

ION.ANT.—35

**IONOSPHERIC DATA AT SYOWA STATION
(ANTARCTICA)**

July 1980—December 1980

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RADIO RESEARCH LABORATORY

MINISTRY OF POSTS AND TELECOMMUNICATIONS

TOKYO, JAPAN

INTRODUCTION

Vertical soundings of ionosphere at Syowa Station, Antarctica, have been carried out by the Radio Research Laboratories, through the sponsorship of the National Institute of Polar Research of Japan.

LOCATION OF SYOWA STATION

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69°00.4'S	39°35.4'E	-69.8°	78.2°

SPECIFICATIONS OF THE IONOSONDE USED AT SYOWA STATION

Items	Specifications
Frequency Range	400 kHz-15 MHz
Transmitting power	10 kW (peak value)
Duration of Sweep	20 sec
Transmitted Pulse Width	80 μsec
Recurrence Frequency of Transmitted Pulse	50 Hz (by power source frequency)
Frequency Scale	every 1 MHz
Height Range	900 km
Height Scale	every 50 km
Total Receiver Gain	120 dB
Recording Method	35 mm film and video fax for ionograms
Power Supply	100 volt AC, 2.0 kVA
Transmitting Antenna and Receiving Antenna	30 m height vertical delta terminated by 600 Ω respectively

DESCRIPTION

- a. All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction (Second Edition 1972)"
- b. Ionograms data are printed in the quarter hourly of every days.
- c. Characteristics of Ionosphere
 - fxI Top frequency of spread F traces or oblique traces.
 - fof2 Ordinary wave critical frequency for the F2 layer.
 - fEs(ftEs) Top frequency of Es layer as reflected overhead.
 - fmin Lowest frequency showing vertical ionospheric reflection.
 - h'F Minimum virtual height of the ordinary wave F trace as a whole.

Symbols

(i) Descriptive Letters.

The following letters are entered after, or used to replace, a numerical value on the monthly tabulation sheets.

- A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example, Es.
- B Measurement influenced by, or impossible because of, absorption in the vicinity of fmin.
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to made accurately.
- H Measurement influenced by, or impossible because of, the presence of stratification.
- K Presence of particle E layer.
- L Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.
- M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot be interpreted.
- O Measurement refers to the ordinary component.
- P Man-made perturbation of parameters-Presence of polar spur traces.
- Q Range spread present.
- R Measurement infuenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospherics.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- V Forked trace which may influence the measurement.
- W Measurement influenced or impossible because the echo lies outside the height range recorded.
- X Measurement refers to the extraordinary component.
- Y Lacuna phenomena, severe layer tilt.
- Z Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabuation sheets.

- D Greater than.

- E Less than.
- J Ordinary component characteristic deduced from the extraordinary component.
- M Mode interpretation uncertain.
- O Extraordinary component characteristic deduced from the ordinary component.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- U Uncertain or doubtful numerical value.
- Z Measurement deduced from the third magneto-electronic component.

Definitions of the CNT, MED, UQ and LQ

Median count (CNT) is the number of values from which a median has been computed. In addition to numerical values, the count may include certain descriptive letters.

Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the lower quartile (LQ) is the median value of the lower half.

SYOWA STATION

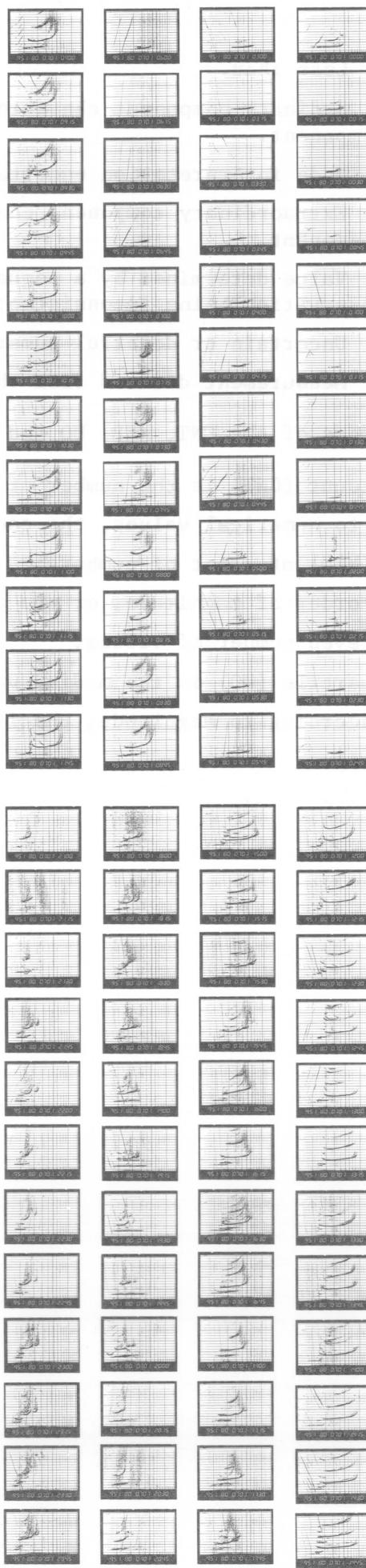
IONOGRAM

1980 07 01 00;00-11;45

SYOWA STATION

IONOGRAM

1980 07 01 12;00-23;45



SYOWA STATION

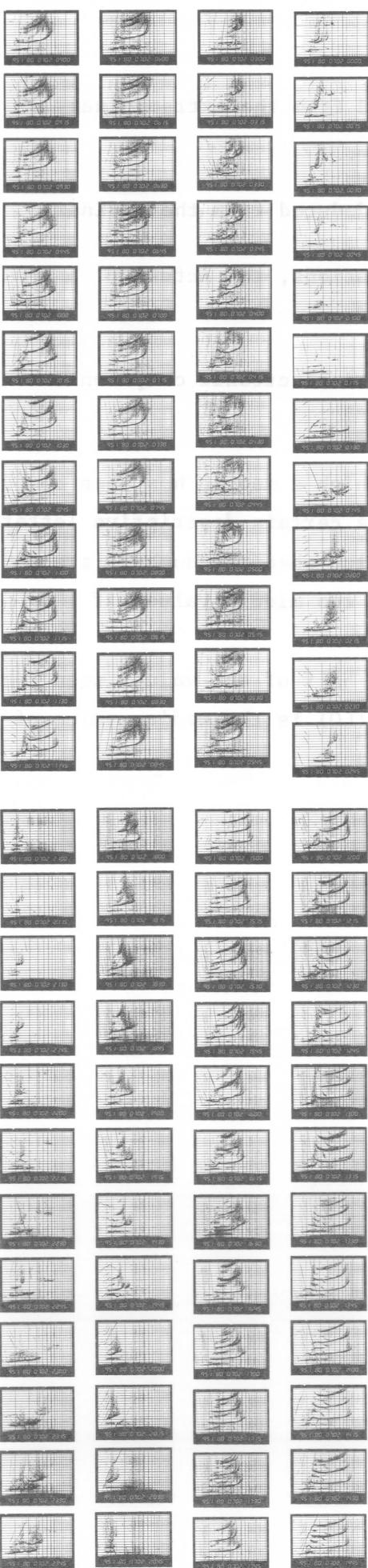
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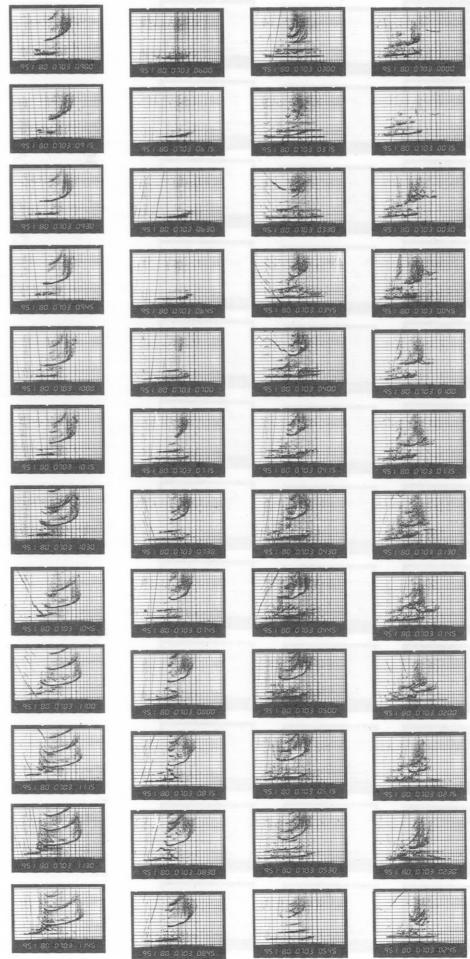
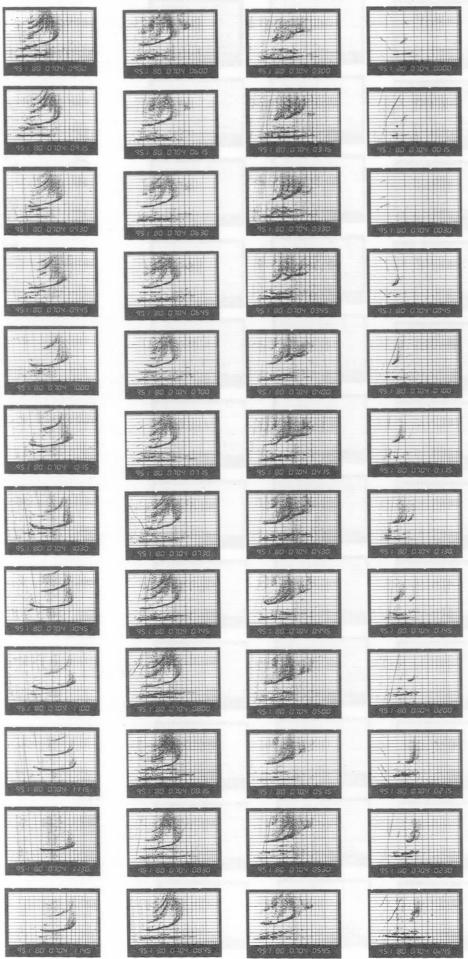
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SYOWA STATION

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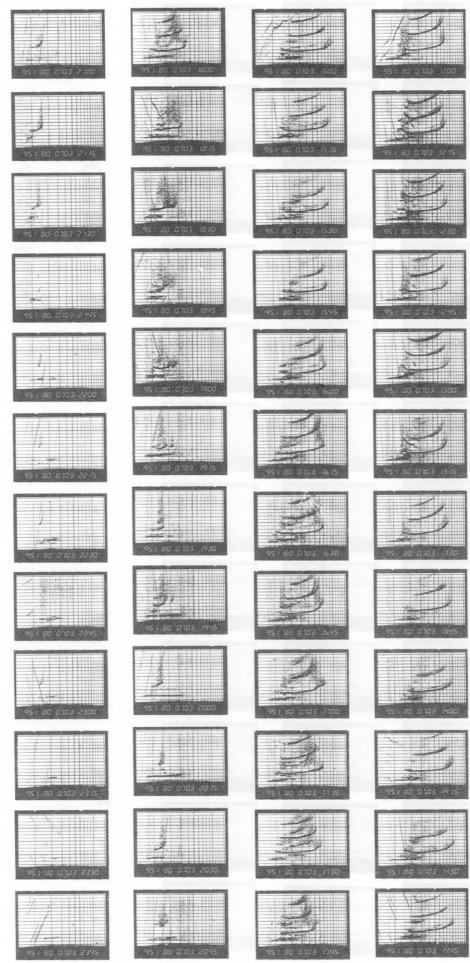
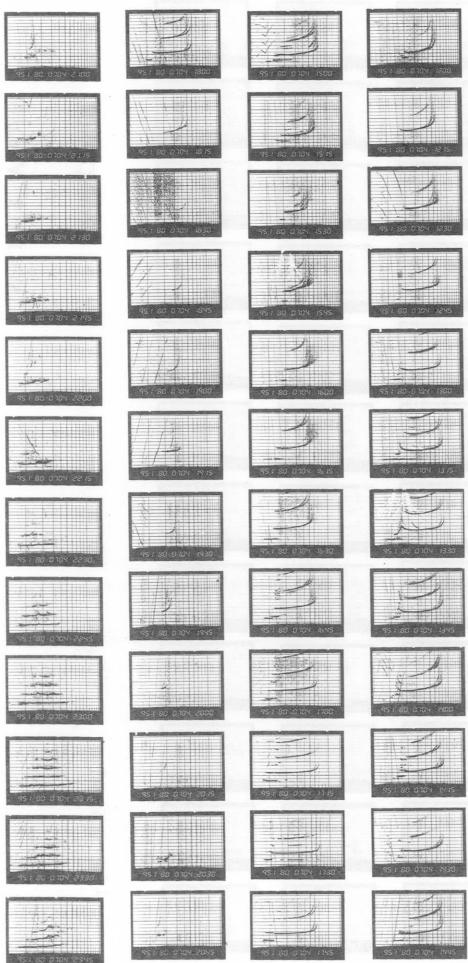
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SYOWA STATION

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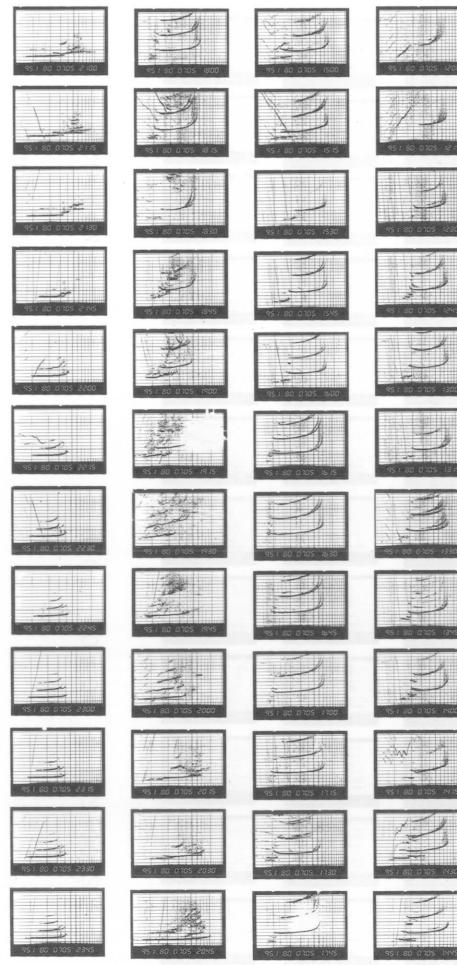
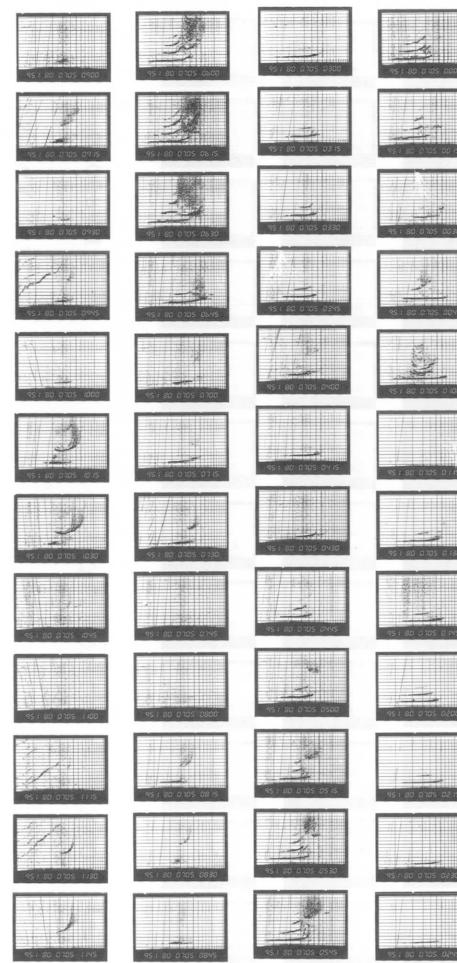
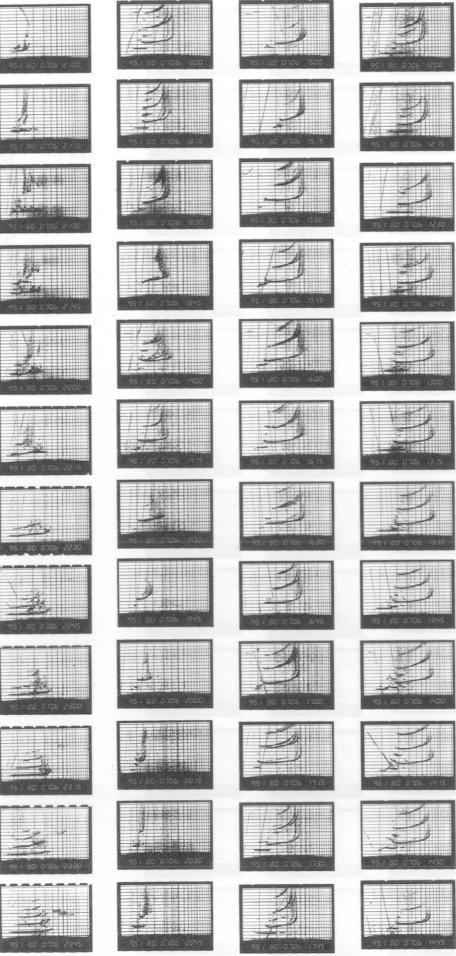
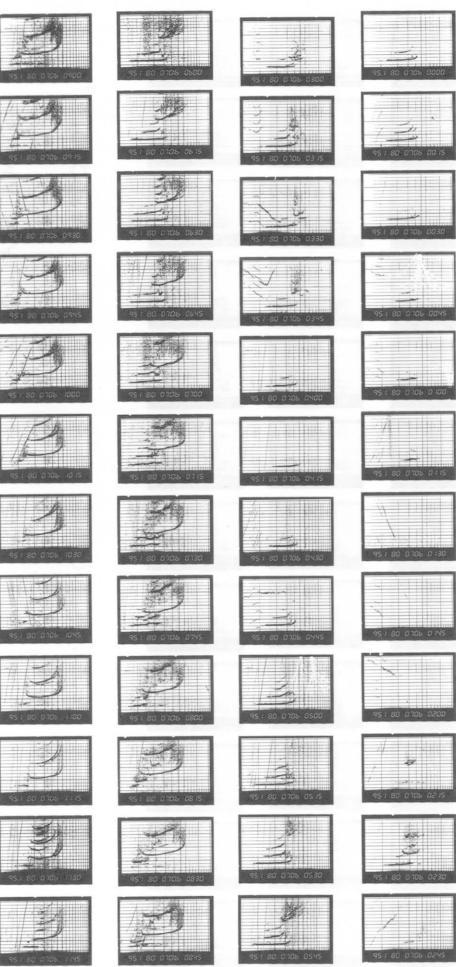
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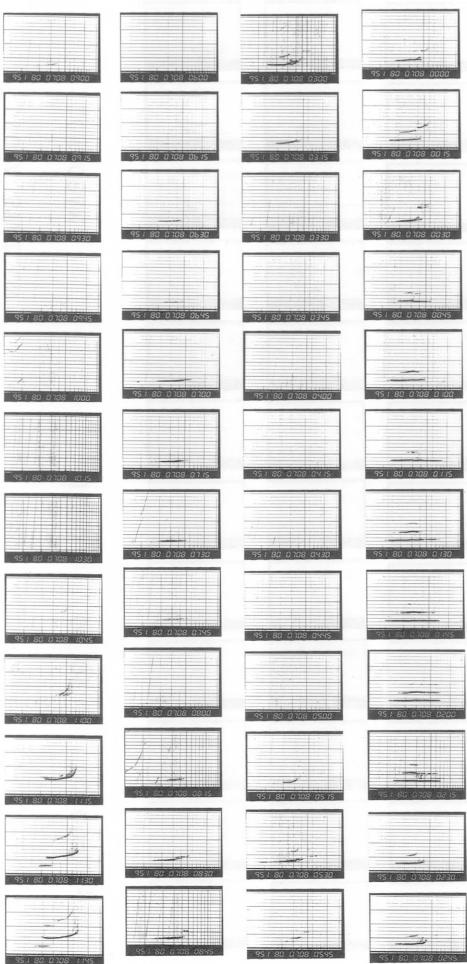
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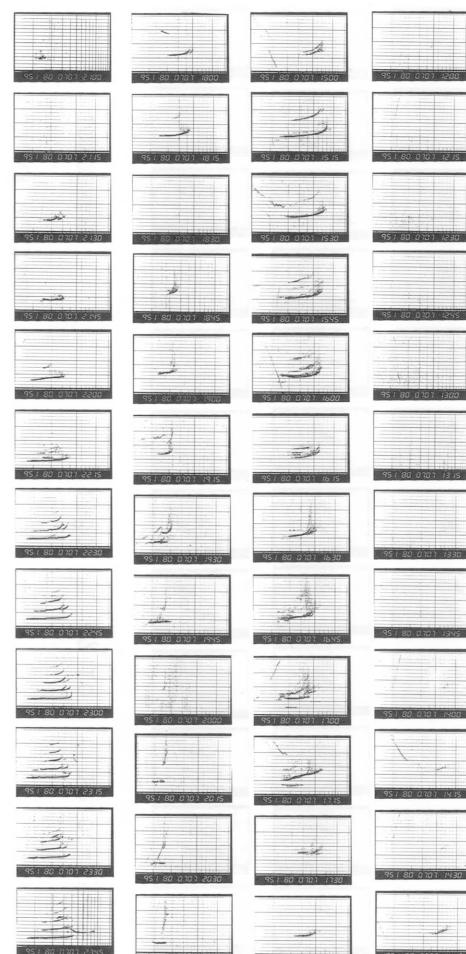
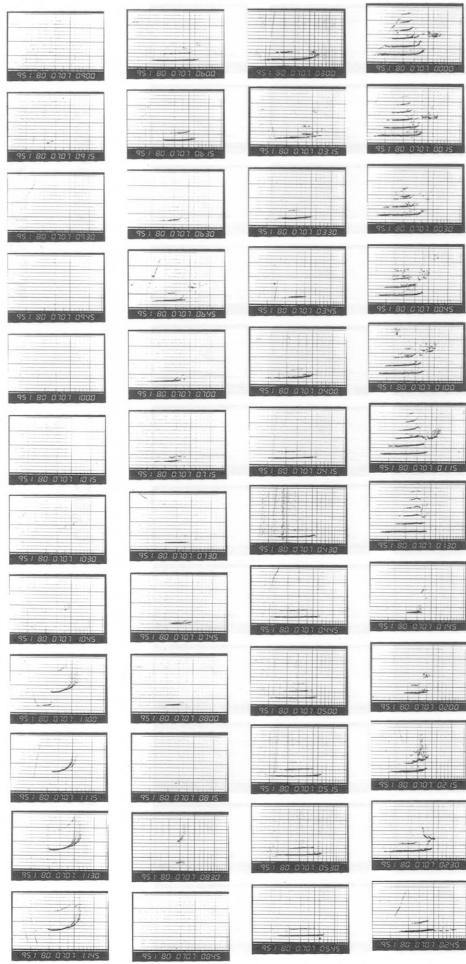
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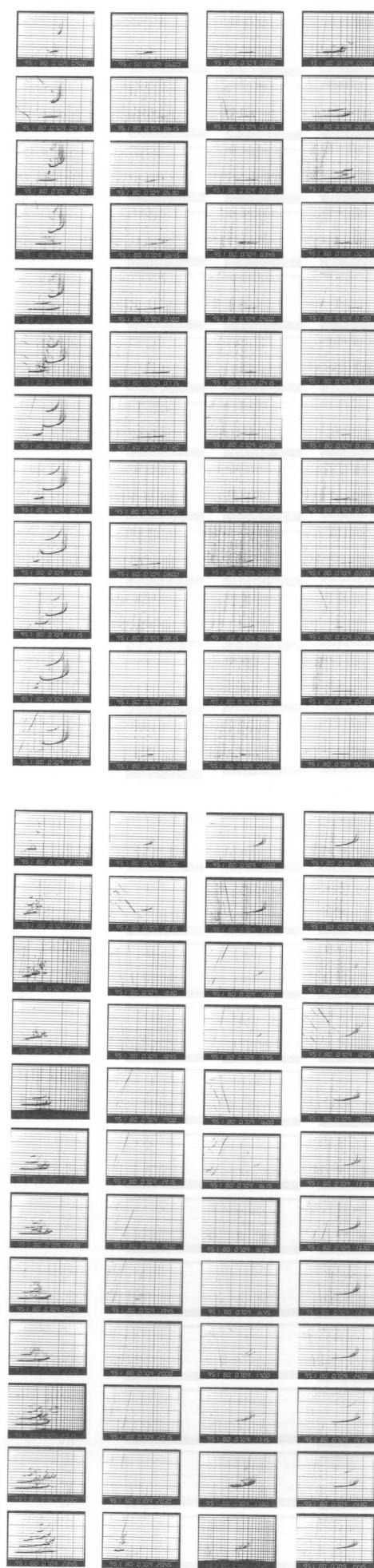
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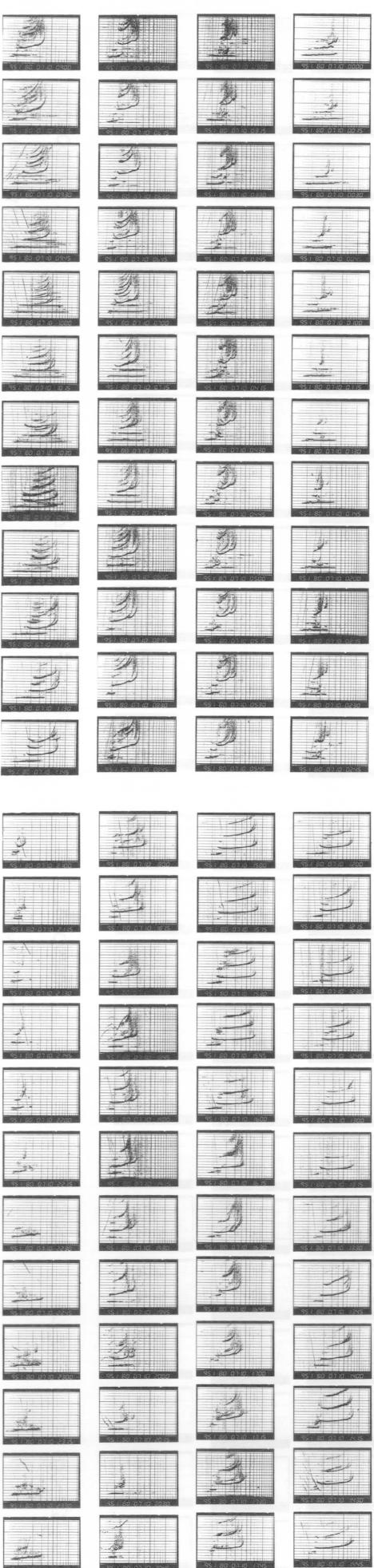
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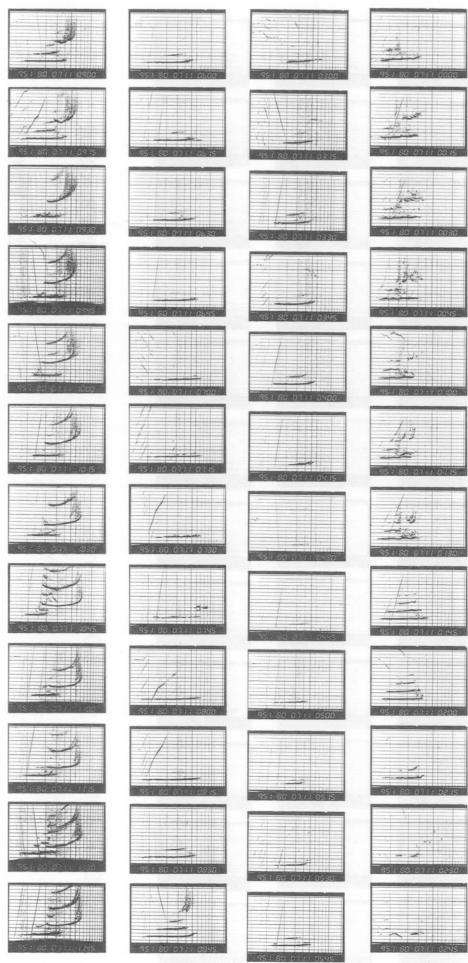
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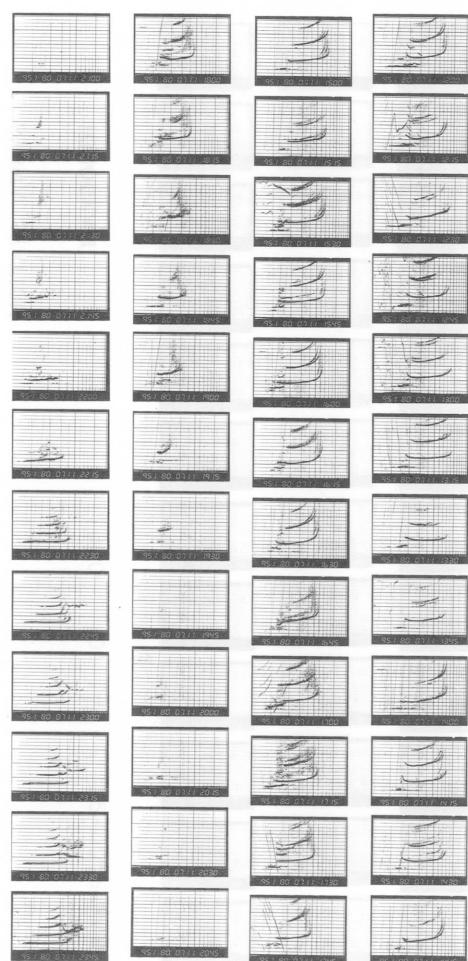
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SYOWA STATION

IONOGRAM

1980 07 12 12:00-23:45



The image displays a 5x8 grid of 40 handwriting samples. Each sample consists of a handwritten word or phrase in cursive script, such as 'the quick brown fox', 'jumped over the', and 'lazy dog'. The samples are arranged in five rows and eight columns. Each sample is enclosed in a black rectangular border and placed on a background of light gray horizontal and vertical grid lines. Below each sample, there is a small label containing a sequence of numbers and letters, likely representing a unique identifier for that sample.

The image displays a 4x8 grid of 32 individual samples of handwritten Arabic calligraphy. Each sample is presented on a sheet of ruled paper with horizontal and vertical lines. Below each sample, there is a unique identifier consisting of a short string of numbers and letters, such as '95 / 80 01.0 0.00' or '95 / 80 01.2 0.00'. The calligraphy varies in style and complexity across the different samples.

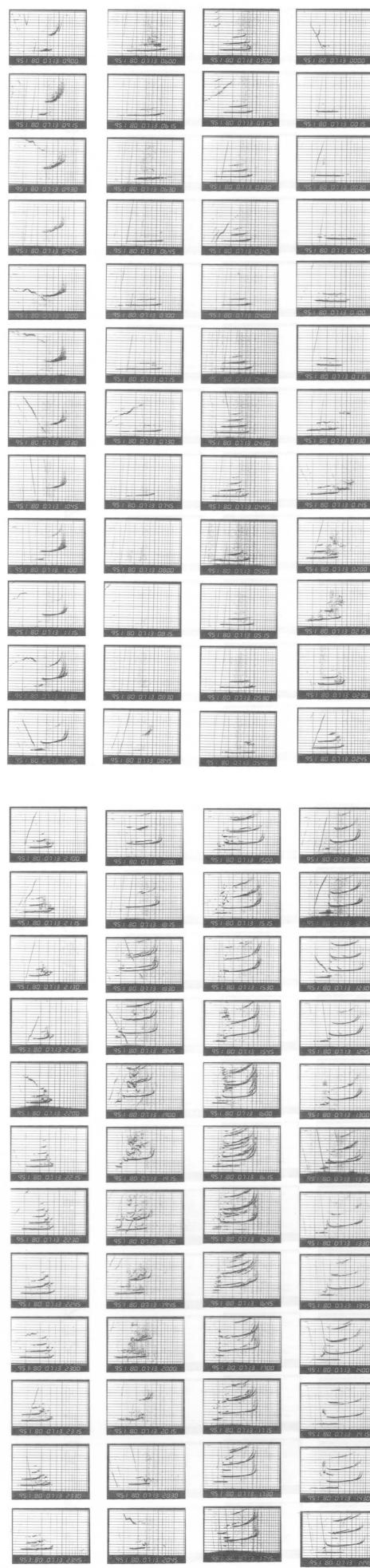
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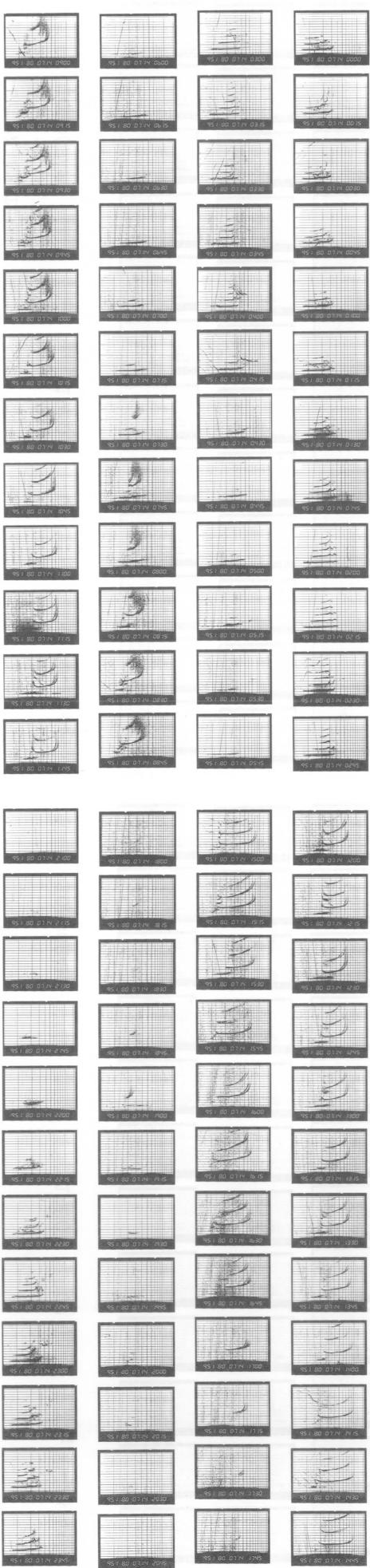
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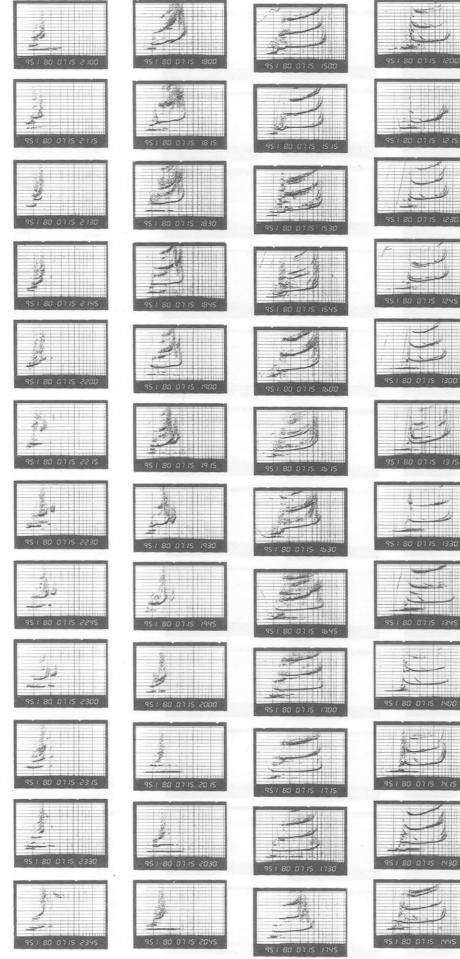
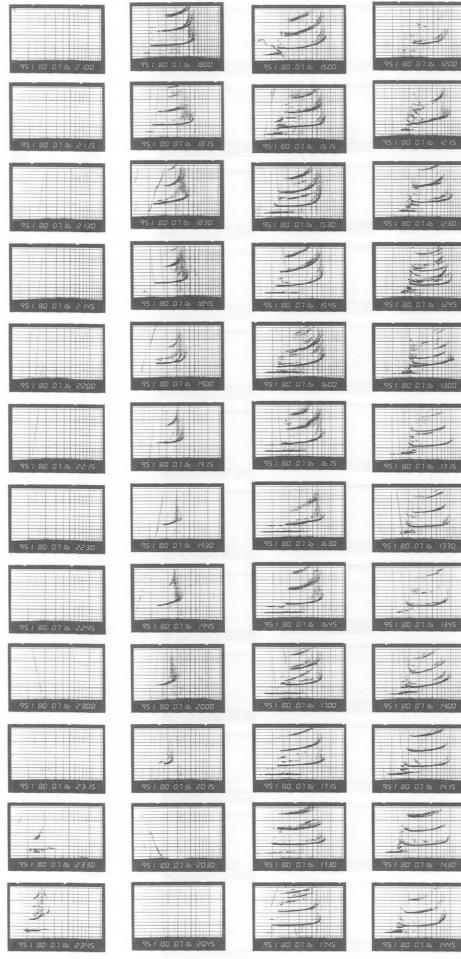
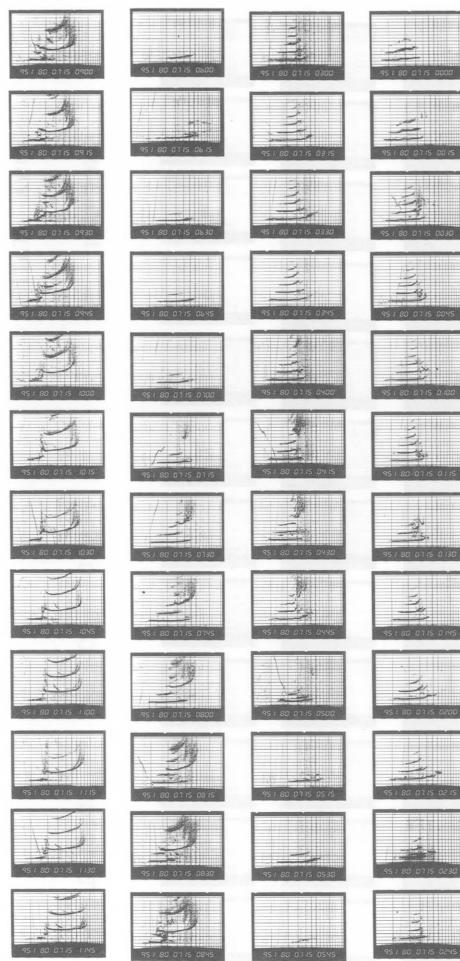
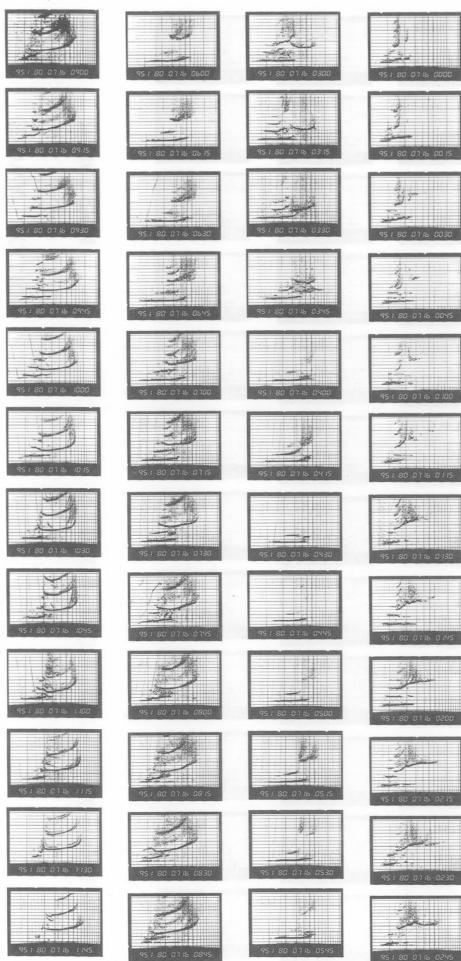
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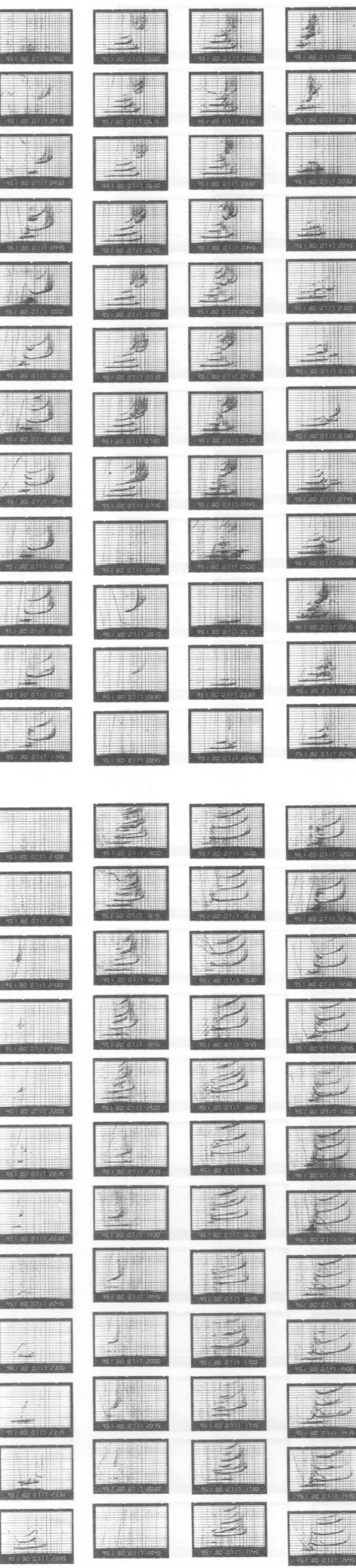
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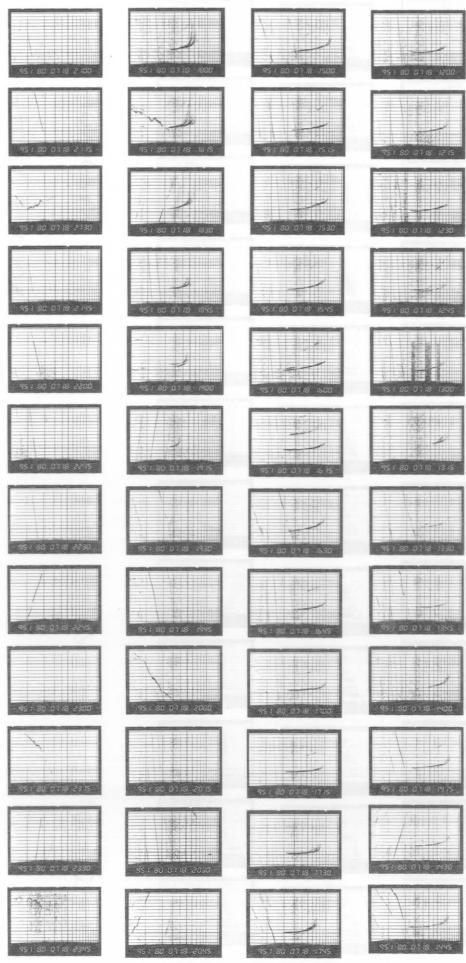
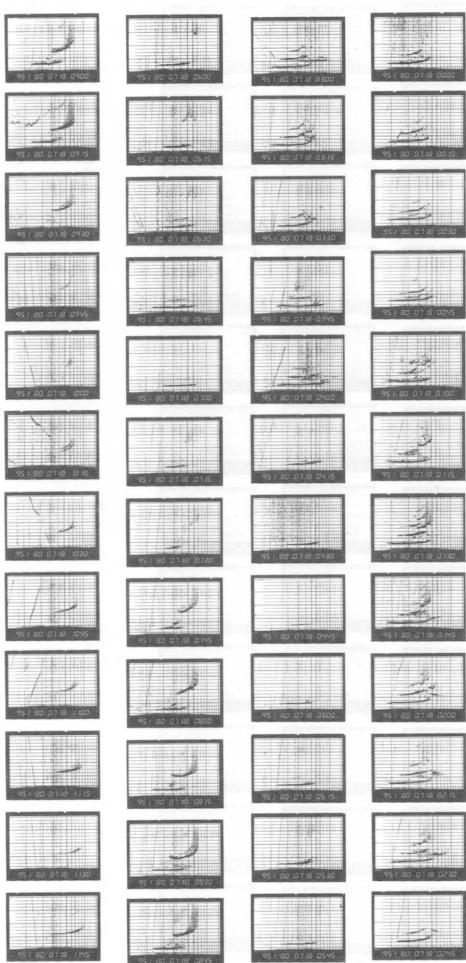
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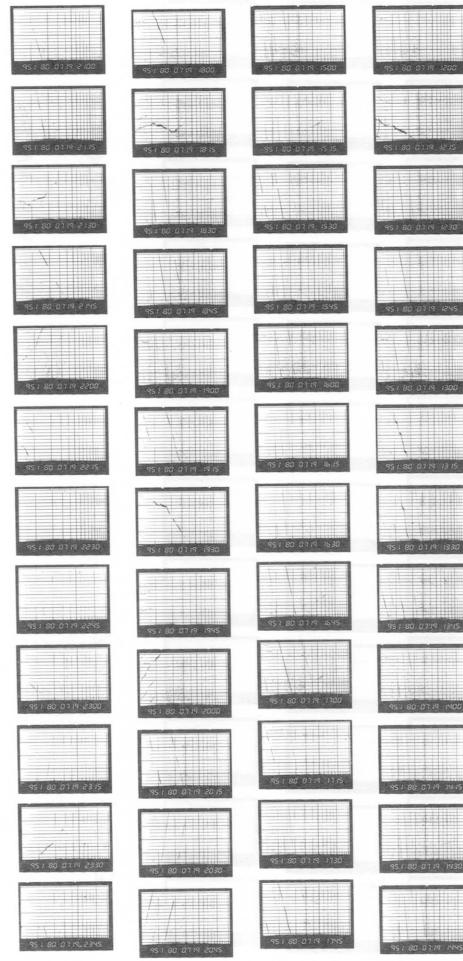
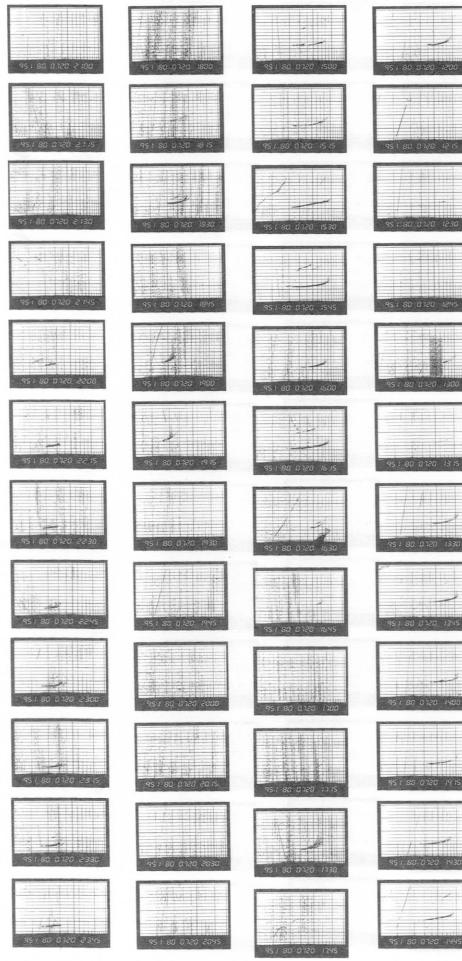
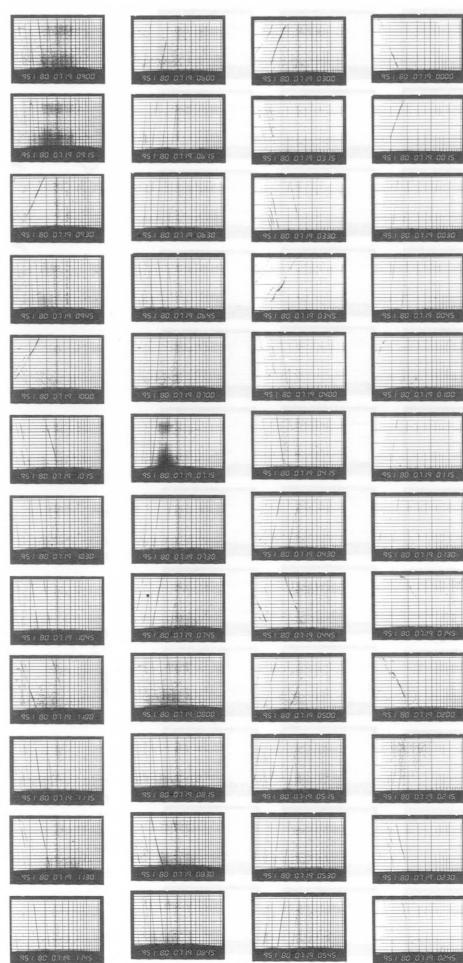
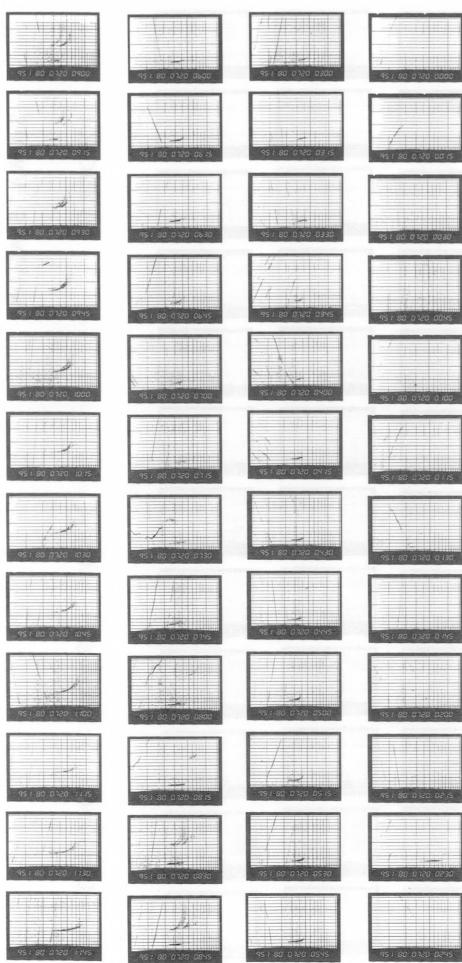
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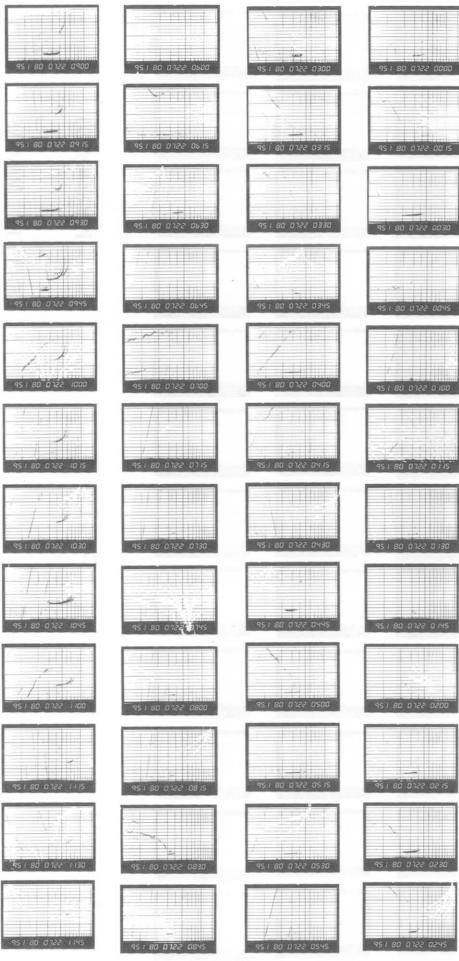
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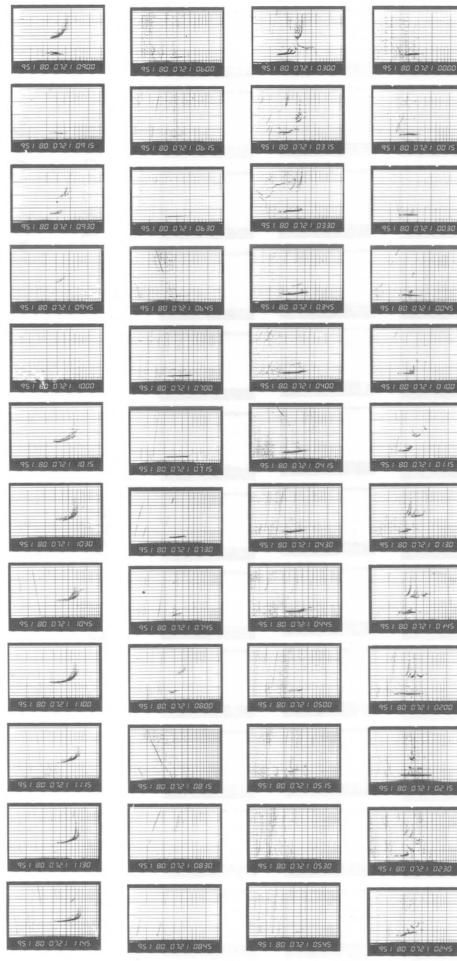
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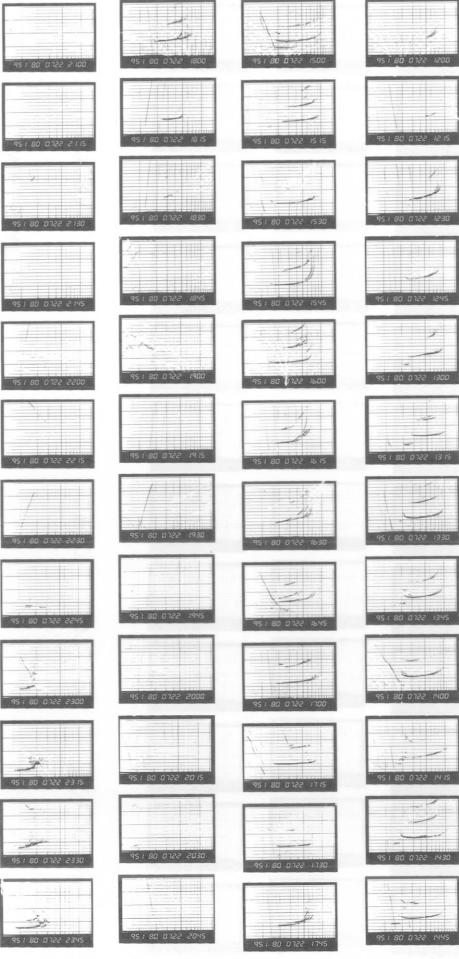




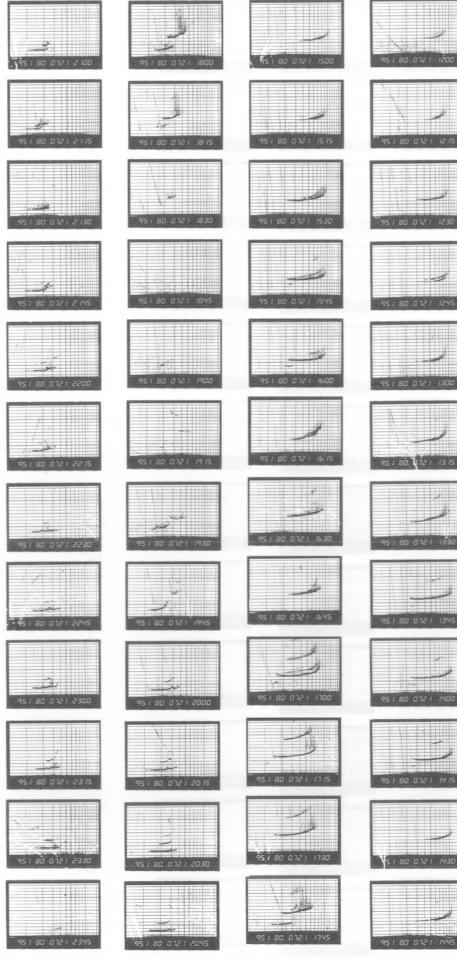
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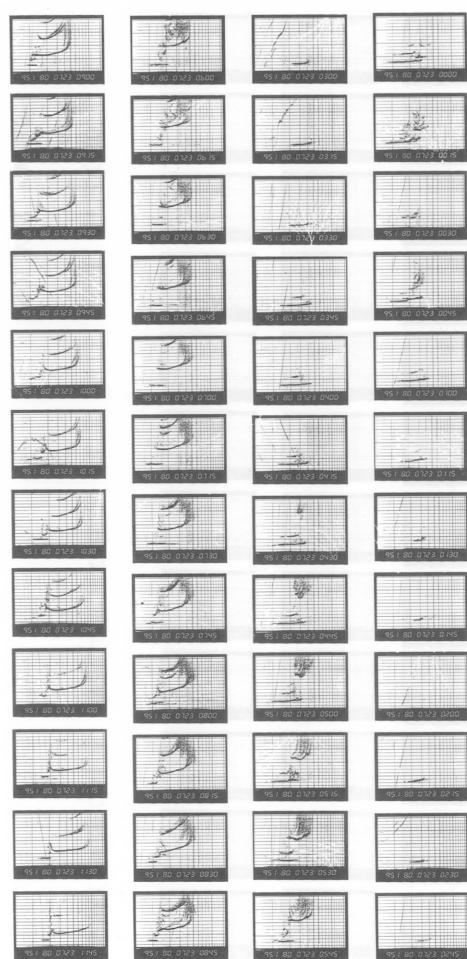
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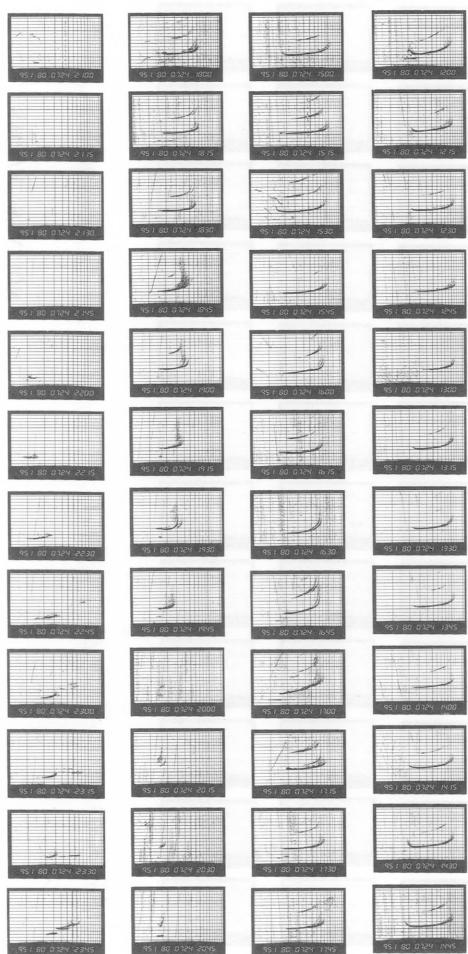
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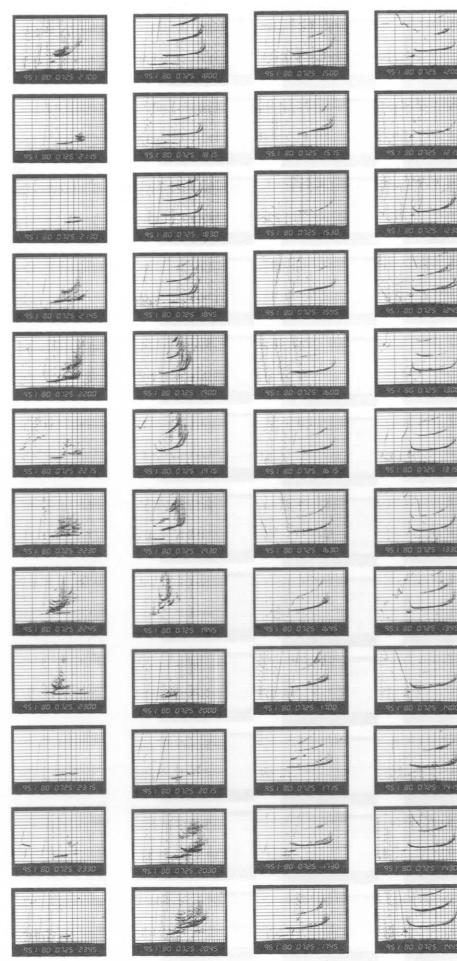
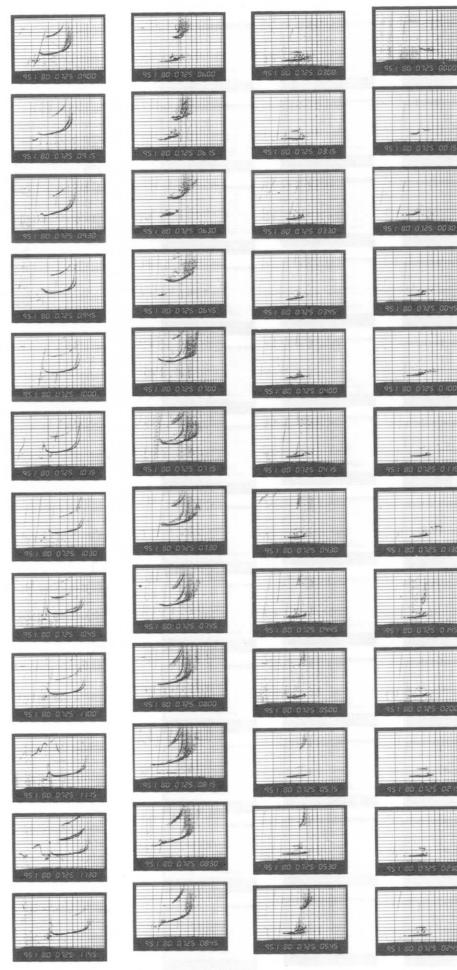
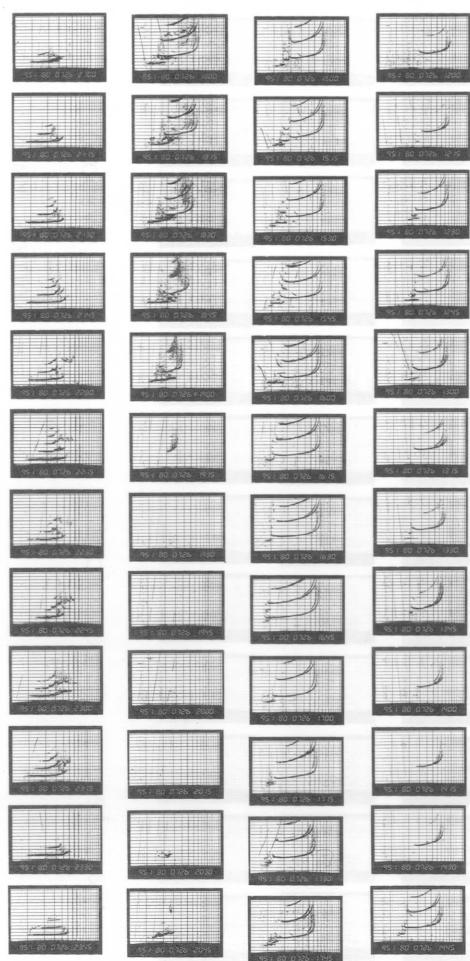
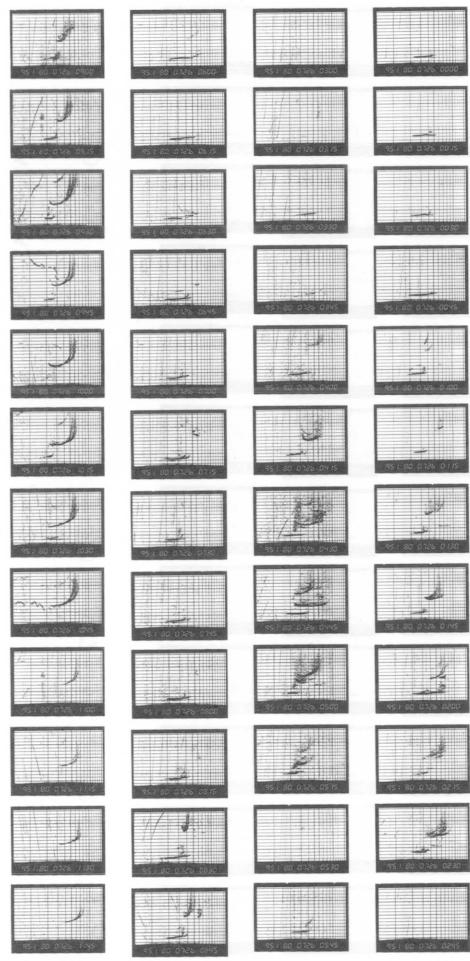
SYOWA STATION

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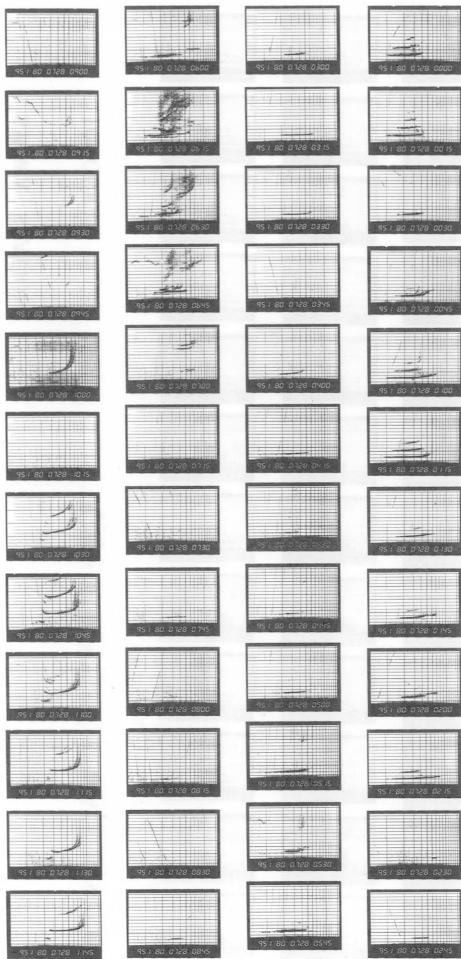


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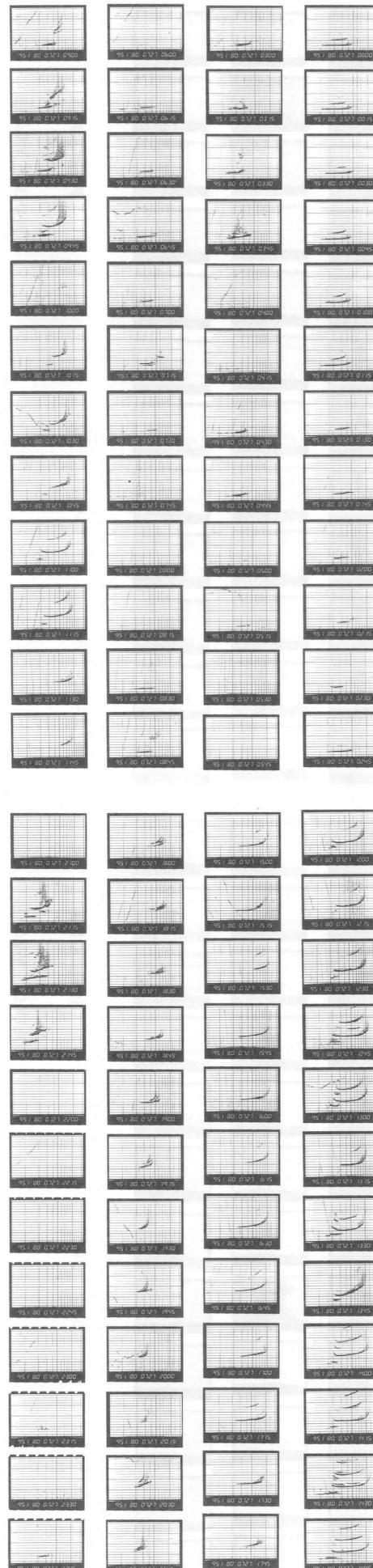
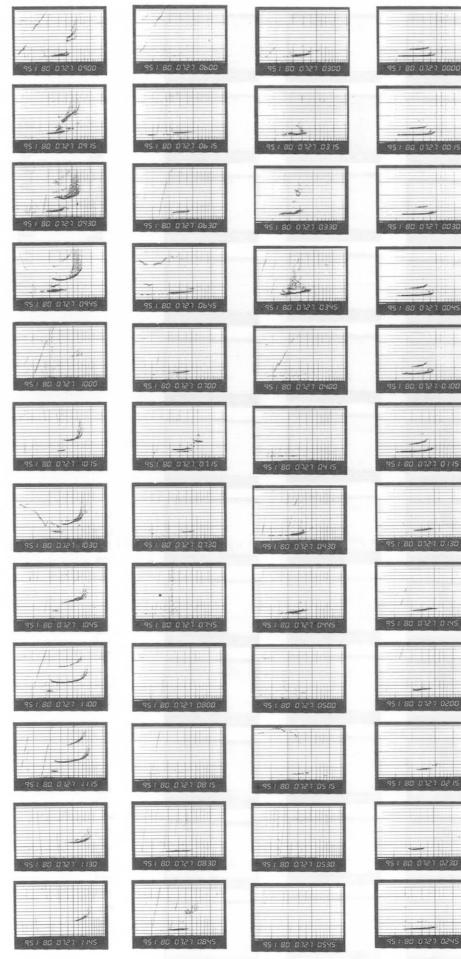


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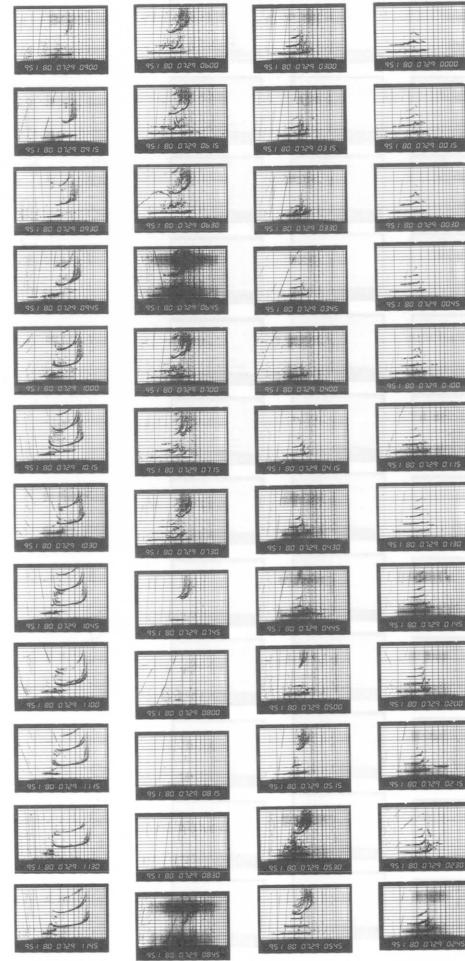
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1980 07 29 12;00-23;45



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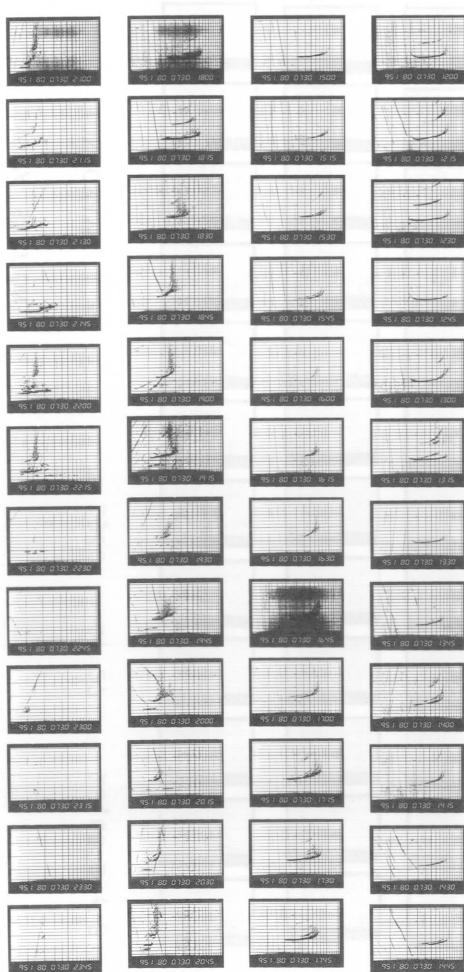
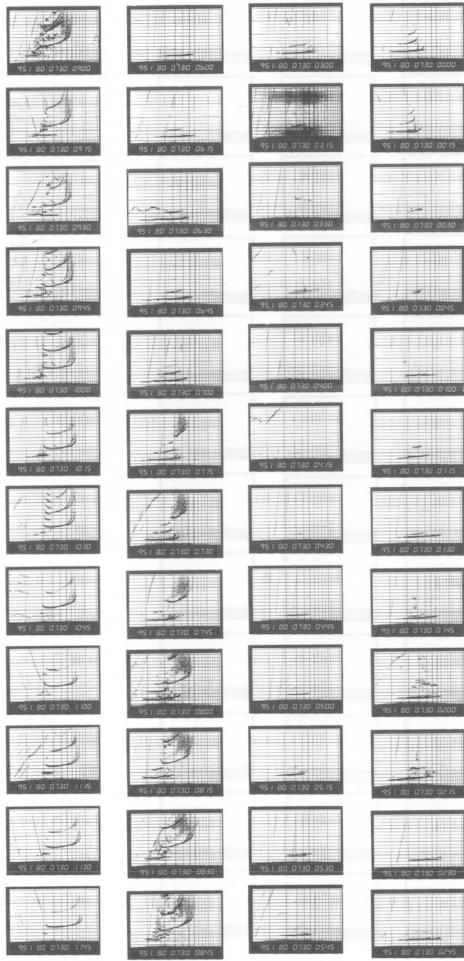
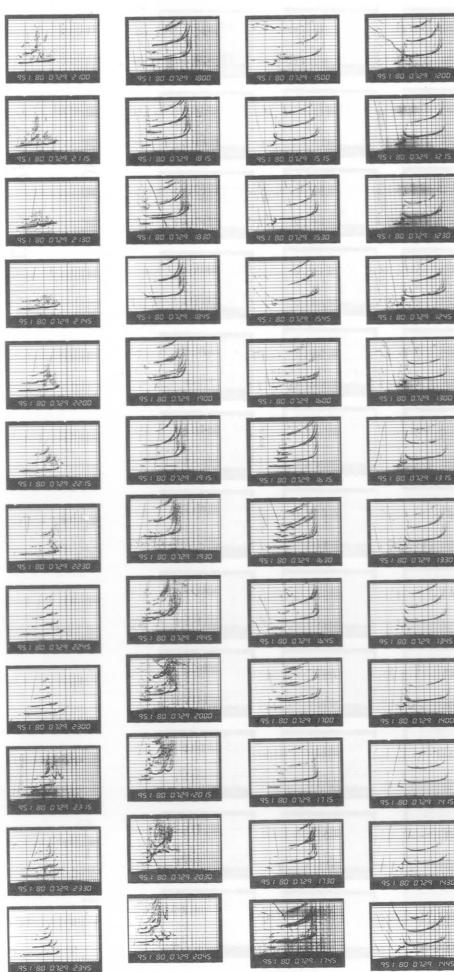
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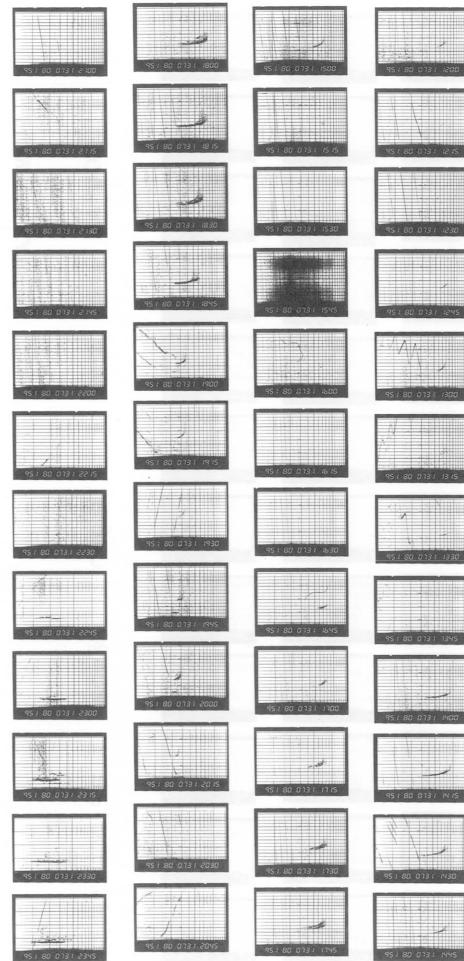
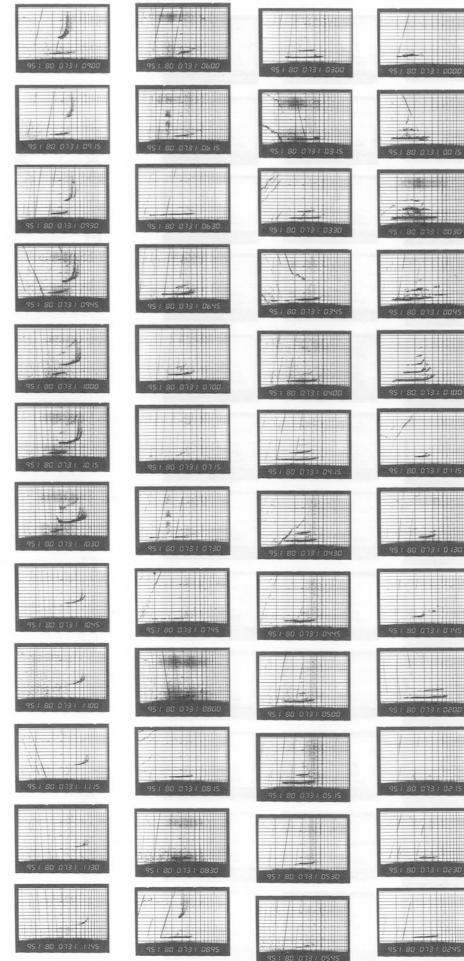
SYOWA STATION

IONOGRAM

1980 07 31 00;00-11;45

IONOGRAM

1980 07 31 12;00-23;45



A grid of 100 small photographs arranged in 10 rows and 10 columns. Each photo shows a different view of a shipwreck site, likely from a survey or excavation. The images include various parts of the ship, such as hull sections, masts, and debris, often with labels and numbers visible.

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1980 08 01 00;00-11;45 IONONGRAM

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1980 08 01 12;00-23;45

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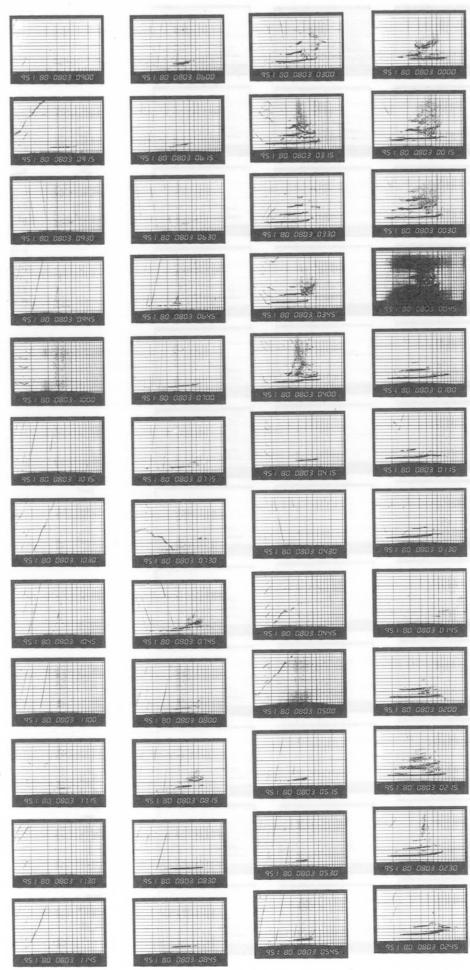
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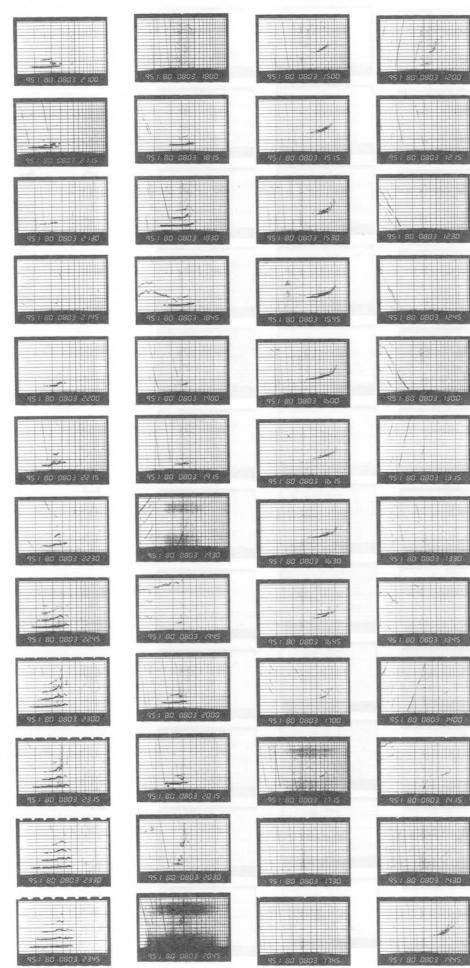


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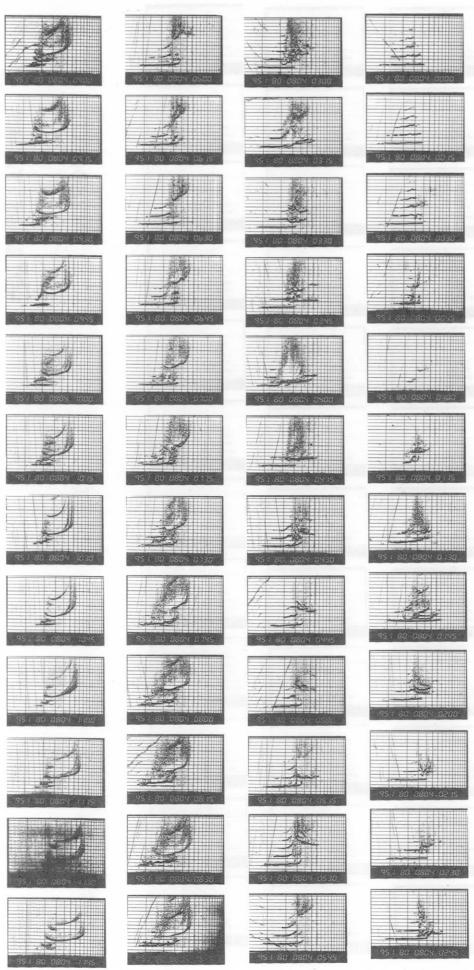
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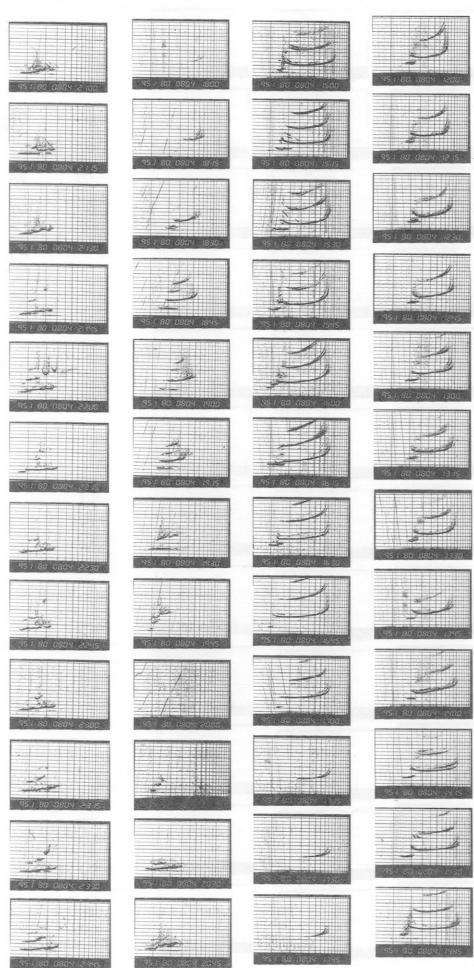


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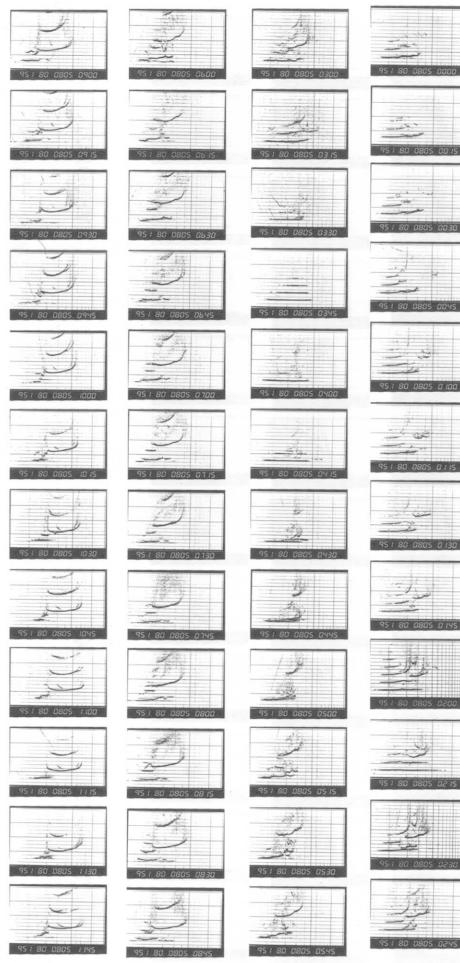
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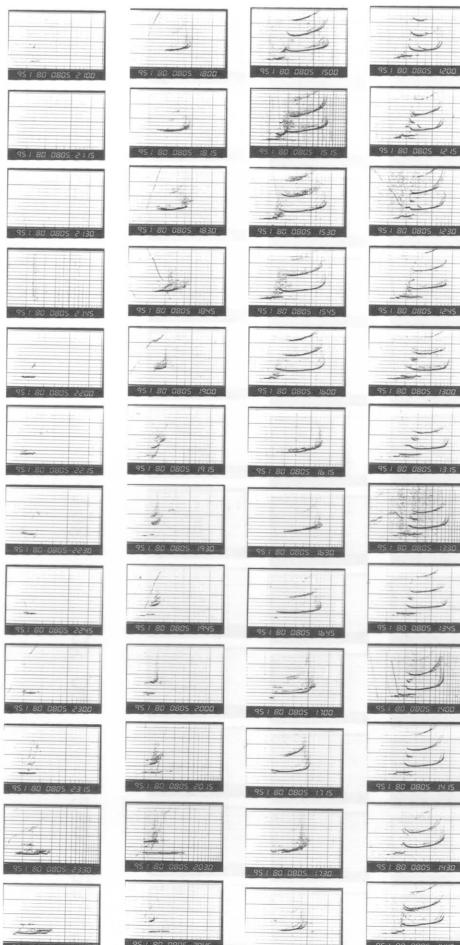
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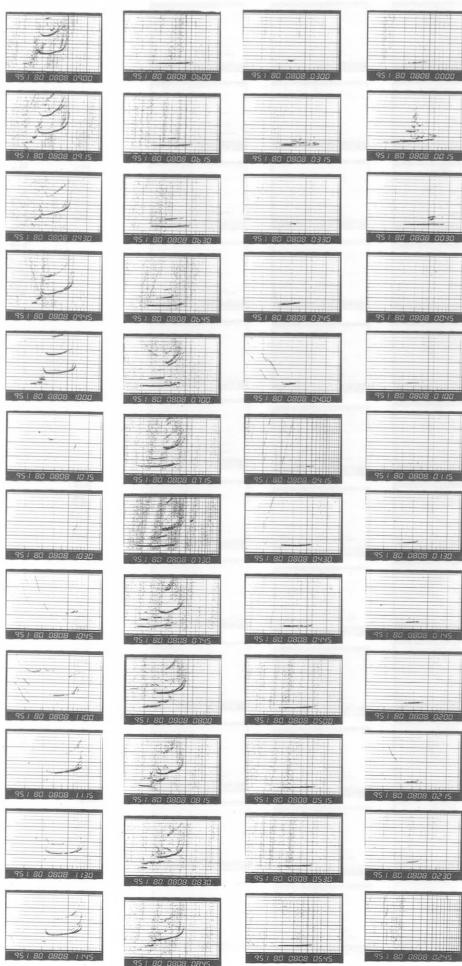
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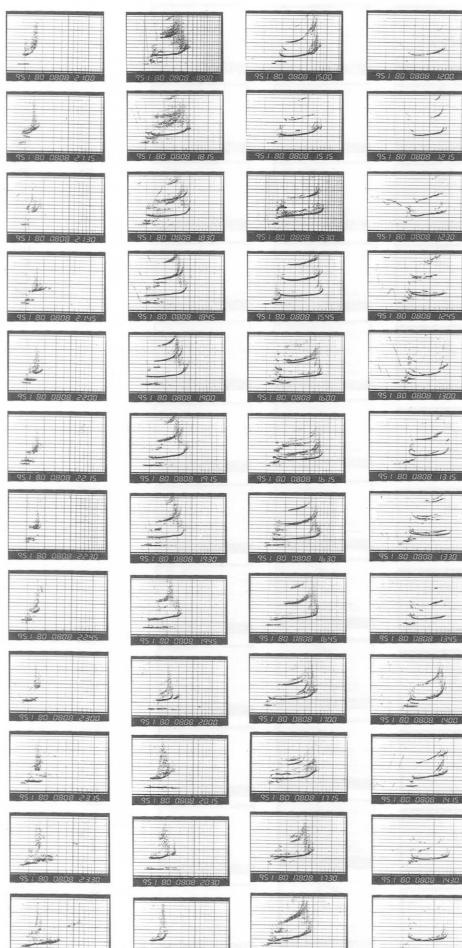
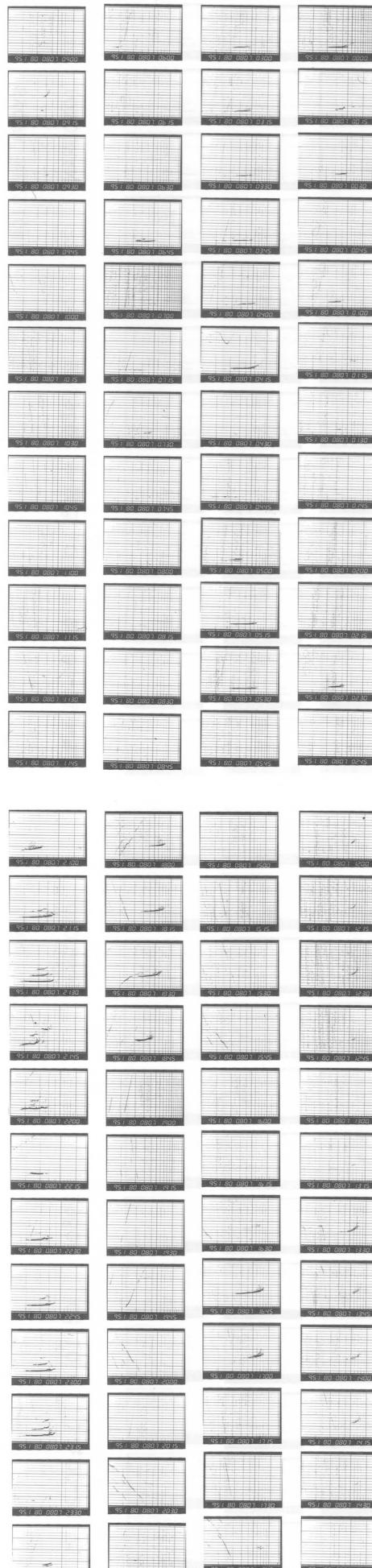
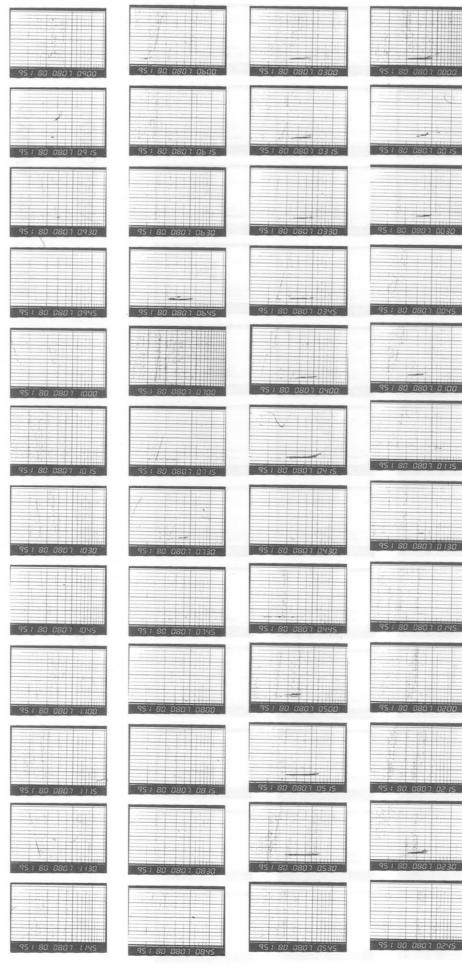
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1980 08 08 00;00-11;45

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1980 08 08 12;00-23;45



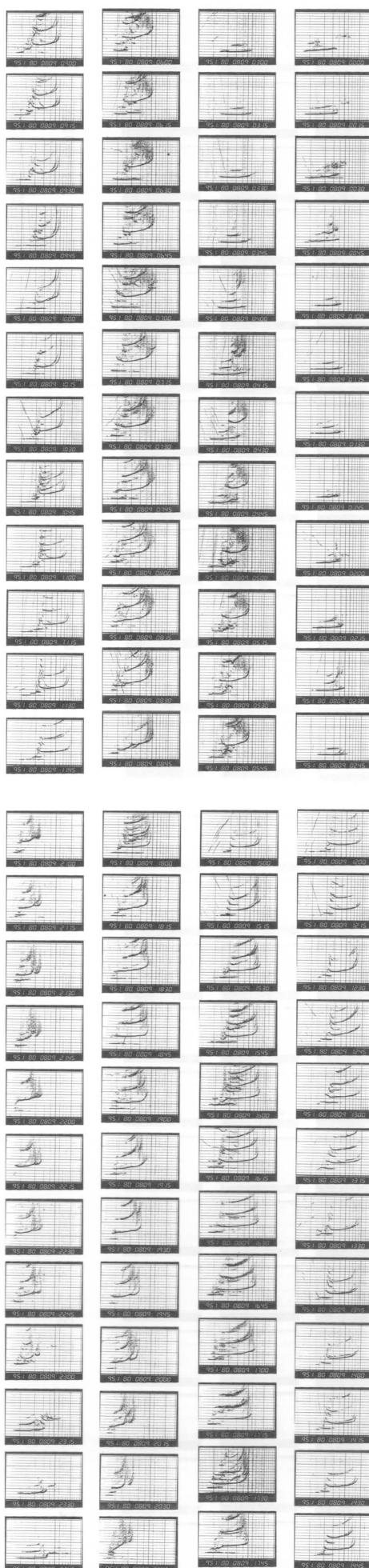
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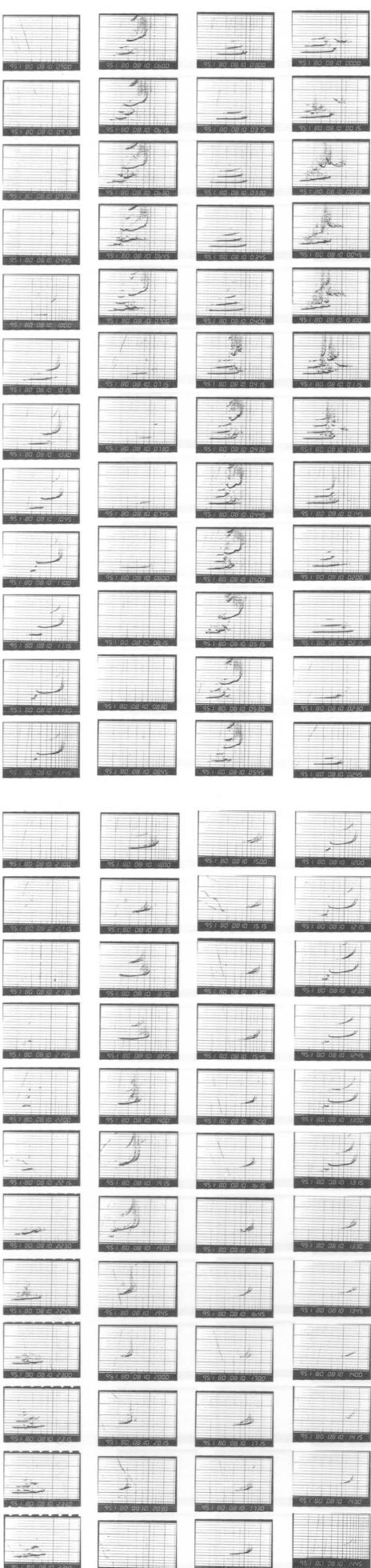
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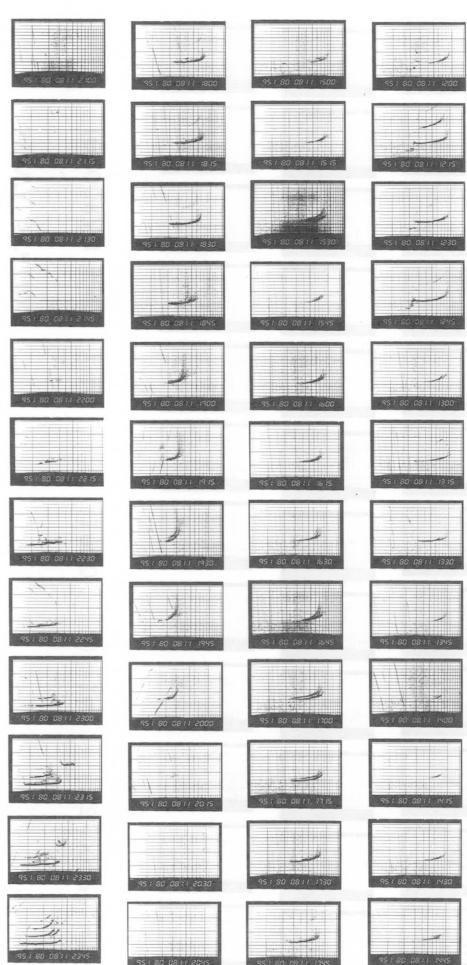
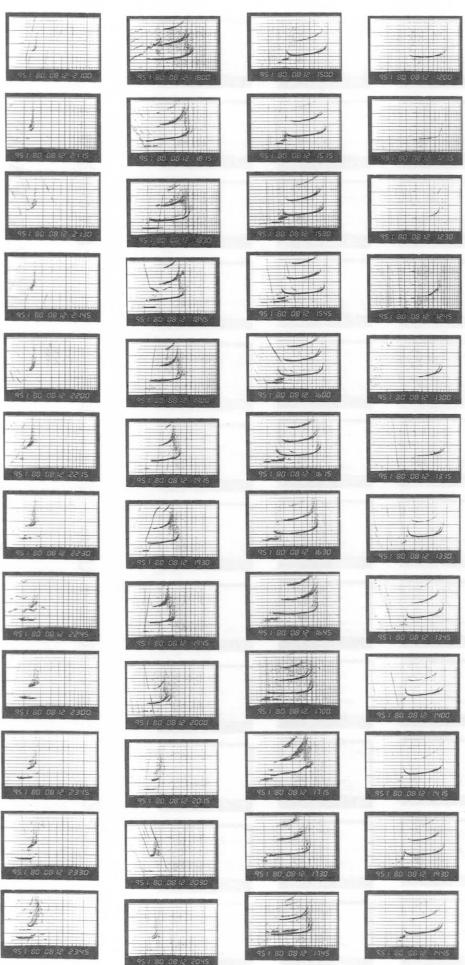
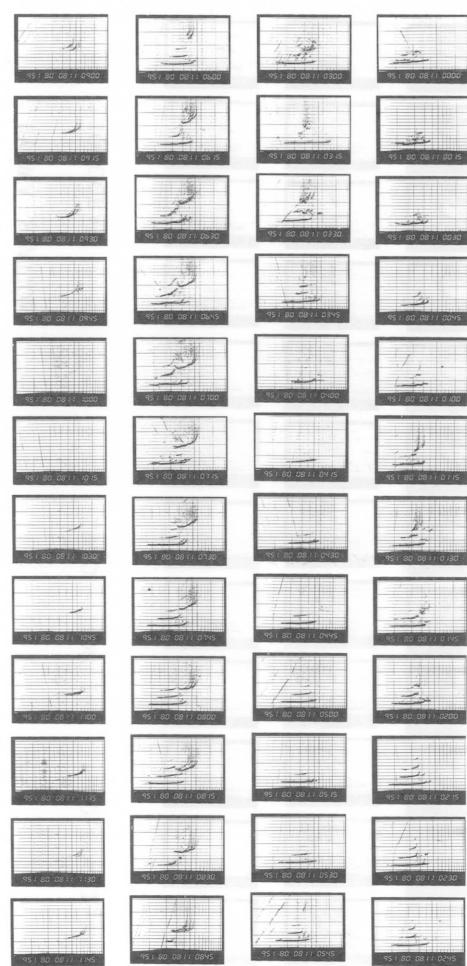
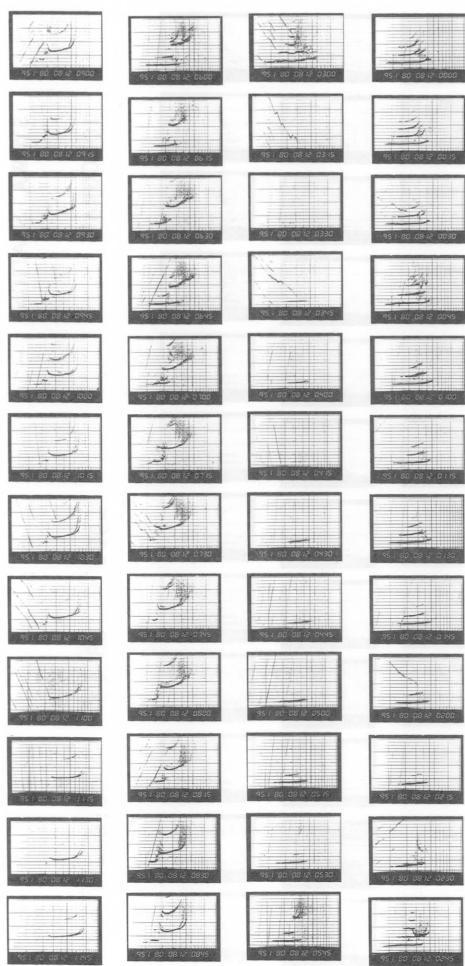


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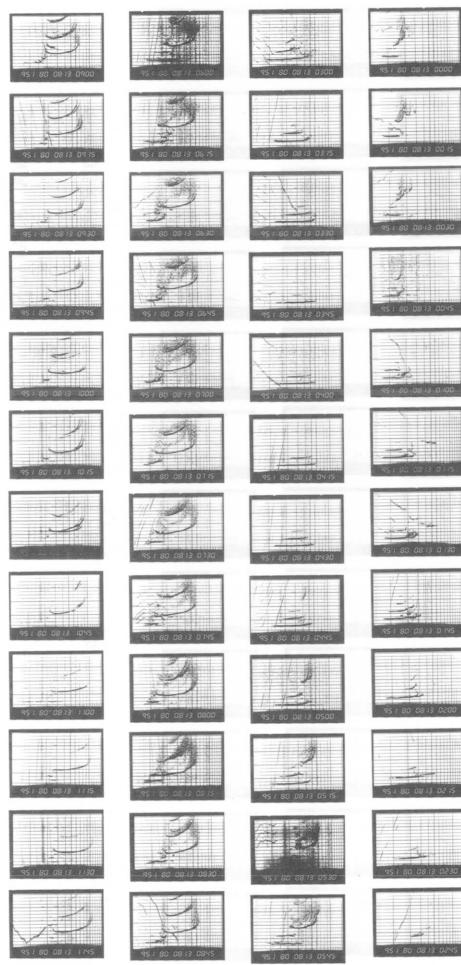
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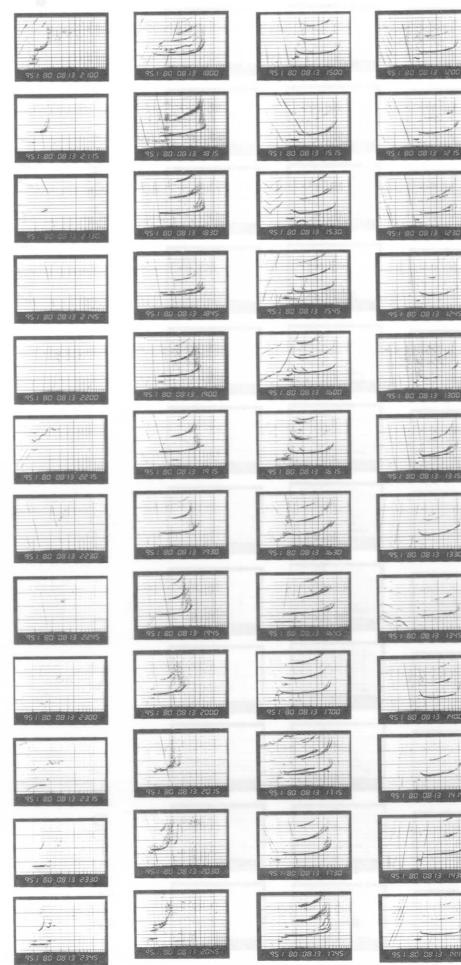
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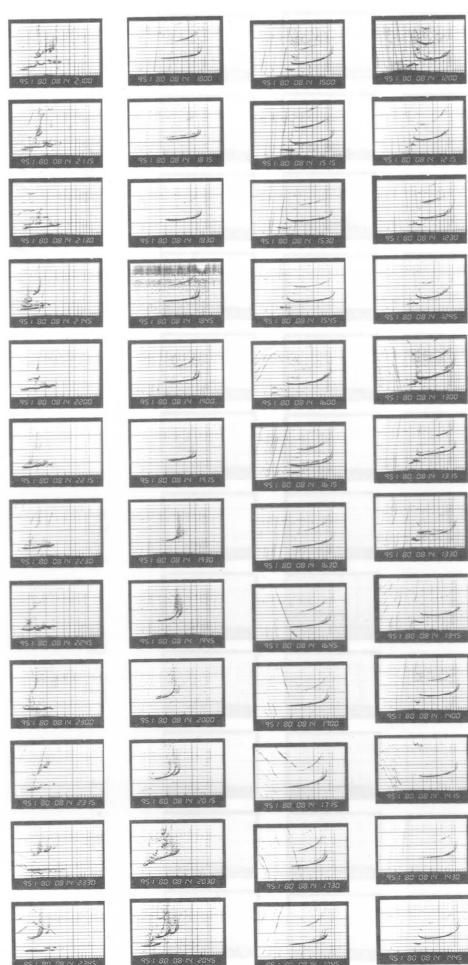
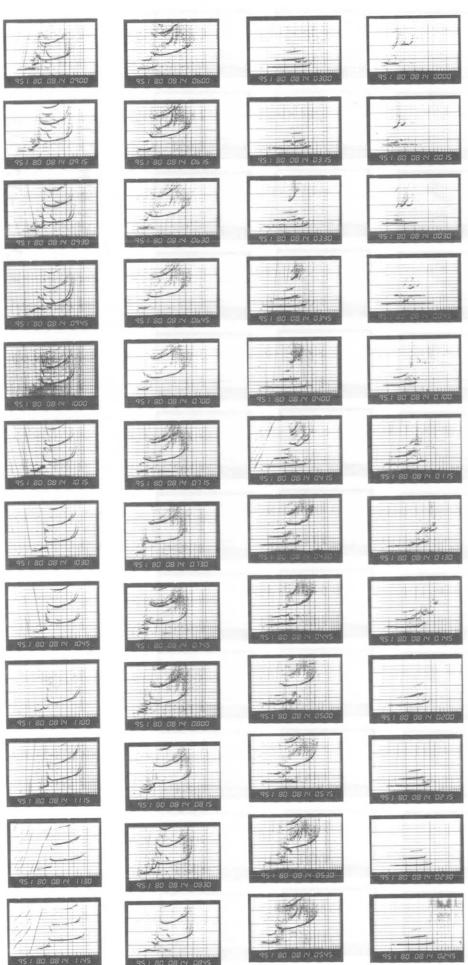
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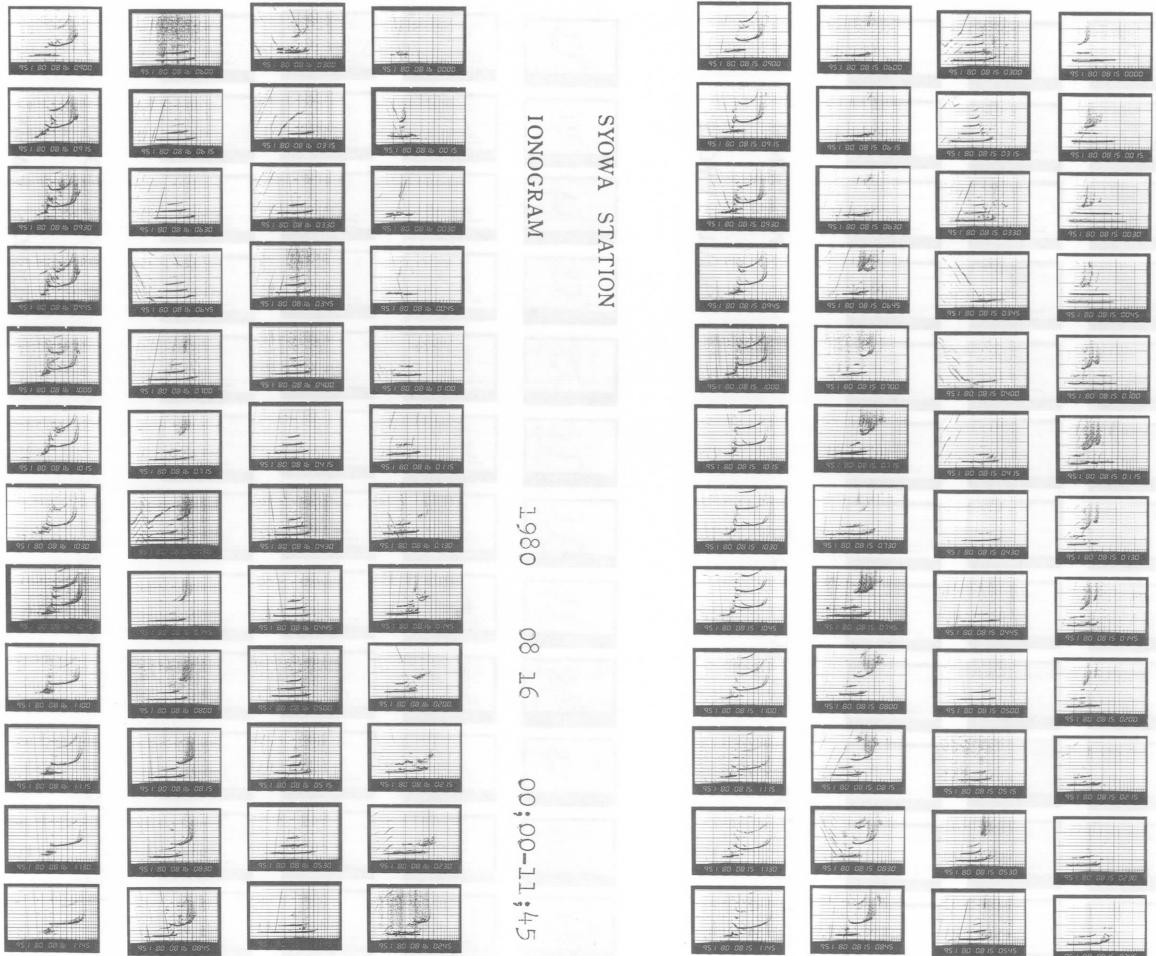
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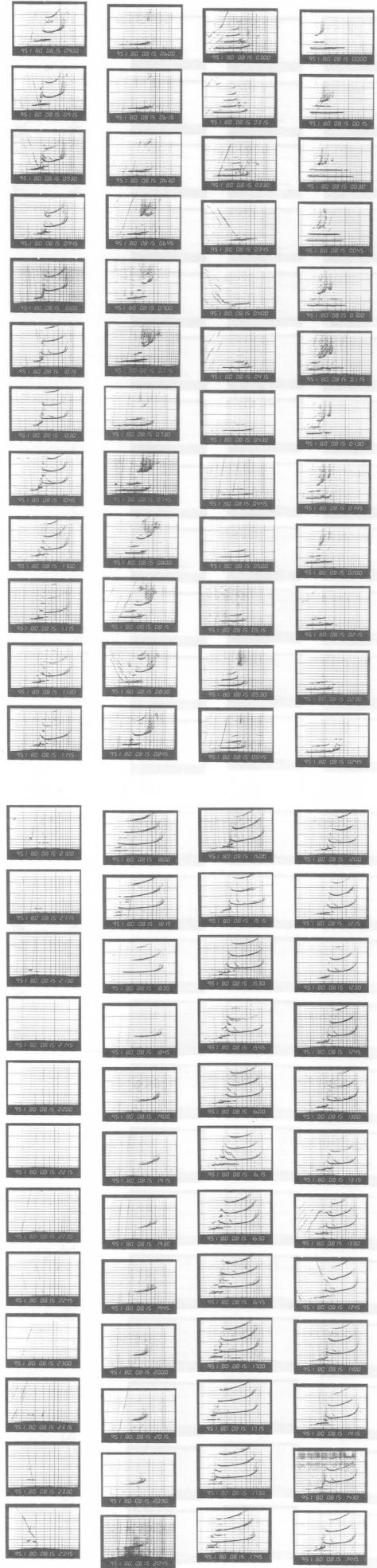
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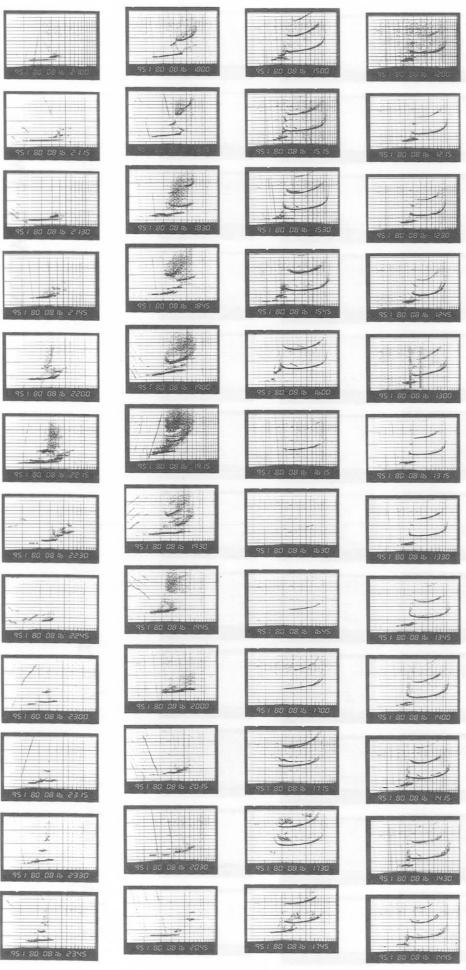
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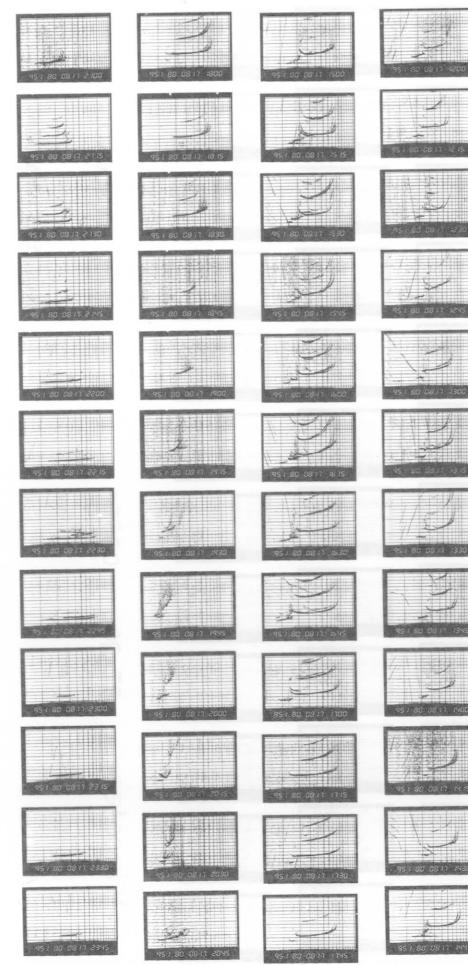
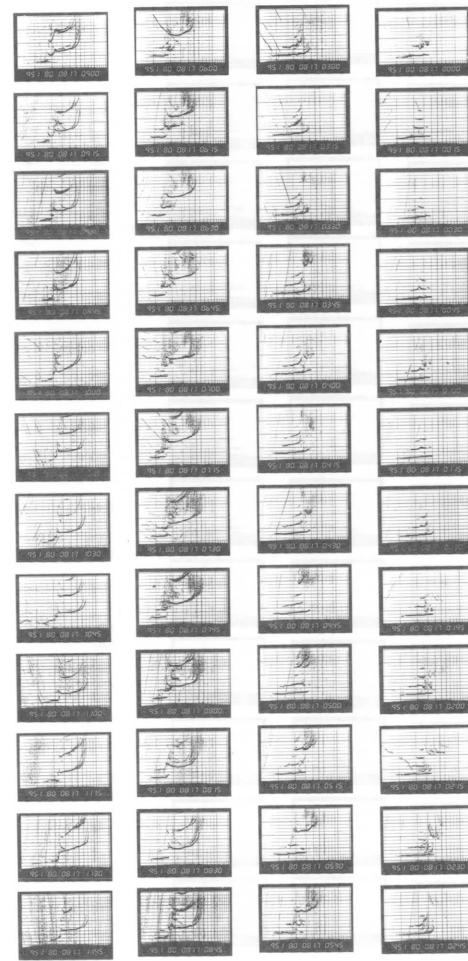
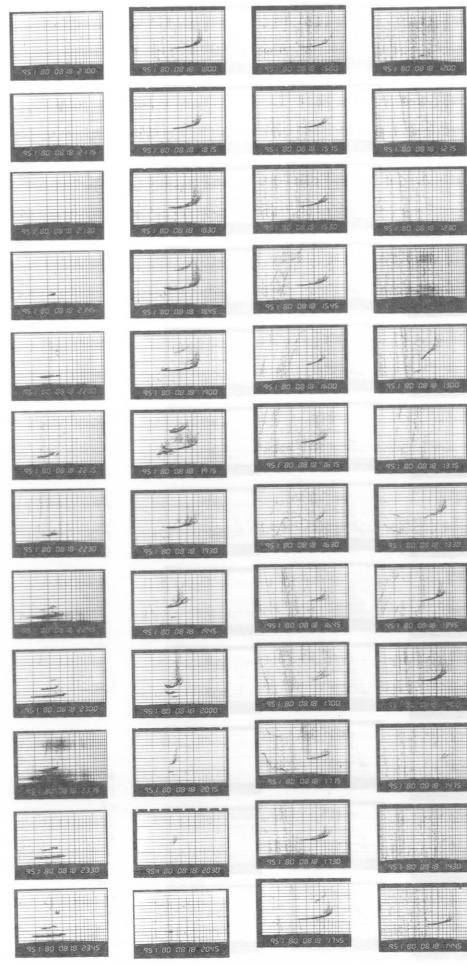
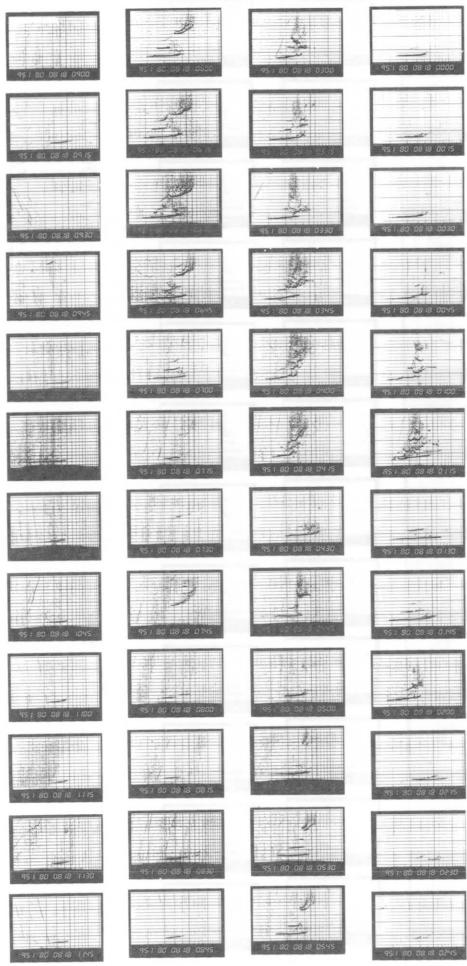
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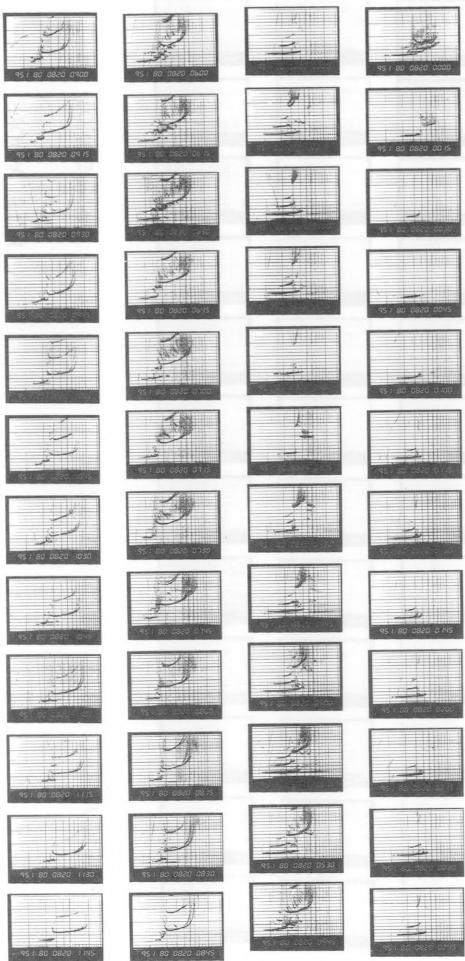
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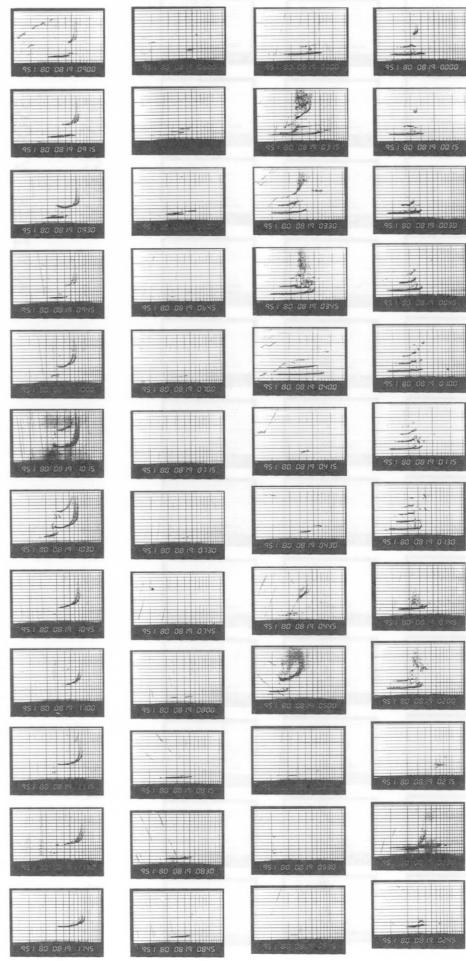
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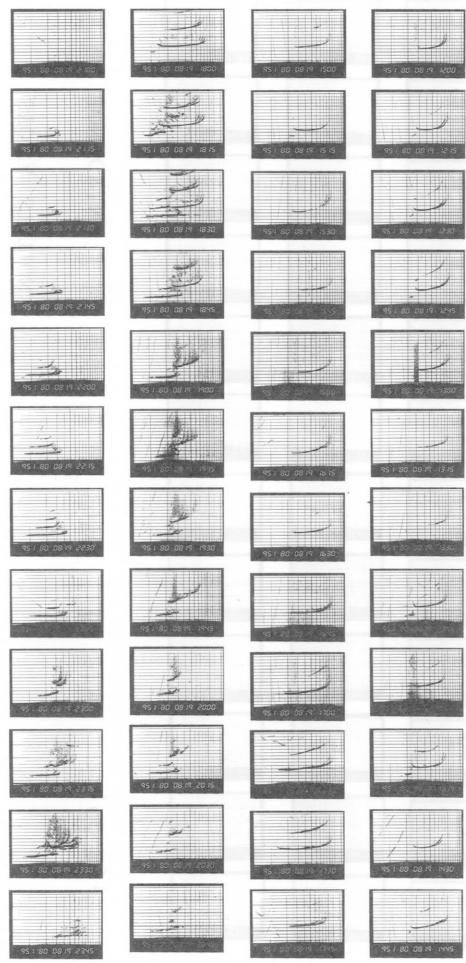
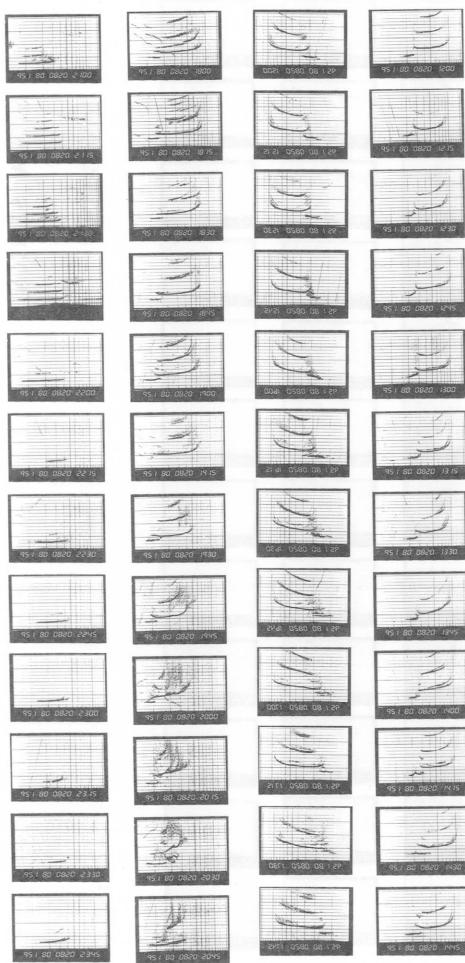
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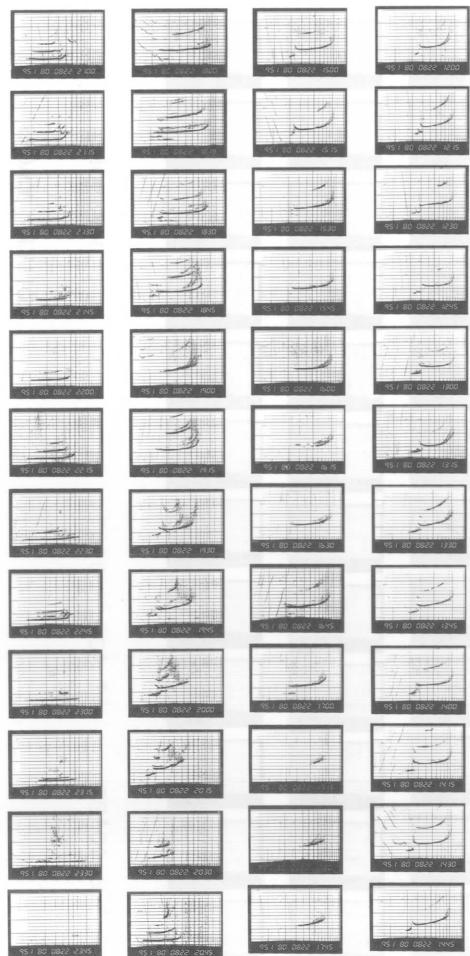
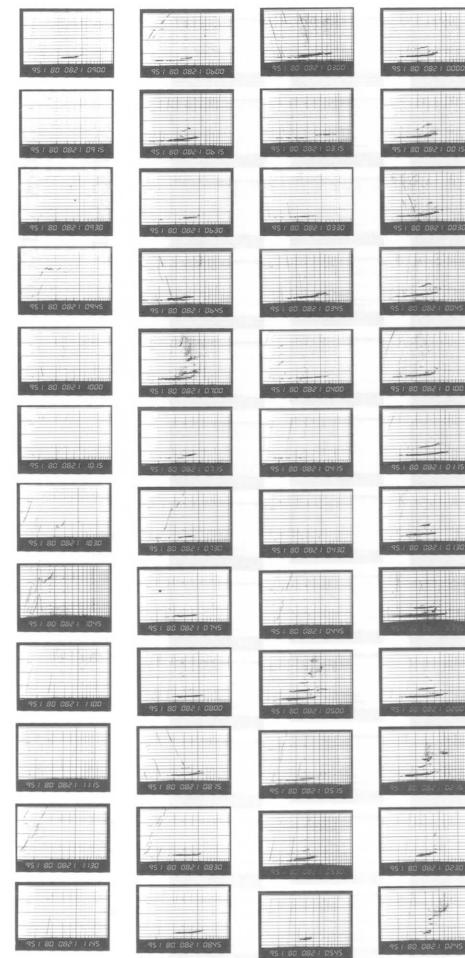
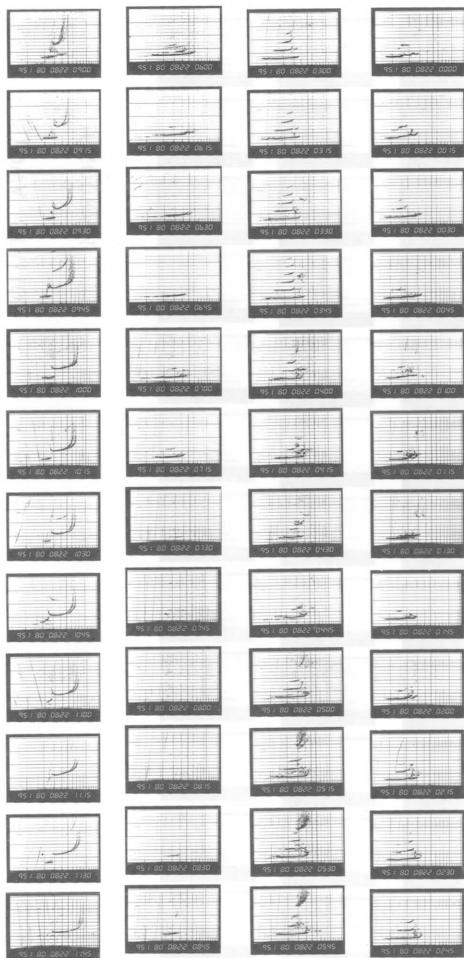
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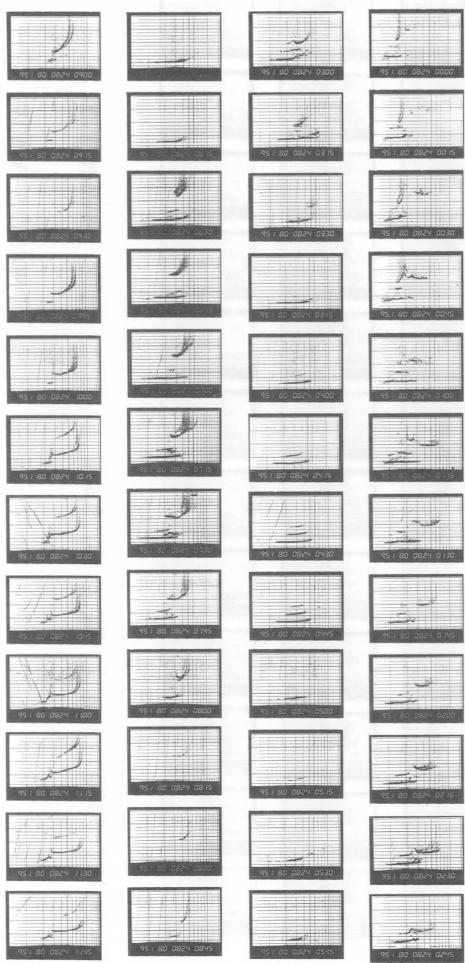
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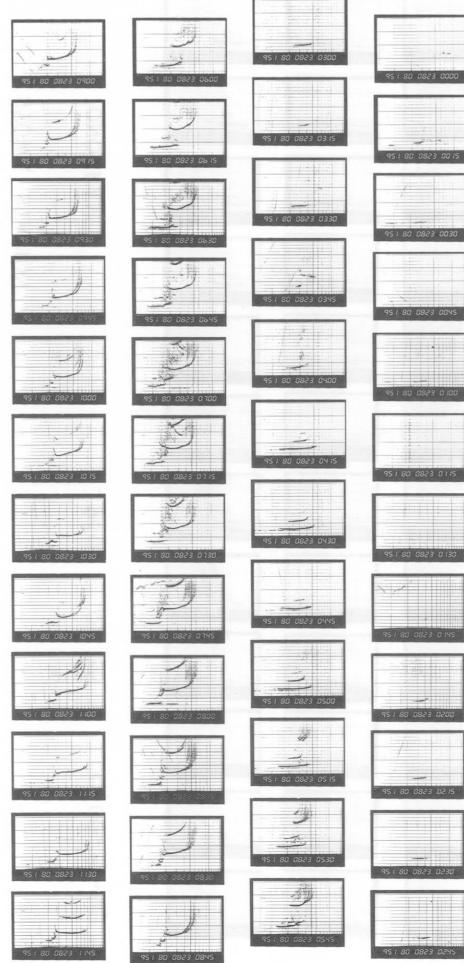
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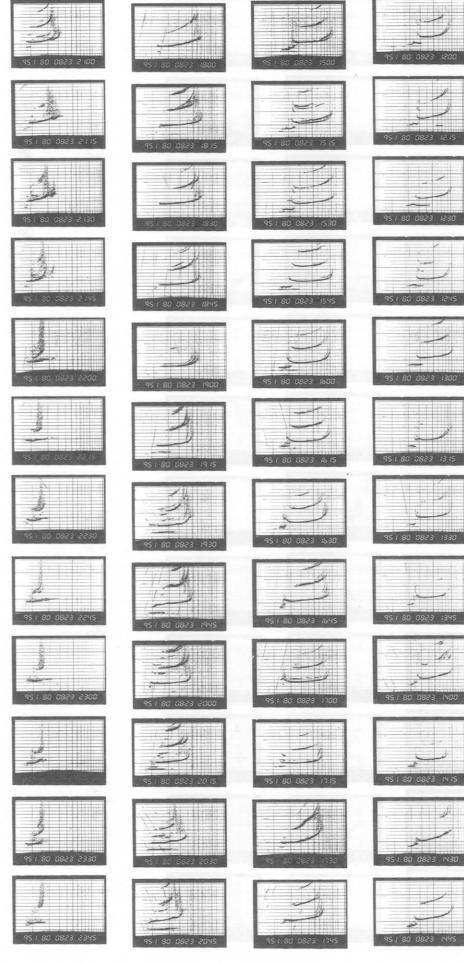
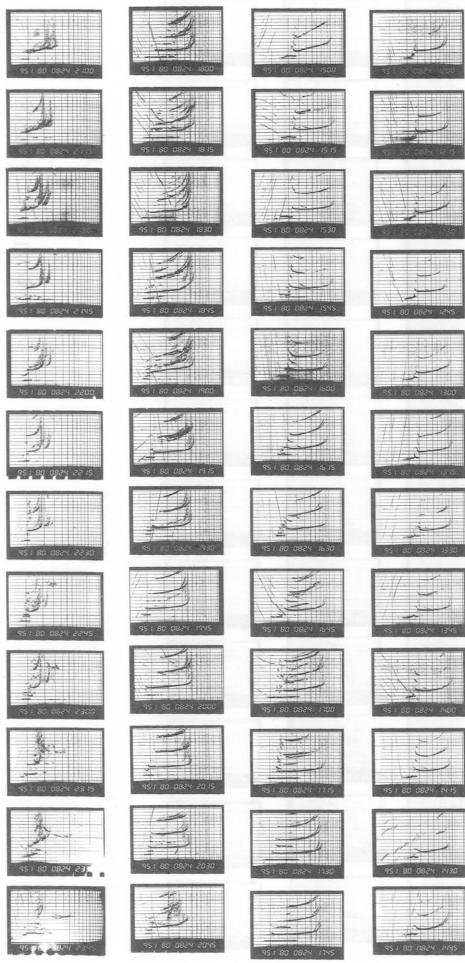
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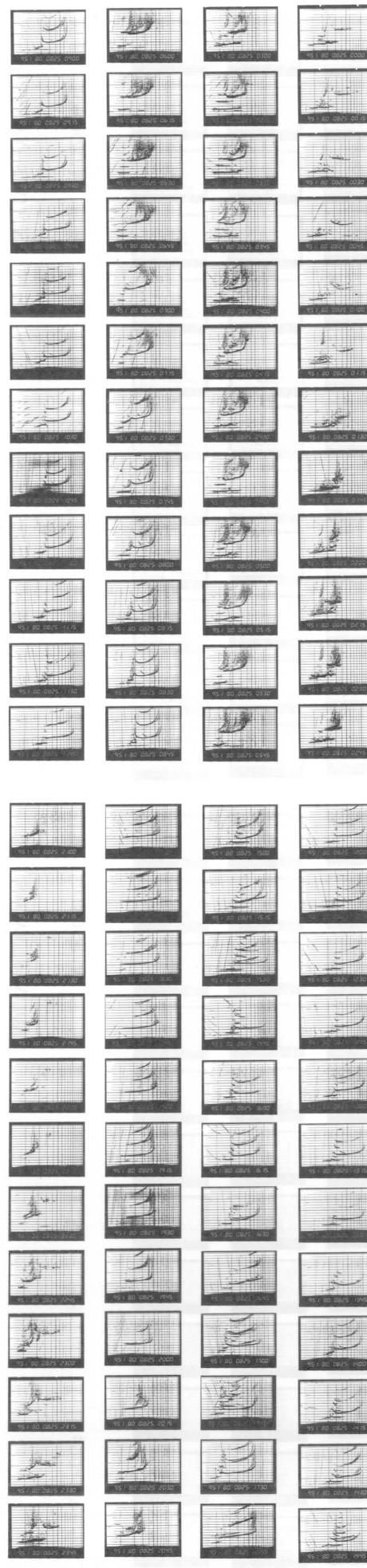
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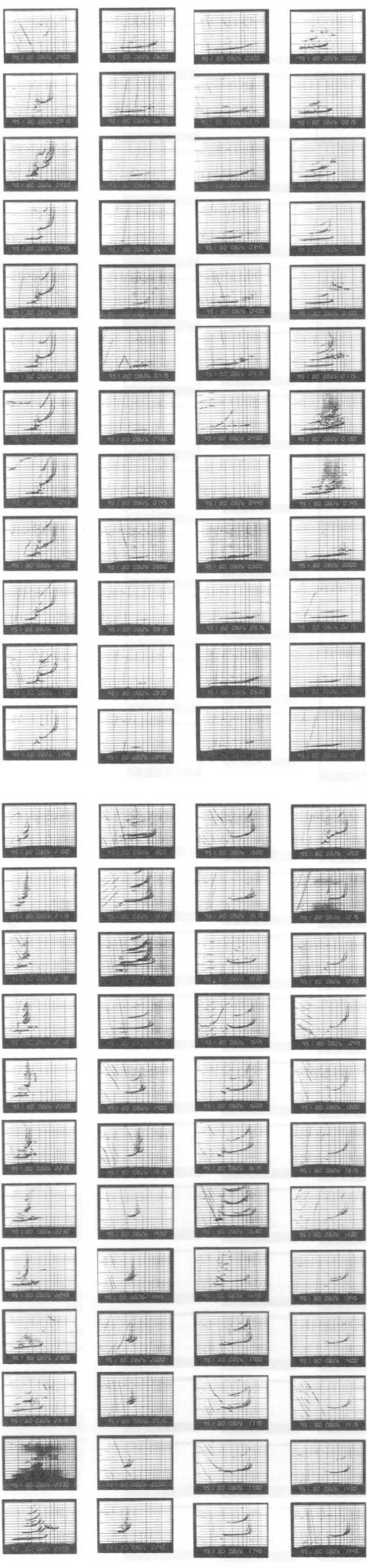
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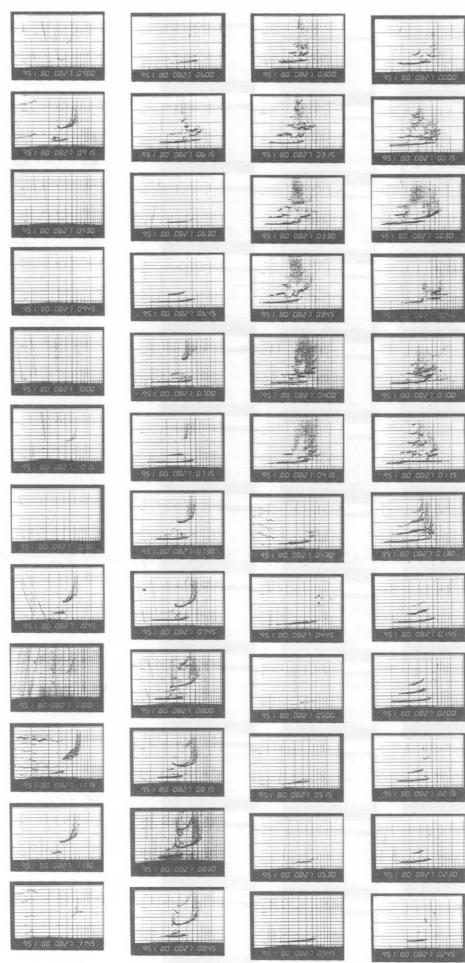
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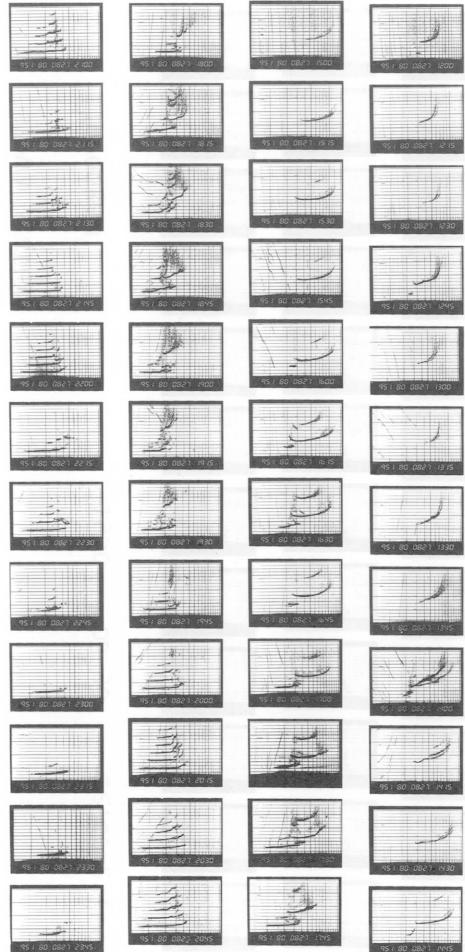


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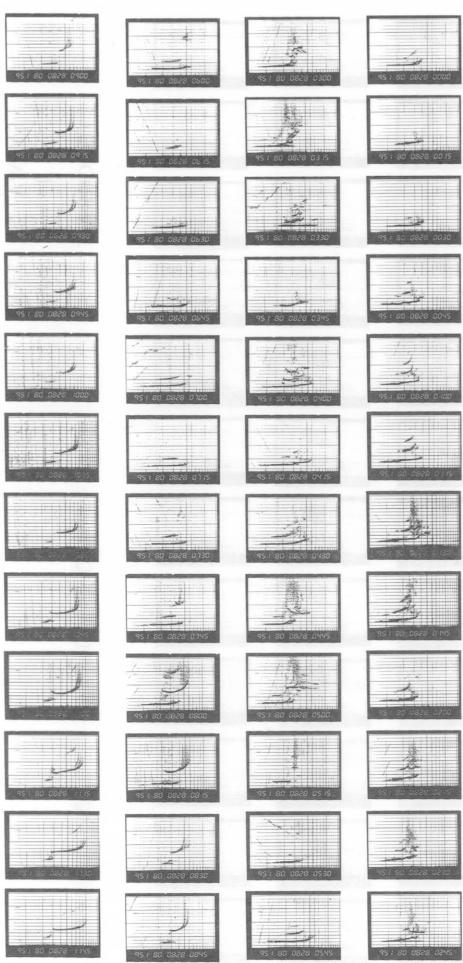
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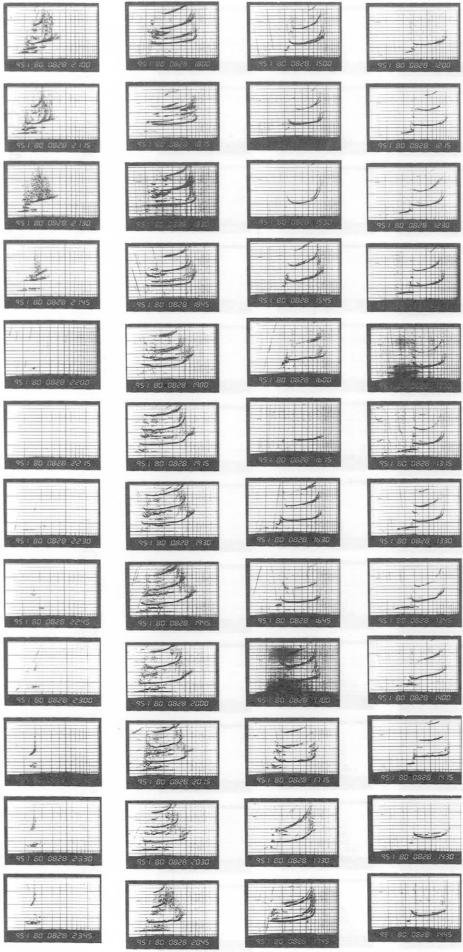


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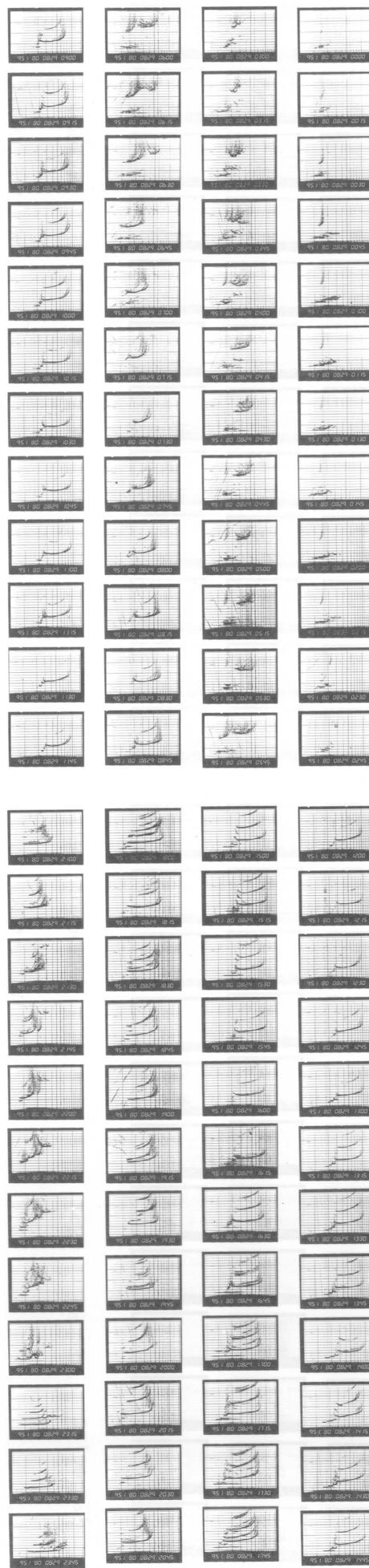
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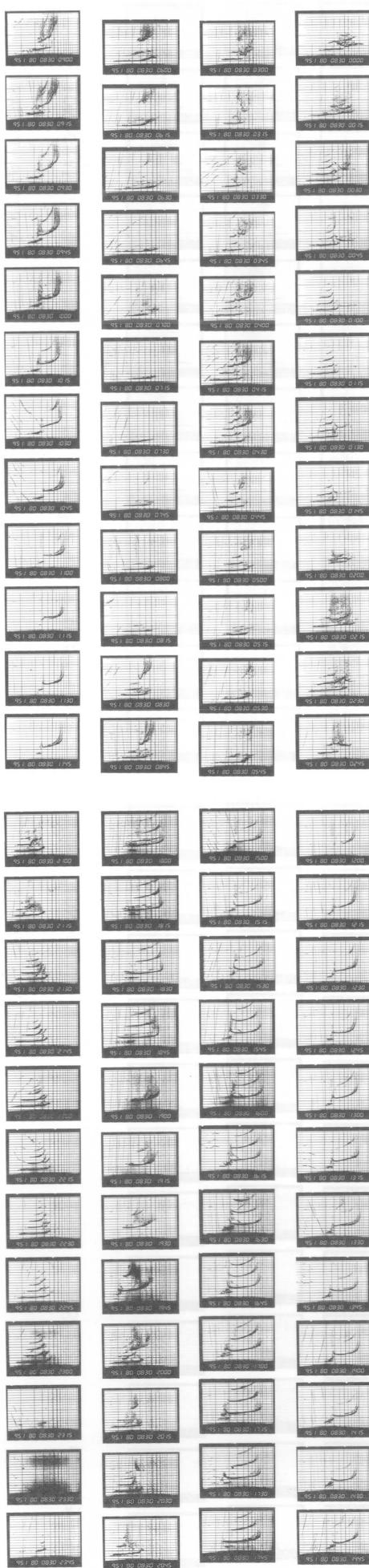
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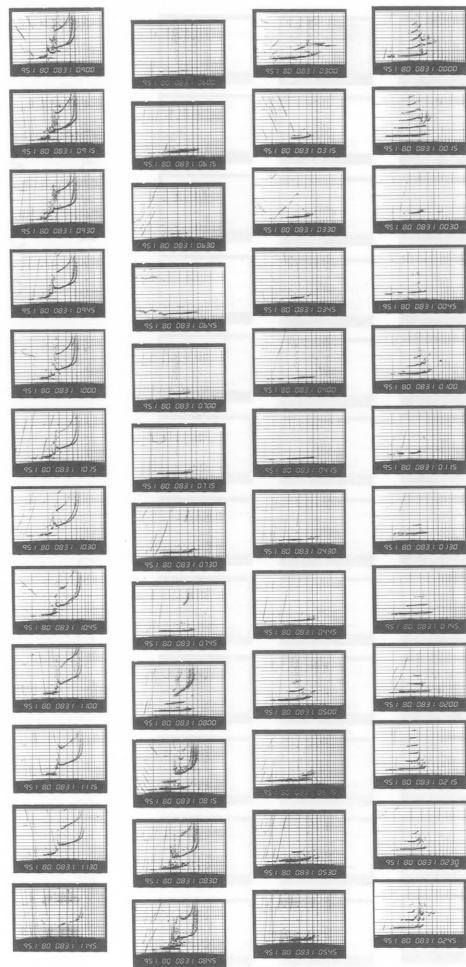
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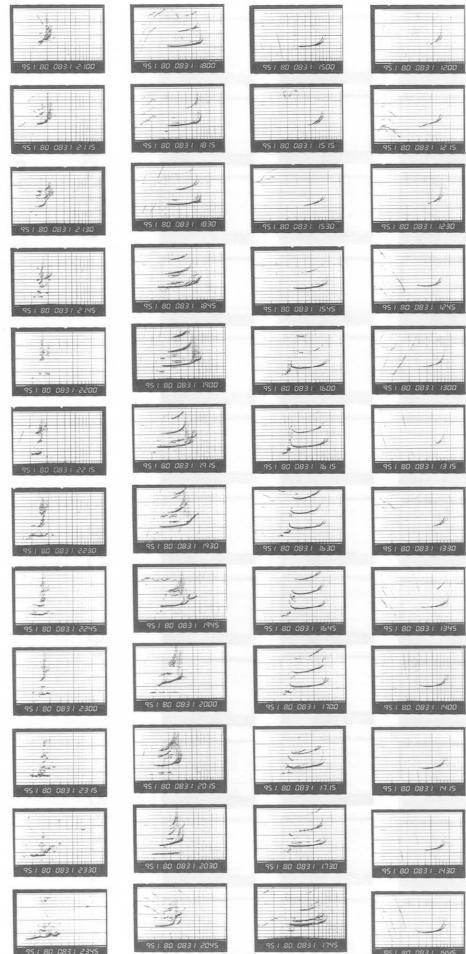
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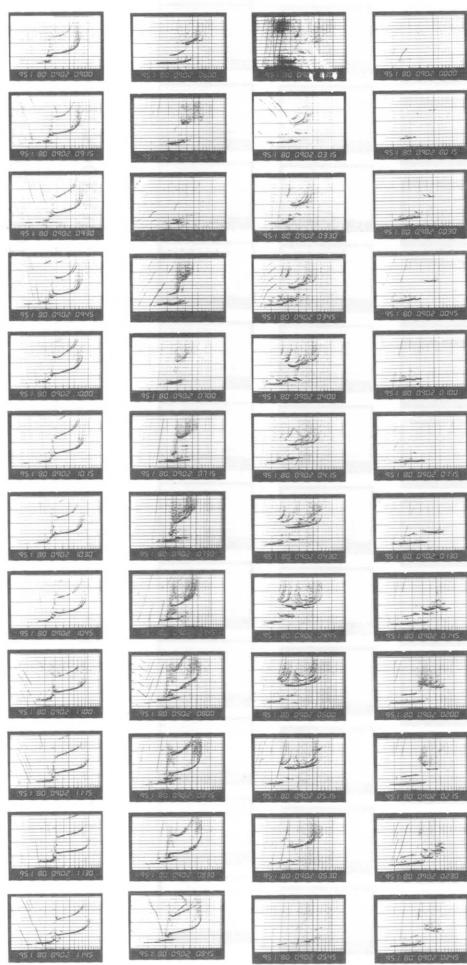
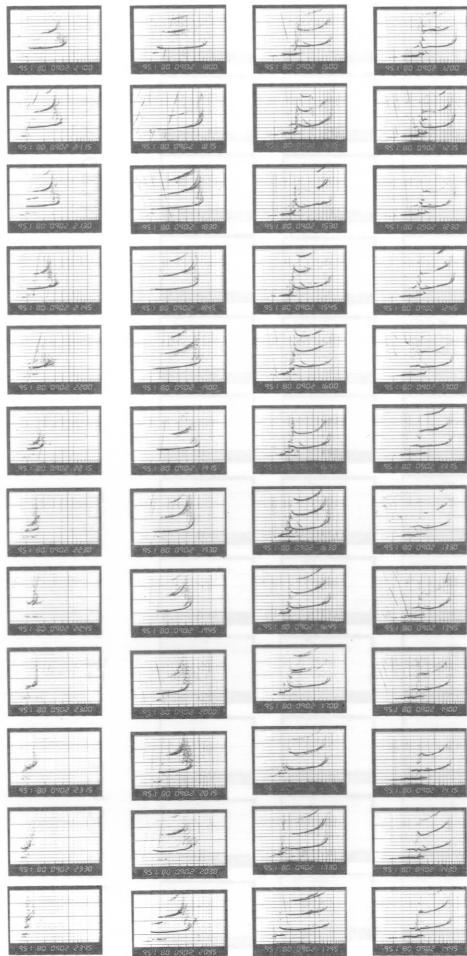
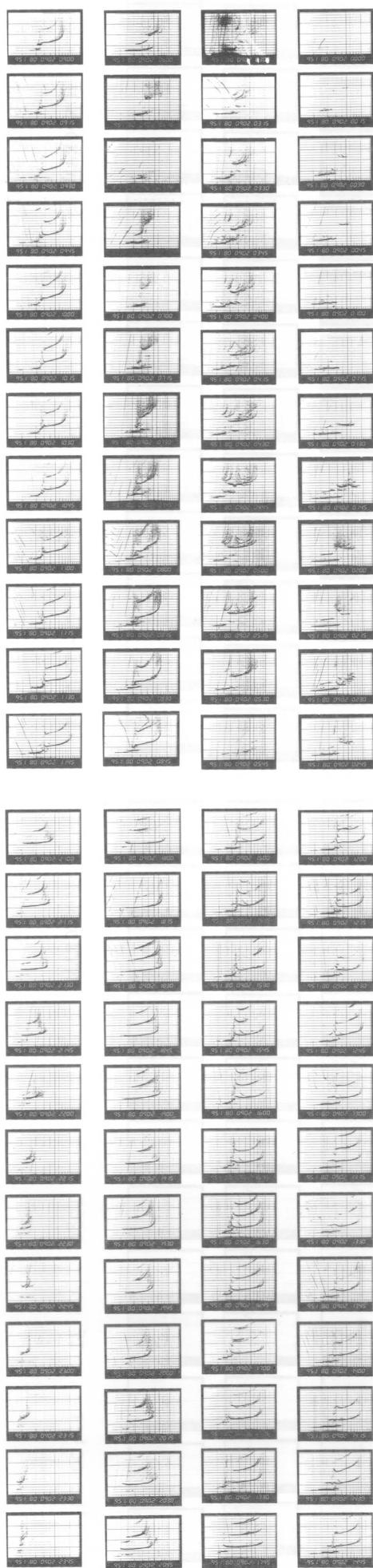
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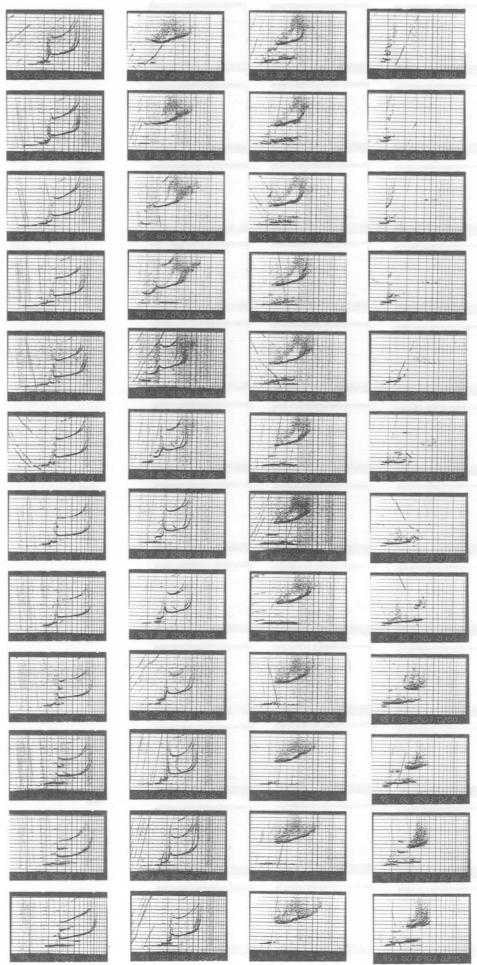
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SYOWA STATION



SYOWA STATION

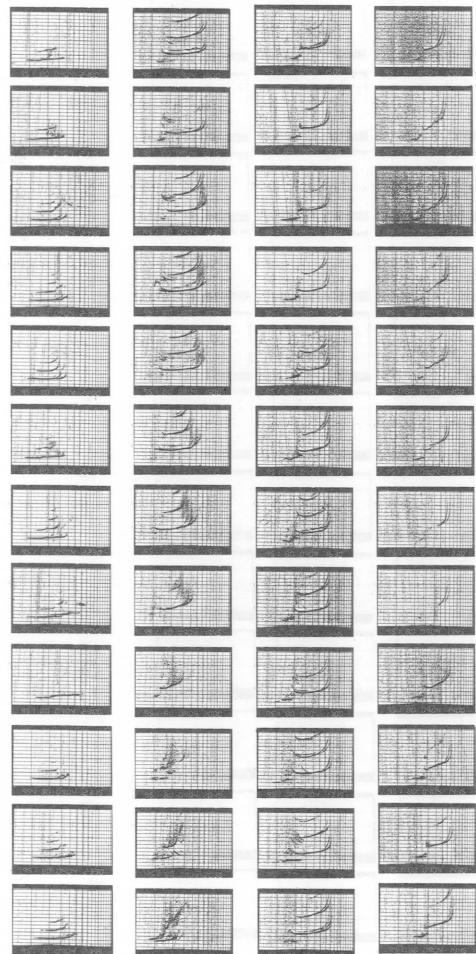
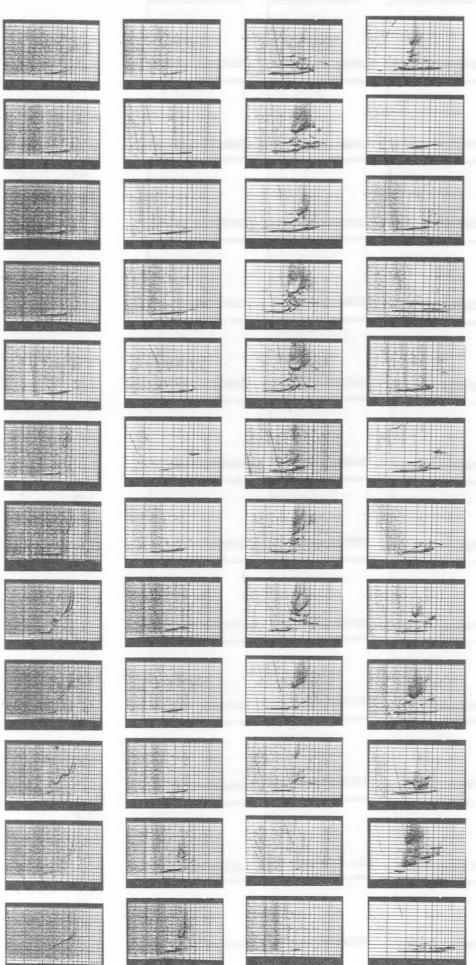
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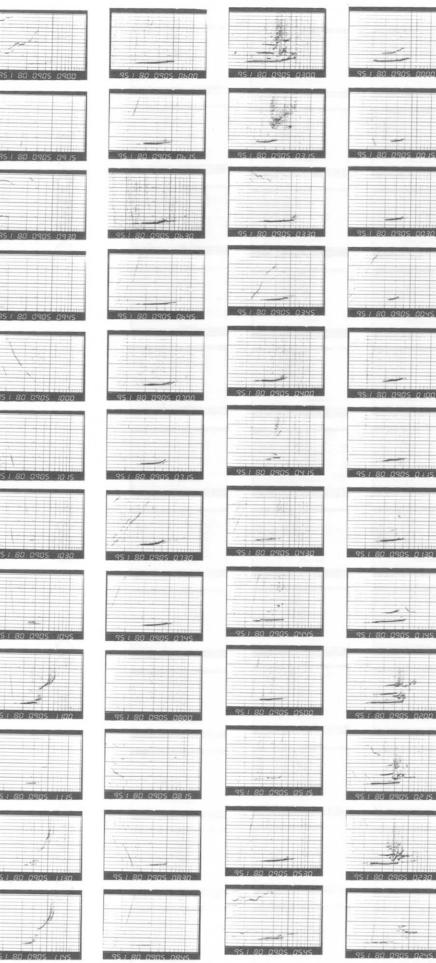
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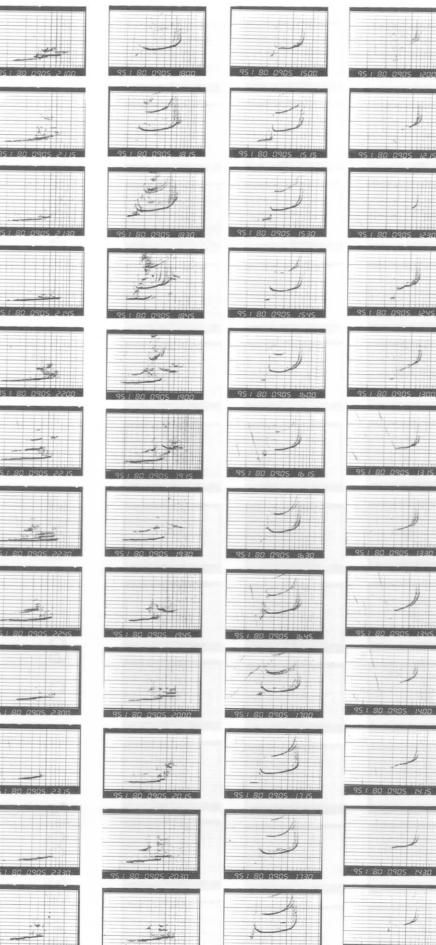
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SYOWA STATION

TONOGRAM 1980 09 07 00;00-11;45

TONOGRAM

SYOWA STATION

1980 09 07 12;00-23;45



SYOWA STATION

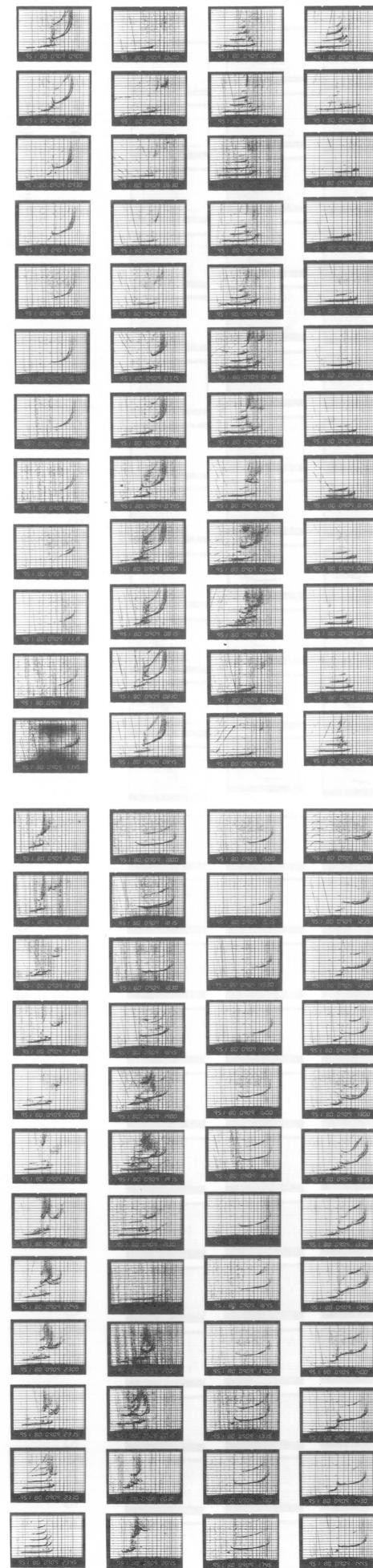
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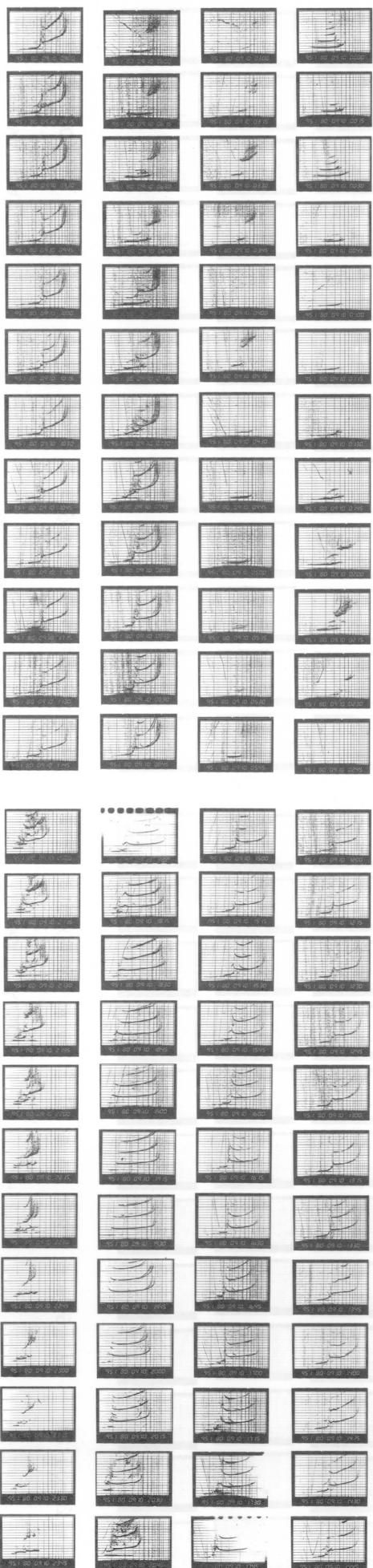
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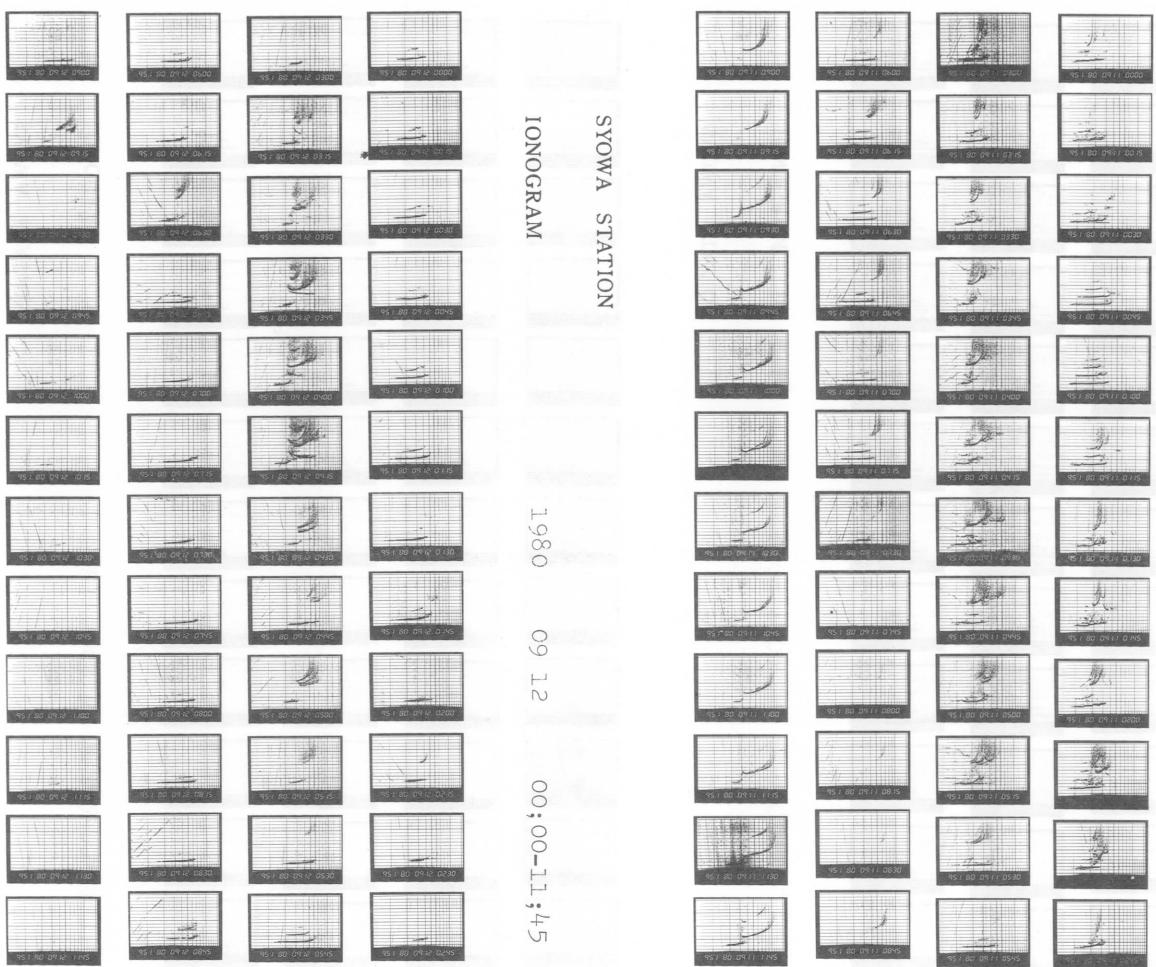
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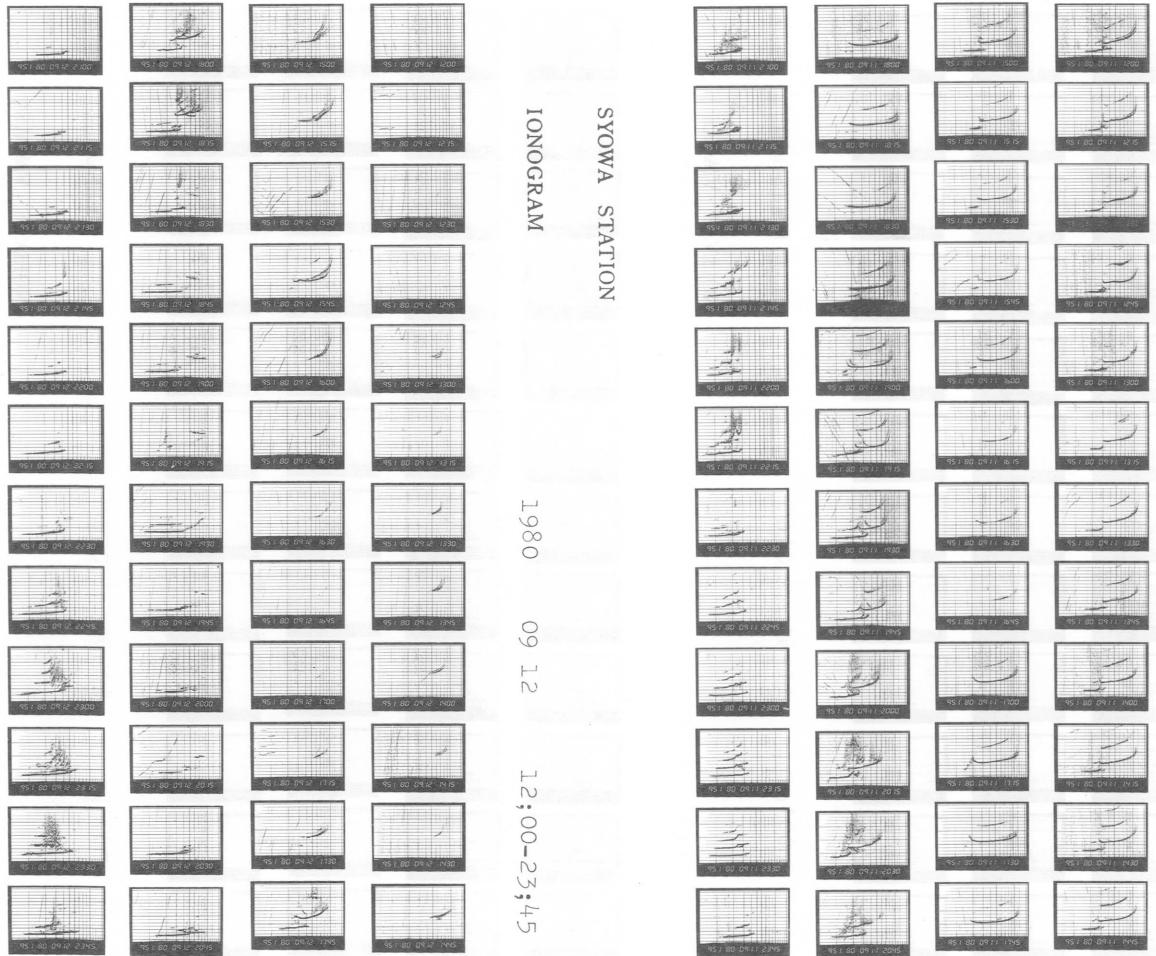
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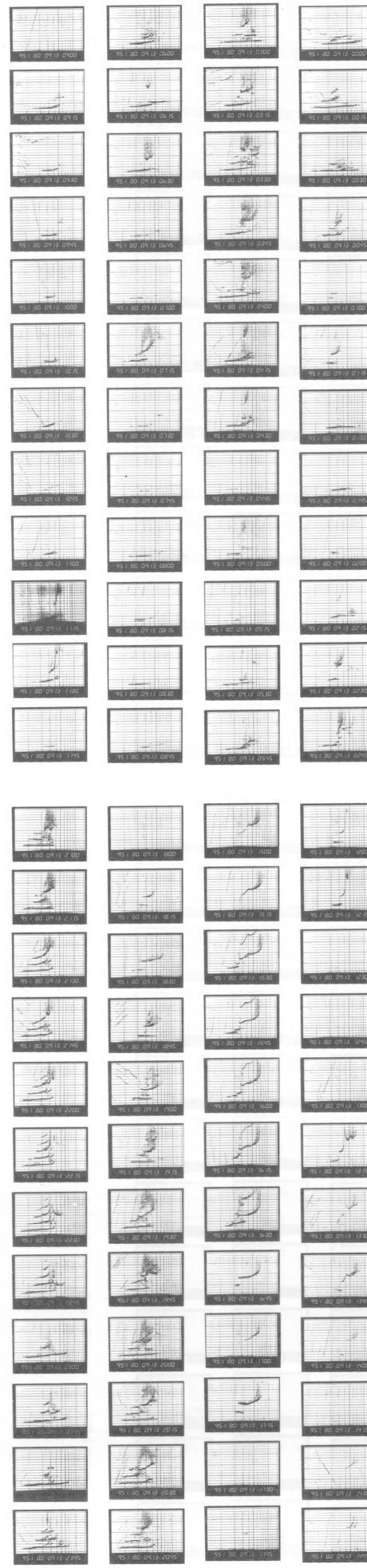
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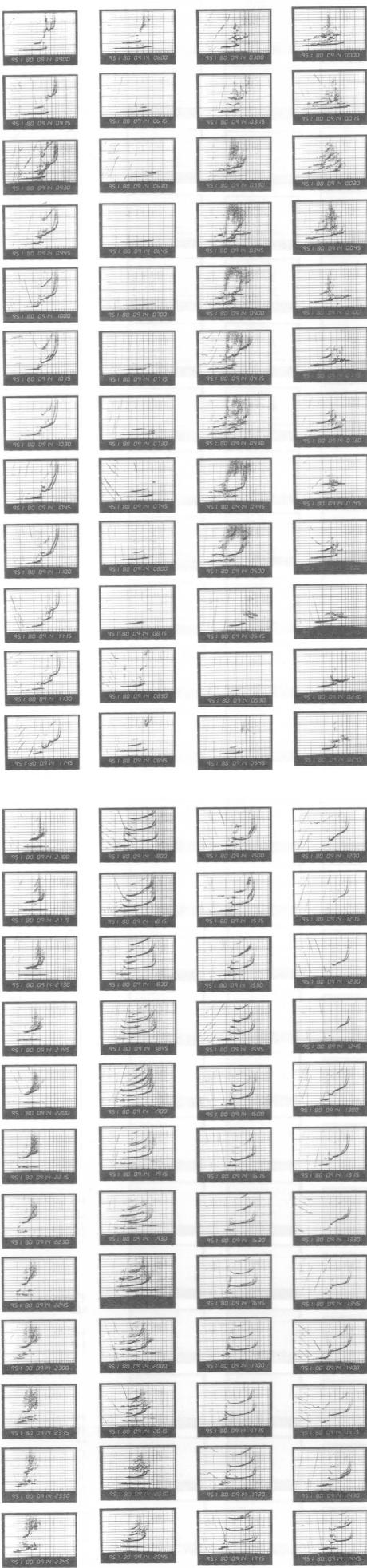
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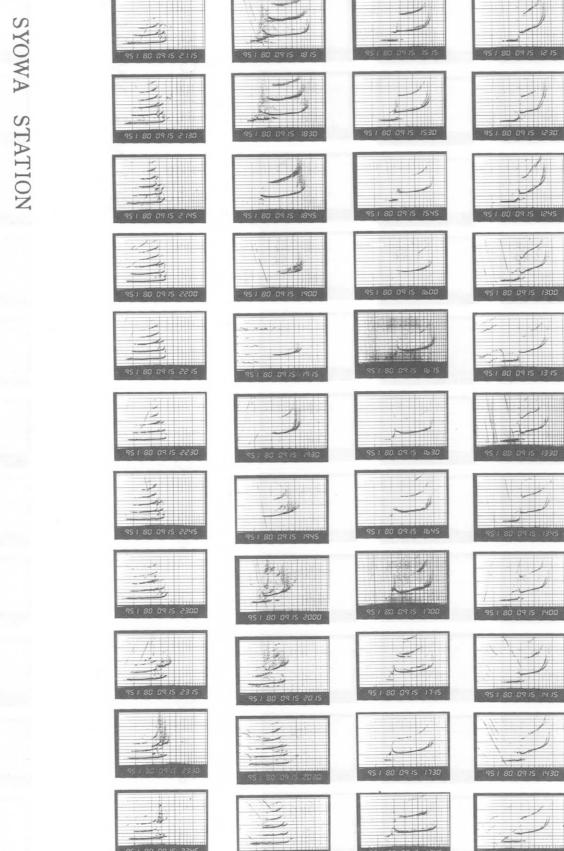
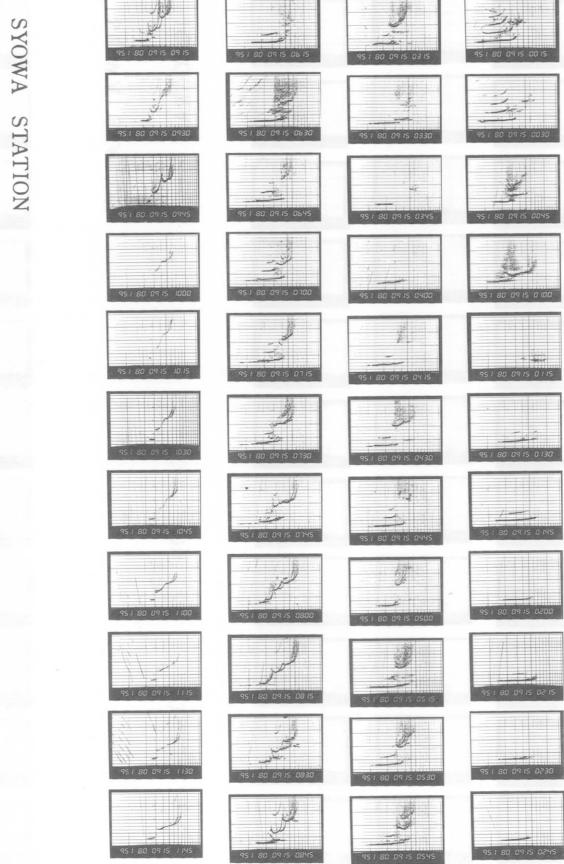
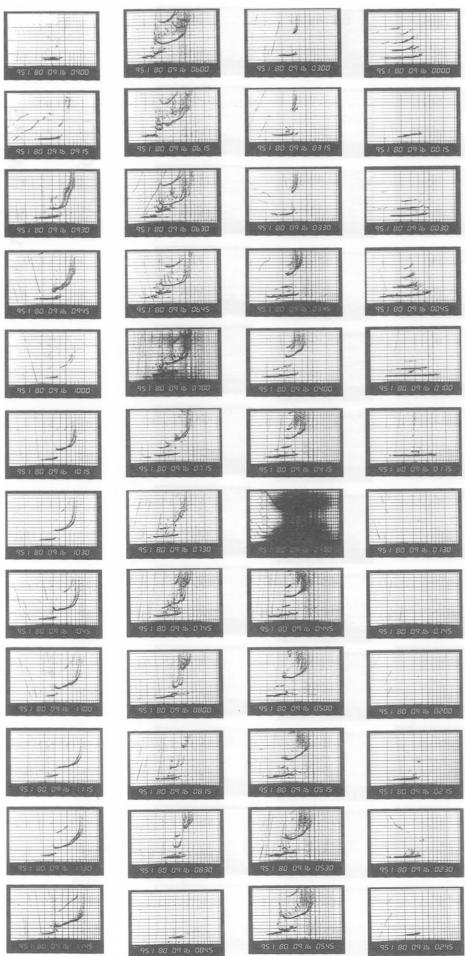
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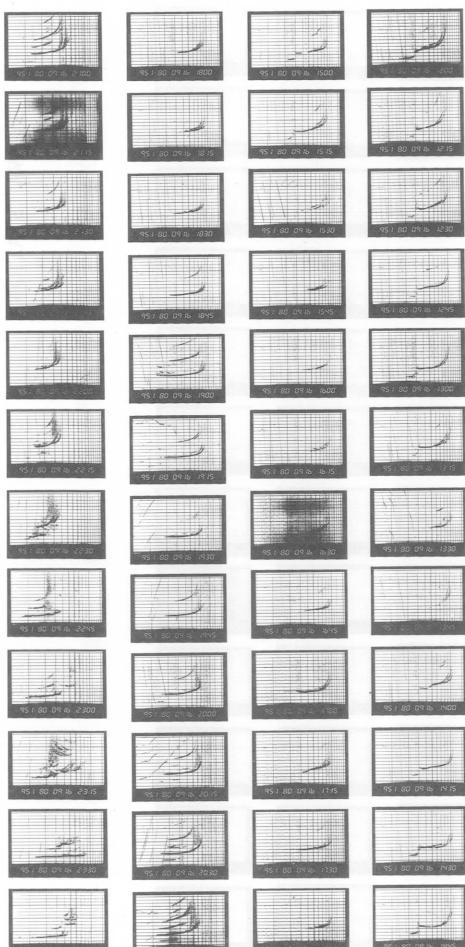
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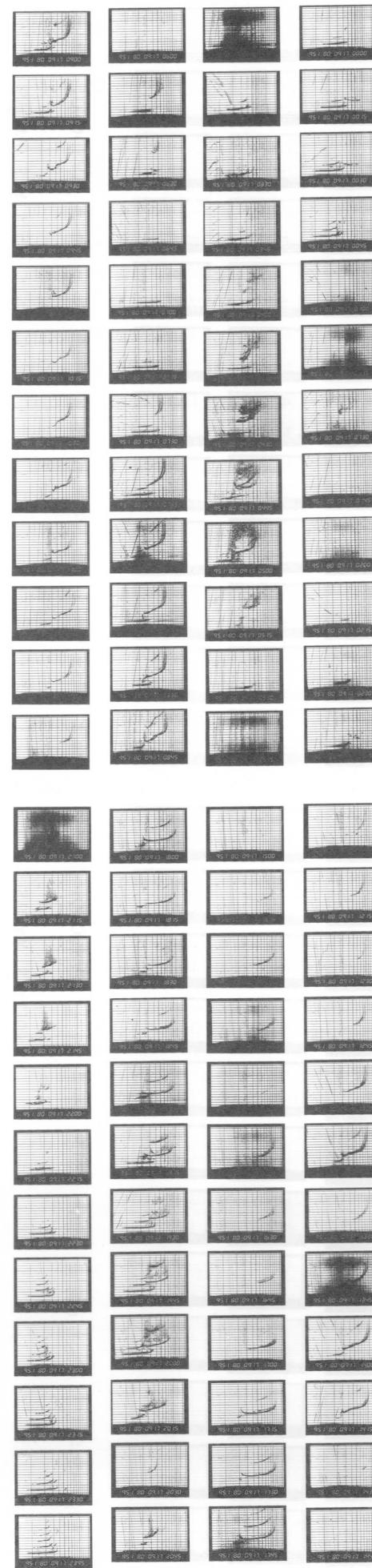
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SYOWA STATION

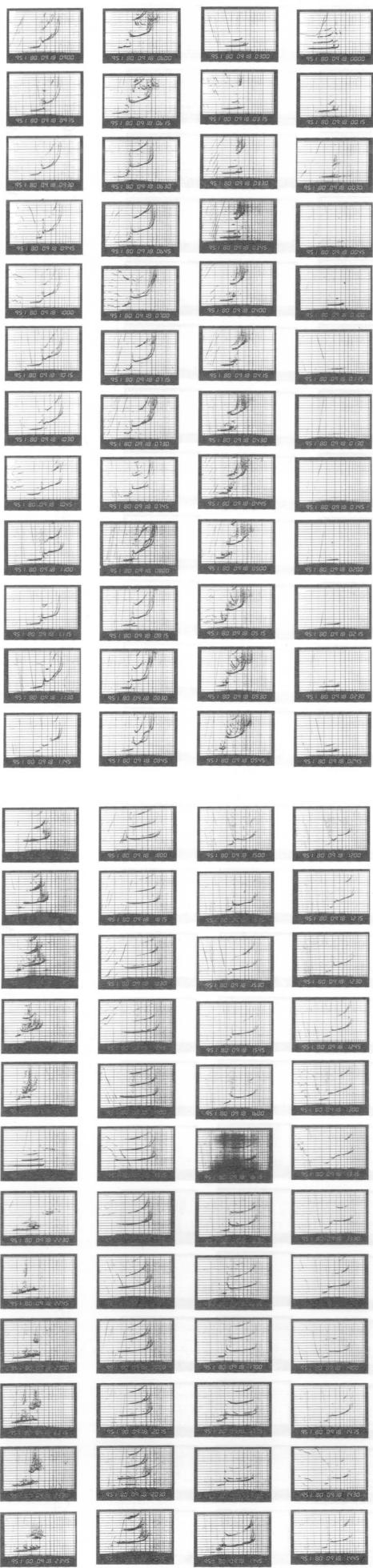
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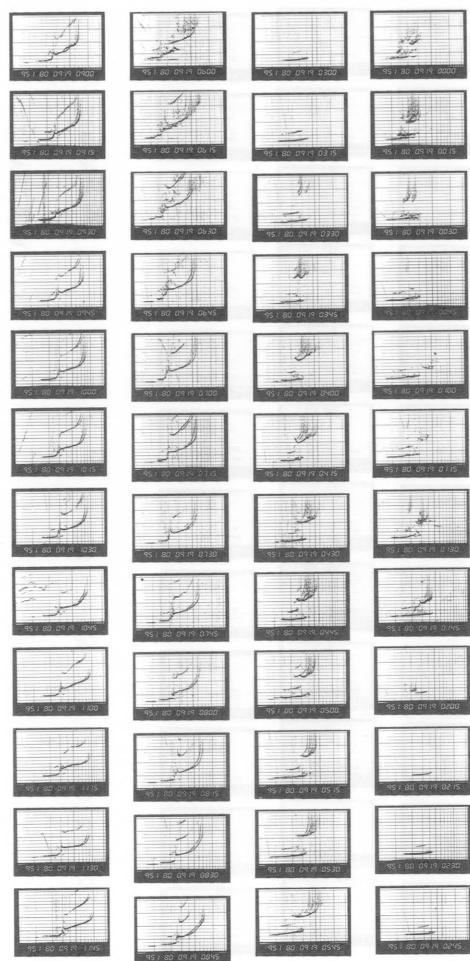


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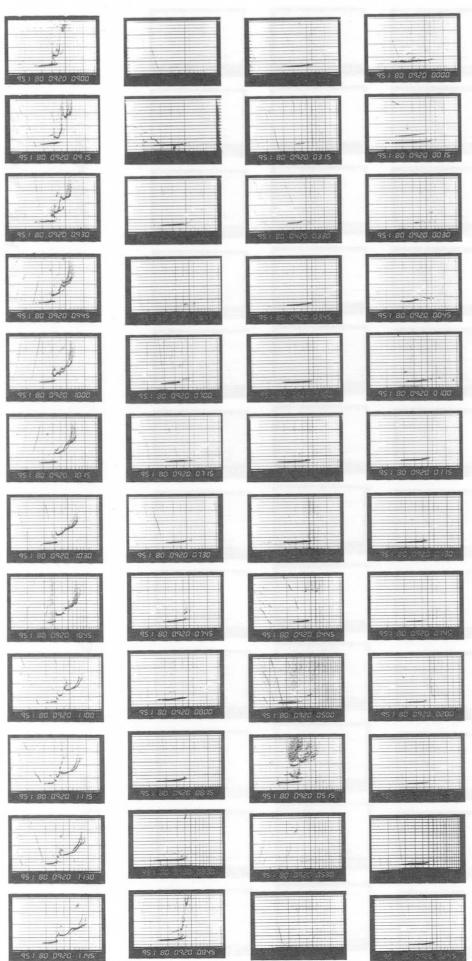
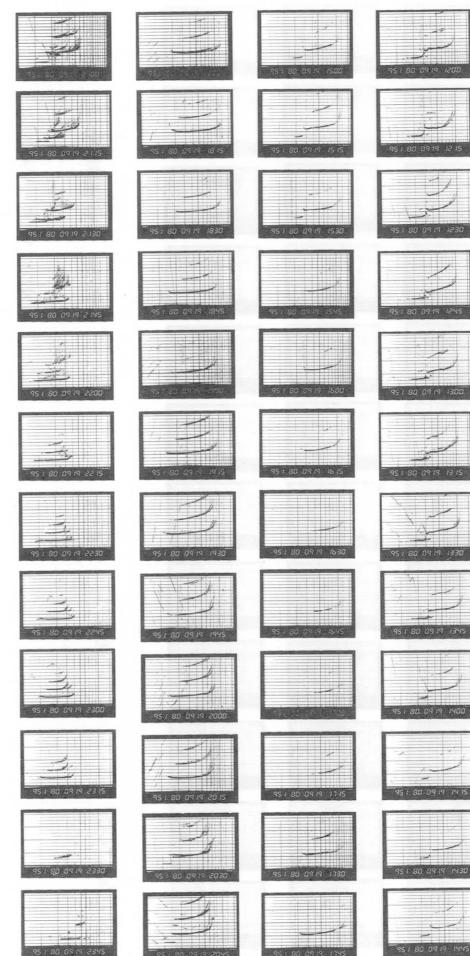


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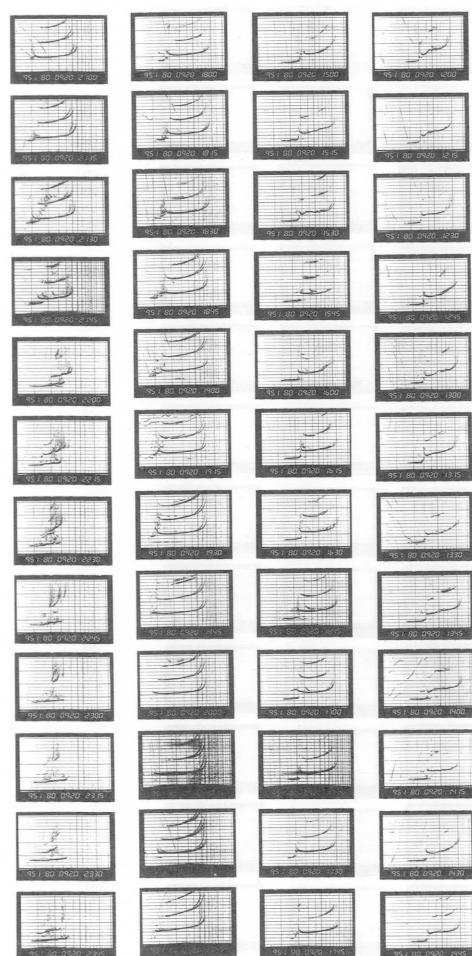
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1980 09 20 12;00-23;45



SYOWA STATION

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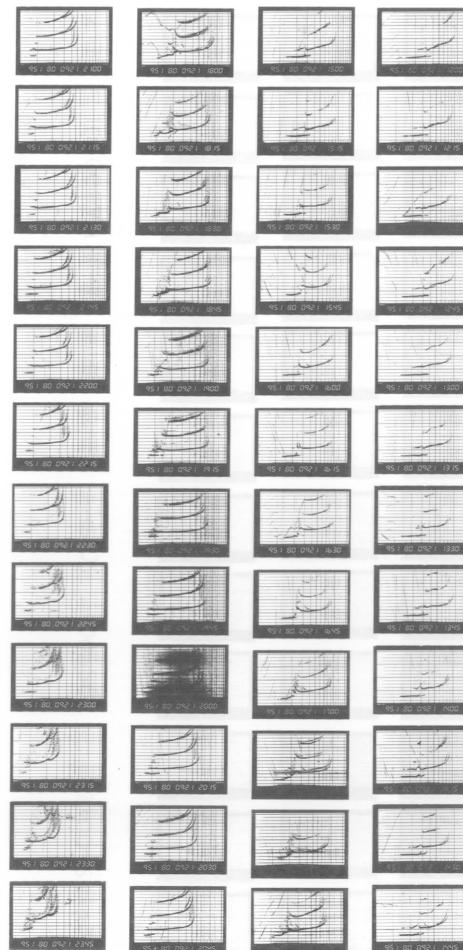
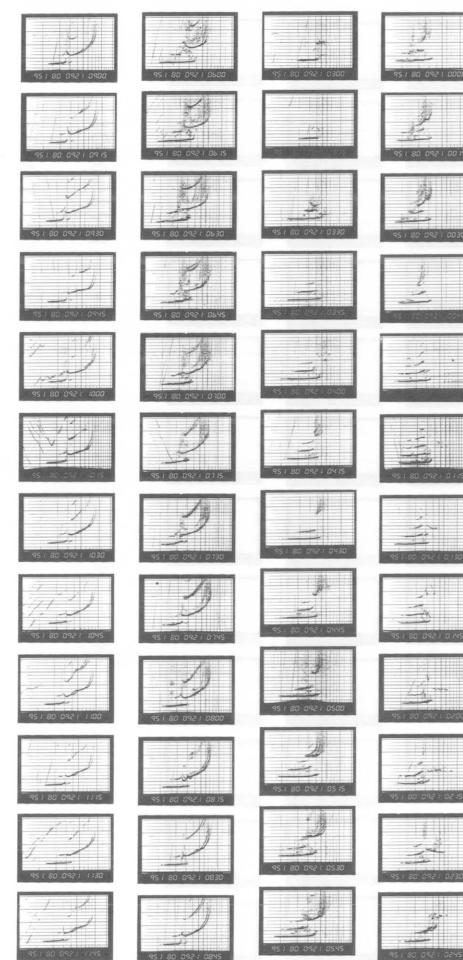
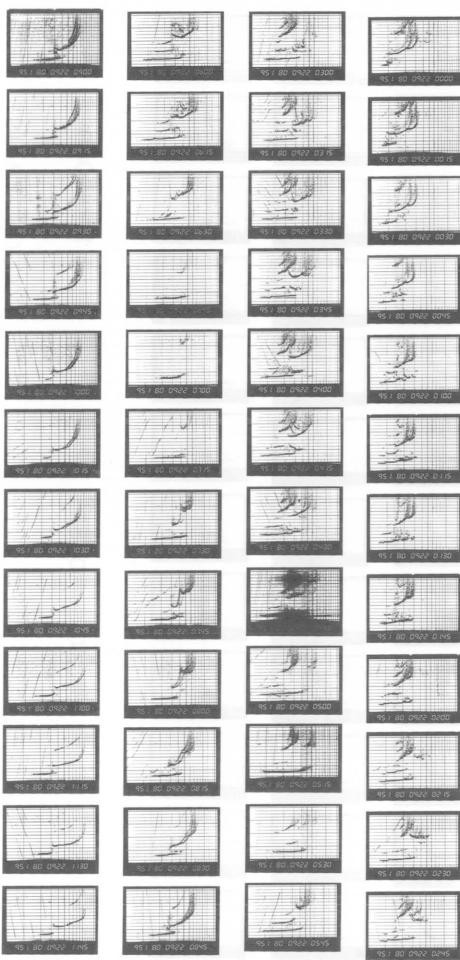
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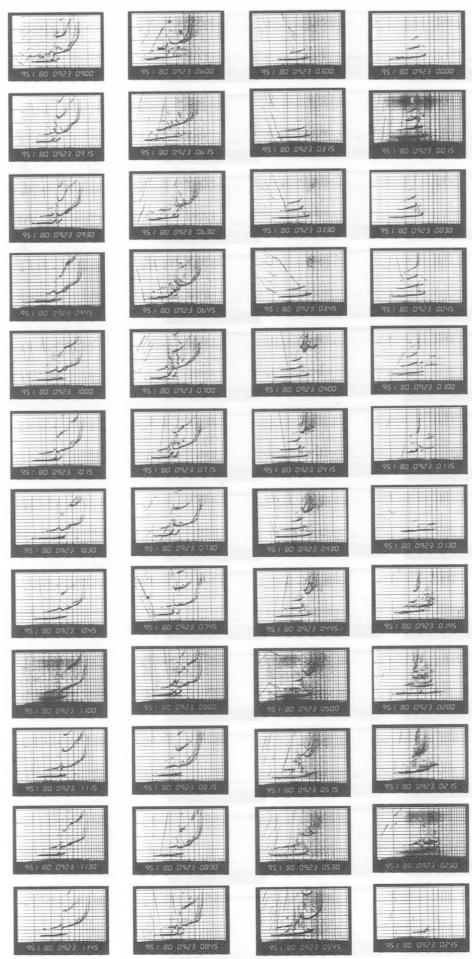
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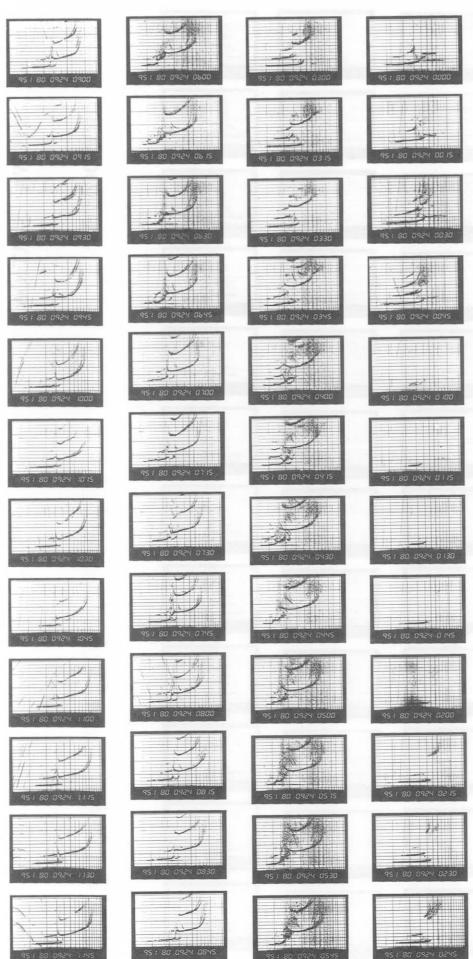
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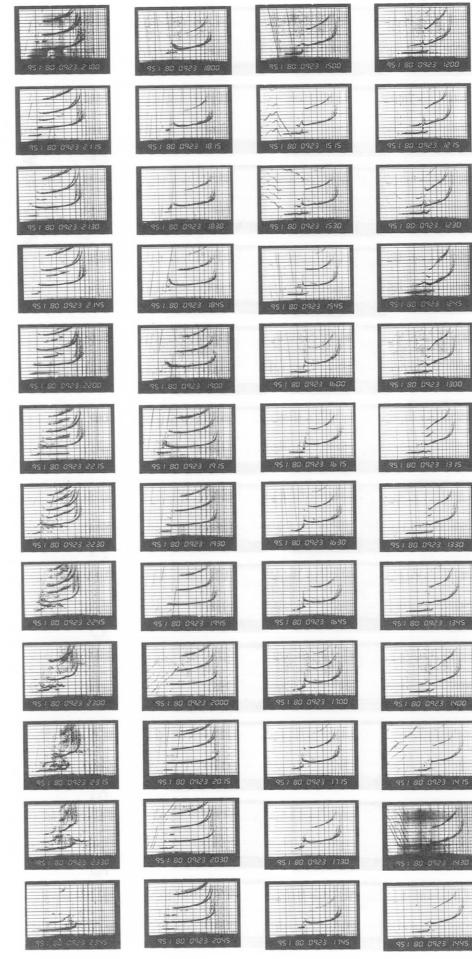
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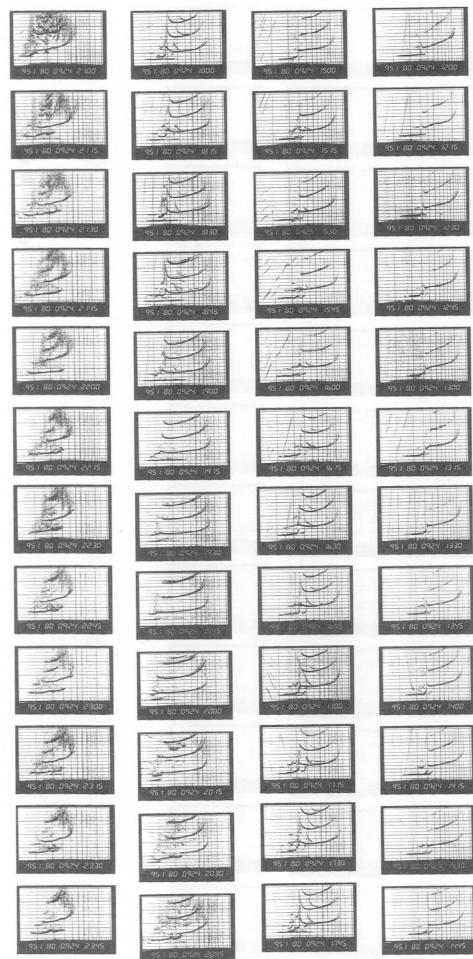
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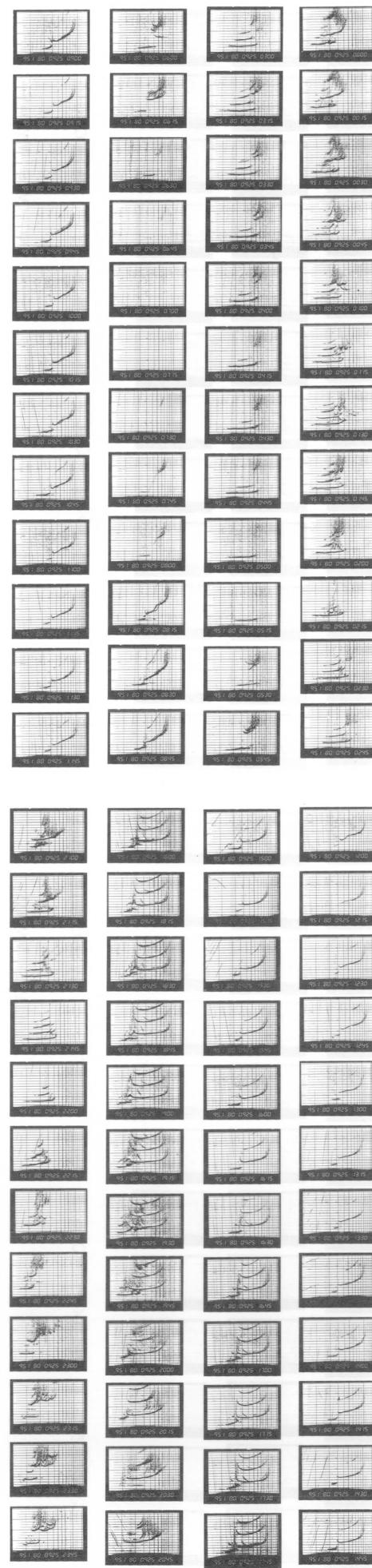
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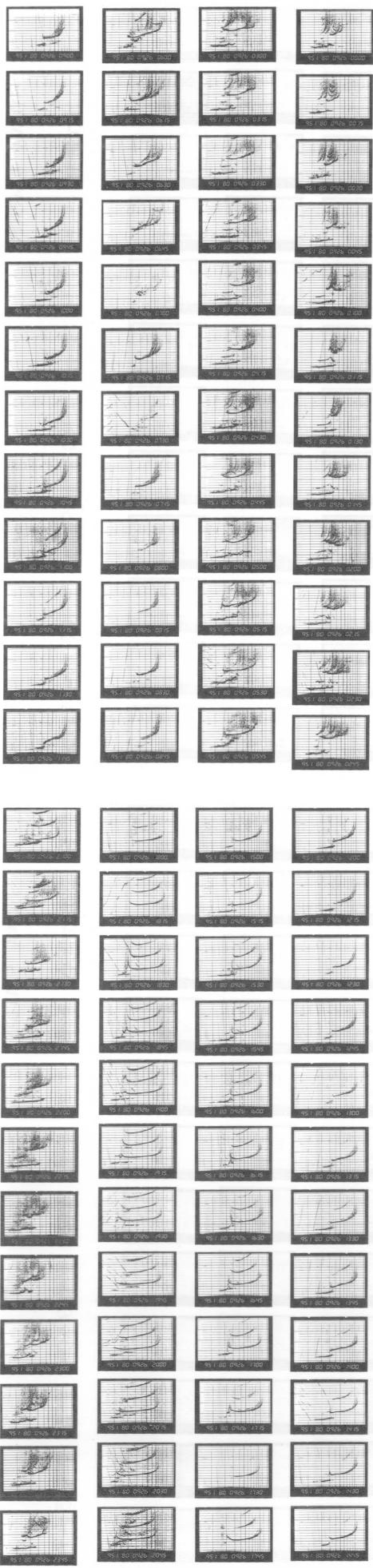
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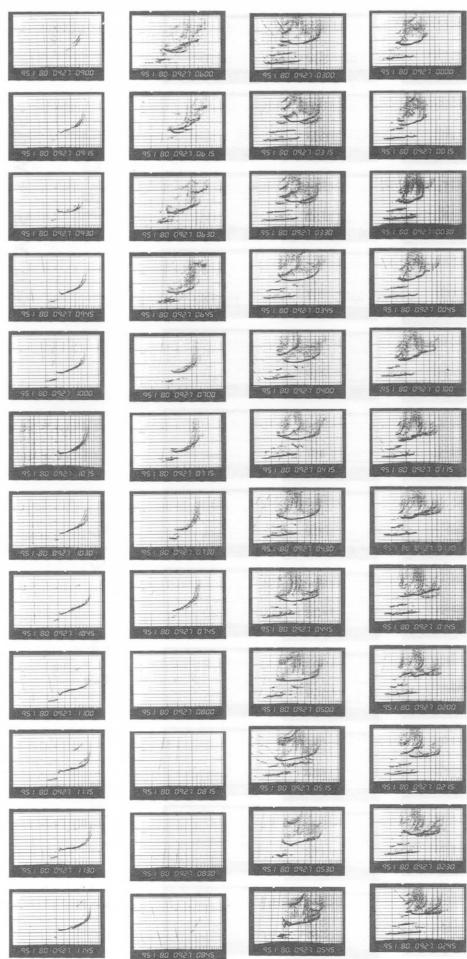
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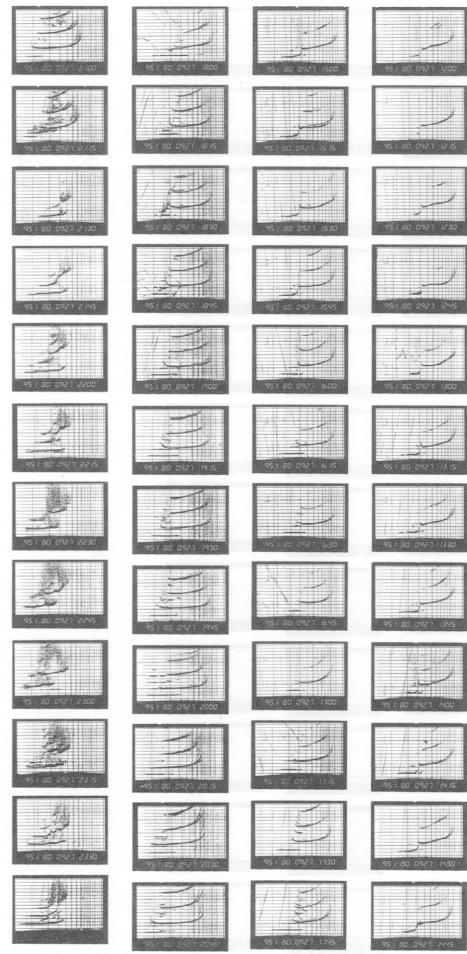
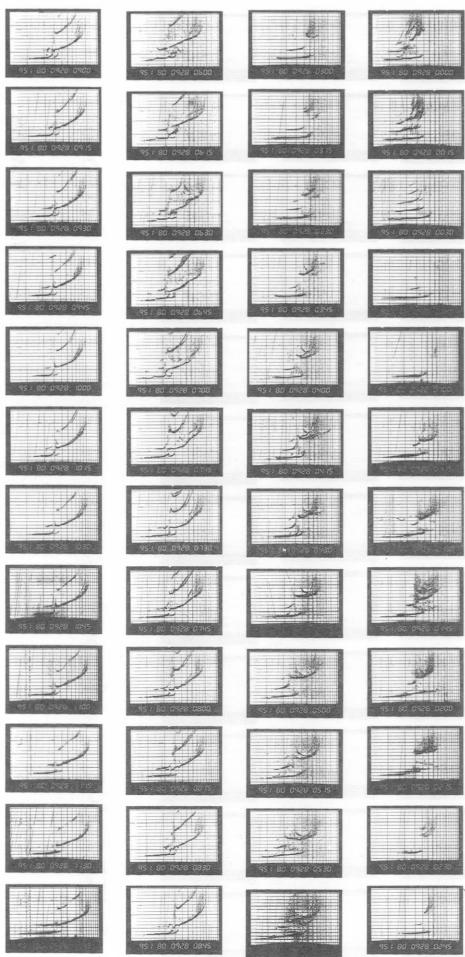
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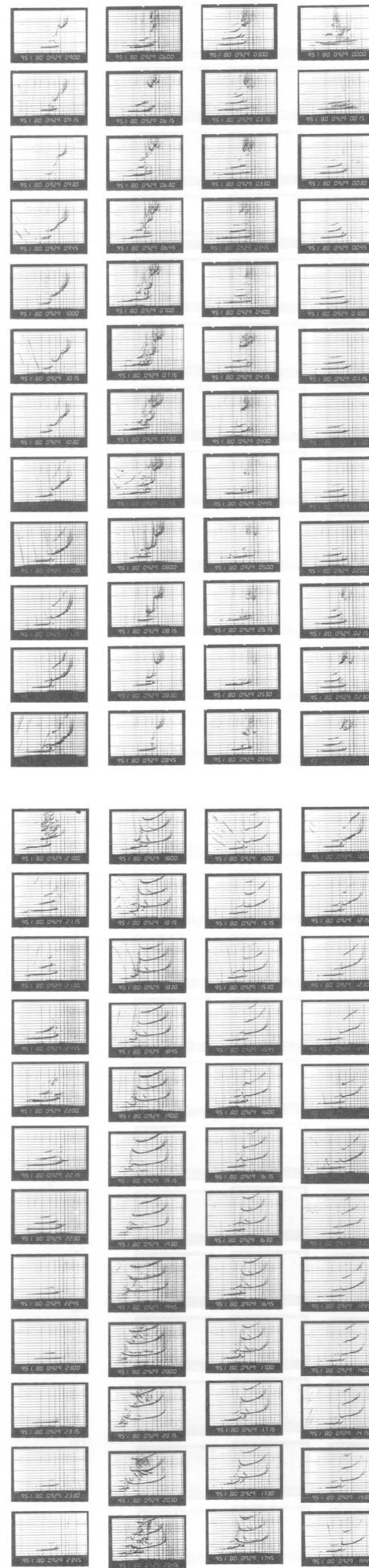
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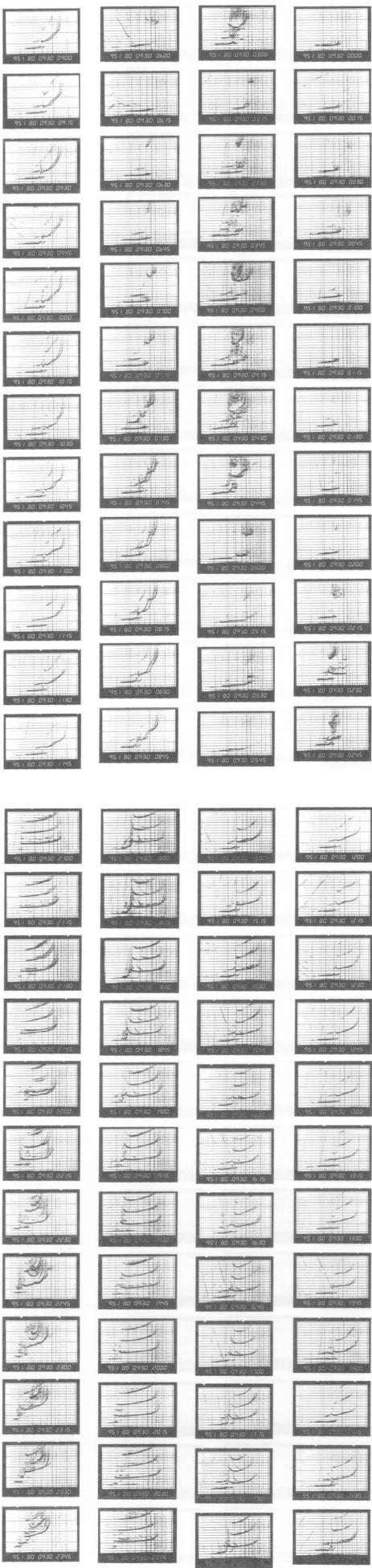
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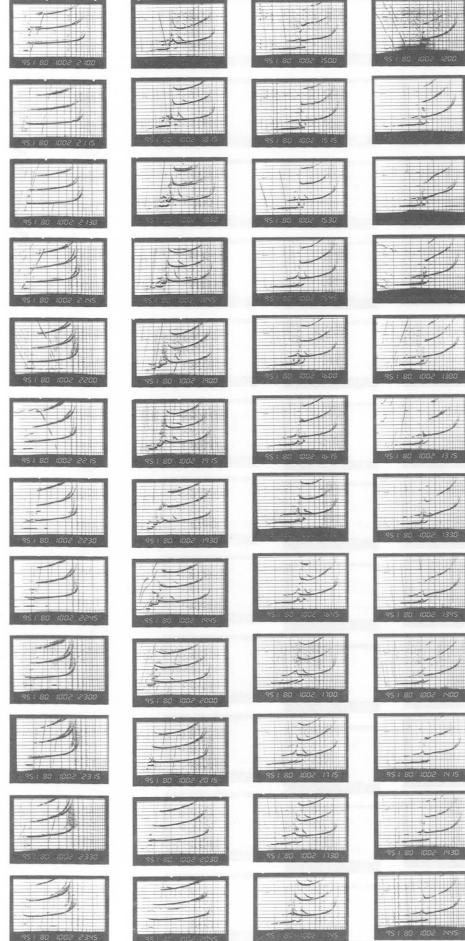
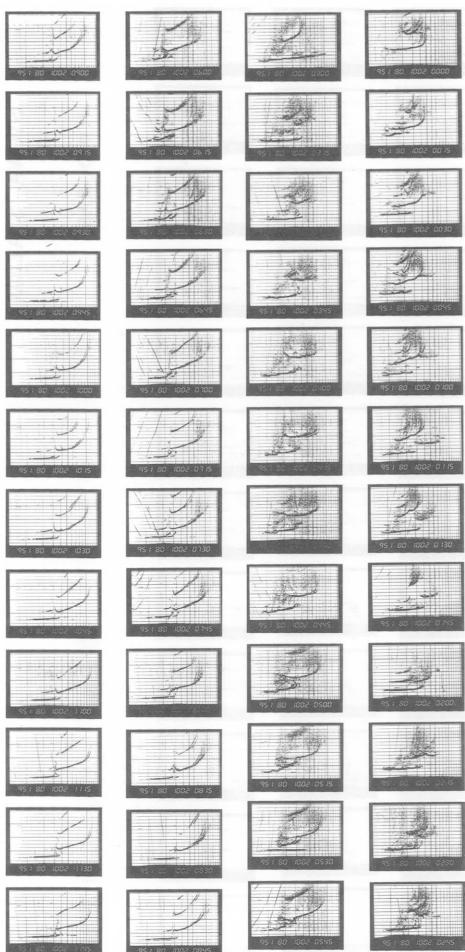
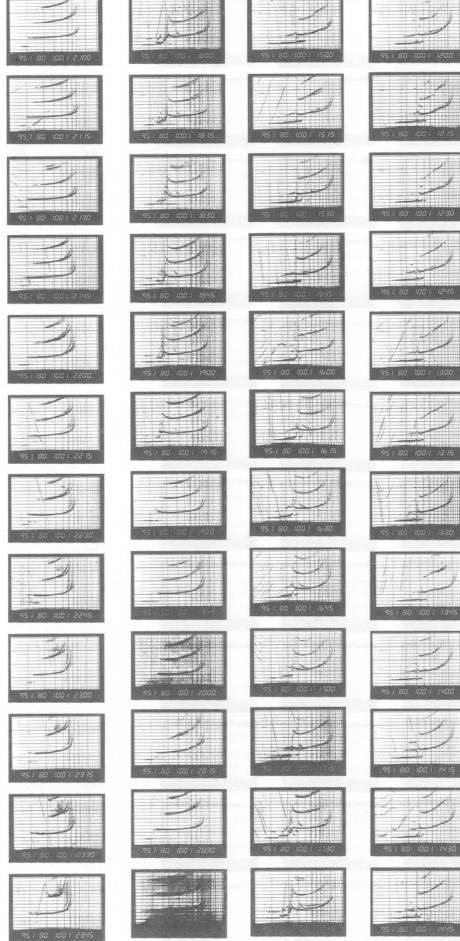
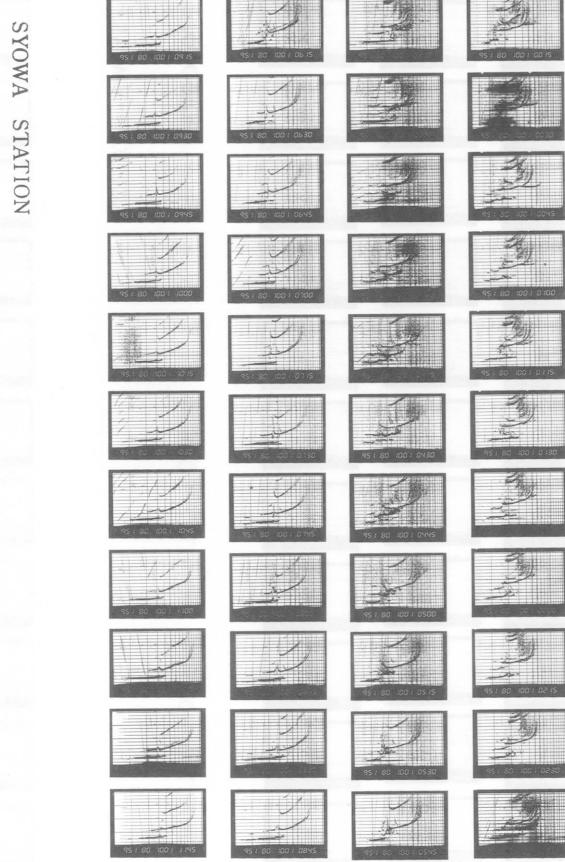
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1980

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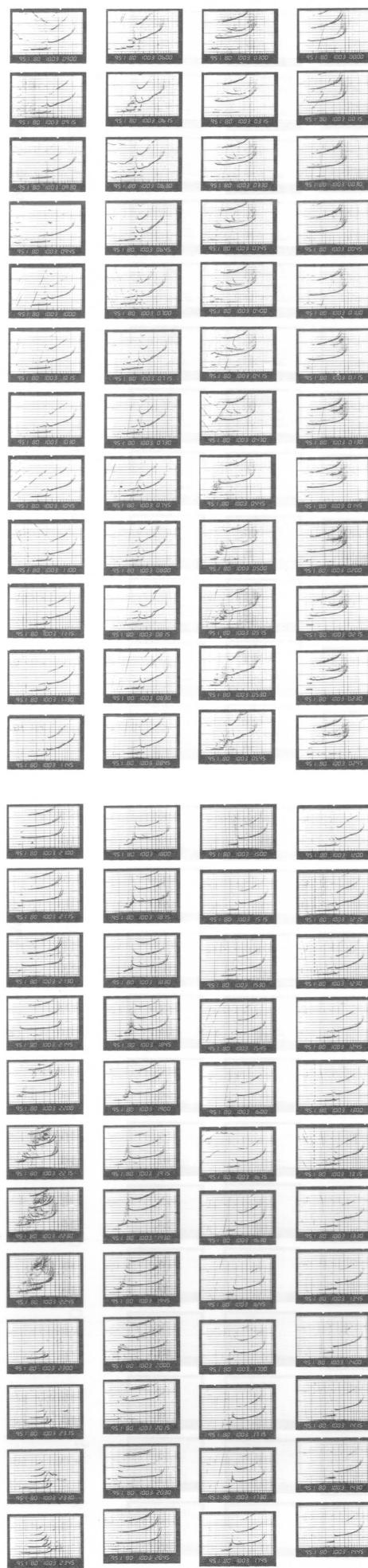
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12;00-23;45



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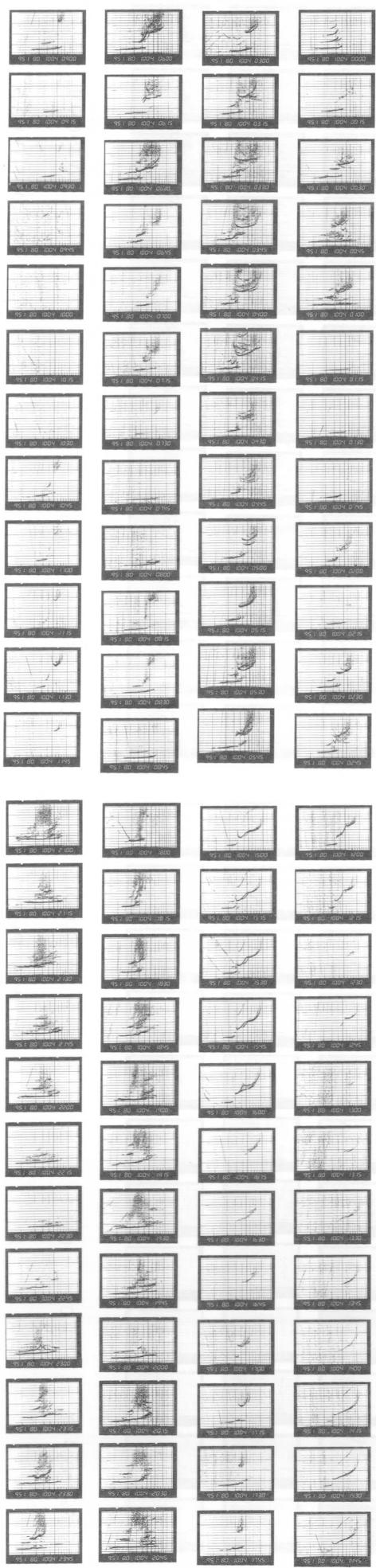
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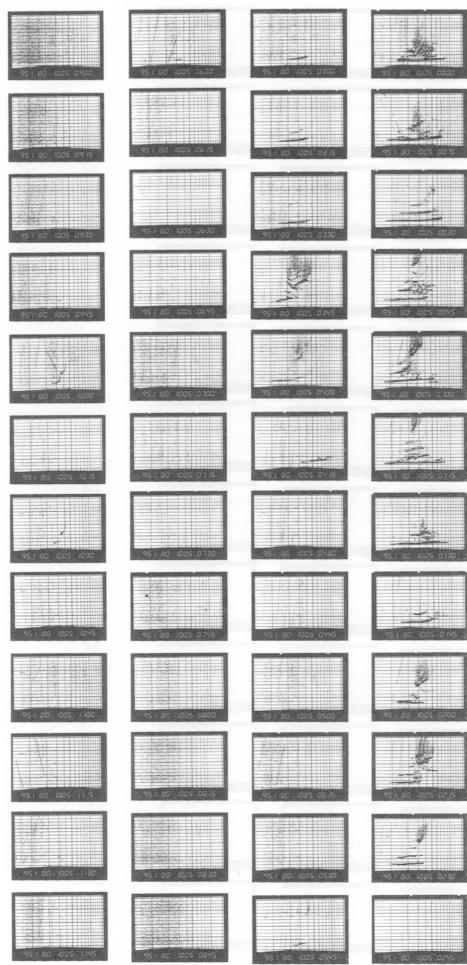
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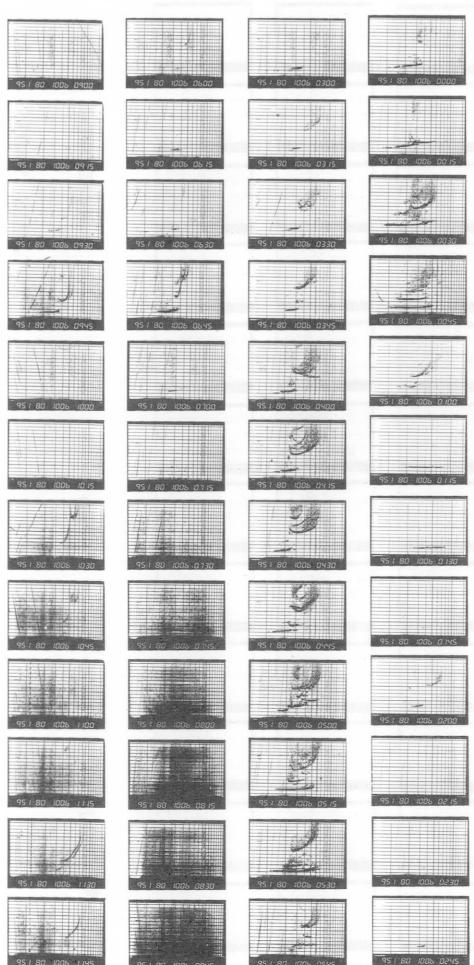
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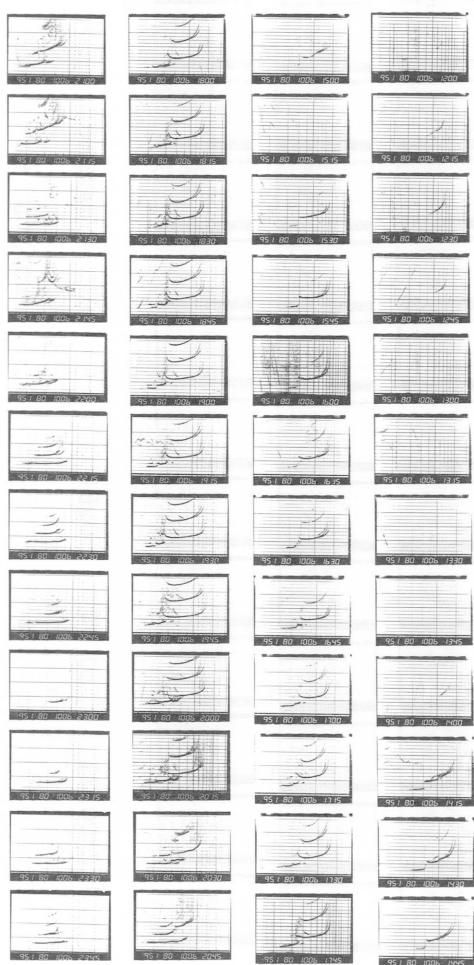
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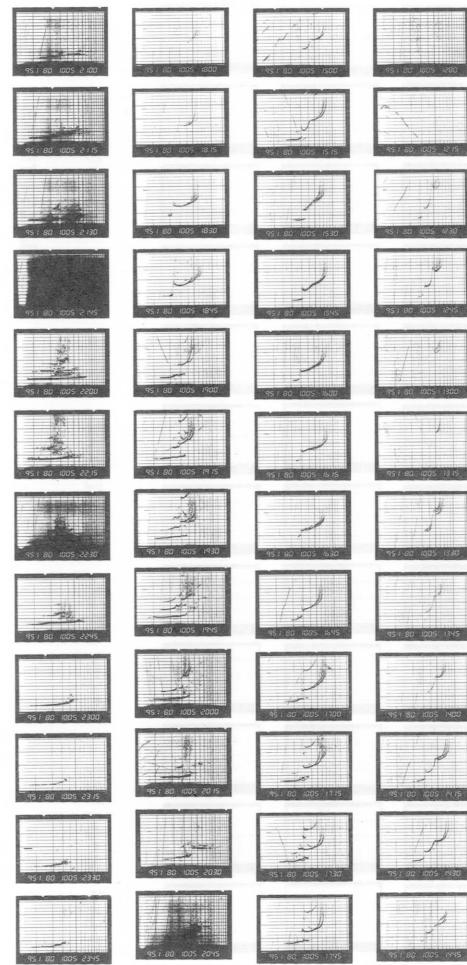


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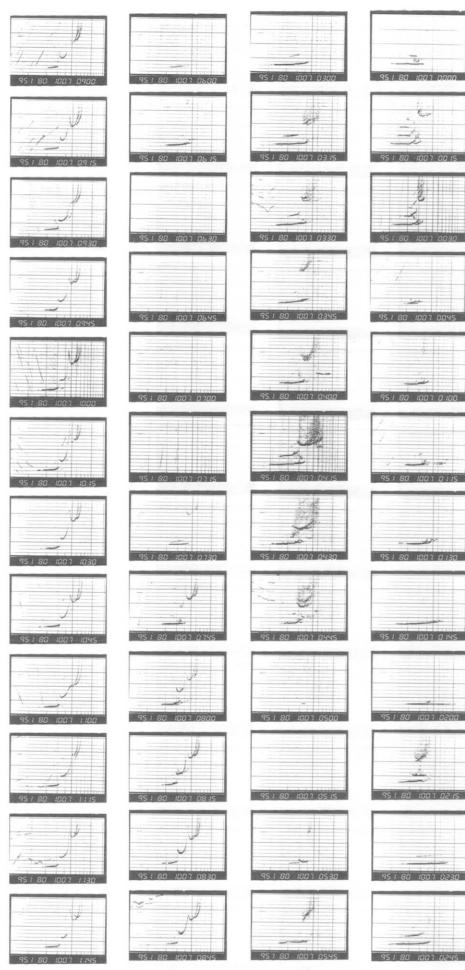
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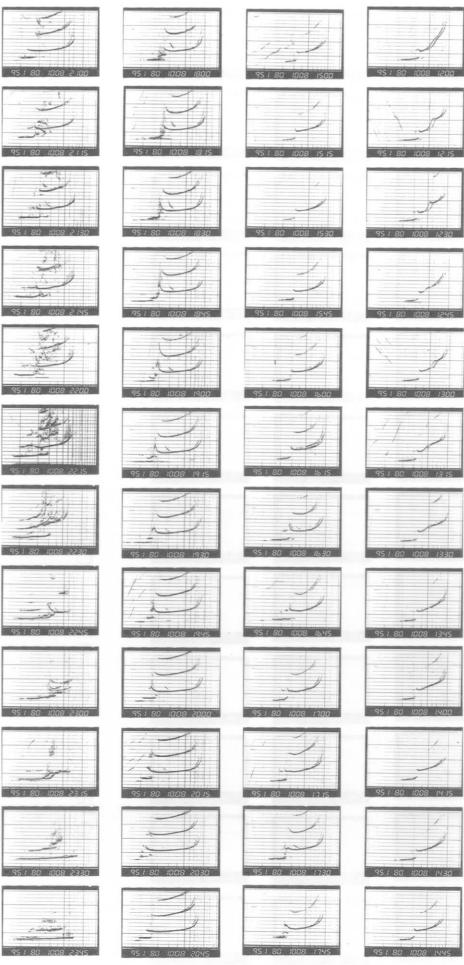
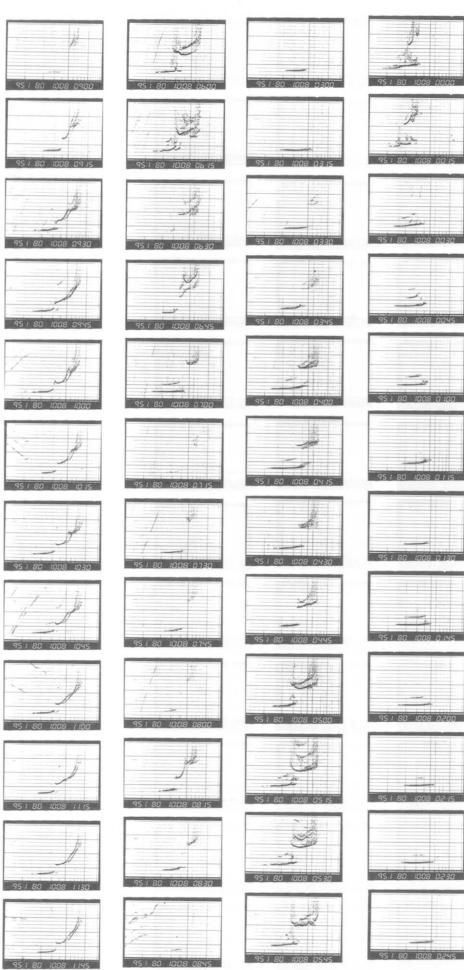
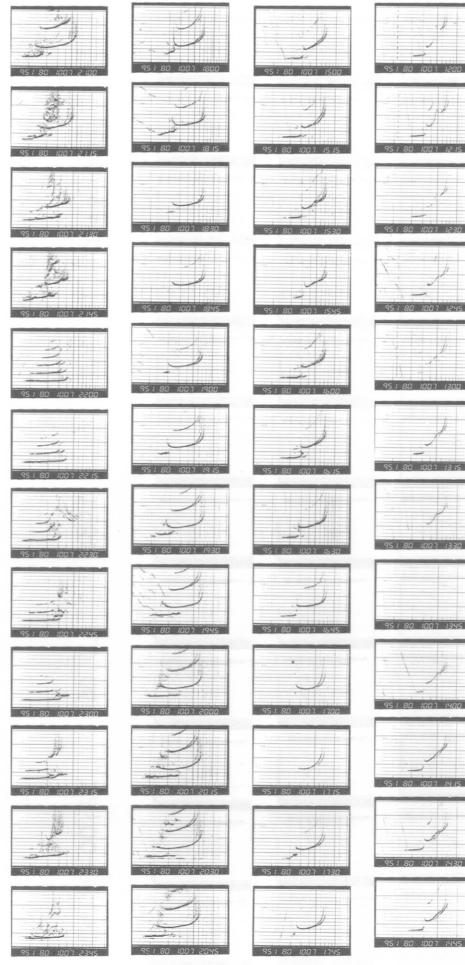
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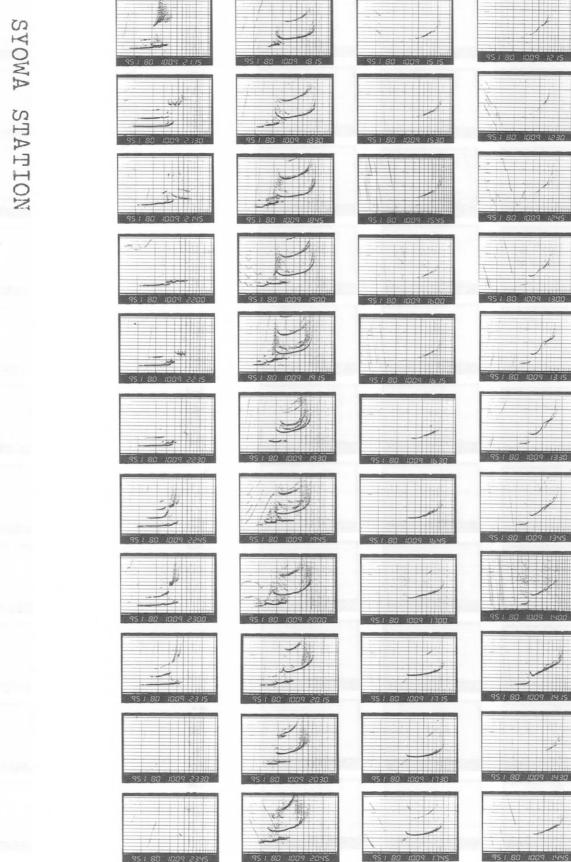
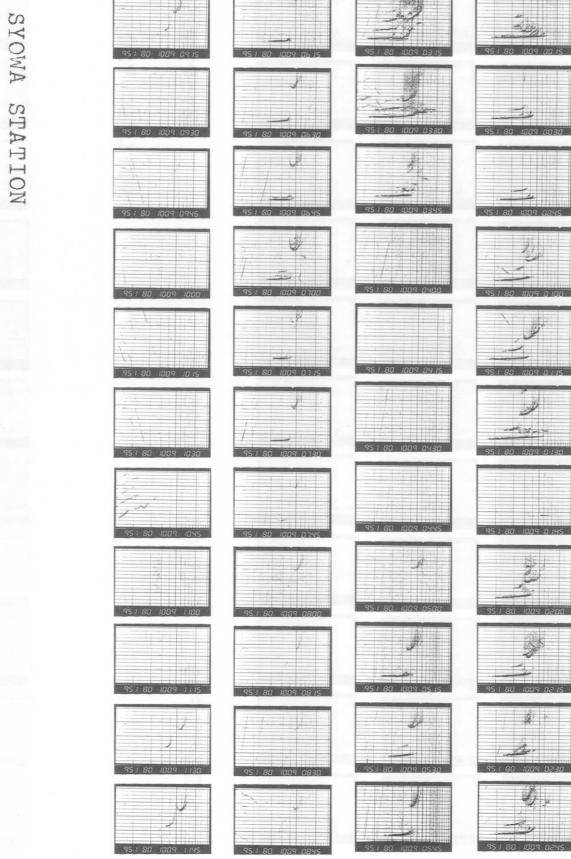
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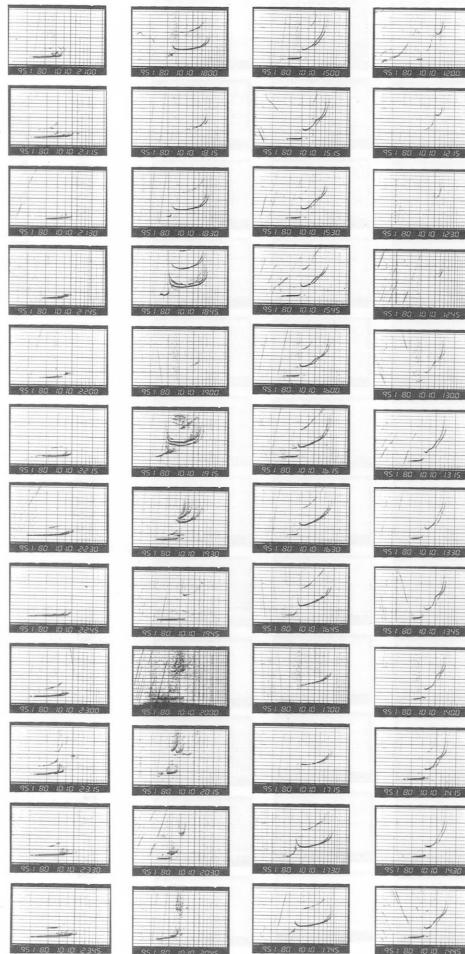
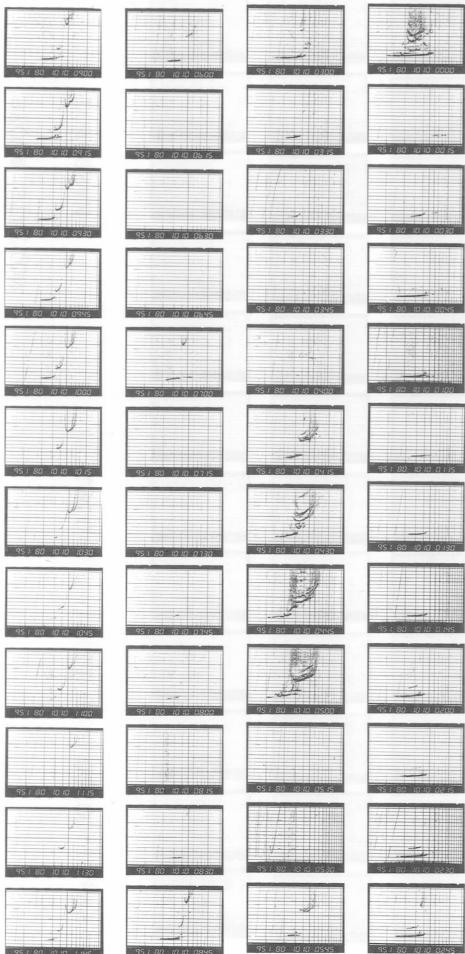
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SYOMA STATION



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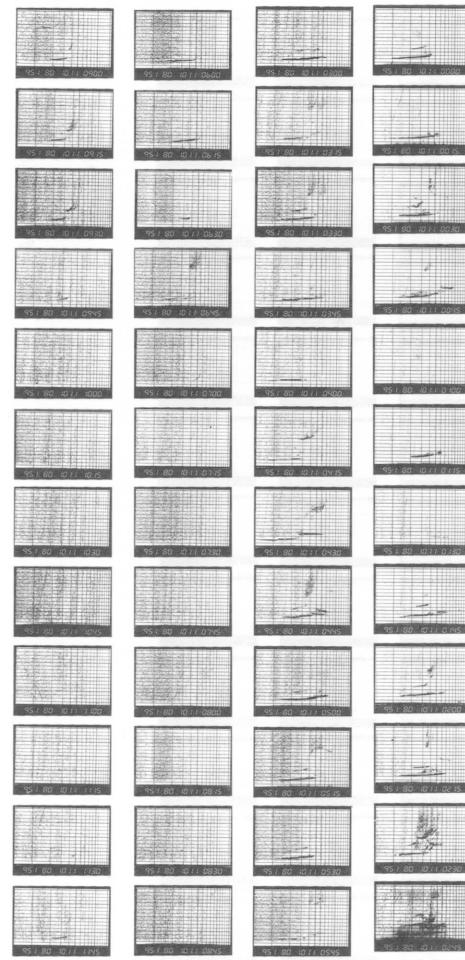
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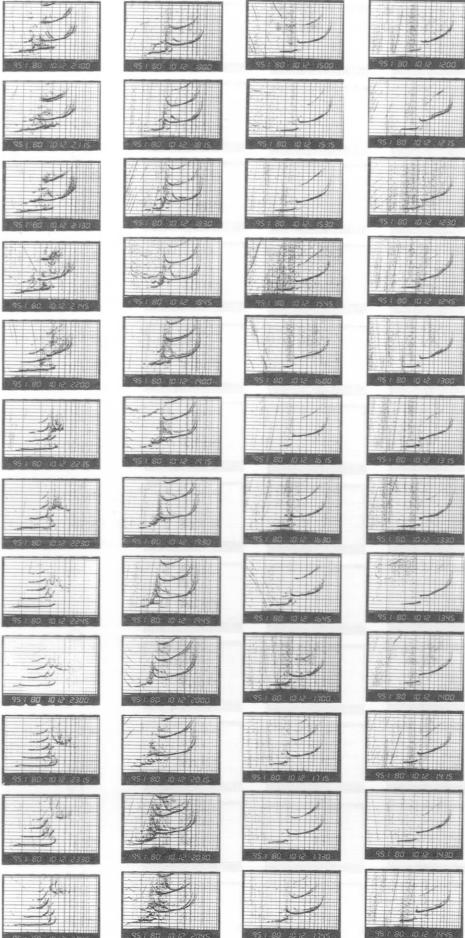
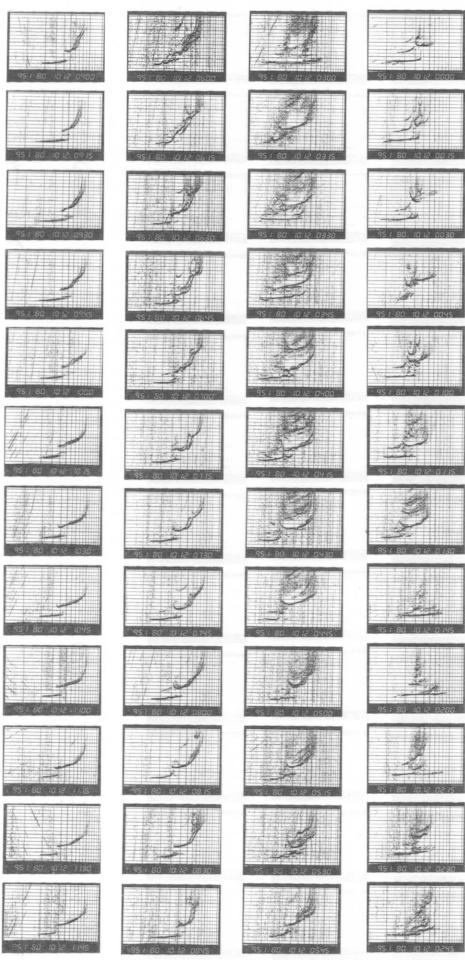
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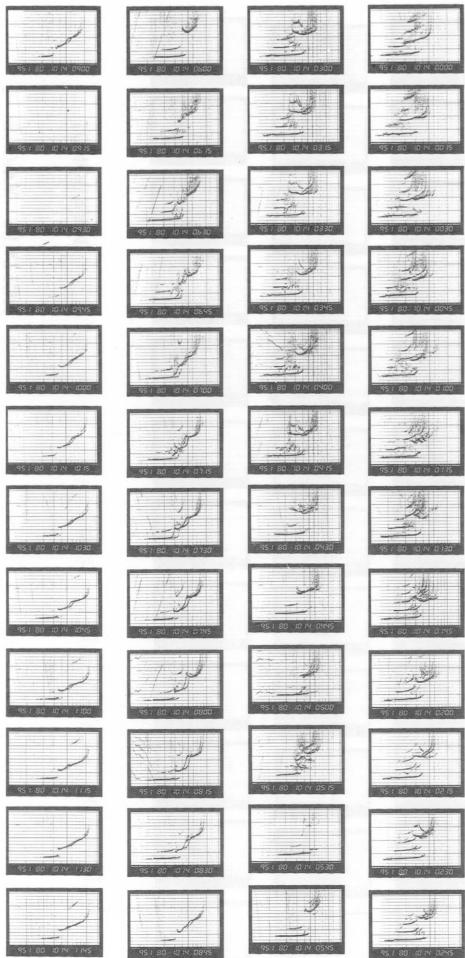
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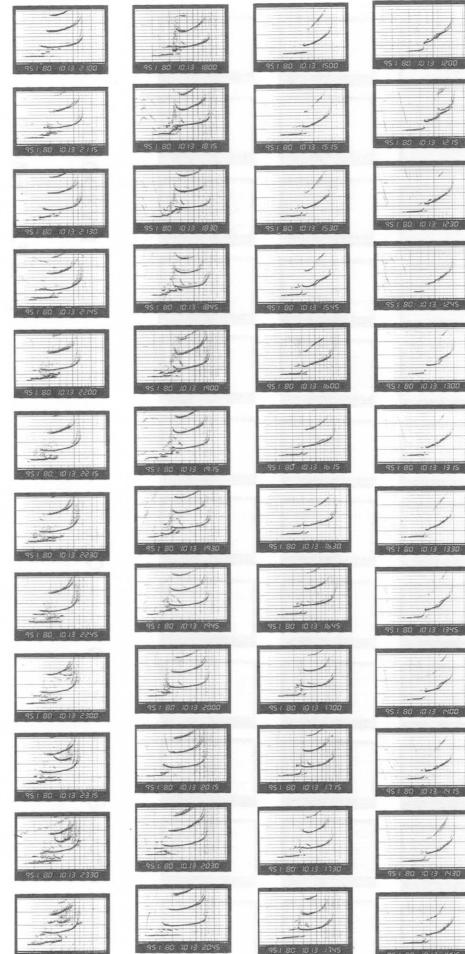
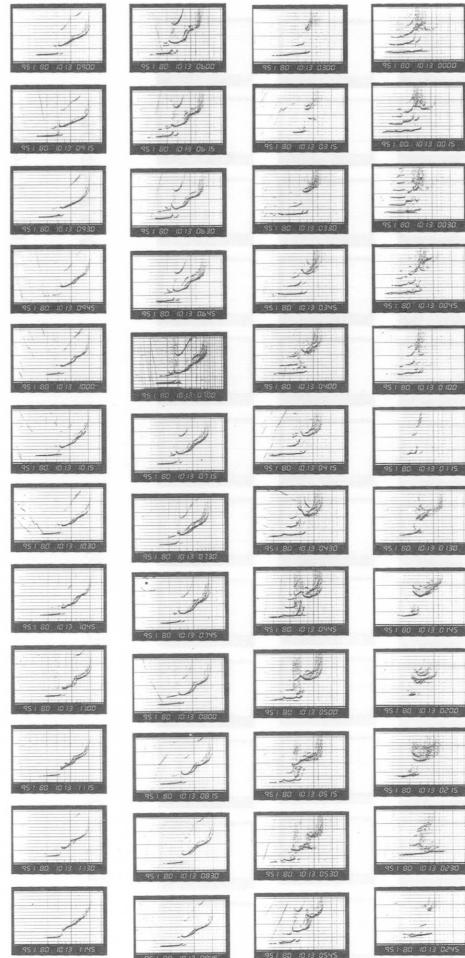
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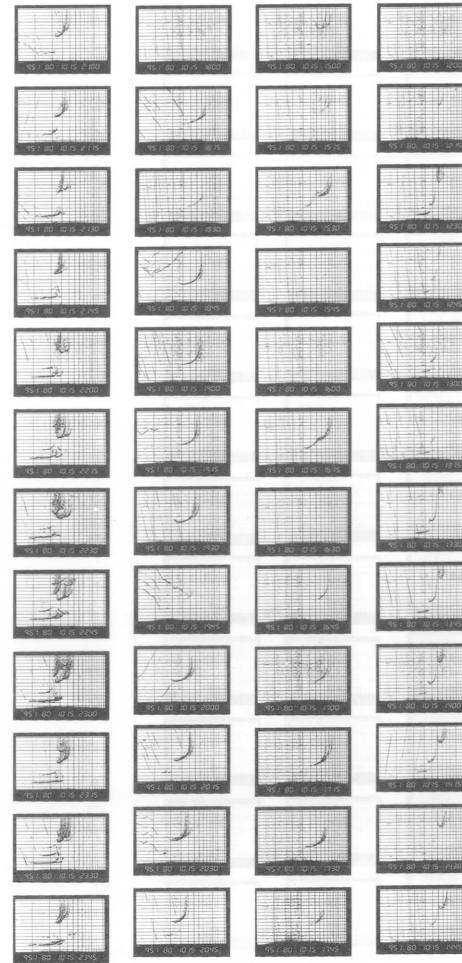
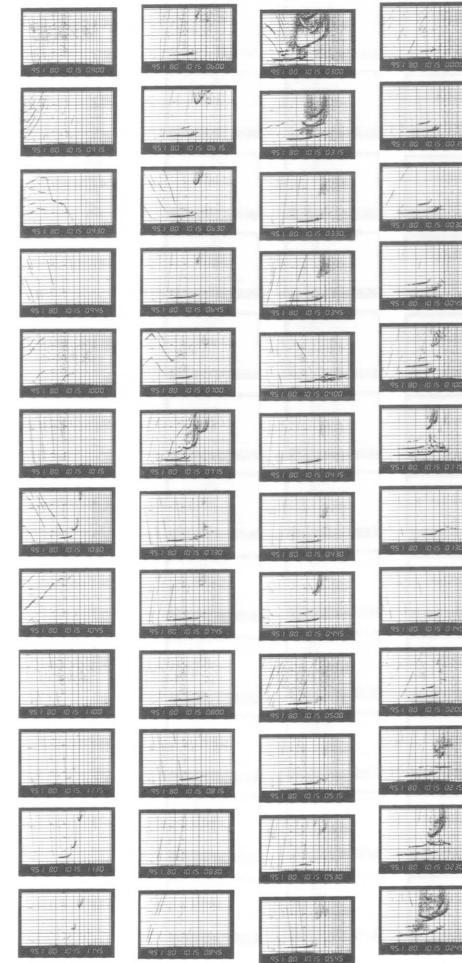
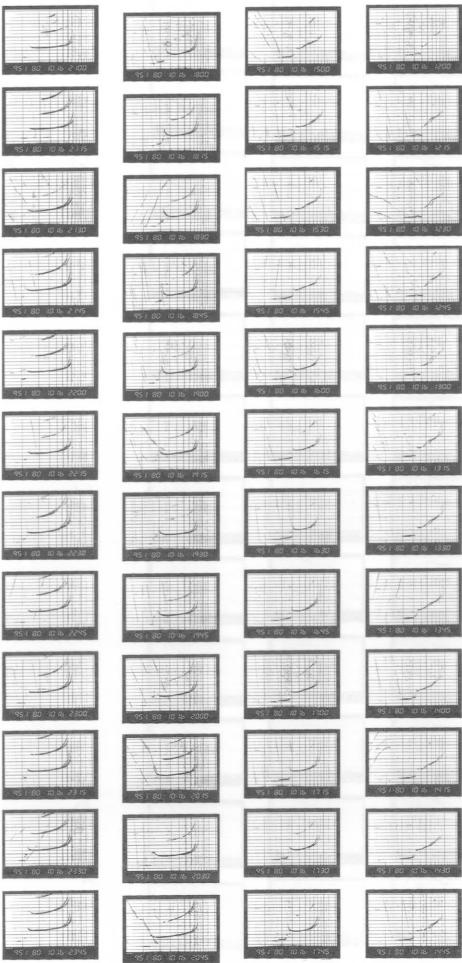
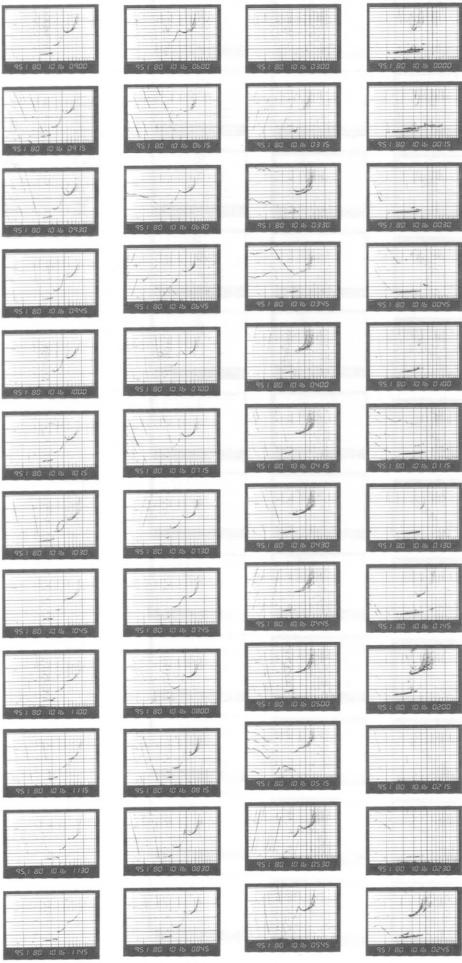
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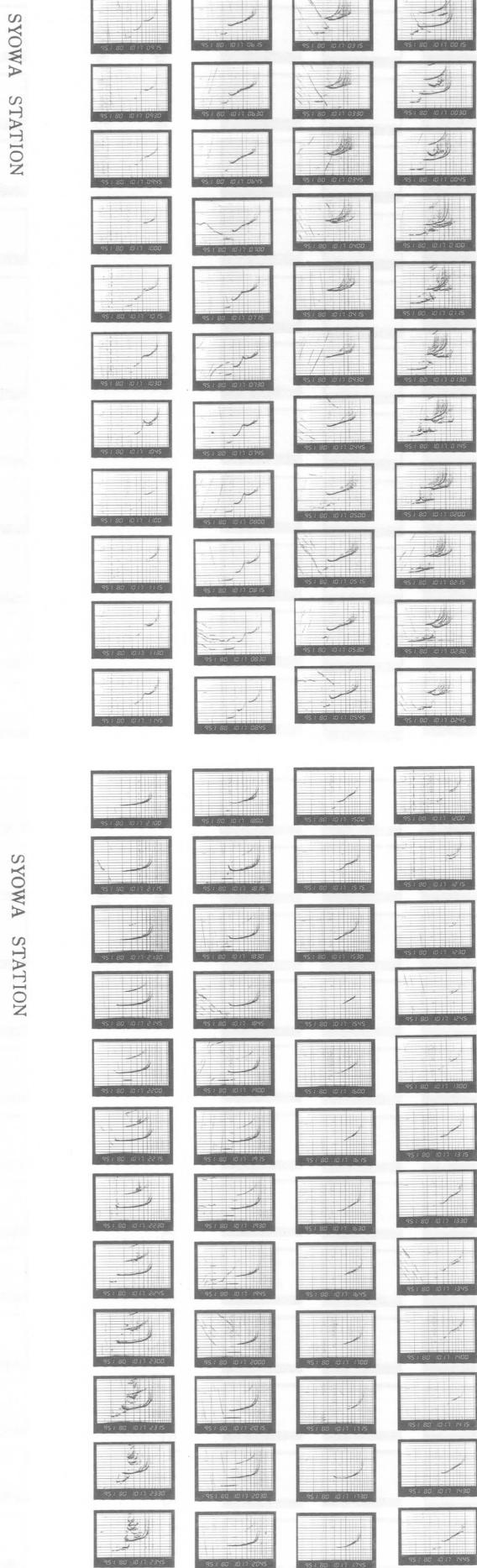


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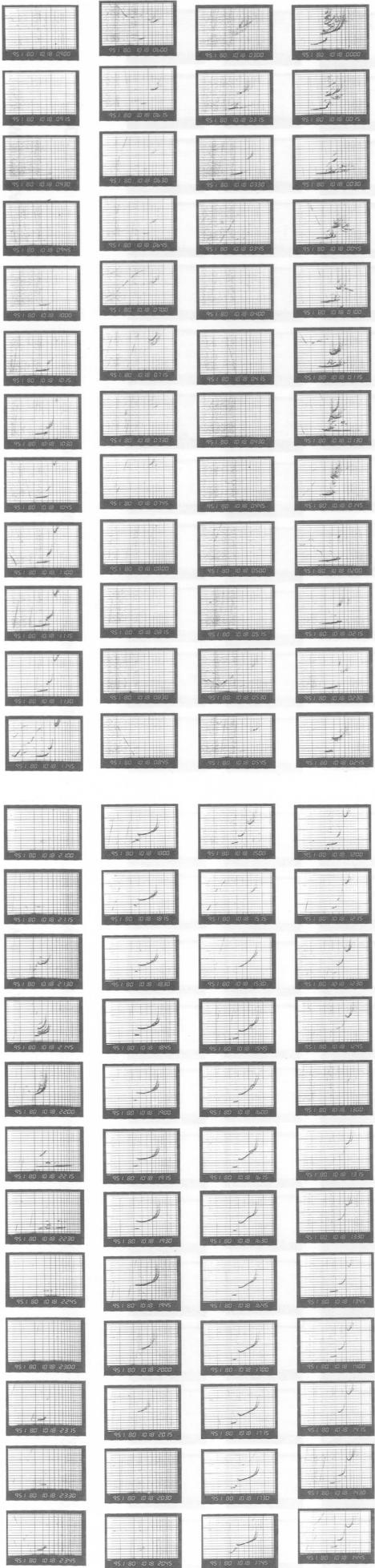
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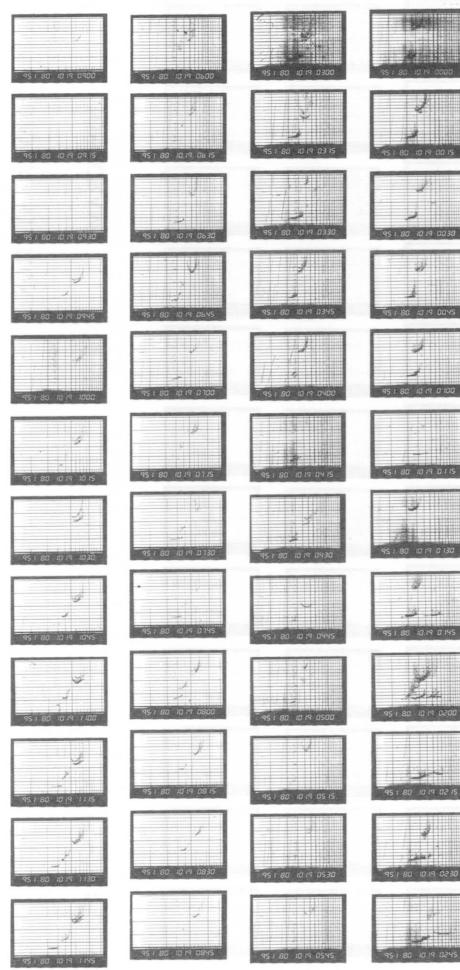
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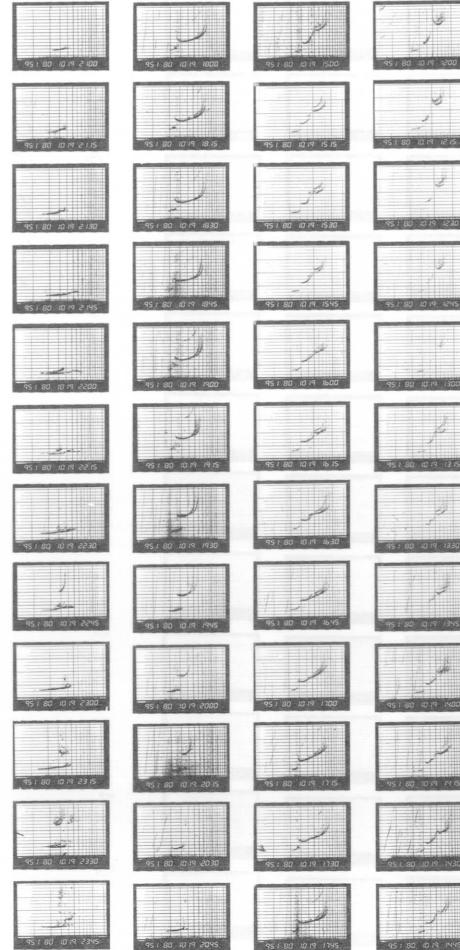
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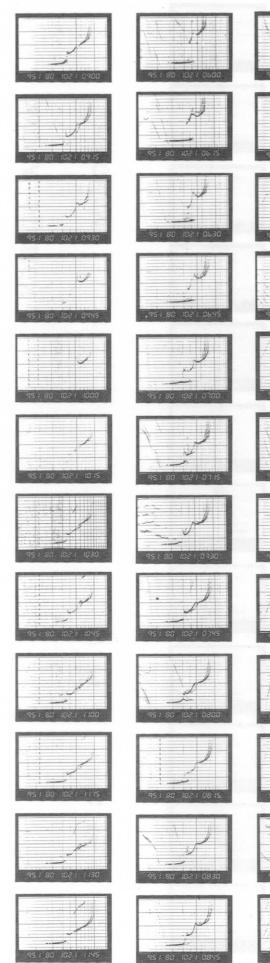
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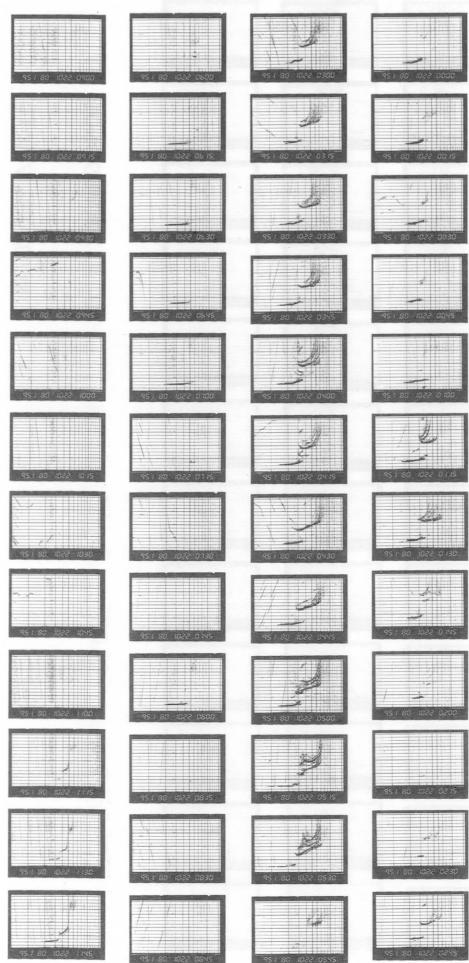
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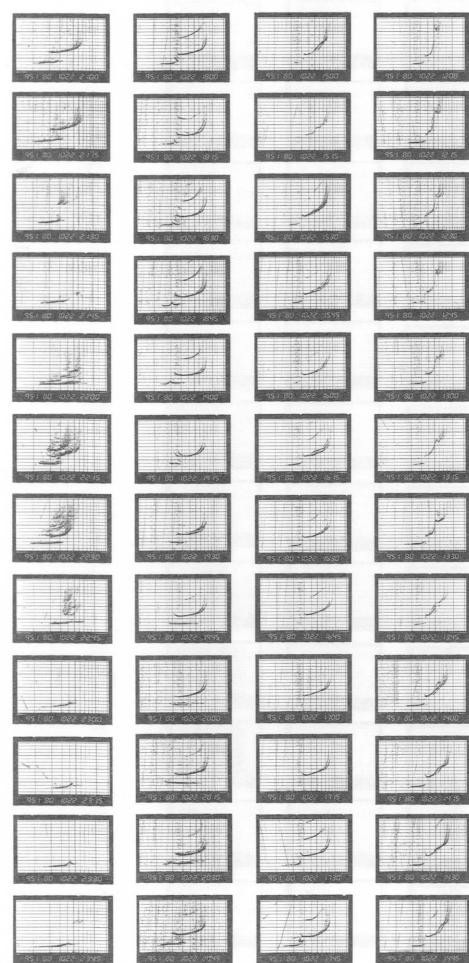
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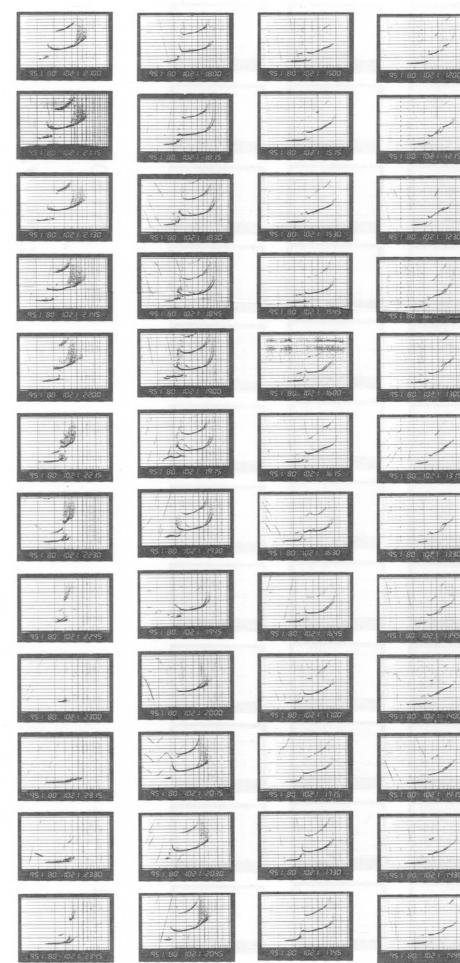


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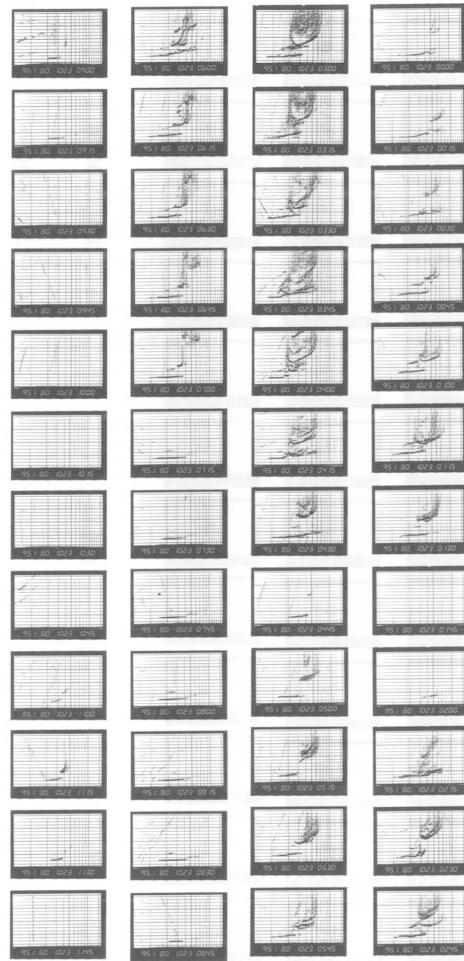
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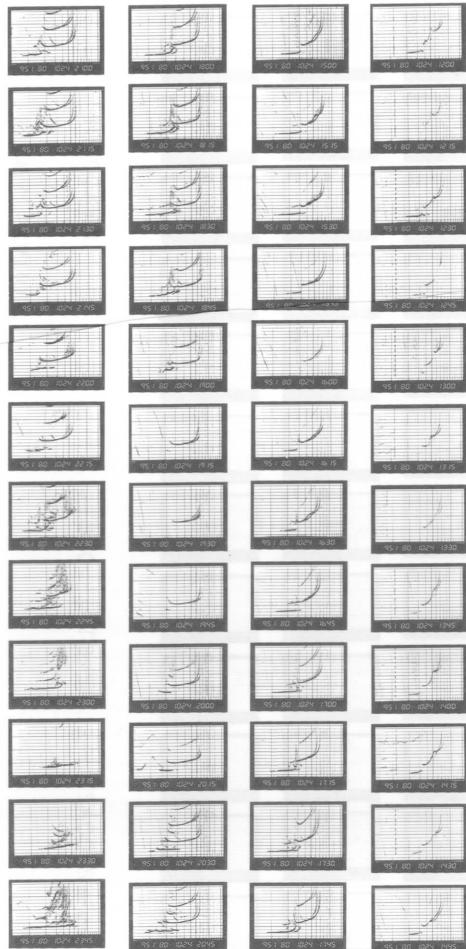
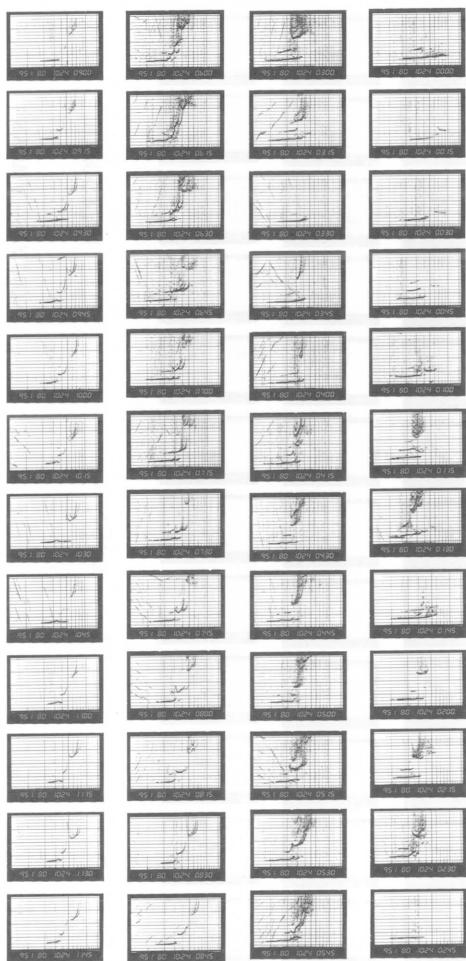
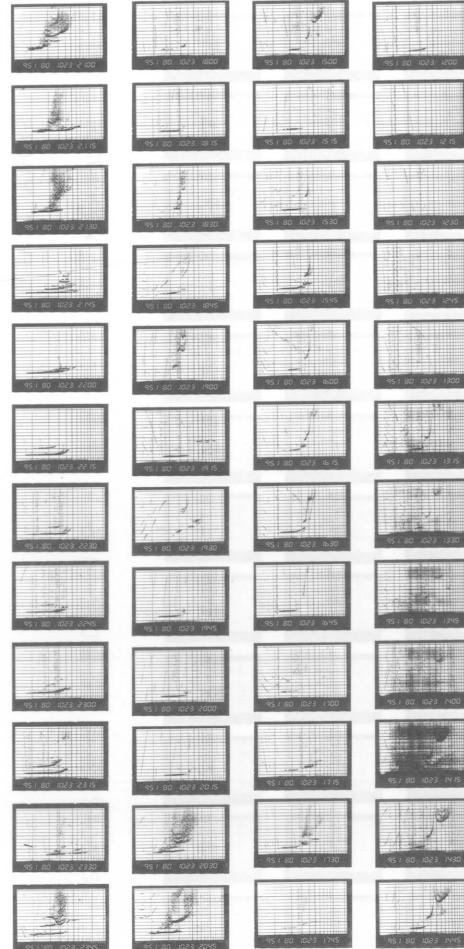
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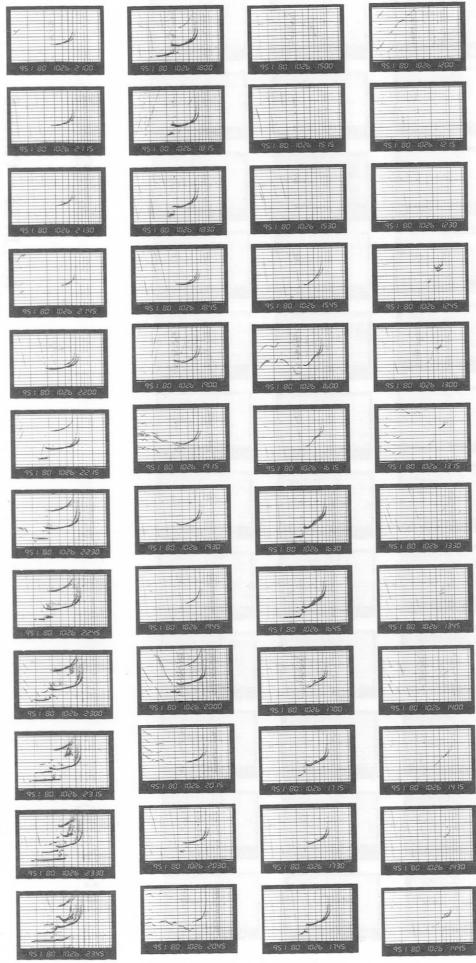
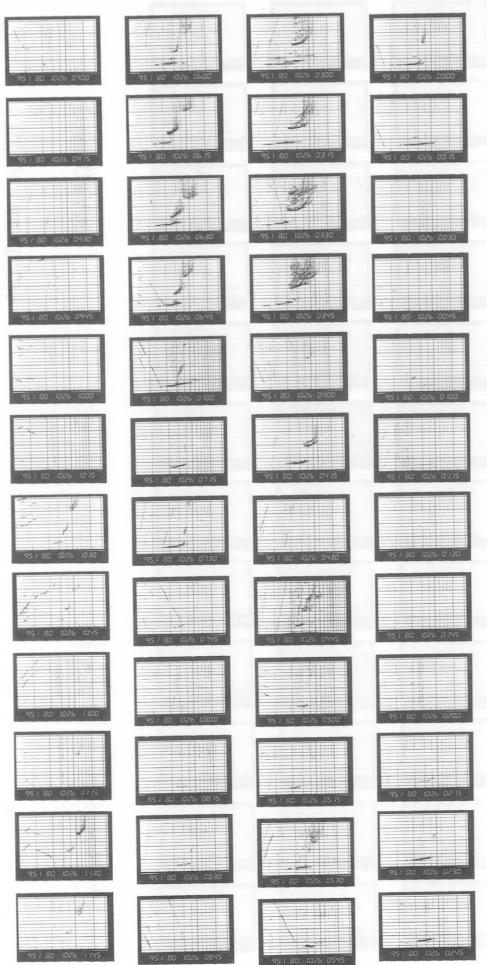
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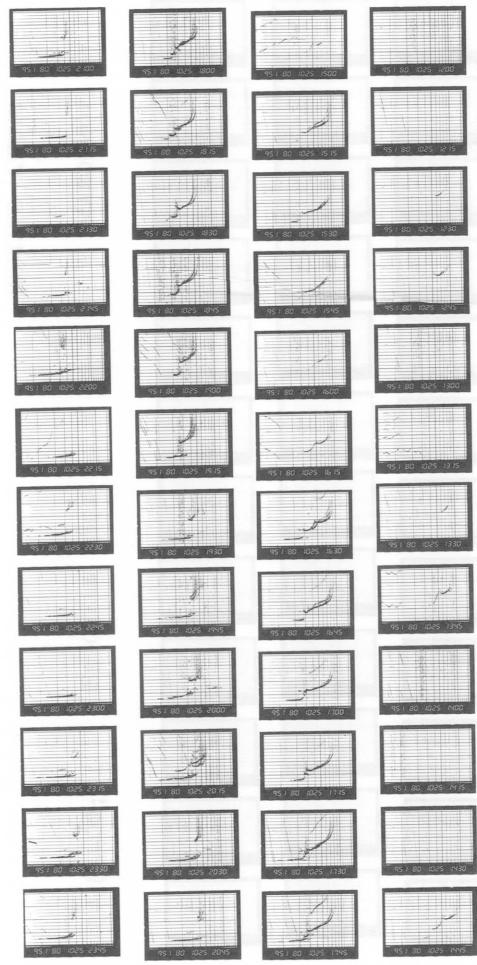
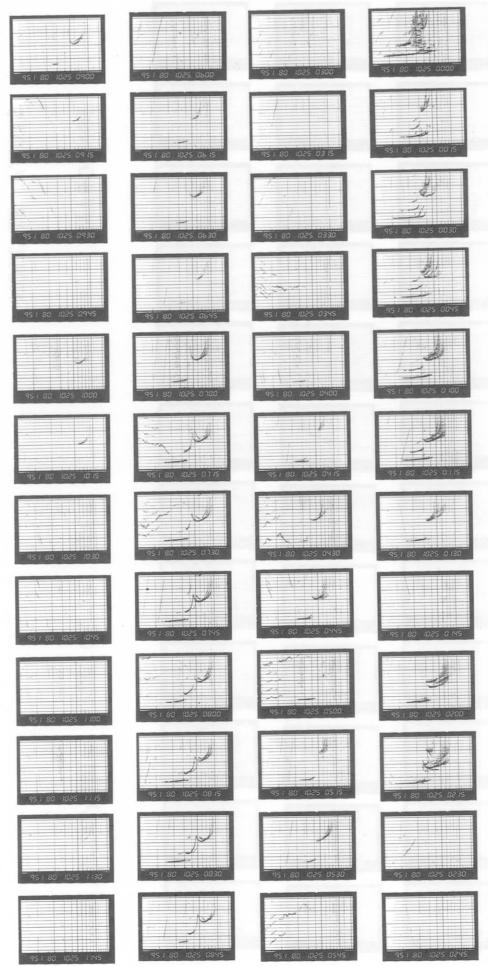


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1980 10 26 00;00-11;45

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1980 10 26 12;00-23;45



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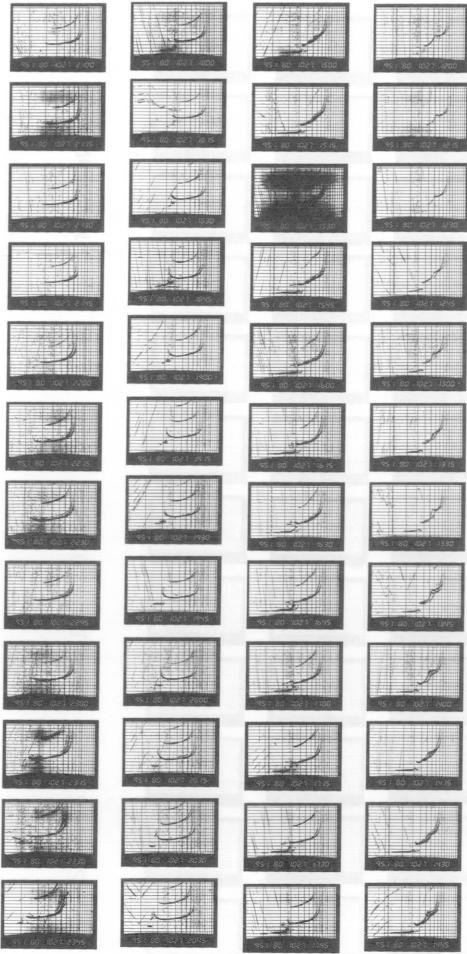
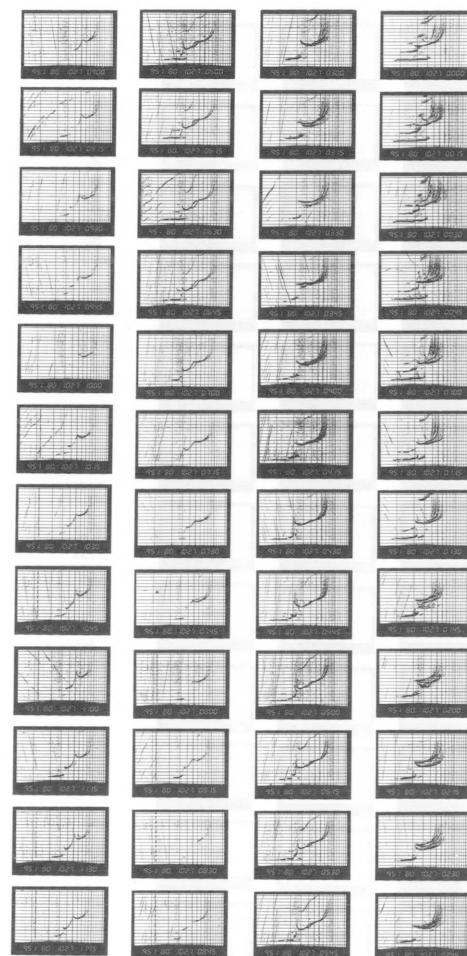
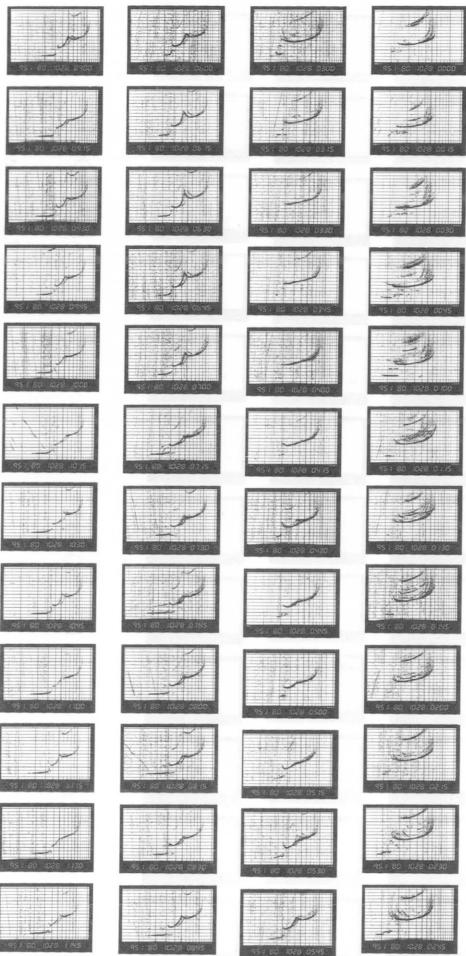
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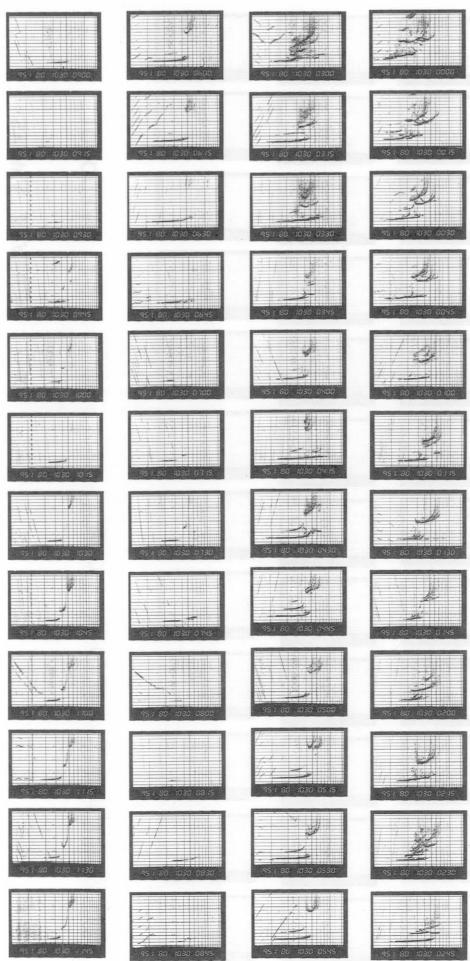
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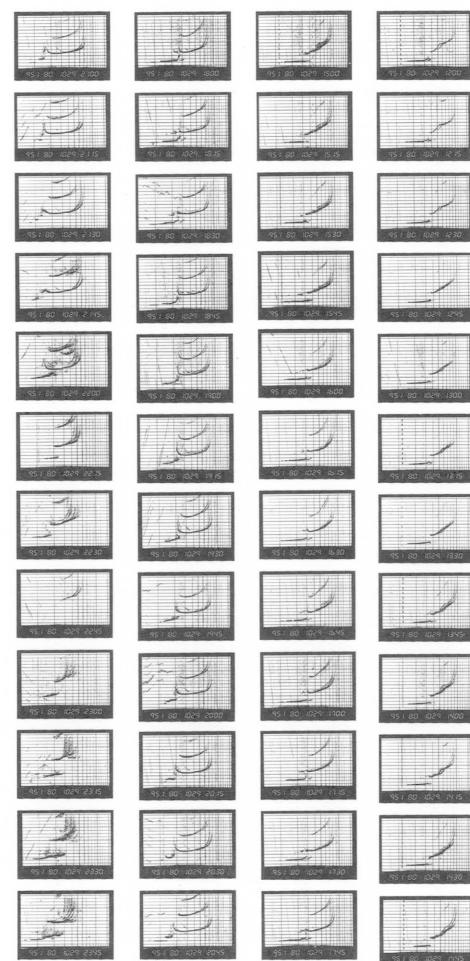
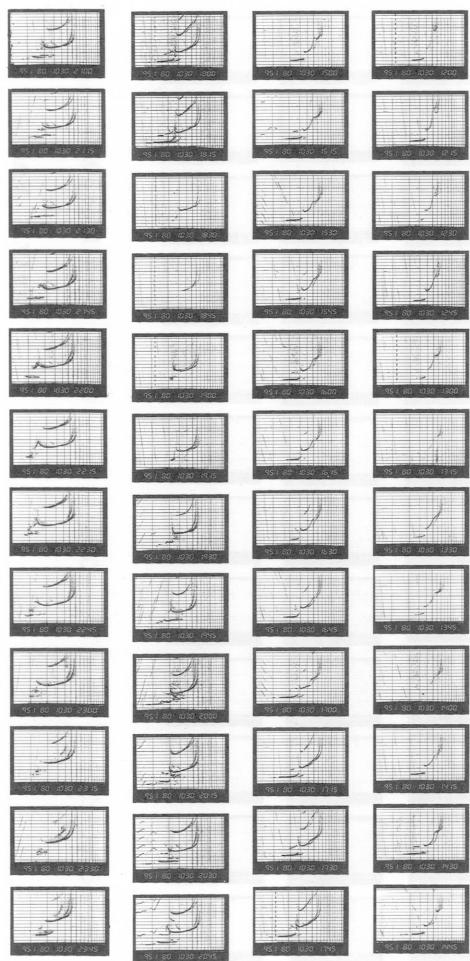
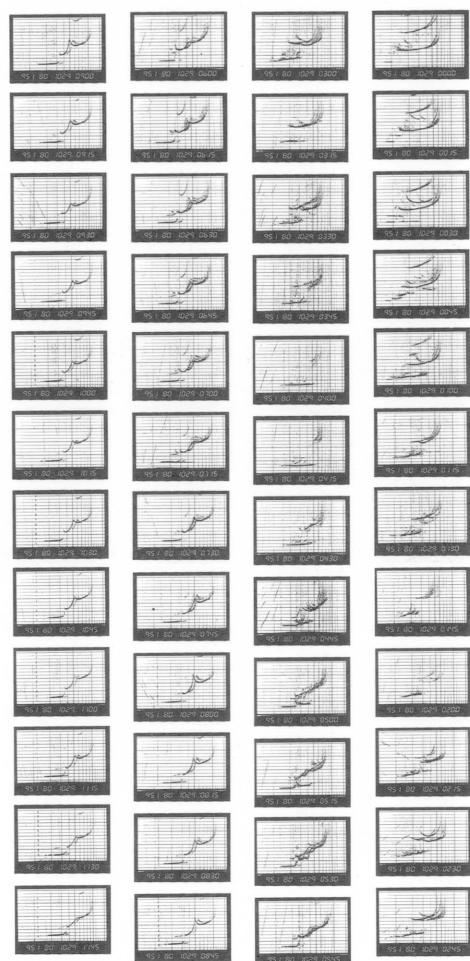
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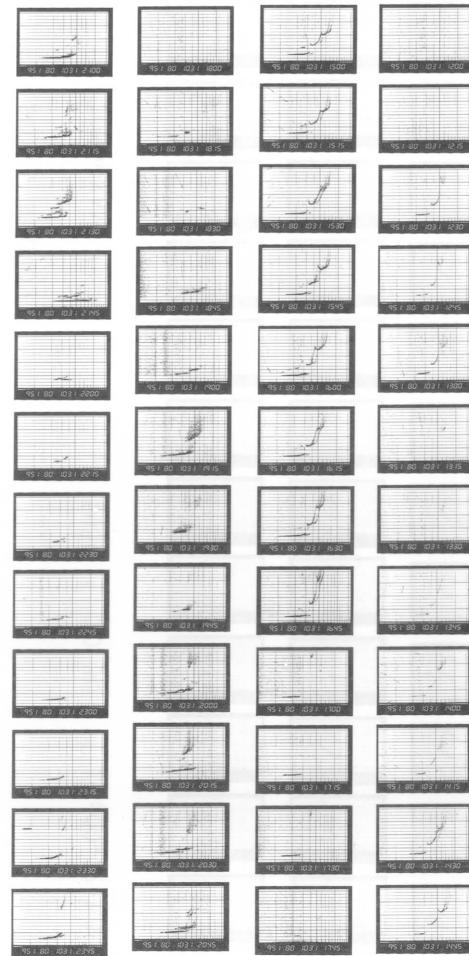
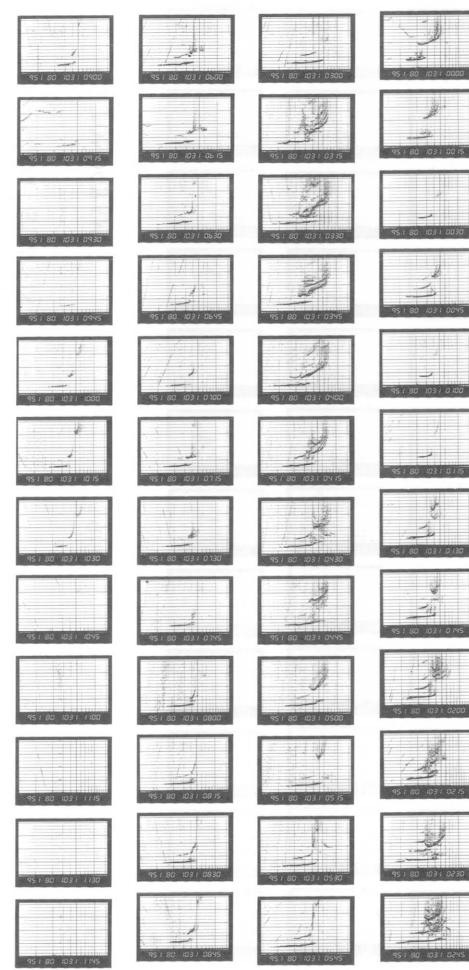
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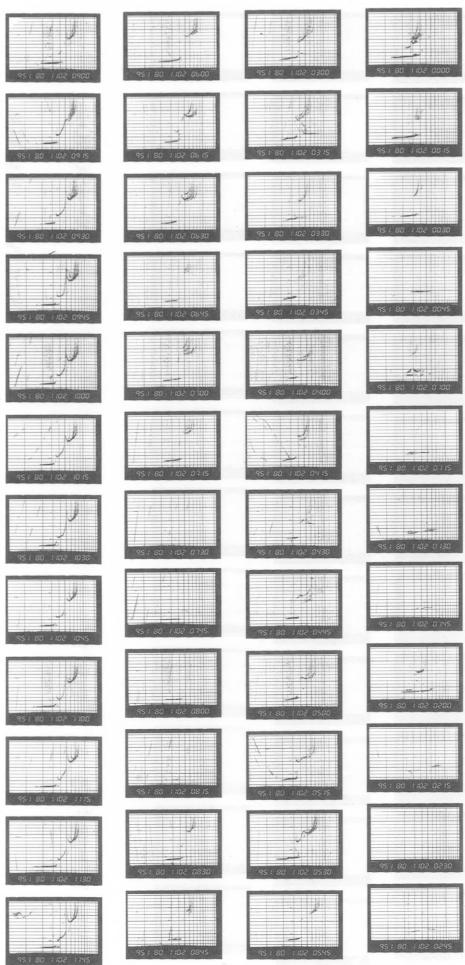


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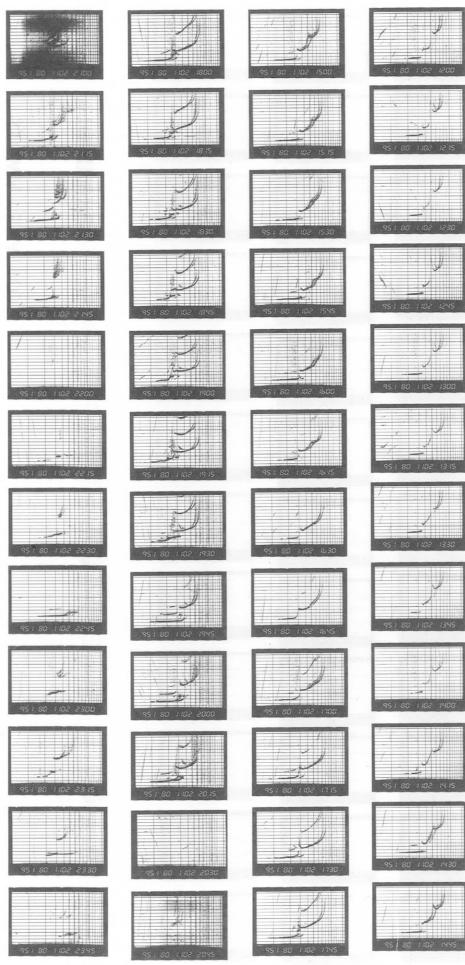
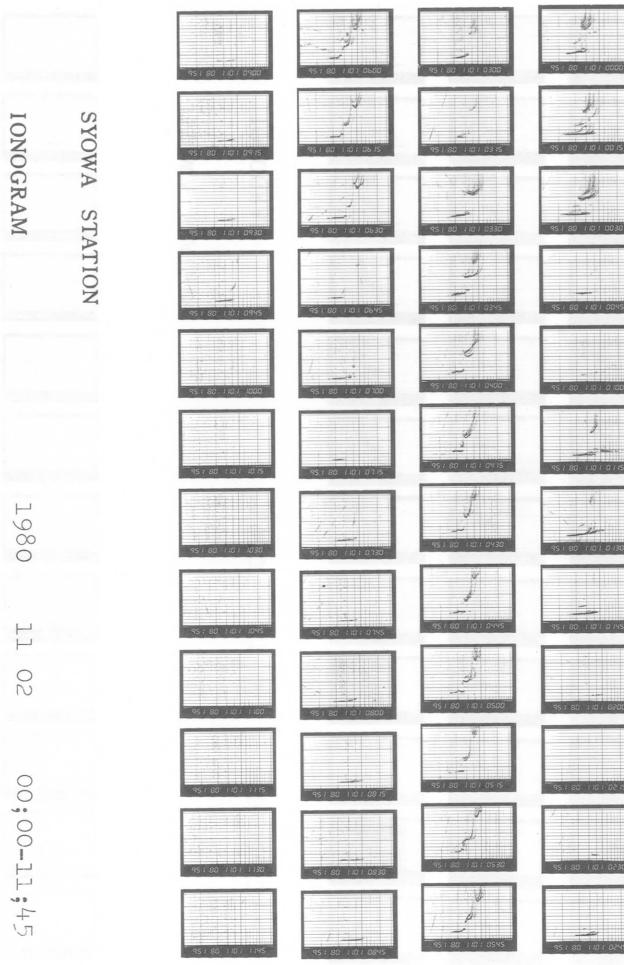
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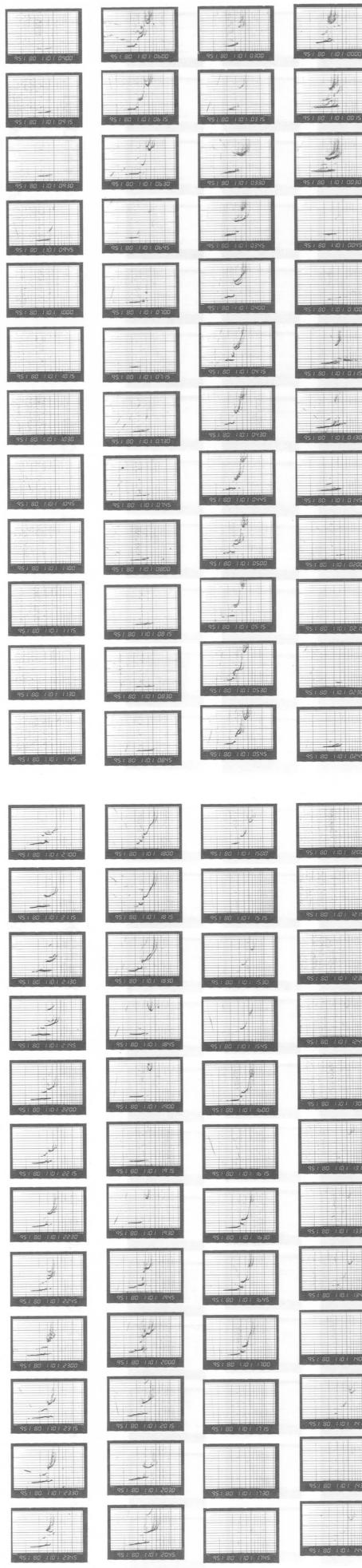
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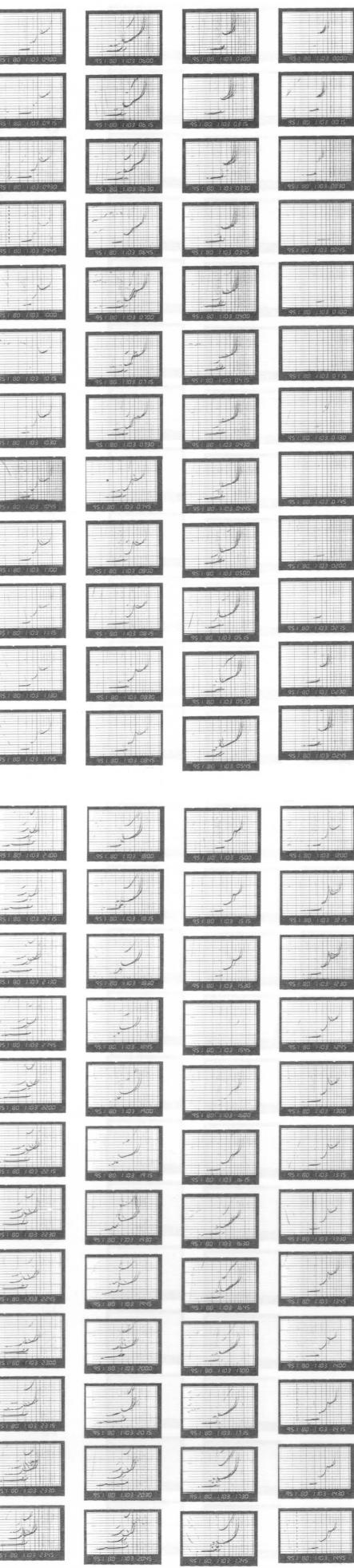
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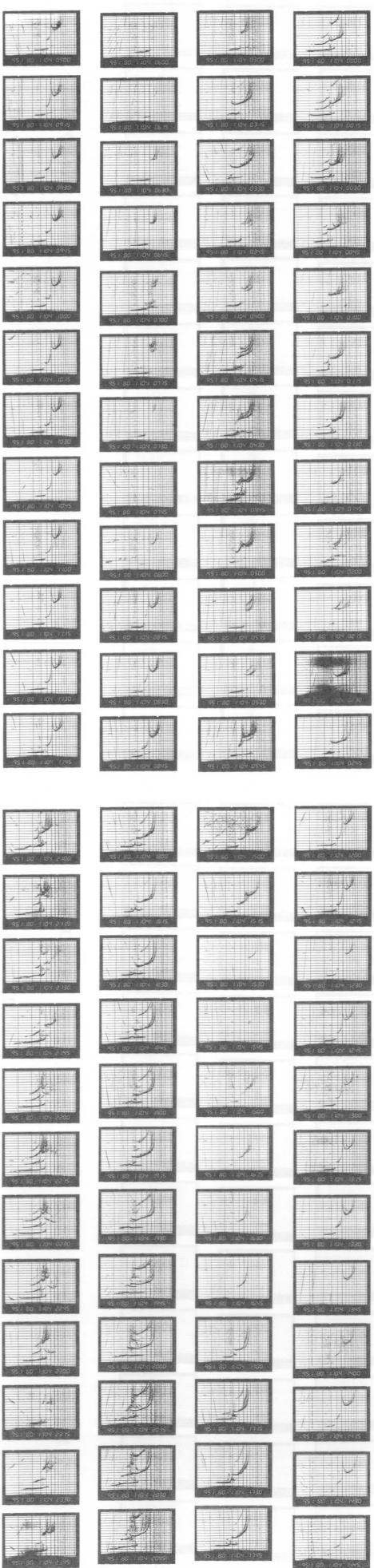
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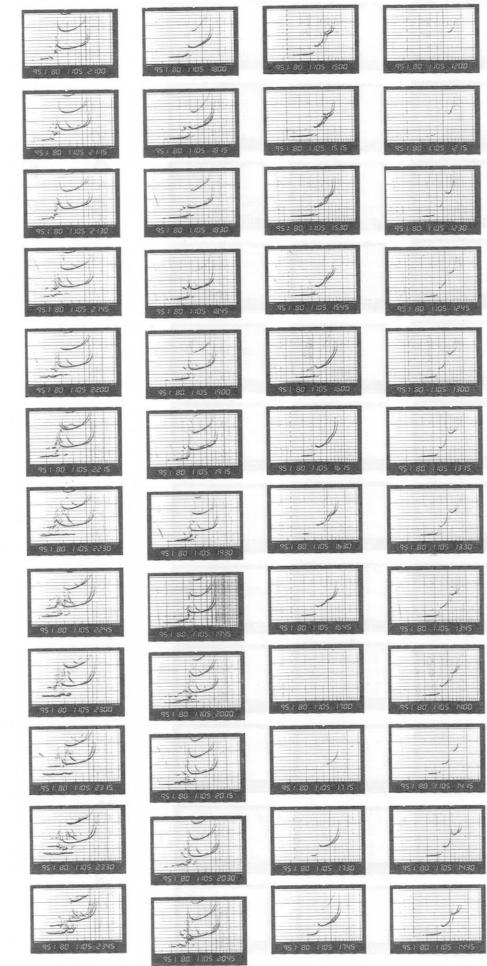
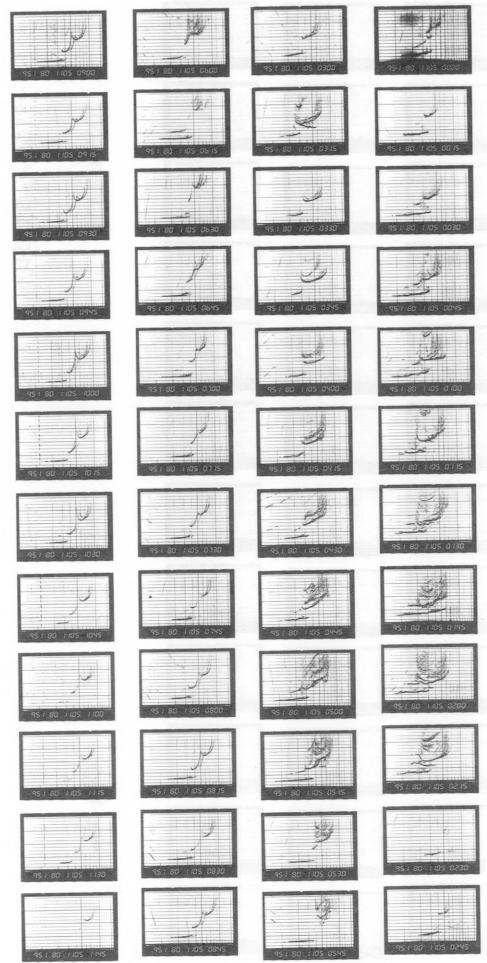
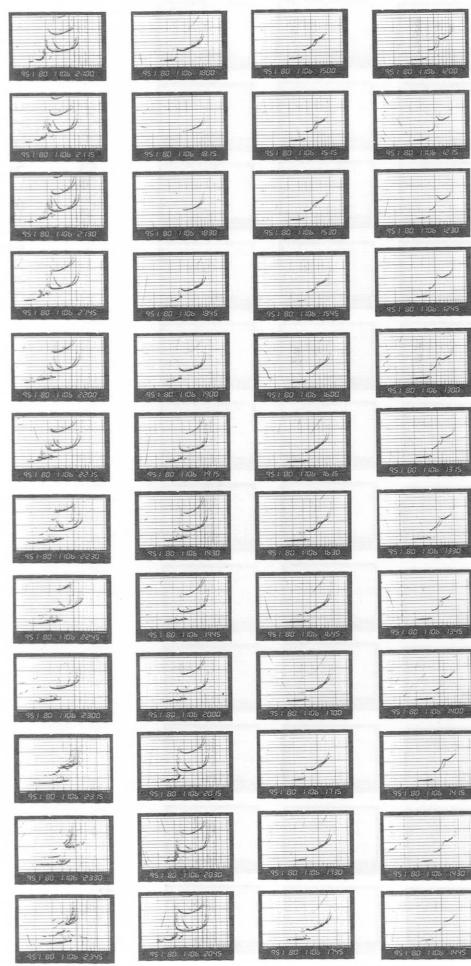
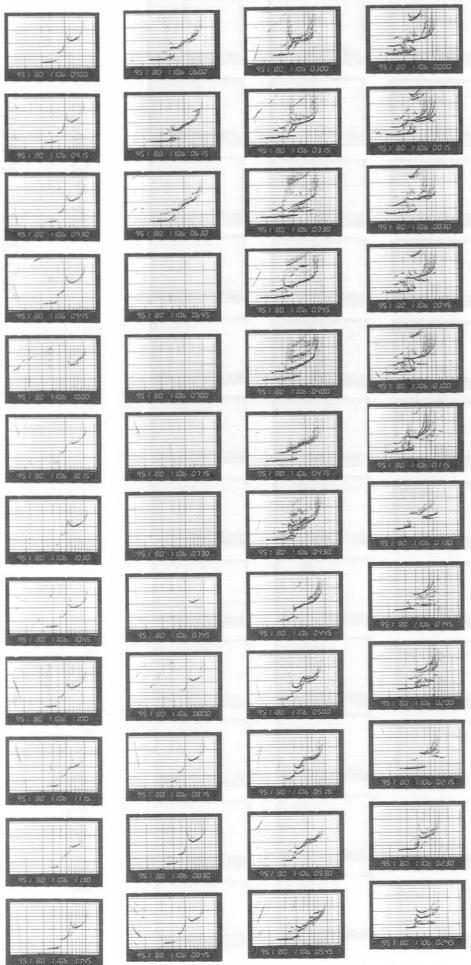
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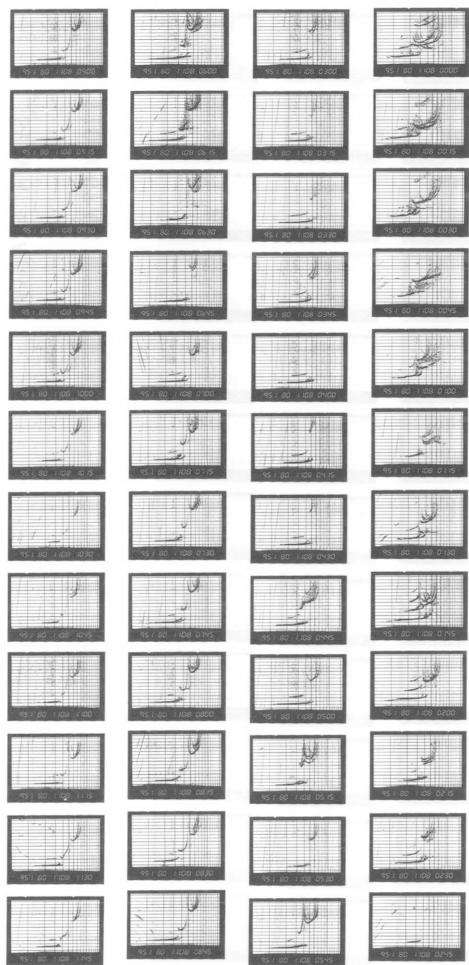
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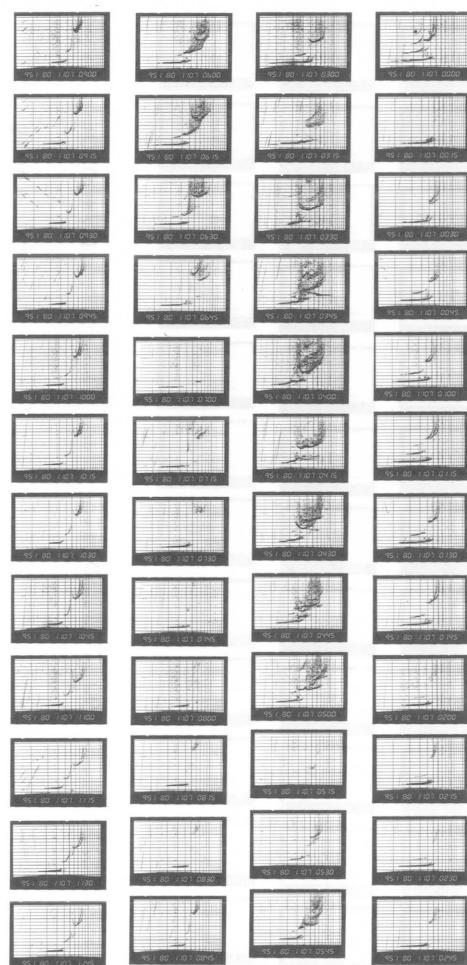
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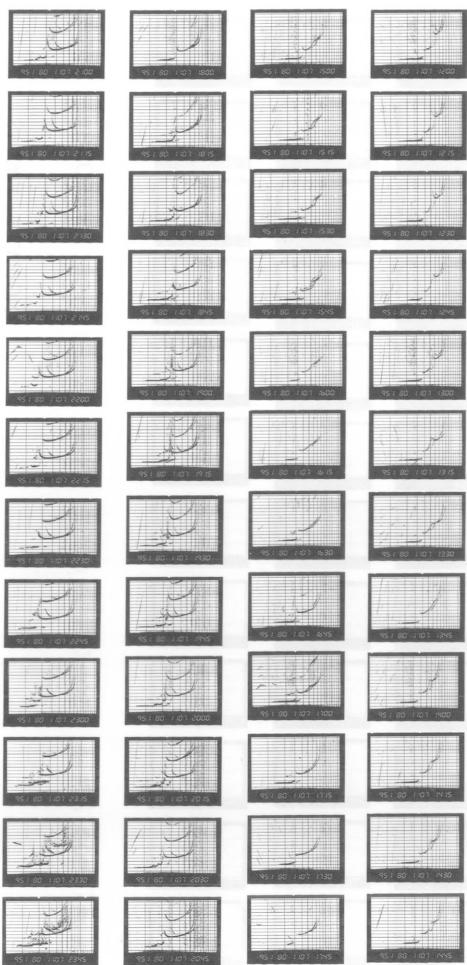
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SYOWA STATION

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12;00-23;45

SYOWA STATION

SYOWA STATION

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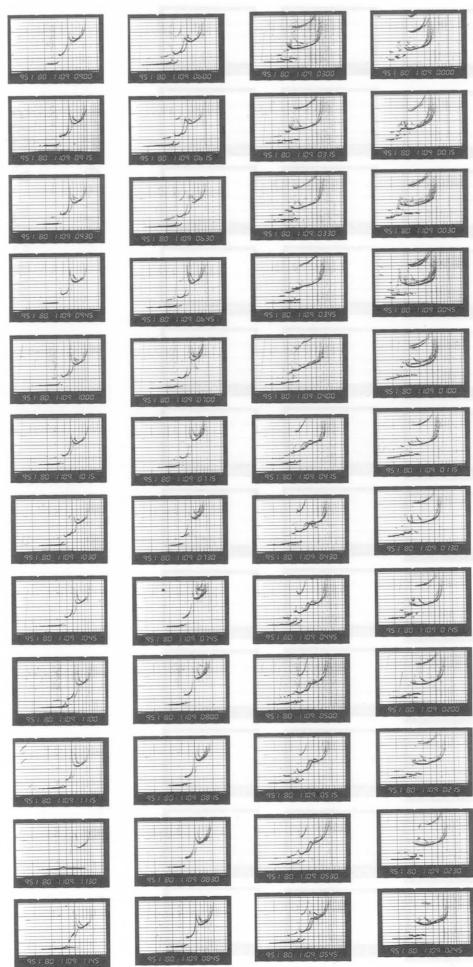
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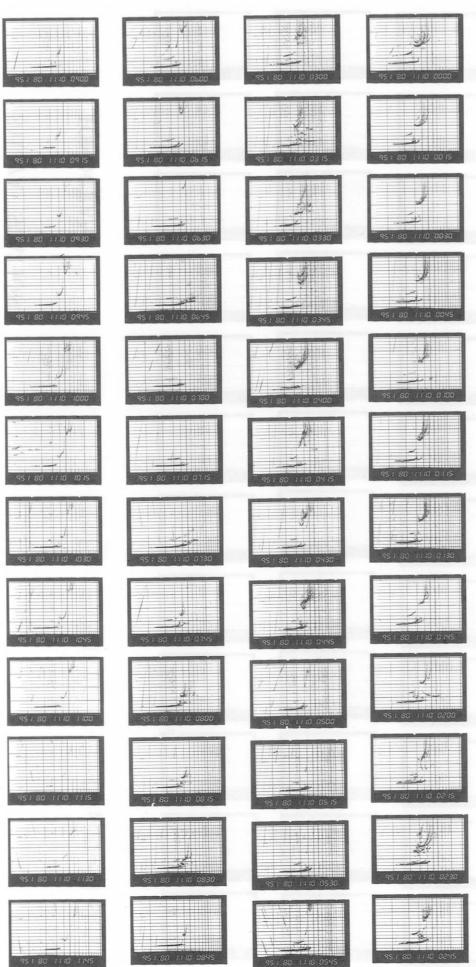
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IONOGRAM
1980 11 09
12;00-23;45



SYOWA STATION
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1980 11 10 00;00-11;45



SYOWA STATION
IONOGRAM

1980 11 10 12;00-23;45

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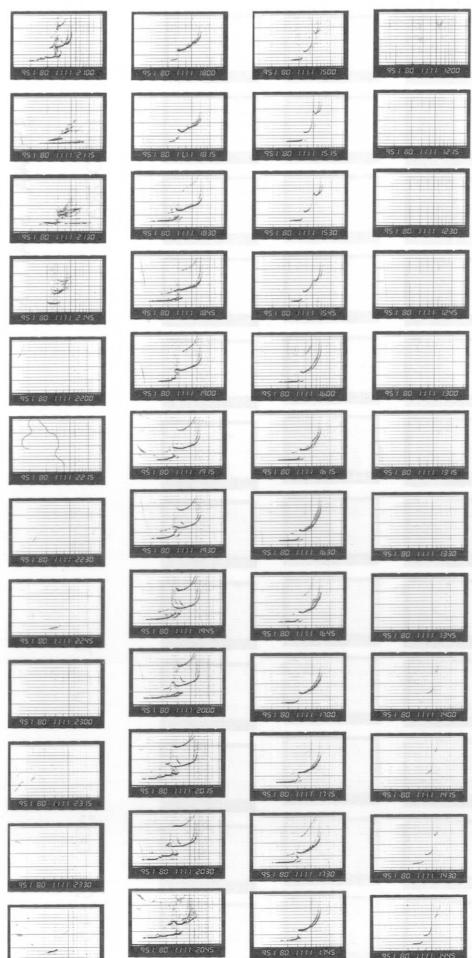
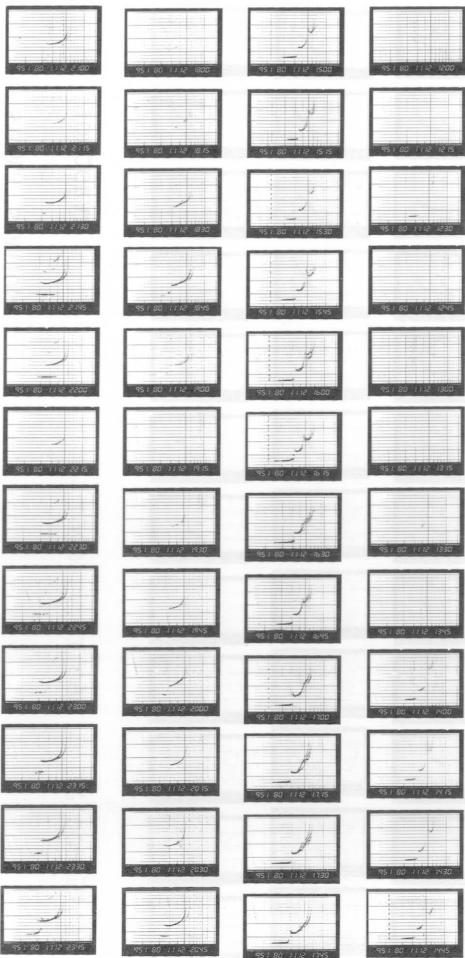
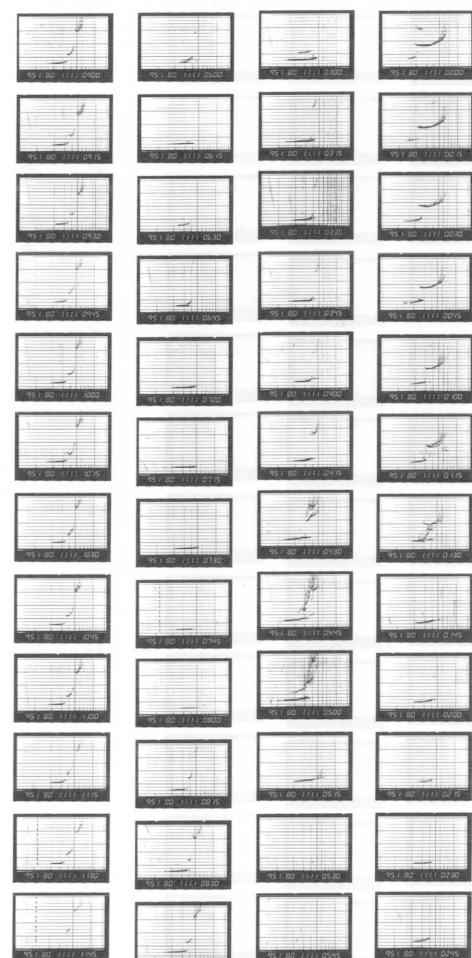
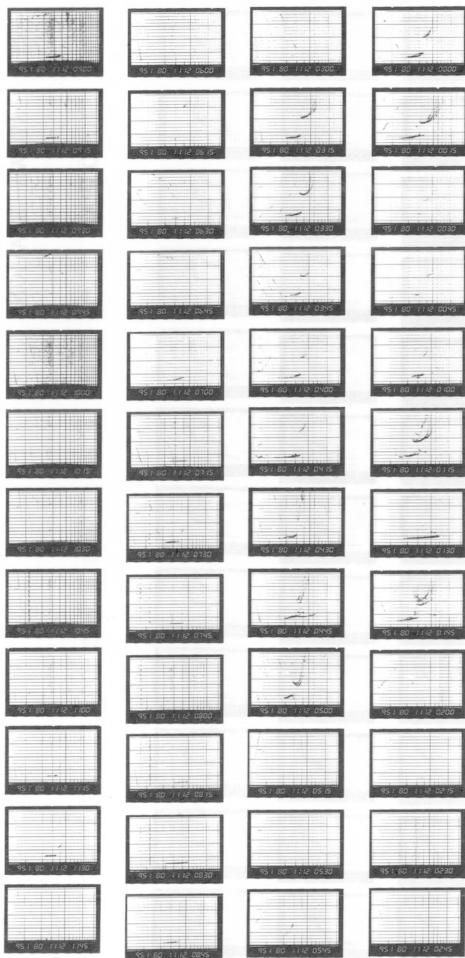
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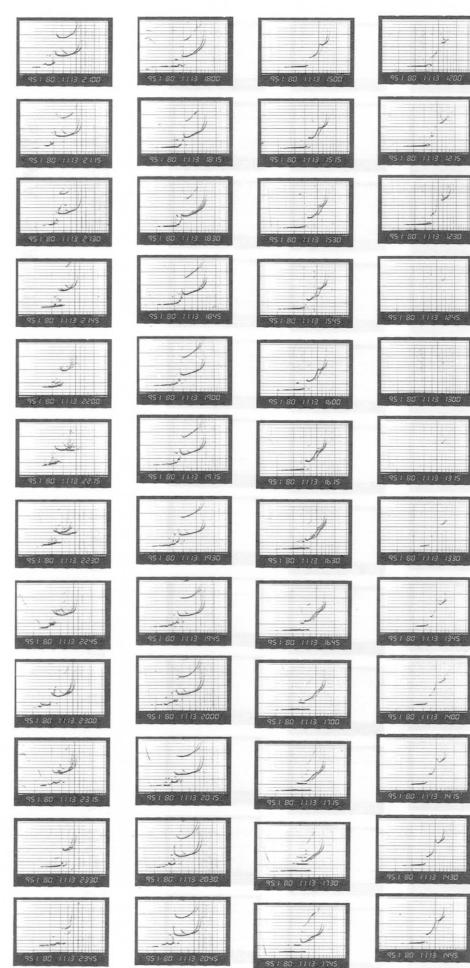
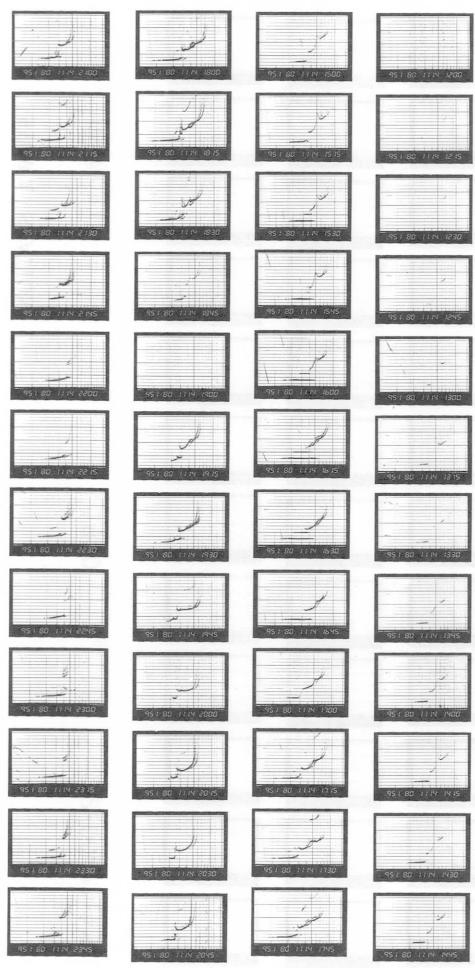
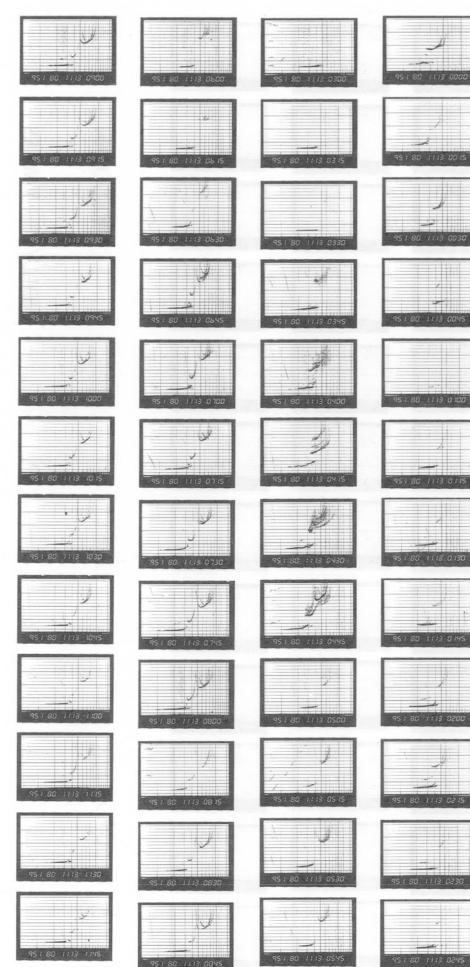
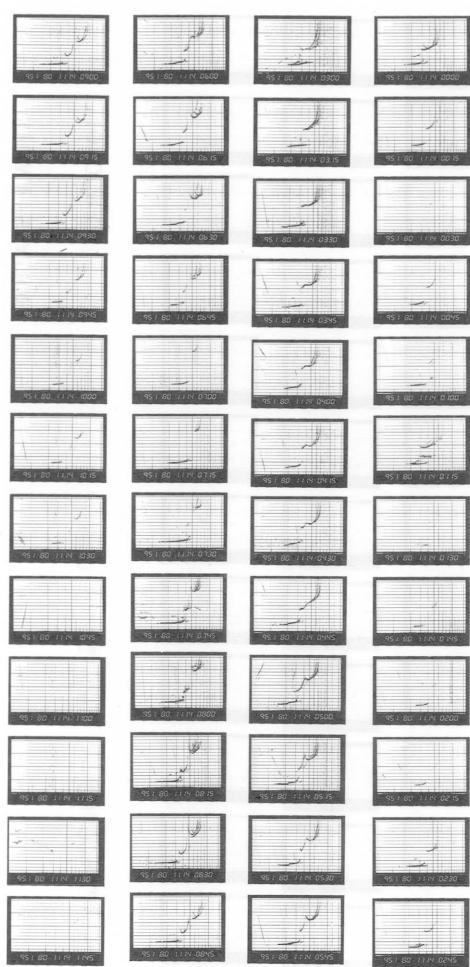
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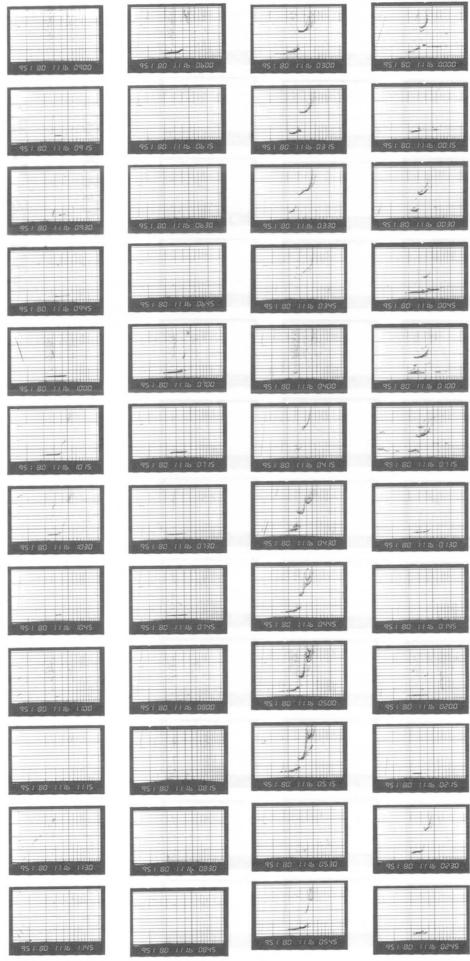
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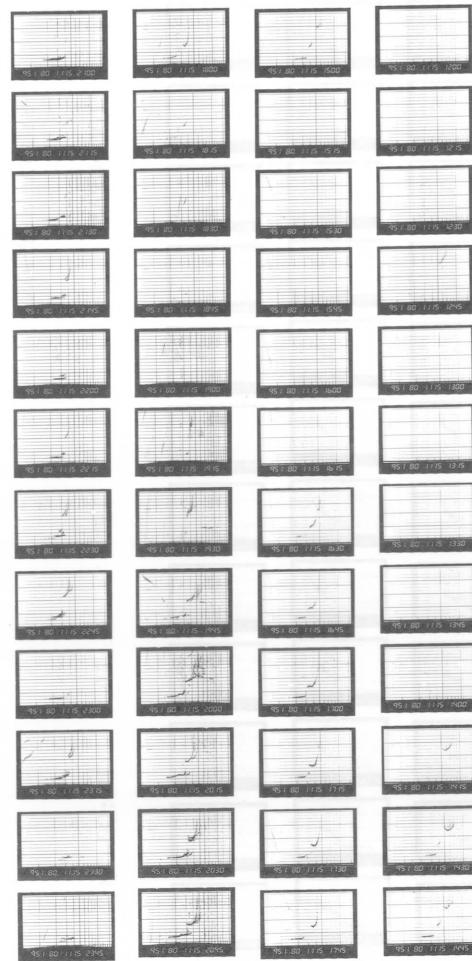
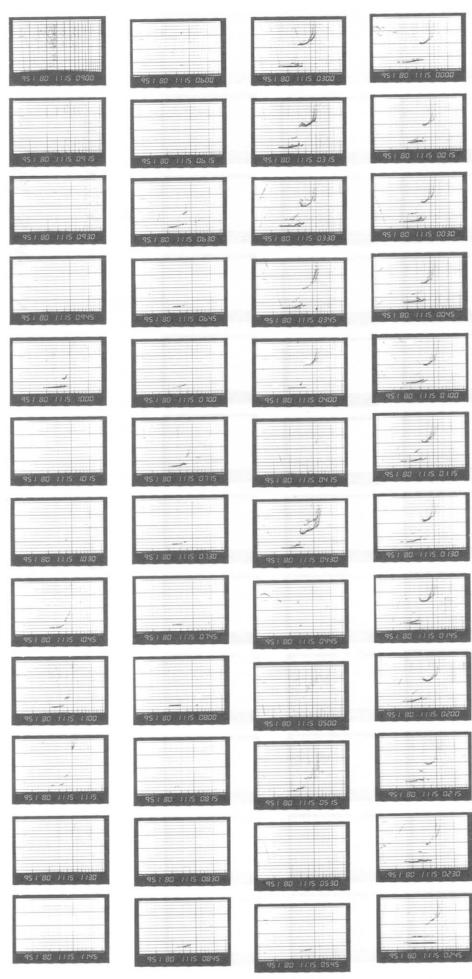
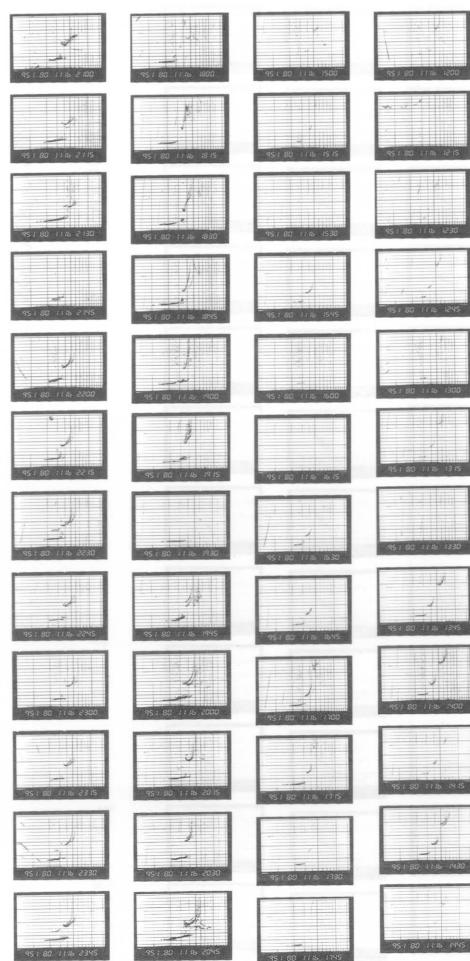
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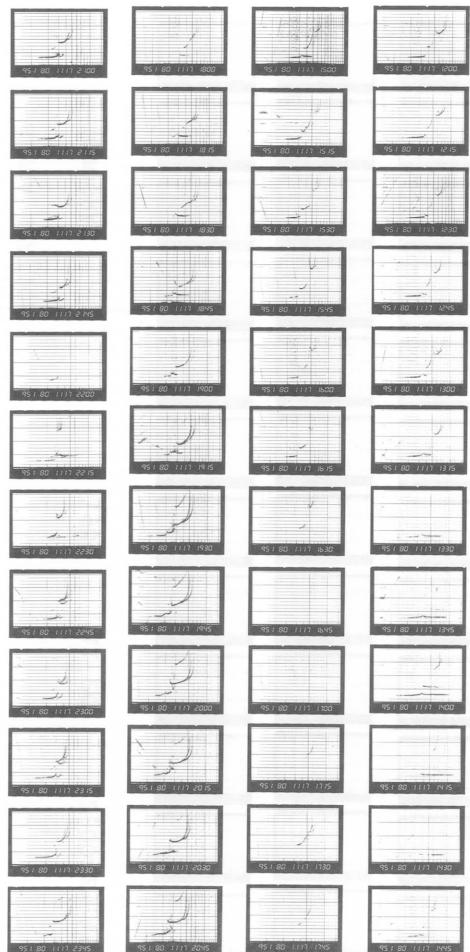
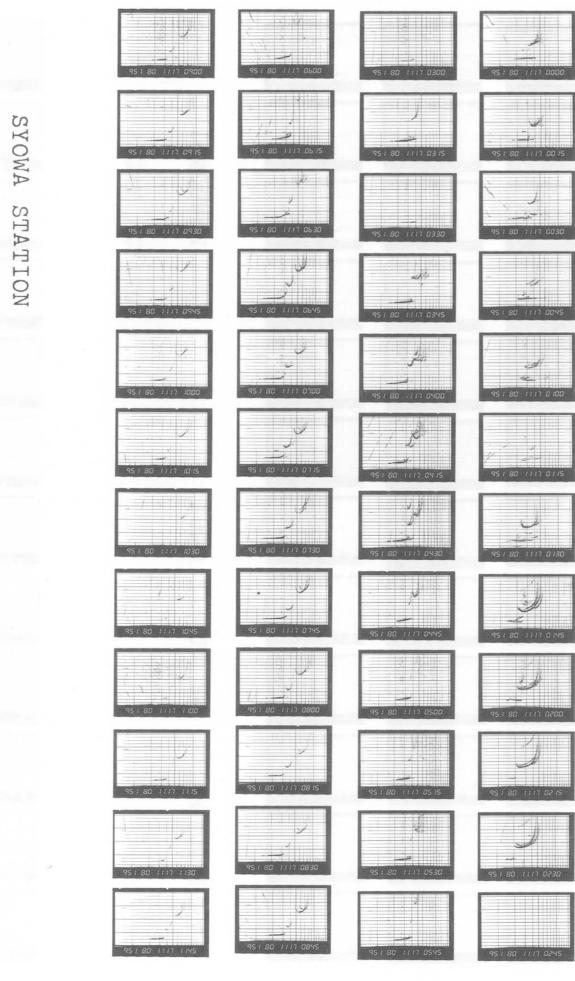
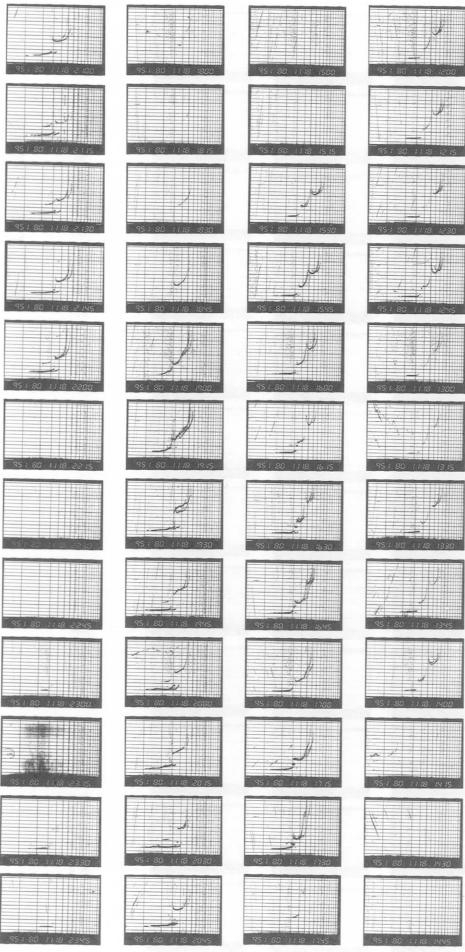
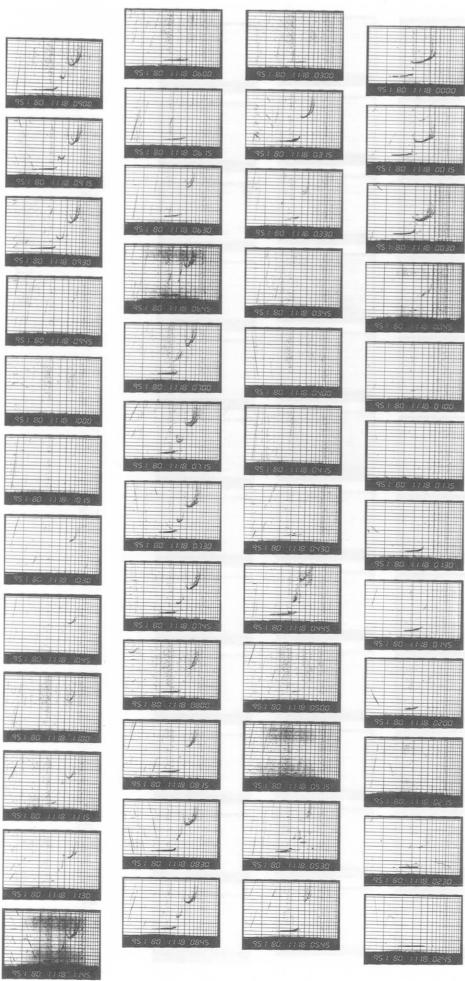
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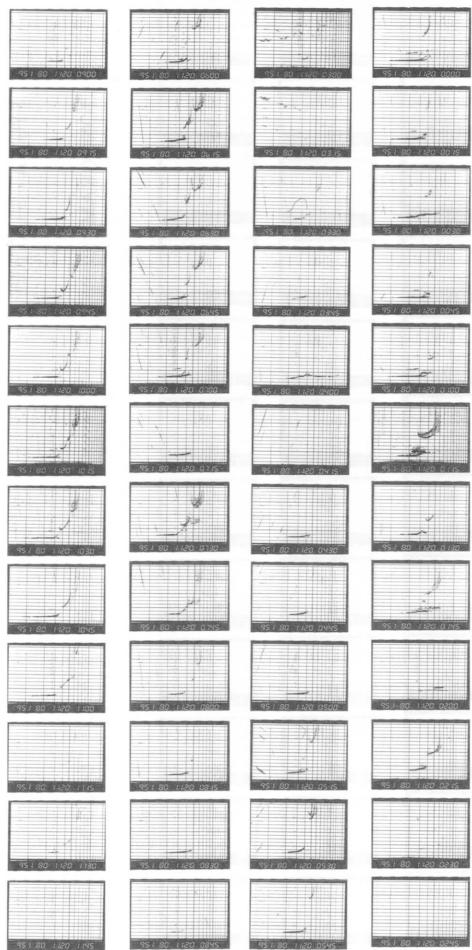
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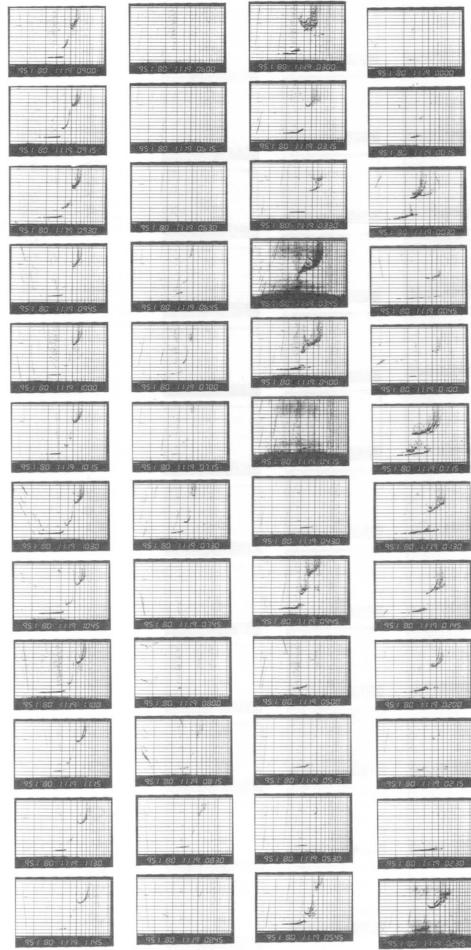
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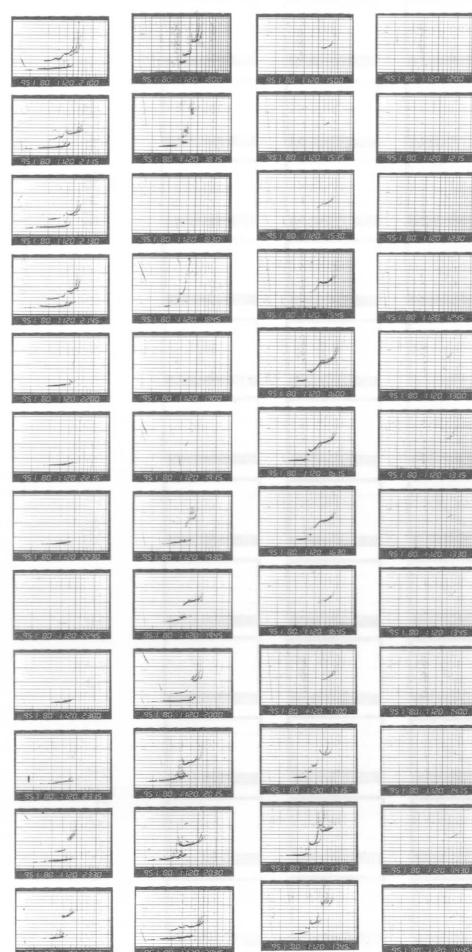
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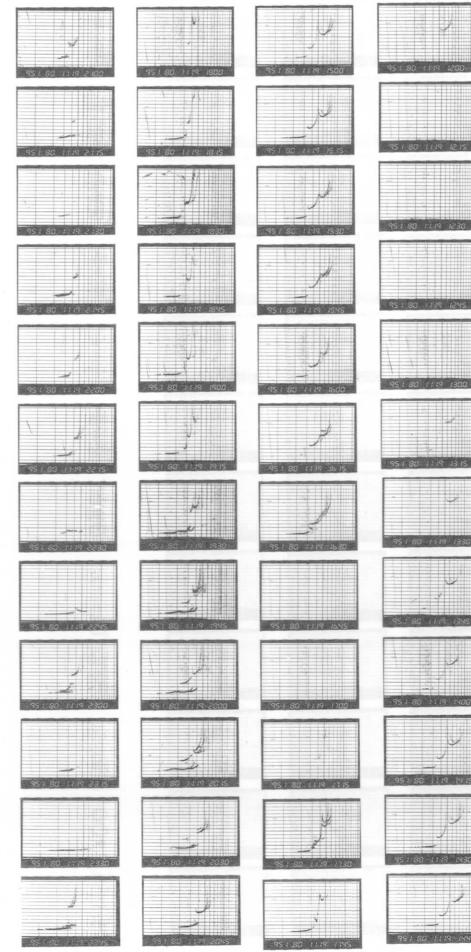
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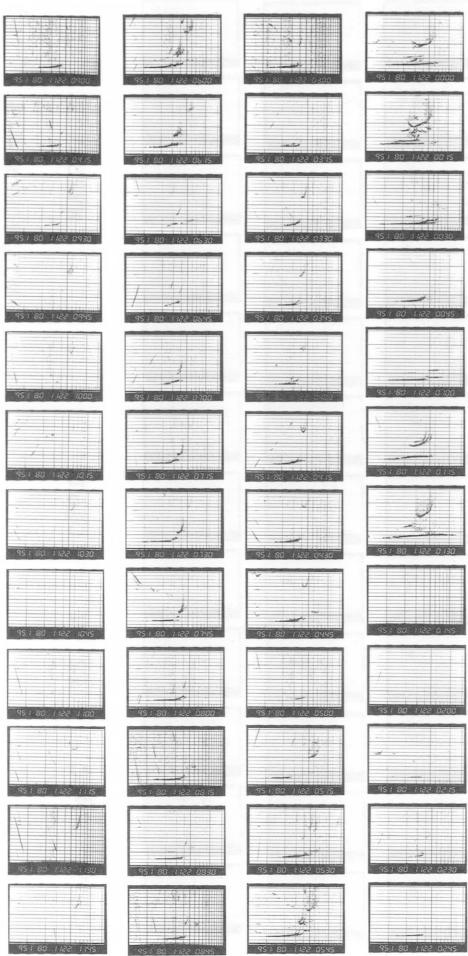
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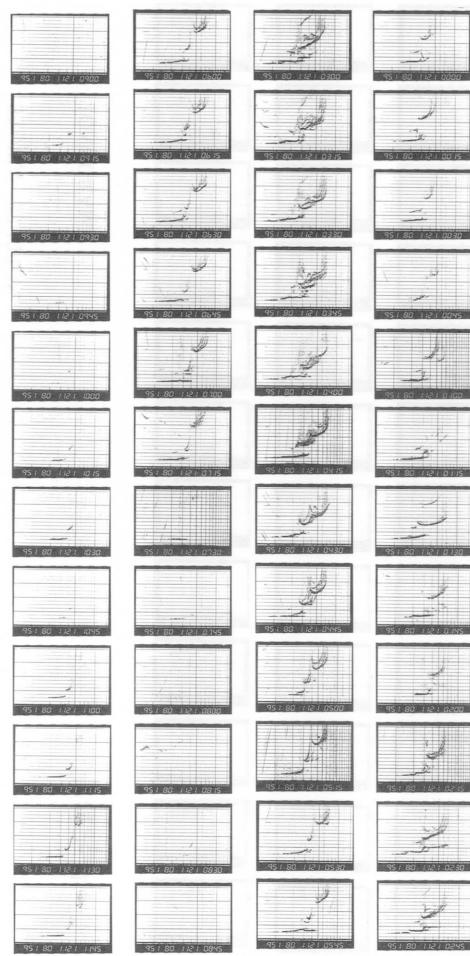
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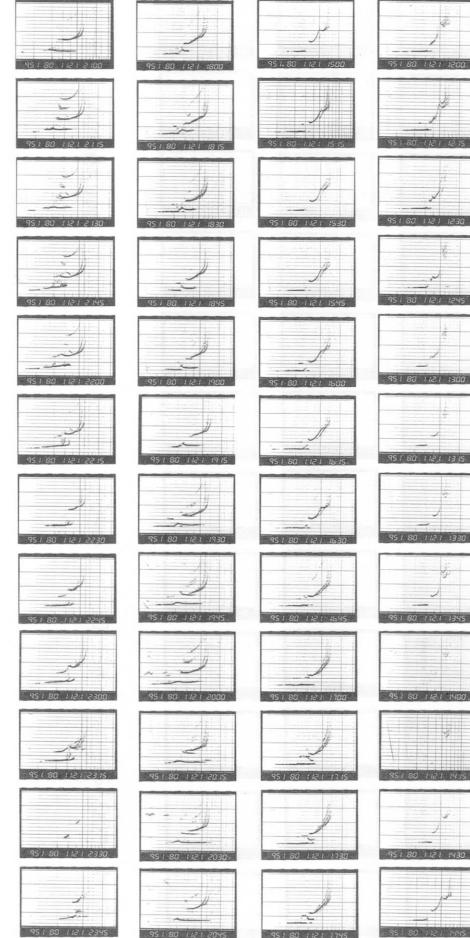
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SYOMA STATION
IONOGRAM 1980 11 22 00;00-11;45



SYOWA STATION
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1980 11 22 12:00-23:45



SYOMA STATION
IONOGRAM 1980 11 22 00;00-11;45

SYOWA STATION

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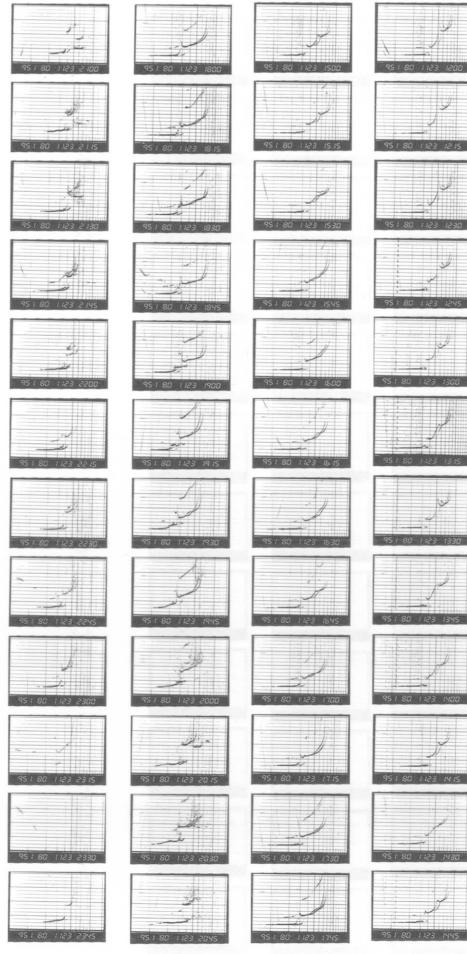
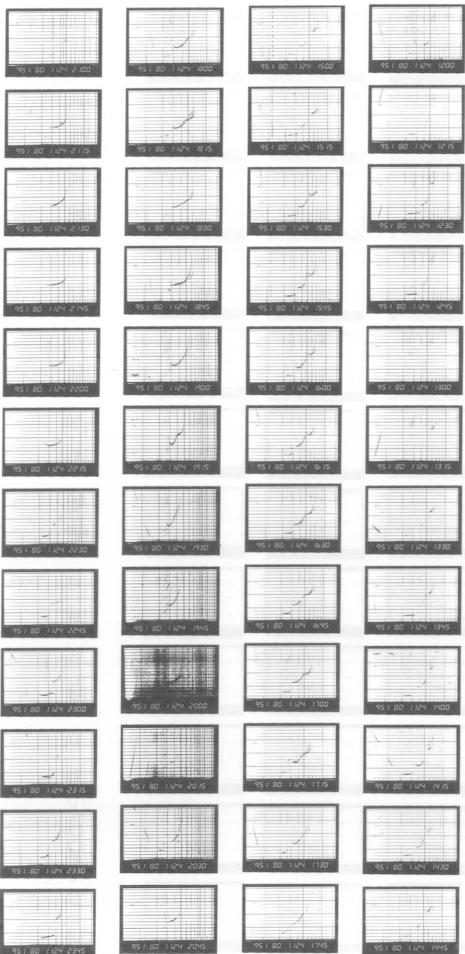
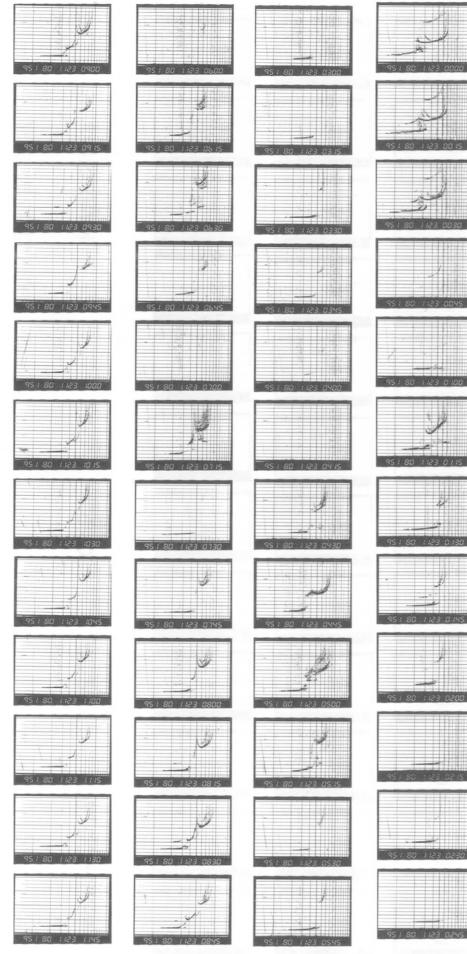
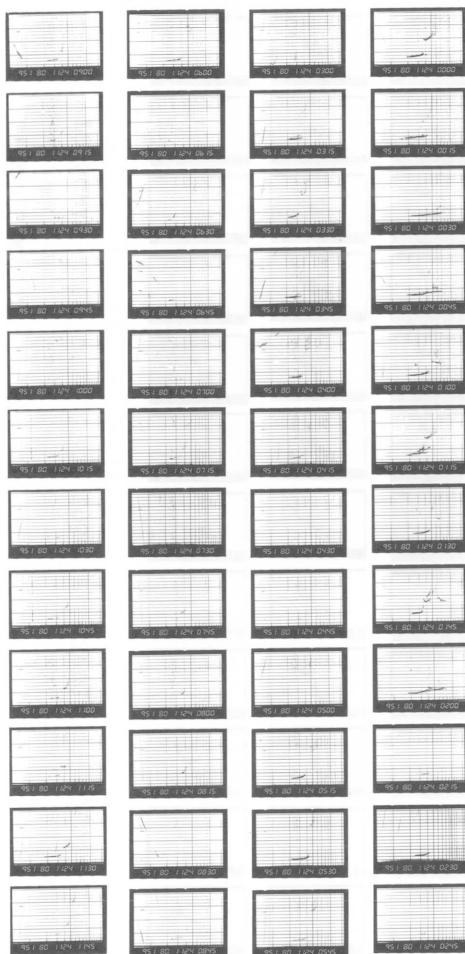
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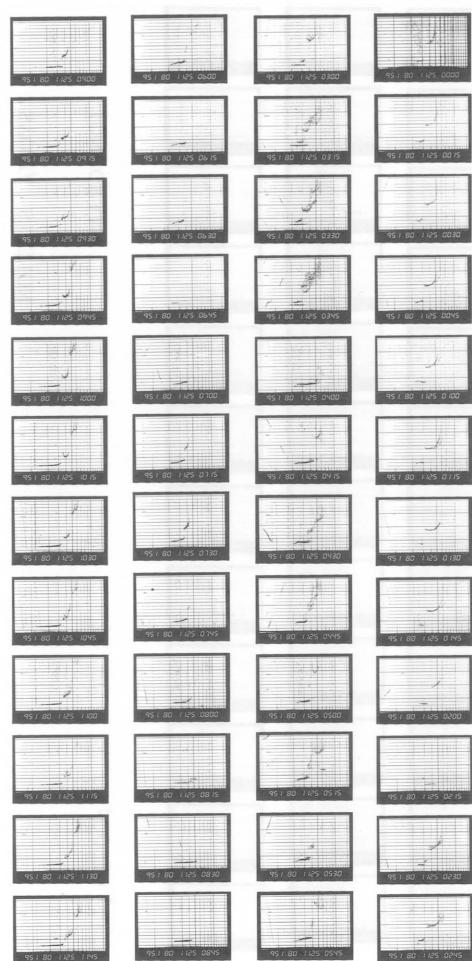


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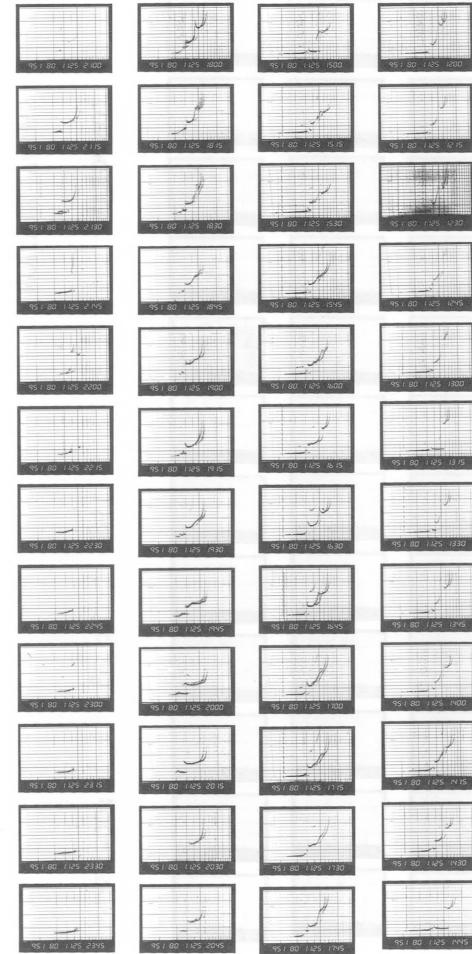
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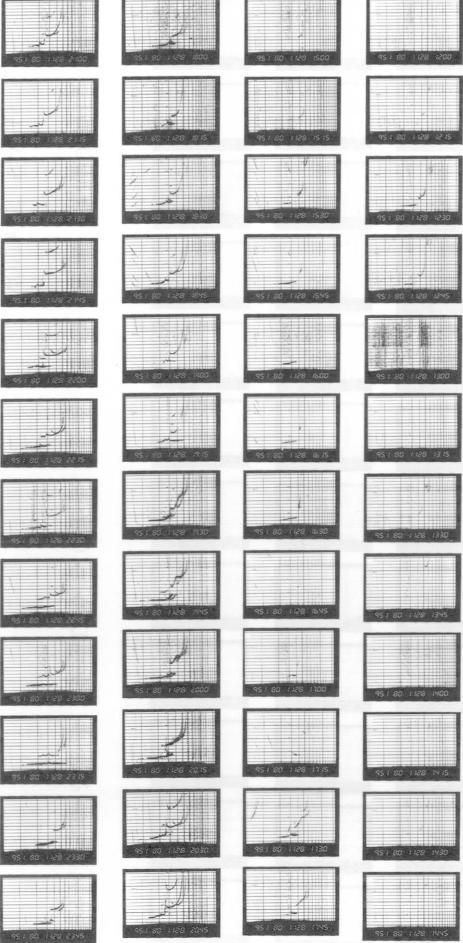
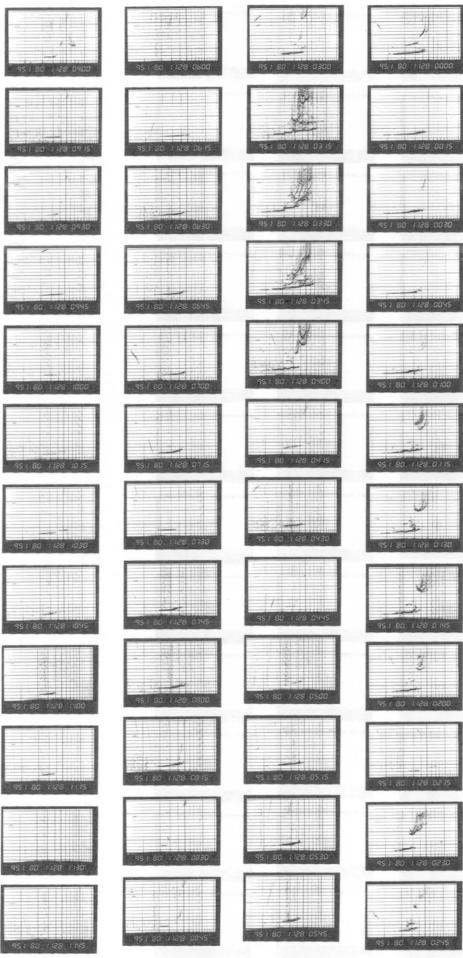
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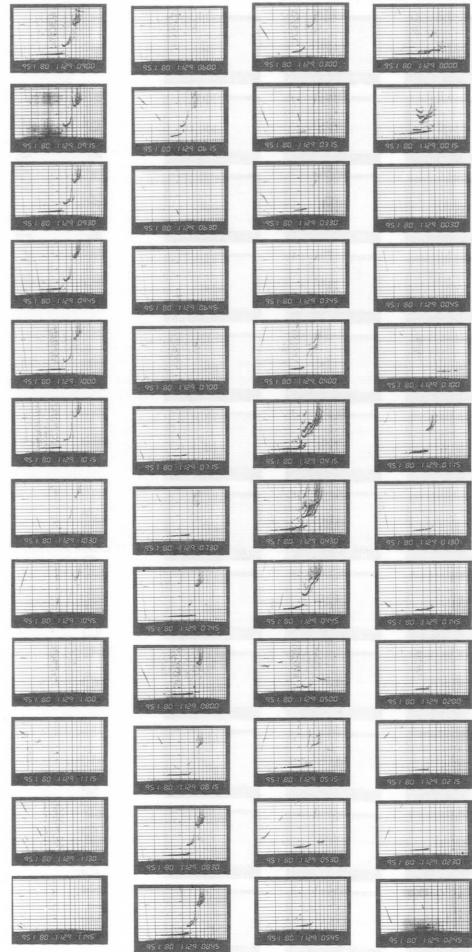
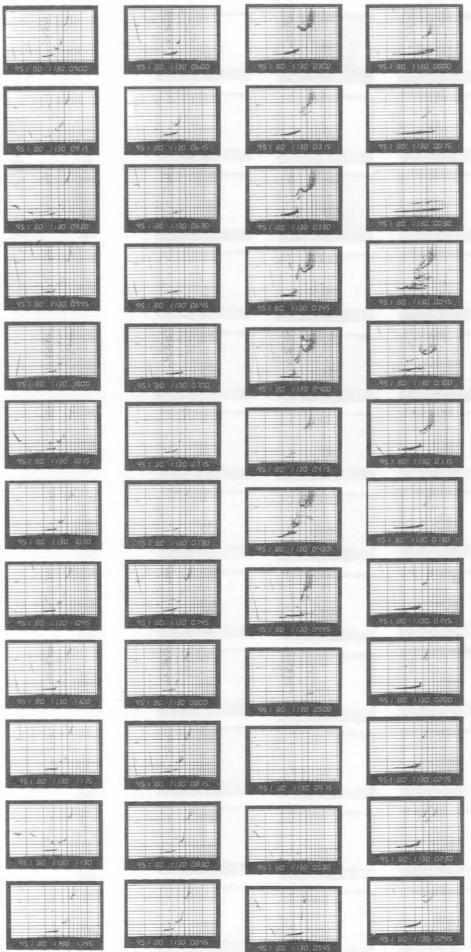
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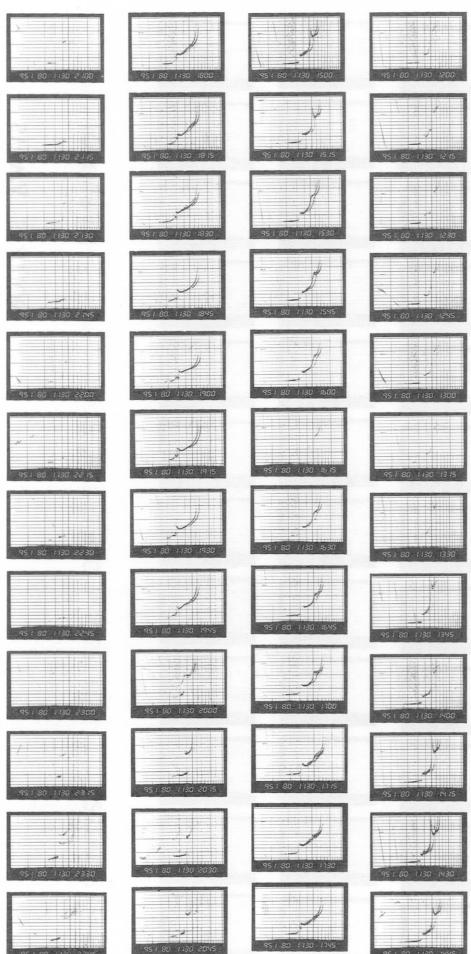
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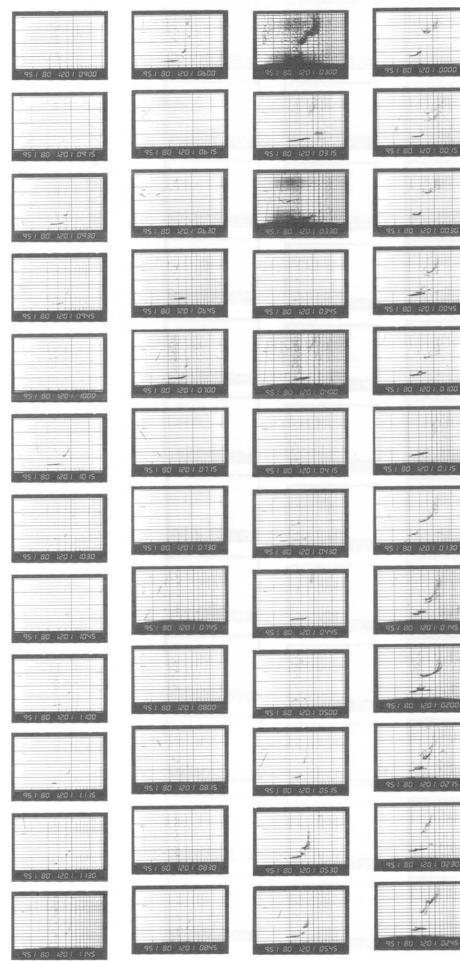
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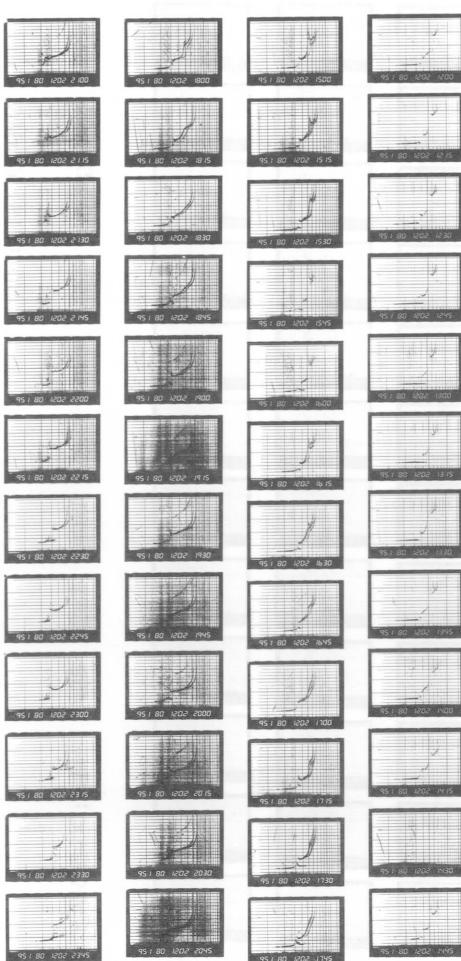
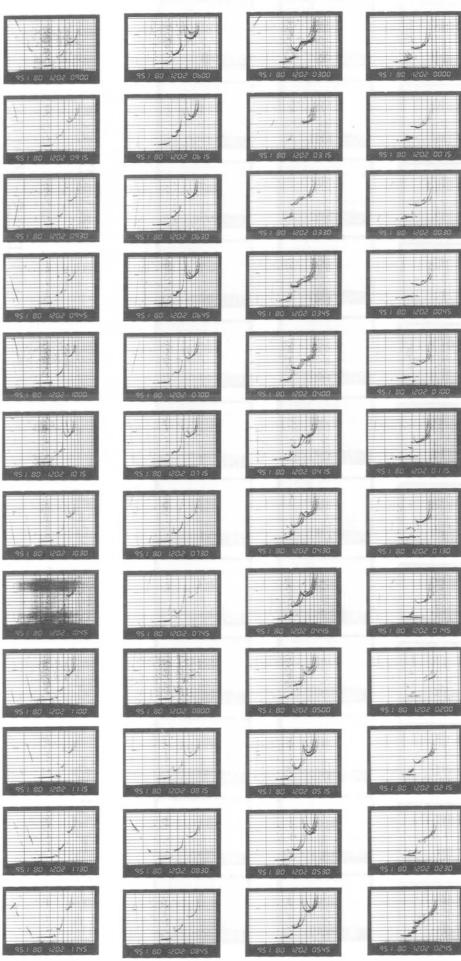
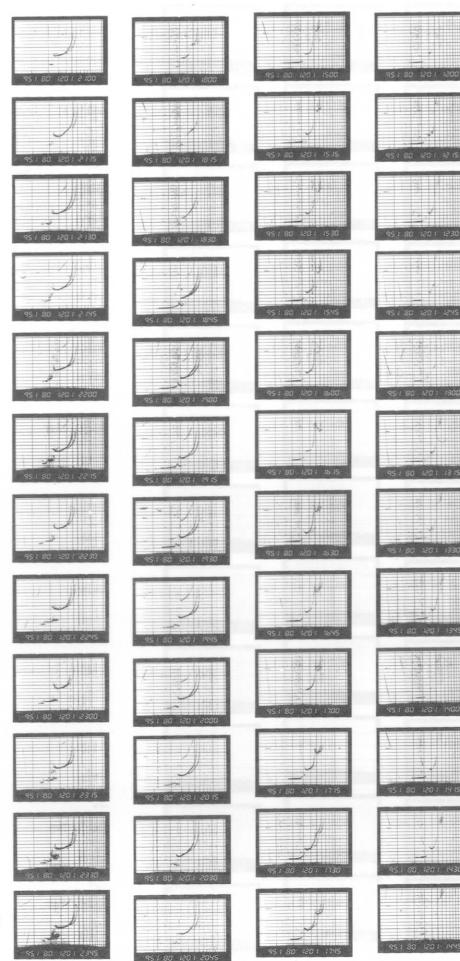
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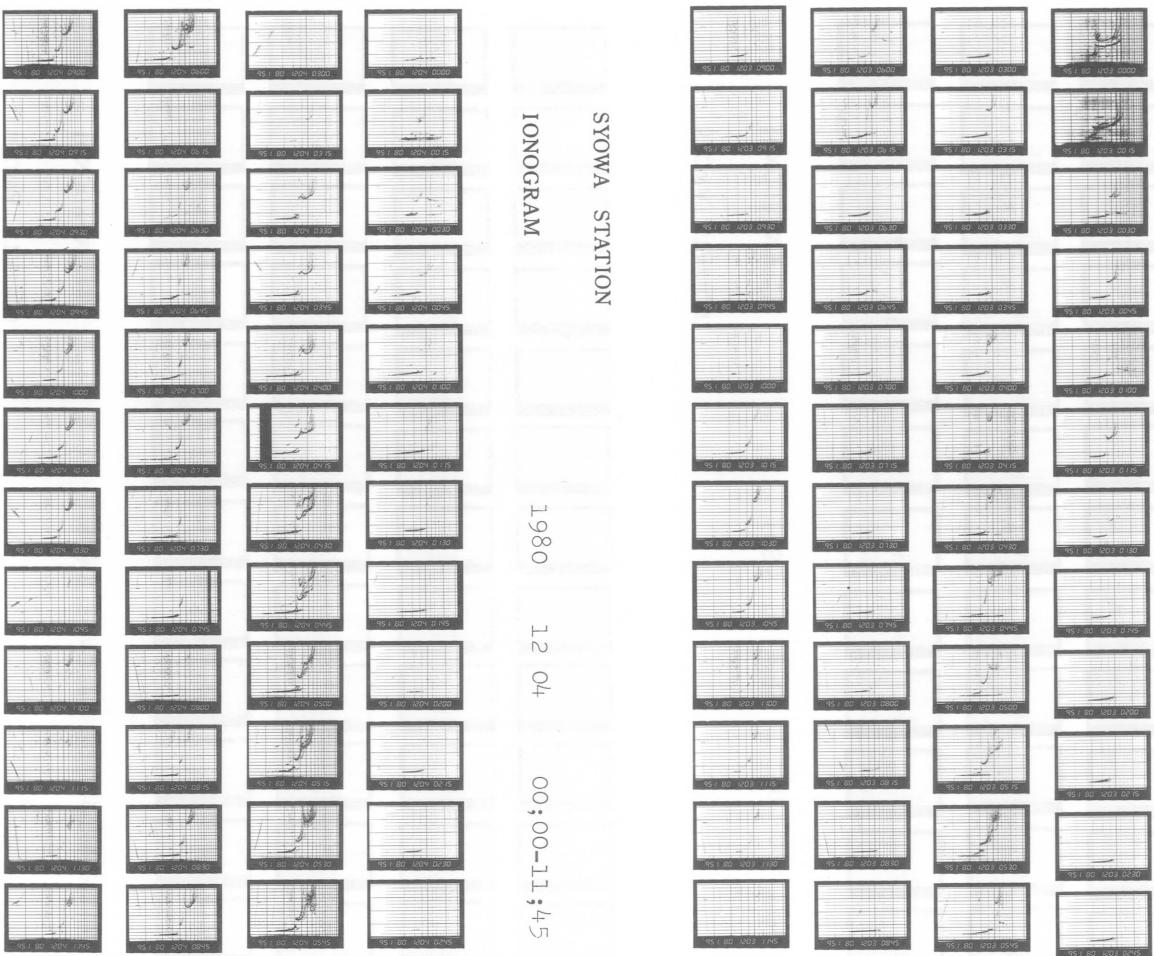


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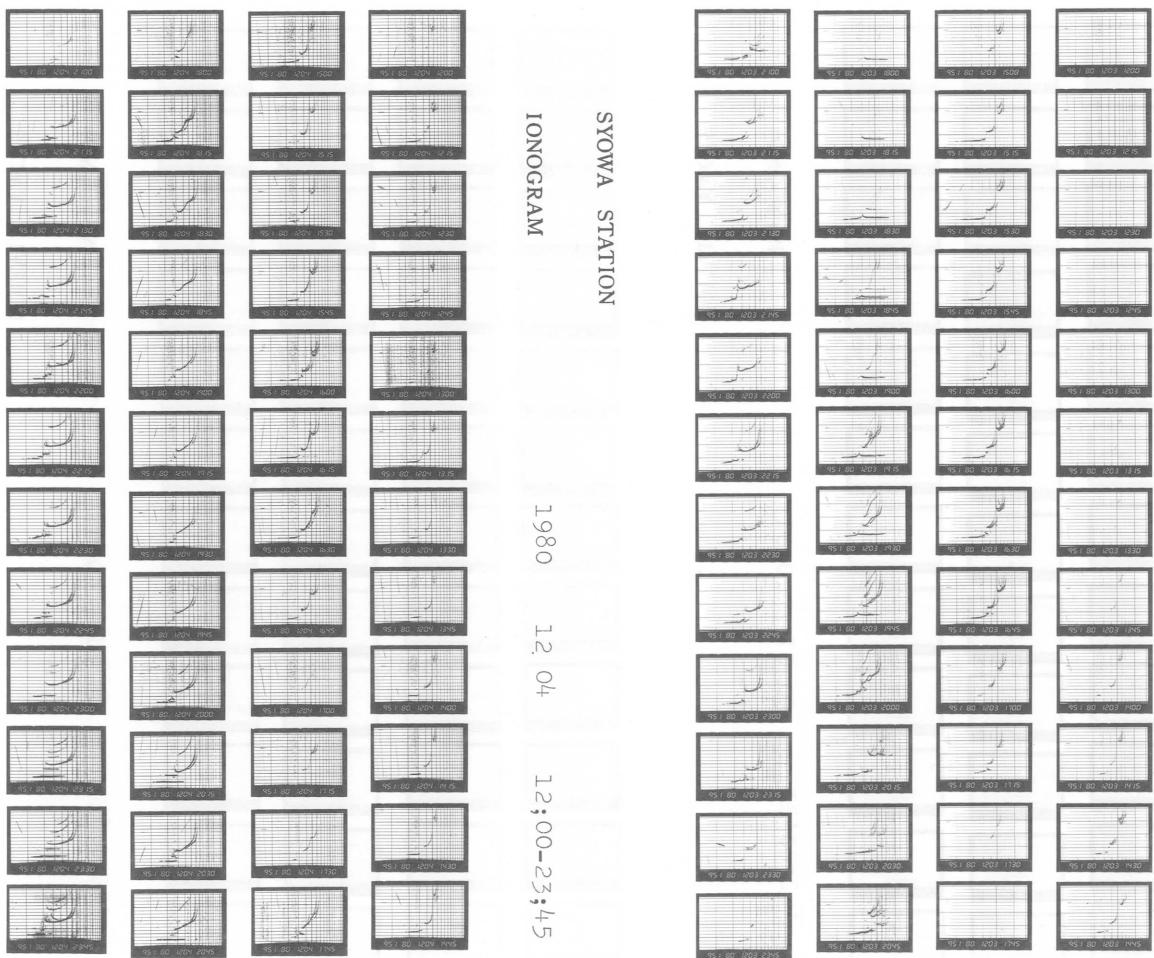


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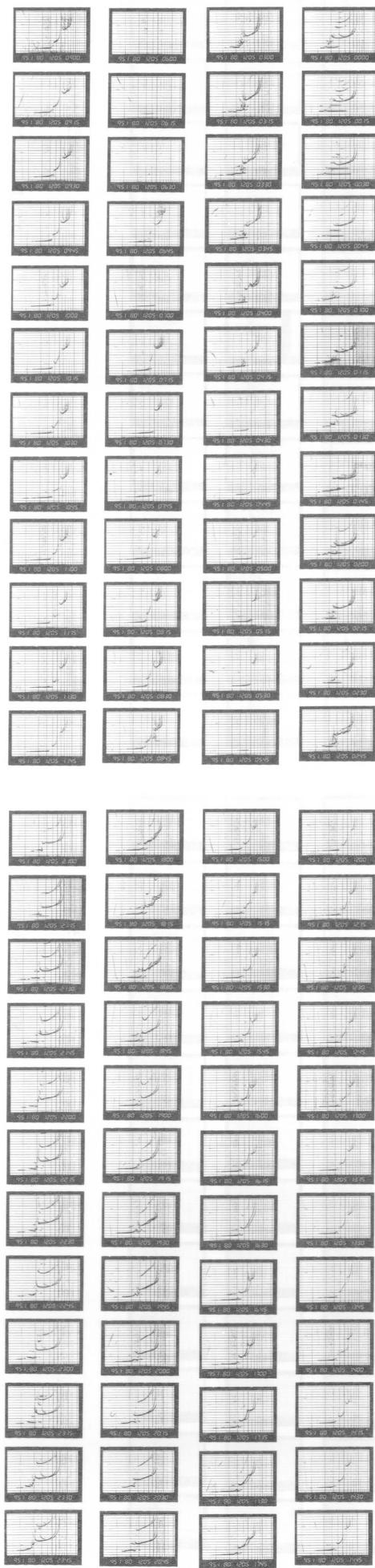
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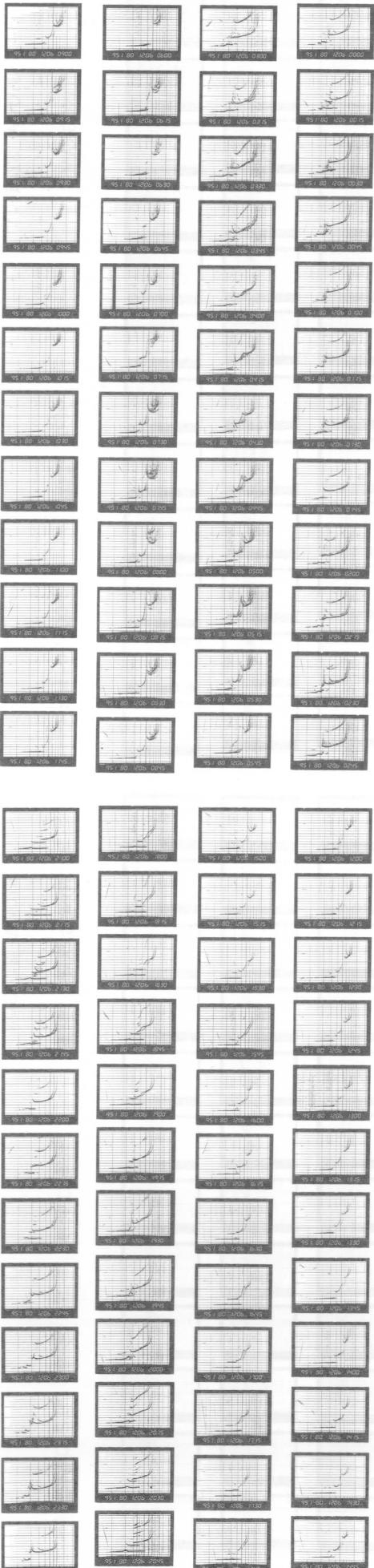
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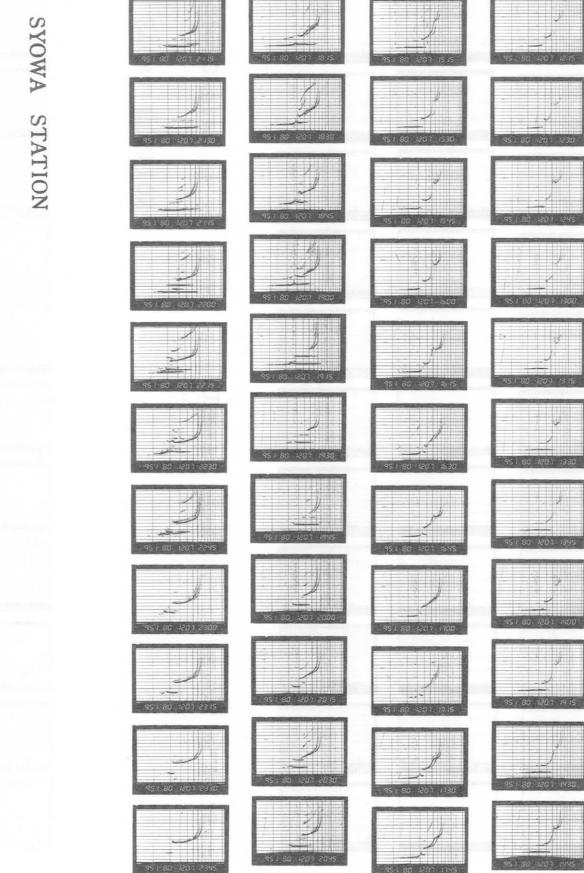
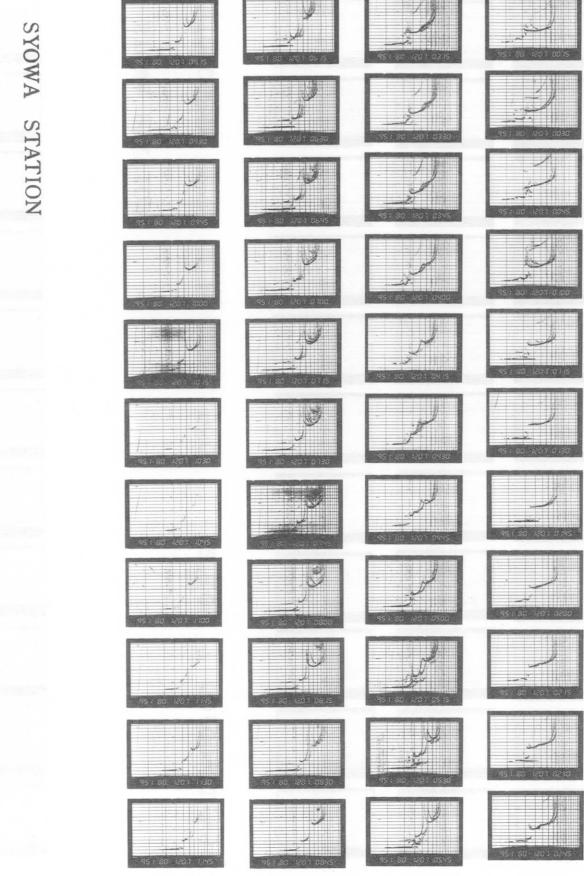
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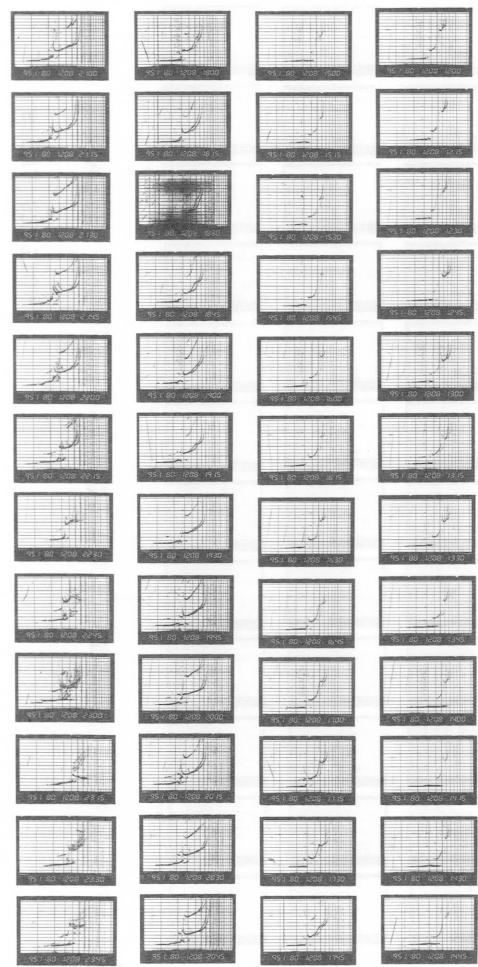
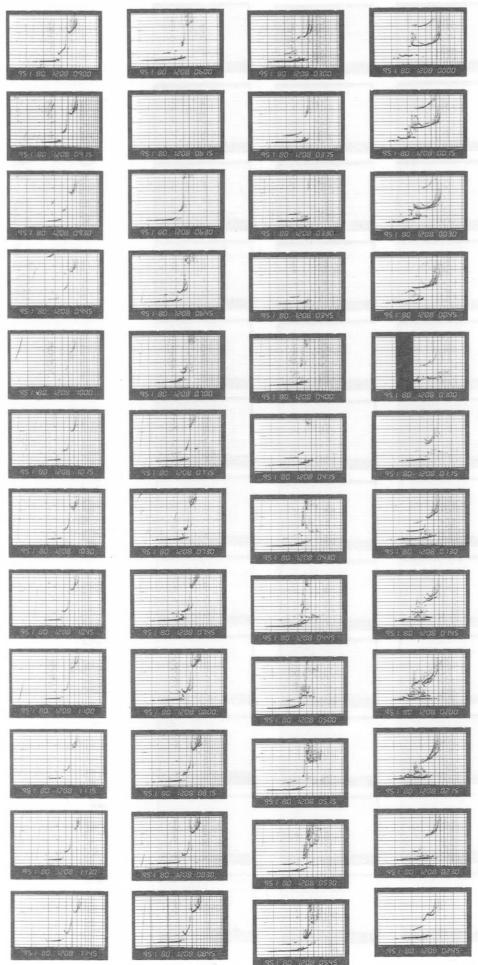


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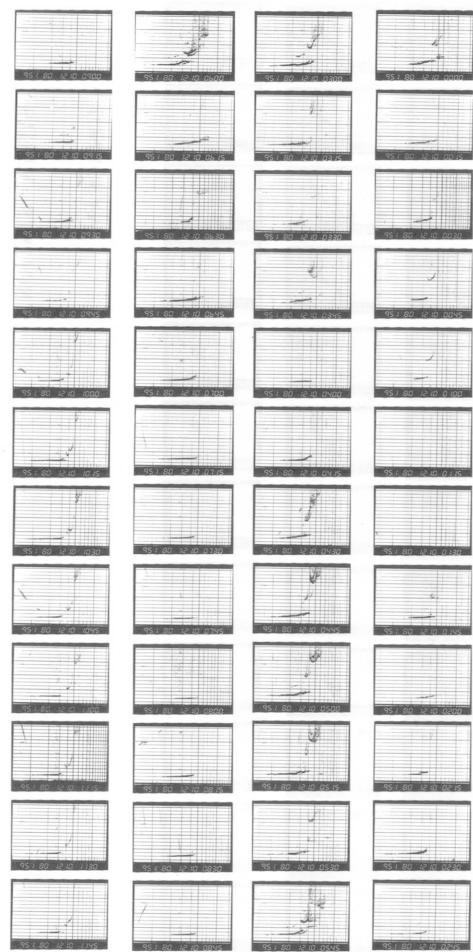
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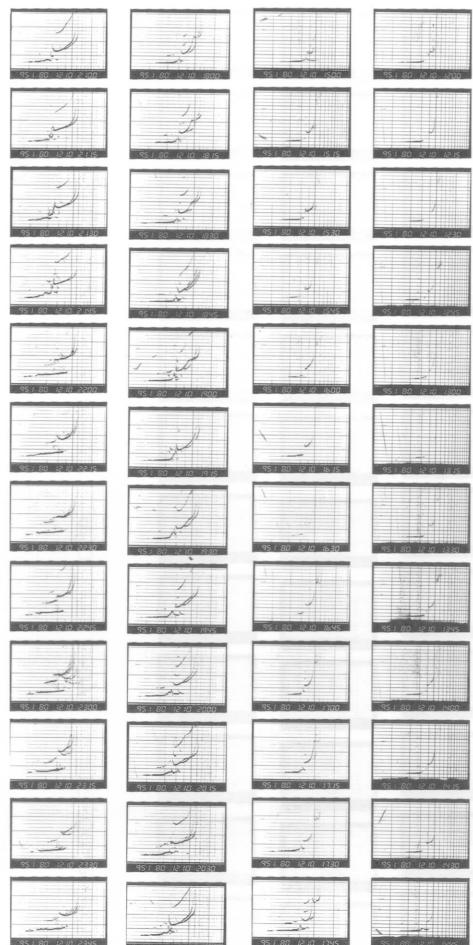
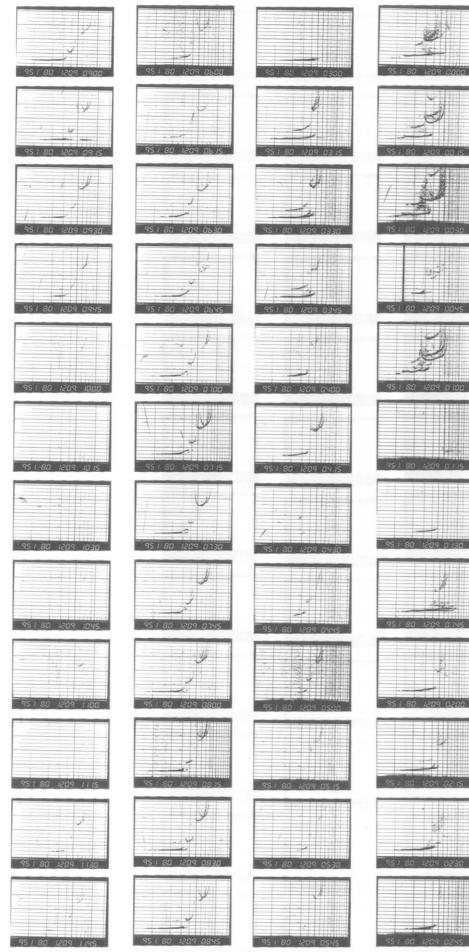
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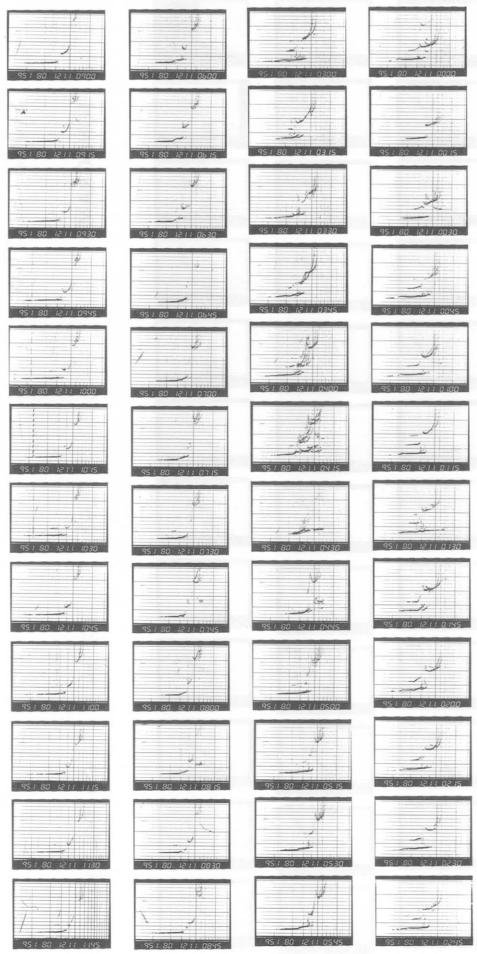
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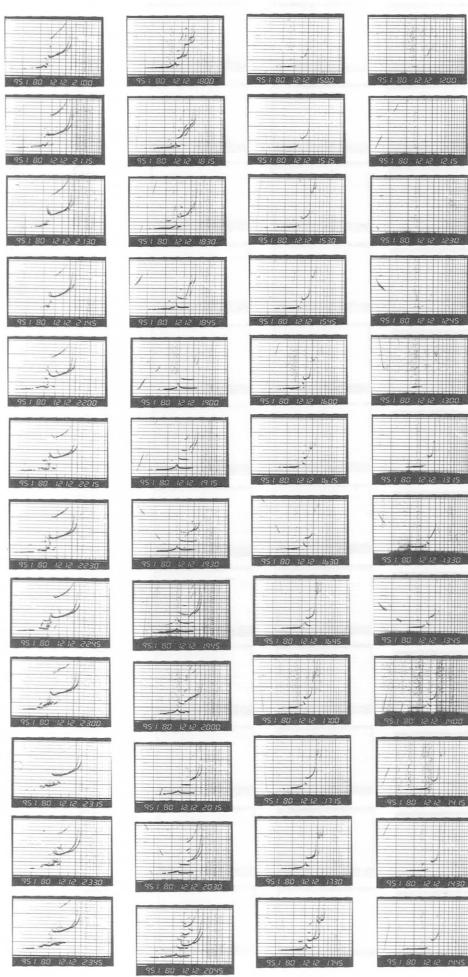
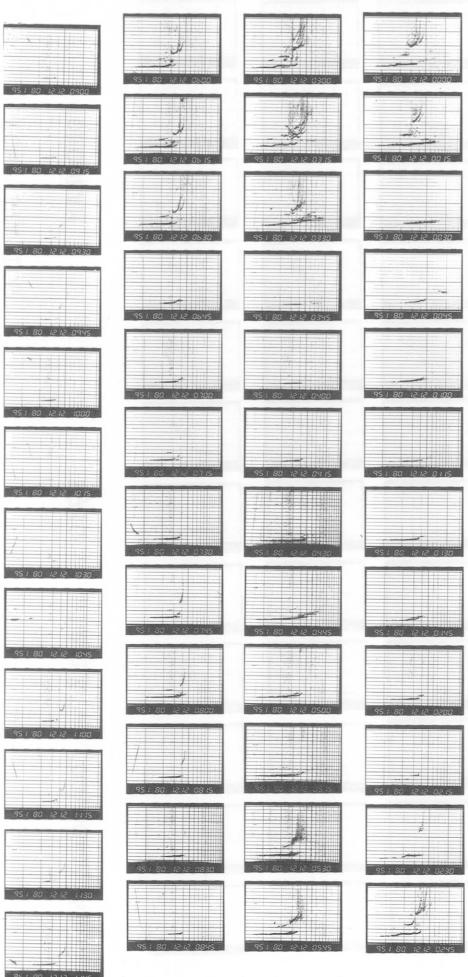
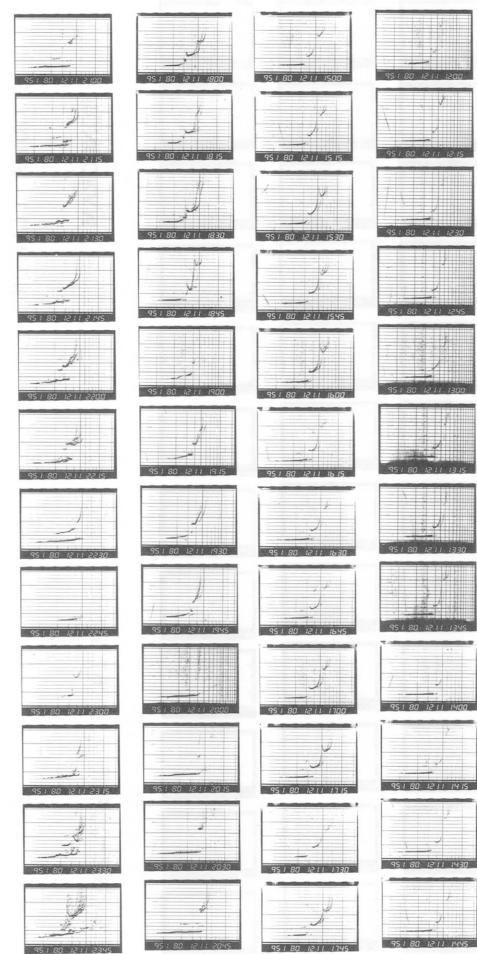
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SYOWA STATION

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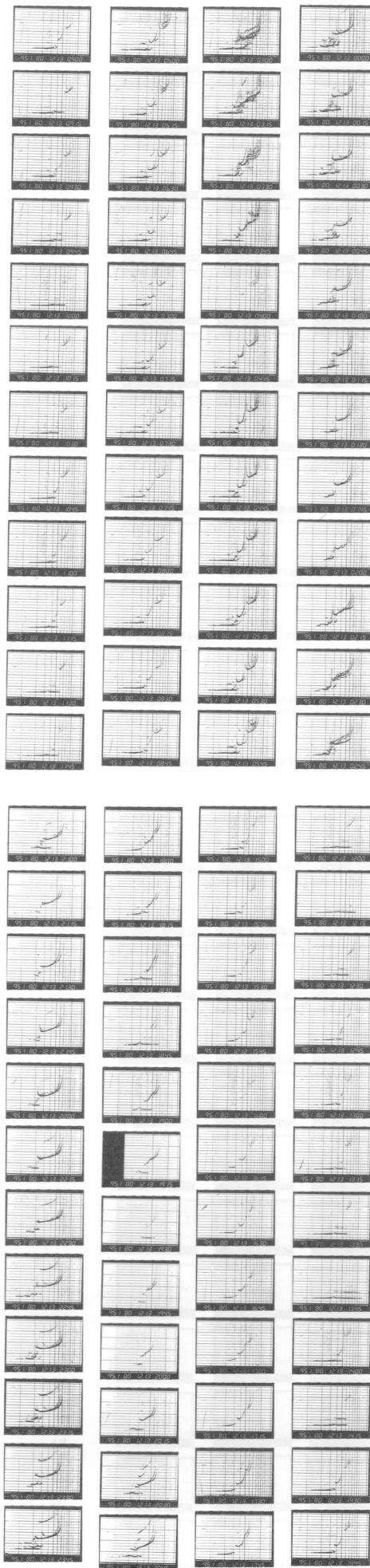
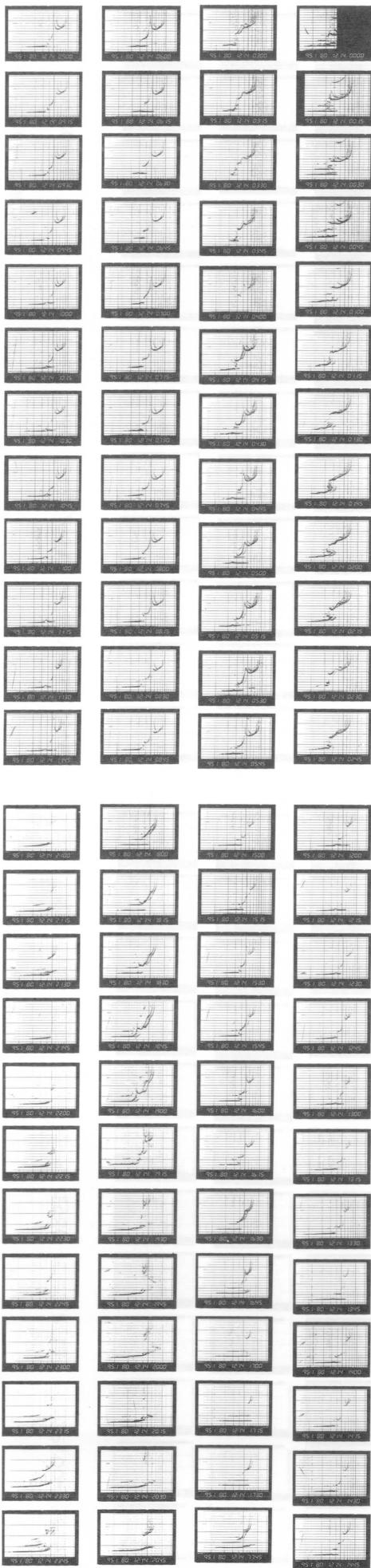
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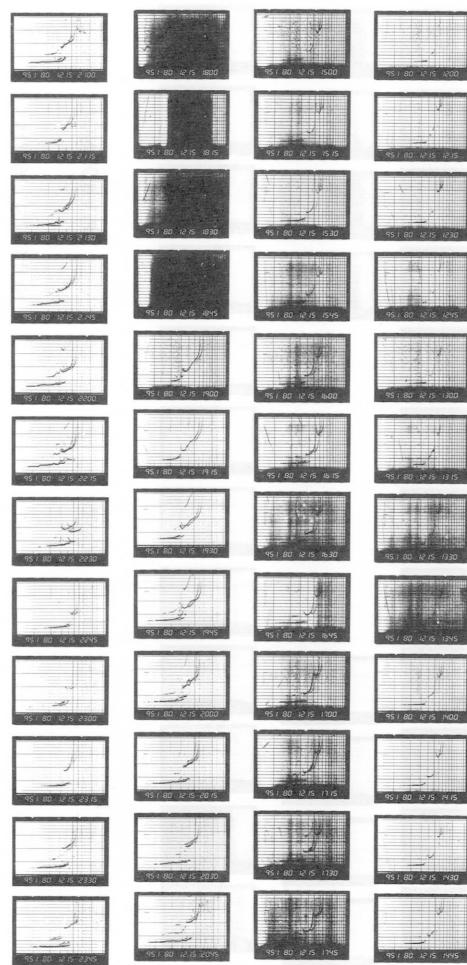
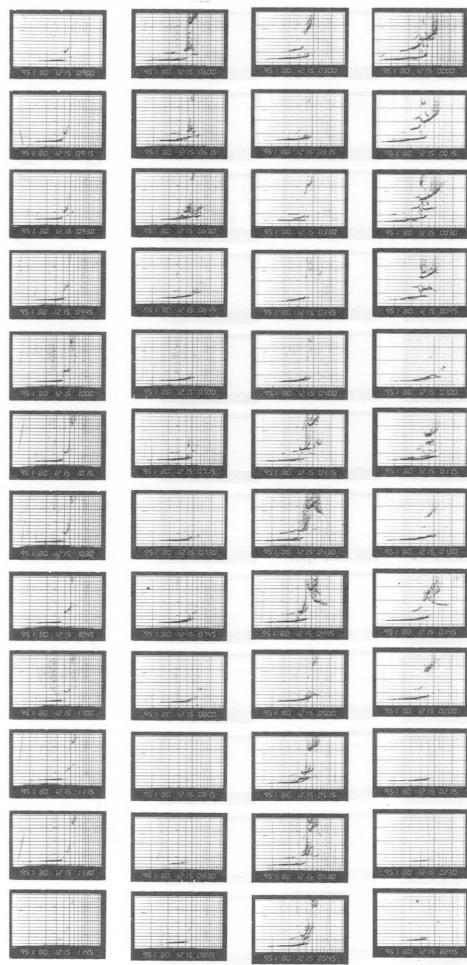
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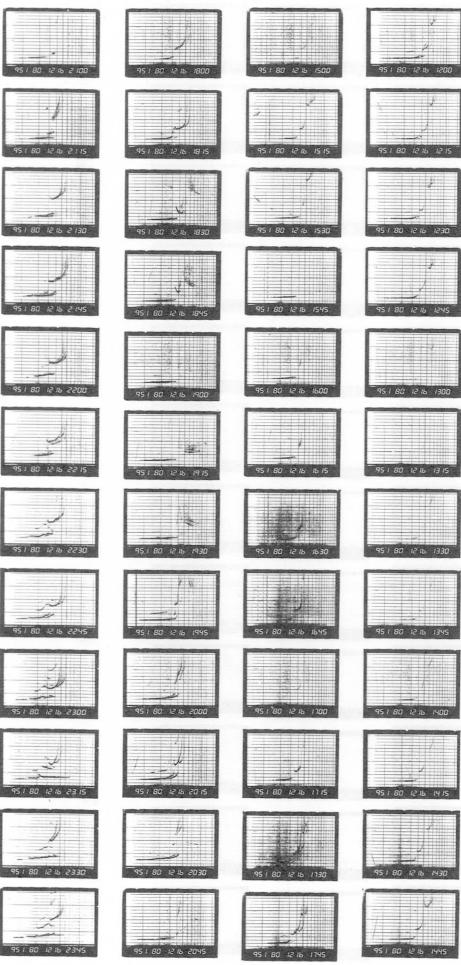
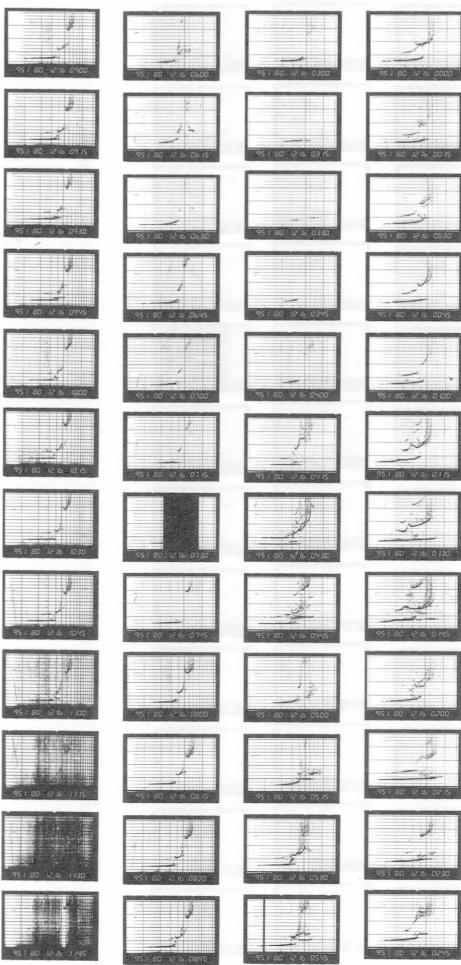
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1980 12 16 00;00-11;45

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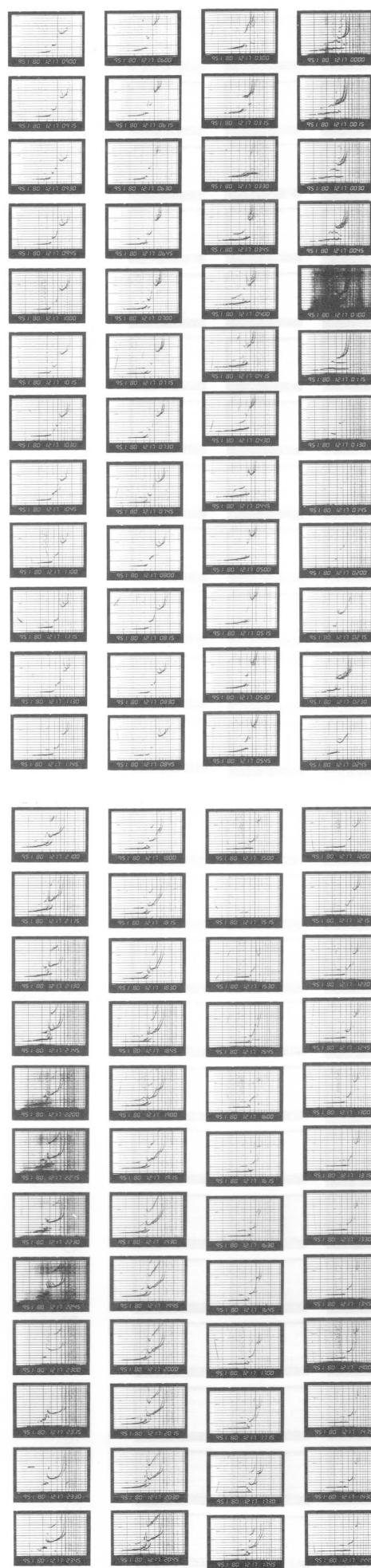
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1980 12 17 12;00-23;45



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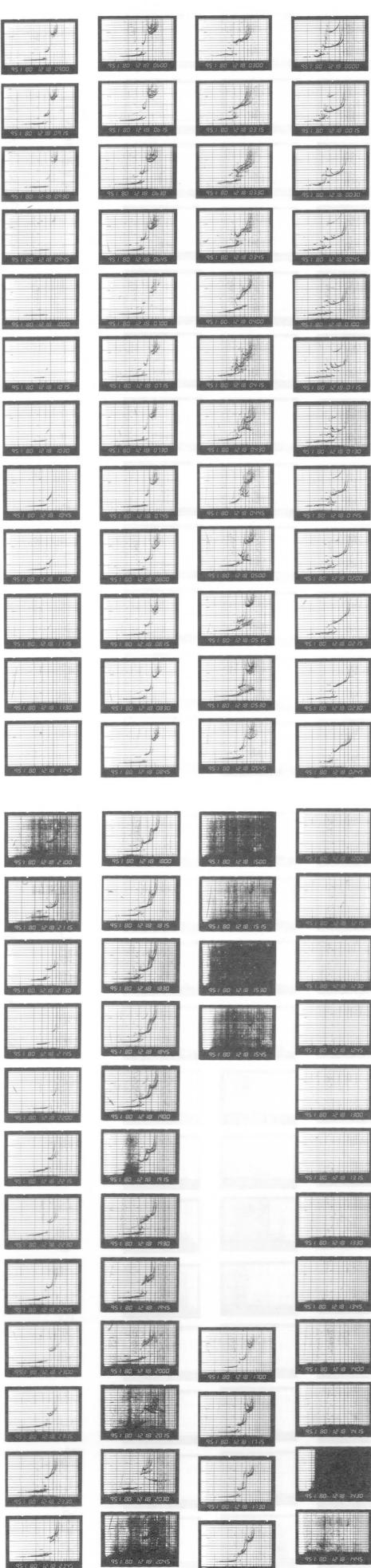
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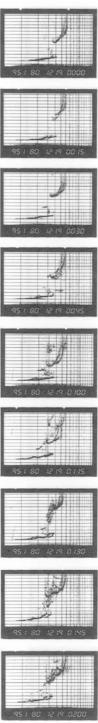
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1980 12 19 00;00-02;00

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1980 12 19 14;30-23;45



SYOWA STATION

IONOGRAM

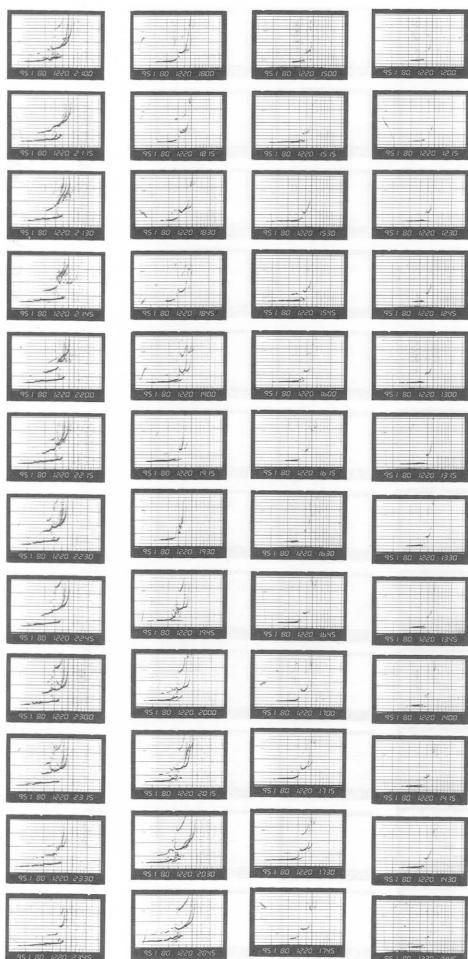
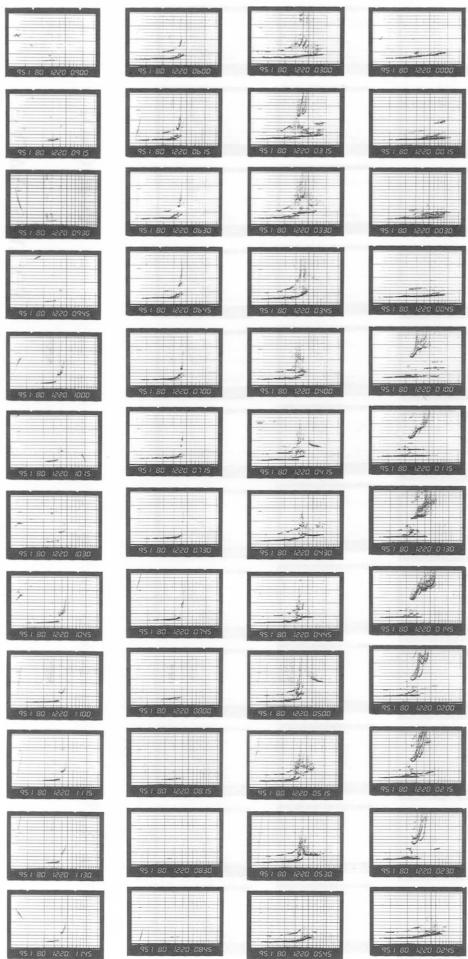
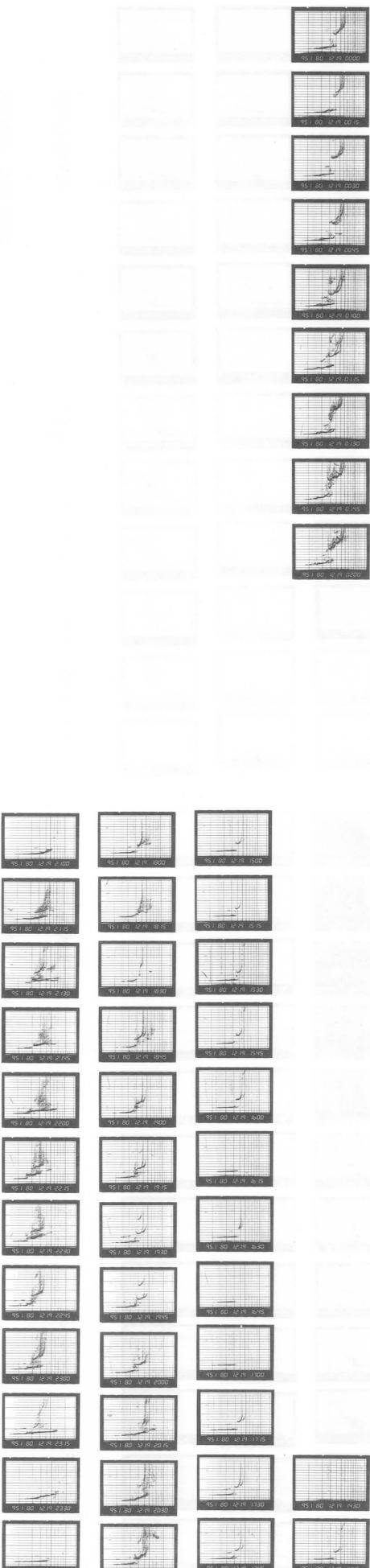
1980 12 20 00;00-11;45



SYOWA STATION

IONOGRAM

1980 12 20 12;00-23;45



SYOWA STATION

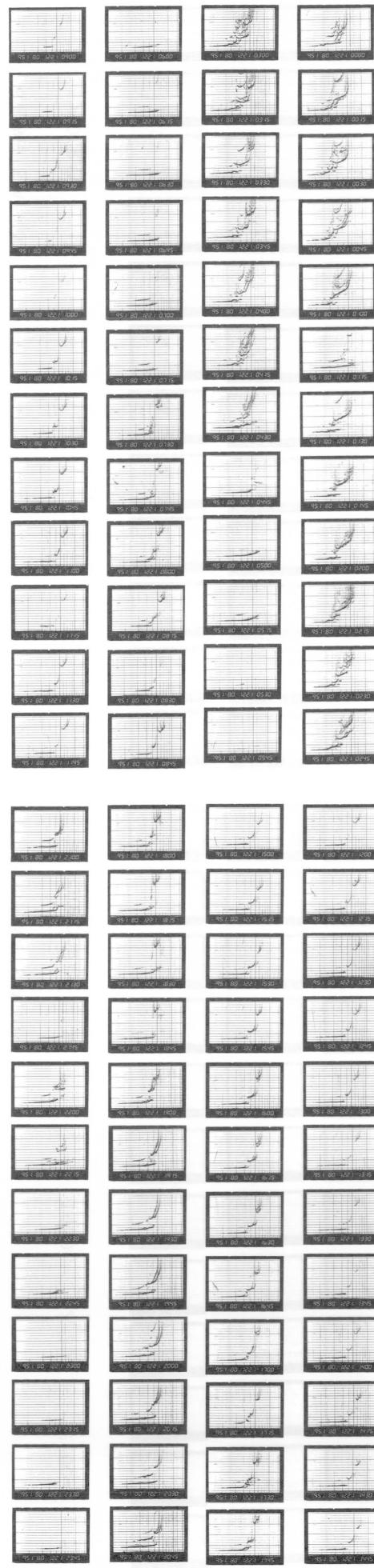
IONOGRAM

1980 12 21 00;00-11;45

SYOWA STATION

IONOGRAM

1980 12 21 12;00-23;45



SYOWA STATION

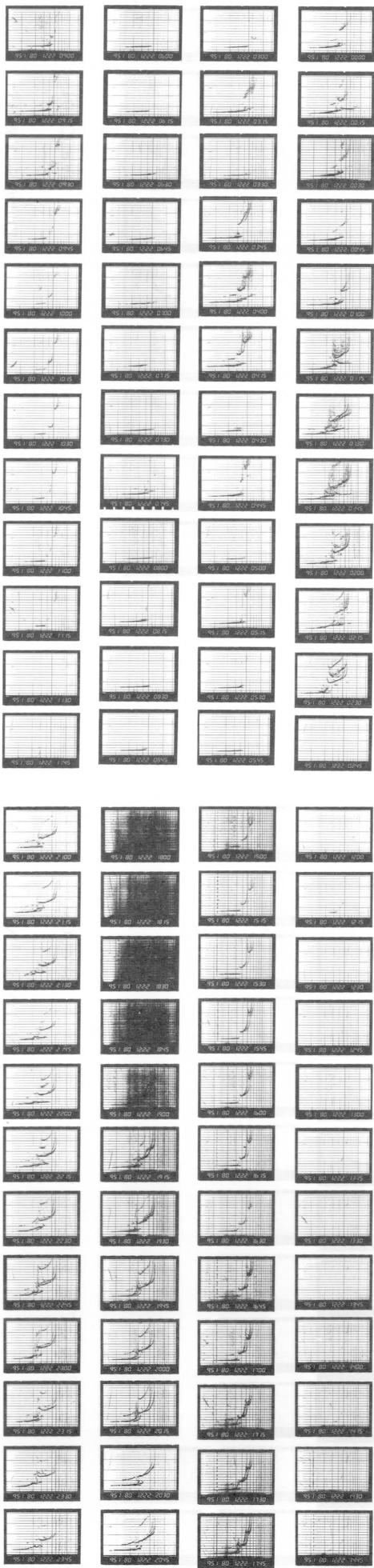
IONOGRAM

1980 12 22 00;00-11;45

SYOWA STATION

IONOGRAM

1980 12 22 12;00-23;45



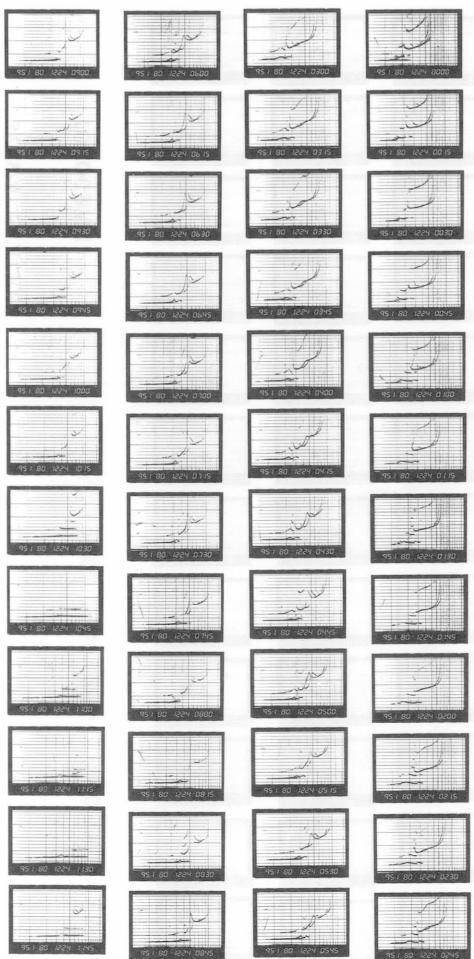
SYOWA STATION

IONOGRAM

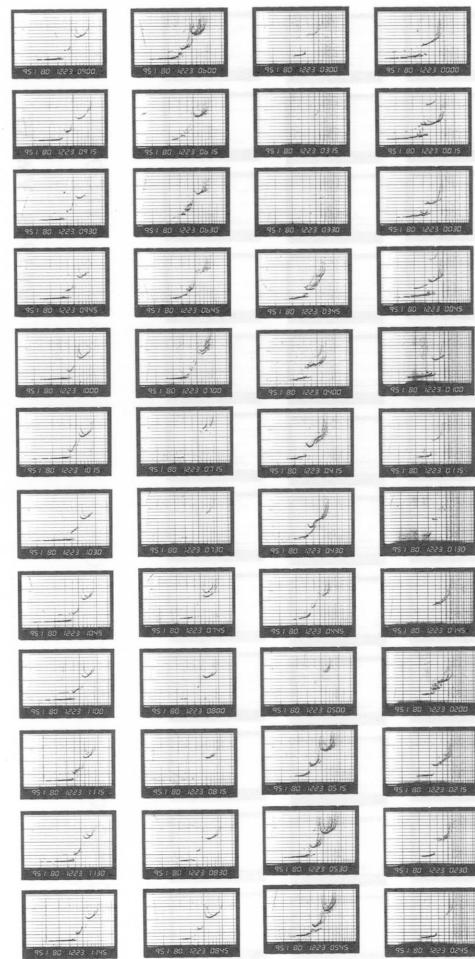
1980 12 23 00;00-11;45

IONOGRAM

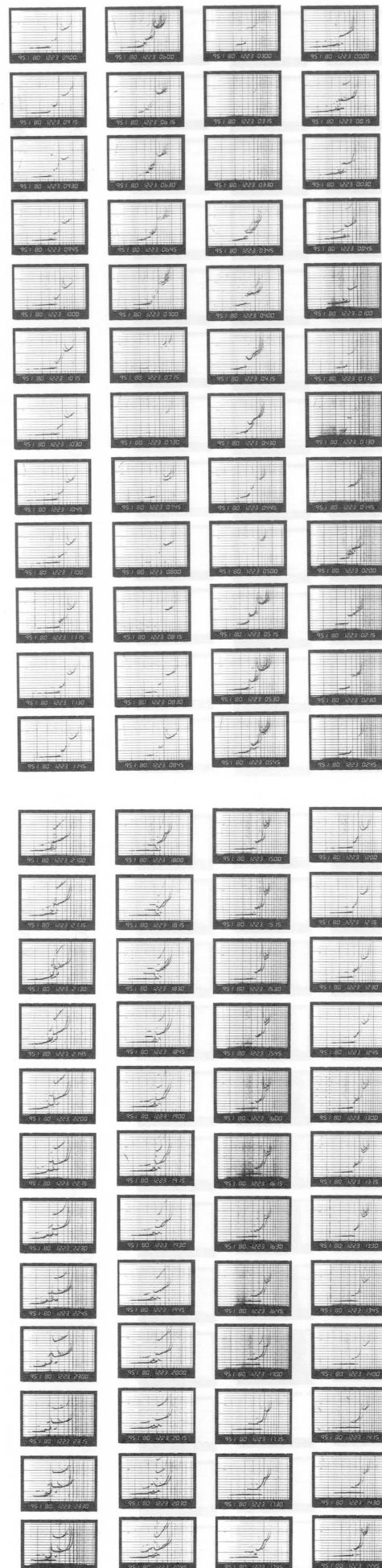
1980 12 23 12;00-23;45



SYOWA STATION
IONOGRAM 1980 12 24 00;00-11;45



IONOGRAM
SYOWA STATION
1980 12 24 12:00-23:45



SYOWA STATION

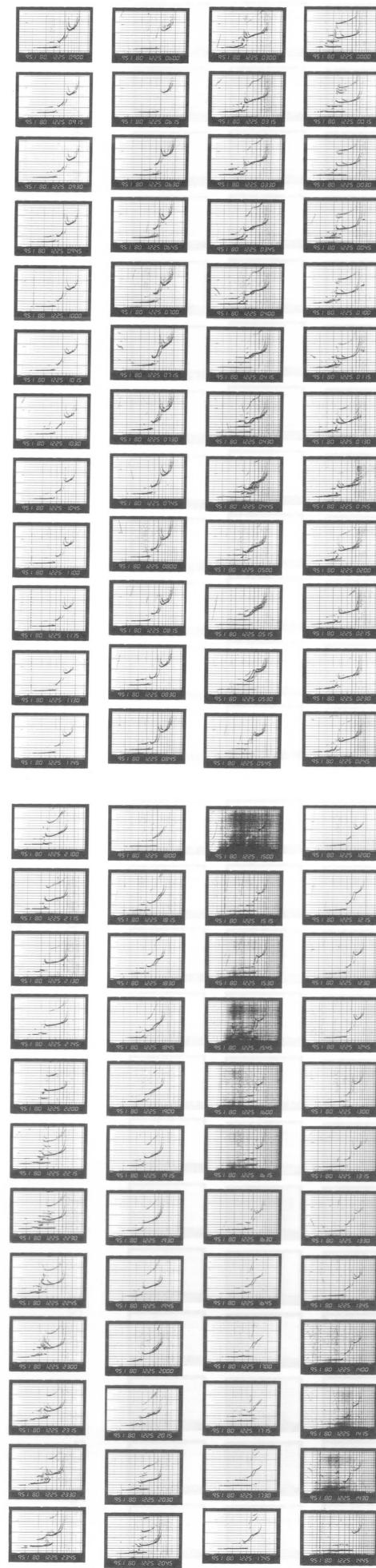
IONOGRAM

1980 12 25 00;00-11;45

SYOWA STATION

IONOGRAM

1980 12 25 12;00-23;45



SYOWA STATION

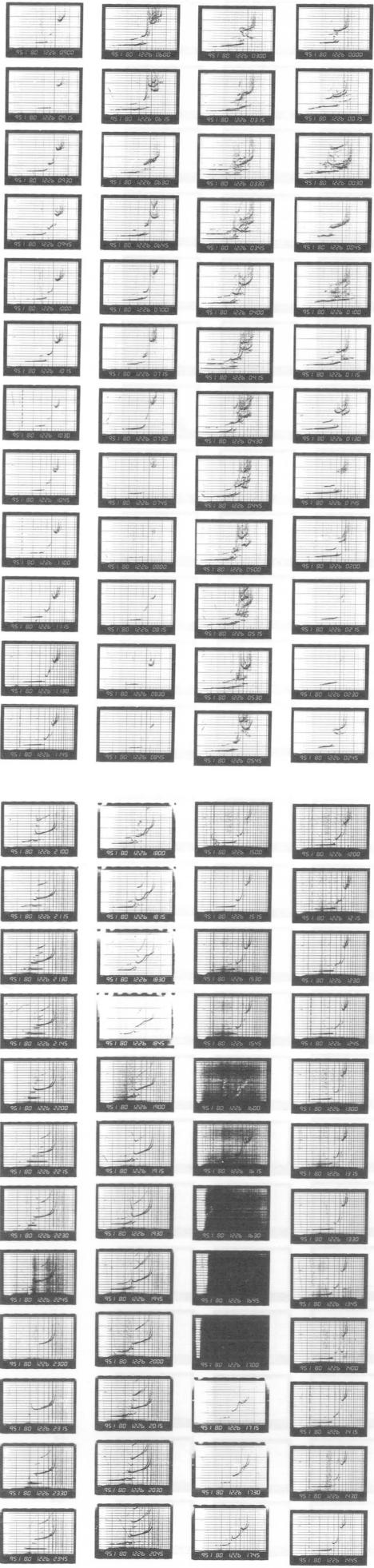
IONOGRAM

1980 12 26 00;00-11;45

SYOWA STATION

IONOGRAM

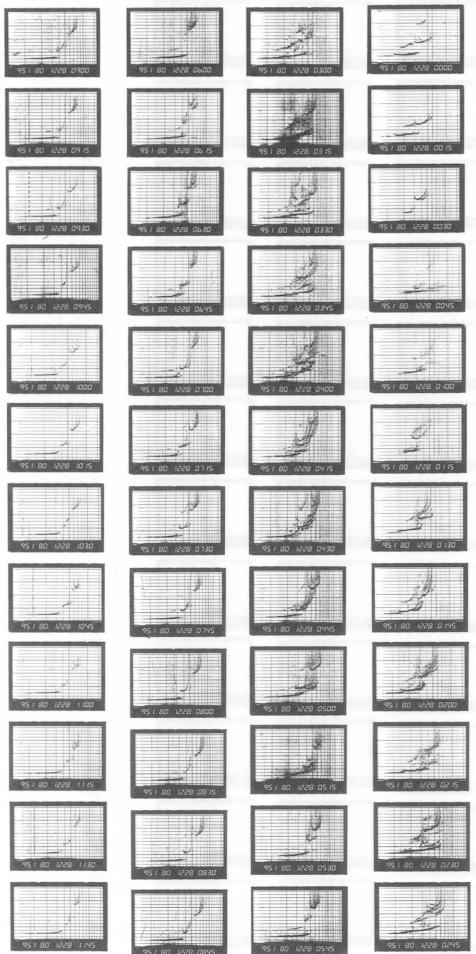
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SYOWA STATION

IONOGRAM

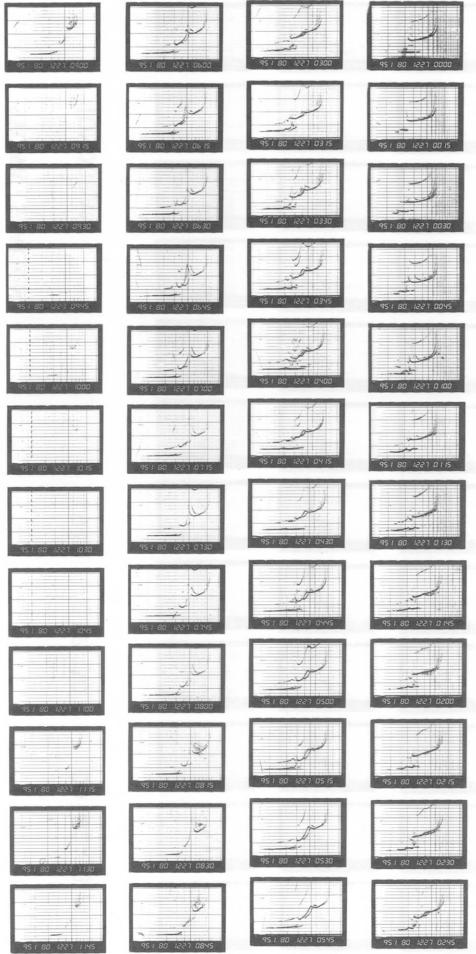
1980 12 27 00;00-11;45



SYOWA STATION

IONOGRAM

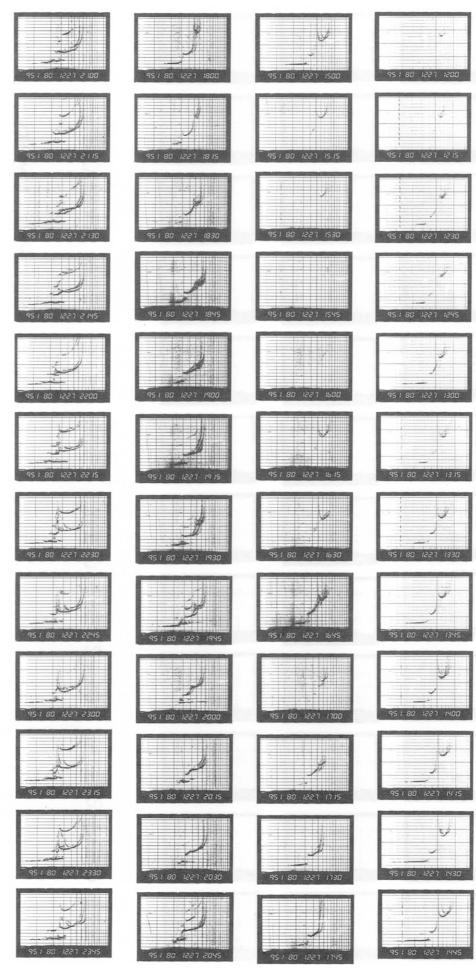
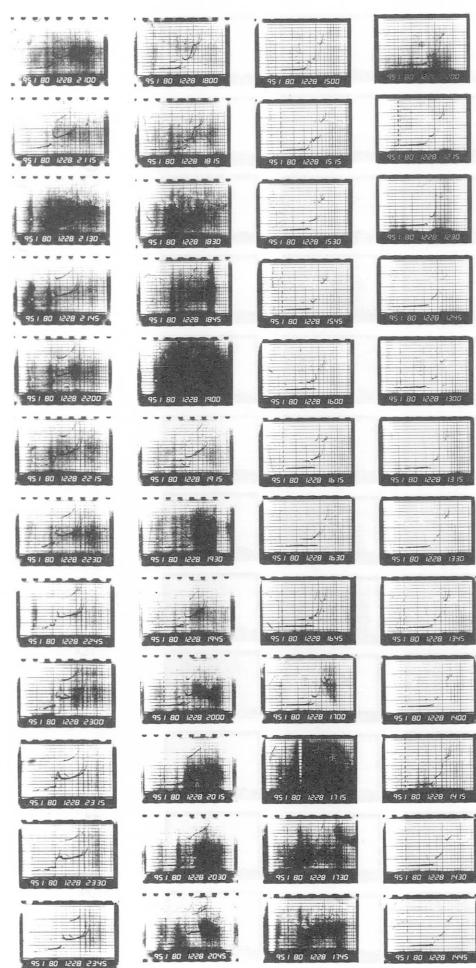
1980 12 28 00;00-11;45



SYOWA STATION

IONOGRAM

1980 12 27 12;00-23;45



SYOWA STATION

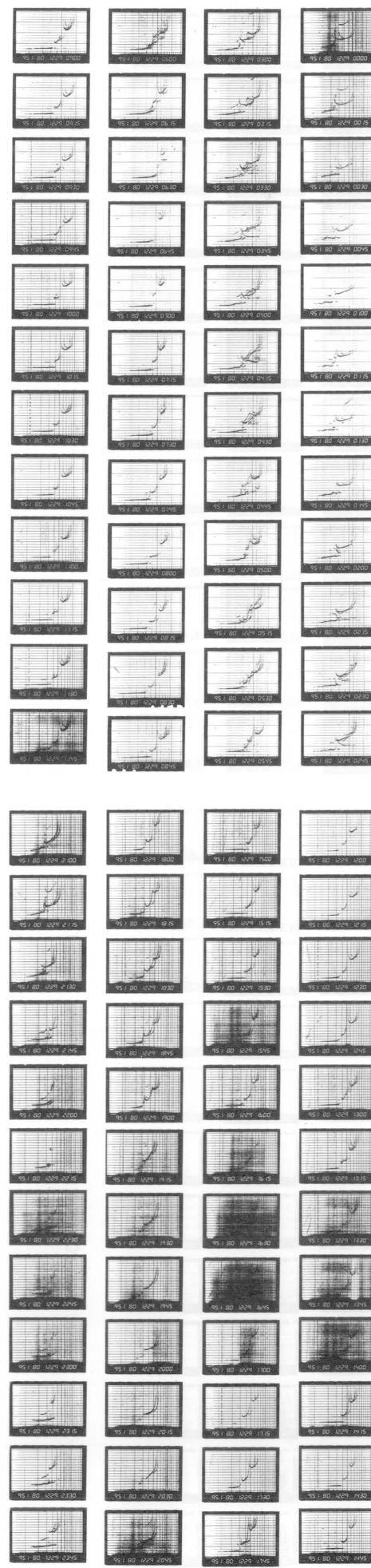
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1980 12 29 00;00-11;45

SYOWA STATION

IONOGRAM

1980 12 29 12;00-23;45



SYOWA STATION

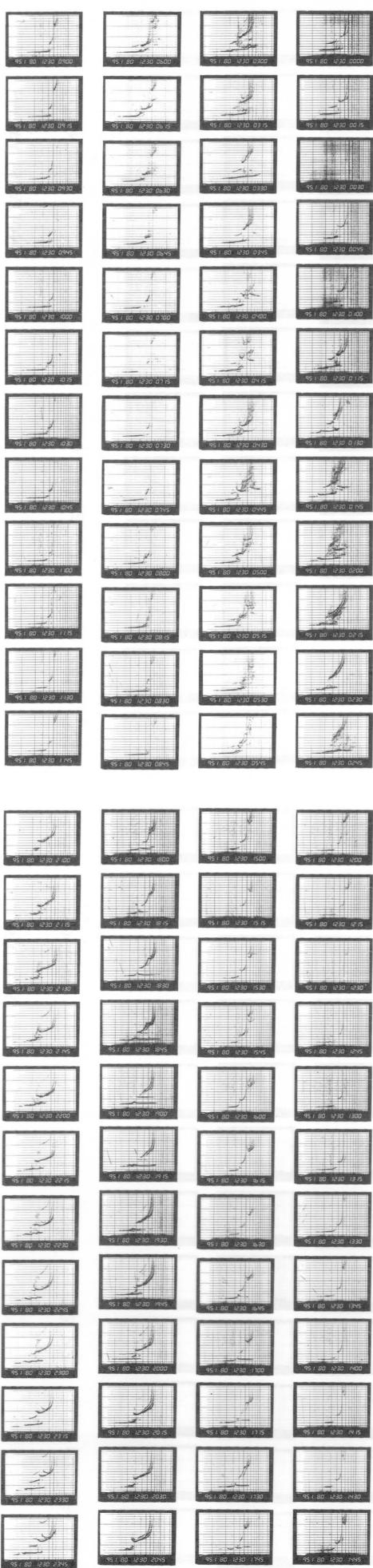
IONOGRAM

1980 12 30 00;00-11;45

SYOWA STATION

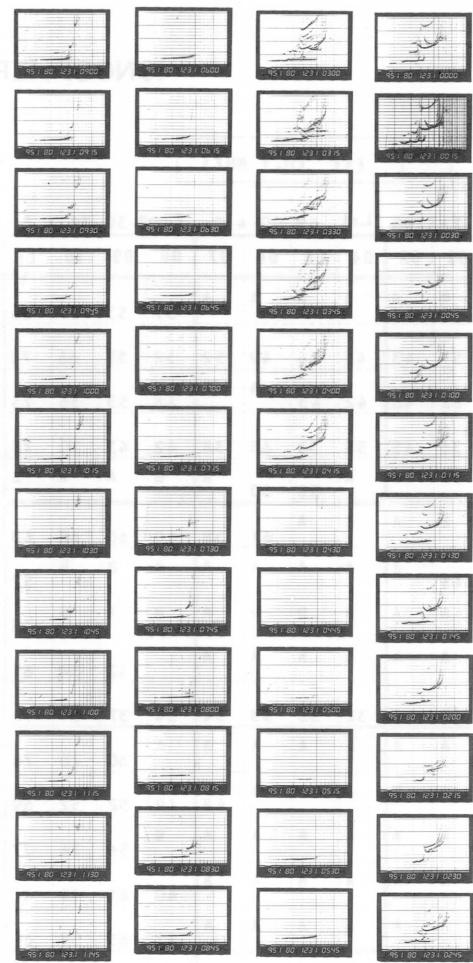
IONOGRAM

1980 12 30 12;00-23;45

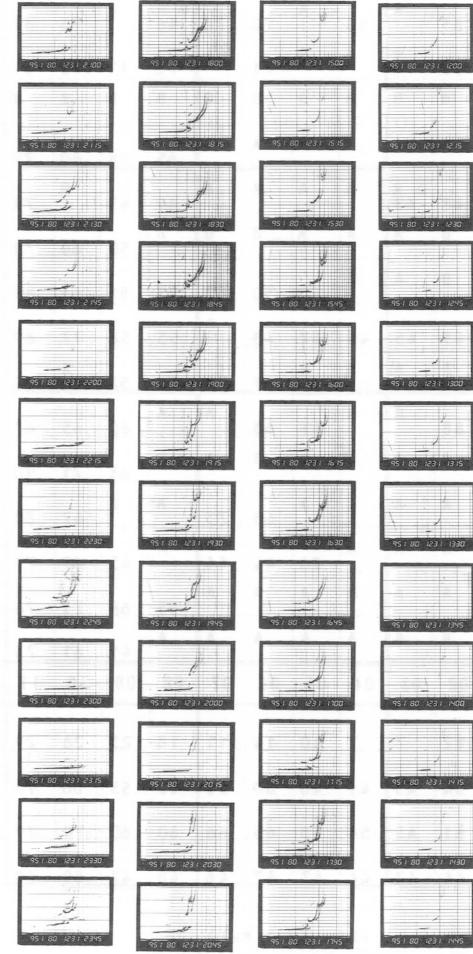


SYOWA STATION

IONOGRAM 1980 12 31 00;00-11;45



IONOGRAM



IONOSPHERIC DATA

JUL. 1980

FXI (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

	STATION	Lat.	69° 00' 4 S	Long. 39° 35' 4 E	Sweep 4	MHz to 15 MHz	in 20 sec	in automatic operation																								
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1		A	R	O	R	A	A	A	A	51	53	57	68	77	90	94	83	X	60	51	33	39	24	O R	22	24	25					
2		25	24	57	43	45	45	49	52	52	53	66	75	77	94	90	78	54	62	41	31	18	14	17	84							
3		32	51	62	40	42	43	A	A	48	53	56	73	83	92	101	109	78	77	44	27	16	16	15	15							
4		23	23	36	45	53	53	65	38	42	43	70	73	64	X	X	X	70	66	X	X	34	25	16	16	A						
5		A	50	A	A	A	58	60	A	B	A	A	B	65	83	81	83	75	73	61	50	A	60	A	A							
6		A	A	B	A	A	A	61	58	60	60	68	60	62	88	79	68	57	51	41	41	23	16	25	A							
7		65	68	45	A	A	A	A	A	A	B	B	B	52	58	0 R	B	79	79	66	65	52	28	22	O R	A	A	A				
8		66	A	A	A	B	B	B	A	B	A	B	63	77	80	85	101	70	B	B	18	A	A	A	A							
9		A	A	A	A	A	A	A	42	54	61	62	79	83	80	B	64	40	B	B	A	A	A									
10		40	33	23	32	32	33	33	34	34	37	54	72	80	85	76	80	68	47	47	31	27	16	16	25							
11		A	29	A	A	A	A	A	A	60	70	76	78	91	82	79	65	61	47	36	A	A	O R	A	24							
12		A	39	A	B	A	A	A	48	49	52	52	0 R	69	79	0 R	X	X	51	48	49	39	29	23	O R	O R	24					
13		O R	22	A	A	A	A	A	A	B	56	74	77	81	89	90	84	66	65	65	46	40	A	A	A							
14		A	A	A	A	A	A	A	40	45	49	67	74	X	X	X	X	66	72	B	27	A	B	A	A							
15		A	A	A	A	A	A	A	61	65	59	64	87	84	96	83	63	76	39	33	18	O R	19	16	26							
16		23	35	60	70	64	68	67	70	74	79	80	75	88	113	100	85	79	73	62	43	29	B	B	B							
17		28	56	65	A	54	A	70	70	46	O R	B	75	81	85	100	110	93	83	81	67	38	24	O R	B O R	25	A					
18		A	52	58	A	A	A	71	A	72	73	70	81	90	85	107	108	93	100	60	46	B	B	B	B							
19		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B							
20		B	B	B	A	A	A	A	65	58	60	77	99	107	115	95	91	B	B	29	B	B	A	A								
21		A	A	O R	43	43	A	A	49	47	B	79	X	88	91	113	105	94	86	46	A	A	A	A	A							
22		A	B	B	A	A	A	B	B	A	50	60	78	79	95	101	100	75	90	70	B	B	B	B	O R	26						
23		A	50	B	A	A	50	50	53	53	55	66	83	X	X	X	X	73	68	58	40	19	14	A	B							
24		22	46	45	45	49	47	43	A	55	58	77	89	103	115	111	106	90	82	76	48	30	R	A	A	73						
25		A	A	A	A	A	A	A	47	63	53	52	69	85	108	112	116	105	110	90	79	48	A	70	75	48						
26		A	48	88	B	A	65	63	A	A	60	65	67	84	83	O R	77	75	70	65	69	47	B	A	60							
27		A	A	A	A	B	B	B	A	B	63	71	90	106	110	113	107	110	102	80	63	37	B	B	B							
28		A	39	A	A	A	A	A	65	75	A	B	67	80	90	100	111	106	X	D R	D R	B	B	A	A	A						
29		A	A	A	A	A	36	44	44	A	45	69	79	91	105	103	90	80	78	X	X	45	32	23	X	A	A					
30		A	A	A	A	B	A	A	55	68	71	76	86	94	86	91	O R	82	76	79	30	29	22	O R	O R	Y						
31		A	A	A	A	A	A	A	41	61	73	U R	O R	D R	O R	D R	86	B	R	85	85	39	O R	B	B	A						
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT		11	14	12	7	7	10	14	11	18	25	26	29	30	29	30	30	28	28	27	26	18	13	13	9							
MED		28	42	54	43	49	48	60	53	52	53	66	75	82	91	94	90	74	73	59	39	26	19	24	26							
UQ		45	51	61	45	54	58	65	66	60	60	70	79	90	100	107	103	83	84	70	46	30	23	25	48							
LQ		23	33	44	42	44	43	47	46	48	47	59	68	77	85	82	80	66	64	46	31	22	16	16	25							

IONOSPHERIC DATA

JUL. 1980

FOF2 (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

		Stations YOWA STATION Lat. 69° 00' 4 S Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																													
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1		A	R	44	A	A	A	A	F	J	R	F	J	F	68	82	87	78	54	F	U	F	F	F	13	18	19				
2		F	F	A	F	J	R	J	R	F	F	J	F	J	F	88	84	J	F	J	F	F	F	F	F	A					
3		F	F	26	31	56	34	36	37	A	A	42	47	49	67	77	86	95	102	72	F	F	F	F	F	F					
4		A	17	30	39	47	47	F	F	F	F	32	34	37	64	67	57	74	68	64	60	52	A	19	A	A					
5		A	A	A	A	A	A	A	A	B	A	A	B	F	F	F	F	59	77	75	77	69	67	55	J	A	38	A	A		
6		A	A	B	A	A	A	A	32	J	F	F	F	J	F	F	F	54	75	73	62	51	44	34	35	F	F	F	19		
7		F	F	52	F	A	A	A	A	A	A	B	B	F	46	52	B	J	R	F	60	F	59	46	22	16	A	A	A		
8		F	61	A	A	A	B	B	B	A	B	A	B	F	54	60	72	79	95	62	B	B	F	A	A	A	A				
9		A	A	A	A	A	A	A	A	A	A	F	U	F	48	55	56	67	76	72	F	B	F	B	B	A	A	A			
10		U	33	F	F	26	27	27	F	J	R	R	F	J	R	F	74	75	75	70	74	F	62	37	41	25	F	J	R	J	12
11		A	A	A	A	A	A	A	A	A	A	53	59	70	F	72	85	76	73	59	55	41	30	A	A	F	18				
12		A	F	A	B	A	A	A	42	43	44	45	63	F	F	72	91	64	85	52	42	43	33	F	23	F	18	18			
13		F	16	A	A	A	A	A	A	A	B	50	68	71	75	83	84	78	61	59	59	J	R	40	28	F	A	A	A		
14		A	A	A	A	A	A	A	A	F	39	43	61	68	66	87	84	60	60	F	F	B	F	A	B	A	A				
15		A	A	A	A	A	A	A	A	F	55	54	50	58	81	78	90	72	57	70	R	J	R	27	F	13	F	V			
16		F	17	F	A	F	F	F	F	F	68	73	74	69	82	92	94	79	73	67	56	37	23	F	B	B	B				
17		F	A	A	A	F	A	A	48	59	41	F	B	F	F	75	76	94	105	83	77	F	F	61	32	18	F	B	17		
18		A	A	38	F	A	A	A	F	A	64	F	F	F	75	84	79	101	102	J	R	87	94	54	40	B	B	B			
19		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
20		B	B	B	A	A	A	A	A	A	F	F	F	F	93	101	109	89	J	R	85	R	B	B	23	B	B	A	A		
21		A	A	Z	27	36	F	A	A	A	A	F	F	B	U	F	65	82	85	107	99	88	80	40	A	A	A	A	A		
22		A	B	B	A	A	A	B	B	A	F	54	72	73	F	89	J	R	J	R	69	83	51	B	B	B	BU	20			
23		F	A	B	A	A	F	44	40	40	F	49	60	77	101	94	J	R	97	85	67	62	52	34	F	F	A	B			
24		J	R	J	R	F	37	39	41	J	F	J	F	F	83	97	109	105	100	84	F	F	F	R	A	A	A				
25		A	A	A	A	A	A	F	48	42	42	63	79	102	F	J	R	F	99	104	79	73	39	A	F	F	F				
26		A	A	F	65	B	A	F	A	A	F	53	61	75	71	71	69	64	59	63	41	B	A	A	A						
27		A	A	A	A	B	B	B	A	B	F	F	F	84	100	104	107	101	104	F	F	F	57	31	B	B	B				
28		A	A	A	A	A	A	A	F	A	B	61	74	84	94	105	100	D	R	D	R	77	80	90	B	B	A	A			
29		A	A	A	A	A	A	R	23	36	F	A	A	F	F	85	99	97	84	74	72	53	39	26	17	A	A				
30		A	A	A	A	B	A	A	A	J	F	F	F	69	61	58	70	80	88	D	R	F	J	J	F	F	Y				
31		A	A	A	A	A	A	A	A	F	35	55	67	71	80	D	R	81	80	B	79	79	33	29	F	B	B				
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT		6	7	7	5	6	6	6	8	15	18	24	29	30	29	30	30	28	27	25	21	11	6	7	5						
MED		F	E	21	17	38	36	F	F	F	F	44	43	48	54	67	75	85	88	83	68	67	53	34	23	14	18	19			
UQ		F	F	33	27	50	37	F	F	J	F	F	F	F	F	F	84	94	101	95	77	77	F	F	F	27	17	18	19		
LQ		F	16	28	28	34	36	27	32	36	42	41	50	59	68	77	76	73	60	58	41	27	20	13	16	18					

JUL. 1980

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

JUL. 1980				FES (0.1 MHZ)												45° E Mean Time (G.M.T. + 3 h)													
				Stations YOWA STATION Lat. 69° 00' 4 S Long. 39° 35' 4 E												Sweep 4 MHz to 15 MHz in 20 sec in automatic operation													
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	47	29	32	67	54	48	45	37	46	25	17	17	17	22	17	16	17	29	19	29	29	19	15	11					
2	18	16	41	38	35	40	41	25	26	27	35	28	18	16	28	16	27	29	16	16	15	14	16	37					
3	33	28	88	81	70	40	40	48	30	30	29	24	28	24	28	30	29	28	25	17	34	15	25	24					
4	26	23	35	81	34	27	25	35	70	30	25	20	23	18	15	27	21	14	13	E B E B	23	17	15	26	53				
5	37	71	55	52	53	46	44	46	B	31	40	B	E B	21	21	24	20	18	11	11	26	40	114	44	42				
6	43	43	B	40	45	42	32	28	15	20	12	15	33	30	27	20	15	12	16	14	11	16	29	36					
7	43	41	42	70	51	57	70	35	35	B	B	24	E B	41	B	E B E B	50	35	18	28	E B	20	13	E B	15	16	33	41	
8	46	45	75	45	B	B	B	63	B	37	B	E B	35	27	16	30	24	21	B	B	20	40	45	51	37				
9	38	85	55	51	55	50	35	61	54	33	43	16	E B	E B	E B	E B	B	E B	E B	B	B	14	32	34					
10	39	43	39	29	29	31	27	46	28	26	105	49	25	16	27	16	16	15	12	10	26	11	20	28					
11	32	26	36	70	56	46	53	72	71	43	36	33	29	22	27	25	16	18	18	22	16	16	29	42					
12	34	35	46	B	40	52	48	41	22	15	16	22	21	40	30	28	16	25	11	33	25	8	14	25					
13	24	53	33	46	54	50	85	65	B	37	E B	25	27	21	19	33	30	16	13	14	10	30	38	35	38				
14	33	33	42	38	37	50	38	42	45	14	18	23	25	29	26	15	12	E B	B	50	26	B	35	36					
15	35	39	56	43	38	52	55	56	45	28	17	17	28	29	19	16	18	24	12	17	17	30	12	23					
16	24	27	26	33	67	52	60	46	28	29	28	29	25	28	28	15	30	32	11	E B	E B	13	B	B	B				
17	14	36	36	45	45	63	46	47	35	B	30	29	28	24	28	14	20	E B	13	30	27	12	B	16	28				
18	46	49	46	49	100	51	53	65	45	44	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	B	B	B					
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
20	B	B	B	46	40	38	43	39	36	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	17	B	B	29	35				
21	31	27	42	28	44	41	36	56	32	36	B	E B	E B	E B	E B	E B	E B	E B	E B	E B	27	16	27	20	38	23	34	35	
22	44	B	B	43	42	40	B	B	38	40	30	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	14	18	18	B	B	B	19	
23	32	44	B	43	44	31	22	17	16	14	15	18	21	18	20	16	14	19	15	27	27	15	28	B					
24	15	28	33	50	88	23	43	47	46	29	36	18	28	E B	E B	E B	E B	E B	E B	E B	E B	17	16	14	15	16	15	33	
25	53	60	43	41	35	36	32	E B	E B	E B	13	13	14	15	18	22	20	19	E B	E B	E B	19	20	28	E B	13	28	40	
26	49	37	70	B	37	27	65	45	42	34	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	17	13	18	29	B	33	39	55
27	46	45	45	40	B	B	B	45	B	E B	45	45	23	26	28	25	E B	E B	E B	E B	E B	E B	30	28	35	E B	24	23	
28	40	70	72	50	46	52	45	70	35	B	E B	26	26	30	E B	E B	E B	E B	E B	E B	E B	45	25	30	B	B	25	34	36
29	38	35	36	43	40	41	37	42	28	45	45	35	21	22	19	16	19	19	15	E B	8	12	33	37	45				
30	37	60	69	65	B	48	57	45	37	22	23	27	E B	E B	E B	E B	E B	E B	E B	E B	E B	50	25	21	E B	14	15	11	26
31	24	38	70	45	47	45	48	41	45	45	33	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	58	27	25	E B	25	25	B	37
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	29	28	26	28	27	28	27	29	26	27	27	29	30	29	30	30	28	28	27	27	24	22	25	26					
MED	37	38	42	45	45	46	44	45	36	30	24	23	23	22	23	18	17	18	15	17	24	16	29	36					
UQ	43	47	56	52	54	50	53	56	45	37	35	31	28	28	28	28	E B	24	26	22	25	28	30	35	41				
LQ	31	28	36	40	39	39	36	39	28	26	18	19	21	20	20	16	16	15	13	12	14	15	20	28					

IONOSPHERIC DATA

JUL. 1980	F-MIN (0.1 MHZ)
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45° E Mean Time (G.M.T. + 3 h)

		STATION		Lat.		69° 00'		S		Long. 39° 35'		E		Sweep 4		MHz to 15		MHz in 20sec		in automatic operation						
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		9	27	21	22	20	14	23	13	12	9	8	7	8	10	8	9	8	11	8	7	6	7	7	7	
2		7	9	7	7	7	5	7	7	6	6	6	7	7	7	6	7	6	7	7	6	7	7	6	6	
3		5	6	7	8	7	5	17	7	8	13	13	8	7	7	13	12	9	7	7	7	6	8	9	20	
4		13	9	9	8	8	7	5	6	6	7	9	12	18	12	10	9	13	7	9	23	17	10	7	7	
5		7	8	12	9	15	8	7	21	B	25	21	B	21	13	12	8	9	8	7	7	4	7	9	9	
6		9	18	B	13	13	8	7	7	6	7	8	10	10	11	8	13	9	8	8	8	7	8	7	6	
7		6	7	18	8	9	11	13	11	18	B	B	14	41	B	50	35	13	13	20	13	15	11	9	7	
8		18	11	11	14	B	B	B	18	B	27	B	35	15	14	31	24	17	B	B	9	7	18	13	25	
9		9	45	35	20	31	38	17	17	14	21	9	13	21	24	27	35	B	35	26	B	B	8	8	6	
10		6	7	7	8	6	5	8	7	7	7	7	7	9	14	13	9	7	10	8	7	7	7	7	6	
11		7	6	7	19	12	14	8	13	7	8	13	12	9	10	10	11	9	8	12	12	10	13	7	9	
12		6	7	19	B	13	18	9	8	11	8	9	8	8	5	7	7	7	7	7	5	6	6	13	17	
13		18	12	7	10	13	8	11	9	B	15	25	18	17	10	8	8	7	8	13	7	6	12	11	7	
14		6	7	7	8	9	8	8	12	12	8	9	13	13	8	17	8	9	22	B	18	19	B	13	7	
15		7	7	10	10	8	14	20	13	9	8	10	9	8	6	7	7	7	6	7	7	7	7	7	7	
16		7	7	7	5	13	12	10	7	7	8	7	8	16	11	9	7	7	7	8	13	13	B	B	B	
17		7	8	8	9	8	11	9	7	27	B	14	14	14	14	9	8	9	13	9	7	9	B	13	13	
18		8	9	8	9	11	14	17	20	15	13	54	40	23	E S	27	30	24	18	23	26	30	B	B	B	B
19		B	B	B	B	B	B	B	B	B	B	B	B	B	3	B	B	B	B	B	B	B	B	B	B	
20		B	B	B	33	30	25	27	30	24	30	30	35	40	E S	65	40	22	43	B	B	17	B	B	19	15
21		15	14	14	13	15	25	23	22	25	20	B	26	35	30	23	35	19	13	13	18	13	10	10	13	
22		28	B	B	28	18	23	B	B	35	21	30	40	48	21	20	13	14	18	18	B	B	B	B	10	
23		8	12	B	22	13	9	10	9	8	9	9	13	14	15	15	13	11	8	8	7	7	8	17	B	
24		9	8	8	8	7	7	7	9	9	16	22	19	18	35	24	18	17	9	14	15	15	13	10	19	
25		30	18	18	15	17	18	15	13	13	10	13	18	18	18	15	20	19	20	9	13	14	21	18	15	
26		22	19	20	B	19	17	23	20	18	18	22	35	25	15	27	11	8	7	8	10	B	9	9	10	
27		11	13	21	18	B	B	B	23	B	18	45	18	19	18	18	25	30	28	35	24	23	B	B	B	
28		9	9	17	23	18	22	18	41	21	B	26	18	19	33	30	18	45	25	30	B	B	12	8	7	
29		7	8	9	9	15	12	7	7	22	8	13	13	14	19	15	11	12	9	8	8	7	7	9	9	
30		10	18	13	14	B	20	18	7	8	9	9	15	20	22	26	28	50	25	21	14	8	7	6	8	
31		10	8	13	13	17	14	25	17	22	15	20	40	51	60	38	49	B	58	27	25	22	B	B	14	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED		9	9	13	13	13	14	15	13	14	13	13	14	18	14	15	13	12	11	12	13	13	11	10	10	
UQ		14	18	20	21	18	21	23	20	24	21	28	30	22	24	27	24	19	24	26	20	22	B	18	18	
LQ		7	8	8	8	9	8	8	7	8	8	9	11	12	10	10	8	8	8	8	7	7	8	7	7	

JUL. 1980

F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 1980				H-F (KM)												45° E Mean Time (G.M.T. + 3 h)												
				Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	A	B	300	A	A	A	A	A	240	255	225	225	220	200	190	220	220	250	240	A	245	240	275					
2	270	360	265	460	380	355	310	280	260	250	240	225	210	220	200	200	160	205	195	235	195	A	A	A				
3	275	330	245	320	420	390	A	A	375	320	270	240	240	235	220	225	200	200	205	235	240	290	350	340				
4	A	E	A	330	360	360	350	340	310	300	270	250	250	220	210	245	210	185	265	240	215	230	290	A	A	A		
5	A	A	A	A	A	A	A	A	B	A	A	B	265	255	235	210	235	235	230	230	A	A	A	A				
6	A	A	B	A	A	A	445	350	300	255	230	220	250	230	205	205	200	205	220	235	240	350	350	A				
7	A	A	A	A	A	A	A	A	A	B	B	295	300	E	B	B	E	B	240	210	230	235	265	B	A	A		
8	245	A	A	A	B	B	B	A	B	A	B	270	230	215	E	B	250	230	205	B	B	260	A	A	A			
9	A	B	B	A	A	B	A	A	A	E	A	430	330	250	235	250	245	250	B	265	E	B	B	B	A	A		
10	305	340	400	385	350	355	340	270	270	250	255	E	A	220	215	215	210	220	180	240	215	220	225	255	A	A		
11	A	A	A	A	A	A	A	A	A	360	280	230	230	230	195	215	210	215	205	235	A	A	320	A				
12	A	305	A	B	A	A	A	E	A	395	280	255	235	230	215	215	200	210	195	220	200	205	250	200	335	330		
13	E	B	350	A	A	A	A	A	A	B	E	B	B	370	270	250	230	200	210	205	205	225	235	235	415	A	A	
14	A	A	A	A	A	A	A	A	E	A	335	260	235	240	220	235	240	200	202	235	B	215	A	B	A	A		
15	A	A	A	A	A	A	A	A	335	260	230	230	210	215	200	200	200	220	175	210	180	250	A	250				
16	E	A	E	B	E	A	A	A	F	430	330	280	245	225	210	225	210	205	200	190	230	210	225	250	B	B	B	
17	270	A	A	A	A	A	A	E	E	A	B	430	400	270	240	230	220	210	200	220	220	220	220	270	E	B	E	B
18	A	A	A	A	A	A	A	E	E	E	A	340	280	340	250	220	210	E	B	230	220	225	235	230	E	B	B	B
19	B	B	B	B	B	B	B	B	B	B	B	420	280	250	240	220	235	240	200	202	235	B	215	B	B	B	B	
20	B	B	B	A	A	A	A	E	B	E	B	450	340	275	E	B	255	E	S	B	B	E	B	250	B	B	A	
21	A	A	A	220	A	A	A	A	E	A	E	A	400	355	B	245	250	245	240	225	225	250	300	A	A	A	A	A
22	A	B	B	A	A	A	B	B	A	E	E	E	B	420	280	230	260	240	220	220	205	240	230	B	B	B	B	A
23	350	A	B	A	A	475	395	350	195	200	235	225	230	200	195	210	195	220	200	200	210	265	A	B				
24	290	A	280	350	390	375	205	A	A	A	300	270	250	200	230	220	205	200	H	185	230	230	250	B	A	A	A	
25	A	A	A	A	A	A	465	330	220	255	245	225	235	220	220	225	220	240	225	225	240	A	240	A	190			
26	A	A	E	A	B	A	390	A	A	A	380	300	300	260	250	260	230	235	250	235	250	E	A	B	A	A		
27	A	A	A	A	B	B	B	A	B	E	A	B	325	245	230	220	255	E	B	215	240	235	240	230	B	B	B	
28	A	E	A	350	A	A	A	E	B	A	B	480	255	240	235	210	250	230	E	B	260	230	260	B	B	A	A	A
29	A	A	A	A	A	E	A	520	420	400	A	A	255	220	220	225	220	205	220	225	210	210	250	275	A	A		
30	A	A	A	A	B	A	A	A	355	265	255	235	215	205	225	235	E	B	250	255	225	250	370	380	Y			
31	A	A	A	A	A	A	A	A	325	250	250	250	E	B	260	E	B	E	B	275	235	235	300	E	A	B	B	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	9	7	8	6	5	8	9	11	16	24	25	29	30	29	29	30	28	28	27	26	16	10	7	5				
MED	A	U	28.8	35.5	38.0	37.4	39.5	32.5	29.2	26.1	25.5	23.5	22.9	22.0	22.0	21.2	20.8	23.0	22.5	23.0	23.6	25.6	33.5	26.2				
UQ	U	A	315	340	365	385	390	411	430	374	365	348	270	248	242	238	235	228	226	240	235	238	255	282	350	330		
LQ	270	312	272	320	350	355	310	315	270	252	240	225	220	215	205	202	200	220	210	218	225	245	305	250				

JUL. 1980

H-F (KM)

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IONOSPHERIC DATA

AUG. 1980				FXI (0.1 MHZ)												45° E Mean Time (G.M.T. + 3 h)															
Station SYOWA STATION				Lat. 69° 00' S		Long. 39° 35' 4" E		Sweep 4		MHz to 15 MHz		in 20sec		in automatic operation																	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	A	36	A	O R	35	34	35	36	A	A	38	73	80	80	96	X	90	81	83	69	R	41	A	B	B	B					
2	A	A	A	A	38	45	51	52	56	64	O R	72	84	91	90	90	90	75	72	59	44	35	O R	26	A	60					
3	A	A	A	A	B	A	A	A	B	B	B	B	B	O R	55	B	O R	87	111	89	B	A	A	A	A						
4	A	52	53	54	42	60	75	53	53	59	58	69	81	100	105	105	87	85	72	52	B	A	29	A							
5	A	55	45	50	O R	36	38	40	48	40	55	61	76	75	93	80	87	81	66	49	O R	26	O R	23	A	O R	20	A			
6	A	62	45	35	B	B	A	A	52	B	69	75	82	81	87	X	80	87	75	58	43	28	22	A	A						
7	A	A	B	A	A	A	Y	B	B	B	B	B	B	O R	74	B	O R	86	B	B	79	O R	B	B	A	A					
8	A	A	A	A	A	A	A	47	61	50	68	78	93	96	82	82	81	63	57	48	31	X	O R	O R	O R	25					
9	A	A	A	38	51	54	63	59	X	X	X	X	X	X	99	94	80	80	68	46	54	29	28	28	28						
10	68	60	A	A	45	48	46	A	B	O R	69	85	89	94	U R	90	99	81	70	70	38	28	B	O R	25	A					
11	A	28	A	48	A	A	46	58	69	61	B	81	92	100	R	100	90	85	78	47	34	B	A	A							
12	A	A	A	A	A	A	60	66	63	X	X	80	95	85	97	100	91	64	63	43	31	O R	O R	O R	22						
13	O R	A	A	A	53	73	62	63	67	90	96	110	110	110	110	110	98	85	72	66	37	25	O R	B	B						
14	29	53	A	A	41	63	60	51	51	66	72	82	90	107	114	111	105	86	80	67	36	29	O R	O R	21	20					
15	O R	23	28	26	A	A	A	A	49	70	65	75	89	102	106	110	110	109	90	85	75	50	A	B	B						
16	O R	21	A	54	40	A	A	A	46	53	71	69	81	103	101	110	102	108	X	99	72	69	A	A	A	A					
17	38	A	A	A	46	39	48	60	49	59	60	70	71	75	73	85	X	84	96	82	37	17	A	A	A						
18	A	40	38	43	48	A	61	A	Y	B	A	A	A	56	76	101	83	85	72	64	35	B	A	A							
19	X	A	47	A	38	A	A	Y	64	64	76	X	X	X	O R	96	106	X	O R	R	73	34	B	A	52						
20	74	A	A	O R	O R	41	42	50	55	62	68	X	X	X	105	101	100	104	O R	96	96	88	71	43	A	A	A				
21	A	A	A	A	A	55	A	50	A	A	B	B	B	B	73	X	91	82	85	70	56	33	O R	O R	O R	24					
22	A	A	A	A	40	A	A	B	50	72	74	90	108	105	103	105	93	99	70	48	A	A	A								
23	B	A	A	A	53	53	62	64	73	90	100	105	100	110	100	88	X	73	60	45	34	O R	O R	23	23						
24	O R	23	50	53	50	A	A	A	60	54	59	73	80	93	93	104	106	106	X	96	87	60	58	50	33	25	23				
25	65	68	37	40	40	47	47	42	52	70	87	98	113	113	101	91	85	86	72	57	45	29	25	60							
26	46	100	A	A	A	A	A	A	O R	54	58	65	72	73	84	83	79	78	73	46	44	24	25	60							
27	60	60	A	A	60	70	57	O R	B	0	64	72	80	120	125	128	119	46	38	A	A	A	A								
28	A	A	A	50	40	54	A	60	67	76	84	103	93	104	92	109	84	74	71	70	40	R	O R	23							
29	O R	O R	O R	23	23	35	44	48	65	40	61	78	93	95	104	102	102	105	99	77	70	57	54	39	24	23					
30	A	A	A	62	60	53	53	A	A	61	74	89	80	99	98	97	99	94	89	72	46	A	A	A							
31	A	A	A	A	A	A	A	A	53	64	64	70	78	85	93	90	X	87	80	69	38	25	O R	O R	25						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	15	14	10	13	13	17	18	20	21	25	25	27	29	29	30	30	30	31	30	29	25	15	14	14							
MED	38	52	45	43	42	47	54	52	59	61	72	81	90	99	96	100	93	85	72	57	36	26	25	24	O R						
UQ	66	60	53	50	46	53	60	60	63	65	74	86	100	102	105	105	105	90	80	69	45	31	25	52	O R						
LQ	O R	23	36	37	40	38	40	48	48	53	57	64	76	80	85	86	90	82	78	63	44	31	O R	O R	O R	23	23	23			

AUG. 1980

FXI (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1980				FOF2 (0.1 MHz)				45° E Mean Time (G.M.T. + 3 h)																											
								Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																											
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1		A	F	A	29	28	28	29		A	A	F	60	74	F	90	84	J	F	75	77	63	35	A	B	B									
2		A	A	A	A	32	34	45	43	21	35	66	72	79	U	81	75	84	69	53	53	38	29	19	F	A	A								
3		F	A	A	A	A	B	A	A	A	B	B	B	49	B	78	81	105	82		B	A	A	A	A	A									
4		A	J	R	A	A	A	A	F	F	34	47	47	53	52	59	73	84	99	J	R	66	66	B	A	F									
4																										23									
5		A	F	38	40	28	32	34	35	34	49	55	70	69	J	R	F	81	75	54	43	20	17	A	14	A									
6		A	A	A	A	B	B	A	A	F	B	F	F	69	76	75	81	84	72	69	52	35	22	15	F	A	A								
7		A	A	B	A	A	A	Y	B	B	B	B	B	68	B	80	B	B	73	81	J	U	R	B	B	A	A								
8		A	A	A	A	A	A	A	F	F	42	45	44	62	72	87	J	R	F	75	57	51	42	25	15	17	19								
9		A	A	A	A	F	F	F	F	F	32	46	48	56	44	51	53	75	90	93	88	68	74	62	40	35	22								
10		A	F	A	A	A	R	F	F	A	35	40	40	40	40	60	71	83	88	84	91	75	61	63	32	22	A								
11		A	F	A	A	A	A	F	F	F	40	52	54	55	54	55	75	86	94	R	E	80	77	72	35	J	F	B	A	A					
12		A	A	A	A	A	A	F	F	F	33	44	50	73	73	89	79	90	90	94	F	85	58	57	37	23	16	F	F	16					
13		F	A	A	A	A	F	F	F	F	17	47	58	56	51	61	84	90	104	104	104	J	R	92	79	63	60	29	18	B	B				
14		F	F	A	A	F	F	F	F	F	16	26	35	57	54	45	45	60	66	76	UR	84	101	108	105	99	80	J	R	61					
15		F	F	F	A	A	A	F	F	F	16	20	20	20	42	43	53	69	83	J	R	100	104	104	104	103	84	79	F	41	A				
16		F	A	F	A	A	A	F	F	F	15	34								F	54	63	75	61	63	32	22	B	F	A					
17		F	A	A	A	F	F	J	F	F	17		33	42	40	43	53	55	64	65	69	67	75	78	90	76	31	F	F	A	A				
18		A	F	F	F	F	A	F	A	55									50	63	95	77	F	F	F	62	59	29	B	A	A				
19		J	R	A	F	A	A	F	A	A	21	28							58	57	70	84	91	90	100	103	103	83	F	F	B	A	F		
20		F	A	A	35	36	44	48	53	45									96	100	104	104	J	R	103	84	79	F	41	A	B	B			
21		A	A	A	A	A	A	A	F	A	21								65	75	85	75	79	63	47	26	20	19	F	18					
22		A	A	A	A	A	A	F	A	A									44	64	68	84	J	R	102	99	97	99	J	F	J	42			
23		B	A	A	A	A	A	J	F	J		47	47	56	53	67	84	94	99	J	R	J	R	104	94	82	58	54	39	28	17	F	F		
24		F	F	F	F	A	A	F	A	A	17	18							41	48	53	61	74	87	98	100	100	90	81	54	52	44	25	19	17
25		19	A	17	16	14	13	15	36	46	64	81	92	107	107	95	85	F	U	R	80	80	66	51	39	23	19	17	F						
26		A	A	A	A	A	A	A	A	A	48	52	59	66	67	78	71	F	69	F	J	F	67	40	38	18	19	A							
27		A	A	A	A	A	A	A	A	A	48	56	50	57	66	65	119	122	Z	J	R	40	30	F	A	A	A	A							
28		A	A	A	A	A	F	A	A	J	54	55	70	78	97	87	84	83	F	F	F	79	68	57	45	22	R	F	16						
29		F	F	F	F	F	F	F	F	F	16	16	16	25	53	72	87	89	F	F	F	96	99	93	71	64	45	38	J	R	F	F			
30		A	A	A	A	F	A	F	A	A	49								45	59	75	74	87	92	91	93	88	82	60	34	F	A	A		
31		A	A	A	A	A	A	A	A	A	43	53	55	64	72	79	87	84	89	81	J	F	F	74	27	19	17	F	17	F					
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT		8	5	4	5	9	12	16	18	20	24	25	27	28	29	29	30	30	29	30	24	23	15	14	12										
MED		F	F	F	F	F	F	F	F	F	16	20	18	34	32	34	41	42	46	53	63	74	84	90	88	91	83	79	65	44	29	19	18	17	
UQ		18	26	29	35	35	45	48	48	52	55	68	77	95	96	96	99	94	84	74	58	38	22	19	18	18									
LQ		F	F	F	F	F	F	F	F	F	F	44	50	57	70	72	79	78	84	75	71	57	35	24	18	17	F	F	F	F	16				

IONOSPHERIC DATA

AUG. 1980				FES (0.1 MHZ)												45° E Mean Time (G.M.T. + 3 h)												
				Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E												Sweep 4 MHz to 15 MHz in 20 sec in automatic operation												
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	37	35	40	34	41	30	35	28	32	35	31	E 25	E 37	E 26	30	E 31	28	35	25	29	28	B	B	B				
2	31	32	28	38	28	26	40	36	43	50	30	E 20	E 50	E 24	E 24	24	31	E 35	E 17	E 19	E 20	18	12	25	43			
3	90	93	75	65	70	B	50	70	63	B	B	B 35	B 60	E 60	E 50	E 35	E 55	B	37	34	28	34	36					
4	43	30	35	33	58	38	38	35	30	23	29	19	26	28	23	16	12	15	E 46	27	B	29	29	28				
5	33	31	36	35	43	29	27	24	30	21	16	22	26	36	30	18	19	14	E 19	E 13	24	16	15	16				
6	28	42	45	41	81	B	60	63	43	B 21	23	29	22	E 22	E 24	28	23	33	11	11	22	48	45					
7	51	38	B	48	56	32	10	B	B	B	B	B 56	B 40	B	B	E 40	E 38	B	B	23	29	39						
8	45	43	43	34	36	60	65	41	25	14	21	E 28	E 24	29	30	24	25	13	20	18	20	12	15	14				
9	36	44	42	59	46	33	17	30	14	16	32	24	25	37	28	21	27	17	33	19	9	12	11	19				
10	40	30	60	53	45	31	28	39	51	B	42	25	E 26	E 25	E 35	E 40	E 40	E 40	E 19	E 12	E 14	E 19	12	14	19	33		
11	37	36	43	45	69	54	48	39	40	E 40	B 39	E 41	E 40	E 55	E 48	E 40	E 25	E 23	E 20	E 14	B	13	37					
12	46	50	48	60	50	51	36	26	15	18	22	E 23	E 25	E 36	E 21	E 23	21	16	E 10	15	E 14	E 13	E 13	16				
13	16	24	34	45	60	60	30	16	16	19	21	E 24	26	23	E 23	23	19	30	E 10	16	10	10	B	B				
14	17	32	47	52	48	30	17	12	11	19	22	24	27	26	25	26	E 18	E 18	E 19	E 18	E 15	37	30	26				
15	43	50	29	43	48	50	37	37	37	32	24	34	28	25	24	24	29	15	16	E 23	E 23	21	35	B	B			
16	19	42	34	42	50	54	60	68	48	35	25	31	31	33	30	25	15	E 21	43	48	71	36	40	40				
17	38	37	36	37	40	34	18	17	14	18	E 20	22	25	25	27	30	18	15	E 13	E 18	13	30	51	36				
18	44	33	34	37	30	40	39	46	49	B	53	48	37	39	E 28	E 31	E 39	E 43	E 25	E 15	27	B	31	39				
19	35	33	36	66	78	19	52	44	30	52	33	E 36	E 30	E 30	E 25	E 26	E 30	E 18	12	34	31	B	34	33				
20	45	37	43	40	42	41	22	19	17	20	25	38	27	30	28	29	24	19	17	16	11	32	41	43				
21	43	42	66	72	70	42	37	50	59	45	B	B	B 40	30	28	24	18	13	16	E 13	E 15	16	15					
22	29	29	30	36	37	48	63	52	48	30	27	E 25	31	26	23	E 26	29	E 13	E 15	21	40	46	70					
23	B	38	45	48	42	48	30	17	30	22	19	27	31	33	25	26	22	E 13	14	E 13	9	10	20	22				
24	17	30	29	32	53	44	50	47	40	31	28	E 22	26	29	26	28	22	33	27	10	11	11	12	11				
25	25	20	29	29	37	30	30	11	38	36	34	28	32	30	27	45	23	17	12	E 12	E 12	E 10	E 9	12				
26	36	40	89	100	36	70	52	46	50	33	27	31	29	E 30	E 28	E 23	22	E 16	14	E 17	E 19	10	17	34				
27	45	90	48	39	41	60	65	50	41	31	B 45	E 34	E 35	E 27	E 45	29	38	37	24	40	44	40	40					
28	40	36	35	32	60	31	60	53	43	37	33	31	32	32	33	E 22	23	17	E 13	E 9	30	17	17	18				
29	22	37	37	26	20	28	30	24	16	22	25	23	26	30	28	28	23	37	28	E 13	26	E 9	9	21				
30	48	38	57	36	35	50	60	45	61	42	30	30	E 43	29	29	27	24	24	24	15	15	35	34	41	40			
31	39	47	40	60	58	48	42	45	52	34	32	29	E 46	E 36	E 31	E 30	E 23	21	E 19	16	28	E 14	21	20				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	30	31	30	31	31	29	31	30	29	26	26	28	30	29	31	30	30	31	30	30	29	26	28	28				
MED	38	37	40	41	46	41	38	39	38	30	28	26	28	28	26	24	23	17	16	13	16	16	23	33				
UQ	44	42	47	52	58	50	52	47	48	36	32	30	E 35	32	29	29	26	27	26	19	28	32	37	40				
LQ	29	32	34	36	38	31	30	24	25	20	22	22	26	26	24	23	22	16	E 13	E 13	11	11	15	18				

IONOSPHERIC DATA

AUG. 1980				F-MIN (0.1 MHZ)				45° E Mean Time (G.M.T. + 3 h)																	
								Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20 sec in automatic operation																	
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	7	7	13	9	9	9	8	23	27	25	19	25	37	26	17	31	13	13	13	13	14	18	B	B	B
2	7	6	7	6	7	6	5	6	7	8	13	20	50	24	24	22	35	17	19	20	13	9	7	8	
3	13	8	9	13	11	B	25	8	25	B	B	B	35	B	60	50	35	55	B	22	13	9	14	8	
4	8	22	7	8	7	13	8	7	6	12	9	15	18	17	16	13	8	12	46	13	7	7	6		
5	6	E	5	7	7	7	7	5	E	7	13	13	13	10	13	8	7	12	19	13	19	12	8	9	
6	6	E	6	7	31	B	22	14	9	B	21	17	18	18	22	24	18	13	10	8	7	7	7	8	
7	21	21	B	22	25	18	8	B	B	B	B	B	56	B	40	B	B	40	38	B	B	9	8	9	
8	23	22	21	27	22	18	14	8	9	9	13	28	24	12	18	13	9	9	10	7	9	7	8	8	
9	7	13	13	14	13	7	8	7	7	7	9	9	14	13	14	7	7	7	7	6	7	7	7		
10	7	7	12	13	9	8	10	7	13	B	22	19	20	20	35	40	40	40	19	12	14	B	13	7	
11	7	19	9	9	20	13	13	8	9	40	B	39	41	40	55	48	40	25	23	20	14	B	11	7	
12	7	10	13	7	21	15	9	10	11	12	13	23	25	36	21	14	10	8	10	10	10	13	13	8	
13	7	7	7	9	13	12	9	8	7	7	18	24	21	20	23	17	11	8	10	12	9	8	B	B	
14	8	8	9	10	7	7	7	7	7	12	14	18	18	22	19	18	18	18	19	18	13	7	7	7	
15	7	6	7	7	20	9	8	13	12	13	15	14	15	15	12	8	9	8	6	23	21	22	B	B	
16	9	10	9	12	11	12	13	9	9	10	18	18	18	18	15	13	13	21	13	10	20	12	12	12	
17	10	10	10	8	8	8	8	8	8	10	12	11	15	19	10	9	11	8	13	18	8	9	10	18	
18	13	8	9	13	8	18	10	10	18	B	25	23	33	33	28	31	39	43	25	15	18	B	15	9	
19	8	8	8	16	9	8	41	25	24	20	26	36	30	30	21	26	30	18	10	10	13	B	8	14	
20	9	14	11	11	13	8	7	8	9	13	13	18	16	18	18	13	12	9	11	7	7	7	13		
21	10	7	13	13	10	10	8	10	18	22	B	B	40	24	18	13	13	11	10	13	13	12	7		
22	7	8	8	8	10	8	13	8	B	17	18	21	22	20	20	19	26	17	13	15	9	8	10	9	
23	B	23	26	24	17	11	10	8	8	15	17	19	18	19	19	16	13	13	13	13	8	8	8	7	
24	8	8	8	12	18	14	13	13	19	23	23	18	18	16	18	14	14	8	8	7	7	7	8		
25	7	8	7	7	5	E	5	7	7	8	10	16	18	16	18	10	13	10	9	12	12	9	9	7	
26	7	10	10	8	8	7	7	25	23	33	16	15	20	30	28	23	18	16	13	17	19	10	7	7	
27	13	9	10	13	10	20	22	10	13	29	B	45	29	35	18	45	22	13	13	6	7	6	6	9	
28	10	7	7	7	8	7	13	8	9	20	23	21	21	15	15	20	18	14	13	9	E	7	15	14	
29	10	8	8	13	8	8	9	13	13	16	17	18	22	18	14	13	15	6	8	13	9	9	7	7	
30	14	11	23	13	8	10	7	13	13	17	18	24	43	20	18	20	13	11	17	15	6	7	7	7	
31	8	9	8	9	8	8	9	20	11	9	10	10	46	36	31	30	15	16	19	13	9	14	13	13	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	8	8	9	10	10	9	9	8	11	16	18	19	21	20	19	19	14	13	13	13	12	9	8	8	
UQ	10	10	12	13	15	14	13	13	18	27	23	24	34	32	24	28	24	18	19	16	16	13	13	12	
LQ	7	7	8	8	8	8	8	8	8	10	13	16	18	18	16	13	12	9	10	10	8	7	7	7	

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AUG. 1980			H ^o F (KM)												45° E Mean Time (G.M.T. + 3 h)																	
			Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E												Sweep 4 MHz to 15 MHz in 20 sec in automatic operation																	
Hour	Day		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	A	A	A	A	360	380	380	375	A	A	A	250	230	E	B	235	205	240	220	220	235	210	A	A	B	B	B					
2	A	A	A	A	390	350	335	310	A	E	A	280	240	235	255	235	210	215	E	B	225	250	235	E	B	240	250	265				
3	275	A	A	A	A	B	A	A	B	B	B	E	B	300	B	E	B	E	B	255	E	B	265	B	A	A	A	A				
4	A	290	A	A	A	A	A	480	350	325	220	255	245	230	230	205	210	205	245	245	230	B	A	360	A	A						
5	A	320	300	280	A	475	380	330	E	A	250	260	240	220	205	225	200	210	210	190	240	230	E	A	A	A	260					
6	A	A	A	A	B	B	A	A	E	A	B	410	250	230	255	250	225	215	230	245	210	205	205	245	A	A	A	A				
7	A	A	B	A	A	A	Y	B	B	B	B	E	B	280	B	250	B	E	B	E	B	245	B	B	A	A	A	A				
8	A	A	A	A	A	A	A	E	A	405	300	250	260	220	230	200	200	200	205	200	240	215	230	225	255	325						
9	A	A	A	A	E	A	460	360	345	300	235	240	215	245	225	225	210	200	220	195	205	200	205	300	280	240						
10	A	E	A	A	A	A	400	370	350	370	A	B	E	A	330	265	240	225	235	E	B	E	B	E	B	300	A	A				
11	A	E	A	A	A	A	A	355	310	400	370	345	300	E	B	B	E	B	E	B	E	B	E	B	240	250	235	225	235			
12	A	A	A	A	A	A	A	340	310	255	235	230	235	E	B	240	225	215	210	200	200	220	E	B	E	B	305					
13	E	A	A	A	A	A	A	290	330	330	285	225	235	225	235	190	220	205	220	210	200	205	205	305	B	B						
14	E	350	230	A	A	460	375	310	280	240	240	235	230	215	210	230	210	200	205	240	220	250	E	A	A	E	A					
15	365	330	400	A	A	A	A	375	370	270	250	240	240	230	230	215	215	210	215	225	225	250	A	B	B	B	B					
16	E	A	425	310	330	E	A	A	A	A	E	A	380	255	240	240	245	230	225	210	H	210	280	310	A	A	A	A				
17	250	A	A	A	A	325	500	420	380	305	270	240	235	240	240	230	235	230	230	225	E	B	A	A	A	A	A					
18	A	200	290	A	A	A	A	450	A	Y	B	A	A	A	E	A	320	290	250	E	B	E	B	250	275	B	A	A				
19	415	A	370	A	A	300	A	A	A	Y	325	260	270	245	230	240	210	225	210	205	275	320	B	A	220							
20	A	A	A	A	E	E	A	570	465	350	340	300	250	245	235	230	225	230	235	210	200	210	205	235	A	A	A	A				
21	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B	B	260	235	235	210	210	200	235	225	E	A	E	A			
22	A	A	A	A	A	A	A	A	A	A	A	B	310	250	235	230	230	240	240	235	220	235	215	250	A	A	A	A				
23	B	A	A	A	A	A	A	410	365	310	250	245	205	230	235	210	235	205	205	200	200	225	225	E	A	220	335					
24	E	A	400	380	355	355	A	A	A	425	380	255	255	230	225	215	215	205	200	205	200	195	210	195	255	260						
25	E	A	365	A	A	A	A	A	E	A	E	A	380	570	320	200	235	230	220	235	225	210	200	200	215	210	205	220	230	210		
26	A	A	A	A	A	A	A	A	A	A	E	B	320	265	245	225	250	260	225	220	200	185	215	260	185	300	E	A	A			
27	A	A	A	A	A	A	A	A	A	E	A	425	265	A	B	E	B	400	280	275	H	260	280	230	265	335	375	A	A	A		
28	A	A	A	A	A	A	A	A	A	A	280	300	250	235	240	215	210	225	230	205	225	205	225	245	B	A						
29	A	E	E	A	A	E	E	A	E	A	E	A	420	450	450	450	400	300	250	230	225	210	225	220	210	215	220	A	A			
30	A	A	A	A	A	400	A	E	A	A	465	A	290	255	250	250	240	235	235	225	215	210	215	215	350	E	A	A	A			
31	A	A	A	A	A	A	A	A	A	A	E	A	350	260	240	260	B	E	B	245	235	235	225	220	210	210	205	A	E	B	E	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	9	9	7	6	8	11	16	18	21	23	25	27	28	29	31	30	30	31	30	30	29	24	16	13	10							
MED	E	A	U	U	U	A	U	U	U	U	U	U	U	365	265	328	342	388	370	363	340	285	252	245	235	232	230	228	U	U	U	U
UQ	E	A	E	A	A	E	A	U	U	U	U	U	U	400	380	370	360	460	419	405	372	328	275	252	244	238	236	235	U	U	U	U
LQ	E	A	290	290	305	295	385	360	344	310	250	245	240	230	230	225	210	210	210	205	205	205	205	218	220	255	230	338	E	E	300	338

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H^oF (KM)

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SEP. 1980

FXI (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

Stations YOWA STATION				Lat.	69	00	4	S	Long.	39	35	4	E	Sweep 4	MHz to 15	MHz in 20sec	in automatic operation														
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1		A	A	A	A	A	62	55	60	65	78	U R	92	104	110	101	105	X	89	76	72	77	43	O R	O R	B					
2		B	A	70	40	70	70	73	50	70	75	83	95	109	105	99	100	X	98	90	83	65	48	50	O R	O R					
3	20	O R	A	40	38	50	50	54	70	X	X	70	88	97	110	113	109	108	X	95	99	90	70	A	44	45	A				
4		38	A	42	48	A	A	A	A	60	67	69	71	75	X	X	X	75	75	74	66	31	A	A	A	A					
5		A	A	65	50	A	A	A	A	B	A	B	64	70	74	71	76	X	75	79	73	44	A	A	A	A					
6	39	A	54	62	A	A	A	50	54	59	64	70	69	X	X	X	97	85	86	82	66	49	32	O R	A	A					
7		60	64	45	A	68	68	68	60	71	78	87	90	100	108	116	114	X	120	110	109	79	48	O R	28	A	A				
8		A	B	A	A	A	75	65	70	80	88	91	91	101	100	101	116	X	110	105	100	79	65	58	28	A	A				
9		A	A	A	A	46	70	A	64	71	74	85	100	121	111	120	113	X	111	111	113	90	47	28	50	55					
10		A	A	80	B	B	A	70	70	70	84	84	99	105	110	110	114	X	110	102	100	83	62	43	36	27					
11	24	O R	A	30	34	37	50	64	64	0 R	69	80	98	104	116	115	121	116	X	117	120	120	92	64	41	29	A				
12		A	A	A	A	72	72	A	A	A	A	B	B	0 R	82	89	113	107	R	90	92	A	A	A	A	A					
13		A	A	A	47	65	38	A	A	A	B	A	A O R	B	48	72	73	72	74	B	64	39	38	38	35						
14		52	36	A	58	63	68	53	A	A	64	69	69	75	78	86	88	79	90	X	78	65	65	42	35	32					
15		A	72	A	53	A	54	58	60	70	65	65	71	X	X	X	93	X	101	96	99	75	47	A	A	A					
16		A	A	B	O R	44	45	52	60	56	44	A	72	82	95	102	108	102	U R	102	96	91	90	71	56	39	A				
17	55	R	Y	B	A	62	56	B	A	73	80	81	O R	86	86	100	105	B	R	123	110	97	77	40	O R	30	A				
18		A	A	A	A	46	68	51	65	65	64	71	X	X	X	82	92	89	88	91	100	90	86	68	49	28	30				
19	34	65	Y	A	53	53	68	60	69	76	85	98	100	105	110	115	120	119	128	96	80	63	38	A							
20		A	A	A	A	A	A	B	A	A	57	70	84	100	110	116	110	109	101	95	81	69	62	45	31						
21	34	A	65	63	70	53	63	70	74	84	90	90	X	X	X	99	91	X	95	95	91	83	72	52	48	36					
22		52	34	31	34	33	37	63	57	71	85	93	105	X	111	116	123	117	X	116	104	90	73	63	43	A	40				
23		A O R	40	38	A	60	57	62	72	70	74	80	X	86	94	102	103	109	105	101	91	99	85	71	69	45					
24		A	A	A	63	74	73	72	76	85	89	93	107	X	116	120	123	117	X	116	110	98	88	72	60	48	46				
25		45	47	40	O R	51	72	A	80	B	76	90	95	100	107	110	110	105	102	108	100	92	X	73	63	A	52				
26		42	70	70	71	75	70	80	81	80	81	86	100	100	114	120	113	115	114	105	96	89	70	50	48						
27		48	62	70	71	75	70	70	65	B	O R	80	95	110	113	120	117	118	X	116	106	110	104	84	69	48	45				
28		43	72	65	70	80	71	82	90	92	94	100	113	117	120	110	107	X	99	96	96	101	89	70	45	95					
29		60	A	A	55	A	60	58	65	49	73	81	90	92	97	102	98	99	96	96	90	76	56	45	A						
30		A	A O R	39	52	65	72	70	61	69	76	84	X	X	X	104	106	106	X	X	O R	100	90	88	70	60	50				
31																															
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT		15	10	16	18	22	25	21	22	23	25	26	28	29	29	30	29	29	29	29	30	27	26	23	16						
MED		43	63	50	52	64	62	65	64	70	76	84	90	100	105	106	107	102	100	96	84	68	51	39	42						
UQ		52	70	68	63	72	70	70	74	84	91	100	109	111	116	114	111	111	108	100	92	76	63	48	49						
LQ		36	40	40	44	50	53	60	60	67	70	78	83	86	97	89	97	95	95	90	73	48	41	32	32	32					

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SEP. 1980

FXI (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1980				FOF2 (0.1 MHz)												45° E Mean Time (G.M.T. + 3 h)																						
Station SYOWA STATION Lat. 69°00'4 S Long. 39°35'4 E				Sweep 4 MHz to 15 MHz in 20 sec												in automatic operation																						
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23													
1		A	A	A	A	A	A	F	F	F	F	F	U	R	F	104	95	99	83	70	57	J	R	F	F	B												
2		B	A	A	F	29	16	F	F	44	56	J	F	77	89	103	99	93	94	92	84	75	F	59	37	42	28	F										
3	14	A	F	J	F	J	F	F	F	34	48	64	79	90	104	107	103	102	89	93	84	64	A	F	F	F	A											
4		F	A	F	A	F	F	A	A	A	A	A	F		61	63	63	69	F	69	69	67	54	F	F	A	A	A										
5		A	A	A	A	A	A	A	A	B	A	B	F	55	F	61	66	65	70	F	67	72	58	37	A	A	A	A										
6	J R 30	A	F	F		A	A	A	F	F	F	F	F	F	63	65	71	89	F	79	79	75	54	33	26	19	F	F	A									
7		A	A	F	A	A	F	F	54	55	65	74	84	94	102	110	108	109	101	100	72	J	R	42	22	A	A											
8		A	B	A	A	A	F	F	F	72	80	76	85	95	94	95	110	103	Z	99	92	70	55	F	F	F	A											
9		A	A	A	A	F	F	A	F	52	62	65	71	88	113	104	114	107	105	103	106	73	41	19	F	A	23											
10		A	A	F	B	B	A	U	F	42	63	65	71	75	93	99	104	104	108	104	96	94	76	55	32	20	F	F										
11	F 18	A	F	F	F	F	F	F	57	57	63	73	91	97	109	108	115	110	111	112	112	86	58	F	F	F	A	23										
12		A	A	A	A	F	F	A	A	A	A	A	B	B	76	83	F	96	R	70	A	A	A	A	A													
13		A	A	A	F	F	F	A	A	A	B	A	A	41	B	63	66	65	67	B	F	F	32	32	27	F	F											
14	F 25	F	A	A	F	F	A	A	F	53	58	62	69	70	78	82	71	82	72	55	49	29	21	F	F													
15		A	F	A	F	A	F	F	52	56	F	57	65	72	81	82	87	95	89	J	R	E	63	33	A	A	A											
16	A	A	B	F	38	37	40	48	50	38	A	65	76	86	95	99	91	U	R	F	84	80	62	44	32	F	A											
17	49	Y	B	A	A	J	F	B	A	F	F	F	F	80	88	92	B	D	R	F	J	R	90	71	34	23												
18		A	A	A	A	F	F	F	39	37	40	50	55	58	64	72	76	86	83	82	85	94	84	79	58	43	20	F	F									
19		F	A	Y	A	F	F	F	30	37	47	52	62	65	75	91	94	99	104	109	114	113	122	89	73	J	F	A	A									
20		A	A	A	A	A	A	B	A	A	F	50	59	71	93	104	110	104	101	F	93	88	74	61	54	38	F	22										
21	F 27	A	A	A	A	A	F	F	47	55	57	62	75	82	84	89	93	85	85	J	R	89	89	79	75	63	44	40	26									
22	F 24	F	F	F	F	F	F	J	F	J	F	F	F	F	99	105	110	117	111	106	97	79	65	45														
23	A 32	F	F	A	F	43	48	63	64	63	74	80	88	93	92	99	91	90	83	88	F	78	55	48	33													
24		A	A	A	F	F	48	52	64	70	75	85	99	110	114	117	111	110	101	92	82	J	R	66	59	37	36											
25	F 34	F	F	F	F	A	54	B	69	81	F	85	92	100	104	100	95	93	101	90	F	J	R	84	62	24	A	17										
26	F 18	F	F	F	F	F	F	F	61	67	77	83	92	100	103	101	107	100	99	89	80	64	22															
27	F 18	F	F	F	F	53	65	F	B	F	73	85	104	105	113	111	112	110	100	103	95	78	60	37	37													
28	F 23	F	F	F	F	57	F	65	67	78	81	98	101	110	104	101	93	90	90	95	80	64	32	F	A													
29	F	A	A	F	A	F	37	42	66	70	77	81	91	96	90	93	90	90	80	67	43	R	A															
30	A	A	F	F	Y	A	F	53	61	67	73	82	98	100	100	97	92	90	94	80	78	J	R	F	64	48	31											
31																																						
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23													
CNT		10	6	10	12	14	13	15	18	23	25	26	27	29	29	30	28	30	29	29	28	25	22	18	13													
MED		F	F	F	F	F	F	F	F	F	F	F	F	F	F	99	98	99	94	93	90	76	61	43	32	24												
UQ		30	28	36	40	45	47	54	57	64	73	79	92	101	104	108	106	100	94	85	71	57	37	31														
LQ		F	F	F	F	F	F	F	44	54	63	70	76	80	88	83	88	89	89	79	64	45	29	21	22	F	F											

SEP. 1980

FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1980				FES (0.1 MHZ)												45° E Mean Time (G.M.T. + 3 h)														
																Stations YOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20 sec in automatic operation														
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1		28	35	41	53	58	60	38	47	37	107	E B	E B	29	31	70	29	21	20	14	28	20	E B	E B	B					
2		B	31	32	25	34	30	58	36	33	26	27	29	38	36	33	32	24	22	13	E B	11	16	E B	15	18				
3		11	16	33	30	30	31	14	11	17	30	28	29	67	40	35	27	27	19	11	33	59	48	80	46					
4		76	52	64	60	60	34	50	60	40	43	56	33	25	28	27	27	25	20	22	E B	13	13	36	38	64				
5		48	42	41	62	42	41	51	58	B	42	49	31	27	E B	28	27	20	20	E G	15	39	80	71	55	70				
6		40	37	34	32	94	66	44	40	32	23	32	27	27	34	29	34	37	31	16	16	31	17	27	30					
7		32	37	42	41	42	44	41	45	47	42	26	31	32	31	29	28	25	22	E B	20	15	30	34	80	70				
8		B	43	101	65	90	40	32	50	40	40	36	33	30	E B	37	30	E G	E G	E B	7	15	30	E B	20	36				
9		41	60	60	43	60	42	49	44	36	34	E B	E B	E B	E B	40	33	28	E B	E B	E B	E B	16	31	33	31				
10		46	40	43	B	B	54	45	42	20	27	34	30	28	E G	E G	27	16	G	30	21	30	12	10	12	28	21			
11		28	47	34	34	23	41	52	50	E B	E B	56	30	28	31	42	36	35	37	23	E B	E B	18	16	28	31	29	36		
12		45	48	52	37	26	32	60	60	65	69	27	B	B	E B	E B	47	33	E B	E B	40	E B	60	37	33	44	52	48	59	
13		102	26	33	95	71	28	43	27	42	B	43	45	37	B	36	E B	30	29	E B	30	38	52	38	35	70				
14		60	80	41	39	32	28	60	70	50	42	29	20	29	30	31	39	28	23	23	27	36	46	30	15					
15		39	34	58	43	45	36	41	45	23	30	E B	32	30	31	31	33	29	E B	E B	15	E B	27	25	39	38	38			
16		42	78	B	36	35	32	24	37	52	45	46	31	28	32	E B	30	28	E B	E B	E B	32	E B	13	16	14	E B	37		
17		49	30	70	51	48	26	B	62	36	24	E B	30	30	E B	E B	33	30	30	B	E B	E B	61	30	25	29	35	25	29	32
18		36	45	38	43	25	23	18	19	29	25	26	31	E B	30	29	29	28	25	23	18	E B	E B	13	13	20	31			
19		29	31	37	43	32	42	32	18	30	26	30	30	32	39	30	27	E B	E B	E B	19	E B	20	13	17	36	40			
20		70	60	45	59	58	48	B	36	48	37	32	30	30	25	36	28	38	24	19	13	E B	E B	8	9	33	30			
21		34	35	36	45	47	47	38	35	30	26	28	26	37	40	35	34	30	23	22	13	14	9	10	12					
22		13	19	30	34	29	43	38	50	37	42	29	33	32	33	36	29	27	33	19	15	36	45	37	40					
23		43	38	81	50	42	42	38	30	32	30	42	38	47	40	36	27	32	24	24	E B	E B	13	11	21	12	26			
24		40	37	49	46	29	20	16	27	30	33	35	38	36	32	33	29	32	29	27	36	21	14	34	32					
25		27	32	39	54	60	63	44	B	36	30	32	30	E G	31	36	29	30	29	28	25	16	15	34	42	15				
26		28	34	30	28	38	60	21	25	E B	30	33	45	35	36	34	34	29	30	29	E B	20	20	28	30	36	33			
27		29	27	30	31	29	17	24	42	B	42	31	30	29	31	35	29	33	36	39	30	31	14	38	26					
28		37	48	67	53	44	36	32	E G	33	39	E G	30	E G	32	38	37	E G	E G	E G	26	24	20	17	29	16	33	39		
29		80	57	48	42	50	50	49	27	37	43	34	E G	32	36	38	36	E G	29	32	E G	24	29	43	32	51	58			
30		50	48	40	29	34	24	48	46	36	E G	E G	30	37	29	39	37	E G	E G	E G	27	26	22	17	13	11	15	12		
31																														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT		29	29	29	29	29	30	28	29	28	29	29	29	29	29	30	29	30	30	29	30	30	30	30	30	29				
MED		40	37	41	43	42	41	41	40	36	33	30	30	32	33	28	26	22	18	16	26	23	33	33						
UQ		49	48	49	53	58	48	49	47	42	42	34	34	36	37	36	30	31	26	24	29	35	36	38	40					
LQ		29	32	34	34	32	30	32	28	30	28	28	30	29	30	29	28	23	21	14	13	14	14	20	26					

SEP. 1980

FES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1980

F-MIN (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

Stations YOWA STATION Lat. 69° 00' 4" S Long. 39° 35' 4" E Sweep 4 MHz to 15 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	7	7	11	13	12	12	7	14	18	16	33	35	20	23	19	18	16	10	9	8	9	11	9	B	
2	B	8	8	12	7	8	13	13	8	15	15	14	8	11	11	8	8	10	10	11	12	10	12	8	
3	7	7	7	5	5	5	6	7	8	11	8	18	15	15	14	15	14	7	7	8	14	8	8	9	
4	14	14	13	11	9	10	E S	20	20	20	22	21	27	21	23	18	18	15	10	12	13	10	8	9	12
5	13	18	10	9	14	18	12	15	B	20	B	15	26	24	28	23	17	17	14	8	13	13	8	18	
6	15	12	8	8	14	10	10	10	9	14	9	14	15	8	7	13	14	10	7	8	7	8	7	7	
7	8	8	7	21	9	7	13	13	13	15	15	15	13	10	17	23	24	16	20	8	E	7	13	8	
8	B	19	7	13	7	8	22	7	10	8	19	21	21	37	11	18	22	12	7	9	7	20	8		
9	7	13	13	7	7	8	13	14	7	7	30	40	40	19	9	30	24	21	16	11	8	9	7	7	
10	9	8	7	B	B	14	14	8	5	8	7	8	16	14	15	11	9	9	7	6	5	6	7	8	
11	8	7	8	10	12	10	15	10	56	30	20	22	15	15	15	14	18	20	18	13	8	8	6	7	
12	14	11	18	23	12	19	18	20	17	20	18	B	B	47	33	28	40	60	13	8	14	14	10	5	
13	14	18	23	11	8	14	13	13	13	B	27	23	22	B	31	30	13	30	B	14	7	7	6	8	
14	6	10	11	16	6	6	9	15	13	10	12	13	20	19	10	10	15	15	9	11	13	12	12	8	
15	7	10	16	20	15	14	15	9	10	12	32	25	18	13	12	14	27	20	7	27	8	7	7	5	
16	B	8	9	17	9	9	9	8	14	21	23	21	18	20	30	23	36	24	32	13	13	10	15	8	
17	14	26	50	15	15	7	B	15	13	7	30	20	33	30	13	B	61	30	15	15	7	14	8	8	
18	7	21	21	14	13	11	9	9	14	14	15	13	30	18	23	21	18	14	14	13	13	13	9	7	
19	7	7	23	15	9	7	7	7	8	14	14	13	17	21	18	28	38	19	20	13	11	6	9		
20	13	21	21	20	18	25	B	18	15	15	18	20	18	18	14	13	13	13	7	8	9	8	8		
21	7	9	11	20	13	9	8	9	11	13	13	13	13	13	13	13	13	11	9	7	7	6	7		
22	7	7	7	8	7	6	8	15	13	13	22	15	19	20	16	13	14	10	13	10	8	7	8	7	
23	10	10	11	14	11	10	8	8	10	11	11	13	11	13	14	13	14	14	16	13	11	7	7	5	
24	9	23	16	10	8	8	8	7	9	8	8	14	11	16	13	13	10	10	8	6	6	7	7		
25	7	8	9	13	14	15	18	B	20	19	21	24	24	23	18	15	15	9	8	7	9	12	9	7	
26	8	9	9	8	10	7	10	22	30	20	17	12	16	24	15	20	9	14	20	7	7	8	7	7	
27	7	6	7	7	7	7	13	18	B	42	20	21	22	21	18	14	13	18	9	9	5	7	7	7	
28	8	15	6	14	14	10	8	6	7	11	12	11	10	13	10	10	13	9	8	9	8	7	7	7	
29	11	13	13	11	10	10	15	7	13	19	18	16	13	10	11	14	13	10	7	6	5	6	10	13	
30	13	16	16	10	9	7	7	13	13	13	13	8	14	14	10	13	13	9	9	8	7	8	13	8	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	8	10	11	12	10	10	13	13	14	18	16	18	18	15	14	14	14	12	8	8	8	8	8	8	
UQ	13	16	18	16	14	12	14	15	17	20	22	22	23	19	21	18	20	16	13	12	11	10	8		
LQ	7	8	8	9	8	7	8	8	9	11	12	13	13	13	12	13	13	10	8	7	7	7	7		

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F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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H*F (KM)

45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E												Sweep 4	MHz to 15 MHz	in 20sec	in automatic operation																
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	A	A	A	A	A	A	A	A	385	280	275	E	B	260	245	230	240	225	220	200	205	200	220	225	E	B					
2	B	A	A	A	A	A	E	A	370	440	275	240	235	225	235	225	220	235	215	215	200	210	205	220	220	E	A				
3	E	A	A	A	350	375	400	385	200	160	230	225	230	220	225	225	220	225	230	230	230	230	A	A	A	A					
4	A	A	A	330	A	400	400	E	A	A	A	A	A	E	A	310	255	255	245	250	240	225	225	230	225	A	A	A			
5	A	A	A	A	A	A	A	A	B	A	B	E	A	305	360	260	255	265	240	250	255	440	A	A	A	A					
6	E	A	A	H	275	290	A	A	A	E	A	300	250	250	240	220	230	230	235	215	215	210	230	245	250	E	A				
7	A	A	A	A	A	E	A	360	400	A	255	230	235	210	245	235	245	225	230	220	230	205	225	280	A	A	A				
8	A	B	A	A	A	375	485	350	305	295	240	250	240	240	235	240	240	215	225	220	215	245	250	E	B	A	375				
9	A	A	A	A	A	365	A	E	A	470	265	250	230	E	B	H	240	280	215	205	230	225	210	215	280	E	A	E	A		
10	A	A	A	B	B	A	A	345	200	220	H	240	250	245	225	220	235	230	235	220	200	210	245	275	E	A	340				
11	E	A	E	E	A	355	445	400	A	A	E	A	E	A	B	250	235	245	225	225	225	230	230	225	240	270	320	E	A	A	
12	A	A	A	A	375	430	E	A	A	A	A	A	A	B	B	B	250	255	255	E	B	280	280	A	A	A	A	A			
13	A	A	A	A	400	A	A	A	A	A	A	B	A	A	280	B	E	A	E	B	315	325	E	B	285	350	425	425	270		
14	A	A	A	A	A	275	200	400	E	A	A	A	A	A	225	240	225	215	215	245	225	225	205	225	E	A	245	270	300		
15	A	220	H	A	A	A	420	360	340	300	255	E	B	265	255	230	215	225	225	H	235	215	225	240	250	A	A	A	A		
16	A	A	B	E	A	450	405	380	310	290	265	A	E	A	265	230	200	230	210	H	H	220	240	210	225	225	220	220	E	B	A
17	A	Y	B	A	A	260	215	250	240	250	250	210	220	225	210	230	235	260	260	225	235	230	260	260	A	A	A	A	A		
18	A	A	A	A	420	370	325	260	245	230	220	225	210	230	235	220	230	230	230	210	220	215	260	A	A	A	A	A			
19	A	A	Y	A	325	415	425	340	260	225	210	235	210	215	210	230	240	240	235	220	H	200	220	245	A	A	A	A	A		
20	A	A	A	A	A	A	A	B	A	A	260	205	210	220	220	215	240	215	220	210	225	210	230	255	A	A	A				
21	A	A	A	A	A	450	330	265	235	240	240	220	220	220	215	225	215	225	210	220	200	205	225	230	A	A	A	A	A		
22	290	350	A	A	A	440	270	260	230	230	225	215	220	235	220	230	235	220	240	245	245	310	A	A	A	A	A	A			
23	A	A	A	A	A	340	255	H	230	235	225	210	230	215	220	H	240	235	220	220	205	205	235	230	A	A	A	A	A		
24	A	A	A	A	425	370	305	285	250	235	230	215	240	225	215	235	225	240	225	210	210	205	240	325	295	A	A	A	A	A	
25	290	A	A	A	A	A	A	B	300	235	250	240	230	250	235	240	230	235	220	220	235	260	A	A	370	A	A	A			
26	A	375	A	A	A	370	380	300	315	E	B	250	245	235	205	225	240	220	240	230	235	240	220	220	250	A	A	A	A	A	
27	320	A	A	A	A	460	350	A	260	B	B	230	200	220	235	225	225	230	215	225	225	200	225	380	320	A	A	A	A	A	
28	A	A	A	A	A	380	435	400	260	205	200	235	220	235	240	225	225	235	250	235	220	230	220	310	A	A	A	A	A		
29	A	A	A	A	A	400	A	A	A	275	310	250	235	225	225	225	215	225	215	215	215	225	260	A	A	A	A	A			
30	A	A	A	A	420	460	A	Y	A	A	225	225	200	230	230	225	230	230	235	225	230	210	215	205	230	290	A	A	A	A	A
31																															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	7	4	4	7	12	16	17	17	22	24	26	28	29	28	30	29	30	30	29	29	27	24	17	11							
MED	A	312	328	375	402	376	335	U	275	254	238	235	229	228	226	225	230	230	225	220	225	240	260	282	A	A	A	A	A		
UQ	A	321	362	39.6	416	428	405	380	332	275	252	245	241	238	236	235	240	238	232	230	230	245	258	300	312	A	A	A	A	A	
LQ	290	248	302	348	375	362	318	260	228	228	230	220	218	220	225	225	220	210	215	212	220	242	260								

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H*F (KM)

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IONOSPHERIC DATA

OCT. 1980

FXI (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S., Long. 39° 35.4' E Sweep 4 MHz to 15 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	47	56	53	58	68	90	73	X 80	X 93	U 104	X 110	X 114	X 117	120	X 116	X 118	118	109	U 112	93	82	79	69	57	
2	52	43	71	41	74	80	82	109	93	96	106	119	123	128	130	126	121	114	110	100	90	84	62	55	
3	57	63	61	70	71	75	80	93	98	115	124	124	128	130	127	125	121	116	116	103	102	78	69	A	
4	A	73	73	73	90	83	80	74	A	71	B	72	89	R	X 108	103	101	61	45	63	A	60	45	33	
5	63	37	53	A	38	B	A	B	B	B	0 R 50	B	B	0 R 68	73	82	83	73	60	53	0 R 49	A	44	A	
6	53	70	71	Y	70	69	0 R 62	Y	B	B	B	B	0 R 79	B	0 R 88	91	90	82	82	X 77	72	47	0 R 29	A	
7	A 0 R 44	A	A	60	Y	Y	B	65	70	70	70	73	75	73	74	76	73	73	73	73	73	62	A	A	
8	34	A	A	A	72	73	74	74	70	72	88	90	93	X 96	X 101	98	99	90	97	X 91	91	75	72	70	
9	37	60	63	64	B	65	54	72	64	B	B	B	80	0 R 85	97	112	110	110	102	86	74	52	A	46	
10	55	A 0 R 43	0 R 49	B	68	65	0 R 57	57	57	59	68	68	73	74	74	78	87	92	92	0 R 69	38	A	A	A	
11	A	B	50	A	A	A	B	B	0 R 47	B	B	B	B	B	B	70	64	62	58	58	53	50	48	36	
12	0 R 42	65	36	70	60	70	75	81	95	85	105	104	111	119	112	111	108	98	92	82	75	75	64	62	
13	55	38	58	70	70	72	79	90	100	107	105	108	111	0 R 106	X 105	X 103	105	102	94	89	82	75	68	62	
14	56	68	71	70	73	75	79	83	84	102	108	116	118	X 114	X 114	X 110	111	106	95	101	X 86	61	53	A	
15	A	52	0 R 56	70	A	A	0 R 54	A	A	B	B	B	B	0 R 52	66	83	B	0 R 87	B	64	50	0 R 42	42	48	
16	44	0 R 43	65	B	70	71	0 R 76	84	X 84	X 89	X 95	X 98	X 99	X 100	X 99	X 93	R 90	X 90	X 85	X 84	X 78	76	73	71	
17	69	61	70	73	80	88	93	101	101	100	108	105	104	X 105	X 105	101	100	105	101	101	92	83	75	72	
18	60	85	0 R 49	73	B	B	90	80	B	B	Y	66	72	75	73	80	81	79	78	75	54	B	0 R 41	B	
19	40	0 R 46	50	55	0 R 50	55	0 R 52	62	0 R 69	76	0 R 81	R 80	87	83	75	90	84	90	91	84	71	50	0 R	A	A
20	70	60	71	91	91	71	63	75	74	90	90	91	X 91	X 100	X 100	X 104	X 100	X 97	92	84	82	76	69	52	
21	57	65	72	70	70	69	71	81	89	92	94	99	0 R 104	X 102	X 110	X 109	100	100	95	94	79	72	63	Y	
22	46	52	62	70	80	73	70	A	63	B	B	B	64	72	82	89	X 89	88	81	80	76	69	63	A	
23	78	76	A	69	62	62	60	70	A	Y	B	0 R 51	Y	B	72	74	0 R 54	40	Y	37	A	48	A	A	
24	A	56	44	50	44	50	53	58	66	73	79	76	82	X 78	X 75	X 76	X 78	84	72	76	75	67	61	43	
25	46	73	73	B	0 R 54	Y	B	85	97	95	0 R 95	B	B	B	B	0 R 88	0 R 88	86	64	52	57	0 R 51	40	A	
26	41	A	B	60	61	63	50	X 50	R B	B	B	B	B	0 R 78	0 R 75	R B	X 72	X 74	72	69	68	66	67	63	
27	57	62	68	70	73	81	87	X 92	X 93	X 98	101	92	89	X 84	X 86	X 84	X 87	X 86	90	86	83	X 76	71	70	
28	57	63	71	78	81	89	94	110	111	112	111	110	109	102	94	95	93	99	88	86	82	X 74	73	69	
29	68	65	67	80	72	80	92	104	109	111	109	105	101	99	97	95	90	87	84	85	81	X 75	62	52	
30	61	61	61	70	63	76	66	Y	Y	Y	0 R 66	65	63	0 R 74	R 75	73	71	71	69	X 66	62	68	65	62	
31	53	54	70	73	73	60	E G 51	E G 53	59	70	B	B	71	X 71	X 76	X 73	0 R 50	B	A	57	57	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	27	24	26	24	27	24	22	22	22	22	24	26	29	30	30	31	28	30	29	27	25	18	
MED	55	61	63	70	70	73	73	80	86	91	95	95	92	90	94	92	90	88	86	81	75	69	63	60	
UQ	60	65	71	73	73	80	80	91	97	102	108	108	110	105	105	104	101	100	95	89	82	76	69	69	
LQ	46	52	53	62	61	69	62	71	66	72	79	72	80	75	75	80	81	76	72	69	57	58	48	48	

OCT. 1980

FXI (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1980				FOF2 (0.1 MHz)												45° E Mean Time (G.M.T. + 3 h)															
				Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20 sec in automatic operation																											
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	40	44	46	48	U	F	F	58	51	62	74	87	98	104	108	111	112	110	112	111	102	105	85	73	72	56	48				
2	45	28	F	J	R	35	F	F	F	70	77	90	100	113	117	122	124	120	113	108	104	91	81	77	53	48					
3	42	42	49	64	J	F	J	65	69	72	85	92	109	118	118	122	122	121	119	112	110	110	93	94	70	59	A				
4	A	F	F	U	F	F	F	65	66	F	A	F	B	F	F	D	R	90	102	95	91	49	F	F	A	F	F				
5	F	F	A	F	B	A	B	B	44	B	B	B	58	66	76	F	F	57	53	45	40	A	F	A	F	A					
6	F	F	F	Y	U	F	F	Y	B	B	B	R	B	U	R	82	82	F	81	76	75	71	59	37	20	A					
7	A	F	A	A	F	Y	Y	B	F	F	F	58	60	60	63	67	69	66	68	68	67	66	65	59	46	A	A				
8	27	A	A	A	F	F	F	F	58	60	70	77	80	89	94	91	90	83	90	85	84	66	60	40	F	F	A				
9	F	F	F	B	F	F	F	55	46	50	57	F	B	B	F	72	78	91	101	100	102	94	78	53	42	A	F	38			
10	F	A	37	38	F	B	F	J	F	59	51	51	52	60	60	66	68	68	71	80	85	85	63	28	A	A	A				
11	A	B	F	A	A	A	A	B	B	F	B	B	B	B	F	F	F	52	50	48	45	42	32	F	F						
12	34	29	F	F	F	J	F	F	54	73	85	78	94	97	101	110	102	104	99	91	85	70	65	60	33	F	F				
13	33	F	36	47	F	50	54	63	77	85	92	99	99	105	100	99	97	109	94	85	80	74	67	57	47	F	F				
14	.47	F	F	F	F	F	F	55	55	79	91	102	108	111	108	108	102	104	99	U	R	F	86	92	80	50	44	A			
15	A	F	48	F	A	A	F	A	A	B	B	B	B	B	E	G	F	46	59	71	B	81	B	56	41	34	27	35	F	F	
16	36	35	45	B	F	F	F	52	59	69	76	77	82	89	91	92	J	R	94	93	86	84	84	79	78	72	70	65	62	F	F
17	60	51	44	40	F	F	F	48	81	83	86	94	102	J	R	99	98	99	99	J	R	92	99	92	92	82	74	67	61	F	
18	47	42	42	F	B	B	F	F	B	B	Y	58	63	69	65	72	F	F	75	73	71	67	48	B	32	F	B				
19	31	35	F	F	F	F	F	41	45	61	70	75	74	72	70	67	70	72	F	F	80	78	78	60	42	F	F	A	A	A	
20	34	R	Y	70	F	F	F	80	50	50	64	71	82	83	85	J	R	94	94	98	93	91	83	77	70	62	53	34	F	F	
21	37	F	50	52	F	F	F	56	57	60	70	80	85	88	92	98	96	104	102	R	93	94	89	87	53	50	37	Y			
22	U	R	42	50	F	F	F	56	62	F	A	B	B	B	F	65	73	78	83	82	75	71	68	54	F	F	A				
23	58	41	A	F	F	F	F	36	40	A	Y	B	E	G	Y	B	63	64	48	E	G	Y	F	A	F	A	A				
24	A	F	F	F	F	F	F	36	44	47	58	64	70	76	71	69	70	72	67	F	64	69	67	59	44	F	F	33			
25	J	F	40	51	F	F	F	R	Y	B	F	F	R	B	B	B	B	U	R	82	82	79	52	43	42	42	F	A			
26	F	A	B	F	51	A	F	44	B	B	B	B	B	F	R	B	71	69	66	68	63	60	60	58	52	F	F				
27	39	37	48	51	F	F	F	59	70	81	86	87	92	92	84	83	78	79	78	81	80	82	80	77	70	61	61	F	F		
28	46	43	55	77	F	F	F	71	80	84	94	100	105	104	104	102	J	R	96	87	84	83	83	81	78	74	68	65	59	F	
29	58	58	45	53	F	F	F	70	80	98	103	105	99	98	95	93	90	88	82	80	78	79	75	68	48	31	F	F			
30	F	32	47	F	F	F	F	51	58	F	Y	Y	Y	60	F	57	68	69	66	65	63	60	52	59	55	49	F	F			
31	F	42	48	F	F	F	F	54	60	F	E	G	E	G	F	B	B	F	64	69	67	44	B	A	F	49	A	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	21	20	14	14	20	15	18	20	22	21	21	21	23	26	29	29	29	31	27	28	28	25	20	17							
MED	F	40	42	46	50	53	57	61	71	78	85	89	91	85	90	87	84	83	81	74	66	60	54	47							
UQ	F	46	48	F	49	64	57	66	72	80	86	92	100	99	102	100	99	98	93	92	88	82	74	68	60	52	F	F			
LQ	F	34	34	43	42	49	52	50	50	58	64	70	70	72	69	69	72	75	68	68	62	50	49	40	34	F	F				

IONOSPHERIC DATA

OCT. 1980

FES (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00'.4 S., Long. 39° 35'.4 E. Sweep 4 MHz to 15 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	17	23	25	36	26	21	38	30	33	39	31	39	41	40	37	43	29	24	17	23	13	11	11	12		
2	E 9	26	39	70	41	38	28	28	32	E 29	E 30	E 31	41	39	39	37	E 28	32	E 26	20	17	11	9	11	11	
3	36	18	31	30	30	31	25	30	32	35	36	E 32	38	40	32	30	E 28	E 25	E 20	15	27	9	10	38		
4	40	90	36	52	32	45	36	51	58	61	B	36	35	E 57	E 36	28	27	36	36	47	70	67	64	65		
5	87	57	37	43	39	B	36	B	B	E G	B	B	E 47	E 35	E 32	28	29	E 41	36	39	78	81	47			
6	37	30	36	38	32	42	36	38	B	B	B	B	E 62	B	E 56	E 31	E 28	24	30	21	32	29	32	47		
7	37	43	111	44	37	37	39	B	38	30	E 32	E 32	33	E 33	E 31	36	E 30	E 25	25	21	32	34	42	32		
8	35	46	55	48	50	35	35	42	36	40	E 32	E 33	40	33	31	32	E 28	E 27	27	19	19	18	24	37		
9	69	40	38	44	B	E B 40	38	43	36	E B	B	B	E 35	E 33	31	E 44	E B 30	27	34	30	33	65	44			
10	58	60	43	44	B	32	38	38	36	E 32	E 33	E 33	31	32	36	31	28	E 30	E 25	E 46	34	39	50	44		
11	43	B	68	68	34	75	50	B	B	33	B	B	B	B	E 32	47	38	37	35	39	29	31	37			
12	37	31	90	70	29	31	33	33	43	43	43	42	35	37	35	33	E 30	29	30	30	16	33	34	36		
13	47	35	28	47	39	32	30	34	36	E 31	E 32	E 33	35	32	33	38	E 30	26	30	24	19	27	30	32		
14	36	31	40	42	40	50	45	36	E 28	E 32	E 35	41	40	E 34	E 33	E 32	E 30	27	27	22	30	32	32	37		
15	42	43	48	38	112	36	41	37	52	B	B	B	B	35	32	E 34	B	E 50	B	E 29	21	22	32	32		
16	42	41	35	B	33	40	E B 30	E B 30	30	33	E 34	35	39	38	33	E 32	E 31	28	E 23	E 20	G 14	12	12	11		
17	14	22	30	24	E B 20	E B 20	E G 24	27	E 28	29	E 47	E 47	E 36	E 35	E 41	E 32	E 32	E 40	26	24	30	E 19	31	12		
18	25	44	43	39	E B	B	B	41	E B 52	B	B	41	41	37	E 61	E 32	E 33	30	E 26	29	23	E 30	B E 20	B		
19	30	32	70	35	29	27	41	35	36	E B	E B	E B	60	60	33	E 35	E 33	31	E 30	30	E 25	22	29	41	70	45
20	44	44	37	28	29	27	33	31	36	E 42	E 29	E 32	E 33	E 33	34	32	E 30	E 25	E 22	23	E 17	27	26	42		
21	37	43	37	91	41	49	43	42	41	E 33	E 54	36	33	E 34	E 32	38	E 28	E 27	E 23	32	E 20	16	25	33		
22	42	47	35	36	37	33	50	60	42	B	B	B	E 34	36	E 32	E 31	E 30	E 30	27	34	68	33	80	51		
23	60	40	59	33	21	36	60	37	44	33	B	E 34	37	B	E 35	31	30	26	22	E 22	41	21	58	48		
24	103	41	37	36	39	32	23	36	E 32	37	35	40	37	37	E 31	E 32	E 32	33	32	28	25	24	26	36		
25	64	44	36	B	37	45	B	K	E G 39	30	31	E B 40	B	B	B	E 36	E 40	29	28	E 25	37	42	53	42		
26	38	50	B	41	33	40	45	52	B	B	B	B	B	E 37	B	B	E 30	E 31	28	E 24	24	E 26	E 19	23		
27	33	30	K	K	K	24	23	23	19	30	E G 26	33	E 36	E 36	E 35	36	E 32	E 30	32	28	25	22	E 19	E 18	E 15	
28	15	16	E B 14	17	E B 19	25	E G 25	E G 28	E G 30	31	35	E 33	38	36	32	36	E 30	E 28	E 26	26	19	K	K	K	9	
29	11	37	29	31	51	44	32	29	36	38	E G 33	33	36	38	50	36	41	37	E 29	E 25	26	21	15	24	23	
30	28	47	44	70	44	43	52	30	36	55	41	E 36	E 36	E 37	35	35	E 31	E 29	E 25	25	27	28	16	15		
31	29	38	40	60	34	60	40	38	45	45	38	B	B	36	33	E 37	27	B	58	49	49	46	38			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	31	30	30	29	28	29	30	28	26	24	23	22	25	27	28	30	30	31	29	31	31	30	31	30		
MED	37	40	37	41	34	36	36	36	34	E E 35	E G 34	36	34	32	30	E G 30	E E 29	26	24	27	27	31	36			
UQ	44	44	44	48	40	43	41	39	41	40	38	38	38	37	35	36	E E 31	30	28	30	33	33	48	44		
LQ	30	31	35	34	29	31	30	30	E E 32	E G 31	E G 32	E E 33	E E 35	33	E 32	E G 31	E G 28	E G 26	E G 25	21	20	16	20	23		

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FES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1980

F-MIN (0.1 MHZ)

45 E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	7	7	7	7	7	7	9	7	E	E	7	11	13	11	11	9	11	9	7	E	8	7	6	9
2	9	7	8	7	7	7	7	10	8	10	11	12	11	11	10	10	8	8	8	7	E	7	7	7
3	7	7	6	6	E	7	E	10	8	8	14	15	13	11	20	19	17	16	13	7	E	8	7	13
4	10	8	20	18	13	15	7	24	13	13	B	21	29	57	36	18	15	30	17	8	7	7	7	7
5	13	7	13	19	9	B	30	B	B	B	25	B	B	47	35	32	21	14	41	13	9	13	7	7
6	10	14	23	10	13	15	31	23	B	B	B	B	62	B	56	25	21	13	9	9	6	7	7	20
7	10	15	18	11	14	33	22	B	18	21	15	14	21	26	24	15	14	24	17	17	8	7	7	6
8	8	14	15	21	13	14	14	13	22	25	14	15	15	18	18	22	15	15	10	7	8	9	7	8
9	10	10	10	7	B	40	21	17	36	B	B	B	35	25	23	20	44	30	18	10	8	12	10	9
10	10	18	13	14	B	10	23	23	23	19	19	27	15	26	22	15	16	30	21	46	10	12	15	10
11	10	B	13	13	13	14	17	B	B	19	B	B	B	B	B	18	14	10	15	13	7	7	7	11
12	10	9	13	7	7	11	14	14	14	18	17	21	22	18	20	17	22	13	13	11	7	6	6	7
13	8	8	18	11	10	9	10	13	13	13	19	18	18	18	15	15	13	11	10	7	7	7	6	
14	6	6	8	7	8	13	13	9	8	17	22	15	18	14	15	15	13	11	8	8	5	7	7	13
15	23	8	14	5	21	14	15	16	13	B	B	B	25	24	34	B	50	B	29	21	15	9	8	
16	10	19	13	B	21	23	30	30	30	21	34	28	22	21	18	17	14	13	13	13	9	11	10	7
17	8	9	10	13	20	20	20	19	20	21	47	41	36	35	41	28	32	40	24	14	23	19	13	11
18	11	18	15	39	B	B	32	52	B	B	27	21	61	23	23	23	22	20	21	30	B	20	B	
19	19	19	23	19	23	23	41	24	25	60	60	29	23	24	22	23	21	22	19	18	17	22	14	13
20	13	22	18	17	26	24	26	23	29	25	21	17	22	18	19	23	30	18	16	17	14	15	14	15
21	14	13	13	13	23	15	16	13	16	17	54	18	15	15	15	15	15	13	13	13	20	11	13	23
22	17	18	23	19	13	13	50	18	18	B	B	B	20	18	17	23	24	30	13	13	19	10	13	13
23	10	13	31	7	8	13	8	9	14	20	B	23	19	B	35	19	18	13	14	22	14	8	7	7
24	17	10	10	8	8	10	10	9	14	18	18	21	20	34	20	14	32	10	8	15	15	7	10	7
25	7	13	13	B	22	22	21	15	25	40	B	B	B	36	40	13	18	20	8	14	8	13		
26	9	32	B	8	28	24	14	16	B	B	B	B	37	B	B	25	31	11	24	17	26	19	7	
27	7	7	10	12	11	7	12	19	26	36	36	31	35	21	15	13	9	8	11	18	15	19	18	15
28	10	8	14	9	19	21	19	17	14	17	17	16	18	18	17	15	12	13	8	7	7	13	8	8
29	7	7	13	9	14	13	13	13	14	14	15	18	15	15	15	15	13	10	8	13	13	8	8	12
30	5	13	15	11	13	17	11	20	23	23	24	20	22	25	33	20	15	10	8	21	7	8	9	9
31	12	23	11	14	6	13	9	14	15	22	17	B	B	21	19	13	12	13	B	22	12	13	22	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	10	13	13	11	13	14	15	17	18	21	25	21	22	24	20	18	16	13	13	13	9	10	8	9
UQ	12	18	18	18	22	22	24	23	28	48	60	B	36	36	34	23	24	23	18	19	15	14	13	13
LQ	8	8	10	8	8	12	10	13	14	17	17	18	18	18	17	15	14	11	10	8	7	7	7	7

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F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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H*F (KM)

45° E Mean Time (G.M.T. + 3 h)

	Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E												Sweep 4 MHz to 15 MHz in 20sec in automatic operation														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	305	300	340	330	350	275	H	H	180	250	240	230	225	220	235	225	225	230	215	210	210	205	225	200	235		
2	250	305	255	400	380	340	250	230	215	220	230	210	215	215	220	220	225	230	210	210	205	205	210	200	215		
3	235	270	280	300	320	310	270	250	235	240	230	225	225	230	225	230	235	235	195	210	225	215	220	A			
4	A	340	305	450	345	445	240	250	A	A	A	B	B	270	400	250	255	270	350	A	A	A	A	A	A		
5	A	245	350	A	A	B	A	B	B	B	255	B	B	510	E B	255	255	250	275	325	305	A	A	A	A		
6	A	275	420	Y	A	A	A	Y	B	B	B	B	B	B	E B	310	230	Y	240	230	230	245	230	330	A	A	
7	A	A	A	A	A	A	Y	Y	B	290	250	245	245	235	245	240	235	260	240	240	235	240	270	A	A		
8	A	450	A	A	A	A	A	A	350	A	235	230	225	245	245	240	240	240	235	240	225	230	230	260	A		
9	A	A	A	A	B	A	480	510	E B	B	B	B	250	245	235	245	250	240	240	260	270	340	A	A			
10	A	A	A	A	B	A	330	450	Y	A	310	250	240	250	240	245	245	250	255	250	290	E B	A	A	A		
11	A	B	A	A	A	A	A	B	B	Y	B	B	B	B	B	270	A	A	A	A	A	A	330	330	A	A	
12	A	A	A	A	A	H	A	A	255	260	270	260	240	235	225	235	245	235	225	240	235	265	320	370	A	A	
13	A	A	A	A	A	A	A	280	260	250	240	230	210	210	230	215	220	220	245	230	210	225	235	260	265		
14	A	340	375	A	A	A	H	470	265	215	225	240	230	230	215	225	225	230	235	215	225	225	330	290	A	A	
15	A	A	A	300	A	A	A	A	A	A	B	B	B	B	260	265	255	E B	320	B	290	325	380	A	A		
16	A	A	415	B	430	400	300	275	275	245	240	240	235	245	A	225	240	245	240	230	240	230	240	250	250	Y	
17	250	290	A	A	410	370	295	275	250	250	240	300	250	230	E B	E B	275	240	255	255	240	240	250	A	240	250	Y
18	315	A	A	B	B	B	A	B	B	B	Y	E A	A	B	250	250	250	250	260	270	235	310	B	250	B		
19	A	A	A	A	A	550	Y	B	Y	270	E B	E B	E B	220	240	230	230	245	250	260	240	375	A	A	A		
20	310	A	Y	395	345	400	Y	Y	260	285	250	230	245	225	225	230	230	230	240	230	235	240	225	350	A		
21	A	A	A	A	A	A	E A	H	400	300	240	260	405	235	240	240	225	230	240	235	260	250	250	280	310	A	Y
22	A	A	Y	A	A	A	B	A	E A	300	B	B	B	225	250	240	245	240	255	255	250	250	280	A	A		
23	A	290	A	A	A	A	A	A	A	255	270	240	240	240	240	Y	B	E B	E Y	Y	Y	Y	210	A	350	A	A
24	A	A	A	A	A	330	205	235	250	270	230	240	270	245	240	235	240	245	260	250	280	250	260	A			
25	A	380	A	B	A	Y	B	435	220	250	E B	B	B	B	B	245	255	220	270	350	365	370	A	A	A		
26	A	A	B	380	A	Y	A	A	295	255	250	310	260	240	230	230	220	215	225	235	245	240	230	270	280	275	280
27	330	360	A	330	310	285	265	250	310	260	240	230	230	240	220	220	215	225	235	245	240	230	235	235	220		
28	275	280	305	320	300	275	255	230	230	225	235	220	235	225	220	220	225	220	240	245	240	240	240	235	230	235	
29	220	315	400	365	A	270	275	250	230	245	240	235	240	240	220	220	235	240	240	245	240	245	235	230	370		
30	360	A	260	A	A	A	A	Y	Y	Y	E A	H	E Y	325	270	280	250	275	235	240	240	250	250	275	270	270	385
31	365	B	A	A	220	340	A	250	220	250	E A	255	B	B	250	250	245	265	Y	B	A	A	375	A	A		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	12	13	13	11	14	17	17	19	22	20	22	21	23	26	28	30	30	29	27	29	26	26	18	11			
MED	308	300	340	365	348	330	270	250	245	246	236	235	232	241	232	235	240	240	242	240	242	268	255	250			
UQ	345	340	375	398	415	375	290	268	280	252	248	240	240	250	245	245	250	252	259	250	275	330	275	325			
LQ	250	280	305	325	310	285	255	250	230	238	230	225	225	230	225	230	235	235	230	235	230	235	230	235			

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H*F (KM)

IONOSPHERIC DATA

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FXI (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION				Lat. 69° 00.4' S				Long. 39° 35.4' E				Sweep 4 MHz to 15 MHz in 20sec in automatic operation																		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	38	A	A	48	59	60	60	43	Y	Y	B	B	B	B	B	72	63	60	59	O R	51	48	56	X	53	45				
2	43	0 R	0 R	42	55	68	0 R	66	70	72	80	Y	78	81	81	79	X	X	X	X	80	80	80	71	68	52	B	47		
3	55	Y	Y	64	74	74	86	92	X	X	X	100	106	106	101	90	X	0 R	83	81	74	71	67	52	57	58				
4	55	70	0 R	54	64	78	79	Y	80	79	88	83	80	90	88	94	101	81	65	67	70	70	70	58	48					
5	62	68	67	72	70	75	80	78	X	X	90	90	90	O R	87	X	O R	83	81	X	B	76	79	X	71	70	71			
6	65	70	75	81	80	90	106	B	R	103	108	114	112	109	104	97	94	99	87	86	82	80	83	69	63					
7	52	61	61	73	80	90	80	Y	65	72	81	85	84	88	85	84	X	82	79	77	77	77	77	75	73					
8	71	85	70	60	A	70	74	73	76	78	79	80	X	81	80	84	X	78	79	76	74	X	73	81	63	76				
9	57	62	68	80	81	89	90	84	91	100	102	99	96	90	87	90	X	87	92	88	79	69	44	50	55					
10	57	51	50	50	52	48	57	A	O R	O R	48	51	64	64	X	X	B	O R	85	B	X	B	B	X	65	69	67			
11	66	66	46	A	O R	58	51	A	A	A	64	64	68	O R	71	B	O R	69	71	X	74	75	74	X	73	71	52			
12	0 R	0 R	B	B	0 R	53	53	B	Y	B	O R	B	B	B	B	O R	67	70	X	X	X	R	B	X	65	59	62	60	X	
13	56	Y	55	A	73	71	78	80	90	X	84	R	83	85	U R	X	77	79	78	X	76	74	X	73	70	63	53	55		
14	59	0 R	0 R	56	62	64	72	73	75	0 R	80	85	O R	B	B	O R	85	85	83	X	84	84	X	76	Y	63	54	60	54	
15	60	57	60	63	65	64	Y	Y	Y	B	O R	O R	51	58	B	B	B	68	B	O R	O R	B	90	O R	Y	Y				
16	O R	0 R	0 R	53	50	60	B	53	D Y	O R	55	Y	B	Y	Y	O R	O R	69	72	O R	Y	58	51	O R	X	54	78	57	60	
17	55	60	54	Y	63	53	O R	61	78	X	84	84	85	87	R	X	81	77	71	X	68	54	67	63	60	52	43	53		
18	61	Y	Y	Y	B	Y	O R	67	71	80	81	B	O R	77	80	X	76	80	B	81	65	R	O R	59	O R	X	57			
19	Y	70	63	65	72	Y	B	O R	56	B	69	70	74	86	R	B	R	89	88	76	B	52	O R	48	52	61	55	X		
20	O R	48	57	A	67	A	Y	63	75	71	R	Y	69	69	B	O R	O R	O R	91	X	95	87	60	Y	61	68	O R	A		
21	50	67	66	71	74	72	80	74	B	B	O R	58	63	76	68	68	75	72	70	70	68	X	55	63	64	58				
22	62	A	B	O R	54	64	49	O R	O R	U R	U R	X	B	X	O R	O R	77	81	X	80	77	75	X	73	74	72	70	71		
23	X	A	R	Y	O R	69	83	O R	74	B	90	88	80	62	X	84	X	85	84	X	81	78	X	76	71	69	70	60	58	
24	61	70	A	B	50	57	O R	63	Y	O R	47	O R	48	O R	O R	55	62	B	71	74	R	74	73	66	61	O R	O R	O R		
25	X	61	63	64	A	62	64	Y	Y	O R	51	X	62	63	X	71	72	78	84	X	78	74	68	X	63	68	O R	59	60	O R
26	A	O R	50	66	54	60	57	62	62	X	63	70	74	72	70	65	66	71	67	64	70	63	53	54	47	60				
27	O R	65	61	63	68	A	A	Y	69	X	73	78	79	R	B	82	80	80	85	70	O R	49	57	58	58	Y	Y	A		
28	X	51	57	55	58	58	Y	B	Y	Y	O R	58	Y	Y	B	B	B	O R	64	Y	O R	50	X	54	56	56	53	62	60	
29	54	B	Y	62	68	78	B	O R	66	70	72	72	B	B	B	O R	O R	76	72	64	69	62	60	54	54	55	R			
30	65	70	57	64	60	B	O R	48	Y	R	O R	69	68	R	65	X	66	67	68	74	73	76	X	71	72	60	55	R	B	B
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	28	23	22	23	24	23	22	19	20	25	25	22	23	22	26	29	26	28	28	26	30	29	25	24						
MED	56	61	62	64	67	70	72	73	78	78	79	76	81	80	80	81	78	74	70	69	65	59	58	58						
UQ	62	69	66	68	74	76	80	79	87	88	84	85	86	85	85	85	81	79	76	73	71	70	63	62						
LQ	53	56	55	60	58	57	62	64	66	64	68	64	71	76	72	72	X	72	64	60	61	56	54	55	54					

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FXI (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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FOF2 (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

		Station SYOWA STATION Lat. 69° 00'.4 S, Long. 39° 35.4 E																				Sweep 4 MHz to 15 MHz in 20sec in automatic operation									
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	28	F	A	A	F	F	F	F	F	Y	Y	B	B	B	B	65	F	57	53	51	42	42	50	47	F	37					
2	36	36	48		F	F	F	60	60	F	Y	66	71	72	72	73	72	74	74	73	70	64	58	32	F	B	41				
3	47	Y	Y	F	F	F	F	F	84	90	J R	100	100	J R	R	84	83	80	77	74	67	64	58	46	48	49					
4	44	47	48	53	F	F	F	63		F	72	76	76	71	75	82	89	91	72	59	60	60	F	60	39	33	F	35			
5	42	F	F	F	60	60	69	F	69	77	83	80	80	81	78	77	73	73	73	70	70	66	65	60	59	F	F				
6	45	F	J	R	F	J	F	F	F	B	U	R	97	99	108	106	100	F	R	91	87	R	82	81	80	75	F	60	43		
7	44	50	51	61		F	F	F	Y	F	F	F	55	61	68	79	78	82	79	78	76	72	71	70	70	69	67				
8	60	42	F	51	A	60	F	60	65	F	68	70	71	75	75	74	78	71	73	70	68	67	60	50	45						
9	46	51	60	68	F	70	80	84	75	F	78	91	95	90	90	R	84	81	84	81	86	80	70	59	F	38	39				
10	45	40	42	J F	44	45	F	F	U	U	51	A E	G	E G	45	54	56	63	73	B	79	B	64	B	B	64	58	60	58		
11	58	61	Z	F	A	52	F	A	A	A	F	55	57	60	64	B	63	64	68	69	68	67	60	45	B	B					
12	48	41	B	B	47	45		B	Y	B	53	B	B	B	B	61	64	63	59	I R	59	58	53	53	53	53					
13	49	47	F	A	F	R	65	60	64	78	83	F	77	77	76	U R	71	73	71	70	68	67	67	63	57	43	48				
14	48	50	56	54	F	F	65	63	65	68	F	78	78	B	B	R	79	79	77	78	78	70	Y	57	48	F	46				
15	52	48	F	50	54	F	57	F	Y	Y	Y	B	E G	45	52	B	B	B	60	B	50	41	B	45	46	Y	Y				
16	40	46	44	46	F	B	F	F	F	Y	B	Y	Y	F	60	61	65	60	R	Y	F	43	40	48	F	50	F				
17	46	48	47		Y	45	47	55	65	78	78	79	81	78	75	68	65	61	48	59	55	52	45	37	42						
18	52	Y	Y	Y	B	Y	61	61	F	71	F	B	70	70	70	72	B	63	58	51	51	48	48	50							
19	Y	61	F	F	F	Y	B	50	B	F	60	61	66	F	80	B	R	78	F	B	46	42	46	R	R	49	46				
20	40	F	A	F	A	Y	56	62	64	Y	60	60	F	B	R	77	84	85	89	80	52	Y	50	52	51	A					
21	F	41	48	F	J	F	J	F	F	B	B	U	R	F	52	52	60	60	62	68	62	60	62	60	48	57	55	47			
22	48	F	A	B	41	46	F	Y	F	E G	E G	J R	J R	B	71	73	71	75	73	71	69	67	68	66	63	64					
23	65	A	57	Y	R	F	63	F	68	B	F	70	72	F	75	78	79	78	75	72	70	65	F	43	48	50					
24	52	F	F	A	B	F	51	57	Y	E G	E G	E G	E G	F	B	63	68	68	67	60	55	48	51	52	48						
25	47	55	56	55	A	51	F	Y	Y	E G	46	56	57	65	66	72	78	72	68	60	57	60	53	R	R	45	45				
26	A	44	48	F	F	F	F	F	F	57	61	68	66	61	59	60	65	F	F	F	F	F	F	F	F	F					
27	56	56	52	54	F	A	A	Y	63	67	71	72	B	69	71	72	75	62	E G	50	47	47	Y	Y	A						
28	44	48	46	49	50	F	Y	B	Y	Y	52	Y	Y	B	B	B	B	58	Y	E G	44	48	50	49	47	56	52				
29	46	B	Y	F	F	Y	B	60	60	F	F	F	B	B	B	71	70	66	F	F	R	60	53	52	48	48	49				
30	F	55	56	50	54	F	57	B	E G	42	Y	60	60	62	59	60	61	61	68	65	70	65	66	50	49	B	B				
31																															
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT		28	20	19	20	19	17	16	16	20	25	25	22	22	22	26	29	26	27	29	26	29	28	24	24						
MED		F	46	48	F	50	54	57	60	60	62	68	66	68	70	74	74	72	74	70	68	62	60	53	50	50	48				
UQ		F	52	53	55	58	60	65	66	65	78	78	77	79	78	79	78	75	72	70	67	60	57	56	52						
LQ		F	44	44	48	F	50	50	51	54	59	58	57	60	59	64	70	65	65	63	58	52	53	48	46	44					

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FOF2 (0.1 MHZ)

IONOSPHERIC DATA

NOV. 1980				FES (0.1 MHZ)				45° E Mean Time (G.M.T. + 3 h)																					
								Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																					
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	32	44	50	35	28	26	27	36	44	49	B	B	B	B	B	31	33	35	31	28	31	34	38	37					
2	40	58	60	37	34	38	35	43	42	43	E G	33	37	E G	33	35	36	38	37	E G	30	35	32	39	22				
3	28	43	43	40	39	37	28	E G	E G	32	34	36	E G	36	37	36	34	E G	E G	29	30	26	34	39	37				
4	35	26	33	40	41	30	51	80	41	44	41	36	E G	33	36	E G	35	35	35	34	43	41	43	36	38				
5	42	35	36	39	35	36	32	43	38	E G	E G	34	E G	35	32	E B	E G	E G	E G	B	E G	29	33	17	28				
6	32	32	51	33	40	30	36	B	32	36	E B	54	37	39	41	38	35	34	36	E G	27	31	33	E G	20				
7	43	50	51	42	38	35	40	36	42	37	E G	36	E G	37	E G	E G	E G	E G	E G	32	31	27	37	25	E G				
8	30	34	43	47	54	53	46	45	41	E G	E G	34	35	38	38	41	39	39	36	E G	E G	28	38	30	28	38			
9	19	27	27	29	31	33	29	30	44	35	37	39	41	58	42	41	37	39	40	35	34	24	19	33					
10	36	38	41	45	38	44	45	50	46	45	37	38	E G	34	39	B	E B	B	E G	B	38	28	21	18					
11	22	36	47	49	53	36	48	50	54	E G	E G	34	E G	35	E B	B	E B	E G	E G	32	E G	28	30	37	35	B B			
12	36	36	B	B	36	27	B	41	B	38	B	B	B	E G	33	E G	33	31	30	E B	E B	29	26	E B	25	38	38		
13	33	46	44	52	41	43	40	36	38	38	39	39	39	E B	K	E B	60	35	33	37	40	33	E G	23	24	22	31	27	
14	37	36	40	45	K	35	36	39	43	40	39	E G	B	B	39	37	34	49	28	33	29	26	32	47	42				
15	40	39	36	37	39	E B	35	40	37	31	B	51	35	B	B	B	34	B	E G	30	25	B	K	29	40	36	45		
16	40	39	41	33	B	30	40	41	48	B	46	36	E B	35	32	33	K	E B	35	32	33	31	41	45	42	35	37		
17	42	41	25	37	31	37	39	32	E G	E G	E G	31	32	E G	33	36	41	100	48	32	E B	35	45	31	26	36	31	37	
18	28	37	35	45	B	41	52	36	41	E G	35	B	E B	E G	50	34	33	33	B	E G	32	31	E B	E G	28	37	33	40	29
19	30	28	52	33	32	38	35	B	38	32	34	E B	B	B	39	35	32	33	35	B	E B	K	35	25	41	35	37	37	
20	43	48	82	36	103	43	44	47	E G	E G	38	38	33	32	B	E B	E B	E B	E B	31	E B	50	36	36	36	47	50	52	48
21	40	38	41	43	39	36	38	41	B	B	36	E G	36	39	32	E B	36	31	33	39	37	50	51	50	37	39			
22	69	80	B	42	38	43	43	38	43	42	36	B	41	E B	E B	E B	56	38	31	41	E G	26	25	37	32	28	31		
23	31	60	46	43	43	37	56	B	47	37	35	36	38	36	41	33	37	36	33	37	38	70	45	41					
24	41	45	80	B	35	48	41	36	36	34	38	33	30	B	29	28	28	28	25	E B	30	E B	E B	E B	47	29	37		
25	31	34	34	35	62	38	38	39	45	37	32	E G	33	33	39	39	52	37	E G	E G	30	27	29	32	27	42	42		
26	45	36	31	24	29	58	32	35	40	E G	33	33	E B	48	36	36	36	E G	G	26	33	42	38	28	42	39	37		
27	38	E B	40	41	49	125	50	36	43	50	E G	33	E B	B	36	E B	E G	E G	33	32	37	44	42	60	45	37	71		
28	44	46	40	43	38	45	B	49	K	50	E G	36	41	39	B	B	B	E B	38	36	39	38	38	38	25	32	42		
29	46	111	38	36	E G	36	44	B	27	45	39	38	B	B	B	E B	52	60	34	26	80	79	41	33	30	41			
30	66	43	E G	E G	38	39	63	37	44	36	42	E G	36	40	31	31	34	33	32	30	26	31	35	30	B	B			
31																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	30	30	28	28	28	30	26	28	27	27	27	24	23	22	26	29	28	28	29	28	30	30	27	28					
MED	38	38	41	40	38	38	40	40	41	36	36	36	34	35	34	33	32	32	32	31	34	32	37	37					
UQ	42	46	48	44	41	44	44	44	45	39	38	38	38	38	40	39	38	36	36	37	38	39	40	38	42				
LQ	31	36	36	35	35	35	36	36	38	E G	34	33	34	32	34	32	32	32	28	26	27	29	25	30	30	30			

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FES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 1980

F-MIN (0.1 MHZ)

45° E Mean Time (G.M.T. + 3 h)

		Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E																						Sweep 4 MHz to 15 MHz in 20sec in automatic operation		
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	1	13	24	27	19	17	15	17	15	18	23	B	B	B	B	B	22	15	16	21	14	13	13	13	11	
2	2	13	23	18	19	25	21	19	21	22	18	18	14	21	15	22	13	11	11	7	12	10	14	B	22	
3	3	24	29	26	15	14	13	9	12	13	20	24	21	17	14	15	22	27	13	13	21	11	7	7	8	
4	4	8	18	18	22	19	23	25	20	35	22	19	21	15	20	22	20	26	18	13	17	9	7	10	12	
5	5	13	7	7	16	15	7	14	13	16	13	15	21	43	21	18	14	15	B	13	10	8	9	8	7	
6	6	7	8	14	14	8	16	13	B	25	20	54	22	20	18	19	21	19	15	15	17	13	10	7	11	
7	7	7	10	15	7	9	12	11	13	23	21	18	15	14	15	15	15	22	12	14	9	6	7	8	8	
8	8	7	10	7	13	13	10	9	15	11	13	13	15	13	14	13	14	13	21	10	7	6	7	8	7	
9	9	9	7	7	7	7	7	9	16	20	11	11	13	13	13	10	13	10	10	9	8	9	13	9		
10	10	11	13	13	13	12	14	14	14	13	13	13	13	19	18	B	56	B	15	B	15	13	15	13		
11	11	15	18	21	13	20	10	22	18	25	16	18	16	42	B	41	21	13	15	23	13	7	9	B	B	
12	12	17	23	B	B	15	19	B	23	B	21	B	B	B	B	B	21	17	15	15	33	29	22	25	18	21
13	13	13	31	14	21	14	22	22	13	9	11	13	14	15	60	19	13	9	10	8	9	8	8	13	11	
14	14	15	17	25	17	18	15	15	21	15	11	23	B	B	35	22	18	14	16	8	26	22	15	18	13	
15	15	13	14	13	13	19	35	35	24	20	B	17	21	B	B	B	21	B	15	15	B	13	17	22	13	
16	16	19	20	18	12	B	13	18	18	35	B	19	31	35	27	22	35	24	15	15	13	10	22	21	23	
17	17	18	23	13	23	13	20	20	21	15	18	18	32	17	16	13	20	20	35	31	19	13	13	22	17	
18	18	11	27	22	23	B	33	22	14	21	13	B	50	21	21	22	B	11	12	34	18	11	11	13	23	
19	19	25	21	13	14	13	22	B	13	B	22	21	13	50	B	22	15	20	B	35	8	9	23	23	15	
20	20	9	9	29	30	18	19	19	15	20	20	13	13	B	61	64	57	22	50	28	33	8	8	19	21	
21	21	14	13	20	7	6	17	13	11	B	B	22	19	8	20	36	15	9	8	10	13	8	14	6	8	
22	22	10	11	B	13	14	27	10	20	13	19	33	B	23	60	56	38	13	13	13	11	14	20	18	6	
23	23	7	20	20	21	32	11	56	B	14	13	12	14	14	11	10	13	10	7	8	7	12	20	14	14	
24	24	19	19	18	B	20	48	22	22	36	21	23	22	22	B	22	22	22	22	21	30	27	47	29	22	
25	25	24	22	25	20	21	22	21	22	21	19	14	13	13	11	10	11	13	13	18	23	15	25	23	20	
26	26	18	18	18	15	13	14	14	13	14	10	10	48	15	11	11	14	18	18	20	19	14	14	12	13	
27	27	14	40	13	13	19	13	22	18	17	11	54	B	18	52	29	14	8	11	8	11	8	15	13	14	
28	28	10	8	11	18	8	30	B	22	17	21	22	21	B	B	B	38	21	29	15	22	9	13	13	13	
29	29	11	50	22	22	20	25	B	25	14	9	13	B	B	B	52	60	30	15	15	29	19	19	18	17	
30	30	13	15	13	13	18	50	21	22	21	23	22	19	20	18	17	15	17	15	17	17	31	23	B	B	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED		13	18	18	16	16	18	20	18	19	20	18	21	20	21	22	19	16	15	15	17	11	14	14	13	
UQ		17	23	22	21	20	23	22	22	25	21	23	48	50	B	41	22	22	18	21	23	14	20	22	21	
LQ		10	11	13	13	13	13	13	14	13	14	13	13	14	15	15	14	13	12	10	11	8	9	12	11	

NOV. 1980

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

NOV. 1980				H*F (KM)												45° E Mean Time (G.M.T. + 3 h)																		
				Station SYOWA STATION Lat. 69° 00'.4 S, Long. 39° 35'.4 E												Sweep 4 MHz to 15 MHz in 20sec in automatic operation																		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1	A	A	A	A	A	280	245	280	Y	Y	B	B	B	B	B	245	250	255	285	Y	A	A	310											
2	A	A	A	E A 375	A	A	Y	A	Y	E A	250	230	220	240	215	250	240	235	240	250	250	H	A	A	B	A								
3	380	Y	Y	380	355	320	275	230	235	240	240	240	230	240	230	235	225	245	245	250	300	345	325	290										
4	310	340	A	A	A	320		Y	A	Y	E A	295	250	235	235	245	250	250	E Y	280	240	260	215	265	A	A	A							
5	A	A	250	A	A	270	310	330	255	245	240	240	E B	260	240	240	225	240	250	260	250	260	265	280										
6	H 310	A	A	A	H 330	250	225	275	H	B	265	245	B	245	245	230	235	235	240	250	250	265	260	260	280	320								
7	A	A	A	405	A	A	A	Y	Y	265	245	250	240	230	250	240	240	235	240	250	250	260	260	260	270									
8	300	A	A	A	A	380	290	A	280	240	225	215	215	255	230	230	225	225	255	245	250	255	275	360	295									
9	255	290	300	305	A	H 305	270	255	245	245	235	230	225	245	240	225	230	240	245	240	250	370	340	330	A									
10	A	A	A	A	A	A	A	A	245	300	240	240	240	250	B	B	B	240	B	B	B	270	270	290	280									
11	325	345	A	A	A	A	A	A	A	230	230	225	E B	B	E B	280	250	230	245	245	255	265	285	A	B	B								
12	A	A	B	B	A	300	B	Y	B	Y	B	B	B	B	B	240	250	240	240	255	290	275	290	295	280									
13	330	A	A	A	A	380	270	240	235	220	240	240	B	240	245	235	245	250	260	260	275	375	290											
14	340	A	Y	A	A	340	300	305	280	240	245	B	B	Y	260	250	250	240	240	245	Y	270	330	350	A	A								
15	A 390	A	A	A	A	310	Y	Y	Y	B	235	225	B	B	B	285	B	H	280	B	340	380	A	Y	Y									
16	A 345	A	A	A	B	315	A	A	A	B	A	Y	250	Y	255	250	Y	245	A	325	340	350	355	325	325									
17	330	315	295	Y	370	A	A	275	225	225	240	290	255	245	A	240	245	260	250	255	280	340	A	A	A									
18	310	Y	Y	A	B	Y	A	300	Y	270	B	B	240	245	240	B	240	250	280	250	350	325	305	H	Y									
19	Y	Y	A	A	A	350	Y	B	B	240	230	220	A	B	245	240	240	B	325	325	380	315	350	350	350									
20	A	350	A	A	A	E A 315	355	A	Y	275	205	220	B	B	B	B	230	B	260	Y	390	325	A	A	A									
21	A	A	A	A	H 320	245	265	290	250	A	B	B	265	205	195	230	240	230	225	235	245	275	255	280	280	340								
22	A	A	B	A	A	250	255	280	A	Y	B	250	B	B	240	225	225	240	240	260	260	275	280											
23	280	A	A	Y	Y	A	B	B	280	255	220	230	260	240	210	220	240	215	230	260	320	A	A	355										
24	370	A	A	A	B	A	B	A	Y	210	240	240	250	240	Y	B	230	220	225	245	240	255	270	350	275	340								
25	400	355	360	460	A	360	290	A	A	260	230	205	225	240	235	E A 300	225	230	250	280	260	280	A	A										
26	A	A	A	A	A	H 280	250	225	200	245	255	B	H	210	230	225	245	250	240	260	250	280	340	A	A	A								
27	315	360	315	400	H A	A	A	Y	A	295	225	B	B	225	B	240	235	240	315	300	305	345	Y	Y	A									
28	A	365	A	A	325	340	Y	B	Y	Y	E B 260	Y	Y	B	B	B	240	Y	280	240	250	320	280	300	280									
29	A	B	Y	Y	Y	Y	Y	B	Y	Y	225	210	B	B	B	B	240	235	225	260	255	310	330	380										
30	A	360	A	A	450	325	B	275	A	H 210	260	220	215	230	225	210	205	215	230	230	255	325	Y	B	B									
31																																		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	17	10	7	10	9	14	14	13	16	24	22	20	22	16	22	26	26	27	29	25	29	23	19	17										
MED	330	345	315	378	340	290	275	270	250	242	232	228	240	240	240	240	245	250	255	280	300	305	295											
UQ	365	355	370	405	355	315	290	300	280	259	240	240	248	245	250	245	240	250	260	265	340	338	330	340										
LQ	310	330	298	322	305	270	250	250	230	238	225	220	230	230	230	230	225	238	240	250	260	275	280	280										

IONOSPHERIC DATA

DEC. 1980				FXI (0.1 MHz)												45° E Mean Time (G.M.T. + 3 h)													
				Station SYOWA STATION Lat. 69°00'.4 S, Long. 39°35'.4 E												Sweep 4 MHz to 15 MHz in 20sec in automatic operation													
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	63	63	65	63	0 R	Y	0 R	0 R	47	B	B	B	0 R	0 R	R	0 R	68	65	65	R	X	X	58	56	51				
2	56	60	70	79	75	75	81	86	88	R	R	R	R	R	X	X	69	69	66	R	X	X	66	61	60				
3	71	120	A	0 R	59	58	68	90	Y	Y	Y	0 R	0 R	B	R	68	62	73	70	0 R	61	60	80	60	63				
4	0 R	56	62	Y	B	71	65	74	61	0 R	78	74	71	69	65	64	65	69	0 R	X	X	X	X	X	X	X			
5	X	66	69	73	67	70	69	R	B	Y	71	84	82	80	X	X	R	X	X	R	X	R	X	69	69	69			
6	X	68	69	76	83	80	83	75	75	81	90	85	81	80	81	77	77	X	X	X	X	X	X	X	X	X			
7	72	72	73	72	76	80	82	90	94	91	90	R	R	77	X	76	75	74	X	X	X	X	X	X	X	X			
8	70	58	60	59	46	0 R	48	66	65	70	73	0 R	71	X	72	78	X	X	R	X	X	X	X	X	X	X			
9	60	65	62	A	60	73	78	79	80	X	0 R	77	0 R	76	X	X	X	X	X	X	X	0 R	54	62	63				
10	60	R	A	60	A	63	72	Y	Y	Y	0 R	61	63	0 R	0 R	R	0 R	64	63	X	R	X	X	X	X	X			
11	67	60	64	60	65	67	70	62	67	65	70	70	70	66	69	64	72	X	X	X	0 R	46	46	58	52	53			
12	48	A	A	52	A	A	49	A	0 R	Y	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R				
13	61	63	64	73	73	76	80	X	X	X	0 R	79	X	X	X	X	X	X	X	X	X	0 R	X	X	X				
14	C	71	72	75	73	83	91	100	100	99	92	88	83	X	X	X	X	X	X	X	X	X	0 R	67	67	71			
15	62	60	62	60	0 R	55	64	62	Y	Y	0 R	0 R	0 R	0 R	0 R	X	X	X	X	X	X	X	62	86	61	62			
16	65	60	70	69	68	63	65	66	73	73	71	74	69	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	49	62	60			
17	60	57	50	65	65	66	69	79	X	X	X	X	X	81	77	69	67	67	68	69	X	X	X	X	X	X	X		
18	62	66	68	73	73	80	80	83	80	0 R	Y	0 R	58	B	B	B	B	C	73	72	70	69	63	0 R	63	0 R			
19	64	58	58	C	C	C	C	C	C	C	C	C	C	C	C	C	64	0 R	Y	63	48	45	A	50	39				
20	A	53	47	0 R	46	42	90	0 R	0 R	Y	Y	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	0 R	56	52	50				
21	54	60	64	63	60	A	A	65	78	0 R	0 R	76	76	75	X	X	X	X	X	X	X	63	62	68	A				
22	57	62	62	Y	64	Y	Y	A	A	64	66	66	69	B	B	0 R	X	X	66	68	64	63	61	54	62	61			
23	65	63	71	69	73	79	90	90	100	104	99	93	R	X	80	84	77	X	X	X	X	X	66	68	63	55	60		
24	65	69	75	79	83	91	90	107	107	X	X	X	X	A	A	80	77	74	X	X	X	X	73	76	76	0 S			
25	X	76	92	82	89	93	90	96	100	100	102	102	100	93	92	91	89	87	85	79	76	76	74	73	70	70			
26	64	74	70	70	73	79	83	79	78	0 R	86	90	80	79	73	74	75	X	X	X	X	X	X	72	71	70	70		
27	X	73	79	80	83	92	100	104	108	108	90	83	B	73	80	82	89	84	74	63	70	67	68	70	68				
28	65	62	62	60	90	73	80	73	81	81	84	80	R	78	78	75	74	X	X	X	X	X	X	72	67	66	68		
29	68	69	70	75	82	80	89	89	89	100	100	100	90	90	82	76	75	71	69	63	65	59	49	49	R				
30	X	59	60	59	65	89	69	68	61	67	66	0 R	63	69	56	64	68	75	71	69	66	67	64	65	60	60			
31	81	80	65	78	69	Y	Y	Y	Y	64	64	64	R	X	64	67	68	65	67	64	60	60	0 R	49	A				
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	29	30	27	27	28	25	26	23	23	25	28	29	26	27	29	30	30	30	31	30	31	30	31	31	29				
MED	64	63	65	69	72	75	78	79	81	84	78	75	76	73	72	73	70	68	X	X	X	66	65	64	62	62			
UQ	68	69	72	75	78	80	89	90	92	90	90	82	79	78	76	76	75	74	72	70	69	69	68	68	68				
LQ	60	60	62	60	62	67	68	65	72	73	65	64	67	R	66	64	67	68	65	65	63	62	60	58	60				

DEC. 1980

FXI (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 1980

FOF2 (0.1 MHz)

45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00'.4 S., Long. 39° 35'.4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	F	F	F	F	F	Y	F	41	B	B	B	E	G	E	G	57	61	62	59	59	58	55	51	50	F 44			
2	49	52	F	F	60	F	66	70	78	82	82	78	76	70	69	70	68	62	61	60	63	63	60	56	51			
3	60	Y	A	F	F	F	50	50	Y	Y	Y	E	G	F	B	R	F	F	67	61	61	54	53	51	52	55		
4	50	50	Y	B	F	F	51	57	F	F	61	69	63	63	F	F	F	56	58	62	45	59	61	60	60			
5	60	63	63	59	61	62	B	Y	F	60	73	72	72	72	71	68	66	68	68	68	68	63	63	63				
6	61	F	F	F	F	68	68	65	F	F	F	F	F	F	F	71	71	68	69	66	66	65	66	63	62			
7	64	60	60	61	68	69	F	F	84	82	82	76	71	70	69	J R 68	70	70	69	67	62	60	60	60				
8	60	52	F	F	51	42	F	F	F	F	60	64	65	64	66	71	67	63	61	61	61	60	60	57	48			
9	F	51	F	A	52	57	70	71	F	R	R	70	69	67	67	62	62	62	60	57	50	48	56	56				
10	54	46	A	F	A	F	50	F	Y	Y	Y	55	F	E	G	56	E	G	58	57	60	58	58	57	54	48		
11	57	50	58	50	54	52	57	58	F	F	58	61	61	60	61	58	66	68	66	60	E G 42	42	47	43	47			
12	40	A	A	F	A	A	39	A	43	Y	47	48	48	59	E	G	E	G	F	55	57	55	59	57	55			
13	52	54	56	F	F	F	68	72	78	81	78	78	72	72	70	68	69	67	64	61	60	59	60	60				
14	C	60	50	58	60	61	F	J F 85	J F 94	90	84	80	77	72	73	73	72	72	66	56	F 50	F 55	F 50					
15	F	50	F	F	F	47	54	F	Y	Y	E	G	E	G	E	50	61	65	66	66	63	66	63	52	50	51	52	
16	54	54	F	F	55	60	U R 54	F	F	56	F	65	63	67	61	65	67	67	E G 44	E G 45	F	Y	47	43	51	48		
17	F	51	R	44	52	58	57	59	67	80	84	84	80	75	71	63	61	61	62	63	62	60	56	51	55			
18	55	60	60	54	64	63	60	62	73	73	Y	E	G	B	B	B	C	F	65	60	60	50	53	57	55			
19	F	55	45	49	C	C	C	C	C	C	C	C	C	C	C	E G 48	52	Y	E	G	E	G	F	A	F	30		
20	A	33	F	E	G	F	F	E	G	43	E	44	Y	Y	E	G	E	G	E	47	54	R	52	52	50	49	F 44	F 42
21	F	45	F	F	F	50	A	A	58	F	70	69	68	72	71	68	69	F	61	58	54	52	50	51	52	A		
22	F	48	52	52	Y	F	Y	Y	A	A	56	58	61	B	B	63	64	60	60	56	57	55	48	56	53			
23	F	55	55	60	60	60	71	67	74	82	97	J R 93	R	J R 87	84	79	78	70	70	67	66	60	60	57	48	52		
24	F	54	61	69	71	76	84	84	100	100	99	J R 94	88	A	A	74	71	68	67	67	67	70	70	70	69			
25	70	70	F	F	68	71	80	F	88	76	87	92	92	90	J R 87	84	84	83	81	79	72	69	66	68	67	60		
26	F	54	F	F	F	F	F	F	70	69	76	73	70	F	69	65	67	69	72	71	68	72	66	65	64	60		
27	67	67	70	70	80	90	97	101	101	F	77	B	F	F	70	72	80	78	68	56	62	60	60	64	60			
28	58	F	F	F	F	F	F	F	62	70	75	72	73	72	J R 72	69	68	67	69	66	68	66	60	60	60			
29	60	60	62	67	68	F	F	F	67	74	78	80	80	F	78	74	70	69	62	56	53	58	50	42	43			
30	52	51	F	F	F	F	F	54	F	F	E	G	R	F	E	G	50	58	F	J F 65	J F 63	F	58	57	57	52		
31	F	55	F	56	F	57	58	60	Y	Y	Y	55	57	57	58	61	58	59	60	58	60	57	46	J R 41	43			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	27	25	22	19	18	17	17	19	21	24	28	28	25	26	29	30	28	30	31	30	30	30	30	29				
MED	F	F	F	F	F	F	F	F	F	73	74	72	69	69	70	67	66	66	62	60	60	58	57	56	55			
UQ	60	60	62	64	68	68	72	77	82	82	79	76	72	71	70	69	68	68	66	63	62	60	60	60				
LQ	F	F	F	F	F	F	F	F	F	65	64	58	58	60	61	58	61	61	59	58	56	50	50	51	48			

DEC. 1980

FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 1980				FES (0.1 MHz)												45° E Mean Time (G.M.T. + 3 h)																
				Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	K	31	38	42	30	40	37	29	40	B	B	B	32	31	27	32	32	E	G	E	B	E	G	31	28	24	23	27				
2	29	35	36	33	28	30	29	E	29	E	G	E	31	32	39	36	49	37	E	6	45	E	G	E	6	31	29	E	23	28		
3	28	44	50	45	43	70	42	47	41	42	E	G	E	37	E	34	B	E	B	E	38	E	G	29	80	70	34	38	E	G	24	30
4	70	43	42	B	41	38	21	51	39	36	37	E	B	50	29	35	31	34	36	E	B	40	36	30	28	35	26	31				
5	30	31	33	30	39	50	B	51	47	E	G	31	41	34	33	39	32	E	G	33	38	35	36	32	32	24	20	20	25			
6	21	22	30	30	32	36	45	29	37	37	37	35	39	33	41	E	G	33	39	45	48	43	33	43	25	19						
7	20	28	24	28	26	32	33	32	35	E	G	33	37	37	36	38	39	42	32	33	45	50	45	41	61	24						
8	29	70	57	50	44	38	45	40	38	35	35	39	36	39	62	44	31	30	30	31	31	30	29	46								
9	58	38	47	53	39	K	36	37	35	37	34	E	B	60	E	B	36	37	36	35	38	33	E	G	E	28	39	39	40	35		
10	62	36	50	45	43	42	43	45	49	45	42	31	E	G	33	E	G	36	38	58	41	35	33	38	41	30	43	38				
11	30	42	38	42	38	44	41	K	43	K	38	E	G	33	E	37	38	40	41	25	37	34	E	30	38	43	40	35	K	35		
12	37	51	42	37	42	43	35	41	43	38	36	38	30	34	41	E	32	38	35	35	58	40	27	29	29							
13	30	34	28	46	E	B	30	34	36	38	E	G	33	39	65	50	68	45	50	39	30	E	G	32	35	50	35	38	25	28		
14	D	C	35	36	35	28	E	B	30	52	42	36	39	39	51	41	69	54	48	42	41	69	48	44	70	51	48	60				
15	41	67	42	42	45	50	40	47	49	41	37	35	38	36	E	G	E	G	33	G	G	E	31	32	38	40	38	43				
16	41	45	44	50	41	41	41	37	38	41	40	46	43	E	B	46	35	36	41	E	B	E	G	36	42	36	38	40				
17	45	39	29	43	50	45	39	42	G	33	28	G	E	G	27	37	38	41	40	47	40	37	36	36	34	34	32	24				
18	25	35	38	36	45	42	45	E	G	38	43	43	E	G	38	B	B	B	B	C	27	25	37	42	39	37	27	G				
19	E	G	35	36	34	C	C	C	C	C	C	C	C	C	C	C	C	38	E	G	32	33	E	G	E	27	30	54	70	34		
20	95	72	33	90	42	39	46	38	40	33	E	G	33	37	36	40	38	35	37	E	G	33	33	G	20	34	41	43	36			
21	40	29	32	43	32	73	68	57	50	42	E	B	40	40	37	36	36	38	37	38	36	42	41	45	46	63						
22	47	46	34	50	47	50	45	63	60	45	35	39	B	B	E	B	46	35	34	36	37	37	33	33	46	30						
23	37	42	35	36	K	40	E	B	36	37	29	37	45	41	38	37	45	38	40	42	41	39	38	21	21	28						
24	27	30	34	30	32	34	39	39	36	42	45	80	87	110	58	62	48	37	36	33	38	39	33	37								
25	29	29	35	30	33	38	49	45	34	40	35	38	38	41	41	68	58	51	50	36	29	34	30	29								
26	39	90	49	41	38	48	39	45	29	46	36	E	G	35	37	34	36	E	G	E	33	32	36	39	30	31	32	E	B	31		
27	36	30	31	31	43	33	35	38	37	38	34	B	26	35	37	34	61	50	20	32	71	33	36	29								
28	35	44	38	59	51	37	50	38	40	40	32	40	36	37	36	41	42	38	37	35	33	28	23	21								
29	K	25	28	32	31	36	39	39	45	38	38	40	32	E	G	34	34	35	41	35	28	E	G	30	28	31	27	40	42			
30	45	36	41	70	42	35	41	30	41	41	45	37	32	36	39	E	G	35	34	71	61	79	38	30	39	36						
31	34	36	39	51	36	52	50	46	48	42	41	36	E	G	36	35	32	35	37	41	40	38	40	38	37	80						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	31	31	31	29	30	30	29	30	29	29	29	29	27	28	29	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31		
MED	35	36	36	42	40	40	41	40	38	39	37	38	36	36	38	36	37	34	36	36	35	35	35	35	35	35	35	35	35	35		
UQ	42	44	42	50	43	48	45	45	43	42	42	40	38	40	41	41	40	38	38	40	40	40	40	40	40	40	40	40	40	38		
LQ	29	32	33	31	33	36	36	37	36	35	35	34	33	35	35	30	32	30	25	G	32	32	30	27	28							

DEC. 1980

FES (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 1980				F-MIN (0.1 MHZ)				45° E Mean Time (G.M.T. + 3 h)																
Station SYOWA STATION Lat. 69° 00'.4 S, Long. 39° 35'.4 E Sweep 4 MHz to 15 MHz in 20sec in automatic operation																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	20	20	19	19	23	24	15	20	B	B	B	24	19	21	23	13	15	33	25	13	15	21	15	13
2	13	16	22	17	18	15	15	15	18	22	16	15	13	15	14	15	20	14	15	13	15	23	20	18
3	15	18	18	18	14	13	20	14	15	22	23	25	B	40	22	38	13	22	27	23	10	15	13	13
4	21	11	22	B	9	9	9	13	13	19	21	50	21	22	20	15	15	40	31	23	13	26	12	12
5	11	10	10	11	13	19	B	14	10	13	12	9	14	10	13	14	8	8	7	10	7	14	8	7
6	7	11	10	7	8	8	14	7	8	12	13	15	12	10	10	12	10	11	13	8	7	8	11	6
7	9	8	13	10	10	9	10	9	7	12	15	21	15	19	14	11	14	13	10	9	23	19	11	13
8	11	E	C	10	10	9	8	7	13	9	13	34	19	16	15	13	14	12	14	11	10	8	8	6
9	8	10	10	13	15	26	19	12	8	9	60	55	15	13	15	13	10	10	10	8	17	15	11	9
10	17	21	23	8	18	8	9	13	22	19	13	10	13	20	15	13	19	19	13	11	9	8	8	9
11	11	9	10	8	8	12	13	13	15	9	7	8	15	13	9	10	11	11	15	16	10	8	7	22
12	7	14	13	6	16	7	7	15	10	22	21	21	28	23	18	16	11	13	10	14	13	11	6	7
13	6	12	17	7	30	7	8	8	12	12	13	13	13	8	14	22	20	15	20	25	15	15	8	
14	6	8	8	14	30	15	16	20	13	10	15	15	14	13	8	10	13	11	11	8	8	13	11	12
15	6	9	8	8	11	12	7	9	14	15	13	11	22	19	13	15	11	13	13	20	7	8	8	23
16	7	8	9	16	22	13	11	9	15	10	13	11	8	46	18	32	13	35	16	9	9	8	13	8
17	7	9	27	13	8	8	14	11	15	16	15	15	13	13	11	12	13	10	10	7	7	8	21	
18	8	6	8	9	9	13	13	10	12	13	13	15	B	B	B	B	C	15	9	9	10	13	18	7
19	8	8	8	C	C	C	C	C	C	C	C	C	C	C	C	11	11	9	8	9	6	8	7	6
20	8	7	E	E	E	6	E	8	15	20	16	9	22	13	17	22	10	13	13	7	6	8	8	7
21	7	6	8	E	7	8	15	7	8	26	40	8	8	7	7	10	9	8	7	6	6	9	7	16
22	8	6	E	15	6	16	13	10	15	12	22	13	B	B	46	19	13	9	8	7	8	8	8	7
23	6	14	22	24	20	40	9	15	24	12	9	13	11	10	13	13	13	11	8	8	8	8	6	7
24	6	8	10	8	8	7	8	7	8	8	8	8	8	12	13	12	13	11	9	7	7	10	7	8
25	8	7	6	7	7	7	13	13	12	11	10	8	13	9	10	8	11	10	10	10	13	8	18	6
26	15	13	13	9	5	E	7	14	20	20	13	16	13	13	13	14	13	19	9	10	14	13	28	31
27	15	7	9	7	7	7	8	7	8	13	24	B	22	13	18	15	61	50	15	21	25	10	7	6
28	6	14	7	6	7	7	12	7	9	9	10	9	8	9	10	13	13	8	9	8	8	9	9	
29	7	8	11	8	7	13	12	13	9	8	9	13	19	13	14	13	13	14	18	17	21	13	14	14
30	14	18	10	8	11	10	9	13	13	13	13	11	11	14	21	20	17	17	13	8	14	10	8	
31	8	7	14	7	10	19	13	13	9	13	13	18	20	23	23	19	9	9	10	8	10	7	13	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	30	30	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31
MED	8	9	10	8	10	10	12	13	12	13	13	14	14	13	14	14	13	13	11	10	9	10	10	9
UQ	12	14	16	14	16	15	14	14	15	19	21	19	21	21	18	16	14	18	15	14	14	14	13	13
LQ	7	8	8	7	7	7	8	9	9	11	13	10	13	12	11	12	11	10	9	8	8	8	8	7

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F-MIN (0.1 MHZ)

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IONOSPHERIC DATA

DEC. 1980				H*F (KM)												45° E Mean Time (G.M.T. + 3 h)																
Station SYOWA STATION				Lat. 69° 00' 4 S, Long. 39° 35' 4 E												Sweep 4 MHz to 15 MHz in 20sec in automatic operation																
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	470	A	360	A	A	A	Y	235	260	B	B	260	240	E	Y	245	235	225	245	250	255	250	265	295	345							
2	310	330	Y	H	275	295	290	235	250	H	215	E	Y	215	245	210	E	A	H	210	250	255	H	245	345	300						
3	A	Y	A	A	A	A	280	A	Y	Y	Y	230	195	B	250	240	250	250	250	A	250	290	H	Y	295	300						
4	A	A	Y	B	A	A	310	255	290	A	Y	245	220	B	Y	245	230	225	235	B	240	250	250	300	290	275						
5	290	330	275	325	370	A	A	B	A	A	285	210	230	210	200	200	H	H	210	225	235	220	250	250	255	255	275					
6	285	305	255	255	275	250	A	290	225	225	200	190	200	250	225	225	240	225	A	E	A	260	245	255	280	255	280					
7	280	305	305	280	265	280	250	225	225	225	210	210	240	210	225	220	230	240	245	E	A	255	255	275	285	A	285					
8	245	360	A	A	A	A	370	310	245	210	210	260	240	225	240	240	240	240	215	250	235	250	255	290	A							
9	350	310	375	A	A	A	310	325	275	225	215	B	B	250	215	225	215	235	230	240	245	345	325	330	310							
10	A	A	A	A	A	A	390	350	365	235	A	A	A	280	210	250	215	240	220	210	230	240	245	260	255	340	A	A				
11	300	320	390	390	A	A	A	290	350	260	230	215	210	260	220	240	230	245	240	245	325	A	A	340	405							
12	A	A	A	A	A	A	A	285	A	A	E	A	260	Y	E	Y	325	255	260	Y	230	240	240	240	A	280	265	285	305			
13	335	360	330	A	290	255	235	240	230	255	A	225	A	E	A	A	255	255	230	235	225	230	260	275	265	275	290					
14	305	370	330	330	320	250	220	E	A	210	200	240	250	240	235	E	A	250	240	250	225	A	E	A	240	250	A	360				
15	A	A	A	A	A	A	A	240	H	A	A	225	250	240	225	220	220	240	230	225	230	250	310	320	320	370						
16	A	A	A	A	A	A	350	395	390	A	270	240	240	215	215	H	B	E	Y	295	295	250	250	250	H	Y	E	A	320	270		
17	330	315	360	400	455	A	A	325	265	220	235	E	Y	245	205	240	210	230	230	220	230	240	240	230	290	295	295					
18	H	280	310	320	350	340	290	325	A	295	475	E	A	A	250	B	B	B	B	C	250	255	250	380	310	E	Y	350	325			
19	375	310	285	H	C	C	C	C	C	C	C	C	C	C	C	C	C	240	250	Y	225	265	250	A	A	E	A	260				
20	A	A	A	E	A	A	425	340	275	A	A	E	A	290	250	A	Y	220	240	270	240	255	250	235	245	260	E	A	E	A	450	320
21	A	300	300	E	A	A	250	A	A	A	A	270	E	B	240	210	210	220	240	220	220	220	270	310	285	340	390	A				
22	E	A	E	A	435	375	300	A	A	A	A	A	270	240	200	B	B	E	B	275	225	230	225	240	240	265	275	280	305			
23	A	290	375	A	450	280	325	240	260	270	240	215	205	H	200	190	230	225	225	205	240	235	265	250	290	290	290	290	290			
24	270	300	295	275	280	245	255	235	240	230	210	245	A	A	A	250	220	220	245	255	255	265	260	265								
25	275	280	290	290	275	245	290	260	225	210	200	230	215	220	220	A	300	E	A	E	A	250	250	230	240	255	265	265	275	275		
26	A	A	A	A	A	A	360	385	A	265	250	Y	255	220	225	Y	205	245	210	235	230	225	235	240	250	250	270	295				
27	285	285	225	290	260	240	225	230	220	255	Y	B	Y	E	A	250	230	240	B	E	B	370	245	255	250	265	270	260				
28	300	A	A	A	A	A	300	230	230	210	245	215	240	H	225	200	260	225	220	240	245	255	250	255	260	275						
29	230	280	295	295	A	300	A	300	225	205	220	210	225	Y	210	215	205	210	230	200	200	270	250	225	A							
30	A	380	345	A	A	A	A	A	H	205	230	210	260	225	245	225	Y	255	235	230	235	E	A	E	A	270	275	315				
31	335	325	330	A	A	A	A	A	A	280	260	210	215	215	290	230	235	225	230	265	340	400	A	A	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	24	24	21	15	15	16	21	22	20	25	25	27	23	25	29	28	29	28	30	29	29	26	29	25								
MED	301	320	320	292	290	285	252	252	225	235	222	215	225	218	230	230	230	228	240	248	255	265	288	292								
UQ	346	362	360	345	330	310	290	270	245	255	238	240	240	245	240	240	238	244	248	252	275	290	325	308								
LQ	282	305	292	278	275	250	235	235	220	225	215	210	212	215	225	225	225	232	245	250	255	270	275									

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IONOSPHERIC DATA AT SYOWA STATION(ANTARCTICA)
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