.1	3.6	3.2	2.9	2.2	1.8	0.5
3	0.2	0.1		0.4	0.6	0.7	0.6	0.2			0.3		0.2		0.4	0.6		0.1	0.1		0.1	0.3		
4			0.2		0.2						0.9	0.5		1.1	1.0	0.3	0.1					0.2		
5	1.2		0.2	0.4	0.6					0.2	0.1		0.7											
6		0.5															0.5		0.1					
7												0.2	0.2	0.1	0.4		0.3	0.1	0.2	0.3			0.1	
8	0.1			0.2	0.5	0.1										0.2					0.3			
9	0.1				0.1						0.1											0.1		
10					0.2																			
11				0.1				0.1						0.1						0.3				
12																							0.1	0.1
13	0.1			0.4												0.1								
14		2.1		0.1					0.2	S	1.0		0.1				0.1							0.2
15												1.1	0.5											
16					0.3	0.1															0.1			
17				0.2	0.2			0.1			0.5									0.1	0.1			
18	0.2			0.1							S	S	S	S	C	C								
19	0.2			0.1					0.5	1.0	S	S	S	S	S						0.3		0.1	
20		0.3	1.1	0.9	0.1	0.6			1.3	0.4			S	S	S		0.5	0.1	0.2	0.1				
21		0.4		1.0	0.2	0.3	0.3						0.5			0.2	0.2	1.6	0.7		0.5	0.2		
22	0.1			0.1	0.2				0.8			0.5	0.3		1.0	0.7	0.2			0.1				0.8
23			0.1													0.5				0.1	0.1	0.1	0.2	
24			0.1	0.1	0.2				0.2		0.5				0.5					0.1				
25			1.1						1.2	1.1	0.6	0.4	0.2	0.5	0.4	0.1								
26								0.1	0.1	0.4	0.6	2.7	1.4	0.7	0.4									
27		0.1													0.8	0.3	0.6	0.2	0.5					
28																								0.2
29																								
30																								
31																								
Mean	0.10	0.12	0.11	0.21	0.21	0.12	0.09	0.06	0.17	0.11	0.16	0.19	0.14	0.13	0.28	0.28	0.44	0.31	0.34	0.25	0.22	0.18	0.13	0.09

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

March

1982

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			S						
2				0.1							0.3	0.7										0.2	0.1	0.2
3	0.6	0.2		0.3	1.0	0.2	0.1	0.1	0.2	0.4	0.3		0.5	1.0	0.4		0.4	0.5	0.8	0.4	0.1		S	S
4												S	S	S	S	S	S	S	S					
5	S	S		0.4			0.1			1.2	1.4			S	0.7			S	0.2					
6																								
7																								
8																								
9																								
10	0.3										0.2		0.3		0.3									
11																		0.2	0.4	0.2				
12															0.2									
13							1.8			0.3		0.2												
14																								
15							0.8		0.1															
16																								
17												S	S	S	S	S	S	S	S					
18												0.4	0.3											
19																								
20										0.9	1.1			0.4	S		0.1							
21								0.3			1.4	3.1	0.5	0.5	S		1.9	0.8						
22																		0.1						
23														S	S	S	S	S	S					
24																						S	S	S
25																								
26												S	S	S	S	S	S	S	S					
27							C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	S	S	S	S	S	S	S	S	S
29	S													S	S	S	S	S	S	S	S	S	S	S
30																								
31					0.2					0.4			S	S	S	S	S	S	S					
Mean	0.03	0.01		0.02	0.04	0.01	0.09	0.01	0.01	0.11	0.16	0.15	0.05	0.06	0.05		0.08	0.05	0.04	0.02	0.01	0.01	0.01	0.01

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

April

1982

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											S	S	S						
2					0.1	1.0	0.7	1.0	2.7	0.3	0.2	0.2				0.3			0.1		0.2			
3		0.4	0.3	0.1	0.1	0.2		1.7				1.0		0.1								0.1		
4					0.1					0.3	0.2	0.7		1.1	0.3									
5	1.2	0.3		0.5	0.2	0.3		0.5	0.1		0.1	0.1	0.2		1.7	0.9	0.3							
6	0.2	1.6	0.3			0.1	0.7	0.1	0.1	0.7	1.3	2.0	0.9			1.2	0.8			0.1		0.3	0.1	0.6
7	0.2	0.9	0.7	0.4						0.5	0.2	S	S	S	S	S	S	S						
8			C	C	C	C	C	C	C	C	C	C	S	S	S	S	S	0.9	0.2	S	0.4			
9		0.2	0.5	0.3			0.4	0.3	0.5			0.1					S	S	S					
10							0.1			0.3					0.1									
11				0.1		0.2	0.3				0.3	0.3		1.2	3.3	0.5	0.2	0.1						
12	0.8					0.1	0.2	3.8	0.3	0.5	0.4	0.2		S	S	S	S	S	S					
13			0.1										S	S	S	S	S	S	S					
14				0.1									S	S	S	S	S	S	S					
15							0.3				S	S	S	S	S	S	S	S	S	S				
16											S	S	S	S	S	S	S	S	S	S				
17													S	S	S	S	S	S	S	S				
18													S	S	S	S	S	S	S	S				
19						C	C	C	C				S	S	S	S	S	S	S	S				
20			0.1			0.2		0.7	0.2			1.0	0.6	S	S	S	S	S	S	S				
21											1.0	1.4	0.1	S	S	S	S	S	S	S				0.2
22			0.4	2.5	0.7	0.4	1.1			0.1	1.3	0.7	0.8											
23													S	S	S	S	S	S	S	S				
24						0.3			C		0.7	S	S	S	S	S	S	S	S	S				
25							0.1	0.2		2.8	1.7	0.7	0.2		0.2			0.2						
26												S	S	S	S	S	S	S	S	S				
27		0.1	0.7								2.0		S	S	S	S	S	S	S	S				
28	0.2		0.5			0.1	0.3		0.3	0.4		1.2								0.3	0.1		0.3	
29			0.3	0.3		0.2			0.5	0.5	0.1	0.4		0.3	S	S	S	S	S					
30			0.5				0.1	0.5		2.1	0.7	0.4	1.5	0.3	0.4	1.0	0.1							
31																								
Mean	0.08	0.11	0.13	0.16	0.04	0.11	0.13	0.32	0.17	0.22	0.22	0.35	0.14	0.10	0.20	0.13	0.04	0.04	0.02	0.01	0.02	0.02	0.01	0.02

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

May

1982

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	3.1	2.1	1.9		1.0		0.3	0.7		1.2	2.0	0.2		0.4						0.2			
2		0.4		0.1	0.1		2.8	0.9	0.6	2.6	0.2	0.4		0.7	0.9								0.6	0.1	
3				0.1		0.1		0.8	0.5	0.3	2.9	0.4	0.1		S	S	S	S							
4													S	S	2.9	1.9	S	S	S						
5							0.2	0.5			1.3	0.6	2.5	5.5	0.5	S	1.0	1.1	S	S	0.1				
6						0.1	0.1	0.2			0.1	S	S	S	S	S	S	S							
7								0.7				S	S	S	S	S	S	S							
8			0.2									S	S	S	S	S	S	S							
9			0.1		0.2	0.3	0.1					S	S	S	S	S	S	S							
10				0.2		0.6	0.4				1.2	0.2		S	S	S	S	S		0.1					
11			0.2		0.2									S	S	S	S	S			C	C	C	C	
12	C	C	C	C	C	C	C	C	C	0.1	C			S	S	S	S	S							
13										C			S	S	S	S	S	S							
14														S	S	S	S	S							
15							0.1	0.1						S	S	S	S	S					0.2		
16						0.4	0.3							1.6	S										
17		0.1						0.6							S	S	1.1	0.1		0.6	0.6	0.3	0.2		
18						0.5	0.3	0.1						S	S	S	S	S							
19			0.9	0.3		0.1	0.7	1.2	0.4					S	S	S	S	S		0.2					
20		0.2		0.1	0.2	0.7	0.3				0.1	S	S	S	S	S	S	S			0.2			0.3	
21																					0.5				
22											1.5	1.7		S	S	S		0.5	0.2						
23						0.1								S	S	S									
24																									
25																									
26															S	S									
27				0.6		0.1				0.3	4.3	1.7	0.4	1.8											
28	0.1	1.7	0.1	0.2	0.1	0.2	1.8	1.3	4.1	0.1	1.0	0.8	2.8	0.7	0.4		S	S	S	S		S		0.1	
29	0.5		0.1	0.3	0.1			1.6		3.2		0.7	4.2	5.1	S	0.3		0.1							
30		0.1	0.7	1.1	0.1	0.1	2.2	0.5	0.5	0.3	1.5	4.4	5.2	4.7	2.2	1.7	0.2	0.3	0.8					0.1	
31	0.2			0.1	1.1		2.4	3.6	3.9	2.6	3.4	4.2	1.5	4.0		2.2	1.3	0.2	0.3				0.3		
Mean	0.03	0.08	0.18	0.17	0.13	0.11	0.42	0.40	0.34	0.43	0.56	0.58	0.75	0.62	0.20	0.23	0.11	0.03	0.06	0.06	0.03	0.01	0.05	0.01	

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

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	0.6	0.5	0.8	0.6	0.8	1.2	0.8		0.2	2.8	5.6	5.8	2.0	0.7	2.2	S	0.3	0.5	0.3	0.1				0.2	
2	0.1			1.8	0.9		1.1	0.3		0.2	1.0	2.5	4.4	S	S	1.1		0.3	0.3						
3	0.3		0.6	0.3		0.1		0.6		0.4	1.3	0.9	0.2						0.1						
4				0.1	1.6		0.3	0.4		0.1	0.2	0.1													
5				0.2											0.2	0.2	0.3								
6							0.6																		
7										0.2	0.6	0.8	0.8		1.6	3.2	0.6	0.1	0.3		0.1				
8		0.1																							
9	0.1		1.3		0.5														0.3						
10								2.7	3.5	1.0	0.8	1.3	1.6	1.0			0.5	0.1							
11	0.1		0.3				1.9	0.7	0.9	0.4	0.3	5.9	2.5	0.5		0.2	0.1								
12				2.2				0.2	0.6	0.9	0.4	1.9	1.9	0.4	0.3		0.3								
13				0.1						1.1	2.8	1.8	1.8	2.0	0.2	0.4	0.4			0.3					
14		0.1	0.1	0.3	0.1					0.5	1.1	0.4	2.2	1.1	0.4	0.6	1.0	1.1	0.3	0.4		0.5	0.1		
15				0.3	0.2		0.6	0.5	0.2	1.3	1.3	7.0	5.0	1.5	1.0					0.4		0.9	0.1		
16				1.7	0.6							0.1	0.2		0.1	0.3	0.1	0.2	0.6	0.3					
17										1.3	1.3	0.8				0.7	0.4	0.2							
18									0.7	0.4	0.1														
19											0.7	0.7			0.3	1.0			0.9	0.1		0.4			
20			0.1	0.2	0.1		0.8	0.4				1.6	1.9	1.7	1.8	2.2	0.5	0.3	0.2				0.5		
21								0.3	0.1		1.3	0.7	1.2	0.2	C	C	C								
22											0.6	0.6			0.4	S	0.2	0.1	0.3			0.1			
23	0.2			0.2				0.2		0.1	0.4	0.5	0.1					0.3					0.1		
24															S	0.5	0.4								
25						0.3	0.4	0.2		0.1	0.1	0.9	0.2	0.1		0.1	0.2	0.2	0.1	0.6	0.2				
26								0.3			0.3		0.1												
27		1.4	0.1	0.7	0.3	0.4			1.0	0.2	0.4	0.7	1.0	2.9	3.5	2.2	1.5	1.1	0.7	0.4	0.2	0.8			
28	0.7		1.2	0.4	0.5	1.2	2.8	0.5	0.4	1.1	2.5	2.1	0.7	3.3	3.0	1.7	0.2	0.4						0.4	
29				1.2	0.3	2.0			0.4	0.5	0.2	0.5	1.1	0.3	1.2	2.3	0.5	0.6					0.1		
30			1.5	0.7	0.6		0.8	2.3	0.6	2.2	1.0	1.5	0.7	0.9	0.1	0.7	0.4	0.1	0.3						
31																									
Mean	0.07	0.07	0.20	0.36	0.21	0.17	0.33	0.32	0.28	0.49	0.78	1.30	1.01	0.55	0.56	0.60	0.27	0.18	0.14	0.06	0.01	0.02	0.06	0.04	

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

July

1982

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		0.9	0.5	1.8		0.5	0.4	0.6	3.2	0.7	2.0	0.3	0.3	0.6	1.8	0.2		0.8	0.1	0.1	0.3			
2		0.7	0.6	0.7	0.8	0.5	0.6	2.0	1.2	1.2	3.0	3.7	1.7	0.2			0.3	0.2	0.4					
3	0.1						0.1	0.1		0.1	0.8	0.5			2.6	2.1	0.6							
4				0.2																				
5																								
6																								
7									0.5	0.5	0.6	0.7	0.2	0.2	0.2									
8						0.3			0.6	0.9	0.4		1.3	0.7	0.6	1.2	1.6	1.4	0.6					
9					0.4	0.6		0.2	0.6	0.2			0.3	0.8	0.6	0.2	0.3	0.4	0.1					
10					0.8				0.4	0.5	0.4					0.6	0.2	0.8						
11											0.5	0.2	0.2	0.1	0.6	0.4	0.4							
12					0.1	0.1					0.2				0.1									
13			0.7	0.3	0.3	0.1	0.5			2.3	0.9	2.1	2.2	3.6	6.6	4.6	1.0	0.2	0.5	1.7	3.3	0.9	0.2	0.1
14	0.1	0.2	1.4	3.0			0.2	0.4	0.5		2.4	0.6	1.0	0.8	0.6	0.7								
15			3.7	2.0	0.9	0.3	0.3	1.7	1.6	0.9	0.4	2.2	1.1	1.7	0.7	0.8	0.1	0.2	0.3					
16	0.6								0.5	0.4	0.2	0.8		0.6	0.2	1.1	0.9	0.5	0.6		0.2			
17		0.4	0.4		3.7				0.2	0.7	0.9	0.5			0.1	0.1	0.1	0.3	0.2					
18					0.5	0.7			0.1	0.5	0.8	0.4	0.8	0.3	1.2	0.2	1.8	0.6			0.1			
19	0.2				0.1						0.1	1.4						0.3						
20			0.1	0.1		0.2	0.6	0.4	0.5	0.4		0.5	0.3			S								
21																	0.1	0.2						
22						0.1															0.4			
23											0.5	0.7	0.1				0.1				0.1			
24		0.3		0.1			1.0	2.0	2.0	1.9	1.0	0.7	0.7	2.7	1.5	0.8	1.1	0.1			0.7	0.3		
25		0.2		2.0	0.3	0.3		1.0	1.7	1.0	2.5	2.2	0.9	2.3	0.9	1.3	1.1	0.5	0.5	0.1				
26				0.1			0.8	1.2	0.4	0.2		1.1	0.3	4.2	4.0	0.3	1.0	1.0						
27		0.3	0.2	0.1	1.6	0.7	0.6	0.7	1.3	0.9	4.4	1.9	2.5	1.6	0.6	0.2	0.5	0.6	0.1		0.2			
28			0.6			0.5	1.8	2.0	2.4	0.5	6.5	4.7	2.0	0.9	0.6	4.2	1.0							
29	0.6	0.3	0.5		4.0		0.2				2.5	1.5	1.0	0.2	0.8	0.7	2.6	0.8	0.1	0.5	0.1			0.3
30	0.1				0.3	0.1					0.7	3.4	6.7	6.9	1.9	2.3	2.8	0.8	0.4	0.2				
31						1.0	0.6	1.7	5.8	2.3	6.6	6.7	6.9	4.2	4.7	2.3	1.3	0.4						
Mean	0.05	0.10	0.30	0.33	0.44	0.19	0.24	0.45	0.75	0.51	1.23	1.18	0.98	0.97	0.99	0.78	0.60	0.30	0.12	0.10	0.15	0.03	0.01	0.01

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

SYOWA STATION

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

August

1982

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	1.3	1.2	3.1	2.0	1.7	3.0	6.0	2.8	1.3	1.8	5.0	2.7	1.2	0.6	1.7	1.1	0.5	0.1			
2		0.1	0.1		2.7	3.7	1.4	1.4	2.2	3.1	3.2	1.5	1.0	0.9	4.7	5.7	1.0	0.2						
3	4.3	0.7				2.5	3.5	3.0	1.5	2.5	6.0	7.0	6.5	6.9	5.6	2.2	1.7	0.6	0.2		0.1			
4	0.1		1.5	0.5		0.5	1.7	2.7	1.8	2.8	3.2	2.8	6.3	4.7	1.3	0.5	1.8	0.5						
5	0.1	1.1		0.2	0.5		0.2	2.2	0.9	1.0	0.5	1.7	5.7	6.2	3.3	7.1	0.5	0.1						
6		1.9				1.3	3.3	1.9	1.0	6.0	5.0	1.0		0.1	6.2	1.0	0.8	0.3	1.8	0.7				
7				0.2		0.5			4.5	0.1	5.7	0.2	2.0		1.5				0.5	0.2				
8												1.3	0.5	0.5	0.7	0.4								
9											4.8	2.7	0.5	1.4	1.3	S		0.2	0.2					
10		1.0	0.6			0.6	1.0	1.0	0.6	0.1	0.5	1.6	6.9	4.1	2.2	1.3		0.7						
11								1.0			2.6	0.5		3.0	1.3	S	S							
12			0.2	0.2	0.2		0.2				3.8	1.0	0.5	S	S	0.8	1.0		0.8	0.3		0.1	0.4	
13							1.2	1.0	0.3	2.0	0.7	1.8	1.5	1.9	S	S	S							
14	0.2							0.1					S	S	S	2.1	S	0.2						
15				0.2															0.2	0.1				
16											0.2													
17		0.1								0.2														
18				0.1																				
19									0.3					0.9										
20			0.1	0.1	1.9	1.1	0.8											0.8						
21				0.5		0.6	1.0	2.0	0.7		0.1					0.5								
22					0.9	2.9	1.2									0.2	0.1	0.5	0.4		0.2			
23			0.1		0.9	0.7						0.2	0.3	0.2	S	0.1								
24	0.1	2.1	1.8	2.6	2.2	0.7	0.6		0.7	4.6	1.8	2.3	0.3	0.8	0.9	0.6	0.1					C	C	
25				0.1	1.7	1.2	1.1	1.1	1.1	1.6	5.0	1.3	0.6		1.3	2.1	1.5	S		0.3				
26			0.2	0.2		0.2	1.6	1.7	0.6	1.4	2.6	1.7	0.9	0.9	0.3		0.1	1.3	0.5					
27			0.6	0.8	0.7	0.1							0.3	0.5	0.5	0.3								
28																								
29		0.4				0.7	0.7	0.7	0.4	1.1	1.8	1.2	4.2	0.1	0.2									
30	0.4	0.1		2.3	0.3	0.3		1.7	1.0	1.9	3.2	2.9	0.4	0.9	0.1	1.3	0.5	0.3		0.2				0.3
31	0.2		1.1	0.7	0.3	0.3	0.9	1.2	1.0	0.6	0.4	4.5	1.9	0.8				0.6						
Mean	0.17	0.24	0.21	0.31	0.38	0.69	0.72	0.78	0.69	1.12	1.73	1.24	1.35	1.28	1.10	0.88	0.31	0.25	0.18	0.07	0.03		0.01	0.02

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

September 1982

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				0.6	0.7	0.1			0.3												0.1			
2					0.5	1.5	1.7			0.5	0.5	1.8	1.5	0.1		0.7	0.9		0.2					
3			0.6	0.4				0.2	1.6	0.6	1.2	2.4	0.5		1.0	0.9	1.5	0.2						
4								0.7	0.2	0.7	1.2	1.6	0.4	0.4	1.0	0.3	0.1							
5		0.4	1.7	0.3	2.1	0.2		0.4	6.8	3.5	3.2	2.6	1.5	0.7	6.3	0.5								
6		0.5	2.2	2.2	1.3	1.8	1.7	2.5	3.7	2.0	2.0	2.6	2.0	1.7	1.7	1.2	3.3	0.3	0.5	0.1		0.9	1.3	S
7	S		2.1	1.4	0.3	1.0	1.0	1.8	1.4	0.6	1.1		0.3	1.3	0.2									
8			3.1	0.7												0.1								
9										1.5	0.4	0.3				0.1								
10	0.9	1.6	0.7	0.7	1.7			0.5		0.2	0.5													
11				0.5	0.1	0.6	0.2	1.2	0.7		0.2		S	S	S	0.4	0.4	0.8	0.9					
12			0.5	0.5	1.3	1.3	0.6	0.6	1.6	0.7	0.2			0.2	0.2		0.1							
13		0.2		0.6	0.6	0.1	0.7											0.1						
14	0.2	0.1	0.1						4.0	0.6													0.1	
15	0.5		0.2					0.1	0.1	0.2	0.2		0.2											
16			0.2				0.5	0.2																
17														5.5	1.4	S		0.3						
18					0.6	0.4	0.5	0.4		0.2	0.1	0.1	0.5		0.1		0.1				0.2			
19	0.2								0.1	0.2		0.5			0.1	0.1								
20			1.2						0.1	0.8	1.2	0.6	1.9	1.3	0.5	0.2	0.5		0.2	0.1				
21		0.4	1.6	0.5	0.3		0.1	4.6	2.6	1.0	0.8	4.4	6.8	0.8	0.1						0.2			
22		1.6	0.2	0.4	0.1	1.6	2.0	3.8	5.5	5.6	7.8	0.1			0.2	1.0								
23		0.4	7.6	1.4	1.0	6.3	3.7	1.9	7.3	2.2	1.7	0.9		0.4	0.8	1.4	1.1	0.1	0.1					
24				0.1	0.9				0.8	0.8	3.1	1.0	0.2		0.1	0.1	1.3		0.1	0.1	1.1			
25			0.2												0.1									
26		C	C	C	C	C	C	C	C	C	C	C	C	C	0.2						0.2			
27						1.4							1.3	1.1	1.0	0.3						0.2	0.2	0.5
28			0.8	2.1		0.1				0.5	0.4	0.8	0.2											
29							0.1	1.0									S	S			0.1			
30			0.2										S	S	S	S	S	S	S					
31																								
Mean	0.06	0.17	0.80	0.42	0.39	0.56	0.44	0.68	1.26	0.77	0.88	0.67	0.59	0.45	0.49	0.24	0.31	0.06	0.06	0.05	0.02	0.03	0.05	0.01

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

October 1982

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		0.6	0.1						0.1		0.6				1.1	0.3	1.1	S	0.5	0.2				
2			0.6		0.4	1.3								1.3	0.9									
3	0.4	0.4										0.1					S	S		0.2				
4											0.1	0.2		0.4	0.8		S	S	S					
5				0.1	0.1		0.6	0.2		0.6	0.2						S	S	S					
6										0.9	0.4	0.4												
7						0.2	0.2	0.5	2.3			0.2												
8					0.4				0.4	1.2	1.1		0.3	0.3	0.2	0.5								
9																								
10				0.2														S	S	S	S			
11			0.7	0.2							0.3			S	S	S	S	S	S	S		0.2		
12		0.1			0.8					0.2		0.1	S	S	S	S	S	S	S	S				0.6
13	0.5	0.1			0.3		0.9	0.5		0.3	0.7	0.1	0.4		S	S	S	S	S	S				
14	0.1	1.6	1.2	0.2	0.2	0.3	1.8	0.3	0.3	1.2	0.3	0.2	0.1	0.5	0.2	S	S	S	S	S				
15					0.3										0.3			0.1			0.2	0.1		
16														S	S	S	S	S	S	S				
17		0.2	0.1		0.1		0.2		0.6	0.1		0.1	S	S	S	S	S	S	S	S				
18	0.2	0.9	0.1	0.7	0.3		0.1	0.1		0.7	0.2	0.5	0.1	S	S	S	S	S	S	S				0.1
19	0.7			0.1	0.4	0.8	0.3	0.1				0.3	S	S	S	S	S	S	S	S				
20	0.4	0.5	1.0		0.6		0.2	0.5	0.7	0.7	1.1	2.1	3.9	1.5	S	S	S			0.2	0.1			
21					0.3	1.3	0.6					0.2		S	S	S	S	S	S	S				
22	0.3	0.5	0.3	0.6	0.9		0.5	1.1						S	S	S	S	S	S	S				
23			0.2	0.7	0.4		0.1	0.3	0.5			0.4						S	S	S		0.1		
24															S	S	S	S	S	S				
25								0.3		1.6	0.3			S	S	S	S							
26					0.2						0.1	0.1	S	S	S	S	S	S	S	S				
27		0.4	0.5	0.2							0.1	0.3		S	S	S	S	S	S	S				0.6
28	0.5	0.3	0.7	1.2	0.5								S	S	S	S	S	S	S	S		S	S	S
29			0.3	0.5	0.1						0.6			S	S	S	S	S	S	S				
30	0.1	1.8	0.9	2.1	1.0	1.0	0.7	0.1		0.2	0.1	4.0	1.9		0.9	0.1	S	S	S	S				
31		0.5	0.2	0.1			0.7	0.2		0.5	0.1		S	S	S	S	S	S	S	S			0.1	0.1
Mean	0.10	0.25	0.22	0.22	0.23	0.15	0.22	0.13	0.15	0.26	0.20	0.30	0.21	0.12	0.15	0.02	0.03	0.01	0.02	0.05	0.01	0.01	0.01	0.02

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

SYOWA STATION

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

November 1982

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			0.7			1.3	0.3	0.2		0.1	0.5	0.1	S	0.8	0.1								0.1	0.1	0.3
2	0.7	0.3	0.1		0.5				0.1	0.1	1.2	0.4				S						0.1			0.1
3	0.1		0.7	0.2			1.3	1.0	0.2	0.4	0.1		S												
4									0.2	S	S	S	S	S	S	S									
5							0.1																		
6				0.2	0.8	0.1	0.3			0.5			0.2												
7						0.1	0.2																		
8									C																
9								0.2	0.2																
10																									
11	0.5						2.0	0.2	0.8	0.1	0.4						0.1								
12		0.5	0.5	0.4		0.2												0.2	0.2	0.1	0.1				
13	0.5	0.7	0.3		1.1	0.8	1.4	0.8						0.3	0.5	0.2	0.2	0.1	0.2						0.3
14			0.3	0.3	0.7										S	S		0.2							
15		0.1			0.1		0.1		S						S	S		0.2		0.1					
16	0.3	0.9	0.2				0.3				S	S	S												
17		0.3	0.1																					0.2	
18					0.2																				
19																								0.1	0.1
20																									0.3
21		0.5		0.8	0.2	0.5	0.2		0.5	0.2	0.2														0.3
22	0.2											0.1													
23		0.1																							
24	0.1				0.1	0.2	0.2				0.2		0.2				0.2							0.3	
25		0.3	0.5	0.1							0.3														
26	0.1	0.7	0.2	0.1	0.1	0.3	1.3	1.5	1.2	0.4	0.7	1.1	1.3	0.4	0.3	1.4	1.0	1.0	0.2	0.9	1.2	0.8			
27	0.4	0.2	0.2	0.6	0.5		0.3	0.1	0.1			0.2					0.1	0.4							
28			0.3	0.7	2.8	1.0		0.2																	
29	0.8	0.3	0.8	0.8	0.4	0.2		0.2	0.1	0.7	0.2												C	C	
30	C	C	C																						
31																									
Mean	0.12	0.16	0.16	0.14	0.25	0.15	0.26	0.14	0.11	0.08	0.12	0.06	0.05	0.05	0.03	0.05	0.05	0.06	0.01	0.03	0.03	0.03	0.02	0.03	

Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

C : Failure of equipment

SYOWA STATION

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

December 1982

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																								
2						0.2		0.2																
* 3				0.3		0.3																		
* 4																								
* 5												0.3												
6																								
* 7																								
* 8					2.1	5.2	5.3	5.4	5.5	5.7	5.8	6.8	6.0	6.0	5.9	5.6	5.5	5.2	5.0	4.5	4.0	3.7	3.8	4.2
9	2.8	1.8	1.0	1.1	1.0	0.9	1.0	0.4	0.4	0.6	0.3	0.3	0.1	0.1		0.2								
10												S	S	S										
11				0.4											S	S								
12	0.7																0.8	1.4	0.5	0.2				
13											S	S	S	S	S									
14	0.5	0.3		0.1			0.4			S	S	S	S	S	S									
15	0.2	0.2	0.2									0.2	0.2		0.2									
16																								
17	0.1		0.1		0.1	0.4	0.2	0.8	0.1	0.2	0.1	0.4	1.9	3.1		0.6	1.3	0.5					0.2	
18			0.1	0.2										0.4	0.9	1.0		0.4						
19							0.1				0.5													
20			0.4	0.4						0.1					0.1	0.1		0.3	0.5		1.4	1.9	1.4	1.3
21	0.9	0.3		2.0	0.5			0.2	0.5	0.3	0.9	0.7	0.6	0.2	0.6							0.3		
22	1.5	1.5	0.4	0.1	0.4	0.1	1.1	0.3				0.2	0.1	0.2	0.6									
23												0.4	0.7	0.7	0.1	0.1								
24				0.3			0.2	0.2				0.1	0.1	0.1										
25	0.4	0.2		0.4		0.2	0.3	0.2	0.2	0.3		S						0.3		0.4				
26		0.3	0.2			0.2		0.4																
27								0.2	0.1					0.3	1.3	2.3	2.8	3.7	4.5	3.8	0.3	0.7	0.2	
28	0.3	5.5	5.5	4.3	4.2	3.8	3.8	2.3	2.1	1.1	1.1	0.6	0.7	0.7	0.2	2.3	2.8	3.7	4.5	3.8	5.4	5.7	4.0	4.0
29	1.0			3.4	0.8	0.5		0.4					0.2	0.3	0.3	0.2		0.5	0.3	0.5	0.7	0.7	0.2	0.5
30	1.2	0.3	0.6	0.1	0.2	1.0	1.0	0.8		0.2	0.5			0.6	0.3		0.5	0.3		0.2			0.5	1.1
31			1.5		0.3	0.2	0.4												0.1					
Mean	0.39	0.20	0.32	0.42	0.30	0.41	0.44	0.36	0.28	0.27	0.29	0.32	0.34	0.39	0.31	0.32	0.35	0.43	0.35	0.30	0.38	0.41	0.33	0.35

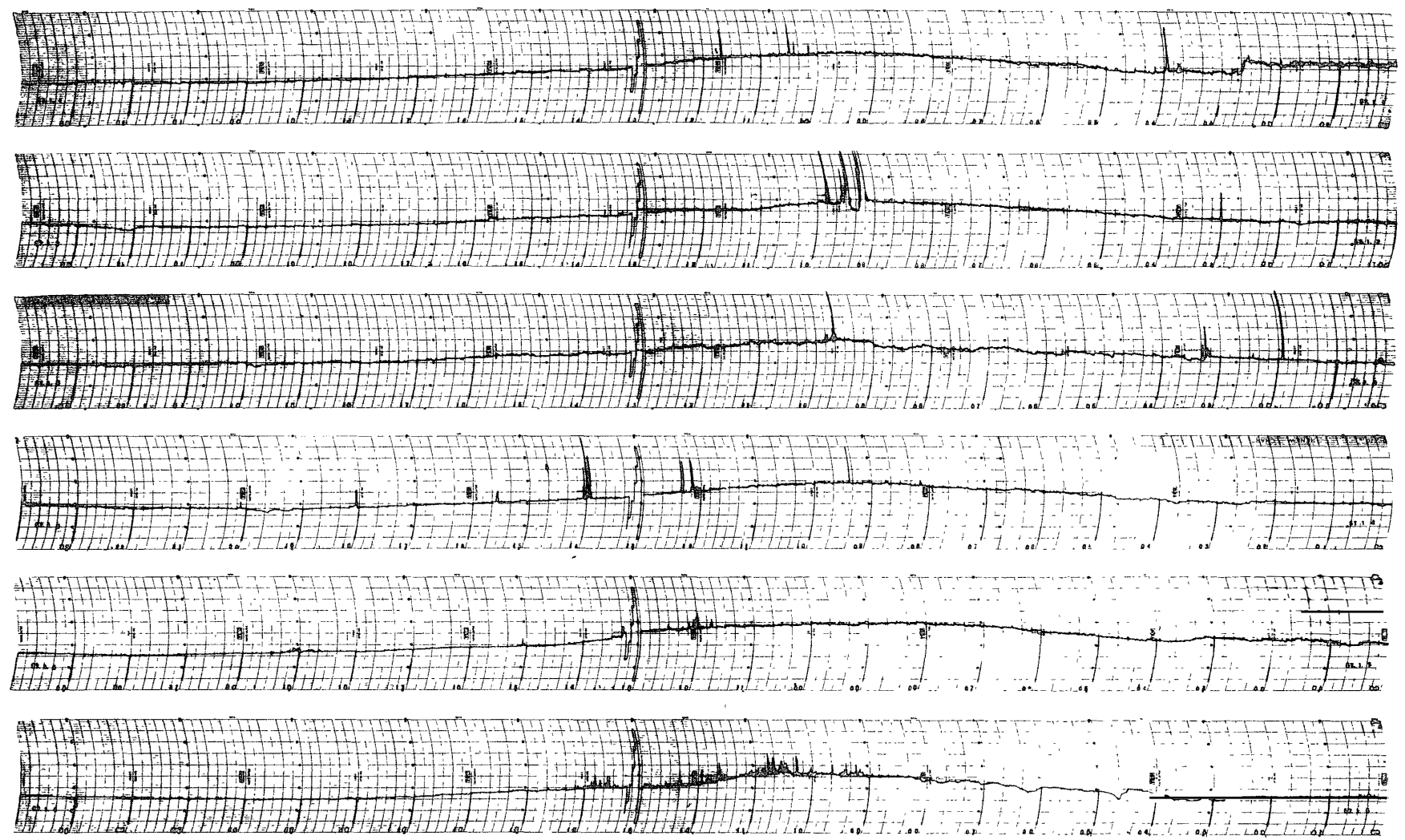
Open spaces without figures correspond to quiet level.

* : Quiet day

S : Interference

JAN 1982

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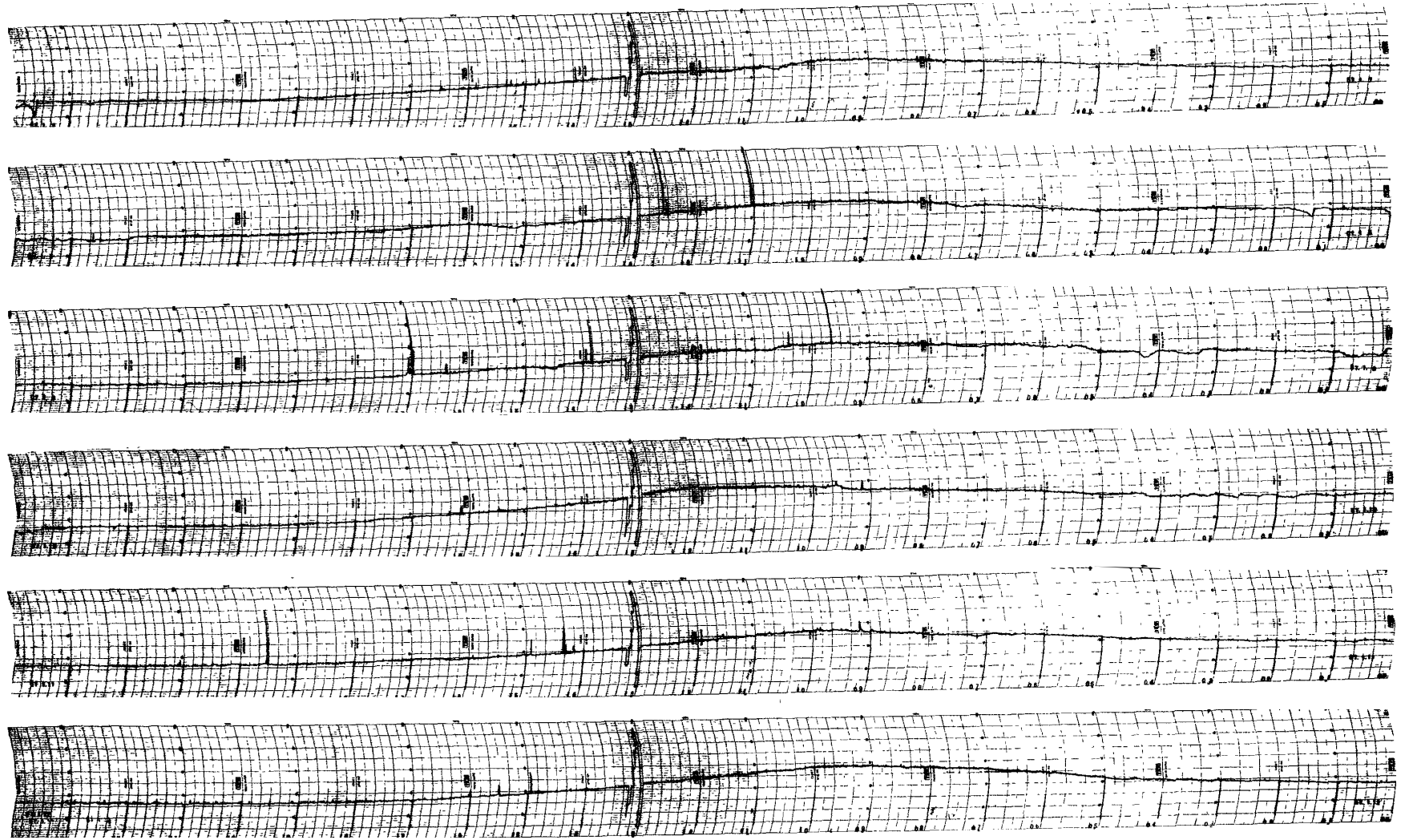


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JAN 1982
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

13 JAN

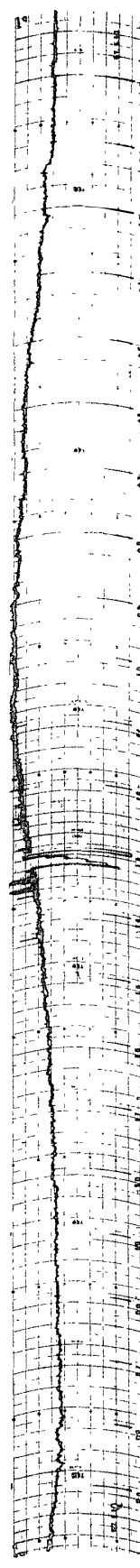
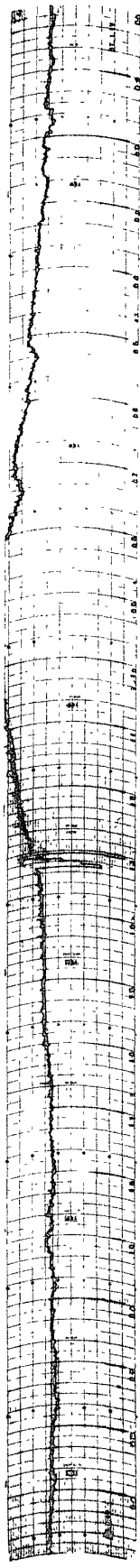
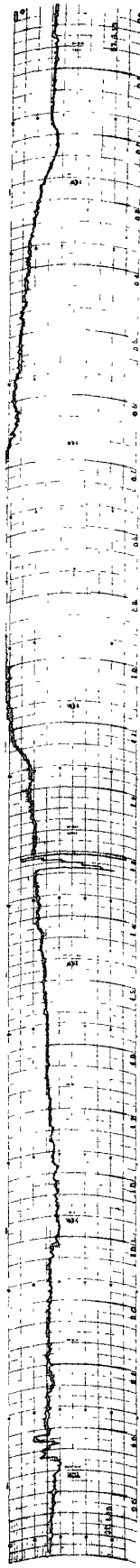
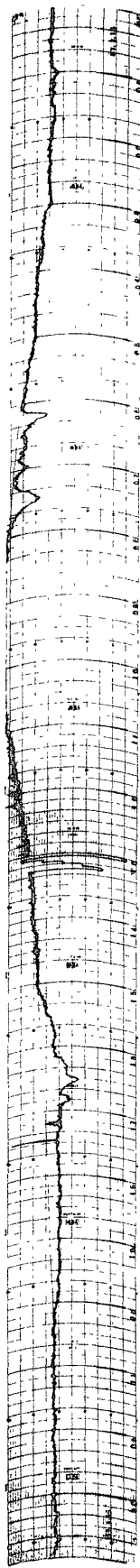
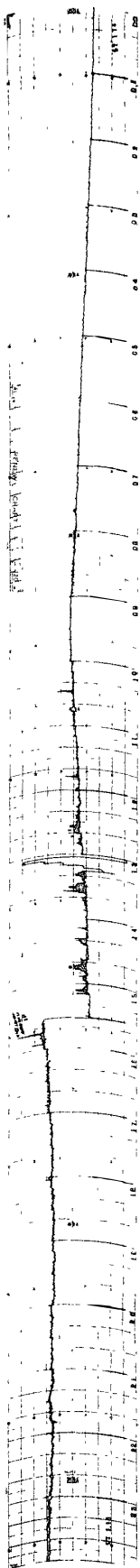
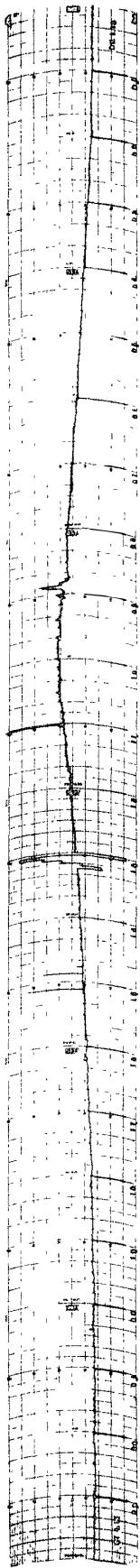
14 - 1982

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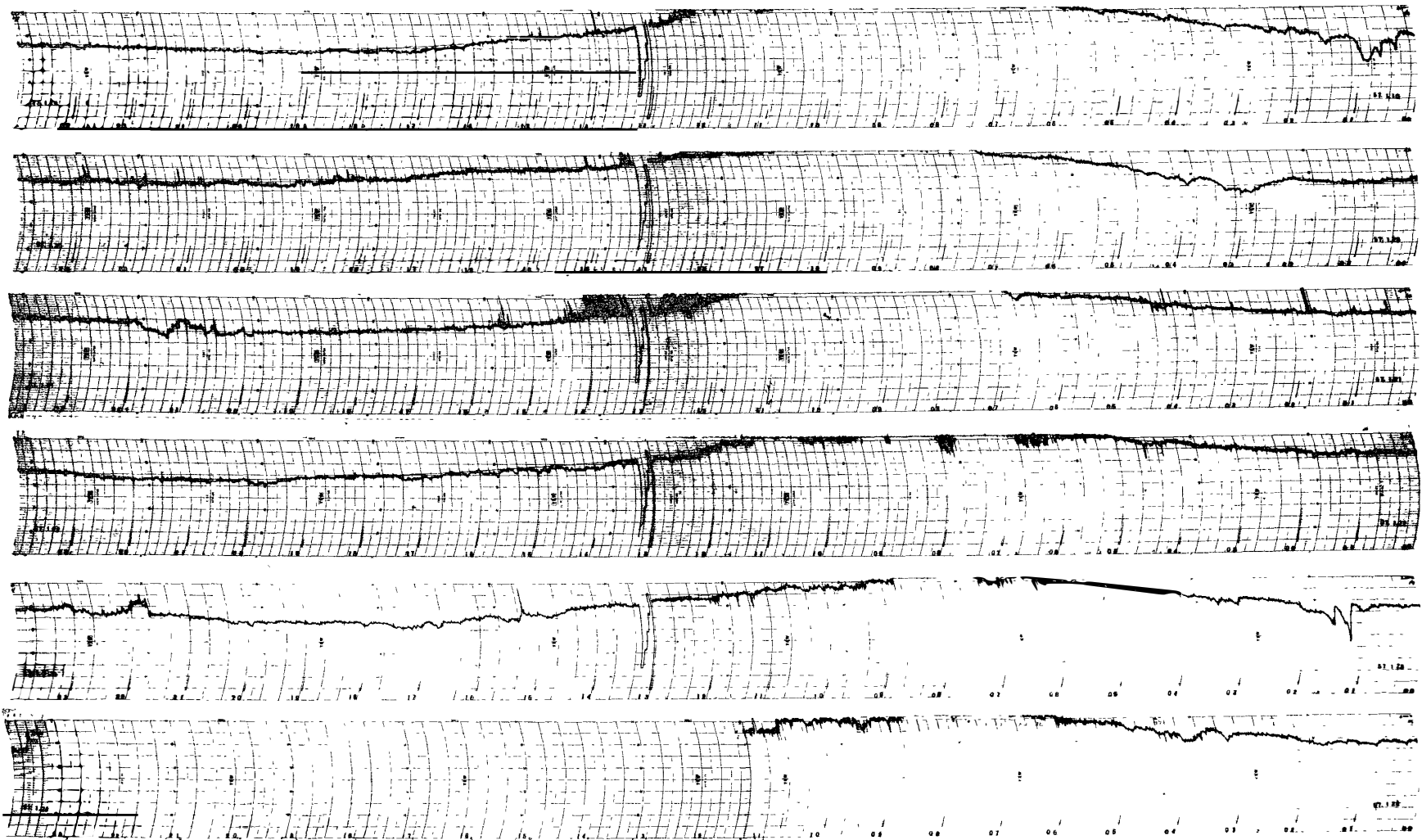
18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

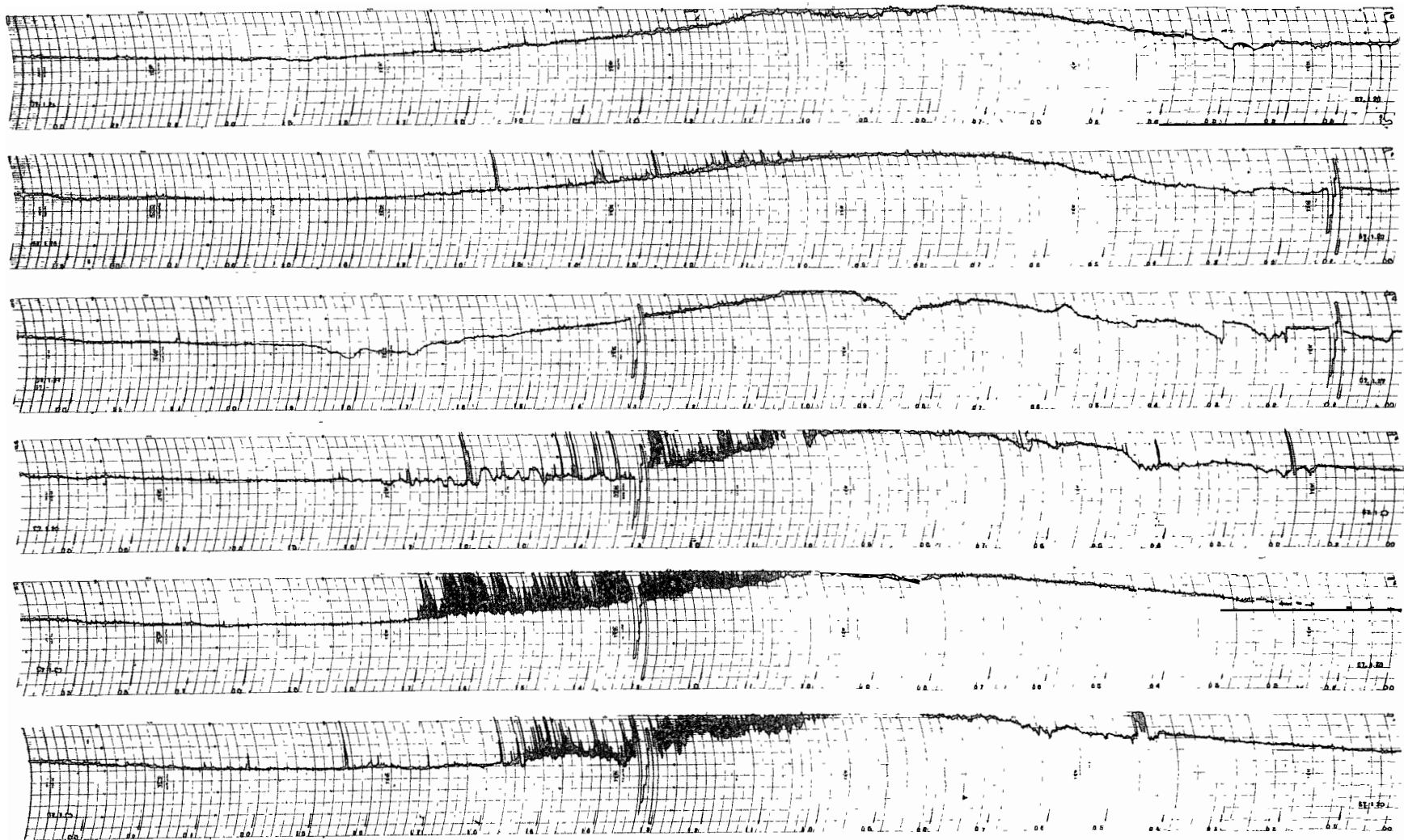
19 JAN 1982
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

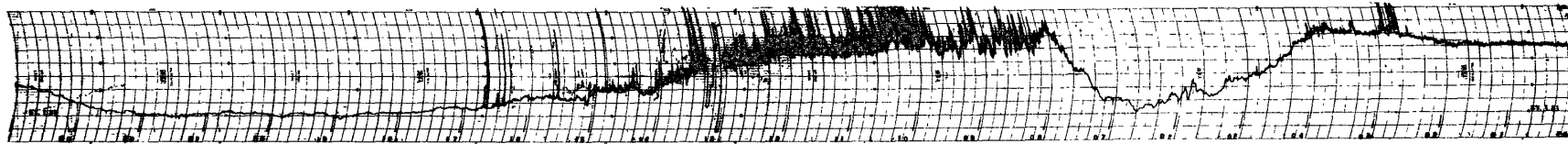


25 JAN 1982
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



31
JAN
1982

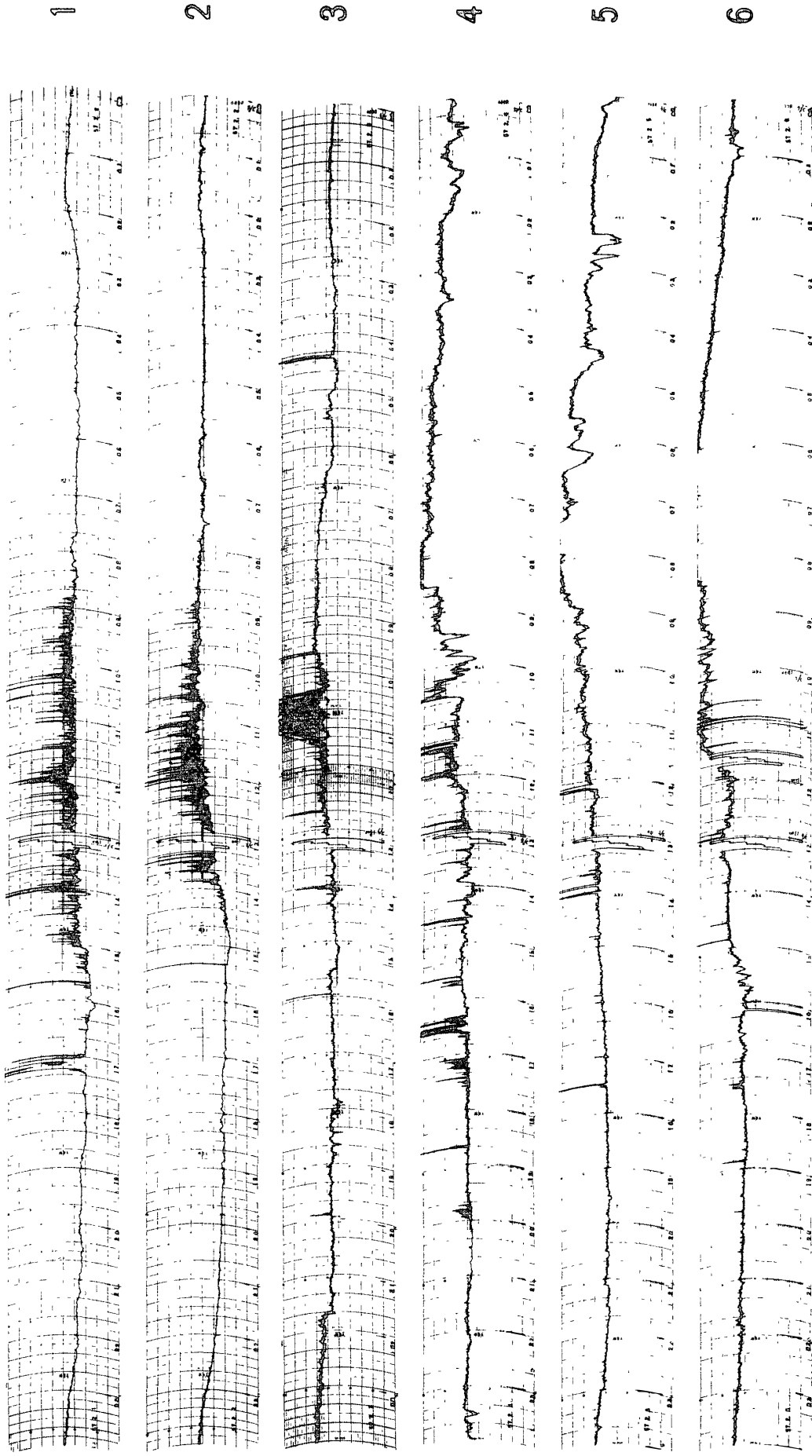
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.
January 24 1120 - 2341

FEB

1982



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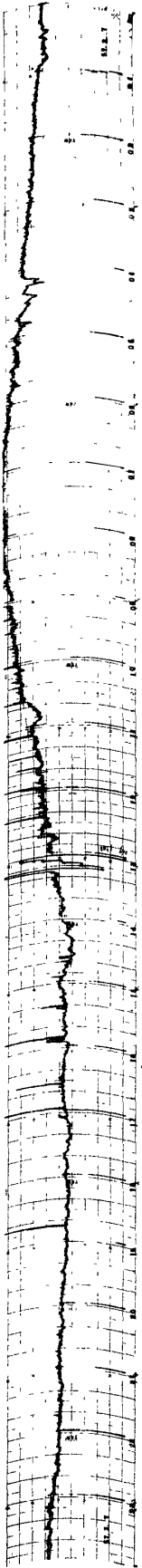
6

24 20 16 12 08 04 00

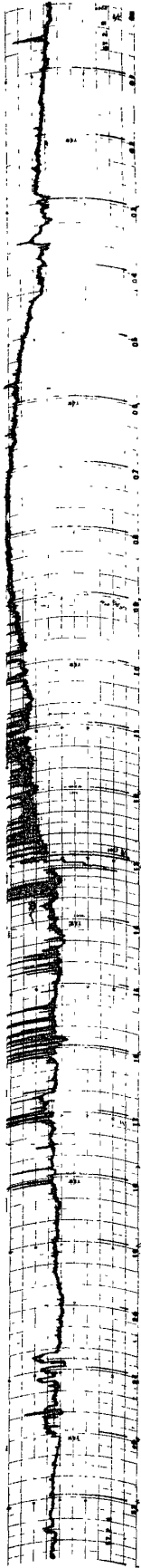
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1982

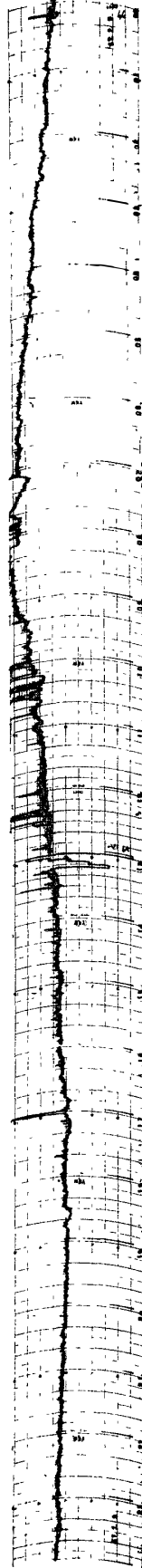
7



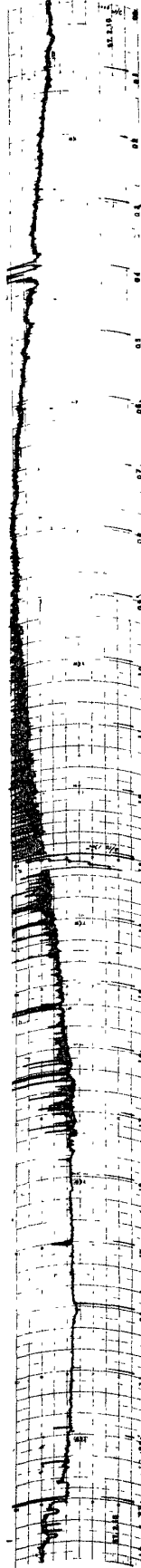
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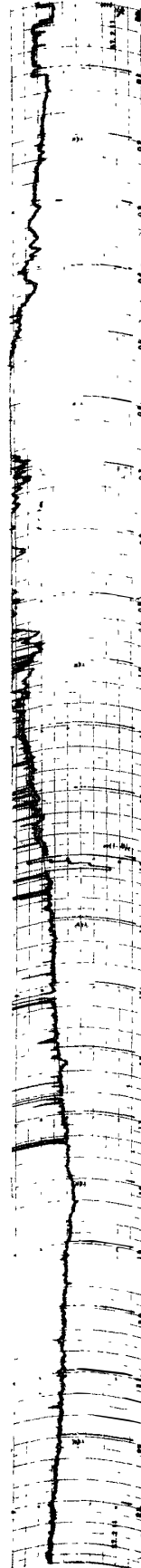
9



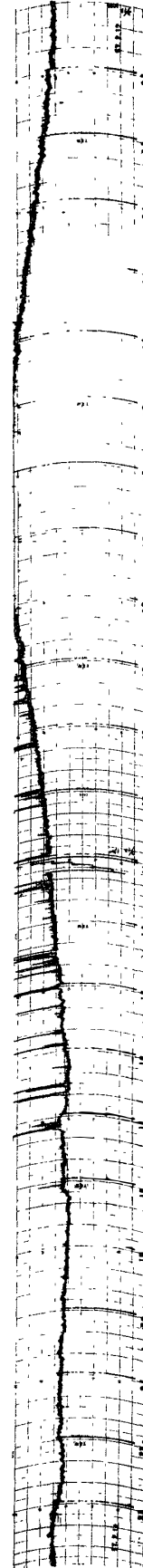
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1982

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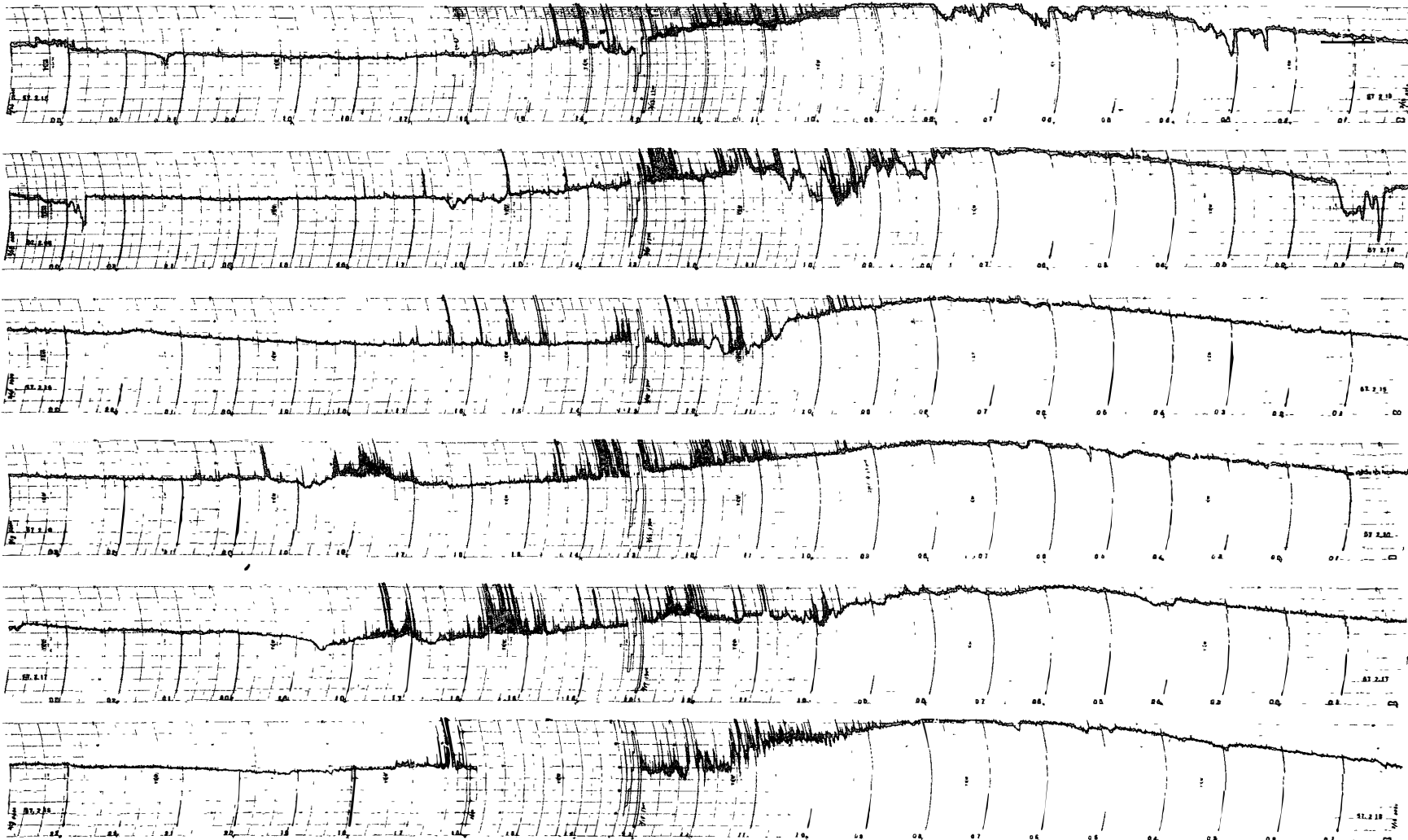
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

FEB 1982

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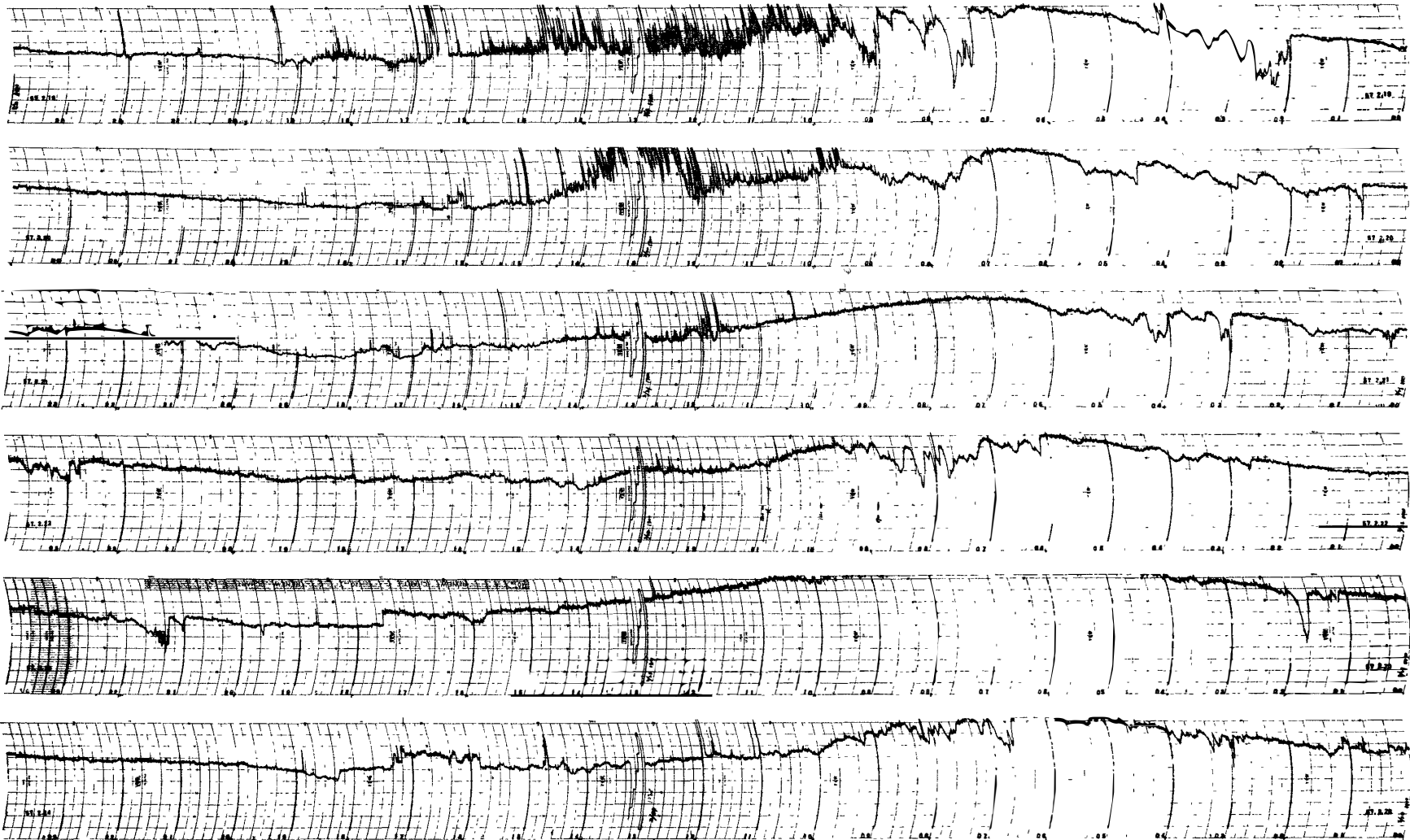
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

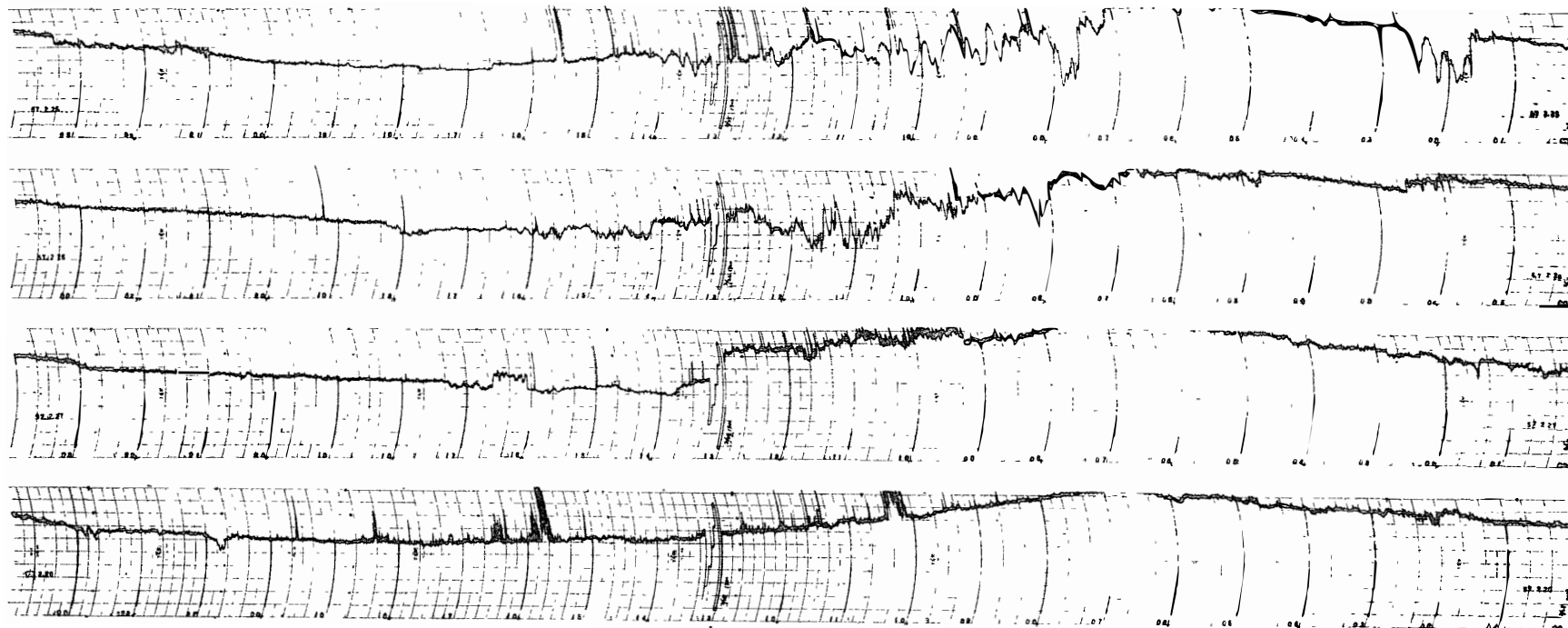
FEB 1982

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

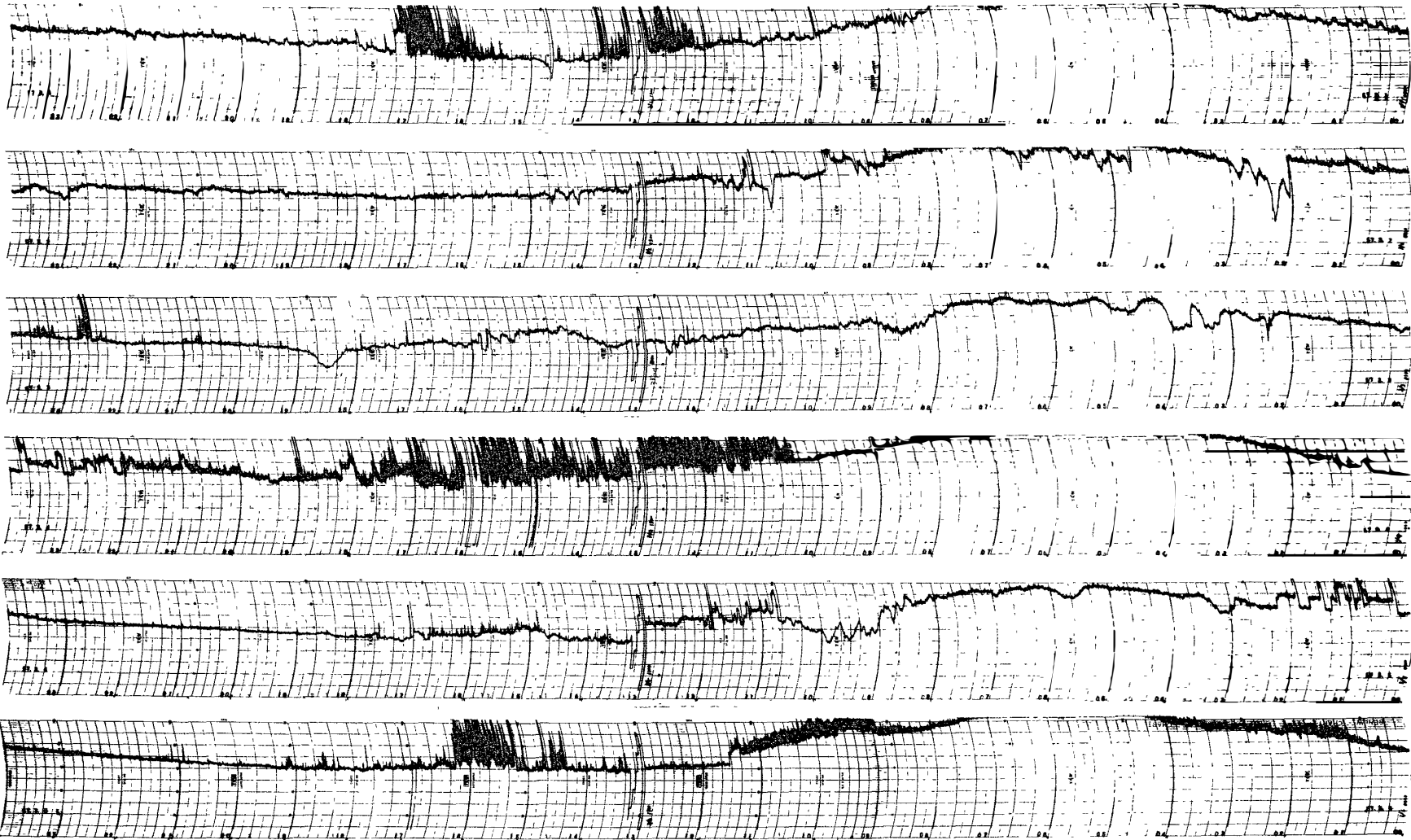
30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

February 18 1315 - 1550

MAR 1982

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- 27 -

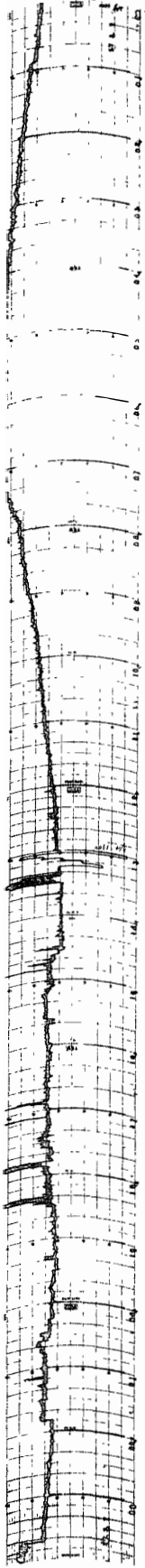
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

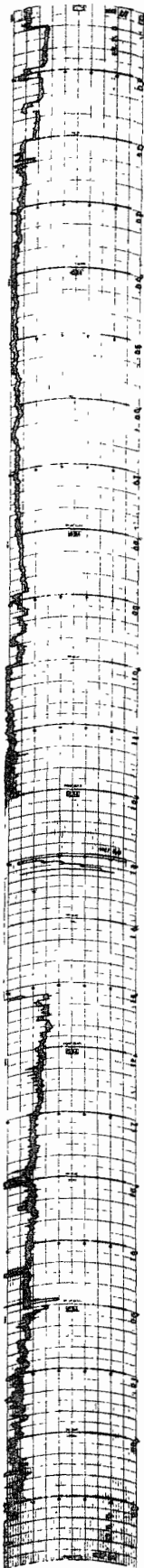
30 MHz COSMIC NOISE

MAR 1982

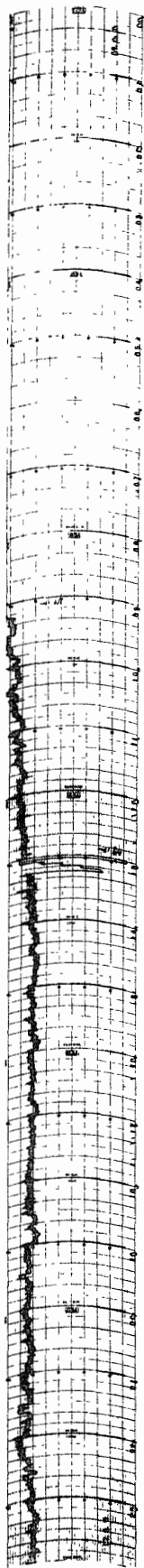
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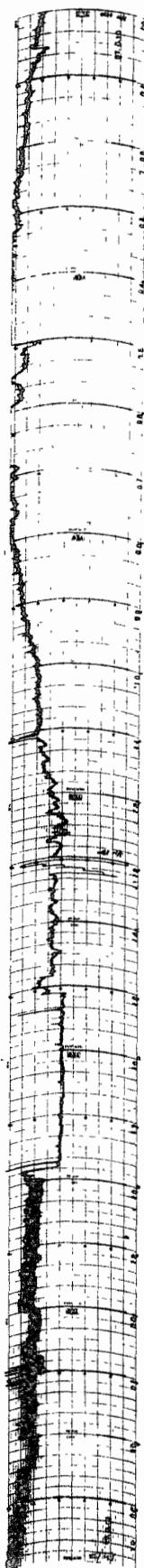
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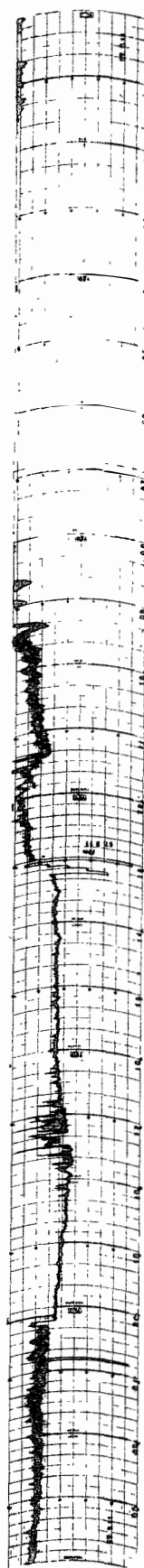
9



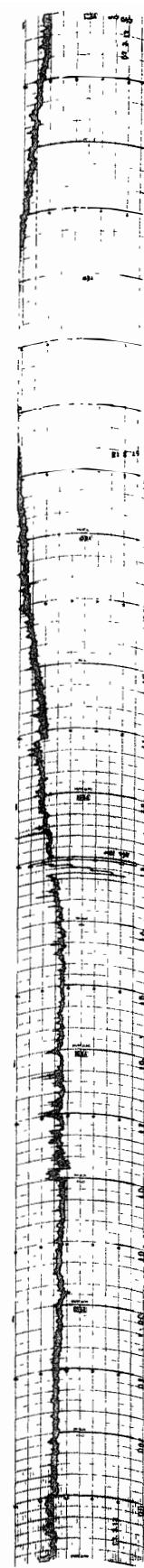
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1982

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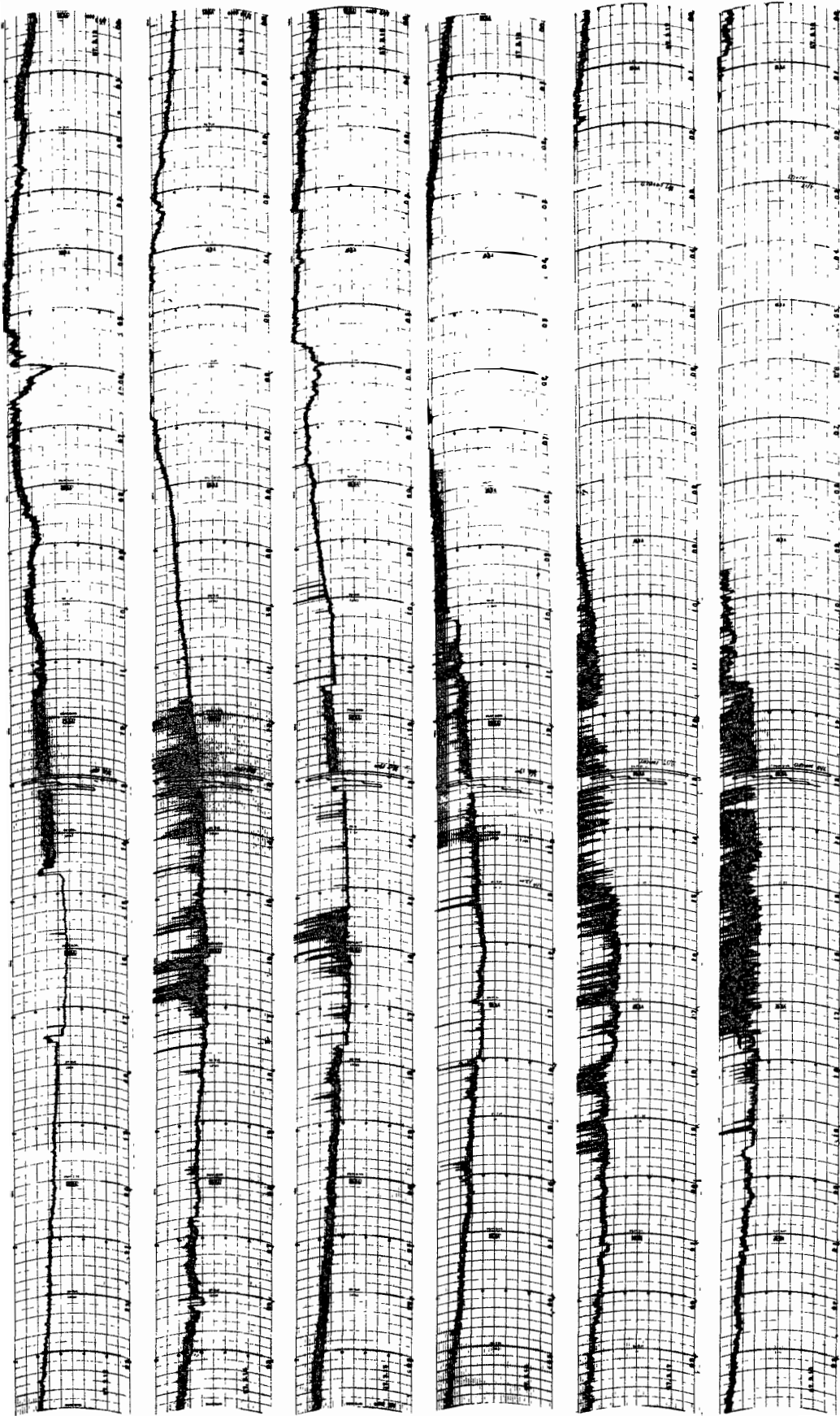
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



MAR 1 1982

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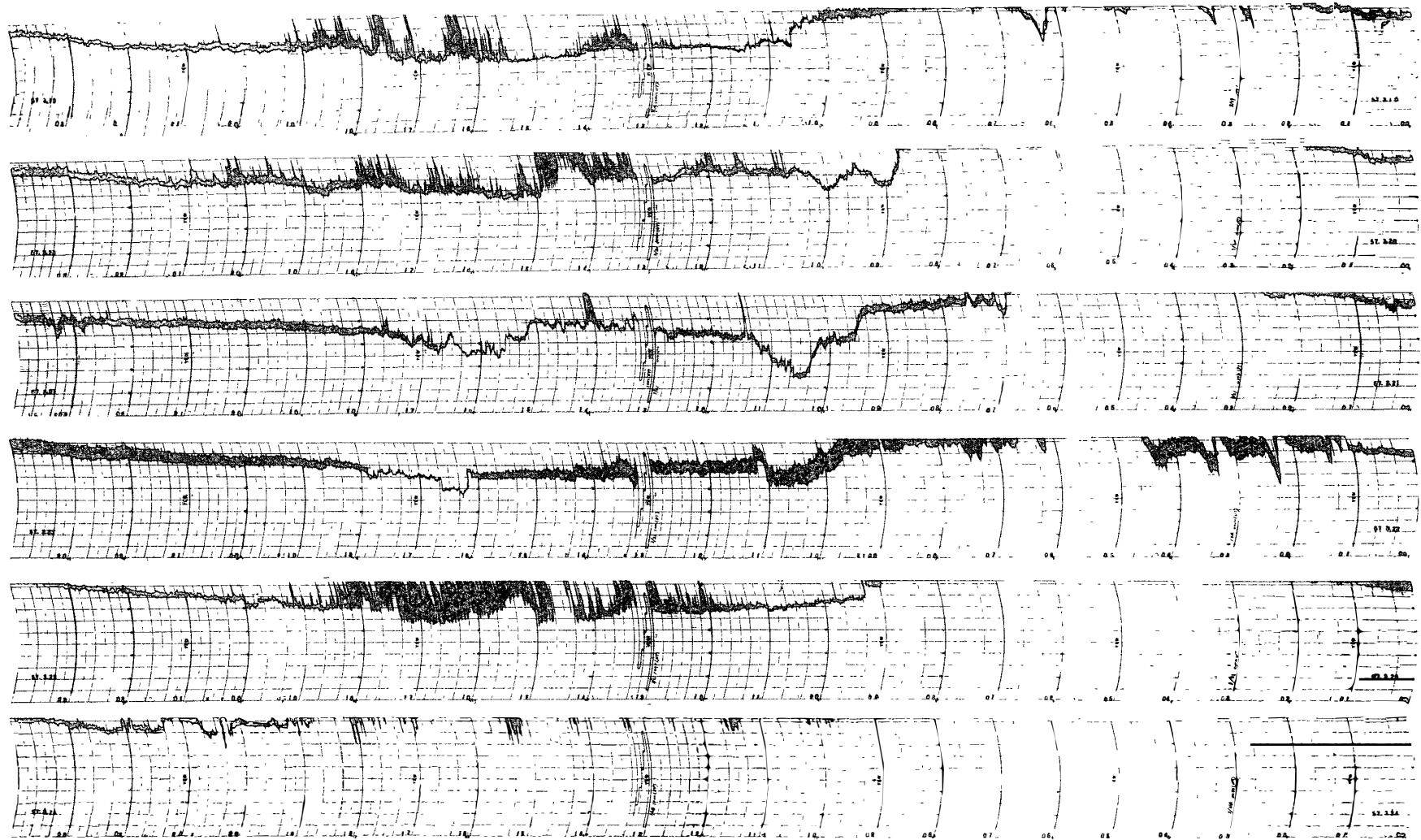
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

MAR 1982

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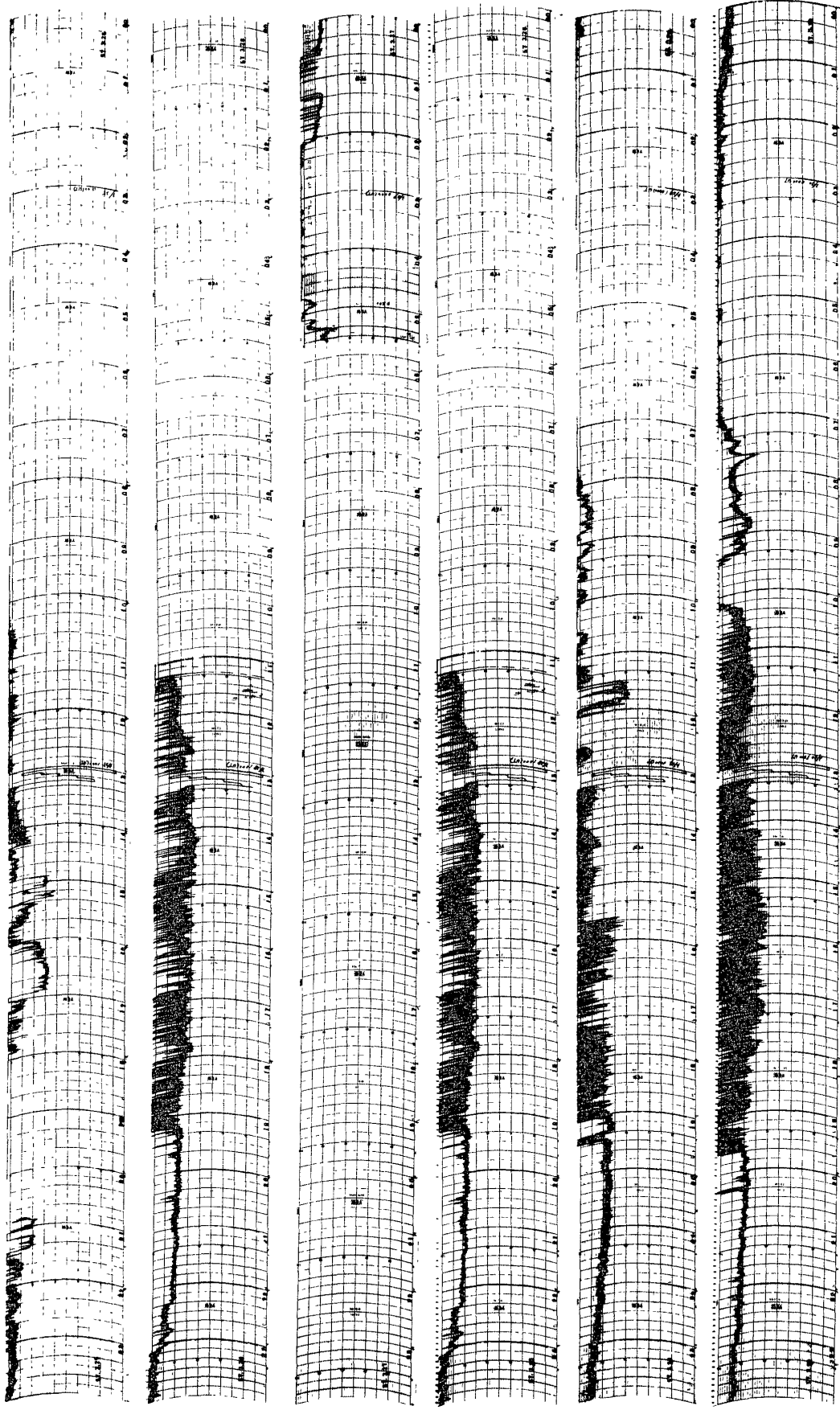
28

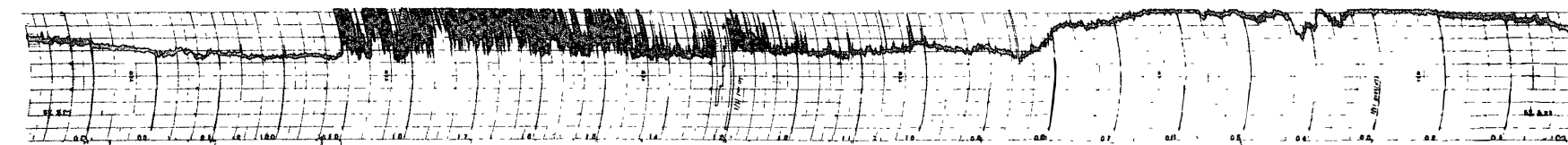
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE





24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

March	27	0530 -
	28	1118

31

MAR 1982

APR 1982

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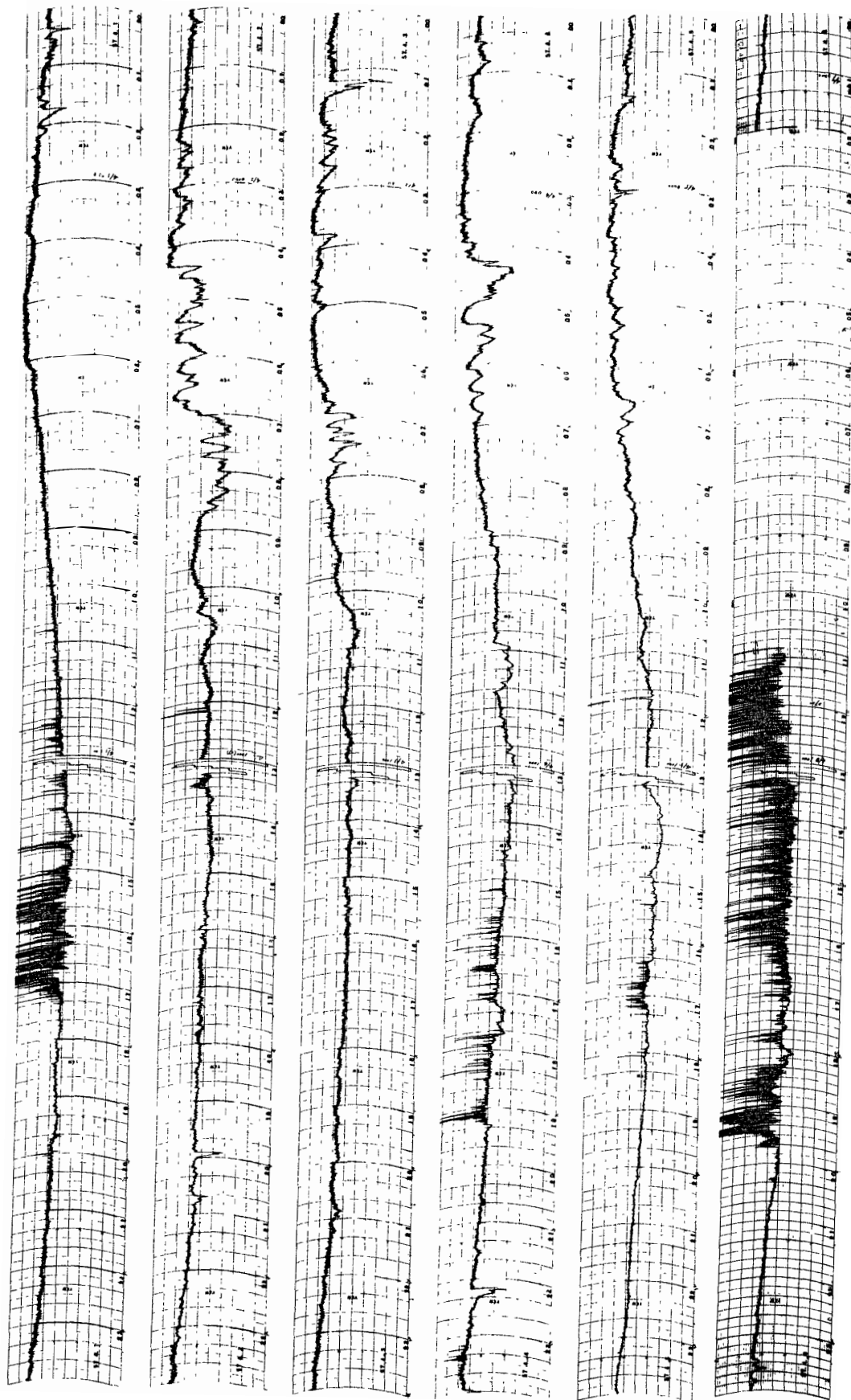
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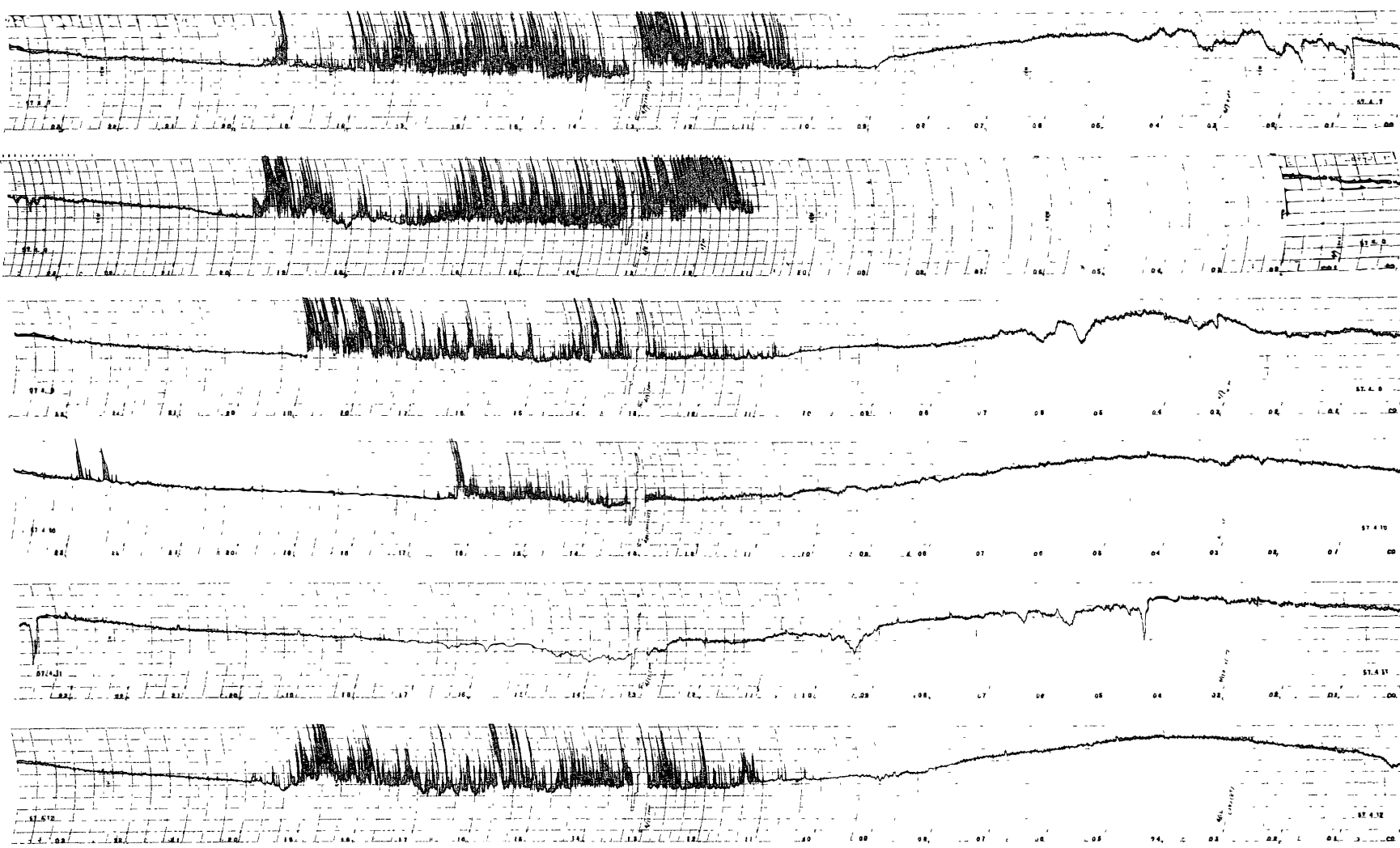


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

APR 1982

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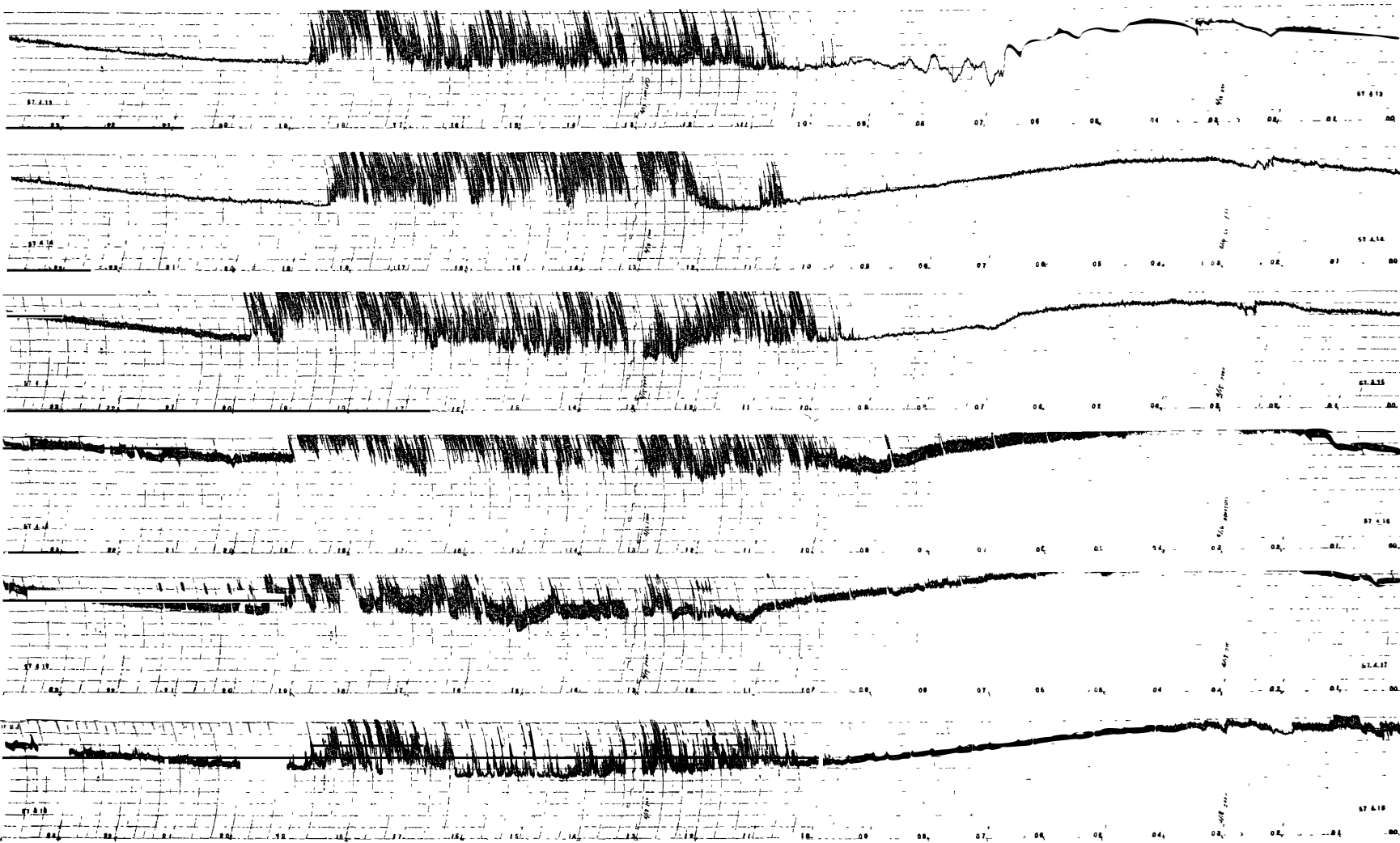
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR 1982

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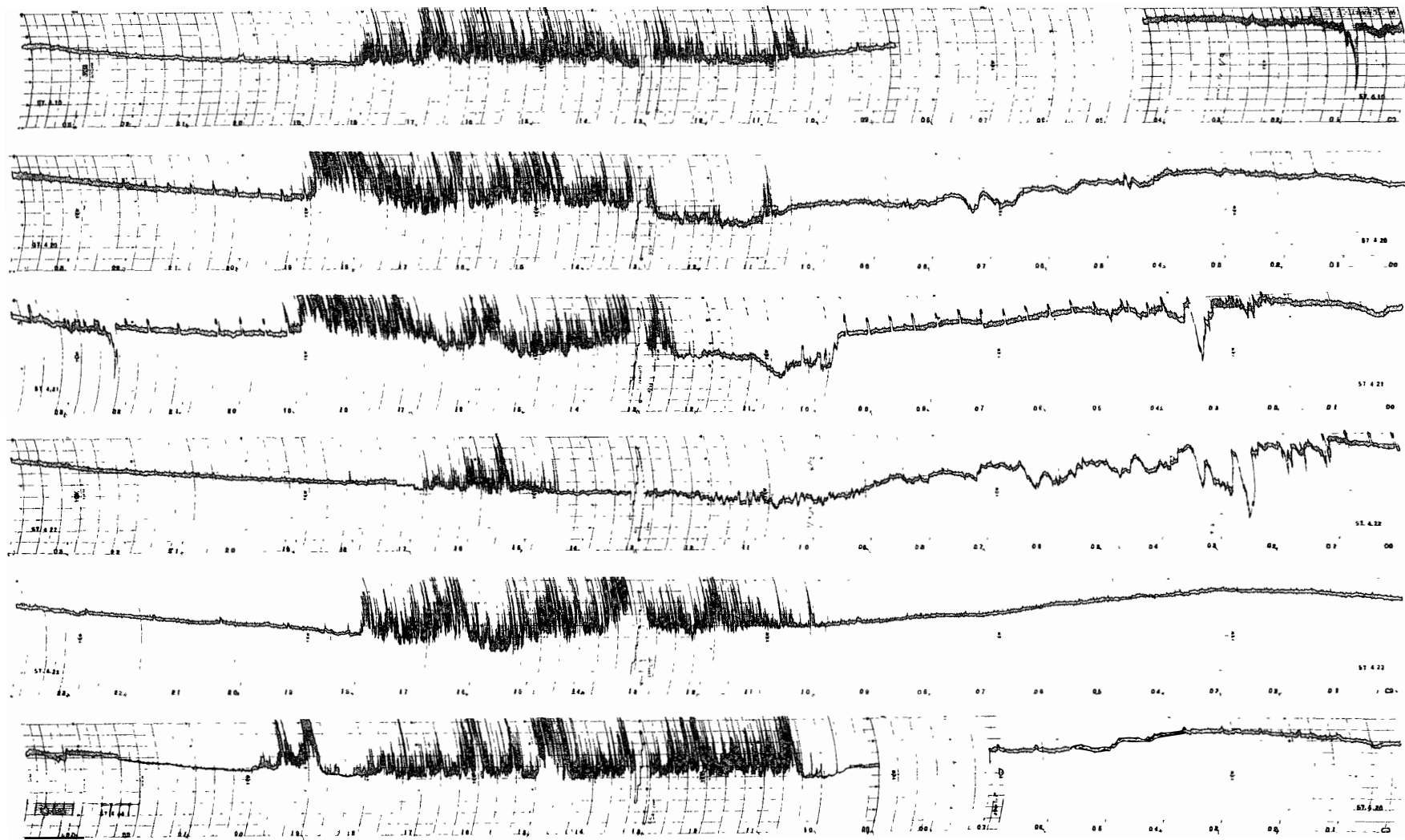
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR 1982

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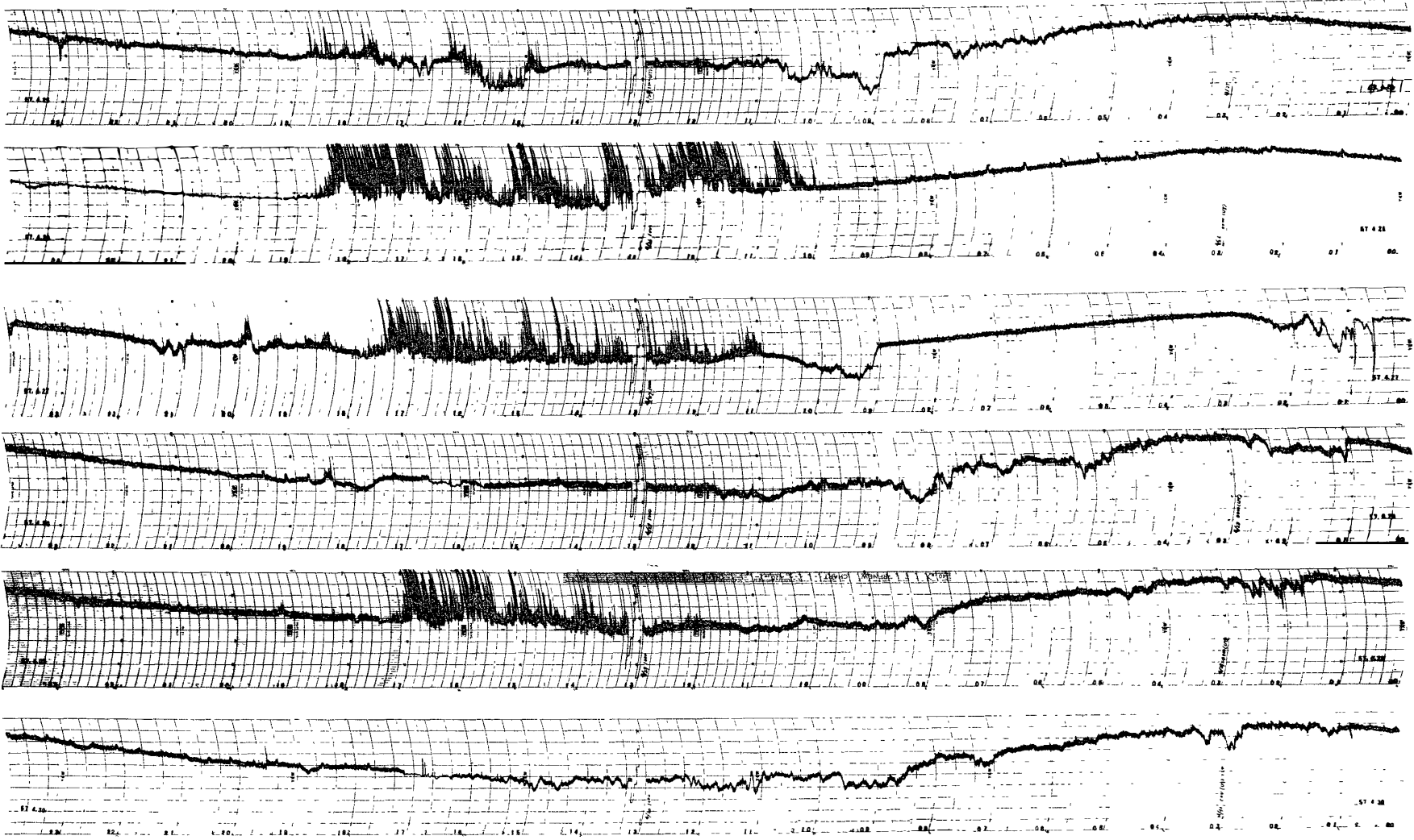
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

APR 1982

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- 37 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

April	8	0200 - 1105
	19	0424 - 0845
	24	0705 - 0859

APR 1982

MAY 1982

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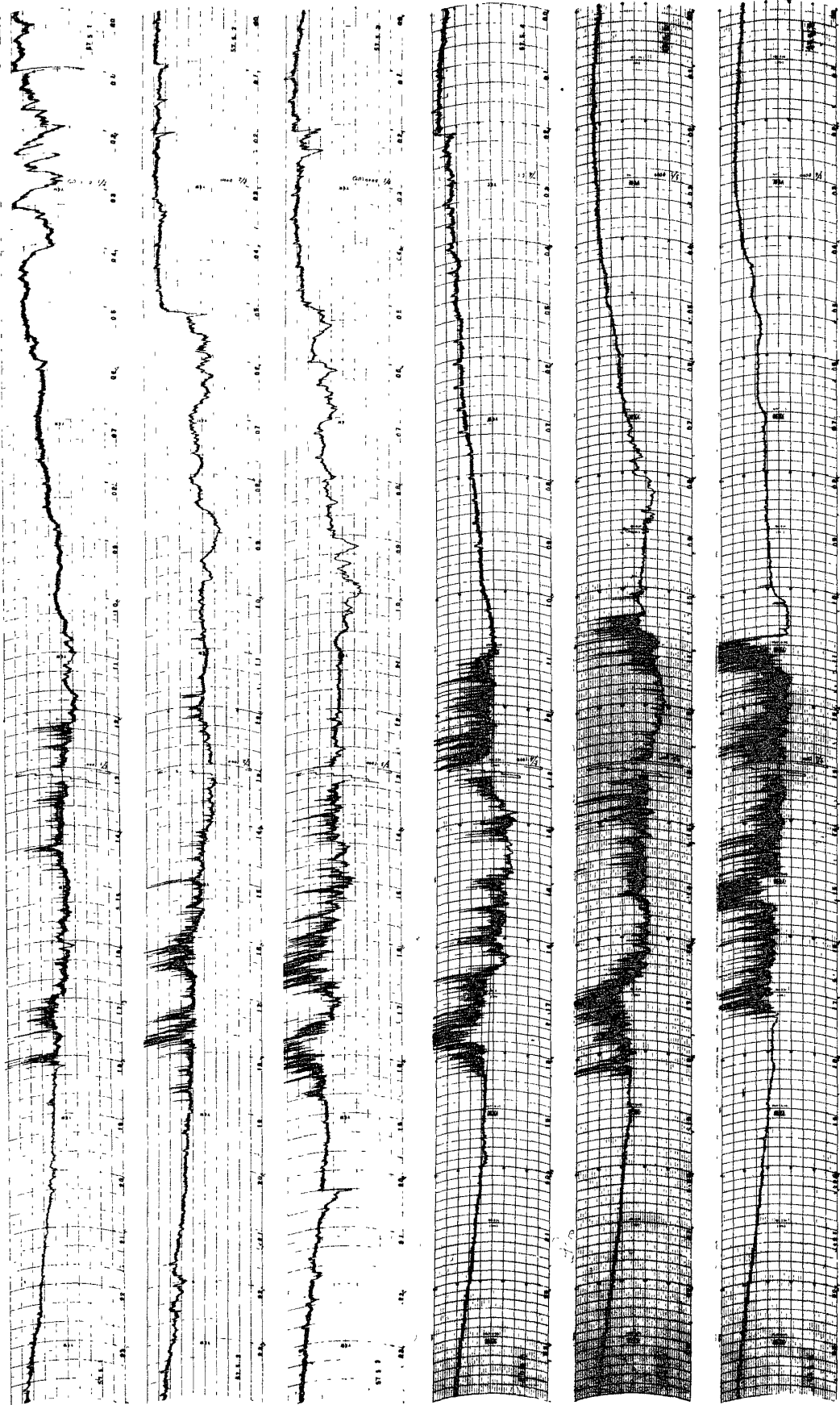
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1982

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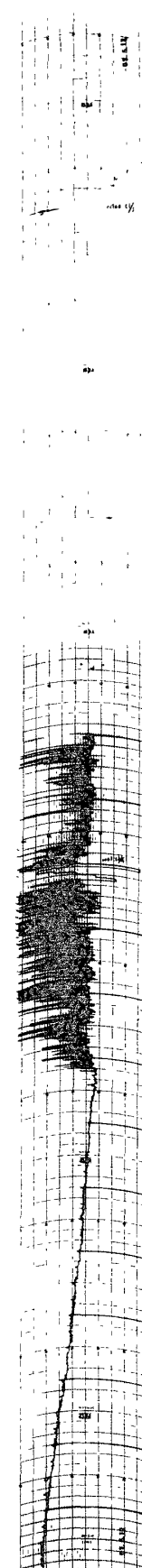
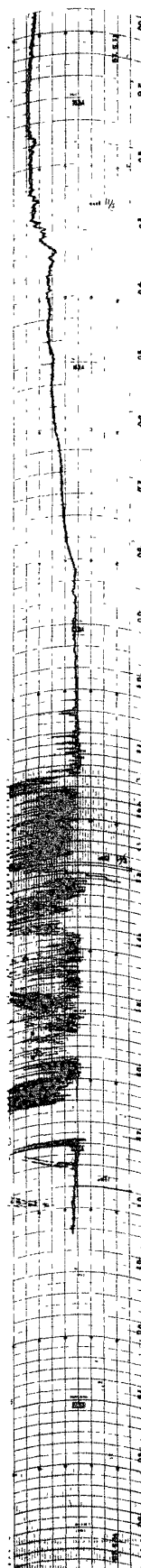
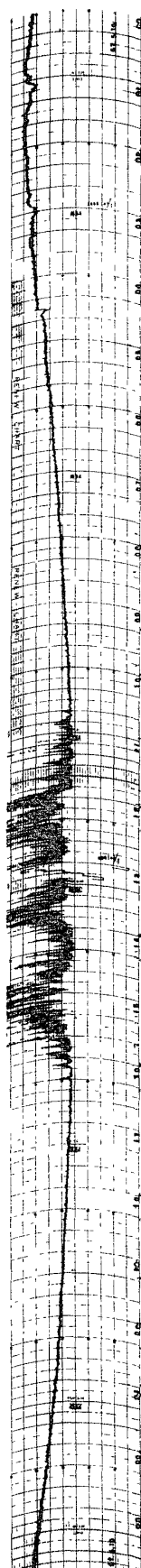
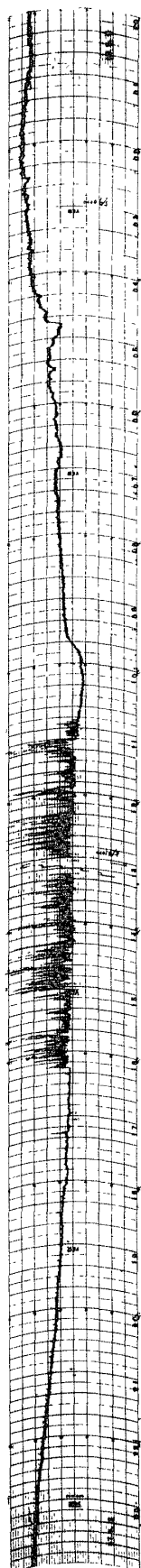
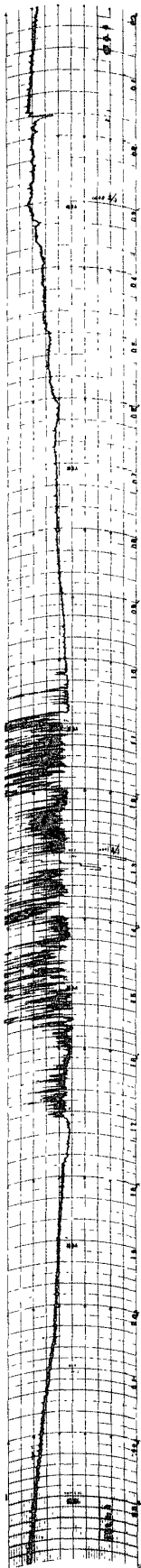
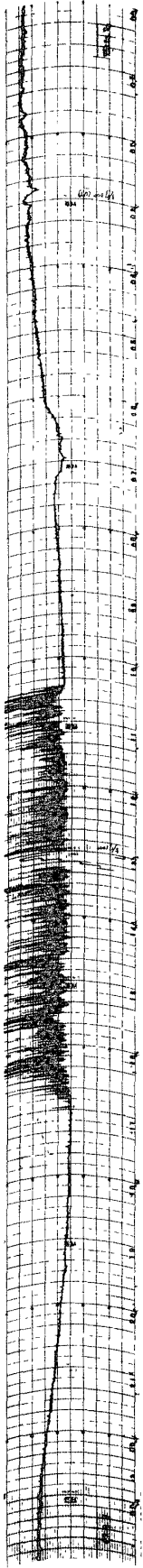
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY

1982

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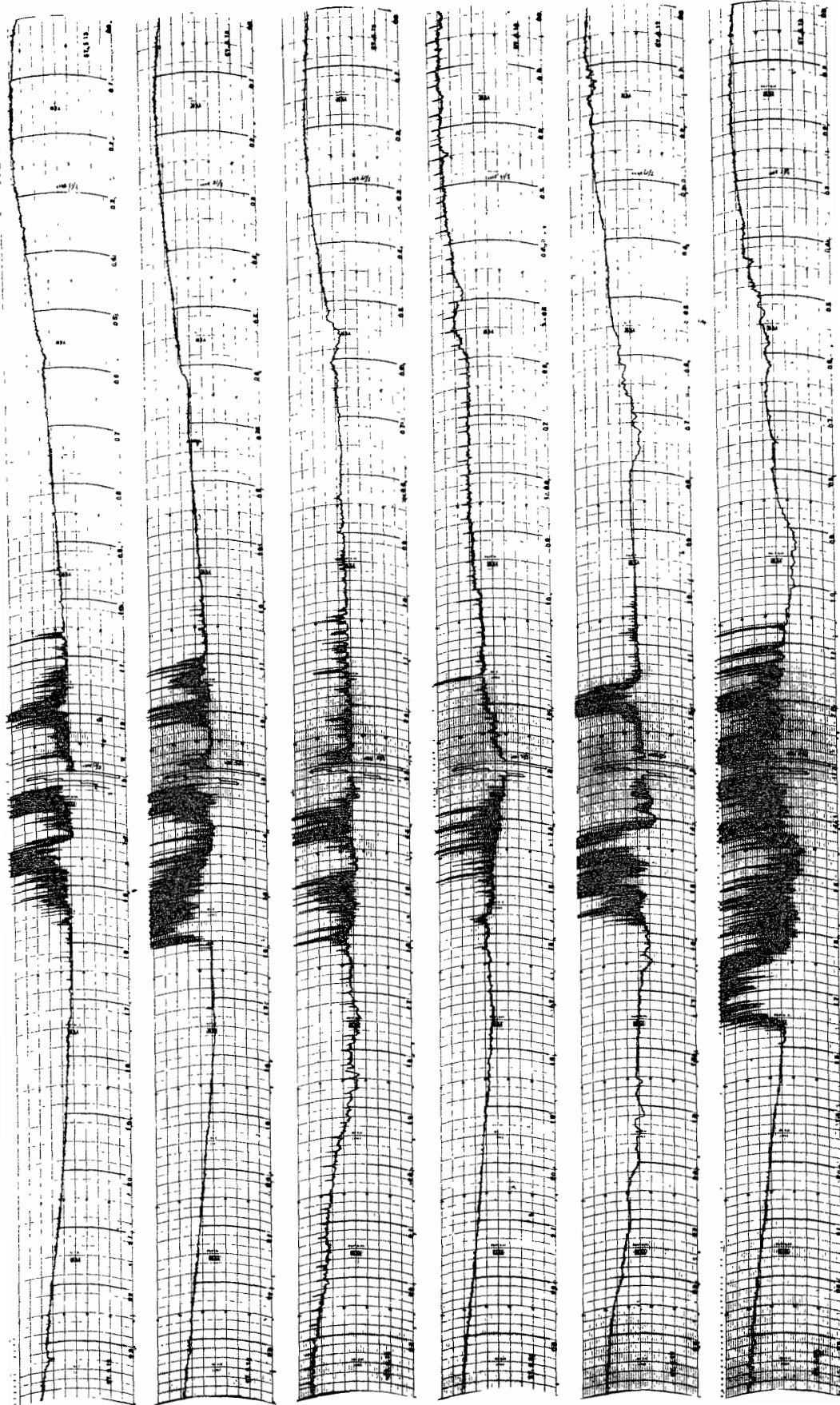
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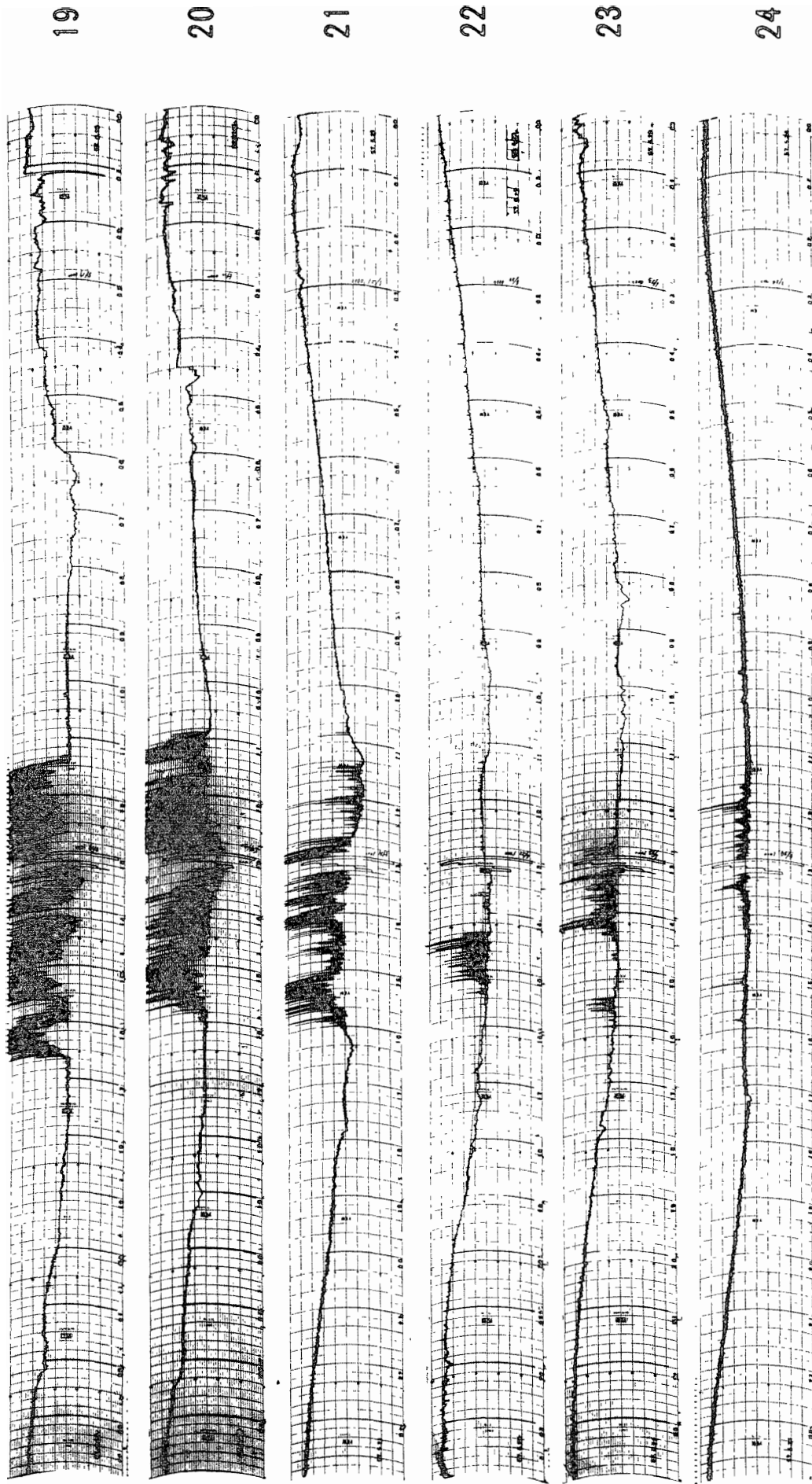
18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1982



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1982

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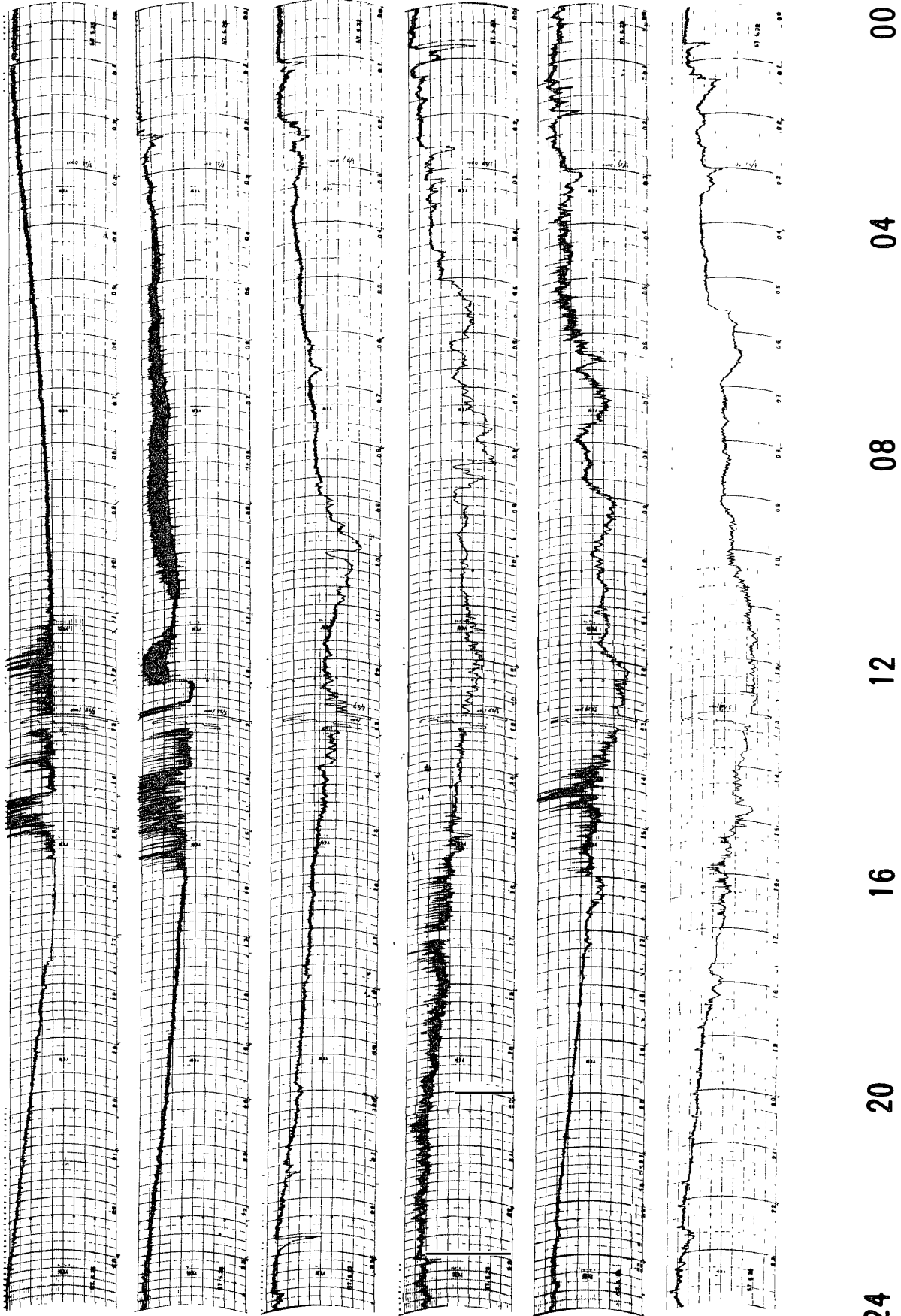
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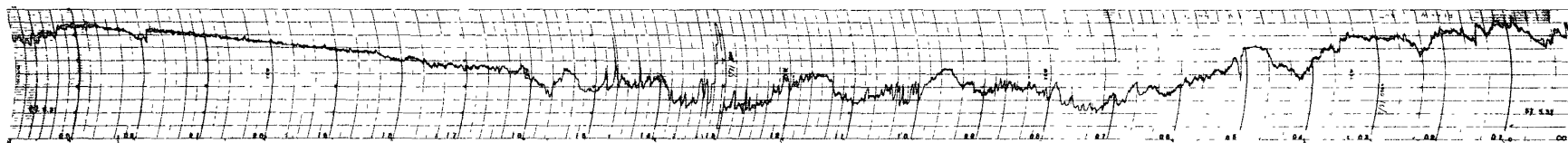
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



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MAY
1982

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

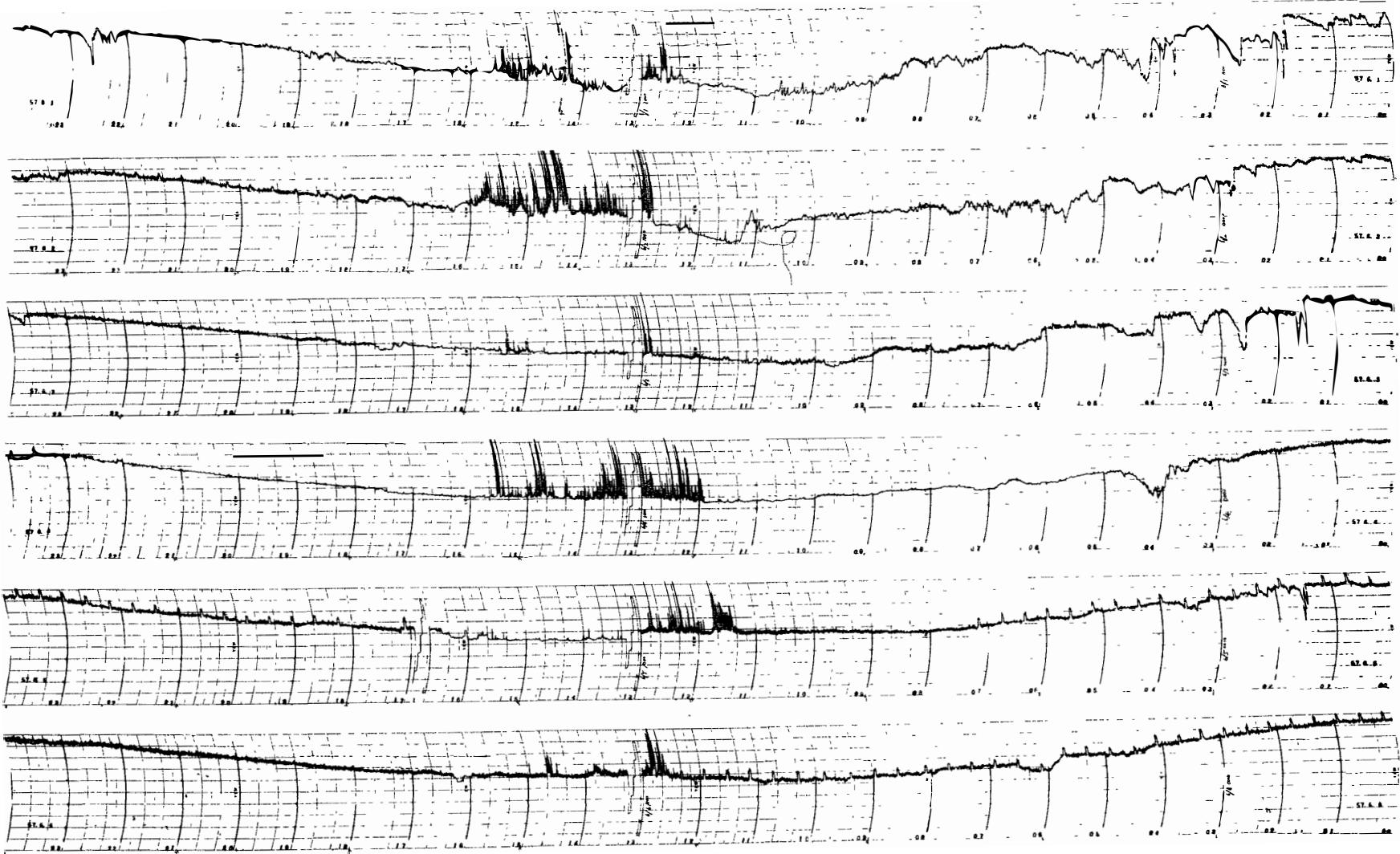
30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

May	11	1145 -
	12	1259

JUNE 1982

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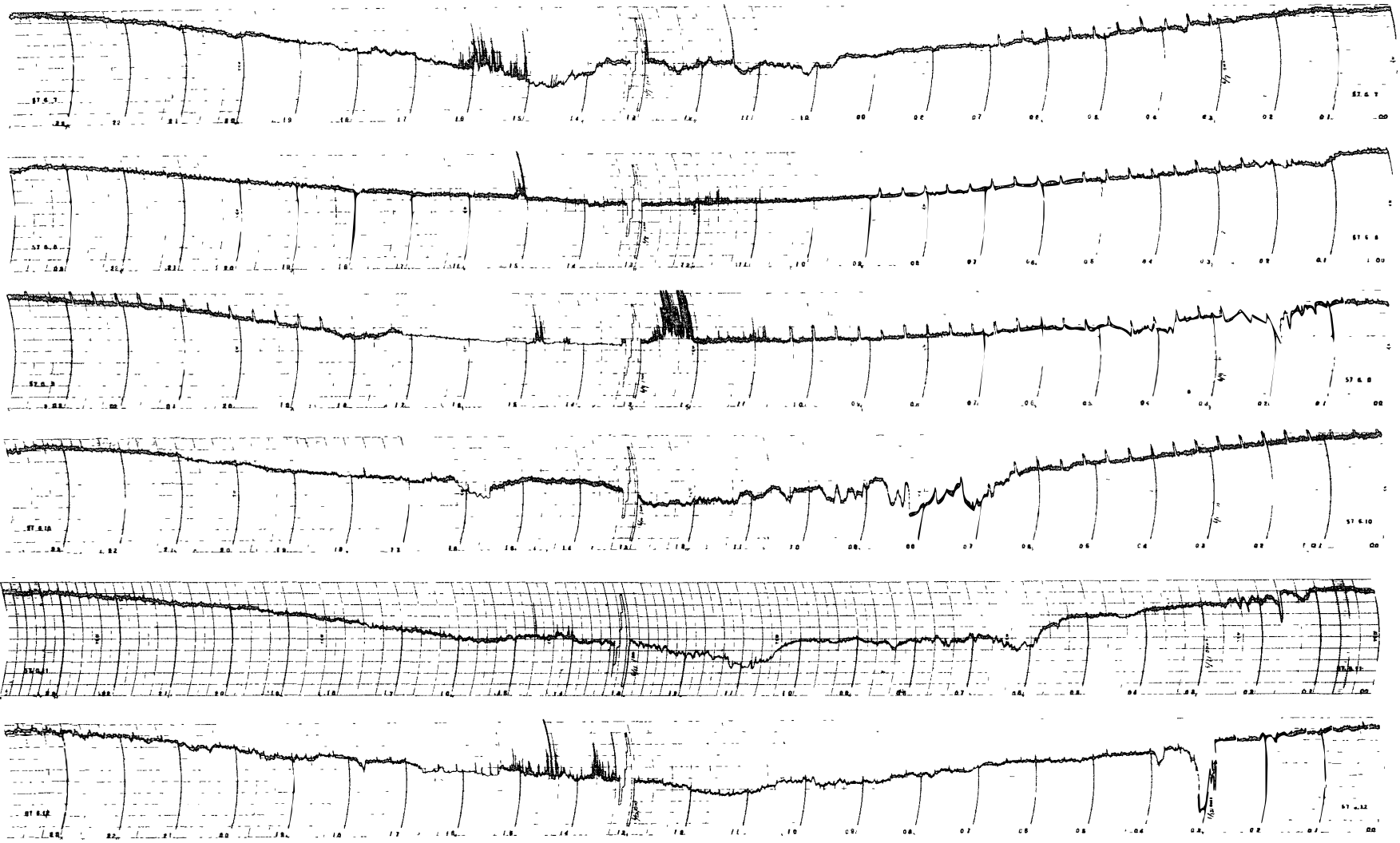
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JUNE 1982

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JUNE 1982

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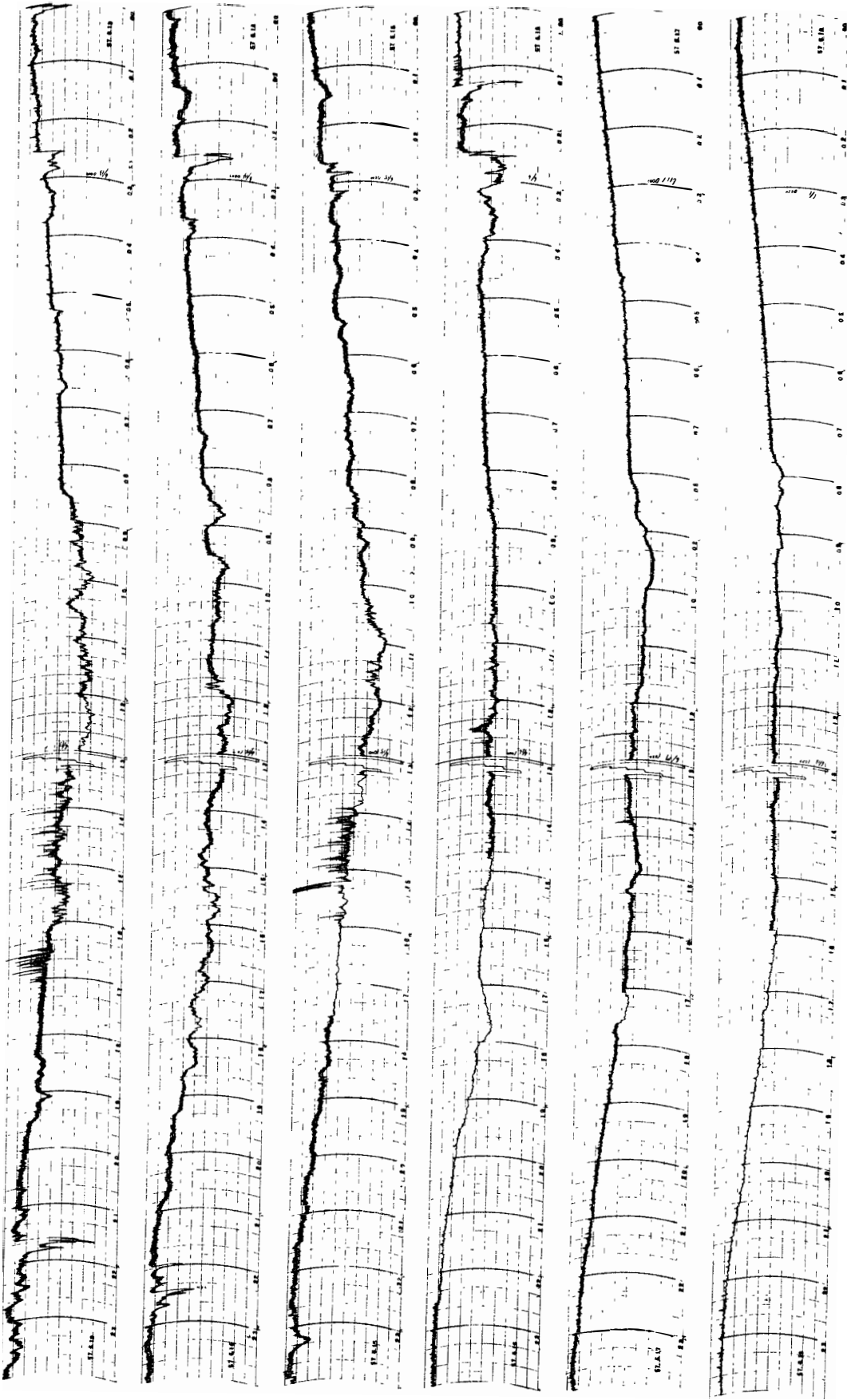
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUNE 1982

19

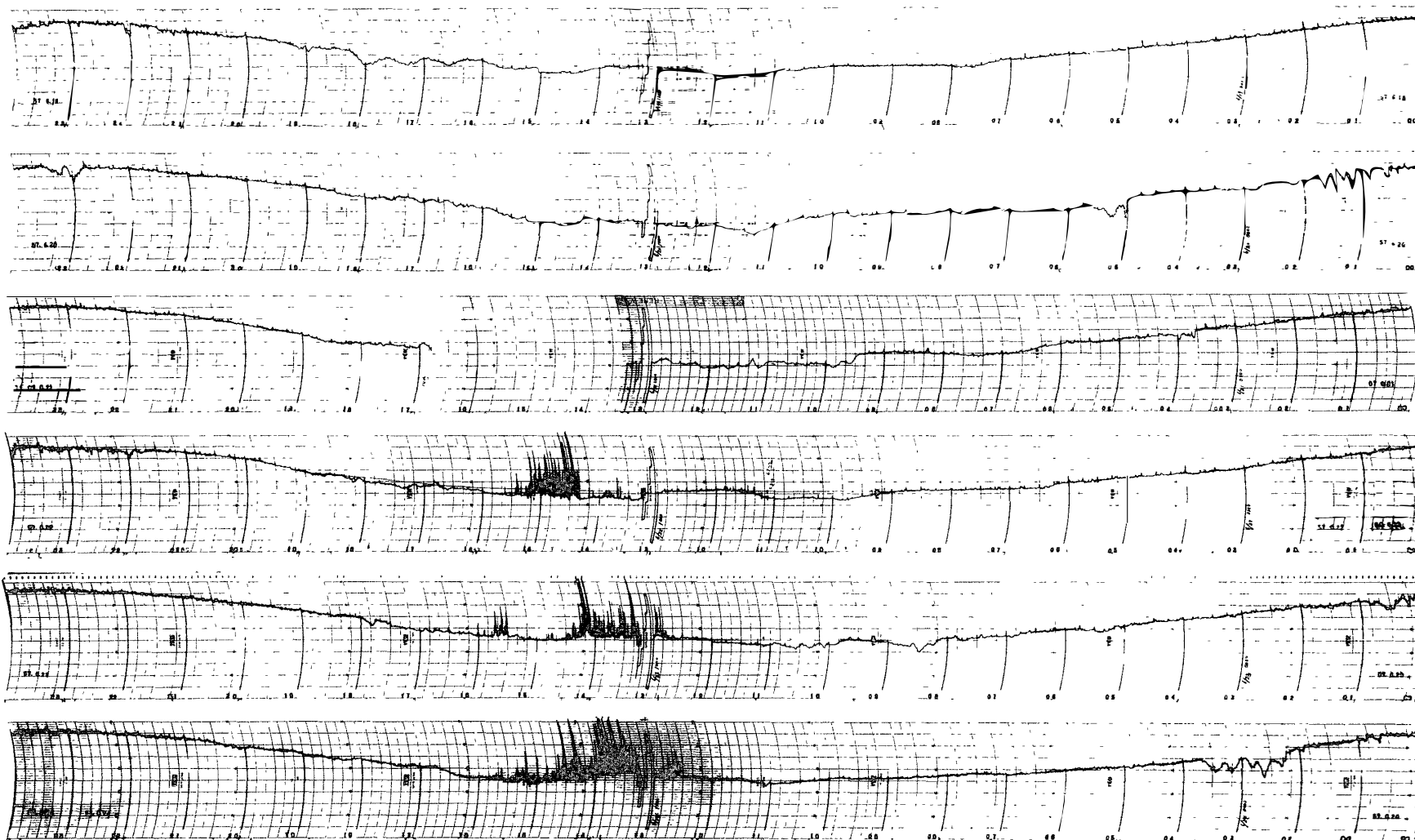
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JUNE 1982

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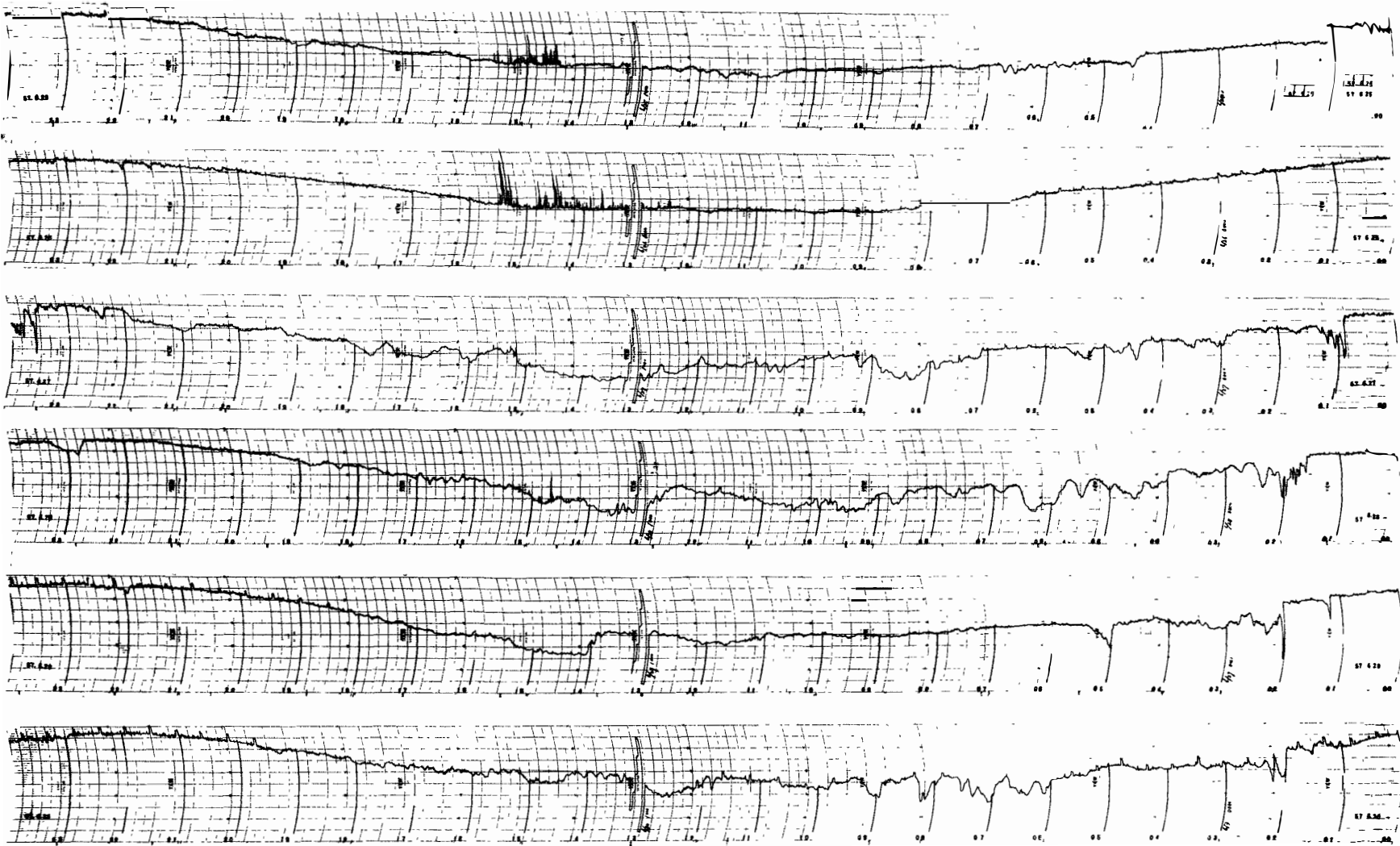
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

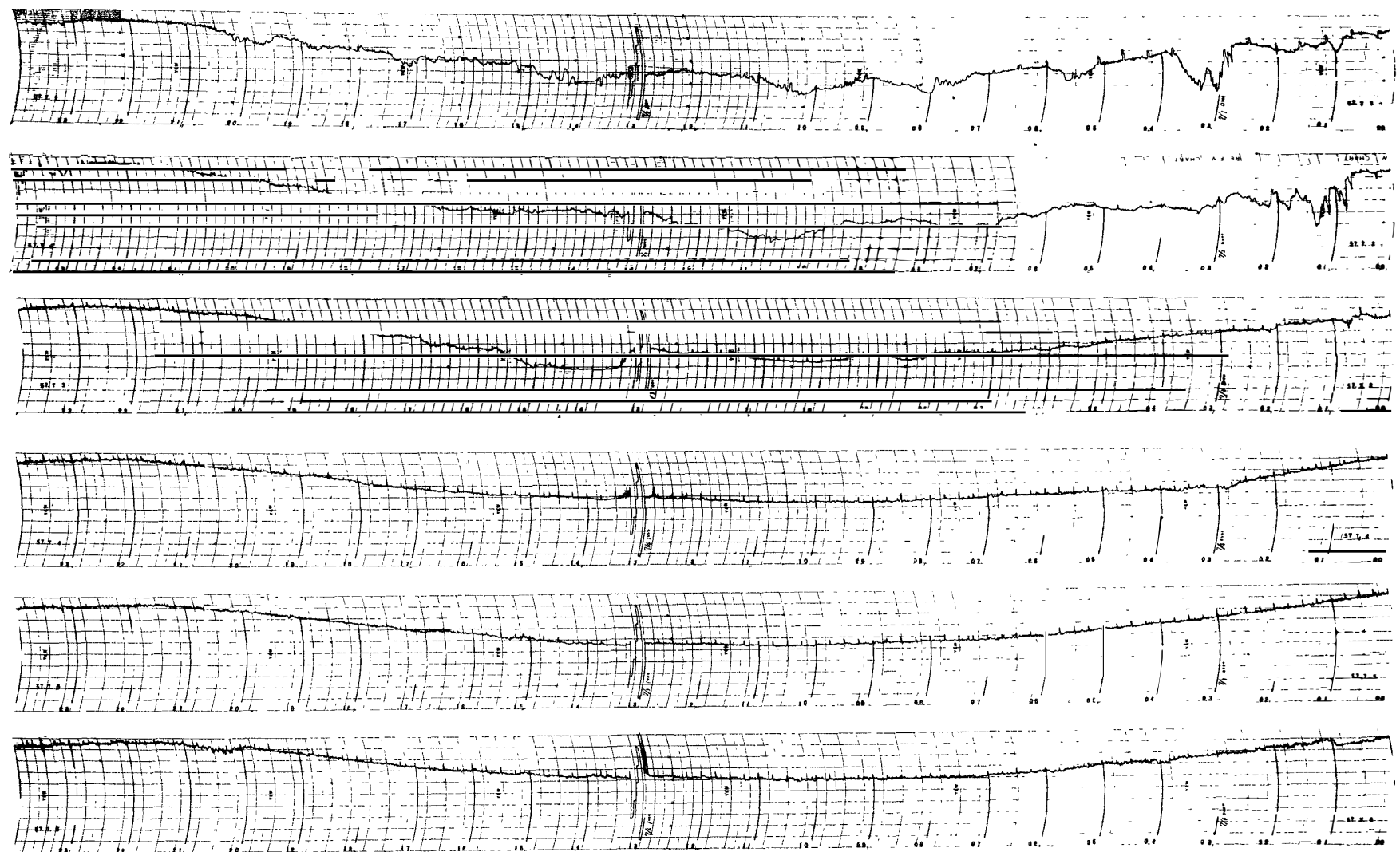
Cosmic noise absorption data gaps due to equipment trouble.

June 21 1325 - 1648

JUNE 1982

JULY 1982

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24 20 16 12 08 04 00

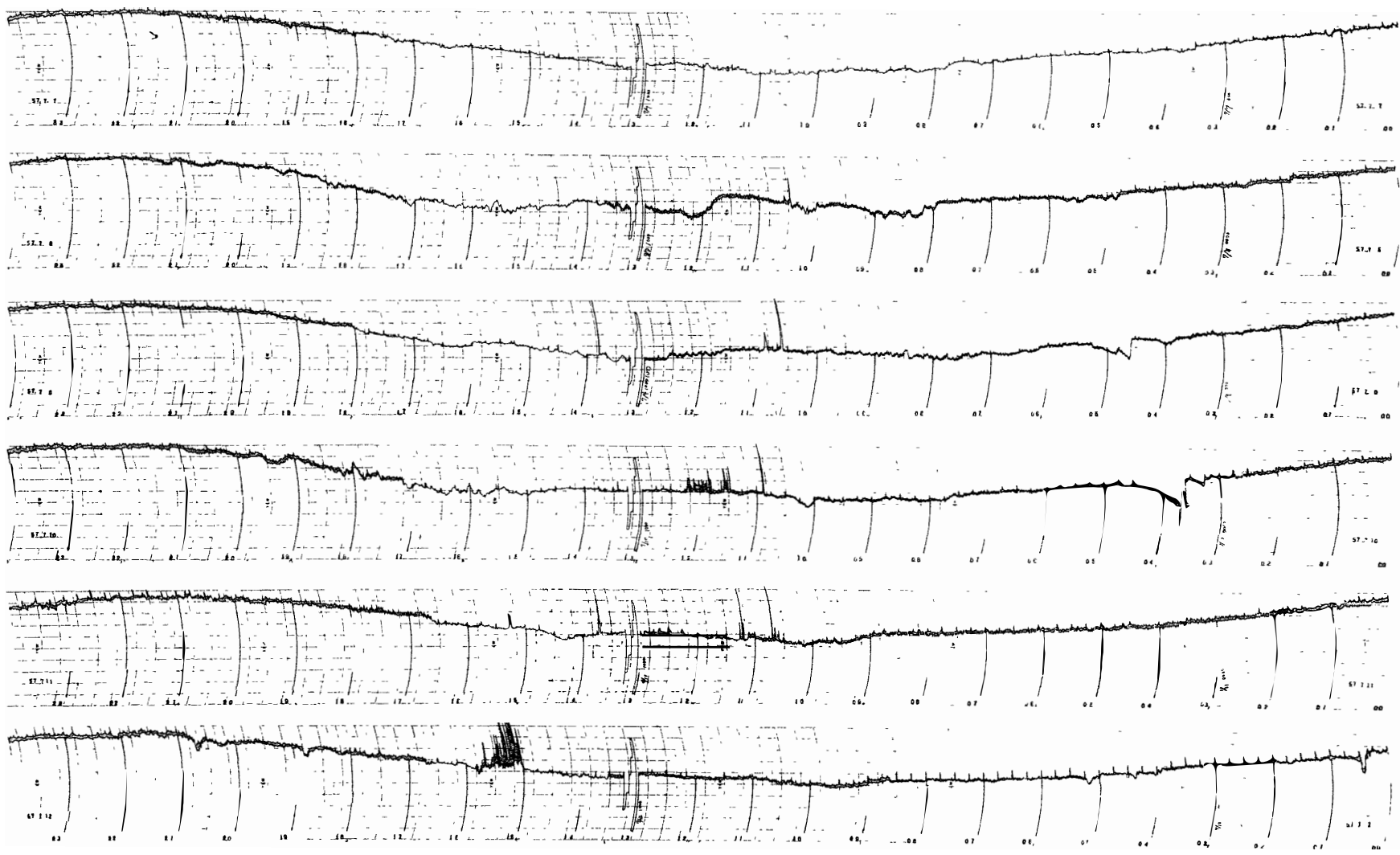
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

- 51 -

JULY 1982

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- 52 -

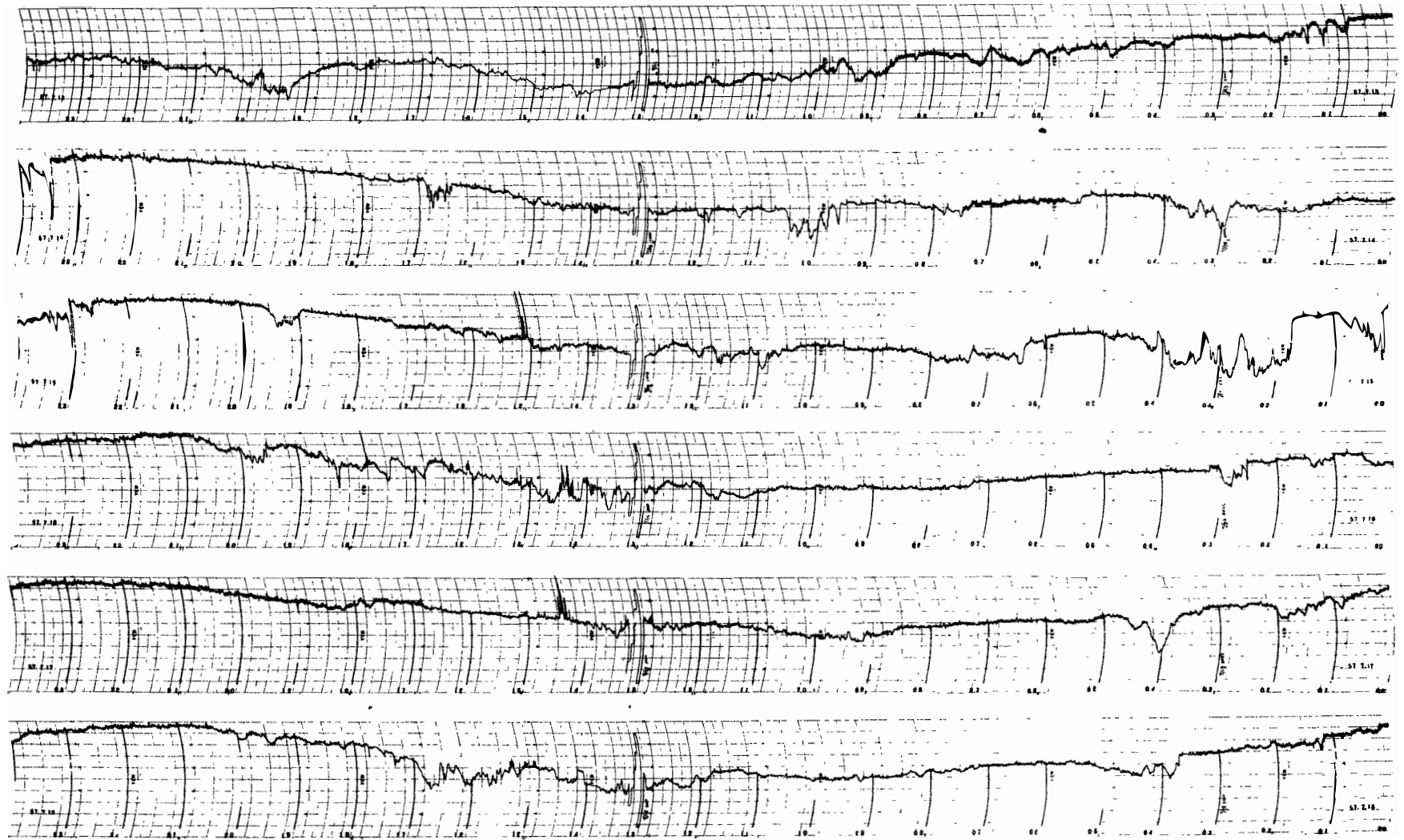
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JULY 1982

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- 53 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JULY 1982

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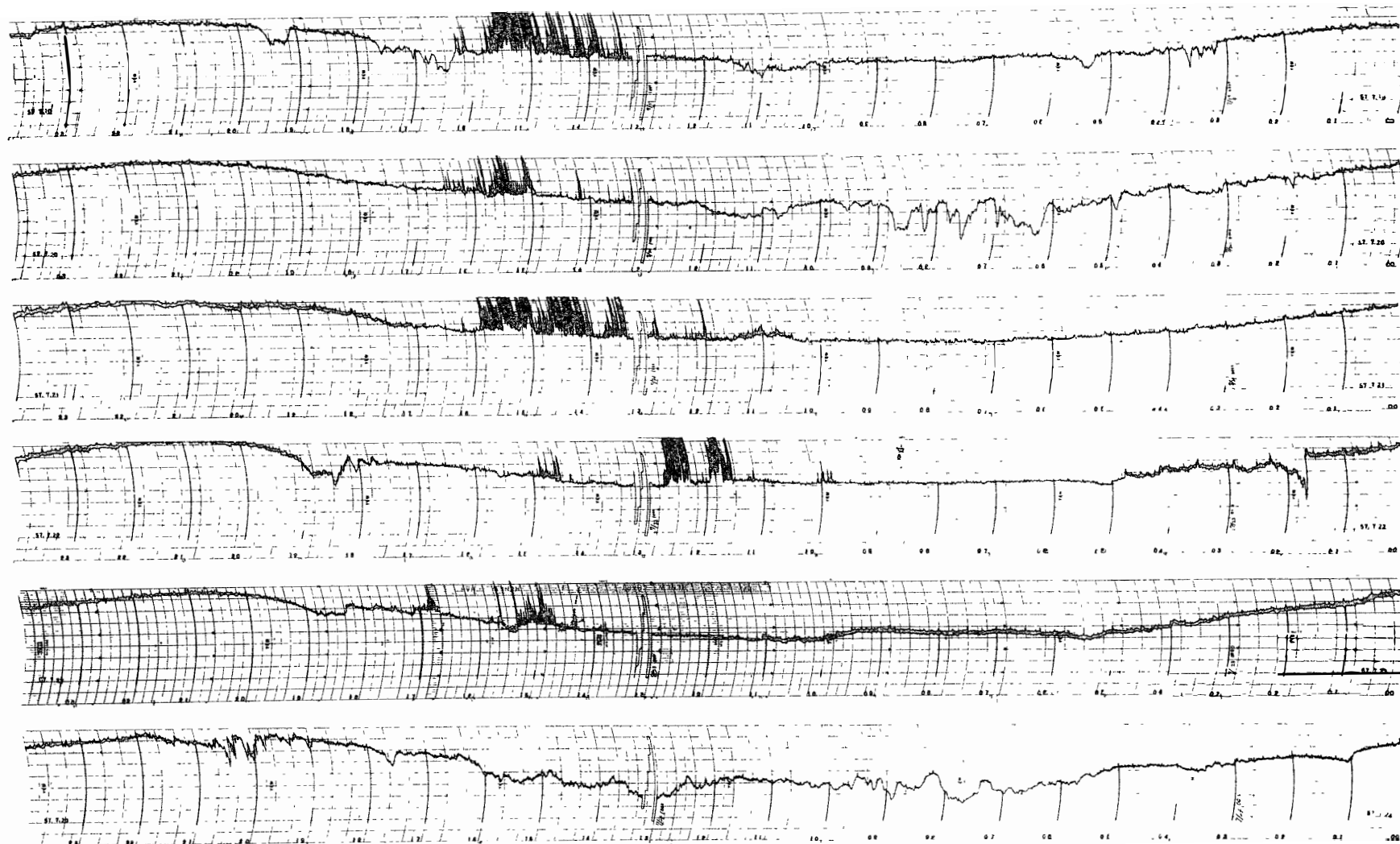
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- 54 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JULY 1982

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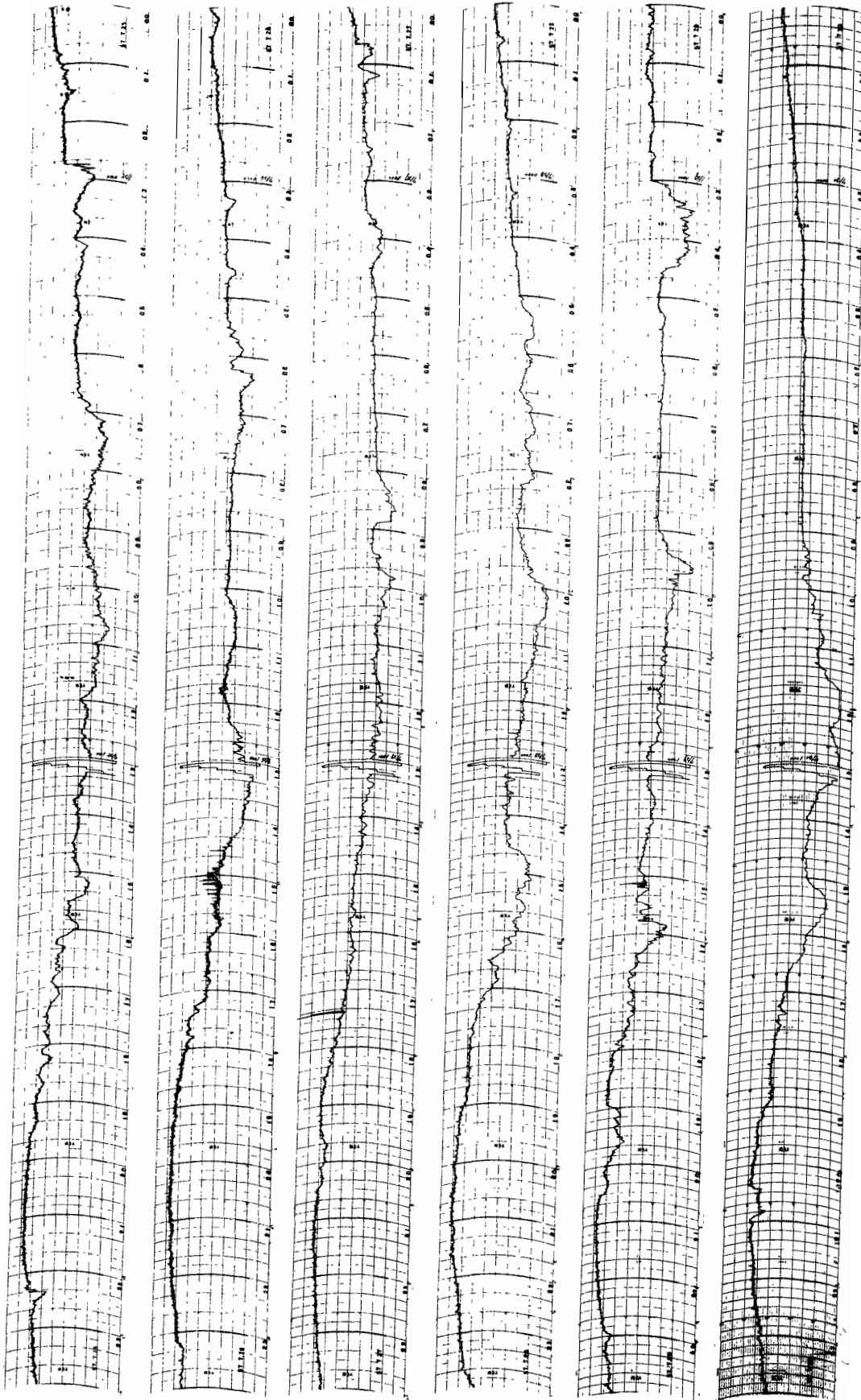
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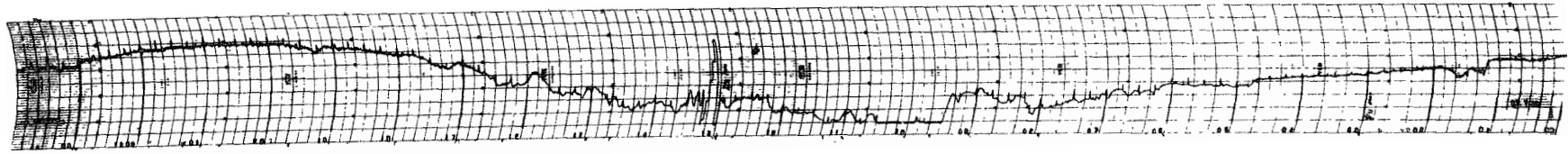
08

04

00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



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16

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08

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45° EAST MERIDIAN TIME IN HOURS

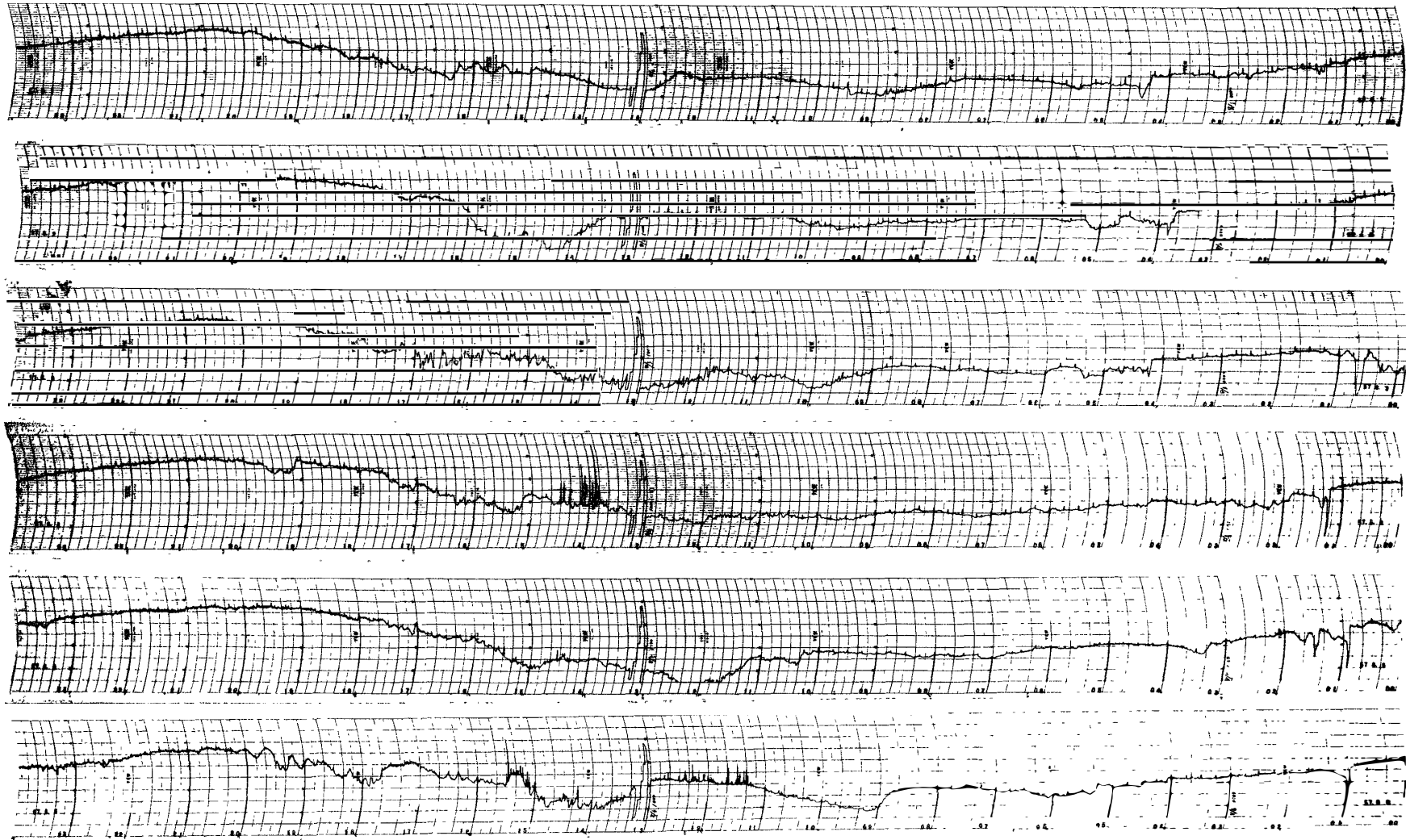
30 MHz COSMIC NOISE

31

JULY 1982

AUG 1982

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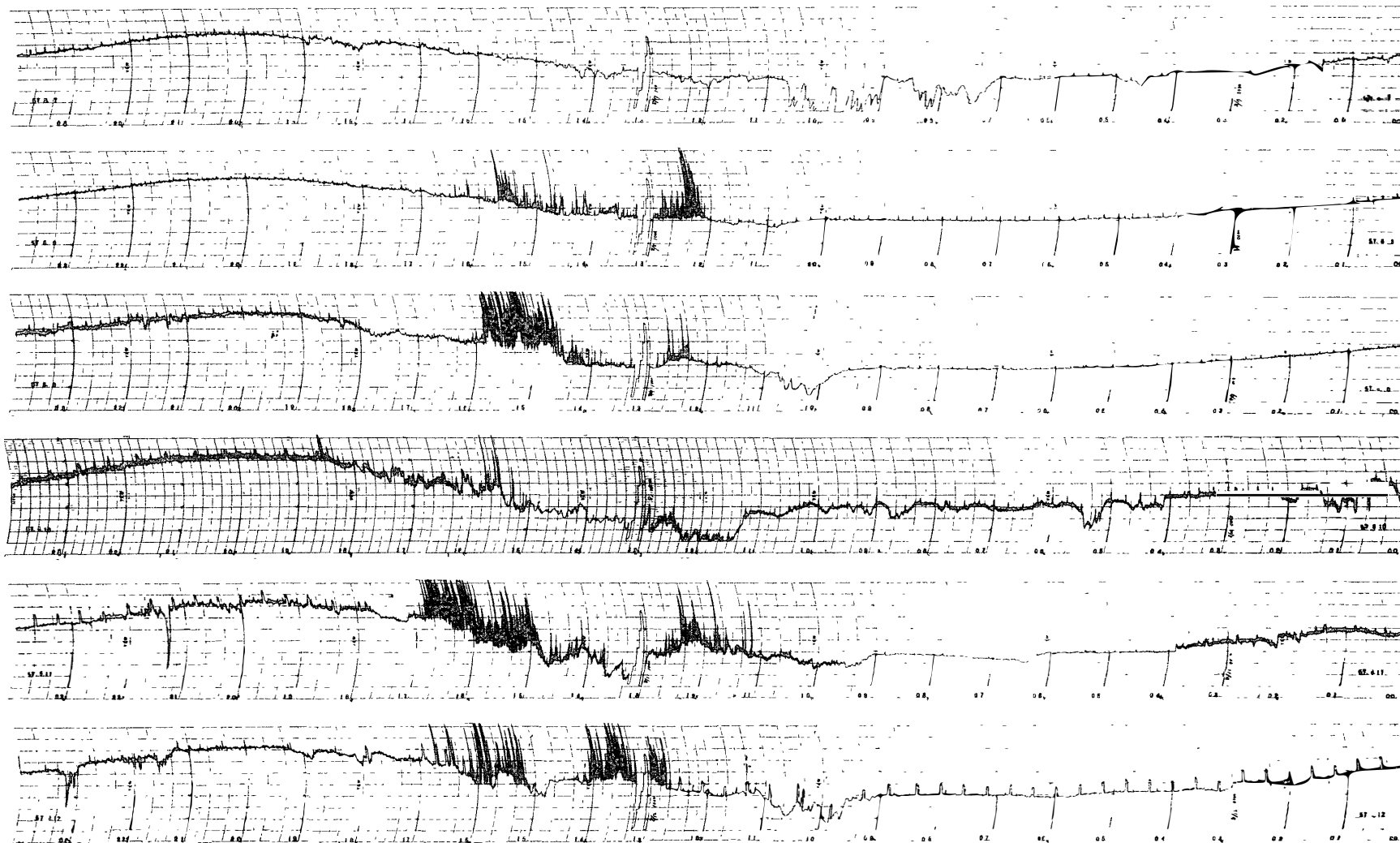
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

AUG 1982

7
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

AUG 1982

13

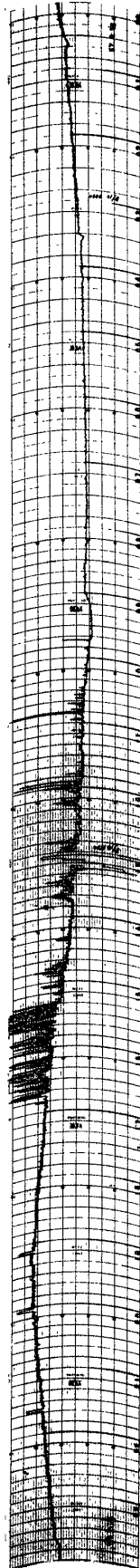
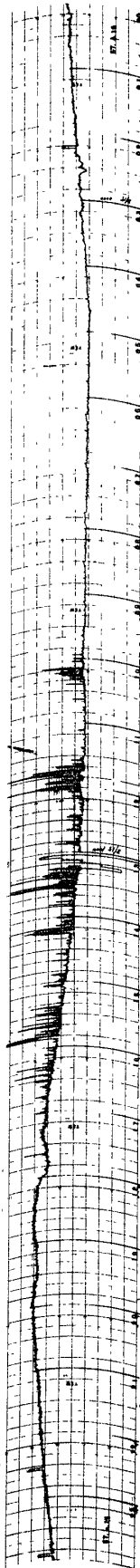
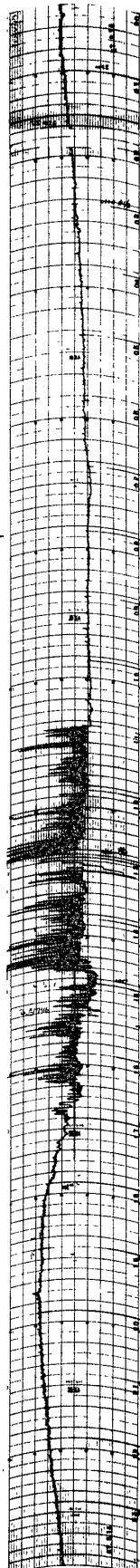
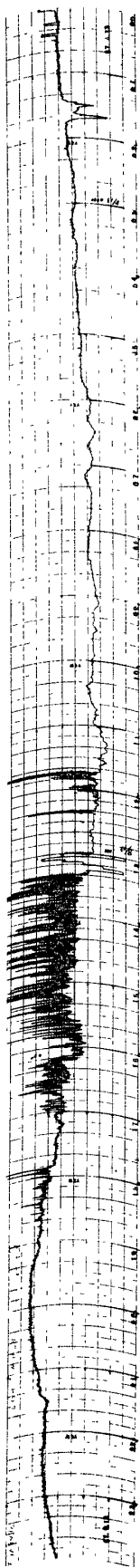
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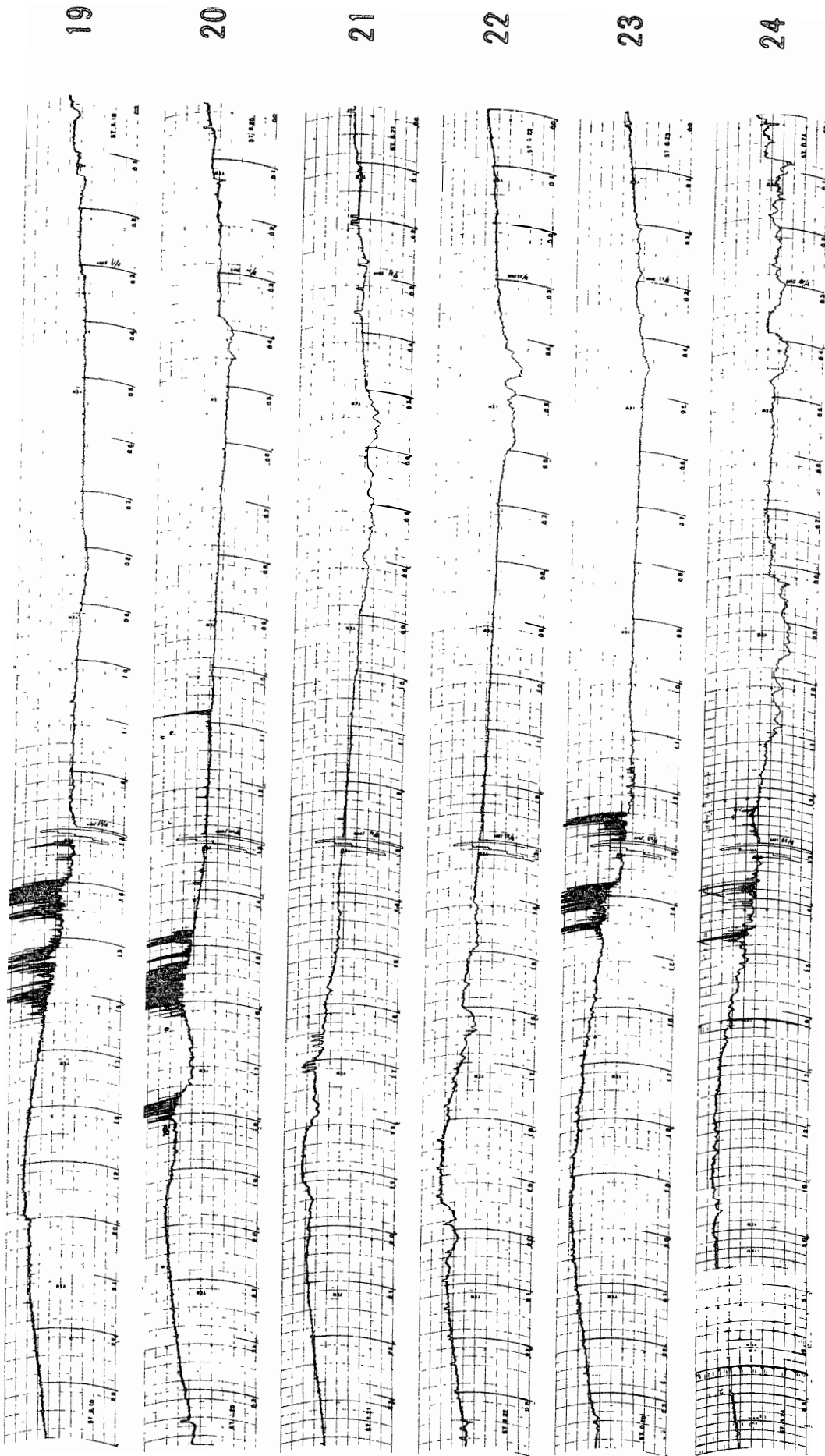
18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

AUG 1982

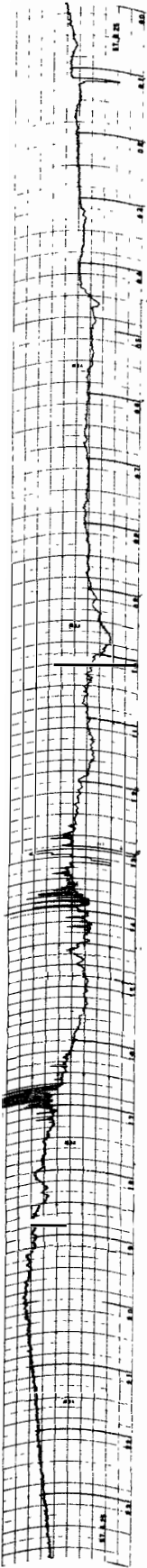


24 20 16 12 08 04 00

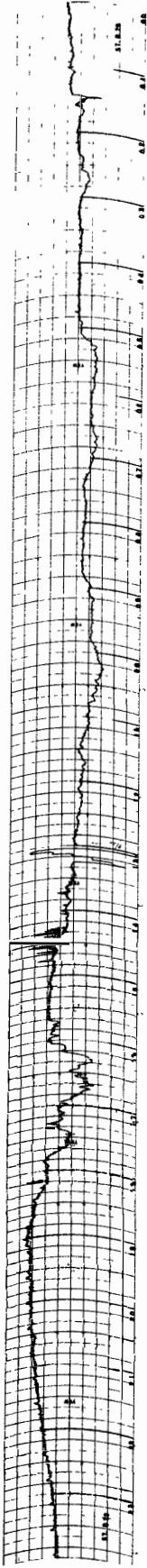
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

AUG 1982

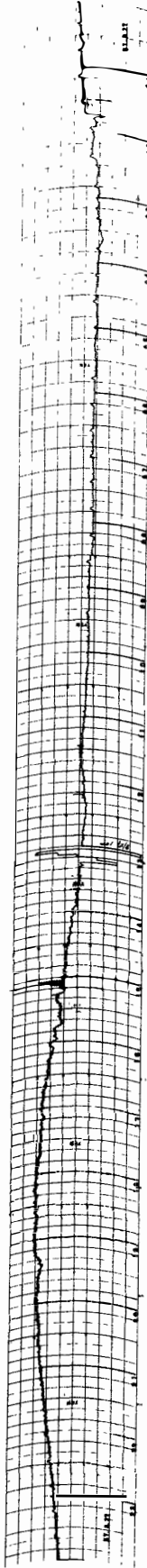
25



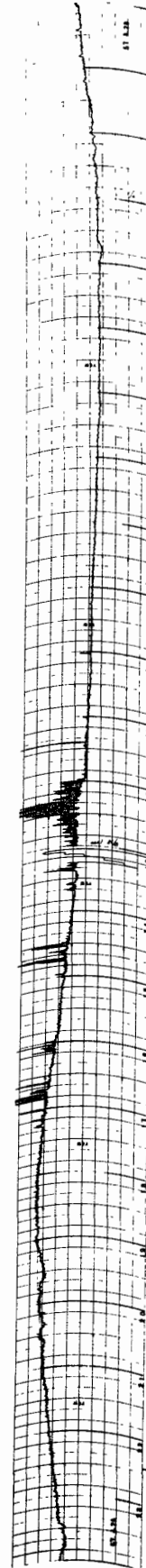
26



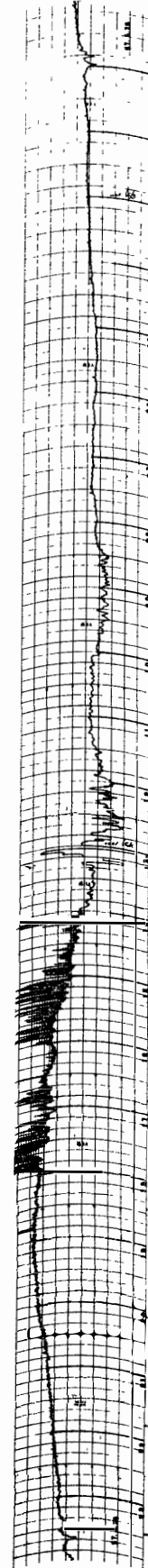
27



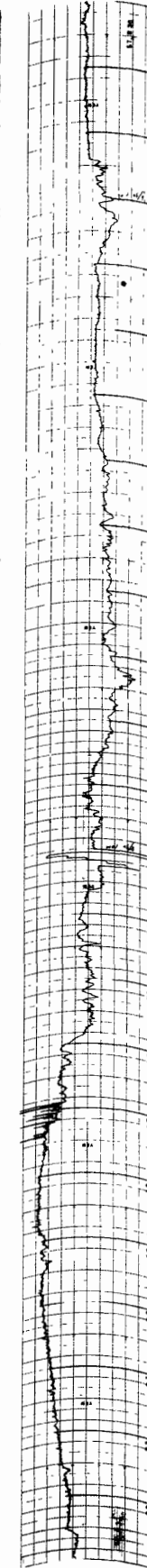
28



29



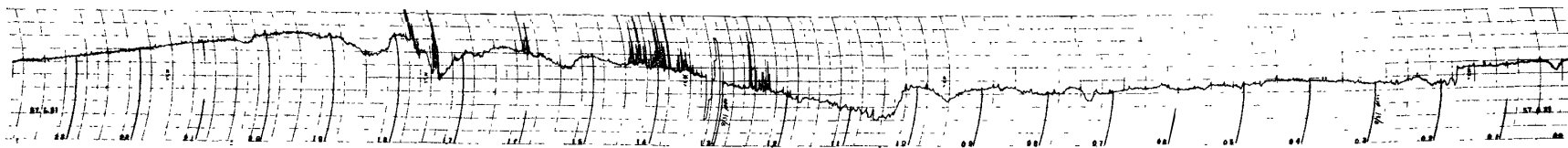
30



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

31
AUG 1982



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

August 24 2040 - 2255

SEP 1982

1

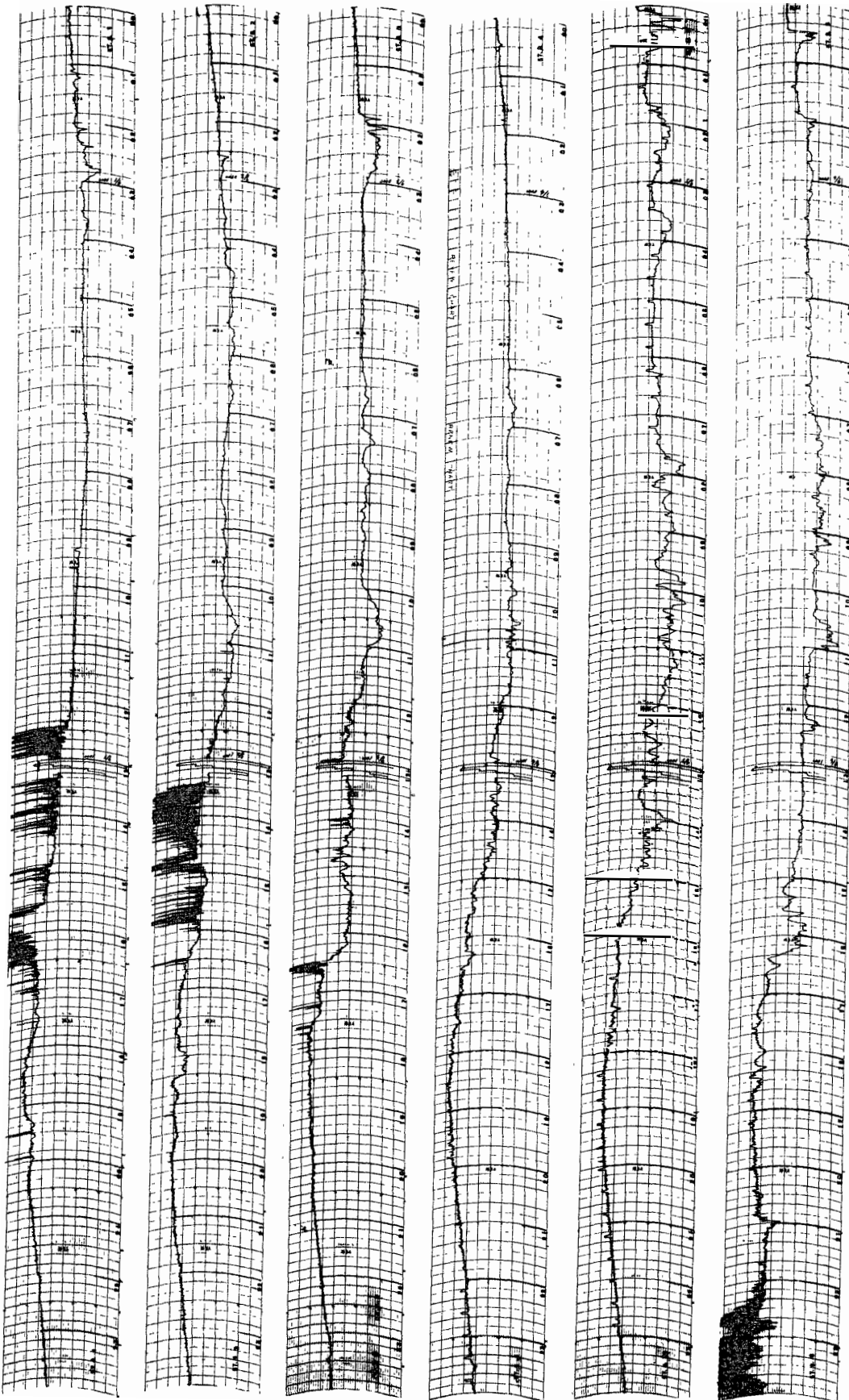
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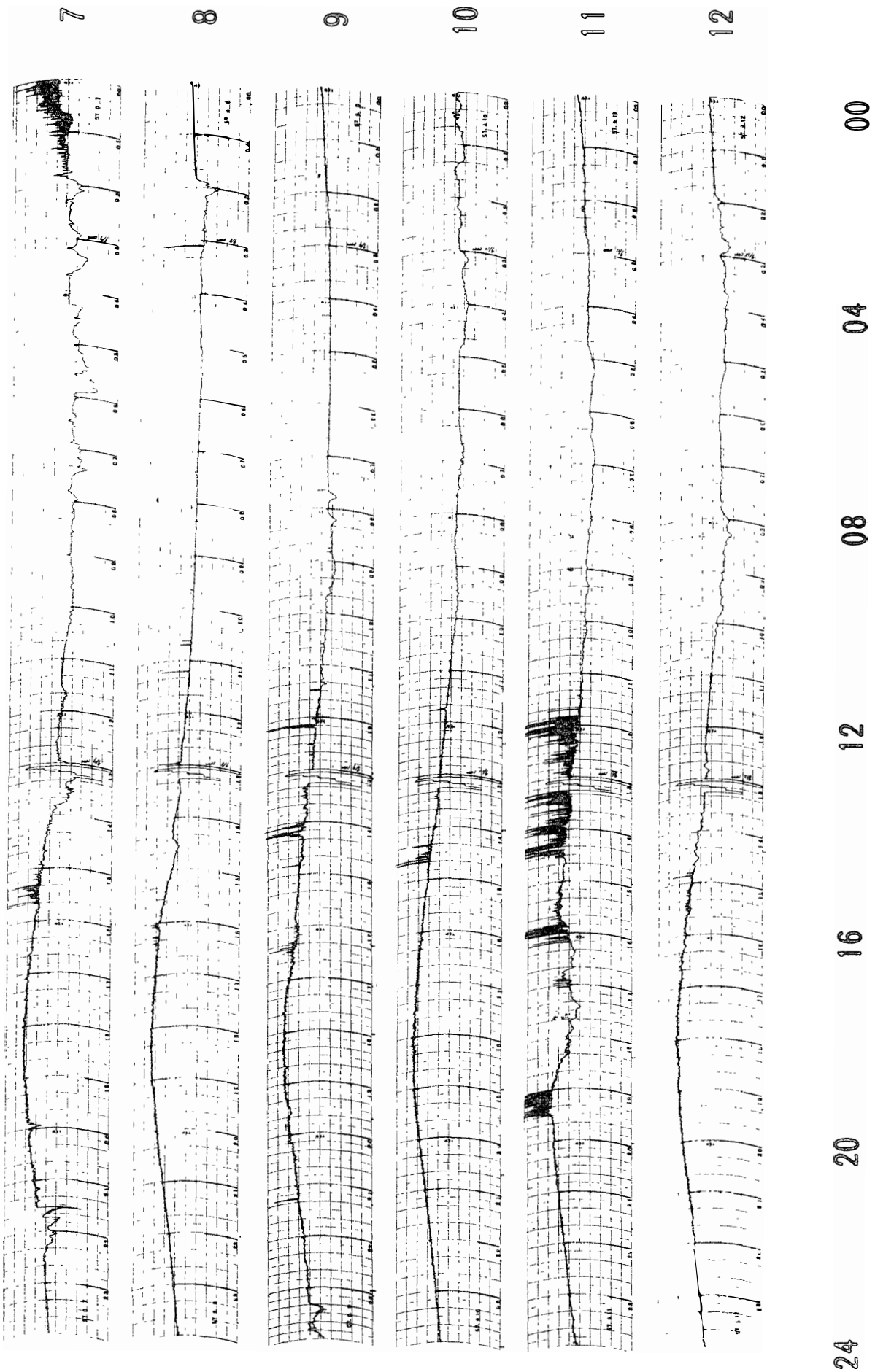
6



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEP 1982



SEP 1982

13

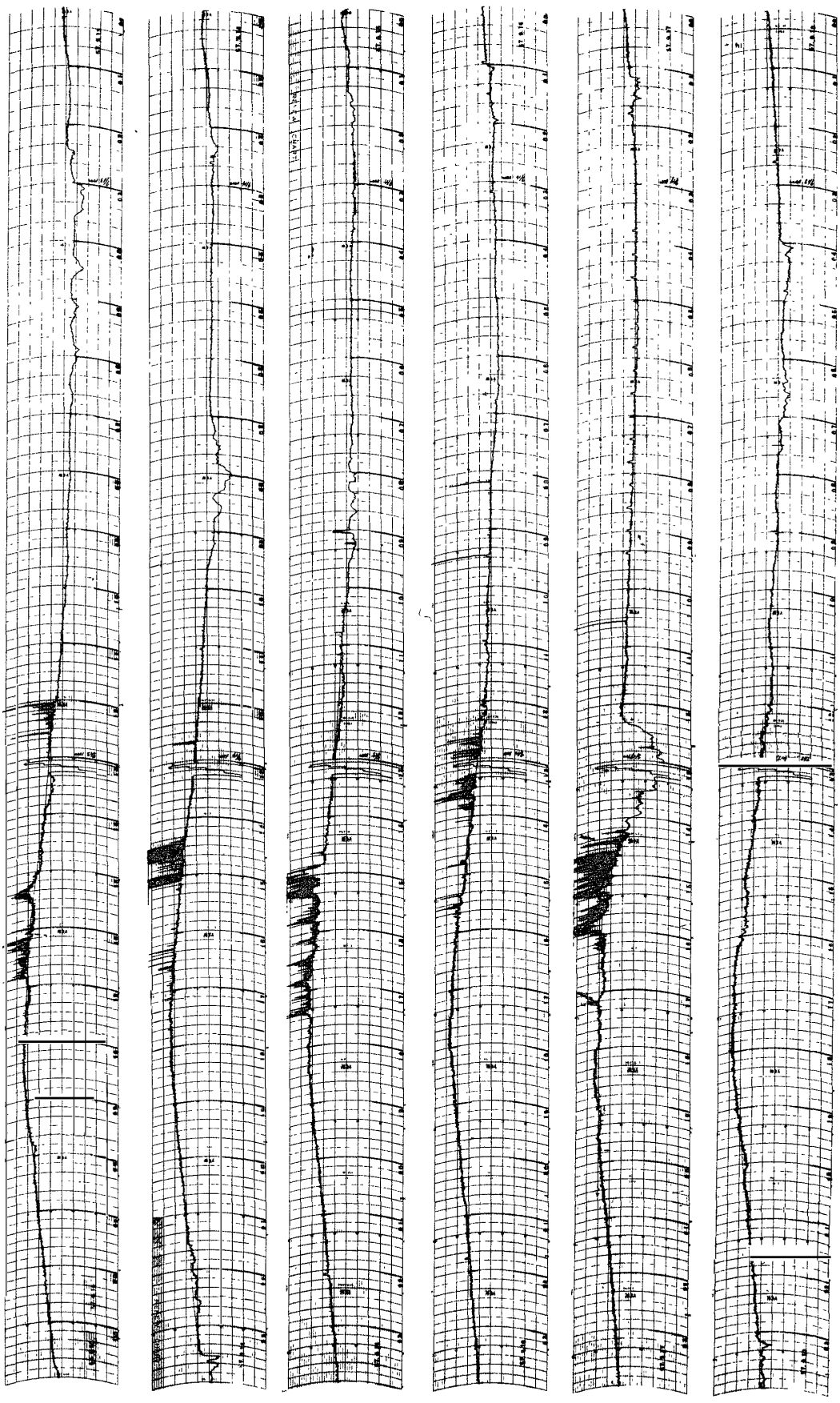
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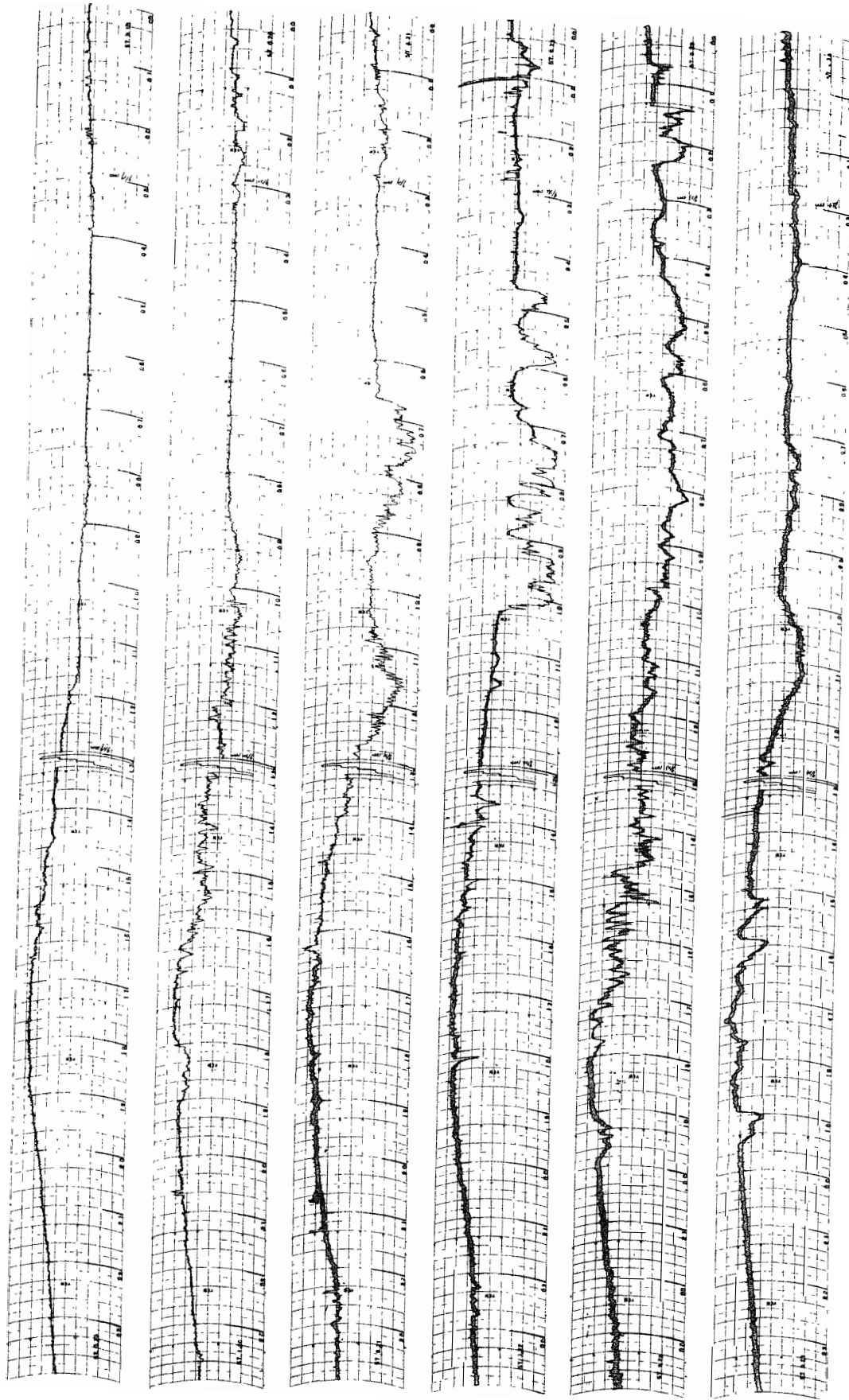
18



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

19 SEP 1982



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

25 SEP

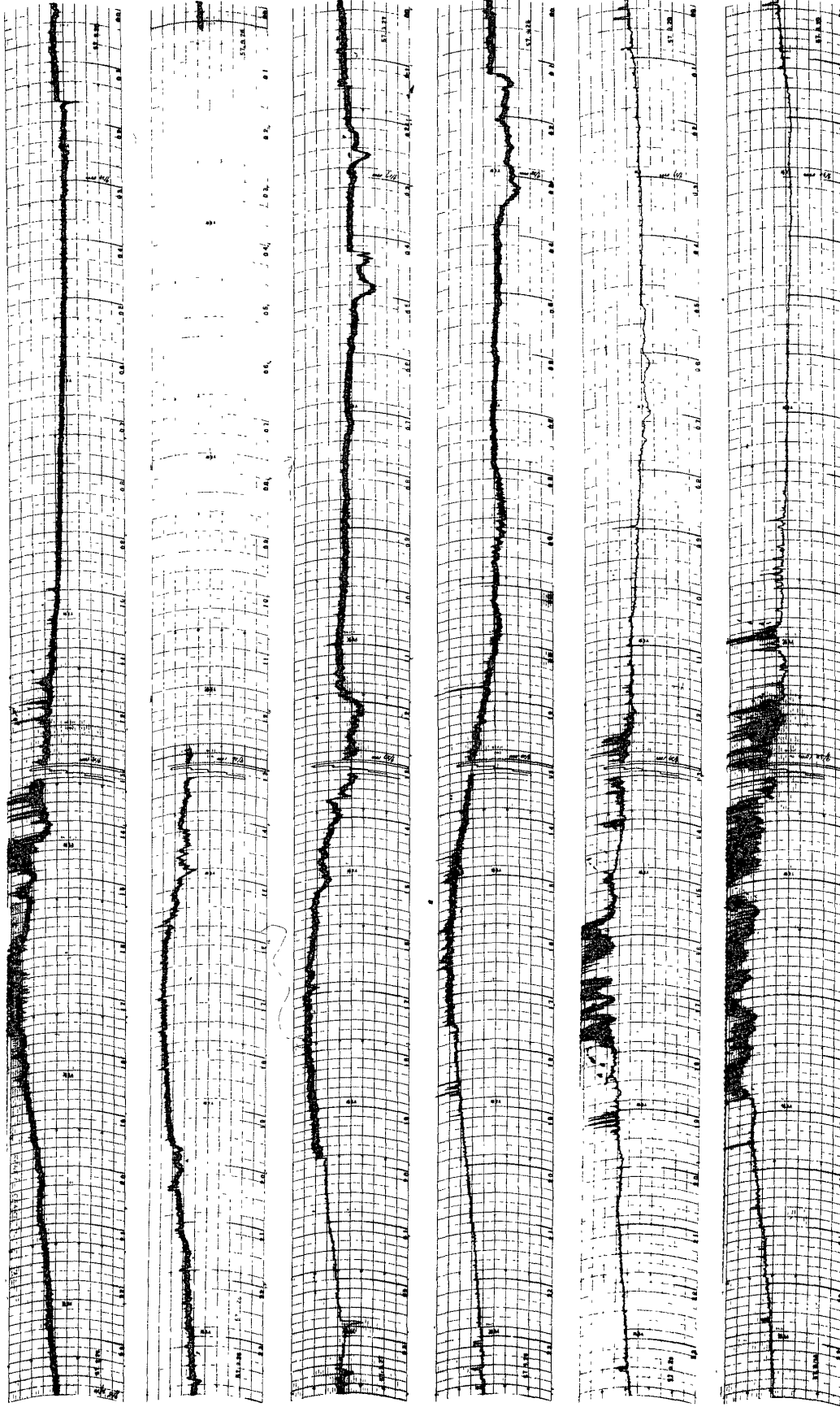
26 1982

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

Cosmic noise absorption data gaps due to equipment trouble.

September 26 0028 - 1245

SEP 1982

OCT 1982

1

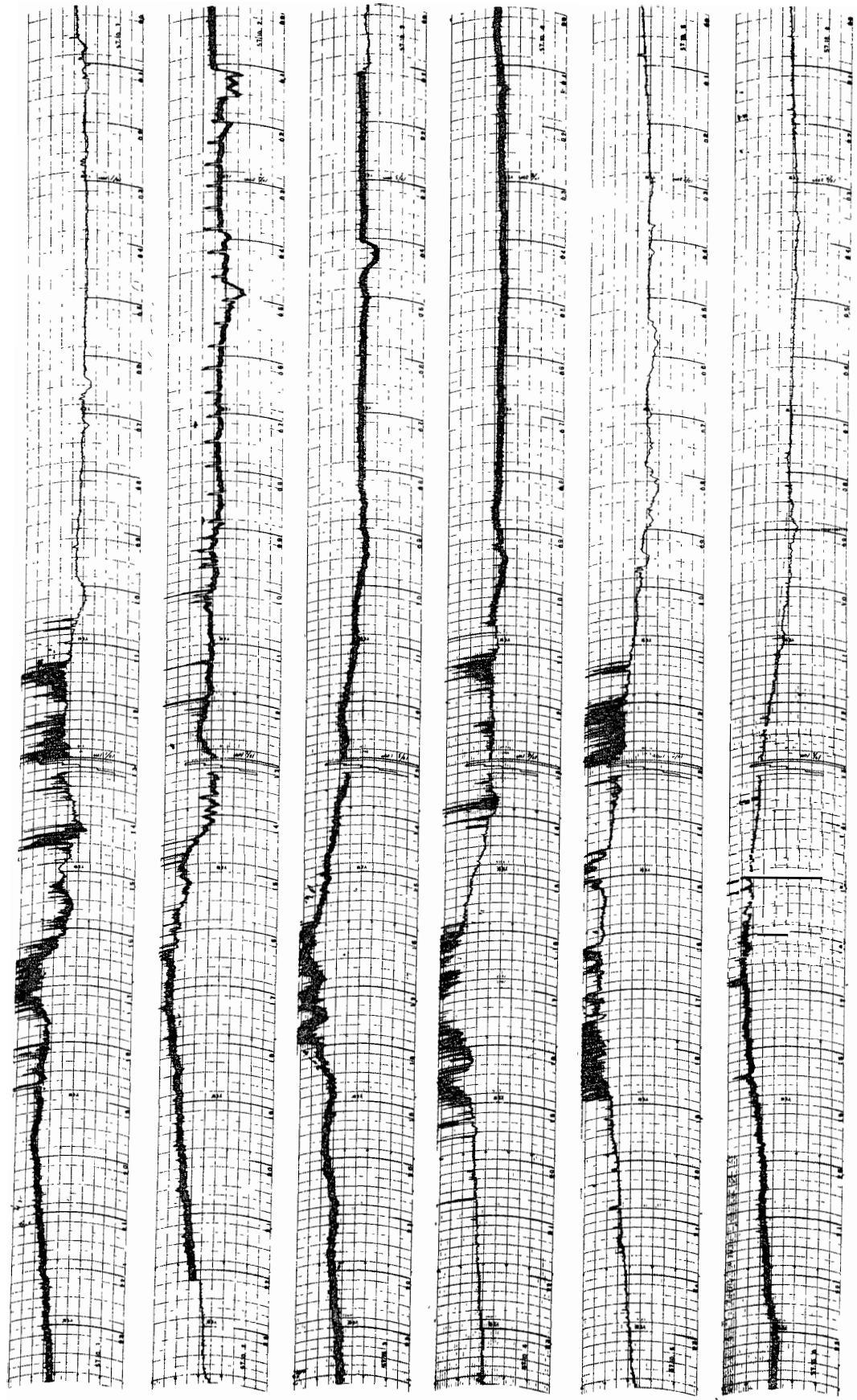
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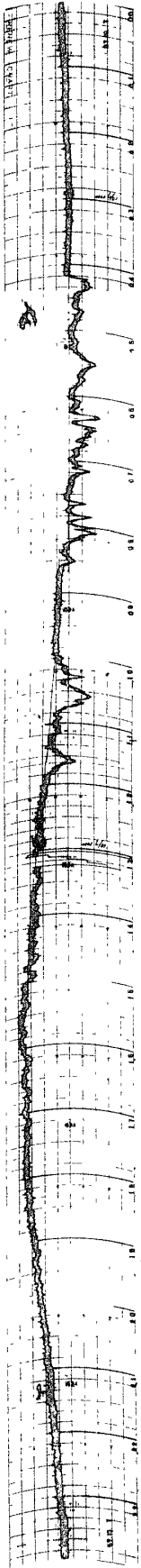


24 20 16 12 08 04 00

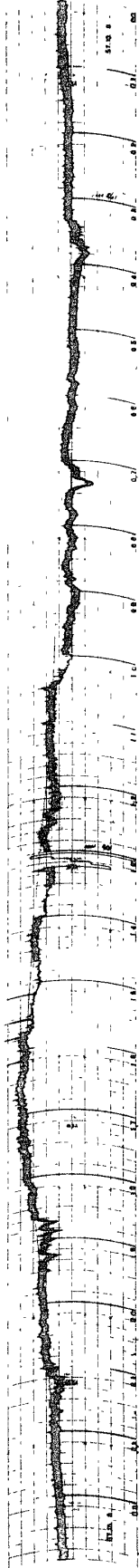
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1982

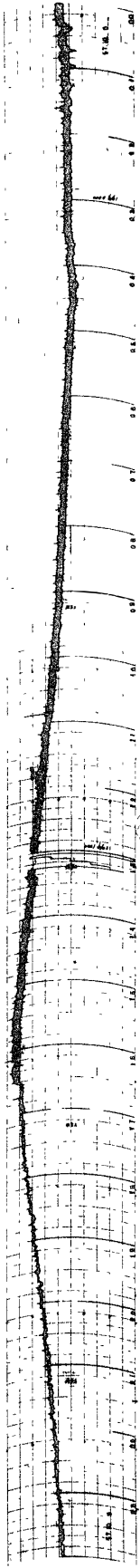
7



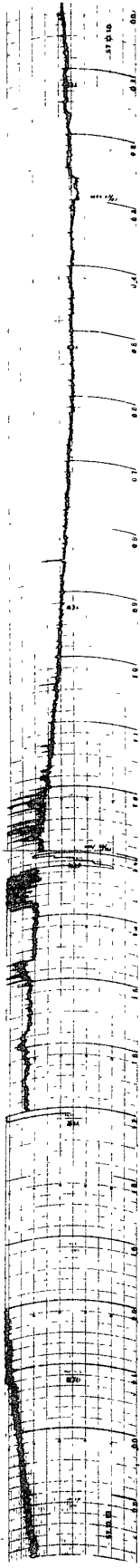
8



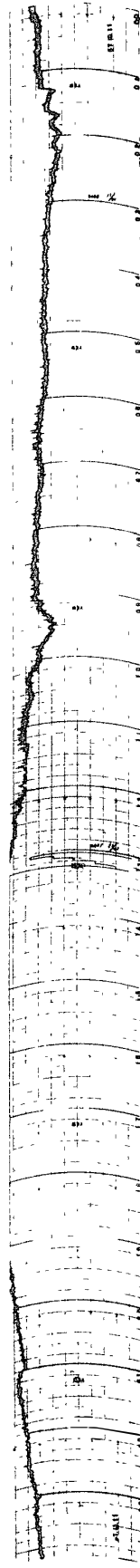
9



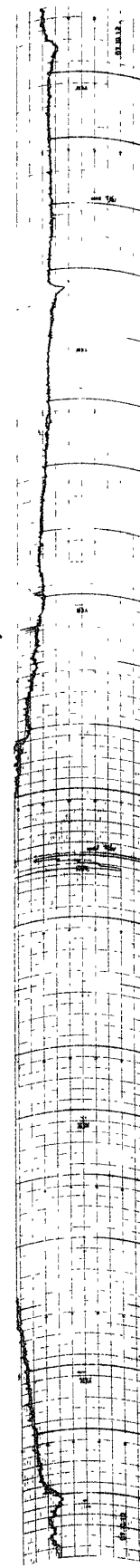
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

OCT 1982

13

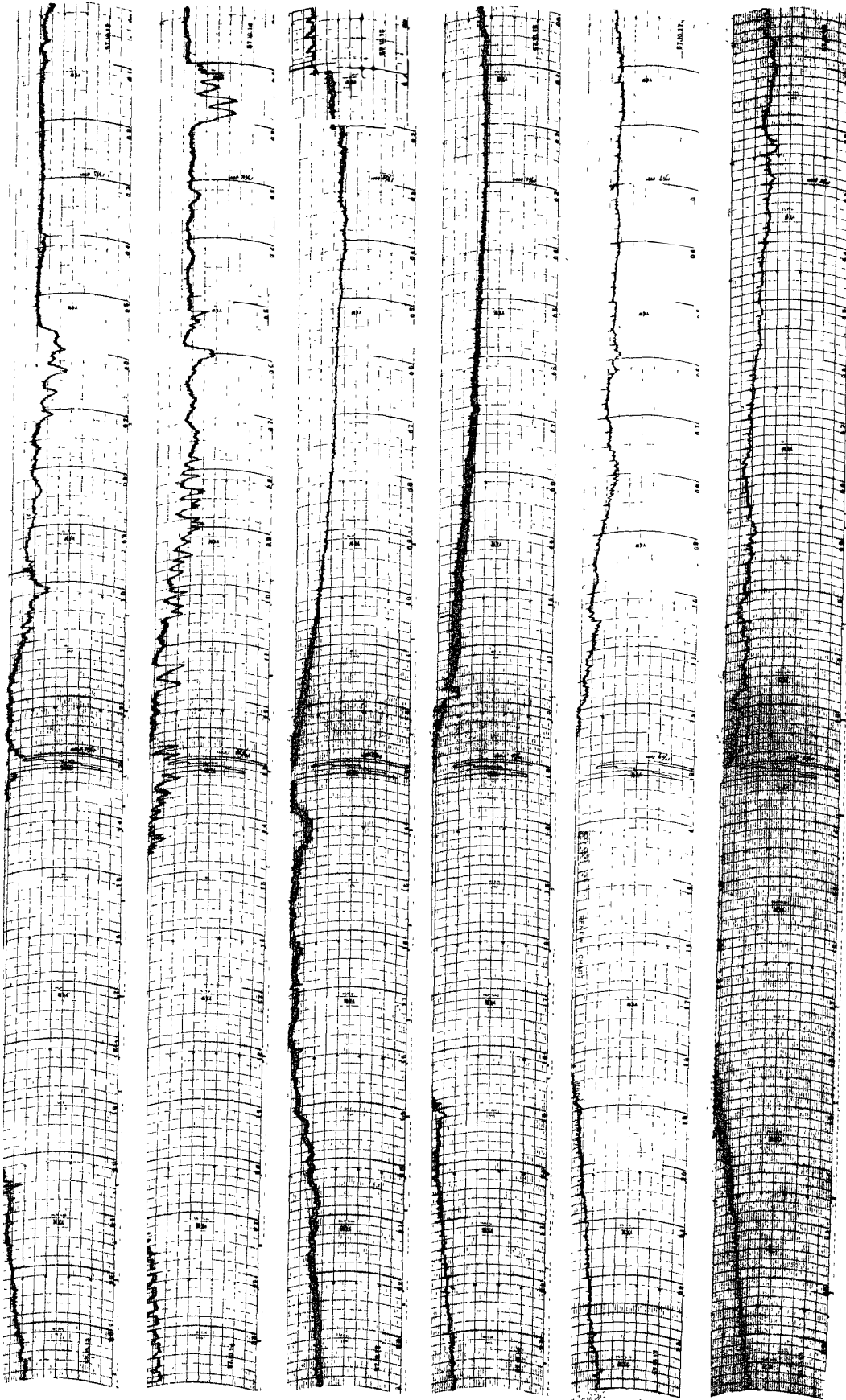
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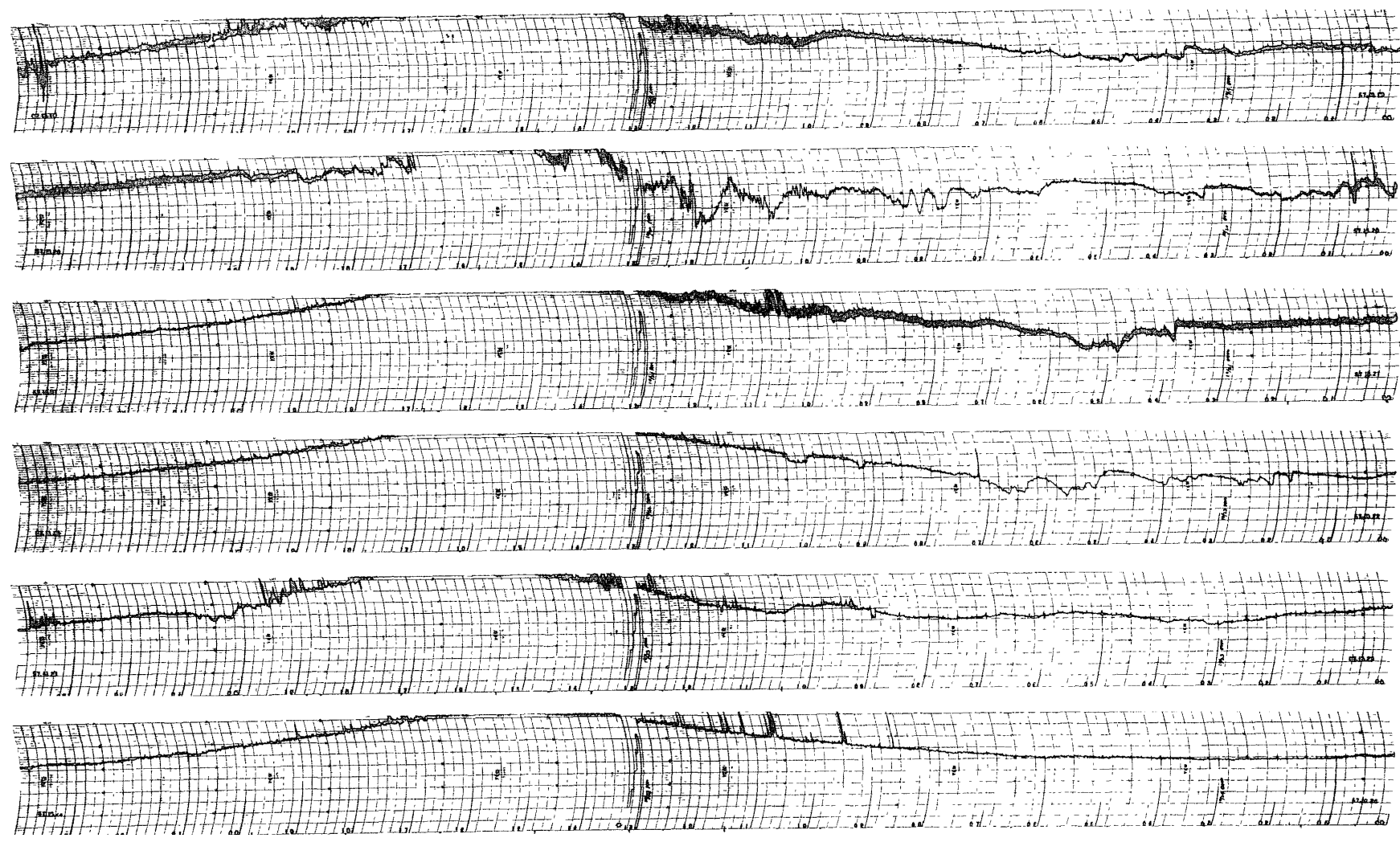


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

OCT 1982

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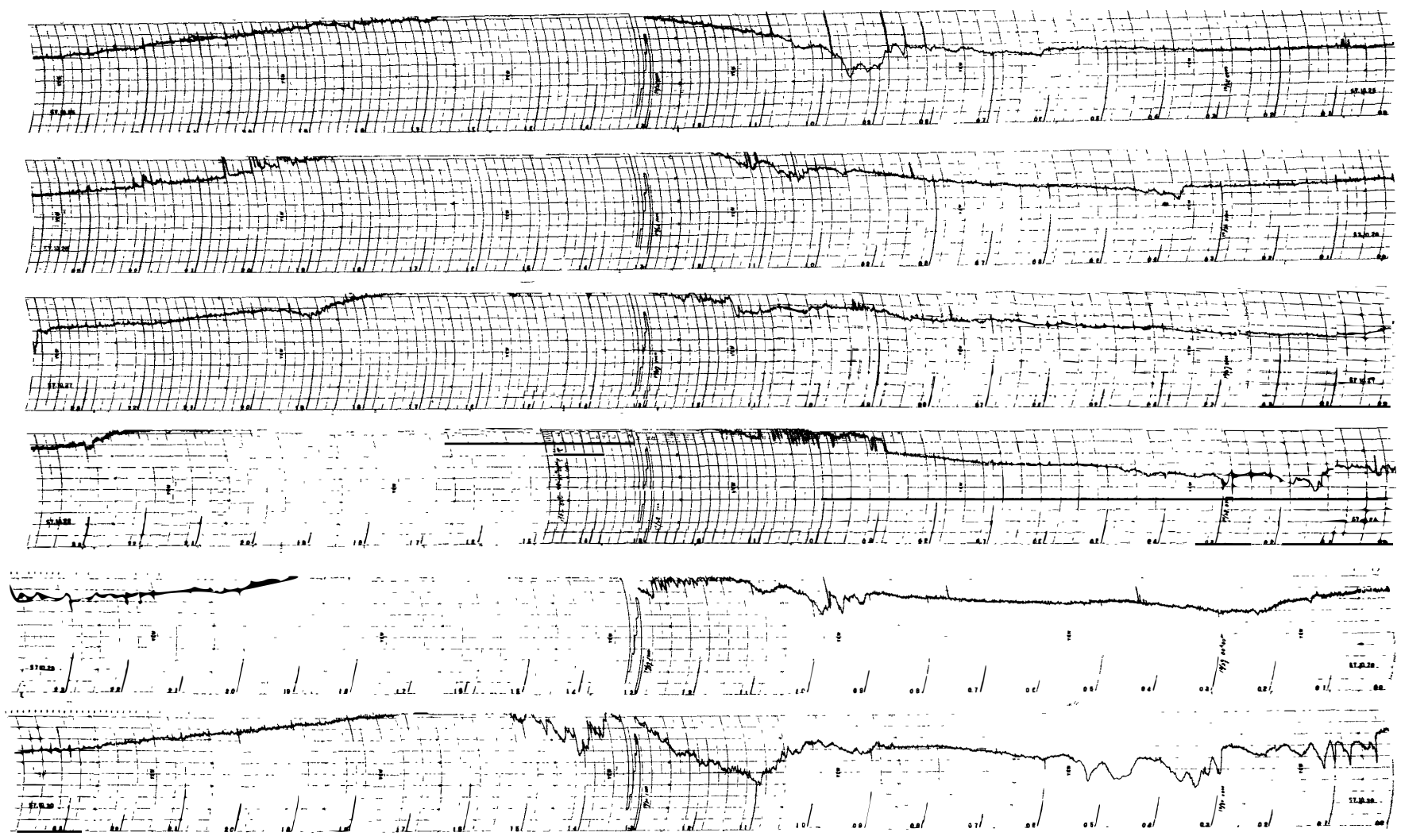
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

OCT 1982

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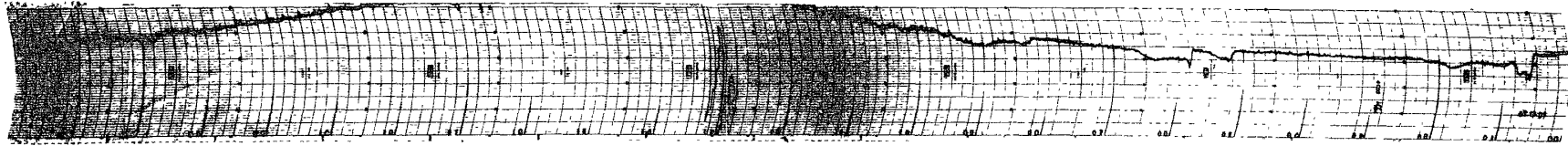


- 73 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



31

OCT 1982

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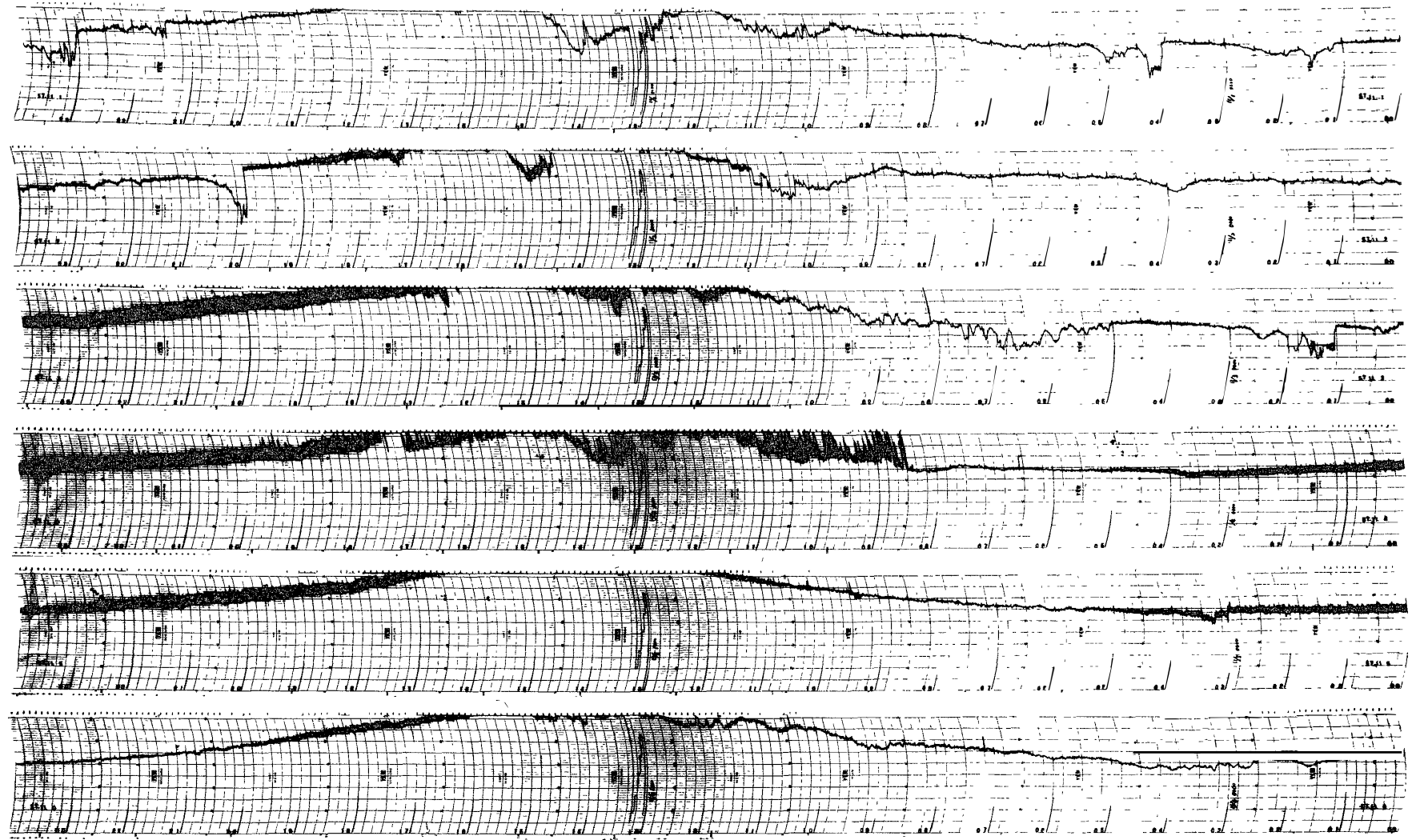
00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

NOV 1982

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- 75 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

7 NOV

1982

7

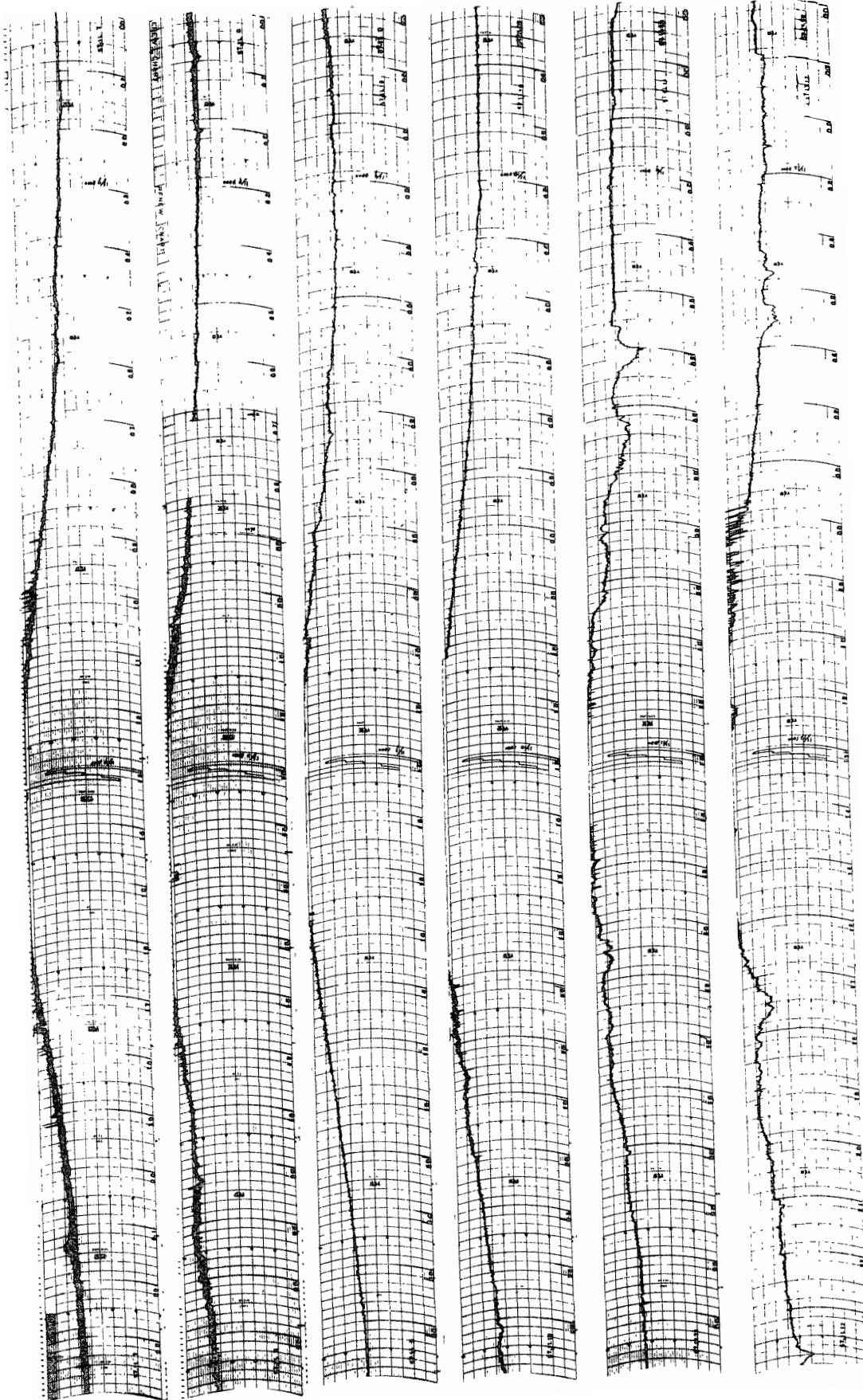
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30 MHz COSMIC NOISE

45° EAST MERIDIAN TIME IN HOURS

NOV 1982

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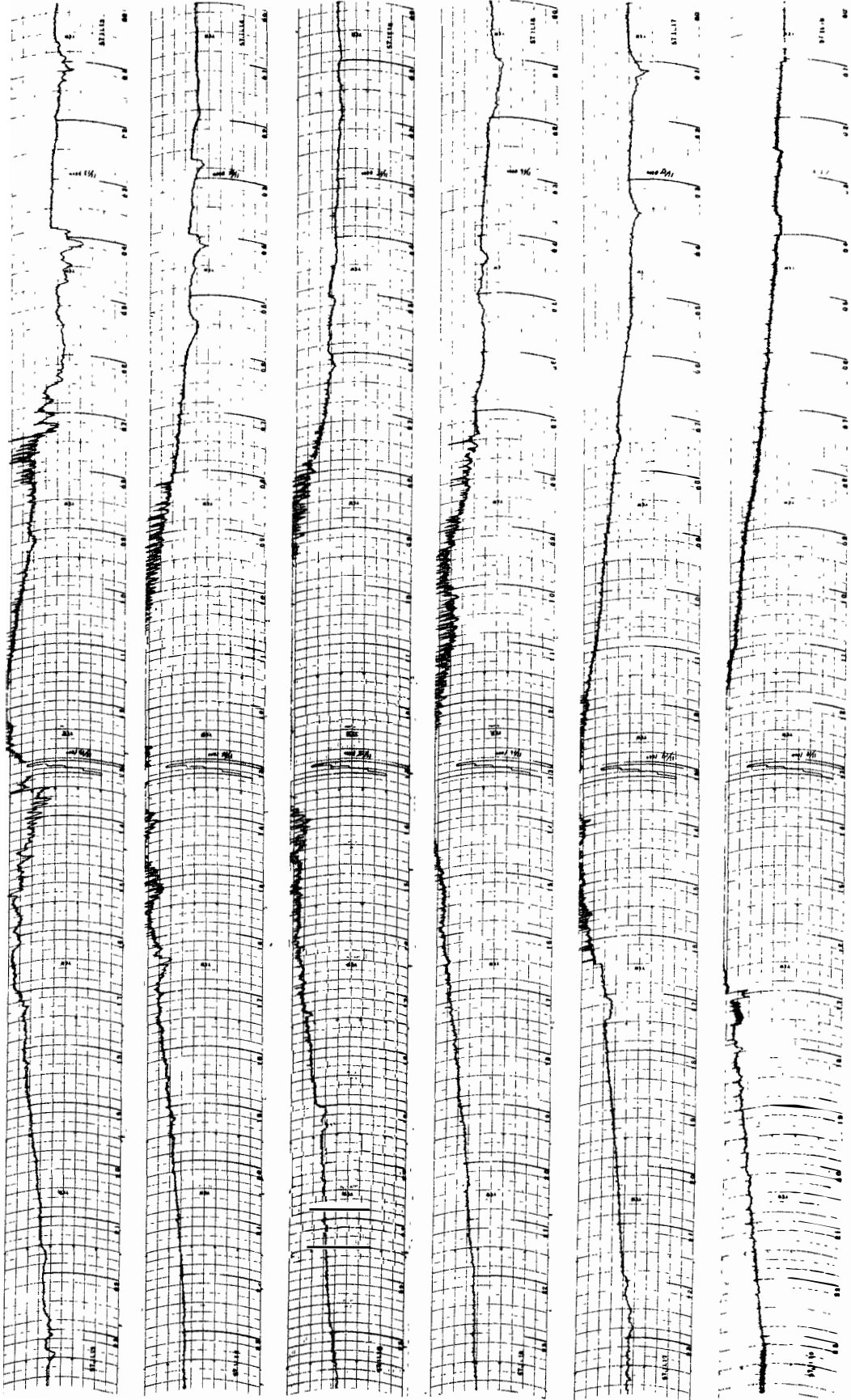
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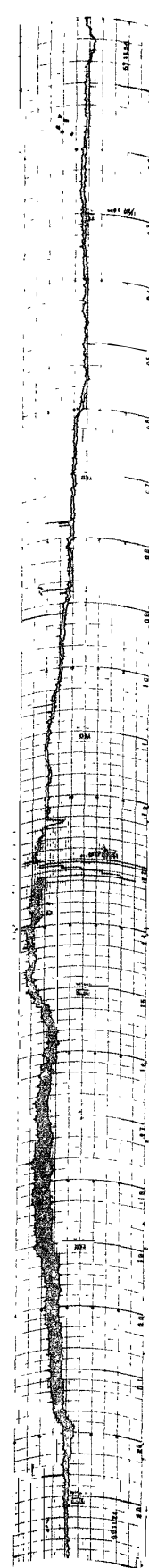
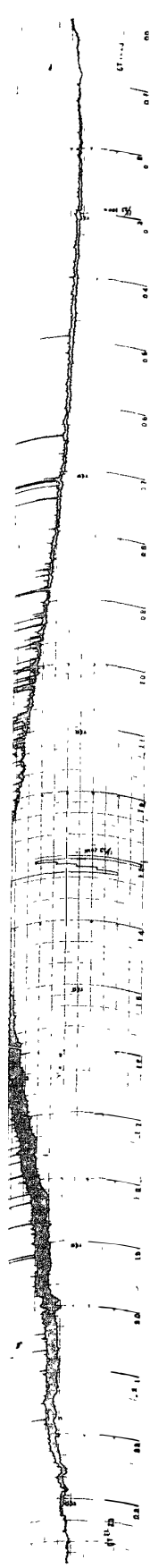
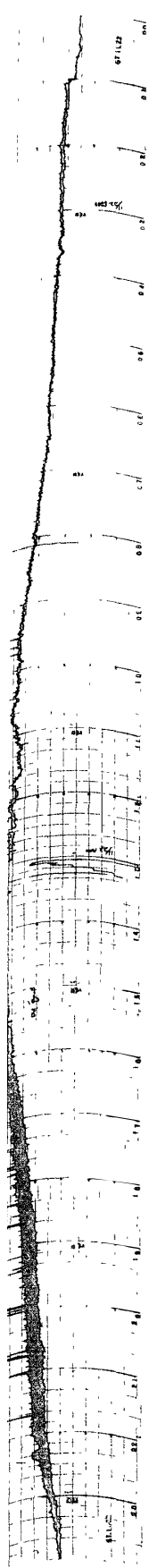
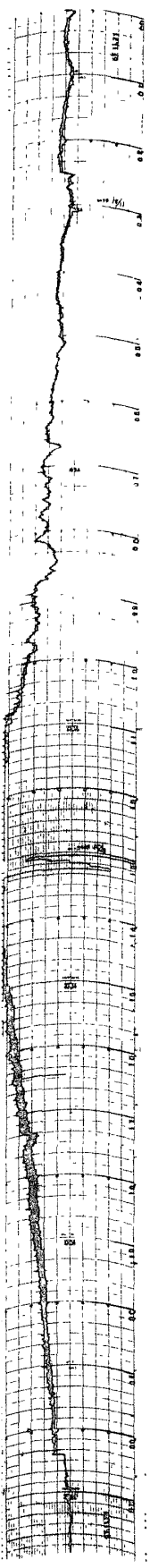
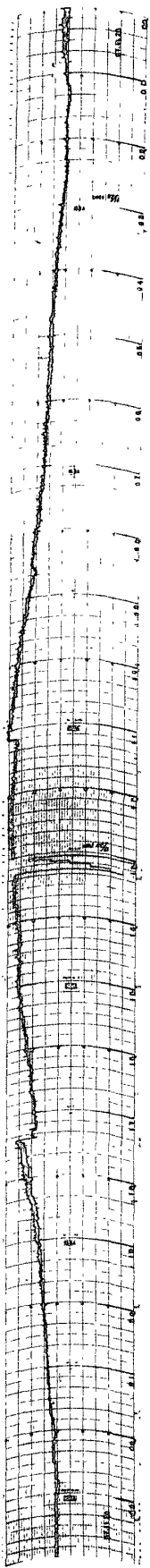
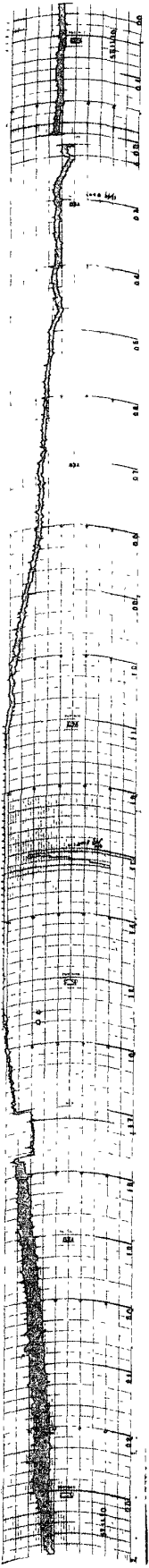
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



19 NOV

1982



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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

NOV 1982

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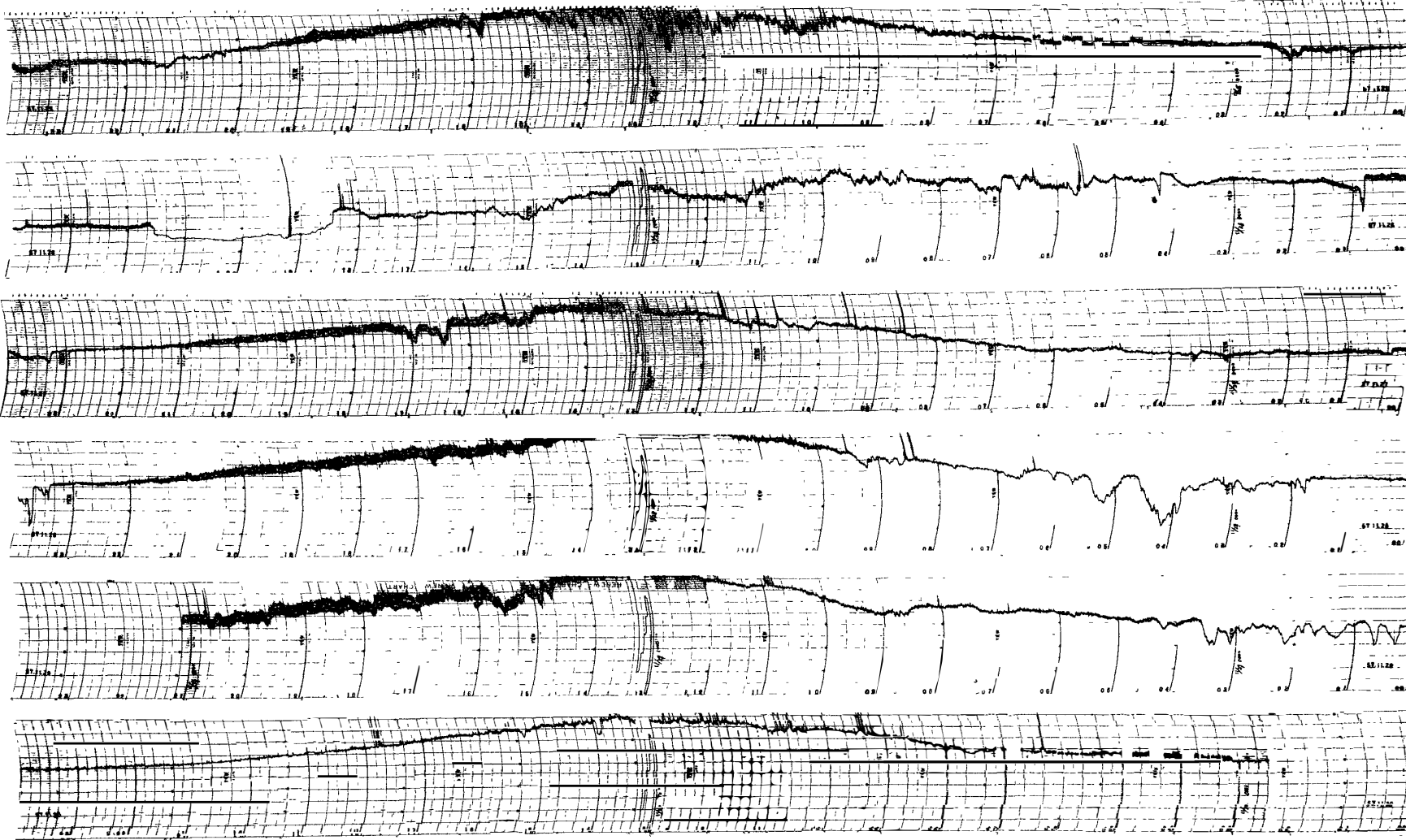
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

-79 -

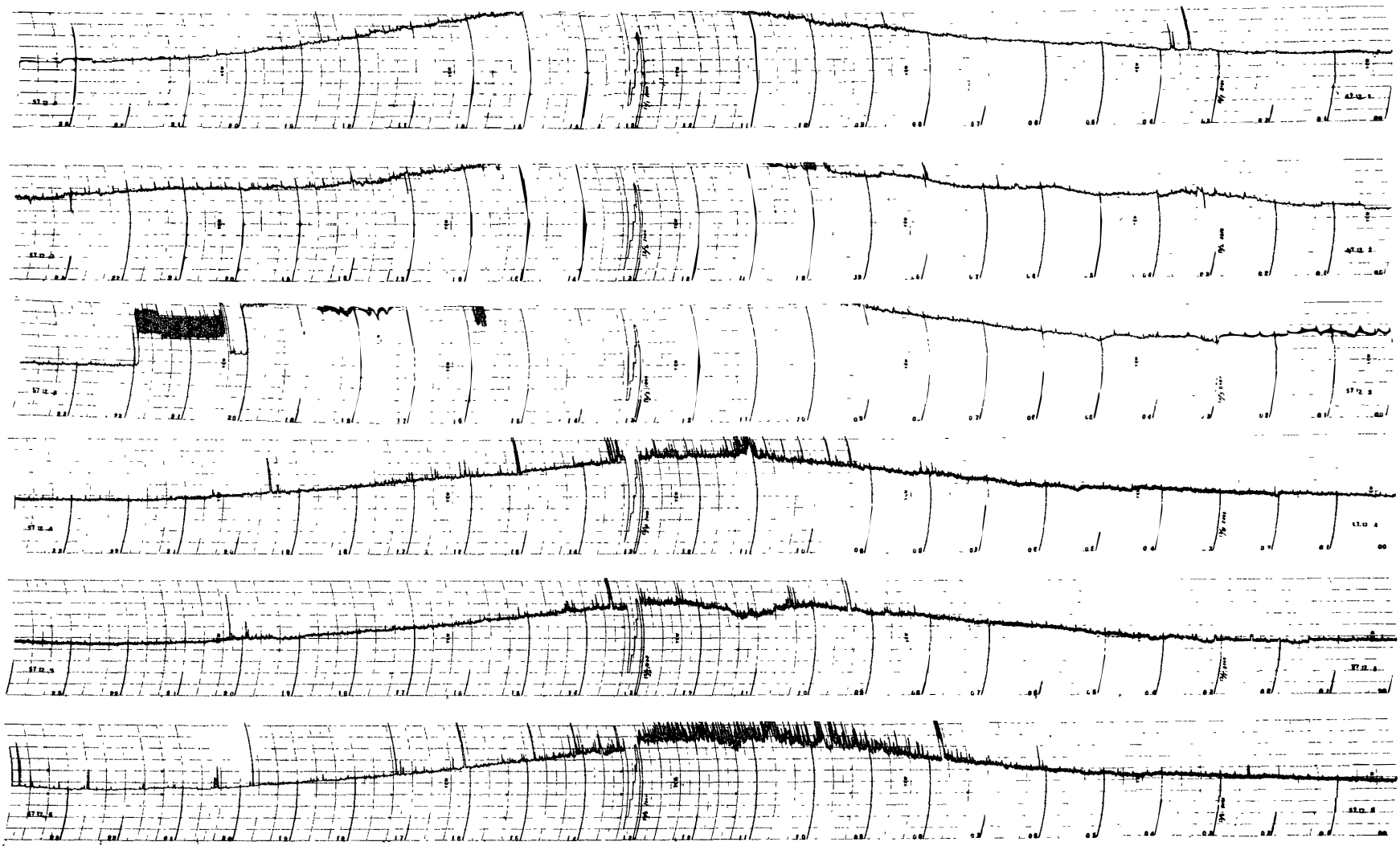
Cosmic noise absorption data gaps due to equipment trouble.

November	8	0702 - 0820
	29	2108 -
	30	0230

NOV 1982

DEC 1982

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24 20 16 12 08 04 00

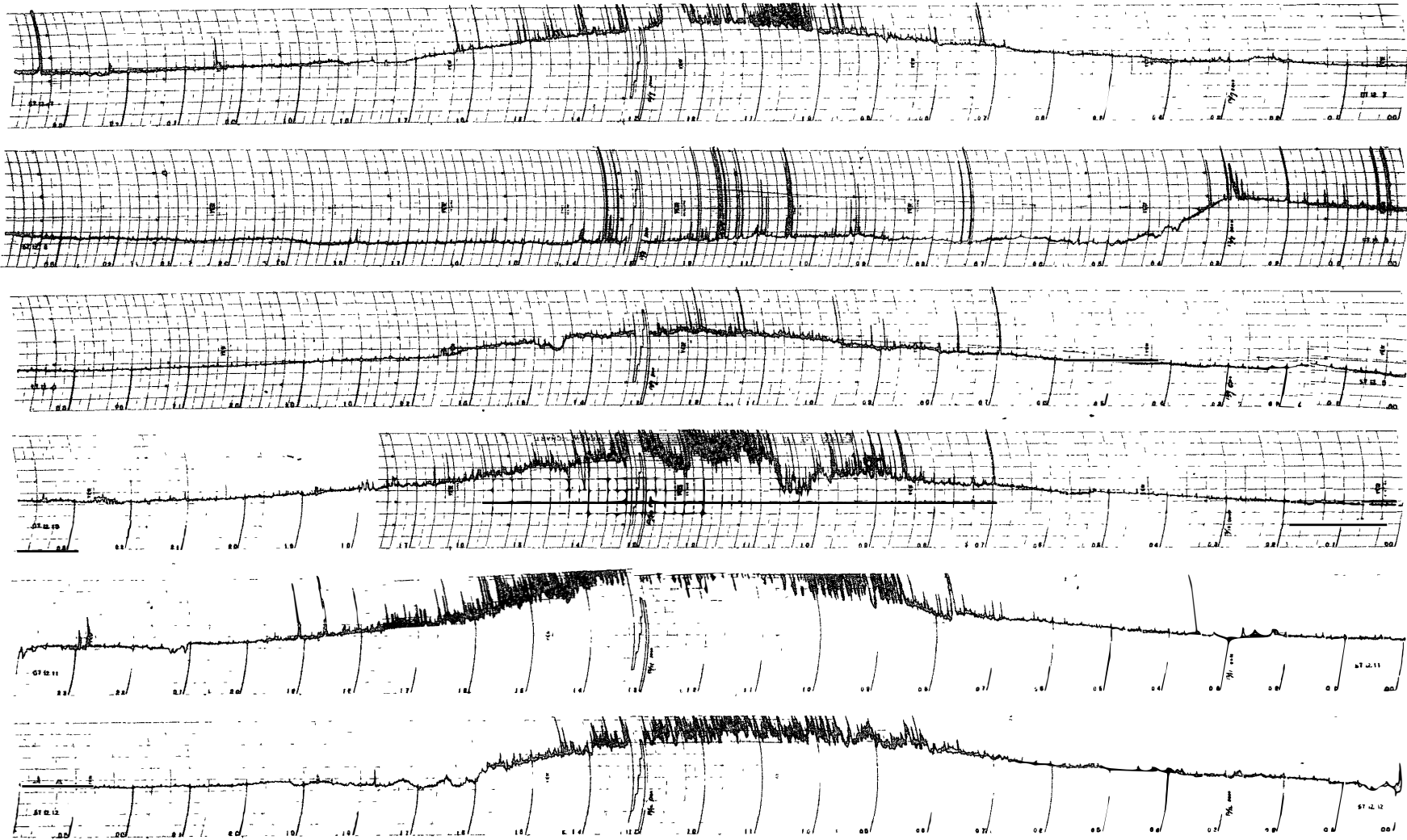
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

- 81 -

DEC 1982

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- 82 -

24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1982

13

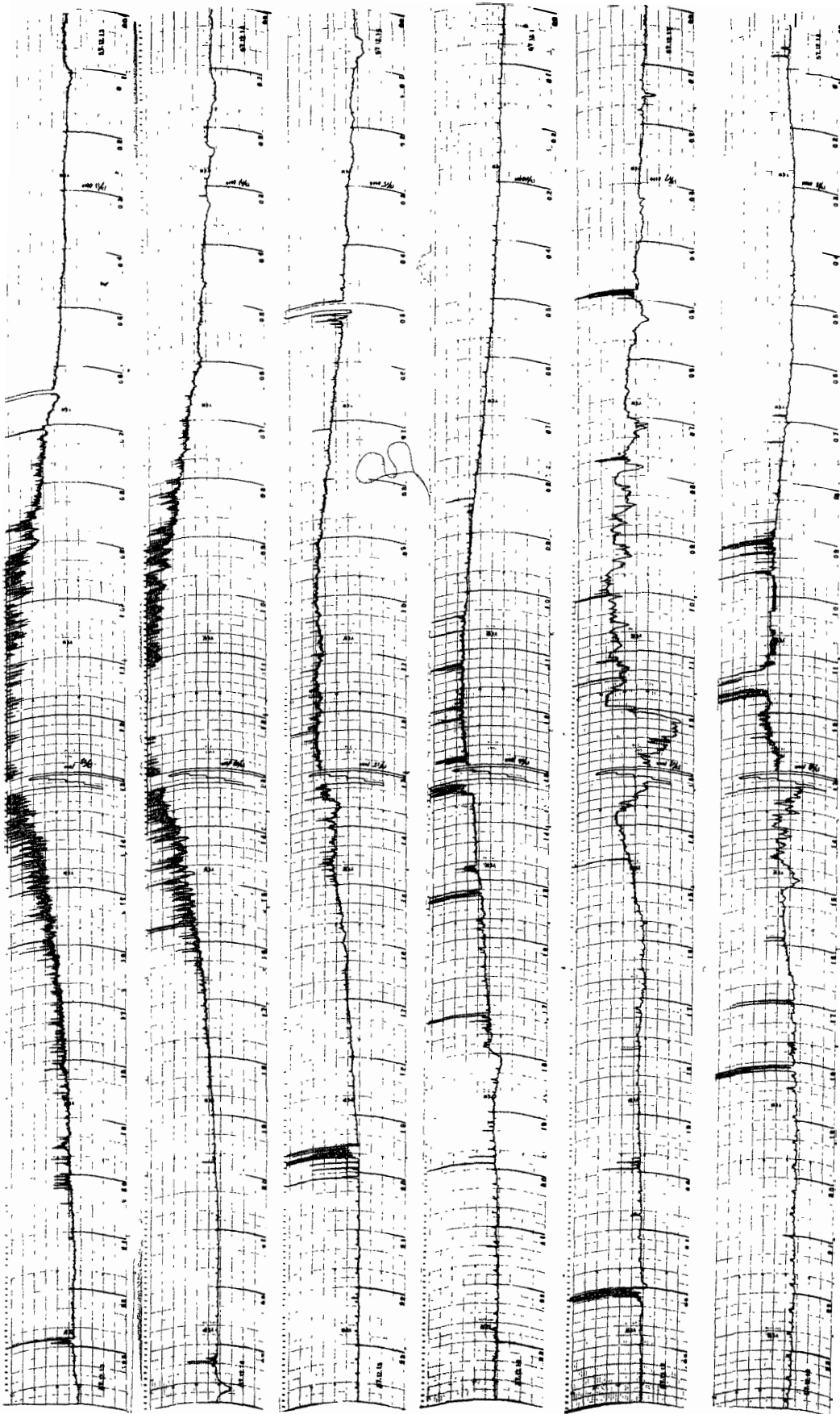
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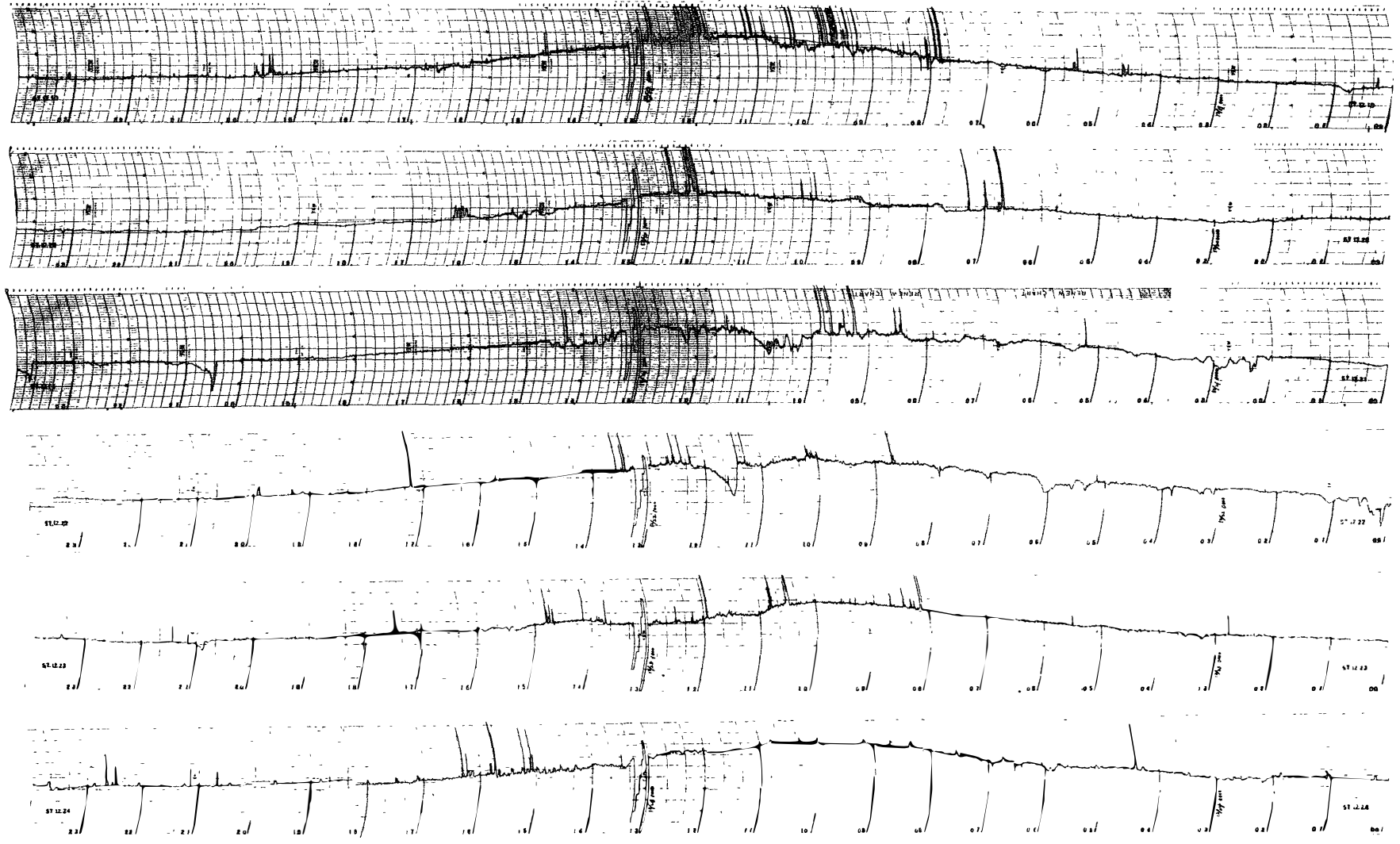


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

DEC 1982

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

-84-

DEC 1982

25

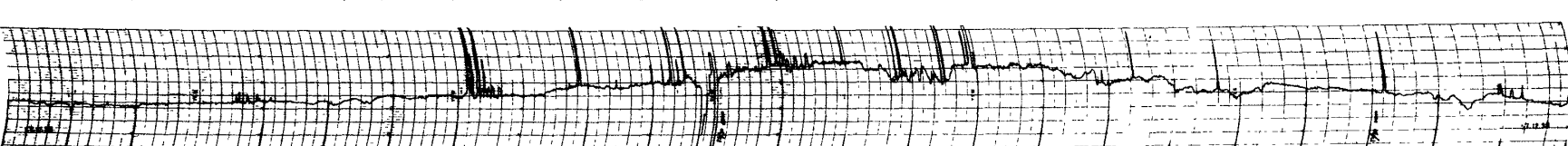
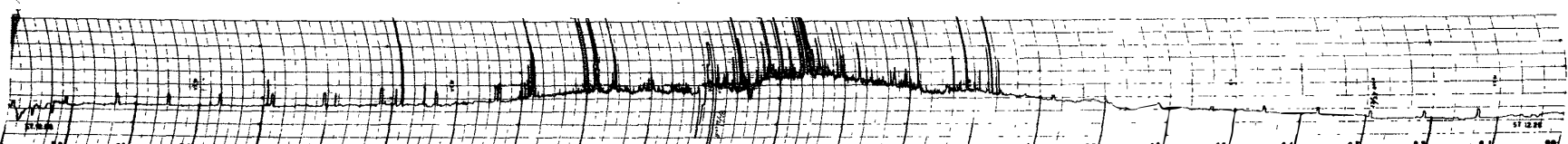
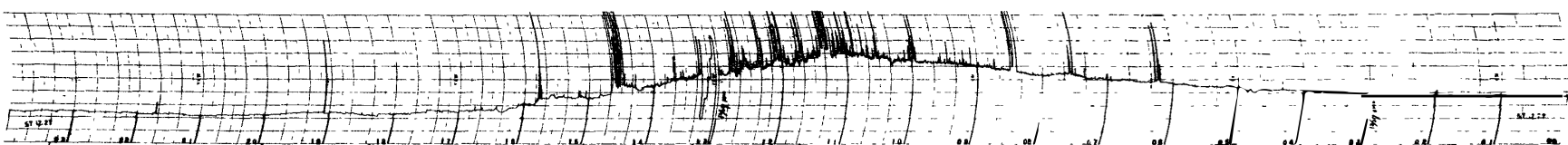
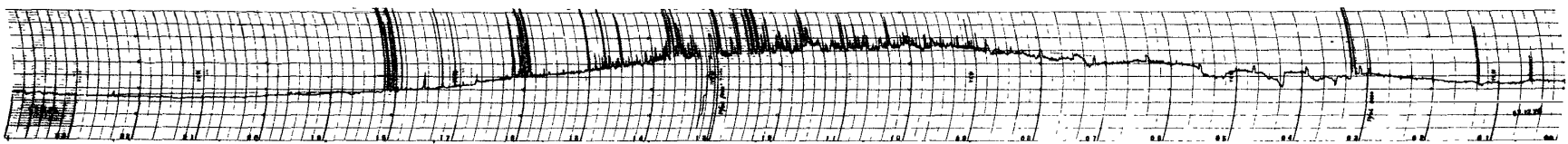
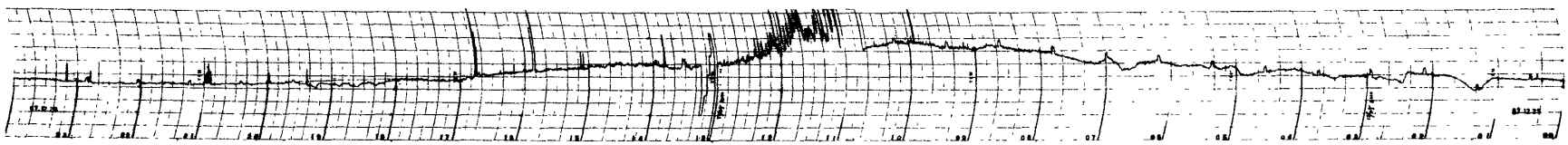
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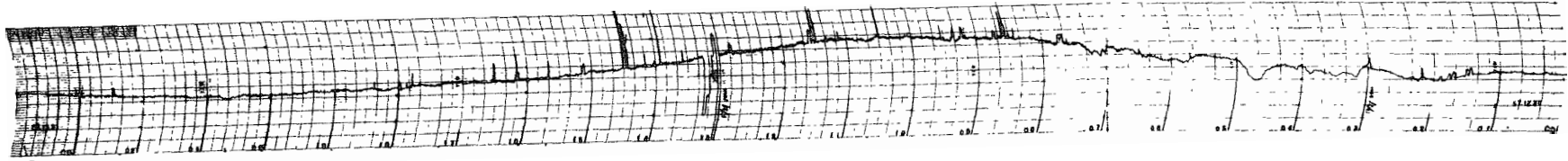


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

- 85 -



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45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

31

DEC 1982