F−282

IONOSPHERIC DATA IN JAPAN

FOR JUNE 1972

VOL.24 No.6

Issued in November 1972

Prepared by the

RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

TOKYO, JAPAN

F−282

IONOSPHERIC DATA IN JAPAN

FOR JUNE 1972

VOL.24 No.6

RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Letters

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

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

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

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

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

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

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

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

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

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

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

the monthly tabulation sheets.

D	greater than.
E	less than.
I	Missing value has been replaced by an interpolated value.
J	Ordinary component characteristic deduced from the extra-ordinary component.
O	Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U	Uncertain or doubtful numerical value.
Z	Measurement deduced from the third magneto-ionic component.

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

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

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

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

d. Description of Standard Types of *Es*

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

F	An *Es* trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat *Es* traces observed in the daytime are classified according to their virtual hight: *H* or *L*.
L	A flat *Es* trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.
C	An *Es* trace showing a relatively symmetrical cusp at or below f_0E. 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_0E. 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	4.5m vertical rod
Bandwidth	±40 Hz for the upper side-band
Calibration	every half an hour

The meaning of *Descriptive symbols* is as follows:

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

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

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

E : Less than the following figure.

b. Radio Propagation Quality Figures

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

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

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

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

N = normal
U = unstable
W = disturbed

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

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

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

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

(i) SWF

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

Circuits and Drop-out intensities

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

Start-time and Duration

Types

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

Importances

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

1−	1	1+
2−	2	2+
3−	3	3+

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

(ii) SPA

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

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

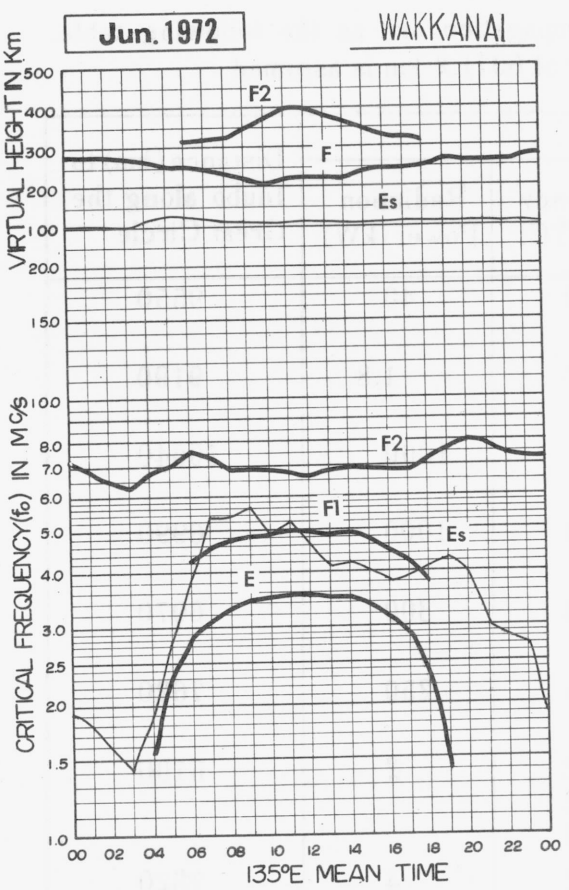
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

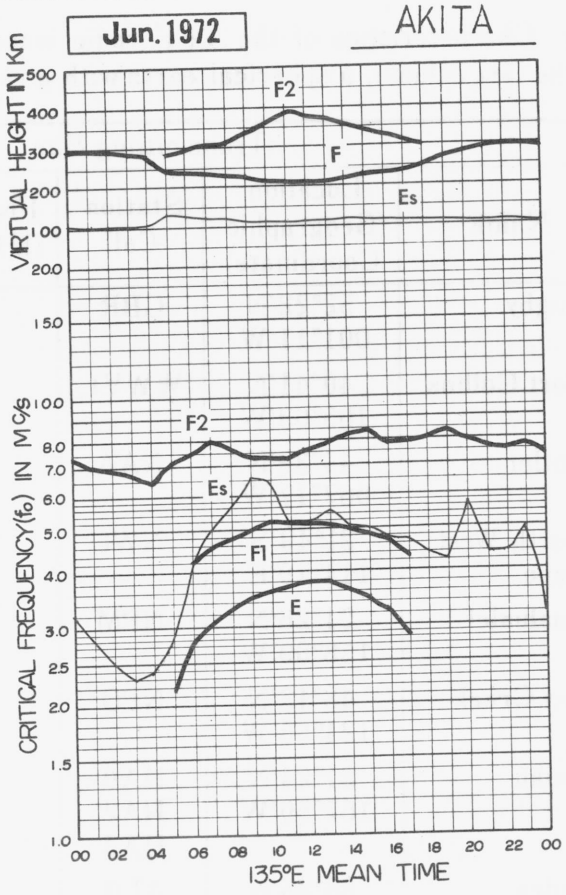
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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

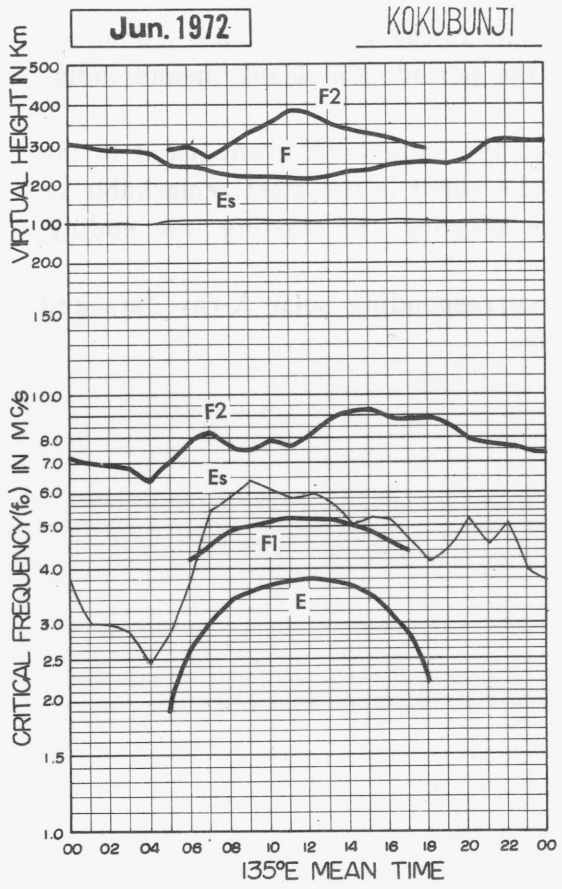
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

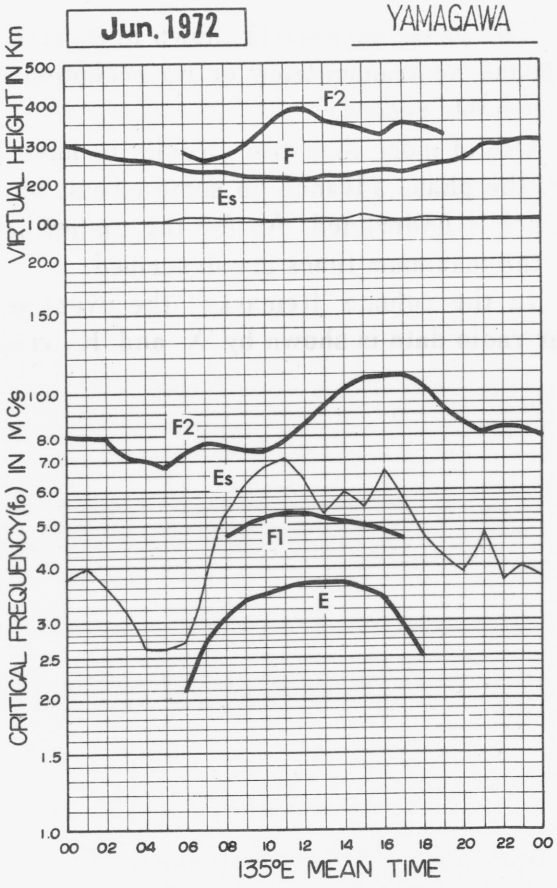
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

JUN. 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 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	60	61	F	F 58	F	65	71	70	64	56	56	65	66	61	59	57	57	59	A	67	75	76	F 71	63
2	57	56	56	58	63	63	76	86	82	79	73	A	66	70	70	67	69	67	72	80	79	74	68	69
3	69	67	61	61	63	63	70	76	78	77	78	81	79	78	73	68	68	65	73	83	88	87	86	85
4	S 82	S	S	C	C	C	C	C	C	A	A	60	58	62	A	A	A	63	67	78	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	64	65	73	73	75	76	73	73	78	79	85	83	77	76
6	72	69	64	67	73	68	C	C	72	63	A	71	71	73	75	A	72	71	67	72	80	83	78	I S 78
7	75	I S 75	73	68	71	85	90	76	77	80	80	72	70	66	71	76	74	77	78	83	80	84	78	75
8	73	74	72	64	70	79	79	79	80	80	C	C	C	C	C	C	C	C	82	82	89	87	84	80
9	76	76	75	73	C	76	73	70	73	74	78	R	75	78	83	86	82	82	87	95	90	78	78	75
10	76	76	74	70	73	70	78	81	83	A	A	A	75	80	R 77	A	73	R	80	A	89	85	75	75
11	73	74	73	67	68	71	83	80	69	R 68	C	C	C	69	70	U C 68	70	70	74	83	91	86	74	68
12	66	C	S	61	66	77	94	101	C	C	75	69	67	74	79	83	80	82	79	85	83	82	81	78
13	73	C	C	C	C	C	C	C	C	C	70	69	73	74	75	77	76	C	C	C	86	83	80	S 73
14	73	70	68	67	71	80	88	81	C	72	68	69	C	68	73	76	A	83	C	C	87	C	C	80
15	74	C	C	71	70	76	76	83	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	63	60	63	64	68	70	71	73	77	73	70
17	68	66	65	64	70	77	83	78	70	67	73	70	68	73	74	70	73	70	76	83	76	76	69	71
18	64	63	63	54	56	57	58	62	60	64	68	71	66	64	60	A	59	56	49	50	C	C	56	S
19	A	43	I S 43	50	52	C	C	55	57	C	56	55	55	60	A	56	57	59	65	67	71	70	64	C
20	C	A	C	C	C	A	C	71	C	A	C	A	A	55	63	63	60	61	63	65	73	72	66	67
21	63	I C 60	62	57	57	56	60	65	63	63	66	64	67	70	69	69	63	68	69	81	78	76	73	75
22	71	68	67	C	C	66	68	66	68	61	69	65	70	68	67	73	71	68	74	80	82	I S 82	C	C
23	C	C	C	C	C	C	C	C	66	66	67	67	63	66	63	66	66	67	72	77	81	79	C	C
24	77	C	C	C	C	C	C	C	A	74	68	70	C	C	73	73	70	67	73	76	76	75	68	A
25	77	C	C	C	C	C	C	C	A	74	68	70	C	C	73	73	70	67	73	76	76	75	68	A
26	F	A	S	U S 53	C	66	68	65	60	R	A	53	55	A	56	59	64	60	63	A	72	76	67	66
27	63	C	C	C	C	C	C	58	57	56	52	A	54	54	56	56	53	57	60	65	75	71	C	64
28	61	C	C	C	C	C	57	60	63	57	51	54	52	53	63	64	58	61	63	70	74	73	73	68
29	66	C	C	C	C	C	C	63	61	61	60	56	56	56	58	58	56	59	61	64	73	71	68	64
30	F	63	F 60	F 61	65	73	82	85	79	76	66	63	61	66	66	63	64	64	68	77	86	82	S	70
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	16	15	18	15	18	18	22	20	20	21	21	22	25	26	24	26	26	26	25	27	26	23	22
MED	72	68	65	62	68	70	76	74	68	68	68	67	66	68	70	68	68	67	72	77	80	78	73	72
UQ	74	74	72	67	70	77	83	81	78	75	73	70	71	73	74	74	73	70	76	82	86	83	78	76
LQ	65	62	62	58	63	65	68	65	62	62	64	63	58	62	63	63	60	61	65	70	75	75	68	68

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in 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							400	A	A	470	480	470	470	A	470	470	440	A	A					
2							430	A	470	480	A	A		490	470	440	430							
3								A	A	A	490	500	500	500	490	480	480L	L						
4								C	C	A	A	A	490	A	A	A	A	A	380L					
5								C	C	C	500	520	490	490	490	510	L	A						
6								C	A	A	A	A	A	510	A	A	480L	420						
7									500	500	500	500L	510	510	500	500	480	A						
8						L			500	520	C	C	C	C	C	C	C	C						
9								A	510	500	500		510	520	490	500	A	A						
10							440L	460UL	A	A	A	A	A	A	A	A	A	A						
11								460	500	A	C	C	C	510	500	480	470	A						
12								A	A	A	A	560	520	510	A	480	470	A						
13								C	C	C	500	A	530	480	530H	490	450	C						
14							420L	480	470	A	520	530	C	520	490	470	A	A						
15							L	470L	C	C	C	C	C	C	C	C	C	C						
16							C	C	C	C	C	C	A	A		470	450	430						
17							480	A	A	A	A	A	520	490	500	490	460							
18						380	420	430	A	470	A	470	470	470	460	A	A	A						
19						C	A	A	430	A	A	A	480	A	A	460	460	440	380					
20						A	C	A	C	A	A	A	A	470	480	470	430	450UL	390					
21							430	A	480	480	490	500	500	500	490	490	480	430	400					
22								L	A	530	A	510	A	510	500	470	450	430L						
23							C	C	460	480	480	500	480	480	480	460	440	420	A					
24							C	C	A	480	490	490	C	C	500	480	450	440L						
25							C	C	A	480	490	490	C	C	500	480	450	440L						
26						A	A	A	A	470	A	470	A	A	470	470	430	410	A					
27							C	A	450	460	A	A	490	480	470	470		420	A					
28							400	A	440	470	480	470	480	480	A	460	460	420	380					
29							C	450	A	A	470	490	490	480	470	460	450	420	A					
30							A	A	A	A	510	A	A	490	470	460	470	420						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	8	6	11	14	14	15	16	20	21	24	21	14	5					
MED						380	425	460	470	480	490	500	490	490	490	470	450	425	380					
UQ							435	470L	500	500	500	505	510	510	500	485	470	440L	390					
LQ							410	450	455	470	480	480	480	480	470	465	450	420	380					

The Radio Research Laboratories, Japan

JUN. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

Station WAKKANAI Lat. 45°23.6'N. Long. 141°41.1'E Sweep 1 MHz to 20 MHz in 20 sec in 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					160	225	285	300	325	335	345	340	330	325	300	295	270	280	230	S				
2					A	220	285	305	330	345	345	335	320	310	A	A	A	A	220	A				
3				E	135	220	285	305	320	340	355	350	350	340	R	A	300	285	220	E				
4				C	C	C	C	C	C	340	345	345	335	A	360	335	300	280	210	S				
5				C	C	C	C	C	C	C	A	A	R	R	R	A	A	A	A	S				
6				E	A	235	C	C	340	370	375	375	370	350	A	A	A	A	225	S				
7				E	135	215	280	310	330	350	365	370	355	350	320	310	325	290	230	140				
8				E	160	A	290	310	335	360	C	C	C	C	C	C	C	C	225	130				
9				E	C	240	290	310	330	345	365	B	R	R	365	350	320	290	225	135				
10				E	A	245	285	320	335	350	B	A	A	A	A	355	320	285	230	S				
11				E	135	230	290	310	350	355	C	C	C	385	365	350	320	290	235	S				
12				E	A	235	295	325	345	365	370	365	365	380	A	R	A	A	A	A	A			
13				C	C	C	C	C	C	C	355	345	345	A	350	A	A	C	C	C				
14				E	A	230	290	320	335	350	360	C	C	C	A	350	C	C	C	C				
15				E	S	230	285	305	C	C	C	C	C	C	C	C	C	C	C	C				
16				C	C	C	C	C	C	C	C	C	360	350	335	300	A	290	A	130				
17				E	155	235	300	315	330	350	370	370	A	R	C	320	300	A	A	A	E			
18				E	170	230	285	310	325	330	340	335	350	320	350	340	300	270	A	S	S			
19				E	170	C	255	290	315	335	350	365	365	360	350	330	310	280	225	140	E			
20				C	A	225	C	305	C	345	370	365	355	365	365	340	315	285	A	E	E			
21				E	170	225	270	300	325	350	360	370	365	345	R	340	310	A	A	165	S			
22				C	150	240	280	305	335	350	370	360	350	345	340	305	305	275	240	170	E			
23				C	C	C	C	C	330	345	355	I R 350	355	350	340	315	310	280	240	160	E			
24				C	C	C	C	C	R 320	340	350	360	C	C	A	A	A	A	225	A	E			
25				C	C	C	C	C	R 320	340	350	360	C	C	A	A	A	A	225	A	E			
26				E	C	220	270	305	320	335	345	345	335	330	310	A	310	280	235	150	E			
27				S	C	C	C	305	320	335	345	345	335	340	360	335	310	285	225	S	E			
28				C	C	C	280	305	330	340	345	340	335	310	A	345	310	285	240	A	S			
29				S	C	C	C	300	320	340	330	C	A	R	350	345	315	295	220	S				
30				E	140	220	290	305	330	345	350	A	A	350	345	335	A	295	235	175	S			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				16	11	18	19	22	24	26	24	20	18	18	16	19	18	18	20	12	9			
MED				E	155	230	285	305	330	345	352	355	350	348	350	335	310	285	225	140	E			
UQ				E	165	235	290	310	335	350	365	365	360	350	360	345	315	290	235	162	E			
LQ				E	138	220	280	305	320	340	345	345	335	330	338	318	300	280	225	130	E			

JUN. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J^{X}_{31}	J^{X}_{28}	25	E	G	G	36	J^{X}_{51}	J^{X}_{50}	49	45	J^{X}_{61}	J^{X}_{51}	J^{X}_{53}	J^{X}_{75}	J^{X}_{60}	43	43	J^{X}_{66}	J^{X}_{33}	J^{X}_{73}	J^{X}_{63}	J^{X}_{61}	J^{X}_{43}
2	21	J^{X}_{19}	E	14	J^{X}_{19}	28	37	J^{X}_{53}	J^{X}_{51}	42	J^{X}_{53}	J^{X}_{115}	46	J^{X}_{55}	J^{X}_{43}	J^{X}_{35}	J^{X}_{38}	J^{X}_{33}	J^{X}_{40}	30	J^{X}_{25}	J^{X}_{43}	J^{X}_{28}	J^{X}_{28}
3	E^{S}_{15}	E	E	E	G	G	38	J^{X}_{54}	J^{X}_{60}	J^{X}_{63}	43	J^{X}_{43}	42	G	G	36	$^{G}29$	G	34	30	J^{X}_{40}	J^{X}_{30}	J^{X}_{20}	E
4	J^{X}_{70}	J^{X}_{143}	J^{X}_{30}	C	C	C	C	C	C	J^{X}_{71}	J^{X}_{100}	J^{X}_{78}	J^{X}_{68}	J^{X}_{80}	J^{X}_{86}	J^{X}_{105}	J^{X}_{143}	J^{X}_{57}	J^{X}_{43}	J^{X}_{50}	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	J^{X}_{54}	40	G	G	G	40	J^{X}_{35}	J^{X}_{50}	J^{X}_{43}	J^{X}_{43}	J^{X}_{68}	J^{X}_{30}	J^{X}_{25}	J^{X}_{23}
6	J^{X}_{41}	J^{X}_{20}	J^{X}_{20}	17	25	G	C	C	J^{X}_{63}	J^{X}_{55}	J^{X}_{100}	J^{X}_{84}	J^{X}_{73}	G	50	J^{X}_{91}	J^{X}_{42}	J^{X}_{38}	28	J^{X}_{45}	J^{X}_{70}	J^{X}_{63}	J^{X}_{53}	J^{X}_{51}
7	E^{S}_{15}	E	E	E	G	J^{X}_{43}	41	J^{X}_{53}	47	J^{X}_{58}	43	42	46	40	40	43	G	J^{X}_{55}	J^{X}_{48}	J^{X}_{35}	J^{X}_{56}	J^{X}_{35}	J^{X}_{43}	J^{X}_{27}
8	E	E	E	20	20	J^{X}_{36}	J^{X}_{45}	J^{X}_{58}	38	47	C	C	C	C	C	C	C	C	J^{X}_{63}	J^{X}_{56}	J^{X}_{64}	E	19	E^{S}_{15}
9	E^{S}_{13}	E	E	E	C	30	J^{X}_{44}	J^{X}_{61}	J^{X}_{78}	J^{X}_{56}	43	E^{B}_{42}	G	G	G	42	J^{X}_{66}	J^{X}_{51}	J^{X}_{41}	21	15	17	15	E
10	E	E	J^{X}_{21}	15	22	G	39	45	J^{X}_{65}	83	J^{X}_{145}	J^{X}_{140}	J^{X}_{76}	J^{X}_{75}	J^{X}_{95}	J^{X}_{95}	J^{X}_{65}	J^{X}_{73}	J^{X}_{55}	J^{X}_{83}	J^{X}_{73}	18	J^{X}_{20}	J^{X}_{25}
11	J^{X}_{30}	18	15	E	19	30	44	J^{X}_{55}	48	J^{X}_{58}	C	C	C	G	G	42	44	J^{X}_{60}	J^{X}_{43}	J^{X}_{45}	25	J^{X}_{21}	J^{X}_{22}	20
12	15	C	20	20	J^{X}_{33}	33	38	J^{X}_{55}	J^{X}_{55}	J^{X}_{66}	J^{X}_{120}	50	44	G	J^{X}_{48}	G	J^{X}_{39}	J^{X}_{45}	J^{X}_{40}	J^{X}_{25}	18	J^{X}_{21}	J^{X}_{35}	J^{X}_{40}
13	20	C	C	C	C	C	C	C	C	C	43	J^{X}_{63}	43	40	G	J^{X}_{41}	34	C	C	C	J^{X}_{53}	J^{X}_{63}	J^{X}_{30}	J^{X}_{33}
14	J^{X}_{21}	20	E	17	20	G	35	43	46	J^{X}_{60}	42	43	C	58	38	42	J^{X}_{93}	J^{X}_{70}	C	C	E^{C}_{40}	C	J^{X}_{50}	J^{X}_{32}
15	E^{C}_{30}	C	C	E	E^{S}_{15}	G	G	37	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	J^{X}_{93}	J^{X}_{51}	38	J^{X}_{71}	J^{X}_{43}	G	J^{X}_{71}	J^{X}_{42}	J^{X}_{78}	J^{X}_{42}	J^{X}_{25}	J^{X}_{21}
17	20	E	E	E	G	G	35	J^{X}_{63}	J^{X}_{56}	J^{X}_{68}	J^{X}_{53}	60	J^{X}_{51}	G	43	40	33	33	J^{X}_{54}	43	J^{X}_{33}	35	J^{X}_{23}	E
18	E^{S}_{15}	E	J^{X}_{25}	E	G	G	35	38	J^{X}_{52}	46	J^{X}_{103}	51	G	J^{X}_{55}	G	J^{X}_{70}	J^{X}_{78}	49	J^{X}_{43}	J^{X}_{56}	E^{S}_{15}	E^{S}_{15}	J^{X}_{26}	J^{X}_{30}
19	J^{X}_{71}	18	J^{X}_{24}	18	36	C	47	J^{X}_{50}	40	45	J^{X}_{54}	J^{X}_{52}	43	J^{X}_{53}	J^{X}_{101}	42	G	41	J^{X}_{38}	J^{X}_{41}	J^{X}_{56}	J^{X}_{64}	34	C
20	J^{X}_{63}	J^{X}_{73}	J^{X}_{40}	C	29	58	C	J^{X}_{55}	C	J^{X}_{93}	48	$^{M}73$	$^{M}74$	J^{X}_{53}	G	42	36	39	38	J^{X}_{43}	J^{X}_{24}	15	21	J^{X}_{25}
21	J^{X}_{25}	J^{X}_{25}	J^{X}_{24}	J^{X}_{25}	$^{G}17$	G	33	45	J^{X}_{53}	44	G	44	J^{X}_{45}	G	G	$^{G}32$	G	28	29	G	E^{S}_{12}	19	15	J^{X}_{30}
22	J^{X}_{25}	J^{X}_{24}	E	C	G	30	42	43	J^{X}_{53}	45	J^{X}_{51}	J^{X}_{53}	J^{X}_{56}	J^{X}_{51}	43	40	G	G	28	34	20	E^{S}_{16}	J^{X}_{28}	J^{X}_{41}
23	E^{S}_{15}	C	C	C	C	C	C	C	J^{X}_{53}	48	42	G	42	40	G	G	G	40	J^{X}_{58}	J^{X}_{53}	22	J^{X}_{43}	42	J^{X}_{51}
24	E^{S}_{16}	C	C	C	C	C	C	C	J^{X}_{130}	40	44	47	C	C	53	38	40	30	34	32	J^{X}_{63}	J^{X}_{30}	J^{X}_{51}	J^{X}_{80}
25	E^{S}_{16}	C	C	C	C	C	C	C	J^{X}_{130}	40	44	47	C	C	53	38	40	30	34	32	J^{X}_{63}	J^{X}_{30}	J^{X}_{51}	J^{X}_{80}
26	J^{X}_{63}	J^{X}_{75}	J^{X}_{33}	J^{X}_{23}	C	J^{X}_{43}	J^{X}_{54}	J^{X}_{75}	J^{X}_{53}	J^{X}_{60}	J^{X}_{75}	J^{X}_{60}	J^{X}_{53}	J^{X}_{110}	47	39	38	34	40	J^{X}_{63}	J^{X}_{53}	J^{X}_{48}	J^{X}_{80}	J^{X}_{30}
27	E	C	E	26	C	C	C	J^{X}_{55}	40	43	50	J^{X}_{70}	40	G	G	G	G	32	41	$^{M}49$	J^{X}_{30}	J^{X}_{33}	C	E^{S}_{15}
28	26	C	C	C	C	C	40	J^{X}_{53}	43	J^{X}_{48}	41	40	J^{X}_{44}	J^{X}_{42}	J^{X}_{56}	G	G	36	30	J^{X}_{45}	J^{X}_{31}	J^{X}_{24}	E^{S}_{15}	22
29	E^{S}_{15}	E^{S}_{15}	E^{S}_{14}	E^{S}_{15}	C	C	C	39	45	J^{X}_{60}	43	41	51	G	G	G	43	J^{X}_{45}	J^{X}_{41}	J^{X}_{66}	J^{X}_{35}	J^{X}_{53}	E^{S}_{14}	J^{X}_{25}
30	E	E	18	E	J^{X}_{38}	J^{X}_{50}	J^{X}_{55}	J^{X}_{58}	J^{X}_{73}	J^{X}_{59}	43	J^{X}_{60}	58	44	46	39	35	38	J^{X}_{50}	J^{X}_{47}	J^{X}_{45}	J^{X}_{26}	28	E^{S}_{15}
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	20	22	20	18	19	19	22	24	26	26	26	24	26	28	28	28	27	27	27	28	27	27	27
MED	19	18	16	14	19	28	39	J^{X}_{53}	J^{X}_{53}	J^{X}_{56}	46	52	46	41	42	40	38	39	J^{X}_{41}	J^{X}_{43}	J^{X}_{40}	J^{X}_{30}	J^{X}_{28}	J^{X}_{27}
UQ	J^{X}_{30}	J^{X}_{24}	J^{X}_{24}	19	25	34	44	J^{X}_{55}	J^{X}_{62}	J^{X}_{60}	J^{X}_{54}	J^{X}_{63}	J^{X}_{57}	J^{X}_{53}	52	42	J^{X}_{43}	J^{X}_{50}	J^{X}_{49}	J^{X}_{50}	J^{X}_{63}	J^{X}_{43}	J^{X}_{42}	J^{X}_{36}
LQ	E^{S}_{15}	E	E	E	G	G	36	45	46	45	43	43	42	G	G	36	E^{G}_{29}	32	36	32	24	20	20	20

JUN. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

Station WAKKANAI Lat. 45 23.6 N. Long. 141 41.1 E Sweep 1 MHz to 20 MHz in 20 sec in 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	18	E	E	E	G	G	G	43	49	43	G	45	45	48	45	42	42	43	A	25	50	30	15	17
2	E	E	E	E	17	G	G	47	43	G	51	A	45	G	38	35	33	31	36	28	20	37	20	20
3	E S 15	E	E	E	G	G	G	50	56	52	G	G	G	G	G	34	G 26	G	32	28	30	16	E	E
4	40	40	14	C	C	C	C	C	C	A	A	49	G	53	A	A	A	55	33	49	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	44	40	G	G	G	37	35	44	38	32	21	24	22	21
6	38	E	15	E	17	G	C	C	60	50	A	64	62	G	50	A	38	34	G	31	27	43	15	23
7	E S 15	E	E	E	G	G	38	43	G	G	G	G	47	G	G	43	G	42	40	33	40	32	23	20
8	E	E	E	E	G	28	40	45	G	45	C	C	C	C	C	C	C	C	48	46	36	E	18	E S 15
9	E S 13	E	E	E	C	G	38	50	G	G	G	E B 42	G	G	G	G	64	47	32	G	E	E	E	E
10	E	E	E	E	17	G	G	G	61	A	A	A	68	73	71	A	47	60	54	A	35	17	18	22
11	27	17	E	E	G	G	40	43	47	50	C	C	C	G	G	G	G	52	41	43	23	18	20	18
12	E	C	20	16	19	G	G	50	51	66	66	43	G	G	48	G	36	45	30	20	15	15	18	20
13	E	C	C	C	C	C	C	C	C	C	G	58	G	40	G	38	33	C	C	C	30	28	20	40
14	18	E	E	15	19	G	G	G	43	60	G	G	C	E C 50	38	G	A	58	C	C	E C 40	C	32	24
15	E C 30	C	C	E	E S 15	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	51	G	43	36	G	63	34	24	20	21	17
17	E	E	E	E	G	G	G	56	48	57	50	60	42	G	43	G	G	33	46	40	30	30	20	E
18	E S 15	E	25	E	G	G	G	G	46	43	53	G	G	G	G	A	50	47	38	26	E S 15	E S 15	20	28
19	A	E	20	G	32	C	E R 47	45	G	E C 45	52	50	G	54	A	G	G	41	34	25	55	56	25	C
20	50	A	E C 40	C	25	A	C	50	C	A	E C 48	A	A	G	G	G	G	G	35	41	23	14	20	21
21	22	27	E	E	G	G	G	43	G	G	G	43	44	G	G	30	G	28	25	G	E S 12	15	14	23
22	23	16	E	C	G	G	G	42	47	44	50	G	E R 56	44	G	G	G	G	G	30	19	E S 16	29	14
23	E S 15	C	C	C	C	C	C	C	38	45	G	G	G	G	G	G	G	40	44	40	20	20	40	41
24	E S 16	C	C	C	C	C	C	C	A	G	G	44	C	C	48	37	38	28	20	20	18	20	47	A
25	E S 16	C	C	C	C	C	C	C	A	G	G	44	C	C	48	37	38	28	20	20	18	20	47	A
26	52	A	20	15	C	40	43	60	50	44	A	44	53	A	45	35	G	G	38	A	53	42	40	16
27	E	C	E	E	C	C	C	44	G	G	48	A	G	G	G	G	G	G	40	46	23	19	C	E S 15
28	E	C	C	C	C	C	38	50	G	45	G	G	G	G	50	G	G	G	G	44	26	20	E S 15	E
29	E S 15	E S 15	E S 14	E S 15	C	C	C	G	45	52	43	41	40	G	G	G	40	40	38	30	20	28	E S 14	E
30	E	E	E	E	G	46	42	45	72	53	G	56	55	44	45	G	35	38	40	47	45	20	E	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	20	22	20	18	19	19	22	24	26	26	26	24	26	28	28	28	27	27	27	28	27	27	27
MED	E E 15	E	E	E	G	G	G	44	46	45	44	44	40	G	E G 38	32	34	38	38	32	24	20	20	20
UQ	24	16	14		17	G	38	50	54	53	52	58	52	46	48	40	39	44	40	44	U 34	29	24	23
LQ	E	E	E	E	G	G	G	42	G	G	G	G	G	G	G	G	G	E G 28	31	26	20	16	15	15

JUN. 1972 | FBES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 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 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	E S 15	E	E	E	12	12	11	18	16	20	16	17	17	17	18	14	15	14	E S 12	E	E	E	E
2	E S 15	E	E	E	E	11	11	12	11	20	22	18	18	16	20	15	15	11	E	E	E	E	E S 15	E
3	E S 15	E	E	E	E	12	12	11	15	11	16	15	15	26	17	20	11	11	E	E	E	E	E S 15	E
4	E	E	E	C	C	C	C	C	C	18	16	16	16	15	17	17	15	15	11	E S 12	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	20	30	19	20	20	18	12	E	E	E S 12	E	E	E	E
6	E S 15	E	E	E	E	E	C	C	20	18	20	20	20	17	18	16	12	11	11	E S 13	E	E	E	E
7	E S 15	E	E	E	E	12	11	12	15	20	20	20	18	28	19	16	17	15	12	E	E	E	E	E
8	E	E	E	E	E	12	11	12	16	16	C	C	C	C	C	C	C	C	16	11	E	E	E	E S 15
9	E S 13	E	E	E	C	12	12	12	16	20	23	42	25	22	22	17	18	13	12	E	E	E	E	E
10	E	E	E	E	E	11	12	17	18	19	35	20	23	33	21	20	15	16	11	E S 13	E	E	E S 15	E
11	E	E	E	E	E	14	11	16	21	27	C	C	C	30	16	20	14	12	15	E S 15	E	E	E S 15	E
12	E	C	E S 15	E	E	16	11	17	20	20	20	21	20	18	26	21	18	15	E	E	E	E	E	E S 15
13	E	C	C	C	C	C	C	C	C	C	20	28	20	28	20	20	19	C	C	C	E S 15	E	E	E
14	E	E	E	E	E	12	16	18	20	21	22	E C 37	C	F C 50	32	23	E C 39	E C 30	C	C	E C 40	C	E C 28	E S 15
15	E C 30	C	C	E	E S 15	13	16	20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	20	20	23	15	15	12	E	E	E	E	E	E
17	E S 12	E	E	E	E	12	13	12	17	21	21	25	20	27	E C 22	15	15	11	13	E	E	E	E	E
18	E S 15	E	E	E	E	E	E	15	16	15	16	16	16	20	15	20	12	15	E	E S 13	E S 15	E S 15	E	E
19	E	E	E	E	E	C	E	11	17	21	20	21	20	28	20	15	16	15	E	E	E	E	E	C
20	E	E	E	C	E	13	C	12	C	20	22	16	21	21	17	16	13	11	13	E	E	E	E	E
21	E	F S 15	E	E	E	12	11	11	15	20	22	22	16	20	22	16	17	16	11	E	E S 12	E	E	E S 15
22	E	E	E	C	E	11	11	E	11	11	15	17	20	22	17	16	15	20	15	15	E	E S 16	E S 15	E
23	E S 15	C	C	C	C	C	C	C	17	16	22	20	21	20	20	17	20	16	15	E	E	E	E S 15	E S 15
24	E S 15	C	E	C	E	C	C	16	20	16	21	C	18	17	17	18	17	12	17	E	E	E	E S 15	E S 16
25	E S 16	C	C	C	C	C	C	C	22	16	22	22	C	C	32	18	17	15	11	E	E	E	E	E
26	E	E	E	E	C	11	11	11	15	17	17	17	17	17	20	15	17	15	12	E	E	E	E	E S 15
27	E	C	E	E S 15	C	C	C	16	17	17	18	18	17	18	17	16	17	12	15	E S 13	E	E	C	E S 15
28	E S 15	C	C	C	C	C	E	17	15	18	20	16	18	18	19	16	15	11	12	E	E S 15	E	E S 15	E S 14
29	E S 15	E S 15	E S 14	E S 15	C	C	C	17	17	17	24	E C 34	17	20	20	16	17	12	11	E S 12	E	E	E S 14	E S 15
30	E	E	E	E	E	12	12	16	16	18	17	18	28	28	24	20	16	15	12	E	E S 15	E	E S 13	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	20	23	20	19	19	19	23	24	26	26	25	25	27	28	28	28	27	27	27	28	27	27	27
MED	E	E	E	E	E	12	11	12	17	18	20	19	19	20	20	17	16	14	12	E	E	E	E	E
UQ	E S 15	E	E	E	E	12	12	16	19	20	22	22	20	27	22	20	17	15	14	E S 12	E	E	E S 15	E S 15
LQ	E	E	E	E	E	11	11	12	15	16	18	17	17	18	17	16	14	12	E E 11	E	E	E	E	E

The Radio Research Laboratories, Japan

JUN. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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 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	275	290	F	F 275	F	290	300	300	305	280	245	290	290	305	295	305	290	290	A	285	295	290	F 310	290
2	280	285	285	285	300	285	295	290	305	305	300	A	275	300	300	295	305	300	290	305	295	300	280	290
3	285	285	285	285	300	290	295	305	310	295	290	285	280	310	310	295	295	285	280	285	285	275	280	280
4	S 295	S	S	C	C	C	C	C	C	A	A	285	265	280	A	A	A	290	280	295	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	285	260	280	290	280	290	280	280	285	265	285	280	275	280
6	270	275	280	275	295	290	C	C	320	A	A	295	275	290	300	A	295	310	300	280	290	290	285	I S 285
7	280	I S 290	275	270	270	300	290	305	290	290	300	265	285	290	280	290	300	300	310	285	285	270	280	270
8	260	270	280	265	265	285	280	285	315	305	C	C	C	C	C	C	C	C	300	280	280	285	285	285
9	275	280	295	280	C	305	300	280	300	300	290	R	285	280	295	295	295	285	285	280	310	285	280	260
10	275	275	295	255	280	270	310	300	305	A	A	A	A	290	R 300	A	305	R	290	A	295	305	280	270
11	275	275	285	285	275	280	275	320	295	R 290	C	C	C	290	295	U C 295	300	305	285	280	295	310	300	280
12	275	C	S	280	290	300	290	315	C	C	310	275	275	280	290	290	290	295	290	295	300	280	280	290
13	290	C	C	C	C	C	C	C	C	C	275	275	270	285	280	300	305	C	C	C	300	295	305	S 280
14	290	285	280	285	295	290	300	295	C	320	280	290	C	275	290	295	A	290	C	C	300	C	C	290
15	285	C	C	290	300	310	295	295	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	285	290	285	280	290	285	280	290	290	290	275
17	270	275	270	275	270	275	295	290	285	315	290	260	285	290	295	280	290	285	285	300	275	280	260	265
18	260	255	255	245	260	255	250	240	225	235	235	235	255	240	275	A	280	270	255	260	C	C	285	S
19	A	255	I S 245	275	270	C	C	245	245	C	260	245	235	270	A	265	265	255	285	280	295	270	260	C
20	C	A	C	C	C	A	C	285	C	A	C	A	A	255	295	300	300	290	295	275	275	280	285	270
21	280	I C 270	275	290	295	315	300	340	290	290	290	285	285	290	290	305	300	300	285	300	290	290	275	280
22	280	275	285	C	C	295	315	290	320	265	295	270	305	295	280	305	295	295	285	290	285	I S 280	C	C
23	C	C	C	C	C	C	C	C	290	285	285	280	280	280	270	275	290	290	280	285	295	265	C	C
24	270	C	C	C	280	C	C	265	305	320	C	C	300	305	310	305	285	310	290	300	295	285	S	C
25	285	C	C	C	C	C	C	C	A	295	290	300	C	C	300	300	300	290	305	300	305	295	280	A
26	F	A	S	U S 275	C	285	270	275	290	R	A	245	265	A	270	255	295	290	295	A	280	290	285	280
27	285	C	C	C	C	C	C	260	285	270	240	A	250	260	270	285	285	290	285	290	295	290	C	270
28	280	C	C	C	C	C	265	265	290	295	235	255	235	230	270	285	275	285	290	270	295	270	275	280
29	275	C	C	C	C	C	C	270	280	280	285	265	255	R	275	285	285	290	295	290	290	270	285	275
30	F	275	F 275	F 275	275	280	265	295	295	315	275	275	250	280	295	290	285	290	285	290	290	305	S	275
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	16	15	18	16	18	18	23	21	19	20	20	22	25	26	24	26	26	26	25	27	26	22	22
MED	280	275	280	275	280	290	295	290	295	295	285	275	275	285	290	292	292	290	285	285	295	285	280	280
UQ	285	285	285	285	295	300	300	300	305	305	290	285	285	290	295	300	300	295	295	295	295	290	285	285
LQ	275	272	275	275	270	280	275	272	290	282	268	260	255	280	280	285	285	285	285	280	285	280	280	270

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

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

Station WAKKANAI Lat. 45 °23.6 'N. Long. 141 °41.1 'E Sweep 1 MHz to 20 MHz in 20 sec in 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							355	A	A	A	355	A	A	A	A	A	A	A	A					
2							345	A	A	370	A	A		365	365	385	370							
3								A	A	A	365	375	360	345	365	360	L 345	L						
4								C	C	A	A	A	365	A	A	A	A	A	A					
5								C	C	C	370	360	385	360	365	335	L	A						
6								C	A	A	A	A	A	355	A	A	L 355	380						
7									340	360	370	L 385	A	370	355	A	350	A						
8						L			345	A	C	C	C	C	C	C	C	C						
9								A	345	355	380		365	345	360	340	A	A						
10							L U L 350 380		A	A	A	A	A	A	A	A	A	A						
11								A	A	A	C	C	C	365	350	355	340	A						
12								A	A	A	A	330	365	355	A	360	355	A						
13								C	C	C	395	A	340	385	H 325	345	360	C						
14							L 380	380	A	A	350	355	C	C	345	365	A	A						
15							L	L 350	C	C	C	C	C	C	C	C	C	C						
16							C	C	C	C	C	C	A	A		A	365	325						
17							340	A	A	A	A	A	365	375	A	345	350							
18						315	335	350	A	A	A	360	365	350	365	A	A	A						
19						C	A	A	385	A	A	A	360	A	A	350	325	A	A					
20						A	C	A	C	A	A	A	A	370	360	355	380	U L 325	A					
21							360	A	355	385	365	A	A	360	355	345	345	350	340					
22								A	A	340	A	355	A	345	345	355	370	L 345						
23							C	C	355	A	375	360	370	365	375	350	370	A	A					
24							C	C	A	380	375	A	C	C	A	345	355	L 350						
25							C	C	A	380	375	A	C	C	A	345	355	L 350						
26						A	A	A	A	A	A	A	A	A	A	350	355	350	A					
27							C	A	360	390	A	A	355	365	365	350		340	A					
28							A	A	380	A	380	390	365	365	A	370	350	340	340					
29							C	355	A	A	A	365	365	340	370	365	A	A	A					
30							A	A	A	A	360	A	A	A	A	370	345	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	7	5	8	8	13	10	13	18	15	21	19	10	2					
MED						315	350	355	355	375	370	360	365	362	360	350	355	348	340					
UQ							358	380	370	382	375	375	365	365	365	360	362	350						
LQ							342	350	345	358	365	355	360	350	352	345	348	340						

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

JUN. 1972 | H'F2 (KM)

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							310	325	320	420	520	365	360	335	380	345	370	345	A					
2							315	300	290	310	315	A		350	320	320	305							
3								300	300	330	325	345	340	310	310	330	325	325						
4								C	C	A	A	400	450	405	A	A	A	A	315					
5								C	C	C	370	460	370	345	370	350	325	345						
6								C	320	A	A	A	A	360	330	A	320	280						
7									320	335	320	335	365	365	375	345	315	315						
8						290			300	320	C	C	C	C	C	C	C	C						
9								315	325	325	350		360	375	325	320	A	315						
10							295	290	310	A	A	A	A	A	A	A	320	A						
11								270	320	365	C	C	C	370	360	350	340	305						
12								270	310	310	A	415	400	380	350	325	320	300						
13								C	C	C	325	375	400	325	370	315	300	C						
14							260	310	250	A	370	370	C	400	350	345	A	320						
15							300	325	C	C	C	C	C	C	C	C	C	C						
16							C	C	C	C	C	C	A	395		375	360	320						
17							325	A	350	325	355	A	350	360	345	360	320							
18						400	410	450	550	515	500	475	435	470	405	A	370	A						
19						C	A	475	470	C	A	500	550	A	A	470	410	425	310					
20						A	C	365	C	A	A	A	A	495	370	345	340	335	310					
21							300	275	360	350	350	350	350	360	345	325	325	320	325					
22								350	300	450	330	410	A	345	395	320	310	310						
23							C	C	345	360	360	380	390	375	425	325	345	335	310					
24							C	C	A	340	370	350	C	C	350	320	315	315						
25							C	C	A	340	370	350	C	C	350	320	315	315						
26						315	350	A	A	515	A	535	A	A	445	450	315	325	295					
27							C	445	370	425	555	A	525	495	445	400		360	345					
28							375	410	350	370	575	500	600	615	415	365	400	360	305					
29							C	370	395	400	375	460	500	R	430	380	370	330	305					
30							320	300	A	295	400	425	A	395	345	350	360	345						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	11	18	20	20	19	19	16	22	24	24	24	22	9					
MED						315	315	320	320	345	370	400	395	372	365	345	325	322	310					
UQ						358	338	370	355	410	388	460	475	400	400	362	360	345	315					
LQ						302	300	300	305	325	340	358	360	350	345	322	315	315	305					

The Radio Research Laboratories, Japan

JUN. 1972 | H'F2 (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	280	230	260	275	255	250	A	A	A	235	A	A	A	A	A	A	A	A	280	A	A	250	250
2	260	270	270	275	270	230	250	A	A	220	A	A	A	210	225	210	245	230	A	270	250	I A	250	285
3	270	270	265	270	250	230	250	A	A	A	215	200	235	240	205	220	225	250	275	270	290 A	270	250	260
4	A	A	270	C	C	C	C	C	C	A	A	A	230	A	A	A	A	A	A	A	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	225	210	200	250	215	220	240	A	A	295	260	275	260	270
6	300	275	260	295	260	245	C	C	A	A	A	A	A	240	A	A	260	250	245	280	280	A	260	285
7	270	260	265	270	270	250	270	A 270	260	245	205	205	I A 210	215	205	I A 245	245	A	A	275	A	A	275	295
8	295	275	265	260	290	250	A	270	225	A	C	C	C	C	C	C	C	C	A	A	A 280	250	250	260
9	290	275	260	265	C	250	A 270	A	225	245	205	H 200	210	225	210	250	A	A	A	250	230	250	275	300
10	290	260	265	265	250	255	260	250	A	A	A	A	A	A	A	A	A	A	A	A	A	230	230	275
11	300	280	270	270	270	240	A	A	A	A	C	C	C	220	230	250	250	A	A	A	260	245	235	265
12	270	C	300	275	265	250	265	A	A	A	A	225	210	210	A	230	230	A	250	270	245	260	275	270
13	250	C	C	C	C	C	C	C	C	C	200	A	220	200	H 200	240	220	C	C	C	260	265	245	A
14	260	265	270	275	265	245	250	230	A	A	215	220	C	C	210	250	A	A	C	C	C	C	A	280
15	C	C	C	250	250	245	220	250	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	A	215	A	225	240	A	A	280	265	260	265
17	285	280	270	265	260	245	230	A	A	A	A	A	210	200	I A 235	225	210	235	A	A	270 A	270 A	270	300
18	285	310	320	350	290	250	250	250	A	A	A	250	230	250	245	A	A	A	A	345 A	325	300	295	A
19	A	320	335	295	A	C	A	A	240	A	A	A	250	A	A	275	250	A	A	305	A	A	310	C
20	A	A	A	C	300	A	C	A	C	A	A	A	A	240	245	245	220	255	A	A	270	250	270	300
21	300	315	295	250	250	225	240	A	220	200	200	A	A	215	205	220	215	225	230	260	240	250	270	280
22	275	280	260	C	260	240	250	A	A	250	A	250	A	250	225	210	220	230	260	265	270	250	280	275
23	250	C	C	C	C	C	C	C	235	A	205	225	210	205	210	245	225	A	A	A	255	275	A	A
24	275	C	C	C	C	C	C	C	A	200	200	A	C	C	A	250	250	230	250	255	245	260	A	A
25	275	C	C	C	C	C	C	C	A	200	200	A	C	C	A	250	250	230	250	255	245	260	A	A
26	A	A	270	305	C	A	A	A	A	A	A	A	A	A	A	220	250	250	A	A	A	A	A	265
27	265	C	275	250	C	C	C	A	225	210	A	A	220	215	215	220	220	250	A	A	260	250	C	280
28	250	C	C	C	C	C	A	A	240	A	205	205	250	200	A	225	245	265	265	A	265	275	275	260
29	275	270	255	245	C	C	C	230	A	A	A	225	240	270	220	235	A	A	A	A	260	275	260	260
30	275	290	295	275	295	A	A	A	A	A	205	A	A	A	A	230	245	A	A	A	A	245	245	260
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	17	21	20	17	16	13	7	8	8	13	11	14	18	17	22	21	13	8	14	21	22	22	22
MED	275	275	270	270	265	245	250	250	230	215	205	220	220	218	215	232	240	240	250	270	260	260	260	272
UQ	290	280	275	275	275	250	260	260	240	245	215	225	235	240	225	250	250	250	262	280	270	270	275	285
LQ	268	270	265	260	260	240	250	240	225	200	200	205	210	210	210	220	220	230	248	260	250	250	250	260

The Radio Research Laboratories, Japan

JUN. 1972 | H'F (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	100	E	G	G	125	120	115	120	115	110	110	110	105	110	110	125	120	115	110	110	110	105
2	100	100	E	100	110	140	120	120	115	115	110	110	105	105	105	100	105	100	120	115	110	105	105	105
3	S	E	E	E	G	G	120	115	110	110	115	110	110	G	G	105	105	G	120	115	110	110	110	E
4	105	110	105	C	C	C	C	C	C	110	110	110	110	110	120	120	110	115	115	115	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	105	105	G	G	G	100	100	100	100	110	110	110	105	105
6	100	100	100	100	100	G	C	C	115	115	110	110	110	G	105	105	105	105	120	115	110	110	105	105
7	S	E	E	E	G	120	125	120	120	115	115	120	110	120	115	110	G	120	120	115	110	110	105	105
8	E	E	E	100	110	105	120	115	120	115	C	C	C	C	C	C	C	C	110	115	110	E	110	S
9	S	E	E	E	C	125	120	115	115	110	120	B	G	G	G	135	120	115	115	120	120	115	115	E
10	E	E	110	100	125	G	140	120	110	110	110	105	105	105	105	120	120	120	115	115	110	110	105	100
11	105	105	105	E	125	125	125	125	120	115	C	C	C	G	G	135	125	120	115	110	110	110	105	105
12	100	C	105	100	100	125	135	120	115	110	110	110	110	G	105	G	105	100	100	105	105	100	110	110
13	105	C	C	C	C	C	C	C	C	C	110	110	110	110	G	100	100	C	C	C	110	110	105	105
14	100	100	E	100	100	G	125	120	120	115	120	120	C	110	110	125	110	115	C	C	C	C	105	100
15	C	C	C	E	S	G	G	125	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	110	110	115	110	105	G	115	110	110	110	105	105
17	105	E	E	E	G	G	135	120	115	115	115	110	105	G	110	110	110	105	110	120	120	110	105	E
18	S	E	115	E	G	G	120	130	110	110	110	110	G	110	G	115	110	115	110	110	S	S	135	120
19	110	115	115	150	125	C	115	115	120	120	120	120	125	120	115	115	G	125	120	115	115	110	110	C
20	105	105	105	C	120	115	C	115	C	120	120	110	110	120	G	120	125	120	115	110	110	115	110	110
21	105	105	105	105	105	G	115	115	115	120	G	115	110	G	G	105	G	105	105	G	S	115	110	110
22	105	105	E	C	G	130	125	120	120	120	115	115	110	110	110	110	G	G	150	120	120	S	110	110
23	S	C	C	C	C	C	C	C	115	115	120	G	120	120	G	G	G	120	120	120	125	120	110	105
24	S	C	C	C	C	C	C	C	110	120	125	120	C	C	115	105	110	100	100	120	110	105	105	105
25	S	C	C	C	C	C	C	C	110	120	125	120	C	C	115	105	110	100	100	120	110	105	105	105
26	105	100	100	100	C	120	115	115	110	115	110	110	105	110	110	105	115	120	115	110	110	105	105	105
27	E	C	E	100	C	C	C	115	120	115	110	110	105	G	G	G	G	125	115	110	105	110	C	S
28	105	C	C	C	C	C	120	115	115	110	110	115	110	110	105	G	G	125	120	110	110	110	S	105
29	S	S	S	S	C	C	C	115	110	110	110	110	105	G	G	G	120	115	110	110	110	105	S	105
30	E	E	100	E	120	125	120	115	110	110	110	105	105	115	110	110	105	140	115	115	110	105	105	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	11	12	10	11	10	18	22	24	26	25	24	21	16	17	23	21	24	27	26	25	24	25	21
MED	105	105	105	100	110	125	120	118	115	115	110	110	110	110	110	110	110	115	115	115	110	110	105	105
UQ	105	105	108	100	122	125	125	120	120	120	120	115	110	118	115	118	115	120	120	115	110	110	110	105
LQ	102	100	100	100	102	120	120	115	110	110	110	110	105	110	105	105	105	105	110	110	110	105	105	105

JUN. 1972 | H'ES (KM)

IONOSPHERIC DATA

JUN. 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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 3	F 2	F 1				C 1	C 2	C 2	C 2	C 1	C 2	C 2	C 2	C 2	C 2	C 1	C 1	C 4	C 2	F 4	F 4	F 1	F 2
2	F 1	F 2		F 1	L 1	H 1	C 1	C 3	C 2	C 1	C 2	C 3	C 2	C 2	L 2	L 2	L 2	L 3	Cl 22	Cl 21	F 2	F 4	F 2	F 2
3							C 1	C 2	C 2	C 2	C 1	C 1	C 1			L 1	L 1		C 2	C 3	F 6	F 2	F 1	
4	F 3	FF 12	F 2							C 3	C 2	C 2	C 2	L 1	C 3	C 3	C 3	C 3	C 2	C 4				
5											L 2	L 1				L 1	L 2	L 4	L 3	L 2	F 3	F 4	F 3	F 3
6	F 5	F 1	F 1	L 1	L 1				C 2	C 2	C 3	C 2	C 2		L 2	L 4	L 2	L 3	Cl 11	C 3	F 4	F 5	F 2	F 3
7						C 2	C 2	C 2	C 1	C 2	C 1	C 1	Cl 11	C 1	C 1	C 2		C 3	C 4	C 4	F 4	F 3	F 4	F 2
8				L 1	L 1	L 3	C 2	C 2	C 1	C 1									C 3	C 2	F 4		F 2	
9						C 1	C 2	C 3	C 1	C 2	C 1					H 1	C 2	C 2	C 2	C 1	F 1	F 1	F 1	
10			F 1	L 1	Cl 11		H 1	C 2	C 2	C 3	C 2	L 3	L 2	L 2	L 2	C 2	C 2	C 1	C 3	C 3	F 4	F 1	F 2	F 2
11	F 3	F 1	F 1		C 1	C 1	C 2	C 2	C 1	C 1						H 1	C 1	C 2	C 2	C 3	F 2	F 1	F 2	F 2
12	F 1		F 1	L 2	L 1	C 1	H 1	C 2	C 1	C 1	C 2	C 1	C 1		L 1		L 2	L 2	L 2	L 2	L 1	F 2	F 2	F 3
13	F 1										C 1	C 1	C 1	L 1		L 1	L 1				FE 12	FE 12	F 2	F 4
14	F 2	F 1		L 1	L 1		C 1	C 1	C 1	C 1	C 1	C 1		C 1	L 1	C 1	L 1	C 2					F 2	F 3
15								C 1																
16													C 2	C 1	C 1	C 2	L 1		Cl 61	C 4	F 2	F 2	F 3	F 2
17	F 1						H 1	C 2	C 2	C 2	C 1	C 2	L 1		C 1	C 1	C 1	L 1	L 2	Cl 23	C 2	FF 11	F 2	
18			F 3				C 1	C 1	C 1	C 1	C 2	C 1		C 1		C 2	C 4	C 2	L 2	C 2			F 2	F 3
19	F 4	F 1	F 2	H 1	C 3		C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 1	C 2	C 1		C 1	C 2	C 3	C 3	F 5	F 3	
20	F 3	F 3	F 1		Cl 11	C 1		C 2		C 2	C 1	C 2	C 3	C 1		C 1	C 1	C 2	Cl 31	C 4	C 2	F 1	F 2	F 2
21	F 2	F 2	F 1	L 2	L 1		C 1	C 2	C 1	C 1		C 1	C 1			L 1		L 1	L 1			F 1	F 2	F 3
22	F 1	F 2				H 1	C 2	C 2	C 1	C 1	C 1	C 2	C 1	C 2	C 1	C 1			H 1	C 2	C 2		F 5	F 2
23									C 1	C 1	C 1		C 1	C 1				C 1	C 2	C 3	C 2	F 2	F 2	F 3
24									C 2	C 1	C 1	C 1			Cl 11	L 2	Cl 22	L 2	L C 11	Cl 22	C 1	F 2	F 6	F 5
25									C 2	C 1	C 1	C 1			Cl 11	L 2	Cl 22	L 2	L C 11	Cl 22	C 1	F 2	F 6	F 5
26	F 6	F 2	F 2	L 1		C 3	C 2	C 3	C 2	C 2	C 2	C 1	C 1	C 2	C 2	L 2	C 1	C 1	C 3	C 4	C 6	F 4	F 3	F 2
27				L 1				C 1	C 1	C 1	C 2	C 2	C 1					C 1	C 3	C 4	C 2	F 2		
28	F 1						C 2	C 2	C 2	C 2	C 1	C 1	C 1	C 1	L 1			C 1	C 1	L 4	L 3	F 2		F 1
29								C 1	C 1	C 2	C 1	C 1	L 2				C 1	C 2	C 3	C 3	F 3	F 3		F 2
30			F 1		C 3	C 3	C 2	C 2	C 2	C 1	C 1	L 2	L 1	C 1	C 1	C 1	L 1	H 2	C 3	C 2	C 3	F 2	F 1	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

JUN. 1972 | TYPES OF ES

IONOSPHERIC DATA

JUN. 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	63	62	62	61	F	73	72	69	72	63	64	69	75	68	66	64	66	66	68	74	76	78	75	67
2	61	58	57	57	58	65	75	88	81	76	72	72	77	89	89	86	75	78	84	82	71	73	F 74	74
3	73	69	68	59	58	63	75	84	81	82	84	88	85	88	82	74	76	76	77	91	89	F	A	F
4	F	F	A	F	F	F 65	81	78	A	A	61	I A 63	I A 64	66	67	71	74	74	75	88	77	73	74	F
5	F	F	F 66	F	F	F	72	I A 65	69	63	66	69	73	79	85	87	83	79	I A 84	I R 83	84	78	81	79
6	75	75	71	67	69	71	75	70	74	78	77	71	78	81	88	85	78	78	76	78	78	81	80	77
7	F 76	77	72	69	70	81	93	91	I A 81	91	87	82	85	82	83	89	93	91	89	88	79	81	85	80
8	77	78	77	71	F	F 82	90	87	86	79	73	85	76	78	83	87	91	94	87	86	I R 88	83	F	87
9	81	75	79	75	73	74	84	81	82	76	85	82	84	89	95	98	99	93	90	95	87	83	82	81
10	F	F	F	F	F	76	83	92	86	74	83	89	87	I A 82	86	91	92	90	86	I R 92	F	F	F	F 77
11	F	F	F	F 73	F 65	77	92	94	81	72	78	83	80	77	82	83	80	A	A	I A 94	91	83	75	76
12	F	71	70	69	F	F	F	102	102	92	83	81	I A 78	87	101	103	95	89	86	90	89	84	81	81
13	75	75	71	69	71	82	90	91	83	72	68	66	75	83	86	88	83	81	87	92	92	85	71	72
14	F	F	F	F	F	72	89	88	73	66	61	70	I A 68	75	83	90	94	93	91	92	87	F	F	F
15	80	78	78	68	70	68	68	86	99	93	89	76	78	81	82	87	89	84	82	77	75	79	S 84	F 86
16	66	F 66	F	F	F	78	H 86	79	61	I A 66	66	63	64	I A 71	73	74	73	72	75	78	75	73	76	79
17	73	70	71	67	67	76	81	78	76	I A 77	81	82	76	78	87	83	84	87	83	83	76	76	74	74
18	75	73	71	61	59	F 59	63	59	E G 48	74	80	85	81	85	87	I A 73	71	69	59	60	61	I R 62	67	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	59	57	I A 56	58	65	68	70	75	72	68	65
20	63	63	61	I R 64	I R 58	59	74	89	I R 73	52	I A 55	60	67	68	78	78	68	66	72	77	76	73	72	68
21	66	64	66	63	57	57	61	57	66	65	66	71	72	76	82	I A 78	76	77	79	81	78	75	75	78
22	75	71	67	67	67	78	H 71	66	65	72	70	75	75	77	80	83	89	84	81	86	83	85	84	85
23	81	76	72	72	71	72	68	71	83	76	81	77	76	I R 77	82	82	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	91	87	91	86	82	I A 78	I R 84	87	78	81	81	82
25	79	75	72	70	63	75	78	75	69	71	73	74	83	84	84	83	82	I A 80	73	81	77	69	F	F
26	F	F	F 63	I A 64	58	67	68	94	78	I A 68	I A 64	63	68	71	69	68	75	69	75	I A 77	75	75	69	F
27	64	56	52	F 48	F 51	58	I A 59	I A 64	65	59	E G 50	57	I R 55	64	62	63	65	65	65	72	77	72	68	61
28	63	60	54	55	52	64	52	63	73	58	E G 51	56	58	64	69	71	69	68	68	73	73	70	71	68
29	67	64	67	66	67	64	59	64	60	63	I A 58	57	62	61	65	64	65	66	69	77	72	66	68	68
30	66	67	63	63	64	71	81	85	88	A	A	A	A	A	A	76	76	79	88	93	88	84	76	71
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	23	23	20	26	27	28	27	26	27	27	28	29	29	30	29	28	28	29	28	26	24	23
MED	73	70	68	67	64	72	75	80	76	72	72	72	76	78	82	83	78	78	80	83	78	77	75	77
UQ	76	75	72	69	70	76	84	88	82	77	81	82	80	83	86	87	89	86	86	90	87	83	81	80
LQ	66	64	63	62	58	64	68	68	69	65	64	64	68	71	73	73	73	69	72	77	75	73	71	70

JUN. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	A	A	A	480	510	I A 480	490	510	480	I A 460	420	A					
2						L	L	I A 450	490	500	500	510	500	I A 500	I A 500	480	L 470	430	A	A				
3							L	L 470	500	500	I A 510	500	530	510	500	L 530	460	410	L					
4							A	A	A	A	A	A	A	500	480	500	460	420	360					
5							A	A	480	540	540	I A 530	A	A	A	500	490	A	A					
6						L	L	A	I A 510	I A 520	I A 510	I A 530	520	I A 530	510	I A 490	480	U L 430	L					
7						L	L	A	A	500	520	560	550	540	I A 510	510	480	L	L					
8						L	L	L	A	A	A	530	H 580	520	500	490	A	A	A					
9							A	A	A	A	I A 540	550	530	I A 540	I A 510	490	480	450	L					
10						L	L	L	A	A	A	A	520	I A 530	540	A	A	A	A					
11						L	I A 500	480	I A 480	I A 540	I A 540	520	530	540	510	I A 500	A	A	A					
12							A	A	A	A	560	A	A	I A 530	500	500	U L 470	L	L					
13							U L 440	L	U L 490	570	A	H 600	510	520	500	I A 500	480	U L 450	L					
14						L	A	450	I A 460	520	520	A	A	A	I A 510	470	460	I A 440	L					
15							L	500	480	510	I A 520	510	A	I A 510	500	480	460	A	A					
16						L	L 410	460	470	I A 490	510	510	530	I A 520	520	470	470	480	I					
17						L	L	L	I A 540	I A 580	I A 520	510	A	A	500	490	I A 500	430	L					
18						L	430	480	480	I A 500	520	I A 500	510	I A 500	A	A	A	430	A					
19						C	C	C	C	C	C	C	C	490	480	I A 470	440	I A 440	L					
20						L	420	I A 450	I A 470	480	A	A	510	480	490	I A 470	480	A	A					
21							L	500	500	I A 510	560	510	I A 510	510	500	I A 490	I A 470	L	I					
22						L	L	L	460	490	540	A	520	I A 510	510	490	480	L	L					
23						L	L	470	A	A	A	I A 520	I A 510	I A 500	480	470	C	C	C					
24						C	C	C	C	C	C	C	510	540	A	A	A	A	A					
25							L	450	480	490	I A 520	I A 550	500	I A 490	A	A	A	A	A	A				
26							L	440	A	A	A	500	I A 480	I A 490	490	I A 470	460	L	A	A				
27						U L 360	A	A	A	480	500	490	500	470	I A 480	I A 470	460	450	390					
28						L	410	430	A	A	510	A	510	480	480	480	460	430	L					
29						A	A	I A 450	470	480	I A 490	500	480	H 490	480	490	450	430	A					
30							A	I A 460	470	A	A	A	A	A	A	A	480	450	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	6	15	17	18	20	20	22	26	25	25	23	16	2					
MED						U L 360	425	460	480	500	520	510	510	510	500	490	470	430	375					
UQ							440	475	490	520	540	530	530	530	510	500	480	450						
LQ							410	450	470	490	510	505	500	490	490	470	460	430						

The Radio Research Laboratories, Japan

JUN. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					S	A	275	300	325	345	355	365	A	A	355	A	A	285	A	A	S			
2					E	A	A	305	330	345	355	365	A	A	A	A	315	275	A	A	S			
3					E	210	I A 265	305	325	345	I A 350	I A 360	A	A	A	340	320	280	A	A	S			
4					E	A	280	310	330	350	A	A	375	365	350	335	315	A	A	A	S			
5					E	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E			
6					E	I A 215	265	305	345	360	365	375	A	A	A	A	A	295	A	A	E			
7					S	220	280	310	330	345	355	A	A	A	A	A	325	285	A	A	S			
8					S	A	I A 275	310	330	345	355	A	A	380	A	A	A	A	A	A	S			
9					S	215	275	315	335	350	360	370	I A 375	380	370	350	I A 325	A	A	A	E			
10					A	A	275	315	335	350	A	A	A	A	370	350	330	I A 290	A	A	S			
11					A	A	285	315	340	355	A	A	A	375	A	A	A	290	A	A	E			
12					A	A	A	325	345	350	360	A	A	A	A	A	340	A	A	A	E			
13					A	245	290	320	340	A	A	A	A	A	A	A	A	A	A	A	E			
14					A	A	A	A	340	355	365	375	I A 375	I A 370	I A 360	345	A	A	A	A	E			
15					S	220	275	310	330	350	360	I A 370	A	A	A	A	A	A	A	A	E			
16					A	220	280	310	340	I A 355	365	I A 370	375	I A 380	360	345	325	295	240	A	E			
17					A	A	A	315	335	350	I A 360	370	I A 380	375	A	A	A	A	245	A	S			
18					S	A	A	A	335	350	I A 355	I A 370	R 380	I A 375	360	350	325	280	A	A	E			
19					C	C	C	C	C	C	C	C	C	375	360	A	A	A	A	A	S			
20					A	A	A	A	A	A	360	370	380	I A 380	I A 370	A	A	A	A	A	S			
21					A	200	270	315	340	355	365	375	A	A	A	A	A	A	A	A	E			
22					E	I A 220	265	305	330	350	360	A	A	A	A	A	330	290	A	A	S			
23					S	I A 210	265	310	335	350	I A 360	A	A	A	A	A	C	C	C	C	C			
24					C	C	C	C	C	C	C	C	375	I A 370	365	350	325	270	A	A	E			
25					A	A	A	A	I A 335	I A 350	365	A	A	A	B	A	A	A	A	A	S			
26					E	215	265	305	330	355	A	A	A	A	A	345	325	285	A	A	S			
27					A	215	265	305	330	I A 350	I A 360	I A 370	385	A	A	A	320	295	235	A	E			
28					S	A	A 280	310	335	350	A	A	I A 385	380	360	350	I A 325	I A 275	A	A	E			
29					A	A	A	305	325	A	A	A	A	I A 380	370	350	325	285	A	A	S			
30					S	210	270	305	335	355	A	A	A	A	A	A	A	A	230	A	E			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					7	13	19	23	26	24	19	13	10	13	12	11	15	15	4		15			
MED					E	215	275	310	335	350	360	370	378	375	360	350	325	285	238		E			
UQ					E	220	280	315	340	355	362	370	380	380	370	350	325	290	242		E			
LQ					E	210	265	305	330	350	355	370	375	375	360	345	322	280	232		E			

JUN. 1972 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 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 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	J 23	J 36	J 19	E	E 14	26	35	J 48	J 65	J 61	J 44	44	J 78	J 89	43	J 53	J 112	J 48	J 47	J 84	J 74	J 28	J 54	J 58
2	J 39	J 25	J 22	J 27	J 25	27	J 41	J 58	J 43	43	43	J 45	44	J 63	J 73	J 45	42	J 53	J 72	J 66	J 129	J 93	J 44	J 33
3	J 35	J 24	E	J 14	E	25	33	J 64	J 54	J 80	J 68	J 45	J 44	42	39	G	G 29	32	31	J 40	J 50	J 88	J 103	J 63
4	J 84	J 25	J 83	J 74	J 64	40	J 67	J 73	J 157	J 84	J 133	J 153	J 79	J 80	49	46	J 57	J 64	J 62	J 29	J 43	J 36	J 28	J 66
5	J 68	J 66	J 48	J 30	J 36	J 51	J 59	J 89	J 159	J 84	J 68	J 83	J 83	J 73	J 73	J 45	J 64	J 63	J 107	J 80	J 54	J 42	J 48	J 43
6	J 20	J 29	J 25	J 28	J 19	29	J 43	J 68	J 66	J 74	J 62	J 67	J 50	J 66	J 53	J 74	J 37	32	32	J 28	J 85	J 43	J 68	J 49
7	J 37	J 38	J 58	J 26	E 14	26	39	J 83	J 89	43	41	J 51	J 43	J 44	J 65	39	44	33	35	J 28	J 65	J 80	J 32	J 35
8	J 45	J 43	J 38	J 35	J 69	J 40	J 43	J 48	J 85	J 77	J 66	J 46	J 63	G	J 43	J 49	J 91	J 83	J 95	J 64	J 60	J 45	J 90	J 73
9	J 19	J 19	J 17	E	E 14	28	J 46	J 66	J 53	J 58	J 84	J 48	40	J 61	J 70	J 79	48	J 84	J 43	J 26	J 43	J 25	J 85	J 20
10	J 91	J 93	J 44	J 44	J 53	J 29	36	45	J 54	J 68	J 113	J 73	48	J 96	41	J 62	J 65	J 73	J 89	J 105	J 78	J 50	J 76	J 20
11	J 30	J 40	J 81	J 39	J 40	28	J 52	J 53	J 53	J 80	J 60	J 49	J 51	45	J 40	J 57	J 78	J 89	J 113	D	J 132	J 19	J 51	J 63
12	J 34	J 23	J 39	J 37	J 44	J 31	J 66	J 50	J 77	J 60	J 54	J 69	J 85	J 76	J 66	41	J G 30	J 40	24	J 20	J 20	J 23	J 19	J 53
13	J 39	J 25	J 21	J 18	J 28	J 27	34	J 43	43	J 63	J 60	J 66	J 44	J 43	J 43	J 66	J 47	J 32	J 31	J 41	J 100	J 85	J 64	J 28
14	J 29	J 108	J 74	J 31	J 29	J 49	J 69	J 40	J 86	47	45	J 54	J 77	J 64	J 71	J 48	J 42	J 52	27	J 26	J 70	J 78	J 54	J 50
15	J 50	J 25	E 14	E 13	J 19	G	G	35	42	50	J 54	J 70	J 52	J 54	J 54	38	44	J 45	J 79	J 66	J 85	J 74	J 65	J 90
16	J 109	J 110	J 73	J 78	J 33	30	J 42	42	42	J 84	J 67	42	J 74	J 84	J 64	40	G	G	G	J 25	J 20	J 43	J 32	J 63
17	J 21	J 25	J 23	J 17	J 23	J 36	J 38	40	J 67	J 82	J 79	43	J 73	J 59	J 58	44	J 79	J 36	27	J 26	J 39	J 21	J 38	J 57
18	J 64	J 38	M 21	J 16	E 14	26	36	J 48	42	J 71	J 53	J 58	G	J 52	J 83	J 89	J 82	J 53	J 42	J 52	J 36	J 20	J 43	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	47	J 46	J 77	41	J 65	J 36	J 42	J 67	J 25	J 23	J 39
20	J 21	J 28	J 40	J 78	J 86	J 43	J 46	J 128	J 123	42	J 65	52	46	43	44	J 59	J 53	J 51	J 65	J 36	J 64	J 43	J 38	J 28
21	J 20	J 24	J 25	J 23	J 20	G	30	J 44	43	J 66	46	49	J 59	J 47	J 43	J 92	J 48	J 37	J 28	21	J 51	J 37	J 25	J 34
22	J 21	J 18	J 43	J 14	J 24	25	33	42	45	J 48	47	51	J 53	J 53	J 43	38	G	G	J 38	J 61	J 53	J 29	J 29	J 21
23	J 27	E 14	E 14	E	E 14	23	32	42	J 64	J 73	J 113	J 93	J 56	J 64	41	42	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	39	J 46	J 83	J 96	J 54	J 99	J 93	J 108	J 64	J 43	J 37	J 38
25	J 27	J 28	J 23	J 23	J 85	J 68	J 43	J 64	J 47	43	J 69	J 91	J 74	J 95	J 84	J 93	J 66	J 83	J 63	J 78	J 45	J 45	J 65	J 65
26	J 79	J 64	J 63	J 84	J 28	35	43	J 66	45	J 131	J 109	J 45	J 49	J 94	J 43	52	42	J 44	J 65	J 138	J 58	J 22	J 79	J 64
27	J 81	J 39	J 19	J 23	J 27	G	J 66	J 74	J 110	J 59	39	41	G	J 47	J 52	J 49	J G 32	35	35	24	J 53	J 35	J 28	J 20
28	E 14	M 20	J 18	E	E 14	27	J 46	45	J 62	J 51	J 54	49	41	G	G	45	35	36	45	26	J 23	J 45	J 50	J 66
29	E 14	M 21	J 23	E	J 18	J 44	J 44	J 51	41	J 71	J 81	42	J 43	J 42	42	37	43	37	J 36	J 49	J 46	J 44	J 42	J 30
30	J 30	J 31	J 25	J 23	E 14	G	J 49	J 66	J 81	J 92	J 133	J 127	J 146	J 111	J 173	J 86	J 50	J 47	J 48	J 63	J 62	J 53	J 43	J 59
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	29	30	30	30	29	29	29	29	29	29	29	28
MED	J 32	J 28	J 25	J 23	J 24	28	J 43	J 50	J 58	J 67	J 64	J 51	J 51	J 56	J 50	J 49	J 47	J 47	J 43	J 42	J 58	J 43	J 44	J 50
UQ	J 57	J 40	J 46	J 36	J 38	J 38	J 48	J 66	J 83	J 80	J 80	J 70	J 74	J 76	J 70	J 74	J 64	J 64	J 65	J 66	J 70	J 50	J 65	J 63
LQ	J 21	J 24	J 20	J 14	14	26	36	44	44	J 50	J 50	45	44	J 45	43	42	41	36	32	J 26	J 45	J 28	J 32	J 32

The Radio Research Laboratories, Japan

JUN. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	19	E	E	E	E S 14	26	35	47	60	55	40	41	64	40	38	45	50	37	44	40	20	15	30	40
2	24	18	E	20	18	24	36	47	38	40	41	40	39	51	54	40	35	39	70	65	30	19	18	23
3	18	E	E	14	E	24	31	35	43	44	52	43	42	39	39	G	G 28	G	24	32	37	22	A	30
4	E	19	A	40	28	30	63	61	A	A	58	A	A	46	44	43	40	39	35	20	32	29	25	45
5	45	52	40	19	20	44	55	A	44	45	45	56	59	58	64	45	49	60	A	75	43	19	19	28
6	17	22	18	18	15	27	41	58	53	60	53	57	47	65	47	54	35	31	25	23	38	E	E	16
7	E	18	19	18	E S 14	G	36	52	A	43	40	49	44	42	53	38	44	33	31	20	37	39	27	E
8	28	27	E	19	45	26	39	40	66	74	61	42	44	G	39	40	72	62	52	48	44	40	59	22
9	E	15	14	E	E S 14	G	44	46	53	52	74	43	40	61	62	43	36	35	25	22	43	20	36	18
10	40	50	16	18	25	23	G	30	50	62	65	54	46	A	41	52	57	73	77	85	51	40	40	18
11	16	17	20	17	22	25	52	40	52	64	59	45	40	44	40	51	66	A	A	A	53	16	18	37
12	E	15	22	25	28	24	61	49	77	51	49	69	A	56	47	39	G 30	36	24	18	17	19	17	22
13	22	16	E	15	22	20	G	40	40	42	50	48	42	40	41	54	46	31	26	18	38	48	40	E
14	22	20	18	23	19	25	53	36	62	44	44	56	A	58	56	43	42	50	27	22	69	19	18	18
15	25	17	E S 14	E S 13	E	G	G	35	42	49	54	47	52	53	41	38	41	44	50	51	28	52	38	25
16	E	24	24	26	21	29	34	40	G	A	44	40	45	A	29	38	G	G	G	19	20	E	21	28
17	E	17	18	14	18	25	30	38	55	A	65	43	57	54	46	42	74	35	20	24	24	19	26	42
18	38	32	E	16	E S 14	24	29	42	40	68	45	58	G	52	66	A	54	38	40	51	36	U R 20	38	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	U R 47	44	A	36	46	25	22	65	17	22	30
20	19	18	28	45	45	27	38	56	54	38	A	52	45	41	40	52	41	50	53	22	52	37	32	27
21	18	E	26	16	18	G	29	G	42	58	44	49	56	47	43	A	48	36	26	19	25	23	22	26
22	19	16	24	14	17	25	33	39	42	43	47	50	49	52	39	37	G	G	34	50	53	23	E	20
23	20	E S 14	E S 14	E	E S 14	23	30	36	60	60	67	54	55	U R 64	39	40	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	39	43	73	54	49	A	56	65	36	28	E	18
25	18	18	E	18	42	66	38	35	39	40	65	64	46	59	64	71	64	A	50	55	44	24	45	47
26	22	50	38	A	18	31	38	38	U R 45	A	A	45	U R 49	55	38	52	40	38	47	A	55	22	38	45
27	40	32	18	20	18	G	A	A	56	42	39	41	G	45	51	48	G 30	33	34	24	40	24	28	19
28	E S 14	E	E	E	E S 14	24	40	42	53	50	46	49	40	G	G	44	34	35	36	24	23	26	26	E
29	E S 14	E	17	E	16	39	42	50	36	43	A	42	42	40	42	37	41	35	36	36	24	28	25	23
30	22	27	20	17	E S 14	G	42	57	45	A	A	A	A	A	A	55	40	35	45	57	52	53	E	38
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	29	30	30	30	29	29	29	29	29	29	29	28
MED	19	18	18	18	18	24	38	41	51	52	52	49	46	52	44	44	41	37	36	32	38	23	26	24
UQ	23	26	23	20	22	27	43	51	58	66	65	56	56	58	54	54	49	50	50	55	51	29	38	34
LQ	14	15	E	14	14	22	30	37	42	43	44	43	42	42	39	40	35	35	26	22	28	19	18	18

JUN. 1972 | FBES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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

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

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

The Radio Research Laboratories, Japan

JUN. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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 automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	275	285	285	285	F	290	295	290	320	275	275	270	295	305	290	290	295	295	300	290	275	285	290	285
2	275	275	280	280	290	305	295	310	295	290	290	280	285	285	295	300	295	290	300	310	270	280	F 290	285
3	285	295	285	275	275	280	290	300	290	285	290	285	270	290	300	280	290	295	280	295	285	F	A	F
4	F	F	A	F	F	F 310	295	290	A	A	260	I A 270	I A 290	275	275	280	295	290	290	300	295	265	260	F
5	F	F	F 275	F	F	F	320	I A 305	305	270	280	275	260	270	275	285	270	285	I A 280	I B 280	285	265	275	275
6	275	275	285	285	290	290	295	290	285	295	285	260	280	280	290	300	290	295	290	290	290	270	275	280
7	F 275	280	290	275	280	275	310	300	I A 285	295	290	270	275	270	275	285	295	305	300	300	280	265	270	275
8	265	275	285	280	F	F 290	300	295	300	315	275	290	280	280	280	285	285	300	290	280	I B 280	270	F	275
9	270	295	295	285	280	290	300	295	295	270	285	265	270	280	280	290	290	290	290	300	275	270	270	270
10	F	F	F	F	F	305	300	310	320	270	280	300	285	I A 270	270	285	280	300	290	I B 295	F	F	F	F 270
11	F	F	F	F 295	F 265	290	285	295	300	290	275	285	280	270	275	290	290	A	A	I A 300	295	290	275	270
12	F	270	285	295	F	F	F	295	290	305	275	295	I A 275	265	275	280	285	280	280	280	290	280	275	280
13	280	280	285	285	295	305	300	310	315	290	295	255	265	275	270	290	280	275	285	295	295	275	275	280
14	F	F	F	F	F	295	315	330	315	310	310	280	I A 260	265	270	280	275	285	290	295	290	F	F	F
15	275	280	295	290	290	280	280	270	305	290	290	270	260	270	255	265	280	275	295	295	275	280	S 285	F 305
16	280	F 270	F	F	F	280	H 280	305	295	I A 275	295	270	270	I A 275	280	280	285	280	285	280	270	265	260	270
17	275	270	275	285	285	280	310	295	285	I A 270	285	290	285	270	285	280	285	290	275	295	270	270	265	260
18	260	260	260	260	260	F 270	270	245	G	275	240	255	245	250	280	I A 280	280	280	270	265	250	I B 255	260	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	250	260	I A 245	265	275	285	275	280	265	260	260
20	260	255	260	I B 270	I B 290	275	260	315	I B 305	310	I A 270	255	275	280	280	305	300	290	305	285	290	270	270	270
21	275	265	275	285	300	310	320	290	295	290	275	285	275	290	285	I A 285	280	275	290	285	285	280	265	270
22	280	280	285	285	285	325	H 300	305	315	305	270	280	270	285	275	280	290	290	300	290	270	270	265	275
23	270	275	290	290	280	305	285	280	265	260	275	270	270	I B 280	290	280	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	285	295	295	300	285	I A 295	I B 300	310	275	265	265	280
25	280	270	275	270	260	275	305	290	305	290	290	275	290	285	280	295	300	I A 310	290	300	285	275	F	F
26	F	F	F 285	I A 285	275	285	280	295	295	I A 290	I A 275	270	280	280	285	270	290	290	285	I A 280	285	285	270	F
27	285	285	295	E 295	F 275	275	I A 285	I A 295	290	295	G	270	I B 260	280	275	285	295	290	290	285	290	285	270	260
28	275	280	275	275	270	320	250	265	295	315	G	240	255	265	280	285	285	295	290	280	290	275	270	275
29	270	265	275	300	320	305	340	285	275	280	I A 285	260	280	260	280	270	290	295	295	300	290	290	275	280
30	260	270	270	270	265	270	275	265	300	A	A	A	A	A	A	280	275	280	285	290	295	290	275	280
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	23	23	20	26	27	28	27	26	27	27	28	29	29	30	29	28	28	29	28	26	24	23
MED	275	275	285	285	280	290	295	295	295	290	280	270	275	275	280	285	285	290	290	290	285	272	270	275
UQ	280	280	285	288	290	305	302	305	305	295	290	282	282	280	285	290	290	295	295	300	290	280	275	280
LQ	270	270	275	275	272	280	282	290	290	275	275	268	268	270	275	280	280	280	285	280	275	265	265	270

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

JUN. 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	375	365	IA 385	380	355	325	IA 365	350	A					
2						L	L	IA 360	365	360	380	375	380	IA 365	IA 360	355	L 350	350	A	A				
3							L	L 355	360	355	IA 370	380	370	365	365	L 335	350	345	L					
4							A	A	A	A	A	A	A	340	375	320	340	IA 335	A					
5							A	A	365	345	345	IA 350	A	A	A	335	A	A	A					
6						L	L	A	IA 350	IA 340	IA 355	IA 365	370	IA 360	355	IA 365	340	UL 350	L					
7						L	L	A	A	370	370	340	365	340	IA 355	340	350	L	L					
8						L	L	L	A	A	A	380	H 335	360	360	355	A	A	A					
9							A	A	A	A	IA 350	360	360	IA 345	IA 355	355	350	345	L					
10						L	L	L	A	A	A	A	355	IA 345	350	A	A	A	A					
11						L	IA 335	355	A	A	IA 350	370	360	340	355	A	A	A	A					
12							A	A	A	A	340	A	A	IA 360	IA 365	355	UL 345	L	L					
13							UL 340	L	UL 370	350	A	H 330	390	355	360	IA 360	IA 345	UL 335	L					
14						L	A	360	IA 360	360	370	A	A	A	A	370	A	A	L					
15							L	340	355	IA 360	IA 370	IA 360	A	A	360	350	IA 340	A	A					
16						L	L 355	360	370	IA 365	350	380	345	IA 340	340	370	345	325	L					
17						L	L	L	IA 330	IA 330	IA 360	375	A	A	A	350	IA 340	IA 350	L					
18						L	330	320	310	IA 330	355	IA 355	345	A	A	A	A	IA 330	A					
19						C	C	C	C	C	C	C	C	IA 375	IA 370	IA 360	360	IA 330	L					
20						L	IA 330	IA 355	IA 370	375	A	A	365	375	375	IA 365	350	A	A					
21							L	340	335	IA 350	335	IA 365	IA 370	IA 365	360	A	A	L	L					
22						L	L	L	IA 350	380	335	A	IA 370	IA 360	355	350	335	L	L					
23						L	L	335	A	A	A	A	A	A	380	365	C	C	C					
24						C	C	C	C	C	C	C	365	345	A	A	A	A	A					
25							L	370	360	375	IA 345	A	A	A	A	A	A	A	A	A				
26							L	355	A	A	A	360	IA 390	IA 385	370	A	A	L	A	A				
27						UL 330	A	A	A	370	380	405	380	A	A	A	335	345	A					
28						L	IA 340	A	A	A	A	A	365	410	360	IA 365	345	330	L					
29						A	A	IA 360	380	375	IA 380	395	395	H 390	365	345	IA 340	340	A					
30							A	A	A	A	A	A	A	A	A	A	350	350	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	6	13	15	17	19	18	20	21	22	21	19	15						
MED						UL 330	338	355	360	360	355	365	368	360	360	355	345	345						
UQ							L 340	360	368	370	370	380	380	375	365	365	350	350						
LQ							IA 330	340	350	IA 350	348	IA 360	360	345	355	345	340	332						

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

JUN. 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 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							285	300	305	400	400	395	I A 330	345	360	360	330	325	300					
2						280	270	275	300	300	330	370	340	330	310	310	305	305	I A 300	295				
3							300	295	310	325	330	330	370	330	325	340	315	300	300					
4							315	310	A	A	A	A	A	405	400	385	325	320	I A 315					
5							280	I A 305	315	410	390	415	440	395	355	330	310	340	I A 335					
6						340	300	I A 310	340	340	345	400	370	350	330	315	345	290	280					
7						260	255	260	A	310	315	310	365	350	360	335	305	280	270					
8						255	280	290	310	A	390	340	360	370	365	345	340	305	285					
9							275	300	310	305	360	390	360	355	345	315	310	295	290					
10						280	285	275	270	A	350	310	335	I A 360	365	325	320	310	I A 305					
11						295	315	295	265	355	360	340	355	370	355	330	350	A	A					
12							320	280	300	280	355	340	A	380	340	315	300	315	290					
13							300	250	270	340	315	460	390	365	355	330	330	315	300					
14						275	275	250	300	315	360	385	I A 420	405	380	345	320	310	280					
15							305	335	290	310	325	350	400	360	395	350	320	315	295					
16						300	305	305	305	I A 405	355	425	410	I A 385	370	350	340	355	300					
17						270	260	290	340	I A 400	345	345	350	380	340	340	I A 330	300	290					
18						310	350	480	G	I A 435	460	425	440	400	350	I A 360	355	350	330					
19						C	C	C	C	C	C	C	C	500	465	A	450	365	320					
20						300	360	310	275	400	A	485	400	395	360	315	335	340	300					
21							255	360	355	I A 360	430	360	375	370	345	I A 340	315	300	300					
22						270	260	305	290	330	395	355	390	355	350	345	285	295	275					
23						250	270	335	350	380	375	365	350	I A 375	330	350	C	C	C					
24						C	C	C	C	C	C	C	320	330	340	305	315	I A 320	295					
25							295	310	290	315	I A 350	400	345	345	345	I A 325	315	I A 310	305	290				
26							290	310	305	A	A	425	390	390	355	395	325	325	315					
27						345	I A 320	I A 340	350	275	G	455	R	390	395	390	355	355	325					
28						265	475	400	345	345	G	I A 500	505	430	395	355	355	325	310					
29						260	260	345	355	390	A	510	415	455	395	430	365	325	315					
30							305	355	290	A	A	A	A	A	A	350	375	345	310	295				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						16	28	28	26	23	23	26	25	29	29	29	29	28	28	3				
MED						278	292	305	305	340	360	388	370	370	355	340	325	315	300	295				
UQ						300	310	335	340	395	392	425	400	395	370	350	345	332	312	295				
LQ						262	272	290	290	312	345	345	350	355	345	325	315	302	290	292				

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 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 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	295	285	270	280	290	250	A	A	A	A	220	205	I A 205	205	220	I A 245	I A 235	I A 250	I A 265	280	265	250	270	300
2	290	295	270	305	245	245	A	A	205	215	200	195	195	I A 210	I A 220	I A 230	235	A	A	A	310	265	275	285
3	285	270	245	255	270	255	240	230	I A 210	I A 205	I A 205	205	200	210	210	225	230	240	245	270	265	290	I A 300	305
4	235	240	I A 300	I A 305	310	245	A	A	A	A	A	A	A	A	I A 235	I A 245	I A 235	I A 245	I A 255	255	265	310	315	I A 340
5	I A 320	I A 305	I A 320	290	320	315	A	A	A	230	A	A	A	A	A	A	A	A	A	A	285	290	280	305
6	265	295	270	275	250	230	A	A	A	A	A	A	A	A	A	A	225	230	250	250	290	285	270	265
7	290	295	260	290	290	230	I A 235	I A 235	I A 235	230	205	I A 210	210	235	230	245	I A 230	240	I A 250	250	270	310	305	265
8	315	305	255	280	I A 305	240	I A 245	A 235	A	A	A	190	H 230	215	235	235	A	A	A	300	295	290	I A 330	285
9	290	285	260	255	255	235	A	A	A	A	I A 220	210	215	A	A	A	225	I A 240	245	250	280	260	310	290
10	300	I A 290	265	265	255	235	240	240	A	A	A	A	A	A	220	A	A	A	A	I A 290	290	315	300	280
11	290	305	295	270	245	255	A	A	A	A	I A 215	215	215	245	215	A	A	A	A	A	285	230	250	325
12	280	285	290	250	280	245	A	A	A	A	A	A	A	A	A	235	235	255	250	265	245	255	260	280
13	280	290	260	265	255	250	240	I A 230	230	200	I A 220	I A 225	200	215	215	A	A	240	255	260	270	310	300	255
14	320	280	305	290	285	245	I A 240	230	A	A	215	A	A	A	A	A	A	A	230	255	I A 250	250	280	290
15	290	280	250	250	265	235	235	240	A	A	A	A	A	A	240	235	A	A	A	295	285	I A 305	310	250
16	250	315	315	330	315	265	I A 250	I A 225	245	I A 235	240	210	A	A	240	230	240	240	255	255	265	295	305	315
17	280	295	290	255	260	245	240	245	A	A	A	205	A	A	A	A	A	I A 240	240	245	250	285	305	A 355
18	350	355	300	325	345	280	250	I A 240	A	A	A	I A 230	250	A	A	A	A	A	A	A	I A 335	340	340	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	I A 210	I A 220	I A 235	235	I A 245	255	295	I A 285	300	295	350
20	310	305	325	I A 320	I A 305	260	A	A	A	205	A	A	A	240	225	A	A	A	A	270	300	315	315	305
21	295	310	280	250	250	245	235	215	250	I A 240	235	I A 225	I A 225	I A 230	A	A	A	245	260	250	245	275	300	310
22	260	280	305	270	240	245	I A 230	240	I A 230	230	A	A	A	I A 215	220	225	235	240	I A 255	290	A	295	290	290
23	285	290	255	250	280	245	215	230	A	A	A	A	A	A	220	I A 235	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	210	A	A	A	A	A	A	280	280	305	295	290
25	285	290	290	290	I A 340	I A 325	A	210	215	230	A	A	A	A	A	A	A	A	A	A	285	280	I A 280	I A 320
26	340	315	310	I A 320	295	270	I A 240	I A 220	A	A	A	A	A	I A 205	230	A	A	A	A	A	A	265	320	I A 350
27	305	310	285	285	295	260	A	A	A	220	210	195	210	A	A	A	235	240	I A 265	290	285	255	280	295
28	285	265	285	295	295	255	A	A	A	A	A	I A 210	210	200	220	I A 235	240	A	A	295	260	290	305	290
29	285	295	295	245	240	A	A	A	215	A	A	190	I A 200	H 190	I A 210	235	I A 240	I A 245	I A 255	270	250	280	305	300
30	305	300	310	295	295	240	A	A	A	A	A	A	A	A	A	A	250	I A 240	A	A	300	300	245	310
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	27	14	15	9	11	11	15	14	14	18	14	15	16	16	22	27	29	29	28
MED	290	295	288	280	282	245	240	230	230	230	215	210	210	212	220	235	235	240	255	270	280	290	300	298
UQ	305	305	302	295	300	258	240	240	235	230	220	I A 212	215	230	230	235	238	245	255	290	288	305	305	312
LQ	282	285	262	255	255	242	235	228	215	210	208	200	200	205	220	230	232	240	248	255	265	265	280	285

The Radio Research Laboratories, Japan

JUN. 1972 | H'F (KM)

IONOSPHERIC DATA

JUN. 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 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	105	105	110	E	S	135	130	120	115	115	115	115	115	115	125	115	110	130	115	115	110	110	105	105
2	100	100	100	100	100	140	125	115	115	115	115	115	110	105	105	105	140	120	115	100	110	110	105	105
3	105	105	E	105	E	145	130	125	120	115	115	115	115	140	150	G	105	145	120	115	115	115	115	110
4	110	105	105	105	100	130	125	120	115	115	110	110	125	125	125	125	125	115	115	115	110	110	110	105
5	105	100	100	100	100	120	115	115	115	110	105	105	105	100	100	100	120	100	105	110	110	110	105	105
6	105	100	100	105	105	130	125	125	115	115	115	115	115	115	110	105	110	140	120	105	100	105	110	105
7	105	105	105	100	S	140	130	115	120	120	120	115	110	115	110	130	130	140	125	115	110	110	110	105
8	105	100	105	105	100	105	125	125	115	115	115	115	110	G	105	100	105	110	100	110	110	110	110	105
9	110	105	105	E	S	140	120	115	115	115	115	115	125	130	125	120	130	110	105	100	110	105	110	110
10	105	105	105	100	100	100	120	115	115	110	105	105	100	105	155	130	125	120	115	115	115	110	110	105
11	100	105	110	105	105	130	125	125	125	115	115	115	110	145	115	115	115	115	115	110	105	110	110	105
12	110	105	100	100	100	100	115	125	115	115	115	115	105	105	105	110	105	105	135	105	100	100	100	105
13	105	105	105	105	100	110	130	120	120	115	115	110	110	110	105	100	105	100	100	110	100	100	105	115
14	100	105	100	100	100	110	105	105	125	125	125	120	115	115	115	120	115	115	115	105	110	110	110	105
15	105	105	S	S	105	G	G	150	130	125	120	115	115	115	115	150	120	120	115	110	110	100	105	110
16	110	105	105	110	105	140	135	125	125	115	115	120	125	115	105	125	G	G	G	105	100	115	105	110
17	110	105	105	100	105	105	105	135	120	115	110	120	115	115	110	115	110	110	105	100	100	105	115	110
18	105	105	105	105	S	140	120	125	120	115	115	110	G	125	115	115	115	115	115	115	110	130	110	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	125	125	115	120	115	105	105	110	110	110	110
20	105	105	105	105	105	105	125	115	110	125	130	135	140	110	130	110	110	115	115	105	110	115	110	105
21	105	105	105	100	100	G	140	130	130	125	125	125	120	115	115	110	105	105	105	105	105	100	105	105
22	105	105	110	100	105	150	120	125	125	125	125	120	120	110	110	115	G	G	125	115	115	110	110	110
23	110	S	S	E	S	140	140	125	120	115	110	115	115	115	115	115	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	140	125	125	125	130	125	125	115	115	110	110	110
25	105	100	105	115	105	115	115	120	120	120	115	115	115	115	110	105	105	105	100	100	100	100	105	110
26	110	105	105	105	105	125	125	125	125	115	115	115	115	105	105	125	125	125	115	110	110	110	110	105
27	105	100	105	100	100	G	125	125	115	115	115	115	G	110	105	105	105	135	120	115	110	105	105	105
28	S	105	100	E	S	130	125	125	125	120	115	115	115	G	G	115	120	130	125	120	110	110	110	110
29	S	105	100	E	100	115	115	115	120	115	110	110	105	105	150	150	125	125	115	110	105	105	105	100
30	100	100	100	100	S	G	125	125	115	115	110	110	110	110	110	110	110	110	125	115	115	110	110	105
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	25	22	20	24	27	28	28	28	28	28	27	28	29	29	27	27	28	29	29	29	29	28
MED	105	105	105	102	100	130	125	125	120	115	115	115	115	115	115	115	115	115	115	110	110	110	110	105
UQ	110	105	105	105	105	140	128	125	125	120	115	115	118	120	125	125	125	125	120	115	110	110	110	110
LQ	105	102	100	100	100	110	120	115	115	115	112	112	110	110	105	110	108	110	105	105	105	105	105	105

The Radio Research Laboratories, Japan

JUN. 1972 | H'ES (KM)

IONOSPHERIC DATA

JUN. 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	F3	F2	F1			H3	H2	H3	C3	C2	C1	C1	C2	C1	H1	C3	L3	H3	C2	C3	L3	F2	F3	F4
2	F3	F2	F2	F2	L3	H1	H3	C4	C2	C2	C1	C1	L1	L3	L3	L2	H1	C2	C4	L4	L3	F3	F3	F3
3	F3	F2		F2		H2	H2	H2	H3	C2	C3	C1	C1	H1	H2		L2	HL11	C2	C4	L4	F3	F5	F6
4	F2	F3	F3	F4	L4	H3	H5	H5	C5	C3	L3	L3	H2	H2	H2	H2	H3	C2	C3	C3	L4	F6	F4	F4
5	F4	F4	F4	F2	L2	C4	C4	C4	C2	L2	L2	L2	L2	L3	L3	L2	HL22	L4	L5	L4	L3	F3	F3	F4
6	F3	F4	F2	F2	L1	H3	H3	H3	H3	C3	C2	C2	C2	C3	L2	L2	L2	H1	CL22	L2	L2	F2	F3	F2
7	F2	F2	F2	F2		H1	H3	C2	H3	C2	C1	C2	L2	C1	L3	H1	H2	H2	H3	C3	L3	F3	F4	F2
8	F3	F3	F2	F3	L4	L4	H4	H2	C3	C3	C2	C1	L2		L1	L2	L3	L3	L3	L3	L4	F4	F4	F3
9	F2	F1	F1			H1	H2	C3	C2	C2	C3	C2	H1	H2	H2	H2	H1	L4	L2	L1	L3	F3	F3	F2
10	F3	F3	F2	F2	L3	L2	C1	C2	C2	L2	L3	L2	L2	L3	H1	H2	H2	C4	C4	C3	L4	F4	F3	F3
11	F2	F2	F3	F3	L4	H2	H3	H3	H2	C2	C2	C2	L1	H1	C1	C2	C3	C4	C4	L3	L3	F1	F2	F2
12	F1	F2	F3	F2	L3	L3	C4	H3	C3	C3	C2	C2	L2	L2	L2	L2	L1	L2	H2	L2	L2	F2	F2	F2
13	F3	F2	F1	F2	L4	L1	H1	H3	H2	C1	C2	L1	L2	L1	L2	L2	L4	L2	L3	L2	L3	F4	F3	F1
14	F3	F2	F2	F3	L2	L2	L4	L2	H3	H1	H1	H1	C2	C2	C2	H1	C2	C3	C2	L3	L4	F2	F4	F2
15	F3	F2			L1			H1	H2	H2	H2	C2	C1	C2	C1	H1	C2	H3	C3	L3	L5	F4	F3	F2
16	F2	F2	F3	F2	L4	H2	H1	H2	H1	C2	C1	H1	H1	C4	L1	H2				L2	L3	FF22	F2	F4
17	F1	F2	F2	F1	L3	L3	L2	H1	H2	C4	L3	C1	C2	C2	L2	C2	L2	L2	L3	L3	L3	F2	F2	F4
18	F3	F5	F1	F1		H1	H1	H2	C2	C2	C2	L2		H2	C3	C3	C3	C2	C3	C4	L3	F2	F2	
19														H1	H2	C2	C1	C3	L2	L2	L2	F2	F3	F4
20	F3	F3	F4	F4	L3	L4	H3	C2	L2	H1	H2	H2	H1	L2	H1	L2	L2	C4	C3	L3	L3	F3	F3	F4
21	F2	F2	F2	F1	L2		H1	H1	H1	H2	H1	H2	H1	C1	C2	L4	L3	L2	L2	L3	L3	F3	F3	F5
22	F2	F1	F3	F4	L2	H2	H2	H2	HL21	H2	H2	H2	C2	L2	L1	C1			H2	C4	C5	F3	F2	F2
23	F3					H1	H1	H1	C2	C2	L2	C1	C2	C2	C1	C1								
24													H1	H1	H3	H3	H3	H3	H3	C3	C3	F3	F3	F3
25	F3	F2	F1	F2	L3	C3	C4	C1	C2	H1	C2	C3	C2	C2	L1	L4	L4	L5	L4	L5	L6	F4	F5	F5
26	F3	F4	F3	F3	L2	H3	H2	H3	H2	C2	C2	C2	C2	L2	L1	H2	H2	H2	C4	L3	L4	F3	F4	F4
27	F4	F3	F3	F2	L2		H3	H3	C2	C2	C1	C1		L2	L2	L3	L1	H2	C2	C3	L4	F3	F3	F3
28		F1	F1			H2	H3	H2	H3	H2	C2	C1	C1			C2	C1	H2	H4	C2	L2	F3	F3	F2
29		F1	F2		L1	C4	C3	C3	C1	C2	L3	L1	L2	L2	H1	H1	H2	H1	C3	L3	L3	F3	F3	F3
30	F3	F4	F3	F1			H2	H3	C2	C4	L2	L3	L3	L3	L3	L3	L2	L2	H4	C4	C4	F3	F2	F4
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

JUN. 1972 | TYPES OF ES

IONOSPHERIC DATA

JUN. 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 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	U R 62	60	56	55	J R 59	71	U R 70	J R 73	72	77	78	A	A	R 75	75	R 72	J R 75	I R 75	J R 78	I R 76	J R 76	I R 78	R 76	70
2	R 68	66	R 62	F 60	62	70	J R 81	78	73	70	69	J R 74	83	93	100	98	86	89	88	A 70	F	S	S	
3	U S 70	I S 70	S 70	58	F	60	76	87	78	82	89	86	89	95	92	88	I R 88	83	R 84	92	82	85	S	C
4	80	66	F	F	F	64	84	C	C	70	A	75	75	I A 76	78	80	87	85	89	86	S 74	71	J R 78	J S 76
5	F	F 78	S 73	66	F 64	71	75	59	A	63	65	U R 70	76	84	89	93	91	86	91	91	J R 80	R	S	S
6	S 84	S	S	69	64	70	J R 77	J R 78	81	90	81	75	J R 85	91	95	92	86	87	R 90	86	S	S	J S 90	I S 84
7	U S 79	J S 79	S 75	J S 74	S 70	U R 81	96	91	85	91	85	I R 84	91	93	91	R 97	J R 105	100	J R 100	86	I A 78	80	S	S
8	S	S	S	S	F	71	87	86	81	82	79	J R 89	81	81	90	A	A	I A 95	A	A	J R 85	81	S	S
9	S	S	U S 80	J S 80	S	75	92	84	78	79	81	84	91	100	101	106	108	102	96	85	J R 87	86	R	R
10	S	S	S	S	S	I S 79	82	90	72	74	79	90	89	88	94	R 102	106	96	93	95	A	F	F	J S 89
11	F 84	F	U F 78	F 78	U F 75	70	91	95	82	76	82	83	87	R 89	91	94	89	95	J R 104	J F 100	S	A	F	A
12	U F 84	F	F	J F 90	U F 80	F 75	84	98	J S 102	A	81	76	79	91	106	111	R	96	96	92	91	86	83	I R 79
13	79	79	R 74	R 71	R 75	78	86	89	71	R 70	J R 70	72	80	U R 90	96	96	92	90	96	J R 104	91	S	S	S
14	S	S	S	S	F	F	85	J R 86	69	67	A	66	70	80	91	J R 100	R 105	97	96	96	87	76	S	S
15	S	S	S	I S 71	S 65	65	68	85	J R 100	103	83	76	81	95	97	100	100	93	J R 90	81	81	J S 81	S	S
16	S	S	S	S	S	100	91	82	65	A	79	68	71	77	89	93	86	J R 75	81	81	U R 72	R	S	S
17	S	U S 71	U S 70	S 70	66	71	79	J R 74	71	79	78	80	79	I A 82	94	92	93	95	86	S 77	S 76	U S 77	I S 76	S 74
18	74	S	U F 70	69	64	65	70	57	56	81	87	85	R 87	96	100	93	79	78	69	66	65	U S 70	I S 74	62
19	U S 61	65	70	U S 68	74	J R 84	75	80	74	A	A	J R 57	A	R	R	54	58	65	66	70	J R 71	I R 70	S 73	S 65
20	R 66	65	66	61	60	65	81	90	R 76	I A 60	R	U R 61	70	79	84	80	74	I A 72	J S 78	80	79	J S 74	J R 77	I S 74
21	72	70	67	R 70	63	62	59	59	66	66	68	R 73	79	87	90	91	97	96	90	89	80	S 75	80	79
22	76	74	67	66	J R 64	82	73	65	65	67	R 70	76	76	87	91	94	102	95	89	82	J S 84	J S 86	S 86	J S 78
23	76	78	75	71	68	70	75	80	86	84	91	84	87	89	98	99	96	S	83	80	80	I S 80	U S 78	81
24	A	J F 80	F	73	F 65	65	78	92	82	75	86	90	98	A	94	94	93	90	94	A	S 70	U S 70	S	F
25	F	J F 74	F	J F 69	F	72	81	71	A	75	A	A	91	96	97	99	99	89	83	A	S 79	U R 79	I 67	J F 65
26	J S 70	J S 74	S 73	U S 71	64	66	79	85	83	75	77	80	I R 82	90	90	82	85	92	95	U R 102	R	S	S	S
27	S	S 60	S	S	F	61	63	A	A	A	A	60	60	70	70	68	71	72	70	J S 75	I S 76	S 71	I S 68	S 63
28	S 65	61	56	54	51	61	60	A	70	R	58	60	A	78	81	85	84	76	J R 79	J R 79	S 75	70	I S 70	S
29	R	S	64	64	I S 62	60	62	A	A	70	R	62	65	70	70	72	73	74	81	80	S	66	I S 66	U S 70
30	68	S	S 66	65	62	66	79	90	J R 89	70	R	70	82	88	88	81	87	88	J R 101	J R 105	U S 85	S	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	19	24	21	29	30	26	25	25	22	28	27	28	29	29	28	29	29	26	25	21	15	15
MED	73	70	70	69	64	70	79	84	76	75	79	76	81	88	91	93	88	89	89	86	79	77	S 78	S 74
UQ	79	78	S 74	71	68	75	84	90	82	81	83	84	87	92	96	98	98	95	95	92	84	81	79	S 79
LQ	68	65	66	64	62	65	73	74	71	70	70	69	76	80	89	82	84	78	81	80	75	S 71	I S 72	S 68

JUN. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

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

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

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							500L	A	A	A	A	A	A	490L	500	500L	410L	L	A					
2						L	L	A	A	480L	480L	520L	A	A	490L	490L	A	L						
3							L	A	480L	560L	510	520L	A	520	510	480	A	L	A					
4							A	C	C	540	A	A	510	A	A	480	A	U L 450	A					
5						L	L	L	A	490	A	A	A	R	A	A	A	A	A					
6								L	A	A	A	A	R 530	U L 530	490L	480L	490L	L	L					
7							L	A	A	A	500L	560L	A	510L	510L	490	A	A						
8							L	A	L	A	A	A	A	530	A	A	A	A						
9							L	A	L	A	580L	530L	530L	520L	A	A	A	A	L					
10							L	A	A	A	A	A	A	550	540	A	A	A	A					
11							L	A	A	A	A	550L	540	A	A	A	490L	A	A					
12								L	A	A	A	R 510	R 510	R 550	A	A	A	L	L					
13							L	L	A	500L	A	A	A	A	A	A	460L	440L						
14								L	L	520L	A	A	A	A	520L	490	470L	A	L					
15							L	460L	L	A	A	A	A	530L	A	A	A	A	A					
16						L	L	L	A	A	510L	550L	A	520L	500	A	460L	420L	L					
17							L	450L	520L	490L	A	A	A	A	A	490H	A	L						
18						U 350L	420	L	460	510H	510	510	A	A	500	500L	A	440L	A					
19							410	430	A	A	A	480	A	490L	A	A	450	420L	400L					
20						L	400L	410L	470L	A	510	540L	510	A	490	A	510L	A	A					
21								L	L	A	A	A	A	A	A	A	A	450L	L					
22									A	500	A	A	550L	A	510	500	460L	450L	L					
23							L	490L	L	A	A	A	520	A	A	470	460L	A	A					
24							L	A	L	A	530	A	A	A	A	500	460L	A	A					
25						L	A	L	A	A	A	A	A	A	A	A	A	430L	L					
26							L	L	500	500	A	A	530L	A	L	480L	470L	A	L					
27							A	A	A	A	A	500	500	500	480L	480L	450L	A	A					
28							440L	A	A	A	A	A	A	500	490L	460	450L	420L	L					
29						L	L	A	A	A	490L	500	500	490L	500	480	460L	440L	L					
30						L	L	460L	500L	A	A	A	A	A	A	A	A	440L	L					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	5	6	6	10	9	12	11	14	14	16	15	11	1					
MED						U 350L	420L	455L	490L	500	510L	520L	520	520L	500	485	460L	440L	400L					
UQ							440L	460L	500L	520L	510	545L	530	530	510	495	470L	445L						
LQ							410	430L	470L	490	500L	505	510	500L	490L	480	455L	425L						

The Radio Research Laboratories, Japan

JUN. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	245	290	325	325	A	B	A	B	B	R 350	I R 320	275	A					
2						I A 200	250	290	310	325	325	350	A	A	A	A	325	275	A					
3						200	260	I A 300	I A 310	350	A	A	A	A	A	350	A	I A 270	220					
4						205	260	C	C	340	360	375	390	385	365	345	320	260	A					
5						A	255	300	A	A	A	A	A	A	A	A	A	285	A					
6						A	285	310	350	R 360	A	A	R	B	R	A	320	290	A					
7						A	I A 270	315	340	I A 350	A	A	A	A	A	A	A	A	A					
8						190	275	I A 310	I A 340	A	A	A	A	A	A	360	320	A	A					
9						A	A	300	A	A	A	A	A	R	385	I A 350	A	A	A					
10						A	265	300	I A 320	350	A	A	A	B	410	365	330	I A 280	A					
11						185	290	310	360	365	370	A	A	A	A	A	340	290	A					
12						190	265	I A 320	360	A	A	B	A	B	A	A	A	A	A					
13						200	280	300	340	R 360	I R 370	385	A	A	A	A	R 330	280	A					
14						A	A	250	A	365	A	B	A	A	R	360	325	300	A					
15						190	R 260	310	345	I A 350	R 360	365	A	A	A	A	330	A	A					
16						A	265	320	345	360	385	395	A	B	375	335	I R 320	290	220					
17						A	A	A	345	365	385	R 385	R 395	I R 380	360	350	A	A	A					
18						A	270	320	I A 330	350	365	370	370	355	380	350	310	270	A					
19						190	255	295	330	R 350	365	R	A	B	350	330	I A 290	A	A					
20						A	250	I A 290	R	360	A	A	I A 380	395	395	360	325	280	A					
21						A	275	310	320	365	R 385	390	390	A	A	A	A	A	A					
22						210	A	A	345	360	370	I A 370	375	A	A	A	330	285	215					
23						195	265	300	320	355	365	375	380	365	350	A	A	A	A					
24						A	A	305	340	R 365	370	A	A	A	370	355	320	275	210					
25						A	A	A	A	365	A	A	A	A	A	A	A	A	A					
26						A	260	305	335	R 360	A	A	R 375	A	R	350	325	260	A					
27						190	250	300	I A 320	A	A	A	A	A	A	R	320	275	220					
28						A	I A 260	300	340	I A 350	360	I A 360	A	A	A	A	A	A	235					
29						175	250	300	I A 320	345	A	A	A	A	R	R	320	290	A					
30						190	260	290	340	350	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						14	24	26	24	25	14	11	8	5	10	14	19	18	6					
MED						190	260	300	340	355	368	375	380	380	372	350	320	280	220					
UQ						200	270	310	345	360	370	385	390	385	385	360	328	290	220					
LQ						190	255	300	320	350	360	368	375	365	360	350	320	275	215					

JUN. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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	20	J X 28	J X 29	J X 19	J X 24	30	J X 41	J X 50	70	J X 74	J X 89	J X 90	95	E B 40	42	J X 54	G	36	J X 41	J X 64	J X 54	J X 49	J X 29	J X 29
2	J X 29	J X 24	J X 29	J X 30	E B 13	25	34	J X 54	J X 58	39	37	G	J X 66	J X 56	45	40	J X 54	J X 105	95	J X 109	J X 79	J X 49	J X 54	J X 51
3	J X 32	J X 22	J X 25	J X 25	E B 12	24	34	J X 65	J X 54	J X 74	J X 107	J X 56	J X 82	J X 56	46	42	J X 49	J X 48	J X 61	70	J X 75	J X 95	J X 125	C
4	J X 74	J X 82	J X 30	J X 30	J X 30	J X 32	J X 84	C	C	J X 94	J X 76	J X 61	45	M 83	J X 83	46	J X 86	J X 38	J X 54	J X 42	36	J X 36	J X 40	J X 43
5	36	J X 30	J X 48	20	J X 22	J X 30	50	J X 74	J X 87	J X 84	J X 70	J X 84	J X 74	55	J X 63	J X 65	J X 89	91	J X 85	J X 64	J X 75	J X 74	J X 40	J X 36
6	J X 34	J X 30	J X 35	J X 30	J X 30	J X 40	J X 54	J X 60	J X 61	J X 56	J X 54	J X 80	45	43	G 31	41	G 28	39	J X 36	J X 29	21	J X 39	J X 51	J X 51
7	J X 39	J X 25	J X 26	J X 29	J X 54	J X 36	J X 41	J X 51	J X 100	62	40	J X 43	59	45	47	38	J X 50	J X 75	J X 54	J X 62	J X 89	J X 84	J X 75	J X 64
8	J X 74	J X 80	J X 30	J X 29	J X 25	J X 29	29	J X 54	J X 47	J X 58	J X 72	J X 84	J X 73	J X 42	J X 65	D	D	103	95	J X 135	J X 52	J X 54	J X 51	J X 54
9	J X 41	J X 29	J X 39	M 22	J X 20	31	37	J X 54	J X 86	J X 85	J X 54	45	J X 84	G	J X 53	J X 120	J X 105	J X 74	J X 30	J X 36	J X 29	J X 24	J X 40	J X 40
10	J X 51	J X 64	J X 61	J X 29	J X 36	J X 29	34	J X 56	J X 60	J X 68	J X 64	J X 72	60	47	53	J X 135	J X 115	J X 170	J X 76	J X 38	J X 90	J X 37	J X 52	J X 76
11	36	J X 54	J X 30	J X 29	J X 26	J X 29	J X 52	J X 59	J X 74	J X 89	J X 119	J X 74	J X 54	J X 84	J X 72	J X 84	46	J X 59	J X 84	J X 60	J X 58	J X 130	J X 89	M 81
12	J X 60	J X 54	J X 30	J X 56	J X 30	J X 29	36	J X 51	J X 61	D	J X 72	45	43	41	J X 52	J X 84	80	J X 44	J X 30	J X 30	J X 29	J X 21	21	J X 28
13	J X 38	J X 40	J X 29	J X 29	J X 20	27	J X 41	J X 40	66	46	J X 60	J X 64	56	J X 74	J X 60	J X 60	G 28	J X 37	J X 40	J X 45	J X 28	J X 89	J X 59	J X 54
14	J X 54	J X 46	J X 30	J X 25	J X 40	J X 54	J X 50	J X 54	J X 49	J X 50	J X 86	64	J X 65	J X 55	46	J X 44	44	J X 65	J X 41	J X 54	J X 29	J X 24	J X 54	J X 30
15	J X 54	J X 29	J X 25	J X 25	23	24	J G 22	35	46	J X 60	J X 60	J X 55	60	45	50	J X 54	J X 66	J X 89	J X 89	J X 74	J X 54	J X 50	J X 75	J X 36
16	J X 41	J X 29	J X 43	J X 30	J X 29	25	36	J X 55	J X 46	J X 148	J X 54	J X 54	J X 81	45	45	50	G	36	G 20	J X 25	J X 25	20	J X 51	J X 29
17	J X 30	J X 41	J X 34	J X 41	J X 32	J X 36	J X 36	35	41	43	J X 56	J X 59	60	J X 88	J X 63	J X 56	J X 61	J X 38	J X 41	J X 31	J X 62	J X 24	J X 25	J X 36
18	J X 49	J X 52	J X 74	J X 30	21 M	27	J X 30	39	J X 41	40	G	42	79	J X 76	41	39	J X 59	33	J X 40	J X 27	J X 26	48	J X 28	J X 26
19	J X 23	J X 29	J X 53	J X 15	J X 30	J X 41	35	J X 42	J X 90	92	62	J X 46	60	J X 48	55	J X 60	J X 54	J X 60	J X 40	J X 35	J X 30	J X 35	J X 24	J X 29
20	J X 30	J X 24	J X 20	J X 19	J X 24	J X 25	G	37	G	J X 89	J X 65	J X 54	47	J X 58	49	J X 65	J X 54	J X 77	J X 40	J X 26	J X 60	J X 53	J X 51	J X 51
21	J X 34	J X 40	J X 22	J X 34	J X 26	J X 27	G 17	34	39	J X 64	54	J X 65	J X 64	J X 84	J X 110	J X 68	J X 60	J X 41	J X 50	J X 41	J X 50	J X 42	J X 30	J X 54
22	J X 30	J X 28	J X 19	21 M	J X 40	J X 41	J X 50	J X 48	J X 51	47	55	J X 58	J X 47	J X 61	38	36	G	G	26	J X 25	J X 53	J X 54	J X 33	22
23	J X 29	24	J X 20	J X 20	E B 12	G	28	41	J X 55	J X 74	77	J X 61	43	J X 60	J X 51	40	45	J X 73	J X 55	J X 42	J X 25	J X 26	J X 31	J X 63
24	J X 103	J X 64	J X 29	J X 36	17	27	J X 53	J X 54	46	60	J X 60	J X 101	J X 82	J X 102	J X 72	49	42	J X 72	J X 90	J X 183	J X 54	J X 54	J X 69	J X 53
25	J X 43	J X 61	J X 53	J X 25	J X 42	J X 58	J X 58	J X 56	J X 84	J X 74	J X 144	J X 110	J X 82	J X 79	66	J X 56	J X 60	J X 39	J X 38	J X 90	J X 80	J X 42	J X 24	J X 36
26	J X 61	J X 55	J X 85	J X 44	J X 18	25	36	46	J X 41	J X 48	J X 129	J X 94	J X 66	J X 64	G	41	36	J X 46	26	J X 54	J X 54	J X 54	J X 54	J X 79
27	J X 60	J X 54	J X 54	J X 41	J X 54	21	J X 49	J X 89	92	90	77	J X 41	J X 41	J X 41	40	G 34	36	J X 50	J X 50	J X 54	J X 30	J X 28	J X 24	J X 36
28	J X 36	J X 29	J X 19	J X 19	22	25	J X 43	66	J X 59	65	J X 58	J X 55	J X 94	42	J X 41	J X 41	35	J X 30	27	J X 19	16	J X 29	J X 134	J X 36
29	J X 56	J X 30	J X 35	J X 30	E S 15	24	J X 49	J X 84	J X 95	52	J X 48	44	46	46	42	43	36	35	J X 33	J X 30	22 M	J X 33	J X 41	J X 29
30	J X 29	J X 29	J X 29	J X 19	J X 19	21	G	J X 40	43	J X 64	56	52	55	J X 73	J X 68	J X 109	J X 64	J X 40	30	J X 54	J X 88	J X 54	J X 51	J X 75
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29
MED	J X 38	J X 30	J X 30	J X 29	J X 24	28	J X 36	J X 54	J X 58	J X 64	J X 61	J X 58	60	J X 56	50	J X 52	52	J X 47	J X 41	J X 44	J X 52	J X 45	J X 51	J X 40
UQ	J X 54	J X 54	J X 43	J X 30	J X 30	J X 32	J X 50	J X 56	J X 74	J X 85	J X 77	J X 74	J X 79	J X 74	J X 63	J X 65	J X 64	J X 74	J X 61	J X 64	J X 62	J X 54	J X 54	J X 54
LQ	J X 30	J X 29	J X 26	J X 21	20	25	34	J X 41	J X 46	52	J X 54	J X 46	47	45	42	41	36	J X 38	J X 33	J X 30	J X 29	J X 29	J X 30	J X 30

The Radio Research Laboratories, Japan

JUN. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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 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	20	20	18	E	21	32	48	62	54	60	A	A	E B 40	42	42	G	35	41	40	31	20	16	18
2	25	E	24	21	E B 13	22	33	49	51	38	37	G	52	52	44	38	50	40	83	A	25	25	32	16
3	20	19	14	16	E B 12	22	31	64	43	43	40	44	75	48	45	40	E R 50	40	48	55	52	15	40	C
4	30	34	E	E	25	25	68	C	C	42	A	59	44	A	51	40	54	33	52	38	35	26	40	40
5	26	25	15	19	E	G	40	43	A	41	58	51	54	E R 55	62	64	75	80	80	31	25	70	25	20
6	20	20	24	25	25	33	54	54	58	50	53	70	42	41	E R 31	38	G 26	38	32	25	E	39	35	25
7	29	20	22	20	26	G	36	46	75	54	40	41	59	42	45	38	49	72	40	62	A	62	39	52
8	50	32	25	19	19	16	29	49	45	55	51	58	50	40	50	A	A	A	A	A	40	40	25	43
9	39	21	25	16	16	22	30	46	41	59	50	43	42	G	50	51	84	61	25	25	26	23	30	35
10	50	19	40	25	20	24	29	55	59	58	64	70	60	45	52	95	95	65	71	30	A	24	40	65
11	20	29	18	15	15	24	30	55	74	55	70	52	44	55	55	52	43	55	41	16	18	A	65	A
12	40	E	20	15	15	15	30	42	60	A	69	45	41	41	50	58	E R 80	43	25	20	24	20	E	19
13	22	20	18	20	E	26	35	35	65	44	58	61	55	59	59	55	G 26	35	40	40	24	22	40	30
14	18	33	25	16	19	40	48	40	40	47	A	59	60	55	42	40	40	59	31	50	25	E	40	25
15	29	26	18	20	15	15	19	34	45	55	58	50	58	44	50	54	63	63	42	56	50	26	50	25
16	20	22	30	19	E	22	33	41	45	A	44	46	61	44	40	49	G	31	G 16	19	20	E	40	20
17	27	19	E	32	25	33	G	34	38	42	55	58	59	A	62	41	50	37	40	18	38	24	23	25
18	30	41	38	E	E	26	G	36	40	37	G	42	75	76	41	39	55	33	40	25	24	46	19	E
19	19	21	25	E	28	30	29	35	68	A	A	44	A	48	51	51	40	31	32	25	25	16	20	25
20	24	25	15	16	16	23	G	34	G	A	44	49	46	57	47	52	43	A	40	19	51	32	44	51
21	29	40	15	32	18	25	G 17	34	36	60	52	65	59	66	58	65	55	40	33	22	50	22	22	40
22	26	20	16	E	25	18	26	44	50	46	55	52	44	54	38	E R 36	G	G	25	22	19	18	25	E
23	23	15	E	E	E B 12	G	28	36	48	65	74	57	42	51	51	40	40	58	55	38	16	25	31	63
24	A	16	19	16	E	25	40	44	44	56	44	74	75	A	68	44	42	70	89	A	40	30	57	49
25	40	42	16	17	30	26	48	44	A	64	A	A	70	75	66	50	60	34	27	A	57	29	15	25
26	54	44	15	16	16	21	32	39	40	44	55	58	44	53	G	41	35	40	26	41	50	40	44	26
27	40	34	45	25	25	21	40	A	A	A	A	39	41	40	32	E R 34	33	34	45	35	23	25	16	30
28	31	25	16	E	E	22	38	A	55	E R 65	53	50	A	41	40	32	34	22	21	16	E	20	15	20
29	35	23	25	20	E S 15	21	36	A	A	50	40	42	45	40	41	E R 43	29	33	31	26	14	26	33	20
30	26	25	24	E	E	21	G	26	41	62	55	51	54	54	61	63	55	35	28	45	45	40	E	22
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29
MED	28	22	20	16	16	22	32	44	50	54	55	52	54	51	50	44	44	40	40	33	26	25	32	25
UQ	39	32	25	20	25	25	38	49	65	63	69	59	61	57	55	54	55	61	48	50	50	39	40	40
LQ	22	20	15	15	E	21	28	36	41	44	44	44	44	41	41	40	34	34	28	22	23	20	20	20

The Radio Research Laboratories, Japan

JUN. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	12	12	12	13	13	15	15	25	16	29	38	26	40	39	22	25	16	15	12	13	13	13	13
2	E_{15}^{S}	13	12	12	13	13	15	15	15	15	25	26	25	25	25	16	15	15	14	13	13	14	12	13
3	13	12	12	12	12	13	14	15	12	15	15	25	35	25	16	15	15	14	14	12	E_{15}^{S}	12	14	C
4	14	14	14	E_{15}^{S}	13	14	14	C	C	15	25	25	30	32	26	19	15	13	14	13	14	12	14	E_{15}^{S}
5	E_{15}^{S}	13	13	13	12	14	14	15	15	15	28	32	30	24	26	25	13	15	13	13	13	13	13	E_{15}^{S}
6	E_{15}^{S}	12	12	12	13	15	15	14	16	25	40	40	28	39	25	19	15	15	13	13	E_{15}^{S}	12	13	E_{15}^{S}
7	E_{15}^{S}	E_{15}^{S}	12	13	12	13	15	15	15	33	15	29	26	29	30	15	15	15	13	13	12	13	13	13
8	13	13	12	12	13	13	13	15	15	18	29	28	33	28	22	25	15	14	12	13	13	13	12	12
9	E_{15}^{S}	12	12	12	14	15	15	15	15	25	15	29	25	29	25	19	15	13	13	E_{15}^{S}	13	E_{15}^{S}	13	13
10	E_{15}^{S}	13	12	13	13	13	15	15	15	17	26	28	30	40	26	18	14	15	15	12	E_{15}^{S}	13	E_{15}^{S}	14
11	12	14	12	12	12	13	12	14	15	15	29	30	25	31	22	25	16	14	14	13	12	14	13	13
12	13	E_{15}^{S}	12	12	13	14	15	15	15	25	25	40	29	39	25	18	15	13	13	13	E_{15}^{S}	13	E_{15}^{S}	13
13	E_{15}^{S}	13	13	12	13	13	13	15	22	26	26	29	32	25	25	23	19	15	13	12	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}
14	E_{15}^{S}	13	13	13	13	13	13	15	15	15	25	40	30	26	25	20	16	15	15	13	13	E_{15}^{S}	E_{15}^{S}	E_{15}^{S}
15	13	13	13	13	13	13	13	15	15	15	16	26	25	29	25	15	15	15	13	13	E_{15}^{S}	E_{15}^{S}	13	13
16	13	12	13	13	13	14	13	15	15	26	25	26	28	39	22	24	15	15	13	13	12	E_{15}^{S}	12	13
17	E_{15}^{S}	13	E_{15}^{S}	14	13	13	15	15	13	16	22	26	26	26	26	16	15	14	14	13	E_{15}^{S}	E_{15}^{S}	12	12
18	12	12	13	14	14	13	12	14	14	18	20	19	15	26	15	15	16	15	12	12	12	12	12	E_{15}^{S}
19	12	13	12	12	13	12	14	14	14	15	25	25	26	39	19	15	15	15	12	12	E_{15}^{S}	12	12	12
20	E_{15}^{S}	12	12	12	12	12	13	12	15	15	20	15	26	26	28	15	14	13	12	12	E_{15}^{S}	14	13	13
21	E_{15}^{S}	13	13	12	12	12	14	15	19	16	26	29	26	22	23	15	15	15	13	12	E_{15}^{S}	14	13	13
22	14	13	12	14	12	12	14	15	15	22	26	15	26	25	26	26	15	14	12	12	12	E_{15}^{S}	13	E_{15}^{S}
23	E_{15}^{S}	14	14	12	12	14	15	14	15	16	18	26	28	26	22	15	15	14	13	12	12	14	14	E_{15}^{S}
24	E_{15}^{S}	12	E_{15}^{S}	13	14	12	15	14	18	15	23	28	26	26	26	15	15	14	12	14	E_{15}^{S}	12	E_{15}^{S}	E_{15}^{S}
25	13	E_{15}^{S}	14	13	13	14	14	14	15	26	30	26	26	26	36	16	15	15	13	13	E_{15}^{S}	E_{15}^{S}	13	13
26	13	13	13	12	12	13	14	15	14	26	25	34	25	30	19	19	15	15	13	12	E_{15}^{S}	13	12	E_{15}^{S}
27	13	12	13	12	12	13	14	15	15	15	18	28	25	25	25	25	14	15	13	12	E_{15}^{S}	12	13	E_{15}^{S}
28	E_{15}^{S}	12	12	E_{15}^{S}	E_{15}^{S}	14	14	15	15	15	25	26	30	28	25	19	15	15	15	12	13	E_{15}^{S}	13	E_{15}^{S}
29	13	E_{15}^{S}	12	12	E_{15}^{S}	14	13	15	15	26	25	25	30	25	25	15	15	15	15	13	12	13	13	12
30	E_{15}^{S}	12	12	13	12	13	15	15	19	25	25	30	26	22	15	16	15	15	13	13	13	12	E_{15}^{S}	12
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29
MED	13	12	12	12	13	13	14	15	15	16	25	28	26	26	25	18	15	15	13	13	13	12	13	12
UQ	E_{15}^{S}	13	13	13	13	14	15	15	15	25	26	30	30	31	26	22	15	15	14	13	E_{15}^{S}	E_{15}^{S}	14	E_{15}^{S}
LQ	13	12	12	12	12	13	13	14	15	15	20	26	26	25	22	15	15	14	13	12	13	12	13	13

JUN. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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

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 R 275	270	290	275	J R 275	320	U R 275	J R 305	280	285	285	A	A	295 R	280	265 R	J R 300	I R 280	J R 295	I R 290	J R 275	I R 280	290 R	275
2	270 R	280	285 R	285 F	305	315	310 R	320	290	290	285	J R 260	280	280	280	295	305	305	A	A	290	F	S	S
3	U S 70	I S 70	S 70	58	F	60	76	87	78	82	89	86	270	275	285	295	I R 285	285	285 R	300	285	270	S	C
4	300	300	F	F	F	275	300	C	C	295	A	270	270	I A 270	275	290	280	280	300	320	290 S	275	J R 270	J S 275
5	F	F 280	S 285	270	F 285	310	320	275	A	285	270	U R 285	250	265	265	280	275	I A 280	280	285	J R 275	R	S	S
6	S 285	S	S	290	280	300	J R 290	J R 285	285	290	285	I A 270	J R 270	265	275	295	280	290	300 R	300	S	S	J S 280	I S 290
7	U S 265	J S 295	S 295	J S 270	S 285	U R 310	315	295	295	275	270	I R 270	275	280	275	280 R	J R 295	310	J R 310	315	I A 270	260	S	S
8	S	S	S	S	F	275	290	325	280	295	280	J R 280	275	270	280	A	A	I A 290	A	A	J R 285	285	S	S
9	S	S	U S 290	J S 290	S	305	305	300	285	280	270	250	255	270	295	285	285	295	295	295	J R 275	280	R	R
10	S	S	S	S	S	I S 320	295	325	320	300	280	280	275	270	270	285 R	290	305	300	315	A	F	F	J S 270
11	270	F	U F 280	285 F	U F 295	285	300	320	310	320	285	270	275	270 R	280	290	275	285	J R 290	J F 305	S	A	F	A
12	U F 275	F	F	J F 295	U F 300	280 F	285	305	J S 305	A	290	275	255	265	275	285	R	270	290	295	285	280	280	I R 280
13	280	285	285 R	285 R	295 R	325	315	315	A	315 R	J R 280	265	265	U R 270	270	280	280	280	280	J R 300	310	S	S	S
14	S	S	S	S	F	F	320	J R 330	320	300	A	275	255	265	270	J R 290	295 R	290	290	295	300	280	S	S
15	S	S	S	I S 295	280 S	295	265	280	J R 310	295	325	270	255	265	270	270	290	300	J R 290	300	295	J S 275	S	S
16	S	S	S	S	S	315	310	320	325	A	315	265	265	280	280	290	290	J R 295	290	300	U R 280	R	S	S
17	S	U S 285	U S 275	S 290	290	295	305	J R 320	275	305	285	280	280	I A 275	285	285	280	275	305	285 S	265 S	U S 275	I S 270	S 255
18	255	S	U F 265	250	250	265	285	335	215	250	265	240	240 R	270	290	280	280	280	270	260	265	U S 255	I S 260	270
19	U S 250	250	260	U S 305	265	J R 275	235	240	250	A	A	J R 265	A	A	A	245	260	265	275	270	J R 270	I R 270	260 S	265 S
20	260 R	265	265	285	270	310	270	300	315 R	I A 290	R	U R 280	280	285	290	300	290	I A 290	J S 305	285	285	J S 270	J S 265	I S 270
21	280	275	285	305 R	290	330	310	305	285	A	275	275 R	285	285	290	280	295	300	305	310	280	280 S	290	280
22	295	285	290	275	J R 295	330	325	325	305	310	290 R	305	270	275	275	275	290	305	315	280	J S 285	J S 280	270 S	J S 280
23	295	285	300	290	280	305	295	280	280	260	270	275	285	270	285	285	295	S	285	295	275	I S 270	U S 270	265
24	A	S F 275	F	300	305 F	305	265	285	305	280	280	280	275	A	295	295	300	305	310	A	285 S	U S 255	S	F
25	F	J F 270	F	J F 275	F	290	305	295	A	300	A	A	275	290	290	295	305	305	305	A	300 S	U R 295	I S 280	J F 275
26	J S 285	J S 275	S 295	U S 300	310	280	265	305	290	300	275	290	I R 275	280	280	280	285	295	295	U R 320	R	S	S	S
27	S	S 285	S	S	F	295	270	A	A	A	A	270	255	285	290	280	295	305	285	J S 295	I S 290	S 305	I S 270	S 270
28	S 265	295	290	280	290	275	270	A	300	R	260	255	A	270	270	280	285	310	J R 290	J R 295	280 S	275	I S 280	S
29	R	S	295	300	I S 320	320	310	A	A	315	R	275	265	280	285	280	300	285	300	315	S	260	I S 270	270
30	265	S	S 275	280	275	305	280	290	J R 285	285	R	275	280	275	285	270	275	285	J R 305	J R 305	U S 285	S	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	19	24	21	29	30	26	24	24	22	28	27	28	29	29	28	29	28	26	25	21	15	15
MED	272	280	285	285	290	305	295	305	290	292	280	272	270	272	280	285	290	290	295	298	285	275	270 S	270 S
UQ	285	285	290	295	295	315	310	320	308	300	285	280	275	280	290	290	295	305	305	305	290	280	280	278
LQ	265	270	275	275	280	280	270	285	280	282	270	265	260	270	275	280	280	280	288	290	275	270 S	270 S	270 S

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

JUN. 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 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							340	A	A	A	A	A	A	370	360	340	370	L	A					
2						L	L	A	A	380	400	370	A	A	350	370	A	L						
3							L	A	380	330	360	370	A	A	340	350	A	L	A					
4							A	C	C	360	A	A	360	A	A	360	A	U L 360	A					
5						L	L	L	A	370	A	A	A	R	A	A	A	A	A					
6								L	A	A	A	A	R U R 380 360		370	370	370	L	L					
7							L	A	A	A	380	350	A	380	350	350	A	A						
8							L	A	L	A	A	A	A	360	A	A	A	A						
9							L	A	L	A	330	360	360	370	A	A	A	A	L					
10							L	A	A	A	A	A	A	360	A	A	A	A	A					
11							L	A	A	A	A	A	360	A	A	A	330	A	A					
12								L	A	A	A	R 380	R 380	R 380	A	A	A	L	L					
13							L	L	A	380	A	A	A	A	A	A	350	340						
14								L	L	330	A	A	A	A	330	390	350	A	L					
15							L	370	L	A	A	A	A	340	A	A	A	A	A					
16						L	L	L	A	A	380	370	A	370	360	A	350	360	L					
17							L	360	350	370	A	A	A	A	A	350 H	A	L						
18						U L 360	340	L	370	310 H	370	360	A	A	350	320	A	320	A					
19							320	330	A	A	A	370	A	350	A	A	330	310	350					
20						L	350	390	370	A	370	350	A	A	A	340	A	A						
21								L	L	A	A	A	A	A	A	A	A	A	L					
22									A	380	A	A	360	A	360	360	350	340	L					
23							L	350	L	A	A	A	380	A	A	380	360	A	A					
24							L	A	L	A	360	A	A	A	A	340	A	A	A					
25						L	A	L	A	A	A	A	A	A	A	A	A	330	L					
26							L	L	380	360	A	A	360	A	L	350	360	A	L					
27							A	A	A	A	A	390	380	380	360	360	340	A	A					
28							320	A	A	A	A	A	A	360	370	350	350	360						
29						L	L	A	A	A	390	380	360	390	340	350	350	340	L					
30						L	L	350	380	A	A	A	A	A	A	A	A	330	L					
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	5	6	6	10	9	11	10	13	12	17	13	10	1					
MED						U 360	340	355	375	365	370	370	360	370	355	350	350	340	350					
UQ							340	370	380	380	380	375	380	380	360	360	360	360						
LQ							320	350	370	330	360	360	360	360	345	350	350	330						

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

IONOSPHERIC DATA

JUN. 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							360	290	E A 390	330	340	A	A	340	350	390	300	300	290					
2						255	255	270	340	300	310	400	360	350	340	300	290	290						
3							270	290	290	360	320	345	A 390	345	325	320	320	300	A 300					
4							325	C	C	330	A	395	380	A	375	325	345	300	290					
5						260	260	260	A	330	440	390	410	380	370	345	360	A	360					
6								340	320	300	330	A	390	350	340	305	335	300	290					
7							270	260	E A 350	350	300	R	350	350	350	315	300	A 300						
8							250	250	290	320	360	350	360	390	350	A	A	A						
9							270	270	290	350	390	360	400	355	340	310	E A 300	300	270					
10							250	260	260	340	370	340	330	360	370	A	E A 350	310	A 300					
11							280	250	A	280	A 360	380	350	355	345	320	320	305	280					
12								285	275	A	A 350	350	400	390	340	305	A	310	290					
13							250	260	A	290	365	390	400	380	350	320	330	305						
14								250	260	350	A	430	E A 450	390	350	330	300	300	280					
15							300	310	290	300	260	405	360	370	350	350	310	300	290					
16						285	265	250	290	A	300	390	E A 400	390	340	330	315	300	300					
17							300	280	390	310	345	340	375	A	320	330	330	290						
18						375	315	260	275	425	390	445	A 490	390	340	330	355	340	290					
19							450	430	A	A	A	440	A	R	460	A	460	360	350					
20						300	340	290	260	A	R	380	400	355	330	305	330	I A 320	275					
21								280	360	A	410	A 400	355	350	325	330	300	290	270					
22									345	305	A 350	320	400	275	325	335	305	270	260					
23							245	340	325	A 370	375	340	345	355	305	315	300	A 280	305					
24							350	260	275	325	345	A 360	A 350	A	325	305	280	305	A					
25						310	275	270	A	A 330	A	A	A 360	330	330	300	300	270	280					
26							315	260	315	300	350	350	R	335	340	345	330	300	290					
27							350	A	I A 300	A	A	440	490	385	350	360	340	300	300					
28							390	A	340	A	485	485	A	385	365	320	315	300	290					
29						270	305	A	A	315	360	430	415	390	370	370	340	340	290					
30						270	290	290	305	E A 350	500	430	350	350	340	370	350	310	300					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						8	25	25	23	23	24	26	26	26	30	27	28	28	24					
MED						278	290	270	295	328	355	390	376	355	340	325	319	300	290					
UQ						305	325	290	331	350	382	430	400	385	350	340	339	308	300					
LQ						265	265	260	282	302	335	350	355	350	330	312	300	300	280					

The Radio Research Laboratories, Japan

JUN. 1972 | H'F2 (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	305	300	300	290	260	240	A	A	A	A	A	A	195H	250	E 250A	240	I 250A	I 290A	290	300	260	245	280
2	300	280	300	300	250	250	240	I 250A	I 220A	225	210	210	A	A	E 280A	240H	A	A	A	A	250	300	310	260
3	300	280	250	260	290	250	250	I 230A	220	245	220	225	A	A	270	240	A	A	A	290	E 310A	290	310A	C
4	250	250A	250	290	300	250	A	C	C	205	A	A	240	A	A	230	I 250A	245	I 250A	245	250	305	310	310
5	310	290	260	300	285	245	I 250A	I 240A	A	200	A	A	A	A	A	A	A	A	I 320A	260	260	E 350A	340	290
6	290	290	260	260	290	250	310A	A	A	A	A	A	200	220	205	240	240	260	260	250	250	350A	300	290
7	310	280	260	305	270	260	255	A	A	A	200	210	I 210A	220	I 250A	240	I 240A	I 260A	270	280	I 370A	400A	310	350A
8	350	305	250	280	290	250	240	A	250	A	A	A	A	230	A	A	A	A	A	A	290	300	340	350
9	305	300	290	240	250	250	220	I 250A	240	I 220A	210	210	210	220	A	A	A	A	250	240	280	290	300	300
10	330A	250	300	290	260	240	240	A	A	A	A	A	A	230	A	A	A	A	A	250	A	315	325	E 350A
11	290	300	280	250	260	240	225	A	A	A	A	A	220	A	A	A	270A	I 270A	I 260A	250	230	A	A	A
12	300A	300	270	250	240	230	225	I 250A	A	A	A	220	200	220	A	A	A	260	250	260	260	260	260	260
13	300	290	265	295	240	235	240	240	A	240	A	A	A	A	I 220A	I 250A	240	240	290	260	240	250	340	290
14	290	340	310	300	260	260	260	240	210	A	A	A	A	A	220H	240	260A	I 280A	260	250	240	245	340A	320
15	290	290	240	260	250	240	240	240	A	A	A	A	I 200A	250	A	A	A	A	A	290	320A	305	E 390A	290
16	250	260	350	300	295	260	240	I 200A	A	A	240	250A	A	240	240	I 240A	220	220	245	250	250	285	330A	310
17	310	300	290	300	285	250	240	210	230	220	A	A	A	A	I 220A	240H	I 250A	260	270A	255	320A	300	290	345
18	310	370	355	340	345	300A	250	240	225	210H	225	230	I 230A	I 250A	240	245	I 260A	250	I 280A	300	320	I 330A	300	270
19	360	340	340	275	325	315	295	300A	A	A	I 240A	250	A	260	I 240A	I 250A	295	250	280	290	300	310	300	320
20	340	305	300	250	290	270	240	220	220	I 220A	210	I 230A	260	I 280A	A	A	260	I 230A	I 250A	245	300A	320	350	350A
21	310	340	290	275	250	245	220	205	195H	A	A	I 240A	A	A	A	A	A	I 250A	260A	250	I 270A	300	275	310A
22	280	280	270	275	290	220	230	245A	A	250A	I 230A	I 220A	205	I 210A	220	225	205	230	240	250	255	275	305	285
23	290	270	255	250	255	230	225	220	A	A	A	I 230A	205	A	A	220	250A	A	A	250	270	270	320	A
24	A	300	250	245	245	250	I 250A	I 250A	I 220A	I 250A	245	I 220A	A	A	I 230A	250A	A	A	A	A	300A	350A	I 350A	320A
25	320	345	290	290	300	260	I 250A	250A	A	A	A	A	A	A	A	A	I 260A	230	250A	A	A	250A	260	300
26	I 330A	350A	275	255	260	245	230	250A	215	250A	A	A	240	I 210A	210	260	220	I 250A	250	250	280	350	290	340
27	320	300A	E 400A	300	300	250	A	A	A	A	A	200	200	200	240	240	240	A	A	280	260	250	230	340
28	315	290	255	290	280	260	300A	A	A	A	A	A	A	220	210	240	250	240	250	265	250	290	300	260
29	305	300	290	270	250	250	270A	A	A	A	210	220	265	210	250	220	240	240	270	250	240	310	340	310
30	310	300	310	270	290	250	240	250	220	A	A	A	A	A	A	A	A	260A	260	250	260	340A	250	300
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	30	30	28	20	12	12	11	15	14	17	17	19	19	20	22	26	28	29	29	27
MED	305	300	282	278	282	250	240	240A	220	222	220	220	210	220	235	240	250	250	260	250	262	300	308	305
UQ	315	305	300	300	290	260	250	250A	228	248	235	230	240	240	245	245	260A	260	270	280	300	318	335	325
LQ	290	280	260	260	250	245	235	225	218	215	210	215	200	210	220	240	240	240	250	250	250	275	290	290

The Radio Research Laboratories, Japan

JUN. 1972 | H'F (KM)

IONOSPHERIC DATA

JUN. 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

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	110	100	105	100	100	130	120	110	110	110	105	110	105	B	150	130	G	140	110	110	110	100	100	100
2	100	100	100	100	B	120	125	110	110	110	110	G	110	105	150	105	130	110	110	105	105	105	100	100
3	100	100	100	100	B	140	130	110	110	110	105	105	105	125	130	130	125	125	115	110	110	110	105	C
4	105	100	100	100	100	130	115	C	C	115	115	110	135	125	125	125	115	115	110	105	105	105	100	100
5	100	100	100	90	100	100	115	115	110	110	105	105	100	100	100	100	110	110	110	110	105	110	105	100
6	100	100	100	100	100	100	120	110	110	110	110	110	110	110	105	105	105	140	110	110	100	110	105	100
7	100	100	100	100	100	105	120	115	110	110	110	100	110	110	110	110	110	115	145	110	110	105	100	100
8	100	100	100	100	100	100	140	110	110	105	105	105	105	105	100	105	105	110	110	105	105	105	105	105
9	105	100	100	100	100	130	115	110	105	105	110	105	115	G	115	110	110	100	100	100	100	100	100	100
10	100	100	100	100	100	100	130	110	105	100	100	105	105	145	150	125	115	110	110	105	105	110	105	105
11	115	100	100	100	100	140	125	120	115	110	110	110	110	125	125	105	125	110	105	105	100	105	105	105
12	100	105	100	100	105	100	110	110	110	105	105	110	105	110	110	105	100	100	100	100	100	100	100	100
13	100	100	100	100	110	130	120	115	110	110	110	110	110	105	100	100	100	110	100	100	100	100	100	100
14	100	100	100	100	100	100	105	100	100	110	110	110	110	110	110	120	110	110	110	105	100	100	100	100
15	105	100	100	100	100	100	100	150	115	110	110	110	110	105	140	140	120	105	100	100	100	100	100	100
16	100	100	100	105	130	140	140	120	120	110	130	130	120	110	130	110	G	145	100	100	110	110	110	100
17	100	100	105	100	100	100	100	140	130	120	110	110	115	110	110	110	110	110	100	100	100	100	100	100
18	100	105	105	105	110	125	120	115	110	120	G	125	110	115	130	140	115	125	110	110	110	115	115	110
19	110	105	110	145	135	130	130	130	125	120	120	130	140	130	140	110	110	110	100	100	100	105	105	100
20	100	105	105	100	100	100	G	130	G	105	105	110	145	125	130	120	120	115	105	105	110	110	110	110
21	100	105	100	100	100	100	100	140	120	115	115	115	110	110	105	100	100	100	100	100	100	100	100	105
22	100	100	100	100	100	100	100	120	115	115	110	110	110	110	110	110	G	G	115	115	110	105	100	100
23	100	100	100	100	B	G	130	115	115	110	110	110	120	110	110	105	100	100	100	100	100	110	110	105
24	105	105	100	105	120	120	115	115	115	110	110	105	105	110	120	120	130	120	110	110	105	105	100	105
25	100	100	100	100	100	105	110	110	115	115	110	105	105	105	105	105	105	100	100	100	100	100	100	100
26	100	100	100	105	120	115	120	120	115	115	110	110	110	110	G	140	140	110	110	110	100	105	100	100
27	100	100	100	100	100	150	110	110	110	110	105	110	110	105	110	110	140	120	110	110	105	110	100	100
28	100	100	100	100	100	140	110	110	110	110	110	110	105	110	110	110	110	110	100	100	100	100	110	100
29	105	100	100	100	S	115	110	110	105	110	105	105	105	100	160	110	100	130	110	100	100	100	100	100
30	100	100	100	100	100	175	G	120	115	110	105	110	110	105	105	105	105	105	120	105	110	110	110	100
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	26	29	28	29	28	30	29	29	30	28	29	30	27	29	30	30	30	30	30	29
MED	100	100	100	100	100	115	118	115	110	110	110	110	110	110	110	110	110	110	110	105	102	105	100	100
UQ	105	100	100	100	105	130	125	120	115	115	110	110	110	112	130	120	120	120	110	110	110	110	105	105
LQ	100	100	100	100	100	100	110	110	110	110	105	105	105	105	110	105	105	110	100	100	100	100	100	100

IONOSPHERIC DATA

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1	F3	F3	F3	F2	H2	H2	C2	C2	C2	C1	C2	C2		H1	H1		H1	C2	F3	F3	F3	F2	F3
2	F5	F2	F3	F5		H1	H2	C3	C2	C1	C1		C2	C2	HL11	L2	HL22	C3	C2	F5	F3	F3	F4	F3
3	F4	F3	F4	F2		H1	H1	C1	C1	C2	C2	C2	L2	HL11	HL11	HL11	HL22	HL22	CL42	F4	F6	F3	F3	
4	F5	F4	F2	F2	F3	HL12	C3			CL11	C2	C2	H1	H1	H1	H1	C2	C2	C4	F5	F4	F4	F4	F4
5	F4	F4	F2	F2	F1	LC11	C3	C2	C2	C1	C2	C1	L2	L2	L2	L2	CL22	CL21	CL31	F3	F2	F4	F3	F3
6	F3	F4	F4	F3	F3	L2	H3	C2	C2	C2	C1	C2	C1	C1	L1	C1	L1	HL11	CL22	FF21	F1	F6	F3	F3
7	F3	F4	F3	F3	F4	LH11	H2	C2	C2	C1	C1	L1	C1	C1	C1	C1	C2	C2	HL11	F4	F5	F3	F4	F3
8	F4	F4	F4	F5	F4	LH11	HL11	C3	C2	C2	C1	C1	C1	C1	L2	C1	CL21	CL31	CL37	F4	F4	F4	F5	F7
9	F4	F5	F6	F2	H3	HL11	C1	C2	C1	C2	C1	C1	C1		C1	C1	C2	F2	L2	F3	F4	F5	F4	F4
10	F4	F3	F4	F4	F4	L3	HL11	C3	C3	C2	C2	C3	C2	H1	H1	H2	C2	C2	C3	F5	F4	F5	F4	F6
11	FF44	F4	F3	F4	F2	HL22	H1	H2	C3	C2	C2	C2	C1	HC22	HC11	C2	H2	C3	L4	F2	F5	F4	F6	F5
12	F3	F3	F4	F3	F1	L1	C1	C2	C3	C3	C2	C1	C1	C1	C1	C2	L2	L3	L3	F3	F5	F4	F1	F2
13	F4	F3	F4	F3	F1	H2	H2	C2	C2	C1	C1	C1	C1	C2	L2	L2	L1	HL21	L1	F4	F4	F3	F3	F4
14	F4	F4	F3	F2	F4	L4	C3	C2	C2	C1	C2	C2	C2	C1	C1	H1	C1	C2	CL21	F3	F4	F2	F3	F5
15	F3	F3	F4	F4	F2	L1	L1	HL11	C2	C2	C2	C1	C1	C1	HC11	H1	H2	C3	L4	F4	F4	F6	F4	F4
16	F3	F8	F5	F3	FF11	HL11	H2	H2	H2	C2	H1	H1	HC11	C1	H1	C1		H1	L1	L3	FF21	F1	FF23	F5
17	F4	F6	F3	F5	F4	L3	LH21	HL11	H1	H1	C1	C2	C1	C2	C2	C2	C3	C2	L4	F4	F4	F6	F5	F4
18	F4	F5	F4	F2	F2	C2	C1	C2	C1	C1		H1	C1	C2	H1	H1	C5	H2	C3	F4	F3	F6	F5	F2
19	F3	F5	F3	F1	F3	H2	H2	H1	H2	C2	H2	H1	H1	H2	H2	C2	C2	C2	L2	F3	F3	F2	F4	F4
20	F5	F5	F2	F2	F3	L3		HL11		C2	C2	C2	HC11	H1	H1	H2	H2	C3	C4	F2	FF32	FF33	F6	F5
21	F5	F6	E2	F4	F4	L3	L1	H1	C1	C2	C1	C2	C2	C2	C2	C2	C3	C3	L3	F4	F3	F3	F4	F4
22	F4	F4	F2	F2	F5	L2	L2	HL32	C2	C2	C1	C1	C1	C1	C1	C1			C1	F4	F3	F3	F3	F2
23	F5	F2	F2	F2			H2	C2	C2	C2	C2	C2	H1	C2	C2	C2	C2	C4	C4	F5	F3	FF43	F6	F3
24	F4	F4	F3	F4	F2	C2	C3	C2	C2	C1	C1	C3	C2	C2	H2	H1	H1	H3	C3	F4	F4	F4	F4	F5
25	F4	F3	F3	F3	F3	L3	C3	C3	C3	C3	C2	C2	C2	C2	C1	C2	C3	C3	L3	F4	F4	F4	F4	F4
26	F5	F4	F3	F3	C2	C3	C2	C2	C1	C2	C2	C2	C2	C1		H1	H1	C2	C2	F3	F4	F4	F4	F4
27	F4	F5	F3	F4	F4	H1	C5	C4	C3	C2	C2	C1	C1	C1	C1	L1	H1	H3	C2	FF33	F4	F6	F3	F7
28	F4	F4	F1	F2	F2	H2	C2	C2	C2	C2	C2	C1	C2	C1	C1	C1	C1	C1	LH11	F1	F1	F5	F2	F3
29	F3	F3	F4	F3		C2	C3	C2	C3	C2	C1	C1	C1	L2	H1	C2	LH11	HL11	C1	F4	F2	F3	F5	F4
30	F5	F4	F4	F2	F1	H1		H2	C2	C2	C2	C1	C2	C1	C2	C2	C2	L3	HL11	F4	F3	F5	F3	F3
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

JUN. 1972 | TYPES OF ES

IONOSPHERIC DATA

JUN. 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	U R 365	400	370	390	J R 340	300	U R 400	J R 300	390	350	355	A	A	R 360	360	R 400	J R 340	I R 350	J R 340	I R 340	J R 400	I R 370	R 360	395
2	R 390	355	R 360	F 350	300	300	R 290	300	350	335	350	J R 410	390	390	360	350	340	310	A	A	350	F	S	S
3	U S 350	I S 340	S 300	360	F	365	350	320	330	380	350	375	395	370	350	325	I R 340	340	R 350	325	350	380	S	C
4	300	305	F	F	F	360	325	C	C	330	A	400	395	I A 390	390	350	375	350	320	280	S 335	380	J R 380	J S 365
5	F	F 360	S 350	400	F 350	300	285	280	A	350	A	A	430	400	400	380	400	I A 360	I A 360	355	J R 395	R	S	S
6	S 390	S	S	350	380	300	J R 350	J R 350	340	340	350	I A 400	J R 400	390	350	340	350	350	R 340	340	S	S	J S 380	I S 350
7	U S 400	J S 350	S 360	J S 400	S 350	U R 315	300	340	I A 340	350	380	I R 400	390	355	390	R 380	J R 350	310	J R 310	305	I A 400	410	S	S
8	S	S	S	S	F	330	350	290	340	350	390	J R 355	390	400	390	A	A	I A 360	A	A	J R 360	380	S	S
9	S	S	U S 350	J S 340	S	300	300	300	350	355	400	400	400	400	350	360	A	345	350	350	J R 360	390	R	R
10	S	S	S	S	S	I S 300	340	300	280	350	375	355	360	380	390	A	A	315	320	300	A	F	F	J S 385
11	390	F	U F 355	350	U F 325	340	310	300	I A 320	295	I A 375	395	375	R 370	355	345	355	350	J R 330	J F 305	S	A	F	A
12	U F 385	F	F	J F 325	U F 320	F 350	345	310	J S 305	A	A	390	410	410	390	355	R	390	340	350	340	350	350	I R 360
13	390	360	R 355	R 385	R 350	300	295	300	A	R 300	J R 365	400	400	U R 400	400	350	350	355	360	J R 310	300	S	S	S
14	S	S	S	S	F	F	300	J R 260	300	350	A	A	A	400	400	J R 360	R 350	360	350	340	350	370	S	S
15	S	S	S	I S 360	S 350	315	360	350	J R 310	340	290	400	400	400	400	400	360	310	J R 345	350	360	S 390	S	S
16	S	S	S	S	S	300	300	290	300	A	310	400	I A 400	390	360	350	350	J R 345	340	330	U R 350	R	S	S
17	S	U S 365	U S 395	S 355	360	340	310	J R 300	400	320	350	355	380	I A 380	350	350	355	365	305	S 350	S 385	U S 380	I S 380	400
18	430	S	U F 405	440	430	400	345	275	G	450	415	475	A	400	355	355	370	355	375	390	410	U S 440	I S 390	390
19	U S 450	445	415	U S 340	405	J R 360	490	490	I A 420	A	A	G	A	R	R	A	G	390	390	390	J R 400	I R 400	S 400	S 400
20	400	400	390	340	350	330	350	335	R 300	A	R	G	390	355	345	315	350	I A 350	J S 310	350	345	390	J R 385	I S 390
21	360	380	350	R 305	320	270	295	310	375	A	410	I A 380	355	360	350	355	325	320	305	300	350	S 370	355	380
22	325	350	340	360	J R 320	270	265	280	340	305	R 350	320	400	380	355	360	345	305	295	340	J S 345	J S 370	S 385	J S 370
23	340	350	340	320	340	305	305	360	370	400	380	360	360	395	340	350	325	S	340	310	375	I S 360	U S 390	400
24	A	J F 405	F	305	F 310	300	400	345	305	350	355	360	380	A	340	330	305	305	A	A	S 345	U S 400	S	F
25	F	J F 390	F	J F 350	F	350	300	310	A	330	A	A	380	345	355	345	320	300	305	A	S 330	U R 320	I S 360	J F 385
26	J S 355	J S 360	S 320	U S 300	315	355	375	290	345	350	390	360	I R 390	360	350	350	350	340	340	U R 300	R	S	S	S
27	S	S 360	S	S	F	300	390	A	A	A	A	G	G	380	355	390	350	340	350	J S 350	I S 340	S 340	I S 380	S 390
28	S 390	350	360	380	360	340	400	A	350	R	G	G	A	400	390	390	340	310	J R 350	J R 330	S 360	390	I S 390	S
29	R	S	350	340	I S 300	300	320	A	A	320	R	G	G	390	380	390	350	350	340	300	S	400	I S 400	400
30	390	S	S 400	360	400	340	350	340	J R 360	A	R	G	360	390	350	400	390	360	J R 340	J R 300	U S 360	S	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	19	24	21	29	30	26	23	22	19	20	23	28	29	27	25	29	27	26	25	21	15	15
MED	390	360	355	350	350	315	332	300	340	350	365	392	390	390	355	355	350	350	340	335	350	380	S 380	S 390
UQ	390	390	380	370	360	340	350	340	355	350	385	400	400	400	390	380	355	355	350	350	375	390	S 390	398
LQ	355	350	350	340	320	300	300	290	308	330	350	360	380	370	350	350	340	315	320	305	345	370	370	S 375

The Radio Research Laboratories, Japan

JUN. 1972 | HPF2 (KM)

IONOSPHERIC DATA

JUN. 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 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	U R 95	90	90	100	J R 100	90	U R 90	J R 100	100	110	85	A	A	R 100	100	R 90	J R 100	I R 100	J R 100	I R 110	J R 90	I R 100	R 100	95
2	R 100	105	R 100	F 110	100	90	R 100	90	90	115	110	J R 130	100	100	120	110	100	130	A	A	110	F	S	S
3	U S 110	I S 110	S 100	100	F	95	110	120	110	100	110	120	105	125	120	90	I R 100	110	R 120	80	95	90	S	C
4	100	95	F	F	F	95	90	C	C	115	A	100	105	I A 100	105	95	100	150	85	80	S 110	80	J R 90	J S 90
5	F	F 90	S 95	45	F 100	100	70	75	A	100	A	A	110	100	90	100	90	I A 110	I A 130	105	J R 95	R	S	S
6	S 100	S	S	110	110	110	J R 110	J R 110	120	120	110	I A 100	J R 100	100	110	120	110	110	R 100	100	S	S	S 110	I S 110
7	U S 90	J S 90	S 100	J S 90	S 110	U R 95	90	100	I A 100	110	110	I R 90	100	105	100	R 110	J R 90	90	J R 100	95	I A 90	90	S	S
8	S	S	S	S	F	110	110	100	100	110	100	J R 95	100	90	100	A	A	I A 100	A	A	J R 100	100	S	S
9	S	S	U S 90	J S 100	S	100	90	90	90	105	100	90	100	90	110	100	A	115	90	90	J R 100	100	R	R
10	S	S	S	S	S	I S 100	100	90	110	95	75	140	130	120	100	A	A	80	90	95	A	F	F	J S 90
11	F 105	F	U F 95	F 100	U F 80	105	85	100	I A 100	60	I A 75	100	115	R 100	90	100	145	95	J R 95	J F 95	S	A	F	A
12	U F 70	F	F	J F 175	U F 180	F 110	100	90	J S 90	A	A	100	100	100	100	105	R	100	100	110	120	110	110	I R 100
13	100	100	R 105	R 105	R 90	90	95	90	A	R 90	J R 95	90	100	U R 100	90	100	110	105	100	J R 90	100	S	S	S
14	S	S	S	S	F	F	90	J R 100	90	90	A	A	A	90	90	J R 100	R 90	100	110	100	90	90	S	S
15	S	S	S	I S 100	S 110	125	100	110	J R 100	110	100	100	100	100	90	100	100	90	J R 115	110	100	J S 100	S	S
16	S	S	S	S	S	90	100	100	90	A	90	90	I A 90	100	100	110	110	J R 95	120	110	U R 110	R	S	S
17	S	U S 95	U S 95	S 105	100	120	90	J R 90	90	75	100	135	80	I A 90	95	100	110	110	95	S 110	S 110	U S 90	I S 100	S 80
18	95	S	U F 100	105	120	105	100	80	G	140	130	150	A	100	95	95	75	105	70	120	90	U S 105	I S 100	105
19	U S 95	100	95	U S 65	95	J R 110	110	120	I A 110	A	A	G	A	R	R	A	G	100	100	100	J R 100	I R 100	S 90	S 100
20	R 100	100	100	120	110	110	110	105	R 90	A	R	G	85	90	100	95	95	I A 100	J S 90	100	100	J S 85	J R 105	I S 85
21	95	70	95	R 90	85	75	105	85	75	A	85	I A 80	90	90	95	95	110	85	95	70	100	S 80	90	70
22	90	100	80	110	J R 80	80	60	75	60	95	R 95	75	95	90	140	105	100	95	70	130	J S 100	J S 80	S 85	J S 80
23	70	95	80	80	105	95	115	100	80	100	115	140	100	100	110	110	90	S	110	135	85	I S 100	U S 100	100
24	A	J F 65	F	100	F 85	85	100	100	105	120	95	90	90	A	65	90	95	95	A	A	S 100	U S 100	S	F
25	F	J F 80	F	J F 100	F	70	95	100	A	85	A	A	115	100	90	105	85	100	90	A	S 70	U S 85	I S 90	J F 70
26	J S 100	J S 100	S 100	U S 75	85	95	120	85	100	110	100	100	I R 100	120	110	110	110	100	100	U R 90	R	S	S	S
27	S	S 100	S	S	F	100	100	A	A	A	A	G	G	110	105	100	110	100	110	J S 90	I S 120	S 120	I S 100	S 100
28	S 100	100	100	100	100	100	90	A	110	R	G	G	A	100	100	100	100	110	J R 100	J R 120	S 100	100	I S 100	S
29	R	S	90	100	I S 100	100	120	A	A	120	R	G	G	100	110	100	110	110	120	90	S	90	I S 90	90
30	100	S	S 90	100	90	120	110	100	J R 100	A	R	G	100	100	110	90	100	100	J R 100	J R 100	U S 100	S	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	19	24	21	29	30	26	23	22	19	20	23	28	29	27	25	29	27	26	25	21	15	15
MED	100	98	95	100	100	100	100	100	100	108	100	100	100	100	100	100	100	100	100	100	100	100	S 100	S 90
UQ	100	100	100	105	110	110	110	100	102	115	110	125	102	100	110	105	110	110	110	110	100	100	S 100	100
LQ	95	90	90	95	90	90	90	90	90	95	92	90	98	95	95	95	95	95	92	90	95	90	S 90	S 82

The Radio Research Laboratories, Japan

JUN. 1972 | YPF2 (KM)

IONOSPHERIC DATA

JUN. 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 automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	58	A	F	A	F	A	A	76	90	I A 90	80	J S 84	90	93	88	90	S 98	97	J S 89	F	F	S	F
2	S	F	F 65	J S 62	F 61	F 64	J S 79	76	76	70	71	79	98	98	R 108	J S 110	S 109	S 107	S 89	72	S 70	I S 72	S	S
3	S	S	S	S	S	F	F	83	75	C 84	C 80	C 86	C 92	C 95	C 100	C 104	C 99	C 104	C 98	C 92	C 89	S	A	S
4	S	S	A	S	S	S	J S 76	82	72	A	A	89	99	100	106	105	110	I S 112	S 113	89	S 77	S 74	S 80	80
5	F 78	S 80	S 79	S 68	S 66	F 61	62	62	68	64	72	77	84	96	J C 104	110	J C 110	I C 111	C 108	J C 104	93	S 97	J S 97	S 93
6	J S 100	86	S	F 72	F	F 62	66	77	I A 87	94	81	79	91	98	C	C	C	104	102	I S 94	S 83	81	S	S
7	F	S 78	F	62	F 60	S 71	H 81	88	93	87	S 84	90	100	S 102	104	U S 113	S 122	120	I A 101	90	86	U S 63	S 84	S 90
8	S	S	S 102	S 82	S 72	S 76	82	86	87	74	86	92	99	105	110	S 114	S 110	114	J S 112	U S 102	U S 85	I S 86	87	U S 94
9	S	89	F	88	S 82	U S 80	83	73	72	I A 80	82	I A 88	97	106	113	S 117	121	113	S 110	I S 106	S	S	S	S
10	S	S	S	I S 85	73	75	84	90	72	74	71	78	86	94	105	S 116	J S 110	J S 108	108	92	A	F	S	F
11	S	F	F	F	F 71	F 69	82	86	84	A	82	87	I A 92	98	108	S 108	107	119	J C 121	S	85	75	S 83	I S 88
12	S 90	I S 91	I S 86	S 83	75	S 72	78	93	S 89	80	75	76	89	103	113	113	114	111	J S 109	I S 105	J S 100	U S 93	S 85	84
13	S 85	I S 83	I S 81	S 79	F 74	77	75	74	71	72	I A 71	71	82	97	S 105	J S 108	S 106	S 118	I C 119	I A 108	S 95	S 83	84	F
14	S	S	J S 71	J S 76	S	S 98	S 87	S 72	66	64	64	64	75	90	102	113	120	S 119	128	J S 121	I A 103	84	86	87
15	S	S	J S 101	F	S 68	F	S 71	88	S 117	92	69	69	79	94	102	S 109	U S 118	J S 119	S 108	U S 104	I S 96	I S 89	S 93	89
16	S 82	S 89	S	S	S 93	I S 94	U S 83	S 74	73	78	78	68	75	87	104	S 109	101	96	J S 105	J S 109	I S 89	S 84	S 84	80
17	S 79	S	86	S 88	76	76	72	Y 74	81	79	72	78	I A 81	I A 88	101	109	S 113	S 110	S 94	S 79	83	S 87	S 83	S 82
18	S 79	S 73	I S 80	S 72	S 72	74	69	58	E G 45	73	77	73	79	95	89	91	I A 88	80	79	82	S 85	80	J S 79	S 78
19	S 73	S 77	78	S 74	74	78	S 82	R 91	S 82	W 72	W 70	R 64	R 58	R 52	I A 56	59	60	63	63	67	S 69	S 78	S 78	J S 75
20	S 74	S 72	S 68	U S 69	59	61	70	82	H 65	62	R 63	74	74	89	89	91	98	93	I S 97	90	81	S 74	S 76	F
21	S	S 73	68	S 56	F	52	52	61	66	70	72	73	91	98	102	J R 104	J S 114	112	S 98	92	81	87	I S 87	78
22	72	S	S	S	S	64	75	70	63	V 72	78	71	74	86	93	97	106	U S 108	S 97	U S 85	U S 83	80	I S 87	J S 91
23	91	S 82	J S 80	S 71	65	65	68	75	87	97	S 98	97	S 100	101	I S 108	S 110	U S 105	J S 104	U S 96	I S 96	S	I S 86	I S 82	I S 86
24	S 88	S 86	S 83	J S 85	68	58	69	77	71	75	84	88	94	102	103	I S 108	S 113	S 110	J S 102	J S 85	J S 86	A	F	S
25	F	S	S	S	F	S	S 77	75	77	76	69	87	I R 103	I A 112	R 114	S 114	J S 120	J S 119	C	C	J S 99	U S 85	S	S
26	S	87	J S 82	F	F	J S 67	74	82	87	82	91	90	92	J S 102	105	S 104	S 117	J S 121	J S 119	I S 105	72	70	72	72
27	S	S	F	I S 61	I A 61	61	72	83	88	71	A	64	71	79	I A 85	I A 88	91	88	I C 87	U S 83	S 78	73	S 62	S 64
28	S	J F 67	J F 67	S 62	F	F 51	F 62	R 85	72	I A 68	H 60	70	79	I A 90	I R 98	J S 113	J S 111	112	I S 109	J S 96	76	71	73	U S 73
29	U S 79	S	S	F	S 68	S 46	52	77	93	S 74	66	69	79	86	87	I A 90	R 94	J S 102	U S 94	S 96	68	I S 62	66	I S 70
30	S 72	69	68	68	S 59	S 60	68	U S 82	73	59	60	68	84	91	R 83	81	89	J S 101	C	S	S 98	S 78	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	17	17	20	20	25	28	29	30	28	28	30	30	30	29	29	29	30	28	27	26	25	21	19
MED	S 79	S 80	S 80	S 72	70	67	74	77	76	74	74	78	85	96	103	108	110	110	S 102	S 92	S 85	S 80	S 83	S 82
UQ	S 88	S 86	S 83	S 82	74	S 78	82	85	87	81	82	87	94	101	106	S 113	S 114	114	110	S 104	S 93	S 86	S 86	S 88
LQ	S 74	S 73	68	S 65	63	61	68	74	71	70	70	70	79	90	93	97	99	S 102	S 98	87	S 78	S 74	S 78	S 78

JUN. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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							A	A	L	A	A	A	I A 520	510	H 500	A	I A 470	A	L 400					
2							L	L	L	A	H 520	540	A	A	500	L 500	L 470	L 450	L					
3								A	A	A	A	A	A	C 540	A	A	A	A	A					
4							L	A	A	A	A	A	540	510	520	A	A	A	A					
5								L	L 490	A	A	A	A	520	I A 520	H 510	510	A	A	A				
6								A	A	A	A	A	540	530	C	C	C	A	L	A				
7								A	L	U L 500	L	L 580	L 530	L 550	A	520	L 490	L	A					
8							L	A	A	A	590	A	A	540	A	A	A	L 480	A					
9								A	A	A	A	A	530	L 570	520	A	A	L 470	A					
10								L	L	A	A	540	H 570	520	520	A	A	A	A	A				
11								A	L	A	L	A	A	A	H 510	H 540	L 510	H 460	A					
12								L	L	L	A	H 560	A	A	A	H 490	I A 520	L 490	L					
13								L	L 520	A	A	540	H 550	H 540	U L 510	H 520	A	A	A	A				
14							L		L	L	L	A	520	540	510	L 500	A	A	L					
15								A	A	A	A	A	A	L 520	L 520	L 490	I A 480	A	A					
16							L	L	L	H 540	L 520	A	530	A	500	500	L 500	L	L 420	L				
17								L 440	L	A	L	530	A	A	A	H 500	L 480	L 450	L					
18							L	H 390	450	R 460	L 520	R 500	A	L 530	A	L 550	A	L	L					
19							L	L 440	450	I A 470	470	A	A	A	A	490	450	A	L	A				
20							L	L	L	U L 480	L 540	L 520	L 520	A	L 510	I A 520	U L 490	U L 470	L					
21							L	L		A	A	U L 560	I A 530	I A 510	A	A	A	U L 460	L					
22								L	A	570	A	A	540	520	I A 510	540	A	A	A					
23								L	A	530	520	A	A	A	500	490	I A 480	460	L					
24							L	L		L	520	530	A	A	A	470	H 490	L	L					
25							370	A	A	A	580	A	A	A	A	A	A	A	A	A				
26							L	L	H 540	L	500	L	500	510	510	510	490	460	L					
27							L	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	L	A	A	L	500	510	A	A	A	A	440	U L 390	L				
29							L	L 420	U L 460	A	A	H 540	A	A	A	A	L 490	440	L	L				
30							L	L	L	L	L	A	A	R 490	A	L 540	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	4	6	7	10	12	14	17	15	18	15	12	3					
MED							370	L 430	475	500	520	540	530	520	510	505	490	L 460	L 400					
UQ								L 440	L 520	535	540	550	540	540	520	520	495	L 470	L 410					
LQ								405	450	475	520	525	520	510	505	490	480	450	L 395					

The Radio Research Laboratories, Japan

JUN. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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							220	270	305	330	340	350	350	355	360	350	320	270	H 250					
2							190	270	310	A	A	A	A	A	A	A	330	300	250					
3							190	270	315	A	A	A	A	A	A	A	A	A	A					
4							190	270	310	A	A	A	A	380	370	355	340	300	210					
5							210	290	320	320	335	A	A	I A 350	I C 370	365	340	300	240	B				
6							210	H 290	320	360	370	A	A	A	C	C	C	310	A	A				
7							250	285	330	360	A	R	R	A	A	350	330	305	A	B				
8							180	270	310	I A 330	350	370	I A 385	390	380	360	340	300	250	S				
9							220	280	315	A	A	A	A	A	A	A	A	300	230	S				
10							180	260	I A 300	325	I A 335	355	355	R 400	380	370	340	315	260	A				
11							220	290	320	330	345	350	A	A	385	365	340	310	A	S				
12							190	290	315	320	I A 340	365	370	A	A	A	A	300	250	A				
13							200	285	320	340	360	A	A	A	A	360	340	310	A	A				
14							A	250	290	A	A	A	A	370	380	370	340	315	260	A				
15							240	280	310	345	A	A	I R 380	H 385	375	365	340	300	250	B				
16							215	285	325	350	I A 370	390	390	390	A	A	A	300	250	S				
17							A	H 280	320	345	365	390	I A 390	390	380	370	340	A	A	A				
18							210	270	310	330	R 350	360	R 370	R 370	360	350	325	300	240	A				
19						S	220	270	300	335	350	360	I R 380	370	365	350	320	H 290	240	B				
20							A	R 270	310	330	I A 350	I R 370	370	I R 370	365	I A 345	A	A	A	B				
21							A	280	320	340	350	370	A	A	A	A	A	A	A	A				
22							230	275	315	350	375	375	360	360	340	A	A	A	A	B				
23							220	275	315	340	355	365	370	360	A	A	330	300	A	A				
24							200	275	315	340	360	360	370	370	A	A	330	305	255	160				
25							200	I A 260	315	345	350	350	370	360	B	A	A	A	A	B				
26							190	270	305	320	340	A	A	A	370	350	330	300	250	A				
27							220	H 275	315	330	340	A	A	A	A	A	A	A	A	A				
28							200	H 270	315	345	360	A	A	A	A	A	A	A	265	A				
29							I A 215	270	310	340	355	360	A	A	A	A	340	310	A	A				
30							200	H 265	310	335	I A 355	360	360	A	A	A	A	A	A	S				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							26	30	30	25	23	17	15	16	14	15	18	21	16	1				
MED							210	272	315	340	350	360	370	370	370	360	340	300	250	160				
UQ							220	280	320	345	360	370	380	388	380	365	340	310	252					
LQ							190	270	310	330	342	360	365	360	365	350	330	300	240					

JUN. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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 89	J X 64	J X 84	J X 64	J X 98	J X 54	J X 100	J X 111	J X 144	J X 138	J X 135	J X 96	J X 72	G	39	56	J X 61	77	J X 37	J X 38	J X 104	J X 74	J X 51	J X 31
2	J X 29	J X 28	J X 25	J X 29	E B 16	15	27	35	44	J X 60	40	J X 49	J X 60	75	48	45	44	33	G	27	J X 36	48	J X 96	J X 85
3	J X 63	J X 29	J X 28	J X 32	J X 34	J X 34	J X 44	J X 61	J X 55	C 77	J C 105	J C 93	J C 84	C 77	C 87	J C 88	J C 91	C 88	J C 102	J C 72	C 96	C 150	C 150	J C 34
4	J C 45	C 100	C 116	J C 34	J C 22	E C 15	32	J X 71	C 100	181	140	75	39	41	50	55	J X 98	J X 129	74	J X 75	M 57	J X 40	J X 30	J X 54
5	J X 28	J X 24	J X 21	E B 13	E C 16	E C 18	28	32	J X 46	J X 123	D	J X 170	J X 127	J X 167	J X 86	G	J X 48	65	J X 89	J X 50	J X 84	J X 94	J X 96	71
6	56	J X 60	41	33	27	E C 18	26	J X 56	J X 97	J X 62	J X 57	J X 81	J X 57	45	C	C	C	J X 78	J X 34	J X 71	J X 65	J X 50	J X 52	J X 29
7	J X 34	J X 27	J X 32	J X 22	J X 24	E B 15	30	J X 46	J X 45	J X 51	J X 48	38	37	45	95	J X 47	J X 49	J X 68	J X 118	51	J X 37	J X 87	J X 62	J X 28
8	J X 21	J X 41	J X 36	31	34	31	30	J X 45	J X 83	91	J X 71	J X 89	J X 109	50	J X 89	J X 57	J X 56	J X 63	J X 74	J X 99	J X 39	J X 65	J X 62	J X 36
9	J X 73	J X 61	J X 62	J X 84	J X 31	J X 29	32	J X 47	J X 64	J X 117	M 184	155	51	J X 70	J X 57	J X 72	M 114	42	J X 64	J X 50	J X 39	J X 36	J X 37	J X 36
10	J X 38	J X 29	J X 29	25	J X 38	25	J X 41	37	J X 46	J X 61	J X 106	J X 78	44	50	60	J X 62	J X 73	J X 68	J X 107	J X 69	J X 77	J X 110	J X 95	J X 73
11	J X 86	J X 63	J X 71	J X 32	J X 34	J X 33	30	J X 79	J X 65	J X 119	J X 82	J X 98	150	100	G 37	J X 69	G	34	77	70	J X 42	J X 51	J X 45	J X 45
12	J X 32	J X 27	J X 19	J X 27	J X 30	25	G	33	J X 64	50	J X 65	41	J X 99	115	J X 75	37	J X 102	33	27	J X 28	J X 32	J X 30	J X 24	J X 21
13	J X 26	J X 39	J X 36	J X 32	J X 33	J X 29	27	33	J X 52	J X 87	J X 121	48	J X 48	J X 52	41	J X 48	J X 73	76	J X 100	J X 129	J X 163	J X 138	J X 71	J X 77
14	J X 88	J X 37	J X 35	J C 33	J X 29	J X 32	J X 23	J X 44	J X 47	38	J X 72	J X 60	43	45	43	45	J X 69	J X 70	J X 46	J X 65	J X 139	J X 64	25	J X 50
15	J X 62	J X 88	J X 61	J X 62	J X 20	J X 36	31	45	J X 61	J X 68	J X 81	J X 63	J X 108	51	J X 70	48	J X 152	J X 103	J X 75	J X 26	J X 29	J X 29	J X 37	J X 33
16	J X 31	J X 38	J X 35	J X 34	J X 26	J X 34	24	31	37	44	43	58	50	J X 96	49	68	J X 35	42	G 23	23	J X 25	J X 51	J X 25	20
17	J X 34	J X 33	J X 37	J X 32	J X 25	J X 29	J X 34	39	J X 54	J X 76	52	J X 133	D	J X 102	53	41	40	39	J X 31	J X 28	J X 25	J X 32	J X 25	J X 23
18	J X 27	J X 42	J X 26	J X 37	E S 14	E S 13	24	31	38	37	42	45	52	47	J X 60	49	M 102	44	J X 52	J X 37	J X 34	J X 22	J X 35	J X 38
19	J X 27	45	22	E	15	26	27	J X 42	J X 68	J X 58	42	46	51	J X 54	J X 61	43	43	J X 48	38	J X 43	J X 29	J X 32	36	J X 42
20	J X 31	J X 32	J X 26	J X 38	J X 22	J X 27	J X 24	G 26	G 29	40	50	J X 94	44	50	43	J X 60	J X 74	J X 36	J X 27	27	E S 14	E S 15	J X 19	J X 55
21	J X 65	J X 62	J X 32	J X 32	J X 37	J X 33	J X 25	31	J X 48	J X 74	J X 72	J X 54	J X 64	J X 56	J X 52	J X 54	J X 76	30	J X 39	J X 37	J X 41	J X 36	J X 26	J X 27
22	J X 51	J X 51	J X 45	E S 13	J X 26	25	28	38	J X 53	54	J X 57	J X 67	J X 85	49	61	J X 71	J X 65	J X 69	J X 48	J X 44	J X 50	J X 36	J X 94	J X 64
23	37	J X 48	J X 32	J X 28	J X 34	J X 29	24	31	J X 53	45	46	J X 75	J X 64	J X 50	48	51	52	33	28	J X 35	J X 27	J X 32	J X 36	J X 65
24	J X 52	J X 51	24	J X 26	J X 22	E S 13	25	37	46	48	J X 61	57	J X 100	J X 99	J X 88	42	G 33	32	28	19	J X 31	J X 162	42	J X 139
25	J X 62	J X 63	J X 37	J X 26	J X 24	J X 14	J X 38	J X 89	J X 141	J X 176	J X 74	J X 80	J X 76	D	J X 93	J X 84	J X 95	J X 87	J X 69	J X 100	J X 92	J X 32	J X 26	J X 18
26	J X 19	J X 25	J X 49	55	13	J X 38	J X 32	33	46	41	38	42	41	38	G	G	G	G	G	18	J X 24	J X 28	J X 26	J X 50
27	J X 86	J X 65	J X 62	J X 49	J X 62	J X 35	25	J X 70	J X 79	M 74	J X 100	M 115	87	J X 138	170	J X 91	67	J X 64	54	77	70	J X 53	J X 51	J X 65
28	90	J X 23	J X 49	J X 29	J X 23	22	25	38	J X 63	J X 137	J X 65	J X 89	J X 68	J X 97	J X 131	J X 63	J X 88	36	29	J X 25	J X 33	J X 47	J X 28	J X 36
29	J X 34	J X 37	J X 51	J X 69	J X 21	J X 26	25	32	J X 43	59	J X 80	J X 56	J X 71	J X 103	J X 68	J X 94	G 33	G 29	28	J X 32	J X 29	23	J X 26	J X 25
30	J X 29	25	23	J X 20	22	E S 13	24	29	37	G	38	54	61	44	J X 52	J X 54	J X 80	J X 100	J X 74	J X 41	J X 50	M 58	J X 65	J X 42
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	30	30	30	30	30	30	30
MED	J X 38	J X 40	J X 36	J X 32	J X 26	J 26	27	38	J X 53	62	J X 68	J X 71	J 64	53	60	J 54	J X 67	56	J X 47	J X 42	J X 39	J X 48	J X 37	J X 40
UQ	J X 63	J X 61	J X 49	J X 37	J X 34	J X 33	32	J X 47	J X 65	J X 91	J X 100	J X 93	J X 87	J X 99	J X 86	J X 68	J X 88	J X 76	J X 74	J X 70	J X 70	J X 65	J X 62	J X 64
LQ	J X 29	J X 29	J X 26	J X 26	J X 22	18	25	32	J X 46	48	48	54	50	47	48	45	44	34	28	J X 27	J X 29	J X 32	J X 26	J X 29

The Radio Research Laboratories, Japan

JUN. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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

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 28	A 37			A 23	A	A	37	83	A	74	68	G	G	49	48	52	27	36	65	29	24	16	
2	21	17	20	17	E B 16	E R 15	24	31	43	47	E R 40	40	51	75	48	41	39	G	G	26	29	25	23	55
3	51	14	15	24	25	17	40	48	52	C 50	C 62	C 55	C 55	C 49	C 53	C 58	C 45	C 76	C 75	C 33	C 51	C 38	A	C 20
4	C 31	C 28	A	C 30	E	E C 15	30	54	C 51	A	A	51	E R 39	E R 41	49	51	56	97	50	44	35	28	24	36
5	20	E	15	E B 13	E C 16	E C 18	26	G	36	51	60	60	60	51	E R 86	G	46	59	50	47	33	70	52	29
6	22	52	31	30	24	E C 18	G	51	A	56	52	61	47	45	C	C	C	70	32	60	30	25	24	24
7	20	15	22	15	E	E B 15	27	46	40	G	40	E R 38	E R 37	45	92	43	45	37	A	43	37	53	50	E
8	16	E	27	23	20	18	28	43	65	66	51	61	58	45	73	51	52	39	60	59	32	29	51	30
9	40	50	56	63	17	22	27	44	47	A	61	A	43	47	47	62	67	41	52	50	39	21	32	27
10	E S 38	17	19	16	20	E	37	35	41	61	55	49	44	48	46	58	64	65	68	66	A	32	16	50
11	54	47	30	26	23	23	25	70	48	A	53	75	A	65	G 37	41	G	G	70	48	30	25	44	37
12	26	26	19	19	15	14	G	32	34	37	61	E R 41	65	64	54	37	68	G	G	26	27	27	22	16
13	E	30	24	25	25	16	25	33	47	68	A	47	46	49	E R 41	48	58	75	F C 100	A	55	65	20	51
14	25	23	28	24	14	25	E B 23	44	43	36	47	52	43	44	43	G	66	68	40	64	A	28	E	28
15	46	28	29	47	13	25	28	45	54	63	55	55	56	49	45	47	54	71	63	22	18	19	28	25
16	22	25	18	28	19	28	24	G	34	41	42	56	48	62	43	44	35	39	G 20	S	21	43	23	E
17	E	22	25	28	22	23	30	G	36	75	50	49	A	A	52	41	40	37	31	20	21	32	22	19
18	17	29	20	37	E S 14	E S 13	G	G	37	35	42	44	50	46	57	47	A	44	50	E S 37	21	17	34	15
19	24	35	E	E	15	24	25	30	38	49	G	E R 46	50	51	A	43	42	46	31	39	29	24	22	29
20	26	27	26	24	19	20	24	G 26	G 28	39	49	42	44	50	43	60	43	31	27	21	E S 14	E S 15	17	46
21	15	36	22	28	36	24	23	G	43	66	68	50	61	53	52	52	70	30	31	35	40	35	22	18
22	50	40	19	E S 13	15	15	28	37	49	54	55	56	51	48	60	51	50	66	48	42	50	34	55	E
23	20	30	23	21	21	20	G	30	50	42	45	55	61	49	47	43	51	G	G	33	17	25	27	24
24	20	17	14	16	20	E S 13	G	G	38	44	45	48	57	72	52	40	G 30	G	G	G	19	A	15	53
25	17	24	16	14	E	S	32	45	49	53	52	62	73	A	68	61	74	76	50	90	72	25	24	E S 18
26	E	E	26	28	13	26	23	31	33	G	38	42	41	E R 38	G	G	G	G	G	18	20	25	23	36
27	56	50	25	45	A	32	G	65	65	61	A	56	53	69	A	A	58	50	49	66	65	26	22	16
28	51	E	32	16	14	E	G	36	53	A	45	47	50	A	94	57	85	35	29	21	26	36	23	24
29	31	31	22	20	E	15	24	32	37	51	52	44	58	66	57	A	G 33	G 29	F R 28	25	27	23	21	22
30	25	E	15	E	E	E S 13	24	G	G	G	38	52	51	43	52	50	76	66	E C 74	35	35	30	52	42
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	30	30	30	30	30	30	30	30	29	29	29	30	30	29	30	30	30	30
MED	24	26	22	24	16	18	24	34	43	52	52	52	51	49	52	48	51	42	U 38	37	31	28	24	24
UQ	40	31	28	28	22	23	28	45	50	66	61	56	60	65	58	57	66	66	U 55	50	50	35	34	36
LQ	20	17	19	16	E E 14	E E 15	23	G 26	37	41	45	46	46	45	45	41	42	30	27	26	21	25	22	18

The Radio Research Laboratories, Japan

JUN. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

JUN. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	285	A	F	A	F	A	A	280	280	I A 305	285	J S 260	270	285	280	280	295 S	310	J S 290	F	F	S	F
2	S	F	F 280	J S 280	F 280	F 310	J S 305	310	315	315	265	245	270	275	285 R	J S 280	S 285	S 315	S 320	300	S 280	I S 260	S	S
3	S	S	S	S	S	F	F	340	280	C 285	C 275	C 260	C 260	C 255	C 270	C 270	C 285	C 270	C 285	C 285	C 265	S	A	S
4	S	S	A	S	S	S	J S 310	315	285	A	A	240	255	260	260	265	275	I S 290	S 300	305	S 275	S 270	S 255	270
5	F 270	S 285	S 285	S 280	S 285	F 285	300	330	315	275	290	265	250	260	J C 270	270	J C 270	I C 280	C 275	J C 300	280	S 270	J S 280	S 280
6	J S 280	285	S	F 295	F	F 285	290	305	A	315	320	250	275	270	C	C	C	290	315	I S 310	S 300	280	S	S
7	F	S 280	F	290	F 275	S 295	H 295	285	320	285	S 255	265	270	S 280	270	U S 280	S 300	315	I A 310	295	275	U S 275	S 255	S 280
8	S	S	S 315	S 305	S 285	S 275	300	305	300	285	290	265	265	275	280	S 285	S 275	295	J S 305	U S 305	U S 285	I S 265	260	U S 265
9	S	290	F	295	S 295	U S 295	335	325	315	I A 290	275	I A 245	250	270	275	S 275	295	290	S 280	I S 270	S	S	S	S
10	S	S	S	I S 285	290	295	310	335	320	320	305	255	260	260	265	S 285	J S 290	J S 290	S 310	310	A	F	S	F
11	S	F	F	F	F 280	F 295	315	290	275	A	260	255	I A 255	250	270	S 275	270	280	C 305	S	290	260	S 255	I S 265
12	S 270	I S 275	I S 285	S 295	295	S 285	295	305	S 305	310	280	235	245	260	275	275	285	285	S 285	I S 290	J S 290	U S 295	S 275	280
13	S 285	I S 285	I S 295	S 280	F 310	325	335	325	325	315	I A 290	260	240	255	265 S	J S 260	S 270	S 285	I C 295	I A 310	S 305	S 265	280	F
14	S	S	J S 265	J S 265	S	S 335	S 340	S 365	340	330	310	280	265	255	265	275	290	280	S 295	J S 305	I A 290	260	260	260
15	S	S	J S 295	F	S 265	F	S 270	275	S 275	305	325	270	240	260	265	270	U S 290	J S 285	I S 290	U S 275	I S 285	I S 290	285	285
16	S 285	S 265	S	S	S 290	I S 330	U S 320	S 300	275	280	300	295	275	265	270	S 285	275	270	J S 275	J S 295	I S 285	275	270	270
17	S 255	S	280	S 285	285	290	320	V 285	290	A	285	270	I A 270	I A 255	265	275	S 275	S 290	S 295	S 260	265	S 265	S 270	S 245
18	S 245	S 240	I S 265	S 265	S 235	285	275	300	G	245	270	220	230	275	275	275	I A 290	270	255	250	S 260	255	S 260	S 265
19	S 230	S 250	260	S 260	270	255	S 220	R 235	S 245	W 220	W 210	R 250	R 245	A	A	260	260	270	275	285	S 265	S 250	S 270	J S 260
20	S 265	S 270	S 265	U S 290	295	285	300	270	H 325	335	R 270	290	270	280	280	280	290	300	I S 305	310	310	S 275	S 265	F
21	S	S 355	300	S 290	F	310	325	315	305	A	A	260	260	275	285	J R 275	J S 300	305	S 300	295	270	275	I S 285	280
22	305	S	S	S	S	280	315	300	310	V 275	315	275	255	265	275	265	285	U S 305	S 295	U S 290	U S 285	265	I S 265	J S 275
23	300	S 295	J S 285	S 290	290	310	285	280	250	260	S 275	250	S 265	265	I S 275	S 290	U S 275	J S 295	U S 280	I S 290	S	I S 275	I S 260	I S 255
24	S 275	S 275	S 280	J S 305	305	275	295	315	285	265	280	285	275	280	280	I S 285	S 295	S 300	J S 325	J S 295	J S 270	A	F	S
25	F	S	S	S	F	S	S 330	300	305	315	255	260	I R 280	I A 280	290	S 285	J S 290	J S 305	C	C	J S 295	U S 285	S	S
26	S	275	J S 310	F	F	J S 275	290	305	285	275	280	280	265	J S 280	280	S 270	S 280	J S 310	J S 310	I S 320	305	270	265	280
27	S	S	F	I S 275	I A 275	280	285	290	325	295	A	270	275	280	I A 270	I A 285	290	305	I C 300	U S 290	S 305	285	S 275	S 240
28	S	J F 270	J F 285	S 275	F	F 250	305	R 310	320	A	H 230	265	255	I A 270	I R 260	J S 275	J S 290	290	I S 300	S 305	285	265	270	U S 265
29	U S 265	S	S	F	S 275	S 285	300	295	325	S 315	275	250	255	265	265	I A 270	R 265	S 285	U S 305	S 300	295	I S 260	260	I S 265
30	S 270	275	280	285	S 270	S 285	295	U S 315	330	365	245	265	265	285	R 275	250	265	J S 280	C	S	S 295	S 275	S	S
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	17	17	20	20	25	28	29	29	25	27	30	30	29	28	29	29	30	28	27	26	25	21	19
MED	270 S	275 S	285 S	285 S	285	285	300	305	305	290	280	262	260	270	272	275	285	290	300 S	295 S	285 S	270 S	265 S	265 S
UQ	285 S	285 S	295 S	292 S	292	295	318	315	320	315	295	270	270	275	280	280 S	290 S	300 S	308 S	305	295 S	275 S	275 S	280
LQ	265 S	270 S	280	278 S	275	280	292	290	280	275	268	250	255	260	265	270	275	280	285 S	290 S	275 S	265 S	260 S	262 S

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

IONOSPHERIC DATA

JUN. 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							A	A	L	A	A	A	A	370	H 370	A	A	A	L 350					
2							L	L	L	A	H 365	355	A	A	A	L 340	L 360	L 355	L					
3								A	A	A	A	A	A	C 335	A	A	A	A	A					
4							L	A	A	A	A	A	340	380	A	A	A	A	A					
5								L	L 345	A	A	A	A	A	A	H 350	A	A	A	A				
6								A	A	A	A	A	360	380	C	C	C	A	L	A				
7								A	L	U L 370	L	L 340	L 395	L 350	A	345	A	L	A					
8							L	A	A	A	365	A	A	360	A	A	A	L 335	A					
9								A	A	A	A	A	370	L 335	A	A	A	L 320	A					
10								L	L	A	A	375	H 355	385	345	A	A	A	A	A				
11								A	L	A	L	A	A	A	H 370	H 335	L 335	H 345	A					
12								L	L	L	A	H 320	A	A	A	H 345	A	L 345	L					
13								L	L 370	A	A	390	H 380	A	U L 360	A	A	A	A	A				
14							L		L	L	L	A	395	350	370	L 365	A	A	L					
15								A	A	A	A	A	A	A	L 365	A	A	A	A					
16							L	L	L	H 340	L 355	A	A	A	390	350	L 330	L	L 335	L				
17								L 340	L	A	L	A	A	A	A	H 380	L 365	L 345	I					
18							L	H 360	335	R 340	L 335	R 360	A	A	A	A	A	L	L					
19							L	L 295	335	I A 360	385	A	A	A	A	330	355	A	L	A				
20							L	L	L	U L 395	330	L 380	L 380	A	L 365	A	U L 340	U L 360	L					
21							L	L		A	A	A	A	A	A	A	A	U L 350	L					
22								L	A	A	A	A	A	A	I A 300	A	A	A	A					
23								L	A	325	A	A	A	A	A	350	A	350	L					
24							L	L		L	350	A	A	A	A	375	H 345	L	L					
25							A	A	A	A	335	A	A	A	A	A	A	A	A	A				
26							L	L	H 355	L	365	L	390	370	370	350	340	340	L					
27							L	A	A	A	A	A	A	A	A	A	A	A	A					
28							L	L	A	A	L	360	A	A	A	A	A	360	U L 355	L				
29							L	L 355	A	A	A	H 355	A	A	A	A	L 355	365	L	L				
30							L	L	L	L	L	A	A	R 385	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								4	5	6	9	9	9	11	10	12	9	12	3					
MED								L 348	345	350	355	360	380	370	368	350	L 345	L 348	L 350					
UQ								358	L 355	U L 370	365	375	390	380	370	358	L 355	358	L 352					
LQ								L 318	335	340	335	355	360	350	L 360	342	L 340	L 342	L 342					

The Radio Research Laboratories, Japan

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

IONOSPHERIC DATA

JUN. 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

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							A	A	300	E A 420	A	E A 400	E A 390	350	335	330	305	300	275					
2							250	250	270	270	400	430	345	350	315	305	290	260	240					
3								240	290	295	A	335	355	385	345	330	310	305	E A 320					
4							255	255	275	A	A	370	390	345	340	335	310	I A 285	290					
5								245	300	E A 320	350	410	410	375	400	350	335	305	290	275				
6								290	A	285	280	L	390	345	C	C	C	325	270	E A 270				
7								250	260	250	370	395	350	330	E A 400	320	300	265	A					
8							250	250	E A 295	E A 400	325	360	350	350	350	305	320	280	260					
9								235	260	I A 360	E A 350	A	380	355	325	325	300	280	265					
10								240	255	300	300	405	390	360	350	310	300	300	275	270				
11								E A 300	300	I A 290	330	A	A	375	345	340	340	310	270					
12								280	245	280	E A 330	475	440	360	345	330	320	305	290					
13								250	300	I A 275	A	U 365	455	385	350	340	330	330	I A 290	A				
14							225		260	290	305	370	400	390	360	335	310	310	290					
15								280	250	255	290	415	465	380	370	355	320	300	290					
16							240	250	250	330	320	320	380	375	350	310	305	315	295	250				
17								290	295	A	335	375	A	I A 385	345	315	305	280	260					
18							350	300	G	450	340	545	400	340	335	355	A	325	350					
19							440	395	375	445	490	460	500	A	A	450	445	395	350	305				
20							285	260	235	265	440	350	390	355	340	340	315	295	285					
21							240	250		A	A	400	360	340	330	345	300	280	260					
22								270	260	380	290	E A 340	430	375	360	335	320	280	270					
23								295	300	350	330	380	370	355	325	305	315	290	300					
24							300	250		370	340	325	345	350	335	310	300	280	250					
25							260	280	300	290	450	375	345	I A 335	320	330	310	290	280	E A 330				
26							285	250	300	335	320	345	340	345	340	340	345	285	260					
27							285	E A 330	E A 270	E A 340	A	A	400	380	A	A	325	290	300					
28							265	275	280	A	350	415	410	A	E A 450	345	E A 350	300	270	250				
29							300	330	270	280	E A 385	480	400	380	380	A	350	295	275	270				
30							300	240	250	250	450	440	375	320	345	415	E A 400	330	I A 290					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							16	28	27	26	24	26	28	28	27	27	28	30	29	8				
MED							275	254	272	293	334	383	390	355	345	335	312	298	278	265				
UQ							300	285	300	348	369	415	405	378	352	342	327	310	290	281				
LQ							250	250	259	280	316	360	355	345	335	318	305	280	270	255				

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 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	A	290	A	300	I A 280	290	A	A	200	A	A	A	A	225	210 H	A	I A 250	I A 240	240	250	E A 350	270	250	250
2	295	280	285	275	265	250	225	225	250	A	205 H	200	A	A	A	250	250	225	225 H	270	275	310	320	I A 300
3	E A 340	230	200	260	340	300	265	A	A	A	A	A	A	A	A	A	A	A	A	250	E A 320	E A 310	A	255
4	300	250	A	250	255	295	250	A	A	A	A	A	200	220	A	A	A	A	A	245	270	300	325	315
5	310	265	255	255	280	255	240 H	220	225	A	A	A	A	A	A	225 H	I A 255	A	A	A	275	E A 350	300	290
6	260	300	270	260	300	250	240	A	A	A	A	A	E A 320	215	C	C	C	A	250	I A 250	245	285	320	300
7	255	260	270	270	285	265	225	I A 240	230	210	200	200 H	190	E A 230	A	E A 245	I A 240	250	I A 250	265	265	E A 340	E A 370	285
8	290	280	245	245	255	295	240	A	A	A	E A 235	A	A	E A 230	A	A	A	E A 255	A	250	255	300	E A 350	320
9	310	305	305	E A 300	250	255	235	A	A	A	A	I A 210	220	A	A	A	A	A	A	250	255	250	275	285
10	E S 300	255	245	250	250	250	240	220	225	A	A	E A 250	205 H	E A 250	E A 280	A	A	A	A	A	A	350	350	E A 390
11	E A 350	E A 350	265	270	265	245	240	I A 235	250	A	A	A	A	A	200 H	215 H	220 H	215 H	I A 240	250	240	290	E A 350	E A 325
12	E A 315	290	265	245	230	250	245	225	230	200 H	I A 220	205 H	A	A	A	200 H	A	225	235	255	250	260	250	275
13	280	290	260	270	245	230	230	225	E A 250	A	A	240	200 H	I A 245	230	I A 230	A	A	A	A	260	E A 300	270	E A 350
14	270	300	320	310	F 260	235	230	225	E A 240	205 H	A	A	200	230	240	230	A	A	A	260	I A 250	250	290	305
15	E A 340	250	230	E A 280	220	300	245	A	A	A	A	A	A	A	E A 240	A	A	A	A	240	255	260	270	275
16	285	330	290	320	265	235	235	230	215	220 H	230	A	A	A	205	E A 250	225	A	230	255	230	E A 300	275	275
17	300	295	295	275	255	260	240	230	230 H	A	A	A	A	I A 220	I A 205	225 H	E A 235	E A 250	240	245	275	300	275	310
18	340	365	295	305	345	270	230	220 H	250	240 H	250	E A 250	A	A	A	A	A	A	A	E A 310	270	295	E A 320	275
19	E A 390	E A 350	300	250	240	280	285	275	E A 265	A	205	I A 205	A	A	A	I A 225	I A 230	A	E A 250	A	310	310	310	330
20	320	315	300	270	270	275	260	210	200	220	I A 205	200	E A 210	I A 200	230	A	A	210 H	240	235	235	285	295	A
21	270	265	255	270	295	245	240	200 H	E A 250	A	A	I A 250	I A 260	A	I A 210	I A 240	I A 230	210 H	215	255	270	300	260	255
22	320	345	250	250	280	250	240	240	I A 240	A	A	A	A	A	A	A	A	A	A	270	E A 300	320	E A 400	305
23	300	290	265	250	250	250	235	225	A	E A 250	A	A	A	I A 195	A	E A 270	A	215	235 H	260	250	260	330	305
24	320	295	255	240	240	280	250	230	225	255	E A 250	A	A	A	A	210	200 H	230	220	225 H	255	I A 285	290	E A 340
25	300	300	330	310	280	250	A	A	A	A	E A 280	A	A	A	A	A	A	A	A	A	E A 305	240	285 H	295 H
26	290	295	260	265	245	290	240	210	195 H	190 H	200	210	195	200	210	205	225	215	230	240	230	300	300	310
27	E A 350	E A 320	260	I A 300	I A 300	E A 305	250	A	A	A	A	A	A	A	A	A	A	A	A	E A 270	A	260	275	340
28	E A 350	275	275	275	280	300 H	240	E A 250	A	A	E A 250	E A 270	A	A	A	A	A	230	235	250	245	305	305	305
29	310	305	305	260	220	250	250	225	E A 250	A	A	220 H	A	A	A	A	220 H	225	240	E A 260	230	310	330	310
30	305	280	285	260	290	280	250	225	225 H	220 H	200	A	A	225	A	A	A	A	A	250	255	245	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	28	30	30	30	28	21	20	10	13	13	10	13	11	14	12	14	16	25	28	30	28	28
MED	298	291	268	266	265	256	240	225	228	218 H	210	208	201	220 A	210	224	229	222	236	250	254	292	290	298
UQ	312	302	295	278	280	285	250	230	240	230	E A 250	U A 230	212 A	228 A	228	238 A	I A 245	235	240	258	272	305	318	313
LQ	290	275	255	250	250	250	235	220	225	205 H	205	205	200	215	208	215 H	222	215	230	250	248	260	275	280

JUN. 1972 | H'F (KM)

IONOSPHERIC DATA

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

The Radio Research Laboratories, Japan

JUN. 1972 | H'ES (KM)

IONOSPHERIC DATA

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

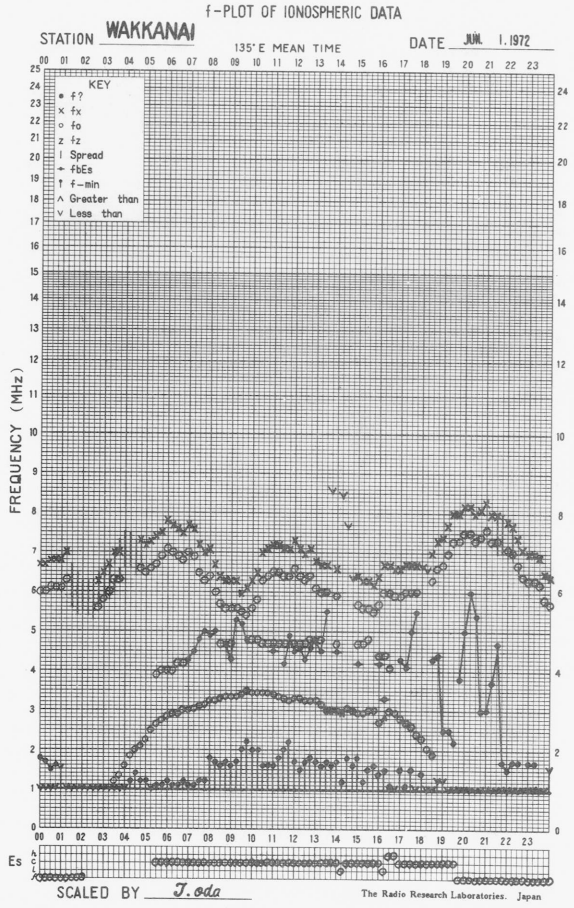
Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

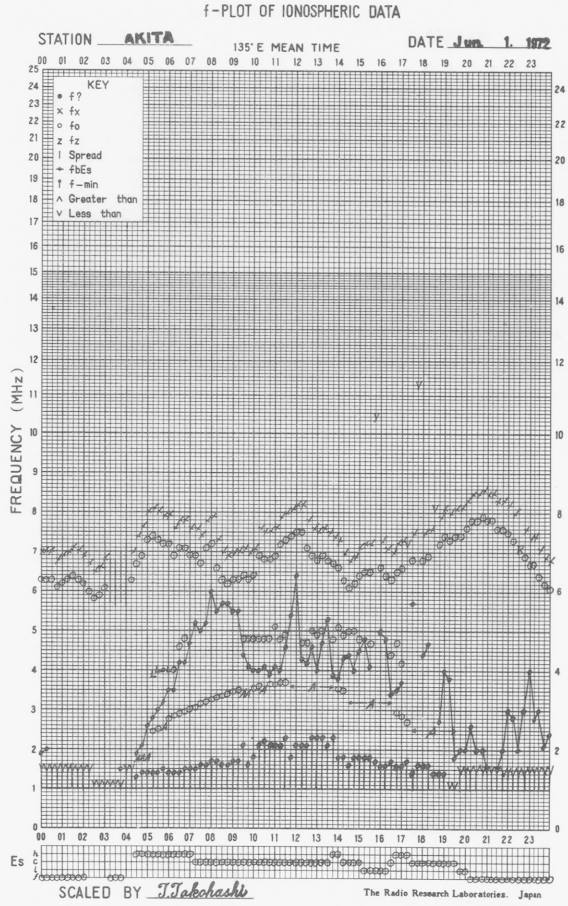
Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 5	F 5	F 7	F 5	F 6	F 6	C 7	C 7	C 2	C 3	C 3	C 3	C 3		H 1	H 2	C 3	C 2	C 2	F 2	F 3	F 3	F 3	F 2
2	F 2	F 1	F 4	F 1		F 1	C 1	C 1	C 3	C 2	C 1	C 2	C 2	L 3	HL 22	LH 21	HL 11	HL 11		C 2	F 5	FF 34	F 3	F 3
3	F 7	F 2	F 1	F 3	F 3	F 2	C 5	C 2	C 3	C 2	C 2	C 3	C 3	C 2	L 3	L 2	L 4	L 4	L 4	F 3	F 4	FF 24	FF 47	F 3
4	F 4	FF 14	F 4	F 7	F 1		C 3	C 4	C 3	C 4	C 4	C 2	C 1	H 1	H 1	H 2	C 4	C 5	C 5	F 4	F 5	F 4	F 4	F 5
5	F 2	F 2	F 1				H 2	H 1	H 2	C 2	C 2	C 2	C 2	CL 21	CL 21		HL 11	CL 41	C 3	C 4	FF 52	FF 33	F 3	F 3
6	F 2	F 2	F 2	F 1	F 1		H 1	C 2	C 4	C 3	C 2	C 2	C 2	C 1				CL 43	L 3	CL 44	F 3	F 3	F 3	F 4
7	F 3	F 2	F 5	F 2	F 1		C 3	C 4	C 2	C 1	C 1	L 1	L 1	C 1	CC 61	C 1	C 3	C 2	C 4	C 6	F 6	F 7	F 4	F 2
8	F 2	F 3	F 4	F 5	F 4	F 2	C 2	C 2	C 3	C 4	C 2	C 2	C 2	C 1	C 2	C 2	C 2	C 3	C 5	C 3	F 5	F 4	F 3	F 6
9	F 7	F 5	F 7	F 7	F 4	F 4	C 2	C 4	C 3	C 5	C 4	C 3	C 1	L 1	LH 21	HL 52	CL 22	C 2	C 4	L 6	F 7	F 4	FF 44	FF 42
10	FF 51	F 4	F 3	F 3	FF 33	F 1	C 5	C 3	CL 22	CL 21	CL 31	CL 31	HC 11	HL 11	HL 11	CL 21	CL 51	CL 51	CL 61	CL 51	F 4	F 3	F 3	F 4
11	F 6	F 5	F 3	F 3	F 3	F 3	H 2	C 3	C 3	C 4	C 3	C 4	C 4	CL 21	L 1	H 2		H 1	L 5	L 4	F 3	F 4	F 6	F 5
12	F 3	F 3	F 5	F 3	F 3	F 1		H 1	C 3	C 2	C 3	C 1	C 3	C 3	C 3	L 1	L 3	HL 12	H 1	L 4	F 5	F 6	F 6	F 2
13	F 2	F 2	F 2	F 4	F 4	F 7	C 1	C 2	C 2	C 4	C 2	C 1	C 1	L 2	CL 11	C 1	HL 41	CL 52	CL 32	CL 53	FF 43	FF 33	FF 33	F 3
14	FF 24	F 3	F 6	F 2	FF 12	F 4	C 1	C 2	C 3	C 1	C 2	CL 21	H 1	H 1	H 1	H 1	C 3	C 4	C 4	CL 62	F 3	F 3	F 2	F 4
15	F 4	F 4	F 4	F 5	F 2	F 6	HL 32	HL 33	CL 31	C 3	C 3	C 2	H 2	H 2	C 1	H 1	C 3	C 3	C 3	C 2	F 3	F 4	F 5	F 6
16	F 5	F 3	F 6	FF 63	FF 32	F 4	HL 11	HL 11	HC 11	H 1	HC 11	H 3	H 1	C 3	C 1	C 2	L 2	HL 41	L 2	L 1	F 3	FF 43	FF 62	F 2
17	FF 22	F 3	F 4	F 5	F 4	F 5	L 4	H 2	H 2	C 2	C 2	C 2	C 3	C 2	C 1	C 1	C 1	C 3	L 2	L 4	F 3	F 5	F 5	F 5
18	F 3	FF 32	F 5	F 6			H 1	H 1	H 2	H 1	H 1	H 1	H 1	H 1	C 2	H 1	C 7	C 2	CL 21	CL 11	F 2	FF 21	F 6	F 2
19	F 6	F 5	F 2		F 1	H 3	H 2	H 1	C 3	C 1	H 1	C 1	H 1	H 2	C 2	H 1	H 2	H 2	C 3	C 2	F 4	F 3	F 4	F 3
20	F 3	F 4	F 3	F 4	F 2	F 2	L 2	L 1	L 1	HL 11	HL 12	CL 11	CL 11	HL 11	HH 11	CC 21	C 2	C 3	C 2	C 1			F 2	FF 72
21	F 3	F 4	F 3	F 8	F 5	F 4	LH 21	HL 11	C 2	C 3	C 2	C 2	C 2	C 2	C 3	C 1	C 3	L 3	HL 12	L 2	F 4	F 6	F 4	F 2
22	F 4	F 6	F 3		F 1	F 1	C 2	C 1	C 2	C 2	C 3	C 3	C 3	C 2	C 2	C 2	L 2	L 4	L 3	L 1	F 7	F 5	F 3	F 2
23	F 3	F 4	F 4	F 2	F 3	F 2	HL 11	H 1	C 2	C 1	C 1	C 2	C 2	C 2	C 1	HL 11	HL 11	HL 12	HL 11	HL 23	F 1	FF 32	F 3	F 3
24	F 2	F 2	F 2	F 2	F 3		H 1	C 1	C 2	C 2	C 2	C 1	C 2	C 3	C 2	HC 11	L 1	H 1	H 1	C 1	F 3	F 3	F 2	F 4
25	F 4	F 4	F 4	F 3	F 1	F 1	C 2	C 2	C 2	C 2	C 2	C 3	C 2	C 4	C 2	C 3	L 3	L 4	L 2	L 3	F 4	F 3	F 2	F 1
26	F 1	F 1	F 3	F 1	F 1	F 3	C 1	C 2	C 2	C 1	C 1	C 1	C 1	C 1						L 1	F 3	F 2	F 2	F 3
27	F 4	F 3	F 5	F 3	F 3	F 3	C 1	C 3	C 4	C 5	C 3	C 2	C 2	L 3	L 3	C 4	C 4	C 3	C 4	L 3	F 5	FF 24	F 3	F 3
28	F 4	F 2	F 5	F 2	F 1	F 1	H 2	C 2	C 2	C 3	C 2	C 3	C 2	C 4	C 4	C 3	C 4	C 2	HL 12	L 2	FF 53	F 4	F 4	F 4
29	F 3	F 4	FF 24	F 2	F 1	F 1	C 2	C 1	C 2	C 2	C 2	C 1	C 3	C 2	C 3	C 4	C 1	L 2	HL 12	L 3	F 2	F 5	F 3	F 4
30	F 4	F 1	F 2	F 2	FF 11		H 1	HL 11	H 1		C 1	C 2	C 2	C 1	C 1	C 3	L 5	L 6	L 4	L 4	F 5	FF 14	FF 41	F 4
31																								

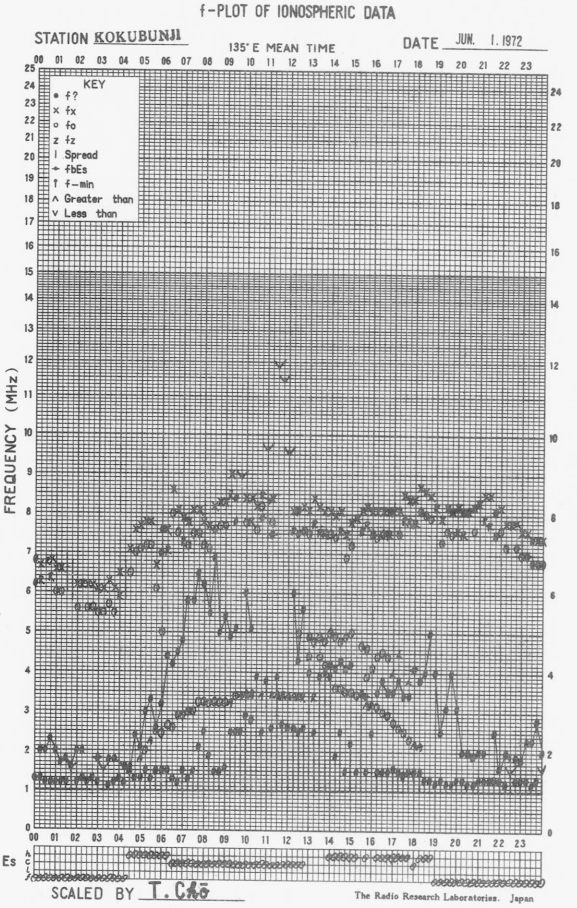
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

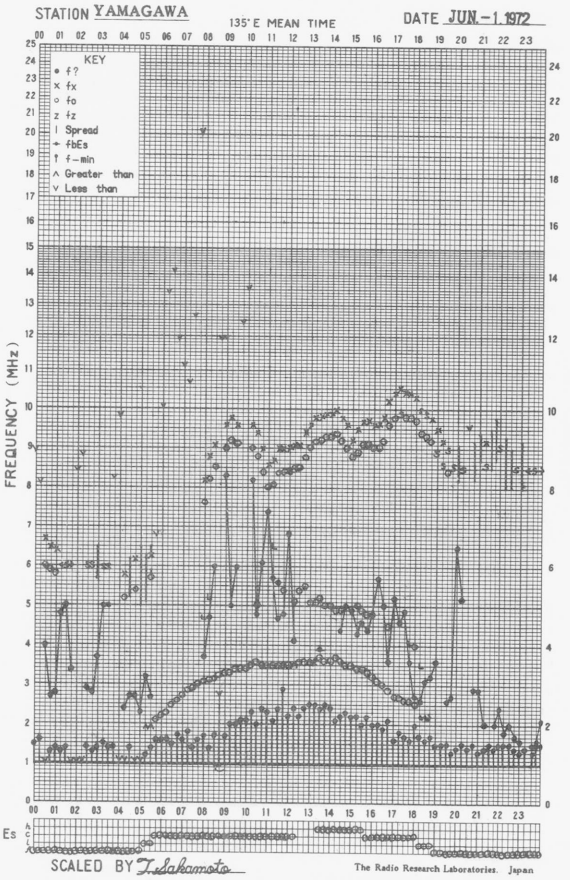
The Radio Research Laboratories, Japan

JUN. 1972 | TYPES OF ES


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE JUN. 1. 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

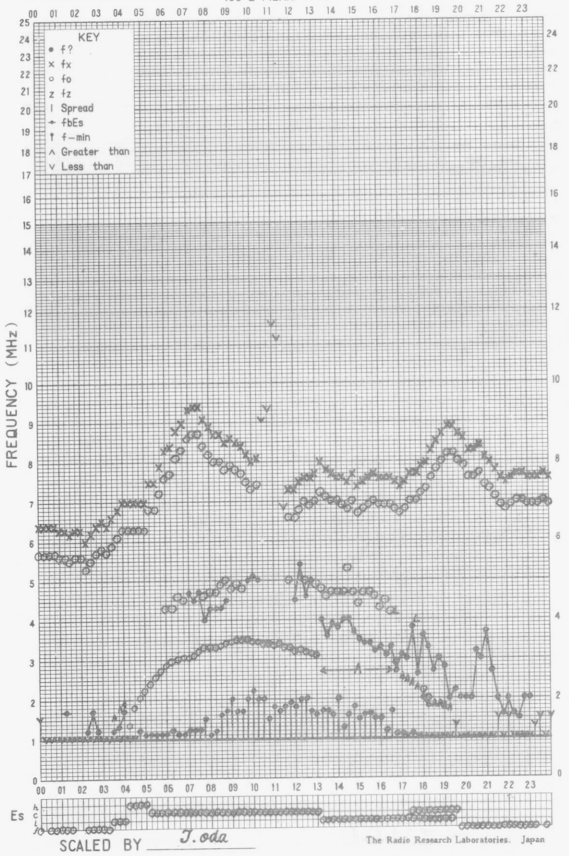

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUN. 1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ 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 JUN.-1. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊣ fbEs
↑ f-min
∧ Greater than
∨ 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 JUN. 2. 1972

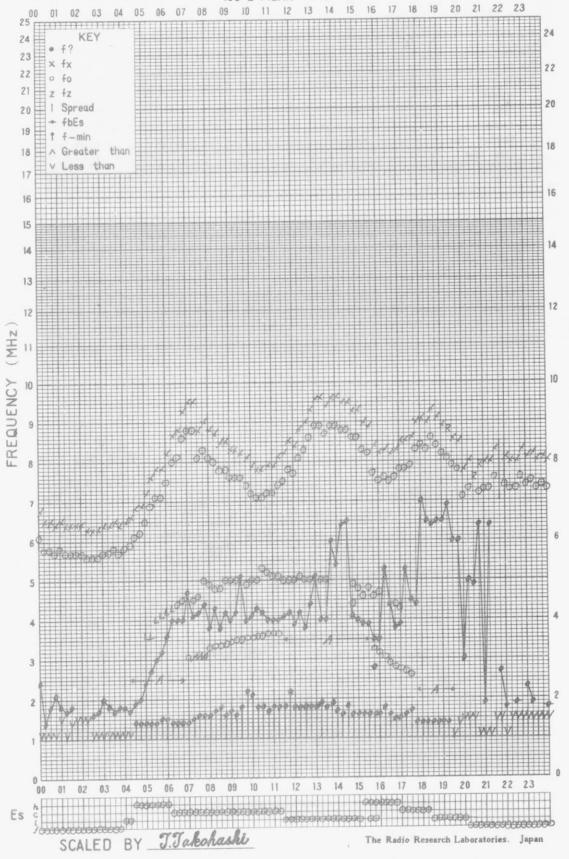


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 2. 1972

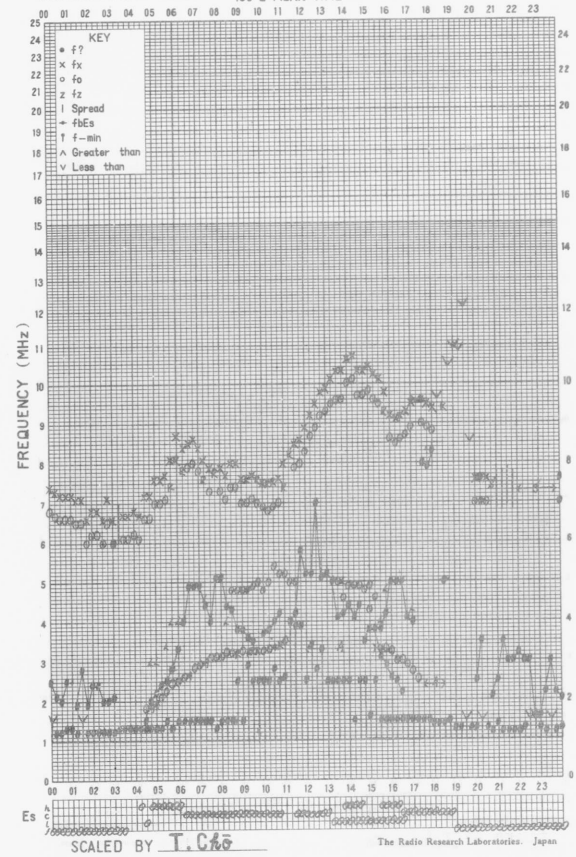


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 2. 1972

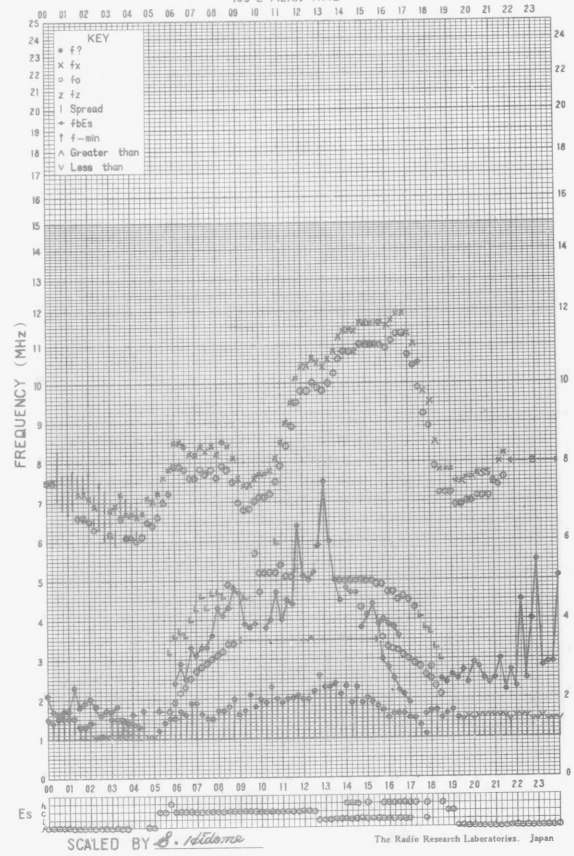


SCALED BY T. Chō

The Radio Research Laboratories. Japan

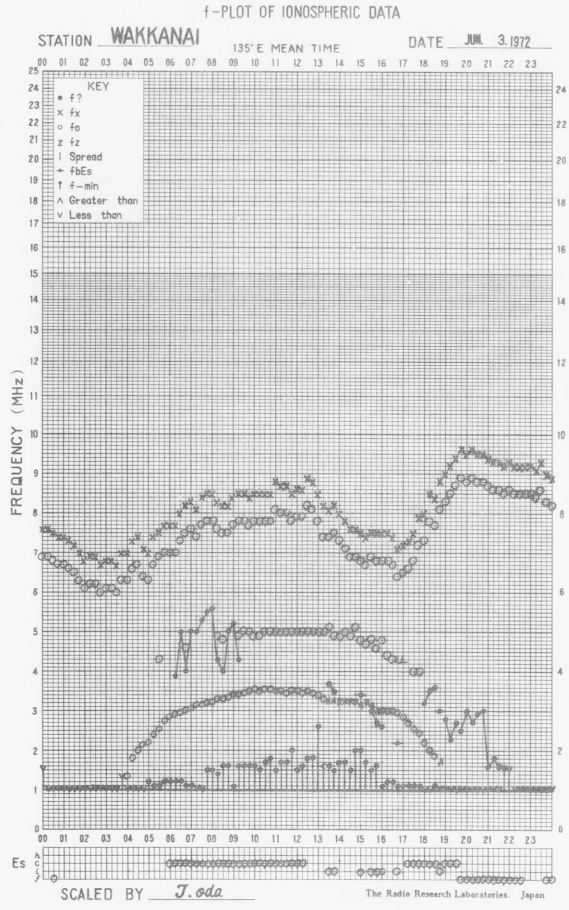
f-PLOT OF IONOSPHERIC DATA

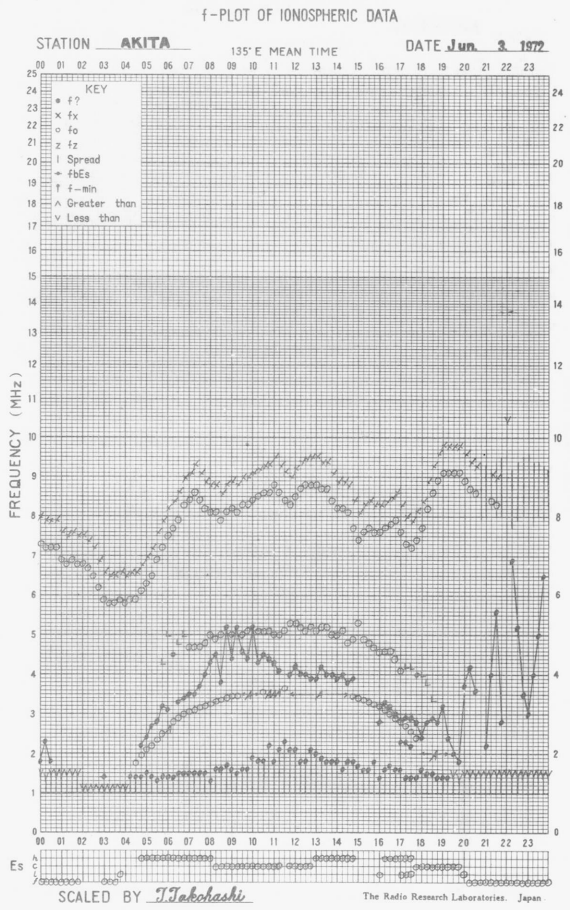
STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 2 1972

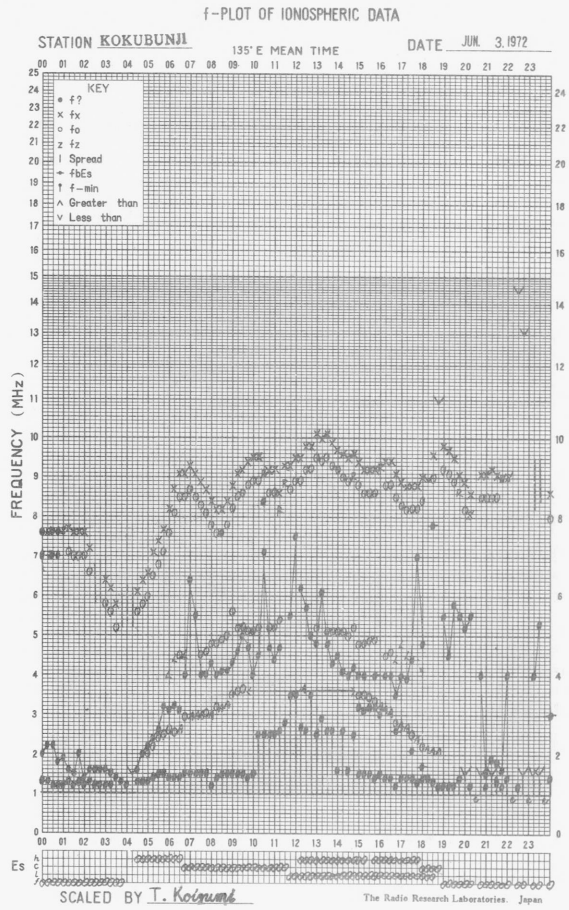


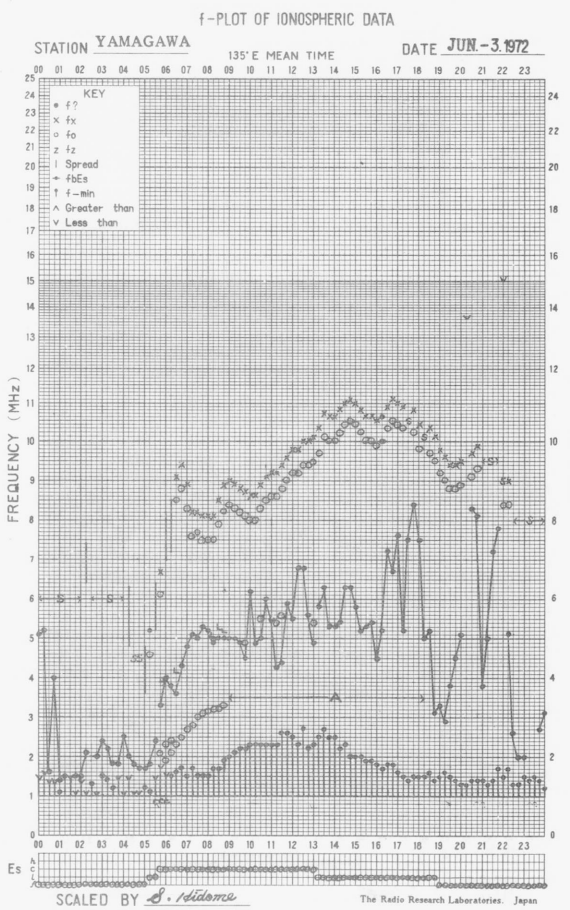
SCALED BY S. Nidome

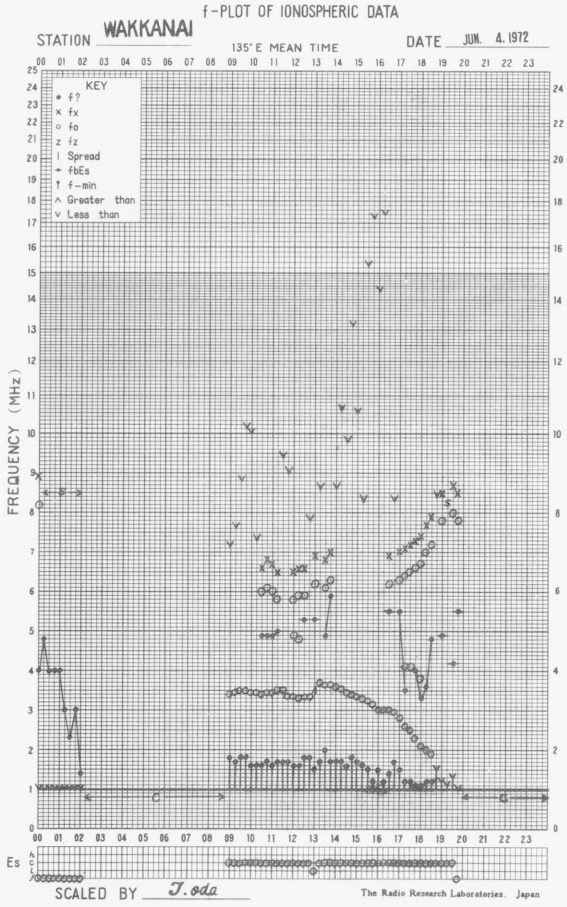
The Radio Research Laboratories. Japan

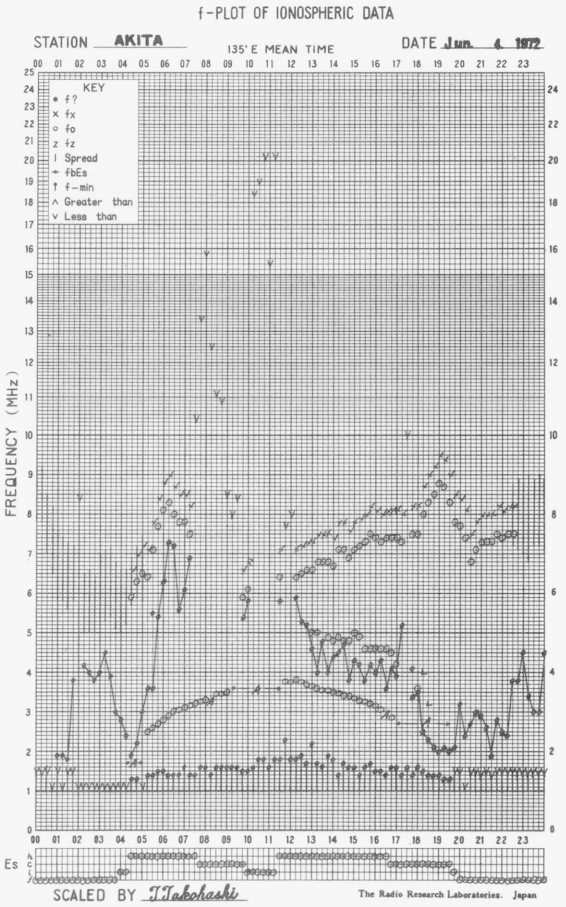

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 3.1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

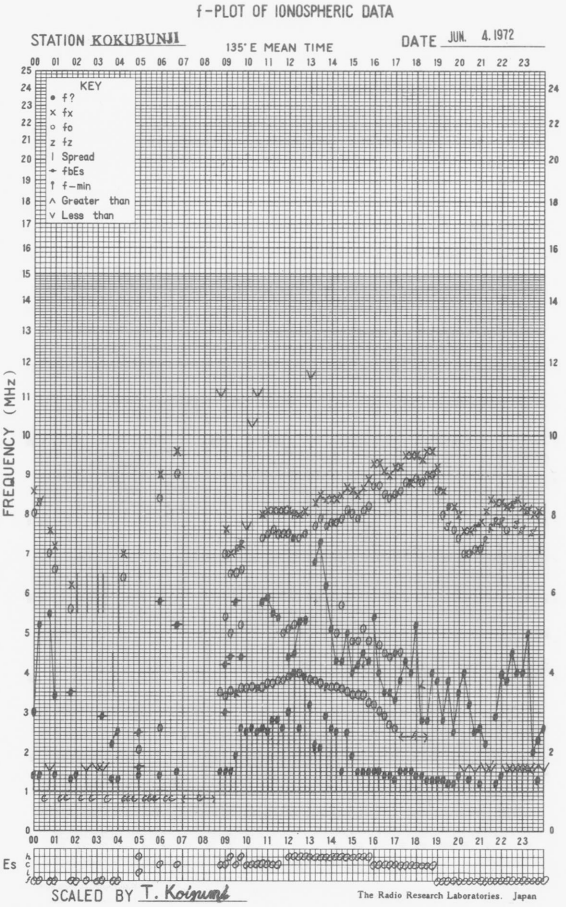

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 3. 1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan

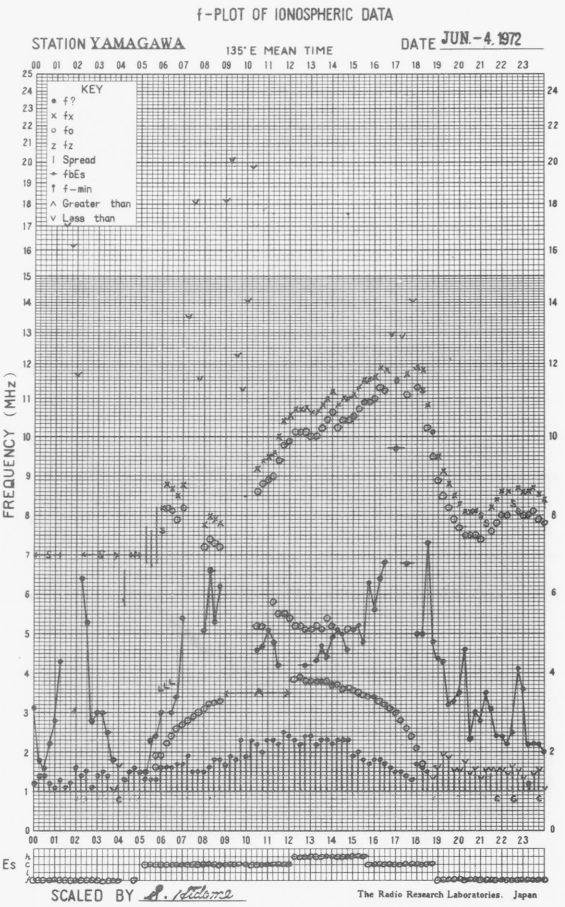

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 3.1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN.-3.1972
KEY
FREQUENCY (MHz)
Es
SCALED BY S. Iidoma
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE JUN. 4. 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

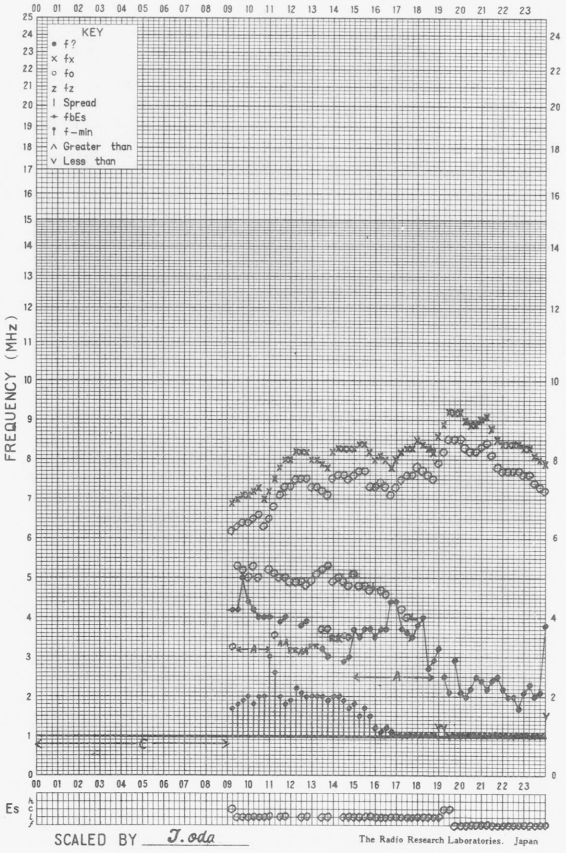

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 4. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUN. 4. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
^ Greater than
v 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 JUN.-4. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ichimura
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 5. 1972

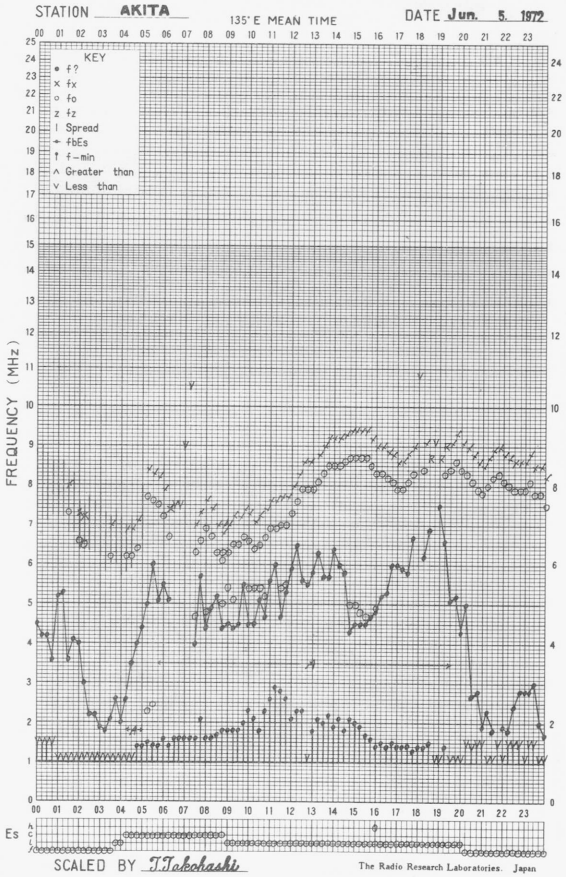


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 5. 1972

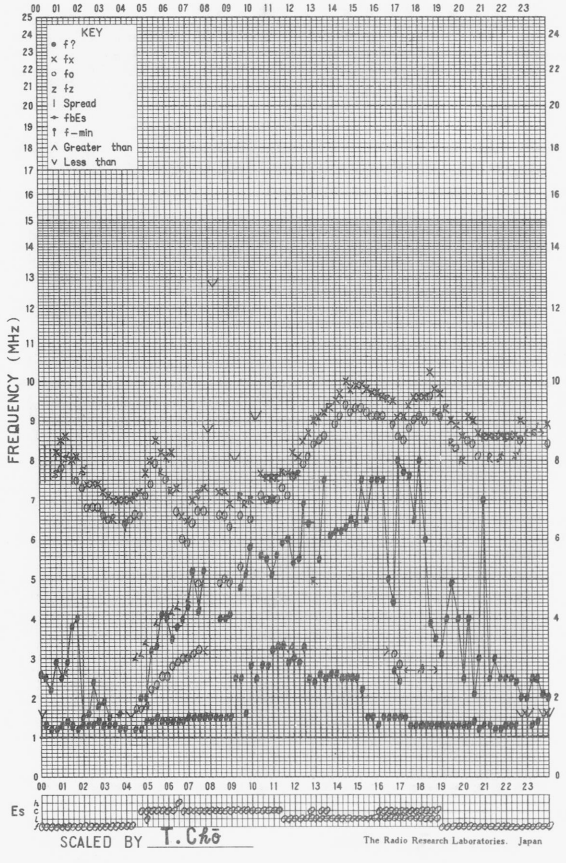


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 5. 1972

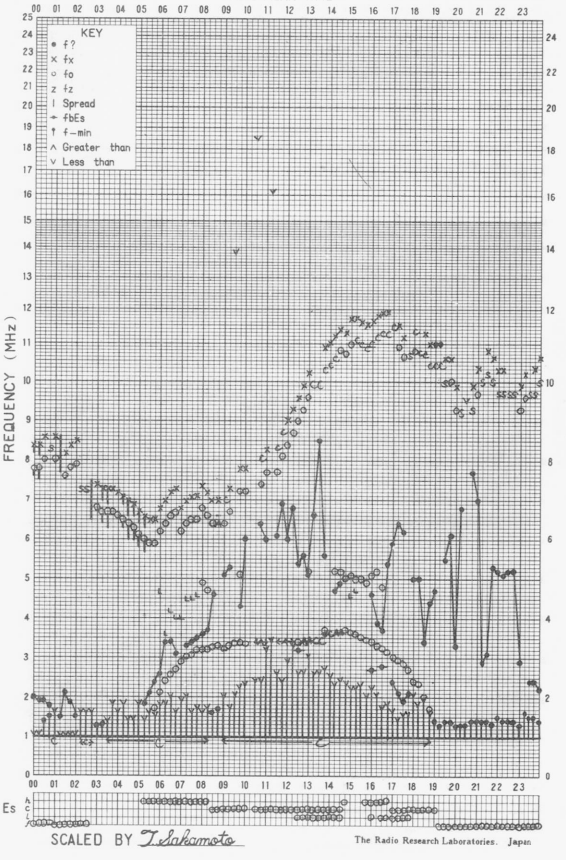


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN.-5. 1972

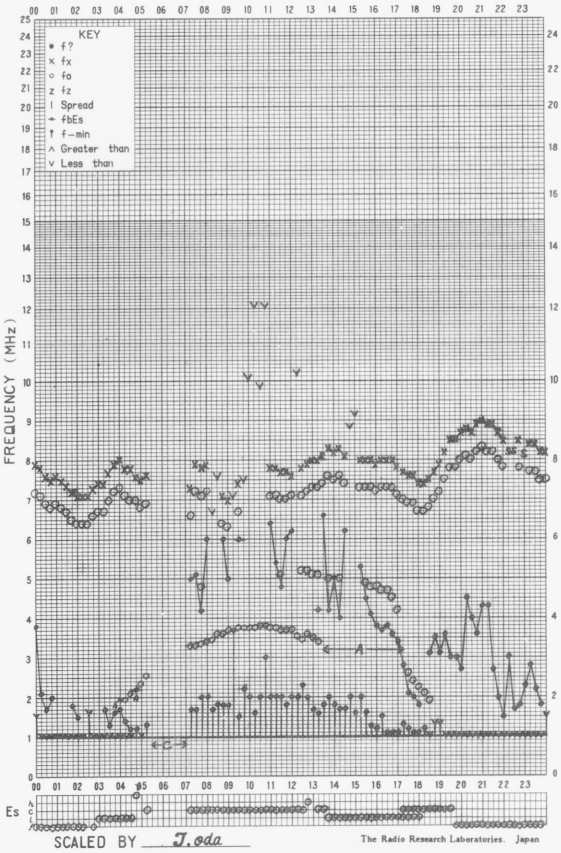


SCALED BY T. Sakamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 6. 1972

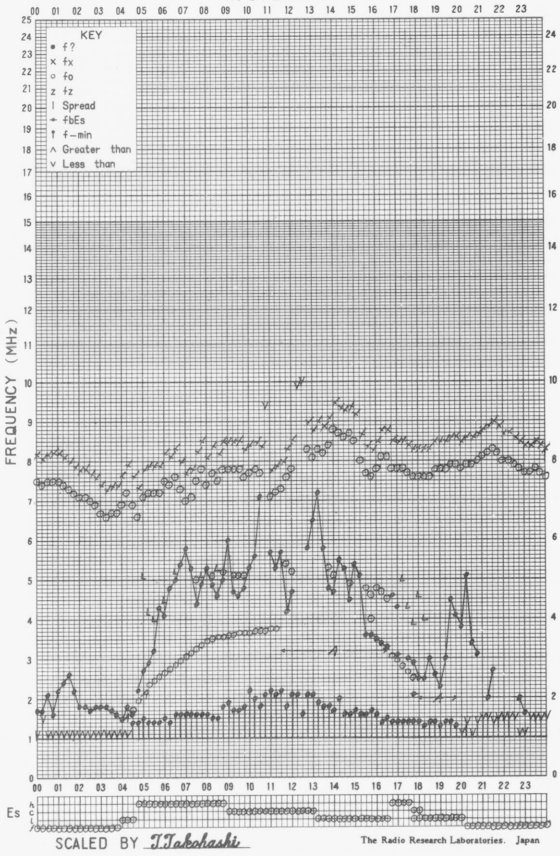


SCALED BY J. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 6. 1972

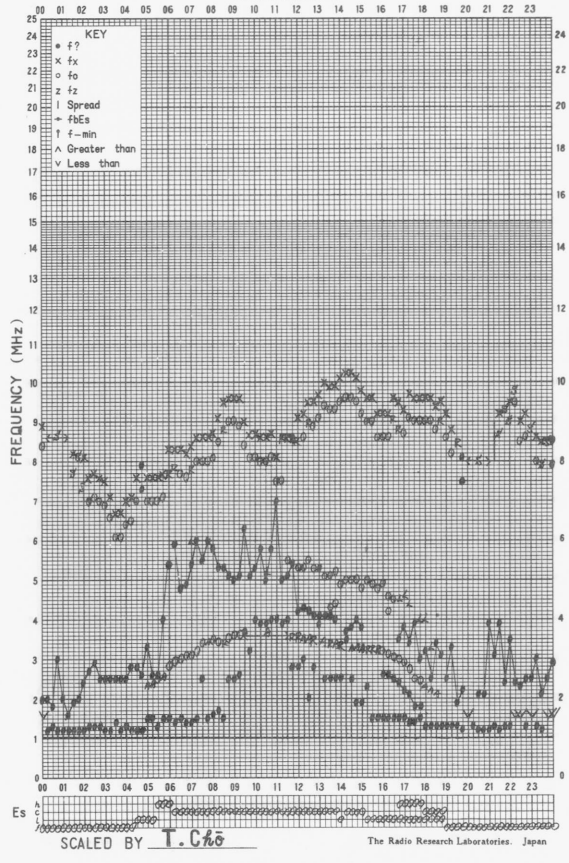


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 6. 1972

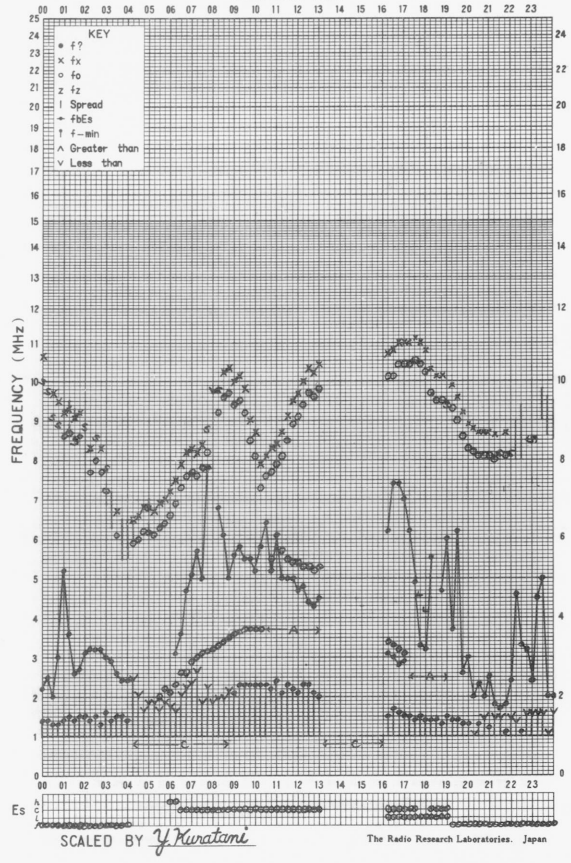


SCALED BY T. Cho

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN.-6.1972

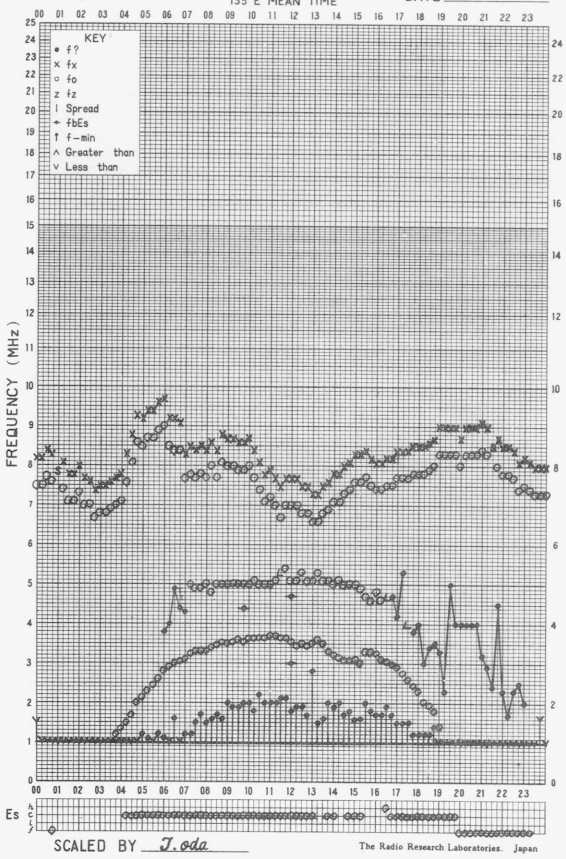


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 7. 1972

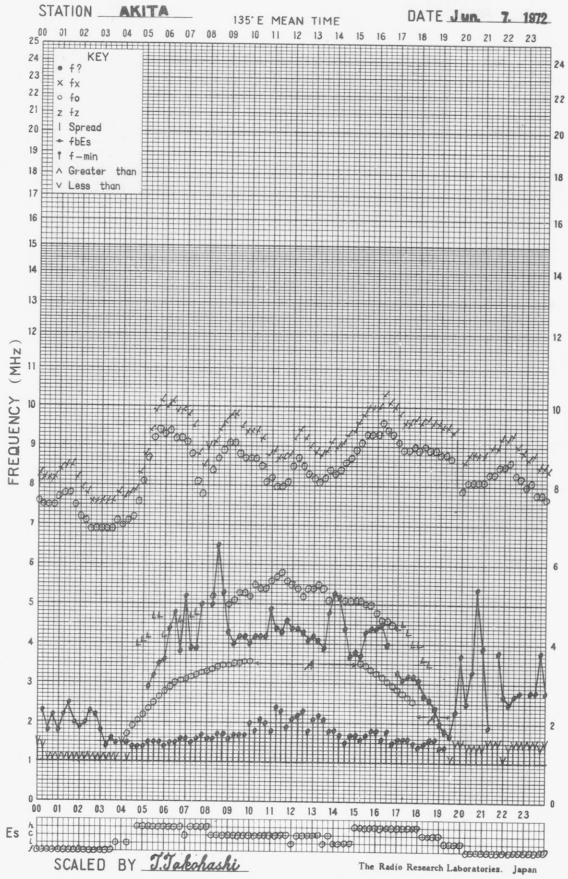


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 7. 1972

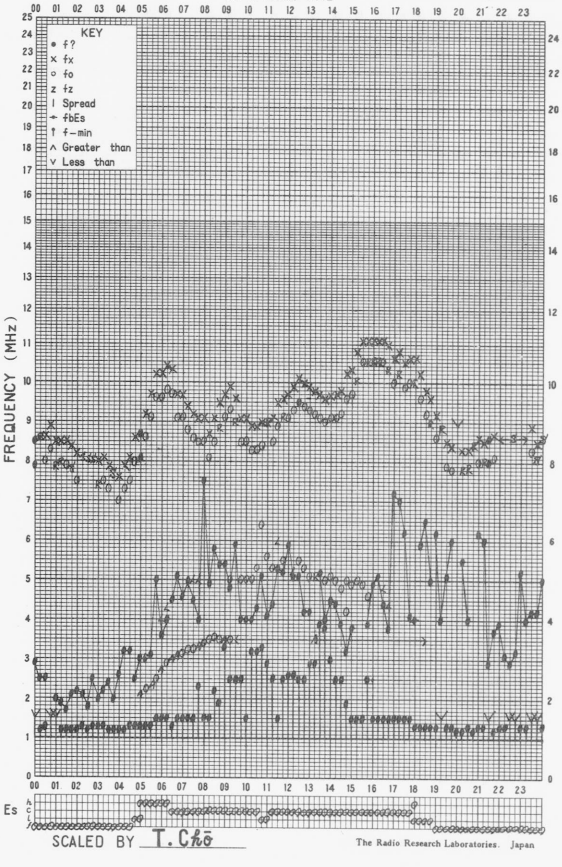


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 7. 1972

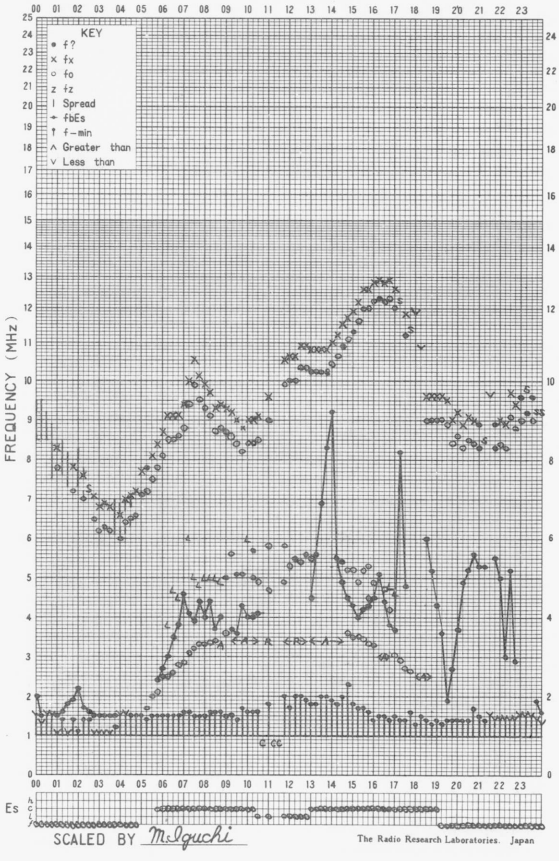


SCALED BY T. Chō

The Radio Research Laboratories. Japan

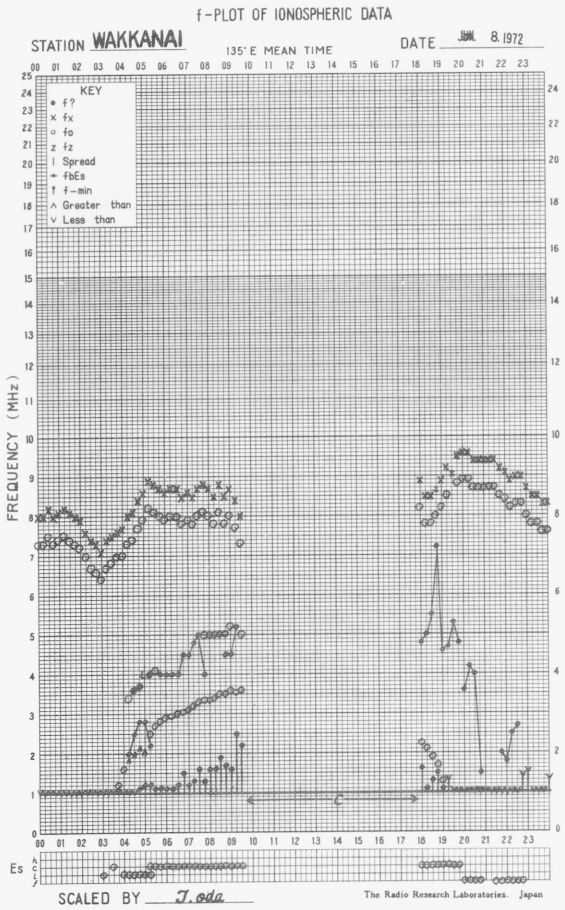
f-PLOT OF IONOSPHERIC DATA

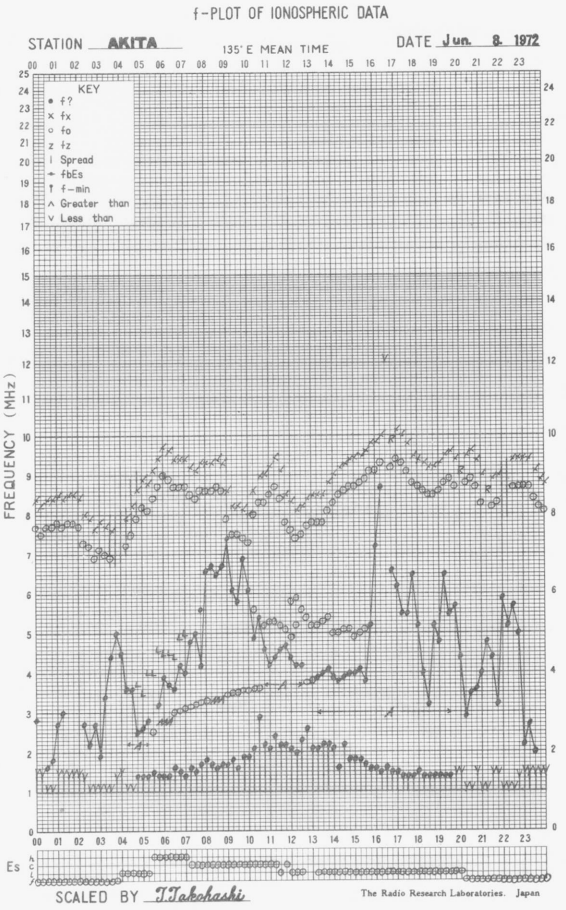
STATION YAMAGAWA 135°E MEAN TIME DATE JUN.-7 1972

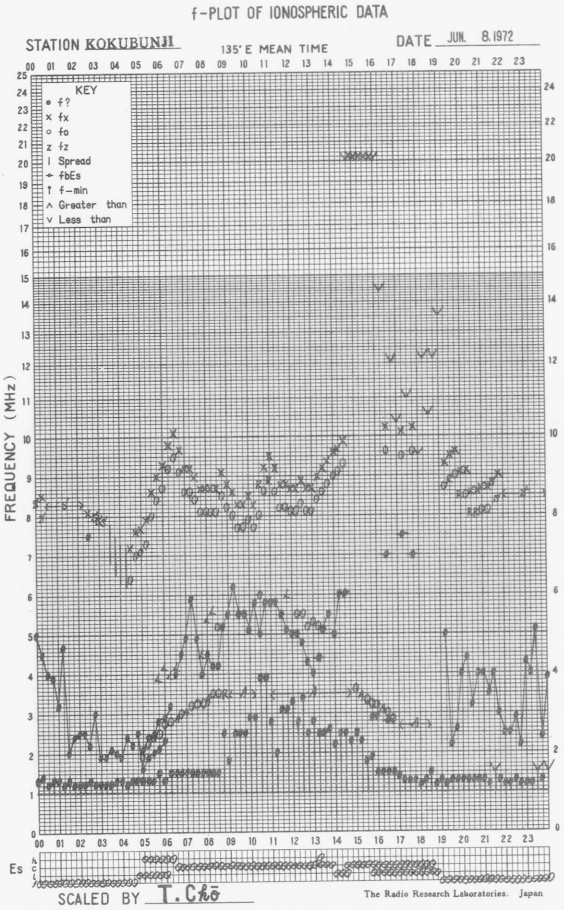


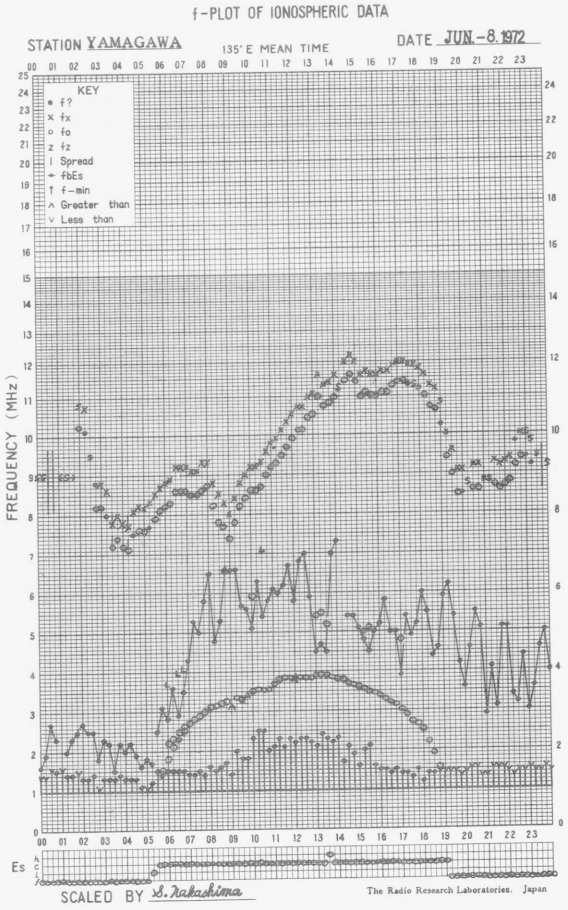
SCALED BY M. Iguchi

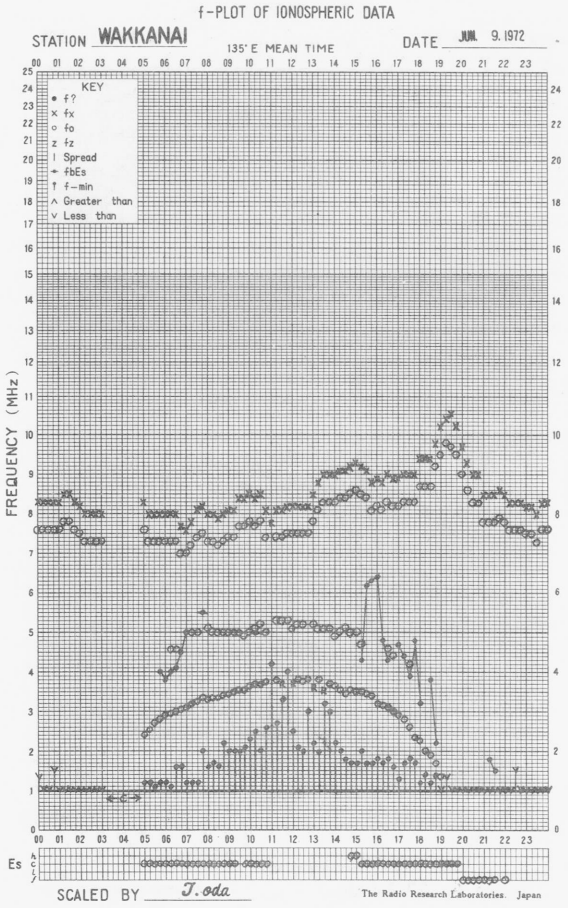
The Radio Research Laboratories. Japan

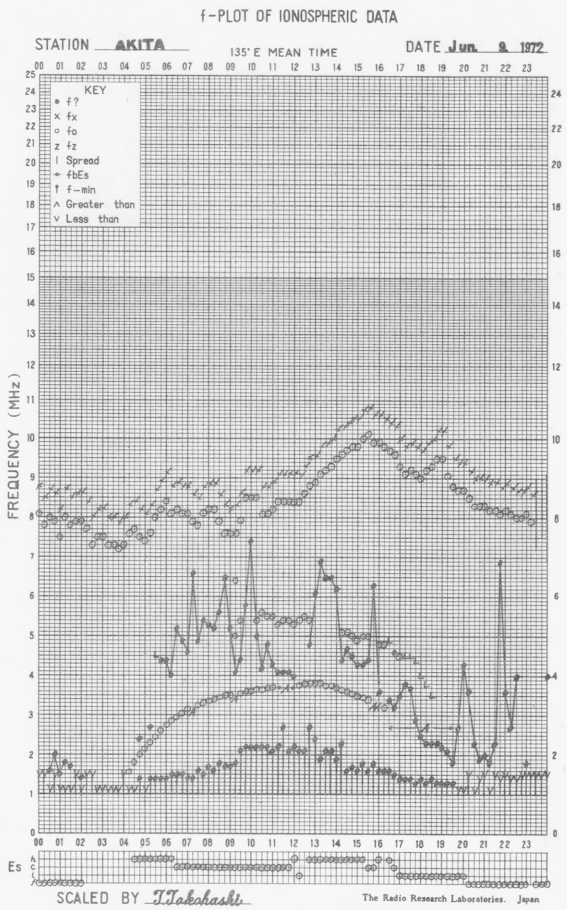

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE JUN. 8. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

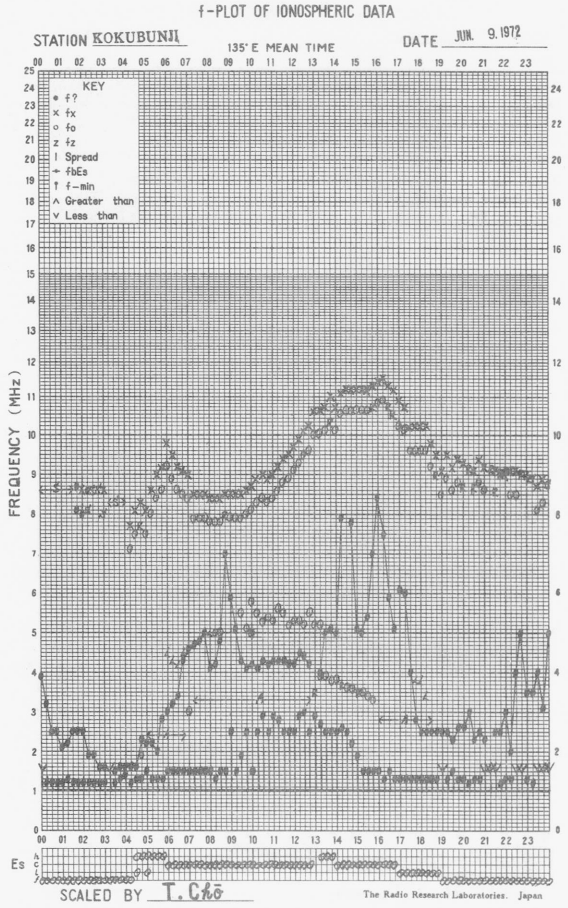

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 8. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan

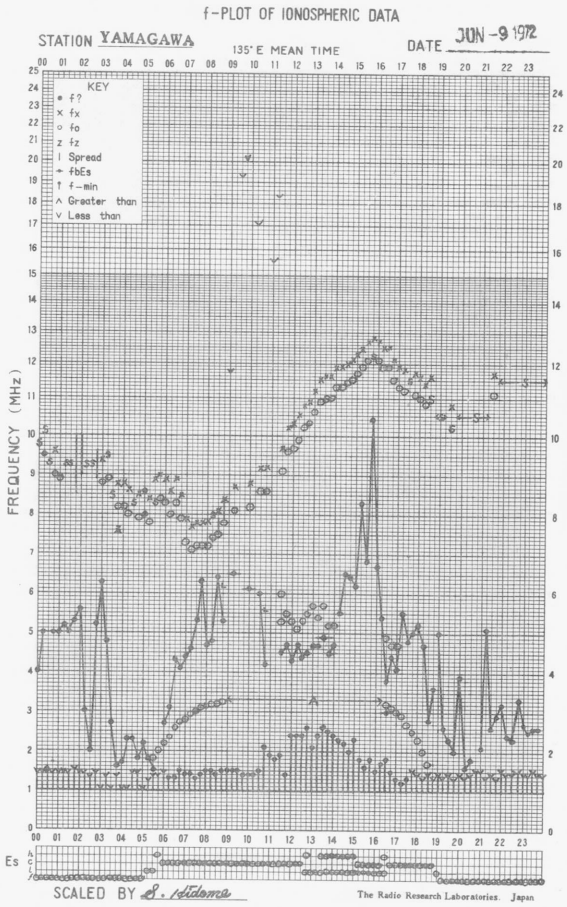

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUN. 8. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan

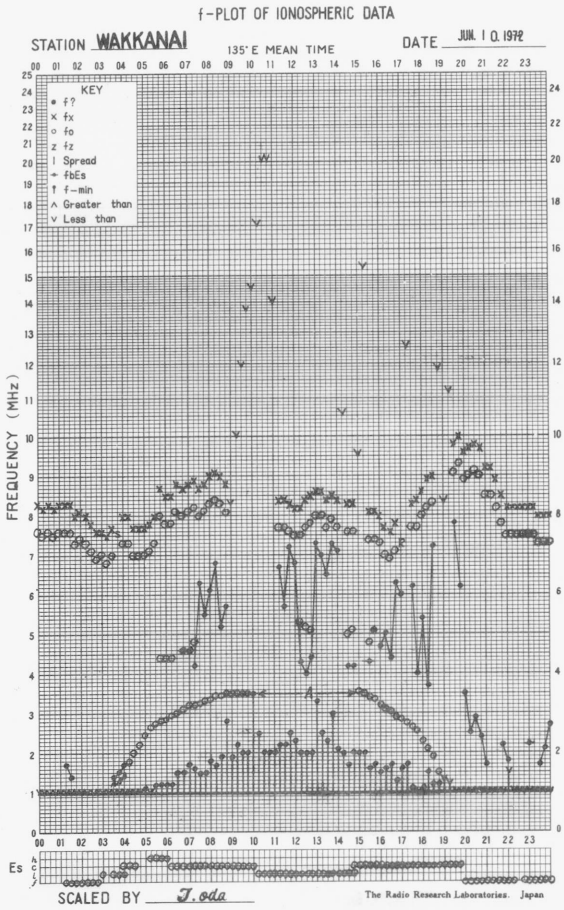

f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN.-8. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan

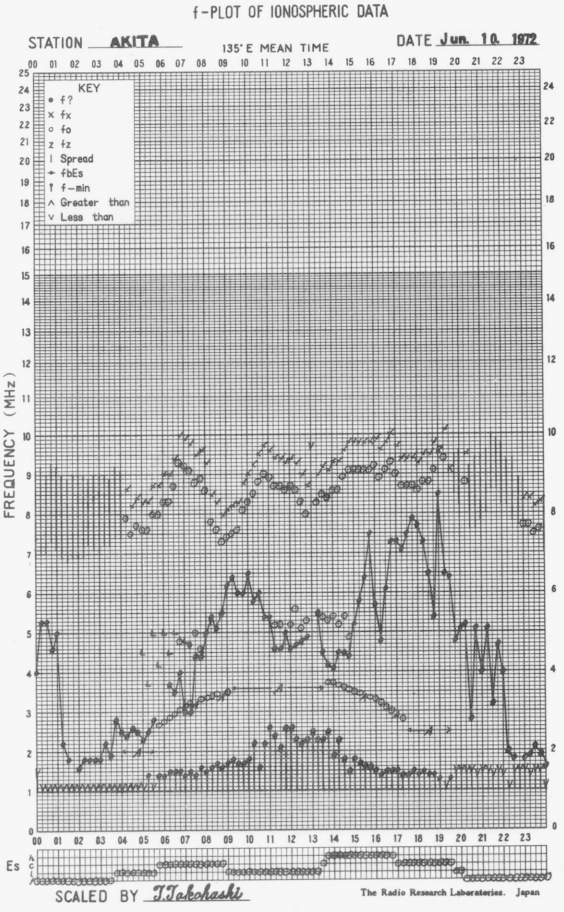

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE JUN. 9. 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

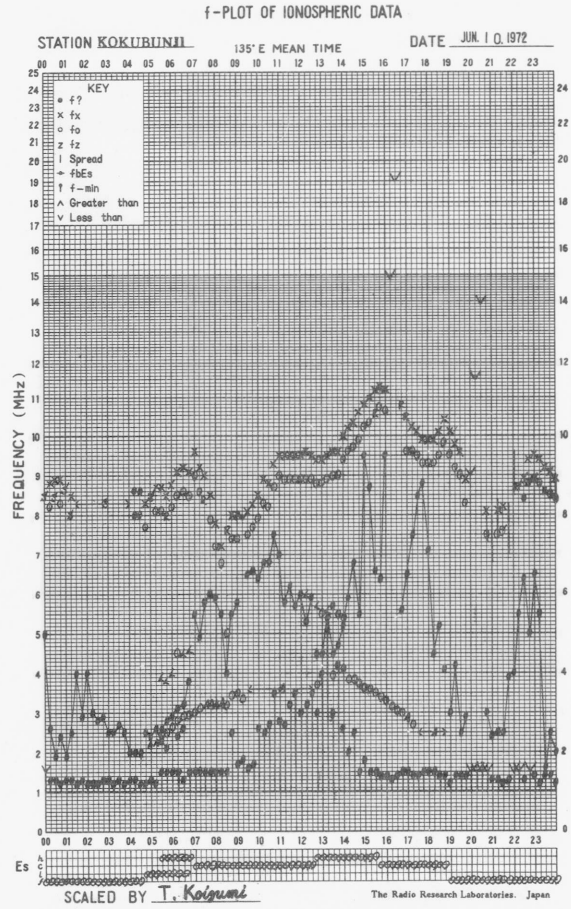

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 9 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan

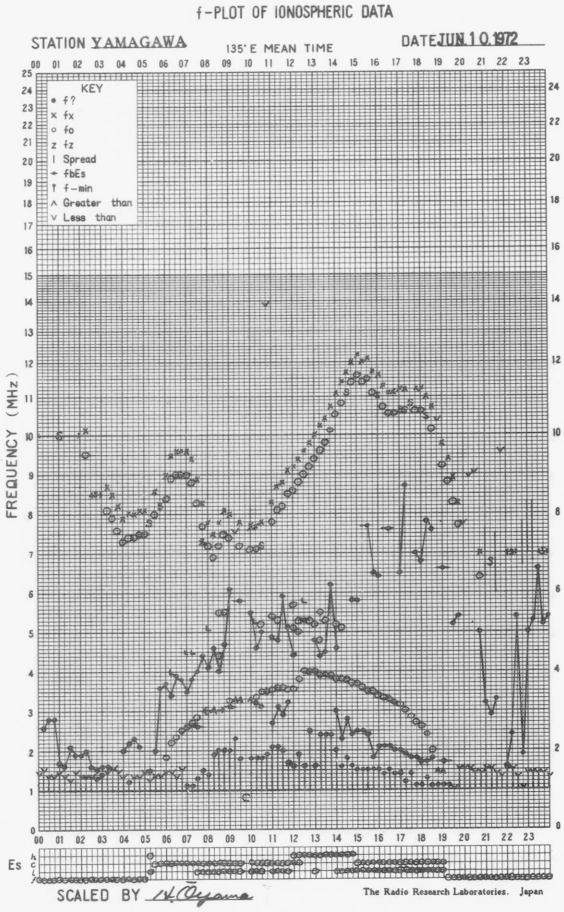

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUN. 9. 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN -9 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY S. Iidoma
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 10. 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

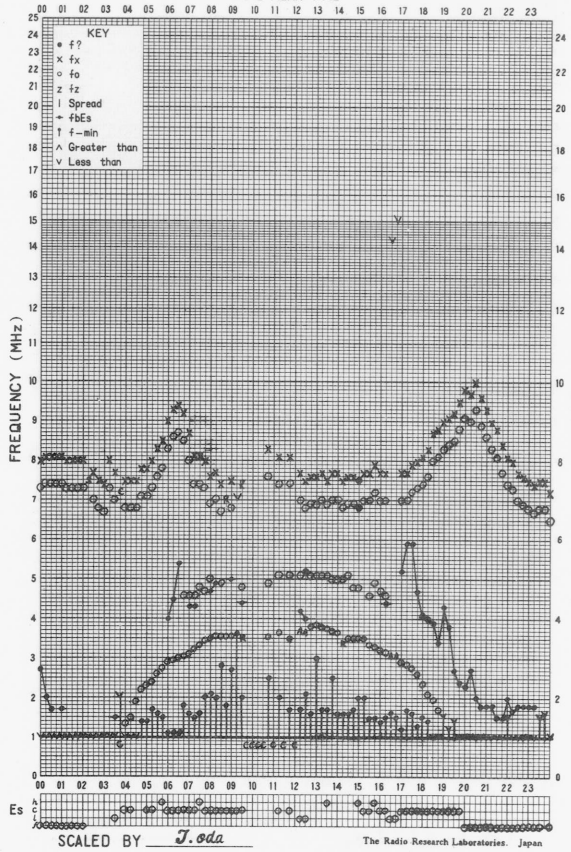

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 10. 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 10. 1972
KEY
f?
fx
fo
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 JUN 10 1972
KEY
f?
fx
fo
fz
Spread
fbEs
f-min
Greater than
Less than
FREQUENCY (MHz)
Es
SCALED BY K. Ozawa
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 11. 1972

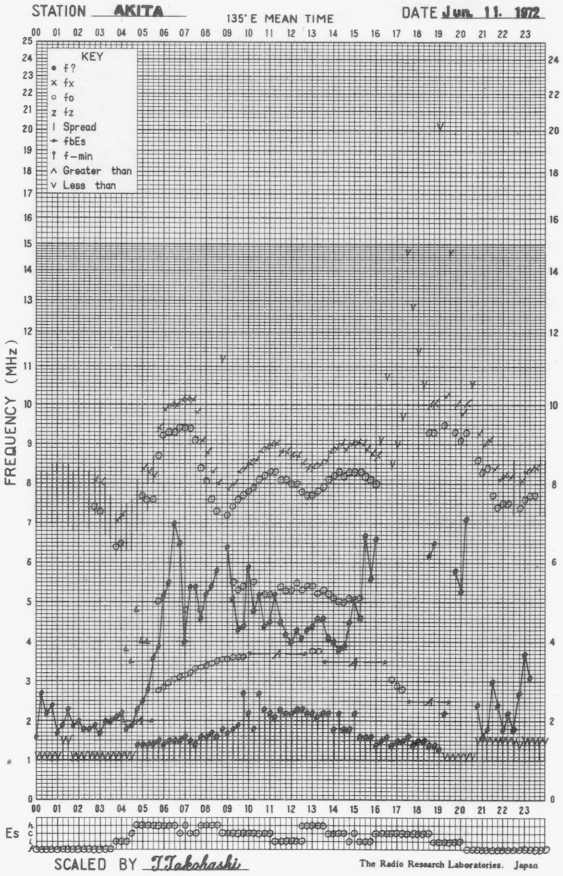


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 11. 1972

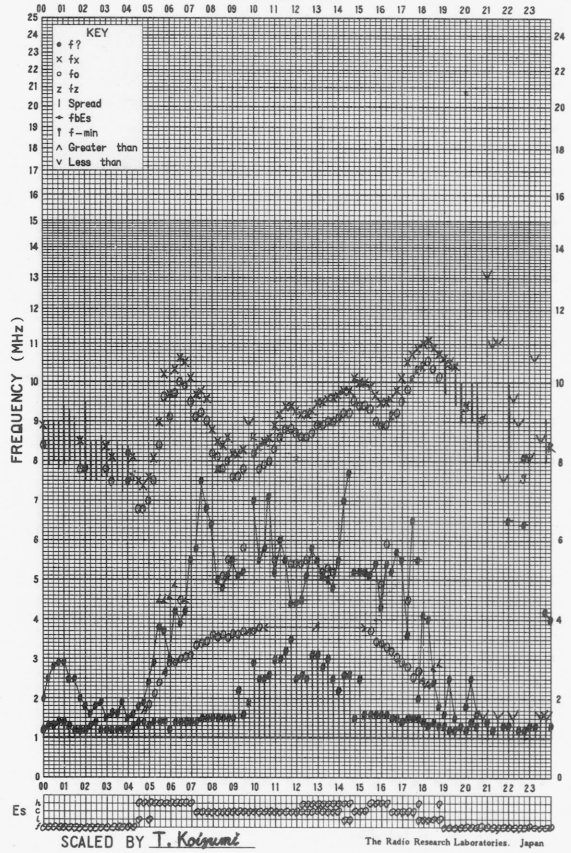


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 11. 1972

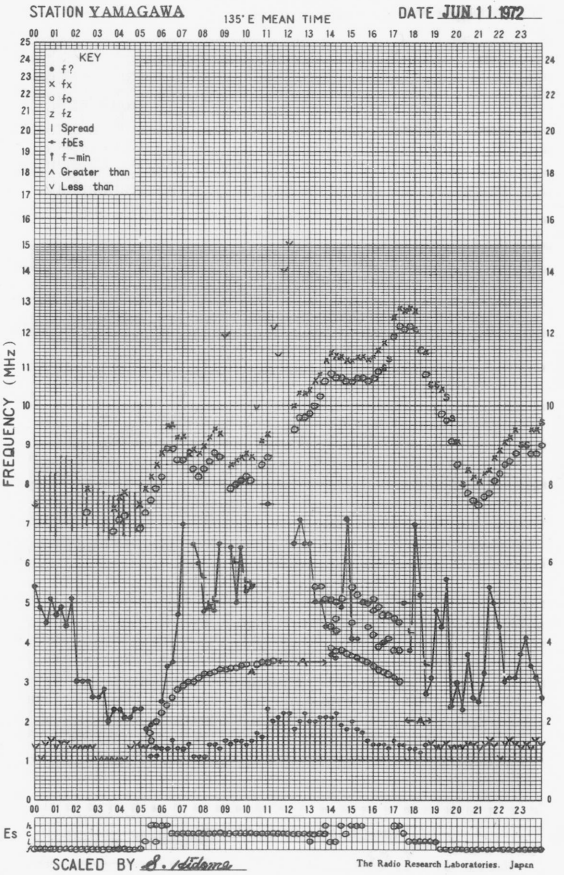


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN 11 1972

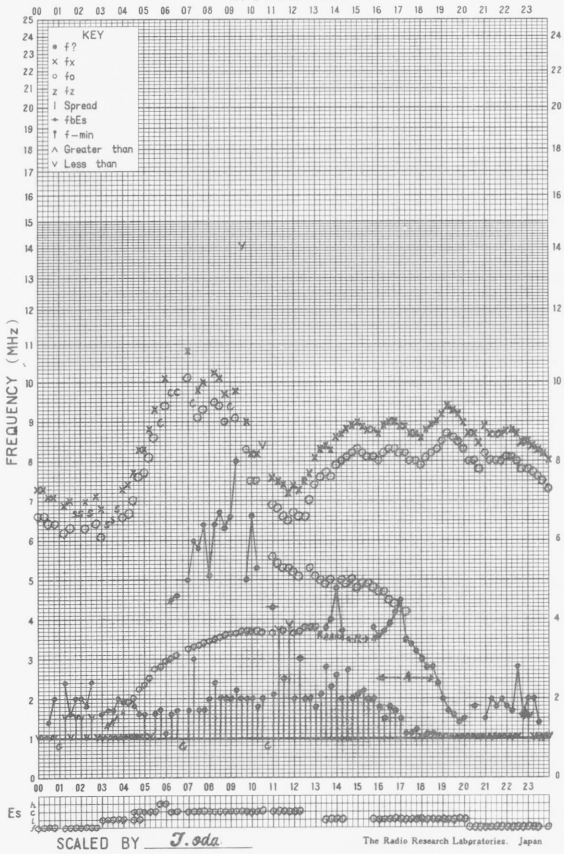


SCALED BY S. Ishidawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 12. 1972

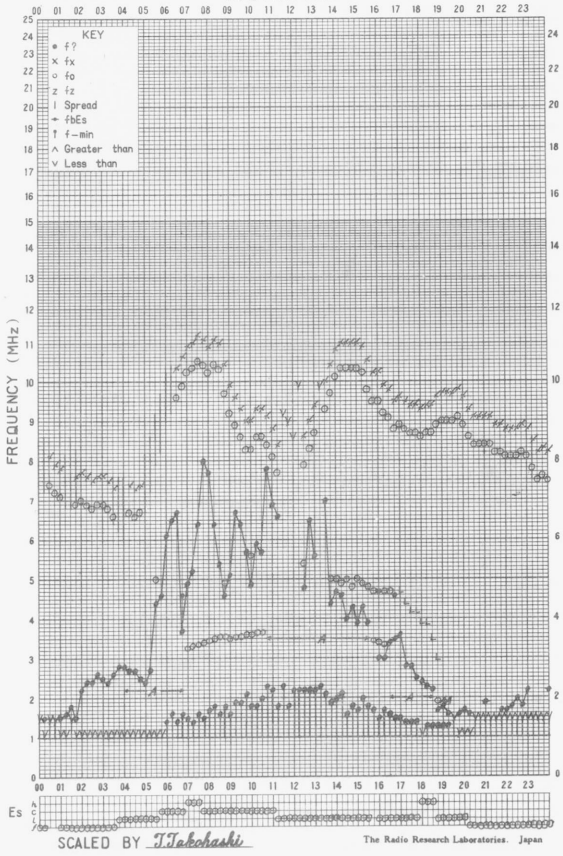


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 12. 1972

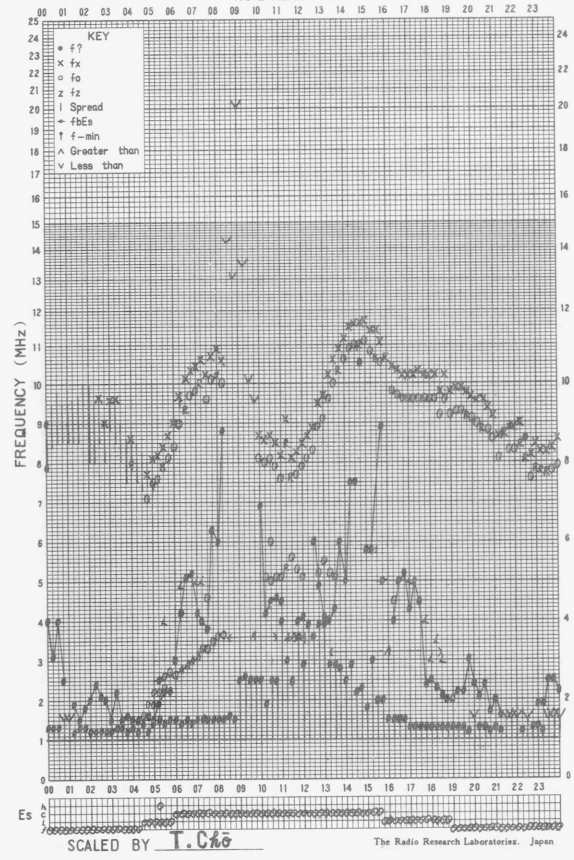


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 12. 1972

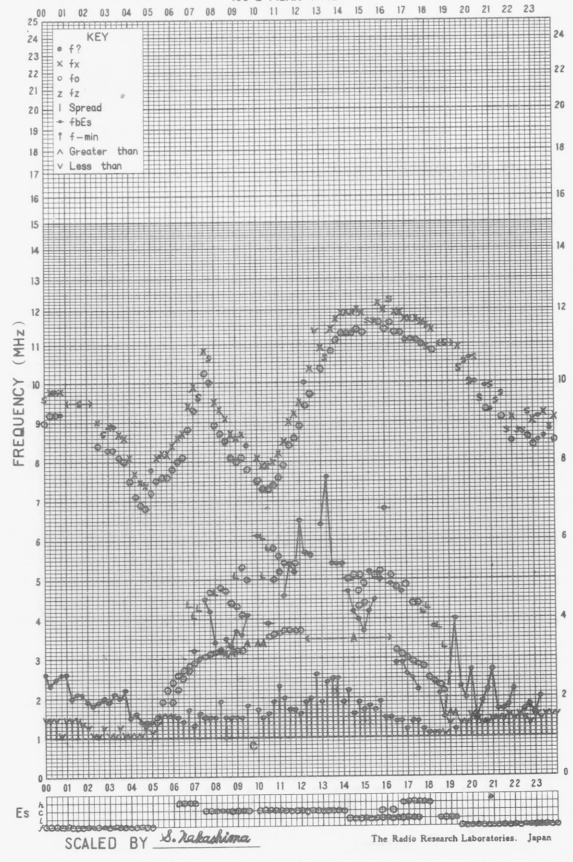


SCALED BY T. Cho

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 12. 1972

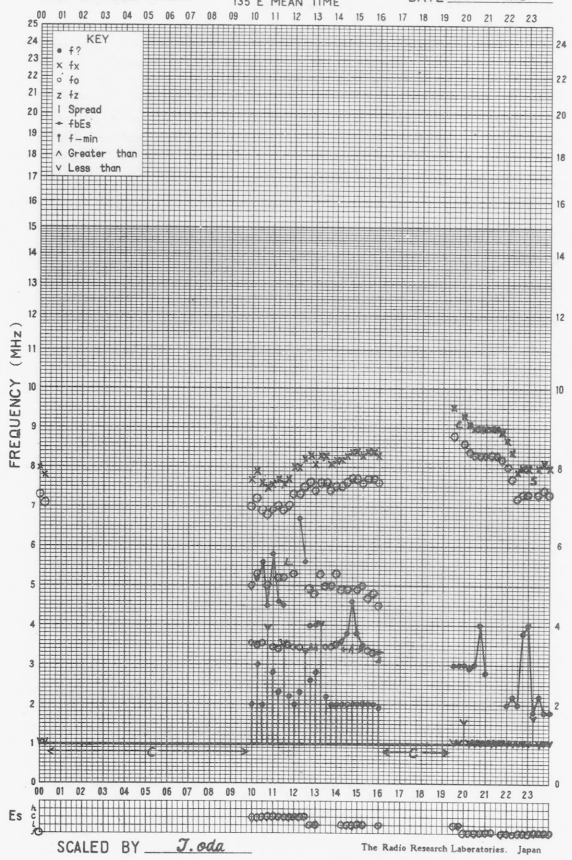


SCALED BY S. Takashima

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 13. 1972

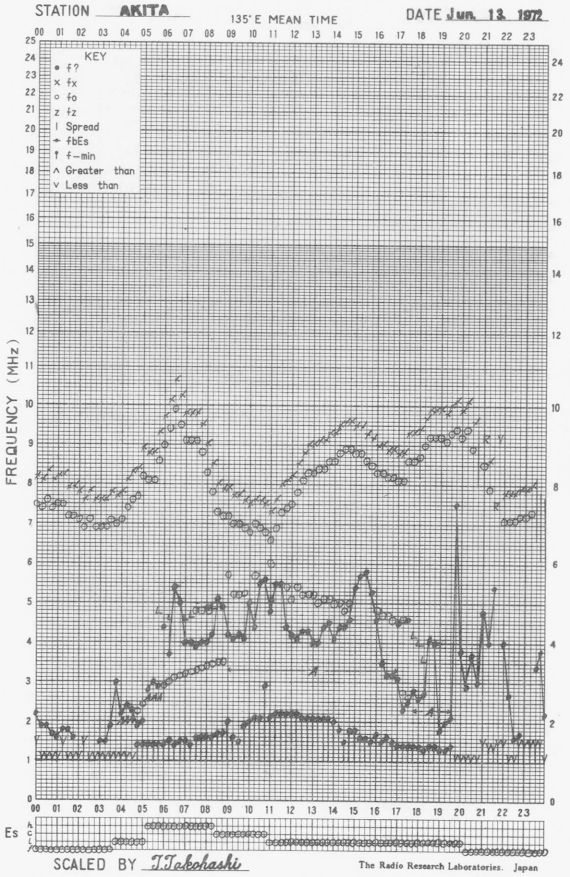


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 13. 1972

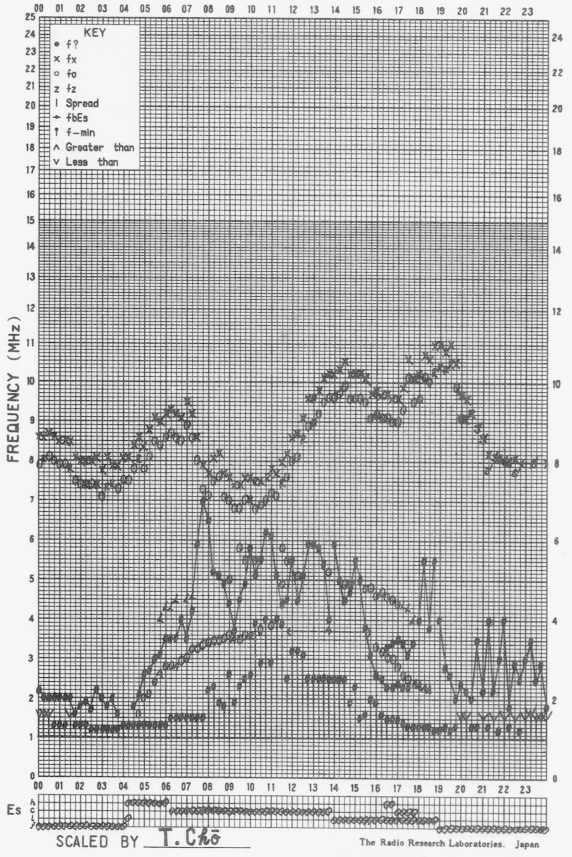


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 13. 1972

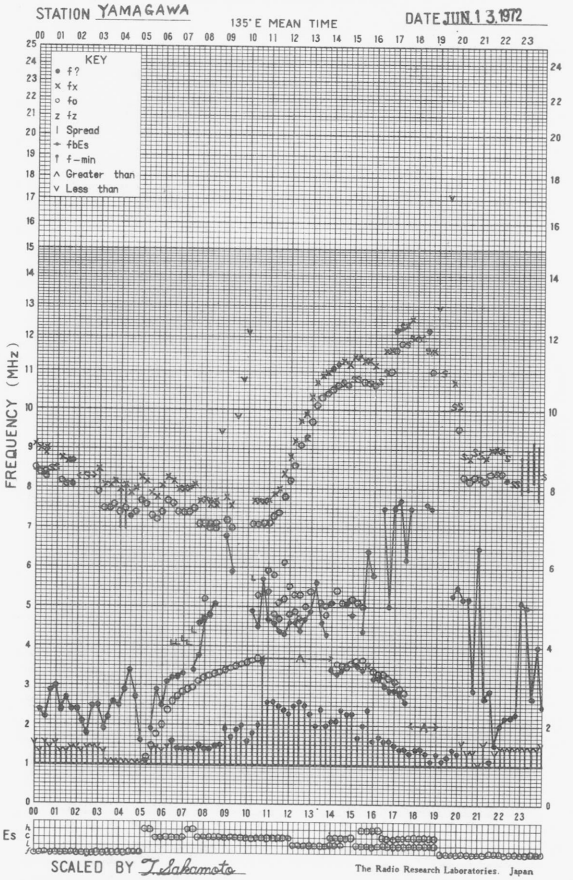


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 13. 1972

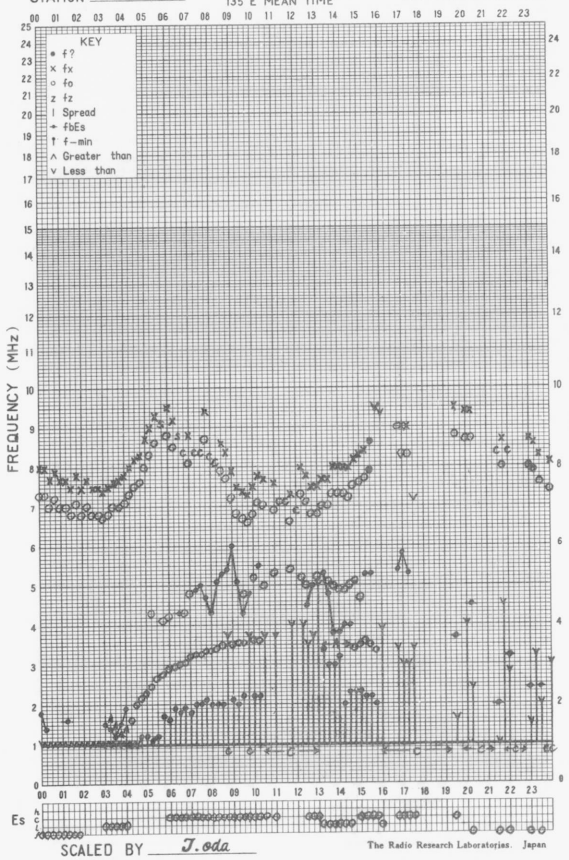


SCALED BY T. Sakamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 14. 1972

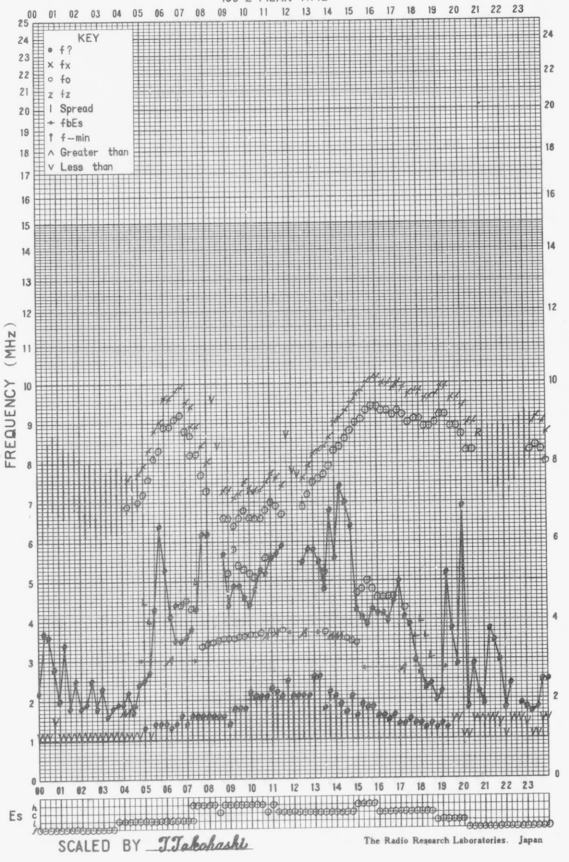


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 14. 1972

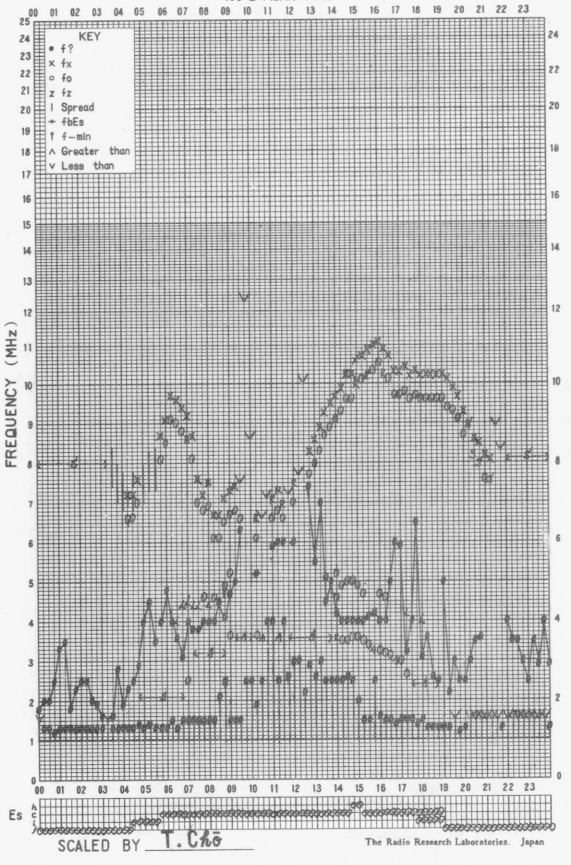


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN 14 1972

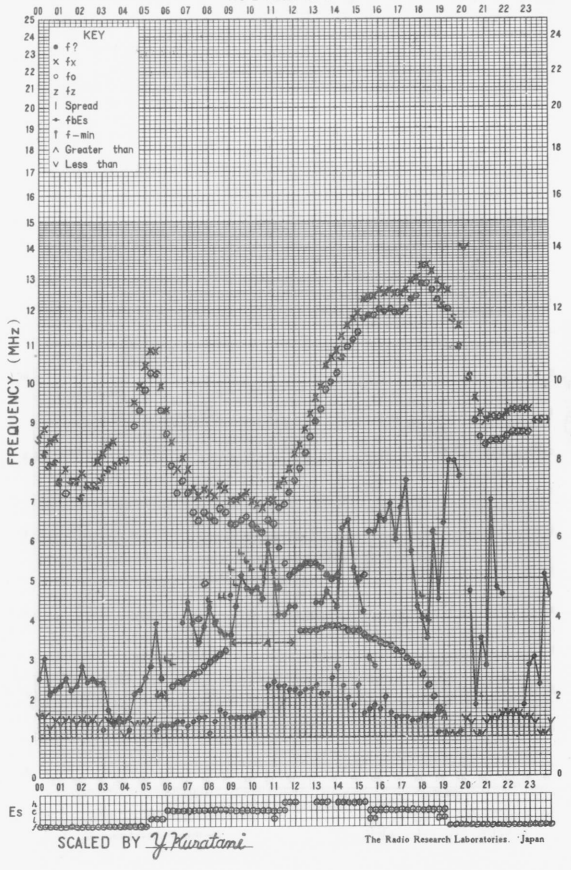


SCALED BY T. Cho

The Radio Research Laboratories. Japan

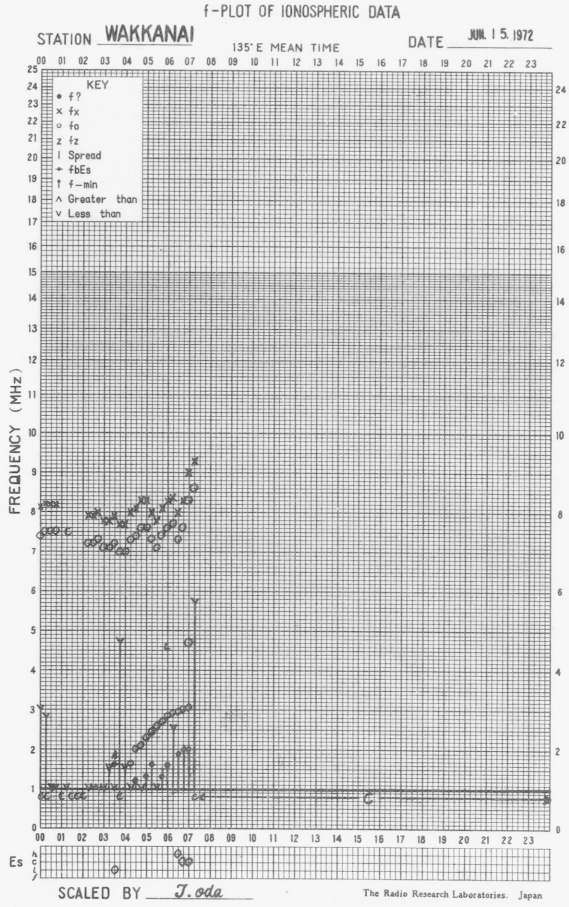
f-PLOT OF IONOSPHERIC DATA

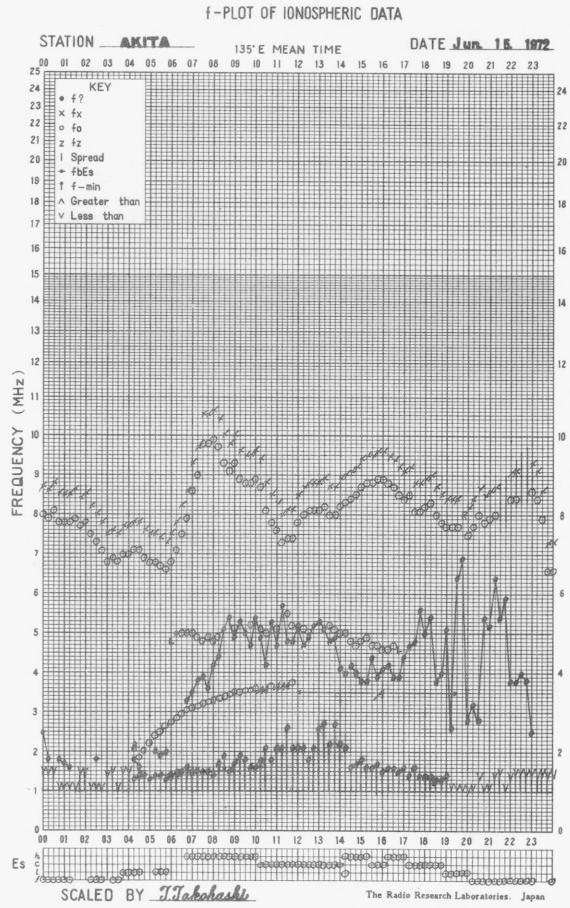
STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 14. 1972

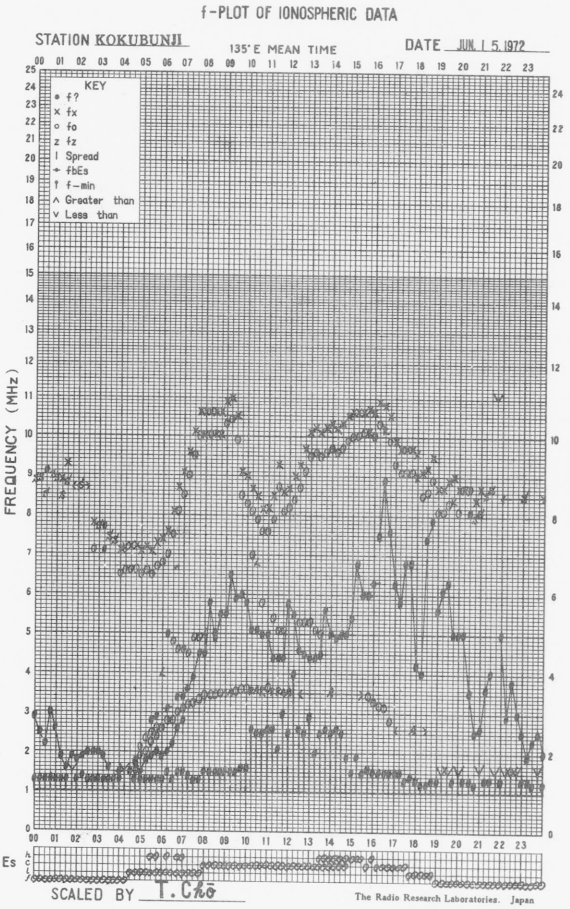


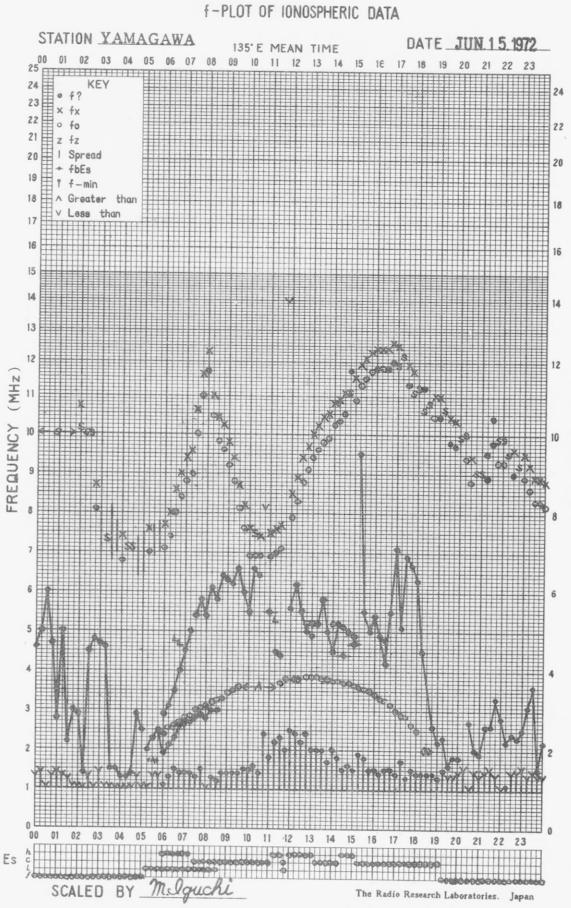
SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 15. 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

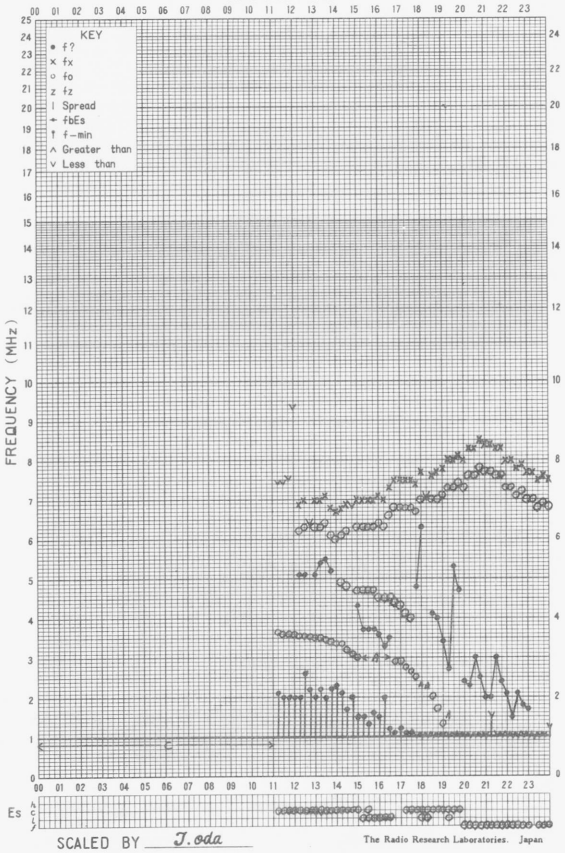

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 15. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 15. 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 JUN 15 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY M. Iguchi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 16. 1972

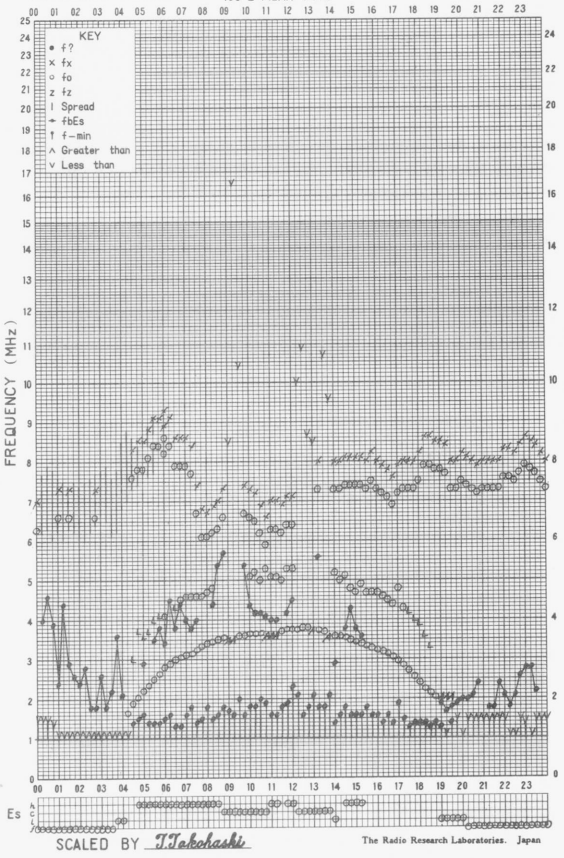


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 16. 1972

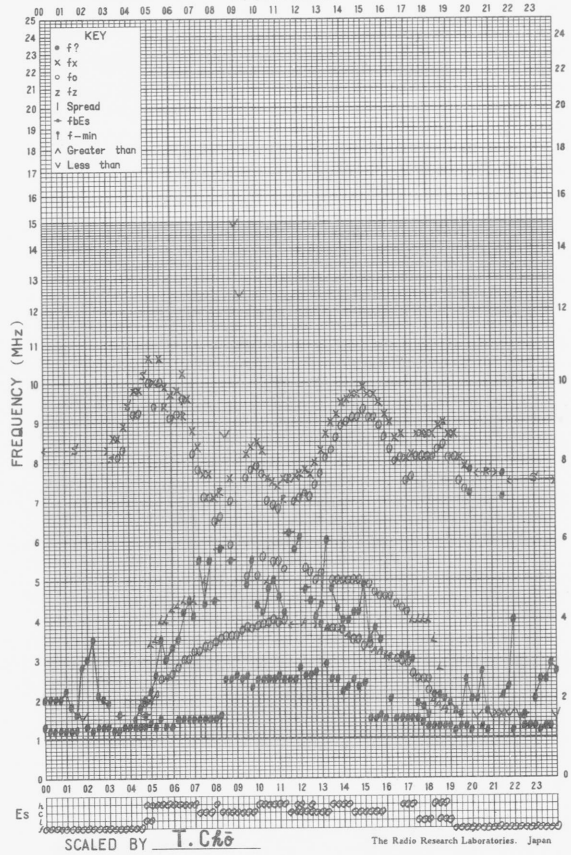


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 16. 1972

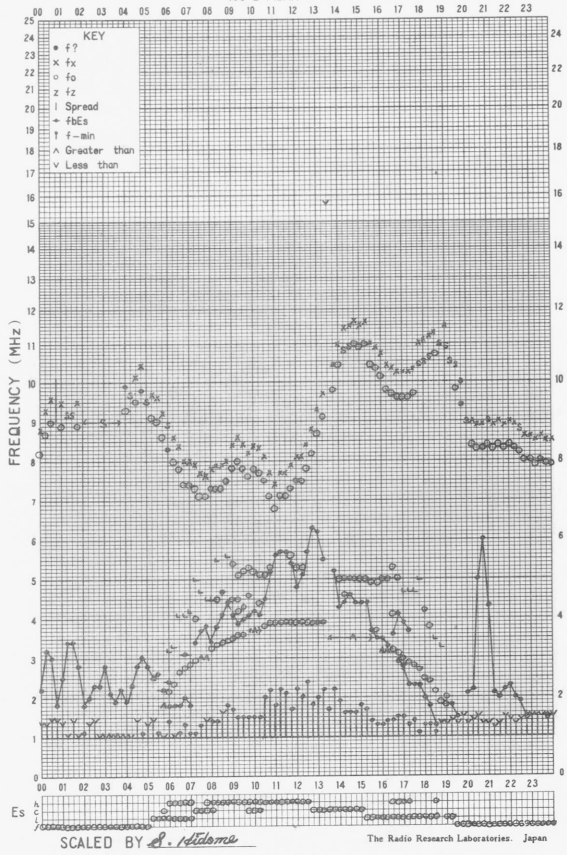


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 16. 1972

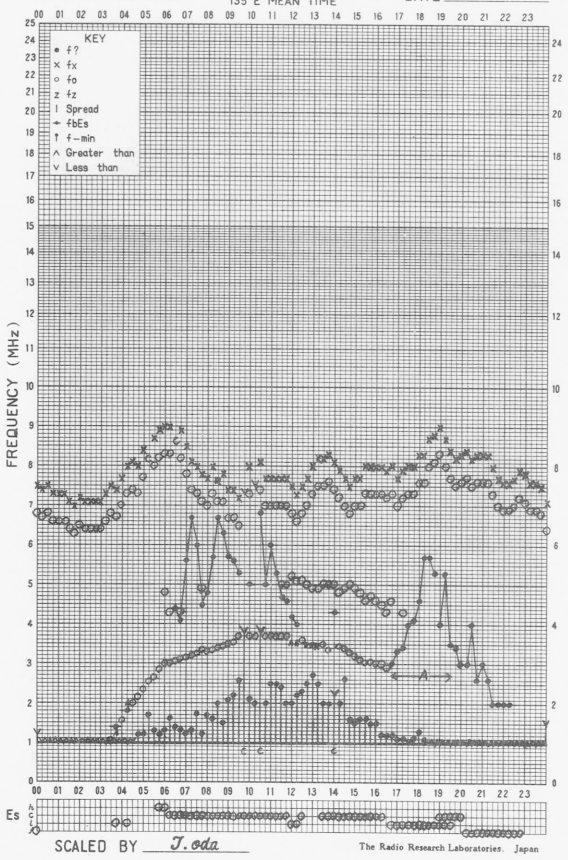


SCALED BY S. Hidoma

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 17, 1972

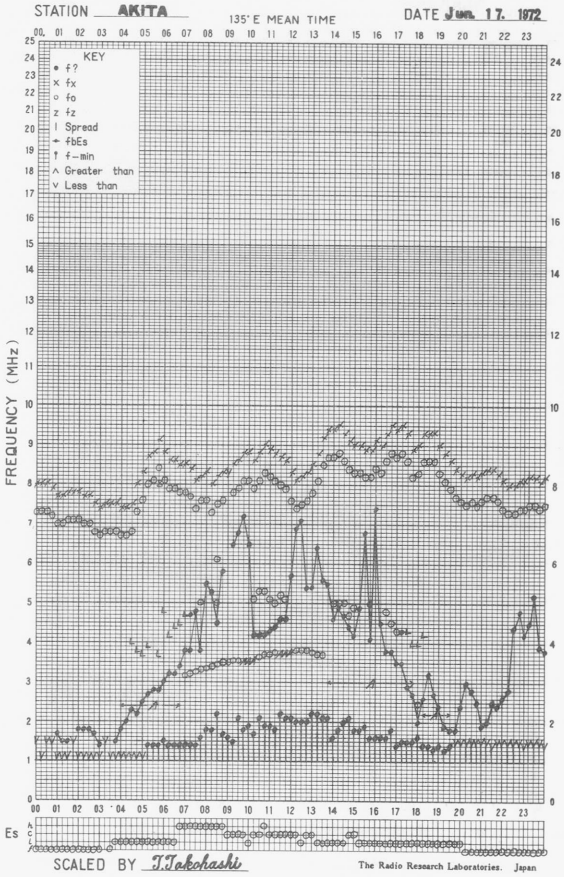


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 17. 1972

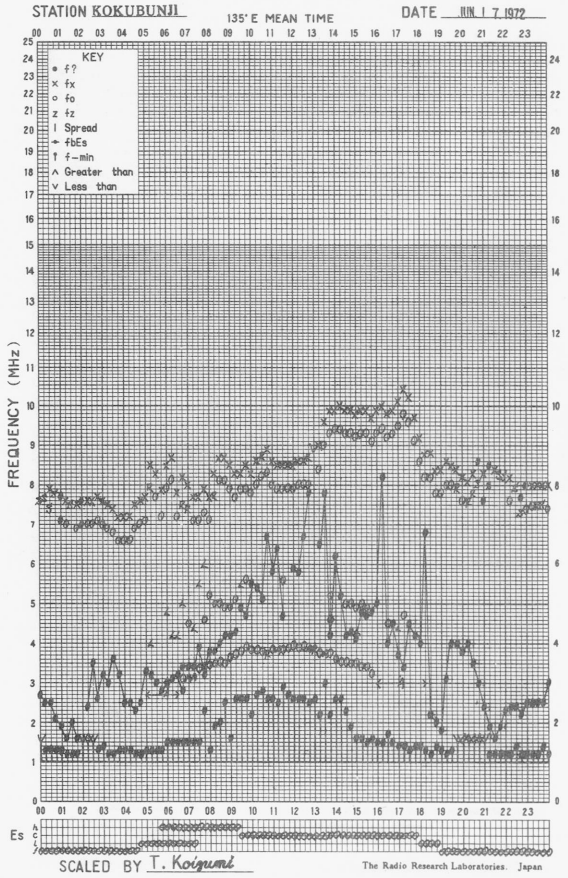


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 17, 1972

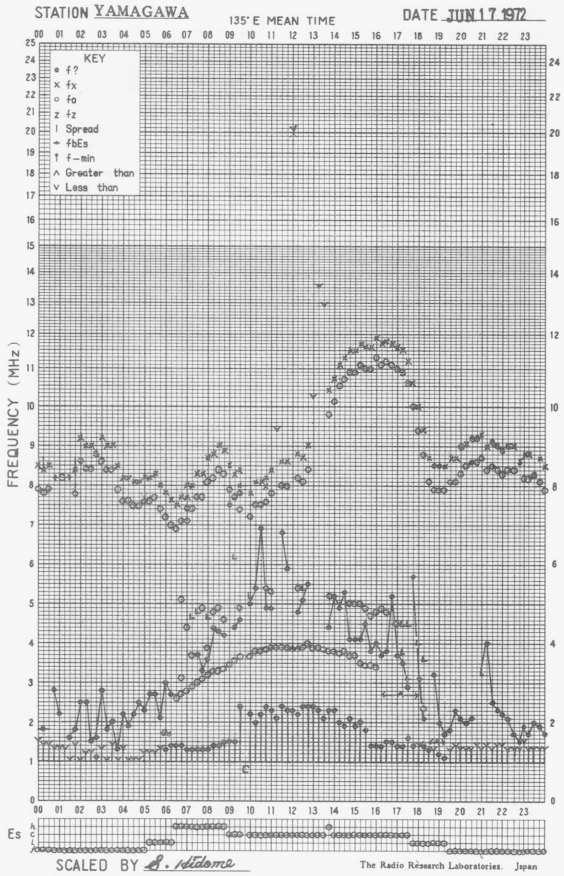


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN 17 1972

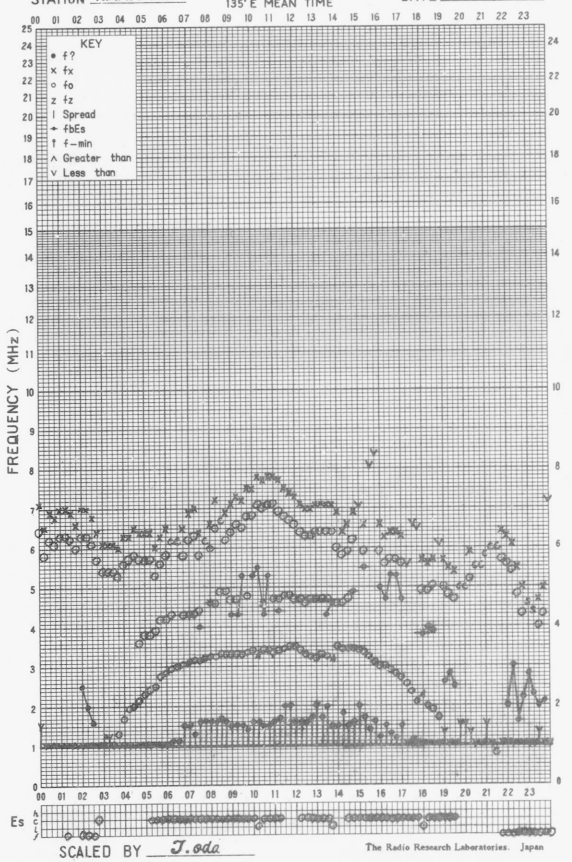


SCALED BY S. Ishidome

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 18. 1972

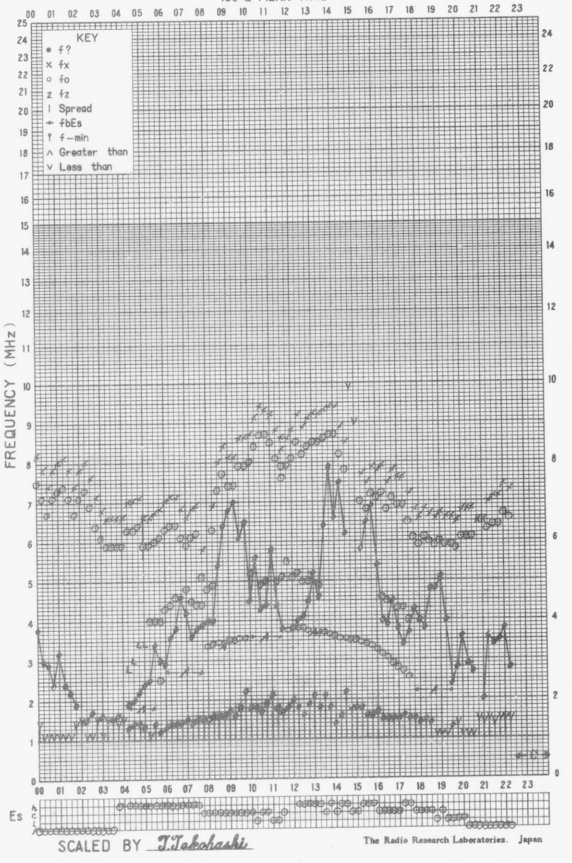


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 18. 1972

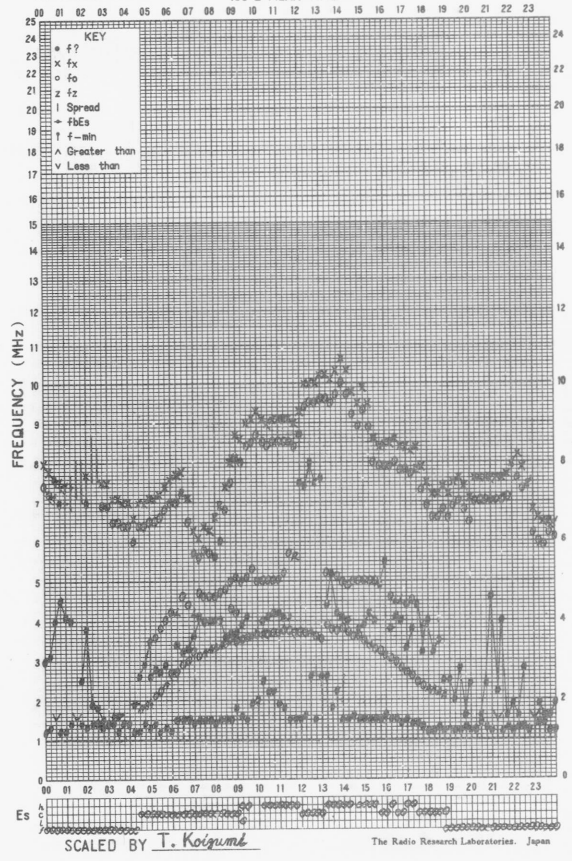


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 18. 1972

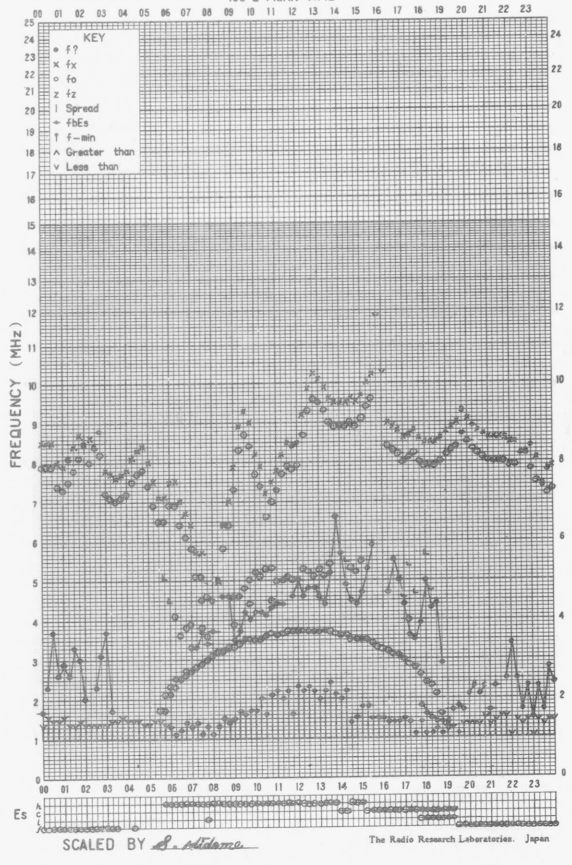


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

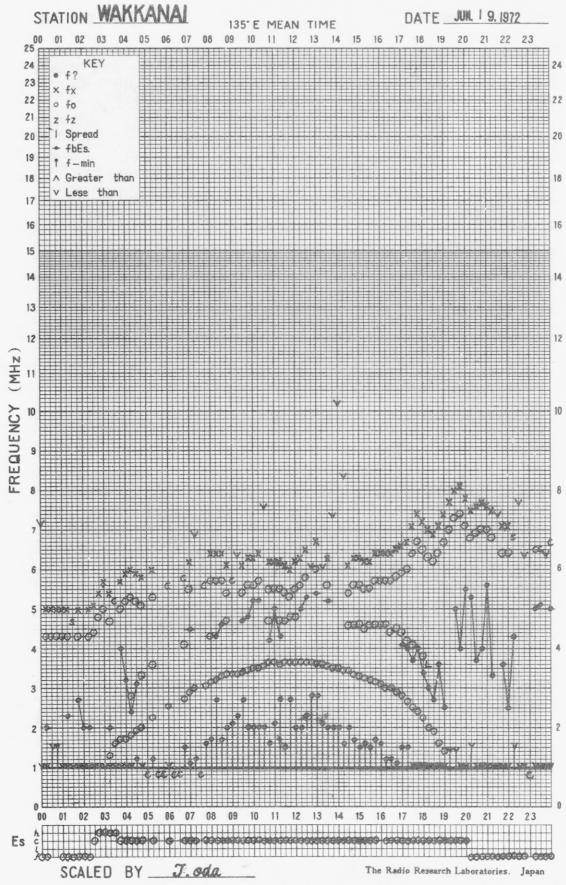
f-PLOT OF IONOSPHERIC DATA

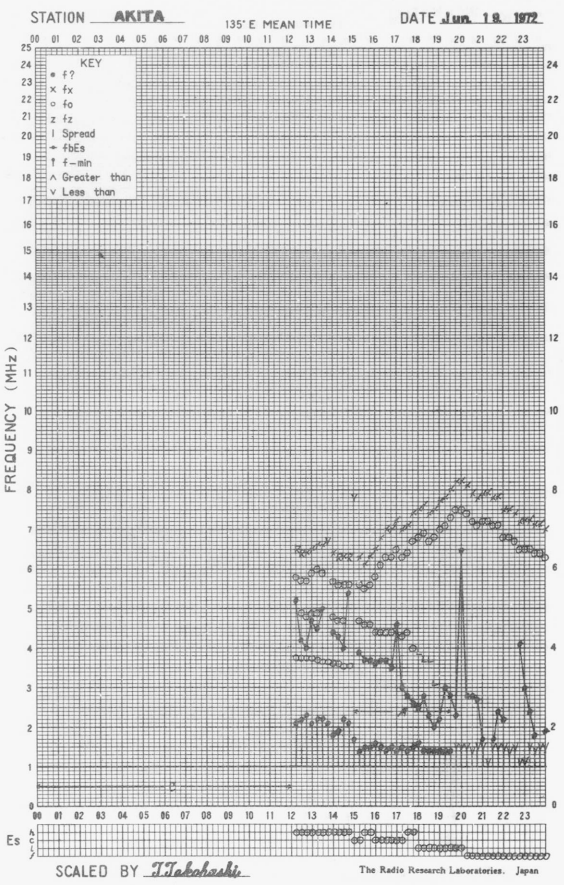
STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 18. 1972

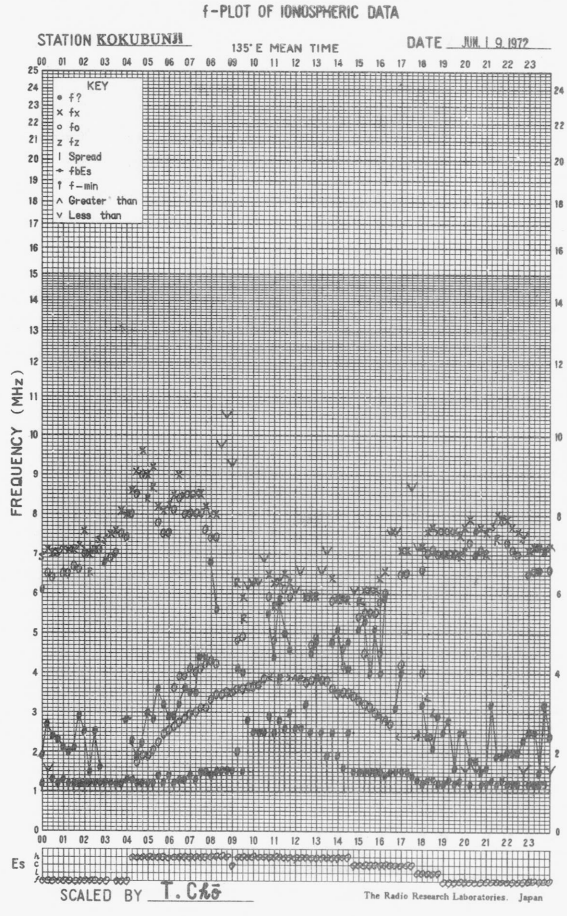


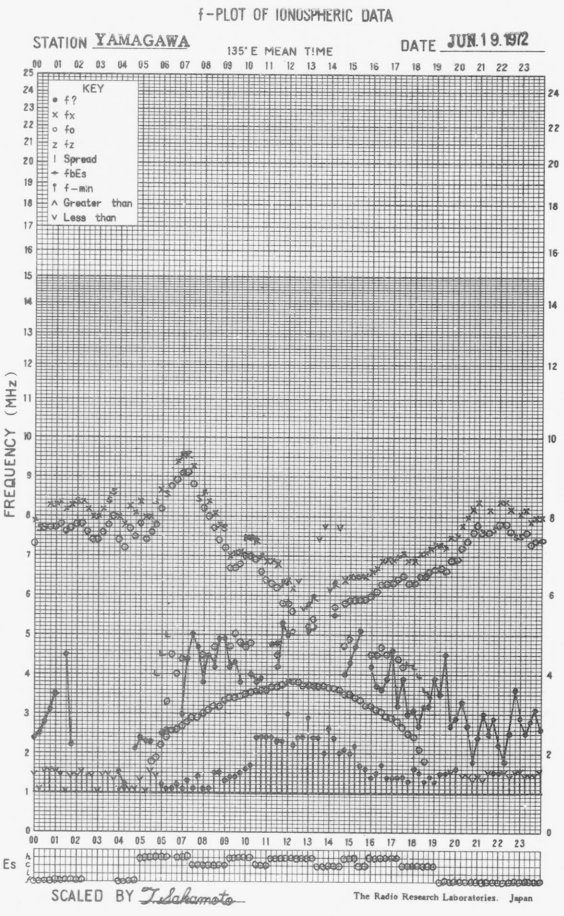
SCALED BY S. Ichidome

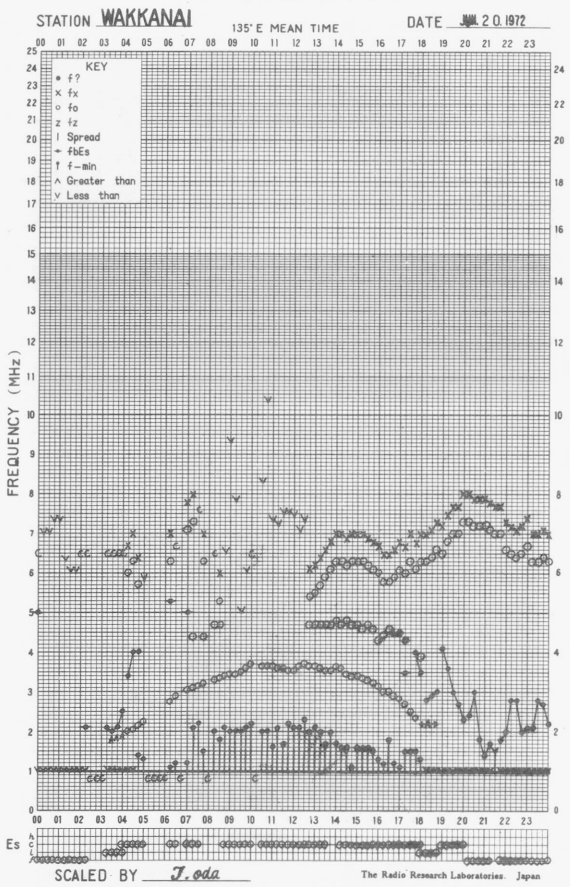
The Radio Research Laboratories. Japan

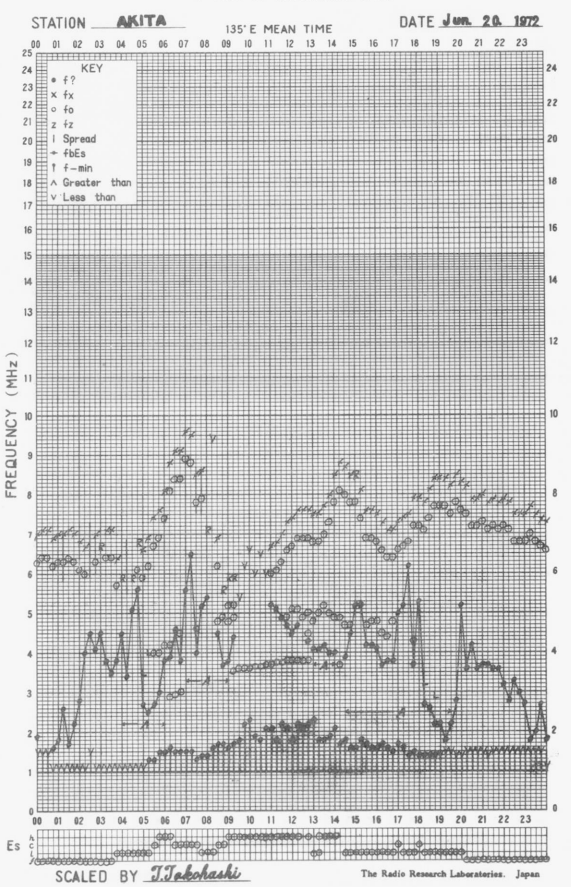

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 19. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Oda
The Radio Research Laboratories. Japan

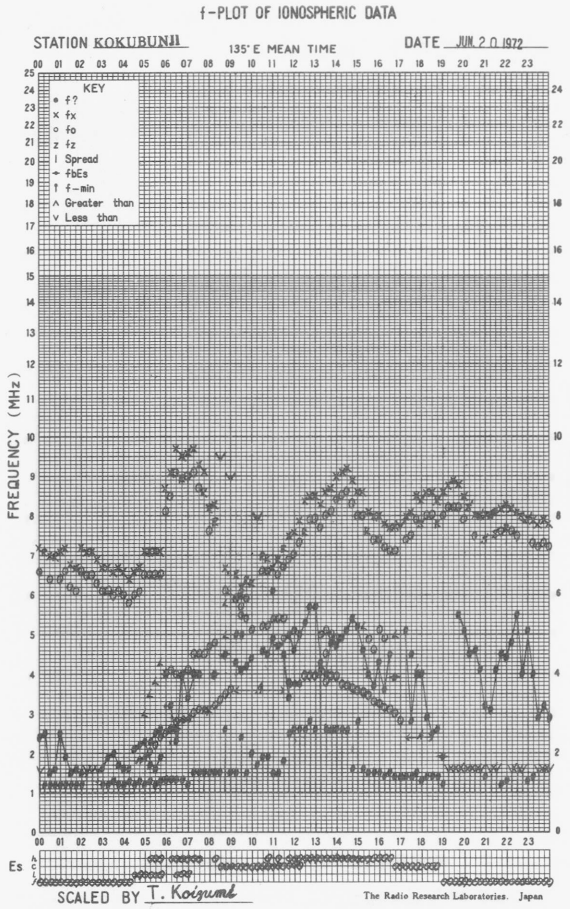

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 19. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan

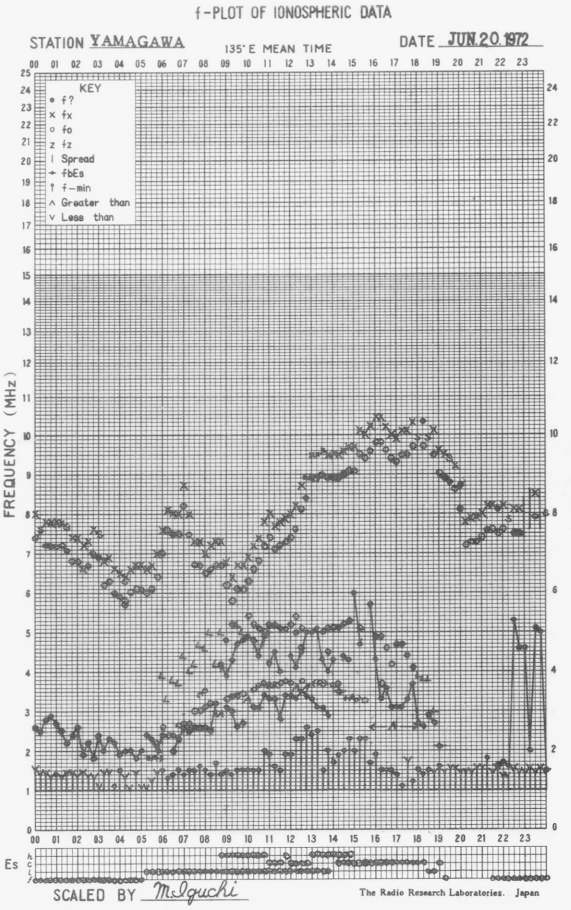

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 19. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan

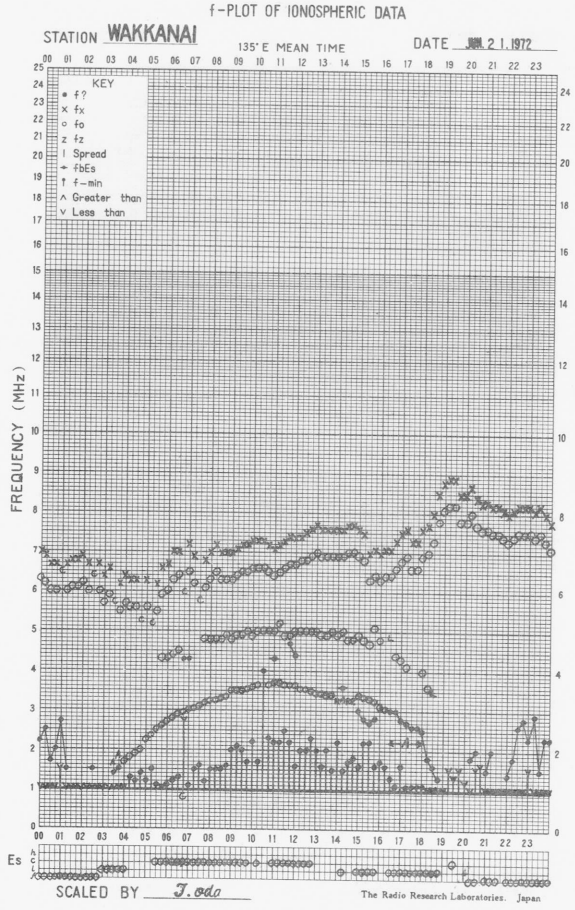

f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN. 19. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takamoto
The Radio Research Laboratories. Japan

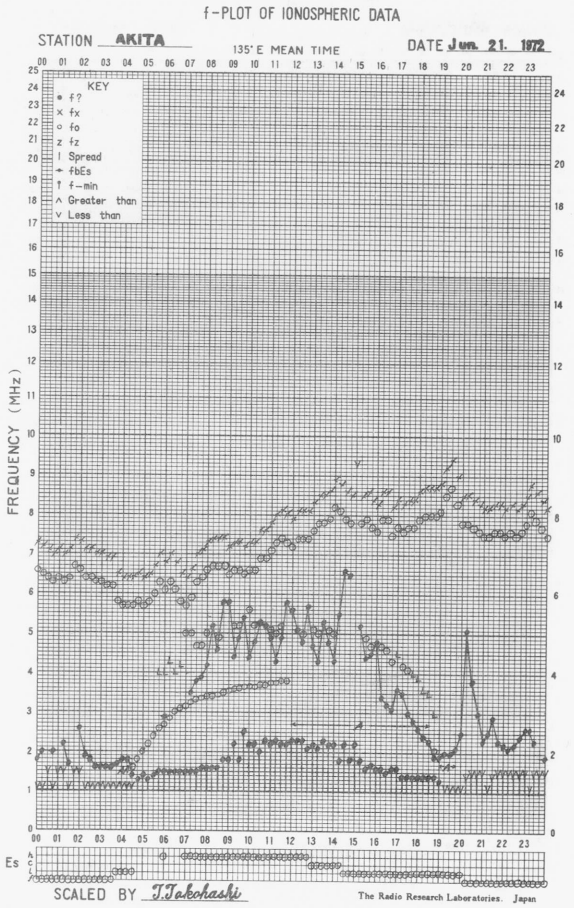

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 20. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

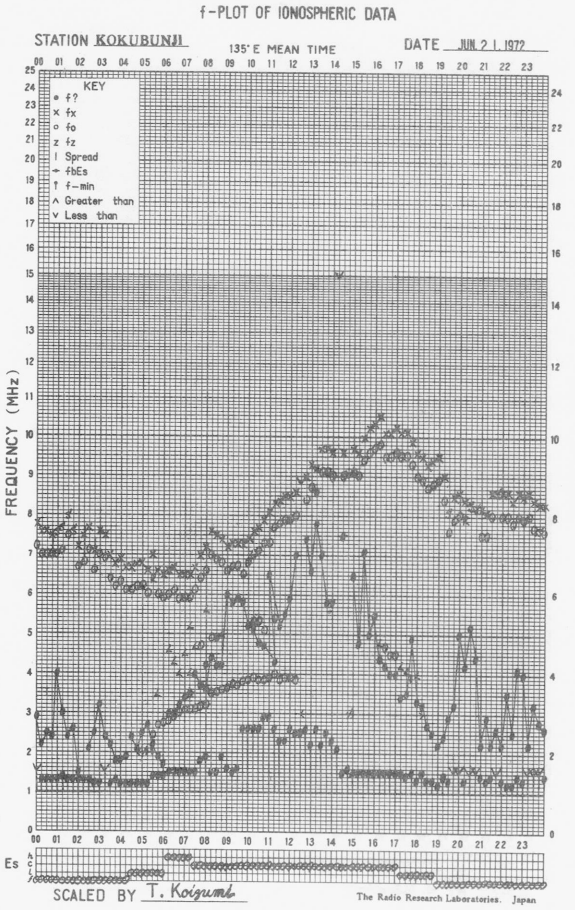

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 20. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan

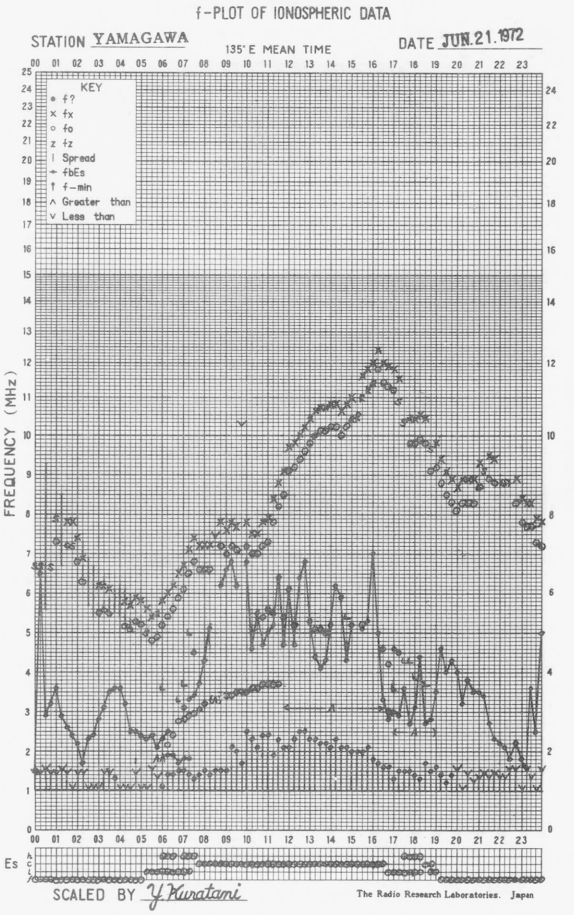

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 20. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN. 20. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Iguchi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 21. 1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T. odo
The Radio Research Laboratories. Japan

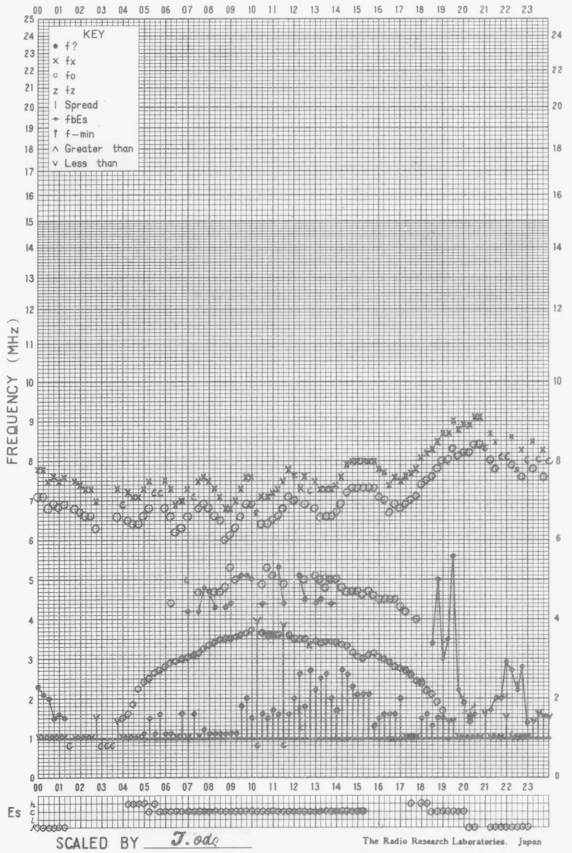

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 21. 1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 21. 1972
KEY
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN. 21. 1972
KEY
FREQUENCY (MHz)
Es
SCALED BY Y. Kuratani
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE JUN. 22. 1972

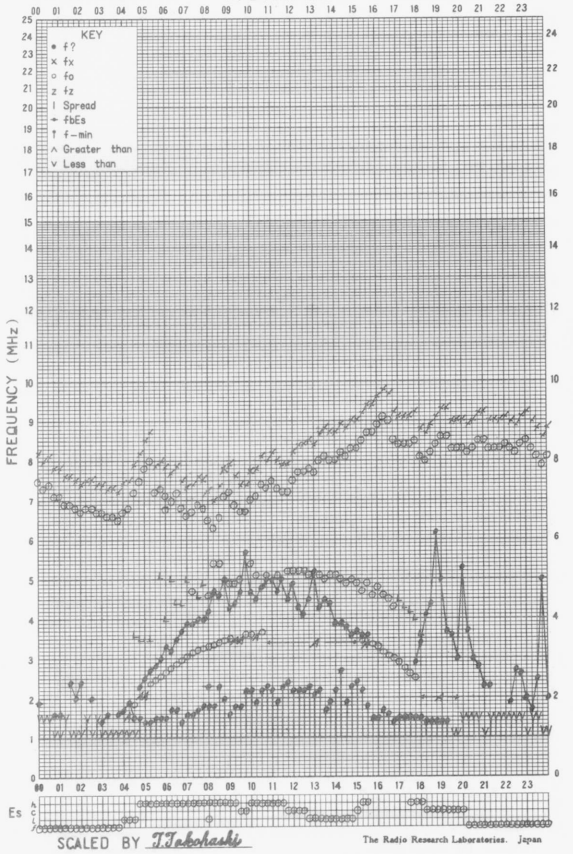


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE Jun. 22. 1972

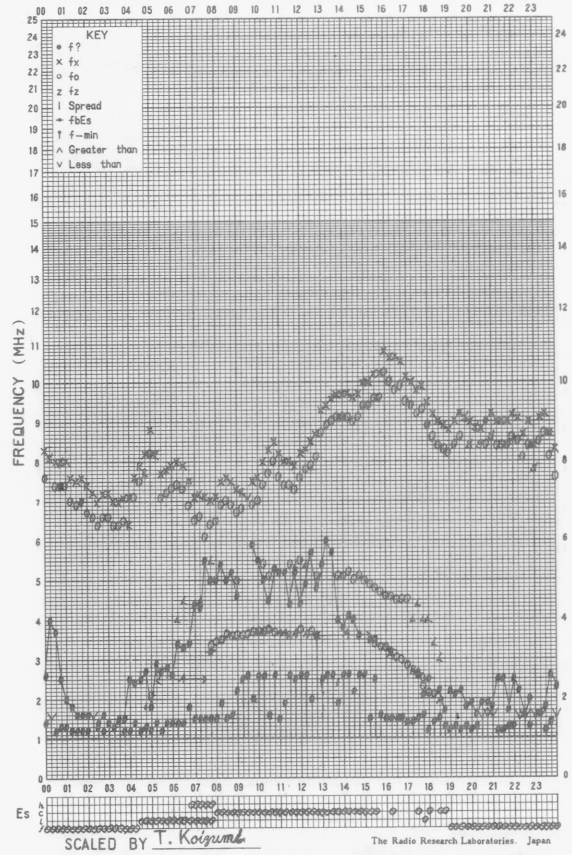


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE JUN. 22. 1972

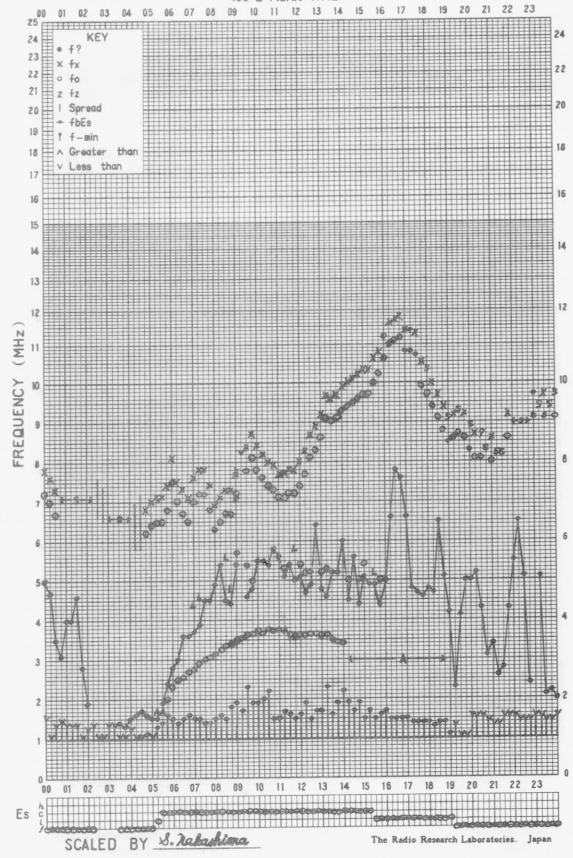


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE JUN. 22. 1972

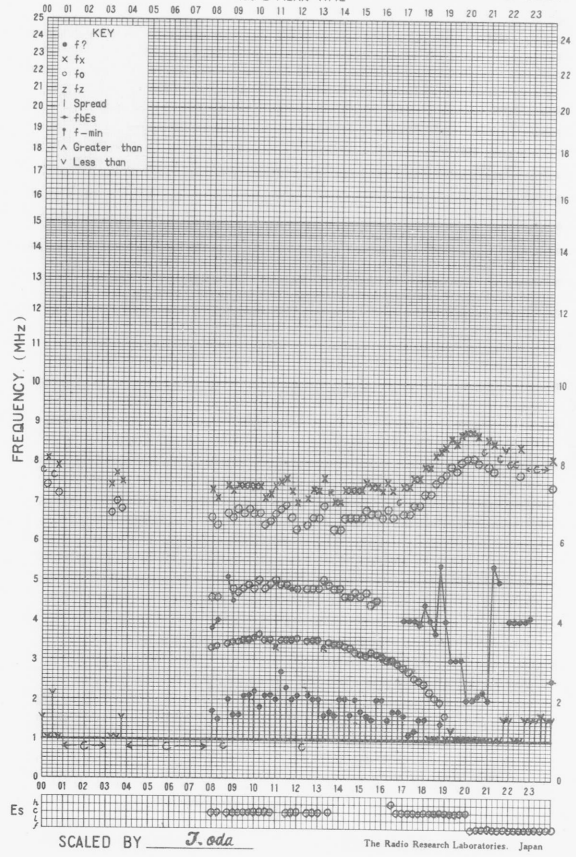


SCALED BY S. Takashima

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 23. 1972

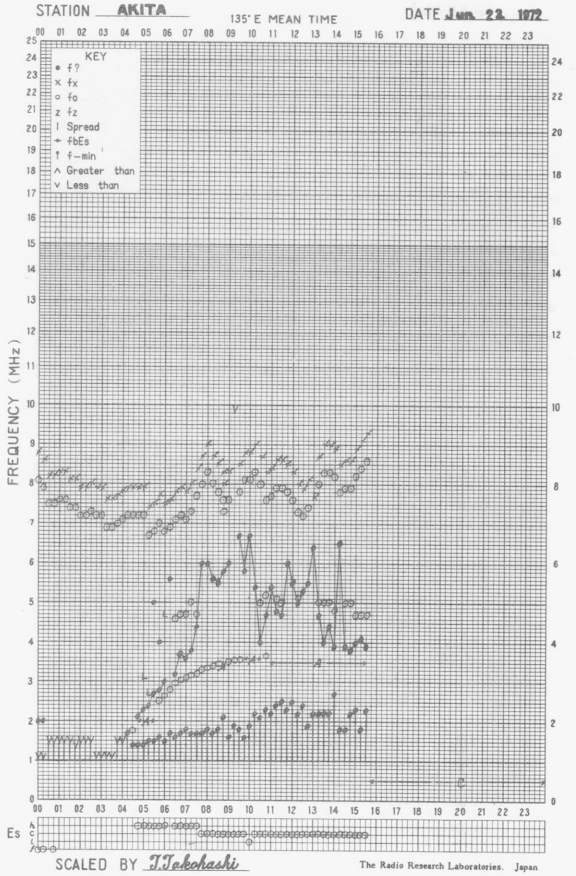


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 23. 1972

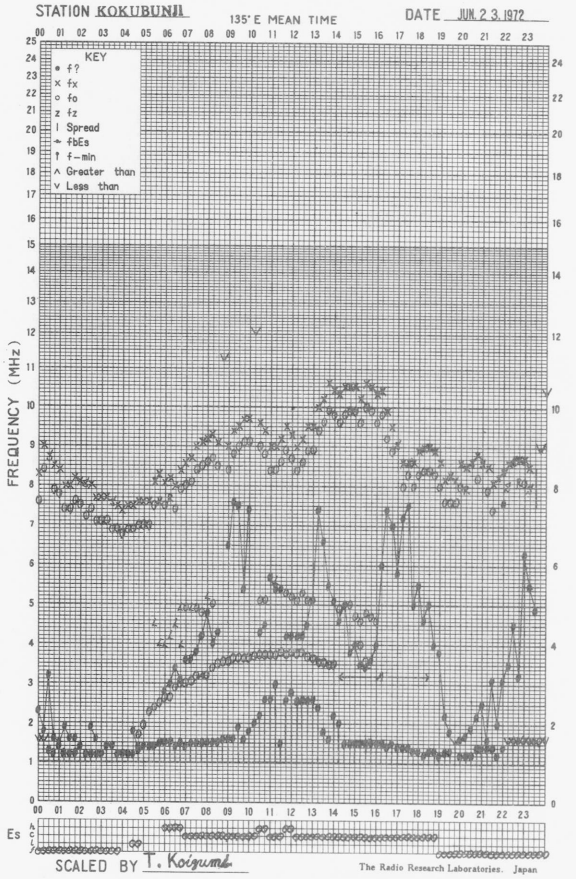


SCALED BY T.Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 23. 1972

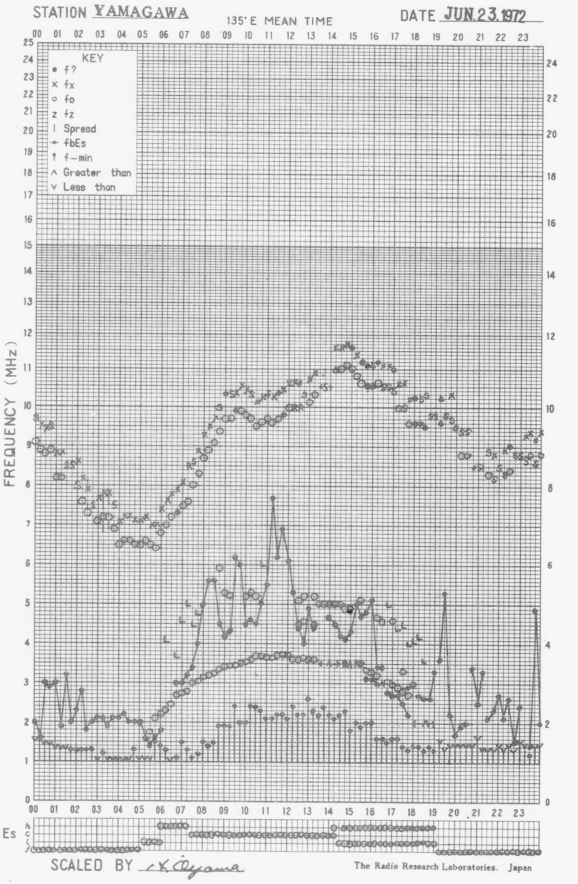


SCALED BY T. Koigumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 23. 1972

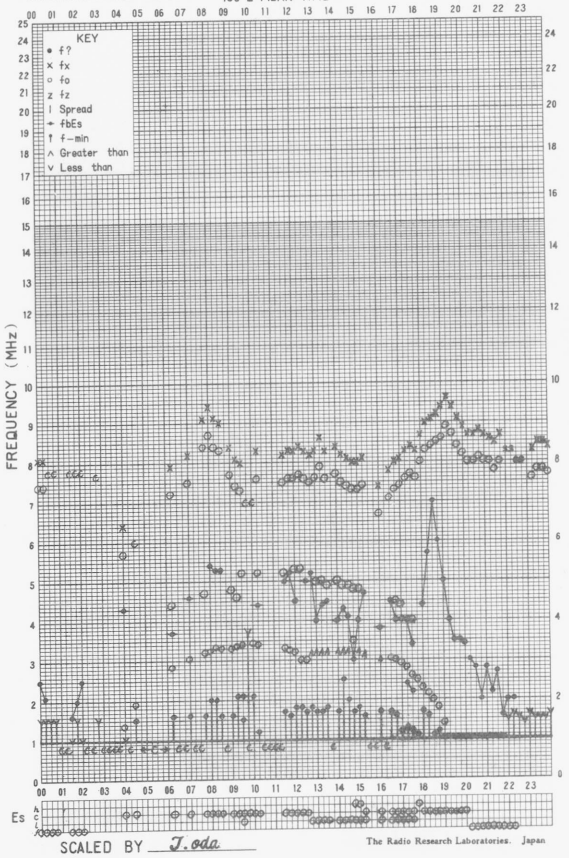


SCALED BY K. Miyama

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 24. 1972

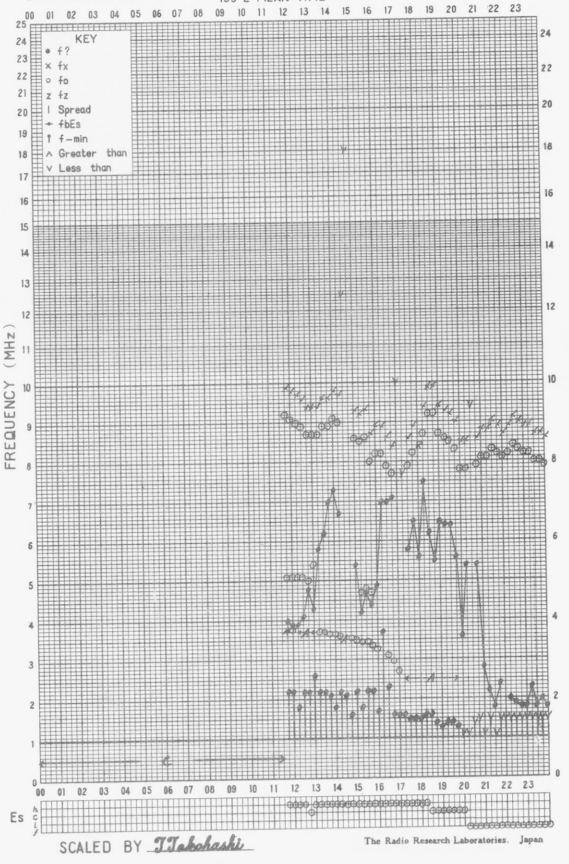


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

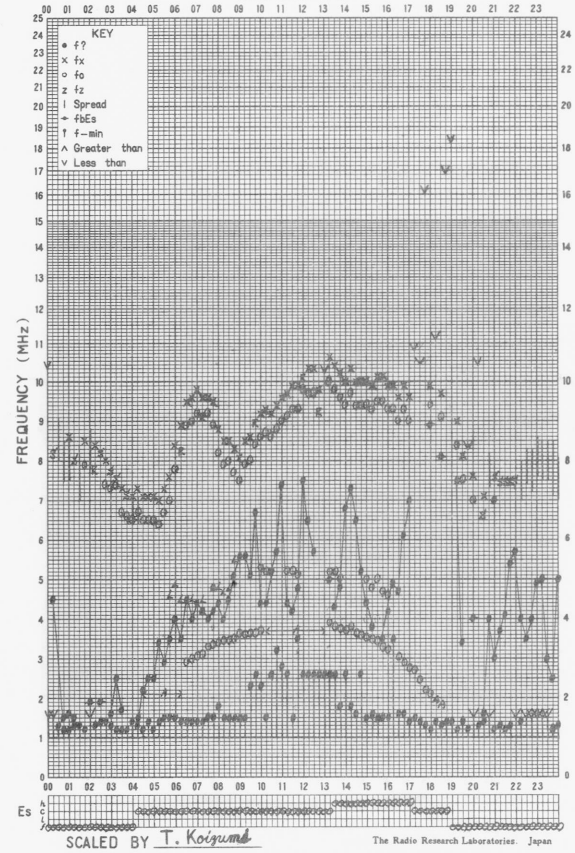


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

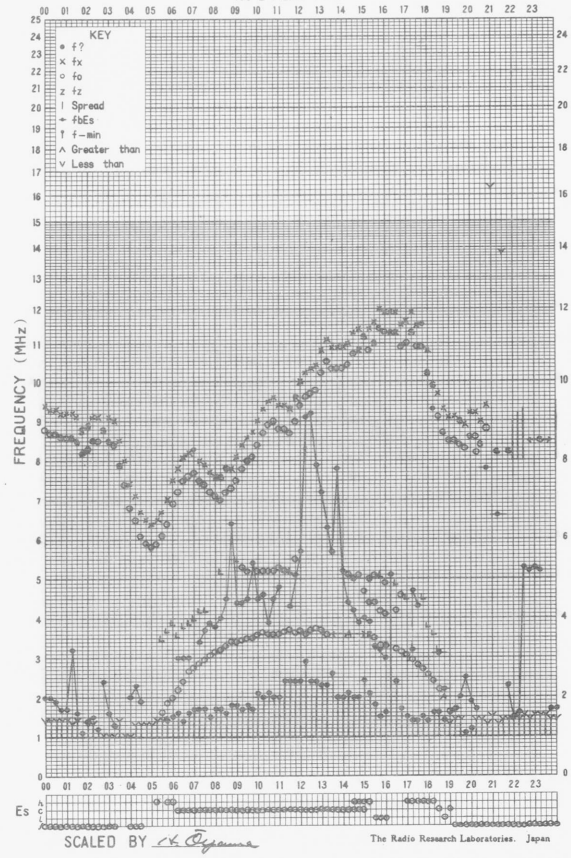


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

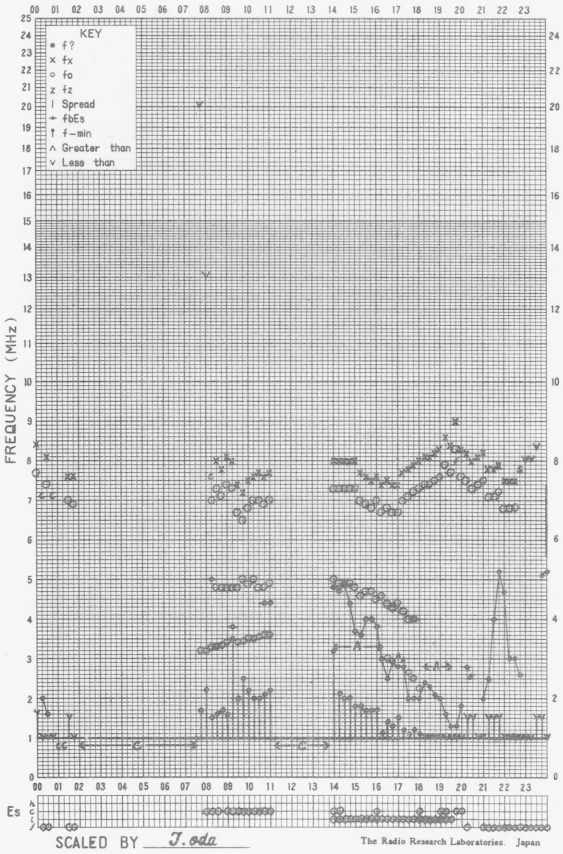


SCALED BY K. Ogawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

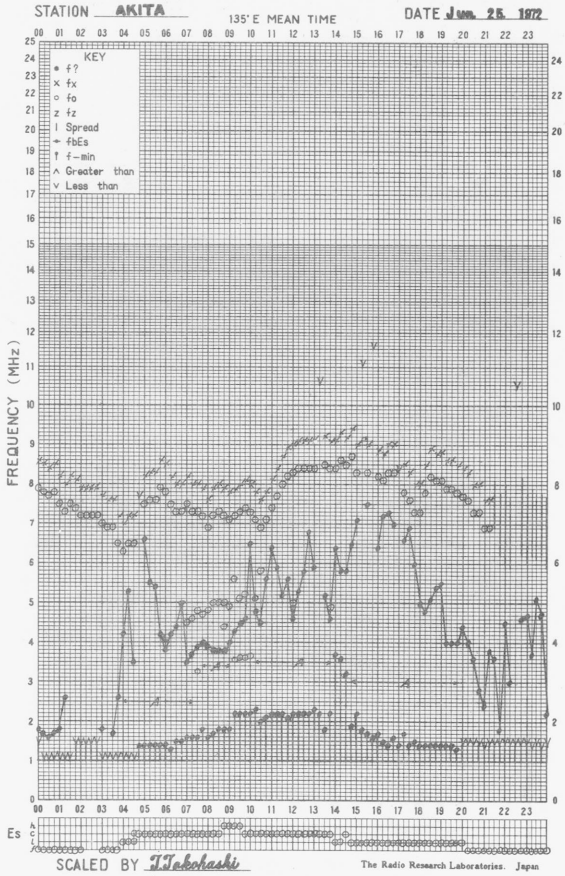
STATION WAKKANAI 135°E MEAN TIME DATE JUN. 25. 1972



SCALED BY J. oda The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

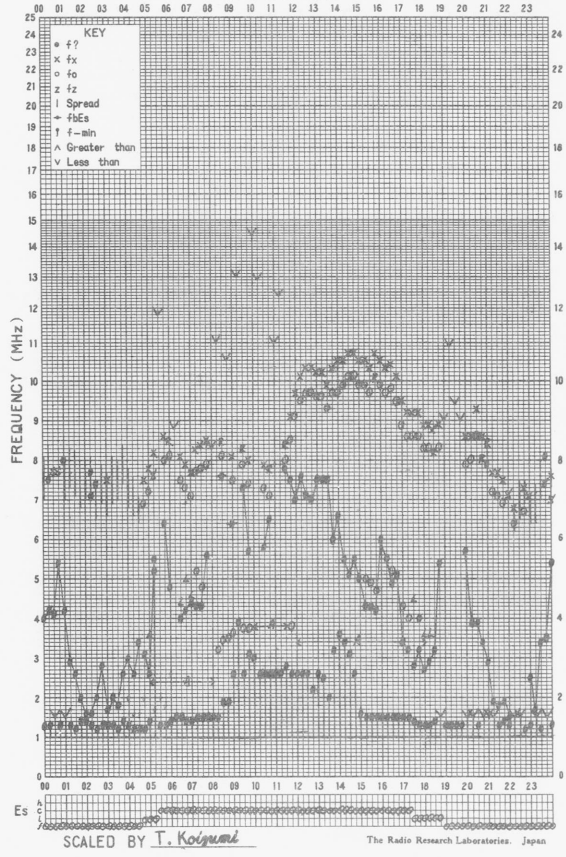
STATION AKITA 135°E MEAN TIME DATE Jun. 25. 1972



SCALED BY T.Takahashi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

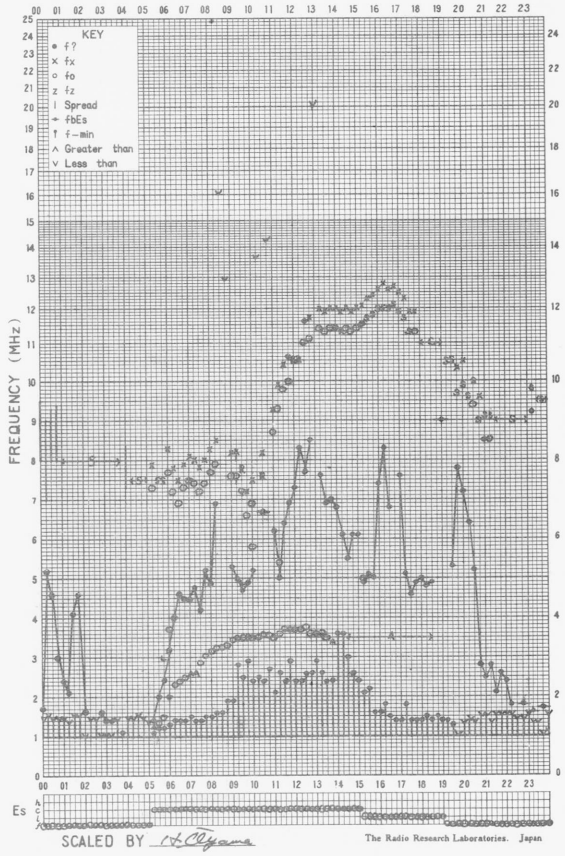
STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 25. 1972



SCALED BY T. Koizumi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

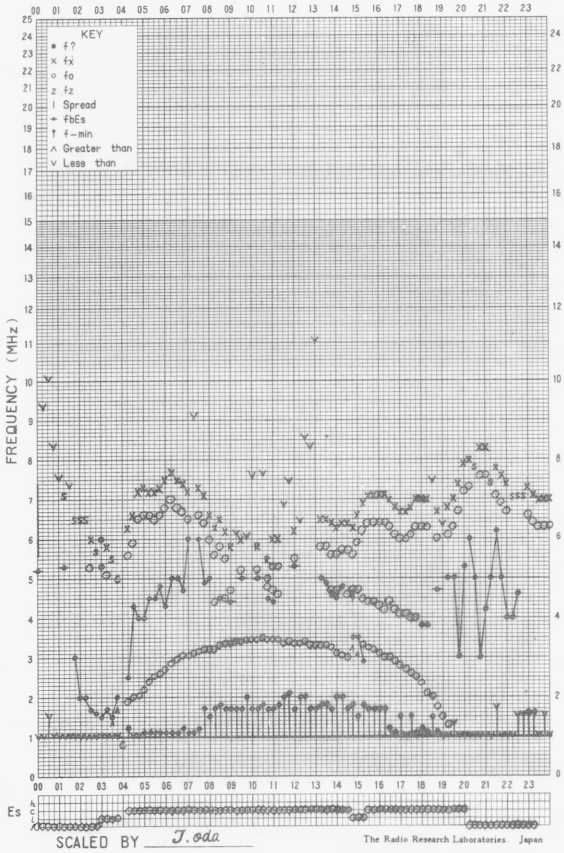
STATION YAMAGAWA 135°E MEAN TIME DATE JUN. 25. 1972



SCALED BY H. Ogiyama The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 2 6. 1972

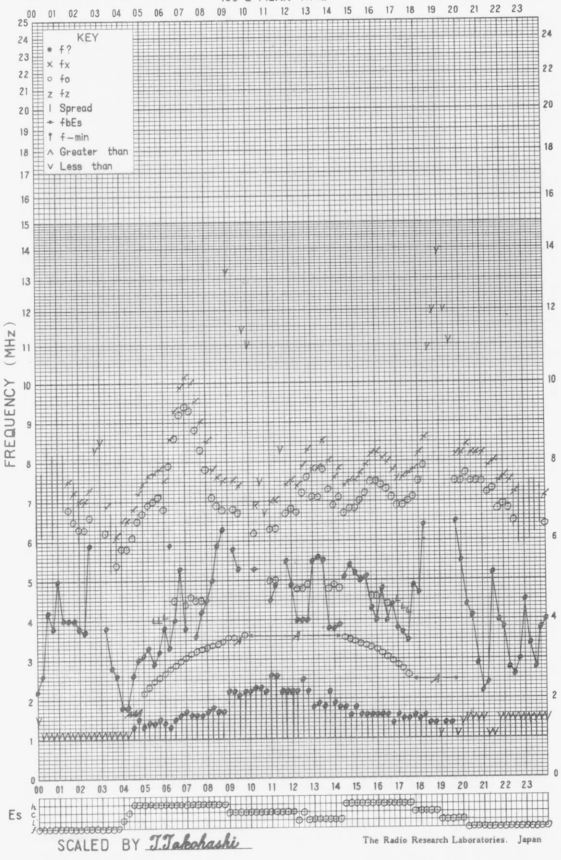


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 26. 1972

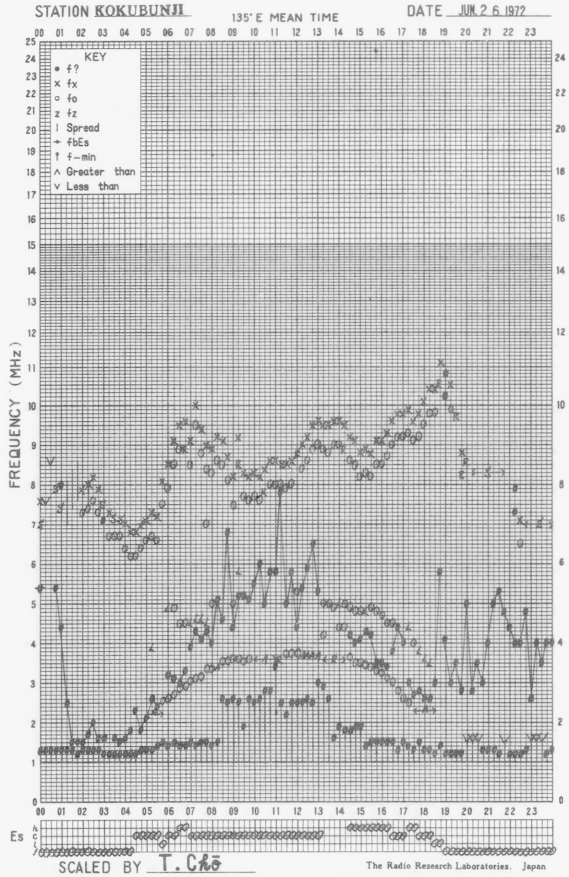


SCALED BY T.Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUN. 2 6. 1972

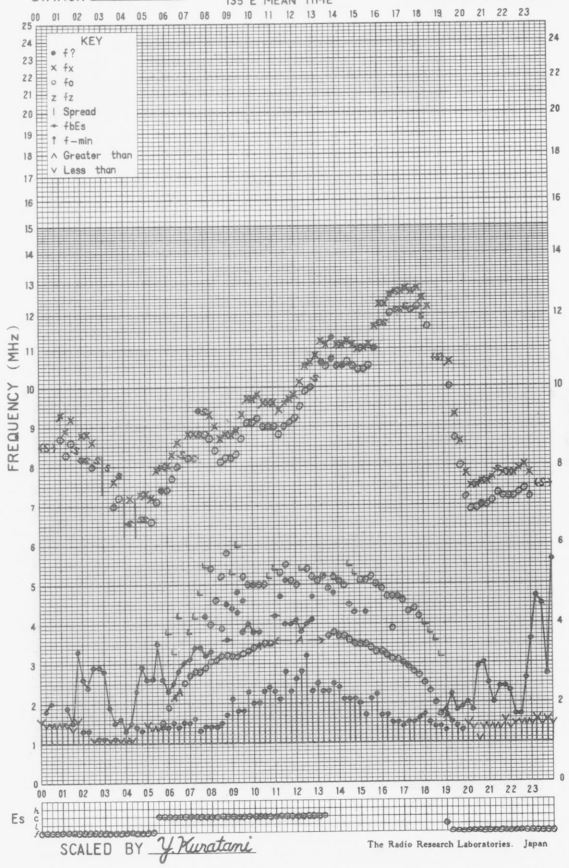


SCALED BY T. Chō

The Radio Research Laboratories. Japan

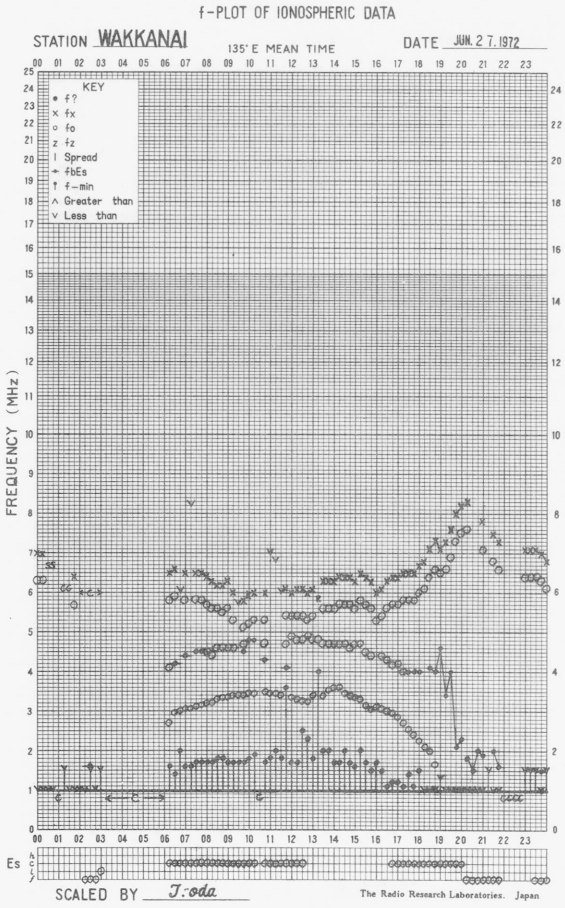
f-PLOT OF IONOSPHERIC DATA

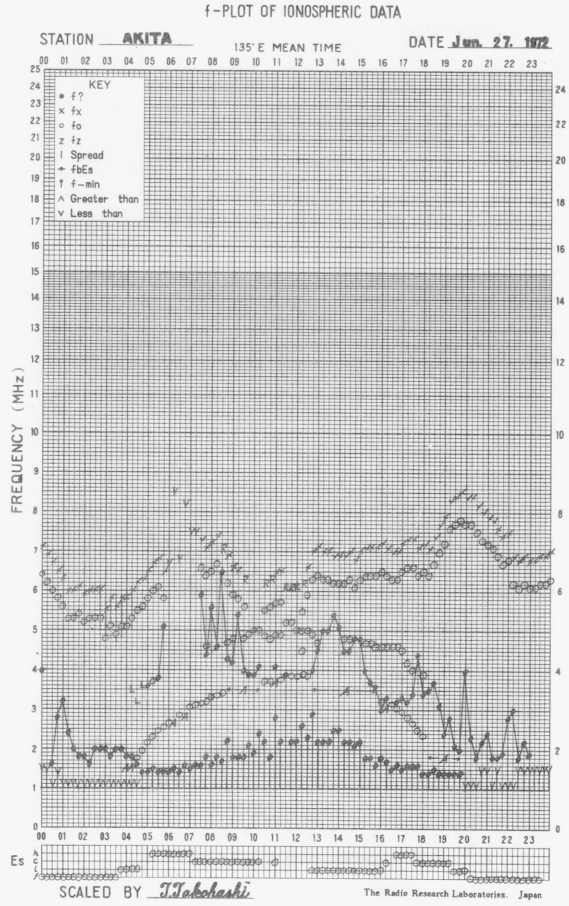
STATION YAMAGAWA 135°E MEAN TIME DATE JUN.26.1972

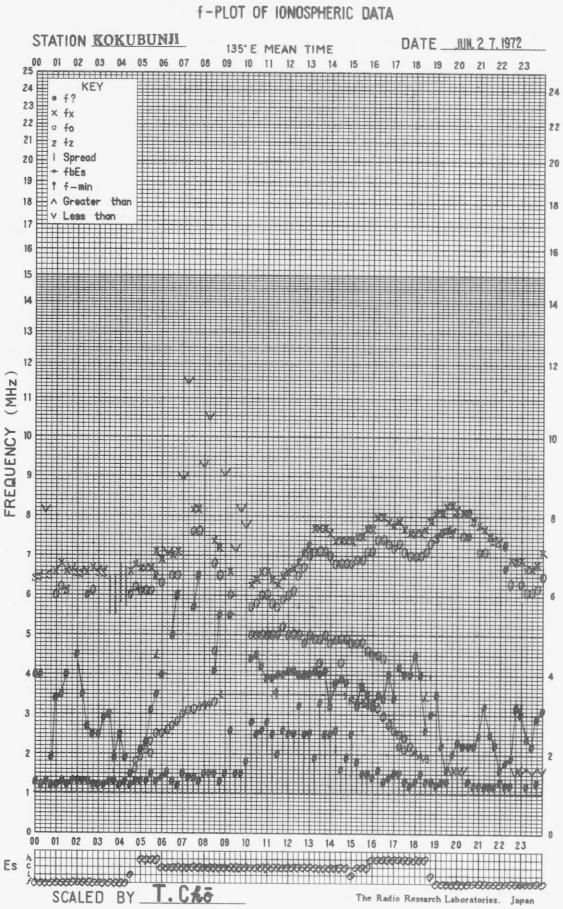


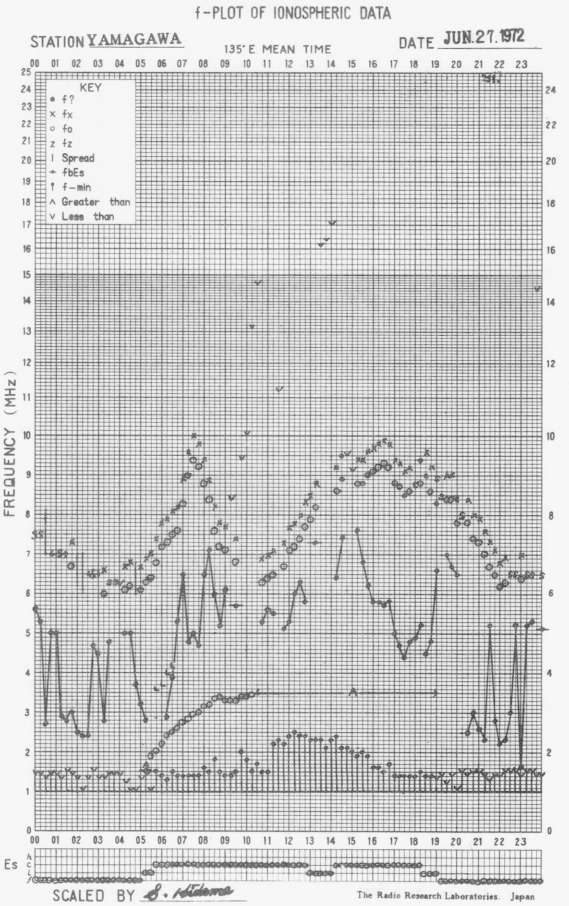
SCALED BY Y. Kuratani

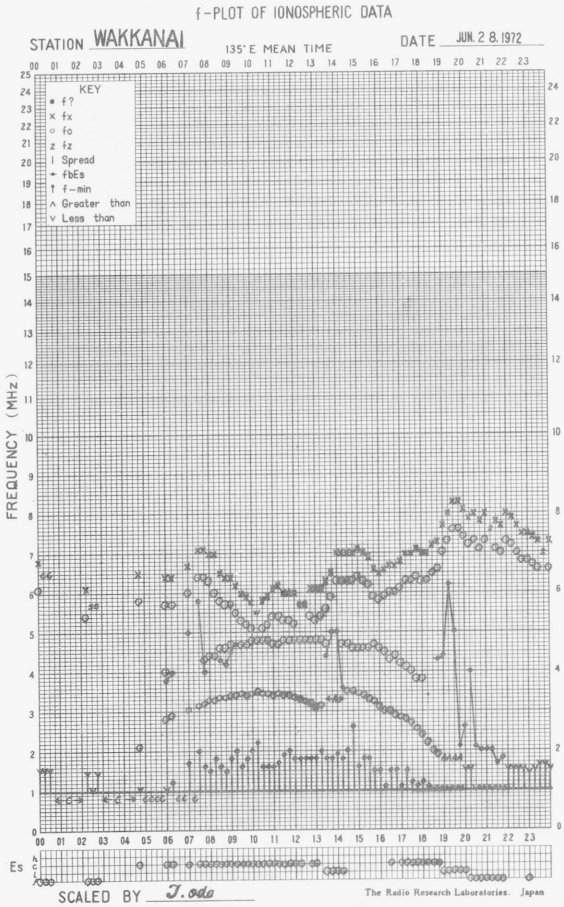
The Radio Research Laboratories. Japan

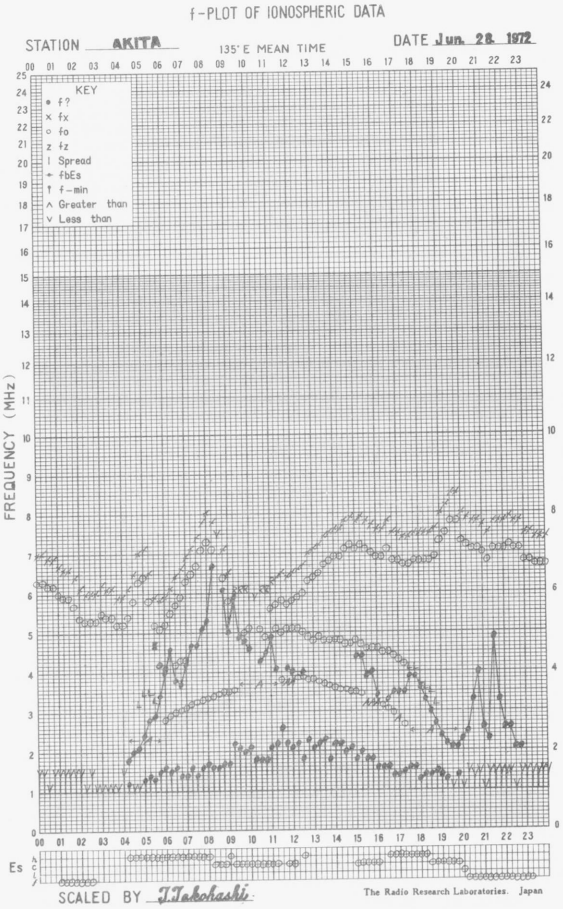

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 27. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Oda
The Radio Research Laboratories. Japan

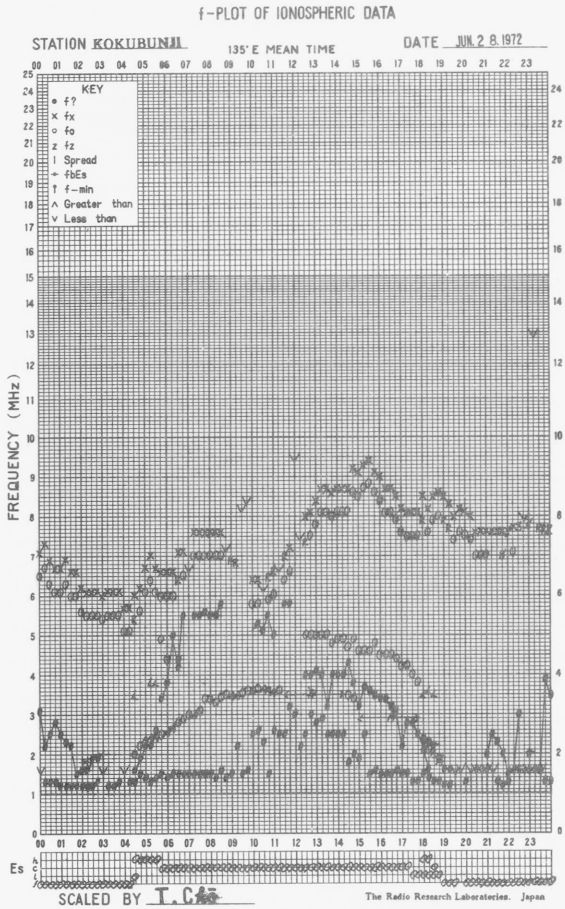

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 27. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan

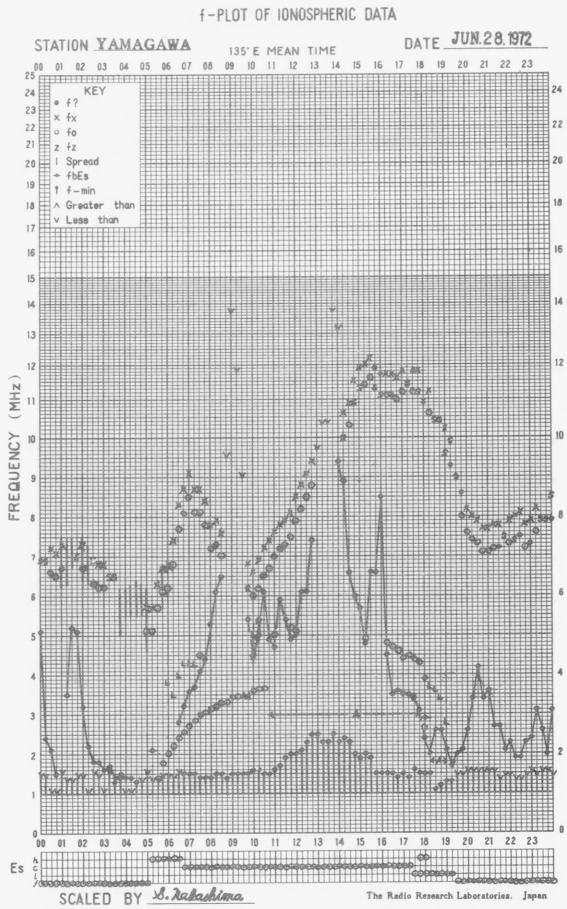

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 27. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Ch5
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN. 27. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nidawa
The Radio Research Laboratories. Japan


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

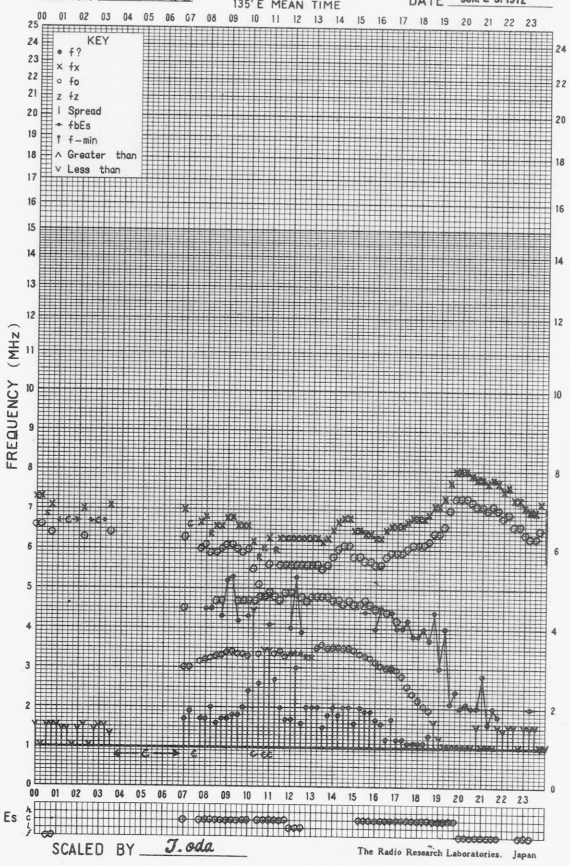

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 28. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


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


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN. 28. 1972
KEY
• f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

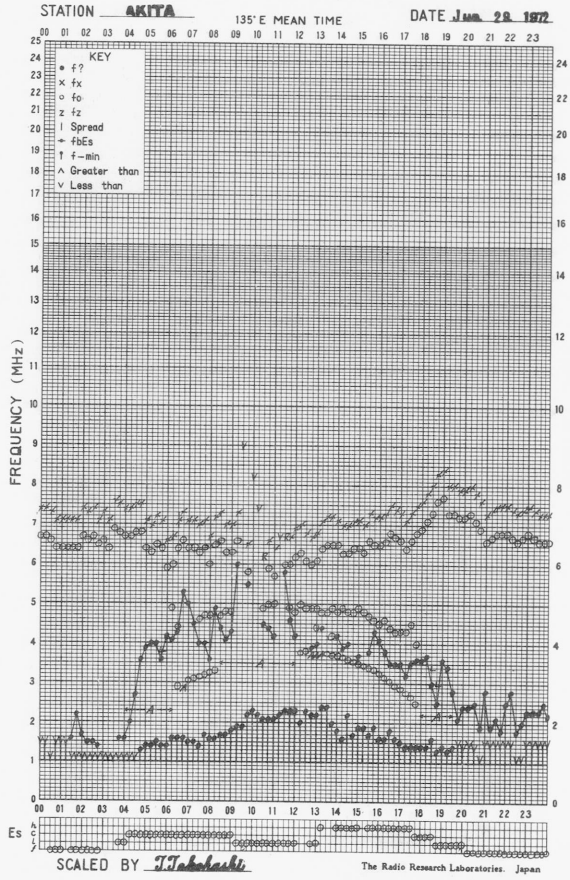


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

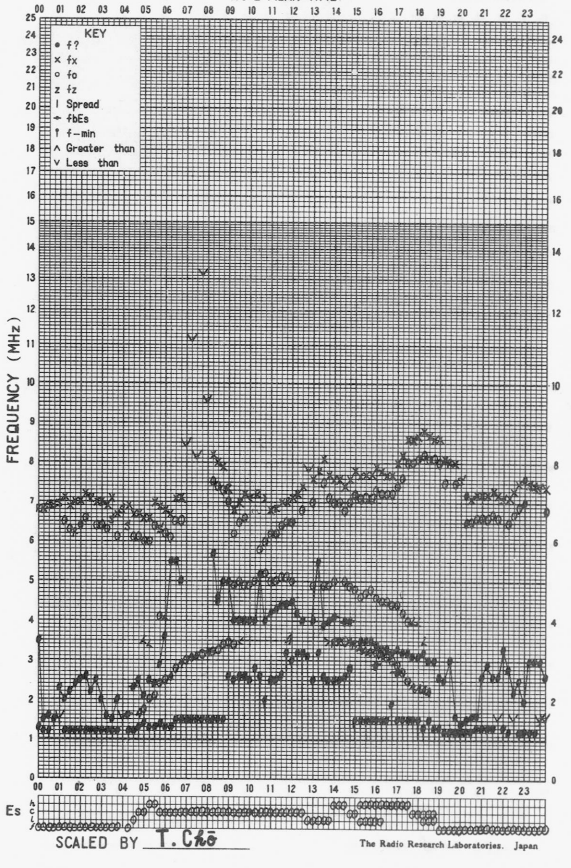


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

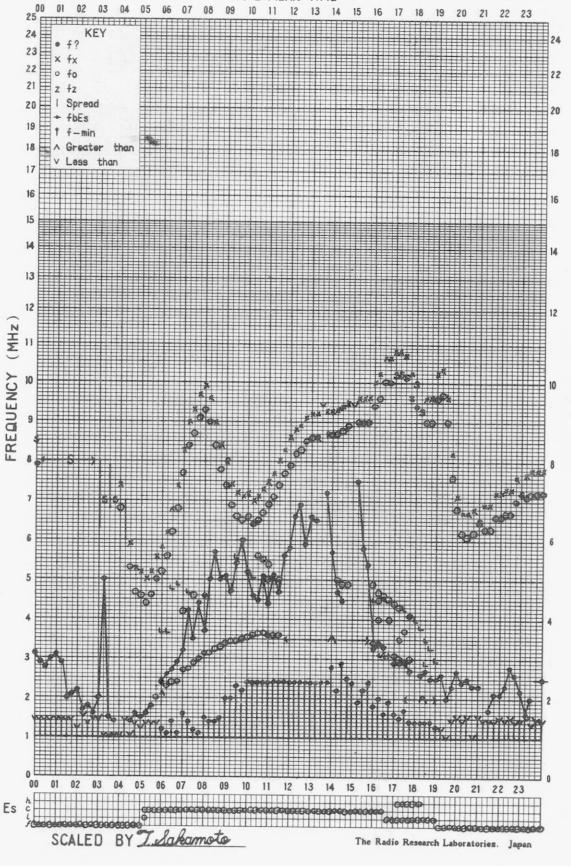


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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

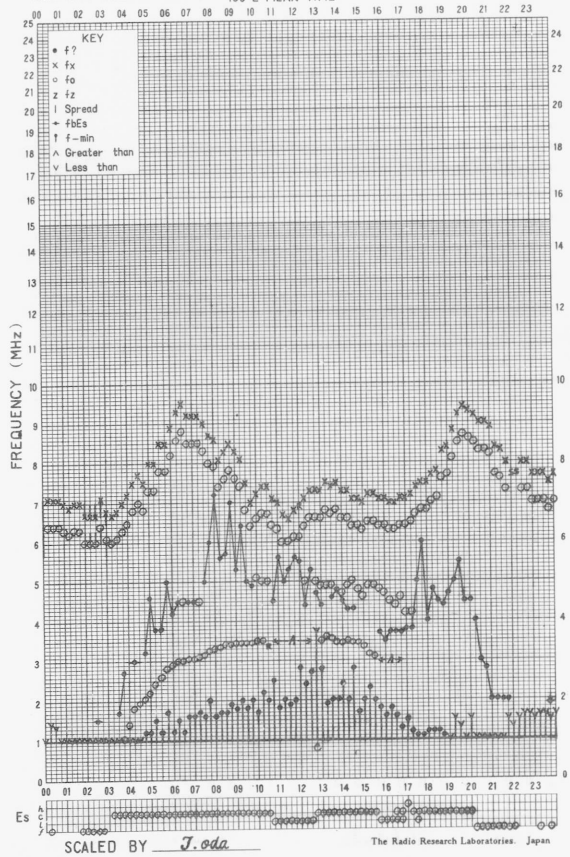


SCALED BY T. Takamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 30. 1972

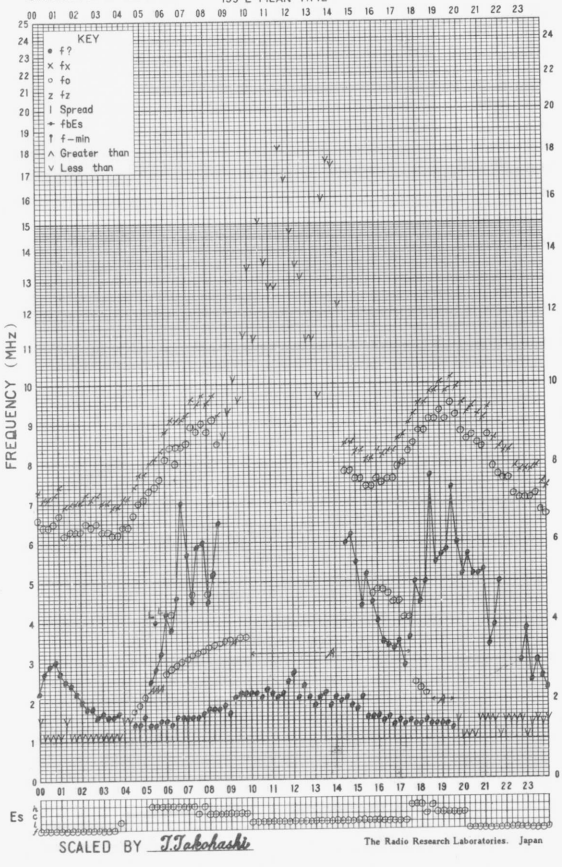


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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



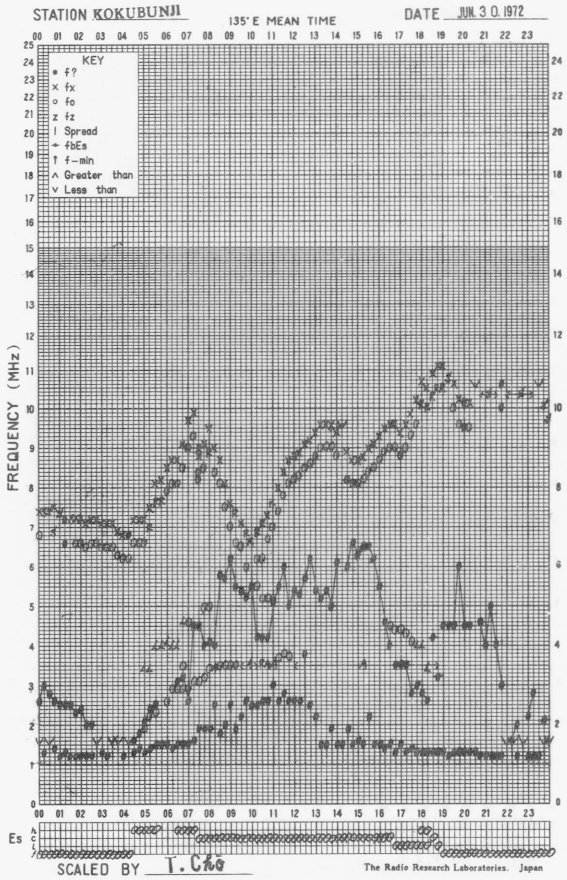
SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

317

f-PLOT OF IONOSPHERIC DATA

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

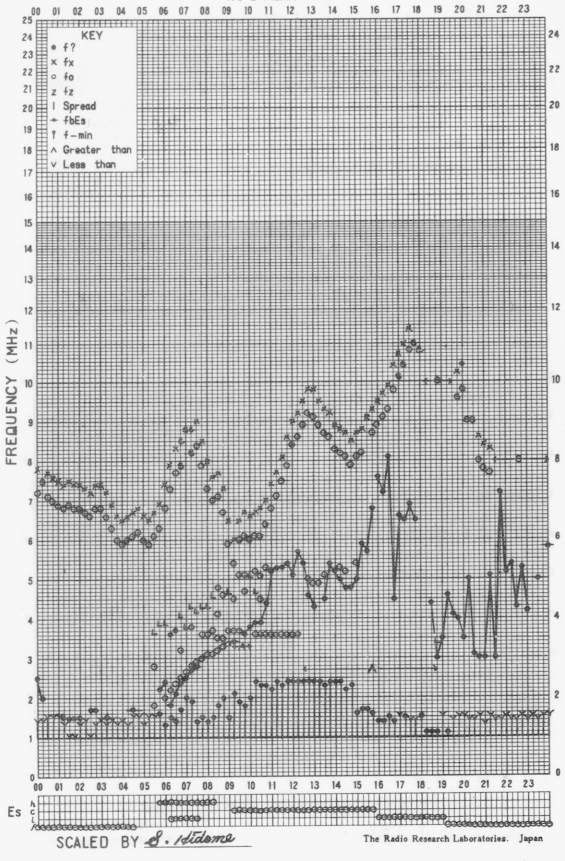


SCALED BY T. Cho

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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



SCALED BY S. Nitoma

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

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

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

Note No observations during the following periods:

9th 1920- 2200 25th 1920- 2400
12th 2235- 2400 26th 0630- 0810

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: June 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	24	25	25	24	24
2	24	25	24	26	24
3	26	26	26	29	26
4	30	30	29	31	30
5	30	30	29	32	30
6	29	27	27	28	29
7	29	29	29	28	29
8	31	30	29	28	29
9	29	30	29	29	29
10	28	-	-	-	(29)
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	-	-
15	-	-	-	-	-
16	-	-	-	-	-
17	-	-	-	-	-
18	-	-	-	-	-
19	-	-	-	-	-
20	-	-	-	-	-
21	-	-	31	27	(31)
22	31	35	32	27	31
23	27	27	26	25	27
24	27	26	25	25	26
25	26	26	25	-	26
26	24	(24)	24	24	24
27	26	25	24	24	25
28	27	28	27	25	26
29	27	26	26	26	26
30	25	27	25	27	26

Note No observations during the following periods:

10th 0200- 21st 0615
25th 2100- 26th 0100
26th 0300- 0445

Distinctive Events

(single-frequency observations)

Month: June 1972
Observing station: Hiraiso
Normal observing period: 1920 - 1000 (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	
10	100	0854.0	0854.8	1.2	C	250	100	
		-	(0901.4)	≥1.0	C	380	190	* 0900-01
11	100	2308.0	2308.7	1.0	C	230	100	
15	100	0925.5	0926.8	2.0	C	230	50	
	200	0926.8	0926.8	0.8	eC	160	80	
17	100	0002.0	0002.2	1.0	C	60	15	
		0434.3	0435.8	2.0	C	130	30	
	200	0537.0	0537.8	1.5	C	200	50	
22	100	0505.0	0505.8	1.0	C	95	20	
		0510.0	0511.6	6.0	C	160	30	
24	100	0041.3	0041.8	2.0	C	220	60	
	200	0526.0	0526.1	1.0	C	190	50	
	100	0526.0	0526.5	1.6	C	230	70	
	500	0700.0	0721.0	110	RF	13	5	
	200	0706.0	0744.0	130	C	380	25	
		0708.0	0709.5	2.0	C	150	40	
	100	0708.7	0709.4	2.3	C	70	20	
		0712.5	0746.0	>142	RF	80	40	
25	500	0451.0	0454.6	6.0	C	20	10	
	200	0453.0	0454.2	2.0	C	110	30	
	100	0453.5	0454.7	1.5	C	180	30	
		0456.0	0543.0	>280	E	80	50	
	500	0457.0	0503.5	10.0	Pi	7	4	
		0508.0	0508.8	3.0	C	35	10	
27	100	0543.0	0543.3	3.0	C	950	120	
30	500	0055.0	0059.0	6.5	C	50	20	
	200	0059.0	-	2.7	C	≥120	≥30	* 0100-01
		0151.5	0152.5	4.0	C	70	25	

*: interrupted by calibration.

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

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

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

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

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Jun. 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	H
1	4°		4 4 4 4	3 3 - 5	4 4 4 4	N N N N			
2	4°		4 4 4 (4)	5 4 (4) 4	4 4 4 4	N N N N			
3	4-		4 4 3 3	4 4 (4) -	4 4 4 4	N N N N			
4	4°		4 4 4 4	- - - -	4 4 4 4	N N N N			
5	4°		(4) 4 4 4	4 4 (4)(4)	4 4 4 4	N N N N			
6	4°		4 (5) 4 4	4 4 (4) 4	4 4 4 4	N N N N			
7	4°		4 4 4 4	4 4 (4) 4	4 4 4 4	N N N N			
8	4°		4 4 4 4	4 4 (4) 5	4 4 4 4	N N N N			
9	4+		(4)(5) 4 (4)	4 4 (4) 5	4 4 4 4	N N N N			
10	4°		(4)(4) 4 (4)	4 4 (4) -	4 4 4 4	N N N N			
11	4+		4 5 4 (4)	(5) - - -	4 4 3 4	N N N N			
12	4+		(4)(5) 4 4	4 4 (4) 5	4 4 4 3	N N N N			
[13]	4+		(4) 4 4 (4)	5 4 (4) 5	4 4 4 4	N N N N			
[14]	4+		(4) 4 5 (4)	4 4 (4) 5	3 4 4 4	N N N N			
[15]	4+		4 5 5 4	5 4 - 4	4 4 4 4	N N N N			
16	4-		4 3 4 4	4 4 (4)(3)	3 4 4 4	N N N N			
17	4°		4 4 (4) 3	4 4 (4) -	4 4 4 4	N N N N	06.28 13.11		273r
18*'	2+		3 (2)(2)(2)	- - - -	4 3 3 2	U U U U	---	---	
19*	2+		(2)(2)(2)(2)	(2) 3 (4) -	3 3 3 4	W W W W	---	---	
20	4-		(3) 2 4 4	(4) 4 (4) -	4 3 4 4	U U U U	---	03.0	
21	4°		4 4 4 4	4 4 (4)(4)	4 4 4 4	N N N N			
22	4°		4 4 4 4	4 4 (4) 4	4 4 4 4	N N N N			
23	4°		4 4 4 4	4 4 (4) 4	4 4 5 4	N N N N			
24	4-		3 3 4 4	3 4 (4) -	4 4 4 4	N N N N			
25	4-		4 3 3 4	(5) - - -	4 4 4 4	N N N N			
26	4°		4 4 4 4	4 4 (4) -	4 4 4 4	N N N N			
27	4-		(4)(4)(3) 4	4 4 (4)(3)	4 4 3 4	N N N N			
28	3+		4 (3) 3 (3)	(4) 4 (4)(3)	4 4 4 4	N N N N			
29	4-		4 3 3 4	(4) 4 (4) 4	4 4 3 4	N N N N			
30	4°		4 4 4 4	4 4 (4) 4	4 4 4 4	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 DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Jun. 1972	S W F								Correspondence		
	Drop-out Intensities (db)					Start-time	Duration	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	SH							
5	7		7			01.58	30	Slow	1		×	
13	8	×	12			01.34	34	Slow	2-		×	
24	18	23	21			07.02	33	Slow	2		×	
25	7					00.10	20	Slow	1	00.10		
25			10			04.50	50	Slow	1	04.41	×	

I N U B O

1972 Jun.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	WWVL	NAA	NWC	NPG	HA3	AL3	Start	End	Maximum	
2	25	8		21	29		2032	2143	2041	X
5	—	32	—	39	48	42	0158	0313	0208	
5	—	29	28	44	50	25	2120	2234	2129	X
7	—	9		3			2223	2250	2228	
7	—			5			2252	2322	2306	
8	—	21*	32*	20	23*		0057	0224	0130	X
8	—			4			2310	2334	2317	
11		15		18	27		1918	2015	1930	X
11	35	18		35	41		2126	2236	2136	
11	22	15	20*	19*	16		2302	0001	2319	
12	16	12	—	—	13		0155	0252	0205	X
12			12	3			0426	0507	0433	
12	—		12	—			0606	0712	0623	
13	53	33	68	38	51	23	0133	0245	0143	
14		13	24	13	14	25	0131	0236	0148	X
15				7			2127	2159	2136	X
15	13		12	10	22		2314	2358	2323	X
16	48	8		35	49		2002	2142	2021	X
16			12*	10*	11		2307	2347	2326	
17	23	15*	35*	23*	25*		0002	0125	0034	
17			20	5	10		0324	0426	0345	
17				5	10		2138	2235	2157	
19			—	17*			0036	0236	0126	
20			16	5	9		0322	0431	0344	
20		28		24	50		1916	2026	1925	X

1972 Jun.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	WWVL	NAA	NWC	NPG	HA3	AL3	Start	End	Maximum	
21			12	4			0338	0412	0342	
22		7	8	7	13		0024	0100	0029	
22		10	12	11	—	21	2334	0015	2342	
24		10		7			0033	0105	0042	
24		59	145	51	—	126	0702	0852	0710	X
24	34	29		45	58	20	1914	2034	1924	X
25	16	22	48	32	42	28	0007	0114	0018	X
25		21	84	29	65	55	0441	0628	0504	
25			16				0809	0904	0815	
27				29			2034	2223	2114	
28				15			1906	2000	1926	
28				9	15		2016	2057	2020	
29			8	5			0247	0310	0249	
29			8				0711	0747	0715	

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 JUNE 1972

第 24 巻 第 6 号

1972年11月10日 印 刷
1972年11月25日 発 行

（不許複製非売品）

編 集 兼
発 行 人　今野清恒
東京都小金井市貫井北町4丁目2－1

発 行 所　郵政省電波研究所
〒 184 東京都小金井市貫井北町4丁目2－1
☎ (0423)(21)1211(代)

印 刷 所　株式会社 真成社
〒 162 東京都新宿区筑土八幡町8
☎ (260)5279