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IONOSPHERIC DATA IN JAPAN

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RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

Ionospheric observation is carried out at the following four observatories in Japan.

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Midori-cho, Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Sumiyoshi-cho, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Nukui-Kitamachi, Koganei-shi, Tokyo-to
Yamagawa	31°12.1′N.	130°37.1′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

Solar radio emission and radio propagation conditions are observed at Hiraiso Branch and Inubo Radio Wave Observatory.

	Latitude	Longitude	Site
Hiraiso	36°22.0′N.	140°37.5′E.	Isozaki-machi, Nakaminato-shi, Ibaraki-ken
Inubo	35°42.2′N.	140°51.5′E.	9912 Tennodai, Choshi-shi, Chiba-ken

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction," 1961.

Terminology

f_oF2, f_oF1, f_oE — The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.

f_oEs — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

f_bEs — The lowest ordinary wave frequency at which the Es layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

f-min — The frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$M(3000)F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

$h'F2$ — The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.

$h'F$ — The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'Es$ — The lowest virtual height of the trace used to give the f_oEs.

$hpF2$ — The virtual height of the $F2$ layer measured on the ordinary

wave component at a frequency equal to $0.834 f_0F2$.

ypF2 The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between *hpF2* and the virtual height at $0.969 f_0F2$).

a. Descriptive Letters

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

The following letters are entered in the first column before a numerical value on

the monthly tabulation sheets.

D — greater than.

E — less than.

I — Missing value has been replaced by an interpolated value.

J — Ordinary component characteristic deduced from the extra-ordinary component.

O — Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)

T — Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U — Uncertain or doubtful numerical value.

Z — Measurement deduced from the third magneto-ionic component.

c. Definitions of the CNT, MED, UQ and LQ

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

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

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

d. Description of Standard Types of *Es*

The eight standard types of *Es* are identified by corresponding capital letters: *F, L, C, H, Q, R, A, S*. These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. The letter *'N'* is used to designate any *Es* trace that does not correspond to any of the eight types.

F — An *Es* trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat *Es* traces observed in the daytime are classified according to their virtual hight: *H* or *L*.

L — A flat *Es* trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

C — An *Es* trace showing a relatively symmetrical cusp at or below f_oE. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

H — An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above f_oE. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

Q — An *Es* trace which is diffuse and non-blanketing over a wide

frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

R An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation but which is nonblanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick *E* layer) by the lack of group retardation in the *F* layer traces at corresponding frequencies and the lack of complete blanketing.

A An *Es* having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These sometimes extend over several hundred kilometers of virtual height.

S A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace. The rising trace alone is classified as '*S*'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal *Es* trace such as *Es-L*, or *Es-F*, at frequencies which greatly exceed the *E* layer critical frequency, whereas at low latitudes it usually rises from *Es-Q Es-C* or *Es-H* at frequencies near the regular *E* critical frequency. Type *S* is never used to determine f_0Es and $h'Es$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as *Es* echoes being seen.

N The designation '*N*' is used to denote an *Es* trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. '*N*' should be used sparingly.

e. Multiple Reflections from *Es*

When the ionogram shows the presence of multiple reflections from *Es* the number of traces seen should be recorded after the letter indicating the type.

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 MHz at Hiraiso Branch. Antennas are two parabolic reflectors: 10 meter for 200 MHz and 5 meter for 500 MHz, each having the total power receiver. Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

The unit is $10^{-22}\,W \cdot m^{-2} Hz^{-1}$ for both components of polarization.

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

The three-hourly and daily mean values are given at 200 MHz only.

Variability is expressed in the following four grades:

0 = Quiet or no burst,
1 = A few bursts,
2 = Many bursts,
3 = Very many bursts.

The number of bursts exceeding the flux level is counted. Bracket means that observation time does not exceed one third of the period.

c. Distinctive Events

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

Starting time and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

Duration is given in minutes and to nearest a tenth minute, if short or clear.

Descriptive type is denoted by the following symbols:

S = Simple rise and fall of intensity;
C = Complex variation of intensity,
C+ = Prolonged broad-band enhancement of radiation, generally of spectral type IV;
F = Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;
RF = More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;
e = Sudden beginning of burst with steep rise of intensity;
E = Steep rise of intensity of continuum background;
p.i. = post-burst increase;
onset storm = clear-cut beginning of a noise storm.

Peak intensity is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

C. RADIO PROPAGATION CONDITIONS

a. Field Strengths of WWV and WWVH

Field Strengths observations of WWV and WWVH transmitted from Fort Collins, Colorado and Hawaii, respectively, are carried out at Hiraiso Branch. In order to avoid interferences with other standard frequency waves on the same frequency, the upper side-band of 440 Hz is picked up by the use of a narrow band pass filter with

±40 Hz bandwidth.

The *tabulated field strength* is the average of peak value of the incident upper side-band field intensity in dB above one microvolt per meter. The *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

Particulars of the transmitter and receiver are summarized in the following tables:

Transmitter

	WWV	WWVH
Location	Fort Collins, Colorado Long. 105°02′W Lat. 40°41′N	Maui, Hawaii Long. 156°28′W Lat. 20°46′N
Power	3 kW for the upper side-band	0.5 kW* for the upper side-band
Antenna	$\lambda/2$ vertical	$\lambda/2$ vertical
Distance	9150 km	6270 km

*Reduced from the carrier power of 2 kW with amplitude modulation of 100%.

Receiver

Antenna	4.5m vertical rod
Bandwidth	±40 Hz for the upper side-band
Calibration	every half an hour

The meaning of *Descriptive symbols* is as follows:

C : Measurement influenced by, or impossible because of, any non-propagational reasons.

S : Measurement influenced by, or impossible because of, interferences or atmospherics.

U : Inaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.

E : Less than the following figure.

b. Radio Propagation Quality Figures

Radio propagation quality figures are usually expressed on the scale that ranges from one to five as follows:

1 = very poor (very disturbed)
2 = poor (disturbed)
3 = rather poor (unstable)
4 = normal
5 = good

The tabulated circuits contain Hamburg (commercial circuit), WWV (10, 15 and 20 MHz frequencies broadcast from Fort Collins, Colorado), Lima (commercial circuit) and WWVH (10 and 15 MHz frequencies broadcast from Hawaii), which are received at Hiraiso Branch.

Warnings of radio propagation which are broadcast from JJY station are expressed in three grades:

N = normal
U = unstable
W = disturbed

The letter W expresses HF propagation disturbances which are expected to occur during the following 12 hours after issue. The letter U and N also means unstable and normal conditions, respectively.

Whole day radio quality indices stand for the averages of the 6-hourly indices of the circuits of Hamburg, WWV and Lima.

Start-and end-time of principal geomagnetic storms correlated with radio propagation conditions are tabulated from observations at Kakioka Magnetic observatory.

c. Sudden Ionospheric Disturbances (S.I.D's.)

(i) SWF

The data of short wave fade-out (SWF) are prepared from the records of field intensities at Hiraiso, of the following circuits. Start-time, Duration, Type and Importance are obtained from the data of a circuit whose Drop-out Intensity is underlined. Drop-out Intensities of 10, 15 and 20 MHz are indicated by (′), (none), and (″), respectively. Characteristics of the phenomenon are classified as follows.

Circuits and Drop-out intensities

CO ..... WWV 20, 15 and 10 MHz (Fort Collins, Colorado)
LM ..... Various frequencies of commercial circuit (Lima)
HA ..... WWVH 15 and 10 MHz (Hawaii)
TO ..... JJY 15 and 10 MHz (Tokyo)
SH ..... BPV 15 and 10 MHz (Shanghai)
HB ..... Various frequencies of commercial circuit (Hamburg)

Start-time and Duration

Types

S : sudden drop-out and gradual recovery
Slow : slow drop-out taking 5 to 15 minutes and gradual recovery
G : gradual disturbances; irregular change in both drop-out and recovery

Importances

Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

Besides, the time of phenomena associated with SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record), are given in this table from interchange messages of IUWDS or measurements at Hiraiso.

(ii) SPA

The data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio wave propagation received at Inubo Radio Wave Observa-

tory. Characteristics of the VLF radio wave propagation are as the following table. In the last column, a spherical earth with a radius of 6371.2 km is assumed.

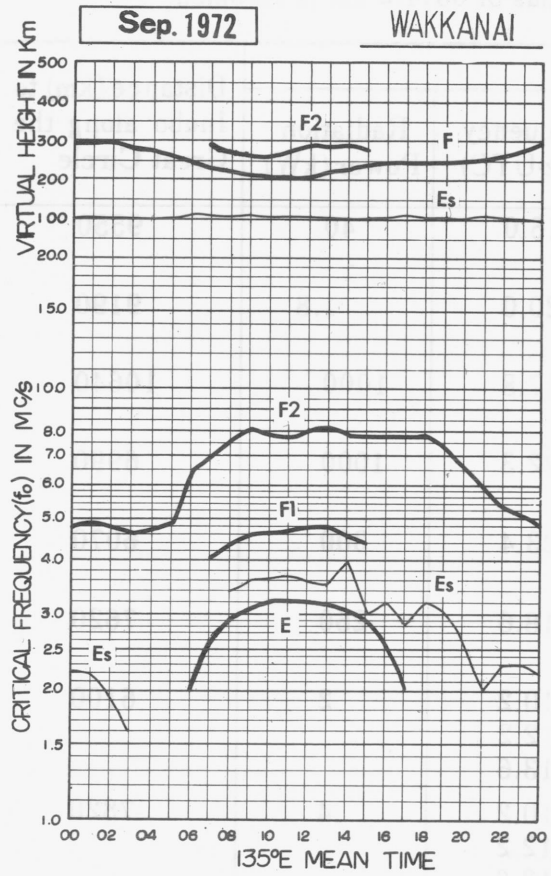
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West Cape	21°49′S 114°10′E	NWC	22.3	1000	6990
Lualualei	21°26′N 158°09′W	NPM	23.4	300	6070
Jim Creek	48°12′N 121°55′W	NPG	18.6	250	7620
Haiku	21°24′N 157°50′W	HA0 HA2 HA3	10.2 12.2 13.6	2	6100
Aldra	66°25′N 013°09′E	AL0 AL2 AL3	10.2 12.2 13.6	4	7820

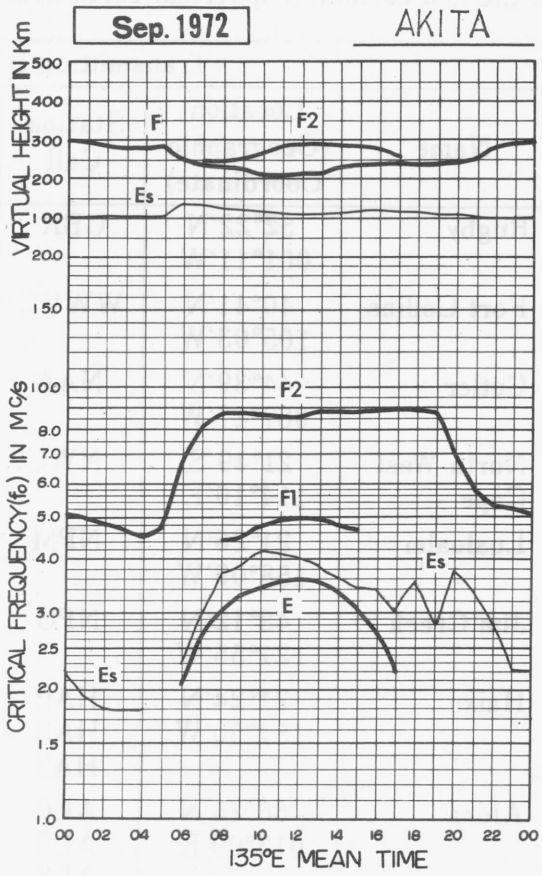
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

Out of more than two circuits to have observed the same SPA event listed in the text, the phase advance on some circuit on which the event is the most remarkable or distinct is underlined. As for the underlined phase advance, the starting, the ending, and the maximum times are described.

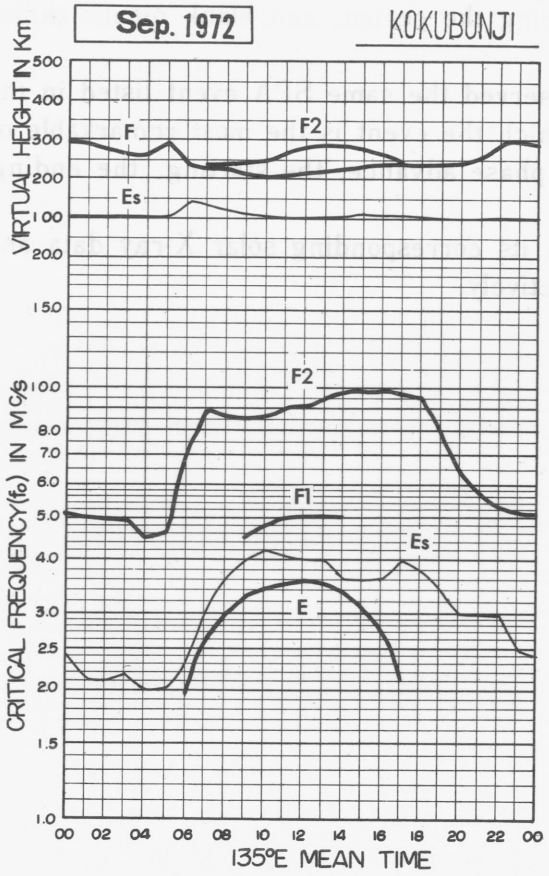
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

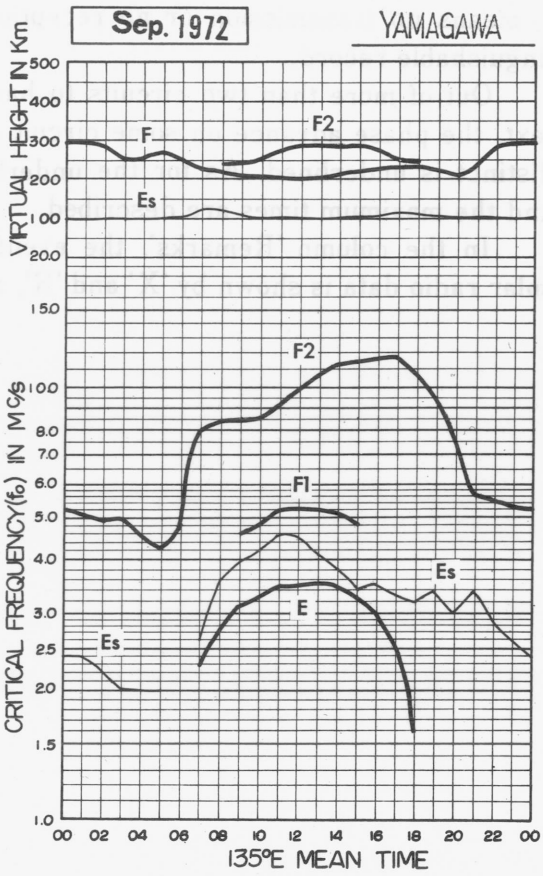
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

SEP. 1972 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	60	61	60	59	56	62	78	90	82	77	81	86	95	95	86	82	77	82	87	85	A	70	64	63
2	61	63	62	57	56	59	66	73	74	77	76	78	83	85	88	86	88	83	84	76	74	68	68	67
3	65	62	56	51	50	48	55	60	65	73	73	76	78	76	76	76	74	71	71	73	69	67	63	60
4	57	56	55	53	53	57	75	85	77	80	79	H 78	81	82	86	86	87	95	92	82	63	57	53	53
5	53	54	54	54	53	57	74	83	68	81	75	79	83	86	88	76	84	92	95	86	73	65	58	59
6	60	60	59	56	58	63	86	94	88	83	75	77	81	90	97	96	94	94	83	83	77	73	63	58
7	55	55	55	54	57	62	76	74	83	91	82	82	74	83	82	81	88	92	91	81	70	63	S	A
8	F	F	F	F 56	F 56	F 56	77	87	83	81	79	70	75	85	83	A	77	76	82	83	S	68	62	58
9	F	F	F	F	F 48	50	66	76	87	78	74	75	91	70	70	68	76	78	81	80	80	76	59	56
10	49	50	50	45	44	48	63	73	75	84	85	72	67	69	68	76	73	71	67	69	67	61	54	53
11	50	48	48	48	48	50	58	68	82	H 91	84	74	80	80	71	78	85	74	88	90	82	58	54	52
12	47	46	46	43	41	43	56	52	58	A	57	62	61	64	65	63	A	70	68	58	56	55	44	43
13	39	40	F 38	F	F	43	52	62	74	72	A	A	A	A	67	68	69	66	68	68	S 64	F	F	43
14	38	33	41	36	34	28	37	W	43	R	R	R	50	A	47	53	F 60	47	A	A	33	31	28	A
15	27	F	F	F	F	43	51	60	76	73	68	61	73	76	74	77	73	77	80	76	73	51	46	48
16	48	50	46	33	34	37	46	56	64	70	68	65	71	73	73	72	73	73	73	63	55	52	46	44
17	43	40	40	39	37	42	62	63	71	74	72	71	84	78	73	80	70	73	73	66	60	56	49	49
18	44	46	47	43	45	47	63	71	70	80	72	70	82	77	68	70	68	74	75	61	62	59	44	44
19	43	40	43	S 43	43	47	64	H 68	64	79	76	78	79	83	77	75	74	77	77	74	72	63	51	47
20	45	46	U C 47	45	47	47	59	63	68	78	83	77	79	76	78	76	72	I C 76	79	76	66	53	50	47
21	47	48	46	46	44	46	63	76	93	94	76	71	77	79	76	71	71	76	81	76	70	63	54	43
22	43	43	43	46	C	C	C	C	C	96	83	76	79	78	76	83	79	81	75	65	60	56	53	50
23	50	50	48	49	46	44	69	76	96	98	97	93	86	83	85	78	78	77	73	72	71	62	55	54
24	54	53	50	45	45	44	65	66	76	86	R	83	81	81	82	86	85	84	75	68	66	63	49	49
25	48	47	48	47	47	51	74	68	77	88	97	97	94	84	85	88	86	C	C	75	64	53	49	50
26	50	C	C	C	C	C	C	C	C	C	C	C	90	87	R 86	78	79	81	86	70	66	60	56	57
27	56	56	53	F 53	52	50	58	58	67	R	R 85	80	84	84	81	77	81	85	76	63	F	F	F	F
28	F	F	F	F	F 44	53	65	78	87	105	90	87	86	90	83	83	78	83	80	70	66	60	49	46
29	44	44	45	45	43	46	67	70	96	106	98	C	C	C	C	C	C	C	C	C	62	C	C	C
30	C	C	51	C	C	C	C	C	C	89	95	C	C	88	90	87	91	87	79	73	58	55	53	58
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	24	25	24	25	27	27	26	27	26	26	25	27	27	29	28	28	28	27	28	27	27	26	26
MED	48	49	48	46	47	48	64	70	76	81	79	77	81	82	78	78	78	77	79	74	66	60	53	51
UQ	55	56	54	54	53	54	72	76	83	91	85	80	84	85	85	83	85	84	84	80	72	64	58	58
LQ	44	45	46	44	44	44	58	63	68	77	74	71	76	76	73	74	73	74	74	68	62	56	49	47

SEP. 1972 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1972 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										A	500	520	510		480									
2								L		450	500		540	L	490	480								
3							U L 380	430		470	500	500	510	500										
4								U L 410		500			520	510		L								
5										500	L	L	500	U L 480	U L 490									
6									440	U L 470	480		520	L	A	450								
7									460	470	470	L		500		460								
8								400	U L 430	460				500	U L 500	A								
9									A	370	380	380	355	A	L									
10								400	450	490	450	470	470			430								
11									430		L	470	510	L	460	L								
12									A	A	440	A	450	470	440	L	A							
13									A	A	A	A	A	A	440	U L 410								
14							300	340	370	390	A	410	420	A	420	400	370							
15								410	420	450	440	470	480	460										
16								400	430	430	460	460	460	460	440									
17									440		460	480	A	450										
18										440	460	L	470	450	430									
19										460	460	480	480	480										
20											A				U L 450									
21									L	U L 460	440	450	L											
22									C	U L 450	460		L		L									
23								430		U L 460			480	L										
24											L			L										
25													U L 480											
26									C	C	C	C												
27									440	460	460	U L 450												
28										L	470	440		L										
29											460	C	C	C	C	C								
30												C	C											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	8	10	18	18	13	17	11	11	6	1							
MED							340	405	435	460	460	470	480	480	450	440	370							
UQ								420	440	470	470	480	510	500	485	460								
LQ								400	430	450	450	450	470	460	440	410								

SEP. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOE (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45 23 6 N. Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	230	290	310	335	335	350	345	A	A	320	A	240	S					
2						S	215	295	320	330	A	A	350	340	A	325	300	220	S					
3						S	225	290	I A 300	A	A	A	340	330	A	A	285	220	A					
4						A	220	275	295	A	A	A	A	A	A	A	A	A	A					
5						S	210	275	305	320	330	335	350	340	A	A	A	220	A					
6						A	215	280	300	315	320	A	A	A	A	310	A	210	A					
7						S	220	280	300	305	300	330	A	330	A	305	270	225	E					
8						S	210	265	300	310	325	A	A	A	A	A	A	200	S					
9						A	205	265	300	300	320	R	A	310	315	305	270	210	S					
10						S	205	260	300	310	325	340	335	325	315	295	255	205	S					
11						S	205	270	A	330	R	330	330	320	310	A	255	195	A					
12						S	205	255	290	300	305	310	305	310	315	295	255	195	E					
13						E	205	245	280	295	A	A	A	A	A	A	245	A	S					
14						S	195	230	265	295	300	315	315	A	300	290	240	200	E					
15						E	195	235	280	295	300	A	315	A	A	A	250	195	S					
16						S	200	255	280	A	320	330	A	A	A	A	255	205	E					
17						E	185	250	285	305	325	300	A	A	A	290	250	190	E					
18						E	205	255	290	305	325	335	315	310	A	R	A	190	S					
19						S	200	255	295	310	320	325	320	320	315	300	A	A						
20							200	260	290	305	315	315	305	A	A	A	A	C						
21							180	260	300	310	330	325	325	310	300	A	A	A						
22							C	C	C	325	330	330	325	315	320	300	260	160	E					
23							205	260	295	300	305	320	330	310	A	295	255	180						
24							200	255	295	305	320	315	315	320	320	295	255	S						
25						E	190	255	295	310	320	315	310	310	305	295	240	C						
26						C	C	C	C	C	C	C	325	300	300	A	A	A						
27						E	200	265	290	305	305	300	305	300	305	290	A	A						
28							190	235	290	300	305	300	300	R	305	290	230	A						
29							180	240	275	290	310	C	C	C	C	C	C	C						
30						C	C	C	C	320	325	C	C	A	A	A	A	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	27	27	26	26	24	19	20	17	13	16	17	18	6					
MED						E	205	260	295	305	320	325	322	315	310	295	255	202	E					
UQ						E	210	272	300	315	325	330	332	325	315	305	260	220	E					
LQ						E	198	255	290	300	305	315	312	310	305	292	250	195	E					

SEP. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	21	J X 25	J X 23	J X 20	J X 20	E S 16	G	40	44	48	G	G	43	40	40	G 28	31	33	22	J X 36	J X 83	J X 64	J X 55	J X 61
2	J X 23	E S 14	21	J X 20	E	E S 16	J X 34	39	G	43	39	37	G	G	40	G	G	31	22	J X 26	J X 33	J X 35	J X 28	24
3	E S 14	22	21	22	E	E S 16	G	G	38	41	J X 50	40	G	G	40	43	G 23	G 20	J X 28	J X 23	23	20	J X 33	J X 43
4	J X 51	J X 30	J X 33	J X 23	15	J X 23	G	G 20	G	40	40	40	43	G	J X 41	43	44	J X 51	J X 43	34	37	20	J X 35	J X 43
5	J X 30	J X 28	17	16	22	20	G 18	G 20	G 27	G 25	G	G	G 28	G	34	34	33	G 21	32	23	28	18	E S 16	J X 21
6	27	24	21	J X 24	21	17	28	G	34	38	36	39	40	38	J X 55	34	36	34	J X 35	J X 80	26	E S 16	E S 15	28
7	E S 15	E S 16	E S 17	E S 15	E	22	G	34	40	35	34	G	36	G	33	G 23	G	G	J X 43	J X 95	J X 31	J X 80	J X 110	J X 63
8	J X 35	J X 30	J X 25	J X 23	J X 20	22	28	32	36	40	G	38	41	J X 50	J X 43	J X 95	J X 43	J X 70	J X 35	J X 68	J X 83	J X 65	J X 30	J X 86
9	E S 15	J X 23	E S 16	E S 15	20	20	33	36	J X 53	J X 56	41	G	41	J X 50	35	36	G	G	J X 25	J X 21	E S 16	E	21	29
10	E S 18	22	20	E S 15	E	E S 15	G	G 25	G 25	G 29	G	G	G	G	G	G	33	G	E S 18	E S 16	E S 16	E S 15	F S 15	E S 15
11	E S 16	E S 15	E	E	E	E S 14	G	G	35	G	G	G	G	G 28	G 30	30	38	28	33	31	J X 53	E S 14	E S 15	E S 16
12	E S 16	E S 13	E S 14	E	E	E S 14	J X 60	J X 43	J X 53	J X 78	J X 45	J X 68	J X 55	38	43	37	J X 91	J X 43	J X 29	J X 25	J X 45	J X 23	23	22
13	J X 31	J X 28	J X 19	J X 22	J X 25	E	J X 53	J X 62	J X 61	J X 63	J X 163	J X 111	J X 93	J X 128	J X 83	30	G 21	35	J X 73	J X 118	J X 33	J X 66	J X 25	J X 64
14	J X 58	J X 26	J X 33	J X 28	16	E S 15	23	26	30	33	41	38	35	52	G	G	G	27	J X 48	J X 43	J X 43	63	J X 55	J X 43
15	J X 30	J X 33	J X 33	16	J X 45	J X 33	32	36	32	G	41	J X 45	39	J X 64	J X 41	35	J X 58	J X 33	J X 40	J X 43	J X 28	E	E S 16	J X 23
16	J X 22	E	E	E	E	24	G	G	G 26	30	G	G	40	40	43	31	G	28	J X 33	J X 94	J X 25	J X 33	J X 43	J X 23
17	22	E	24	18	E	E	G	30	32	G	G	43	J X 58	J X 43	J X 43	G	G	28	J X 38	J X 60	18	24	J X 25	22
18	E S 17	J X 21	J X 22	J X 31	J X 33	E	G	G	34	37	36	37	G	G	33	G	30	G	E S 15	E	J X 33	J X 43	F S 16	J X 40
19	E S 15	E S 15	E S 14	E	E	E S 15	25	G 20	G	G 23	36	G	38	G	G	G	J X 50	J X 55	J X 33	J X 51	J X 53	J X 43	J X 28	23
20	J X 55	J X 41	J X 33	J X 40	J X 30	J X 40	21	38	38	34	J X 55	45	42	J X 66	J X 45	J X 44	J X 60	C	J X 36	20	J X 50	E	J X 24	22
21	E S 15	16	E S 15	E S 15	E	E S 16	G	G	G 26	G	G 29	G 30	G	35	34	32	J X 28	J X 31	E S 15	J X 23	E S 16	E S 15	20	E S 15
22	E S 15	E S 15	E	E	C	C	C	C	C	G	G	G	G	G	G	G	32	23	E	J X 23	E S 15	J X 21	21	24
23	26	21	E S 13	E	E	E	G 18	G 21	32	G	G	G	G	G	J X 43	G	34	J X 33	J X 35	J X 50	J X 30	J X 22	J X 23	E S 15
24	J X 33	J X 33	J X 21	J X 22	15	J X 41	G 17	38	35	40	40	38	40	J X 75	41	J X 73	J X 71	J X 83	J X 90	J X 48	J X 24	J X 38	J X 33	J X 26
25	23	18	J X 28	14	E	E	G	30	40	42	43	41	35	G	G	G 25	G 21	C	C	J X 23	22	E S 14	E S 15	E S 14
26	E	C	C	C	C	C	C	C	C	C	C	C	36	G	G	30	26	20	E S 15	E	E S 15	E S 16	24	E
27	23	J X 23	E	E	E	E	G	G	35	36	36	38	36	39	G 21	G 24	34	21	E S 17	E S 17	E S 14	18	E	E
28	E S 15	E	E	E	E	E	G	G	G	40	37	G	33	G	G	G	G	20	19	J X 33	E S 15	E S 15	E	E
29	E S 16	23	16	E	E	E	G	G	G	36	36	C	C	C	C	C	C	C	C	C	J X 23	C	C	C
30	C	C	J X 30	C	C	C	C	C	C	45	41	C	C	J X 53	J X 51	J X 31	J X 35	J X 33	J X 25	E S 15	E S 17	E S 15	E S 15	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	29	28	27	27	27	27	27	29	29	27	28	29	29	29	29	27	28	29	30	29	29	29
MED	22	22	20	16	E	16	G	G 25	34	36	36	37	36	35	40	30	32	28	J X 32	J X 31	J X 27	20	23	23
UQ	J X 30	J X 27	J X 24	J X 22	20	21	26	36	38	41	41	40	41	J X 50	J X 43	35	38	J X 34	J X 37	J X 50	J X 37	J X 38	J X 30	J X 40
LQ	E S 15	E S 15	E S 14	E	E	E	G	G	G 26	G 25	G	G	G	G	G 21	G	G 21	20	20	23	E S 17	E S 15	F S 16	E S 15

The Radio Research Laboratories, Japan

SEP. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	15	15	16	19	E S 16	G	G	44	47	G	G	G	40	40	G 28	33	G	G	36	A	55	40	27
2	E	E S 14	20	15	E	E S 16	G	G	G	G	37	37	G	G	37	G	G	G 18	18	26	31	20	22	E
3	E S 14	E	E	E	E	E S 16	G	G	36	38	40	38	G	G	34	33	G 22	G 18	19	18	E	E	30	40
4	40	18	30	E	E	17	G	G 19	G	35	38	40	40	G	40	36	36	37	37	26	27	E	30	30
5	22	21	E	E	E	18	G 18	G 20	G 25	G 25	G	G	G 27	G	34	32	31	G 20	24	20	E	E	E S 16	E
6	E	E	E	18	15	13	G	G	G	G	G	36	38	35	51	G	31	34	31	45	18	E S 16	E S 15	18
7	E S 15	E S 16	E S 17	E S 15	E	E	G	G	G	G	G	G	36	G	33	G 23	G	G	38	42	30	21	27	A
8	32	20	20	18	13	E	G	G	G	G	G	38	E R 41	40	39	A	38	66	33	30	30	25	17	20
9	E S 15	20	E S 16	E S 15	15	20	25	G	47	G	G	G	40	50	G	G	G	G	20	19	E S 16	E	E	20
10	E S 18	E	E	E S 15	E	E S 15	G	G 24	G 25	G 25	G	G	G	G	G	G	G	G	E S 18	E S 16	E S 16	E S 15	E S 15	E S 15
11	E S 16	E S 15	E	E	E	E S 14	G	G	30	G	G	G	G	G 28	G 28	30	38	G 15	20	29	47	E S 14	E S 15	E S 16
12	E S 16	E S 13	E S 14	E	E	E S 14	50	35	46	A	40	45	G	G	G	G	A	36	22	26	30	20	E	E
13	16	20	16	17	20	E	G	55	60	63	A	A	A	A	35	30	G 20	34	55	50	20	30	E	20
14	27	20	22	20	E	E S 15	G	G	G	G	A	G	G	A	G	G	G	G	A	A	26	E	23	A
15	18	20	16	E	21	26	G	35	G	G	40	40	G	38	40	35	53	30	40	40	27	E	E S 16	18
16	E	E	E	E	E	E	G	G	G 25	E R 30	G	G	34	36	35	31	G	G	26	31	18	30	38	E
17	E	E	E	E	E	E	G	G	G	G	G	43	55	39	33	G	G	G	34	45	15	E	22	E
18	E S 17	E	18	20	E	E	G	G	G	G	G	G	G	G	31	G	25	G	E S 15	E	30	26	E S 16	25
19	E S 15	E S 15	E S 14	E	E	E S 15	G	G 20	G	G 23	G	G	G	G	G	G	46	46	28	29	46	36	25	E
20	E	24	20	22	18	26	18	36	G	G	54	43	42	39	41	41	36	C	36	18	29	E	19	E
21	E S 15	15	E S 15	E S 15	E	E S 16	G	G	G 26	G	G 29	G 30	G	G	G	30	26	20	E S 15	E	E S 16	E S 15	E	E S 15
22	E S 15	E S 15	E	E	C	C	C	C	C	G	G	G	G	G	G	G	G	G	E	20	E S 15	20	E	16
23	E	E	E S 13	E	E	E	G 16	G 20	G	G	G	G	G	G	38	G	G	32	33	26	20	19	E	E S 15
24	E	27	20	E	G	28	G 16	38	G	40	G	G	G	G	G	62	57	48	50	32	20	20	23	20
25	E	16	25	E	E	E	G	G	40	G	G	G	G	G	G	G 25	G 20	C	C	20	E	E S 14	F S 15	E S 14
26	E	C	C	C	C	C	C	C	C	C	C	C	G	G	G	29	24	20	E S 15	E	E S 15	E S 16	E	E
27	E	18	E	E	E	E	G	G	G	G	G	G	G	G	G 20	G 22	26	20	E S 17	E S 17	E S 14	16	E	E
28	E S 15	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	20	E	18	E S 15	E S 15	E	E
29	E S 16	E	E	E	E	E	G	G	G	G	G	C	C	C	C	C	C	C	C	C	20	C	C	C
30	C	C	20	C	C	C	C	C	C	45	G	C	C	44	32	28	27	27	20	E S 15	F S 17	E S 15	E S 15	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	29	28	27	27	27	27	27	29	29	27	28	29	29	29	29	27	28	29	30	29	29	29
MED	E E 15	E E 15	E E 15	E	E	E E 14	G	G	G	G	G	G	G	G	32	G 25	25	20	23	26	20	16	16	E E 15
UQ	E S 16	20	20	16	E G 13	E S 16	G	G 20	28	30	37	38	36	39	37	31	36	33	35	32	30	20	23	20
LQ	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	18	18	E S 15	E	E	E

SEP. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 13	E	E	E	E	E S 16	15	15	18	20	21	20	20	20	20	18	16	16	E S 13	E S 15	E S 13	E S 12	E	E S 13
2	E	E S 14	E	E	E	E S 16	11	17	19	20	18	23	18	20	18	20	17	E	E S 14	E S 14	E S 15	F S 14	F S 13	E S 17
3	E S 14	E	E S 14	E S 15	E	E S 16	16	16	18	18	20	20	24	22	18	17	11	E	E	E S 15	E S 16	E S 15	E S 15	E S 17
4	E S 13	E	E	E	E	E	11	16	18	18	20	22	27	24	20	18	17	16	11	E S 15	E S 15	E S 15	E S 15	E
5	E S 17	E	E S 14	E	E S 13	E S 13	11	11	17	17	20	23	20	20	19	20	18	11	E	E S 15	E S 17	E	E S 16	E S 18
6	E S 16	E S 14	E S 15	E	E	E	11	12	18	14	20	18	18	20	20	18	17	12	E	E S 15	E S 14	E S 16	E S 15	E
7	E S 15	E S 16	E S 17	E S 15	E	E S 16	17	19	18	19	22	20	20	20	19	17	17	16	E	E S 15	E	E S 15	E	E S 15
8	E S 15	E	E	E	E	E S 15	12	17	17	18	19	20	21	20	20	20	20	16	E S 12	E S 17	E S 12	E S 15	F S 15	E S 16
9	E S 15	E S 15	E S 16	E S 15	E	E	12	16	19	20	20	26	20	20	20	19	11	12	E S 17	E	E S 16	E	E S 14	E S 16
10	E S 18	E S 15	E	E S 15	E	E S 15	11	12	17	20	19	17	20	20	18	18	16	12	E S 18	E S 16	E S 16	E S 15	E S 15	E S 15
11	E S 16	E S 15	E	E	E	E S 14	12	17	18	20	20	21	20	20	18	17	12	11	E	E S 15	E S 16	E S 14	E S 15	E S 16
12	E S 16	E S 13	E S 14	E	E	E S 14	12	17	18	19	20	18	20	20	20	17	16	17	E	E S 15	E S 15	E	F S 16	E S 16
13	E S 15	E S 15	E	E	E S 15	E	15	18	18	18	19	20	20	18	20	19	15	16	E S 15	E S 15	E S 15	E	F S 17	E S 15
14	E	E	E	E	E	E S 15	17	17	17	17	18	20	20	18	20	19	16	15	E	E	E	E	E	E S 15
15	E S 17	E	E	E	E	E	12	16	18	20	20	18	20	18	20	17	17	12	E S 15	E	E S 14	E	E S 16	E S 15
16	E S 15	E	E	E	E	E S 15	17	13	18	20	20	20	20	20	17	18	17	12	E	E S 16	E	E S 16	E S 16	E
17	E S 16	E	E	E	E	E	11	16	15	18	19	20	18	20	17	17	15	16	E	E	E	E S 17	E	E S 15
18	E S 17	E	E	E	E	E	16	12	16	17	22	22	22	19	18	16	15	15	E S 15	E	E S 13	E	F S 16	E S 15
19	E S 15	E S 15	E S 14	E	E	E S 15	15	17	17	15	20	19	20	20	22	17	17	E S 15	E	E S 13	E S 15	E	E	E S 15
20	E S 15	E S 17	E S 15	E S 15	E	E S 15	11	16	18	18	20	21	21	18	20	18	16	C	E	E S 15	E	E	E S 15	E S 16
21	E S 15	E	E S 15	E S 15	E	E S 16	13	15	16	18	20	20	18	17	17	14	12	E	E S 15	E S 15	E S 16	E S 15	E S 15	E S 15
22	E S 15	E S 15	E	E	C	C	C	C	C	19	18	20	20	20	16	13	16	11	E	E	E S 15	E	E S 15	E
23	E S 15	E	E S 13	E	E	E	E	13	16	17	20	20	20	17	17	15	11	E	E	E	E	E S 13	E	E S 15
24	E S 15	E	E	E	E	E	E	11	16	17	20	20	20	16	20	16	E	E S 16	E S 12	E S 15	E	E S 15	E	E
25	E S 16	E	E	E	E	E	15	14	12	18	18	19	20	17	16	13	11	C	C	E	E S 14	E S 14	F S 15	E S 14
26	E	C	C	C	C	C	C	C	C	C	C	C	16	21	18	16	15	11	E S 15	E	E S 15	E S 16	E S 18	E
27	E S 14	E	E	E	E	E	15	13	15	19	17	20	18	18	16	E	E	E	E S 17	E S 17	E S 14	E	E	E
28	E S 15	E	E	E	E	E	12	16	17	20	20	23	20	20	18	16	18	12	E	E	E S 15	E S 15	E	E
29	E S 16	E	E	E	E	E	12	15	20	19	20	C	C	C	C	C	C	C	C	C	E	C	C	C
30	C	C	E	C	C	C	C	C	C	20	22	C	C	17	20	17	12	E	E	E S 15	E S 17	E S 15	F S 15	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	29	28	27	27	27	27	27	29	29	27	28	29	29	29	29	27	28	29	30	29	29	29
MED	E S 15	E	E	E	E	E S 13	12	16	18	18	20	20	20	20	19	17	16	12	E	E S 15	E S 14	E S 14	E S 15	E S 15
UQ	E S 16	E S 15	E S 14	E	E	E S 15	15	17	18	20	20	21	20	20	20	18	17	16	E S 15	E S 15	E S 15	E S 15	F S 15	E S 16
LQ	E S 15	E	E	E	E	E	11	13	16	18	19	20	20	18	18	16	12	11	E	E	E	E	E	E

SEP. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F2 (0.01) | 135° E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	265	265	270	280	270	295	320	335	305	320	300	270	295	290	295	300	300	295	305	305	A	290	280	270
2	270	270	280	285	270	290	325	315	290	325	320	290	300	295	305	315	310	315	310	300	290	270	265	280
3	275	275	265	265	255	255	260	300	285	300	310	315	325	320	315	315	325	330	310	305	290	285	285	280
4	280	265	275	270	275	295	315	330	320	330	330	H 310	310	300	300	315	310	320	325	320	300	290	270	265
5	285	280	270	280	280	285	325	355	340	330	320	295	305	295	320	305	310	310	315	315	310	290	275	275
6	280	280	280	270	275	285	315	325	340	325	330	315	290	295	300	315	320	320	315	305	300	305	285	295
7	275	265	265	275	290	285	335	330	325	330	330	325	305	315	305	305	300	320	320	310	310	295	S	A
8	F	F	F	F 285	F 285	F 285	325	345	335	325	325	320	295	315	315	A	320	315	305	315	S	295	280	280
9	F	F	F	F	F 270	280	305	305	320	335	340	310	335	330	325	310	320	310	305	300	300	330	290	290
10	285	275	285	280	285	290	315	325	310	310	320	320	330	320	300	330	330	340	305	295	300	300	295	280
11	285	275	270	285	290	295	330	330	325	H 325	315	340	315	315	325	315	320	310	305	315	330	295	270	280
12	275	285	270	280	280	290	325	290	295	A	315	315	300	315	310	305	A	330	325	300	295	310	295	295
13	280	275	F 290	F	F	305	325	315	330	335	A	A	A	A	330	325	335	335	320	320	S 285	F	F	300
14	280	240	270	265	325	250	250	W	275	R	R	R	270	A	240	265	F 295	340	A	A	275	260	260	A
15	280	F	F	F	F	285	285	295	340	325	355	330	320	330	305	325	315	315	315	315	330	280	265	265
16	275	290	275	290	270	285	315	305	310	345	335	340	325	325	335	335	335	330	315	315	290	310	295	290
17	290	280	275	265	265	295	340	350	315	315	310	295	325	335	310	325	330	315	330	305	295	305	285	285
18	275	275	285	285	290	295	300	340	330	315	335	315	320	325	330	310	310	325	335	290	295	325	285	295
19	285	285	280	S 295	280	315	330	H 320	330	350	330	335	330	325	325	320	325	325	325	310	310	335	295	280
20	270	275	U C 270	275	300	310	340	350	315	320	330	315	320	315	335	325	320	I C 330	330	325	335	285	290	275
21	275	290	295	300	285	295	335	320	340	350	340	325	335	335	325	340	315	315	320	325	315	300	315	275
22	275	280	280	305	C	C	C	C	C	355	335	345	320	320	315	335	315	325	325	310	295	295	285	285
23	280	285	290	285	285	280	355	335	335	330	330	320	325	320	310	325	335	325	300	295	310	305	270	260
24	260	265	280	275	270	270	320	320	320	325	R	315	325	330	305	325	320	320	330	295	302	300	290	275
25	285	275	265	280	270	280	350	315	325	305	320	325	320	305	310	320	315	C	C	325	320	285	270	280
26	285	C	C	C	C	C	C	C	C	C	C	C	310	310	R 315	320	315	320	315	315	305	300	270	280
27	270	270	265	F 270	275	260	295	310	315	R	R 330	330	310	320	320	315	325	330	315	300	F	F	F	F
28	F	F	F	F	F 290	300	325	335	335	345	335	340	315	325	320	320	320	315	325	315	310	315	290	285
29	270	270	265	285	280	285	345	330	325	330	345	C	C	C	C	C	C	C	C	C	290	C	C	C
30	C	C	265	C	C	C	C	C	C	325	320	C	C	315	310	320	320	320	325	325	295	275	270	285
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	24	25	24	25	27	27	27	27	26	26	25	27	27	29	28	28	28	27	28	27	27	26	26
MED	278	275	275	280	280	285	325	325	325	325	330	320	320	320	315	320	320	320	315	310	300	295	285	280
UQ	285	280	280	285	285	295	332	335	332	335	335	330	325	325	325	325	325	330	325	315	310	305	290	285
LQ	275	270	270	272	270	282	315	312	312	320	320	315	305	312	305	312	312	315	310	300	295	288	270	275

SEP. 1972 | M(3000)F2 (0.01)

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IONOSPHERIC DATA

SEP. 1972 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23.6 N. Long. 141 41.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										A	380	345	355		365									
2								L		380	375		350	L	355	355								
3							U L 325	345		370	360	355	355	365										
4								U L 390		360			360	355		L								
5										360	L	L	365	U L 355	U L 365									
6									385	U L 365	385		345	L	A	375								
7									370	375	380	L		360		370								
8								400	U L 395	380				345	U L 350	A								
9									A	370	380	380	355	A	L									
10								375	355	355	395	370	375			370								
11									385		L	380	350	L	370	L								
12									A	A	A	A	375	340	365	L	A							
13									A	A	A	A	A	A	370	U L 390								
14							315	340	345	355	A	370	360	A	340	320	340							
15								A	380	385	A	380	360	370										
16								325	350	395	360	370	370	370	380									
17									375		370	A	A	375										
18										365	380	L	355	380	395									
19										370	370	365	375	360										
20											A				A									
21									L	U L 390	410	400	L											
22									C	U L 395	400		L		L									
23								380		U L 380			375	L										
24											L			L										
25													U L 375											
26									C	C	C	C												
27									370	390	375	U L 400												
28										L	380	400		L										
29											390	C	C	C	C	C								
30												C	C											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	7	10	18	16	12	17	11	10	6	1							
MED							320	375 L	372	372	380	375	360	360	365	370 L	340 L							
UQ								385 L	385 L	385 L	388	390	375	370	370 L	375 L								
LQ								342	355	365	372 L	368	355	355	355	355 L								

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SEP. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1972 | H'F2 (KM) | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45° 23' 6" N. Long. 141° 41' 1" E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										250	300	320	300		280									
2								295		265	290		305	295	295	275								
3							350L	320		285	300	310	300	295										
4								245		265			310	300		270								
5										275	270	320	295	290	275									
6									245	265	260		335	310	290	275								
7									265	265	250	270		290		280								
8								235	240	265				295	280	A								
9									250	250	250	275	265	270	255									
10								265	295	295	265	270	270			270								
11									250		275	250	300	285	270	290								
12									340	A	305	305	340	315	305	300	A							
13									275	A	A	A	A	A	290	270								
14							460	W 450		R	A	R	460	A	560	415	315							
15								340	265	250	260	270	300	275										
16								310	300	270	290	270	280	255	270									
17									270		275	310	270	260										
18										275	260	300L	280	265	250									
19										250	260	270	275	275										
20											250				270									
21									245	240	240	250	270											
22									C	250	245		270L		300									
23								260		250			265	250										
24											245			250										
25													260											
26									C	C	C	C												
27									300	250	250	250												
28										260	250	250		265										
29											240	C	C	C	C	C								
30												C	C											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	9	14	19	22	16	20	18	14	9	1							
MED							405	295	268	265	260	270	288	280	280	275	315							
UQ								320	300	268	275	308	302	295	295	290								
LQ								260	250	250	250	260	270	265	270	270								

SEP. 1972 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 1972 | H'F (KM) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	310	295	275	265	250	250	245	A	A	200	215	205	250	240	225	250	250	260	250A	A	A	A	300
2	300	285	275	260	275	250	225	240	225	215	210	215	200	210	225	220	230	245	245	245	270	265	300	270
3	275	260	265	275	300	260	250	245	240	235	235	215	220	220	225	230	225	250	250	245	250	260	280	A
4	A	295	300	270	270	265	245	225	220	210	210	215H	235	230	245	250	250	250	245	225	245	260	310	360A
5	310	300	300	285	270	260	245	230	205	200	230	200	220	200	240	230	260	240	240	225	235	230	260	290
6	280	275	275	290	290	260	240	225	210	200	210	200	200	205	A	230	250	250	250	A	250	240	245	260
7	275	305	295	280	270	250	240	220	220	200	200	205	210	220	215	245	230	250	245A	A	250	250	320	A
8	A	290	300	280	265	270	250	235	225	225	190	210	I A 205	225	240	A	260A	A	250	250	255	250	255	300
9	325	310	295	275	270	295	250	240	A	225	210	200	215	A	225	235	250	250	250	250	250	225	225	270
10	270	300	250	260	250	275	245	225	225	225	200	210	210	215	240	240	245	245	235	245	245	245	260	275
11	265	290	290	275	260	260	220	245	215	200H	220	210	200	215	215	245	260	250	250	245	A	220	280	250
12	290	275	295	250	275	270	A	250	A	A	A	A	220	240	265	250	A	260	230	255	300	245	250	280
13	295	300	300	250	250	250	235	A	A	A	A	A	A	A	230	230	245	250A	A	A	260	315A	245	260
14	375	440	350	335	250	400	285	240	260	255	A	235	220	A	240	250	250	250	A	A	400	370	405	A
15	320	375	330	300	320	300	285	A	245	215	A	225	200	255	255	260	A	260	I A 250	A	240	250	275	310
16	280	250	215	250	300	295	245	205	220	220	215	205	215	215	240	245	245	230	245	245	250	270	A	250
17	275	290	315	300	310	270	225	225	215	200	220	A	A	250	210	225	240	240	A	A	250	245	275	275
18	290	280	265	280	250	265	240	225	220	225	235	225	210	220	215	245	235	245	230	260	275	250	255	290
19	275	285	295	270	245	245	215	210H	215	205	215	210	220	220	225	230	A	A	245	255	A	A	250	250
20	295	325	305	320	250	270	220	220	215	210	A	A	245A	235	A	270	250A	I C 245	A	230	240	245	270	260
21	295	275	250	260	245	265	225	220	220	210	205	200	215	205	220	230	245	245	240	235	240	245	220	255
22	300	300	285	250	C	C	C	C	C	215	215	210	210	250	220	240	240	230	220	240	250	250	250	255
23	290	270	260	270	265	285	225	215	245	210	200	200	210	215	245	240	245	240	240	270	250	250	295	325
24	320	340	290	260	305	350A	245	255A	235	A	230	220	230	215	250	A	A	A	A	290	245	245	255	300
25	260	270	345	290	275	270	220	225	245A	240	250	245	220	215	215	245	245	C	C	225	220	230	250	270
26	285	C	C	C	C	C	C	C	C	C	C	C	210	220	235	235	245	245	225	220	235	240	295	295
27	295	295	270	270	275	300	250	230	225	235	205	200	195	225	220	220	245	240	225	235	245	260	275	290
28	290	280	290	270	260	250	225	225	220	225	210	205	210	210	225	240	245	245	225	235	245	240	245	270
29	300	310	310	290	250	260	225	220	210	230	225	C	C	C	C	C	C	C	C	C	250	C	C	C
30	C	C	300	C	C	C	C	C	C	A	240	C	C	A	225	245	250	245	235	230	220	275	275	270
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	29	28	27	27	26	25	23	24	24	23	26	25	27	27	25	25	23	23	27	27	27	26
MED	290	292	295	275	270	265	240	225	220	215	212	210	210	220	225	240	245	245	245	245	250	250	260	272
UQ	300	308	300	288	275	280	250	240	230	225	228	215	220	230	240	245	250	250	250	250	250	260	280	295
LQ	278	278	275	260	250	260	225	220	215	208	205	202	205	215	220	230	245	245	232	232	242	242	250	260

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SEP. 1972 | H'F (KM)

IONOSPHERIC DATA

SEP. 1972 | H'ES (KM) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	105	100	100	100	S	G	115	120	110	G	G	110	105	105	105	105	120	120	110	110	110	110	110
2	105	S	115	100	E	S	120	120	G	115	110	110	G	G	105	G	G	120	115	110	110	110	105	100
3	S	100	100	100	E	S	G	G	110	105	105	105	G	G	105	100	100	100	100	100	100	110	100	100
4	100	100	100	100	100	100	G	100	G	105	105	100	100	G	100	100	100	100	100	100	100	100	105	105
5	100	100	100	100	100	100	100	100	100	100	G	G	100	G	105	105	105	100	100	105	100	100	S	100
6	100	100	100	100	100	105	145	G	120	115	115	105	105	105	105	150	125	115	110	110	100	S	S	100
7	S	S	S	S	E	100	G	125	115	115	110	G	105	G	105	100	G	G	110	110	100	110	110	100
8	105	100	100	100	100	100	120	120	120	115	G	105	105	105	105	100	105	110	110	105	105	105	105	110
9	S	100	S	S	100	105	100	115	110	110	110	G	105	110	115	140	G	G	105	100	S	E	100	100
10	S	100	100	S	E	S	G	105	105	105	G	G	G	G	G	G	130	G	S	S	S	S	S	S
11	S	S	E	E	E	S	G	G	105	G	G	G	G	105	105	105	120	140	125	110	105	S	S	S
12	S	S	S	E	E	S	125	115	110	110	110	110	110	115	125	125	110	115	115	110	105	105	105	105
13	100	100	100	100	115	E	100	110	110	110	105	105	105	105	105	105	105	120	115	110	105	105	105	110
14	105	105	100	100	120	S	120	115	120	120	115	115	115	105	G	G	G	125	115	115	110	120	110	110
15	105	105	105	105	110	110	115	110	115	G	110	110	110	105	100	150	120	115	110	110	110	E	S	100
16	100	E	E	E	E	105	G	G	100	100	G	G	105	105	100	105	G	125	115	110	110	110	105	105
17	105	E	100	100	E	E	G	120	115	G	G	105	105	100	100	G	G	120	110	110	110	105	105	105
18	S	100	100	100	100	E	G	G	130	120	125	120	G	G	105	G	105	G	S	E	115	110	S	110
19	S	S	S	E	E	S	120	100	G	100	115	G	115	G	G	G	110	110	105	105	105	100	100	105
20	105	100	100	100	100	100	100	115	115	120	110	110	110	105	105	105	100	C	100	105	105	E	100	100
21	S	100	S	S	E	S	G	G	100	G	105	100	G	115	115	110	105	105	S	100	S	S	100	S
22	S	S	E	E	C	C	C	C	C	G	G	G	G	G	G	G	125	120	E	115	S	100	100	100
23	100	100	S	E	E	E	100	105	125	G	G	G	G	G	105	G	125	115	110	110	110	110	110	S
24	100	100	100	105	135	100	100	120	120	115	115	115	115	115	145	125	115	110	115	115	110	110	105	105
25	100	100	100	100	E	E	G	125	120	115	115	110	115	G	G	105	100	C	C	100	100	S	S	S
26	E	C	C	C	C	C	C	C	C	C	C	C	120	G	G	105	105	105	S	E	S	S	100	E
27	100	100	E	E	E	E	G	G	120	120	115	115	115	110	100	100	100	100	S	S	S	110	E	E
28	S	E	E	E	E	E	G	G	G	115	110	G	110	G	G	G	G	100	100	100	S	S	E	E
29	S	100	100	E	E	E	G	G	G	110	115	C	C	C	C	C	C	C	C	C	105	C	C	C
30	C	C	100	C	C	C	C	C	C	115	110	C	C	105	105	105	100	100	105	S	S	S	S	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	19	18	15	12	10	13	18	22	23	20	16	20	16	22	20	22	23	22	24	22	18	19	20
MED	100	100	100	100	100	100	115	115	115	115	110	110	110	105	105	105	105	115	110	110	105	110	105	105
UQ	105	100	100	100	112	105	120	120	120	115	115	112	115	110	105	118	120	120	115	110	110	110	105	108
LQ	100	100	100	100	100	100	100	105	110	108	110	105	105	105	105	102	100	102	105	102	100	105	100	100

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SEP. 1972 | H'ES (KM)

IONOSPHERIC DATA

SEP. 1972 | TYPES OF ES | 135 E Mean Time (G. M. T.+ 9 h)

Station WAKKANAI Lat. 45 23 6 N . Long. 141 41 1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1	F2	F2	F2	F2			C2	C2	C2			C1	1	2	1	2	C1	C1	F4	F3	F3	F3	F2
2	F1		F1	F1			C1	C1		C1	1	1			1			C11	C1	F3	F4	F2	F2	F1
3		F1	F1	F1					1	2	2	2			1	2	1	1	1	F1	F1	F1	F2	F5
4	F4	F4	F4	F1	F1	1		1		1	1	2	1		2	2	3	3	3	F2	F2	F1	F3	F4
5	F2	F3	F1	F1	F1	1	1	1	1	1			1		1	2	2	1	2	F1	F1	F1		F1
6	F2	F2	F1	F2	F1	1	H1		C1	C1	C1	1	1	1	3	H1	C11	C3	C31	F3	F1			F2
7						1		C1	C1	C1	C1		1		1	1			C2	F3	F2	F2	F3	F3
8	F3	F3	F3	F2	F2	1	C1	C1	C1	C1		1	2	2	2	3	3	C5	3	F3	F4	F2	F2	F1
9		F1			F1	2	C11	C1	C2	C1	C1		2	C2	C1	H1			1	F1			F1	F1
10		F1	F1					1	1	1							H1							
11									1					1	1	1	C11	H11	C11	FF22	F5			
12							C4	C2	C1	C5	C2	C2	C1	C1	C1	C2	C3	C3	C2	F4	F3	F2	F1	F1
13	F2	F3	F2	F2	F2		C11	C4	C3	C2	2	3	3	3	2	1	1	C12	C3	F2	F2	F3	F1	F2
14	F3	F3	F4	F3	F1		C1	C1	C1	C1	C2	C1	C1	2				C1	C3	F2	F4	FF12	F3	F6
15	F2	F3	F3	F1	F4	5	C2	C2	C1		C1	2	C1	2	2	H11	C2	C2	C2	F4	F3			F2
16	F1					1			1	1			1	2	2	1		C1	C2	F2	F2	F2	F4	F1
17	F1		F1	F1				C1	C1			C2	2	2	2			C1	C3	F3	F1	F1	F4	F1
18		F1	F2	F3	F1				H1	C1	C1	C1			1		1				F2	F2		F4
19							C1	1		1	C1		C1				2	3	F2	F5	F4	F4	F3	F1
20	F1	F3	F2	F4	F4	F3	1	C2	C1	C1	C1	C3	C2	2	2	2	2		F2	F1	F2		F1	F1
21		F1							1		1	1		C1	C1	1	1	2		F1			F1	
22																	C1	C2		F2		F4	F1	F1
23	F1	F1					1	1	C1						2		C2	C2	F3	F4	F3	F1	F1	
24	F2	F3	F3	F1	C1	F3	1	C1	C1	C1	C1	C1	C1	C1	H1	C2	C2	C2	F3	F3	F2	F2	F3	F2
25	F1	F2	F4	F1				C1	C2	C1	C1	C1	C1			1	1			F1	F1			
26													C1			1	1	1					F1	
27	F1	F2							C1	C1	C1	C1	C1	C1	1	1	1	1				F1		
28										C1	C1		C1					1	F1	F1				
29		F1	F1							C1	C1										F2			
30			F2							C1	C1			1	1	1	2	2	F2					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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SEP. 1972 | TYPES OF ES

IONOSPHERIC DATA

SEP. 1972 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	62	62	61	58	56	58	85	91	82	84	84	91	98	100	93	92	96	91	92	91	76	74	69	66
2	68	F	F	57	53	F 54	81	93	91	91	87	88	96	97	98	102	98	91	84	77	66	62	67	68
3	64	64	62	I R 56	52	47	57	73	80	81	80	85	98	89	86	81	82	84	85	77	70	66	62	61
4	57	54	53	52	51	55	78	88	80	86	78	82	C	C	99	103	103	102	98	77	58	56	55	53
5	54	54	54	52	49	56	80	84	72	74	88	87	86	88	91	92	94	102	98	82	61	56	54	54
6	57	58	57	56	54	57	84	94	91	83	80	81	80	95	111	I C 106	101	104	106	89	73	67	66	61
7	59	R 56	54	54	54	59	88	87	90	87	81	86	84	83	92	91	97	101	98	92	72	57	53	51
8	52	53	53	52	51	54	81	92	87	78	H 77	81	79	88	94	91	86	85	90	90	78	66	57	56
9	55	F 56	57	54	54	56	71	92	102	89	89	89	H 85	86	74	75	84	87	I C 86	89	87	69	59	54
10	55	50	53	52	43	47	69	82	89	98	89	81	75	78	78	78	84	86	85	76	69	60	51	52
11	51	47	I C 47	46	44	48	69	78	H 86	82	88	H 82	74	93	I C 88	82	91	95	98	97	72	52	51	56
12	47	46	43	45	43	46	71	58	82	70	I A 72	I A 73	75	76	79	77	I R 74	76	78	I A 63	I A 54	A	A	A
13	F	F	F 41	F 43	41	F	53	72	81	76	70	82	I C 86	84	81	74	71	79	80	67	F	F	F	F
14	39	I R 35	36	40	36	27	41	I R 44	43	C	C	C	64	58	56	63	I C 66	59	F 48	F	F	F	F 45	F
15	F	F	F	F	F	F	F 56	71	101	76	76	I A 70	83	84	82	76	84	84	96	85	69	I R 46	46	45
16	45	45	45	36	34	36	61	68	91	87	84	86	81	82	76	79	80	82	78	70	I R 56	52	46	46
17	45	41	41	41	39	41	71	70	68	77	86	96	96	92	83	84	97	79	73	63	71	58	47	46
18	46	46	47	46	45	42	71	73	76	86	82	83	84	88	87	71	81	92	96	66	63	59	42	46
19	41	41	41	42	41	45	62	68	82	81	83	80	81	86	88	80	79	87	89	78	78	59	44	45
20	46	F	45	45	F 45	42	61	68	H 75	87	V 87	80	78	85	98	88	I C 82	76	86	80	57	41	F 44	F 45
21	43	F 45	45	42	F 38	S 40	63	96	95	88	79	76	82	79	83	83	80	82	88	85	70	52	48	44
22	45	46	46	47	40	37	65	81	94	86	87	83	82	79	83	82	85	88	88	71	59	56	50	48
23	48	48	51	48	43	41	65	75	94	95	92	101	103	88	82	91	91	89	86	68	69	62	52	F
24	F	52	52	50	46	45	73	91	91	89	92	96	98	95	87	91	104	99	86	69	I A 69	62	54	46
25	47	46	42	44	44	48	68	79	89	96	97	101	107	94	92	93	99	97	88	73	63	51	49	52
26	53	54	54	57	54	56	71	87	93	102	94	94	96	102	97	92	86	87	91	78	63	52	47	52
27	51	51	49	51	47	47	71	88	86	103	97	89	89	96	91	87	93	95	88	66	51	49	51	49
28	50	50	47	47	45	47	68	81	91	109	102	87	89	93	91	87	90	91	91	77	67	57	57	50
29	47	46	46	46	45	44	66	85	99	110	104	93	97	103	98	92	96	97	89	67	61	54	52	51
30	51	50	51	47	48	F 46	75	89	85	105	111	101	98	97	97	97	101	97	90	73	57	52	53	56
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	28	29	29	28	30	30	30	29	29	29	29	29	30	30	30	30	30	29	28	27	28	26
MED	51	50	48	47	45	47	70	82	88	87	87	86	85	88	88	87	88	88	88	77	68	57	52	52
UQ	55	54	54	52	51	54	75	89	91	95	92	91	96	95	94	92	97	97	92	85	72	62	56	56
LQ	46	46	45	45	43	42	63	72	81	81	80	81	81	84	82	79	82	84	85	69	60	52	47	46

SEP. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOF1 (0.01 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	A	L 570	590	480	540	500	500	L	L						
2								L	L	450	A	L 550	520	520	520	L 510	L	L						
3							L	L	L	H 580	500	580	550	500	500	470	L							
4								L	L	U L 500	L 500	550	C	C	470	L	L	A						
5								L	L	480	500	H 500	580	500	H 560	U L 500	U 450	L						
6								L	L	L	500	520	490	510	480	C	L	L						
7								L	L	L 460	I A 510	500	500	550	500	H 500	L	L						
8								L	U L 430	L 450	L 460	480	510	480	L 480	440	A	A						
9							L	L	A	L	A	480	L 500	H 480	L	L	L	L						
10								L	U L 450	460	490	U 490	500	500	470	L	L	A						
11								L	L	L	480	480	490	500	C	L	L	L						
12								L	I A 460	A	A	A	I A 480	500	450	450	A	L						
13								L	A	A	A	490	I C 480	480	460	L 450	L	L						
14						200	300	370	380	C	C	C	440	450	460	450	C							
15								L	440	L 450	L	I A 500	470	460	L	L	L							
16								L	L 450	L	L 480	480	500	480	L 460	L	L							
17									L	L	510	480	490	510	L	L								
18									L	450	470	I A 490	490	470	L 450	L	L							
19								L	L	U L 450	480	480	500	L	U L 490	L	L							
20								L	L	A	L	L	L	480	L	L	C							
21								L	L	L 450	L 460	L	430	L	L	L								
22									L	L	L 480	L 510	H 490	L	U L 480	L	L							
23									L	450	L 480	500	L	U L 510	L	L	A							
24								L	A	A	A	H 520	500	L	L 500	L	A							
25								L	L	L	A	L	500	L	L	L	L							
26								L	L	L	L 480	L	U L 550	500	U L 490	L								
27								L	L	A	A	U L 500	500	U L 530	L	L	L							
28								L	L	L	480	L	L	U L 480	A	L								
29									L	L	L	L	U L 500	L 470	L	L								
30									L	A	A	A	A	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	1	1	6	12	18	21	25	23	18	9	1							
MED						200	300	370	445	450	480	500	500	500	480	470	U 450							
UQ									L 450	470	500	520	500	510	500	500								
LQ									430	450	L 480	480	490	480	L 460	450								

SEP. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOE (0.01 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	235	285	320	345	A	A	380	IA 375	A	A	320	260	A					
2						S	A	285	320	340	A	A	A	A	IA 350	A	A	A	A					
3						S	215	A	A	A	A	A	A	A	A	A	A	A	A					
4						E	225	275	IA 315	A	A	A	C	C	A	A	A	A	A					
5						S	220	270	IA 310	345	355	365	375	370	IA 355	IA 330	A	A	A					
6						S	A	265	305	IA 340	IA 350	A	A	A	A	C	285	240	A					
7						S	220	280	315	A	A	A	A	A	350	330	295	245	A					
8						S	205	270	310	335	IA 355	365	A	A	340	IA 320	285	A	S					
9						S	IA 205	IA 265	A 310	A	A	A	A	360	350	330	290	225	C					
10						S	A	270	310	IA 335	IA 345	355	355	360	345	315	270	215	S					
11						S	220	265	305	345	IA 350	IA 360	365	360	IC 340	310	270	210	A					
12						S	205	IA 260	A	A	A	A	A	IA 360	IA 345	310	270	A	S					
13						S	210	265	305	A	A	A	C	360	345	A	A	A	S					
14						S	170	235	A	C	C	C	A	350	325	300	C	A	A					
15						E	A	255	A	A	A	A	A	A	325	300	265	200	S					
16						E	A	IA 260	300	A	A	A	A	355	335	310	270	205	A					
17						S	205	265	300	325	IA 340	A	A	A	340	310	270	A	S					
18						S	210	265	305	325	345	355	A	A	A	A	265	225	S					
19						S	A	255	295	325	335	A	A	A	A	325	IA 275	220	S					
20						S	200	260	300	330	350	IA 355	360	IA 345	325	A	C	A	S					
21						S	195	255	300	330	345	350	A	A	IB 320	IA 290	A	A	S					
22							185	245	290	320	345	355	360	360	345	310	270	A	S					
23							200	IA 260	305	330	340	A	A	A	340	315	275	A						
24							A	270	310	330	340	IA 350	355	350	330	300	A	A						
25							200	260	305	330	340	345	A	A	340	305	265	A						
26							195	265	305	325	335	IB 340	A	A	A	A	A	A						
27							A	260	305	325	335	345	IA 355	IA 345	335	300	255	A						
28							195	255	295	IA 325	335	A	A	A	A	300	260	200						
29							A	255	295	IA 325	A	A	A	IA 355	IA 340	320	270	A						
30							195	255	305	330	345	A	A	A	A	A	A	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	21	29	26	21	18	12	8	14	21	20	19	11						
MED						E	205	265	305	330	345	355	360	360	340	310	270	220						
UQ						E	215	270	310	335	350	358	370	360	345	320	280	232						
LQ						E	195	255	300	325	340	348	355	350	335	300	268	208						

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SEP. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E_{14}^{S}	J_{18}^{X}	J_{23}^{X}	J_{20}^{X}	J_{25}^{X}	J_{23}^{X}	27	31	40	J_{50}^{X}	J_{43}^{X}	J_{47}^{X}	G	40	J_{46}^{X}	J_{43}^{X}	J_{30}^{G}	G	J_{47}^{X}	J_{26}^{X}	J_{69}^{X}	J_{26}^{X}	E_{14}^{S}	E_{14}^{S}
2	J_{55}^{X}	J_{66}^{X}	J_{27}^{X}	J_{35}^{X}	J_{46}^{X}	J_{30}^{X}	J_{27}^{X}	J_{33}^{X}	38	38	J_{44}^{X}	40	J_{47}^{X}	J_{40}^{X}	J_{42}^{X}	37	J_{38}^{X}	28	J_{26}^{X}	J_{36}^{X}	J_{49}^{X}	J_{42}^{X}	J_{40}^{X}	J_{39}^{X}
3	J_{45}^{X}	J_{36}^{X}	J_{25}^{X}	J_{23}^{X}	J_{26}^{X}	J_{23}^{X}	G	34	J_{45}^{X}	J_{44}^{X}	J_{42}^{X}	J_{43}^{X}	J_{60}^{X}	J_{40}^{X}	J_{38}^{X}	J_{43}^{X}	J_{66}^{X}	J_{38}^{X}	J_{39}^{X}	J_{27}^{X}	J_{18}^{X}	J_{23}^{X}	J_{18}^{X}	J_{28}^{X}
4	J_{28}^{X}	J_{33}^{X}	J_{34}^{X}	J_{44}^{X}	J_{27}^{X}	J_{23}^{X}	G	29	33	35	37	J_{43}^{X}	C	C	J_{45}^{X}	J_{63}^{X}	J_{84}^{X}	J_{47}^{X}	J_{54}^{X}	J_{45}^{X}	J_{49}^{X}	J_{46}^{X}	J_{46}^{X}	J_{40}^{X}
5	J_{37}^{X}	J_{34}^{X}	J_{29}^{X}	J_{18}^{X}	J_{18}^{X}	E_{14}^{S}	G	28	33	G	G	G	G	$_{36}^{G}$	J_{41}^{X}	J_{43}^{X}	33	37	J_{28}^{X}	J_{80}^{X}	J_{18}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
6	E_{14}^{S}	$_{19}^{M}$	E_{14}^{S}	J_{18}^{X}	J_{23}^{X}	J_{19}^{X}	27	33	34	39	37	42	43	38	J_{50}^{X}	C	34	29	20	J_{64}^{X}	J_{66}^{X}	J_{28}^{X}	J_{19}^{X}	E_{14}^{S}
7	E_{14}^{S}	E_{14}^{S}	J_{19}^{X}	E_{14}^{S}	$_{20}^{M}$	E_{14}^{S}	26	30	34	35	J_{56}^{X}	J_{44}^{X}	J_{37}^{X}	J_{39}^{X}	G	G	J_{39}^{X}	28	J_{27}^{X}	J_{26}^{X}	J_{28}^{X}	J_{36}^{X}	J_{38}^{X}	J_{62}^{X}
8	J_{30}^{X}	J_{29}^{X}	J_{24}^{X}	J_{23}^{X}	J_{19}^{X}	E_{14}^{S}	23	30	39	39	J_{40}^{X}	40	J_{40}^{X}	J_{48}^{X}	$_{31}^{G}$	34	J_{53}^{X}	J_{51}^{X}	J_{48}^{X}	J_{38}^{X}	J_{58}^{X}	J_{74}^{X}	J_{33}^{X}	J_{36}^{X}
9	J_{64}^{X}	J_{48}^{X}	J_{33}^{X}	J_{23}^{X}	J_{28}^{X}	E_{14}^{S}	26	35	46	J_{63}^{X}	56	39	J_{40}^{X}	G	G	$_{31}^{G}$	32	33	C	J_{18}^{X}	J_{38}^{X}	E_{24}^{C}	J_{18}^{X}	E_{14}^{S}
10	E_{22}^{C}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{17}^{X}	J_{23}^{X}	28	30	34	39	38	G	G	G	G	34	30	37	J_{25}^{X}	J_{19}^{X}	J_{18}^{X}	J_{19}^{X}	$_{18}^{M}$	J_{18}^{X}
11	E_{14}^{S}	E_{14}^{S}	C	E_{14}^{S}	E_{22}^{C}	E_{14}^{S}	G	31	41	G	43	J_{37}^{X}	32	G	C	$_{29}^{G}$	G	27	J_{38}^{X}	J_{20}^{X}	J_{38}^{X}	J_{47}^{X}	J_{33}^{X}	J_{18}^{X}
12	J_{18}^{X}	E_{14}^{S}	E_{14}^{S}	J_{18}^{X}	$_{20}^{M}$	E_{14}^{S}	J_{41}^{X}	J_{43}^{X}	J_{66}^{X}	J_{64}^{X}	J_{114}^{X}	J_{98}^{X}	54	42	41	J_{60}^{X}	J_{72}^{X}	33	J_{61}^{X}	J_{108}^{X}	J_{111}^{X}	J_{119}^{X}	J_{78}^{X}	J_{54}^{X}
13	J_{29}^{X}	J_{32}^{X}	J_{18}^{X}	J_{19}^{X}	E_{14}^{S}	E_{14}^{S}	G	29	J_{54}^{X}	J_{77}^{X}	J_{64}^{X}	41	C	G	$_{27}^{G}$	J_{43}^{X}	J_{34}^{X}	J_{28}^{X}	J_{21}^{X}	J_{19}^{X}	J_{120}^{X}	J_{19}^{X}	J_{88}^{X}	J_{49}^{X}
14	J_{25}^{X}	J_{29}^{X}	J_{34}^{X}	J_{24}^{X}	E_{14}^{S}	E_{14}^{S}	21	30	36	C	C	C	J_{43}^{X}	G	G	G	C	27	J_{30}^{X}	J_{43}^{X}	J_{29}^{X}	J_{49}^{X}	J_{48}^{X}	J_{52}^{X}
15	J_{38}^{X}	J_{33}^{X}	J_{43}^{X}	J_{58}^{X}	J_{48}^{X}	J_{29}^{X}	23	36	J_{44}^{X}	37	J_{59}^{X}	J_{86}^{X}	J_{43}^{X}	J_{39}^{X}	G	35	38	34	J_{90}^{X}	J_{42}^{X}	J_{40}^{X}	J_{49}^{X}	J_{27}^{X}	J_{19}^{X}
16	$_{20}^{M}$	J_{21}^{X}	J_{20}^{X}	J_{18}^{X}	E_{14}^{S}	J_{26}^{X}	23	30	33	37	35	36	J_{36}^{X}	$_{32}^{G}$	G	G	32	30	J_{44}^{X}	J_{30}^{X}	J_{43}^{X}	J_{54}^{X}	J_{28}^{X}	E_{14}^{S}
17	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	30	36	36	J_{39}^{X}	38	42	J_{39}^{X}	40	G	31	J_{30}^{X}	J_{67}^{X}	J_{43}^{X}	J_{50}^{X}	J_{35}^{X}	J_{22}^{X}	$_{19}^{M}$
18	$_{20}^{M}$	E_{14}^{S}	E_{14}^{S}	J_{19}^{X}	$_{20}^{M}$	E_{14}^{S}	G	29	38	43	37	J_{54}^{X}	42	36	36	33	J_{29}^{X}	G	J_{17}^{X}	J_{21}^{X}	J_{23}^{X}	J_{18}^{X}	J_{45}^{X}	J_{40}^{X}
19	J_{23}^{X}	J_{28}^{X}	J_{40}^{X}	J_{27}^{X}	J_{19}^{X}	J_{35}^{X}	27	31	39	38	41	41	43	41	J_{39}^{X}	G	J_{38}^{X}	J_{26}^{X}	J_{26}^{X}	J_{40}^{X}	J_{34}^{X}	J_{27}^{X}	J_{44}^{X}	J_{23}^{X}
20	J_{24}^{X}	J_{29}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	G	G	40	J_{55}^{X}	37	J_{84}^{X}	G	39	J_{42}^{X}	J_{41}^{X}	C	J_{29}^{X}	J_{48}^{X}	E_{14}^{S}	J_{38}^{X}	J_{31}^{X}	J_{29}^{X}	J_{32}^{X}
21	$_{22}^{M}$	$_{21}^{M}$	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{19}^{X}	28	G	G	$_{30}^{G}$	G	G	38	J_{41}^{X}	$_{31}^{G}$	33	31	27	J_{36}^{X}	J_{25}^{X}	J_{26}^{X}	J_{24}^{X}	J_{23}^{X}	J_{16}^{X}
22	$_{21}^{M}$	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{17}^{X}	E_{14}^{S}	22	32	34	38	39	43	G	53	49	43	40	J_{66}^{X}	J_{26}^{X}	J_{48}^{X}	J_{67}^{X}	J_{44}^{X}	J_{65}^{X}	J_{19}^{X}
23	E_{14}^{S}	J_{18}^{X}	E_{14}^{S}	E_{14}^{S}	J_{18}^{X}	J_{20}^{X}	22	J_{48}^{X}	J_{42}^{X}	43	41	38	42	37	G	38	45	J_{78}^{X}	J_{53}^{X}	J_{35}^{X}	J_{18}^{X}	J_{43}^{X}	J_{24}^{X}	J_{29}^{X}
24	E_{14}^{S}	E_{14}^{S}	$_{18}^{M}$	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	29	44	J_{50}^{X}	J_{74}^{X}	37	G	G	38	52	J_{50}^{X}	J_{49}^{X}	J_{28}^{X}	J_{18}^{X}	J_{134}^{X}	J_{40}^{X}	J_{43}^{X}	J_{26}^{X}
25	J_{20}^{X}	J_{19}^{X}	J_{18}^{X}	J_{33}^{X}	J_{23}^{X}	$_{20}^{M}$	G	29	39	46	51	J_{49}^{X}	J_{44}^{X}	38	$_{31}^{G}$	G	$_{23}^{G}$	J_{29}^{X}	J_{28}^{X}	J_{28}^{X}	J_{20}^{X}	J_{18}^{X}	J_{19}^{X}	E_{14}^{S}
26	E_{14}^{S}	$_{21}^{M}$	$_{20}^{M}$	J_{17}^{X}	J_{18}^{X}	J_{19}^{X}	G	$_{20}^{G}$	33	42	42	41	39	38	35	34	33	J_{24}^{X}	J_{28}^{X}	J_{19}^{X}	J_{18}^{X}	E_{14}^{S}	E_{14}^{S}	$_{20}^{M}$
27	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	30	40	J_{48}^{X}	46	G	38	37	G	G	27	34	J_{38}^{X}	J_{18}^{X}	E_{14}^{S}	E_{14}^{S}	J_{20}^{X}	E_{14}^{S}
28	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	G	G	35	35	43	41	J_{45}^{X}	41	J_{43}^{X}	$_{27}^{G}$	$_{25}^{G}$	J_{38}^{X}	E_{14}^{S}	J_{18}^{X}	J_{24}^{X}	J_{82}^{X}	J_{73}^{X}	J_{43}^{X}
29	J_{38}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{25}^{X}	27	31	37	38	42	39	J_{39}^{X}	J_{47}^{X}	G	J_{44}^{X}	29	J_{43}^{X}	J_{74}^{X}	J_{40}^{X}	J_{39}^{X}	J_{44}^{X}	J_{28}^{X}
30	J_{26}^{X}	J_{14}^{X}	J_{21}^{X}	E_{14}^{S}	E_{14}^{S}	J_{20}^{X}	G	28	36	46	J_{56}^{X}	J_{52}^{X}	J_{54}^{X}	39	35	31	J_{33}^{X}	J_{28}^{X}	J_{38}^{X}	J_{45}^{X}	J_{20}^{X}	$_{21}^{M}$	E_{14}^{S}	$_{20}^{M}$
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	29	29	29	28	29	29	29	28	30	29	30	30	30	30	30
MED	22	J_{19}^{X}	J_{18}^{X}	J_{18}^{X}	18	E_{14}^{S}	23	30	38	39	42	41	40	39	36	34	34	30	J_{36}^{X}	J_{28}^{X}	J_{38}^{X}	J_{33}^{X}	J_{28}^{X}	J_{22}^{X}
UQ	J_{29}^{X}	J_{29}^{X}	J_{25}^{X}	J_{23}^{X}	J_{23}^{X}	J_{23}^{X}	26	32	41	J_{46}^{X}	J_{51}^{X}	J_{44}^{X}	J_{43}^{X}	J_{40}^{X}	J_{42}^{X}	43	J_{42}^{X}	J_{37}^{X}	J_{47}^{X}	J_{43}^{X}	J_{50}^{X}	J_{46}^{X}	J_{44}^{X}	J_{39}^{X}
LQ	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	G	29	34	37	38	38	34	$_{36}^{G}$	G	G	30	28	J_{26}^{X}	J_{19}^{X}	J_{20}^{X}	J_{20}^{X}	J_{19}^{X}	16

SEP. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FBES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E_{14}^{S}	17	18	18	17	17	G	31	39	49	40	42	G	40	39	43	27^{G}	G	32	23	58	E	E_{14}^{S}	E_{14}^{S}
2	39	43	E	20	17	24	27	27	38	38	44	40	40	38	39	36	36	26	19	29	20	22	19	25
3	26	21	22	22	18	18	G	33	35	36	38	41	50	38	38	42	36	35	28	20	E	E	E	20
4	19	21	18	39	21	18	G	29	33	35	37	39	C	C	43	41	38	40	48	44	25	23	25	22
5	E	23	21	E	E	E_{14}^{S}	G	28	33	G	G	G	G	35^{G}	37	40	32	34	26	50	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
6	E_{14}^{S}	E	E_{14}^{S}	E	E	E	27	32	34	37	37	40	40	38	44	C	34	28	19	42	50	22	E	E_{14}^{S}
7	E_{14}^{S}	E_{14}^{S}	13	E_{14}^{S}	E	E_{14}^{S}	25	30	34	35	54	39	37	39	G	G	35	27	24	23	28	32	27	24
8	22	23	23	20	16	E_{14}^{S}	23	29	36	37	36	40	39	42	30^{G}	34	50	50	47	28	45	30	25	30
9	29	20	26	19	E	E_{14}^{S}	25	32	45	40	56	38	38	G	G	31^{G}	31	30	C	E	30	E_{24}^{C}	E	E_{14}^{S}
10	E_{22}^{C}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	19	22	30	34	37	36	G	G	G	G	34	30	36	24	E	E	17	E	E
11	E_{14}^{S}	E_{14}^{S}	C	E_{14}^{S}	E_{22}^{C}	E_{14}^{S}	G	30	33	G	39	37	32	G	C	27^{G}	G	25	34	E	29	24	23	E
12	E	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	37	35	62	48	A	A	52	42	41	41	64	29	54	A	A	A	A	A
13	25	21	18	19	E_{14}^{S}	E_{14}^{S}	G	29	52	71	63	40	C	G	27^{G}	30	34	24	19	15	24	E	20	E
14	E	25	20	17	E_{14}^{S}	E_{14}^{S}	21	29	32	C	C	C	43	G	G	G	C	26	25	24	20	E	E	E
15	18	17	18	30	23	16	23	35	43	37	40	A	40	36	G	35	33	34	30	E	36	39	E	E
16	E	E	E	E	E_{14}^{S}	16	21	29	33	35	35	36	36	30^{G}	G	G	29	28	41	24	20	18	16	E_{14}^{S}
17	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	29	35	36	36	38	40	35	38	G	30	26	58	19	25	25	20	E
18	E	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	G	29	36	42	37	53	41	36	35	31	24	G	E	E	21	E	21	25
19	20	E	15	18	16	29	24	31	38	38	41	41	42	39	36	G	34	19	16	E	20	24	30	20
20	18	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	G	G	37	50	37	36	G	38	30	32	C	29	18	F_{14}^{S}	E	17	18	27
21	E	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	17	27	G	G	28^{G}	G	G	38	35	$31^{U.R}$	33	29	20	20	17	17	17	19	E
22	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	21	31	34	37	38	38	G	42	39	39	32	28	E	E	30	20	25	E
23	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	E	E	22	36	27	43	39	38	42	37	G	36	41	30	34	23	E	21	18	E
24	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	22	29	44	49	69	37	G	G	38	42	41	40	27	E	A	24	28	E
25	19	18	16	26	17	E	G	29	39	46	51	49	44	37	30^{G}	G	22^{G}	26	24	21	18	E	18	E_{14}^{S}
26	E_{14}^{S}	E	E	15	E	E	G	19^{G}	33	40	41	41	38	37	35	34	32	24	20	17	E	E_{14}^{S}	E_{14}^{S}	E
27	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	29	29	48	45	G	38	37	G	G	27	33	31	E	E_{14}^{S}	E_{14}^{S}	18	E_{14}^{S}
28	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	G	G	33	35	42	41	44	39	43	27^{G}	24^{G}	17	E_{14}^{S}	E	20	50	40	29
29	26	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	23	27	31	36	38	40	37	37	39	G	38	27	38	36	24	24	20	E
30	E	30	18	E_{14}^{S}	E_{14}^{S}	E	G	28	33	45	54	51	54	37	35	31	30	27	20	29	E	E	E_{14}^{S}	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	29	29	29	28	29	29	29	28	30	29	30	30	30	30	30
MED	E_{14}^{E}	14	14	14	E_{14}^{E}	E_{14}^{S}	22	29	34	37	39	40	38	37	35	32	32	28	25	20	20	20	18	14
UQ	20	21	18	19	16	16	23	31	38	45	45	41	42	38	39	36	36	33	34	28	30	24	25	22
LQ	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	G	28	33	36	37	37	34	35^{G}	G	G	29	25	19	E	14	14	14	E

SEP. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | F-MIN (0.1 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E_{14}^{S}	E	E_{14}^{S}	E	E	E_{14}^{S}	15	16	16	21	18	22	23	23	23	18	18	16	15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
2	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E	E_{14}^{S}	14	14	18	16	21	21	21	18	15	16	16	16	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
3	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	15	16	18	17	19	21	22	19	19	18	16	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
4	E_{14}^{S}	E_{14}^{S}	E	E	E	E	15	16	16	16	22	19	C	C	20	20	18	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
5	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	16	16	15	18	20	21	20	21	18	18	14	14	E_{14}^{S}	F_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
6	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	15	17	17	19	20	18	18	21	18	C	18	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
7	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	E_{14}^{S}	18	19	18	21	21	21	23	22	20	19	16	18	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
8	E_{14}^{S}	E	E_{14}^{S}	E	E	E_{14}^{S}	15	16	16	21	19	23	24	18	16	17	16	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
9	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	16	16	16	21	22	21	22	19	20	16	14	16	C	E_{14}^{S}	E_{14}^{S}	E_{24}^{C}	E_{14}^{S}	E_{14}^{S}
10	E_{22}^{C}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	16	14	16	14	18	21	14	21	14	16	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
11	E_{14}^{S}	E_{14}^{S}	C	E_{14}^{S}	E_{22}^{C}	E_{14}^{S}	15	15	14	15	21	16	18	18	C	16	14	E	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
12	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	15	13	15	16	16	18	19	18	16	15	15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	15	16	18	19	16	C	18	15	15	14	14	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}
14	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	17	15	C	C	C	20	16	16	16	C	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	E	14	15	14	16	19	19	18	18	15	15	15	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
16	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	14	14	16	18	16	16	18	16	13	13	14	13	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}
17	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	14	16	20	16	17	18	15	16	14	14	14	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
18	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	15	15	14	14	18	19	18	18	16	15	14	13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
19	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E	E_{14}^{S}	14	15	16	15	16	19	18	16	18	15	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
20	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	13	16	18	20	25	24	24	16	18	14	C	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
21	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	15	15	18	21	22	20	20	17	15	14	13	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
22	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	15	15	16	19	18	16	18	19	15	15	14	14	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
23	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	13	14	15	16	18	18	16	16	18	14	13	13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
24	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	16	16	18	20	18	19	18	15	16	17	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
25	E	E_{14}^{S}	E	E	E	E_{14}^{S}	15	17	17	16	14	18	21	18	15	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
26	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	15	14	16	17	18	36	16	14	16	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
27	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	15	16	17	16	20	18	16	15	15	15	13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
28	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	15	15	15	19	18	18	18	19	18	16	15	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
29	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	16	16	17	18	19	18	21	16	16	16	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
30	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	16	16	18	15	18	21	19	18	19	18	15	15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	30	30	30	30	30	30	29	29	29	28	29	29	29	28	30	29	30	30	30	30	30
MED	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	15	16	17	18	19	18	18	16	16	15	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
UQ	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	16	16	19	20	21	21	19	18	16	16	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
LQ	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	14	15	15	16	18	18	18	16	15	15	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}

SEP. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F2 (0.01) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	275	280	295	285	280	320	330	320	300	300	285	280	285	280	285	305	300	315	310	295	280	285	275
2	280	F	F	280	290	285F	310	320	320	330	300	290	295	300	300	300	315	315	315	300	290	295	280	280
3	280	280	290	270IR	265	285	295	295	315	295	310	295	310	305	310	305	315	305	310	300	300	290	285	280
4	280	280	275	275	280	290	315	335	330	325	315	300	C	C	295	305	310	315	315	320	295	280	275	270
5	280	280	270	280	285	290	340	345	350	305	300	310	285	285	295	295	310	325	320	310	300	285	295	280
6	280	280	265	270	275	285	325	325	330	330	295	295	315	285	300	300IC	295	310	315	305	290	290	290	265
7	270	270R	280	280	285	290	330	325	335	330	310	315	305	295	300	300	300	310	315	320	310	290	285	265
8	270	290	275	290	300	295	320	335	335	330	305H	310	300	295	290	310	310	305	310	310	320	305	280	270
9	260	270F	280	280	260	285	310	315	330	320	315	325	295H	315	300	300	315	315	315IC	305	315	305	270	275
10	290	275	290	310	295	280	310	320	325	330	305	320	310	310	320	305	320	320	320	300	310	305	290	290
11	295	285	285IC	285	280	300	335	330	315H	305	325	310H	295	305	315IC	300	305	315	315	325	345	275	270	290
12	300	285	280	290	300	300	330	330	320	315	310IA	310IA	300	300	330	315	315IR	315	335	310IA	305IA	A	A	A
13	F	F	290F	305F	320	F	320	320	335	320	305	300	310IC	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	305	290	275	255	300IC	325	330F	F	F	F	265F	F
15	F	F	F	F	F	F	260F	300	330	320	330	305IA	315	320	315	305	310	300	320	320	320	280IR	260	265
16	280	295	305	305	290	280	330	320	320	335	325	330	320	330	325	320	325	330	320	315	300IR	290	305	300
17	295	280	275	280	280	280	335	355	340	310	290	315	305	300	305	300	330	330	315	290	315	330	300	280
18	270	280	290	300	290	275	325	330	320	330	310	295	300	310	320	310	310	310	335	315	305	315	280	285
19	280	275	275	290	290	315	345	330	340	335	340	320	310	305	320	315	315	315	325	310	310	330	280	290
20	290	F	290	290	295F	310	345	330	320H	330	325	310	305	300	310	320	310IC	315	325	345	315	290	285F	280F
21	270	290F	300	300	295F	290S	325	340	335	355	340	305	315	315	305	315	315	315	320	330	330	295	285	275
22	275	275	285	315	300	300	300	335	355	330	325	325	310	300	305	300	320	310	320	310	300	290	285	290
23	290	290	290	300	280	290	335	355	330	335	305	305	315	310	295	310	310	320	315	300	300	305	285	F
24	340	270	275	285	275	270	305	325	335	320	325	305	310	300	310	305	320	325	320	310	305IA	295	280	280
25	290	285	280	285	280	295	330	340	330	325	300	300	320	300	300	310	315	320	315	315	320	290	280	285
26	285	285	285	285	285	295	325	335	325	335	320	310	295	305	300	310	320	310	320	330	320	295	275	285
27	280	275	280	280	275	275	315	335	320	325	320	310	310	305	310	310	315	325	320	320	300	285	280	285
28	280	285	295	300	290	290	320	325	320	315	335	310	300	295	305	310	310	315	320	310	310	295	305	290
29	275	270	270	295	300	295	325	330	315	320	325	300	295	310	305	310	305	320	315	305	285	285	290	280
30	285	285	300	275	270	270F	320	335	315	320	315	315	305	300	305	305	310	330	310	310	280	290	285	280
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	25	27	28	28	27	29	29	29	29	29	29	29	28	29	29	29	29	29	28	28	27	28	26
MED	280	280	280	288	285	290	325	330	330	325	315	310	305	300	305	305	310	315	320	310	305	290	285	280
UQ	290	285	290	300	295	295	330	335	335	330	325	315	310	310	310	310	315	320	320	320	315	300	288	285
LQ	275	275	275	280	280	280	315	325	320	320	305	300	300	298	300	300	310	310	315	305	300	288	280	275

SEP. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39°43.5'N. Long. 140°08.2'E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	A	L 340	L 325	415	355	360	355	L	L						
2								L	L	405	A	L 350	370	355	355	L 355	L	L						
3							L	L	L	H 335	360	330	I A 355	370	360	A	L							
4								L	L	U L 365	L 370	345	C	C	A	L	L	A						
5								L	L	L 375	360	H 365	330	L 365	H 340	U L 340	U L 340	L						
6								L	L	L	L 365	L 360	L 375	345	A	C	L	L						
7								L	L	L 395	I A 375	380	370	335	340	H 355	L	L						
8								L	U L 375	L 395	L 395	375	360	375	L 355	370	A	A						
9							L	L	A	L	A	380	L 365	H 365	L	L	L	L						
10								L	U L 370	370	375	U L 365	360	355	340	L	L	A						
11								L	L	L	380	375	390	355	C	L	L	L						
12								L	I A 335	A	A	A	I A 370	350	I A 360	A	A	L						
13								L	A	A	A	360	I C 360	C	C	C	C	C						
14						C	C	C	C	C	C	C	A	350	320	310	C							
15								L	I A 365	L 380	L	I A 380	385	390	L	L	L							
16								L	L 355	L	L 360	370	370	380	L 370	L	L							
17									L	L	355	370	370	355	L	L								
18									L	I A 380	365	I A 360	365	360	L 350	L	L							
19								L	L	U L 380	375	380	365	L	U L 360	L	L							
20								L	L	A	L	L	L	375	L	L	C							
21								L	L	L 395	L 395	L	425	L	L	L								
22									L	L	L 380	L 360	H 370	L	U L 355	L	L							
23									L	A	L 375	375	L	U L 355	L	L	A							
24								L	A	A	A	H 365	360	L	L 360	L	A							
25								L	L	L	A	L	A	L	L	L	L							
26								L	L	L	L 380	L	U L 345	355	U L 380	L								
27								L	L	A	A	U L 375	360	U L 355	L	L	L							
28								L	L	L	380	L	L	U L 365	A	L								
29									L	L	L	L	U L 355	L 355	L	L								
30									L	A	A	A	A	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									5	11	18	21	23	22	15	6	1							
MED									L 365	L 380	375	365	365	355	L 355	355	U L 340							
UQ									U L 370	L 395	380	375	370	365	360	355								
LQ									I A 355	372	L 360	360	360	355	345	340								

The Radio Research Laboratories, Japan

SEP. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1972 | H'F2 (KM)

135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								230	245	255	300	350	300	315	310	300	285	270						
2								255	250	255	250	315	300	300	305	295	275	245						
3							315	300	275	325	280	335	295	275	285	280	270							
4								240	250	275	265	305	C	C	295	285	270	255						
5								230	230	260	300	290	320	290	320	295	285	260						
6								240	250	250	275	300	265	330	285	I C 280	270	270						
7								245	245	255	255	280	280	315	300	300	285	255						
8								240	245	250	255	280	305	295	280	290	275	275						
9							250	265	250	265	295	255	275	280	270	280	265	260						
10								255	260	260	285	270	285	310	290	265	260	255						
11								245	250	250	265	255	290	310	I C 280	290	285	255						
12								250	280	300	I A 310	I A 310	315	325	275	285	I A 270	265						
13								265	255	I A 275	I A 290	305	I C 295	C	C	C	C	C						
14						C	C	C	C	C	C	C	335	365	415	400	C							
15								265	260	250	265	I A 305	290	280	285	295	270							
16								280	270	255	270	275	275	275	265	275	255							
17									250	265	295	275	285	285	265	280								
18									255	255	290	320	290	280	255	255	270							
19								250	255	255	270	275	280	295	280	255	265							
20								240	250	270	270	H 275	300	315	290	265	C							
21								245	250	240	250	270	250	285	295	270								
22									240	245	255	280	270	275	290	265	255							
23									255	250	260	280	270	280	255	270	255							
24								255	245	265	260	290	270	265	280	280	255							
25								230	255	245	255	270	265	280	280	275	260							
26								250	255	245	250	260	290	290	285	265								
27								240	250	260	250	265	265	295	265	255	255							
28								245	255	260	250	250	290	265	250	255								
29									260	255	245	255	265	275	255	250								
30									255	255	255	255	260	260	260	265	255							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	23	29	29	29	29	29	28	29	29	22	11						
MED							282	245	250	255	265	289	285	288	280	280	270	260						
UQ								255	255	265	285	305	295	310	290	290	275	268						
LQ								240	250	250	255	270	270	278	265	265	255	255						

SEP. 1972 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 1972 | H'F (KM) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	290	290	265	265	275	245	230	230	I 240 A	205	215	185	230	210	I 235 A	235	240	250	240	300	250	255	290
2	330	325	270	255	260	265	240	235	240	205	I 230 A	220	200	215	240	240	230	235	235	240	240	300	290	300
3	295	290	280	300	310	290	260	240	225	205 H	200	235	I 235 A	225	230	I 235 A	240	255	240	240	245	255	255	285
4	285	300	295	300	295	280	245	2?0	220	210	210	205	C	C	A	A	A	A	245	240	245	290	295	310
5	315	300	300	280	270	280	230	230	215	200	205	195 H	215	210	210 H	250	230	I 250 A	235	250	205	245	280	290
6	305	280	280	280	285	280	240	230	230	225	200	200	230	215	A	C	245	250	240	250	290	255	255	260
7	295	295	285	280	260	285	245	240	225	215	I 205 A	200	215	215	230	230 H	255	240	240	230	230	275	305	355
8	330	290	300	290	295	275	235	230	I 220 A	205	195	230	200	I 220 A	220	230	A	A	270	240	250	250	295	340
9	355	315	305	285	290	285	240	245	I 230 A	230	I 230 A	200	205	190 H	235	230	240	I 250 A	I 250 C	245	245	245	250	260
10	280	300	225	245	250	295	245	230	230	220	200	220	205	205	235	230	235	I 250 A	235	235	230	230	260	275
11	270	290	I 290 C	280	275	270	240	240	230	215	205	205	215	205	I 245 C	230	240	250	245	225	200	275	315	270
12	240	280	290	295	265	245	240	240	A	A	A	A	A	A	A	A	A	I 245 A	255	I 240 A	I 250 A	A	A	A
13	340	330	295	265	225	280	235	250	A	A	A	235 A	I 225 C	C	C	C	C	C	C	C	C	C	C	C
14	C	A	C	C	C	C	C	C	C	C	C	C	A	225	225	245	I 245 C	240	235	315 A	360	325	335	335
15	290	300	320	I 330 A	315	290	245	I 240 A	I 220 A	I 210 A	I 230 A	I 230 A	220	205	240	245	I 240 A	250	250	220	250	A	320	305
16	290	265	265	250	290	310	250	240	235	240	215	205	215	205	205	190 H	250	240	250	240	250	255	280	255
17	260	295	300	290	305	305	225	225	230	230	205	200	225	215	240	235	250	240	I 250 A	250	255	240	265	300
18	295	295	285	250	275	300	245	230	230	I 225 A	220	I 240 A	I 230 A	225	215	220	255	250	230	225	250	240	255	315
19	295	295	295	295	285	260	230	230	I 235 A	225	220	210	I 205 A	220 H	235	235	I 250 A	245	245	225	245	235	A	295
20	290	300	295	290	255	250	215	195	225	I 225 A	195 H	190 H	200 H	210	250	245	I 250 C	250	240	230	220	240	300	I 300 A
21	310	285	260	235	260	290	250	240	235	225	220	215	200	200	250	240	240	250	245	230	225	250	270	265
22	300	300	285	245	230	250	230	235	235	220	205	195	180 H	240	240	I 235 A	I 235 A	255	225	220	265	255	285	290
23	290	265	275	240	270	295	225	235	240	I 230 A	210	200	I 205 A	220	230	255	I 250 A	240	245	240	250	250	275	340
24	340	315	290	275	295	310	250	230	I 235 A	I 240 A	I 230 A	190 H	225	200 H	230	I 245 A	I 250 A	245	230	230	I 250 A	250	255	265
25	270	295	310	340	300	280	220	230	I 235 A	A	A	A	A	225 H	235	240	245	245	235	235	230	230	285	285
26	265	265	265	245	245	250	235	240	230	I 225 A	215 A	235	225	225	225	240	245	245	235	215	235	245	295	290
27	295	295	285	290	290	315	245	240	235	A	A	205	200	230	240	240	250	240	240	220	240	260	290	295
28	295	285	290	270	265	270	235	240	235	235	215 A	220	240	230	I 230 A	235	250	245	235	225	245	I 265 A	290 A	295
29	315 A	315	305	275	255	265	235	230	215	210 H	220	235	220	215	I 235 A	245	255	240	240	255	255	290	265	300
30	295	310	270	295	305	315	245	225	235	A	A	A	A	230	235	245	240	245	230	240	230	255	280	290
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	27	24	24	26	25	27	26	26	26	27	29	29	29	27	27	28
MED	295	295	290	280	275	280	240	235	230	225	210	208	215	215	235	238	245	245	240	240	245	250	280	292
UQ	310	300	295	290	295	295	245	240	235	230	220	230	225	225	240	245	250	250	245	240	250	262	295	302
LQ	290	290	280	255	260	270	235	230	225	210	205	200	200	208	225	230	240	240	235	225	230	245	262	280

SEP. 1972 | H'F (KM)

IONOSPHERIC DATA

SEP. 1972 | H'ES (KM)

135 E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39 43.5 N. Long. 140 08.2 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	100	100	105	100	100	150	140	130	115	115	110	G	115	115	115	105	G	120	105	105	105	S	S
2	105	105	105	105	105	105	105	105	125	115	110	115	105	105	100	115	115	110	100	110	110	105	105	100
3	100	100	100	100	100	100	G	115	115	115	115	110	105	105	105	105	105	105	100	100	100	100	100	105
4	100	105	105	100	100	105	G	140	130	120	115	110	C	C	105	110	110	110	105	105	105	105	105	105
5	105	105	105	100	100	S	G	125	115	G	G	G	G	110	110	110	140	120	110	110	105	S	S	S
6	S	100	S	100	100	100	140	130	140	120	125	115	115	120	120	C	140	130	120	110	115	100	105	S
7	S	S	100	S	100	S	150	150	140	120	115	110	105	105	G	G	120	130	115	110	105	105	105	105
8	100	100	100	100	105	S	150	130	125	115	110	170	105	110	105	115	125	115	115	105	110	105	105	100
9	105	105	100	100	105	S	125	115	115	115	115	115	110	G	G	110	140	125	C	110	105	C	100	S
10	C	S	S	S	100	105	140	140	140	135	130	G	G	G	G	150	150	120	115	110	110	100	100	100
11	S	S	C	S	C	S	G	140	130	G	120	105	105	G	C	110	G	140	115	100	110	105	100	100
12	100	S	S	100	100	S	125	125	115	115	110	110	125	125	140	120	120	125	115	110	110	110	105	105
13	100	100	100	100	S	S	G	140	115	115	115	115	C	G	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	115	G	G	G	C	120	115	115	110	110	110	105
15	110	105	105	105	105	110	120	115	115	115	110	105	105	110	G	170	145	125	115	110	110	110	105	105
16	105	100	100	100	S	105	120	130	130	125	120	115	105	105	G	G	150	130	120	115	110	105	105	S
17	S	S	S	S	S	S	150	155	125	125	120	120	115	115	125	G	140	115	110	110	110	110	105	105
18	105	S	S	100	105	S	G	150	130	125	125	115	115	115	115	115	110	G	115	110	110	110	110	105
19	105	110	105	105	105	100	140	125	125	125	125	115	115	115	105	G	115	110	120	110	110	105	105	100
20	100	100	S	S	S	S	G	G	125	120	125	120	G	115	110	105	C	110	105	S	115	110	110	105
21	105	100	S	S	S	100	145	G	G	110	G	G	105	105	105	150	140	130	105	105	105	100	100	100
22	100	S	S	S	100	S	160	140	135	125	130	130	G	135	140	135	125	115	130	115	115	110	110	105
23	S	105	S	S	100	110	155	105	110	120	120	115	115	115	G	150	130	115	110	110	110	110	105	105
24	S	S	110	S	S	S	150	140	125	120	115	115	G	G	155	130	120	115	110	110	110	110	110	110
25	105	105	105	100	100	100	G	135	130	120	115	115	115	115	110	G	105	100	100	100	100	100	110	S
26	S	105	105	105	105	100	G	100	105	125	120	115	115	115	115	115	115	110	105	105	105	S	S	100
27	S	S	S	S	S	S	145	140	125	120	115	G	115	135	G	G	155	140	115	100	S	S	105	S
28	S	S	S	E	S	S	G	G	130	120	120	115	110	110	110	110	110	110	S	100	110	110	105	105
29	105	S	S	S	S	S	105	130	140	120	120	115	115	110	110	G	140	130	115	115	110	110	110	105
30	110	105	105	S	S	100	G	160	130	120	115	115	115	115	115	110	105	105	100	105	105	100	S	100
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	16	16	18	14	18	26	28	27	27	25	22	23	20	20	26	27	27	28	28	25	25	22
MED	105	105	105	100	100	100	142	132	125	120	115	115	115	115	110	115	122	115	115	110	110	105	105	105
UQ	105	105	105	105	105	105	150	140	130	122	120	115	115	115	118	132	140	128	115	110	110	110	110	105
LQ	100	100	100	100	100	100	125	125	115	115	115	110	105	110	105	110	110	110	105	105	105	105	105	100

SEP. 1972 | H'ES (KM)

IONOSPHERIC DATA

SEP. 1972 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39 43.5 N, Long. 140 08.2 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		F2	F2	F2	F2	L1	H1	H1	H2	C2	C1	L1		C1	C1	C2	L1		C2	F3	F3	F1		
2	F3	F2	F1	F2	F2	L2	L2	L1	H1	C1	L1	C1	L1	L2	L2	C1	C2	L3	L1	F5	F2	F2	F3	F2
3	F4	F3	F2	F2	F2	L1		C2	C2	C1	C2	L2	L2	L2	L2	L3	L3	L6	L4	F2	F1	F1	F1	F2
4	F1	F3	F2	F3	F3	L1		H1	H1	H1	C1	L1			L2	L2	L3	L3	L3	F3	F4	F2	F3	F2
5	F2	F3	F3	F1	F1			H1	C1					L1	L1	L3	H1	C3	L3	F3	F1			
6		F1		F1	F1	L1	H2	H2	H1	H1	H1	C1	C1	C1	C2		H1	H3	C2	F3	F32	F2	F1	
7			F1		F1		H2	H1	H1	C1	C2	L1	L1	L2			C2	H2	C2	F2	F3	F4	F3	F3
8	F1	F3	F2	F1	F2		H1	H1	H1	C2	L1	H1	L1	L2	L1	C1	H2	C3	C3	F6	F3	F2	F2	F2
9	F2	F2	F2	F1	F1		H2	C2	C3	C2	C2	C1	L1			L1	H1	H2		F2	F2		F1	
10					F1	L2	H1	H2	H1	H1	H1					H1	H1	C2	C2	F1	F1	F2	F1	F1
11								H1	H2		C1	L2	L1			L1		H1	C22	F2	F3	F2	F2	F1
12	F1			F1	F1		H2	H3	C3	C3	L3	L2	H1	H1	H1	H3	H3	H2	C3	F3	F3	F3	F3	F3
13	F2	F3	F1	F1				H1	C2	C2	C2	C1			L1	L2	L2	L3	L2	F1	F2	F2	F2	F2
14	F3	F4	F3	F3			H1	H1	H2				C2					C2	C3	F5	F3	F2	F2	F2
15	F2	F1	F2	F5	F2	L3	C2	C2	C2	C2	L2	L2	L2	L1		H1	H3	H3	C3	F1	F5	F6	F2	F1
16	F1	F2	F2	F2		L1	C1	H1	H1	H1	H1	C1	L2	L1			H1	H3	C3	F4	F2	F3	F2	
17							H1	H1	H1	H1	H1	H1	C2	C1	H1		H1	C3	L3	F2	F2	F3	F3	F1
18	F1			F1	F1			H1	H2	H2	H1	H2	C2	C1	C2	C2	L1		C1	F1	F2	F2	F3	F3
19	F3	F2	F2	F3	F2	L3	H1	H2	H2	H1	H2	C2	C2	C1	L2		C3	L1	C1	F2	F3	F2	F3	F3
20	F1	F2							H2	C2	H1	C1		C1	L1	L2		L2	L2		F1	F2	F1	F5
21	F1	F1				F2	H2			L1			L1	L1	L1	H11	H12	H1	L2	F2	F1	F2	F1	F1
22	F1						H1	H1	H1	H1	H1	H1		H1	H1	H1	H2	C3	H1	F1	F3	F2	F4	F2
23		F1			F1	F1	H1	L3	L21	H2	H1	C1	C2	C1		H2	H2	C2	F3	F3	F2	F3	F3	F2
24			F1				H1	H1	H2	H2	C3	C1			H1	H2	C2	C3	F2	F1	F3	F4	F3	F2
25	F3	F2	F2	F4	F2	F1		H1	H1	H2	C2	C2	C2	C2	L1		L2	L3	F4	F3	F2	F1	F1	
26		F1	F1	F1	F1	F3		L1	H1	H2	H2	C1	C1	C1	C1	C2	C2	L3	F3	F1	F2			F1
27							H1	H1	H3	H2	C2		C1	H1			H1	HL31	FF31	F1			F2	
28									H2	H1	H2	C2	L2	L2	L2	L1	L2	L1		F1	F3	F4	F3	F3
29	F3						L3	H1	H1	H1	H1	C1	C1	L1	L2		H2	H2	F3	F3	F2	F2	F1	F2
30	F1	F2	F2			F1		H1	H1	H2	C2	C2	C2	C1	C1	L1	L2	L3	F2	F3	F1	F1		F1
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

SEP. 1972 | TYPES OF ES

IONOSPHERIC DATA

SEP. 1972 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	66	66	$^{S}62$	62	55	55	87	$^{J\,R}89$	83	84	$^{J\,R}89$	95	$^{J\,R}105$	$^{J\,R}102$	$^{J\,R}102$	105	$^{R}106$	$^{R}96$	98	88	75	$^{S}70$	F	$^{S}71$
2	$^{R}65$	69	69	61	$^{S}55$	$^{S}53$	$^{I\,S}79$	91	86	87	91	98	$^{J\,R}104$	110	109	111	108	$^{S}100$	94	82	70	74	65	70
3	63	65	59	56	54	50	62	84	88	86	90	104	114	109	93	89	89	93	95	$^{I\,A}78$	74	64	65	$^{I\,S}67$
4	59	54	53	51	50	54	82	$^{J\,R}86$	77	81	84	84	95	98	109	115	113	106	$^{J\,R}101$	71	60	59	56	$^{J\,R}55$
5	55	57	55	54	51	60	$^{R}82$	$^{J\,R}75$	73	71	88	92	89	92	96	$^{J\,R}102$	106	113	96	$^{S}76$	60	55	51	55
6	55	56	56	55	50	53	$^{S}84$	91	91	83	73	90	90	$^{J\,R}102$	119	116	$^{J\,R}104$	110	115	89	$^{I\,R}74$	61	62	61
7	60	60	56	$^{I\,S}55$	51	$^{I\,S}68$	$^{J\,R}89$	$^{U\,R}100$	88	83	80	84	$^{J\,R}89$	90	97	$^{J\,R}101$	$^{J\,R}103$	112	107	96	67	50	50	49
8	50	$^{J\,R}53$	51	50	50	51	85	86	82	78	79	86	90	96	107	105	99	95	98	$^{I\,S}92$	$^{I\,S}79$	58	55	$^{S}56$
9	F	$^{J\,S}55$	53	51	50	$^{S}53$	$^{J\,R}75$	91	97	101	97	95	80	90	84	84	91	92	96	$^{U\,S}97$	$^{U\,S}90$	57	58	57
10	58	53	55	54	44	42	66	89	$^{J\,R}102$	92	81	83	80	84	82	80	83	95	$^{S}100$	$^{J\,R}79$	72	57	53	51
11	51	48	48	48	45	46	$^{S}75$	89	79	84	78	80	80	92	$^{J\,R}105$	97	$^{S}98$	114	116	101	54	50	54	$^{S}56$
12	51	41	40	44	42	38	60	$^{J\,R}77$	85	89	79	87	88	89	92	89	85	77	83	80	$^{S}64$	A	A	A
13	$^{U\,F}41$	$^{F}41$	F	F	$^{F}38$	34	56	70	79	78	80	87	92	91	90	80	77	86	91	66	53	$^{U\,F}36$	F	A
14	$^{U\,F}40$	F	F	42	38	F	45	55	54	$^{E\,G}46$	56	73	72	69	63	74	78	$^{S}76$	54	36	$^{J\,F}40$	F	F	F
15	$^{F}55$	$^{F}49$	$^{U\,F}46$	$^{F}45$	F	F	55	$^{J\,S}74$	85	$^{J\,R}76$	79	90	$^{R}88$	90	85	77	90	$^{J\,R}105$	$^{J\,R}102$	$^{S}100$	62	44	$^{I\,A}39$	$^{U\,F}40$
16	$^{S}41$	42	41	39	36	34	63	90	87	86	93	89	91	90	77	77	86	90	81	71	59	51	49	47
17	46	$^{S}44$	45	43	37	39	76	76	73	79	88	110	102	$^{R}103$	92	90	104	96	71	67	$^{I\,S}78$	65	41	44
18	44	44	44	46	41	40	68	$^{R}77$	84	83	76	80	92	96	96	$^{F}88$	90	109	$^{J\,R}105$	91	60	58	$^{J\,R}49$	$^{J\,S}42$
19	41	$^{I\,R}40$	39	41	$^{J\,R}40$	$^{J\,R}43$	$^{J\,R}63$	70	80	85	80	85	86	84	99	96	90	93	95	91	$^{R}75$	S	A	$^{I\,S}42$
20	S	F	41	F	40	36	62	80	80	90	79	80	83	92	113	107	$^{J\,R}99$	95	$^{J\,R}99$	$^{U\,R}88$	46	36	$^{I\,S}40$	40
21	43	41	41	38	F	38	$^{S}65$	106	97	83	81	84	88	80	86	102	93	91	95	90	68	39	42	41
22	41	42	43	44	36	32	$^{R}66$	$^{R}95$	84	84	82	86	90	92	87	87	90	95	96	$^{I\,S}80$	55	48	48	50
23	47	48	49	52	38	35	69	92	82	99	99	$^{J\,R}104$	106	95	$^{J\,R}89$	96	101	96	81	69	$^{U\,R}64$	64	56	54
24	54	54	54	52	47	48	$^{S}71$	$^{J\,R}103$	94	87	87	100	110	107	98	100	$^{J\,R}105$	109	96	$^{J\,S}80$	71	62	56	$^{I\,A}50$
25	49	46	44	45	45	49	70	82	89	99	95	106	108	$^{J\,R}106$	106	$^{F}100$	$^{R}103$	109	$^{R}93$	S	A	50	A	$^{I\,S}45$
26	F	F	53	54	52	55	$^{S}71$	$^{S}96$	$^{J\,R}103$	94	89	95	101	109	102	$^{R}101$	99	95	93	85	61	47	49	51
27	51	50	50	50	50	49	F	84	$^{J\,R}101$	96	96	93	93	96	105	$^{R}99$	$^{J\,R}99$	$^{J\,R}100$	$^{I\,R}90$	$^{J\,R}67$	49	$^{S}46$	49	49
28	50	50	51	50	44	43	$^{I\,S}64$	$^{U\,S}98$	$^{J\,R}103$	107	$^{J\,R}102$	89	90	96	100	91	100	$^{J\,R}105$	96	$^{J\,R}80$	61	$^{I\,R}58$	$^{J\,R}55$	50
29	$^{R}46$	49	50	50	43	$^{R}43$	$^{U\,R}70$	90	$^{R}96$	105	109	98	$^{J\,R}104$	108	109	$^{J\,R}104$	95	$^{J\,R}102$	$^{J\,R}101$	$^{J\,R}75$	63	$^{I\,S}53$	$^{I\,R}53$	51
30	52	58	55	45	50	46	$^{R}71$	91	86	$^{J\,R}104$	113	100	100	104	106	105	105	107	95	70	60	57	56	55
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	28	28	29	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	24	27
MED	51	50	50	50	45	46	70	89	86	86	86	90	90	96	98	98	99	96	96	80	63	57	53	51
UQ	55	56	55	54	50	53	76	91	94	94	93	98	102	103	106	104	104	107	100	90	72	60	56	56
LQ	45	44	44	44	40	38	63	77	80	83	79	84	88	90	89	88	90	93	93	71	60	49	49	46

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SEP. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	U L 500	A	A	L	480	510	510	520	L	L						
2								L	A	A	A	L	560	560	L	L	L	L						
3								L		L	L	550	U L 540	L	A	A	L							
4							L	L	L	L	U L 500	530	510	520	510	A	A							
5								L	L	490	480	510	530	R	480	L	L							
6								L	450	450	530	490	540	500	500	450	380							
7								L	L	A	A	480	500	490	L	L	L							
8								L	L	440	490	L	500	A	490	L	L							
9								L	L	L	L	L	L	510	L	L	L	L						
10								L	L	L	L	L	U 520	500	L	L	L							
11								L	L	L	L	L	L	L	500	L	L							
12								L	A	A	A	520	500	A	A	L	A	A						
13								L	L	L	480	500	500	500	L	L	L	L						
14							300	370	410	460	A	470	470	470	U 500	L	L							
15								L	420	L	A	490	L	L	L	L	L	L						
16								L	L	L	490	U 510	L	U 500	L	L	L							
17									L	L	L	A	U 490	U 500	L	L	L	A						
18								L	L	A	A	480	A	L	A	A	L							
19								L	A	A	L	510	490	L	L	L	L							
20									L	L	450	L	L	550	440	L	L							
21								L	L	L	L	510	U 510	L	480	L	A							
22								L	L	L	L	L	500	L	L	L								
23								L	L	A	L	L	L	L	L	L	L							
24								L	L	L	L	L	L	L	U 500	L	L							
25									L	A	480	A	A	L	L	L	A							
26									L	L	A	480	L	L	L	A	A							
27								L	L	L	A	L	520	L	L	L	A							
28								L	L	450	L	460	A	L	470	L	A							
29								L	L	440	470	A	A	490	L	L	L							
30								L	L	L	L	A	A	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	4	6	9	15	17	13	11	2	1							
MED							300	370	435	450	480	500	500	500	500	485	380							
UQ									475	460	490	510	520	510	500									
LQ									415	440	480	480	500	500	480									

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SEP. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOE (0.01 MHZ) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	200	270	310	R 320	A	A	A	A	A	340	A	A	A					
2						B	200	290	320	350	A	390	A	370	I A 360	A	A	A	A					
3						B	220	275	310	A	A	A	R	A	A	A	A	A	A					
4						B	A	270	300	A	A	A	A	B	A	340	290	A	A					
5							I A 195	260	A	A	A	R	R	A	A	A	290	R 220	A					
6							195	260	I A 310	335	A	A	A	A	R 360	335	300	A	A					
7							200	280	280	330	A	A	A	A	345	325	290	220	A					
8							210	260	300	A	A	A	A	A	R	330	290	A	A					
9							210	250	A	A	A	A	A	365	S 360	320	275	220	A					
10							210	265	305	320	A	R 370	A	355	A	R 325	290	205	B					
11							R	275	300	320	A	A	R	R	345	320	275	220	B					
12							A	I A 265	330	A	A	360	365	350	345	305	A	A	A					
13							215	255	290	A	A	R	365	355	330	300	A	210	A					
14							170	250	290	300	320	I A 350	350	R	340	305	280	205	B					
15							A	270	A	A	A	A	A	S 370	340	300	285	210	B					
16							I A 200	250	295	330	I A 355	R 370	I R 360	I A 350	345	305	280	205	B					
17							185	270	305	325	I A 335	I A 340	I A 345	360	350	305	275	200	S					
18							200	265	300	320	340	350	A	A	A	A	A	210	A					
19							160	250	300	325	340	A	R	A	A	R 330	A	200	A					
20							160	250	I A 300	330	A	A	R	A	R	A	275	A						
21							180	250	I R 300	I A 345	I A 350	I A 355	360	R	R	I A 310	260	200						
22							B	260	300	325	355	U R 365	370	S 380	345	310	265	A						
23							175	265	300	325	340	350	I A 350	350	340	310	275	A						
24							190	255	300	A	R	I R 370	I B 360	355	345	305	260	A						
25							A	265	305	320	340	350	A	A	A	310	275	A						
26							180	265	300	325	340	B	345	A	A	A	A	A						
27							195	245	300	320	I R 330	I R 330	R 360	R 350	335	310	265	A						
28							180	250	300	320	A	A	A	A	A	A	A	A						
29							180	I A 255	295	R 330	A	A	A	A	R 340	R	A	A						
30							B	255	305	340	360	A	A	A	A	A	A	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							23	30	27	21	12	13	11	12	16	21	19	13						
MED							195	260	300	325	340	355	360	355	345	310	275	210						
UQ							200	270	305	330	352	370	362	368	348	325	290	220						
LQ							180	250	300	320	338	I 350	350	350	340	305	275	205						

The Radio Research Laboratories, Japan

SEP. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	M 21	M 23	J X 20	J X 24	J X 30	22	G	31	38	46	J X 62	J X 44	40	42	J X 49	G	J X 34	J X 39	J X 20	J X 35	J X 26	J X 34	J X 51	J X 23
2	E S 15	M 20	J X 35	J X 31	J X 35	22	24	33	45	51	J X 60	J X 40	J X 44	41	39	35	32	J X 30	J X 30	M 45	J X 25	J X 53	J X 29	J X 40
3	J X 29	J X 26	J X 22	J X 24	J X 19	19	25	33	46	40	J X 40	J X 40	G 36	J X 42	J X 60	J X 51	J X 43	J X 50	J X 40	J X 110	J X 53	J X 50	J X 50	19
4	E S 15	19	M 21	M 19	M 21	J X 30	J X 36	29	34	36	38	38	42	40	38	J X 54	66	J X 71	J X 48	J X 41	J X 21	J X 41	J X 54	J X 50
5	J X 54	J X 36	J X 41	J X 26	J X 24	J X 21	24	28	31	38	39	G	G 35	45	J X 46	44	39	J X 53	J X 25	J X 29	J X 41	J X 26	M 20	E B 13
6	E B 13	18	M 20	E B 13	E S 15	M 20	24	30	35	36	39	J X 41	J X 44	45	G 34	36	G	J X 41	J X 41	J X 24	J X 53	J X 25	J X 51	J X 21
7	M 20	J X 24	J X 61	J X 46	21	E S 15	36	28	39	J X 53	J X 54	49	45	J X 41	G	G	38	J X 41	J X 37	J X 28	J X 26	J X 24	J X 36	J X 51
8	J X 39	J X 25	J X 25	J X 24	J X 24	M 21	G	29	33	36	J X 41	J X 41	45	J X 54	G 35	39	35	29	J X 38	J X 43	J X 51	J X 54	J X 29	J X 39
9	J X 26	M 22	M 21	M 20	M 20	E B 13	23	35	36	J X 59	J X 44	40	J X 41	G 31	G	35	32	29	36	J X 28	J X 18	J X 19	J X 25	E B 14
10	M 21	M 20	E B 12	E B 12	M 21	J X 19	24	33	37	36	37	G 25	40	G 20	J X 39	G	37	J X 37	J X 26	J X 26	J X 24	M 21	M 21	21
11	M 21	E B 14	E S 15	E S 13	M 19	M 21	G	30	36	37	38	37	G	G	G	G 25	31	36	J X 85	J X 63	J X 30	J X 22	J X 48	J X 28
12	J X 30	M 21	M 21	J X 20	J X 25	M 21	25	J X 43	J X 51	J X 58	J X 86	J X 54	J X 43	J X 59	J X 79	J X 89	J X 64	J X 85	J X 88	J X 38	J X 90	J X 64	J X 53	J X 51
13	J X 29	J X 29	J X 26	J X 37	J X 29	J X 26	G	30	35	39	37	G	G	G	G 25	25	J X 29	25	17	M 19	E S 15	J X 29	J X 26	J X 140
14	J X 54	36	J X 29	J X 26	J X 19	E S 15	22	G	31	43	J X 51	37	G	G 30	J X 31	G 20	G	J X 28	J X 27	J X 25	J X 38	J X 63	J X 50	M 21
15	22	M 25	21	21	E B 12	M 20	22	G 25	32	35	J X 60	47	38	G 35	J X 33	G 25	35	27	J X 27	J X 29	J X 36	J X 52	J X 144	J X 36
16	J X 26	J X 30	24	J X 30	J X 26	M 24	J X 30	27	32	36	36	G 35	G 30	36	G 20	33	G	27	J X 22	J X 24	J X 41	J X 30	J X 30	J X 26
17	J X 16	M 19	E S 15	E B 13	E B 12	E S 15	23	30	36	35	40	J X 60	J X 58	39	G	36	39	J X 75	J X 54	J X 50	J X 30	J X 51	J X 30	J X 30
18	J X 25	M 25	20	24	M 21	E B 12	G	31	37	J X 53	J X 49	37	62	J X 51	J X 54	J X 45	J X 54	30	J X 41	J X 41	J X 51	J X 29	J X 41	M 21
19	J X 30	J X 21	J X 20	J X 19	19	M 21	22	30	J X 46	J X 78	41	J X 65	G 35	41	J X 58	G	35	J X 49	J X 21	J X 50	J X 41	J X 35	65	J X 24
20	J X 41	M 20	E S 15	M 20	E B 13	M 20	21	G 20	36	41	J X 42	J X 41	G	J X 41	G 35	35	G 18	J X 26	J X 39	J X 29	J X 25	J X 30	J X 21	J X 24
21	J X 29	J X 24	M 21	J X 24	M 21	J X 19	G	28	G	J X 35	44	43	G 34	G 34	G 32	39	J X 41	J X 39	J X 40	J X 29	J X 24	J X 20	J X 24	J X 24
22	J X 24	M 21	M 20	E B 13	M 21	J X 20	25	31	36	37	29	G	43	47	47	J X 46	J X 46	J X 40	J X 28	J X 60	J X 60	J X 54	J X 29	J X 39
23	J X 26	J X 20	J X 26	25	E B 14	E B 12	G	31	J X 40	J X 60	J X 45	47	J X 43	G 30	G 22	37	31	J X 40	J X 36	J X 42	J X 30	J X 24	J X 24	J X 21
24	M 20	M 21	J X 19	M 21	M 21	E B 14	21	36	J X 40	J X 44	G 34	G 33	E B 40	39	37	36	36	J X 42	J X 30	J X 24	J X 24	E B 14	J X 60	J X 78
25	M 30	J X 25	J X 24	J X 20	J X 19	J X 29	J X 24	J X 31	36	J X 48	43	J X 56	J X 54	J X 45	J X 38	35	J X 65	J X 74	J X 144	J X 63	J X 94	J X 79	J X 121	J X 41
26	J X 21	E S 15	J X 19	J X 24	J X 19	23	23	30	39	43	J X 51	40	40	39	J X 39	J X 53	J X 54	J X 54	J X 51	J X 35	J X 21	E S 15	E S 15	E S 15
27	M 20	E S 15	M 23	E S 15	E S 15	E S 15	24	28	40	J X 45	J X 54	J X 44	G	G	G	35	J X 59	J X 48	J X 51	J X 51	J X 25	J X 19	E S 15	E S 15
28	E B 13	E S 15	E S 15	M 20	17	E S 15	G	28	33	36	J X 41	J X 46	J X 56	J X 39	J X 44	J X 40	J X 56	J X 45	J X 39	J X 20	J X 24	J X 24	J X 24	J X 84
29	J X 54	J X 54	J X 24	J X 25	J X 22	M 21	20	32	32	G	45	J X 49	J X 61	J X 41	G	G 25	J X 34	J X 43	J X 41	J X 100	J X 41	J X 43	J X 24	M 21
30	M 23	E S 15	J X 23	J X 29	E S 15	M 20	J X 24	29	36	47	49	J X 54	J X 50	40	J X 41	37	J X 30	J X 27	J X 41	J X 30	J X 30	J X 29	J X 33	J X 26
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	J X 24	21	21	J X 22	20	20	23	30	36	40	42	41	40	40	36	36	36	J X 40	J X 38	J X 35	J X 30	J X 30	J X 30	J X 25
UQ	J X 30	J X 25	J X 24	J X 25	J X 22	M 21	24	31	39	J X 48	J X 51	J X 47	J X 45	J X 42	J X 44	40	J X 46	J X 49	J X 41	J X 50	J X 41	J X 51	J X 51	J X 40
LQ	20	19	20	19	17	E 15	G	28	33	36	39	37	G 34	G 34	G 22	G 25	31	J X 29	J X 27	J X 28	J X 24	J X 24	J X 24	21

The Radio Research Laboratories, Japan

SEP. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	16	16	17	G	G	29	36	46	62	41	40	41	41	G	32	33	18	22	24	29	40	16
2	E_{15}^{S}	E	19	21	22	16	24	31	35	51	59	35	41	41	39	35	32	27	27	34	16	19	19	29
3	28	21	18	16	16	G	24	32	43	38	40	40	E_{36}^{R}	41	57	50	42	40	38	A	32	16	26	E
4	E_{15}^{S}	E	E	E	E	14	26	29	34	35	E_{38}^{R}	E_{38}^{R}	40	E_{40}^{R}	38	53	62	55	45	40	20	22	33	25
5	23	27	25	20	20	E	23	27	E_{31}^{R}	38	38	G	E_{35}^{R}	E_{45}^{R}	46	42	38	42	21	26	34	18	E	E_{13}^{B}
6	E_{13}^{B}	E	E	E_{13}^{B}	E_{15}^{S}	E	24	30	35	36	38	40	41	45	33	35	G	30	32	21	39	21	40	E
7	E	E	55	26	E	E_{15}^{S}	32	30	35	51	48	40	40	39	G	G	35	41	35	21	20	24	24	23
8	19	22	18	18	16	E	G	28	33	32	40	40	41	45	E_{35}^{R}	38	35	28	28	39	25	25	E	20
9	22	E	E	E	E	E_{13}^{B}	22	34	36	56	44	40	40	G 30	G	35	31	26	32	22	E	15	18	E_{14}^{B}
10	E	E	E_{12}^{B}	E_{12}^{B}	E	E	23	30	37	35	36	G 25	39	G 20	38	G	35	33	19	17	22	E	E	E
11	E	E_{14}^{B}	E_{15}^{B}	E_{13}^{B}	E	E	G	29	34	37	38	E_{37}^{R}	G	G	G	G 24	29	35	78	55	E	16	39	22
12	19	E	19	15	21	E	22	37	44	56	61	45	40	55	75	40	54	59	23	34	34	A	A	A
13	20	18	25	25	21	18	G	30	35	39	37	G	G	G	G 25	G 25	27	25	16	E	E_{15}^{S}	18	16	A
14	18	15	15	24	15	E_{15}^{S}	22	G	31	41	51	37	G	E_{30}^{R}	G 30	G 20	G	25	25	19	26	16	16	E
15	E	E	15	E	E_{12}^{B}	E	22	G 25	31	E_{35}^{R}	57	42	37	G 30	G 28	G 25	31	26	25	29	30	26	A	20
16	19	E	E	15	20	17	20	27	32	35	36	G 35	E_{30}^{R}	35	E_{20}^{R}	33	G	25	20	19	38	17	19	E
17	E	E	E_{15}^{S}	E_{13}^{S}	E_{12}^{B}	E_{15}^{S}	22	29	33	35	40	54	40	39	G	36	39	63	35	E	19	29	25	16
18	19	16	E	15	E	E_{12}^{B}	G	29	37	52	48	37	50	48	45	45	38	25	30	29	25	22	22	E
19	E	20	18	15	E	E	E_{22}^{R}	31	44	78	40	41	E_{35}^{R}	31	43	G	29	45	19	28	30	29	A	E
20	25	E	E_{15}^{S}	E	E_{13}^{B}	E	G	G 18	34	40	41	40	G	40	E_{35}^{R}	30	G 18	25	29	26	20	21	17	18
21	22	E	E	21	E	16	G	28	G	34	43	39	G 34	E_{34}^{R}	E_{32}^{R}	38	40	30	25	20	23	E	24	24
22	20	E	E	E_{13}^{B}	18	E	24	30	36	37	39	G	42	44	46	39	40	32	25	30	40	26	16	30
23	19	17	22	17	E_{14}^{B}	E_{12}^{B}	G	30	39	57	44	46	42	G 30	G 22	36	30	30	30	28	29	15	23	E
24	E	19	E	E	E	E_{14}^{B}	21	35	40	34	E_{34}^{R}	E_{33}^{R}	E_{40}^{B}	39	37	35	30	29	30	25	21	E_{14}^{B}	17	A
25	30	17	17	16	E	16	21	28	36	48	41	53	53	45	36	34	65	70	25	45	A	40	A	20
26	E	E_{15}^{S}	15	22	16	E	22	29	38	42	51	40	40	39	37	43	45	50	44	25	18	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}
27	E	E_{15}^{S}	E	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	23	28	31	40	51	41	G	G	G	34	59	45	35	29	18	15	E_{15}^{S}	E_{15}^{S}
28	E_{13}^{B}	E_{15}^{S}	E_{15}^{S}	E	E	E_{15}^{S}	G	27	32	34	40	40	51	39	40	38	53	42	28	19	20	20	20	E
29	30	25	18	25	E	E	20	22	32	G	43	45	55	39	G	G 23	32	30	33	45	23	35	23	E
30	E	E_{15}^{S}	19	E	E_{15}^{S}	E	G	28	34	43	48	52	48	40	40	37	27	25	20	19	E	17	16	24
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	16	E_{14}^{E}	15	15	E_{14}^{E}	E_{12}^{E}	22	29	35	38	41	40	40	39	36	35	34	31	28	26	23	20	21	16
UQ	20	17	18	20	16	E_{15}	23	30	37	48	48	41	41	41	40	38	40	42	33	34	30	26	33	24
LQ	E	E	E	E_{12}^{E}	E	E	G	28	32	35	38	36	E_{35}^{G}	30	E_{22}^{G}	G 25	29	26	23	20	19	16	16	E

SEP. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

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

The Radio Research Laboratories, Japan

SEP. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F2 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	275	275	290S	290	290	275	300	340JR	325	300	295JR	285	285JR	290JR	280JR	285	295R	315R	330	320	270	270S	F	270S
2	285R	280	295	270	295S	285S	325IS	340	310	320	300	295	295JR	295	290	305	310	320S	325	305	270	275	285	280
3	285	290	280	280	260	270	295	310	310	320	305	300	310	315	315	320	320	320	325	300IA	295	280	290	290IS
4	290	280	280	290	290	295	340	350JR	335	310	315	295	305	290	300	290	320	330	330JR	310	285	275	290	275JR
5	270	280	285	280	280	300	370R	350JR	360	325	315	325	295	295	270	305JR	325	325	340	315S	315	275	280	275
6	275	280	265	295	285	285	350S	350	345	350	290	310	280	280JR	305	310	300JR	310	340	340	300IR	295	275	280
7	285	285	280IA	290IS	315	300IR	340JR	360UR	345	340	325	310	315JR	295	295	320JR	295	320	335	355	340	285	320	265
8	265	290JR	295	315	295	295	355	350	345	335	320	305	300	300	295	305	315	315	315	335IS	325IS	295	275	280S
9	F	275JS	300	295	275	290S	320JR	330	330	335	315	320	320	320	320	310	315	325	320	320US	340US	280	270	280
10	290	285	290	330	285	285	325	340	345JR	335	330	315	315	320	315	325	315	325	330S	330JR	330	305	285	295
11	290	280	290	285	290	300	320S	360	345	355	320	320	300	300	315JR	310	310S	320	335	355	355	270	270	290S
12	315	295	285	280	315	345	335	325JR	330	340	315	315	305	305	315	315	330	325	320	335	340S	A	A	A
13	270UF	270F	F	F	340F	295	345	335	335	345	310	305	315	320	310	325	310	335	340	335	320	285UF	F	A
14	280UF	F	F	345	270	F	255	285	305	G	260	285	315	325	270	270	300	340S	350	265	285JF	F	F	F
15	270F	280	275UF	300F	F	F	325	310JS	340	330JR	325	335	305R	310	330	305	300	330JR	335JR	350S	350	270	265IA	300UF
16	295S	285	315	305	280	270	330	355	335	335	335	320	320	335	325	325	335	340	330	335	325	280	305	290
17	300	285S	280	295	290	280	355	370	355	320	285	310	315	330R	325	320	330	345	320	315	315IS	335	295	265
18	275	275	300	305	290	275	340	350R	345	325	315	315	305	315	315	305R	300	330	335JR	340	300	295	275JR	290JS
19	300	270IR	285	300	305JR	310JR	335JR	345	340	340IS	330	320	315	300	315	325	315	325	340	340	345R	S	A	270IS
20	S	F	295	F	305	310	335	340	350	345	330	315	300	295	315	330	335JR	325	340JR	355UR	305	310	285IS	280
21	280	310	320	320	F	290	325S	350	350	350	320	325	320	315	315	315	325	335	330	335	340	285	275	290
22	285	280	280	320	335	270	350R	350R	350	345	320	315	310	325	315	330	320	330	340	330IS	315	305	280	280
23	300	290	305	340	260	270	335	345	355	345	315	315JR	305	315	305JR	320	320	345	340	320	300UR	305	285	265
24	260	270	285	310	275	275	325S	350JR	340	345	315	320	310	315	325	310	315JR	340	335	325JS	310	320	305	285IA
25	290	290	280	270	280	300	345	340	340	340	315	310	295	295JR	310	310R	320R	340	325R	S	A	295	A	280IS
26	F	F	290	300	290	290	340	345R	345JR	330	320	305	300	310	305	310R	320	325	325	330	330	280	290	290
27	295	280	280	270	280	270	F	355	345JR	330	325	335	305	305	325	310R	325JR	340JR	345JR	335JR	280	280S	275	280
28	280	280	295	300	280	280	340IS	330US	330JR	335	355JR	325	310	315	300	300	310	325JR	330	315JR	330	290IR	310JR	295
29	270R	280	280	290	280	290R	325UR	345	335R	335	330	305	300JR	300	310	305JR	315	325	320JR	335JR	300	280IS	285IR	285
30	290	290	310	290	260	280	330R	340	325	325JR	330	310	305	300	305	315	315	335	330	330	295	290	290	280
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	28	28	29	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	24	27
MED	285	280	288	295	288	288	335	345	340	335	318	315	305	308	312	310	315	325	330	330	315	285	285	280
UQ	290	288	295	308	295	298	340	350	345	345	325	320	315	315	315	320	320	335	340	335	330	295	290	290
LQ	275	280	280	288	280	275	325	340	330	325	315	305	300	295	300	305	310	325	325	320	300	280	275	278

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SEP. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	U 380	A	A	L	375	380	370	345	L	L						
2								L	A	A	A	L	355	350	L	L	L	L						
3								L		L	L	360	U 350	L	A	A	L							
4							L	L	L	L	U 400	375	375	365	340	A	A							
5								L	L	390	400	380	360	R	380	L	L							
6								L	400	420	385	405	360	365	345	380	395							
7								L	L	A	A	410	380	380	L	L	L							
8								L	L	415	395	L	380	A	370	L	L							
9								L	L	L	L	L	L	370	L	L	L	L						
10								L	L	L	L	L	U 365	360	L	L	L							
11								L	L	L	L	L	L	L	360	L	L							
12								L	A	A	A	365	380	A	A	L	A	A						
13								L	L	L	395	375	375	375	L	L	L	L						
14							320	325	340	350	A	360	360	360	U 330	L	L							
15								L	385	L	A	370	L	L	L	L	L	L						
16								L	L	L	390	U 375	L	U 380	L	L	L							
17									L	L	L	A	U 370	U 380	L	L	L	A						
18								L	L	A	A	395	A	L	A	A	L							
19								L	A	A	L	370	390	L	L	L	L							
20									L	L	430	L	L	350	410	L	L							
21								L	L	L	L	390	370	L	370	L	A							
22								L	L	L	L	L	380	L	L	L								
23								L	L	A	L	L	L	L	L	L	L							
24								L	L	L	L	L	L	L	U 370	L	L							
25									L	A	415	A	A	L	L	L	A							
26									L	L	A	410	L	L	L	A	A							
27								L	L	L	A	L	370	L	L	L	A							
28								L	L	400	L	430	A	L	390	L	A							
29								L	L	390	405	A	A	375	L	L	L							
30								L	L	L	L	A	A	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	4	6	9	15	17	13	11	2	1							
MED							320	325	382	395	400	375	370	370	370	362	395							
UQ									392	415	405	400	380	380	375									
LQ									360	390	395	370	360	360	352									

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SEP. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1972 | H'F2 (KM)

135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								240	250	250	300	300	325	290	320	300	280	255						
2								240	240	245	315	280	305	300	290	280	255	240						
3								260		255	290	300	285	270	270	270	270							
4							230	230	230	250	250	310	305	310	300	290	260							
5								210	235	260	290	280	295	280	300	290	260							
6								230	245	245	300	280	310	335	300	270	250							
7								240	240	240	250	255	285	290	300	290	270							
8								230	240	240	285	290	290	295	300	285	255							
9								250	240	250	275	260	250	290	280	260	270	250						
10								245	230	245	245	260	290	285	280	275	270							
11								225	240	230	250	280	300	300	280	260	275							
12								245	250	250	300	290	280	290	310	255	255	260						
13								240	240	245	280	290	270	290	290	260	260	245						
14							450	370	320	G	460	345	290	290	380	330	265							
15								260	235	250	290	260	275	280	260	290	285	245						
16								230	230	240	245	280	255	255	245	270	240							
17									230	250	245	270	255	255	250	270	255	240						
18								230	240	255	275	260	295	270	260	250	270							
19								235	245	E A 290	250	270	265	260	280	250	255							
20									250	240	250	270	270	310	280	250	245							
21								245	240	230	250	275	270	260	290	270	250							
22								235	230	230	280	250	290	275	255	255								
23								230	220	240	255	270	255	270	280	270	245							
24								230	225	240	230	285	275	260	260	275	235							
25									240	235	240	280	260	255	260	260	270							
26									240	240	240	270	275	280	260	250	250							
27								240	240	235	250	250	250	290	270	250	260							
28								250	245	245	245	240	265	260	265	250	260							
29								245	240	245	240	245	285	280	265	250	260							
30								240	245	245	250	230	240	280	270	270	245							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	26	29	30	30	30	30	30	30	30	29	7						
MED							340	240	240	245	250	272	278	280	280	270	260	245						
UQ								245	245	250	290	285	290	290	300	280	270	252						
LQ								230	235	240	245	260	265	270	260	255	250	242						

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SEP. 1972 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 1972 | H'F (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	290	280	260	250	250	290	240	220	200	A	A	200	220	240	210	240	240	245	240	225	235	300	340	290
2	285	270	260	260	250	285	235	210	A	A	A	205	205	205	205	225H	225H	230	230	240	220	275	270	300
3	280	275	250	275	310	300	245	225	230	205	205	205	200	220	A	A	250A	250A	230	I 250A	250A	250	290	250
4	250	280	275	270	270	255	230	220	210	200	205	210	210	250	240	I 260A	I 250A	250	230	230	240	300	300A	300A
5	330	310	290	290	300	250	215	205	195	200	190	210	205	A	210	260	250	250	220	220	245	260	260	290
6	290	290	275	250	260	285	235	230	210	200	200	180	220	240	250	230	220	260	240	215	240	285	300A	280
7	290	290	I 320A	290	250	260	230	240	220	A	A	200	200	220	220H	200H	240	250	240	215	200	240	300	340
8	325	300	280	260	260	270	220	210	200	200	195	250	240	I 245A	220	240	240	250	245	235	220	240	290	305
9	330	305	290	260	270	290	245	235	220	A	220	205	200	195	230	225	230	240	245	245	205	220	300	275
10	260	275	270	220	245	290	230	230	230	200	195	195	200	205	225	220	230	250	220	210	220	210	245	255
11	255	290	270	255	260	270	240	225	210	210	200	195	200	195	210	205	220	245	250	220	190	310	350A	280
12	245	260	300	270	260	210	210	I 230A	I 235A	A	A	250A	220	I 230A	I 255A	260A	A	A	240	230	230	A	A	A
13	300	340	300	250	205	290	240	230	220	230	200	180	180H	210	220	220	220	245	230	200	200	380	290	A
14	310	410	355	220	310	490	270	250	245	270A	I 245A	220	230	210	220	230	240	220	210	290	350A	355F	345F	300
15	255	270	290	255	290F	270	240	215	210	205H	A	240	210	225	225	205H	245	245	240	210	205	320A	I 350A	310
16	290	275	245	245	300	320	220	220	210	205	200	205	210	205	200	220	240	240	220	220	230	245	250	280
17	250	275	290	255	270	300	210	210	210	200	205	A	200	240	220	230	A	A	230	245	230	230	270	320
18	310	300	260	240	260	300	210	225	220	A	A	210	I 220A	I 240A	I 250A	I 250A	250	250	230	205	240	250	250	285
19	265	300A	300A	290	250	235	210	230	A	A	210	220	220	230	240	230	220	250	230	230	210	280A	I 300A	310
20	330	290	290	260	240	250	210	240	210	235	200	240	240	220	200	240	220	245	230	200	200	240A	300	330
21	325	270	250	240	260	290	245	240	230	200	200	180H	200	240	210	255	A	235	230	220	200	240	330	300
22	320	300	260	245	205	290	235	230	210	200	195	185	205H	270A	I 230A	240	250	240	210	220	250A	270A	275	310
23	275	270	270	220	220	305	225	225	225	I 235A	240	260A	230	205	205	245	230	220	210	245	270	250	290	310
24	310	305	270	240	290	305	240	225	220	200	190	180H	205	225	220	225	230	230	220	220	240	220	230	I 250A
25	300	280	300	310	290	260	210	220	220	I 230A	200	I 240A	I 240A	240	240	240	I 250A	250	235	250	I 250A	E 300A	I 320A	350A
26	260	250	250	250	240	250	235	240	220	230	I 230A	195	200	240	230	I 250A	I 250A	240	250	240	230	210	280	290
27	290	290	290	260	290	300	230	235	220	210	I 225A	240	210	210	200	240	I 250A	245	230	230	250	260	290	290
28	290	280	270	255	235	290	240	240	220	210	205	190	I 245A	220	215	240	I 245A	240	235	230	230	260	250	265
29	340A	300	290	290	250	280	245	220	215	205	205	210A	I 245A	220	240	235	240	250	240	240	250	300A	300	290
30	290	260	245	260	300	305	230	240	220	230	A	A	I 230A	220	225	230	240	240	220	210	240	245	270	300
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	28	23	23	28	30	29	29	29	27	28	30	30	30	29	29	28
MED	290	285	275	255	260	290	232	228	220	205	200	205	210	220	220	235	240	245	230	228	230	255	290	295
UQ	310	300	290	270	290	300	240	235	220	230	208	230	230	240	230	240	250	250	240	240	245	300	300	310
LQ	265	275	260	245	250	260	220	220	210	200	200	195	200	210	210	225	230	240	220	215	210	240	270	280

SEP. 1972 | H'F (KM)

IONOSPHERIC DATA

SEP. 1972 | H'ES (KM) | 135° E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	100	100	100	100	100	G	130	120	105	100	105	110	110	105	G	100	100	100	100	100	100	100	100
2	S	100	100	100	100	100	140	130	115	110	105	100	100	110	115	115	105	105	100	100	100	100	100	95
3	90	90	90	90	90	95	130	120	110	110	105	105	105	100	100	105	95	95	110	105	105	100	100	100
4	S	100	100	95	100	100	100	120	110	110	110	110	105	105	110	115	110	105	100	100	100	100	100	100
5	100	100	100	100	100	100	140	115	110	110	105	G	100	100	105	115	110	110	100	100	100	100	100	B
6	B	100	100	B	S	100	145	130	130	115	110	110	110	115	100	150	G	115	105	100	100	100	100	100
7	100	110	110	100	120	S	140	140	130	110	100	110	105	110	G	G	120	110	105	100	100	100	100	100
8	100	100	100	100	100	100	G	120	120	110	105	105	100	100	100	140	140	110	100	100	100	100	100	100
9	100	100	100	100	100	B	150	110	105	105	105	110	105	100	G	155	145	125	110	105	100	100	100	B
10	100	100	B	B	100	100	130	125	115	110	110	100	110	100	90	G	125	110	105	105	100	100	90	90
11	95	B	S	B	125	100	G	150	120	120	110	105	G	G	G	100	140	120	110	105	100	100	100	100
12	100	100	100	95	95	100	120	115	110	105	100	110	125	125	115	110	110	110	105	100	100	100	100	100
13	100	95	95	95	95	100	G	125	115	110	110	G	G	G	100	100	100	140	120	100	S	110	105	105
14	100	100	100	100	110	S	150	G	145	115	110	110	G	100	100	100	G	120	115	110	105	105	100	100
15	100	100	100	100	B	100	115	105	100	100	100	100	100	100	100	100	145	125	115	105	100	100	105	95
16	95	100	95	100	100	100	120	130	125	125	110	100	100	100	100	155	G	120	110	105	105	100	100	100
17	100	100	S	B	B	S	145	140	115	130	110	105	105	130	G	160	130	110	105	100	100	100	100	100
18	100	100	100	95	100	B	G	130	125	110	105	115	105	100	100	100	105	130	110	100	100	100	100	100
19	100	100	100	100	95	100	140	120	110	110	110	100	100	100	100	G	110	110	105	100	100	100	100	100
20	100	100	S	100	B	100	100	100	120	110	110	110	G	110	100	140	100	130	100	100	100	100	100	100
21	100	115	100	100	100	100	G	140	G	105	100	100	100	100	100	140	130	120	100	100	100	100	100	100
22	100	100	100	B	100	100	140	140	130	125	130	G	170	130	130	130	110	110	110	105	100	105	105	100
23	100	100	100	100	B	B	G	130	115	110	110	105	105	100	100	150	130	105	105	100	100	100	100	100
24	100	100	100	100	100	B	140	115	110	105	100	100	B	175	150	130	120	110	105	105	100	B	100	100
25	100	100	100	95	100	95	100	130	120	110	110	100	100	100	100	100	110	105	110	110	100	100	100	100
26	100	S	100	100	100	100	140	135	120	110	105	110	110	105	100	100	100	100	100	100	100	S	S	S
27	100	S	100	S	S	S	140	140	120	110	105	110	G	G	G	150	115	110	110	100	100	100	S	S
28	B	S	S	100	100	S	G	140	130	120	105	100	100	115	100	105	100	100	110	100	105	100	100	100
29	100	100	100	100	100	100	160	115	140	G	100	105	100	105	G	100	100	110	110	100	100	110	100	95
30	100	S	100	100	S	100	100	150	130	110	110	110	105	105	105	100	100	100	100	95	95	90	110	100
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	24	23	21	22	29	29	29	30	27	24	27	24	26	27	30	30	30	29	28	28	26
MED	100	100	100	100	100	100	140	130	120	110	105	105	105	105	100	115	110	110	105	100	100	100	100	100
UQ	100	100	100	100	100	100	140	140	125	110	110	110	108	110	105	140	128	120	110	105	100	100	100	100
LQ	100	100	100	98	100	100	120	120	110	110	105	100	100	100	100	100	100	105	100	100	100	100	100	100

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SEP. 1972 | H'ES (KM)

IONOSPHERIC DATA

SEP. 1972 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F2	F2	F4	F4	L		H1	H1	C2	C1	L	C1	C2	C1		C1	C2	L2	F1	F4	F5	F6	F1
2		F1	F3	F4	F4	L2	H1	HL11	CL12	C2	C2	L	L	CL11	CL11	CL11	C2	C2	C4	F5	F2	F3	F4	F3
3	F4	F3	F2	F2	F2	L	H1	H2	C2	C1	C1	C1	L	L	L3	LL22	L3	L3	CL33	FF22	FF24	FF22	F2	F1
4		F2	F2	F1	F1	L	L	HL11	C1	CL11	C1	C1	C1	C1	C1	C2	C2	C3	L4	F4	F4	F4	F4	F4
5	F3	F4	F2	F4	F3	F2	HCL11	CL11	CL11	C1	C1		L	L	C1	C1	C1	C4	L3	F3	F3	F4	F1	
6		F1	F1			F1	H1	HL11	HL11	CL11	CL11	CL11	CL11	CL12	L	HL11		C2	C3	F4	F3	F4	F4	F2
7	F1	FF22	FF22	F3	F1		H2	H2	H1	C2	C2	C1	C1	L			H1	C3	L4	F3	F5	F3	F6	F2
8	F5	F4	F4	F4	F3	F1		H1	H1	C1	C1	C2	L	L2	L	H1	H3	C2	L3	F3	F3	F3	F2	F4
9	F3	F2	F1	F1	F1		HC11	C3	C2	C3	C2	C1	C1	L		H1	H1	H1	C5	F6	F1	F2	F3	
10	F1	F1			F1	F2	HL11	H2	C3	C2	CL11	L	C1	L	L2		H3	C3	C5	F6	F5	F2	F2	F2
11	F2				F1	F1		H1	H1	H2	C1	L2				L	HL12	HL22	C5	F4	F2	F3	F4	F5
12	F6	F2	F3	F2	F5	F1	C1	C3	C4	C3	C3	C2	H1	H2	C3	C2	C4	C4	C5	F3	F4	F5	F4	F4
13	F2	F2	F2	F3	F4	F3		H2	C2	C2	C1				L	L	L2	HL12	C1	F1		F4	F2	F2
14	F3	F4	F3	F4	F3		H2		H1	C2	C2	C1		L	L	L		C2	C3	F6	F5	F2	F3	F1
15	F2	F2	F2	F2		F1	C2	L	L	L	L3	L2	L2	L	L2	L	H1	H2	C5	F3	F4	F3	F4	F4
16	F5	F2	F3	F3	F4	F2	C1	HL11	H2	H1	C1	L	L	L	L	HL11		C2	C3	F4	F6	F4	F5	F3
17	F1	F1					H1	H1	C1	H1	C1	C3	C2	H1		H1	H2	C3	C4	F4	F4	F3	F4	F4
18	F4	F4	F2	F3	F3			H1	H2	C2	C2	C1	C2	C2	L2	L2	L2	H1	C3	F4	F4	F6	F3	F2
19	F2	F4	F3	F2	F1	F1	H1	H2	C2	C3	C1	C2	L	L2	L		C1	C4	L2	F4	F4	F4	F6	F2
20	F4	F1		F1		F1	L	L	H2	C1	C1	C1		C2	L	HL11	L	HL11	F4	F4	F3	F3	F3	F1
21	F3	FF11	F1	F4	F2	F2		HL11		C2	L2	L	L	L	L	HL11	HL21	H5	F5	F5	F4	F1	F1	F2
22	F2	F1	F1		F2	F2	H2	H2	H2	H1	HL11		HL11	HL11	HL22	HL21	C3	C3	F3	F3	F3	F3	F3	F4
23	F3	F4	F5	F4	F1			H2	CL21	CL21	C2	CL21	C2	L	L	H1	H2	C4	F5	F3	F4	F2	F3	F2
24	F2	F3	F2	F2	F2		H2	C4	C2	C1	L	L		H1	H1	H1	H1	C3	F5	F6	F5		F3	F4
25	F3	F3	F3	F4	F2	F2	L2	HL12	CL21	C2	CL1	C2	C2	C2	C2	LH11	CL22	C3	FF34	FF23	F3	FF21	FF21	F4
26	F1		F3	F3	F3	F2	HL11	HL11	HL21	CL11	C2	C1	C1	C1	C2	C3	C3	L4	F6	F6	F4			
27	F1		F1				H1	H1	H2	C2	C3	C1				HL11	C3	CL33	FF41	F3	F3	F2		
28				F1	F1			H1	H2	H1	C2	C2	C2	C1	C2	C2	C4	L5	FF21	F2	FF21	F2	F2	F2
29	F3	F3	F2	F2	F2	F1	H1	H1	H1		C1	C2	C2	L		L	L2	CL22	FF31	F3	F2	FF23	F2	F2
30	F2		F2	F2		F2	LH11	H1	H2	C2	C2	C2	C2	C1	CL21	C2	L2	L2	F4	F2	F2	F2	F12	F3
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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SEP. 1972 | TYPES OF ES

IONOSPHERIC DATA

SEP. 1972 | HPF2 (KM) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	390	350S	300	340	350	290	J R 250	300	300	J R 330	360	J R 350	J R 350	J R 390	380	335R	310R	290	295	350	390S	F	390S
2	350R	360	360	350	350S	350S	I S 295	250	300	270	325	340	J R 330	320	320	305	300	295S	280	300	375	360	345	350
3	345	345	325	355	400	400	320	300	300	295	305	325	305	300	300	300	300	290	270	I A 300	320	340	345	I S 320
4	345	355	350	350	335	320	250	J R 255	250	300	300	340	340	350	330	335	300	290	J R 270	290	340	340	345	J R 360
5	385	360	350	360	360	295	235R	J R 250	250	290	300	300	315	340	340	J R 310	300	290	255	290S	290	350	390	350
6	350	350	350	330	360	340	250S	245	250	250	350	300	350	J R 350	325	300	J R 330	300	260	260	I R 300	350	350	350
7	350	340	I A 350	I S 380	300	I R 320	J R 250	U R 240	260	250	290	300	J R 300	330	330	J R 300	340	300	290	250	340	360	300	390
8	380	J R 360	350	320	340	340	250	250	270	255	295	300	330	340	340	340	300	300	300	I S 260	I S 280	300	380	380S
9	F	J S 355	350	350	350	350S	J R 300	260	260	275	290	295	280	300	300	305	300	290	290	U S 290	U S 250	340	380	360
10	340	350	330	275	340	350	275	255	J R 250	270	265	300	300	295	300	295	300	290	280S	J R 270	275	305	320	330
11	335	355	345	345	320	325	275S	250	250	250	290	300	320	325	J R 300	300	305S	290	260	250	240	380	380	315S
12	295	325	370	345	305	245	255	J R 270	280	255	300	300	305	310	310	290	280	290	290	270	260S	A	A	A
13	U F 380	F 380	F	F	F 240	320	255	250	255	250	300	320	300	300	305	280	300	270	255	250	270	U F 305	F	A
14	U F 355	F	F	250	370	F	450	370	320	G	A	355	300	300	390	390	305	250S	250	380	J F 405	F	F	F
15	F 345	F 350	U F 375	F 320	F	F	280	J S 290	250	J R 290	300	280	R 325	300	290	310	320	J R 280	J R 270	255S	245	370	I A 400	U F 355
16	330S	345	300	300	350	380	270	250	260	255	275	300	290	270	285	285	270	255	270	270	260	335	305	330
17	300	350S	350	330	350	355	240	225	250	290	350	300	290	290R	280	300	285	255	290	300	I S 290	260	320	400
18	370	370	320	300	325	370	250	250R	255	280	300	290	305	300	300	295R	310	290	J R 270	250	300	310	J R 340	J S 345
19	350	I R 350	335	305	J R 290	J R 295	J R 250	250	250	I A 260	265	300	290	305	300	290	290	290	280	250	250R	S	A	I S 370
20	S	F	320	F	290	290	250	250	250	255	280	295	315	340	300	290	J R 270	290	J R 260	U R 250	440	280	I S 360	390
21	380	315	295	280	F	340	290S	245	250	250	290	290	290	300	300	290	290	290	290	280	250	340	360	350
22	380	370	320	270	250	340	250R	250R	250	250	300	300	305	290	290	290	300	260	260	I S 250	290	315	350	350
23	320	340	315	255	370	370	250	250	240	250	300	J R 300	305	300	J R 300	300	295	255	255	290	U R 325	305	350	395
24	405	390	340	300	380	370	280S	J R 250	250	250	280	305	305	300	280	305	J R 300	270	270	J S 280	300	300	300	I A 320
25	330	330	370	380	360	320	250	250	255	260	300	300	310	J R 300	300	F 300	R 300	280	280R	S	A	A	A	I S 385
26	F	F	340	310	340	315	250	255R	J R 255	260	290	300	350	310	320	300R	290	280	290	260	280	330	355	360
27	350	340	360	360	350	350	F	255	J R 250	290	290	260	315	340	300	300R	J R 295	J R 280	I R 260	J R 250	330	340S	350	360
28	360	350	350	300	340	350	I S 270	U S 250	J R 250	250	J R 255	280	290	290	300	315	300	J R 290	280	J R 290	290	I R 335	J R 300	330
29	355R	390	350	310	350	350R	U R 290	255	260R	280	290	310	J R 310	315	310	J R 300	300	J R 290	J R 290	J R 270	315	I S 340	I R 370	360
30	350	350	295	350	380	390	260R	255	280	J R 280	280	290	310	315	305	300	300	280	275	270	320	320	340	355
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	28	28	29	30	30	29	29	30	30	30	30	30	30	30	30	29	29	26	24	27
MED	350	350	350	320	345	345	255	250	252	260	295	300	305	302	300	300	300	290	272	270	290	338	350	355
UQ	365	360	350	350	360	352	280	255	260	280	300	305	320	330	320	305	300	290	290	290	325	350	365	375
LQ	342	345	322	300	322	320	250	250	250	250	290	295	300	300	300	295	295	280	260	250	270	305	330	348

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IONOSPHERIC DATA

SEP. 1972 | YPF2 (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4' N. Long. 139°29.3' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	70	90S	100	100	110	80	J R 90	90	110	J R 110	80	J R 110	J R 90	J R 70	80	R 105	R 100	100	95	110	S 100	F	S 90
2	R 110	100	100	90	S 90	S 110	I S 95	90	90	85	70	100	J R 90	100	100	90	85	S 80	65	80	125	130	95	100
3	100	100	120	110	110	95	80	95	95	60	90	75	90	55	70	60	50	70	55	I A 75	100	100	100	I S 80
4	100	90	100	105	75	85	60	J R 50	70	90	90	100	120	90	110	105	90	100	J R 90	100	100	120	115	J R 100
5	105	100	110	100	100	95	R 75	J R 90	90	100	90	90	125	100	100	J R 100	90	100	85	S 100	100	110	100	110
6	110	90	90	110	100	100	S 90	75	90	90	90	90	110	J R 110	95	90	J R 110	90	90	100	I R 90	90	110	110
7	110	120	I A 110	I S 110	90	I R 100	J R 90	U R 90	100	90	100	90	J R 90	110	120	J R 110	120	90	100	100	100	100	120	100
8	110	J R 100	110	120	100	120	90	90	70	85	95	90	110	100	100	100	90	90	90	I S 100	I S 110	90	110	S 100
9	F	J S 105	90	90	90	S 110	J R 90	80	90	45	60	50	90	55	60	95	65	55	55	U S 40	U S 55	105	90	90
10	80	90	75	45	70	70	50	50	J R 55	50	80	55	60	60	55	60	60	55	S 50	J R 50	70	100	100	75
11	80	90	100	100	80	90	S 75	50	50	50	70	65	85	75	J R 50	70	S 55	60	65	50	60	70	70	S 85
12	65	75	75	100	90	55	100	J R 75	75	50	55	60	95	95	60	85	60	55	65	50	S 60	A	A	A
13	U F 75	F 90	F	F	F 60	80	50	65	50	50	80	80	75	55	75	90	70	60	50	70	75	U F 90	F	A
14	U F 90	F	F	50	100	F	95	80	80	G	A	95	75	50	85	110	95	S 55	55	110	J F 100	F	F	F
15	F 65	F 100	U F 80	F 85	F	F	65	J S 60	55	J R 50	40	45	R 80	70	65	70	80	J R 40	J R 50	S 65	60	100	I A 90	U F 85
16	S 70	100	70	100	95	90	50	45	85	65	45	45	80	50	60	35	45	60	50	50	85	110	95	90
17	70	S 70	75	85	100	100	60	45	45	60	100	85	80	R 55	75	65	50	50	65	55	I S 55	60	90	100
18	75	80	80	90	80	80	55	R 50	65	100	90	100	85	90	90	R 95	100	90	J R 90	100	90	100	J R 100	J S 95
19	90	I R 110	125	95	J R 100	J R 95	J R 90	100	90	I A 90	95	90	100	85	100	100	100	100	90	90	R 90	S	A	I S 100
20	S	F	110	F	100	90	80	80	90	105	100	95	125	100	90	100	J R 90	100	J R 80	U R 90	100	110	I S 100	90
21	100	85	95	100	F	120	100	S 95	90	90	100	100	100	90	90	100	100	100	100	110	90	100	100	110
22	80	90	120	90	90	100	R 90	R 90	90	70	45	75	50	65	70	65	55	65	50	I S 70	60	80	90	105
23	75	70	75	60	130	90	45	50	55	70	95	J R 55	85	70	J R 100	45	75	60	50	55	U R 75	90	95	100
24	95	80	80	65	90	90	S 50	J R 50	55	70	90	75	80	75	50	95	J R 55	50	50	J S 55	65	70	80	I A 90
25	75	70	55	90	85	75	45	55	55	90	90	90	100	J R 100	90	R 90	R 90	90	R 100	S	A	A	A	I S 100
26	F	F	100	100	100	105	100	R 95	J R 85	100	100	100	90	100	90	R 100	100	100	100	100	100	110	105	100
27	140	120	100	100	110	110	F	105	J R 100	100	100	100	95	100	90	R 90	J R 100	J R 100	I R 95	J R 110	110	S 110	100	100
28	100	90	90	100	90	110	I S 85	U S 95	J R 100	100	J R 85	100	100	100	90	95	90	J R 90	100	J R 100	100	I R 105	90	100
29	R 105	100	110	110	90	R 90	U R 100	95	R 90	100	100	100	J R 100	95	80	J R 90	90	J R 100	J R 100	J R 110	95	I S 105	I R 100	100
30	110	110	95	100	100	100	R 100	105	100	J R 55	65	90	90	65	75	55	70	45	45	60	120	85	100	90
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	28	28	29	30	30	29	29	30	30	30	30	30	30	30	30	29	29	26	24	27
MED	95	90	95	100	92	95	80	80	88	85	90	90	90	90	88	90	90	85	72	90	90	100	100	100
UQ	105	100	110	100	100	108	90	95	90	100	100	100	100	100	95	100	100	100	95	100	100	110	100	100
LQ	75	82	80	90	90	90	60	50	55	60	70	75	80	65	70	70	60	55	50	55	70	90	90	90

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SEP. 1972 | YPF2 (KM)

IONOSPHERIC DATA

SEP. 1972 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S 88	F 85	J S 88	S	J S 61	U S 56	64	U S 94	79	82	92	99	107	107	117 S	126	128	122 S	Y 22 S	S	83	J S 74	70	70
2	68	67	65	62	54	51 S	64 S	73	82	88	92	105	U S 118	124 S	131	132	127	Y 25 S	C	93 S	81 S	75 S	74 S	72 S
3	68	64 S	60 S	55	53 S	52 S	52 S	86 S	96	87	91	107 S	125	117 S	112 S	109	110 S	112 S	I 11 C	U S 100	77 S	69	69	67 S
4	65 S	61 S	57	55	53 S	55	62 S	74	85	82	88	94	J R 112	124	132 S	131 S	130	Y 18 S	Y 03 S	96	84	U 80 S	J 86 S	79 S
5	69	62 S	59 S	56	53	54	74 S	U 84 S	72 S	76	86	90	98	101	J R 106	Y 20 S	133	114	93 S	I 91 S	71	58	56	54
6	55	53 S	54 S	55	50 S	48 S	60	82	83 S	76	74	87	93	101 S	114	121	125	127	129	Y 11 S	86	64	57	57
7	58	57	55	53	53	57	68	72	81	85	88	87	94	105	109	120 S	126	133	132	I 15 S	77	59	59 S	57
8	J S 54	55	57	51 S	49	47	60	74 S	83	78	81	87	96	108 S	114	Y 18 S	Y 14 S	I 14 S	I 13 S	S	S	56	J S 53	53
9	J S 52	J S 52	55	55	50 S	45	51	83	107 S	90	88	86	93	Y 05 S	102	J 98 S	104 S	107 S	Y 22 S	129	S	J 48 S	54	54
10	55	52	49	53	48	43	49	81	S	95	83	83	95	102 S	93	90	Y 01 S	103	I 01 S	I 98 S	82	53	I 49 S	48
11	S 48	46	44	42	43	42	55	H 84	83	S 86	S 71	76	87	100 S	J 06 S	J 06 S	J 09 S	126	139	Y 11 S	S 58	46	50	53
12	S 58	45	41	I A 47	S 49	U S 40	44	S 72	87	79	81	90	S 104	105 S	U S 114	107 S	107 S	S 92	U S 97	I 02 S	U S 98	39	S 37	I A 41
13	S 42	I A 45	S 48	44	32	30	42	57	70	80	81	90	96	108	112	104	106	107	S 97	79	59	47	46	53
14	S 50	S 35	33	40	25	26	H 33	58	47	E G 47	61	93	S 100	J R 80	70	83	U S 97	I C 94	63	S 40	U S 45	I S 48	S	F
15	S	S	U S 47	I S 48	I S 44	J S 41	S 47	72	U S 73	H 71	71	R 92	S 100	97	78	76	S 98	S 115	Y 08 S	I 01 S	S 74	49	49	J S 50
16	I S 48	49	J S 47	43	36	F 34	S 46	J R 88	72	88	88	99	S 109	97	84	81	S 83	S 100	U S 94	S 92	S 84	58	S 52	S 45
17	S 43	40	40	39	35	37	S 47	S 74	71	81	94	S 106	109	107	104	96	S 109	S 113	Y 01 S	S 98	S 100	S 70	44	43
18	43	S 43	S 44	48	39	37	S 45	78	85	84	79	81	S 97	Y 12 S	Y 09 S	Y 08 S	S 112	Y 24 S	Y 22 S	Y 18 S	J S 73	55	S 57	47
19	S 43	39	S 38	S 36	S 45	H 26	42	69	S 87	92	79	90	87	93	U S 105	115	Y 21 S	127	130	Y 21 S	90	U S 46	44	S 42
20	42	44	S 43	45	41	35	46	76	94	83	79	76	89	105	121	Y 22 S	132	149	137	I 02 S	75	56	49	J S 48
21	46	44	40	F 37	35	34	43	86	I S 98	S 81	S 83	91	89	90	92	111	127	Y 18 S	Y 10 S	I 93 S	70	41	42	44
22	44	S 45	S 53	S 50	29	26	40	77	88	94	81	91	104	112	97	96	Y 02 S	Y 25 S	S	81	S 55	48	S 48	49
23	S 53	S 51	S 53	S 52	33	34	S 43	S 90	74	92	100	S 107	S 112	123 S	U S 117	S 118	S 118	Y 12 S	Y 03 S	S 89	63	59	59	59
24	57	59	S 61	S 60	45	S 46	S 51	I S 93	91	82	83	103	J S 123	123	112	S 108	116	130	I 20 S	S	U S 81	60 S	59	S 47
25	43	43	S 41	S 43	45	42	S 52	77	83	S 100	S 98	100	S 111	Y 22 S	128	130	129	Y 20 S	Y 04 C	68	56	J S 49	S 50	S 50
26	J S 50	J S 49	S 49	S 50	J S 45	I A 42	S 48	S 81	J S 98	S 92	89	95	S 111	122	128	126	123	Y 20 S	Y 05 S	S 93	U S 62	55	57	57
27	58	55	55	53	50	48	55	90	S 96	102	H 87	93	97	117	119	122	115	119 S	I 02 S	76	50	I S 49	I S 50	50
28	49	52	49	43	41	41	45	83	I S 98	S 110	S 102	94	S 105	101	104	S 114	S 117	Y 24 S	C	S	S 77	59	S 57	J S 53
29	44	S 43	S 46	47	33	32	S 42	83	I S 96	110	106	99	100	U S 110	122	123	119	124	124	Y 07 S	J S 77	66	66	J S 63
30	64	64	62	54	47	46	48	85	90	S 107	J S 110	97	107	120 S	S 122	S 113	Y 11 S	117	C	S 93	S 73	69	S 65	64
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	30	29	30	30	30	30	29	30	30	30	30	30	30	30	30	30	26	26	28	30	29	29
MED	52	51	S 49	50	45	42	48	81	85	86	86	92	100	107	112	114	S 118	S 118	S 108	S 98	S 76	56	54	53
UQ	58	57	57	54	50	48	55	85	94	92	92	99	S 109	S 117	119	122	126	S 125	S 122	S 107	S 82	64	59	57
LQ	S 44	44	S 44	43	36	34	44	74	79	81	81	87	95	101	104	104	S 107	S 112	S 101	S 91	S 62	48	S 49	48

SEP. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	520	L	A	550	540	L	L						
2										L	A	570	540	L	550	L	L	A						
3									L	L	L	550	550	520	L	L	L	L	L					
4								A	L	L	L	L	L	550	A	A	L	A	A					
5									L	460	L	L	L	520	550 H	L	A	A						
6								L	L	450	L	U 560	L	L	L	A	L	L	L					
7									L	L	L	A	A	L	L	510	L	L						
8									L	420	L	L	L	L	510	L	L	L						
9								L	L	L	460	L	L	520	520	480	490	L	L					
10									L	L	480	L	550	520	500	500	470	L	A					
11									L	L	L	L	520	L	L	L	L	L	A					
12									A	A	U 470	500	I A 510	U 520	480	L	L	L						
13									L	L	A	520	L	500	500	480	L	L						
14								L	L	470	470	I A 480	I A 480	A	U 510	L	L							
15								L	L	L	490	470 H	L	U 500	L	L	L	L						
16									L	480	L	520	500	510	L	L	L	L						
17										L	480	L	L	520	460	460	L	L						
18										L	L	L	L	L	L	L	L	L						
19									L	L	L	A	480	U 560	U 500	L	U 450	L						
20									L	L	L	A	L	540	510	L	L	A						
21									L	L	L	L	L	L	L	L	L							
22									L	L	L	470	L	530	470	L	L	L						
23										A	480	510	590	520	L	480	L	A						
24									L	L	L	560	L	L	L	L	L	L	A					
25									A	A	A	A	L	L	L	L	A	A						
26									L	L	A	A	L	L	L	L	L	L						
27									L	L	A	A	A	L	L	L	A	A						
28									L	L	L	A	L	L	A	L	L	L						
29									L	L	L	L	A	L	L	L	L							
30										L	A	A	L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										5	7	12	9	14	13	7	3							
MED										460	480	520	520	520	510	480	470							
UQ										470	480	555	550	530	520	505	480							
LQ										450	470	490	500	520	500	480	460							

SEP. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOE (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	250	A	A	A	I A 355	350	360	H 350	350	330	290	A					
2							S	230	300	330	360	380	380	380	365	345	310	260	A					
3							S	240	300	H 330	340	I A 360	360	I A 360	I A 350	A	A	A	A					
4							S	H 230	270	310	325	335	330	A	A	345	320	275	S					
5							S	I A 200	260	310	A	A	A	370	370	350	320	270	175					
6							S	235	290	320	335	A	A	A	A	A	330	A	S					
7							S	230	285	320	340	345	A	A	A	335	320	265	A					
8							S	I A 240	290	A	A	350	370	R 365	360	335	310	270	200					
9							S	230	290	315	325	340	A	A	360	340	H 310	255	175					
10							S	230	I A 275	I A 310	325	350	350	I R 360	350	330	300	250	150					
11							S	230	H 280	310	325	A	A	R 350	H 340	330	295	250	150					
12							S	220	270	A	A	A	A	A	340	325	300	250	A					
13							S	210	270	A	A	A	350	I A 345	330	320	290	250	160					
14							S	200	270	300	315	A	A	A	A	A	280	I C 240	A					
15							S	215	A	A	A	A	A	A	330	320	R 295	255	135					
16							S	I A 215	270	310	I A 325	340	350	350	H 340	310	290	250	S					
17							S	220	A	A	A	A	A	R	330	R 320	I A 285	260	A					
18							S	210	H 290	H 320	330	340	A	A	A	320	300	255	S					
19							S	215	280	310	325	A	A	H 350	I A 350	330	295	250	S					
20							S	230	285	320	350	A	A	A	R	320	300	255	B					
21							S	H 250	A	320	335	I A 355	365	I A 355	335	330	300	255	155					
22							S	210	290	315	335	345	I A 360	360	R 345	325	300	240	S					
23							S	H 240	H 290	315	330	340	355	355	350	340	300	250	S					
24							S	H 210	270	300	I A 330	350	350	360	345	320	300	H 250	S					
25							S	230	280	325	345	350	I A 340	I A 350	350	330	305	255	C					
26							B	235	290	320	340	A	A	A	A	A	300	250	B					
27							B	220	280	315	330	340	I A 350	I A 350	340	330	300	240	S					
28							S	240	280	310	H 330	A	A	A	A	330	310	250	S					
29							S	220	280	320	340	350	350	A	A	335	I A 300	250	A					
30							S	215	290	315	345	355	I A 360	I R 355	R 340	320	290	H 250	S					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								30	26	24	23	18	16	17	21	26	29	28	8					
MED								230	280	315	330	350	350	355	345	330	300	250	158					
UQ								235	290	320	340	355	360	360	350	335	310	258	175					
LQ								215	270	310	325	340	350	I 350	340	320	295	250	150					

The Radio Research Laboratories, Japan

SEP. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FOES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 26	J X 29	J X 26	J X 24	J X 26	23	E S 14	G 24	J X 39	J X 71	44	45	45	J X 70	39	41	40	31	28	J X 37	J X 29	J X 20	E S 15	J X 39
2	E S 15	23	J X 26	J X 26	J X 27	J X 22	J X 22	29	41	42	51	50	J X 72	50	46	J X 52	J X 63	J X 54	J X 41	J X 60	J X 29	J X 26	23	J X 20
3	J X 39	J X 29	J X 27	J X 20	J X 20	21	E S 15	27	36	42	43	J X 59	42	J X 50	J X 48	54	J X 53	J X 33	21	J X 25	26	J X 29	J X 29	J X 32
4	J X 29	J X 31	22	E S 14	20	23	23	39	35	39	J X 48	42	46	42	J X 80	J X 72	J X 70	M 80	101	J X 93	71	39	36	30
5	32	24	20	J X 27	J X 38	J X 20	J X 18	27	32	38	45	J X 67	J X 69	G 32	G 25	41	J X 57	48	30	J X 75	J X 102	J X 60	48	J X 27
6	J X 20	23	E S 14	E B 13	E B 12	E S 13	J X 20	27	J X 40	35	36	39	38	J X 52	55	J X 79	36	31	24	20	J X 31	J X 41	21	E S 13
7	21	J X 31	J X 26	J X 19	J X 32	J X 38	E S 12	28	J X 45	56	44	J X 55	92	J X 79	47	42	33	G	25	J X 40	J X 85	J X 36	J X 24	J X 27
8	J X 35	J X 27	J X 22	J X 21	J X 25	J X 21	J X 18	J X 33	J X 32	34	34	G 31	G 26	G 26	G 23	G 25	G	31	32	J X 26	J X 24	J X 25	J X 22	E S 13
9	E S 13	J X 26	J X 26	23	E S 13	E S 13	E S 14	25	33	45	44	J X 47	44	J X 43	G 32	G 32	G 30	27	26	J X 24	J X 39	J X 38	23	J X 19
10	E S 14	E S 14	E B 13	E S 14	E B 14	E S 14	19	26	33	38	38	G 30	37	G 32	40	35	33	35	J X 47	23	J X 23	25	J X 38	J X 24
11	24	J X 20	E S 15	E S 14	E B 11	E S 14	17	27	32	37	37	38	38	G 35	G	34	35	40	69	J X 46	J X 28	J X 26	J X 29	J X 35
12	J X 34	J X 26	J X 29	J X 50	J X 41	J X 26	J X 19	26	60	J X 65	J X 41	J X 64	J X 94	50	J X 62	J X 50	J X 58	33	J X 33	J X 61	J X 24	J X 60	J X 51	J X 59
13	J X 38	J X 64	J X 41	J X 25	J X 24	25	E S 14	27	36	33	J X 53	37	G 33	J X 38	J X 34	G	J X 33	J G 21	21	25	18	E S 14	F S 14	E S 14
14	J X 39	J X 29	J X 23	J X 20	J X 27	J X 60	E S 13	G	34	35	45	J X 55	J X 57	J X 79	39	J X 33	J X 34	C	23	24	J X 18	E S 14	J X 51	J X 36
15	25	J X 41	J X 33	J X 30	J X 34	J X 20	16	26	28	J X 45	39	36	36	40	G	G	35	J X 43	49	J X 50	J X 36	J X 32	J X 36	E S 14
16	E S 14	E S 14	E	E S 14	E B 12	16	E S 14	J X 33	36	35	35	G 33	G 27	G 28	G 26	G 27	35	31	25	J X 28	J X 51	J X 20	J X 18	E S 14
17	E S 13	E S 15	E S 15	E B 11	E B 12	E S 15	E S 13	27	30	32	37	40	38	G 33	35	34	32	27	J X 42	J X 35	J X 63	J X 61	J X 44	J X 31
18	J X 36	J X 26	J X 19	J X 19	J X 21	22	E S 14	26	39	36	42	39	42	39	35	34	J G 25	28	50	27	J X 20	J X 63	30	J X 26
19	J X 18	19	20	E S 13	E S 13	E S 14	E S 14	25	34	43	42	63	J X 57	J G 33	37	G 20	35	28	J X 37	J X 39	J X 49	J X 53	J X 25	27
20	32	E S 14	25	26	23	E S 13	E S 14	G	31	37	40	48	47	40	G 33	G	G 30	J X 55	J X 61	J X 49	J X 50	J X 34	26	J X 29
21	25	20	E S 13	E S 14	E S 14	E S 13	E S 13	G	J X 39	J X 33	J X 34	39	J G 35	41	40	37	40	J X 43	J X 36	J X 28	J X 21	18	20	22
22	23	J X 22	25	J X 25	J X 26	J X 25	24	27	37	43	44	40	40	41	43	46	45	J X 45	J X 45	J X 34	J X 37	J X 34	J X 26	J X 34
23	J X 24	23	20	E S 13	E S 13	17	E S 15	28	39	J X 77	42	38	45	49	G 25	37	38	J X 38	27	J X 22	J X 36	J X 36	J X 39	J X 21
24	E S 14	E S 14	E S 14	18	19	J X 25	E S 14	25	37	39	34	G 27	J X 48	38	36	G 18	G	33	25	23	E S 14	23	J X 24	17
25	18	20	J X 36	J X 38	J X 37	J X 32	J X 27	33	44	J X 56	J X 70	J X 54	J X 52	J X 82	45	38	J X 52	59	J X 32	J X 52	40	J X 36	J X 94	J X 64
26	J X 62	J X 42	40	J X 34	107	70	J X 26	26	37	45	49	49	45	40	41	38	33	32	J X 29	26	26	J X 37	J X 38	E S 14
27	28	23	E S 14	E S 14	E S 14	E S 14	17	30	37	41	J X 49	J X 54	J X 53	43	37	36	J X 46	J X 61	J X 82	J X 52	J X 32	J X 40	J X 21	J X 35
28	25	25	J X 22	27	19	19	E S 15	G	34	J X 44	42	66	J X 50	J X 53	J X 57	G 23	34	33	J X 51	J X 34	J X 27	E S 14	J X 84	E S 15
29	E S 14	16	E S 14	E B 16	17	E S 15	E S 14	24	31	38	44	47	J X 53	J X 59	42	G 32	J X 35	J X 57	J X 30	J X 40	J X 36	J X 33	J X 33	25
30	J X 18	27	E S 14	E S 13	E S 13	E S 13	E S 14	G	33	40	50	J X 59	43	G 35	G 26	G 25	G 25	34	30	J X 28	J X 21	18	18	E S 14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30
MED	24	24	22	20	20	20	E S 15	26	36	40	42	46	45	41	38	34	35	33	32	J X 34	J X 30	J X 34	J X 28	J X 26
UQ	J X 32	J X 29	J X 26	J X 26	J X 27	J X 25	19	28	39	45	45	J X 55	J X 53	J X 50	45	41	45	J X 45	J X 47	J X 49	J X 40	J X 39	J X 38	J X 32
LQ	18	20	E S 14	E S 14	E S 13	E S 14	E S 14	25	33	36	38	38	38	G 35	G 32	G 25	33	31	26	J X 25	J X 24	J X 23	22	E S 15

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SEP. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	15	17	16	18	E	E S 14	G 23	37	43	E R 44	44	E R 45	69	E R 39	39	38	G	28	32	20	E	E S 15	26
2	E S 15	E	16	E	23	20	16	G	38	42	49	47	50	48	45	48	48	48	39	56	22	19	E	E
3	36	23	27	20	16	E	E S 15	G	33	38	42	43	40	40	43	43	35	28	21	E	18	16	24	23
4	22	27	E	E S 14	12	E	19	37	34	38	44	42	45	42	60	69	42	48	72	45	33	21	21	15
5	23	15	E	E	20	15	G	27	31	36	38	50	50	G 32	G 25	39	52	48	28	34	52	25	31	16
6	E	E	E S 14	E B 13	E B 12	E S 13	G	G	G	G	G	38	E R 38	50	40	64	G	28	23	19	28	26	E	E S 13
7	E	21	22	14	19	E	E S 12	27	42	45	44	50	88	51	47	40	G	G	22	27	51	20	18	17
8	22	E	15	19	15	E	S	26	24	33	34	G 31	E R 26	G 26	E G 23	G 24	G	G	32	26	21	E	17	E S 13
9	E S 13	22	E	E	E S 13	E S 13	E S 14	25	G	37	42	43	41	41	G 31	G 31	G 29	G	26	23	24	20	16	14
10	E S 14	E S 14	E B 13	E S 14	E B 14	E S 14	17	G	32	37	G	G 30	E R 37	E R 32	40	G	G	34	45	E	21	E	23	22
11	16	E	E S 15	E S 14	E B 11	E S 14	15	G	31	35	G	37	36	G 34	G	G	35	30	56	U A 29	23	E S 26	20	23
12	20	20	23	A	E	E	16	G	54	48	40	41	77	43	42	49	43	G	32	27	22	27	30	A
13	32	A	28	19	18	14	E S 14	26	35	33	50	35	G	38	31	G	25	G 15	21	E	E	E S 14	F S 14	E S 14
14	26	14	18	15	20	14	E S 13	G	34	34	45	54	55	73	37	32	25	C	22	E	E	E S 14	30	E
15	E	15	25	21	24	E	S	25	28	39	38	36	36	38	G	G	33	37	32	46	34	19	25	E S 14
16	E S 14	E S 14	E	E S 14	E B 12	E	E S 14	29	31	G	34	G 30	G 27	G 28	G 26	G 27	G	29	23	16	24	E	E	E S 14
17	E S 13	E S 15	E S 15	E B 11	E B 12	E S 15	E S 13	G	30	32	36	38	E R 38	E R 33	G	G	30	G	37	34	23	49	25	E
18	23	22	16	13	16	E	E S 14	G	36	34	41	38	42	39	E R 35	34	G 20	G	48	14	E	24	18	17
19	E	E	E	E S 13	E S 13	E S 14	E S 14	25	33	43	41	54	40	G 29	36	G 20	33	28	37	28	43	20	E	E
20	16	E S 14	E	15	E	E S 13	E S 14	G	G	G	39	47	45	39	E R 33	G	G 28	55	52	49	33	20	E	21
21	15	E	E S 13	E S 14	E S 14	E S 13	E S 13	G	29	29	33	36	G 34	36	40	37	40	42	33	22	16	E	E	E
22	E	18	E	21	15	21	S	26	35	42	43	39	40	40	42	38	43	32	44	30	28	16	E	E
23	E	E	E	E S 13	E S 13	E	E S 15	G	36	51	40	38	44	47	G 25	G	34	35	27	20	29	E	E	E
24	E S 14	E S 14	E S 14	E	E	E	E S 14	G	35	37	E R 34	G 27	29	G	G	G 18	G	31	23	E	E S 14	E	22	E
25	E	E	17	24	28	28	21	30	43	52	62	51	45	40	40	G	49	35	30	49	28	26	16	18
26	23	15	21	17	15	A	23	G	35	44	48	48	45	39	39	36	32	30	28	19	E	19	25	E S 14
27	20	E	E S 14	E S 14	E S 14	E S 14	15	28	35	40	47	53	50	43	G	35	45	50	82	28	25	23	E	28
28	16	E	20	E	E	13	E S 15	G	31	37	41	55	43	49	55	G 23	G	30	49	29	22	E S 14	22	E S 15
29	E S 14	15	E S 14	E B 16	E	E S 15	E S 14	G	G	38	42	44	52	51	E R 42	G 31	33	33	25	33	27	30	29	25
30	18	24	E S 14	E S 13	E S 13	E S 13	E S 14	G	G	38	49	57	43	E R 35	G 26	G 25	G 25	33	29	25	18	E	E	E S 14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	27	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30
MED	15	14	E E 14	E E 14	14	E E 13	E S 14	G	33	38	41	42	42	40	U 34	G 31	32	30	31	27	23	19	18	E E 14
UQ	22	20	18	17	18	14	15	26	35	42	44	50	45	47	42	39	40	35	44	33	28	24	24	21
LQ	E	E	E	E E 13	E E 12	E	E S 14	G	29	34	36	37	36	33	E G 25	G	G 20	G 15	25	19	18	E	E	E

SEP. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12.1' N, Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E15 S14	E15 S14	E14 S14	E14 S14	E	E15 S14	E14 S14	14	14	15	23	23	22	22	20	15	17	E14 S	13	E15 S	E14 S	E15 S	E15 S	E14 S
2	E15 S	E15 S	E13 S	E15 S	E12 S	E14 S	E13 S	14	15	15	16	18	24	24	18	14	15	E15 S	E16 S	E15 S	E14 S	E13 S	E13 S	E14 S
3	E14 S	E15 S	E13 S	E13 S	E13 S	E14 S	E15 S	14	15	18	16	20	23	22	20	18	15	14	E13 S	E14 S	E15 S	E14 S	E14 S	E14 S
4	E13 S	E14 S	E14 S	E14 S	E	E15 S	E14 S	14	14	16	19	20	21	19	15	16	17	13	E13 S	E13 S	E14 S	E14 S	E12 S	E14 S
5	E13 S	E14 S	E15 S	E13 S	E13 S	E13 S	E14 S	14	14	14	20	20	14	20	19	16	18	11	11	E13 S	E15 S	E15 S	E14 S	E13 S
6	E13 S	E14 S	E14 S	13	12	E13 S	E15 S	11	11	15	15	17	20	21	22	14	15	13	E12 S	E13 S	E13 S	E15 S	E14 S	E13 S
7	E13 S	E	E13 S	E	E14 S	E14 S	E12 S	16	14	16	14	23	22	20	19	16	12	14	E13 S	E13 S	E15 S	E14 S	E15 S	E14 S
8	E13 S	E14 S	E13 S	E13 S	E14 S	E14 S	E14 S	14	14	15	18	20	19	21	18	19	14	E14 S	12	E14 S	E13 S	E14 S	E14 S	E13 S
9	E13 S	E13 S	E14 S	E14 S	E13 S	E13 S	E14 S	13	14	15	16	23	20	21	22	19	16	13	E13 S	E13 S	E13 S	E14 S	E14 S	E12 S
10	E14 S	E14 S	13	E14 S	14	E14 S	E13 S	13	14	14	15	21	22	23	20	15	14	12	11	E14 S	E13 S	E15 S	E15 S	E15 S
11	E14 S	E15 S	E15 S	E14 S	11	E14 S	E13 S	13	11	14	15	18	19	14	15	15	11	E14 S	E13 S	E14 S	E13 S	E13 S	E14 S	E14 S
12	E14 S	E13 S	E	E15 S	E13 S	E14 S	E13 S	13	14	15	14	18	17	17	16	14	16	11	E14 S	E14 S	E14 S	E12 S	E13 S	E13 S
13	E13 S	E15 S	E14 S	E13 S	E13 S	E13 S	E14 S	14	14	13	15	17	24	21	18	15	14	11	E12 S	E14 S	E14 S	E14 S	E14 S	E14 S
14	E14 S	E12 S	E	E	E	E13 S	E13 S	14	14	14	17	26	23	19	19	14	13	C	11	E14 S	E14 S	E14 S	E14 S	E14 S
15	E15 S	E14 S	E13 S	E13 S	E14 S	E15 S	E15 S	11	13	14	19	21	24	20	20	17	13	11	11	E13 S	E13 S	E13 S	E13 S	E14 S
16	E14 S	E14 S	E	E14 S	12	E14 S	E14 S	11	13	15	15	18	18	16	17	15	15	E15 S	E15 S	E15 S	E14 S	E15 S	E14 S	E14 S
17	E13 S	E15 S	E15 S	11	12	E15 S	E13 S	14	14	15	18	17	20	19	15	15	15	14	E14 S	E15 S	E15 S	E15 S	E15 S	E14 S
18	E15 S	E14 S	E14 S	11	11	E15 S	E14 S	14	15	14	17	18	20	18	16	14	11	11	E14 S	E12 S	E15 S	E13 S	E14 S	E14 S
19	E14 S	E14 S	E14 S	E13 S	E13 S	E14 S	E14 S	15	15	16	15	20	16	20	14	14	15	14	E13 S	E15 S	E14 S	E14 S	E14 S	E13 S
20	E13 S	E14 S	E13 S	E13 S	E13 S	E13 S	E14 S	11	13	15	18	20	24	25	24	19	15	14	15	E13 S	E14 S	E14 S	E13 S	E14 S
21	E	E14 S	E13 S	E14 S	E14 S	E13 S	E13 S	14	14	14	17	20	20	19	19	16	15	12	E15 S	E15 S	E13 S	E14 S	E14 S	E14 S
22	E15 S	E14 S	E15 S	E14 S	E14 S	E14 S	E15 S	E12 S	14	15	16	20	21	20	19	16	14	11	E14 S	E14 S	E14 S	E15 S	E15 S	E15 S
23	E14 S	E14 S	E15 S	E13 S	E13 S	E15 S	E15 S	15	14	15	19	18	20	16	16	15	15	E14 S	E13 S	E14 S	E15 S	E15 S	E14 S	E15 S
24	E14 S	E14 S	E14 S	E14 S	E15 S	E14 S	E14 S	12	14	15	22	20	20	19	21	15	15	11	E13 S	E15 S	E14 S	E14 S	E13 S	E15 S
25	E15 S	E14 S	E14 S	E	E	E15 S	E13 S	14	15	15	18	20	22	20	15	17	16	13	E13 C	E14 S	E13 S	E14 S	E15 S	E14 S
26	E15 S	E14 S	E13 S	E	E	E14 S	11	13	14	16	19	29	20	24	14	14	11	14	15	E13 S	E15 S	E13 S	E14 S	E14 S
27	E14 S	E13 S	E14 S	E14 S	E14 S	E14 S	11	15	14	13	18	20	19	16	14	19	17	15	E14 S	E15 S	E14 S	E15 S	E15 S	E14 S
28	E13 S	E13 S	E13 S	E13 S	13	E	E15 S	15	14	16	17	23	24	23	19	17	11	15	E15 S	E12 S	E14 S	E14 S	E14 S	E15 S
29	E14 S	E14 S	E14 S	16	E14 S	E15 S	E14 S	14	14	16	18	22	22	20	21	17	18	14	E15 S	E14 S	E14 S	E14 S	E15 S	E14 S
30	E15 S	E15 S	E14 S	E13 S	E13 S	E13 S	E14 S	15	14	16	18	24	26	24	22	20	15	14	E14 S	E14 S	E15 S	E15 S	E15 S	E14 S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30
MED	E14 S	E14 S	E14 S	E13 S	E13 S	E14 S	E14 S	14	14	15	17	20	20	20	19	16	15	13	E13 S	E14 S	E14 S	E14 S	E14 S	E14 S
UQ	E15 S	E14 S	E14 S	E14 S	E14 S	E14 S	E14 S	14	14	16	18	22	23	22	20	17	16	14	E14 S	E15 S	E15 S	E15 S	E15 S	E14 S
LQ	E13 S	E14 S	E13 S	E13 S	E12 S	E13 S	E13 S	13	14	14	15	18	20	19	16	15	14	12	E13 S	E13 S	E13 S	E14 S	E14 S	E14 S

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SEP. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F2 (0.01) | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285S	280F	285S	S	305S	275S	305	350S	340	300	295	285	275	270	275S	285	295	305S	300S	S	300	250S	265	265
2	265	275	285	305	285	275S	315S	345	330	315	305	275	285S	280S	290	300	300	300S	C	300S	270S	265S	270S	275S
3	280	265S	285S	275	255S	250S	270S	305S	325	315	290	290S	305	300S	295S	295	290S	310S	315C	320S	300S	275	280	270S
4	275S	265S	265	275	275S	295	325S	350	330	330	330	290	280R	290	300S	305S	320	315S	330S	310	290	275S	270S	280S
5	270	280S	280S	285	280	295	340S	370S	330S	330	315	300	295	290	290R	300S	320	335	330S	S	300	275	265	270
6	270	275S	280S	305	300S	290S	330	350	375S	340	305	300	290	280S	285	300	305	305	325	330S	315	300	270	270
7	275	275	275	300	285	325	350	350	365	345	325	300	A	285	285	290S	295	310	335	345S	335	265	280S	260
8	260S	290	300	310S	300	300	335	350S	355	350	310	310	290	290S	290	300S	300S	320S	315S	S	S	305	265S	275
9	265S	275S	290	300	295S	275	295	330	345S	325	325	305	295	295S	305	305S	300S	300S	315S	340	S	255S	260	280
10	285	275	270	300	310	270	285	320	S	335	330	300	295	300S	315	300	305S	320	320S	320S	315	305	280S	270
11	270S	270	275	275	280	265	315	355H	360	350S	350S	300	290	295S	310S	310S	315S	345	350	340S	310S	250	265	280
12	300S	290	270	270A	280S	335S	320	335S	355	330	345	305	305S	320S	315S	320S	325S	320S	320S	335S	370S	285	270S	270A
13	280S	290A	310S	345	375	325	350	350	335	330	300	305	295	305	310	310	310	330	335S	340	350	300	295	275
14	300S	245S	240	340	250	230	250H	330	350	G	245	310	335S	A	280	260	305S	345C	345	335S	250S	270S	S	F
15	S	S	270S	285S	280S	285S	290S	340	340S	315H	295	300R	320S	340	320	300	290S	330S	330S	340S	350S	275	265	265S
16	280S	285	295S	305	295	265F	320S	385R	350	330	335	305	315S	330	325	320	320S	320S	330S	325S	335S	300	310S	275S
17	280S	265	255	280	260	265	300S	365S	355	320	320	300S	305	310	315	295	305S	335S	320S	305S	330S	355S	260	255
18	265	265S	280S	315	285	260	300S	355	355	360	355	290	300S	310S	310S	300S	305S	315S	325S	320S	355S	280	320S	280
19	280S	275	270S	290S	345S	290H	320	350	355S	350	345	330	330	340	295S	305	310S	320	340	355S	390	290S	280S	270S
20	270	275	305S	295	330	310	320	365	360	360	335	310	290	285	305	310S	310	320	340	350S	330	295	285	280S
21	290	270	300	325F	305	295	300	360	365S	355S	330S	325	325	295	300	305	330	325S	335S	350S	365	285	275	285
22	285	280S	310S	355S	315	305	315	355	355	355	310	295	295	310	305	305	305S	330S	S	335	335S	280	275S	280
23	285S	280S	300S	325S	345	265	290S	365S	330	325	310	300S	285S	310S	285S	305S	320S	325S	330S	320S	315S	270	275	265
24	265	270	295S	310S	290	265S	265S	340S	340	360	290	285	300S	310	300	305S	310	325	335S	S	320S	290S	290	285S
25	265	280	275S	255S	290	295	305S	350	330	330S	325S	300	290S	295S	300	310	325	340S	335C	330	305	285S	280S	290S
26	290S	275S	275S	310S	300S	290A	290S	350S	355S	360S	310	300	300S	295	310	305	310	330S	330S	345S	320S	280	285	275
27	285	280	290	300	285	295	295	355	345S	350	315H	320	285	295	310	310	320	330S	340S	335	340	280S	285S	280
28	290	290	315	280	290	270	310	340	350S	335S	345S	320	315S	295	285	300S	305S	325S	C	S	325S	285	280S	300S
29	275	270S	285S	320	320	265	285S	335	335S	340	325	325	300	285S	300	295	305	315	325S	325S	315S	280	285	280S
30	295	305	320	325	275	280	290	345	355	310S	330S	310	285	290S	300S	310S	295S	325	C	330S	285S	295	275S	275
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	30	29	30	30	30	30	29	30	30	30	29	29	30	30	30	30	26	25	28	30	29	29
MED	280	275	285S	300	290	282	305	350	350	332	322	300	295	295	300	305	305S	322S	330S	335S	320S	280	275	275
UQ	285S	280	300S	315	305	295	320	355	355	350	330	310	305S	310	310	310S	320	330S	335S	340S	338S	295	285S	280
LQ	270	270	275S	285	280	265	290S	340	335	325	305	300	290	290	290	300	300S	315S	320S	320S	302S	275	270	270

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SEP. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1972 | M(3000)F1 (0.01)

135 E Mean Time (G. M. T.+ 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	365 L	L	A	345 L	330 L	L	L						
2										L	A	350 L	350 L	L	335 L	L	L	A						
3									L	L	L	345 L	365 L	365 L	L	L	L	L	L					
4								A	L	L	L	L	L	350 L	A	A	L	A	A					
5									L	410 L	L	L	L	385	345 H	L	A	A						
6								L	L	410	L	U 340 L	L	L	L	A	L	L	L					
7									L	L	L	A	A	A	L	355 L	L	L						
8									L	410	L	L	L	L	355 L	L	L	L						
9								L	L	L	415 L	L	L	345 L	365 L	355 L	350 L	L	L					
10									L	L	385 L	L	345 L	345 L	360 L	340 L	340 L	L	A					
11									L	L	L	L	365 L	L	L	L	L	L	A					
12									A	A	U 395 L	390 L	I A 365	U 360 L	375 L	A	L	L						
13									L	L	A	345 L	L	360	350	355 L	L	L						
14								L	L	345	A	A	A	A	U 335 L	L	L							
15								L	L	L	385	H 410	L	U 365 L	L	L	L	L						
16									L	365 L	L	355 L	365 L	365 L	L	L	L	L						
17										L	375 L	L	L	355 L	380 L	370 L	L	L						
18										L	L	L	L	L	L	L	L	L						
19									L	L	L	A	380 L	U 330 L	U 360 L	L	U 355 L	L						
20									L	L	L	A	L	340 L	350 L	L	L	A						
21									L	L	L	L	L	L	L	L	L							
22									L	L	L	405 L	L	350 L	395 L	L	L	L						
23										A	385 L	375 L	355 L	A	L	355 L	L	A						
24									L	L	L	345 L	L	L	L	L	L	L	A					
25									A	A	A	A	L	L	L	L	A	A						
26									L	L	A	A	L	L	L	L	L	L						
27									L	L	A	A	A	L	L	L	A	A						
28									L	L	L	A	L	L	A	L	L	L						
29									L	L	L	L	A	L	L	L	L							
30										L	A	A	L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										5	6	11	8	13	13	7	3							
MED										410	385 L	355 L	365 L	355 L	355 L	355 L	350 L							
UQ										410	395 L	382 L	365 L	365 L	365 L	355 L	352 L							
LQ										365	385 L	345 L	352 L	345 L	345 L	348 L	345 L							

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SEP. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1972 | H'F2 (KM) | 135° E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									220	275	280	300	325	330	335	305	280	260						
2										280	265	330	300	315	295	280	275	255						
3									245	255	275	300	280	275	275	285	275	255	235					
4								225	250	270	285	280	325	300	295	290	265	250	250					
5									215	240	280	290	300	310	320	300	265	240						
6								240	220	235	270	315	300	320	305	290	285	255	250					
7									230	250	250	255	I A 305	I A 310	325	305	280	265						
8									240	235	300	270	325	305	305	285	285	260						
9								250	240	245	250	280	275	285	285	280	285	270	255					
10									230	230	240	275	310	285	275	300	280	245	245					
11									220	245	230	320	340	325	290	280	285	270	240					
12									230	250	250	300	305	275	285	265	255	245						
13									260	255	260	295	305	295	290	275	270	250						
14								295	255	G	500	300	260	A	360	320	285							
15								250	220	235	260	275	275	250	265	290	310	250						
16									230	255	245	295	265	245	265	275	275	255						
17										250	255	255	280	280	260	255	280	240						
18										240	240	250	285	280	265	280	275	255						
19									230	240	240	270	255	300	290	290	275	250						
20									235	225	250	245	320	310	295	265	270	250						
21									225	220	255	260	285	290	300	290	255							
22									225	225	240	255	280	275	270	280	275	240						
23										255	250	280	300	275	280	280	250	235						
24									225	220	235	300	280	265	265	275	275	240	225					
25									225	245	255	250	270	280	285	280	255	240						
26									225	225	240	240	285	300	290	270	260	240						
27									225	240	225	260	255	300	285	270	260	240						
28									240	235	230	250	270	275	285	285	280	240						
29									240	230	235	230	260	280	285	275	265							
30										255	230	250	275	280	280	255	275							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	25	30	30	30	30	29	30	30	30	26	7					
MED								250	230	242	250	275	285	285	285	280	275	250	245					
UQ								250	240	255	265	300	305	305	295	290	280	255	250					
LQ								240	225	235	240	255	275	275	275	275	265	240	238					

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SEP. 1972 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 1972 | H'F (KM)

135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	270	255	240	240	255	255	225	220	215H	250	225	240H	A	200H	225	225H	240	250	225	210	245	295	310
2	290	280	255	240	275	280	240	225	230	230	A	230	A	A	250	A	A	A	245	250	245	270	275	265
3	300	285	300	300	300	315	270	240H	225	220	225	210	200H	200	220	225	215	240	240	225	220	255	280	280
4	290	305	300	290	265	255	250	I A 230	205	205	230	205	E A 230	230	A	A	E A 265	A	A	245	250	250	280	270
5	300	270	280	275	290	270	240	200	190	200	205	I A 220	A	200	195H	235	I A 230	I A 235	230	240	E A 280	250	E A 330	310
6	300	300	295	255	260	255	240	225	215	195	200H	200	200	I A 205	215	I A 215	215	235	250	220	205	230	285	295
7	295	310	290	255	280	240	235	215	A	E A 250	E A 240	A	A	I A 210	A	E A 240	225	215H	230	220	210	250	295	315
8	330	280	245	260	255	260	240	210	210	185	190H	190H	205	200	210	230	225	220	250	235	205	200	320	305
9	310	310	280	250	240	255	255	230	220	210H	205	220	200H	205	215H	200H	225H	235	255	225	205	E A 240	300	275
10	280	270	280	245	225	275	260	225	220	205	205	200	200	230	230	220	220	E A 240	A	230	210	195	275	300
11	295	280	295	300	255	290	240	215	215	220	200	200	200	205	205	210	220	E A 250	A	210	195	E S 370	325	310
12	255	255	340	A	240	245	250	220	A	A	200	205	I A 235	250	E A 235	I A 210	I A 215	230	250	240	200	A	A	A
13	A	A	280	215	200	250	245	210	220	195	A	195	200	200	200	200	225	235	240	210	200	240	270	280
14	300	370	410	230	E A 400	490	305	250	I A 245	230	A	A	A	A	205	225	240	I C 240	220	205	290	305	E A 350	320
15	260	270	310	295	325	275	275	235	215	225	200	190H	180	230	205	235	240	A	225	245	215	230	335	305
16	295	270	245	250	255	350	260	210	210	200	200H	200	190H	210H	210H	200	235	230	230	230	230	235	240	245
17	275	300	310	270	300	310	250	210	225	220	200	200H	225H	200H	200	200	220H	225	230	250	240	225	E A 275	320
18	340	325	275	245	250	310	250	220	220	210	230	200	220H	205	220H	210H	220	225	235	215	200	E A 300	245	255
19	275	290	290	285	230	E S 335	235	225	225	A	215	A	205	200H	195	190H	215	240	240	215	200	E A 240	255	300
20	315	305	280	275	220	220	250	215	200H	215	205	I A 235	E A 240	195	225	240	240	A	220	210	205	210	250	300
21	290	295	255	245	240	270	255	225	225	205	200	185	180H	225	225	230	255	230	230	220	200	205	300	295
22	300	300	255	210	225	E A 320	255	220	215	225	225	190	220H	225	200	235H	250	245	215	215	205	245	280	280
23	275	265	250	220	205	320	265	225	215	A	210	195	220H	A	190H	225	230	I A 235	225	210	240	270	295	310
24	320	300	250	240	240	300	275	215	220	200	195	190	195H	200	200	215	225H	240	I A 225	210	200	230	250	230
25	280	290	320	E A 350	300	270	225	215	A	A	A	A	E A 235	200	210	230	A	A	220	E A 250	240	E A 275	295	290
26	285	265	285	245	235	I A 270	260	225	225	A	A	A	E A 245	210	230	240	240	240	225	210	200	255	300	295
27	290	290	265	255	260	260	260	225	220	210	A	A	A	230	225	225	A	A	245	215	205	305	280	325
28	290	270	250	245	270	305	275	220	220	225	225	A	225H	E A 255	A	220	230	230	230	210	205	225	255	250
29	290	325	280	250	200	305	275	230	220	220	215	220	A	A	250	220	230	260	235	230	225	E A 270	295	295
30	275	255	235	240	275	275	280	220	220	230	A	A	200	175H	230	220	225H	235	235	205	220	240	255	285
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	30	29	30	30	30	30	27	25	23	22	24	25	27	28	27	24	27	30	30	29	29	29
MED	290	290	280	250	254	272	255	222	220	212	205	200	202	205	210	221	225	235	230	220	206	238	280	295
UQ	300	300	295	272	275	308	265	225	222	222	222	220	224	225	225	230	235	240	242	232	228	260	298	310
LQ	280	270	255	240	235	255	240	215	215	205	200	195	200	200	200	210	220	230	225	210	200	228	262	280

SEP. 1972 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1972 | H'ES (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 303° 71.E 1 Sweep 2 MHz to 02 MHz in 0 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	100	100	100	100	100	S	100	100	100	115	110	110	105	120	110	115	145	105	100	100	95	S	100
2	S	120	100	100	100	100	100	120	110	110	110	100	105	110	100	105	105	105	100	95	100	100	100	100
3	95	100	95	95	95	100	S	120	115	110	105	105	110	105	105	105	105	100	100	100	100	100	100	95
4	95	95	100	S	100	100	110	110	110	105	105	105	105	105	120	110	105	105	100	100	100	100	100	100
5	100	100	100	100	95	95	100	145	105	105	100	100	100	100	100	140	110	110	110	105	100	100	100	100
6	100	100	S	B	B	S	100	130	120	115	115	105	105	100	105	105	110	110	105	105	100	100	95	S
7	100	100	95	95	115	125	S	115	105	105	105	105	100	100	105	110	140	G	115	105	100	100	100	100
8	100	100	95	95	100	95	100	100	100	105	105	100	100	100	100	100	G	155	145	105	100	100	100	S
9	S	100	95	95	S	S	S	125	125	110	105	105	100	100	100	100	100	120	125	110	105	100	100	100
10	S	S	B	S	B	S	125	130	125	115	105	100	125	100	145	155	145	115	110	115	100	100	100	95
11	95	95	S	S	B	S	130	125	125	125	115	115	105	100	G	110	130	115	105	100	100	95	95	95
12	95	100	100	100	100	100	100	125	105	100	105	105	100	110	115	110	110	115	120	110	100	100	100	100
13	100	100	100	100	100	100	S	135	110	105	100	100	100	100	100	G	100	100	120	100	100	S	S	S
14	100	100	100	100	110	100	S	G	135	125	110	105	100	100	100	100	100	C	120	110	100	S	105	105
15	105	100	100	100	100	100	150	120	105	100	100	100	105	100	G	G	150	120	110	105	105	100	100	S
16	S	S	E	S	B	130	S	100	115	120	100	100	100	100	100	100	140	120	110	105	100	100	100	S
17	S	S	S	B	B	S	S	145	165	105	100	100	100	100	130	U G 175	110	U G 175	115	105	100	100	100	100
18	100	95	95	95	95	100	S	145	120	115	110	110	105	100	105	130	95	150	105	105	105	100	100	110
19	100	100	100	S	S	S	S	135	120	115	110	105	100	100	125	100	140	145	110	100	100	100	100	100
20	100	S	95	90	95	S	S	G	130	110	110	105	100	100	100	G	100	110	105	105	100	100	100	100
21	100	100	S	S	S	S	S	G	100	100	100	100	100	100	150	150	130	120	115	110	105	105	100	100
22	105	100	100	100	100	100	100	125	120	115	110	120	170	145	135	135	135	125	110	105	100	100	100	100
23	100	100	100	S	S	100	S	140	115	110	110	110	120	120	95	165	130	110	105	100	100	100	100	100
24	S	S	S	95	95	100	S	115	105	105	105	95	100	150	155	95	G	110	105	100	S	100	100	100
25	100	100	95	90	90	90	95	115	110	105	105	100	100	100	120	120	120	115	110	105	100	100	100	105
26	105	105	100	100	100	100	100	130	115	110	105	105	105	100	100	105	110	125	110	105	100	100	100	S
27	90	90	S	S	S	S	140	135	115	110	105	105	100	105	110	150	120	110	105	105	100	100	100	100
28	100	100	100	95	95	95	S	G	130	110	105	100	100	100	100	100	145	120	110	100	100	S	100	S
29	S	100	S	B	95	S	S	140	125	110	105	105	105	100	100	100	100	115	100	100	100	100	95	90
30	90	95	S	S	S	S	S	G	125	120	105	105	105	105	100	95	95	125	110	105	90	90	90	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	25	20	18	19	19	13	25	30	30	30	30	30	30	28	27	28	28	30	30	29	27	28	22
MED	100	100	100	98	100	100	100	125	115	110	105	105	100	100	105	110	110	115	110	105	100	100	100	100
UQ	100	100	100	100	100	100	125	135	125	115	110	105	105	105	120	132	132	125	115	105	100	100	100	100
LQ	98	100	95	95	95	100	100	115	105	105	105	100	100	100	100	100	102	110	105	100	100	100	100	100

SEP. 1972 | H'ES (KM)

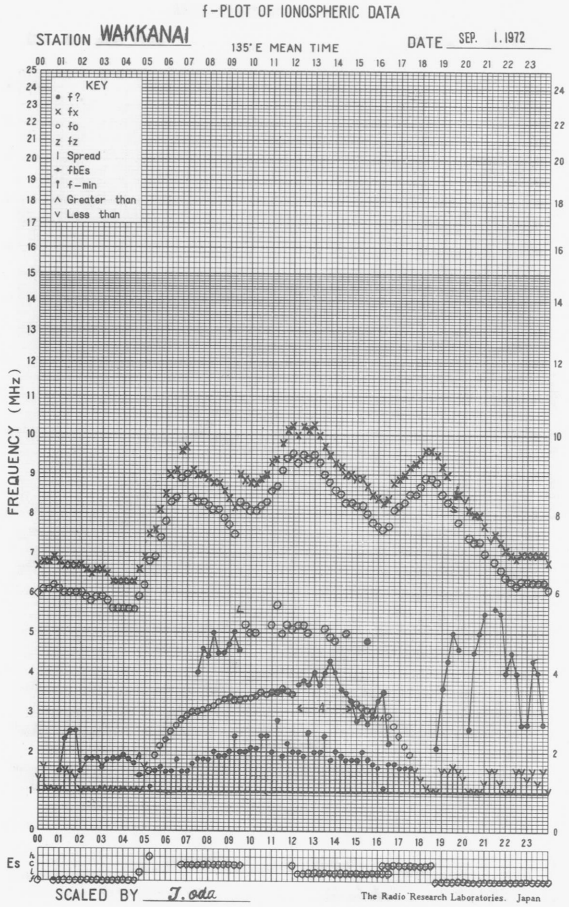
IONOSPHERIC DATA

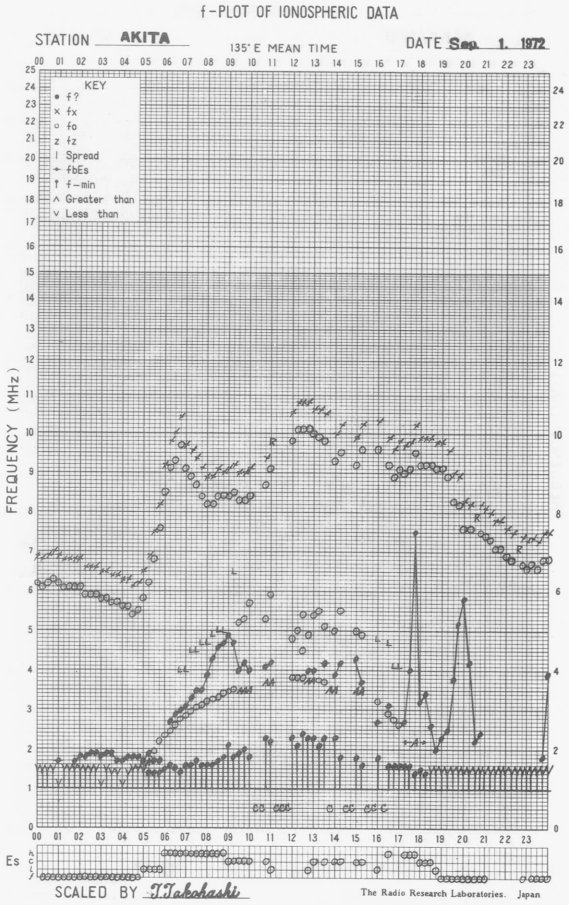
SEP. 1972 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9h)

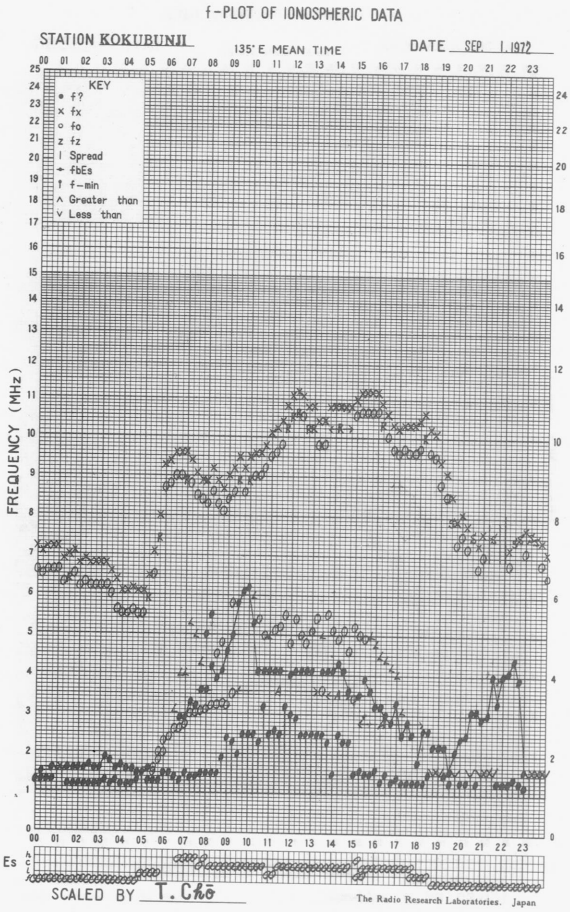
Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

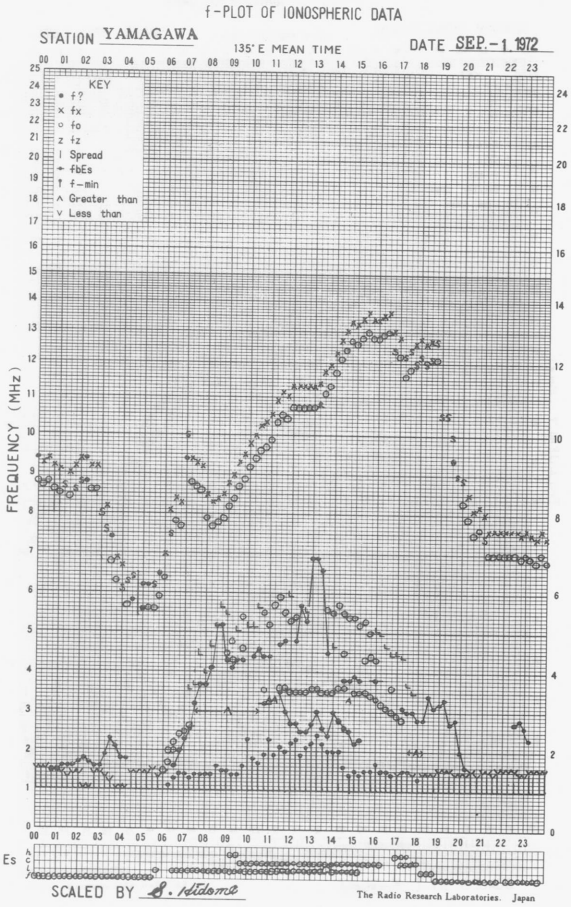
Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F3	F3	F3	F3	F1		L	L3	L4	Cl12	Cl12	Cl1	Cl31	Cl1	Cl1	C2	H1	C3	F5	FF24	F2		FF41
2		F1	F1	F2	F3	F3	LH11	H1	Cl32	Cl1	C2	Cl1	C2	C1	Cl1	Cl21	Cl31	Cl32	Cl31	F6	F4	F6	F1	F1
3	F5	F2	F4	F5	F5	F1		C1	C3	C2	C2	C1	C1	C1	C2	C2	C2	C2	C1	F1	F4	F3	F4	F2
4	F3	F3	F1		F1	F2	C2	C3	C3	Cl21	Cl21	Cl1	Cl1	Cl1	HCL41	C3	C2	C5	C4	F6	F3	F3	F4	F3
5	F4	F2	F2	F2	F3	F2	L	HCL11	C2	Cl21	C2	L2	Cl21	L	L	H1	C1	Cl31	Cl31	FF23	F3	F3	F3	F2
6	F1	F1					L	Cl11	Cl1	Cl12	Cl1	C1	C1	C2	C1	C2	C1	C2	C3	F2	F4	F2	F1	
7	F1	F2	F2	F2	F2	F1		C2	C3	C2	C2	C3	C3	C2	C2	C2	H1		C2	F4	F5	F4	F2	F2
8	F3	F2	F2	F2	F2	F2	L	L2	L	C2	C1	L	L	L	L	L		H1	H1	F5	F2	F3	F2	
9		F2	F1	F1				Cl11	C2	C2	C2	C1	C2	L2	L2	L	L2	HL22	HL21	F5	F5	F3	F1	F1
10							H2	H1	HL13	Cl22	C1	L	HL1	L	HL1	HL1	H1	C4	C4	F1	F6	FF11	F3	F3
11	F3	F1					H1	H2	H2	H1	H1	HC11	C1	C2		C1	H1	C3	C5	F7	F4	F3	F2	F3
12	F2	F3	F4	F6	F2	F2	L2	H1	C3	C3	C2	C1	C2	C2	C2	C2	C3	C2	C2	F6	F7	F5	F3	F2
13	F4	F5	F4	F3	F3	F3		H1	C3	C2	C3	C1	L	L2	L		L2	L	Cl1	F1	F1			
14	F4	F3	F3	F1	F6	F3			H2	H1	C1	C3	C2	C4	L	L2	L2		Cl22	FF11	F2		F2	F2
15	F1	F3	F5	F3	F2	F1	H1	C1	L2	L3	L2	L	L	LH21			H1	H5	C6	F7	F3	F2	F3	
16						F1		L2	Cl22	Cl1	HC11	L	L	L	L	L	HL12	H2	C2	F3	F4	F1	F1	
17								H1	HC12	C2	C2	C2	C1	C1	HL1	HL1	C1	H1	C4	F7	F3	F3	F3	F4
18	F4	F4	F3	F2	F2	F1		H1	C3	C1	C1	Cl1	Cl21	C1	C2	HL1	L	H1	C3	F3	F2	F4	F3	FF23
19	F2	F1	F1					H1	H1	C2	Cl21	C2	L	L	HL1	L	H2	H2	L2	F7	F5	F5	F4	F4
20	F2		F2	F2	F1				H1	C1	C1	C1	C1	L2	L		L2	C4	C5	F6	F3	F3	F1	F3
21	F1	F1							L3	L2	L	L	L2	L2	HL1	HL1	H3	C3	C4	F7	F2	F1	F2	F1
22	F1	F2	F1	F3	F3	F6	L	H2	C3	C2	Cl21	Cl1	HC11	HLL1	HL1	HL1	HL31	HL31	Cl31	FF61	FF41	F3	F2	F3
23	F2	F2	F2			F1		H2	C3	C4	C2	Cl1	HL1	Cl1	L	HL1	H3	C4	C4	F3	F4	F3	F2	F2
24				F1	F1	F1		C2	C3	C3	C1	L	L	H1	H1	L		C4	C3	F1		F2	F3	F1
25	F1	F2	F4	F5	F5	F6	L3	C3	C4	C3	C3	C2	C2	L2	H1	H1	H2	C3	C2	F6	F5	F5	F3	F3
26	F2	F2	F3	F3	F3	F6	L4	H2	C3	Cl22	C1	C1	Cl1	Cl21	Cl21	C2	C2	H3	C3	F1	F1	F2	F3	
27	F3	F2					C1	H2	C3	C2	C1	C3	C2	Cl1	C1	H1	C3	C4	C3	F3	F3	F3	F2	F3
28	F2	F1	F1	F1	F1	F1			H1	C3	C2	C3	C2	Cl21	Cl21	L	HL21	H2	C3	F4	F3		F2	
29		F1			F1			H1	H1	Cl21	C1	C1	C2	C2	C1	L	L2	Cl31	L2	F2	F3	F2	F2	F1
30	F1	F2							H2	C2	C2	C2	C1	L1	L	L	L	HL31	Cl21	FF22	F2	F1	F1	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

SEP. 1972 | TYPES OF ES


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE SEP. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

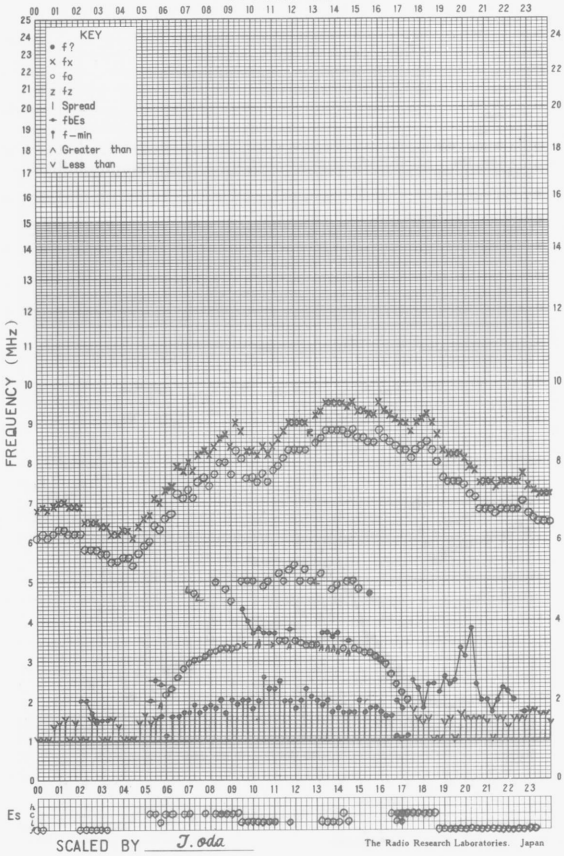

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Sep. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE SEP. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE SEP.-1 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ishioma
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE SEP. 2. 1972



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The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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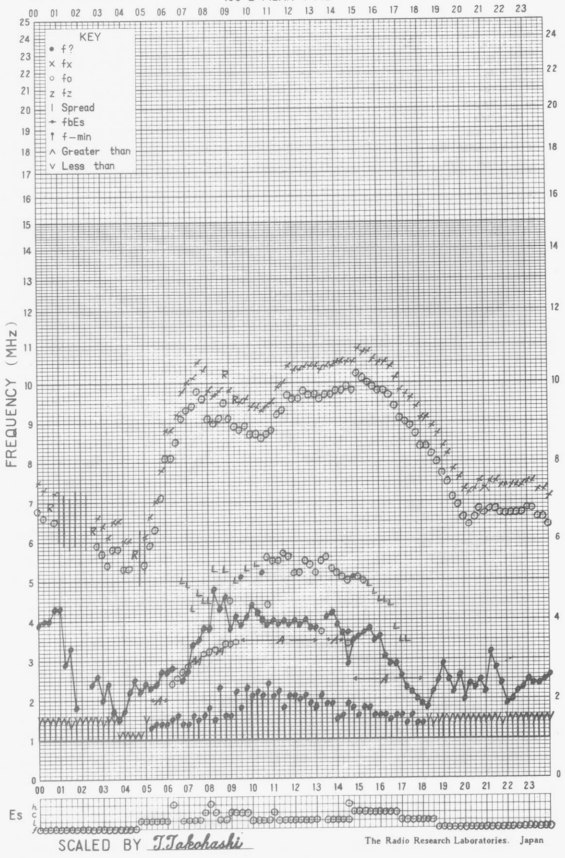

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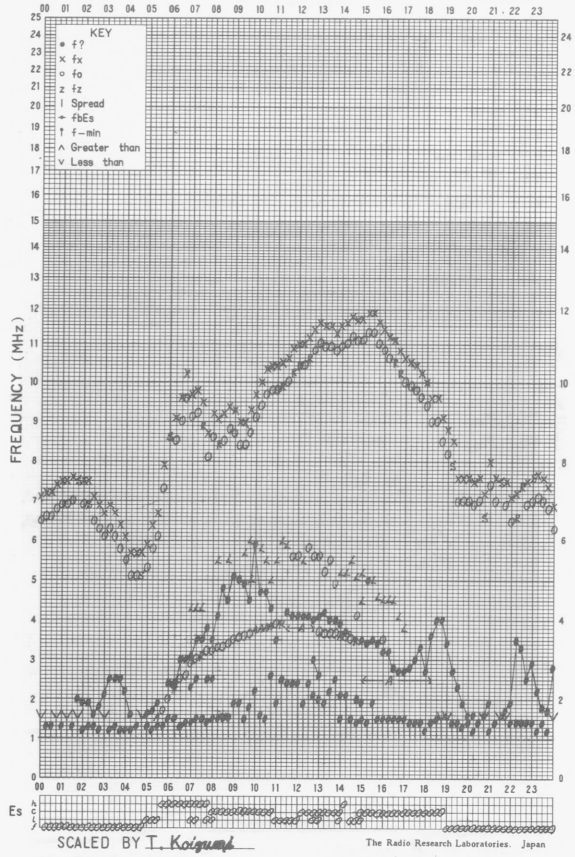

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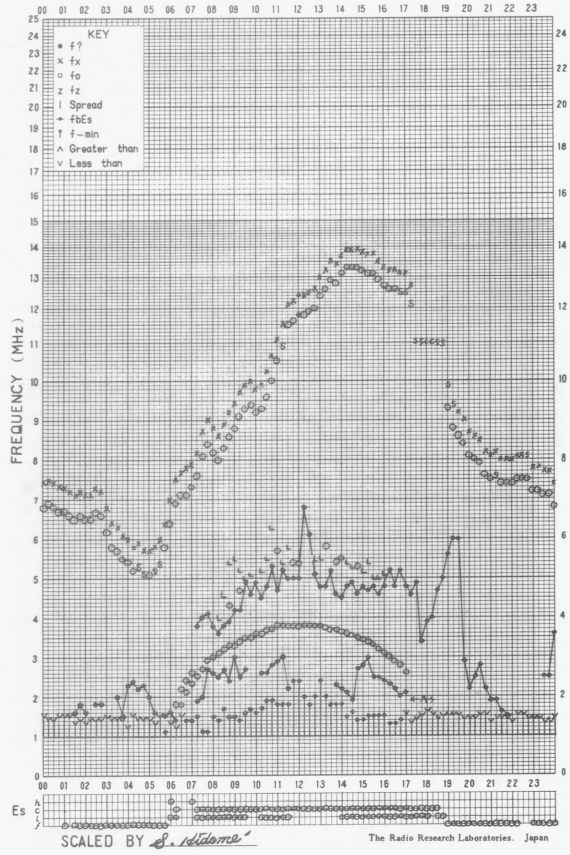
STATION YAMAGAWA 135° E MEAN TIME DATE SEP.-2.1972



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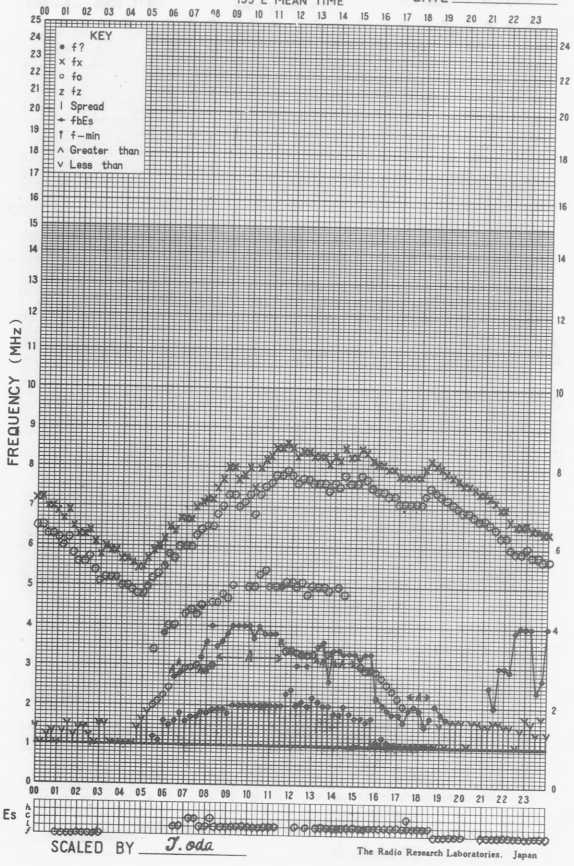
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 3. 1972



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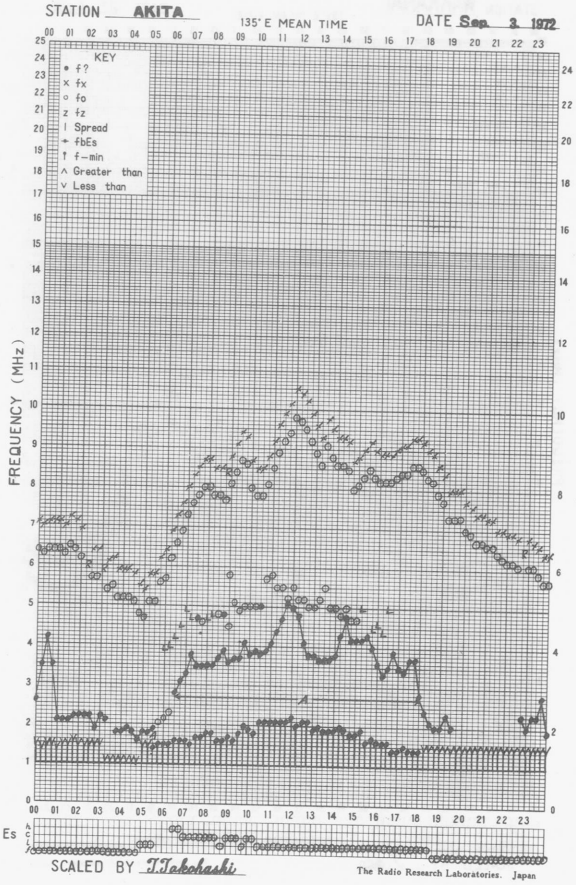

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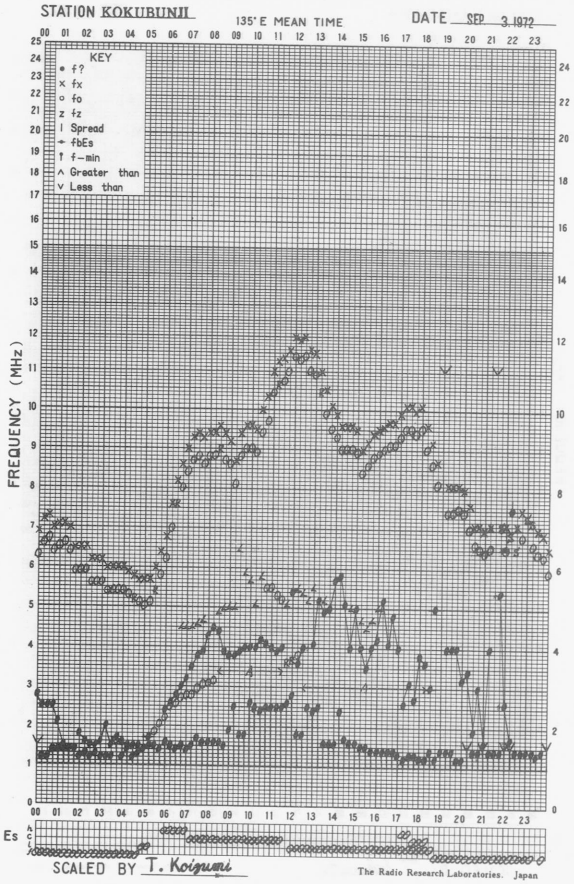

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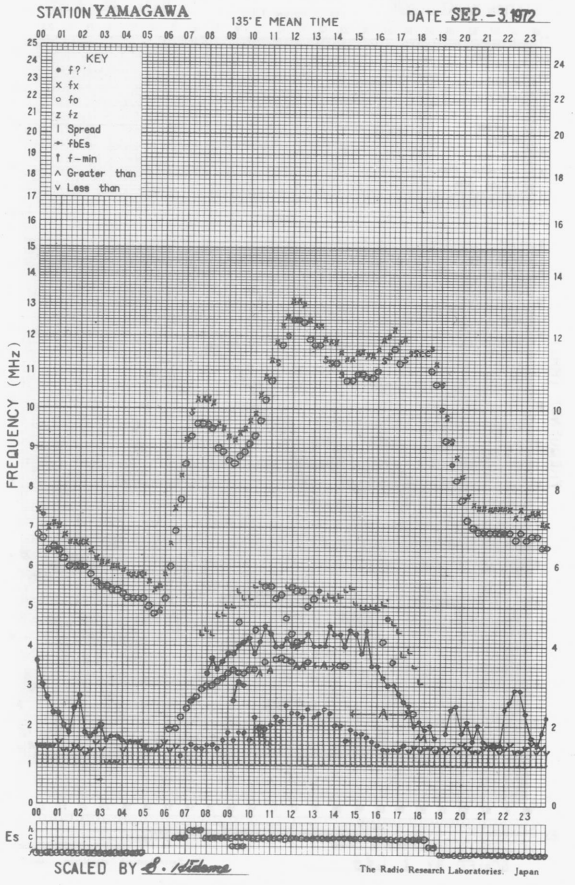

SCALED BY S. Ishikawa

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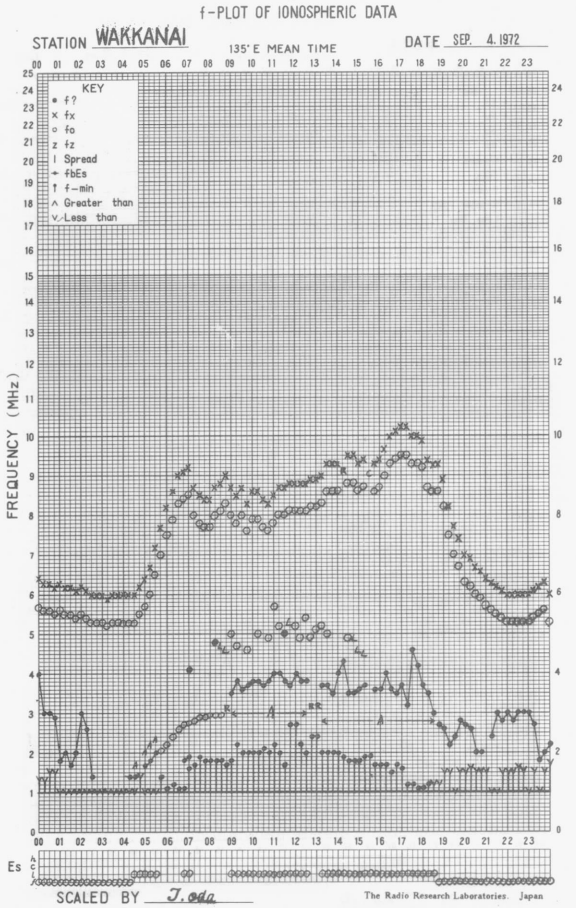
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DATE SEP. 4. 1972
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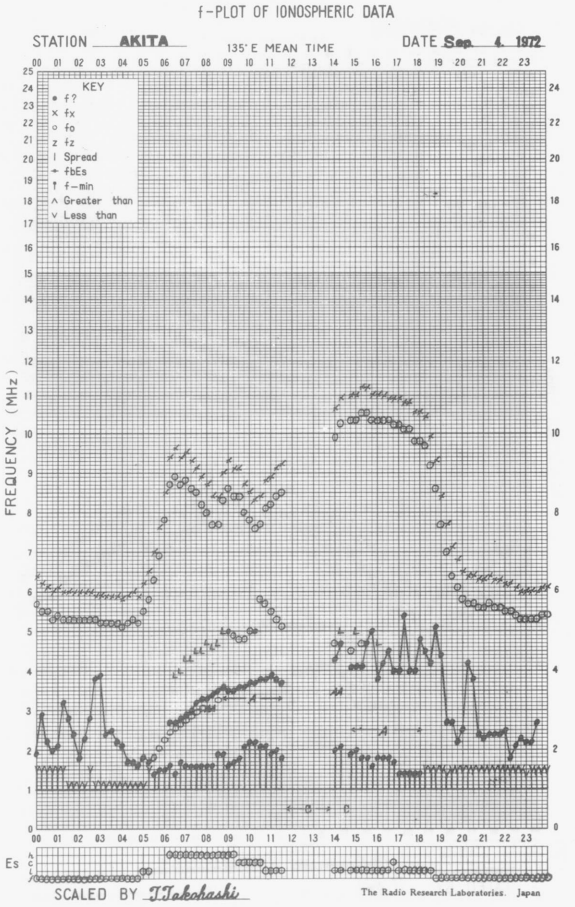
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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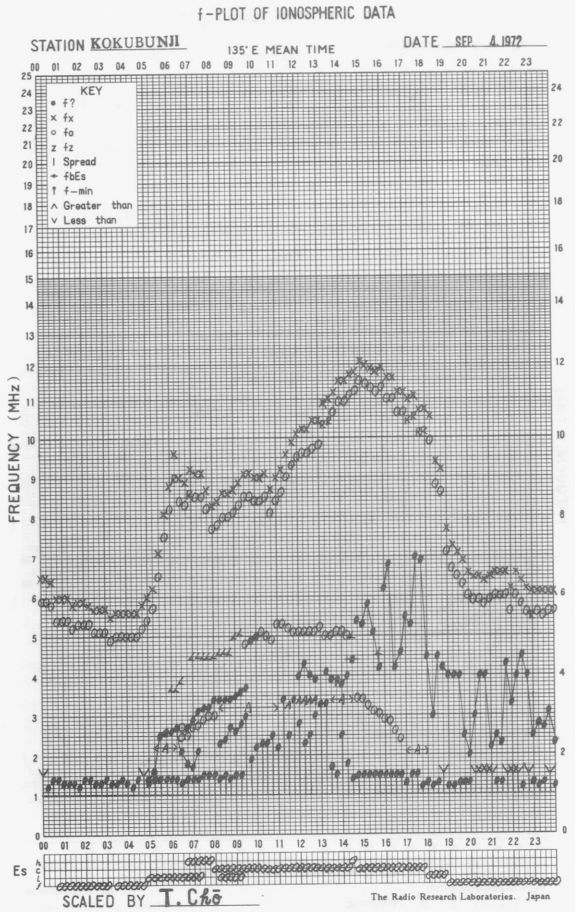
SCALED BY T Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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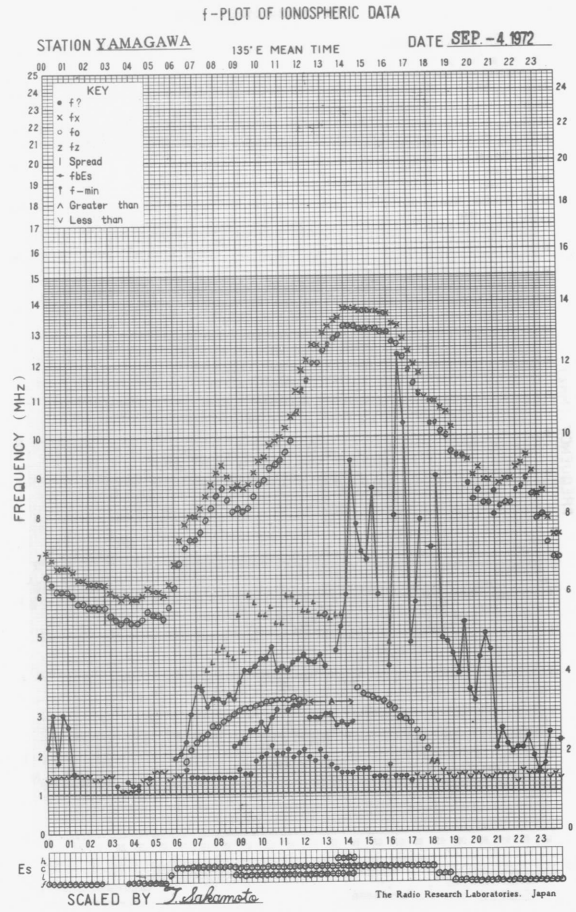
SCALED BY T. Chō
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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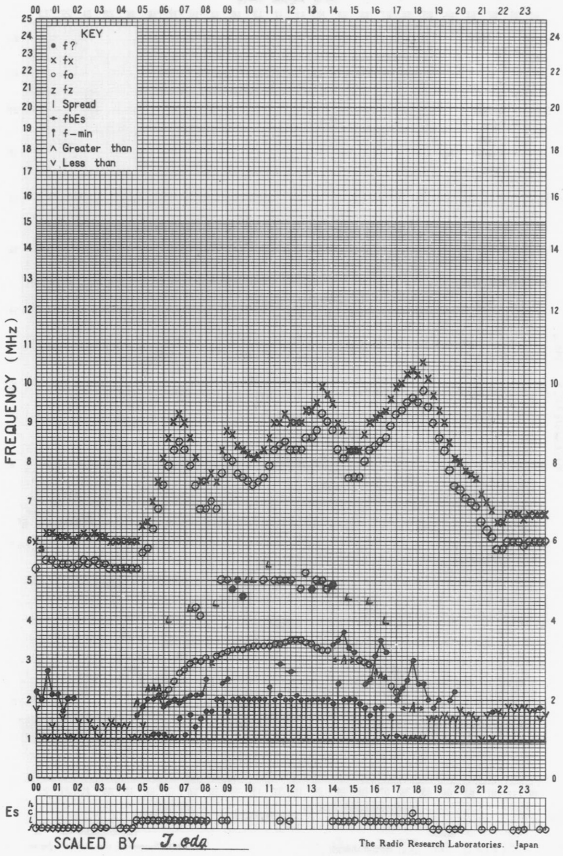

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The Radio Research Laboratories. Japan

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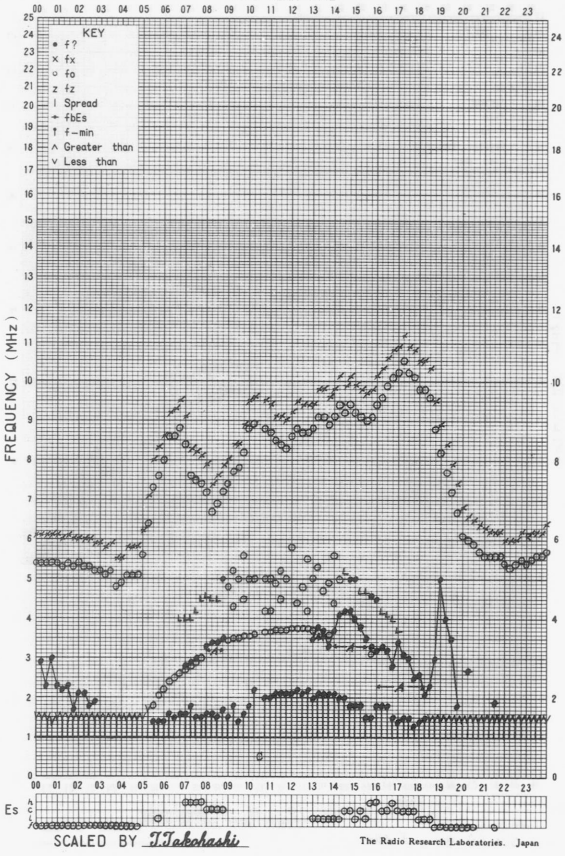

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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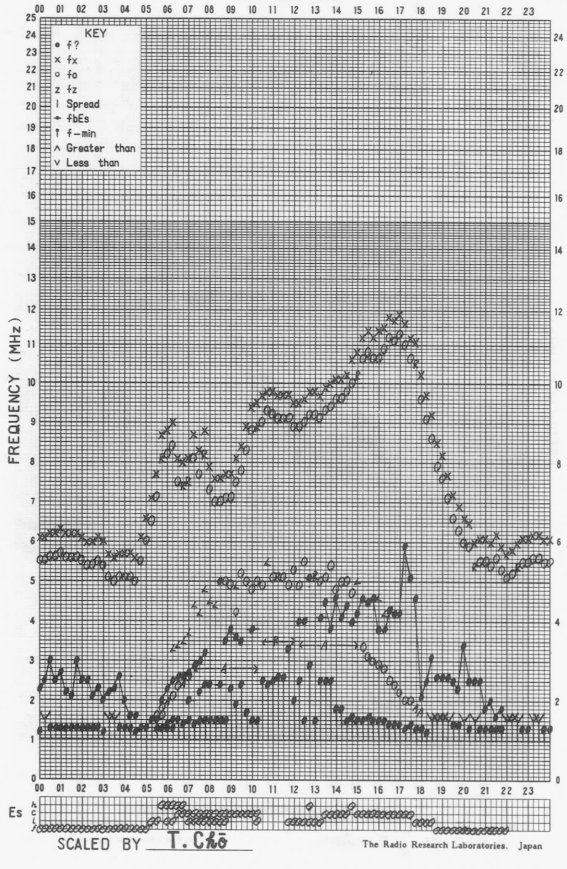

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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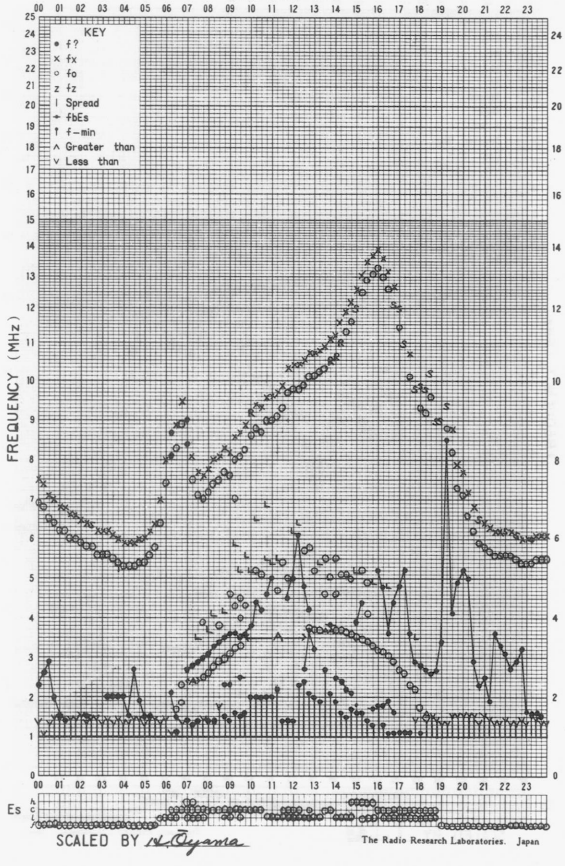
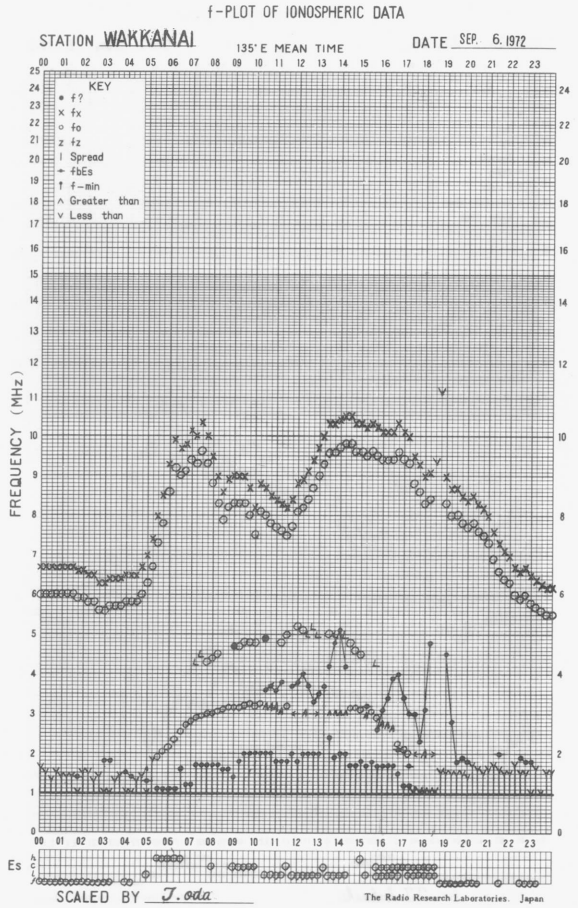


SCALED BY K. Oyama

The Radio Research Laboratories. Japan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DATE SEP. 6. 1972
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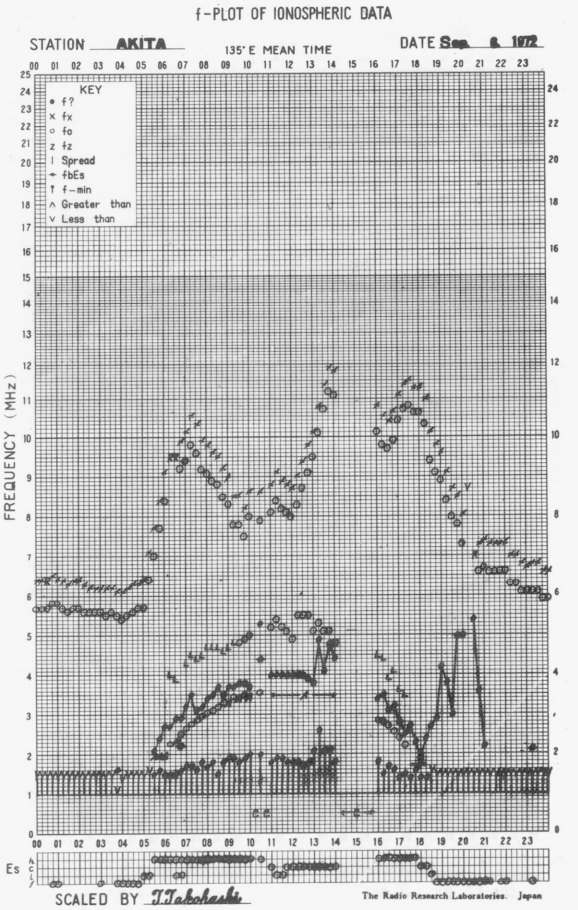
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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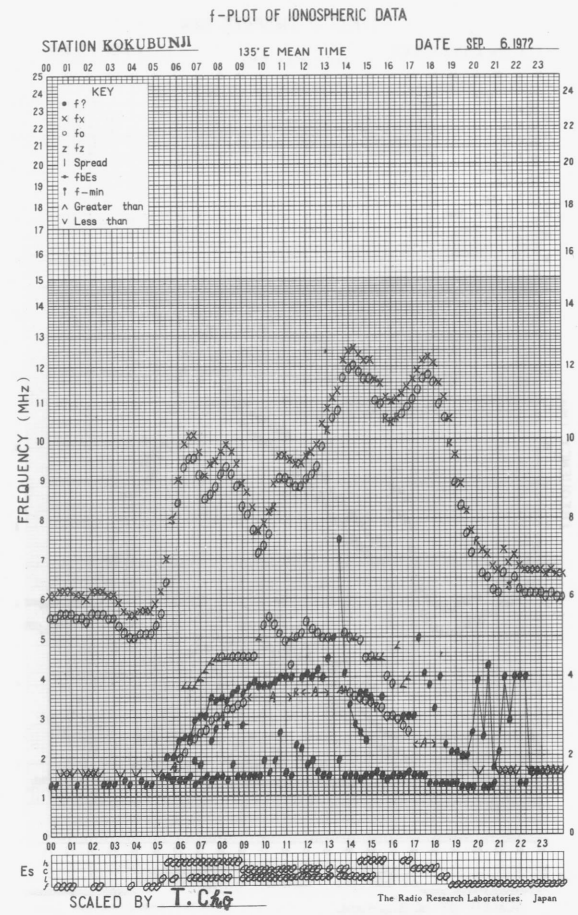
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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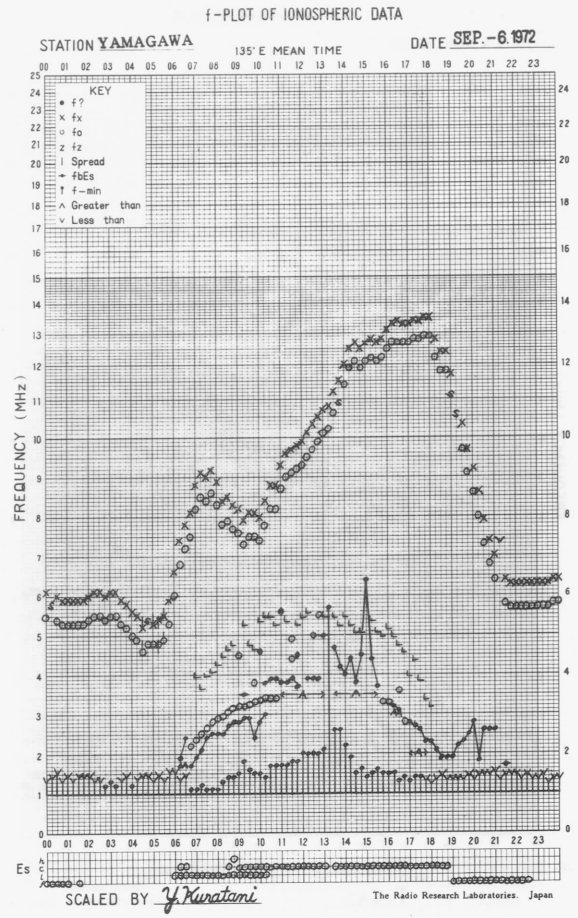
SCALED BY T. Cho
The Radio Research Laboratories. Japan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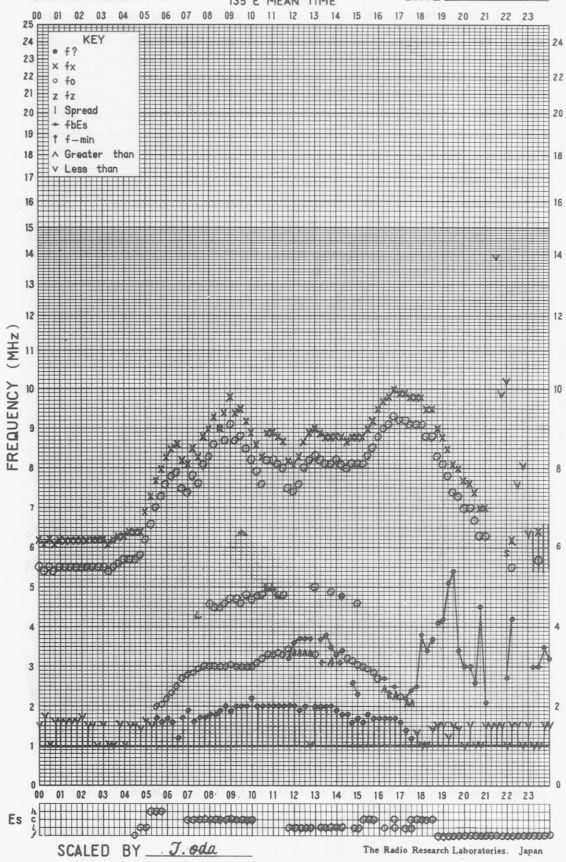
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY Y. Kuratani
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 7.1972



SCALED BY T. Oda

The Radio Research Laboratories. Japan

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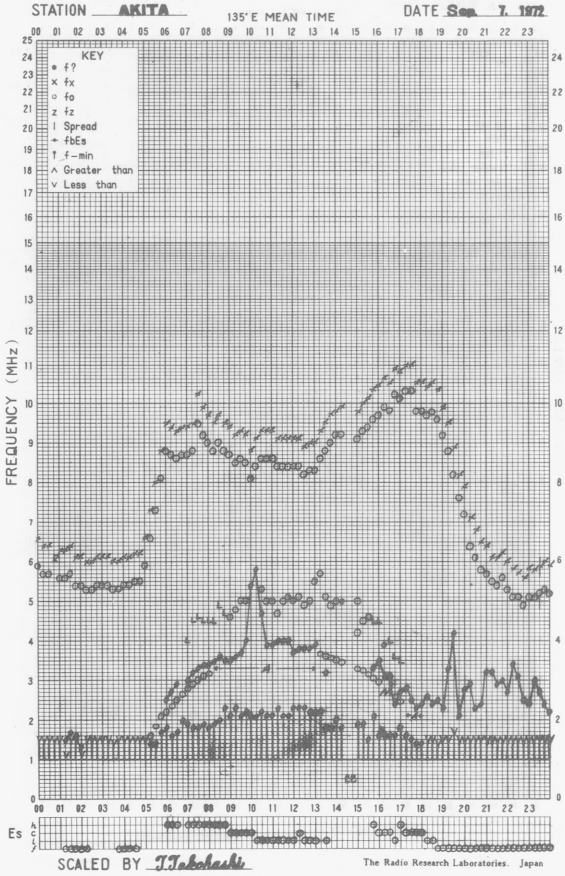

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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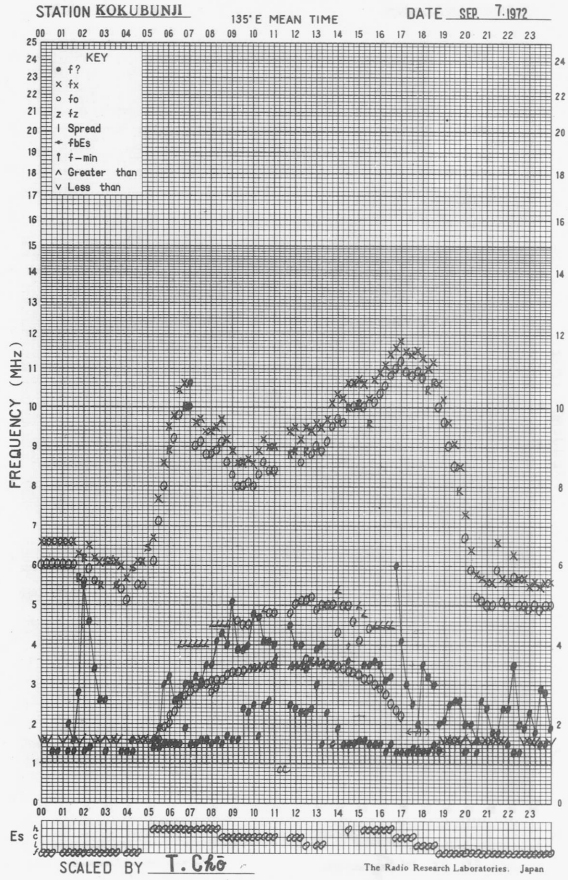

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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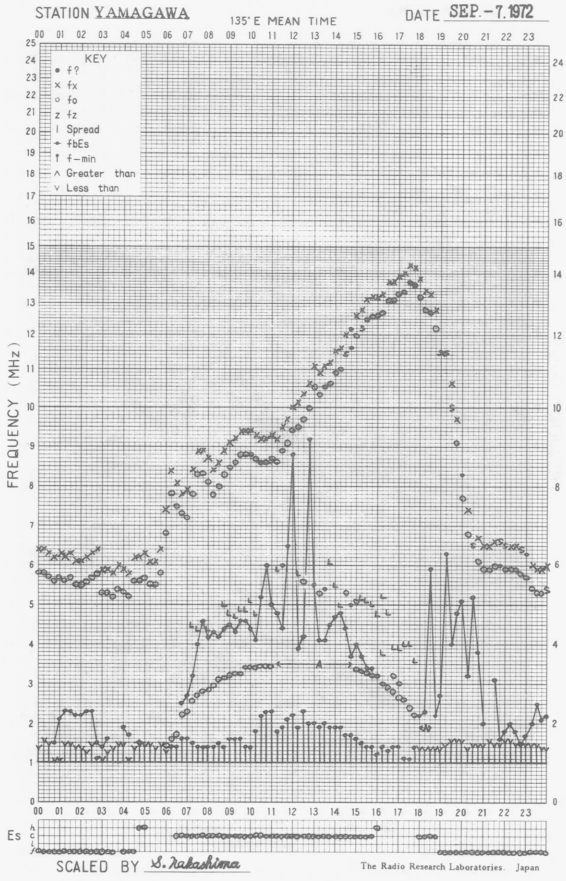

SCALED BY S. Nakashima

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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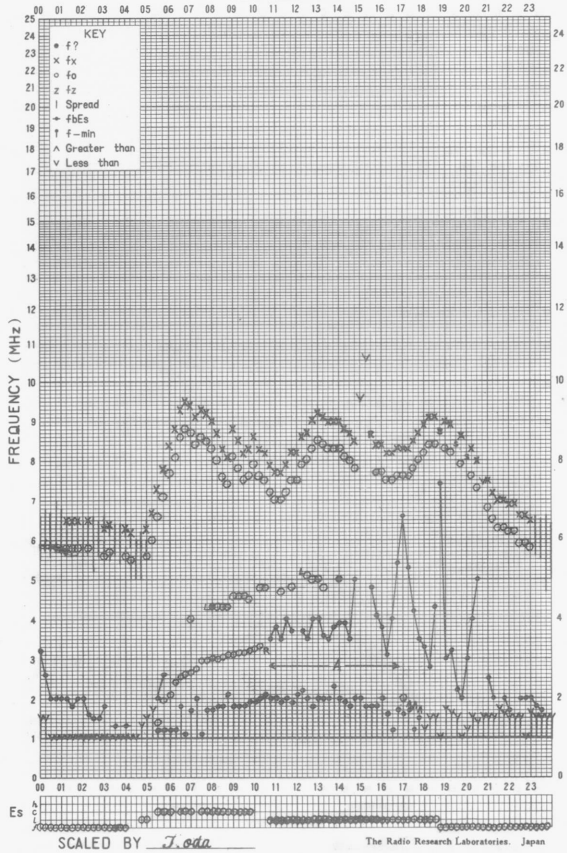

SCALED BY T. oda

The Radio Research Laboratories. Japan

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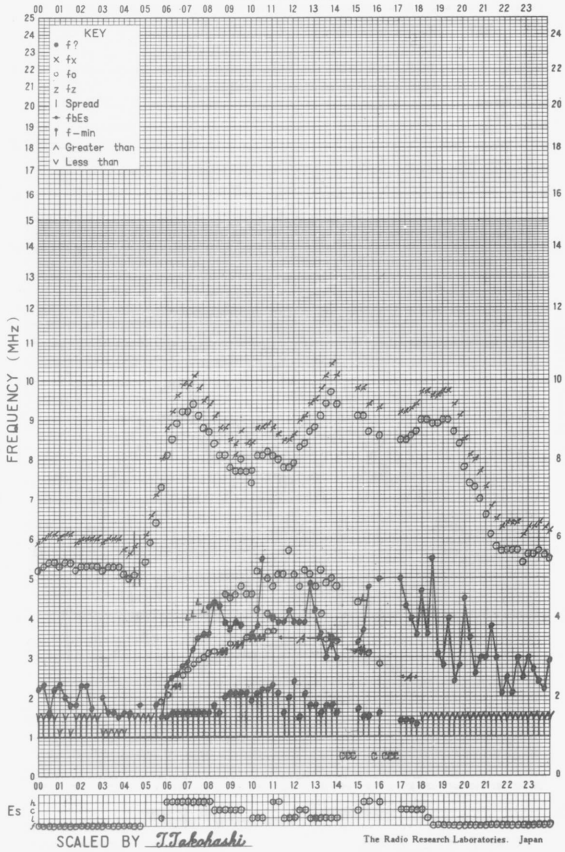

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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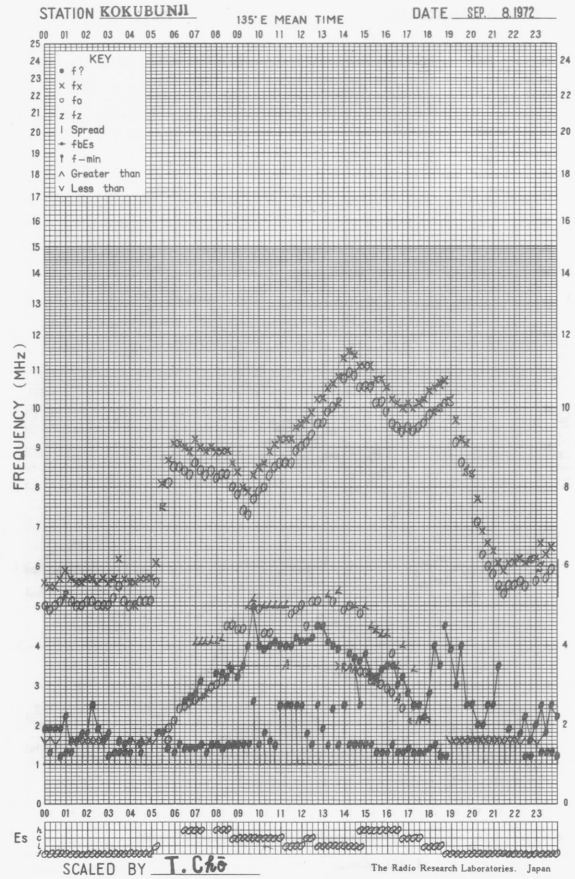

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The Radio Research Laboratories. Japan

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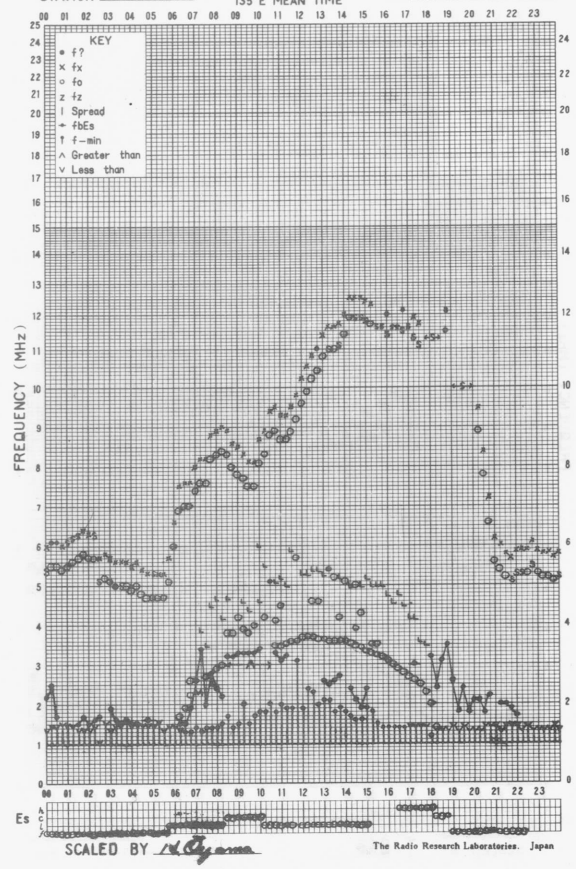

SCALED BY A. Ayama

The Radio Research Laboratories. Japan

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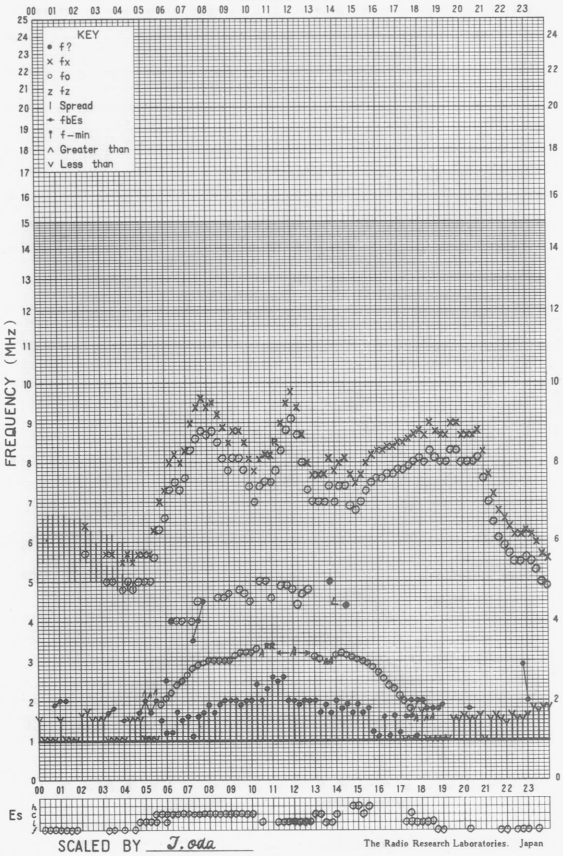

SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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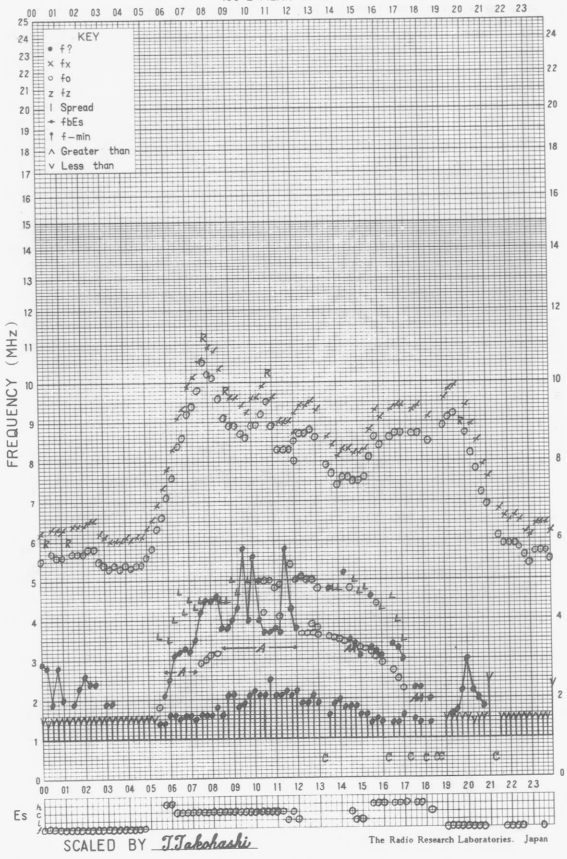

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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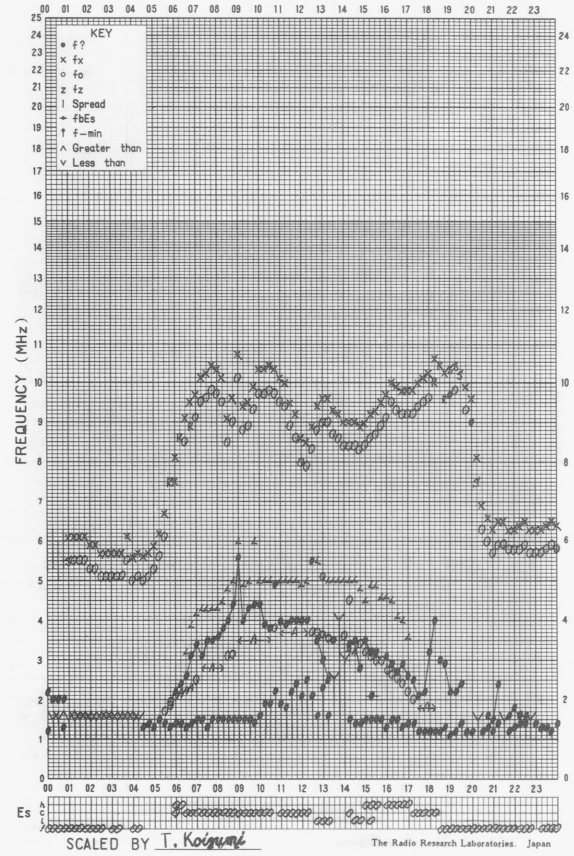

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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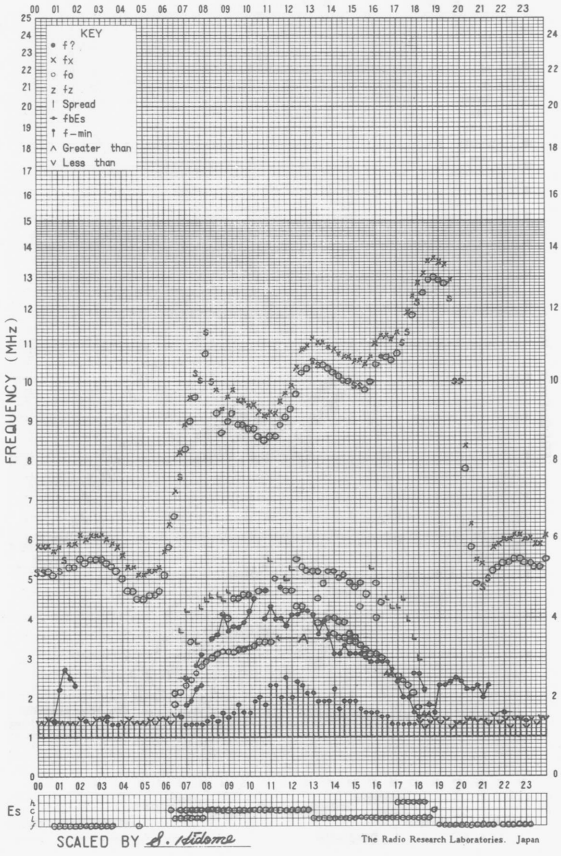

SCALED BY S. Shidome

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 10. 1972

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∧ Greater than
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FREQUENCY (MHz)

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SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Sep. 10. 1972

KEY
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FREQUENCY (MHz)

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SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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FREQUENCY (MHz)

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SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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FREQUENCY (MHz)

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SCALED BY S. Ichidama

The Radio Research Laboratories. Japan

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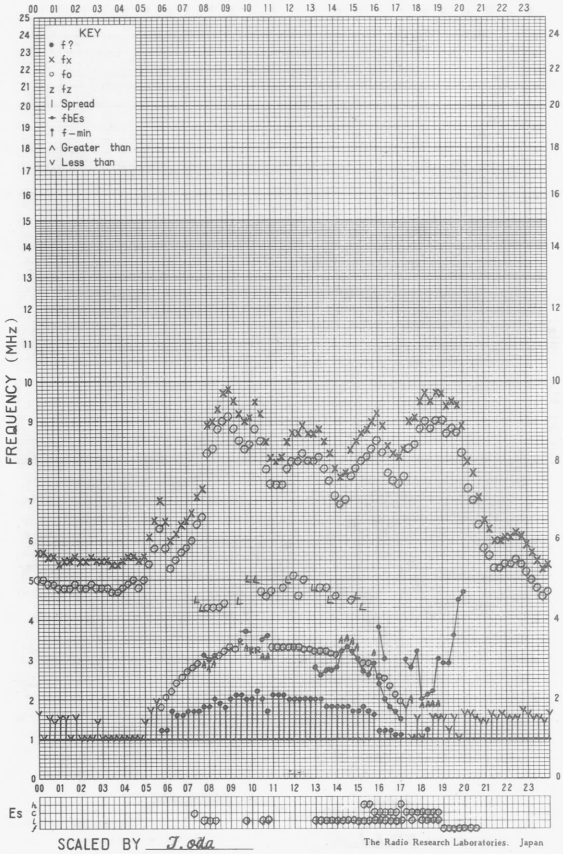

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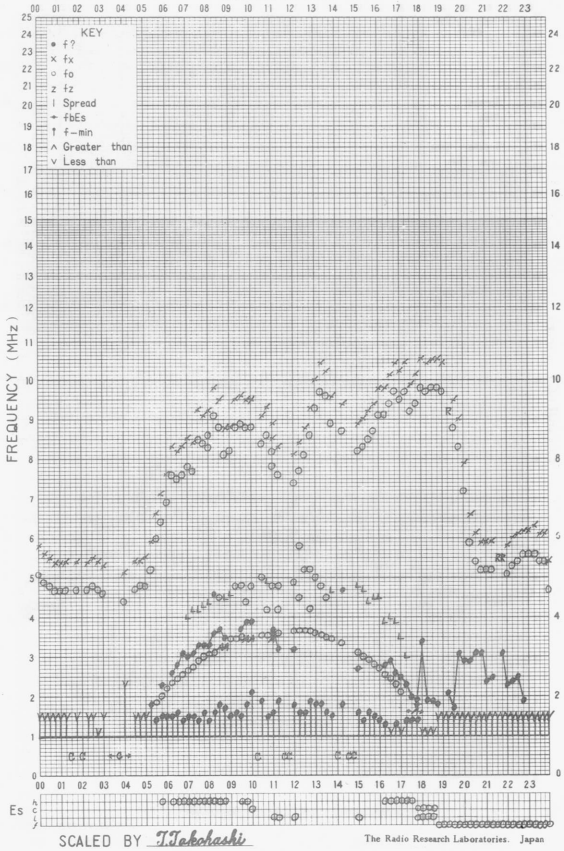

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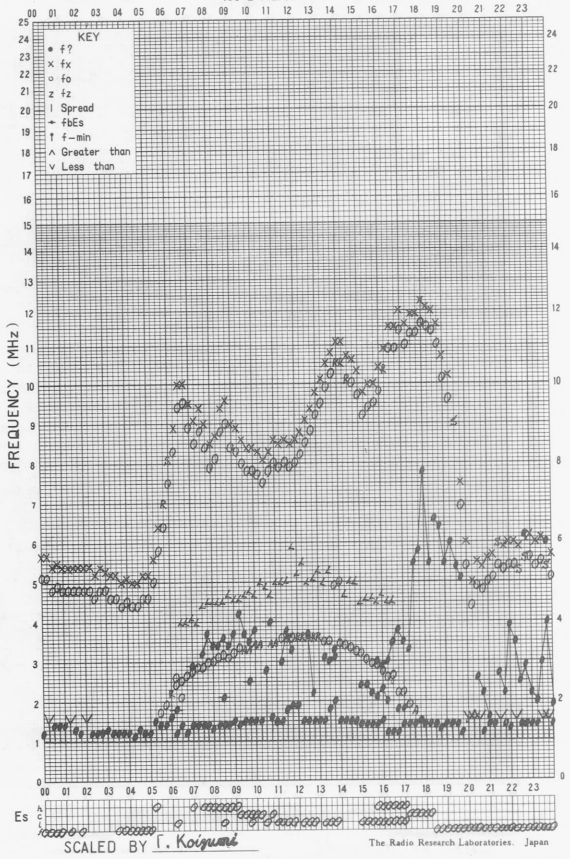

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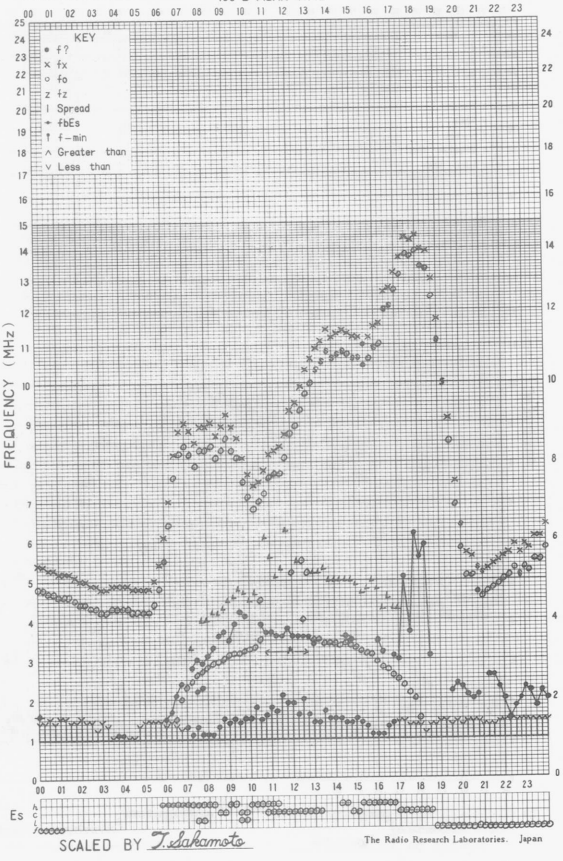

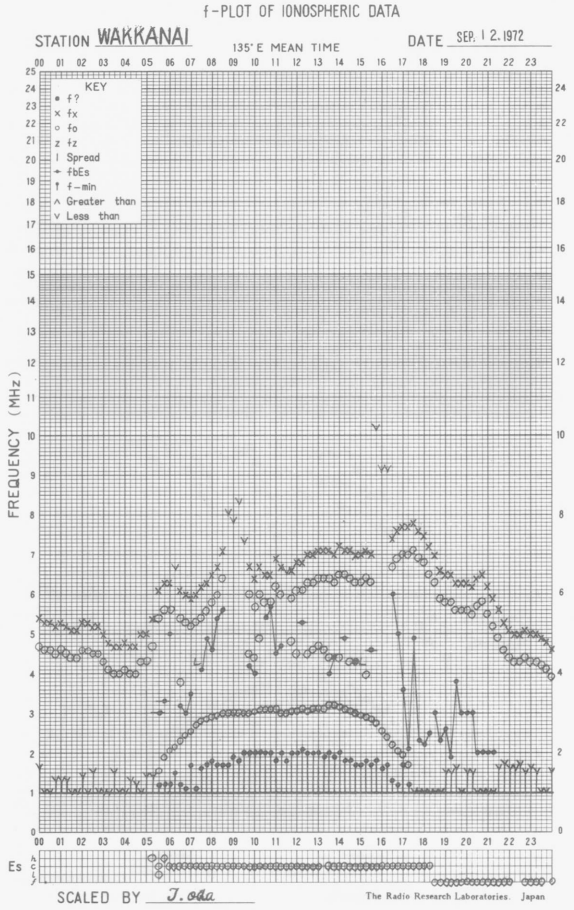
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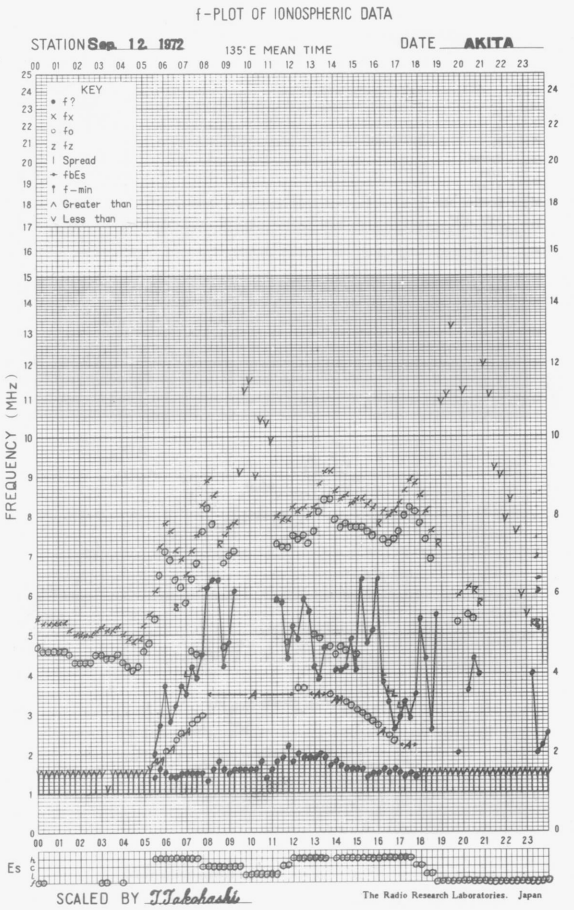
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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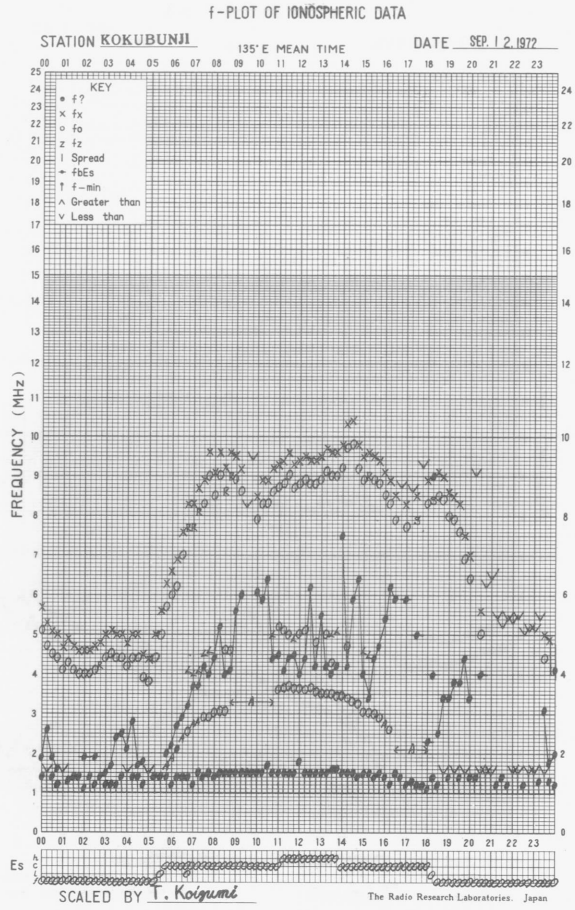
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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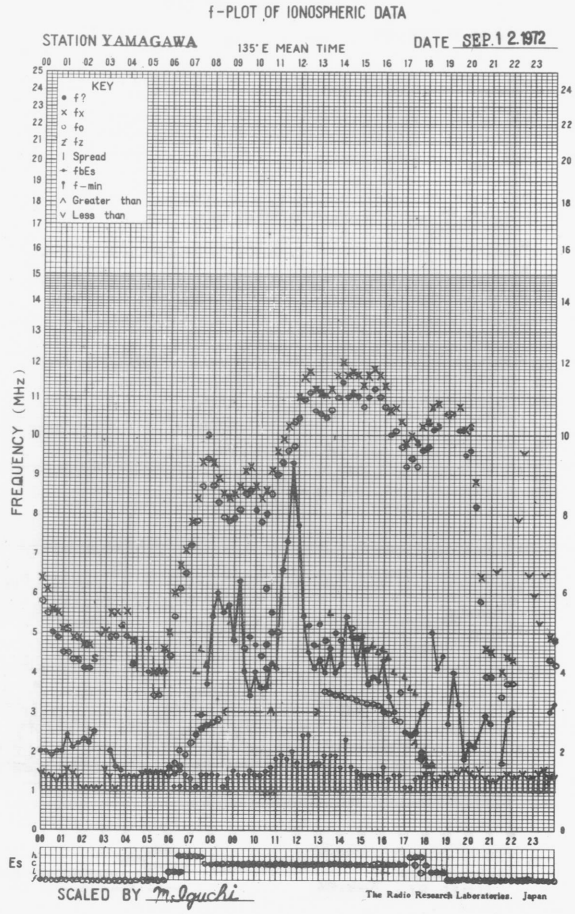
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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∧ Greater than
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FREQUENCY (MHz)
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SCALED BY M. Iguchi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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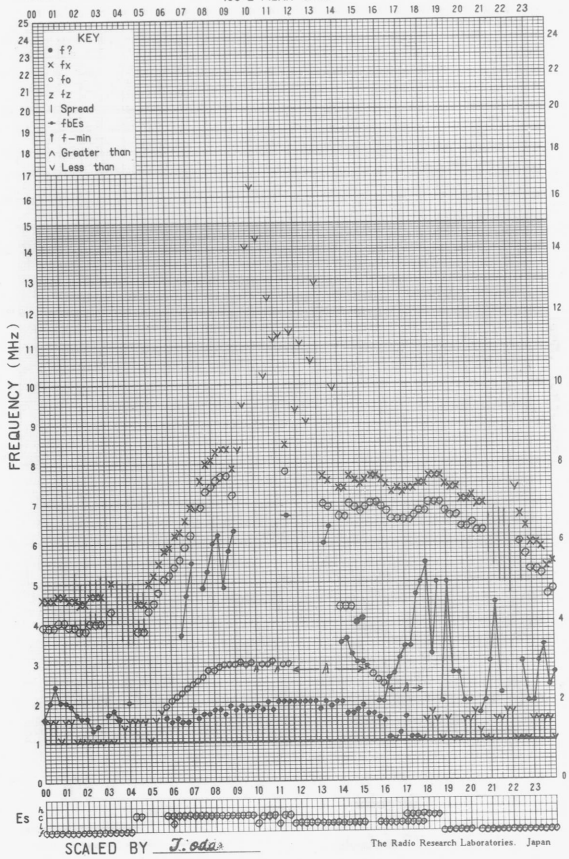

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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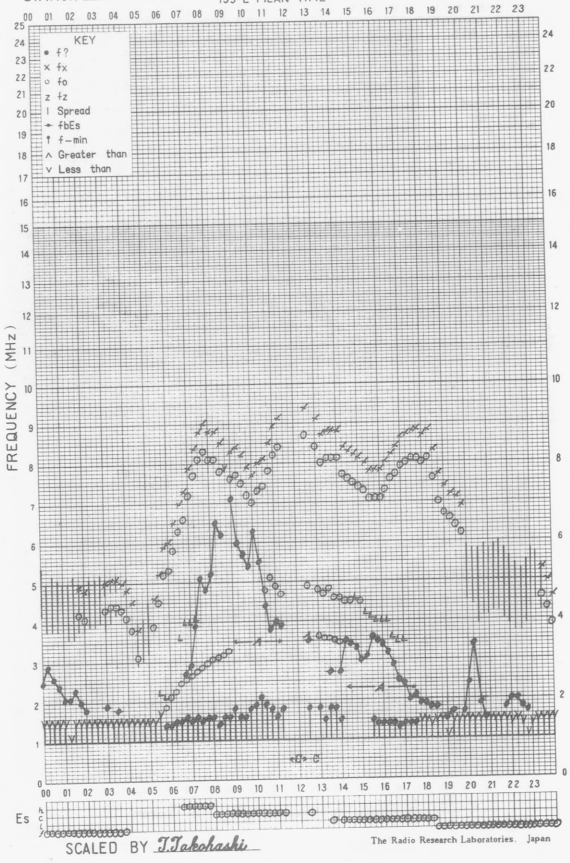

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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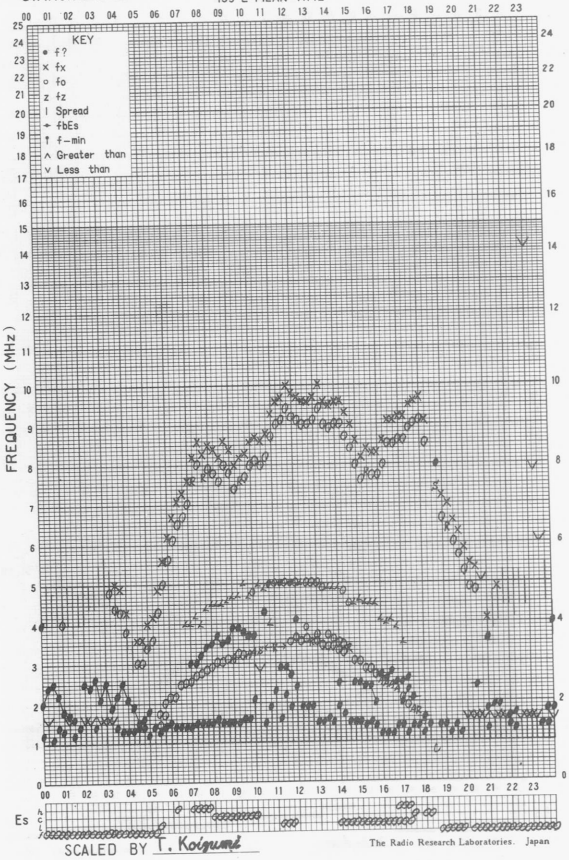

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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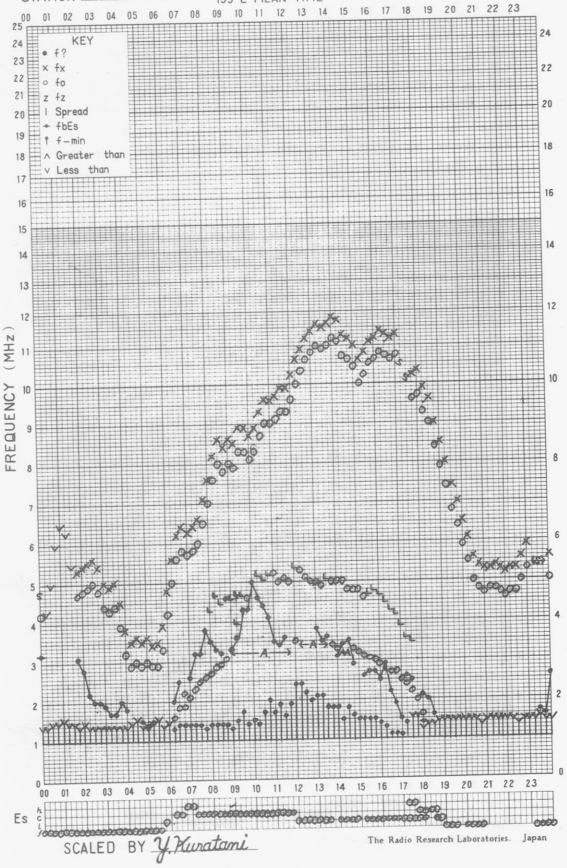

SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

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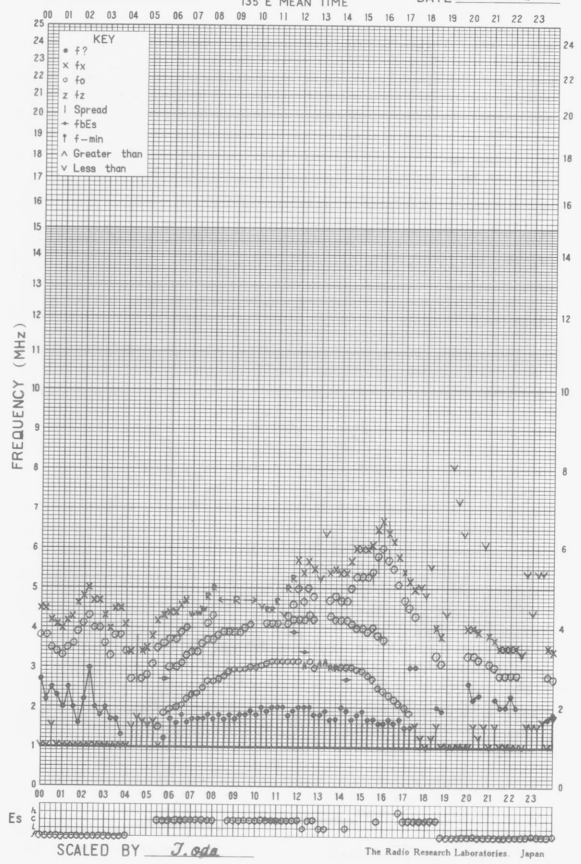

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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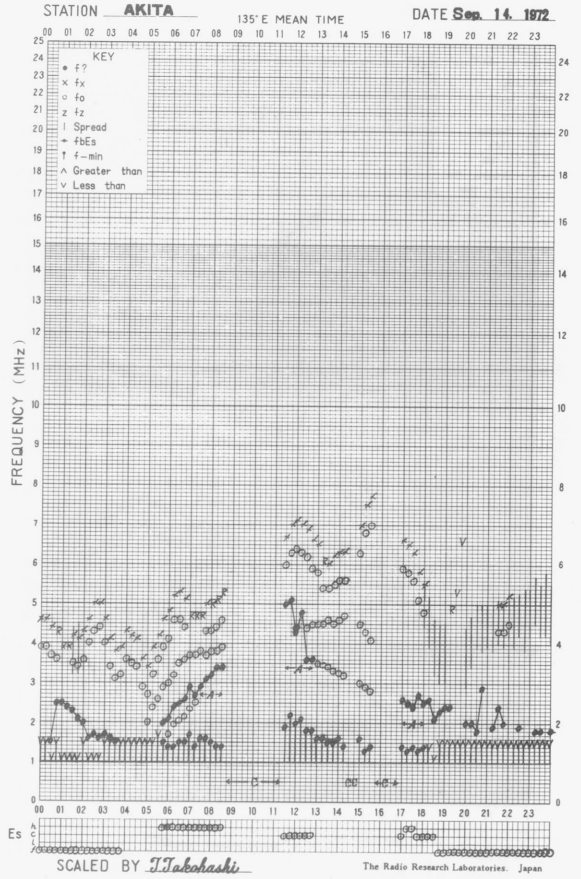
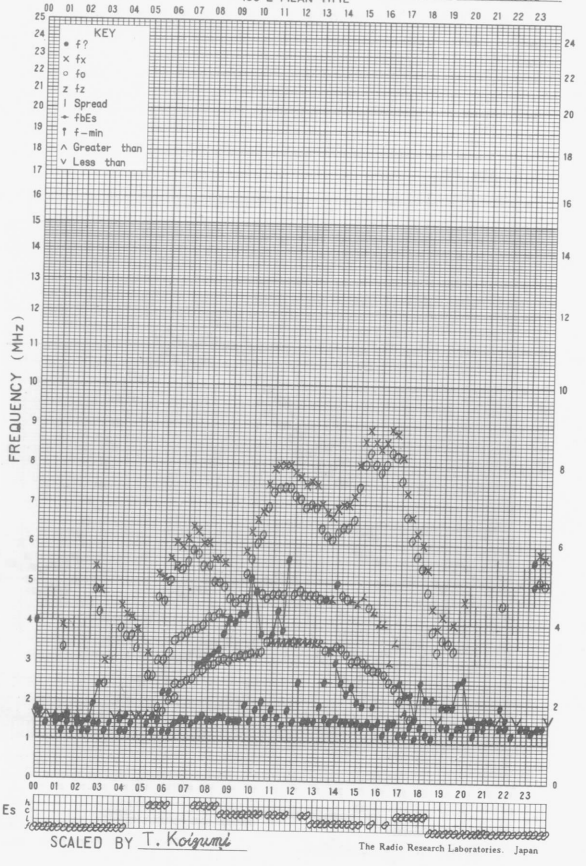


SCALED BY T.Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 14. 1972



SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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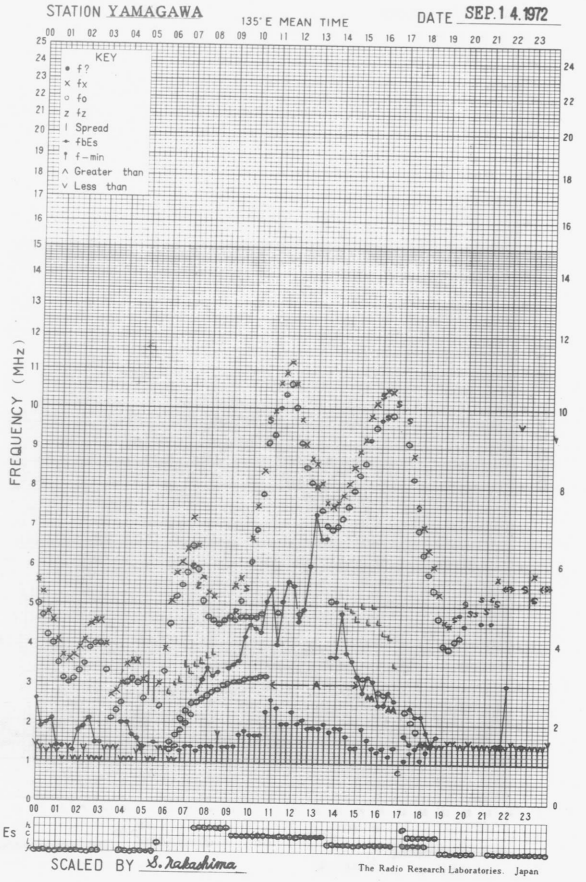

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The Radio Research Laboratories. Japan

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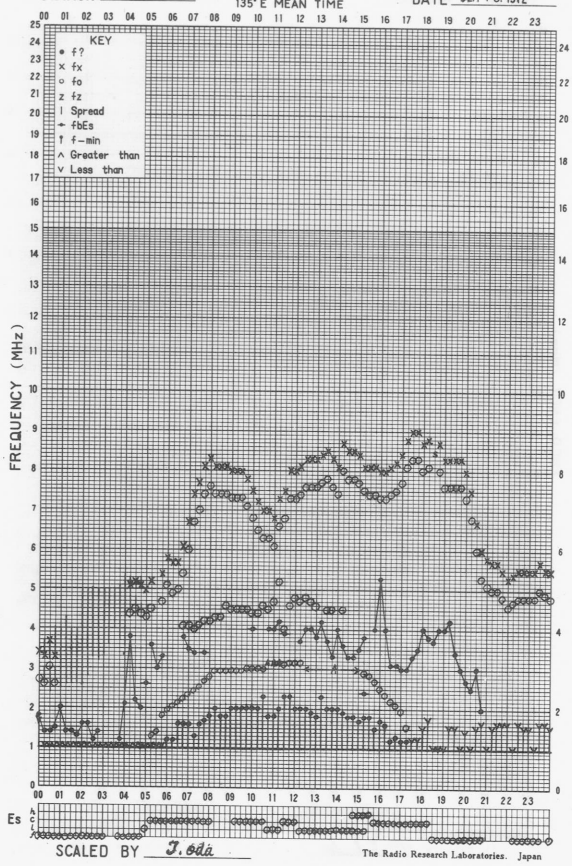

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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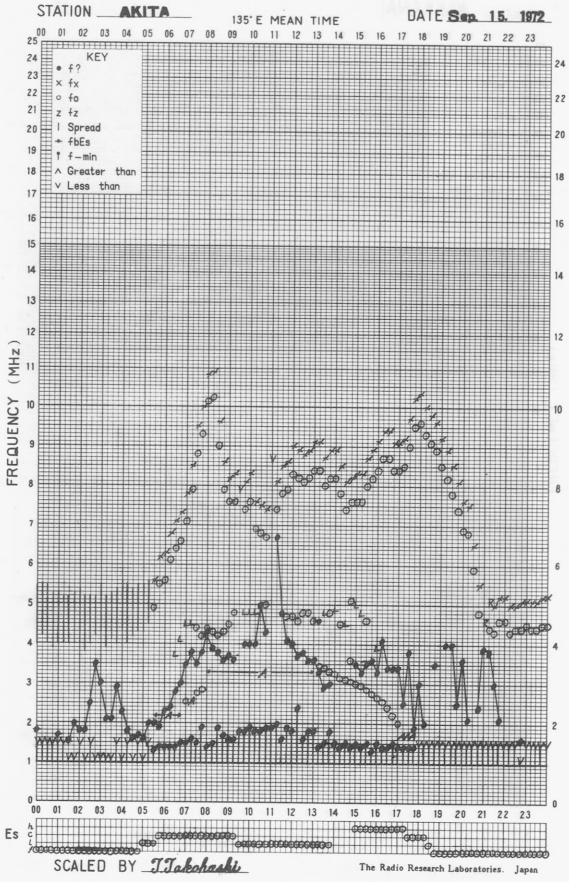

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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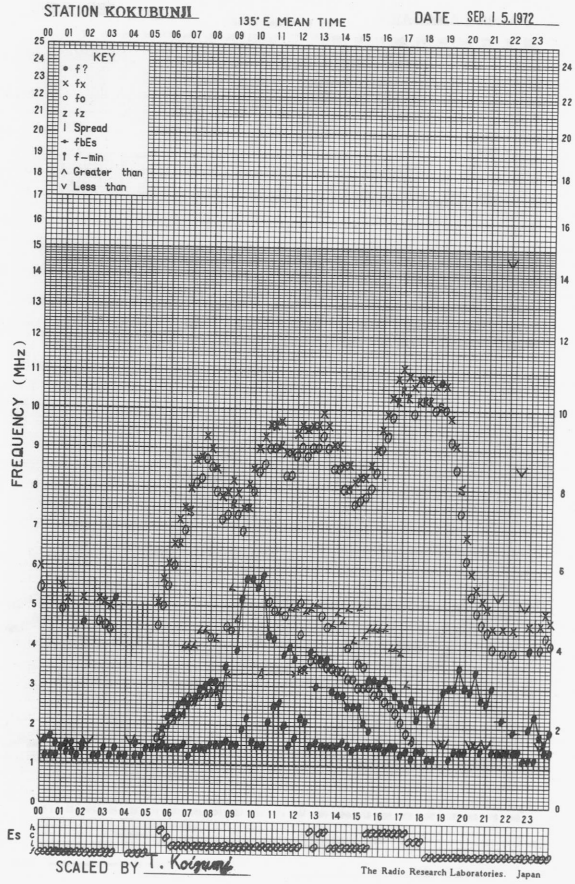

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The Radio Research Laboratories. Japan

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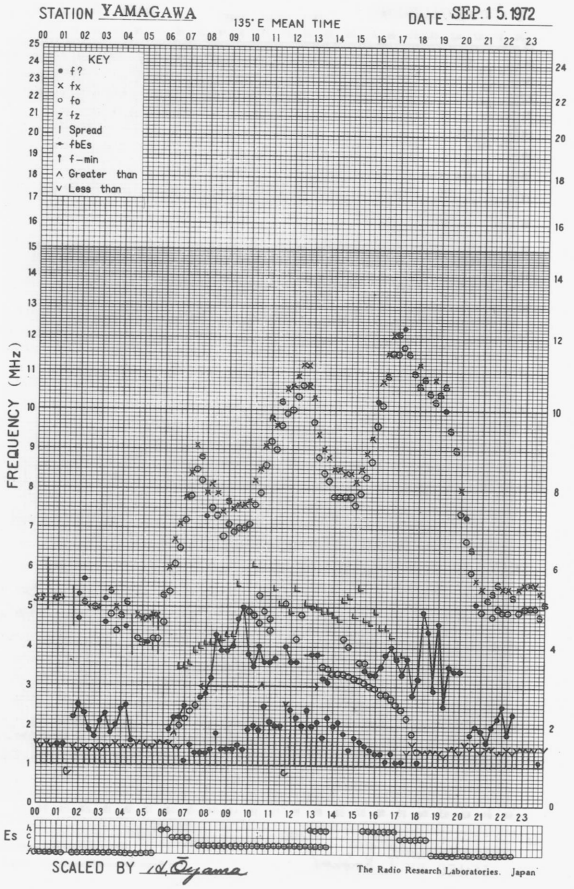
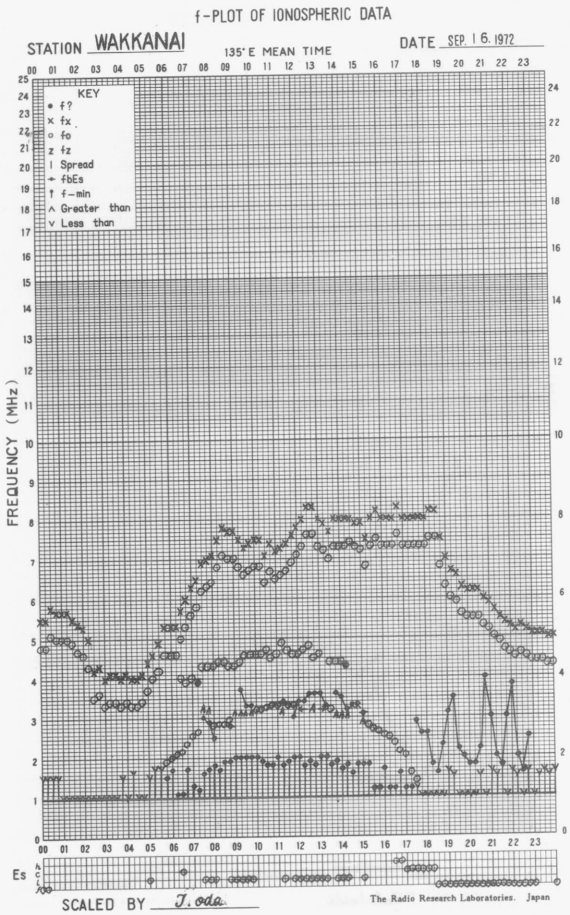


SCALED BY A. Fujama

The Radio Research Laboratories. Japan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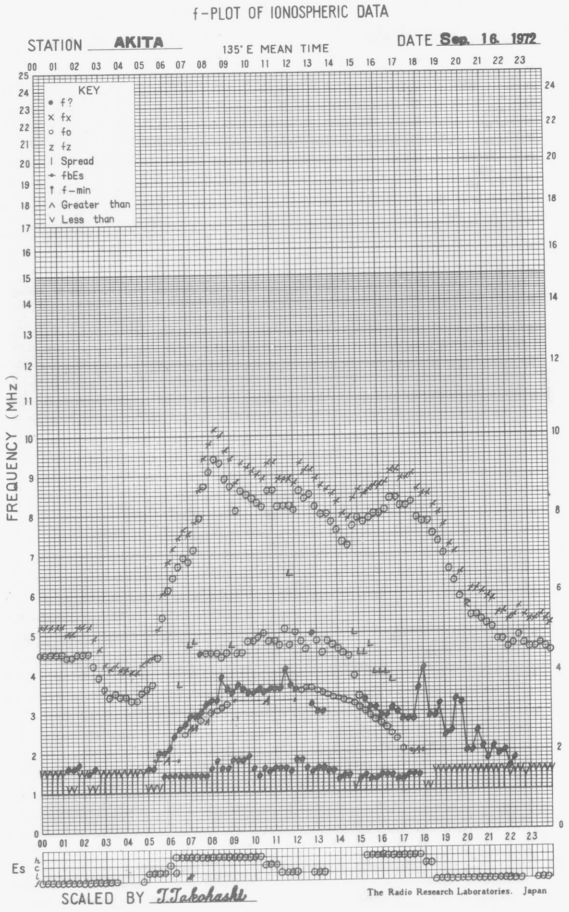
SCALED BY T. Oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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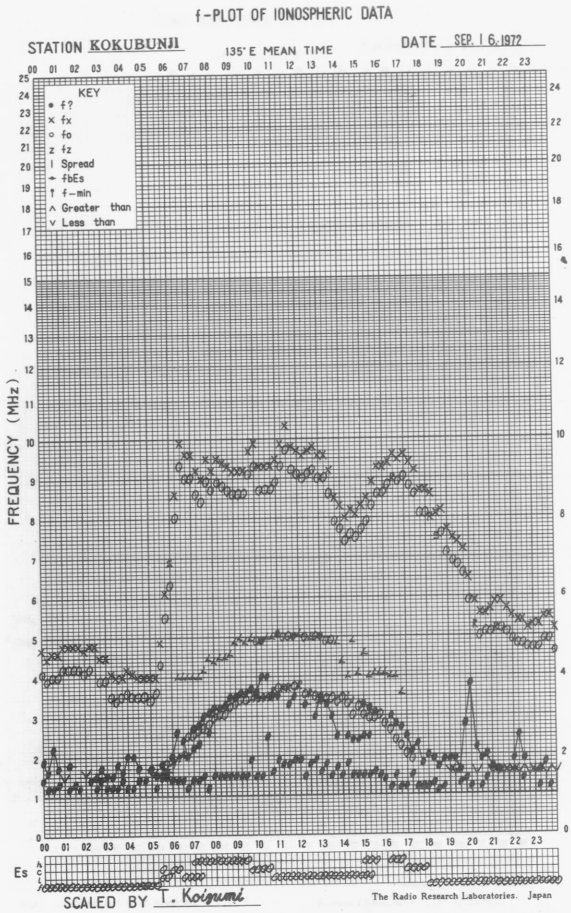
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan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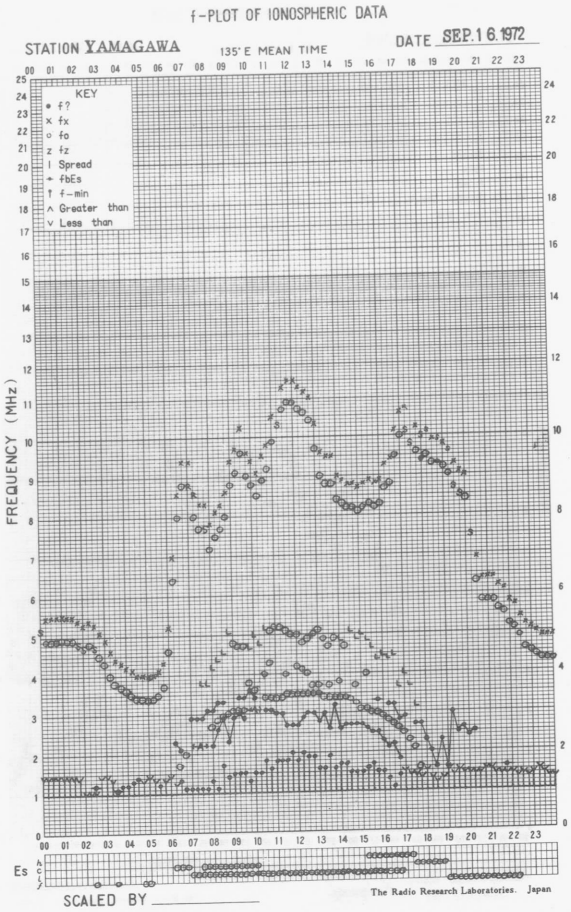
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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SCALED BY
The Radio Research Laboratories. Japan

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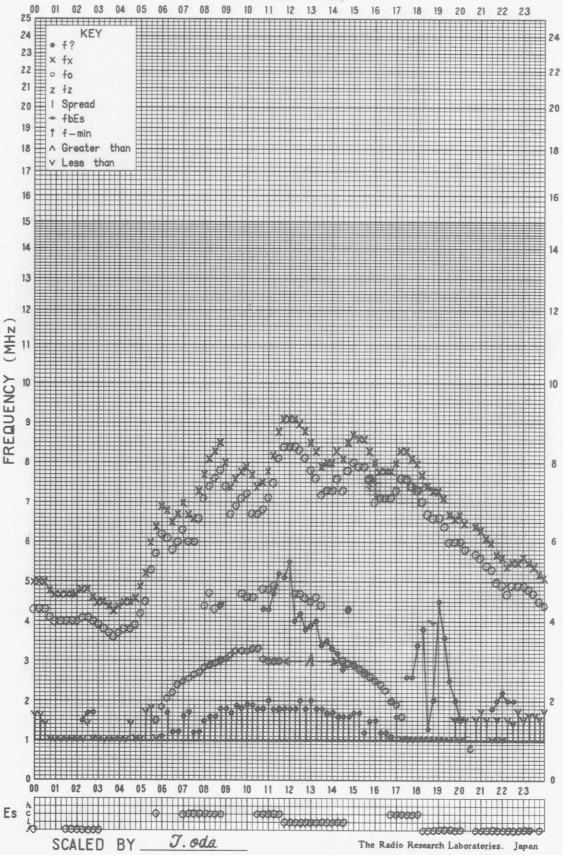

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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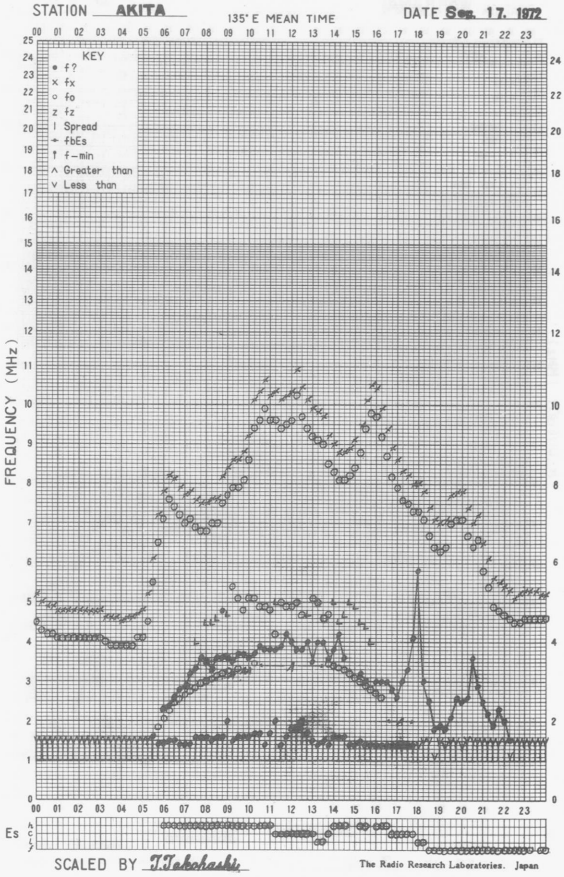

SCALED BY T. Takahashi

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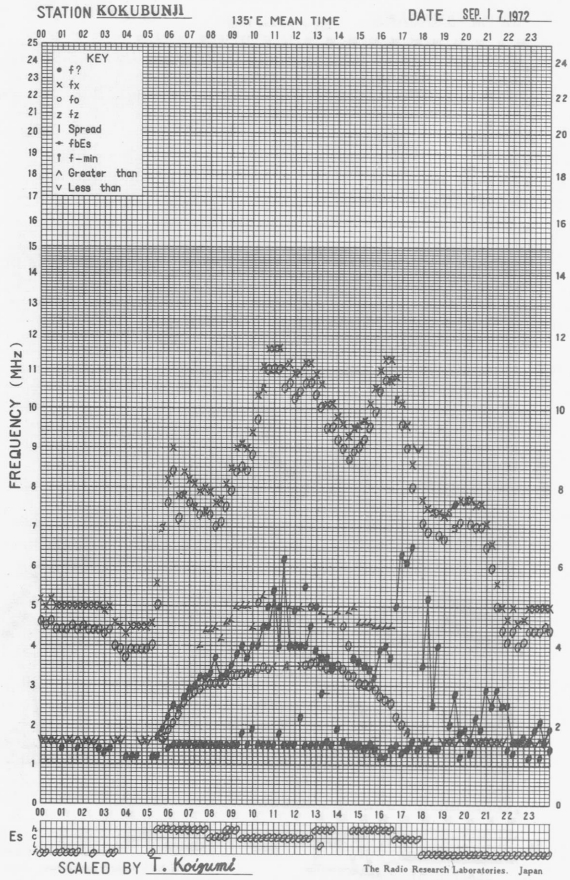

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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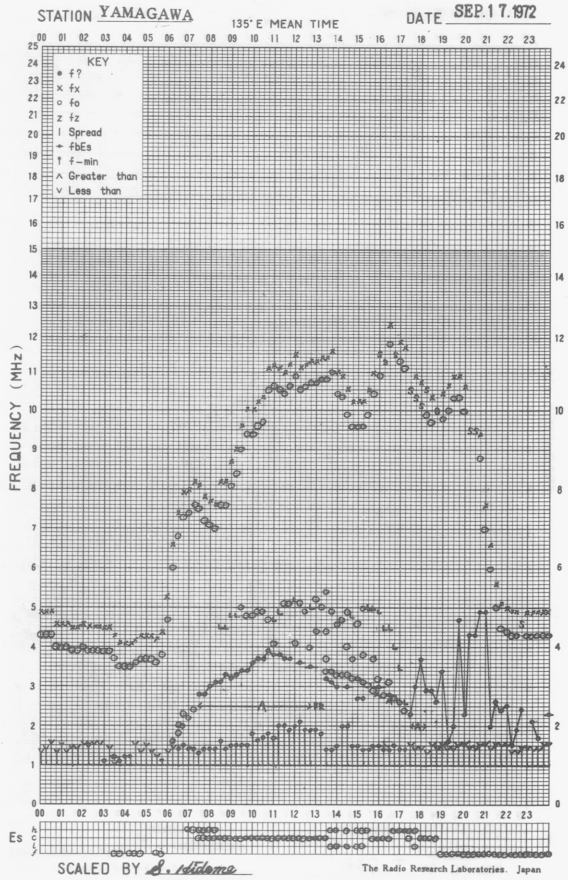

SCALED BY S. Ishidome

The Radio Research Laboratories. Japan

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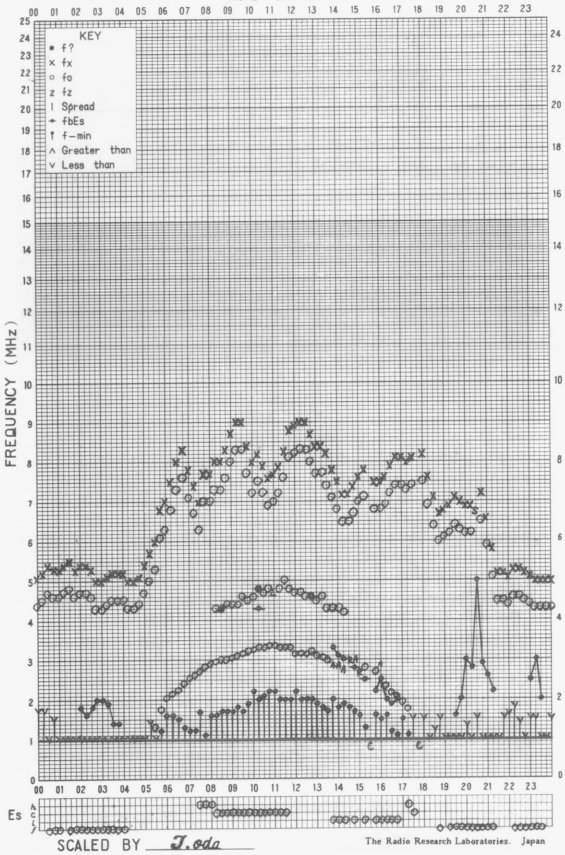

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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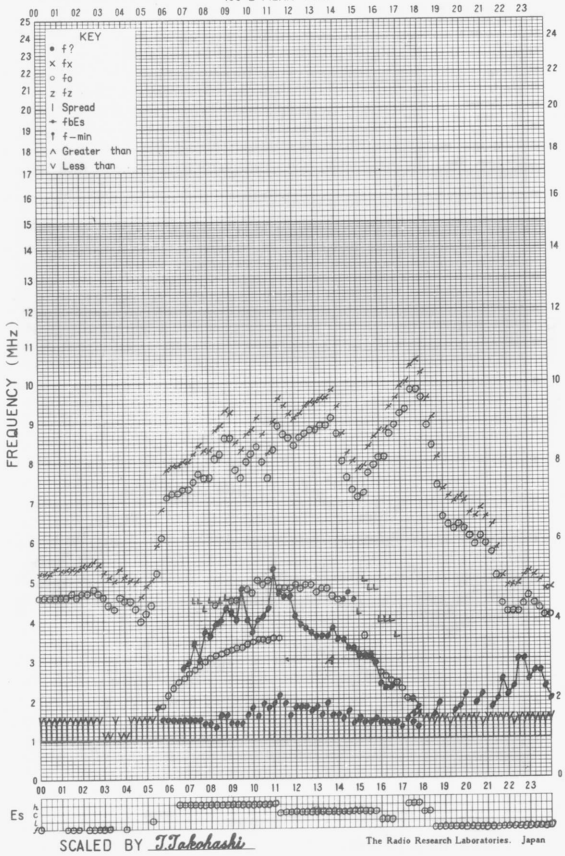

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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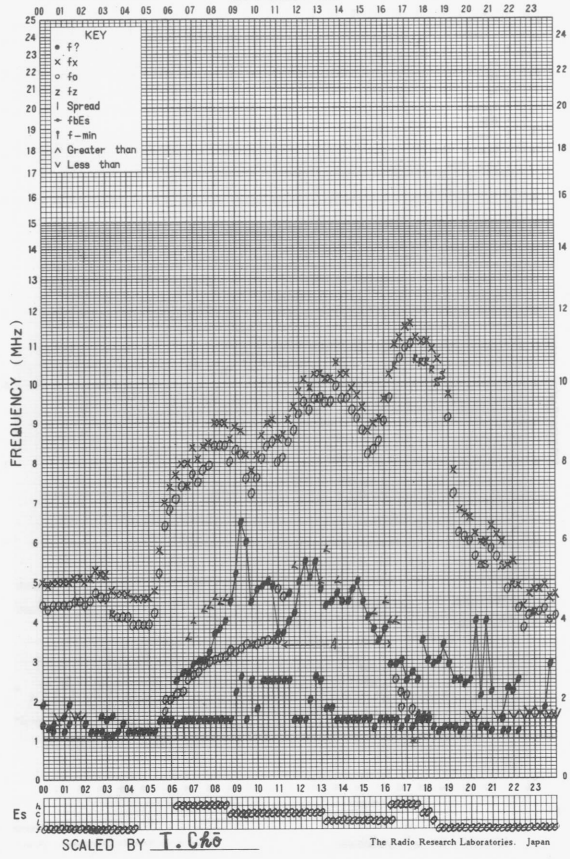

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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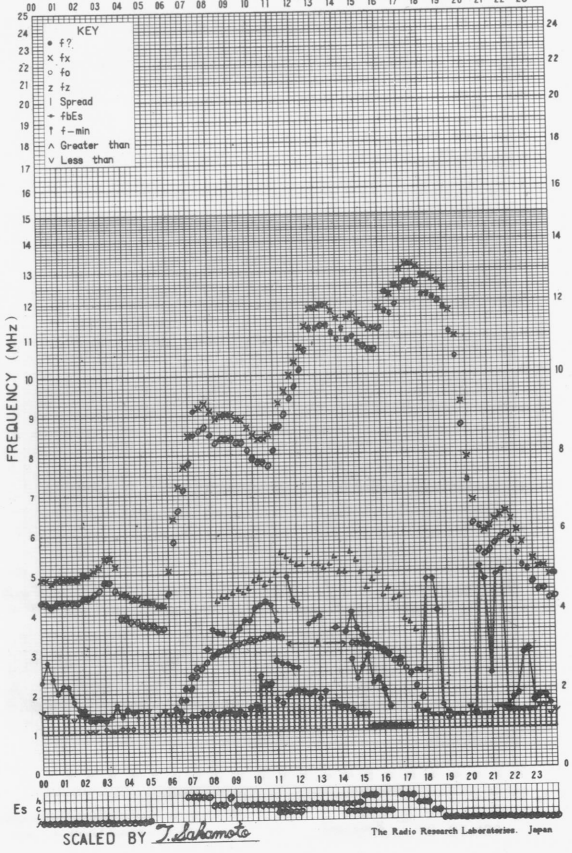

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The Radio Research Laboratories. Japan

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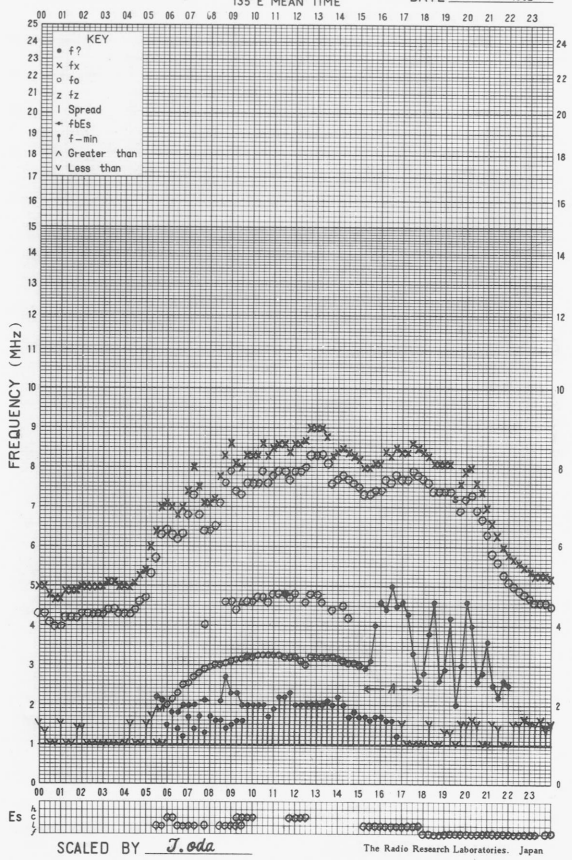

SCALED BY J. oda

The Radio Research Laboratories. Japan

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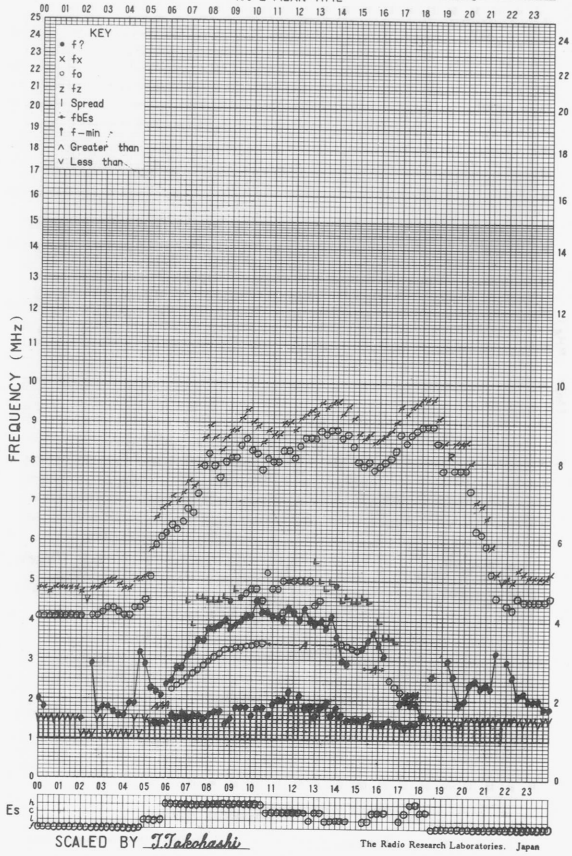

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The Radio Research Laboratories. Japan

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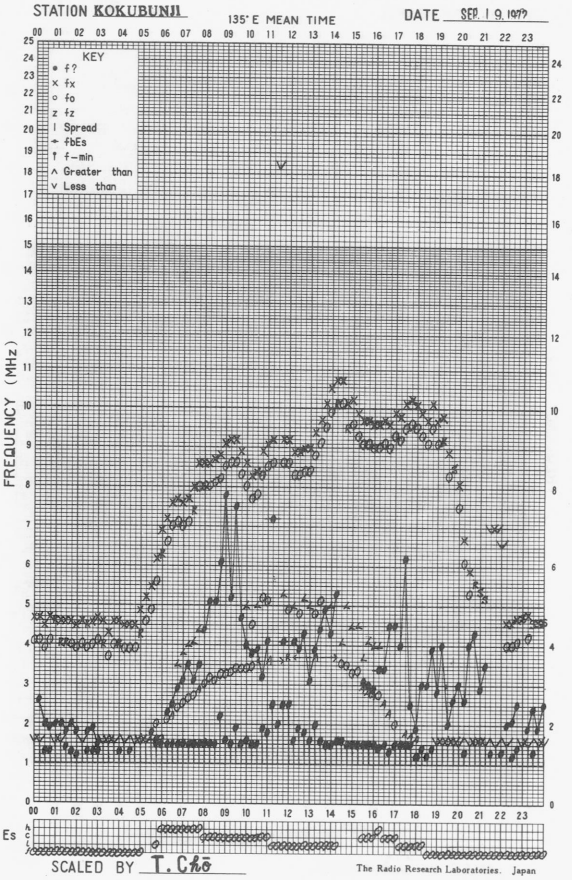

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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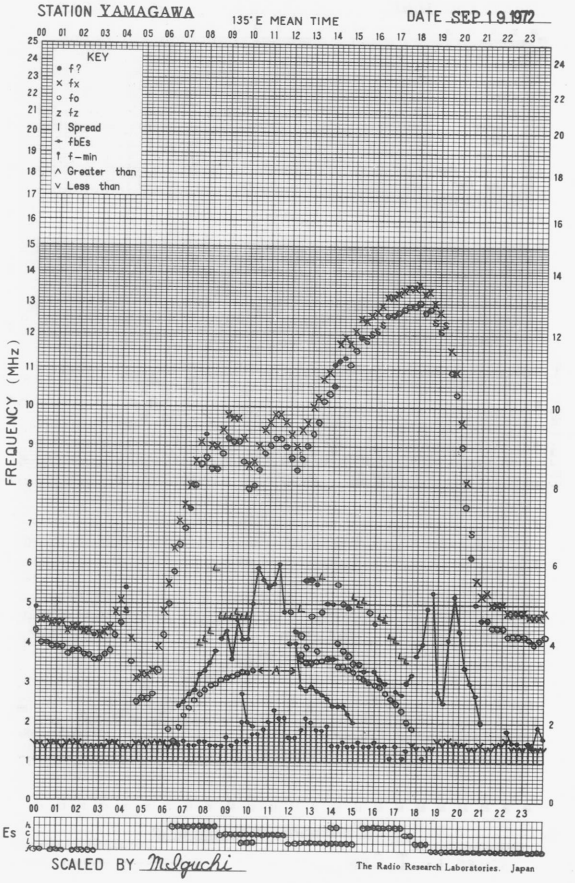

SCALED BY M. Iguchi

The Radio Research Laboratories. Japan

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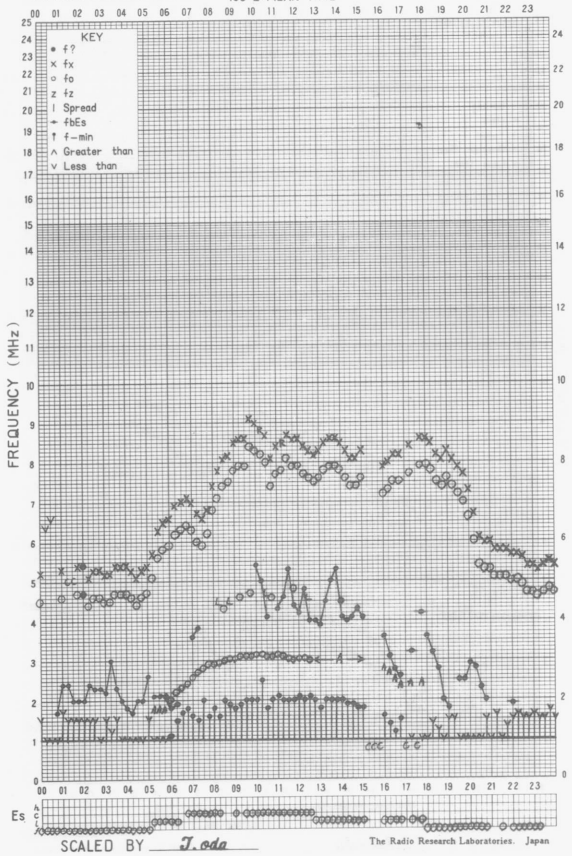

SCALED BY T. oda

The Radio Research Laboratories. Japan

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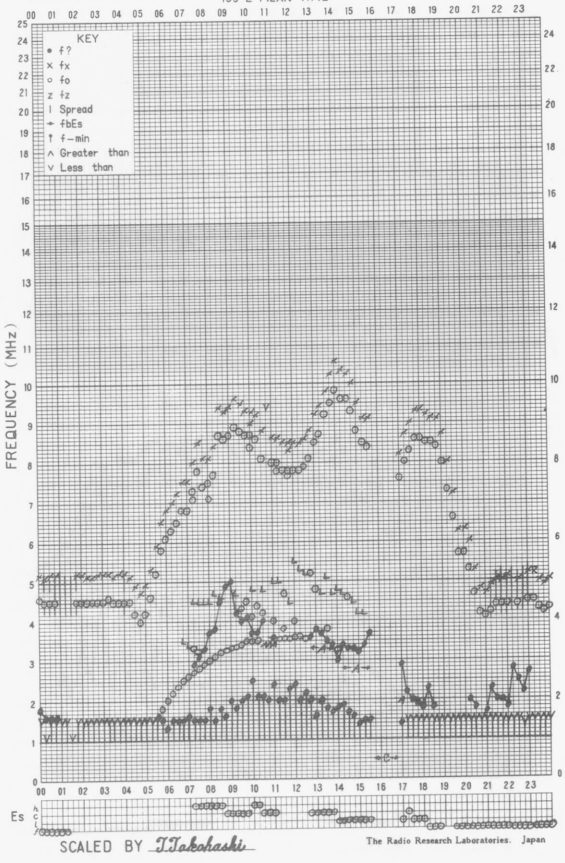

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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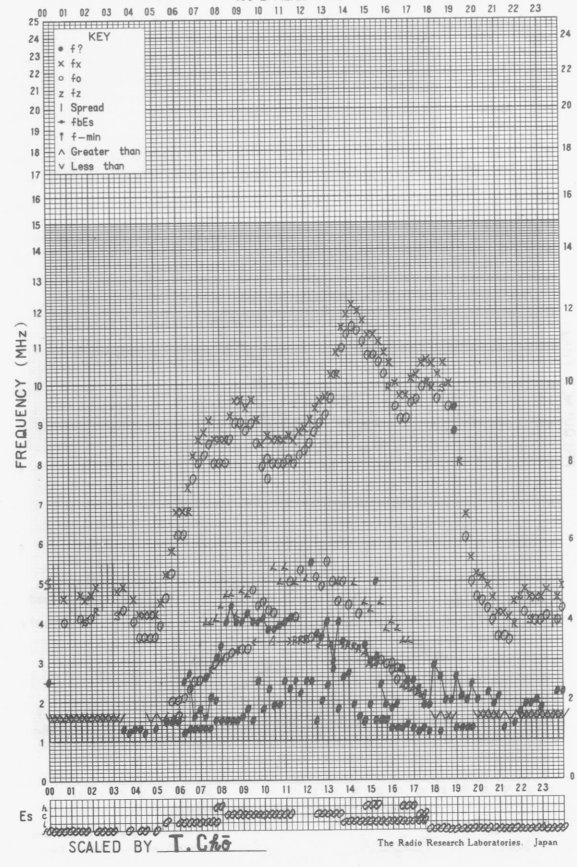

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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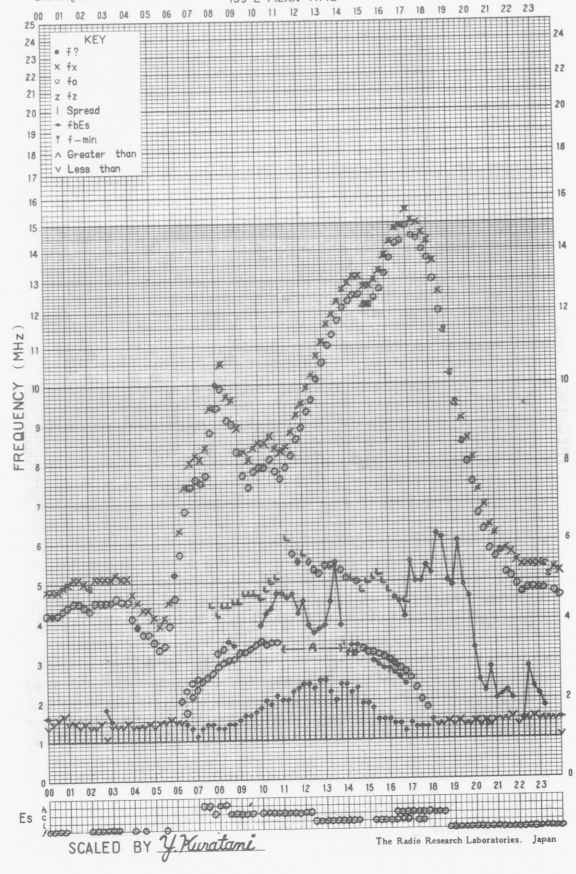
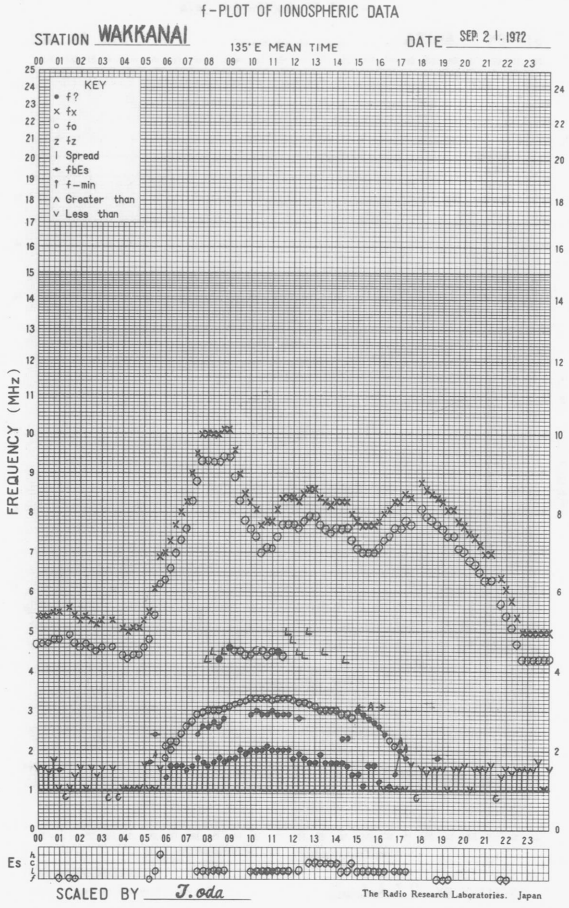


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan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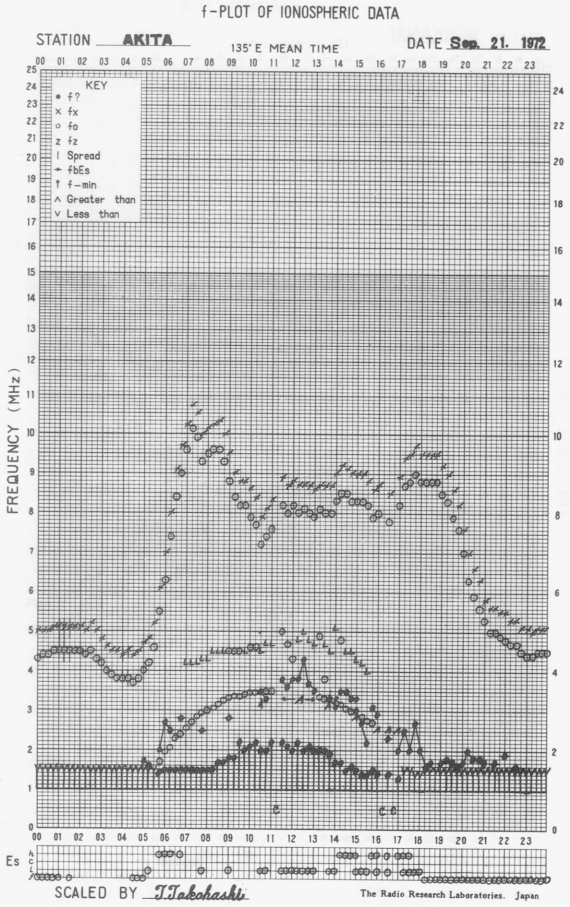
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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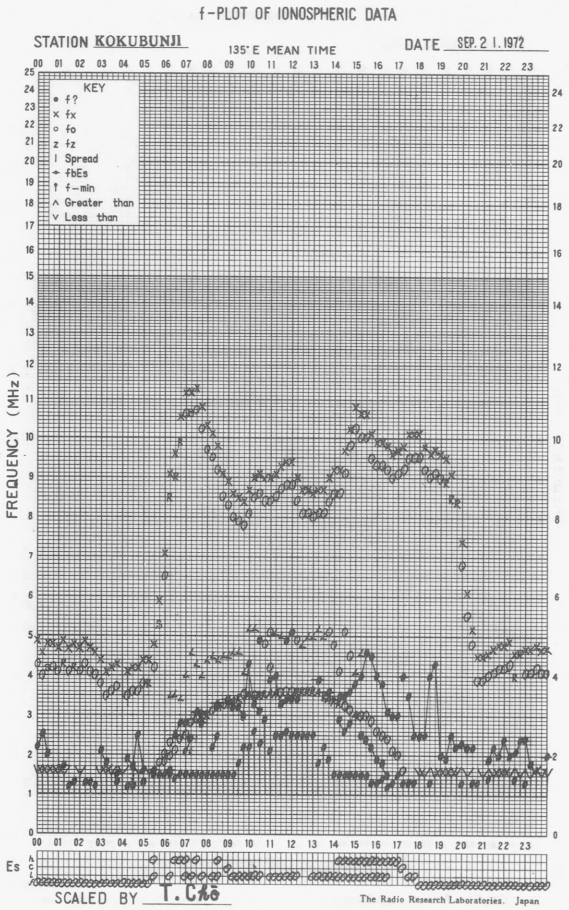
SCALED BY T Takahashi
The Radio Research Laboratories. Japan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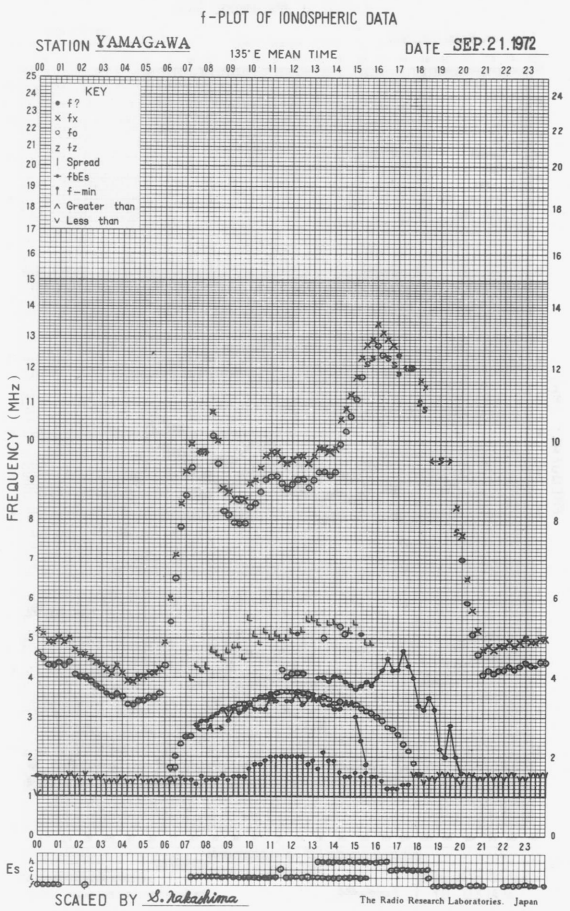
SCALED BY T. Cho
The Radio Research Laboratories. Japan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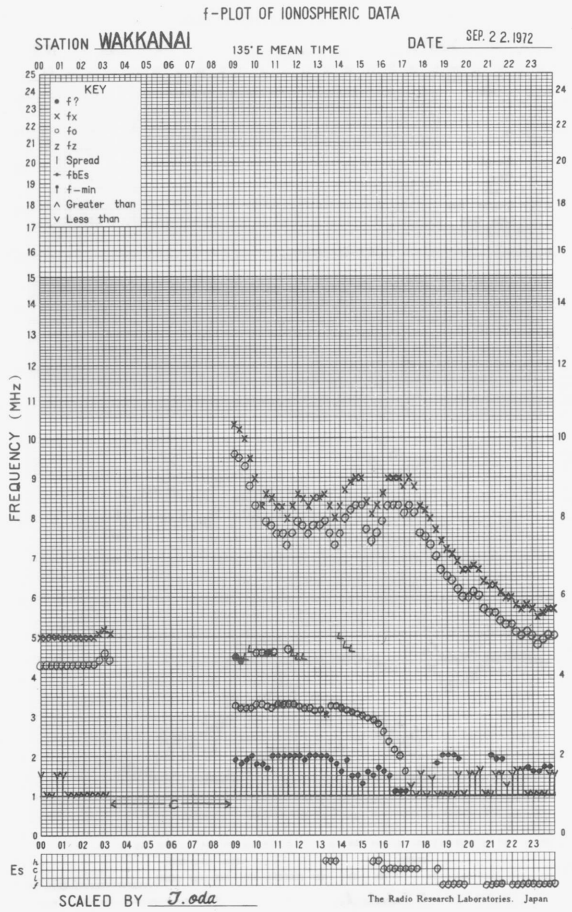
SCALED BY S. Takashima
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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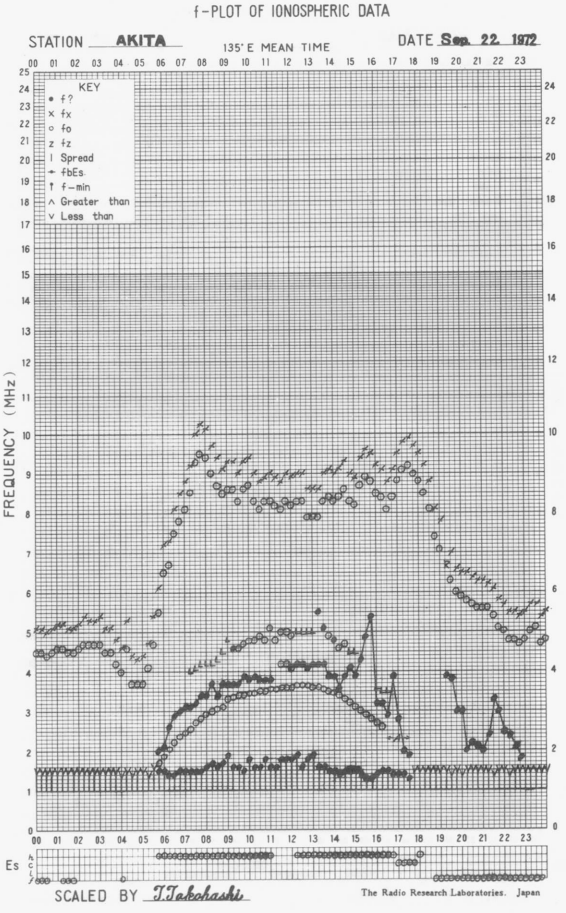
SCALED BY T. oda
The Radio Research Laboratories. Japan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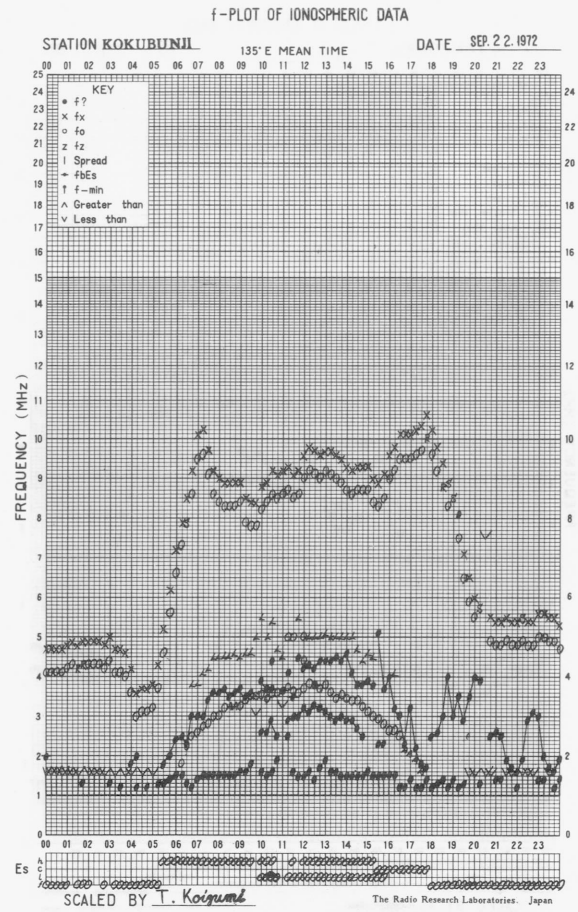
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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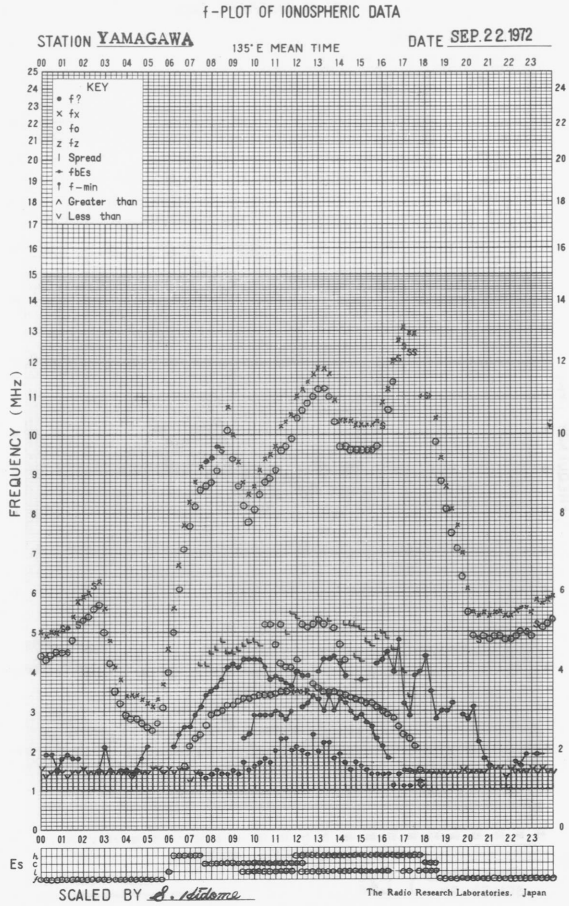
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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The Radio Research Laboratories. Japan

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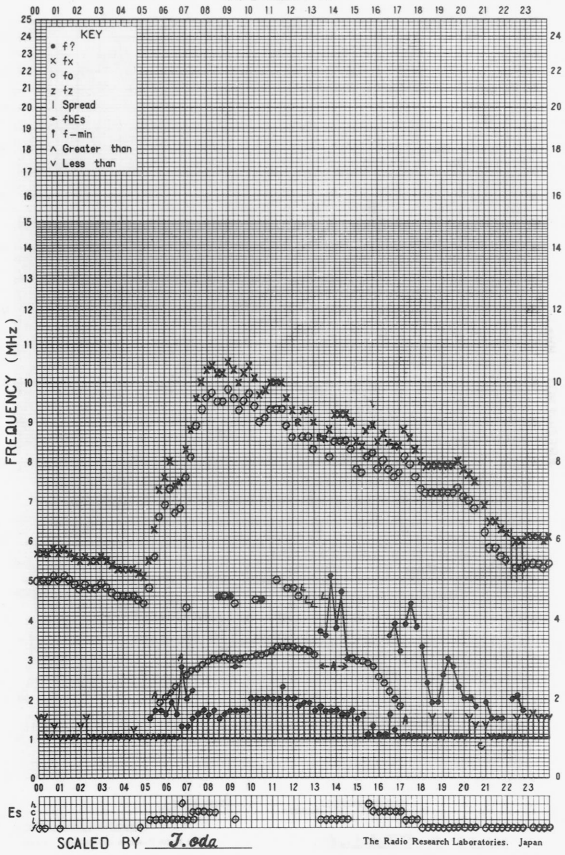

SCALED BY T. oda

The Radio Research Laboratories. Japan

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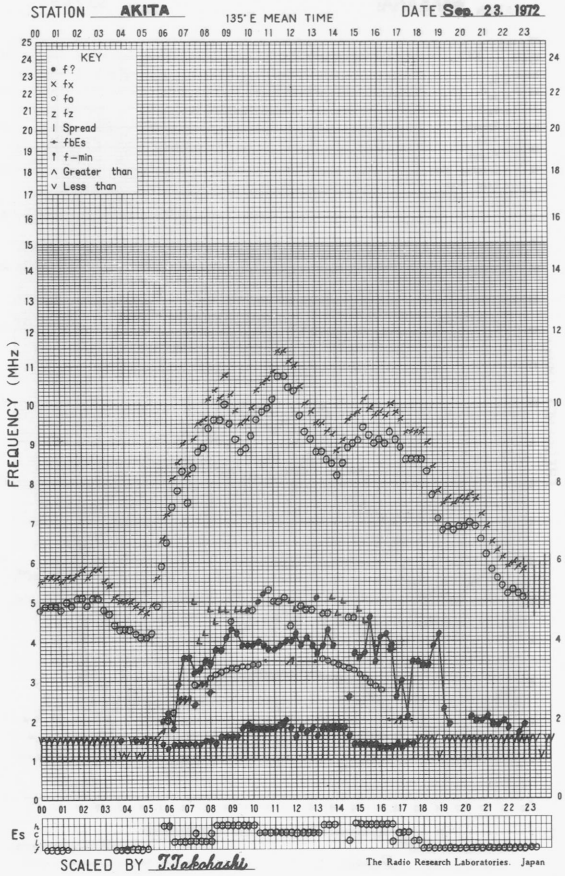

SCALED BY T.Takahashi

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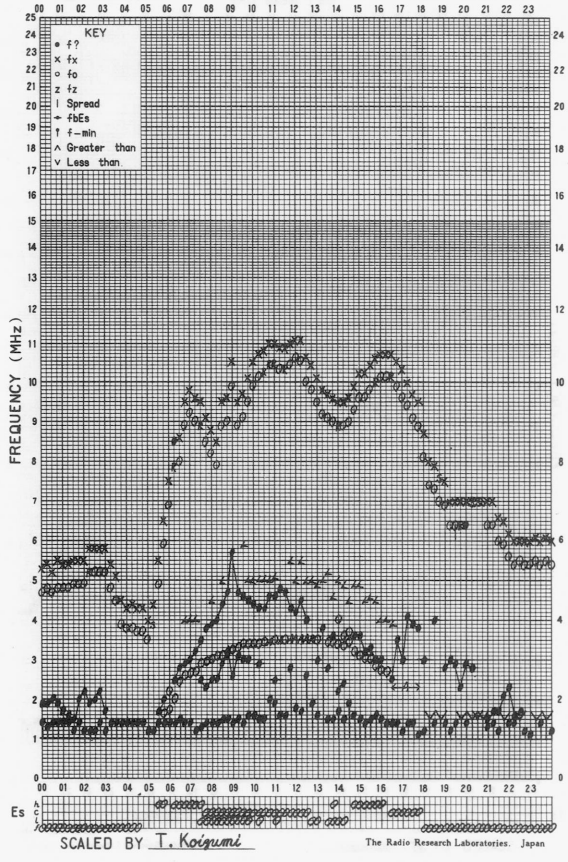

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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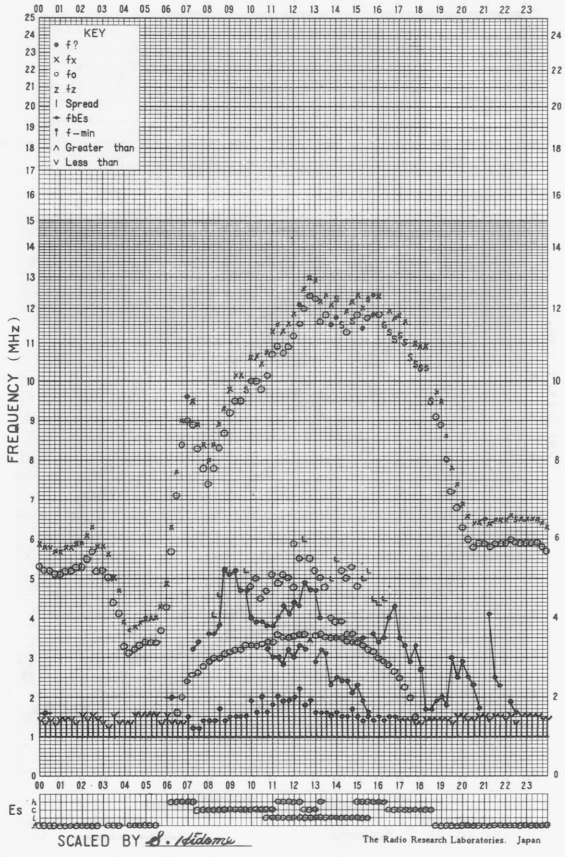

SCALED BY A. Ishida

The Radio Research Laboratories. Japan

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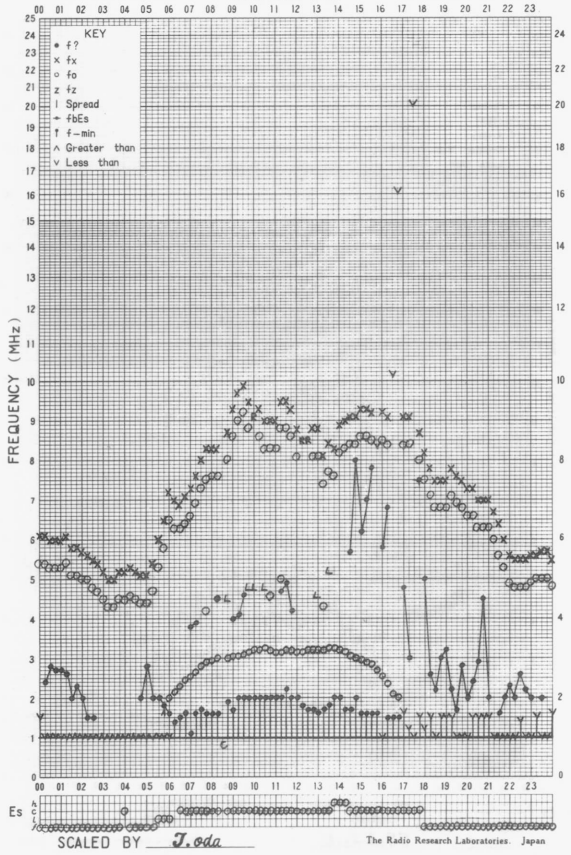
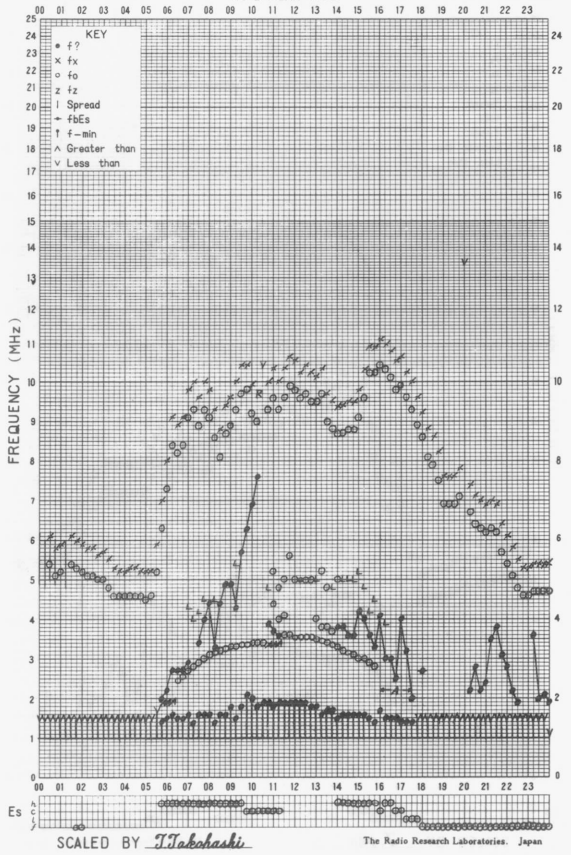


SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Sep. 24. 1972

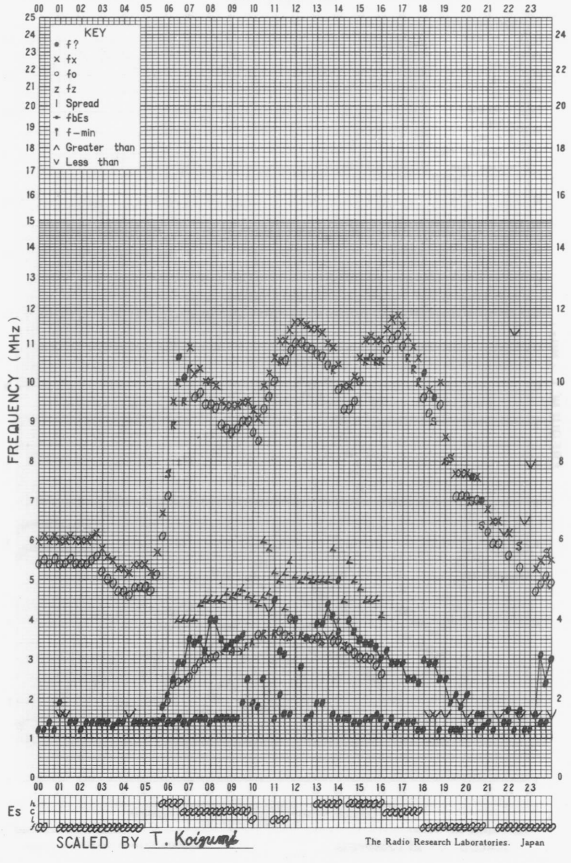


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 24. 1972

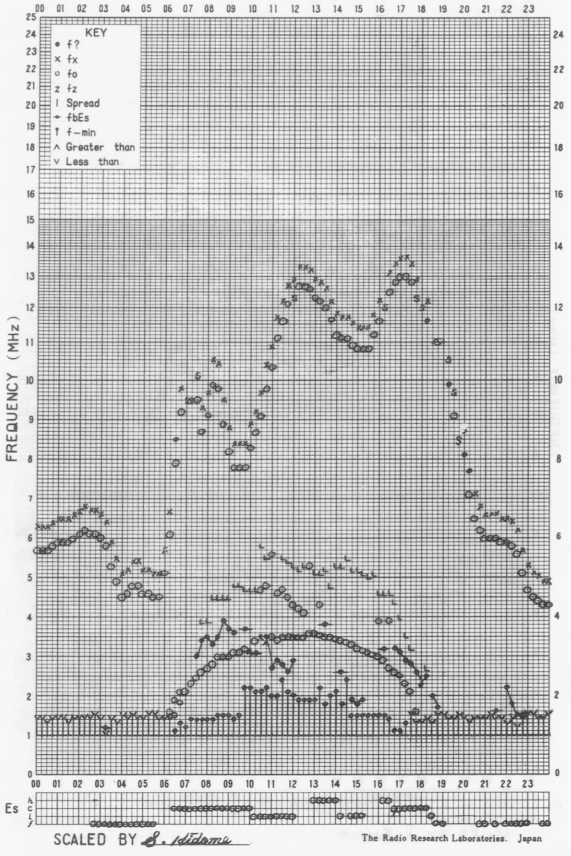


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 24. 1972



SCALED BY S. Ichidomi

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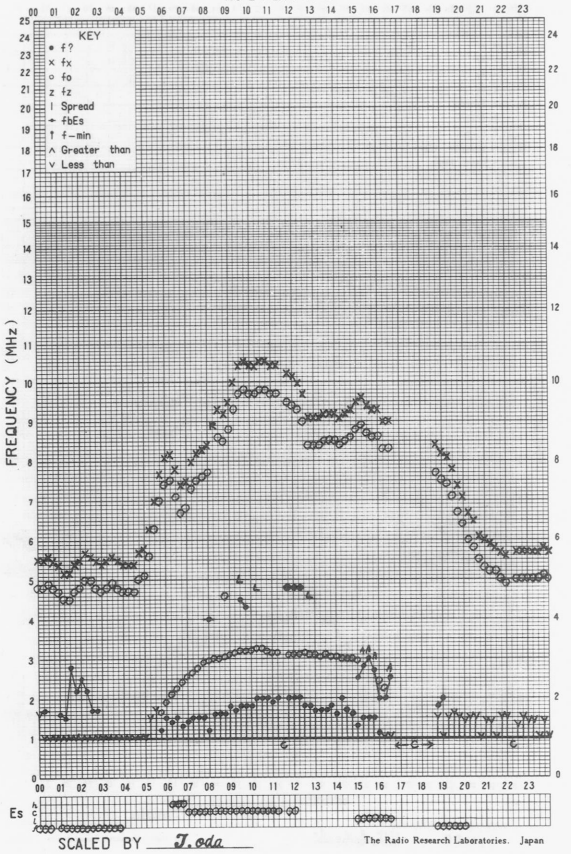
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE SEP. 25. 1972



SCALED BY T. oda

The Radio Research Laboratories. Japan

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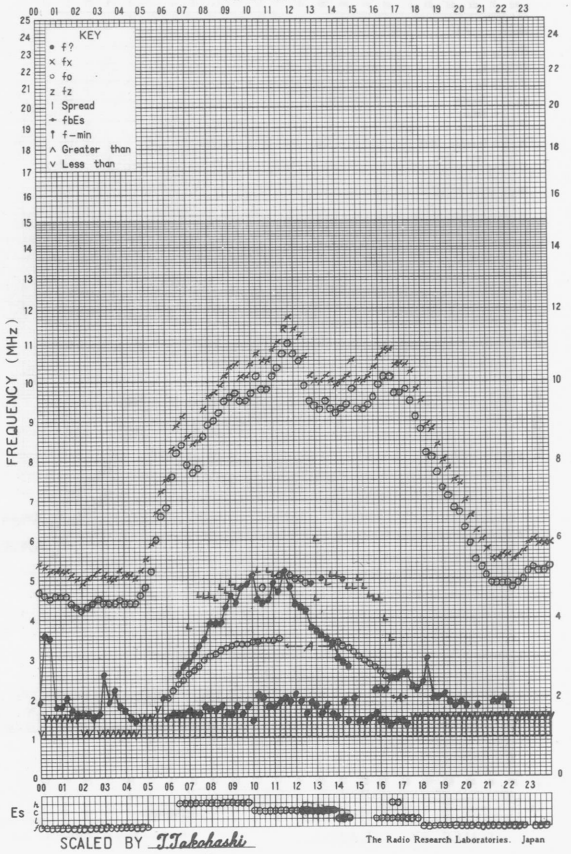
STATION AKITA 135° E MEAN TIME DATE Sep. 25. 1972



SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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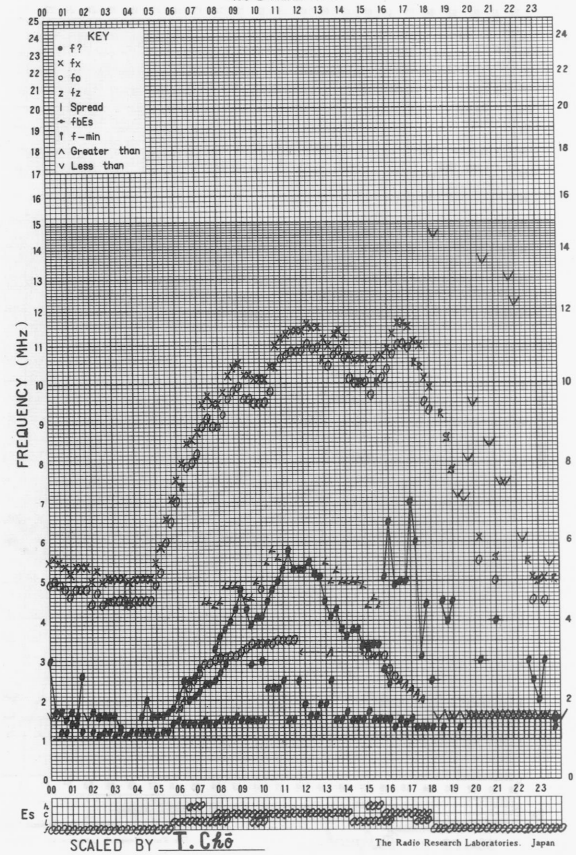
STATION KOKUBUNJI 135° E MEAN TIME DATE SEP. 25. 1972

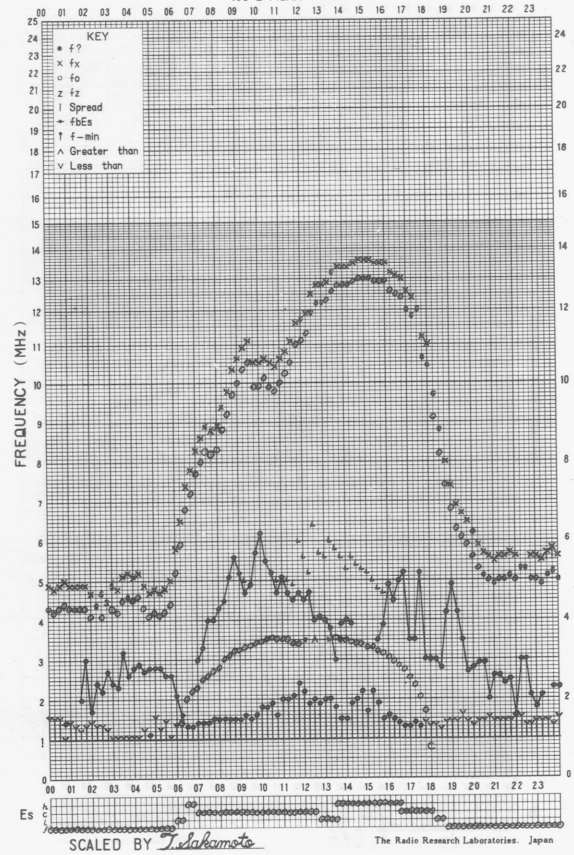


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE SEP. 25. 1972



SCALED BY T. Sakamoto

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f-PLOT OF IONOSPHERIC DATA

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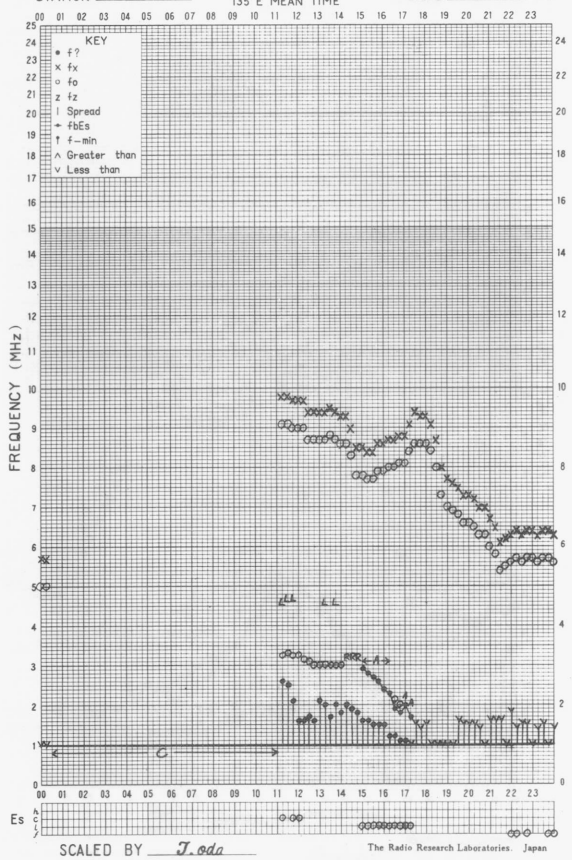

SCALED BY T. oda

The Radio Research Laboratories. Japan

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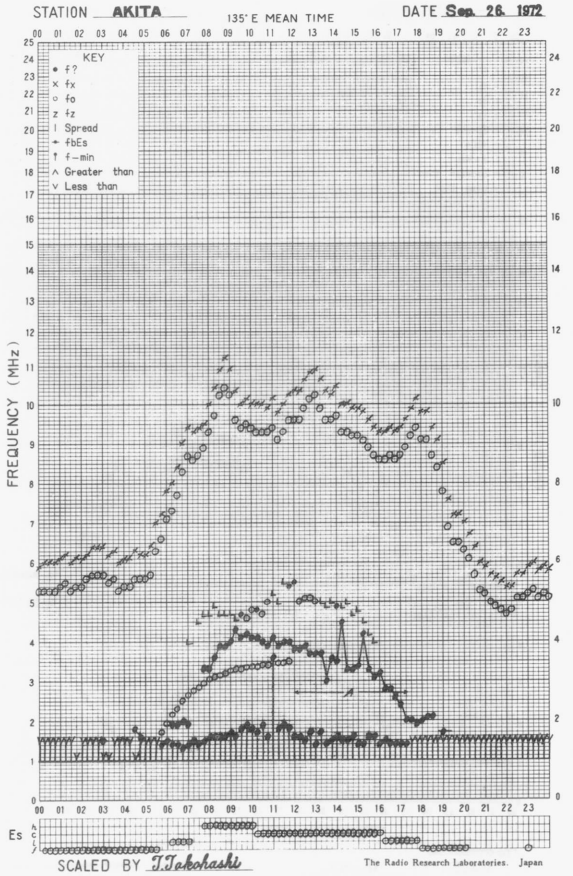

SCALED BY T. Takahashi

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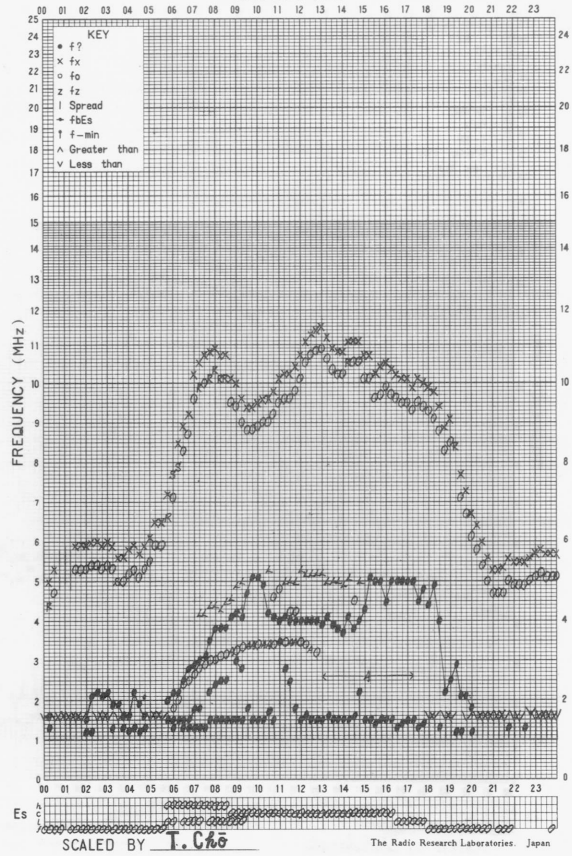
STATION KOKUBUNJI 135° E MEAN TIME DATE SEP. 26. 1972



SCALED BY T. Cho

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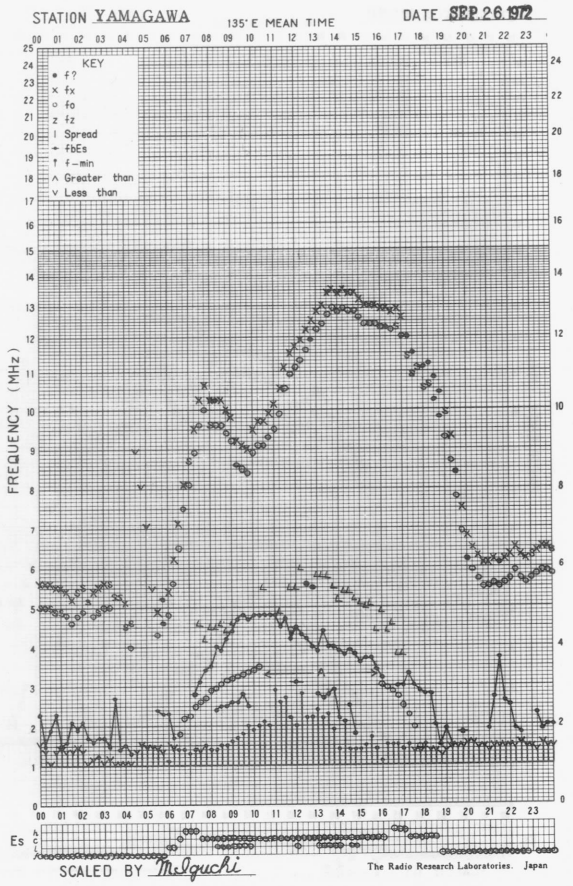
STATION YAMAGAWA 135° E MEAN TIME DATE SEP. 26. 1972



SCALED BY M. Iguchi

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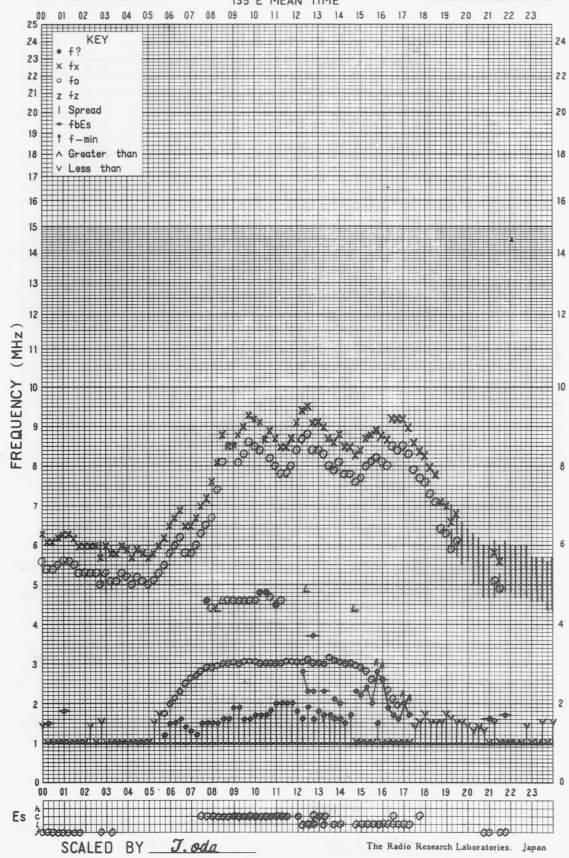
STATION WAKKANAI 135°E MEAN TIME DATE SEP. 27. 1972



SCALED BY T. Oda

The Radio Research Laboratories. Japan

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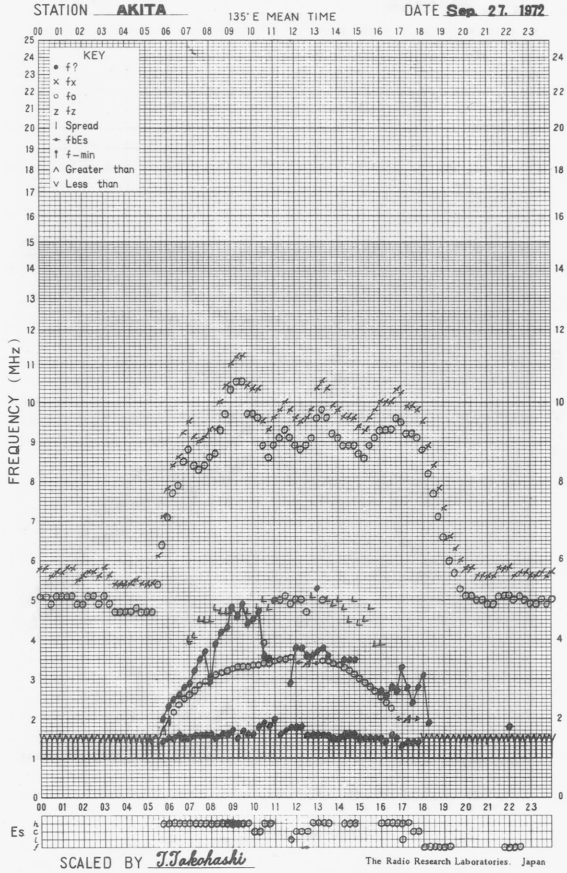
STATION AKITA 135°E MEAN TIME DATE Sep. 27. 1972



SCALED BY T. Takahashi

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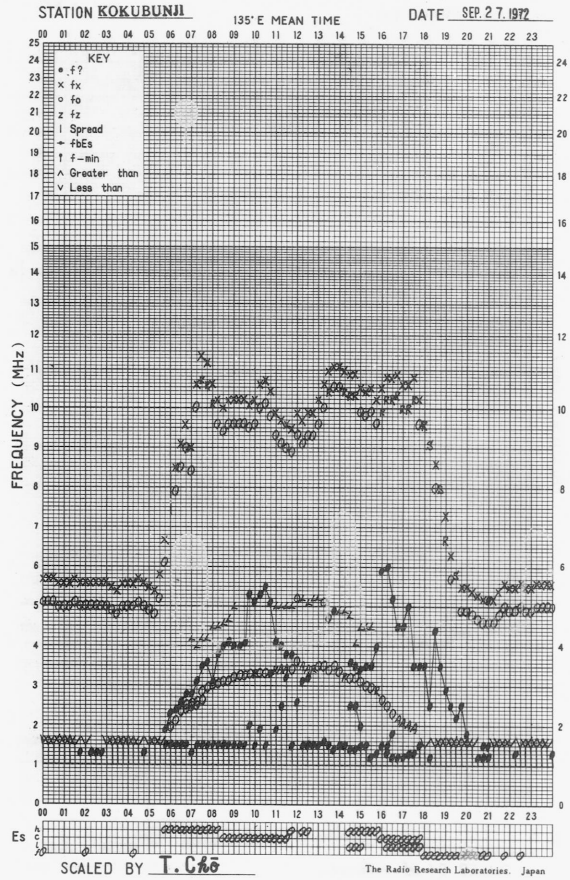
STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 27. 1972



SCALED BY T. Cho

The Radio Research Laboratories. Japan

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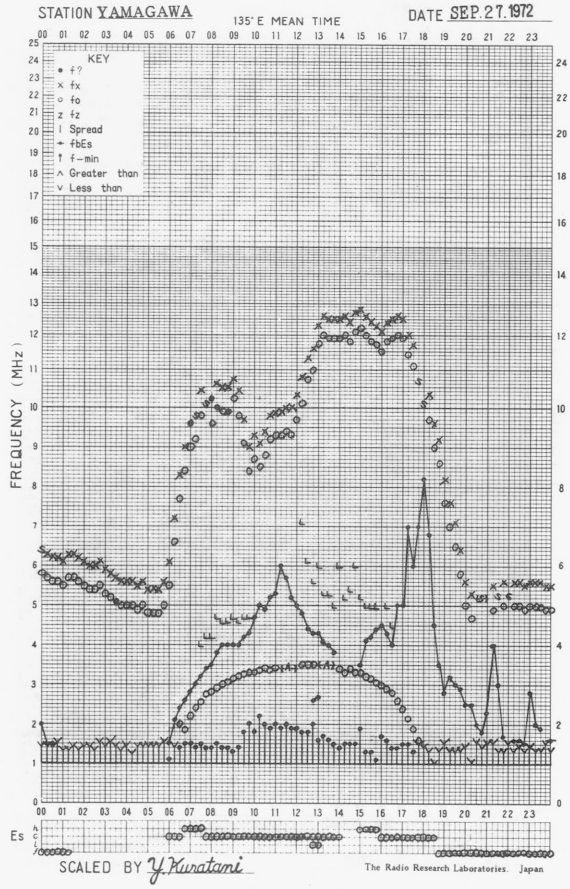
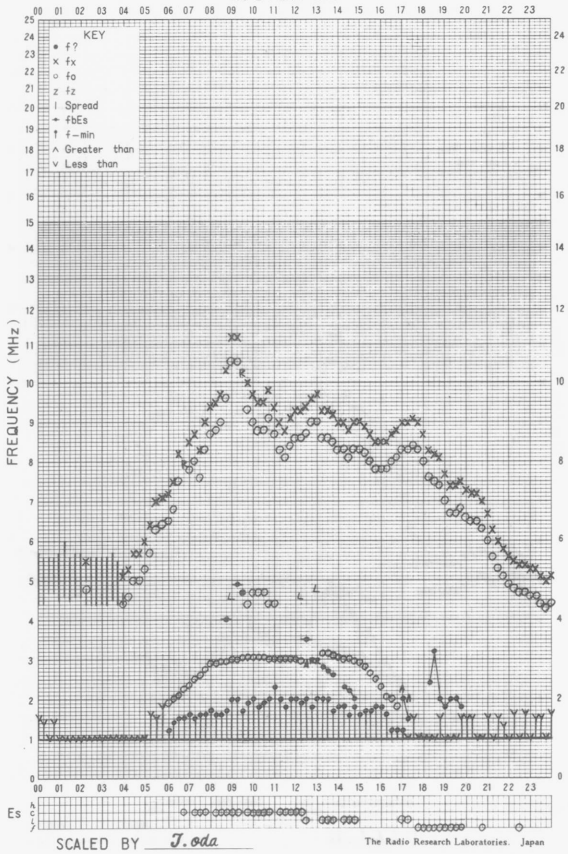


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 28. 1972



SCALED BY T. oda

The Radio Research Laboratories. Japan

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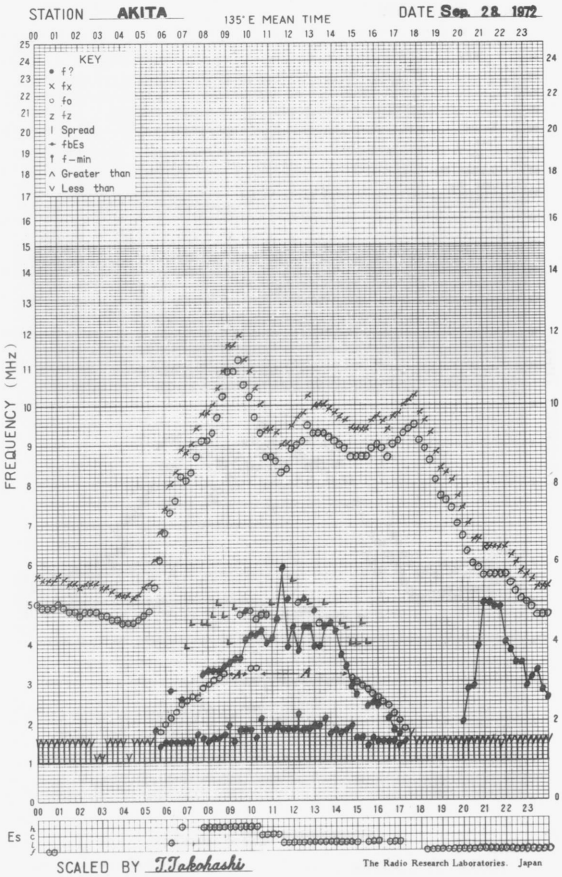
STATION AKITA 135°E MEAN TIME DATE Sep. 28. 1972



SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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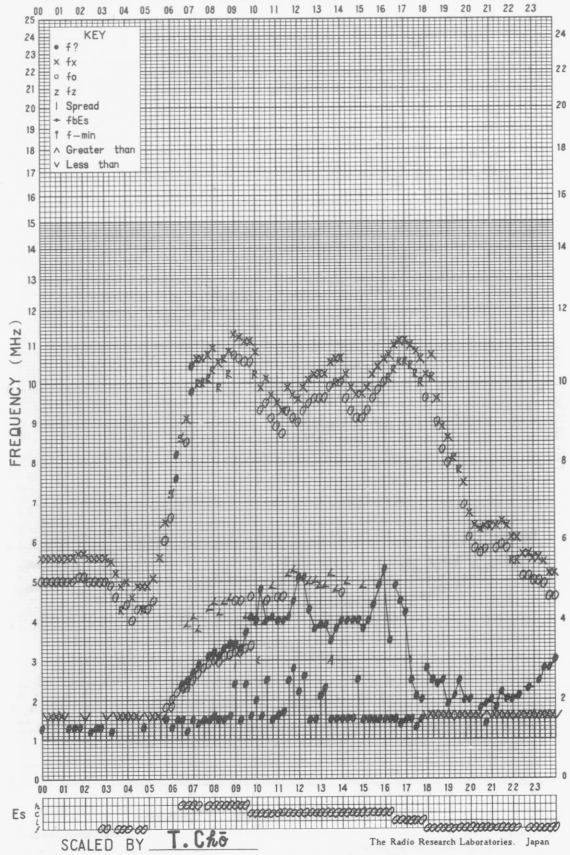
STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 28. 1972



SCALED BY T. Chō

The Radio Research Laboratories. Japan

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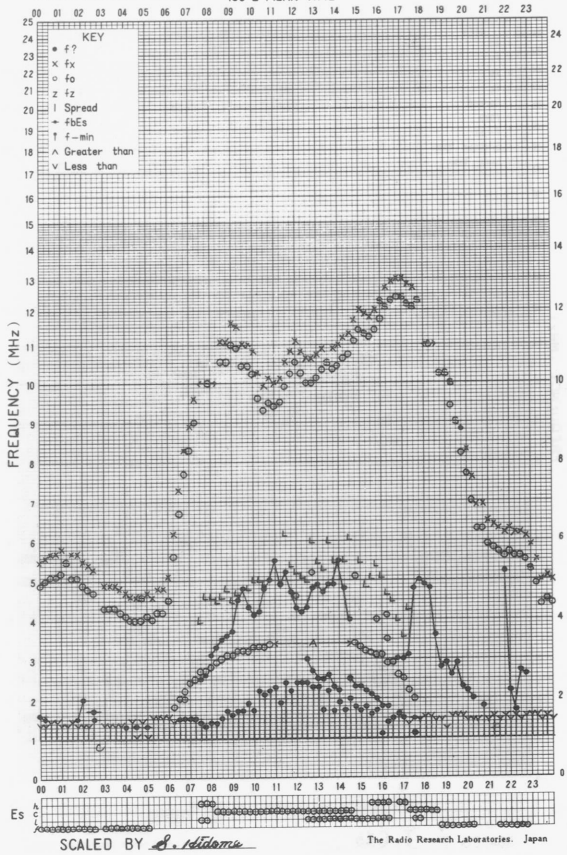
STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 28. 1972



SCALED BY S. Ishitomo

The Radio Research Laboratories. Japan

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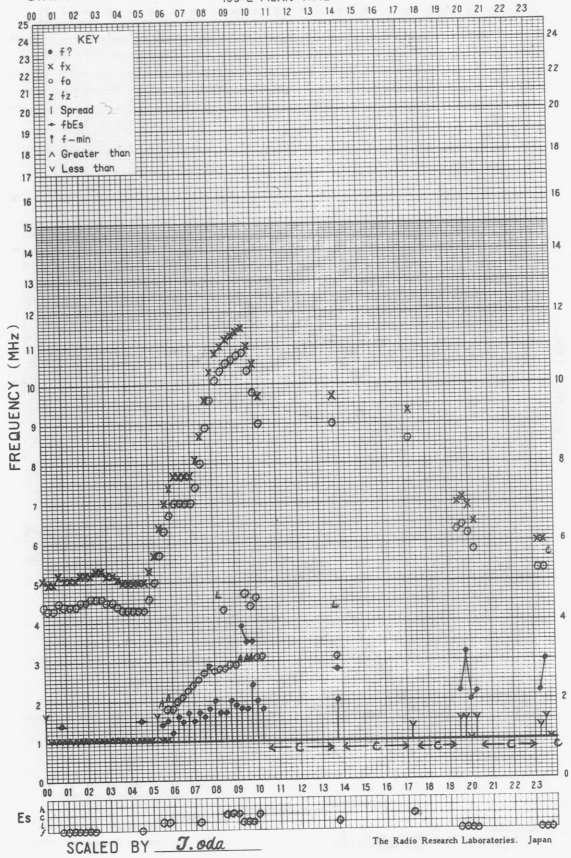
STATION WAKKANAI 135° E MEAN TIME DATE SEP. 29. 1972



SCALED BY J. Oda

The Radio Research Laboratories. Japan

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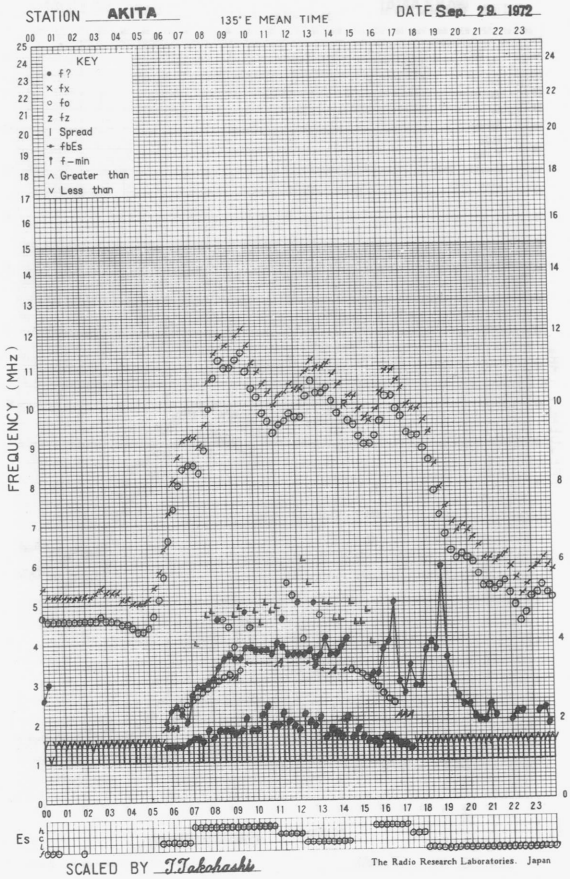
STATION AKITA 135° E MEAN TIME DATE Sep. 29. 1972



SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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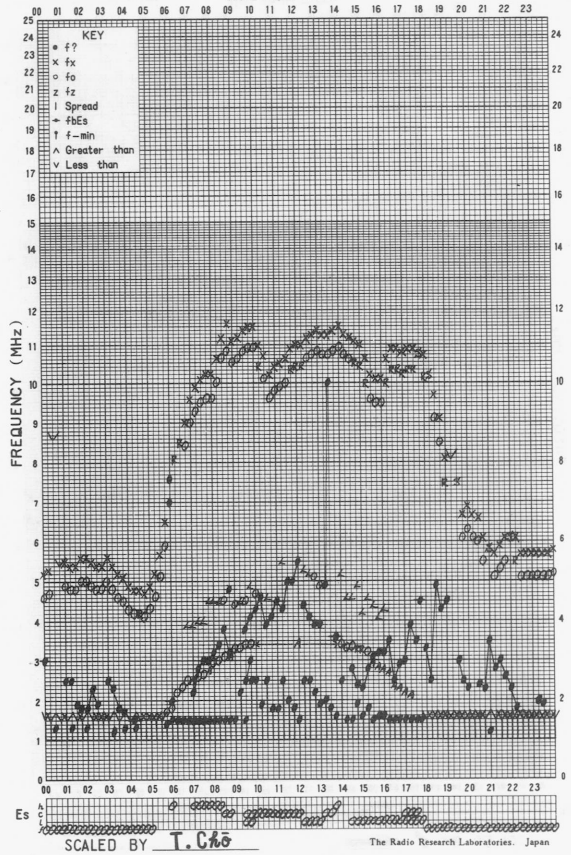
STATION KOKUBUNJI 135° E MEAN TIME DATE SEP. 29. 1972



SCALED BY T. Chō

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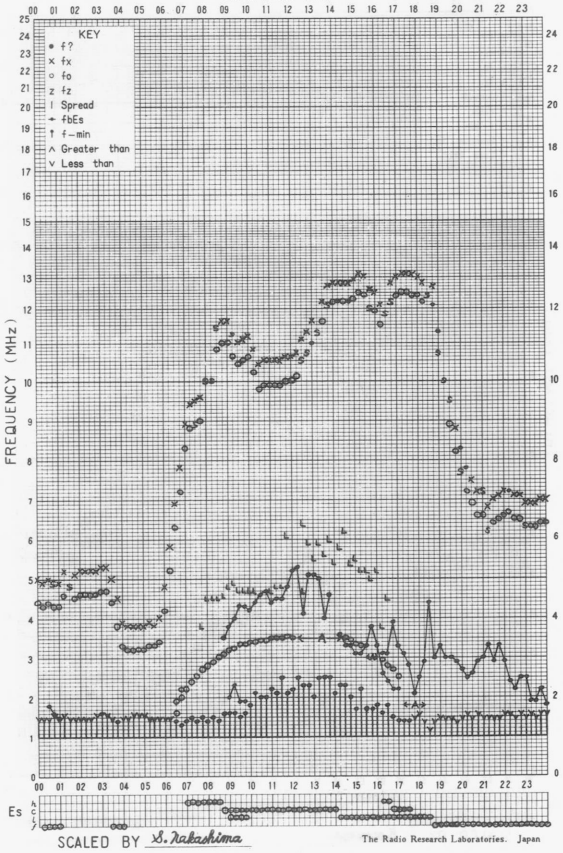

SCALED BY S. Nakashima

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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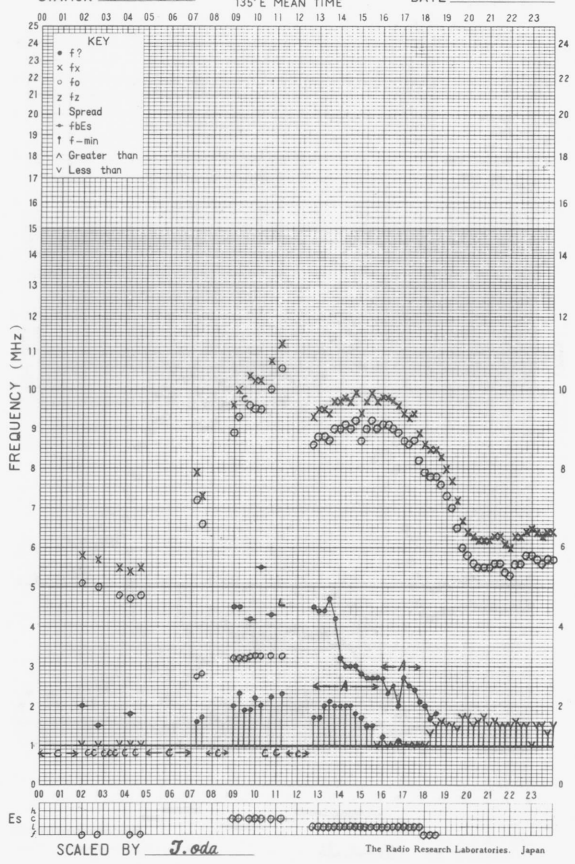

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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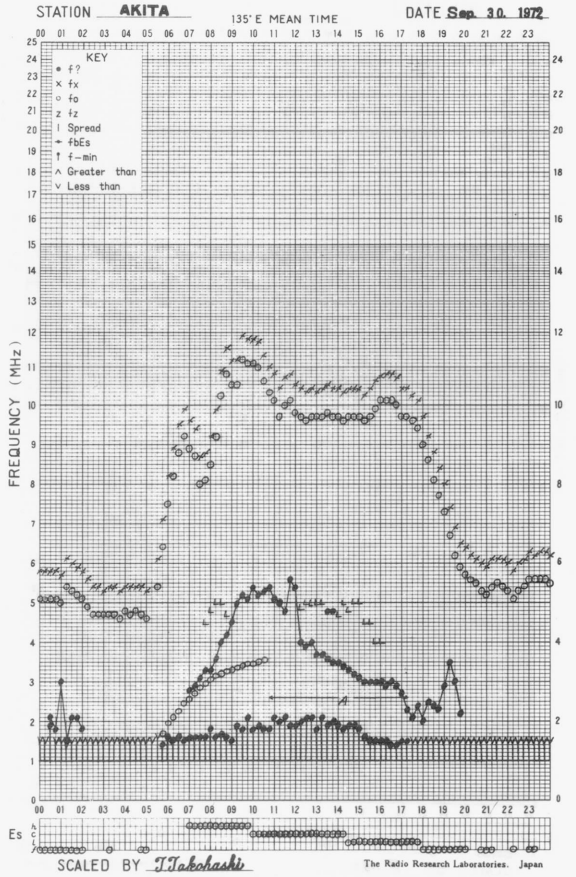
STATION AKITA 135°E MEAN TIME DATE Sep. 30. 1972

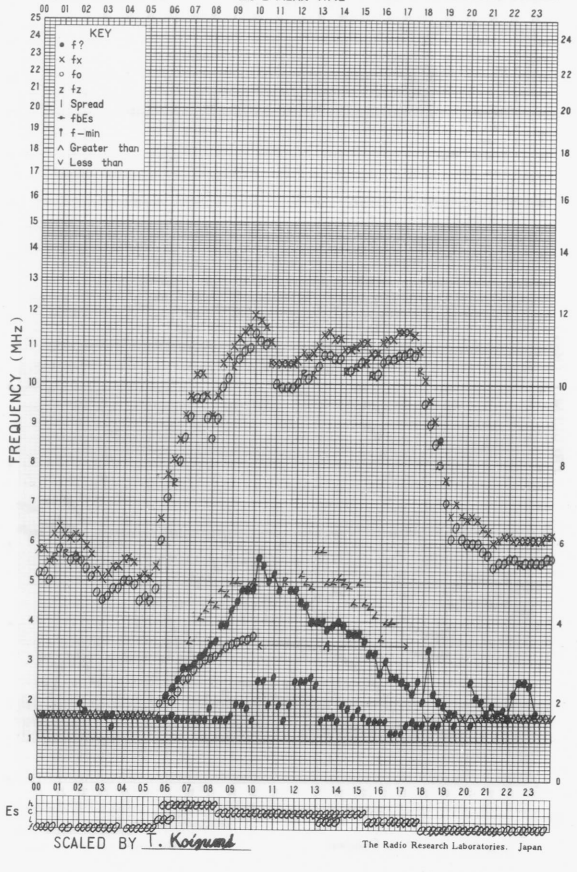


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 30. 1972

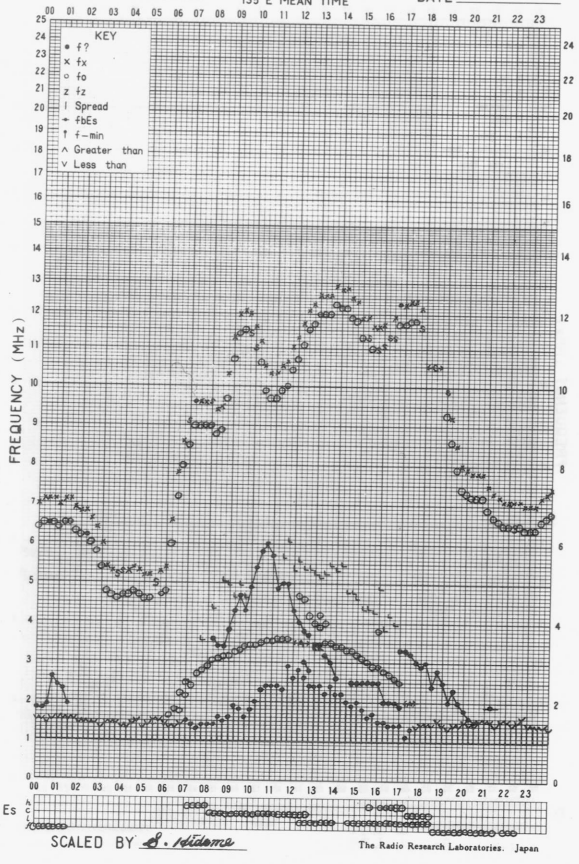


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 30. 1972



SCALED BY S. Ishidome

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: September 1972
Observing station: Hiraiso
Frequency: 200 MHz

	Flux density 10^{-22} Wm^{-2} Hz^{-1}					Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	6	6	6	6	6	0	0	0	0	0
2	5	6	6	7	6	0	0	0	0	0
3	6	6	7	8	6	0	0	1	0	0
4	12	11	8	6	10	0	0	0	0	0
5	6	7	7	6	6	0	0	0	0	0
6	6	6	6	5	6	0	0	1	0	0
7	6	6	6	-	6	0	0	0	-	0
8	q	q	17	14	q	0	0	0	0	0
9	11	27	30	49	20	0	1	1	1	1
10	15	23	7	13	25	0	1	0	1	1
11	21	13	11	15	15	1	1	1	0	1
12	9	7	7	6	10	0	*	*	0	0
13	5	7	6	6	6	0	0	0	0	0
14	5	6	6	5	6	0	0	0	0	0
15	5	5	6	q	5	0	0	0	0	0
16	5	5	-	-	5	0	0	-	-	0
17	5	6	5	5	5	0	0	0	0	0
18	5	5	5	6	5	0	0	0	0	0
19	6	6	6	6	6	0	0	0	0	0
20	6	6	6	5	6	0	0	0	0	0
21	6	6	7	6	6	0	0	0	0	0
22	6	6	6	7	6	0	0	0	0	0
23	6	6	6	6	6	0	0	0	0	0
24	6	5	5	6	6	0	0	0	0	0
25	7	7	7	7	7	0	0	0	1	0
26	8	7	7	6	7	0	0	1	0	0
27	5	7	7	6	6	0	0	0	0	0
28	7	8	7	6	7	0	0	0	0	0
29	6	6	6	6	6	0	0	0	0	0
30	6	6	6	6	6	0	0	0	0	0

Note No observations during the following periods:

7th 2020- 8th 0100 25th 0150- 0300
16th 0530- 17th 0035 25th 0740- 0810

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: September 1972
Observing station: Hiraiso Frequency: 500 MHz

Flux density 10^{-22} $Wm^{-2}Hz^{-1}$

UT	00-03	03-06	06-09	21-24	Day
Date					
1	27	25	25	28	26
2	30	30	28	30	29
3	28	27	28	25	28
4	27	25	24	26	25
5	25	24	24	24	25
6	24	23	24	23	24
7	23	24	22	-	23
8	q	q	q	23	q
9	24	27	28	25	25
10	25	23	22	q	24
11	26	26	24	q	25
12	q	q	q	-	q
13	-	-	-	22	-
14	22	22	23	23	22
15	22	22	21	23	22
16	21	20	-	-	21
17	27	27	27	25	27
18	24	24	25	24	24
19	25	24	22	24	24
20	25	26	25	25	25
21	26	25	25	24	25
22	24	24	23	25	24
23	26	25	25	25	25
24	24	23	23	24	24
25	23	23	23	22	23
26	25	25	26	25	24
27	26	26	26	26	26
28	26	25	25	25	26
29	25	25	26	24	25
30	24	24	24	25	24

Note No observations during the following periods:

7th 2020- 8th 0005
12th 2020- 13th 0850
16th 0540- 17th 0130

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: September 1972
Observing station: Hiraiso
Normal observing period: 2020 - 0850 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density 10^{-22}Wm^{-2}Hz^{-1}		Remarks
	MHz	UT	UT	minutes		peak	mean	
2	100	0022.0	0022.4	1.0	C	160	50	P: l
		0023.5	0024.0	1.0	C	180	70	P: l
3	100	0609.0	(0609.7)	2.0	C	>90	>50	P: r
	200	0609.5	0609.9	1.0	C	90	40	
	100	2010	2034	>760	Ns	50	10	P: L, SR-SS
4	100	2043.5	2049.9	8.0	C	50	15	P: r
	200	2047.0	2050.0	4.0	C	430	120	
	500	2048.0	2049.8	3.0	C	120	10	
	200	2323.0	2325.5	4.0	C	970	240	
	100	2324.5	2325.6	2.5	C	230	70	P: l
6	100	0408.5	0409.2	2.0	C	150	60	P: l
	500	0408.6	0409.7	1.5	S	140	60	
	200	0409.0	0410.0	2.0	C	70	30	
	100	0417.4	0417.6	1.5	C	150	50	P: l
		0425.0	0455	51	RF	30	10	P: l
		0646.5	0650.0	10.5	C	60	20	P: l
	200	0647.0	0648.8	12	F	200	-	
		2135.0	2138.5	10	C	1200	200	
	100	2138.0	2140.2	10	C	210	80	P: l
		2148.0	2155	25	RF	20	5	P: 0
8	100	0125	0525	435	Ns	80	10	P: R
		<2020	0700	>780	Ns	80	10	P: R
9	100	<2020	2300	>660	Ns	130	30	P: R
	500	2158.0	2348.7	200	RF	35	10	
10	100	<2020	2108	>600	Ns	70	20	P: R
11	100	<2020	2300	>730	Ns	70	40	P: R
12	100	0828.5	0830.0	3.0	C	150	100	P: r
13	100	0247.0	0309.0	103	RF	130	15	P: r
22	100	0514.5	0515.0	1.0	C	110	50	P: r
23	500	2308.5	2310.0	2.0	C	270	20	
25	100	0315.0	0315.4	1.0	S	50	15	P: l
26	200	0716.8	0717.0	1.0	C	170	50	
	100	2224.8	2226.8	3.5	C	120	40	P: r
	200	2225.0	2226.0	2.5	C	70	30	
28	100	0225.4	0226.3	2.0	C	200	80	P: r
	200	0226.0	0226.0	0.7	eC	50	30	
		2144.4	(2144.5)	>0.8	C	(60)	(20)	* 2145-46.5
29	200	0015.0	0015.5	1.0	C	400	80	
	100	0015.2	0015.7	2.0	C	60	15	P: r
30	100	0552.5	0552.9	1.0	S	60	10	P: r

P: means polarization degree.

*: interrupted by calibration.

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWV)

SEP 1972 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA RHD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 15M	01H 15M	02H 15M	03H 15M	04H 15M	05H 15M	06H 15M	07H 15M	08H 15M	09H 15M	10H 15M	11H 15M	12H 15M	13H 15M	14H 15M	15H 15M	16H 15M	17H 15M	18H 15M	19H 15M	20H 15M	21H 15M	22H 15M	23H 15M
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	-2	0	10	11	6	6	3	ES -10	ES -10	ES -6	ES -3	ES -1	ES 14	ES 16	C	C	C	6	6	2	6	-3	3	-2
8	-4	-1	6	4	12	12	C	3	ES -1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	-4	ES -6	1	2	5	ES -7	ES -6	ES -5	-6	ES -3	ES -4	ES 1	ES 2	ES 2	0	-14	-17	-11	0	-13	1	0	6	-1
10	-4	3	6	4	10	11	5	ES -6	ES -5	ES -3	ES -1	ES 3	ES 7	ES 3	-16	-1	ES -25	ES -25	ES -25	-19	-1	-6	0	0
11	0	1	1	5	6	-6	ES -5	ES -2	ES -5	ES 2	ES 4	ES 10	ES 7	ES 1	-3	ES -24	5	ES -24	ES -24	ES -24	1	7	5	6
12	1	2	-5	-4	-14	ES -3	ES -2	ES 0	ES 6	ES 4	ES 6	ES 9	ES 10	ES 13	ES -15	-10	-1	12	-5	-9	1	-1	7	-2
13	2	3	8	12	8	7	ES -2	ES 0	ES 1	ES 2	ES 0	ES 7	ES -1	ES 14	ES -26	ES -26	ES -17	-5	ES -18	-20	ES -18	ES -14	ES -14	ES -13
14	ES -23	ES -23	-22	ES -23	ES -23	ES -23	ES -5	ES -3	ES -2	ES -11	ES 2	ES 5	ES -2	ES -2	ES -27	-18	-6	6	0	0	8	5	7	1
15	3	-3	6	-8	ES -17	ES -14	ES -11	ES -6	ES -5	ES -1	2	ES -3	ES -9	ES -5	ES -1	ES -23	-11	ES -23	ES -23	ES -23	-6	10	2	2
16	-3	2	-11	-2	ES -11	ES -14	ES -14	ES -11	ES -9	ES -2	ES -4	ES -3	ES 4	ES 4	ES -23	C	C	ES -24	ES -24	ES -24	3	2	10	5
17	-1	-4	-4	2	5	-4	ES -7	ES 0	ES -2	ES 2	ES -6	ES 6	ES 6	ES 0	ES -24	ES -24	-16	ES -24	-18	-18	-9	-4	1	1
18	1	-12	-3	3	-7	-9	ES -7	ES -9	ES -3	ES 2	ES -4	ES -4	ES -1	ES -3	ES -2	ES 4	ES -2	-11	-10	ES -23	-1	3	-1	-2
19	-3	-9	-6	6	-9	ES -16	ES -6	ES -5	ES -6	ES 1	ES -2	ES -2	ES 1	ES -4	-6	-9	-18	ES -24	-6	-10	-6	-3	-3	-3
20	-4	-1	3	5	14	6	ES -15	ES -3	ES -9	ES 0	ES -23	ES -13	ES 3	ES 4	ES -5	ES -9	-4	2	-2	ES -24	-2	1	-3	1
21	-6	-4	1	7	9	ES -6	ES -5	ES -6	ES -3	ES 0	ES -5	ES 2	ES 0	ES -10	ES -24	ES -24	-18	9	-10	ES -24	-2	0	-2	-5
22	-4	1	2	-2	-15	ES -15	ES -12	ES -3	ES -2	ES 2	ES -3	ES -4	ES -3	ES 0	-23	-7	-9	1	-5	ES -24	-3	0	2	-2
23	4	0	7	18	3	8	12	ES 1	ES -2	ES 2	ES -10	ES 1	ES 2	-3	-13	ES -24	-12	3	ES -24	-15	4	6	3	-1
24	2	7	1	7	-5	ES -10	ES -7	ES -2	ES 2	ES 3	ES 1	ES 6	ES 4	ES 9	ES -12	-18	-13	ES -24	ES -24	ES -24	-3	2	-1	-1
25	-1	-1	8	3	12	ES -3	ES -6	ES 0	ES -2	ES 2	ES -9	ES -1	ES -7	ES -2	-15	-9	0	4	2	-9	-4	-1	-3	-2
26	2	1	3	6	C	ES -13	ES -5	ES -5	ES -1	ES 3	ES -5	ES -3	ES -2	ES -2	ES -27	ES -27	ES -9	ES -27	ES -27	ES -27	-2	1	5	3
27	3	3	5	7	11	ES -10	ES -4	ES -3	ES 2	ES 6	ES -6	ES -10	ES -11	ES -11	-6	ES -26	ES -4	ES -26	ES -26	ES -26	1	10	0	4
28	4	6	6	12	-3	ES -6	ES -6	ES 0	-2	ES -2	ES -6	ES 2	ES 5	ES 4	12	ES -26	ES 2	-7	4	ES -26	ES 0	ES 3	1	2
29	4	4	10	7	16	-5	ES -8	ES -2	ES 2	ES 1	ES -2	ES 1	ES 5	ES -3	9	-1	-1	-8	ES -27	ES -27	4	8	5	3
30	2	-2	5	10	8	5	ES -7	ES -4	ES 0	ES 3	ES -7	ES -7	ES -12	ES 0	-14	ES 4	ES -8	-3	-1	-5	-1	-2	3	0
CNT	24	24	24	24	23	24	23	24	24	23	23	23	23	23	22	21	21	23	23	23	23	23	23	23
MED	0	0	3	5	5	ES -6	ES -6	ES -3	ES -2	ES 2	ES -4	ES 1	ES 2	ES 0	ES -14	ES -18	ES -9	-8	-10	US -23	US -1	US 1	2	0
UD	4	6	10	12	14	11	5	ES 1	ES 2	ES 4	ES 4	ES 9	ES 10	ES 14	9	ES 4	ES 2	9	4	0	6	10	7	5
LD	-6	ES -12	-11	-8	ES -17	ES -16	ES -14	ES -10	ES -9	ES -6	ES -10	ES -10	ES -11	ES -10	ES -27	ES -26	ES -18	ES -26	ES -27	ES -27	ES -9	ES -6	-3	-5

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWVH)

SEP 1972 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	-10	-10	6	10	11	14	16	7	-6	8	ES -6	ES -3	ES 9	C	C	C	C	-12	-18	6	6	5	-1	-3
8	-8	-7	-1	2	14	17	C	20	10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	-8
9	-5	-4	0	3	8	14	15	5	5	14	6	ES -5	ES -7	ES -26	ES -26	ES -26	ES -26	11	11	2	5	0	-5	-4
10	-7	-6	4	5	10	15	20	13	9	6	6	ES -5	ES -1	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	8	8	-1	-1	-3
11	-3	-3	-3	6	10	19	18	11	7	4	-1	ES 3	ES 1	-5	11	ES -24	ES -24	ES -24	ES -24	14	-1	-1	5	-4
12	-2	-3	12	6	4	13	19	18	12	15	15	ES 1	ES 6	ES -12	ES -12	-15	ES -9	-13	-23	7	1	2	2	-2
13	-5	-1	1	4	10	16	17	12	ES 0	ES 1	ES -3	ES -4	ES 0	-17	-17	ES -15	ES -22	-3	-18	ES -18	ES -18	10	1	-20
14	-15	-5	-1	3	6	8	17	13	-11	ES -14	ES -2	ES -3	ES -9	ES -27	ES -23	ES -18	ES -27	-12	-6	10	5	4	6	2
15	-1	3	6	7	16	17	19	19	17	15	ES -6	ES -3	ES -12	ES -12	ES -21	ES -23	ES -23	ES -23	ES -23	-1	7	2	2	2
16	ES -6	-6	3	10	10	18	17	8	-1	ES -3	ES -4	ES -9	ES 2	ES -23	ES -23	C	C	ES -24	ES -24	3	3	-1	-3	-4
17	0	3	5	7	9	16	11	13	ES -2	ES 0	ES -6	ES 2	ES 0	ES -24	ES -24	ES -24	ES -24	7	ES -24	1	2	3	-1	-3
18	-3	-1	0	7	10	14	13	16	2	ES 6	ES -11	ES -9	ES -2	ES -8	ES 4	ES 1	ES -6	3	-12	1	4	4	-2	-8
19	-4	-4	0	2	10	13	22	2	ES 6	ES 22	ES -2	ES -1	ES -3	ES -24	ES -24	ES -24	ES -24	-13	ES -24	3	4	0	-1	-3
20	-3	1	0	3	9	13	19	12	1	ES 2	ES -15	ES -10	S 7	ES 2	ES -9	ES -10	ES -24	6	-13	-2	1	23	-2	-2
21	-6	-6	-1	2	9	16	17	18	16	11	13	ES 0	ES -4	ES -24	ES -11	ES -24	ES -24	ES -24	ES -24	22	7	0	-7	-6
22	-2	-1	2	5	12	11	14	2	ES 2	9	10	11	ES 1	ES -24	ES -16	ES -24	ES -24	-9	ES -24	7	2	-3	-9	-10
23	-9	-7	4	6	10	16	18	17	11	9	-4	ES 1	ES 2	ES -10	ES -24	ES -24	ES -24	-7	ES -23	5	4	-1	-7	0
24	-9	-7	3	6	9	12	12	11	2	12	7	ES 7	12	-9	ES -4	ES -24	ES -24	ES -24	ES -15	0	7	-3	-3	-4
25	-3	-3	-2	7	7	16	14	7	7	ES 3	ES -1	-2	ES -2	ES -24	ES -10	ES -24	ES -24	1	ES -24	1	2	1	-2	-3
26	-8	-8	2	3	10	14	18	14	10	15	ES -2	ES -2	ES 4	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	5	5	2	4	-2
27	2	-6	-4	9	-5	14	12	ES 4	ES -10	4	ES -6	ES -7	ES -7	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	11	5	2	0	2
28	-2	-1	-2	4	7	14	19	12	7	-1	ES -1	ES 2	ES 5	ES -17	ES -7	ES -26	ES -26	-7	-8	5	2	0	-4	-5
29	-7	-4	-1	4	10	14	20	3	ES 2	ES 5	ES -1	7	ES 0	ES -27	ES -7	ES -27	ES -8	ES -27	ES -27	1	4	-5	-6	-3
30	-6	-5	3	5	10	13	13	14	ES 8	ES -1	ES -7	ES -7	ES -4	ES -27	ES 0	ES -12	ES -27	-5	ES -27	0	6	4	1	-3
CNT	24	24	24	24	24	24	23	24	24	23	23	23	23	22	22	21	21	23	23	23	23	23	23	24
MED	-5	-4	0	5	10	14	17	12	ES 6	ES 6	ES -2	ES -2	ES 0	ES -24	ES -16	ES -24	ES -24	-12	ES -24	3	4	1	-1	-3
UD	0	3	6	10	14	18	20	19	16	ES 15	13	7	ES 9	ES -5	ES 4	ES -10	ES -8	7	-6	14	7	10	5	2
LD	ES -10	-8	-3	2	4	11	12	ES 2	ES -10	ES -3	ES -11	ES -9	ES -9	ES -27	ES -26	ES -27	ES -27	ES -27	ES -27	-2	-1	-3	-7	-10

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sept 1972	Whole Day Index		W W V 00 06 12 18 / 06 12 18 24	L M 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	3+		C C C (4)	3 4 (5)(1)	C C C C	N N N N			
2	4+		(4) C C C	4 4 (5) -	C C C C	N N N N			
3	5-		(4) C C (5)	- - - -	C C C C	N N N N			
4	3+		(4) C C C	(2) 4 - -	C C C C	N N N N			
5	5-		C C C (5)	4 - - -	C C C C	N N N N			
6	4+		C C C (5)	- 4 (5)(3)	C C C C	N N N N			
7	5-		(5) - (5) 4	4 4 (5) -	4 (3)(4) 4	N N N N			
8	4-		4 - C C	4 (4) - (3)	4 (4) C (3)	N N N N			
9	4°		4 - (4) 4	4 4 - -	4 (4)(5) 4	N N N N			
10	4°		(4) - (4) 4	4 - - -	4 (4) - 4	N N N N			
11	4°		4 - (4) 4	4 4 - -	4 (4)(4) 4	N N N N			
12	4°		3 - (5) 4	3 4 (5) -	4 (5)(4) 4	N N N N			
13*	4-		4 - (4)(3)	3 4 (4) -	4 (4)(5) 3	N N N N	12.40	---	216γ
14*	3°		(1) - (4) 4	- - - (3)	4 (3)(4) 4	U U U U	---	---	
15*	3+		3 - (3) 4	4 4 - (3)	4 (4) - 4	N N N N	---	---	
16*	3+		3 - - 4	4 3 - -	4 (4) - 4	N N N N	---	---	
17*	3+		4 - (3) 4	(3) - - -	4 (3) - 4	N N N N	---	---	
18*	4-		3 - (4) 4	4 4 (4) 2	4 (4) - 4	N N N N	---	17.0	
[19]	3+		3 - (4) 4	4 3 - 3	4 (4) - 4	N N N N			
[20]	4°		4 - (5) 4	4 4 (4) 4	4 (4)(5) 4	N N N N			
[21]	4°		(4) - (4)(4)	4 3 (4) 4	4 (5) - 4	N N N N			
22	4-		3 - (4) 4	4 3 - 5	4 (4) - 4	N N N N			
23	4+		(4) - (4) 4	5 - - -	4 (4) - 4	N N N N			
24	4-		4 - (4) 4	(3) - - -	4 (4)(4) 4	N N N N			
25	4+		4 - (5) 4	4 4 (5) 5	4 (4) - 4	N N N N			
26	4°		(4) - - (4)	4 4 (4)(4)	4 (4) - 4	N N N N			
27	4+		(5) - (3)(4)	5 - - 5	4 (3) - 4	N N N N			
28	4+		4 - (5) 4	5 4 (5) 3	4 (4)(4) 4	N N N N			
29	4+		4 - (4) 4	5 4 (4) 5	4 (4) - 4	N N N N			
30	4°		4 - (4)(4)	5 (3) - -	4 (4) - 4	N N N N			

GEOALERT

" = PROTON FLARE
* = MAGSORM
° = MAGCALME
' = COSMIC EVENT

[ ] = Regular World Day
- = impossible to evaluate
( ) = inaccurate

C = artificial accident
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES (S.I.D.)

HIRAISO

NO Sudden ionospheric Distirbance was observed during September, 1972.

I N U B O

1972 SEP.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	NAA	NWC	NPG	HA3	AL3	Start	End	Maximum	
4				3			2320	0000	2330	
5			4	5	9		2238	2308	2243	
6		17	80	17	47	40	0412	0548	0416	
6		29		50	77		2136	2308	2341	
10			12	4	9		0125	0154	0132	
15	—			10			2342	0047	0006	
16	—			7			2337	0045	2355	
18	—		—	12	23		0056	0230	0121	X
19			16	8	13		0212	0251	0220	X
20				5	13		2208	2300	2221	
21				7	18		2238	2344	2259	
24			8	3	7		0036	0120	0050	X
25			—	3	6		0044	0128	0050	
25				3	12		2146	2218	2156	
26	37	15*	76*	29*	53*	18*	0150	0340	0158	X
26				7	22		2230	2322	2237	X

NOTES (1) : The letter E or D attached to a time shows that the pertinent time is earlier or more delayed than the given time, respectively.

(2) : The mark * shows a multi-peak event.

(3) : The mark ** shows a time on the day before the pertinent day.

IONOSPHERIC DATA IN JAPAN FOR September 1972

第 24 巻 第 9 号

1973年2月10日 印 刷
1973年2月25日 発 行

(不許複製非売品)

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