

# Riometer Records of 30 MHz Cosmic Noise at Syowa Station, Antarctica from February 1967 to February 1968

Compiled by

Masami OSE and Ichizo NISHIMUTA

Observations of 30 MHz cosmic radio noise at Syowa Station, Antarctica have 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 8, 1967 to February 2, 1968 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. Masami OSE (Radio Research Laboratories)

Mr. Ichizo NISHIMUTA (Radio Research Laboratories)

## 3. Method of measurement

Cosmic radio noise at 30 MHz was recorded at Syowa Station by a standard riometer, connected to a vertically-direct, five-element Yagi antenna. The antenna was designed to match the 50 ohm coaxial transmission line (HF cable).

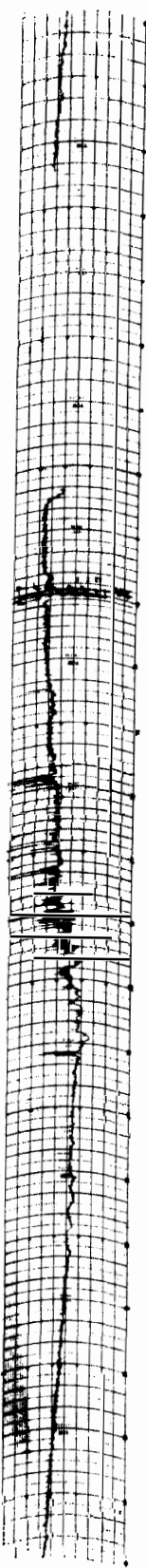
Syowa Station suffers very little interference and atmospheric noise and is favourable for measurement, but sometimes in the daytime it is troubled with man-made noises occurring within the station. The hours in this record are expressed as 45-degree East Meridian Time (45° E. M. T.) or U. T. + 3 hours. The riometer was operated well during the year and was ordinarily calibrated once a day.

## 4. Outline of results

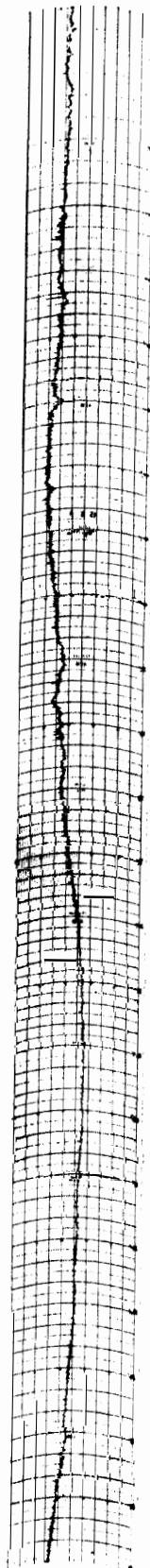
In December, January and February, the summer season in Antarctica, quiet days prevail comparatively, but from the latter part of March disturbed days begin to increase associated with PCA (polar cap absorption) and aurora, and until late in November quiet days are rather few. Generally speaking, in summer with many sunlit hours, radio disturbances associated with PCA and aurora seem to be less. The maximum and minimum values of the diurnal variation of quiet days, depending on the sidereal time, are reverse in summer to those in winter, and throughout the year the change gradually slips. In September and October the maximum values shift greatly. This may be attributed to the fact that the sunlit hours increase and summer sets in suddenly in Antarctica. During the period between April and October, Syowa Station suffered from blizzard about once a week. On each occasion of blizzard static noises were recorded, which caused amplification of the diurnal records of the riometer. Accordingly, a fairly good relationship between the amplitudes of diurnal variation and wind velocity will be estimated.

FEB 1967

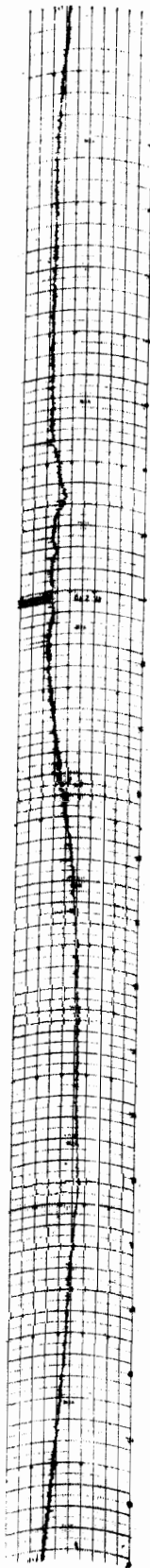
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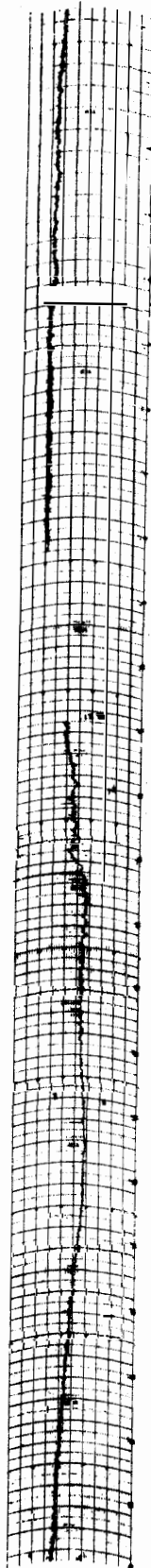
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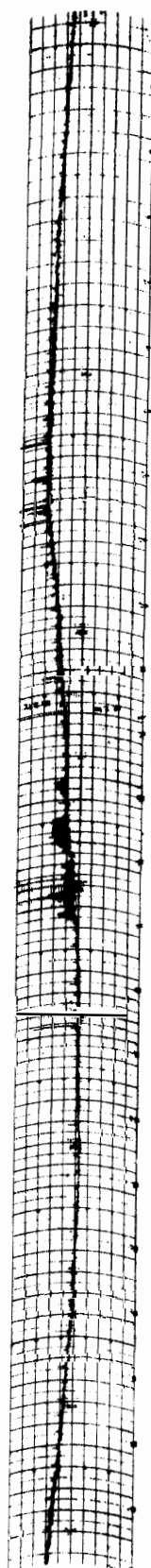
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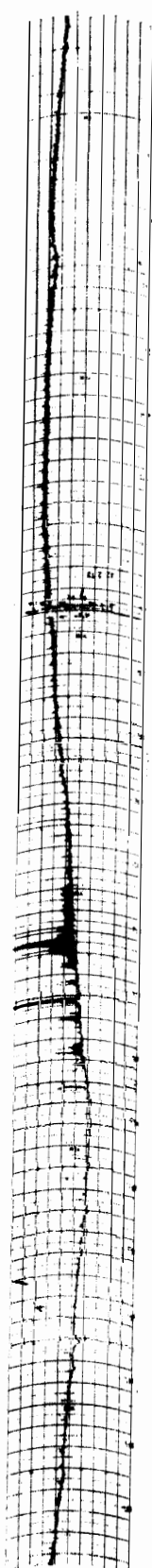
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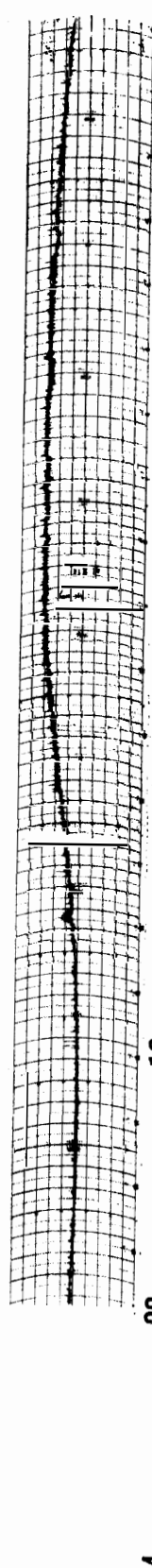
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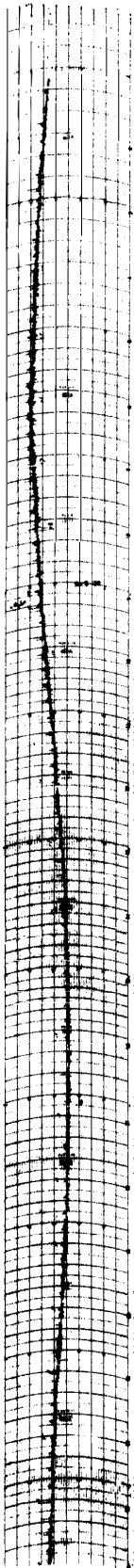


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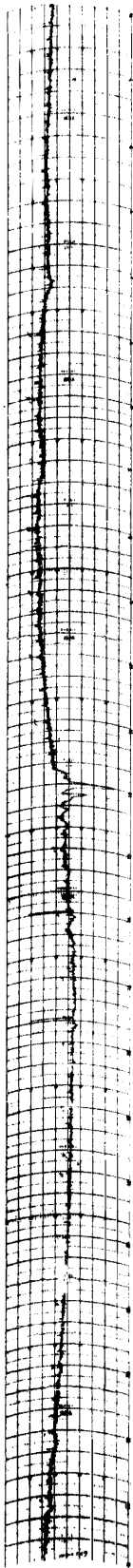
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

FEB 1967

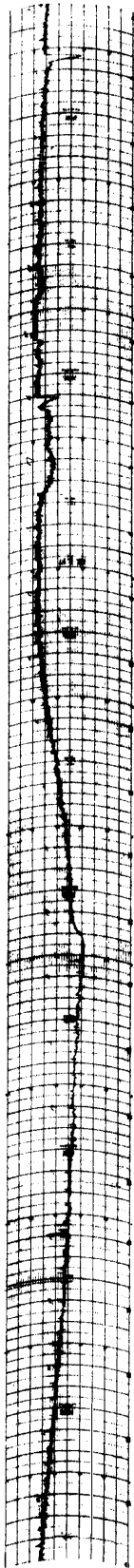
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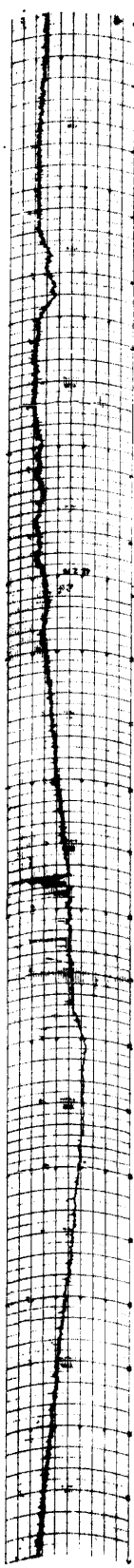
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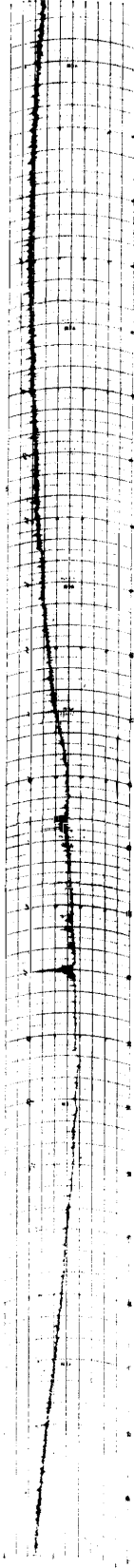
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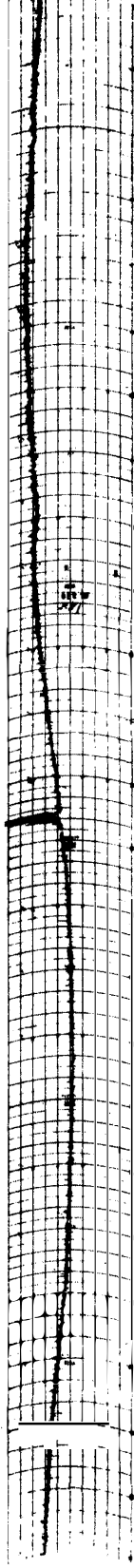
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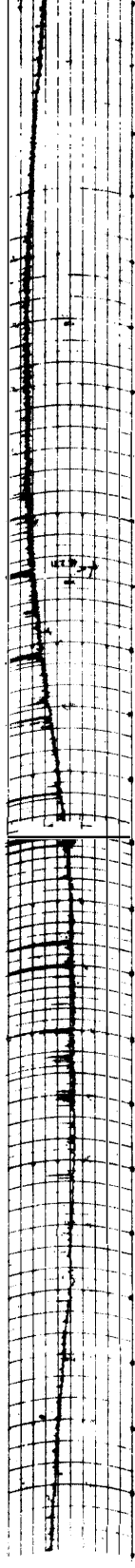
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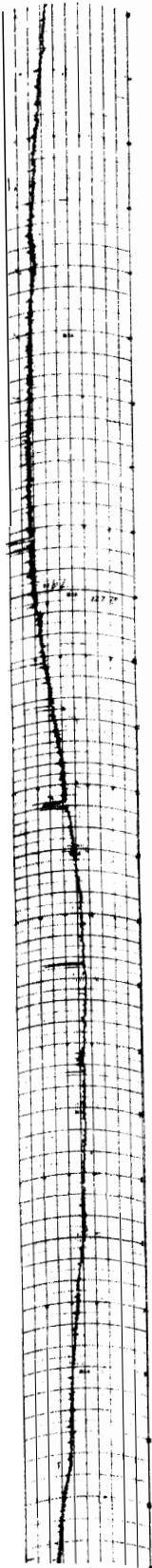


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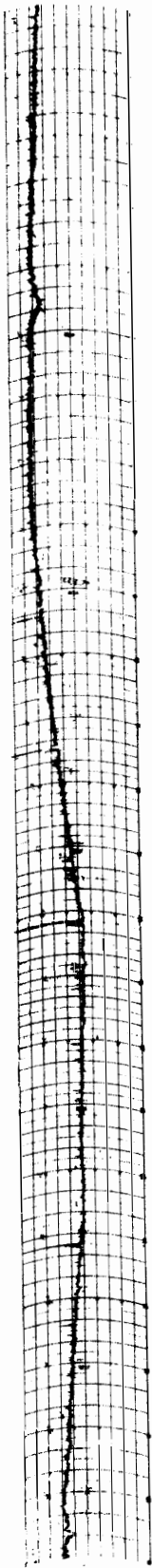
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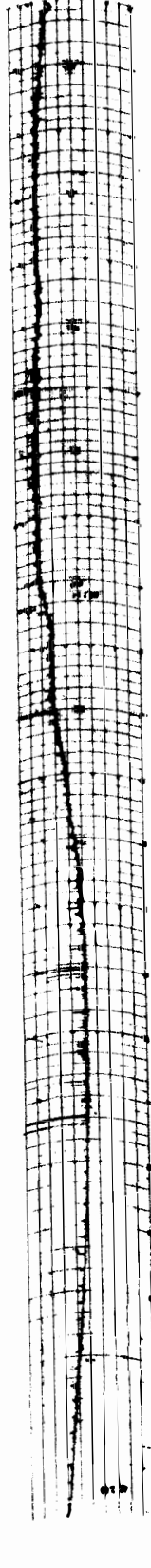
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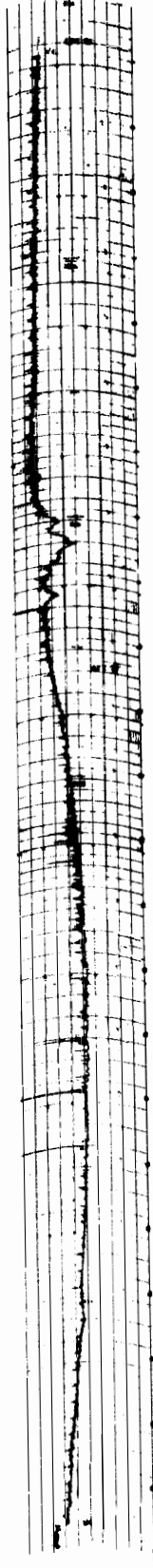
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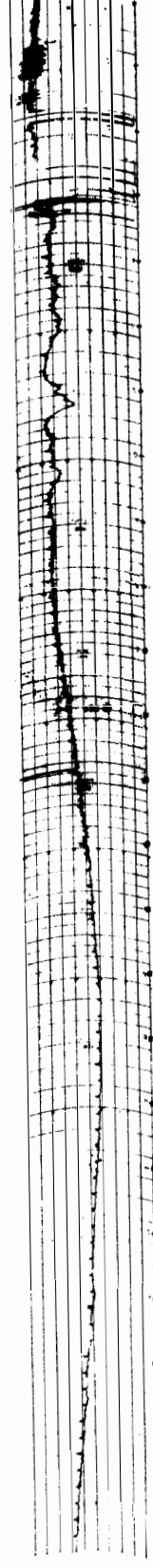
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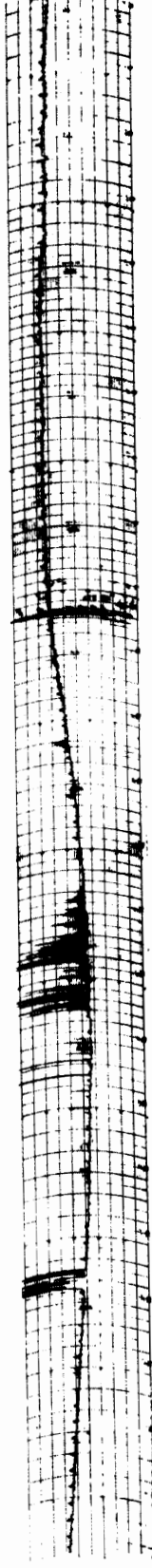
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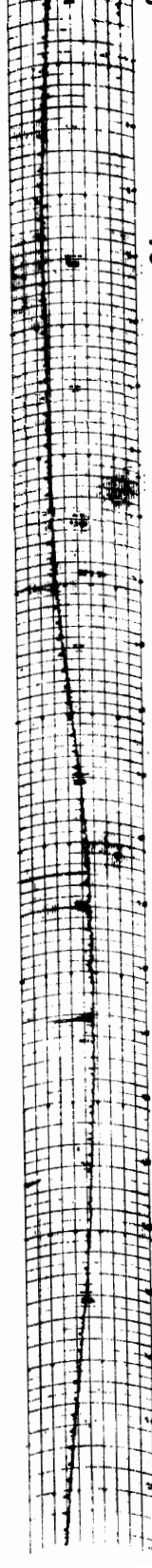
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24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

A. Diurnal variation (quiet days)

Maximum 04<sup>h</sup>00~06<sup>h</sup>00

Minimum 15<sup>h</sup>00~17<sup>h</sup>00

B. Cosmic noise level obscured or equipment malfunction

8: 02.30-07.20 equipment tests

11: 08.20-11.00 equipment tests

14: 19.50-24.00 equipment tests

15: 00.00-01.10 equipment tests

24: 23.30-24.00 equipment tests

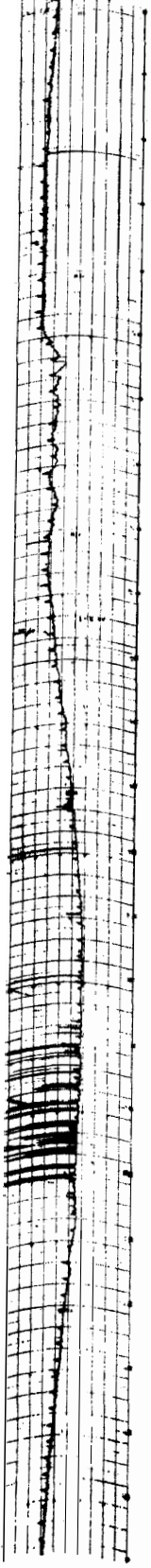
25: 00.00-01.00 antenna not connected

26: 01.00-03.10 equipment tests

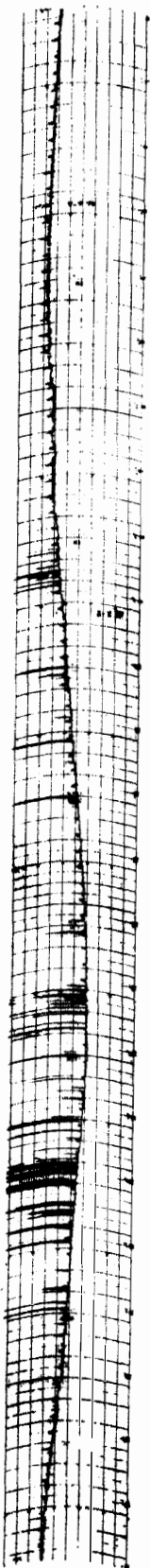
FEB 1967

MAR 1967

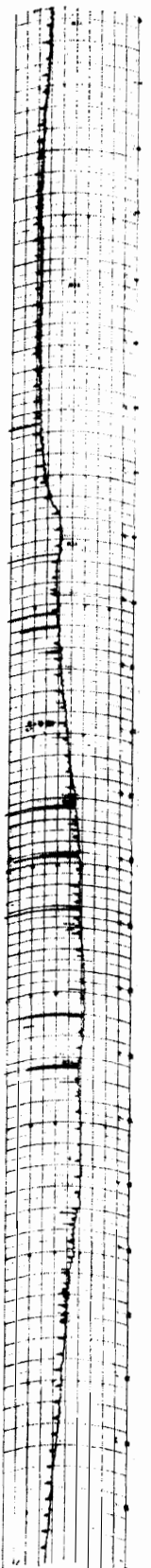
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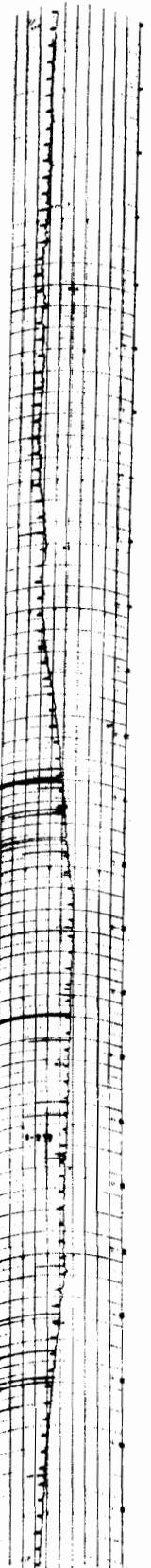
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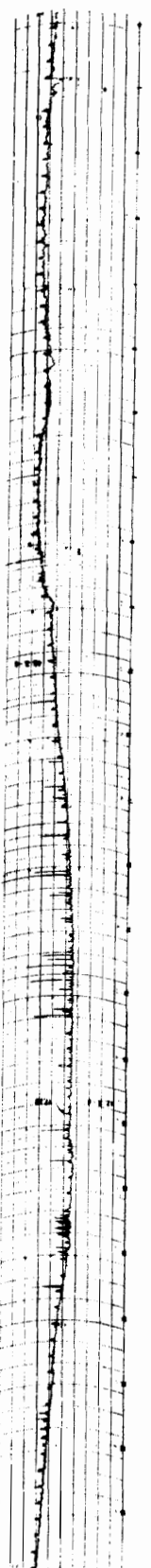
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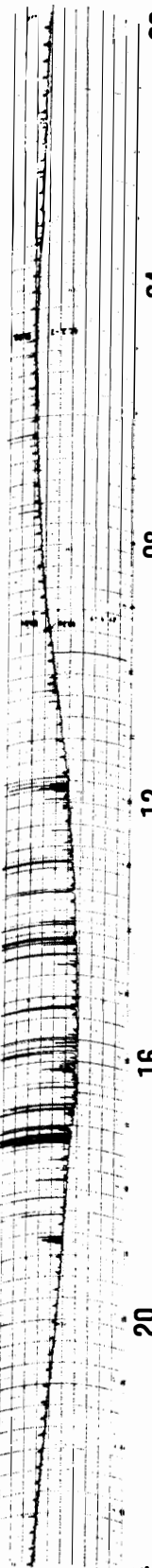
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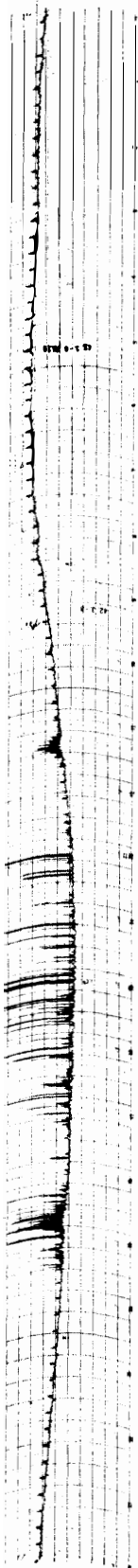


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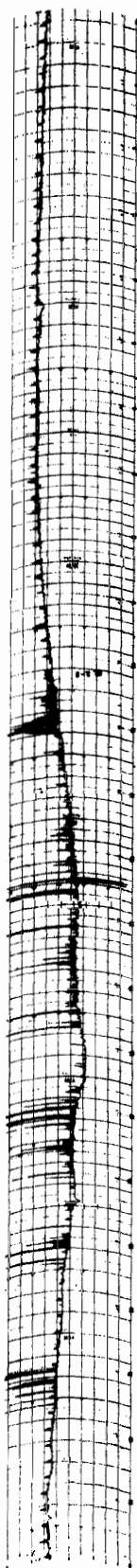
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAR 1967

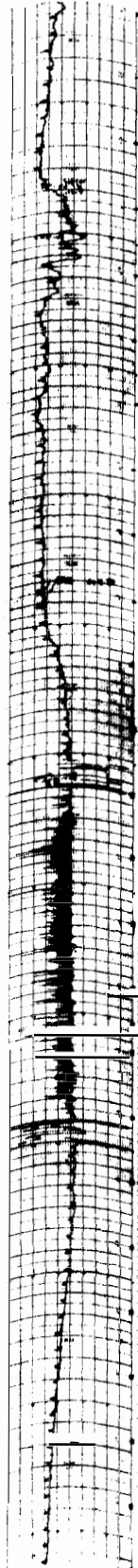
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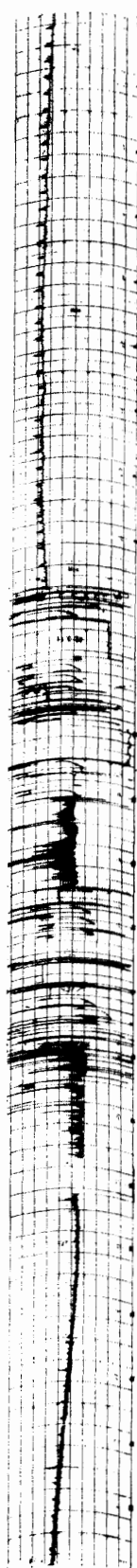
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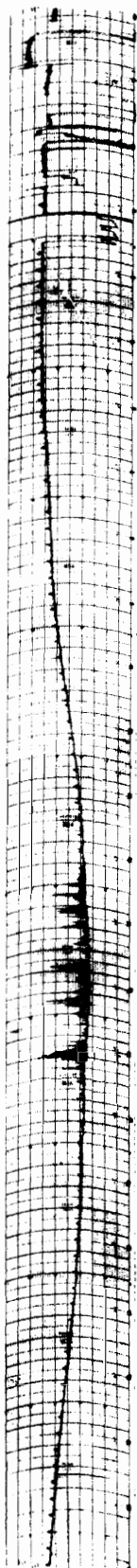
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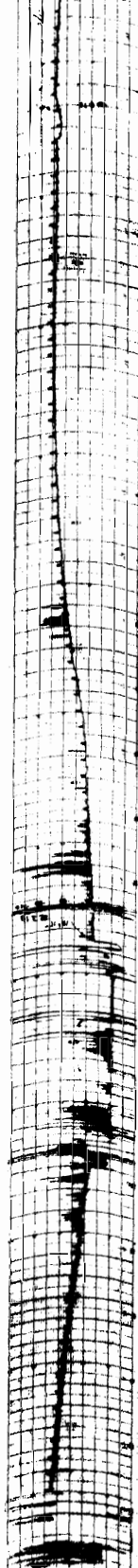
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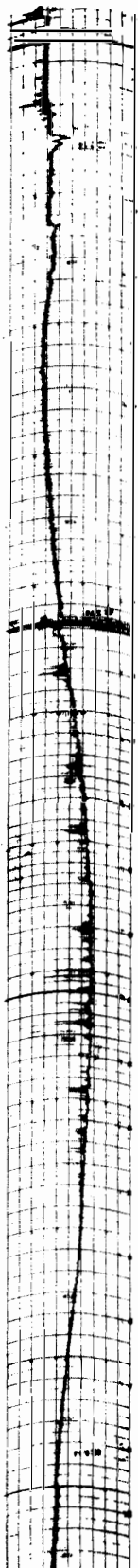
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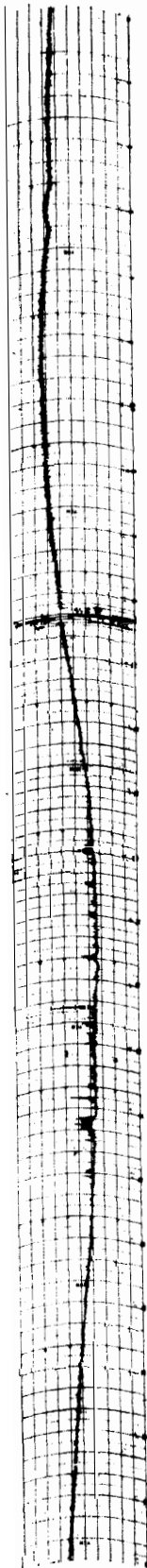
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45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

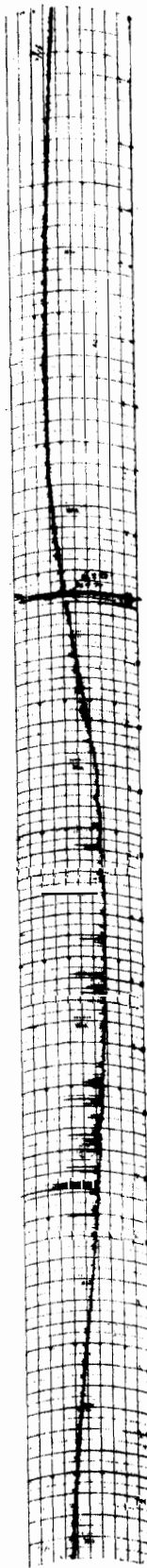


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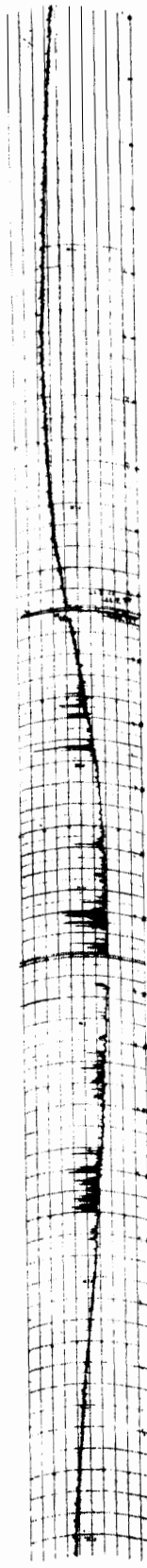
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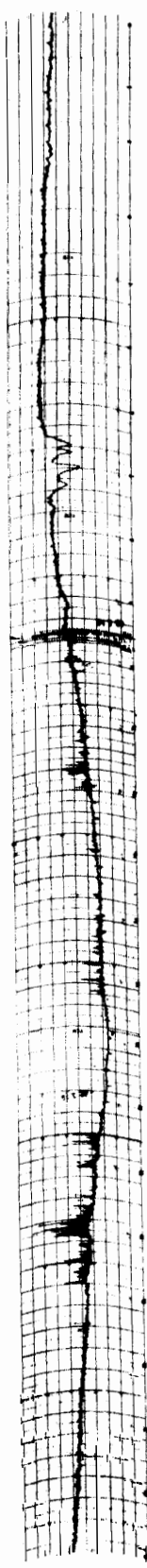
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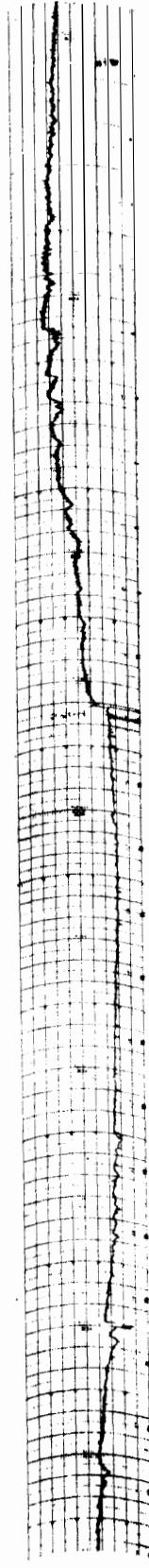
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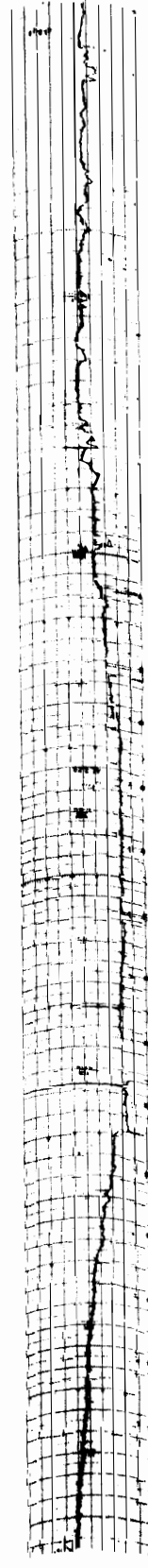
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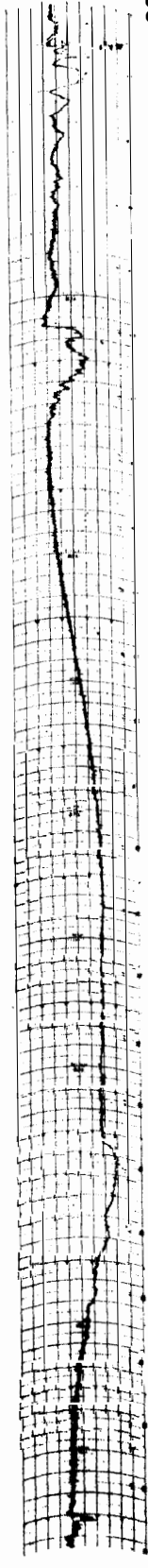
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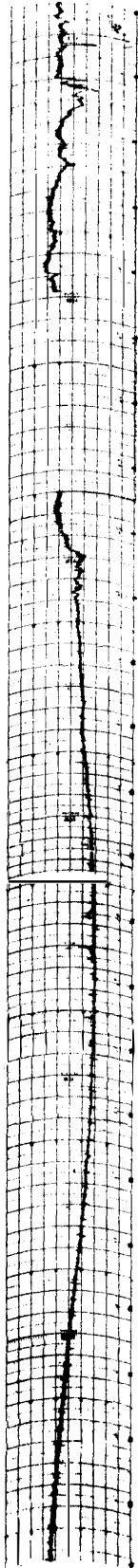


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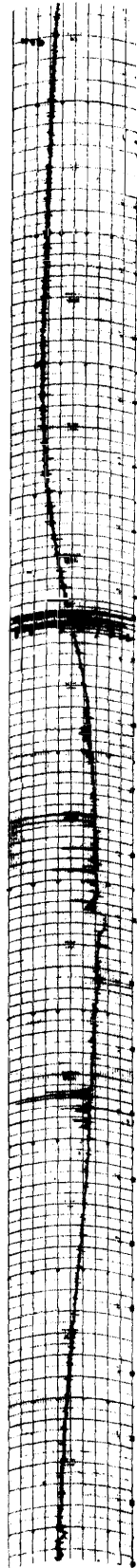
45° EAST MERIDIAN TIME IN HOURS . . . 30 MHz COSMIC NOISE

MAR 1967

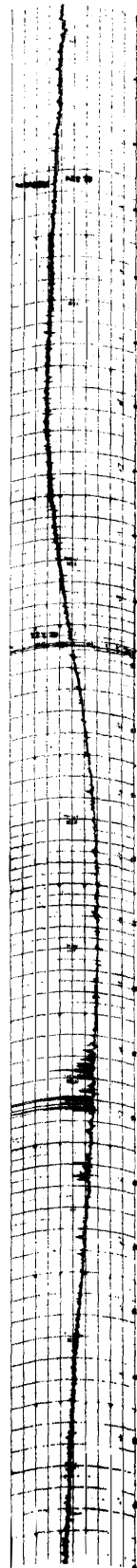
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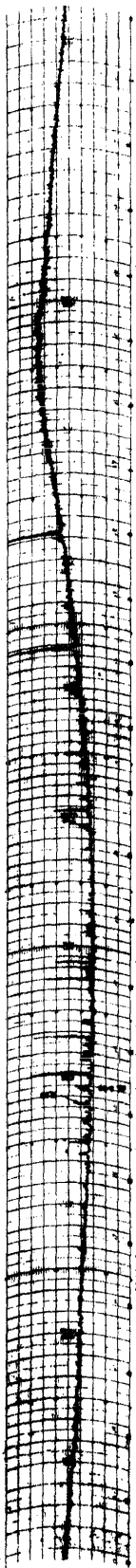
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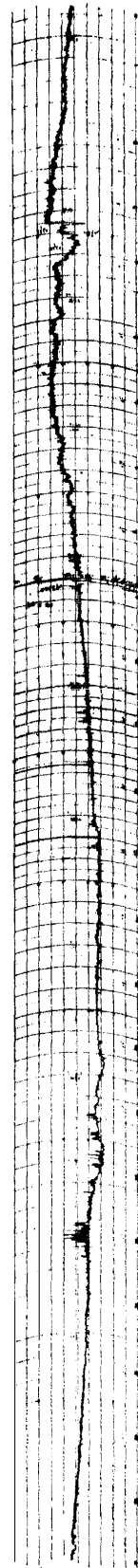
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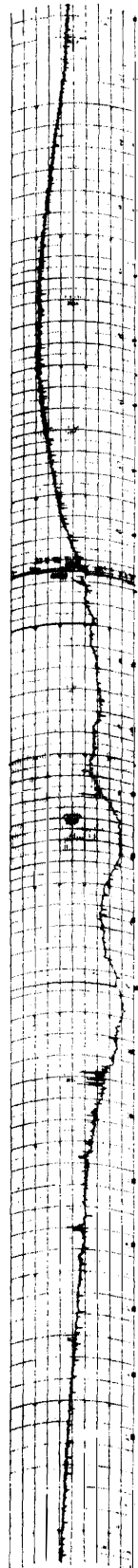
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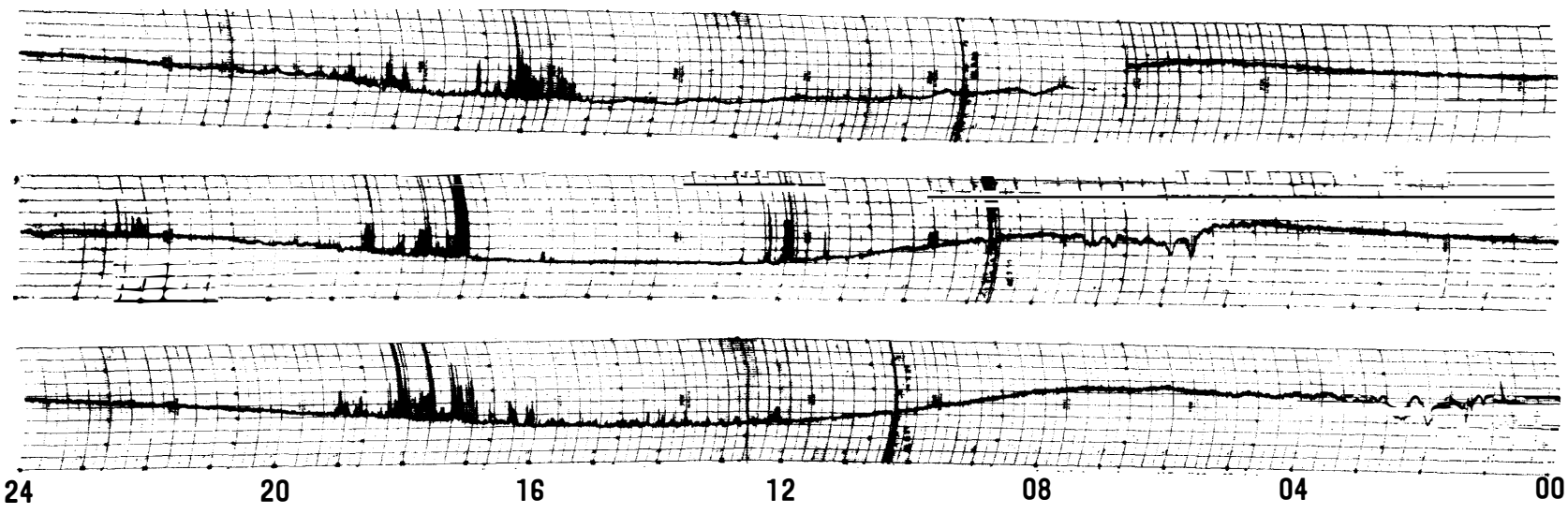
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24 16 20 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

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MAR 1967

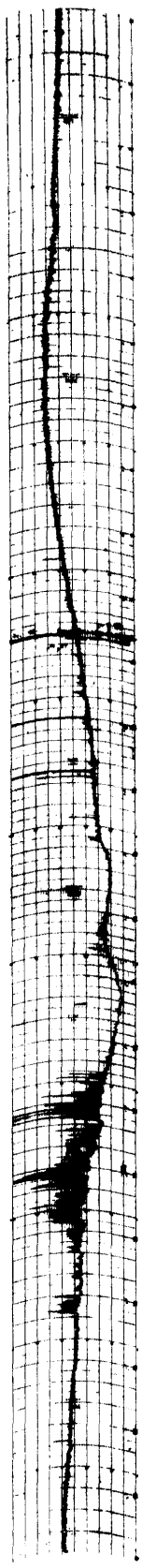


45° EAST MERIDIAN TIME IN HOURS      30 MHz COSMIC NOISE

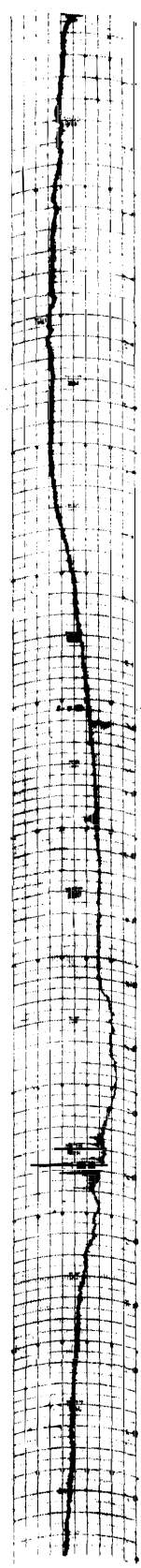
- A. Diurnal variation (quiet days)  
Maximum 04<sup>h</sup>00~06<sup>h</sup>00  
Minimum 15<sup>h</sup>00~17<sup>h</sup>00
  
- B. Cosmic noise level obscured or equipment malfunction
  - 10: 11.40-12.00 equipment tests
  - 10: 17.10-17.30 equipment tests
  - 11: 08.50-18.10 equipment tests
  - 12: 00.10-03.35 equipment tests
  - 13: 14.25-17.50 equipment tests
  - 13: 22.50-24.00 equipment tests
  - 14: 00.00-00.30 equipment tests
  - 17: 14.40-15.00 equipment tests
  - 19: 10.50 antenna not connected
  - 20: 08.20 power failure
  - 20: 16.00-16.40 power failure
  - 22: 04.25-07.30 power failure
  - 29: 06.40-07.40 equipment failure
  
- C. Disturbed days: 20th, 21th, 27th, 28th.

APR 1967

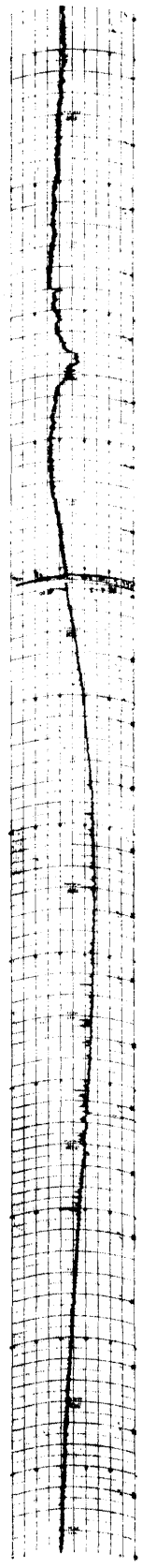
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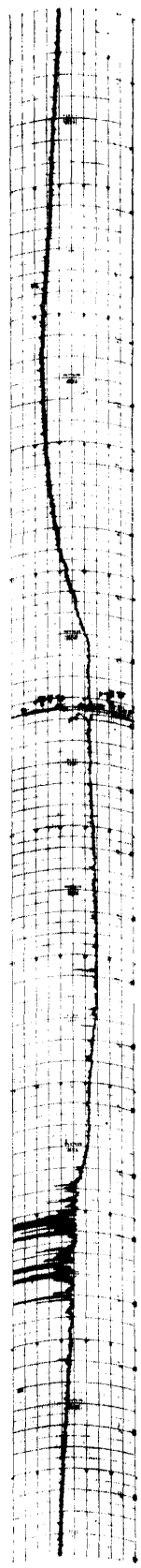
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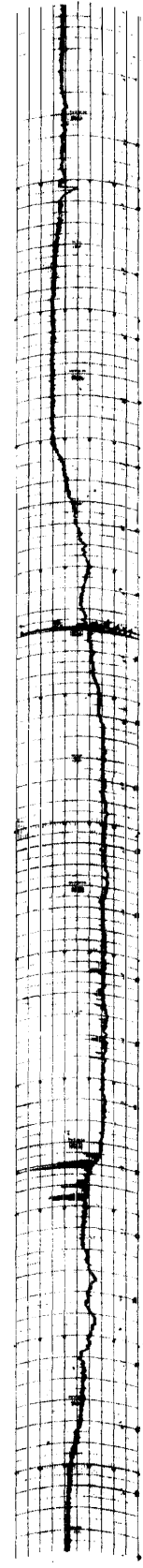
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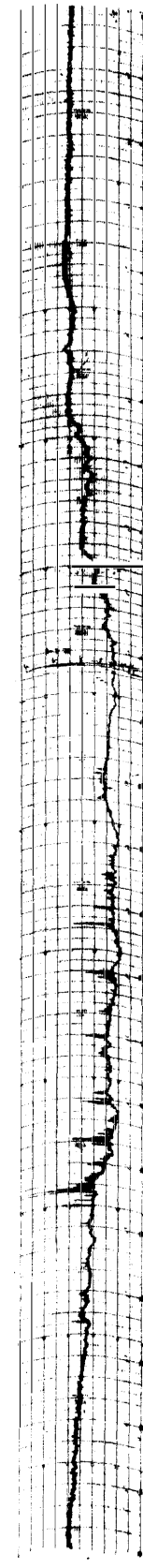
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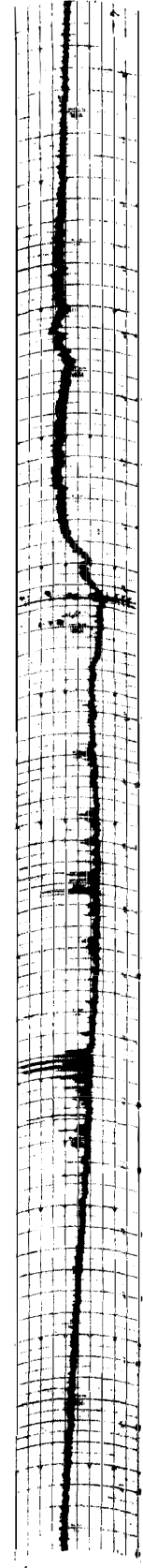
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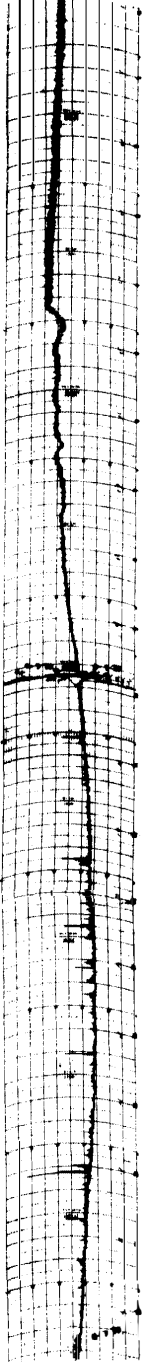


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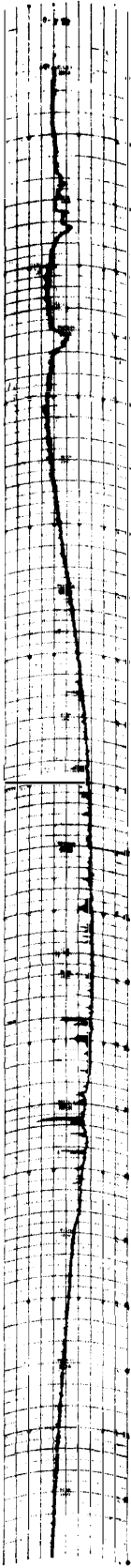
45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

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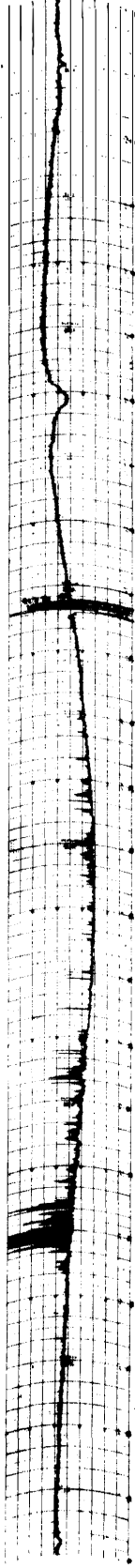
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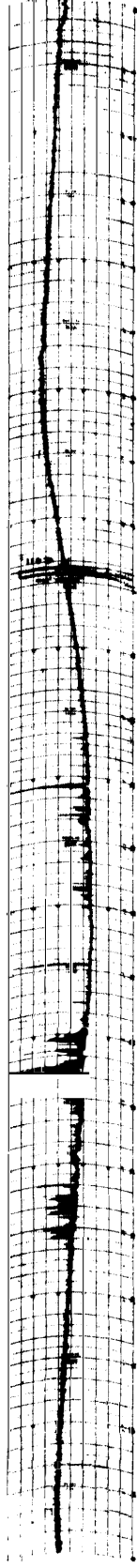
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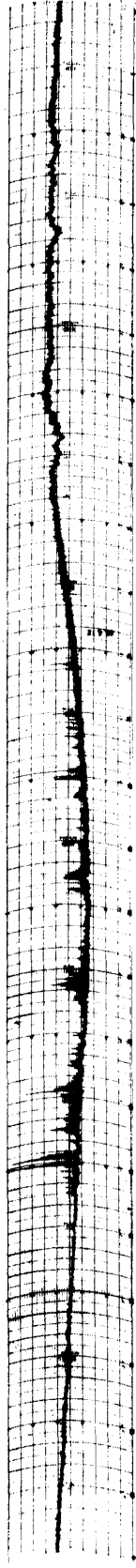
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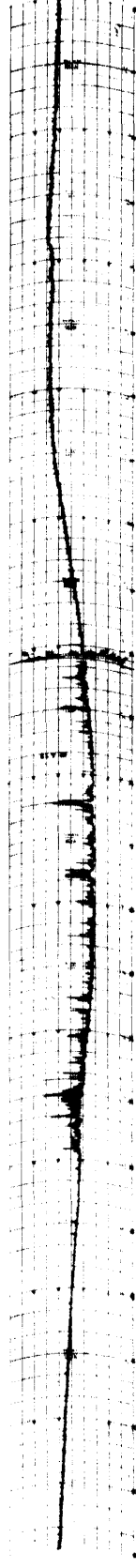
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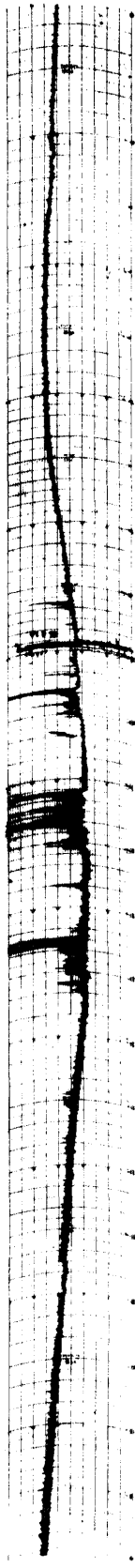
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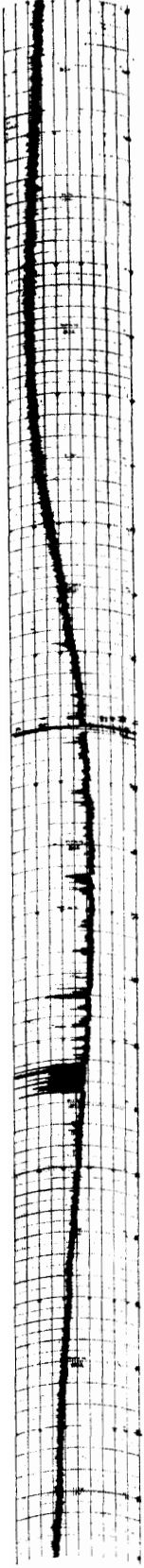


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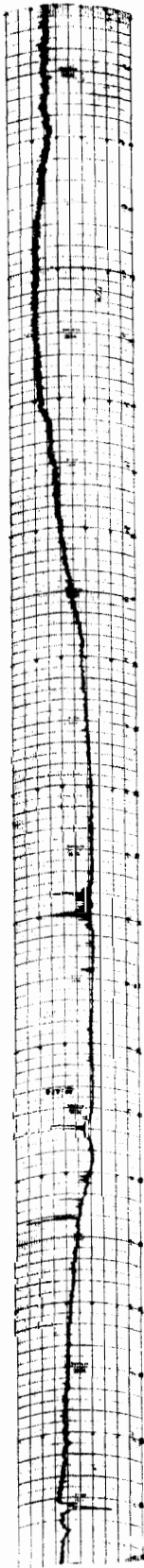
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

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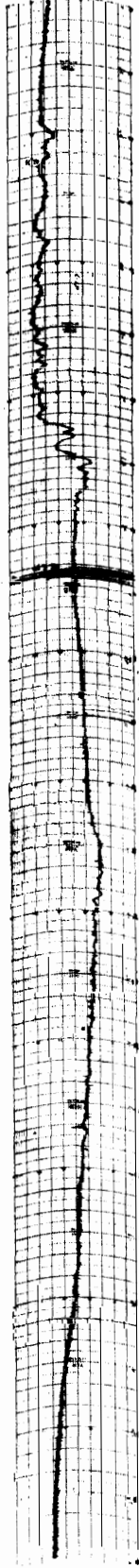
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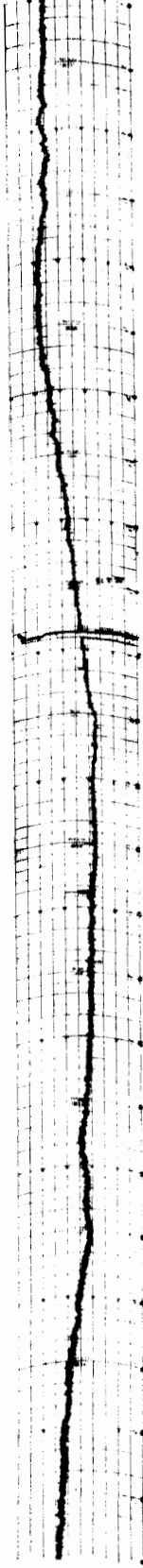
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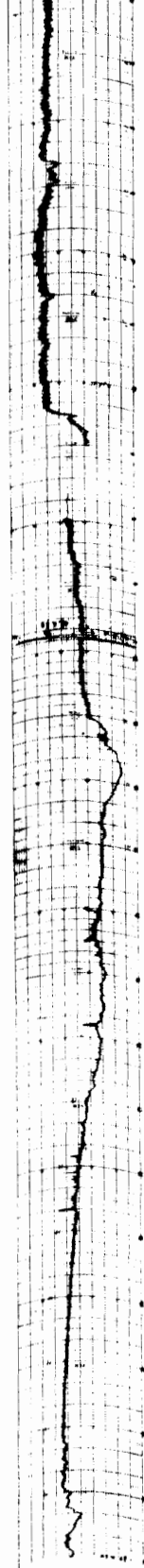
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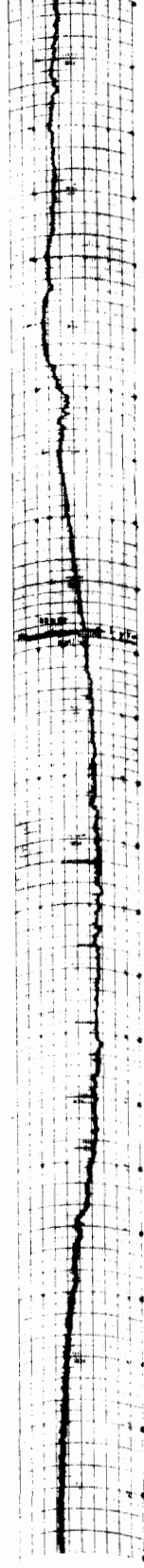
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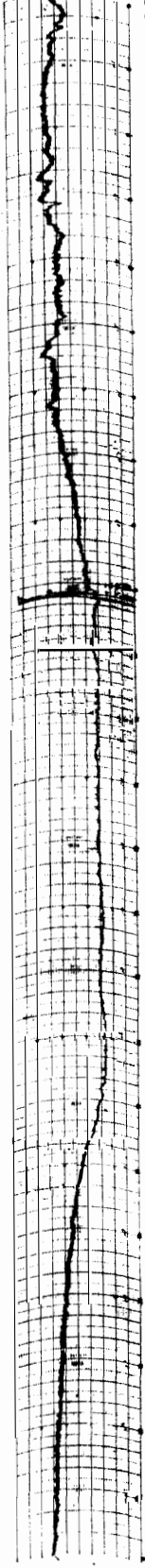
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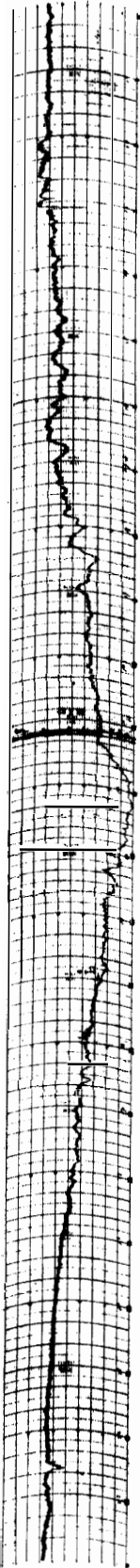


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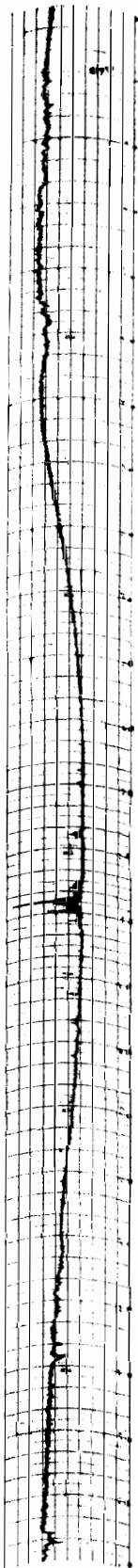
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

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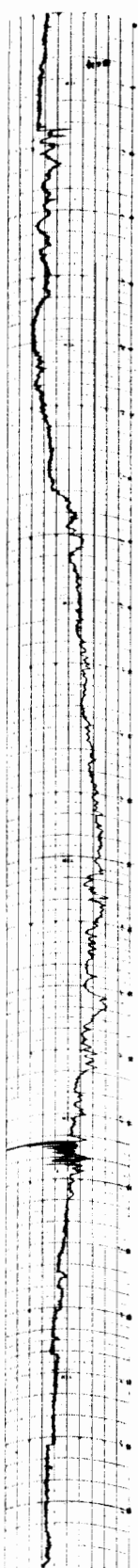
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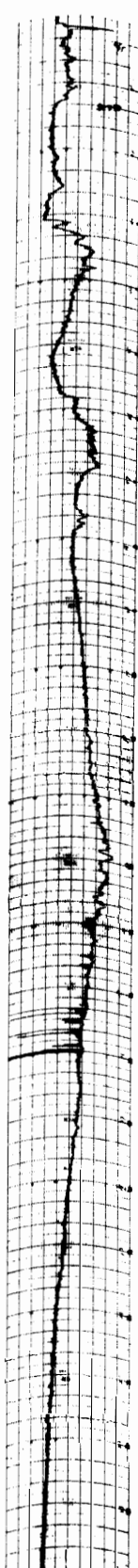
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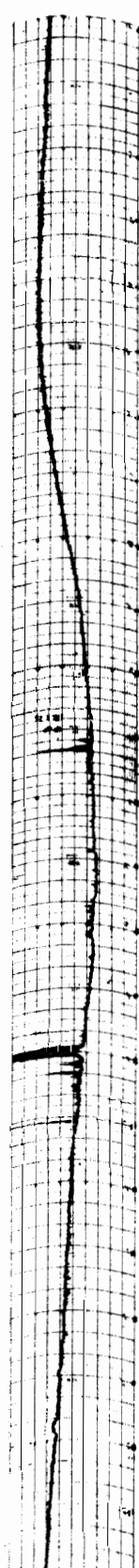
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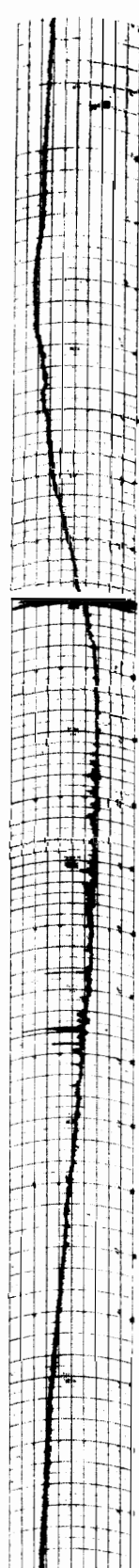
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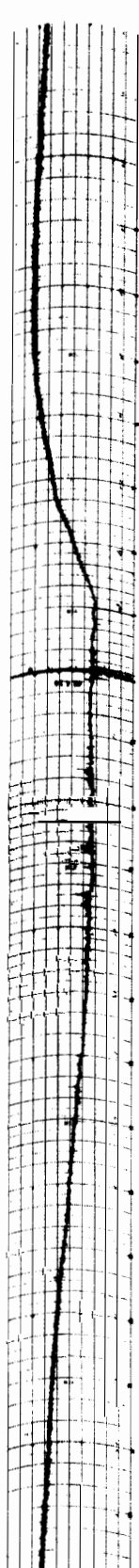
26



27



28



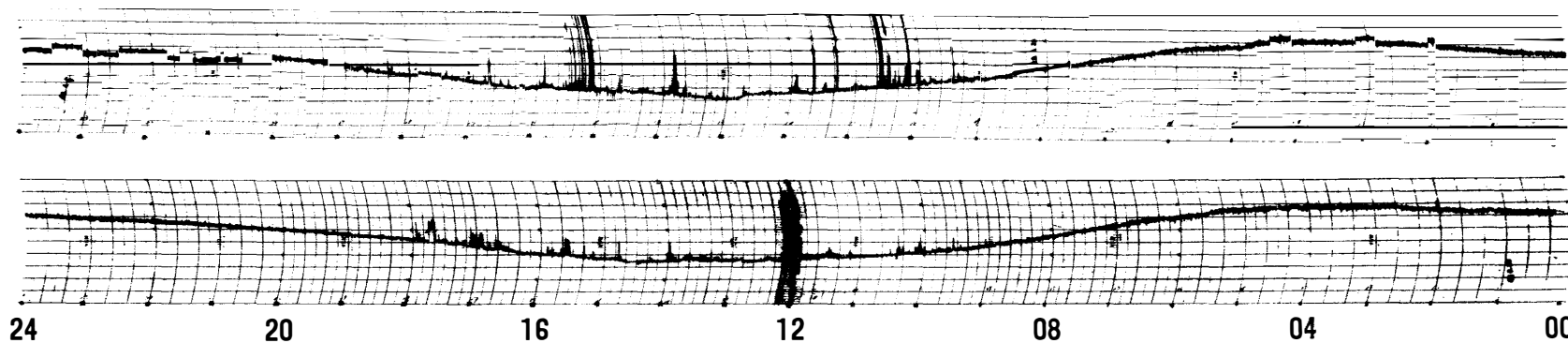
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

APR 1967

29

30



45° EAST MERIDIAN TIME IN HOURS

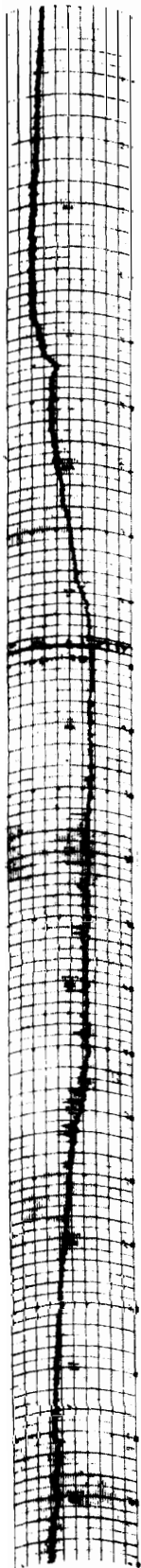
30 MHz COSMIC NOISE

- A. Diurnal variation (quiet days)  
Maximum 05<sup>h</sup>00~07<sup>h</sup>00  
Minimum 13<sup>h</sup>00~14<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction
  - 8: 19.50-24.00 equipment failure
  - 9: 00.00-01.00 equipment failure
  - 19: 07.00-08.10 equipment failure
- C. Disturbed days: 17th, 19th, 22th, 24th, 25th, 26th.

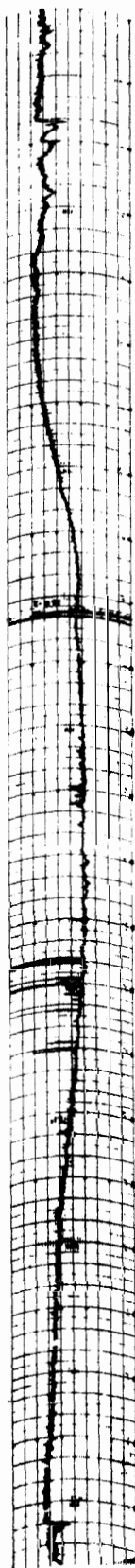


MAY 1967

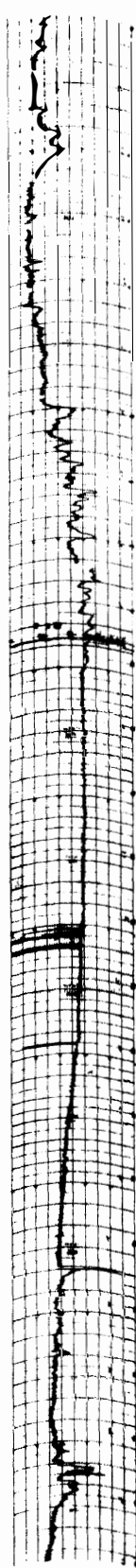
1



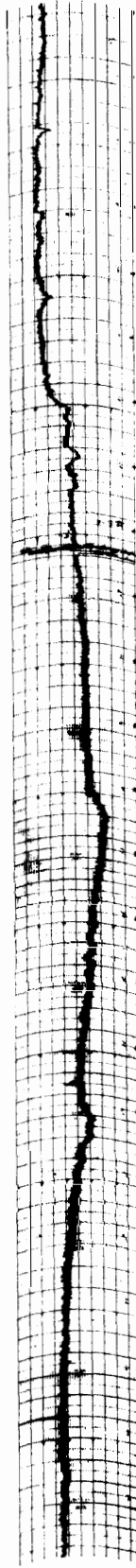
2



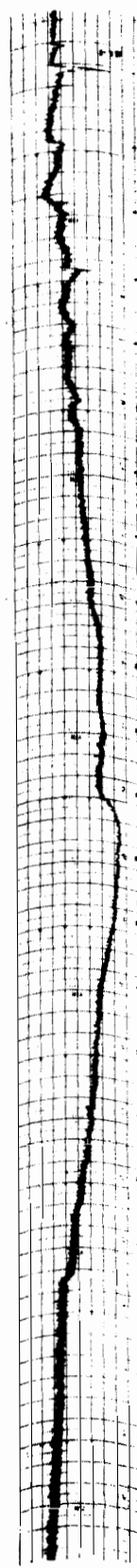
3



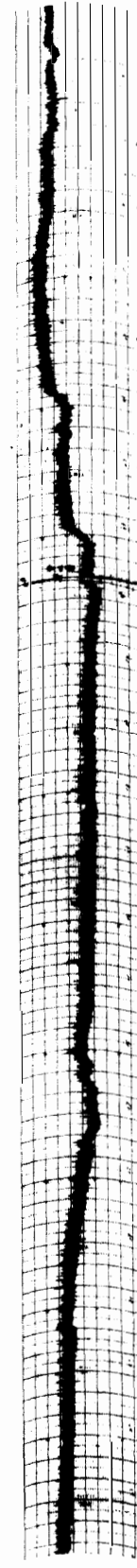
4



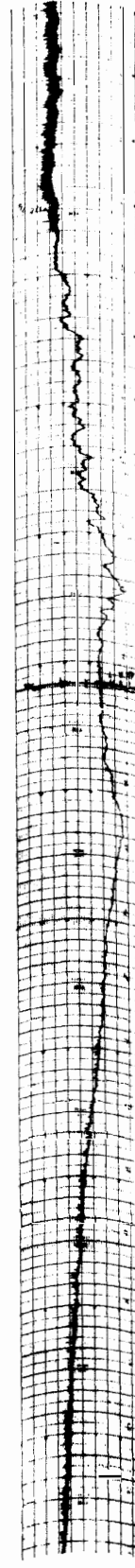
5



6



7

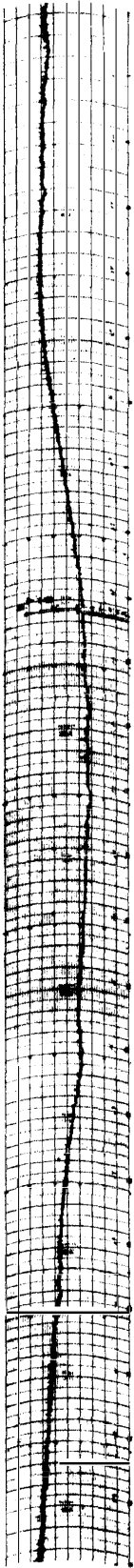


24 20 16 12 08 04 00

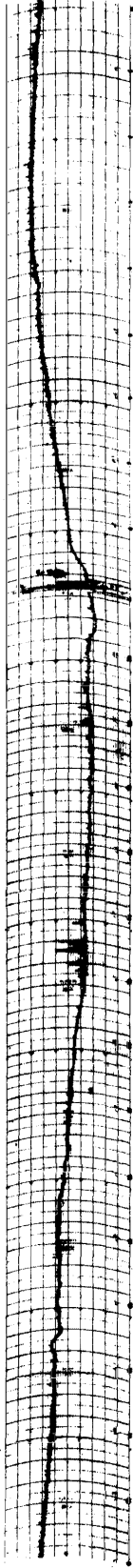
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1967

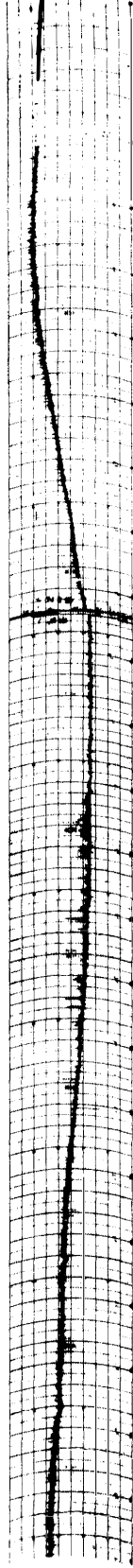
8



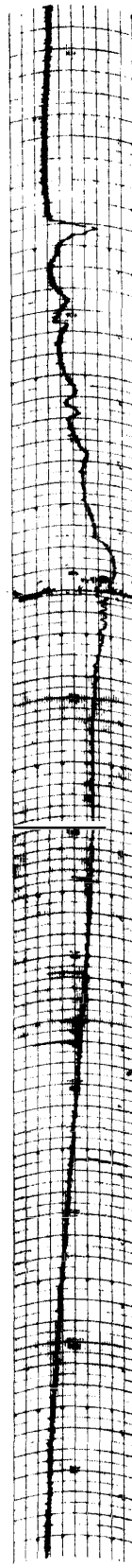
9



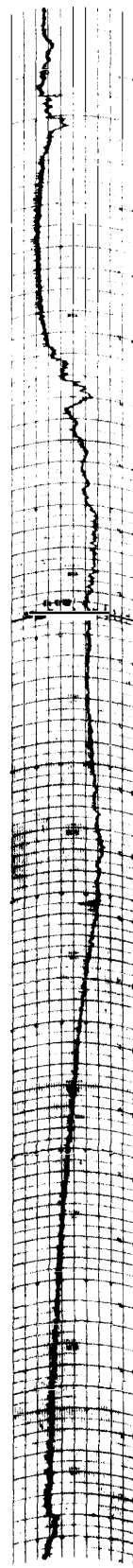
10



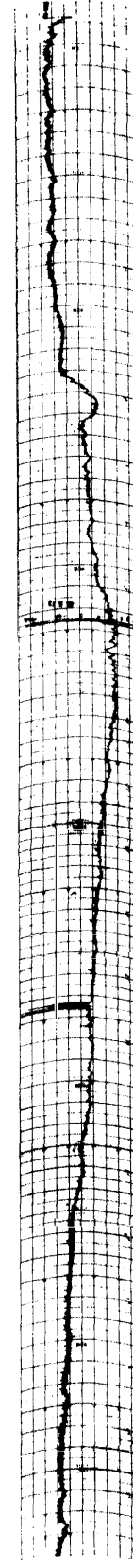
11



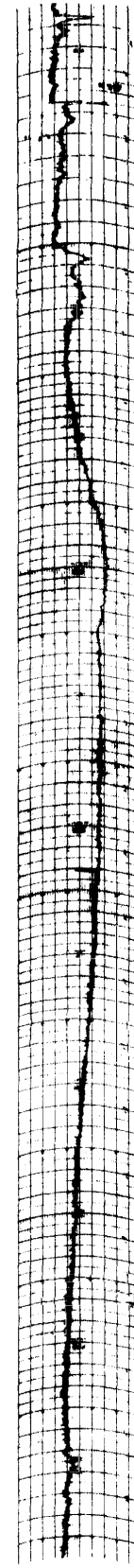
12



13



14

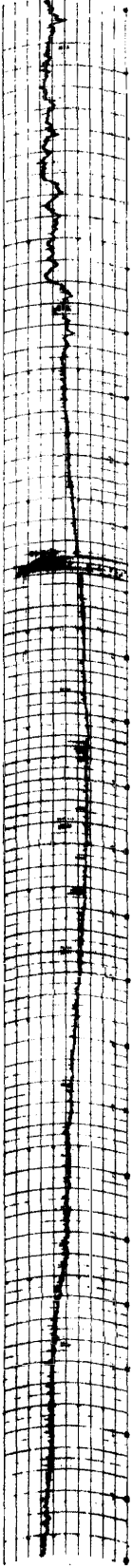


24 20 16 12 08 04 00

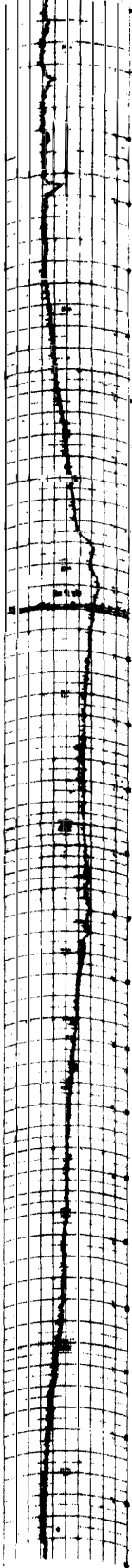
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1967

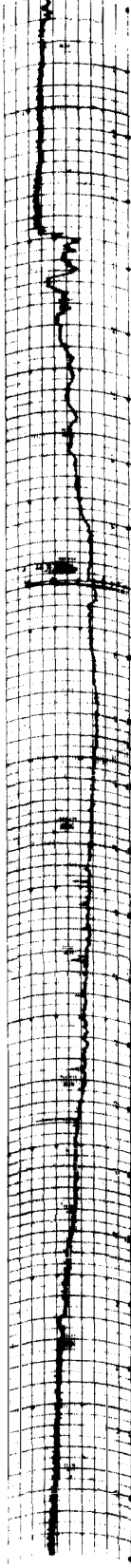
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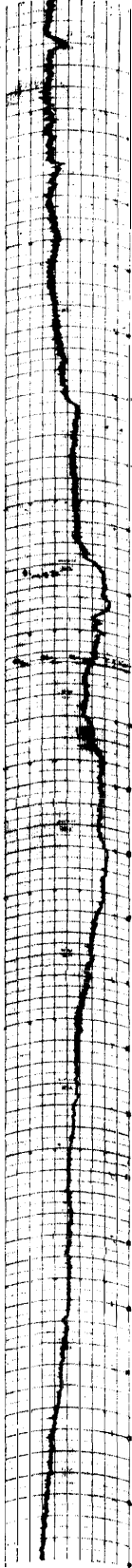
16



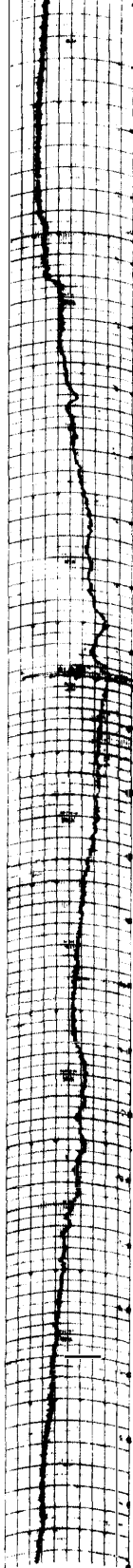
17



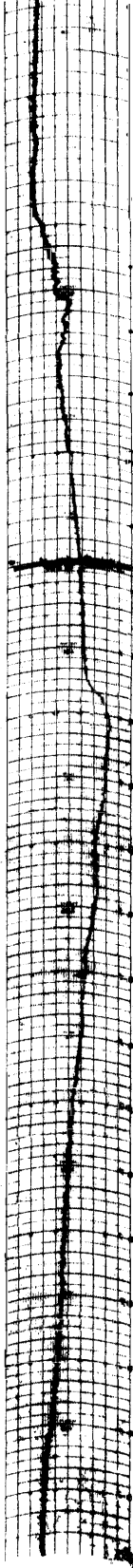
18



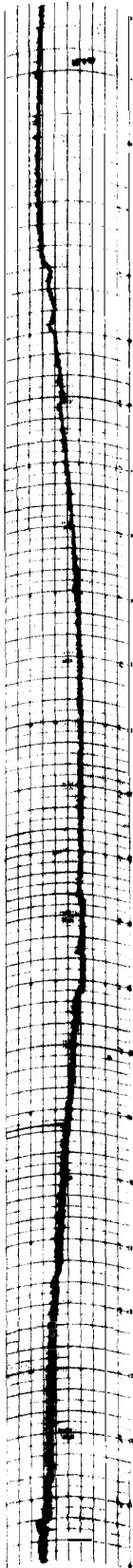
19



20



21

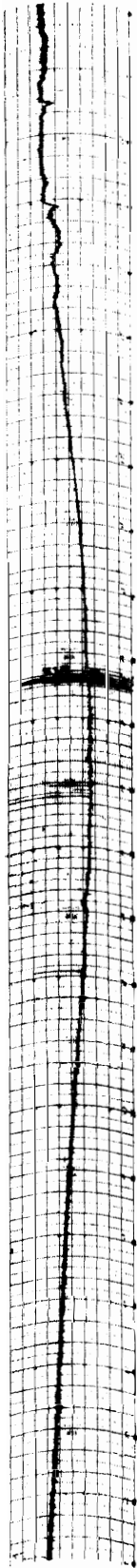


24 20 16 12 08 04 00

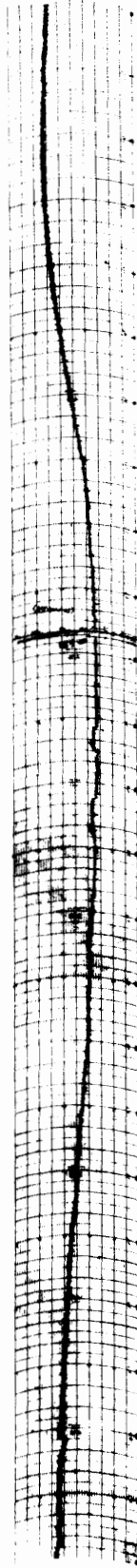
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

MAY 1967

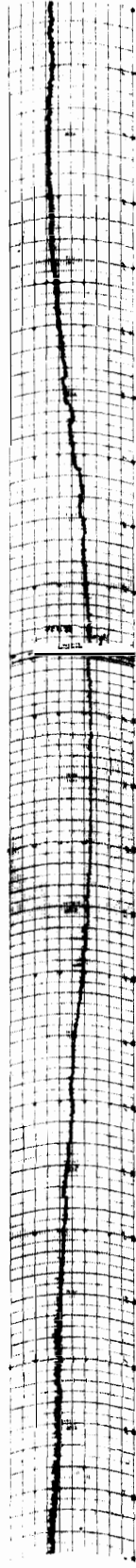
22



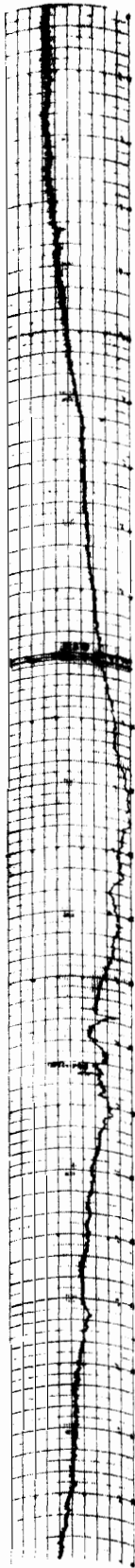
23



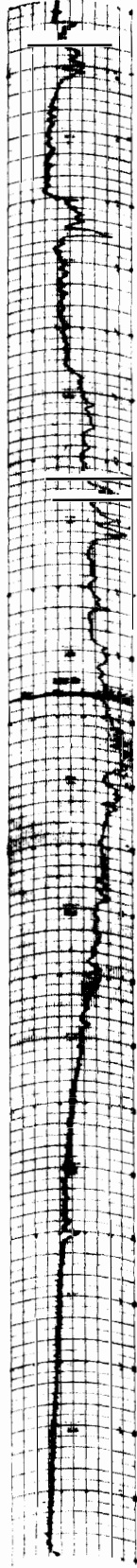
24



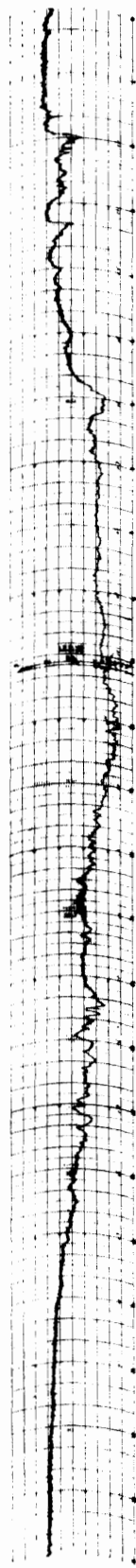
25



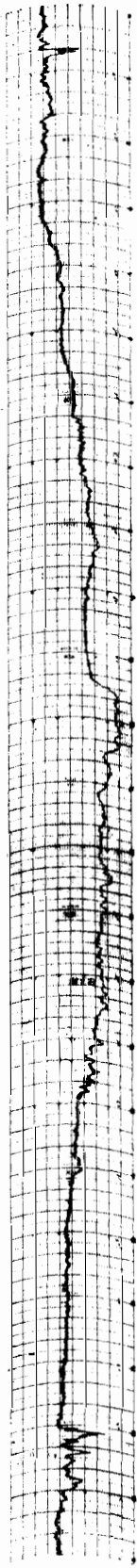
26



27

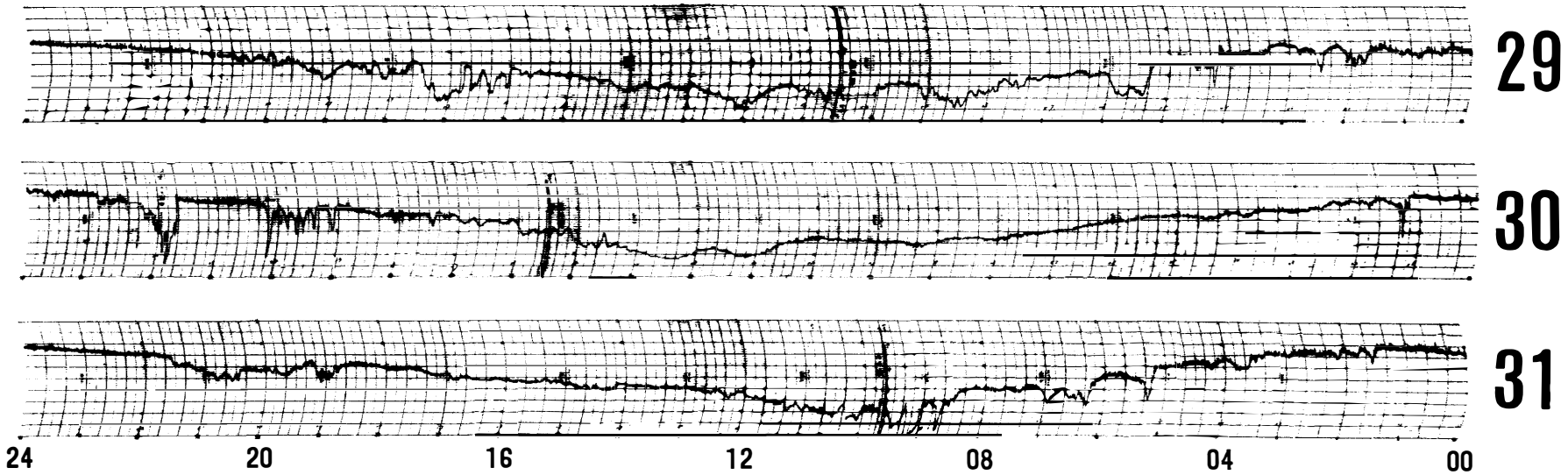


28



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 (quiet days)

Maximum 04<sup>h</sup>00~06<sup>h</sup>00

Minimum 11<sup>h</sup>00~13<sup>h</sup>00

B. Cosmic noise level obscured or equipment malfunction

10: 01.20-02.10 equipment failure

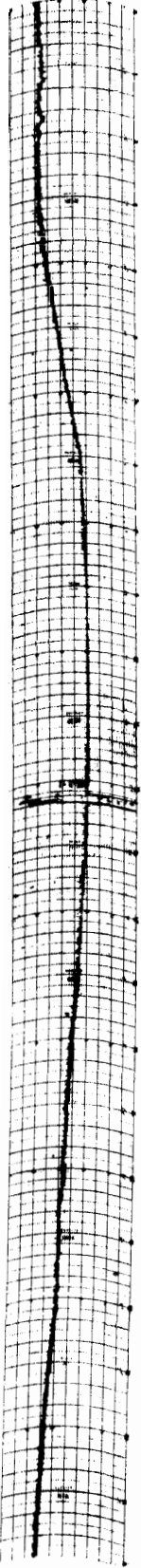
20: 07.00-07.20 equipment tests

22: 10.15-10.30 equipment tests

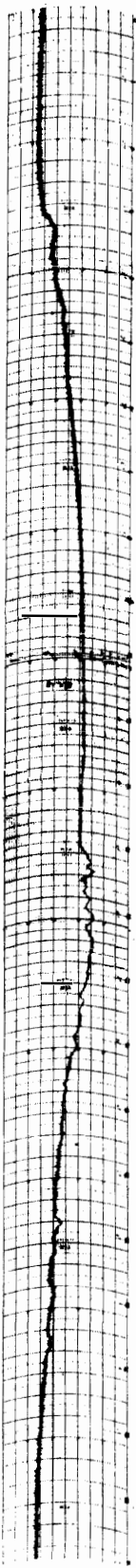
C. Disturbed days: 3rd, 7th, 25th, 26th, 28th, 30th, 31st.

JUN 1967

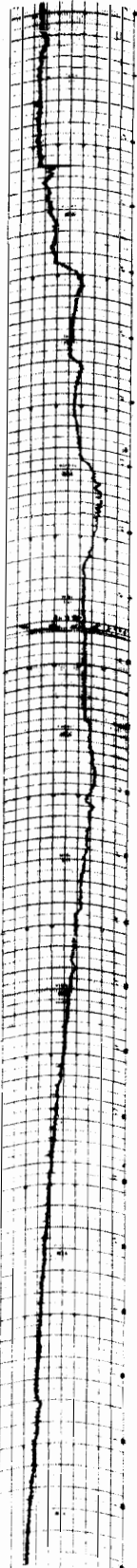
1



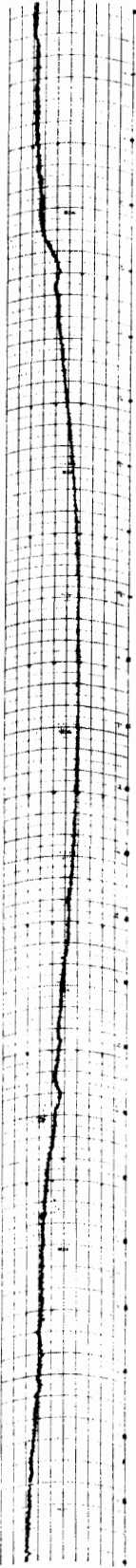
2



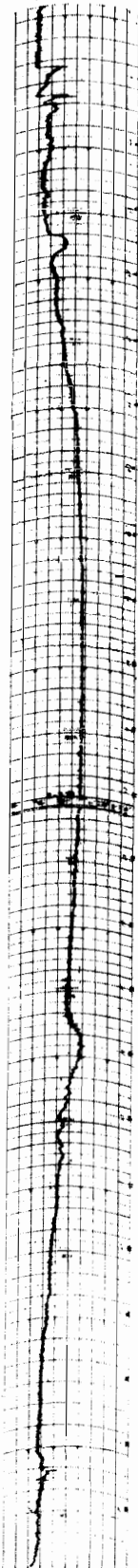
3



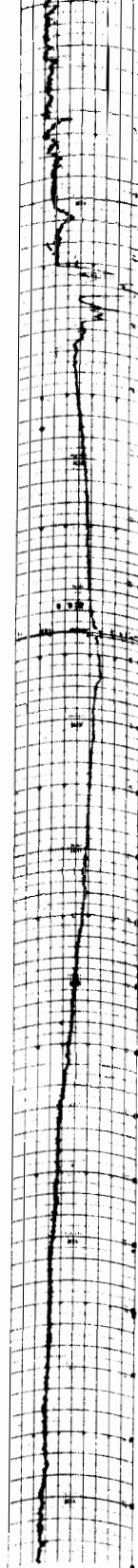
4



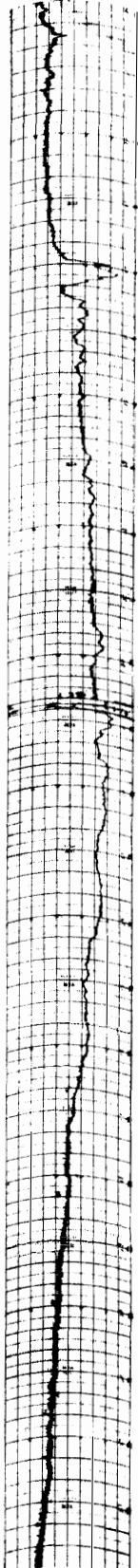
5



6



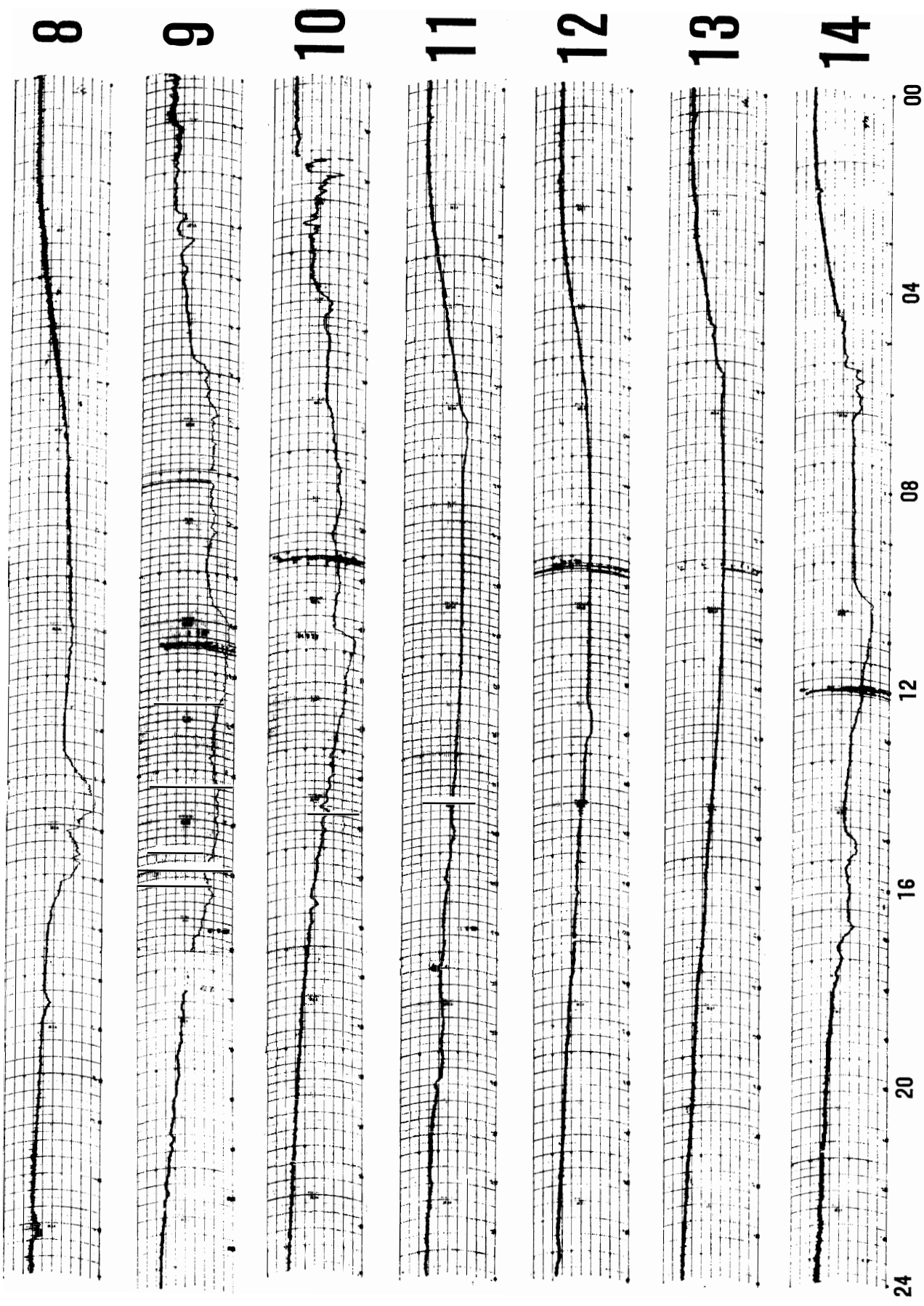
7



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUN 1967



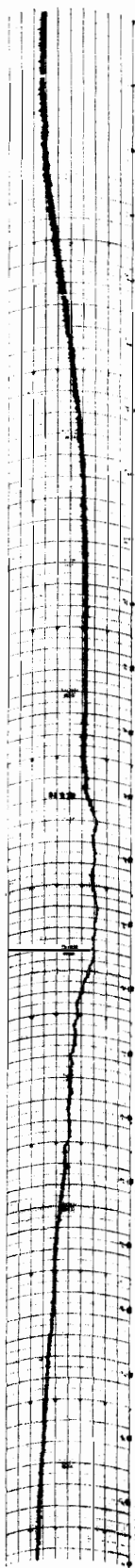
45° EAST MERIDIAN TIME IN HOURS      30 MHz COSMIC NOISE

JUN 1967

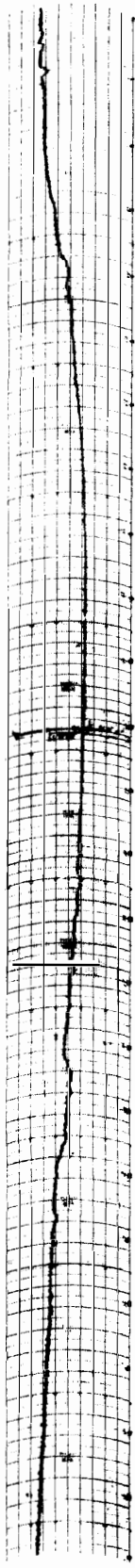
15



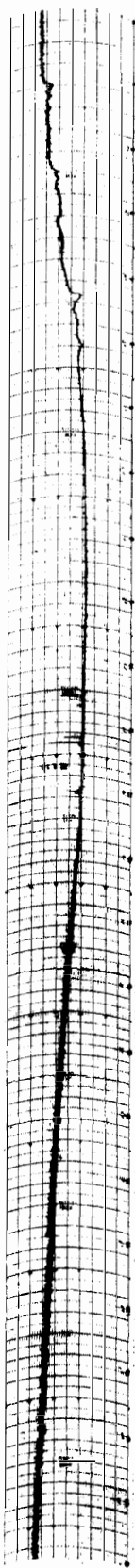
16



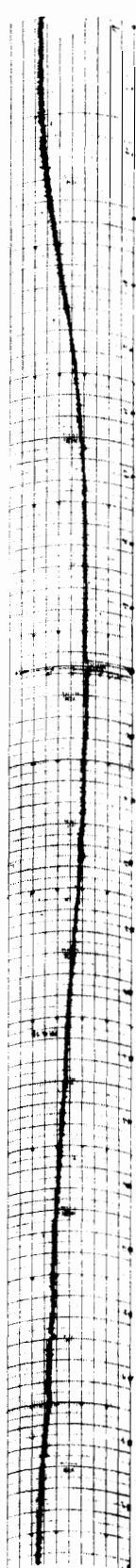
17



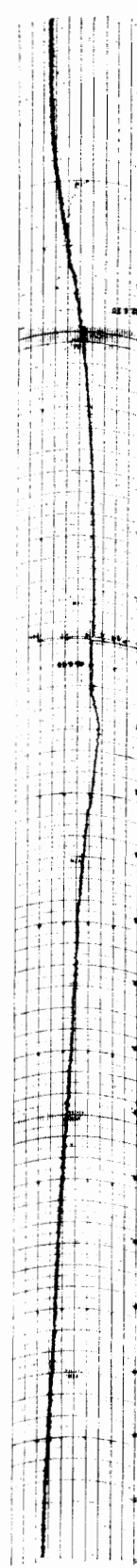
18



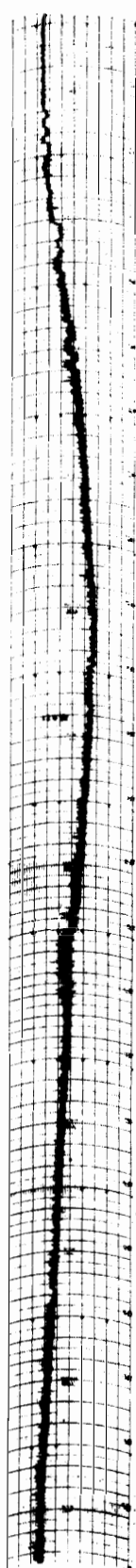
19



20



21



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

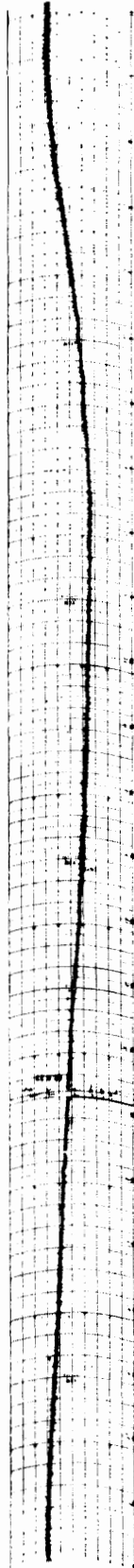


JUN 1967

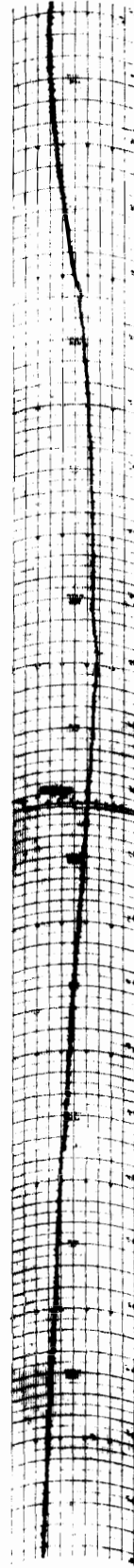
22



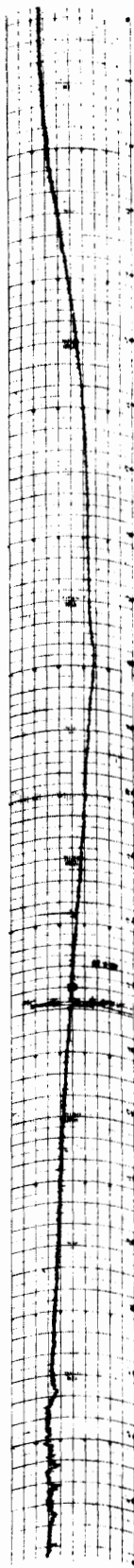
23



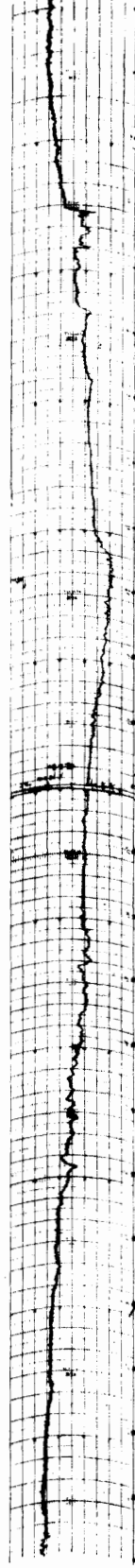
24



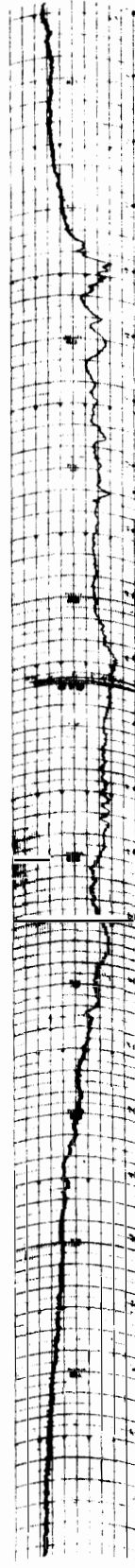
25



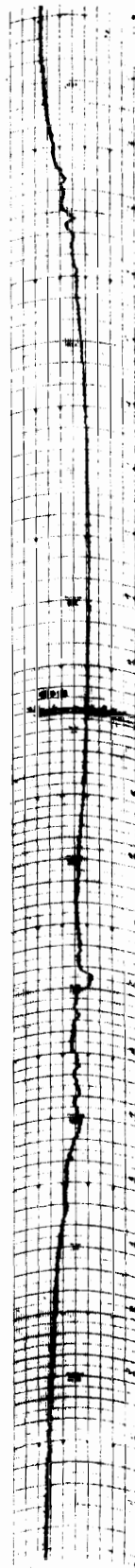
26



27

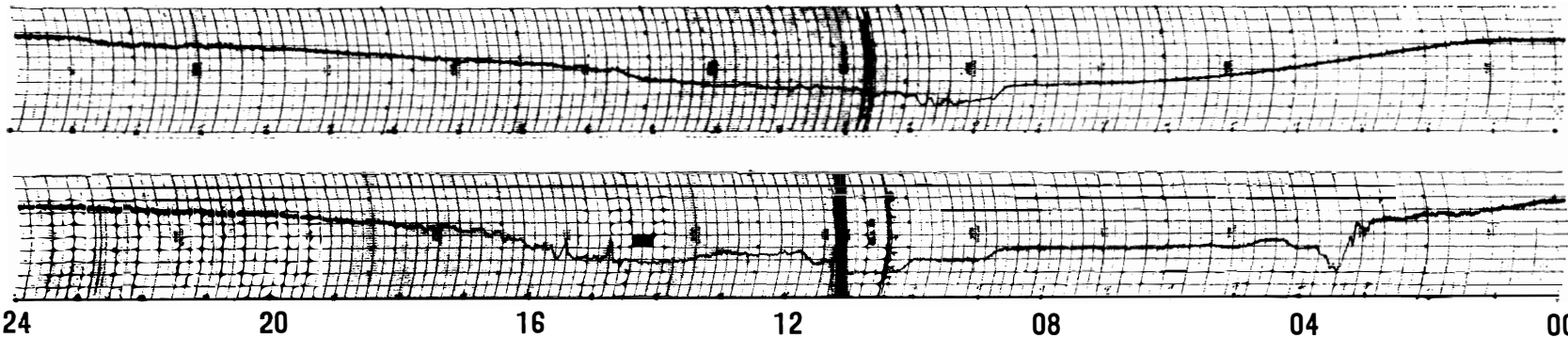


28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



29  
30  
JUN 1967

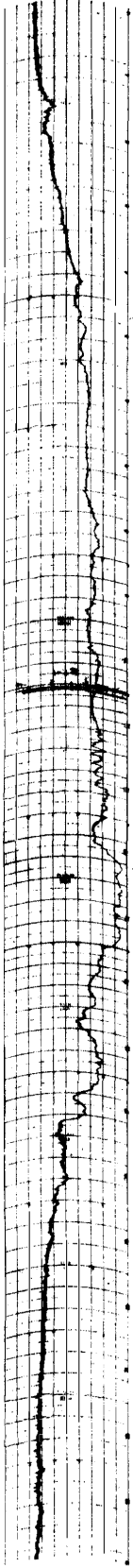
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

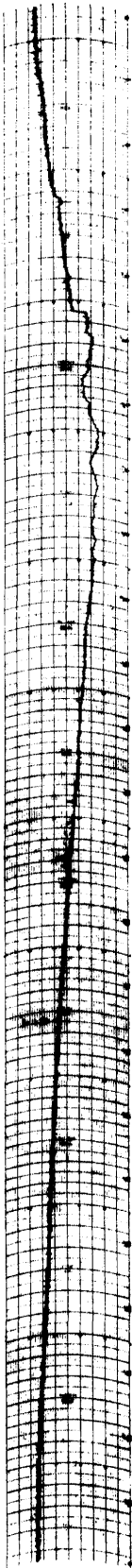
- A. Diurnal variation (quiet days)  
 Maximum 01<sup>h</sup>00~02<sup>h</sup>00  
 Minimum 07<sup>h</sup>00~10<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction  
 9: 17.00-18.00 equipment failure
- C. Disturbed days: 3rd, 5th, 6th, 7th, 9th, 10th, 14th, 15th, 26th, 27th, 30th.

JUL 1967

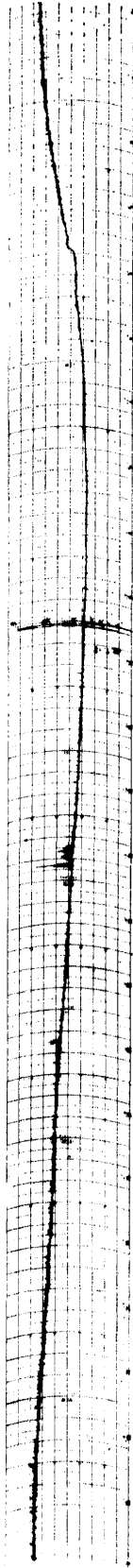
1



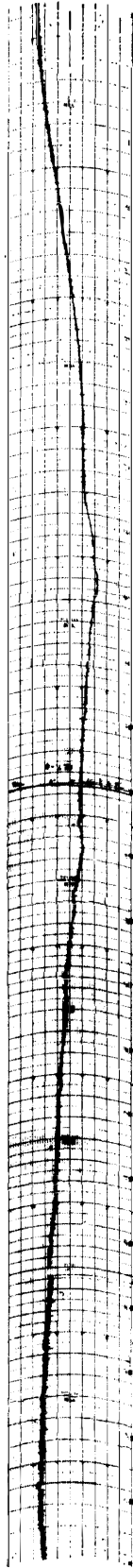
2



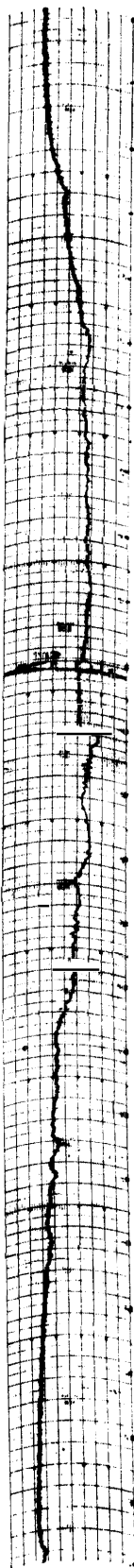
3



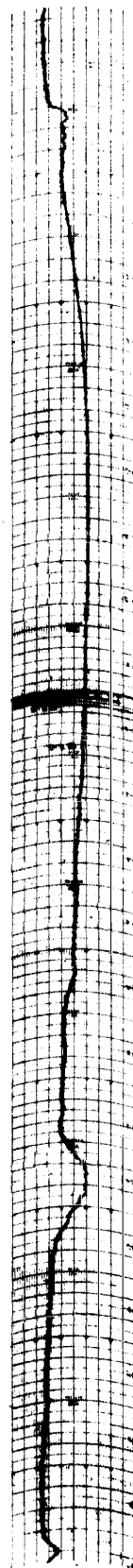
4



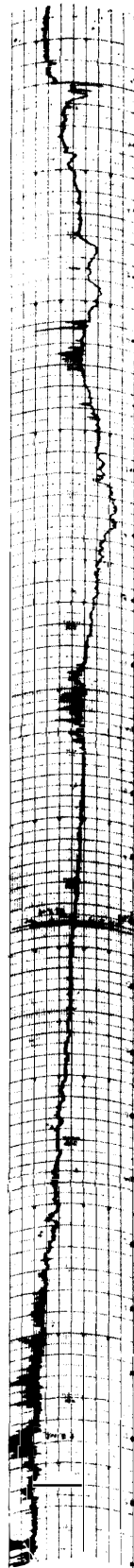
5



6



7

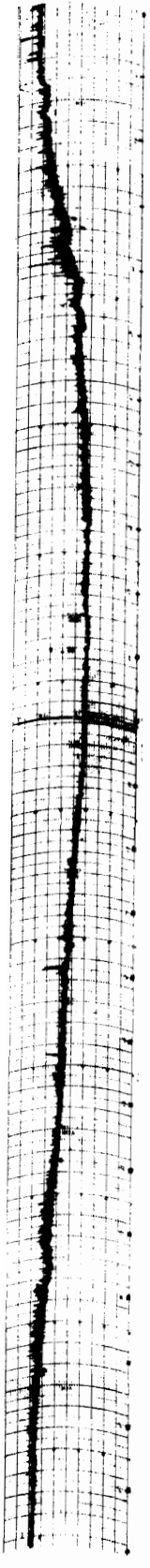


24 20 16 12 08 04 00

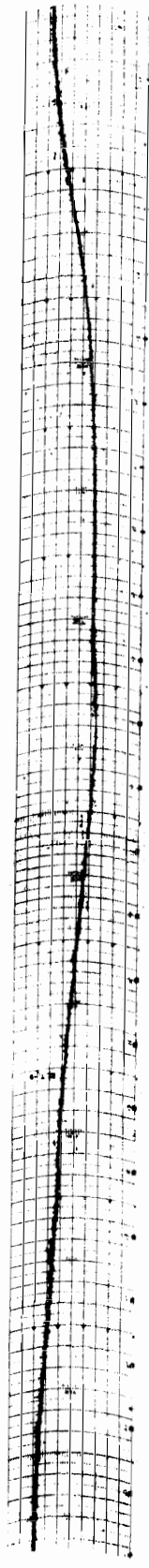
45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

JUL 1967

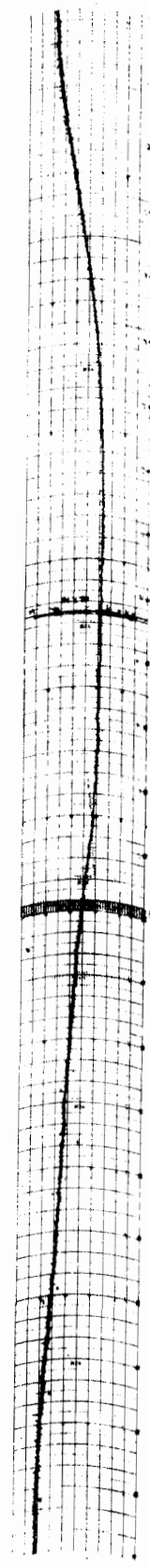
8



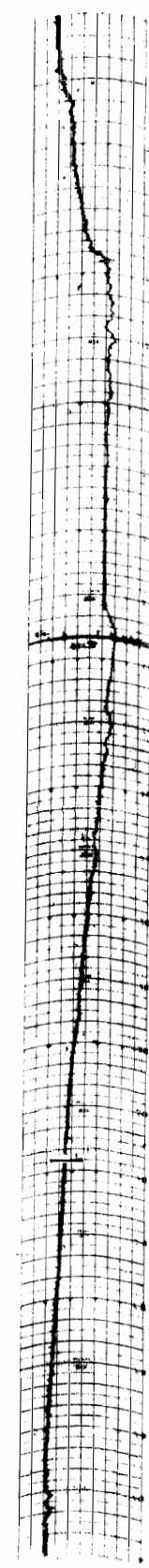
9



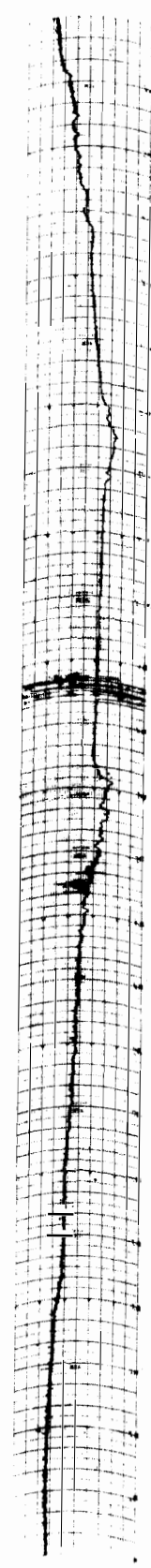
10



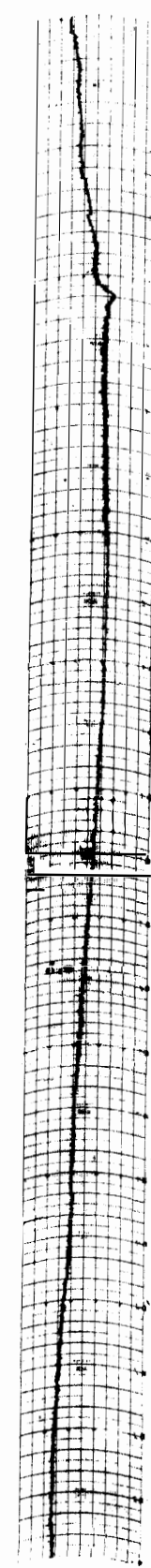
11



12



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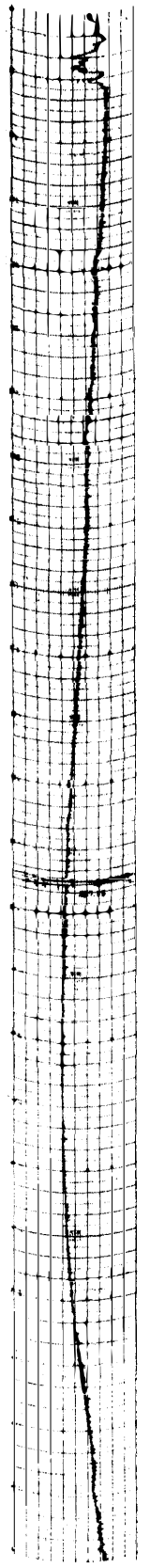
14



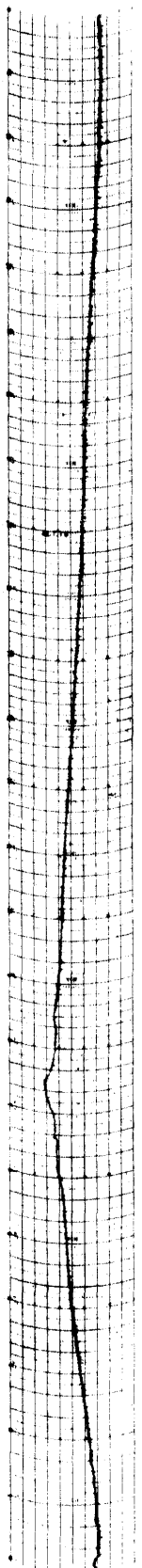
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

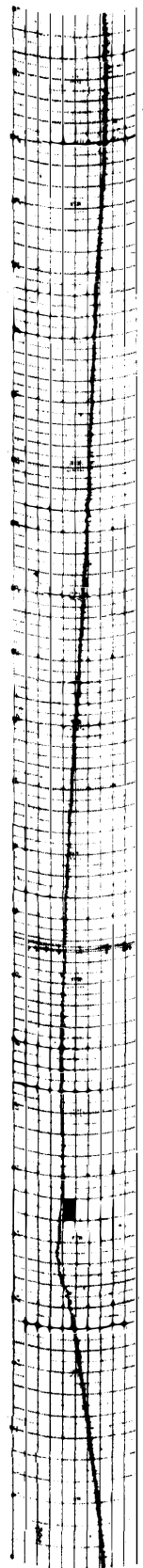
JUL 1967



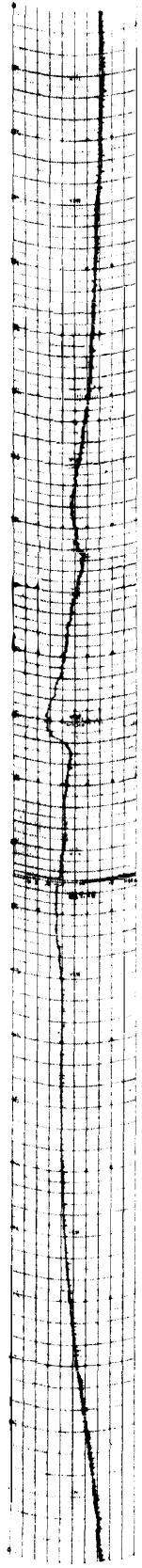
15



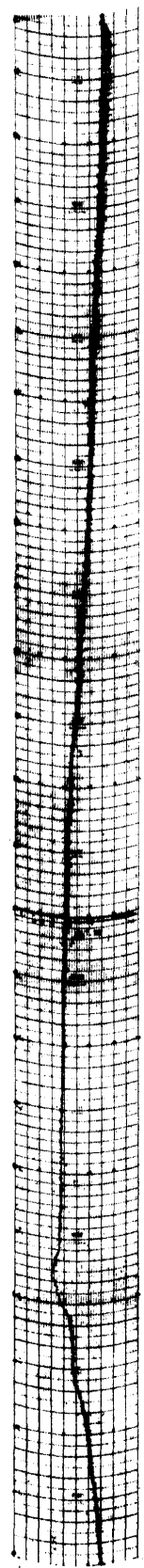
16



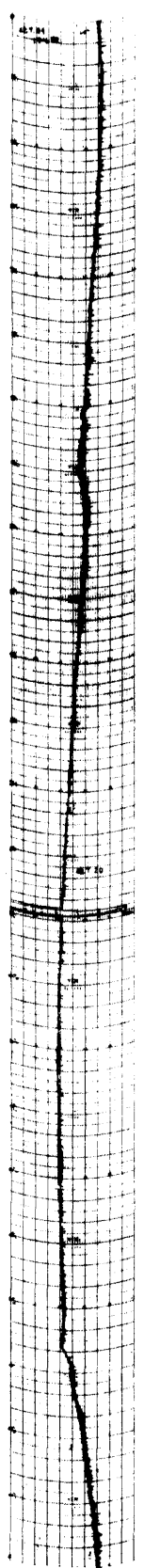
17



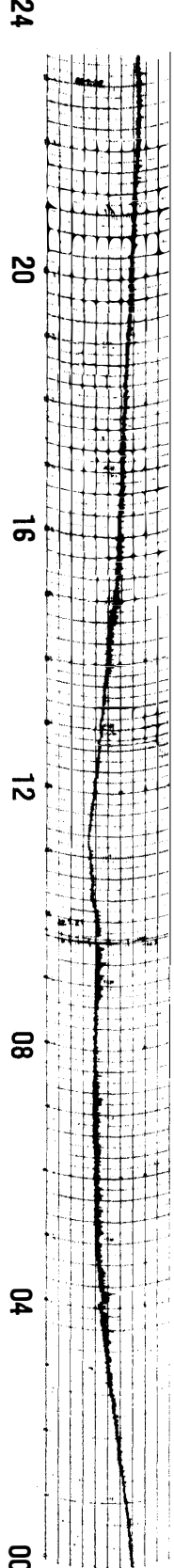
18



19



20



21

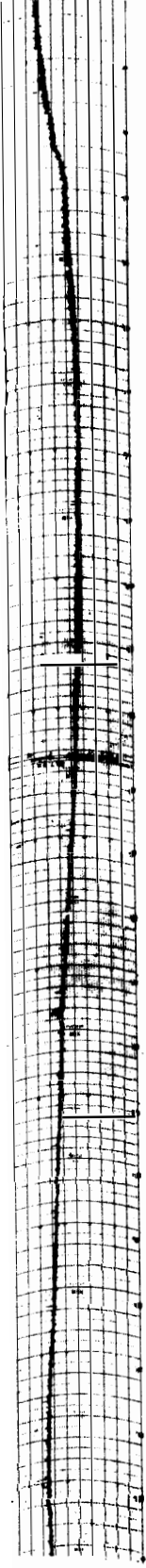
45° EAST MERIDIAN TIME IN HOURS

30 Mhz COSMIC NOISE

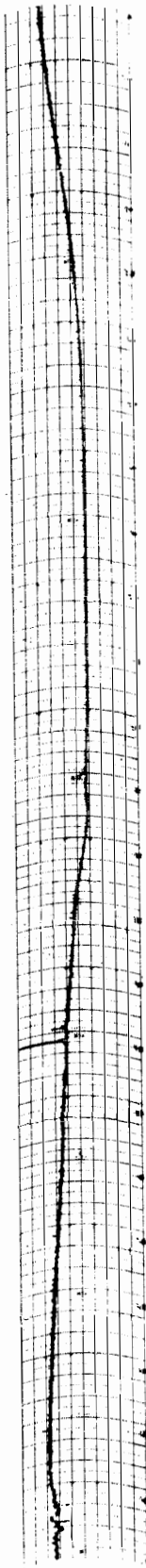
24 20 16 12 08 04 00

JUL 1967

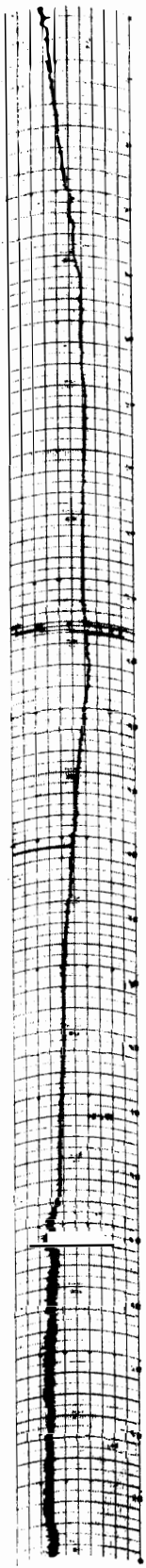
22



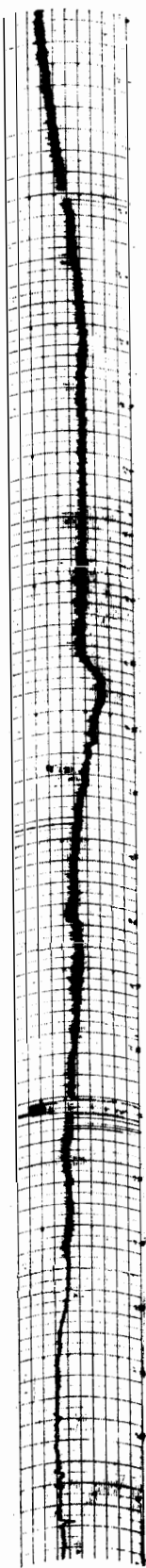
23



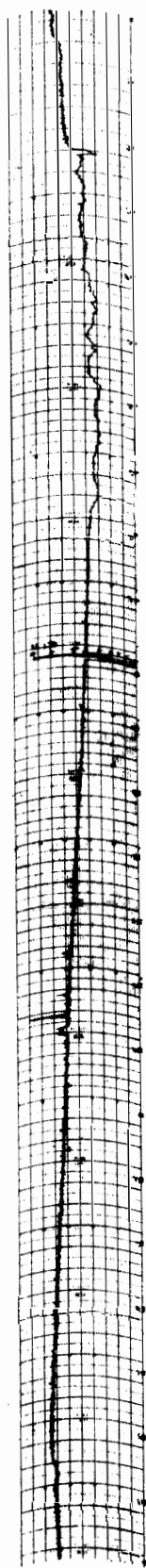
24



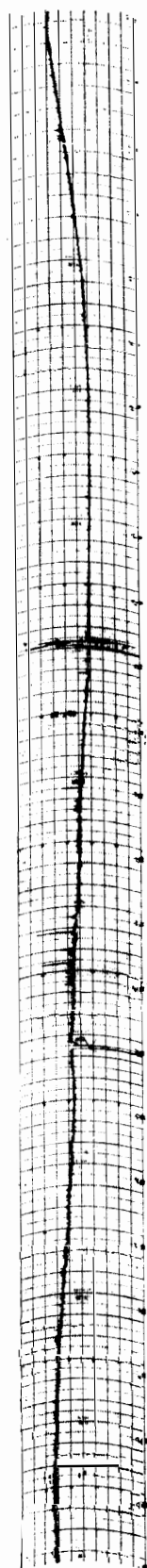
25



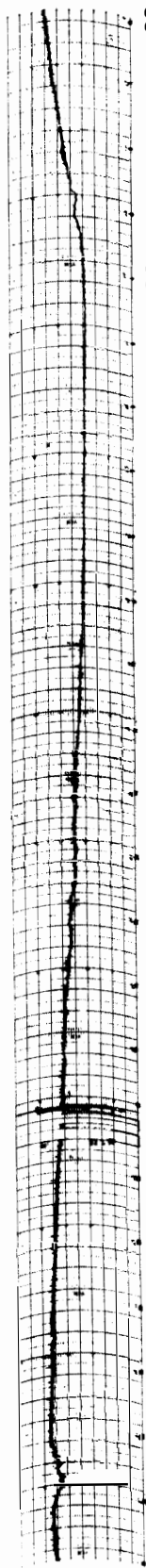
26



27



28



24 20 16 12 08 04 00

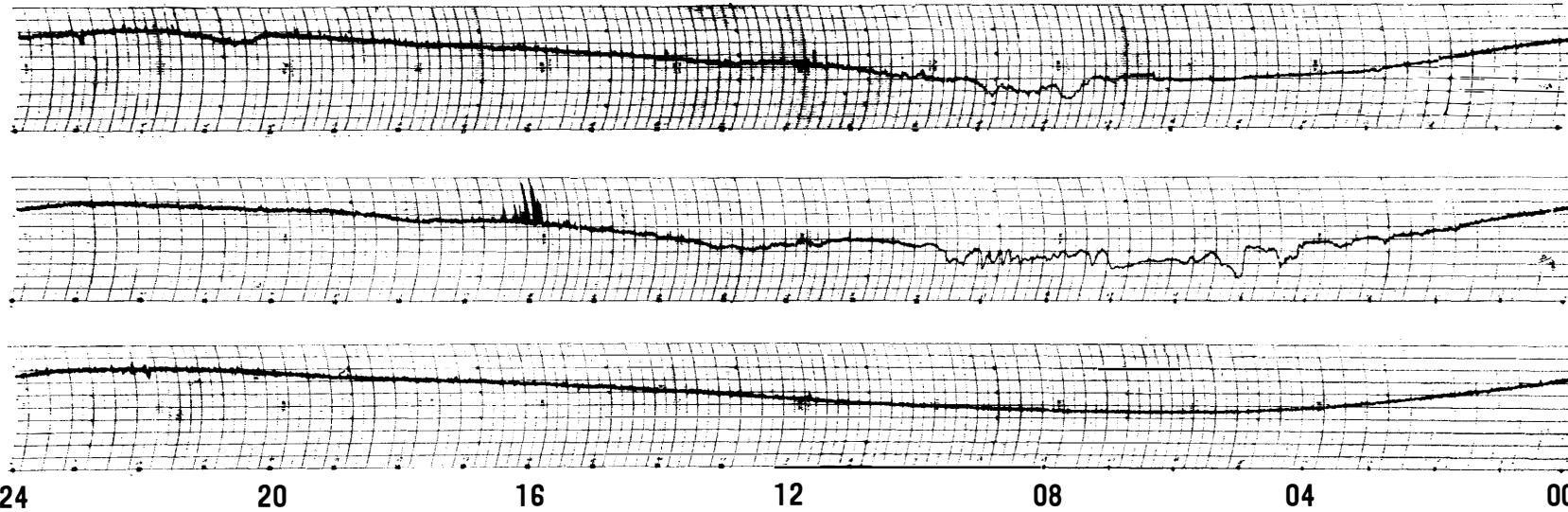
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JUL 1967

29

30

31



45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

A. Diurnal variation (quiet days)

Maximum 23<sup>h</sup>00~01<sup>h</sup>00

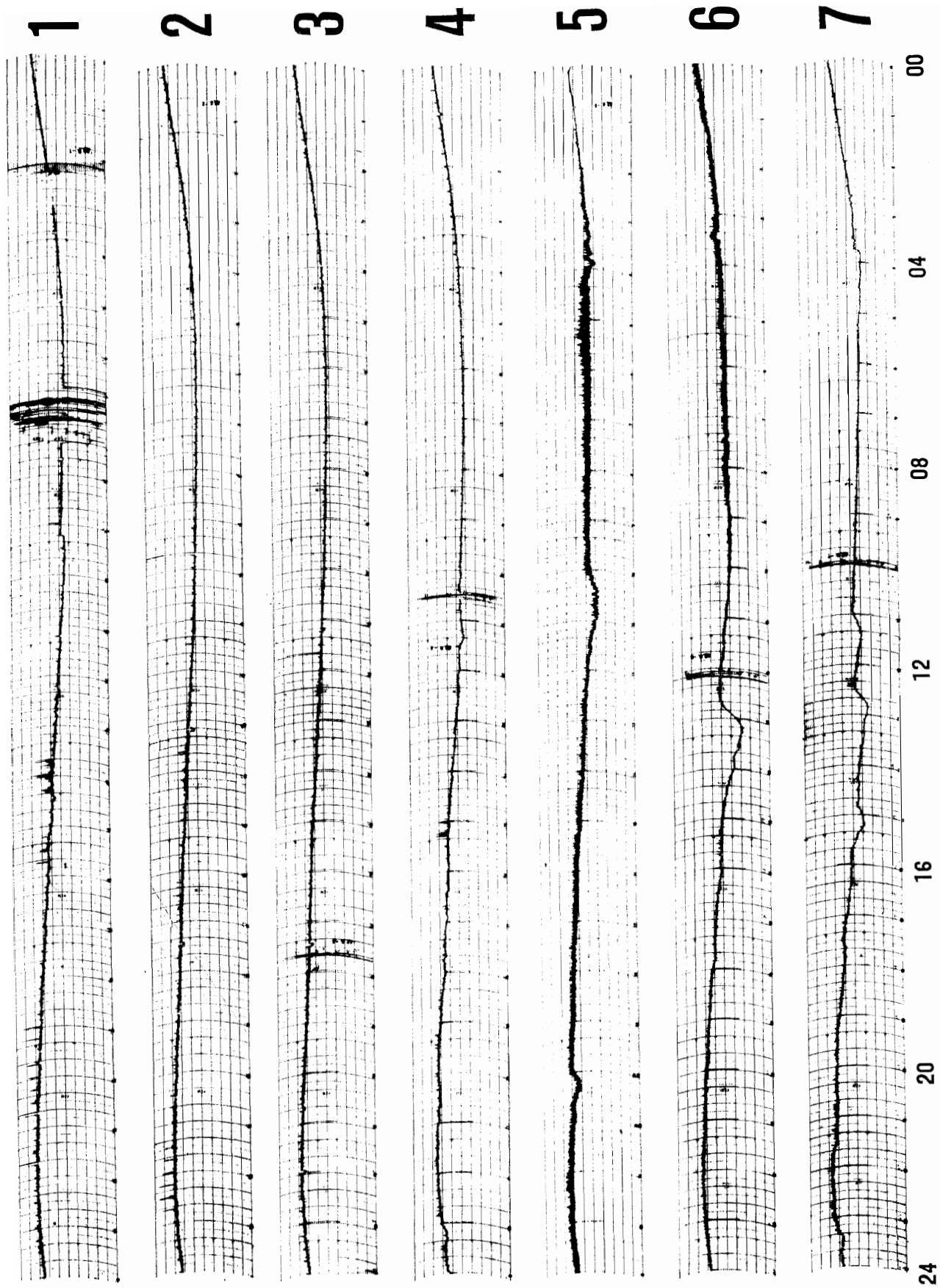
Minimum 07<sup>h</sup>00~08<sup>h</sup>00

B. Cosmic noise level obscured or equipment malfunction

25: 02.45-02.55 antenna not connected

C. Disturbed days: 1st, 5th, 7th, 30th.

AUG 1967

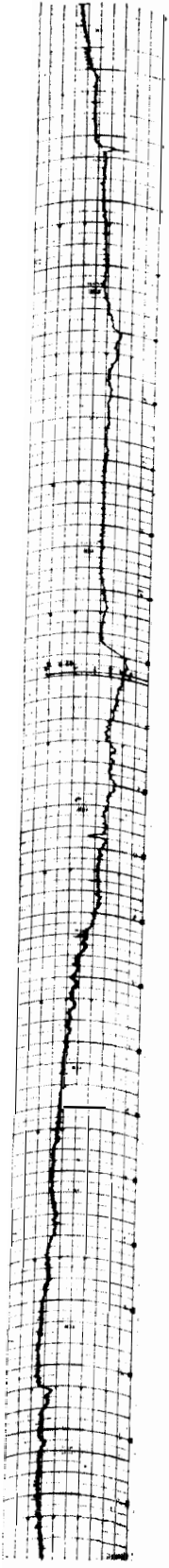


30 MHz COSMIC NOISE

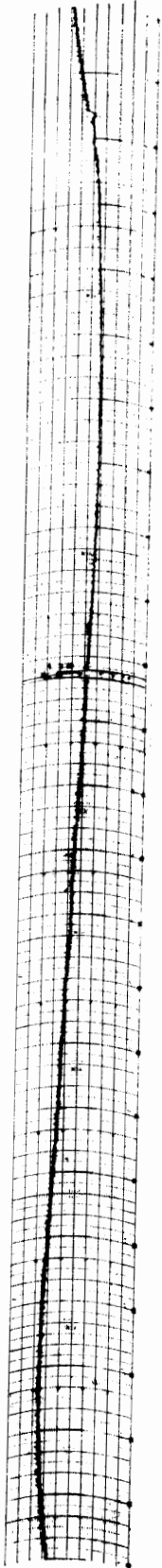


AUG 1967

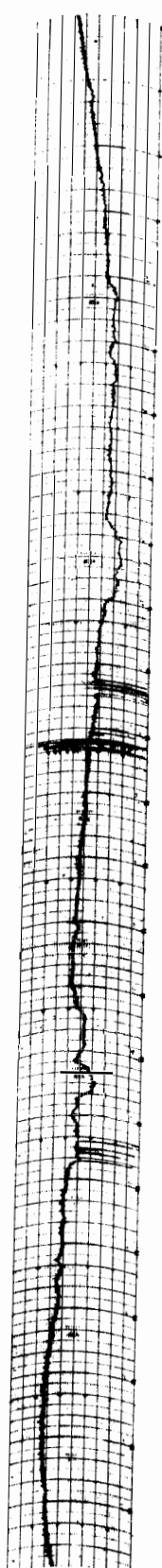
8



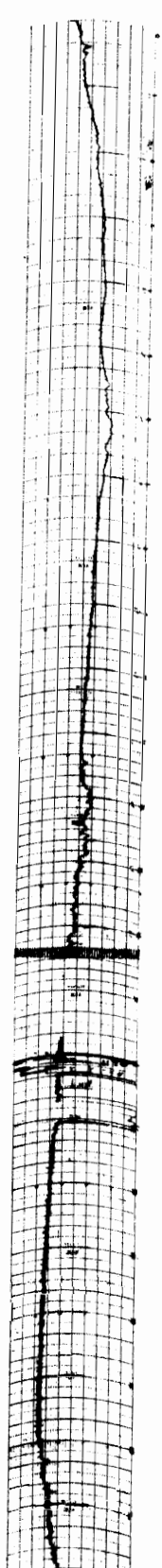
9



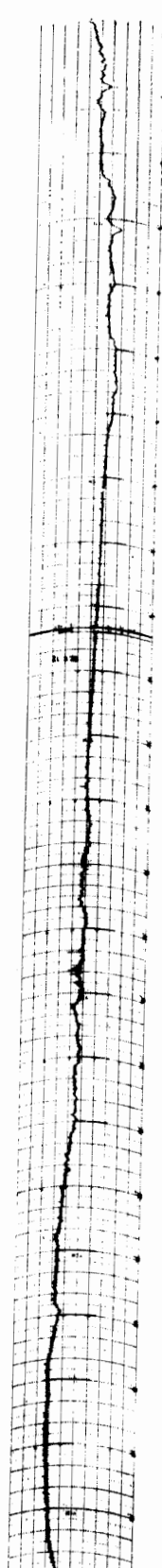
10



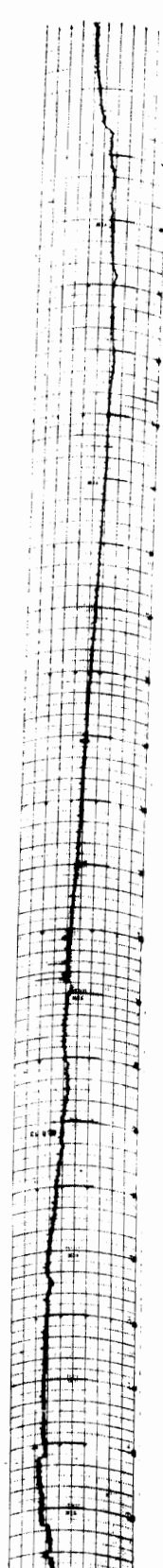
11



12



13



14



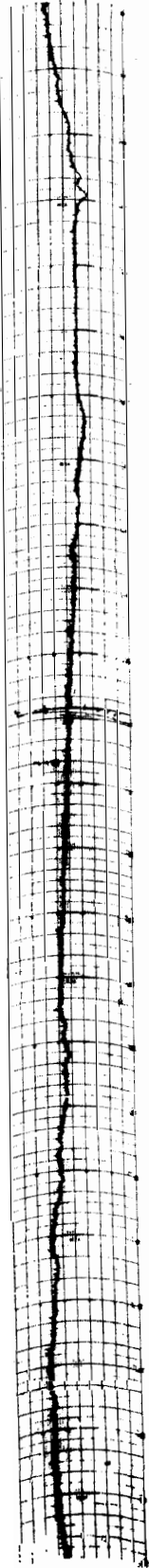
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

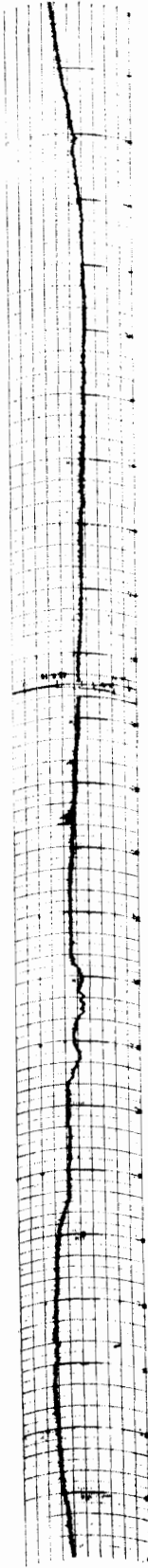
30 MHz COSMIC NOISE

AUG 1967

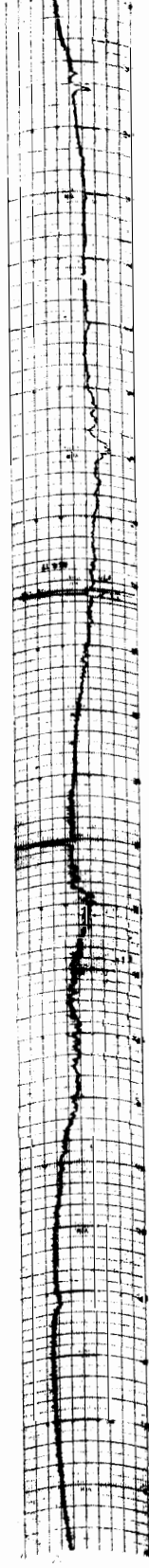
15



16



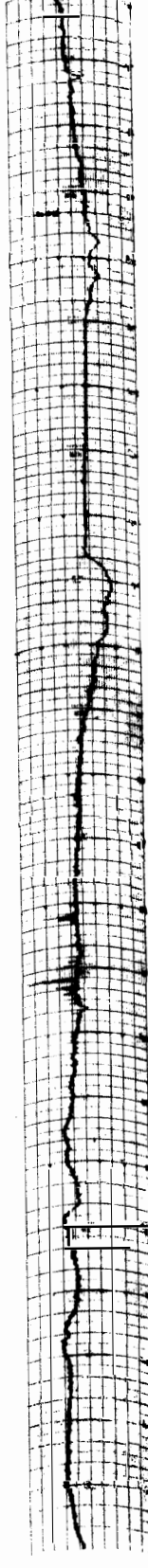
17



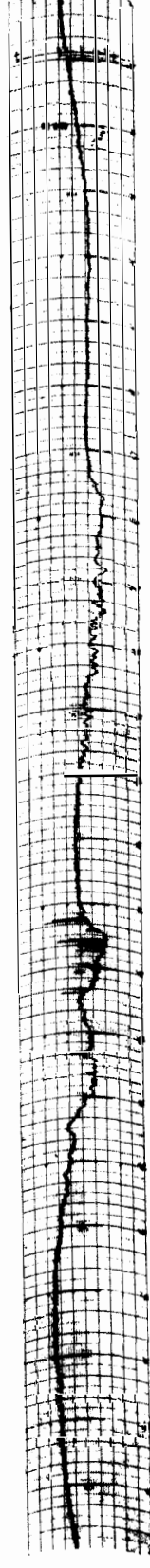
18



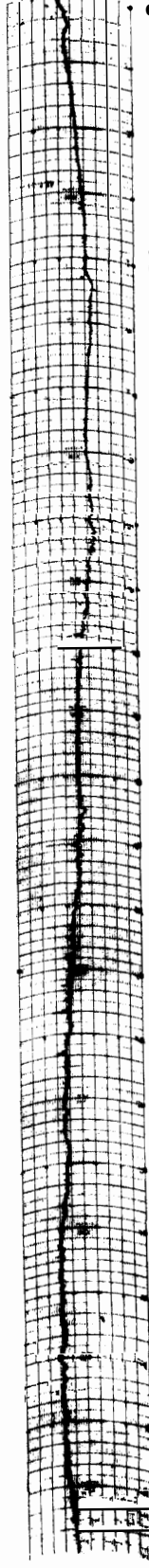
19



20



21

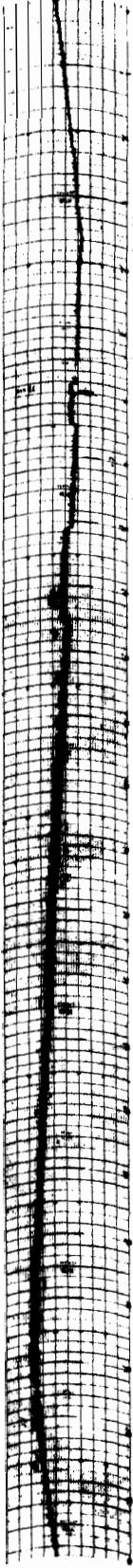


24 20 16 12 08 04 00

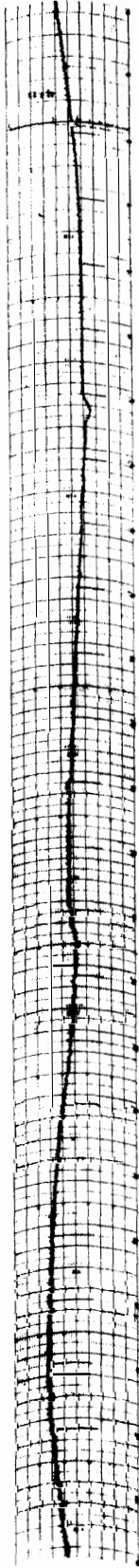
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

AUG 1967

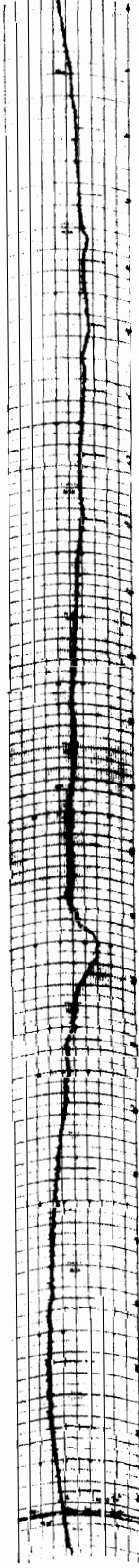
22



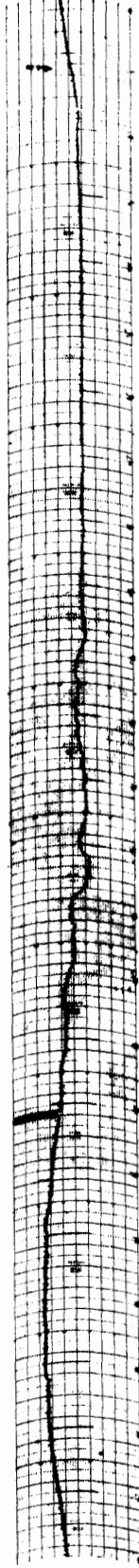
23



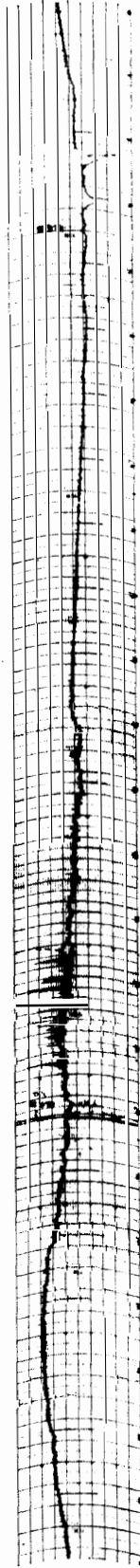
24



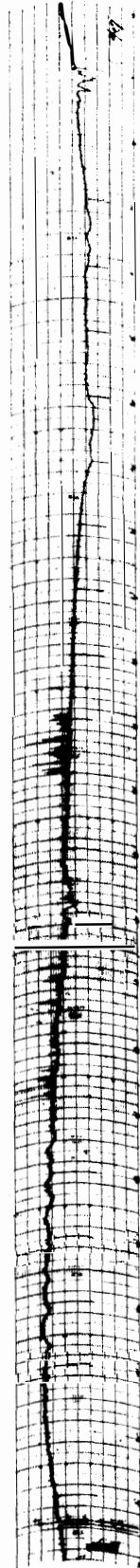
25



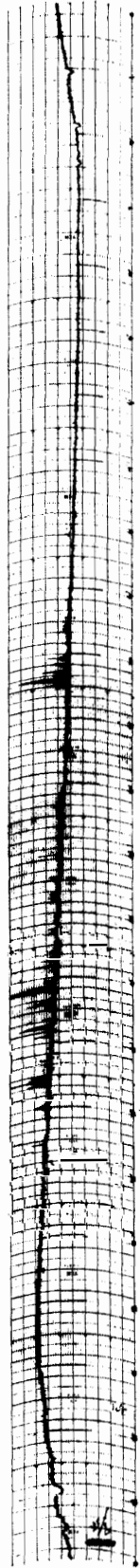
26



27

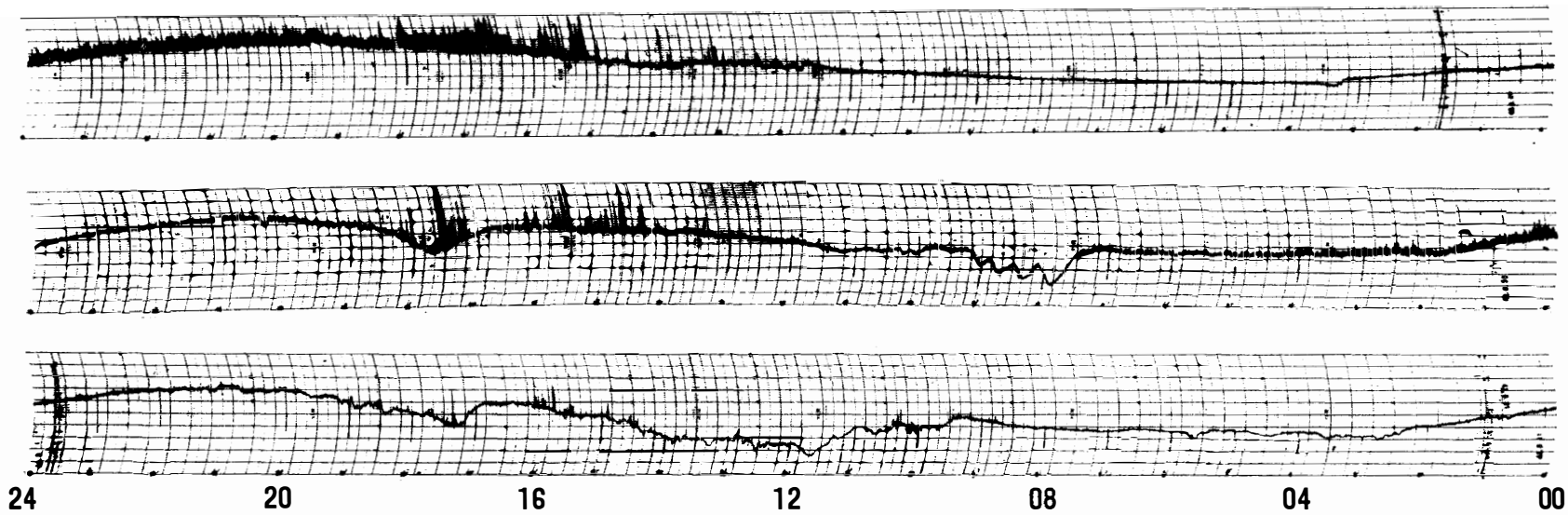


28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



29  
 30  
 31  
 AUG 1967

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

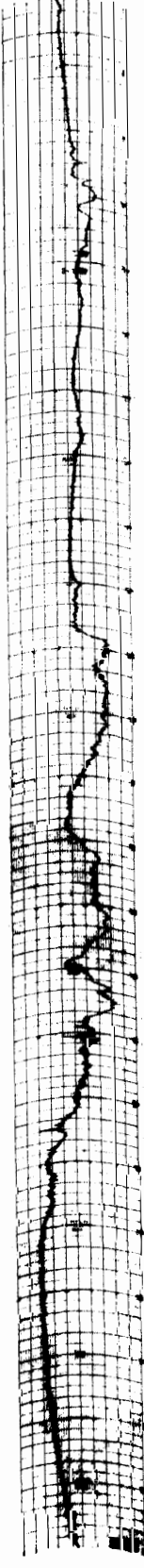
- A. Diurnal variation (quiet days)
  - Maximum 04<sup>h</sup>00~06<sup>h</sup>00
  - Minimum 20<sup>h</sup>00~21<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction
  - 1: 02.20-03.00 equipment failure
  - 1: 06.35-07.00 equipment tests
  - 11: 14.30-15.45 equipment failure
  - 11: 16.45-17.05 equipment tests
  - 22: 05.30-05.45 equipment tests
- C. Disturbed days : 10th, 14th, 19th, 20th, 30th, 31st.

SEPT 1967

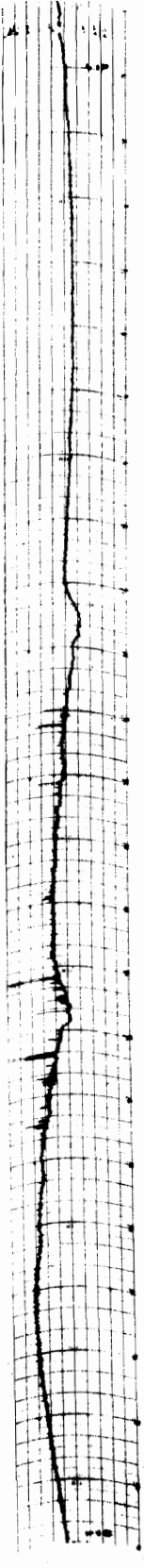
1



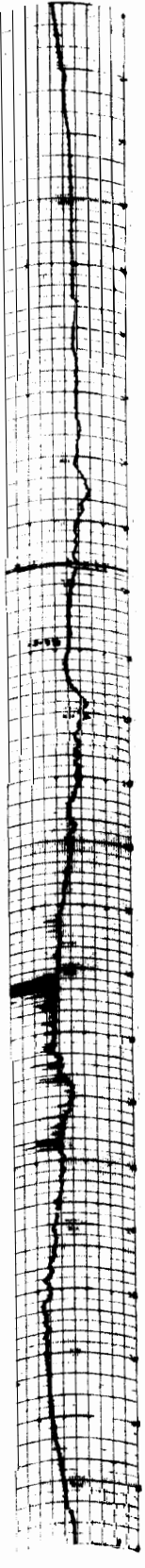
2



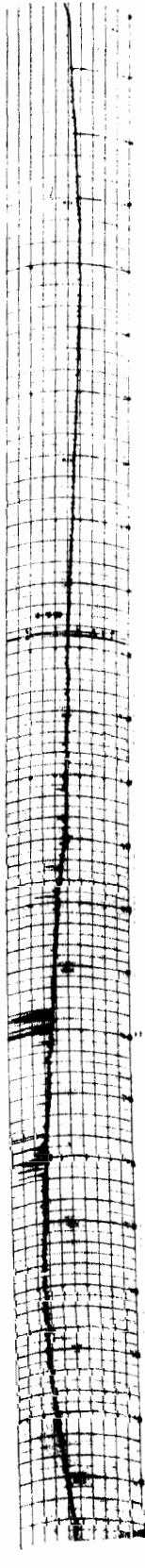
3



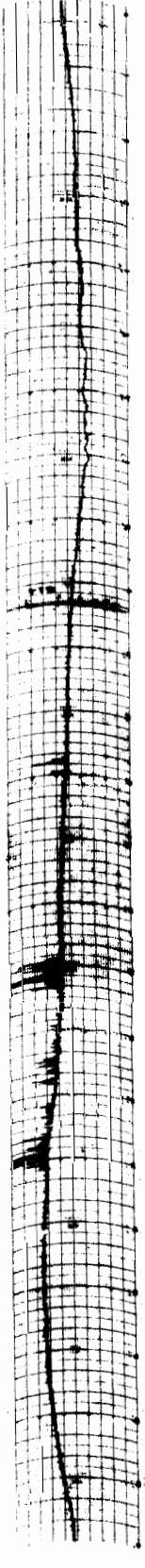
4



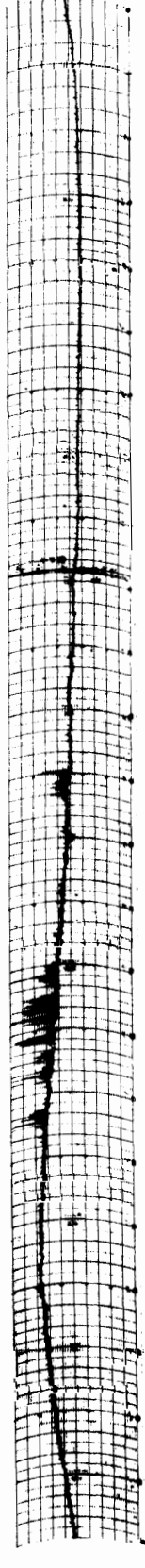
5



6



7

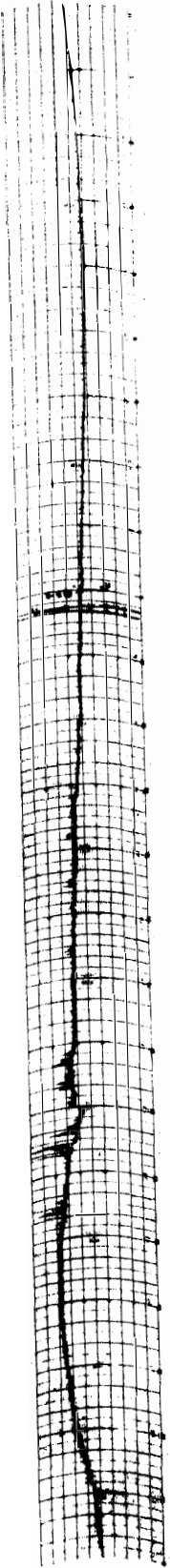


24 20 16 12 08 04 00

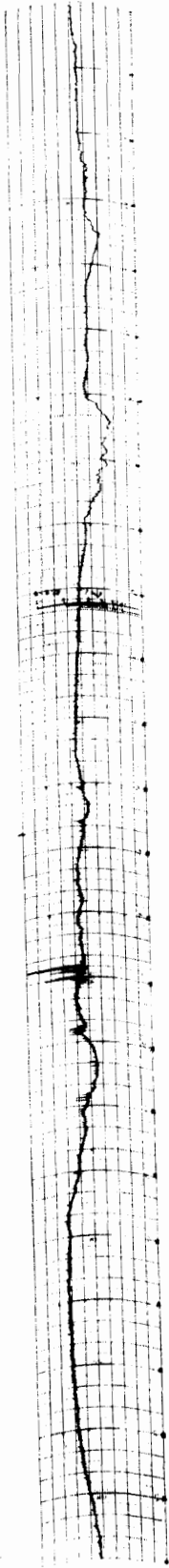
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEPT 1967

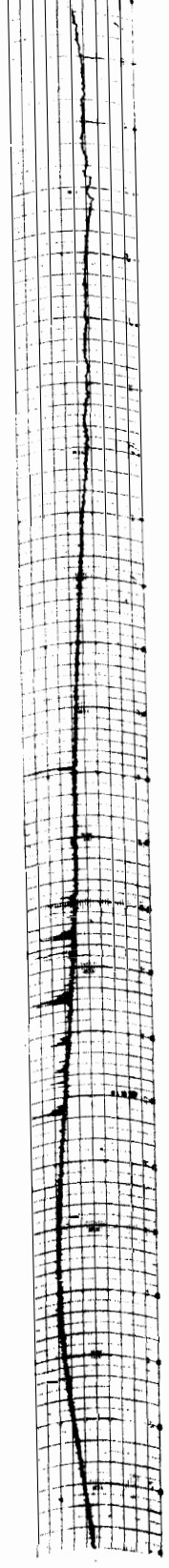
8



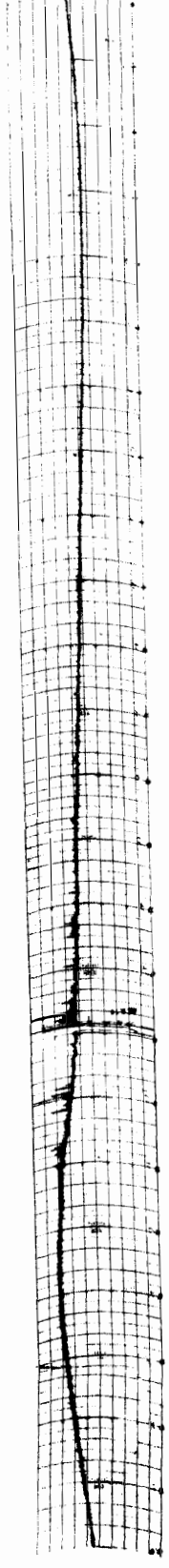
9



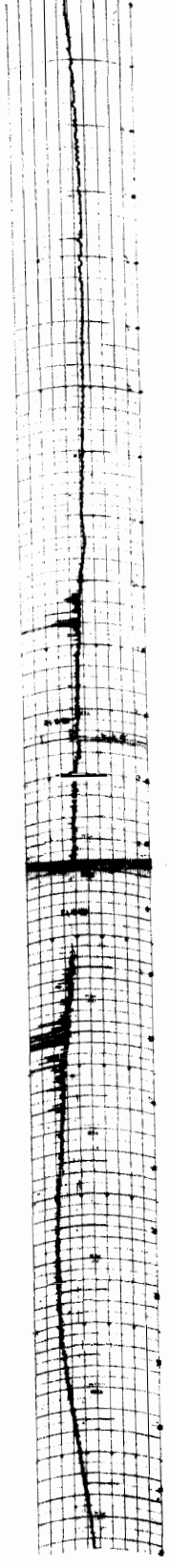
10



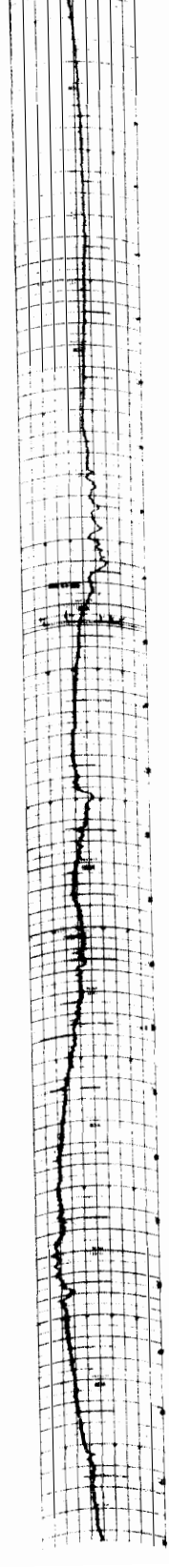
11



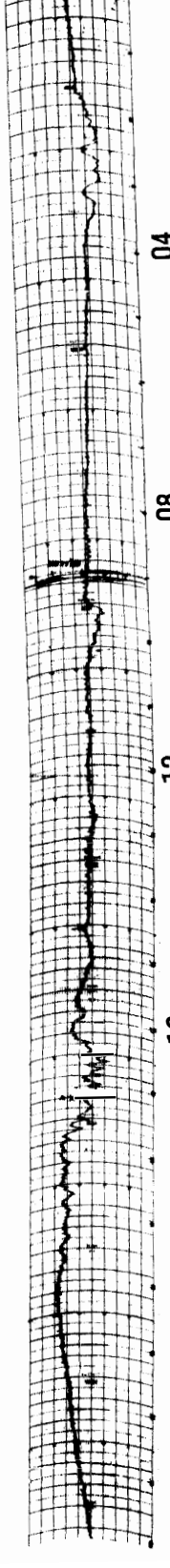
12



13



14

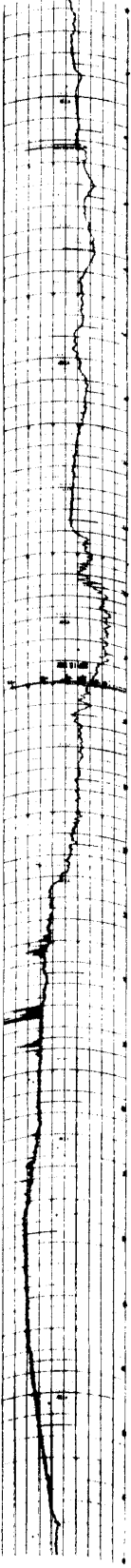


24 20 16 12 08 04 00

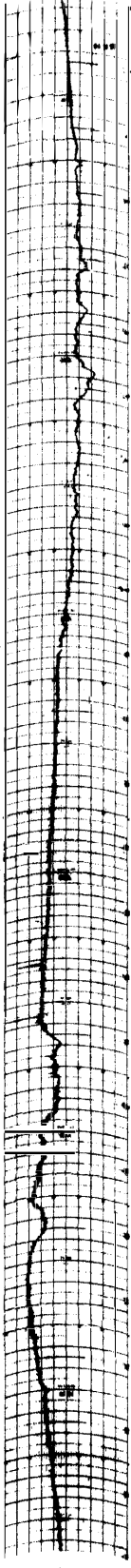
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEPT 1967

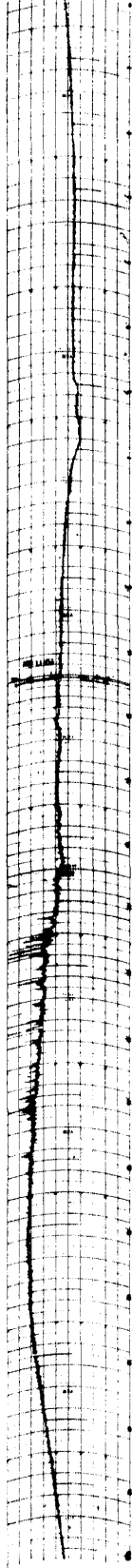
15



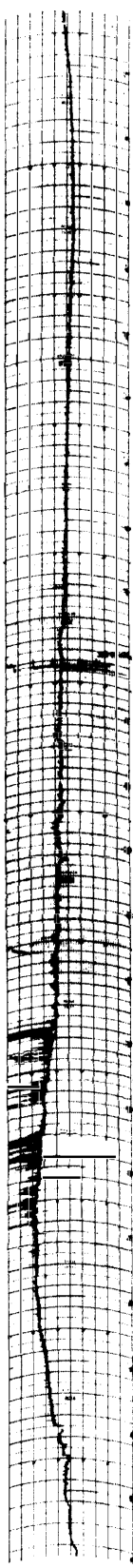
16



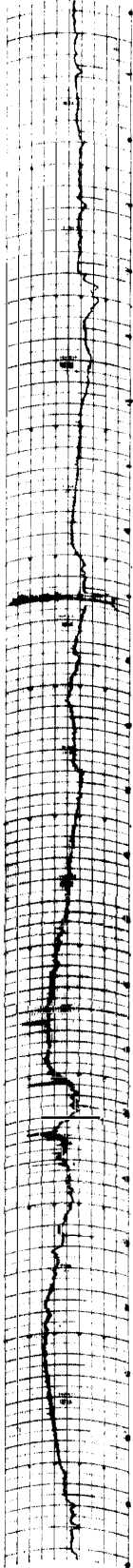
17



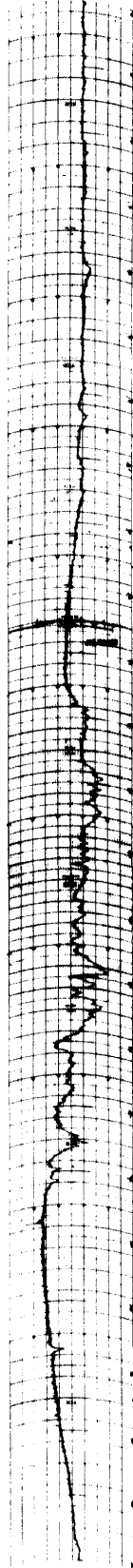
18



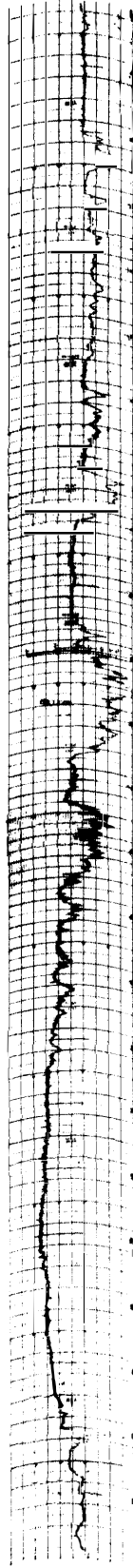
19



20



21

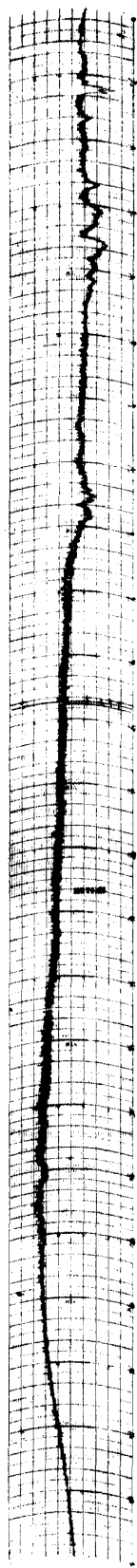


24 20 16 12 08 04 00

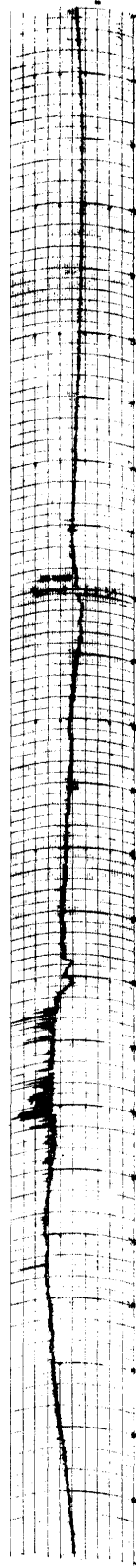
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

SEPT 1967

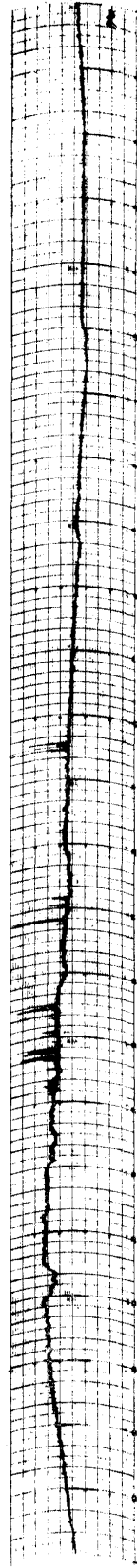
22



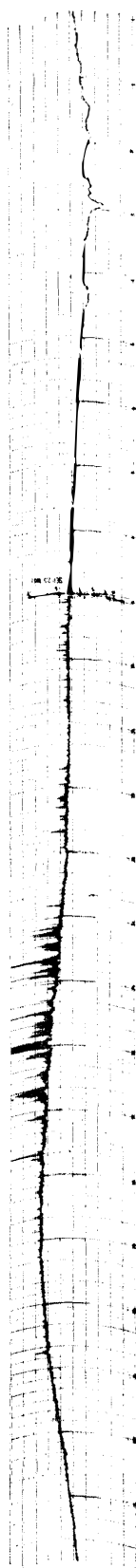
23



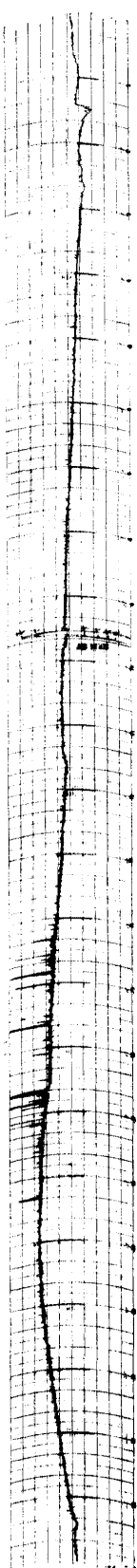
24



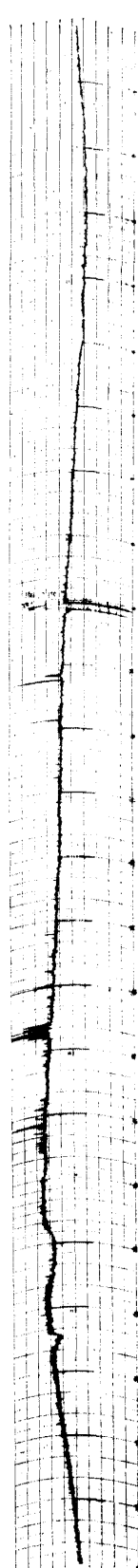
25



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24 20 16 12 08 04 00

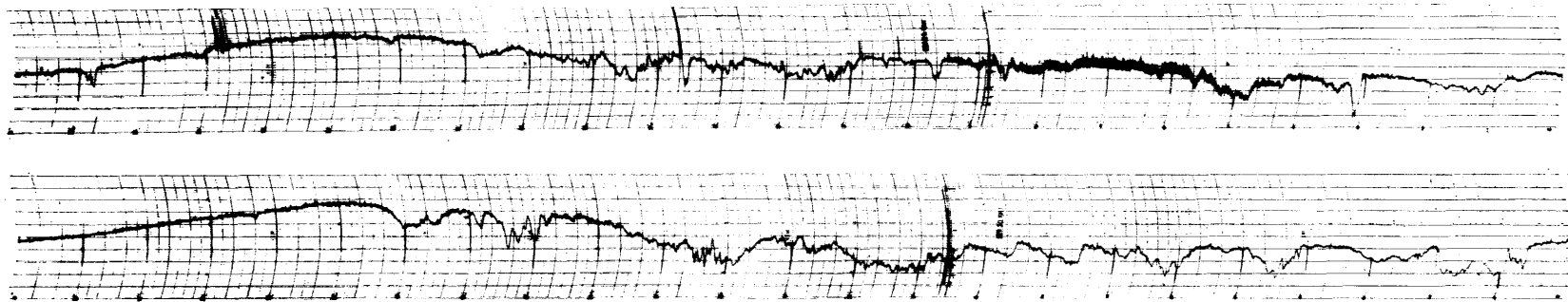
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE



SEPT 1967

29

30



45° EAST MERIDIAN TIME IN HOURS                      30 MHz COSMIC NOISE

- A. Diurnal variation (quiet days)  
Maximum 03<sup>h</sup>00~04<sup>h</sup>00  
Minimum 18<sup>h</sup>00~19<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction  
12: 13.30-14.50 equipment failure
- C. Disturbed days: 1st, 9th, 14th, 15th, 16th, 19th, 20th, 21th, 28th, 29th, 30th.

OCT 1967

1

2

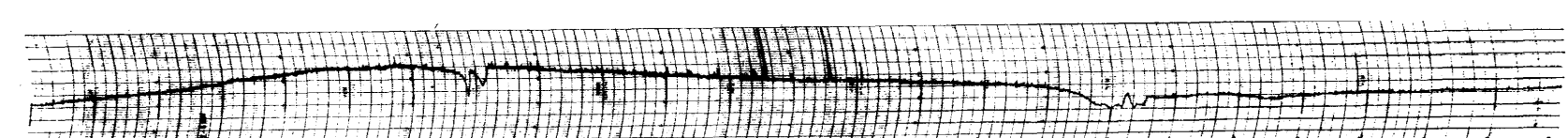
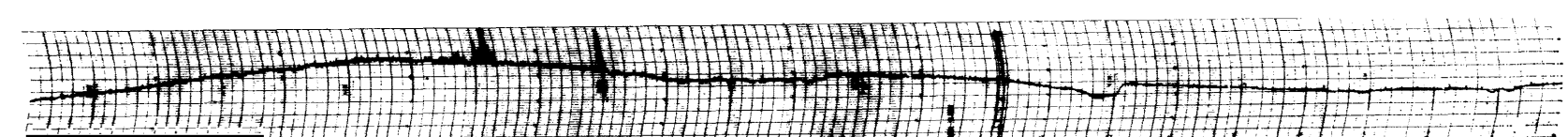
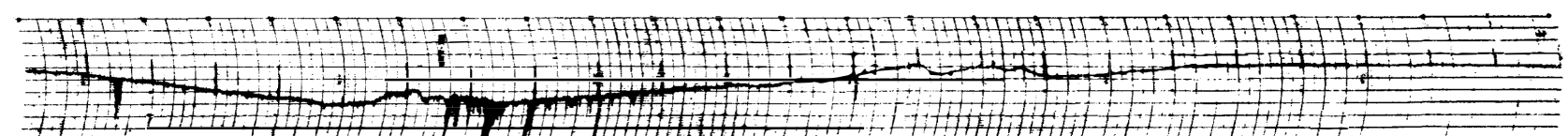
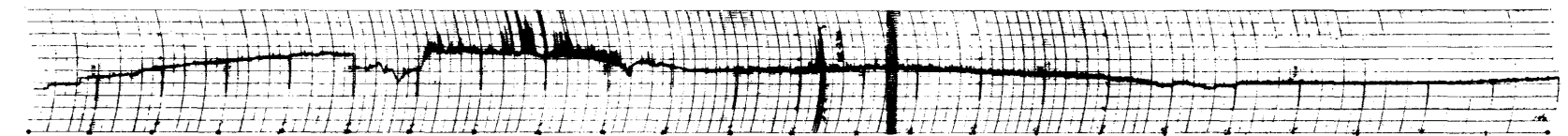
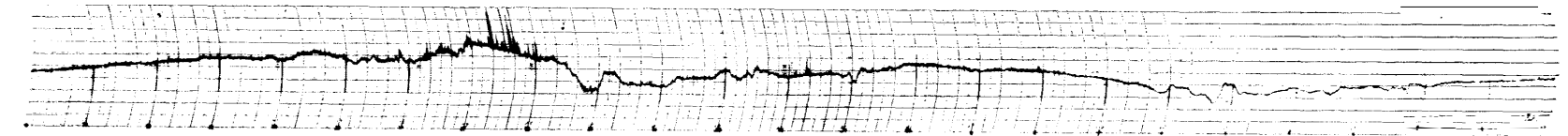
3

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7



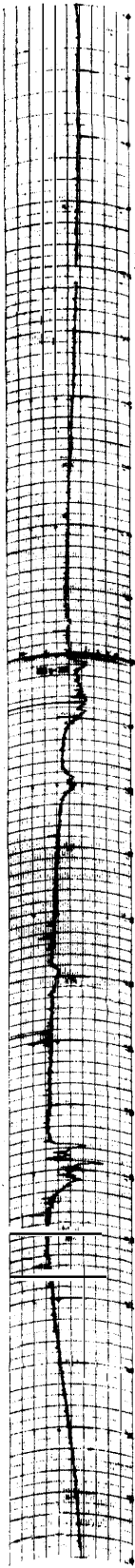
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

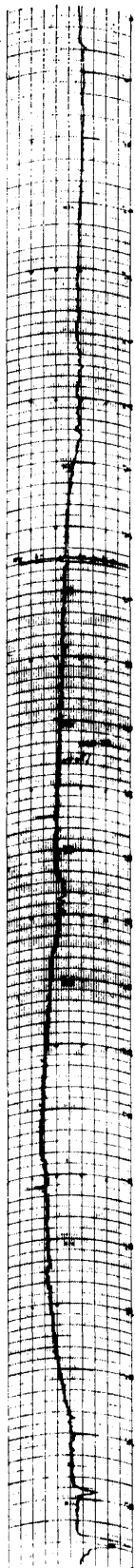
30 MHz COSMIC NOISE

OCT 1967

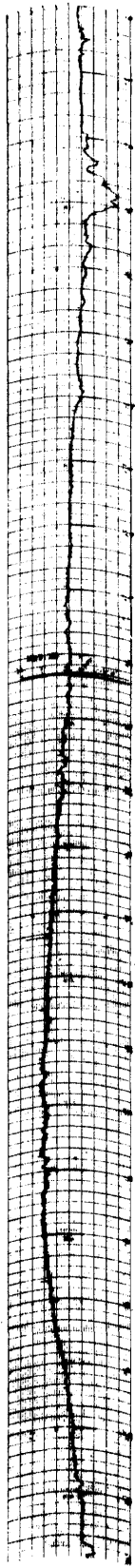
8



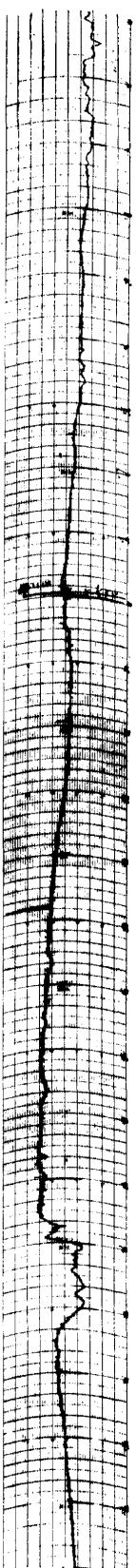
9



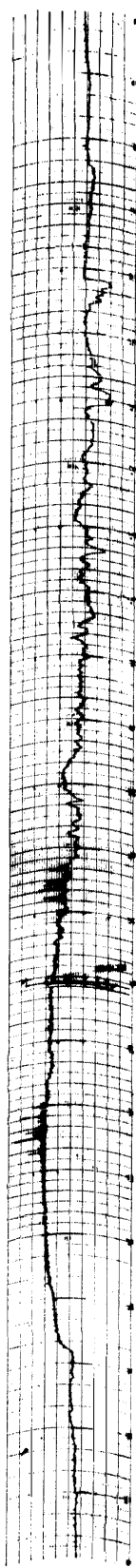
10



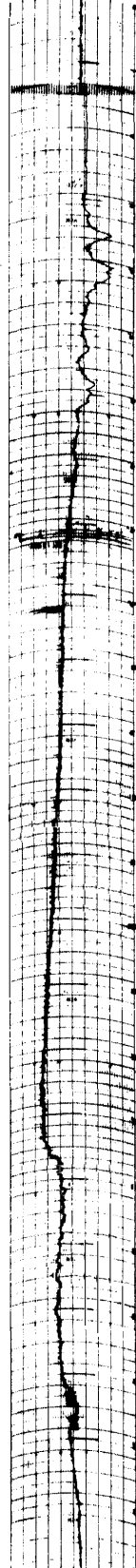
11



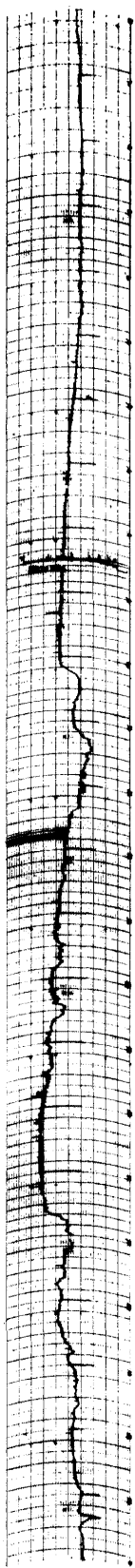
12



13



14

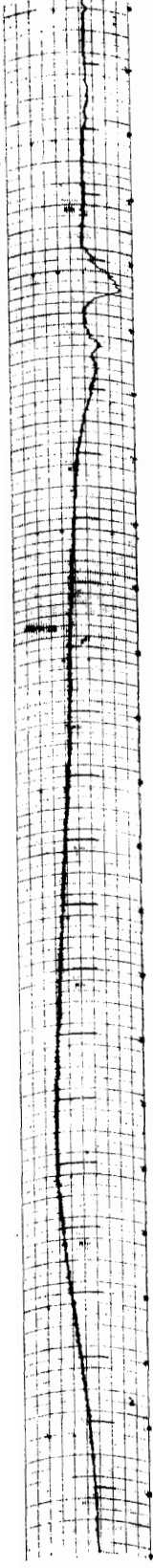


24 20 16 12 08 04 00

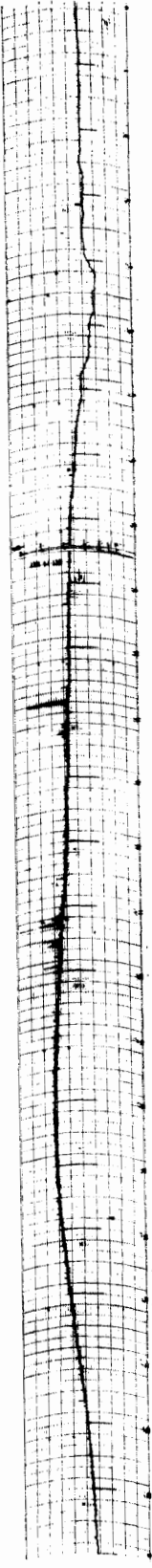
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1967

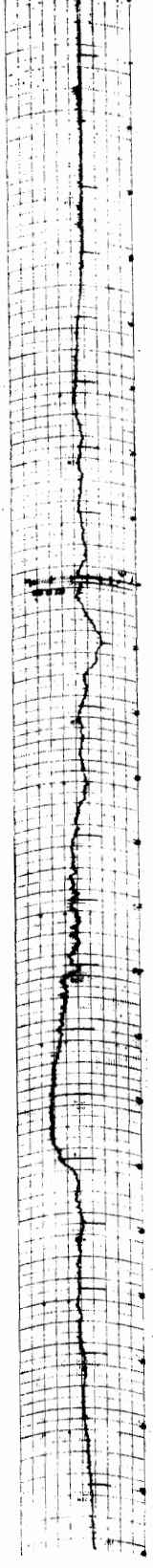
15



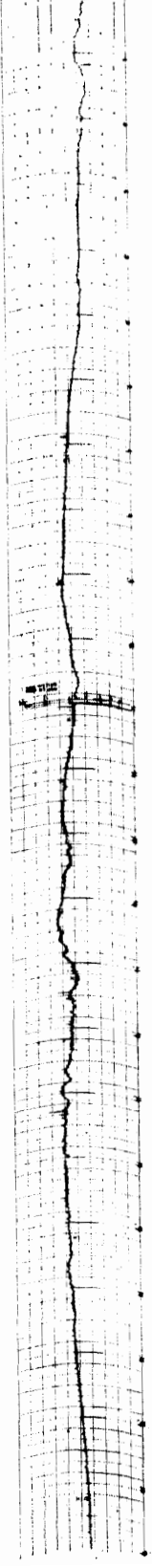
16



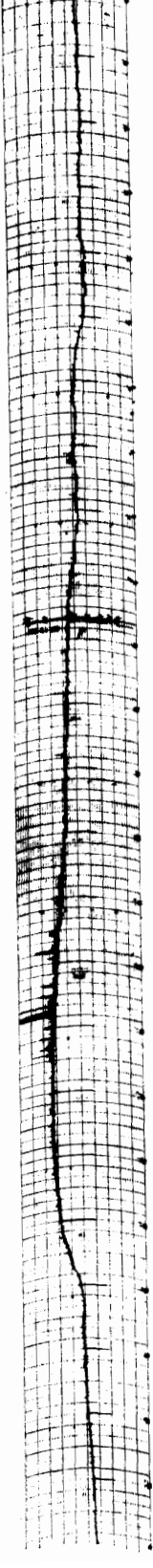
17



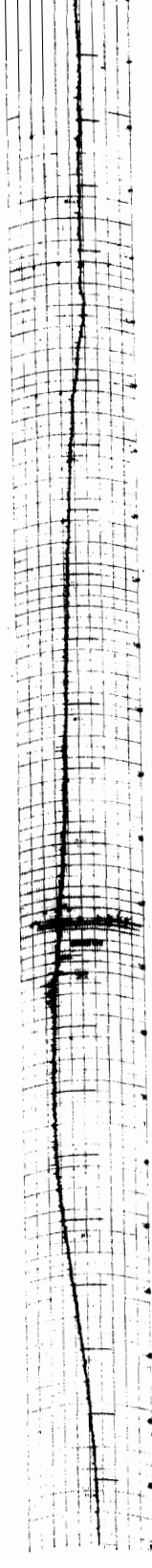
18



19



20



21

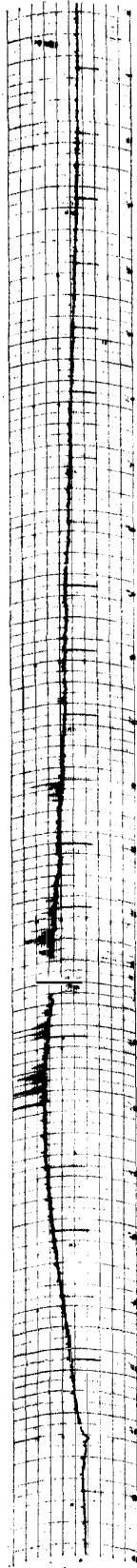


24 20 16 12 08 04 00

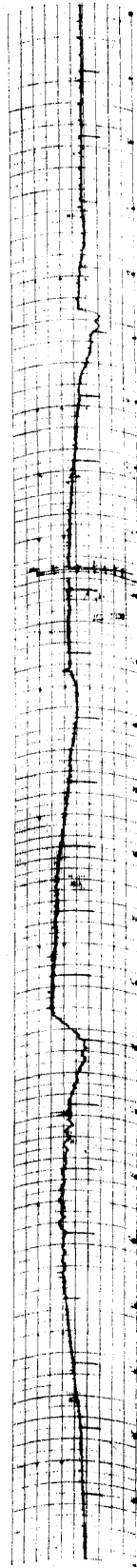
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

OCT 1967

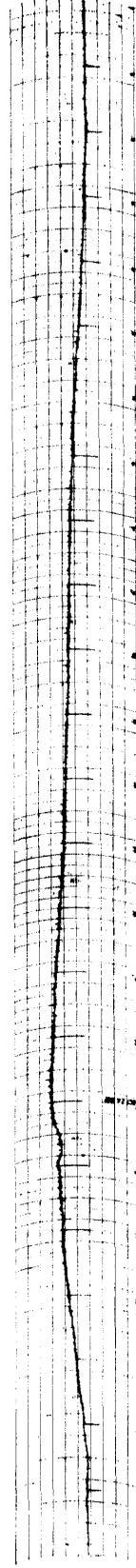
22



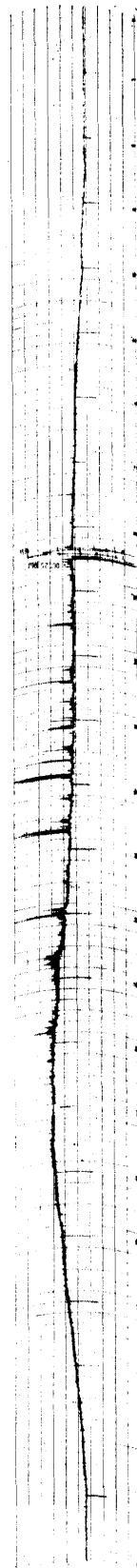
23



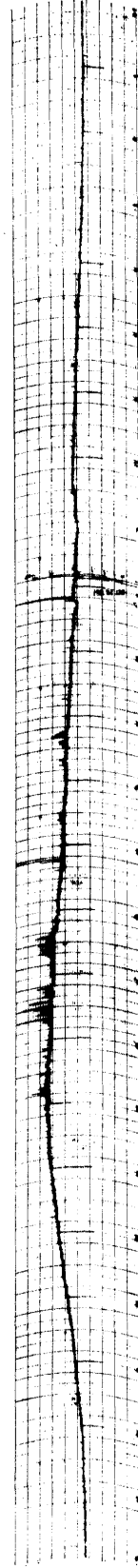
24



25



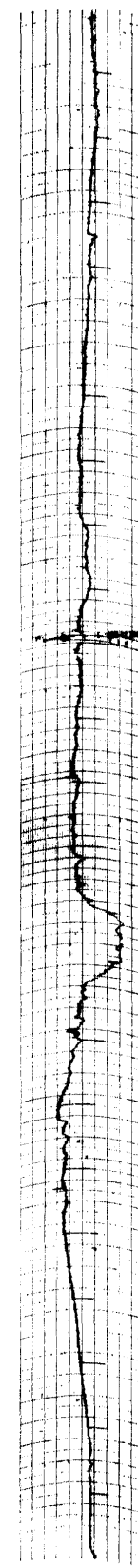
26



27



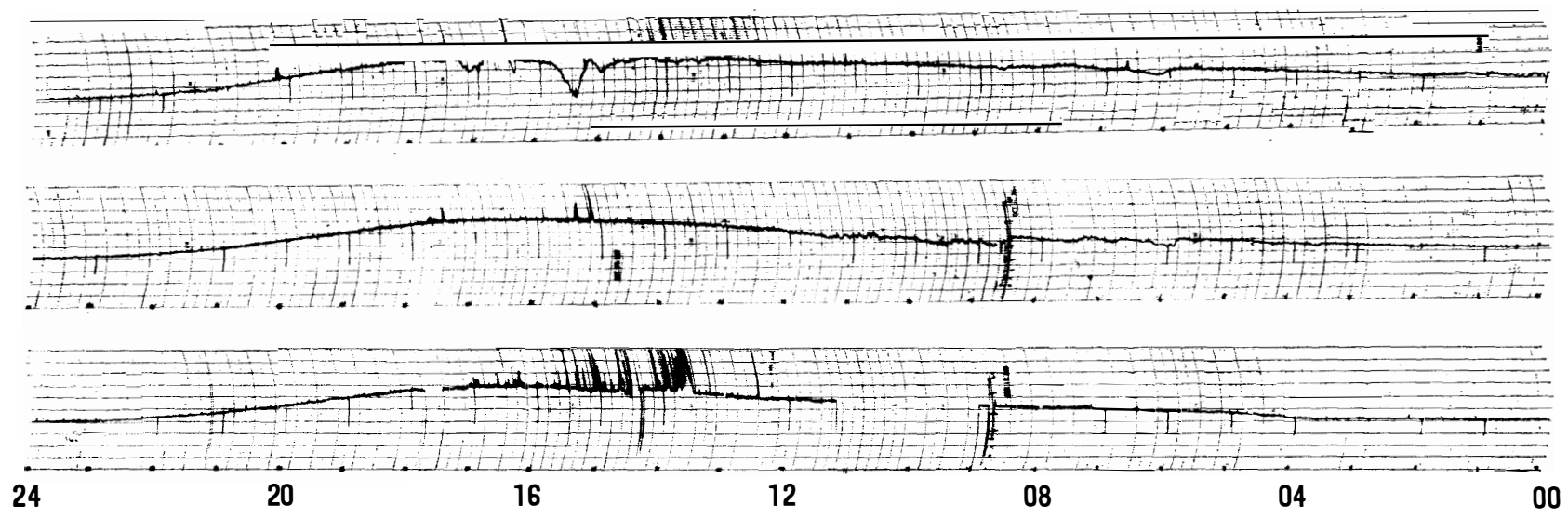
28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

29  
30  
31  
OCT 1967



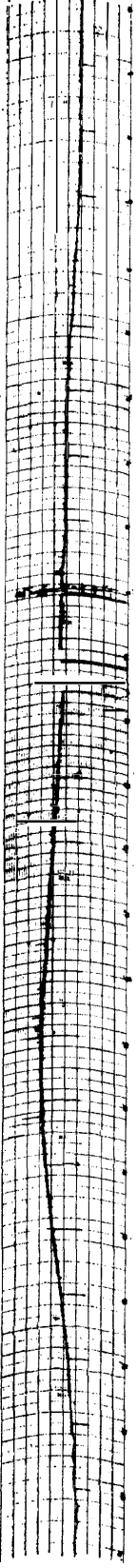
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

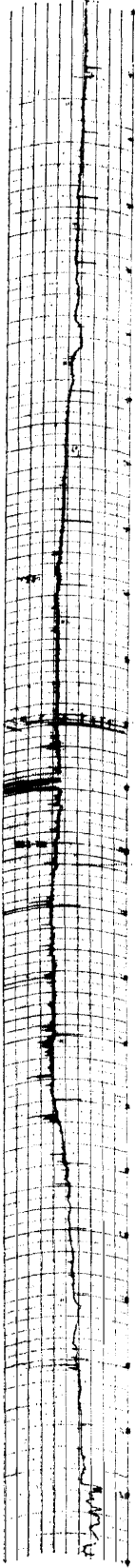
- A. Diurnal variation (quiet days)  
Maximum 16<sup>h</sup>00~17<sup>h</sup>00  
Minimum 01<sup>h</sup>00~02<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction
  - 13: 01.30-03.00 equipment failure
  - 21: 11.00-11.25 power failure
  - 22: 15.00-15.30 equipment tests
  - 31: 09.00-11.15 power failure
  - 31: 17.30-17.45 power failure
- C. Disturbed days: 1st, 7th, 12th, 14th, 28th, 29th.

NOV 1967

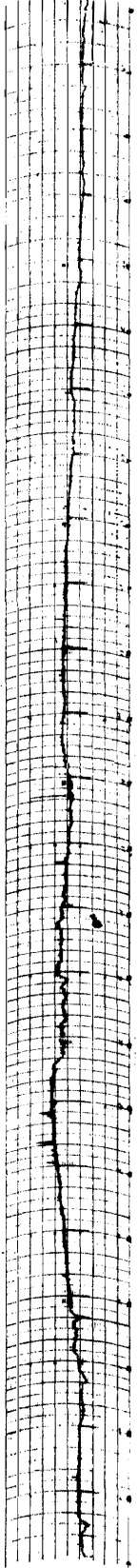
1



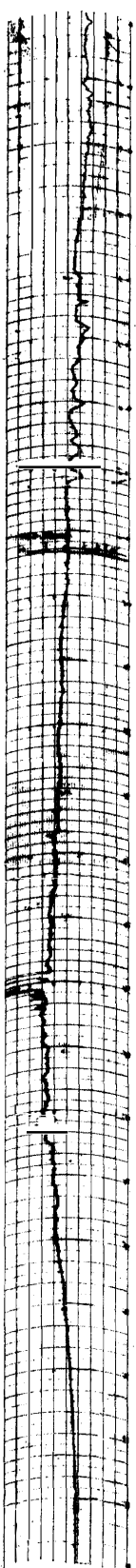
2



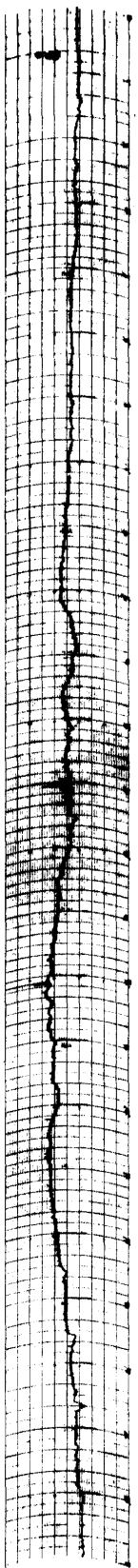
3



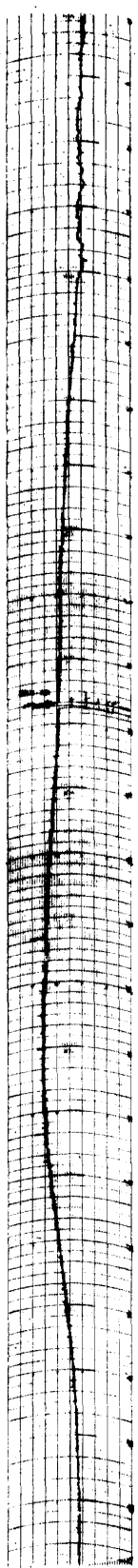
4



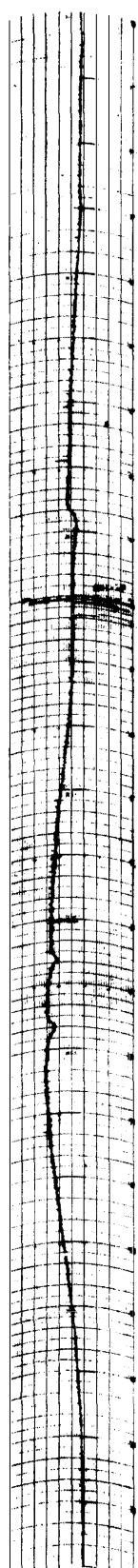
5



6



7

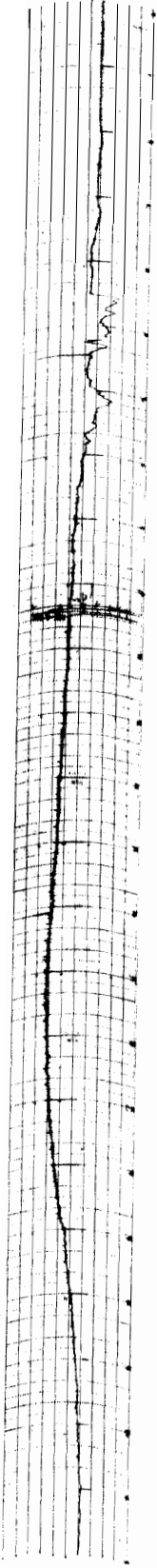


24 20 16 12 08 04 00

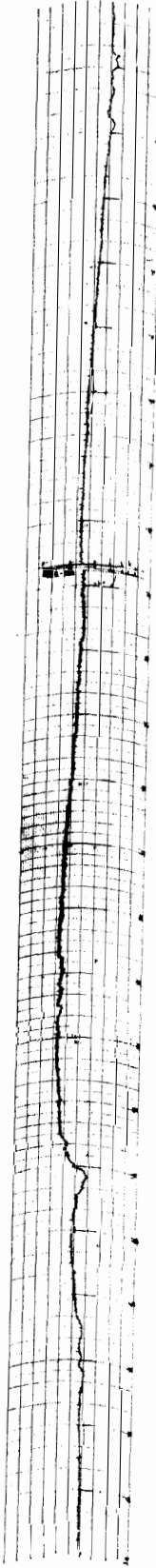
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1967

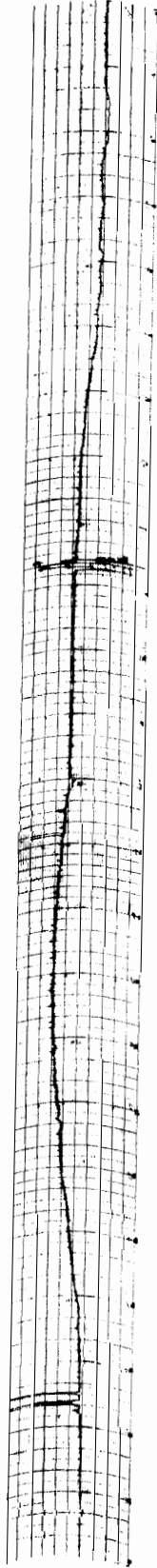
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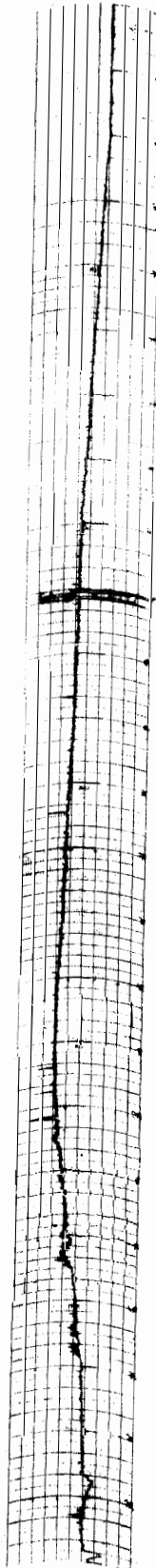
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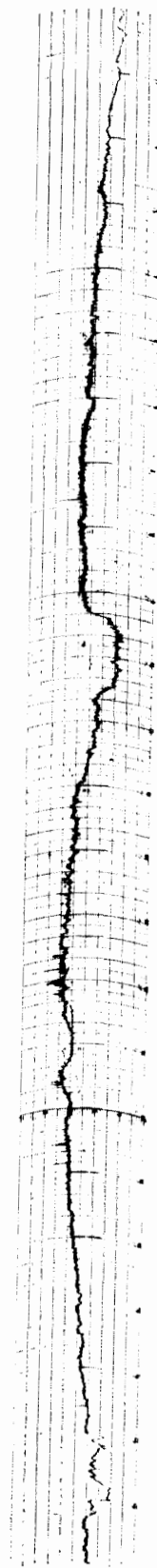
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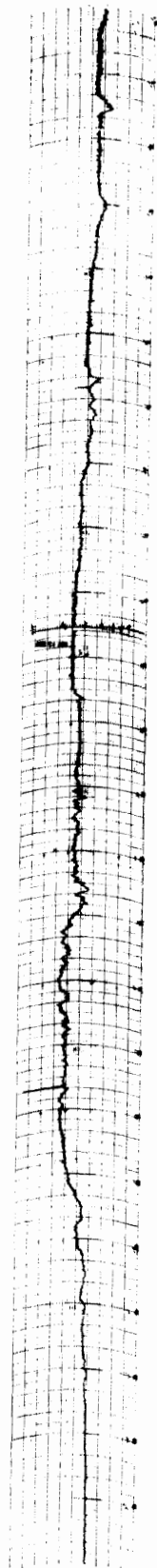
11



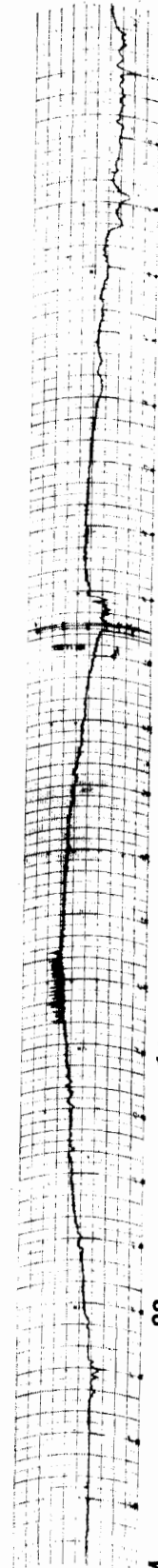
12



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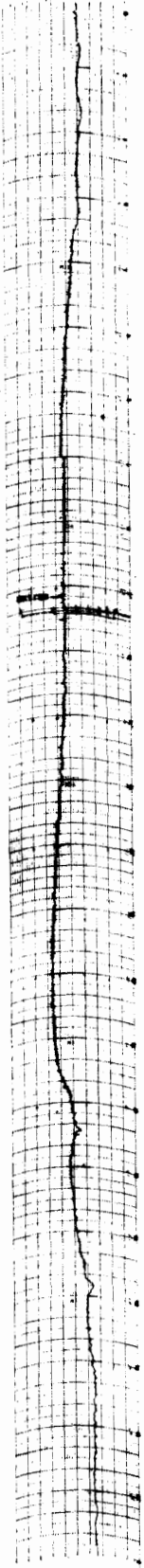
24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

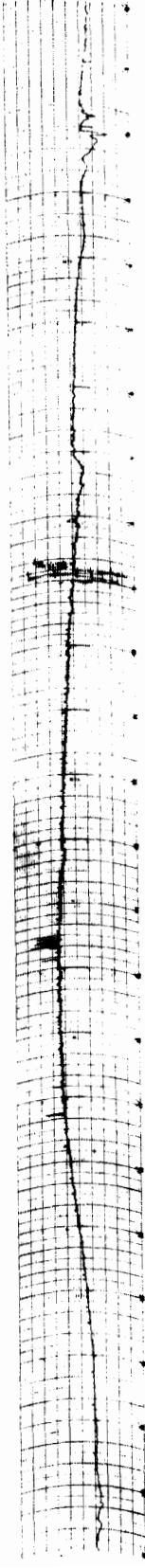


NOV 1967

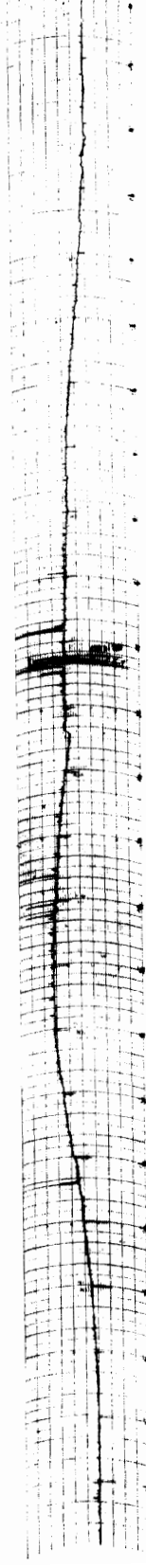
15



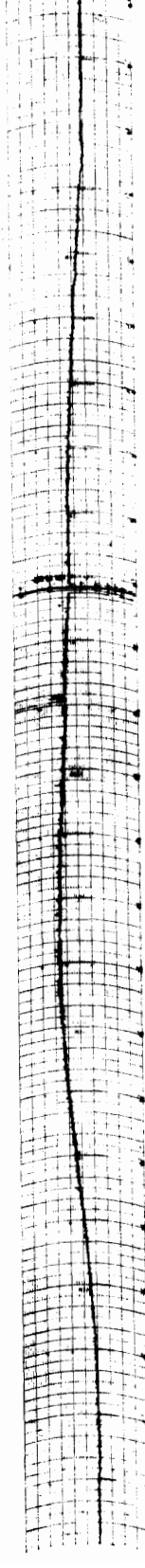
16



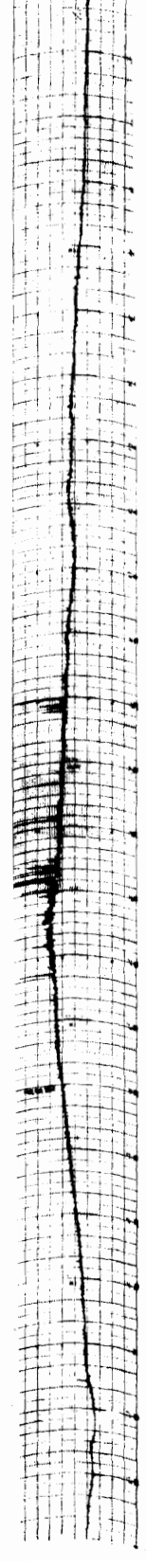
17



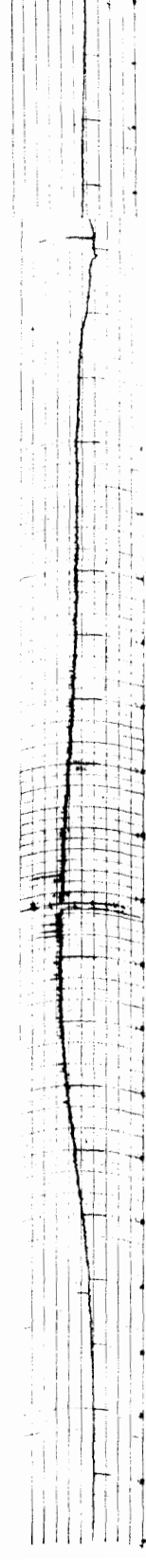
18



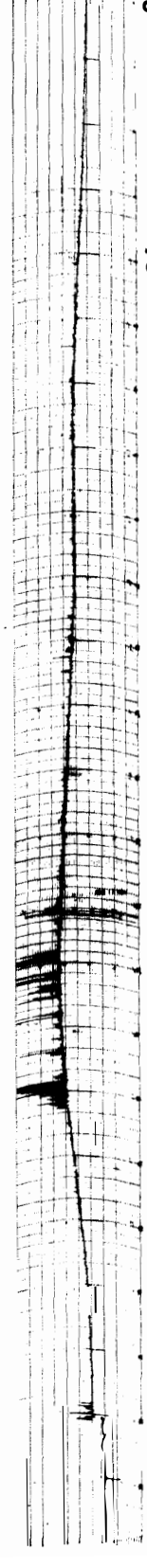
19



20



21

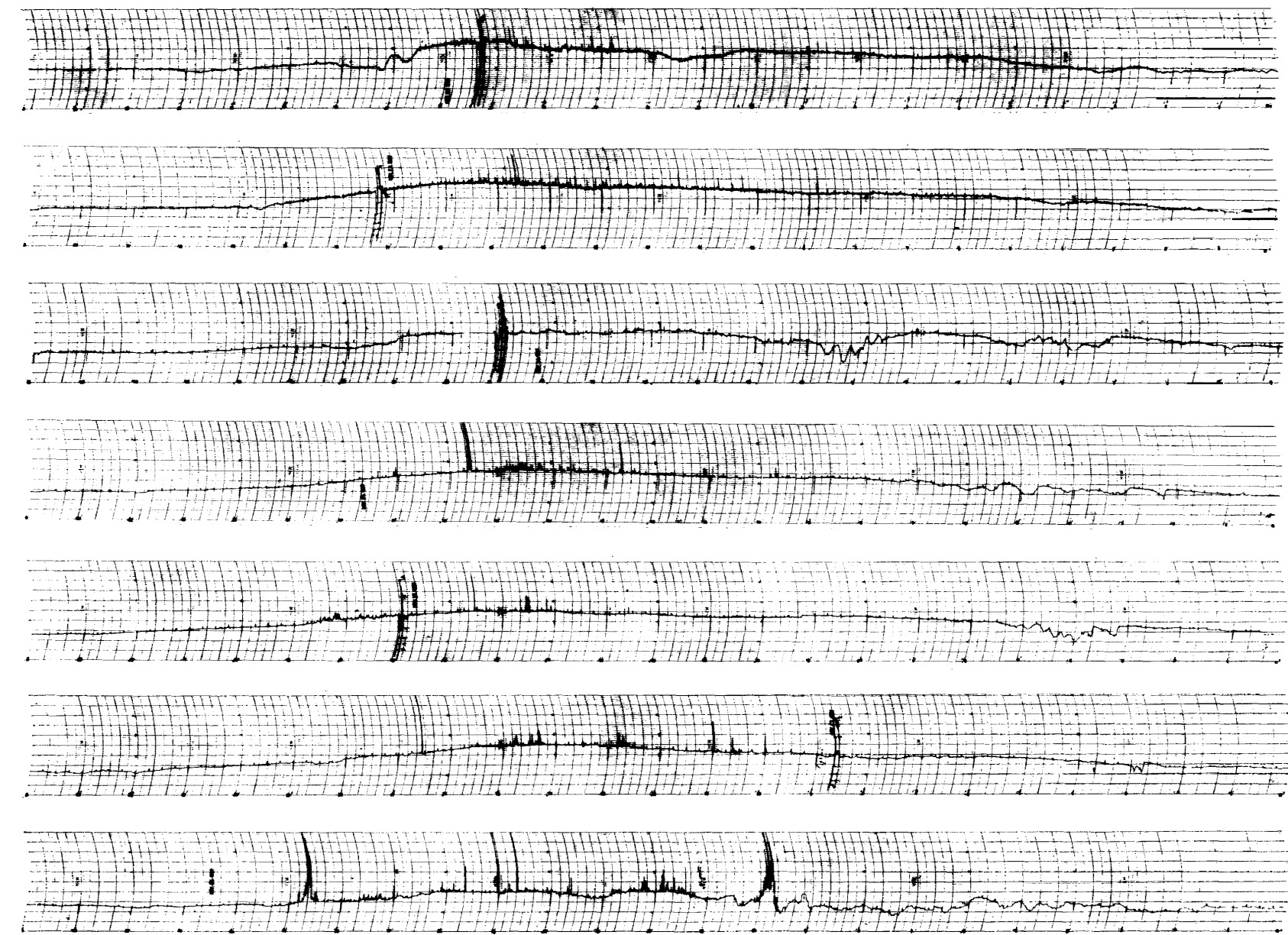


24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

NOV 1967

22  
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28

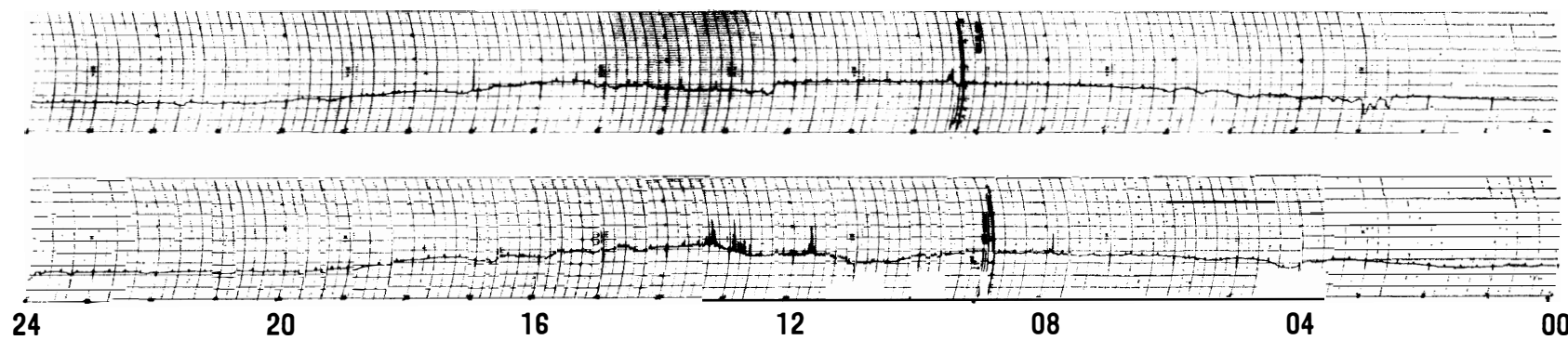


24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

29  
30  
NOV 1967



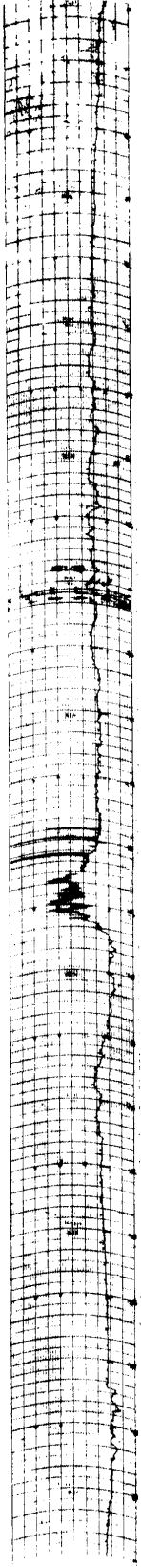
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

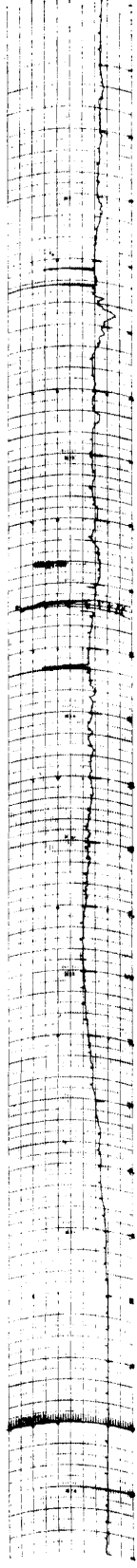
- A. Diurnal variation (quiet days)  
Maximum 14<sup>h</sup>00~15<sup>h</sup>00  
Minimum 00<sup>h</sup>00~01<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction  
1: 10.00-10.40 power failure
- C. Disturbed days: 4th, 5th, 12th, 13th, 22th, 24th, 28th, 29th, 30th.

DEC 1967

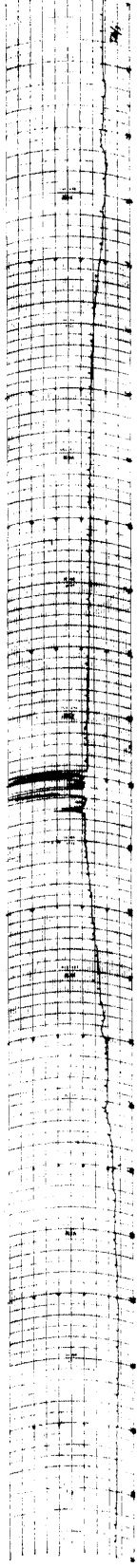
1



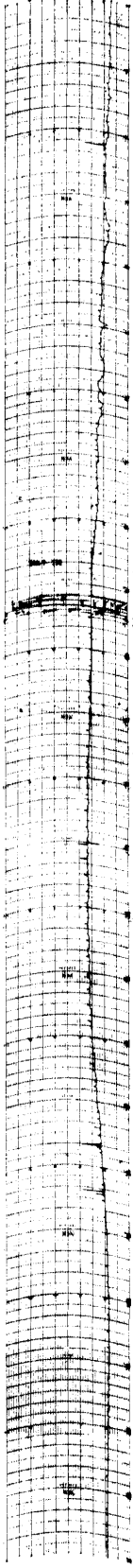
2



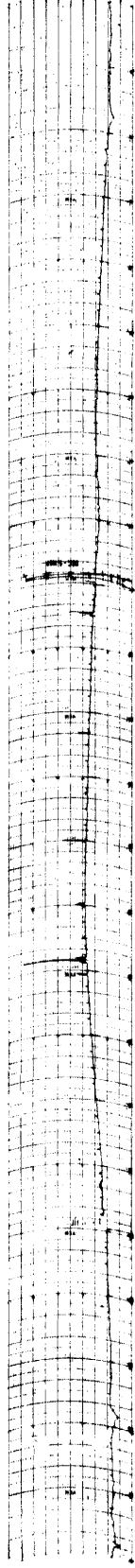
3



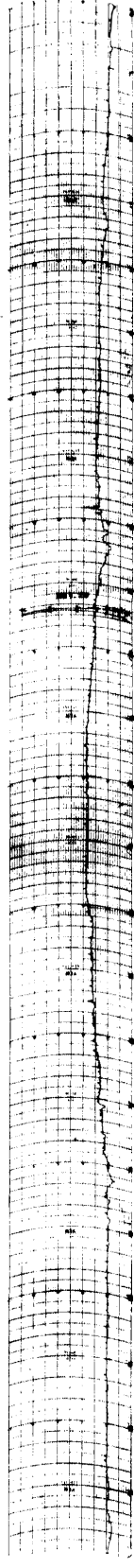
4



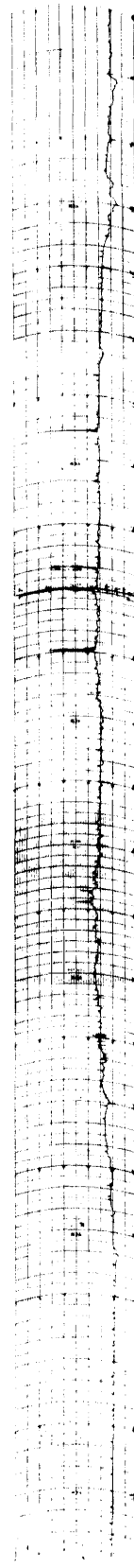
5



6



7

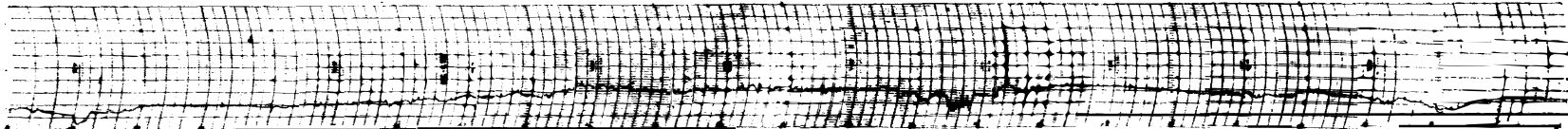


24 . . . . . 20 . . . . . 16 . . . . . 12 . . . . . 08 . . . . . 04 . . . . . 00

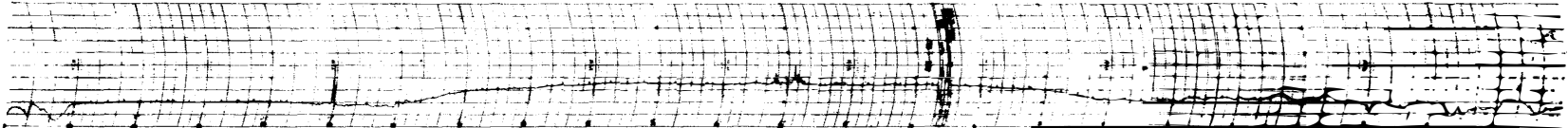
45° EAST MERIDIAN TIME IN HOURS 30 MHZ COSMIC NOISE

DEC 1967

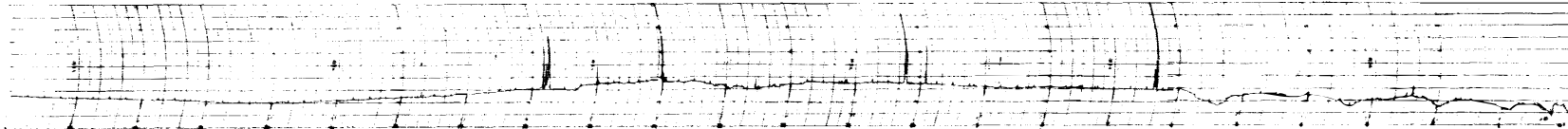
8



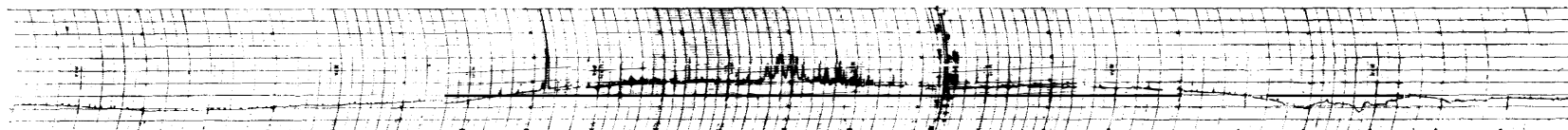
9



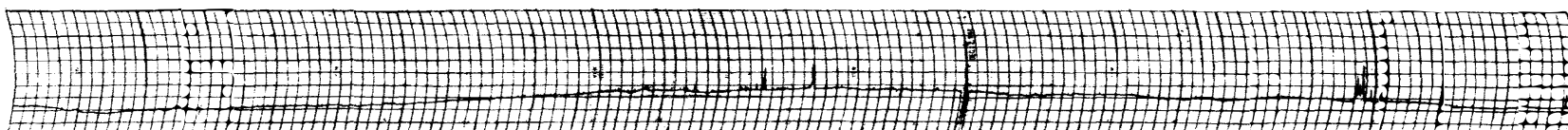
10



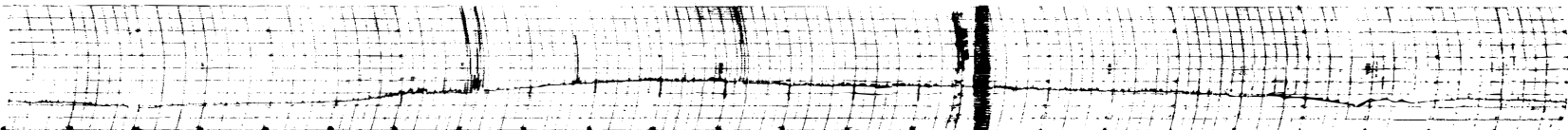
11



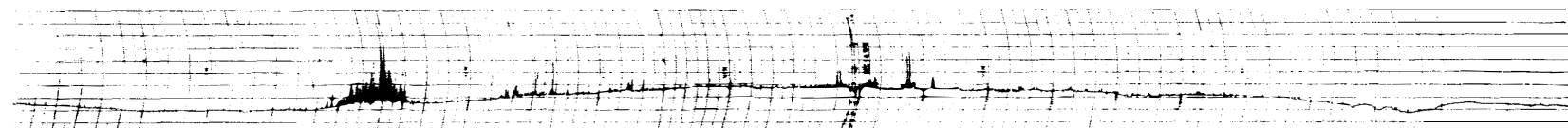
12



13



14



24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

DEC 1967

15

16

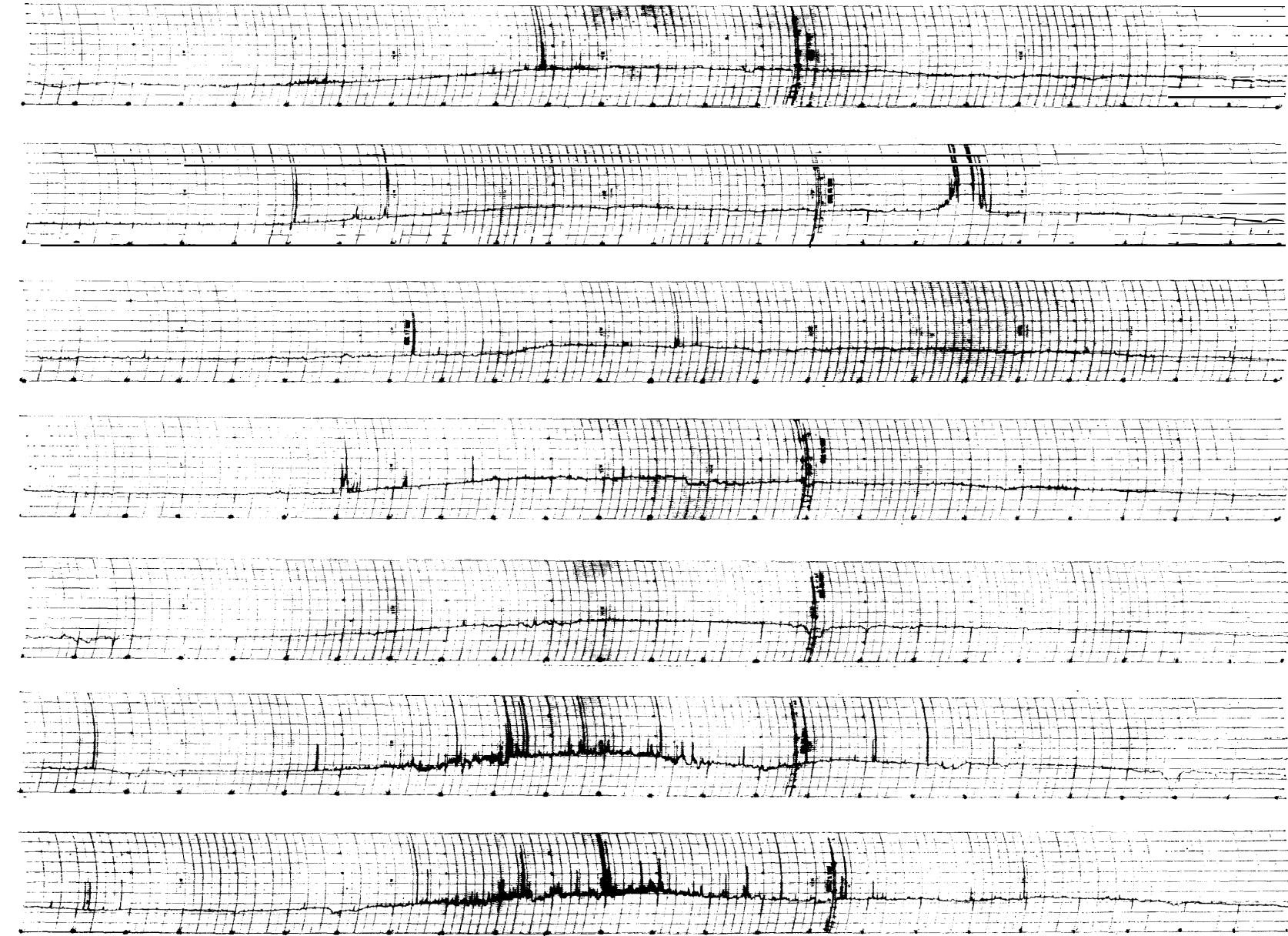
17

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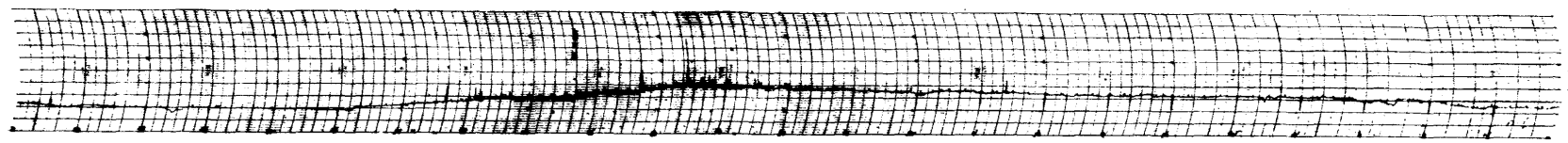
24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

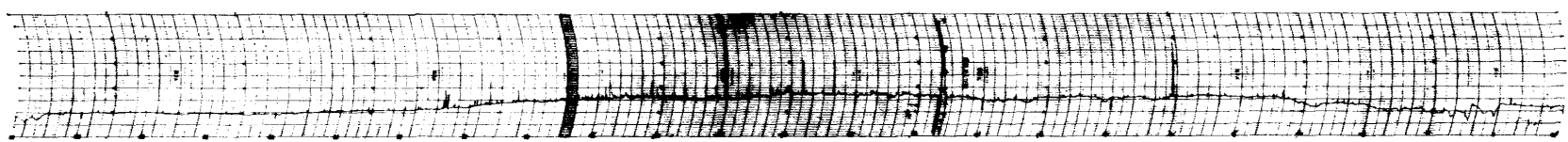
30 MHz COSMIC NOISE

DEC 1967

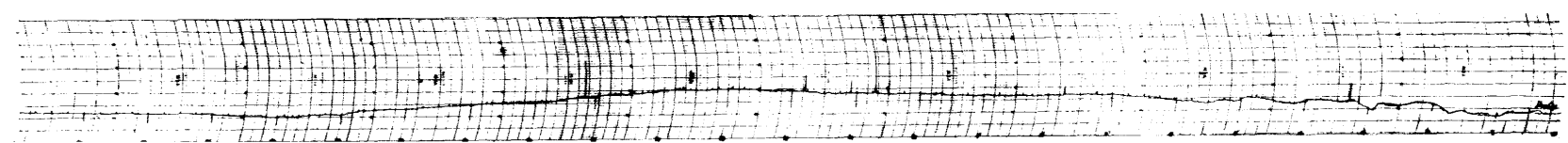
22



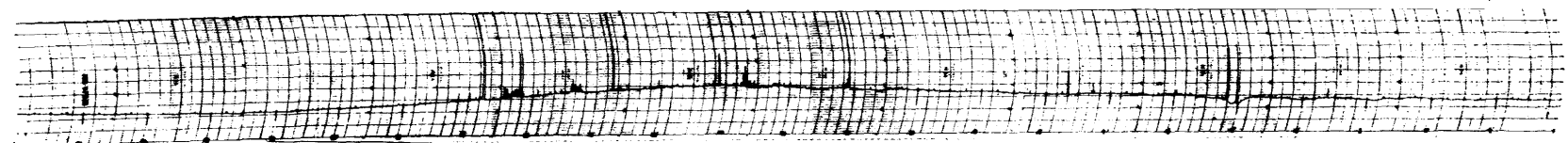
23



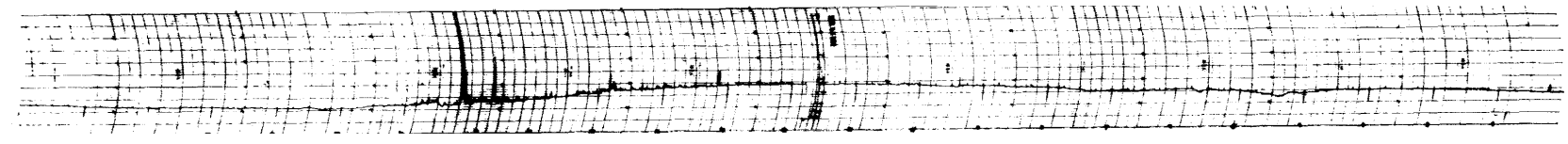
24



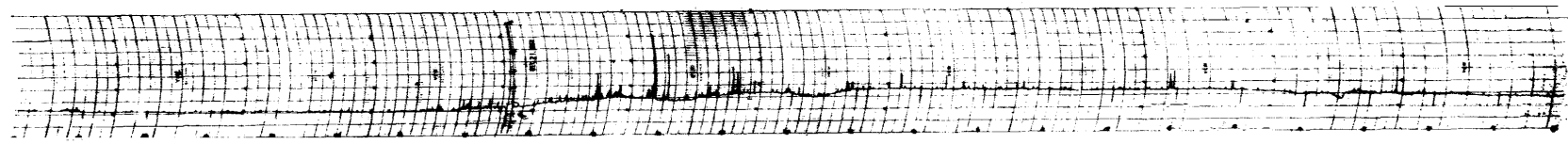
25



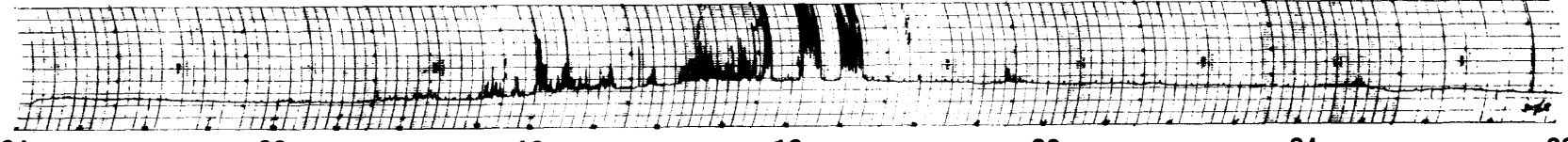
26



27



28



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

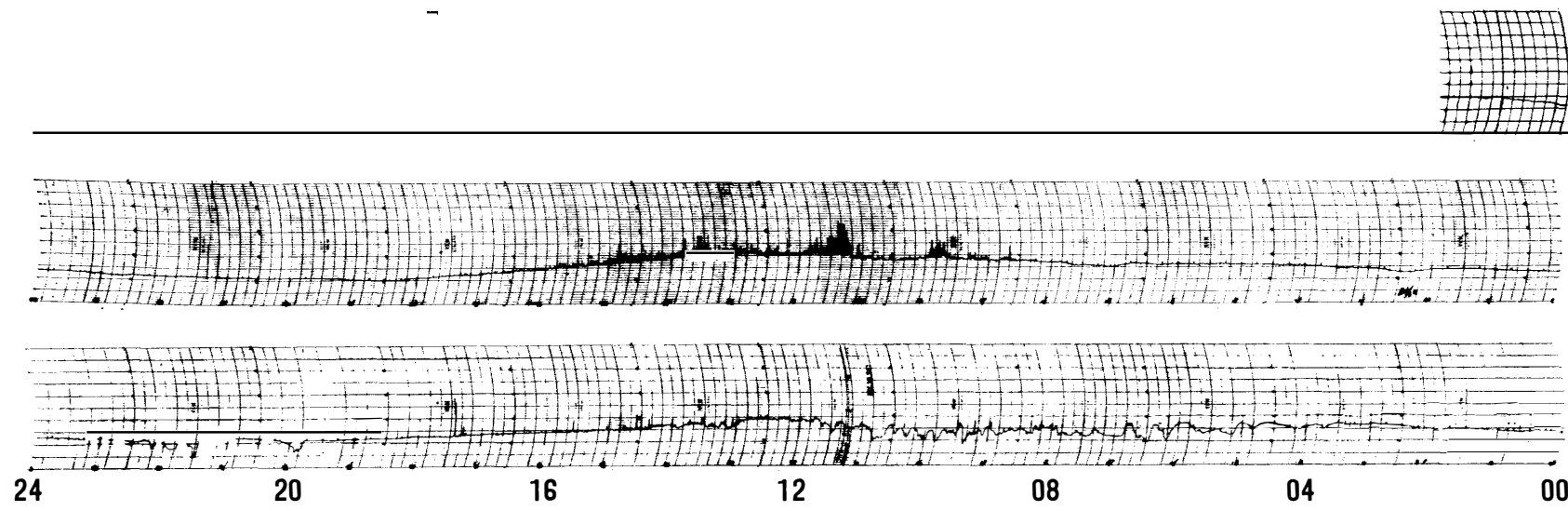
30 MHz COSMIC NOISE

DEC 1967

29

30

31



45° EAST MERIDIAN TIME IN HOURS

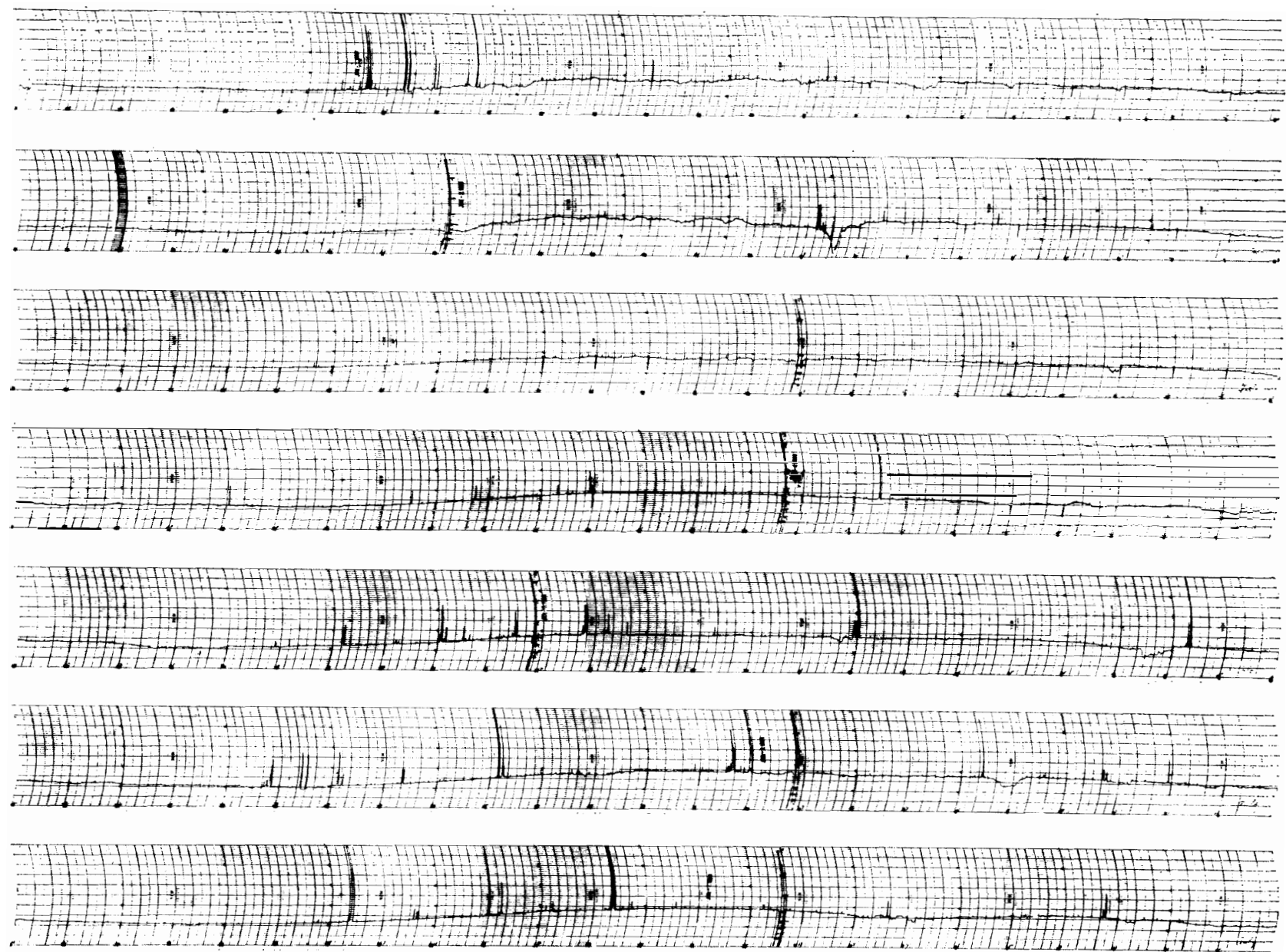
30 MHz COSMIC NOISE

- A. Diurnal variation (quiet days)  
Maximum 11<sup>h</sup>00~12<sup>h</sup>00  
Minimum 22<sup>h</sup>00~23<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction  
5: 18.45-18.55 power failure
- C. Disturbed days: 1st, 31st.



JAN 1968

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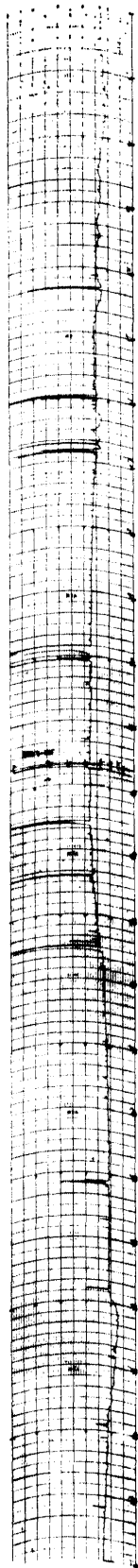
24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

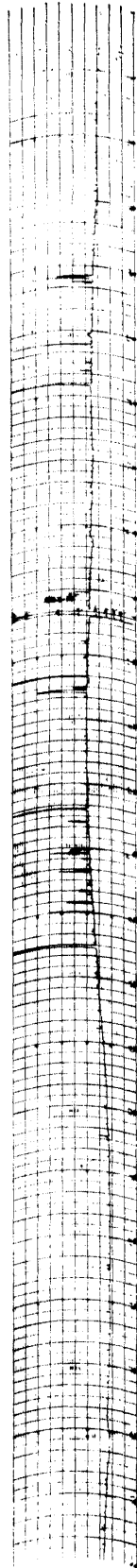
30 MHz COSMIC NOISE

JAN 1968

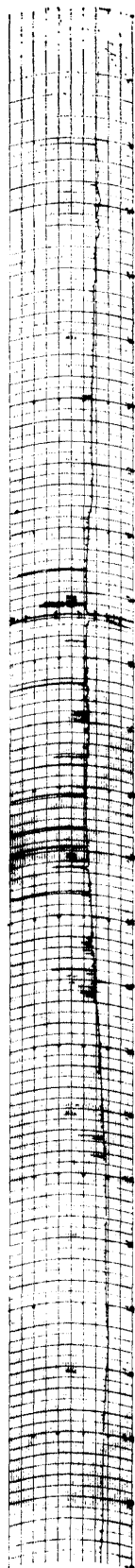
8



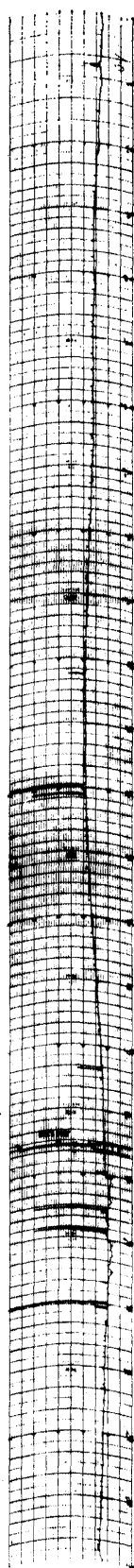
9



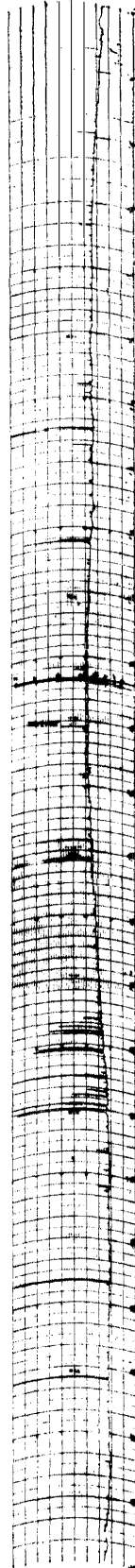
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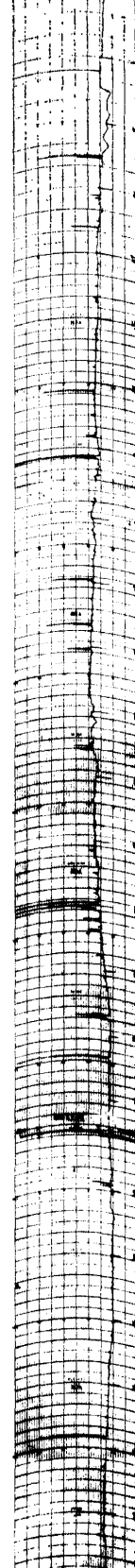
11



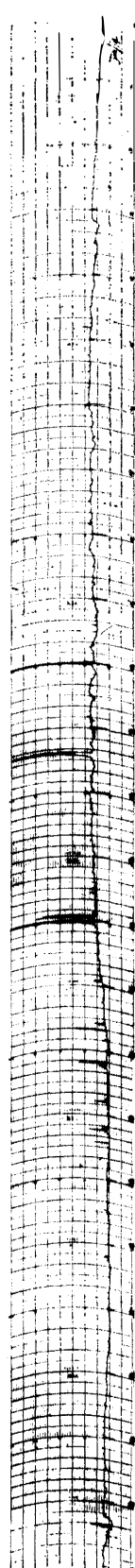
12



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14

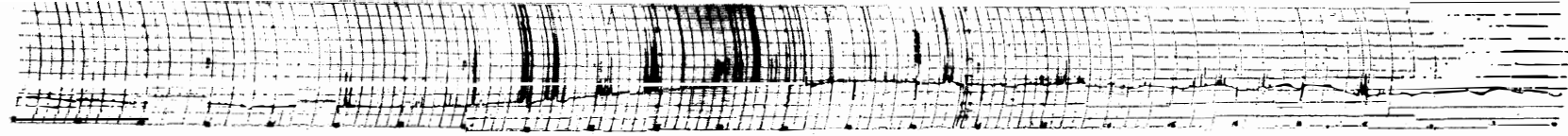


24 20 16 12 08 04 00

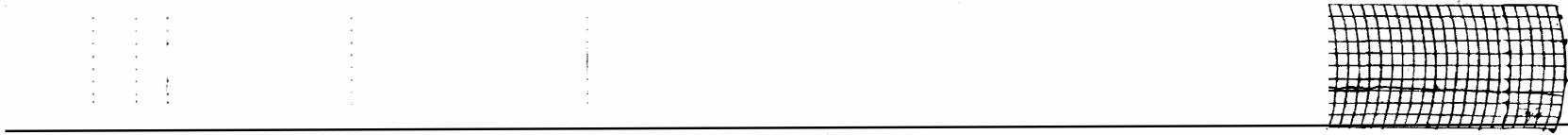
45° EAST MERIDIAN TIME IN HOURS 30 MHz COSMIC NOISE

JAN 1968

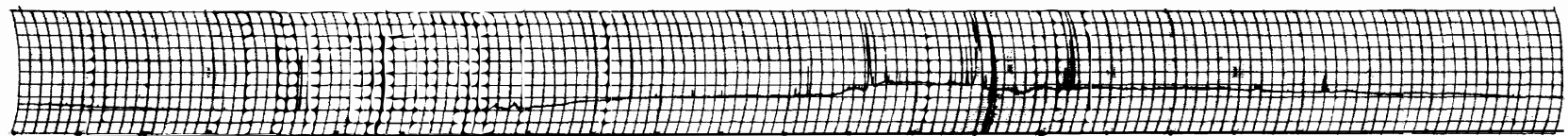
15



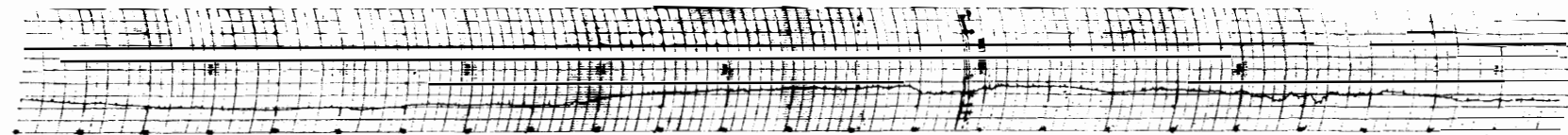
16



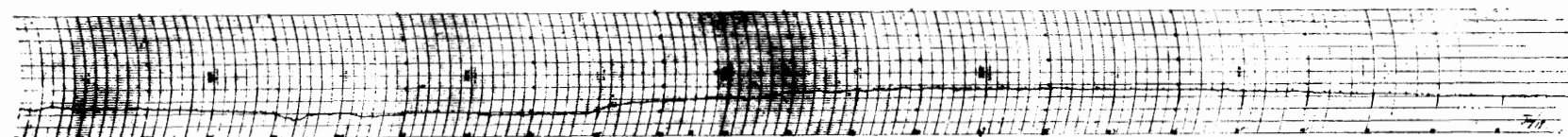
17



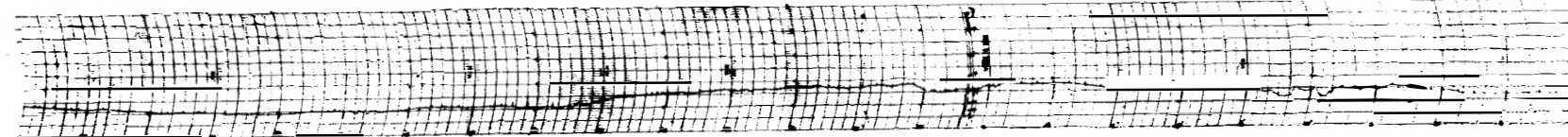
18



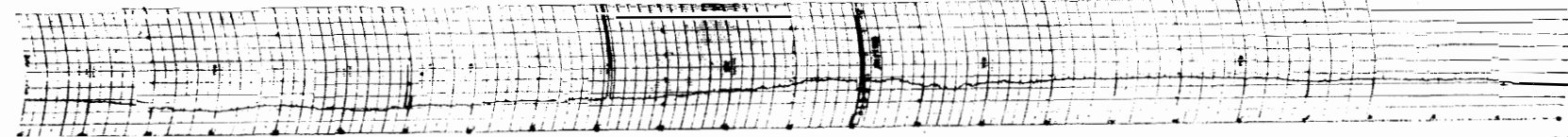
19



20



21



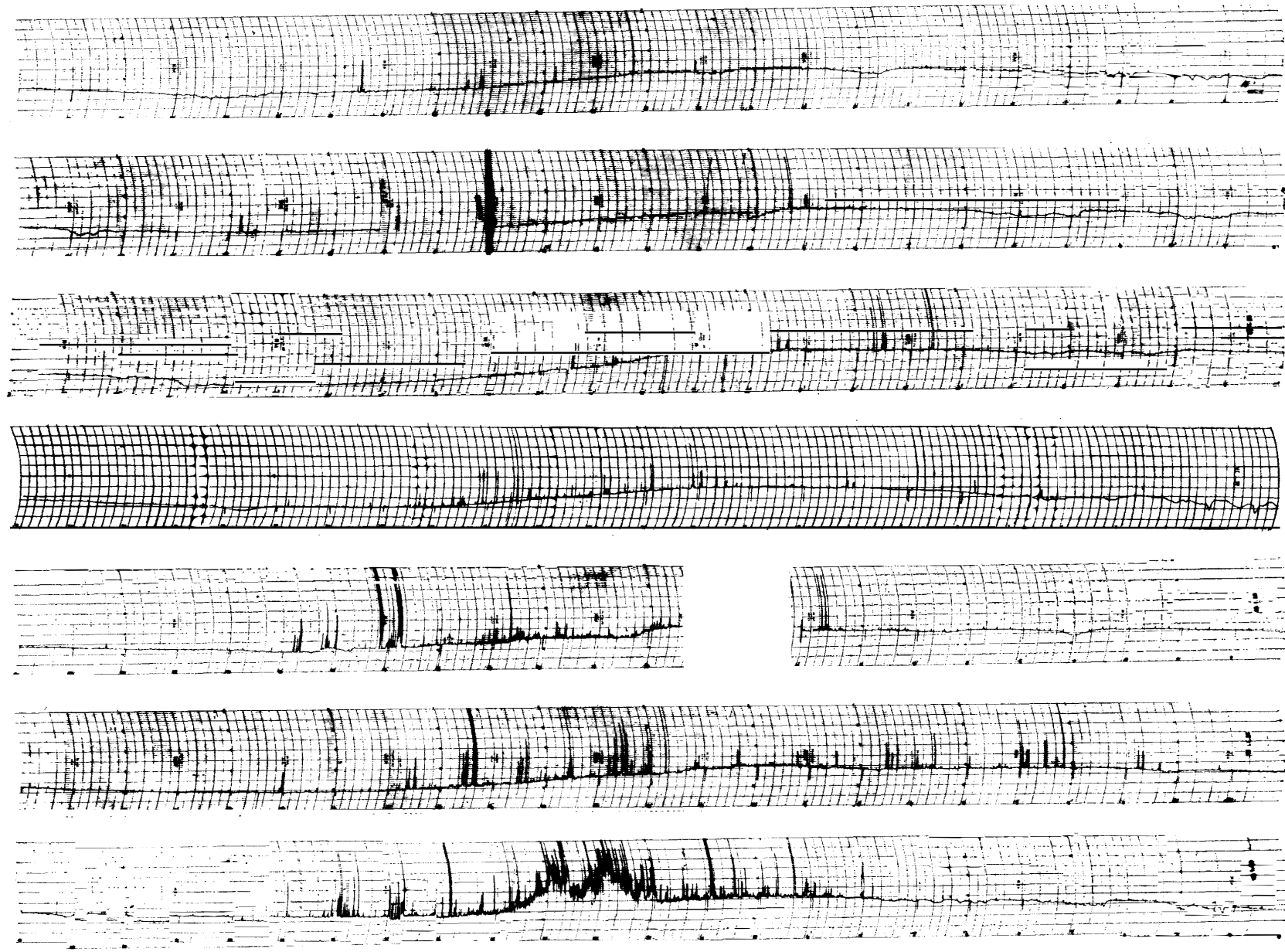
24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

JAN 1968

22  
23  
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28

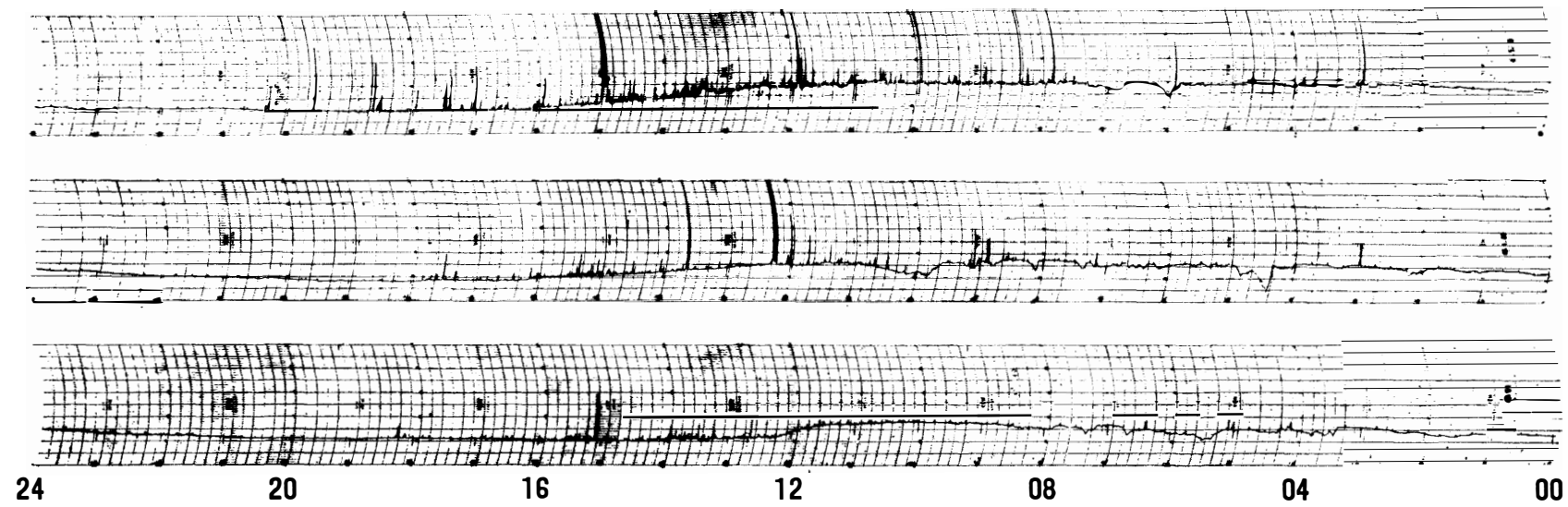


24                      20                      16                      12                      08                      04                      00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

29  
30  
31  
JAN 1968



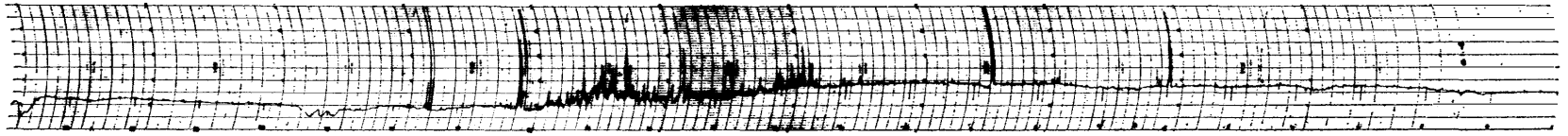
45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE

- A. Diurnal variation (quiet days)  
Maximum 09<sup>h</sup>00~10<sup>h</sup>00  
Minimum 20<sup>h</sup>00~21<sup>h</sup>00
- B. Cosmic noise level obscured or equipment malfunction  
23: 15.10-17.10 equipment failure  
26: 09.00-11.30 recorder pen clogged
- C. Disturbed days: 30th.

FEB 1968

1  
2



24 20 16 12 08 04 00

45° EAST MERIDIAN TIME IN HOURS

30 MHz COSMIC NOISE