

Riometer Records of 30 MHz Cosmic Noise
at Syowa Station, Antarctica
from February 1968 to January 1969

Compiled by

Kaoru ISHIZAWA

Observation of 30 MHz cosmic noise at Syowa Station, Antarctica has been carried out since February 1966. A standard riometer (relative ionospheric opacity meter) has been used for absorption in the ionosphere, *i. e.*, measurement of cosmic radio noise in regular emission.

This report has been prepared in order to make the data available to the ionospheric physicists. The records cover the period from February 4, 1968 to February 15, 1969 and are deposited in the Radio Research Laboratories. Enquiries about the contents of this report should be addressed to:

Radio Research Laboratories
Ministry of postal Services
Kokubunji, P. O.
Tokyo
Japan

1. Location

Syowa Station			
Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69°00' S	39°35' E	69. 6° S	77. 1° E

2. Observers

Mr. Kaoru ISHIZAWA (Radio Research Laboratories)

3. Method of measurement

Cosmic radio noises coming from superhigh space onto the earth are received by a 5-element Yagi antenna standing erect, and the noise power is led to a riometer (relative ionospheric opacity) through a 50-ohm high frequency cable. The receiving frequency of the riometer was 30 MHz and

the bandwidth was 3.5 kHz in this measurement.

The noise power output received was recorded on a pen recorder, which was graduated in hours and calibrated in level once a day.

The insertion of the level correction value is made for about 15 minutes by the automatic correction circuit and during this time recording in intensity of waves received is interrupted. For two minutes and thirty seconds after the first action of the automatic correction circuit, the value at the set noise level of the riometer is shown, and after this time passes, the level value falls in 5 steps just like descending a staircase thirty seconds.

The standard noise power is introduced into the receiver, and the level value is inserted at intervals of 2 dB between 0 dB and 8 dB.

The time scale on recording paper is indicated in meridian time at Long. 45° E (45° E. M. T.) or U. T. + 3 hours.

4. Outline of the Results

The riometer received zenithal cosmic noise, and variation of the radio wave intensity to be recorded on the riometer is affected by absorption in the ionosphere. If the ionosphere is in a quiet state, the diurnal variation of the cosmic noise power can be measured radio. However, further variation takes place because of seasonal and diurnal variations or short-time abnormal absorption in the ionosphere. On account of movement of the earth, the time (local time) when the same radio source passes the zenith gets earlier by about 4 minutes day after day and is restored to the original state in a sidereal year.

In Fig. 1 the solid lines show the monthly average of time intervals of the maximum level value as to diurnal variation (on quiet days) in radio intensity obtained at Syowa Station, while the dotted lines give the time intervals of the minimum value.

Throughout the year especially from May to October in winter, very many absorption phenomena accompanied by PCA (polar cap absorption) and aurora were observed, and it was rather quiet in summer, November to April.

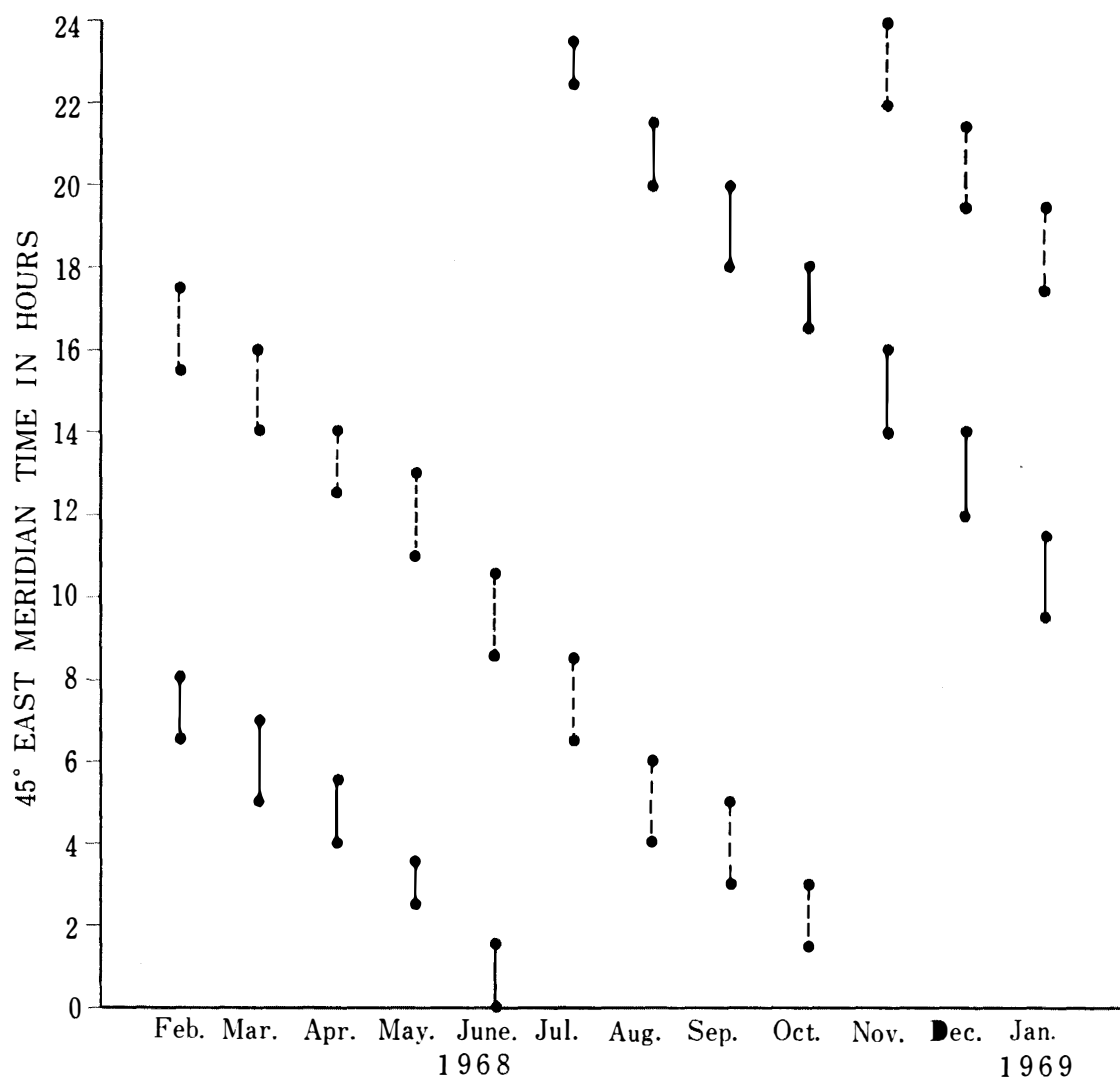


Fig. 1. Monthly variation in the maximum values (—) and the minimum values (.....) of cosmic noise power at Syowa Station

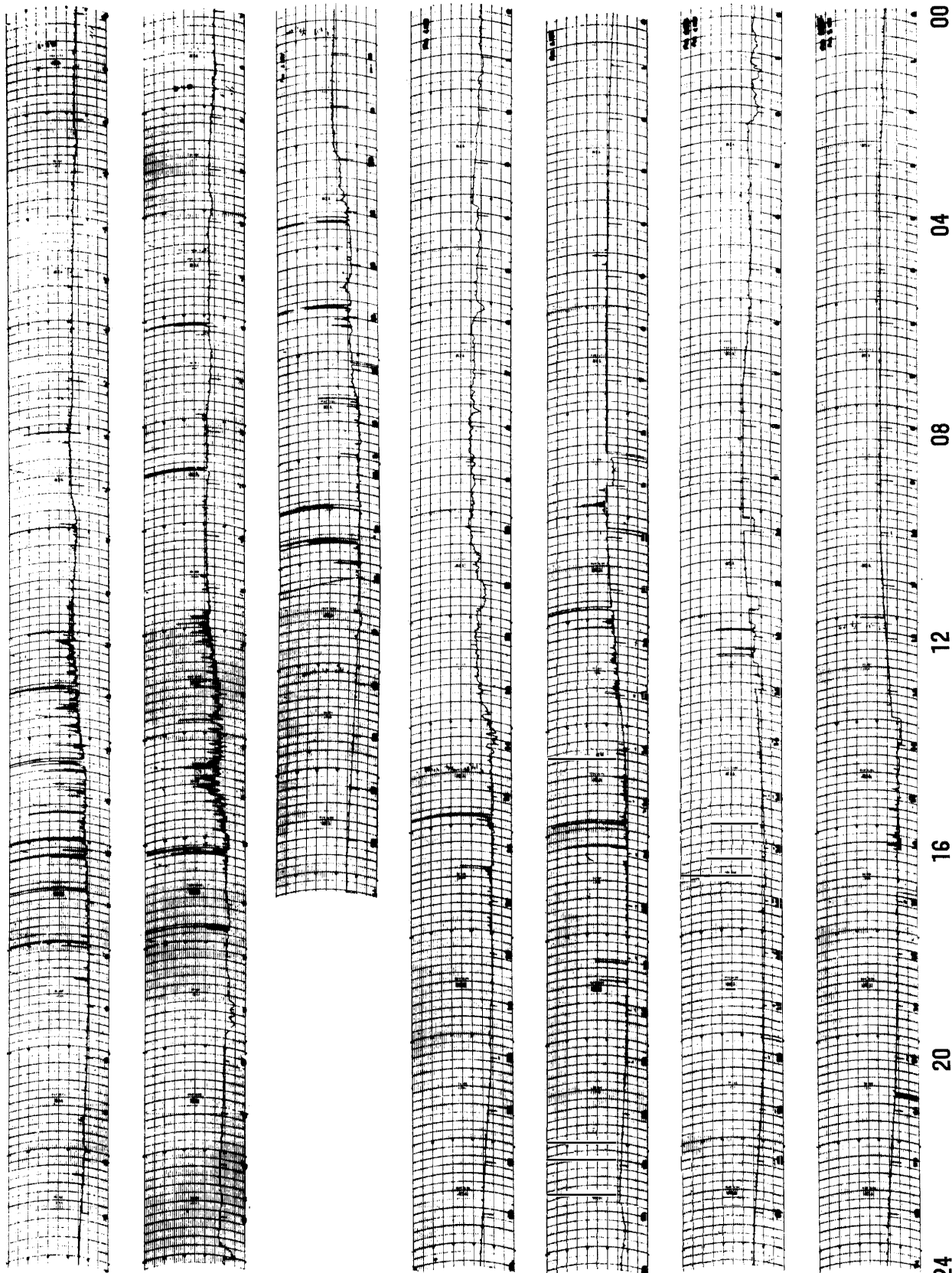
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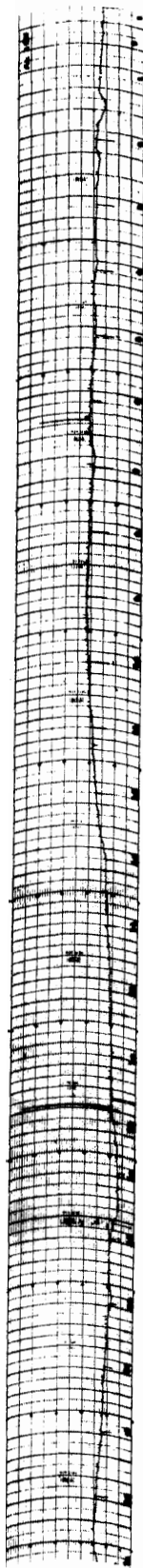
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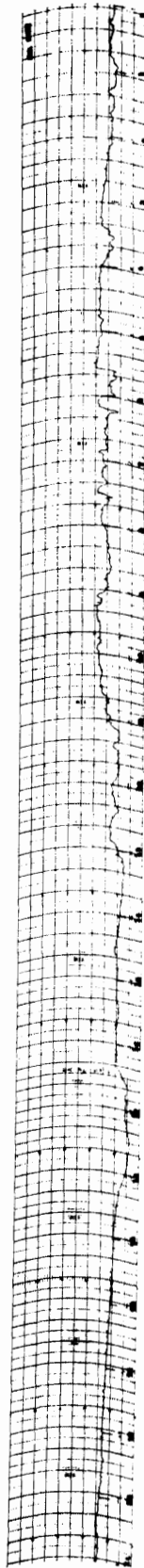
45° EAST MERIDIAN TIME IN HOURS

FEB 1968

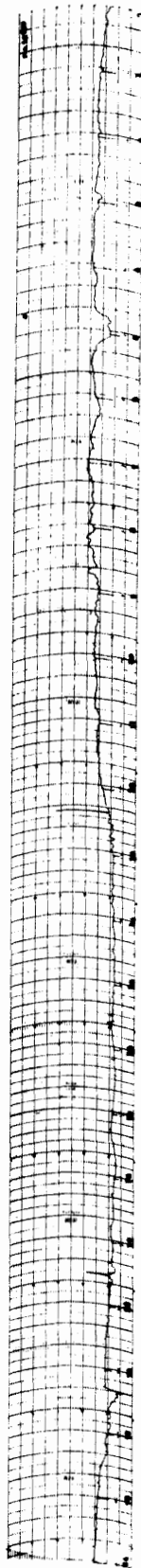
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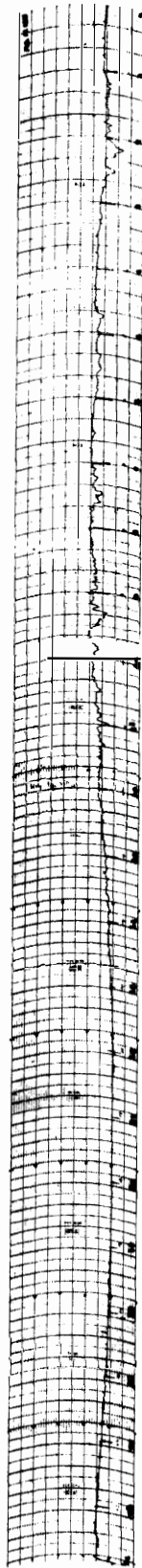
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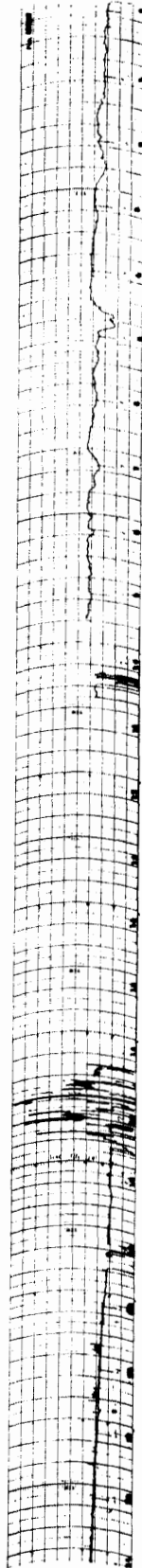
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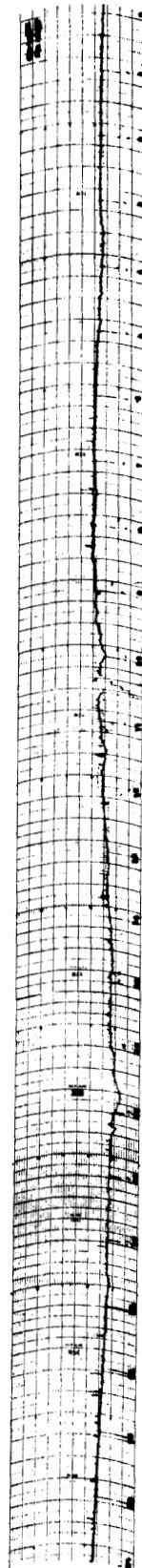
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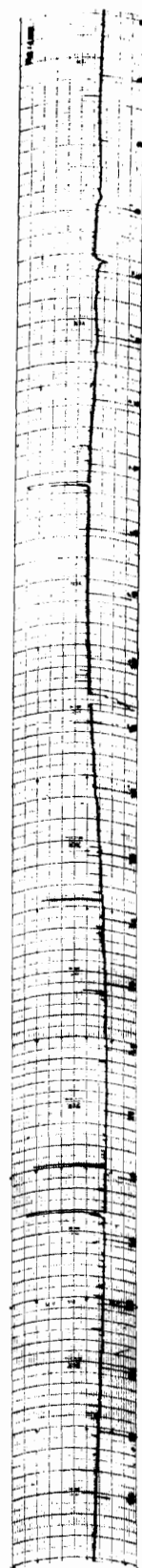
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1968

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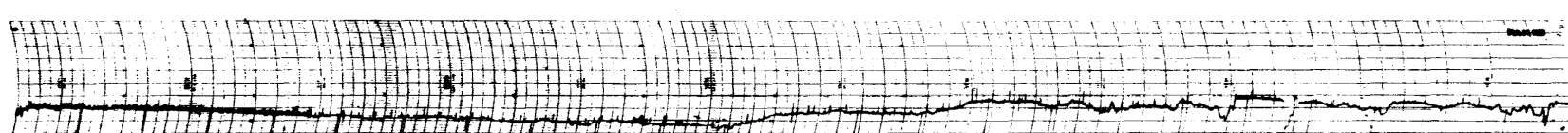
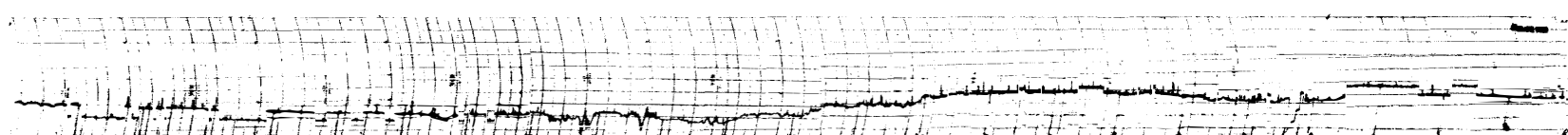
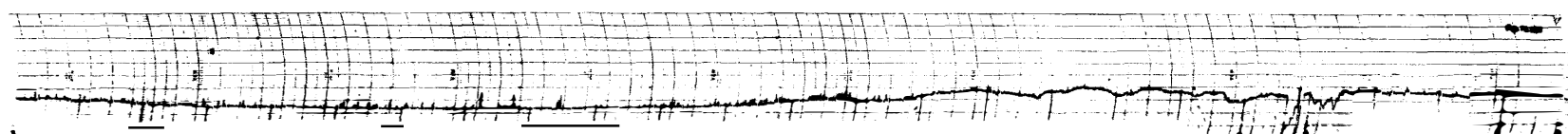
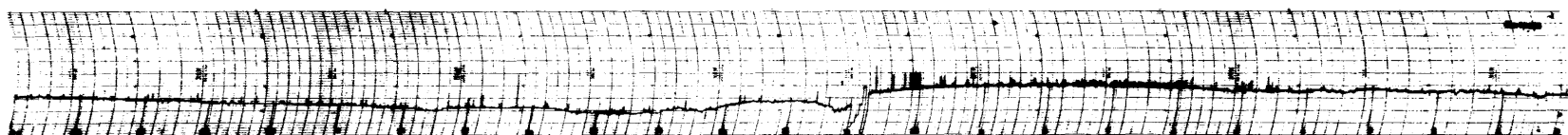
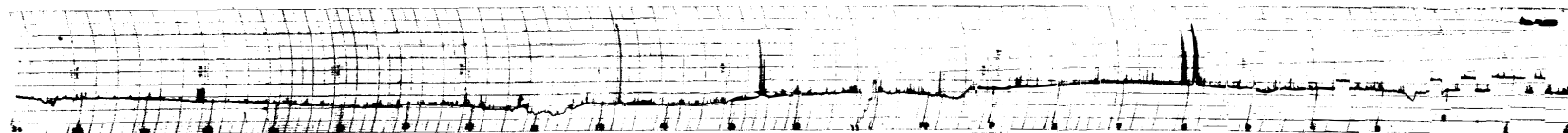
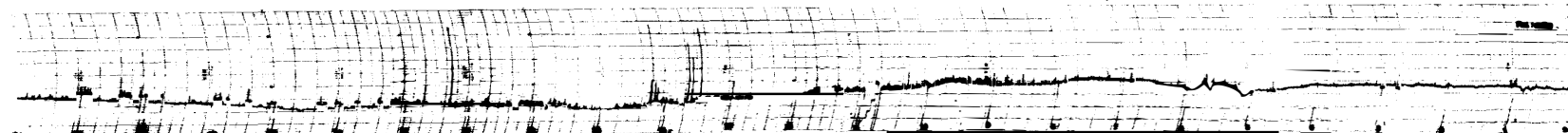
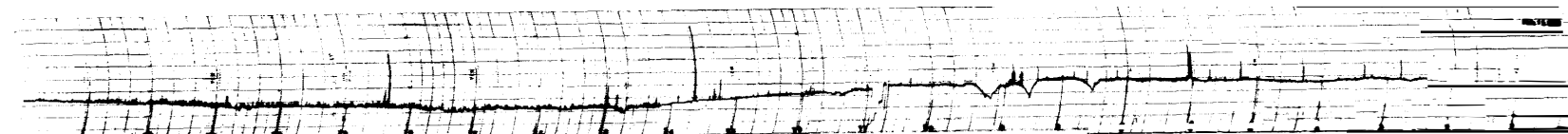
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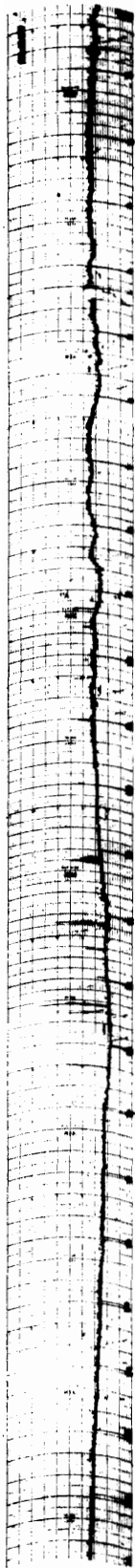
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45° EAST MERIDIAN TIME IN HOURS

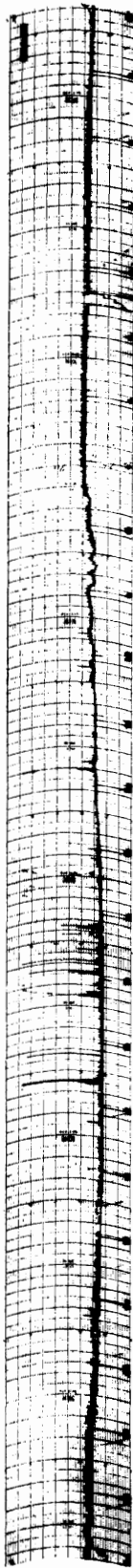
30 MHz COSMIC NOISE

FEB 1968

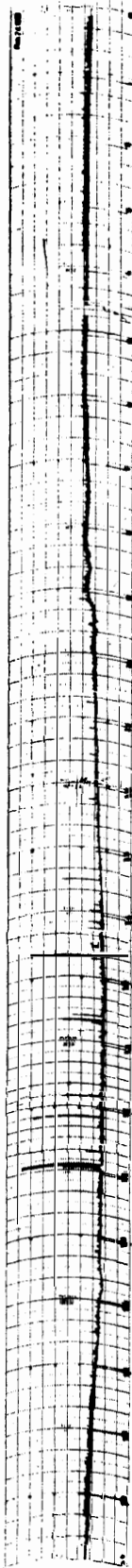
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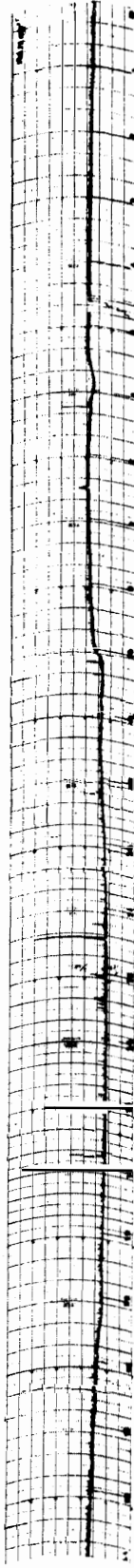
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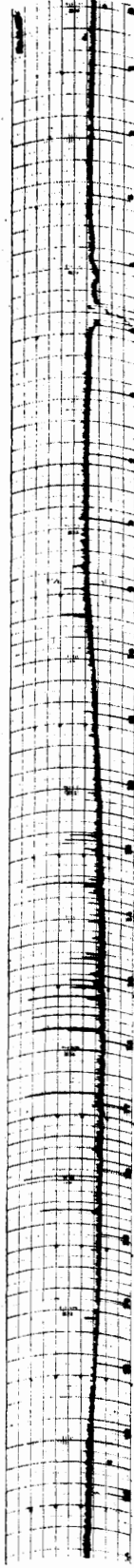
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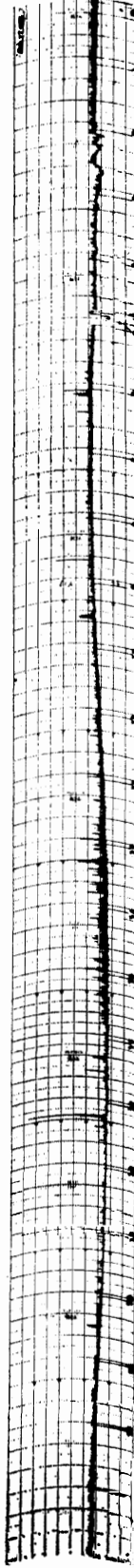
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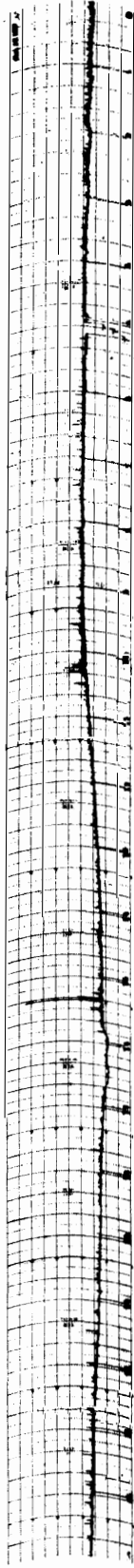
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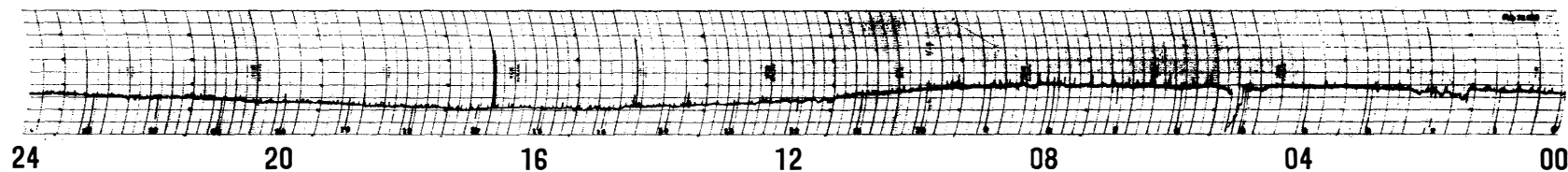


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45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



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FEB 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 06^h 30^m ~ 08^h 00^m

Minimum level 15^h 30^m ~ 17^h 30^m

B. Cosmic noise level obscured or equipment malfunction

5 : 08^h 20^m ~ 08^h 30^m equipment tests

6 : 09^h 40^m ~ 13^h 00^m / /

7 : 16^h 40^m ~ 16^h 50^m / /

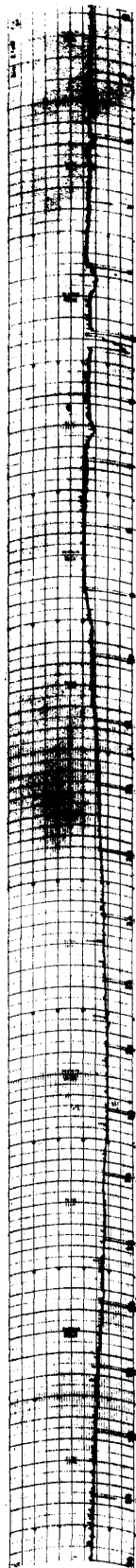
20^h 30^m ~ 20^h 50^m / /

12 : 09^h 30^m ~ 19^h 30^m / /

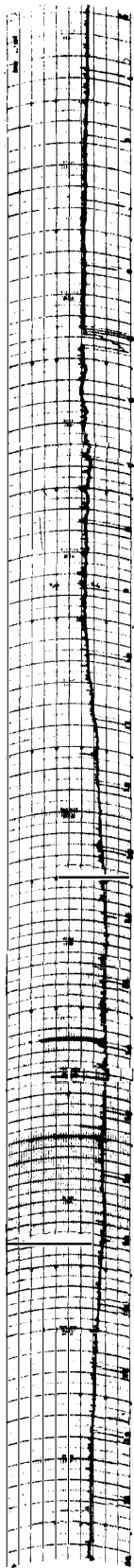
C. Disturbed days : 9 th, 10 th, 21 st,

MAR 1968

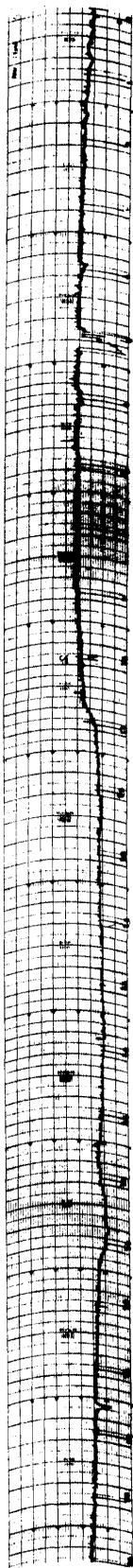
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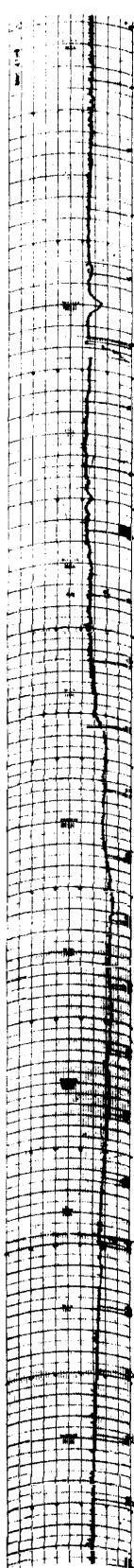
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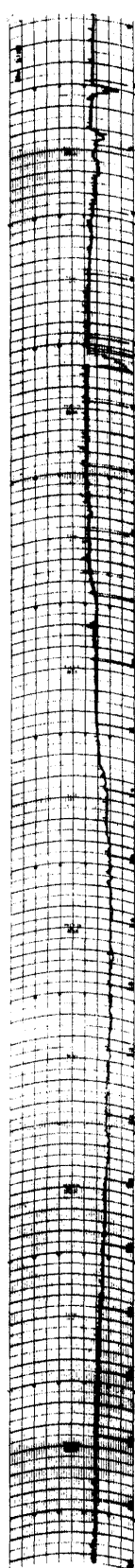
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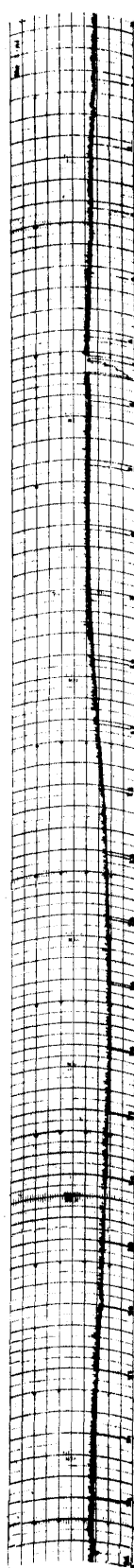
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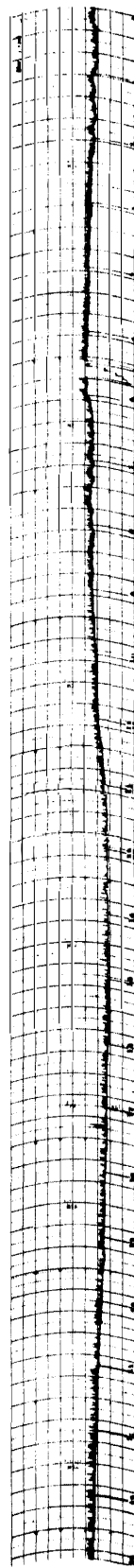
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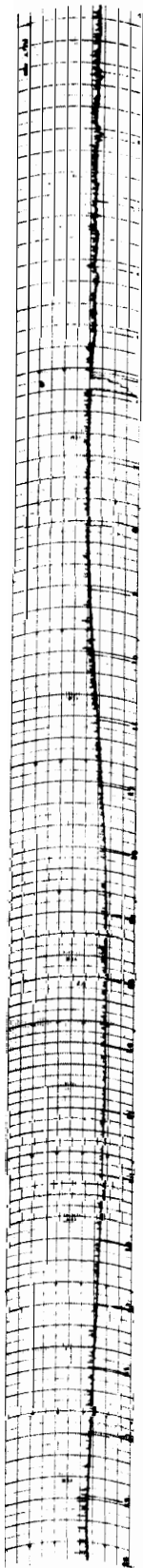


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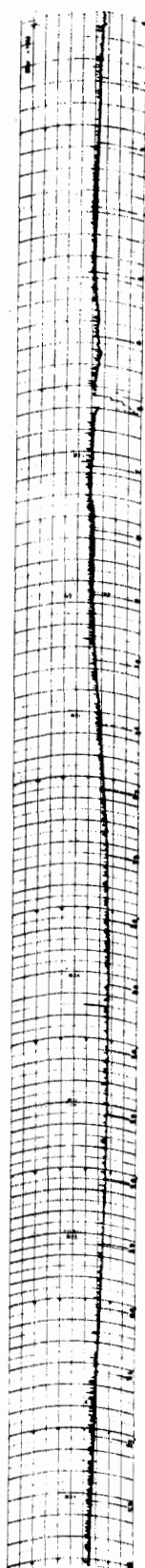
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1968

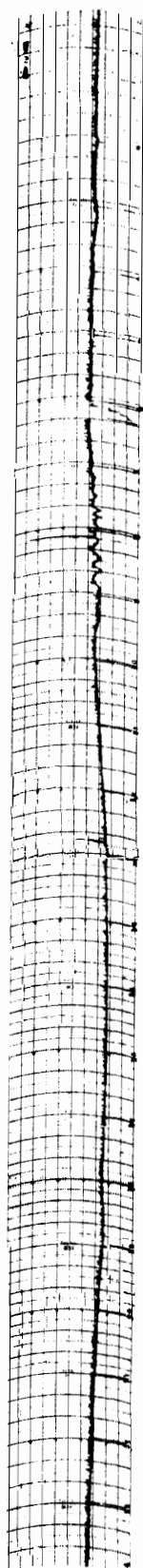
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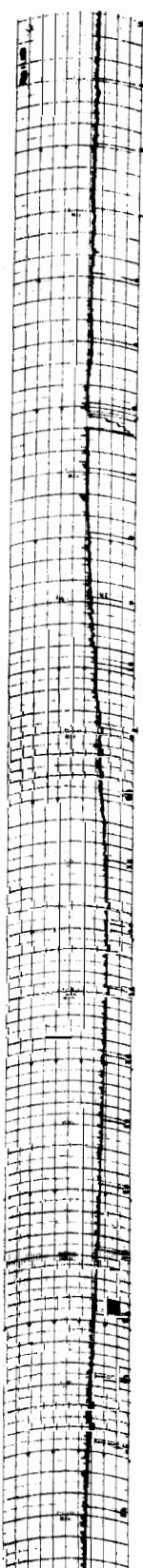
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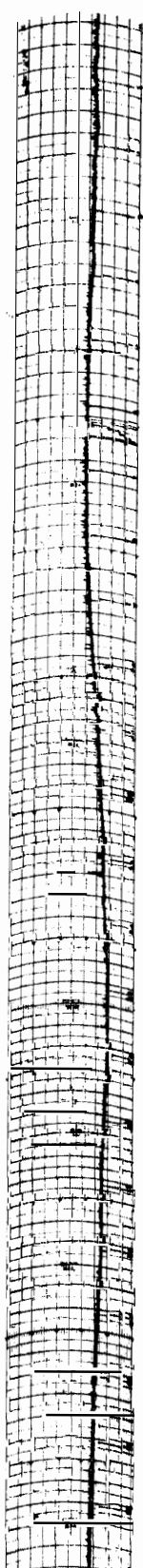
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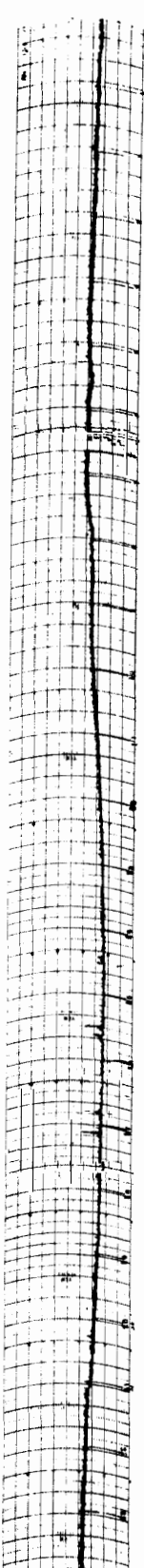
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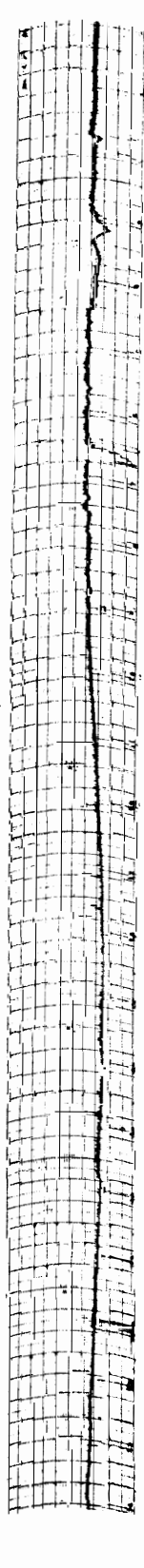
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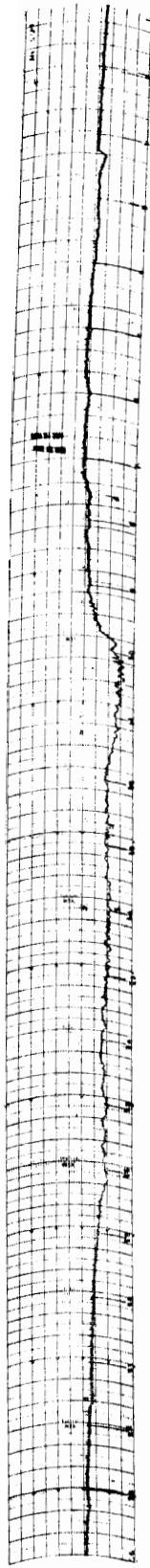


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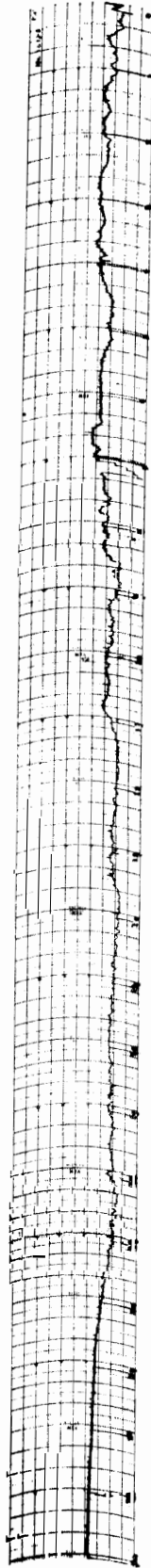
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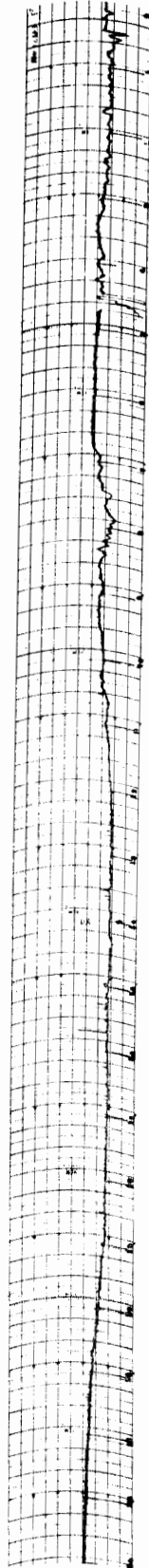
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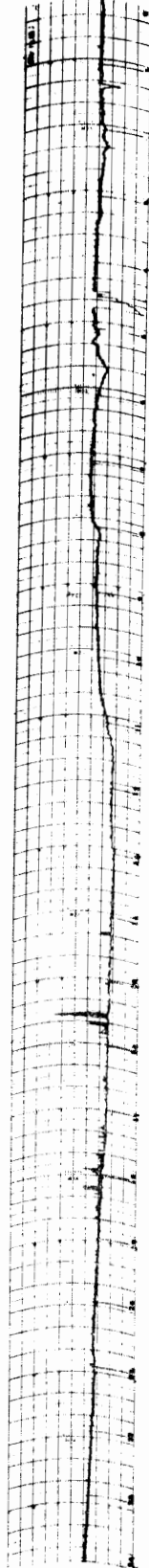
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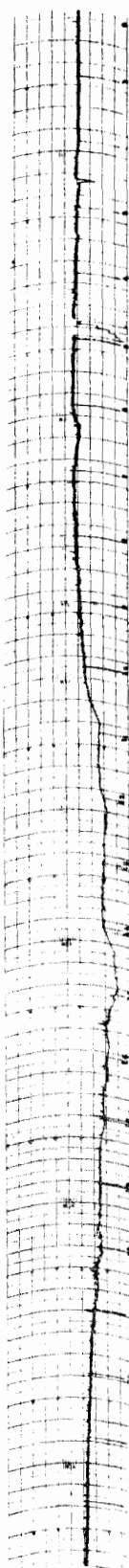
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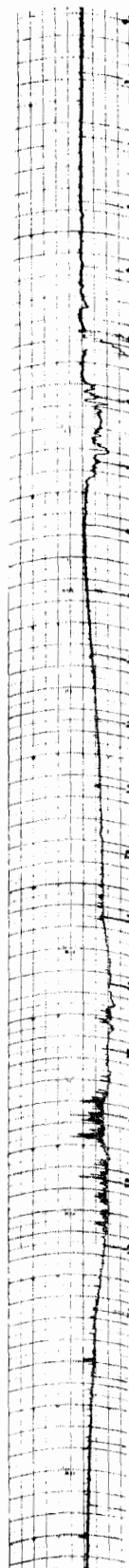
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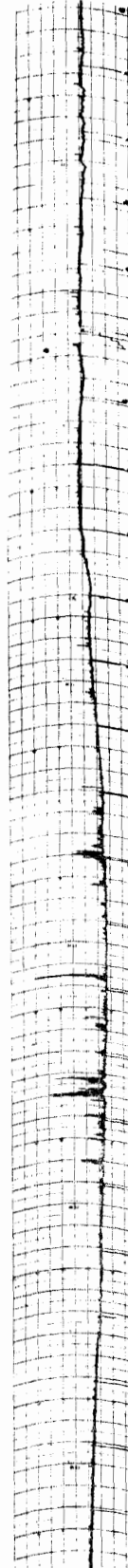
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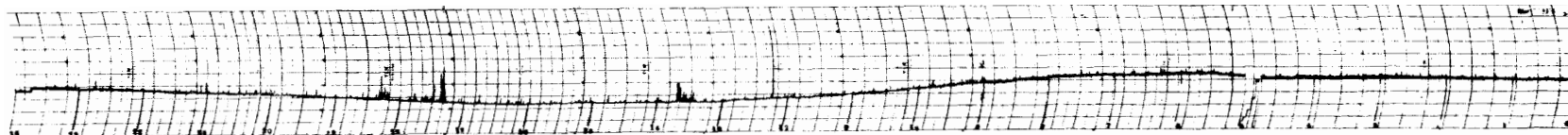


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45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1968

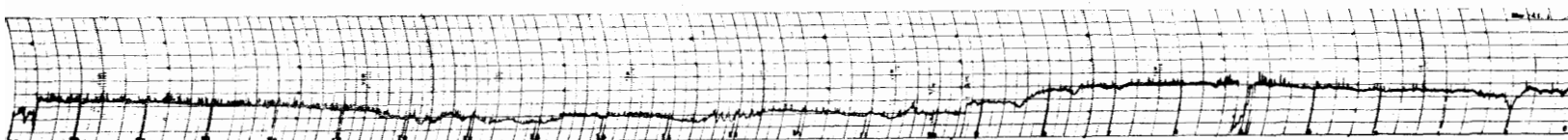
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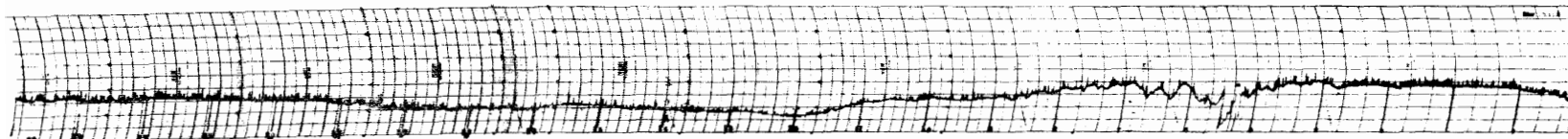
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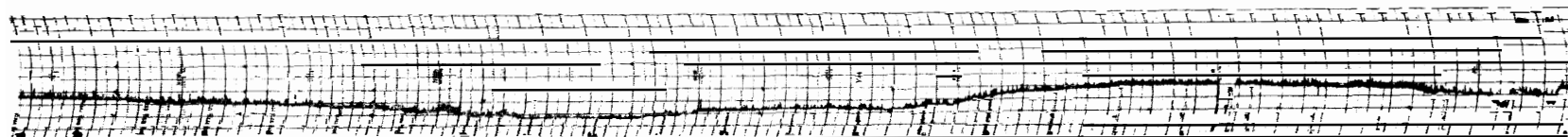
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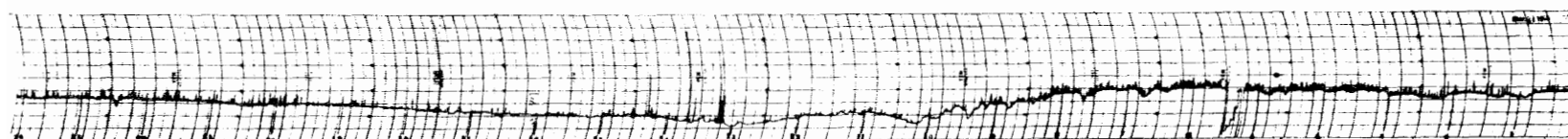
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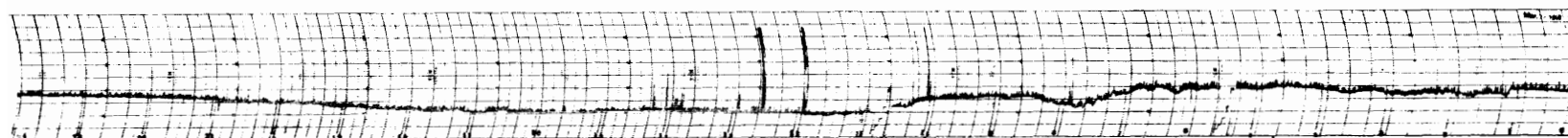
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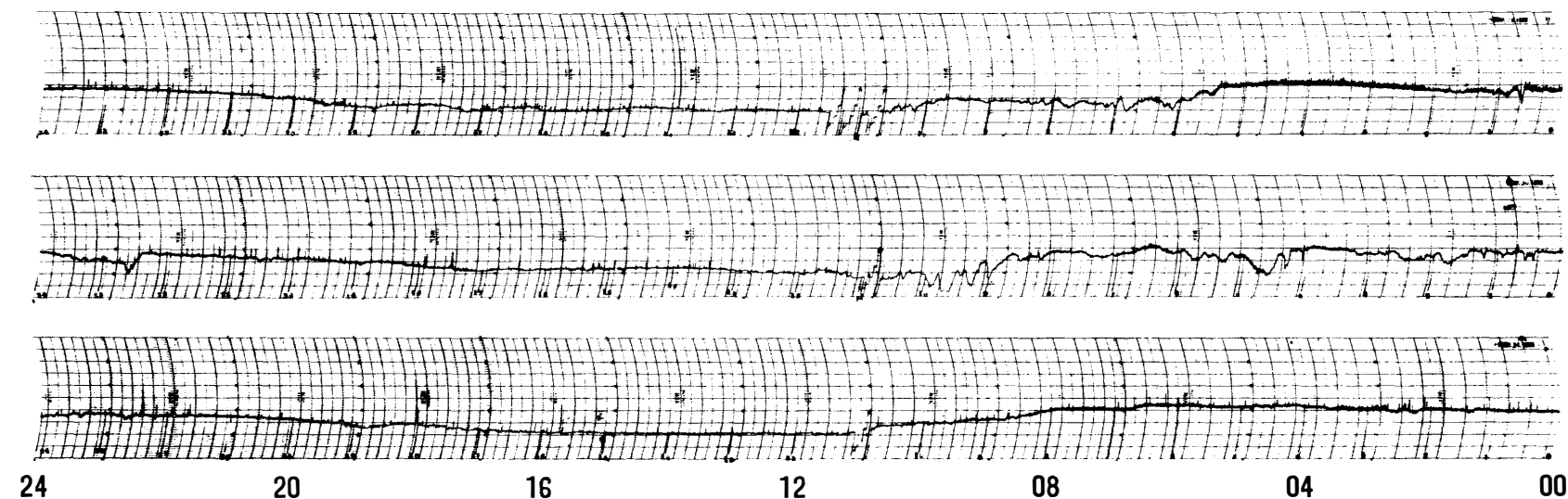
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



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MAR 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

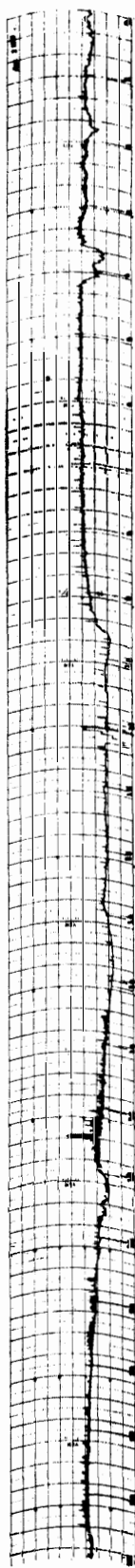
- A. Diurnal variation in cosmic noise power on quiet days
Maximum level 05^h 00^m ~ 07^h 00^m
Minimum level 14^h 00^m ~ 16^h 00^m
- B. Cosmic noise level obscured or equipment malfunction
24: 19^h 15^m ~ 09^h 30^m interruption of electric current
29: 10^h 35^m ~ 11^h 30^m equipment tests
- C. Disturbed days : 15 th, 16 th, 17 th, 24 th, 25 th, 27 th, 30 th,

APR 1968

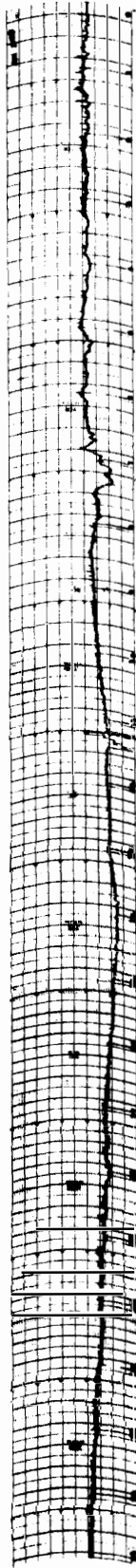
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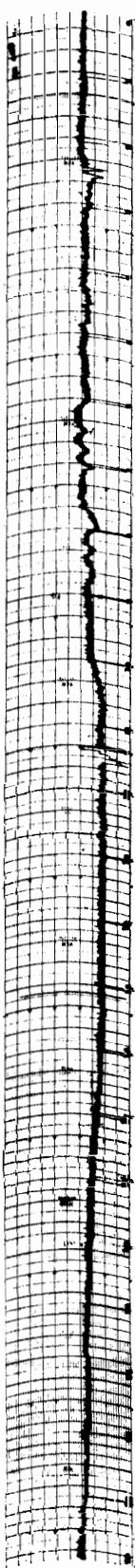
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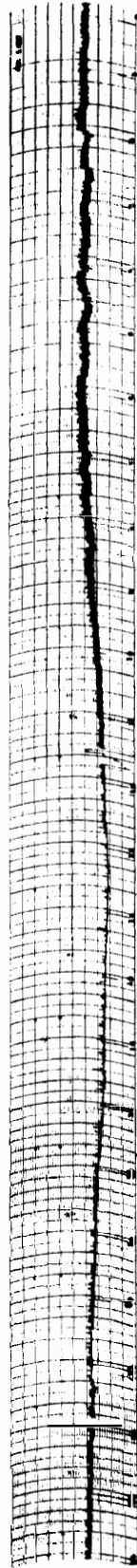
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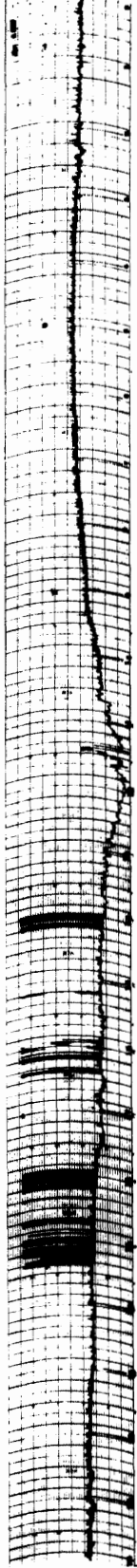
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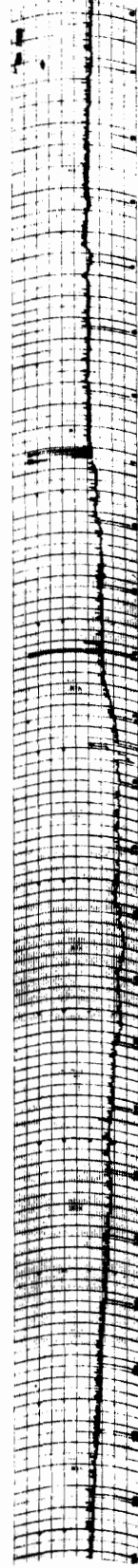
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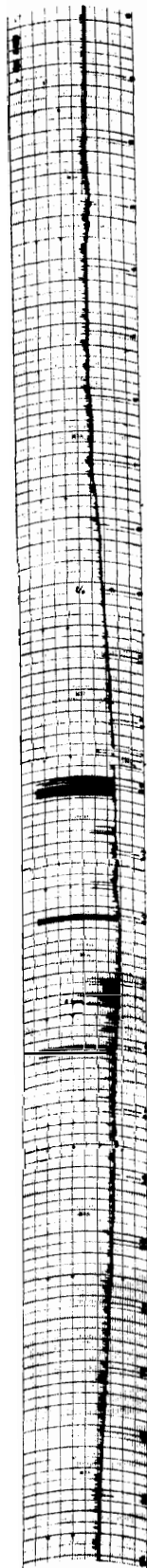


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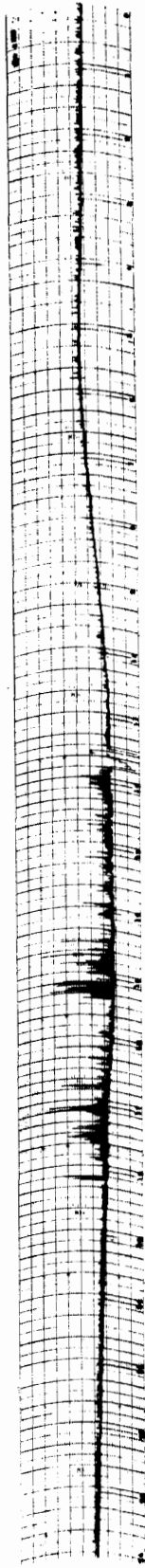
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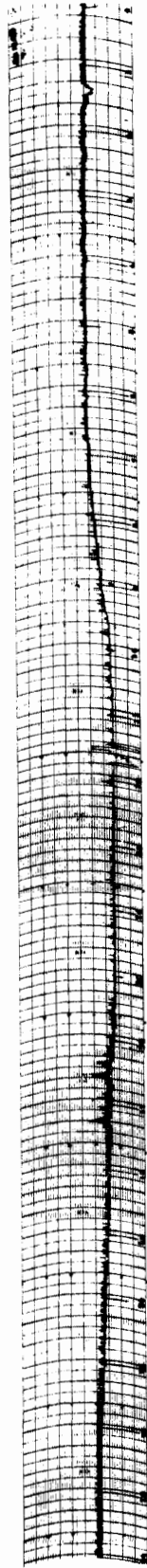
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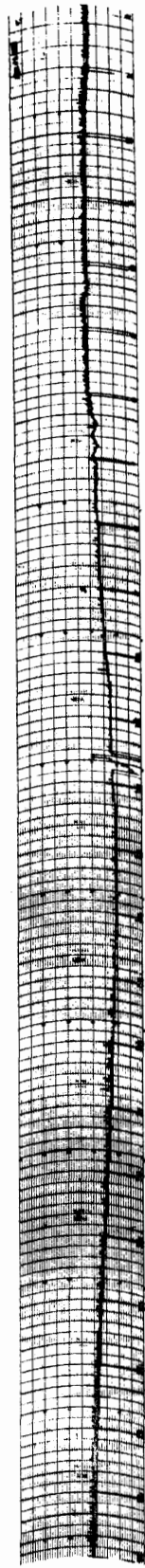
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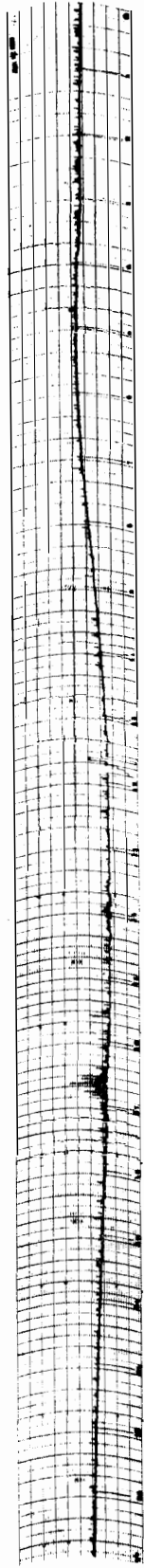
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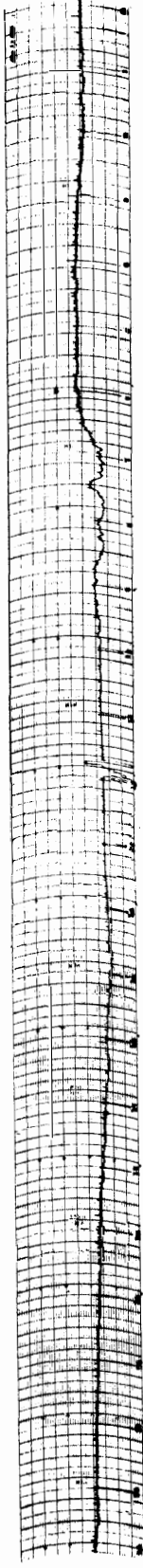
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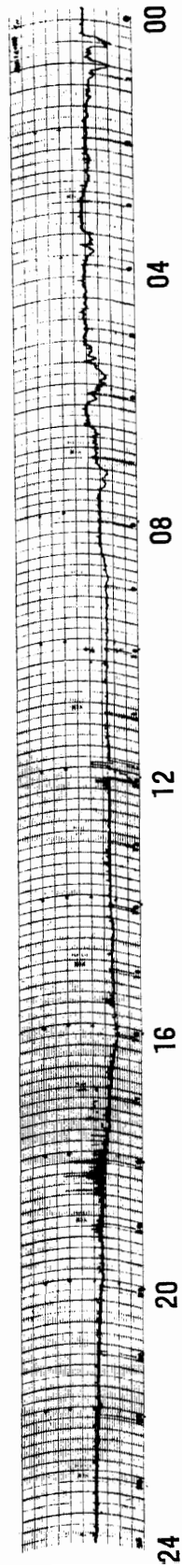
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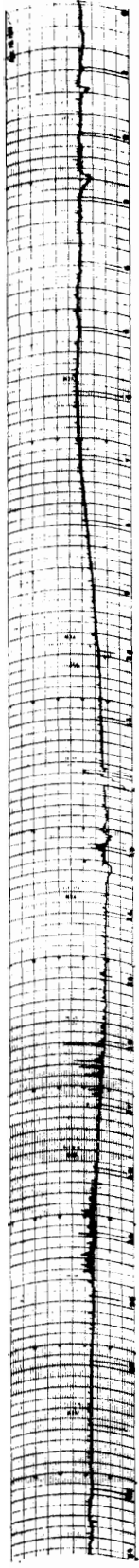
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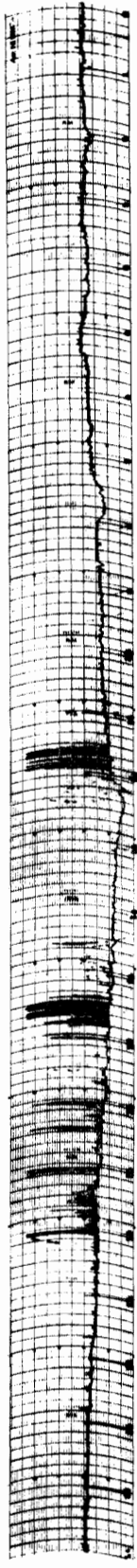
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

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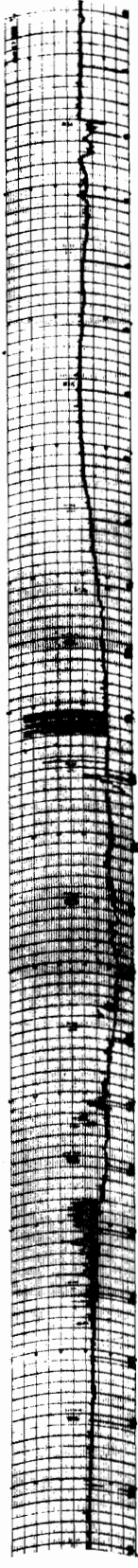
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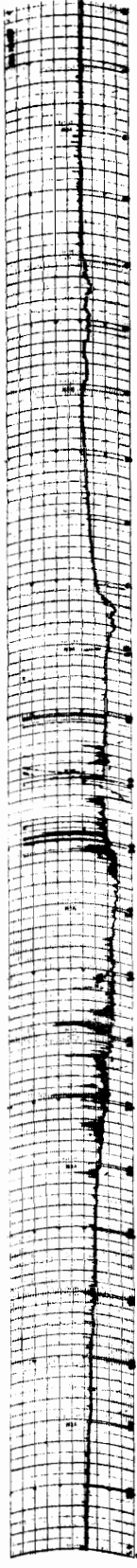
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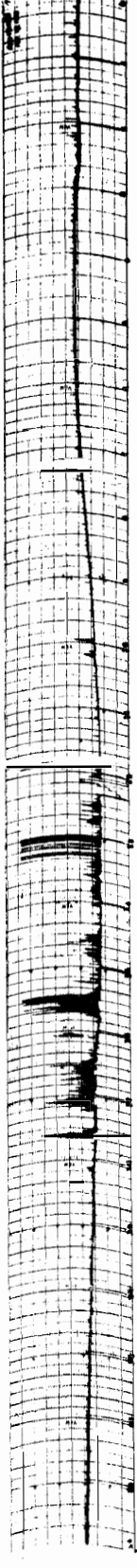
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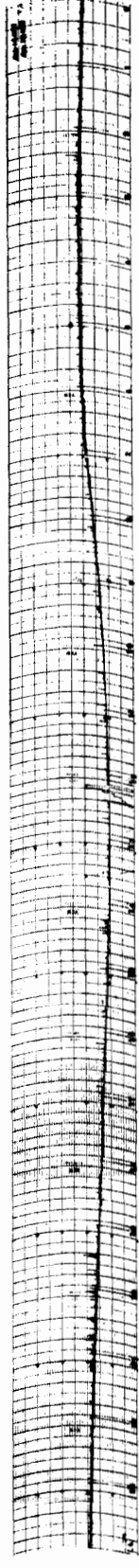
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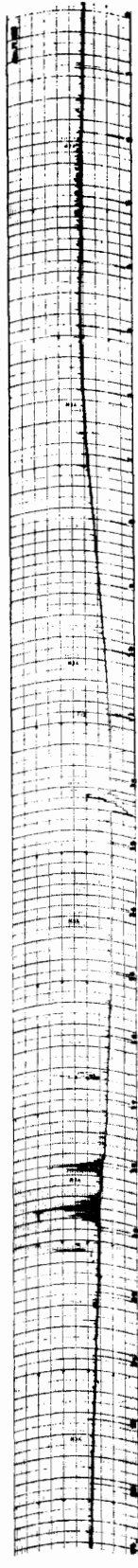
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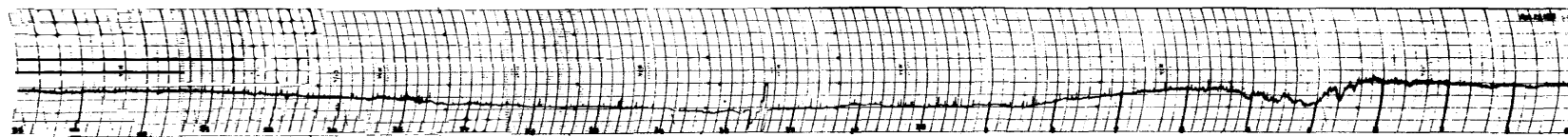
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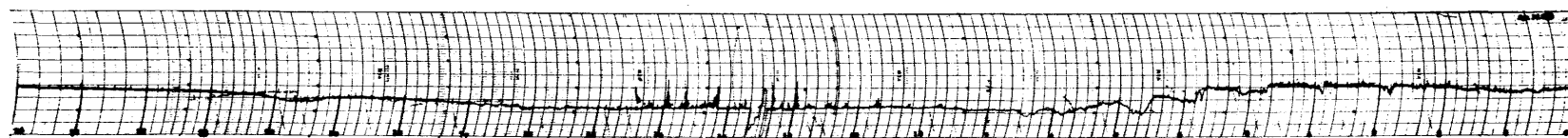
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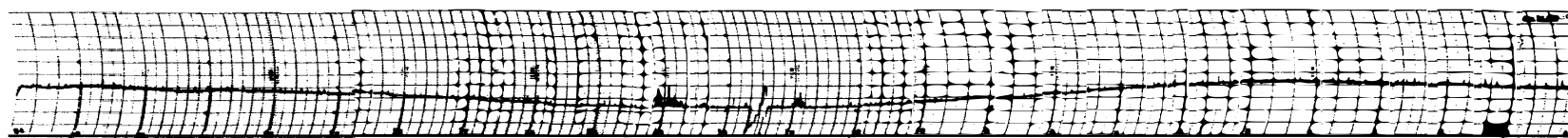
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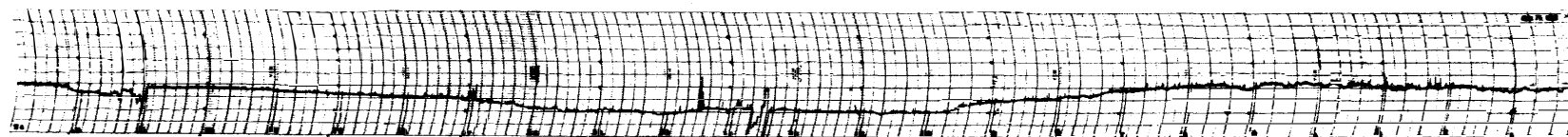
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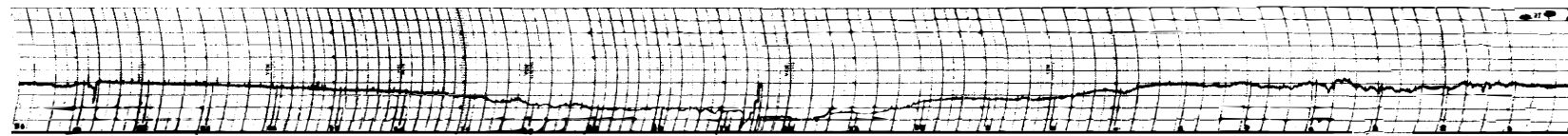
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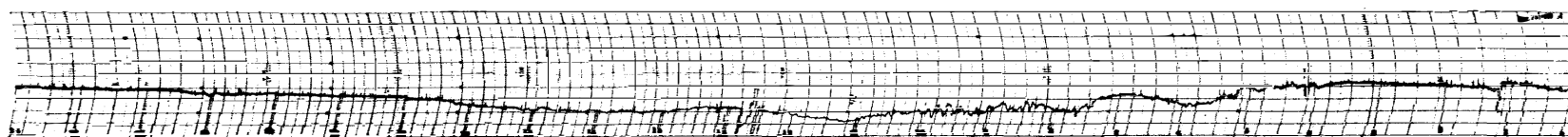
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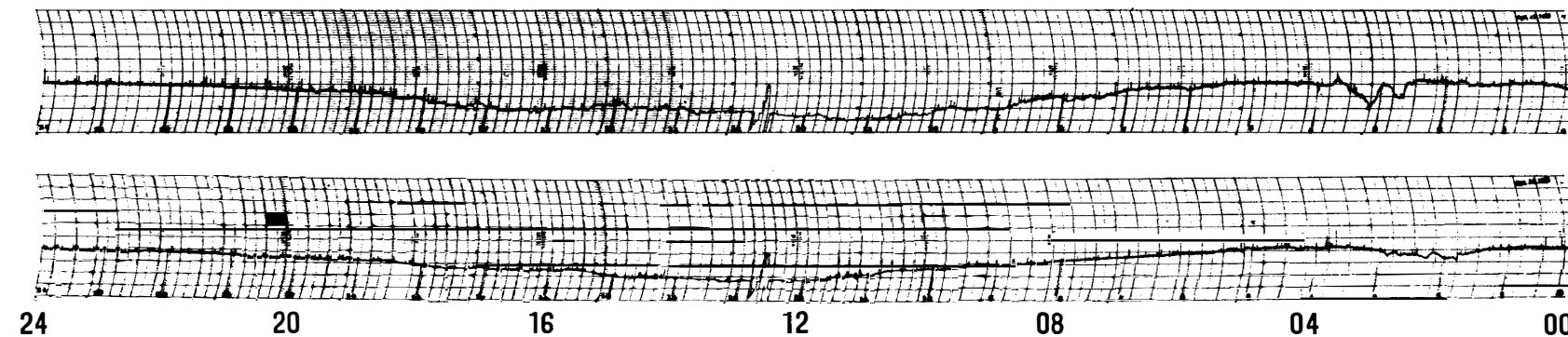
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29

30

APR 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 04h 00m ~ 05h 30m

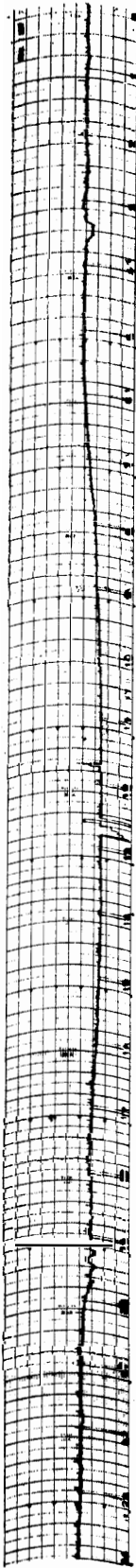
Minimum level 12h 30m ~ 14h 00m

B. Cosmic noise level obscured or equipment malfunction

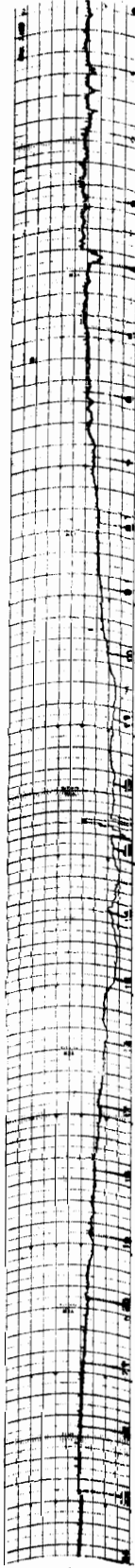
C. Disturbed days : 1 st, 27 th, 28 th, 29 th,

MAY 1968

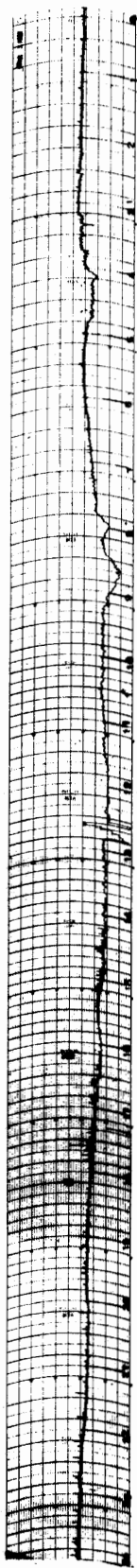
1



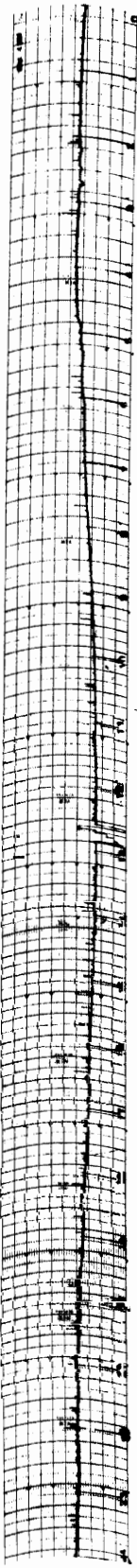
2



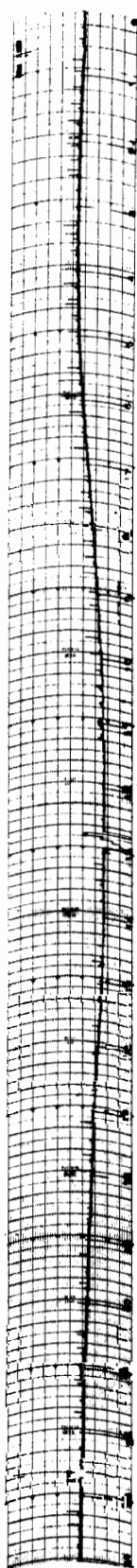
3



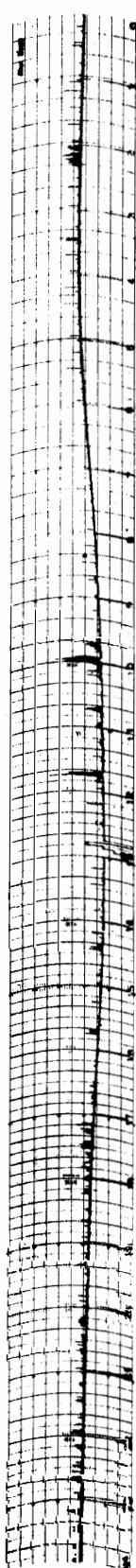
4



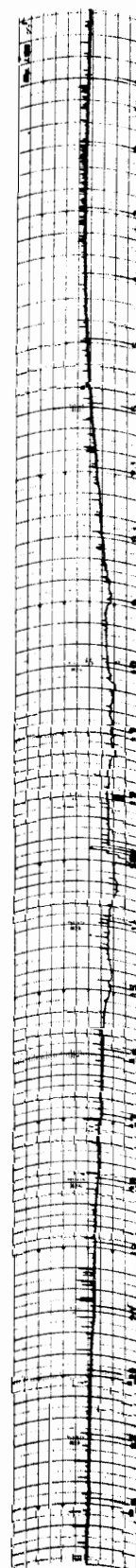
5



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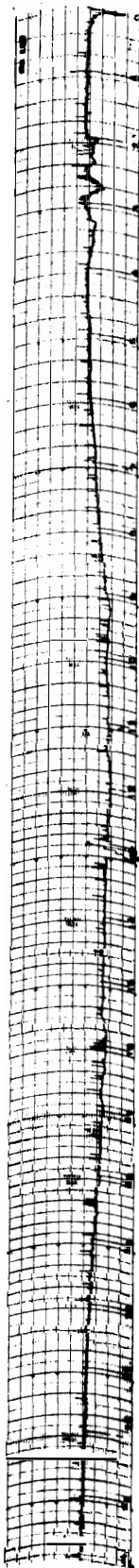


24 20 16 12 08 04 00

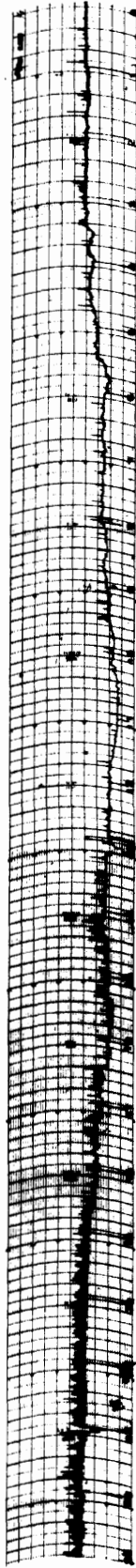
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1968

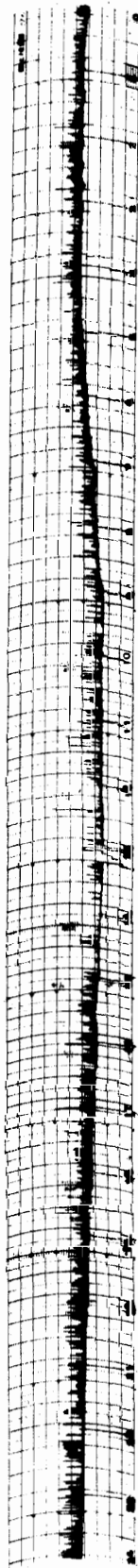
8



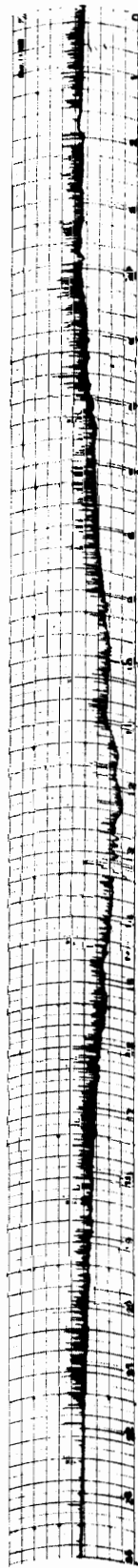
9



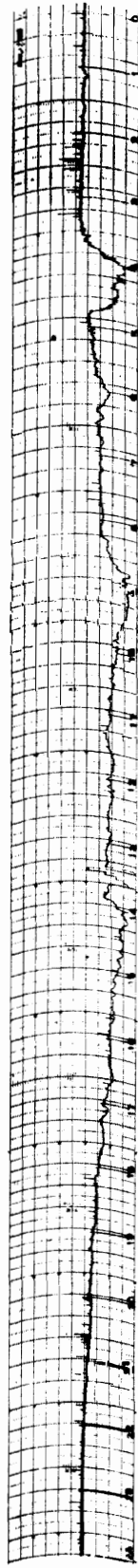
10



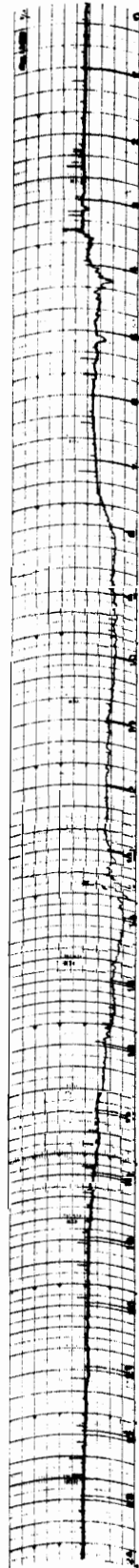
11



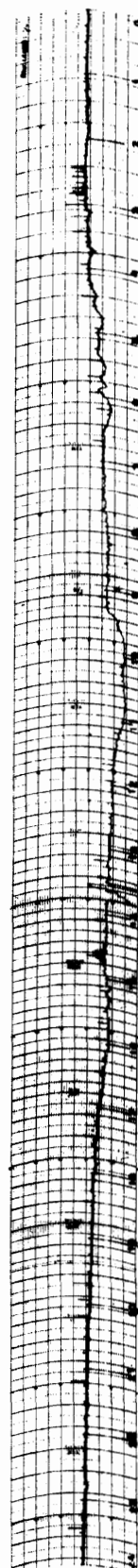
12



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14



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1968

15

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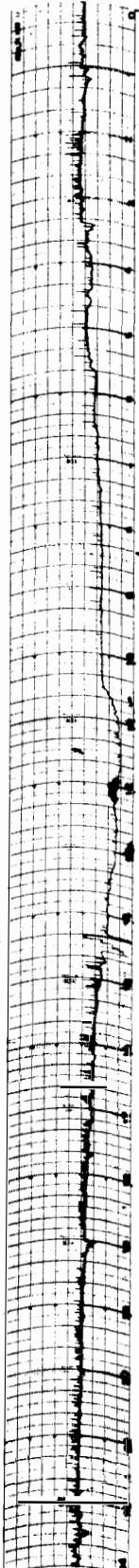
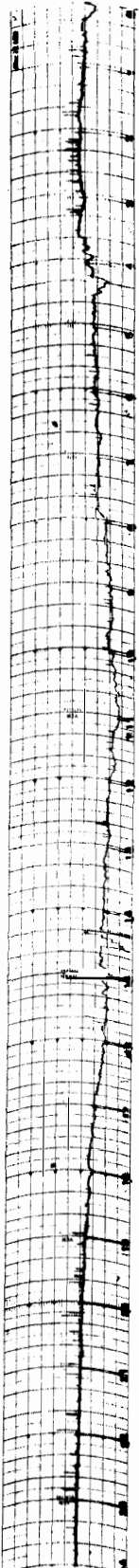
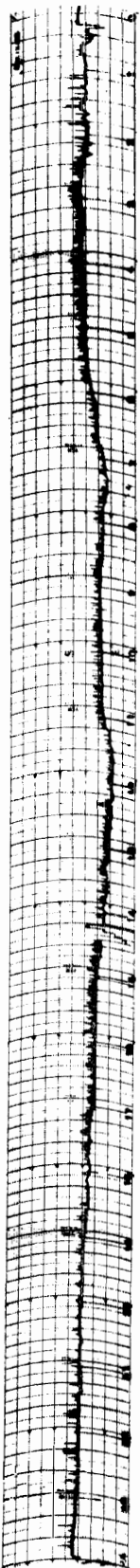
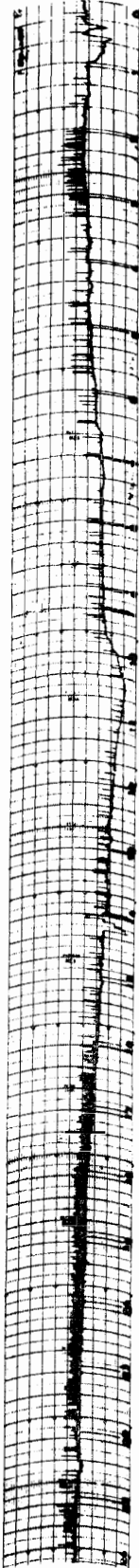
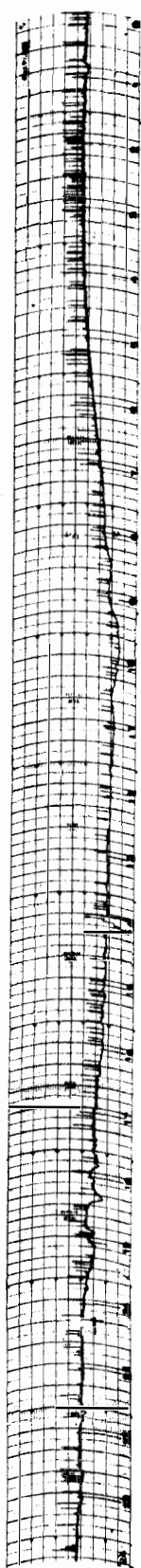
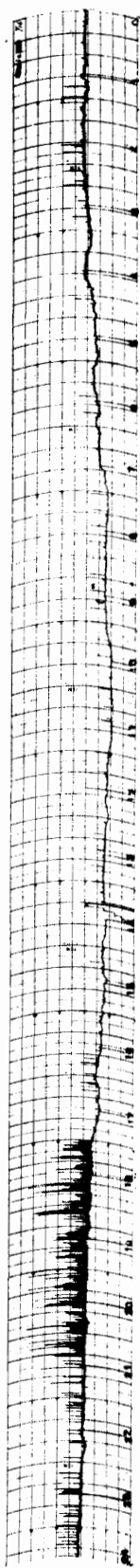
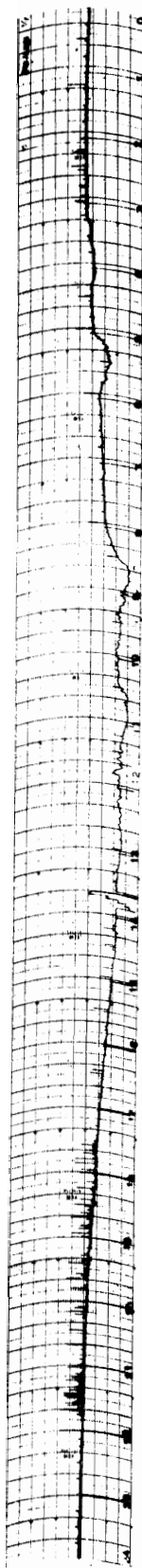
17

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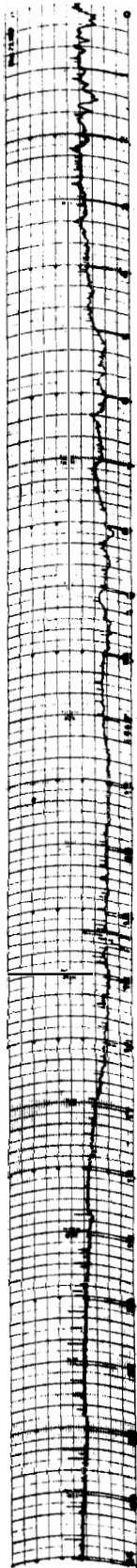
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

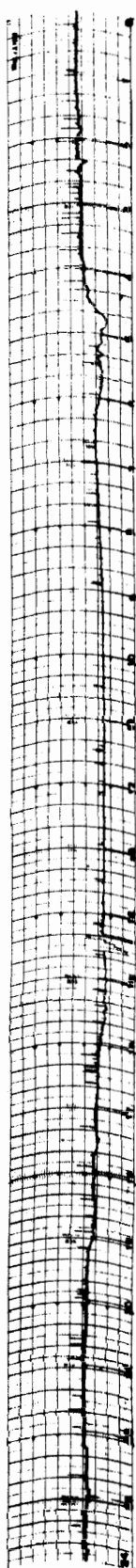
30 MHz COSMIC NOISE

MAY 1968

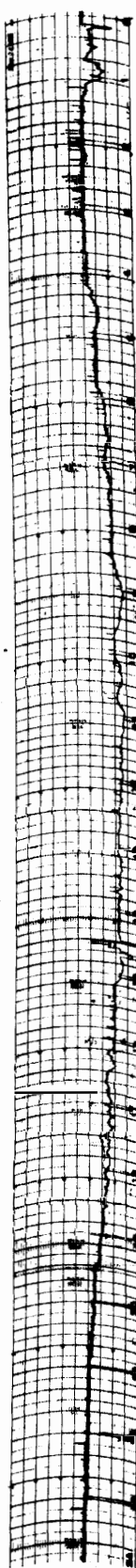
22



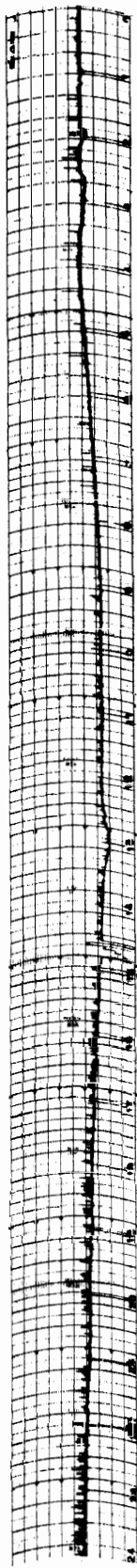
23



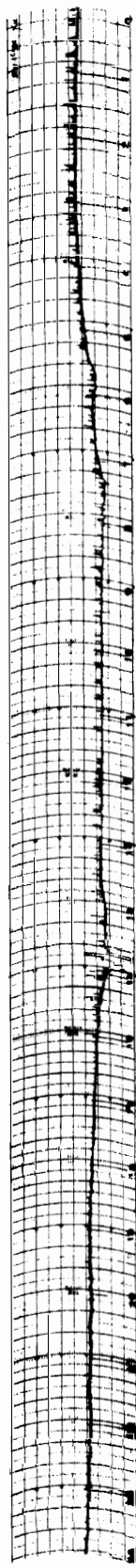
24



25



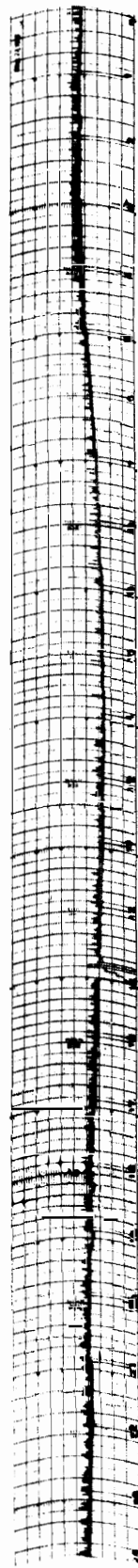
26



27

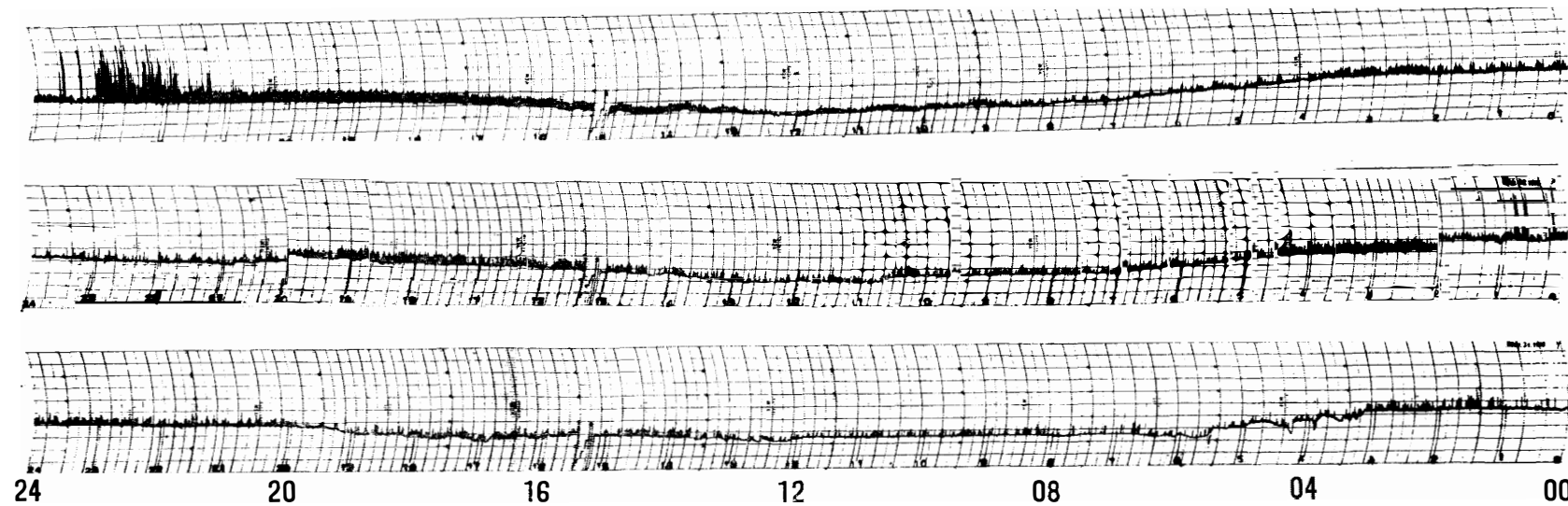


28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 02^h 30^m ~ 03^h 30^m

Minimum level 11^h 00^m ~ 13^h 00^m

B. Cosmic noise level obscured or equipment malfunction

C. Disturbed days : 2nd, 9th, 11th, 12th, 13th, 14th, 15th, 18th, 21st, 22th, 24th,

JUN 1968

1

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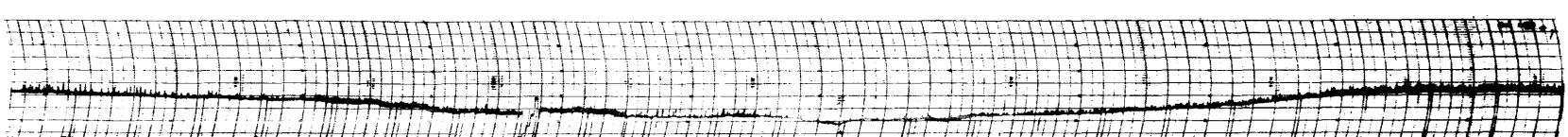
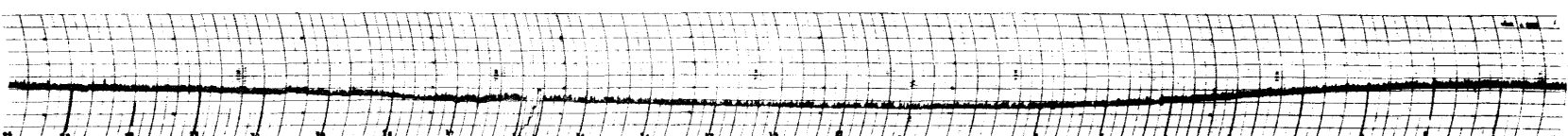
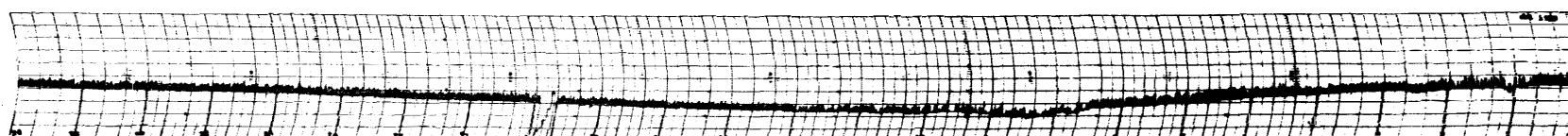
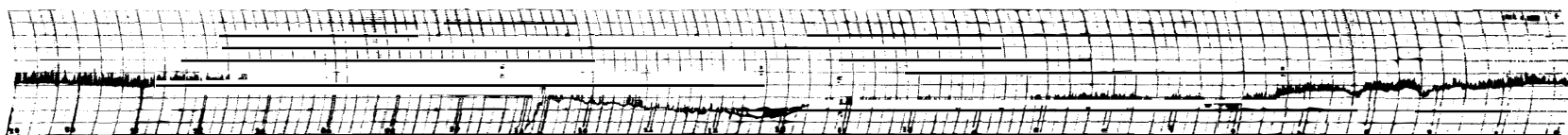
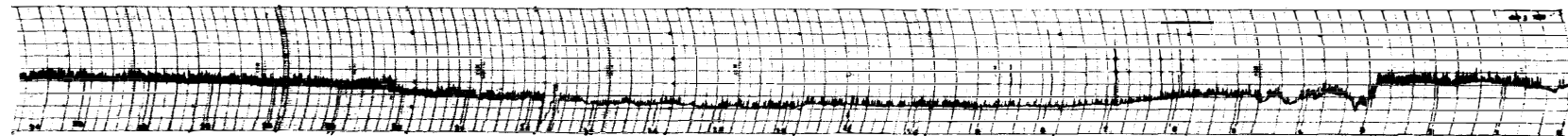
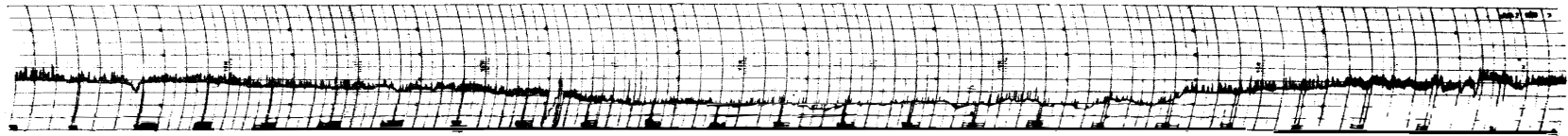
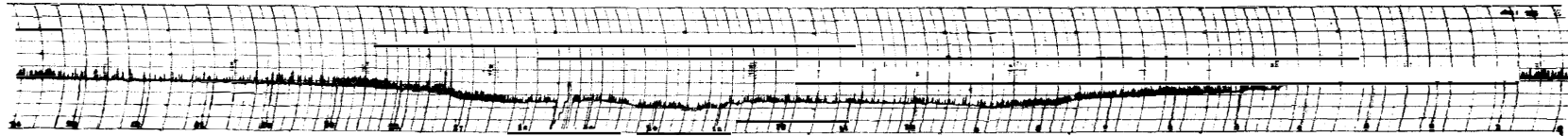
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JUN 1968

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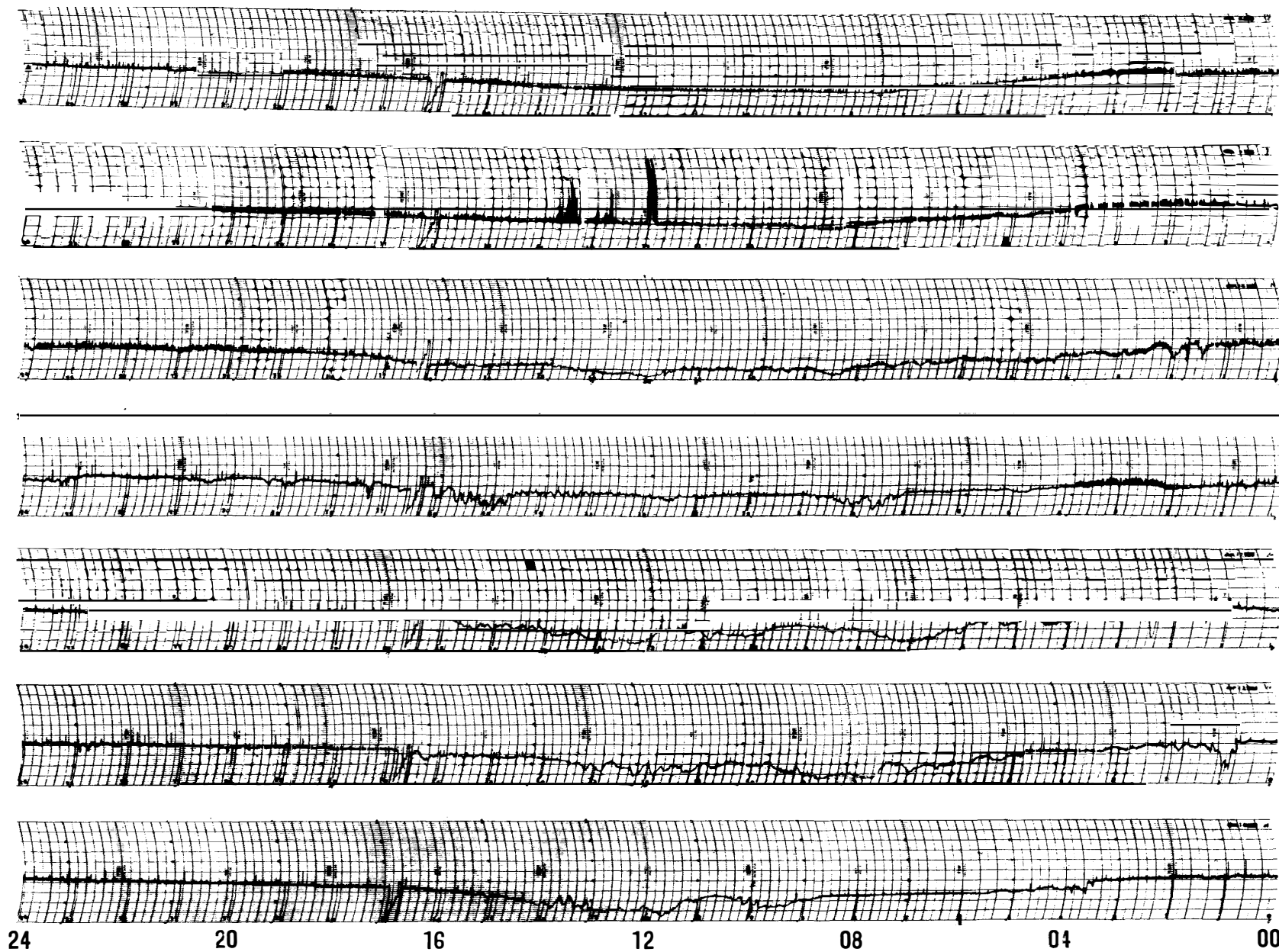
10

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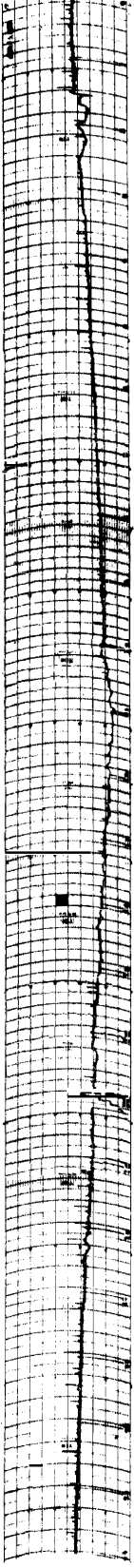


45° EAST MERIDIAN TIME IN HOURS

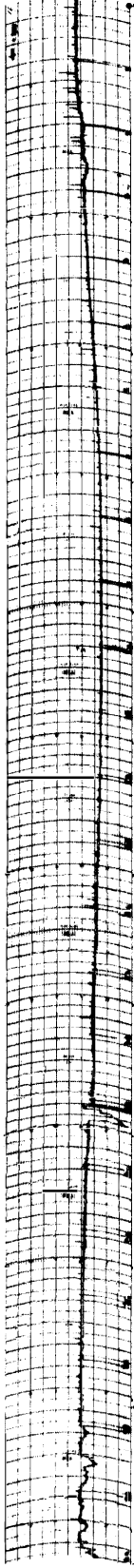
30 MHz COSMIC NOISE

JUN 1968

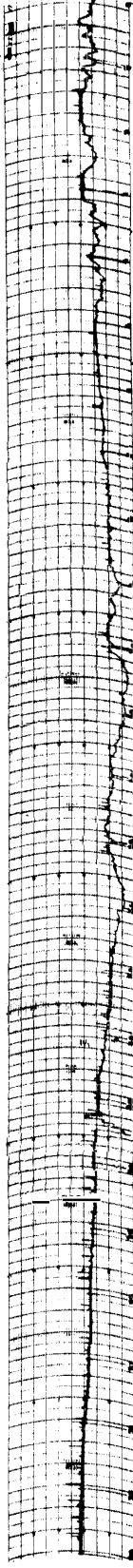
15



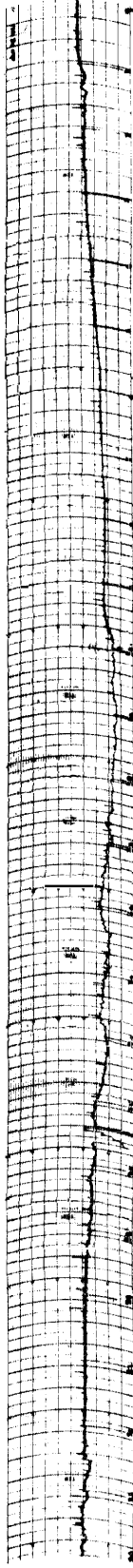
16



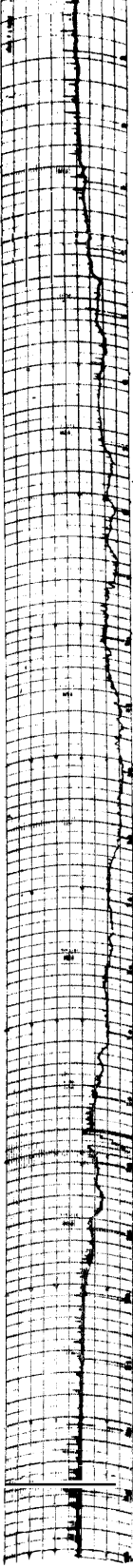
17



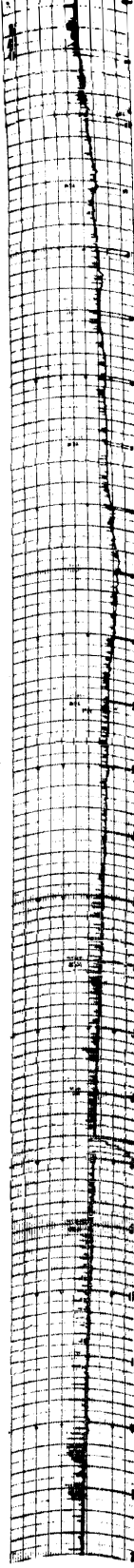
18



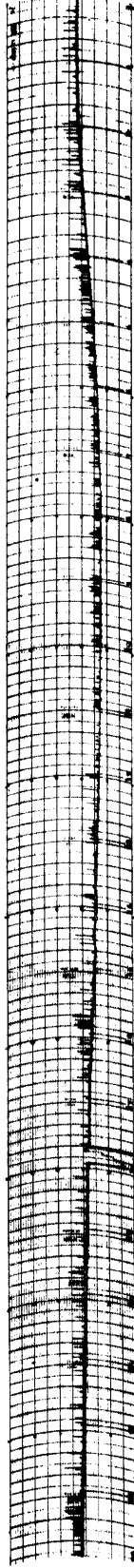
19



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21



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUN 1968

22

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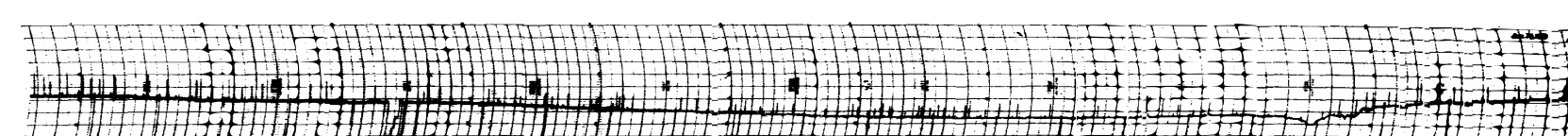
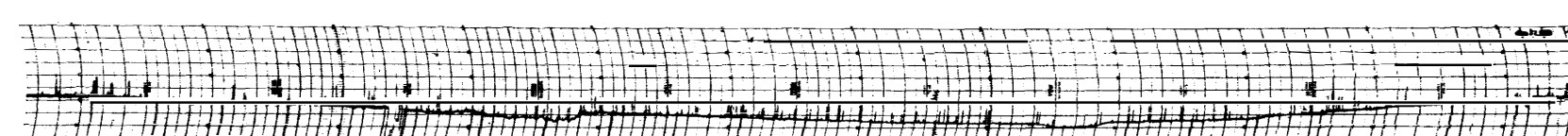
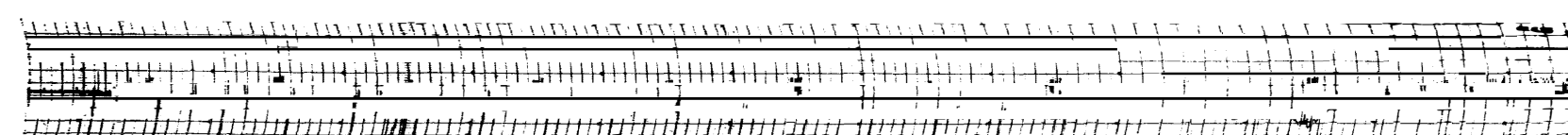
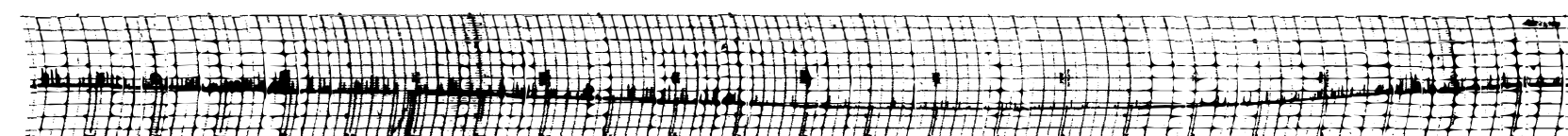
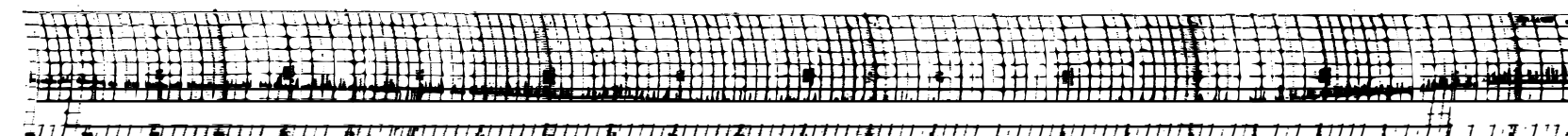
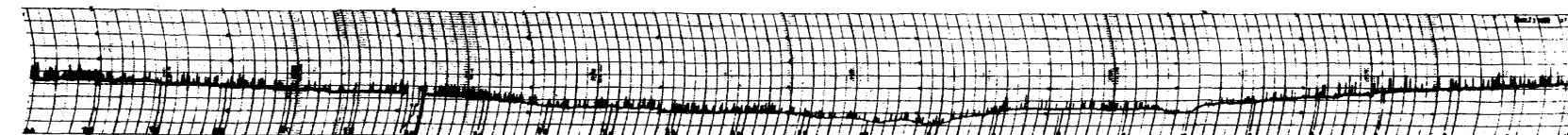
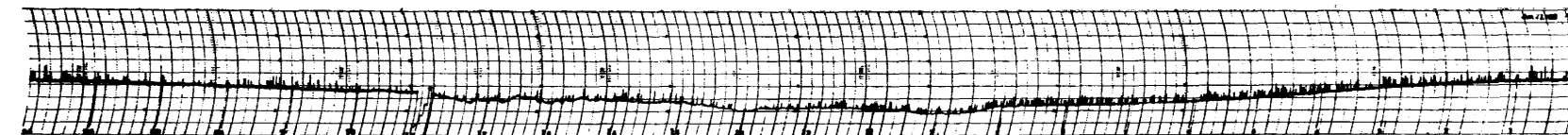
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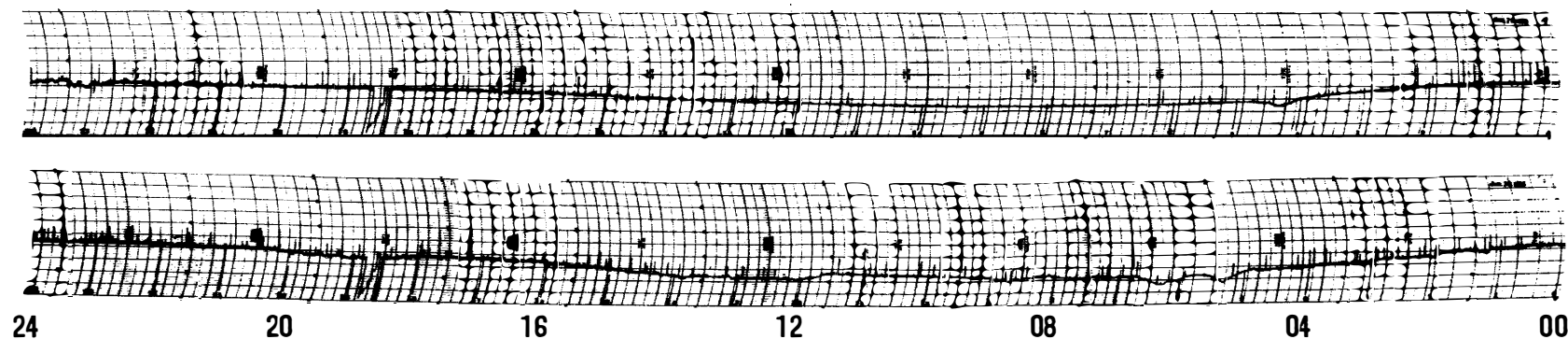
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29

30

JUN 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 00h 00m ~ 01h 30m

Minimum level 08h 30m ~ 10h 30m

B. Cosmic noise level obscured or equipment malfunction

C. Disturbed days: 2nd, 3rd, 4th, 10th, 11th, 12th, 13th, 14th, 15th, 17th, 19th, 23th,

JUL 1968

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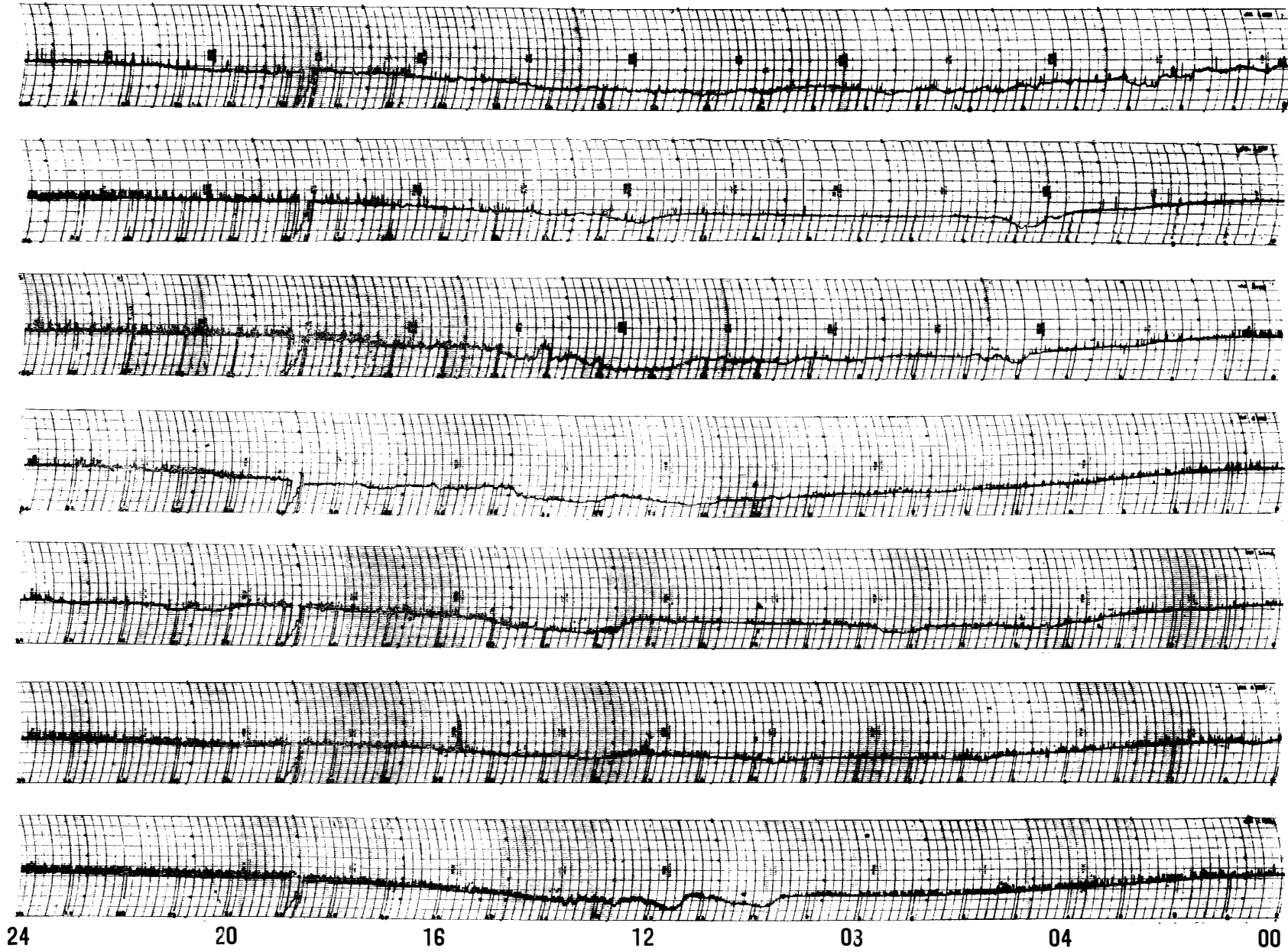
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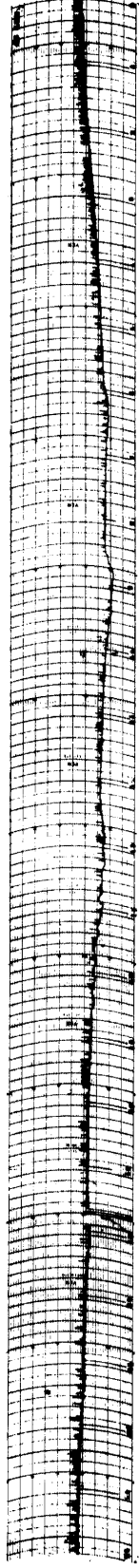


45° EAST MERIDIAN TIME IN HOURS

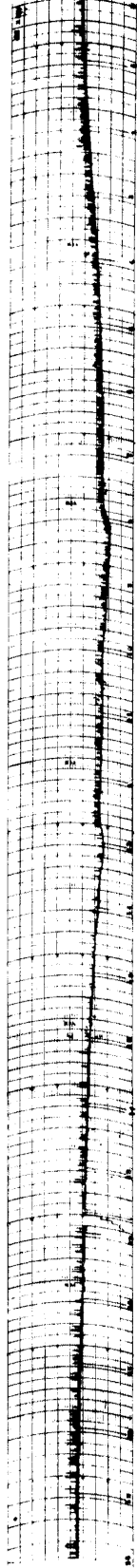
30 MHz COSMIC NOISE

JUL 1968

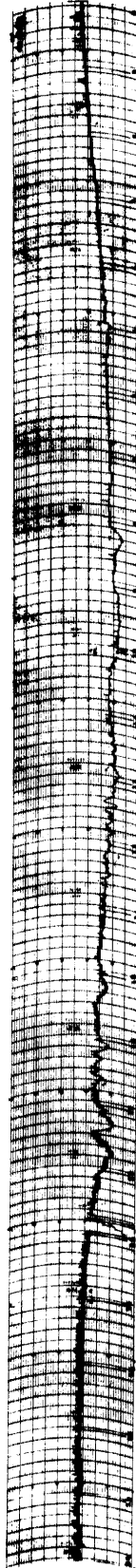
8



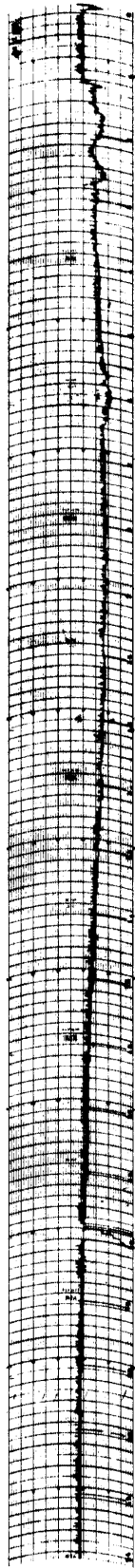
9



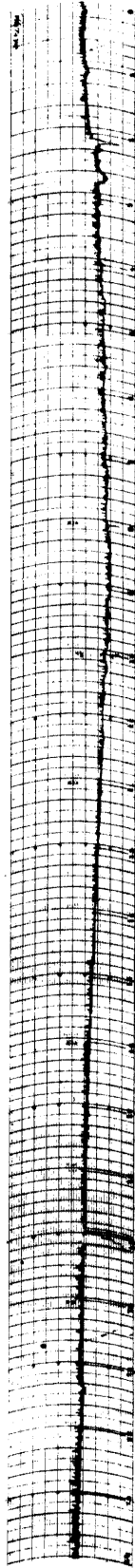
10



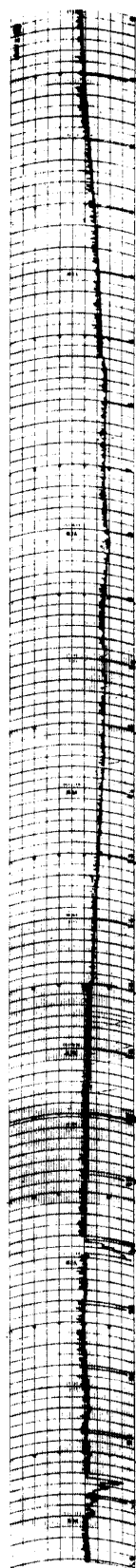
11



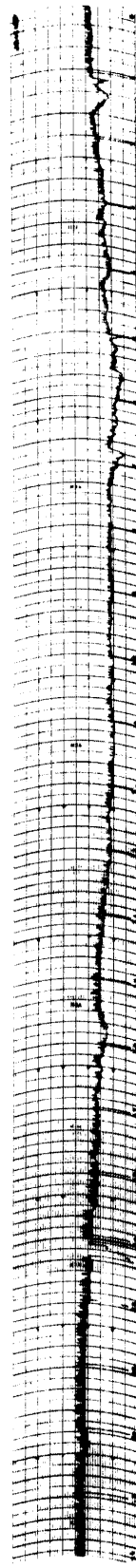
12



13



14



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

15 JUL 1968

16

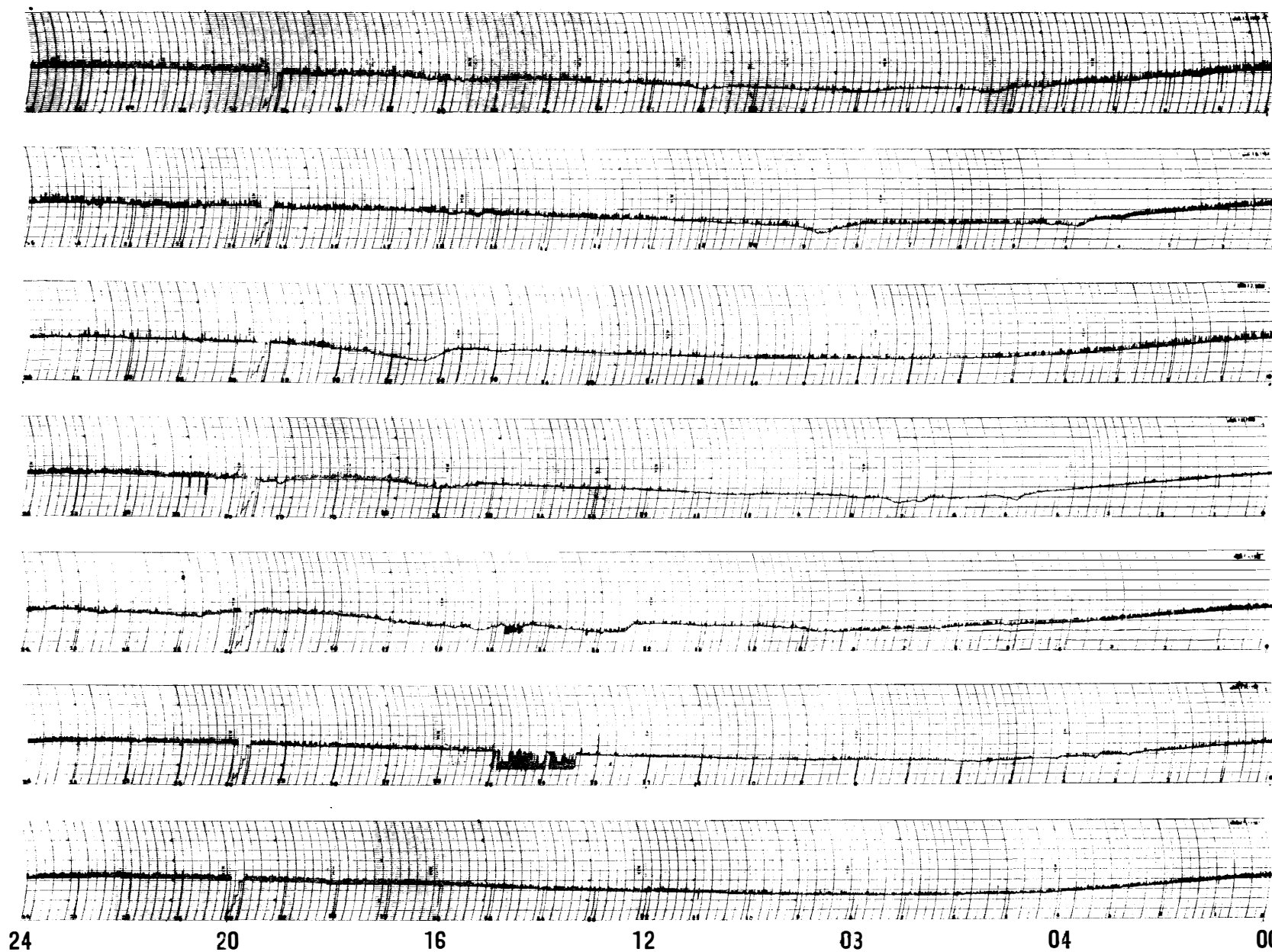
17

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45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

22 JUL 1968

23

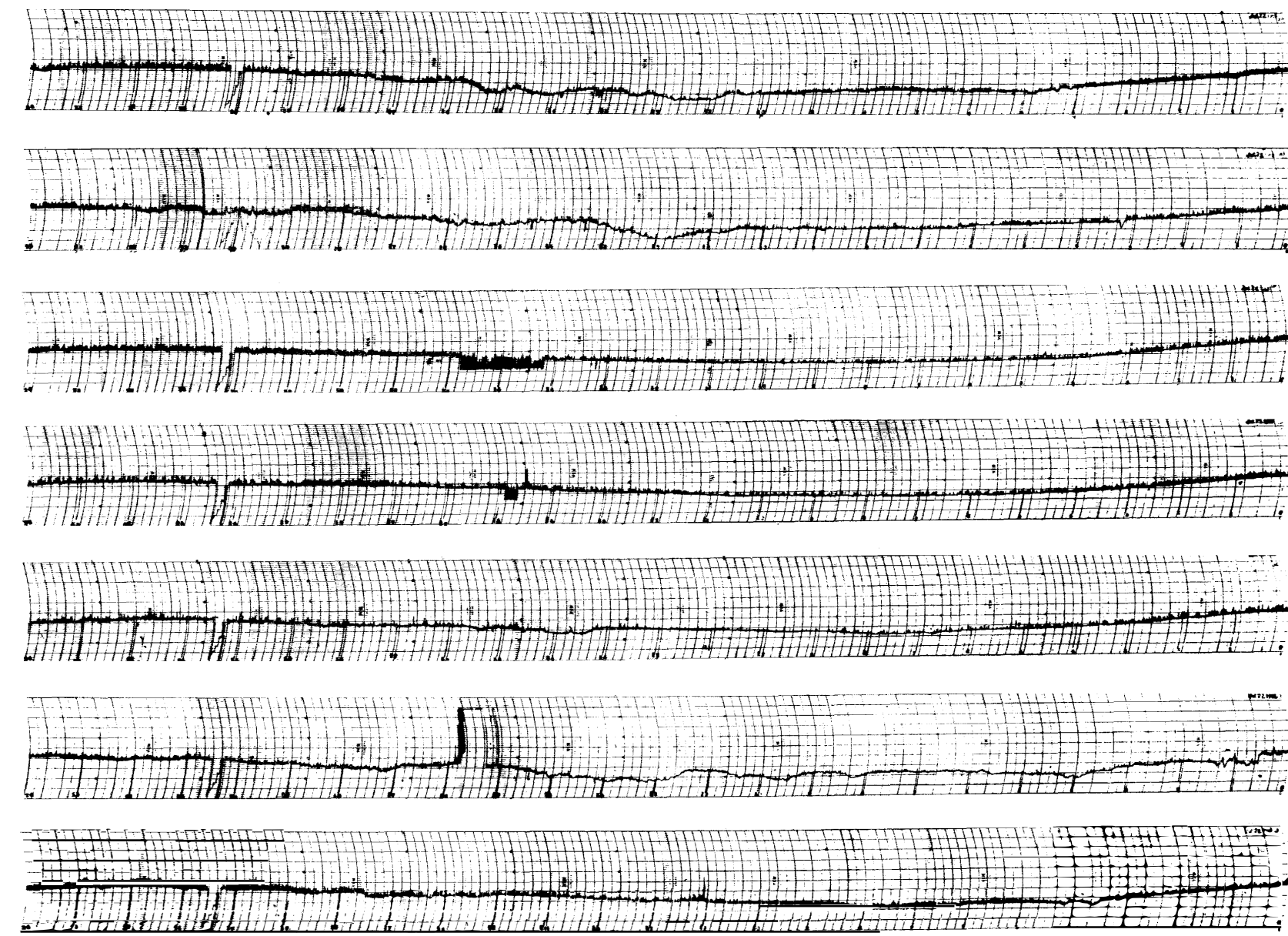
24

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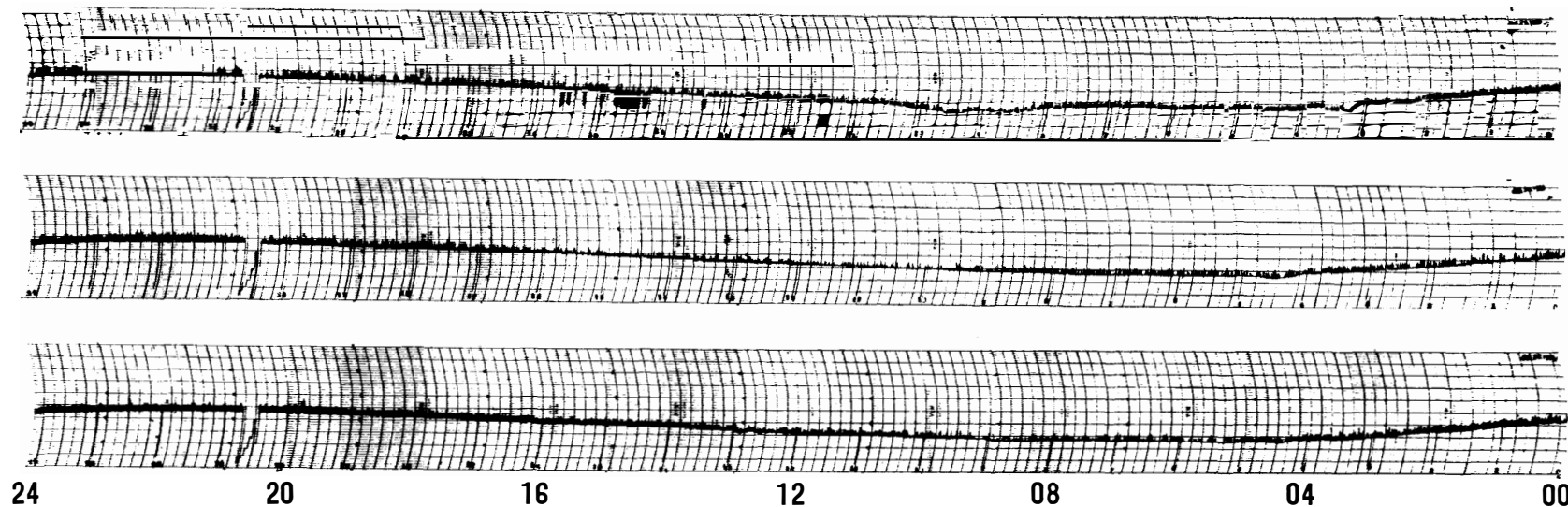
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29

30

31

JUL 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 22h 30m ~ 23h 30m

Minimum level 06h 30m ~ 08h 30m

B. Cosmic noise level obscured or equipment malfunction

19: 24h 27m ~ 14h 48m interference

20: 13h 25m ~ 15h 00m //

24: 14h 12m ~ 15h 47m //

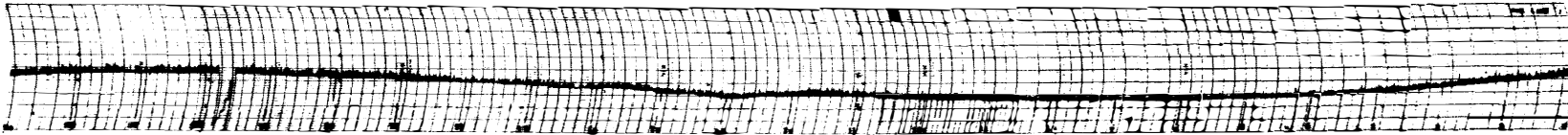
25: 14h 40m ~ 14h 55m //

29: 14h 17m ~ 15h 39m //

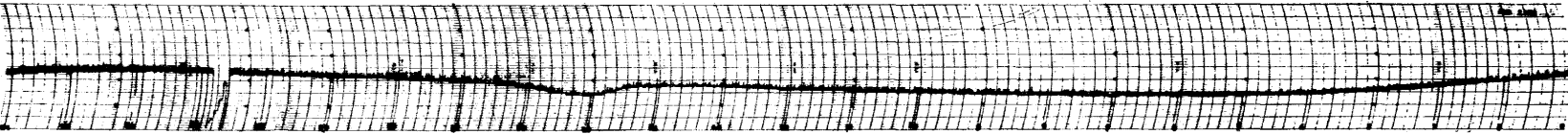
C. Disturbed days: 1 nt, 3 rd, 7 th, 10 th, 14 th, 22 th, 23 th, 27 th,

AUG 1968

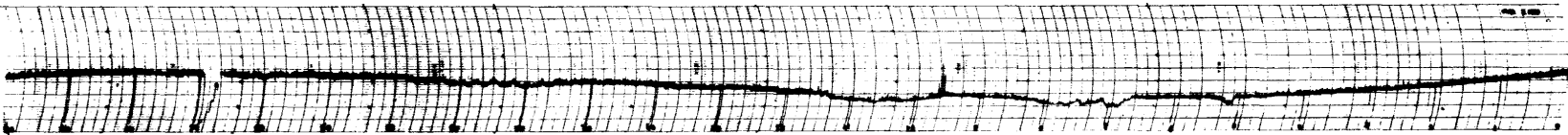
1



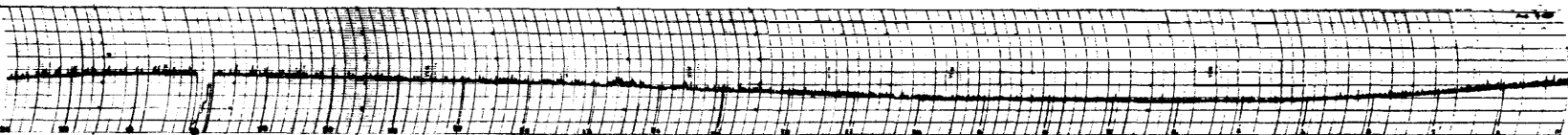
2



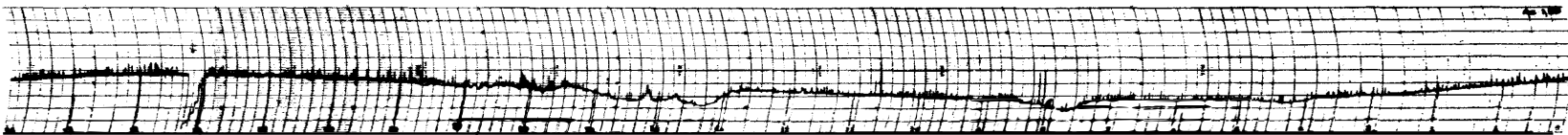
3



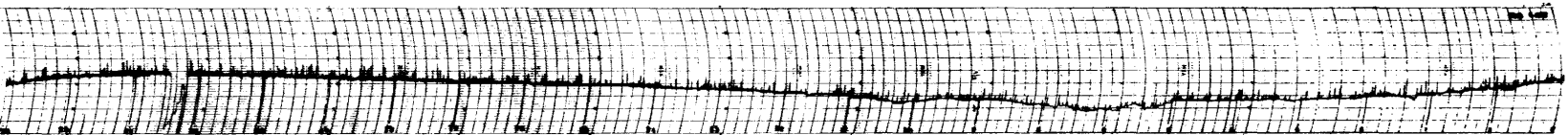
4



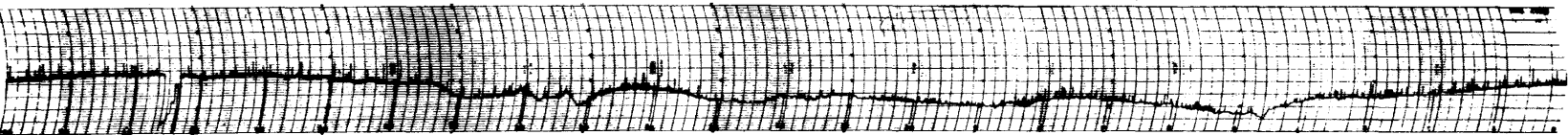
5



6



7



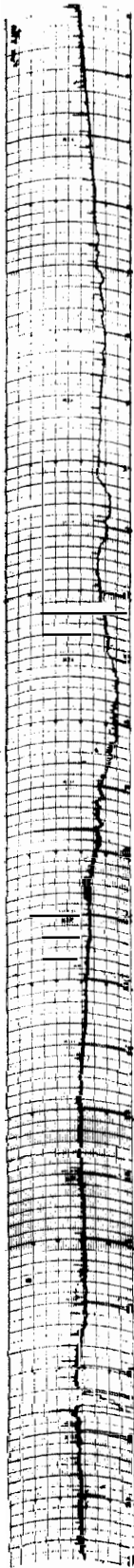
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

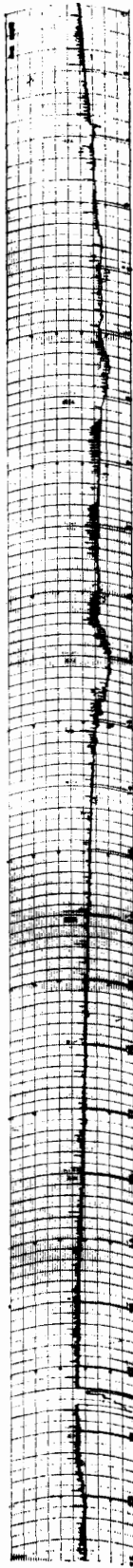
30 MHz COSMIC NOISE

AUG 1968

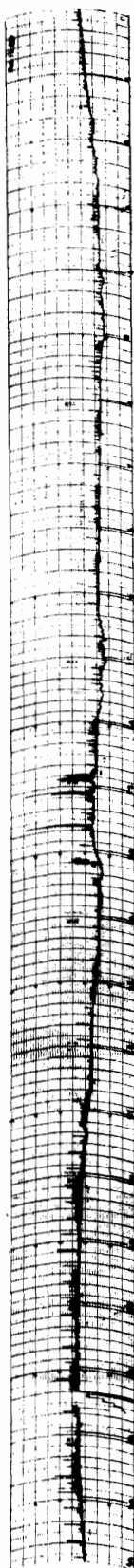
8



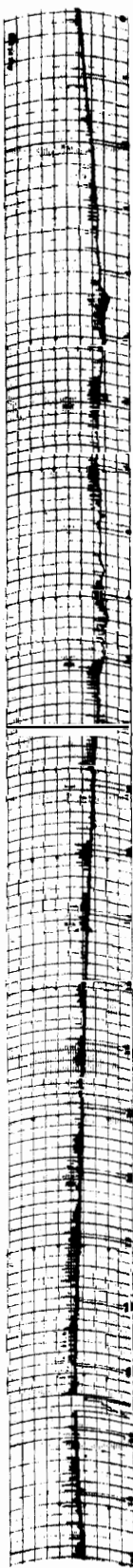
9



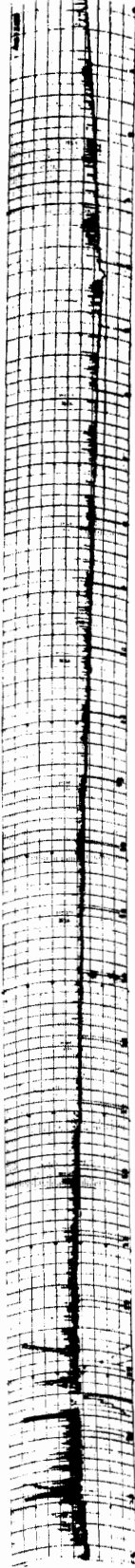
10



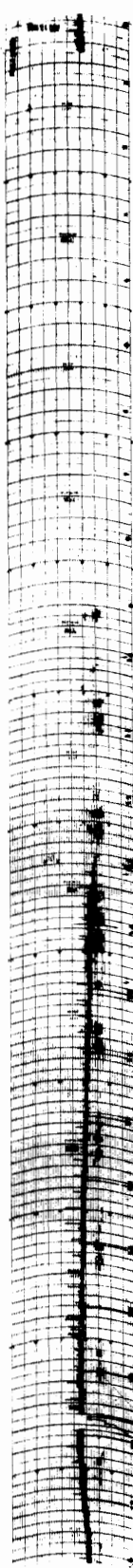
11



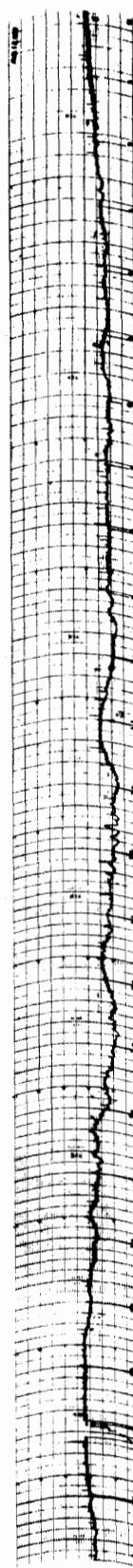
12



13

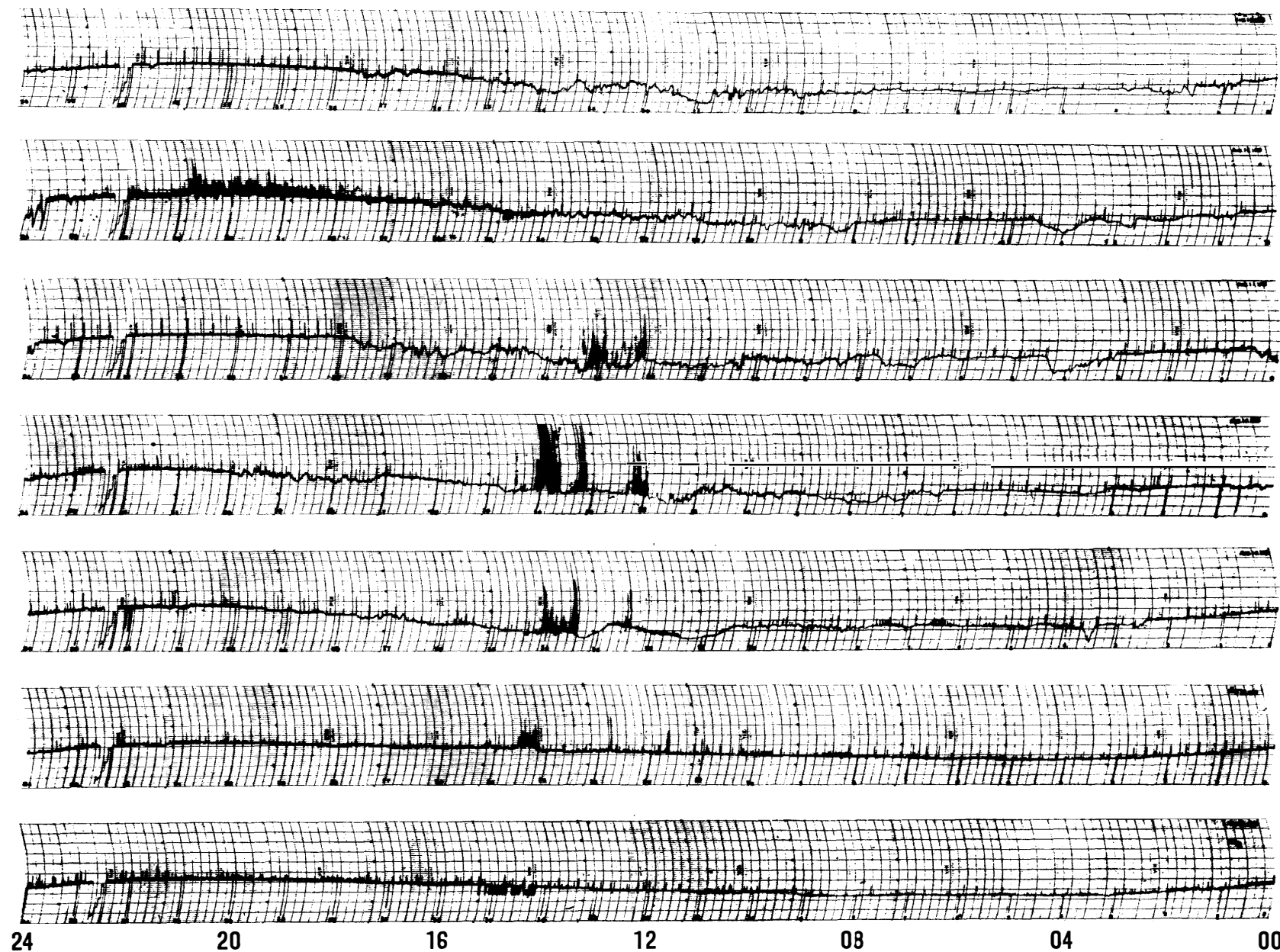


14



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

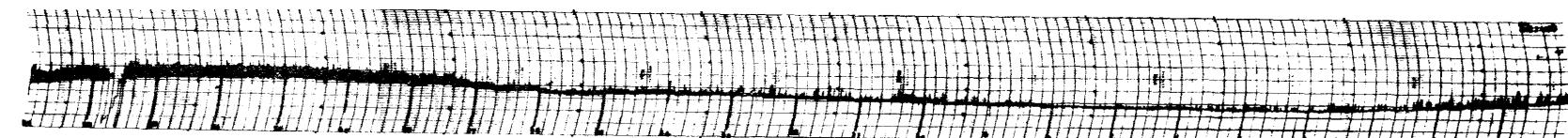


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AUG 1968

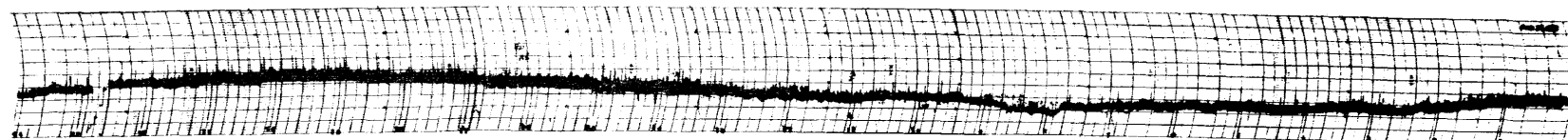
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

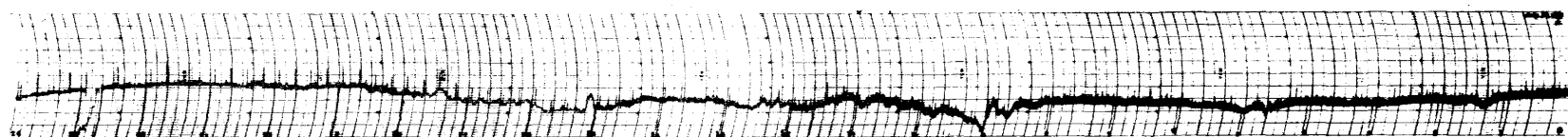


22

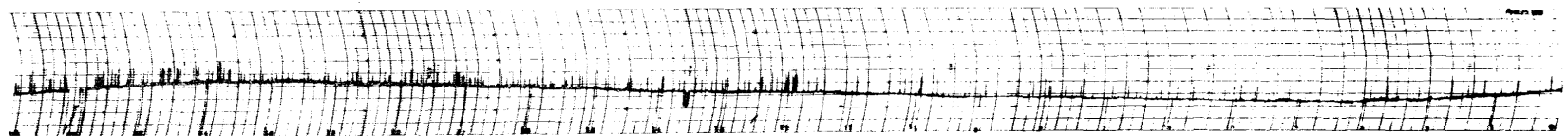
AUG 1968



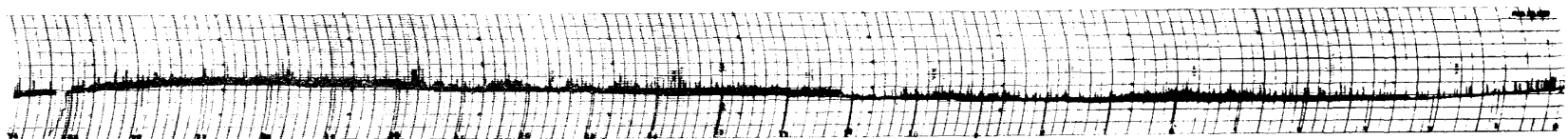
23



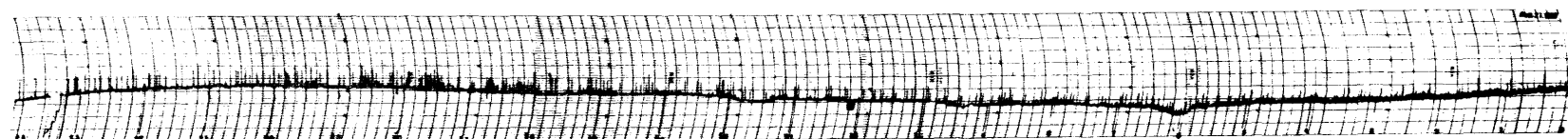
24



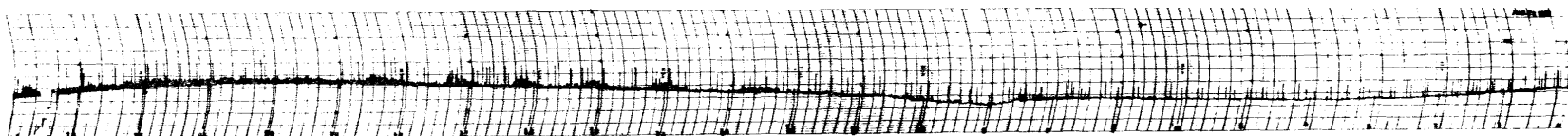
25



26



27

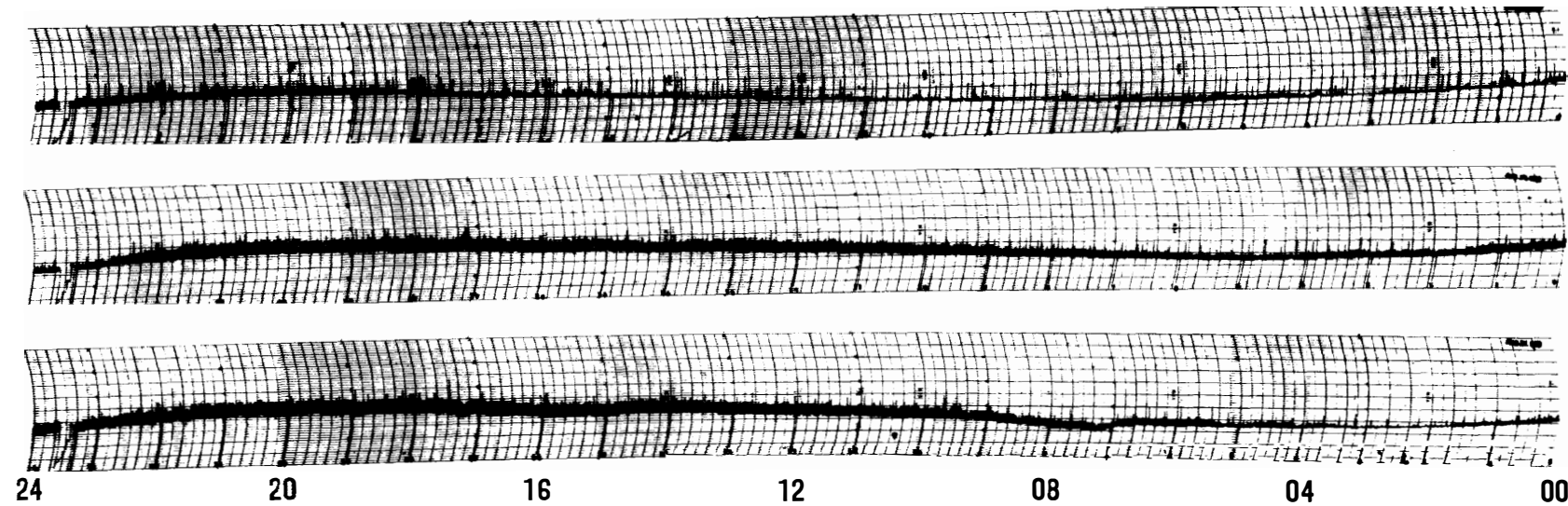


28

24 20 16 12 03 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29 AUG 1968

30

31

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 20^h 00^m ~ 21^h 30^m

Minimum level 04^h 00^m ~ 06^h 00^m

B. Cosmic noise level obscured or equipment malfunction

13: 00^h 40^m ~ 13^h 03^m recorder pen clogged

21: 14^h 12^m ~ 15^h 18^m interference

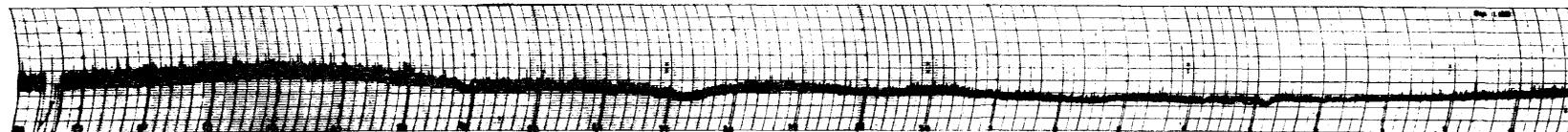
25: 13^h 31^m ~ 13^h 36^m //

27: 11^h 03^m ~ 11^h 10^m //

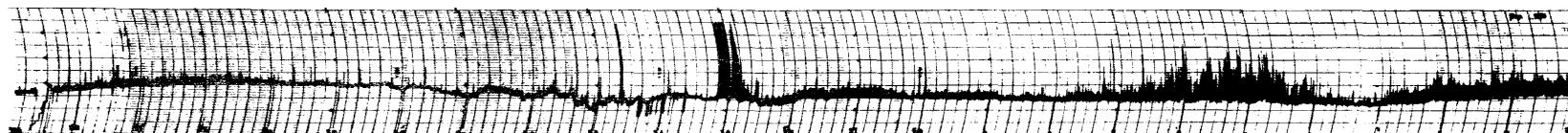
C. Disturbed days: 7 th, 8 th, 9 th, 14 th, 15 th, 16 th, 17 th, 18 th, 19 th, 24 th,

SEPT 1968

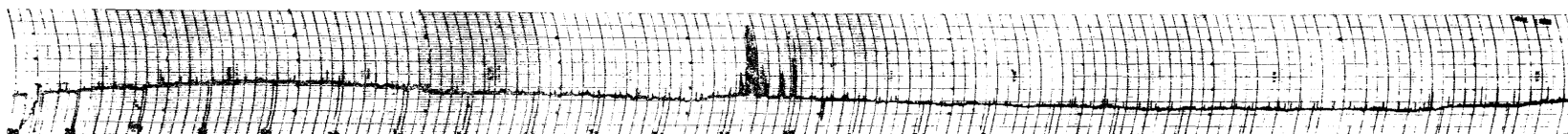
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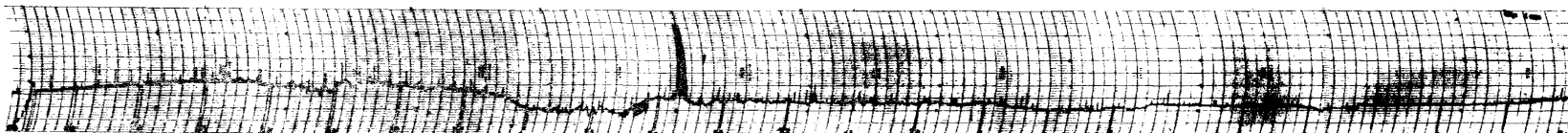
2



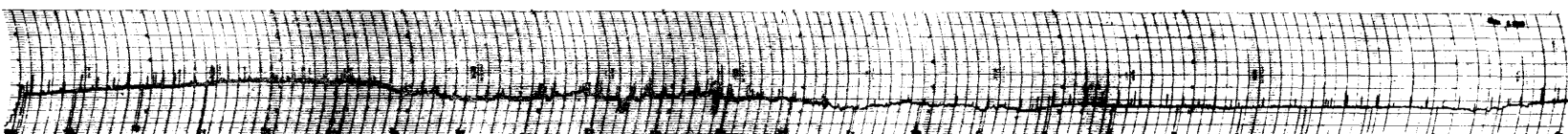
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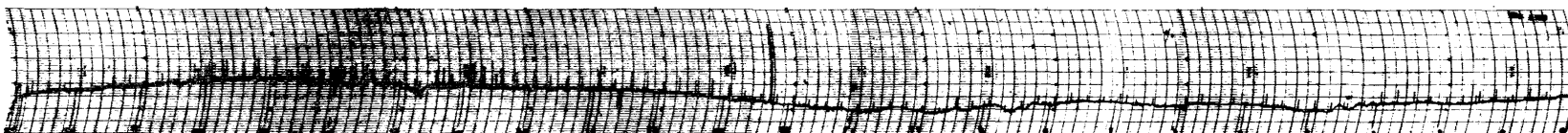
4



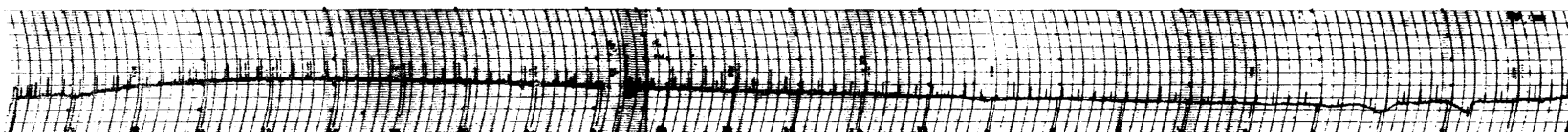
5



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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

SEPT 1968

8

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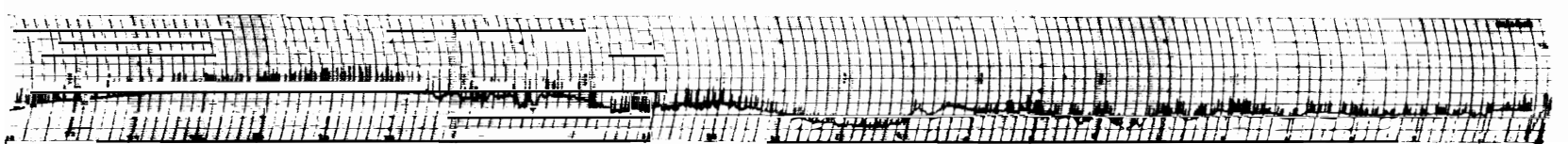
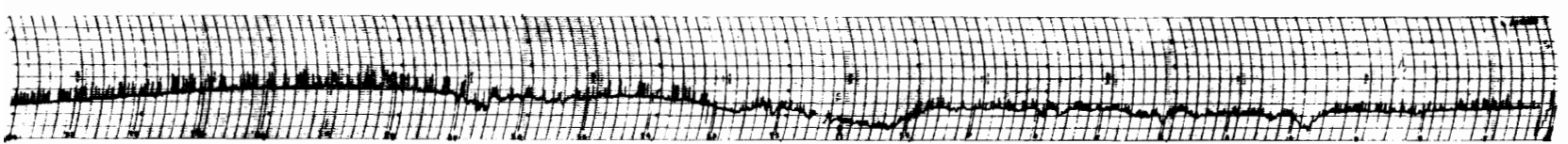
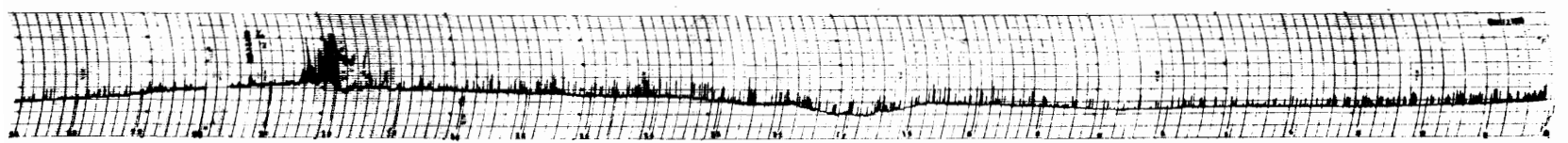
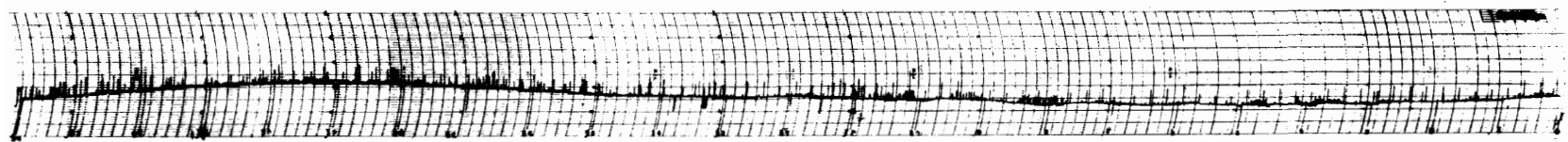
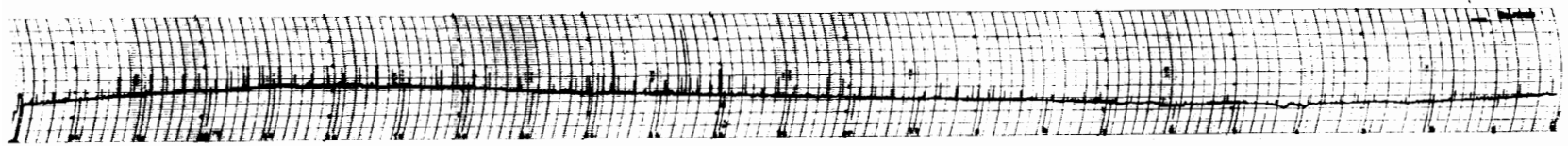
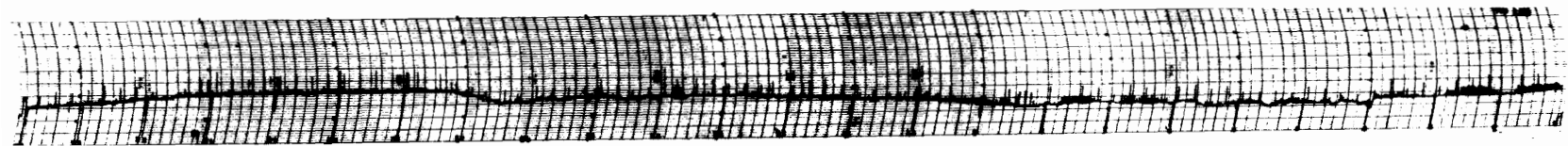
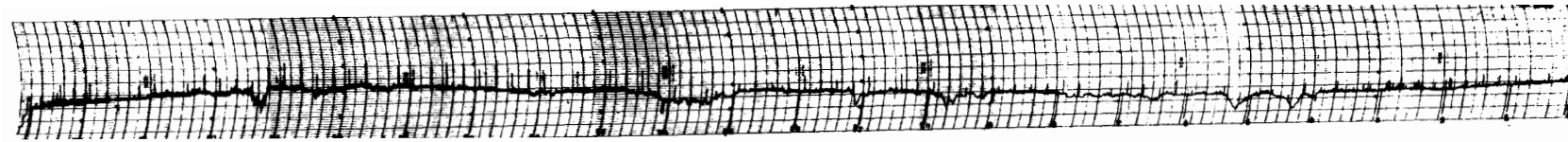
10

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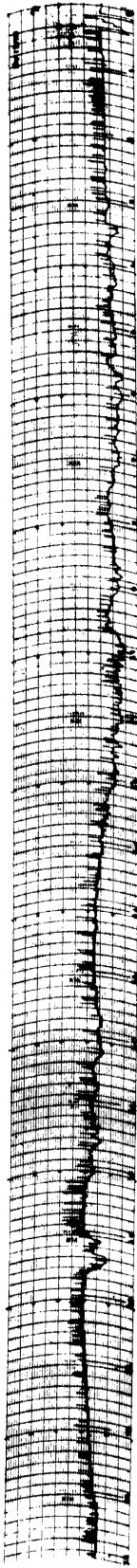
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

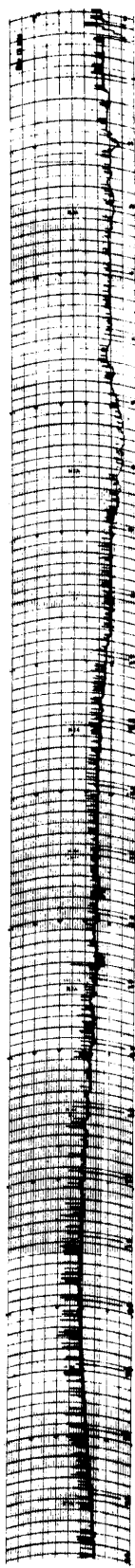
30 MHz COSMIC NOISE

SEPT 1968

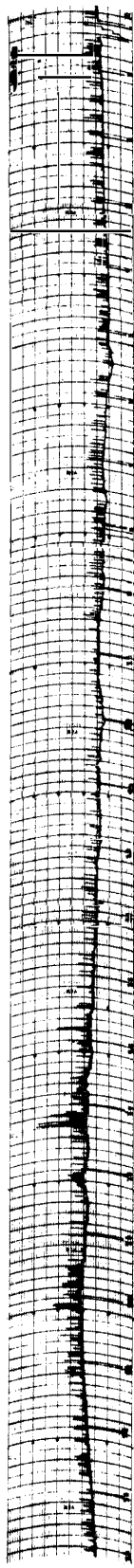
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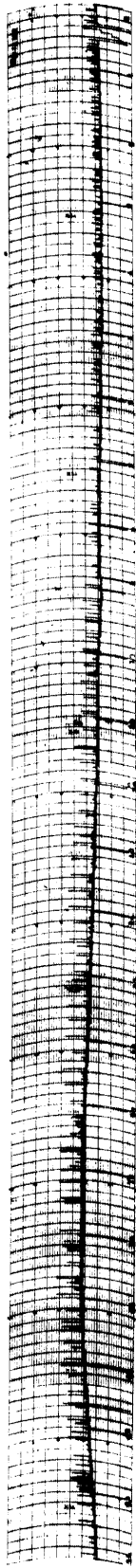
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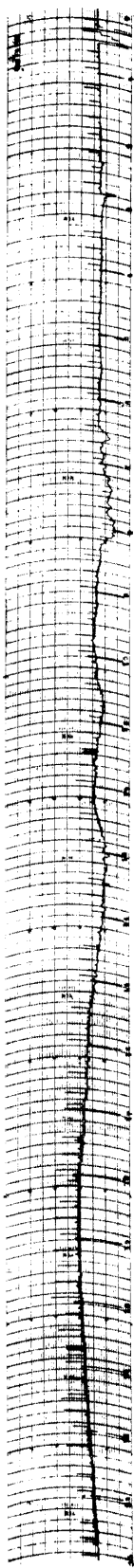
17



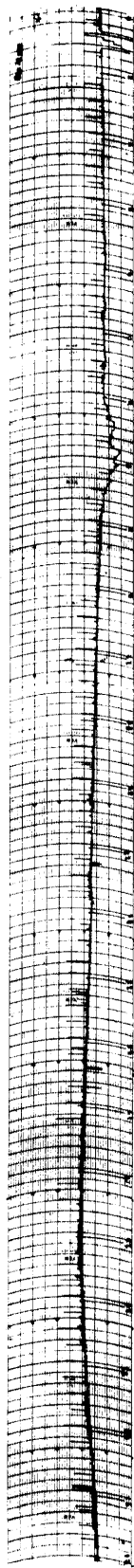
18



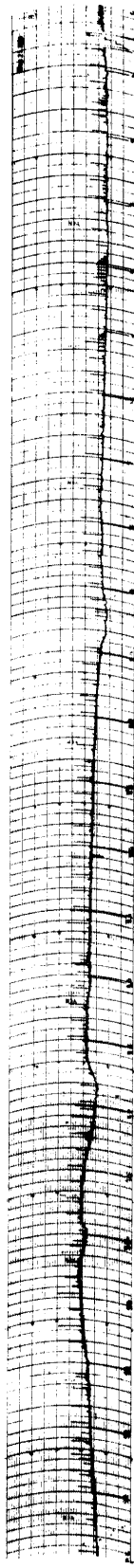
19



20



21



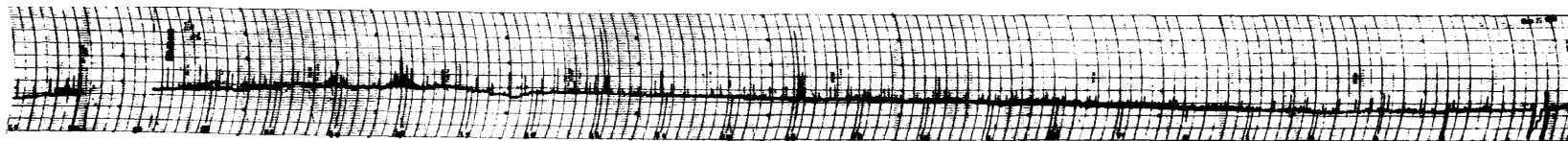
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

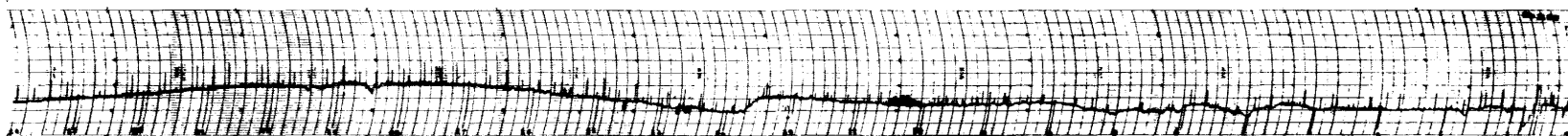
30 MHz COSMIC NOISE

SEPT 1968

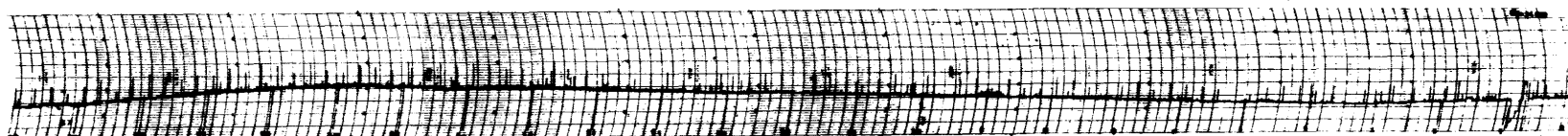
22



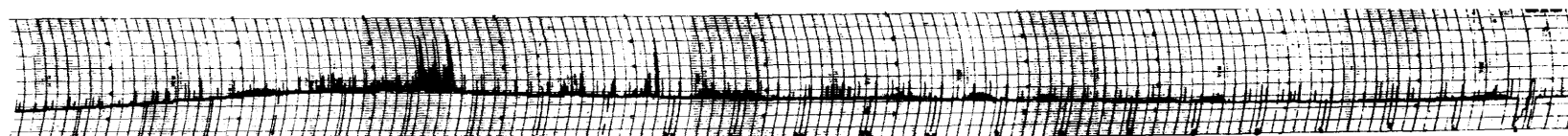
23



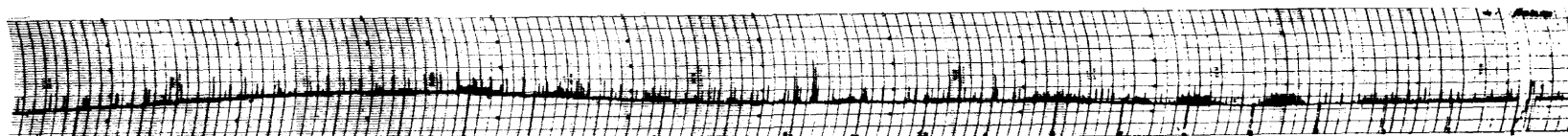
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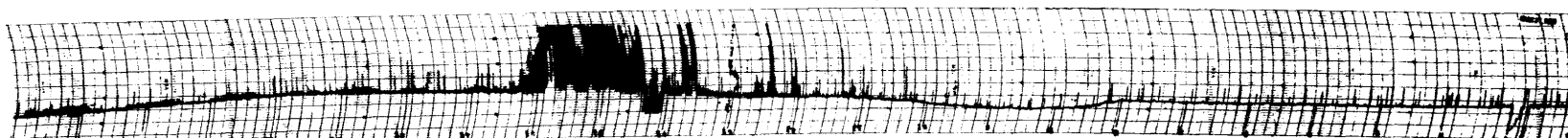
25



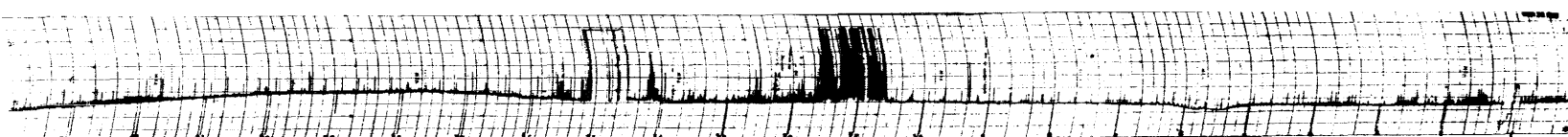
26



27

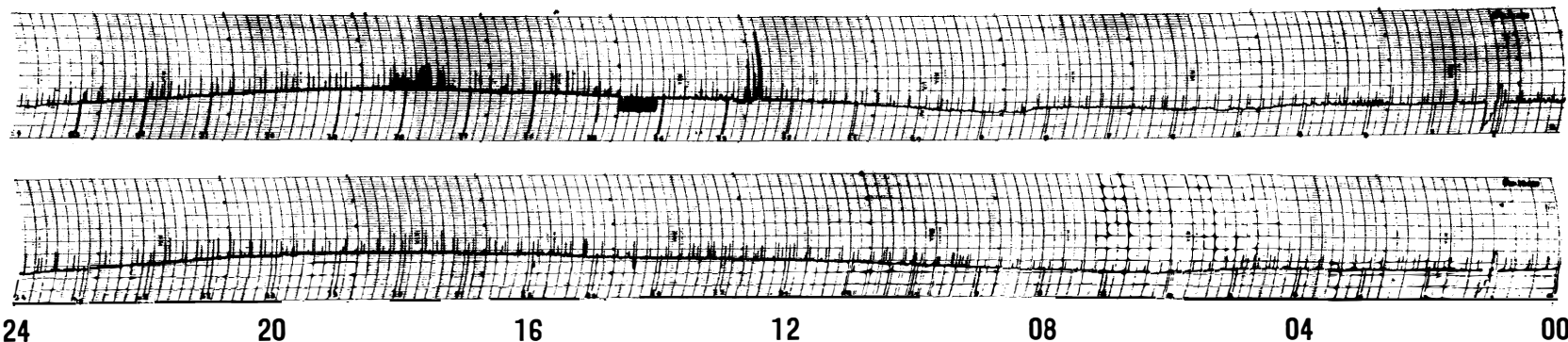


28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



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SEPT 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 18^h 00^m ~ 20^h 00^m

Minimum level 03^h 00^m ~ 05^h 00^m

B. Cosmic noise level obscured or equipment malfunction

12 : 20^h 37^m ~ 21^h 00^m interruption of electric current

16 : 13^h 38^m ~ 13^h 47^m interference

14^h 38^m ~ 15^h 48^m //

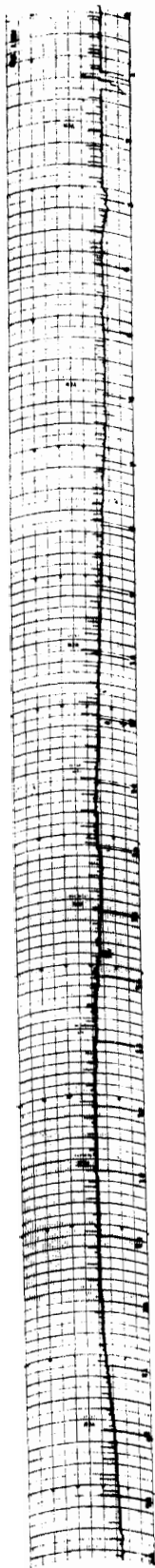
27 : 14^h 04^m ~ 14^h 21^m //

29 : 14^h 08^m ~ 14^h 43^m //

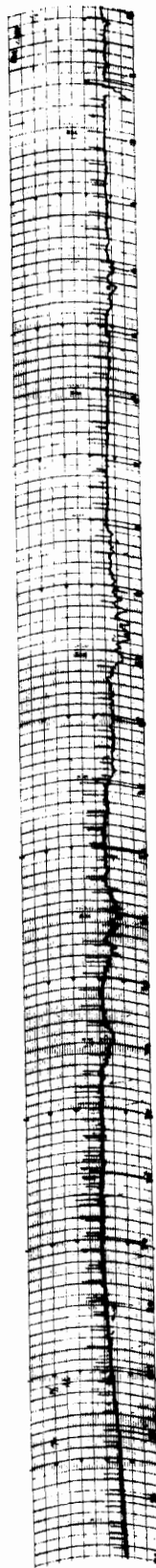
C. Disturbed days : 4 th, 8 th, 13 th, 14 th, 15 th, 16 th, 19 th, 20 th, 21 st, 23 th,

OCT 1968

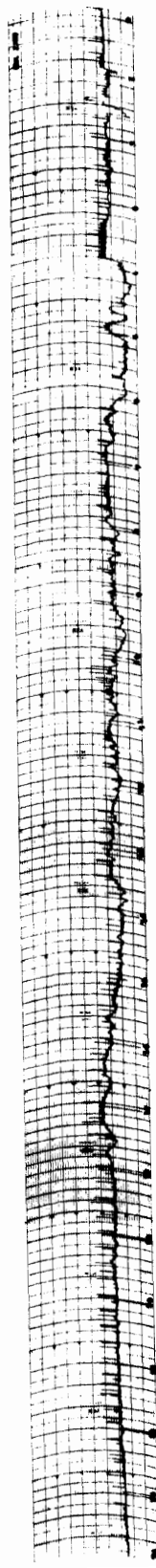
1



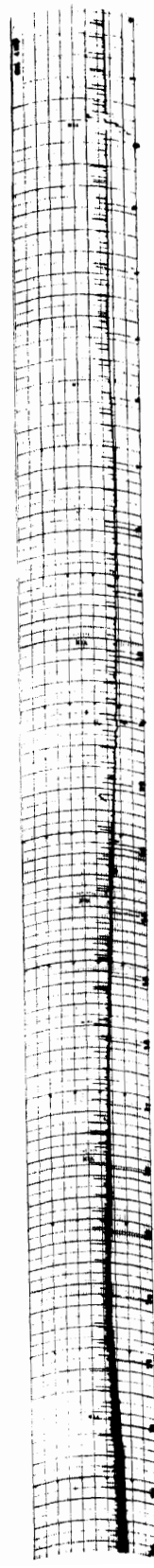
2



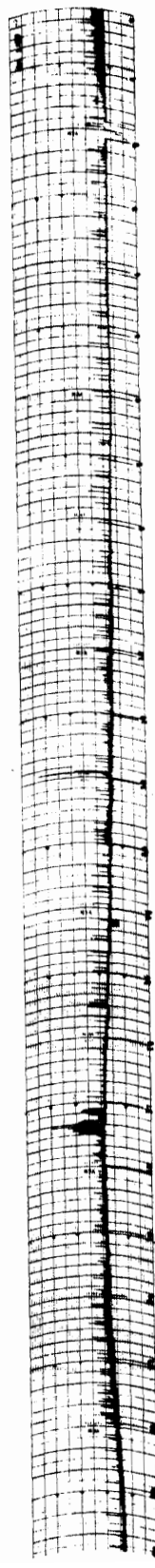
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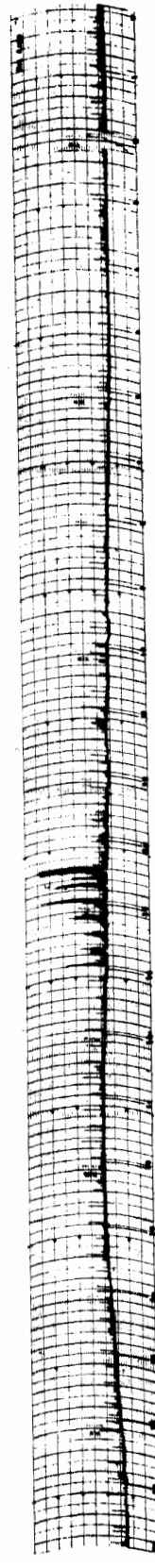
4



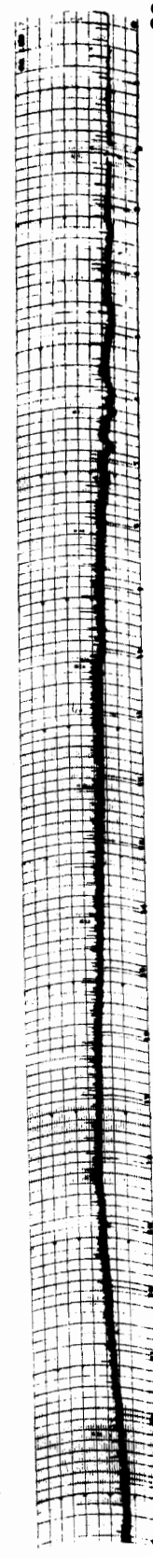
5



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7

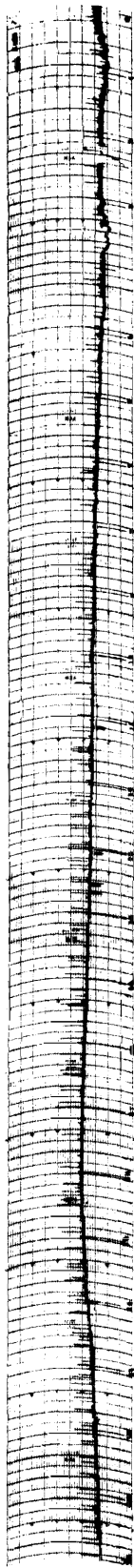


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1968

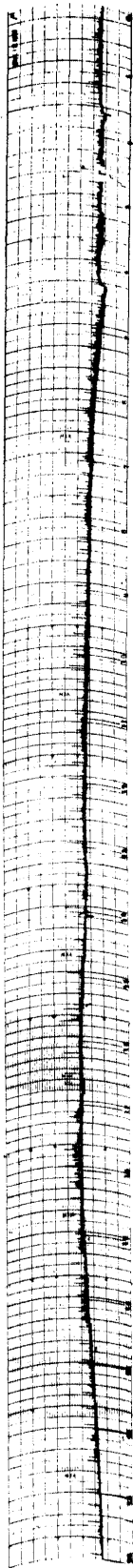
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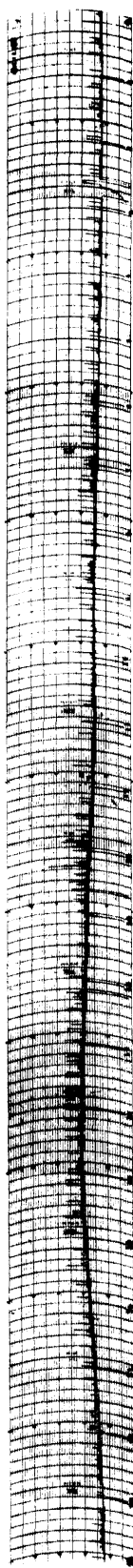
9



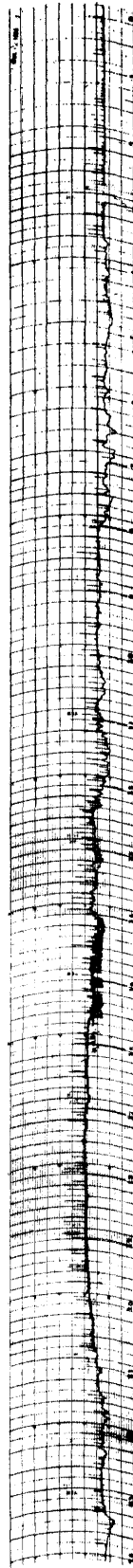
10



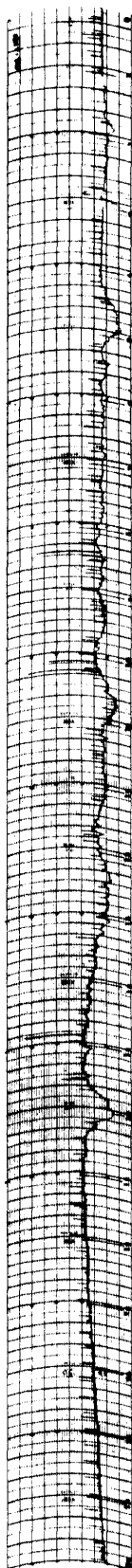
11



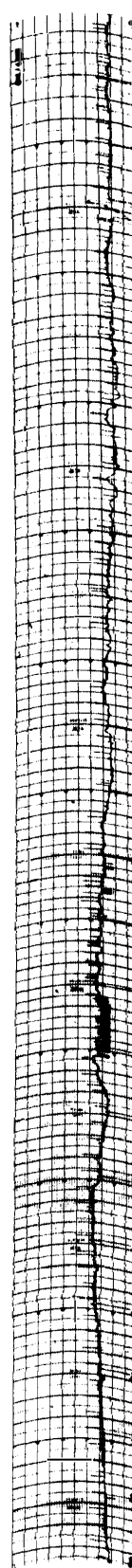
12



13



14



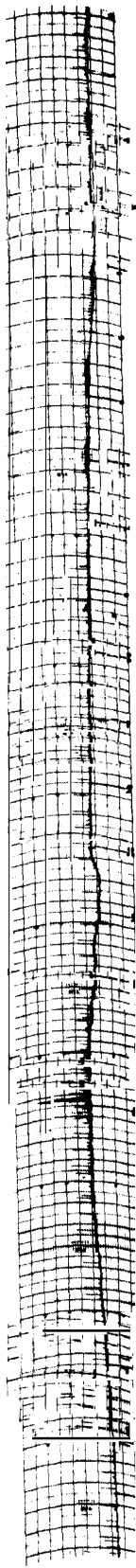
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

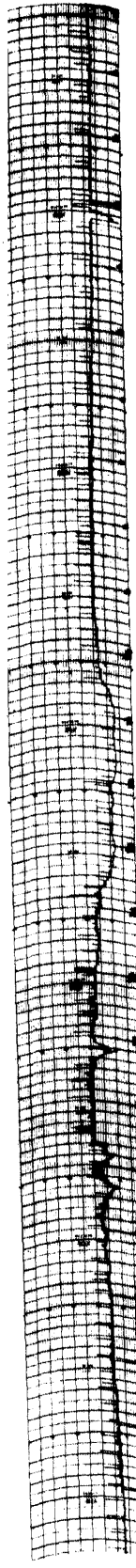
30 MHZ COSMIC NOISE

OCT 1968

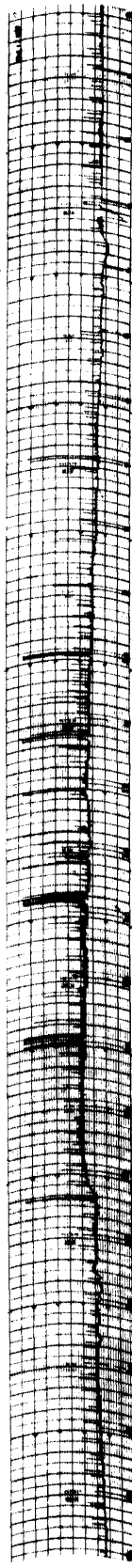
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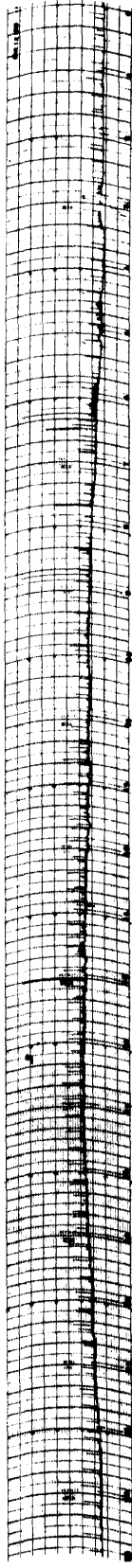
16



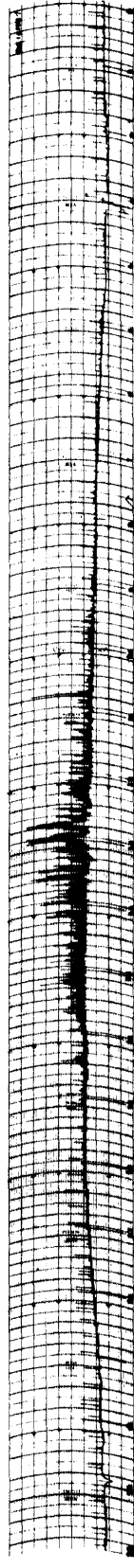
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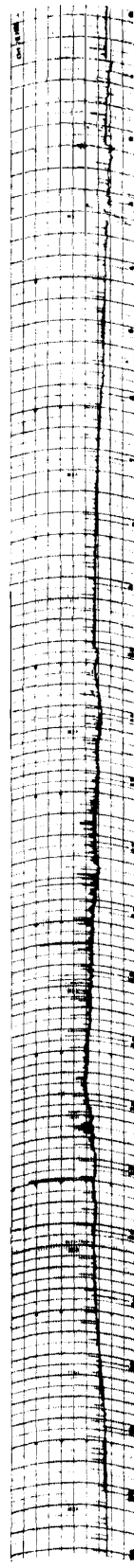
18



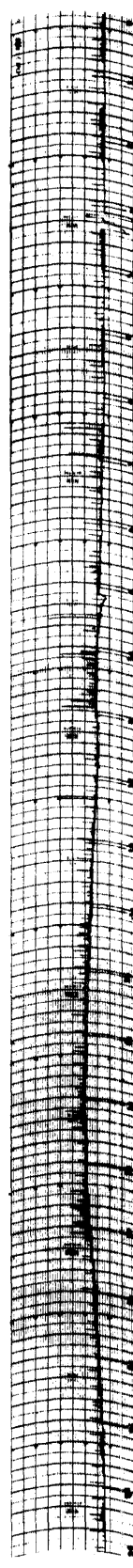
19



20



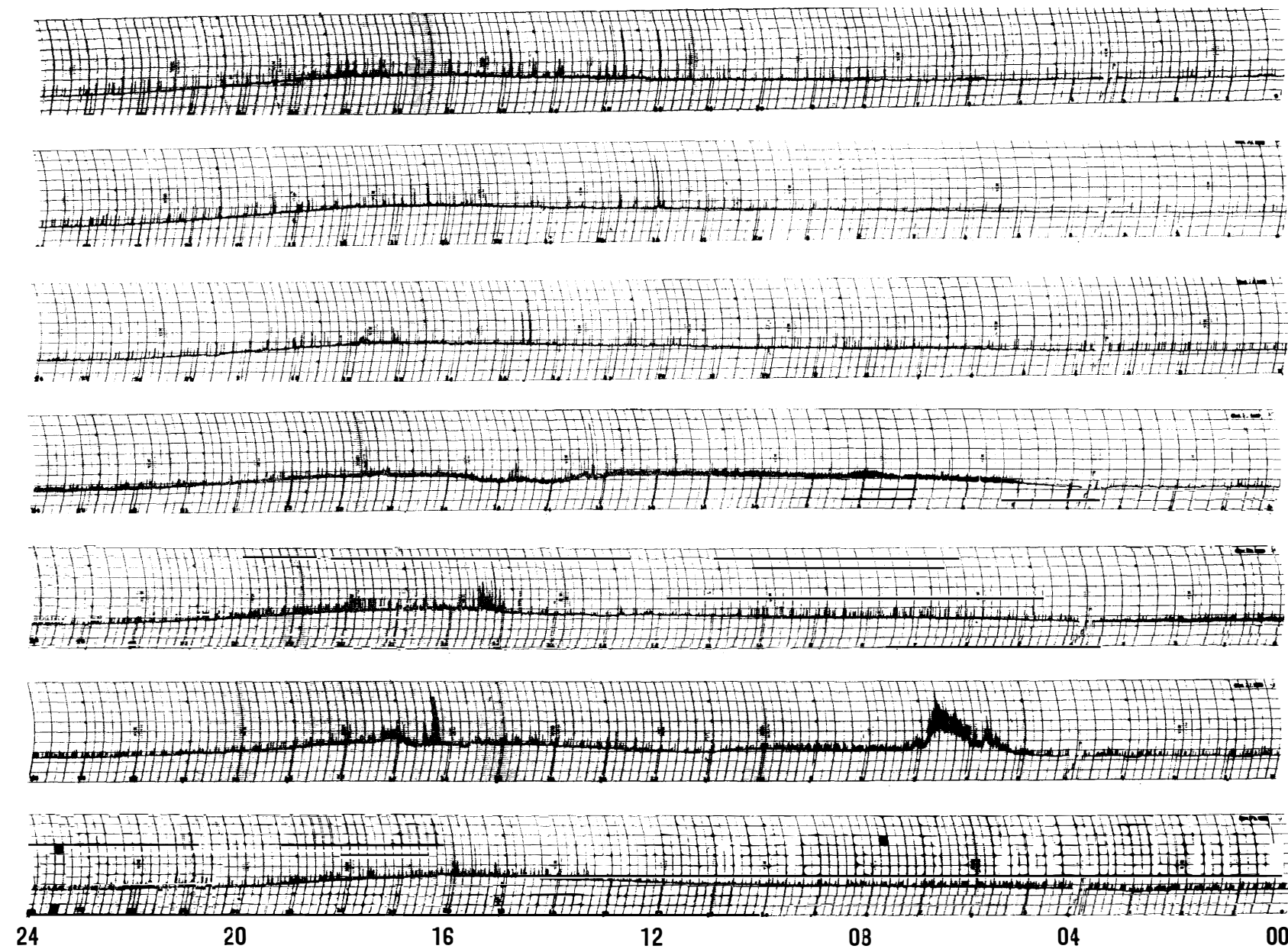
21



24 20 16 12 08 04 00

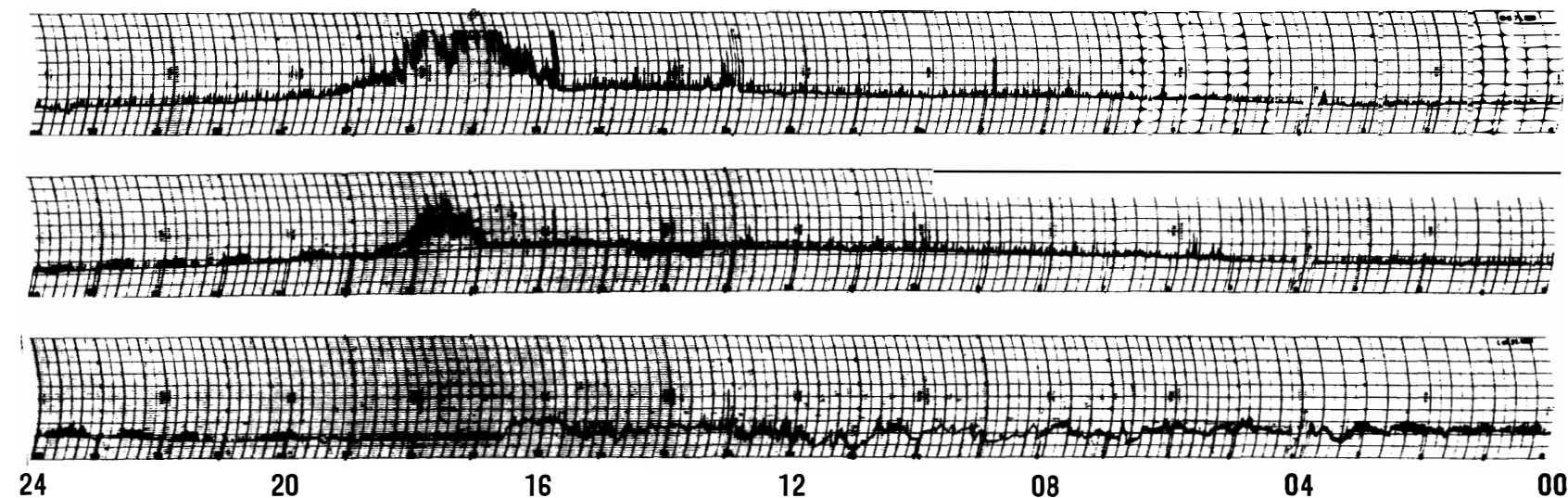
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29
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OCT 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 16h 30m ~ 18h 00m

Minimum level 01h 30m ~ 03h 00m

B. Cosmic noise level obscured or equipment malfunction

5: 14h 10m ~ 14h 16m interference

8: 11h 05m ~ 11h 10m //

13h 02m ~ 13h 05m //

13h 30m ~ 13h 40m //

12: 14h 03m ~ 15h 35m //

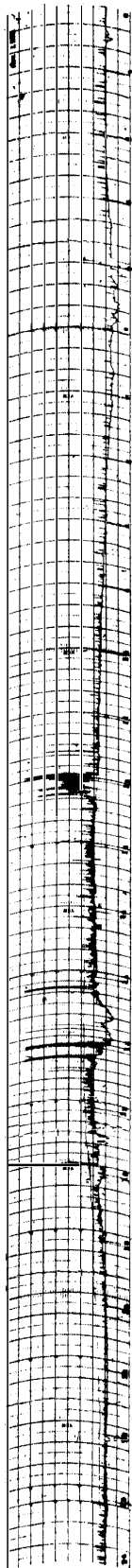
14: 13h 31m ~ 13h 36m //

15h 14m ~ 16h 10m //

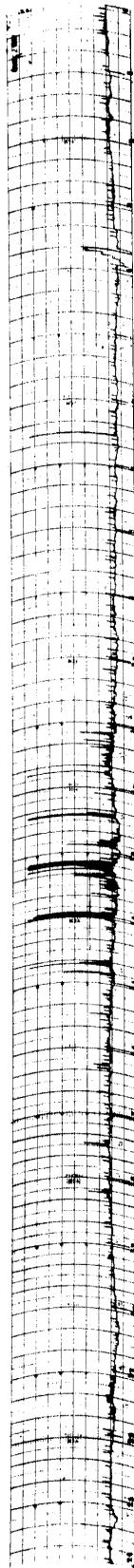
C. Disturbed days: 2nd, 3rd, 12th, 13th, 14th, 15th, 16th, 29th, 30th, 31st,

NOV 1968

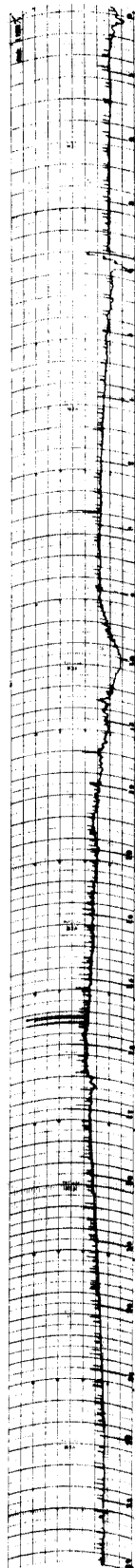
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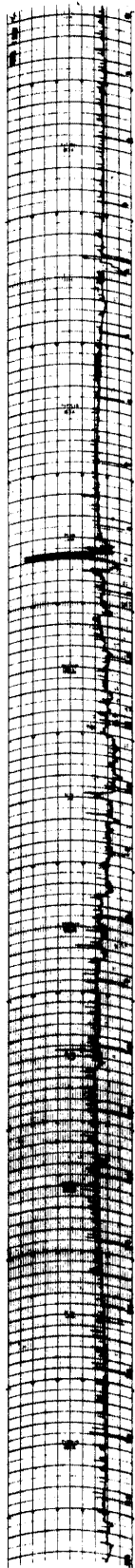
2



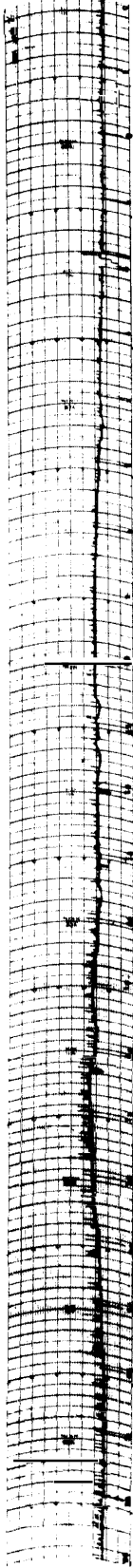
3



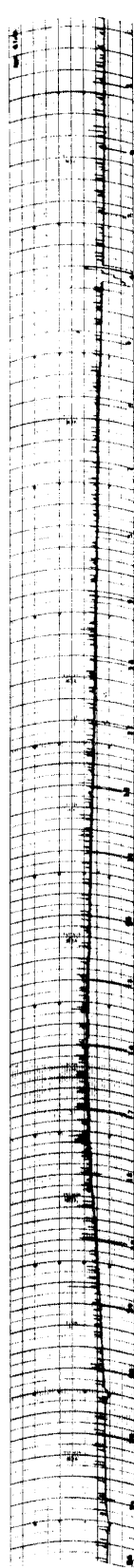
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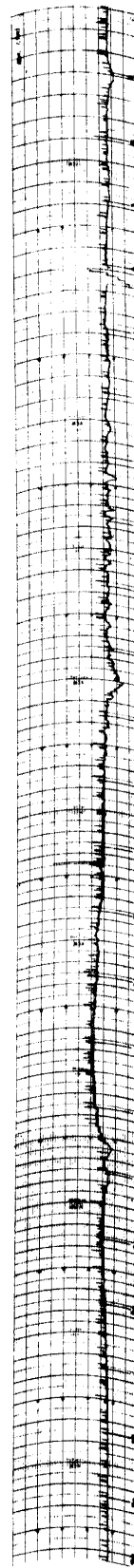
5



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7

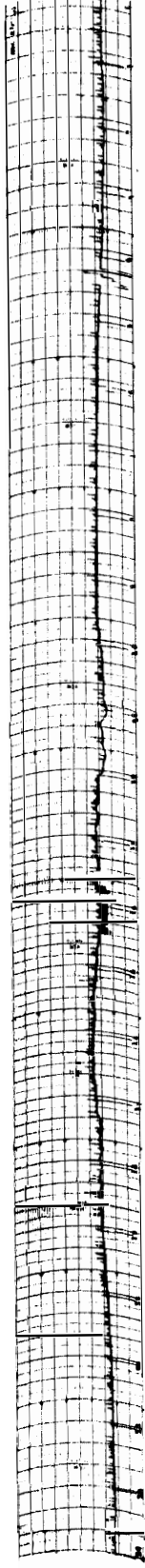


24 20 16 12 08 04 00

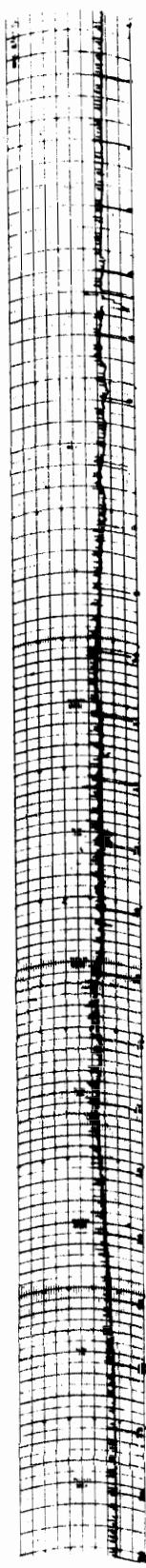
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1968

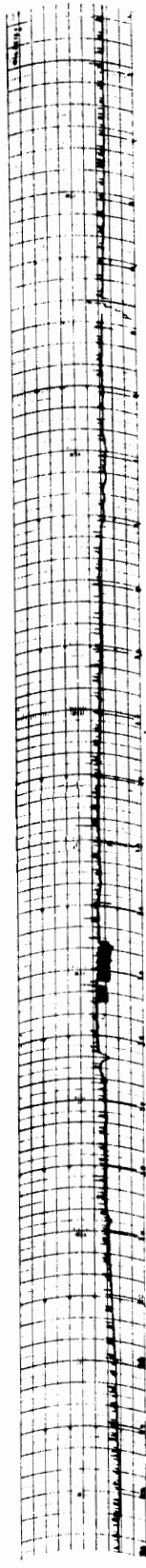
8



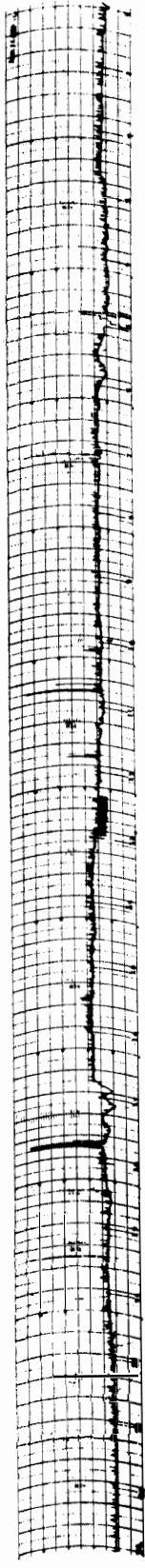
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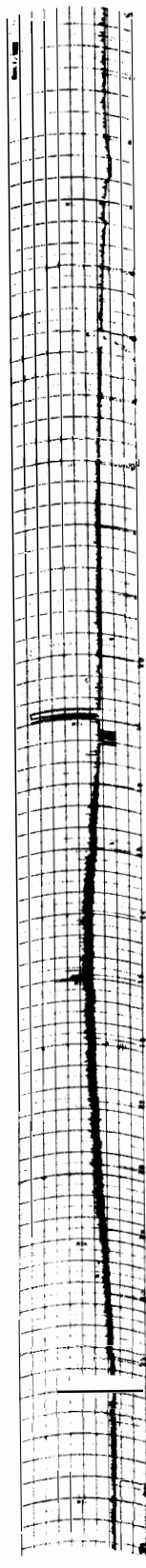
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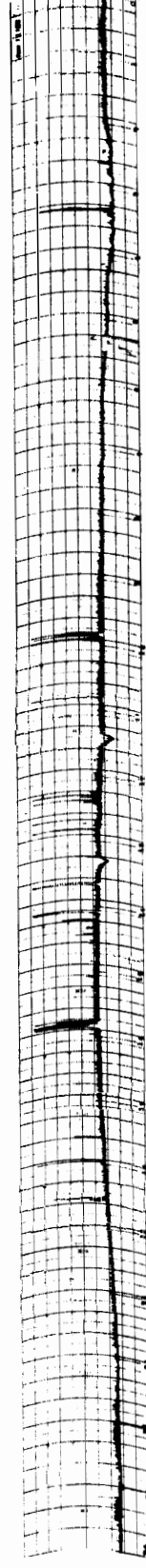
11



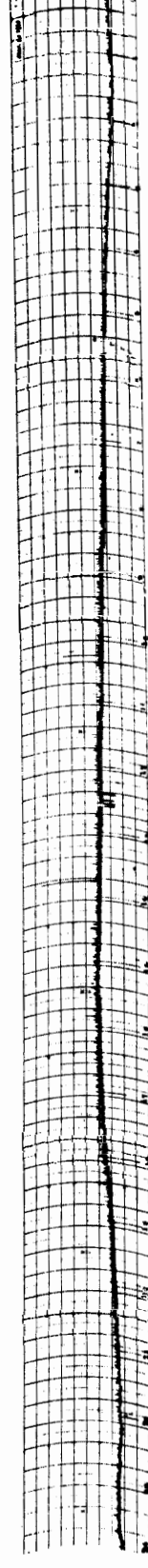
12



13



14

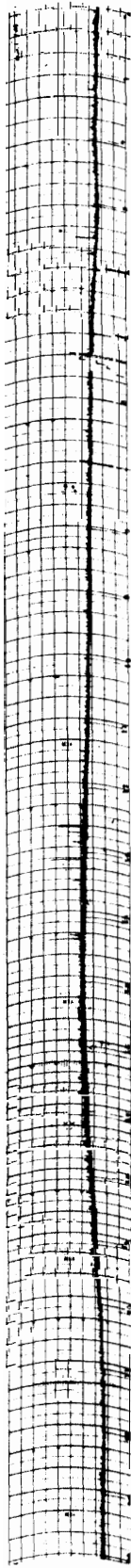


24 20 16 12 08 04 00

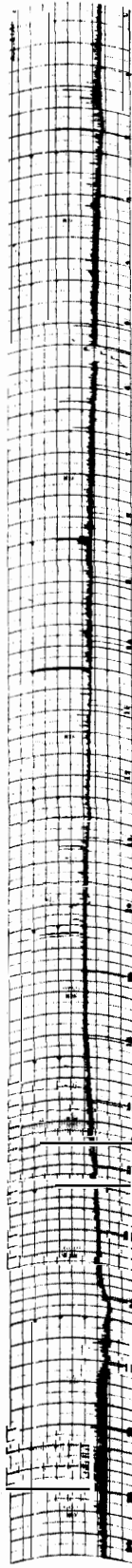
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1968

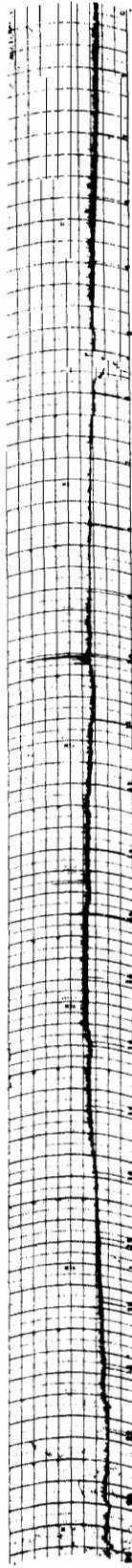
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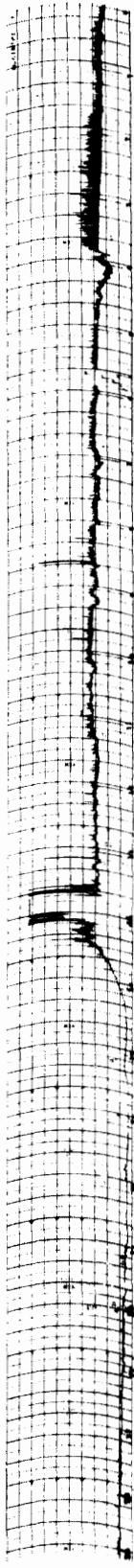
16



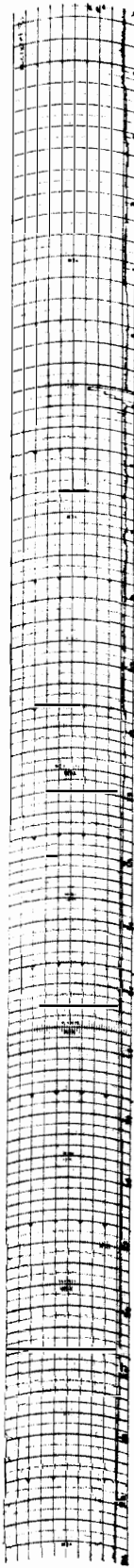
17



18



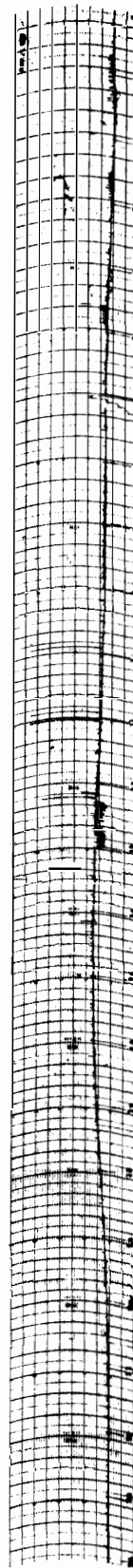
19



20



21

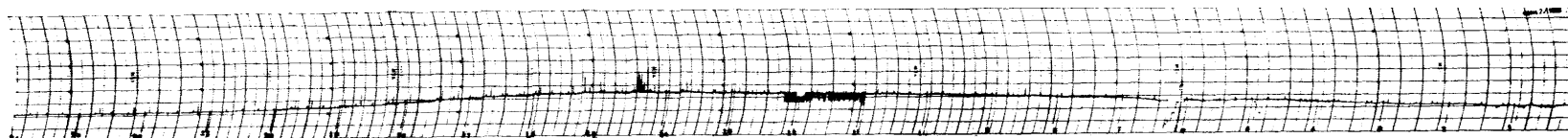


24 20 16 12 08 04 00

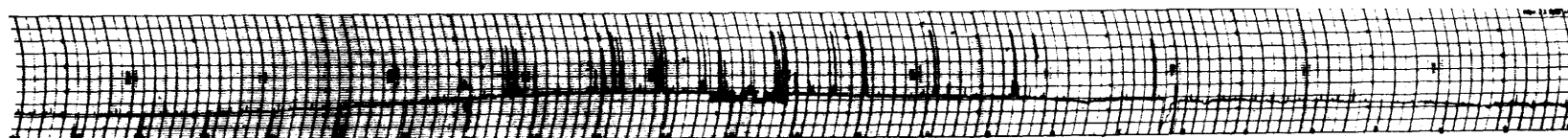
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1968

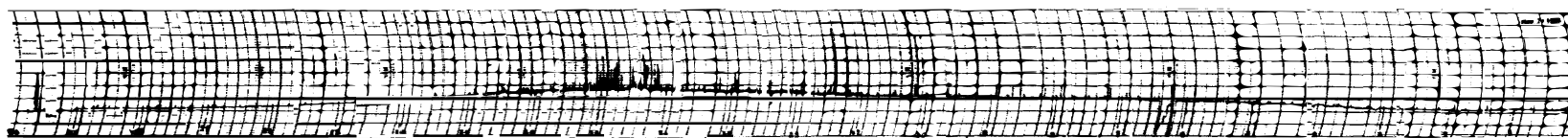
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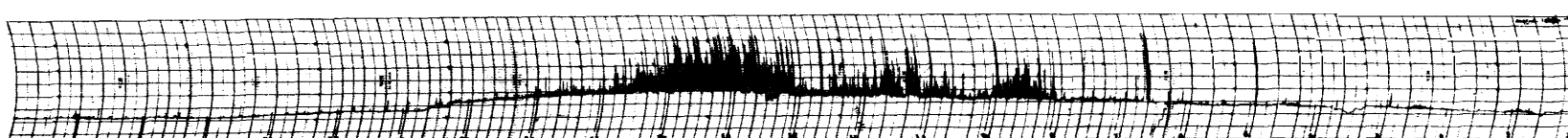
23



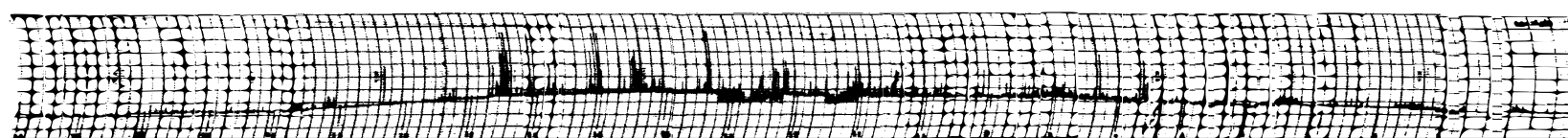
24



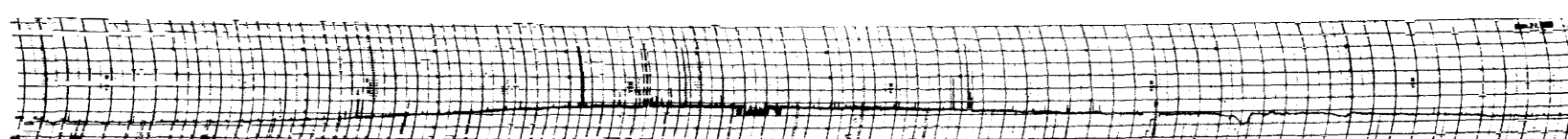
25



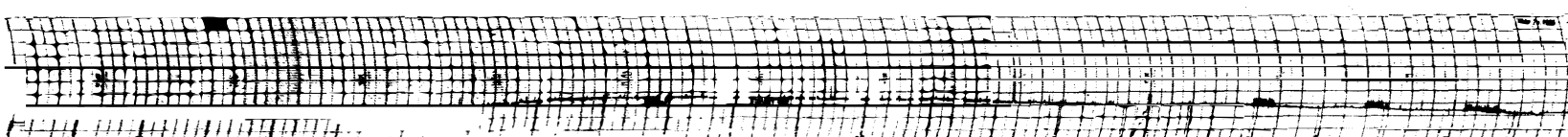
26



27



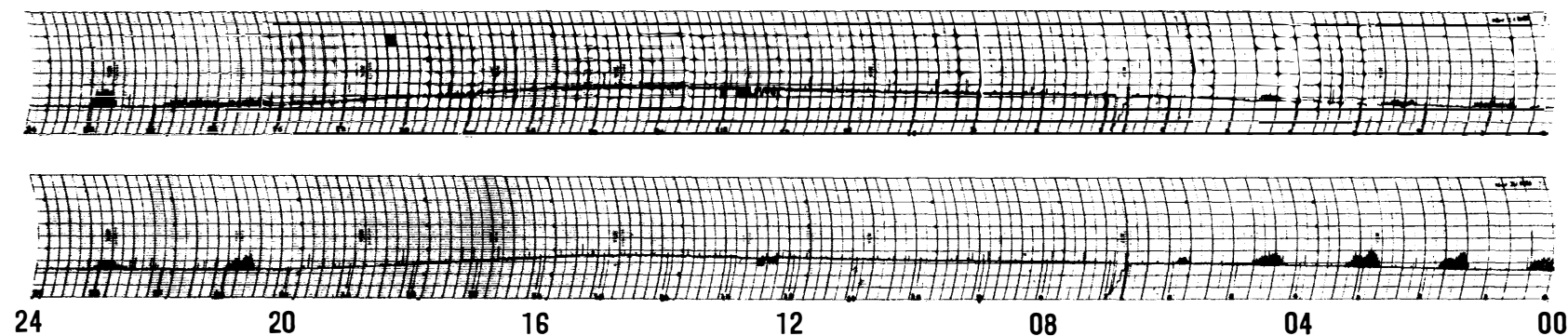
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



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45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 14^h 00^m ~ 16^h 00^m

Minimum level 22^h 00^m ~ 00^h 00^m

B. Cosmic noise level obscured or equipment malfunction

8: 13^h 42^m ~ 14^h 25^m interference

9: 12^h 47^m ~ 13^h 00^m //

10: 14^h 32^m ~ 15^h 29^m //

11: 12^h 21^m ~ 12^h 57^m //

12: 11^h 10^m ~ 11^h 13^m //

14: 12^h 24^m ~ 12^h 36^m //

21: 12^h 21^m ~ 13^h 00^m //

22: 10^h 58^m ~ 12^h 11^m //

23: 12^h 10^m ~ 13^h 20^m //

26: 12^h 15^m ~ 13^h 14^m //

27: 12^h 18^m ~ 12^h 56^m //

28: 12^h 12^m ~ 12^h 46^m //

14^h 03^m ~ 14^h 22^m //

29: 12^h 11^m ~ 13^h 06^m //

30: 12^h 17^m ~ 12^h 33^m //

C. Disturbed days: 2nd, 4th, 18th, 19th, 20th,

DEC 1968

1

2

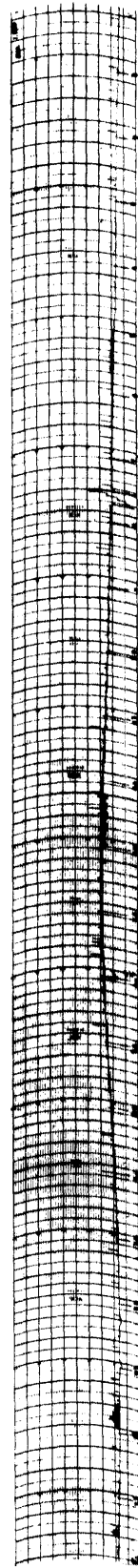
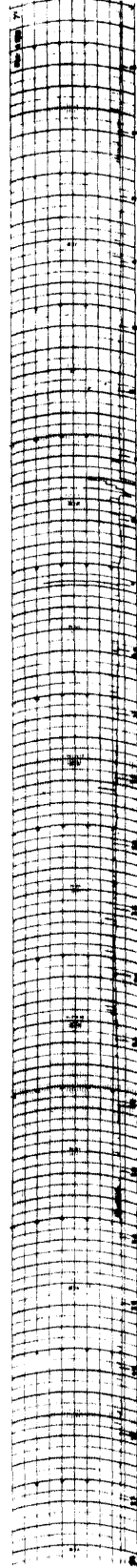
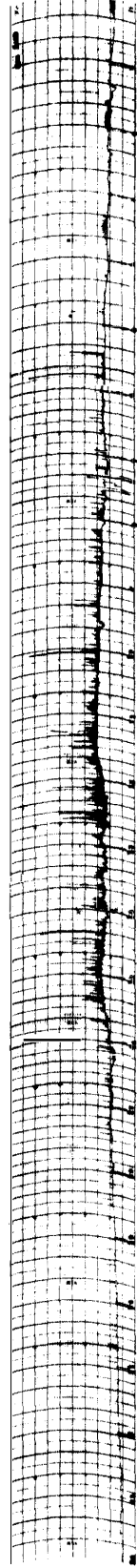
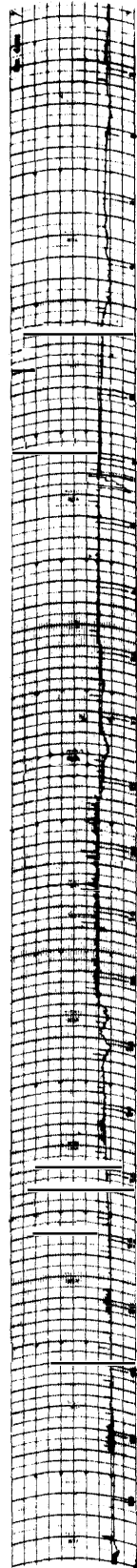
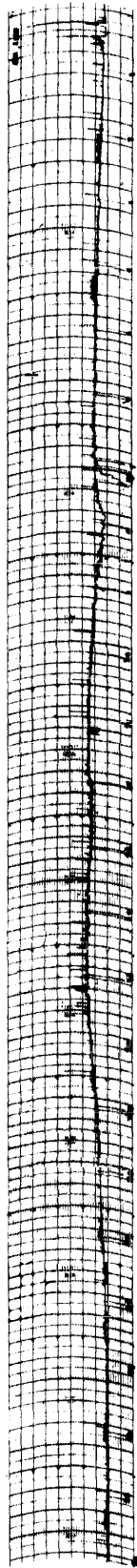
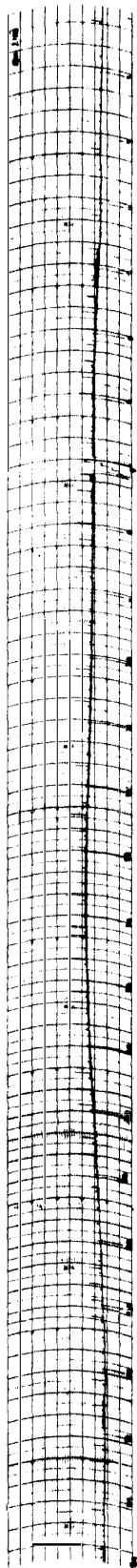
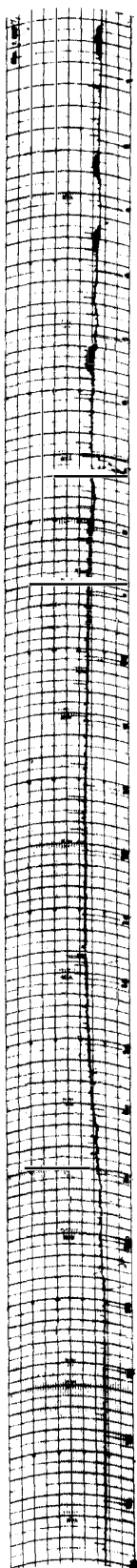
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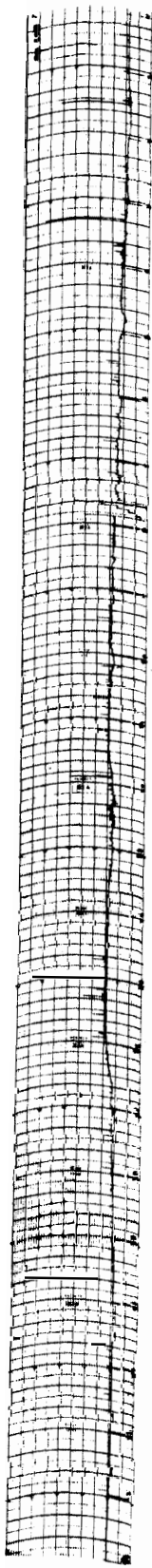


24 20 16 12 08 04 00

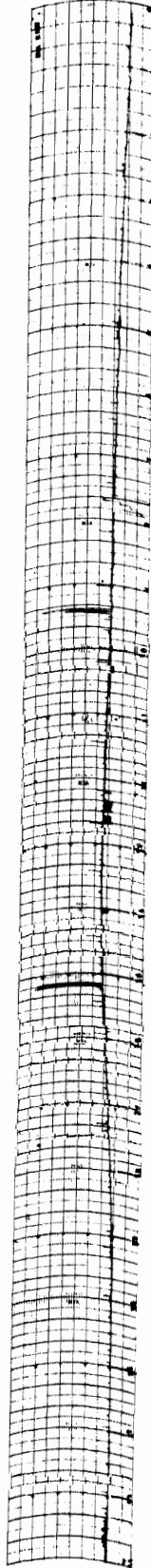
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

DEC 1968

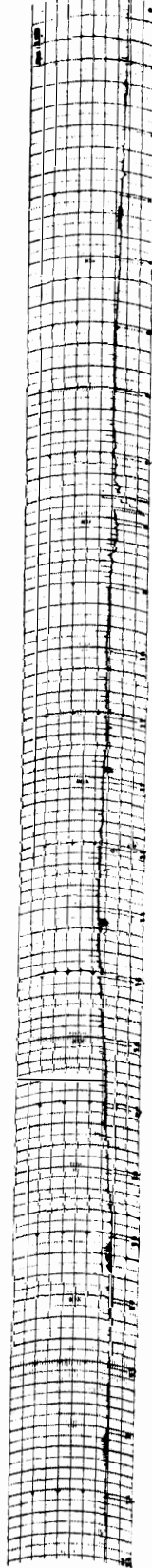
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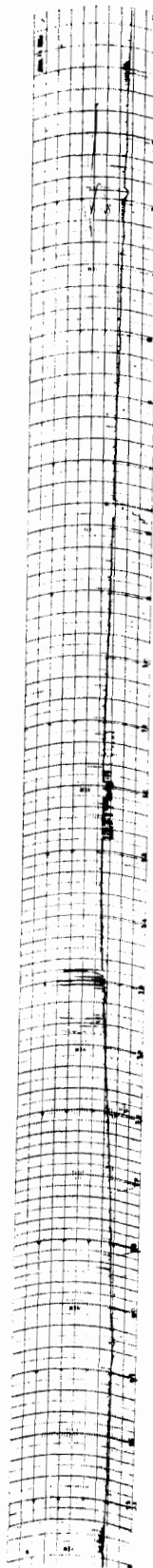
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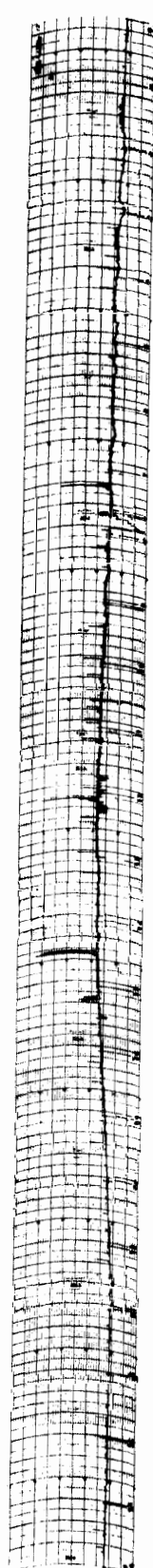
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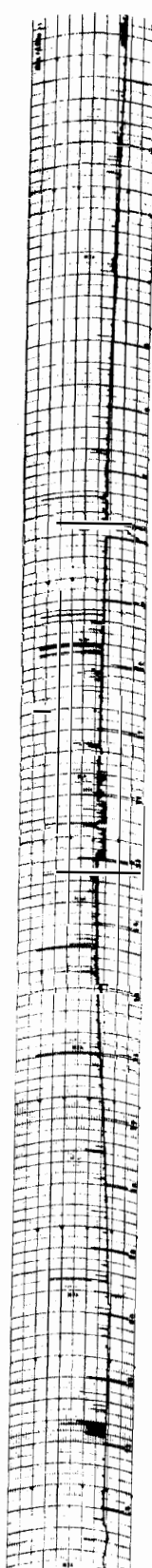
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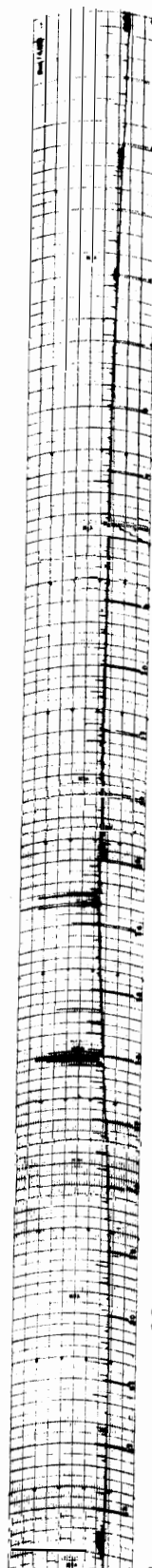
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1968

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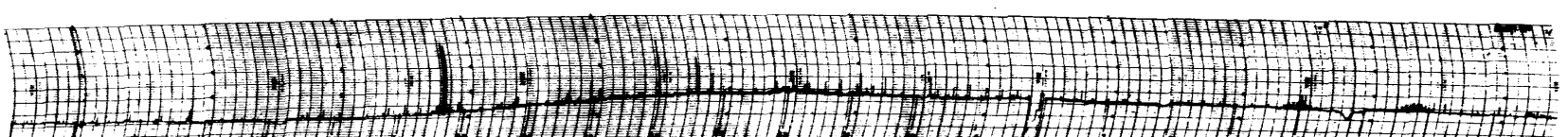
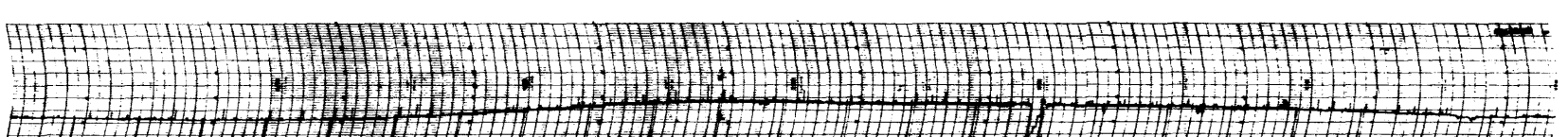
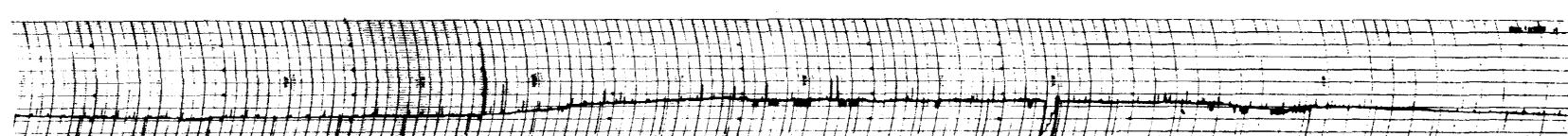
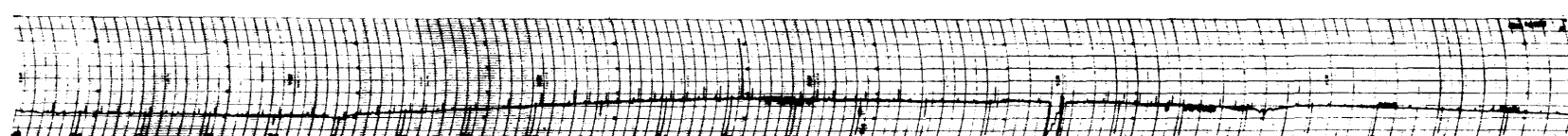
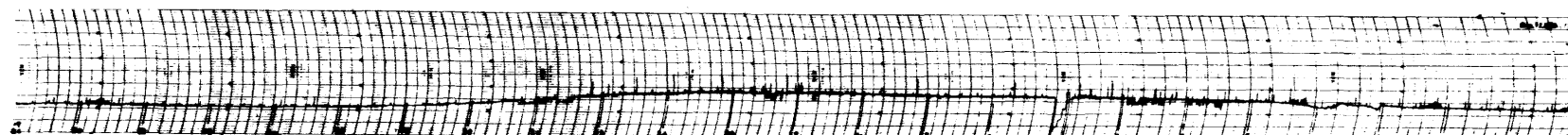
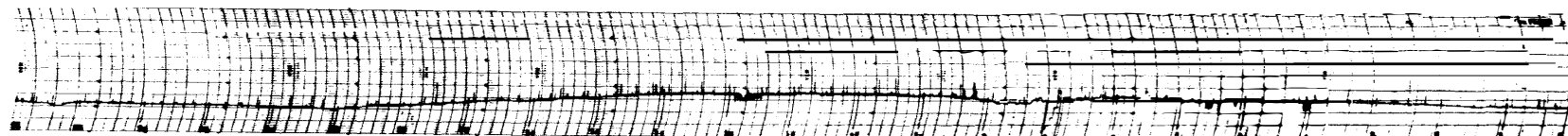
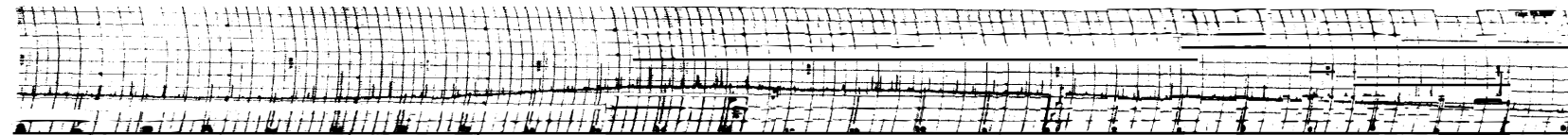
17

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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1968

22

23

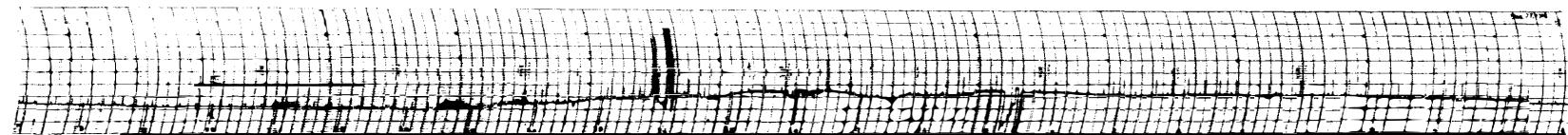
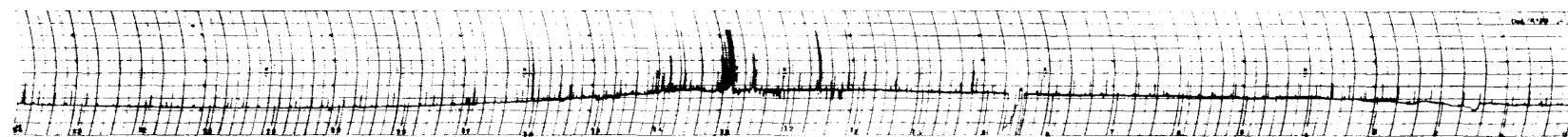
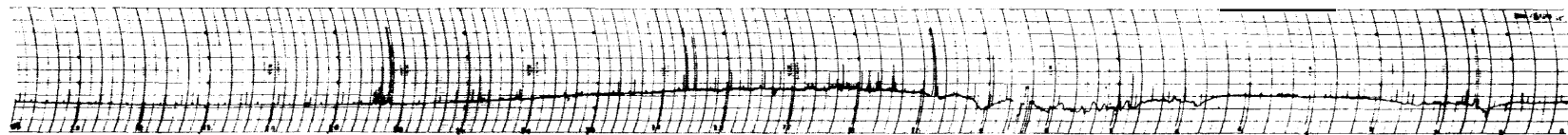
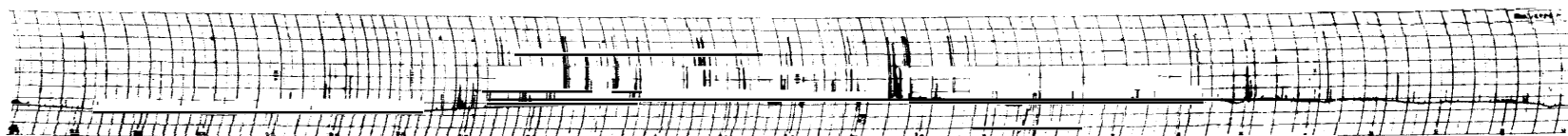
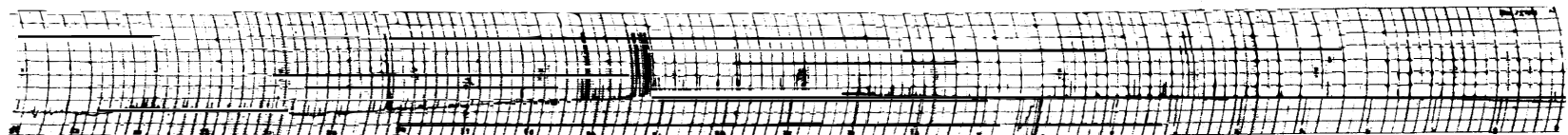
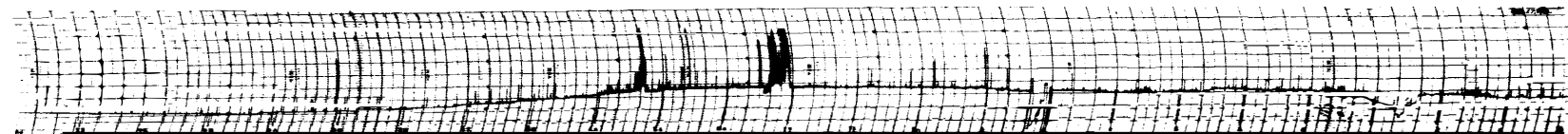
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25

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27

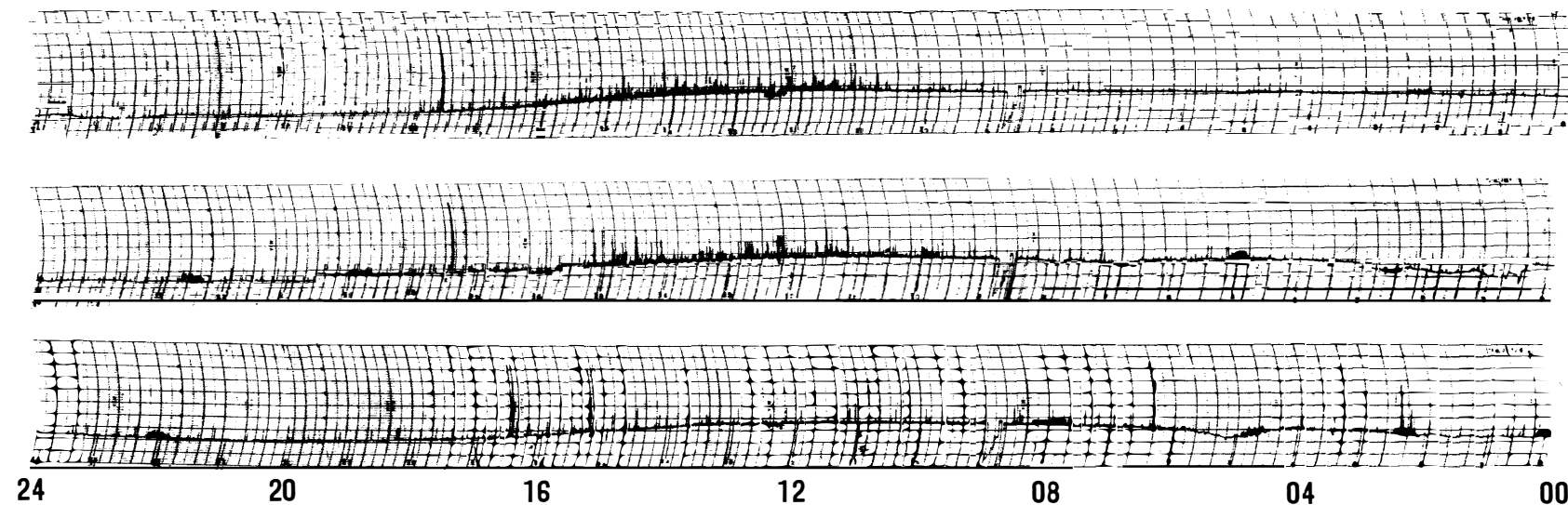
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29
30
31
DEC 1968

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 12h 00m~14h 00m

Minimum level 19h 30m~21h 30m

B. Cosmic noise level obscured or equipment malfunction

3: 11h 09m~11h 15m interference

4: 14h 14m~14h 17m //

7: 12h 13m~13h 13m //

9: 12h 12m~12h 41m //

10: 11h 16m~11h 46m //

14h 08m~14h 13m //

11: 11h 45m~12h 47m //

12: 11h 45m~12h 19m //

13: 11h 50m~13h 00m //

14: 12h 30m~12h 59m //

15: 12h 15m~12h 20m //

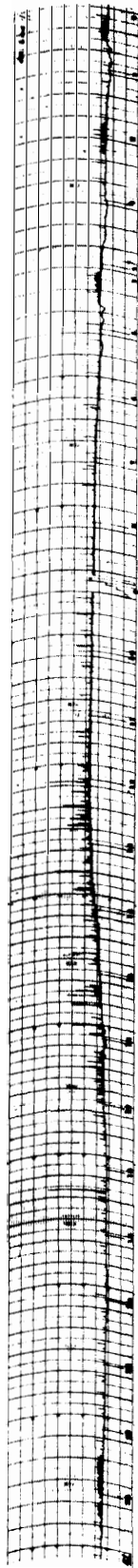
16: 12h 30m~12h 54m //

17 :	05 ^h 29 ^m ~ 06 ^h 56 ^m	〃
	11 ^h 45 ^m ~ 12 ^h 30 ^m	〃
	15 ^h 28 ^m ~ 16 ^h 18 ^m	〃
18 :	05 ^h 30 ^m ~ 06 ^h 15 ^m	〃
	11 ^h 45 ^m ~ 12 ^h 28 ^m	〃
19 :	04 ^h 00 ^m ~ 05 ^h 33 ^m	〃
	08 ^h 20 ^m ~ 08 ^h 23 ^m	〃
	09 ^h 47 ^m ~ 09 ^h 50 ^m	〃
	11 ^h 01 ^m ~ 12 ^h 37 ^m	〃
20 :	05 ^h 28 ^m ~ 05 ^h 32 ^m	〃
23 :	12 ^h 13 ^m ~ 12 ^h 21 ^m	〃
	15 ^h 38 ^m ~ 15 ^h 43 ^m	〃
24 :	11 ^h 49 ^m ~ 12 ^h 24 ^m	〃
25 :	12 ^h 15 ^m ~ 12 ^h 19 ^m	〃
26 :	11 ^h 16 ^m ~ 12 ^h 32 ^m	〃
27 :	11 ^h 44 ^m ~ 12 ^h 12 ^m	〃
28 :	12 ^h 13 ^m ~ 13 ^h 00 ^m	〃
	15 ^h 30 ^m ~ 16 ^h 28 ^m	〃
29 :	12 ^h 14 ^m ~ 12 ^h 34 ^m	〃
31 :	12 ^h 13 ^m ~ 12 ^h 27 ^m	〃

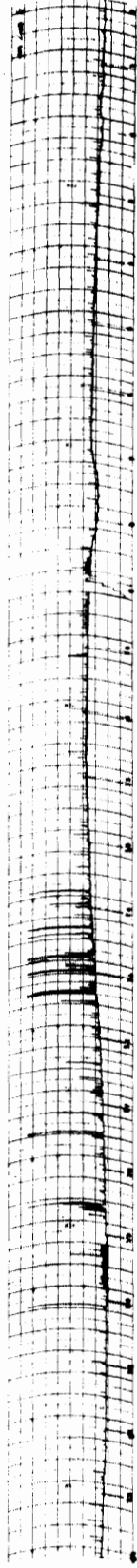
C. Disturbed days : 5th, 6 th, 25th.

JAN 1969

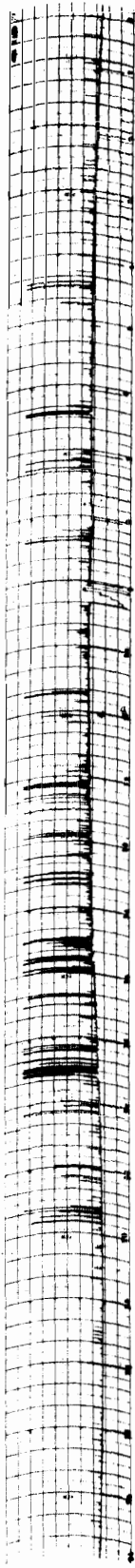
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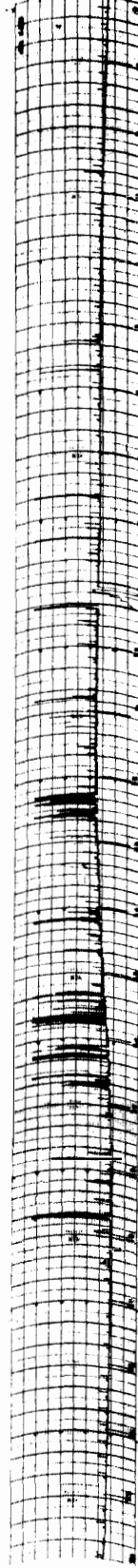
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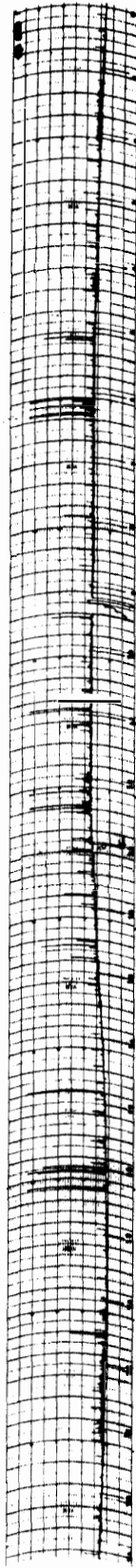
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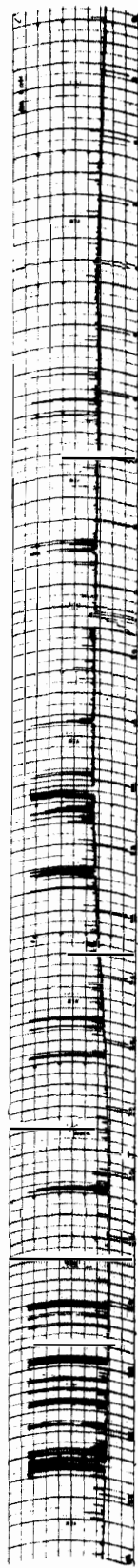
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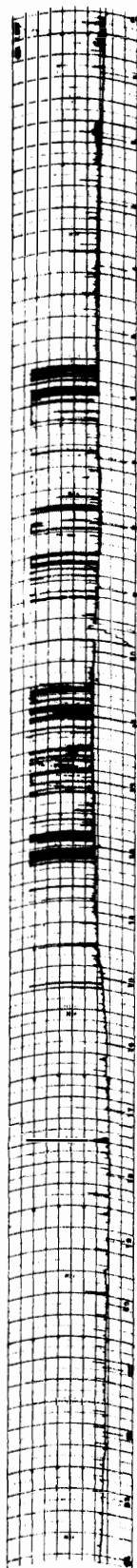
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6



7



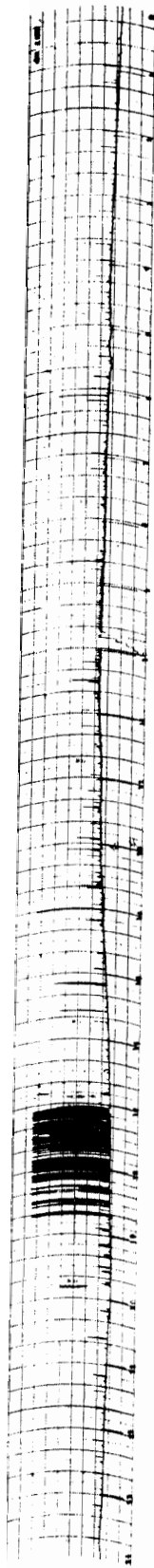
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

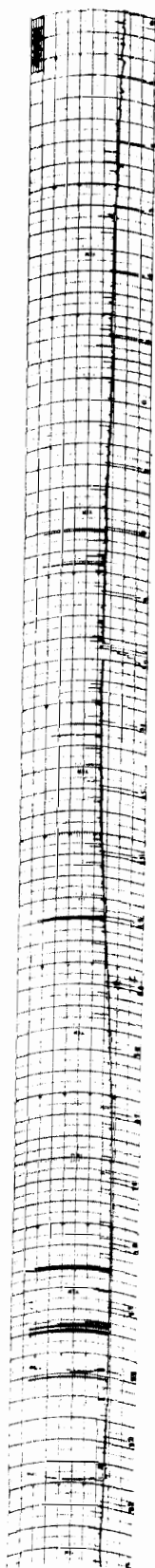
30 MHz COSMIC NOISE

JAN 1969

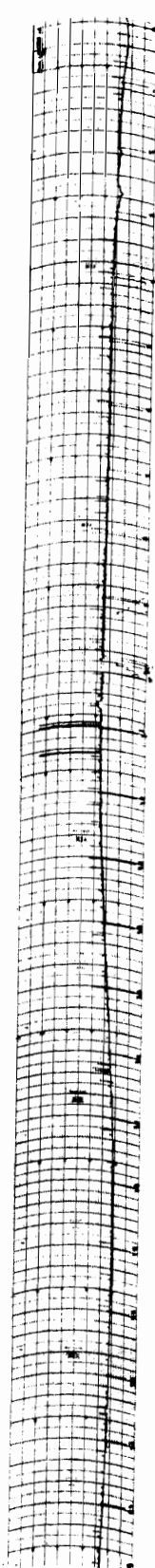
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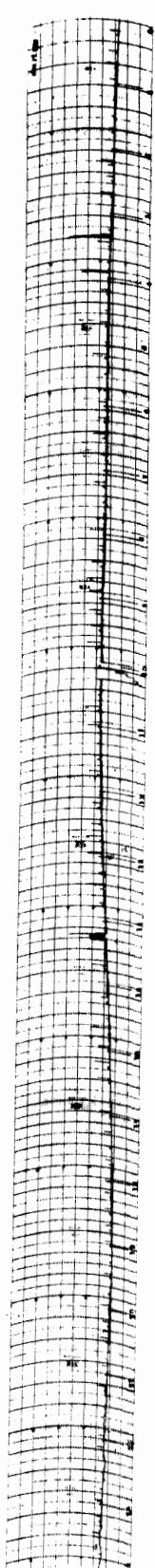
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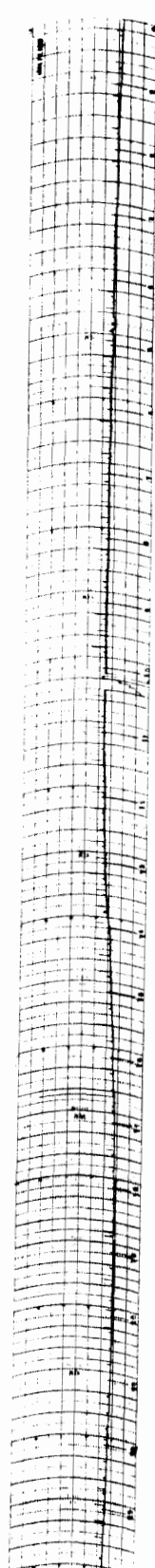
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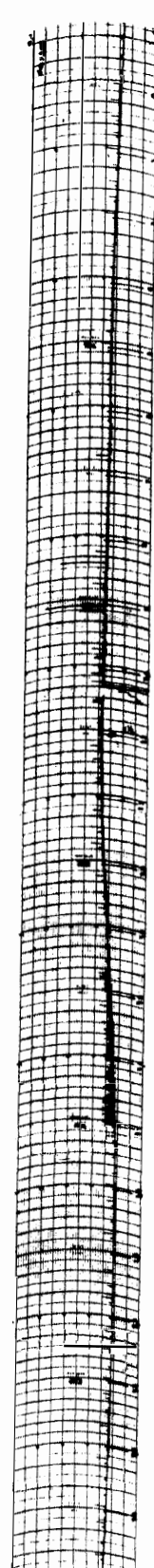
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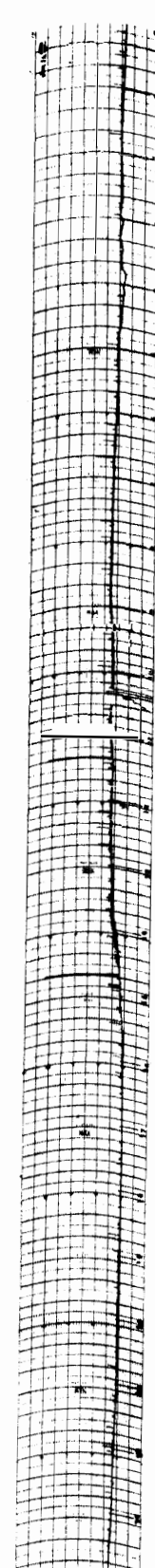
12



13



14

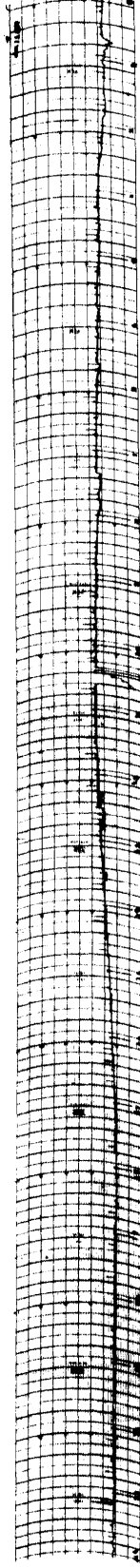


24 20 16 12 08 04 00

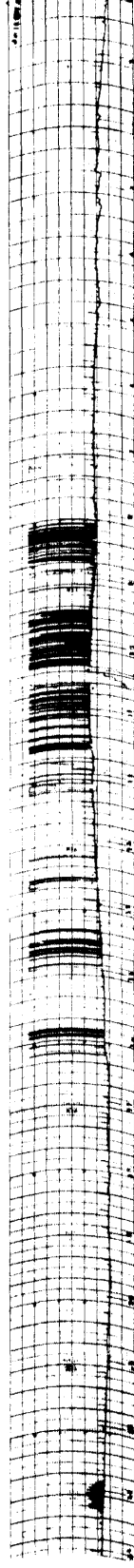
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JAN 1969

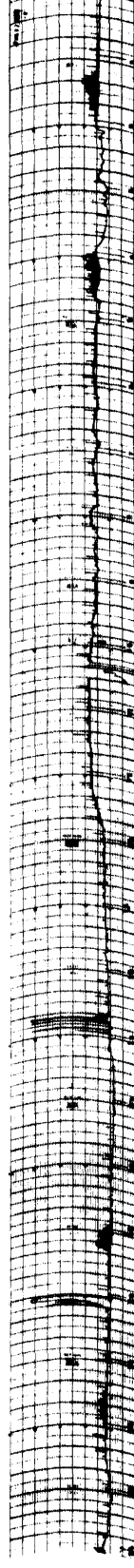
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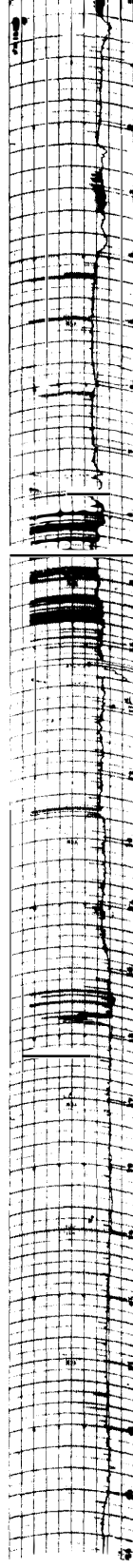
16



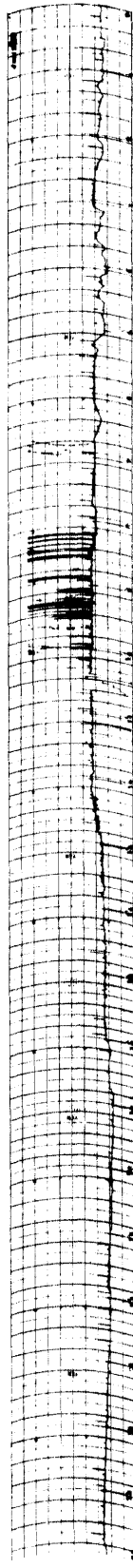
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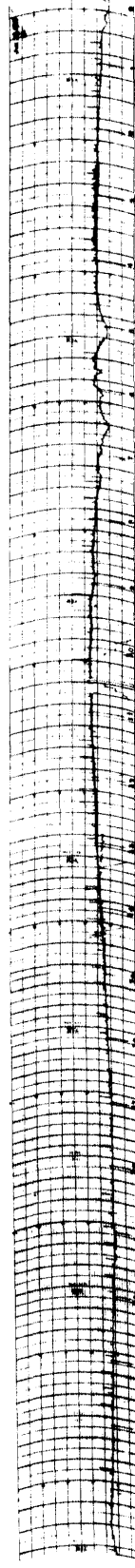
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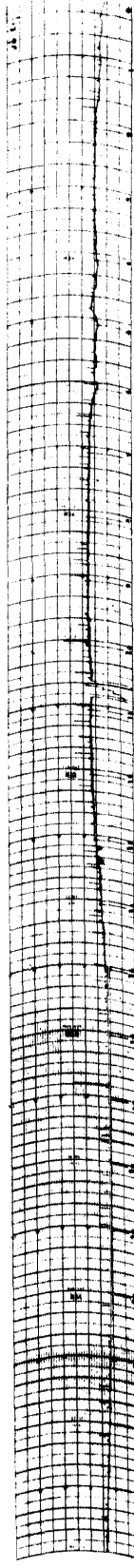
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20



21

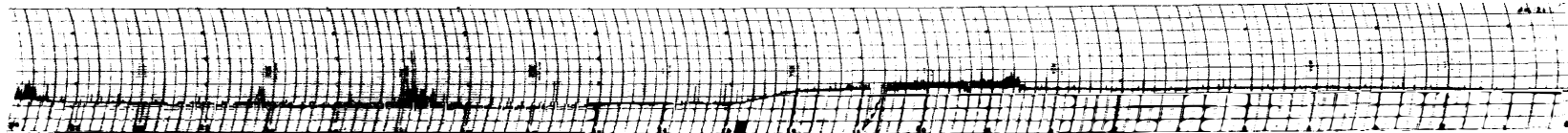


24 20 16 12 08 04 00

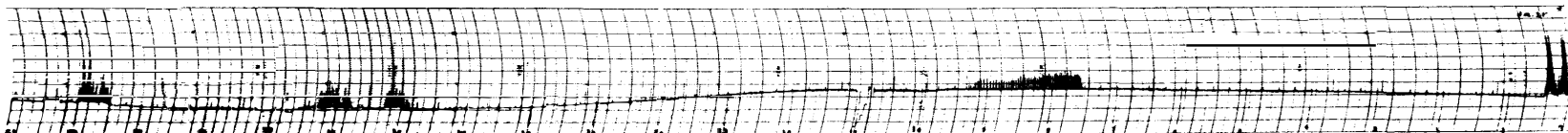
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JAN 1969

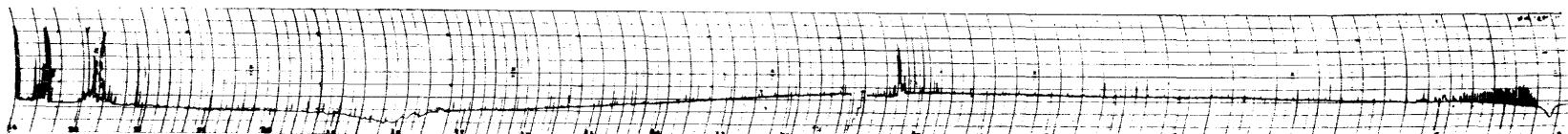
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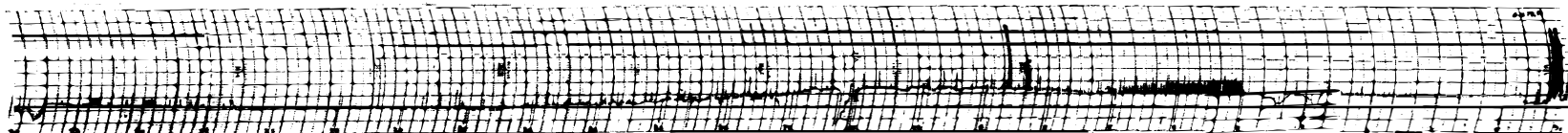
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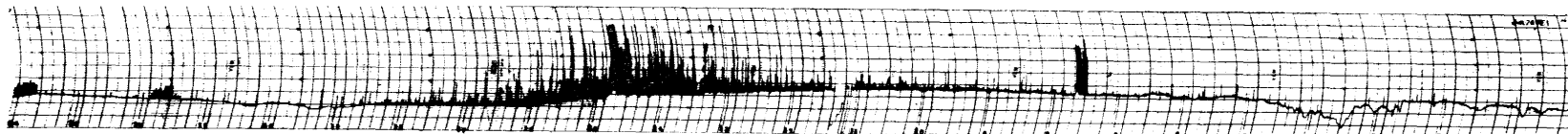
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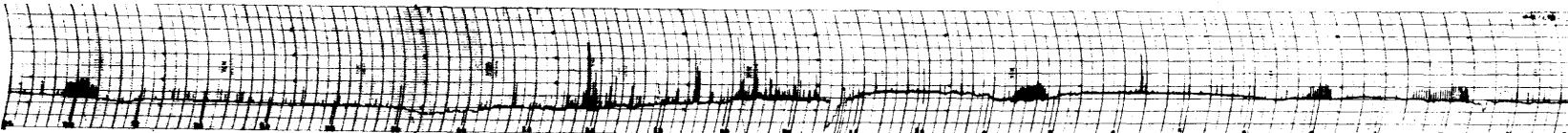
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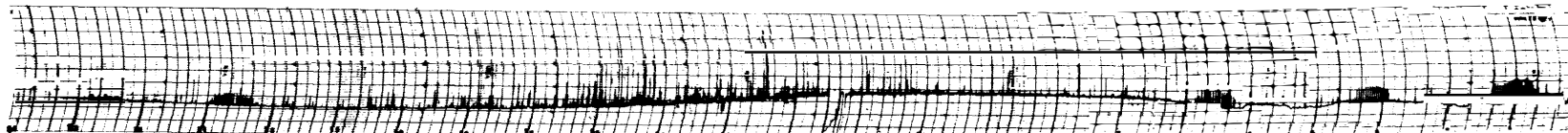
26



27



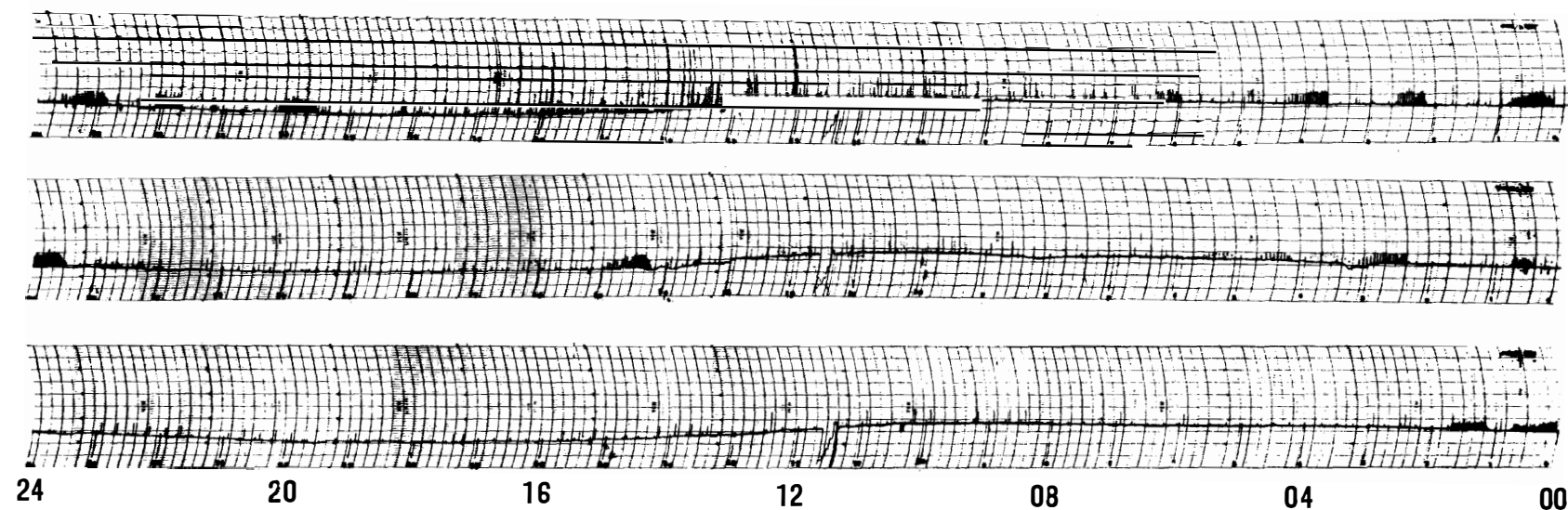
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE



29 JAN 1969
30
31

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation in cosmic noise power on quiet days

Maximum level 09h 30m ~ 11h 30m

Minimum level 17h 30m ~ 19h 30m

B. Cosmic noise level obscured or equipment malfunction

15: 12h 17m ~ 12h 50m interference

13h 28m ~ 13h 37m //

21: 13h 07m ~ 13h 21m //

25: 12h 18m ~ 12h 38m //

13h 04m ~ 13h 07m //

28: 13h 06m ~ 13h 08m //

31: 10h 20m ~ 10h 23m //

C. Disturbed days: 17 th, 18 th, 19 th, 26 th