F−284

IONOSPHERIC DATA IN JAPAN

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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	λ/2 vertical	λ/2 vertical
Distance	9150 km	6270 km

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

Receiver

Antenna	4.5 m 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.

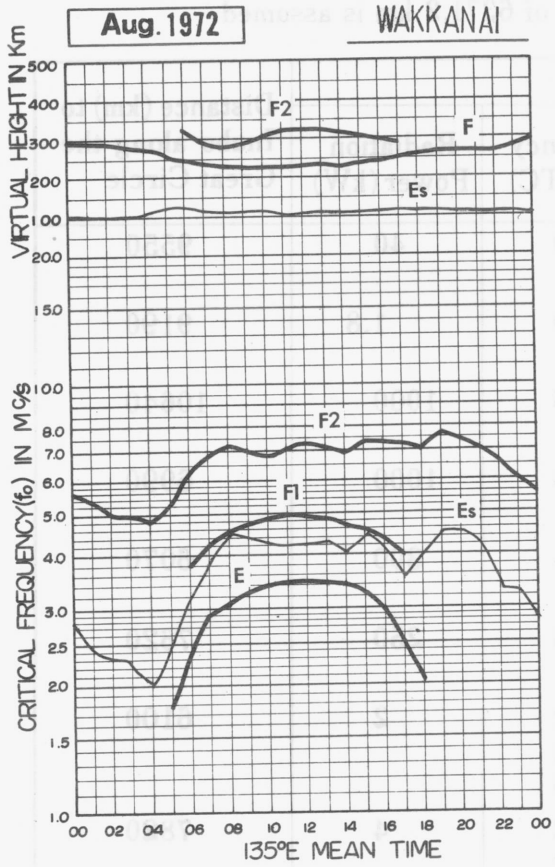
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West 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

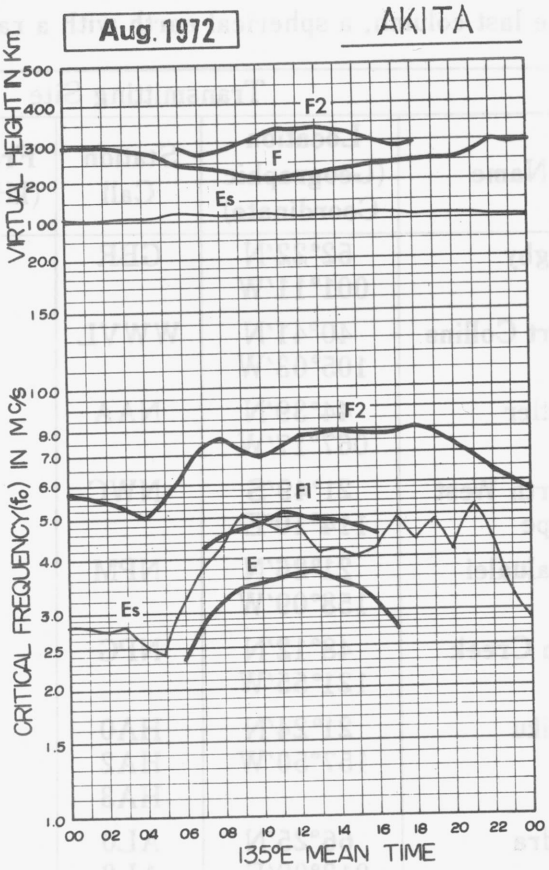
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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.

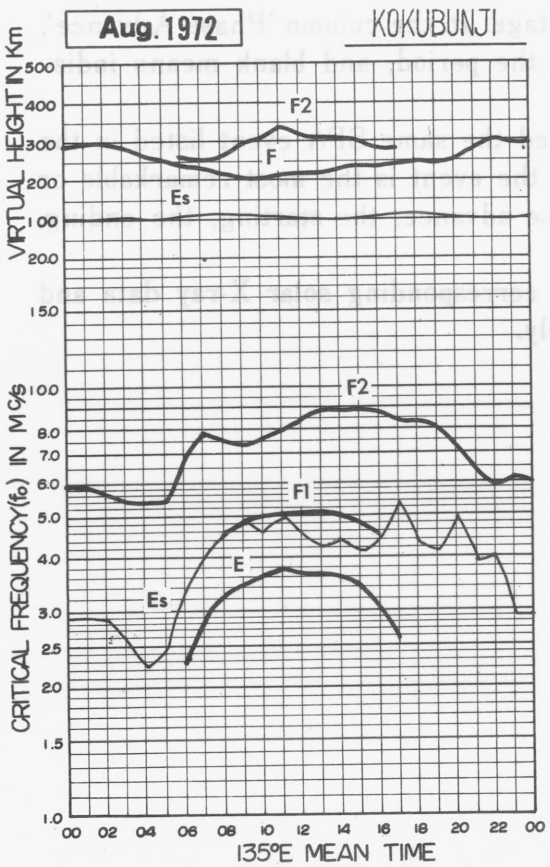
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

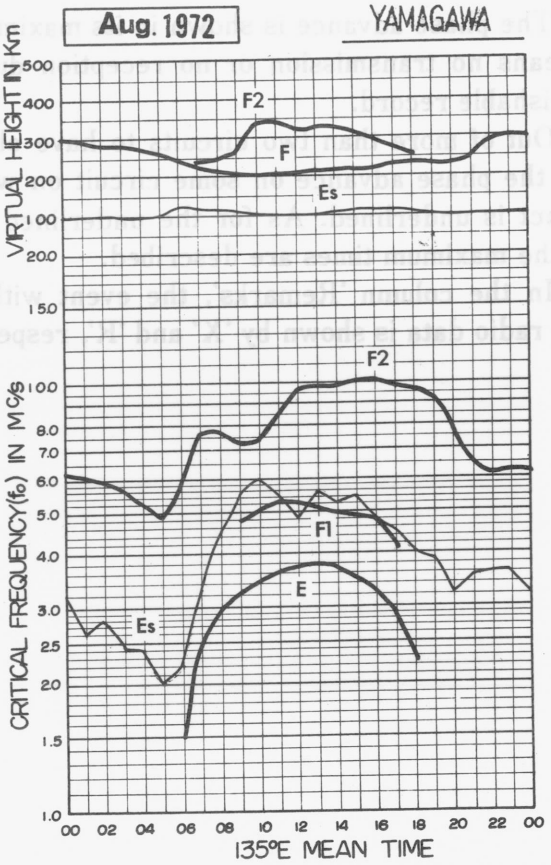
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

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

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	67	66	64	63	63	65	63	70	67	69	75	78	83	86	86	88	88	80	67	65	73	77	80	78
2	71	67	63	F	F	75	86	88	94	76	75	71	83	B	B	75	73	70	76	86	87	83	78	69
3	65	65	62	63	59	67	75	73	65	67	60	57	63	63	61	61	67	68	65	A	75	72	F	F
4	F	F	F	F	F	56	68	75	A	74	C	C	86	78	78	97	B	103	78	61	67	65	67	59
5	59	47	43	38	35	42	A	56	A	W	W	R	R	R	R	R	A	A	38	35	30	32	30	28
6	26	23	23	26	30	47	R	51	R	58	60	62	63	69	80	81	74	76	78	81	S	58	F	F
7	F	F 48	F	43	37	51	60	68	61	A	55	60	R	R	58	62	64	63	65	A	64	63	60	57
8	F 55	F	F 50	F	F	F 51	62	70	74	70	73	78	76	70	69	71	66	68	67	74	70	66	64	60
9	58	55	F 50	F 50	F 50	52	56	63	68	81	71	A	74	82	84	83	93	99	A	103	F	F	F	78
10	66	60	50	46	44	43	49	55	50	50	R	R	56	54	A	54	A	A	58	68	A	F	F	F
11	F 53	F 49	47	48	46	52	66	78	70	67	62	73	73	74	73	71	65	59	63	67	71	68	67	63
12	63	62	53	50	48	49	62	64	81	72	65	67	66	70	70	75	73	70	73	78	71	71	66	63
13	58	55	F	F 50	F 47	49	56	62	66	65	63	A	A	61	65	A	70	69	76	80	70	66	67	60
14	56	55	53	49	50	63	70	73	79	62	64	69	69	65	68	74	70	63	63	74	76	F	F	F
15	F	F 54	F 50	49	F 46	46	49	53	56	61	62	60	66	72	66	70	72	73	76	81	S	74	63	56
16	53	53	54	53	53	57	68	73	78	66	R	67	72	73	80	77	76	76	77	82	79	68	63	58
17	53	F 48	F 50	F 50	48	53	60	60	74	73	71	72	67	73	65	64	68	72	67	75	73	73	68	56
18	54	F	F	F	F	50	63	63	72	60	67	66	64	65	63	66	73	75	70	66	70	68	61	59
19	56	51	50	51	42	43	54	A	A	A	59	53	A	A	59	63	60	A	55	62	A	63	56	50
20	F 43	F	F 43	F 43	42	46	A	A	A	A	A	A	51	50	50	A	53	53	56	62	F 63	F	A	F 53
21	F	F	F	F	F	41	47	53	57	A	A	A	A	55	56	56	59	60	A	A	F	F	F	F
22	F	F	F	F	F	F 48	F 65	67	71	67	63	67	68	70	68	63	62	65	69	78	75	66	F 53	F
23	F 43	F 43	F	F	F 43	50	65	70	73	62	68	73	69	67	69	69	70	66	68	76	75	73	68	61
24	53	50	50	50	48	56	66	77	83	79	76	73	73	74	74	73	70	75	82	89	80	59	53	51
25	53	52	50	50	F	F	73	78	72	71	72	R	75	78	78	71	73	80	83	86	83	70	66	57
26	54	51	50	48	45	53	62	67	66	71	69	68	75	80	87	83	86	77	83	80	74	69	66	63
27	57	56	57	58	60	70	70	88	91	91	87	85	78	84	87	86	86	93	93	95	86	76	76	I S 73
28	73	62	60	54	56	53	55	63	65	R	68	71	77	72	66	73	75	66	65	72	76	77	58	A
29	51	50	49	51	50	58	66	80	83	81	71	74	A	73	A	78	76	77	75	76	72	74	73	69
30	C	C	C	C	C	C	C	C	C	C	86	85	H 85	84	86	80	80	83	86	82	74	71	66	65
31	63	61	61	58	56	58	70	84	86	92	93	88	86	87	84	81	79	77	81	88	81	78	70	60
	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	25	24	23	23	23	29	27	28	25	24	25	23	25	27	27	28	28	28	29	28	25	26	24	24
MED	56	54	50	50	48	52	63	69	72	70	68	71	73	72	69	73	72	72	70	77	74	70	66	60
UQ	63	60	56	52	52	57	68	76	79	75	73	74	77	78	80	80	76	77	78	82	76	74	68	64
LQ	53	50	50	48	44	48	58	62	66	64	63	66	66	66	65	65	66	66	65	68	70	66	60	56

AUG. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

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

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								L	470	500	510	500	510	A	A	470	440	400						
2								A	490	480	520	520	500	B	B	A	460							
3							B	500	A	A	490	500	490	500	500	470	460	A						
4							400	A	A	490	C	C	A	490	470	490	B	420						
5							A	A	A	430	430	A	430	420	R	420	A	A	A					
6							370	430	440	470	480	500	530	490	A	A	A	L						
7							400	440	460	A	470	460	R	R	A	450	430							
8								440	470	470	A	A	490	480	A	A	420	A						
9									L	480	490	A	A	A	480	470	450	420	A					
10						310	370	400	450	460	460	470	450	470	A	470	A	A						
11								410	440	460	510	470	480	460	470	A	460							
12								430	460	470	470	480	A	470	450	450	420							
13								400	440	460	A	A	A	A	470	A	A	400						
14								A	A	450	480	480	480	480	460	440								
15							A	A	430	A	460	470	480	470	470	440	430	400						
16								410	430	450	470	520	480	A	480	450	440							
17									A	A	480	460	A	500	470	460	430	380						
18							370	A	450	440	A	A	A	480	440	460	420	400						
19						320	A	A	A	A	A	A	A	A	470	440	440	A						
20							A	A	A	A	A	A	470	470	470	A	A							
21							A	430	430	A	A	A	A	460	470	A	A	A						
22								430	450	A	500	500	490	490	A	440	480							
23									460	500	500	500	500	500	A	480	450							
24								430	470	A	A	L	A	A	500	480		L						
25								A	460	L		500	510	500	500	470	A							
26								440	A	480	490	L	530	500	500	490	430							
27								430	A	L	500	500		520	510									
28							390	430	480	B	510	510	510	530	490	460								
29									500	A	A	A	A	530	A	480								
30									C	C	L	520		520										
31									L	480	510		L	510	500									
	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	6	15	19	17	20	18	17	23	20	21	16	7						
MED						315	380	430	460	470	490	500	490	490	470	460	440	400						
UQ							400	435	470	480	505	500	510	500	500	470	455	410						
LQ							370	420	440	460	470	470	480	470	470	450	430	400						

The Radio Research Laboratories, Japan

AUG. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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	190	260	305	335	340	355	B	A	A	A	A	A	300	245	S				
2					A	205	270	305	320	335	345	R	375	B	B	B	R	300	235	S				
3					S	200	B	B	B	350	350	A	A	A	A	A	320	295	A	S				
4					A	A	265	300	325	345	C	C	350	355	350	330	B	295	245	S				
5					E	180	245	300	315	335	340	350	345	360	345	325	300	270	205	E				
6					E	210	255	300	320	335	345	A	380	A	370	350	315	280	215	S				
7				E	E	190	245	290	A	330	A	345	A	B	365	340	300	270	200	S				
8					E	S	240	300	325	345	355	B	A	A	A	A	310	265	200	S				
9					E	180	235	290	300	325	330	A	A	A	350	335	295	235	A	S				
10					E	S	220	285	300	300	310	R	R	A	A	330	300	260	180	A				
11					S	190	250	290	305	320	335	A	R	R	R	A	A	A	A	A				
12					E	180	250	300	305	315	330	315	A	A	335	325	300	A	A	S				
13					E	165	240	290	300	320	320	B	A	A	R	A	A	A	A	E				
14					E	180	240	285	300	305	A	A	A	A	A	A	A	A	180	A				
15						A	235	290	300	300	A	A	A	A	A	A	A	250	180	E				
16						170	225	255	A	A	A	A	345	350	A	A	A	A	A	S				
17						150	225	265	285	A	A	A	A	R	345	325	300	245	A	S				
18					E	A	235	290	305	310	A	A	A	A	350	320	295	240	S	S				
19					E	S	235	290	300	325	335	350	345	345	A	A	A	A	A	S				
20					E	160	230	290	305	330	340	325	340	350	330	310	295	230	A	S				
21					E	120	210	A	310	335	340	350	355	345	335	330	A	A	A	S				
22					S	160	235	295	320	330	335	335	A	A	A	A	A	250	A					
23					E	A	A	280	305	325	340	355	350	I A 340	A	A	A	A	A					
24					E	A	240	290	315	320	A	A	A	A	A	A	A	A	S					
25					E	A	235	290	A	A	A	A	A	A	A	A	A	235	S					
26					S	S	240	300	300	A	R	R	365	365	R	325	290	A	A					
27						S	250	290	305	315	A	A	A	A	A	330	300	250	S					
28						180	230	290	315	B	350	A	A	340	A	A	305	250	S					
29						A	A	A	305	A	335	340	345	A	A	A	300	245	S					
30						C	C	C	C	C	365	370	350	340	330	300	A	A	A					
31						A	245	290	310	330	340	335	365	335	R	A	300	250	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				1	16	17	27	27	26	24	20	11	13	11	11	14	16	20	10	3				
MED				E	E	180	240	290	305	328	340	345	350	345	345	328	300	250	202	E				
UQ					E	190	248	300	315	335	348	350	365	352	350	330	302	275	235	E				
LQ					E	165	235	290	300	318	335	335	345	340	335	325	298	245	180	E				

The Radio Research Laboratories, Japan

AUG. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

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

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	J_{35}^{X}	J_{43}^{X}	J_{23}^{X}	J_{23}^{X}	20	G	30	G	39	42	46	40	45	$^{M}83$	J_{64}^{X}	J_{54}^{X}	40	G	J_{45}^{X}	J_{41}^{X}	J_{23}^{X}	J_{21}^{X}	E_{16}^{S}	E_{16}^{S}
2	E	E_{15}^{S}	J_{50}^{X}	J_{30}^{X}	19	38	J_{48}^{X}	J_{68}^{X}	J_{70}^{X}	40	40	G	G	B	B	$^{M}63$	G	J_{46}^{X}	J_{50}^{X}	J_{50}^{X}	J_{64}^{X}	J_{63}^{X}	J_{20}^{X}	J_{33}^{X}
3	J_{35}^{X}	J_{20}^{X}	J_{23}^{X}	J_{24}^{X}	E_{13}^{S}	25	E_{43}^{B}	E_{46}^{B}	46	53	J_{43}^{X}	J_{73}^{X}	40	47	J_{48}^{X}	44	J_{68}^{X}	J_{44}^{X}	J_{82}^{X}	J_{158}^{X}	J_{63}^{X}	J_{116}^{X}	J_{78}^{X}	J_{33}^{X}
4	J_{35}^{X}	J_{30}^{X}	J_{21}^{X}	J_{33}^{X}	J_{30}^{X}	27	33	J_{62}^{X}	J_{75}^{X}	J_{71}^{X}	C	C	J_{56}^{X}	43	G	G	B	G	G	J_{56}^{X}	J_{35}^{X}	J_{31}^{X}	J_{32}^{X}	J_{30}^{X}
5	E_{15}^{S}	E	E	E	J_{33}^{X}	44	62	61	49	40	G	42	G	G	G	G	45	51	43	19	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}
6	E_{17}^{S}	E_{15}^{S}	E	E	16	G	G	36	43	40	43	43	G	50	J_{75}^{X}	J_{61}^{X}	J_{48}^{X}	32	28	E_{15}^{S}	20	J_{53}^{X}	J_{24}^{X}	28
7	J_{33}^{X}	J_{50}^{X}	J_{31}^{X}	23	J_{40}^{X}	24	35	37	43	J_{55}^{X}	42	G	40	45	50	41	43	33	J_{63}^{X}	J_{73}^{X}	J_{68}^{X}	J_{43}^{X}	J_{20}^{X}	J_{22}^{X}
8	16	F	E	E_{15}^{S}	J_{33}^{X}	29	J_{48}^{X}	36	42	42	55	J_{60}^{X}	42	40	J_{53}^{X}	J_{58}^{X}	G	J_{51}^{X}	30	E_{16}^{S}	15	J_{74}^{X}	J_{60}^{X}	E
9	E_{15}^{S}	E_{14}^{S}	26	E	E	G	G	G	G	G	G	J_{113}^{X}	J_{63}^{X}	J_{84}^{X}	G	J_{124}^{X}	J_{140}^{X}	J_{133}^{X}	J_{132}^{X}	J_{33}^{X}	E_{15}^{S}	E	E_{16}^{S}	E_{16}^{S}
10	E	J_{24}^{X}	J_{28}^{X}	J_{23}^{X}	E	22	25	G	34	35	36	G	G	48	J_{72}^{X}	G	J_{65}^{X}	J_{90}^{X}	J_{63}^{X}	J_{40}^{X}	J_{103}^{X}	J_{83}^{X}	J_{45}^{X}	J_{63}^{X}
11	J_{35}^{X}	J_{25}^{X}	J_{20}^{X}	J_{23}^{X}	E_{15}^{S}	26	30	37	J_{46}^{X}	42	G	37	G	G	G	J_{46}^{X}	J_{53}^{X}	J_{43}^{X}	J_{61}^{X}	J_{64}^{X}	J_{45}^{X}	J_{35}^{X}	J_{38}^{X}	J_{33}^{X}
12	J_{24}^{X}	20	16	E_{14}^{S}	J_{24}^{X}	G	29	36	J_{63}^{X}	49	41	40	48	39	G	$^{G}30$	$^{G}29$	33	34	J_{35}^{X}	J_{28}^{X}	J_{28}^{X}	J_{21}^{X}	E_{16}^{S}
13	E	J_{43}^{X}	J_{43}^{X}	J_{40}^{X}	J_{43}^{X}	J_{30}^{X}	37	40	J_{43}^{X}	39	J_{64}^{X}	J_{65}^{X}	$^{M}78$	J_{58}^{X}	G	J_{65}^{X}	J_{48}^{X}	J_{36}^{X}	28	J_{45}^{X}	J_{43}^{X}	J_{24}^{X}	E_{18}^{S}	J_{21}^{X}
14	J_{31}^{X}	J_{43}^{X}	J_{23}^{X}	E	E	21	J_{33}^{X}	43	J_{55}^{X}	43	41	41	38	40	35	J_{51}^{X}	33	36	J_{40}^{X}	J_{93}^{X}	J_{63}^{X}	J_{41}^{X}	J_{43}^{X}	J_{43}^{X}
15	J_{30}^{X}	J_{35}^{X}	J_{25}^{X}	18	J_{33}^{X}	J_{30}^{X}	37	J_{55}^{X}	J_{51}^{X}	J_{60}^{X}	J_{43}^{X}	45	J_{44}^{X}	38	J_{46}^{X}	J_{45}^{X}	J_{43}^{X}	G	33	J_{60}^{X}	J_{63}^{X}	J_{63}^{X}	J_{33}^{X}	J_{26}^{X}
16	J_{25}^{X}	E	E	J_{25}^{X}	18	G	33	J_{48}^{X}	J_{43}^{X}	J_{42}^{X}	J_{47}^{X}	J_{43}^{X}	G	59	38	J_{45}^{X}	J_{40}^{X}	34	J_{24}^{X}	J_{25}^{X}	J_{24}^{X}	J_{41}^{X}	J_{31}^{X}	J_{22}^{X}
17	J_{43}^{X}	J_{50}^{X}	J_{53}^{X}	J_{30}^{X}	J_{31}^{X}	21	30	30	J_{45}^{X}	J_{53}^{X}	J_{53}^{X}	39	J_{56}^{X}	$^{G}25$	G	G	G	28	25	J_{56}^{X}	J_{63}^{X}	J_{60}^{X}	J_{36}^{X}	J_{53}^{X}
18	J_{50}^{X}	J_{53}^{X}	22	J_{26}^{X}	J_{28}^{X}	30	J_{38}^{X}	J_{50}^{X}	41	43	J_{48}^{X}	50	J_{65}^{X}	J_{43}^{X}	40	58	J_{44}^{X}	37	J_{62}^{X}	J_{60}^{X}	J_{58}^{X}	J_{50}^{X}	J_{38}^{X}	J_{40}^{X}
19	J_{24}^{X}	E_{13}^{S}	E	14	J_{28}^{X}	26	J_{43}^{X}	J_{66}^{X}	J_{88}^{X}	J_{133}^{X}	J_{130}^{X}	J_{58}^{X}	J_{106}^{X}	J_{69}^{X}	J_{67}^{X}	J_{64}^{X}	J_{80}^{X}	J_{113}^{X}	J_{53}^{X}	J_{65}^{X}	J_{80}^{X}	J_{61}^{X}	J_{53}^{X}	J_{63}^{X}
20	J_{30}^{X}	J_{28}^{X}	J_{24}^{X}	E	E	28	47	53	J_{135}^{X}	J_{60}^{X}	J_{63}^{X}	58	41	42	G	J_{63}^{X}	J_{64}^{X}	35	J_{41}^{X}	J_{80}^{X}	J_{53}^{X}	J_{51}^{X}	J_{78}^{X}	J_{45}^{X}
21	J_{30}^{X}	J_{23}^{X}	E	E	E	28	J_{38}^{X}	J_{61}^{X}	36	J_{75}^{X}	J_{74}^{X}	J_{73}^{X}	J_{75}^{X}	G	G	49	47	J_{53}^{X}	J_{141}^{X}	J_{80}^{X}	J_{64}^{X}	J_{73}^{X}	J_{55}^{X}	J_{35}^{X}
22	J_{30}^{X}	J_{30}^{X}	J_{23}^{X}	24	J_{30}^{X}	20	30	41	J_{50}^{X}	J_{64}^{X}	J_{50}^{X}	49	40	48	J_{51}^{X}	42	J_{43}^{X}	31	J_{30}^{X}	J_{29}^{X}	J_{45}^{X}	J_{43}^{X}	J_{33}^{X}	J_{33}^{X}
23	J_{33}^{X}	J_{28}^{X}	J_{20}^{X}	J_{28}^{X}	J_{20}^{X}	J_{28}^{X}	J_{36}^{X}	33	36	G	42	G	G	43	J_{63}^{X}	J_{49}^{X}	34	34	J_{36}^{X}	J_{41}^{X}	J_{38}^{X}	J_{33}^{X}	J_{30}^{X}	J_{35}^{X}
24	J_{23}^{X}	J_{23}^{X}	J_{21}^{X}	J_{28}^{X}	J_{25}^{X}	J_{25}^{X}	G	35	43	J_{63}^{X}	J_{73}^{X}	42	J_{60}^{X}	J_{58}^{X}	J_{67}^{X}	J_{53}^{X}	J_{39}^{X}	32	J_{53}^{X}	J_{63}^{X}	J_{63}^{X}	J_{25}^{X}	J_{53}^{X}	J_{60}^{X}
25	J_{63}^{X}	J_{31}^{X}	J_{33}^{X}	J_{53}^{X}	15	28	J_{70}^{X}	J_{53}^{X}	J_{51}^{X}	J_{45}^{X}	J_{43}^{X}	J_{43}^{X}	J_{45}^{X}	39	36	J_{41}^{X}	J_{55}^{X}	J_{53}^{X}	J_{43}^{X}	J_{80}^{X}	J_{53}^{X}	J_{76}^{X}	E_{16}^{S}	J_{23}^{X}
26	E_{14}^{S}	E	E	E	E_{15}^{S}	E_{17}^{S}	J_{31}^{X}	J_{52}^{X}	J_{54}^{X}	J_{50}^{X}	G	G	$^{G}29$	$^{G}30$	G	$^{G}27$	$^{G}24$	33	J_{43}^{X}	J_{23}^{X}	J_{28}^{X}	J_{23}^{X}	21	E_{15}^{S}
27	E_{18}^{S}	20	J_{23}^{X}	J_{22}^{X}	J_{20}^{X}	E_{17}^{S}	G	33	J_{53}^{X}	39	42	J_{48}^{X}	38	J_{45}^{X}	43	G	38	33	J_{36}^{X}	J_{43}^{X}	J_{24}^{X}	J_{33}^{X}	J_{40}^{X}	J_{40}^{X}
28	E_{15}^{S}	E_{15}^{S}	E	E	15	G	30	$^{G}24$	40	E_{54}^{B}	44	38	43	G	J_{43}^{X}	39	G	41	30	J_{33}^{X}	J_{37}^{X}	J_{64}^{X}	J_{70}^{X}	J_{60}^{X}
29	J_{23}^{X}	J_{25}^{X}	J_{23}^{X}	J_{33}^{X}	J_{25}^{X}	J_{30}^{X}	J_{38}^{X}	40	45	J_{63}^{X}	J_{66}^{X}	J_{54}^{X}	$^{M}75$	J_{66}^{X}	$^{M}84$	J_{46}^{X}	41	33	32	J_{45}^{X}	J_{51}^{X}	E_{15}^{S}	J_{25}^{X}	J_{38}^{X}
30	C	C	C	C	C	C	C	C	C	C	43	42	48	J_{50}^{X}	40	G	39	40	40	36	24	J_{55}^{X}	J_{53}^{X}	J_{43}^{X}
31	J_{40}^{X}	J_{30}^{X}	J_{63}^{X}	J_{53}^{X}	J_{31}^{X}	J_{25}^{X}	G	33	38	39	43	G	G	37	G	34	G	G	26	E_{15}^{S}	J_{43}^{X}	J_{31}^{X}	J_{23}^{X}	J_{24}^{X}
	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	31	30	30	31	30	31	31	31	31	31	31	31
MED	J_{28}^{X}	J_{24}^{X}	J_{23}^{X}	J_{23}^{X}	J_{20}^{X}	25	33	39	45	44	43	42	42	43	40	45	42	35	J_{40}^{X}	J_{45}^{X}	J_{45}^{X}	J_{43}^{X}	J_{33}^{X}	J_{33}^{X}
UQ	J_{35}^{X}	J_{31}^{X}	J_{26}^{X}	J_{28}^{X}	J_{30}^{X}	28	J_{38}^{X}	J_{53}^{X}	J_{53}^{X}	J_{60}^{X}	J_{53}^{X}	J_{54}^{X}	J_{56}^{X}	50	J_{53}^{X}	J_{56}^{X}	J_{48}^{X}	J_{45}^{X}	J_{53}^{X}	J_{64}^{X}	J_{63}^{X}	J_{62}^{X}	J_{49}^{X}	J_{42}^{X}
LQ	E_{16}^{E}	15	E	E	15	17	30	33	41	40	41	38	E_{29}^{G}	38	G	32	33	32	30	J_{33}^{X}	J_{26}^{X}	J_{30}^{X}	J_{21}^{X}	J_{22}^{X}

AUG. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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	27	32	16	14	15	G	G	G	G	G	44	G	45	79	52	43	38	G	32	35	18	18	E S 16	E S 16
2	E	E S 15	40	20	15	35	40	46	45	G	G	G	G	B	B	63	G	G	50	22	17	20	E	19
3	22	E	14	16	E S 13	G	E B 43	E B 46	46	53	G	44	42	43	41	40	40	43	60	A	32	37	22	E
4	16	E	E	E	E	25	G	50	A	G	C	C	54	G	G	G	B	B	B	53	20	27	25	27
5	E S 15	E	E	E	30	37	A	46	A	G	G	A	G	G	G	G	A	A	32	G	E S 15	E S 15	E S 15	E S 14
6	E S 17	E S 15	E	E	G	G	G	G	G	G	G	43	G	46	62	63	45	G	G	E S 15	18	24	E	E
7	E	26	20	20	20	G	35	37	40	A	41	G	E R 40	E R 45	50	41	39	G	46	A	50	20	15	20
8	E	E	E	E S 15	24	G	G	G	42	G	54	53	40	E R 40	50	57	G	42	G	E S 16	E	36	32	E
9	E S 15	E S 14	E	E	E	G	G	G	G	G	G	A	60	57	G	G	G	G	A	22	F S 15	E	E S 16	E S 16
10	E	20	25	17	E	G	G	G	G	G	G	G	G	43	A	G	A	A	40	20	A	31	41	46
11	28	18	E	E	E S 15	G	G	G	41	40	G	37	G	G	G	45	42	33	52	58	20	30	20	23
12	20	17	E	E S 14	E	G	G	G	45	G	G	G	48	36	G	G 28	G 28	29	31	30	26	20	E	E S 16
13	E	20	18	30	40	G	G	G	40	G	50	A	A	53	G	A	47	30	24	40	40	21	E S 18	17
14	20	36	17	E	E	G	G	41	53	41	40	40	38	40	35	37	33	34	38	20	50	25	28	20
15	25	22	26	E	17	26	36	50	40	50	38	42	43	38	40	40	30	G	27	53	30	42	24	20
16	22	E	E	19	15	G	G	33	33	38	38	38	G	55	36	32	31	24	20	20	18	20	E	E
17	20	30	20	15	19	G	G	G	44	50	45	37	50	G 25	G	G	G	19	20	52	36	42	26	26
18	20	20	E	17	16	26	28	47	40	40	47	45	51	40	G 33	G	G	G	54	40	32	32	30	29
19	20	E S 13	E	E	22	24	43	A	A	A	45	48	A	A	36	39	42	A	41	40	A	50	22	20
20	20	18	E	E	E	G	A	A	A	A	A	A	41	G	G	A	41	33	29	50	43	40	A	37
21	20	E	E	E	E	24	38	35	G	A	A	A	A	G	G	49	45	50	A	A	48	25	18	E
22	E	18	E	E	16	G	G	40	42	63	48	48	E R 40	47	49	36	30	G 20	22	25	34	30	E	20
23	20	20	15	E	25	20	30	24	G	G	42	G	G	40	56	43	34	34	36	33	27	28	E	20
24	18	20	E	17	18	21	G	G	41	62	54	38	54	54	47	43	33	30	51	47	50	24	40	25
25	40	15	20	25	14	18	54	47	42	45	42	43	40	38	36	40	45	G	33	33	32	17	E S 16	20
26	E S 14	E	E	E	E S 15	E S 17	G	40	47	40	G	G	G 29	G 30	G	G 27	G 24	31	27	18	26	21	E	E S 15
27	E S 18	E	17	15	17	E S 17	G	G	45	G	38	40	38	43	40	G	G	G	35	40	22	30	40	28
28	E S 15	E S 15	E	E	E	G	G	G 24	G	E B 54	G	38	40	G	40	36	G	38	28	30	38	52	50	A
29	E	17	17	20	17	19	25	31	42	62	53	52	A	46	A	39	38	G	30	40	E	E S 15	18	27
30	C	C	C	C	C	C	C	C	C	C	G	G	G	44	G	G	36	30	32	27	22	22	44	20
31	26	22	40	40	28	20	G	G	G	G	G	G	G	23	G	34	G	G	20	F S 15	40	21	20	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	31	30	30	31	30	30	30	31	31	31	31	31
MED	19	17	E	E E 14	15	G	G	U 30	42	40	39	40	40	40	36	39	34	30	32	33	30	25	20	20
UQ	20	20	18	17	19	21	36	46	45	54	47	48	50	46	49	43	42	34	46	48	40	32	29	26
LQ	E E 14	E	F	E	E	G	G	G	G	G	G	G	G	G 24	G	E C 27	G	G	27	21	19	20	E E 15	16

The Radio Research Laboratories, Japan

AUG. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

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	E	E	E	E	12	16	18	20	17	20	35	23	22	22	20	20	17	17	E S 15	E	E S 14	E S 16	E S 16
2	E	E S 15	E	E S 13	E	12	16	18	19	19	22	24	21	B	B	40	24	19	15	E S 15	E S 14	E	E	E
3	E	E	E	E	E S 13	15	43	46	38	27	28	26	30	20	20	20	20	18	16	E S 15	E S 15	E S 15	E S 15	E
4	E S 15	E S 15	E	E	E	13	17	18	19	20	C	C	23	20	20	19	B	23	17	E S 14	E S 15	E	E S 15	E
5	E S 15	E	E	E	E	14	16	16	19	18	20	26	20	20	20	18	17	15	12	E	E S 15	E S 15	E S 15	E S 14
6	E S 17	E S 15	E	E	E	15	15	15	17	17	20	17	22	20	20	18	17	16	12	E S 15	E S 16	E S 16	E S 16	E S 13
7	E S 16	E	E	E	E	11	16	18	18	22	26	24	30	37	30	27	20	17	11	E S 15	E S 15	E S 15	E	E S 15
8	E	E	E	E S 15	E	E S 15	16	19	23	28	22	35	30	30	30	23	19	15	11	E S 16	E	E S 15	E	E
9	E S 15	E S 14	E	E	E	13	16	20	20	20	20	29	24	24	26	22	18	16	11	E S 11	E S 15	E	E S 16	E S 16
10	E	E S 15	E	E	E	E S 15	17	18	20	20	20	20	25	28	22	23	17	16	16	E	E S 15	E	E S 15	E
11	E S 14	E	E	E	E S 15	13	15	18	18	21	30	20	23	23	20	20	15	13	12	E	E	E S 15	E S 15	E
12	E	E	E	E S 14	E	12	16	18	19	20	23	29	22	23	20	18	17	17	12	E S 15	E	E	E	E S 16
13	E	E	E	E	E	E	16	16	20	19	20	33	27	25	24	20	17	13	E	E	E	E	E S 18	E
14	E S 15	E	E	E	E	12	16	18	22	20	24	20	21	23	22	16	18	17	16	E	E S 17	E	E S 15	E
15	E S 15	E S 15	E	E	E	E	16	18	18	17	19	23	19	20	18	18	18	12	15	E	E S 15	E	E S 16	E S 15
16	E	E	E	E	E	E	16	12	16	17	20	20	20	20	19	17	17	12	E	E S 14	E S 15	E S 16	E S 15	E S 15
17	E	E S 15	E	E	E	E	15	18	17	19	20	20	21	18	20	18	18	12	E	E S 15	E S 17	E S 14	E S 14	E S 15
18	E S 15	E S 13	E	E	E	E	16	16	18	18	19	22	21	20	17	18	16	16	E S 17	E S 12	E	E	E S 17	E S 15
19	E S 15	E S 13	E	E	E	E S 15	14	16	18	18	19	20	19	23	18	18	16	13	11	E S 15	E S 13	E S 15	E S 14	E S 16
20	E S 15	E	E S 13	E	E	13	15	15	19	20	21	23	23	20	20	18	16	16	12	E S 13	E	E S 14	E S 15	E
21	E S 14	E S 15	E	E	E	11	15	16	18	28	21	23	25	24	21	18	18	11	11	E S 13	E S 15	E	E S 12	E S 12
22	E S 15	E S 13	E	E S 13	E S 13	E S 14	17	16	20	26	20	20	25	20	25	17	17	15	12	E S 15	E S 14	E S 15	E S 15	E S 15
23	E S 15	E	E	E S 14	E	E	16	13	17	18	19	21	20	20	18	17	17	16	15	E	E	E S 16	E S 15	E S 16
24	E S 15	E S 14	E S 13	E	E	E	15	16	18	16	18	25	27	26	18	20	18	16	E S 15	E S 13	E S 15	E S 17	E S 15	E S 15
25	E S 14	E S 13	E	E	E	E	16	16	18	20	20	24	21	20	21	18	17	13	E S 14	E	E S 16	E	E S 16	E S 15
26	E S 14	E	E	E	E S 15	E S 17	15	17	20	23	25	21	20	20	20	19	15	16	15	E S 15	E S 13	E S 14	E S 15	E S 15
27	E S 18	E S 14	E	E	E	E S 17	15	17	20	20	22	24	25	23	25	20	18	15	E S 15	E S 15	E	E S 16	E S 12	E S 16
28	E S 15	E S 15	E	E	E	12	15	16	18	54	26	22	20	20	20	17	17	17	E S 15	E S 15	E S 14	E S 15	E S 15	E
29	E S 15	E	E	E	E	E	16	18	17	20	20	20	20	20	20	18	16	16	E S 15	E	E S 14	E S 15	E S 15	E S 15
30	C	C	C	C	C	C	C	C	C	C	25	26	26	20	20	24	19	16	11	E	E S 14	E S 15	E	E S 15
31	E	E S 13	E S 13	E S 13	E	E	16	17	18	20	20	22	18	20	19	17	17	17	E S 17	E S 15	E S 17	E S 15	E S 15	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	F S 15	E S 13	E	E	E	E E 12	16	17	18	20	20	23	22	20	20	18	17	16	12	E S 14	E S 14	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E	E	E	13	16	18	20	21	23	26	25	24	22	20	18	17	15	F S 15	E S 15	E S 15	E S 15	E S 15
LQ	E	E	E	E	E	E	15	16	18	18	20	20	20	20	20	18	17	14	11	E	E	E	E S 14	E

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AUG. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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

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	275	285	295	285	290	325	315	325	315	280	270	285	270	285	285	285	305	305	295	275	270	275	290	285
2	290	275	270	F	F	295	295	305	325	320	305	280	290	B	B	295	290	285	290	290	300	270	290	270
3	275	275	275	275	280	290	310	280	275	300	250	250	285	275	275	280	285	295	285	A	300	265	F	F
4	F	F	F	F	F	290	310	305	A	340	C	C	290	275	225	240	B	290	295	270	255	245	270	260
5	275	270	285	265	255	250	A	285	A	W	W	R	R	R	R	R	A	A	235	275	235	250	250	255
6	270	240	250	270	280	290	R	295	R	285	295	305	255	260	300	285	295	295	295	285	S	280	F	F
7	F	F 290	F	285	270	295	290	310	305	A	265	285	R	R	260	275	285	295	300	A	280	285	275	285
8	F 260	F	F 280	F	F	F 330	290	320	315	315	290	300	315	300	305	320	290	320	315	305	285	285	290	285
9	280	275	F 285	F 285	F 300	330	305	310	315	320	295	A	295	295	285	265	285	285	A	305	F	F	F	280
10	260	280	255	255	285	270	270	315	285	300	R	R	290	295	A	300	A	A	295	280	A	F	F	F
11	F 275	F 265	270	290	280	280	305	310	330	330	265	300	300	310	310	325	325	305	300	285	295	275	280	285
12	280	300	285	280	290	290	310	315	335	310	305	315	290	310	310	315	320	315	315	320	295	300	290	285
13	295	290	F	F 290	F 300	325	320	340	360	340	310	A	A	310	315	A	315	310	315	315	295	285	300	300
14	290	290	285	280	280	315	325	330	340	330	315	305	320	295	315	315	325	305	300	290	300	F	F	F
15	F	F 295	F 275	285	F 285	300	305	A	315	315	310	285	305	315	300	300	305	290	300	300	S	335	300	285
16	275	285	280	285	300	305	315	320	355	340	R	285	305	300	310	320	315	320	305	315	315	295	300	295
17	280	F 270	F 280	F 300	305	315	325	315	340	330	325	320	300	315	320	300	325	330	320	305	265	300	325	290
18	265	F	F	F	F	290	315	300	360	305	345	325	305	305	310	305	315	320	325	310	285	310	280	285
19	285	275	280	290	270	270	295	A	A	A	320	330	A	A	290	315	300	A	300	275	A	300	295	290
20	F 255	F	F 265	F 260	285	325	A	A	A	A	A	A	240	250	240	A	285	285	300	290	F 280	F	A	F 275
21	F	F	F	F	F	285	270	275	310	A	A	A	A	290	300	285	305	305	A	A	F	F	F	F
22	F	F	F	F	F	F 300	F 290	300	330	A	285	300	295	305	325	305	300	295	290	295	320	305	F 300	F
23	F 275	F 275	F	F	F 295	300	340	330	330	290	315	310	320	315	305	325	310	305	295	290	300	290	295	300
24	270	280	280	280	275	320	305	325	320	320	315	300	300	300	310	310	310	305	305	315	320	305	275	285
25	270	275	285	280	F	F	330	335	345	330	300	R	300	295	310	310	300	310	300	300	315	315	295	290
26	275	270	265	275	270	280	295	305	315	320	335	295	295	295	300	295	305	290	295	305	290	290	275	285
27	265	255	265	275	275	325	325	320	320	300	300	320	290	285	300	290	290	290	280	305	290	285	290	I S 280
28	290	265	280	270	270	270	275	290	285	R	275	295	295	315	325	310	320	305	295	280	295	300	300	A
29	270	265	270	270	290	305	295	305	300	320	310	290	A	290	A	310	320	310	300	290	280	285	290	285
30	C	C	C	C	C	C	C	C	C	C	315	305	H 305	300	300	310	300	310	305	305	295	280	265	265
31	280	270	275	285	285	295	310	310	310	305	300	300	300	300	300	300	310	305	300	295	295	290	290	270
	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	25	24	23	23	23	29	27	27	25	24	26	23	25	27	27	28	28	28	29	28	25	26	24	24
MED	275	275	280	280	285	295	305	310	320	318	302	300	295	300	300	302	305	305	300	295	295	288	290	285
UQ	280	285	282	285	290	315	315	320	335	330	315	308	305	308	310	312	315	310	305	305	300	300	298	288
LQ	270	270	270	272	275	290	295	302	310	300	285	288	290	290	295	288	292	292	295	285	280	280	278	278

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

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

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								L	370	345	355	380	A	A	A	A	370	375						
2								A	A	375	360	350	375	B	B	A	360							
3							B	B	A	A	365	360	385	360	360	360	A	A						
4							365	A	A	360	C	C	A	370	355	335	B	335						
5							A	A	A	395	370	A	350	355	R	335	A	A	A					
6							350	350	385	375	375	365	340	A	A	A	A	L						
7							A	A	365	A	400	410	R	R	A	355	A							
8								375	A	360	A	A	360	A	A	A	400	A						
9									L	355	385	A	A	A	365	355	335	355	A					
10						375	320	340	360	370	370	380	390	A	A	340	A	A						
11								365	A	370	355	380	340	370	360	A	A							
12								350	A	360	370	375	A	380	370	360	355							
13								375	A	370	A	A	A	A	365	A	A	345						
14								A	A	A	395	370	355	355	350	365								
15							A	A	A	A	370	375	A	360	355	A	345	U L 350						
16								390	375	380	380	340	375	A	350	360	345							
17									A	A	A	400	A	355	360	370	370	370						
18							350	A	A	395	A	A	A	355	370	360	350	350						
19						315	A	A	A	A	A	A	A	A	350	365	A	A						
20							A	A	A	A	A	A	A	340	350	A	A							
21							A	335	365	A	A	A	A	350	350	A	A	A						
22								A	A	A	A	A	R	A	A	385	340							
23									370	370	A	390	360	360	A	A	355							
24								370	A	A	A	L	A	A	A	A		L						
25								A	A	A		A	350	350	345	360	A							
26								A	A	365	370	L	340	360	340	340	350							
27								U L 385	A	L	370	365		345	350									
28							335	335	345	B	355	345	355	U L 350	U L 365	360								
29									350	A	A	A	A	A	A	355								
30									C	C	L	360		355										
31									L	365	365		L	355	360									
	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	5	11	9	16	17	16	13	18	19	17	12	7						
MED						345	350	365	365	370	370	372	355	355	355	360	352	350						
UQ							350	375	370	375	375	380	375	360	362	360	365	362						
LQ							335	345	360	360	365	360	350	350	350	355	345	348						

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

IONOSPHERIC DATA

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

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								270	300	350	330	350	350	A	345	325	290	260						
2								270	265	265	325	365	325	B	B	A	310							
3							290	260	320	335	470	515	420	400	420	390	350	295						
4							300	305	A	270	C	C	325	360	490	400	B	290						
5							A	360	A	W	W	R	R	R	R	R	A	A	545					
6							R	360	R	400	365	340	460	405	325	A	315	320						
7							345	300	350	A	470	400	R	R	A	375	345							
8								290	295	300	325	325	315	325	320	300	315	270						
9									300	290	310	A	355	325	325	375	295	300	A					
10						380	390	315	400	350	R	R	400	380	A	365	A	A						
11								290	270	295	445	335	305	310	315	300	295							
12								295	270	310	295	310	325	325	325	300	280							
13								270	265	265	320	A	A	330	320	A	290	300						
14								260	250	270	315	325	300	345	315	300								
15							305L	A	335	300	310	325	325	315	300	320	300	300						
16								270	250	250	300	340	310	325	295	290	300							
17									265	275	300	295	310	305	300	320	295	265						
18							270	320	250	270	280	295	335	325	300	315	300	265						
19						290	360	A	A	A	310	315	A	A	350	300	325	A						
20							A	A	A	A	A	A	545	510	550	A	315							
21							420	405	320	A	A	A	A	410	360	400	315	310						
22								305	285	A	375	345	350	315	300	305	320							
23									275	345	300	320	315	320	335	300	300							
24								265	270	A	300	300	325	315	310	300		280						
25								250	250	270L		320	315	315	300	300	300							
26								300	300	295	280	320L	350	325	310	310	280							
27								250	260	295	280	270		350	310									
28							320	325	350	315	400	345	325	325	290	300								
29									300	A	A	A	A	U L 330	A	300								
30									C	C	280	300		300										
31									280	275	290		305	315	300									
	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	22	25	23	25	22	23	26	25	23	21	12	1					
MED						335	320	292	280	295	310	325	325	325	315	305	300	292	545					
UQ							360	315	300	325	365	345	350	350	335	345	315	300						
LQ							300	270	265	270	300	310	315	315	300	300	295	268						

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AUG. 1972 | H'F2 (KM)

IONOSPHERIC DATA

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

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	290	300	270	260	250	235	225	225	215	245	245	210	A	A	A	A	250	250	250	A 275	295	300	250	250
2	250	260	A	300	285	270	250	A	A	215	200	225	205	B	B	A	280	255	A	265	250	260	240	260
3	300	270	280	295	275	250	B	B	A	A	210	230	210	260	225	250	A	A	A	A	265	A	320	250
4	270	260	250	245	275	265	260	A	A	250	C	C	A	225	250	225	B	270	250	A	290	350	310	300
5	270	225	250	300	A	A	A	A	A	210	245	A	275	250	R	275	A	A	A	340	380	350	350	360
6	325	375	380	350	325	250	235	225	230	200	215	230	290	A	A	A	A	245	265	250	235	245	280	265
7	305	300	290	250	345	250	A	A	250	A	225	205	A	A	A	275	A	225	A	A	A	270	265	270
8	300	300	270	265	270	250	250	235	A	235	A	A	220	A	A	A	210	A	255	250	230	A	A	265
9	275	290	280	270	260	220	220	215	210	250	215	A	A	A	215	250	240	250	A	260	325	215	330	235
10	300	270	345	325	300	275	250	225	250	215	205	215	215	A	A	250	A	A	A	265	A	A	A	A
11	315	300	295	285	275	250	245	245	I A 250	250	215	205	260	225	250	A	A	260	A	A	260	300	280	290
12	280	250	245	275	260	260	245	250	A	235	230	205	A	208	215	235	245	245	255	250	260	255	250	260
13	250	295	290	300	A	245	265	250	A	210	A	A	A	A	215	A	A	250	255	A	A	250	250	240
14	270	I A 290	260	275	295	250	225	A	A	A	190	210	250	225	225	225	250	260	A	255	A	300	300	275
15	250	260	300	270	290	280	A	A	A	A	220	215	A	230	250	A	225	230	270	A	A 260	A	250	275
16	300	275	270	270	245	250	235	225	210	220	210	230	200	A	200	220	240	240	250	245	240	250	250	250
17	300	355	305	270	245	225	225	220	A	A	A	190	A	235	220	215	225	240	240	A	A	A	250	275
18	300	320	295	275	285	275	245	A	A	215	A	A	A	245	210	215	245	250	A	A	A	255	300	300
19	275	265	295	240	225	265	A	A	A	A	A	A	A	A	245	250	A	A	A	A	A	A	260	290
20	315	350	315	300	290	250	A	A	A	A	A	A	A	275	235	A	A	265	280	A	A	A	A	A
21	300	310	295	300	290	285	A	250	225	A	A	A	A	270	245	A	A	A	A	A	A	270	300	275
22	300	310	300	275	260	250	225	A	A	A	A	A	A	A	A	205	225	245	250	265	255	250	245	295
23	320	325	300	260	250	245	250	240	215	200	A	210	225	215	A	A	240	255	265 A	270 A	255	270	250	250
24	265	300	280	285	300	250	230	235	A	A	A	215	A	A	A	A	225	260	A	A	A	235	A	305
25	A	295	295	315	290	250	A	A	A	A	215	A	220	210	225	250	A	250	250	A	A	235	250	250
26	295	290	275	255	305	270	245	A	A	230	200	200	215	215	220	250	230	260	260	230	270	250	275	275
27	295	310	310	295	275	230	230	225	A	210	200	210	200	250	250	240	250	250	280	250	255	295	I A 260	300
28	245	300	250	270	275	275	250	250	215	B	230	225	250	235	240	230	250	250	255	300	A 300	A	A	A
29	295	310	300	320	280	260	225	220	250	A	A	A	A	A	A	245	260	250	250	A	270	270	260	275
30	C	C	C	C	C	C	C	C	C	C	220	215	H 250	250	225	235	260	250	250	250	250	260	A	300
31	300	295	A	A	295	250	245	245	225	215	225	240	210	205	225	225	240	250	260	260	A	260	250	265
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	28	29	28	29	22	17	12	17	19	19	16	18	20	20	19	25	19	17	19	23	25	28
MED	295	298	292	275	278	250	245	235	225	215	215	215	220	232	225	238	240	250	255	260	260	260	260	275
UQ	300	310	300	300	292	265	250	245	250	235	225	225	250	250	245	250	250	255	262	265	280	282	300	292
LQ	270	270	270	270	260	250	225	225	215	210	208	208	210	215	218	225	228	245	250	250	252	250	250	255

AUG. 1972 | H'F (KM)

IONOSPHERIC DATA

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

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	105	105	105	105	105	G	140	G	125	120	110	110	105	105	105	105	105	G	125	115	115	110	S	S
2	E	S	105	105	105	125	120	110	110	110	110	G	G	B	B	100	G	125	120	115	115	105	105	100
3	100	105	100	100	S	135	B	B	115	110	115	105	105	105	105	105	115	115	115	110	105	105	105	125
4	100	100	100	105	105	105	125	110	110	115	C	C	110	120	G	G	B	G	G	115	105	100	100	100
5	S	E	E	E	115	120	115	110	110	140	G	120	G	G	G	G	125	115	115	120	S	S	S	S
6	S	S	E	E	140	G	G	125	115	115	115	105	G	105	120	115	125	145	150	S	105	105	105	105
7	115	105	115	125	115	120	115	115	115	110	105	G	105	100	125	125	115	120	110	110	105	105	105	100
8	105	E	E	S	125	120	115	120	115	120	110	110	105	105	105	105	G	120	120	S	100	105	105	E
9	S	S	100	E	E	G	G	G	G	G	G	100	100	100	G	120	115	110	105	105	S	E	S	S
10	E	120	110	115	E	120	120	G	115	115	110	G	G	105	105	G	120	115	110	110	105	105	100	100
11	100	100	100	100	S	125	125	115	115	110	G	105	G	G	G	100	100	100	105	105	105	105	105	100
12	100	100	100	S	100	G	140	120	110	110	110	110	105	105	G	105	100	105	115	110	105	100	105	S
13	E	100	100	100	100	105	120	120	110	115	110	110	105	105	G	100	100	100	100	110	105	105	S	105
14	100	100	105	E	E	125	125	115	110	110	105	105	105	105	105	100	105	125	115	110	105	105	105	105
15	100	100	100	105	105	105	120	115	110	110	105	105	105	105	105	105	100	G	115	110	105	105	105	105
16	100	E	E	105	105	G	115	110	105	105	105	105	G	110	110	105	100	100	100	100	100	105	105	105
17	105	105	100	100	100	120	120	115	110	105	115	100	100	100	G	G	G	100	100	110	105	105	105	105
18	105	105	105	100	100	115	110	110	110	110	105	100	100	100	125	130	120	120	110	110	110	105	105	105
19	105	S	E	115	125	120	120	115	115	110	115	115	110	110	105	105	100	100	100	100	110	110	105	105
20	105	105	110	E	E	125	120	120	110	115	110	110	110	125	G	110	110	110	110	105	105	105	100	100
21	100	125	E	E	E	115	110	110	125	115	115	110	110	G	G	135	120	115	110	110	110	105	105	105
22	105	100	100	100	125	125	120	120	120	110	110	110	105	105	105	105	105	125	100	100	100	100	105	105
23	105	105	100	100	100	100	100	120	115	G	115	G	G	105	105	105	105	125	100	100	100	100	100	105
24	105	105	100	100	100	105	G	120	110	110	105	105	100	105	105	105	105	120	110	110	110	105	105	105
25	105	105	105	100	100	120	115	110	105	105	105	100	100	105	105	100	100	115	105	105	105	110	S	100
26	S	F	E	E	S	S	120	115	110	110	G	G	105	105	G	105	105	105	105	105	105	105	100	S
27	S	100	100	100	100	S	G	115	110	110	105	105	105	105	105	G	125	125	110	110	110	110	105	105
28	S	S	E	E	100	G	120	105	120	B	110	105	105	G	105	105	G	135	120	110	105	105	105	105
29	105	100	105	100	105	105	110	105	110	105	105	105	105	105	105	105	130	120	120	110	110	S	105	105
30	C	C	C	C	C	C	C	C	C	C	115	110	110	110	110	G	135	105	100	100	110	110	105	105
31	100	100	105	105	105	105	G	125	120	115	110	G	G	100	G	110	G	G	100	S	105	105	105	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	22	20	22	22	24	26	29	27	26	24	23	26	19	25	25	27	30	28	29	28	26	25
MED	105	105	100	100	105	120	120	115	110	110	110	105	105	105	105	105	105	115	110	110	105	105	105	105
UQ	105	105	105	105	115	125	120	120	115	115	115	110	105	105	108	110	120	122	115	110	110	105	105	105
LQ	100	100	100	100	100	105	115	110	110	110	105	105	105	105	105	105	100	105	100	105	105	105	105	100

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AUG. 1972 | H'ES (KM)

IONOSPHERIC DATA

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

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	F 3	F 4	F 2	F 2	L 1		H 1		C 1	C 1	C 2	C 1	L 1	L 2	L 2	L 1	L 1		C 2	C 2	F 2	F 2		
2			F 4	F 2	L 1	C 3	C 2	C 3	C 2	C 1	C 1					L 1		C 2	C 3	C 2	F 1	F 2	F 1	F 2
3	F 2	F 2	F 2	F 2		H 1			C 1	C 1	C 1	L 1	L 1	L 1	L 1	L 1	C 1	C 3	C 5	C 4	F 3	F 3	F 2	F 1
4	F 2	F 2	F 1	F 1	L 2	L 1	C 1	C 2	C 2	C 1			C 1	C 1						C 5	F 2	F 5	F 2	F 3
5					C 5	C 3	C 2	C 2	C 1	H 1		C 1					C 1	C 3	C 4	C 1				
6					H 1			C 1	C 1	C 1	C 1	L 1		L 1	C 2	C 1	C 1	H 1	H 1		F 1	F 2	F 1	F 1
7	F 2	F 3	FE 22	C 2	C 5	C 1	CL 11	CL 11	CL 11	C 2	L 1		L 1	L 1	C 1	C 1	C 1	C 1	C 3	C 3	F 6	F 3	F 2	F 1
8	F 1				C 3	C 1	C 2	C 1	C 1	C 1	C 2	C 1	L 1	L 1	L 2	L 3		C 3	C 1		F 1	F 2	F 3	
9			F 1									L 3	L 2	L 2		C 1	C 2	C 1	L 3	L 1				
10		F 2	F 6	F 2		C 1	C 1		C 1	C 1	C 1			L 1	L 2		C 2	C 6	C 2	L 2	F 3	F 4	F 3	F 2
11	F 2	F 1	F 1	F 1		C 1	C 1	C 1	C 2	C 1		L 1				L 1	L 2	L 2	L 3	L 7	F 3	F 3	F 2	F 4
12	F 3	F 1	F 1		L 1		C 1	C 1	C 2	C 1	C 1	C 1	L 1	L 1		L 1	L 1	L 1	CL 21	C 3	L 2	F 4	F 1	
13		F 3	F 2	F 4	L 5	L 1	C 2	C 2	C 2	C 1	C 2	C 2	L 2	L 2		L 3	L 1	L 2	L 1	C 4	F 5	F 2		F 1
14	F 2	F 4	F 2			C 1	C 1	C 2	C 2	C 1	L 1	L 1	L 1	L 1	L 1	L 1	L 1	CL 11	C 3	C 2	F 3	F 3	F 3	F 3
15	F 2	F 2	F 3	F 1	F 2	L 2	C 3	C 2	C 1	C 1	L 1	L 2	L 1	L 1	L 2	L 2	L 2		C 2	C 6	F 2	F 3	F 2	F 2
16	F 2			F 2	F 1		C 2	C 2	L 1	L 1	L 1	L 1		C 1	L 1	L 1	L 2	L 1	L 1	L 1	F 1	F 2	F 1	F 1
17	F 2	F 3	F 2	F 2	F 2	C 1	C 1	C 1	C 1	L 2	CL 11	L 1	L 2	L 1				L 1	LC 11	C 3	F 2	F 3	F 2	F 3
18	F 3	F 3	F 1	F 2	L 2	CL 21	C 2	C 2	C 1	C 2	L 1	L 2	L 2	L 1	CL 11	H 1	C 1	C 2	C 3	C 3	F 5	F 4	F 3	F 2
19	F 2			F 1	C 1	C 2	C 3	C 5	C 4	C 4	C 1	C 1	C 2	C 3	L 2	L 2	L 2	L 3	L 3	L 2	F 3	F 3	F 2	F 3
20	F 2	F 3	F 1			C 3	C 3	C 2	C 2	C 2	C 2	C 2	C 1	C 1		C 2	C 2	C 2	L 3	L 3	F 5	F 4	F 3	F 3
21	F 2	F 1				C 2	C 3	L 2	C 1	C 3	C 2	C 2	C 3			H 1	CL 21	CL 33	L 4	L 3	F 3	F 4	F 2	F 1
22	F 1	F 2	F 1	F 1	C 1	C 1	C 1	C 1	C 1	C 2	C 1	C 2	L 1	L 2	L 2	L 2	L 2	CL 11	L 1	F 2	F 3	F 3	F 1	F 2
23	F 2	F 2	F 2	F 1	L 2	L 2	L 3	CL 11	C 1		C 1			L 1	L 2	L 2	L 1	CL 22	L 2	F 5	F 3	F 3	F 1	F 2
24	F 1	F 2	F 1	F 2	L 2	L 2		C 1	C 1	C 2	L 2	L 1	L 2	L 2	L 2	L 2	L 2	CL 11	C 3	F 5	F 4	F 2	F 3	F 4
25	F 4	F 2	F 2	F 2	L 1	CL 21	C 3	C 3	L 2	L 1	L 2	L 1	L 1	L 1	L 1	L 2	L 2	C 2	L 2	F 4	F 4	F 2		F 2
26							C 1	C 2	C 2	L 1			L 1	L 1		L 1	L 1	L 4	L 2	F 1	F 2	F 2	F 1	
27		F 1	F 1	F 1	F 1			C 1	C 2	C 1	L 1	L 2	L 1	L 1	L 1		C 1	C 1	C 3	F 4	F 3	F 4	F 4	F 3
28					F 1		C 1	L 1	C 1		C 1	L 1	L 1		L 1	L 1		H 1	C 2	F 2	F 3	F 2	F 3	F 5
29	F 1	F 1	F 2	F 3	F 2	L 1	L 2	L 2	C 2	L 3	C 3	C 2	C 3	L 2	L 3	L 2	H 1	C 1	C 3	F 3	F 2		F 1	F 3
30									C 1	C 1	C 1	C 1	C 1	C 2	C 1		HL 11	L 2	L 3	F 2	F 2	F 2	F 4	F 2
31	F 2	F 2	F 3	F 5	F 3	L 2		C 1	C 1	C 1	C 1			L 1		L 1			L 1		F 3	F 2	F 1	F 2
	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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AUG. 1972 | TYPES OF ES

IONOSPHERIC DATA

AUG. 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

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	67	66	63	65	63	64	62	64	66	71	78	79	87	94	94	100	92	80	68	69	74	F 73	F	F 76
2	F 74	63	65	60	F	F 69	97	97	90	72	78	76	84	94	95	86	75	78	83	86	81	F	F	79
3	70	F 68	66	65	60	68	74	77	79	72	68	59	66	69	69	71	I A 71	I A 68	74	F 77	F	F	F 73	F
4	F	F	F	F	F	58	72	81	Z 83	87	H 89	85	94	103	91	109	116	119	97	I R 50	61	62	64	63
5	57	F 56	48	47	45	44	56	V 60	I A 49	E G 45	E G 43	A	E G 43	E G 43	50	44	A	A	A	I A 40	I A 30	33	34	33
6	34	33	32	34	46	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	61	F
7	57	57	54	51	42	51	60	63	58	I A 59	58	57	59	I B 55	61	66	68	67	62	62	61	F 62	62	56
8	57	56	54	53	49	51	63	81	77	76	74	I C 86	89	78	79	78	72	72	77	77	76	72	67	F
9	F 63	59	57	57	F 50	55	63	74	77	83	74	74	73	94	96	86	104	112	I A 120	103	F	101	F	F
10	F	F	F	F	F	51	I R 54	59	60	I R 57	59	E G 49	61	60	60	58	59	58	63	72	75	69	F 63	58
11	56	53	51	52	49	53	73	66	64	64	69	77	88	85	82	78	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	81	76	68	78	74	76	82	85	86	80	77	66	F	R	F
13	F	F	F 56	55	51	55	64	73	72	69	68	57	67	71	74	76	78	77	84	87	74	F 64	F	58
14	55	54	52	48	48	58	76	74	72	I A 65	66	76	78	76	78	77	72	69	69	80	83	F	F	F
15	F	F 54	F	F 55	F	47	54	64	66	61	68	68	76	84	81	85	89	83	86	98	77	F	F	F
16	F	F	F	F	F	58	74	88	65	72	68	67	78	78	83	90	91	89	85	78	76	77	62	57
17	56	52	55	F	F	F	64	67	78	77	69	70	77	77	74	71	77	71	68	73	69	66	F	F
18	55	51	48	F	F	48	63	83	74	71	I A 63	I A 68	69	73	73	75	73	79	82	73	67	F	F	65
19	59	53	52	50	51	46	51	62	71	64	I A 62	56	57	61	70	69	A	A	63	74	72	F	F	F
20	F	F 46	F	F	F	F 43	44	A	A	49	I R 51	55	55	56	58	A	A	A	I A 63	71	I A 62	F	F	F
21	F	F	51	F	47	47	54	59	63	53	57	57	58	66	67	63	64	64	67	66	59	F	F 55	F
22	F	F	F	F	F	F	65	69	80	77	67	73	73	77	73	78	71	70	74	83	79	67	R 54	51
23	48	47	49	51	45	50	59	72	77	65	68	71	78	76	74	73	75	76	75	77	77	69	63	57
24	56	55	55	F 51	F	F	72	81	87	79	76	82	87	89	87	82	82	83	94	96	F 64	F	F	F
25	F	F	F	F	F	60	83	92	77	H 76	77	83	87	86	87	83	76	84	89	88	F	F	F	F
26	57	51	51	51	48	56	67	74	87	76	72	77	89	93	97	94	91	81	92	89	69	65	61	61
27	60	58	57	58	59	66	76	88	87	95	88	92	87	88	98	99	96	98	97	108	87	72	74	72
28	77	57	57	56	57	56	64	76	74	75	90	84	88	92	86	77	76	77	67	78	86	74	63	61
29	F 61	F 56	53	F 51	51	56	69	82	91	85	78	H 74	81	82	87	87	84	76	82	84	76	76	74	68
30	I R 66	63	F	63	F 51	53	74	88	97	110	92	87	97	92	91	91	84	93	97	84	I R 74	69	67	64
31	66	67	68	66	63	63	71	86	99	100	95	96	99	98	96	89	I C 87	87	88	89	84	77	71	64
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	22	21	19	26	29	28	28	30	30	29	30	30	30	29	26	26	28	29	26	18	17	17
MED	57	56	54	53	50	55	64	74	77	72	69	74	78	78	80	78	78	78	81	78	74	69	63	61
UQ	66	58	57	58	54	58	73	82	85	79	78	82	87	92	91	87	89	86	88	87	77	74	67	65
LQ	56	52	51	51	48	50	60	65	66	64	66	67	67	71	73	73	72	71	68	73	66	65	61	57

AUG. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 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								L	L 500	500	I A 510	530	510	510	500	480	460	L						
2							A	L	L	L	590	520	540	B	B	A	A	A	L					
3								A	A	A	A	L 500	550	500	I A 500	490	A	A	L					
4							L	A	A	I A 500	I A 500	I A 510	500	H 500	520	480	I B 470	U L 420	L					
5						L 320	I A 390	I A 420	I A 420	450	430	I A 420	430	430	420	410	A	A	A					
6						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
7							L	430	460	I A 470	480	500	I B 490	I B 480	470	460	A	A	L					
8							L	L 440	L	490	510	I C 510	500	I A 500	500	A	L	A	A					
9							L	L	L 490	490	500	500	H 550	470	L 500	H 490	L 460	A						
10							370	410	440	H 470	460	H 490	I A 480	490	I A 480	470	440	A	A					
11						L	L	L	460	470	490	490	480	I A 490	I A 480	460	C	C	C					
12							C	C	C	470	470	490	I A 480	500	480	480	A	A						
13								U L 430	460	460	460	490	I A 480	I A 480	490	460	L 430	L						
14							L	A	A	A	A	480	I A 480	I A 480	470	460	L	A						
15								A	A	A	480	500	490	480	480	470	440	A	L					
16								L	A	L	470	H 550	H 500	470	470	H 470	L 430	L						
17								L 420	450	480	470 H	510	500	480	480	470	440	L						
18							L	L	440	A	A	A	490	470	480	480	430	A						
19							410	I A 420	440	A	A	480	480	470	450	A	A	A	A					
20								A	A	460	470	470	470	470	480	A	A	A	A					
21							L 410	420	440	480	480	480	480	480	490	450	U L 460	L						
22								L	460	470	490	I A 530	500	480	520	470	450	L						
23							L	L	U L 460	470	H 580	530	510	510	H 500	I A 490	L	L						
24								L	L	A	A	540	A	520	500	470	A	L						
25							L	A	A	A	520	540	500	530	I A 500	L 480	U L 470	L						
26							L	U L 450	470	I A 490	L 520	570	510	510	520	470	U L 460	L						
27									L	L 510	A	540	L 520	560	530	L 500	U L 500	L						
28							L	450	L	510	H 530	H 550	510	500	L 490	470	L							
29								L	480	L	A	H 540	550	550	520	490	L							
30								L	L	A	A	A	550	I A 510	L	L 470	L	L						
31								L	L	L	L	L 580	560	550	540	L	C	L						
	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	4	10	15	18	21	28	29	29	28	25	14	1						
MED						L 320	400	425	460	475	490	510	500	490	490	470	455	U L 420						
UQ							410	L 440	465	490	510	540	510	510	500	480	U L 460							
LQ							380	420	440	470	470	490	480	480	480	470	440							

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AUG. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 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						195	255	305	330	350	IA 360	IA 370	IA 375	375	A	A	A	290	250	S				
2						A	255	300	325	A	A	A	390	B	B	B	350	295	250	S				
3						190	IA 280	IB 325	355	360	A	A	A	A	A	A	A	A	A	S				
4						A	255	310	330	345	360	365	370	380	370	350	IB 335	IA 305	250	S				
5						A	240	300	IA 320	355	350	IA 360	355	355	B 350	340	320	260	205					
6						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
7					E	IA 185	240	275	315	IA 340	IA 360	B 370	IB 380	IB 365	IA 355	325	310	A	A	S				
8						190	245	285	IA 320	A	A	C	A	A	A	A	A	A	A	E				
9						A	A	A	335	345	IA 350	360	IA 370	370	355	340	320	A	A	S				
10						A	A	285	IA 320	IA 340	A	A	A	A	A	IA 340	315	270	A	S				
11						A	235	280	A	A	A	360	A	A	A	A	C	C	C	C				
12						C	C	C	C	A	A	A	A	A	A	A	A	A	A	S				
13						A	245	295	320	IA 340	350	A	A	A	360	A	A	IA 260	A	S				
14						B	235	285	A	A	A	A	A	A	A	335	300	250	A	S				
15						A	235	280	315	335	A	A	A	A	A	A	A	A	A	E				
16						A	235	A	A	A	A	A	A	360	350	335	300	250	A	S				
17						A	A	280	A	A	345	IA 355	IA 355	IA 360	350	335	300	A	A	S				
18						A	A	A	A	A	A	A	A	A	A	A	285	A	A	S				
19						S	235	285	320	340	350	355	IA 365	360	A	A	A	A	A	S				
20						S	230	285	315	IA 330	A	A	A	380	360	A	A	A	A					
21						A	A	A	A	A	355	360	370	370	350	335	305	A	A					
22						A	235	285	325	IA 340	IA 350	A	A	A	A	A	295	255	A					
23						S	235	295	325	345	A	A	A	365	A	A	A	A	A					
24						S	A	295	315	335	A	A	A	A	A	A	A	275	A					
25						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
26						S	A	A	A	A	A	A	A	380	A	A	A	A	A					
27						S	A	A	320	A	A	A	380	IA 375	375	355	320	275	A					
28						S	235	295	IA 315	345	360	IA 365	375	380	370	340	305	265	A					
29						S	A	295	IA 330	345	A	A	A	A	355	345	IA 320	270	A					
30						S	230	290	335	345	A	A	A	A	A	350	315	275	A					
31						S	A	A	330	345	A	A	A	A	A	A	C	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	4	18	21	21	18	11	10	11	14	12	13	16	14	4	2				
MED					E	190	235	290	320	345	350	360	370	370	355	340	312	270	250	E				
UQ						192	245	295	330	345	360	IA 365	378	380	365	345	320	275	250					
LQ						188	235	285	320	IA 340	350	360	368	360	350	335	300	260	228					

The Radio Research Laboratories, Japan

AUG. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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

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	J X 28	J X 44	J X 44	J X 43	J X 25	J X 28	33	39	38	J X 48	J X 60	J X 81	J X 46	G	J X 44	J X 49	J X 33	27 G	27	J X 28	J X 58	J X 53	J X 88	J X 36
2	M 20	J X 19	M 21	J X 23	J X 25	J X 43	J X 58	J X 75	J X 48	J X 83	J X 44	J X 40	G	E B 70	E B 64	52	J X 51	J X 54	J X 40	J X 40	J X 20	J X 73	J X 50	J X 28
3	J X 29	M 20	J X 23	M 20	E S 14	G	37	53	J X 67	J X 79	J X 53	46	J X 68	J X 49	J X 64	J X 51	J X 156	J X 128	J X 149	J X 143	J X 82	J X 136	J X 121	J X 49
4	J X 88	J X 73	J X 43	J X 28	J X 26	J X 27	33	50	J X 74	51	J X 57	J X 73	J X 61	G	G	G	E B 75	32	G	J X 44	J X 125	J X 79	J X 36	J X 25
5	J X 26	J X 24	J X 33	J X 28	J X 27	J X 36	43	J X 51	J X 51	45	39	43	37	39	G	37	J X 47	J X 50	J X 61	J X 82	J X 46	17	J X 31	J X 24
6	E S 14	E S 14	E S 13	E S 13	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J X 43	J X 27
7	J X 28	J X 21	E	J X 33	J X 18	27	31	J X 40	42	J X 75	J X 89	G	E B 51	B	J X 42	39	J X 57	J X 104	J X 42	J X 30	J X 44	J X 43	J X 43	J X 30
8	J X 20	J X 20	E	J X 16	M 19	G	34	J X 43	43	43	40	C	J X 49	J X 55	J X 51	J X 78	J X 51	J X 66	J X 60	J X 58	J X 18	J X 21	J X 43	J X 43
9	J X 44	J X 37	J X 26	14	E	J X 34	29	J X 44	G	G	J X 81	G	J X 38	G	G	39	J X 50	J X 138	D	J X 49	E S 13	E S 14	E S 14	E S 14
10	E S 14	J X 44	J X 40	J X 39	J X 31	23	J X 38	33	34	36	44	J X 78	47	J X 50	J X 61	J X 86	44	J X 53	J X 51	J X 91	J X 39	J X 84	J X 64	J X 19
11	J X 28	E S 13	J X 18	M 20	J X 43	J X 27	30	34	J X 48	40	J X 39	J G 33	J X 68	J X 73	J X 79	J X 61	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	J X 57	J X 46	J X 48	J X 72	J X 43	J X 58	J X 54	J X 53	J X 74	J X 84	J X 100	J X 41	J X 89	J X 74	J X 23
13	J X 24	E S 14	E S 14	E S 13	J X 25	J X 19	38	38	J X 43	42	37	38	J X 63	J X 58	G	J X 40	J X 54	34	J X 40	J X 43	J X 99	J X 70	J X 27	J X 39
14	J X 28	J X 28	J X 25	E S 14	E	E B 16	J X 39	J X 56	J X 62	J X 84	J X 58	J X 43	J X 65	J X 68	J X 46	G	39	J X 53	J X 26	J X 55	M 21	J X 90	J X 43	J X 54
15	J X 63	J X 119	J X 30	J X 38	J X 28	J X 36	39	J X 48	J X 54	J X 63	J X 60	J X 43	J X 58	J X 40	J X 40	J X 37	J X 34	J X 65	J X 28	J X 25	J X 65	J X 40	J X 61	J X 43
16	J X 23	J X 17	J X 27	J X 38	J X 21	J X 27	J X 46	42	J X 45	J X 53	J X 41	J X 47	J X 39	G	G	J G 33	33	37	J X 61	J X 43	J X 35	J X 26	J X 22	J X 37
17	J X 27	J X 28	J X 48	J X 48	E S 14	21	J X 38	J X 29	J X 34	J X 43	G	J X 44	J X 63	38	G	G	G	J X 27	J X 28	J X 49	J X 22	J X 25	J X 27	J X 28
18	J X 18	J X 26	J X 73	J X 43	J X 38	J X 24	28	36	J X 43	J X 64	J X 124	J X 91	J X 88	42	J X 49	J X 53	J X 41	J X 54	J X 50	J X 73	J X 88	J X 64	J X 39	J X 51
19	J X 35	J X 28	J X 39	J X 28	J X 18	E S 16	29	J X 46	J X 56	J X 54	J X 68	J X 59	J X 48	G	J X 42	J X 83	J X 138	J X 128	J X 84	J X 50	J X 43	J X 120	J X 73	J X 84
20	J X 66	J X 43	J X 28	E S 14	E	J X 24	27	J X 56	J X 81	J X 78	40	46	60	G	41	J X 119	J X 98	J X 169	J X 110	J X 62	J X 100	J X 38	J X 51	J X 63
21	J X 48	J X 34	J X 36	J X 24	J X 28	27	28	36	35	J X 43	J X 38	G	G	G	G	G	28 G	J X 36	J X 44	J X 48	J X 50	J X 110	J X 80	J X 41
22	J X 50	J X 49	J X 44	J X 30	J X 23	J X 23	26	34	44	J X 63	42	J X 65	J X 63	J X 43	J X 40	J X 39	J X 28 G	J X 29	J X 35	J X 36	J X 24	M 20	M 18	J X 53
23	J X 28	J X 29	J X 24	M 19	J X 19	J X 23	26	G	G	J X 48	42	J X 41	J X 41	G 33	J X 74	J X 65	J X 41	J X 59	J X 50	J X 49	J X 18	J X 23	E S 14	J X 39
24	J X 48	J X 28	J X 30	J X 37	J X 38	J X 40	J X 53	38	J X 60	J X 51	J X 54	J X 74	J X 65	J X 69	J X 70	J X 67	J X 50	J X 50	J X 54	J X 38	J X 126	J X 88	J X 61	J X 63
25	J X 50	J X 29	J X 26	J X 26	J X 26	J X 24	29	J X 93	J X 123	J X 63	J X 89	J X 63	J X 49	J X 48	J X 58	J X 42	J X 46	J X 51	J X 109	J X 110	J X 90	J X 78	J X 54	J X 18
26	J X 18	J X 25	J X 27	J X 36	J X 25	E S 14	J X 33	J X 53	J X 43	J X 67	J X 62	J X 47	J X 37	J G 38	39	J X 37	J X 33	27	J X 27	J X 63	J X 36	J X 33	J X 35	J X 27
27	J X 19	J X 21	J X 18	J X 23	J X 24	J X 19	27	38	42	J X 48	J X 51	J X 43	G 37	J X 54	G 32	J G 34	36	34	J X 38	J X 43	J X 18	J X 19	J X 53	J X 23
28	J X 39	J X 30	J X 25	J X 24	J X 27	J X 23	26	35	J X 44	40	40	J X 39	39	G	40	40	35	28	J X 26	J X 43	J X 24	J X 28	J X 33	J X 22
29	J X 77	J X 45	J X 54	J X 28	J X 28	J X 35	J X 35	35	39	J X 47	J X 73	J X 41	J X 42	J X 43	41	G	40	30	J X 34	J X 69	J X 41	J X 55	J X 89	J X 90
30	J X 103	J X 69	J X 43	J X 53	J X 24	E S 15	G	32	43	J X 83	J X 73	J X 74	45	J X 69	J X 38	G	G	34	J X 32	J X 98	J X 103	J X 63	J X 19	J X 18
31	J X 38	J X 48	J X 24	J X 28	J X 65	J X 43	J X 54	J X 39	43	44	44	J X 47	39	J X 40	42	37	C	32	J X 58	J X 53	J X 26	J X 48	J X 26	E S 14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	29	29	29	30	30	29	30	29	30	30	28	29	29	29	29	29	30	30
MED	J X 28	J X 28	J X 27	J X 28	J X 25	J X 24	33	39	J X 43	J X 51	J X 48	J X 46	J X 48	J X 41	J X 42	J X 40	J X 42	J X 50	J X 44	J X 49	J X 41	J X 53	J X 43	J X 33
UQ	J X 48	J X 44	J X 40	J X 37	J X 28	J X 28	J X 38	J X 50	J X 54	J X 64	J X 62	J X 63	J X 63	J X 52	J X 54	J X 54	J X 52	J X 65	J X 61	J X 69	J X 82	J X 79	J X 61	J X 49
LQ	J X 23	J X 21	J X 23	20	J X 18	19	28	35	42	43	40	J X 41	39	G	G 32	G 34	34	32	J X 32	J X 43	J X 24	J X 26	J X 27	J X 23

The Radio Research Laboratories, Japan

AUG. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1972 | FBES (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

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	16	25	19	18	15	G	36	38	45	57	45	46	G	38	43	33	G 27	G	21	24	37	54	E
2	E	E	E	15	15	28	46	39	43	42	42	40	G	E B 70	E B 64	52	51	49	32	24	E	E	20	18
3	18	E	E	E	E S 14	G	36	53	55	57	U R 53	40	45	44	57	40	A	A	28	37	26	35	38	19
4	26	26	30	18	20	22	32	50	67	51	56	65	48	G	G	G	E B 75	32	G	41	42	35	28	E
5	E	22	22	17	17	22	42	47	A	44	38	A	37	38	G	36	A	A	A	A	A	17	25	E
6	E S 14	E S 14	E S 13	E S 13	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	29	24
7	23	16	E	16	15	21	30	38	40	A	40	G	E B 51	B	37	39	50	50	25	21	37	24	32	25
8	19	15	E	E	E	G	34	40	37	40	40	C	48	54	48	56	43	65	59	U R 55	E	E	24	28
9	22	19	22	E	E	30	27	38	G	G	38	G	38	G	G	38	37	60	A	28	E S 13	E S 14	E S 14	E S 14
10	E S 14	30	27	25	21	22	29	30	34	36	38	40	E R 47	48	53	43	35	51	42	40	32	24	21	E
11	E	E S 13	E	E	16	18	G	34	38	39	39	G 33	44	58	57	39	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	45	44	43	60	41	43	39	47	42	59	68	31	21	30	18
13	E	E S 14	E S 14	E S 13	18	19	35	37	36	40	37	38	56	57	G	35	36	30	29	30	36	38	18	20
14	18	15	16	E S 14	E	E B 16	19	51	56	A	57	41	58	54	38	G	36	44	25	30	E	23	23	31
15	24	18	15	21	20	34	35	45	48	59	39	40	41	37	36	36	33	53	23	17	35	28	19	18
16	16	E	E	16	16	22	45	39	44	43	37	38	38	G	G	G 29	33	32	47	25	24	25	18	E
17	E	E	35	23	E S 14	18	29	25	34	37	G	38	45	37	G	G	G	27	23	37	19	23	17	19
18	E	22	18	32	25	18	25	34	42	58	A	A	46	40	41	36	40	50	48	66	55	25	24	36
19	30	15	29	21	E	E S 16	29	46	41	53	A	44	40	G	39	64	A	A	55	30	30	25	38	18
20	E	23	16	E S 14	E	19	27	A	A	36	38	41	43	G	38	A	A	A	A	54	A	26	41	35
21	17	24	22	16	19	20	26	30	35	37	32	G	G	G	G	G	G 28	33	42	23	E	E	24	29
22	35	22	27	26	E	E	G	G	37	37	41	57	47	43	39	39	G 27	24	30	26	20	E	E	24
23	18	21	18	E	15	18	G	G	G	45	41	41	41	G 32	38	58	41	30	56	40	E	17	E S 14	E
24	21	21	16	22	25	25	36	35	44	48	51	44	52	44	39	44	46	33	24	25	E	49	30	22
25	30	20	21	18	16	E	27	68	64	50	40	45	41	44	54	39	36	39	42	39	60	40	25	E
26	E	17	16	22	E	E S 14	24	37	37	52	40	44	37	G 36	38	37	32	27	21	22	22	28	31	23
27	19	18	17	16	17	E	24	35	40	44	51	39	G 36	51	G 32	G 32	34	34	24	18	E	18	25	E
28	22	E	18	E	15	E	G	G	38	38	38	39	G	G	39	39	34	29	21	42	E	21	21	E
29	45	25	39	19	13	22	26	35	36	46	52	40	41	38	38	G	35	30	32	56	28	29	60	39
30	62	42	38	19	17	E S 15	G	32	38	78	60	72	45	69	38	G	G	33	30	58	23	18	19	E
31	29	32	24	23	21	21	40	37	41	44	44	43	39	38	40	36	C	30	47	48	24	21	20	E S 14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	29	29	29	30	30	29	30	29	30	30	28	29	29	29	29	29	30	30
MED	18	18	18	16	16	18	27	37	40	44	40	41	42	38	38	38	36	34	32	37	24	24	24	18
UQ	24	22	25	21	18	22	35	45	44	52	52	44	46	46	40	43	47	51	48	48	35	28	30	24
LQ	E	14	14	E 13	E	E 15	24	34	37	39	38	39	38	G	G 32	G 32	33	30	24	25	E	18	19	E

AUG. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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

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}	E	E	E	E	13	15	15	15	15	18	22	18	22	19	14	15	15	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	E	14	15	15	16	17	22	23	29	70	64	42	22	16	14	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
3	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	25	37	28	22	22	28	25	28	23	23	16	16	16	E_{13}^{S}	E_{12}^{S}	E_{14}^{S}	E	E_{14}^{S}
4	E	E	E_{14}^{S}	E	E	15	14	14	15	22	17	19	21	22	18	20	75	25	26	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
5	E_{14}^{S}	E	F	E	E	14	14	15	16	17	22	22	23	24	21	19	17	16	16	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
6	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E_{14}^{S}	E_{14}^{S}
7	E_{15}^{S}	E	E	E	E	14	15	14	16	18	22	22	51	B	23	17	17	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
8	E_{14}^{S}	E	E	E	E_{14}^{S}	15	15	19	23	20	23	C	27	25	22	22	14	14	13	E	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}
9	E_{14}^{S}	E	E_{13}^{S}	E	E	13	15	15	14	17	16	24	22	21	18	18	13	14	14	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
10	E_{14}^{S}	E	E	E	E	14	13	15	18	17	18	23	20	26	23	21	17	15	14	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}
11	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E	14	17	16	21	18	23	20	23	21	16	15	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	15	21	18	19	20	16	21	16	15	13	E_{13}^{S}	E_{13}^{S}	E	E_{14}^{S}	E
13	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E	E	13	14	16	18	17	21	24	18	17	14	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
14	E_{14}^{S}	E	E	E_{14}^{S}	E	16	14	15	16	22	21	17	23	22	16	17	15	14	14	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}
15	E_{14}^{S}	E_{14}^{S}	E	E	E	13	13	15	17	16	19	20	26	16	19	22	15	15	14	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
16	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	14	16	14	16	17	18	18	22	18	18	14	15	15	E	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
17	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	13	14	14	15	16	16	18	16	16	15	15	15	E	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
18	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	14	14	14	16	15	16	16	18	17	21	15	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
19	E_{14}^{S}	E	E_{13}^{S}	E	E_{14}^{S}	E_{16}^{S}	13	13	15	16	18	19	19	16	18	15	15	14	13	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
20	E_{14}^{S}	E	E	E_{14}^{S}	E	E_{14}^{S}	16	14	14	15	21	22	23	18	19	19	16	16	14	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}
21	E	E	E	E	E	14	15	14	16	17	21	21	22	19	17	15	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}
22	E_{14}^{S}	E	E	E	E_{14}^{S}	14	14	15	17	16	16	17	17	18	18	16	15	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
23	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	14	14	16	14	14	18	17	16	18	14	14	13	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
24	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E	E	E_{13}^{S}	14	16	15	16	16	22	16	19	16	15	15	16	15	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
25	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	14	E	14	14	15	16	21	18	16	16	14	13	13	E	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
26	E_{14}^{S}	E	E	E	E_{13}^{S}	E_{14}^{S}	13	13	16	19	20	20	23	21	23	17	15	14	13	E_{14}^{S}	E_{14}^{S}	E	E_{13}^{S}	E_{14}^{S}
27	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	14	13	15	17	18	22	21	23	19	18	17	16	14	13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
28	E_{14}^{S}	E_{13}^{S}	E	E	E	E_{14}^{S}	14	16	14	26	18	19	21	22	18	17	14	15	13	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
29	E_{14}^{S}	E	E	E	E	E_{14}^{S}	14	14	16	15	17	18	21	18	16	15	14	16	16	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
30	E_{14}^{S}	E_{14}^{S}	E	E	E	E_{15}^{S}	15	15	18	18	23	21	29	25	19	21	19	18	14	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
31	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	16	18	23	23	29	24	28	23	24	16	C	17	15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
	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	29	29	29	29	30	30	29	30	30	30	30	28	29	29	29	29	29	30	30
MED	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	14	14	15	16	17	18	20	22	20	18	17	15	15	14	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_{13}^{S}	E	14	15	15	17	18	22	22	24	23	21	20	16	16	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
LQ	E_{14}^{S}	E	E	E	E	E_{14}^{S}	14	14	15	16	17	18	19	18	17	15	14	14	13	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}

The Radio Research Laboratories, Japan

AUG. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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

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	280	270	295	300	315	335	330	320	285	300	270	265	270	270	285	290	300	300	275	275	F 265	F	F 295
2	F 295	270	270	270	F	F 300	320	330	330	310	280	290	260	280	290	300	290	290	295	295	285	F	F	250
3	270	F 280	275	275	265	300	310	300	310	290	275	270	285	285	275	280	I A 290	I A 300	295	F 300	F	F	F 275	F
4	F	F	F	F	F	300	285	295	J 280	285	H 285	275	275	280	290	260	255	300	315	I R 280	245	245	250	275
5	275	F 280	285	265	270	260	255	V 300	I A 240	G	G	A	G	G	235	240	A	A	A	I A 275	I A 245	250	255	250
6	270	250	255	255	305	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	275	F
7	265	280	280	295	270	300	320	320	295	I A 305	280	265	265	I B 235	265	275	295	305	295	305	280	F 280	285	285
8	275	275	285	285	290	285	300	325	285	290	270	I C 285	305	290	290	310	305	305	310	305	295	300	290	F
9	F 285	290	295	300	F 285	315	305	310	305	305	310	295	255	280	290	255	275	280	I A 320	300	F	285	F	F
10	F	F	F	F	F	270	I R 270	300	305	I R 295	310	G	285	285	290	305	310	310	305	290	300	310	F 275	280
11	260	280	275	290	290	295	320	335	325	310	310	285	305	290	295	295	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	320	310	315	310	300	295	295	300	315	315	305	305	F	R	F
13	F	F	F 275	280	280	295	330	315	325	340	325	320	295	295	295	295	310	300	305	310	315	F 300	F	305
14	285	285	290	285	285	300	320	340	335	I A 320	300	305	310	300	305	305	305	300	300	290	310	F	F	F
15	F	F 300	F	F 290	F	320	300	310	335	310	325	295	305	300	285	275	295	300	290	315	330	F	F	F
16	F	F	F	F	F	305	325	345	320	335	310	300	280	300	290	300	300	310	315	305	290	300	305	295
17	275	270	270	F	F	F	340	335	335	320	330	295	300	295	300	295	320	315	310	315	305	295	F	F
18	285	290	285	F	F	315	330	320	355	330	I A 320	I A 310	310	320	300	295	315	310	320	305	295	F	F	280
19	290	290	285	280	295	285	270	295	310	305	I A 310	290	300	285	295	310	A	A	305	285	305	F	F	F
20	F	F 270	F	F	F	F 305	335	A	A	245	I R 250	255	260	270	290	A	A	A	I A 300	295	I A 295	F	F	F
21	F	F	275	F	290	320	285	305	330	290	280	280	295	290	300	305	305	320	315	310	270	F	F 280	F
22	F	F	F	F	F	F	325	320	320	325	310	290	295	300	300	290	305	300	300	300	305	315	R 295	275
23	275	275	310	300	310	315	325	325	330	320	295	310	305	305	310	300	320	305	310	290	310	295	295	285
24	270	280	290	F 280	F	F	335	320	325	335	300	285	290	305	310	300	305	310	310	330	F 315	F	F	F
25	F	F	F	F	F	305	325	330	330	H 290	305	290	300	285	295	305	300	300	310	310	F	F	F	F
26	275	270	280	285	275	285	310	305	315	330	295	275	290	290	290	300	295	285	305	310	300	275	275	270
27	265	270	270	285	275	315	330	330	315	320	300	295	290	285	290	295	295	290	290	315	295	255	270	270
28	285	300	280	265	260	285	290	305	290	300	300	290	305	315	320	310	300	315	295	280	300	300	270	280
29	F 270	F 260	270	F 275	280	285	320	315	320	325	335	H 300	300	300	290	310	300	295	305	290	290	290	290	285
30	I R 270	270	⊦	300	F 290	285	300	300	310	310	325	290	300	300	295	310	290	300	320	310	I R 285	285	285	270
31	275	275	280	290	295	305	310	300	310	300	300	280	285	295	290	295	I C 290	300	305	290	300	285	285	280
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	22	21	19	26	29	28	28	30	30	29	30	30	30	29	26	26	28	29	26	18	17	17
MED	275	280	280	285	285	300	320	318	320	310	300	290	295	290	290	295	300	300	305	300	298	288	280	280
UQ	285	282	285	290	292	315	325	330	330	320	310	295	305	300	300	305	305	310	312	310	305	300	290	285
LQ	270	270	270	275	275	285	300	302	308	290	285	280	280	285	290	290	290	300	300	290	285	275	275	270

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

IONOSPHERIC DATA

AUG. 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 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								L	340	385	I A 375	355	I A 375	360	360	I A 360	350	L						
2							A	L	L	L	325	370	355	B	B	A	A	A	L					
3								A	A	A	A	L 395	345	360	I A 355	350	A	A	L					
4							L	A	A	A	A	A	I A 385	H 400	350	355	I B 330	U L 335	L					
5						L 285	I A 330	I A 365	I A 385	I A 370	385	I A 390	350	360	340	365	A	A	A					
6						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
7							L	345	350	I A 380	370	390	I B 375	I B 375	360	350	A	A	L					
8							L	A	L	370	365	C	A	A	A	A	L	A	A					
9							L	L	L 355	370	380	385	H 345	405	L 340	H 345	L 335	A						
10							340	360	365	H 360	395	H 390	I A 365	I A 355	I A 355	I A 350	340	A	A					
11						L	L	L	370	380	370	365	375	I A 365	I A 360	360	C	C	C					
12							C	C	C	A	A	375	I A 370	355	350	350	A	A						
13								U L 360	370	395	415	390	I A 390	I A 380	365	360	L 350	L						
14							L	A	A	A	A	400	I A 380	I A 360	370	355	L	A						
15								A	A	A	390	380	370	360	360	345	355	A	L					
16								L	A	L	385	H 345	H 360	370	360	H 340	L 365	L						
17								L 375	385	375	H 385	370	375	375	375	350	360	L						
18							L	L	A	A	A	A	A	405	365	350	A	A						
19							335	A	A	A	A	I A 385	390	385	365	A	A	A	A					
20								A	A	385	385	390	I A 380	360	350	A	A	A	A					
21							L 315	360	365	360	400	395	400	375	345	355	U L 335	L						
22								L	370	385	385	I A 330	I A 350	380	345	355	350	L						
23							L	L	U L 365	I A 380	H 335	355	375	360	H 360	A	L	L						
24								L	L	A	A	345	A	360	350	A	A	L						
25							L	A	A	A	370	345	370	350	I A 350	L 355	U L 350	L						
26							L	U L 355	355	I A 370	L 370	340	370	365	350	380	U L 350	L						
27									L	L 365	A	370	L 370	I A 340	340	L 350	U L 320	L						
28							L	335	L	370	H 360	H 345	375	360	L 365	370	L							
29								L	360	L	A	H 370	350	350	345	355	L							
30								L	L	A	A	A	350	I A 375	L	L 355	L	L						
31								L	L	L	L	340	345	345	340	L	C	L						
	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	4	8	13	16	19	26	27	28	27	23	13	1						
MED						L 285	332	360	365	372	380	370	370	360	355	355	L 350	U L 335						
UQ							338	362	370	382	385	390	375	375	360	358	350							
LQ							322	350	355	370	370	345	352	360	348	350	U L 335							

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

AUG. 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								260	300	375	325	360	355	360	345	320	300	300						
2							260	260	270	270	350	340	370	350	325	320	325	310	295					
3								330	295	365	415	L 400	400	390	405	365	A	A	295					
4							300	325	410	330	305	340	345	345	485	370	390	285	235					
5						410	450	330	A	G	G	A	G	G	550	580	A	A	A					
6						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
7							270	300	335	I A 370	390	510	440	I B 545	440	390	335	300	295					
8							290	285	290	340	370	I C 335	310	340	335	305	300	I A 310	290					
9							325	260	305	290	285	335	415	335	300	385	325	320						
10							385	340	330	350	355	G	I A 365	390	380	345	315	330	295					
11						300	260	255	285	300	370	345	305	330	325	315	C	C	C					
12							C	C	C	275	300	285	310	320	325	325	290	275						
13								270	290	260	300	305	355	335	330	325	295	285						
14							260	245	270	A	355	315	305	325	320	315	290	295						
15								305	270	I A 300	310	315	320	310	325	330	305	290	280					
16								240	280	275	295	350	330	320	320	300	285	275						
17								265	275	280	270	340	325	325	320	315	290	265						
18							260	255	235	280	A	I A 340	320	300	330	310	290	280						
19							435	345	300	340	I A 345	355	350	380	330	A	A	A	I A 340					
20								A	A	550	460	480	460	435	400	A	A	A	A					
21							350	330	280	415	425	390	395	370	345	320	315	280						
22								270	295	285	325	340	325	305	330	300	305	290						
23							250	270	255	285	345	315	325	330	305	325	285	270						
24								260	265	265	305	350	310	325	290	310	295	275						
25							255	255	265	255	300	325	310	340	325	295	310	285						
26							280	300	280	260	305	350	335	330	315	305	290	270						
27									280	280	270	310	300	340	330	300	305	285						
28							300	305	260	280	310	315	305	300	280	295	290							
29								260	275	270	270	290	335	335	320	295	270							
30								255	260	295	250	355	305	320	310	295	310	280						
31								290	280	295	275	330	320	315	310	290	I C 300	280						
	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	16	27	27	29	29	29	30	30	30	28	25	23	8					
MED						355	285	270	280	290	310	340	328	335	325	315	300	285	295					
UQ							338	305	295	340	355	355	365	360	345	328	310	298	295					
LQ							260	260	270	275	300	315	310	320	320	300	290	278	285					

AUG. 1972 | H'F2 (KM)

IONOSPHERIC DATA

AUG. 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

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	295	290	305	270	250	230	230	230	235	I A 220	I A 205	I A 225	I A 210	210	215	I A 225	220	240	260	260	320	330	A 315	245
2	255	245	280	295	300	280	A	A	A	A	225	215	210	B	B	A	A	A	A	260	240	295	270	240
3	300	280	270	285	290	260	265	A	A	A	A	200	A 230	A	A	240	A	A	265	265	255	290	A 340	270
4	285	350	320	255	260	275	250	A	A	A	A	A	A	H 190	230	230	I B 250	265	230	A	I A 365	I A 360	345	280
5	280	280	300	305	315	310	I A 290	I A 260	I A 265	I A 250	240	I A 240	275	255	280	245	A	A	A	A	A	350	I A 345	360
6	330	330	325	330	260	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	340	315
7	310	280	275	255	300	265	240	I A 235	I A 230	I A 220	230	220	I B 235	I B 235	215	A	A	A	255	245	305	300	315	290
8	295	295	285	270	250	260	250	I A 240	240	230	215	C	A	A	A	A	A	I A 245	I A 265	300	245	235	255	315
9	295	265	285	250	255	275	235	I A 235	220	215	200	210	H 195	200	235	H 225	A	A	A	250	285	245	370	255
10	230	315	320	330	300	300	245	240	230	H 200	215	H 195	I A 225	I A 230	I A 230	I A 230	A	A	A	295	265	250	290	265
11	300	290	290	285	280	270	240	230	220	225	210	200	A	A	A	A	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	A	A	220	I A 220	230	I A 240	230	A	A	280	I A 280	245	270	325	275
13	285	280	275	275	280	250	245	I A 240	220	210	200	205	I A 200	I A 225	235	230	I A 240	250	270	245	245	305	245	250
14	275	285	265	280	290	250	A	A	A	A	A	190	I A 230	I A 235	220	235	265	I A 240	250	255	230	275	275	300
15	265	230	310	290	245	270	285	A	A	A	205	200	230	215	220	240	235	I A 255	245	230	230	305	270	285
16	295	285	270	275	240	270	260	I A 240	I A 210	I A 230	205	H 210	H 205	235	230	H 215	230	I A 245	250	240	255	245	240	255
17	285	310	350	290	240	225	245	210	215	200	H 195	180	I A 200	210	220	215	240	230	245	260	245	265	295	270
18	265	300	330	I A 320	300	255	240	A	A	A	A	A	A	205	230	240	A	A	255	I A 255	I A 280	295	310	305
19	285	260	320	280	280	265	255	A	A	A	A	A	215	205	A	A	A	A	A	285	260	250	I A 265	290
20	310	355	320	295	245	285	260	A	A	230	215	I A 210	245	240	A	A	A	A	A	310	I A 285	310	I A 335	350
21	310	335	300	305	295	250	235	245	230	210	205	200	185	195	240	215	240	I A 250	275	250	255	265	305	305
22	I A 320	340	355	300	255	260	240	230	205	205	220	A	A	I A 215	215	I A 235	230	250	260	255	245	230	220	310
23	305	340	295	255	245	240	230	220	215	I A 215	H 200	235	200	220	H 195	A	A	A	I A 260	280	240	245	250	250
24	295	290	280	295	300	275	245	230	A	A	A	A	I A 230	I A 220	220	I A 250	I A 250	255	255	230	215	A	A 320	305
25	320	290	290	265	285	255	240	A	A	A	200	I A 205	215	A	A	240	240	I A 265	250	245	I A 265	285	265	265
26	280	285	295	295	305	285	240	245	240	I A 220	210	I A 210	215	225	225	220	240	240	255	240	245	300	305	300
27	300	300	305	285	265	245	245	240	235	I A 235	I A 210	195	200	I A 210	230	240	240	I A 255	255	245	240	260	310	285
28	275	235	295	295	285	285	255	240	235	215	H 195	H 195	205	235	240	230	230	260	250	310	250	250	260	280
29	I A 310	345	I A 330	305	300	280	240	240	225	A	A	H 195	200	225	235	230	I A 240	250	255	300	265	285	I A 315	325
30	A	A	A 335	270	245	270	245	240	230	A	A	A	A 220	I A 230	H 210	230	250	255	255	285	255	255	290	295
31	340	325	295	280	285	240	235	230	240	235	240	210	220	220	240	230	I C 235	250	265	280	245	250	245	265
	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	30	30	29	27	20	19	18	21	23	25	25	23	23	17	18	23	27	28	28	30	30
MED	295	290	298	285	280	265	245	240	230	220	210	205	215	220	230	230	240	250	255	260	252	272	300	285
UQ	310	325	320	295	300	275	252	240	235	I A 230	215	212	230	230	235	240	240	255	262	282	265	300	320	305
LQ	280	280	285	270	250	250	240	230	220	210	200	198	200	210	220	228	235	245	250	245	245	250	265	265

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AUG. 1972 | H'F (KM)

IONOSPHERIC DATA

AUG. 1972 | H'ES (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	105	110	105	105	105	110	155	140	130	115	115	115	115	G	105	110	110	105	155	110	110	115	110	120
2	105	110	110	110	105	125	125	115	115	110	105	105	G	B	B	140	125	125	125	100	105	110	105	105
3	100	100	100	110	S	G	125	125	125	115	115	115	115	110	110	110	115	115	115	115	110	110	110	105
4	105	110	105	105	105	115	125	125	120	125	115	115	115	G	G	G	B	120	G	115	115	115	100	105
5	105	100	100	100	105	125	125	120	115	120	130	120	135	155	G	150	135	125	120	120	110	115	110	115
6	S	S	S	S	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	100	105
7	100	105	E	120	120	120	125	125	120	115	110	G	B	B	105	140	120	115	110	110	105	105	105	105
8	100	105	E	105	105	G	125	115	115	115	115	C	110	110	110	110	110	120	115	110	110	105	105	105
9	105	105	100	110	E	125	160	115	G	G	105	G	105	G	G	140	135	115	110	110	S	S	S	S
10	S	135	125	125	125	125	120	120	115	115	140	110	115	115	115	110	130	125	115	110	105	110	110	110
11	110	S	120	120	105	100	130	125	100	115	105	105	105	105	100	100	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	115	115	115	110	110	110	115	110	110	110	110	105	115	110	100
13	105	S	S	S	105	105	130	125	120	115	120	115	110	105	G	105	100	125	115	110	110	110	105	105
14	105	105	105	S	E	B	100	120	115	110	110	110	105	105	105	G	140	125	120	110	115	110	110	110
15	110	110	110	110	110	120	120	115	115	115	115	115	110	110	110	105	105	105	105	110	100	110	110	110
16	110	110	120	120	120	125	120	115	115	115	115	115	115	G	G	105	140	130	115	100	100	100	100	105
17	105	105	105	100	S	115	110	105	110	110	G	110	100	105	G	G	G	105	100	100	100	110	110	105
18	105	105	105	100	100	105	125	115	115	115	105	105	105	125	105	110	125	120	115	115	110	110	110	110
19	105	105	105	105	110	S	140	125	125	125	115	115	115	G	115	110	105	105	105	105	105	110	110	110
20	110	105	110	S	E	105	140	125	115	115	120	115	120	G	140	120	115	110	110	110	110	105	110	105
21	105	105	105	105	110	120	120	115	115	110	110	G	G	G	G	G	110	105	105	105	110	110	105	105
22	100	100	100	100	100	100	150	140	130	115	115	115	115	115	110	110	100	100	100	100	100	105	105	105
23	105	100	100	100	120	115	120	G	G	120	115	115	110	105	105	105	105	105	105	100	105	100	S	105
24	105	100	105	105	105	105	105	125	115	115	115	110	105	105	110	110	110	125	120	110	110	105	105	105
25	100	100	100	100	100	100	120	110	105	110	105	105	105	105	105	100	105	115	110	105	105	105	105	105
26	100	100	100	100	100	S	115	115	115	115	110	105	110	110	110	110	110	110	105	105	105	105	105	105
27	100	100	100	100	100	100	130	125	115	115	115	115	110	105	110	105	140	125	100	100	100	110	105	110
28	105	105	105	100	100	110	150	120	115	140	130	110	125	G	155	140	140	140	100	120	110	105	100	105
29	110	105	105	105	100	100	105	125	120	115	115	110	110	110	125	G	140	140	125	115	110	105	105	105
30	105	105	105	105	105	S	G	150	130	115	110	110	110	110	105	G	G	135	120	115	115	110	100	100
31	105	105	105	105	105	105	105	105	125	120	115	115	115	115	110	125	C	140	115	110	110	110	105	S
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	26	26	24	23	28	28	27	29	29	26	27	20	22	24	25	29	28	29	28	28	28	28
MED	105	105	105	105	105	110	125	120	115	115	115	115	110	110	110	110	115	120	112	110	110	110	105	105
UQ	105	105	105	110	110	120	130	125	120	115	115	115	115	112	110	122	135	125	118	110	110	110	110	110
LQ	102	100	100	100	100	105	120	115	115	115	110	110	108	105	105	105	110	110	105	105	105	105	105	105

The Radio Research Laboratories, Japan

AUG. 1972 | H'ES (KM)

IONOSPHERIC DATA

AUG. 1972 | TYPES OF ES | 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	F2	F2	F3	F3	F3	L1	H1	H1	H2	C2	C2	C2	C2		L1	L3	L1	L2	HL11	L3	F3	F5	F3	F2
2	F1	F1	F1	F2	F1	H3	H3	C3	C2	L2	L2	L1				H1	H2	HL22	HL41	L2	F1	F2	F2	F2
3	F2	F1	F1	F1			H1	H1	H2	C2	C1	C1	C2	L2	L2	L2	C2	C3	C2	C4	F3	F3	F3	F3
4	F3	F3	F3	F2	F5	CH11	H2	H2	C2	H2	C2	C3	C2					C1		C3	F6	F3	F4	F2
5	F2	F2	F3	F2	F2	H2	H4	H3	C2	H2	H1	H1	H1	H1		H1	H2	H4	C3	F3	F4	F3	F3	F2
6																							F3	F2
7	F2	F1		F1	C1	C2	H2	H2	C2	C4	L1				L1	H2	C2	C3	L4	L4	F3	F2	F4	F3
8	F2	F1		F1	F1		H2	C3	C1	C1	C1		L1	L1	L2	L2	L2	C2	C3	L4	F1	F1	F2	F3
9	F3	F2	F2	F1		H2	HC12	C2			L1		L1			H1	H1	C3	L5	L3				
10		F5	F5	F4	F4	H2	C2	C1	C1	C1	HC11	LH11	C1	C2	C2	L2	H1	H4	C4	L3	F4	F2	F3	F1
11	F1		F1	F1	F1	L1	HL11	H2	L1	C1	L1	L1	L2	L2	L2	L2								
12										C2	C2	C2	L2	L2	L2	C1	L3	L3	L3	L4	F3	F4	F2	F2
13	F1				F3	L2	H2	H2	H1	C1	C1	C1	L2	L2		L2	LH21	HL21	C3	L3	F3	F3	F3	F2
14	F2	F2	F2				LH12	C4	C3	L3	L2	L2	L2	L2	L2		H1	H2	C3	L3	F1	F2	F3	F3
15	F3	F2	F2	F3	F3	C4	C4	C3	C2	C2	C1	C1	L2	L1	L1	L2	L2	L4	L3	L2	F3	F3	F3	F2
16	F2	F2	F1	F2	F2	H2	C3	C3	C3	C3	C1	C1	C1			L1	H1	HL32	CL33	L4	F2	F2	F1	F2
17	F1	F2	F3	F3		C1	L4	L2	L2	L2		L1	L2	L2				L2	L3	L3	F3	F2	F2	F2
18	F2	F2	F2	F3	F3	L1	H2	C3	C2	C3	L3	L2	L2	H1	L2	L2	H2	C4	C4	C3	F4	F4	F4	F4
19	F3	F2	F4	F3	F1		H2	H2	H2	H3	C2	C2	C1		C2	L3	L4	L2	L4	L4	F3	F4	F5	F2
20	F2	F4	F2			L2	H2	H3	H2	C1	H1	C1	H2		H1	H3	C4	L4	L6	L3	F4	F2	F3	F3
21	F2	F3	F2	F2	F3	HL31	H3	C1	C1	L2	L1						L1	L3	L3	F2	F2	F2	F2	F4
22	F4	F4	F2	F2	F1	L1	H1	H1	H2	C3	C1	C3	C2	C2	L2	L2	L3	L3	L3	F4	F4	F1	F1	F2
23	F2	F2	F2	F1	F1	C1	C1			H3	C2	C1	L2	L2	L2	L2	L3	L3	L4	F4	F1	F1		F2
24	F3	F3	F3	F3	F3	L4	L4	H2	C3	C2	C2	L2	L2	L2	L2	L3	L3	H2	C2	F4	F1	F3	F3	F3
25	F3	F3	F3	F2	F1	L1	H3	L3	L3	L3	L2	L2	L2	L2	L4	L2	L2	C4	L4	F3	F3	F4	F4	F2
26	F1	F2	F3	F2	F1		C2	C2	C1	C3	L1	L2	L1	L1	L1	L2	L2	L3	L3	F3	F2	F3	F4	F3
27	F1	F2	F1	F2	F2	L1	HL11	H2	C2	C2	C2	C2	L1	L3	L1	L2	HL11	H3	L3	F2	F1	F1	F3	F2
28	F3	F2	F3	F1	F1	L1	HL12	C1	C1	H1	H1	L2	H1		HL13	HL22	HL22	HL23	LH21	FF32	F1	F2	F2	F2
29	F3	F4	F4	F2	F1	L2	L2	HL22	H1	C2	C3	L2	L2	L1	H1		H2	H1	H3	F3	F3	F3	F3	F4
30	F4	F4	F4	F2	F2			H1	H1	C2	L2	L2	L1	L1	L1			H2	C3	F3	F2	F2	F1	F1
31	F2	F2	F2	F3	F2	L2	L2	L2	H2	H2	C1	C1	C1	C1	L1	H1		H2	C3	F4	F2	F3	F2	
	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

AUG. 1972 | TYPES OF ES

IONOSPHERIC DATA

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

AUG. 1972 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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 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	510	L	500	550	530	A	500	490	450	L						
2								L	410	L	490	A	550	B	B	R	A	A	A					
3								A	A	A	A	A	A	A	A	A	A	A	A					
4									A	A	U 520	C	I R 520	540	520	510	B	440						
5							L	A	U R 460	450	460	A	A	460	450	A	A	A	A	A				
6								L	460	U 510	490	L	580	530	510	500	500	L	A					
7								L	L	450	480	500 H	510	R	B	480	460	A	A	A				
8									L	U 460	490	R	A	R	510	510	480	L	L	L				
9								L	L	460	490	500	L	540 H	510	510	480	A	A					
10									430	460	470	480	I R 490	490	A	490	460	I A 450	400					
11								L	L	A	500	500	500	500	480	500	460	A	A					
12								L	L	A	460	A	A	490	A	470	A	A	A	A				
13									A	A	570	470	L	I R 500	490	500	460	A	A	A				
14								L	A	A	A	A	A	A	490	470	A	A	A					
15								A	A	A	A	480	L	490	490	A	A	430	L					
16									A	A	A	480 L	A	A	U L 500	490	A	A	A					
17									L	U 480	470	460	U 510	490	480	480	480	L	L					
18							C	L	C	C	C	C	C	A	A	510	460	A	A					
19								L	L	A	470	A	A	U 500	A	A	A	A	A					
20									A	A	A	A	A	A	490	490	A	A	A	A				
21									420	L	A	U 500	490	490	490	490	460 L	L	L					
22									L	440	470	550	A	A	A	490	480	L	380					
23									L	450	490	550	510	510	500	500	480	450	L					
24									A	L	490	L	530	500	510	490	L	A	A					
25								L	L	L	490	L	A	510	590	A	A	A	A					
26									L	450	L	U 500	A	550	U 550	500	510 L	L	L					
27									L	L	A	L	A	520	540	L	510	L	L					
28								L	L	U 490	L	550	510	550	540	500	L	430	L					
29									A	L	500	L	L	550	U 530	500	L	L						
30										L	A	L	A	L	L	650	490	450	L					
31								L	L	U 480	A	580	L	540	510	A	U L 510	L	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								4	14	16	17	10	22	21	23	18	6	3						
MED								445	460	490	500	510	510	510	500	480	450	400						
UQ								460	U 480	490	520	530	540	530	500	500	450	420						
LQ								425	450	470	480	500	490	490	490	460	430	390						

The Radio Research Laboratories, Japan

AUG. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 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						160	250	300	340	A	A	A	A	A	A	A	A	A	235					
2						B	240	300	325	A	A	A	A	B	B	A	A	300	A					
3						B	B	B	B	365	A	A	A	A	A	A	310	A	A					
4						A	245	305	340	I B 350	365	I C 380	400	I B 380	375	B	B	R	R 220					
5						A	245	A	A	350	365	A	380	385	375	360	325	270	A					
6						205	A	A	A	A	A	R	R	350	A	A	A	A	A					
7						A	220	275	R	A	A	R	R	B	A	345	310	A	A					
8						A	260	305	A	B	A	A	A	R	I R 360	I A 330	A	A	A					
9						B	A	A	A	I R 345	I R 380	I A 380	390	380	370	350	305	250	A					
10						A	A	A	A	A	A	B	R 360	B	A	340	A	A	A					
11						160	I A 220	260	A	A	A	A	A	A	A	I A 350	320	260	A					
12						B	240	280	310	A	A	A	A	A	A	A	A	A	A					
13						B	245	285	A	A	R	A	A	A	A	A	305	250	A					
14						B	220	A	A	A	A	A	A	A	I B 355	340	300	250	150					
15						B	230	285	310	325	A	A	A	A	A	A	A	A	A					
16						B	210	265	I A 290	315	A	A	I A 350	A	A	A	295	A	A					
17						B	A	A	A	A	A	R	R	A	A	A	300	250	A					
18							210	C	C	C	C	C	A	A	R 355	R	300	A	A					
19						B	A	280	305	345	355	A	A	A	A	A	A	A	A					
20						B	I A 230	270	305	330	A	A	A	A	370	355	A	A	A					
21						B	A	A	A	A	A	R	R 370	I B 370	R	335	300	275	A					
22						B	235	280	A	A	A	A	A	A	A	R 325	I A 305	A	A					
23						B	220	A	A	A	A	A	A	R	R	A	250	B						
24						B	210	280	A	A	A	350	A	A	A	A	A	A	A					
25						B	200	250	A	A	A	A	A	A	A	A	300	250	A					
26						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
27						B	A	285	330	A	A	A	A	R	R	355	320	265	A					
28						B	220	285	A	A	R 360	R	R	R 360	R 340	340	310	265	A					
29						B	A	285	325	A	A	R	A	R	360	355	325	270	165					
30						B	235	300	345	370	R 385	390	A	A	A	350	325	255	A					
31						B	A	290	A	A	R 350	365	I R 355	I R 360	A	R	R	250	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	20	20	11	9	7	5	7	7	9	14	18	14	4					
MED						160	230	285	325	345	R 365	380	370	370	360	348	305	258	192					
UQ						182	242	295	335	350	372	I 380	385	380	370	355	320	270	228					
LQ						160	220	278	308	330	358	365	R 358	360	R 355	340	300	250	158					

The Radio Research Laboratories, Japan

AUG. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 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	25	J^{X}_{19}	J^{X}_{28}	J^{X}_{19}	J^{X}_{25}	21	30	35	48	42	45	43	44	J^{X}_{69}	46	39	J^{X}_{38}	J^{X}_{31}	J^{X}_{25}	J^{X}_{29}	M^{X}_{21}	J^{X}_{26}	J^{X}_{61}	J^{X}_{84}
2	J^{X}_{85}	J^{X}_{29}	J^{X}_{29}	J^{X}_{29}	J^{X}_{25}	J^{X}_{25}	J^{X}_{69}	J^{X}_{54}	J^{X}_{54}	45	J^{X}_{45}	I^{X}_{19}	44	B	E^{B}_{75}	46	J^{X}_{54}	J^{X}_{48}	J^{X}_{561}	46	J^{X}_{69}	J^{X}_{29}	J^{X}_{51}	J^{X}_{29}
3	J^{X}_{39}	J^{X}_{35}	J^{X}_{29}	J^{X}_{24}	M^{M}_{21}	21	35	I^{X}_{20}	J^{X}_{74}	I^{X}_{01}	D	M^{M}_{80}	I^{X}_{58}	J^{X}_{90}	I^{X}_{06}	I^{X}_{20}	I^{X}_{23}	D	J^{X}_{61}	I^{X}_{86}	I^{X}_{41}	J^{X}_{89}	J^{X}_{52}	J^{X}_{24}
4	J^{X}_{30}	J^{X}_{43}	J^{X}_{42}	J^{X}_{50}	J^{X}_{25}	25	J^{X}_{55}	J^{X}_{44}	J^{X}_{65}	J^{X}_{61}	J^{X}_{60}	C	50	G	G	E^{B}_{35}	E^{B}_{101}	G	25	16	J^{X}_{41}	J^{X}_{84}	J^{X}_{53}	J^{X}_{27}
5	J^{X}_{42}	J^{X}_{26}	J^{X}_{50}	J^{X}_{30}	J^{X}_{18}	23	J^{X}_{41}	J^{X}_{60}	46	74	J^{X}_{50}	J^{X}_{72}	G	G	44	M^{M}_{60}	J^{X}_{84}	J^{X}_{74}	J^{X}_{91}	I^{X}_{44}	M^{M}_{60}	J^{X}_{50}	J^{X}_{26}	J^{X}_{23}
6	J^{X}_{18}	J^{X}_{16}	E^{B}_{12}	E^{B}_{12}	M^{M}_{19}	G	35	J^{X}_{38}	36	38	43	G	G	G	J^{X}_{44}	J^{X}_{50}	J^{X}_{41}	J^{X}_{64}	J^{X}_{44}	21	M^{M}_{21}	M^{M}_{22}	M^{M}_{23}	M^{M}_{21}
7	M^{M}_{22}	21	J^{X}_{22}	M^{M}_{21}	M^{M}_{22}	23	25	31	G	38	J^{X}_{40}	G^{G}_{35}	G^{G}_{35}	B	43	41	J^{X}_{76}	J^{X}_{98}	I^{X}_{19}	J^{X}_{41}	22	J^{X}_{41}	J^{X}_{30}	J^{X}_{44}
8	J^{X}_{35}	J^{X}_{28}	J^{X}_{25}	J^{X}_{22}	J^{X}_{19}	J^{X}_{24}	G^{G}_{25}	G^{G}_{27}	37	E^{B}_{40}	48	J^{X}_{74}	40	G^{G}_{35}	G^{G}_{31}	40	J^{X}_{41}	30	26	J^{X}_{89}	J^{X}_{54}	J^{X}_{74}	J^{X}_{25}	J^{X}_{25}
9	J^{X}_{24}	J^{X}_{24}	J^{X}_{21}	M^{M}_{22}	M^{M}_{23}	20	J^{X}_{35}	35	J^{X}_{40}	G	G	J^{X}_{46}	G	G^{G}_{32}	39	41	J^{X}_{62}	I^{X}_{26}	I^{X}_{37}	J^{X}_{60}	17	J^{X}_{26}	J^{X}_{28}	J^{X}_{29}
10	M^{M}_{17}	J^{X}_{25}	J^{X}_{30}	J^{X}_{36}	J^{X}_{79}	J^{X}_{30}	J^{X}_{38}	33	37	45	40	E^{B}_{50}	G	62	J^{X}_{59}	37	J^{X}_{41}	J^{X}_{39}	J^{X}_{38}	J^{X}_{94}	J^{X}_{74}	J^{X}_{29}	J^{X}_{54}	J^{X}_{19}
11	J^{X}_{24}	J^{X}_{19}	M^{M}_{21}	M^{M}_{21}	M^{M}_{22}	G	28	34	54	49	45	48	J^{X}_{48}	40	45	45	46	J^{X}_{50}	J^{X}_{39}	J^{X}_{30}	J^{X}_{50}	J^{X}_{29}	J^{X}_{53}	J^{X}_{51}
12	J^{X}_{29}	J^{X}_{30}	J^{X}_{29}	J^{X}_{29}	J^{X}_{18}	E^{B}_{14}	26	39	J^{X}_{54}	J^{X}_{44}	J^{X}_{55}	54	J^{X}_{49}	J^{X}_{53}	J^{X}_{59}	J^{X}_{50}	J^{X}_{79}	I^{X}_{03}	I^{X}_{30}	I^{X}_{42}	I^{X}_{20}	J^{X}_{90}	I^{X}_{03}	J^{X}_{50}
13	J^{X}_{60}	J^{X}_{30}	J^{X}_{25}	J^{X}_{22}	M^{M}_{21}	21	27	J^{X}_{61}	J^{X}_{50}	54	G	41	45	G^{G}_{35}	J^{X}_{50}	47	J^{X}_{52}	J^{X}_{69}	J^{X}_{84}	M^{M}_{65}	J^{X}_{58}	J^{X}_{50}	J^{X}_{94}	J^{X}_{90}
14	J^{X}_{42}	J^{X}_{42}	J^{X}_{40}	J^{X}_{33}	J^{X}_{30}	J^{X}_{24}	27	J^{X}_{43}	J^{X}_{59}	80	I^{X}_{34}	J^{X}_{94}	J^{X}_{74}	J^{X}_{59}	E^{B}_{40}	J^{X}_{50}	79	82	42	J^{X}_{22}	J^{X}_{54}	J^{M}_{23}	J^{X}_{54}	J^{X}_{43}
15	J^{X}_{65}	J^{X}_{44}	J^{X}_{29}	J^{X}_{30}	J^{X}_{22}	J^{X}_{31}	J^{X}_{59}	J^{X}_{54}	J^{X}_{57}	72	56	J^{X}_{53}	J^{X}_{48}	J^{X}_{70}	J^{X}_{54}	J^{X}_{85}	J^{X}_{41}	J^{X}_{66}	J^{X}_{50}	J^{X}_{54}	J^{X}_{60}	J^{X}_{41}	J^{X}_{54}	J^{X}_{54}
16	J^{X}_{51}	J^{X}_{64}	J^{X}_{28}	J^{X}_{53}	J^{X}_{25}	J^{X}_{25}	J^{X}_{41}	J^{X}_{54}	J^{X}_{46}	J^{X}_{58}	J^{X}_{41}	49	J^{X}_{59}	40	44	49	J^{X}_{75}	J^{X}_{61}	J^{X}_{64}	J^{X}_{54}	J^{X}_{54}	J^{X}_{73}	J^{X}_{25}	J^{X}_{19}
17	J^{X}_{54}	J^{X}_{51}	J^{X}_{35}	J^{X}_{39}	J^{X}_{29}	J^{X}_{25}	24	29	J^{X}_{44}	J^{X}_{40}	39	G^{G}_{34}	G	40	39	G^{G}_{33}	G^{G}_{24}	J^{X}_{40}	J^{X}_{31}	31	24	J^{X}_{24}	J^{X}_{35}	D^{C}_{30}
18	19	D^{C}_{20}	J^{X}_{24}	D^{C}_{30}	21	C	22	45	60	C	C	E^{C}_{39}	I^{X}_{06}	I^{X}_{03}	46	45	49	J^{X}_{54}	J^{X}_{46}	J^{X}_{25}	J^{X}_{65}	J^{X}_{51}	J^{X}_{74}	J^{X}_{25}
19	J^{X}_{40}	J^{X}_{30}	J^{X}_{55}	J^{X}_{74}	J^{X}_{84}	J^{X}_{29}	33	41	J^{X}_{54}	46	J^{X}_{61}	J^{X}_{67}	J^{X}_{54}	J^{X}_{74}	J^{X}_{67}	I^{X}_{17}	$I2^{M}_{0}$	J^{X}_{84}	J^{X}_{85}	J^{X}_{30}	J^{X}_{39}	J^{X}_{38}	J^{X}_{54}	I^{X}_{54}
20	I^{X}_{80}	J^{X}_{42}	J^{X}_{74}	J^{X}_{60}	J^{X}_{60}	J^{X}_{38}	J^{X}_{40}	J^{X}_{72}	J^{X}_{99}	J^{X}_{89}	M^{M}_{71}	I^{X}_{04}	J^{X}_{79}	44	39	47	95	J^{X}_{65}	I^{X}_{22}	J^{X}_{52}	J^{X}_{50}	J^{X}_{52}	J^{X}_{32}	J^{X}_{29}
21	J^{X}_{26}	J^{X}_{26}	J^{X}_{22}	J^{X}_{20}	J^{X}_{24}	J^{X}_{24}	J^{X}_{36}	J^{X}_{50}	J^{X}_{40}	J^{X}_{59}	41	G	G	E^{B}_{40}	G	G^{G}_{27}	40	35	J^{X}_{30}	J^{X}_{41}	J^{X}_{29}	E^{S}_{15}	J^{X}_{24}	E^{B}_{14}
22	J^{X}_{24}	19	E^{B}_{13}	20	E^{B}_{13}	E^{B}_{13}	G	35	35	44	42	55	J^{X}_{51}	60	40	36	J^{X}_{34}	J^{X}_{31}	J^{X}_{29}	J^{X}_{35}	J^{X}_{23}	M^{M}_{21}	M^{M}_{21}	J^{X}_{29}
23	J^{X}_{41}	J^{X}_{29}	J^{X}_{25}	J^{X}_{24}	21	18	26	J^{X}_{35}	33	G^{G}_{35}	38	42	45	G^{G}_{32}	G	J^{X}_{41}	35	34	J^{X}_{31}	M^{M}_{22}	J^{X}_{25}	J^{X}_{39}	J^{X}_{24}	J^{X}_{30}
24	M^{M}_{21}	J^{X}_{30}	J^{X}_{49}	J^{X}_{50}	J^{X}_{21}	J^{X}_{61}	J^{X}_{75}	J^{X}_{44}	41	J^{X}_{43}	45	49	J^{X}_{41}	J^{X}_{44}	46	J^{X}_{44}	J^{X}_{60}	J^{X}_{74}	J^{X}_{54}	J^{X}_{50}	J^{X}_{35}	J^{X}_{29}	J^{X}_{51}	J^{X}_{59}
25	J^{X}_{30}	J^{X}_{25}	J^{X}_{25}	J^{X}_{26}	20	17	J^{X}_{33}	J^{X}_{40}	I^{X}_{14}	J^{X}_{75}	J^{X}_{82}	54	46	42	J^{X}_{54}	J^{X}_{88}	J^{X}_{88}	I^{X}_{34}	J^{X}_{74}	J^{X}_{85}	J^{X}_{84}	J^{X}_{51}	J^{X}_{41}	J^{X}_{54}
26	J^{X}_{22}	M^{M}_{21}	J^{X}_{29}	J^{X}_{25}	M^{M}_{21}	E^{B}_{15}	J^{X}_{41}	J^{X}_{41}	39	J^{X}_{57}	57	J^{X}_{65}	J^{X}_{50}	47	J^{X}_{44}	J^{X}_{41}	35	J^{X}_{40}	J^{X}_{38}	J^{X}_{26}	J^{X}_{30}	J^{X}_{25}	J^{X}_{40}	J^{X}_{36}
27	J^{X}_{85}	J^{X}_{34}	J^{X}_{25}	J^{X}_{23}	J^{X}_{19}	J^{X}_{16}	J^{X}_{27}	35	41	J^{X}_{64}	J^{X}_{43}	J^{X}_{64}	41	G^{G}_{36}	G^{G}_{35}	G^{G}_{29}	34	37	J^{X}_{28}	J^{X}_{26}	J^{X}_{30}	J^{X}_{24}	M^{M}_{21}	J^{X}_{24}
28	E^{S}_{15}	J^{X}_{84}	J^{X}_{43}	J^{X}_{25}	J^{X}_{30}	J^{X}_{24}	25	30	J^{X}_{55}	46	G	G^{G}_{33}	G	G^{G}_{33}	G	39	34	28	J^{X}_{30}	J^{X}_{25}	J^{X}_{39}	J^{X}_{25}	M^{M}_{20}	E^{S}_{15}
29	E^{S}_{15}	M^{M}_{21}	J^{X}_{59}	J^{X}_{77}	J^{X}_{50}	J^{X}_{39}	J^{X}_{50}	J^{X}_{54}	J^{X}_{41}	43	J^{X}_{40}	G^{G}_{36}	J^{X}_{42}	G	G^{G}_{33}	J^{G}_{28}	G^{G}_{20}	33	37	J^{X}_{24}	J^{X}_{54}	J^{X}_{44}	J^{X}_{24}	E^{B}_{14}
30	M^{M}_{22}	M^{M}_{20}	M^{M}_{21}	M^{M}_{21}	E^{B}_{14}	E^{B}_{14}	27	32	49	J^{X}_{54}	47	J^{X}_{59}	J^{X}_{74}	J^{X}_{52}	J^{X}_{41}	G^{G}_{30}	40	32	J^{X}_{26}	J^{X}_{20}	J^{X}_{41}	J^{X}_{54}	J^{X}_{64}	J^{X}_{54}
31	J^{X}_{29}	J^{X}_{84}	J^{X}_{64}	J^{X}_{84}	J^{X}_{54}	J^{X}_{81}	J^{X}_{30}	36	42	49	48	50	J^{X}_{46}	J^{X}_{58}	J^{X}_{75}	G	G	J^{X}_{84}	J^{X}_{99}	95	J^{X}_{74}	J^{X}_{89}	J^{X}_{24}	J^{X}_{21}
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	31	31	30	30	30	31	29	31	31	31	31	31	31	31	31	31	31
MED	J^{X}_{29}	J^{X}_{29}	J^{X}_{29}	J^{X}_{26}	J^{X}_{22}	24	33	J^{X}_{40}	J^{X}_{46}	48	45	50	45	42	44	41	J^{X}_{44}	J^{X}_{54}	J^{X}_{44}	J^{X}_{41}	J^{X}_{50}	J^{X}_{39}	J^{X}_{40}	J^{X}_{29}
UQ	J^{X}_{42}	J^{X}_{38}	J^{X}_{41}	J^{X}_{41}	J^{X}_{27}	J^{X}_{25}	J^{X}_{40}	J^{X}_{52}	J^{X}_{54}	J^{X}_{61}	56	J^{X}_{65}	J^{X}_{50}	J^{X}_{59}	J^{X}_{50}	50	J^{X}_{77}	J^{X}_{78}	J^{X}_{84}	J^{X}_{62}	J^{X}_{60}	J^{X}_{52}	J^{X}_{54}	J^{X}_{51}
LQ	22	J^{X}_{22}	J^{X}_{24}	J^{X}_{22}	20	17	26	35	40	43	40	U^{U}_{38}	38	G^{G}_{34}	38	36	36	34	J^{X}_{30}	J^{X}_{26}	J^{X}_{30}	J^{X}_{26}	J^{X}_{24}	J^{X}_{24}

IONOSPHERIC DATA

AUG. 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	17	E	E	E	E	G	27	34	43	40	G	42	42	65	46	G	35	28	18	21	E	20	29	24
2	A	14	19	25	25	19	55	36	34	41	41	A	42	B	E B 75	E R 46	50	45	55	43	50	25	25	19
3	21	20	22	19	E	15	R 35	58	51	A	A	A	A	71	65	A	A	A	51	15	30	51	45	16
4	E	24	26	26	15	24	51	41	53	56	50	C	E R 50	G	G	E B 35	E B 101	G	G 21	15	27	A	E	25
5	34	15	33	15	16	21	40	40	42	40	A	A	G	G	44	A	A	A	A	A	A	17	16	15
6	E	E	E B 12	E B 12	E	G	33	32	35	31	42	G	G	G	40	39	40	40	20	16	E	E	E	E
7	E	E	16	E	E	18	25	28	G	38	40	G 33	E R 35	B	42	41	62	A	45	16	E	40	25	29
8	20	15	15	E	16	16	G 23	G 27	35	E B 40	E R 48	64	E R 40	E R 35	E R 31	38	39	29	22	55	45	A	19	20
9	18	E	16	E	E	16	29	31	38	G	G	40	G	G 32	38	41	51	112	54	30	E	22	16	E
10	E	E	20	29	25	24	38	32	37	39	38	E B 50	G	59	40	37	40	38	31	A	200	19	20	16
11	16	15	E	E	E	G	26	38	53	48	41	40	40	39	G	39	42	42	25	29	26	25	40	40
12	20	25	24	19	15	E B 14	25	38	45	41	55	54	43	53	44	49	75	76	A	50	A	A	48	32
13	19	15	25	19	E	17	25	61	45	52	G	40	44	E R 35	41	40	52	52	A	65	34	21	42	29
14	E	22	29	31	21	15	25	43	52	A	49	70	59	43	E B 40	49	A	A	40	16	25	E	16	29
15	18	16	23	25	19	20	52	47	55	64	40	48	44	40	47	68	38	G	35	51	49	41	25	35
16	44	A	19	19	21	15	40	45	45	52	40	49	58	39	40	49	65	59	55	49	27	40	21	E
17	41	28	20	25	25	25	24	35	36	39	39	E R 34	G	39	35	E R 33	E R 24	35	30	26	E	19	21	D C 25
18	18	E	19	D C 30	19	C	22	44	C	C	C	E C 39	A	A	44	40	45	50	25	20	52	33	25	21
19	33	28	26	A	A	25	32	41	51	45	58	A	44	A	58	A	A	41	32	25	31	20	17	15
20	A	25	25	25	A	24	25	A	A	A	A	A	A	44	39	46	A	57	A	E	29	24	24	19
21	22	22	19	17	20	18	34	34	38	52	40	G	G	E B 40	G	G 25	39	29	25	40	24	E S 15	16	E B 14
22	E	E	E B 13	E	E B 13	E B 13	G	34	34	40	40	53	50	55	40	30	34	30	28	20	22	E	E	16
23	34	20	16	E	E	15	23	35	33	E R 35	38	40	43	E B 32	G	40	32	33	20	E	19	35	21	24
24	E	26	25	35	E	40	60	43	39	40	44	48	40	41	40	42	45	45	40	41	23	21	29	40
25	25	E	16	25	E	16	28	35	43	48	48	50	44	39	50	55	54	50	25	25	50	40	29	50
26	16	E	27	20	E	E B 15	30	35	38	42	45	64	48	42	44	40	35	38	28	24	29	24	25	25
27	A	29	21	19	16	G	25	35	40	57	43	64	41	G 38	E B 35	G 29	34	35	25	22	29	22	E	21
28	E S 15	35	40	21	24	16	25	30	36	42	G	E R 33	G	G 33	G	E R 39	32	28	30	23	30	24	18	E S 15
29	E S 15	E	20	39	41	29	45	50	40	42	40	E R 36	42	G	G 31	G 27	G 20	31	35	22	32	30	19	E B 14
30	16	E	E	E	E B 14	E B 14	26	32	45	50	46	58	48	48	38	G 30	36	31	20	18	35	25	30	25
31	24	25	40	40	24	E	22	35	38	49	46	50	42	42	60	G	G	85	A	A	50	40	E	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	31	30	30	30	30	31	29	31	31	31	31	31	31	31	31	31	31
MED	18	15	20	19	16	16	27	35	40	42	42	50	42	40	40	40	41	41	31	25	29	24	21	21
UQ	29	25	25	26	22	21	36	43	45	52	48	64	47	48	44	48	61	58	52	46	47	40	27	28
LQ	15	E	16	E E 12	E	E G 14	25	34	36	40	40	40	E G 38	E G 35	U 33	U 32	35	31	25	19	24	20	16	16

AUG. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	12	12	14	14	14	14	14	14	14	15	25	30	25	18	16	13	15	13	12	13	13	12	E15S	12
2	E15S	12	12	12	E15S	15	13	14	15	15	25	26	31	B	75	25	25	15	13	14	E15S	E15S	14	12
3	12	13	13	12	E15S	13	30	34	40	30	35	31	35	34	21	25	21	15	15	12	13	E15S	14	13
4	E15S	12	12	14	12	13	15	15	15	36	25	C	25	26	27	35	101	22	14	12	14	13	14	12
5	14	12	12	12	13	15	14	15	15	22	26	31	26	25	25	19	22	15	14	14	E15S	E15S	12	12
6	12	12	12	12	12	13	15	14	15	25	20	19	19	25	15	15	15	15	13	12	13	E15S	13	E15S
7	E15S	13	12	12	12	13	14	15	15	15	23	19	34	B	25	15	15	14	14	12	E15S	14	12	14
8	14	14	13	14	14	12	14	15	22	40	30	28	25	30	25	19	14	15	13	12	E15S	13	12	12
9	13	E15S	12	13	E15S	14	15	15	15	19	34	25	25	25	24	24	15	14	14	12	14	14	14	14
10	12	14	13	12	12	12	14	15	25	25	25	50	28	40	32	28	15	15	13	E15S	12	12	E15S	12
11	13	12	E15S	E15S	14	13	15	15	15	25	25	25	25	25	20	16	15	15	13	13	13	E15S	13	13
12	12	12	13	12	12	14	14	15	15	22	25	25	25	25	15	15	14	15	12	12	14	13	12	E15S
13	12	14	14	14	E15S	12	14	14	15	15	28	33	25	25	15	15	15	14	14	14	12	13	14	12
14	12	13	12	12	12	14	13	15	15	15	20	20	19	17	40	14	15	13	13	13	13	E15S	E15S	12
15	E15S	13	13	13	13	14	14	15	15	15	25	25	25	25	23	15	15	15	14	E15S	E15S	E15S	E15S	E15S
16	13	13	12	E15S	13	13	15	14	14	15	24	19	23	15	15	15	15	13	13	13	E15S	E15S	E15S	E15S
17	14	12	12	12	13	12	13	13	15	15	15	15	19	13	15	13	15	13	13	E15S	E15S	13	15	E15C
18	E16C	E15C	15	E15C	E15S	C	15	15	34	C	C	E39C	16	25	15	15	13	15	13	E15S	E15S	13	E15S	13
19	12	12	13	12	12	12	13	15	13	15	25	16	25	16	19	15	14	15	14	14	14	13	13	14
20	14	14	14	12	12	13	14	14	15	15	32	30	19	25	19	18	16	14	12	12	14	14	14	14
21	12	12	12	12	12	14	14	14	15	15	21	26	25	40	19	15	15	15	12	12	13	E15S	13	13
22	13	13	13	E15S	13	13	13	14	15	23	26	29	28	23	18	16	15	15	13	12	12	E15S	E15S	12
23	E15S	13	13	13	13	12	13	15	15	15	25	25	15	22	15	16	14	14	15	E15S	E15S	E15S	13	E15S
24	E15S	14	13	13	13	13	15	15	15	15	28	25	22	25	15	15	15	15	13	12	E15S	E15S	14	13
25	E15S	12	13	12	E15S	12	15	15	15	15	25	26	25	25	15	15	15	14	13	13	13	13	13	13
26	13	14	13	14	14	E15S	15	14	15	21	26	26	26	34	28	15	16	14	12	12	14	12	13	14
27	14	E15S	12	13	14	14	15	15	16	19	19	29	25	23	23	19	14	15	14	14	E15S	14	E15S	13
28	E15S	14	14	14	12	14	12	14	14	29	25	25	30	25	15	14	14	15	13	13	E15S	12	E15S	E15S
29	E15S	E15S	13	12	13	12	15	15	15	25	25	26	24	25	22	13	15	13	14	14	E15S	E15S	12	14
30	12	E15S	E15S	14	14	14	14	15	15	23	25	30	25	25	25	25	26	15	13	E15S	13	E15S	12	E15S
31	E15S	13	12	13	12	13	13	15	15	15	16	15	17	19	25	19	15	13	13	E15S	E15S	13	13	12
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	13	12	13	12	12	13	14	15	15	17	25	26	25	25	20	15	15	15	13	12	13	13	14	12
UQ	E15S	14	13	14	14	14	15	15	15	25	26	30	26	26	25	19	15	15	14	14	E15S	E15S	E15S	14
LQ	12	12	12	12	12	12	14	14	15	15	24	25	22	23	15	15	15	14	13	12	13	13	13	12

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AUG. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	I S 280	280	290	290	305 F	355	350	335	275	310	280	275	265	275	275	295	295	290	290	275	U S 280	280 S	S	S
2	A	F	I S 280	265	275	S	330	335	320	355	300	I A 290	270	B	295	300	305	300	310	280	I R 280	S	S	S
3	S	S	I S 285	J S 280	270	310	310	320	310	A	A	A	A	A	275	A	A	A	300	305	285	285 S	290 S	295
4	280 F	265 F	F	280 F	295	215	300	275 H	295	290	280	C	J R 265	270	J R 235	260	260	300	335	270 H	250	A	265	285 F
5	270 F	275 F	265	265 F	270	260	265	285	G	G	A	A	G	G	250	A	A	A	A	A	A	255 F	255 F	250
6	260 F	265 F	260 F	265	315 F	320	370	245	U R 325	315	320	J R 270	275	270	295	290	275	280	300 R	325	J R 300	290	270	275
7	265	J R 290	320	295	275	290	330	285	295 R	275	260	G	U R 265	B	265	285	295	A	300	295	275	285 S	U F 270	270 F
8	280	280	295	275 F	270 F	290 F	305	300	345	295	280	J R 275	295	295	280	295	310	305	J R 300	300 S	U S 295	A	S	285
9	285	290 S	280 S	I S 295	305 S	315	340	J S 305	330	290	300	265 H	260	280	270	255	280	A	330	310	F	F	230 F	F
10	F	F	F	F	285	285	285	295	315	285	305	295	I R 280	I R 280	290	300	310	310	300	I A 290	U S 285	290 S	U S 260	I S 260
11	J S 260	275	U S 275	285	300	310	J S 320	340	345	280 R	285	275	300 R	300	285	305	325	330	315	300 S	290	S	F	I S 295
12	U S 295	U S 295	U S 300	260 S	F	290	310	335	310	315	305	310	300	290	290	285	J R 315	325	I A 325	315	A	A	A	A
13	270 F	280 F	285 F	U F 265	F	315 F	345	340	J R 360	360	370	320	285	310	295	305	310	315	I A 310	315	320	310	U S 285	280 F
14	295 F	300 F	U F 285	285 F	290 F	310	345	365	340	A	310 S	290	300	300 R	295	300	A	I A 310	305	310	U S 290	S	F	F
15	S	S	U S 275	F	F	315	320	345	360	I A 325	310	300	300	275	285	300	J R 305	J R 300	I R 310	U R 340	J R 320	280	S	S
16	S	A	F	F	280	305	R	340	355	320	325 R	295 R	305	285	290	300	J R 310	335 R	325	I S 315	J S 290	F	F	290 S
17	285	270	275	J F 295	285 S	340 F	330	J R 345	I R 330	340	310 R	295	300	290	300	305	315	320	315	315 R	315 R	300	285	C
18	C	C	C	C	C	C	C	C	C	C	C	C	A	A	300	325	320	310	J R 315	330 R	290	F	280	F
19	F	295	285	I A 270	A	F	330	J R 295	305	305	340	I A 305	300	I A 290	305	A	A	310	305	J R 305	325	285	U F 250	F
20	A	A	270 F	265 F	I A 275	265 F	340	A	A	A	A	A	A	280	300	310	A	310	I A 310	320	330	285	U F 260	F
21	280 F	265	270 F	280 F	285	320	310	325	325	325	325	295	280	285	310	310	320	320	325	315	295	270	265	290
22	280	275 F	F	F	F	F	335	335	315	I R 320	275	J R 285	300	305 R	310	305	305	305	300 R	300	310	310	290	F
23	S	F	F	F	330	320	335	J R 330	I R 340	320	280	375	300	310	320	320	295	325	305	300	315 R	I R 300	285	270
24	280	F	F	F	F	R	I R 330	J R 345	330	325	J R 290	275	J R 300	305 R	300	310	315	320	330	350	280	270	265	F
25	290 S	275 F	280	295	290	290	325	340	345	290	295	290	300	285	290	300	295	310	J R 315	315 S	I R 310	S	S	S
26	280	285 S	290	290	270	F	295 R	310	340	320	300	280	290	285	290	290	295	295 R	J R 325	325	290 S	275	270	285
27	I A 260	275	275	275	295	310	335	300	300	325	315	295	295	290	285	290	285	J R 290	305	325	290	250	270 S	265 S
28	U S 305	310	260	265	280	295	310	315	310	J R 295	290	J R 305	J R 300	J R 300	315	310	315	J R 305	J R 305	285 R	325	280	280	275
29	285	275	280	290	285	F	I S 325	J R 335	330	325	295	295	295	305	305	310	310	310	295	295	295	295	285	275 S
30	275	270	295	290	280	275	310	310	305	J R 315	305	280	300	300	280	305	305	J R 310	J R 305	310	290	275	S	R
31	F	F	S	I S 300	S 325	315	350	310	315	310	290	J R 280	290	295	285	J R 290	285	315	A	A	275	275	285 S	295 S
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	23	24	24	24	29	29	29	27	27	26	28	27	31	28	26	27	29	29	28	21	21	17
MED	280	275	280	280	285	310	330	325	325	315	300	290	295	290	290	300	305	310	310	310	290	285	270	280
UQ	285	290	288	290	298	315	335	340	340	325	310	295	300	300	300	308	315	318	315	315	312	290	285	290
LQ	270	275	275	265	275	290	310	300	310	292	288	275	278	280	282	290	295	302	300	300	285	275	265	270

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

IONOSPHERIC DATA

AUG. 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	370	L	380	350	370	A	380	350	360	L						
2								L	395	L	390	A	345	B	B	R	A	A	A					
3								A	A	A	A	A	A	A	A	A	A	A	A					
4									A	A	A	C	I B 360	370	350	340	B	340						
5						L	A	A	320	355	A	A	360	350	A	A	A	A	A					
6							L	355	U 400	390	L	370	395	380	340	340	L	A						
7							L	L	335	370	400 H	370	R	B	350	350	A	A	A					
8								L	380	390	R	A	R	375	360	355	L	L	L					
9							L	L	440	370	390	L	370 H	370	370	355	A	A						
10								350	350	360	355	I B 380	335	A	350	350	I A 340	360						
11							L	L	A	350	380	360	355	400	360	370	A	A						
12							L	L	A	395	A	A	370	A	A	A	A	A	A					
13								A	A	315	405	L	I B 390	350	340	365	A	A	A					
14							L	A	A	A	A	A	A	370	345	A	A	A						
15							A	A	A	A	415	L	345	365	A	A	350	L						
16								A	A	A	395	A	A	U L 360	350	A	A	A						
17								L	U L 375	390	430	U L 370	390	375	375	335	L	L						
18							C	L	C	C	C	C	C	A	A	335	370	A	A					
19								L	L	A	A	A	A	U L 350	A	A	A	A	A					
20								A	A	A	A	A	A	A	340	380	A	A	A					
21								355	L	A	U L 380	430	390	390	350	370	L	L						
22								L	390	405	350	A	A	A	365	375	L	355						
23								L	380	380	365	380	380	360	360	355	360	L						
24								A	L	390	L	355	385	375	390	L	A	A						
25							L	L	L	430	L	A	390	310	A	A	A	A						
26								L	400	L	U L 390	A	350	U L 360	360	350	L	L						
27								L	L	A	L	A	385	350	L	350	L	L						
28							L	L	U L 380	L	350	380	350	370	385	L	390	L						
29								A	L	400	L	L	365	U L 360	380	L	L							
30									L	A	L	A	L	L	340	370	380	L						
31							L	L	U L 375	A	350	L	370	390	A	U L 370	L	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	14	15	16	10	22	21	22	18	6	3						
MED								355	380	390	385	370	370	370	360	355	360	355						
UQ								355	395	392	398	380	385	375	375	370	380	358						
LQ								352	370	365	360	360	350	360	350	350	350	348						

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

IONOSPHERIC DATA

AUG. 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 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								250	390	300	365	335	370	340	340	300	300	285						
2								250	250	250	310	I A 340	350	B	305	295	305	300	270					
3								290	285	A	A	A	A	A	375	A	A	A	260					
4							E A 300		270	320	345	I C 365	380	345	460	375	E B 450	270						
5						370	400	350	G	G	A	A	G	G	500	A	A	A	A					
6							230	550	260	255	290	425	355	355	310	305	305	300						
7							250	290	330	425	470	G	I B 460	B	420	355	A 340	A	A 300					
8								230	260	310	350	340	300	320	320	300	285	290	260					
9							250	290	260	250	310	H 300	375	320	300	345	325	A						
10							330	320	300	370	340	355	R	E A 400	380	340	300	290						
11							250	250	260	390	330	330	300	295	310	290	260	250						
12							260	250	260	270	295	300	300	300	300	320	A	A 250	A					
13								255	240	245	245	305	380	315	315	285	280	270	A					
14							245	230	A 250	A	285	E A 350	310	305	280	300	I 300	I A 295						
15							E A 300	255	245	I A 295	300	330	300	340	315	325	285	290						
16								250	245	295	280	340	325	340	310	290	275	250						
17								240	250	250	290	340	305	305	300	290	270	260						
18							E C 270	C	C	C	C	C	A	A	310	280	285	290						
19							300	320	310	290	A 280	A	325	A	A 320	A	A	290						
20								A	A	A	A	A	A	440	340	320	A	A	A					
21								270	245	300	300	355	405	375	305	300	280	280						
22								245	285	290	390	350	320	300	300	300	290	280						
23								250	250	290	350	340	310	295	300	290	290	260						
24								250	250	260	315	340	300	295	300	290	285	260						
25							250	250	235	300	310	310	310	305	310	310	275	275						
26								285	245	240	270	330	315	310	300	305	290	270						
27								230	230	270	275	310	305	320	325	300	290	280						
28							260	255	250	285	340	290	300	310	295	265	280	255						
29								250	270	255	250	320	320	300	295	270	260							
30									235	265	260	300	300	290	350	290	285	285						
31							245	250	260	270	300	305	310	300	310	300	280	300						
	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	15	27	29	27	27	26	27	26	31	28	26	25	4					
MED						370	255	250	260	290	300	335	315	311	310	300	285	280	265					
UQ							300	288	270	300	340	350	362	340	332	315	300	290	285					
LQ							250	250	245	258	282	310	302	300	300	290	280	260	260					

AUG. 1972 | H'F2 (KM)

IONOSPHERIC DATA

AUG. 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 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	280	290	260	250	245	205	210	205	230	210	160H	210	240	A	230	200H	220	240	250	240	280	300	300	260
2	A	235	290	300	300	260	260	250	210	200	200	I210	200	B	B	A	A	A	A	250	300	250	330	260
3	295	260	260	300	280	240	250	A	A	A	A	A	A	A	A	A	A	A	A	240	250	310	300	245
4	245	340	300	270	245	250	A	240H	A	A	A	C	R	205	245	200	B	260	210	200H	370	A	305	290
5	320	250	320	300	290	270	A	A	E310	230	A	A	240	250	A	A	A	A	A	A	A	340	320	350
6	325E	310	330	310	230	225	245	220	215	200	270	230	200	190	200H	240	260	I260	260	240	240	245	265	290
7	300	255	320	260	290	260	240	220	200	220	180H	205	I210	B	245	250	A	A	A	245	250	A	310	350
8	300	300	250	255	280	270	240	220	220	200	I200	A	I200	220	200	205	250	230	250	290	260	I320	250	280
9	260	255	260	240	240	245	240	205	200	200	200	205	180H	220	220	225	A	A	230	250	270E	270E	355	260
10	200	310	300	300	300	300	I280	225	245	210	205	I210	200	I200	250	240	I250	240	280	I300	250	240	260	270
11	305	285	300	285	265	260	240	220	A	200	200	200	240	210	240	240	I230	I250	250	250	265	300	E350	300
12	250	250	280	335	280	260	240	A	A	210	I220	I210	240	A	A	A	A	A	A	E250	I250	I250	I220	320E
13	300	255	290	300	255	240	225	A	A	205	205	185	240	240	245	240	A	A	A	E280	220	220	I250	300
14	260	280	300	300	300	250	220	A	A	A	A	A	A	240	260	A	A	A	255	245	240	215	260	290
15	280	245	305	280	250	240	A	A	A	A	190	I190	250	210	A	A	250	A	250	250	235	E340	300	300
16	360	I305	260	290	260	250	255	A	A	A	200	I250	I260	200H	220	A	A	A	250	245	260	290	240	280
17	310	330	305	300	250	220	250	240	220	210	180	200H	200	200	200	220	220	250	250	240	210	260	260	C
18	E280C	E290C	290	C	280	C	E250C	250	C	C	C	C	A	A	270	240	A	A	250	210	E330	330	320	290
19	300	290	290	A	I340	300	I250	I240	I240	A	A	A	260	A	A	A	A	A	260	240	220	220	320	300
20	A	350	320	320	A	300	245	A	A	A	A	A	A	220	230	A	A	A	A	240	220	305	350	310
21	290	300	300	290	270	240	240	250	220	I260	200	200	210	190	240	240	270	245	250	250	250	300	300	265
22	265	260	290	260	250	250	240	210	210	200	220	I220	A	A	220	220	250	240	250	240	245	230	200	300
23	340	320	290	250	235	240	240	240	210	200	200	200	200	230	210	250	230	250	240	245	220	260	245	310
24	290	330	260	260	265	320	270	A	220	220	210	270	205	210	210	280	I270	I260	250	220	230	315	340	340
25	300	300	280	270	260	260	240	240	A	200	A	A	210	180H	A	A	A	I260	250	225	300	300	250	340
26	270	260	310	260	295	290	250	250	220	205	220	I250	260	200	240	220	220	I235	230	220	240	300	300	290
27	I300	340	295	290	255	250	230	220	220	I235	205	I250	200	200	210H	205	220	260	250	230	240	260	300	300
28	255	260	350	305	310	275	245	230	215	225	200	210	210	210	210	230	220	240	260	280	250	240	290	290
29	290	295	300	300	E360	310	250	A	250	205	205	185	200	220	210	210	210	240	250	250	250	250	250	250
30	260	300	270	225	230	290	245	230	230	I230	250	I265	285	250	210	240	235	240	250	220	260	290	320	350
31	295	300	330	290	245	230	240	225	210	A	250	260	200	210	I235	240	210H	A	A	A	320	300	270	260
	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	31	31	29	30	30	28	21	20	22	23	22	25	23	24	21	17	17	23	29	30	29	31	30
MED	290	290	295	290	264	255	241	230	220	208	200	210	210	210	225	240	230	245	250	242	250	280	300	290
UQ	300	308	305	300	290	275	250	240	228	220	215	I250	240	220	242	240	250	260	250	250	262	300	318	310
LQ	262	259	280	260	250	240	240	220	210	200	200	200	200	200	210	220	220	240	250	240	240	250	255	270

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AUG. 1972 | H'F (KM)

IONOSPHERIC DATA

AUG. 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 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	95	95	105	100	100	100	150	140	115	120	110	130	105	100	100	100	100	100	100	100	100	100	100	105
2	100	100	100	100	100	130	110	110	105	110	100	100	100	B	B	100	120	120	110	100	100	100	100	100
3	100	100	100	100	100	100	140	110	105	105	105	105	100	120	100	100	110	105	110	110	100	100	100	100
4	110	100	100	100	100	125	115	110	110	110	110	C	150	G	G	B	B	G	105	105	100	105	105	100
5	100	90	90	90	120	125	115	110	105	105	105	105	G	G	130	125	120	110	110	105	105	100	100	100
6	105	105	B	B	150	G	110	110	100	160	160	G	G	G	110	105	105	100	100	100	100	100	100	100
7	100	140	125	120	120	120	140	130	G	110	100	100	105	B	130	125	115	105	105	100	105	100	100	100
8	100	90	100	95	100	100	100	100	100	B	100	100	100	100	100	110	110	110	100	100	100	100	100	100
9	100	100	100	100	100	140	110	110	105	G	G	100	G	100	180	130	115	105	105	100	105	95	105	100
10	100	100	120	105	110	110	110	110	110	105	105	B	G	110	110	140	110	110	105	100	100	100	100	100
11	100	100	100	100	100	G	110	100	100	105	100	100	100	100	100	110	130	110	110	105	100	100	100	100
12	100	100	100	100	100	B	140	110	105	105	100	100	100	100	100	100	100	110	105	105	105	100	105	100
13	100	100	90	90	90	130	130	110	105	105	G	110	105	100	100	100	120	110	110	105	100	100	100	100
14	100	95	90	90	90	90	120	110	105	100	100	100	100	100	B	130	110	110	110	100	100	100	100	100
15	100	100	100	100	100	115	110	110	105	110	105	105	105	100	100	100	105	100	100	100	100	100	100	100
16	100	100	110	105	100	100	110	110	105	100	105	105	100	100	100	120	110	110	110	105	110	110	90	100
17	100	100	100	100	100	100	110	110	105	100	100	100	G	100	100	100	100	120	110	110	110	100	100	100
18	100	100	100	100	100	C	100	110	105	C	C	100	100	100	120	120	115	105	105	100	100	100	105	100
19	100	100	100	100	100	100	130	120	110	115	110	110	105	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	120	110	105	105	105	105	105	110	130	110	105	105	105	105	100	100	105	100
21	100	100	100	100	90	100	110	105	105	100	100	G	G	B	G	100	140	130	100	100	100	S	100	B
22	100	115	B	100	B	B	G	120	110	110	105	100	105	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	130	130	120	105	110	100	105	105	100	100	G	105	105	130	110	100	100	100	100	100
24	100	100	100	100	100	110	110	110	105	105	105	105	105	105	110	110	100	100	110	100	100	100	100	100
25	100	100	100	100	100	120	110	110	105	100	100	100	100	100	130	115	110	110	110	100	100	100	100	100
26	100	100	95	100	100	B	110	110	110	105	100	100	100	100	105	105	105	100	100	100	100	95	100	95
27	95	95	95	95	95	100	120	110	110	105	105	100	105	105	100	100	150	120	105	105	100	100	95	100
28	S	100	95	95	100	100	140	130	100	100	G	100	G	100	G	140	140	140	110	100	115	90	90	S
29	S	100	100	100	100	100	110	110	105	105	100	100	100	G	100	100	100	130	115	110	105	100	100	B
30	100	100	110	95	B	B	170	135	120	110	110	105	100	100	100	105	140	130	115	100	110	100	100	100
31	100	100	100	100	100	100	100	125	100	110	105	105	105	105	105	G	G	110	105	100	100	100	100	100
	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	31	29	30	29	24	30	31	30	28	27	27	24	24	25	29	29	30	31	31	31	30	31	28
MED	100	100	100	100	100	100	110	110	105	105	105	100	100	100	100	105	110	110	105	100	100	100	100	100
UQ	100	100	100	100	100	122	130	110	110	110	105	105	105	102	110	120	120	120	110	105	105	100	100	100
LQ	100	100	100	100	100	100	110	110	105	102	100	100	100	100	100	100	105	105	102	100	100	100	100	100

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AUG. 1972 | H'ES (KM)

IONOSPHERIC DATA

AUG. 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

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	F2	F2	F1	F2	F1	L	HL 12	H	C 2	H	HU	H	L	C 2	L	LC 11	L 2	L 2	L	F4	F1	F3	F3	F3
2	F4	F2	F3	F3	F3	H 2	C 3	C 2	C 1	C 1	L 2	L 2	L			L	HL 11	H 2	CL 22	F4	F5	F2	F3	F2
3	F3	F4	F3	F3	F2	L	H	C	C 1	C 2	C 3	C 2	C 3	HC 22	L 3	L 2	C 3	C 3	C 4	F2	F4	F3	F4	F4
4	F1	F3	F3	F5	F3	CL 33	C 3	C 2	C 2	C 2	C 2	C 1	H 2						L	F1	F6	F5	F2	F4
5	F4	F3	F4	F3	FF 22	H 2	C 3	C 2	C 2	C 2	C 2	C 2			H 1	H 2	H 2	C 3	C 4	F4	F4	F3	F2	F3
6	F1	F2			F1		C 3	C 2	L	HL 11	HL 11				C 1	C 2	C 2	L 3	L 2	F2	F2	F1	F3	F2
7	F2	FF 11	F1	F1	FF 11	H 1	H 1	H		C 1	L	L	L		HL 11	H 2	C 2	C 3	C 3	F3	F2	F5	F5	F5
8	F3	F3	F2	F2	F2	L	L 2	L	L 2		L	L 2	L	L	L	C 1	C 2	C 1	L 2	F4	F4	F5	F5	F3
9	F2	F2	F2	F2	F1	HL 11	C 1	C 1	C 1			L		L	H 1	H 1	C 2	C 4	C 3	F5	F1	F4	F2	F3
10	F1	F1	FF 42	F5	F6	C 4	C 3	C 2	C 1	C 1	C 1			C 2	C 1	H 1	C 1	C 2	L 3	F6	F5	F4	F3	F2
11	F2	F2	F2	F1	F1		C 1	C 1	C 3	C 1	L	L	L	L	LH 11	C 1	H 1	C 2	C 2	F3	F3	F4	F4	F4
12	F4	F3	F4	F3	F2		H 1	C 2	C 2	C 2	C 3	C 2	C 2	L 2	L 2	L 3	L 3	CL 24	L 3	F3	F4	F3	F3	F3
13	F4	F3	F5	F4	F3	HL 31	H 2	C 3	C 3	C 2		C 1	C 1	L 1	C 2	L 2	H 3	C 4	C 4	F5	F4	F3	F4	F3
14	F2	F4	F3	F3	F4	L	C 1	C 3	C 2	L 2	L 2	L 2	L 2	L 1		H 1	C 1	C 4	C 3	FF 11	F3	F1	F2	F3
15	F2	F2	F4	F3	F2	CL 21	C 3	C 3	C 3	C 3	C 1	C 2	C 2	L 1	L 3	L 3	C 2	CH 31	L 3	F4	F3	F4	F3	F3
16	F5	F6	FF 25	F3	F3	L 2	CL 42	C 3	C 3	C 2	C 2	C 2	C 2	C 2	L 1	HL 22	CL 32	CL 23	CL 33	FF 46	FF 23	FF 32	F2	F2
17	F4	F4	F2	F4	F3	L 2	CL 11	CL 22	C 2	L 2	L 1	L 1		L 1	L 1	L 1	L 1	HL 22	L 2	FF 41	FF 11	F2	F3	F1
18	F1	F1	F2	F1	F1		C 1	C 1	C 1			L 1	L 3	L 2	H 1	H 1	C 3	C 3	L 2	F5	F3	F3	F3	F4
19	F6	F4	F5	F6	F3	L 4	HL 12	H 3	C 2	C 2	C 2	C 2	C 2	L 2	L 2	L 3	L 4	L 3	L 3	F4	F5	F4	F2	F4
20	F4	F5	F4	F4	F4	L 4	C 2	C 4	C 2	C 3	C 2	C 2	C 2	C 2	H 1	C 2	C 3	C 4	C 4	F2	F3	F5	F4	F3
21	F4	F4	F5	F3	F3	L 2	C 3	C 3	C 2	C 2	C 1					L 1	H 2	HL 21	L 2	F4	F3		F1	
22	F1	F1		F1				H 1	C 1	C 1	C 1	C 2	C 2	C 2	C 1	L 1	L 1	L 1	L 2	F4	F4	F2	F1	F3
23	F4	F2	F2	F3	FF 11	H 1	H 1	C 2	C 1	C 1	C 1	C 1	L 1	L 1		C 2	C 2	H 2	C 3	F2	F4	F4	F4	F4
24	F2	F3	F2	F3	F1	C 4	C 4	C 3	C 2	C 1	C 2	CL 22	C 2	C 1	C 1	C 2	C 2	L 2	CL 24	F3	F3	F4	F4	F3
25	F3	F3	F3	F2	F1	H 1	C 2	C 3	C 2	C 2	C 2	L 1	L 1	L 1	HL 11	CL 12	CL 21	C 3	CL 33	F3	F3	F3	F3	F4
26	F2	F2	F2	F3	F1		C 3	C 2	C 1	C 1	C 2	C 3	C 2	C 2	C 2	C 2	C 2	C 3	L 4	F4	F5	F4	F4	F3
27	F3	F3	F2	F3	F3	L 1	C 2	C 2	C 1	C 2	C 2	C 2	C 1	L 1	L 1	L 1	HL 11	H 3	C 3	F5	F5	F4	F2	F2
28		F3	F3	F2	F2	C 2	HL 23	HL 12	L 2	L 1		L 1		L 1		H 1	H 1	H 1	CL 23	F6	FF 23	F6	F1	
29		F1	F4	F4	F4	L 4	C 3	CL 22	C 1	C 2	C 1	L 1	L 1		L 1	L 1	L 1	HL 21	C 2	F5	F3	F3	F4	
30	F1	F1	F1	F1			H 1	H 1	H 2	C 2	C 2	C 2	C 2	L 2	L 1	L 1	H 2	H 1	L 1	F4	FF 31	F4	F3	F3
31	F3	F4	F4	F3	F3	L 3	L 3	H 1	L 2	C 2	C 2	C 2	C 1	C 1	L 2			C 4	L 4	F4	F4	F4	F2	F5
	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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AUG. 1972 | TYPES OF ES

IONOSPHERIC DATA

AUG. 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

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	I S 355	360	345	320	305 F	250	240	270	G	310	390	350	400	380	380	360	340	330	360	380	U S 390	390 S	S	S
2	A	F	I S 360	390	380	S	290	260	285	255	315	I A 350	380	B	320	315	340	320	300	350	I R 360	S	S	S
3	S	S	I S 340	J S 350	360	310	300	295	315	A	A	A	A	A	480	A	A	A	305	305	340	340 S	330 S	325
4	350 F	405	F	335 F	320	300	330	360 H	310	330	360	C	J R 405	380	J R 390	420 A	405	310	260 F	350 H	440	A	390	350 F
5	360 F	350 F	400	390 F	390	390	400	350	G	G	A	A	G	G	A	A	A	A	A	A	A	405	450 F	420
6	400	390 F	415 F	380	300 F	280	240	G	U R 270	300	300	G	380	380	360	355	380	370	350 R	300	J R 310	360	360	390
7	390	J R 350	300	350	365	340	280	350	340 R	G	G	G	R	B	420	355	A	A	320	315	350	345 S	U F 380	380 F
8	350	350	320	360 F	375 F	325 F	305	300	270	340	380	J R 380	325	340	350	330	295	300	J R 300	330 S	U R 300	A	S	350
9	350	330 S	350	I S 345	290 S	290	255	J S 300	290	320	315	415 H	390	355	320	400	360	A	280	305	F	F	485 F	F
10	F	F	F	F	345	330	350	330	300	380	G	G	R	R	G	G	310	305	300	I A 340	U S 335	340 S	U S 385	I S 390
11	J S 400	360	U S 380	350	350	300	J S 275	260	A	390 R	345	355	340 R	310	330	300	300	280	300	300 S	340	S	F	I S 320
12	U S 340	U S 330	U S 330	390 S	F	325	300	255	300	290	300	305	320	325	330	350	J R 300	270	I A 265	300	A	A	A	F
13	360 F	330 F	345 F	U F 360	F	290 F	260 F	A	J R 245	250	235	305	G	320	320	305	300	300	I A 300	300	260	280	A	330 F
14	320 F	305 F	U F 350	325 F	345 F	300	260	230	250	A	300 S	360	330	340 R	310	310	A	I A 330	300	300	U S 340	S	F	F
15	S	S	U S 360	F	F	270	I A 310	270	250	I A 300	320	340	320	350	345	350	J R 310	J R 315	I R 300	U R 255	J R 255	350	S	S
16	S	A	F	F	350	300	R	260	250	300	285 R	350 R	340	350	340	335	J R 300	270 R	290	I S 295	J S 310	F	F	350 S
17	350	390	350	J F 350	340 S	250 F	255	J R 250	I R 255	280	290 R	350	340	340	315	300	300	300	300	300 R	300 R	305	350	C
18	C	C	C	C	C	C	C	C	C	C	C	C	A	A	330	295	300	300	J R 290	290 R	A	F	390	F
19	F	330	350	I A 370	A	F	300	J R 340	340	300	I A 280	I A 300	330	I A 330	325	A	A	305	300	J R 295	255	315	U F 420	F
20	A	F	380 F	370 F	I A 375	370 F	260	A	A	A	A	A	A	G	330	325	A	A	I A 305	290	275	350	U F 420	F
21	345 F	380	385 F	350 F	330	280	285	290	275	A	305	G	G	G	330	305	300	300	290	290	340	390	390	360
22	350	360 F	F	F	F	F	260	260	350	I R 300	400	J R 360	350	300 R	330	310	305	300	300 R	305	300	300	350	F
23	S	F	F	F	260	300	260	J R 270	I R 255	300	340	350	340	305	300	300	310	300	305	310	300 R	I R 310	340	360
24	390	F	F	F	F	R	I R 280	J R 260	280	290	J R 350	350	J R 340	340 R	340	310	300	300	275	250	350	400	400	F
25	350 S	360 F	360	340	350	350	270	270	250	320	340	340	340	350	350	350	350	310	J R 300	300 S	I R 300	S	S	S
26	355	340 S	350	340	370	F	300 R	300	250	270	315	355	340	345	335	345	315	325 R	J R 290	280	325 S	355	380	345
27	I A 405	380	360	355	320	305	250	260	300	285	300	330	325	345	390	330	335	J R 325	305	285	320	390	370 S	390 S
28	U S 315	305	400	385	370	320	300	300	290	J R 350	350	J R 315	J R 325	J R 350	320	300	300	300 R	J S 310	350 R	300	390	360	360
29	360	360	390	340	A	F	I S 290	J R 285	280	280	300	325	330	310	310	300	300	295	320	320	320	315	350	355 S
30	360	385	345	320	340	360	290	295	305	J R 300	300	350	350	335	380	310	310	J R 310	J R 310	290	340	350	S	R
31	F	F	S	I S 330	290 S	300	250	300	300	310	350	J R 350	350	340	350	J R 340	330	A	A	A	360	350	380 S	340 S
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	23	24	23	24	29	27	26	24	25	22	23	23	29	27	25	25	29	29	27	21	20	17
MED	355	360	350	350	345	300	280	285	282	300	315	350	340	340	330	325	310	305	300	300	320	350	380	355
UQ	360	380	380	370	368	328	300	300	300	320	350	355	350	350	350	350	335	315	305	315	340	390	395	380
LQ	350	330	345	340	320	290	260	260	255	288	300	330	330	328	320	305	300	300	290	290	300	315	355	345

The Radio Research Laboratories, Japan

AUG. 1972 | HPF2 (KM)

IONOSPHERIC DATA

AUG. 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	I S 90	90	100	85	F 80	50	60	80	G	90	100	90	90	110	110	100	120	110	100	100	U S 100	S 100	S	S
2	A	F	I S 100	100	110	S	100	100	105	85	95	I A 100	110	B	100	115	100	120	100	110	I R 100	S	S	S
3	S	S	I S 120	J S 110	100	110	100	95	85	A	A	A	A	A	A	A	A	A	100	75	110	S 105	S 75	80
4	F 95	75	F	F 110	85	80	90	H 100	105	110	90	C	J R 95	80	J R 115	90	85	90	65	H 150	75	A	100	F 100
5	F 130	F 120	90	F 100	110	100	90	110	G	G	A	A	G	G	A	A	A	A	A	A	A	95	F 50	80
6	100	E 110	E 85	110	E 55	75	30	G	U R 85	90	90	G	110	110	100	105	110	110	R 110	90	J 130	100	100	100
7	100	J R 110	100	100	95	120	100	110	R 100	G	G	G	R	B	80	90	A	A	80	130	100	S 100	U F 90	F 90
8	90	100	85	F 90	E 115	E 120	100	100	50	120	100	J R 110	95	120	110	110	95	100	J R 100	S 110	J S 100	A	S	110
9	110	S 110	S 110	S 100	S 100	100	85	J S 90	90	125	90	H 75	100	85	80	95	90	A	65	90	F	F	F 65	F
10	F	F	F	F	70	135	90	90	60	110	G	G	R	R	G	G	90	85	90	A 100	U S 105	S 100	U S 105	I S 100
11	J S 90	100	U S 100	110	90	100	J S 95	100	A	R 100	115	105	R 100	90	130	100	100	100	100	S 100	120	S	F	I S 100
12	U S 110	U S 110	U S 110	S 100	F	115	S 90	95	90	60	95	90	80	120	115	95	J R 65	75	I A 80	35	A	A	A	F
13	E 110	E 115	E 100	U F 90	F	F 65	50	A	J R 50	50	40	55	G	60	85	95	95	60	I A 95	55	85	75	A	E 115
14	E 85	E 90	U E 95	E 120	E 100	75	45	50	55	A	S 90	100	110	R 100	130	90	A	I A 90	90	90	U S 100	S	F	S
15	S	S	U S 100	F	F	90	I A 80	90	80	I A 75	100	100	90	100	95	110	J R 100	J R 125	I R 110	U R 85	J S 105	110	S	S
16	S	A	F	F	90	90	R	110	100	90	R 95	R 90	R 100	100	100	105	J R 90	R 90	100	I S 95	J S 100	F	F	S 110
17	110	100	110	J E 110	S 100	F 90	105	J R 90	I R 95	100	R 100	110	100	100	125	90	90	90	90	R 90	R 90	135	90	C
18	C	C	C	C	C	C	C	C	C	C	C	C	A	A	110	95	80	90	J R 100	R 90	A	F	100	F
19	F	110	90	A	A	F	90	J R 100	110	90	A	I A 75	70	I A 75	70	A	A	80	90	J R 60	75	130	U F 80	F
20	A	F	F 70	E 110	I A 85	E 100	E 55	A	A	A	A	A	A	G	70	50	A	A	I A 90	65	70	100	U F 85	F
21	F 100	80	E 65	E 100	95	65	110	70	100	A	115	G	G	G	110	95	90	90	100	100	100	100	100	100
22	110	F 100	F	F	F	F	80	90	40	I R 90	90	J R 100	90	R 90	110	90	95	90	R 90	85	100	90	90	F
23	S	F	F	F	100	90	90	J R 80	I R 100	90	100	110	120	95	90	90	100	90	95	90	R 90	I R 90	100	100
24	100	F	F	F	F	R	I R 90	J R 90	80	100	J R 110	110	J R 100	R 100	100	90	90	90	85	90	110	90	90	F
25	S 110	F 100	100	100	90	90	90	90	90	100	100	100	100	90	140	90	90	90	J 90	S 90	I S 100	S	S	S
26	95	S 120	110	100	110	F	R 90	90	90	80	85	90	80	100	105	100	85	R 95	J R 70	75	S 120	90	85	100
27	I A 90	70	90	90	90	75	55	55	100	60	75	75	90	80	60	115	110	J R 115	75	60	100	110	S 90	S 100
28	U S 70	90	100	105	75	80	70	55	65	J R 90	100	J R 115	J R 105	J R 90	110	90	90	J R 95	J S 95	R 90	90	100	100	100
29	100	100	90	100	A	F	I S 100	J R 95	100	70	100	80	80	90	85	70	75	80	125	95	85	90	100	S 90
30	90	95	80	125	110	90	80	80	95	J R 90	100	110	90	105	100	90	100	J R 110	J R 90	100	100	110	S	R
31	F	F	S	I S 105	S 100	100	90	90	90	90	90	J R 90	90	100	110	J R 120	110	A	A	A	100	110	S 100	S 100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	23	23	23	24	29	27	26	24	24	22	23	23	28	27	25	25	29	29	27	21	20	17
MED	100	100	100	100	95	90	90	90	90	90	98	100	95	100	102	95	90	90	90	90	100	100	90	100
UQ	110	110	100	110	100	100	95	100	100	100	100	110	100	100	110	102	100	100	100	100	102	110	100	100
LQ	90	90	90	100	88	78	80	85	80	82	90	90	90	90	88	90	90	90	90	85	90	90	85	100

The Radio Research Laboratories, Japan

AUG. 1972 | YPF2 (KM)

IONOSPHERIC DATA

AUG. 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

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	U$_{75}^{S}$	U$_{73}^{S}$	$_{73}^{S}$	$_{71}^{S}$	$_{74}^{S}$	$_{71}^{S}$	$_{64}^{S}$	$_{62}^{S}$	66	67	72	87	97	101	$_{97}^{S}$	106	98	90	$_{86}^{S}$	I$_{85}^{S}$	J$_{80}^{S}$	$_{80}^{S}$	I$_{81}^{S}$	I$_{77}^{S}$
2	$_{71}^{S}$	67	$_{61}^{S}$	60	J$_{60}^{S}$	65	88	U$_{96}^{S}$	70	71	I$_{77}^{A}$	77	A	A	I$_{94}^{R}$	101	101	93	73	I$_{72}^{S}$	79	74	75	I$_{72}^{S}$
3	S	S	F	F	S	I$_{72}^{S}$	F$_{80}$	83	66	66	I$_{70}^{A}$	I$_{70}^{A}$	J$_{66}^{R}$	A	A	93	91	I$_{94}^{S}$	I$_{91}^{A}$	80	$_{82}^{S}$	J$_{77}^{S}$	73	$_{69}^{S}$
4	68	61	61	58	57	58	64	72	I$_{77}^{A}$	F$_{75}$	82	C$_{83}^{S}$	100	I$_{104}^{S}$	W$_{101}$	$_{124}^{S}$	147	$_{153}^{S}$	J$_{118}^{S}$	56	J$_{52}^{S}$	60	$_{60}^{S}$	J$_{63}^{S}$
5	F	F	$_{63}^{S}$	$_{58}^{S}$	$_{57}^{S}$	$_{51}^{S}$	57	77	$_{65}^{S}$	54	63	53	R	74	62	68	56	E$_{37}^{G}$	69	50	J$_{40}^{S}$	$_{47}^{S}$	S	A
6	I$_{50}^{S}$	$_{47}^{S}$	$_{50}^{S}$	J$_{51}^{S}$	$_{61}^{S}$	J$_{33}^{S}$	I$_{52}^{R}$	58	H$_{92}$	$_{93}^{S}$	I$_{94}^{C}$	U$_{98}^{S}$	128	121	$_{114}^{S}$	$_{107}^{S}$	111	I$_{112}^{S}$	I$_{114}^{C}$	S	76	$_{68}^{S}$	70	J$_{65}^{S}$
7	68	$_{68}^{S}$	I$_{58}^{S}$	$_{60}^{S}$	J$_{59}^{S}$	$_{57}^{S}$	70	77	$_{75}^{S}$	71	70	64	66	R$_{69}$	I$_{74}^{A}$	78	78	I$_{71}^{A}$	68	65	$_{68}^{S}$	J$_{63}^{S}$	J$_{63}^{S}$	I$_{60}^{S}$
8	I$_{61}^{S}$	J$_{62}^{S}$	I$_{57}^{C}$	55	54	I$_{55}^{C}$	59	78	73	70	78	92	$_{103}^{S}$	$_{110}^{S}$	$_{110}^{S}$	$_{104}^{S}$	U$_{102}^{S}$	90	$_{89}^{S}$	$_{90}^{S}$	75	67	F	S
9	$_{73}^{S}$	$_{69}^{S}$	F	55	I$_{51}^{A}$	45	53	71	89	71	67	70	78	93	97	91	$_{108}^{S}$	$_{120}^{S}$	128	J$_{84}^{S}$	$_{90}^{S}$	$_{85}^{S}$	77	80
10	81	I$_{59}^{A}$	$_{60}^{S}$	S	S	S	F	76	85	63	68	74	74	75	82	$_{84}^{S}$	79	73	77	J$_{75}^{S}$	$_{82}^{S}$	68	S	F
11	S	F	F$_{64}$	F$_{62}$	62	56	62	68	67	68	81	91	101	107	J$_{124}^{S}$	$_{128}^{S}$	$_{117}^{S}$	$_{97}^{S}$	H$_{77}$	70	$_{73}^{S}$	66	J$_{60}^{S}$	65
12	$_{61}^{S}$	I$_{53}^{A}$	$_{54}^{S}$	S	J$_{46}^{S}$	J$_{44}^{S}$	F	79	79	74	$_{80}^{R}$	68	82	87	99	$_{110}^{S}$	$_{118}^{S}$	J$_{108}^{S}$	$_{87}^{C}$	69	J$_{64}^{S}$	S	S	S
13	S	S	S	S	S	S	F	I$_{76}^{R}$	71	65	I$_{61}^{A}$	59	69	$_{89}^{R}$	102	$_{112}^{S}$	101	91	A	A	A	A	A	A
14	A	S	S	S	S	S	F	$_{77}^{S}$	72	I$_{68}^{A}$	72	84	91	91	92	$_{87}^{S}$	92	J$_{97}^{S}$	I$_{104}^{C}$	I$_{103}^{S}$	S	63	J$_{53}^{S}$	I$_{53}^{S}$
15	$_{56}^{S}$	61	F	F	F	51	F$_{57}$	92	79	63	63	73	$_{87}^{R}$	J$_{99}^{R}$	I$_{112}^{R}$	J$_{124}^{S}$	133	140	139	$_{129}^{S}$	I$_{84}^{S}$	57	I$_{54}^{S}$	$_{60}^{S}$
16	I$_{59}^{S}$	55	F	J$_{50}^{S}$	44	46	U$_{61}^{S}$	65	61	A	A	70	76	77	87	I$_{97}^{S}$	I$_{108}^{S}$	$_{107}^{S}$	I$_{108}^{S}$	I$_{98}^{S}$	84	68	51	51
17	$_{58}^{S}$	S	S	50	$_{42}^{S}$	39	48	76	93	73	68	88	J$_{107}^{S}$	103	U$_{108}^{S}$	114	J$_{109}^{S}$	$_{93}^{S}$	J$_{87}^{S}$	U$_{94}^{S}$	75	57	52	J$_{54}^{S}$
18	S	S	S	S	48	45	F$_{59}$	88	J$_{75}^{S}$	68	63	$_{66}^{R}$	75	84	$_{101}^{S}$	103	93	89	90	$_{95}^{S}$	$_{61}^{S}$	$_{58}^{S}$	$_{59}^{S}$	S
19	F	S	S	S	F$_{52}$	$_{49}^{S}$	$_{55}^{S}$	$_{73}^{S}$	77	63	63	65	71	76	$_{80}^{S}$	88	93	$_{91}^{S}$	C	S	S	I$_{52}^{S}$	I$_{46}^{S}$	I$_{48}^{S}$
20	J$_{49}^{S}$	S	S	F	$_{40}^{S}$	$_{39}^{S}$	61^{S}	71	A	A	A	A	A	R$_{79}$	R$_{86}$	I$_{80}^{A}$	76	$_{82}^{S}$	$_{90}^{S}$	$_{82}^{S}$	$_{63}^{S}$	$_{52}^{S}$	$_{52}^{S}$	I$_{52}^{S}$
21	I$_{51}^{S}$	$_{49}^{S}$	I$_{49}^{S}$	U$_{48}^{S}$	$_{48}^{S}$	$_{48}^{S}$	47	68	70	64	66	64	66	75	83	88	78	81	I$_{84}^{A}$	J$_{92}^{S}$	$_{58}^{S}$	J$_{52}^{S}$	J$_{54}^{S}$	J$_{53}^{S}$
22	$_{52}^{S}$	54	$_{51}^{S}$	F$_{54}$	$_{52}^{S}$	42	48	62	65	65	A	A	90	94	92	$_{99}^{S}$	$_{105}^{S}$	$_{102}^{S}$	U$_{104}^{S}$	$_{94}^{S}$	J$_{86}^{S}$	$_{73}^{S}$	$_{62}^{S}$	$_{59}^{S}$
23	58	$_{58}^{S}$	58	56	51	43	54	72	77	69	70	86	100	99	94	86	84	92	$_{97}^{S}$	$_{102}^{S}$	$_{88}^{S}$	65	56	60
24	57	57	57	52	49	48	57	77	80	79	78	94	J$_{118}^{S}$	107	U$_{107}^{S}$	112	117	I$_{105}^{S}$	J$_{108}^{S}$	91	64	U$_{61}^{S}$	64	J$_{64}^{S}$
25	62	60	59	56	52	53	70	77	71	75	I$_{85}^{A}$	101	104	104	109	$_{119}^{S}$	127	$_{124}^{S}$	J$_{121}^{S}$	S	I$_{81}^{S}$	$_{62}^{S}$	A	S
26	S	S	F	F	F	F	$_{64}^{S}$	94	$_{93}^{S}$	72	89	112	131	130	$_{134}^{S}$	$_{142}^{S}$	143	141	J$_{121}^{S}$	J$_{108}^{S}$	82	63	64	$_{63}^{S}$
27	$_{62}^{S}$	60	59	59	62	53	63	76	78	87	92	91	101	102	J$_{112}^{S}$	121	133	129	131	J$_{121}^{S}$	S	80	$_{77}^{S}$	78
28	80	71	48	48	49	48	54	$_{87}^{S}$	92	90	100	$_{112}^{S}$	J$_{121}^{S}$	121	117	110	J$_{98}^{S}$	85	$_{88}^{S}$	S	$_{94}^{S}$	$_{58}^{S}$	$_{61}^{S}$	$_{63}^{S}$
29	64	$_{61}^{S}$	$_{61}^{S}$	$_{58}^{S}$	54	$_{58}^{S}$	$_{61}^{S}$	$_{86}^{S}$	$_{93}^{S}$	93	78	91	$_{105}^{S}$	107	97	96	$_{98}^{S}$	$_{101}^{S}$	$_{102}^{S}$	U$_{107}^{S}$	92	77	67	66
30	66	65	65	56	50	$_{49}^{S}$	58	78	$_{97}^{S}$	97	87	91	97	96	88	100	110	112	J$_{114}^{S}$	107	76	70	72	71
31	72	71	70	67	68	J$_{49}^{S}$	58	77	90	89	91	109	110	112	$_{119}^{S}$	129	139	136	J$_{125}^{S}$	I$_{110}^{S}$	I$_{90}^{S}$	78	U$_{75}^{S}$	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	21	20	21	25	27	27	31	30	29	28	29	28	29	30	31	31	31	29	26	27	29	25	23
MED	$_{62}^{S}$	61	59	56	52	49	59	77	77	71	74	84	97	99	98	103	102	97	$_{97}^{S}$	$_{92}^{S}$	$_{79}^{S}$	65	62^{S}	$_{63}^{S}$
UQ	70	66	62	59	59	56	64	78	89	75	84	91	104	107	$_{110}^{S}$	$_{113}^{S}$	117	$_{112}^{S}$	$_{114}^{S}$	$_{103}^{S}$	$_{84}^{S}$	73	72	$_{68}^{S}$
LQ	$_{56}^{S}$	57	56	52	49	45	54	72	70	66	68	70	76	84	88	90	92	90	87	75	$_{65}^{S}$	$_{58}^{S}$	$_{54}^{S}$	$_{56}^{S}$

AUG. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 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								L	L	500	510	530	530H	520	530H	500	A	L	L					
2								400	L	A	A	L	A	B	B	B	L	L	A					
3									A	A	A	A	A	A	A	A	A	A	A					
4								L	A	A	520	A	A	A	510H	470H	B	L	L	250				
5								L	L	A	470R	R	R	A	U R 470	I A 480	L 490	370	350					
6								390	U L 500	L 500	C	L	A	500	L 540	510	L 510	L 470	L					
7								L	L	L 480	A	520	R	B	A	A	A	A	A	A				
8								L	L	L	A	I A 480	A	500	I A 500	A	A	A	L					
9								L	L	L	490	530	520	500	490	510	A	A	A					
10								A	A	A	A	A	510	510	500	470	L 440	A	L					
11								A	L	L 500	480	R 480	480	L 530	500	R 480	L 450	L 410	A					
12							L	L	A	A	H 510	A	A	R 490	470	I A 480	A	A	A					
13								A	A	A	A	A	500	500	490	A	A	A	A					
14								A	A	I A 470	I A 520	A	A	A	A	A	A	A	A					
15								A	I A 430	A	490	A	A	A	A	A	A	A	A					
16								L	A	A	A	A	A	510	490	A	A	A	A					
17								L	L	L	520	L 500	510	550	I A 490	I A 470	U L 460	L						
18								L	L	L 450	L	L 510	A	520	A	L 490	L 470	L 430	L 330					
19								L	L 430	L	L	L 580	L 510	L 500	500	490	L 470	A	A					
20								A	A	A	A	A	A	A	A	A	A	R 400	A					
21								L	A	A	A	L	L	510	I R 490	L	L	A	A					
22									L	A	A	A	L 530	A	L 510	I A 490	U L 480	L	A					
23								L	L	L	L	L	L	L	530	510	L 480	L	L					
24								A	L	L	L	L 540	510	L	530	L	A	L						
25								A	U L 450	L	A	A	A	L 520	L 530	A	L 490	A	A					
26								L	L	L 460	L 560	L 560	L 550	L 520	L 540	A	L 500	L	L					
27									L	L	L 520	U L 540	L	L 550	I A 540	A	A	L	A					
28								L	L	L	L	L 550	L 540	L 550	L	L	L	L	L	A				
29								L	L	L	U L 500	U L 600	L 560	L 530	L 460	L 490	L	L						
30									L	L	L	A	L	L	A	L	L	L	A					
31									L	L	L	A	L 540	A	A	L	L	L						
	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	4	7	12	13	13	18	21	14	11	5	2	1				
MED								395	440	480	510	530	520	515	500	490	480	410	340	250				
UQ									U L 475	500	520	550	540	530	530	500	490	430						
LQ									430	465	490	510	510	500	490	480	465	400						

The Radio Research Laboratories, Japan

AUG. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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	A	I A 250	310	A	A	A	A	A	370	A	R	A	A	S				
2						S	150	260	310	340	A	A	A	B	B	B	370	320	260	S				
3						S	230	B	330	330	350	I A 370	I R 380	U R 385	380	360	340	305	235	S				
4						S	150	240	310	H 330	340	355	360	370	R 380	360	B	B	I A 245	A				
5						S	A	260	I A 290	330	350	375	380	380	390	370	340	305	A	S				
6						S	220	275	300	A	C	380	370	R 380	370	350	340	300	H 240	S				
7						S	150	250	290	A	A	R 360	A	B	A	A	325	290	230	S				
8						C	A	H 265	A	A	A	A	A	A	A	A	A	A	225	B				
9						E	S	230	I A 280	A	A	370	I A 365	I A 360	350	350	325	290	225	S				
10						S	S	240	285	A	A	A	A	380	365	350	320	290	215	S				
11						S	A	A	A	A	A	R	I A 380	380	370	350	320	280	230	S				
12						S	150	250	300	310	A	A	A	I A 370	I A 370	I A 350	320	290	220	S				
13						S	S	240	280	310	320	350	A	A	A	I A 340	320	H 280	220	S				
14						S	S	H 230	260	A	A	A	A	A	365	340	310	280	220	S				
15						S	S	240	285	310	320	350	A	A	A	A	320	A	A	S				
16						S	S	H 250	290	315	A	A	A	A	A	A	A	I A 275	A	S				
17						S	A	I A 250	285	A	A	A	A	A	A	A	A	A	A	S				
18						S	S	A	A	A	A	A	A	A	350	330	325	280	210	S				
19						S	S	240	A	A	A	R	R	I R 365	350	350	H 320	280	A	S				
20						S	S	240	300	325	340	355	350	350	360	350	320	290	A	B				
21						S	S	240	300	330	340	I A 350	365	A	A	I R 345	325	H 295	H 230	B				
22						S	150	240	I A 295	A	A	A	A	A	A	A	I A 320	280	A	S				
23						S	S	230	275	I A 310	350	I A 365	360	350	360	345	A	300	A	E				
24						S	S	250	290	A	A	A	A	A	A	A	300	A	A	S				
25						S	S	A	A	A	A	A	A	A	A	A	A	280	190	S				
26						S	S	225	A	A	A	A	I A 380	380	A	A	330	280	190	S				
27						S	S	250	300	315	A	A	A	A	A	A	A	295	210	S				
28						S	S	250	300	I R 340	R 365	R 375	I R 380	R 380	375	350	320	285	210	S				
29						S	S	250	H 300	325	A	A	390	385	390	360	325	305	220	B				
30						S	S	260	315	340	350	370	370	A	A	I A 355	I A 335	290	230	S				
31							S	255	310	A	A	A	A	380	375	360	335	290	A	S				
	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	7	27	25	15	10	13	13	15	17	19	23	25	20	1				
MED						E	150	250	300	325	345	365	370	380	370	350	325	290	222	E				
UQ							185	250	300	330	350	370	I 380	380	375	358	332	295	230					
LQ							150	240	285	312	340	355	365	368	360	348	320	280	212					

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AUG. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 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	J X 30	J X 25	27	27	25	J X 18	J X 31	28	J X 38	45	45	38	42	41	39	43	J X 61	J X 61	95	J X 83	J X 32	J X 25	18	24
2	J X 21	J X 77	J X 29	24	J X 23	19	42	J X 48	J X 63	J X 78	J X 87	36	Y X 134	94 M	E B 72	E B 58	G	42	43	J X 60	J X 42	J X 24	25	J X 51
3	J X 39	J X 50	J X 37	J X 50	J X 39	J X 57	36	J X 56	J X 64	134	139	Y X 110	Y X 100	Y X 119	Y X 110	50	J X 70	159	Y X 112	J X 33	J X 21	17	J X 37	J X 36
4	J X 38	J X 18	21	J X 22	J X 17	E S 14	24	34	89	89	J X 82	Y X 113	Y X 108	J X 94	G	G	E B 69	E B 33	27	18	J X 33	J X 88	J X 64	J X 52
5	J X 64	J X 34	J X 41	J X 36	J X 24	24	32	28	J X 59	J X 74	J X 51	46	40	68	J X 40	60	49	J X 48	J X 36	J X 30	J X 36	79	J X 98	J X 62
6	J X 25	E B 12	J X 24	J X 58	J X 22	E S 15	33	34	35	37	C	45	54	46	47	50	41	37	20 G	J X 32	J X 30	J X 24	25	J X 25
7	J X 28	J X 29	J X 35	J X 24	J X 54	J X 27	18	30	34	50	J X 74	42	37	E B 60	126	54	82	95	J X 69	71	J X 68	68	35	J X 61
8	J X 37	27	C	J X 20	J X 22	C	21	G	J X 33	J X 87	Y X 105	J X 71	J X 67	53	59	Y X 127	77	59	26	24	24	38	90	71
9	57	42	30	24	63	39	J X 35	35	J X 45	J X 50	J X 41	G	45	39	G	J X 33 G	J X 56	J X 45	J X 85	23	20	J X 26	J X 41	J X 49
10	J X 37	J X 88	J X 51	J X 49	J X 30	J X 42	J X 37	J X 51	J X 57	J X 50	J X 92	53	41	54	45	J X 60	39	J X 82	J X 35	J X 42	E S 14	J X 87	J X 37	J X 59
11	J X 28	J X 26	J X 31	J X 21	18	E S 13	J X 26	J X 62	J X 47	34	40	35 G	J X 43	34 G	35 G	G	G	G	28	E S 15	J X 32	J X 53	J X 50	J X 37
12	J X 71	J X 85	21	26	E S 14	E S 14	18	32	J X 82	J X 66	55	J X 55	58	40	43	59	Y X 100	63	J X 69	J X 56	J X 26	17	J X 40	J X 53
13	J X 65	J X 39	J X 34	J X 29	20	J X 24	34	36	J X 65	J X 70	J X 74	J X 51	J X 45	45	43	J X 77	J X 82	Y X 147	165	180	Y X 145	Y X 101	Y X 128	105 M
14	J X 89	J X 57	J X 53	J X 33	24	24	J X 32	J X 64	145	Y X 143	163	J X 65	67	J X 77	J X 87	53	48	J X 54	J X 66	Y X 143	Y X 160	J X 32	J X 38	J X 20
15	J X 27	J X 30	J X 30	J X 37	J X 26	J X 26	J X 40	J X 49	J X 51	65	37	J X 67	J X 72	Y X 127	J X 75	J X 80	J X 56	J X 65	J X 39	J X 33	J X 29	J X 22	J X 41	J X 27
16	E S 14	E S 14	J X 26	J X 17	J X 37	J X 34	J X 31	26	59	J X 84	Y X 138	J X 96	J X 60	J X 70	J X 66	J X 96	J X 79	J X 59	J X 40	J X 37	J X 33	J X 29	J X 23	24
17	J X 34	J X 50	J X 34	E S 13	J X 42	J X 30	22	29	34	43	J X 64	38	40	J X 58	J X 74	J X 62	J X 40	J X 38	J X 35	J X 31	J X 64	J X 50	J X 31	J X 36
18	J X 34	J X 26	19	20	J X 24	J X 21	21	37	31	38	J X 45	75	J X 67	J X 69	J X 89	37	35	40	29	J X 39	J X 33	J X 64	J X 71	J X 41
19	J X 32	J X 61	J X 70	J X 52	J X 40	J X 29	J X 22	30	37	57	36	35 G	35 G	40	41	50	43	J X 84	J X 65	J X 63	J X 26	J X 32	25	J X 20
20	J X 21	J X 26	J X 34	J X 22	E S 14	E S 14	17	J X 59	J X 86	Y X 106	120	145	D	113	83	85	J X 65	J X 48	Y X 110	44	J X 34	J X 36	24	J X 21
21	J X 37	J X 44	J X 34	17	E B 12	21	19	31	J X 70	J X 58	J X 85	J X 71	59	47	42	42	39	J X 59	Y X 132	J X 35	J X 29	37	23	J X 18
22	J X 17	J X 22	J X 27	J X 38	J X 32	E S 14	17	29	J X 38	59	Y X 111	Y X 110	43	J X 64	J X 70	J X 59	46	17 G	44	70	39	18	E S 14	E S 15
23	21	E S 13	E S 14	E S 13	E	E S 14	20	27	J X 38	J X 44	J X 33 G	J X 40	33 G	34 G	G	G	35	37	30	J X 34	24	24	J X 26	J X 29
24	J X 21	19	E S 13	E S 13	E S 14	E S 14	22	J X 45	39	J X 56	J X 56	Y X 110	40	J X 71	J X 62	40	65	J X 84	J X 89	J X 78	J X 65	J X 37	J X 24	E S 15
25	E S 15	E S 15	25	24	E S 14	E S 14	21	J X 63	J X 71	J X 50	Y X 113	80 M	J X 80	J X 71	J X 72	J X 87	J X 52	44	J X 64	J X 60	J X 26	E S 14	J X 93	J X 45
26	J X 94	J X 70	J X 30	J X 18	E S 13	E S 14	18	J X 35	J X 57	J X 64	J X 66	J X 47	40	37 G	42	J X 55	32 G	J X 28 G	18 G	J X 32	J X 20	22	J X 22	24
27	J X 33	J X 22	20	16	J X 24	18	E S 15	27	35	38	39	J X 54	J X 55	60	J X 62	J X 54	50	31	J X 39	J X 39	J X 44	J X 42	17	17
28	E S 14	24	19	17	J X 26	J X 26	J X 26	33	43	42	46	39	33 G	35 G	27 G	31 G	39	36	31	J X 28	E S 13	E S 13	32	J X 30
29	18	E S 14	E S 14	18	E	J X 18	26	28	J X 39	38	56	40	37 G	24 G	25 G	21 G	21 G	38	J X 36	43	27	47	37	27
30	37	E S 14	E S 14	E S 13	23	20	18	31	38	50	47	J X 66	55	J X 55	J X 57	37	35	41	J X 54	J X 82	J X 40	J X 61	J X 61	J X 39
31	J X 23	E S 13	E S 13	26	J X 24	24	E S 14	30	34	43	J X 52	J X 70	48	J X 67	J X 73	J X 71	G	G	J X 37	J X 33	112	Y X 149	J X 36	J X 51
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J X 32	J X 26	J X 28	J X 24	J X 24	20	22	33	J X 45	56	J X 60	J X 54	48	56	U 52	54	47	45	J X 40	J X 39	J X 32	J X 36	J X 36	J X 36
UQ	J X 38	J X 47	J X 34	J X 31	J X 28	J X 26	32	J X 46	J X 64	J X 72	J X 92	J X 73	J X 67	J X 70	J X 72	J X 61	J X 64	J X 62	J X 69	J X 62	J X 41	J X 57	J X 48	J X 51
LQ	J X 21	18	20	18	16	E S 14	18	29	38	44	45	40	40	40	40	38	37	37	33	J X 32	J X 26	J X 24	24	J X 24

IONOSPHERIC DATA

AUG. 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 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	25	E	E	E	E	G	20	28	37	44	45	E^{R}_{38}	42	E^{R}_{41}	G	41	50	48	37	47	26	18	E	16
2	14	14	E	15	20	15	41	39	35	69	A	E^{R}_{36}	A	A	E^{B}_{72}	E^{B}_{58}	G	40	42	54	40	23	15	20
3	24	50	20	30	23	29	36	42	45	50	A	A	56	A	A	50	47	62	A	26	21	15	32	28
4	33	15	E	E	E	E^{S}_{14}	G	30	A	53	45	C 63	88	E^{S}_{94}	G	G	E^{B}_{69}	E^{B}_{33}	26	17	26	24	52	28
5	53	E	37	28	17	15	25	G	52	51	41	E^{R}_{46}	E^{R}_{40}	60	E^{R}_{40}	57	45	35	32	24	25	25	35	A
6	E	E^{B}_{12}	E	26	17	E^{S}_{15}	28	30	33	34	C	E^{R}_{45}	51	45	40	43	39	33	G 19	22	E	16	E	21
7	27	E^{S}_{29}	31	14	20	S	E^{R}_{18}	28	32	41	48	42	E^{R}_{37}	E^{B}_{60}	A	52	72	A	55	40	18	18	17	53
8	30	16	C	E	E	C	19	G	31	39	55	50	50	43	52	69	62	50	26	20	16	20	22	30
9	17	23	E	E	A	28	34	35	43	42	36	G	41	39	G	G 32	54	45	85	18	E	25	27	35
10	25	A	27	48	26	26	31	49	46	48	50	50	E^{R}_{41}	43	45	45	36	62	31	34	E^{S}_{14}	21	27	16
11	18	E	23	20	E	E^{S}_{13}	25	61	42	E^{R}_{34}	37	E^{R}_{35}	43	G 34	G 35	G	G	G	E^{R}_{28}	E^{S}_{15}	20	22	30	27
12	33	A	E	15	E^{S}_{14}	E^{S}_{14}	E^{R}_{18}	29	57	62	46	51	57	E^{R}_{40}	40	52	73	55	49	29	17	16	30	30
13	50	25	23	18	E	S	25	34	54	57	A	E^{R}_{51}	43	44	43	65	72	48	A	A	A	A	A	A
14	A	52	29	22	E	S	20	40	49	A	62	50	50	49	63	51	48	52	E^{S}_{66}	32	51	24	30	16
15	23	20	22	26	23	20	34	48	51	55	36	64	71	63	74	60	49	61	39	33	25	20	E^{S}_{41}	21
16	E^{S}_{14}	E^{S}_{14}	17	E	19	30	25	G	46	A	A	60	49	50	47	48	72	52	39	35	29	23	18	17
17	18	34	20	E^{S}_{13}	22	19	21	27	G	37	36	37	40	50	68	49	36	33	33	29	45	30	24	29
18	19	E	E	19	15	16	21	29	31	36	42	45	52	46	49	35	34	36	26	38	24	25	18	E
19	20	50	53	E^{S}_{52}	40	22	18	30	35	45	35	E^{R}_{35}	E^{R}_{35}	E^{R}_{40}	41	47	42	62	50	24	24	E^{S}_{32}	17	16
20	E^{S}_{21}	25	23	19	E^{S}_{14}	E^{S}_{14}	16	40	A	A	A	A	A	73	69	A	47	33	55	39	18	18	E	18
21	24	22	21	E	E^{B}_{12}	G	17	29	50	55	58	48	46	46	E^{R}_{42}	41	39	58	A	34	19	23	E	E
22	E	15	E	26	30	E^{S}_{14}	E^{R}_{17}	G	34	51	A	A	43	52	47	52	33	G 17	35	37	31	E	E^{S}_{14}	E^{S}_{15}
23	E	E^{S}_{13}	E^{S}_{14}	E^{S}_{13}	E	E^{S}_{14}	19	G	35	41	G 32	40	G 33	G 34	G	G	34	34	30	33	22	14	26	23
24	17	E	E^{S}_{13}	E^{S}_{13}	E^{S}_{14}	E^{S}_{14}	22	45	36	43	43	45	40	51	42	40	56	40	55	62	46	18	22	E^{S}_{15}
25	E^{S}_{15}	E^{S}_{15}	E	E	E^{S}_{14}	E^{S}_{14}	16	55	39	38	A	53	56	46	49	54	34	40	50	49	19	E^{S}_{14}	A	36
26	50	50	26	14	E^{S}_{13}	E^{S}_{14}	16	31	32	36	40	40	40	G 36	41	53	G 31	G 28	G 18	21	18	E	E	E
27	24	20	14	E	E	G	E^{S}_{15}	G	34	37	38	47	51	49	59	54	49	G	37	35	E^{S}_{44}	40	E	E
28	E^{S}_{14}	E	E	15	15	20	23	30	37	E^{R}_{42}	46	E^{R}_{39}	G 33	G 35	G 27	G 29	38	33	30	25	E^{S}_{13}	E^{S}_{13}	20	E
29	E	E^{S}_{14}	E^{S}_{14}	E	E	G	G	G	37	36	44	40	G 31	G 24	G 25	G 21	G 21	36	30	29	18	31	23	20
30	20	E^{S}_{14}	E^{S}_{14}	E^{S}_{13}	E	S	18	29	G	48	46	61	54	45	53	36	E^{R}_{35}	40	45	55	21	28	53	31
31	17	E^{S}_{13}	E^{S}_{13}	17	23	G	E^{S}_{14}	30	G	43	51	59	48	64	71	51	G	G	36	17	53	52	23	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	26	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	20	15	14	14	14	E^{G}_{14}	20	30	37	44	46	46	46	46	44	48	40	40	37	33	22	22	22	20
UQ	26	26	23	20	21	20	25	40	48	54	62	56	53	U 53	58	53	51	52	51	38	29	25	30	30
LQ	16	E^{E}_{13}	E	E	E	E^{S}_{14}	16	28	34	38	40	38	40	39	U 36	38	34	33	30	24	18	17	16	16

The Radio Research Laboratories, Japan

AUG. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 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_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	14	E_{14}^{S}	14	19	29	20	23	23	19	20	15	14	E_{13}^{S}	E_{15}^{S}	E_{14}^{S}	E_{12}^{S}	E_{14}^{S}
2	E_{13}^{S}	E_{13}^{S}	E_{15}^{S}	E	E	E_{13}^{S}	E_{14}^{S}	14	14	15	22	22	24	71	72	58	26	21	16	F_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E	E_{13}^{S}
3	E_{12}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	18	31	25	23	24	24	28	25	22	19	15	13	15	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{15}^{S}
4	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	15	14	16	17	23	21	18	23	69	33	21	13	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}
5	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	20	15	16	21	21	28	29	22	23	20	14	15	E_{14}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}
6	E_{15}^{S}	12	E_{14}^{S}	E	13	E_{15}^{S}	14	17	16	20	C	22	24	24	19	16	14	14	13	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}
7	E_{15}^{S}	E_{14}^{S}	E_{13}^{S}	E	E	E_{14}^{S}	E_{13}^{S}	14	14	18	16	21	35	60	24	20	14	15	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{15}^{S}
8	E_{14}^{S}	E_{13}^{S}	C	E_{14}^{S}	E_{14}^{S}	C	14	15	17	19	22	26	24	28	25	20	15	14	14	11	E_{15}^{S}	E_{15}^{S}	E_{13}^{S}	E_{13}^{S}
9	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E	E_{15}^{S}	14	13	14	18	22	23	24	25	19	14	13	17	E_{15}^{S}	E_{15}^{S}	E_{13}^{S}	E_{15}^{S}	E_{14}^{S}
10	E_{15}^{S}	E_{15}^{S}	E_{13}^{S}	E	E	E_{12}^{S}	E_{15}^{S}	14	16	17	24	27	26	23	22	24	16	16	15	F_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}
11	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{13}^{S}	E_{14}^{S}	16	14	E_{29}^{S}	24	26	28	21	29	25	20	14	13	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}
12	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	14	14	16	19	24	18	26	20	17	14	13	13	E_{14}^{S}	E_{13}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}
13	E_{14}^{S}	F_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	16	14	17	20	23	31	22	24	20	18	15	15	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}
14	E_{15}^{S}	E_{15}^{S}	E_{13}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	14	14	14	19	21	23	20	22	18	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}
15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	13	E_{13}^{S}	E_{14}^{S}	17	15	E_{27}^{C}	20	19	24	20	24	18	17	14	13	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
16	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	14	13	15	18	18	20	16	15	15	15	14	15	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
17	E_{12}^{S}	E_{14}^{S}	E_{12}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	13	15	14	14	15	20	21	21	19	16	16	14	13	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}
18	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	13	11	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	15	15	20	20	20	23	19	15	14	14	15	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}
19	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E	E	E_{14}^{S}	11	14	14	15	16	20	22	20	20	19	14	12	E_{15}^{S}	F_{14}^{S}	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}
20	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	20	14	15	22	23	29	24	21	24	19	15	14	15	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{15}^{S}
21	E_{15}^{S}	E_{14}^{S}	E_{13}^{S}	E_{15}^{S}	12	14	E_{13}^{S}	14	14	14	19	25	23	22	25	21	14	15	16	11	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	18
22	16	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E	E_{14}^{S}	E_{13}^{S}	17	15	20	20	20	24	21	20	20	14	14	E_{13}^{S}	F_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{15}^{S}
23	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E	E_{14}^{S}	E_{13}^{S}	13	14	14	16	23	20	20	18	14	14	13	13	E	E_{12}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
24	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	11	14	15	18	18	19	19	16	14	13	11	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}	E_{15}^{S}
25	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	14	15	14	15	18	20	17	18	15	14	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
26	E_{14}^{S}	F_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	13	14	15	22	26	22	28	20	16	14	11	11	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{15}^{S}	E_{15}^{S}
27	E_{15}^{S}	E_{14}^{S}	E	E_{14}^{S}	E	E_{14}^{S}	E_{15}^{S}	14	15	15	18	24	24	26	22	18	14	11	13	F_{14}^{S}	E_{13}^{S}	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}
28	E_{14}^{S}	E_{15}^{S}	E_{15}^{S}	E	E	E_{13}^{S}	E_{13}^{S}	12	13	24	23	20	22	21	16	20	14	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
29	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{12}^{S}	E	E_{14}^{S}	E_{13}^{S}	13	11	14	16	23	20	18	14	15	11	14	14	11	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
30	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	14	15	15	16	23	20	25	23	21	20	14	15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
31	E_{14}^{S}	E_{13}^{S}	F_{13}^{S}	E_{13}^{S}	E_{12}^{S}	E_{13}^{S}	E_{14}^{S}	14	14	18	17	16	21	17	19	14	11	14	13	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	14	14	15	19	22	23	22	21	19	14	14	14	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
UQ	E_{15}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	16	15	18	22	24	24	25	24	20	18	14	15	E_{14}^{S}	E_{15}^{S}	E_{15}^{S}	E_{14}^{S}	E_{15}^{S}
LQ	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{12}^{S}	E	E_{13}^{S}	E_{13}^{S}	14	14	14	16	20	20	20	19	16	14	13	13	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}

The Radio Research Laboratories, Japan

AUG. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 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	U 280	U 280	295	290	300	310	340	325	335	310	275	275	270	270	260	280	285	280	280	280	290	275	280	280
2	285	285	270	270	270	305	340	U 355	330	A	I A 300	300	A	A	I R 280	290	300	320	310	285	290	270	270	270
3	S	S	F	F	S	I 300	F 310	360	325	325	I A 285	I A 300	290	A	A	295	300	300	I A 310	295	295	285	270	280
4	280	270	285	305	270	295	310	325	I A 295	F 280	280	C 240	255	260	W 225	240	270	305	310	285	230	225	240	260
5	F	F	285	265	255	245	280	300	270	240	205	235	R	245	240	310	305	G	290	295	255	240	S	A
6	I 245	255	260	265	345	335	R	325	H 310	315	C	U 255	290	275	280	270	280	280	C 300	S	305	265	270	265
7	280	285	I 290	285	275	280	330	325	355	305	290	275	260	270	R 265	A 280	305	I A 310	310	295	315	285	280	I 275
8	I 280	300	I C 285	280	285	C 285	295	320	315	285	265	275	285	295	290	295	U 305	305	310	325	320	275	F	S
9	295	305	F	310	I A 305	315	335	315	350	330	315	285	280	285	275	255	270	310	335	310	270	270	235	280
10	345	I A 270	275	S	S	S	F	320	340	340	325	300	290	295	295	295	320	325	320	305	310	300	S	F
11	S	F	F 275	F 285	295	305	320	335	325	285	305	290	270	270	R 275	295	300	300	H 260	290	305	295	285	305
12	280	I A 285	285	S	270	275	F	330	340	315	310	R 320	290	270	275	I 290	305	315	C 330	305	300	S	S	S
13	S	S	S	S	S	S	F	I R 355	350	355	I A 335	280	275	280	R 295	295	305	295	A	A	A	A	A	A
14	A	S	S	S	S	S	F	355	345	I A 335	305	305	285	300	300	280	295	300	C 315	I 325	S	335	270	I 275
15	285	295	F	F	F	315	330	350	365	365	300	290	275	275	280	285	295	315	325	350	330	270	275	280
16	I 290	295	F	250	305	315	U 345	355	345	A	A	290	290	280	275	I 290	I 305	320	I 320	I 325	330	325	295	275
17	260	S	S	300	310	300	310	335	355	385	295	295	290	290	U 295	305	310	320	305	U 270	345	300	290	275
18	S	S	S	S	295	290	310	350	335	355	305	295	R 285	285	295	305	305	315	310	335	285	265	270	S
19	F	S	S	S	F 300	275	325	315	350	300	290	285	285	300	285	295	290	295	C	S	S	I 340	I 365	I 375
20	280	S	S	F	265	255	325	345	A	A	A	A	A	295	R 305	I A 305	305	295	300	325	325	275	265	260
21	I 270	265	I 265	U 265	275	300	295	310	345	H 310	295	305	275	285	295	320	310	310	I A 320	305	310	260	250	275
22	270	265	275	F 310	325	320	320	340	330	315	A	A	295	305	290	290	305	305	U 320	315	305	300	280	275
23	280	260	275	305	295	300	325	335	365	330	280	285	300	305	310	310	310	305	320	320	320	315	275	270
24	280	280	300	310	295	290	325	325	345	345	275	280	300	295	U 290	295	295	I 320	325	330	280	U 280	280	290
25	300	290	295	295	300	295	345	365	335	320	I A 290	290	295	270	270	275	290	300	305	S	I 310	260	A	S
26	S	S	F	F	F	F	310	330	320	325	265	270	285	285	280	280	295	305	305	300	310	255	280	260
27	265	265	270	275	300	305	340	330	320	315	310	295	280	270	260	315	295	285	315	305	S	275	260	270
28	300	325	260	255	265	280	285	315	325	300	290	340	330	335	340	330	300	340	345	S	345	250	255	270
29	270	270	280	280	270	285	300	335	335	345	305	285	295	300	295	295	285	305	295	U 325	305	285	275	270
30	275	280	295	285	280	280	300	325	335	345	315	300	300	300	280	280	290	305	310	330	310	270	270	260
31	270	270	280	300	300	305	315	340	330	320	280	280	285	275	275	275	295	300	305	300	I 300	280	U 260	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	21	20	21	25	27	26	31	30	28	27	29	28	29	30	31	31	31	29	26	27	29	25	23
MED	280	280	280	285	295	300	320	330	335	320	295	290	285	285	280	295	300	305	310	305	305	275	270	275
UQ	285	290	288	300	300	305	330	348	345	342	305	300	292	295	295	300	305	315	320	325	318	295	280	280
LQ	270	270	272	270	270	282	310	325	325	308	280	280	278	270	275	280	292	300	305	295	292	265	265	270

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

IONOSPHERIC DATA

AUG. 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 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								L	L	360	360	360	H 375	365	H 360	380	A	L	L					
2								A	L	A	A	L	A	B	B	B	L	L	A					
3									A	A	A	A	A	A	A	A	A	A	A					
4								L	A	A	365	A	A	A	H 370	H 370	B	L	L	415				
5								L	L	A	R 380	R	R	A	U R 345	I A 350	L 335	A	A					
6								380	U 360	360	C	L	A	380	340	360	320	330	L					
7								L	L	375	A	350	R	B	A	A	A	A	A	A				
8								L	L	L	A	I A 410	A	380	I A 350	A	A	A	L					
9								L	L	L	400	380	385	370	370	345	A	A	A					
10								A	A	A	A	A	365	365	370	A	L 370	A	L					
11								A	L	360	385	R 375	385	345	350	R 355	365	380	A					
12							L	L	A	A	H 355	A	A	370	385	A	A	A	A					
13								A	A	A	A	A	380	335	345	A	A	A	A					
14								A	A	A	A	A	A	A	A	A	A	A	A					
15								A	A	A	385	A	A	A	A	A	A	A	A					
16								L	A	A	A	A	A	A	A	A	A	A	A					
17								L	L	L	375	360	375	315	A	A	A	L						
18								L	L	400	L	375	A	335	A	355	355	345	390					
19								L	355	L	L	300	335	355	360	A	345	A	A					
20								A	A	A	A	A	A	A	A	A	A	325	A					
21								L	A	A	A	L	380	335	345	A	R	A	A					
22									L	A	A	A	360	A	A	A	U L 340	L	A					
23								L	L	L	L	L	L	L	350	360	355	L	L					
24								A	L	L	L	355	395	L	345	L	A	L						
25								A	U 400	L	A	A	A	A	A	A	345	A	A					
26								L	L	400	340	340	335	365	335	A	330	L	L					
27									L	L	365	U 350	L	335	A	A	A	L	A					
28								L	L	L	L	360	360	350	L	L	L	L	L	A				
29								L	L	L	U 390	U 335	345	365	425	370	L	L						
30									L	L	L	A	L	L	A	L	L	L	A					
31									L	L	L	A	A	A	A	L	L	L						
	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	3	6	11	13	13	16	16	9	10	4	1	1				
MED								380	U 360	368	375	360	375	360	350	360	345	338	390	415				
UQ									U 380	400	385	375	380	368	370	370	355	362						
LQ									358	360	362	350	360	335	345	355	335	328						

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

IONOSPHERIC DATA

AUG. 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								230	270	330	390	345	355	330	355	330	300	330	300					
2								240	250	A	A	325	A	A	E H 350	320	295	265	255					
3									250	280	A	A	E A 350	A	A	315	305	300	A					
4								250	A	E A 300	350	420	A	I A 390	495	495	350	280	230	225				
5								280	400	550	615	555	R	450	495	330	350	G	325					
6								280	290	295	C	360	310	320	305	335	315	305	275					
7								225	240	285	360	425	420	E B 420	I A 400	350	E A 360	I A 305	E A 300	255				
8								250	250	350	405	340	320	310	300	300	295	295	280					
9								260	245	270	295	355	355	345	320	400	350	300	250					
10								285	255	275	305	330	340	340	330	305	285	E A 300	280					
11								E A 300	270	350	325	300	330	335	325	300	260	250	245					
12							260	265	240	E A 300	300	285	340	335	330	305	275	255	240					
13								220	230	250	A	A	395	340	305	295	290	290	A					
14								225	260	I A 250	E A 330	330	305	305	300	340	310	290	285					
15								250	230	250	350	E A 355	E A 360	340	335	325	300	275	250					
16								230	E A 250	A	A	E A 350	300	350	340	310	290	260	250					
17								255	240	225	340	315	310	285	300	280	265	255						
18								220	230	230	375	345	345	340	305	275	275	275	250					
19								270	255	280	375	395	355	310	345	310	305	295	260					
20								240	A	A	A	A	A	E A 390	300	A	300	275	260					
21								250	250	E A 300	370	340	380	370	335	290	300	300	A					
22									250	E A 280	A	A	325	310	315	310	290	280	250					
23								235	250	255	400	345	300	300	300	290	290	295	250					
24								235	245	250	270	330	300	290	310	295	265	260						
25								230	240	285	A	300	285	315	330	325	285	270	250					
26								240	240	240	345	345	315	305	330	320	305	265	245					
27									250	250	275	280	300	340	355	310	280	275	250					
28								260	230	275	275	300	290	285	295	280	270	290	295	250				
29								230	245	245	240 H	335	300	290	310	280	300	275						
30									240	245	270	300	300	295	290	340	300	275	260					
31									250	240	285	325	295	325	340	325	295	265						
	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	26	29	28	23	27	27	29	30	30	31	31	24	3				
MED							260	242	250	262	340	335	315	325	325	310	295	278	251	250				
UQ								260	250	290	372	348	347	340	340	330	304	296	279	252				
LQ								230	240	250	285	320	300	305	305	295	285	268	250	238				

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AUG. 1972 | H'F2 (KM)

IONOSPHERIC DATA

AUG. 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 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	290	265	280	250	235	225	200	225	E A 250	E A 240	235	200 H	205	200 H	200	I A 225	I A 245	E A 275	E A 290	275	290	260	250
2	245	250	255	300	300	260	250	I A 230	205	A	A	240	A	B	B	B	250	260	I A 270	I A 290	290	250	260	300
3	305	I A 305	300	320	295	260	250	225	A	A	A	A	A	A	A	A	A	A	A	250	255	250	300	290
4	310	305	255	250	285	260	250	235	A	A	E A 245	A	A	A	200 H	215 H	B	275	240	205	375	375	I A 390	325
5	A	285	300	295	300	350	265	240	A	A	225	A	270	A	E A 290	I A 245	E A 300	A	A	300	E A 330	E A 360	E A 500	A
6	340	310	345	350	235	250	225	245	215	195 H	C	300	A	225	215 H	230	E A 250	235	245	230	200	275	290	295
7	305	290	265	270	275	290	235	210	225 H	215	A	230	I R 230	B	A	A	A	A	A	I A 240	240	250	275	I A 300
8	320	260	I C 260	270	295	I C 255	245	225	200	200	I A 180	I A 180	I A 205	220	I A 220	A	A	A	225	235	220	260	325	305
9	255	260	255	230	A	E A 275	250	E A 240	A	220	200	200	185	200	200	225	A	A	A	245	255	300	360	320
10	220	A	305	A	310	295	290	A	A	A	A	A	E R 250	225	E A 250	A	230	A	E A 250	260	240	240	350	300
11	305	285	295	290	265	250	250	I A 225	E A 250	200 H	190	175 H	220	240	E R 260	200	200 H	205	A	250	245	255	E A 300	255
12	275	I A 285	250	305	280	255	230	225	A	A	A	A	A	245	220	A	A	A	A	245	235	250	E A 350	330
13	E A 330	250	255	285	285	250	225	A	A	A	A	A	205	A	255	A	A	A	A	A	A	A	A	A
14	A	E A 330	290	295	290	250	215	A	A	A	A	A	A	A	A	A	A	A	A	250	240	225	E A 310	270
15	330	265	300	325	275	245	260	A	A	A	185	A	A	A	A	A	A	A	A	220	200	240 H	A	300
16	265	275	250	255	E A 290	250	225	200	A	A	A	A	A	A	A	I A 230	A	A	I A 245	240	225	215	245	300
17	305	350	275	240	250	250	240	240	225	220	200	180 H	200	E A 220	A	A	E A 255	220	250	235	240	250	290	300
18	320	275	285	250	260	270	250	230	205	200 H	200 H	240	A	E A 250	A	210 H	205 H	E A 250	225	230	220	300	275	295
19	285	A	E A 350	I A 300	300	300	235 H	225	220 H	I A 210	205 H	200 H	I R 220	230	220	A	E A 250	A	A	240	205	I A 280	300	300
20	320	330	350	285	275	300	250	A	A	A	A	A	A	A	A	A	A	260	A	240	210	245	290	320
21	310	350	300	300	250	225	245 H	230	A	A	A	A	E A 260	E A 250	I A 200	E A 255	250	A	A	240	220	E A 300	295	300
22	300	300	300	270	250	225	235	230	210	A	A	A	205	A	A	I A 225	215	225	A	250	250	215	240	300
23	295	300	275	230	210	245	240	225	220	E A 220	190 H	200	180 H	205	230	210	205	240	245	240	225	210	300	300
24	300	295	260	250	255	265	245	I A 230	225	E A 240	215	E A 250	190	A	E A 230	240	A	A	E A 250	E A 250	E A 300	300	305	280
25	255	255	260	255	255	255	235	A	210	200 H	A	A	A	E A 250	A	A	215 H	A	A	230	220	195 H	A	350
26	A	A	340	290	260	275	250	230	220	205	200	205	200 H	220 H	225	I A 220	200 H	225 H	240	225	220	240	275	260
27	290	300	295	275	230	225	225	225	220	200	205	230	I A 215	A	A	A	A	230	I A 245	245	250	270	295	295
28	245	230	290	305	300	275	250	240	235	I A 220	I A 220	225	200	200 H	210	190 H	A	225	265	I A 255	205	E S 200	E A 350	300
29	300	300	295	255	275	290	245	230	215	200	E A 225	195	195 H	230	215	205	225	240	260	250	235	245	265	295
30	300	290	265	220	260	290	255	220	230	I A 215	I A 210	A	A	220	I A 215	220	245	I A 250	I A 255	240	225	285	I A 350	340
31	300	290	280	255	250	200	245	240	215	220	E A 270	A	E A 250	A	A	A	185 H	240	250	225	255	E A 310	300	340
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	31	30	30	31	31	25	19	18	18	16	19	17	18	16	17	16	17	30	30	30	28	29
MED	300	290	282	278	272	255	245	230	220	206	202	208	202	222	216	219	215	239	248	240	234	250	295	300
UQ	309	301	300	300	290	275	250	232	225	218 A	215 A	235	218	232	225	229 A	U A 238	250	252 A	250	252	282	U 319	305
LQ	280	270	260	255	250	250	235	225	212	200	200	198	200	220	210	208	205 H	225	242	235	220	240	275	295

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AUG. 1972 | H'F (KM)

IONOSPHERIC DATA

AUG. 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

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	100	100	100	95	100	110	100	160	135	125	120	105	105	100	125	140	115	105	110	110	100	100	105	100
2	105	105	110	95	105	125	110	115	110	100	100	100	100	100	B	B	G	130	115	105	105	105	100	100
3	105	100	100	100	100	100	125	110	110	105	120	120	120	115	120	120	115	105	105	105	105	105	100	100
4	100	100	105	100	100	S	145	120	110	110	110	105	105	110	G	G	B	B	110	110	100	110	100	100
5	95	95	95	95	95	100	125	120	105	110	110	120	130	110	120	110	125	115	100	100	100	100	110	105
6	110	B	100	100	100	S	125	120	125	100	C	150	140	170	135	130	125	120	100	100	100	100	100	100
7	130	125	115	130	115	125	115	110	110	100	95	145	100	B	95	120	105	100	100	100	100	95	100	100
8	100	95	C	95	100	C	100	G	105	100	100	95	100	100	100	100	100	100	155	95	95	105	100	100
9	110	100	100	95	100	100	125	125	105	100	100	G	100	100	G	100	110	105	105	95	105	100	100	100
10	100	110	100	120	100	115	110	105	105	105	100	105	120	130	125	120	115	105	105	105	S	100	100	100
11	100	100	95	95	100	S	105	100	100	100	100	100	95	100	100	G	G	G	115	S	100	100	100	100
12	100	100	95	95	S	S	150	115	105	105	100	100	100	100	140	125	110	115	105	100	100	100	100	100
13	100	100	95	95	90	125	125	125	105	105	105	105	100	165	150	125	120	115	110	105	100	100	100	100
14	100	100	100	100	100	100	100	110	105	100	100	100	130	100	125	125	125	110	105	100	100	100	100	100
15	100	95	95	95	100	100	110	105	105	100	100	100	100	100	100	105	105	100	100	100	100	95	90	95
16	S	S	95	100	100	90	125	125	105	105	105	100	100	100	100	100	100	100	100	100	100	100	100	100
17	105	100	100	S	100	100	100	145	120	105	100	100	100	100	100	100	100	95	95	120	105	105	105	105
18	100	120	100	100	100	100	130	105	105	105	100	100	100	100	120	125	140	110	110	105	100	100	100	100
19	100	100	100	95	95	95	100	145	140	125	150	100	100	150	140	125	125	110	105	100	100	95	100	95
20	95	90	100	100	S	S	125	110	110	110	105	105	105	105	105	105	105	105	105	100	100	100	100	100
21	100	100	100	100	B	125	125	115	110	105	105	105	105	105	105	150	145	120	115	105	105	100	100	100
22	100	125	125	115	115	S	160	130	110	105	100	100	105	100	100	100	100	105	100	100	100	100	S	S
23	95	S	S	S	E	S	110	115	105	100	100	95	100	100	G	G	105	140	125	105	105	100	95	95
24	95	95	S	S	S	S	125	105	105	105	100	115	100	100	100	150	105	100	100	100	100	100	100	S
25	S	S	100	95	S	S	120	105	105	105	100	100	100	100	100	100	100	115	105	100	100	S	100	100
26	100	90	90	95	S	S	115	105	105	105	105	105	105	105	105	100	100	100	100	100	95	95	95	100
27	100	95	90	95	100	95	S	115	110	105	100	100	100	95	95	90	140	165	110	110	105	100	105	100
28	S	100	95	90	100	100	120	125	120	125	120	140	100	95	100	105	145	130	120	115	S	S	95	110
29	100	S	S	125	E	115	145	130	115	110	105	100	100	100	100	100	95	130	115	110	105	100	100	100
30	100	S	S	S	100	95	135	125	115	105	105	100	100	105	100	105	105	120	110	105	105	100	100	100
31	100	S	S	95	100	100	S	140	135	115	110	105	105	110	105	110	G	G	125	105	100	105	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	24	25	27	23	20	29	30	31	31	30	30	31	30	27	27	27	28	31	30	29	29	30	29
MED	100	100	100	95	100	100	125	115	110	105	100	100	100	100	105	110	110	110	105	102	100	100	100	100
UQ	100	100	100	100	100	115	125	125	112	108	105	105	105	110	122	125	125	120	112	105	105	100	100	100
LQ	100	95	95	95	100	100	110	110	105	100	100	100	100	100	100	100	102	102	100	100	100	100	100	100

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AUG. 1972 | H'ES (KM)

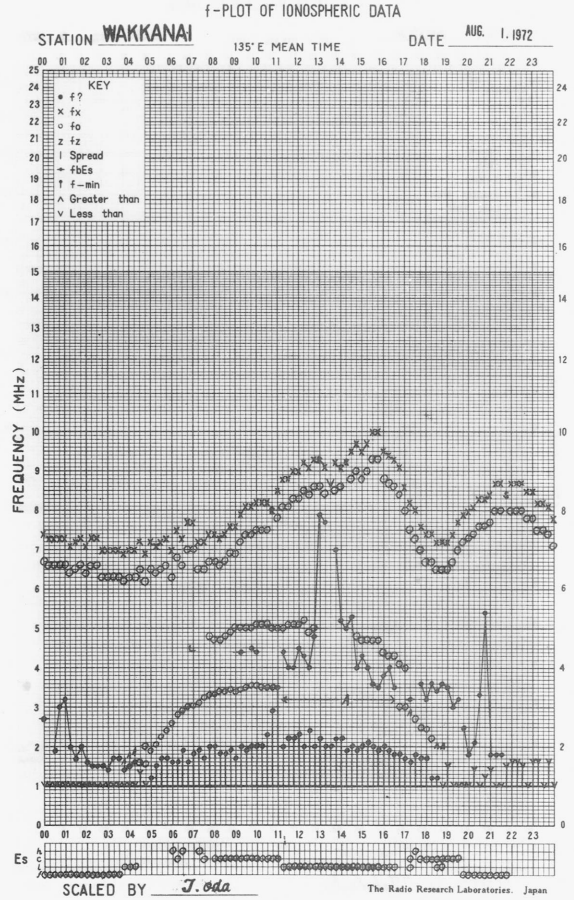
IONOSPHERIC DATA

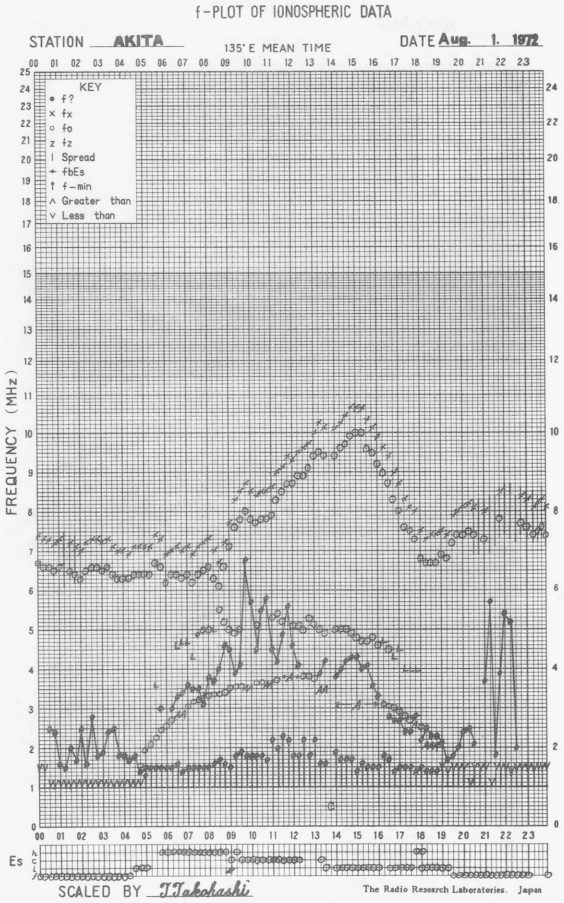
AUG. 1972 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12·1' N. Long. 130° 37·1' E Sweep 1 MHz to 20 MHz in 20 sec in 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	F4	F2	F1	F1	F1	L1	LL12	HL12	HL22	CL11	CL11	L1	L1	L1	CL12	HCL11	HC22	C2	CL32	CL31	F4	F2	F1	F3
2	F1	F2	FF11	F2	F2	C1	C5	C2	C2	C3	C3	C1	C4	C1				H2	C2	C5	F3	F2	F1	F2
3	F2	F3	F2	F3	F2	L3	C1	C1	C2	C2	CC21	CC21	C2	CL21	C3	C1	C2	C2	C3	C2	F2	F3	F3	F3
4	F4	F2	F1	F2	F1		H1	C2	C3	C3	C1	CL31	CL41	C3					C1	L1	F4	FF13	F5	F5
5	F4	F2	F4	F3	F1	L1	HL21	C1	CL31	C2	C1	H1	H1	C2	C1	C1	H2	CL21	L2	L3	F2	F2	FL12	F3
6	F1		F1	FF21	F2		H2	H1	H1	L1		HL1	HL21	HL11	H1	H1	HC12	C2	L1	L2	F1	F1	F1	FF11
7	FF61	FF51	FF41	F1	F3	C1	C1	C1	C1	C2	L2	HL11	L1		L3	HL12	C2	C4	C3	C5	F2	F3	F3	F4
8	F5	F4		F1	F1		L1		L1	L2	L3	L2	L3	L2	L3	L3	L5	L3	H1	L1	F2	FF22	FF23	FF22
9	FF22	F5	F1	F3	F4	L5	H1	HCL22	C4	C2	C2		L2	L1		L1	C2	C2	C3	LH11	F1	F3	F4	F2
10	F3	FF23	F2	FF54	F3	L5	L3	C3	C2	C2	C2	C1	L1	H1	H1	C1	C1	C4	C2	C4		F2	F4	F2
11	F2	F1	F1	F1	F1		L1	L4	L2	L1	L1	L1	L1	L1	L1				C1		F3	F2	F2	F6
12	F4	F3	F2	F2			H2	C2	C5	C3	C2	C2	L2	L1	HL1	HL1	C2	CL31	CL31	L4	F3	F2	F4	F3
13	F3	F2	F3	F2	F2	CL1	C2	H2	C3	C3	C3	C1	C1	HL1	HL1	HL31	H4	C3	C5	L3	F4	F4	F6	F6
14	F4	F4	F4	FF23	F1	LH12	L3	C3	C2	C2	C3	L2	HL12	LH21	HL21	HL31	HL1	CL21	C2	C3	FF32	F3	F2	F1
15	FF21	F2	F1	F1	F1	C2	C3	C3	C2	C2	C1	C3	C2	C2	C4	C3	C3	C3	L3	L2	F3	F4	F3	F2
16			F2	F1	F2	L2	CL1	HL1	CL32	CL52	C3	C2	C2	C2	C2	C2	L3	C3	L3	L3	F2	F1	F1	F1
17	F2	F3	F2		F3	L2	L2	HL1	H1	C2	C1	L2	L2	L2	L4	L3	L3	L3	L2	HL12	FF23	FF23	FF31	F2
18	F2	F1	F2	F2	F2	L2	C1	C2	C2	C2	C2	C2	C3	C2	H1	H1	H1	C3	C2	C5	F3	F2	F2	F2
19	F3	F5	F4	F4	F4	L2	L1	H2	HL22	HL1	HL1	L1	L1	H1	HL1	HL1	H2	C2	C2	L2	F2	F7	F1	F1
20	F2	F2	FF12	F1			C1	C3	C4	C6	C2	C3	C5	C3	C4	C3	C2	C2	C3	L4	F3	F3	F2	F1
21	FF21	F4	F2	F1		C1	C1	CL1	CL31	C1	C3	C2	C1	L1	CL1	HL1	H2	H2	C3	CL41	FF11	F2	F1	F1
22	F1	FF11	F2	F3	F4		H1	H1	C2	C3	C3	C5	C1	C2	L3	L4	L3	L1	L6	L6	F4	F1		
23	F1						C2	C2	C4	C2	L1	L1	L1	L1			C1	H3	HL22	CL63	F2	F3	F3	F6
24	F1	F1					C2	C2	C3	C2	L2	CL12	L1	L1	L2	HL1	CL31	C3	L3	L4	F4	F2	F3	
25			F1	F1			C1	C3	C3	C3	C5	C3	L2	L2	L2	L2	L3	CL22	C4	C7	F4		F3	F3
26	F3	F4	F2	F1			C1	C3	C2	C2	C2	C1	C1	C1	CL1	C3	L1	L2	L2	L3	F2	F2	F1	F1
27	F3	F2	F2	F1	F1	L1		C2	C2	C2	C2	C2	L2	L2	L3	L3	HL4	HL2	C5	C7	F7	F6	F1	F1
28		F1	F1	F1	F2	L3	HL2	CL23	CL34	HL1	HL1	HL1	L1	L1	L1	L1	H1	H2	C2	L5			F2	F1
29	F1			F1		L1	HL1	HL21	CL22	C2	C2	L2	L1	L1	L1	L1	L1	H2	C3	C5	FF22	F4	F3	F2
30	F2				F1	L1	C1	H1	C1	C2	C2	C3	C2	C1	C2	C1	C1	H3	C4	C4	F4	F4	F4	F6
31	F1			F1	F2	L1		HL21	HL12	C2	CL21	C2	CL1	C2	C2	C2			HC43	C6	F4	F5	F5	F3
	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																								

AUG. 1972 | TYPES OF ES


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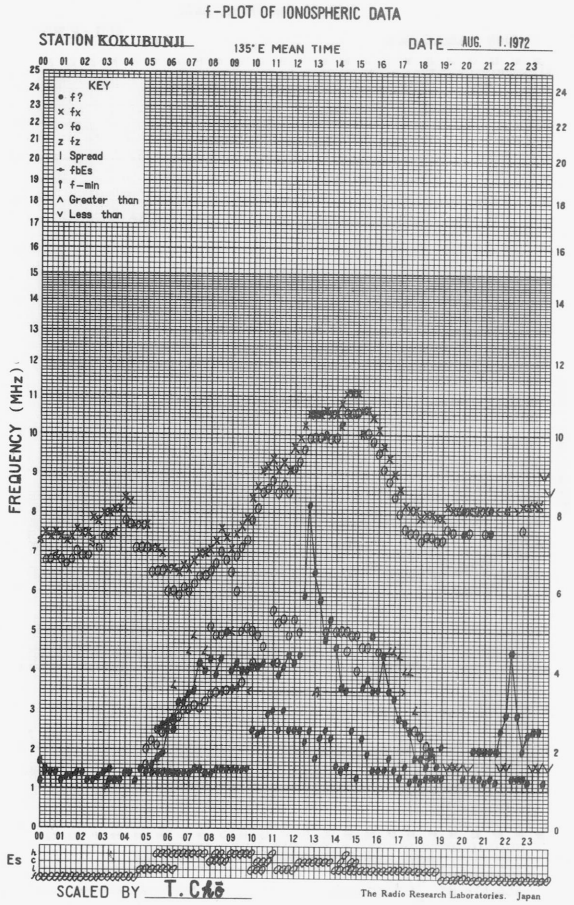
135°E MEAN TIME
DATE Aug. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE AUG. 1. 1972
KEY
• f?
× fx
○ fo
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÷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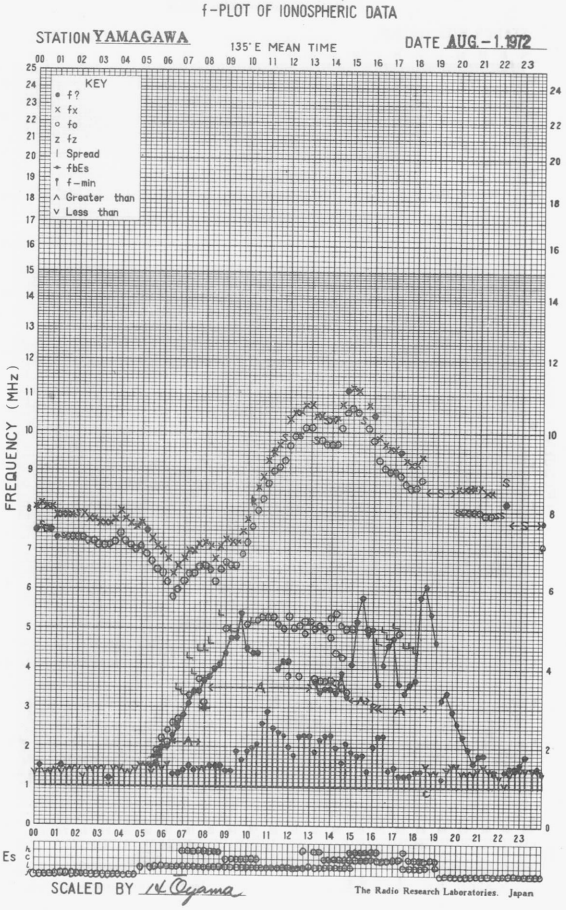
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Ichi
The Radio Research Laboratories. Japan


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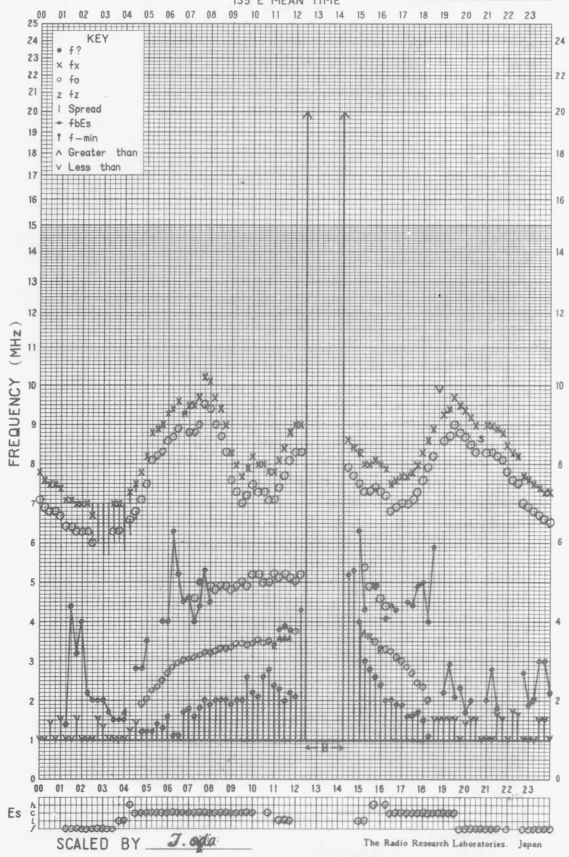
135°E MEAN TIME
DATE AUG. - 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY K. Oyama
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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



SCALED BY T. Ogia

The Radio Research Laboratories. Japan

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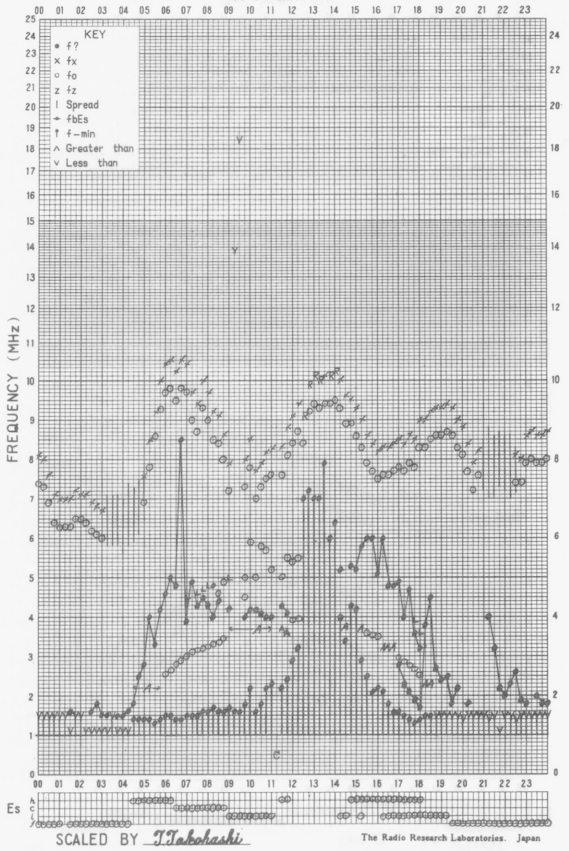

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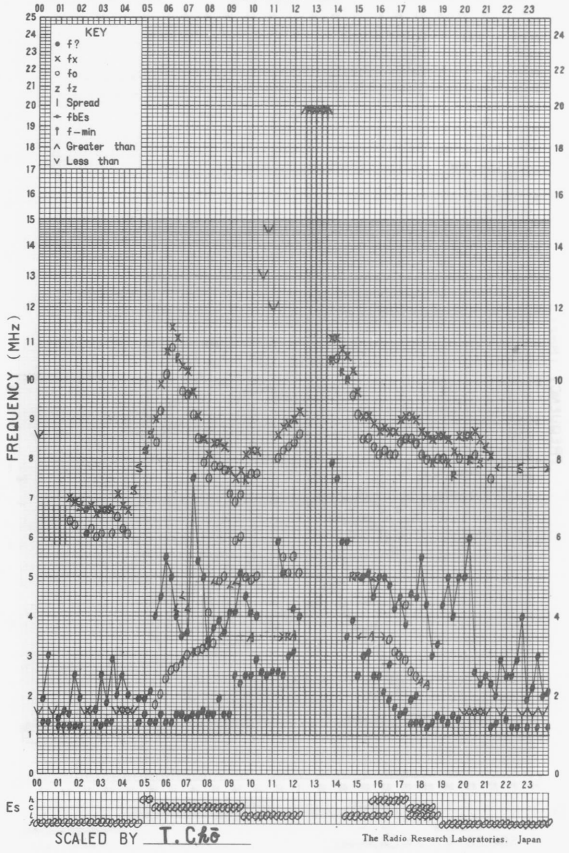

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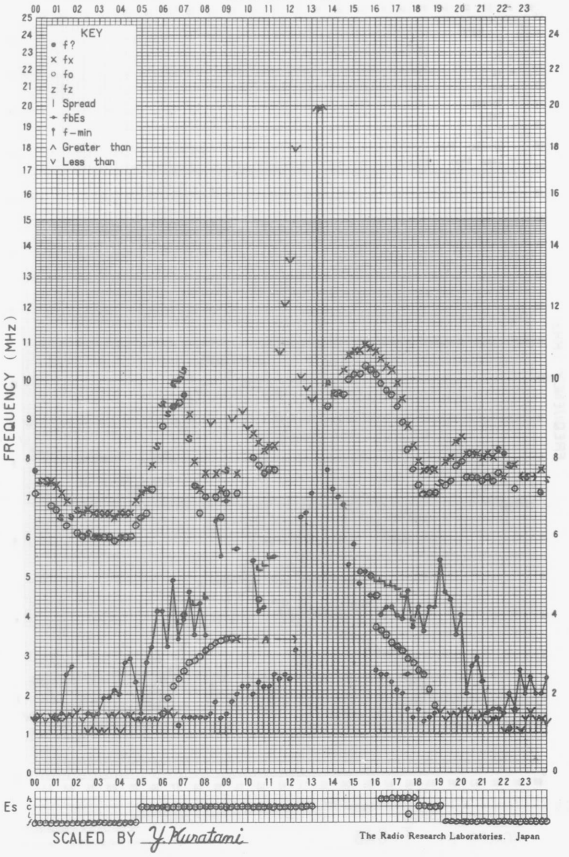
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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



SCALED BY Y. Kuratani

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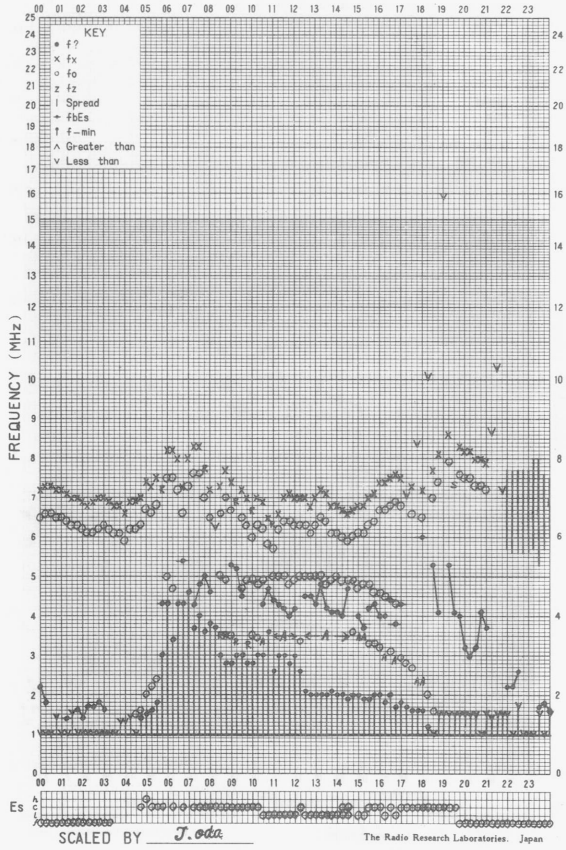
f-PLOT OF IONOSPHERIC DATA

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



SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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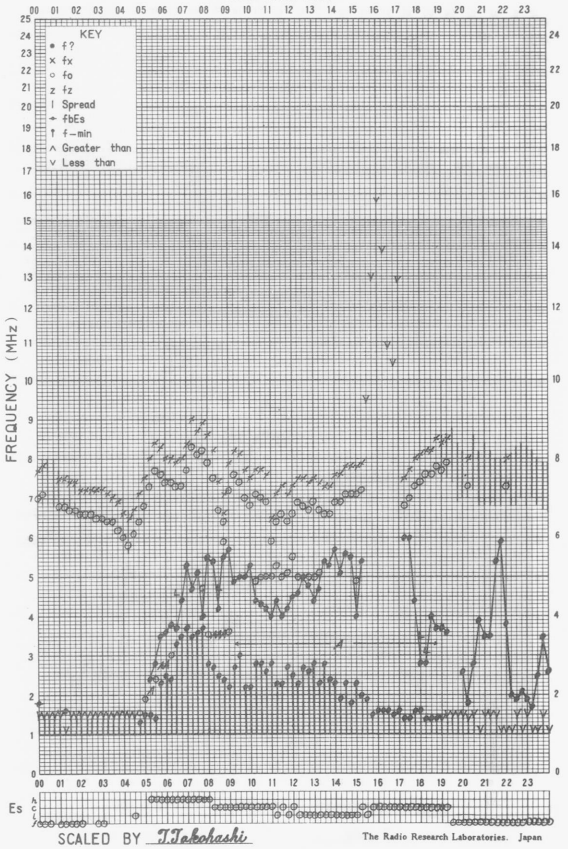

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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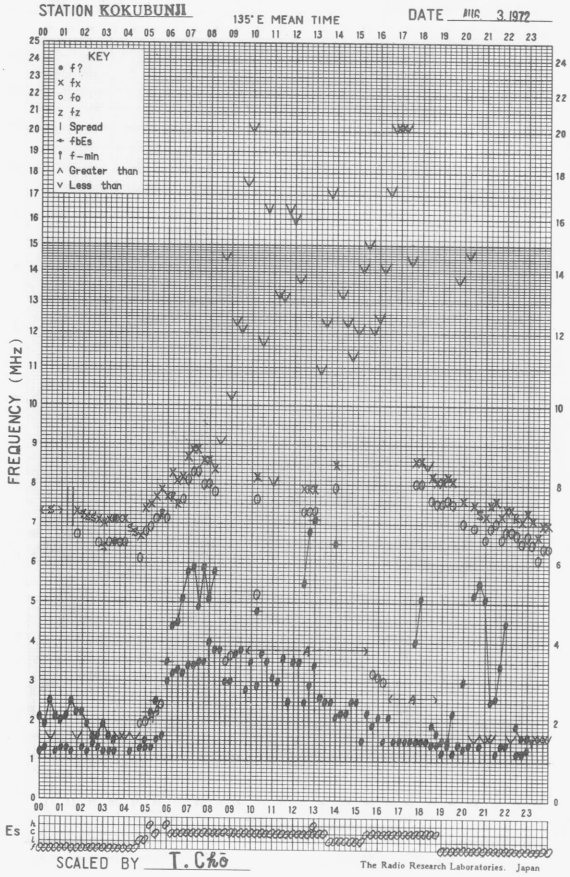

SCALED BY T. Cho

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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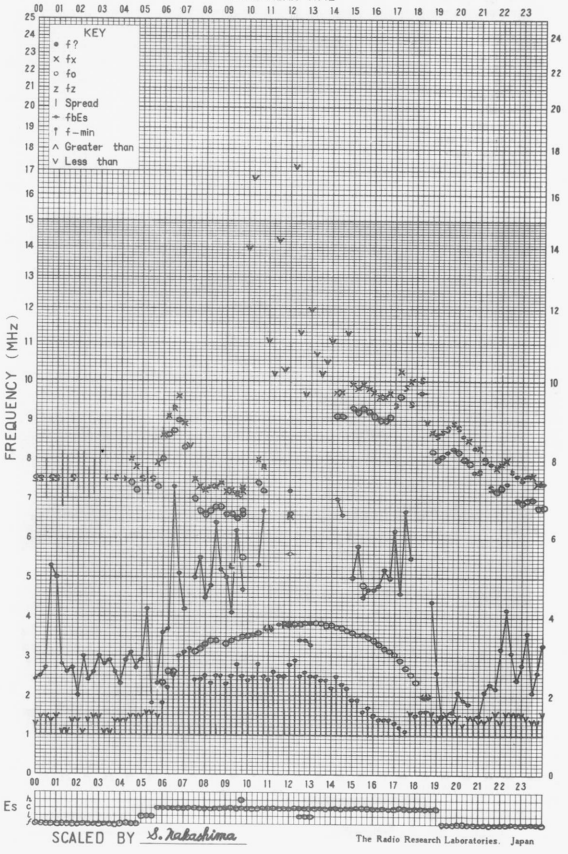

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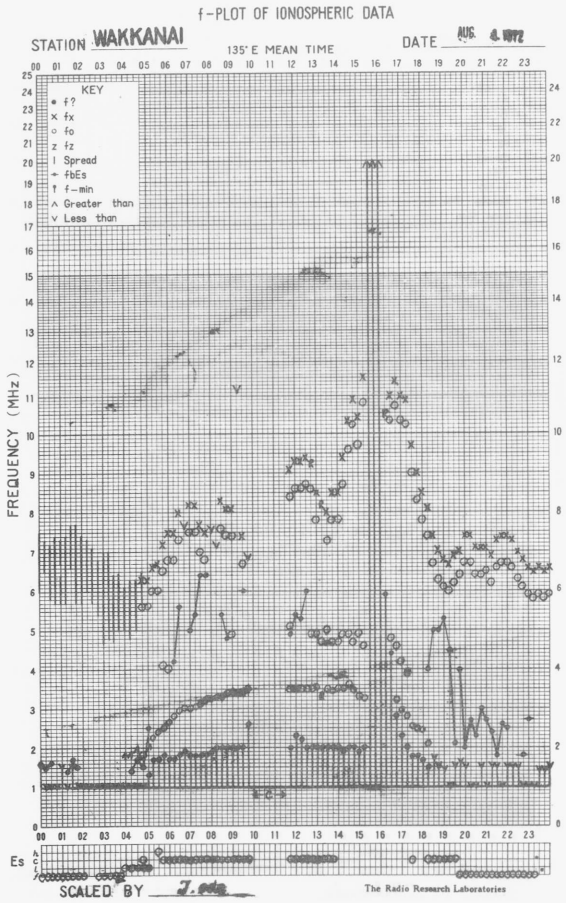
f-PLOT OF IONOSPHERIC DATA
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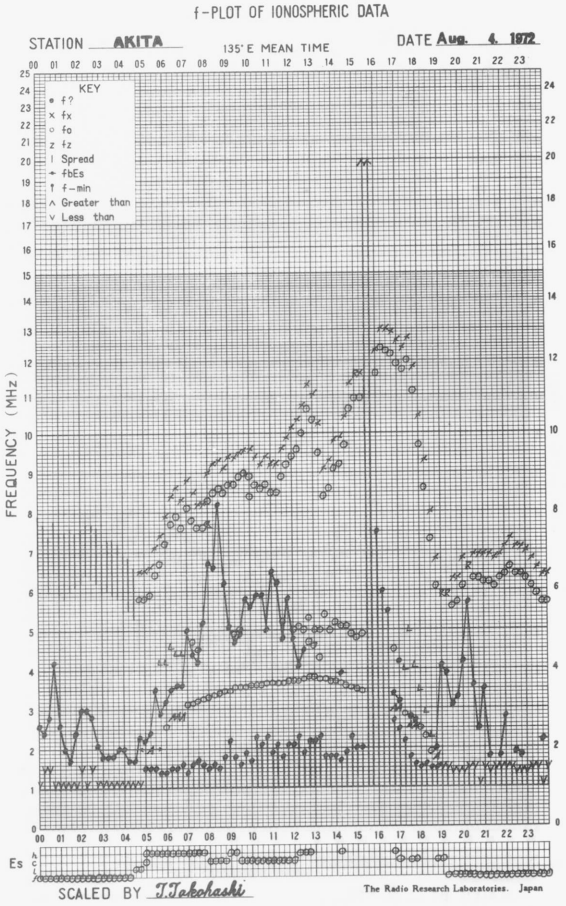
135° E MEAN TIME
DATE AUG. 4. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. ...
The Radio Research Laboratories


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Aug. 4. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T.Takahashi
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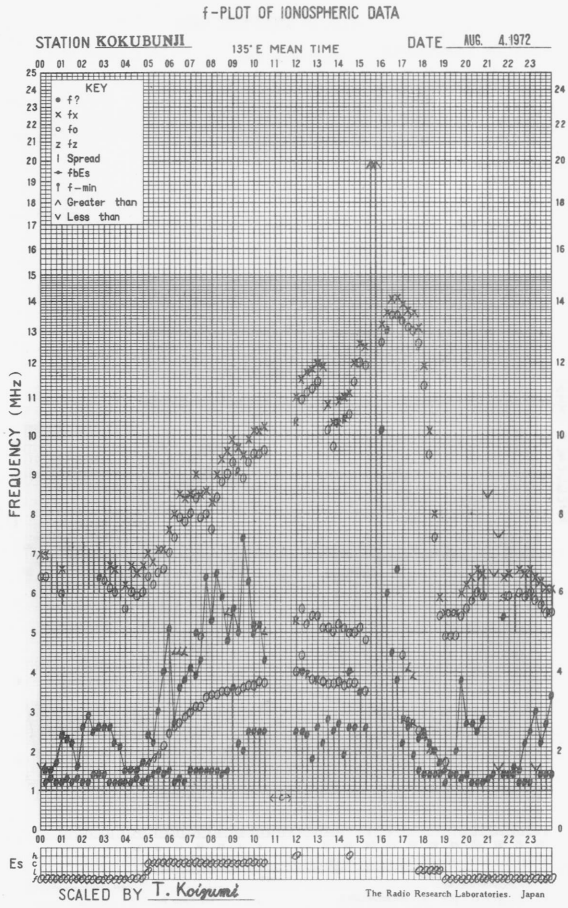
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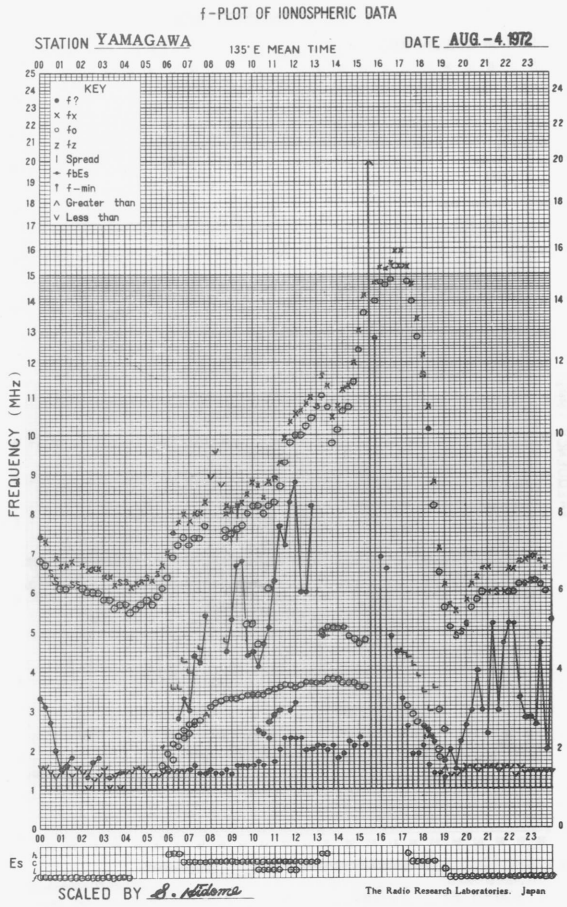
STATION KOKUBUNJI
135° E MEAN TIME
DATE AUG. 4.1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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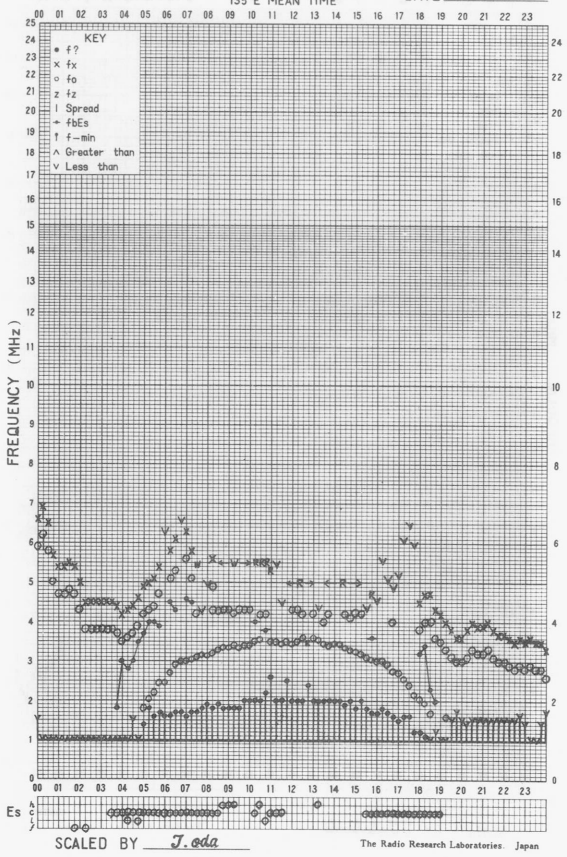
STATION YAMAGAWA
135° E MEAN TIME
DATE AUG.-4.1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ishioka
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE AUG. 5, 1972



SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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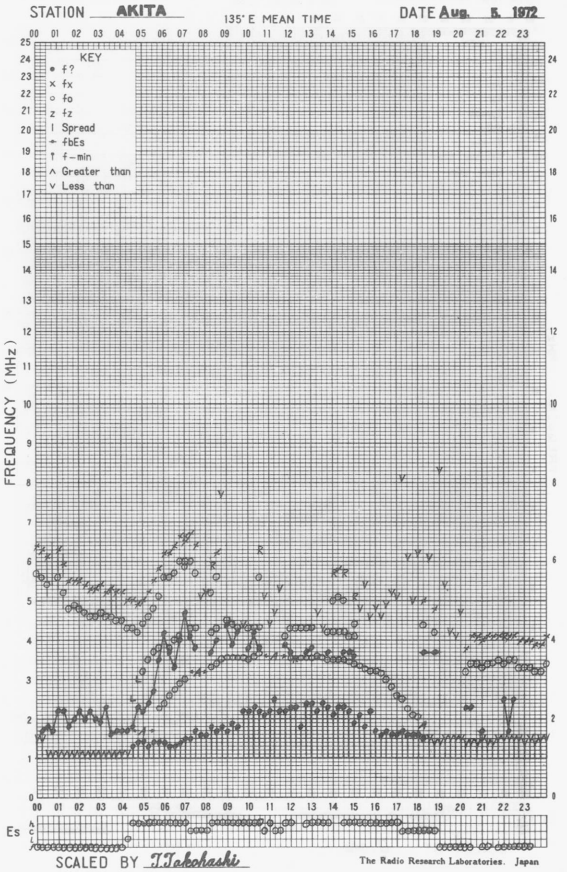

SCALED BY T.Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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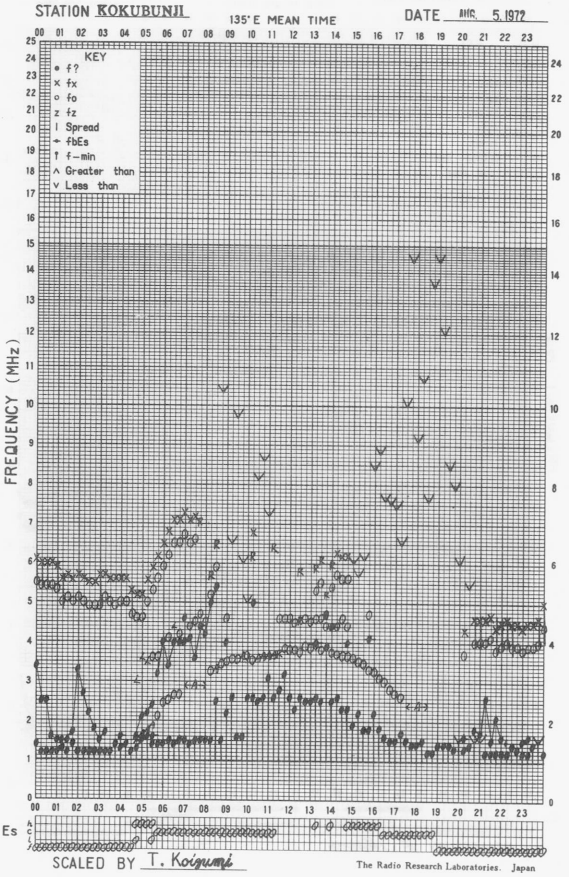

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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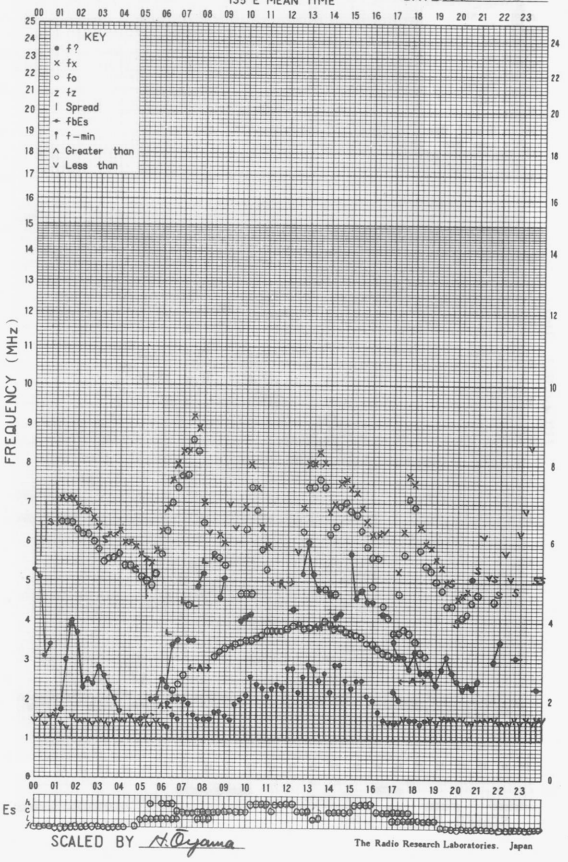

SCALED BY H. Ojama

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f-PLOT OF IONOSPHERIC DATA

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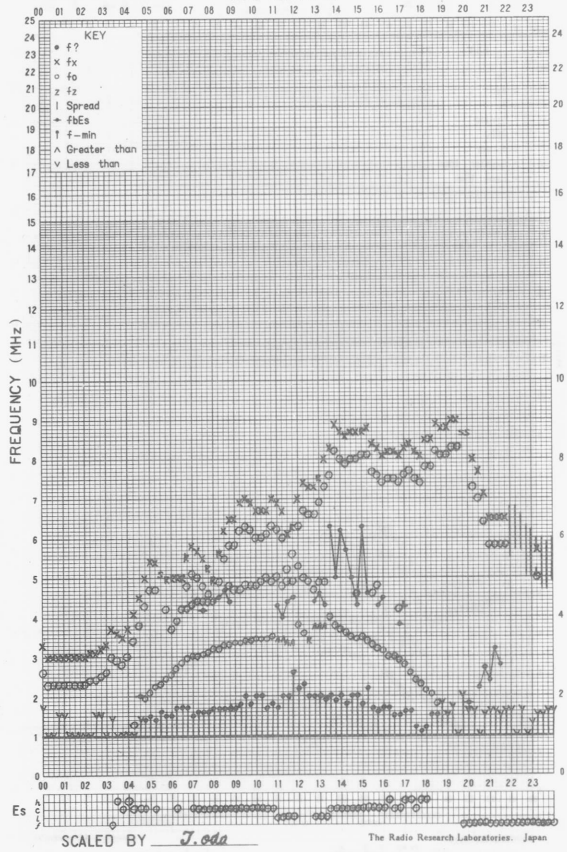

SCALED BY J. Oda

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f-PLOT OF IONOSPHERIC DATA

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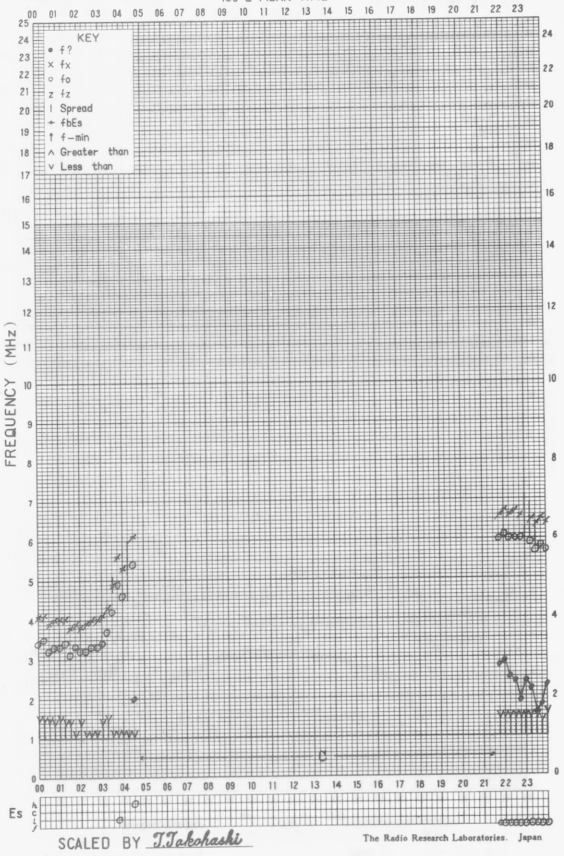

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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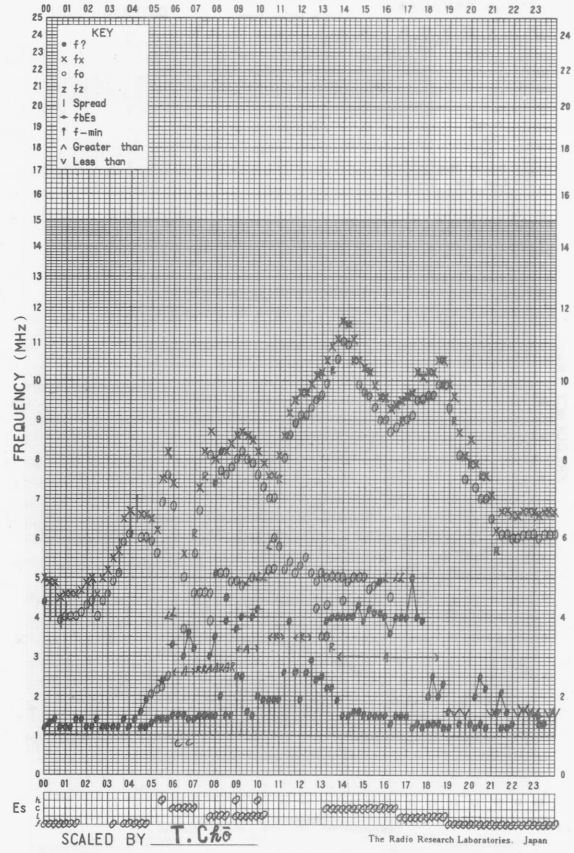

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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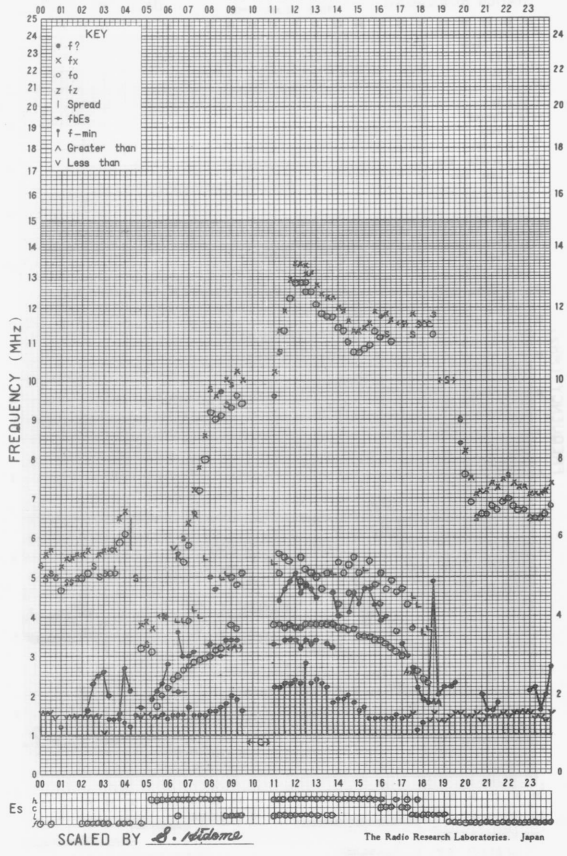

SCALED BY S. Aidoma

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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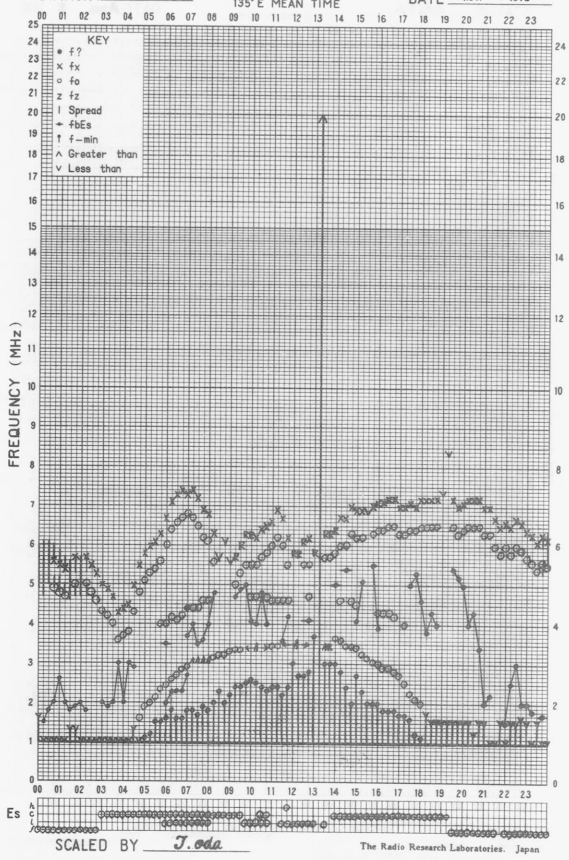

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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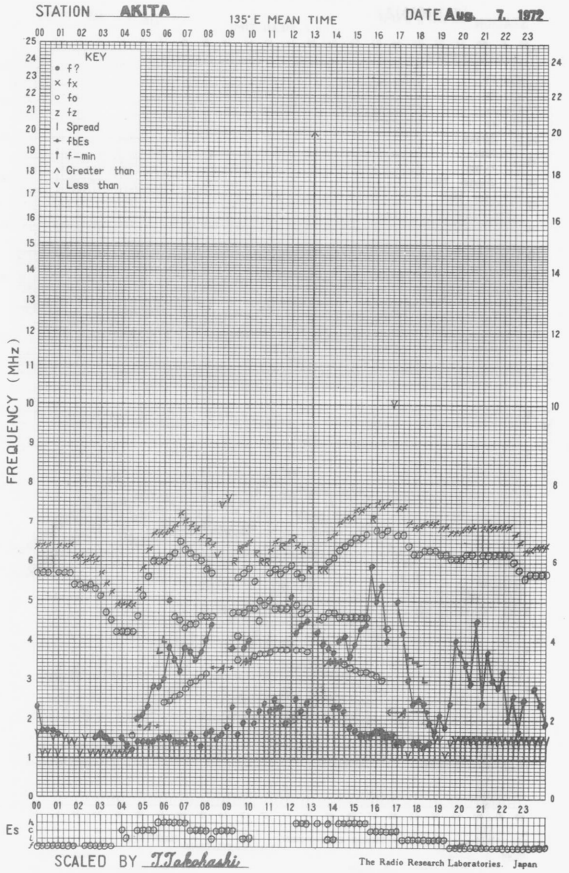

SCALED BY T. Takahashi

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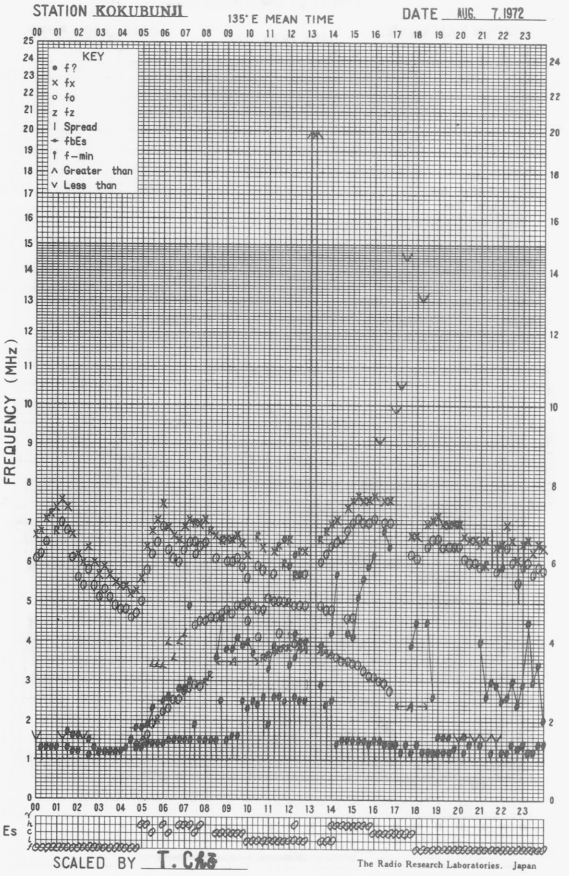

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f-PLOT OF IONOSPHERIC DATA

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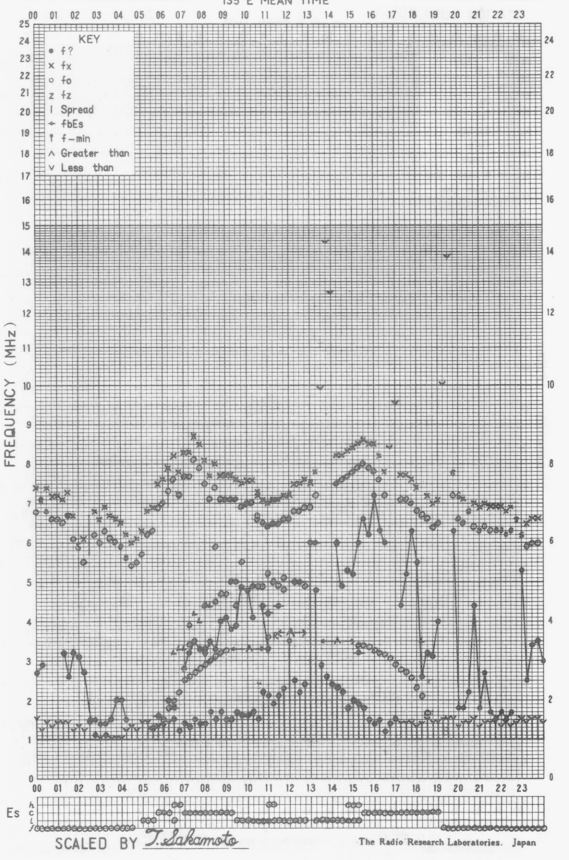

SCALED BY T. Sakamoto

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f-PLOT OF IONOSPHERIC DATA

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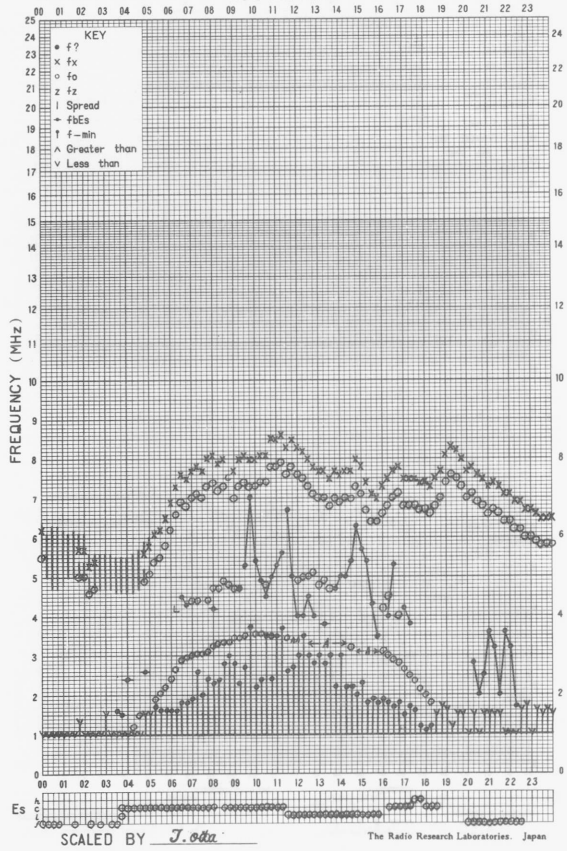

SCALED BY T. Ota

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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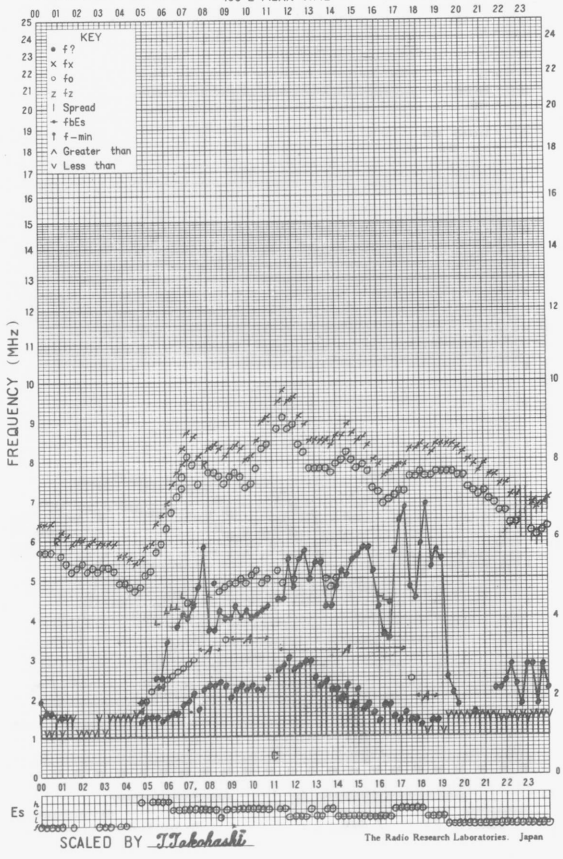

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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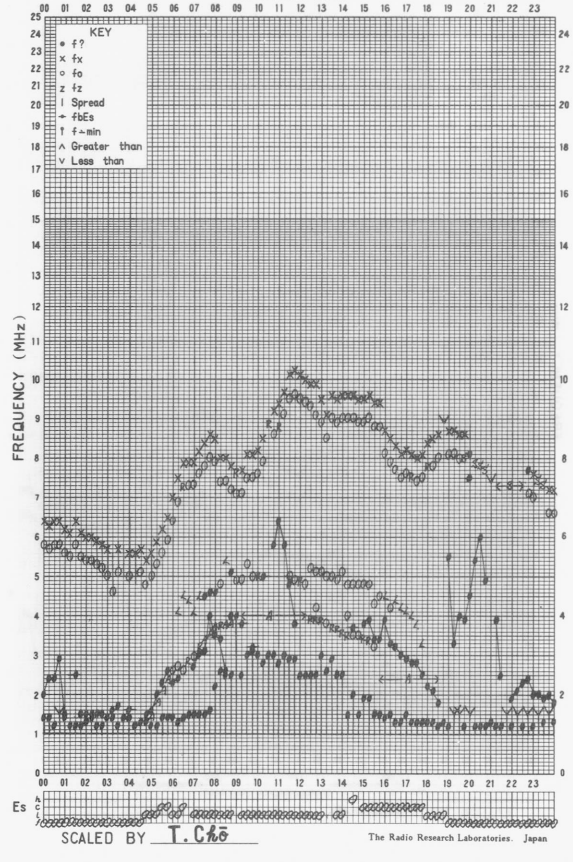

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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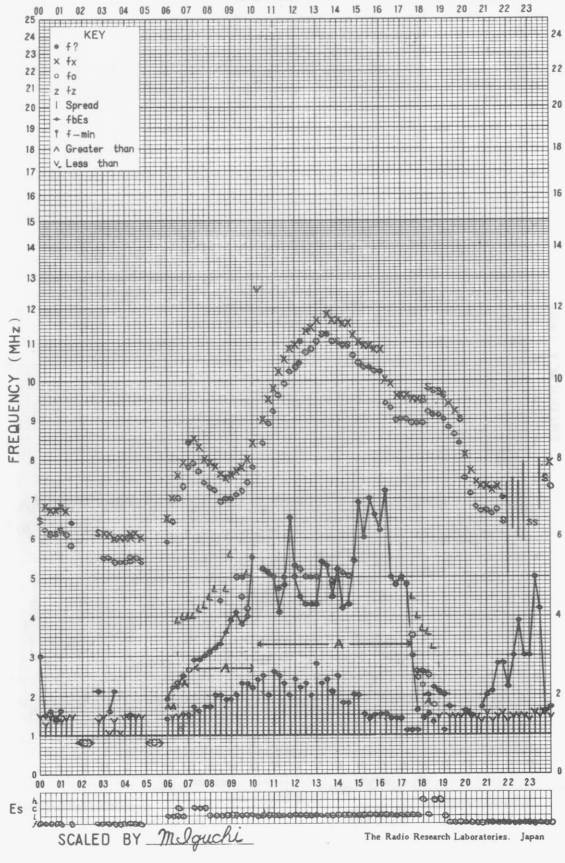

SCALED BY M. Iguchi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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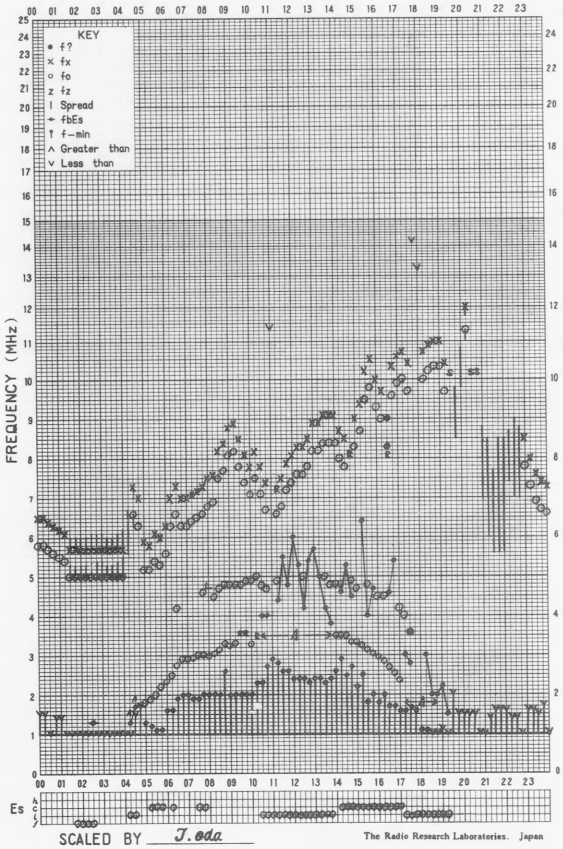

SCALED BY T. oda

The Radio Research Laboratories. Japan

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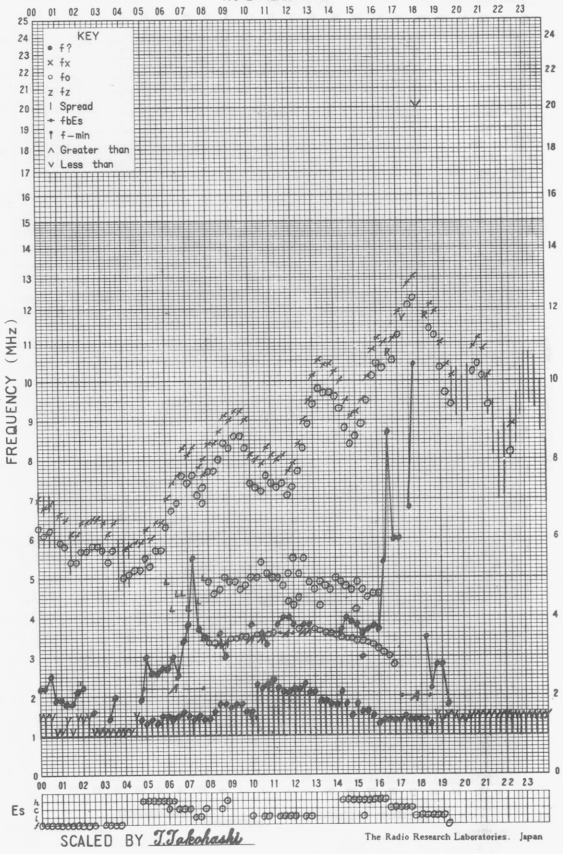

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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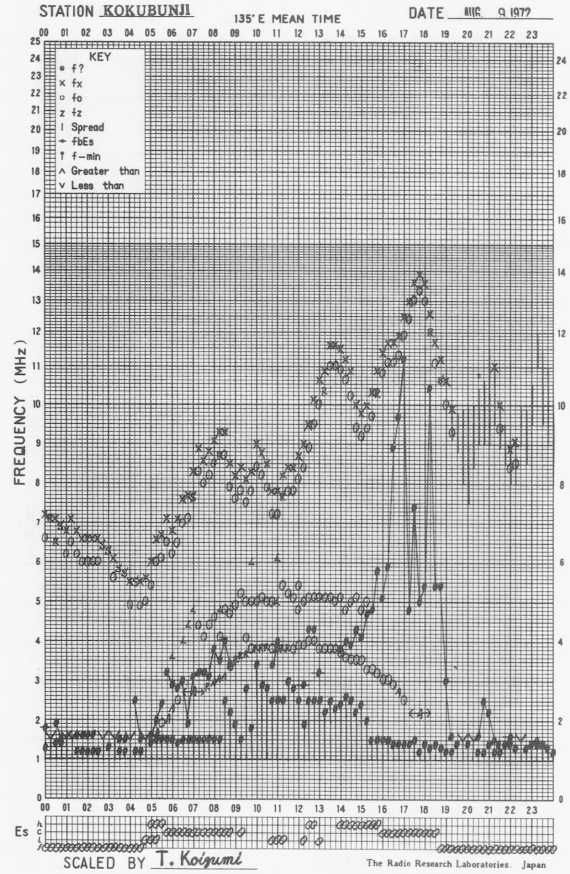

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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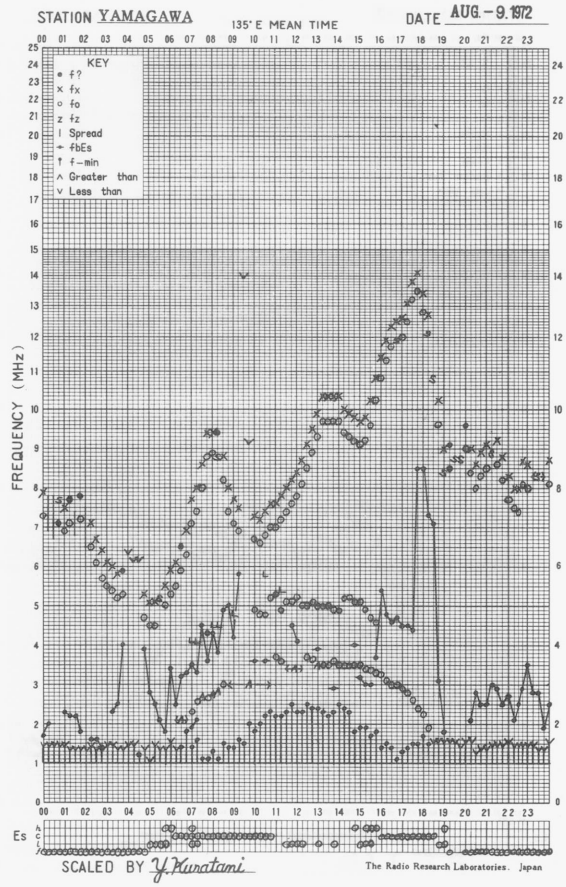

SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

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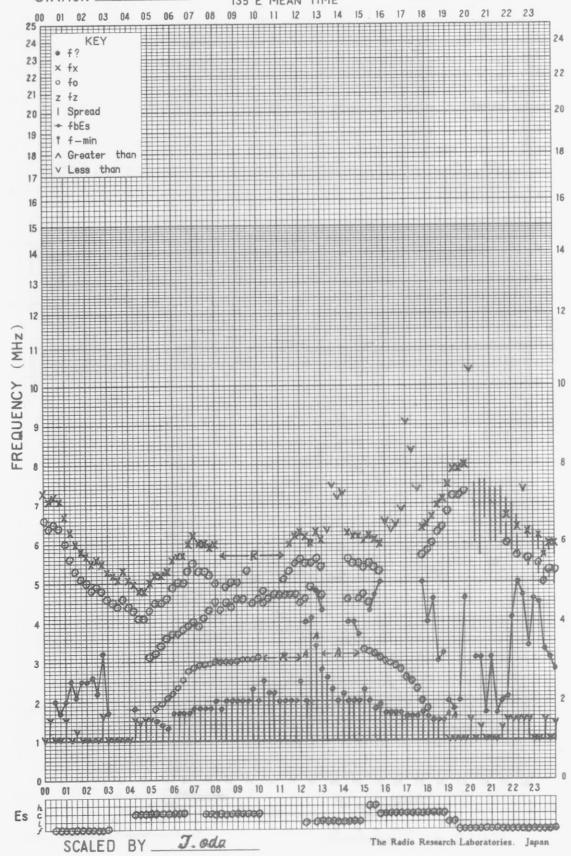

SCALED BY T. oda

The Radio Research Laboratories. Japan

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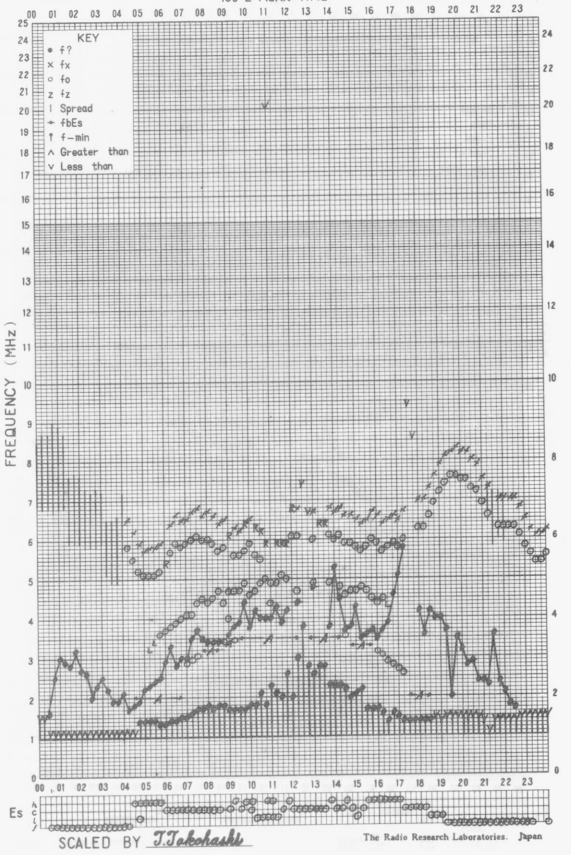

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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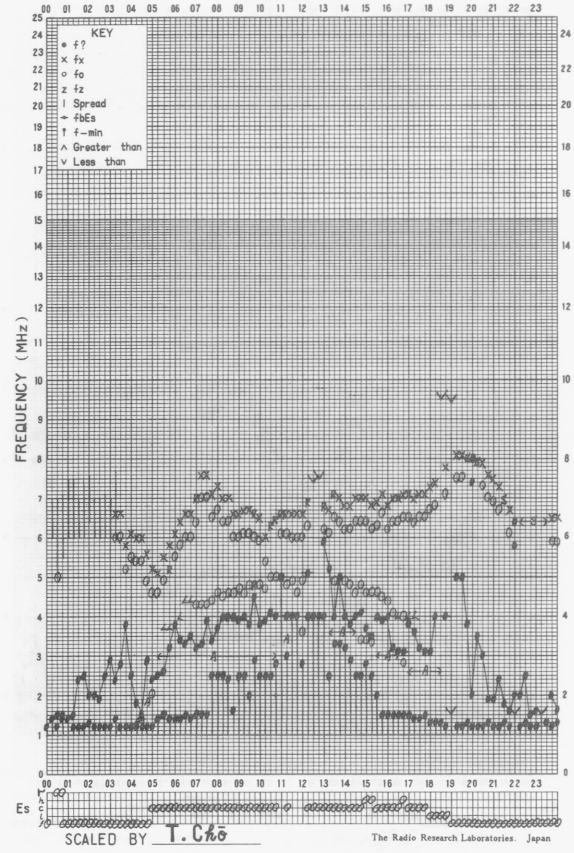

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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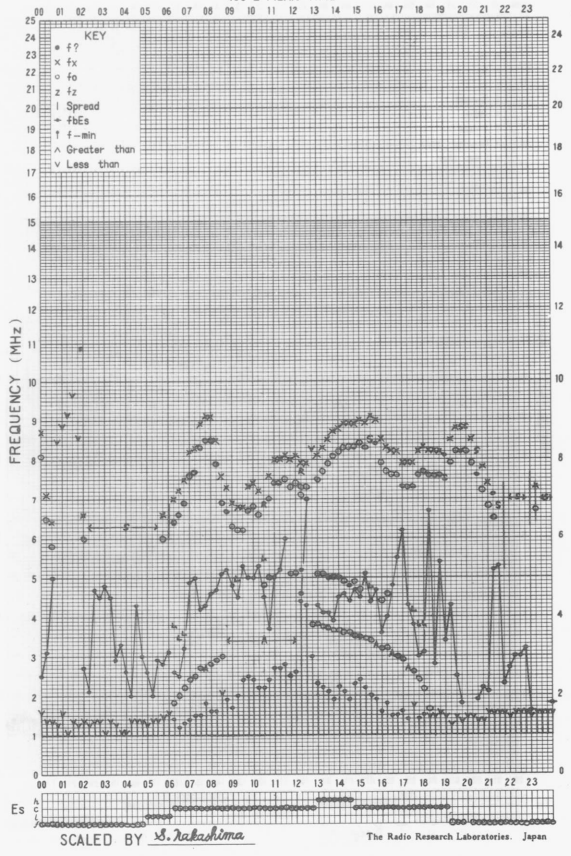

SCALED BY S. Nakashima

The Radio Research Laboratories. Japan

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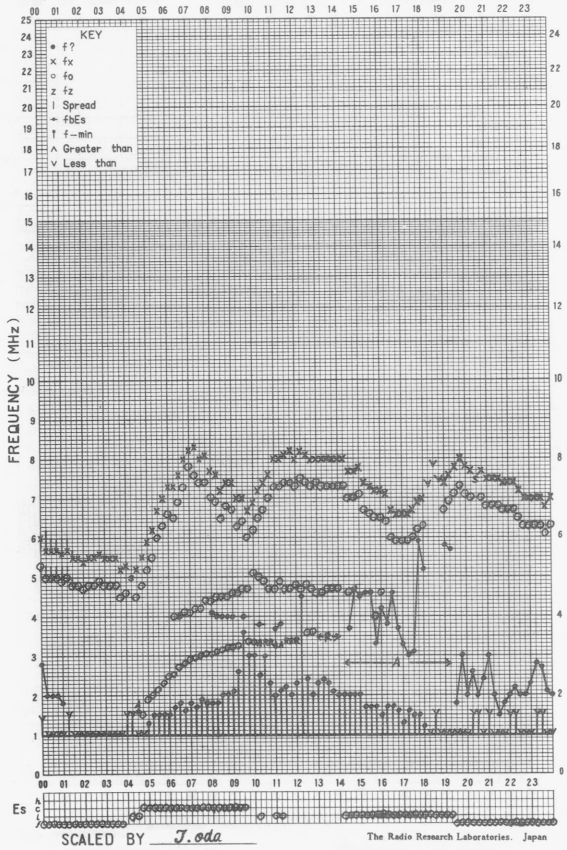

SCALED BY T. oda

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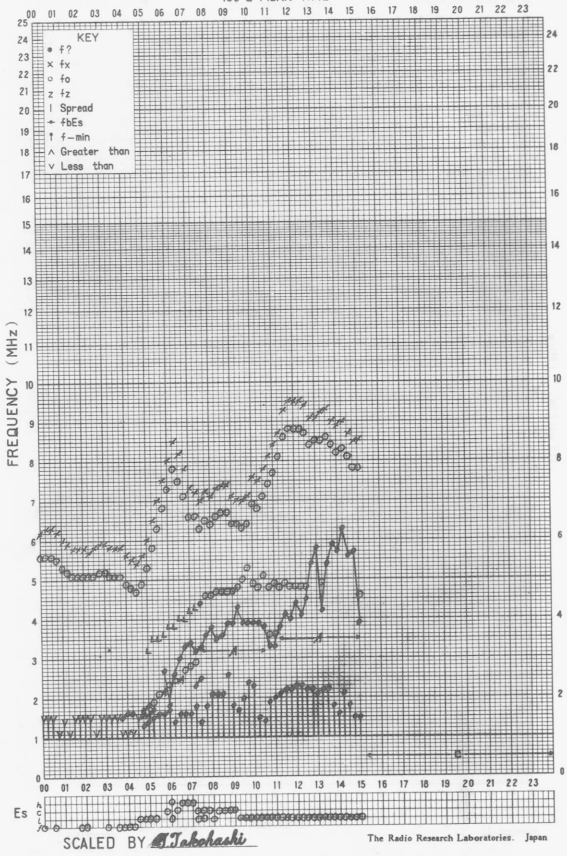

SCALED BY M. Takahashi

The Radio Research Laboratories. Japan

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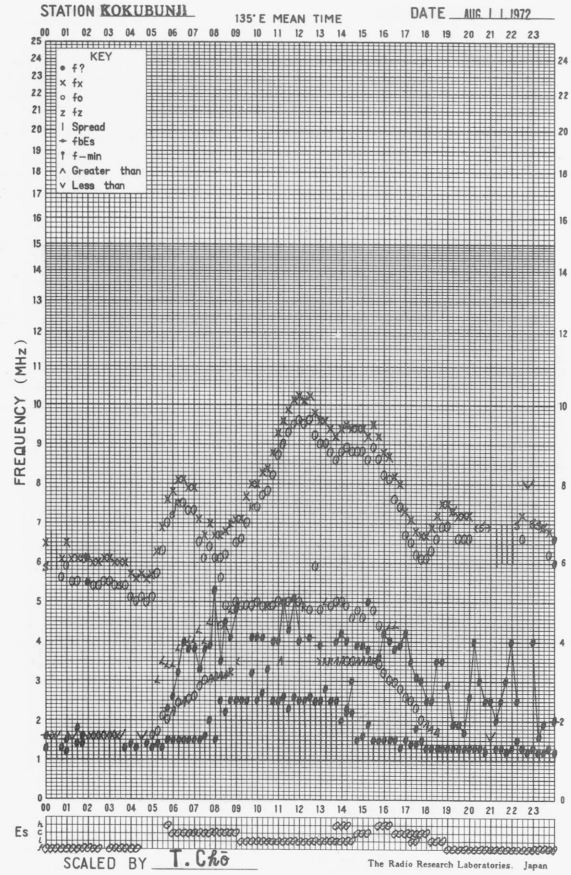

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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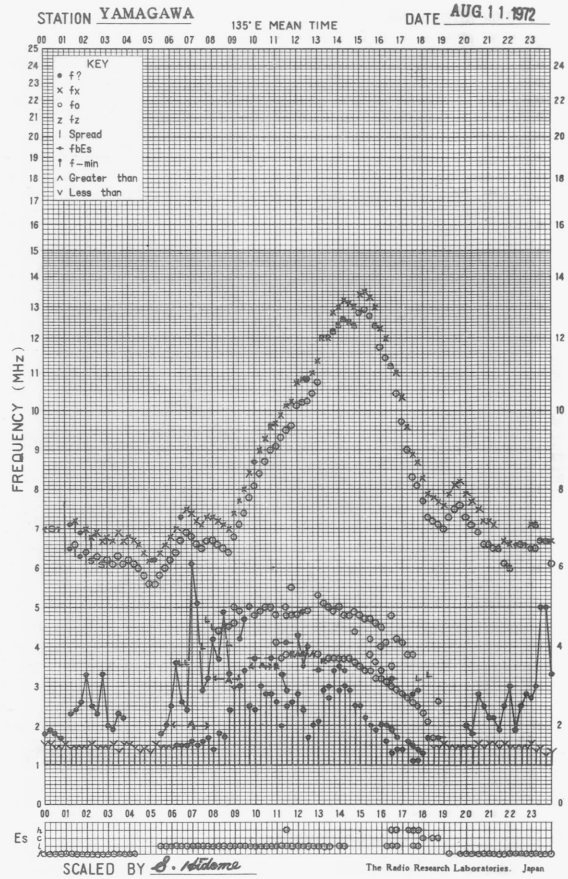

SCALED BY S. Kitamura

The Radio Research Laboratories. Japan

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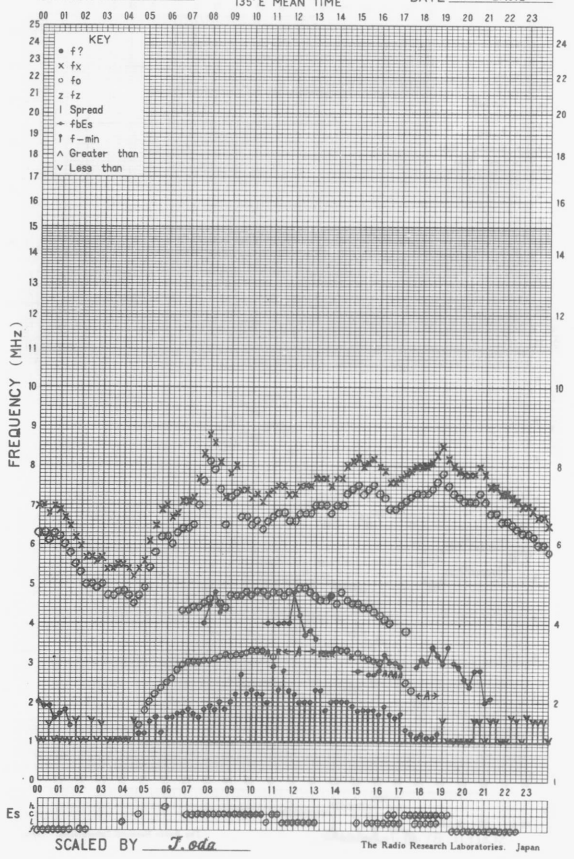

SCALED BY T. oda

The Radio Research Laboratories. Japan

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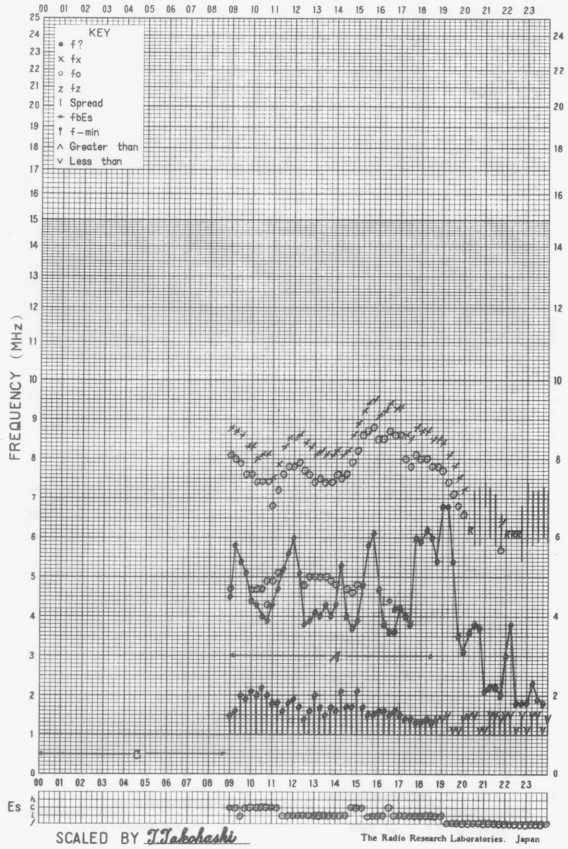

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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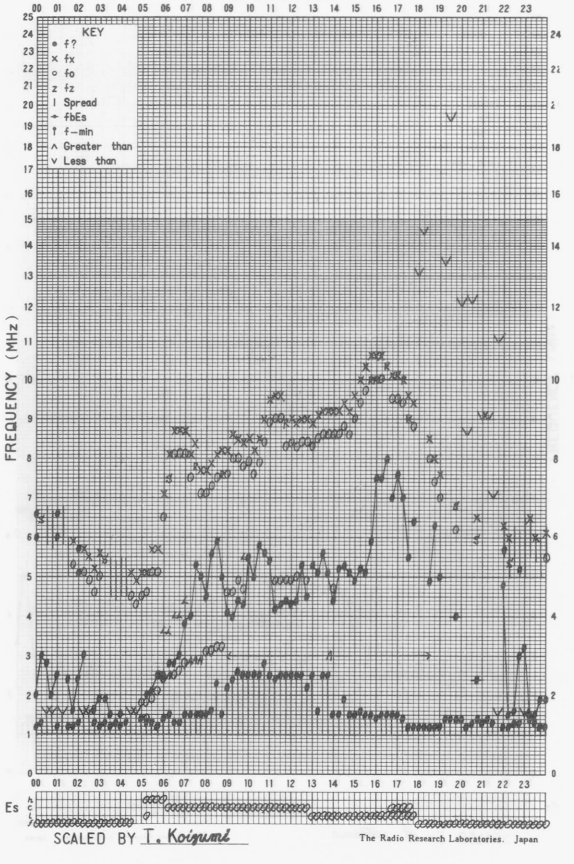

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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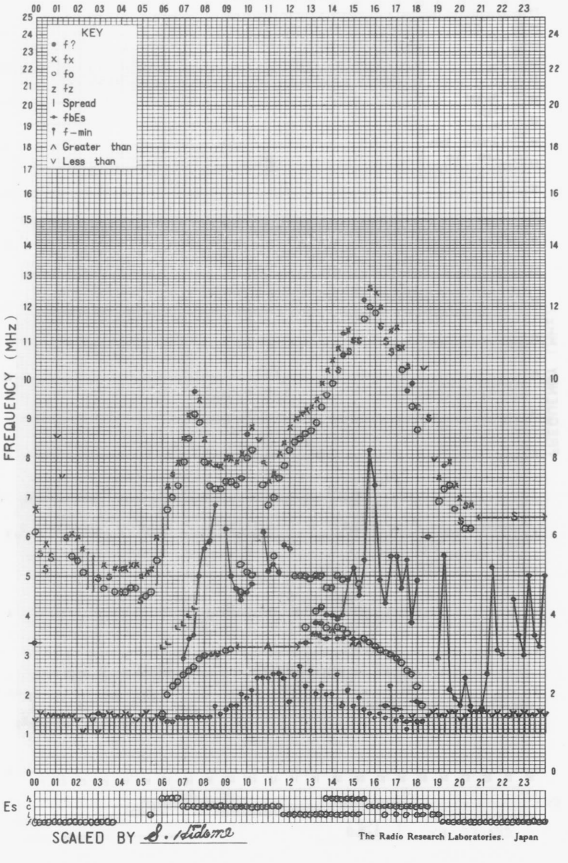

SCALED BY S. Hidema

The Radio Research Laboratories. Japan

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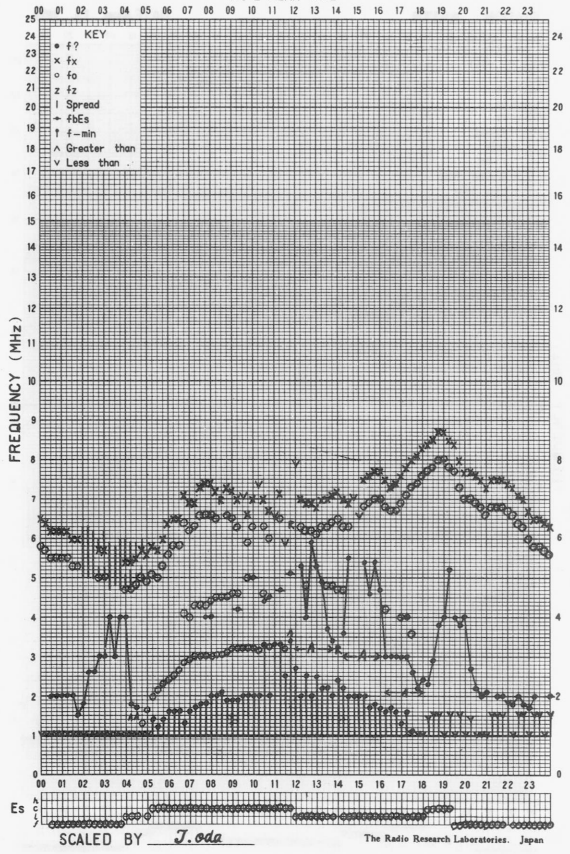

SCALED BY T. oda

The Radio Research Laboratories. Japan

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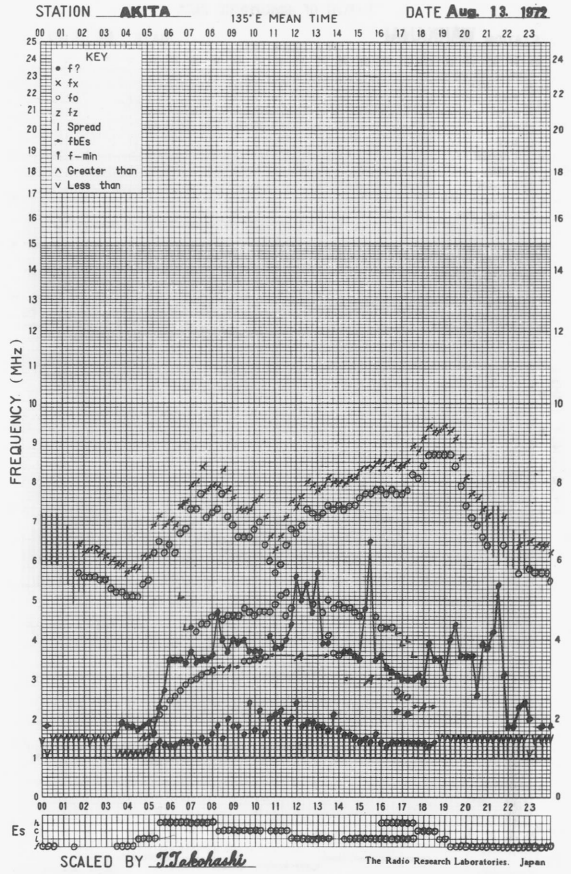

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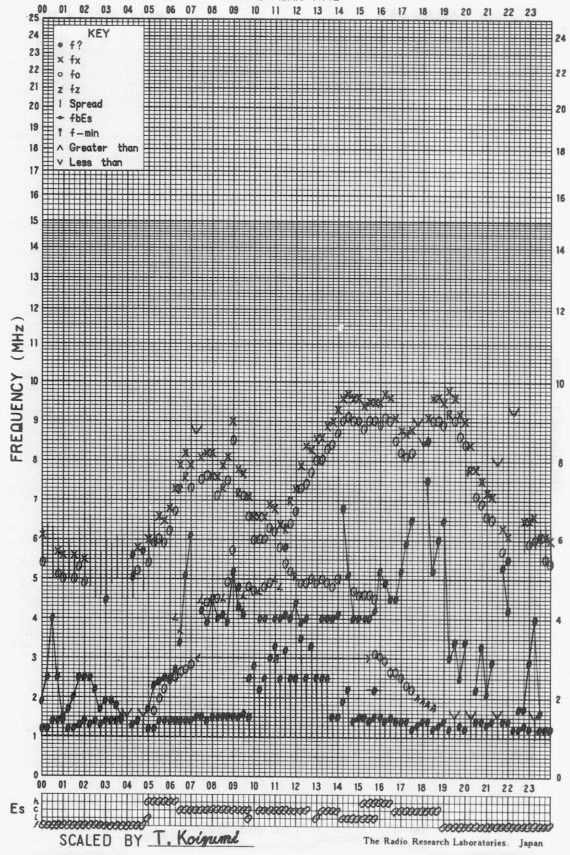

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The Radio Research Laboratories. Japan

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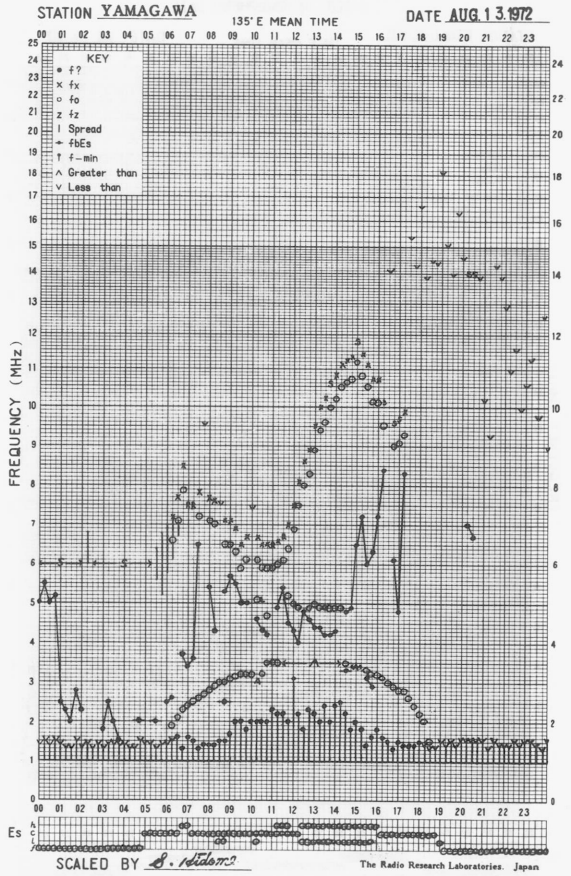

SCALED BY S. Nidome

The Radio Research Laboratories. Japan

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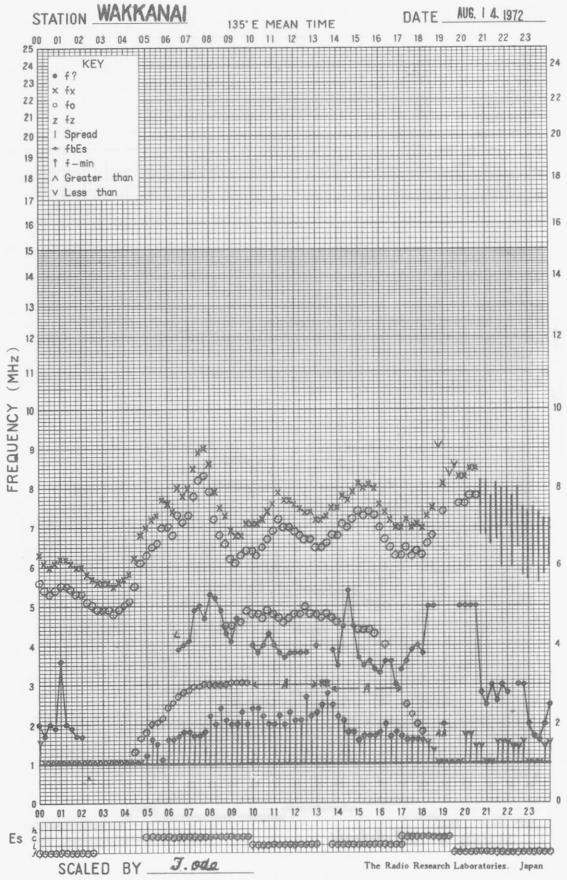

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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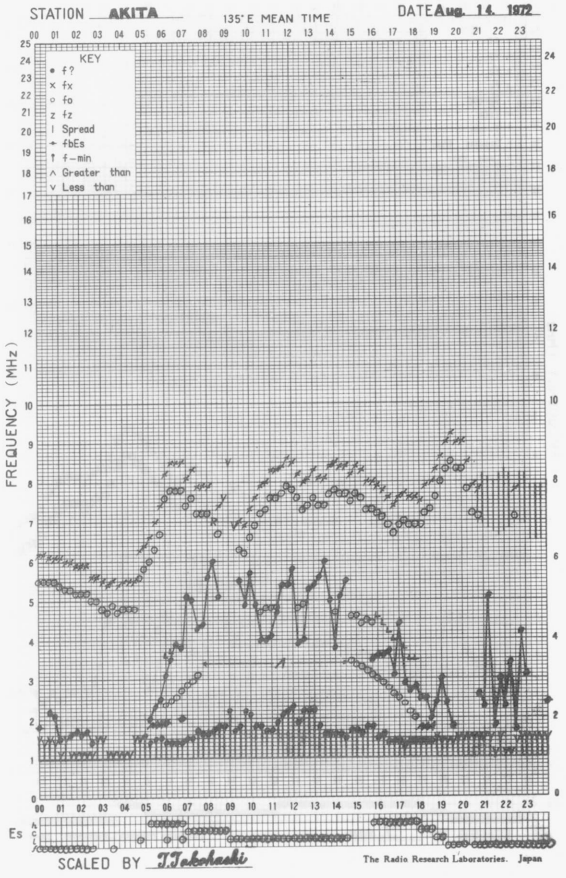

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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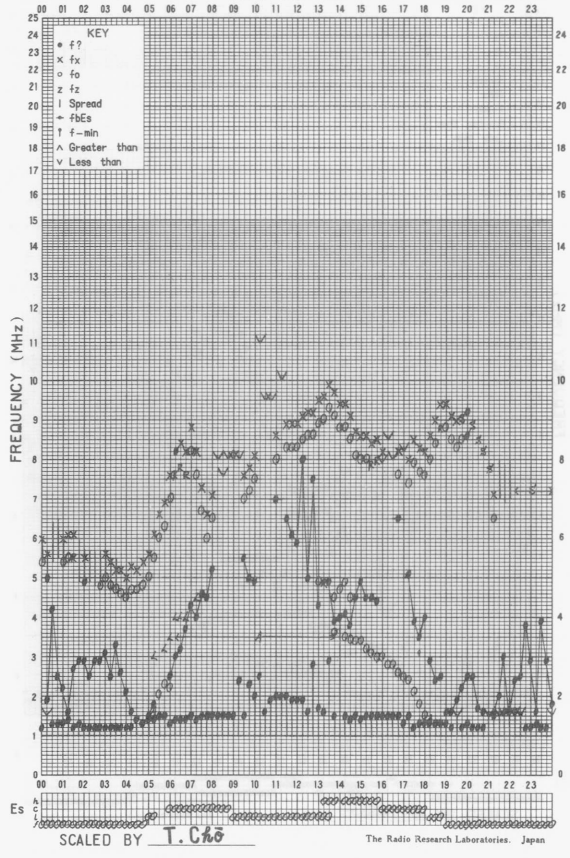

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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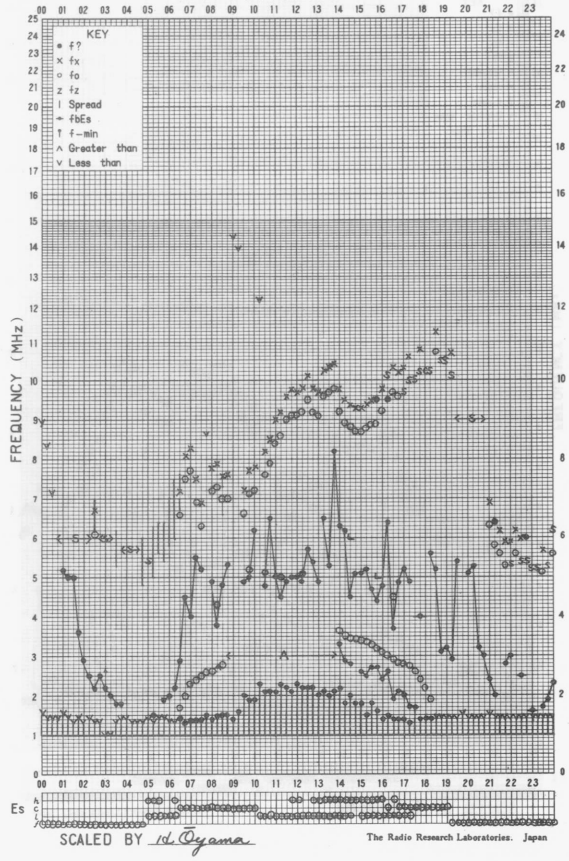

SCALED BY Id. Oyama

The Radio Research Laboratories. Japan

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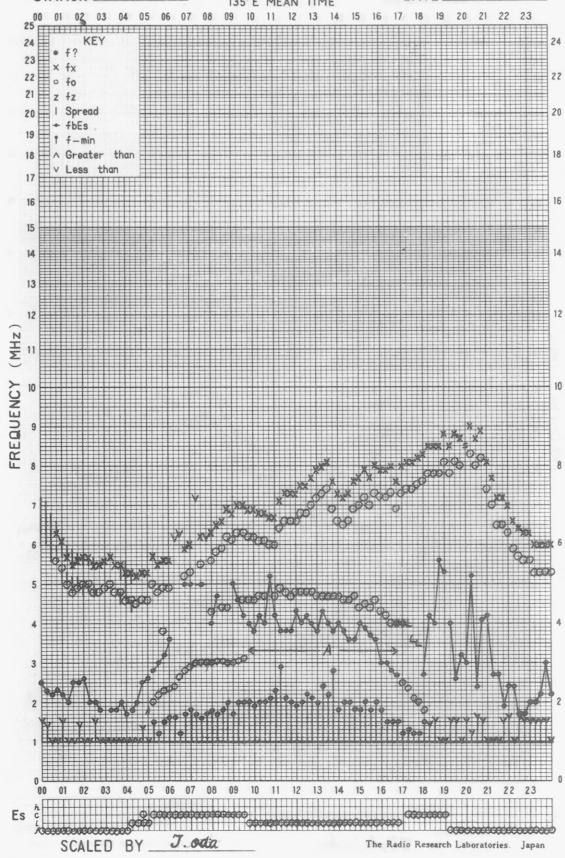

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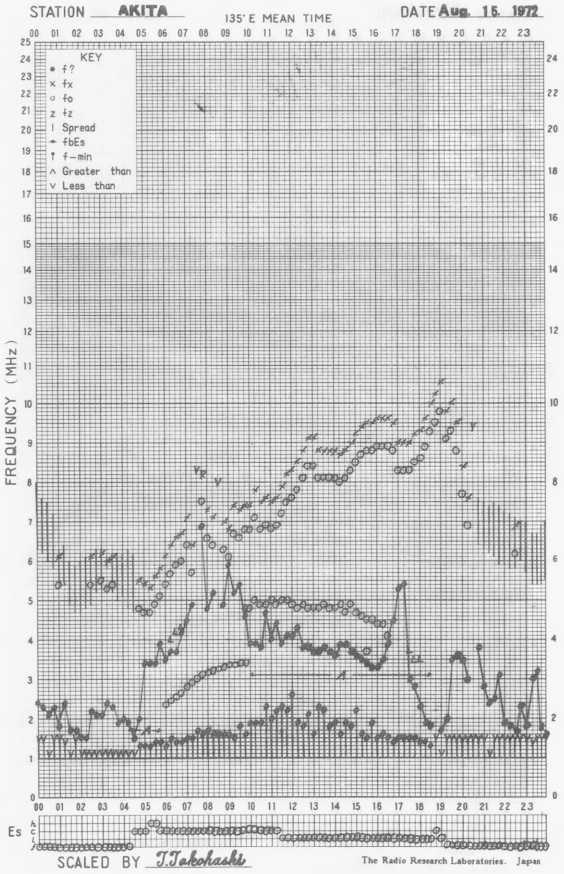
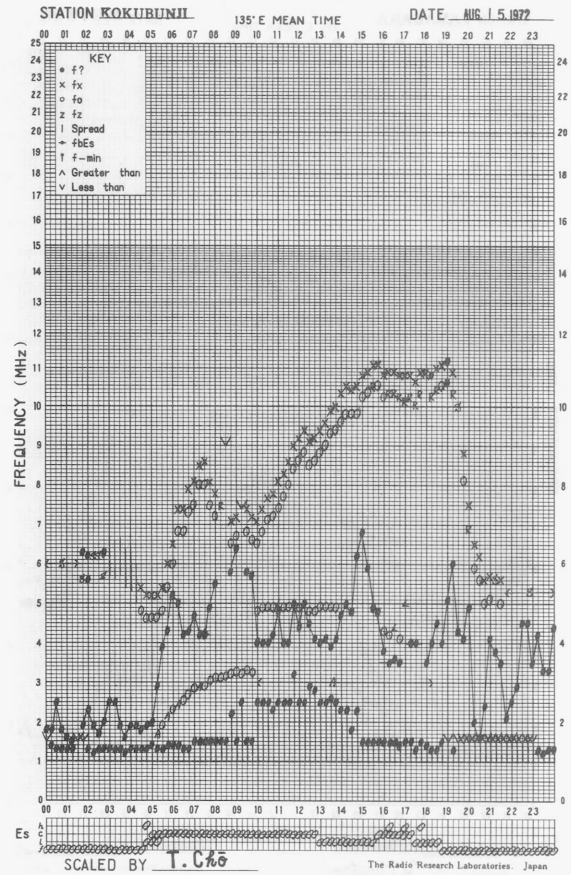


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 15. 1972



SCALED BY T. Cho

The Radio Research Laboratories. Japan

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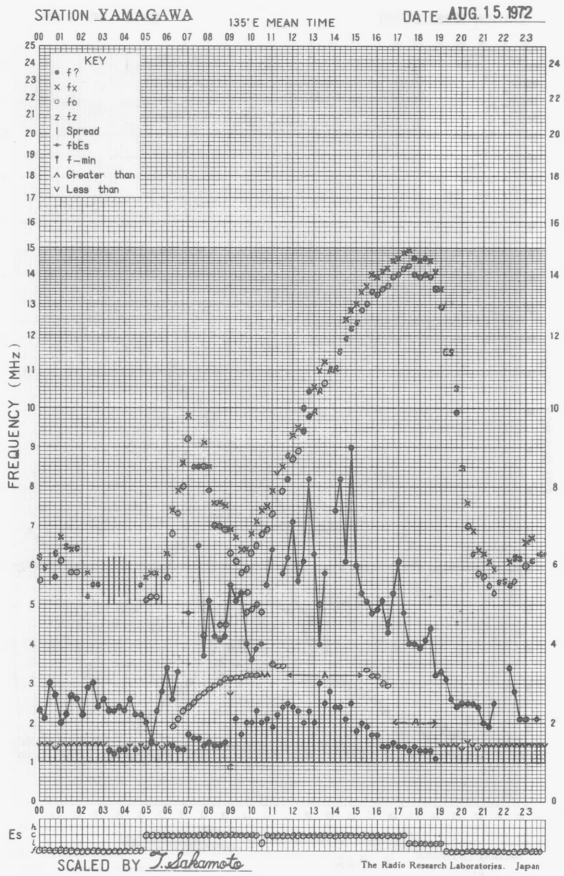

SCALED BY T. Sakamoto

The Radio Research Laboratories. Japan

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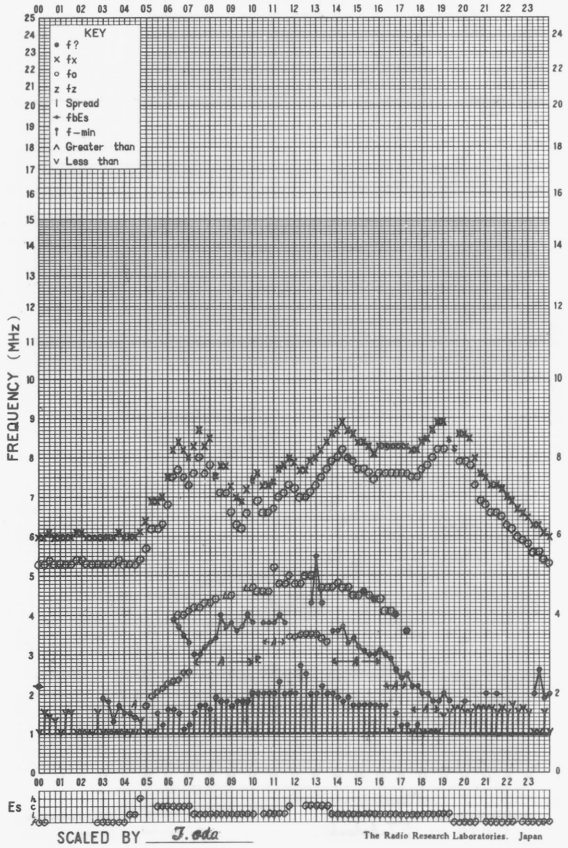

SCALED BY T. oda

The Radio Research Laboratories. Japan

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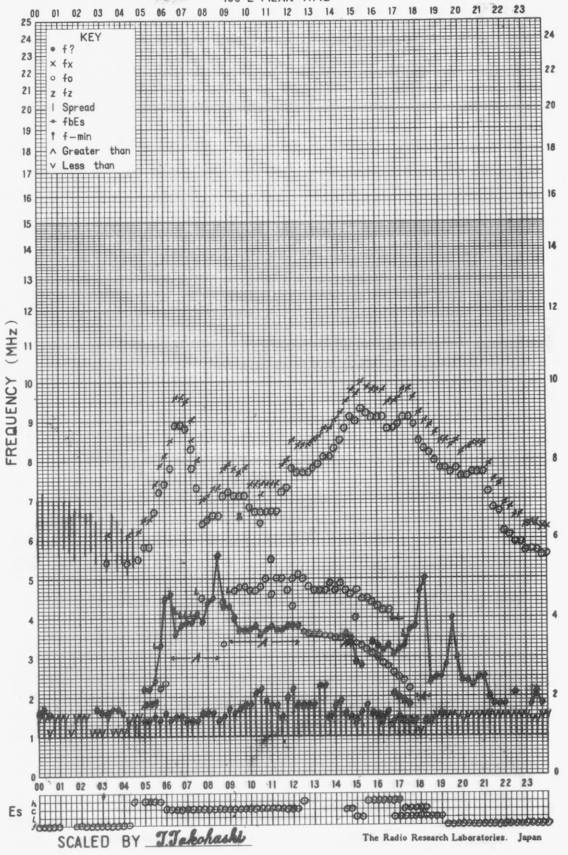

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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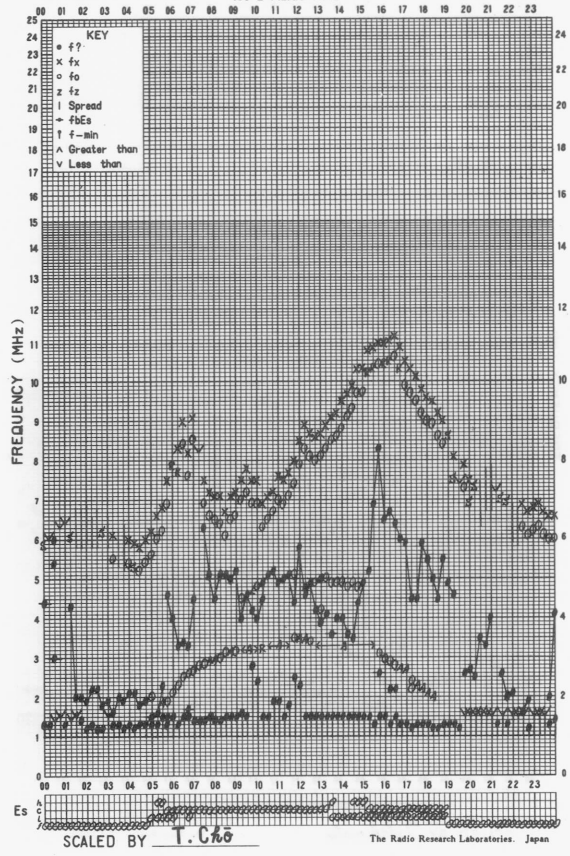

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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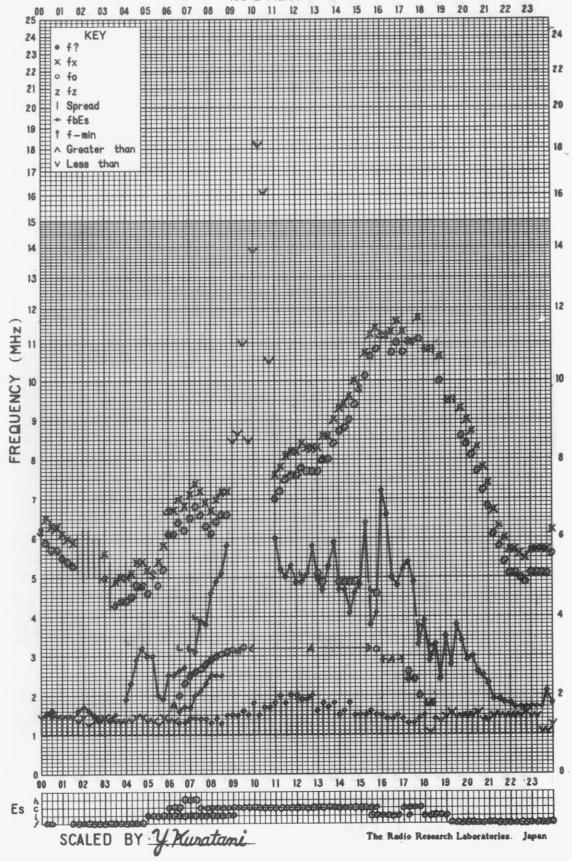

SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

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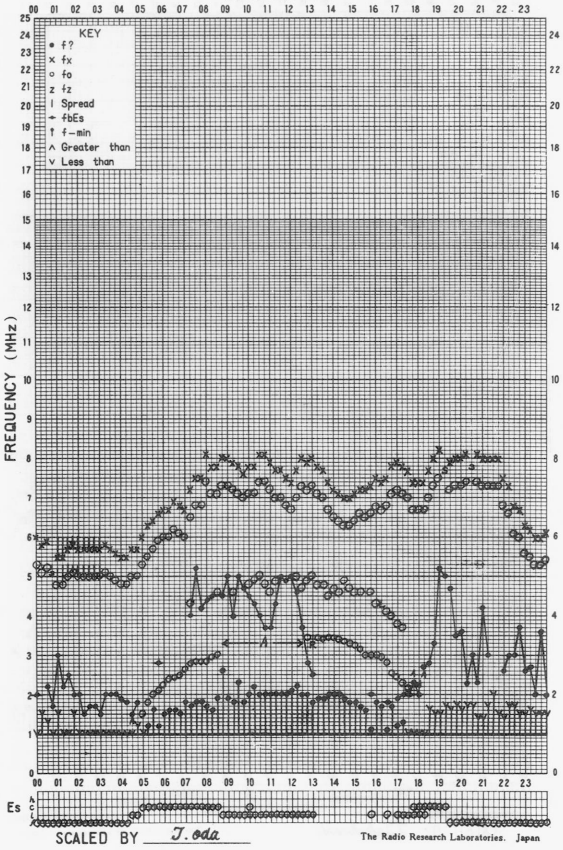

SCALED BY T. oda

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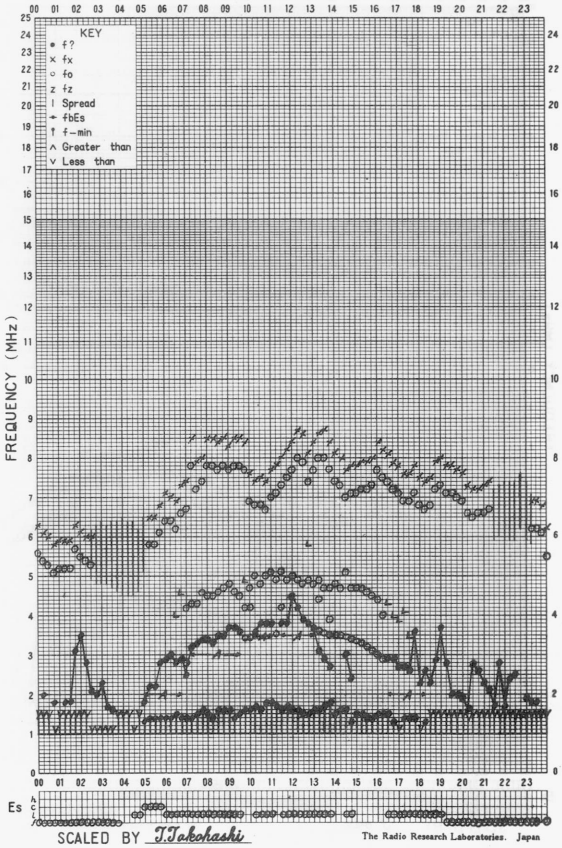

SCALED BY T.Takahashi

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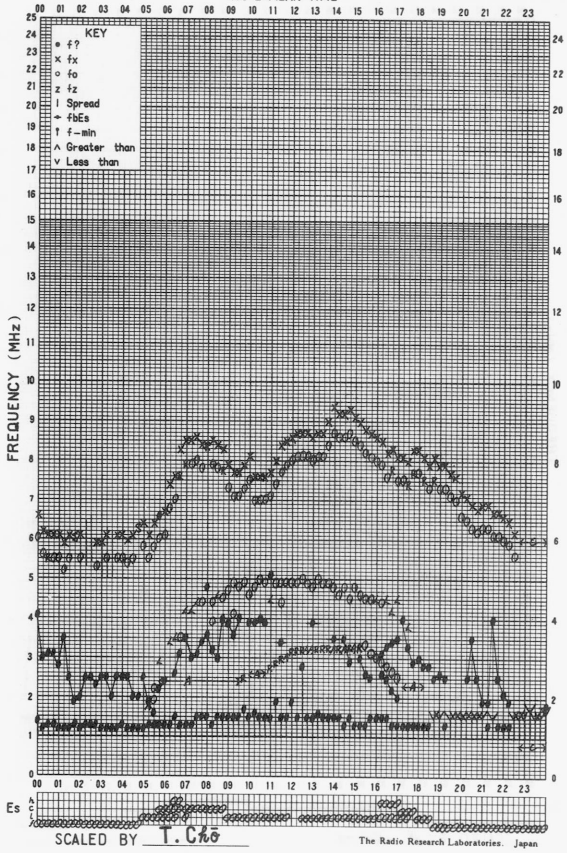

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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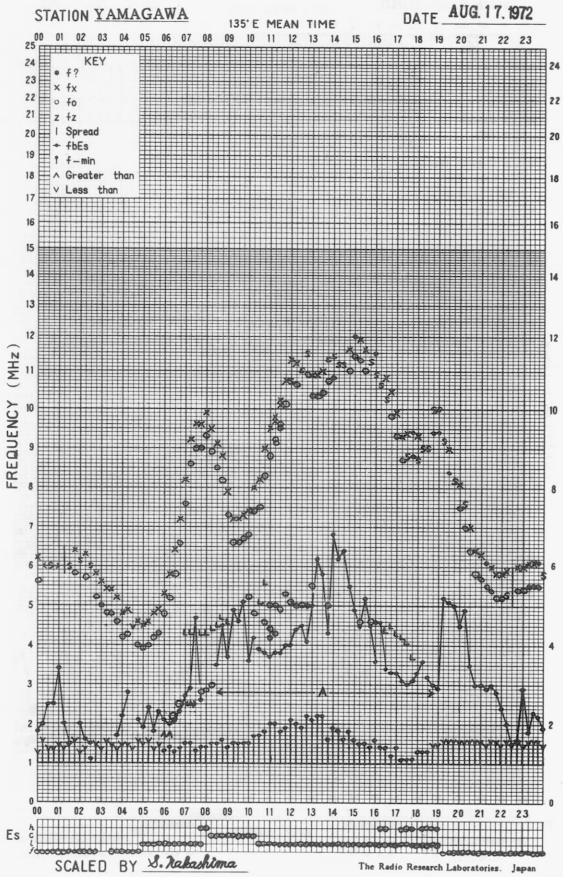

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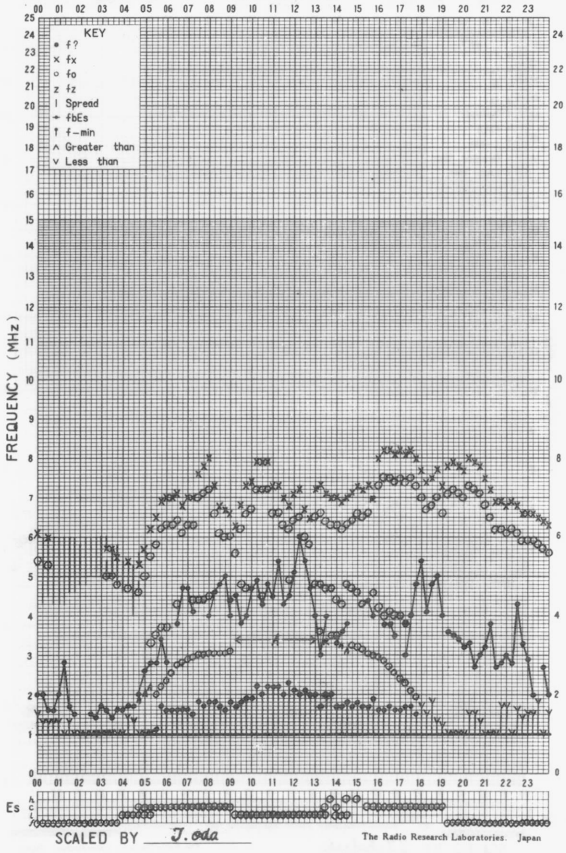

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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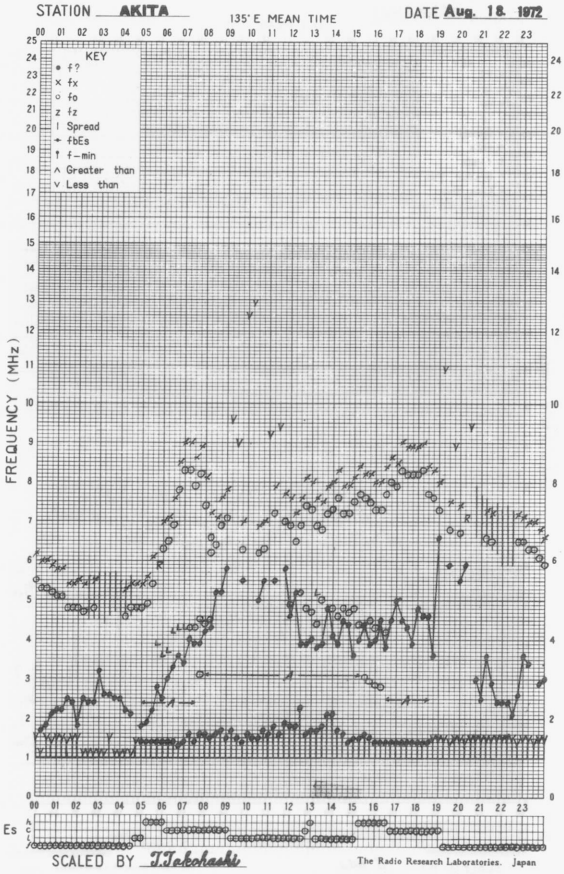

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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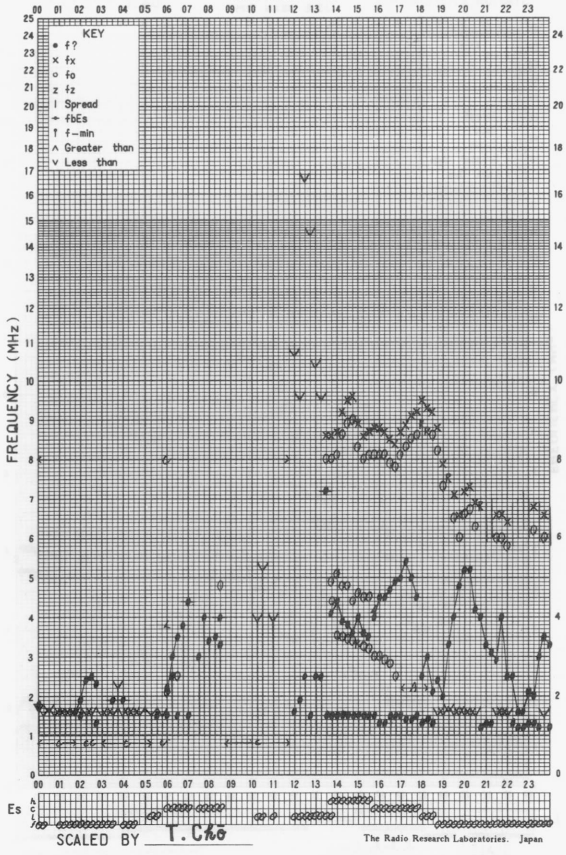

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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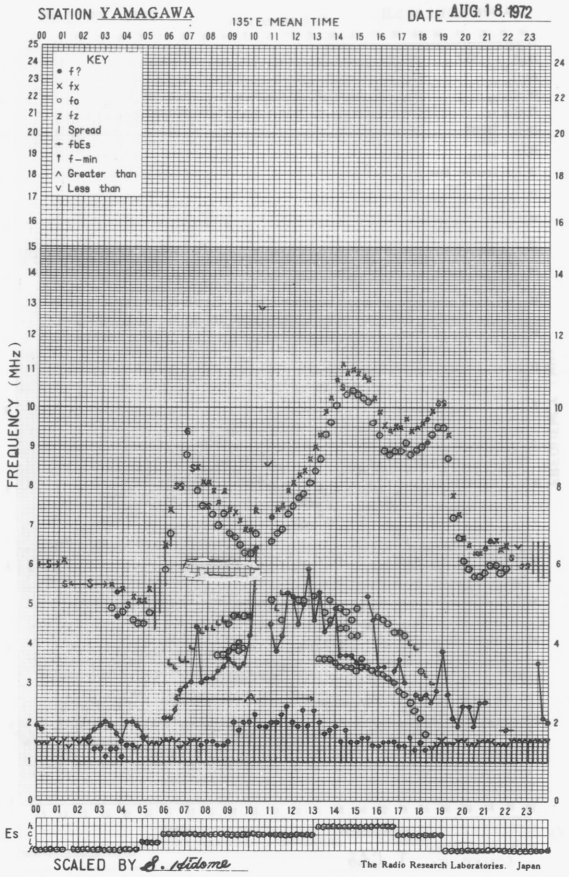

SCALED BY S. Ichidome

The Radio Research Laboratories. Japan

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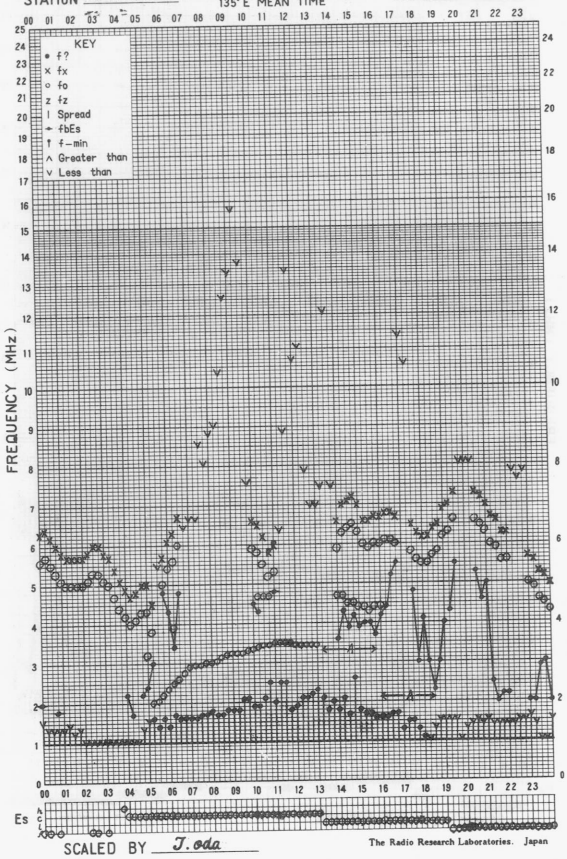

SCALED BY J. oda

The Radio Research Laboratories. Japan

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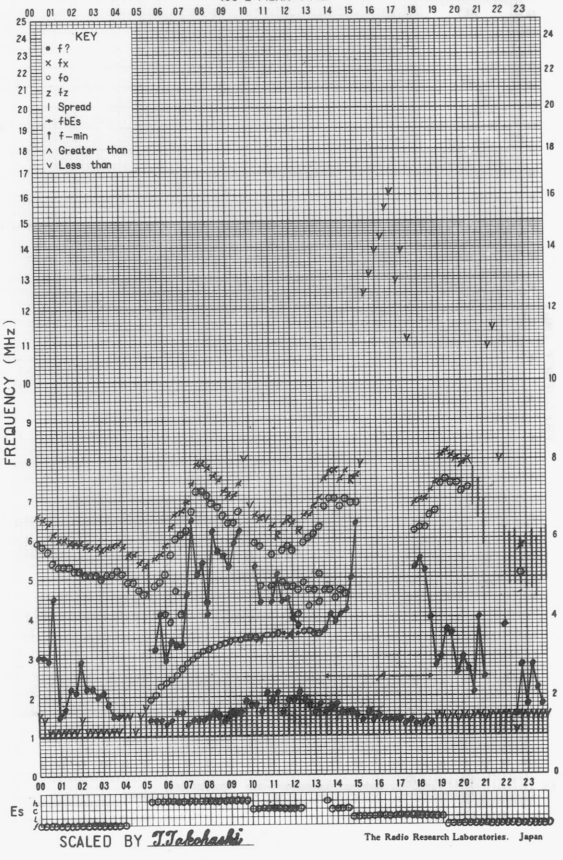

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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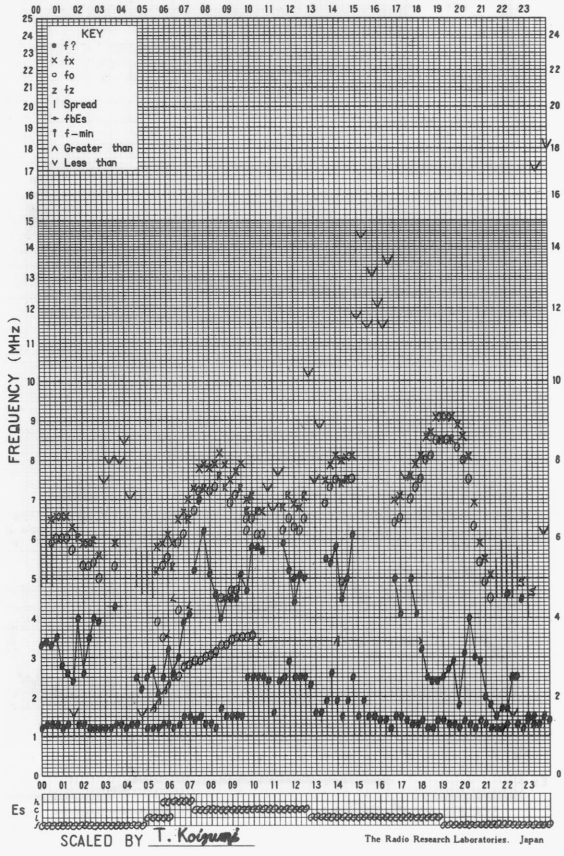

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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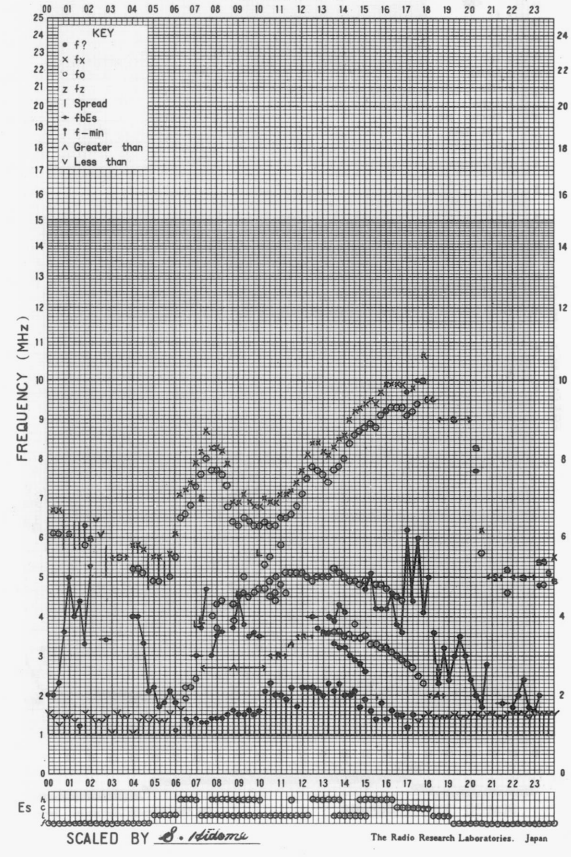
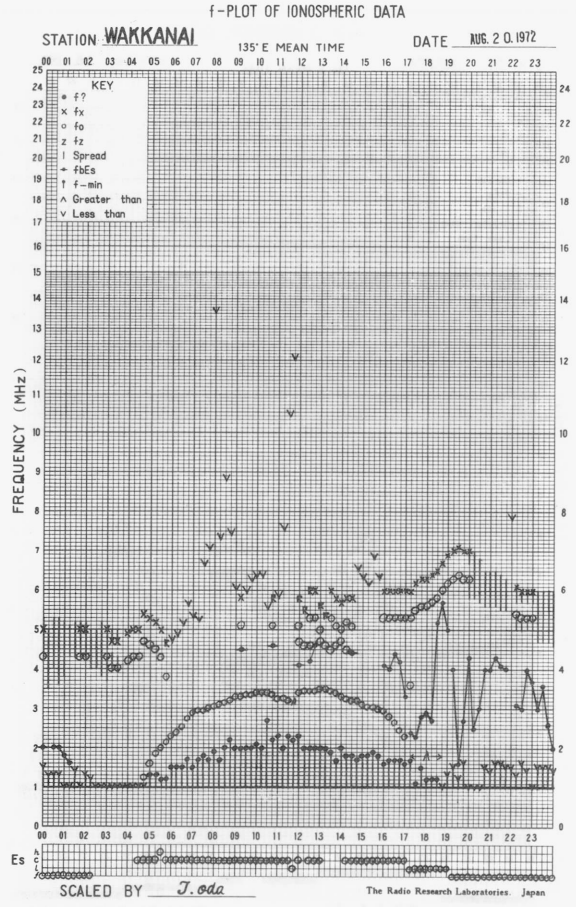


SCALED BY S. Shibuya

The Radio Research Laboratories. Japan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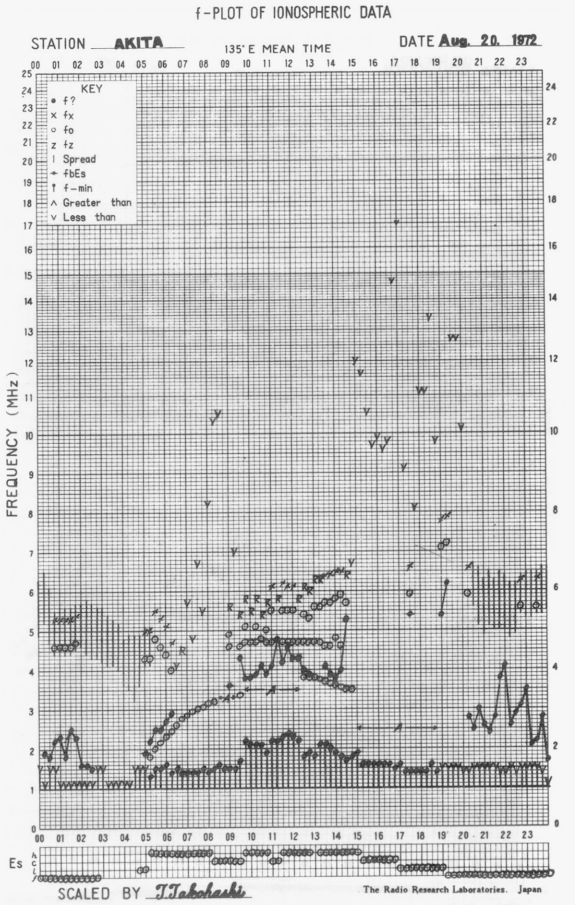
SCALED BY T. oda
The Radio Research Laboratories. Japan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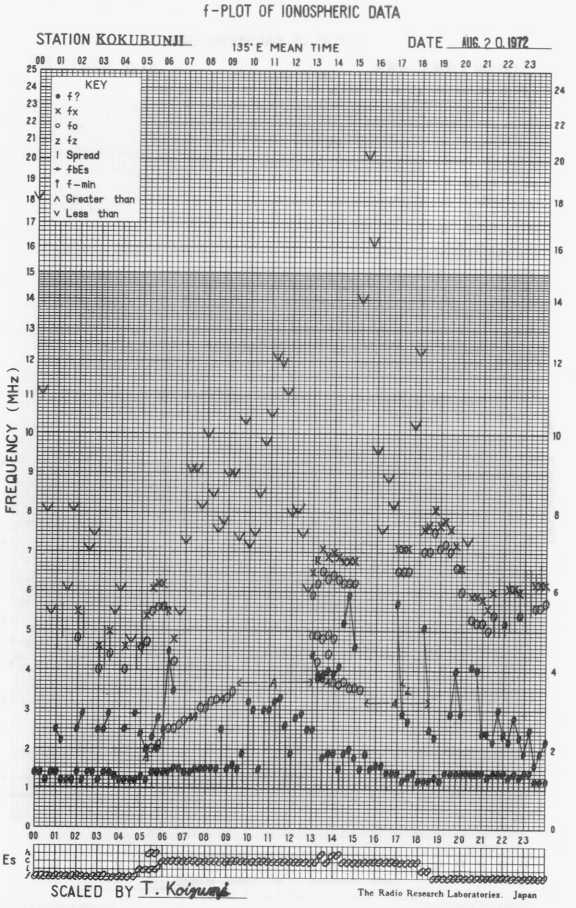
The Radio Research Laboratories. Japan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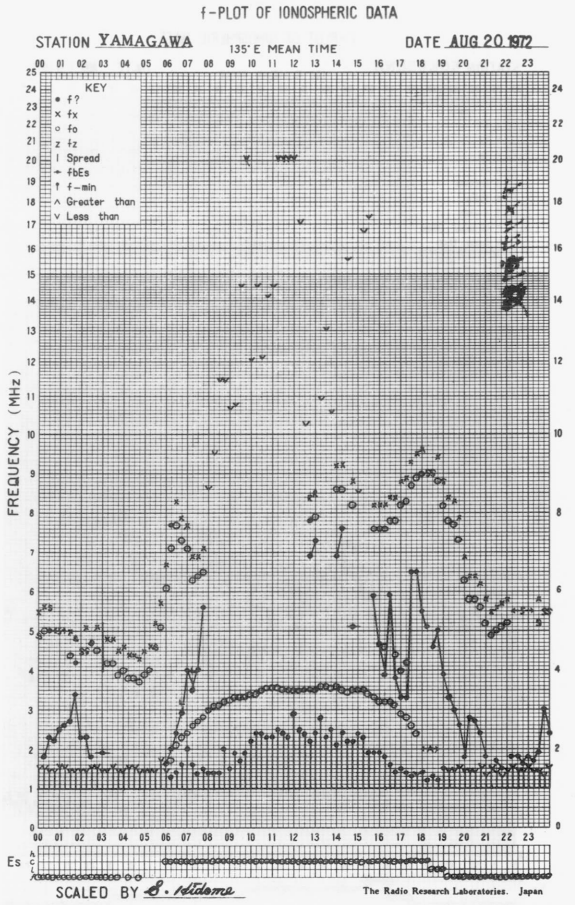
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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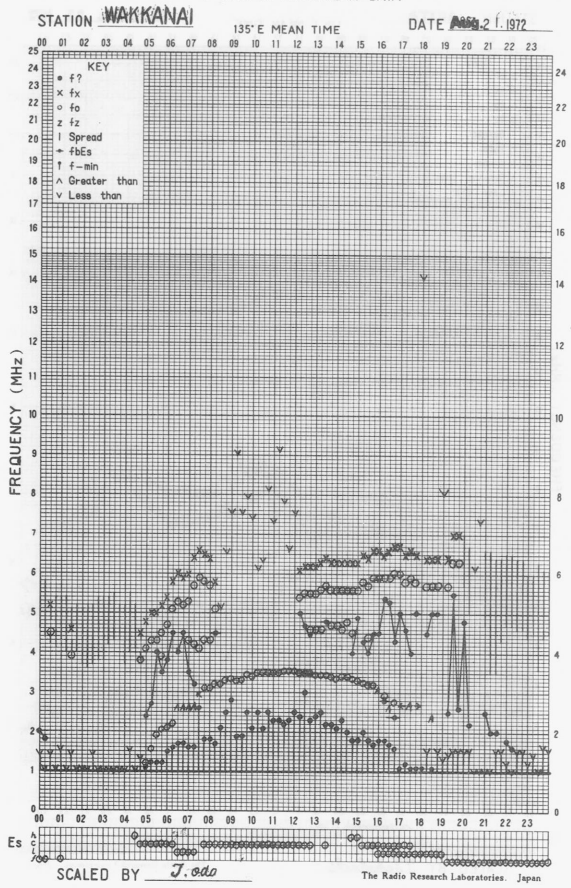

SCALED BY T. odo

The Radio Research Laboratories. Japan

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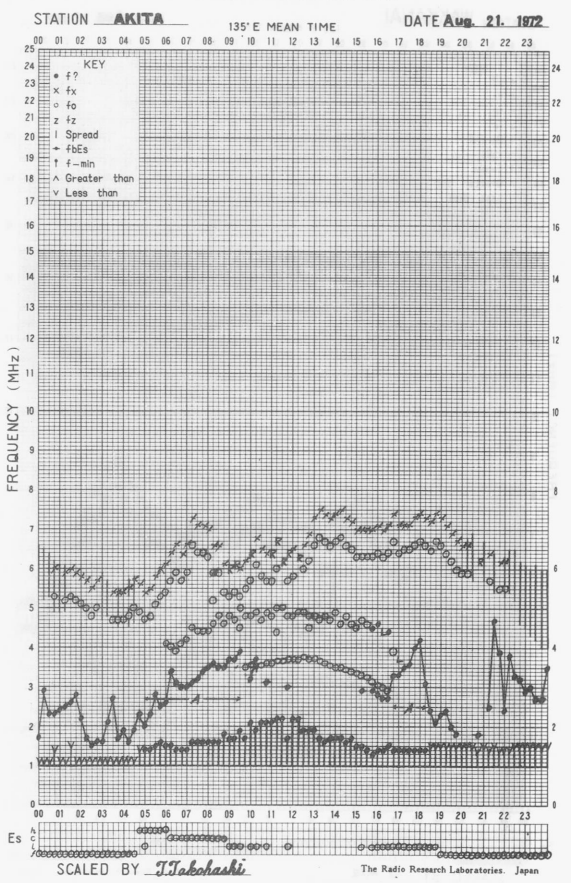

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The Radio Research Laboratories. Japan

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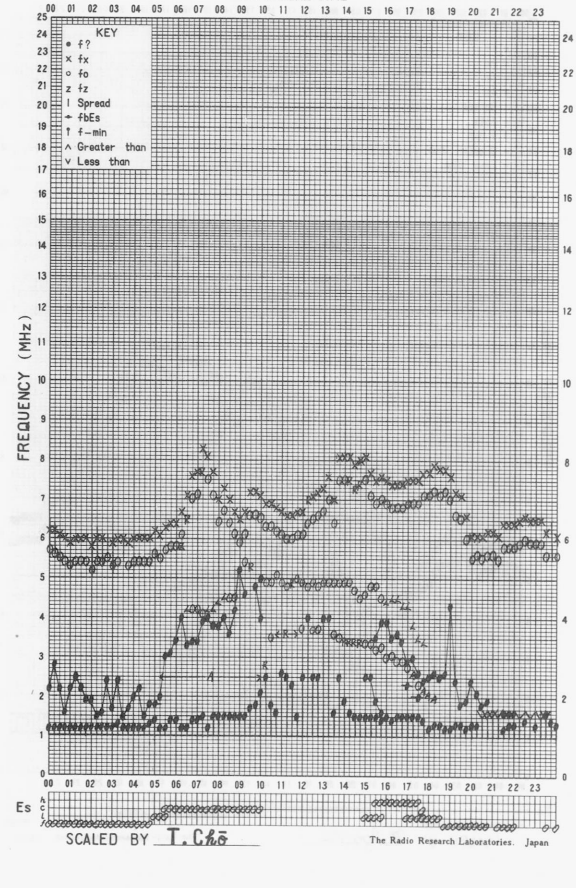

SCALED BY T. Ch5

The Radio Research Laboratories. Japan

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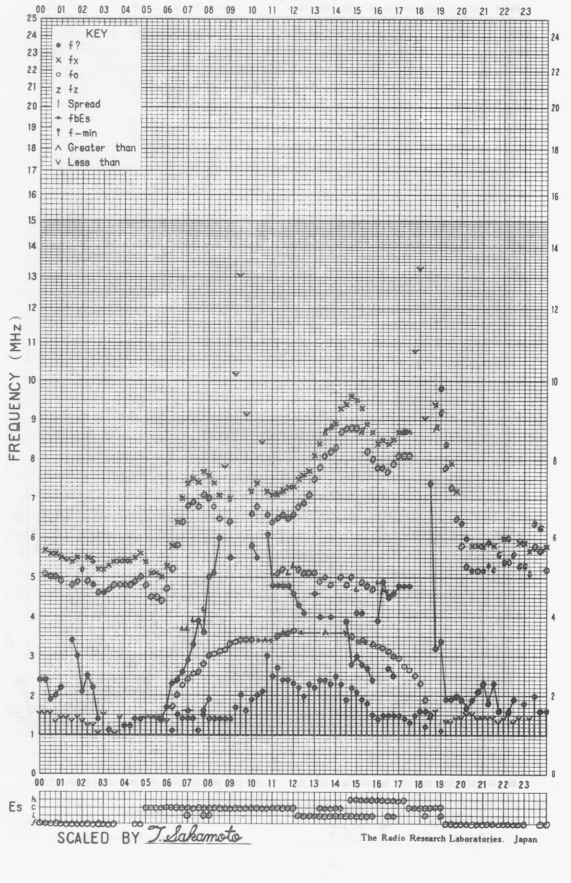

SCALED BY T.Sakamoto

The Radio Research Laboratories. Japan

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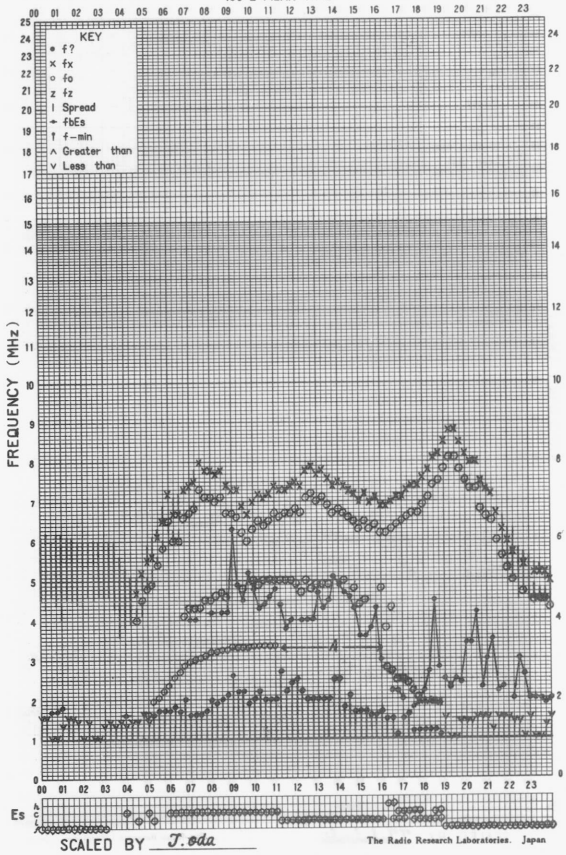

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The Radio Research Laboratories. Japan

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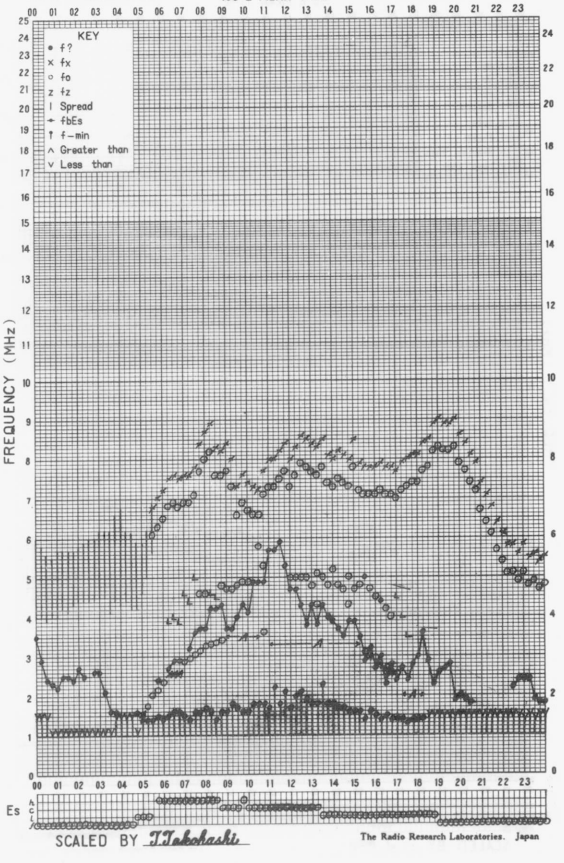

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The Radio Research Laboratories. Japan

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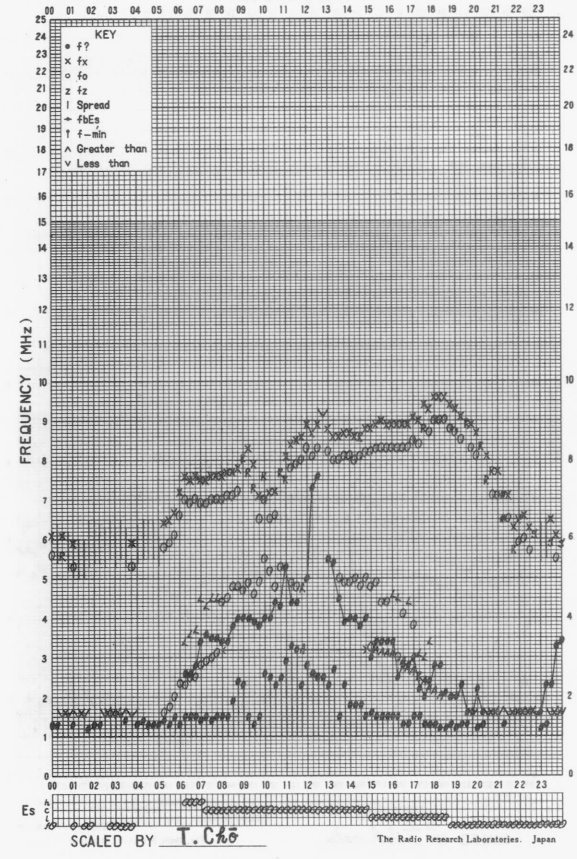

SCALED BY T. Chō

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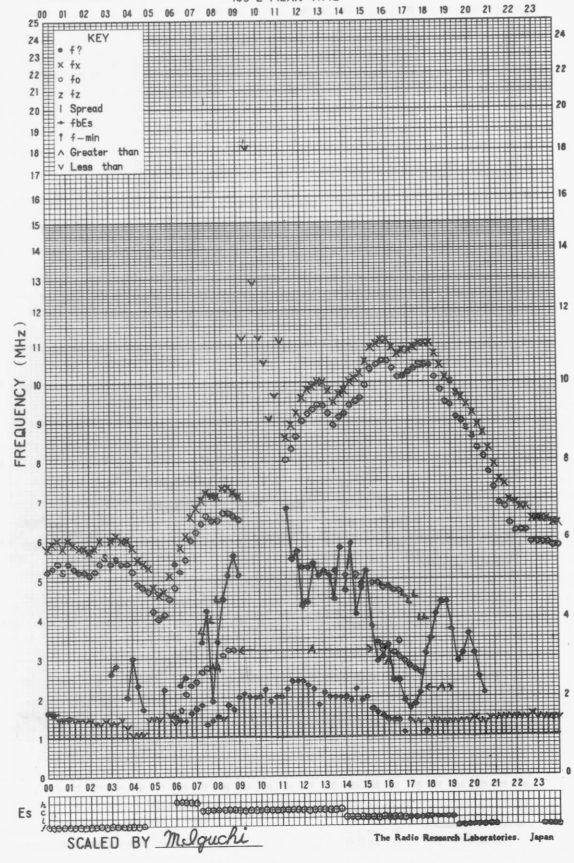
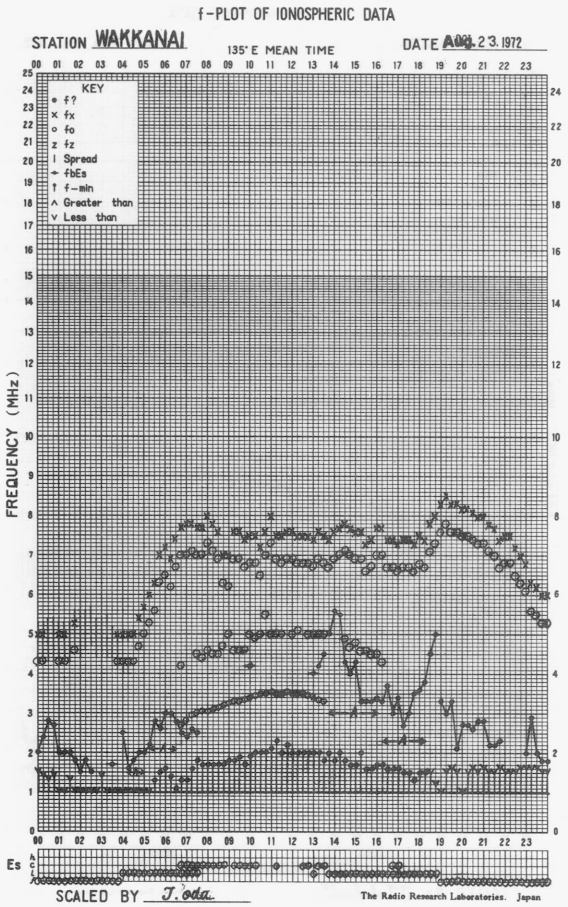


SCALED BY M. Iguchi

The Radio Research Laboratories. Japan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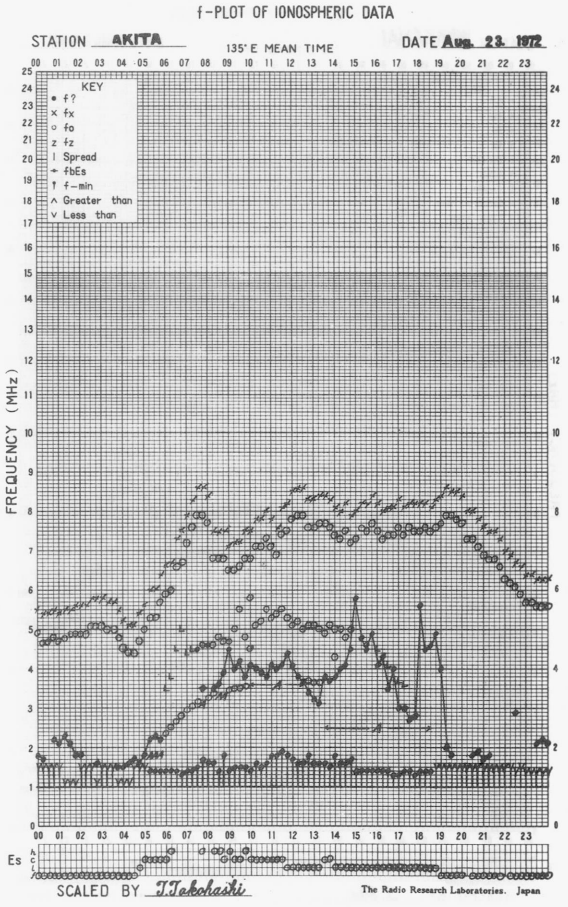
SCALED BY T. Oda.
The Radio Research Laboratories. Japan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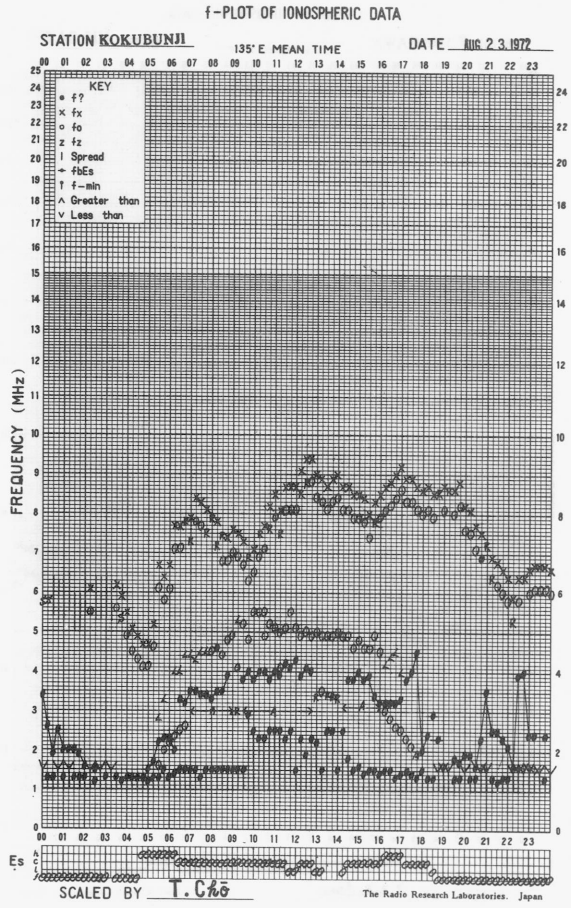
The Radio Research Laboratories. Japan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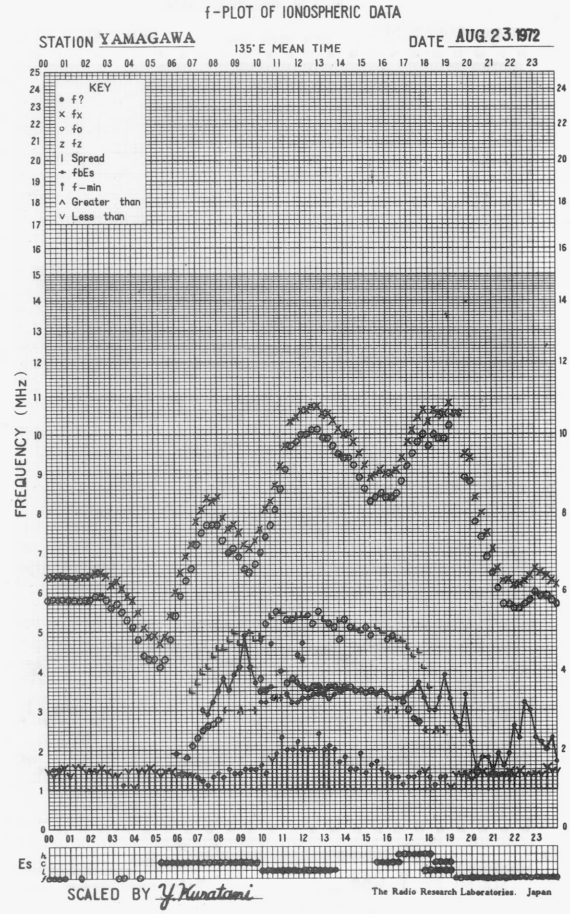
The Radio Research Laboratories. Japan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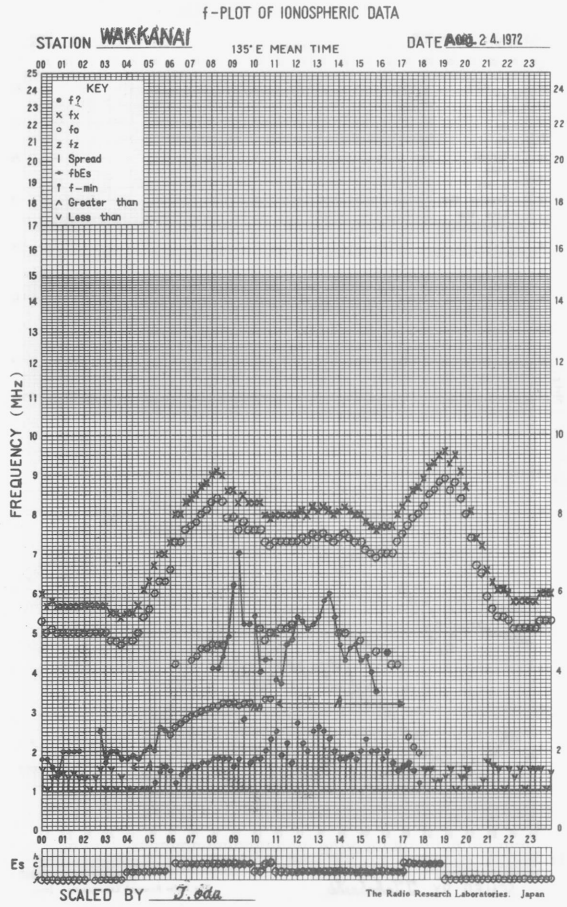
The Radio Research Laboratories. Japan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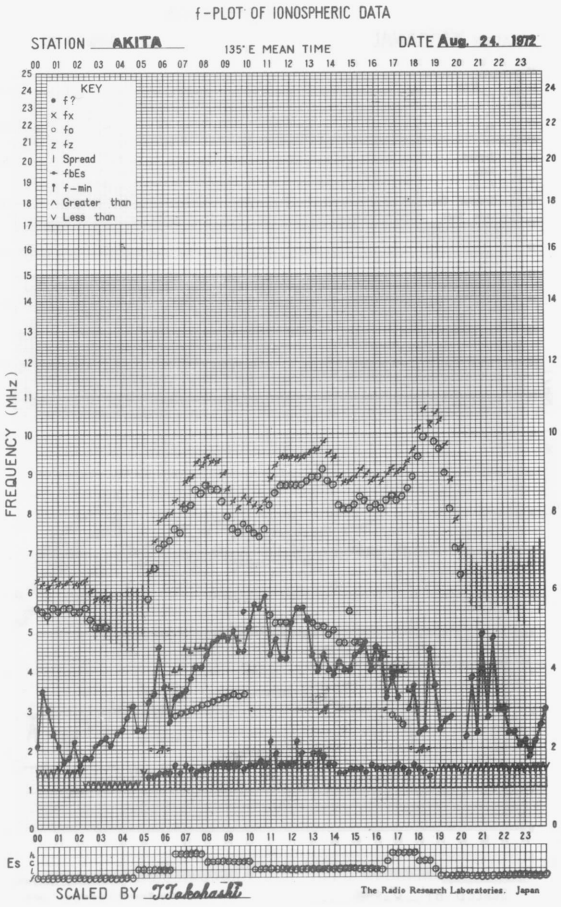
The Radio Research Laboratories. Japan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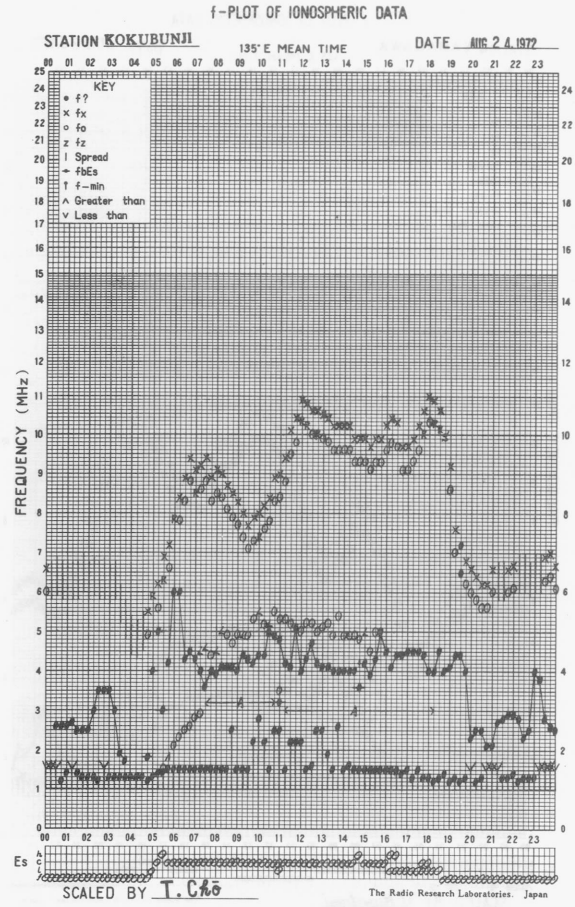
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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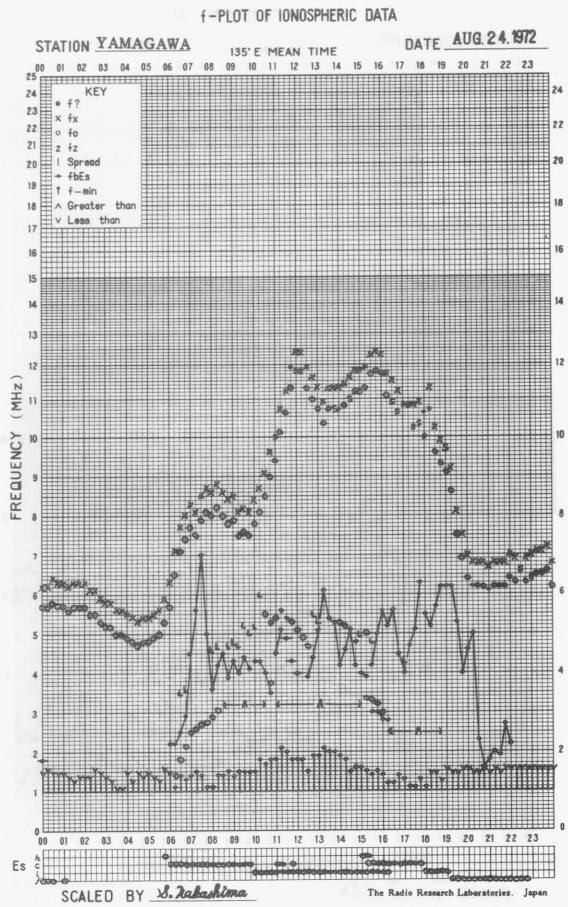
The Radio Research Laboratories. Japan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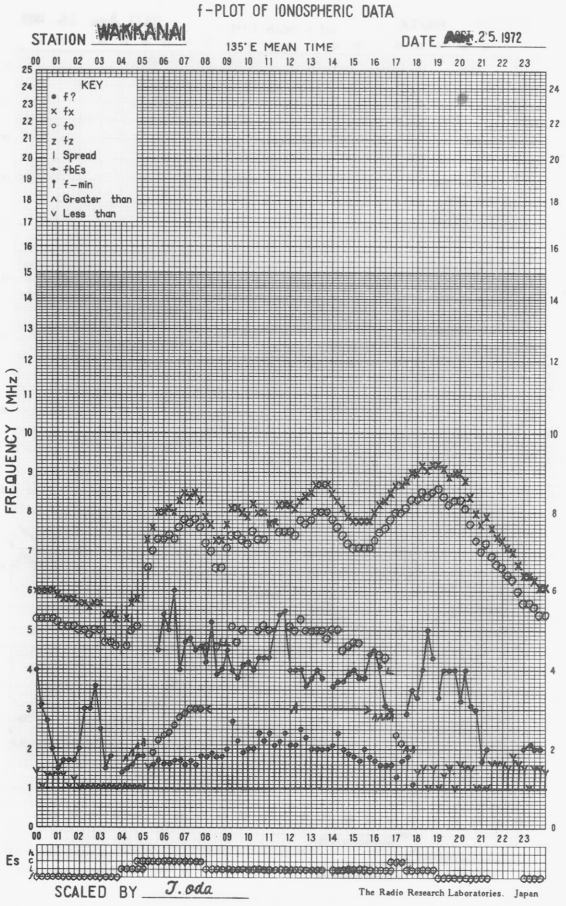
The Radio Research Laboratories. Japan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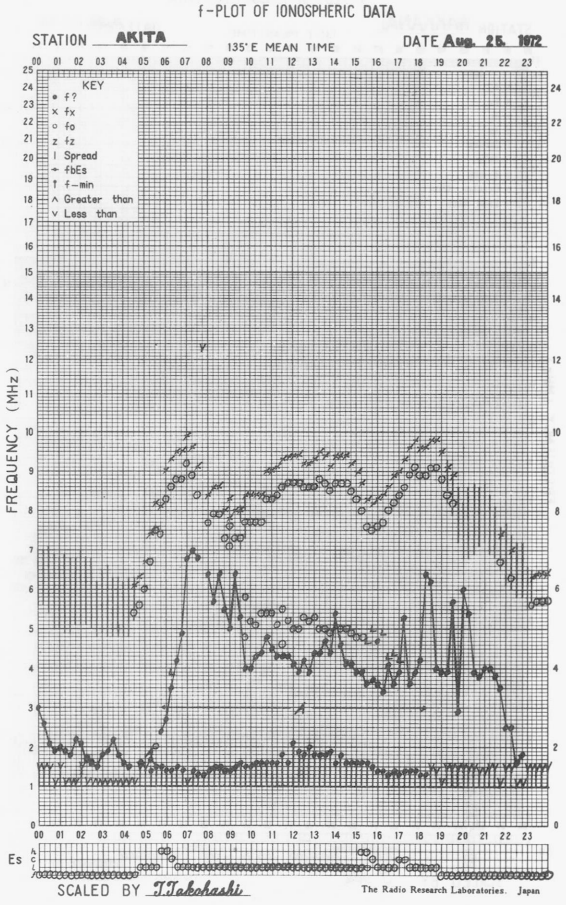
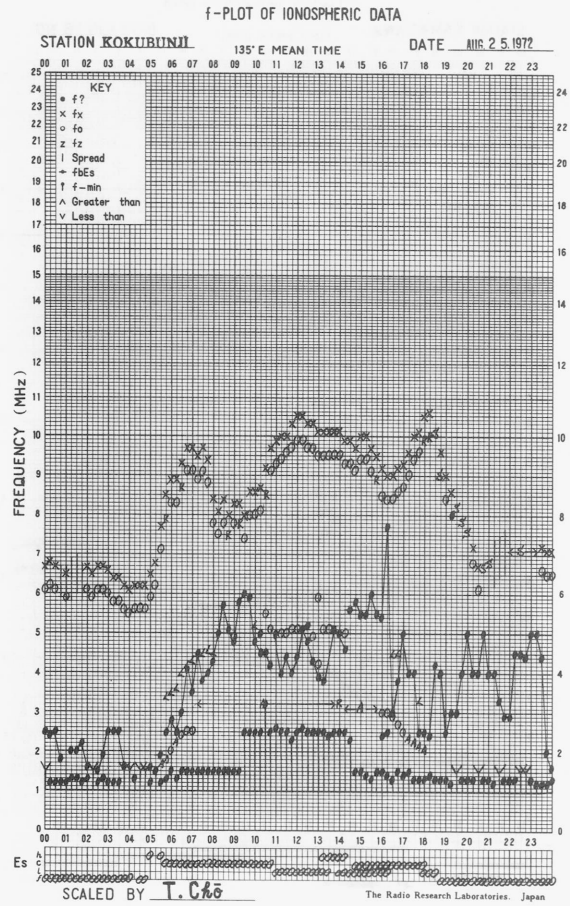
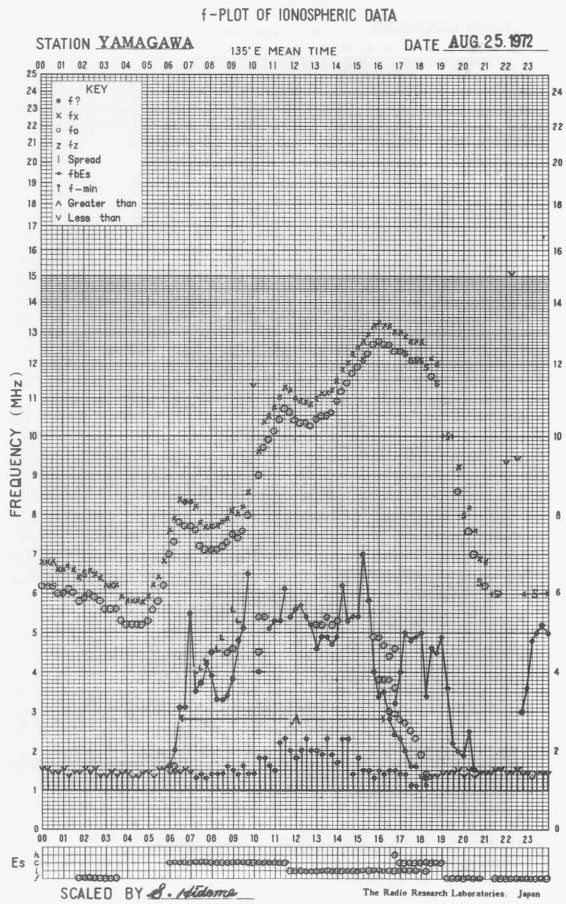
SCALED BY J. oda
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Aug. 25. 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 AUG 25 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 AUG. 25. 1972
KEY
● f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Hidema
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE Aug. 26. 1972

KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ 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 Aug. 26. 1972

KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ 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 AUG. 26. 1972

KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ Less than

FREQUENCY (MHz)

Es

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG 26 1972

KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ Less than

FREQUENCY (MHz)

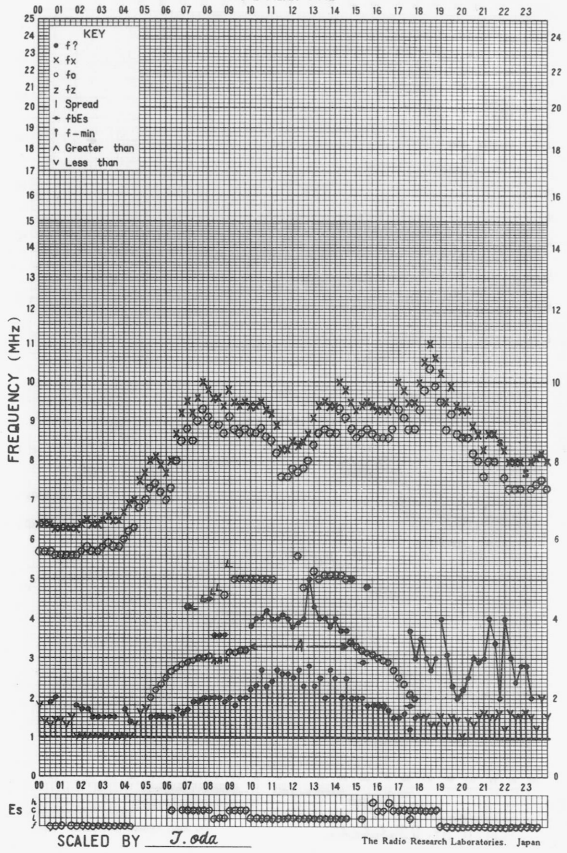
Es

SCALED BY S. Hidema

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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



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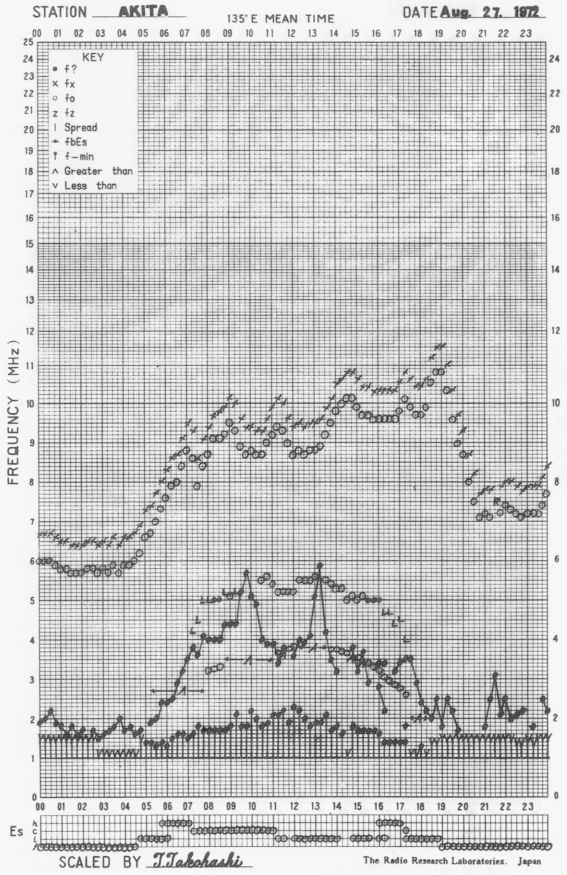
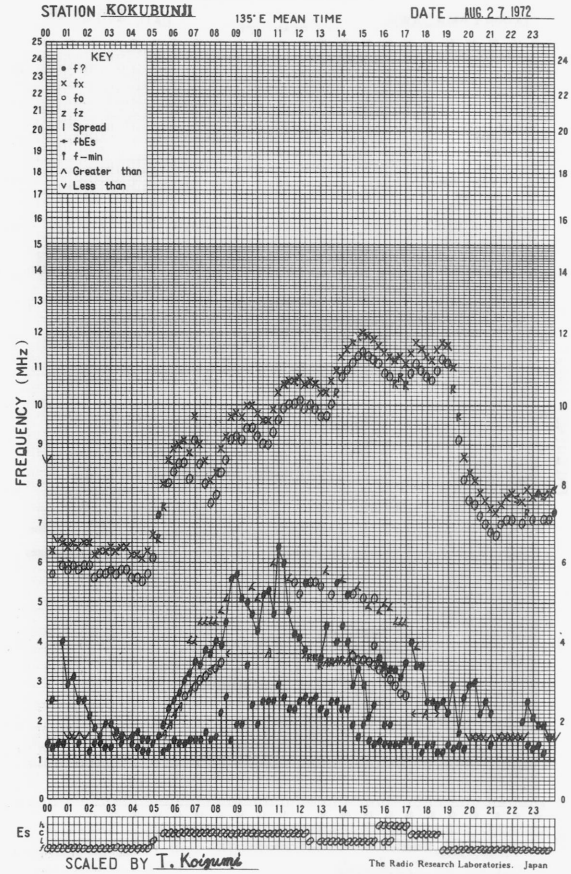


f-PLOT OF IONOSPHERIC DATA

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



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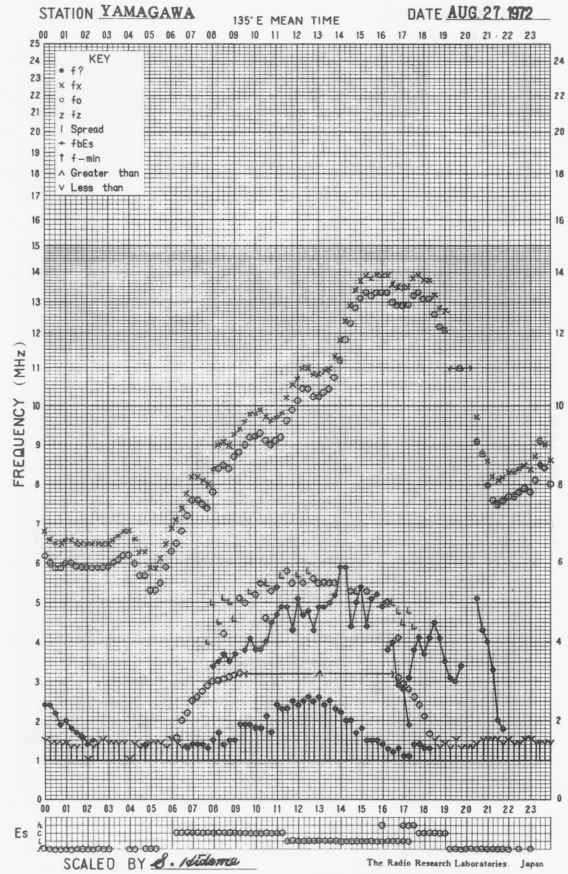
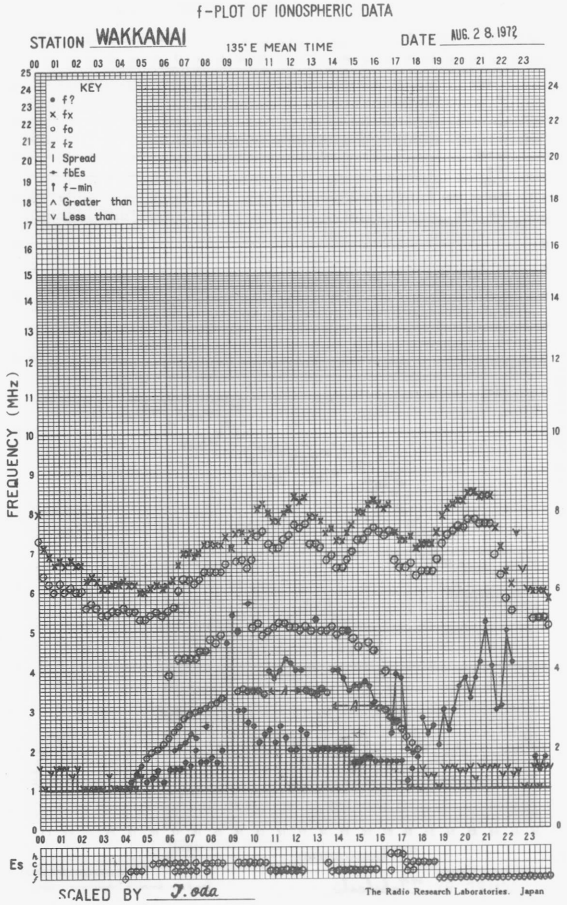
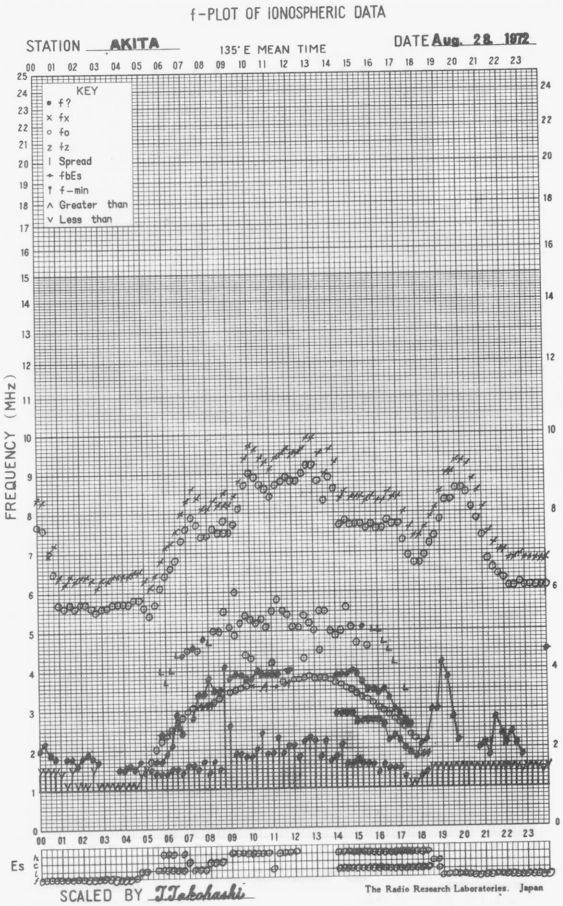
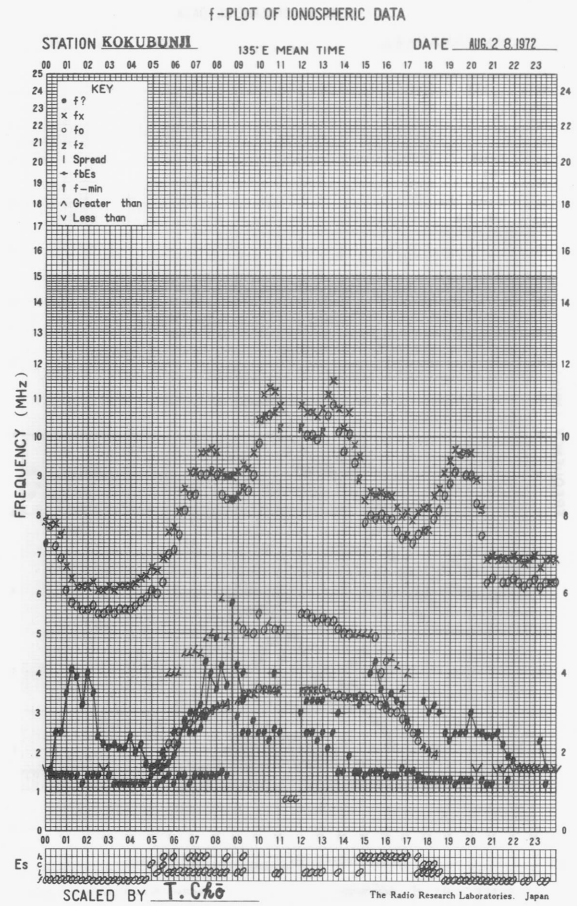
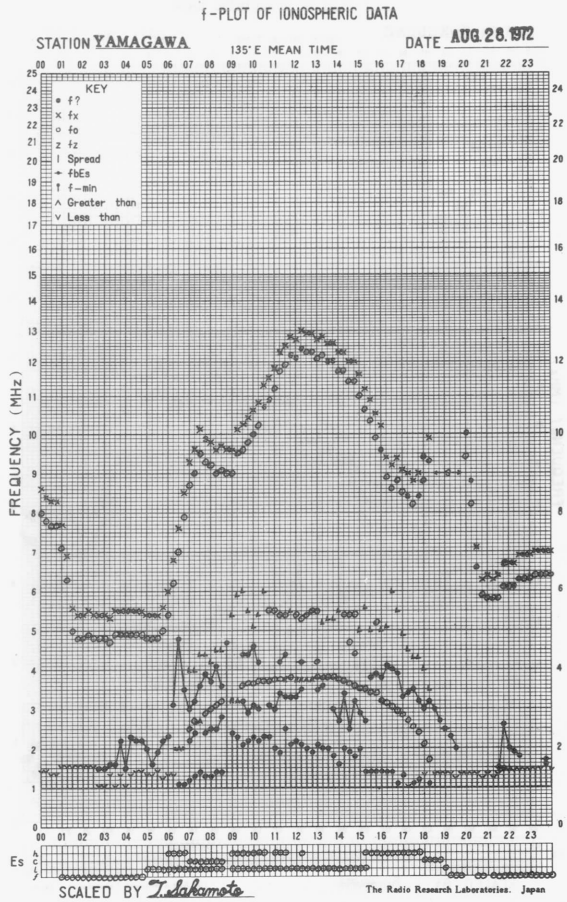
STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 27. 1972




f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE AUG. 2 8. 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

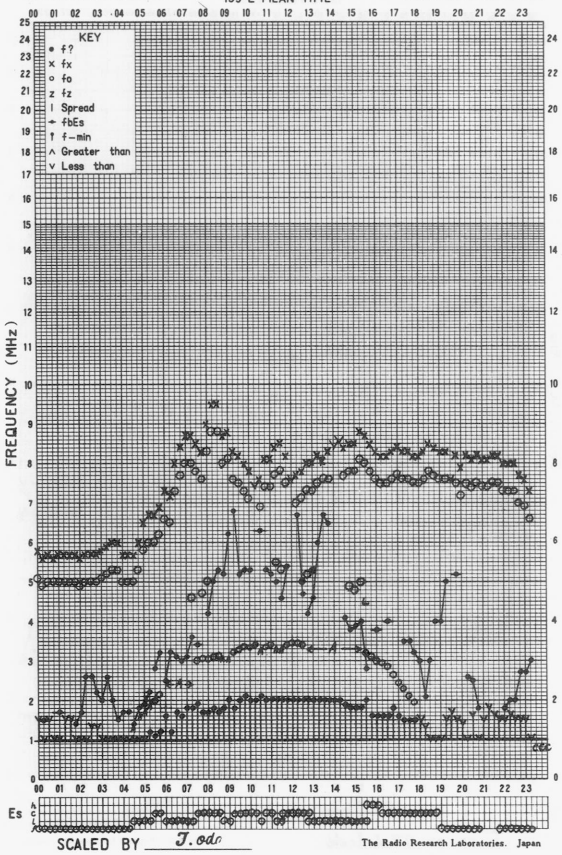

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Aug. 28. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE AUG. 2 8. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE AUG. 28. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Sakamoto
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE AUG. 2 9. 1972

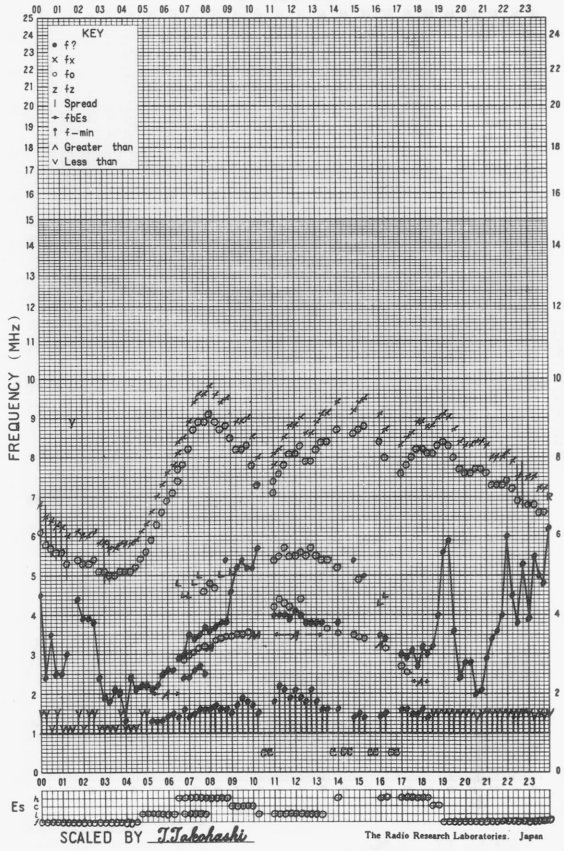


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

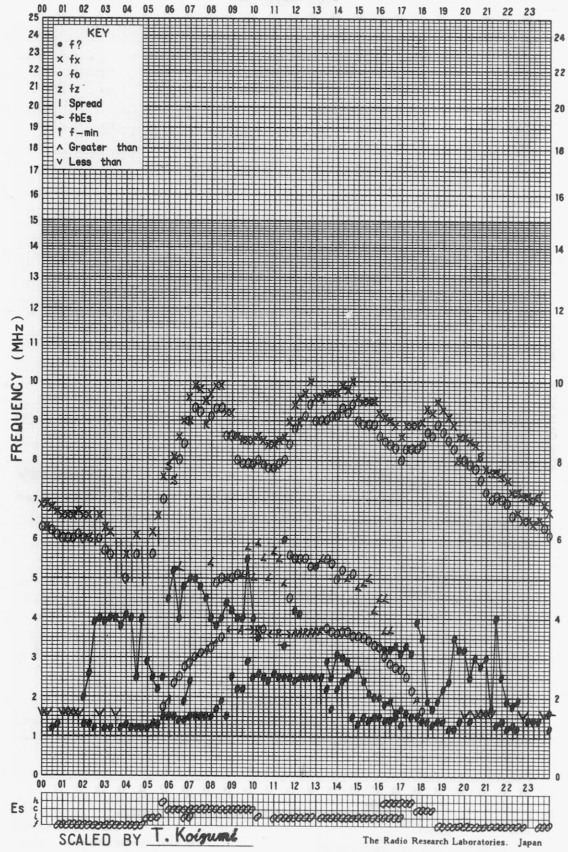


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE AUG. 2 9. 1972

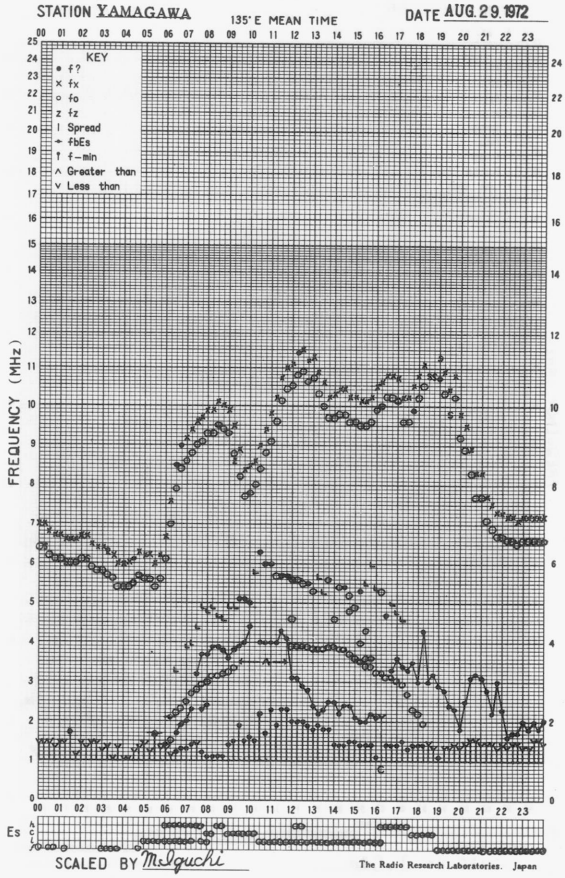


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

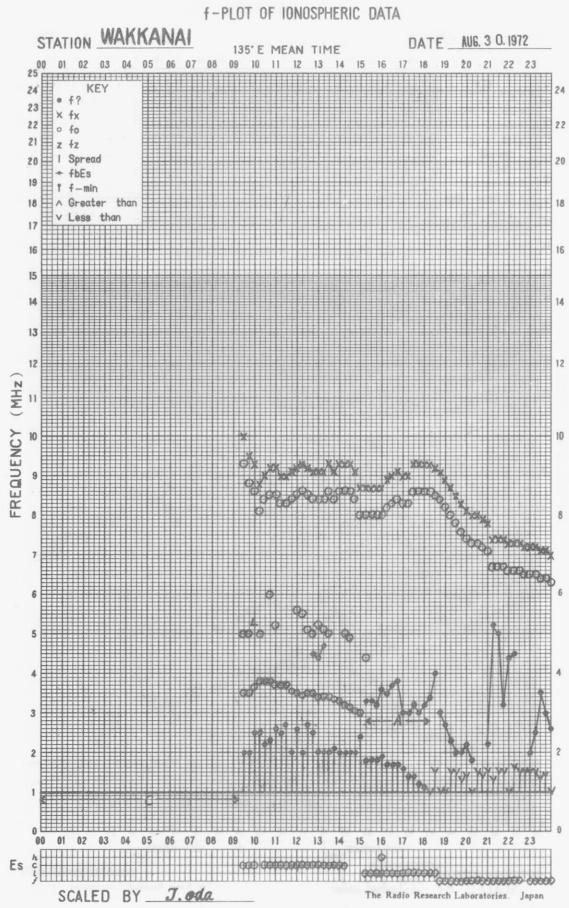
f-PLOT OF IONOSPHERIC DATA

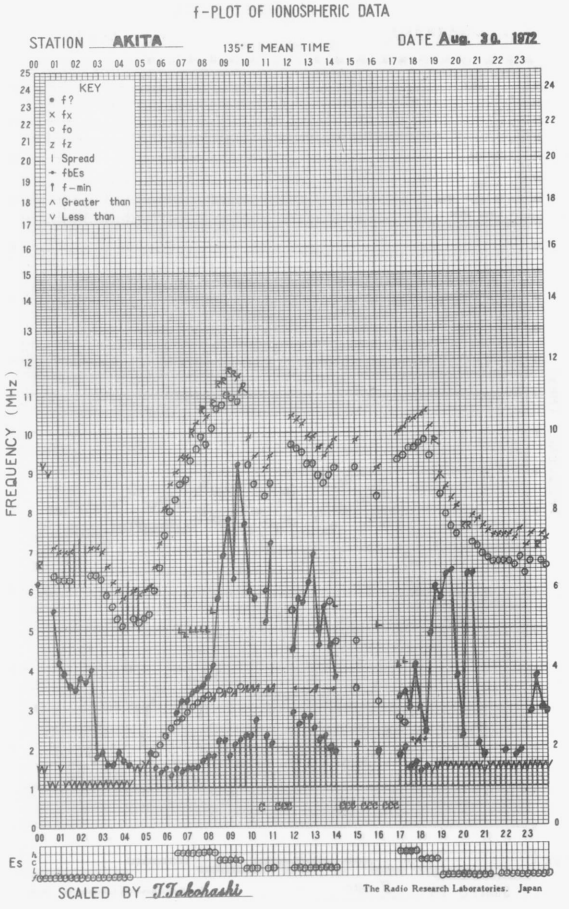
STATION YAMAGAWA 135° E MEAN TIME DATE AUG. 29. 1972

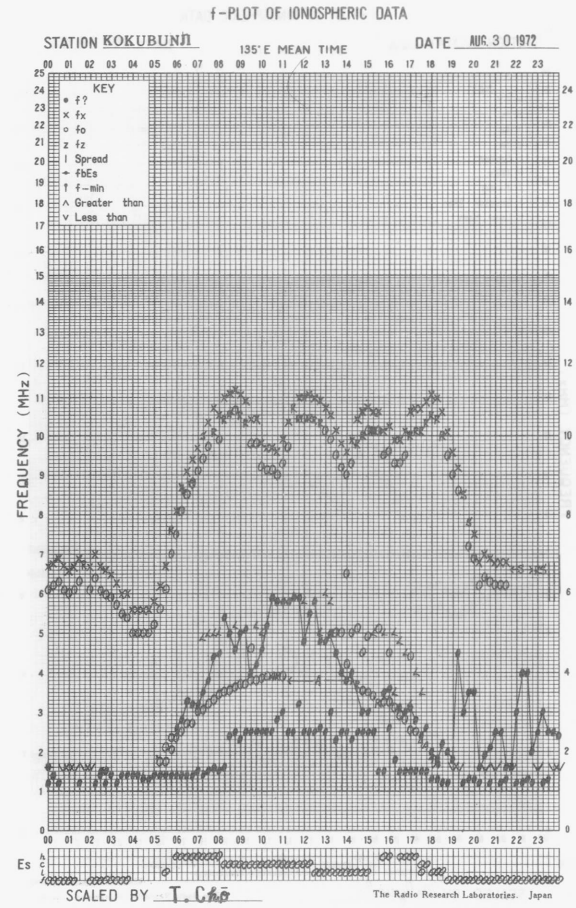


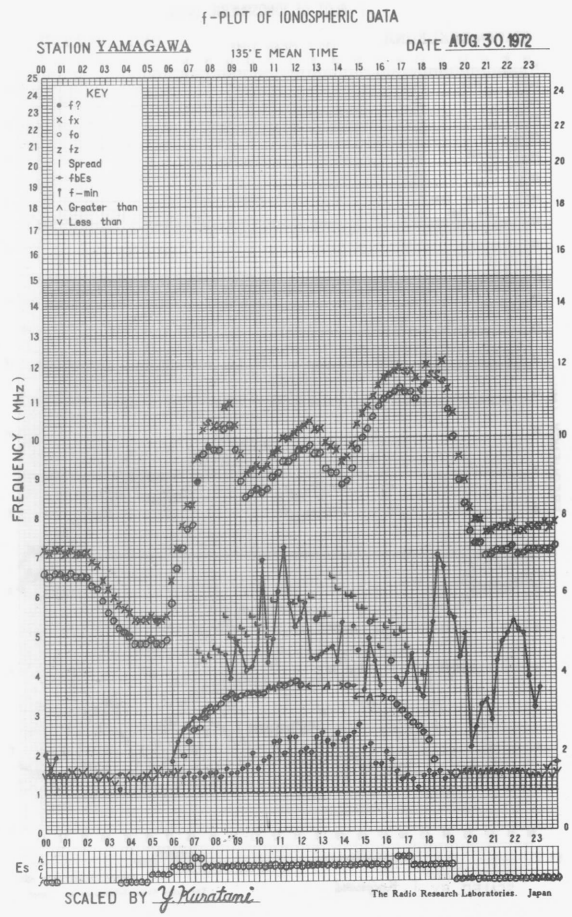
SCALED BY M. Iguchi

The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE AUG. 3 0. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

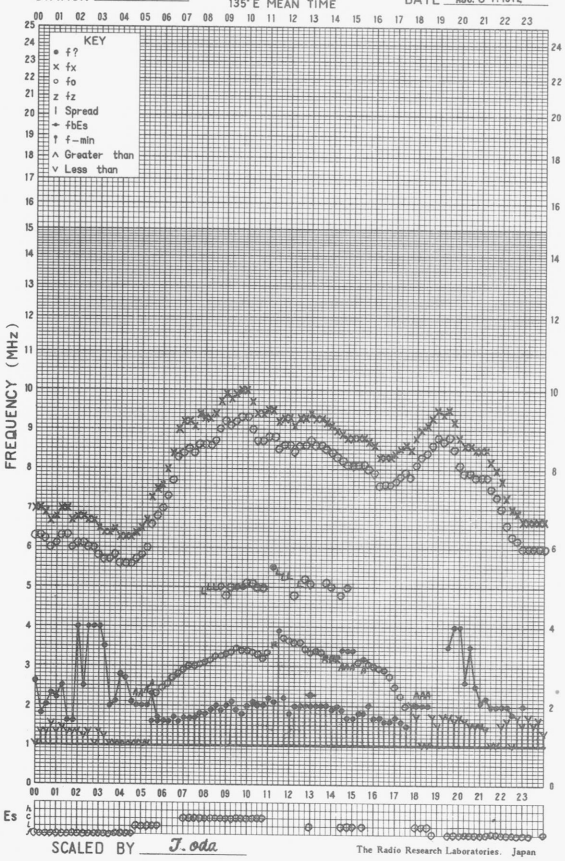

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Aug. 30. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE AUG. 3 0. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE AUG. 30. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ 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 AUG. 3 1. 1972

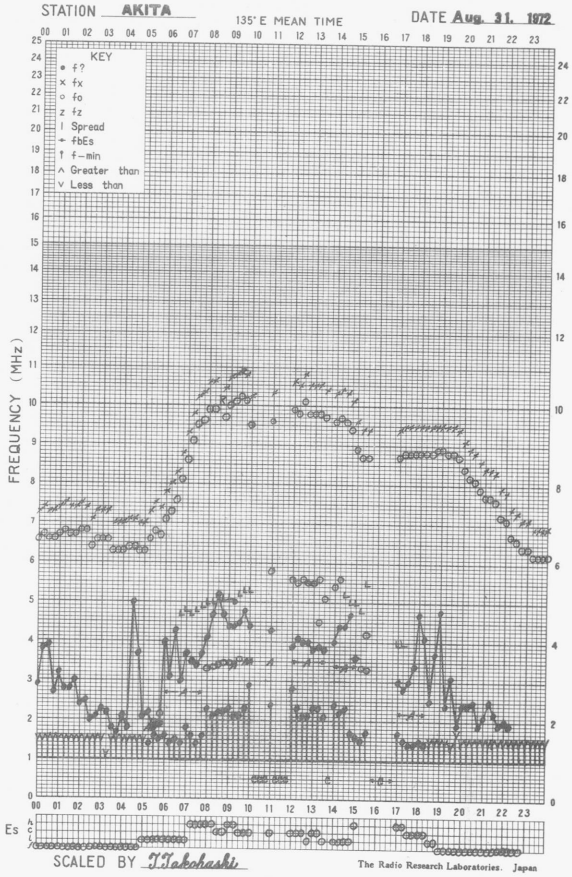


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 31. 1972

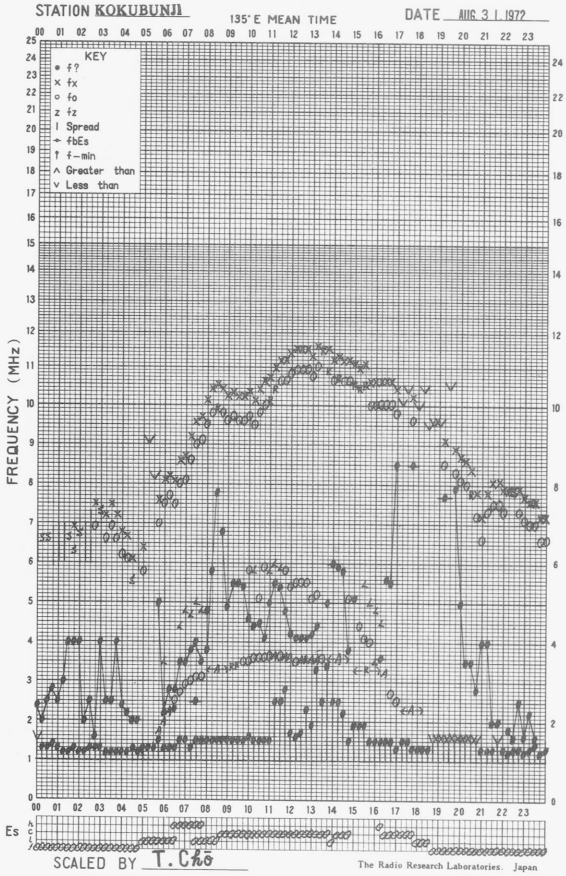


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 3 1. 1972

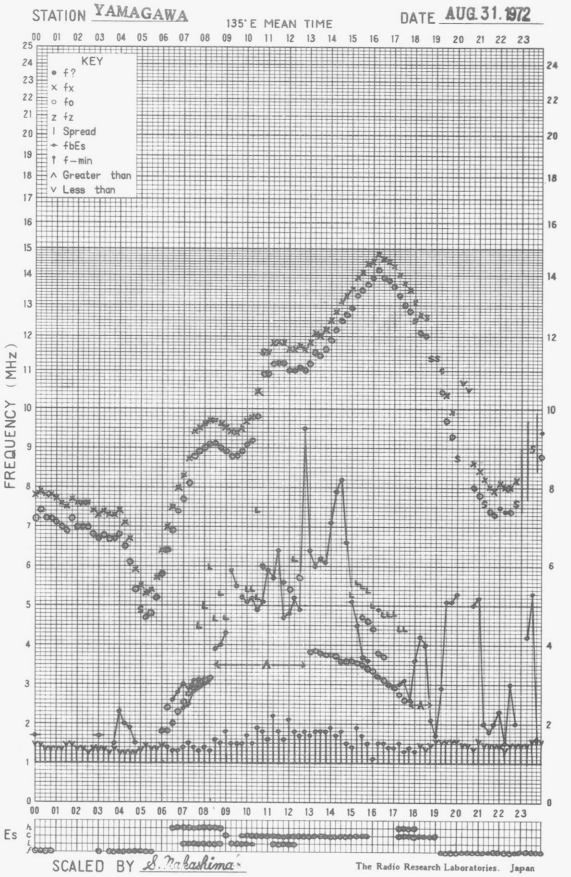


SCALED BY T. Cho

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 31. 1972



SCALED BY S. Mashima

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: August 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	5	6	7	6	0	0	0	0	0
2	9	10	10	12	9	1	1	0	1	0
3	12	16	13	39	13	1	1	1	0	1
4	42	50	35	30	41	0	0	1	0	0
5	39	28	19	12	29	0	0	0	0	0
6	16	18	17	16	16	0	0	0	0	0
7	-	-	-	-	(16)	-	-	-	-	(0)
8	6	7	6	7	7	0	0	0	0	0
9	6	6	8	7	7	0	1	0	0	0
10	8	7	8	7	7	0	0	0	0	0
11	8	7	8	8	7	1	0	0	0	0
12	11	16	23	13	14	1	1	1	0	1
13	8	13	18	13	13	0	0	0	0	0
14	8	8	10	7	10	0	0	0	0	0
15	8	7	9	8	8	0	0	0	0	0
16	8	9	7	6	8	0	0	0	0	0
17	7	6	5	6	6	0	0	0	0	0
18	6	6	6	6	6	0	0	0	0	0
19	5	5	5	5	5	0	0	0	0	0
20	5	5	q	-	5	0	*	*	-	0
21	q	6	6	5	6	0	0	0	0	0
22	6	6	q	q	6	0	0	0	0	0
23	5	5	5	5	5	0	0	*	0	0
24	5	6	6	6	6	0	0	*	0	0
25	6	6	6	5	6	0	0	0	0	0
26	7	6	6	7	6	0	0	0	0	0
27	6	6	7	7	6	0	0	0	0	0
28	6	6	6	6	6	0	0	0	0	0
29	6	8	8	6	7	1	1	0	0	0
30	6	6	6	5	6	0	0	0	0	0
31	5	5	6	6	5	0	0	0	0	0

Note No observations during the following periods:

7th 0015- 2400
20th 1950- 2400

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: August 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	25	24	24	28	25
2	33	34	32	36	32
3	36	39	32	29	36
4	30	29	31	28	30
5	26	27	26	q	27
6	q	q	q	-	q
7	-	-	-	-	-
8	30	29	28	27	29
9	25	25	27	25	26
10	26	27	25	27	26
11	28	26	26	27	27
12	30	27	29	26	28
13	27	28	29	25	27
14	25	25	23	24	25
15	24	24	24	q	24
16	24	25	23	24	24
17	24	24	24	25	24
18	25	24	24	25	25
19	25	26	26	26	26
20	27	28	26	-	27
21	25	25	24	27	25
22	27	25	24	25	26
23	26	24	25	26	25
24	27	28	28	28	27
25	27	26	25	28	26
26	29	28	25	28	28
27	27	26	27	28	27
28	26	26	26	27	27
29	28	30	29	30	28
30	32	31	27	26	30
31	28	28	27	27	27

Note No observations during the following periods:

6th 1950- 8th 0040
20th 0850- 21st 0040

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: August 1972
Observing station: Hiraiso
Normal observing period: 1950 - 0930 (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	
1	100	0426.4	0428.0	16.0	C	120	20	P: 1
	200	0426.5	0432.5	10.0	C	220	15	
	100	0836.5	0839.8	7.0	C	220	130	P: 1
	200	0838.0	0839.8	4.0	C	750	100	
	100	2117.5	2119.4	9.0	C	230	60	P: 1
	200	2118.5	2119.2	2.0	C	140	50	
2	200	0215.0	0339.5	210	C	270	40	
	100	0242.5	0245.7	5.5	C	130	60	P: 1
		0250	0403	170	C	180	80	P: r
	500	0312.5		128	C		230	
			0319.5			380		1st peak
			0325.3			600		2nd peak
			0329.3			800		3rd peak
			0333.8			700		4th peak
	100	<1950	2142	>600		210	120	P: r, enhance
	200	2012.0		560	C		150	
			2039.5			1590		1st peak
			2124.2			2100		2nd peak
			2146.0			3600		3rd peak
	500	2025.0		282	C		1600	
			2108.5			4800		1st peak
			2140.0			8900		2nd peak
		2330.0	2335.6	11.0	C	510	80	
3	500	0158.0		50	C		80	
			0205.2			510		1st peak
			0228.8			110		2nd peak
		0401.2	0413.7	20	RF	30	1	
	100	<1950	0630	>870		220	120	P: R, enhance
	500	2241.0		2.5	C		10	
			2241.0			170		1st peak
			2242.6			75		2nd peak
4	100	0317.8	0318.2	1.5	C	220	160	P: r
	500	0620.5	0643.5	>190	C	10000	1700	sunset
	200	0624.0	-	>186	C	>14000	>2000	sunset
	100	<1950	0233	>750		120	60	P: R, enhance
5	500	0232.0		7.5	C		20	
			0233.0			120		1st peak
			0239.3			290		2nd peak
	100	<1950	0759	>750	Ns	60	20	P: R
6	100	0920	(0922.5)	6.0	C	(90)	(40)	P: r, * 0922.5-24
9	200	0308	0440	218	RF	35	10	
	100	0812	0859	>83	RF	100	30	P: r, sunset
10	200	2336.0	2352.0	114	RF	20	3	
	100	2347	0027	193	RF	40	10	P: r
12	100	0313.0	0313.3	1.0	C	30	15	P: 1
		0520	0532	110	RF	15	5	P: 1

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}Hz^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
12	100	0826	0857.7	>59	Ns	90	20	P: l, sunset
		2044	2130	70	RF	10	7	P: r
		2206	2319	130	RF	15	8	P: l
13	100	0508	0550	>247	Ns	75	15	P: l, sunset
		<1950	0017	≥450	Ns	30	15	P: l, sunrise
17	100	0132	0150	145	RF	35	10	P: 0
18	200	2249.5	2250.5	3.0	C	90	30	
20	100	0059	(0102.5)	7.0	C	(35)	(20)	P: l, * 0100-01
		0539.5	0540.3	1.0	C	120	40	P: r
21	100	2328.0	2328.4	1.0	C	75	40	P: r
22	100	0006.5	0006.8	1.5	C	130	40	P: r
		2250.3	2251.5	2.0	C	250	100	P: r
23	100	0632.5	0634.2	2.2	C	130	30	P: r
		0657.9	0658.3	2.0	C	250	100	P: r
	200	0658.0	0658.2	0.8	C	130	40	
	100	0814.5	0819	>45.5	Ns	160	20	P: R, sunset
		(2230.5)	2232.7	>4.5	C	200	110	P: r, * 2229-31
24	100	0344.5	0351.7	14.5	C	180	60	P: r
	200	0345.0	0351.5	11.0	C	110	25	
	100	(0500)	0501.4	4.0	C	80	40	P: r, * 0500-01
25	200	2342.0	2343.5	3.0	C	40	20	
26	100	0339	0405	65	RF	15	5	P: r
	500	0339.5	0343.7	8.0	C	20	3	
	100	0339.7	0341.5	5.5	C	180	45	P: r
	200	0340.0	0341.2	5.0	C	460	60	
	100	2258.0	(2301)	12.0	C	(90)	(15)	P: l, * 2300-01
	200	2302.2	2302.8	1.0	C	280	90	
27	100	0609.5	0610.6	2.0	C	120	15	P: l
	500	2333.5	2333.6	4.0	C	10	5	
	100	2334.0	2337.4	16.5	C	200	25	P: l
28	200	0247.0	0248.0	2.0	C	100	25	
	100	0247.5	0248.4	2.0	C	150	30	P: l
		0644.5	0648.0	9.5	C	230	30	P: l
	200	0646.8	0647.5	2.0	C	180	30	
	100	0656	0710	48	RF	20	5	P: L
		2030.5	2032.0	4.5	C	230	50	P: l
	200	2031.0	2031.5	1.5	C	1070	200	
	500	2031.0	2032.0	1.5	C	60	5	
29	200	0122.2	0122.8	0.8	C	160	50	
	100	0240.0	0241.6	3.0	C	220	100	P: l
	200	0240.0	0241.8	2.7	C	300	60	
	500	0241.3	0242.0	1.0	C	85	30	
	100	0601.3	0601.5	1.5	C	240	60	P: l
		0814.0	0816.3	6.0	C	180	60	P: r
		2116.0	2116.5	1.6	C	140	30	P: r
	200	2116.2	2116.6	1.0	C	120	40	
	500	2225.0	2228.8	11.0	C	40	10	

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}Hz^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
30	100	0657.5	(0658.3)	$\geq$2.5	C	(100)	(40)	P: 1, * 0700-01
	200	2012.5	2013.0	3.5	C	1200	130	
	100	2013.0	2013.5	2.5	C	230	50	P: 1
	200	2017.5	2018.0	4.0	C	1100	100	
	100	2018.0	2018.7	3.0	C	230	60	P: 1
		2042.5	2044.4	5.0	C	180	30	P: 1

P: means polarization degree.

*: interrupted by calibration.

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

AUG 1972 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 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	-3	-2	-3	5	9	24	17	23	16	17	-4	-3	ES -1	16	21	ES 10	7	9	-2	-2	-2	3	0	-3
2	-8	-7	-9	ES -20	ES -20	-18	-6	-8	-4	ES -2	ES -9	ES -8	ES -7	ES -2	19	ES 7	12	-3	-8	-1	ES -11	ES -20	ES -17	ES -17
3	ES -12	-9	-9	-6	2	4	13	16	3	ES 4	ES -8	3	2	9	11	12	4	5	0	1	-9	-2	-8	-7
4	7	-1	-2	3	ES -2	ES -6	ES -9	ES -19	-14	ES -8	ES -19	ES -14	ES -7	ES -2	ES -7	-7	ES -11	ES -8	ES -22	ES -20	ES -19	ES -19	ES -28	ES -28
5	ES -19	ES -24	ES -18	ES -16	ES -19	ES -8	ES -16	ES -24	ES -13	ES -9	ES -19	ES -22	ES -19	ES -28	ES -28	ES -28	ES -28	ES -20	ES -19	ES -10	ES -19	ES -24	ES -17	ES -22
6	ES -19	-3	ES -15	ES -19	ES -15	ES -15	ES -7	ES -4	ES 2	ES 4	ES -8	ES -5	ES -6	ES -7	ES -3	ES 0	ES -16	ES -19	ES -19	ES -13	ES -16	ES -19	ES -22	6
7	-5	-20	-17	ES -20	ES -19	ES -16	ES -3	ES -13	ES -11	ES -2	ES -9	ES -13	ES -11	0	ES 10	ES -4	ES -15	ES -15	ES -16	-11	-7	-11	-5	-11
8	ES -19	ES -24	-16	ES 4	0	-2	3	ES -2	ES 3	ES 1	ES 10	ES 8	ES 13	ES 17	ES 17	ES 27	3	8	-3	-6	-5	-15	-13	-10
9	-7	-7	-7	2	12	3	ES -1	ES 0	ES -1	8	ES -6	ES -3	ES -2	ES -7	ES 12	ES 15	-17	-19	ES -28	ES -28	ES -18	ES -19	ES -28	ES -17
10	ES -19	ES -11	ES -20	ES -1	ES -15	ES -7	ES -7	ES -7	ES -9	ES -2	ES -2	ES -7	ES -8	ES -8	ES -12	ES 10	-11	ES -24	ES -24	ES -20	ES -19	ES -24	ES -14	-3
11	-19	-7	-3	ES 4	ES -5	ES -8	ES -4	ES -6	2	ES 4	ES 0	ES 1	ES 12	ES 13	ES 20	ES 22	4	-1	-13	-5	-3	-5	-2	-7
12	-11	-10	-7	ES -5	-1	ES -7	ES -3	ES -3	5	6	-2	ES -3	ES -2	ES 0	7	ES 1	2	-6	-11	-11	6	-14	-1	-7
13	-6	-10	-13	-10	4	6	3	8	13	1	-5	ES -3	ES -2	11	12	ES 6	9	-7	-20	-7	-10	-3	-10	-8
14	-5	-3	-1	-6	2	3	9	4	11	8	ES 7	ES 11	ES 18	ES 18	ES 20	ES 17	9	3	-8	-15	-2	-5	-4	-7
15	-5	-7	-2	ES -3	ES 8	6	ES -8	ES -5	ES 1	ES -2	-8	ES 0	ES -2	ES 8	9	-2	-13	-4	ES -24	ES -16	-8	-10	-8	-8
16	C	-7	-10	-10	6	4	3	10	12	14	8	-1	-6	ES -4	ES -1	ES -2	-10	-7	-24	2	-2	-8	-3	-8
17	-13	-2	-2	-1	-1	7	8	0	12	ES -14	ES -8	ES -6	ES -6	ES 3	3	ES 5	-8	-3	-2	-19	3	-7	-8	-5
18	-2	-5	-3	2	7	12	8	7	13	8	ES 3	ES 4	ES 7	ES 17	ES 16	ES 15	-4	-8	-6	-8	-14	-1	3	3
19	-3	-15	-7	-7	-4	3	-3	ES -3	ES -6	ES -7	ES -6	ES -4	ES 4	ES 1	ES 8	ES 12	ES -14	ES -29	ES -28	ES -29	-16	ES -21	ES -20	-15
20	ES -22	ES -24	-13	ES -7	0	0	5	9	3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	ES -17	ES -15	-12	0	10	7	ES -8	ES -4	ES -3	C	C	ES 0	ES 6	ES 9	ES 18	ES 16	-3	-5	-19	-4	-3	6	1	-1
22	0	-8	-14	-1	7	9	ES -7	ES -7	ES -3	ES -3	ES -6	ES 1	ES 3	ES 5	ES 5	ES 11	-8	-4	-3	1	0	-7	-6	0
23	-4	-1	0	ES -3	9	5	4	2	ES -2	ES -1	ES -1	ES 9	ES 5	ES 19	ES 18	ES 9	4	0	0	-21	1	-5	-8	-12
24	-10	-2	4	5	6	10	12	0	ES -4	ES 1	ES 2	ES 2	ES 4	ES 11	ES 11	ES 12	-4	5	-16	-4	2	1	-4	-6
25	-10	5	4	5	7	14	12	ES -3	ES -4	ES 0	ES 3	ES 2	ES 7	23	ES 3	ES 7	7	3	-11	-11	-2	-5	-10	-7
26	-5	-7	6	2	11	7	18	-3	1	12	2	0	ES -3	6	12	ES 7	-10	-2	-7	1	3	-6	-10	-9
27	-6	-5	0	3	17	9	-4	ES 0	ES 0	ES 0	ES 5	ES 0	ES -6	ES 4	ES 8	ES 10	-2	-8	-2	-6	ES -19	4	-2	-1
28	-22	-1	0	0	-4	ES -13	-13	-1	ES -4	ES -2	ES -7	ES 3	ES 1	ES 6	-11	ES 12	3	3	-6	-12	3	-3	-1	-1
29	-4	-9	-4	-3	4	-2	-3	ES -6	-5	ES 1	ES 2	7	4	ES 10	ES 9	ES 18	2	13	2	-6	-1	1	2	-11
30	-8	-4	-5	2	4	6	-1	1	-4	ES 3	ES -3	ES 1	ES 6	ES 2	ES 4	ES 13	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
CNT	29	30	30	30	30	30	30	30	30	28	28	29	29	29	29	29	28	28	28	28	28	28	28	28
MED	-8	-7	-6	ES -1	US 3	4	US -2	ES -2	ES 0	ES 1	ES -4	ES 0	ES 2	ES 7	ES 10	ES 10	-4	-4	-11	US -9	-4	-6	-8	-7
UD	-2	-1	4	5	11	12	13	10	13	12	ES 7	ES 8	ES 12	ES 18	ES 20	ES 18	9	8	0	1	3	3	1	0
LD	ES -19	ES -24	ES -16	ES -19	ES -19	ES -15	ES -9	ES -13	ES -11	ES -8	ES -9	ES -13	ES -7	ES -4	ES -7	ES -4	ES -16	ES -20	ES -24	ES -21	ES -19	ES -21	ES -22	ES -17

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

AUG 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	-2	-7	4	7	8	16	18	16	8	7	17	22	22	18	12	0	13	20	2	2	3	-5	0	0
2	-1	2	2	ES -20	ES -20	-9	-4	18	16	19	6	7	16	9	10	-1	2	5	-20	5	ES -12	ES -18	-16	-3
3	-6	-6	-2	1	7	9	20	19	16	18	15	16	11	13	17	-5	13	-1	-4	0	-9	7	-3	-2
4	8	-1	2	8	11	12	ES -10	13	15	-2	8	11	15	16	17	12	9	1	-13	-8	4	-1	-7	ES -16
5	ES -28	-4	-14	-13	ES -16	4	-2	ES -13	13	5	ES -14	ES -15	ES -14	-17	ES -19	ES -20	ES -20	ES -20	-7	2	-6	-10	2	-8
6	-3	-5	3	0	10	15	17	16	17	24	21	23	11	-5	-7	-10	2	12	-6	-6	10	8	-10	-6
7	-15	-8	-11	-10	-8	4	9	22	9	-2	-6	2	ES -11	-4	ES -2	ES -14	ES -16	-11	ES -16	-4	-8	3	-14	-3
8	-7	-5	-3	2	6	6	12	16	17	22	9	18	13	13	11	8	8	3	2	3	9	-5	3	-8
9	-2	-3	4	6	10	12	18	21	19	25	18	20	ES 3	20	ES 14	-10	-2	-14	-8	0	-6	1	-6	-3
10	-11	-8	-5	-8	2	10	17	21	21	16	16	3	ES -1	ES 2	ES 2	ES -13	ES -28	ES -20	ES -24	-3	7	4	3	-3
11	-7	-1	3	6	8	14	16	15	9	13	17	8	13	4	ES 6	-2	-8	ES -28	-15	5	6	7	-1	-1
12	-7	-3	0	3	4	18	18	16	15	8	7	8	1	3	ES -7	-8	3	-6	-1	3	-1	2	1	-6
13	-1	-6	-2	3	10	14	17	14	10	15	20	8	17	4	ES 3	-10	13	10	-2	4	7	5	-2	-3
14	-3	-3	5	5	9	15	17	19	18	16	8	16	20	ES 8	ES 17	8	0	2	-2	9	12	8	0	2
15	3	C	3	6	9	12	21	21	24	21	22	18	13	7	ES 2	ES -24	ES -27	9	13	10	7	1	3	-3
16	C	5	4	6	14	17	23	23	20	9	11	18	6	ES -1	ES -2	ES -16	ES -15	-14	3	9	9	2	2	2
17	-2	2	1	6	9	14	19	8	6	3	6	-1	-1	-1	2	-16	ES -19	-7	ES -24	1	3	4	7	0
18	-5	-8	0	4	7	18	18	13	10	12	4	12	1	ES 8	ES 4	-6	-11	-8	-6	-1	10	-2	2	-7
19	-4	-8	-3	3	9	15	17	15	11	2	-1	3	ES -4	ES 1	ES 6	-9	ES -29	ES -20	ES -17	5	3	-6	-4	-11
20	-8	-7	-8	2	9	14	18	12	ES 10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	ES -12	-5	-2	3	15	12	7	-1	9	C	-3	ES -1	ES 0	14	11	-3	-4	5	-12	9	9	11	5	1
22	-3	0	-3	4	3	12	14	13	14	13	2	7	13	ES 1	ES 2	-15	-8	7	-5	2	2	5	-3	-4
23	-2	-6	3	8	12	18	19	16	16	10	5	6	5	9	ES 5	-5	-19	8	-6	-1	4	0	-1	-4
24	-2	-2	0	5	10	12	16	16	12	11	5	6	10	ES 6	ES 6	-8	-12	4	7	6	6	1	0	-6
25	-5	-4	2	3	11	14	16	17	23	16	17	19	19	17	7	-21	7	19	-11	-3	2	5	-6	-10
26	-10	-3	0	0	12	12	18	17	16	14	18	15	16	13	7	ES -24	-15	13	6	9	3	-6	-11	-9
27	-6	-3	4	4	9	13	14	22	25	22	27	24	22	21	13	12	3	12	-10	12	3	-1	-2	ES -23
28	-11	-5	-3	3	9	9	13	19	20	20	19	22	16	12	3	7	-3	12	-15	-4	-4	-6	-10	-15
29	-4	-10	-7	3	5	14	16	21	15	12	13	6	18	14	ES 7	ES -23	-15	-8	-6	7	-1	1	-3	-15
30	-11	-4	-1	4	6	13	17	18	17	13	14	3	3	ES -4	ES 6	-9	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
CNT	29	29	30	30	30	30	30	30	30	28	29	29	29	29	29	29	28	28	28	28	28	28	28	28
MED	-5	-4	0	3	9	13	17	16	16	13	11	8	11	US 8	ES 6	-9	-6	2	-6	2	3	1	-2	-4
UD	-1	2	4	7	12	18	20	22	23	22	21	22	20	18	ES 17	8	13	13	6	9	10	8	3	1
LD	ES -12	-8	-8	-10	-8	4	-2	8	ES 9	2	-3	-1	ES -4	ES -4	ES -7	ES -23	ES -27	ES -20	ES -20	-4	-8	-6	-11	-15

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 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	5-		(4)(5)(5) 5	4 4 (4) 5	4 4 5 4	N N N N			
2	4-		3 (4)(4)(4)	4 3 (4)(4)	3 4 4 3	N N N N			
3	4°		(4)(4)(4)(4)	4 4 (4)(3)	4 4 4 4	N N N N			
4	3°		(4)(3)(3)(3)	2 3 (4)(2)	4 4 4 3	N U U U	01:19	02:20	359γ
5*	2+		(3) - (2)(3)	(2) 2 (2) -	2 (2)(2) 4	W W W W	20:54	---	
6*'	3+		(3) - (3)(4)	4 C C -	4 4 4 4	W W W W	---	---	
7*'	4-		(3) - (3) 4	4 4 (4) 4	3 3 (3) 3	U U U U	---	18.0	
8*'	4°		3 - (5) 4	4 4 (4) 4	4 4 4 4	U U U U	13:41		241γ
9*'	3+		4 (4)(2)(2)	4 4 (3) 4	4 4 4 4	U U U U	23:54	---	
10'	4-		(3) - (3)(3)	4 4 (4) 5	3 4 (3) 4	U U U U	---	---	
11'	4-		(3)(4)(4) 4	4 4 (3) 4	4 4 3 4	U U U U	---	24.0	
12'	4°		4 (4)(4)(4)	4 (4)(4) -	4 4 4 4	N N N N			
13	4°		4 (4)(4) 4	4 C C C	4 4 4 4	N N N N			
14	4°		(4)(5)(5)(4)	4 3 (4) 4	4 4 4 5	N N N N			
[15]	4°		4 (3)(3)(4)	5 4 (4) 5	4 5 4 4	N N N N			
[16]	4°		4 (4)(3) 4	5 3 (4) 5	4 4 (3) 5	N N N N			
[17]	4+		4 (5)(4) 4	5 4 (4) 5	4 3 3 4	N N N N			
18	4°		4 (5)(4) 4	4 4 (4) 4	4 4 3 4	N N N N			
19	4-		4 (4)(2)(3)	4 4 (4) -	4 3 (3) 4	N N N N			
20	3+		3 (5) C C	(2) C C -	4 (4) C C	N N N N			
21	4°		(4) - (4) 4	4 4 (4) 4	4 3 4 4	N N N N			
22	4°		4 - (4) 4	5 4 (4) 4	4 4 4 4	N N N N			
23	4°		4 (4)(5)(4)	4 4 (3) -	4 4 4 4	N N N N			
24	4°		4 (4)(4)(5)	4 4 (4) 4	4 4 4 4	N N N N			
25	4°		(4) - (5)(4)	4 3 (3) 4	4 5 4 4	N N N N	22.58	---	87γ
26	4+		(5)(4)(4) 4	5 4 (4) -	4 4 4 4	N N N N	---	---	
27	4+		4 - (4) 4	5 C C -	4 5 5 4	N N N N	05.02	19.0	
28	4-		3 (3)(4) 4	4 4 (4) 4	4 4 4 3	N N N N			
29	4-		4 (4)(5) 4	2 4 (4) 3	4 4 4 4	N N N N			
30	4°		4 (4) C C	4 4 (4) 4	4 4 (3) C	N N N N			
31	4-		C C C C	4 4 (4)(3)	C C C C	N N N N			

GEOALERT

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

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

C = artificial accident
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTUBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Aug 1972	S W F								Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp	Flare	Solar Noise	Mag
	CO	LM	HA	TO	SH							
2	×	42	×			04.17	94	G	3-		×	
4		48	20			06.22	××	Slow	3+	06.17	×	
7		10	8			02.53	30	S	1+		×	
8		13	11			21.26	29	Slow	1			
27	15	×	20			23.34	70	S	2+		×	

I N U B O

1972 Aug.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	NAA	NWC	NPG	HA3	AL3	Start	End	Maximum	
1	15	24	52	27	40	21	0123	0306	0151	X
1	27	13	60	12			0659	0823	0708	
1				13*	16		2216	2354	2312	X
2			8	10	12		0010	0116	0042	
2			20	11	15		0130	0242	0143	X
2	53	64	157	90	130	104	0307	0642	0337	
2		58		119	137	76	2000	0430	2105	
3				15	22		2211	2301	2230	
4	153	83	237*	112*	119		0621	0733	0634	
7	25	24	—	42	58		0252	0338	0258	X
7	32	35	—	50	67		0351	0459	0406	
8				34	61		2122	2330	2136	
9			28	22	29		2245	2324	2252	
10			32	17	27	29	0313	0410	0323	
10				22	14		2024	2151	2058	
10	—		48*	54	36*		2311	0351	0017	
11		13	48*	25*	22*	32*	0402	0437	0413	X
11			8		9		2325	0006	2330	
12			8				0505	0533	0512	
12			44*			36	0718	0806	0745	
12				9	25		2032	2138	2058	X
13			28	7	11		0153	0242	0202	X
16				8			0022	0158	0058	
16				11			0318	0500	0355	
21				25			1932	2116	1951	

1972 Aug.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	NAA	NWC	NPG	HA3	AL3	Start	End	Maximum	
21				23			2205	2348	2230	
23		11	24	10	17		0146	0247	0200	X
24			24	11	8		0349	0445	0400	X
25			32	7	16		0512	0648	0523	X
26		10	40	7	19		0340	0505	0348	X
26			12	5	23		2224	2257	2232	
26			12	9	23		2300	2333	2306	X
27			24	8	15		0253	0340	0256	
27	24	53	149	74	94	36	2332	0142	2340	
28			24				0733	0844	0738	
29			16				0810	0900	0820	X
30	16		32				0653	0748	0656	X
30		29		35	61		2043	2200	2049	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 AUGUST 1972

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