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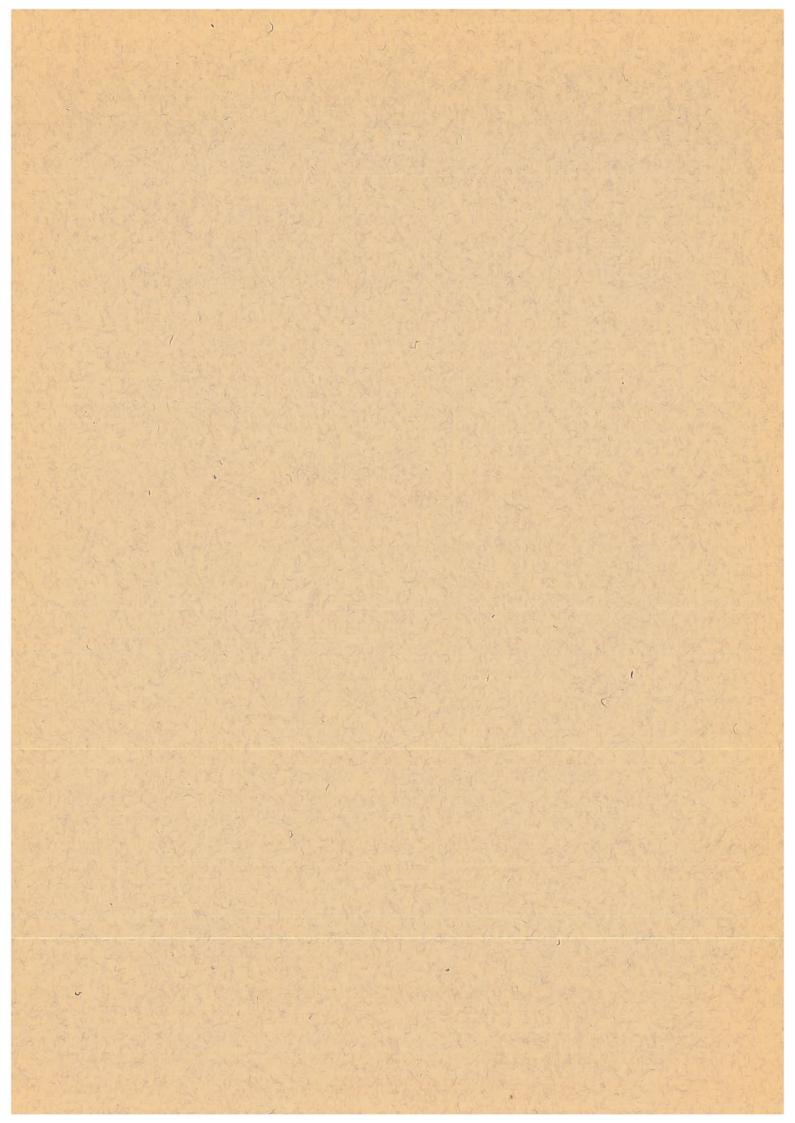
THE AURORAL OBSERVATORY AT TROMSØ $(\varphi = 69^{\circ}39'.8 \text{ N}, \lambda = 18^{\circ}56', 9 \text{ E Gr.})$

RESULTS OF RADIO ECHO OBSERVATIONS FOR THE YEARS 1935 AND 1936

BY

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§ 1. INTRODUCTION.

The successive developments of methods for investigations of the ionized regions in the upper atmosphere, the *ionosphere*, have presented a new source of information regarding the physical conditions of the upper atmosphere. According to the current theories of aurorae and earth magnetic storms, the main origin of these phenomena is associated with the effects of intrusion of electrically charged particles in the upper atmosphere. The ionospheric studies during the last years have revealed a close connection between the appearance of aurorae, earth magnetic storms and changes within the ionosphere. It will, therefore, be desirable to incorporate the study of the ionosphere in the main programme of observations at the Observatory and to find a mode to present the results of the current ionospheric observations.

From a geophysical point of view it will be desirable to have a description of the electric state of the ionosphere as a function of the height throughout the year, this determined at a number of places selected on the globe. In the following, a presentation of the results of the critical frequency determinations of the layers in the period April 1935—December 1936 will be given. It is intended that a similar report appear annually.

Through the courtesy of the Director of The National Physical Laboratory (Teddington, England), we were allowed to copy the transmitter and receiver developed for radio echo experiments at The Radio Research Station (Slough). We wish to exexpress our sincere thanks to the former superintendent of the Radio Research Station, Mr. R. A. Watson Watt, and to Messrs. J. F. Herd (†), L. H. Bainbridge-Bell and R. Naismith, who have conducted the construction and copying of the instruments. We also wish to express our sincere thanks to Prof. E. V. Appleton, F. R. S., for most valuable discussions and suggestions concerning the preparations and plans for observations.

The purchase of the apparatus was made possible through a grant of 5.000 kr. from Statens Videnskapelige Forskningsfond and through grants from Norsk Riks-

kringkasting (The Norwegian Broadcasting Company) amounting to 6.000 kr. For these financial supports and for grants later received for carrying through the programme of observations and preparing the results for publication, we wish to express our sincere thanks.

§ 2. METHOD OF OBSERVATION AND INSTRUMENTAL EQUIPMENT.

The existence of the ionized layers by direct reflection of the waves was first proved by Appleton by the angle of incidence method, and later by the frequency change method by Appleton and Barnett. In 1926 Breit and Tuve introduced the group retardation or pulse method² which is the most convenient method and now almost exclusively used. This method is also used in the observations treated in this paper. As well known, the method consists of sending out very short signals from a transmitter. In a receiver one first obtains the direct signal, the groundwave, and shortly after the reflected signal, the echo. The time-difference between these two signals is measured out by a cothode ray oscillograph. Concerning details of the construction of the pulse transmitter and receiver, we refer to the discussion on this problem in the book by Watson Watt, Herd and Bainbridge-Bell: The Cathode Ray Oscillograph in Radio Research, p. 110-120 (London 1935). The transmitter consisted of a Hartley oscillator modulated through a thyratron circuit with 50 pulses per sec. locked to the frequency of the mains. The receiver was of the superheterodyne type especially designed for handling short pulses without distortion and lengthening. The receiver was provided with two sets of cathode ray oscillagraphs, one for recording and the other for simultaneous visual observations of the echo. The time base of the oscillographs was locked to the net frequency, and the ground-wave and the echoes therefore appeared at the same place on the screen and a steady picture was obtained.

As will be explained later, the most important quantity to be measured by these echo experiments is the critical frequencies of the layers, i. e. the limiting penetrating frequencies. This involves observations of the echoes appearing over a considerable frequency range, usually 1.0—12.0 Mgc/sec. The following procedure was used for recording the echoes appearing over a greater frequency range, (see the above mentioned book by W. W., H. and B-B. p. 118; and also R. NAISMITH, Nature, 133, 66 (1934). The oscillograph screen was masked so that the time base alone showed through a slit. The condensor of the transmitter was turned slowly by a motor and the tuning of the receiver was carried out by by hand watching the echoes appearing on one of the oscillograps. At the same time the echoes appearing on the other oscillograph through the slit on the screen were photographed on a moving strip of photographic paper. For calibration of the oscillographs a frequency of 3000 cycles/sec. was ued.

The pulse transmitter was during the first year placed in a small hut about 160 m outside the Observatory, the receiver was placed in the observatory building. During winter time at low temperatures we had difficulties with the thyratron valve in the transmitter, and from February 1936 the transmitter was placed in the same room as the receiver, the distance between the transmitter and receiver thus being about 1.5 m. The transmitting and receiving was performed on two crossed dipoles.

¹ Nature, 115, 333 (1925), Proc. Roy. Soc. A 109, 621 (1925), Proc. Roy. Soc. A 113, 450 (1926).

² Phys. Rev., 28, 554 (1926).

According to the theory of propagation of radio waves in an ionized gas in presence of the earth magnetic field¹, a signal will be split up in several components with different states of polarisation depending on the direction of propagation relative to the earth's magnetic field. At high latitudes as in Tromsø where the direction of propagation at vertical incidence will be approximately along the direction of the field, a signal will be split up in three circular polarized components, two having the same and the third having opposite senses of rotation, all of which having different values of refractive indices and coefficients of absorbtion. Usually one of these three components is totally absorbed (except in high latitudes as in Tromsø during winter time, where it may be observed), and from the magnetoionic theory the electron density N at the reflection point at vertical incidence is given by the following equations, including the polarisation term:

$$N = \frac{3 \pi m}{2 e^2} \cdot f^2 = 1.87 \cdot 10^{-8} f^2 \text{ (ordinary component)}$$

$$N = \frac{3 \pi m}{2 e^2} \cdot (f^2 - f_H f) = 1.87 \cdot 10^{-8} (f^2 - 1.39 \cdot 10^{-6} f) \text{ (extraordinary component)}$$

Here e and m are the charge and mass of the electron, f is the frequency of the radio waves and $f_H = \frac{H_0 e}{2\pi m e}$ is the gyro frequency of the free electron which is de-

termined by the earth's magnetic field H_0 . For Tromsø is $f_H = 1.39$ Mgc/sec.

By echo experiments the critical frequencies, *i. e.* the limiting frequencies which just penetrate the layers, can be determined and from these the *maximum* electron density of the layer is computed by means of the equations given above. The critical frequencies, or, the maximum electron density is the quantity which in the following is regarded as the most convenient measure for the ionisation in the layer.

The systematic radio echo observations have shown that the ionosphere consists of two main divisions, the lower Kennelly-Heaviside-layer or E-layer at about 120 km height and the Appleton- or F-layer at about 230 km height. The F-layer shows in day time a ledge in the ionisation curve at the lower boundary which sometimes deepens to a stratification. The ledge is named as the F_1 -layer and the main layer as the F_2 -layer. The most complete expression of the results of echorecords taken over a greater frequency range, is the P', f-curve, f which gives the equivalent height (or the path which is the double amount of the height at vertical incidence) of the reflection point as a function of the frequency.

The equivalent heights are computed from the time difference measured between the reception of the ground-wave and the echoes, putting the group velocity of the signals equal to the velocity of light. As the group velocity is always smaller than the phase velocity, the computed equivalent heights are always greater than the geometrical heights. Especially in the vicinity of the critical frequencies the group velocity decreases strongly and the equivalent heights here computed differ considerably from the geometrical heights. In the following tables the character of the P', f-curves is taken as an indication of the gradient of the electron density in the layers, as a change in the gradient will alter the character of the P', f-curve. On Fig. 1 a number of echo records

¹ Appleton, J. Inst. Electr. Eng., 71, 642 (1932). ² Harang, Terr. Mag. 41, 143 (1936).

³ Appleton, Proc. Phys. Soc., 42, 321 (1930).

are reproduced showing the types of records obtained during summer and winter conditions, and below the P', f-curves deduced from these records are drawn up. A and C give the typical character of the P', f-curve during summer and winter time respectively. During spring and autumn there is a gradual development between these types.

§ 3. PRINCIPLES FOR TABULATION OF THE OBSERVATIONS.

At an earth magnetic highly disturbed place like Tromsø, lying in the vicinity of the auroral zone, the influence of the earthmagnetic storms and aurorae will be superimposed on the diurnal and annual variations of the electron density in the ionosphere, which are due to the varying heights of the Sun. It is, therefore, necessary when using the tables to be aware of the effects of the earth magnetic storms and aurorae on the P', f-curves recorded. These are summerized as follows:

- 1. Momentary formation of a new layer in the level of the E-layer during the storm.
- 2. Formation of an absorbing layer below the usual E-layer during the most intense phase of the storm, cessation of echoes on all wave lengths.
- 3. During and after the storm, high F-layers are formed which show decreasing heights with time.
- In periods of great earth magnetic activity the noon values of the critical frequencies of the F₁-and F₂-layers are reduced.
- 5. During periods of earth magnetic activity the P', f-curves vary due to changes in the gradient of the electron density.
- 6. During periods of earth-magnetic activity the reflection coefficient of the layers decreases.

Observations for determining the critical frequencies and the P', f-curves have been taken regularly at 10h, 12h, and 14h *local* time, usually on six days in the week. At intervals, day runs during which the P', f-curves were determined each half hour during 24 or 36 hours were undertaken in order to obtain the diurnal variations at different seasons, and for studying the influence of the aurorae and the earth-magnetic storms.

In the following tables the results of the critical frequency determinations taken regularly during the day will be given. The following quantities have been tabulated:

The critical frequency of the ordinary component (i. e. the lower of the two critical frequencies). For the F_1 - and F_2 -layers the ordinary and extraordinary components are usually identified easily. For the E-layer the extraordinary component is usually absorbed totally and only the ordinary component is visible as a critical frequency.²

The reflection coefficient (REFL. COEFF.) estimated from the intensity and numbers of the multiple reflections, as high (H), medium (M), low (L) and very low (VL).

The column headed NOTES contains a characterization of the P', f-curve.

In the last column the earth-magnetic activity during the day is characterized. (The hourly values of the activity, the Storminess, is tabulated in the Observatory's yearbook on the results of the earth-magnetic registrations, publication No. 8 and 12).

¹ APPLETON, NAISMITH and BUILDER, Nature, 132, 340 (1933). A more detailed and quantitative study of the effects are given in the following papers: Harang, Gerl. Beiträge zur Geophysik, 46, 438 (1936), Terr. Mag., 41, 143 (1936), Terr. Mag., 42, (1937), Geofysiske Publikasjoner Vol. XIII, No. 17 (1937), Oslo).

² RATCLIFFE and E. L. C. WHITE, Phil. Mag., 16, 125 (1933).

In the tables, N.R. denotes No Records and TR. denotes that only Traces of echoes have been recorded.

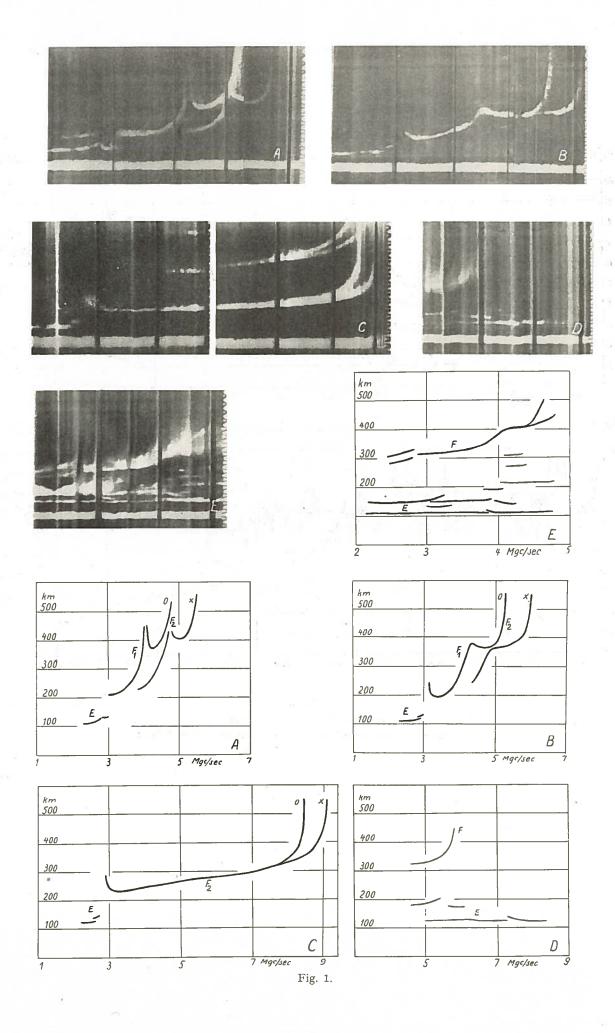
At the end of the yearbook, summary tables and figures are given. Further reproduction of typical records for critical frequency determinations during quiet and earthmagnetic disturbed conditions are given. The typical diurnal maximum electron density curves for the layers at different seasons of the year given in fig. 3 have been computed from the critical frequencies observed using the equations given on p. 5.

From the summary tables and also from fig. 1 it is evident that a considerable annual increase in the values of the critical frequencies from 1935 to 1936 was observed. For the F_2 -layer this increase was so great that the wave range of the transmitter and receiver had to be extended in order to obtain the critical frequencies recorded in some cases. For a short period in the autumn 1936 we have, therefore, not obtained the critical frequencies on some days with very high values. This is indicated in the tables by marking out the values by <, and in fig. 1 by a vertical arrow. Judging from the character of the P', f-curve and the gradual increase of the equivalent heights with frequency, the actual critical frequencies on these days are not more than 0.5—1.0 Mgc/sec. greater than the minimum values given in the tables.

We wish to express our thanks to M. JACOBSEN, instrument maker, and Mr. T. Melkild who have assisted during the observations.

Fig. 1. Echo Records.

- A. Record taken 27/5 1935 at 9h 10 m MET. E-, F_1 and F_2 -layers are present. Summer conditions of the ionosphere.
- B. Record taken 4/7 1935 at 15h 05m MET.
- C. Record taken 12/10 1936 at 11h MET. Only E- and F_2- layer, with high critical frequencies of the F_2- layer. Winter conditions of the ionosphere.
- D and E. Records taken 10/10 1935 at 18h 05 m and 18h 11 mMET/ during an earthmagnetic disturbance. A number of layers in the E-niveau and between E and F are appearing. Typical record during an earthmagnetic disturbance of moderate strength accompanied by auroral.



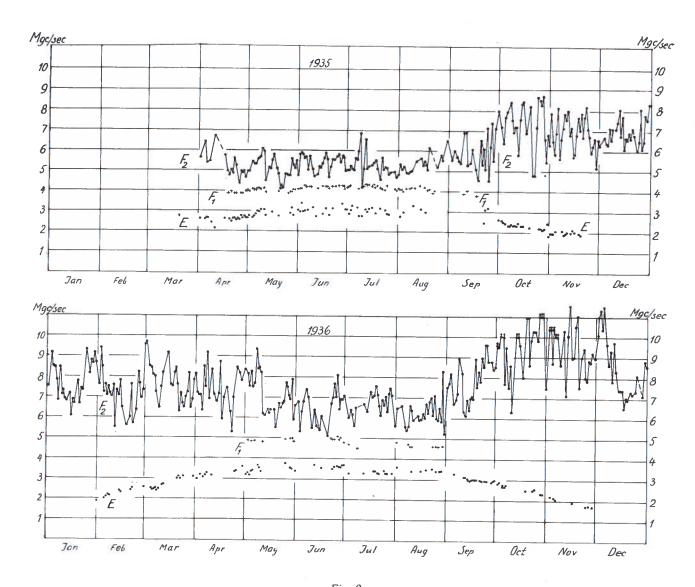
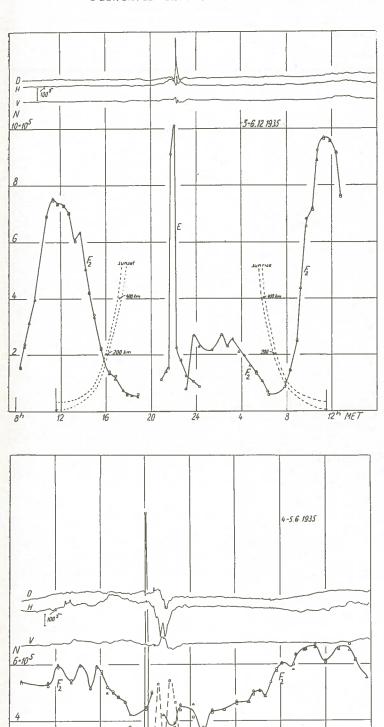


Fig. 2. Noon-values of the critical frequencies in Mgc/sec. for the E-, F_1 and F_2 -layers during the year, —only ordinary component.

12hMET



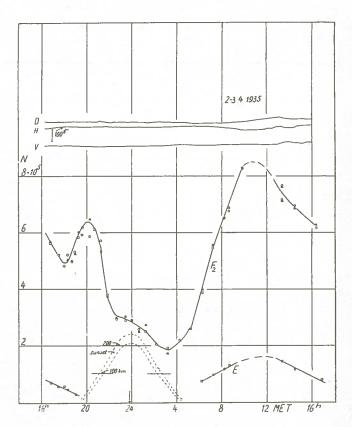


Fig. 3. Diurnal variations of the maximum electrondensities in the E-, F_1 - and F_2 -layers during winter, spring and summer time, computed from the critical frequencies recorded. In the figures 0 and \triangle designate the maximum electron-density Nin the F,-layer computed from the ordinary and extraordinary component, + the maximum electron-density in the F_1 -layer computed from the ordinary component and $\ \square$ the maximum electrondensity in the E-layer computed from the ordinary component. The earthmagnetic records from the observatory are reproduced at the top of each figure. The broken line indicates the time of sunset (and sunrise) in different heights, the two lines indicate

the position of the Earth's shadow with and without taking the effect of refraction into account. *

TABLES

APRIL 1935

		CI	RITICAL	FREQU	RNCIES	IN 1	MGC/SEC							
		F ₂ - LAY	/ER	Е	- LAYE	R	F ₁	- LAYE	R	REPL.		-		
DAY	10 ^h	12h	14 ^h	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	COEF.	NOTES			EARTH MAGNETIC CONDITIONS
1		5.68			2.65			3117		М	NORMAL PI,F-	CURVE, E ^{II} -LA	YER	VERY QUIET
2														
3										P				The state of
4		6.45			2.62					34	- 18			SMALL DISTURBANCE
5		5.40			2.68					M-L	· # .	7.		VERY QUIET
6		5.40			2.68					L		7		п
7		0.10			2100		1							
8		5.50		1000	2.45					М		75		QUIET
9														
10		6.74			2.20					M	IRREGULAR	*		GREAT STORM APTROACHING
11										- F				
12														
13														
14										1 5				The state of the s
15														
										L	IRREGULAR	11		SMALL DISTURBANCE
16		5.80			2.66					-	Titlesdollan			
17		5.00						3.88		VL VL	NO E-ECHOES			STORM
19		4.80			2.62			0.00		L	NORMAL P', F	-CURVE		SOME DISTURBANCE
50		5.06			2.52			3.98		M	n	17		QUIET
								0,00			11	, W		W
21		4.90			2.68					M	11	**		и
22		5.66			2.70			3.90		M		OF F-ECHOES		SOME DISTURBANCE
23		5.30			2.59			3.90		M-L VL	IRREGULAR P			QUIET, STORM PRECEEDING NIGHT
24					2.66		1					, F-CORVE		
25		(4.40)			2.62					L-VL	NORMAL	п		QUIET
26		5.00			2.80		1	3.88		M-L	7			9
27		4.92			2.70			3.90		м	"			
28		5.02			2.80					L	"	10		11
29		4.68			2.72		1	4.00		AL	n	91		
30		5.00			2.70			4.08	-	L-VL	"	"		
M:		5.30			2.63			3.94						

MAY 1935

14

DAY	F ₂ - LAYER		E - LAYE	R	MGC/SE	- LAYE	?			
DUN I		n 10		14 ^h	10 ^h	12 ^h	14 ^h	REPL.	NOTES	EARTH MAGNETIC CONDITIONS
1	5.00	- 10	2.82		120	4.00		M	NORMAL P!,F-CURVE	
2	N.E.		2.00			4.00		- 14	NO ECHOES	QUIET GREAT STORM
3	5.50		2.72			4.10		M	NORMAL PI,P-CURVE	SMALL DISTURBANCE
4	5.38		2.80			4.05		М	TT H	OUIET
5	5.38		2.90			4.05		М	н	VERY GUIET
6	5.60		3.00		1	4.15		M-L	W H	
7	5.65		3.00			4.14		1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	17 II	QUIET
8	5.30 5.73 5.	0 3.0		2.90		4.10		14	n si	n
9	5.91 6.12 5.	8		2.96				н	" M-REFLECTIONS	17
10	6.32 5.98 5.1	2 3.1	5 3.10	3.00	4.12	4.16	4.20	H-M	", TRACES OF E ^{II}	11
11	4.72 4.50 (4.5	0) 2.8	0 2.62		1	3.97		L-VI.	ABNORMAL GREAT F3-LEDGE	STORM PRECEEDING NIGHT
12	SCATTERED ECHOES		CATTERED	ECHOES				VL	ONLY F-ECHOES	n n n
13	5.21 TR. N.1		но есно	ES				L	11 11	19 19 62
14	4.80 5.10 4.8	7		2.80				L	IRREGULAR P',P-CURVE	CUIET
15	5.85 5.56 5.	2	3.00	2.78				M	NORMAL PIF-CURVE	n
16	5.85				1			- 1		STORM
17	NO RECORDS									QUIET
18	5.10 5.12	2.6	6 NO EC	HOES		4.00		L	98 se	VERY QUIET
19	4.85 4.1	- 12		2.75		1.35		L-VL	IRREGULAR PI.F-CURVE	STORM PRECEEDING NIGHT
20	NO ECHOES (4.)			3.13					n n	GREAT STORM
21									11 17	
55 51	4.32 TRACES 4.1	_		2.80	3.82			VL.		QUIET
23	THACES 4.3	- 1	TRACES	2,00	1			ΛΓ	TRACES OF F-ECHOES	SMALL DISTURBANCE
24	4.86 4.82 4.7	1	INACES		1			AL		QUIET
25	4.82 4.7			2.80		3.90	3.96	M-L L	NORMAL P',F-CURVE,HIGH E-IONISATION	QUIET
									t II I I I I I I I I I I I I I I I I I	"
26	4.80 4.80 5.0			2.60	4.18	4.00	3.94	М	" , E ^{II} -LAYER	
28	4.92 5.62 4.9 5.38 5.29 5.0			3.00	4.03	4.00	3.95	H-M	11 17	SMALL DISTURBANCE
29	5.38 5.29 5.0 5.20 5.14	5 2.6	0 2.84	2.73	3.95	4.10		М		11 19
30	5.85 5.50					4.10		М.	" ",HIGH E-IONISATION	
31	5.06 4.80 5.0	5 3.0	8 3.10	3.10	4.13	4.12	4.04	M-L	(A) (B)	SOME DISTURBANCE QUIET
								ni = L		MATET
A .	5.22 5.31 5.0	6 2.8	2.95	2.88	4.04	4.06	4.02			
JUNE	Ε									
1	6.05 5.85 5.3	2 2.7	5 3.02	2.80	4.25	4.12	4.17	М	NORMAL P: F-CURVE	QUIET
2	5.90 5.7	2	3.45	2.80		4.16	4.20	M)I II	ч
3	N.E. 5.83 5.3	5				4.30	4.20	L	сы с	SMALL DISTURBANCE
4	5.30 5.62 5.6			2.80	4.22	4.22	4.20	14	n II	27 19
5	5.92 5.70 6.0	0 2.9	9 3.03	2.93	4.21		4.10	M	M M	** "
6	5.03 5.0	0		3.21		4.23	1	L	н	11 11
	6.08 5.75 5.1		3.08	2.94	4.22	4.25	4.08	М	n n	79 10
7		1			I			64.5		
7	NO ECHOES								NO ECHOES	GREAT STORM
- 1	NO ECHOES 5.09		3.25		4.20			М	NO ECHOES IRREGULAR P',F-CURVE	GREAT STORM
8		7	3.25	2.80	4.20					
8 9	5.09	7	3.25	2.80	1			М	IRREGULAR P',F-CURVE	19 59
8 9 0 0 1	5.09 FAINT F 4.7 NO ECHOES				1	4.16		M.	IRREGULAR P',F-CURVE " " NO ECHOES	" "
8 9 10 11	5.09 FAINT F 4.7	0 2.8	9 2.60	2.80 2.85 2.93	1	4.16		М	IRREGULAR P',F-CURVE	" "
8 9 10 11 12 13	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7	0 2.8	9 2.80 4 N.E.	2.85	1	4.16	4.22	M VL L	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',P-CURVE	STORM SOME DISTURBANCE
8 9 10 11 12 13 14	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9	0 2.8 0 2.7 8 3.0	9 2.60 4 N.E.	2.85	4.05	4.16	4.22	M VL L	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE	STORM SOME DISTURBANCE
8 9 .0 .1 .2 .3 .4	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9 5.24 5.1	0 2.8 0 2.7 8 3.0	9 2.60 4 N.E.	2.85 2.93 2.90	4.05			M VL L M M~L	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',P-CURVE NORMAL P',P-CURVE	STORM SOME DISTURBANCE GUIET VERY QUIET
8 9 .0 .1 .2 .3 .4 .5	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.8 5.24 5.1 5.82 5.40 5.2 5.67	0 2.8 0 2.7 8 3.0 0 3.0	9 2.80 4 N.E. 2	2.85 2.93 2.90 2.93	4.05 4.16 4.38	. 4.26	4.25	M VL L L M M~L L-VE	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE	STORM SOME DISTURBANCE """ QUIET
8 9 0 1 2 3 4 5 6	FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.8 5.24 5.1 5.82 5.40 5.2 5.67 6.03 5.92 5.5	0 2.8 0 2.7 8 3.0 0 3.0	9 2.80 4 N.E. 2 5 2.93	2.85 2.93 2.90	4.16 4.38	4.26		M VL L L M M-L L-VL M	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """""""""""""""""""""""""""""""""""	STORM SOME DISTURBANCE TOTAL QUIET VERY QUIET QUIET TOTAL TO
8 9 0 1 2 3 4 5 6 7 8	FAINT F 4.77 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.5 5.24 5.1 5.82 5.40 5.2 6.03 5.92 5.5 5.46 5.60 K.E	0 2.80 0 2.70 8 3.00 3.00 0 3.11	9 2.00 4 N.E. 2 5 2.93 2 3.20 E-ECHOES	2.85 2.93 2.90 2.93	4.05 4.16 4.38 4.28 4.23	4.25 4.25	4.25	M VL L L M M~L L-VL M M-L	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ NORMAL P',F-CURVE	STORM SOME DISTURBANCE ULIET VERY QUIET QUIET USTORM
8 9 10 11 12 13 14 15 16 17 18 19	FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9 5.24 5.10 5.2 5.67 6.03 5.92 5.5 5.46 5.60 K.6 4.60 4.70 4.8	0 2.8 0 2.7 8 3.0 0 3.0 0 3.1 NO	9 2.80 4 N.E. 2 5 2.93	2.85 2.93 2.90 2.93	4.05 4.16 4.38 4.28 4.23	4.26	4.25	M VL L L M M-L L-VL M	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ """ """ """ """ """ """	STORM SOME DISTURBANCE TOTAL QUIET VERY QUIET QUIET TOTAL TO
8 9 0 1 2 3 4 5 6 7 8 9	FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9 5.24 5.1 5.82 5.40 5.2 5.67 6.03 5.92 5.5 5.46 5.60 K.E 4.60 4.70 4.E 5.21 5.25 4.6	0 2.8 0 2.7 8 3.0 0 3.0 0 3.0 0 3.1 NO 2.8	9 2.80 4 N.E. 2 5 2.93 2 3.20 E-ECHOES 0 2.85	2.85 2.93 2.90 2.93 2.85 2.85	4.05 4.16 4.38 4.28 4.23	.4.26 4.25 4.25 4.15	4.25 4.23 4.10 4.16	M VL L L M M-L L-VL M M-L L-VL VL	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ """ """ """ IRREGULAR P',F-CURVE	STORM SOME DISTURBANCE ULIET VERY QUIET QUIET STORM SMALL STORM SOME DISTURBANCE
8 9 0 1 2 3 4 5 6 7 8 9	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9 5.24 5.40 5.2 5.67 6.03 5.92 5.5 5.46 5.60 8.2 4.60 4.70 4.8 5.21 5.25 4.8 5.28 5.60 5.5	0 2.8 0 2.7 8 3.0 0 3.0 0 3.0 0 3.1 NO 2.8	9 2.00 4 N.E. 2 5 2.93 2 3.20 E-ECHOES	2.85 2.93 2.90 2.93 2.85	4.05 4.16 4.38 4.28 4.23	.4.26 4.25 4.25 4.15	4.25	M VL L M M-L L-VE M M-L L-VE	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',P-CURVE """ """ """ """ """ """ """	STORM SOME DISTURBANCE " " QUIET VERY QUIET QUIET " STORM SMALL STORM SOME DISTURBANCE SMALL DISTURBANCE
8 9 .0 .1 .2 .3 .4 .5 .6 .7 .8 .9 .0 .1 .2 .2	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.5 5.24 5.1 5.82 5.40 5.2 5.67 6.03 5.92 5.5 5.46 5.60 1.5 4.60 4.70 4.8 5.21 5.25 4.8 5.28 5.60 5.5 5.60	0 2.88 3.00 3.00 3.00 3.00 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2	9 2.00 4 N.E. 2 5 2.93 2 3.20 E-ECHOES 0 2.85 5 3.20	2.85 2.93 2.90 2.93 2.85 2.85	4.05 4.16 4.38 4.28 4.23	.4.26 4.25 4.25 4.15	4.25 4.23 4.10 4.16	M VL L L M M-L L-VL M M-L L-VL VL	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ """ """ """ IRREGULAR P',F-CURVE	STORM SOME DISTURBANCE ULIET VERY QUIET QUIET STORM SMALL STORM SOME DISTURBANCE
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 23	5.09 FAINT F 4.7 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.9 5.24 5.1 5.82 5.40 5.2 6.03 5.92 5.5 5.46 5.60 H.E 4.60 4.70 4.8 5.21 5.25 4.8 5.28 5.60 5.5 5.60 NO RECORDS	0 2.8 0 2.7 3.00 3.00 3.00 3.00 3.1 NO 2.8 2 2 3.1 19	9 2.80 4 N.E. 2 5 2.93 E-ECHOES 0 2.85	2.85 2.93 2.90 2.93 2.85 2.90 3.10 2.87	4.16 4.38 4.28 4.23 4.08	4.25 4.25 4.25 4.15 4.24	4.25 4.23 4.10 4.16 4.32	M VL L L M M-L L-VL M M-L L VL VL	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ """ IRREGULAR P',F-CURVE "" NORMAL P',F-CURVE	STORM SOME DISTURBANCE GUIET VERY QUIET QUIET STORM SMALL STORM SOME DISTURBANCE SMALL DISTURBANCE QUIET
8 9 1 1 1 1 2 2 1 3 3 1 4 1 5 1 6 6 1 7 1 8 1 9 1 2 2 1 1 2 2 2 2 3 3 4 4 1 5 1 6 1 7 1 8 1 9 1 2 2 2 1 3 3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	FAINT F 4.77 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.8 5.24 5.82 5.40 5.2 6.03 5.92 5.5 5.46 5.60 H.E 4.60 4.70 4.8 5.21 5.25 4.8 5.28 5.60 5.5 6.60 NO RECORDS 5.94 5.75 5.4	0 2.8 0 2.7 3.00 3.00 3.00 3.1 NO 2.8 2.8 2.8 2.8 2.8 2.8 3.1 3.00 3.00 3.1 NO 2.8 3.1 NO 2.8 3.1 NO 2.8 NO	9 2.80 4 N.E. 2 5 2.93 E-ECHOES 0 2.85	2.85 2.93 2.90 2.93 2.85 2.85	4.16 4.38 4.28 4.23 4.08	4.25 4.25 4.15 4.24	4.25 4.23 4.10 4.16	M VL L L M M-L L-VL M M-L L VL VL	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ IRREGULAR P',F-CURVE NORMAL P',F-CURVE	STORM SOME DISTURBANCE TOTAL QUIET VERY QUIET QUIET STORM STORM SOME DISTURBANCE SMALL DISTURBANCE QUIET TOTAL TOTAL
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	5.09 FAINT F 4.77 NO ECHOES 4.72 4.85 4.7 5.08 5.25 4.8 5.24 5.1 5.82 5.40 5.2 6.03 5.92 5.5 5.46 5.60 H.E 4.60 4.70 4.8 5.21 5.25 4.8 5.28 5.60 5.8 5.80 RECORDS 5.94 5.75 5.4 5.63 5.85 5.8	0 2.8 2.7 3.00 3.00 3.1 NO 3.8 2.8 2 3.1 5 5 3.00 5 5 5	9 2.80 4 N.E. 2 5 2.93 E-ECHOES 0 2.85	2.85 2.93 2.90 2.93 2.85 2.85 2.90 3.10 2.87	4.16 4.38 4.28 4.23 4.08	4.25 4.25 4.25 4.15 4.24	4.25 4.23 4.10 4.16 4.32	M VL L L M M-L L-VL M M-L VL VL	IRREGULAR P',F-CURVE NO ECHOES IRREGULAR P',F-CURVE NORMAL P',F-CURVE """ IRREGULAR P',F-CURVE """ NORMAL P',F-CURVE NORMAL P',F-CURVE	STORM SOME DISTURBANCE THE STORM STORM SMALL STORM SOME DISTURBANCE SMALL DISTURBANCE SMALL DISTURBANCE SMALL DISTURBANCE THE STORM TH
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		- LAYE			- LAYER			- LAYE		REPL.				PARKE MACKEMEN COMPTHIONS
AY	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	COEF.	NOTES NORMAL P',F-	CHRVE		EARTH MAGNETIC CONDITIONS SMALL DISTURBANCE
1		5.03	5.13	2.19	2.90	2.83	4.15	4.22	4.22	H-M	NORMAL P', F-	19		M N
3		5.27	5.19	3.40	3.11	3.18	4.18	2.00	4.30	М	n	н		QUIET
4		5.03	5.30	2.90	0.00	3.40	1000		4.15	н	66	11		10
5		5.63	5.30	2.95						м	Ħ	19		VERY QUIET
					* 00	7 70	4 *0			М	11	**		11
6		5.56	5.27	3.08	3.22	3.30	4.32	4.12	4.20	M-L	n	11		QUIET
7 8		N.E.	TR.	NO E.	-ECHOES	2.01	4.05	4.15	4.20	м	IRREGULAR	н		GREAT STORM
9	N.E.	N .E.	4.21	110 2	2011020	2.80	4.00			L-VL	п	18		SOME DISTURBANCE
.0		5.10	5.10				4.12	4.23	4.09	M-L	NORMAL	H		QUIET
					3.12	2.94			4.23	M-L	n	11		я
1		6.60	5.62		3.00	2.69	4.40	4.35	4.20	N -	η	n		SMALL DISTURBANCE
2		5.12	5.12	2.90		(2.65)	4.30	4.33	4.32	M-L	11	н		QUIET
3 4		CHOES	3.60	2.00		,_,,,,	4.00	1100	1100		NO ECHOES			SMALL DISTURBANCE
5		5.30	4.98	2.80	3.20	2.90	4.21	4.23	4.13	М	NORMAL	n		11 11
								4.28	4.19	М	11	n-		19
6		5.42	5.10	2.87	ECHOES 2.97	2.71	4.16	4.21	4.15	H-M	11	и		QUIET
7		5.58	5.10	2.70	4.31	(3.03)	4.26	4.28		K	н			п
8	5.50 TRACES		0.10		ACES	4	2.00			VL	IRREGULAR	н		SMALL DISTURBANCE
0	4.65 (5.06		3.20	3.00	4.13	4.18	4.10	L				QUIET
			0.00	1						м	NORMAL	н		SOME DISTURBANCE
1		(5.68)	5 00	NO.	E-ECHOES	3		4.13	4.08	L	" NORMAL	н		11 11
2		5.10	5.20	2.80	3.10	2.82	4.02	4.08	4.15	L	11/2			B 11
3		5.15	5.45	N.E.	2.92	2.83	2 1 000	4.30	4.15	M				17 19
5		4.82	N.E.	N.E.	2.90			(3.93)		L				STORM
			1.02.0				3.91			VL				CUIET
26	(4.50) (VERY FA		20056							VL				SMALL DISTURBANCE
27		RECORD												n n
19		4.98	,				4.13	4.12		L				n n
lia 67	2000							4.05	4.05	10.0	NORMAL PI,F-	CHRAK		QUIET
50	(4.50)	4.70						4 + 40	74.00	N-L	NORMAL P',F"	-0011413		
1	5.34	4.70 4.85 5.25	TR. 5.19	2.99	3.09	2.91	4.18	4.12	4.17	M	NORMAL P',F"	n		SMALL DISTURBANCE
1:	5.34 ST	4.85	5.19		3.09	2.91		4.12	4.17	200	19	п		
30 31 M:	5.34 ST 5.22	4.85 5.25 5.35	5.19	. 2.70		2.91	3.94	4.12	- 27	200	IRREGULAR P	,F-CURVE		SMALL DISTURBANCE SMALL DISTURBANCE QUIET
AUGU	5.34 ST 5.22 (4.70)	4.85 5.25 5.35 5.05	5.19 5.22 4.60		3.09	2.91	3.94	4.12 4.20 4.10 4.10	4.17	200	19	,F-CURVE		SMALL DISTURBANCE
AUGU	5.34 ST 5.22 (4.70) (4.60)	5.35 5.05 5.27	5.19	. 2.70	3.09	2.91	3.94	4.12	4.17	200	IRREDULAR P'	,P-CURVE CURVE		SMALL DISTURBANCE
1 2 3 4	5.34 ST 5.22 (4.70) (4.50) NO REG	5.35 5.05 5.27 CORDS	5.19 5.22 4.60 5.00	. 2.70	3.09	2.91	3.94 4.13 4.04	4.12 4.20 4.10 4.10 4.00	4.17	200	IRREDULAR P'	,P-CURVE CURVE		SMALL DISTURBANCE QUIET
AUGR 1 2 3 4 5	5.34 ST 5.22 (4.70) (4.60) NO REG 4.80	5.35 5.05 5.27	5.19 5.22 4.60 5.00 5.02	. 2.70	3.09	2.91	3.94	4.12 4.20 4.10 4.10	4.17 4.03 4.00 4.16	200	IRREGULAR PINORMAL PIFF-	,P-CURVE CURVE		SMALL DISTURBANCE QUIET "
AU GR	5.34 5.22 (4.70) (4.50) NO REG 4.80 TR.	5.35 5.05 5.27 CORDS 4.95	5.19 5.22 4.60 5.00	. 2.70 (3.50)	3.09	2.91	3.94 4.13 4.04 4.12	4.10 4.10 4.10 4.10 4.10	4.17 4.03 4.00 4.16 4.13	200	IRREGULAR PINORMAL PI,F-(,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE
31 4: 1 2 3 4 5	5.34 5.22 (4.70) (4.60) NO REG 4.80 TR. (4.85)	5.35 5.05 5.27 CORDS 4.95	5.22 4.60 5.00 5.02 4.93	. 2.70 (3.50)	3.09	2.91	3.94 4.13 4.04	4.12 4.20 4.10 4.10 4.00	4.17 4.03 4.00 4.16	200	IRREGULAR P', NORMAL P', P-(,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " QUIET
AU GR 1 2 3 4 5 6 7 8	5.34 5.22 (4.70) (4.60) NO REG 4.80 TR. (4.85) 5.03	5.35 5.05 5.27 CORDS 4.95 5.00 5.05	5.19 5.22 4.60 5.00 5.02 4.93	. 2.70 (3.50)	2.80 3.00	2.91	3.94 4.13 4.04 4.12	4.12 4.20 4.10 4.10 4.00 4.12	4.17 4.03 4.00 4.16 4.13 4.00	200	IRREGULAR P'NORMAL P',F=(,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " QUIET SMALL DISTURBANCE
AUGG 1 2 3 4 5 6 7 8	5.34 5.22 (4.70) (4.60) NO REI 4.80 TR. (4.85) 5.03 TR.	5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28	5.22 4.60 5.00 5.02 4.93	. 2.70 (3.50)	3.09		3.94 4.13 4.04 4.12	4.12 4.20 4.10 4.10 4.00 4.12	4.17 4.03 4.00 4.16 4.13 4.00 4.11	200	IRREGULAR P'NORMAL P',F=(,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " QUIET
AUGG 1 2 3 4 5 6 7 8 9 10	5.34 5.22 (4.70) (4.60) NO REI 4.80 TR. (4.85) 5.03 TR. TR.	5.35 5.05 5.07 CORDS 4.95 5.00 5.05 5.28 5.50	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR.	. 2.70 (3.50)	2.80 3.00		3.94 4.13 4.04 4.12	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02	200	IRREGULAR P' NORMAL P',P-0 IRREGULAR NORMAL	,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " QUIET SMALL DISTURBANCE
31 4: 1 2 3 4 5 6 7 8 9	5.34 5.22 (4.70) (4.60) NO REI 4.80 TR. (4.85) 5.03 TR. TR.	5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR.	. 2.70 (3.50)	2.80 3.00		3.94 4.13 4.04 4.12	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02	200	IRREGULAR P' NORMAL P',P-0 IRREGULAR NORMAL	,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " QUIET SMALL DISTURBANCE "
AUGG 1 2 3 4 5 6 7 8 9	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. NO R.	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR.	. 2.70 (3.50)	2.80 3.00		3.94 4.13 4.04 4.12	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.21	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02	200	IRREGULAR P' NORMAL P',P-0 IRREGULAR NORMAL	,F-CURVE CURVE 0 0		SMALL DISTURBANCE QUIET " " " " " " " " " " " " QUIET SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. NO R. BAD 5.42	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR.	. 2.70 (3.50) 2.70 2.90	2.80 3.00	2.93	3.94 4.13 4.04 4.12 4.00 4.14	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.21	4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	200	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL NORMAL	,P-CURVE CURVE		SMALL DISTURBANCE QUIET " " " " " " " " " " " " QUIET SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
AUGG 1 2 3 4 5 6 7 8 9 10 11 112 113 114	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. NO R.	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR.	. 2.70 (3.50) 2.70 2.90	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.21	4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	200	IRREGULAR P'NORMAL P', P-(IRREGULAR NORMAL NORMAL	,F-CURVE CURVE 0 0		SMALL DISTURBANCE QUIET " " " " " " " " " " " " QUIET SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14	5.34 5.22 (4.70) (4.60) NO RE(4.85) 5.03 TR. TR. NO R. BAD 5.42 5.65 5.43	4.85 5.26 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 5.28 5.50	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56	2.70 (3.50) 2.70 2.90 3.08 3.15	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.21	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR P'NORMAL P', P-(IRREGULAR NORMAL NORMAL	,F-CURVE CURVE 0 0		SMALL DISTURBANCE QUIET " " " " " " " " " " " " QUIET SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
31 4: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	5.34 5.22 (4.70) (4.60) HO RE(4.85) 5.03 TR. TR. NO RE BAD 5.42 5.85 5.43 5.85	5.35 5.25 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 5.28 5.50 5.28 5.50 5.28 5.28 5.28 5.28 5.28 5.28 5.28 5.28	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R.	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR P'NORMAL P', P-(IRREGULAR NORMAL NORMAL	,F-CURVE CURVE 0 0	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " QUIET SMALL DISTURBANCE " " QUIET " " " QUIET " " " " " " " " " " " " " " " " " " "
31 4: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	5.34 5.22 (4.70) (4.60) HO REM 4.80 TR. (4.85) 5.03 TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR.	4.85 5.25 5.35 5.05 5.27 CORDS 5.06 5.28 5.50 ECORDS " 5.68 5.30 5.35 5.30	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56	2.70 (3.50) 2.70 2.90 3.08 3.15	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL IRREGULAR	, P-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " " " QUIET " " QUIET " " " " QUIET " " SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR. NO RE	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS 0 5.68 5.30 5.35 5.40 4.00 6.00 6.00 6.00 6.00 6.00 6.00 6	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30	4.12 4.20 4.10 4.10 4.10 4.12 4.17 4.21 4.20	4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL IRREGULAR	P-CURVE CURVE O O O O O O O O O O O O O	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET SMALL DISTURBANCE " " QUIET " " " " SMALL DISTURBANCE QUIET " " " SMALL DISTURBANCE QUIET "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. NO RE 8AD 5.42 5.85 5.43 5.85 TR. NO RE	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS 0 5.68 5.30 5.35 5.40 4.00 6.00 6.00 6.00 6.00 6.00 6.00 6	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20 4.30	4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL IRREGULAR	, P-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET SMALL DISTURBANCE " " QUIET " " " " " " " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. NO RE 8AD 5.42 5.85 5.43 5.85 TR. NO RE	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 8.50 5.28 5.50 5.28 5.50 6.20 6.20 6.20 6.20 6.20 6.20 6.20 6.2	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20 4.30 4.30	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL IRREGULAR	, P-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET SMALL DISTURBANCE " " QUIET " " " " SMALL DISTURBANCE QUIET " " " SMALL DISTURBANCE QUIET "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. NO RE BAD 5.42 5.85 TR. NO RE 5.70 BAD R	4.85 5.25 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.28 5.50 ECORDS " 5.68 5.30 5.50 6.20	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20 4.30 4.30 4.21 4.06	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F-(, P-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " QUIET " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " SMALL DISTURBANCE " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " SMALL DISTURBANCE
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. NO RE BAD 5.42 5.85 5.43 5.85 TR. NO RE	4.85 5.26 5.35 5.05 5.07 5.06 5.05 5.28 5.50 5.28 5.50 5.28 5.50 5.28 6.30 6.30 6.30 6.30 6.30 6.30 6.30 6.30	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.20 4.10 4.10 4.00 4.12 4.17 4.21 4.20 4.30 4.30 4.21 4.06	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR P' NORMAL P',F-(" IRREGULAR " NORMAL " " " " " " " "	,F-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " QUIET SMALL DISTURBANCE " " " QUIET " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE GUIET " " SMALL DISTURBANCE SMALL DISTURBANCE " " " " " " " SOME DISTURBANCE SMALL "
AUGG 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	5.34 5.22 (4.70) (4.50) HO REM 4.80 TR. (4.85) 5.03 TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR. NO RE 5.70 BAD R	4.85 5.26 5.35 5.05 5.07 5.06 5.05 5.28 5.50 5.28 5.50 5.28 5.50 5.28 6.30 6.30 6.30 6.30 6.30 6.30 6.30 6.30	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.10 4.10 4.10 4.12 4.17 4.21 4.20 4.30 4.30 4.10 3.96 4.05	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PIPP-(IRREGULAR NORMAL IN IRREGULAR	,F-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " QUIET " " QUIET " " SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
AUGR 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR. NO RE 5.70 BAD R	4.85 5.26 5.35 5.05 5.07 5.06 5.05 5.28 5.50 5.28 5.50 5.28 5.50 5.28 6.30 6.30 6.30 6.30 6.30 6.30 6.30 6.30	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.10 4.10 4.10 4.12 4.17 4.21 4.20 4.30 4.30 4.10 3.96 4.05	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PIPP-(IRREGULAR NORMAL IN IRREGULAR	P-CURVE CURVE " " " " " " " " " " " " " " " " " "	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " QUIET SMALL DISTURBANCE " " " QUIET " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE GUIET " " SMALL DISTURBANCE SMALL DISTURBANCE " " " " " " " SOME DISTURBANCE SMALL "
AUGR 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR. NO RE 5.70 BAD R	4.85 5.26 5.35 5.05 5.07 5.00 5.05 5.28 4.95 5.00 5.06 5.28 5.50 ECORDS 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.10 4.10 4.10 4.12 4.17 4.21 4.20 4.30 4.30 4.10 3.96 4.05	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR PINORMAL PI,F=6 IRREGULAR NORMAL IRREGULAR IRREGULAR IRREGULAR IRREGULAR IRREGULAR IRREGULAR	P-CURVE CURVE " " " " " " " " " " " " " " " " " "	ATION	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " " QUIET " " QUIET " " SMALL DISTURBANCE " " " " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
31 4: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 20 20 20 20 20 20 20 20 20 20	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. TR. TR. NO R. BAD 5.42 5.85 5.43 5.85 TR. NO RE 5.70 BAD R	4.85 5.26 5.35 5.05 5.27 CORDS 4.95 5.00 5.05 5.08 5.50 6.20 ECORDS 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12 5.28	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.10 4.10 4.10 4.12 4.17 4.21 4.20 4.30 4.30 4.10 3.96 4.05	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREDULAR PINORMAL PIPE (IRREGULAR IN IRREGULAR IN IRREGU	P-CURVE CURVE " " " " " " " " " " " " " " " " " "	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " " QUIET " " SMALL DISTURBANCE QUIET " " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE " " " " SMALL DISTURBANCE " " " " " SMALL DISTURBANCE " " " " " " SMALL DISTURBANCE " " " " " " SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
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AUGR 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	5.34 5.22 (4.70) (4.60) NO RE(4.80) TR. (4.85) 5.03 TR. TR. NO RE 5.42 5.85 5.43 5.85 TR. NO RE 5.70 BAD R 7 7 5.18 NO RE	4.85 5.35 5.05 5.05 5.27 CORDS 4.95 5.00 5.06 5.28 5.50 5.28 5.50 6.20 ECORDS 6.20 ECORDS 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5.19 5.22 4.60 5.00 5.02 4.93 5.00 5.12 TR. 5.20 5.62 5.56 N.R. 4.85 6.12 5.28 5.80 5.13 5.60	2.70 (3.50) 2.70 2.90 3.08 3.15 3.07	2.80 3.00 3.30	2.93	3.94 4.13 4.04 4.12 4.00 4.14 4.26 4.14 4.30 4.12 §4.04	4.12 4.10 4.10 4.10 4.12 4.17 4.21 4.20 4.30 4.30 4.10 3.96 4.05	4.17 4.03 4.00 4.16 4.13 4.00 4.11 4.02 4.20	M	IRREGULAR P' NORMAL P',P-O IRREGULAR NORMAL	P-CURVE CURVE n n n n n n n n n n n n n	ATION	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " " QUIET " " " " SMALL DISTURBANCE " " " " " " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " " SMALL DISTURBANCE " " SMALL DISTURBANCE " " SMALL DISTURBANCE OUIET " SMALL DISTURBANCE OUIET " SMALL DISTURBANCE OUIET " SMALL DISTURBANCE

	· F.	2- LAYER		E	- LAYE	R	F ₁ - LAYE	R ,	PPPT			
YAC		12 ^h			12 ^h		10 ^h 12 ^h	14 ^h	REPL.	NOTES		BARTH MAGNETIC CONDITIONS
1	NO	RECORDS								110120		QUIET
2	5.52	KLOOKDO				- 2				BAD RECORD		VERY QUIET
5	6.03		5.70							II 19		H H
	5.88	5.95	5.70					.		NORMAL P',F	-CURVE	11 11
5	5.70	5.74	5.42						- 1	H	n	SMALL DISTURBANCE
6	5.30	5.52	5.50	ì						н	19	и и
7	5.58	5,40	5.92					1		n	rt	19 19
8	NO I	RECORDS						- 1				QUIET
9,	6.45	6.95	6.20								н	19
10	6.38	6.95	6.70				3.90			"	п	SOME DISTURBANCE
11	N⊸R.	5.28	N.R.						1	ч	п	STORM
.2	NO	ECHOES					4.02			NO ECHOES		GREAT STORM
13			5.40							BAD RECORD		QUIET
.4		6.10								NORMAL PI,	F-CURVE	n
.5	NO	RECORDS										
.6			5.05							BAD RECORD		SOME DISTURBANCE
.7	NO	ECHOES								NO ECHOES		STORM
18		4.52					3.B0			ABNORMAL P	,F-CURVE	GREAT STORM
19		6.55	6.30							NORMAL	н	SOME DISTURBANCE
20			5.30							BAD RECORD		17 11
21	5.44	6.10		2.40	2,42			133		NORMAL P .,		QUIET
35		5.05			3.10					н	,	ISATION "
23			5.72			2.40				le.	п	SOME DISTURBANCE
24	4.40	4.52	4.95		3.20	2.40		- 1		FAINT ECHOR		GREAT STORM
25	(6.45)	6.20								NORMAL P',	-CURVE	17 17
26	(6.60)	7.40	7.25							н	rg .	н н
7	5.60	5.50	5.40			2.93		2.0		11	11	SOME DISTURBANCE
89	7.00	7.12	6.02							4	н	et es
20	NO	RECORDS						- 1				и и
50 4:	7.20	8.00	5.95	(2.40)	2.62	(2.64)	(3.91)			"	п	STORM
50 4:	7.20	6.11					(3.91)		VŁ	IRREGULAR F	,F-CURVE	STORM SOME DISTURBANCE
29 30 4: 0CTO	7.20 6.00 BER NO ECH 7.45	6.11 HOES (5.79 5.21) 6.70	NO 2.46	2.79 ECHOES 2.56	2.40	(3.91)		Н	IRREGULAR F		SOME DISTURBANCE QUIET
30 M: CTO 1 2 3	7.20 6.00 BER NO ECH 7.45 5.65	6.11 HOES (7.22 · 6.35	5.79 5.21) 6.70 6.05	NO 2.46 2.35	2.79 ECHOES 2.56 2.45	2.40	(3.91)		H	IRREGULAR F NORMAL	,F-CURVE	SOME DISTURBANCE
50 d: CTO 1 2 3	7.20 6.00 BER NO ECH 7.45 5.65 6.40	6.11 HOES (7.22 · 6.35 7.68	5.79 5.21) 6.70 6.05 6.95	NO 2.46 2.35 2.33	2.79 ECHOES 2.56 2.45 2.40	2.40 2.25 2.26	(3.91)		H M VH	IRREGULAR F NORMAL "	,F-CURVE	SOME DISTURBANCE QUIET
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0CTO 1 2 3 4 5	7.20 6.00 BER NO ECH 7.45 5.65 6.40 (7.42)	6.11 HOES (7.22 · 6.35 7.68	5.79 5.21) 6.70 6.05 6.95	NO 2.46 2.35 2.33	2.79 ECHOES 2.56 2.45 2.40	2.40 2.25 2.26	(3.91)		H M VH	IRREGULAR F NORMAL "	,F-CURVE	SOME DISTURBANCE QUIET
0CTO 1 2 3 4 5 6	7.20 6.00 BER NO ECH 7.45 5.65 6.40 (7.42) NO F	6.11 HOES (7.22 · 6.35 7.68 (7.98) RECORDS 8.40	5.79 5.21) 6.70 6.05 6.95 N.R.	NO 2.46 2.35 2.33 2.30	2.79 ECHOES 2.56 2.45 2.40 N.R.	2.40 2.25 2.26	(3.91)		H M VH M-H	IRREGULAR F NORMAL "	P, P-CURVE	SOME DISTURBANCE QUIET "" "" "" "" ""
CTO 1 2 3 4 5 6 6 7 8	7.20 6.00 8ER NO ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22	6.11 HOES (7.22 · 6.35 · 7.68 (7.98) RECORDS 8.40 · 7.50	5.79 5.21) 6.70 6.05 6.95 N.R. 7.50 8.50	NO 2.46 2.35 2.33 2.30 2.26 2.30	ECHOES 2.56 2.45 2.40 N.R.	2.40 2.25 2.26 E.	(3.91)		H M VH M-H	IRREGULAR F NORMAL "	P,P-CURVE " " " " " ",TRACES OF E ^{II}	SOME DISTURBANCE QUIET "" "" "" SOME DISTURBANCE
CTO 1 2 3 4 5 6 7 8 9	7.20 6.00 8ER ÑO ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22 6.60	6.11 HOES (7.22 - 6.35 - 7.68 (7.98) RECORDS 8.40 - 7.50 6.90	5.79 5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90	NO 2.46 2.35 2.33 2.30 2.26 2.30 2.24	ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30	2.40 2.25 2.26 N.E. 2.25 2.17	(3.91)		H M VH M-H M	IRREGULAR F NORMAL "	P, P-CURVE	SOME DISTURBANCE QUIET "" "" "SOME DISTURBANCE SMALL "
600 H: 0CTO 1 2 3 4 5 6 7 8 9 0 0	7.20 6.00 8ER NO ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22	6.11 HOES (7.22 . 6.35 . 7.68 (7.98) RECORDS 8.40 . 7.50 . 6.90 . 7.20	5.79 5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90 7.00	NO 2.46 2.35 2.33 2.30 2.26 2.30 2.24 2.22	2.79 ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30 2.32	2.40 2.25 2.26 N.E. 2.25 2.17 2.15	(3.91)		H WH M-H M	IRREGULAR F NORMAL "	P,P-CURVE " " " " " ",TRACES OF E ^{II}	SOME DISTURBANCE QUIET " " " SOME DISTURBANCE SMALL " QUIET
CTO 1 2 3 4 7 8 9 0 1	7.20 6.00 BER NO ECF 7.45 5.65 6.40 (7.42) NO F 6.90 7.22 6.60 6.85 5.80	6.11 HOES (7.22 . 6.35 . 7.68 (7.98) RECORDS 8.40 . 7.50 6.90 . 7.20 . 7.21	5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90 7.00 6.95	NO 2.46 2.35 2.33 2.30 2.26 2.30 2.24 2.22 2.27	2.79 ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30 2.32 2.30	2.40 2.25 2.26 N.E. 2.25 2.17 2.15	(3.91)		H M VH M-H M M M M M	IRREGULAR F NORMAL "	P,P-CURVE " " " " " ",TRACES OF E ^{II}	SOME DISTURBANCE QUIET " " SOME DISTURBANCE SMALL " QUIET "
CTO 1 2 3 4 5 6 7 8 9 0 1 2	7.20 6.00 8ER NO ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22 6.60 6.85 5.80 5.20	6.11 7.22 . 6.35 . 7.68 (7.98) RECORDS 8.40 . 7.50 . 6.90 . 7.20 . 7.21 .	5.79 5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90 7.00 6.95 6.95	NO 2.46 2.35 2.35 2.30 2.26 2.30 2.24 2.22 2.27 2.20	2.79 ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30 2.32 2.30 2.45	2.40 2.25 2.26 N.E. 2.25 2.17 2.15	(3.91)		H WH M-H M	IRREGULAR F NORMAL "	P,P-CURVE " " " " " ",TRACES OF E ^{II}	SOME DISTURBANCE QUIET " " " SOME DISTURBANCE SMALL " QUIET " SMALL DISTURBANCE
CTO 1 2 3 4 5 6 7 8 9 0 1 2 3	7.20 6.00 BER NO ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22 6.60 6.85 5.80 5.20 N.R.	6.11 HOES (7.22 · 6.35 7.68 (7.98) RECORDS 8.40 7.50 6.90 7.20 7.21 5.80 7.55	5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90 7.00 6.95 6.02 N.R.	NO 2.46 2.35 2.33 2.30 2.26 2.30 2.24 2.22 2.27 2.20 NO F	2.79 ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30 2.32 2.30 2.45 RECORDS	2.40 2.25 2.26 N.E. 2.25 2.17 2.15 2.25 2.10	(3.91)		H M VH M H M M M M M	IRREGULAR F NORMAL "	P,P-CURVE " " " " " ",TRACES OF E ^{II}	SOME DISTURBANCE QUIET " " " SOME DISTURBANCE SMALL " QUIET " SMALL DISTURBANCE QUIET
CTO 1 2 3 4 5 6 7 8 9 0 1 2 3 4	7.20 6.00 8ER No ECH 7.45 5.65 6.40 (7.42) NO F 6.90 7.22 6.60 6.85 5.80 5.20 N.R.	6.11 7.22 · 6.35 7.68 (7.98) RECORDS 8.40 7.50 6.90 7.20 7.21 5.80 7.55 (8.30) (5.79 5.21) 6.70 6.05 6.95 N.R. 7.50 8.50 7.90 7.00 6.95 6.95 N.R.	NO 2.46 2.35 2.33 2.30 2.26 2.30 2.24 2.22 2.27 2.20 NO Fig. 2. 20 No Fig.	2.79 ECHOES 2.56 2.45 2.40 N.R. 2.30 2.34 2.30 2.32 2.30 2.45 RECORDS 2.30	2.40 2.25 2.26 N.E. 2.25 2.17 2.15 2.25 2.10	(3.91)		H M VH M-H M M M M M M M-L	IRREGULAR F NORMAL "	", P-CURVE " " " " " ", TRACES OF E ^{II}	SOME DISTURBANCE QUIET " " " SOME DISTURBANCE SMALL " QUIET " SMALL DISTURBANCE
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5	N.R. 8.18 N.	3.				ONLY TRACES OF F-ECHOES		GREAT STORM
6	N.E. (5.60) N.		NO E-ECHOES		V-L	NORMAL P',F-CURVE		QUIET
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5	6.80 N.R. N.	R. ((1.90)		L-M	13 17		19
7	N.R. 7.65 7.		(2100)	A PARTY OF THE PROPERTY OF	L	IRREGULAR P',F-CURVE		"
В	5.70 7.00 7.		1.90 1.95 1.8		М	NORMAL P',F-CURVE		SMALL DISTURBANCE
9	(5.90) 7.90 IR	R.			M	IRREGULAR P',F-CURVE		SOME "
0	5.80 6.62 TR		1.85		H-M			
1	5.30 7.70 (6.	80)	1.98		H	NORMAL P',F-CURVE		SMALL DISTURBANCE
2		75			H-M	11 11		QUIET
3		E.			М	11 11		n
4		R.			M-L H-M	н		п
5	5.85 N.R. 5.	90				11 11		19
6	5.65 (6.25) 5.	60			М	IRREGULAR P',F-CURVE		н
:7		60			N L	n n		SMALL DISTURBANCE
8		10			н	н		QUIET
29		90				. 10 11		SOME DISTURBANCE
1:		.29	1.88 1.98 1.9	0	M-L			7000 700 700
30 M:			1.88 1.98 1.9			The state of the s		
t: DEC	5.77 6.90 6 MBER NO RECORDS. (4.40) NO ECHO:	.29	1.88 1.98 1.9		М	IRREGULAR P',F-CURVE		STORM SMALL DISTURBANCE
1 2 3	5.77 6.90 6.00 6.00 6.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 5.00 6.70 6.70 6.70 6.70 6.70 6.70 6.70 6	.29 E5	1.88 1.98 1.9		м	IRREGULAR P',F-CURVE NORMAL P',F-CURVE		STORM
1 2 3	MBER NO RECORDS. (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5	E5 .15 .30	1.88 1.98 1.9		М	NORMAL PI,P-CURVE		STORM SMALL DISTURBANCE
1 2 3 4 5	MBER NO RECORDS . (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5	E5 .15 .30 .90	1.88 1.98 1.9		M M L	NORMAL P',P-CURVE		STORM SMALL DISTURBANCE QUIET
1 2 3 4 5 6	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5	ES .15 .30 .90 .51	1.88 1.98 1.9		M M L	NORMAL PI,F-CURVE		STORM SMALL DISTURBANCE QUIET
0 : : : : : : : : : : : : : : : : : : :	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N	29 25 .15 .30 .90 .51	1.88 1.98 1.9		M M L H	NORMAL P',F-CURVE " " " " IRREGULAR "		STORM SMALL DISTURBANCE QUIET " " " " SOME DISTURBANCE
0 EC 1 2 3 4 5 6 7 8	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N	E5 .15 .30 .90 .51 .R.	1.88 1.98 1.9		M M L H	NORMAL P',P-CURVE " " " " IRREGULAR "		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET
0 1: 2 3 4 5 6 7 8	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5	29 25 .15 .30 .90 .51	1.88 1.98 1.9		M M L H	NORMAL P',F-CURVE "" "" IRREGULAR " " HORMAL "		STORM SMALL DISTURBANCE QUIET " " " " SOME DISTURBANCE
0 : EC: 1 2 3 4 5 6 7 8 9	MBER NO RECORDS. (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6	E5 .15 .30 .90 .51 .R832	1.88 1.98 1.9		M M L H M	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET "
0 1: 1 2 3 4 5 6 7 8 9	MBER NO RECORDS. (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N	ES .15 .30 .90 .51 .R832 .10 .E.	1.88 1.98 1.9		M M L H M H	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ "" """ "" "" "" ""		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET "
0 1 2 3 4 5 6 7 8 9	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 6.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6	ES .15 .30 .90 .51 .R832 .10 .E.	1.88 1.98 1.9		M M L H M H H H WH M M	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM
DEC: 1 2 3 4 5 6 7 8 9 10 11 12 13	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.50 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I	29 25 .15 .30 .90 .51 .R. .8. .32 .10	1.88 1.98 1.9		M M L H M H H H H	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ "" """ "" "" "" ""		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE
DEC: 1 2 3 4 5 6 7 8 9 10 11 12 11 3 11 4	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 1 4.96 7.70 6	29 .15 .30 .90 .51 .R. .32 .10 .E. .40 RR.	1.88 1.98 1.9		M M L H H H H H H H H H H H H H H H H H	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ """ """ IRREGULAR "" "" "" "" "" "" "" "" "" ""		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM
DEC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5	29 ES15309051R3210E40 RRR10	1.88 1.98 1.9		M M L H M H H W H W M H L L L	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE
DEC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 N N.E. 6.70 N 4.70 6.58 N	29 25 1.15 1.30 1.90 1.51 1.81 1.32 1.10 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.81 1.90 1.90 1.81 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.9	1.88 1.98 1.9		M M L H H H H H H L L L L M	NORMAL PI,F-CURVE """ IRREGULAR """ NORMAL """ """ """ """ """ IRREGULAR """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
DEC: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 S N.E. 6.70 N 4.70 6.58 N 4.70 6.58 N 4.70 6.58 N	29 28	1.88 1.98 1.9		M M L H M H H VH M H L L L M M M	NORMAL PI,F-CURVE II II IRREGULAR II NORMAL II II II II II II II II II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " " STORM SMALL DISTURBANCE GREAT STORM STORM
DEC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.50 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N 4.70 6.58 N	29 25 25 25 25 25 25 25 25 25 25 25 25 25	1.88 1.98 1.9		M M L H H H H H H L L L L M	NORMAL PI,F-CURVE II II IRREGULAR II II NORMAL II II II II II II II II II II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " " " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE " " " " " " " " " " " " " " " " " " "
DEC: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.50 5 6.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N 4.30 6.60 5 4.30 6.60 5	29 25 15			M M L H W H L L L M M H L L M M H L L M M H L L M M H L L M M M H L M M M H L M M M H H M M M H H M M M H H M M M H H M M M M H M M M M M M M M M M M M M M M M M M M M	NORMAL PI,F-CURVE IRREGULAR II INORMAL II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE QUIET
DEC: 1 2 3 4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 20 21	MBER NO RECORDS (4.40) NO ECHO!	29 25 25 25 25 25 25 25 25 25 25 25 25 25	1.88 1.98 1.9		M M L H M H H VH M H L L M M H	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ IRREGULAR "" "" "" "" IRREGULAR "" IRRE		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE GREAT STORM THE STORM THE STORM THE STORM THE SMALL DISTURBANCE QUIET THE STORM THE SMALL DISTURBANCE QUIET THE STORM THE
DEC: 1 2 3 4 5 6 7 8 9 110 111 112 113 114 115 116 117 118 119 220 21 22	MBER NO RECORDS (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N 4.35 6.90 6 4.30 6.60 5 4.20 7.15 5 4.45 6.80 4 NO RECORDS	29			M M L H W H L L L M M H L L M M H L L M M H L L M M H L L M M M H L M M M H L M M M H H M M M H H M M M H H M M M H H M M M M H M M M M M M M M M M M M M M M M M M M M	NORMAL PI,F-CURVE """ IRREGULAR "" NORMAL "" """ """ """ IRREGULAR "" "" "" "" IRREGULAR "" IRRE		STORM SMALL DISTURBANCE QUIET " SOME DISTURBANCE QUIET " " " " " " STORM SMALL DISTURBANCE GREAT STORM STORM TORM TORM STORM TORM TORM TORM TORM TORM TORM TORM
DEC. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MBER NO RECORDS. (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N 4.30 6.60 5 4.20 7.15 6 4.45 6.80 4 NO RECORDS 4.50 6.00 5	29 ES .15 .30 .90 .51 .R32 .10 .E40 .RR10 .90 .RE000315			M M L H M H H VH M M H L L M M H H H H H H H H H H H H	NORMAL PI,F-CURVE """ IRREGULAR """ NORMAL """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
30 A: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	MBER NO RECORDS	29 ES			M M L H H VH M H H H H H H H H H H H H H H H	NORMAL PI, F-CURVE """ IRREGULAR """ NORMAL """ """ "" """ """ """ """ "		STORM SMALL DISTURBANCE QUIET " SOME DISTURBANCE QUIET " " " " " " STORM SMALL DISTURBANCE GREAT STORM STORM TORM TORM STORM TORM TORM TORM TORM TORM TORM TORM
30 4: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	MBER NO RECORDS. (4.40) NO ECHO! 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.90 8.05 6 N.R. 6.70 N 4.70 6.58 N	29 25 15 30 15 15 15 15 15 15 15 15 15 15 15 15 15			M M L H M H H H H H H H H H H H H H H H	NORMAL PI,F-CURVE II II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
DEC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	MBER NO RECORDS. (4.40) NO ECHO: 4.60 6.70 5 4.80 6.42 5 4.60 6.50 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N N.E. 6.70 N 4.70 6.58 N 0.70 6.50 N 0	29 25 1.15 30 90 6.51			M M L H M H H H H H H H H H H	NORMAL PI, F-CURVE II II IRREGULAR II II NORMAL II II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27	MBER NO RECORDS. (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N A.30 6.60 5 4.30 6.60 5 4.20 7.15 5 4.45 6.80 A NO RECORDS 4.50 6.00 5 4.45 6.80 N N.R. 8.05 N	29 25 25 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.			M M L H H H H H H H H H H H H H H H H H	NORMAL PI,F-CURVE """ """ "NORMAL "" "" "" "" "" "" "" "" "" "" "" "" ""		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE QUIET " " " " VERY QUIET " " QUIET " STORM GREAT STORM GREAT STORM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 27 28	MBER NO RECORDS (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 1 4.96 7.70 6 TR. 6.05 5 N.E. 6.70 N 4.70 6.58 N 4.35 6.90 6 4.30 6.60 5 4.20 7.15 5 4.45 6.80 N N.R. 6.05 N N.R. 6.05 N N.R. 6.00 5 4.20 7.15 5 4.45 6.80 N N.R. 6.00 5 4.20 7.15 5 4.45 6.80 N N.R. 6.10 N N.R. 6.50 N N.R. 6.10 N N.R. 6.50 N N.R. 6.10 N N.R. 6.50 N TR. 7.80 N	29 25 1.15 30 90 6.51			M M L H M H H H H H H H H H H H H H H H	NORMAL PI,F-CURVE II II II III NORMAL II II II III II II II		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
30 M: DEC 1 2 3 4 5 6 7	MBER NO RECORDS (4.40) NO ECHO 4.60 6.70 5 4.80 6.42 5 4.60 6.30 5 5.95 7.18 5 4.75 6.58 N N.R. 7.10 N 4.80 5 4.70 7.10 6 4.45 7.43 N 4.90 8.05 6 N.R. 6.73 I 4.96 7.70 6 TR. 6.05 S N.E. 6.70 N 4.70 6.58 N 4.30 6.60 5 4.20 7.15 6 N. R. 6.05 S N.E. 6.70 N 4.70 6.58 N 4.30 6.60 5 4.20 7.15 S N.R. 8.05 N N.R. 6.10 N N.R. 6.10 N N.R. 6.10 N N.R. 6.50 T TR. 7.80 N N.R. 7.50 N	29 25 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.			M M L H M H H H H H H L L M H H H H H H	NORMAL PI,F-CURVE """ IRREGULAR """ NORMAL """ """ """ """ """ IRREGULAR """ """ """ IRREGULAR """ """ """ """ """ """ """		STORM SMALL DISTURBANCE QUIET " " SOME DISTURBANCE QUIET " " " STORM SMALL DISTURBANCE GREAT STORM STORM " SMALL DISTURBANCE QUIET " " " " VERY QUIET " " QUIET " STORM GREAT STORM GREAT STORM

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	F_	- LAYE	3	E	- LAYER	3	P, -	LAYER		There is a		
AY	10 ^h		14 ^h	10 ^h	12 ^h	14 ^h	10 ^h	12h	14 ^h	REFL.	NOTES	EARTH MAGNETIC CONDITIONS
1		7.50										
	5.40	8.00	7.05							H	NORMAL P',F-CURVE	QUIET
	5.20	9.15	7.80							H	11 11	7
	(6.00)		7.00				8			H	" ,SCATTERING	77
		8.45								M	,SONITENING	n
											ti n	
	5.80		7.95							H	4 4	77
	4.60	6.80	6.65							H		"
	N.E.	8.45	4.70							М	IRREGULAR "	STORM APPROACHING
		(7.35)	TDD							L	7	SOME DISTURBANCE
			THII.							"		
	4.90	6.90								NL	19 19	61
		6.80								М	4 4	17 11
	4.50		TR.							L	11 11	" "
	mp.	7.15		1						М	4 9	19 19
	TR.	6.05	5.90							L	4	" "
	(5.00)	6.85	5.85							н	NORMAL "	QUIET
	5.52	6.65	6.10							Н	" ",SCATTERING	u e
	N.E.									M	IRREGULAR "	STORM
		7.75								М		SMALL DISTURBANCE
	(4.70)	6.65	5.35							M	NORMAL "	QUIET
	6.22	7.40	(6.25)							н	н	n
	(7.60)	7.30	TR.							н	п	DISTURBANCE
	(4.80)	8.70	6.50							M	IRREGULAR "	ч
	5.95	9.30	8.20				1			H	NORMAL "	н
	5.80	8.60	7.70							М	u el	STORM
		8.10		1						м	19 19	и
	7.12		8.70							H	n B	SOME DISTURBANCE
		8.65	8.20							н	п п	11 19
	7.00	9.20	8.15							н	m m	QUIET
	6.80	8.70	7.70							н	н	SOME DISTURBANCE
	7.70	TR.	8.60	120						М	IRREGULAR "	н
	UARY		- 4									
	6.32	(7.60)		1.85						M	HORMAL P1,F-CURVE	SMALL DISTURBANCE
	T 60	0 50	9.40							H	11 11	QUIET
		8.50 N.Ł.					10			Ж		
	(6.70)				2.00					М	IRREGULAR "	SMALL DISTURBANCE
												SOME "
		7.05			2.05	1.80				H	NORMAL "	QUIET
		7.50	7.50	1.90	2.18	2.10				М	tt tt	n
			8.10	1.90	2.10					H		19
	NO REC		(7,00)							М	IRREGULAR "	SOME DISTURBANCE
	N.E.		(7.60)				1			M.		n 19
	(4.50)					2.25				M	н п	
	6.25		(7.90)							н	NORMAL "	QUIET
	(7.30)				_					М	19 19	11
		7.80	TR.		2.40				11	Н	17	п
	5.50	6.50		2.05	2.30					М	IRREGULAR "	SMALL DISTURBANCE
ĺ			TR.							VL	15 99	STORM
	N.E.	H.E.	N.E.						- 1			н
		5.60	(5.50)							AL	VERY FAINT ECHOES	SOME DISTURBANCE
			TR.							AT	(3) 19 19	STORM
	N.E.		6.00			2.30				L	NORMAL P',F-CURVE	QUIET
	N.E.				2.40	2.30				М	IRREGULAR "	SOME DISTURBANCE
	N.E. N.E. 6.00									L	NORMAL "	99 99
	N.E. N.E. 6.00	7.60					1					17 19
	N.E. N.E. 6.00	7.60 N.E.										1
	N.E. N.E. 6.00 TR. 5.70	7.60 N.E.			2.50				1	L	n H	SMAIL "
	N.E. N.E. 6.00 TR. 5.70 NO RE	7.60 N.E. CORDS 6.35	6.55		2.50	2.36	ii.		11.0	L M	" " IRREGULAR "	SMAIL " SOME "
	N.E. 6.00 TR. 5.70 NO REI N.E. 7.50	7.60 N.E. CORDS 6.35 8.20	7.05 8.50		2.50	2.36	aŭ			М	IRREGULAR "	SOME "
	N.E. 6.00 TR. 5.70 NO RE N.E. 7.50	7.60 N.E. CORDS 6.35 8.20 7.65	7.05 8.50 7.25		2.50	2.36				M H	IRREGULAR. "	SOME " QUIET
	N.E. N.E. 6.00 TR. 5.70 NO RE N.E. 7.50 7.40 N.E.	7.60 N.E. CORDS 6.35 8.20 7.65 6.90	7.05 8.50 7.25 5.90		2.50					M H M	IRREGULAR " NORMAL " IRREGULAR "	SOME " QUIET STORM
	N.E. 6.00 TR. 5.70 NO REI N.E. 7.50 7.40 N.E. 6.55	7.60 N.E. CORDS 6.35 8.20 7.65	7.05 8.50 7.25 5.90 7.50	2.38	2.50	2.45				M H	IRREGULAR. "	SOME " QUIET

	CRITICAL			N MGC/				
	F ₂ - LAYER	I	- LAYE	R	F ₁ - LAYER	REFL.		
AY	10 ^h 12 ^h 14 ^h	10 ^h	12 ^h	14 ^h	10 ^h 12 ^h 14 ^h	COEF.	NOTES	EARTH MAGNETIC CONDITIONS
1	9.70							SMAIL DISTURBANCE
2	NO RECORDS							QUIET
3	8.50 9.45			2.35		H	NORMAL PI,F-CURVE	
4	7.85 8.42 9.05	2.32	2.52	2.50		H	11 19	н
5	7.22 8.10 8.40	2.40	2.42	2.40		H	11 11	
		2.40	2.45	2.32		н	17	18
6		2.40	2.52	2.45		н	11 11	SMALL DISTURBANCE
7		- 5	2.02	6.40		**		н н
8	NO RECORDS		0.40	ļ		м	7 80	SOME "
9	5.92 6.50 6.85	0.75	2.40	0.40		н	76 17	QUIET
10	7.18 7.50 8.10	2.38	2.50	2.48				
11	7.75 8.20 7.50		2.70	2.45		H	11	19
2	7.50 8.60	2.60	2.70	2.60		H	n n	
13	NO RECORDS							19
14	8.80 9.20					М	IRREGULAR "	19
15	NO RECORDS							п
	7.30 7.60 8.15	2.78				н	NORMAL "	19
17						H	13 13	п
	(6.50) 7.55 8.10 7.00 8.20 8.10					M	29 99	SOME DISTURBANCE
18		0.0		2.82		Н	N 19	SMALL "
19	7.50 8.45 8.60		12 001	6.06	5 2 2 2	M M	IRREGULAR "	STORM
20	8.25 N.E. (7.60)		(3.00)				- 1	
21	N.E. (6.30)		3.10			M	n n	n
22	NO RECORDS 7.20		2.98			H	NORMAL "	SMALL DISTURBANCE
23	TR. N.E. 6.70					M	IRREGULAR "	STORM
24	N.E. 6.50 6.80		3.13			H	NORMAL "	n
25	6.23 7.00 6.65			10		H		n
0.0	N.E. 7.26 7.68			2.90		н	н	SOME DI STURBANCE
26				2.50		М	IRREGULAR "	11 11
27	7.40 8.20	0.00	3.00			и	NORMAL "	QUIET
28	5.70 6.45 7.60	2.90	3.00			L	IRREGULAR "	SOME DISTURBANCE
29	(6.90)					н	NORMAL "	QUIET
30	7.17 7.85 8.45		3.10			H	R H	н
31	7.65 8.15 7.75					n		
APRI	IIe							THE PERSON NAMED AND THE PERSO
1	7.10 7.23 7.80	3.00	3.05	3.00		H	NORMAL P',F-CURVE	SMALL DISTURBANCE
2	6.54 7.10 6.80		ECHOES			M-L	ONLY F-ECHOES	71 19
3	6.63 7.10 7.20	3.10	3.20	3.00		Н	NORMAL P',F-CURVE	17 19
4	N.E. 6.30					M-L	ONLY F-ECHOES	QUIET
ō	8.50		3.08			H	NORMAL PI,F-CURVE	
6	7.40 7.50 7.50	3.20	3.20	3.20		H	11	н
7	9.30 9.20 9.00	3.10	3.25	3.13		н	21 91	SMALL DISTURBANCE
8	N.E. 6.90					М	IRREGULAR "	STORM
9	NO RECORDS							QUIET
10	8.35		3.15			. н	NORMAL "	N
						M	п п	19
11	7,15							SOME DISTURBANCE
12	NO RECORDS					н	IRREGULAR "	n n
13	6.80					M	NORMAL "	19
14	6.70 7.20 7.80			111			IRREGULAR "	STORM
15	8.00 8.80 6.70					M -L		
16	5.50 5.90 6.75			(3.30)		М	NORMAL "	QUIET
17	6.30 7.00 7.10					L	п	
18	NO ECHOES							STORM
19	7.50					L	н	
20	N.B. N.E. 5.35					VL	IRREGULAR "	11
		21111				L	22 22	n
21	N.E. 6.30 N.E.					VL	п п	n
22	N.E. 5.30 N.E.					L	н н	Ti I
23	N.E. 7.00 6.40			11,000	1 1 1 1	H	NORMAL "	SOME DISTURBANCE
24	6.40 7.80 6.80		3.35	3.30		H	HO HOLDERT	19 19
25	7,60 8.45 7.60		5.40	3.40		100		QUIET
26	NO RECORDS							п
	8.20 TR. 8.30	3.35		3.30		М	н н	п
27	8.30 7.80 7.50	3.45				14	11 11	п
		1		- 05		н	H N	
28		3.30	3.60	3.25				10
	7.40 8.10 8.10 8.05 8.40 7.30	3.30	3.60	3.25		м	п	19

MAY 1036

MAY	1936									,				
-				FRE QUEN	CIES I	MGC/								
		- LAYER			- LAYE		F.			REPL.				
DAY	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	CORF.	NOTES		_	EARTH MAGNETIC CONDITIONS
1 2		7.00			3.20		1			Н		P',F-CURVE		QUIET
3		8.15 7.50		3.30	3.30			4.90		H	и			ii .
4		8.30	7.50		3.36	3.30		4.85	4.80	H	н	19		PONE DISMIRD DANCE
5	7.20	7.50	7.50	3.30	3,40	3.30				М	11	m		SOME DISTURBANCE QUIET
6	7.80	7.70	7.50	3.40				4.85		H	11	п		n
7	9.10	9.40	9,20	3.40		3.30				н	Ħ	11		- 4
8	i	8.40	8.05	3.30	3.65					Н	11	11		п ,
9	i .	8.50 8.20		3.35	3.55					H	11	11		n
11		6.20	C F0	7 70	0.00					М	11			SMALL DISTURBANCE
12		N.E.	6.50 5.90	3.30		3.30		4.80		M L		10		SOME "
13		CHOES	0.00							"	IRREGULAR			п п
14	6.80	6.40	6.40				ŀ			L	n	**		н
15	6.25	6.20	6.50	ĺ						VL	M	19		is si
16		6.40								VL	н	n		STORM
17		CORDS												19
18		6.40 5.50	5.50 N.E.							VI	n	19		17
20	NO E						78			AL		**		n n
21		6.70									н	11		
22		6.45		3.32			4.85			L	NORMAL	19		SOME DISTURBANCE SMALL "
23		6.70		3.35						- м	ri i	19		QUIET
24		6.80								М	**	19		н
25	7.80 *	7.70	7.50	3.40	3.75	3.40	4.80	4.95		н	II	17		· n
26			6.50	3.40			4.85			М	79	11		STORM
27 28			6.70	7.50						М	IRREGULAR			SOME DISTURBANCE
29			6.90	3.50	3.55	3.50	4.80	4.98		H	19	97		QUIET
30		5.90	0.00	0.40	0.00		4.70	4.80		M	H T	n		STORM
31	6	5.60			3.40		4.80			М	n	17		n n
м:	7.32 7	7.19	6.96	3.36	3.43	3.35	4.80	4.89	4.80					
				*				12						
														· lec
JUNE														
1	NO REC	CORDS												STORM
2	7.20	6.80	5.60							М	IRREGULAR	P',F-CURVE		SOME DISTURBANCE
3			5.50							H	NORMAL	10		QUIET
4			7.00			3.30				H	n n	n		"
5	7.35		6.30				4.75			Н		"		99
6		7.20 7.40								H	11	n		19
8	6.85		7.15							H	n ()	н		10
9	IRR.SCAT									L	IRREGULAR	19		STORM
10	5.70		5.40	3.30			4.60		4.65	м	11	19		n
11														SOME DISTURBANCE
12			5.70		3.70					м	NORMAL	11		SMALL "
13	6.00 5	5.60								М	н	H)		17 19
14	5.60 5	5.40								L	IRREGULAR	17 17		SOME "
16	6.50 6		-		7 55						18			17 19
17	NO RECO				3.55					М	ï	п		19 19
18	и и												7	
19	IRR. SC		NG							L	SCATTERED	ECHOES		GREAT STORM
20	5.40 5	.10		3.45		a .				M	IRREGULAR	P',F-CURVE		SOME DISTURBANCE
21	NO RECO													SMALL "
55			5.60	3.45		3.50		5.00		H	NORMAL	n		QUIET
23			7.10	3.50	3.55		4.95	4.95	4.95		17 50	n		17
25			7.30	3.50	3.60	3.55	4.90	4.95	5.00	H	н	11		er er
36			7.30		3 05			E 3.0			н	-V		n —
27		.40	,.30	3.55	3.65	3.50	5.10	5.10 4.90	5.00	H	n	10		
28		.90		0.00	3.60			5.00		Н	89	19		SMALL DISTURBANCE QUIET
9			5.60	3.65	3.70	3.55		7	4.90		п	Ħ		**
0	7.40 7	.10	5.70		3.70	3.40		4.80		H	H	н	P. L	R
:	6.61 6	.61 (5.51	3.49	3.61	3.47	4.87	4.96	4.90					

V.IIII.	1936

	Fo- L	AYER		E - 1	LAYER		F	LAYER		REPL.			
YA		12h	14 ^h	10 ^h	12h	14 ^h	10 ^h	12h	14 ^h	COEF.	NOTES		EARTH MAGNETIC CONDITIONS
-				3.55	3.60	3,50	4.80	4.80	4.60	н	NORMAL P',P-	CHRAE	QUIET
2		6.50 TR.	6.00 TR.	5.00	5.00	0,00	7100	4,00	1100	VL	HIGHLY IRREC		STORM
3	NO BC		****										SOME DISTURBANCE
4		6.60								L	SOME IRREGUL	ARITIES	QUIET
5	NO EC	HOES											SOME DISTURBANCE
6	5.60	TR.	TR.							VL	IRREGULAR P	.F-CURVE	STORM
7		TR.	5.60			7.			4.60	VE	11	19	SOME DISTURBANCE
8		5.60	6.10					4.70	4.60	М	SOME IRREGUI	LARITIES	п
9		6.60	6.10	3.40			4.60	4.60	4.60	M	NORMAL P',F.		QUI ET
0		6.40	5.80		3.40	3.40		4.60	4.60	M	11 1	1	SOME DISTURBANCE
1	5.90	N.E.	N.E.										STORM
2	NO RE												SOME DISTURBANCE
3	TRACE	S											89 19
4	6.10		6.00	3.40		3.40	4.60		4.60	М	11	1	QUIET
5			5.90		3.40					L			
6	5.80		6.10	3.40		3.40				м	er 1	н	n .
7	6.10		6.30	3.40		3.40	4.60			M	п	н	SMALE DISTURBANCE
8	5.90	6.00	5.90	3.40		3.35	4.50			Н	11	н	JURE
9		6.70			3.45					М		1	SMALL "
00		6.20								L	tt	"	
21	6.20	6.80	6.60							М		11	QUIET
2		7.00								М	н	11	*
3		6.10	5.90	3.30	3.50	3.40	4.60	4.60		Н	Ħ	19	
4	7.60	7.10	7.05			3.40				H		11	" " " " " " " " " " " " " " " " " " "
15	6.10	6.00	6.10	3.30	3.40		4.50	4.60		М	11	n	7
26		5.90			3.40			4.60		M	11	et	19
7		6.50								.VL	IRREGULAR	17	SMALL DISTURBANCE
28	5.70	5.80			3.40					L	NORMALI	11	n n
29	7.20	8.30	7.90		3.40		4.50	4.60		Ж		10	DISTURBANCE
	5.20			3.30			4.40			L	11	11	SOME DISTURBANCE
30	5.20												OMATE II
51		6.46	5.97	3,40	3.40	3.40	4.60	4.60	4.60				SMALL "
AUGUS	6.16	6.46	5.97	3.40	3.40	3.40	4.60	4.60	4.60				SMALL " SMALL DISTURBANCE
AUGUS	6.16	6.46	5.97	3.40	3.40	3.40	4.60	4.60	4.60				SMALL DISTURBANCE QUIET
AUGUS	6.16		5.97	3,40	3.40	3.40	4.60	4.70	4.60	L	HORMAL P†,F		SMALL DISTURBANCE QUIET "
AUGUS	6.16	6.46	5.97	3.40		3.40	4.60		4.50		и	16	SMALL DISTURBANCE QUIET "
ugu:	6.16			3.40		3.40	4.60		4.60	L			SMALL DISTURBANCE QUIET " " " SMALL DISTURBANCE
AUGUS 1 2 3 4 5	6.16	6.00		3.40		3.40	4.60		4.60	L	и	17 19	SMALL DISTURBANCE QUIET " " " SMALL DISTURBANCE "
AUGUS 1 2 3 4	6.16	6.00		3.40		3.40	4.60		4.60	L L M	श भ भ स	H	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " QUIET
AUGUS 1 2 3 4 5	6.16	6.00 6.15 5.60		3.40		3.40	4.60		4.60	L L M VL	et H	17 19	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET "
AUGUS 1 2 3 4 5 6 7	6.16 7T	6.00 6.15 5.60		3.40		3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE
1 2 3 4 5 6 7 8 9	6.16 FT 6.50	6.00 6.15 5.60 8.50		3.40		3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE
1 2 3 4 5 6 7 8 9 110	6.16 FT 6.50	6.00 6.15 5.60 6.50		3.40	3.30	3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE
1 2 3 4 5 6 7 6 9 9 110 111	6.16 FT 6.50	6.00 6.15 5.60 6.50		3.40		3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 8 9 110 111 112 113	6.16 FT 6.50	6.00 6.15 5.60 6.50 CHOES GHOES		3.40	3.30	3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 6 9 9 110 111 12 13 14	6.16 FT 6.50	6.00 6.15 5.60 8.50 CHOES		3.40	3.30	3.40	4.60	4.70	4.60	L L M VL	श भ भ स	17 19	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
AUGUSUS 3 4 5 6 7 6 9 9 10 11 12 13 14	6.16 FT 6.50	6.00 6.15 5.60 6.50 CHOES GHOES		3.40	3.30	3.40	4.60	4.70	4.60	L L M VL M	ल ज म च च	n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 6 9 9 110 111 12 13 14 15	6.16 FT 6.50	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 6.30		3.40	3.30	3.40	4.60	4.70	4,60	L L M VL M	श भ भ स	n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 6 9 110 111 12 13 14 15 16 17	6.16 FT 6.50	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 6.30 7.30 7.00	6.30	3.40	3.30		4.60	4.70	4,60	L L M VL M	ल ज म च च	n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 8 9 110 111 112 113 114 115 116 117 118	6.16 77 6.50 NO E	6.00 6.15 5.60 8.50 CHOES GHOES 6.70 7.30 7.30			3.30	3.40	4.60	4.70	4.60	L L M VL M	n n n n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
1 2 3 4 5 6 7 8 9 9 110 111 112 113 114 115 116 117 118 119	6.16 OFF OFF OFF OFF OFF OFF OFF O	6.00 6.15 5.60 6.50 CHOES 6.70 6.30 7.30 7.00 7.10	6.30	3.20	3.30	3.35	4.60	4.70	4.60	L L M VL M	n n n n n n n n n n n n n n n n n n n	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
AUGUS 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 16 17 16 19	6.16 77 6.50 NO E	6.00 6.15 5.60 8.50 CHOES GHOES 6.70 7.30 7.30	6.30 6.90 7.30		3.30 3.40 3.30		4.60	4.70	4.60	L L M VL M	NORMAL P', I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
AUGUSSIA 1 2 2 3 4 4 5 6 7 6 9 9 10 11 12 13 14 15 16 17 16 19 20 21	6.16 NO E NO E 7.70 6.90 6.40	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 6.30 7.30 7.10 7.60 7.10	6.30 6.90 7.30 N.E.	3.20	3.30	3.35	4.60	4.70	4.60	L M VL M	NORMAL P , , , , , , , , , , , , , , , , , ,	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE DISTURBANCE QUIET
AUGUSSIA 1 2 3 4 5 6 7 6 9 110 111 12 13 14 15 16 17 18 19 20 21 22	6.16 NO E NO E 7.70 6.90 6.40	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.10 7.10 6.60 (6.10)	6.30 6.90 7.30 N.E.	3.20	3.30 3.40 3.30	3.35	4.60	4.70	4,60	L L M VL M H H H H H	NORMAL P',I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	6.16 NO E NO E 7.70 6.90 6.40	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.00 7.10 7.60 6.60 (6.10) 6.90	6.90 7.30 N.E.	3.20 3.25	3.30 3.40 3.30 3.30	3.35 3.25	4.60	4.70	4,60	L L M WL M H H M M H H W L M M M H M M M M M M M M M M M M M M M	NORMAL P , , , , , , , , , , , , , , , , , ,	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
AUGUS: 1 2 3 4 5 6 7 6 9 110 111 12 13 14 15 16 17 18 19 20 21 22 23 24	6.50 NO E NO E 7.70 6.90 5.40	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.00 7.10 7.10 6.60 (6.10) 6.60	6.90 7.30 N.E.	3.20	3.30 3.40 3.30 3.40	3.35	4.60	4.70	4,60	L L M VL M H H H H H H H	NORMAL P',I	TO THE	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
AUGUSTA AUGUST	6.16 NO E NO E 7.70 6.90 6.40	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.00 7.10 7.60 7.10 6.60 (6.10) 6.60 7.10	6.90 7.30 N.E.	3.20 3.25 3.30	3.30 3.40 3.30 3.40 3.30	3.35 3.25	4.60	4.70	4.60	L L M VL M H H H H H UL M M	NORMAL P',I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
AUGUS 1 2 3 4 5 6 7 6 9 110 112 113 114 115 117 118 119 220 21 22 23 224 25 26	6.50 NO E NO E 7.70 6.90 6.40 6.80 6.90 6.30	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.00 7.10 7.10 6.60 (6.10) 6.60	6.90 7.30 N.E. 6.80 6.80	3.20 3.25 3.30	3.30 3.40 3.30 3.40	3.35 3.25 3.22	4.60	4.70	4.60	L L M VL M H H H H H W L M M H H H H H H H H H H H H H H H H H	NORMAL P',I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
AUGUS 1 2 3 4 5 6 7 6 9 110 111 12 13 14 15 16 17 16 19 20 21 22 23 24 25 26 27	6.16 NO E NO E NO E 6.80 6.80 6.90 6.30 7.20	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.10 6.60 (6.10) 6.90 6.90 6.30	6.90 7.30 N.E. 6.80 6.80 6.90 7.20	3.20 3.25 3.30	3.30 3.40 3.30 3.40 3.30	3.35 3.25 3.22 3.10 3.10	4.60	4.70	4.60	L L M VL M M H H W M H H M M H M M M M M M M M M	NORMAL P , , , , , , , , , , , , , , , , , ,	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " "
AUGUS 1 2 3 4 5 6 7 6 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	6.16 NO E NO E NO E 6.80 6.90 6.80 6.30 7.20 7.30	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 6.30 7.30 7.10 6.60 (6.10) 6.60 (6.10) 6.60 7.10 6.30	6.90 7.30 N.E. 6.80 6.80	3.20 3.25 3.30 3.25 3.30	3.30 3.40 3.30 3.40 3.30 3.30	3.35 3.25 3.22	4.60	4.70	4.60	L L M VL M H H H H H W L M M H H H H H H H H H H H H H H H H H	NORMAL P',I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " SMALL DISTURBANCE " QUIET " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
AUGUS 1 2 3 4 5 6 7 6 9 110 111 12 13 14 15 16 17 16 19 20 21 22 23 24 25 26 27	6.16 NO E NO E NO E 7.70 6.90 6.40 6.80 6.90 7.20 7.30 7.30	6.00 6.15 5.60 6.50 CHOES GHOES 6.70 7.30 7.10 6.60 (6.10) 6.90 6.90 6.30	6.90 7.30 N.E. 6.80 6.80 6.90 7.20 7.30	3.20 3.25 3.30 3.25 3.30	3.30 3.40 3.30 3.40 3.30	3.35 3.25 3.22 3.10 3.10	4.60	4.70	4.60	L L M VL M H H H VL M M M H H H W	NORMAL P',I	n n n n n n n n n n n n n n n n n n n	SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE " " SMALL DISTURBANCE DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "

SEPTEMBER 1936.

				FREQ		S IN	MGC/SEC			\dashv			
	F ₂	- LAY			- LAYE		F	- LAYE	IR	REFL.			
YAC	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	10 ^h	12 ^h	14 ^h	COEF.	МО	TES	EARTH MAGNETIC CONDITI
1	7.70	7.50	7.50							L	NORMAL	P',F-CURVE	QUIET
2	7.40	7.70	7.70			3.05	,			М.	11	"	н
3		8.20	7.60	3.10						М	11	м	п
4	NE	NE	7.40							1	SOME I	RREGULARITIES	SMALL DISTURBANCE
5	7.00	6.70	NR	3.10	3.25					М	NORMAL	P',F-CURVE	
6	6.90	IIR	NR	3.20						L	,,,	19	QUIET
7	7.10	7.20	7.20	3.10						M	, ,		"
₿	NE	8.90	7.90							L			SMALL DISTURBANCE
9	TRACES												" "
0	7.10	8.20	8.50							VL			11 11
1	6.30	6.30	6.40	3.00	3.10	3.00				м	1		
2	6.30	6.10	NR	0.00	3.10	0.00	1			L	11	17	CUIET "
3	NR	6.90	NR		3.05					L	11	It	1 .
1	6.30	6.40	7.20	2.90	2.95						11	н	"
5	6.60	7.00	7.10	2.70	2.95					L	if if	IJ	11
										, m	11	19	11
5	6.70	7.05	7.60	2.80	3.00	2.75				M	"	11	0
	7.00	7.00	6.70	2.95	3.00	2.90	1			M		II	**
1	8.70	9.00	9.00	2.75	3.00					Н	11	11	п
	6.70	7.50	NR	2.75	3.00					M		н	**
	NR	KK	8.40							1 3			91
- 1	7.10	7.80	8.40	2.85	3.00	2.80	1			Н	#		,
	8.60	9:00	8.70	2.80	2.95	2.85				H	, ,	11	1
- 1	7.70	8.50	8.60	2.00	5150	2100	1			L	,,	W_	DY FOR IND A NOT
	8.60	9.50	9.50		2.95	2.80				н		14	DISTURBANCE
Į		9.50	9.30		2.95	2.75				1 1	"	0.000	QUIET
- [9.30		4.80	2.70				H	"	n n	17
ı	9.30	8.80	NR							L	IRREGULA	?	DISTURBANCE
-1	NO REC	CORDS								1			SMALL DISTURBANCE
ı	9.10	8.80	8.80		2.90					Н	NORMAL F	,F-CURVE	н
П	7.20	8.40			2.95					М	19	tt .	0 (0)
- 1	8.30	8.50	9.50			2.70				н	17	II .	QUIET
	7.50	7.85	8.05	2.93	3.01	2.84							
то	7.50 BBR	7.85	8.05	2.93	3.01	2.84							
	BER	7.85 9.60	8.05 NE	2.93	3.01	2,84					NORMAL P	.F-CURVE	CILLET
TO	8ER 9.50			2.93	3.01	2.84				М	NORMAL P		Talup
TO	BBR 9.50	9,60 9.50	NE			54				М	17	n	11º
TO	88R 9.50 9.50	9.60 9.50	NE 10.00	2.65	2.80	54				М	17		17 11
TO	9.50 9.50 9.50 9.50	9.60 9.50 10.00	NE 10.00	2.65	2.80	2.60				M R H	11 12	n	17 11 19
ТО	9.50 9.50 9.50 9.50 1 NO REC 9.50 1	9.60 9.50 10.00 CORDS	NE 10.00 NR	2.65 2.60 2.60	2.80 2.85 2.75	54				M H H	17 71 19	n	11 11 17
ТО	9.50 9.50 9.50 9.50 1 NO REC 9.50 1	9.60 9.50 0.00 comps	NE 10.00 NR 10.00	2.65 2.60 2.60 2.60	2.80 2.85 2.75 2.65	2.60				м н н	57 75 19 19	n	" " DISTURBANCE
ro	9.50 9.50 9.50 1 NO REC 9.50 1 7.50	9.60 9.50 10.00 comps 10.00 7.70 9.50	NE 10.00 NR 10.00 NE 9.20	2.65 2.60 2.60	2.80 2.85 2.75	2.60				м н н н	17 71 19	n	" " DISTURBANCE SMALL DISTURBANCE
FO	9.50 9.50 9.50 1 10 REC 9.50 1 7.50 9.50 NE	9.60 9.50 10.00 CORDS 10.00 7.70 9.50 NE	NE 10.00 NR 10.00 NE 9.20 7.50	2.65 2.60 2.60 2.60	2.80 2.85 2.75 2.65	2.60				M H H H	57 75 19 19	n n 	" " DISTURBANCE SMALL DISTURBANCE DISTURBANCE
FO	9.50 9.50 9.50 1 HO REC 9.50 1 7.50 9.50 ME 7.50	9.60 9.50 10.00 00RDS 10.00 7.70 9.50 NE 8.60	NE 10.00 NR 10.00 NE 9.20 7.50 TR	2.65 2.60 2.60 2.60	2.80 2.85 2.75 2.65	2.60				M H H M M	17 14 19 19 19 19	11 11 11 11 11 11 11 11 11 11 11 11 11	" DISTURBANCE SMALL DISTURBANCE DISTURBANCE
07	9.50 9.50 9.50 1 MO REC 9.50 1 7.50 9.50 1 7.50 9.50 6.00	9.60 9.50 10.00 CORDS 10.00 7.70 9.50 NE 8.60 6.30	NE 10.00 NR 10.00 NE 9.20 7.50	2.65 2.60 2.60 2.60	2.80 2.85 2.75 2.65	2.60				M H H H	17 10 10 10 10 10	11 11 11 11 11 11 11 11 11 11 11 11 11	" " DISTURBANCE SMALL DISTURBANCE DISTURBANCE
07	9.50 9.50 9.50 1 NO REC 9.50 1 7.50 9.50 NE 7.50 6.00	9.60 9.50 10.00 CORDS 10.00 7.70 9.50 NE 8.60 6.30 CORDS	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60	2.80 2.85 2.75 2.65	2.60				M H H M M	17 14 19 19 19 19	11 11 11 11 11 11 11 11 11 11 11 11 11	" DISTURBANCE SMALL DISTURBANCE DISTURBANCE
00	9.50 9.50 9.50 1 NO REC 9.50 1 7.50 9.50 NE 7.50 6.00 NO REC 8.40	9.60 9.50 0.00 0.00 7.70 9.50 NE 8.60 6.30 0.00 0.00 0.00 0.00 0.00 0.00 0	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60				M H H M M	17 14 19 19 19 19	11 11 11 11 11 11 11 11 11 11 11 11 11	" DISTURBANCE SMALL DISTURBANCE DISTURBANCE
	9.50 9.50 9.50 1 9.50 1 7.50 9.50 ME 7.50 6.00 H0 REC 8.40	9.60 9.50 10.00 2000 10.00 7.70 9.50 NE 8.60 6.30 2000 9.80	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M M	17 14 19 19 19 19	11 11 27 48 48 49 49 49	U DISTURBANCE SMALL DISTURBANCE DISTURBANCE OREAT DISTURBANCE
	9.50 9.50 9.50 1 MO REC 9.50 1 7.50 9.50 NE 7.50 6.00 MO REC 8.40 10.00 1 9.20 1	9.60 9.50 10.00 203DS 10.00 7.70 9.50 9.50 6.30 203DS 8.60 6.30 203DS 9.80 20.00	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR 10.00 10.00	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M M L	" " " " " " " " " " " " " " " " " "	11 11 27 48 48 49 49 49	" " DISTURBANCE SMALL DISTURBANCE DISTURBANCE " GREAT DISTURBANCE QUIET "
1	9.50 9.50 9.50 1 9.50 1 7.50 9.50 ME 7.50 6.00 H0 REC 8.40	9.60 9.50 10.00 203DS 10.00 7.70 9.50 9.50 6.30 203DS 8.60 6.30 203DS 9.80 20.00	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M H M L	" " " " " " " " " " " " " " " " " " "	n n n n n n n n n n n n n n n n n n n	" DISTURBANCE SMALL DISTURBANCE DISTURBANCE " GREAT DISTURBANCE QUIET "
ro	9.50 9.50 9.50 1 MO REC 9.50 1 7.50 9.50 ML 7.50 6.00 MO REC 8.40 10.00 1 9.20 1 7.70	9.60 9.50 10.00 10.00 10.00 9.50 8.60 6.30 10.00 10.00 9.80	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR 10.00 10.00 10.00 9.40	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M H M L	" " " " " " " " " " " " " " " " " " "	THE STATE OF THE S	" " DISTURBANCE SMALL DISTURBANCE DISTURBANCE " GREAT DISTURBANCE QUIET " "
ТО	9.50 9.50 9.50 1 MO REC 9.50 1 7.50 9.50 NE 7.50 6.00 MO REC 8.40 10.00 1 9.20 1	9.60 9.50 10.00 7.70 9.50 NE 8.60 6.30 CORDS 9.80 10.00 9.80	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M M L	" " " " " " " " " " " " " " " " " " "	TO THE TOTAL PROPERTY OF THE TOTAL PROPERTY	U U U U U U U U U U U U U U U U U U U
ro	9.50 9.50 9.50 1 100 REC 9.50 1 7.50 9.50 1 7.50 6.00 10 REC 8.40 10.00 1 9.20 1 7.70	9.60 9.50 0.000 CORDS 10.00 9.50 9.80 0.00 0.00 0.00 0.00 0.00 0.00 0.0	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR	2.65 2.60 2.60 2.60 2.60	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55				M H H M H M L	" " " " " " " " " " " " " " " " " " "	TO THE TOTAL PROPERTY OF THE TOTAL PROPERTY	" " DISTURBANCE SMALL DISTURBANCE DISTURBANCE " GREAT DISTURBANCE QUIET " "
ro	9.50 9.50 9.50 9.50 1 NO REC 9.50 1 7.50 6.00 NO REC 8.40 10.00 1 9.20 1 7.70 9.50 1	9.60 9.50 0.000 CORDS 10.00 7.70 9.50 0.00 0.00 0.00 0.00 0.00 0.00 0.0	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR 10.00 10.00 9.40 10.00 10.00	2.65 2.60 2.60 2.60 2.60 2.40 2.37	2.80 2.85 2.75 2.65 2.75 2.55 2.55 2.55	2.60 2.60 2.55 2.55				M H H M L H H H H H H	" " " " " " " " " " " " " " " " " " "	P-CURVE	U U U DISTURBANCE SMALL DISTURBANCE DISTURBANCE GREAT DISTURBANCE QUIET U U U U U U U U U U U U U U U U U U U
FO	9.50 9.50 9.50 1 NO REC 9.50 1 7.50 9.50 NE 7.50 6.00 NO REC 8.40 10.00 1 9.20 1 7.70 9.50 1 7.70 9.50 1 7.70	9.60 9.50 0.000 0.000 7.70 9.50 NE 6.60 6.30 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	NE 10.00 NR 10.00 NE 9.20 7.50 TR NR 10.00 10.00 10.00 10.00 10.00 IR	2.65 2.60 2.60 2.60 2.60 2.37	2.80 2.85 2.75 2.65 2.75	2.60 2.60 2.55 2.55 2.40				MHHMML	" " " " " " " " " " " " " " " " " " "	, P-CURVE	U U U U U U U U U U U U U U U U U U U
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TTO	9.50 9.50 9.50 9.50 1 NO REC 9.50 1 7.50 6.00 NO REC 8.40 10.00 1 9.20 1 7.70 9.50 1 7.10 (NO REC 10.50 1 9.50 1 NO REC 10.00 1 9.50 1 10.00 1 9.50 1 9.5	9.60 9.50 10.00 CORDS 10.00 7.70 9.50 6.30 CORDS 9.80 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 1	NE 10.000 NR 10.000 NR 9.200 7.500 TR NR 10.000 10.000 10.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000 11.000	2.65 2.60 2.60 2.60 2.60 2.37	2.80 2.85 2.75 2.65 2.75 2.55 2.55 2.55 2.55	2.60 2.60 2.55 2.55 2.40 2.45 2.36 2.30				M H H M M L H H H H H H H H H H H H H H	IT I	TO THE TOTAL PROPERTY OF THE TOTAL PROPERTY	U DISTURBANCE SMALL DISTURBANCE DISTURBANCE GREAT DISTURBANCE QUIET DISTURBANCE QUIET SMALL DISTURBANCE QUIET GREAT DISTURBANCE QUIET GREAT DISTURBANCE QUIET GREAT DISTURBANCE

HOVEMBER	1936.

	CRITICAL	FREQUENCIES	IN M	BC/SEC.			
	P ₂ - LAYER	E - LAY	ER	F ₁ - LAYER			
YAY	10 ^h 12 ^h 14 ^h	10 ^h 12 ^h	14 ^h	10 ^h 12 ^h 14 ^h	COEF.	NOTES	EARTH MAGNETIC CONDITIONS
1	NO RECORDS						QUIET
2	9.30 10.50 10.50		1.90		M-H	NORMAL P',F-CURVE	1
3	7.70 10.50 7.60	2.20			И	SOME IRREGULARITIES	DISTURBANCE
4	7.20 8.70 9.50				М	NORMAL P',F-CURVE	н
5	8.60 10.50 10.50	1.95 2.15			H	11	SMALL DISTURBANCE
6	9.60 10.00 10.50	1.95 2.10	1.88		M-H	11 19	п
7	9.10 10.00 NR	1.97			М	н	и и
В	NO RECORDS						QUIET
9	7.80 8.60 9.60	2.02			M	11 11	н
0	8.70 (9.60)(10.00)	1.95			N :	н	4
1	9.20 10.20 (7.20)				L	n n	SMALL DISTURBANCE
2	(6.40) 7.10 7.30				L	SOME IRREGULARITIES	я п
3	8.40 10.00 9.10		1.75	COLUMN TO SERVICE AND ADDRESS OF THE PERSON	М	NORMAL PI,F-CURVE	QUIET
4	8.40 11.50 NR	1.75			М	17 19	п
5	NO RECORDS						
5	7.50 8.90 7.20	1.93			M	97 19	SOME DISTURBANCE
7	7.60 9.00 8.10		1.60		M	11	QUIET
3	8.00 (10.50) HE				L	н	SMALL DISTURBANCE
9	7.20 11.00 7.10				Ł	н	п
	7.30 NE (7.50)				L	SOME IRREGULARITIES	н
1	6.70 8.70 NR	TEAL T			M-H	NORMAL P: ,F-CURVE	QUIET
2	NO RECORDS	1831		The second second			10
3	6.70 9.40 7.40	1.71			M-H	44	11
4	6.40 8.00 7.70	1.78	1.55		Н		11
5	6.90 7.80 8.60				Н	19 19	n n
3	7.00 8.80 8.00	1.77			н		11 19
7	6.50 8.70	1.75			M		17 19
в	6.90 9.20 NR	1.75			М		11 11
	NO RECORDS						DISTURBANCE
9	NO RECORDS						
9	7.00 8.90 8.30 7.69 9.42 7.03	1.55 1.76 1.82 1.93	1.88		H	n	SMALL DISTURBANCE
	7.00 8.90 8.30 7.69 9.42 7.03	1.82 1.93	1.88		Н	n	SMALL DISTURBANCE
CE	7.00 8.90 B.30	1.82 1.93	1.88		NT.	IRREGULAR PI,F-GURVE	SMALL DISTURBANCE
CEI	7.00 8.90 8.30 7.69 9.42 7.03	1.82 1.93	1.88				
ECEI	7.00 8.90 8.30 7.69 9.42 7.03 MBER NE 10.10 7.00	1.82 1.93	1.88		VL	IRREGULAR P:,F-GURVE	SMALL DISTURBANCE
ECEI	7.00 8.90 8.30 7.69 9.42 7.03 MBER NE 10.10 7.00 7.60 11.00 10.40	1.82 1.93	1.88		VL W	IRREGULAR F',F-CURVE NORMAL P',F-CURVE	SMALL DISTURBANCE
ECE	7.00 8.90 8.30 7.69 9.42 7.03 MBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.20 10.60	1.82 1.93	1.88		VL M M	IRREGULAR F',F-CURVE NORMAL P',F-CURVE " "	SMALL DISTURBANCE QUIET SMALL DISTURBANCE
L L L L L L L L L L L L L L L L L L L	7.00 8.90 8.30 7.69 9.42 7.03 MBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.20 10.60 7.40 10.30 10.60	1.82 1.93	1.88		VL M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET
L CEI	MBER NE 10,10 7.00 7.60 11.00 10.40 7.00 11.20 10.50 7.40 10.30 10.60 7.50 11.50 NR	1.82 1.93	1.88		VL M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET
D L L L L L L L L L L L L L L L L L L L	7.00 8.90 8.30 7.69 9.42 7.03 NBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.20 10.60 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS	1.82 1.93	1.88		VI W M H	IRREGULAR P',F-GURVE NORMAL P',F-GURVE " " " " " "	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "
CEI	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.20 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00	1.82 1.93	1.88		VI. M M H H H	IRREGULAR P',F-CURVE NORMAL P',F-CURVE " " " " " " " " " " " " " " " " " " "	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " "
ECEI	MBER NE 10.10 7.00 7.60 11.20 10.50 7.40 10.50 7.40 10.50 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40	1.82 1.93	1.88		VL M M H H	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " "
CE1	MBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80	1.82 1.93	1.88		VI. M M H H H	IRREGULAR P',F-CURVE NORMAL P',F-CURVE " " " " " " " " " " " " " " " " " " "	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " "
6CE1	MBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.50 7.30 7.	1.82 1.93	1.88		VI. M M H H H	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " "
CELL 2	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.20 10.50 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.50 7.30 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS	1.82 1.93	1.88		VL M M H H H M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE " " " " " " " " " " " " " " " STRATIFICATION NORMAL P',P-CURVE	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" ""
ECEI	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.20 10.60 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.60 7.30 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS 8.30 NR NO RECORDS 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS 6.00 7.40 6.50	1.82 1.93	1.88		VL M M H H M M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE " " " " " " " " " " " " " " " STRATIFICATION NORMAL P',P-CURVE	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
DECED	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.20 10.50 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.50 7.30 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS	1.82 1.93	1.88		VL M M H H H M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" ""
CCE1	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.20 10.60 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.60 7.30 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS 8.30 NR NO RECORDS 6.40 9.70 7.70 6.30 8.30 NR NO RECORDS 6.00 7.40 6.50	1.82 1.93	1.88		VL M M H H M M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
ECEI	MBER NE 10.10 7.00 7.60 11.00 10.40 7.60 11.00 10.40 7.40 10.50 7.40 10.50 7.40 10.30 10.60 7.50 11.50 NR NO RECORDS 7.30 9.60 9.00 6.40 8.60 8.40 6.40 9.30 7.80 6.30 7.60 7.30 8.60 7.40 6.50 7.60 7.70 6.30 8.30 NR NO RECORDS 6.00 7.40 6.50 5.60 (7.40) 6.80 7.40 6.80	1.82 1.93	1.88		VI. M M H H M M M L M M L	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" ""
CCEIL 22 3 3 4 5 5 5 7 7 3 3 5 5 7 7 3 3	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " " " " " SMALL DISTURBANCE QUIET
CEL L 2 2 3 3 4 4 5 5 5 7 7 8 9 9	NBER NE	1.82 1.93	1.88		VI. M M H H M M M L M M L	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"" """"""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " "
CEL L 2 2 3 3 4 4 5 5 5 7 7 8 9 9	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " SMALL DISTURBANCE QUIET " " SMALL DISTURBANCE QUIET "
CEJ	NBER NE	1.82 1.93	1.88		VL M M H H M M L M L M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET " " " " " " " " SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " "
ECEI	MBER NE 10.10 7.00 7.60 11.00 10.40 7.00 11.20 10.60 7.40 10.50 NR NO RECORDS 6.00 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.60 7.70 6.30 7.60 7.70 6.30 8.30 NR NO RECORDS 6.00 7.40 6.50 5.60 (7.40 6.80 4.50 6.50 6.10 5.20 7.00 6.10 5.50 6.90 NR NO RECORDS 6.00 7.40 6.80 6.50 6.10 6.50 6.90 NR NO RECORDS 6.50 6.50 6.10 7.20 6.70 0.750 6.70 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750	1.82 1.93	1.88		VL M M H H M M M L M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" " " " " " " SMALL DISTURBANCE QUIET " " " " " " " " " " " " " " " " " " "
ECEI 1 2 3 4 5 5 6 6 7 7 8 9 9 0 0 1 1 2 2 3 3 4 4 4 5 6 6 7 7 7 8 8 9 8 9 0 0 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 1	MBER NE	1.82 1.93	1.88		VI. M M H H M M M L M M L M M M M M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" ""
DECE:	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M M M M M M M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" ""
DECE:	MBER NE	1.82 1.93	1.88		VI. M M H H M M M L M M L M M M M M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" "
ECEI 1 1 2 3 3 4 4 5 5 6 6 7 7 8 9 9 0 0 1 1 2 2 3 3 4 4 5 6 1 1 1 2 1 2 3 4 4 1 5 1 1 1 2 1 2 3 4 4 1 5 1 1 2 1 3 1 4 1 5 1 2 3 3 4 4 4 5 1 5 1 2 3 3 4 4 5 5 1 5 1 5 1 2 3 3 4 4 5 5 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M M M M M M M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" ""
0	NE	1.82 1.93	1.88		VL M M H H M M M L M M M M M M M M	IRREGULAR P:,F-CURVE NORMAL P:,F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" "
1 22 3 4 5 5 6 6 7 7 8 8 9 9 0 0 1 2 2 3 4 4 5 6 6 7 7	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M M M M L	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" "
ECE 1 2 3 4 5 6 6 7 8 9 9 0 1 2 3 4 4 5 6 6 7 8 9 9 0 1 2 3 4 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 5 6 6 7 8 9 9 0 1 2 3 6 7 8 9 9 0 1 2 2 7 8 9 9 0 1 2 7 8 9 9 0 1 2 2 7 8 9 9 0 1 2	MBER NE	1.82 1.93	1.88		VI. W M H H M M M L M M L M M M M M M M M M M	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """" """"" """""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" "
CECE 1 2 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8 9 9 0 1 2 3 3 4 5 6 6 7 8	MBER NE	1.82 1.93	1.88		VL M M H H M M M L M M M M L	IRREGULAR P',F-CURVE NORMAL P',F-CURVE """"""""""""""""""""""""""""""""""""	SMALL DISTURBANCE QUIET SMALL DISTURBANCE QUIET "" "" "" "" "" "" "" "" "" "" "" "" "

RESUMING TABLES.

ANNUAL VARIATION OF THE CRITICAL FREQUENCIES OF THE F2- LAYER. 1935.

LCCAL TIME.	JAN	PEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h					5.22	5.57	5.34	5.38	6.00	6.62	5.77	4.66
12 ^h				5.30	5.31	5.48	5.25	5.45	6.11	7.51	6.90	7.00
14 ^h					5.06	5.31	5.19	5.29	5.79	6.62	6.29	5.59

ANNUAL VARIATION OF THE CRITICAL FREQUENCIES OF THE F, - LAYER. 1935.

LOCAL TIME.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h									024		1101	DIIG
					4.04	4.22	4.18	4.10				
12 ^h				3.94	4.06	4.23	4.20	4.12	(3.91)			
14 ^h					4.02	4.20	4.17	4.08				

ANNUAL VARIATION OF THE CRITICAL PREQUENCIES OF THE E - LAYER. 1935.

LOCAL TIME.	JAN	PEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h					2.88	2.98	2.99	2.96	(2.40)	2.25	1.88	
12 ^h				2.63	2.95	3.17	3.09	3.05	2.79	2.29	1.98	
14 ^h					2.88	2.95	2.91	3.01	(2.64)	2.14	1.90	

ANNUAL VARIATION OF THE CRITICAL PREQUENCIES OF THE ${\bf F_2}$ - LAYER. 1936.

OCAL TIME.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h	5.78	6.64	7.21	7.30	7.32	6.61	6.16	6.84	7.50	8.98	7.69	6.13
12 ^h				7.40								
14 ^h				7.29								

ANNUAL VARIATION OF THE CRITICAL FREQUENCIES OF THE ${\bf F_1}$ - LAYER. 1936.

LOCAL TIME.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h					4.80	4.87	4.60		П			
12 ^h					4.89	4.96	4.60	4.60				
14 ^h					4.80	4.90	4.60					

ANNUAL VARIATION OF THE CRITICAL FREQUENCIES OF THE E - LAYER. 1936.

LOCAL TIME.	JAN	PEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10 ^h		(2.02)	2.54	3.21	3.36	3.49	3.40.	3.23	2.93	2.46	1.82	
12 ^h		2.48	2.75	3.25	3.43	3.61	3.40	3.30	3.01	2.59	1.93	
14 ^h		(2.22)	2.58	3.21	3.35	3.47	3.40	3.24	2.84	2.47	1.88	

