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IONOSPHERIC DATA IN JAPAN

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CONTENTS

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INTRODUCTION

This Series contains data on ionosphere (I) , solar radio emission (S) and radio propagation (P) obtained at the following stations under the Communications Research Laboratory, Ministry of Posts and Telecommunications of Japan.

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.5′N	141°41.2′E	35.3°N	206.5°	Vertical Sounding (I)
Kokubunji	35°42.4′N	139°29.3′E	25.5°N	205.8°	Vertical Sounding (I)
Yamagawa	31°12.1′N	130°37.1′E	20.4°N	198.3°	Vertical Sounding (I)
Okinawa	26°16.9′N	127°48.4′E	15.3°N	196.0°	Vertical Sounding (I)
Hiraiso	36°22.0′N	140°37.5′E	26.3°N	206.8°	Radio Receiving (S,P)
Inubo	35°42.2′N	140°51.5′E	25.6°N	207.0°	Radio Receiving (P)

A. IONOSPHERE

Ionospheic observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes.The ionosonde produces ionograms,which are recorded digitally on computer storage medium as well as graphically on 35 mm photographic film. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled as well by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five factors of ionospheric characteristics are published for the present. The reliability of these factors has been ascertained by comparison of the automatically-scaled parameters with the manually-scaled values of large amounts of test ionograms.

The published data consist of tabulations of hourly values of three factors (*foF2, fEs, fmin*) and monthly medians of two factors (*h′Es, h′F*) , daily Summary Plots and monthly medians plot of *foF2*.

a. Characteristics of Ionosphere

foF2	Ordinary wave critical frequency for the *F2* layer
fEs	Highest frequency of the *Es* layer whether it may be ordinary or extraordinary
fmin	Lowest frequency which shows vertical ionospheric reflections
h′Es *h′F*	Minimum virtual height on the ordinary wave for the *Es* and *F* layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

A Impossible measurement because of the presence of a lower thin layer,for example *Es* (for *foF2*).

B Impossible measurement because of absorption in the vicinity of *fmin*.

C Impossible measurement because of any failure in observation.

G Impossible automatic scaling because of too small ionization density of the layer (for *fEs*).

N Impossible automatic scaling because of complex echoes.

Blank No digital record because of trouble in the automatic data processing system, but existence of film record.

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

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

Median (MED) is defined as the middle value when the numerical values 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.

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of *foF2* , *fEs* and *fmin* were scaled within a difference of 1 MHz from about 90 , 90 and 99% , respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the *F* and *E* regions, respectively. The two solid arcing lines indicate the predicted values of *fxE* and *foE* calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily *f*-plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972 " and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spread *F* trace
foF2 *foF1* *foE* *foEs*	Ordinary wave critical frequency for the *F2,F1, E* and *Es* including particle *E* layers, respectively
fbEs	Blanketing frequency of the *Es* layer, e.g. the lowest ordinary wave frequency visible through *Es*
fmin	Lowest frequency which shows vertical ionospheric reflections
M(3000)F2 *M(3000)F1*	Maximum usable frequency factor for a path of 3000 km for transmisson by *F2* and *F1* layers, respectively
h′F2 *h′F* *h′E* *h′Es*	Minimum virtual height on the ordinary wave for the *F2*, whole *F, E* and *Es* layers,respectively
Types of *Es*	See below b.(iii)

b. Symbols

(i) Descriptive Letters

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

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

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

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

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.

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.

K Presence of particle *E* layer.

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.

P Man-made perturbations of the observed parameter; or spur type spread *F* present.

Q Range spread present.

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 Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets, if necessary.

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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-electronic component.

(iii) Description of Types of *Es*

When more than one type of *Es* trace are present on the ionogram, the type for the trace used to determine *foEs* must be written first. The number of multiple trace is indicated after the type letter.

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the particle *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)

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

q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin*.

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

Median (MED) is the middle value when the numerical values 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.

B. SOLAR RADIO EMISSION

Solar radio observations at 200, 500 and 2800 MHz are carried out at Hiraiso. The observation equipment consists of two parabolic antennas, one with 10-meter diameter for 200 MHz measurements and one with 2-meter diameter for 500 and 2800 MHz measurements, Observations are continuously carried out almost from sunrise to sunset.

B1. Daily Data at Hiraiso

The three-hourly mean and daily mean values of the solar radio emission intensities are tabulated separately for 200 and 500 MHz measurements. The intensities are expressed by the flux density in 10^{-22} Wm^{-2} Hz^{-1} unit.

The table for 200 MHz measurements also presents the variability indices defined by the number of impulsive radio bursts within the three-hour intervals as follows:

0 quiet or no burst,

1 a few bursts,

2 many bursts,

3 very many bursts.

The daily variability index is defined as the daily mean of three-hourly indices.

The following symbols are used in the tables, when interference or radio bursts prevented measuring the base-level flux densities or determining the variability indices:

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

Daily data within parentheses mean that the observation time does not exceed one third of the period.

B2. Outstanding Occurrences at Hiraiso

The table is a list of outstanding occurrences of solar radio emission bursts observed at 200, 500 and 2800 MHz during a month.

Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T. expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in 10^{-22} Wm^{-2} Hz^{-1} unit, and the polarization.

The type of event is expressed by a combination of a numerical code and a letter symbol in accordance with the " Descriptive Text of Solar Geophysical Data, NOAA " as defined by H. Tanaka in the " Instruction Manual for Monthly Report of Solar Radio Emission, WDC-C2 " in January 1975:

SGD Code	Letter Symbol	Morphological Classification
1	S	Simple 1
2	S/F	Simple 1F
3	S	Simple 2
4	S/F	Simple 2F
5	S	Simple
6	S	Minor
7	C	Minor+
8	S	Spike
20	GRF	Simple 3
21	GRF	Simple 3A
22	GRF	Simple 3F
23	GRF	Simple 3AF
24	R	Rise
25	R	Rise A
26	FAL	Fall
27	RF	Rise and Fall
28	PRE	Precursor
29	PBI	Post Burst Increase
30	PBI	Post Burst Increase A
31	ABS	Post Burst Decrease
32	ABS	Absorption
40	F	Fluctuations
41	F	Group of Bursts
42	SER	Series of Bursts
43	NS	Onset of Noise Storm
44	NS	Noise Storm in progress
45	C	Complex
46	C	Complex F
47	GB	Great Burst
48	C	Major
49	GB	Major+

The polarization is expressed by the polarization degree and sense as follows:

R or L	right- or left-handed polarization,
W,M or S	weak,moderate or strong polarization,
0	almost zero or unable to detect polarization due to small increase of flux,
00	polarization degree of less than 1 percent.

One of the following symbols may be attached after numerical values, if necessary.

D	greater than, or later than,
E	less than or earlier than,
U	approximate, or uncertain.

B3. Summary Plots of $F_{10.7}$ at Hiraiso

The 10.7 cm solar radio flux at Hiraiso is plotted over a one month period. The 10.7 cm flux ($F_{10.7}$) is determined by adjusting the 10.7 cm radio flux measured at Hiraiso to the Pentincton 10.7 cm radio flux. The figure on the right-hand side shows the $F_{10.7}$ index estimated at Hiraiso.

C. RADIO PROPAGATION

C1. H.F. Field Strength at Hiraiso

Field strength observation of 15 MHz standard waves transmitted from WWV and WWVH stations which are located respectively at Fort Collins, Colorado and Kauai, Hawaii, is carried out at Hiraiso. In order to avoid interference among the same frequency waves, the upper sideband of WWV or WWVH with the audio tone 600 Hz is picked up by the use of a narrow band-pass filter with 80 Hz bandwidth.Particulars of the transmitters and the receiver are summarized in the following table.

The tabulated *field strength* expressed in dB above one microvolt per meter is the average of quasi-peak values of the incident upper sideband field intensity for 45 seconds after the universal time indicated on the table. Abbreviated symbols are as follows:

CNT	number of observed values,
MED	median,
UD	value of the uppermost decile when they are ranked according to magnitude,
LD	value of the lowest decile when they are ranked according to magnitude,
U	uncertain,
E	less than,
C	innuenced by, or impossible because of, any artificial accident,
S	influenced by, or impossible because of, interferences or atmospherics.

C2. Radio Propagation Quality Figures at Hiraiso

The tabulated six-hourly quality figures are calculated for standard waves WWV transmitted from Fort Collins and WWVH transmitted from Kauai.

Quality figures expressing radio propagation conditions range over five grades as follows:

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

Whole day quality figure ranged in grades of 1o, 1+, 2-, 2o, 2+, 3-, 3o, 3+, 4-, 4o, 4+, 5-, 5o stands for an average of six-hourly quality figures of the two circuits. Abbreviated symbols are as follows:

C	artificial accident,
S	propagational accident,
U	inaccurate.

Characteristics	Transmitter		Receiver
Station Call	WWV	WWVH	
Location	Fort Collins, Colorado	Kauai, Hawaii	Hiraiso, Ibaraki
latitude	40°41′N	22°00′N	36°22′N
longitude	105°02′W	159°46′W	140°38′E
Distance	9150 km	5910 km	--
Carrier Power	10 kW	10 kW	--
Power in each sideband	625 W	625 W	--
Modulation	50 %	50 %	--
Antenna	λ / 2 vertical	λ / 2 vertical	4.5 m vertical rod
Bandwidth	--	--	80 Hz for upper sideband
Calibration	--	--	Every hour

The column of conditions presents a record of the forecast of *radio propagation conditions* which is applicable to forthcoming 12 hours and broadcast six times par hour from JJY (Japan Standard Wave) staion. The conditions are denoted as follows:

N normal,
U unstable,
W disturbed.

Data on *geomagnetic storms* which are often correlated with radio propagation disturbances are tabulated based on reports from observation at Kakioka Magnetic Observatory, Japan Meteorological Agency. *Time* (U.T.) is expressed in hours and minutes (or tenths of an hour) , and *range* in nanotesla. When they are uncertain quantitatively, / 's are used to replace the numerical values. Continuation of a geomagnetic storm is denoted by ---.

C3. Phase Variation in OMEGA Radio Waves at Inubo

The phase values of eight OMEGA radio signals as received at Inubo are depicted for an interval of one month, along with the phase deviation defined as a deviation from a value averaged over the six quietest day within the month. Particulars of the received signals are given in the table below.

In each of the four panels of the figure, the phase (ϕ) is shown in the lower part and the phase deviation ($\Delta\ \phi$) is shown in the upper part. The phase data are sampled every 30 min, so the curves of the phase and phase deviation are composed of 48 data points per day. The phase delay is measured as a positive value.

The polar cap phase anomaly (PCPA) caused by the solar protons are well detected on the Norway signal. The start, end and maximum times of the PCPA are listed in the table next to the figure, where the times are expressed as day / hour & minute in U.T.. The maximum phase deviation in the list is defined as a phase advance (negative values in the figure) in degrees.

C4. Sudden Ionospheric Disturbances

a. Short Wave Fade-out (SWF) at Hiraiso

The table of short wave fade-out (SWF) is prepared from the record of field intensities measured at Hiraiso.

Drop-out intensities of the 10 MHz, the 20 MHz. and the 25 MHz waves are respectively distinguished by marks ′, ″, and ‴ from those of the 15 MHz wave for WWV and WWVH. Values of *start, duration, type,* and *importance* are obtained from data of the circuit whose drop-out intensity in dB is underlined as xx. When these quantities could not be determined accurately, they are accompanied by one of the following symbols.

D greater than,
E less than,
U uncertain or doubtful.

Types of fade-out are as follows:

S sudden drop-out and gradual recovery,
SL slow drop-out taking 5 to 15 minutes and gradual recovery,
G gradual and irregular in both drop-out and recovery.

Importance of fade-out is scaled according to its amplitude into nine ascending grades as 1-, 1, 1+, 2-, 2, 2+, 3-, 3, 3+.

Correspondence of solar optical and X-ray flares, and solar radio burst to SWF is marked by X, being determined with data from interchange messages of IUWDS and observations at Hiraiso.

In table (a) SWF, *date* indicates the day to which the *start-time* of the event belongs.

b. Sudden Phase Anomaly (SPA) at Inubo

Data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio waves received at Inubo. The transmitting stations are listed in the following table.

Phase advance is shown in unit of degree at its maximum stage. No transmission or no reception during the period is indicated by -, an indistinguishable record is spaced out, and a multi-peak event is marked by *. The most remarkable or distinct phase advance is underlined and listed in the column of *Time*.

In table (b) SPA, *date* indicates the day to which the *start-time* of the event belongs.

The following letters may be attached to the value, if necessary.

D greater than,
E less than,
U uncertain or doubtful.

Transmitting Stations						
Name	Location (Geographic Coordinates)		Call Sign	Frequency (kHz)	Radiation Power (kW)	Arc Distance from Inubo (km)
Norway	66°25′N	013°08′E	Ω / N	13.6	10	7820
Liberia	06°18′N	010°40′W	Ω / L	13.6	10	14480
Hawaii	21°24′N	157°50′W	Ω / H	13.6	10	6100
North Dakota	46°22′N	098°20′W	Ω / ND	13.6	10	9140
La Reunion	20°58′S	055°17′E	Ω / LR	13.6	10	10970
Argentina	43°03′S	065°11′W	Ω / AR	13.6	10	17640
Australia	38°29′S	146°56′E	Ω / AU	13.6	10	8270
Japan	34°37′N	129°27′E	Ω / J	13.6	10	1040
North West Cape	21°49′S	114°10′E	NWC	22.3	1000	6990

HOURLY VALUES OF foF2 AT WAKKANAI

JAN. 1995

LAT. 45.4N LON. 141.7E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	35	36	35	34	32	28	A	35	69	66	54	71	57	64	58	A	A	A	27	A	37	32	36	37
2	56	52	56	40	38	A	30	35	50	60	67	68		58	59	A	A	55	34	23	35	A	A	59
3	A	A	49	A	36	35	40	32	69	67	71	69	82	71	94	82	A		35	43	57	34	35	35
4	35	35	A	A	30	A	A	35	A	52	61	80	77	80	60	N	44	48	30		35	29	35	35
5	38	36	38	57	A	A	32	A	59	72	60	72	64	A	70	N	A	30	A	A	A	A	A	A
6	A	A	A	28	28	A	A	A	57	A			69		64		46	35	38	35	A	A	A	A
7	A	35	29	32	26		A	35	58	60	78	66	A	64	65	60	47	44	40	35	A	A	A	36
8	35		31	30	28	30	N	34	31	57	70	64	60	61	52	48	40	A	37	35	40	A	A	A
9	38	31		N	A	30	35	38	57	58	55	52	58	59	61	51	38	A	A				28	35
10	29	36	A	32	31	30	35	35	48	54	54	62	59	56		39	40	34	28	37	59	36	35	35
11	38	35	37	35	36	31	56	59	52	58	64			63	57	54	40	38		31	59	N	31	37
12	41	38	38	40	40	29	28	38	56	A	61	80		65	55	52	46	37	31	28	35	37	36	40
13	40	43	N	35	27	38	35	37	57	59	56	61	A	53	61	58	46	34	35	37	A	24	29	35
14	35	35	28	35	32		28	35	50	59	54	57	56	66	50	52	48	38	31	A	29	37	41	35
15	38	37	30	35	30	35	36	35	69	60	65	70	61	64	60	53	41	41	37		30	35	34	A
16	A	38	35	37	37		35	37	56	66	66	61	A	52	58	56	36	41	37	N	36	38	37	
17	38	39	35	34	32	30		35	58	61	60	A	68	60	63	60	50	40	35	35	37	29	38	33
18		32	35	30	31	30	28	32	58	80	63	81	80	81	66	73	72	41	37	35	38	56	53	41
19	31	40	55	50	51	51		A	56	64	56	67	64	67	68	57	35	A		A		37	A	
20	36	35	27	29	28	A	29	35	A	54	65	67	69	66	60	55	56	22	31	A			29	
21	40	30	35	28	31	35	35		57	67	60	68	70	63	56	60	52	38			31	37	30	36
22	38	40	35	35	34	29	35	35	58	63	71	73	67	64	71	59	36	29	A	A	N	31	36	38
23	29	36	38	35	31	N	N	35	59	64	68	66	82	61	66	50	44	43	40	32	31	34	36	37
24	40	37	27	38	38	38	38	35	57	68	77	72	61	71	80	60	40		38	35		28	35	36
25	36	31	35	32	32	28	35	38	57	57	60	70	71	66	64	50	36	32	37	35	38	30	A	A
26	30	30	28		28	35	29	35	57	60	70	A	49	67	67	60	48	40	46	38	35	35	41	30
27	37	37	35	29	35	28	23	35	62	62	78	80	70	56	52	51	56	44	40	43		37	28	40
28	A		34	35	29		31	29	69	67	67	57	66	56	52	58	31	37	59	38	28	28	35	31
29	36	35	35	35	28	32	35	32	63	57	68	67	65	70	69	54	69	71	66	35	59		A	35
30		35	37		28	30		35	56	60	95	63	83		66	63	61	47	42	40	35		38	43
31	38	59	36	35	36	40	35	36	60		68	83	75	81	94	74	52	53	47	38	38	40		43
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	26	26	29	21	22	27	29	28	30	27	25	28	30	26	27	25	25	20	21	21	22	23
MED	38	36	35	35	31	30	35	35	57	60	65	68	67	64	62	56	46	40	37	35	36	35	35	36
U Q	38	38	37	35	36	35	35	36	59	66	70	72	73	67	67	60	52	44	40	38	39	37	37	40
L Q	35	35	31	32	28	29	29	35	56	58	60	63	60	59	58	52	40	34	32	35	33	29	31	35

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT WAKKANAI

JAN. 1995

LAT. 45.4N LON. 141.7E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	32	26	25	29	30	41	38	42	G	44	24	27	30	29	32	50	72	63	36	37	24	33	36	33
2	33	G	27	59	29	47	36	35	24	G	G	G	G	G	G	37	74	77	34	36	40	36	34	27
3	37	28	29	49	51	34	32	G	G	G	28	30	32	34	36	44	72		33	38	38	33	28	30
4	30	27	33	41	54	36	44	27	56	28	24	G	G	25	25	G	G	27	44	G	G	G	G	G
5	G	38	28	24	45	38	28	33	G	25	G	G	32	35	G	G	47	38	30	30	88	65	32	40
6	29	25	32	G	58	36	33	32	G	34	G		G	G	G	G	G	G	36	38	38	39	46	32
7	35	32	G	G	26		29	29	29	G	26	28	27	26	24	G	31	G	28	28	34	28	30	29
8	G		G	G	G	G	G	G	28	26	24	26	27	26	G	G	28	31	26	G	G	39	32	27
9	G	27		26	27	G	G	G	G	38	30	26	26	37	24	26	G	32	31			28		G
10	33	30	33	28	28	G	G	G	27	28	29	28	G	G	G	24	27	32	31	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	25	G		G	G	G	G	23	G	29	G	G	G	G	G
12	G	29	G	G	G	G	28	G	G	38	30	28	G	G	25	G	G	G	G	31	G	G	26	32
13	36	G	32	G	33	28	26	26	G	34	42	38	61	35	36	G	G	30	29	28	29	31	32	G
14	G	G	G	32	25	24	G	G	11	29	G	31	28	29	25	G	G	G	36	44	45	32	G	54
15	28	26	33	24	31	27	G	G	G	44	34	59	30	34	42	29	28	G	30		25	G	28	34
16	38	33	28	G	27		G	G	G	29	35	30	62	26	24	G	30	G	G	G	25	34	30	
17	G	G	31	32	G	G		G	G	28	28	37	34	34	35	42	30	27	26	G	G	25	23	32
18	G	G	G	G	G	G	G	29	G	38	23	31	26	26	34	G	30	24	G	G	29	26	34	23
19	G	36	G	27	32	28		34	46	33	37	26	34	37	38	31	38	38	28	30	G	26	24	G
20	G	G	G	27	27	33	27	25	38	39	33	40	45	41	32	33	33	31	32	26		G	G	G
21	G	G	G	28	G	G	G	23	32	34	35	38	34	30	N	42	G	G			G	G	G	G
22	G	30	28	G	G	G	G	G	29	36	34	29	28	28	33	G	G	31	32	24	G	G	G	G
23	G	G	G	G	36	G	G	G	34	30	28	30	32	32	27	23	G	G	G	29	G	G	29	G
24	G	G	G	28	G	G	G	G	28	30	28	32	37	36	31	26	44		G	G		G	G	G
25	G	G	G	G	G	G	24	G	44	28	37	30	30	32	29	28	36	34	G	G	G	G	30	29
26	25	26	30	26	G	G	G	G	24	33	28	28	28	27	G	21	G	G	27	G	G	G	G	G
27	G	28	G	G	G	G	G	G	22	28	29	30	29	27	27	G	G	G	27	G	G	G	G	G
28	34	26	G	28	G		G	G	28	30	28	28	29	36	34	28	G	28	G	G	G	G	G	25
29	25	G	24	G	G	G	G	G	52	26	32	34	28	28	26	30	G	G	G	G	G	G	24	G
30	G	G	G	G	G	G		28	30	58	39	37	35		24	26	28	30	G	G	25	28	28	G
31	G	G	G	G	G	G	G	11	30	24	27	35	43	31	34	37	30	28	25	G	G	G		G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	30	31	31	28	28	31	31	31	31	29	31	30	30	31	31	29	30	28	28	30	30	30
MED	G	26	G	24	25	G	G	G	24	30	28	30	29	29	26	24	28	27	28	G	G	G	27	G
U Q	32	28	29	28	31	30	28	28	30	36	34	34	34	34	34	31	33	31	32	30	29	32	30	30
L Q	G	G	G	G	G	G	G	G	G	26	24	27	26	26	24	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT WAKKANAI

JAN. 1995

LAT. 45.4N LON. 141.7E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	15	15	15	15	16	15	15	18	15	17	17	21	20	18	18	15	15	15	15	15	15	15	14
2	15	16	16	15	15	15	15	15	16	24	27	47	46	32	27	20	16	15	15	14	14	15	15	15
3	15	15	15	14	15	14	15	15	16	26	28	23	21	20	17	16	15		15	15	15	14	15	15
4	14	15	15	15	14	15	15	15	15	16	23	29	47	18	23	21	16	15	15	17	15	15	15	16
5	15	15	16	16	15	15	16	15	17	18	27	29	32	26	26	27	15	15	15	15	15	15	15	15
6	15	15	15	15	15	15	15	15	22	21	28					27	17	16	15	15	15	15	15	15
7	15	15	15	15	17		15	15	15	24	17	20	20	18	16	18	15	15	15	14	15	15	15	15
8	15		15	15	16	15	16	16	15	15	16	15	17	16	16	21	17	16	14	15	15	15	15	15
9	15	15		18	15	15	14	15	14	16	17	16	16	16	16	17	18	15	14				15	15
10	15	15	15	15	15	15	17	15	16	20	21	32				22	15	15	15	15	15	15	15	15
11	15	15	15	16	15	16	15	17	22	26	29				27	20	15	16	15	15	15	18	15	16
12	15	16	14	14	15	15	16	15	20	17	20	21	28	29	24	21	17	15	15	15	15	15	15	15
13	15	15	15	15	15	16	16	15	16	16	16	17	18	17	17	21	18	14	15	16	15	15	15	15
14	14	16	16	15	15	15	15	16	18	22	29	24	18	20	16	17	18	15	15	15	14	15	16	15
15	14	15	15	15	15	15	15	15	17	18	17	17	17	16	16	15	15	15	15		15	15	15	15
16	15	15	15	15	15		15	15	15	15	16	16	16	17	17	22	15	15	14	17	17	15	15	
17	15	15	14	15	15	15		16	20	16	17	17	17	16	16	15	14	14	15	15	15	15	15	14
18	15	15	16	15	16	16	15	15	15	15	16	16	16	16	15	22	14	14	15	15	15	15	15	15
19	16	14	15	15	14	15		15	14	14	15	15	15	15	15	15	14	15	14	16	18	15	14	15
20	15	15	14	15	15	15	16	15	15	14	15	15	15	15	15	15	15	15	14	15		18	15	15
21	16	16	16	15	15	15	16	16	15	15	15	15	15	14	17	16	18	15			17	14	15	15
22	15	15	15	15	15	15	15	15	15	15	16	16	16	15	15	15	16	15	14	15	17	16	16	16
23	16	15	15	16	15	15	15	15	15	15	15	16	16	16	16	15	20	15	15	15	17	15	15	15
24	14	15	15	15	15	15	15	15	15	15	18	16	16	16	17	16	15		15	15		15	15	15
25	15	15	15	16	15	15	15	16	15	16	17	17	17	17	18	16	15	15	15	15	15	18	15	15
26	15	15	14	14	15	15	16	15	15	18	18				28	23	17	14	15	15	15	15	14	15
27	15	15	15	15	14	15	16	16	22	16	17	18	18	18	16	16	17	14	15	15	15	14	16	15
28	15	15	16	15	15		15	16	17	15	15	16	15	15	15	15	18	15	17	16	18	16	16	14
29	16	14	15	15	15	15	16	15	15	15	15	15	15	17	15	15	20	15	15	15	14	14	15	15
30	15	15	15	16	15	15		15	14	15	15	15	15		17	15	15	15	15	16	15	15	15	15
31	16	15	15	15	16	15	15	16	15	15	18	17	17	16	15	15	15	15	15	15	14	15		15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	30	31	31	28	28	31	31	31	31	28	27	26	29	31	31	29	30	28	28	30	30	30
MED	15	15	15	15	15	15	15	15	15	16	17	17	17	16	16	17	15	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	16	16	17	18	21	20	20	18	18	21	17	15	15	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	15	15	16	16	16	16	15	15	15	15	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT KOKUBUNJI

JAN. 1995

LAT. 35.7N LON. 139.5E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	30		A	A	59	24		60	60	64	69	61	A		38	37	41	36	36		59	59
2		32	34	35	34		34	44	58	58	66	60	61	62	66		A	45	52	38		59		32
3	38	31	34	35	34	A	A	A	N	91	95	82	91	106	66	66	77	36	A	59	A		A	A
4	35	A	A	A	30	29	A	A	54	80	91	95	84	71	70		52	42	47	46	36	A	29	29
5	28	31	59	26	A	A	28		57	63	82	107	97	70	60	58	29		40	36		69	A	A
6	35	35		26	29			41	58	64	92	86	76	63	67	63	54	37	A	41	A	A	A	A
7	A	A	35	26				A	67	63	72	99	50	52	61	62	60	40	35	36	29		A	30
8	A	32	32	59	N	A		44	57	54	82	66	56	59	59	56	48	31	32	35	36	29	26	49
9		A	31	32		N		37	57	68	68	64	64	55	57	56	42	37	35	35	49	N		
10	32		49	37	59			35	47	51	60	61	63	55	60	52	48	A		34	35	N	34	59
11	35		28	31	A	28	35	37	N	47	81	71	41	55	67	71	48	36	32	32			N	
12	49	A	44		37	A	N	38	60	52	60	66	66	58	64	49	A	A	A	32		A	29	
13	A	36		59	35	37		43	58	47	62	64	56	60	51	64	56	36	31	44		A		25
14	59		35	59	35	35	A		58	51	66	65	57	56	58	56	47	26	40	45	30	A	A	
15	31	35	26	A	A	A	29	44	57	50		58	70		57	55	48	A	37	41	35		N	N
16	29		A	32	35				61	68	67	77	72	58	55	52	53	41	38	36	N			A
17	58	59	35		30	29	24		60	92			58	64	64	68	59	34	35	37		A		34
18		A	A	29	26	39			50	67		80	86	78	72	66	79	62	79	50	38	38	42	37
19	38	59	32	59	36	32	79	64	54	73	80		70	66	74	61	58	35	31	46		59	38	32
20	36	36	40	N	N	A	23	44	46	56	70	77	70	68		65	50	45	38	A	N	A		A
21		N		31	35	N		57	57	56	79	88	70	76	92	57	55	44	32	34	69	A	35	
22	35	N	34	32	28	29	28	36	69	69	83	92	77	70	65	95	56	37	35	36	35		N	49
23	A	35	35	31				66	60	54	58	58	68	69	58	60	49	35	35	44	A	69	69	34
24	34	34	35	34	29	32	38	57	69	58	73	86	80	45	63	71	58	31	35	34		N		32
25	34	34	38	A	A		N	46	57	53	68	64	70	64	52	52	52	45	37	41		26	A	
26	30	A		29	29	35	N	58	57	63	62	71	78	66	75	67	53	42	A	56	34	69		30
27	36	32	35	32	31	30	28	43	54	61	67	75	77	65	60	55	51	60	51	46	A	43	56	A
28	A	A	A	A	35	35	N	47	69	55	63	70	65	72	63	60	58	47	43	35		26	N	29
29	35	31	37			25	N	45	68	56	80	75	60	58	60	60	74	51	78	55	36	35		59
30		37		33		N	35	42	57	83	87		63	67	60	71	60	63	A	A	36	A	A	49
31			32	34	29	23	49	56	58	67	84	93	77	78	90	72	59	53	56		41	N	28	49
	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	19	17	22	22	19	14	13	23	28	31	28	28	31	30	29	28	29	27	25	28	15	11	11	18
MED	35	34	35	32	34	31	34	44	58	60	71	73	70	64	63	60	53	40	37	38	36	43	35	34
U Q	38	36	37	35	35	35	43	56	60	68	82	86	77	70	67	66	58	45	45	45	38	69	56	49
L Q	32	31	32	31	29	29	28	38	57	54	64	64	61	58	58	56	48	36	35	35	35	29	29	30

HOURLY VALUES OF fEs AT KOKUBUNJI

JAN. 1995

LAT. 35.7N LON. 139.5E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

HD	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	30	G	28		39	34	29	29		32	37	32	36	32	84		G	G	G	G	G	G	G	G
2		G	29	27	G		32	32	28	57	35	41	39	32	32		70	32	G	G	G	G		G
3	G	G	34	32	29	55	57	58	39	56	58	44	48	43	47	42	35	G	67	39	30	50	57	57
4	44	48	52	33	26	38	50	34	28	57	49	53	31	26	27		G	G	G	24	G	24	G	G
5	G	G	G	11	26	34	50		35	33	26	31	28	28	26	24	33		32	G		26	28	27
6	27	G		G	G	G		G	30	33	25	26	33	27	27	34	42	34	53	71	62	76	44	33
7	33	34	31	G				26	32	32	30	33	27	G	50	G	41	G	G	G	G	G	30	34
8	45	30	G	G	25	27	G	G	27	34	38	30	28	34	32	38	31	G	G	G	G	G	G	30
9	24	44	G	28	G	G		G	29	32	37	30	52	33	31	24	G	G	G	G	G	G		
10	G	G	G	G	26			G	N	32	32	32	49	46	28	24	33	32		G	G	G	G	G
11	G	G	29	24	24	G	G	G	G	29	30	39	36	44	28	26	G	G	G	G	G	G	G	
12	G	25	24	30	G	23	G	G	G	23	29	32	60	53	56	73	70	56	48	28	27	28	25	58
13	33	31	32	G	24	27	G	G	28	44	51	50	48	34	34	32	36	G	26	29	28	25		G
14	25	22	G	29	G	25	28	G	G	28	N	34	38	40	34	28	29	G	G	G	G	30	29	G
15	G	G	29	44	34	29	23	29	48	30		34	28		44	42	51	38	30	30	G	G	G	G
16	G	30	36	G	G		G	G	24	34	34	32	31	31	28	34	34	G	G	G	G	G	24	32
17	32	G	28		G	G	G	G	30	34	53		40	39	34	31	32	48	G	G	G	34	G	G
18	G	29	38	G	G	G		G	28	34		40	40	36	43	43	G	G	G	G	G	G	G	G
19	29	G	G	G	G	24	G	G	29	35	36		42	62	29	38	27	G	G	G	G	G	G	G
20	G	26	26	G	28	44	26	G	26	45	34	29	28	31		34	33	50	G	32	32	32		26
21		24		25	33	26		G	26	33	34	47	40	36	33	29	26	G	G	G	G	33	23	G
22	G	G	G	G	G	G	G	G	31	32	48	39	35	32	29	32	28	44	30	G	G		G	G
23	26	G	G	G		G		G	31	38	34	34	34	32	30	31	29	G	G	G	28	30	31	33
24	30	G	G	G	G	G	G	G	31	31	44	30	31	30	29	26	G	25	G	G	G	G		G
25	G	G	G	29	27		G	28	29	31	34	33	34	34	31	28	G	G	26	G	G	G	53	
26	30	43		G	G	G	G	G	27	31	56	35	39	40	28	25	36	34	30	26	25	23		G
27	G	G	34	31	30	23	G	26	33	30	39	G	G	28	29	26	30	26	33	23	38	26	31	38
28	30	33	24	30	G	G	G	G	31	31	33	52	35	31	30	34	27	24	G	G		G	G	G
29	G	G	G	G		G	G	G	28	34	28	G	31	33	33	33	28	G	G	G	G	G	G	G
30	G	G	G	G		G	G	11	38	40	31	30	31	31	36	33	38	46	58	40	29	27	26	G
31	G	G	G	G	G	G	G	G	30	31	44	47	38	29	78	40	41	27	61	G	G	26	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	28	29	27	26	24	30	29	31	28	29	31	30	30	28	31	30	30	31	29	30	25	28
MED	G	G	24	G	G	12	G	G	29	33	34	33	35	32	32	32	31	G	G	G	G	12	G	G
U Q	30	30	30	29	27	27	27	26	31	35	44	40	40	39	36	36	36	34	30	26	27	28	29	31
L Q	G	G	G	G	G	G	G	G	27	31	31	30	31	31	29	26	26	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT KOKUBUNJI

JAN. 1995

LAT. 35.7N LON. 139.5E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	15		14	15	15	15		15	15	18	15	16	15		16	15	15	14	16	15	14	14
2		14	14	15	14		15	15	15	15	16	17	16	16	18		18	14	15	16	16	18		14
3	15	15	15	14	15	15	14	15	15	15	15	16	14	17	17	15	15	15	15	15	15	15	14	14
4	14	15	15	14	15	14	14	14	15	15	14	14	15	18	17		20	15	16	14	14	14	15	16
5	14	15	17	14	15	14	15		14	15	15	16	15	15	15	15	15		15	15		14	15	15
6	14	16		15	15	14		16	15	18	18	16	18	17	15	14	15	14	15	15	15	14	14	14
7	15	15	14	15				14	14	15	14	14	15	35	15	16	15	14	14	15	14	15	14	14
8	15	15	15	16	14	15	17	16	15	15	15	15	14	16	15	15	14	15	15	15	15	15	15	15
9	15	15	15	14	15	15		16	15	15	16	15	15	15	17	17	14	15	18	14	15	14		
10	15	18	15	15	14			17	15	17	16	16	14	15	15	16	15	15		15	15	14	14	15
11	14	15	15	15	15	15	16	15	24	20	21	21	18	16	15	14	17	15	15	17	14		15	
12	15	15	15	14	15	14	15	17	18	15	14	16	18	18	17	15	15	15	15	15	15	14	14	15
13	14	14	14	15	15	15	15	15	15	15	16	16	16	15	16	14	15	14	15	14	14	16		15
14	15	15	15	14	15	15	14	16	15	15	16	15	16	32	16	15	15	16	16	15	15	14	17	14
15	16	15	14	15	14	15	15	14	15	17					14	15	15	15	14	14	15	15	14	14
16	14	14	14	14	14		14	17	15	14	15	15	17	15	15	15	15	15	15	14	15	15	14	15
17	15	15	15		15	15	15	16	15	15	15		14	15	14	15	14	14	15	15	15	15	18	15
18	15	15	15	15	14	16		15	15	16		18	16	18	16	15	21	16	14	15	15	15	15	14
19	14	14	14	14	14	14	15	14	14	16	14		15	15	15	15	17	15	15	15	16	18	15	14
20	15	15	15	15	15	15	15	17	15	15	14	14	15	16		14	15	15	15	14	14	14		15
21		16		15	14	15		18	14	15	15	17	15	15	15	15	14	15	16	15	14	15	15	14
22	15	15	15	15	16	16	15	18	15	15	15	15	15	15	15	14	15	15	15	15	18		16	15
23	15	15	14	14				15	15	15	16	15	18	18	15	15	15	16	15	15	14	14	15	14
24	14	15	14	15	15	15	15	14	14	15	15	15	17	17	16	15	14	15	15	15	15	20		15
25	15	14	16	14	14		17	20	15	17	17	23	22	21	17	17	14	16	15	14	15	15	15	
26	15	14		14	15	15	15	18	15	15	18	17	21	22	17	15	15	15	15	15	14	15		17
27	14	15	15	15	15	14	15	20	15	17	26	45	41	41	17	16	15	16	14	18	14	14	15	14
28	15	15	15	15	15	15	16	16	17	15	15	16	17	15	16	14	20	15	15	14		17	15	14
29	14	15	15	17		16	15	17	15	15	15	39	16	15	16	15	16	15	14	14	15	16	16	16
30	16	15	15	16		15	16	16	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
31	16	15	15	14	15	15	14	17	15	18	16	18	17	16	16	14	15	15	14	16	14	14	14	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	28	29	27	25	24	30	30	31	29	28	30	30	30	28	31	30	30	31	29	29	25	28
MED	15	15	15	15	15	15	15	16	15	15	15	16	16	16	16	15	15	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	17	15	16	16	17	17	18	17	15	16	15	15	15	15	15	15	15
L Q	14	15	14	14	14	14	15	15	15	15	15	15	15	15	15	14	15	15	15	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT YAMAGAWA

JAN. 1995

LAT. 31.2N LON. 130.6E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	N	25	59	30	29	N	49	24	A	69	68	72		71	67	66	56	39	A		30	N	49	26
2	25	59	49	23	49	28			49	67	A	66	86	68	67	66	60	32		59	58			24
3	30	49	26	32	32			A	62	A	92	97	85	113	90	68	A	A	69	26	30	28		
4		20	29	25	59	69	A	24	89	67	86	94	107	77	69	71	58	A			A	A	A	A
5	A	28	59	59	A		A	59	69	63	83	114	127	125	87	78	74	56	48		30	69	49	
6	28	30	22	24	25		69	49	25	68	83	96	83	66	66	71	66	58	26		49		A	A
7	26	A	A	A	A	A	25	69	62	68	68	92	88	70	68	73	66	59	A	49		69	26	N
8	23	31	59	59	26			32	48	62	68	66	66	67	64	61	66	53	29	56	17		49	30
9	24	26	59	30	26			49	39	58	60	71	66	61	63	A		61		29	26	30	69	N
10	24	28	30	26	28	N		23	22	30	55	66	68	66	66	A	56	59		29	25		28	49
11	24	49	24	30		N	59		56	65	67	75	63	61	78	78	68	60	26		49		31	49
12	30	28	A	58	32	N	49	49	56	57	68	66	67	67	61	57	53	A				23		N
13	28	89	N	25		22	N		56	54	67	56	66	A	62	68	66	66	32	28	49	24	69	
14	26	28	28		26		N	69	55	55	56	63		61	62	A	53	28	30	34			69	23
15	25	24	28	18	28	26			32	56	A	54	73	66	A	66	67	58		35	31	24	N	N
16	N	26	28	26	30	49	49	49		65	71	74	78	67	62	54	66	60	28	35	30		49	N
17		23				N	28		56	81	80	74	65	70	74	73	64	58			A	59		25
18	49	29	49	N	N	25	N	49	59	61		82	83	74	72	72	72	70	69			32	32	
19		29	32	58	49	30	32	32	26	69	77	80	82	67	81	83	66	56	32	30	32	29	69	
20	29	25	30		59	69	N	49	70	A	80	87	85	97	98	92	73	60	A	A	A	A	A	A
21	A	23	28	25	59	59	N	49	56	51	61	66	85	90	83	65	61	58	32	29	49		25	29
22		29	26	26	30	N	N	31	60	72	92	97	100	94	76	76	68	66				N	N	23
23		N	26	28	A		N	59	49	60	57	58	68	86	67	60	52	59	35	A	35		A	24
24	30	28	A	28	30	31	37	35	61	69	67	68	80	80	75	87	81	66	49	24	A			26
25	26	23	49	28					29	68	65	80	75	70	62	74	66	51	A	A	A	25	A	
26	59	49			28	N			61	58			81	86	87	101	116	91	57	A	A	A	56	31
27	24	24	26	24	28	A	69	59		69	57	76	75	73	73	66	51	A	A	A	49	32	A	59
28	49			26	30		26	49	62	69	61	80	70	67	76	73	80	66	20	49	49	A	A	24
29	A	A	49		N			49	58	69	62	80	71	58	66	68	58	55	28	69	59	56		49
30	28	49	58	N	N	N	49	49	62	76			61	61	62	83	70	73	54	A	31	26		
31	29		29	31	69	N	59		56	68	93	87	96	86	85	82	66	56	66	68	A		A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	26	24	23	21	10	13	22	28	29	26	29	29	30	30	28	29	27	18	16	19	14	14	15
MED	28	28	30	28	30	30	49	49	56	67	68	75	78	70	68	72	66	59	32	34	32	30	49	26
U Q	30	31	49	31	49	59	59	49	61	69	80	87	85	86	78	78	69	66	54	52	49	56	69	49
L Q	24	25	27	25	28	26	30	32	48	58	61	66	67	66	64	66	58	56	28	29	30	25	31	24

HOURLY VALUES OF fEs AT YAMAGAWA

JAN. 1995

LAT. 31.2N LON. 130.6E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	G	G	G	G	G	G	G	25	31	32	36	56		61	32	30	31	G	32		G	G	G	G
2	G	G	G	34	29	29	24	G	30	30	35	31	33	54	38	38	31	G		G	G	G		G
3	G	G	G	G	G	G	G	30	36	26	28	32	31	30	51	60	91	38	32	27	25	24	24	31
4	31	38	29	G	31	39	34	28	29	32	38	33	34	35	32	36	56	55			38	38	33	29
5	32	G	G	G	26	G	25	G	G	31	34	29	32	37	32	29	32	33	26	G	G	G	G	
6	G	G	G	G	G	32	G	G	30	23	31	37	33	78	38	29	31	G	27	G	G	24	56	75
7	31	69	65	36	33	28	G	G	38	60	92	32	30	35	35	32	33	23	32	27		G	G	G
8	24	G	30	G	G			G	28	37	56	77	68	34	32	30	26	G	G	25	24	G	G	G
9	G	G	28	27	G			G	G	33	31	31	88	79	38	62		22	30	G	G	G	27	G
10	26	G	G	G	G	G	G	G	30	31	34	32	35	30	30	28	24	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	32	38	36	53	31	30	30	29	G	G	G	G	G	G	G
12	25	G	32	28	26	G	G	G	30	29	29	30	36	38	55	32	38	38	28	25	29	G	G	29
13	G	G	28	25	31	26	G	G	G	28	31	37	37	33	33	28	26	30	G	G	30	24	G	
14	G	G	G	G	29		G	G	G	28	30	34		29	31	30	26	27	G	G	G	G	G	G
15	G	29	28	G	G	G	G	G	39	30	N	33	34	36	30	35	33	30	G	G	G	G	G	G
16	G	G	G	G	G	24	G	G		31	31	31	32	32	31	30	32	G	27	G	G	G	G	G
17	G	G	G	G	G	G	G	G	29	32	31	32	88	37	32	30	32	G	G	G	34	G	G	G
18	32	G	31	30	29	G	26	24	33	38	58	36	36	34	32	31	30	20	G	G	G	G	G	G
19	G	28	32	G	G	26	25	G	27	31	30	32	34	30	30	30	28	28	23	G	G	G	G	G
20	G	34	G	G	G	24	G	28	29	69	31	32	34	35	33	31	36	34	30	77	35	34	32	30
21	26	G	G	27	G	G	G	G	24	31	28	30	64	61	55	34	32	25	G	G	G	36	30	28
22	26	G	G	G	G	G	G	G	23	32	34	36	34	34	30	30	29	29	29	29	24	G	G	G
23	25	G	G	G	26		G	G	29	30	34	35	35	32	31	31	29	G	G	32	G	31	32	26
24	28	G	32	G	G	G	G	G	25	26	30	30	40	30	30	29	36	32	G	24	31	G	G	G
25	G	G	G	G	G			G	31	29	30	33	30	35	37	34	32	47	82	32	30	32	30	G
26	28	27	30	G	G	G	G	G	21	31			38	62	30	29	32	40	36	32	32	28	G	G
27	G	28	29	33	31	30	G	G	59	32	34	32	32	33	31	30	38	47	40	30	32	31	38	28
28	G	G	G	32	26	28	24	G	28	30	30	34	34	34	30	30	33	32	28	G	G	38	33	G
29	31	32	25	G	G	G		G	27	30	28	32	31	33	35	32	34	29	G	G	G	G	G	G
30	G	G	24	11	11	G	G	11	28	29	32	33	32	31	32	33	40	31	G	34	G	25	26	G
31	G	24	G	G	G	22	24	26	29	30	31	98	32	32	32	49	39	39	39	36	29	26	27	32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	26	27	31	30	31	29	30	29	31	31	31	30	31	29	29	30	31	30	29
MED	G	G	G	G	G	G	G	G	29	31	31	32	34	34	32	30	32	29	26	G	G	G	G	G
U Q	26	27	29	27	26	26	24	G	30	32	34	36	37	37	35	34	36	34	31	29	30	28	30	28
L Q	G	G	G	G	G	G	G	G	24	29	30	32	32	32	30	30	29	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT YAMAGAWA

JAN. 1995

LAT. 31.2N LON. 130.6E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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	15	14	15	14	15	15	14	14	14	14	15		15	16	16	15	17	14		14	18	14	14
2	14	14	14	15	14	14	14	14	16	16	14	15	16	16	17	16	15	15		15	15	14		14
3	14	14	14	14	14	14	14	14	14	15	15	16	17	18	17	15	15	14	14	14	15	15	15	15
4	14	15	14	14	15	14	14	14	14	15	15	15	16	15	15	15	15	14			15	14	14	14
5	15	14	15	15	15	16	15	14	15	14	14	15	15	14	15	14	14	14	14	14	14	14	16	
6	16	14	15	15	14	14	15	15	16	14	15	18	15	15	15	15	15	18	14	14	15	14	14	14
7	14	14	14	14	14	15	14	14	14	14	14	15	14	15	15	17	16	15	15	15		15	14	14
8	14	14	15	14	15			14	14	14	14	15	15	15	14	18	15	17	15	14	15	14	14	14
9	14	15	15	14	15			14	16	15	16	16	16	16	15	14		15	15	14	15	15	16	15
10	14	15	14	14	14	15		14	16	15	15	15	15	15	15	17	16	18	16	15	14	14	14	14
11	18	14	14	15	14	14	14	14	15	15	15	16	16	15	14	14	15	17	15	14	14	15	15	15
12	15	14	14	14	14	15	14	14	15	16	16	17	16	17	16	15	15	14	15	14	14	14	16	15
13	14	14	14	15	14	14	14	14	16	14	16	16	16	18	18	16	15	14	15	14	14	15	15	
14	15	15	16	14	14		15	15	15	15	16	22		20	20	20	18	14	14	14	14	14	14	14
15	14	14	14	14	14	14	14	14	14	15	16	17	18	18	17	16	15	14	14	14	14	14	14	16
16	14	14	15	14	14	15	16	14		14	17	15	15	18	16	15	14	17	14	14	14	14	14	15
17	15	15	14	14	14	16	14	14	14	14	15	16	17	16	15	15	15	16	15	14	15	14	14	14
18	14	14	14	14	14	14	15	14	14	14	15	15	15	15	15	15	14	17	15	15	15	15	15	15
19	15	15	14	14	15	15	15	14	16	14	14	15	15	15	15	14	15	15	14	14	14	17	14	14
20	15	14	14	15	14	14	14	14	16	28	15	18	16	16	14	16	14	14	14	15	14	14	14	15
21	15	15	15	14	15	14	15	14	16	15	16	16	17	18	18	15	14	16	15	15	14	14	14	14
22	14	14	14	14	14	14	14	14	14	14	15	15	16	16	16	16	15	14	14	15	14	14	15	14
23	15	16	15	15	15		14	14	15	15	15	17	20	20	17	20	15	15	15	15	14	15	14	14
24	15	15	14	14	14	14	14	14	18	15	16	17	20	21	20	15	14	14	14	14	15	14	16	17
25	15	15	14	14	14			14	14	15	17	18		18	20	16	15	14	14	14	14	14	14	17
26	14	15	14	15	14	15	15	14	17	15			23	20	18	16	14	15	14	16	15	15	15	15
27	15	15	14	14	14	14	14	15	15	15	16	15	17	17	18	15	14	14	14	14	14	14	15	14
28	14	14	14	14	14	15	14	14	15	15	16	17	18	17	16	15	14	14	14	14	14	14	15	15
29	15	14	15	14	14	17		14	15	15	15	15	16	16	15	15	15	14	14	14	14	14	14	15
30	14	14	14	15	14	14	14	14	14	14	14	15	16	15	15	15	14	14	14	14	15	14	15	14
31	14	14	14	14	15	15	14	14	16	18	14	15	17	14	15	15	15	14	14	14	14	15	15	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	26	26	31	30	31	30	30	28	31	31	31	30	31	29	29	30	31	30	29
MED	14	14	14	14	14	14	14	14	15	15	15	16	16	16	16	15	15	14	14	14	14	14	14	14
U Q	15	15	15	15	15	15	15	14	16	15	16	17	17	18	17	16	15	16	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT OKINAWA

JAN. 1995

LAT. 26.3N LON. 127.8E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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																			41	69	51			
2		N	59	28	49		69		A	52	66	60	81	70	74	78	62	49	46	64				
3			38	41	41	N	69	49	A	A	78	105	92	134	107	83	71	95	48	49		38		
4	37		46	59	69	32	A	A	36	67	92	122	125	81	78	82	66		40	60	46		44	
5	34	A	59	40				A		69	84	114	165	150	150	112	124	94	68	46	A	48	35	
6			35	40		35			A		91	83	92	94	83	91	82	63	37	A	46		47	49
7	A	59					A	A	59	A	76	92	92	103	111	114	123	104	58	37	46	46	69	N
8	A		59	30					70	58	82	67	78	124	112	115	82	90	56	44	36		59	
9			A	69					59	56	81	73	65				87	65	45	A		46		A
10		A	59	59		69		37	A	69	A	80	72	72	59	67	71	69	46				A	A
11	A	28	69	69				N	50	57	82	82	82	92	111	112	127	105	82		48	68	69	50
12	A	A		69	A	A	A	A	54	61	63	62	72	71	74	68	84	62	60	48	69	A	A	A
13	A	A	35	29	46			36	49	57	62	58	A	81	88	95	116	100	72	38	47	31	A	A
14		58	26		42				56	65	52	61	68	61	67	57	55	59	48	46		69	69	
15		27	N	25	26	N	89		61	82	54	63	92	71	76	94	89	86	61	A	59	51		
16	59	30	59	32	69		A		A	59	92	69	80	94	94	82	73	64	56	48	64	44	A	A
17	49		31		58		A		39	69	94	70	70	80	92	118	86	95	67	40	A	55	A	
18	69		59	29	A	29	A		A	49	82	92	91	71	82	71	79	83	53	59		45	69	
19	34	A	69	32	A			32	41	50	88	82	94	82	90	109	98	81	50			69		
20	38	89		40	A		59		A		86	106	102	121	131	112	123	93	A	48	56		A	69
21		60	59	32	44			A	A		61	70	95	120	106	91	61	54	36	A	48	A	31	A
22	A	59	37	59	46				A	83	105	106	111	121	127	116	122	116	74	47	57	47		59
23	46			47	23	31			56	59	57	94	72	94	87	66	64	58	49			A	A	36
24		59	61	A	35	38	A		49	65	65	73	83	102	120	126	138	134	114	57	A	58		46
25	59	36	38	36					54	69	71	80	95	84	70	82	94	77	A	48	46	57	40	
26	46		69	31	41	A	A	A	44	69	73	72	80	91	123	126	138	143	90	83	46	70	57	48
27			46	38	A	A	A	A	A	60	64	83	76	82	86	83	72		64		42		A	A
28	A	38	A	38	44		44		48	62	63	104	94	101	102	107	126	131	80	69	A	A	A	46
29		49	46	68	89		A		A	88	67	81	66	61	71	71	68	66	62	62	82	82	71	63
30	69		48	N		A	32	A	A	66		94	68	64	75	81	94	83	67	A	69		A	A
31	A	A	34	69	59			A	49	57	83	96		92	82	83	78	A	72	A	A	A	44	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	12	23	25	16				17	25	28	30	28	29	29	29	30	27	29	20	18	17	13	10
MED	46	54	48	40	45				50	62	77	82	82	91	88	91	85	83	58	48	48	51	57	48
U Q	59	59	59	59	58				57	69	85	94	94	102	111	112	122	100	70	61	59	68	69	59
L Q	37	33	37	31	41				46	57	63	70	72	71	75	79	71	64	47	46	46	45	42	46

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT OKINAWA

JAN. 1995

LAT. 26.3N LON. 127.8E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	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																			G	G	G	G	G	
2		G	G	26	30		G	G	24	33	39	39	45	44	44	40	35	G	G	G	G	G		
3		G	G	G	G	G	G	G	40	35	35	42	42	37	37	39	39	G	34	25	G	G		
4	G	G	G	23	24	24	28	60	34	156	36	44	66	56	47	46	75		31	38	44	G	G	
5	G	27	G	25				32		46	35	39	39	42	41	38	38	48	G	27	34	40	G	
6			G	G		G	G	36	48		26	39	38	42	44	33	34	31	30	31	38		G	69
7	42	32	G				33	38	24	64	64	41	44	35	29	42	26	G	34	G	G	G	G	G
8	25		G	G	25			G	34	36	40	44	50	26	47	43	43	G	G	G	38	25	G	G
9	G		24	27			G	G	G	24	41	41	36				37	60	42	76	G	G	G	24
10		26	G	G		G		G	31	38	48	49	69	40	39	35	30	G	G	G	G	G	49	51
11	34	G	G	G				G	46	37	41	48	48	69	48	72	36	34	24		36	37	37	48
12	24	24	G	G	32	35	41	25	23	30	32	34	40	41	39	37	36	47	G	33	44	33	45	30
13	24	33	G	26	G		G	G	41	32	33	46	59	54	68	49	50	46	30	29	34	40	36	41
14	G	G	G	G	26		G	G	48	24	28	28	38	38	35	32	36	40	G	G		G	G	
15		G	G	G	G	G	G	G	24	29	35	43	44	41	45	47	G	31	G	28	G	G	G	G
16	G	G	G	69	G		33	G	32	36	35	36	40	40	39	41	51	40	34	27	36	G	26	26
17	G	G	G		G	G	44	G	G	32	34	37	38	48	95	39	34	34	34	35	37	24	34	G
18	G	G	25	27	26	34	36	G	44	36	43	43	42	40	48	38	30	25	G	G	G	G	G	36
19	G	33	G	27	30	G	G	34	34	30	34	34	36	62	44	39	34	83	32	G	G	G	G	G
20	G	G		G	42		G	G	23		36	38	39	62	66	47	40	59	62	98	58		74	G
21	G	G	G	G	G		G	35	48		35	42	42	45	41	44	44	46	38	40	28	73	G	48
22	39	36	36	G	G				29	36	39	46	50	61	48	42	40	36	24	28	38	40	28	25
23	43	21		G	G	G		G	29	34	38	44	49	44	46	44	52	38	32	G		30	32	32
24		G	39	43	G	G	34	G	23	30	34	42	35	40	45	42	98	40	35	43	50	36		44
25	33	G	G	G	G			G	34	38	40	38	50	46	46	47	56	72	69	38	49	30	G	G
26	G	G	25	G	36	26	48	29	23	31	36	45	51	118	84	83	41	36	24	42	29	98	G	G
27	G	G	G	35	40	37	38	34	28	36	42	44	45	43	41	37	42		G	28	26	39	43	40
28	33	23	33	27	24		G	G	G	27	30	44	38	45	44	38	36	30	11	46	40	54	33	G
29	G	25	27	33	38		24	G	41	76	46	33	35	37	40	34	34	45	G	G	43	G	G	37
30	44		48	G	G	24	G	30	47	58	42	36	38	37	46	50	46	34	34	34	44	G	42	39
31	29	39	G	G	23			32	41	32	30	32	46	50	47	43	47	70	86	100	38	43	44	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	28	28	24	14	22	29	29	27	30	30	30	29	29	29	30	28	31	30	29	29	28	25
MED	G	G	G	G	24	G	G	G	32	35	36	42	42	43	45	42	38	37	30	28	36	24	G	26
U Q	33	26	24	27	30	26	34	32	41	38	41	44	49	52	47	46	46	46	34	38	41	39	36	40
L Q	G	G	G	G	G	G	G	G	23	30	34	37	38	40	40	38	34	30	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT OKINAWA

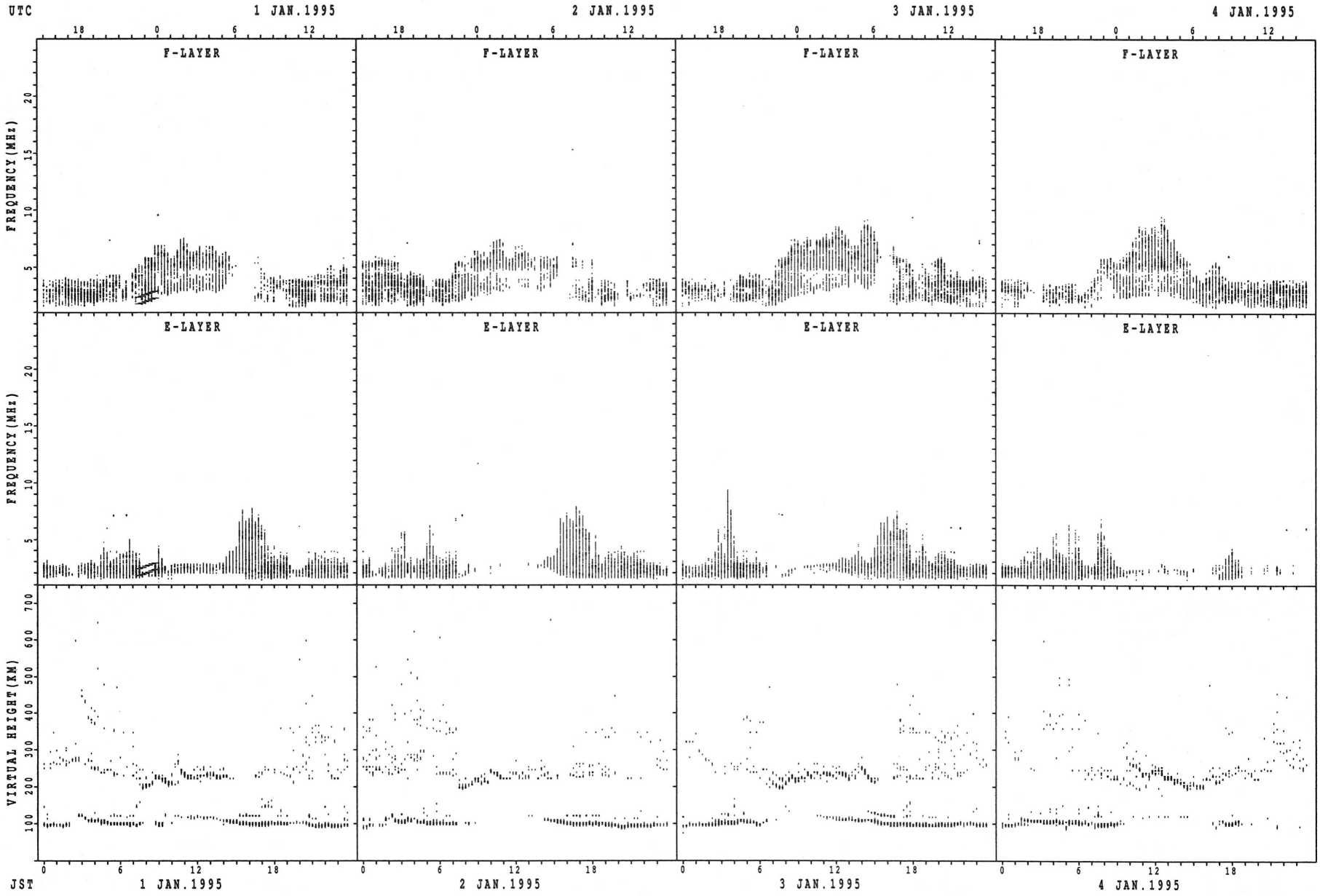
JAN. 1995

LAT. 26.3N LON. 127.8E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

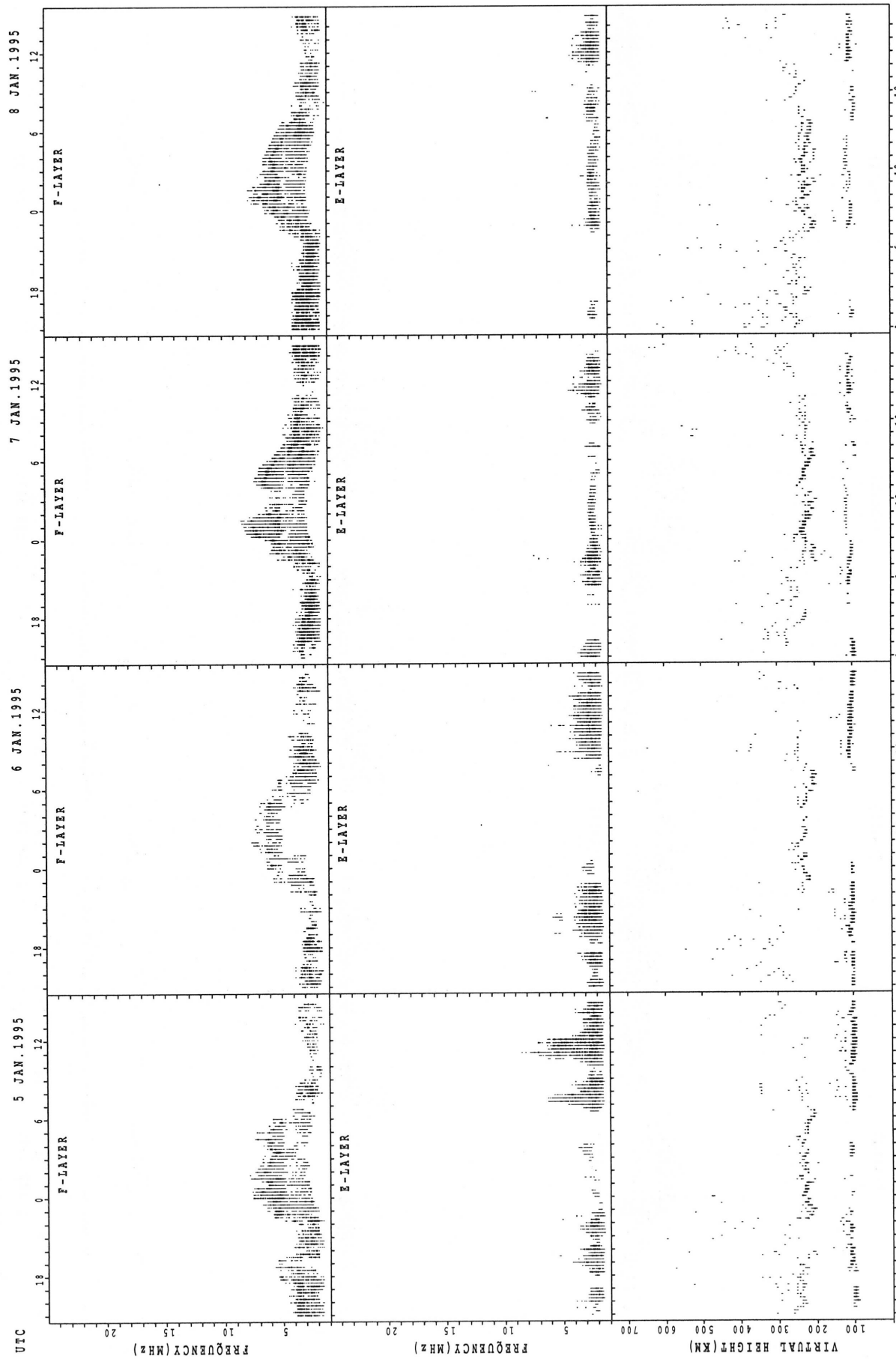
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																			14	15	14	14	15	
2		15	14	14	15		14	14	14	14	15	15	16	17	17	15	14	14	14	14	14	14		
3		14	15	14	14	18	15	15	16	14	16	17	17	20	15	16	14	20	14	14	14	15		
4	14	14	15	14	15	15	15	14	14	14	15	15	15	16	15	16	14		14	14	14	15	14	
5	18	15	14	15				14		14	15	15	16	15	14	14	14	14	14	15	14	14	15	
6			15	14		14	15	14	15		15	18	16	16	15	14	14	14	14	15	14		17	14
7	14	14	15				14	14	15	14	14	15	15	16	16	15	16	15	14	16	14	14	15	15
8	14		15	15	15			15	14	14	14	15	15	16	18	14	14	15	15	16	14	16	14	15
9	15		15	14			18		21	15	17	16	23				18	14	15	14	15	15	14	15
10		15	15	15		14		16	15	14	15	16	17	16	15	16	15	22	15	15	16	14	14	14
11	15	14	14	14				17	14	14	14	15	15	16	16	14	14	14	14		15	14	15	14
12	14	14	15	14	14	14	14	14	16	15	14	17	17	16	16	15	15	15	14	14	14	14	14	15
13	15	15	15	14	14			16	20	14	17	17	18	17	17	16	14	14	14	14	14	15	15	14
14		15	15	15	14			16	26	15	15	18	29	26	26	16	14	14	20	16		15	14	
15		14	14	14	14	14	14		15	14	17	17	17	16	20	16	30	15	15	18	17	14	15	14
16	15	15	15	14	15			17	14	14	15	17	16	17	17	15	14	14	14	14	14	15	14	15
17	15	18	16		15	16	15	15	21	14	15	17	16	16	17	16	14	14	14	14	15	15	15	15
18	16	18	14	14	14	14	14	31	14	14	14	15	16	16	15	14	15	14	17	14	15	15	18	15
19	16	15	14	14	14	14	14	15	17	14	14	15	16	16	15	14	15	14	14	16	15	14	15	14
20	15	15		14	14		15		17		14	15	18	15	16	15	14	14	15	14	14		15	14
21	15	14	15	14	14			14	14		15	15	15	17	17	15	16	14	15	14	14	14	15	15
22	15	15	14	14	15				15	15	14	15	16	20	17	16	15	14	16	14	14	15	14	15
23	14	14		14	15	14		15	22	14	15	15	17	17	17	21	14	14	15	15		14	14	14
24		15	14	14	14	14	14	18	22	14	15	16	17	17	16	16	14	14	14	14	14	15		15
25	15	15	16	14	18				14	15	16	17	24	26	24	17	17	14	15	14	14	14	15	
26	16	16	15	15	14	14	14	14	22	14	16	18	28	18	17	14	14	15	16	14	14	14	15	14
27	15	15	14	14	14	14	15	14	16	14	16	16	17	16	18	15	14		17	15	14	14	14	14
28	14	14	14	15	14		14	18	15	16	15	16	17	28	17	17	15	14	18	15	14	14	14	15
29	15	15	14	14	15				16	15	15	15	16	17	20	18	15	14	17	15	14	14	14	15
30	14		14	16	15	14	15	14	14	14	15	15	16	16	16	16	15	14	14	14	15	18	14	14
31	14	15	14	14	14			14	17	14	16	15	17	18	16	17	15	15	15	14	14	15	15	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	26	28	28	24	14	17	24	29	27	30	30	30	29	29	29	30	28	31	30	29	29	28	24
MED	15	15	15	14	14	14	14	15	15	14	15	16	16	16	17	16	14	14	15	14	14	14	15	14
U Q	15	15	15	14	15	14	15	16	18	15	16	17	17	17	17	16	15	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	16	16	15	14	14	14	14	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

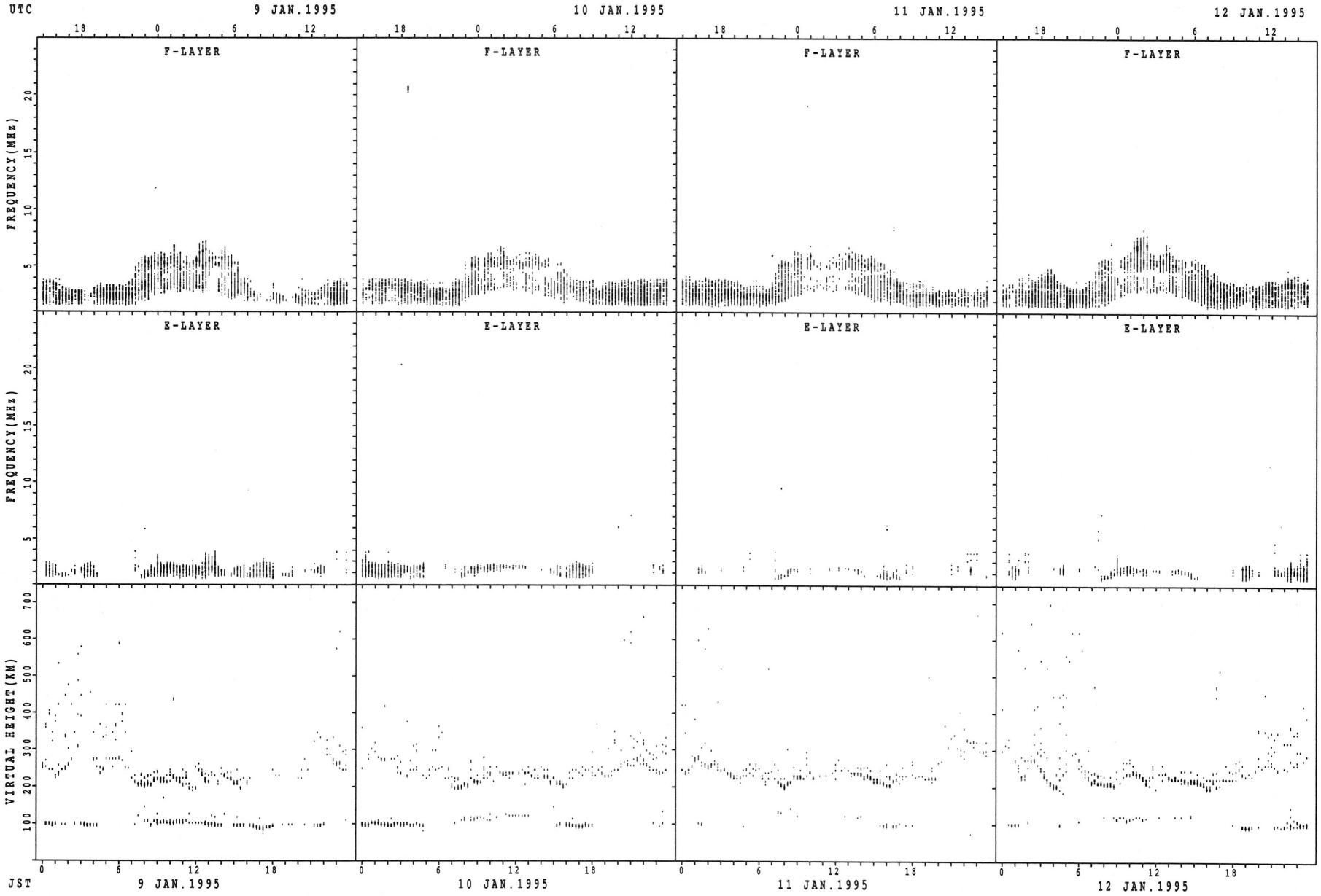
SUMMARY PLOTS AT WAKKANAI



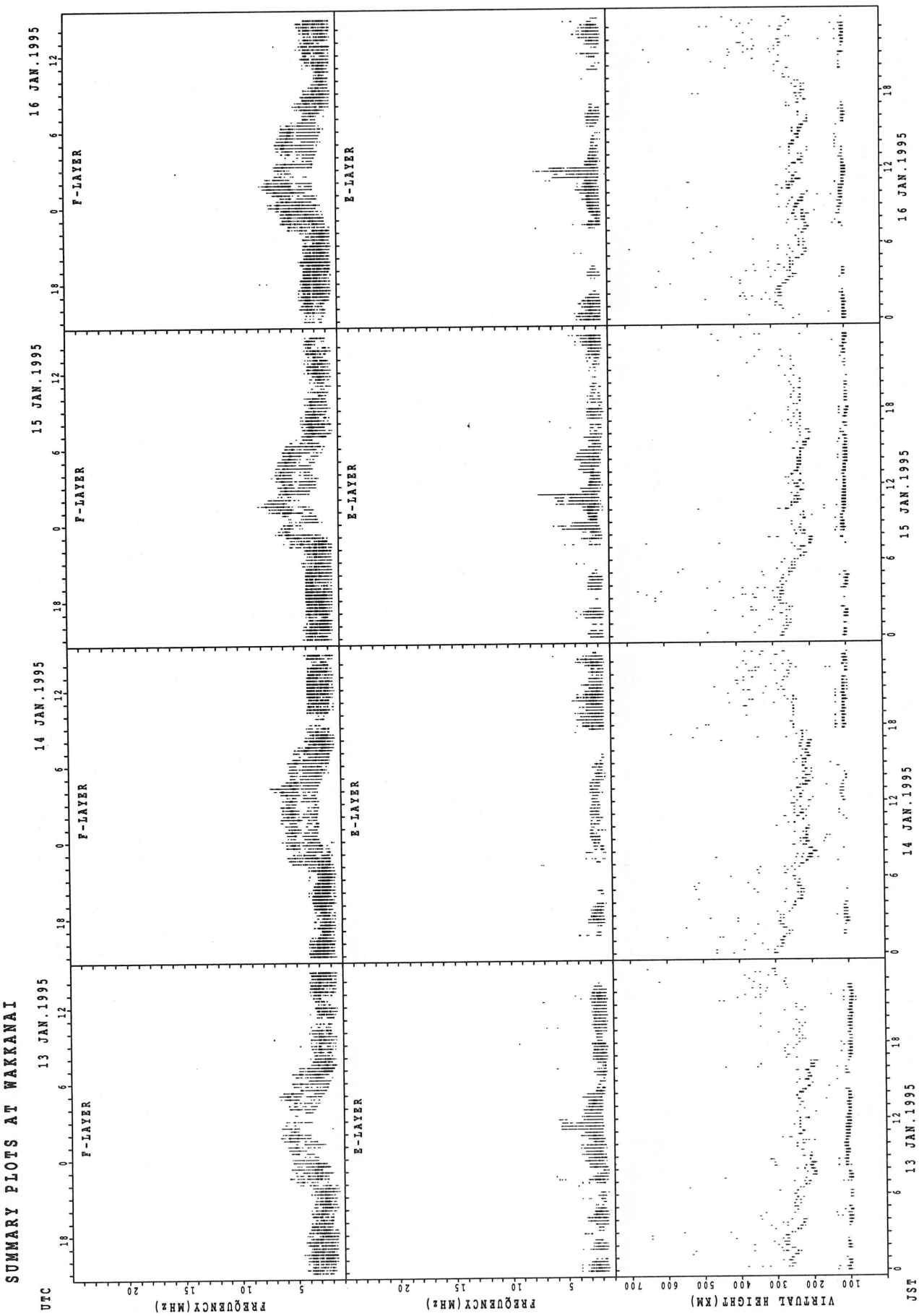
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT WAKKANAI
UTC
JST
5 JAN.1995
6 JAN.1995
7 JAN.1995
8 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

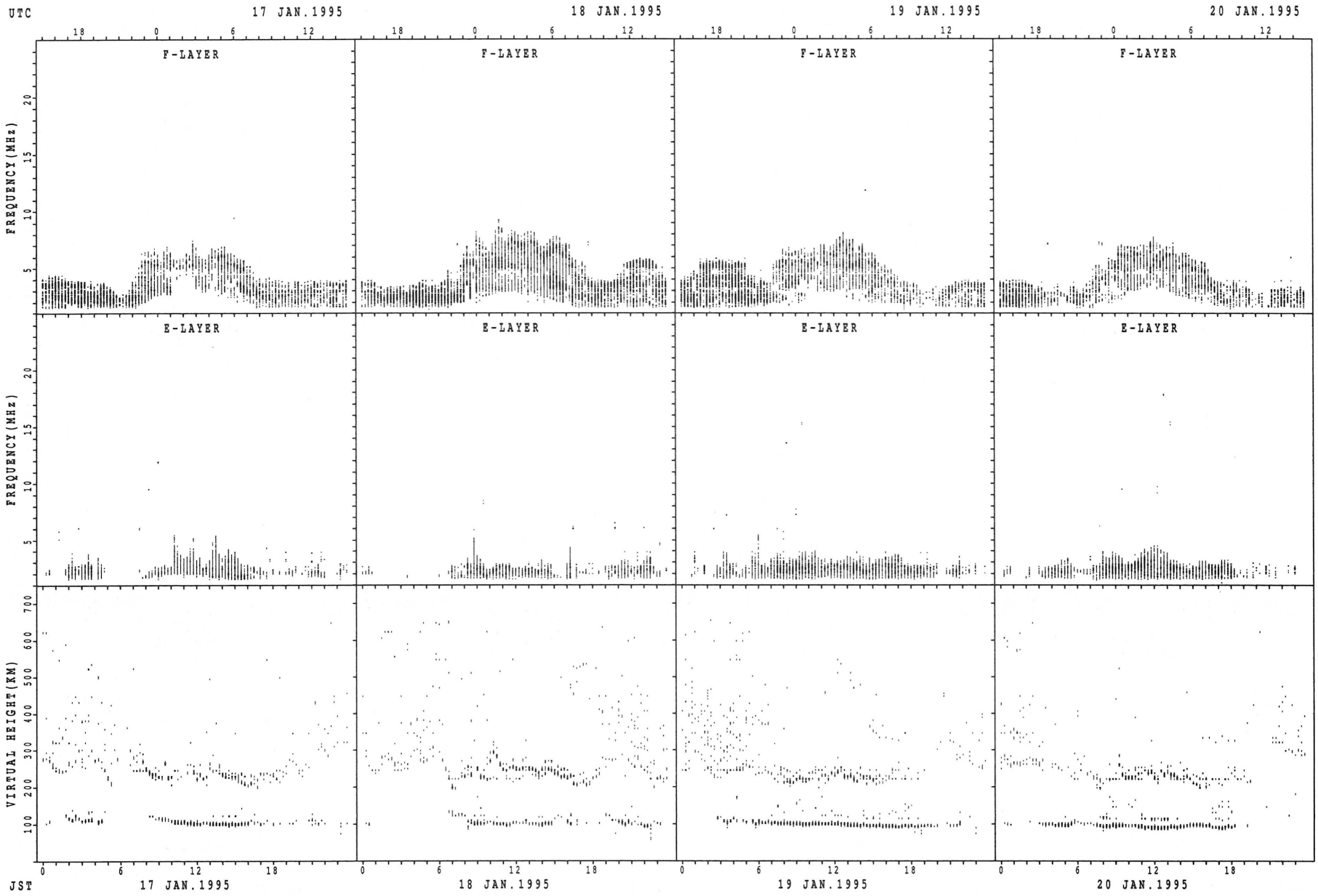
SUMMARY PLOTS AT WAKKANAI



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

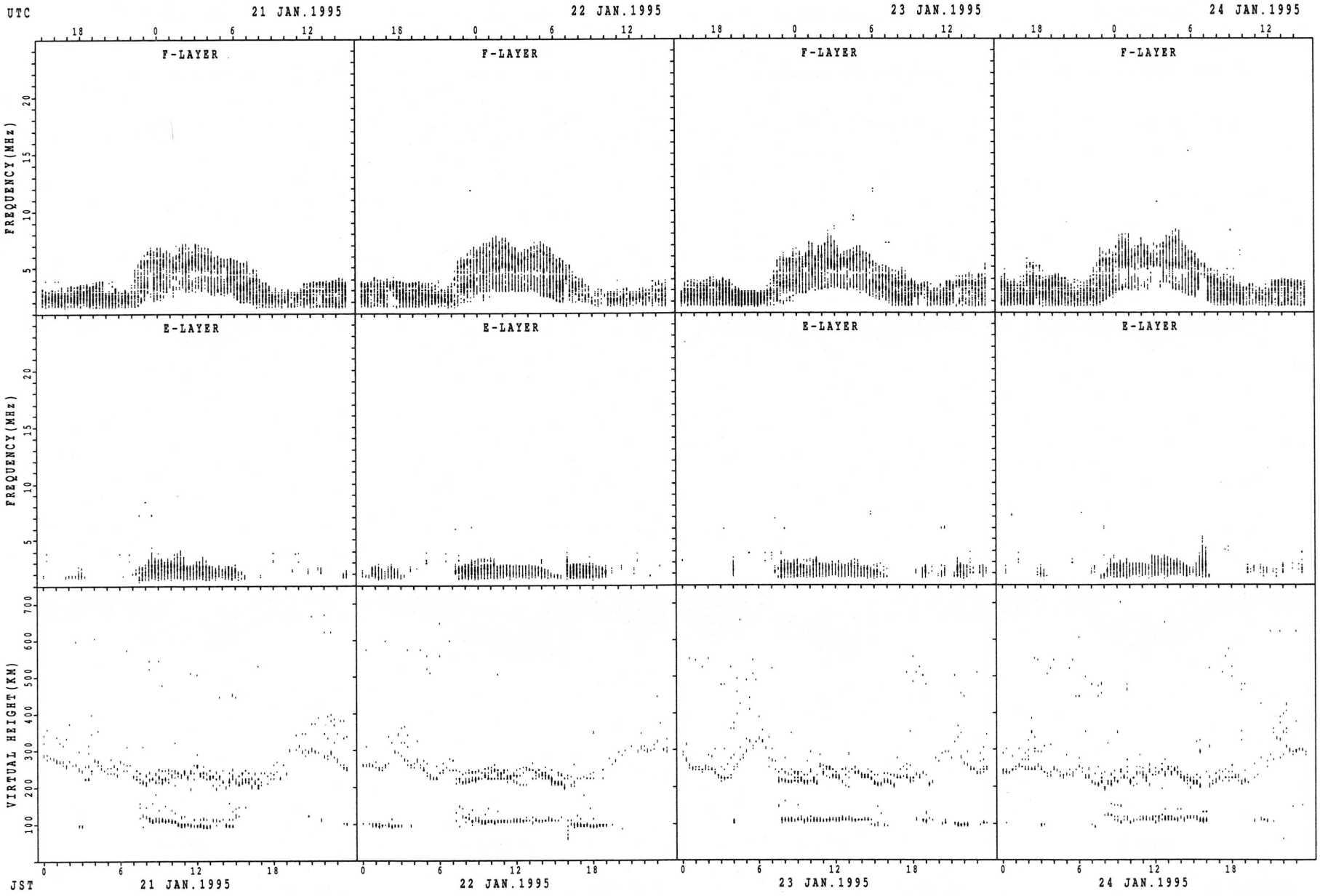

SUMMARY PLOTS AT WAKKANAI
UTC
JST
13 JAN.1995
14 JAN.1995
15 JAN.1995
16 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT WAKKANAI



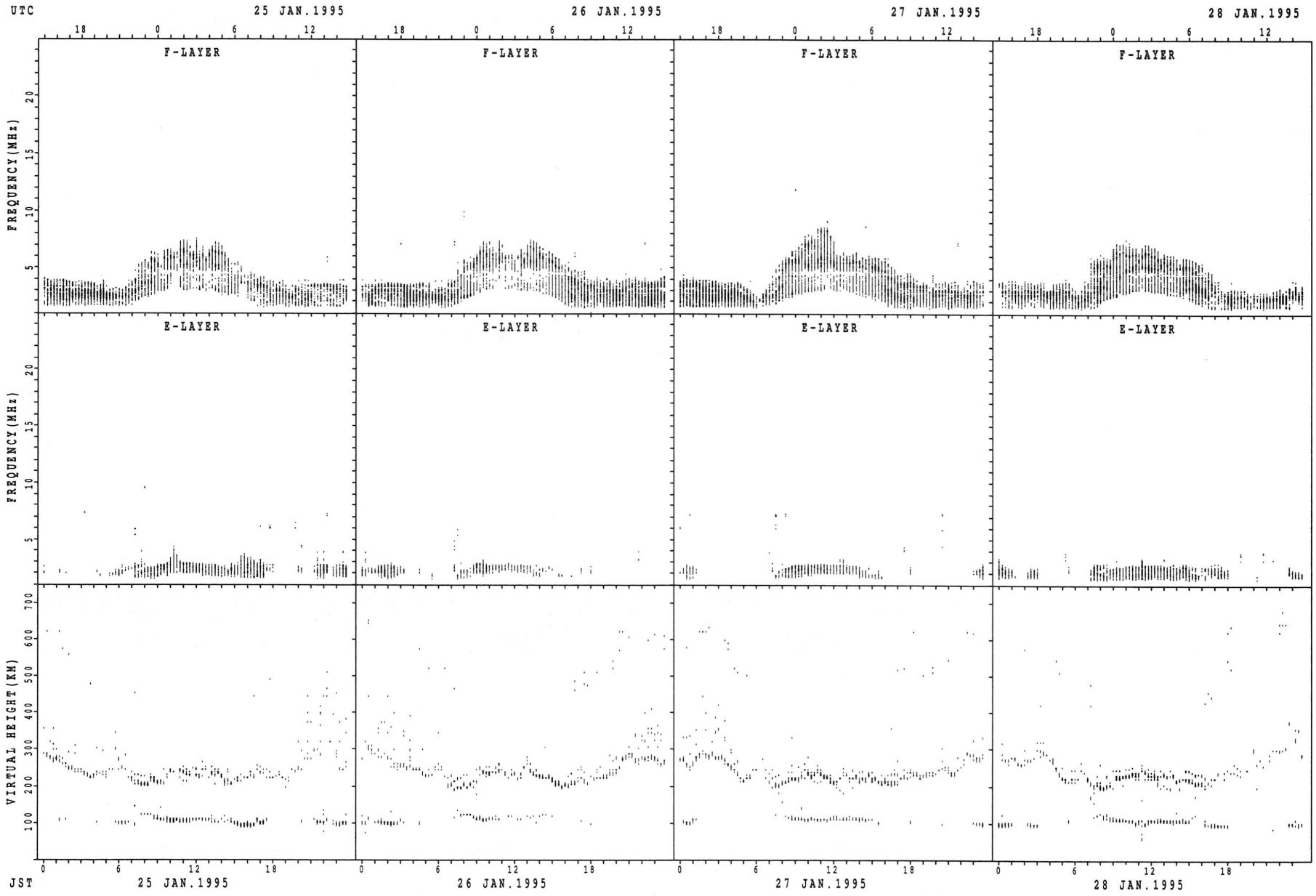
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT WAKKANAI

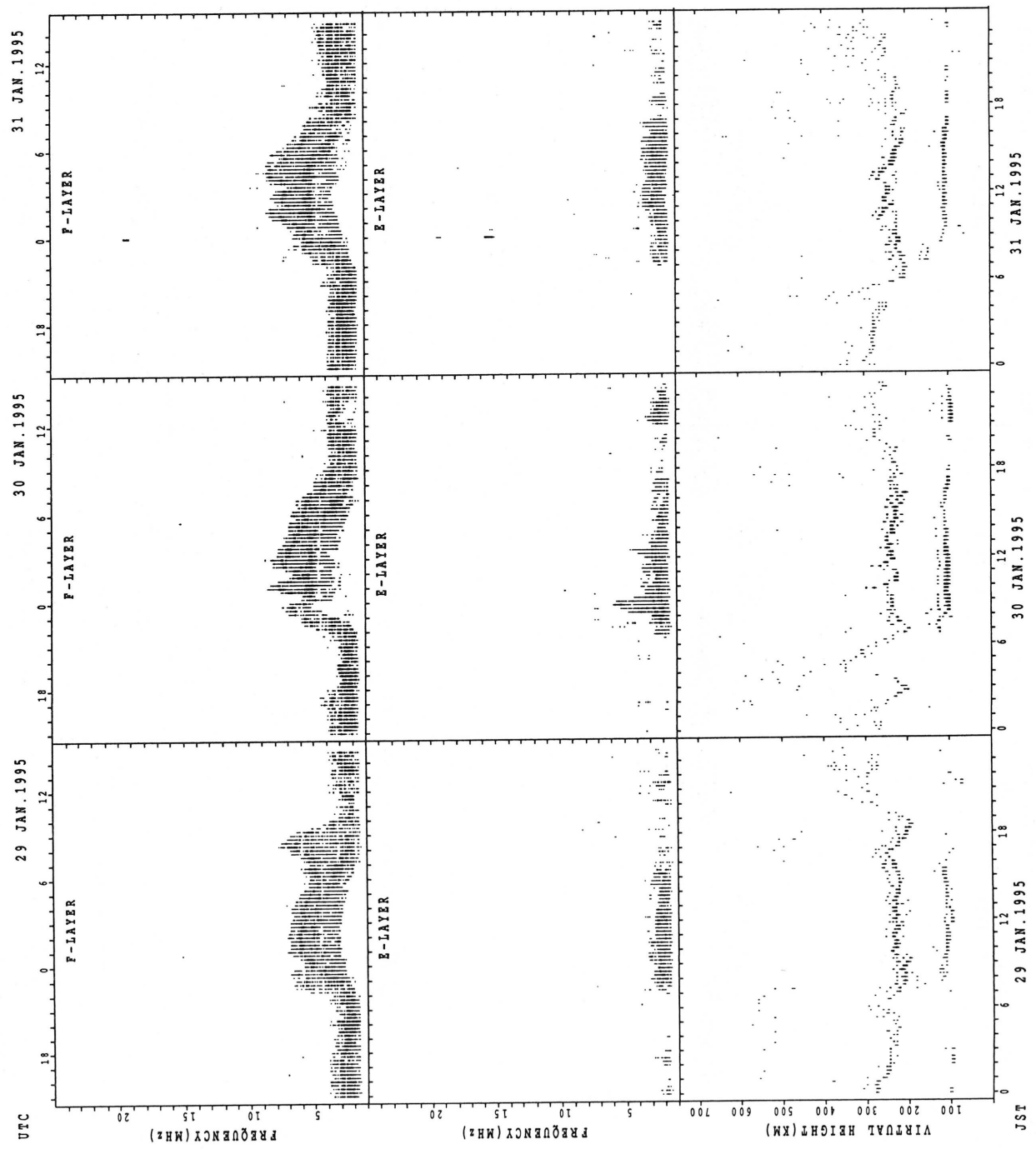


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

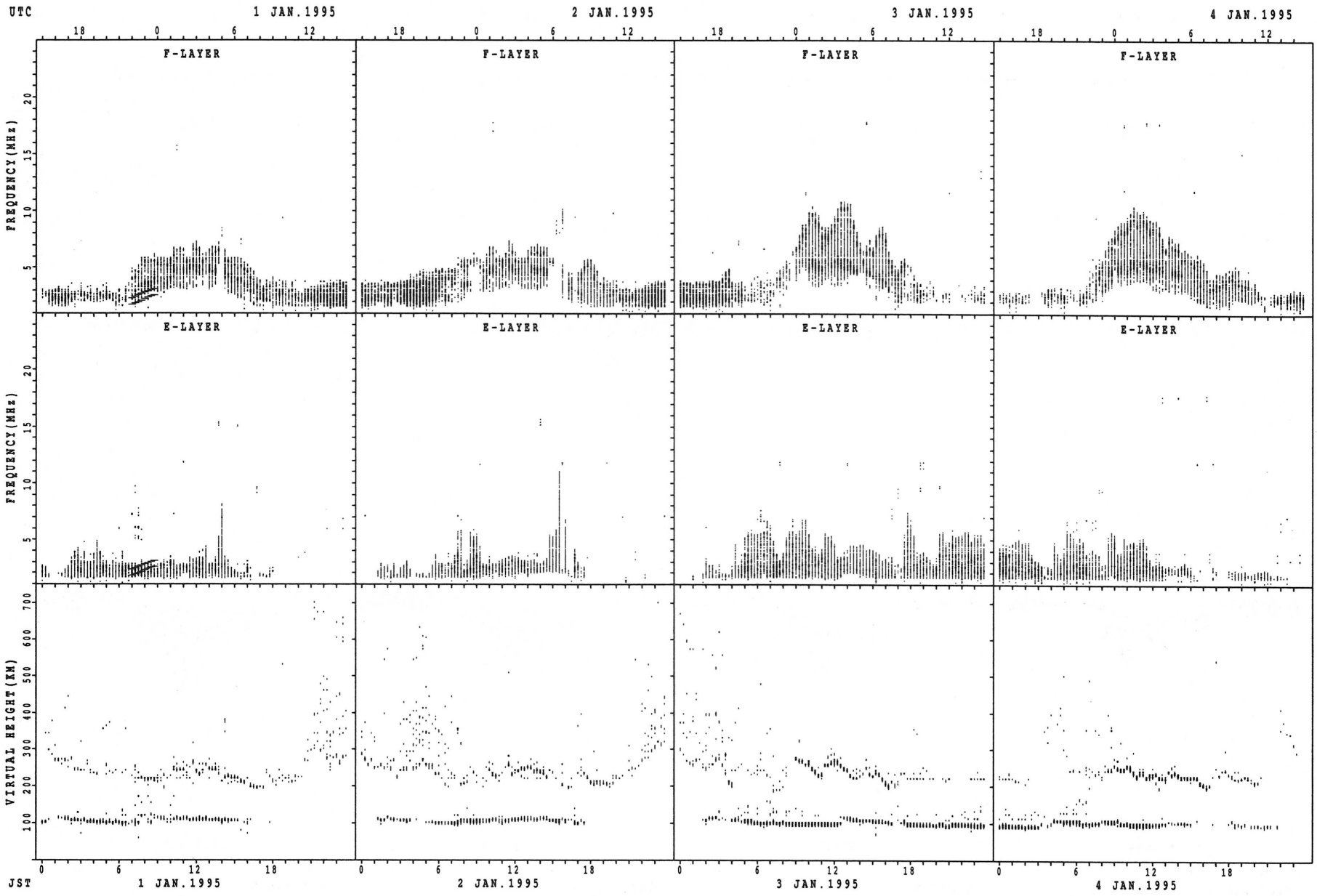
SUMMARY PLOTS AT WAKKANAI



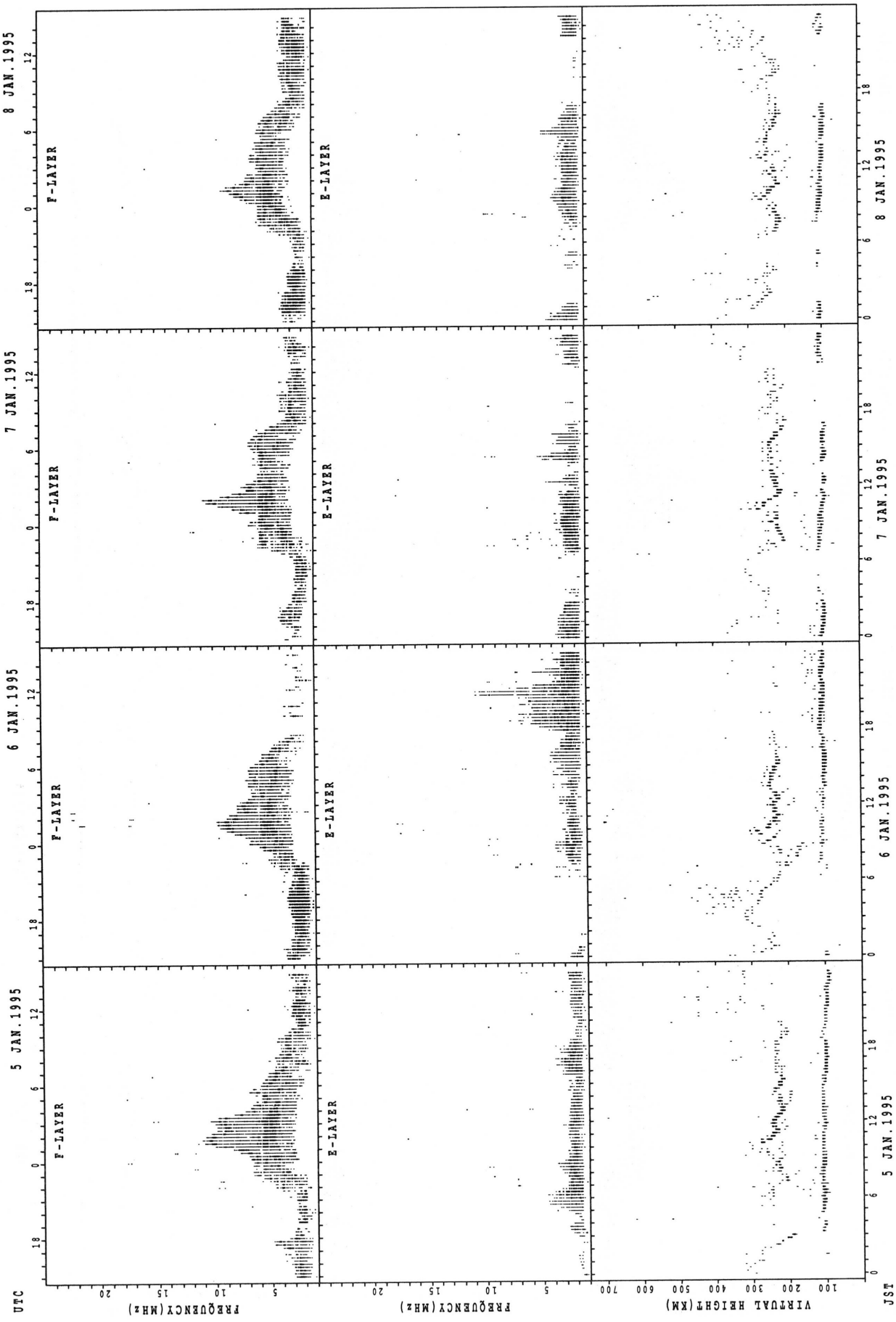
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT WAKKANAI
UTC
29 JAN.1995
30 JAN.1995
31 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

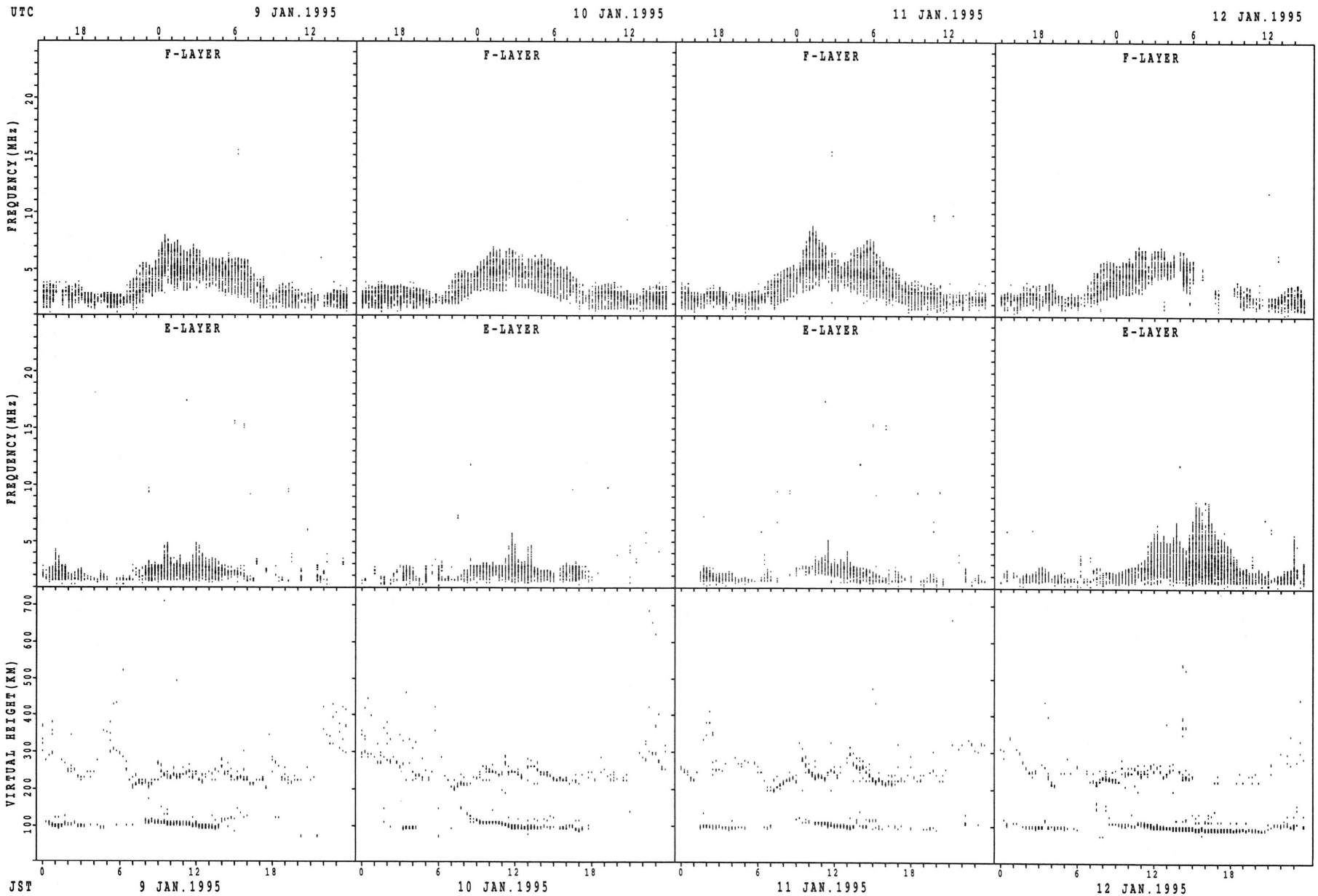
SUMMARY PLOTS AT KOKUBUNJI TOKYO



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

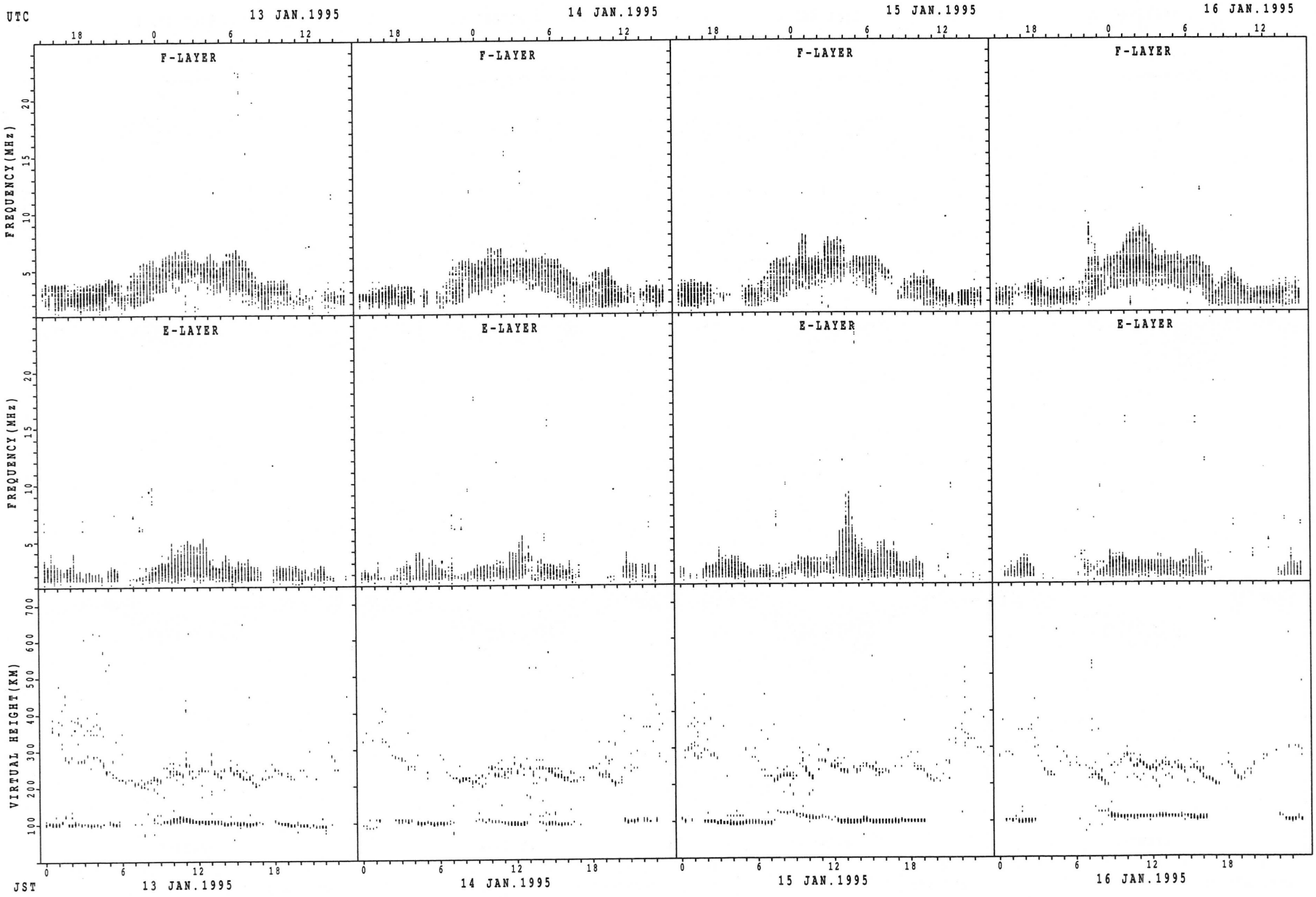

SUMMARY PLOTS AT KOKUBUNJI TOKYO
5 JAN.1995
6 JAN.1995
7 JAN.1995
8 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
UTC
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



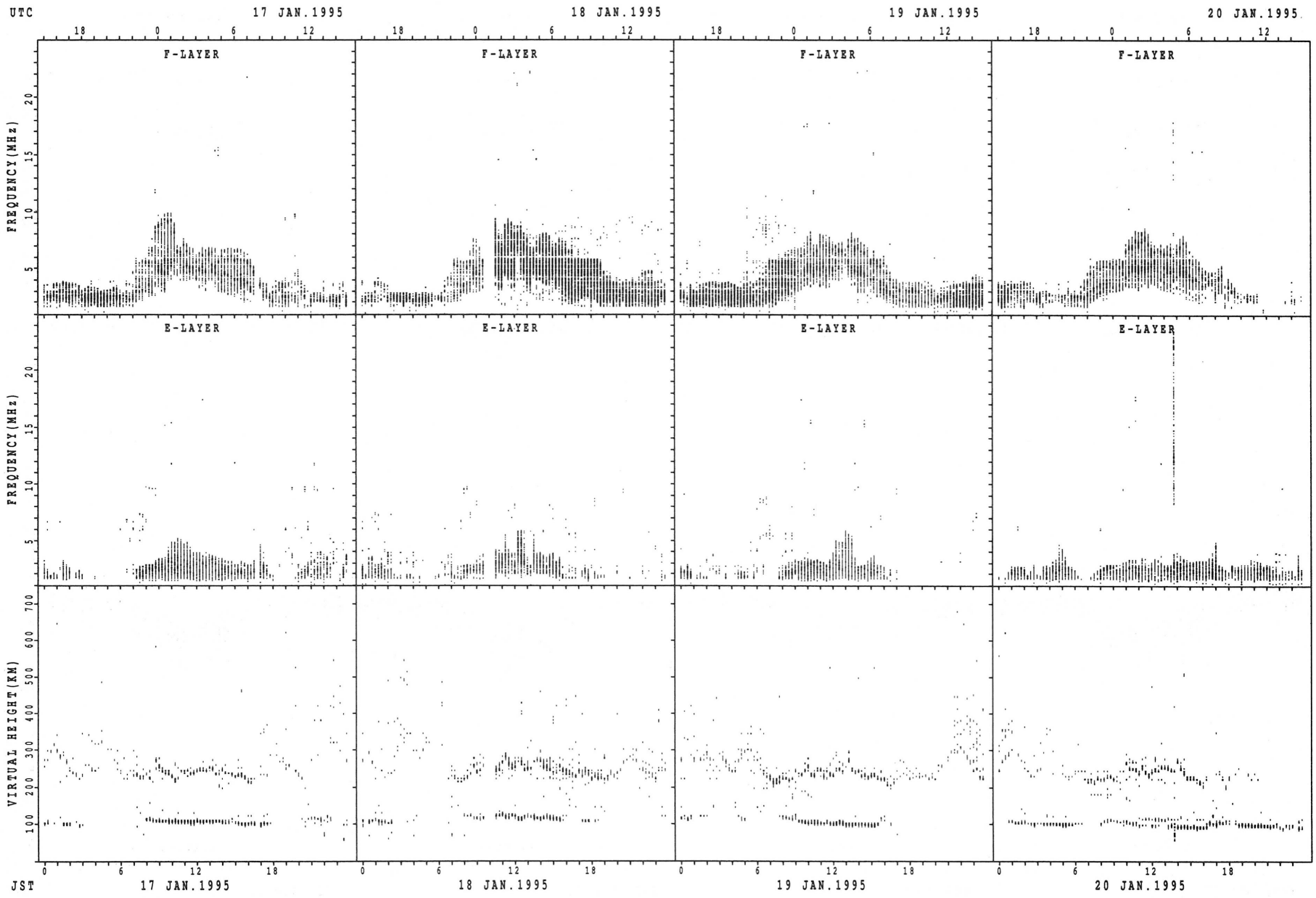
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



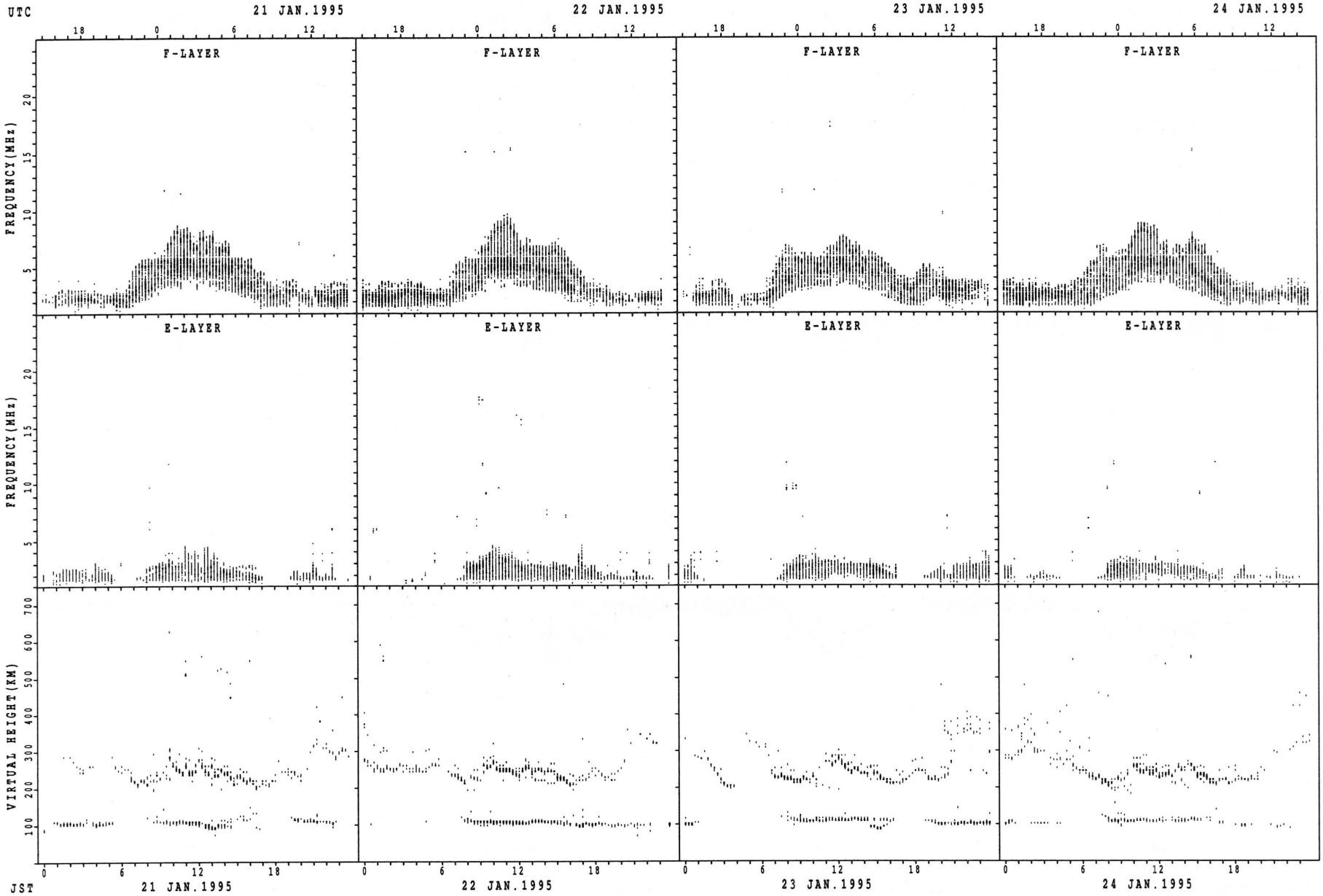
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



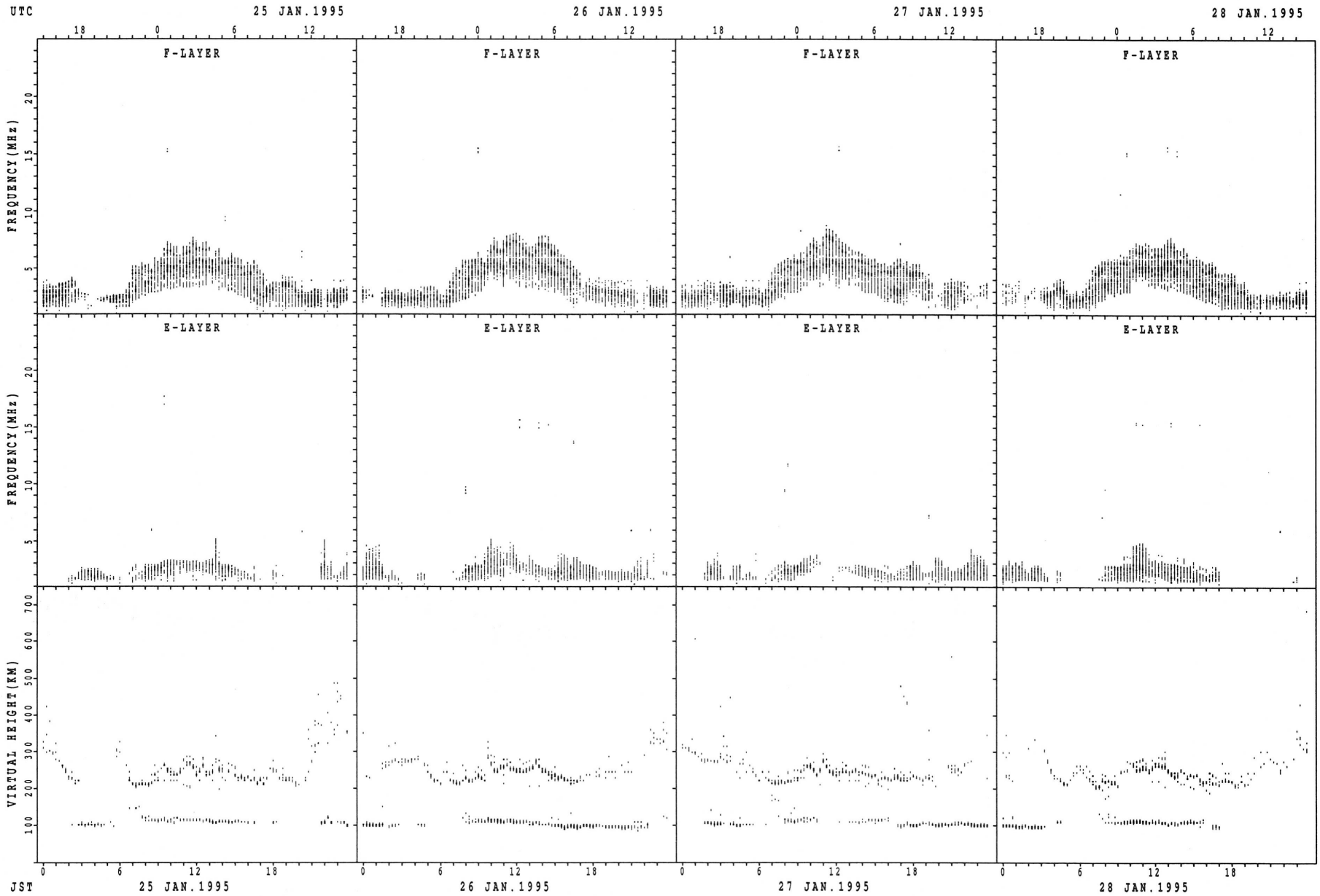
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO

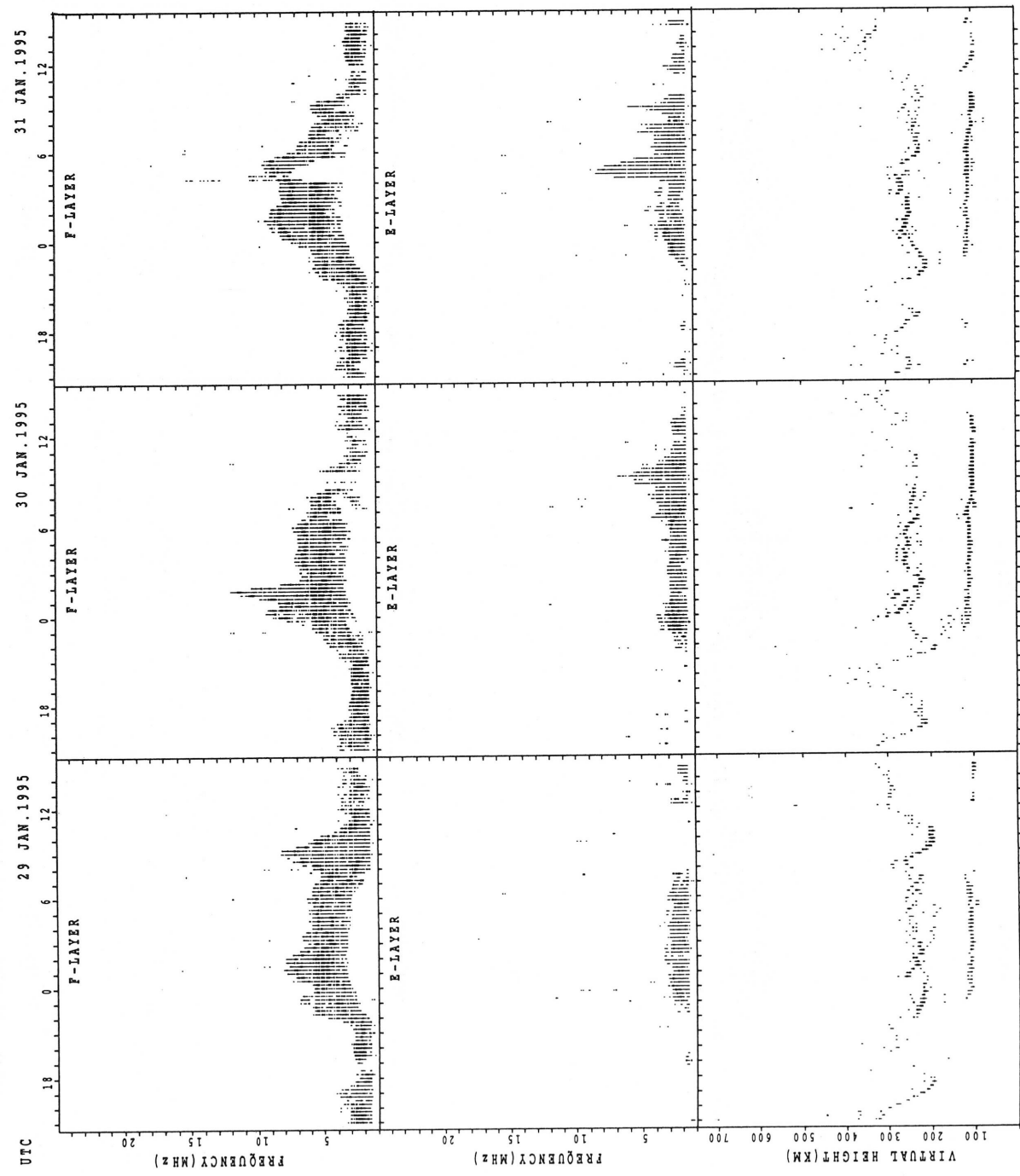


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

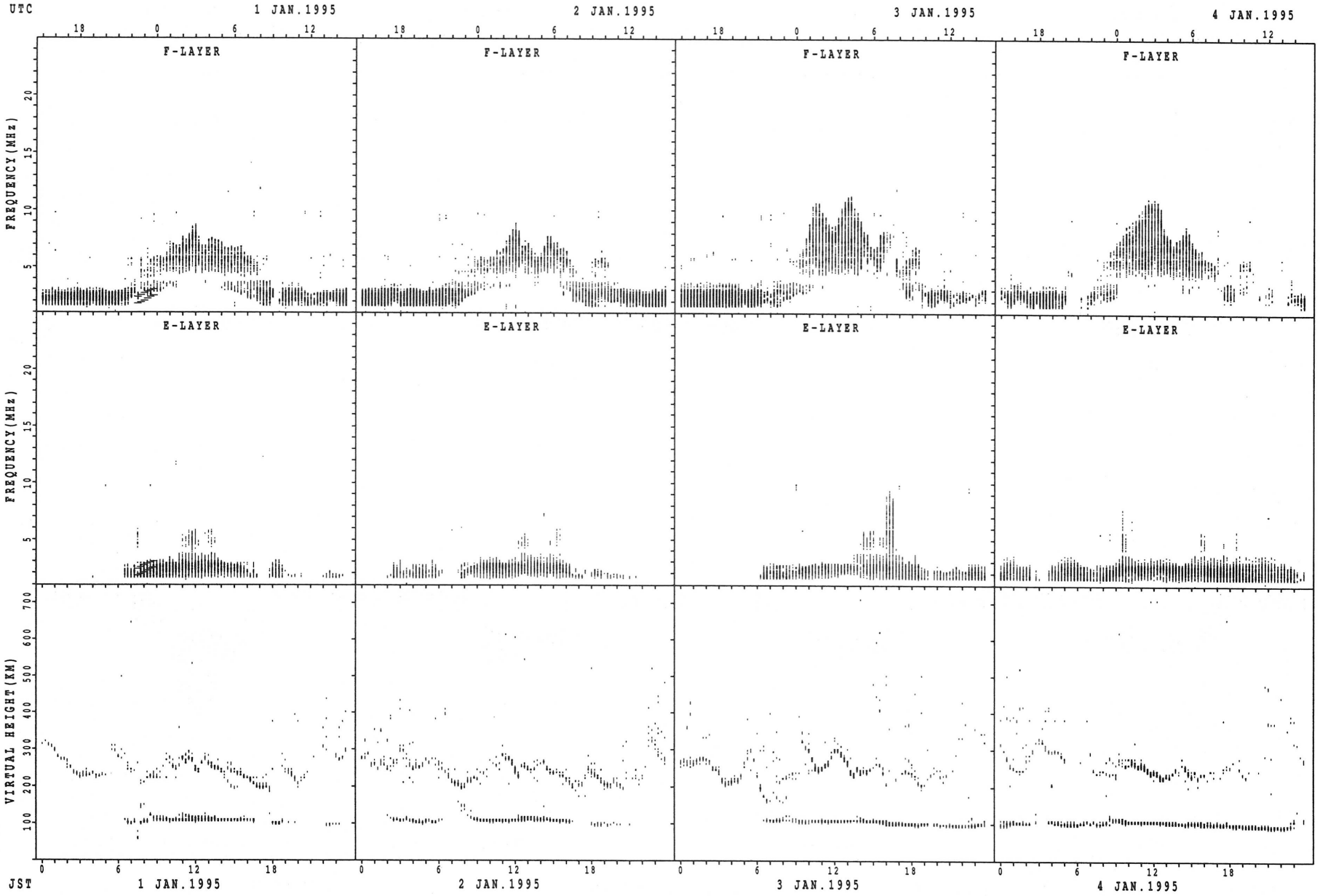
SUMMARY PLOTS AT KOKUBUNJI TOKYO



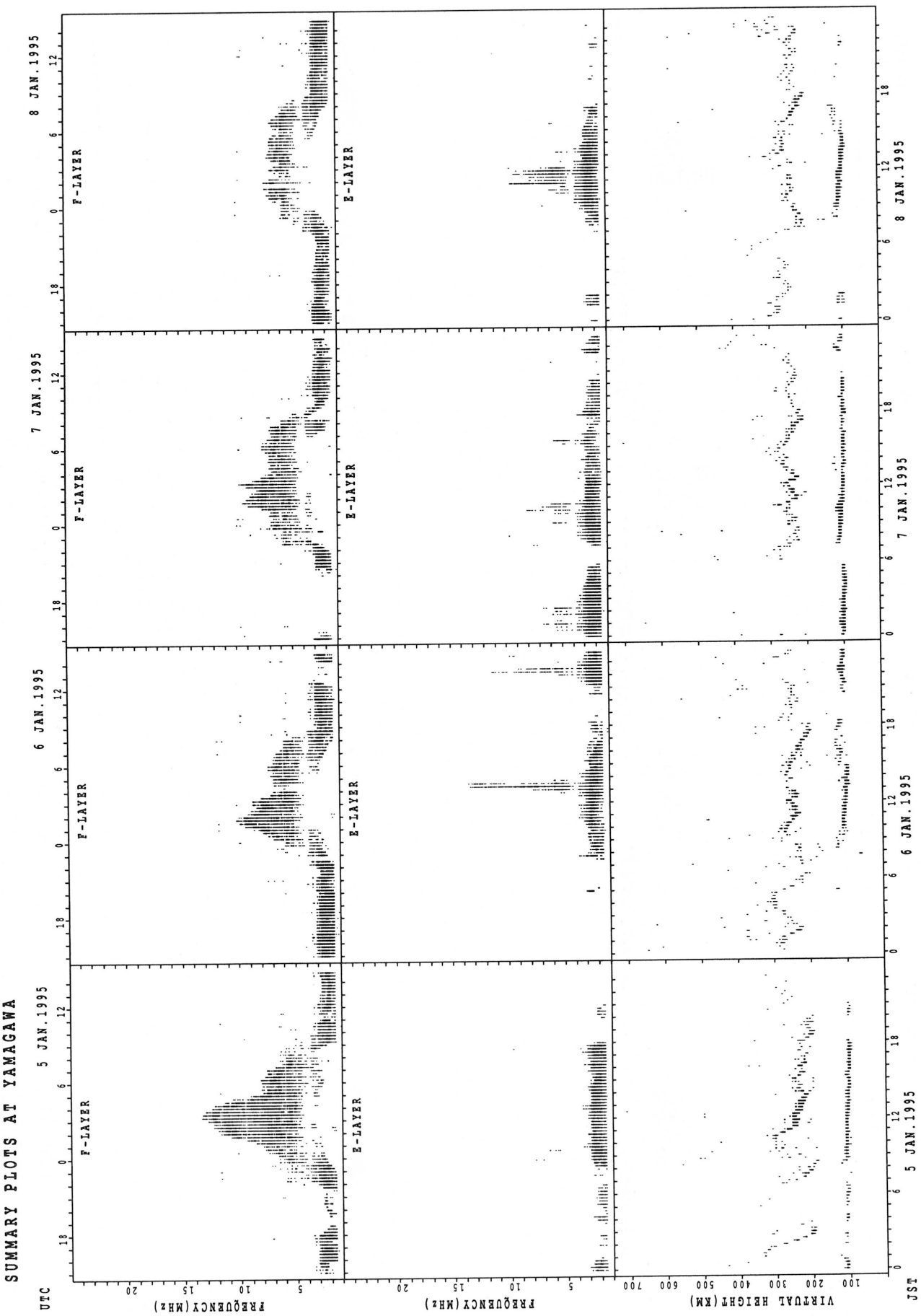
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
29 JAN.1995
30 JAN.1995
31 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

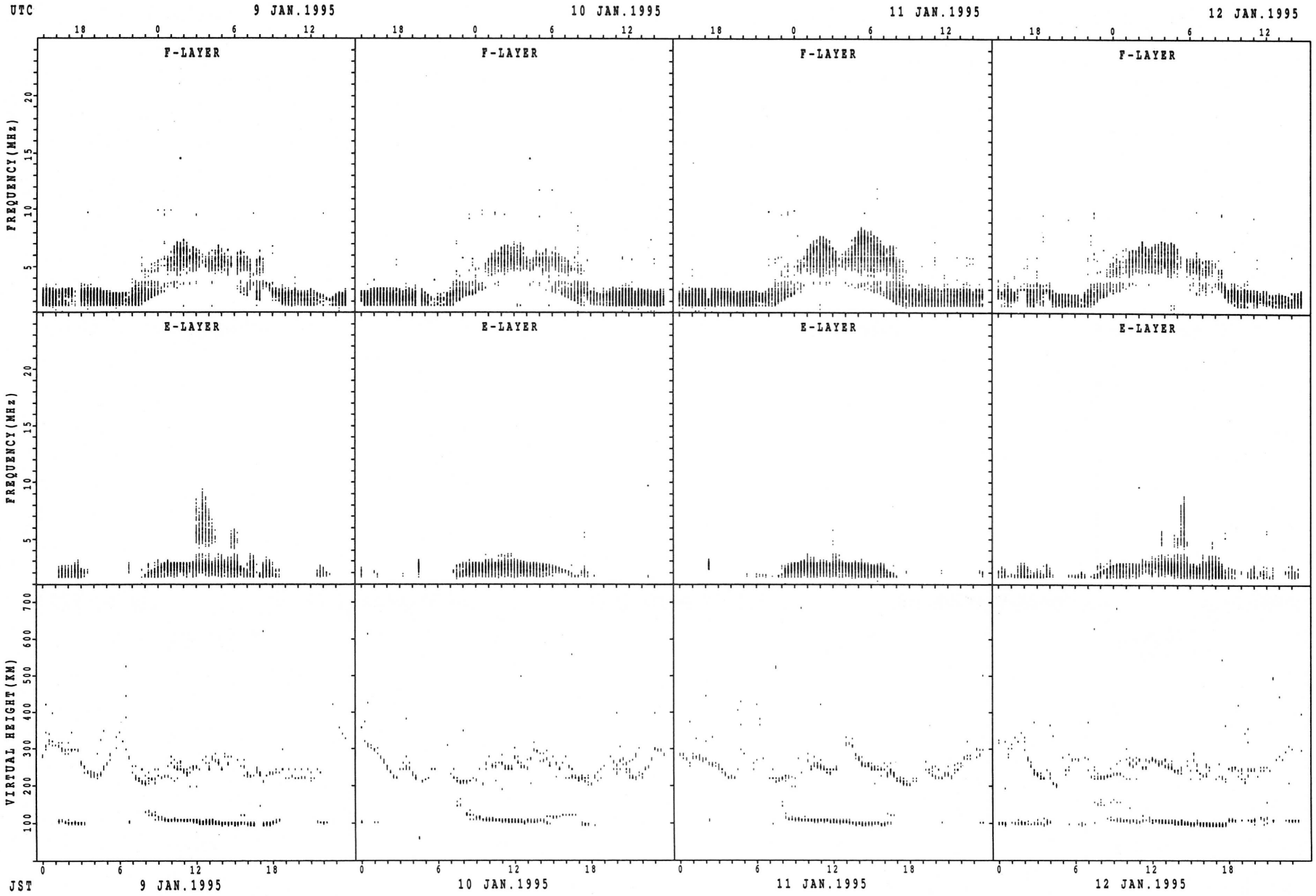
SUMMARY PLOTS AT YAMAGAWA



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

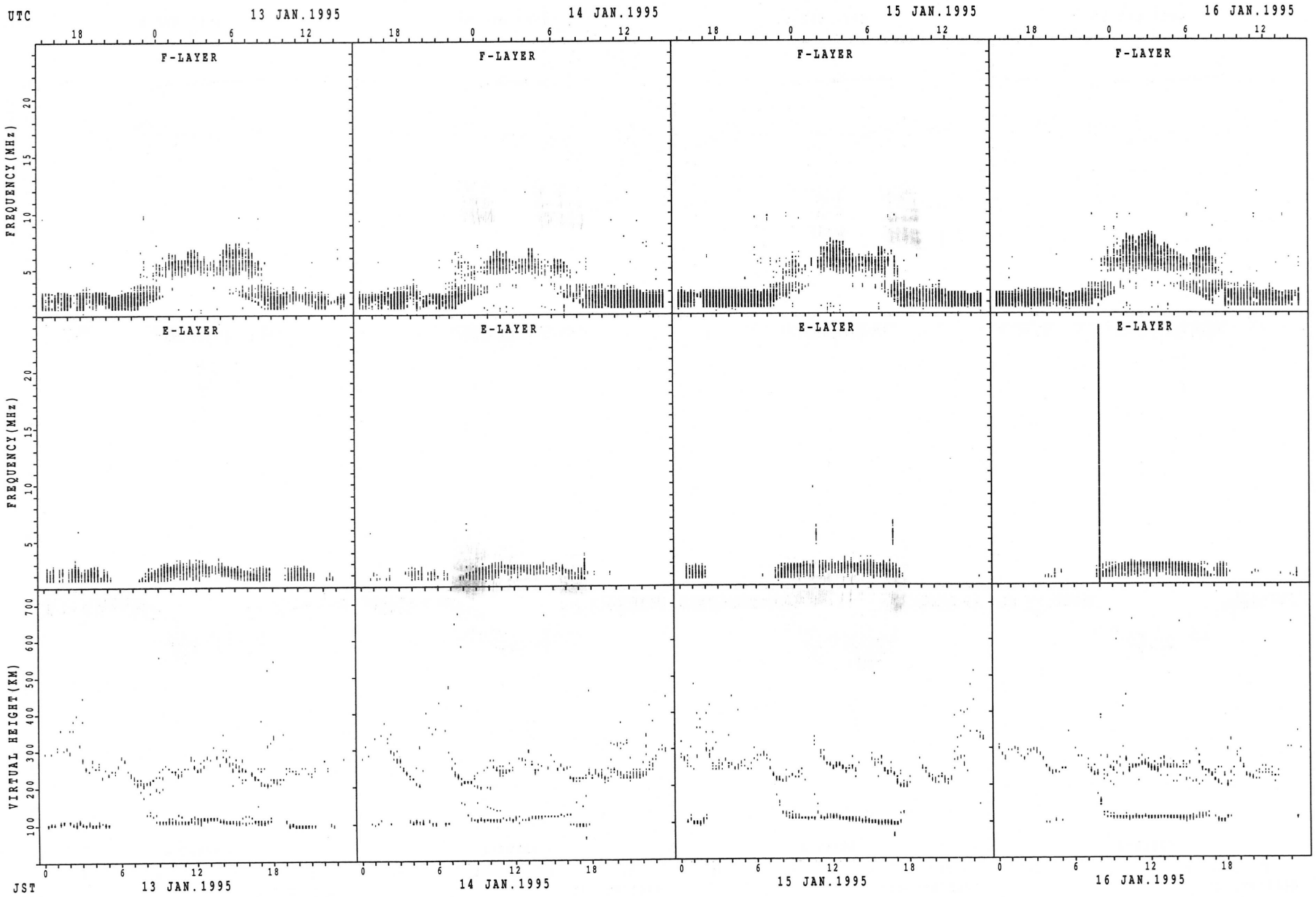

SUMMARY PLOTS AT YAMAGAWA
UTC
JST
5 JAN.1995
6 JAN.1995
7 JAN.1995
8 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT YAMAGAWA



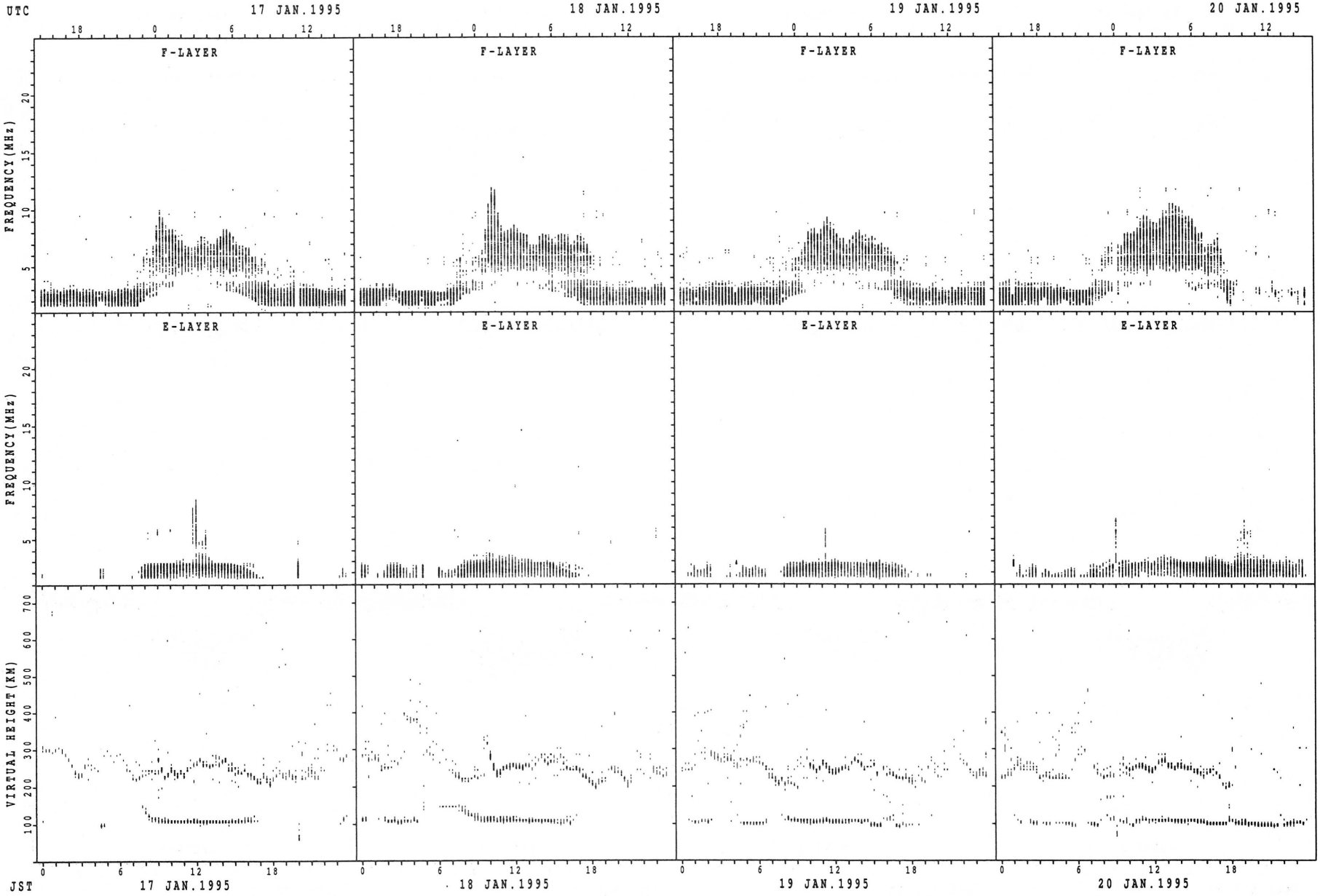
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT YAMAGAWA

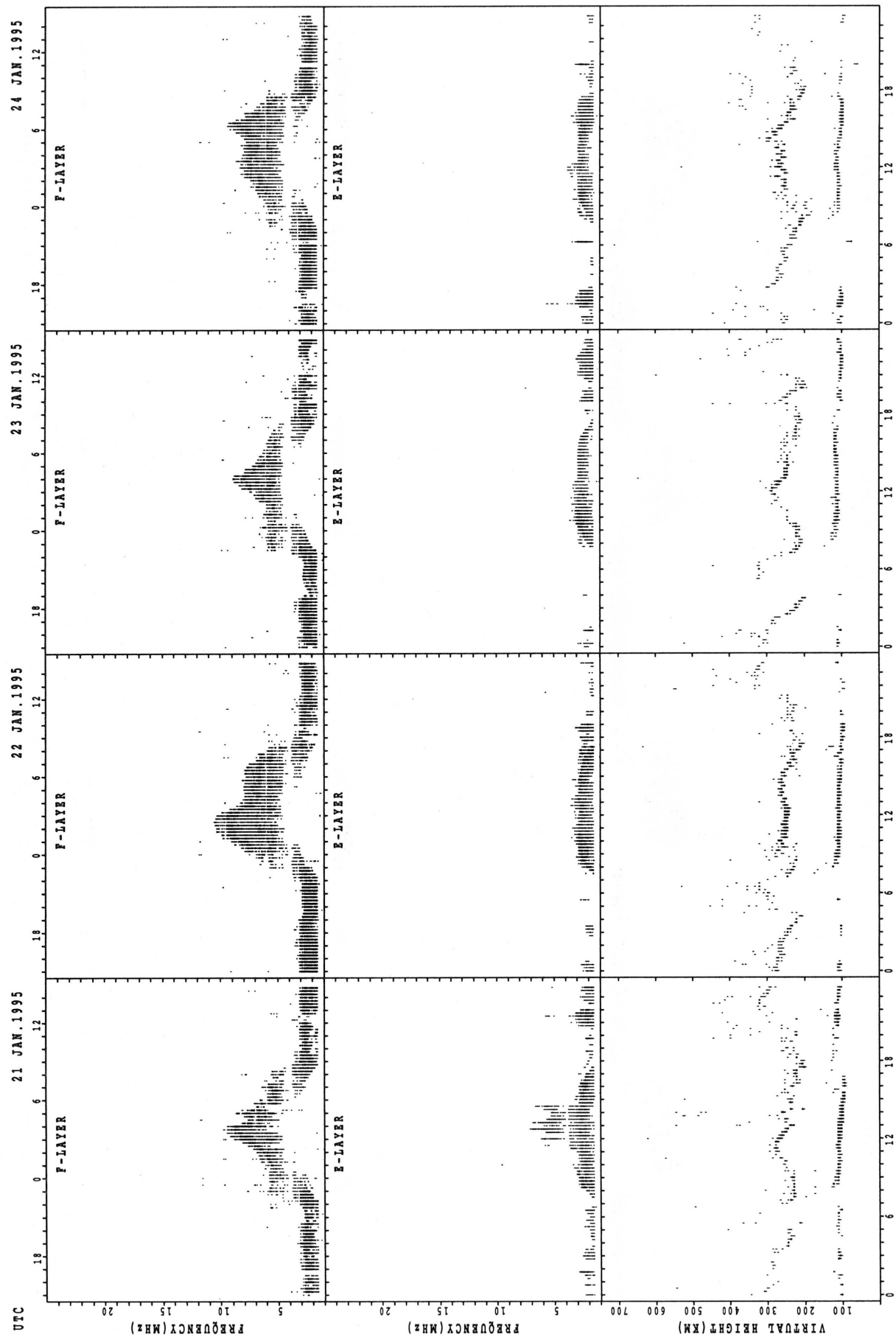


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

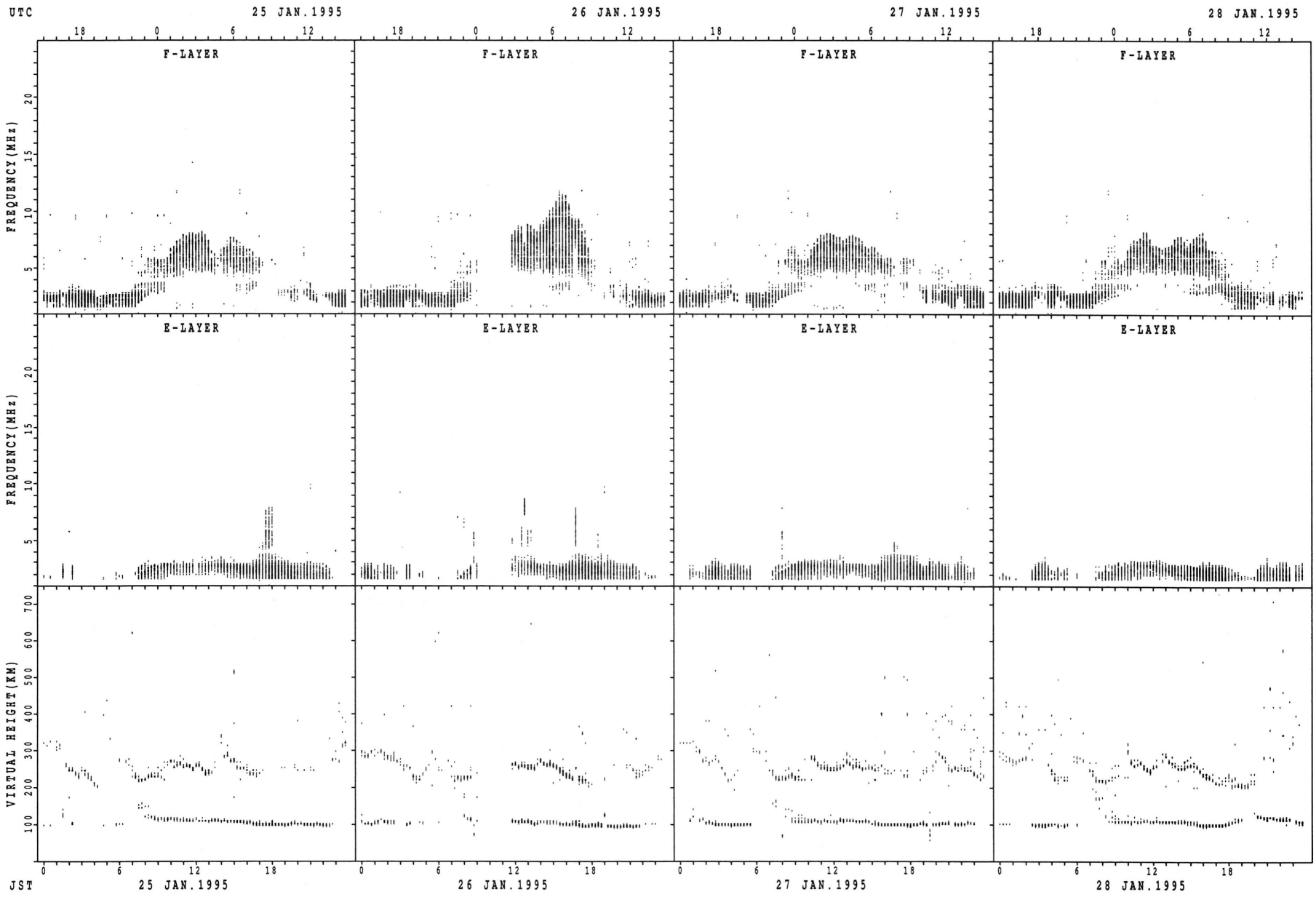
SUMMARY PLOTS AT YAMAGAWA



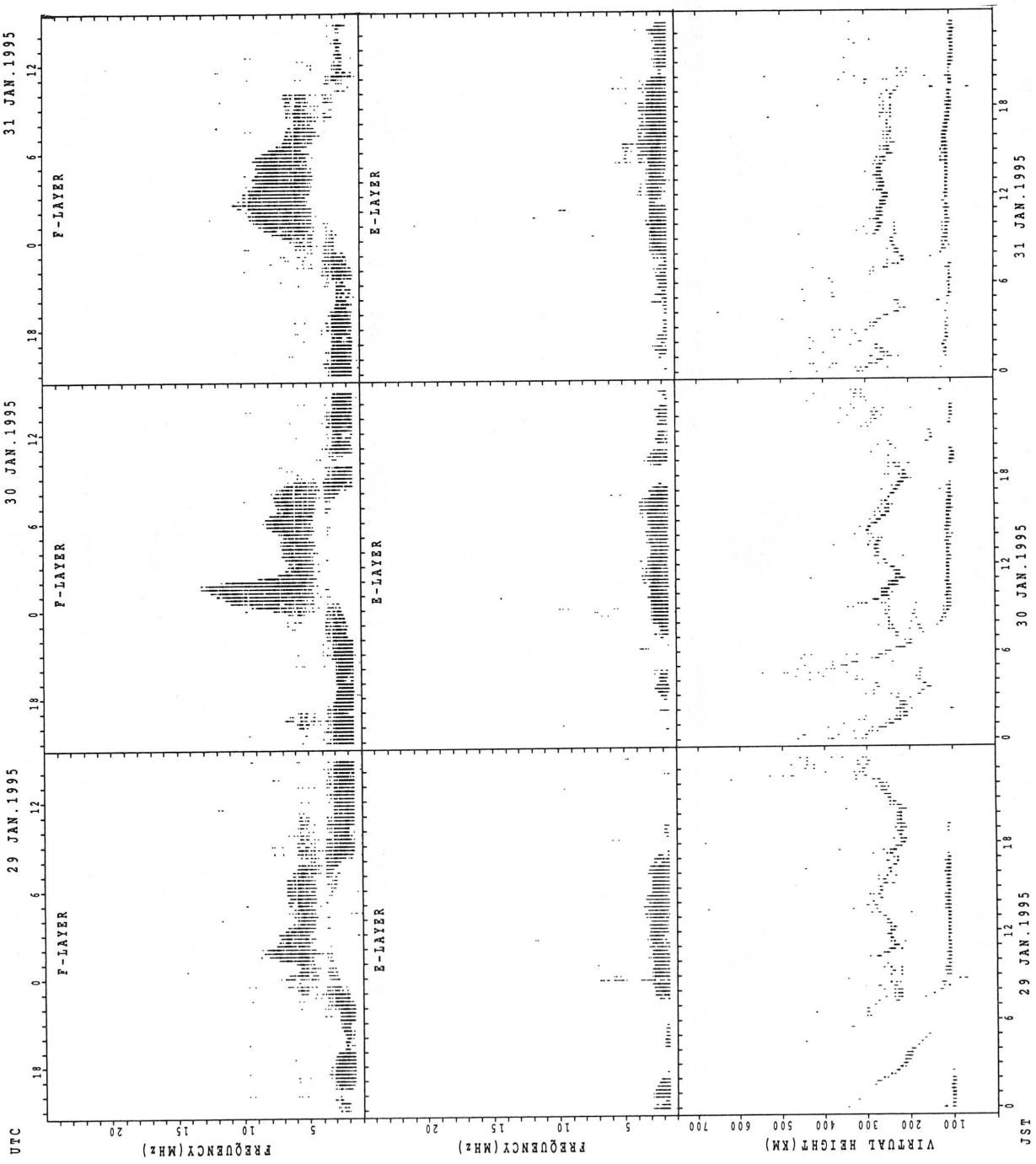
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT YAMAGAWA
UTC
JST
21 JAN.1995
22 JAN.1995
23 JAN.1995
24 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

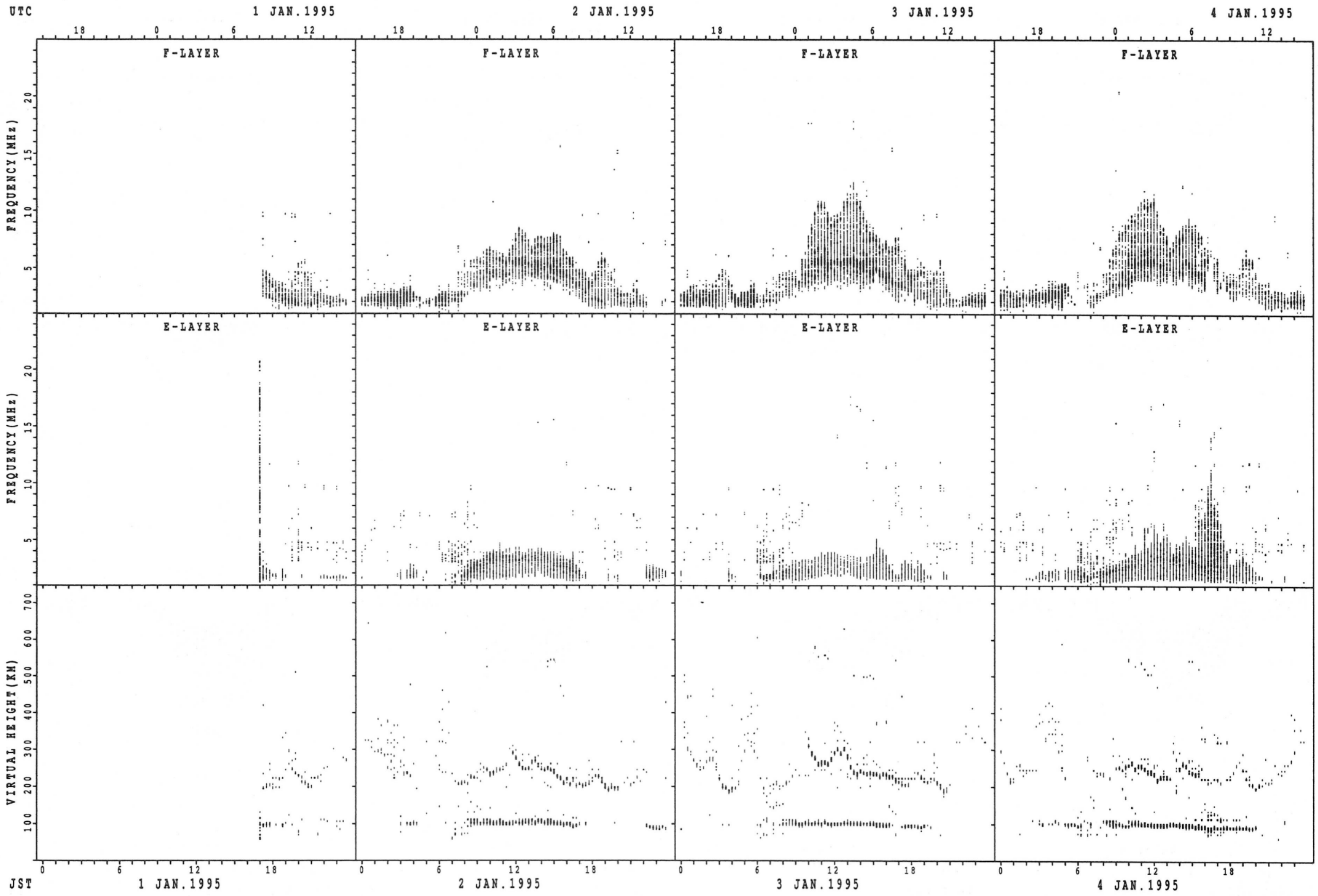
SUMMARY PLOTS AT YAMAGAWA



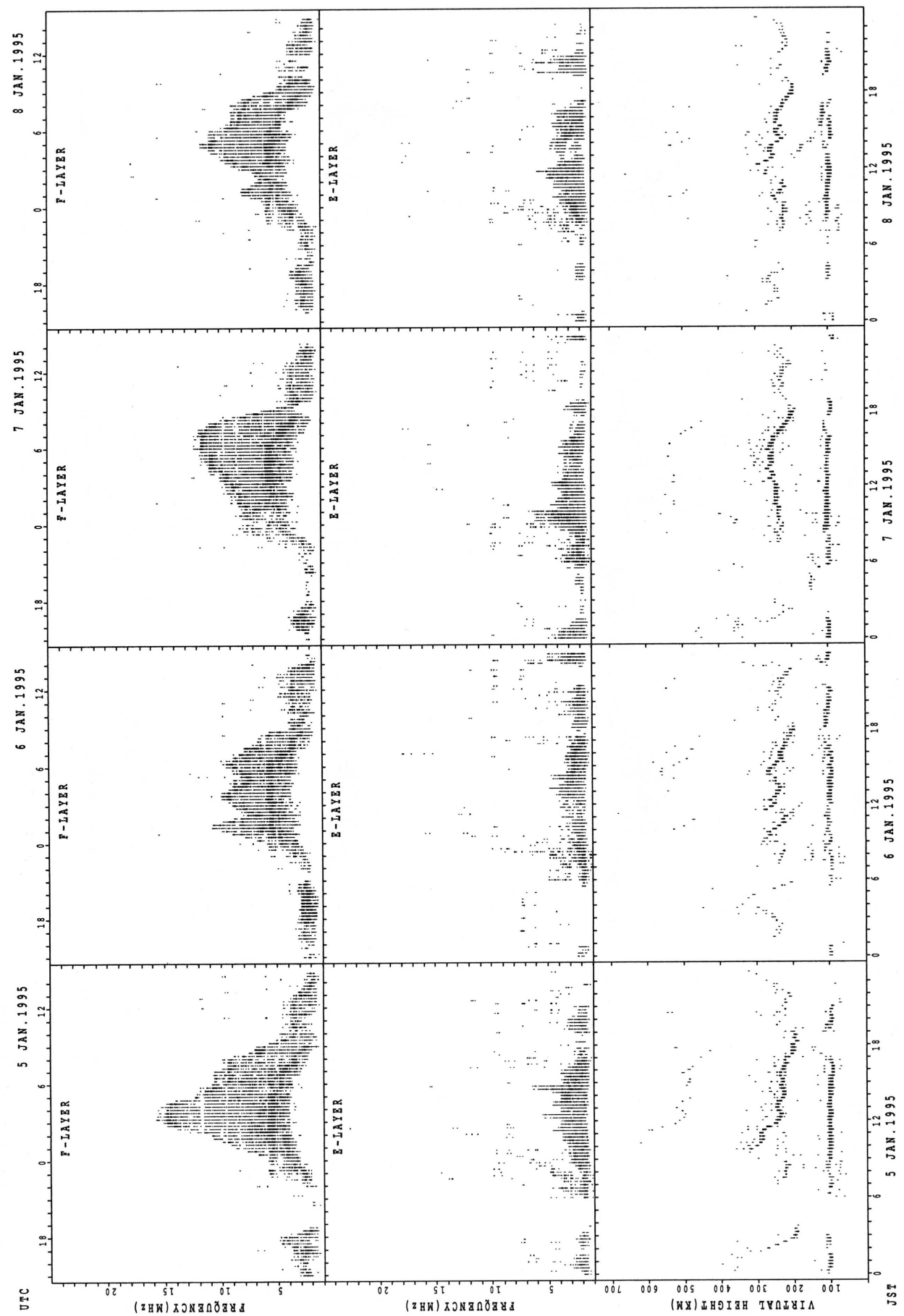
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT YAMAGAWA
UTC
29 JAN.1995
30 JAN.1995
31 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

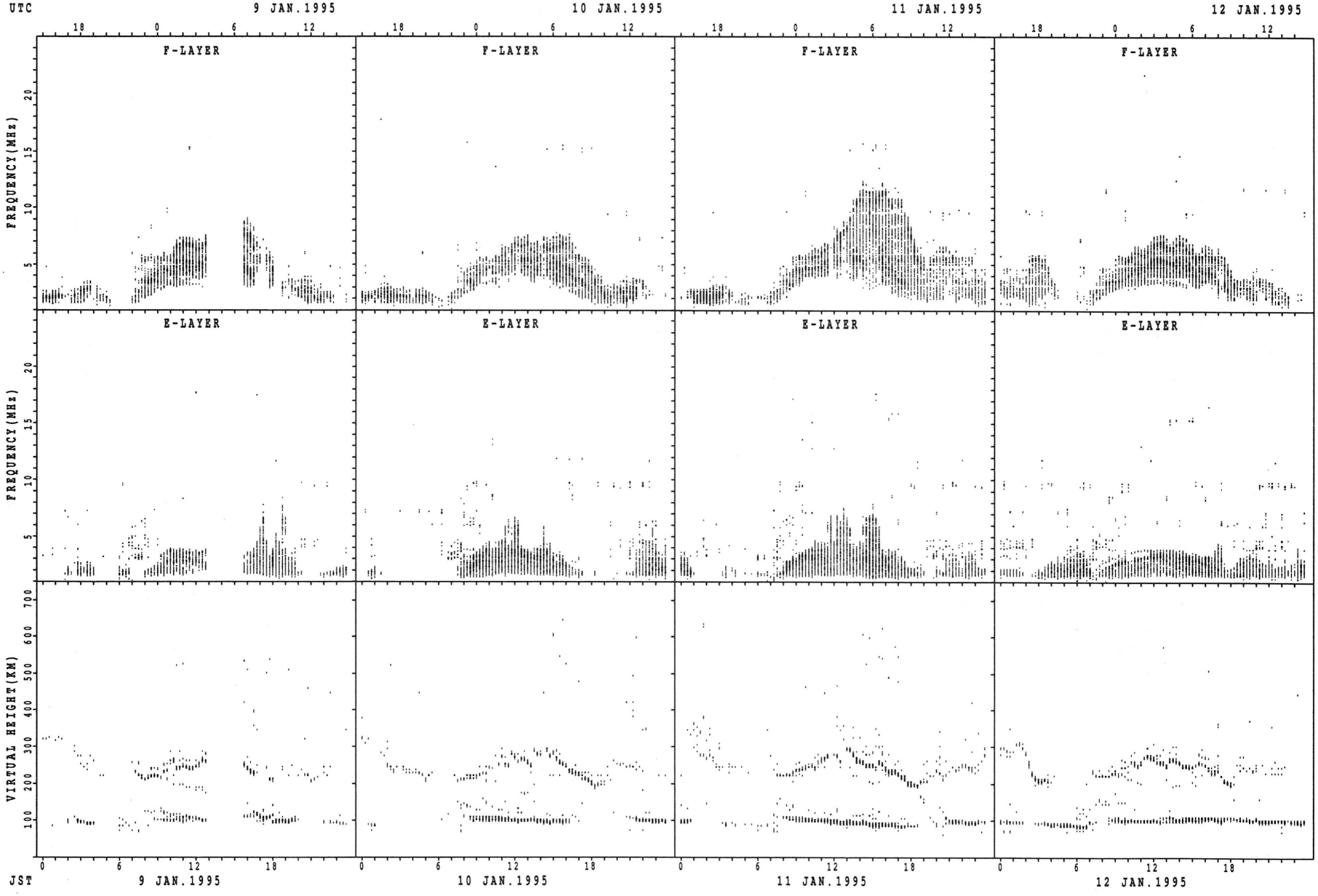
SUMMARY PLOTS AT OKINAWA



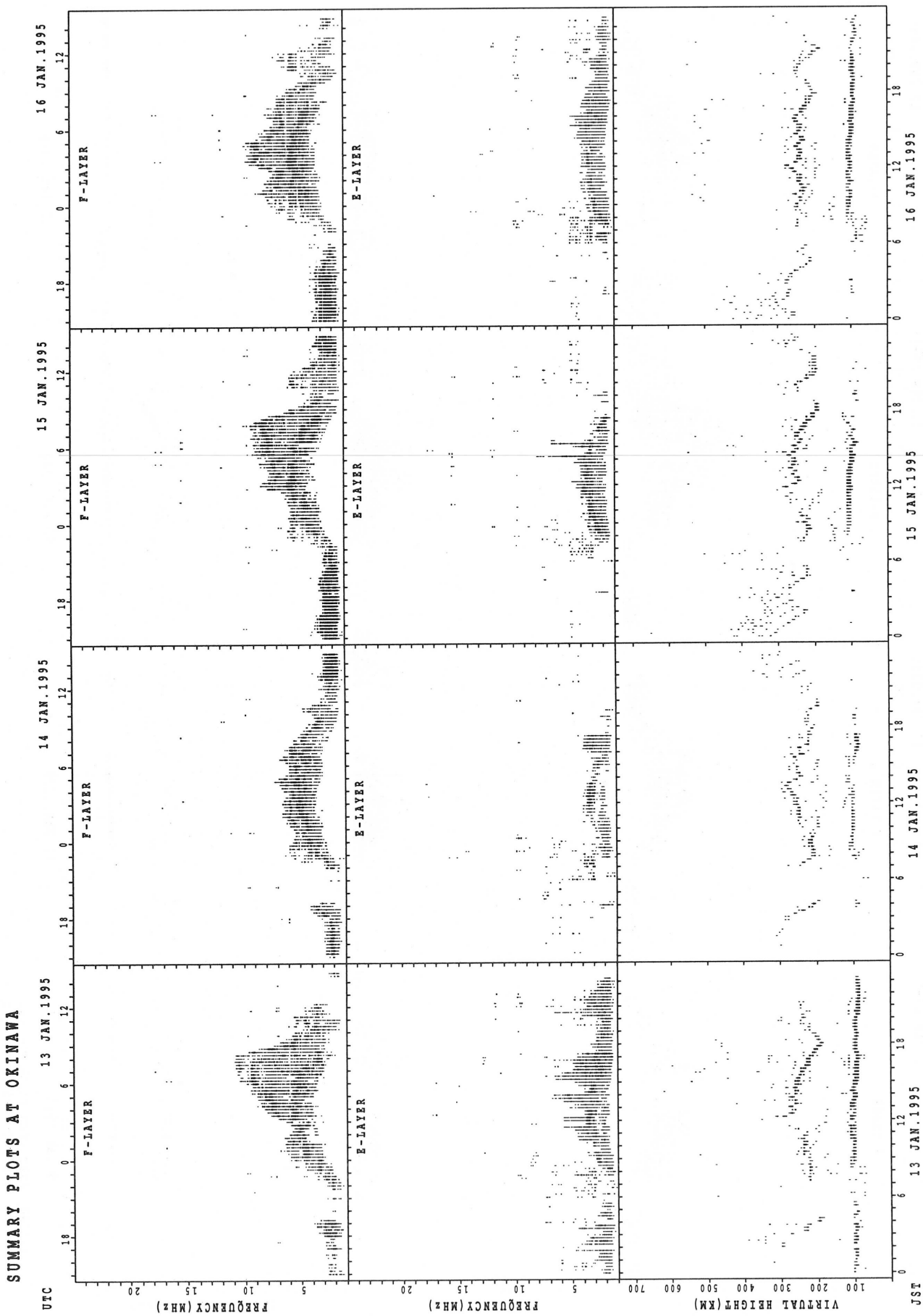
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT OKINAWA
UTC
JST
5 JAN.1995
6 JAN.1995
7 JAN.1995
8 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

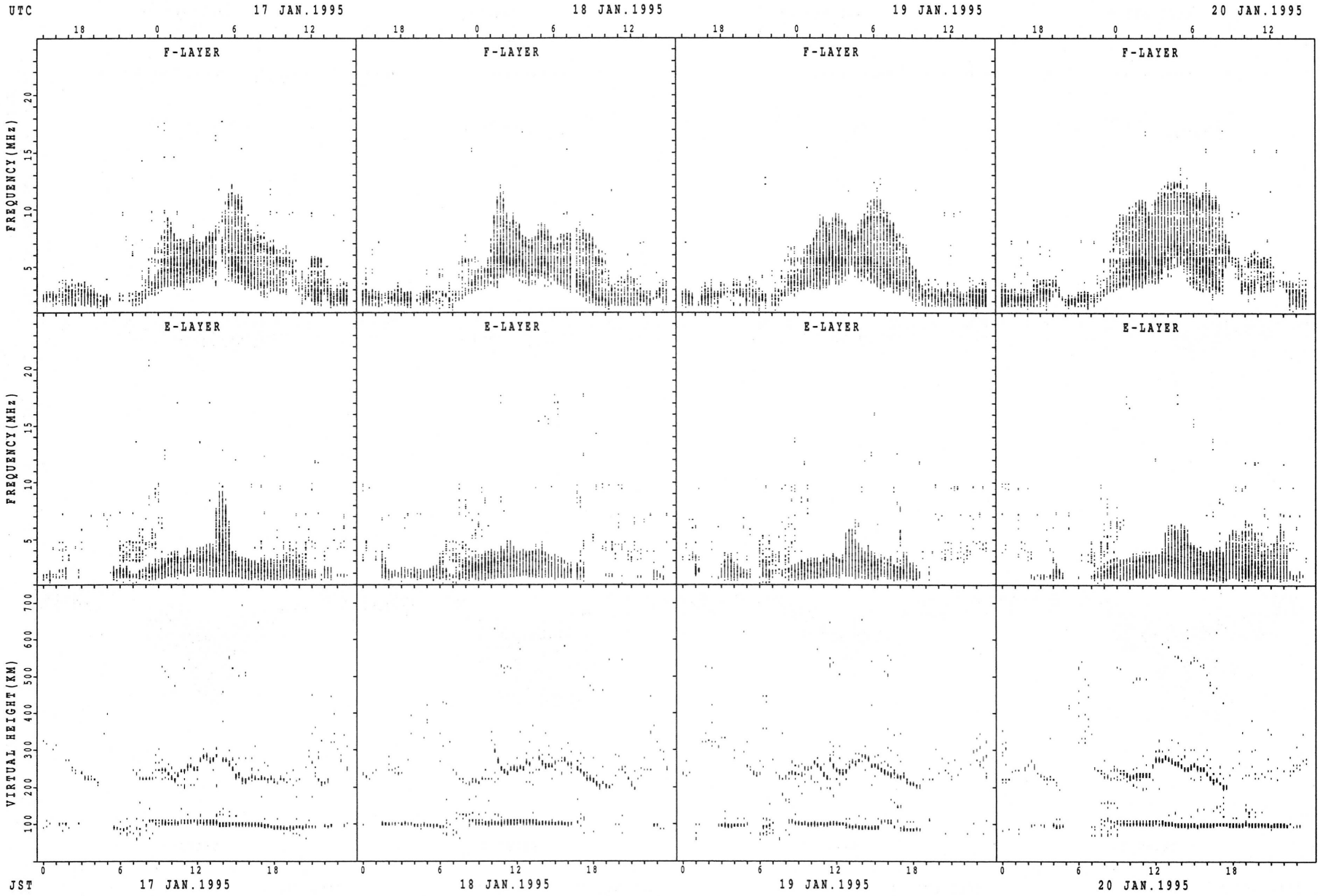
SUMMARY PLOTS AT OKINAWA



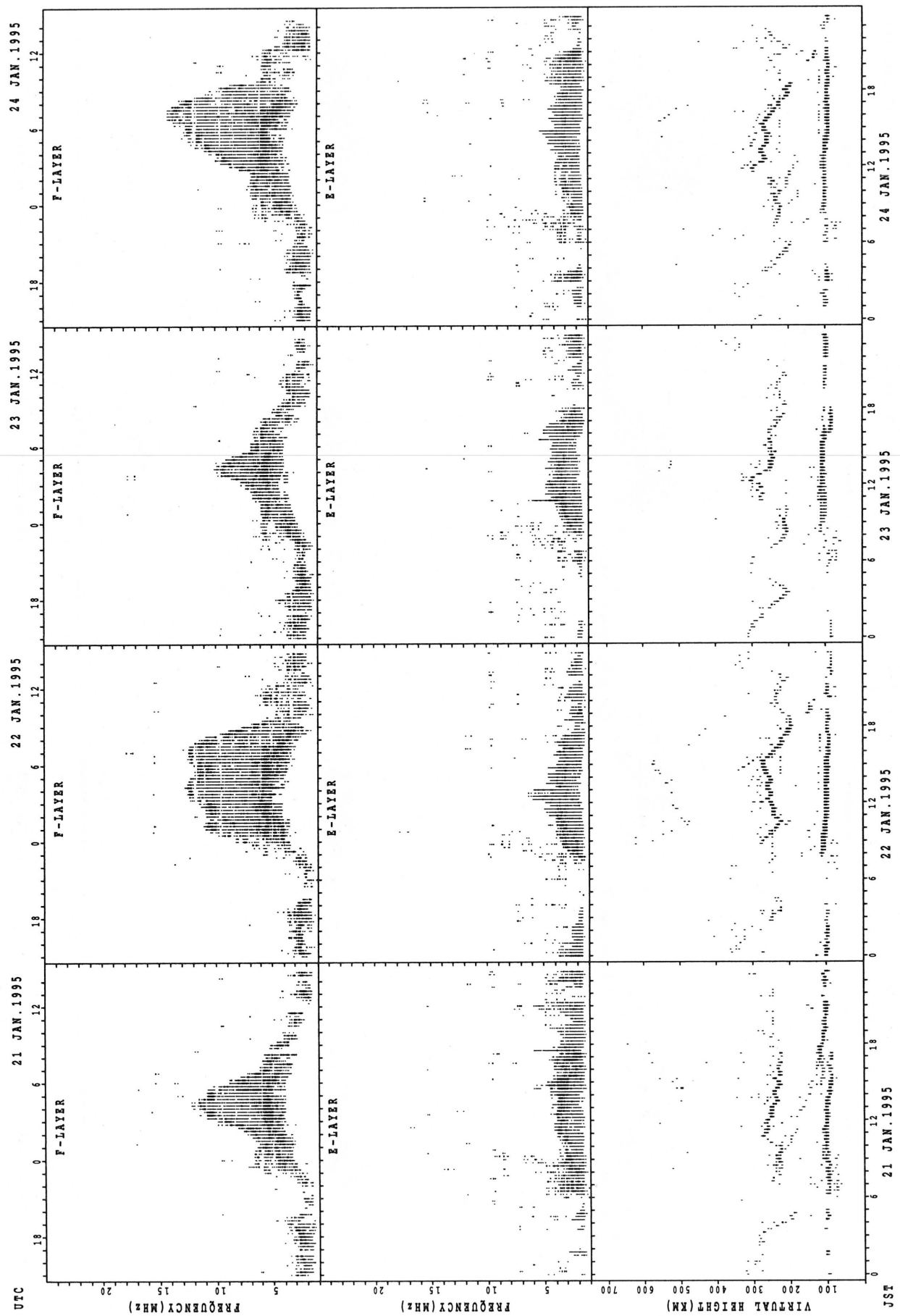
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT OKINAWA
UTC
JST
13 JAN.1995
14 JAN.1995
15 JAN.1995
16 JAN.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

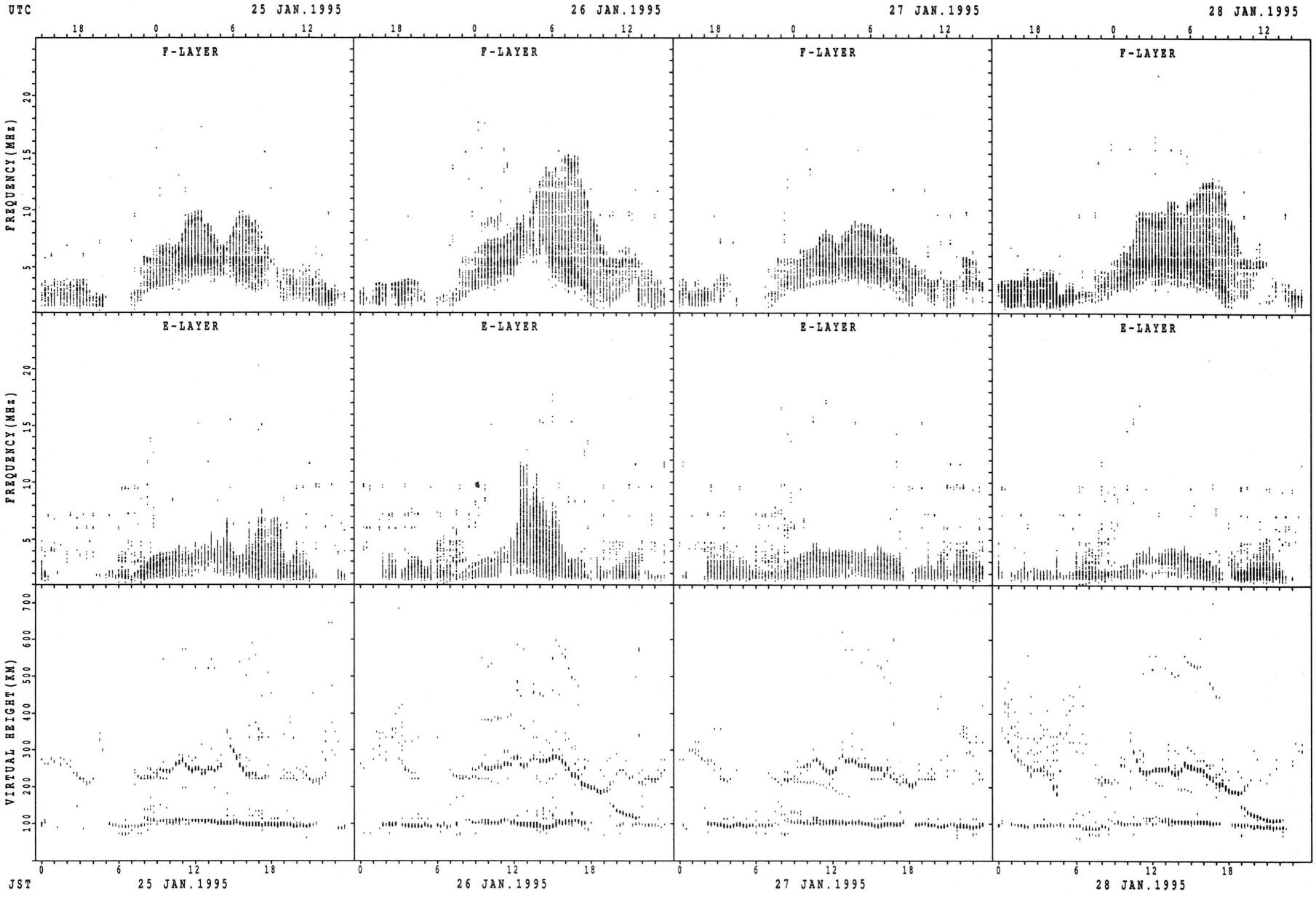
SUMMARY PLOTS AT OKINAWA



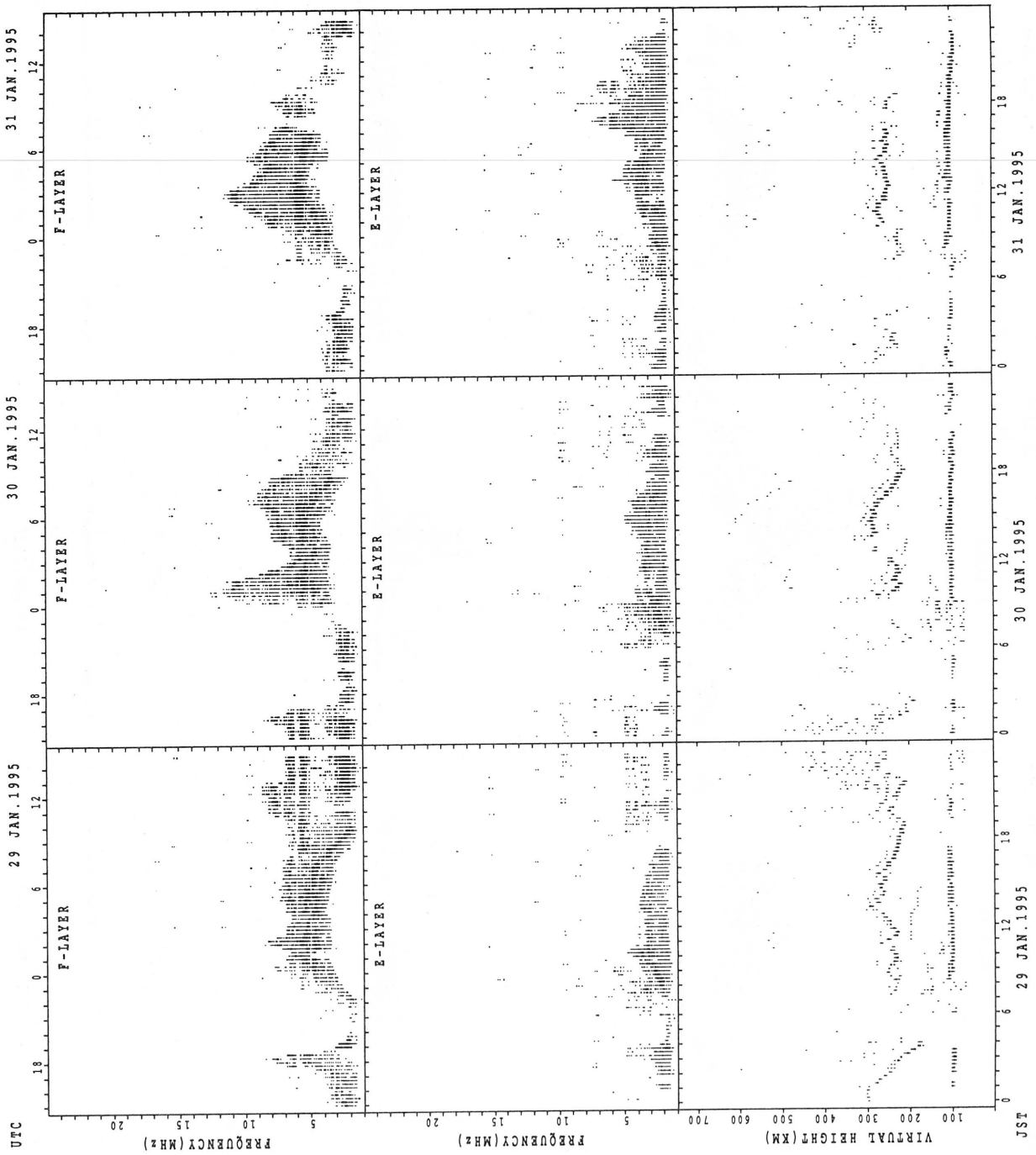
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT OKINAWA
UTC
JST
21 JAN.1995
22 JAN.1995
23 JAN.1995
24 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT OKINAWA



fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT OKINAWA
UTC
JST
29 JAN.1995
30 JAN.1995
31 JAN.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

MONTHLY MEDIANS OF h'F AND h'Es

JAN. 1995 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION WAKKANAI LAT. 45.4N LON. 141.7E

	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	24	22	22	22	19									
MED										246	254	240	246	250	244									
U Q										254	262	248	254	264	254									
L Q										238	240	234	240	240	242									

h'Es

	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	13	16	14	16	16	11	11	12	18	28	26	26	24	24	23	18	18	17	21	13	12	14	19	14
MED	101	103	102	106	107	103	105	107	114	111	113	113	112	113	111	107	103	101	101	99	104	105	97	103
U Q	103	104	105	112	112	107	111	122	125	119	117	119	115	118	115	115	107	103	103	108	107	107	103	105
L Q	99	99	99	103	101	101	101	103	105	105	109	107	105	104	103	101	99	94	97	97	97	97	95	99

h'F STATION KOKUBUNJI LAT. 35.7N LON. 139.5E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										10	23	24	21	18	16	11								
MED										261	262	249	246	263	264	242								
U Q										294	276	265	259	276	266	256								
L Q										258	248	237	239	250	252	240								

h'Es

	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	13	15	12	13	13			26	31	28	27	30	29	30	26	24	14	12	10		15	12	10
MED	105	103	103	105	105	107			119	119	113	111	109	111	111	107	103	98	103	101		99	107	105
U Q	105	108	109	108	107	110			131	155	119	115	113	114	115	113	112	101	109	103		107	110	105
L Q	103	98	101	100	99	103			113	111	109	107	105	103	107	99	97	95	102	99		97	104	99

h'F STATION YAMAGAWA LAT. 31.2N LON. 130.6E

	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											20	26	27	25	25	21	17							
MED											273	256	252	260	264	258	256							
U Q											281	262	268	271	281	270	264							
L Q											256	246	246	249	255	250	247							

h'Es

	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	13		14		11	11			25	30	29	30	29	31	31	31	30	22	16	13	13	13	12	
MED	107		107		105	105			139	113	113	111	111	111	111	111	107	103	105	105	103	103	103	
U Q	112		109		111	107			155	125	120	113	113	113	113	119	115	107	109	111	105	112	109	
L Q	106		103		103	101			130	113	111	109	107	109	107	105	103	103	102	102	97	99	99	

MONTHLY MEDIANS OF h'F AND h'Es

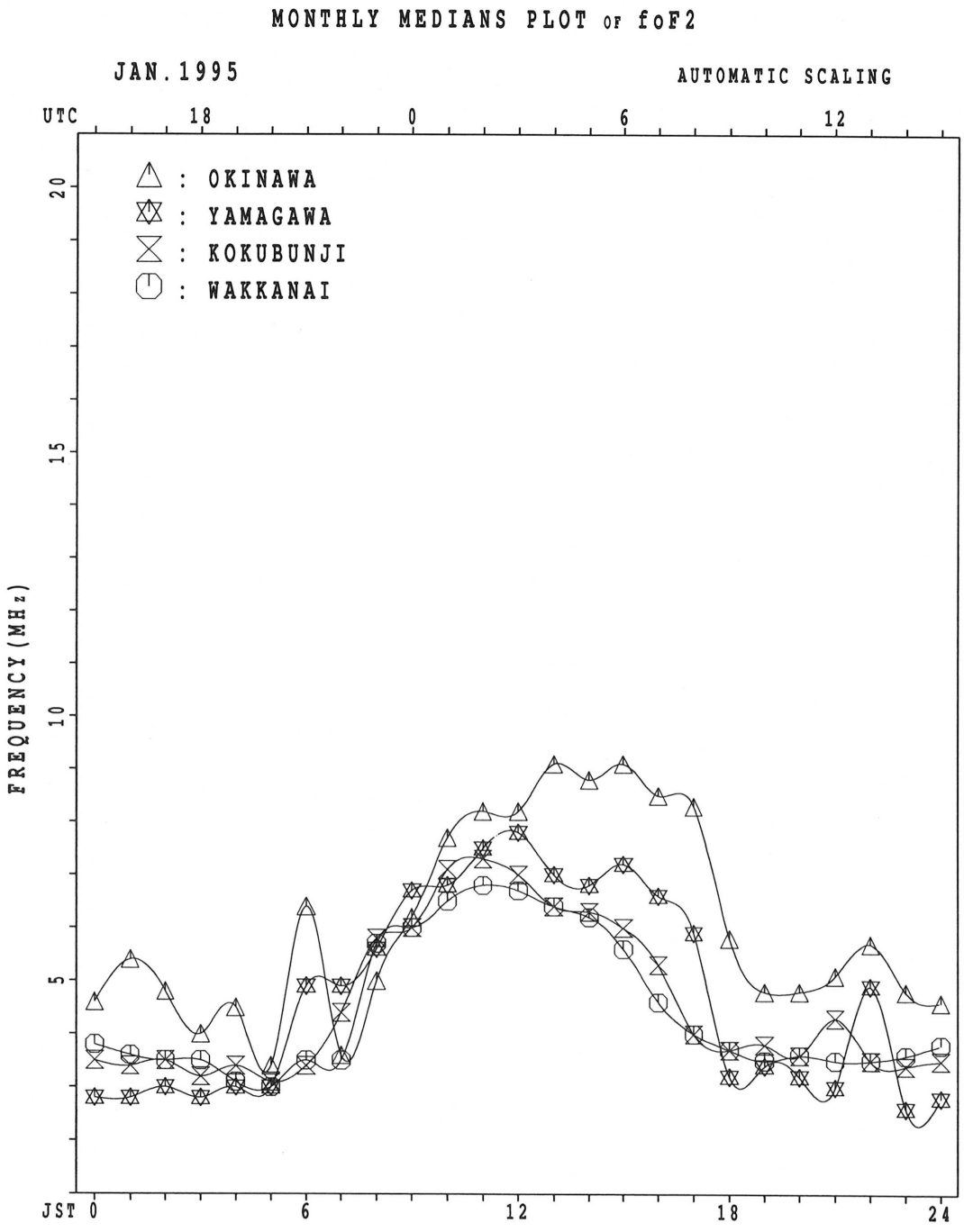
JAN. 1995 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION OKINAWA LAT. 26.3N LON. 127.8E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											21	21	25	26	28	26	26	20	10					
MED											240	248	254	256	258	254	243	226	216					
U Q											260	264	273	270	269	262	252	244	250					
L Q											232	238	246	248	244	238	236	218	212					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	11		12	13		10	11	26	27	30	30	30	29	29	29	27	23	19	20	20	15	13	15
MED	97	97		100	97		95	97	149	105	107	107	106	107	105	101	99	103	97	97	96	97	97	97
U Q	99	105		103	99		95	101	161	121	119	113	111	109	107	106	107	105	107	105	99	113	102	103
L Q	95	89		97	95		83	85	111	103	103	103	103	103	98	97	97	97	93	93	95	93	93	91


MONTHLY MEDIANS PLOT OF foF2
JAN. 1995
AUTOMATIC SCALING
UTC
18
0
6
12
△ : OKINAWA
⛛ : YAMAGAWA
⧖ : KOKUBUNJI
◯ : WAKKANAI
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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	X 33	40	X 35	X 36	O X 35	X 37	X 32											X 42	X 46	X 42	X 33	X 34	40	44
2	X 40	40	X 38	X 39	X 46	X 49	X 50											X 51	X 59	X 44	X 38	X 33	34	41
3	X 43	42	X 42	X 40	X 41	X 40	X 45											X 54	X 53	X 39	O X 32	X	A	A
4	X	43	X 40	O X 34	X 37	X 37	X											X 47	X 52	X 47	X 41	O X 26	X 33	X 34
5	X 34	X 38	X 39	X 40	X	X 32	X 34											X 48	X 43	X 45	X 29	X 35	X 30	X 31
6	X 37	X 34	X 29	X 36	X 38	X 37	X 32											X 43	X	X 39	X	X 41	X 33	X 38
7	X 36	X 38	X 39	X 31	X 26	X 26	X 27											X 43	X 39	X 42	X 34	X 32	X 32	X 36
8	X 38	X 41	X 41	X 34	X 33	X 26	X 28											X 39	X 35	X 39	X 40	X 38	X 42	X 40
9	X 39	X 38	X 37	X 35	X 29	X 30	X 26											X 42	X 33	X 38	X 34	X 32	X 27	X 35
10	X 39	X 37	X 41	X 41	X 32	X 32	X											X 41	X 35	X 38	X 39	X 31	X 37	X 38
11	X 36	X 40	X 40	X 40	X 33	X 33	X 34												X 41	X 39	X 40	X 31	X 33	X 34
12	X 38	X 34	X 40	X 38	X 40	X 29	X 30												O X 41	X 39	X 33	X 30	X 34	X 39
13	X 39	X 41	X 42	X 38	X 38	X 43	X 40												X 42	X 43	O X 32	X 30	X 32	X 36
14	X 39	X 37	X 38	X 37	X 35	X 36	X 34												X 43	X 50	X 39	X 36	X 29	X 36
15	X 36	X 40	X 39	X 39	X 33	X 34	X 38												X 41	X 47	X 40	X 33	X 29	X 31
16	X 32	X 34	X 34	X 38	X 35	X 32	X 33												X 43	X 40	X 30	X 34	X 34	X 36
17	X 39	X 37	X 42	X 33	X 36	X 35	X 34												X 37	O X 45	X 52	X	X	O X 44
18	O X 43	X 41	X 38	X 34	X 33	X 32	X 32												X 66	X 48	X 43	X 42	X 48	X 43
19	X 41	X 36	X 39	X 38	X 38	X 38	X 38												X 41	X 41	X 35	X 36	X 43	X 47
20	X 43	X 41	X 42	X 34	X 39	X	X 34												X 44	X 34	X	X 28	X	X 32
21	O X 31	X 33	X 34	X 34	X 36	X 29	X 29												X 37	X 41	O X 37	X 33	X 38	X 41
22	X 38	X 38	X 37	X 36	X 37	X 35	X 34												X 40	X 39	X 31	X 29	X 31	X 32
23	X 33	X 36	X 37	X 42	X 26	X 29	X 30												X 43	X 53	X 42	X 44	X 41	X 42
24	X 40	X 42	X 39	X 39	X 36	X 37	X 42												X 43	X 39	X 34	X 34	X 35	X 38
25	X 38	X 39	X 45	X 34	O X 25	X 26	X 26												X 40	X 47	X 36	X 33	X	X 35
26	X 36	X	X 35	X 33	X 32	X 35	X 29												X 44	X 42	X 39	X 38	X 35	X 37
27	X 37	X 37	X 39	X 39	X 37	X 35	X 32												X 56	X 52	X 39	X 41	X 40	X 35
28	X 40	X 37	X 36	X 34	X 43	X 35	X 34												X 48	X 39	X 28	X 33	X 34	X 34
29	X 34	X 35	X 46	X 28	X 24	X 32	X 30												X 85	X 60	X 39	X 37	X 39	X 37
30	X 38	X 44	X 37	X 34	X 32	X 34	X 35												X 46	X 47	X 35	X 38	X 40	X 40
31	X 41	X 37	X 35	X 39	X 34	X 33	X 36												X 60	X 40	X 34	X 37	X 34	X 34
	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	31	31	30	30	29											10	30	31	29	29	27	30
MED	38	38	39	36	35	34	34											43	43	42	36	34	34	36
U Q	40	41	41	39	38	37	36											48	48	47	40	38	40	40
L Q	36	37	37	34	32	32	30											42	40	39	33	32	32	34

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	27	F 31	29	U S 30	U S 29	J S 31	26	J S 39	59	57	62	65	68	62	A	55	48	36	40	36	27	28	F 27	F 30
2	F 29	F 29	S 28	F 26	F 29	F 27	F 35	J S 45	53	59	65	61	61	62	64	57	A	46	53	J R 38	32	27	F 23	F 24
3	F 32	F 33	F 32	F 32	J F 33	F 30	F 39	J S	48	S 70	94	80	93	106	69	69	78	48	47	R 33	26	A	F	F
4	F	F 33	F 31	F 28	F 28	F 27	F	J R 41	55	S 79	90	96	89	72	70	59	J R 53	41	46	R 41	35	20	F 27	F 28
5	F 28	F 32	F 33	F 34	F	F 26	F 28	R 44	62	S 62	83	107	97	70	57	57	R 49	42	37	R 39	23	F 25	F 24	F 25
6	F 28	F 28	F 23	F 24	F 26	F 26	F 26	J S 37	43	S 64	89	87	76	64	66	64	R 53	37	A	R 33	A	F 35	F 27	F 31
7	F 30	F 32	F 33	F 25	F 20	F 20	F 21	S 47	66	S 66	71	105	70	58	61	62	R 59	38	33	R 36	28	F 26	F 25	F 28
8	F 28	F 30	F 30	F 27	F 24	F 20	F 22	J S 43	57	S 56	81	66	57	59	56	56	R 49	33	29	R 33	S 34	F 29	F 33	F 30
9	F 29	F 30	F 31	F 29	F 23	F 22	F 20	S 39	52	S 63	67	62	64	57	58	56	R 52	36	27	R 32	S 28	F 26	F 21	F 25
10	F 29	S 28	F 30	F 29	J S 29	J S 26	F	U S 38	44	S 50	61	60	R 62	56	60	51	R 48	36	J R 29	R 32	S 33	F 25	F 31	S 32
11	F 30	S 34	F 28	F 29	S 27	S 27	F 28	S 41	46	S 48	82	71	R 62	56	65	70	R 50	40	R 36	R 33	S 34	J R 25	F 27	S 28
12	F 32	S 28	S 34	F 32	S 34	S 23	F 24	S J R 40	56	S 52	59	66	R 66	58	J R 64	55	R	37	R 35	R 33	S 28	R 24	F 28	F 31
13	F 29	F 31	F 29	F 28	F 28	F 33	F 33	J S 46	R 54	S 49	62	66	R 57	61	R 49	63	J R 55	35	R 36	R 37	S 26	R 24	F 26	F 30
14	S 29	F 29	F 30	F 31	F 29	F 30	F 28	S 42	R 53	S 51	64	64	R 57	R 62	R 56	55	R 47	40	R 37	F 41	S 33	F 30	F 21	F 25
15	S 28	F 28	F 30	F 28	F 27	F 28	F 28	J S 43	R 55	S 49	74	54	R 69	R 66	R 56	55	R U S 47	33	S 35	F 41	F 33	F 23	F 20	F 25
16	S 26	F 28	F 28	F 28	F 29	S 26	F 27	S J R 50	56	S 55	68	77	R 72	R 57	R 55	52	R 53	S 38	S 37	F 34	F 24	F 28	F 28	F 30
17	S 33	S 31	F 33	F 27	F 24	F 24	F 28	S 45	R 59	S 90	98	73	R 59	R 65	R 65	64	R 60	S 40	S 31	U S 39	J S 46	F	F	U S 38
18	U S 37	S 35	S 32	S 28	U S 27	F 26	F 26	S 47	J R 53	S I C 70 76	73		R 83	R 71	R 74	69	R 70	S 61	S 60	S 42	S 37	F 36	F 42	S 37
19	S 35	S 30	S 33	S 32	S 32	F 27	F 32	S R 58 58	I C 65	J R 76	76		Z 71	S 66	R 73	64	R 58	S 37	S 35	S 36	S 29	F 30	F 33	F 38
20	F 33	F 30	F 32	S 28	F 29	F	F 26	S J R 43 54	C 56	R 69	78		Z 71	S 68	R 68	62	R 49	S 46	S 38	S 28	S	F 22	F	F 26
21	F 25	F 27	F 28	S 28	Z 30	F 23	F 23	S 45	R 56	C 57	R 74	83	Z 73	S 75	R 69	57	R 55	S 44	S 31	S 35	S 31	F 27	F 28	F 32
22	S 32	F 32	F 31	S 30	Z 31	F 29	F 28	S J R 42 58	J R 60	R 81	90		Z 76	S 70	R 65	68	R 55	S 42	S 34	S 33	S 25	S 23	F 25	F 26
23	S 27	F 30	F 31	S 36	Z 20	F J S 23 24		S J S 43 65	R 60	R 58	R 60		Z 68	S 68	R 61	58	R 47	S 37	S 37	S 47	S 36	F 31	F 28	F 31
24	F 30	F 32	F 29	F 30	F 28	F 26	F 35	S 55	J S 62	R 60	R 72	R 89	Z 80	S 62	R 62	72	R 57	S 43	S 37	S 33	S 28	F 28	F 29	F 31
25	F 30	F 32	F 34	F 28	S 19	F 20	S 20	S 46	S 50	R 53	R 68	R 66	Z 71	S 64	R 57	57	J R 51	S 45	S 34	S 41	S 30	F 23	F	F 25
26	F 28	F	F 29	F 27	S 26	S 29	S 23	S 41	S 57	R 62	R 66	R 71	Z 77	S 66	R 75	66	R 54	S 42	S 38	S 36	S 33	F 32	F 29	F 28
27	F 31	F 31	F 33	F 31	S 31	S 29	S 26	S 41	S 53	R 59	R 69	R 76	Z 76	S 66	R 59	54	R 51	S 57	S 50	J R 46	S 33	F 35	F 34	F 29
28	F 31	F 31	F 30	F 28	S 37	S 29	S 28	S J R 47 57	R 57	R 64	R 70		Z 66	S 73	R 63	57	R 52	S 44	S 42	R 33	S 23	F 27	F 28	F 26
29	F 28	F 29	F J S 40 22		S 18	F 24	S J R 24 41	J S 65	R 54	S 75	R 75		Z 60	S 59	R 60	57	R 54	S 55	S 79	R 54	S 33	F 31	F 33	S 31
30	F 32	F 38	F 31	S 28	F 22	F 22	F 23	R 42	S 52	R 83	S 83	101	Z 63	S 67	R 64	69	R 58	S 54	S 39	R 42	S 29	F 32	F 34	F 32
31	F 33	F 31	F 29	S 33	F 28	F 27	F 30	R 51	S 51	S 69	S 85	85	Z 76	S 78	R 92	72	R 60	S 50	S 54	R 34	S 28	F 25	F 27	F 27
	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	31	31	30	30	29	30	31	31	31	31	31	31	30	31	29	31	30	31	29	29	27	30
MED	30	31	31	28	28	26	26	43	55	59	72	73	70	65	64	58	53	41	37	36	30	27	28	30
U Q	32	32	33	31	29	29	28	46	58	65	82	85	76	70	68	66	58	46	42	41	33	30	31	31
L Q	28	29	29	28	24	23	24	41	52	54	65	66	62	59	58	56	49	37	34	33	28	24	25	26

JAN. 1995 foF2 (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	390	395		L								
2										L	L	L	L	L	U L 395									
3									L	L	U L 415	L	L	U L 430										
4											U L 440	U L 430	395	L	L	L								
5										L	L	U L 455	L 420	U L 430	L	L								
6										L	U L 430	L 420	L 415	L	L									
7										L	L 420	L 405	U L 415	U L 405	L	L								
8										L	U L 420	L 415	L	L	L									
9										U L 390	U L 390	L 405	L 400	L	L	L								
10											U L 395	L 420	U L 405	U L 395	U L 395	L								
11											U L 415	U L 420	U L 420	L	U L 395	L								
12											L	U L 395												
13									L		L	U L 420	L	L 405	L	L								
14									L	L	U L 390	L 420	U L 390	L 390	L									
15										L	L 390	U L 405	L 395	U L 405	U L 375									
16											L 430	L 420	L 420	U L 415	U L 355	L								
17										L		L	U L 420	U L 405	L	L								
18										L		L	U L 430	L	L	L								
19									L			L	U L 420	L	U L 420	L								
20								U L 180	U L 290		U L 420	U L 420	L	U L 430	U L 415	L	L							
21											U L 430	L	U L 445	U L 440	U L 405	L								
22								L		L	L 420	U L 440	U L 445	U L 440	L	U L 390	L							
23											L	U L 430	L 440	L	L	L								
24									L	L	L 420	U L 445	U L 480	U L 420	L	L								
25											U L 415	U L 455	L 440	U L 420	L	L								
26										L	U L	U L 445	L 440	L 430	U L 415	L								
27										L	U L 440	L	U L 445	U L 440	U L 415	L								
28								L 190	L		U L 440	U L 430	L 430	L 415	U L 415	L	L							
29											U L 440	L 430	L 430	L	L	L								
30								L		L	L	U L 430	L 420	L	L	L								
31										L	L	U L 430	U L 445	U L 445	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	1	1	19	24	24	19	11	1								
MED								185	U 290	U 390	U 420	U 420	420	U 420	U 405	U 390								
U Q											U 430	U 430	U 440	U 430	U 415									
L Q											U 415	420	410	405	U 395									

JAN. 1995 foF1 (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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 215	255	290	305		A 300	290	A	A	S							
2								B 215	A	A	A		A 310	A	280	250	A							
3								A	A	A 305	A		A	A 300	A	A	A							
4								A	A	A	A	A	A	A 290	265	A	A							
5								A	A 250	290	305		A 300	R	265	240	A							
6								B	A 265	300	300		A 300	290	275	A	A							
7								A	A 255	265	290		A 300	290	A	250	A							
8								A	A	A 290	300		A 300	A	265	A	A							
9								B 250	265	280	300		A 305	280	265	230	175							
10								S 225		A 295	305		A	A	280	250	A							
11								A 225		A 300		A	A 305	A	275	250	A	E						
12								S	A 240	280	305		A	A	A	A	A	B						
13								B 225	265		A	A	A	A	A	255	A	B						
14								A 215		A 300	300		A	290	290	255	A	S						
15								A 230		A 290	300		A 305	A	A	A	A	B						
16								S	A	275	305	A	A 305	A	A	A	A	E						
17								A	A 265		A	290	A	A	A	A	A	B						
18								B	A	A	C	A	A	A	A	A	A	B						
19								B 215	I C 275	290	295		A	A	280	A	A	S						
20								B 205	C 255	A	305		A	A	A	A	A	B						
21								B 215	C 280	290	A		A	A	290	265	215	B						
22								B	S	C 265	A	A	A 305	300	280	265	A	B						
23								A 225		C 265	A	A	A 315	315	295	275	A	E						
24								150	A	C 265	290	305	A 315	305	290	255	215	E						
25								A	A	C 290	U A 300	315	A 325	A	290	A	A 180	E						
26								B 240		C 280	A 300	A	A	A	R	255	A	B						
27								180	250	C 300	A 305	R	A	315	300	255	A 230	B						
28								S 215	280	C	A	A	A	315	300	A	A 190	B						
29								B	S 230	C 265	A 300	315	A 325	305	300	265	A	B						
30								B	S 250	C 280	A 300	305	A 325	A	290	A	A	B						
31								B	A 205	C 265	A 300	315	A 315	305	A 280	A	A	S						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	18	22	22	18	17	14	20	15	6	5						
MED								165	225	265	298	305	305	300	280	255	202	E						
U Q									230	280	300	305	315	305	290	265	215	E						
L Q									215	265	290	300	300	290	275	250	180	E						

JAN. 1995 foE (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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 A 27	17	J A 22	J A 34	J A 36	37	33	29	32	G	38	34	37	35	88	24	E S 18	E B 11	E B 11	E B 11	E B 11	20	E B 10	19
2	A E B 21	10	A J A 28	37	A J A 17	J A 44	J A 35	34	29	J A 54	J A 40	35	J A 34	38	G 24	54	S 71	B E 32	B E 11	B J A 18	B E 15	S E 13	B E 10	B E 11
3	A J A 17	J A 35	J A 32	J A 26	J A 32	J A 49	A J A 57	J A 65	J A 39	J A 57	J A 56	45	A 51	38	J A 41	42	J A 29	J A 30	J A 63	A 40	A J A 32	S 51	J A 55	B 57
4	A 42	A 50	J A 48	A 37	A J A 27	J A 34	J A 48	J A 36	A 23	A 56	A 50	J A 50	A 37	G 29	G 26	29	A 25	A 24	A 25	A 24	A 21	S 26	A 23	B 21
5	E B 11	A 26	A 17	A 18	A J A 27	J A 30	J A 44	A 32	A 33	A 35	G J A 25		G 28	G 30	G	28	A J A 36	J A 35	J A 30	A 24	A 23	S 26	A J A 28	32
6	B 29	A 19	A 15	S E B 18	S E B 10	S E B 16	A 10	18	A 23	A 31	G 23	G 28	G 33	G 29	G 28	34	J A J 40	A J A 28	A J A 47	A J A 69	A J A 57	S 74	J A J 39	A 45
7	J A 30	A 34	A 34	S J 29	A J 20	A E 22	B J 12	A J 27	A 28	A 34	G 31	G 37	G 30	G J A 34	49	G 25	A E 41	B J 10	A E 31	B E 10	B E 11	S 18	A J 29	A 35
8	J A 41	A 29	A E 19	B J 10	A 21	A 28	B 18	A 28	J A 30	A J 36	A 34	G 25	G 35	G 34	A 32	G 38	A 30	B E 24	B E 12	B E 11	B E 12	B J 10	A 20	A 29
9	A J A 25	A 40	A 24	B 29	A 20	A 22	B E 18	B 14	A 31	A 32	A 38	G J 21	A 47	G 33	A	G 23	A E 10	B J 19	A 16	B E 11	B E 10	B	A E 18	B 10
10	E B E 10	B E 10	B E 12	B 18	B J 35	A J 31	A J 29	A J 31	A 26	A 35	A 35	G 32	A J 50	A J 44	G 23	G 23	A 36	B J 33	A 22	B 20	B E 11	B E 15	B E 11	B 18
11	E B E 11	B 10	B 29	B 28	A 27	A 22	A 21	A 28	A	A 29	G 30	G J 43	A J 32	A J 38	G 20	G	A J 30	A 22	A 25	B 20	J A 32	E B 14	E B 12	E B 10
12	S 23	B 26	B 23	B 33	A 20	A 23	A E 22	S 14	A 29	A	G	G J 38	A 54	A 54	G 55	G 74	J A J 89	A J 47	A J 51	A J 27	A 27	B 28	B J 26	A 52
13	S J 35	A J 33	A 33	B 23	A J 20	A E 40	B 12	S 27	A	A J 32	A J 46	A J 46	A J 44	A 34	A J 32	G 33	A 36	A 22	A 27	A 28	A 28	B 27	B E 29	B 10
14	S 24	A 22	A 18	B 28	A 28	A 24	B 27	S 23	A	A 31	A 34	A 34	A 33	A	A 35	G 30	J A J 29	A J 41	A J 18	A 18	A 23	B 29	B J 30	A 23
15	S 29	A 24	A J 29	A 42	A 36	A 28	B 23	S 37	A	A 31	G 27	A 33	A J 38	A J 102	A J 46	G 44	J A 49	A 38	A 28	A 28	E B 11	E B 10	E B 10	E B 10
16	E B 10	A 30	A 39	A 19	A E 23	S E 14	B E 10	S 16	A 25	A 38	G 36	A 33	A J 30	A 30	A J 31		A E 33	B E 10	B E 12	B E 11	B 18	B 20	B J 26	A 34
17	J A 36	A 22	A 28	A J 21	J A 26	S E 18	B J 11	A 37	J A 31	A J 37	A 47	A J 49	A J 41	A J 39	A 37	A 31	A J 30	A J 42	A J 19	A J 47	A E 14	S 28	S E 42	S 13
18	J A J 37	A 35	A 30	S 28	A 18	S 19	B 23	A 38	A 29	A J 33	A J	A J 42	A J 36	A 38	A 43	A 44	A E 24	B E 12	B E 11	S 26	E B 12	S 29	E B E 13	B 10
19	J A E 30	B 11	A E 20	S E 13	B 10	S E 25	B 11	J A 26	J A 24	A	A 37	A 33	A J 44	A J 61	G 27	A 39	A E 26	S 13	B E 17	B 10	B 17	S 18	E B 10	B 37
20	A 19	B J 27	A 36	S J 23	A 35	S 45	B E 24	B 13	A 24	G 20	A 34	A 36	A J 33	A 33	G 42	A 37	A J 32	A 47	B 23	B J 33	A 39	S 33	B J 25	A 30
21	J A 24	B 26	A 27	S 25	A 35	S J 24	A E 16	B 16	A	G 33	A J 33	A 41	A J 38	A 34	G 33	A 29	A J 28	A E 26	B E 11	B 14	A J 22	A 29	B E 25	B 10
22	E B 11	B E 18	B E 12	B E 11	S E 16	B E 10	B E 11	B E 14	A	G 23	J A 41	A 41	A J 37	A 36	G	G 21	A J 28	A 43	B 28	B 23	A 22	A 21	B E 20	B 10
23	B 26	B 22	B E 16	B 12	S 14	B 15	S 17	B 19	A	G 37	A 34	A 34	A 32	G 32	G 31	G 29	A J 23	A 32	B 18	B 18	A J 27	A 24	B 30	B 33
24	J A 25	B 18	B 24	B 24	S 19	S J 17	A 20	B	A 29	G	A	A 34	A	G 36	G 32	G	A	A E 26	B 10	B 22	A 19	A 19	B 20	B 24
25	A E 17	B J 11	A 32	B 28	S 28	S 20	A 18	B J 19	A 36	G 26	A 35	A 33	A 37	G 33	G 33	G 30	A 23	A 18	B E 24	B 11	A 29	A 19	B 52	B 21
26	J A J 28	A 45	A 23	B J 18	A 17	S E 19	B E 12	B J 16	A	G	J A 50	A J 40	A J 39	A J 34	G 26	G 30	A 34	A 34	B 30	B 24	A 24	A 21	B 42	B 19
27	A J A 18	J A 29	A 28	B J 31	A 34	S E 23	B E 10	B J	A 29	G 29	A 39	A 38	A J	A	G 28	G 24	A	A 27	B 33	B 22	B J 35	A 26	B J 31	A 37
28	A 28	A 33	A 26	B 28	A E 19	B E 12	B E 11	B E 15	A 27	G 36	J A 32	A 45	A 38	A	G	G 32	A 23	A E 25	B E 10	B E 11	B E 12	B E 11	B E 11	A 22
29	E B E 11	B 11	A E 17	B E 10	B E 11	S E 19	B E 10	B E 14	A	G	J A	A 36	A	G	G	G	A E 27	B E 14	B E 11	B E 10	B E 10	B E 11	B E 18	B E 10
30	E B E 11	B E 10	B E 11	B E 10	B E 11	B E 10	B J 24	A E 13	A 30	G 35	A 35	A	A 37	G 32	G 34	G 33	A 37	B J 47	A J 52	A 41	B 28	B 27	B 28	B 18
31	B 18	B E 23	B 12	B E 20	B E 11	B 18	A E 17	B 16	A 27	G 34	A 38	A 40	A 37	G 39	G J 77	A 33	J A J 36	A J 29	A E 61	B 10	B 16	B 25	B 19	B 18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	29	22	29	28	29	27	30	30	31	28	31	31	31	31	31	31	31
MED	24	24	24	24	20	22	18	23	29	35	36	36	37	34	34	33	30	27	23	20	21	21	25	21
U Q	29	33	30	29	28	30	24	32	31	G	40	42	41	39	49	44	36	35	30	27	28	28	30	33
L Q	17	17	17	18	17	18	11	16	26	31	34	33	33	33	28	29	26	18	12	11	12	15	13	10

JAN. 1995 foEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	E B 11	E B 10	16	18	17	14	15	G 14	G	G 21	32	33	32	A A 88	23	E S 18	E B 11	E B 11	E B 11	E B 11	13	E B 10	E B 10
2	14	E B 10	B 14	12	13	E B 11	14	21	G 25	28	G 29	33	G 23	31	G 22	G 22	A A 71	B 15	E B 11	B 12	B 13	E 13	S E 10	B E 11
3	E B 11	E B 10	E B 11	12	E B 11	B 13	26	A A 65	G 21	35	G 18	32	G 33	33	G 33	G 32	A 26	E B 10	B 23	B 14	B 18	A 51	A A 55	A A 57
4	A A 42	B 14	B 16	18	E B 10	E B 10	A A 48	A 23	G 18	42	G 32	31	G 32	G 18	G 19	G 23	A 19	B 13	E B 10	B 13	B 13	A 18	E B 11	A 13
5	E B 11	E B 10	E B 11	12	A A 27	B 17	A 13	A 15	G 23	G 17	G 19	G	G 19	G 30	G	G 20	A 22	E B 13	B 14	B 12	E B 10	E B 10	E B 12	A 13
6	E B 10	E B 10	B 12	E B 10	E B 10	E B 10	E B 10	E B 13	U Y 23	G 30	G 19	G 18	G 20	G 21	G 15	G 33	A 24	B A 18	A 47	B A 23	A 57	B 21	B 17	A 14
7	B 15	B 17	B 14	B E 14	E B 10	E B 10	E B 12	B 16	Y 23	G 28	G	G	G 20	G 32	G 29	G	A 23	E B 10	E B 12	E B 10	B 11	B 15	B 14	A 12
8	B 18	B 14	B 13	E B 10	B 12	E 14	B E 11	B 17	Y 20	G 27	G 18	G 23	G 33	G 30	G 30	G 26	A E 18	B E 11	B E 12	E B 11	E B 12	E B 10	E B 10	E B 11
9	E B 11	B 22	E B 10	E B 11	E B 12	E B 10	B 13	E B 14	G 14	G 16	G 18	G 15	G 21	G 16	G	G 18	A	E B 10	B 13	B E 13	E B 11	E B 10	B E 12	E B 10
10	E B 10	E B 10	E B 12	E B 10	B 13	E S 13	B	E S 13	G 24	G 26	G 21	G 25	G 32	G 28	G 18	G 16	A 18	B 17	B 13	B E 14	E B 11	B E 13	B 11	B 13
11	E B 11	E B 10	B E 14	E B 10	E B 10	S 13	B 12	S 14	G	G 28	G 25	G 33	G 21	G 33	G 15	G	A 20	B 14	B 14	B E 13	E B 10	E B 14	E B 12	E B 10
12	E B 11	B 11	B 15	B E 13	E B 10	S 12	B 14	E S 14	G 23	G	G	G 21	G 42	G 42	G 50	G 35	A A 89	B 19	B 27	B E 15	E B 10	B 14	B 11	B 12
13	B 12	E B 10	B 11	E B 10	B 11	E B 10	E B 12	S 17	G	G 29	G 30	G 33	G 33	G 31	G 24	G 17	A 18	B 15	B 12	B 14	B 16	E B 10	B E 14	E B 10
14	B 14	E B 11	B 12	B 14	B E 14	B E 10	B 14	S 17	G	G 27	G 31	G 32	G 33	G	G 33	G 18	A E 22	S E 15	B 10	B E 12	E B 10	B E 10	B E 10	E B 10
15	E B 11	E B 10	E B 11	B 15	B 21	E B 10	B 13	S 18	G	G 29	G 23	G 32	G	G 36	G 33	G 30	A 23	S 21	B 18	B E 17	E B 11	E B 10	E B 10	E B 10
16	E B 10	E B 10	B E 16	E B 11	E B 13	B E 14	S E 10	E B 16	G 22	G 30	G 18	G 32	G	G 30	G 28	G 26	A E 22	B E 10	B E 12	B E 11	B 14	B 11	B 14	B 14
17	B 13	E B 11	B 14	B 13	E B 10	B E 10	E B 11	S 14	G 21	G 17	G 41	G 20	G 34	G 33	G 30	G 25	A 18	B E 24	B 11	B E 14	E S 14	B 17	B E 18	S 13
18	E B 11	B 14	B E 15	B E 10	B E 10	B E 10	B 16	E B 14	G 24	G 28	G	G 33	G 28	G 30	G 32	G 31	A E 21	B E 12	B E 11	B E 10	B E 12	B 16	E B 13	E B 10
19	B 15	E B 11	E B 10	E S 13	E B 10	B E 13	B E 11	E B 15	G 16	G	G 19	G 32	G 34	G 51	G 18	G 28	A E 23	S 13	B 13	E B 10	B 12	B 12	E B 10	E B 10
20	E B 10	E B 10	E B 10	S 13	B 14	A A 45	B 11	E B 13	G 15	G 17	G 33	G 34	G 33	G 30	G 33	G 27	A 14	S E 22	B 11	B A 15	A A 39	B A 18	A A 25	B 14
21	B 16	B E 13	B 11	S 13	B 16	A E 13	B E 10	B 16	G	G 32	G 33	G 38	G 33	G 33	G 32	G 28	A 25	S E 15	B E 11	B 14	A 17	B E 14	B E 10	B 10
22	E B 11	B 13	B E 12	B E 11	B E 10	B E 10	B E 11	B E 14	G	G 18	G 33	G 34	G 24	G 24	G	G 18	A 21	S E 14	B 10	B 13	A 15	B E 14	B E 10	B 10
23	E B 10	B 14	B E 10	B E 12	B 13	B E 12	B 10	B 16	G	G	G 31	G 33	G 23	G 24	G 27	G 21	A E 22	B E 10	B 10	B 13	A 20	B 12	B 14	B 18
24	B 13	E B 11	E B 10	B 13	E B 10	E B 10	B E 10	B	G 22	G	G	G 33	G	G 35	G 31	G	A	B E 16	B E 10	B E 10	A E 11	B E 10	B E 10	B 13
25	E B 10	E B 11	E B 10	E B 11	E B	B E 12	B E 10	B 18	G 23	G 21	G 32	G 27	G 36	G 33	G 33	G 26	A 23	B E 13	B E 11	B E 11	B E 11	B A 10	A E 52	B 10
26	B 14	A A 45	B 13	B 14	B 13	B E 12	B E 12	B 16	G	G	G 43	G 34	G 36	G 32	U G 26	G 28	A 23	B 17	B 20	B E 15	B E 10	B E 14	B E 10	B E 10
27	E B 11	E B 10	B E 12	B E 11	B 14	B E 12	B E 10	B E	G 17	G 21	G 35	G 38	G	G 28	G 21	G	A	B 16	B E 18	B E 12	B 20	B 14	B 14	B 13
28	B 14	B 18	B 14	B E 16	E B 11	E B 12	E B 11	E B 15	G 24	G	G 30	G 37	G 33	G	G	G 28	A	B E 16	B E 10	B E 11	B E 12	B E 11	B E 11	B E 11
29	E B 11	E B 11	B 14	E B 10	E B 11	E B 10	E B 10	E B 14	G	G	G	G 35	G	G	G	G	A E 24	B E 14	B E 11	B E 10	B E 10	B E 11	B E 10	E B 10
30	E B 11	E B 10	E B 11	E B 10	E B 11	E B 10	E B 14	S E 13	G 30	G 31	G 33	G	G 34	G 32	G 32	G 29	A 23	B 23	B 24	B E 14	E B 12	B 18	E B 11	E B 10
31	E B 10	B 17	B E 12	E B 10	E B 11	B 11	S 13	E B 16	G 25	G 29	G 36	G 38	G 35	G 34	G 71	G 27	A 18	E S 14	B E 34	B E 10	B 13	B 12	B E 11	E B 11
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	31	30	29	31	31	31	31	31	31	31	31	27	31	31	31	31	31	31	31
MED	11	11	12	12	11	12	12	14	23	29	31	33	33	32	32	27	22	14	12	12	12	13	11	11
U Q	14	14	14	13	13	13	14	17	G	G	36	35	36	34	50	32	23	17	18	14	15	15	14	13
L Q	11	10	11	10	10	10	10	14	21	26	21	31	24	30	24	22	18	12	11	11	11	10	10	10

JAN. 1995 fbEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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	10	11	10	10	11	10	10	11	13	13	11	12	12	14	11	13	E S 18	11	11	11	11	11	10	10
2	10	10	10	10	11	11	11	14	11	12	14	11	15	14	18	17	S 18	10	11	10	10	E S 13	10	11
3	11	10	11	10	11	11	11	12	13	12	10	13	12	11	14	13	S 11	10	11	10	10	S 10	10	10
4	11	10	10	10	10	10	10	10	12	10	14	12	11	13	13	12	S 13	10	10	10	10	S 10	11	11
5	11	10	11	10	12	11	10	10	11	12	14	13	11	14	12	12	S 12	13	12	10	10	S 10	10	11
6	10	10	10	10	10	10	10	13	12	13	12	12	14	11	11	12	S 13	10	11	10	11	S 11	10	12
7	11	11	10	11	10	10	12	10	11	12	13	13	13	13	13	13	S 13	10	12	10	11	S 11	11	10
8	11	12	11	10	10	11	11	E S 13	11	11	12	12	14	14	11	12	S 11	11	12	11	12	S 10	10	11
9	11	12	10	11	12	10	11	S 14	11	12	12	14	12	12	12	13	S 11	10	10	10	11	S 10	10	10
10	10	10	12	10	11	E S 13	11	E S 13	12	13	13	12	12	12	13	11	S 12	12	10	10	11	S 10	11	11
11	11	10	11	10	10	S 10	10	S 11	14	15	19	18	17	10	12	15	E S 14	10	10	10	10	E S 14	12	10
12	11	10	10	10	10	S 10	10	E S 14	14	12	11	14	13	13	12	12	S 11	12	11	11	10	S 10	10	10
13	10	10	10	10	10	S 10	12	S 15	14	13	14	14	13	13	12	11	S 12	12	11	10	E S 14	S 10	10	10
14	12	11	10	11	12	S 10	10	S 10	13	13	14	14	13	14	14	14	S 12	E S 15	10	10	S 10	S 10	10	10
15	11	10	11	12	10	S 10	10	S 10	13	14	13	13	13	12	12	11	S 13	S 11	10	11	S 11	S 10	10	10
16	10	10	11	11	13	E S 14	10	E S 16	12	14	13	13	16	11	12	13	S 12	S 10	12	11	S 10	S 10	10	10
17	11	11	10	11	10	S 10	11	S 11	11	12	14	14	13	13	13	14	S 11	S 12	11	11	E S 14	S 10	11	E S 13
18	11	10	10	10	10	S 10	11	S 14	10	11	C	14	12	12	12	15	S 12	S 12	11	10	S 12	S 11	13	S 10
19	10	11	10	E S 13	10	S 10	11	S 15	11	C	14	13	12	13	13	13	S 14	E S 13	10	10	S 11	S 11	10	S 10
20	10	10	10	S 10	12	S 10	10	S 13	12	11	12	12	12	14	12	13	S 11	S 12	11	10	S 10	S 12	12	S 10
21	10	10	11	S 10	12	S 10	10	S 16	10	11	12	13	13	13	13	12	S 12	S 11	11	14	S 11	S 10	10	S 10
22	11	10	12	S 11	10	S 10	11	S 14	14	12	12	12	12	13	13	12	S 12	S 11	10	11	S 10	S 10	10	S 10
23	10	11	10	S 12	10	S 10	10	S 10	10	12	13	12	16	13	13	12	S 13	S 10	10	11	S 11	S 10	10	S 10
24	10	11	10	S 10	10	S 10	10	S 10	12	14	13	14	14	15	11	15	S 14	S 10	10	10	S 10	S 10	10	S 10
25	10	11	10	S 11	10	S 11	10	S 11	10	13	12	18	19	12	17	12	S 12	S 10	11	11	S 11	S 10	10	S 10
26	12	11	10	S 11	10	S 11	12	S 16	13	13	16	14	17	18	14	14	S 11	S 13	10	10	S 10	S 10	10	S 10
27	11	10	10	S 11	11	S 10	10	S 12	15	17	18	24	21	18	14	14	S 12	S 12	11	12	S 10	S 10	10	S 11
28	10	11	11	S 10	11	S 12	11	S 15	11	14	12	13	14	14	14	13	S 12	S 13	10	11	S 12	S 11	11	S 11
29	11	11	10	S 10	11	S 10	10	S 14	14	13	13	13	13	13	15	12	S 13	S 14	11	10	S 10	S 11	10	S 10
30	11	10	11	S 10	11	S 10	E S 14	S 13	11	12	14	14	14	11	13	12	S 11	S 11	11	10	S 12	S 12	11	S 10
31	10	12	12	S 10	11	S 10	S 10	S 16	13	12	13	12	17	13	13	12	S E S 11	14	11	10	S 10	S 10	10	S 11
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	11	10	10	10	10	10	10	13	12	12	13	13	13	13	13	13	12	11	11	10	10	10	10	10
U Q	11	11	11	11	11	11	11	14	13	13	14	14	15	14	14	14	13	12	11	11	11	11	11	11
L Q	10	10	10	10	10	10	10	11	11	12	12	12	12	12	12	12	11	10	10	10	10	10	10	10

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	F 310	325	U S 330	U S 345	J S 335	320	J S 390	370	370	330	355	365	355	A	380	375	370	350	365	355	315	F 295	F 315
2	F 330	F 345	S 335	F 310	F 295	F 275	F 365	F J S 365	375	375	355	325	360	350	370	390	A	320	370	J R 350	360	340	F 300	F 280
3	F 295	F 280	F 315	F 315	J F 340	F 280	F 365	J S	345	S 330	335	330	320	350	365	345	385	330	365	R 360	335	A	F	F
4	F	F 355	F 365	F 305	F 285	F 315	F	J R 375	340	S 340	325	340	340	330	370	375	J R 395	330	335	R 355	390	330	F 280	F 295
5	F 300	F 310	F 350	F 385	F	F 310	F 320	R 355	370	S 345	310	360	350	380	355	390	R 360	340	350	R 370	305	F 320	F 305	F 280
6	F 315	F 340	F 330	F 310	F 305	F 335	F 350	J S 395	385	S 340	350	365	370	335	365	360	R 370	340	A	R 365	A	F 315	F 290	F 325
7	F 300	F 300	F 355	F 330	F 335	F 315	F 305	S 345	370	S 345	330	380	390	360	360	355	R 380	350	355	R 345	345	F 355	F 300	F 255
8	F 325	F 310	F 335	F 345	F 345	F 295	F 330	J S 370	350	S 335	365	375	365	350	365	365	R 365	355	335	R 365	S 350	F 315	F 305	F 270
9	F 320	F 325	F 340	F 390	F 335	F 330	F 315	S 390	375	S 330	370	370	355	340	345	345	R 370	320	330	R 355	S 380	F 365	F 300	F 295
10	F 305	S 300	F 320	F 330	J S 345	J S 330	F	U S 375	375	S 355	360	355	R 365	340	370	370	R 360	355	J R 325	R 360	S 345	F 335	F 315	S 305
11	F 340	S 360	F 315	F 345	S 300	S 325	F 345	S 365	370	S 365	355	375	R 360	310	355	380	R 360	355	R 330	R 345	S 340	J R 315	F 305	S 315
12	F 290	S 290	S 330	F 315	S 365	S 320	F 330	S 350	J R 365	S 355	350	370	R 355	365	J R 355	380	R	340	R 370	R 325	S 350	R 325	F 310	F 310
13	F 300	F 305	F 265	F 280	F 300	F 340	F 370	J S 370	R 350	S 375	375	350	R 370	345	R 360	340	J R 375	350	R 360	R 375	S 370	R 320	F 310	F 340
14	S 290	F 270	F 310	F 335	F 350	F 335	F 315	S 355	R 365	S 375	370	385	R 360	375	R 365	380	R 375	345	R 345	R 335	S 345	F 325	F 265	F 305
15	S 325	F 315	F 280	F 320	F 335	F 335	F 345	J S 365	R 365	S 385	385	335	R 375	R 380	R 360	370	R 375	U S 340	S 345	F 330	F 345	F 395	F 300	F 290
16	S 320	F 315	F 315	F 315	F 365	S 360	F 350	S 345	J R 370	S 355	330	340	R 365	R 370	R 370	360	R 375	S 395	S 330	F 375	F 320	F 340	F 330	F 295
17	S 325	S 310	F 340	F 330	F 350	F 325	F 345	S 335	R 350	S 340	365	355	R 360	R 340	R 340	350	R 370	S 365	S 315	U S 340	J S 335	F	F	U S 275
18	U S 240	S 325	S 310	S 275	S U S 280	F 280	F 310	S 355	J R 355	S 365	I C 340	320	R 335	R 350	R 335	345	R 340	S 330	S 345	S 345	S 310	F 300	F 325	S 380
19	S 310	S 320	S 305	S 315	S 345	F 300	F 325	S 370	R 345	S	J R 340	355	Z 355	S 340	R 360	340	R 380	S 335	S 360	S 325	S 345	F 310	F 295	F 295
20	F 285	F 290	F 335	S 320	F 285	F	F 360	S 360	J R 360	S 350	R 345	345	Z 335	S 345	R 335	370	R 380	S 345	S 365	S 360	S	F 320	F	F 315
21	F 321	F 303	F 336	S 356	Z 344	F 367	F 367	S 379	R 363	S 346	R 345	337	Z 328	S 337	R 372	370	R 359	S 338	S 346	S 346	S 413	F 308	F 292	F 302
22	S 326	F 314	F 337	S 343	Z 337	F 334	F 321	S 354	J R 334	J R 327	R 336	346	Z 359	S 361	R 345	368	R 373	S 356	S 350	S 336	S 341	F 295	F 306	F 314
23	S 317	F 320	F 327	S 384	A 317	F 310	J S 307	S 352	J S 378	R 380	R 366	R 346	Z 342	S 374	R 358	370	R 375	S 371	S 338	S 354	S 372	F 279	F 315	F 289
24	F 332	F 311	F 270	F 309	F 316	F 325	F 330	S 376	J S 398	R 366	R 345	R 354	Z 383	S 386	R 337	349	R 368	S 344	S 335	S 358	S 328	F 328	F 328	F 276
25	F 281	F 311	F 359	F 342	S 331	F 296	S 323	S 398	S 384	R 362	R 360	R 320	Z 365	S 364	R 368	368	J R 351	S 351	S 328	S 349	S 351	F 311	F	F 264
26	F 289	F	F 312	F 341	S 336	S 341	S 373	S 371	S 378	R 369	R 356	R 339	Z 362	S 341	R 351	369	R 378	S 350	S 327	S 323	S 321	F 331	F 321	F 278
27	F 315	F 315	F 331	F 296	S 312	S 328	S 362	S 380	S 366	R 376	R 348	R 332	Z 364	S 364	R 354	376	R 357	S 360	S 355	J R 327	S 332	F 339	F 326	F 307
28	F 326	F 326	F 317	F 303	S 340	S 365	S 316	S 369	J R 379	R 331	R 331	R 346	Z 344	S 366	R 351	354	R 346	S 352	S 352	R 370	S 302	F 331	F 327	F 309
29	F 307	F 321	F 370	J S 329	S 345	F 284	S 332	J R 350	J S 386	R 362	S 354	R 378	Z 354	S 338	R 351	374	R 341	S 302	S 351	R 362	S 330	F 323	F 340	S 337
30	F 308	F 341	F 355	S 319	F 325	F 325	F 377	R 361	S 328	R 333	S 304	R 369	Z 352	S 345	R 349	360	R 352	S 356	S 338	R 355	S 321	F 299	F 315	F 281
31	F 328	F 342	F 309	S 331	F 363	F 288	F 314	R 381	S 369	S 343	S 343	R 347	Z 335	S 331	R 347	369	R 368	S 355	S 345	R 357	S 324	F 290	F 288	F 291
	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	31	31	30	30	29	30	31	30	31	31	31	31	30	31	29	31	30	31	29	29	27	30
MED	312	314	330	329	336	325	330	367	369	355	348	350	360	350	356	369	370	350	345	355	345	320	305	295
U Q	325	325	340	342	345	335	361	376	375	369	360	369	365	365	365	375	375	355	355	362	353	333	321	314
L Q	300	305	312	310	312	300	318	355	350	340	335	339	344	340	349	354	360	338	335	340	326	310	295	280

JAN. 1995 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN.1995 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	420	385	A	L								
2										L	L	L	L	L	U L 370		A							
3								A	L	L	U L 370	L	L	U L 370										
4										A	U L 365	U L 375	405	U L	L	L								
5										L	U L	U L 365	365	L U L 395	L	L								
6										L	U L 365	L 385	390	L U L	L									
7										L	L 370	L 380	U L 375	U L 380	L	L								
8										L	U L 380	L 405	U L	U L	L									
9										U L 375	U L 380	L 390	395	L U L	L	L								
10											U L 395	L 405	U L 385	U L 395	U L 375	L								
11											U L 360	U L 380	U L 390	U L	U L 355	L								
12											U L	U L 395	U L	U L	U L		A							
13									L		U L	U L 385	U L	L 390	U L	L								
14									L	L	U L 405	L 390	U L 415	L 395	U L									
15										L	L 400	U L 385	L 395	U L 410	U L 420									
16											L 375	L 385	L 390	U L 365	U L 430	L								
17										L	L	L	U L 385	U L 400	U L	L								
18										L	L	L	U L 390	U L	U L	L								
19									L	C	L	U L 385	U L	U L	U L 355	L								
20								U L 420	U L 425		U L 370	U L 380	U L	U L 390	U L 385	L	L							
21											U L 363	U L	U L 377	U L 387	U L 409	L								
22								L		L	L 378	U L 377	U L 372	U L 377	U L	U L 372	L							
23											L	U L 390	L 371	U L	U L	U L								
24									L	L	L 394	U L 361	U L 359	U L 410	U L	U L								
25											U L 393	U L 379	L 381	U L 394	U L	U L								
26										L	U L	U L 383	L 377	L 380	U L 371	U L								
27										L	U L 371	U L	U L 383	U L 377	U L 394	U L								
28								L 415	L		U L 367	U L 376	L 391	L 389	U L 389	U L	L							
29											U L 367	L 380	L 407	L	U L	U L								
30								L		L	U L	U L 380	L 400	L	U L	U L								
31										L	U L	U L 385	U L 388	U L 372	U L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	1	1	19	24	24	19	11	1								
MED								418	U 425	U 375	U 371	U 384	389	U 389	U 385	U 372								
U Q											U 393	388	395	U 395	U 409									
L Q											U 367	U 380	U 377	U 377	U 370									

JAN.1995 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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										225	L 260	245	245	250	A	220								
2										215	L 245	235	245	250	245		A							
3								A	225	275	L 265	235	270	245										
4										260	L 260	240	230	225	235	225								
5										220	L 275	240	245	220	235	220								
6										260	L 250	225	230	240	245									
7										240	L 275	225	225	240	240	245								
8										L 270	L 235	220	235	250	250									
9										L 270	L 225	235	240	245	260	245								
10											L 250	245	250	265	240	225								
11											L 250	235	245	L 305	255	220								
12											L 245	240	255	L 240	255		A							
13									210		L 230	265	235	L 265	235	240								
14									215	220	L 245	230	240	L 240	250									
15										225	L 220	265	245	L 230	230									
16											L 280	255	240	L 250	235	250								
17										255	L 230	240	245	L 255	250	230								
18										240	I C 250	270	260	L 255	280	250								
19									230	I C 245	C 255	250	235	A 250	240	230								
20								215	225		C 270	240	240	A 260	270	225	210							
21											C 265	265	275	A 260	240	235								
22								240		L 310	C 270	250	235	A 240	240	225	210							
23											C 230	265	275	A 240	240	240								
24									210	235	C 255	240	230	A 230	255	230								
25											C 240	280	235	A 240	250	240								
26										235	C 265	260	250	A 255	250	235								
27										230	C 260	270	235	A 240	245	235								
28								210	215		C 260	255	265	A 255	250	240	215							
29											C 245	225	250	A 245	255	245								
30								215		275	C 285	215	250	A 255	255	240								
31										270	C 255	245	270	A 270	A 255									
	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	7	20	31	31	31	31	29	23	3							
MED								215	215	242	255	240	245	250	250	235	210							
U Q								228	225	270	265	260	250	255	255	240	215							
L Q								212	210	228	245	235	235	240	240	225	210							

JAN. 1995 h'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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	270	250	265	255	250	250	210	220	210	215	225	205	220	A	215	205	195	210	215	210	275	295	270
2	285	250	250	265	260	300	240	210	210	205	205	215	235	225	215	225	A	235	205	205	210	225	275	325
3	295	255	245	265	210	300	A 225	A	210	A 260	235	210	A 245	225	225	225	205	205	215	230	A 260	A	A	A
4	A	225	215	A 360	305	290	A	210	225	A	210	210	A 205	210	225	210	205	225	235	220	A 205	E A 280	335	300
5	280	265	255	A 190	A	A 285	A 235	215	225	A 205	H 205	225	A 210	220	205	190	210	230	230	205	A 285	A 265	290	290
6	290	225	255	A 300	270	A 265	A 230	205	220	A 245	H 250	205	A 185	H 195	H 190	225	220	215	A	280	A	A E 250	A 335	290
7	320	320	235	A 225	250	A 280	A 300	225	210	A 215	H 215	H 180	H 200	H 195	H 205	205	220	205	230	235	A 240	A 235	A 290	310
8	320	275	235	A 260	225	A 355	A 245	220	220	A 220	H 220	H 195	H 195	H 215	H 230	235	215	215	240	225	A 230	A 275	A 255	290
9	290	A 330	245	A 210	235	A 280	A 295	205	215	A 215	H 225	H 210	H 200	H 210	H 205	205	230	215	250	220	A 220	A 220	A 345	290
10	290	A 280	280	A 250	235	A 225	A	210	210	A 230	H 220	H 205	H 195	H 210	H 205	210	220	210	225	235	A 220	A 230	A 280	290
11	255	A 220	315	A 235	250	A 260	A 245	205	215	A 220	H 225	H 220	H 200	H 215	H 220	225	215	215	230	225	A 230	A 280	A 305	295
12	295	A 330	255	A 250	210	A 240	A 235	225	230	A 225	H 210	H 195	H	H	H	230	A	230	A 255	225	A 225	A 245	A 280	265
13	285	A 305	295	A 285	280	A 230	A 215	210	210	A 215	H 225	H 220	H 210	H 190	H 200	215	220	205	A 225	225	A 235	A 255	A 295	240
14	320	A 330	290	A 270	240	A 235	A 265	225	215	A 195	H 205	H 215	H 215	H 200	H 215	225	215	220	A 240	225	A 200	A 225	A 305	300
15	250	A 275	285	A 280	A 335	A 270	A 250	210	220	A 210	H 195	H 200	H 185	A 215	H 210	240	215	A 250	A 265	235	A 205	A 210	A 295	310
16	275	A 270	A 305	A 265	A 215	A 280	A 250	215	210	A 225	H 210	H 205	H 210	A 205	H 195	210	215	A 195	A 250	210	A 240	A 260	A 250	295
17	250	A 280	A 240	A 225	A 250	A 270	A 240	230	230	A 215	H	H 230	H 215	A 225	H 200	200	215	A 210	A 265	265	A 235	A 275	A 250	310
18	280	A 245	A 250	A 310	A 295	A 310	A 345	220	215	A 240	I C 230	H 230	H 220	A 230	H 240	A 245	235	A 240	A 225	215	A 230	A 265	A 245	215
19	255	A 285	A 280	A 260	A 240	A 295	A 270	220	210	I C 210	C 180	H 205	H 220	A	H 205	A 225	215	A 220	A 225	230	A 215	A 270	A 305	255
20	230	A 280	A 255	A 240	A 310	A	A 230	200	180	C 220	C 210	H 210	H 225	A 210	H 200	A 215	180	A 230	A 215	230	A	A 335	A	310
21	A 300	A 290	A 270	A 240	A 255	A 265	A 235	215	210	C 230	C 230	H	H 205	A 210	H 210	A 210	225	A 215	A 215	240	A 230	A 295	A 305	290
22	A 270	A 240	A 250	A 240	A 240	A 235	A 255	215	220	C 220	C 210	H 205	H 190	A 230	H 220	A 210	205	A 205	A 230	225	A 240	A 305	A 320	310
23	A 295	A 270	A 250	A 210	E A 260	A 285	A 315	230	225	C 215	C 195	H 200	H 190	A 235	H 225	A 215	215	A 220	A 240	215	A 220	A 285	A 315	A 345
24	A 280	A 270	A 305	A 280	A 255	A 255	A 230	225	200	C 210	C 185	H 200	H 215	A 210	H 200	A 210	210	A 210	A 205	210	A 220	A 265	A 265	A 315
25	A 295	A 285	A 230	A 210	A 365	A 315	A 255	210	210	C 215	C 215	H 210	H 205	A 210	H 225	A 230	230	A 225	A 230	225	A 205	A 255	A	A 340
26	A 340	A	A 265	A 270	A 270	A 240	A 210	220	230	C 235	C	H 215	H 220	A 200	H 215	A 225	215	A 210	A 245	230	A 240	A 245	A E 265	A 340
27	A 310	A 290	A 270	A 270	A 265	A 250	A 210	215	215	C 215	C 215	H 215	H 225	A 210	H 205	A 210	225	A 225	A 225	215	A 250	A 250	A 250	A 280
28	A 300	A 295	A 290	A 300	A 230	A 205	A 240	195	195	C 210	C 200	A 235	H 215	A 200	H 210	A 205	200	A 210	A 210	210	A 240	A 270	A 260	A 310
29	A 315	A 280	A 210	A 200	A 340	A 280	A 280	230	215	C 215	C 225	A 215	H 195	A 210	H 205	A 225	230	A 255	A 210	195	A 235	A 290	A 275	A 295
30	A 305	A 240	A 225	A 215	A 290	A 340	A 255	195	250	C 250	C 225	A 230	H 225	A 230	H 220	A 245	230	A 225	A 255	215	A 255	A 315	A 250	A 305
31	A 260	A 240	A 285	A 250	A 220	A 325	A 280	210	215	C 240	C 230	A	H 215	H 210	H	A 225	210	A 220	A 250	210	A 240	A 340	A 325	A 310
	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	31	31	30	30	29	30	31	30	29	29	30	29	28	31	29	31	30	31	29	30	28	30
MED	290	275	255	260	254	275	245	215	215	215	215	210	210	210	210	215	215	215	230	225	230	265	288	296
U Q	305	290	285	270	280	295	268	220	220	230	225	220	220	222	220	225	222	225	245	230	240	280	305	310
L Q	275	250	245	225	235	250	232	210	210	210	205	205	200	208	205	210	210	210	215	215	218	245	262	290

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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 145	125	115	115	110	110		A	A	S							
2								B 125	A	A	105	A 130	A		125	120	A							
3								A	A	A	A 120	A	A	105	A	A	A							
4								A	A	A	A	A	A	115	120	A	A							
5								A	A	120	A 120	110	A 120	125	110	125	A							
6								B	A	135	A 125	120	A 120	125	A 140	A	A							
7								A	A	135	A 105	120	A 115	110	A	120	A							
8								A	A	A	A 125	125	A 115	A	A 120	A	A							
9								B	140	135	A 130	115	A 125	120	A 110	A 145	125							
10								S	130	A	A 135	125	A	A	A 120	A 120	A							
11								A	120	A	A 140	A	A 125	A	A 120	A 115	A	E						
12								S	A	110	A 110	110	A	A	A	A	A	B						
13								B	125	115	A	A	A	A	A	A 135	A	B						
14								A	115	110	A 110	115	A	120	A 115	A 115	A	S						
15								A	120	A	A 135	110	A 110	A	A	A	A	B						
16								S	A	125	A 130	A	A 110	A	A	A	A	E						
17								A	A	135	A	A 135	A	A	A	A	A	B						
18								B	A	A	A	A 115	A	A	A	A	A	B						
19								B	A 135	I C 130	A 125	A 125	A	A	A 125	A	A	S						
20								B	A 120	C 120	A	A	A	A	A	A	A	B						
21								B	A 115	C 125	A 125	A	A	A	A 120	A 110	135	B						
22								B	A 110	A 130	A	A	A 125	A 135	A 110	A 110	A	B						
23								A	A 120	A 125	A 110	A	A 130	A 135	A 135	A 110	A	E						
24								115	A	A 115	A 110	A 110	A 110	A 135	A 110	A 110	120	E						
25								A	A	A 135	A 110	A 130	A	A	A 125	A	A	E						
26								B	A 115	A 115	A 110	A	A	A	A	A 120	A	B						
27								155	A 125	A 130	A 115	A 125	A 120	A 135	A 115	A 115	115	B						
28								B	A 115	A 115	A	A	A	A 110	A 110	A	110	B						
29								B	A 115	A 110	A 110	A 110	A 110	A 110	A 110	A 125	A	B						
30								B	A 140	A 125	A 115	A 110	A 110	A	A	A	A	B						
31								B	A	A 125	A 110	A 110	A 110	A 110	A 110	A	A	S						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	18	23	23	20	17	15	19	15	5							
MED								135	120	125	115	115	115	120	120	120	120							
U Q									130	130	125	125	125	135	125	125	130							
L Q									115	115	110	110	110	110	110	110	112							

JAN. 1995 h'E (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	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	120	110	110	105	105	110	105	115	G	120	160	120	120	105	105	S	B	B	B	B	105	B	125
2	115	B	115	110	115	110	95	100	135	105	110	110	110	110	110	105	105	95	B	100	105	S	B	B
3	115	120	105	135	110	105	100	120	100	100	95	100	95	120	110	105	105	150	100	95	125	110	100	95
4	95	95	90	95	100	105	105	100	105	105	95	95	95	95	105	100	105	105	100	95	95	95	100	95
5	B	100	100	100	105	110	105	105	110	105	105	G	105	105	G	105	105	100	100	105	100	100	95	90
6	95	95	130	120	B	120	B	125	105	155	105	110	105	105	100	100	100	95	110	110	105	100	105	105
7	105	95	95	120	120	105	B	110	140	155	180	95	95	150	100	100	95	B	105	B	B	120	105	105
8	110	105	105	B	110	110	120	105	120	105	105	105	165	95	180	95	95	95	B	B	B	B	105	110
9	105	100	105	100	105	100	95	B	110	110	110	105	100	100	G	120	G	B	110	115	B	B	110	B
10	B	B	B	115	95	110	110	100	165	110	110	110	100	100	95	100	100	95	120	115	B	105	B	120
11	B	B	95	100	110	100	95	95	G	120	115	110	105	100	105	G	100	115	95	90	115	B	B	B
12	145	110	120	95	100	100	100	S	115	G	G	110	100	100	95	95	120	95	95	95	95	110	100	105
13	100	100	95	100	100	105	B	95	G	175	115	115	110	110	100	105	100	100	105	100	100	E G 95	95	B
14	110	115	125	105	110	100	100	110	G	125	175	140	95	G	155	100	100	95	120	105	115	100	100	105
15	105	110	100	100	95	95	95	105	G	115	100	160	130	100	115	100	100	100	100	100	B	B	B	B
16	B	100	100	105	115	S	B	S	120	140	110	110	G	110	110	105	105	B	B	B	100	130	110	100
17	100	100	95	95	105	100	B	100	110	110	110	105	105	110	105	105	100	100	135	110	S	115	115	S
18	105	110	100	105	100	100	150	110	140	110	C	130	120	115	115	110	115	B	B	125	B	140	B	B
19	115	B	125	S	B	115	B	125	115	C	105	170	95	100	100	95	115	S	130	B	105	120	B	110
20	110	105	105	100	100	95	95	B	95	100	170	E G 200	115	115	120	95	95	105	110	100	110	100	95	95
21	90	110	100	105	100	105	125	B	G	180	155	G 110	110	95	180	155	135	95	B	B	115	110	110	B
22	B	110	B	B	115	B	B	B	G	100	105	G 110	105	110	G	100	125	95	100	100	95	100	95	B
23	100	105	120	B	115	105	135	100	G	140	125	G 110	110	115	110	90	110	95	120	100	100	100	100	100
24	100	110	105	100	105	100	105	G	110	G	G	G 165	G	155	150	G	G	100	B	95	110	120	95	110
25	125	B	110	100	95	105	100	135	135	110	125	G 115	115	115	E G 190	110	135	120	110	B	100	130	105	110
26	105	100	95	105	105	110	B	B	G	G	115	G 110	110	110	G 105	170	95	95	95	100	95	95	120	95
27	110	115	105	100	100	95	B	G	110	115	115	E G 200	G	110	G 110	G	G	100	100	110	100	100	105	100
28	100	95	95	95	120	B	B	B	125	125	110	G 110	110	G	G	110	100	100	B	B	B	B	B	105
29	B	B	100	B	B	105	B	B	G	G	G	G 135	G	G	G	G	120	B	B	B	B	B	100	B
30	B	B	B	B	B	B	110	B	160	165	190	G	170	110	G 110	110	110	105	105	100	100	95	100	105
31	100	110	B	110	B	115	115	B	175	145	130	G 125	150	115	G 110	110	105	100	100	B	105	100	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	27	25	26	27	20	18	22	25	27	29	27	28	26	27	27	24	22	21	21	24	23	21
MED	105	105	105	100	105	105	105	105	115	115	110	110	110	110	110	105	105	100	105	100	100	102	100	105
U Q	110	110	110	110	110	110	112	110	135	142	125	138	115	115	115	110	115	102	110	110	110	118	105	110
L Q	100	100	95	100	100	100	98	100	110	105	105	110	100	100	105	100	100	95	100	98	100	100	100	98

JAN. 1995 h'Es (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 1995 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

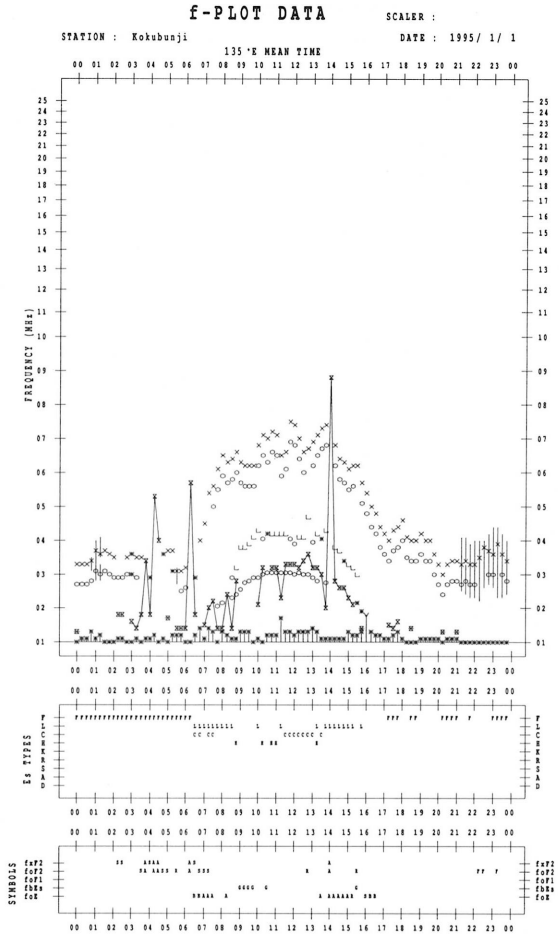
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

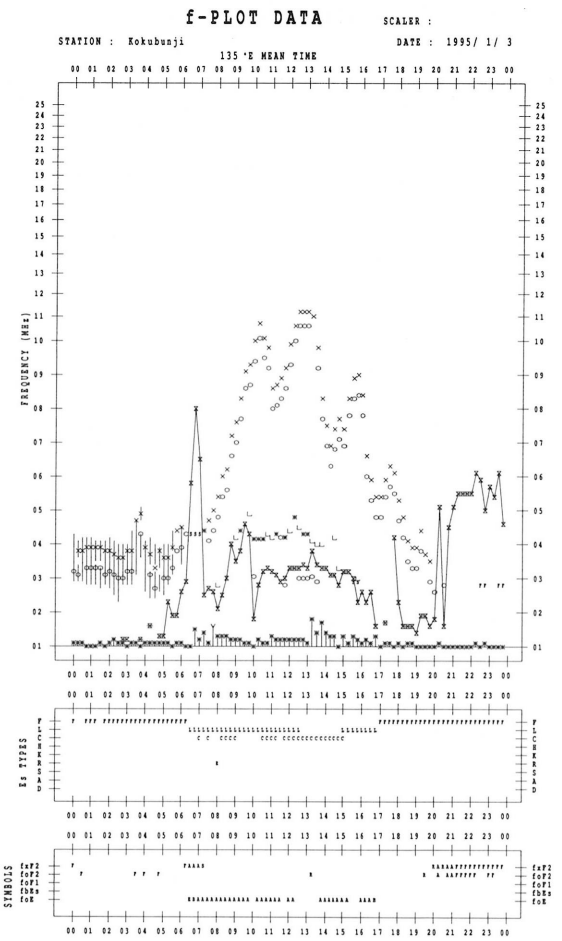
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 2	F 1	F 2	F 3	F 5	F 4	FF 21	L 1	L 2		L 1	H 1	C 1	C 1	L 2	L 1						F 1		F 1\
2	F 1		F 2	FF 21	F 1	F 1	F 41	L 2	CL 12	L 2	L 1	CL 11	LH 21	L 1	L 1	L 1	L 2	FF 31		F 1	F 1			
3	F 1	F 1	F 2	FF 22	F 1	FF 31	F 51	CL 13	LR 21	LC 21	L 2	LC 21	LC 11	C 1	C 2	LC 21	L 2	FF 21	F 3	FF 31	FF 12	FF 24	FF 42	FF 42
4	FF 42	FF 42	FF 32	FF 11	FF 21	FF 21	FF 31	L 33	L 21	L 31	LC 21	L 21	L 21	L 1	L 1	L 11	L 1	F 11	F 1	F 11	F 12	F 24	F 12	F 12
5		F 12	F 12	F 11	F 21	F 31	F 41	L 13	L 21	L 21	L 11		L 11	L 1		L 11	L 2	F 21	F 2	F 11	F 22	F 24	F 22	F 22
6	F 2	F 12	FF 11	F 11		FF 11		C 13	L 21	HL 11	L 11	L 1	L 11	L 1	L 1	L 21	L 2	LC 21	F 3	FF 31	F 32	F 34	FF 21	FF 21
7	FF 21	FF 32	FF 32	FF 11	FF 11	FF 11		L 13	CL 11	HL 11	H 11	L 1	L 11	HL 12	L 1	L 11	LC 21		F 1			F 14	F 11	F 21
8	F 31	F 22	F 12		F 11	F 31	F 1	L 13	C 21	L 21	L 21	L 1	HL 11	L 12	HL 11	L 21	L 21	F 1					F 11	FF 21
9	F 21	F 32	F 22	F 3	F 11	F 11	F 2		L 11	L 11	L 11	L 1	L 21	L 22		L 11			F 1	F 1			F 11	
10				F 1	FF 22	F 11	F 1	L 1	H 11	LH 11	LH 11	L 1	LC 21	LC 21	L 1	L 11	L 2	F 2	FF 11	F 1		F 1		F 1
11			FF 21	F 1	FF 22	F 11	F 2	LC 11		C 11	L 21	L 1	L 21	L 21	L 1		L 2	L 1	F 11	F 1	FF 11			
12	F 1	F 2	FF 21	F 2	F 12	F 21	F 1		C 1			L 1	L 21	L 21	L 2	L 2	CL 23	LC 32	F 41	FF 21	F 21	F 3	FF 11	FF 21
13	FF 31	F 2	FF 21	FF 21	F 22	F 21		L 1		HL 11	C 1	C 2	C 21	L 21	L 2	L 2	LC 21	L 22	F 11	FF 21	F 21	F 1	F 21	
14	F 11	F 2	F 11	F 11	F 12	F 21	FF 21	L 1		C 11	H 1	HL 11	L 21		HL 11	L 1	LC 11	L 12	F 11	F 11	F 11	F 2	F 11	F 1
15	F 11	F 1	F 21	F 21	FF 32	F 21	F 11	LC 11		L 11	L 1	H 11	CL 11	L 2	CL 12	LC 21	L 21	L 22	F 21	F 31				
16		F 1	F 41	F 21	F 12				C 1	CL 11	L 1	L 11		L 1	L 12	L 21	L 21				F 1	F 1	F 2	F 2
17	F 2	F 2	F 31	F 21	FF 11	F 1		L 1	LC 22	LC 21	LC 21	L 21	L 2	L 2	L 22	L 21	L 21	L 3	F 1	F 1		F 2	F 1	
18	F 1	F 2	F 21	F 21	F 21	F 1	F 2	L 1	CL 12	L 11		C 11	C 1	L 1	L 22	L 21	L 21			FF 11		F 1		
19	F 2		F 21			FF 21		C 1	L 12		L 2	HL 11	L 2	L 2	L 22	LC 21	C 11		F 1		F 1	F 1		F 1
20	F 2	FF 22	FF 22	F 2	F 2	F 51	F 3		L 12	L 2	HC 11	HL 11	CL 12	C 1	CL 12	LC 21	LC 21	LC 31	F 1	F 2	FF 24	F 3	F 2	F 2
21	FF 12	F 22	F 22	F 2	F 2	F 21	F 2			HL 11	HL 11	L 21	L 22	L 3	HL 12	H 11	HL 11	L 11			F 24	F 2	F 2	
22		F 22			F 1					L 21	L 31	LC 21	L 12	L 1		L 21	CL 22	L 41	F 2	F 1	F 24	F 2	F 2	
23	FF 22	F 12	F 1		F 2	F 1	F 1	L 1		HL 11	C 11	LC 11	L 12	L 1	L 1	L 21	CL 11	L 11	F 1	F 1	F 44	FF 22	F 2	F 4
24	FF 21	F 12	F 1	F 2	F 1	F 1	F 1		L 1			H 11		HL 11	H 1			L 11		F 1	F 14	F 12	F 2	FF 11
25	F 11		F 1	F 2	FF 31	F 2	F 1	CL 11	C 1	L 1	C 1	L 11	L 1	L 11	HL 11	L 1	CL 12	L 11	F 2		F 14	FF 12	F 4	F 21
26	F 31	F 3	F 2	F 1	F 11	F 2					C 2	C 11	C 2	L 11	L 11	HL 11	L 22	L 21	F 2	F 1	F 24	F 22	FF 12	F 11
27	F 11	F 1	F 2	F 2	F 21	F 2			L 1	L 1	C 1	H 11		L 11	L 11			L 11	FF 41	F 1	F 44	F 22	F 42	F 31
28	F 31	FF 31	F 2	FF 21	F 11				CL 11	C 1	L 1	L 21	L 1			L 2	L 1	L 21						F 11
29			F 1			F 1						H 11					L 1						FF 21	
30							F 1		H 1	HL 11	H 1		H 1	L 1	LC 11	L 1	L 2	L 4	F 3	FF 21	F 2	F 2	F 21	F 1
31	F 1	F 2		F 2		F 1	F 1		HL 11	HL 11	C 1	C 1	H 1	C 1	C 31	L 1	L 3	L 3	F 3		F 1	F 2	F 21	F 1
	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																								
U Q																								
L Q																								

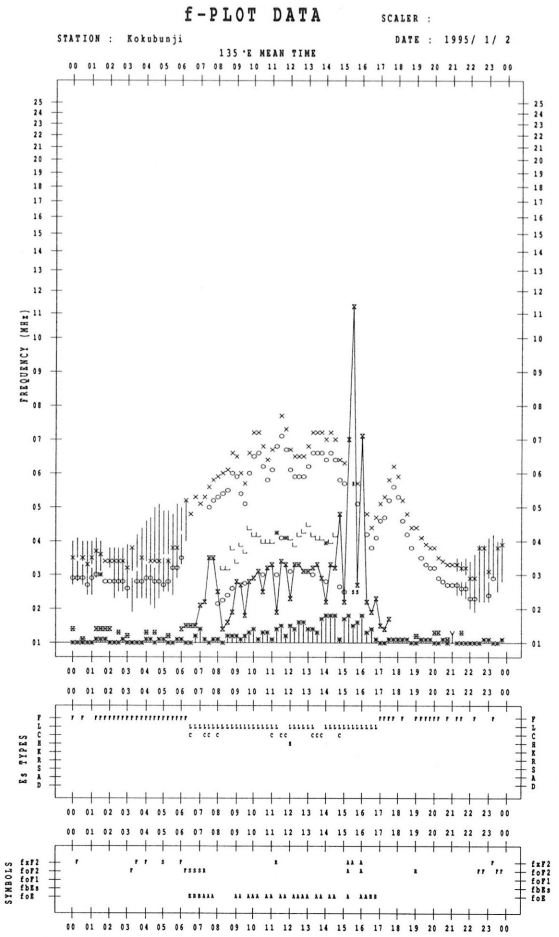
JAN. 1995 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

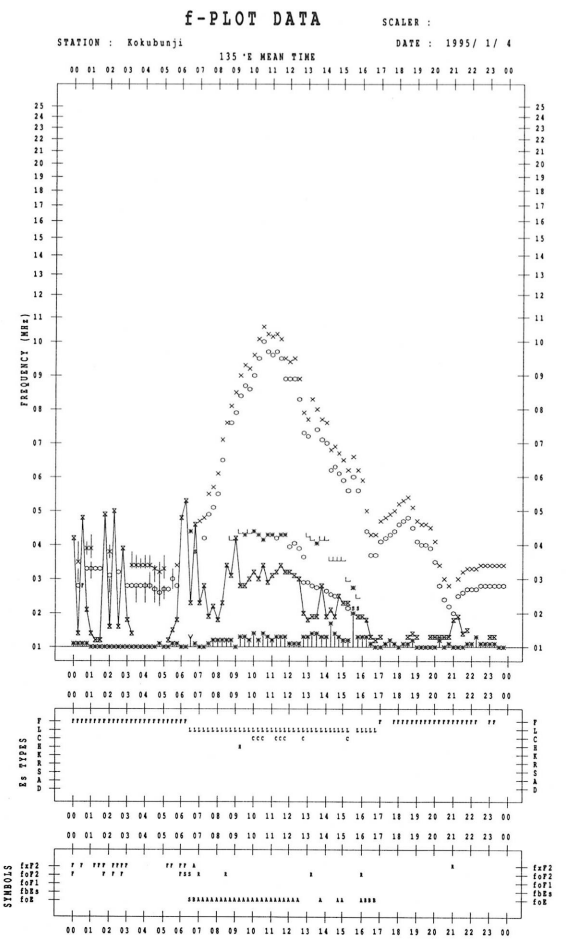
f-PLOTS OF IONOSPHERIC DATA

KEY OF f-PLOT	
|	SPREAD
⬡	foF2, foF1, foE
×	fxF2
✳	DOUBTFUL foF2, foF1, foE
⧖	fbEs
⌊	ESTIMATED foF1
⫯, ⫰	fmin
∧	GREATER THAN
∨	LESS THAN


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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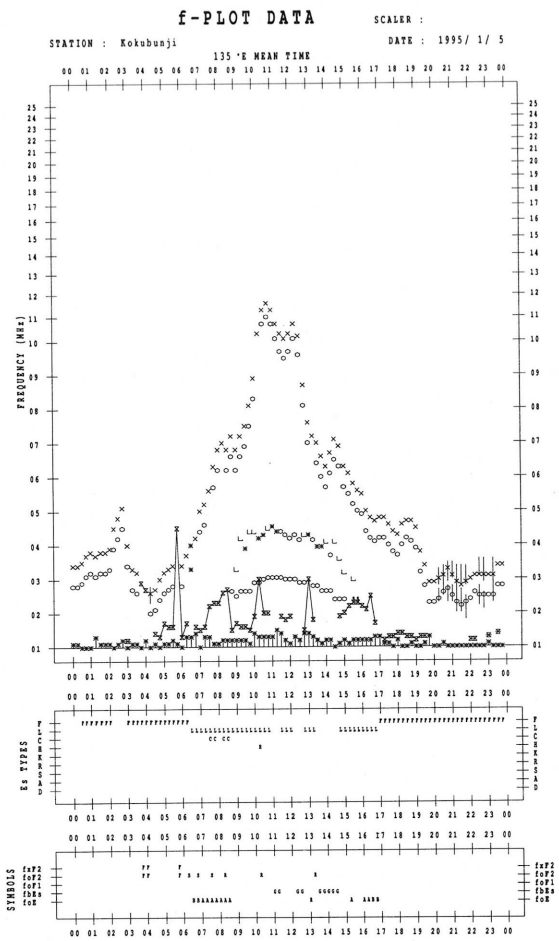
STATION : Kokubunji
DATE : 1995/ 1/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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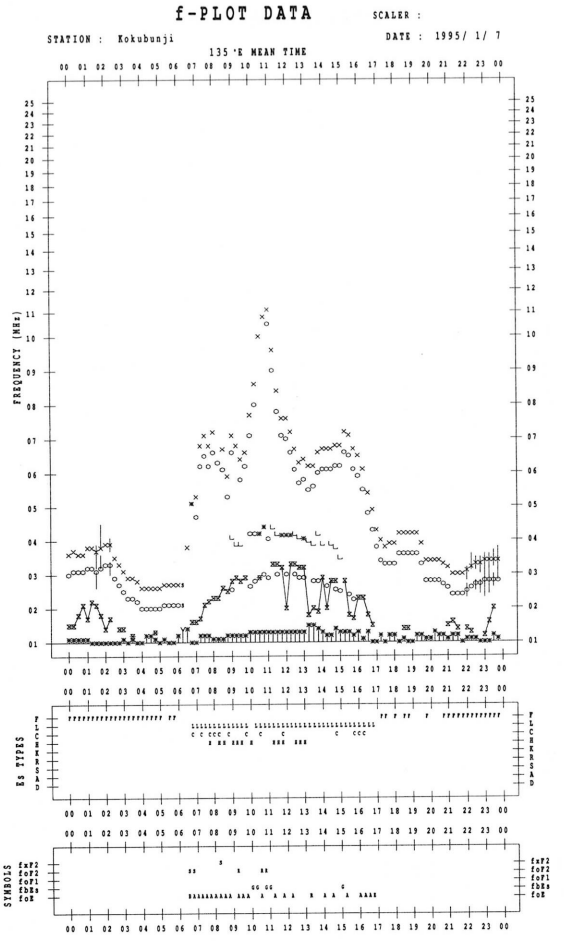
STATION : Kokubunji
DATE : 1995/ 1/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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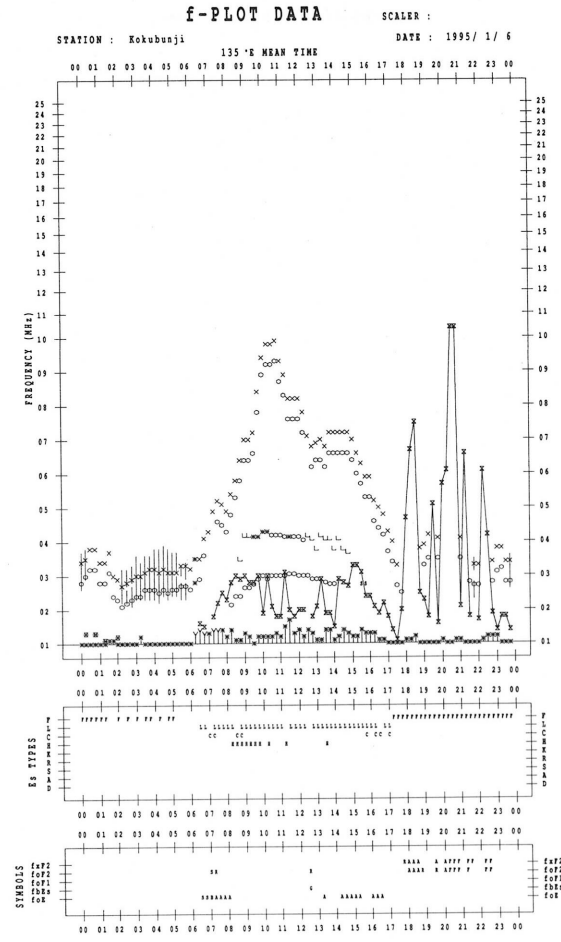
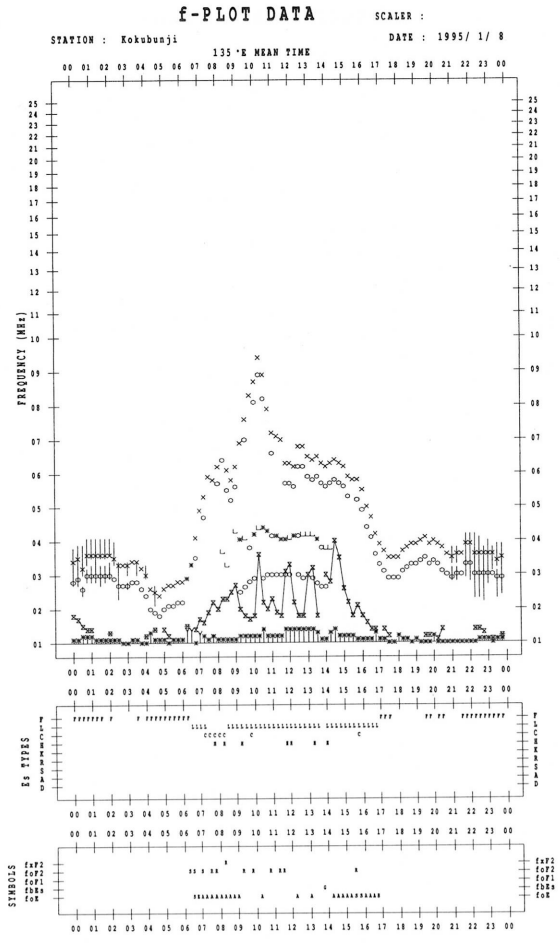
STATION : Kokubunji
DATE : 1995/ 1/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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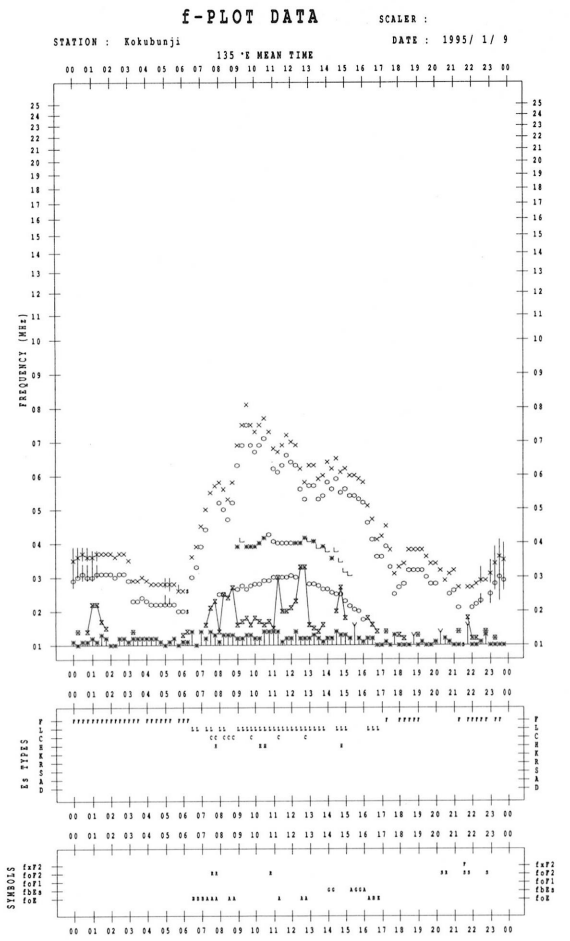
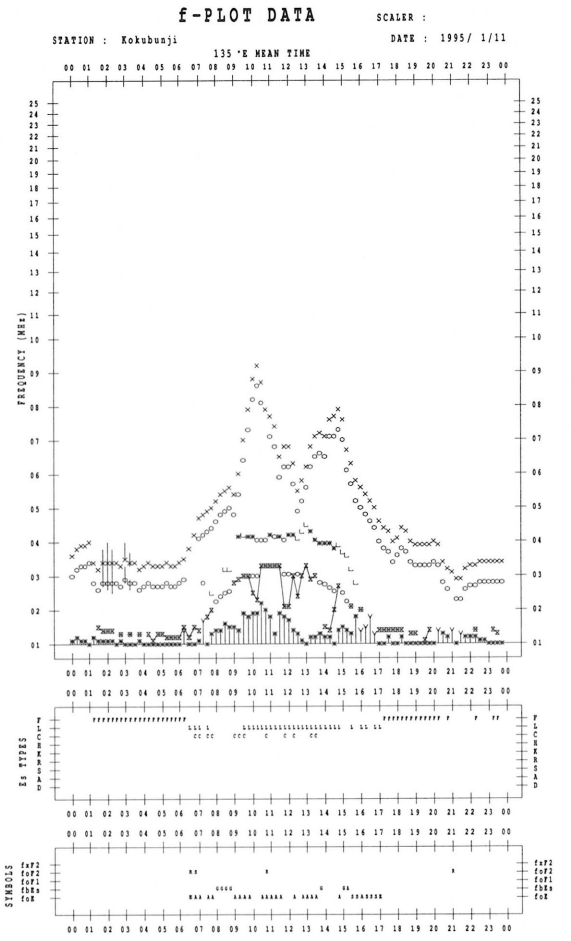
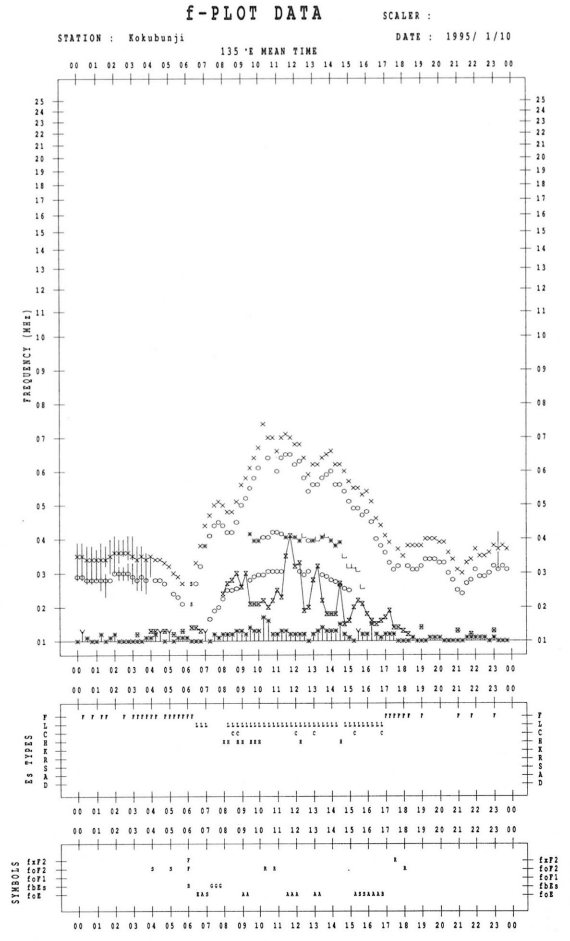
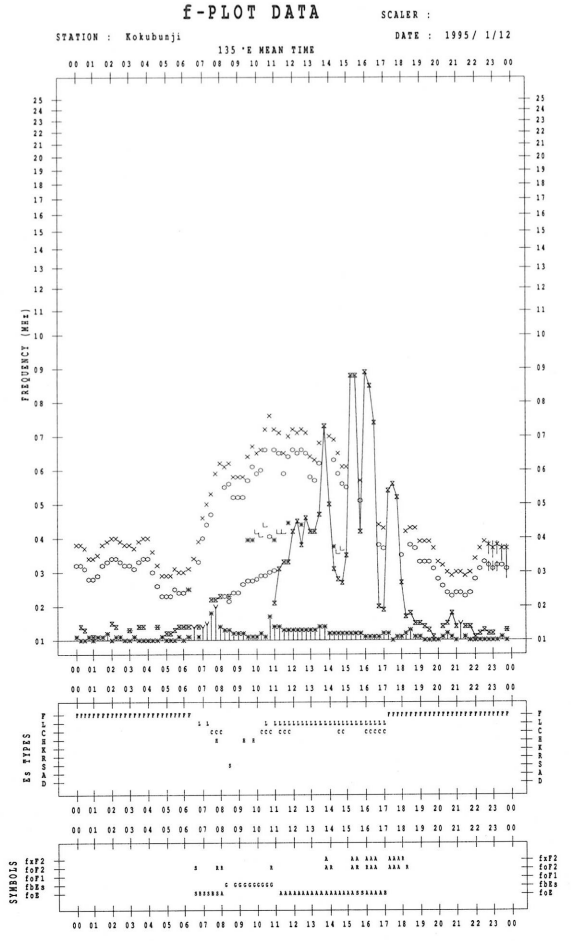
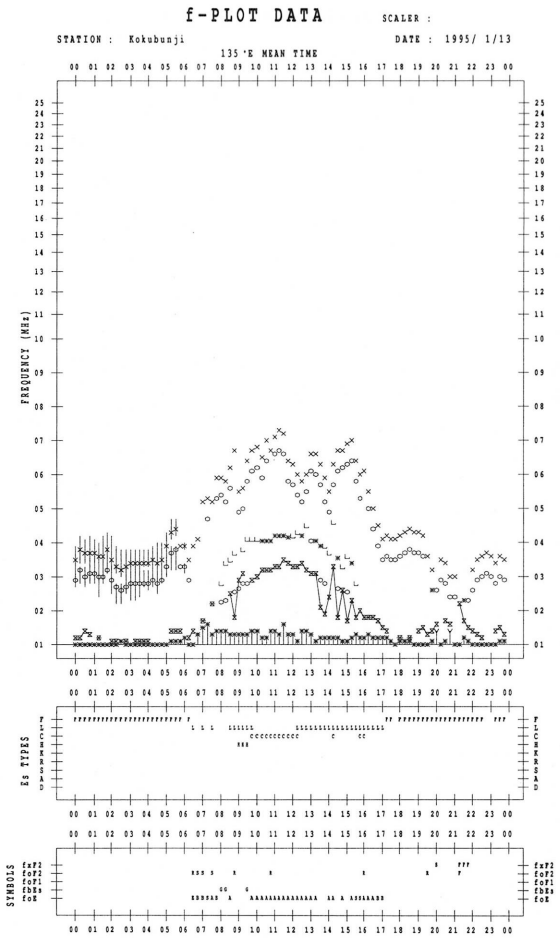
STATION : Kokubunji
DATE : 1995/ 1/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

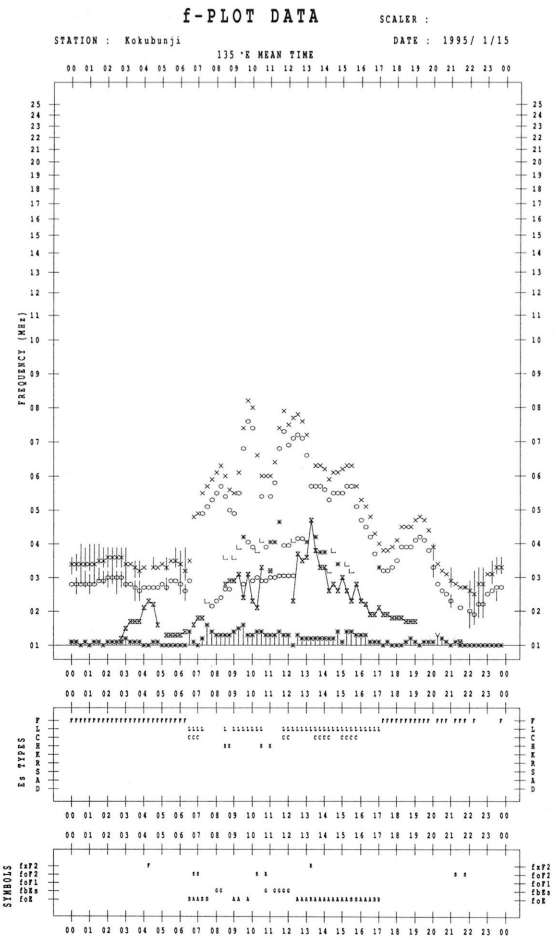

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

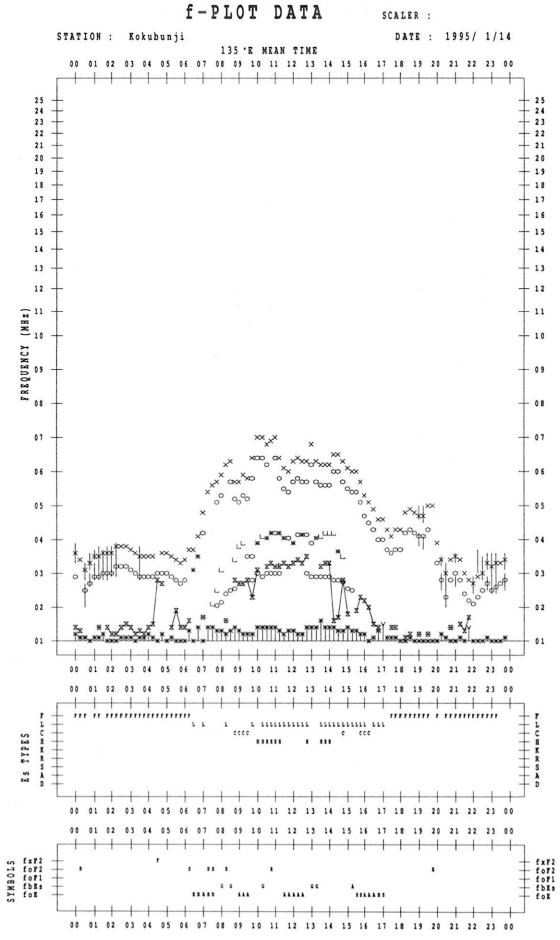

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

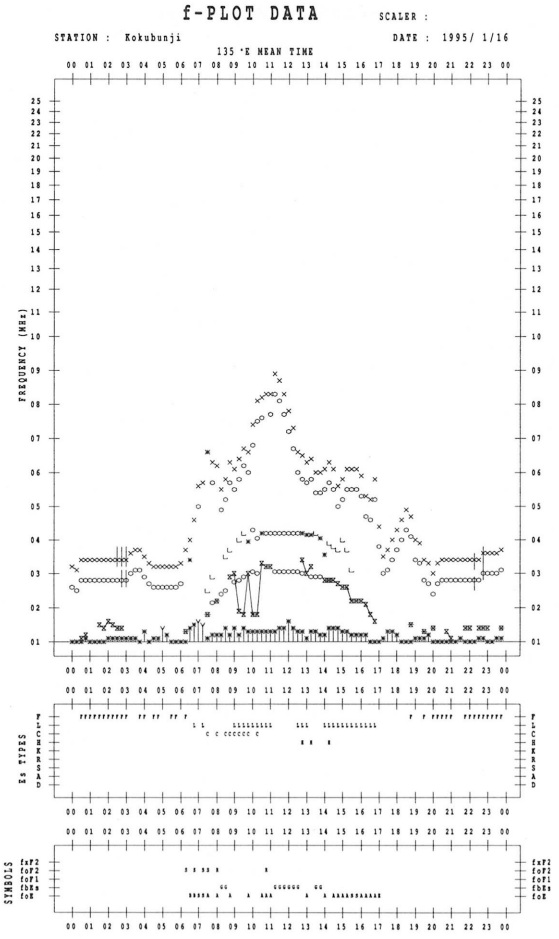

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

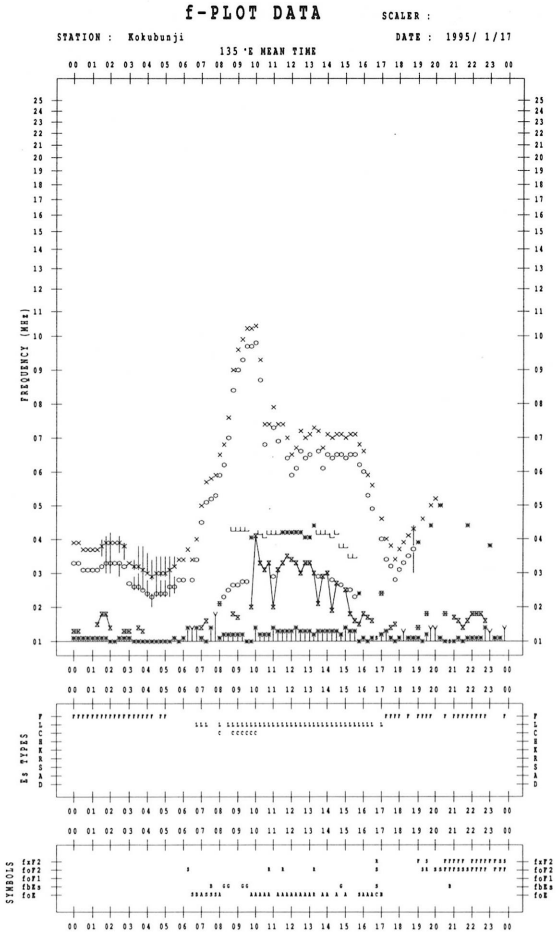

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

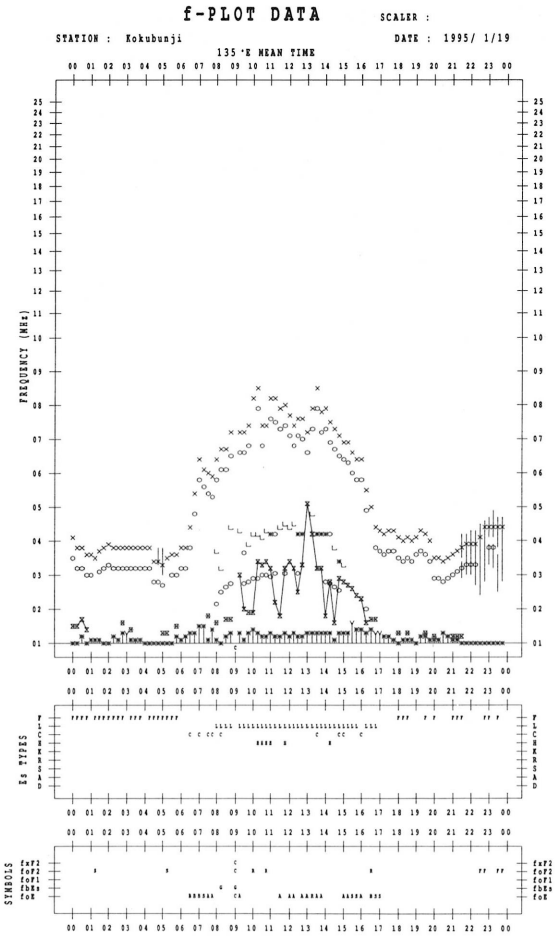

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

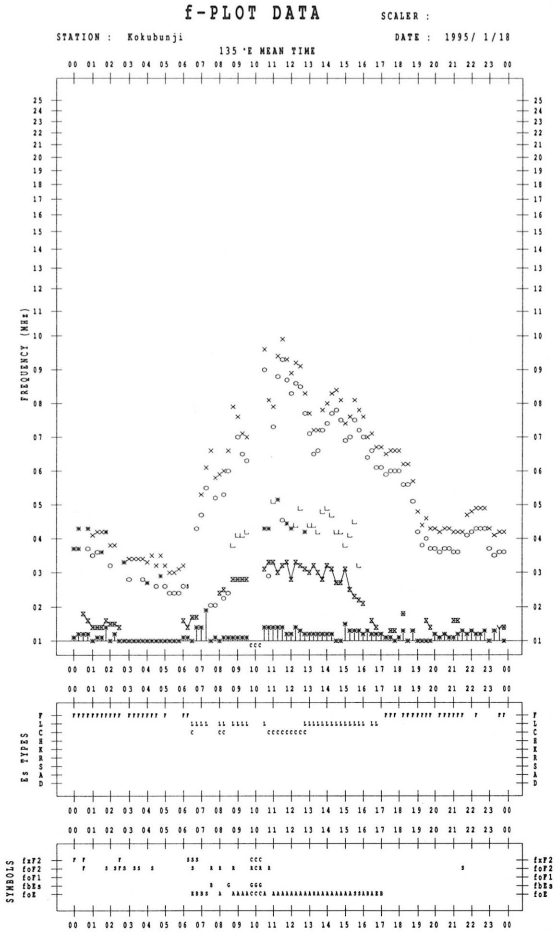

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

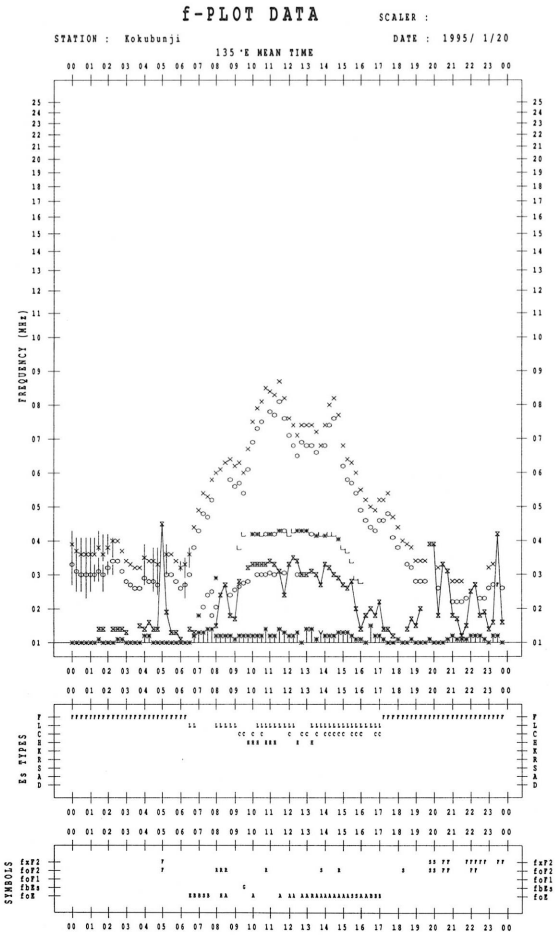

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

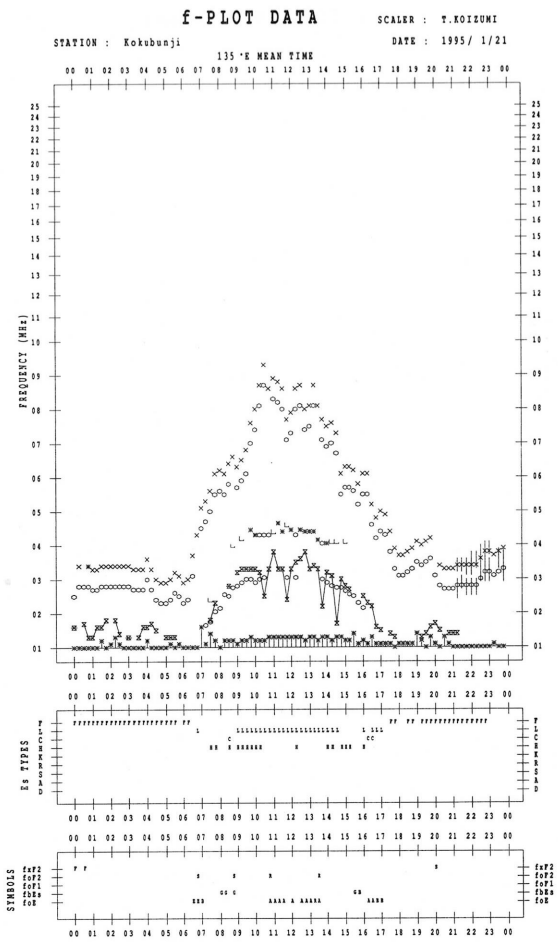

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

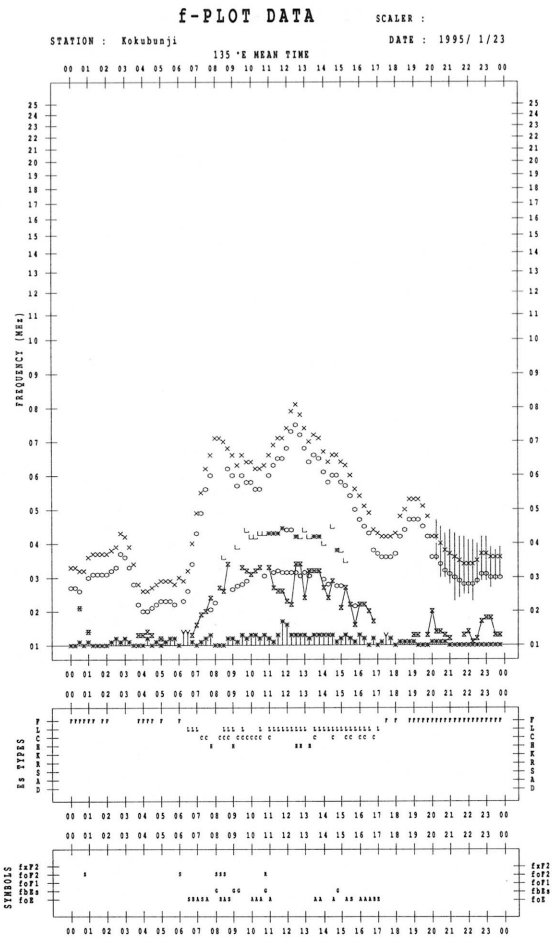

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

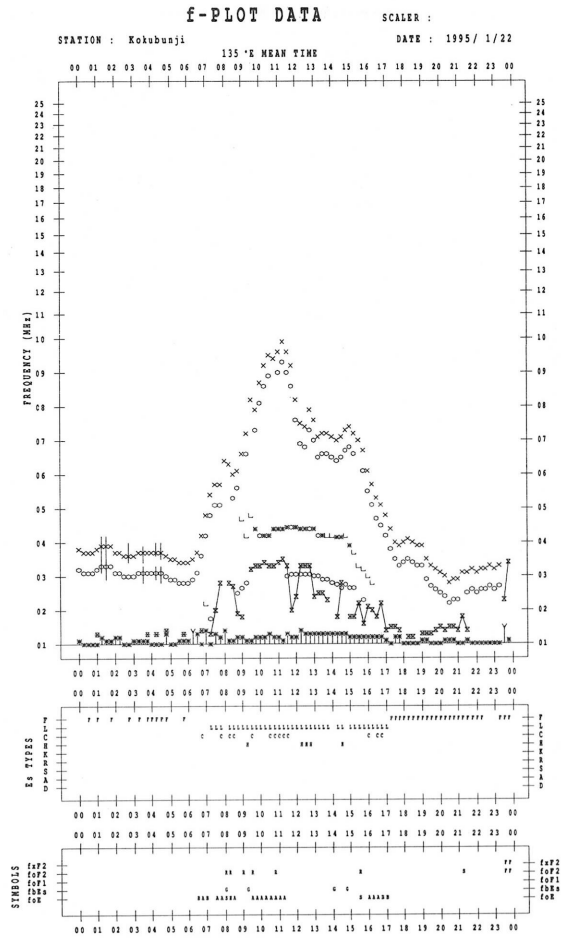

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

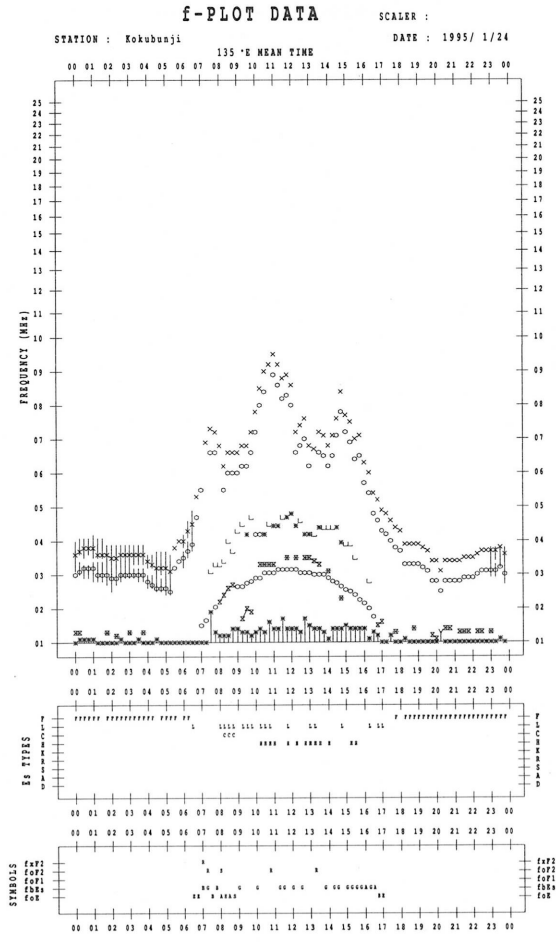

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

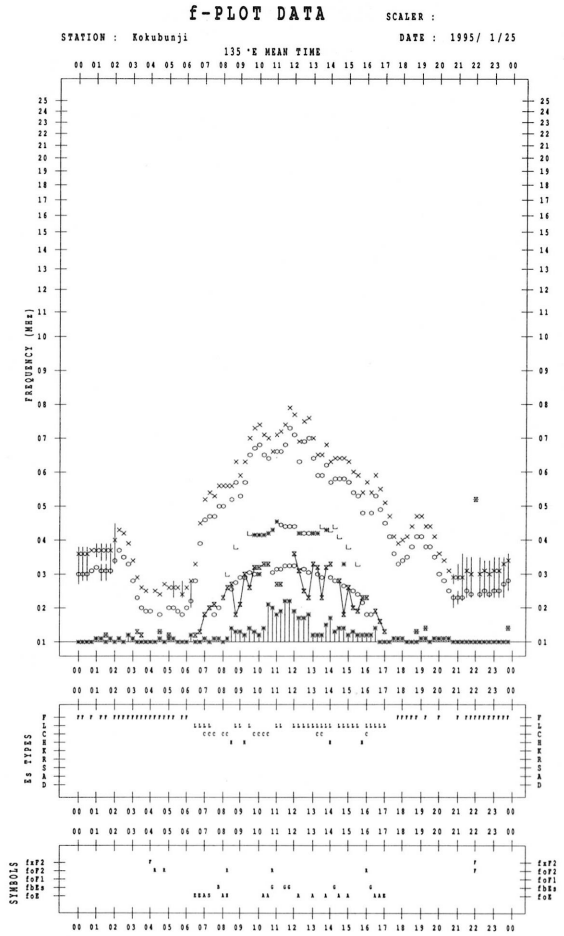

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

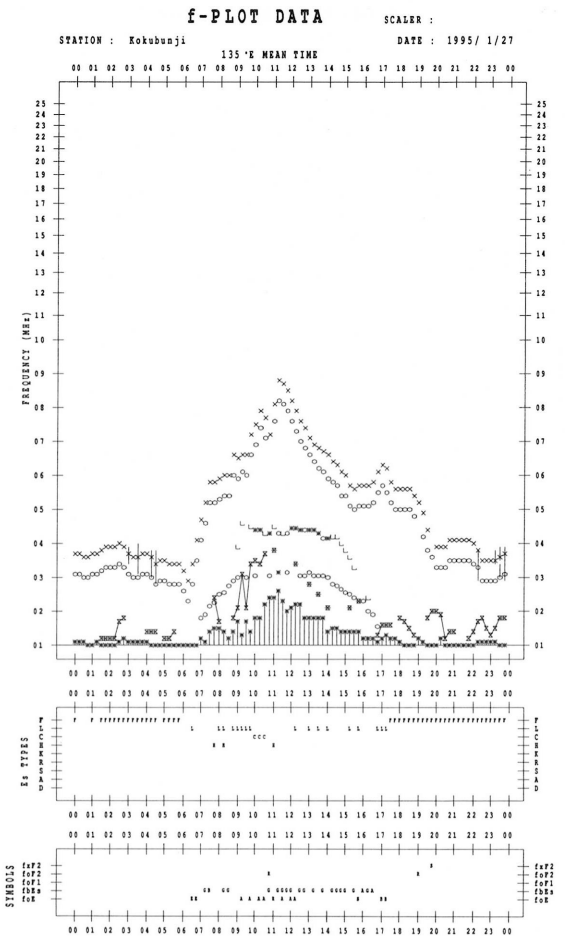

f-PLOT DATA
SCALER : T.KOIZUMI
STATION : Kokubunji
DATE : 1995/ 1/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

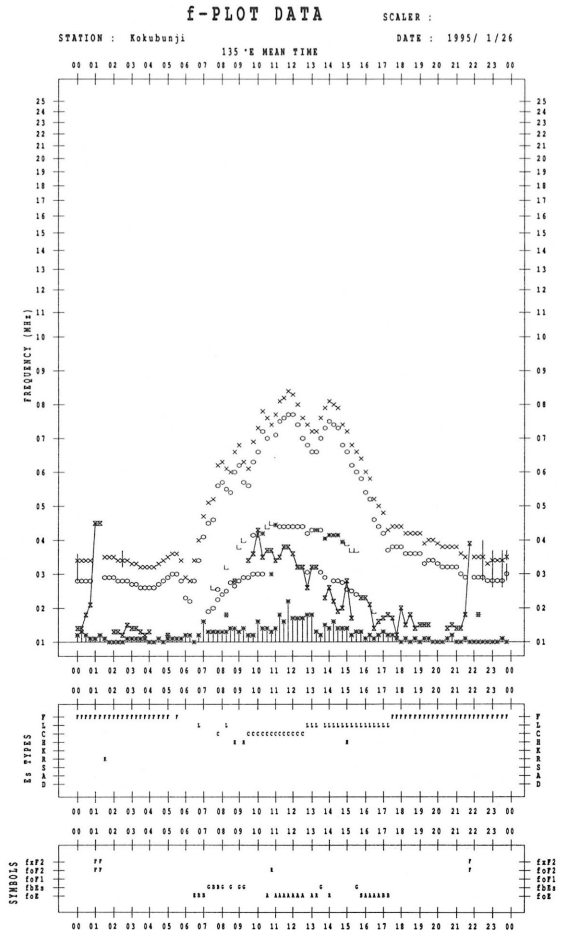

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

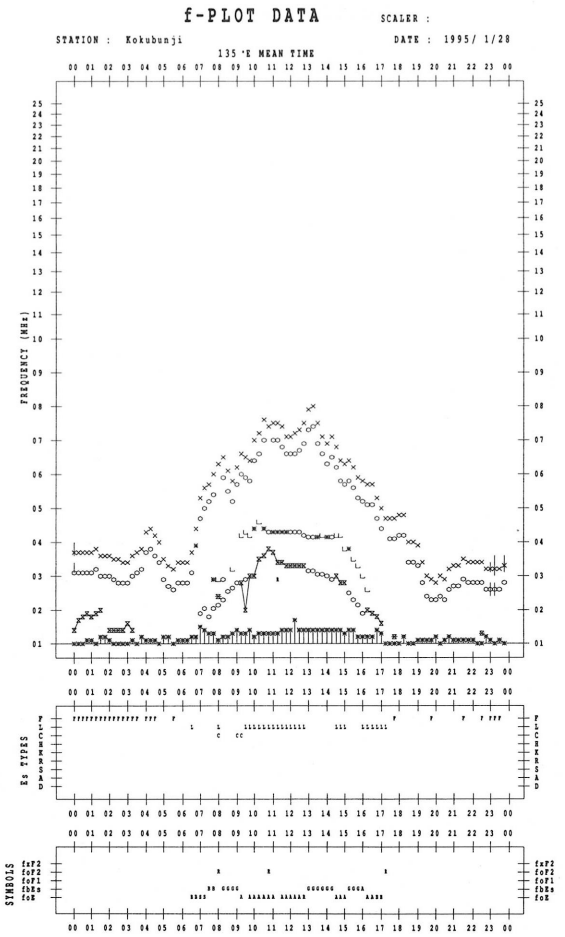

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

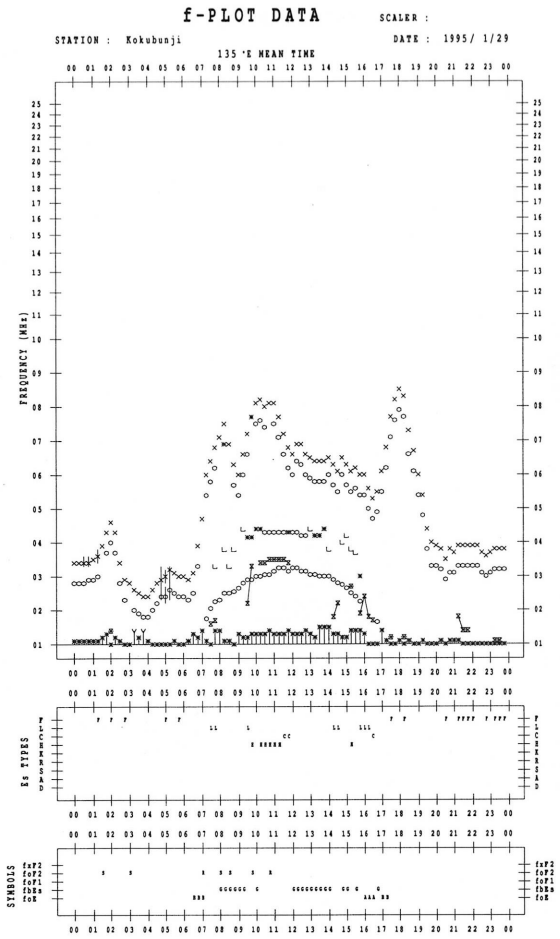

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

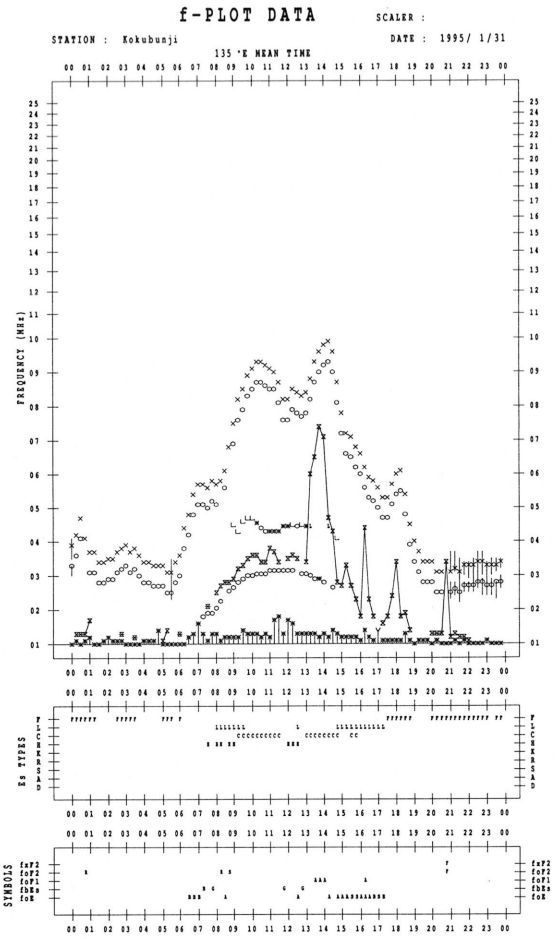

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

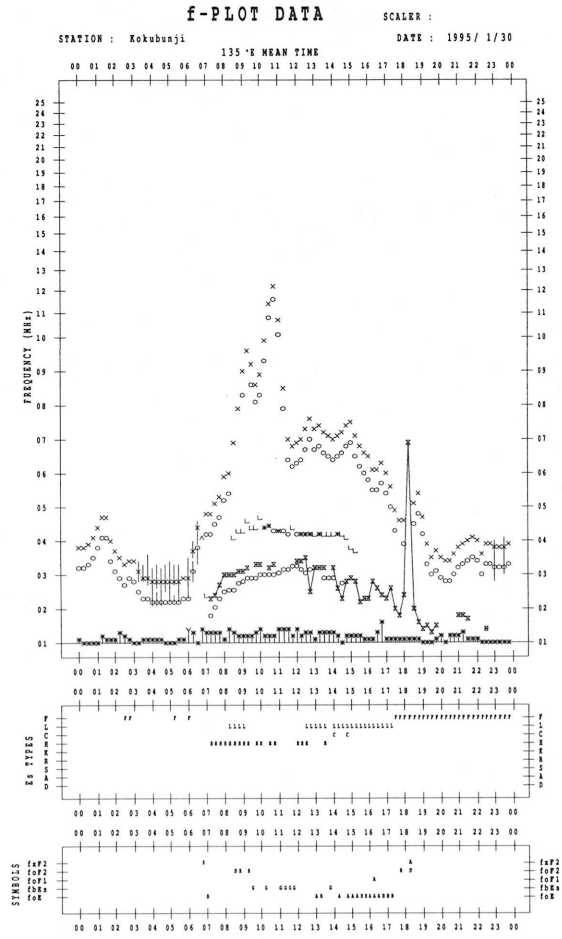

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 1/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

B. Solar Radio Emission

B1. Daily Data at Hiraiso

200 MHz

Not available until system improvement is completed.

B. Solar Radio Emission

B1. Daily Data at Hiraiso

500 MHz

Hiraiso January 1995

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} Wm^{-2}Hz^{-1}					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	29	28	(28)	30	29
2	29	28	(28)	30	29
3	30	29	(29)	28	30
4	29	29	(29)	29	29
5	29	28	(28)	29	29
6	29	29	(29)	-	29
7	-	-	-	-	-
8	-	-	-	-	-
9	29	29	(29)	29	29
10	29	29	(29)	30	29
11	30	29	(29)	29	29
12	29	29	(29)	29	29
13	29	29	(29)	31	29
14	30	30	(30)	30	30
15	30	30	(30)	30	30
16	30	-	-	-	30
17	30	29	(29)	30	29
18	30	29	(29)	30	30
19	30	30	(30)	30	30
20	31	30	(30)	33	30
21	32	30	(30)	29	31
22	30	30	(30)	30	30
23	30	30	(30)	31	30
24	31	30	(30)	31	31
25	32	31	(30)	31	31
26	30	30	(29)	30	30
27	30	29	(29)	29	29
28	29	29	(29)	30	29
29	29	29	(29)	29	29
30	29	30	(29)	30	29
31	30	31	(31)	30	30

Note: No observations during the following periods.

6th 2150 - 9th 0003 16th 0210 - 17th 0015

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso January 1995

Single-frequency observations

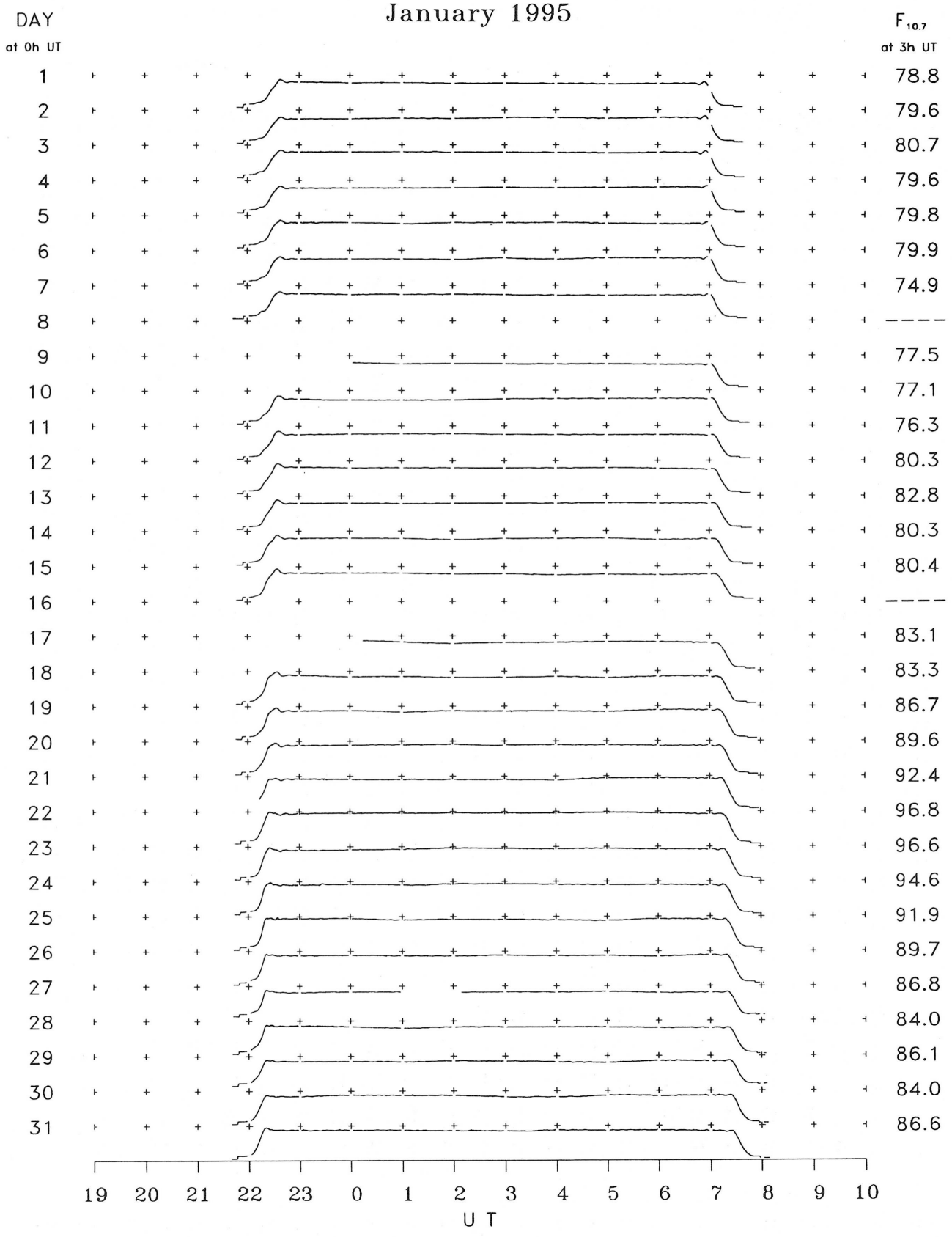
Normal observing period: 2150 - 0750 U.T. (sunrise to sunset)

JAN.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} Wm^{-2}Hz^{-1})		POLARIZATION
1995	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
3	500	8 S	0011.8	0012.1	0.7	4	-	0
23	2800	20 GRF	2324	2326.1	87	6	2	0
24	500	8 S	2244.3	2244.5	0.5	8	-	0
	500	8 S	2314.5	2314.8	0.4	9	-	WR
26	500	46 C	0202.0	0206.9	7.0	5	3	0
28	500	8 S	0153.7	0154.2	0.5	4	-	0
	500	8 S	0343.7	0343.7	0.6	34	-	0
	500	8 S	0358.6	0359.1	0.5	5	-	0
29	500	8 S	2318.4	2318.4	0.2	6	-	0
30	2800	1 S	2303.9	2304.2	1.0	4	3	0
	500	6 S	2305.8	2306.1	1.0	8	6	0
	500	46 C	2345.4	2345.7	1.5	25	18	WL
31	500	45 C	0216.6	0219.8	10.0	43	22	WR
	500	42 SER	0432.1	0433.5	8.5	25	-	0
	500	41 F	2342.9	2346.6	15.0	18	-	0
	2800	1 S	2352.5	2352.7	1.0	4	3	0

B. Solar Radio Emission

B3. Summary Plots of $F_{10.7}$ at Hiraiso

January 1995



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°.

C. RADIO PROPAGATION

C1. H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWV)

JAN 1995 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 17M	01H 17M	02H 17M	03H 17M	04H 17M	05H 17M	06H 17M	07H 17M	08H 17M	09H 17M	10H 17M	11H 17M	12H 17M	13H 17M	14H 17M	15H 17M	16H 17M	17H 17M	18H 17M	19H 17M	20H 17M	21H 17M	22H 17M	23H 17M
1	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	C	C	C	C	C	C	C	C	C	C	C	C
2	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
3	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
4	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-16	ES -32	ES -32
5	ES -32	ES -32	ES -32	ES -32	ES -32	-5	-22	-8	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
7	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
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11	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
12	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
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15	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-16
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17	-11	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
18	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33
19	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
20	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
21	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
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23	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
24	-11	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-16	-16
25	-11	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-11	-11
26	ES -32	ES -32	ES -32	ES -32	ES -32	-11	-11	-13	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-9	-8	-22
27	ES -32	ES -32	ES -32	ES -32	-22	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-8	-6	-8
28	-6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-28	-8	-11
29	-10	-11	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-11	5	0
30	-7	-9	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-7	-9	-9
31	-7	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-14	-7	-9
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	30	30	30
MED	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32
UD	-7	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-9	-6	-9
LD	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -32	ES -32	ES -32

C. RADIO PROPAGATION

C1. H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWVH)

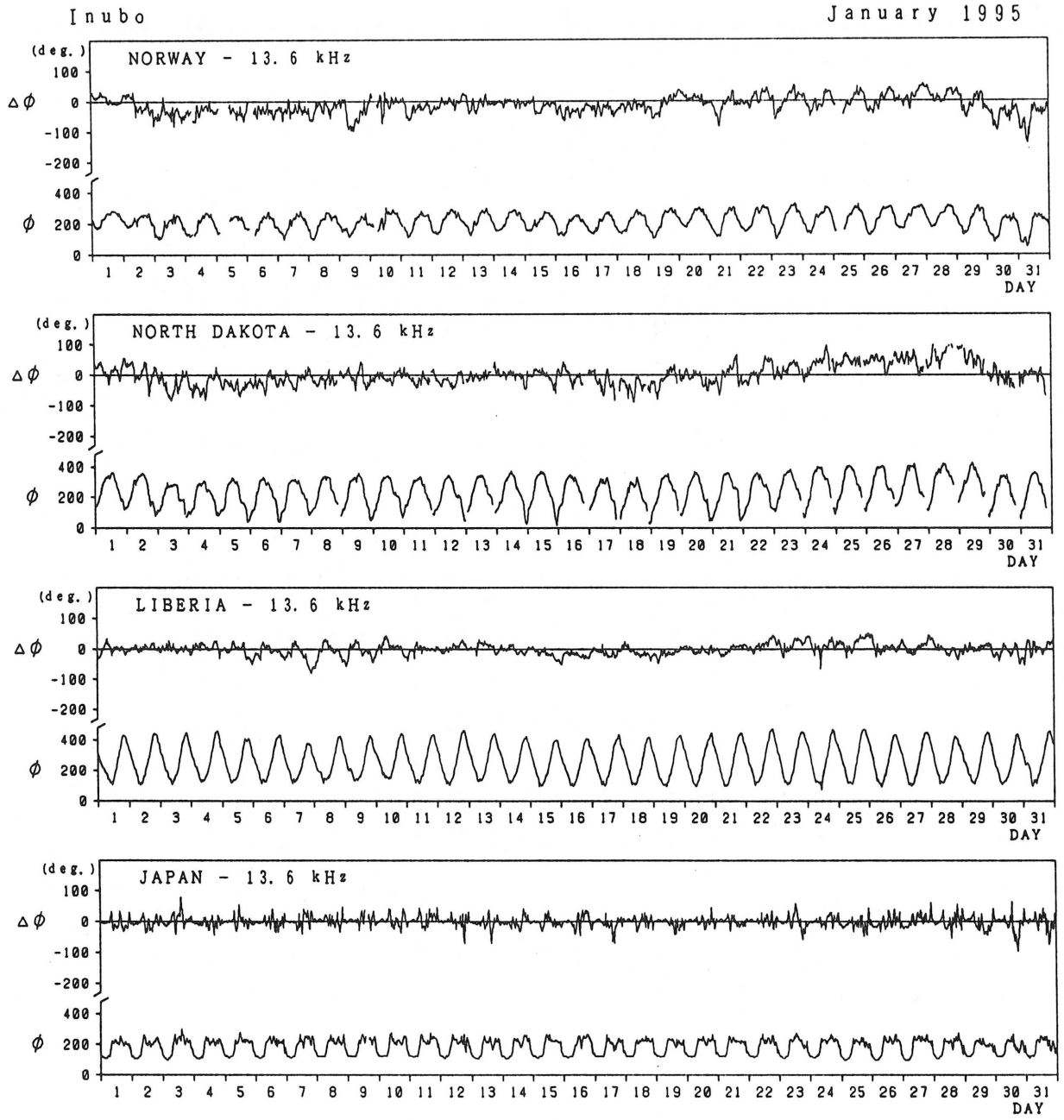
JAN 1995 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

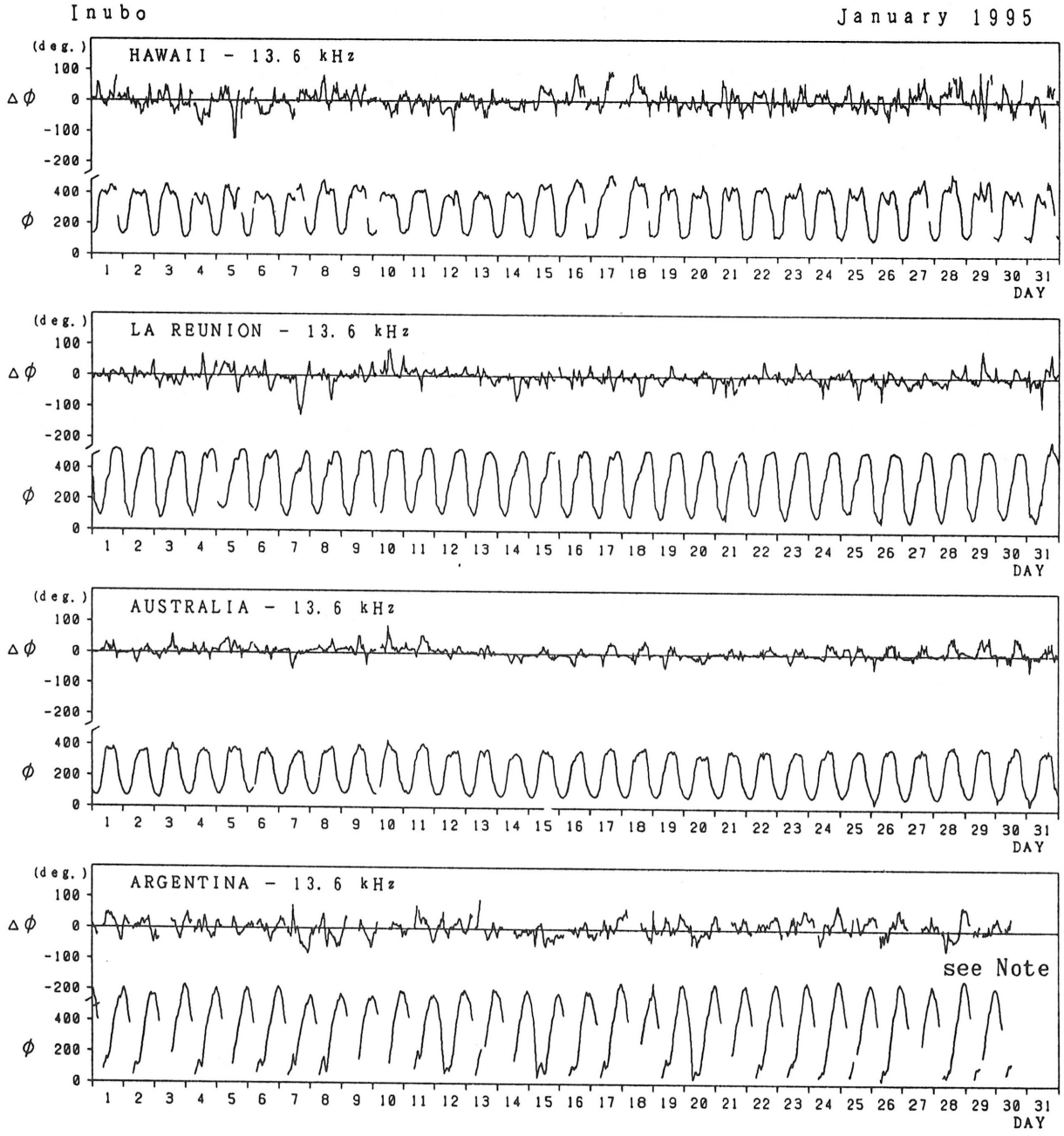
MEASURED AT HIRAISO

UT DAY	00H 46M	01H 46M	02H 46M	03H 46M	04H 46M	05H 46M	06H 46M	07H 46M	08H 46M	09H 46M	10H 46M	11H 46M	12H 46M	13H 46M	14H 46M	15H 46M	16H 46M	17H 46M	18H 46M	19H 46M	20H 46M	21H 46M	22H 46M	23H 46M
1	-7	-2	8	5	-8	ES -33	ES -33	-7	ES -33	ES -33	ES -33	ES -33	C	C	C	C	C	C	C	C	C	C	C	C
2	-6	-4	3	-6	-17	-23	-17	-12	ES -33	ES -33	ES -33	ES -33	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	1	-9	-1	-2	-4	-3
3	1	2	4	4	7	4	-13	-6	ES -32	ES -32	ES -32	-2	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-10	-5	-4	-3	6	4
4	-2	-2	4	-2	-8	0	1	ES -32	ES -32	ES -32	-16	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-16	-1	1	1
5	-5	-1	4	4	-8	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	E -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-6	-1	-2
6	4	1	3	6	-5	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-5	4	4
7	1	-3	4	4	-8	ES -32	ES -32	ES -32	ES -32	-6	6	5	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-6	4	6
8	-3	-3	-6	-8	4	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-4	2	4
9	4	-3	6	-1	5	2	-1	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-8	1
10	-4	-1	-3	-3	-6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-8	-6	4
11	-6	-5	-5	1	1	6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-4	-6	-4	4
12	-1	-6	-1	-5	-3	ES -32	-6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-3	1	4
13	2	2	3	4	4	ES -32	9	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-11	-5	-6
14	2	-8	-3	-8	-16	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-9	-4	4
15	-1	-7	2	-4	-2	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-16	-11	1
16	5	4	-1	-1	-8	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-5	-5	6	9
17	2	2	-1	5	2	-2	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	0	9	9	2
18	3	1	3	8	8	13	-12	-17	-17	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-2	7	6	3
19	-1	-3	1	5	4	-1	-11	-22	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-8	-3	-3
20	-1	-1	0	2	2	2	-5	ES -32	ES -32	ES -32	ES -32	ES -32	-10	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-1	4	0
21	4	2	4	4	13	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-1	2	-2
22	4	4	7	1	-3	-8	-8	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	3	9	4
23	-1	-1	6	1	6	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-5	7	7
24	4	6	10	2	-1	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-9	-4	-3	1
25	6	1	4	6	-3	5	4	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-4	-6	4	4
26	-1	-1	-6	-1	4	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	-1	2	9	7
27	4	4	-1	-1	7	-16	-16	-22	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	4	-4	6	-1
28	-1	4	-1	4	-6	ES -32	ES -32	ES -32	ES -32	ES -32	-22	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	1	6	4
29	-6	-1	-1	7	9	-6	-1	-22	ES -32	ES -32	ES -32	ES -32	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	4	1	-2	1
30	6	3	5	6	5	-7	-4	-17	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-7	8	3	-5
31	8	-5	3	8	1	5	-23	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	-23	11	-7	-2
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	30	30	30
MED	1	-1	3	2	1	US -32	US -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	US -32	-4	2	2
UD	6	4	7	7	8	5	1	-12	ES -32	ES -32	-22	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	ES -32	0	8	9	7
LD	-6	-6	-5	-6	-8	ES -32	ES -32	ES -32	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -33	ES -32	-11	-7	-3

C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo





Note : As for ARGENTINA-13.6kHz, no record during 30 January 1200 UT - 9 February 1629 UT, due to the maintenance of transmitter.

Polar Cap Phase Anomaly (PCPA) on Norway-Inubo Circuit

NONE

C. Radio Propagation

C4. Sudden Ionospheric Disturbance

(a) Short Wave Fade-out (SWF) at Hiraiso

Hiraiso Time in U.T.

JAN. 1995	S W F						Correspondence	
	Drop-out Intensities(dB)				Start	Dur.	Type	Imp.	Solar * Flare	Solar Burst
	CO	HA	AUS	MOS BBC						
None										

NOTE CO:Colorado(WWV) HA:Hawaii(WWVH) AUS:Australia MOS:Moscow BBC:London
* Optical and X-ray Flares

(b) Sudden Phase Anomaly (SPA) at Inubo

Inubo

Jan. 1995	S P A								
	Phase Advance (degrees)						Time (U.T.)		
Date	Ω/N	Ω/L	Ω/LR	Ω/AU	Ω/H	Ω/ND	Start	End	Maximum
3			75	34	18		0400	0506	0407
4			14				0637	0652	0640
20			7	7	7		0300	0320	0307
20			7				0636	0654	0641
20			11				0728	0801	0733
21		20	68	14			0750	0850	0806
24		64	40				1050	1130	1059
25				7	7		0005	0020	0012
26			14	32	14		0206	0310	0222
26			40				0734	0819	0754
30		15		40	27		0113	0204	0120
30			7	31	25		2305	2336	2311
31			29	43	36		0215	0325	0233
31			18				0552	0610D	0605
31		64	65				0959	1100	1008
31		24					1112	1136	1123
31				11	14	–	2242	2318	2249

IONOSPHERIC DATA IN JAPAN FOR JANUARY 1995
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