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IONOSPHERIC DATA IN JAPAN

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CONTENTS

COMMUNICATIONS RESEARCH LABORATORY
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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 l etters 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

AUG. 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	A	30	32	35	38	40	A	A	A	A	A	A	A	A	A	A	A	A	57	58	57	57	28	49
2	48	35	40	37	38	47	51		58	A	A	A	A	A	A	A	A	A	A		60	A	55	A
3	A	A	A	29	31	A	A	A	A	A	A	A	A	A	A	A	A	A	A	63	A	56	56	57
4	51	38	41	30	A	41	A	A	A	A	A	A	A	A	A	A	A	54	A	A	A	A	A	A
5	A	40	32	37	32	50	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	57	40	A
6	36	A		41	26	69	A	A	60	A	A	A	A	A	A	A	A	A	57	72	58	57	A	38
7	A	A	31	31	28	A	A	A	A	A	60	A	A	A	A	A	A	28	A	A	28	57	A	A
8	A	A	A	32	A	A	A	A	A	A	A	A	A	A	60	109	A	A	A		A	A	A	A
9	43	35	35	30	38	41	A	57	A	A	A	A	A	A	A	A	A	A	A	71	69	A	A	A
10	A	A	A	A	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A		57	58	A	A
11	A	39	A	A	31	A	A	A	A	A	A	A	A	A	A	A	A	A	30		57	57	68	40
12	32	35	35	37	36	38	A	A	A	A	A	A	A	A	A	A	A	A	A	A	57	58	56	43
13	38	35	29	35	A	A	A	A	60	A	A	A	A	A	A	A	A	57	79			63	56	A
14	A	A	34	30	32	A	A	A	A	A	A	A	A	A	A	A	A	A	33	58	57	58		41
15	32	28	30	38	38	28	A	67	A	A	A	A	A	A	A	A	A	A	A	A	56	57		35
16	A	A	35	31	35	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	57	56	30
17	A	A	30	30	32	A	A	A	A	A	A	A	A	A	A	39	A	A	A	A	A	40	A	36
18	31	35	A	25	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	39	56	49	32	34
19	35	35	A	A	28	A	A	A	A	A	A	A	A	A	56	A	A	A	47	57	56	56	37	26
20	A	A	A	30	30	40	57	61	35	A	A	A	A	A	A	A	A	38	37	A	57	57	35	A
21	A	A		28	A	30	A	A	60	A	A	A	A	A	A	A	A	A	59		57	58	56	40
22	31	34	59	35	35	A	42	58	52	A	A	A	A	57	A	A	A	48	47	29	A	26	35	30
23	A		A	35	36	35	A	54	60	A	54	A	A	A	59	59	56	60	58	68	63	35		20
24	56	40	34	28	40	36	56	38	A	60	61	A	A	A	A	55	55		57	60	49	56	57	30
25	38	38	34	23	32		A	A	A	A	A	49	A	57	A	60	58	66	68	58	68	59	35	31
26	35	35	35	31	26	32	35	A	49	A	A	A	A	A	A	A	A	A	60	60	39	30	39	35
27	A	A	A	35	38	A	35		57	A	A	A	A	A	A	A	A	51	58	57	A	54	57	58
28	58	A	A	A	A	A	60	A	A	A	60	A	A	56	A	A	57	58	66	58	57	35	58	44
29	89	46	31	30	36	37	A	59	A	A	A	A	49	58	A	A	54	56	56	59	71		57	31
30	31	31	35	24	34	A	70	A	A	A	A	A	A	A	61	A	49	57	A	56	57	57	36	35
31	A	35	A	A	A	36	39	55	56	A	A	A	A	A	A	59	37	52	57	58	57	57	35	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	18	18	26	24	15			10									12	17	17	21	26	21	22
MED	37	35	34	31	33	38			58									55	57	58	57	57	55	35
U Q	49	38	35	35	37	41			60									57	59	61	57	57	56	41
L Q	32	35	31	30	30	35			52									49	47	57	56	54	35	31

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT WAKKANAI

AUG. 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	56	38	40	30	28	34	54	71	59	66	97	58	41	38	42	46	68	38	31	42	26	29	34	37
2	38	29	32	28	28	30	30	50	40	34	35	39	35	36	30	59	162	95	106		64	74	58	66
3	50	64	45	43	32	49	74	72	55	36	95	97	65	38	38	39	73	84	96	68	68	40	62	28
4	28	38	29	32	36	40	50	72	74	61	37	36	36	41	57	42	40	G	43	72	40	85	88	77
5	77	39	58	33	34	32	38	43	46	47	82	76	52	57	63	43	38	47	64	69	78	62	61	64
6	38	40		34	32	20	31	56	38	42	40	59	33	29	71	126	84	92	56	G	45	63	64	33
7	40	37	28	28	G	28	32	42	67	41	37	61	74	75	38	80	36	26	61	84	33	63	64	54
8	62	55	40	34	40	59	64	122	95	65	62	76	87	88	54		77	76	62		60	66	61	78
9	65	38	32	32	32	32	43	48	56	60	60	79	57	66	56	68	70	54	94	78	38	70	66	61
10	66	43	35	36	30	37	49	81	61	69	73	60	41	38	62	76	84	84	73		73	73	61	64
11	60	70	57	34	G	28	38	47	58	122	62	155	89	46	37	35	51	37	61		81	55	28	44
12	24	29	32	26	38	41	57	42	57	58	39	42	43	36	33	44	62	68	88	69	34	42	34	26
13	27	G	G	30	38	65	48	39	46	51	36	36	42	64	94	66	38	46				34	42	44
14	42	38	40	33	30	44	60	65	66	68	81	44	62	40	38	56	61	67	41	44	43	65	37	40
15	G	G	G	G	G	28	39	50	32	34	35	35	36	38	30	42	44	61	74	70	65	44	62	28
16	41	37	25	26	G	35	49	72	60	60		50	85	83	36	41	56	49	59	65	53	63	36	33
17	38	58	37	G	26	29	62	72	48	42	40	34	35	36	34	29	30	45	72	77	57	38	49	35
18	25	G	33	G	B	34	30	38	34	50	32	31	31	39	30	39	37	55	65	76	44	73	42	33
19	30	36	39	36	33	92	61	42	58	34	36	64	38	60	43	76	43	46	56	55	56	54	29	61
20		56	38	42	32	28	39	38	32	32	30	36	27	32	31	28	33	37	41	132	58	45	58	47
21	45	36	G	33	33	32	44	56	46	92	76	36	60	56	40	64	46	96	98		71	66	60	35
22	33	28	26	29	28	27	38	37	34	38	32	31	37	25	28	29	27	36	38	36	68	40	39	32
23	38		32	24	G	26	36	40	41	54	40	42	34	32	40	38	39	27	28	29	24	31		29
24	G	G	26	39	38	26	30	28	33	28	37	30	30	31	36	34	62		25	G	31	39	37	41
25	G	32	33	29	38	42	45	87	85	60	65	42	38	45	41	45	46	65	41	56	29	G	G	G
26	G	G	G	24	G	32	31	38	31	43	52	140	74	38	32	31	47	42	38	76	35	41	36	33
27	43	40	33	27	30	40	34		50	59	62	58	68	38	58	62	65	29	38	40	34	46	64	43
28	38	38	41	56	36	42	36	35	52	35	32	39	35	36	30	30	39	42	G	28	G	29	43	29
29	28	26	28	24	24	32	33	32	34	31	38	31	39	30	26	33	33	34	42	60	39	61	54	25
30	G	G	G	28	G	30	30	38	46	47	37	33	32	35	30	28	32	36	50	37	58	36	43	27
31	37	27	30	32	28	G	29	34	36	39	31	38	31	30	29	28	31	28	29	28	G	G	G	38
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	30	31	31	30	31	31	30	31	31	31	31	30	31	30	30	25	30	31	30	31
MED	38	37	32	30	30	32	39	45	48	47	40	42	39	38	38	42	46	46	56	60	44	46	46	37
U Q	45	40	39	34	34	41	50	71	59	60	62	61	62	56	54	62	65	67	72	74	64	65	61	54
L Q	27	27	26	26	24	28	32	38	36	36	36	36	35	35	30	33	37	36	38	36	34	38	36	29

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT WAKKANAI

AUG. 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	15	15	15	16	16	17	16	17	17	17	16	15	15	15	15	15	16	15	15
2	15	15	15	15	15	14	14	15	15	16	17	17	17	16	16	16	16	15	15		15	15	15	15
3	15	15	15	14	15	15	15	15	15	16	18	16	17	17	17	16	15	16	15	15	15	15	15	15
4	14	15	15	15	15	15	15	15	15	16	16	21	20	17	17	15	16	15	15	14	15	16	15	14
5	15	15	15	15	16	14	15	15	15	16	17	17	16	16	20	18	15	15	15	15	15	15	15	15
6	15	15		15	15	15	15	16	17	16	17	17	17	17	18	15	15	15	15	16	15	15	15	15
7	15	15	15	15	16	16	15	15	16	16	18	23	21	27	21	16	16	15	15	15	15	15	15	15
8	15	15	15	15	14	15	15	16	16	17	16	16	18	21	17	16	16	15	15		15	15	16	15
9	15	15	15	15	15	15	15	15	16	16	18	17	18	17	18	16	16	15	15	14	14	15	14	15
10	15	15	15	15	15	15	15	15	16	17	16	18	18	18	16	16	17	16	15		14	15	15	15
11	14	15	15	15	16	15	15	15	16	16	16	16	21	17	16	16	15	16	14		14	16	15	15
12	15	15	15	14	15	15	15	15	15	16	20	18	17	18	16	16	15	15	15	15	15	15	15	15
13	15	14	15	15	15	15	16	15	16	16	17	20	20	20	18	16	16	15	15			14	15	15
14	15	15	15	15	15	15	15	15	15	16	16	17	17	16	16	16	15	15	15	15	15	15	15	15
15	14	16	15	15	16	15	15	15	16	16	17	17	16	17	17	18	16	15	15	14	15	15	15	15
16	15	14	14	15	15	15	15	15	16	17	16	18	16	17	16	16	15	16	15	14	15	15	16	15
17	15	15	15	15	15	15	15	15	15	16	17	20	17	17	16	16	15	15	15	14	15	15	15	15
18	15	16	15	15	B	15	15	15	15	16	16	18	16	17	16	16	16	14	15	15	15	15	15	15
19	15	14	15	14	15	14	15	15	16	17	16	16	17	18	18	17	15	15	15	15	15	15	15	15
20	15	15	14	15	15	15	14	15	15	17	16	17	20	20	17	16	15	15	15	15	15	16	15	15
21	16	15	16	14	16	15	15	15	15	15	16	16	16	18	16	16	16	15	15		15	15	15	16
22	15	15	15	15	15	15	15	15	15	15	17	16	20	16	15	15	16	15	15	15	14	15	14	15
23	15		15	15	15	16	15	15	15	15	16	16	16	17	16	16	15	15	15	15	16	15		15
24	15	15	16	15	15	16	15	15	15	15	15	16	16	17	16	16	15		17	15	15	15	15	15
25	14	15	15	15	14	15	15	16	16	15	16	16	17	18	18	17	15	15	15	14	15	15	15	15
26	15	15	14	15	15	14	15	15	15	16	15	17	18	16	16	16	15	15	15	14	15	15	14	14
27	15	16	14	15	14	15	14		16	15	16	17	17	16	17	15	15	15	14	15	15	15	15	15
28	15	15	14	14	15	15	15	15	17	16	20	16	17	16	15	15	16	15	17	16	16	15	15	15
29	16	15	15	15	16	16	16	16	15	17	16	17	16	16	16	15	14	15	15	15	15	15	15	15
30	16	15	15	16	15	21	15	15	16	15	16	16	17	16	16	17	15	15	15	15	15	15	15	16
31	15	16	15	15	16	15	16	15	16	17	15	18	16	15	16	16	15	14	14	17	15	16	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	30	31	31	30	31	31	31	31	31	31	31	31	31	30	31	25	30	31	30	31
MED	15	15	15	15	15	15	15	15	16	16	16	17	17	17	16	16	15	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	15	16	16	17	18	18	18	17	16	16	15	15	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16	15	15	15	14	15	15	15	15

HOURLY VALUES OF foF2 AT KOKUBUNJI

AUG. 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	35	A	A	26	59	36	A	A	A	A	A	118	A	106	A	A	54	67	69	67	58	A	57	
2	30	A	A	A	A	35	58		54	A	A	A	A	A	A	A	A	52	A	A	63	56	A	A
3	A	A	35	31	A	43	57	A	A	A	A	A	A	A	A	62	60	55	47	56	56	50	50	56
4	56	32	A	30	A	A	90	A		A	A	A	A	A	A	A	62	58	65	54		A		46
5	A		A	A	32	38	54	59	A	159	A	99	A	A	59	52	54	60	69		58	34	37	46
6	A	35	35				68	A	55	A	A	A	B	A	54	61	73	72	46		63	44	46	A
7	36	A	28		59	B	44	58	61	A		A	A	A	61	66	63	67	66	72	68	A	A	A
8	44		41	35	32		42	A	61	69	54	A	A		72	74	71	71	76		35	57	A	48
9	46		69	A	89		A	71	63	54	A	A	A	B	63	75	74	66	73	82	71	A		A
10	A	A	40	42	37	A	47	56	149	101	A	A	A	A	A	72	86	76	71	69	58	50	B	56
11		25	32	32	27		A	72	A	A	A	A	A	A	A	A	A	A	55	72	68	57	44	A
12	A	A	A	38	A	59	A	114	A	A	A	A	A	A	56	A	A	A			A	58	64	50
13		A	35	38	A	A	A	A	70	A	A	A	A	49	A	53	60	71			57	35	A	
14		34	A	A	34	A	48	68	47	A	95	A	A	78	56	A	A	57	56	83		56	57	50
15	29	89	35	34	36		A	68	63	A	A	A	A	A	A	A	56	50	84		A	149	49	A
16	A	A	69	A	59		34	A	59	A	A	A	A	A	54	A	52	A	51	49		56	A	A
17	A	A	A	36		35	A	59	58	A	A	A	58	A	A	A	55	53	59	67	68	48	57	A
18	47	43	35	34	34		47	A	A	A	A	A	B	A	A	A	47	50	61	60	61	63		45
19	37	A	37	32	30	36	70	68	A	39	A	A	52	65	A	52	51	50	70	49	57	A	A	A
20	A	A	35	A	35	43	34	48	A		A	A	A	A	A	55	55	60	58	56	A	28	A	A
21		A	A	59	A	A	28	68	55	51	A	A	A	59	A		54	A	57	66	61	58	52	
22	A	A	35	32	A	A	46	67	62	54	A	A	A	49			A	56	58	68	62	69	56	58
23	38	35	35	32	37	A	65	67	62	54	A	A	A	70	76	67	A	58	62	68	49	69	63	
24	57	A	44	47	47	A	57	69	52	54	A	53	54	53	60	70	65	56	51	81	60	66	70	49
25	54	43	44	45	A	35	38	68	65	67	58	A	A	72	A	A	A		84	96	65		57	57
26	44	A	69		28		47	53	66	68	A	54	A	54	52	58	59	54	60		57	57		
27	44	40		34	34	A	70	60	68	A	A	49	A	A	A	A	50	54	57	66	57	56	57	A
28		37	41	37		A	48	66	57	59	A	A	A	64	67	65	60	60	66	66	68	45		46
29	37	38	A	20	B		48	63	60	60	70	72	50	A	A	58	63	78		82	66	50	48	A
30	44	45	N	A	A	A	46		93	A		63	68	49	62	70	67	57	64	60	57	69	34	37
31	38	38	36	34	A	36	73	70	50	58	51	A	A	63	A	58		56	57	68	60	34	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	17	13	20	21	17	10	24	21	22	14				13	13	17	23	26	27	23	25	25	17	13
MED	44	38	36	34	35	36	48	67	61	58				63	60	62	60	58	61	67	60	56	56	49
U Q	46	43	42	38	53	43	61	68	65	68				71	65	70	65	67	69	72	65	60	57	56
L Q	36	34	35	32	32	35	45	59	55	54				51	55	56	54	54	57	60	57	46	47	46

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT KOKUBUNJI

AUG. 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	42	40	41	30	27	28	40	70	64	50	71	110	149	102	72	60	50	40	38	G	G	40	40	
2	G	42	56	37	32	28	33		32	40	47	59	72	36	111	93	129	91	164	69	62	44	62	49
3	60	53	33	29	29	30	45	70	54	46		56	58	71	44	41	33	30	43	59	59	33	43	57
4	48	69	70	57	56	41	88	82		70	81	90	147	118	126	87	36	48	72	67		122		45
5	53		62	54	40	32	50	58	111	142	58	108	48	43	30	30	41	29	33		73	67	96	38
6	48	38	50	58	37		54	40	37	39	36	33	B	31	50	55	55		50		34	54	30	30
7	31	34	27	G	G	B	36	44	41	35	56	61	48	38	G	44	53	45	29	45	42	39	51	56
8	35		G	G	26		34	68	44	34	32	42	32	G	43	32	50	47	43		38	25	26	34
9	49		90	53	57		56	47	38	50	86	106	30	B	40	31	59	61	86	31	82	64		70
10	34	62	31	29	27	30	37	51	100	107	132	81	142	58	35	46	34	42	39	G	G	G	B	G
11	G	G	27	41	55		55	38	43	59	34	37	39	48	34	32	60	59	36	62	54	40	38	53
12	52	61	39	31	59	65	94	106	84	61		90	44	36	39	70	78	103			72	66	71	83
13		37	26	30	44	25	43	54	45	164	49	60	39	G	29	31	54	70			85	94	107	
14		30	33	43	36	33	34	44	43	71	133	46	32	32	40	66	61	55	76	111		51	70	58
15	34	22	G	G	G	G	54	59	43	70	106	82	64	87	50	58	33	32	40		68	54	86	53
16	72	43	35	31	41		39	54	54	70	69	70	52	126	37	47	53	59	54			60	130	49
17	95	88	69	24	G	35	53	44	57	48	38	48	47	60	47	28	30	34	29	25	G	48	34	55
18	33	30	38	G	27	G	32	46	50	92	47	30	B	27	37	32	32	37	33	33	44	52		85
19	50	46	33	G	32	32	37	40	95	42	70	32	47	70	62	30	34	44	50	46	33	68	54	66
20	67	71	82	62	36	37	38	55	60		28	25	26	29	37	28	46	53	48	37	48	41	73	50
21		55	38	34	57	33	37	43	51	50	66	54	44	30	46		50	98	55	95	89	53	53	
22	70	47	33	33	50	45	126	30	N	28	24	27	34	26			62	28	28	25	24	G	32	24
23	G	G	G	G	29	31	33	49	54	58	33	32	39	52	40	50	85	70	40	32	37	51	34	
24	34	50	G	G	G	28	28	34	30	34	40	32	31	30	32	31	37	34	G	G	G	G	G	G
25	65	53	29	G	55	53	G	47	44	69	62	83	71	86	60	70	61		54	44	54		40	31
26	36	32	32		G	G	30	36	33	51	37	34	56	53	32	30	44	60	42		28	54		
27	34	27		36	31	42	40	41	46	55	88	58	81	62	51	57	56	47	56	69	92	35	40	53
28		40	32	40	28	30	32	31	29	30	44	44	48	47	40	52	43	39	34	26	40	26		34
29	23	G	49	30	B	G	32	39	29	31	33	32	34	35	31	56	40	39	40	29	32	30	60	74
30	44	30	60	50	38	29	33		41	44		38	38	39	44	31	32	34	26	G	G	G	32	27
31	G	G	G	G	31	30	31	38	31	38	44	44	58	42	28	44		70	31	33	G	40	38	28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	30	30	30	25	31	29	29	30	28	31	29	30	30	29	30	29	29	23	28	30	25	26
MED	42	40	33	30	32	30	37	46	44	50	48	48	47	42	40	44	50	47	40	33	41	46	43	50
U Q	53	53	50	41	44	36	53	56	55	70	70	81	61	62	50	57	59	60	54	62	65	54	70	57
L Q	33	30	27	G	27	28	33	39	37	39	36	33	36	31	34	31	36	35	33	25	26	33	34	31

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT KOKUBUNJI

AUG. 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	14	14	15	14	14	17	15	15	14	17	22	30	27	18	18	17	16	14	15	15	15	14	15	
2	14	15	14	14	15	14	15		15	16	21	29	21	17	16	14	14	15	15	14	14	15	14	15
3	14	14	14	14	15	15	15	14	15	16	18	29	24	22	18	16	15	15	15	15	15	14	15	15
4	14	15	14	15	14	15	15	15		15	16	22	26	21	21	17	17	14	15	15		14		14
5	15		14	14	14	14	15	15	16	15	21	17	17	22	18	17	14	15	15		14	15	15	14
6	14	14	15	15	14		15	15	14	17	21	24	B	18	16	32	15	15	14		15	14	15	15
7	14	15	15	14	15	B	14	14	18	20	18	24	33	23	21	16	17	15	15	15	14	14	14	15
8	14		14	14	14		15	15	15	18	20	22	23		18	16	16	14	14		14	15	15	14
9	14		15	14	15		15	15	15	15	16	16	23	B	47	17	15	14	16	15	15	15		14
10	15	14	14	14	15	15	16	14	14	16	21	27	20	18	21	16	14	14	14	15	15	14	B	15
11	15	14	14	15	14		15	15	14	16	24	22	21	24	14	18	14	15	15	14	15	15	14	14
12	14	14	14	15	15	15	14	14	15	17	20	21	20	22	21	16	16	15			15	14	15	15
13		14	15	15	15	15	16	14	17	17	21	22	24		21	18	16	15			14	15	15	
14		14	14	14	14	15	15	15	14	20	18	17	18	17	17	14	14	15	15	16		15	14	14
15	14	15	15	15	15	15	15	14	14	16	18	15	16	18	21	16	14	14	15		15	15	14	14
16	14	14	14	14	15		14	15	15	15	16	18	24	26	17	15	15	15	15	15		15	15	14
17	15	14	14	15	15	15	15	15	14	15	17	18	18	21	18	14	15	15	15	14	14	15	14	15
18	14	14	14	15	15	15	16	14	15	16	17	18	B		20	16	15	14	15	15	14	14		15
19	14	14	14	15	15	14	15	15	16	17	17	20	16	17	17	15	15	14	14	15	14	14	14	14
20	14	15	14	15	14	14	14	15	15		16		18	20	20	16	14	15	16	15	14	14	14	15
21		14	14	15	15	14	15	15	15	16	16	17	17	17	17		14	15	14	15	14	15	15	
22	15	14	14	14	15	15	14	15	14	16		17	16	17			14	14	15	15	15	15	15	14
23	14	14	14	15	15	15	15	15	15	17	17	17	16	17	17	15	14	14	14	15	15	15	15	
24	15	14	15	15	14	15	15	15	15	15	14	47	23	21	18	14	15	15	15	15	14	15	15	15
25	15	15	14	15	15	14	22	15	14	15	18	18	16	14	16	14	15		15	14	15		15	15
26	15	14	14		15	15	15	14	15	15	18	18	32	18	20	16	14	15	15		15	15		
27	15	14		14	14	15	14	15	15	15	17	15	17	18	16	16	15	15	15	15	14	14	14	15
28		14	15	14	14	15	15	15	15	15	18	17	16	18	28	17	15	15	15	15	14	15		14
29	15	15	14	14	B	15	15	14	16	17	17	20	18	20	17	16	14	15	15	15	15	14	15	15
30	15	14	15	14	15	15	14		14	15		20	16	16	16	16	15	14	15	15	15	22	14	15
31	15	15	15	14	14	15	14	15	15	18	16	15	15	17	16	15		15	15	15	15	15	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	27	28	30	30	30	25	31	29	30	30	29	30	29	27	30	29	30	30	29	24	28	30	25	26
MED	14	14	14	14	15	15	15	15	15	16	18	19	18	18	18	16	15	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	15	15	17	20	22	23	21	21	17	15	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	15	16	17	16	17	17	15	14	14	15	15	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT YAMAGAWA

AUG. 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	34		32		69	A	A	57	A	A	A	A	A	A	50	60	A	A	65	68	66	49	31	49
2	25	26	31	26		26	23	A	A	A	A	A	A	A	A	A		A	79	A	A	A	A	A
3	A	A	A	31	32	30		47	52	A	A	A	A	A	A	A	78	A	60	70	A	89	A	A
4	A	A		A	A	A	A	A	A	A	A	A	A	60	A	A	71	67	64	61	34	A	A	A
5		59	A	A	A	59	A	A	A	A	A	63		A	60	66	66	72	71	A	A	26	69	
6	31	30		31		A	A	A	58	60	A	A	A	A	61	72	82	71	A	A	A	A	37	31
7		A			25	30	32	61	56	60	A	A	A		A	A	71	75	78	76	60	A	A	44
8	55	47		44	35		26	A	75	65	A	A	A	63	60	81	81	77	B	B	B	B	B	B
9	B	B	B	B	B	B	50	73	A	67	A	A	A	A	A	73	A	68	74	74	A	A	37	60
10	22	58	27	50		37	23	58		66	A	A	A	A	A	A	A	82	B	B	B	B	B	B
11	B	B	B	B						58	A	A												
12								A	A	A	A	A	A	A	A	57	62	62	62	92	A	A	A	A
13	A	38	35	49	36	A	34	69	62	62	A	A	A	A	56	58	70	89		84		A	109	A
14	A	A	A	38	59	34	A	68	65	51	A	A	A	A	73	A	A	A	75		A	99	A	A
15	A	109	A	39	A	26	58	62	A	67	A	A	A	A	A	A	A	75	80	A	A	32	79	A
16	A	A	A	A	A	A	69	56	A	A	79	A	A	79	A	A	59	55	A	83	A	A	109	43
17	79	48	36	A	32	48	24	A	54	A	A	A	A	A	A	A	57	59	62	58	79	59	60	38
18	28	34	A	49	59	48	38	56	59	61	A	A	A	A	A	A	A	62	N	73	72		69	A
19	A	89	27	A	A	32	48	52	57	A	A	A		A	60	A	53	53	68	72	A	A	A	109
20	59		59	49	89	32	A	49	57	56	53	A	A	57	54	67	A	A	A	A	A	59	109	A
21	A	A	38	38	69		43	62	57	48	59	A	A	A	A	55	57	67	58	A	68	58	48	36
22	37	A	38	40	A	59	28	58	A	68	A	62	A	A	A	A	57	73	84	82	61	79	54	26
23	37	39	28	27	A	39	A	61	57	52	A	A	A	71	81	67	65	73	69	72		76		64
24	47	38	38	50	49	56	48	73	59	52	A	62	59	63	62	75	69	68	69	84	49	61	37	38
25	42	37	47	69	69		48	73	68	66	A	A	72	72	A	63	58	59	92	85	66	A	A	A
26	A	A	A	A	A	A	A	64	80		57	A	A	A	74	65	62	66	68	84	69	79	A	A
27	A	A	47	A	38	59	39	68	62	67	64	A	A	60	70	62	57	59	57	A	73	68	A	44
28	37	37	41	A	89	48	58	67	A	A	62	A	57	A	A	74	70	72	72	85	65	68	47	41
29	34	37	36	37	40	49	50	59	48	68	58	58	A	A	A	A	73	100	96	83	59	32	60	109
30	49		47	A	A	A	60	62	68	49	A	A	66	67	66	81	70	81	81	83		149	89	34
31		33	49	60	59		50	69	57	62	A	A	57	A	61	66	70		72	82	84	A	69	
	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	16	17	17	16	17	20	23	19	20					14	17	22	24	23	20	14	16	17	15
MED	37	38	38	40	54	39	46	62	58	62					61	66	68	70	71	82	66	64	60	43
U Q	49	53	47	49	69	52	50	68	65	66					70	73	71	75	79	84	72	79	84	60
L Q	31	35	31	34	35	31	30	57	57	54					60	61	58	62	64	72	60	53	42	36

HOURLY VALUES OF fEs AT YAMAGAWA

AUG. 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	26	G	33	34	38	65	72	96	86	80	94	33	33	57	92	39	33	25	27	34	33
2	34	32	30	25	G	G	30	30	31	31	63	92	65	80	144	172		86	93	103	154	136	116	58
3	39	34	32	30	29	G	26	36	32	50	53	148	151	34	85	95	61	79	50	50	29	29	40	32
4	41	84	58	60	59	32	56	47	71	77	101	78	81	61	104	66		34	39	33	27	34	91	39
5	58	36	59	57	60	90	35	49	38	36	60	31	G	30	54	53	39	26	34	39	32	26	26	
6	32	24	30	26	49	46	60	58	38	33	33	34	33	32	30	28	50	52	60	58	54	38	32	40
7	32	33	34	28	G	G	24	29	32	35	33	31	30	G	30	34	32	41	34	40	40	44	49	32
8	33	G		38	25	G	30	32	30	40	32	41	38	32	30	31	29	28	B	B	B	B	B	B
9	B	B	B	B	B	B	43	33	43	37	N	41	50	52	57	53		28	28	29		59	34	27
10	31	25	31	26	24	G	G	36		50	54		116	68	62	76	88	53	B	B	B	B	B	B
11	B	B	B	B						34	38	30												
12								139	79	140	97	62	41	36	64	40	50	30	40	60	92	36	58	38
13		33	49	30	32	52	29	46	44	32		40	38	34	31	41	94	73	73	33		39	38	41
14	30	39	70	60	51	34	48	86	60	41	50	61	58	56	48	40	53	54	33	33	33	25	58	50
15	91	52	92	44	58	36	28	36	50	40	91	80	90	92	124	94	59	68	60	94	84	90	79	33
16	68		89	112	34	50	31	50	55	67	78	78	125	150	35	36	41	40	66	41		33	45	32
17		32	32	33	49	41	30	58	61	41	54	54	50	41	31	N	32	40	40	39	28	32	G	G
18	41	36	41	32	31	26	G	28	29	29	30	40	40	40	30	34	31	30	60	G	G	G	G	41
19	39	29	33	30	30	28	29	40	49	54	59	40		40	41	72	29	54	47	41	85	42	50	30
20	25	G	34		32	40	59	38	55	49	66	35	40	30	52	54	72	57	67	59	56	49	33	40
21	41	36	30	24	30	24	G	28	29	26	28	31	30	42	40	30	50	42	52	58	41	33	30	31
22	32	40	40	31	42	33	39	46	49	42	50	39	28	32	31	30	35	36	29	G	G	G	G	30
23	32	29	G	G	32	30	68	58	31	30	42	31	39	50	53	56	45	40	35	40		29	43	41
24	39	34	32	31	24	24	G	29	32	37	55	41	35	31	53	54	50	44	40	30	33	38	30	32
25	28	27	G	G	G	G	26	29	40	39	38	53	54	39	40	30	31	55	61	93	33	41	45	36
26	38	41	44	30	37	41	60	40	51		39	37	30	32	50	54	40	40	31	G	24	30	50	59
27	54	34	31	42	27	35	32	38	44	36	38	36	30	29	39	30	34	36	28	68	54	48	44	33
28	38	24	27	33	23	G	28	34	44	37	38	55	49	54	75	92	34	46	32	33	33	31	38	G
29	40	27	26	48	28	G	26	29	30	32	39	30	42	29	30	28	29	37	34	G	G	G	G	G
30	G	G	27	43	45	52	30	30	44	47	50	66	38	53	29	31	31	31	26	24	G	G	23	G
31	G	G	G	G	G	G	24	32	54	53	31	30	28	30	32	28	36		40	84	33	32	31	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	26	27	27	27	28	28	29	30	29	30	29	30	29	30	30	29	27	29	28	28	24	28	28	27
MED	36	32	32	31	30	31	30	37	44	40	50	40	40	40	40	40	40	41	40	40	33	33	38	33
U Q	41	36	44	43	43	40	41	47	54	50	61	62	61	54	57	61	53	54	60	58	54	41	49	40
L Q	31	24	27	26	24	G	26	30	32	34	38	34	31	32	31	30	32	35	33	31	26	28	30	30

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT YAMAGAWA

AUG. 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	14	14	14	14	14	15	14	14	15	16	18	45	44	44	21	16	15	14	14	14	14	14	14	14
2	14	14	14	14	14	14	14	14	15	16	21	22	47	22	23	18		15	14	14	14	14	14	14
3	14	14	14	14	14	14	14	15	15	16	20	22	21	22	22	18	15	14	14	14	14	14	14	14
4	14	14	14	14	14	14	14	14	15	15	21	22	22	22	21	22	17	15	14	14	14	14	14	14
5	14	14	14	15	14	15	14	14	16	16	20	23		24	45	16	15	15	14	15	14	14	15	
6	14	14	14	14	14	15	14	14	14	15	16	24	23	21	20	21	16	15	14	14	14	14	14	14
7	15	15	14	14	15	14	15	15	16	16	18	21		49	22	21	16	16	14	15	14	14	14	14
8	15	14		14	15	15	16	15	16	17	21		22	22	22	20	16	16	B	B	B	B	B	B
9	B	B	B	B	B	B	14	15	17	20	21	21	21	24	21	21	18	16	14	15	14	15	15	15
10	15	14	14	14	15	14	17	14		17	21	20	21	22	18	18	15	15	B	B	B	B	B	B
11	B	B	B	B						17	20	21												
12								15	16	16	20	21	21	21	20	18	17	16	14	14	14	15	14	14
13	14	14	14	14	14	14	14	15	16	17	20	20	21	22	21	20	18	15	15	14		14	14	14
14	15	14	14	14	14	14	14	15	15	17	20	20	23	22	21	20	16	15	15	14	14	15	15	15
15	14	14	15	14	14	14	15	14	15	16	18	20	20	20	20	20	15	16	15	14	15	15	15	14
16	15	14	14	15	14	15	14	15	15	16	20	21	21	21	22	18	17	15	15	14	14	14	14	14
17	15	14	14	15	15	14	14	15	15	17	18	20	21	20	18	18	15	14	15	14	14	14	14	14
18	15	15	14	14	14	14	15	15	15	17	18		20	21	20	16	18	15	15	15	14	15	14	15
19	15	14	14	14	14	14	14	14	16	16	20	21		20	17	17	15	15	14	14	14	14	15	15
20	15	14	14	14	14	14	14	14	16	16	20	18	20	21	35	17	18	16	14	14	15	14	14	14
21	14	14	14	14	14	14	15	15	15	16	18	20	18	20	18	16	15	14	14	15	14	14	15	15
22	14	14	14	14	14	15	14	14	14	15	16	17	17	17	16	16	15	14	16	15	14	14	14	14
23	14	15	14	15	15	14	14	15	14	16	17	20		22	18	17	16	15	15	14		14	15	15
24	14	14	14	14	14	14	15	14	15	16	17	18	47	21	18	18	15	15	15	14	14	14	15	15
25	15	14	14	14	15	14	16	15	15	16	17	18	20	20	20	15	16	15	14	15	14	15	14	14
26	14	15	15	14	14	14	14	15	14		17	18	20	20	20	17	16	15	14	15	15	15	15	15
27	14	14	14	14	14	14	15	14	14	16	20	18	20	21	18	18	16	15	15	16	14	14	14	14
28	14	15	15	14	14	14	15	14	15	16	17	17	17	33	20	17	17	15	14	15	14	14	15	14
29	15	14	14	14	15	14	15	14	15	17	18	18	18	18	17	17	16	15	15	14	15	14	14	15
30	15	14	14	14	15	14	14	14	15	16	17	18	22	21	48	20	16	15	17	15	15	14	15	15
31	15	14	15	15	15	14	17	14	16	16	18	20	21	20	18	16	15		16	14	14	14	14	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	28	28	27	28	28	28	29	30	29	30	31	29	26	30	30	30	28	29	28	28	26	28	28	27
MED	14	14	14	14	14	14	14	14	15	16	18	20	21	21	20	18	16	15	14	14	14	14	14	14
U Q	15	14	14	14	15	14	15	15	16	17	20	21	22	22	22	20	16	15	15	15	14	14	15	15
L Q	14	14	14	14	14	14	14	14	15	16	17	18	20	20	18	17	15	15	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT OKINAWA

AUG. 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	46	37	38	36	35	24	A	57	57	A	A	A		A	A	66	68	63	70	71	80			A
2	A	A	38		69	31	32	42	42	A	57	54	A	65	66	A	A	A	93	81		A	A	A
3	43	38		50	47	A	A	32		55	54	A	A	57	70	82	91	92	92	94	70	56	A	B
4	A	A	A		A	A	44	A	A	55	A	A	A	A	A	71	74	71	60		A	A	A	43
5	A	A	A	A	109	A	A		50	A	A	61	A	54	68	78	84	82	80	57	50	A	A	46
6	35	38	40	37	37	38	A	44	A	A	A	58	A	A	63	77	85	81	95	58	66	56	46	89
7	38	37		B	35		37	58	65	51	43	A	57	61	A	61	82	82	84	82	A	53	A	41
8	48	A	48	41	A	37	A	44	73	54	A	A		60	62	85	91	82	84	94	62	49	43	69
9	36	A	A	38	A	38	A	33	82	52	53	58	A	A	A	73	75	77	82	74	74	A	A	109
10	64	59	69	36	43	B		57	68	53	A		58	A	64	77	86	83	82	95	A	A	44	
11		48	A	40		A	A	47	91	56	A	A	A	B	59	65	74	83	84	94	67		B	44
12		A	69	38	A	A	A		70	80	A	A	A	A	A	67	81	82	72	93	84	A	A	38
13	38	35	59	38	A	A	A	A	A	A	A	56	60	72	70	67	78	93	105	94	66	A	A	A
14	A	A	A	A	A	A	A	A		A	A	A	A	62	77	73	67	98	65	95	69	A	A	A
15	A	A	A	A	A	A	A	57	68	53	A	A	A	A	A	A	A	85	92	74	A	A	A	A
16	A	A	A	A	A	A	A	61	53	A	A	A	A	A	A	68	80	86	86	78	A	A	A	36
17	48	A	41	31	A	A	A	49	48	A	A	56	58	49	A	59	56	82	92	71	45	A	A	89
18	N	44	A	69	43	B	A	55	68	68		B	61	64	A	A	58	81	77	80	94	A		B
19	B	28	A	A	A	A	43	51		51	A	58	66	A	68	66	A	80	90	58	A	A	N	A
20	A	25	46		A	A	A	44	55	56	A	A	A	58	A	73	71	61	92	67	A	A	A	A
21	A	A	A	A	A	A	A	70	53	A	A	A	B	A	49	58	59	82	67	74	69	A	A	A
22	A	A	A	A	B	A	119	69	58	60	64	A	B		A	58	68	82	89	95	74		A	
23	A	B	B	A	B		89	69	52	51	A			71	81	67	72	102	82	74	83	56	75	56
24	56	A	44	46	44	40	39	51	57	A	55	A	64	65	69	73	75	76	91	91	93	A	A	42
25	A	46	A	38	B	B	48	78	67	59	A	59	75	72	61	64	71	70	93		57	A	A	
26	A	109	B	A	A	A	A	A	A	A	A	A	A	81	78	72	74	A	82	81	70	A	A	A
27	A	46	A	A	A	A	48	57		94	56	58	59	74	92	75	82	67	70	72	57	A	54	55
28	36	A	47	36	41	36	A	71	54	A	57	56	68	A	69	83	84	83	81	83	53		44	43
29		44	36	45				39	65	84	60	A	B	57	A	64	85	112	89	83	50		54	
30	48			38		B	59	69	60	56		60	68	72	78	83	88		79	93	A	49		46
31	37		56			44	48	64	64	53	58	A	62	67	71	91	92	83	86	98	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	13	14	13	16	10		11	25	23	19	10	11	12	18	19	28	28	28	31	29	22			15
MED	43	41	46	38	43		48	57	60	55	56	58	62	64	69	72	76	82	84	81	68			46
U Q	48	46	57	43	47		59	66	68	60	58	59	67	72	77	77	84	84	92	94	74			69
L Q	36	37	39	36	37		39	44	53	53	54	56	58	58	63	65	71	78	79	73	57			42

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT OKINAWA

AUG. 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	30	G	G	G	G	G	28	34	49	61	71	62	G	75	74	60	48	46	67	66	44	28	G	42
2	46	69	25	G	G	G	G	36	74	76	40	43	52	70	54	140	80	124	74	88		70	86	41
3	36	25		26	G	42	66	113	35	41	41	40	44	G	G	G	48	77	50	46	58	26	49	B
4	40	112	42	38	39	47	41	58	60	54	51	90	127	87	98	68	37	56	50	49	44	34	58	38
5	88	68	60	54	29	42	60		50	48	66	55	62	56	55	53	47	42	G	32	55	39	68	40
6	30	27	G	G	G	G	33	57	58	66	44	55	55	61	54	60	53	48	55	49	34	44	G	G
7	24	32	G	B	G	G	G	34	34	32	42	44	43	41	42	46	43	40	36	26	39	36	46	44
8	G	45	28	30	41	38	37	34	41	52	42	38	G	40	38	38	40	23	36	G	G	G	G	G
9	34	55	40	43	40	G	40	40	57	42	40	G	52	53	58	48	74	47	38	G	38	45	41	G
10	G	G	32	25	G	B		31	42	51	48		46	66	49	43	39	40	29	36	48	28	24	G
11	G	G	35	37	G	42	68	33	46	38	45	40	39	B	50	55	39	35	G	G	44	G	B	48
12	G	27	29	26	29	36	32		42	43	91	59	92	71	53	38	35	47	32	25	28	26	42	G
13	G	G	G	G	42	28	38	81	103	163	70	41	52	59	55	49	58	64	92	66	41	40	41	48
14	38	32	43	48	36	34	83	77		171	48	41	41	G	40	57	65	68	48	60	37	33	37	28
15	76	66	76	60	42	34	48	34	62	50	58	62	40	76	76	80	79	95	47	44	41	42	87	76
16	61	69	90	40		30	30	33	40	80	68	123	96	119	135	50	48	53	63	85	66	65	60	29
17	33	60	G	G	27	27	68	36	41	43	60	54	35	47	40	41	44	38	41	50	27	26	28	G
18	G	G	39	39	48	B	47	36	38	41	G	B	40	43	49	48	28	33	G	34	44		G	B
19	B	28	28	29	25	33	41	33	40	50	54	50	41	41	55	57	66	69	66	25	41	38	G	45
20	33	30	G	G	28	37	34	34	59	46	66	38	48	53	66	59	44	49	68	65	70	88	42	43
21	36	32	61	37	32	38	38	23	38	58	60	70	B	46	48	40	48	46	42	31	37	49	61	40
22	34	53	41	38	B	45	34	31	37	40	42	52	B	G	27	39	25	41	36	G	G	G	24	G
23	38	B	B	30	B	G	G	22	40	36	31	G	G	54	48	51	48	45	G	G	G	G	G	37
24	G	43	39	38	29	28	27	25	38	35	32	32	G	36	G	60	59	58	58	55	49	48	26	41
25	31	G	33	G	B	B	G	29	32	41	48	41	G	G	40	38	54	58	35	26	45	34	33	G
26	29	G	B	34	38	45	40	81	78	71	55	46	97	47	54	39	50	74	54		69	84	43	34
27	45	28	48	85	50	44	39	38		35	35	G	G	62	51	38	35	38	34	27	31	38	38	38
28	40	43	28	G	G	G	34	28	58	43	51	52	44	62	53	49	64	44	42	60	51	48	23	G
29		G	G	G	G	G		32	34	31	42	34	B	G	24	40	38	54	56	40	24	G	G	
30	G	G	G	G	G	B	45	60	40	45		47	51	G	58	G	G	28	40	40	39	G	G	G
31	G	G	G	G	G	G	G	27	33	34	35	34	53	38	39	38	38	47	28	89	102	68	42	33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	28	30	27	27	29	29	29	31	30	29	28	30	31	31	31	31	31	30	30	30	30	28
MED	33	29	30	30	28	33	38	34	41	45	48	44	44	50	51	48	48	47	42	40	41	37	38	36
U Q	39	53	41	38	39	42	46	48	58	58	60	55	52	62	55	57	58	58	56	60	49	48	46	41
L Q	G	G	G	G	G	G	29	31	38	40	41	38	37	38	40	39	38	40	34	26	34	26	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT OKINAWA

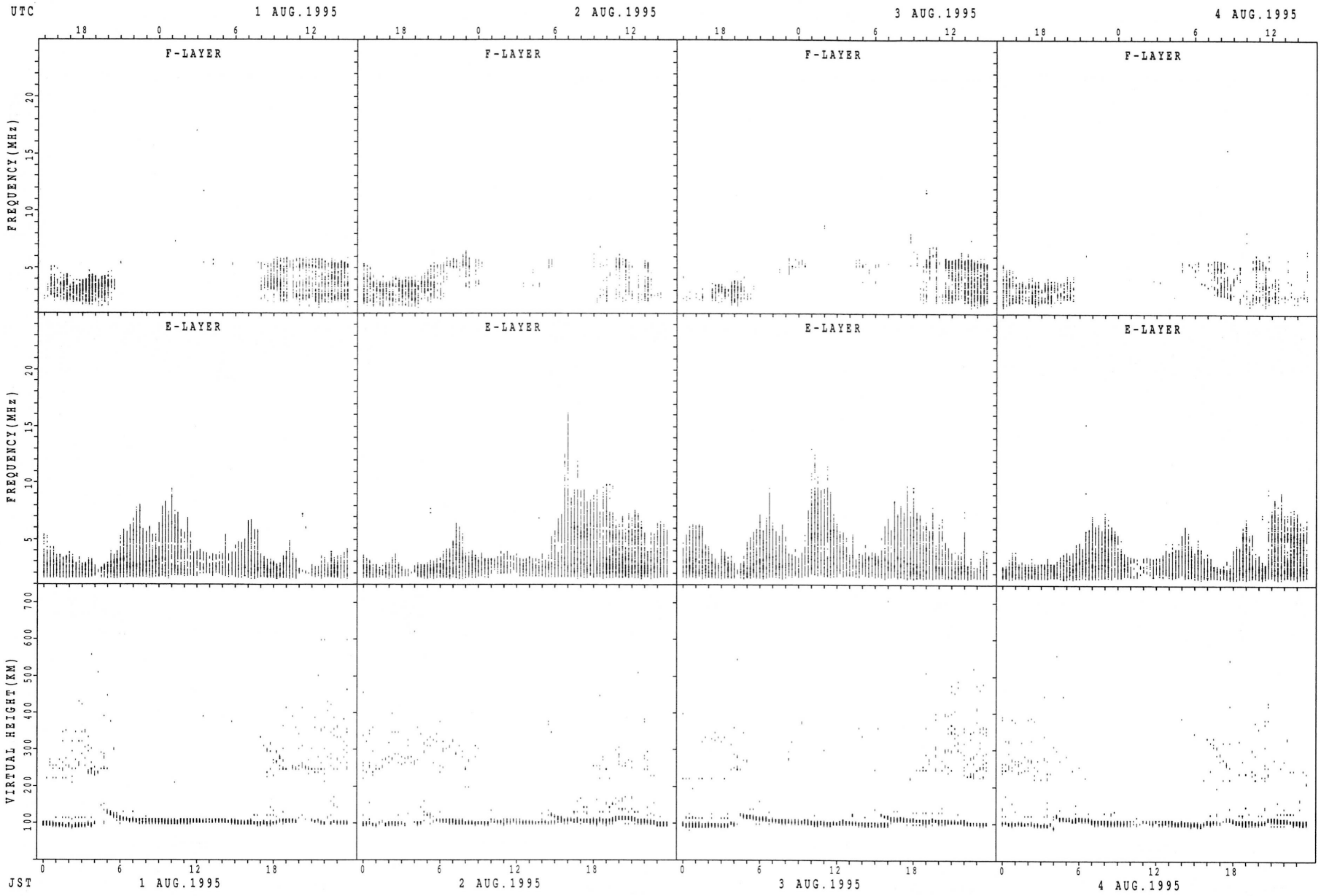
AUG. 1995

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

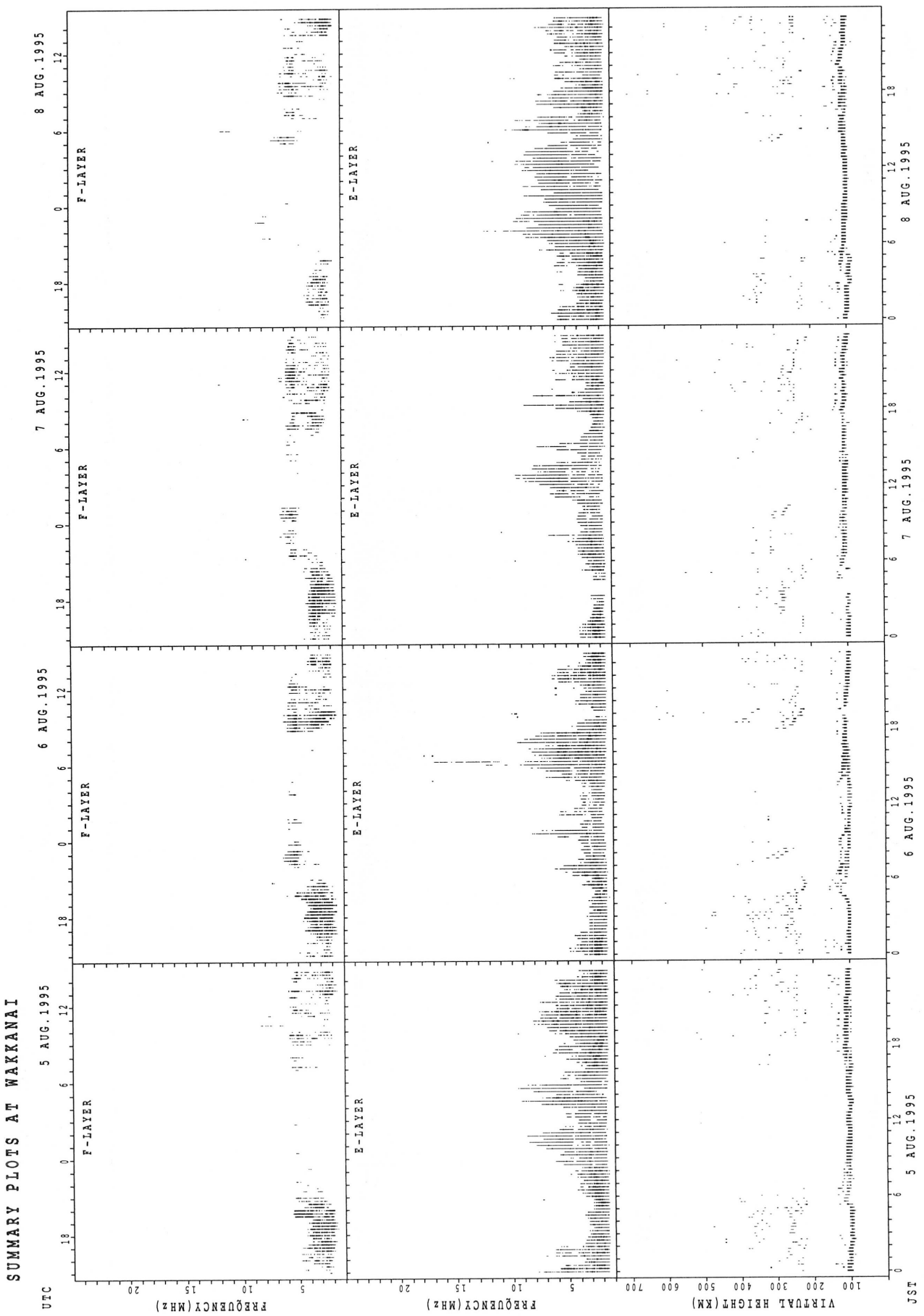
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	16	16	15	17	15	17	15	20	30	30		32	29	26	22	16	17	15	15	15	15	15
2	16	15	15	15	15	15	15	14	16	17	21	35	37	36	36	30	18	16	20	15		14	15	15
3	15	15		15	15	15	15	14	15	20	27	28	37		51	33	17	15	16	17	15	15	15	B
4	15	15	14	15	15	14	14	15	16	17	26	29	40	34	33	34	30	27	23	15	15	15	15	14
5	14	15	15	15	15	15	14		16	24	23	27	36	27	35	33	17	17	33	16	15	15	15	15
6	17	15	28	15	15	15	15	14	15	16	23	27	24	40	28	33	22	17	23	14	14	15	16	
7	15	14	18	B	14	14	15	15	16	26	34	28	29	29	27	27	18	17	20	14	15	14	15	14
8	15	15	15	15	15	15	14	14	16	22	27			33	30	29	26	18	34	18	15	15	15	16
9	15	15	15	14	14	15	14	14	16	24	27	48		37	39	29	29	16	23	28	14	15	15	17
10	15	15	15	15	16	B		14	14	17	23		28	29	27	27	20	16	15	15	15	15	15	16
11	15	16	15	16	16	14	14	15	16	20	27	29	29	B	30	27	23	17	33	21	14	21	B	15
12	15	14	14	14	14	15	14		16	18	22	29	29	30	30	30	24	17	18	23	15	15	15	17
13	16	15	15	15	15	15	14	14	16	23	26	28	35	29	29	32	21	23	18	23	14	15	15	15
14	15	15	16	14	14	15	15	14		21	23	29	26		47	26	21	18	14	15	14	15	14	14
15	15	16	15	14	14	16	14	14	15	20	29	32	29	28	26	20	17	14	15	16	14	16	15	15
16	14	15	14	14	15	15	14	17	16	20	27	29	26	28	28	24	34	16	20	14	14	14	15	15
17	14	16	21	17	15	14	15	14	16	16	24	26	26	27	26	18	16	14	26	15	15	15	14	17
18	24	15	15	14	15	B	15	14	15	40	49	B	48	35	22	32	15	15	47	15	14	15	91	B
19	B	15	15	15	15	15	14	15	16	20	24	34	48		35	26	17	15	15	17	15	15	18	15
20	15	15	15	14	15	14	14	15	15	17	24	28	38	28	36	26	17	16	24	15	16	14	14	15
21	15	15	15	15	15	15	14	24	15	20	21	26	B	26	23	46	18	17	17	14	15	14	14	
22	15	15	15	15	B	16	15	14	15	20	21	34	B	46	18	15	45	16	17	18	16	15	16	17
23	15	B	B	15	B	15	14	24	15	18	21		71	40	39	33	30	16	29	16	18	15	15	15
24	14	15	14	15	16	14	14	14	15	17	17		48	50	27	23	30	16	18	16	15	15	15	16
25	14	15	15	16	B	B	17	14	16	42	33	33	49	53	48	30	29	16	16	17	16	15	15	15
26	15	15	B	15	16	15	14	14	15	17	21	33	29	27	24	18	18	16	16	16	14	15	15	15
27	15	15	15	15	15	14	14	15		16	18	48	48	46	34	32	28	16	18	15	15	14	15	14
28	15	15	16	15	15	15	14	15	15	16	30	17	36	35	33	29	18	15	16	15	15	15	16	15
29		16	15	14	15	15		15	30	40	22	21	B	91	66	91	32	16	17	15	15	15	14	
30	14	15	15	15	15	B	14	14	18	29		32	29	49	36	49	32	16	17	15	15	26	15	16
31	16	15	17	15	15	16	15	16	15	18	24	27	30	29	26	17	17	15	14	15	14	15	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	30	28	30	28	27	29	29	29	31	30	26	25	27	31	31	31	31	31	31	30	31	30	26
MED	15	15	15	15	15	15	14	14	16	20	24	29	35	33	30	29	21	16	18	15	15	15	15	15
U Q	15	15	15	15	15	15	15	15	16	23	27	33	44	40	36	33	29	17	23	17	15	15	15	16
L Q	15	15	15	14	15	14	14	14	15	17	22	27	29	28	27	26	17	16	16	15	14	15	15	15

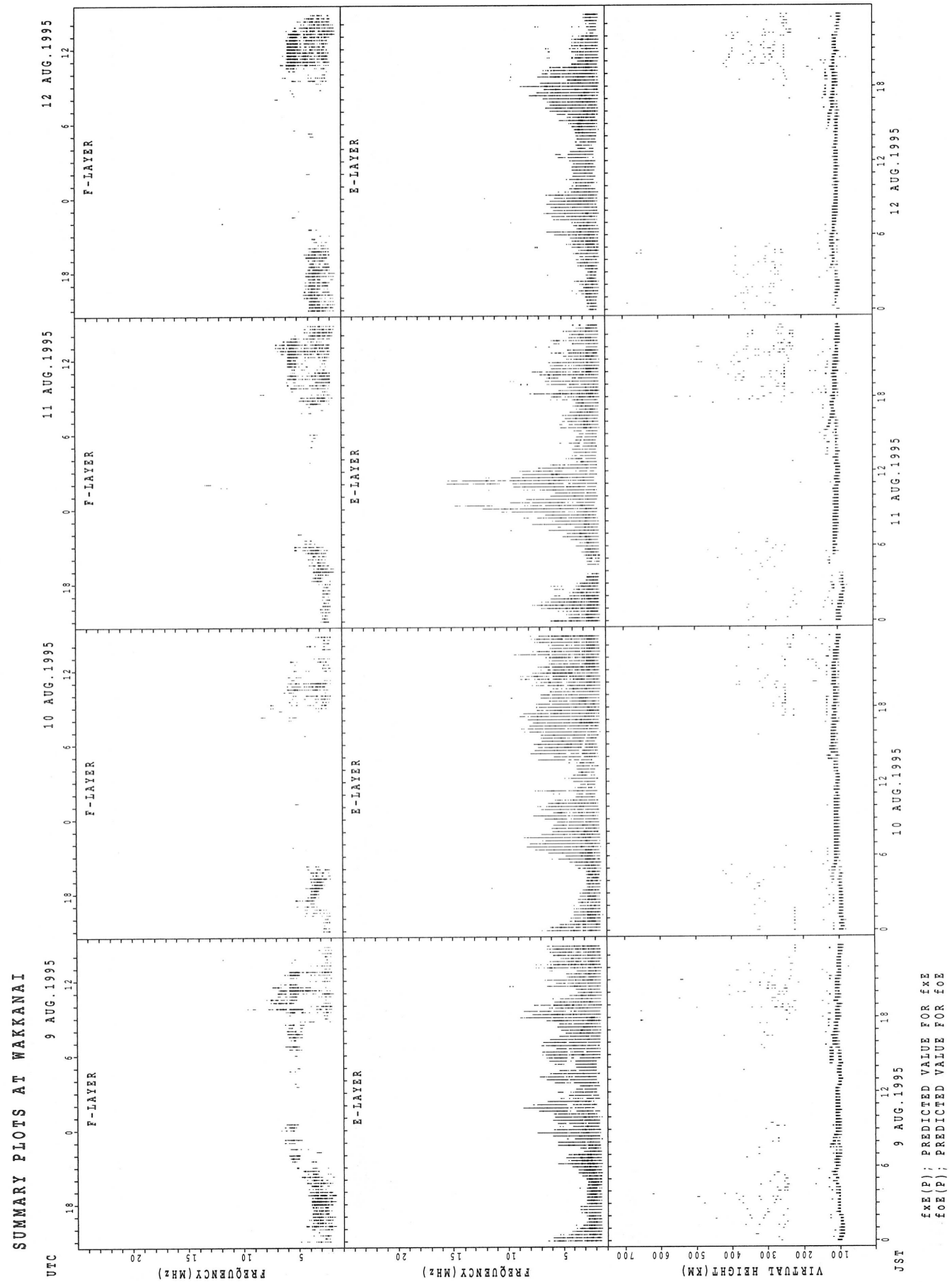
COMMUNICATIONS RESEARCH LABORATORY, JAPAN

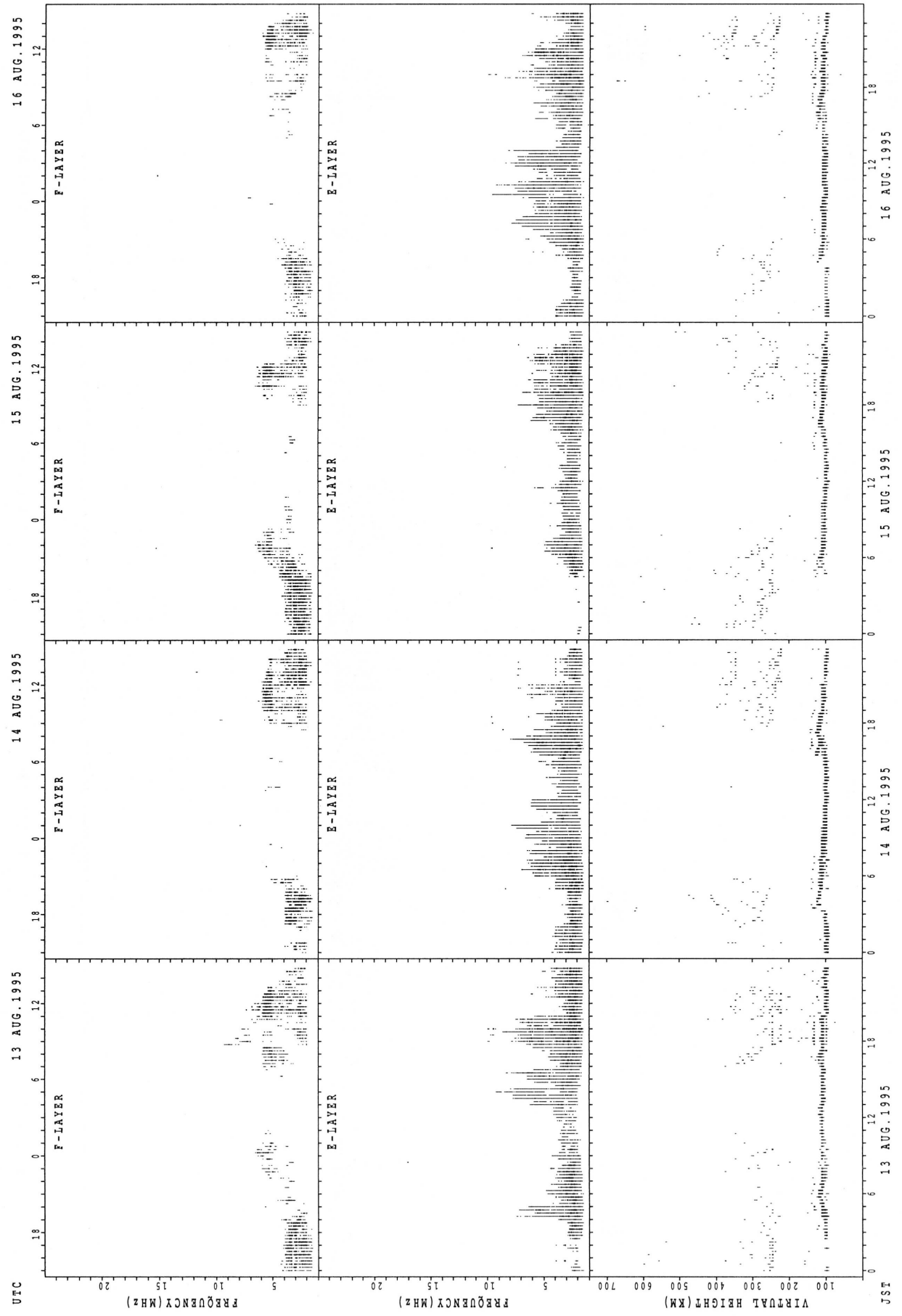
SUMMARY PLOTS AT WAKKANAI



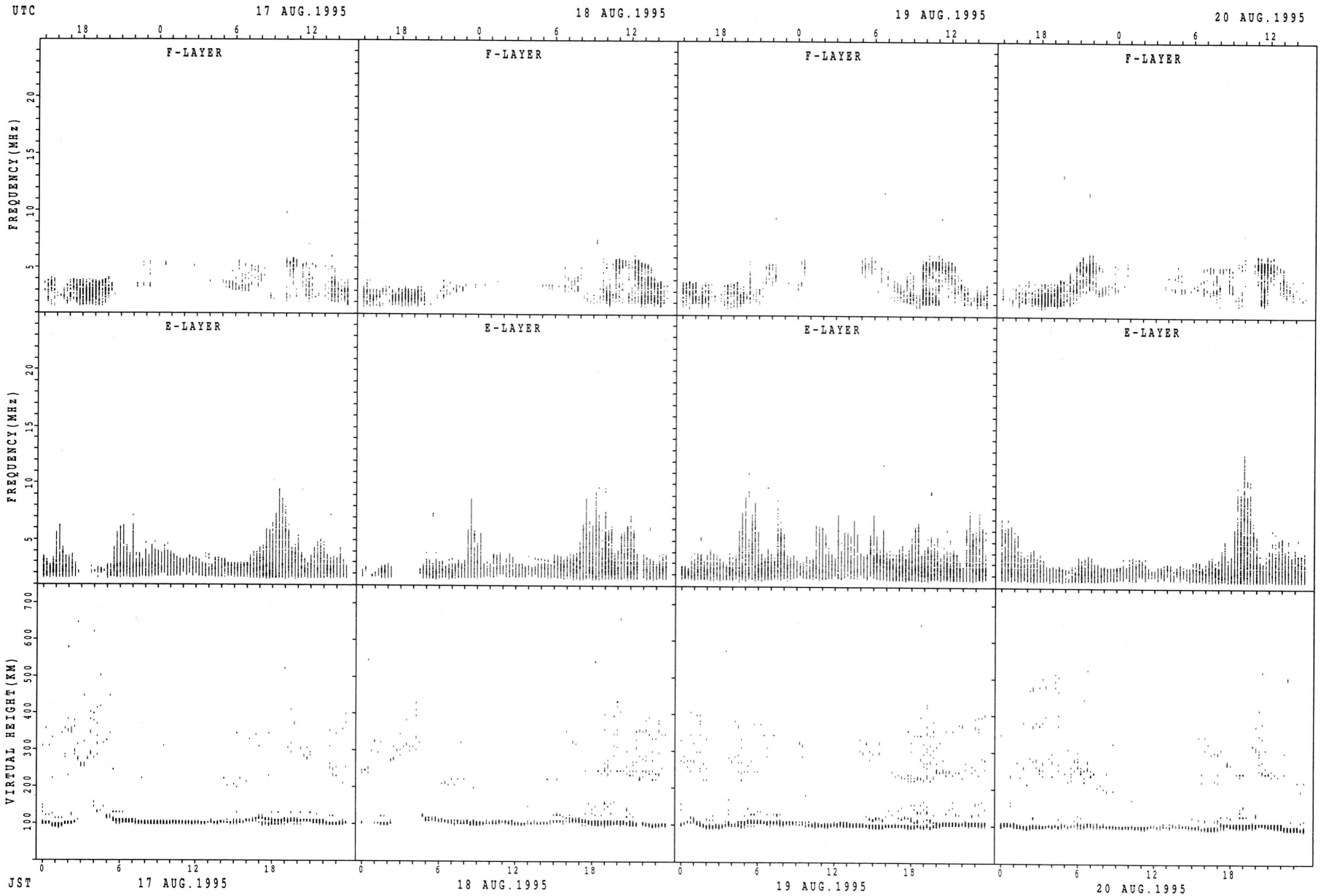
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

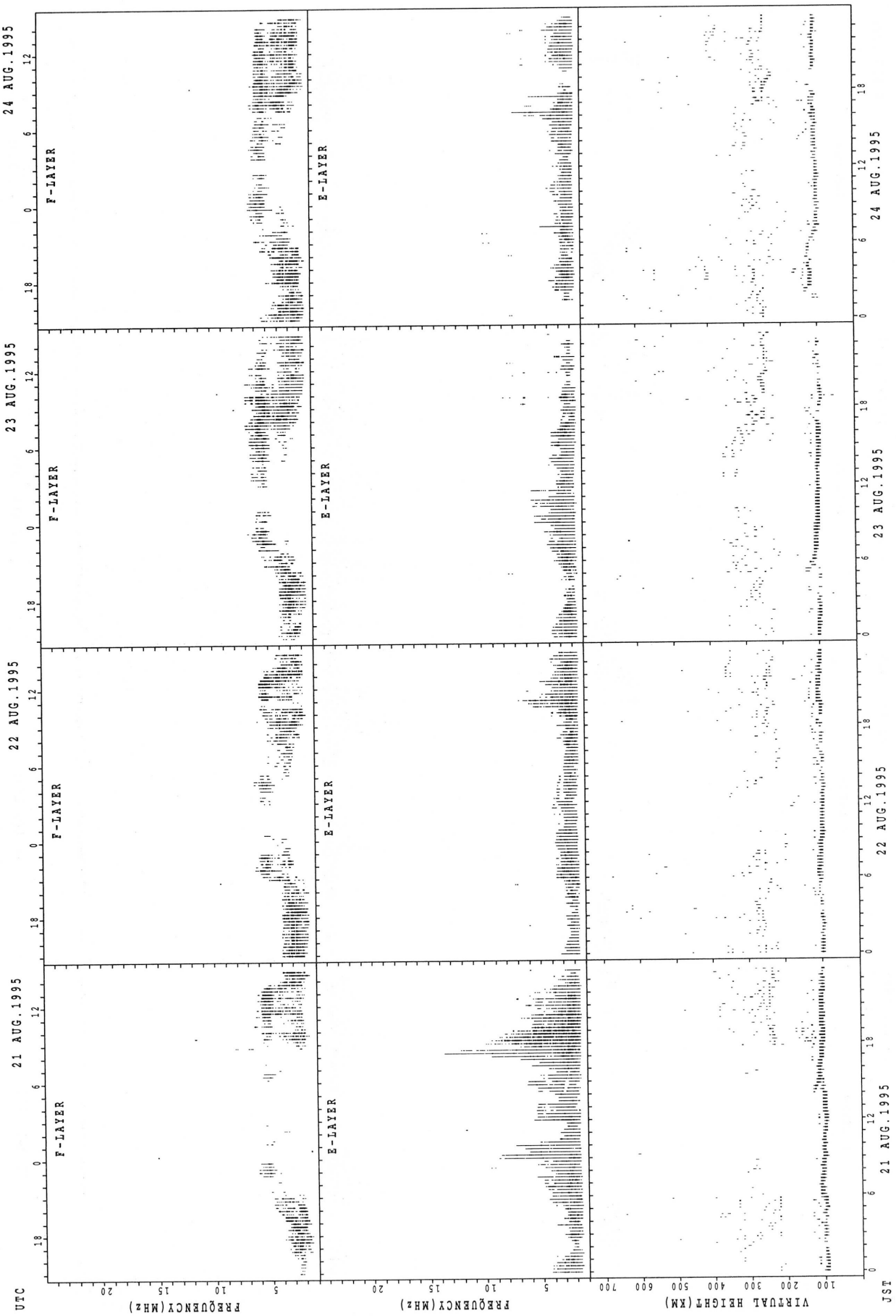

SUMMARY PLOTS AT WAKKANAI
UTC
JST
9 AUG.1995
10 AUG.1995
11 AUG.1995
12 AUG.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

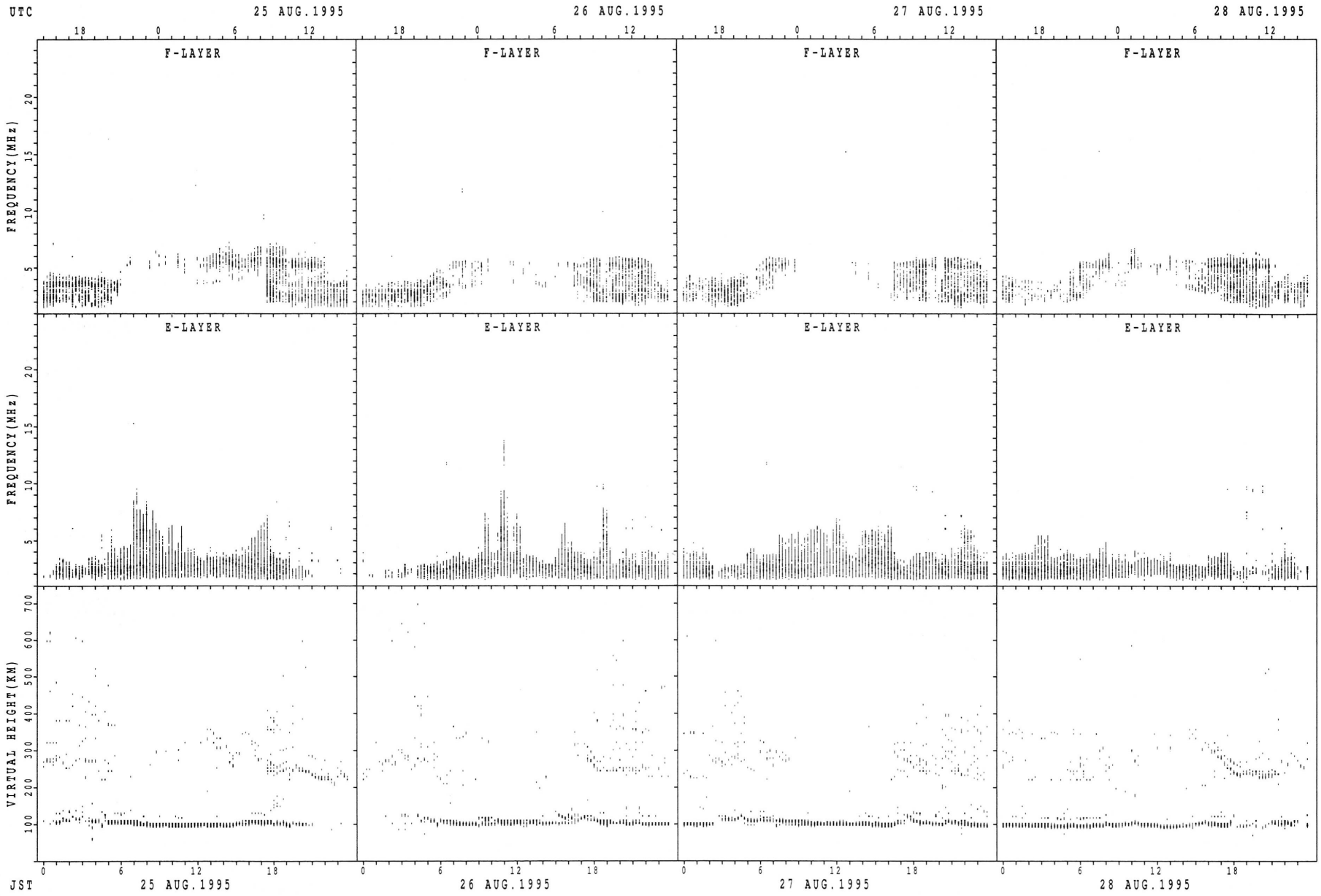
SUMMARY PLOTS AT WAKKANAI



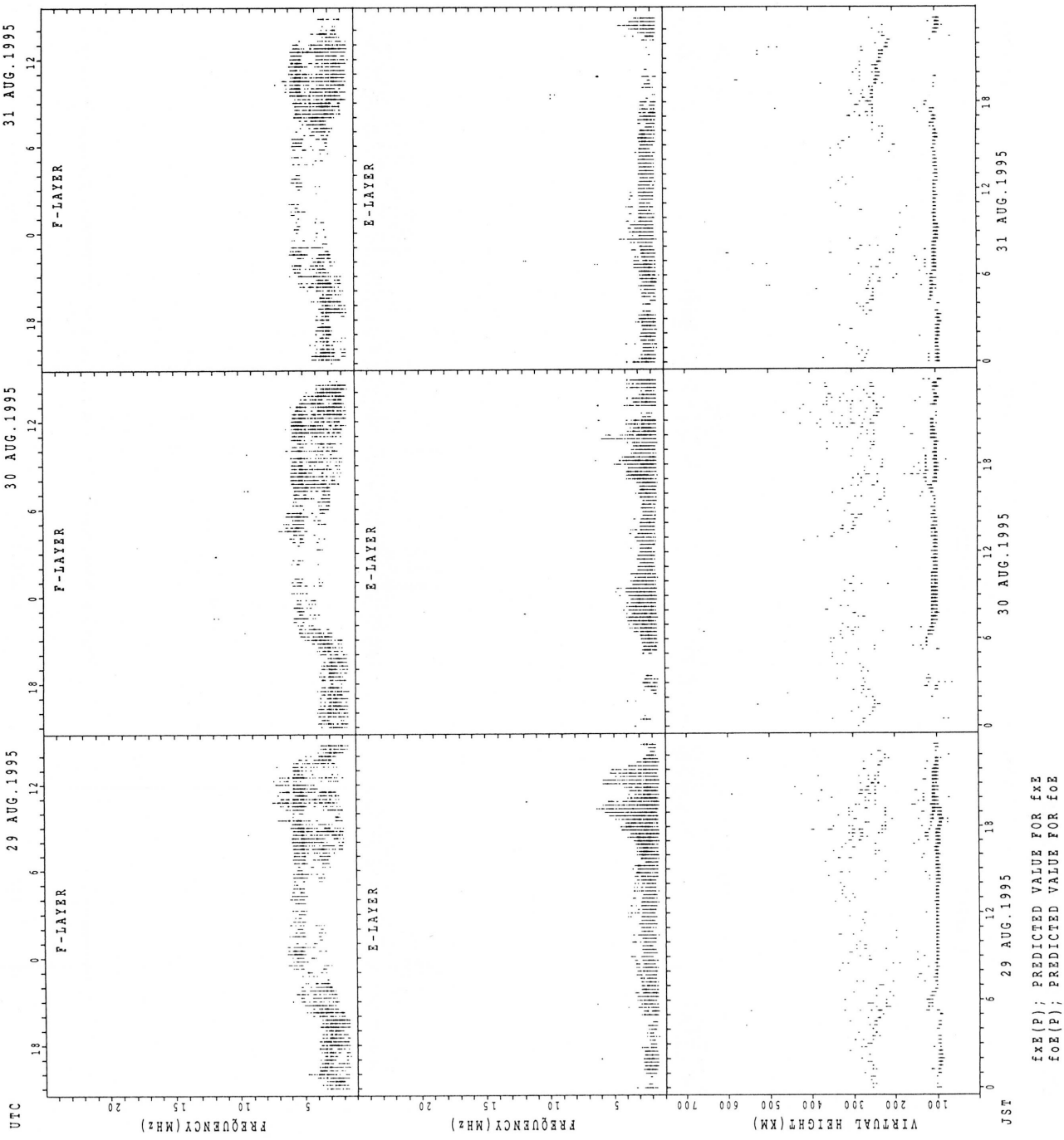
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

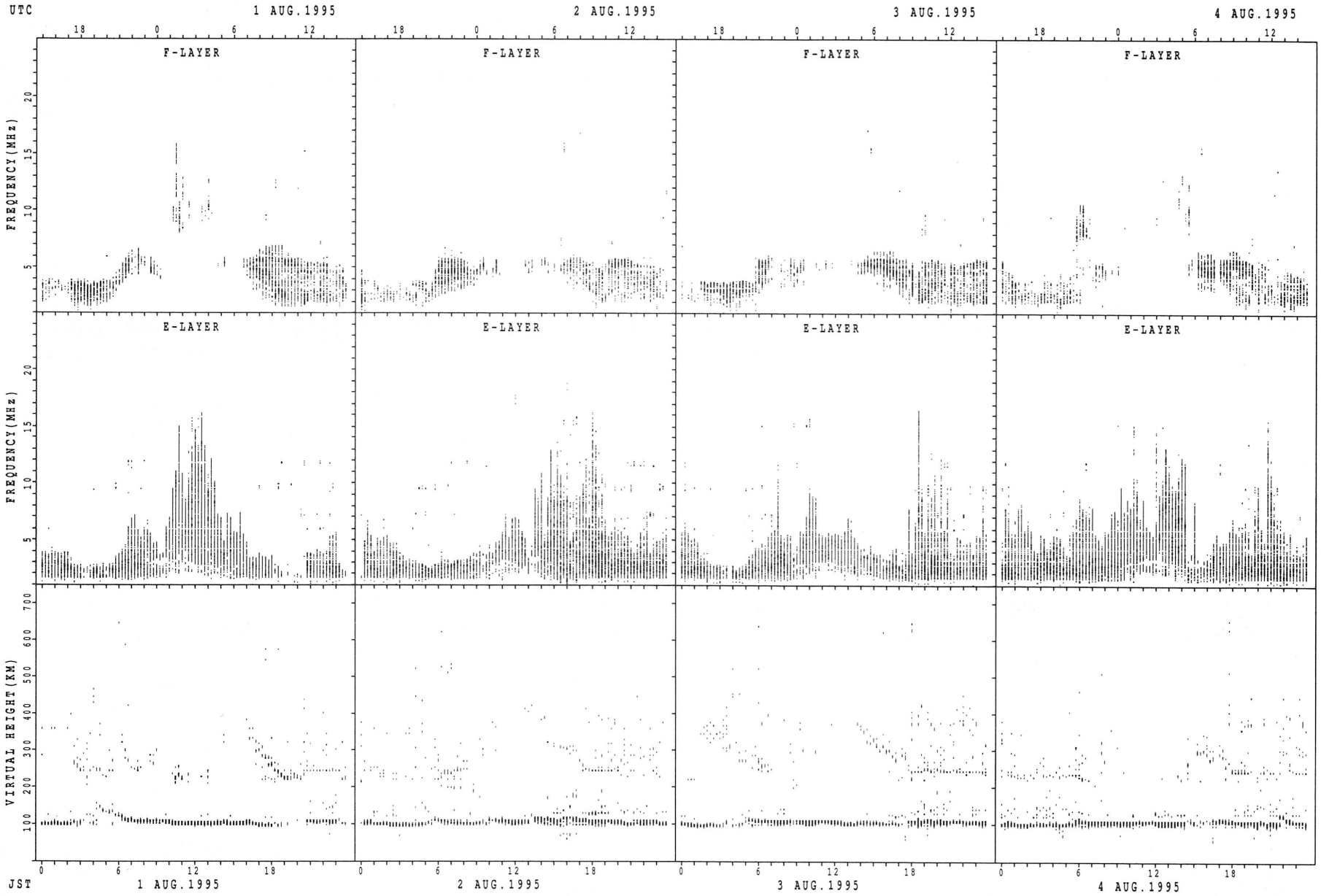
SUMMARY PLOTS AT WAKKANAI



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

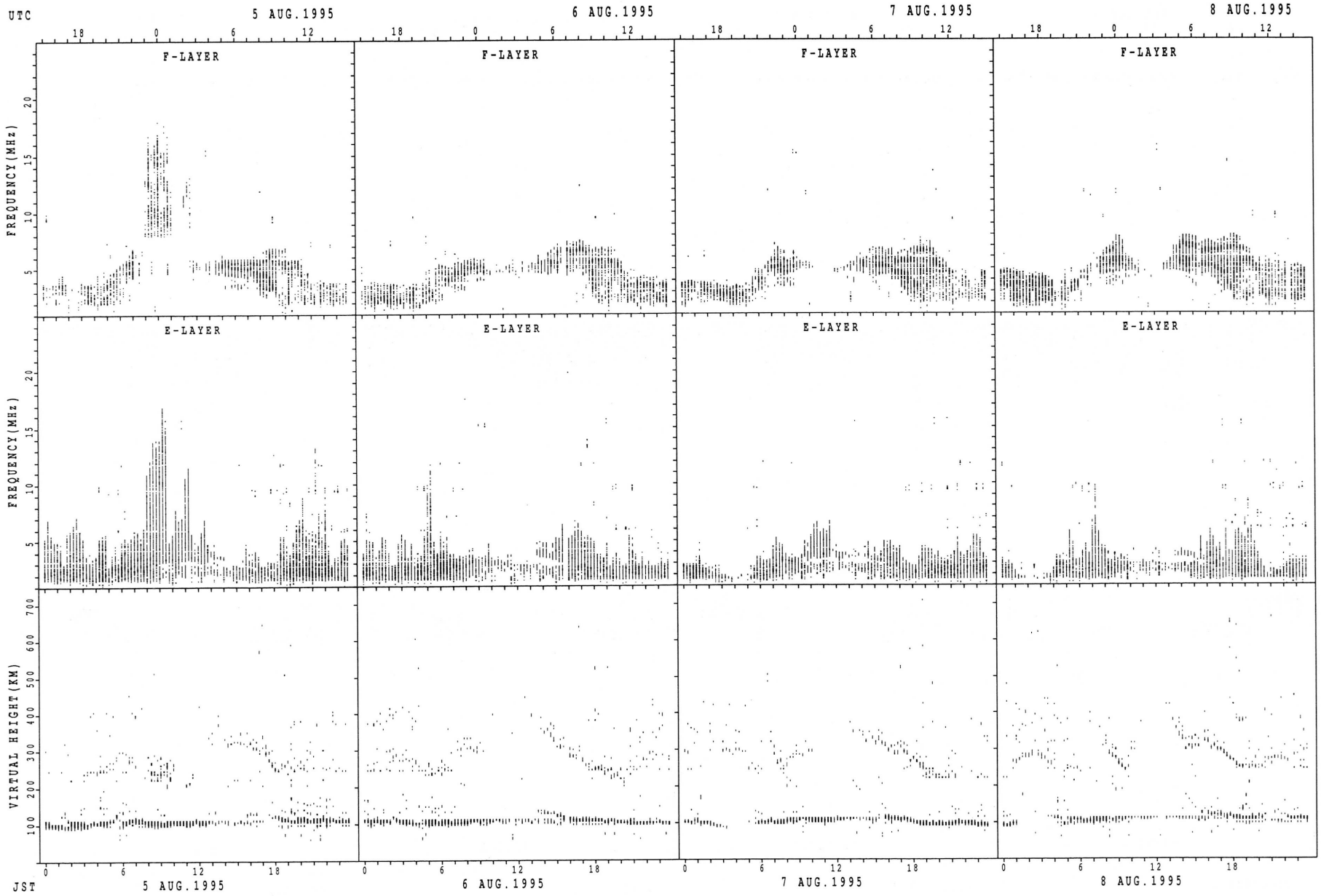

SUMMARY PLOTS AT WAKKANAI
29 AUG.1995
30 AUG.1995
31 AUG.1995
UTC
JST
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



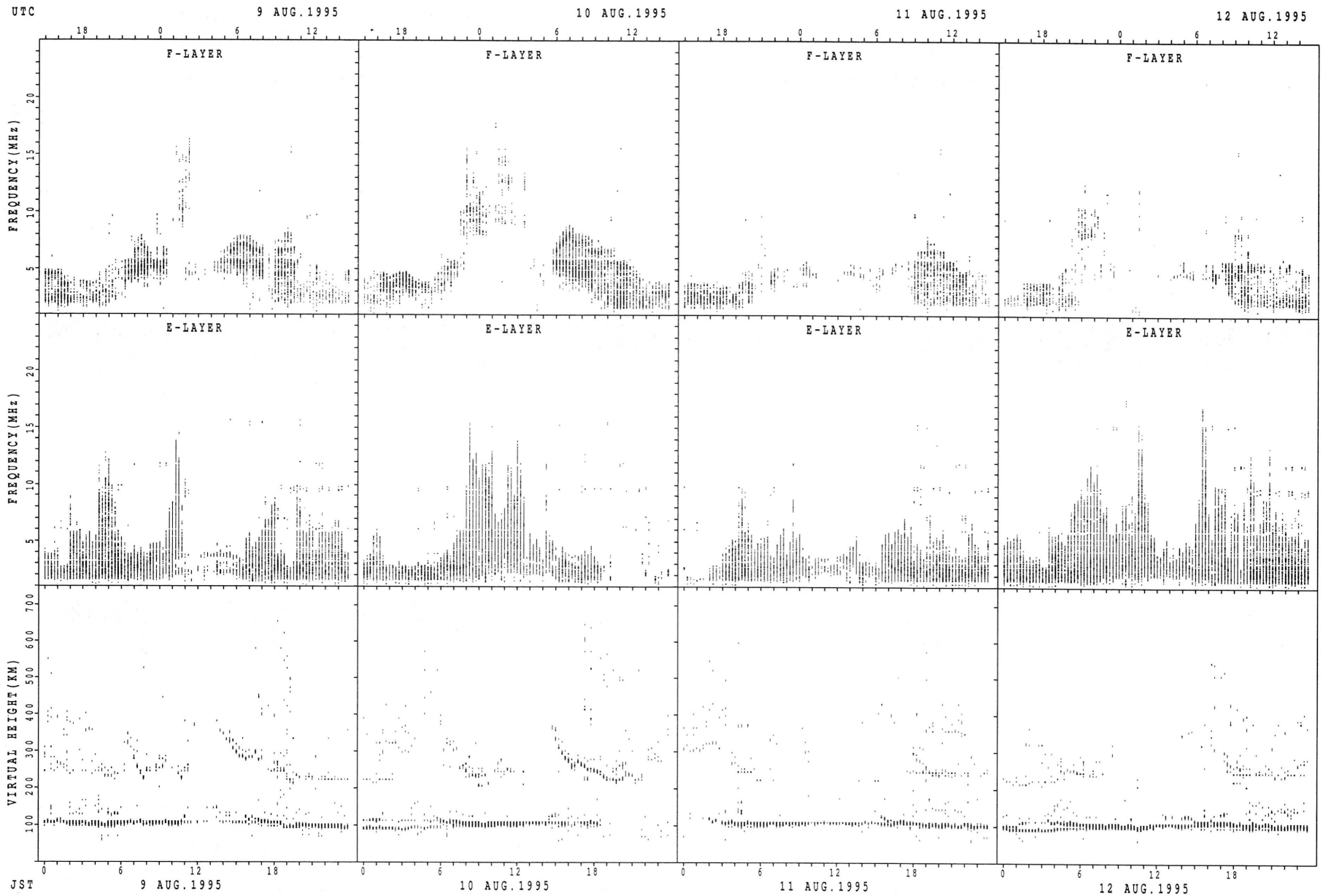
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT KOKUBUNJI TOKYO

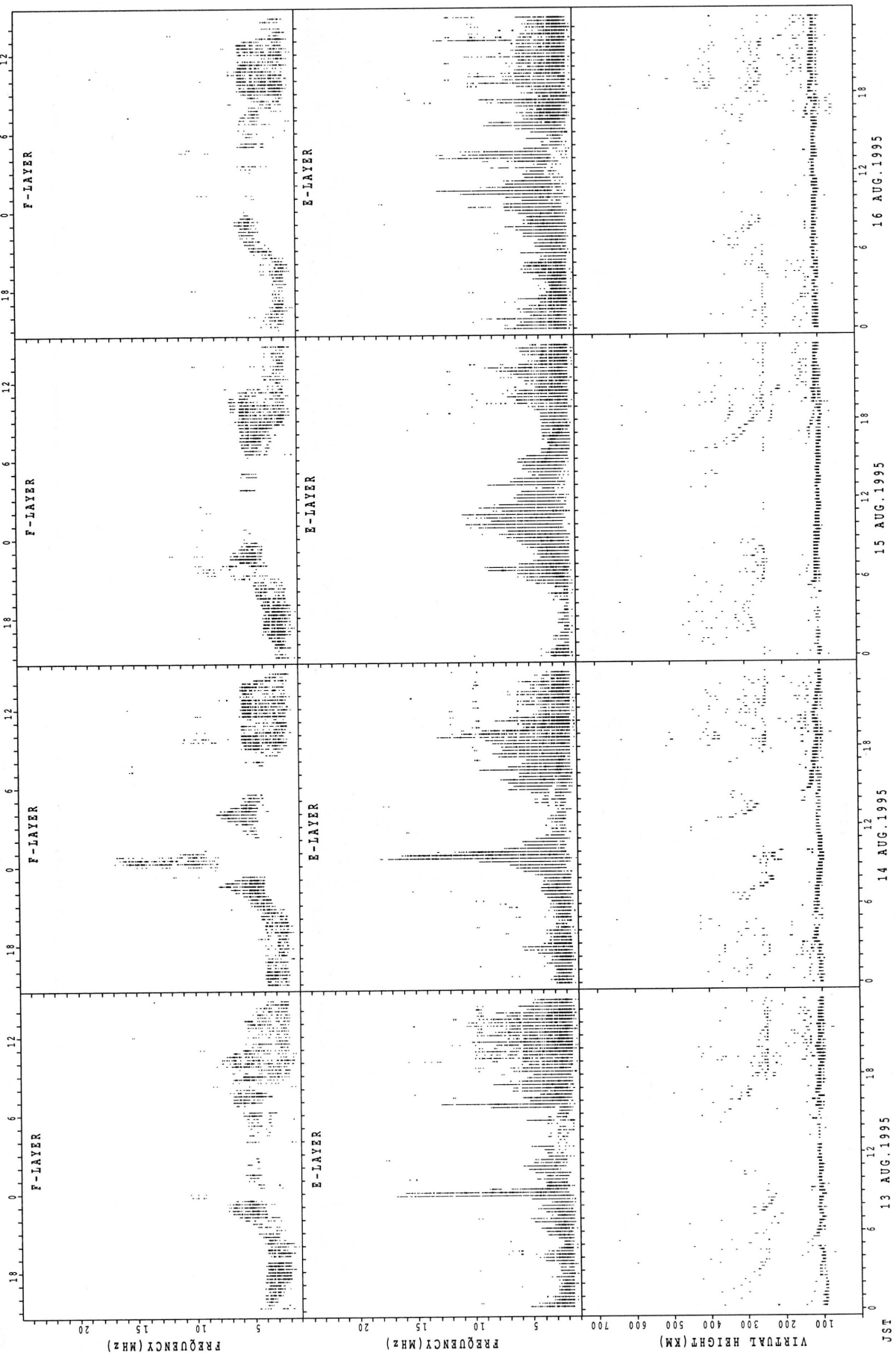


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

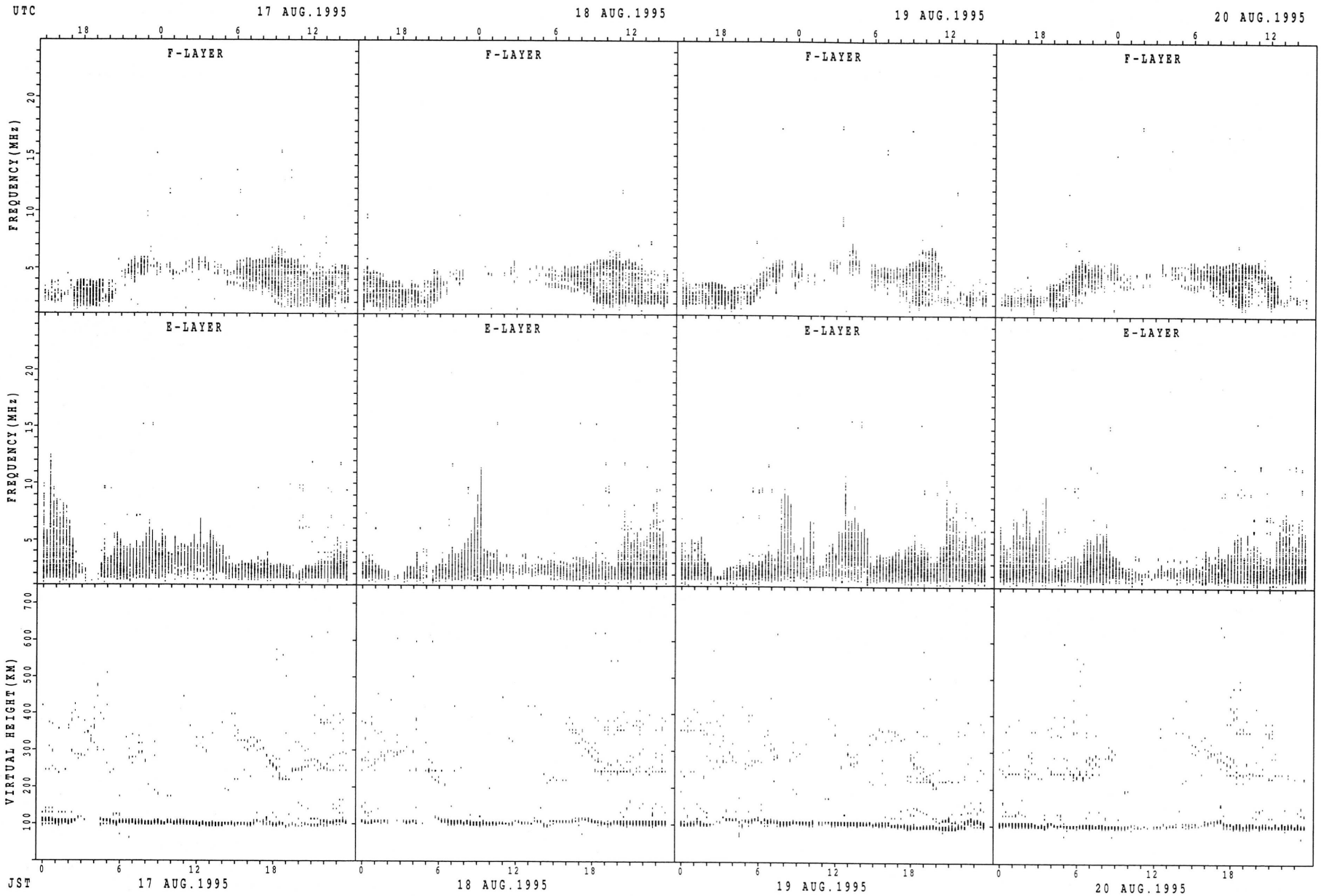
SUMMARY PLOTS AT KOKUBUNJI TOKYO



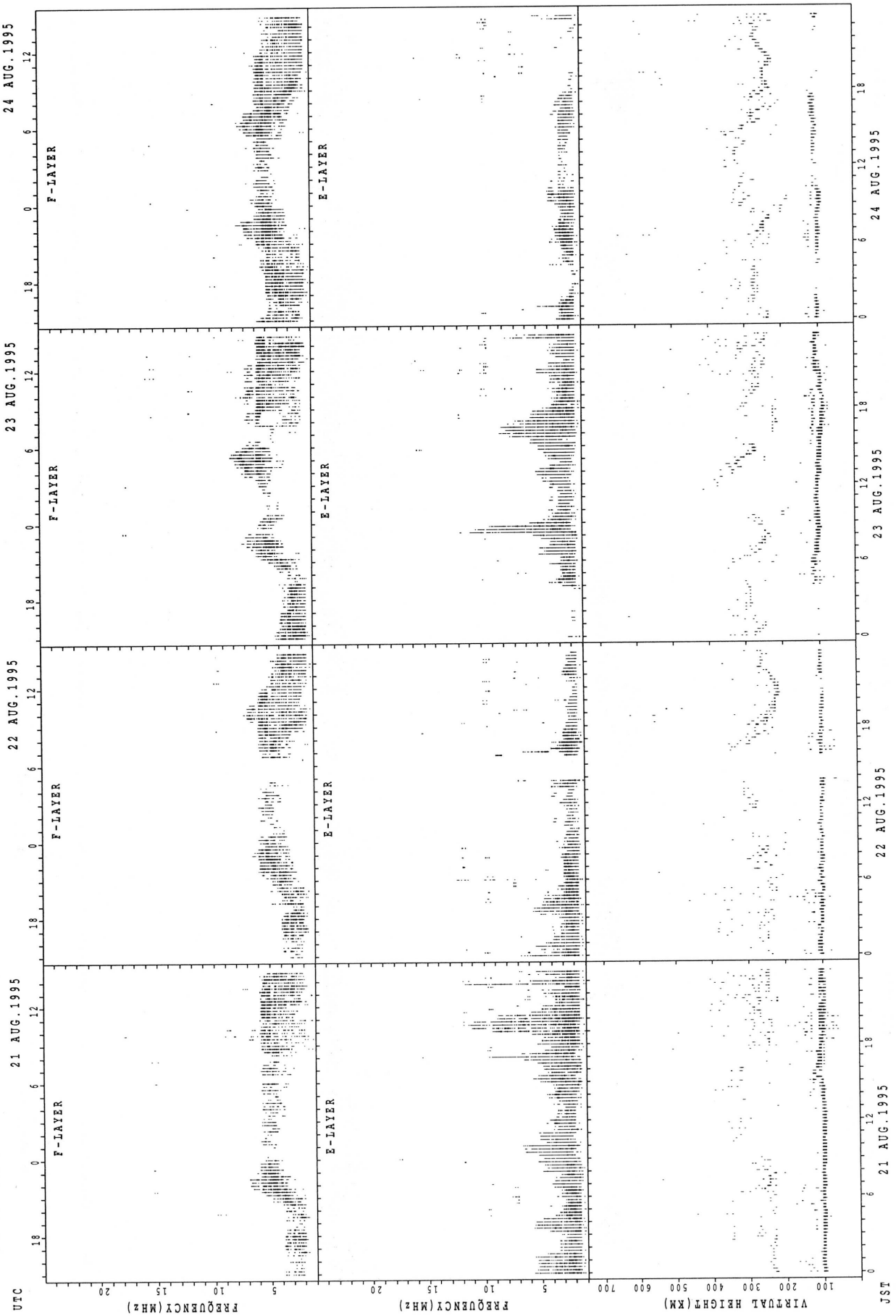
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

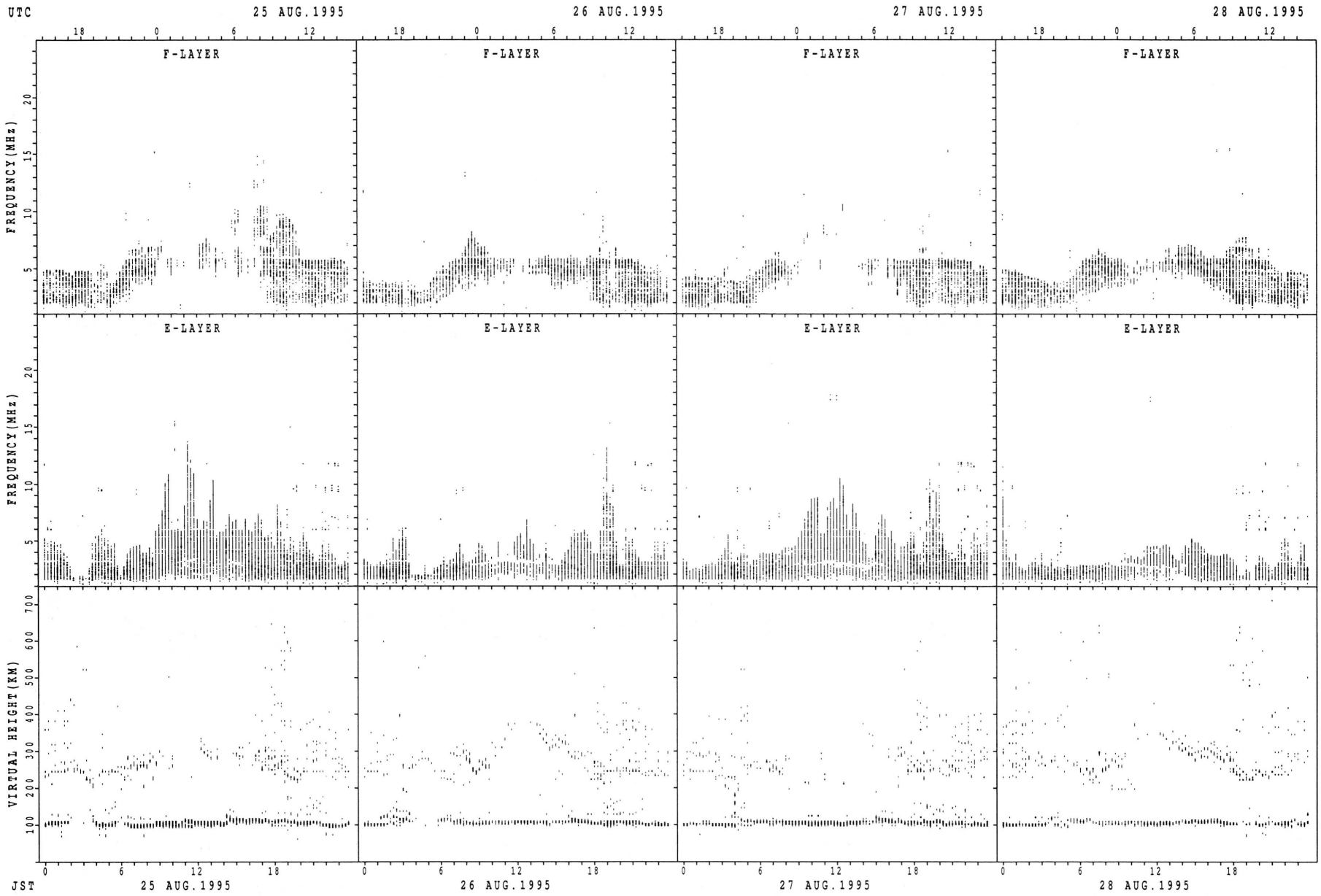
SUMMARY PLOTS AT KOKUBUNJI TOKYO



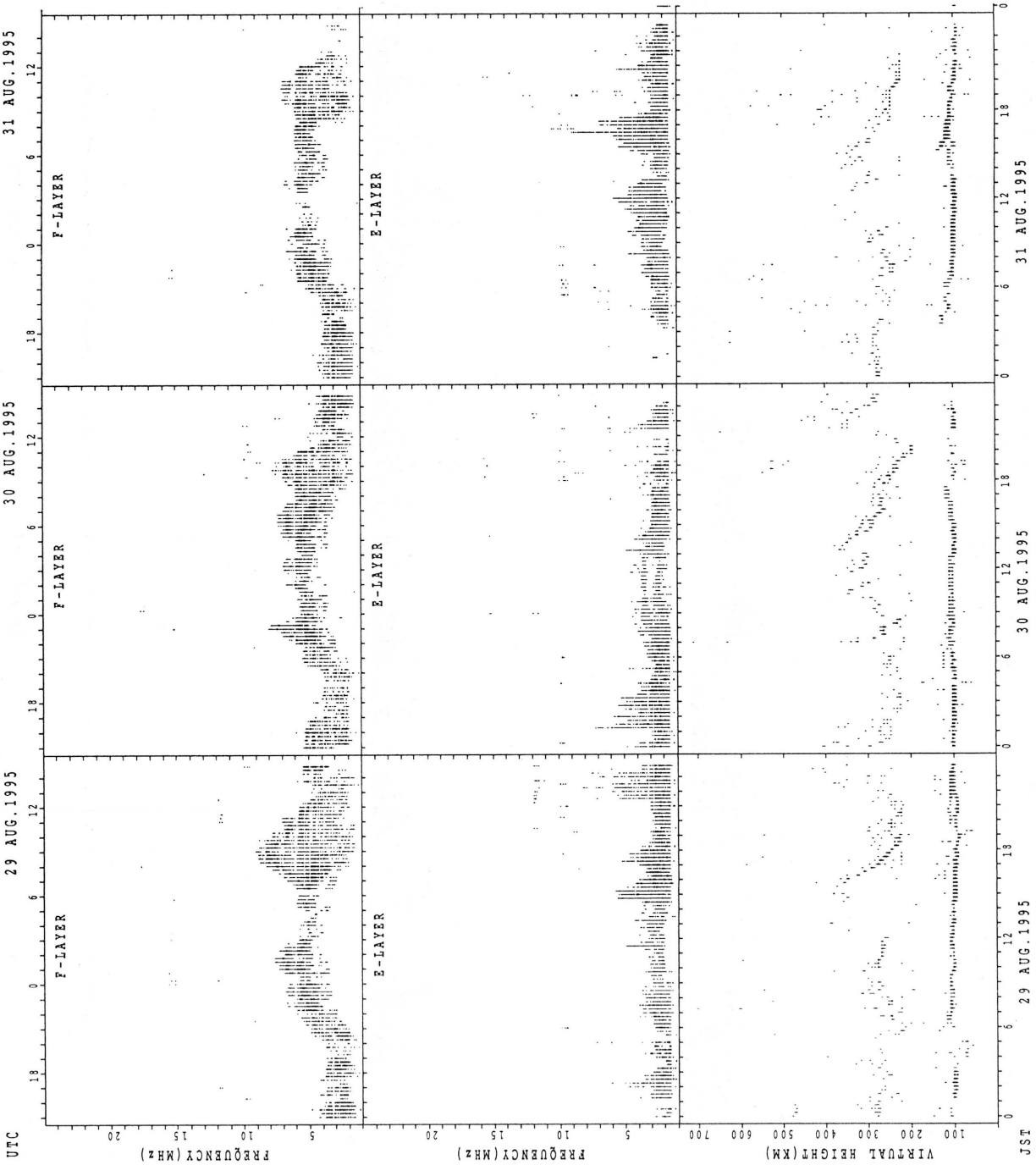
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

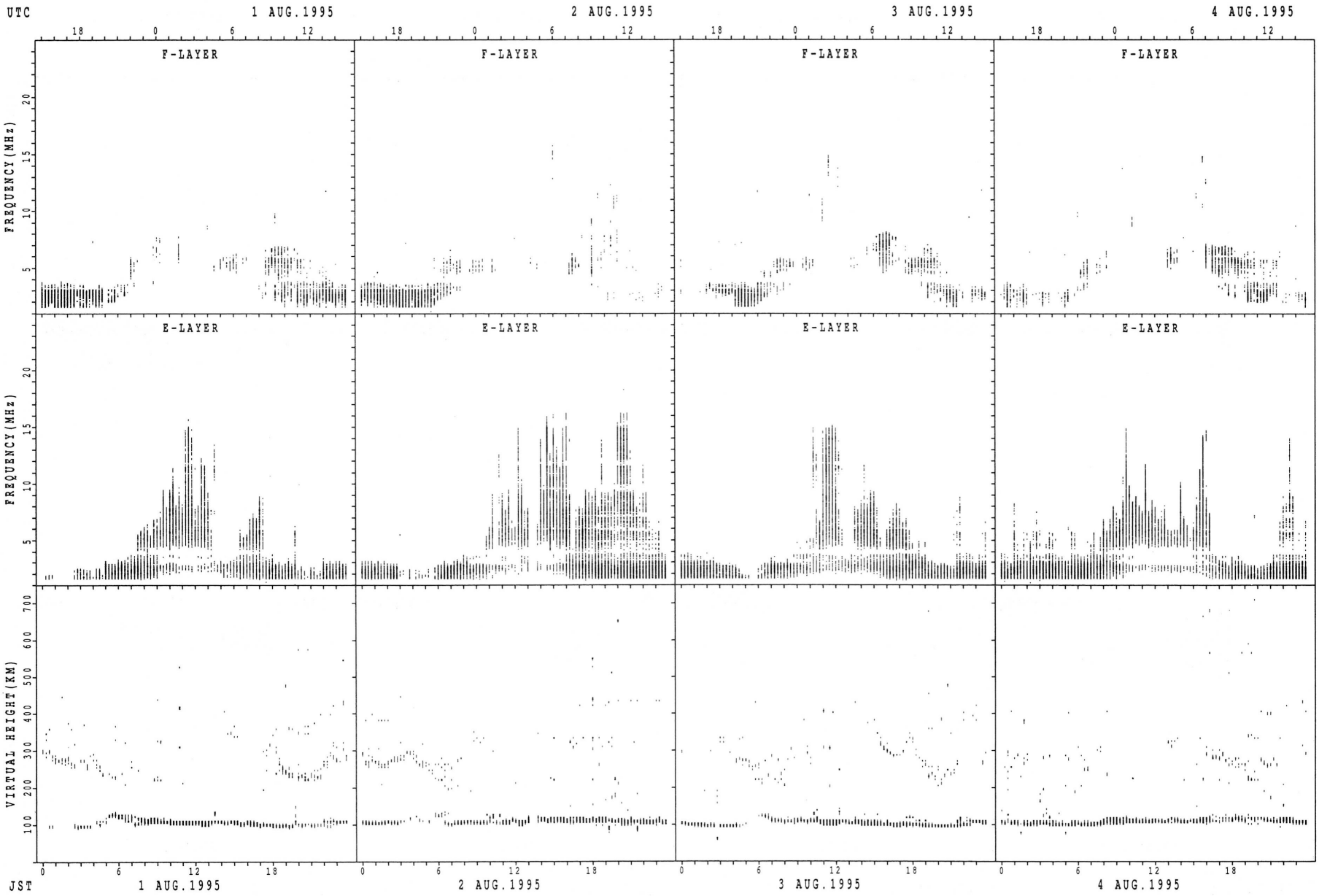
SUMMARY PLOTS AT KOKUBUNJI TOKYO



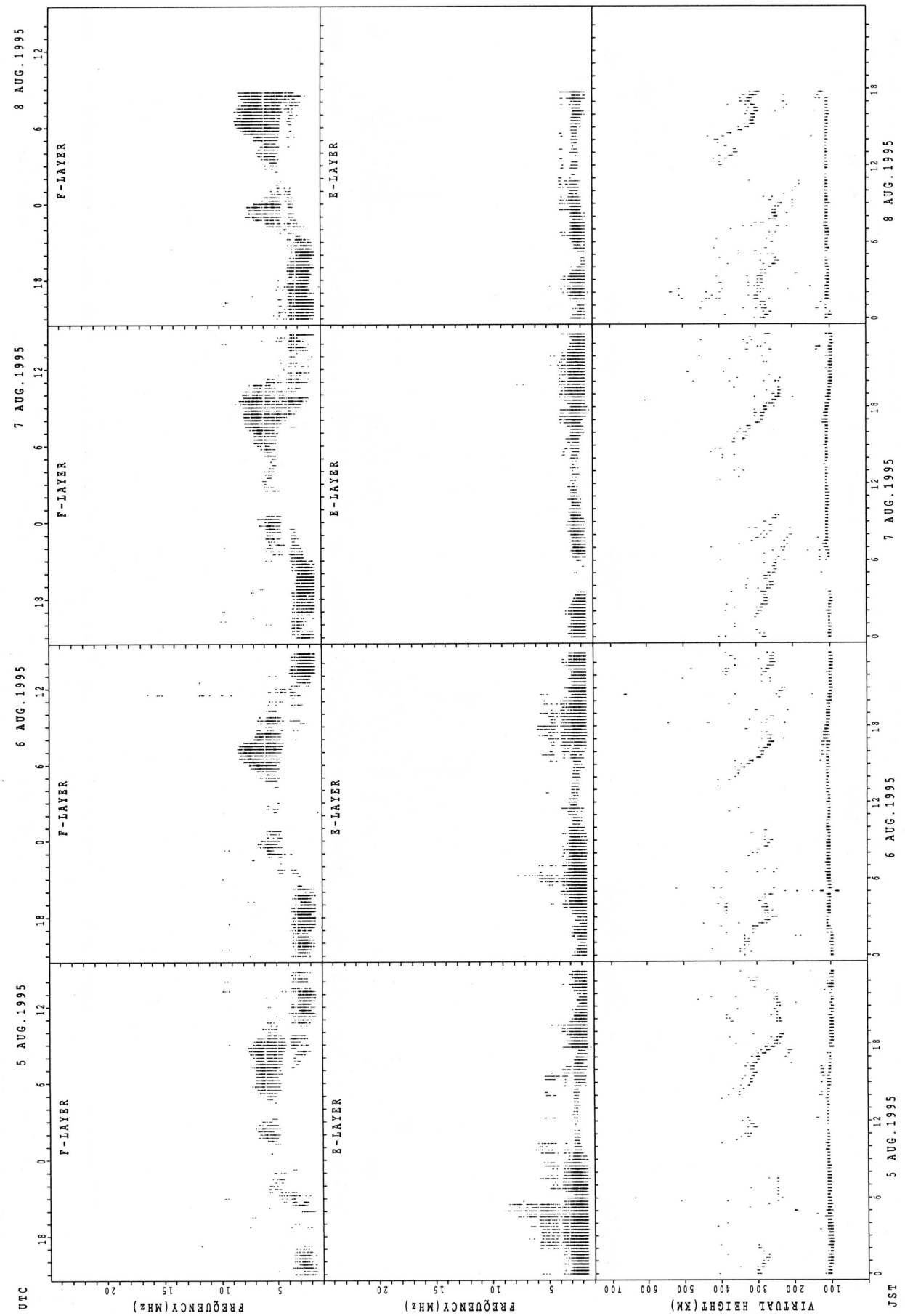
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

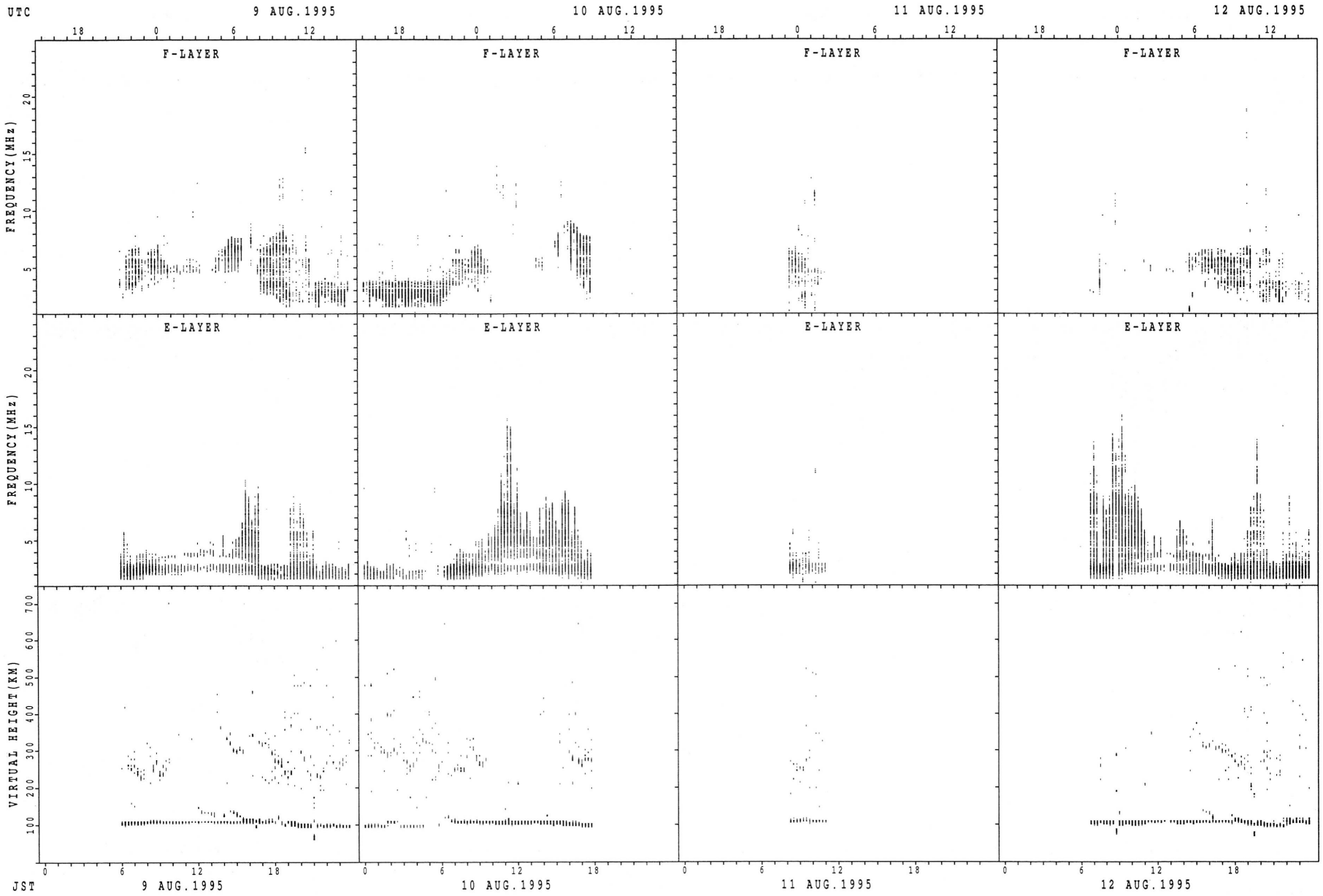
SUMMARY PLOTS AT YAMAGAWA



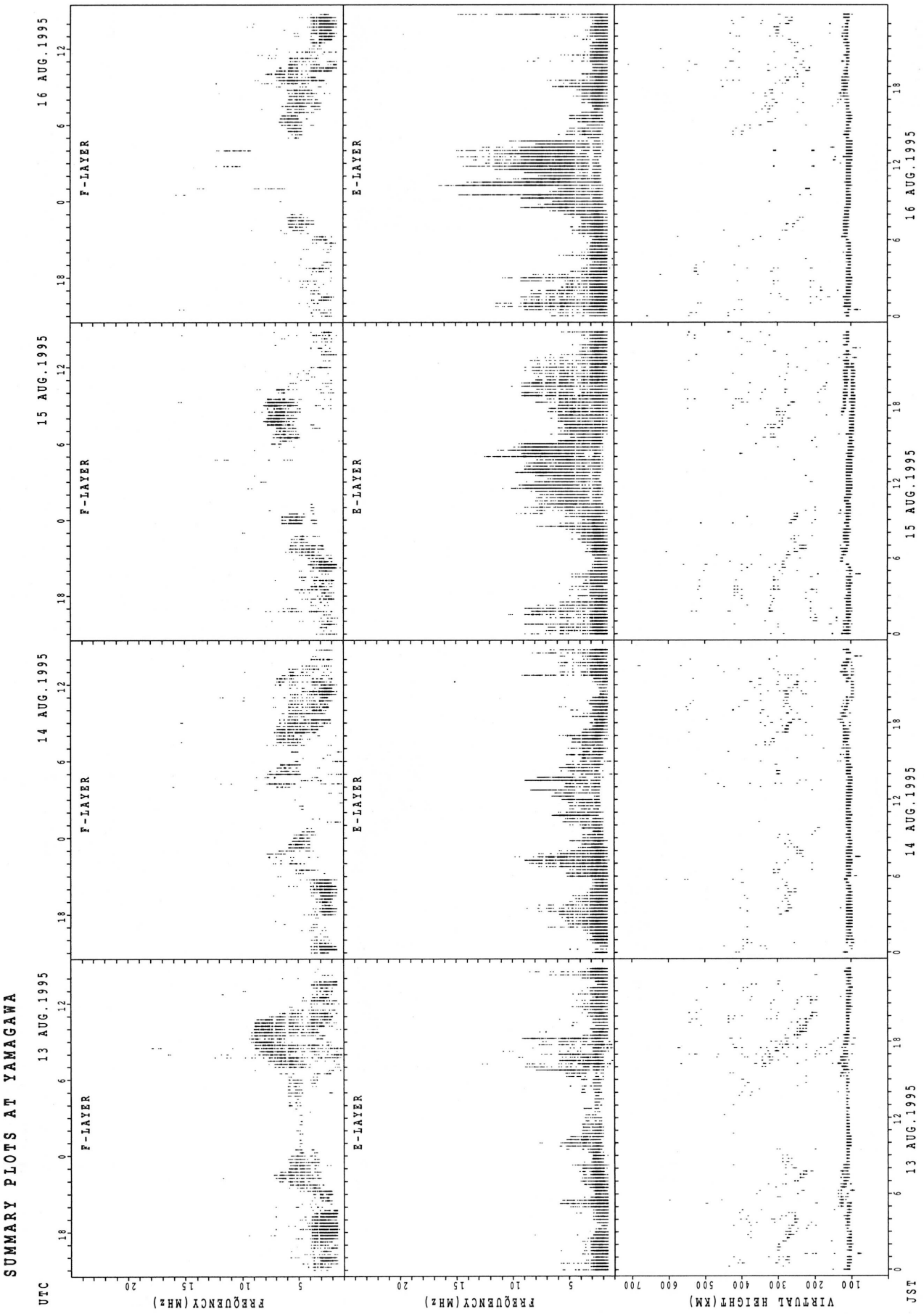
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

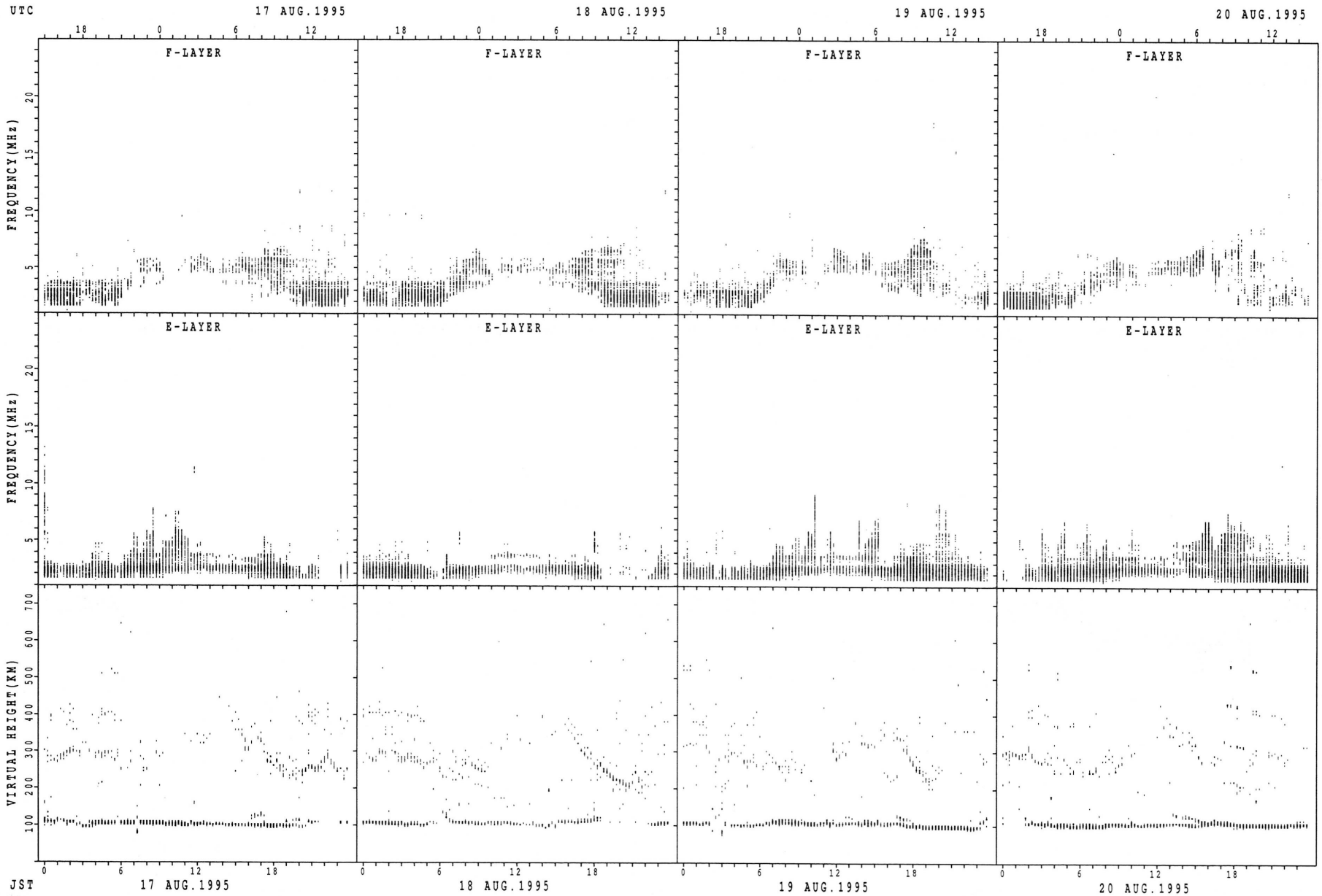
SUMMARY PLOTS AT YAMAGAWA



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

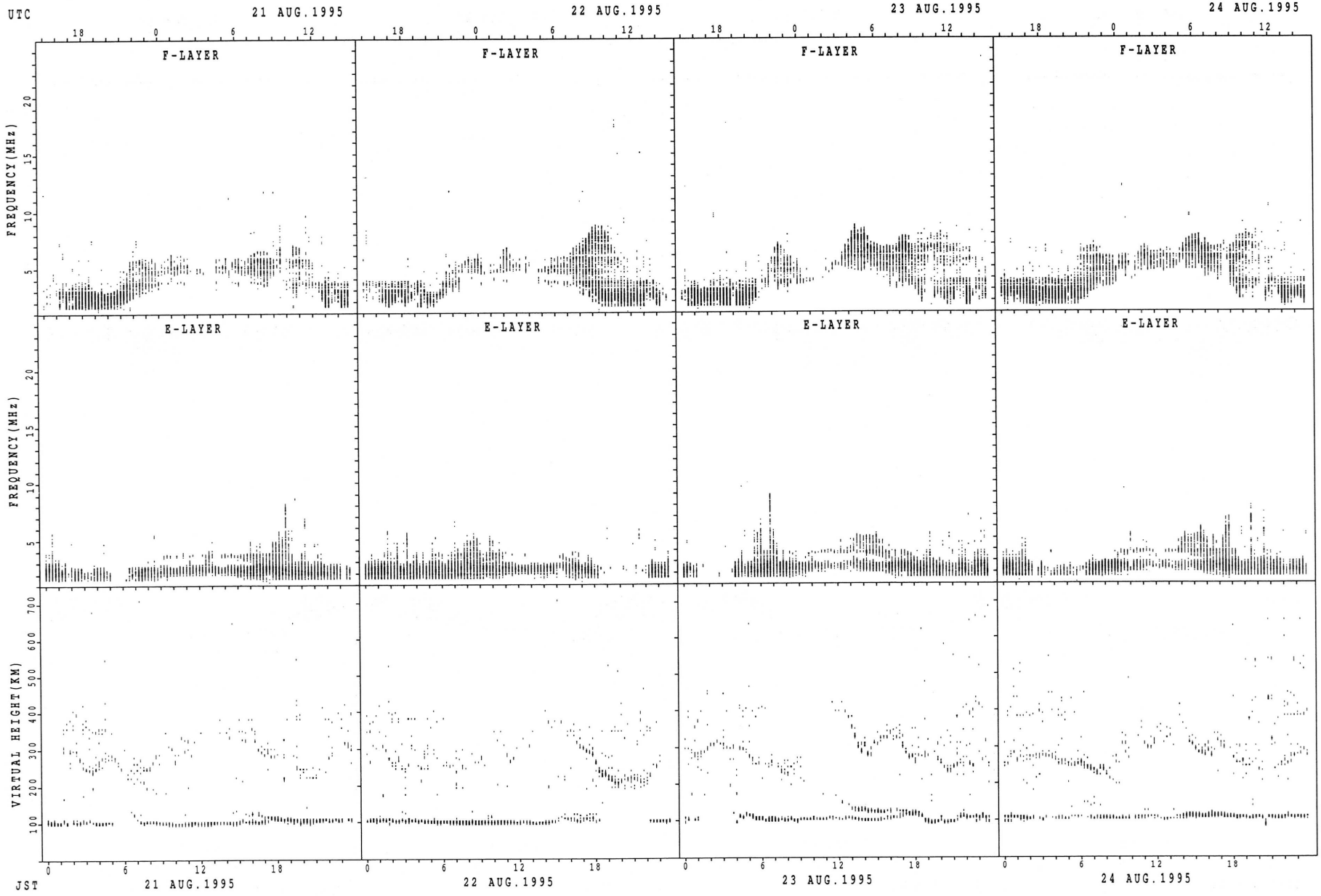

SUMMARY PLOTS AT YAMAGAWA
UTC
JST
13 AUG.1995
14 AUG.1995
15 AUG.1995
16 AUG.1995
F-LAYER
E-LAYER
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT YAMAGAWA

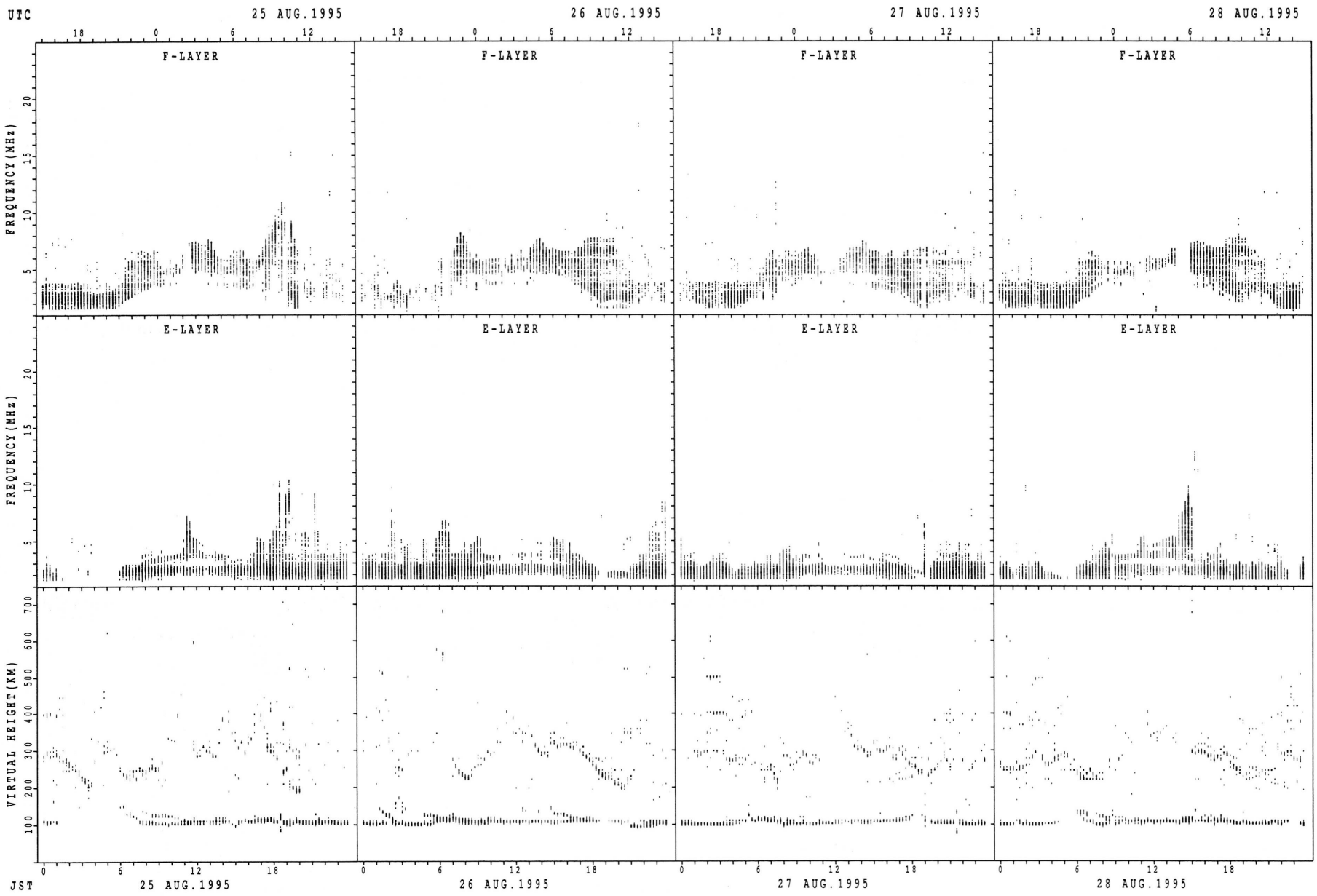


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

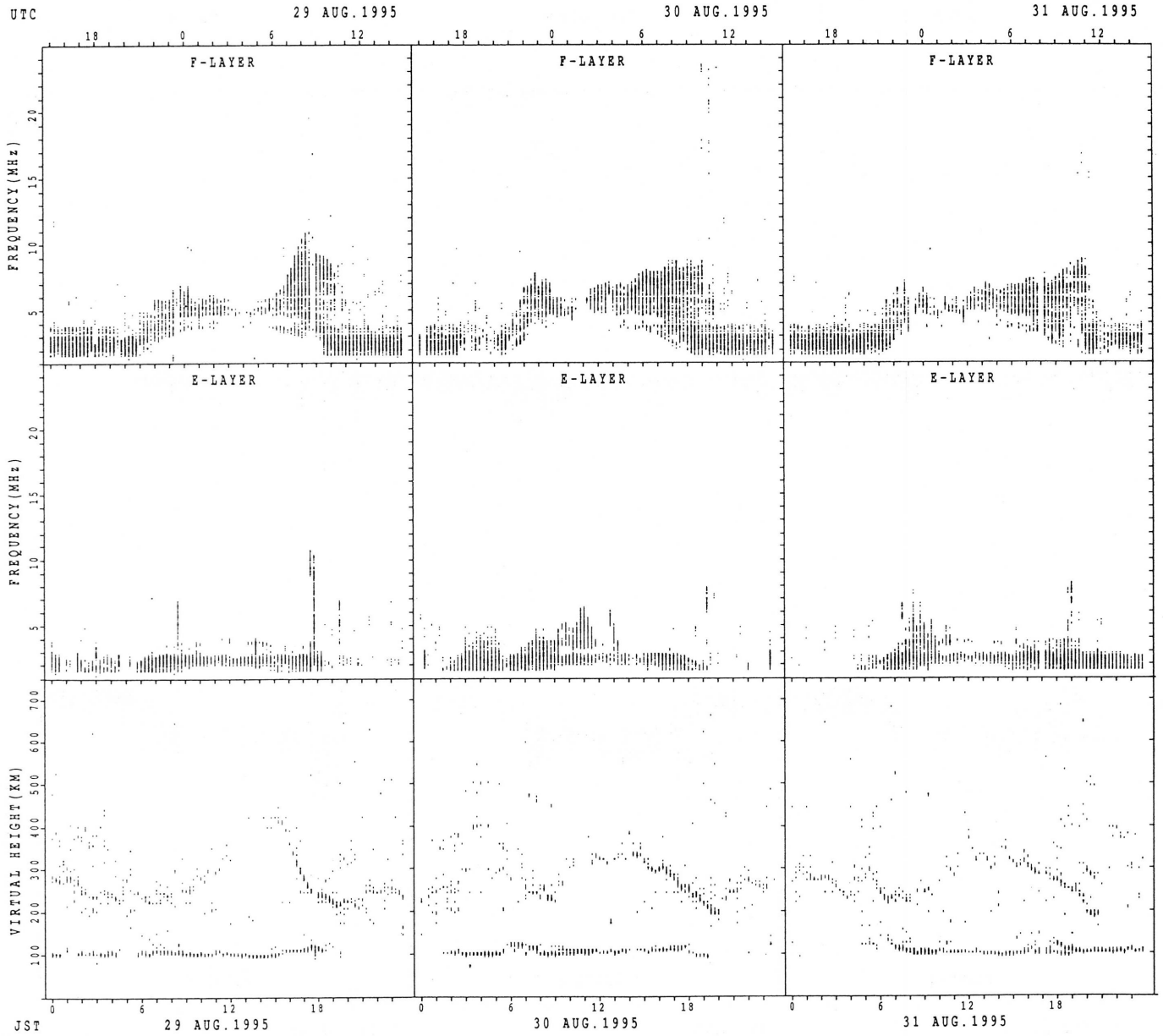
SUMMARY PLOTS AT YAMAGAWA



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

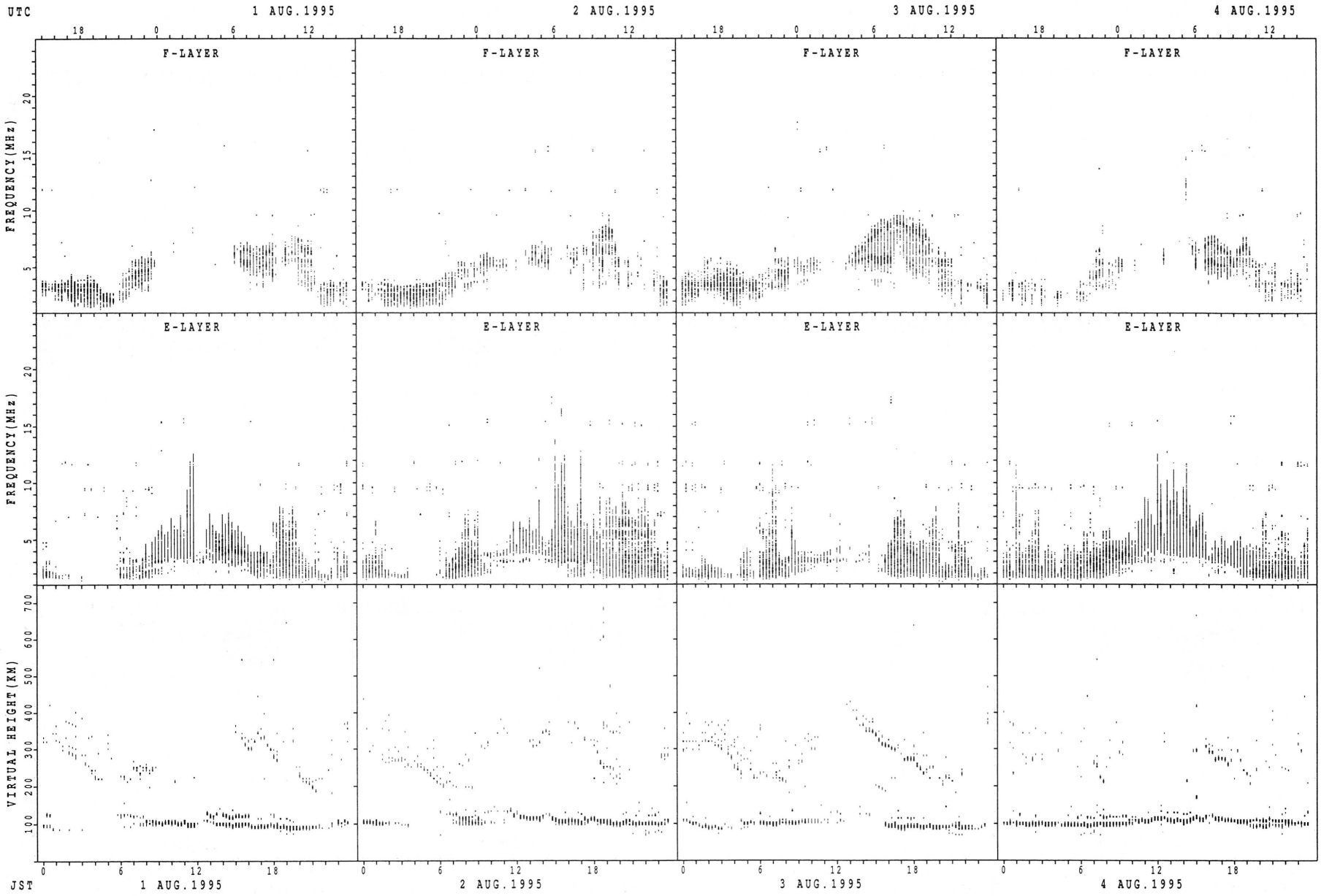

SUMMARY PLOTS AT YAMAGAWA
UTC
25 AUG.1995
26 AUG.1995
27 AUG.1995
28 AUG.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT YAMAGAWA

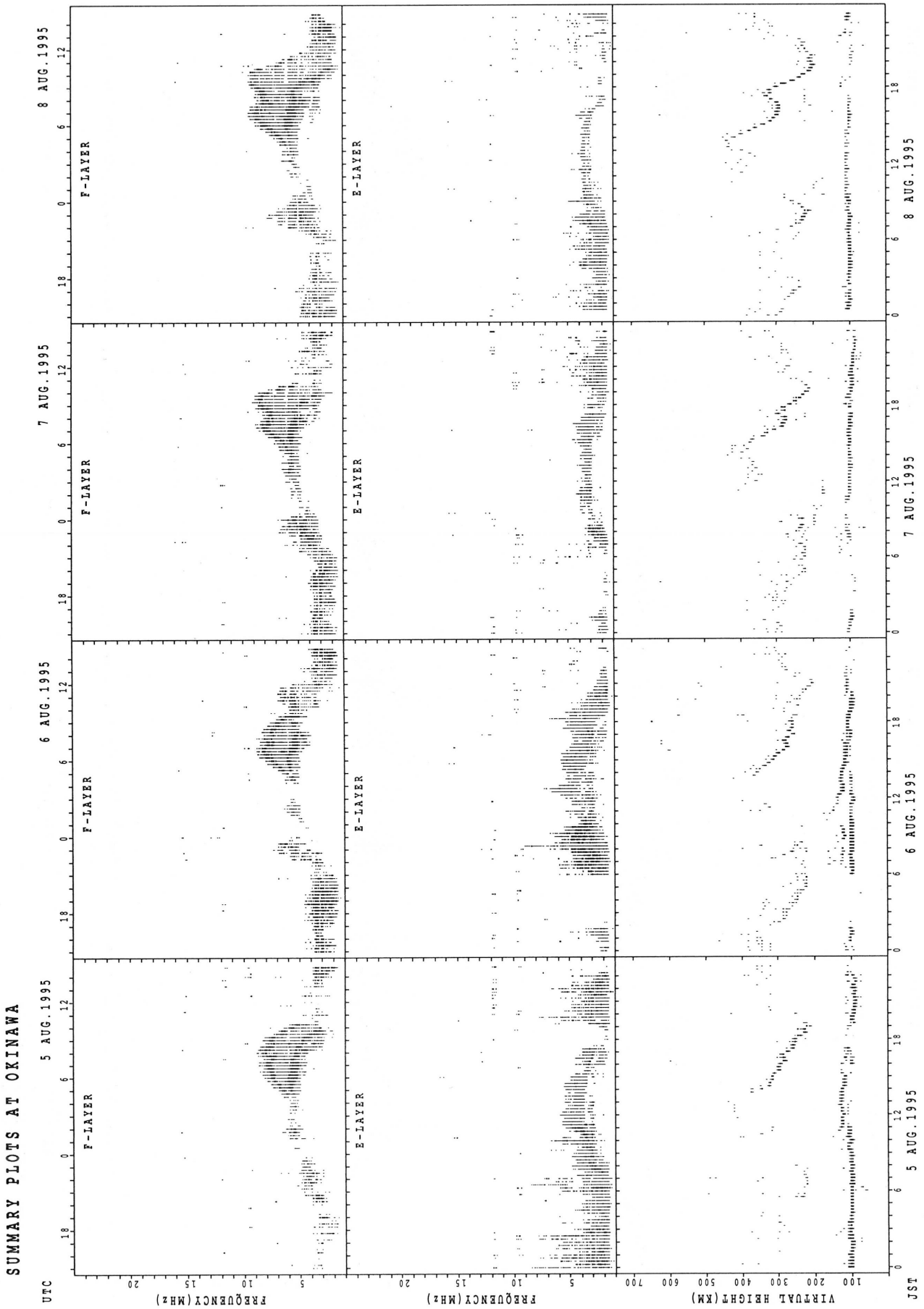


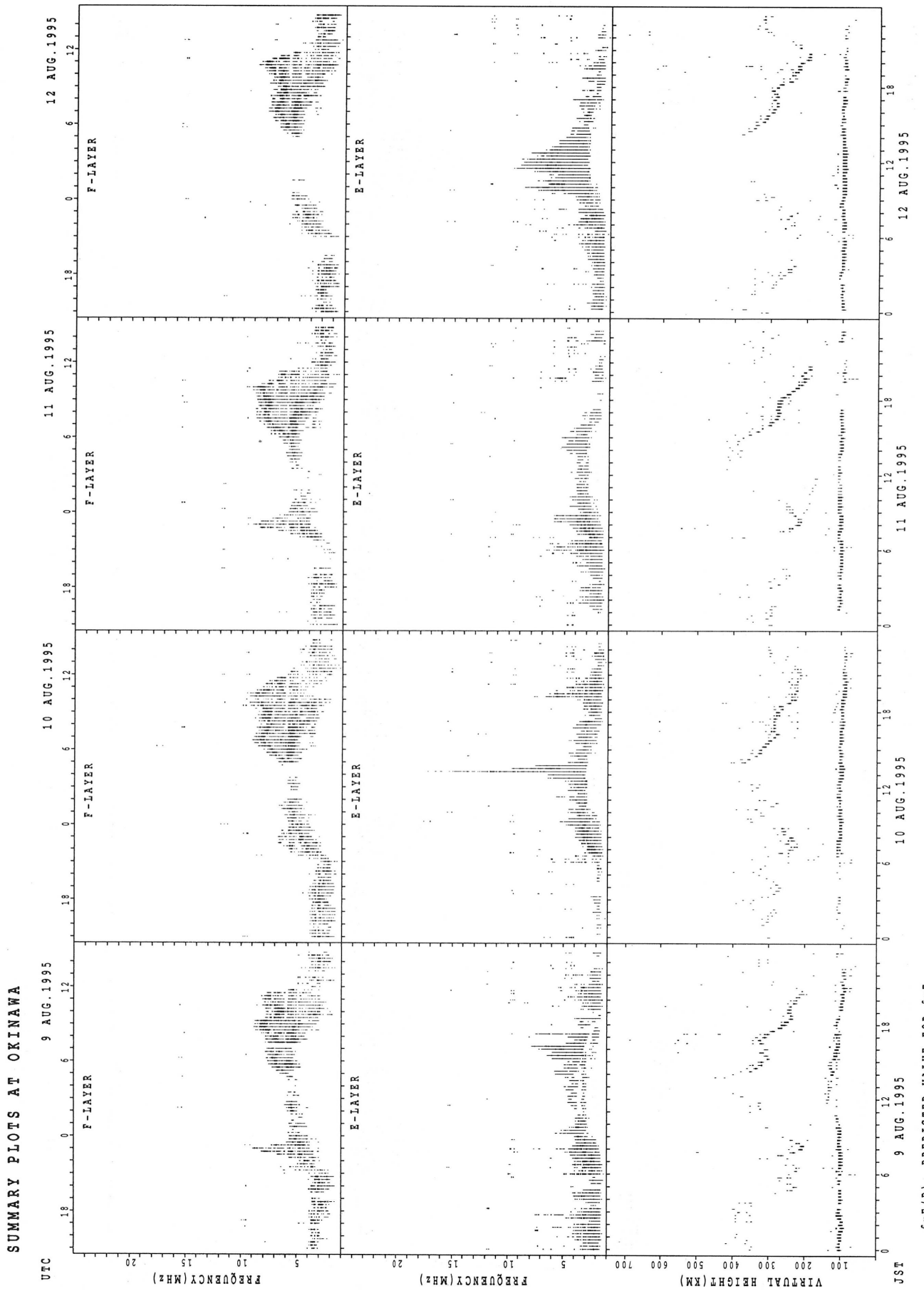
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

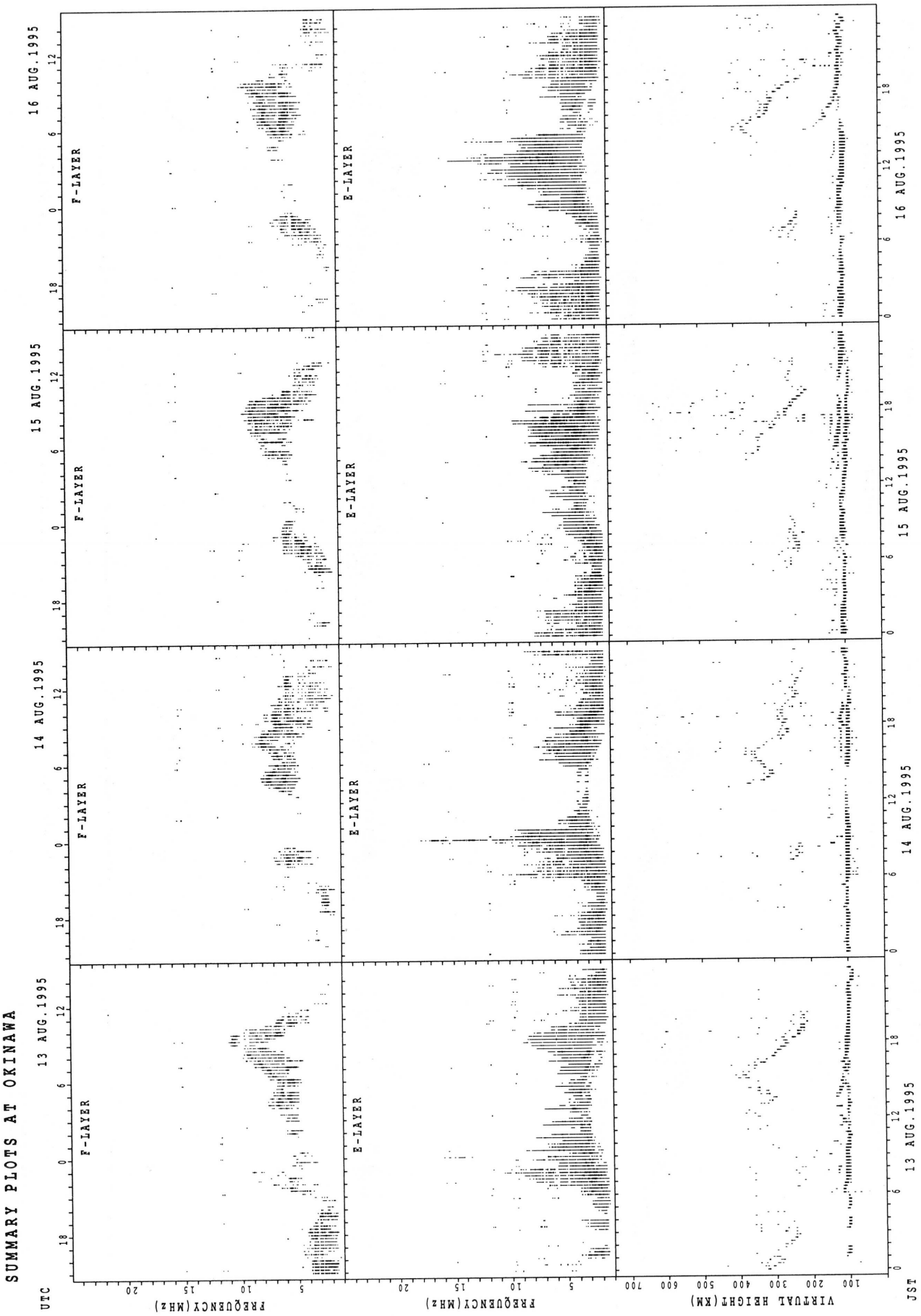
SUMMARY PLOTS AT OKINAWA



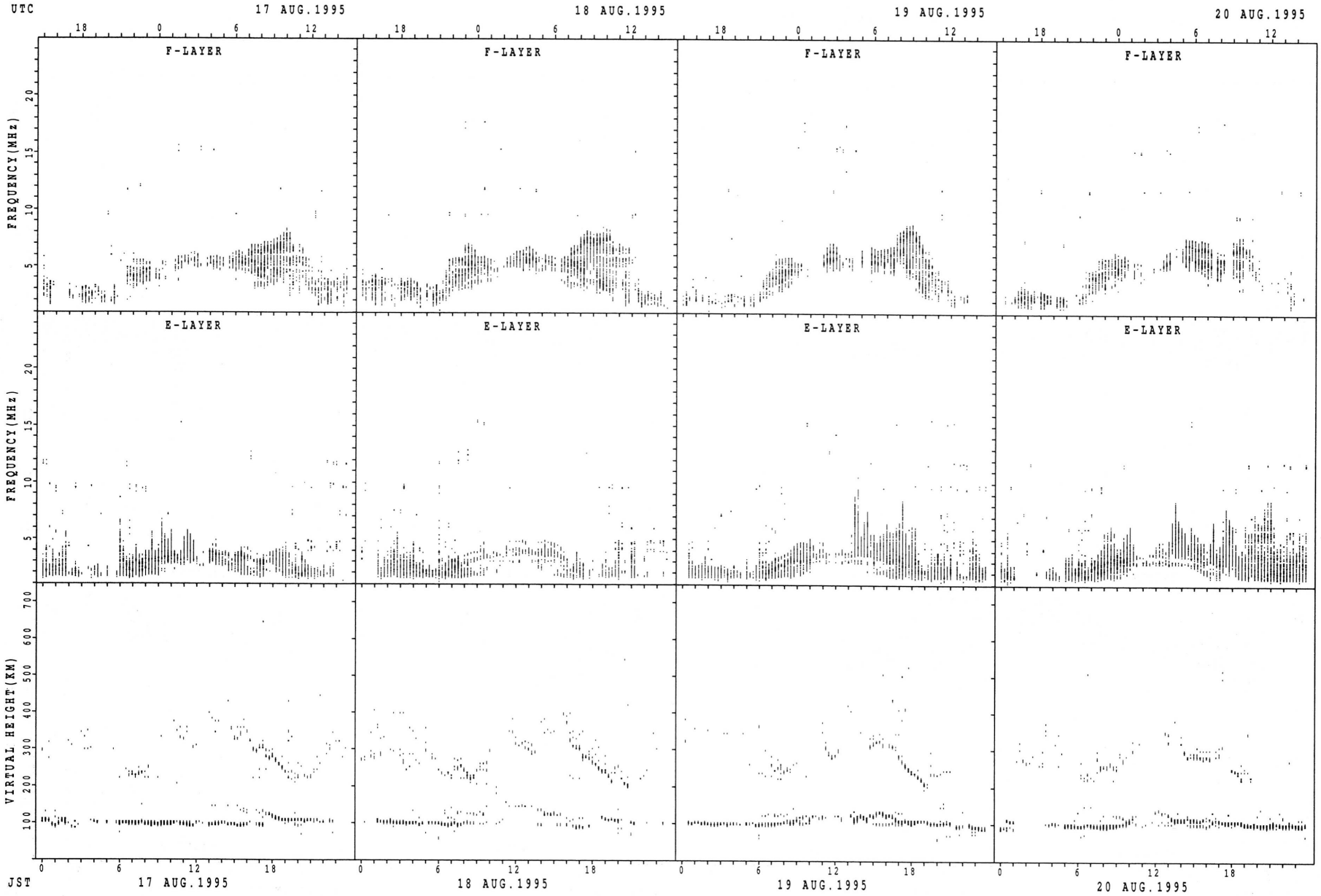
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

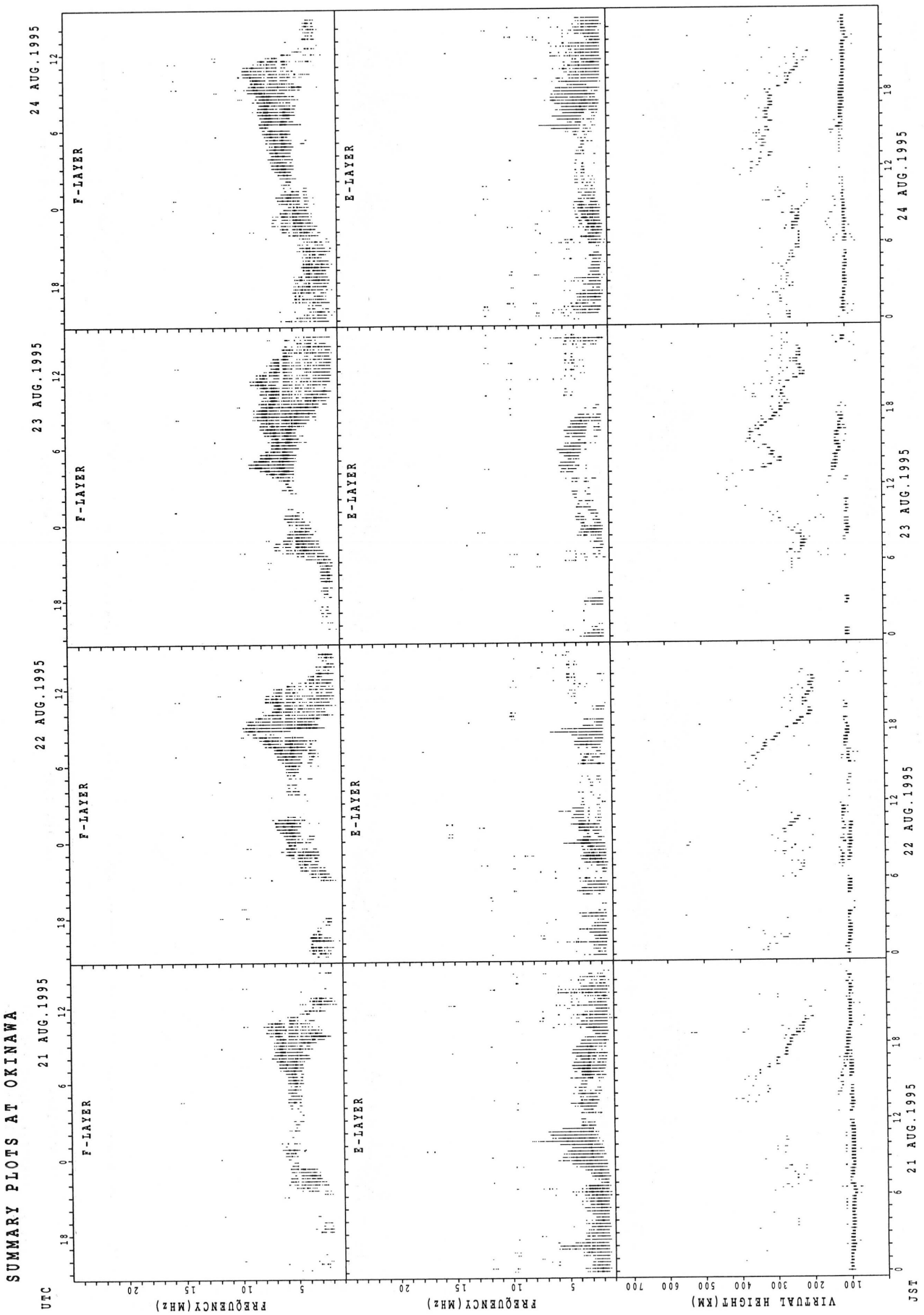

SUMMARY PLOTS AT OKINAWA
UTC
JST
9 AUG.1995
10 AUG.1995
11 AUG.1995
12 AUG.1995
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE


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

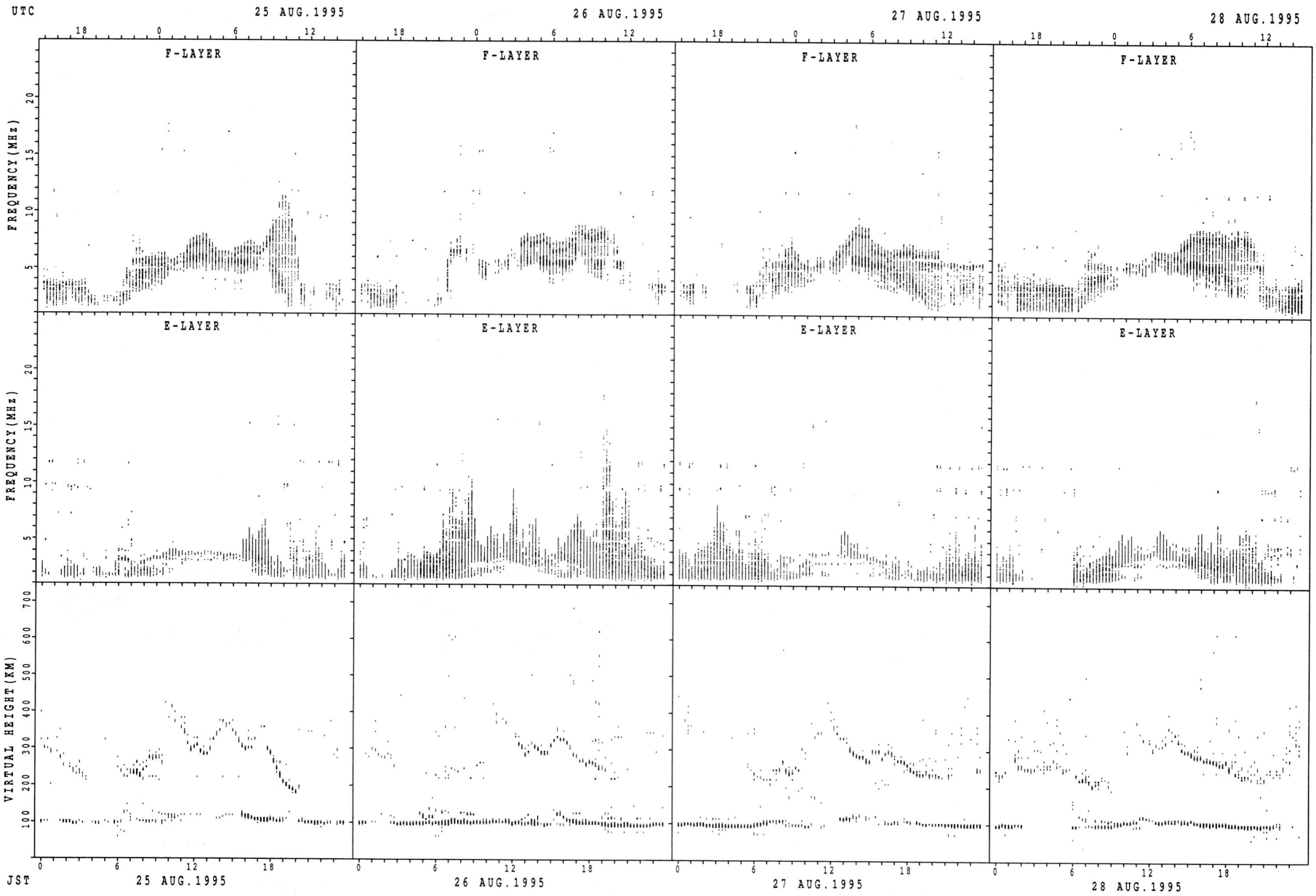
SUMMARY PLOTS AT OKINAWA



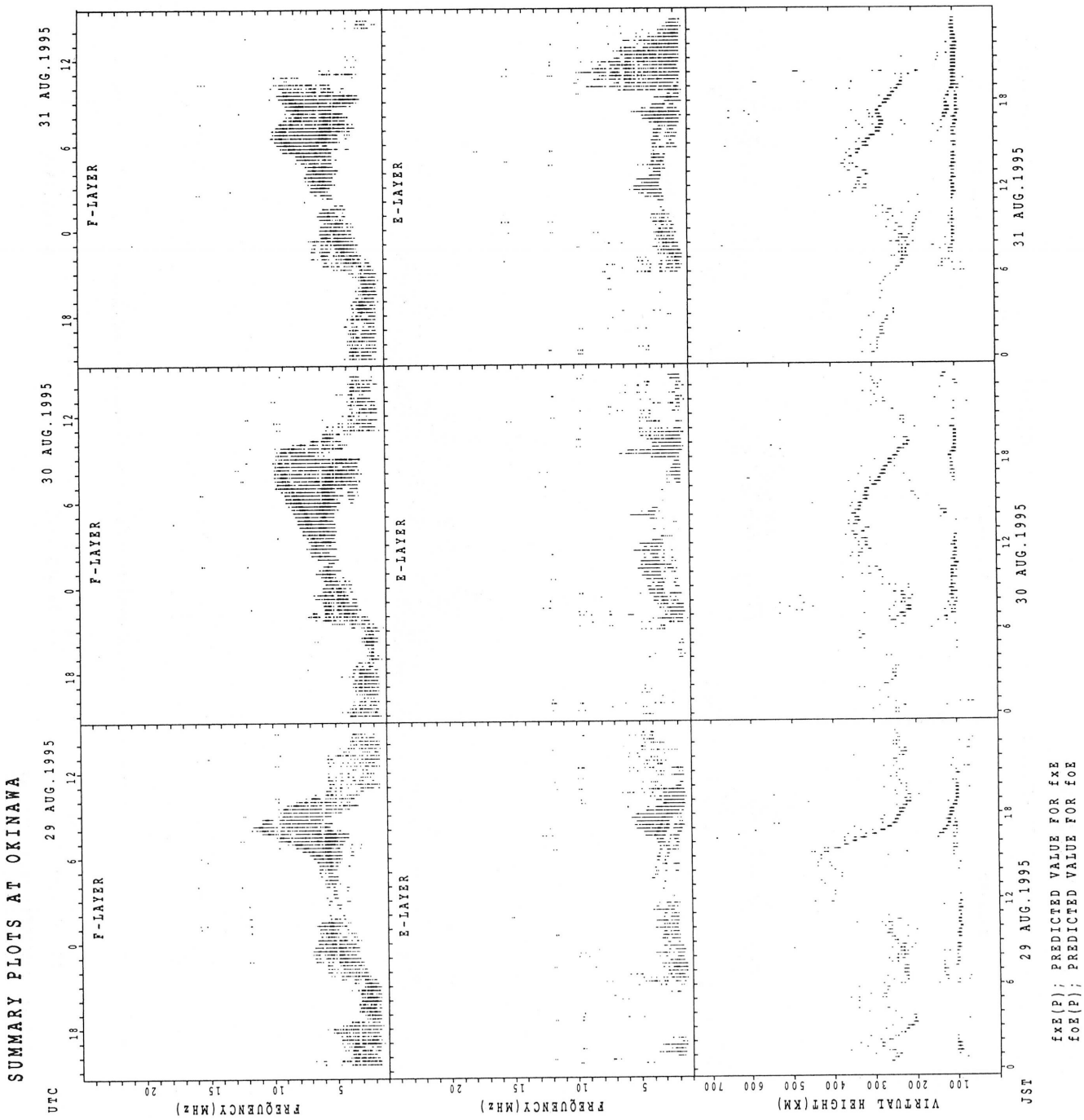
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT OKINAWA
21 AUG.1995
22 AUG.1995
23 AUG.1995
24 AUG.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 OKINAWA



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


SUMMARY PLOTS AT OKINAWA
UTC
JST
29 AUG.1995
30 AUG.1995
31 AUG.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

AUG. 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																								
MED																								
U Q																								
L Q																								

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	25	24	25	28	23	30	31	30	31	31	30	31	31	31	30	30	31	29	29	23	28	29	28	30
MED	99	99	99	102	105	113	113	108	107	105	105	103	105	105	107	113	113	113	113	109	111	109	107	103
U Q	104	103	103	107	111	119	115	113	111	111	105	109	109	109	113	119	119	116	115	111	113	113	109	105
L Q	98	96	97	97	99	107	109	107	105	103	103	103	103	101	103	107	103	107	107	103	107	106	104	101

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									12											13				
MED									274											260				
U Q									282											277				
L Q									255											252				

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	23	24	25	21	25	21	30	29	29	30	28	31	29	28	29	29	30	29	28	19	22	26	24	24
MED	105	105	103	103	105	107	111	107	107	107	107	107	107	106	111	113	115	113	108	105	108	107	108	108
U Q	111	109	109	109	113	113	113	113	113	111	112	109	111	111	129	121	121	117	112	111	113	113	113	111
L Q	105	103	102	99	103	101	105	105	105	103	105	105	105	103	105	106	107	111	100	97	99	103	102	105

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										11						10	13	19	18	16				
MED										270						321	308	306	288	258				
U Q										274						334	337	328	304	277				
L Q										248						312	296	286	272	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	23	22	23	24	23	19	25	30	29	30	29	30	27	29	30	29	27	29	28	24	20	24	24	23
MED	107	105	107	106	105	107	113	113	109	109	111	107	111	111	111	113	113	113	112	110	105	105	107	107
U Q	113	107	111	110	107	113	123	115	113	113	117	111	113	113	119	118	119	116	115	113	109	107	109	111
L Q	105	103	105	102	103	105	107	109	107	105	107	107	107	105	107	107	109	107	107	102	101	99	103	103

MONTHLY MEDIANS OF h'F AND h'Es

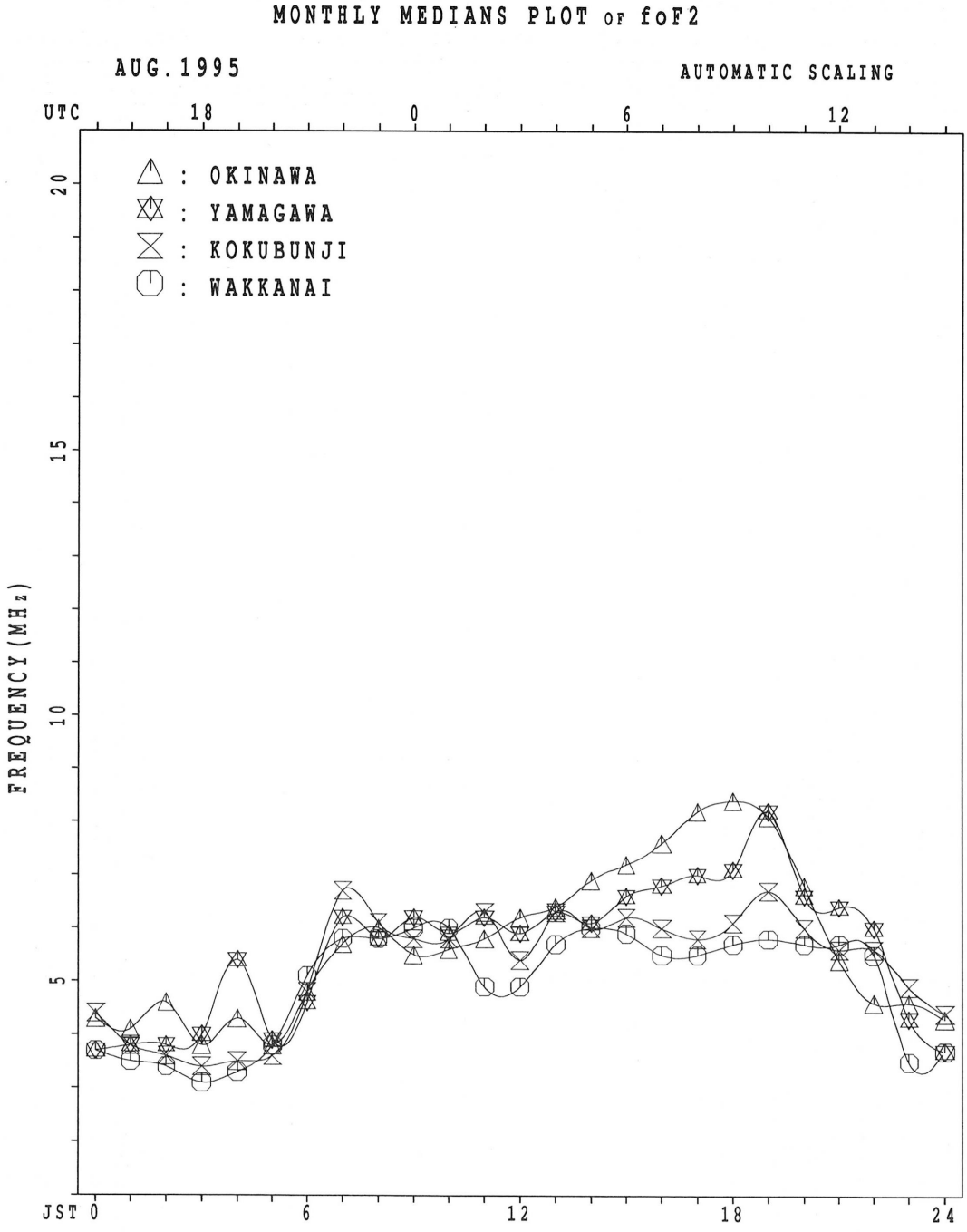
AUG. 1995 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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									10						11	17	22	26	28	25	11			
MED									234						344	316	299	290	270	246	242			
U Q									248						350	329	310	304	290	257	258			
L Q									222						302	307	286	274	261	229	232			

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	20	20	19	19	16	18	24	29	29	31	29	26	22	24	29	29	30	31	27	25	27	24	22	18
MED	105	105	103	103	103	103	100	109	107	105	105	110	112	111	113	117	111	107	107	105	99	99	100	101
U Q	107	109	105	105	103	103	103	114	113	113	115	113	125	121	125	122	121	113	113	108	103	104	105	105
L Q	100	103	101	99	99	99	95	100	103	103	98	105	103	102	102	106	103	105	103	101	95	95	93	97


MONTHLY MEDIANS PLOT OF foF2
AUG. 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

AUG. 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	42	X 40	40	40	37															X 68	X 62	X 55	56	54
2	42	43	X 38	38	39															X 61	X 65	X 58	55	52
3	45	A	40	38	X 40															X 63	61	55	56	61
4	58	42	A	A	41															X 64	X 58	X 50	46	47
5	45	45	A	X 40	X 39															X 72	62	44	45	42
6	42	41	40	39	38															X 74	X 64	50	46	43
7	43	X 39	40	39	37															X 77	X 67	53	46	A
8	51	48	46	44	41															X 78	X 61	X 57	X 57	54
9	52	51	43	42	39															X 88	A	X 54	A	A
10	52	49	46	50	44															X 71	X 63	53	X 40	X 41
11	X 40	X 39	39	36	36															X 77	X 70	X 60	53	50
12	45	X 42	41	42	A															X 63	61	62	60	55
13	C	X 44	X 42	X 42	X 36															X 78	64	A	60	52
14	40	40	X 39	X 39	X 39															X 64	46	64	64	60
15	X 31	32	38	40	X 42															X 70	X 66	X 40	A	40
16	A	A	X 32	X 31	32															X 67	X 63	61	56	40
17	39	42	42	41	39															X 63	X 58	X 56	X 54	54
18	54	48	43	X 38	X 38	X 42														X 67	X 66	60	53	44
19	40	40	42	38	36															X 73	X 63	A	38	A
20	A	X 34	A	O X 35	40															X 66	X 59	X 49	A	39
21	X 39	A	40	40	X 37															X 67	X 64	62	59	58
22	A	A	40	40	A										C	C				X 74	X 68	X 59	X 48	X 46
23	X 45	X 41	X 39	X 37	X 37															X 74	X 66	X 70	X 65	64
24	X 60	X 49	X 49	X 52	X 52															X 65	X 66	X 57	X 55	X 54
25	53	X 50	X 48	X 49	X 39															X 101	X 71	62	62	X 58
26	X 47	X 40	X 38	X 41	X 37															X 74	X 66	X 60	54	X 50
27	X 45	X 44	X 44	X 44	X 42															X 70	X 68	X 61	60	55
28	53	50	45	43	X 39															X 78	X 69	X 54	X 48	X 49
29	46	X 43	X 44	X 40	X 38															X 82	X 73	X 61	X 54	55
30	56	54	48	X 40	X 40															X 78	X 58	O X 44	46	44
31	X 43	X 43	X 42	X 39	X 38															X 74	X 74	X 57	X 40	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	27	27	28	30	29	1														31	30	29	28	28
MED	45	43	42	40	X 39	X 42														X 72	X 64	X 57	54	51
U Q	52	48	44	42	X 40															X 77	X 67	61	58	55
L Q	42	X 40	X 40	38	37															X 66	X 61	53	46	44

AUG. 1995 fxI (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	F 36	34	F 31	F 32	J F 31	36	R 44	61	60	48	A	A	A	A	J R 54	A	54	62	66	62	56	49	F 50	F 48
2	F 34	F 38	32	F 31	F 31	30	52	61	53	49	E G 44	A	A	52	R 55	58	59	57	47	55	59	52	F 47	F 40
3	F 38	A	F 32	F 31	34	37	54	J R 56	50	Z 50	A	54	50	A	58	61	60	54	50	56	F 54	J F 47	F 46	F 52
4	F 50	F 31	A	A	F 33	F 34	A	A	50	53	A	A	A	A	A	A	60	58	64	58	52	44	F 38	F 36
5	F 39	F 34	A	34	33	F 36	51	64	A	A	A	A	54	57	60	58	58	60	66	66	F 54	F 37	F 37	F 33
6	F 34	J F 32	F 32	F 31	F 30	J R 34	50	F 44	54	55	50	53	R 50	55	60	66	71	72	R 66	68	58	F 41	F 38	F 33
7	F 34	33	F 32	F 32	F 29	32	R 45	60	62	59	58	A	52	56	R 61	64	63	61	62	71	61	F 44	F 39	A
8	F 42	F 39	F 37	F 36	F 34	33	42	50	60	75	57	50	50	57	72	74	70	70	73	72	56	51	51	F 47
9	F 43	F 42	F 35	F 32	F 32	S 36	52	66	67	R 62	A	51	U R 46	E G 44	63	74	73	68	70	82	A	49	A	A
10	F 42	F 42	F 38	F 42	F 36	F 31	45	57	A	A	A	A	A	53	51	72	86	79	72	65	57	F 46	34	35
11	34	33	F 32	F 27	F 28	J S 37	A	49	45	47	50	R 46	R 47	52	48	45	50	52	59	71	64	54	F 41	F 40
12	F 38	36	F 33	F 34	A	A	A	A	A	A	53	A	49	46	55	54	U A 52	U A 55	54	57	F 54	F 53	F 52	F 47
13	I C 45	38	36	36	30	35	43	54	71	49	54	52	E G 44	53	J R 50	57	64	67	66	72	56	A	F 54	F 41
14	F 33	F 33	33	33	33	J R 34	47	62	R 62	A	A	49	55	77	55	A	R 50	51	55	59	38	F 51	F 54	J F 50
15	25	F 24	F 30	F 32	36	40	52	70	R 62	50	A	A	A	A	52	J R 48	52	53	59	64	60	R 35	A	F 32
16	A	A	26	25	F 24	28	45	52	60	R 50	R 48	A	50	A	54	54	52	48	51	61	57	F 52	F 48	F 31
17	32	F 35	F 34	F 34	F 30	F U 33	A 42	54	58	51	50	51	57	R 52	50	53	54	52	61	57	52	50	48	F 47
18	F 46	F 41	F 33	32	32	36	41	48	A	A	46	46	E G 44	46	49	46	47	49	53	61	60	J F 50	F 44	F 37
19	F 33	F 32	F 33	F 30	F 30	31	43	53	58	52	49	E G 44	58	68	A	52	50	49	55	67	57	A	F 28	A
20	A	28	A	29	F 34	39	V 52	52	50	51	48	R 47	E G 44	Y	51	55	53	52	54	60	52	43	A	F 32
21	33	A	F 32	F 32	31	31	46	R 65	59	51	52	55	56	52	49	53	54	U A 53	54	61	59	F 55	J F 52	F 49
22	A	A	F 32	F 31	A	36	46	61	62	53	48	52	58	55	I C 50	C	S 50	56	58	68	62	53	42	40
23	39	35	33	31	31	31	45	58	64	54	46	J R 49	58	69	75	68	A	63	62	68	J R 60	64	59	F 54
24	Z 54	43	43	46	46	45	53	68	58	60	54	59	59	59	58	68	64	54	57	59	60	51	49	48
25	43	44	42	43	33	29	43	63	64	67	54	58	66	71	61	66	55	65	81	95	65	F 56	F 55	52
26	41	34	32	35	31	32	47	52	65	68	56	56	51	54	57	55	58	54	59	68	V 60	54	F 48	44
27	39	38	38	38	36	34	46	58	52	53	A	54	A	A	54	55	56	54	57	S 64	62	55	F 53	F 46
28	F 45	F 42	F 37	F 36	33	33	48	59	63	57	E G 46	56	58	64	66	64	58	60	68	72	63	48	42	43
29	F 38	37	38	34	32	32	48	H 53	60	60	70	71	59	54	54	56	62	79	87	76	67	55	48	F 47
30	F 46	F 47	F 40	34	34	36	50	J R 58	76	57	56	62	64	60	R 63	69	67	57	62	72	52	38	F 38	F 36
31	37	37	36	33	32	32	R 46	60	61	R 58	61	53	56	64	56	51	57	55	57	68	68	51	34	28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	30	29	30	28	29	27	26	22	22	25	24	29	27	30	31	31	31	30	29	28	28
MED	F 38	F 36	F 33	F 32	32	34	46	58	60	53	51	52	54	55	55	57	58	56	59	66	58	51	F 48	F 42
U Q	F 43	F 41	37	35	34	36	50	62	63	59	56	56	58	62	60	66	63	63	66	71	61	54	F 52	F 48
L Q	34	F 33	F 32	F 31	F 30	32	44	52	54	50	48	49	50	52	51	53	52	53	55	60	54	45	F 38	F 36

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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							U L 360	A	A	L 444	A	A	A	A	A	A		L 384	U L 316					
2							352	392	412	420	440	A	A	440	A	424	408	A	A					
3							A	A	408	440	A	U A 488	A	A	440	420	400	U L 380						
4							A	A	U A 408	432	A	A	A	A	A	A	400	384						
5						L	356	A	A	A	A	A	440	452	440	420	404	L 400	L 320					
6							L		420	440	440	456	448	444	U A 440	A	U A 432	A	U L 320					
7							L	396	428	L 440	U A 452	A	R 452	452	436	432	U A 404	376	U L 320					
8								L 400	424	H 432	440	R 420	448	452	444	432	U A 412	L 388	L					
9							A	388	412	420	A	440	444	R 440	440	424	A	A	U L 332					
10							352	L 396	A	A	A	A	A	A	R 440	Y 420	400	372	L					
11							A	L 388	U L 416	A	428	428	436	428	420	404	U A 408	A	L 312					
12						A	A	A	A	A	440	A	432	428	U A 440	U A 432	U A	A	A					
13							340	400	400	A	436	U A 460	440	440	424	412	400	A						
14						L	U L 360	384	408	A	A	A	R 416	440	432	A	A	A	A					
15							A	380	400	A	A	A	A	A	U A 420	412	392	360	U L 288					
16							L 340	A	392	U L 424	U R 420	A	U L 444	A	428	408	396	A						
17							A	380	A	420	412	U A 440	440	A	436	404	400	L 376	U L 288					
18							L	A	A	A	412	424	440	420	416	400	U L 400	L 376	U L 304					
19							L	392	A	420	U A 432	440	440	440	A	432	392	L 380	L					
20								L	420	424	440	U R 420	440	420	440	400	U A 392	340	L					
21							U L 356	380	U A 412	420	A	U A 432	436	440	Y 432	424	380	A						
22								L 380	420	432	440	R 444	U R 448	I R 450	I C 400	C	400	L 380	L					
23							L 348	A	432	420	444	R 444	436	U A 432	424	416	A	A						
24							L	L 380	412	440	440	440	440	436	Y 440	424	L 404	U L 380						
25							L	L 400	U L 428	A	440	A	A	A	U A 468	A	A	A						
26							L	L 400	412	428	440	440	A	U A 440	424	412	404	A						
27								L 388	L 420	U A 440	A	A	A	A	U A 432	A	U A 420	L 364	L					
28								U L 392	L 412	440	464	R 448	440	U A 452	444	U A 424	404	L 380						
29							L		412	H 444	R 460	464	452	L 456	452	L 432	412	360	L					
30							L	404	440	L 448	L 464	U R 464	444	452	444	432	L 412	L	L					
31							L	U L 388	412	U L 456	460	444	A	440	440	432	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							9	20	24	22	21	19	21	22	27	24	25	17	9					
MED							L 352	390	412	432	440	440	440	440	440	422	400	L 380	U L 316					
U Q							U L 358	L 398	420	L 440	448	U 456	446	452	440	432	U A 408	L 382	U L 320					
L Q							L 344	382	410	420	434	432	438	436	424	412	400	368	U L 296					

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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

H / D	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						B	236	272	UA 312	A 328	A	A	A	A	A	A	A	A	A					
2						B	204	276	300	A	UA 352	A	A	R 352	336	300	280	UA 244	A					
3						B	A	UA 256	A	A 316	A	A	A	A	A	320	288	248	A					
4						B	A	A 252	A	UA 324	A	A	A	A	A	A	288	240	A					
5						A	A	A	A	UA 316	A 336	A	A	340	328	316	292	248	188					
6						B	A	288	A	A	A	356	356	R 344	336	308	284	240	A					
7						B	A	A	A	A	UA 328	A	A	A	340	312	280	A 228	A 172					
8						A	A	A	A	A	IR 350	R 356	R 360	360	344	320	288	236	176					
9						B	A	A	A 312	A	340	A	R 364	352	340	332	296	A	A					
10						B	212	272	A	A	A	A	A	A	A	312	280	232	A					
11						B	A	A 256	A	UA 320	A	A	356	A	348	320	A 280	224	A					
12						B	A	A	A	A	A	A	A	360	348	316	284	240	A					
13						B	196	A	A 292	A	A	A	A	348	R 340	316	A	A 248	A					
14						B	204	A	A	A	A	A	IR 350	340	336	312	272	224	A					
15						B	A 196	A	UA 284	A	A	A	A	A	A	A	276	228	A					
16						B	A	UA 252	A	UA 300	A	A	A	A	A	A	276	A	A					
17						B	A	A	A	A	A	A	A	A	A	308	272	224	A					
18							196	A	A	A	A	IR 350	348	340	324	312	280	236	A					
19						B	A	UA 256	UA 284	A	A	344	A	A	A	A	A	A	B					
20						B	A	A	284	A	UR 332	UR 348	UR 348	R 340	332	304	280	244	B					
21						B	A	A	A	A	A	A	A 352	340	336	304	A 292	220	B					
22						B	A	264	300	R 324	IR 350	R 352	IR 350	R 336	C	C	A	A 224	A					
23						B	UA 196	A	A	A	R 324	356	368	A	A 316	A	A	A	B					
24						B	A	A	284	A	332	R 360	R 352	IR 350	IR 350	304	A	A	152					
25						B	192	A	A	A	A	A 348	A	A	A	312	272	232	B					
26						B	A	252	284	A	R 336	R 348	A	A	IR 300	312	280	A 232	B					
27						B	A 204	252	288	A 312	A	328	A	A	312	304	A 272	A	A					
28						B	A	268	292	312	A 324	A	A	A	A	A	276	A	A					
29						B	A	272	300	320	IR 350	IR 350	R	R 344	324	A	A	A	B					
30						B	A	252	A	308	320	A 328	A	A	A	A	280	228	B					
31						B	A	A	292	A	A	A	A	A	328	308	268	A 216	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							10	15	14	11	13	13	11	14	19	21	24	22	4					
MED							200	256	292	A 316	336	R 350	R 352	344	336	312	280	232	174					
U Q							204	272	300	A 324	UR 350	356	R 360	352	340	316	286	240	182					
L Q							196	252	284	312	326	346	UR 350	340	324	306	276	224	162					

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	JA 38	JA 34	JA 35	JA 23	JA 25	20	JA 33	JA 66	JA 59	JA 46	JA 65	109	148	102	JA 67	58	JA 44	JA 33	37	EB 14	20	39	JA 34	JA 53
2	19	42	JA 49	34	JA 26	JA 23	26	30	33	34	41	JA 54	JA 67	G	JA 105	JA 89	JA 123	JA 84	JA 158	JA 62	JA 54	JA 37	JA 52	JA 42
3	JA 57	JA 47	JA 25	JA 22	JA 23	JA 24	JA 39	JA 63	JA 49	40	JA 92	JA 53	JA 51	JA 64	39	JA 39	34	29	41	JA 62	JA 54	34	JA 42	JA 50
4	28	JA 63	JA 64	JA 50	JA 49	JA 40	88	JA 77	JA 54	JA 64	JA 74	89	JA 147	JA 110	124	JA 82	35	JA 42	JA 66	JA 62	JA 88	JA 107	JA 54	39
5	JA 46	JA 44	JA 58	52	38	JA 22	JA 45	JA 52	JA 106	139	56	106	48	43	38	G	36	31	26	JA 44	JA 67	52	JA 94	JA 32
6	JA 45	JA 32	JA 47	JA 52	JA 31	JA 100	JA 48	JA 33	JA 35	38	37	40	38	38	44	JA 49	JA 48	JA 54	JA 44	JA 43	JA 29	48	28	29
7	JA 26	JA 28	JA 22	20	EB 13	EB 15	JA 29	JA 39	JA 34	35	JA 49	JA 55	40	37	36	39	JA 47	JA 40	JA 23	JA 39	JA 35	JA 33	JA 34	56
8	JA 29	24	EB 13	EB 14	23	JA 30	JA 27	58	JA 37	35	G 31	G	39	39	43	38	JA 48	JA 42	JA 36	53	38	JA 18	JA 22	JA 30
9	JA 42	JA 39	JA 88	JA 49	JA 50	JA 118	JA 49	JA 40	36	JA 44	JA 80	JA 99	G	40	40	38	JA 52	JA 54	JA 79	JA 27	JA 80	58	60	JA 68
10	32	JA 52	30	28	JA 24	28	JA 31	JA 46	100	105	JA 124	80	JA 134	JA 51	36	40	34	JA 36	JA 34	EB 13	EB 14	EB 14	EB 15	EB 13
11	EB 13	18	JA 21	JA 37	JA 47	JA 64	JA 51	32	JA 42	JA 52	36	38	39	JA 44	G	35	JA 54	JA 53	35	49	JA 48	JA 34	JA 31	JA 46
12	JA 46	JA 56	JA 34	JA 24	JA 54	JA 58	JA 89	JA 100	83	JA 56	JA 54	JA 86	JA 41	40	44	JA 64	78	JA 98	81	68	JA 67	56	JA 63	77
13	C	JA 34	JA 22	JA 23	JA 38	22	JA 37	JA 49	37	JA 159	JA 42	54	40	G	G	36	JA 48	JA 63	50	JA 60	JA 64	88	JA 118	JA 50
14	JA 29	JA 24	JA 27	JA 38	JA 30	JA 27	30	JA 37	JA 37	71	101	47	G 31	G	39	JA 59	JA 55	JA 48	77	JA 105	JA 76	45	59	56
15	JA 31	23	21	21	JA 19	JA 19	JA 46	JA 52	38	JA 63	JA 101	74	JA 58	JA 80	JA 46	JA 52	33	30	40	47	JA 62	48	JA 80	JA 46
16	JA 66	44	JA 31	JA 24	JA 34	JA 47	JA 34	JA 47	JA 53	JA 63	JA 62	JA 63	JA 48	JA 121	36	JA 40	JA 46	JA 54	JA 50	JA 63	JA 55	54	JA 124	JA 45
17	JA 98	JA 83	JA 63	JA 24	EB 14	JA 31	52	JA 37	55	JA 45	39	47	JA 41	59	JA 42	G	32	JA 28	JA 22	24	20	28	32	JA 48
18	31	28	23	19	JA 21	EB 15	26	45	50	JA 86	39	G 29	38	38	36	34	33	31	26	32	JA 38	JA 45	JA 48	JA 80
19	JA 45	JA 40	32	JA 16	JA 27	JA 26	JA 26	33	JA 88	39	JA 63	G	JA 44	JA 64	61	32	JA 35	JA 39	JA 44	JA 38	32	JA 78	JA 50	JA 61
20	JA 61	JA 70	JA 76	JA 56	29	JA 30	JA 33	JA 49	JA 53	38	G 26	G 25	G 25	36	37	G	40	JA 51	JA 44	33	JA 44	35	JA 67	JA 48
21	JA 54	JA 48	JA 33	JA 27	JA 50	32	JA 30	JA 37	JA 44	JA 43	JA 61	JA 47	40	38	41	JA 46	JA 44	JA 93	54	JA 88	JA 84	48	JA 49	JA 54
22	JA 62	JA 41	JA 26	32	48	28	JA 142	G 25	32	G	G 23	37	G 33	37	C	C	29	29	25	25	23	21	JA 29	JA 18
23	JA 18	EB 14	20	EB 13	JA 22	JA 24	25	48	53	JA 52	G 32	39	39	JA 46	40	JA 43	JA 80	62	37	JA 26	JA 31	JA 47	JA 28	JA 33
24	JA 27	JA 43	JA 16	17	EB 14	22	JA 33	32	31	33	37	G 25	38	G	G 30	32	30	26	19	EB 12	EB 12	EB 14	EB 14	EB 16
25	JA 47	JA 47	JA 22	18	JA 49	JA 47	24	JA 42	38	JA 63	JA 61	JA 77	JA 64	JA 82	JA 54	JA 62	JA 56	JA 64	JA 51	JA 38	JA 48	JA 37	JA 31	28
26	JA 30	30	JA 27	JA 56	19	20	23	28	33	JA 47	36	G	JA 50	JA 47	G 31	G	38	58	42	JA 140	28	JA 46	32	JA 44
27	35	JA 20	JA 26	JA 30	30	JA 44	JA 34	34	40	JA 50	JA 82	57	79	62	44	JA 51	JA 50	JA 41	49	JA 62	JA 87	JA 28	JA 26	JA 50
28	JA 98	JA 34	JA 27	JA 35	27	27	25	29	32	33	40	38	39	46	36	JA 45	37	JA 33	32	25	JA 32	20	JA 48	JA 27
29	23	JA 18	JA 43	JA 24	19	EB 15	28	34	36	G 30	G 31	G 27	G 33	37	G	JA 49	JA 34	36	JA 36	28	JA 26	32	JA 54	JA 64
30	JA 38	28	JA 56	JA 44	JA 35	JA 23	28	30	36	38	37	38	38	JA 34	JA 38	32	G 24	30	26	JA 21	18	EB 15	JA 28	JA 26
31	EB 12	EB 16	EB 15	EB 13	JA 23	28	24	32	35	35	JA 39	44	57	41	36	37	JA 48	JA 64	JA 25	33	JA 32	JA 35	JA 32	JA 24
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31
MED	JA 36	JA 34	JA 27	JA 24	JA 27	JA 27	JA 33	JA 39	38	45	42	47	40	41	39	40	JA 44	JA 42	40	JA 39	JA 38	37	42	46
U Q	JA 47	JA 47	JA 47	JA 38	JA 38	JA 40	JA 46	JA 49	JA 53	JA 63	JA 65	74	JA 57	JA 62	44	JA 51	JA 50	JA 58	JA 50	JA 62	JA 64	JA 48	JA 59	JA 54
L Q	28	24	22	20	22	22	26	32	35	35	G 37	G 37	G 38	37	G 36	34	34	31	26	26	28	28	JA 29	29

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	19	21	23	16	16	18	26	54	50	40	A A 65	A A 109	A A 148	A A 102	50	A A 58	34	31	27	E B 14	E B 15	31	22	19
2	16	24	25	22	17	E B 16	25	28	31	33	40	A A 54	A A 67	G	50	37	36	39	41	34	20	23	23	19
3	24	A A 47	17	17	E B 14	16	35	51	33	37	A A 92	49	46	A A 64	36	G 27	32	26	24	19	18	28	27	22
4	28	17	A A 64	A A 50	24	20	A A 88	A A 77	41	39	A A 74	A A 89	A A 147	A A 110	A A 124	A A 82	34	36	31	43	18	20	16	19
5	20	22	A A 58	30	25	18	26	44	A A 106	A A 139	A A 56	A A 106	38	41	37	G	33	27	24	36	25	25	19	18
6	24	15	16	18	16	17	20	G 25	31	34	36	39	38	38	44	48	43	48	24	29	22	17	19	21
7	17	16	16	15	E B E B 13	15	25	35	33	35	45	A A 55	40	U Y 37	36	36	40	34	G 17	20	22	20	25	A A 56
8	18	17	E B 13	E B 14	E B 14	17	25	34	34	34	U G 31	G	38	U Y 39	40	37	41	29	22	50	20	17	18	17
9	19	E B 12	18	E B 14	17	20	40	34	34	36	A A 80	39	G	U Y 40	40	38	49	40	25	18	A A 80	47	A A 60	A A 68
10	24	23	22	18	17	21	27	34	A A 100	A A 105	A A 124	A A 80	A A 134	50	36	U Y 40	34	33	24	E B 13	E B 14	E B 14	E B 15	E B 13
11	E B 13	E B 14	16	18	16	24	A A 51	29	34	46	36	37	38	37	G	34	41	44	23	40	25	18	24	25
12	24	29	18	20	A A 54	A A 58	A A 89	A A 100	A A 83	A A 56	40	A A 86	39	U Y 40	44	43	U A 45	U A 49	46	28	43	47	40	E B 14
13	C	21	18	18	25	E B 16	29	28	35	44	39	46	40	G	G	35	34	50	27	29	37	A A 88	24	19
14	20	19	22	24	18	16	24	34	32	A A 71	A A 101	46	U G 31	G	39	A A 59	44	38	44	24	17	23	42	38
15	18	E B 14	16	E B 14	E B 12	16	44	32	34	44	A A 101	A A 74	A A 58	A A 80	42	34	32	29	23	38	48	20	A A 80	23
16	A A 66	A A 44	16	E B 12	17	18	25	41	37	35	33	A A 63	42	A A 121	34	36	35	33	24	30	E B 13	18	26	16
17	18	25	21	E B 13	E B 14	18	U A 40	34	44	34	34	44	40	48	36	G	30	25	18	17	16	18	E B 15	26
18	E B 13	16	16	E B 14	17	E B 15	23	44	A A 50	A A 86	39	U G 29	38	37	36	33	31	29	22	18	20	18	18	16
19	16	18	21	16	17	19	23	29	50	34	43	G	38	40	A A 61	32	28	27	24	26	E B 12	A A 78	16	A A 61
20	A A 61	18	A A 76	22	16	19	22	30	G 23	34	G 23	G 24	G 25	U Y 36	36	G	39	26	25	30	27	18	A A 67	22
21	22	A A 48	24	18	24	25	22	34	41	36	46	43	39	38	U Y 40	34	33	U A 44	40	45	21	26	27	24
22	A A 62	A A 41	E B 12	17	A A 48	18	15	G 19	32	G	U G 23	36	U G 33	36	C	C	28	26	20	E B 15	E B 14	E B 16	17	E B 15
23	18	E B 14	E B 15	E B 13	17	20	25	38	39	36	G 28	39	39	43	G 27	39	A A 80	42	28	20	22	18	21	17
24	18	24	E B 14	16	E B 14	17	22	26	31	32	36	G 22	38	G	U G 30	32	30	24	18	E B 12	E B 12	E B 14	E B 14	E B 16
25	18	20	E B 15	16	21	18	G	37	36	57	42	52	60	51	47	55	45	48	36	30	31	17	18	18
26	20	19	20	18	16	17	20	28	33	38	U Y 36	G	47	44	U G 31	G	34	38	22	36	E B 13	E B 13	20	18
27	24	E B 14	17	20	17	19	32	32	36	44	A A 82	51	A A 79	A A 62	43	47	42	27	18	30	23	16	18	23
28	18	17	17	17	17	18	22	29	U Y 32	32	37	36	39	45	34	42	34	29	24	24	22	17	22	17
29	16	E B 13	22	17	E B E B 13	15	24	29	35	G 28	U G 31	G 27	U G 33	36	G	38	29	24	18	17	18	21	19	E B 14
30	27	18	21	27	E B 14	19	23	28	34	37	37	37	36	U Y 34	35	U Y 32	G 21	25	18	18	E B 12	E B 15	20	E B 13
31	E B 12	E B 16	E B 15	E B 13	E B 14	18	22	27	34	35	36	37	47	36	36	35	44	42	19	23	20	25	26	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	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31
MED	19	18	18	17	17	18	25	34	34	36	39	43	39	40	36	36	34	33	24	26	20	18	21	19
U Q	24	24	22	20	18	19	32	38	41	A A 44	A A 65	A A 55	A A 47	A A 50	A 43	42	42	42	27	34	25	25	26	23
L Q	18	E B 16	E B 16	E B 14	E B 14	E B 16	22	28	33	34	G 36	G 36	G 38	36	G 34	G 32	32	27	20	18	E B 15	E B 17	18	E B 16

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

IONOSPHERIC DATA STATION Kokubunji

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

AUG. 1995 fmin (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	F 321	311	F 327	F 328	J F 341	348	R 312	361	350	353	A	A	A	A	J R 324	A	294	304	318	326	317	302	F 300	F 326
2	F 366	F 293	311	F 306	F 315	309	346	364	372	296	G	A	A	295	R 305	321	316	347	322	311	327	319	F 317	F 338
3	F 325	A	F 317	F 281	308	309	338	J R 362	318	Z 328	A	317	325	A	299	305	323	313	349	315	F 346	J F 278	F 296	F 319
4	F 343	F 327	A	A	F 298	F 299	A	A	363	330	A	A	A	A	A	A	323	324	342	353	323	326	F 310	F 328
5	F 321	F 326	A	A 295	308	F 311	322	348	A	A	A	A	290	326	311	311	309	299	332	352	F 336	F 351	F 283	F 293
6	F 312	J F 307	F 311	F 321	F 327	J R 343	357	F 345	332	316	297	304	R 304	297	305	315	324	328	R 316	340	349	F 328	F 313	F 333
7	F 294	313	F 306	F 311	F 321	313	R 298	331	338	330	340	A	289	300	R 309	310	313	303	315	329	337	F 329	F 304	A
8	F 307	F 305	F 317	F 324	F 325	329	320	306	313	341	335	305	280	276	291	304	300	304	310	337	319	299	308	F 290
9	F 318	F 319	F 289	F 313	F 327	S 340	315	337	370	R 336	A	305	U R 315	G	295	311	325	310	303	339	A	A 317	A	A
10	F 299	F 297	F 297	F 304	F 299	F 277	291	304	A	A	A	A	A	301	252	293	319	333	339	336	324	F 318	315	314
11	300	311	F 286	F 299	F 329	J S 301	A	320	294	A 307	325	R 280	R 268	313	304	261	314	298	312	326	330	340	F 295	F 315
12	F 296	288	F 305	F 324	A	A	A	A	A	A	333	A	267	253	315	300	A	A	326	336	F 298	F 327	F 301	F 297
13	I C 300	307	309	312	354	321	301	308	357	341	296	321	G	285	J R 291	293	304	316	307	333	341	A	F 332	F 322
14	F 332	F 315	310	319	299	J R 299	304	335	R 375	A	A	A 279	271	327	309	A	R 310	311	320	331	282	F 323	F 330	J F 348
15	326	F 328	F 322	F 319	304	302	304	360	R 362	326	A	A	A	A	J R 316	290	310	323	319	316	349	R 341	A	F 302
16	A	A	330	312	F 327	286	321	322	356	R 311	R 299	A	287	A	317	312	329	311	319	319	326	F 303	F 362	F 298
17	246	F 310	F 309	F 314	F 298	F 299	A	338	340	310	283	298	329	R 327	305	312	321	318	318	331	313	303	308	F 304
18	F 307	F 316	F 312	318	305	326	371	348	A	A	316	287	G	293	300	304	289	310	318	318	328	J F 299	F 294	F 318
19	F 326	F 300	F 305	F 331	F 305	312	320	321	330	348	333	G	309	323	A	317	316	306	321	329	364	A	F 297	A
20	A	352	A	335	F 307	347	V 353	345	338	351	307	R 285	G	Y	306	326	309	332	329	331	343	334	A	F 320
21	317	A	F 309	F 328	335	321	322	R 359	359	358	300	341	340	322	286	322	326	A	327	320	312	F 324	J F 359	F 321
22	A	A	F 335	F 342	A	344	332	348	357	338	298	314	348	347	C	C	S 323	333	316	326	342	346	337	321
23	301	306	306	310	310	320	315	346	375	367	261	I R 250	288	303	309	328	A	315	296	288	J R 271	305	295	F 313
24	Z 332	304	300	302	312	310	312	341	383	313	335	336	326	318	317	320	335	320	325	313	321	312	299	298
25	311	306	318	337	370	335	325	340	338	334	367	312	315	339	325	318	A 304	292	308	350	350	F 327	F 308	310
26	330	309	317	324	312	316	341	327	336	357	325	332	321	308	318	323	327	324	322	330	V 330	315	F 317	316
27	298	304	292	313	307	318	334	339	353	305	A	A 324	A	A	313	308	338	324	318	S 324	332	316	F 304	F 313
28	F 300	F 316	F 311	F 305	320	317	338	352	352	363	G	309	307	320	320	340	326	321	319	344	328	329	314	304
29	F 302	316	319	313	310	318	338	H 311	344	338	337	342	366	292	268	291	293	315	330	325	330	324	306	F 284
30	F 305	F 312	F 319	313	311	305	349	J R 366	351	344	334	346	317	326	R 307	326	340	328	328	340	347	297	F 292	F 289
31	308	305	302	311	314	311	R 338	357	362	R 331	370	329	295	324	308	311	330	333	322	320	353	360	316	311
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	30	29	30	27	29	27	26	22	22	25	24	28	27	29	29	31	31	30	29	28	28
MED	F 310	F 310	F 310	F 313	312	314	322	341	352	335	320	310	304	310	308	311	319	316	319	329	330	323	F 308	F 314
U Q	F 326	F 316	F 318	F 324	F 327	326	338	354	362	348	335	329	323	325	316	321	326	326	327	337	343	329	F 316	F 321
L Q	300	305	F 305	F 310	306	305	312	324	338	316	297	287	276	294	300	304	309	308	316	320	321	304	F 298	F 300

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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							U L 346	A	A	A 371	A	A	A	A	A	A		L 353	A					
2							369	394	H 392	438	391	A	A	376	A	377	359	A	A					
3							A	A	405	392	A	A	A	A	330	393	366	U L 365						
4							A	A	A	399	A	A	A	A	A	A	382	A						
5						L	358	A	A	A	A	A	377	A	390	384	381	358	L 369					
6							L		367	H 383	400	373	388	401	A	A	A	A	U L 369					
7							L	381	413	L 408	A	A	R 377	388	397	376	A	A	U L 353					
8								L 336	374	H 397	420	R 457	417	Y 325	345	380	A	L 352	L					
9							A	A 360	392	400	A	409	410	A	365	A	A	A	U L 355					
10							329	A 343	A	A	A	A	A	A	R 363	Y	361	A 356	L					
11							A	L 357	U L 379	A	402	410	406	413	382	393	A	A	L 338					
12						A	A	A	A	A	A 366	A	410	A	A	A	U	A	A					
13							375	362	414	A	403	A	384	385	384	360	331	A						
14						L	U L 347	364	392	A	A	A	R 419	371	370	A	A	A	A					
15							A	A 382	401	A	A	A	A	A	A	366	363	354	U L 366					
16							L 358	A	397	U L 385	U R 412	A	U L 373	A	374	384	A 362	A						
17							A	A 384	A	425	429	A	377	A	384	391	354	L 348	U L 385					
18							L	A	A	A	450	433	389	416	400	381	U L 362	L 328	U L 349					
19							L	353	A	428	A	431	411	398	A	362	375	L 337	L					
20								L	375	398	399	U R 413	366	415	359	371	A	369	L					
21							U L 365	A 376	A	411	A	A	370	381	A	370	378	A						
22								H 378	376	395	419	R 405	U R 364	R	C	C	365	L 338	L					
23							L 354	A	412	415	415	R 411	383	A	368	A	A	A						
24							L	L 378	383	392	404	385	377	Y 348	Y	373	H 374	U L 346						
25							L	A 372	U L 371	A	A	A	A	A	A	A	A	A						
26							L	L 373	381	A 370	Y 355	384	A	A	376	367	352	A						
27								L 388	L 387	A	A	A	A	A	A	A	A	L 340	L					
28								U L 389	L 386	393	384	R 412	428	A	H 397	A	378	L 345						
29							L		387	H 380	R 382	393	406	L 401	371	A 337	340	349	L					
30							L	356	363	L 376	L 371	U R 398	402	Y	390	355	L 350	L	L					
31							L	U L 369	389	U L 376	395	Y	A	396	368	362	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							9	20	22	21	18	14	21	14	19	19	19	15	8					
MED							L 358	372	387	395	401	410	388	392	374	373	363	L 349	U L 360					
U Q							367	382	397	410	415	413	410	401	390	384	378	356	U L 369					
L Q							U L 346	358	376	382	384	393	377	376	365	362	354	L 340	U L 351					

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AUG. 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							336	A 260	A 268	304		A	A	A		AE 324	A	356	302	266				
2							278	246	256	406	G	A	A	386	370	318	310	276	A					
3							274	246	326	340	A	358	344	A	364	334	300	298						
4							A	A	274	318	A	A	A	A	A	A	296	296						
5						344	304	258	A	A	A	A	410	328	344	332	326	314	256					
6							266		314	328	400	384	384	394	352	316	286	278	250					
7							L 338	294	262	288	298	A	416	382	346	322	302	312	284					
8								346	320	266	300	362	460	428	334	312	324	304	272					
9							A 306	284	252	262	A	388	Y 382	G	356	302	286	286	278					
10							382	308	A	A	A	A	A	E 398	A E 528	336	278	268	248					
11							A	320	L 396	A	334	468	490	360	388	518	348	A 356	302					
12						A	A	A	A	A	318	A	478	538	350	352	A	A	A					
13							370	312	246	A 292	384	356	G	410	422	366	330	A 304						
14						L 304	326	286	236	A	A	A	436	288	338	A	A 338	326	E A 284					
15							E A 352	240	250	320	A	A	A	A	352	420	348	304	276					
16							320	312	262	356	386	A	416	A	338	346	308	312						
17							A	266	272	366	414	402	314	E A 334	376	342	308	308	264					
18							240	A 302	A	A	378	448	G	416	396	382	L 384	324	292					
19							314	310	300	294	320	G	350	298	A	340	336	326	284					
20								280	320	302	386	438	G	Y	374	310	320	284	274					
21							L 316	244	262	278	E A 370	300	300	340	404	332	310	A						
22								242	254	316	398	362	282	306	I C 390	C	330	286	280					
23							320	270	242	260	518	470	380	338	308	284	A	A 288						
24							L 276	258	236	312	322	306	318	328	314	306	282	296						
25							300	270	264	300	266	E A 352	E A 332	284	310	A 316	E A 312	A 330						
26							L 272	300	286	256	320	314	E A 348	360	336	322	300	286						
27								262	280	372	A	A	A	A	350	A 342	288	292	266					
28								256	256	268	G	362	362	312	308	278	292	286						
29							242		262	280	282	272	264	392	434	366	352	280	246					
30							252	334	264	280	296	300	316	308	344	292	268	278	254					
31							268	248	258	302	256	332	E A 364	306	364	350	300	A 276						
	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	22	27	27	25	22	20	25	24	29	27	29	29	18					
MED						324	304	270	262	302	U 340	362	380	344	351	332	309	296	271					
U Q							326	308	286	324	398	420	448	396	382	350	333	312	284					
L Q							272	256	254	279	300	323	325	310	337	312	294	285	256					

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

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	292	300	A 314	244	244	234	254	A	A	A	A	A	A	A	A	A	A 232	A 254	A	226	226	A 310	288	268
2	214	340	A 338	A 340	300	248	222	202	H 192	182	244	A	A	234	A	236	A 244	A	A	A 284	250	268	274	244
3	288	A	300	310	292	240	A	A	202	202	A	A	A	A	A 268	206	222	226	252	260	230	A 348	A 356	284
4	244	268	A	A	A 354	284	A	A	A	A 236	A	A	A	A	A	A	220	A	A 246	A	242	254	296	284
5	274	A 326	A	A	E A 352	272	242	A	A	A	A	A	A 244	A	H 208	224	226	210	246	A 238	A 242	A 258	334	A 346
6	A 374	310	302	292	268	246	232	220	200	H 194	H 184	210	212	214	A	A	A	A	244	244	212	240	286	324
7	312	312	298	282	294	250	222	242	204	196	A	A	A 238	224	190	228	A	A	226	244	222	238	A 330	A
8	286	268	280	278	250	254	A 226	E A 266	216	H 194	208	184	H 182	Y	A	228	A	242	274	A 242	242	266	266	282
9	288	272	304	282	A 298	268	A	A	212	208	A	204	206	A	A 268	A	A	A	A 258	226	A	A	A	A
10	312	312	324	292	318	A 402	258	E A 272	A	A	A	A	A	A	232	A	A 238	A	A 248	228	222	234	232	272
11	304	304	314	320	274	254	A	224	218	A	198	202	220	H 182	236	220	A	A	A 252	258	238	234	A 356	A 344
12	364	A	316	270	A	A	A	A	A	A	E A 274	A	212	A	A	A	A	A	A	254	A	A	E A 344	268
13	I C 290	300	290	272	A 270	258	A 260	214	206	A	208	A	230	220	234	A 246	A 268	A	276	254	A 252	A	264	264
14	272	290	308	312	302	240	226	A 258	222	A	A	A	180	242	A 250	A	A	A	A	264	318	296	A 304	284
15	256	302	274	276	282	264	A	A	216	A	A	A	A	A	A	244	246	A 252	254	A 270	A 260	256	A	A 354
16	A	A	264	288	288	286	A 238	A	E A 246	214	176	A	236	A	200	236	A	A	278	264	236	274	A 238	286
17	406	320	300	284	312	276	A	A 250	A	186	178	A	A 246	A	210	220	238	224	232	220	250	270	258	A 302
18	272	270	286	290	296	256	222	A	A	A	192	186	H 208	216	212	234	222	A 256	A 256	258	246	268	308	284
19	260	326	294	258	284	264	238	236	A	188	A	188	194	A 224	A	H 192	220	236	A	252	202	A	294	A
20	A	284	A	A 298	256	250	240	222	220	204	200	204	Y 266	198	254	238	A	222	A 262	244	232	240	A	A 288
21	322	A	A 332	274	290	A 328	232	A	A	212	A	A	252	222	A	234	240	A	A	E A 288	264	276	282	280
22	A	A	270	256	A	252	226	H 166	204	H 194	198	194	204	206	I C 223	C	208	220	252	242	220	216	238	266
23	268	252	288	288	288	302	A 240	A	A 222	200	190	H 192	238	A	240	A	A	A	A 280	284	268	260	258	266
24	238	A 282	266	272	268	262	226	224	206	196	188	218	Y 240	Y	Y	214	H 202	208	232	246	232	250	270	270
25	274	292	264	240	232	274	240	A	A 252	A	A	A	A	A	A	A	A	A	262	232	236	280	268	240
26	236	A 296	294	264	262	274	232	218	214	E A 252	Y	216	A	A	218	226	A 254	A	268	256	224	252	256	276
27	300	286	294	282	288	290	A 252	224	A 232	A	A	A	A	A	A	A	A	A 246	254	268	256	264	256	284
28	270	262	280	270	268	270	240	220	216	204	216	196	192	A	H 184	A	234	228	254	232	248	238	266	288
29	280	276	268	262	268	290	212	236	222	198	204	H 190	194	H 200	192	A	236	238	248	232	234	232	266	306
30	300	272	248	A 332	294	276	224	222	222	218	224	202	192	Y	192	232	236	232	244	226	200	252	332	296
31	270	278	282	268	256	284	242	230	208	H 202	178	H 194	A	H 180	232	228	A	A	258	244	224	230	E A 294	300
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	28	29	29	30	24	19	22	20	17	15	21	13	19	18	18	15	25	30	29	27	28	28
MED	283	291	294	282	286	266	235	223	216	200	198	196	212	216	223	228	235	232	254	244	236	256	274	284
U Q	302	310	306	292	297	284	241	A 242	A 222	210	212	204	239	224	A 240	236	A 240	A 246	262	260	250	270	A 306	298
L Q	269	272	277	269	268	252	226	220	206	194	186	190	194	H 199	200	220	222	222	246	232	224	238	261	269

AUG. 1995 h'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

AUG. 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						B	122	114	108	110	110	112	A	A	A	A	A	A	A					
2						B	112	A 126	A	A	110	A	A	112	110	110	106	112	A					
3						B	A	110	108	110	A	A	A	A	A	A 126	A 126	124	A					
4						B	A	A	A	110	108	114	112	110	A	114	112	114	A					
5						A	112	112	A	106	112	108	112	112	114	112	110	116	126					
6						B	A	A	A	A	A	A 126	118	112	116	110	110	116	A					
7						B	A	A	A	A	110	A	114	A	114	112	114	112	A					
8						A	A	110	A	A	A	110	116	112	112	114	112	114	120					
9						B	A	A	108	106	110	A	118	116	116	114	114	112	A					
10						B	116	120	110	A	A	A	112	114	A	114	E A 142	110	110					
11						B	112	114	116	110	A	A	114	A	114	114	A	112	A					
12						B	114	108	108	112	A	A	A	A 132	A 128	116	114	114	A					
13						B	A 126	A	112	A	A	A	A	114	114	112	116	118	A					
14						B	116	112	A	112	A	A	A	112	124	120	114	116	A					
15						B	120	A	108	108	A	A	A	A	A	A	A 130	A	A					
16						B	A	112	A	108	A	A	A	A	A	110	132	A	A					
17						B	A	A	A	A	A	A	A	A	A	108	A 118	120	A					
18							118	108	A	A	A	A	112	124	116	A 130	116	116	A					
19						B	A	114	112	A	110	110	A	110	110	A	A	A	B					
20						B	A	A	E A 138	A	120	118	122	122	108	110	116	114	B					
21						B	A	A	A	A	A	A	A	A 124	A	A 136	114	118	B					
22						B	A	116	126	114	A	A	A	122	C	C	A	124	A					
23						B	118	A	A	A	122	E Y 156	A	A	A	A	A	A	B					
24						B	A	A	122	A	104	116	112	112	A	A 124	112	A	122					
25						B	132	A	A	A	A	A 120	A	A	A	114	110	116	B					
26						B	A	112	110	108	112	112	112	108	A	114	114	114	B					
27						B	112	118	120	108	110	108	108	110	110	108	112	A	A					
28						B	A	132	110	108	108	A	A	A	A	A	112	112	A					
29						B	A	A 132	E A 142	A 122	A	118	A	A	110	A	A	A	B					
30						B	A	116	110	108	110	110	A	A	A	A	120	116	B					
31						B	A	A	122	A	A	A	A	A	116	120	116	112	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							13	18	18	16	14	14	13	18	16	23	25	23	4					
MED							116	114	110	109	110	112	112	112	114	114	114	114	121					
U Q							121	118	122	111	112	118	117	122	116	A 120	A 117	116	124					
L Q							112	112	108	108	110	110	112	112	110	110	112	112	115					

IONOSPHERIC DATA STATION Kokubunji

AUG. 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	104	106	106	108	132	140	130	116	112	116	108	104	104	106	104	104	106	100	100	B	114	112	112	110
2	110	106	102	102	100	102	118	172	158	134	116	112	106	G	116	114	122	112	128	110	110	104	116	110
3	102	98	100	98	104	122	114	110	110	114	106	114	108	104	106	108	134	130	112	112	114	112	110	108
4	108	104	102	108	106	120	116	110	110	112	106	110	138	108	108	110	132	118	114	108	112	108	128	112
5	112	106	110	108	108	114	108	118	112	106	112	108	112	136	142	G	134	134	122	114	116	110	112	114
6	114	116	120	112	118	112	104	108	108	112	112	150	146	154	130	124	116	112	112	110	108	108	106	110
7	110	124	106	94	B	B	104	106	110	110	110	110	112	114	142	124	120	112	106	104	100	100	104	100
8	98	102	B	B	118	110	108	106	114	118	112	G	E G 176	176	138	140	124	124	116	116	120	108	120	114
9	110	116	110	112	108	104	108	124	122	112	110	122	G	160	140	140	122	116	112	102	104	102	102	100
10	98	120	96	96	118	118	120	118	110	108	118	108	106	110	112	132	124	116	112	B	B	B	B	B
11	B	116	122	114	110	108	108	114	116	110	124	118	164	112	G	144	120	116	114	110	106	106	110	116
12	102	108	112	96	116	114	112	108	106	108	106	104	110	140	132	122	118	118	114	110	108	114	106	112
13	C	98	98	116	106	134	114	106	114	106	114	112	140	G	G	174	128	114	112	110	116	110	110	108
14	106	108	110	118	116	106	114	116	112	104	104	106	112	G	148	128	124	122	112	112	120	116	108	104
15	104	106	108	110	118	132	114	114	112	106	106	102	104	104	104	102	136	126	118	110	116	110	112	110
16	106	108	108	110	104	104	112	110	114	106	108	106	114	118	114	110	106	124	122	114	120	114	112	110
17	114	112	108	124	B	114	106	110	106	108	110	108	106	102	102	G	138	130	102	100	102	122	114	114
18	110	112	112	118	114	B	120	112	110	104	180	108	162	156	146	140	128	124	114	110	110	108	110	108
19	108	118	104	112	120	116	126	118	108	116	110	G	114	110	108	110	126	104	98	100	102	122	124	116
20	108	108	108	106	114	106	108	106	104	100	104	106	104	178	152	G	122	122	112	110	118	106	106	106
21	102	104	106	104	102	104	104	102	102	102	100	100	164	146	132	130	122	112	110	116	110	112	108	110
22	106	110	110	104	104	100	102	106	166	G	108	168	102	166	C	C	124	124	114	102	100	108	106	106
23	106	B	108	B	118	118	116	108	108	102	110	182	160	102	102	100	98	94	92	100	100	110	112	118
24	108	106	108	112	B	104	126	102	132	100	128	106	E G 178	G	110	132	118	114	126	B	B	B	B	B
25	106	112	126	114	108	110	110	102	104	110	112	114	112	110	106	120	118	114	114	120	108	112	104	104
26	106	106	126	120	122	124	118	130	120	122	120	G	114	112	110	G	124	114	106	108	112	110	108	106
27	106	108	106	104	102	114	112	116	114	110	108	110	108	110	116	122	116	112	112	112	112	108	104	106
28	106	104	104	104	108	118	116	170	132	134	112	110	108	108	120	116	118	112	108	110	104	118	108	108
29	112	116	116	104	104	B	128	134	136	114	104	108	110	176	G	102	102	98	100	92	114	116	110	110
30	106	106	102	104	102	102	108	122	120	116	118	114	120	102	98	118	110	122	104	102	102	B	102	116
31	B	B	B	B	130	120	114	106	134	140	100	100	98	102	166	136	118	114	112	106	100	96	98	96
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	28	28	28	31	31	31	30	31	28	30	27	27	26	31	31	31	28	29	28	29	29
MED	106	108	108	108	109	114	114	110	112	110	110	109	112	112	116	122	122	116	112	110	110	110	110	110
U Q	110	114	111	113	118	119	118	118	120	116	114	114	140	154	140	132	126	124	114	112	115	113	112	113
L Q	105	106	104	104	104	105	108	106	108	106	106	106	106	106	106	110	118	112	106	103	103	108	106	106

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

IONOSPHERIC DATA STATION Kokubunji

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

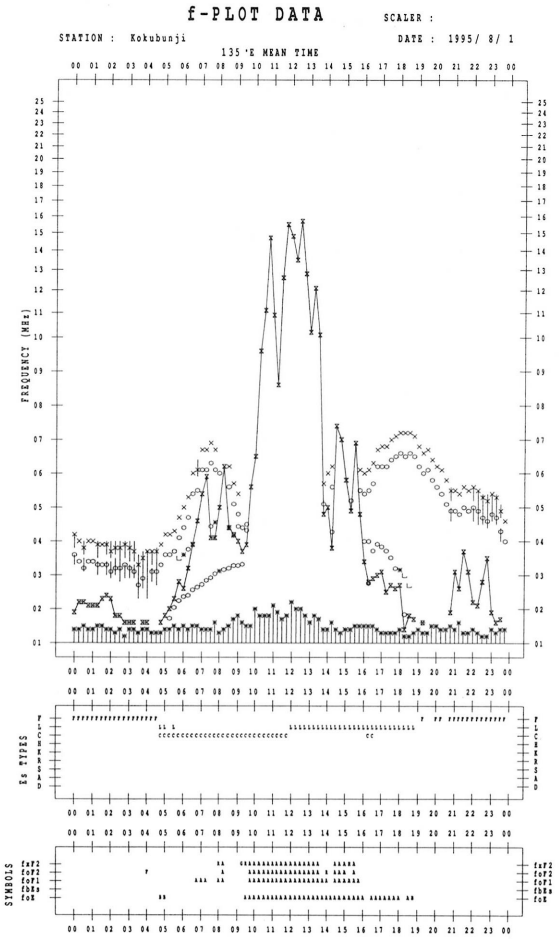
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

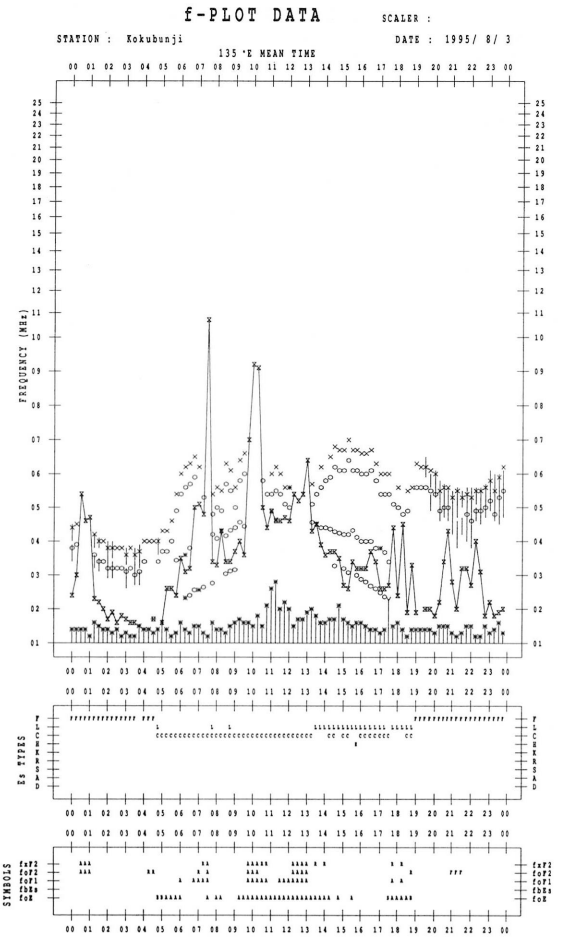
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 3	F 2	F 2	F 1	FF 11	CL 11	C 2	C 3	C 2	C 1	C 2	C 3	L 3	L 3	L 2	L 2	L 2	L 3	L 4		F 1	F 6	F 5	F 4
2	F 1	F 5	F 4	F 4	F 2	L 1	C 2	HL 12	HL 11	CL 11	C 1	C 1	C 2		C 1	C 1	C 2	C 2	CL 13	F 2	F 3	F 3	FF 22	F 2
3	F 3	F 4	F 2	F 2	FF 11	C 1	C 3	C 3	C 1	C 2	C 2	C 1	C 2	C 2	L 2	LC 21	CL 12	CL 12	L 3	F 2	F 2	F 5	F 6	F 4
4	F 5	F 5	F 5	F 5	FF 52	CL 24	L 5	CL 31	C 2	C 2	C 2	C 2	HC 12	L 2	L 3	C 2	C 1	C 3	L 3	F 4	FF 22	F 2	F 3	F 2
5	FF 32	FF 32	FF 42	FF 42	F 5	L 3	C 2	C 2	C 3	C 3	C 2	C 2	C 1	H 1	H 1		C 1	C 1	C 2	F 6	F 3	F 3	FF 31	F 4
6	F 6	F 3	FF 13	F 3	FF 12	L 3	L 3	L 1	L 1	L 1	L 1	HL 11	H 1	H 1	HL 11	C 1	C 2	C 2	C 3	F 5	F 4	F 3	F 2	F 2
7	F 2	FF 12	F 1	F 2			L 3	L 3	L 1	L 1	C 2	C 2	C 1	L 1	H 1	C 1	C 1	C 2	CL 12	F 5	F 3	F 2	F 4	F 4
8	F 2	F 1			F 2	L 2	L 3	C 2	CL 22	C 1	L 1		H 1	H 1	H 1	H 1	C 2	C 2	C 2	F 5	F 4	F 1	FF 21	F 3
9	F 4	F 2	F 3	F 2	F 2	L 3	L 4	CL 22	C 1	C 2	C 2	C 1		H 1	H 1	H 1	C 2	C 3	C 3	F 3	F 3	F 5	F 4	F 3
10	F 3	FF 13	F 3	F 2	FF 21	CL 21	C 2	CL 21	C 3	C 3	CC 12	C 2	C 2	C 2	C 1	C 1	CL 11	C 3	C 4					
11		FF 11	F 2	F 3	F 2	L 3	C 5	C 2	C 1	C 2	C 1	C 1	HC 11	L 1		H 1	CL 21	C 3	L 3	F 6	F 3	F 3	F 4	FF 25
12	F 4	FF 44	FF 23	F 2	FF 32	C 5	C 4	C 3	C 2	C 2	L 2	LQ 21	L 1	CL 11	CL 11	C 2	C 2	C 3	L 4	F 4	F 5	F 6	F 3	F 3
13		F 2	FF 21	FF 21	F 3	R 1	L 2	LC 11	C 2	C 2	L 1	L 2	CL 11			H 1	C 2	C 2	C 5	FF 52	F 3	F 4	F 5	F 4
14	F 3	F 2	FF 32	FF 32	F 4	LC 11	C 3	C 2	C 2	C 3	C 2	C 2	L 1		HL 11	CL 31	C 3	C 3	C 5	FF 31	F 5	F 4	F 4	F 5
15	F 2	F 2	F 2	F 2	F 1	C 1	C 4	C 2	C 2	C 2	C 2	C 3	C 2	C 2	C 2	L 2	HL 12	CL 22	CL 43	FF 53	FF 32	F 3	F 4	F 3
16	F 3	F 5	F 2	F 2	F 4	L 3	L 3	C 2	C 2	C 1	C 1	L 2	L 2	CL 12	C 1	C 2	LC 21	CL 22	C 4	F 5	F 2	F 2	F 3	F 2
17	F 3	F 3	F 3	F 1		L 2	L 3	L 2	L 2	L 1	L 1	L 2	L 2	L 2	L 2		HL 11	CL 11	L 2	F 2	F 1	FF 22	F 3	F 4
18	F 2	F 2	F 2	F 1	F 2		C 2	C 2	C 3	C 2	HL 11	L 1	H 1	HL 11	H 1	HL 11	C 1	C 2	C 4	F 3	F 3	F 6	F 3	F 4
19	F 4	FF 12	F 4	FF 11	F 2	L 2	L 2	C 2	C 2	C 1	C 2		C 1	C 2	C 2	L 1	CL 11	L 2	L 2	F 4	FF 11	FF 24	FFF 12	F 3
20	F 4	F 5	F 4	F 3	F 2	L 2	L 4	L 3	LH 21	L 2	L 1	L 1	L 1	HL 11	H 1		C 1	C 1	L 3	FF 32	FF 13	F 3	F 5	F 3
21	F 4	F 3	FF 31	F 3	F 3	F 4	L 2	L 3	L 2	L 2	L 2	L 1	HL 11	HL 11	CL 11	CL 11	C 1	C 3	L 3	FF 25	F 2	F 3	FF 21	F 4
22	F 5	F 4	F 3	F 3	F 4	L 3	LHC 11	L 1	HL 11		L 1	HL 11	L 1	HL 11			CL 11	CL 21	CL 22	F 2	F 3	F 1	F 2	F 1
23	F 2		F 1		FF 21	C 2	C 3	C 3	L 3	LQ 11	L 1	HL 11	HL 11	L 2	LH 21	L 3	L 3	L 3	L 3	F 2	F 2	F 2	F 4	F 2
24	F 3	F 4	F 1	F 1		L 2	CL 12	LC 21	CL 12	L 2	H 1	L 1	H 1		L 1	CL 11	C 2	C 2	C 1					
25	F 4	F 4	F 2	F 2	F 3	FF 22	L 1	L 3	L 3	CL 22	CL 22	CL 11	CL 21	CL 21	L 2	C 3	C 3	C 3	C 5	F 6	F 5	F 2	F 2	F 4
26	F 3	F 4	FF 22	FF 31	F 2	F 1	C 2	C 1	C 2	C 1	C 1		CL 21	C 2	L 1		C 2	C 3	L 3	F 5	FFF 21	F 3	F 3	F 3
27	F 6	F 3	F 2	F 5	FF 42	CL 32	C 5	CL 21	CL 21	C 2	C 3	C 2	C 3	C 3	C 2	C 3	C 2	C 3	L 3	F 4	F 3	F 2	FF 21	F 3
28	F 3	F 4	F 3	F 2	F 3	CL 21	C 3	HL 11	H 1	H 1	C 1	C 1	C 1	C 2	L 1	C 2	C 3	C 3	L 3	F 2	F 6	F 1	F 3	F 2
29	FF 21	F 1	FF 13	F 2	F 2		CL 11	CL 21	CL 11	L 1	L 1	L 1	L 1	HL 11		L 2	LC 21	L 3	L 2	F 2	FF 12	FF 22	FF 21	F 2
30	F 4	F 3	F 4	F 4	F 2	L 2	LC 12	CL 21	C 1	C 2	C 1	C 1	CL 11	L 2	L 2	CL 11	L 1	C 1	L 1	FF 11	F 1		F 2	FF 11
31					F 1	C 2	C 3	L 3	HL 12	HL 12	L 2	L 2	L 2	L 1	HL 11	HL 11	CL 21	C 3	L 2	F 4	F 5	F 4	F 2	F 2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

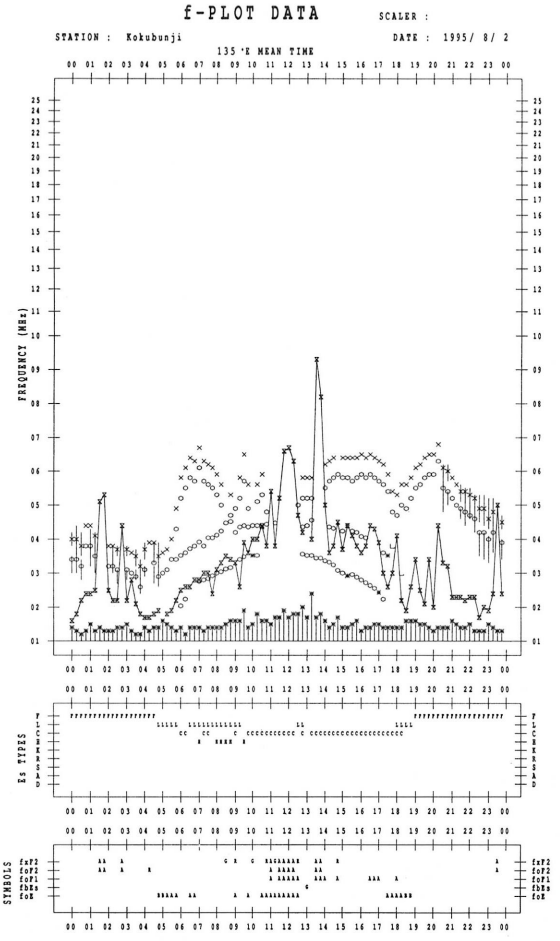
AUG. 1995 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

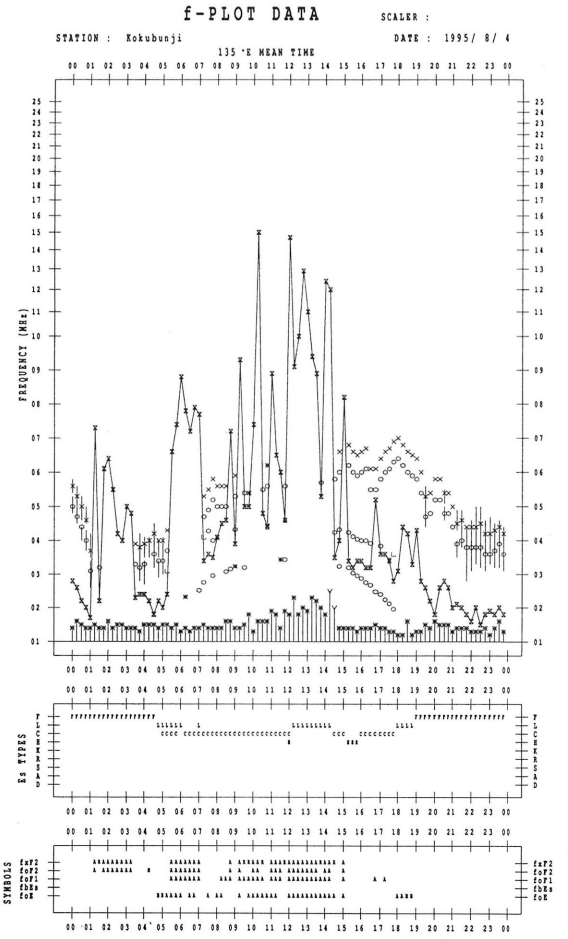
f-PLOTS OF IONOSPHERIC DATA

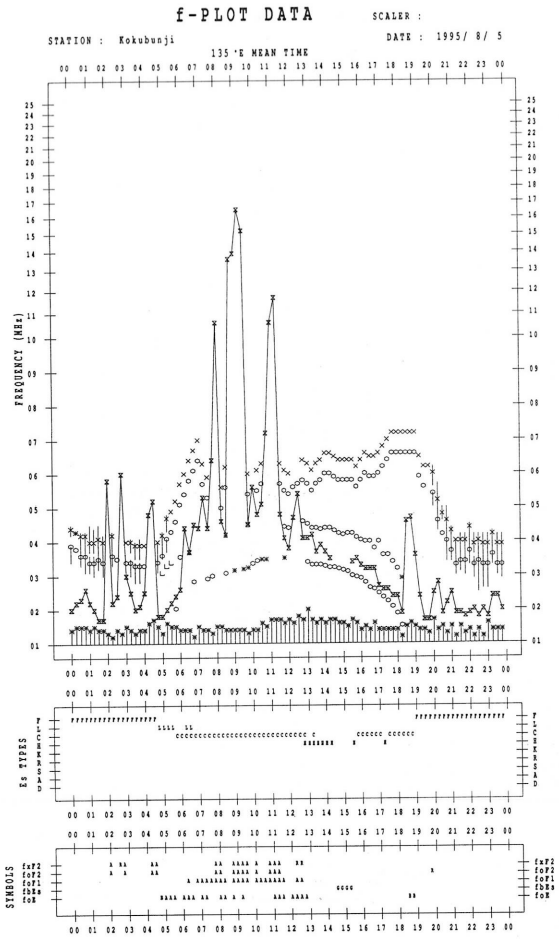
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

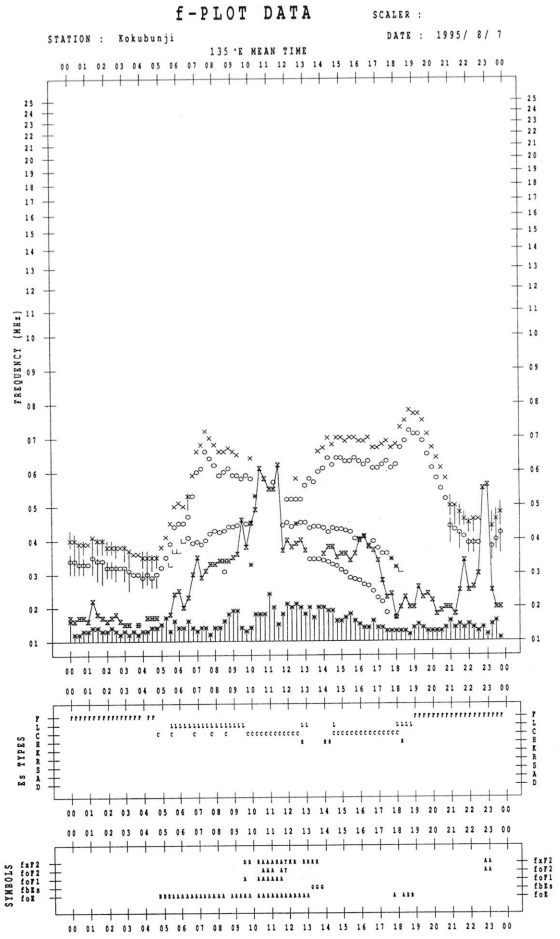

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF2
foF1
fbEs
foE

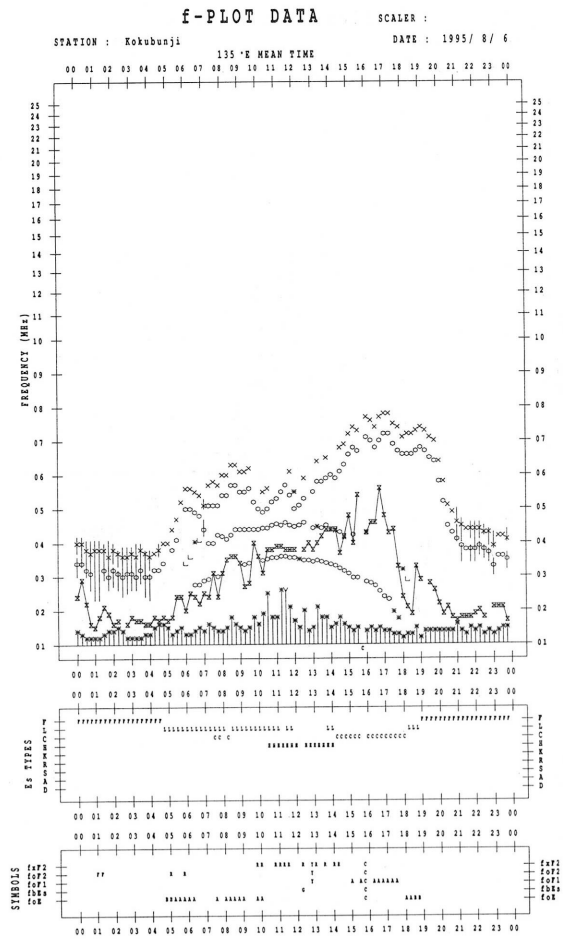

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF2
foF1
fbEs
foE

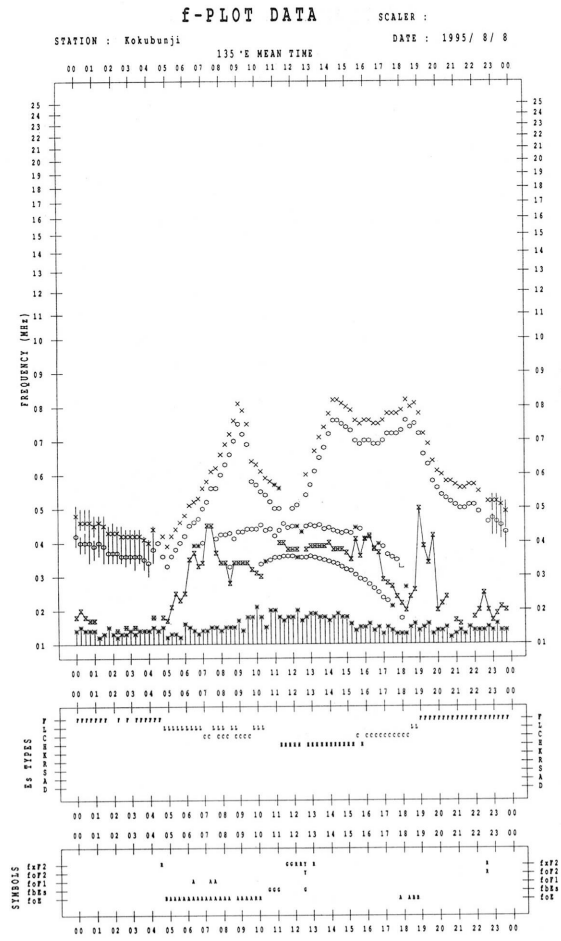

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF2
foF1
fbEs
foE

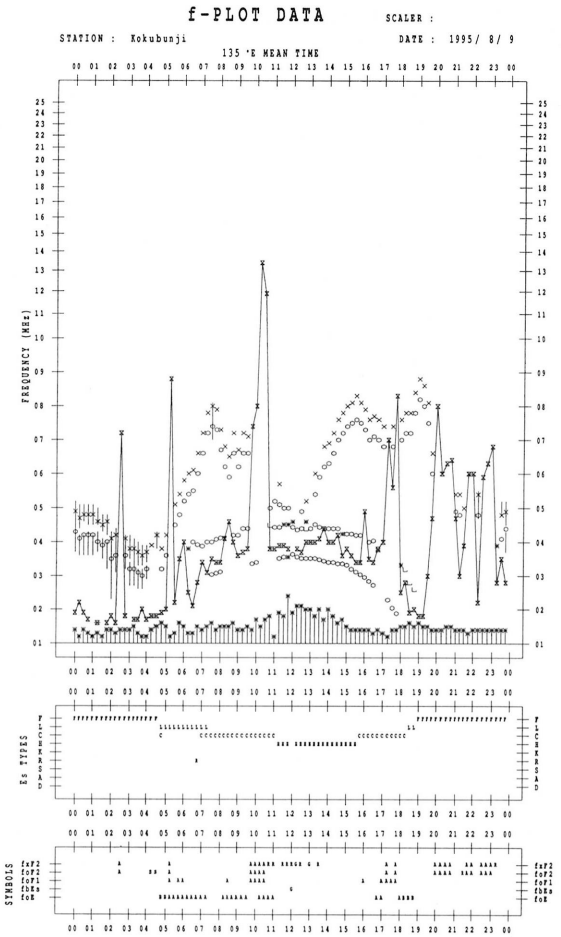

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


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


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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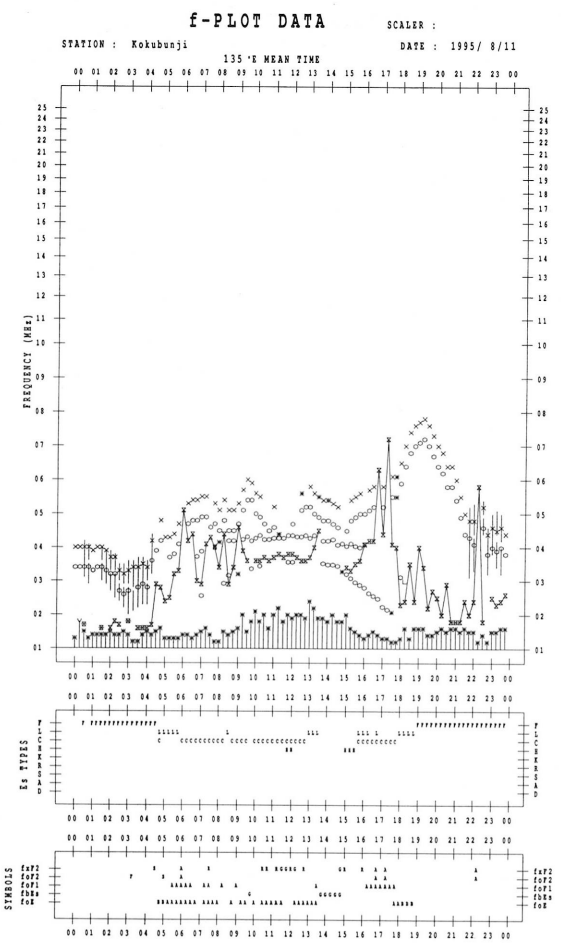
DATE : 1995/ 8/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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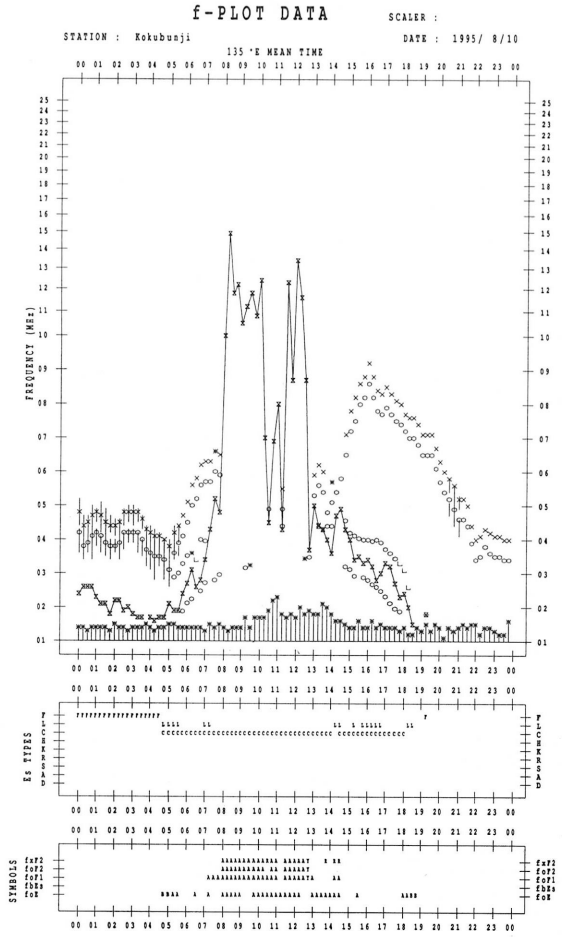
DATE : 1995/ 8/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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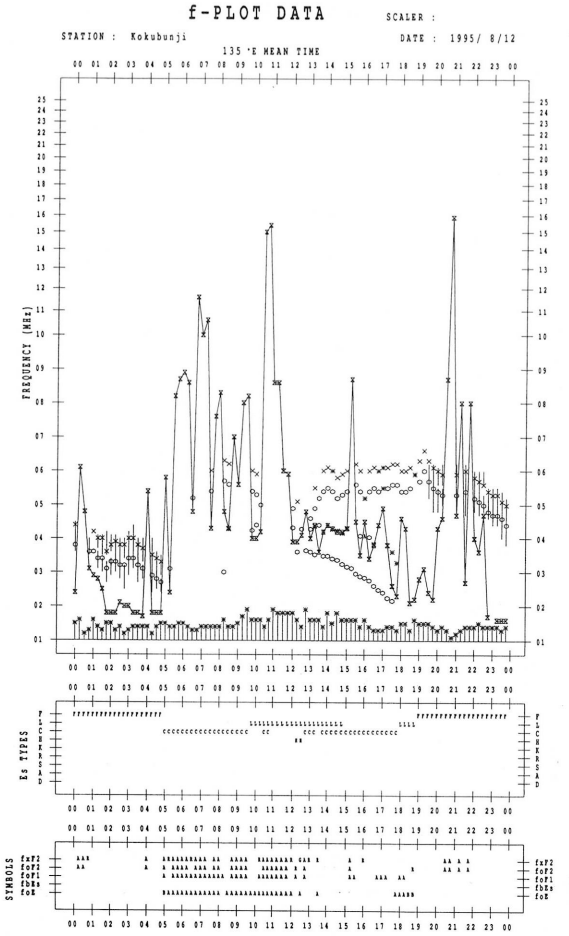
DATE : 1995/ 8/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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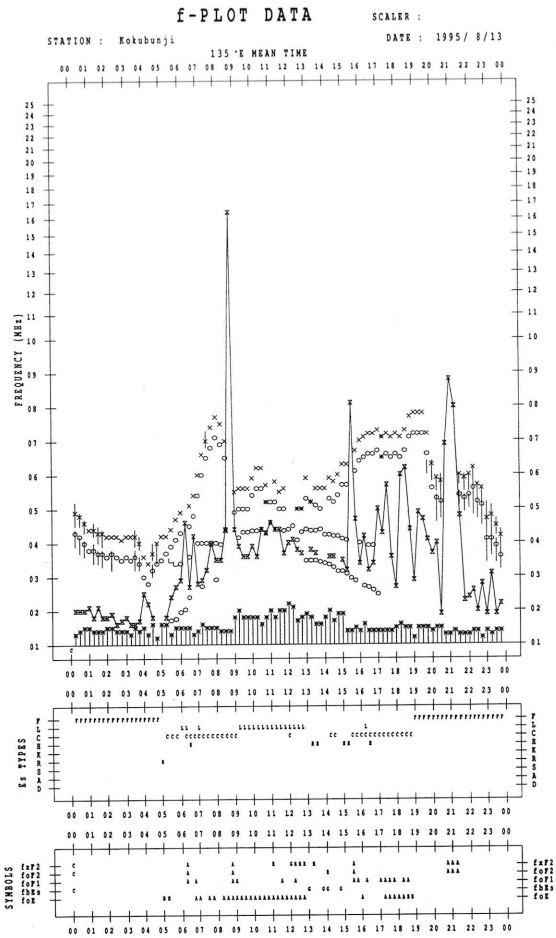
STATION : Kokubunji
DATE : 1995/ 8/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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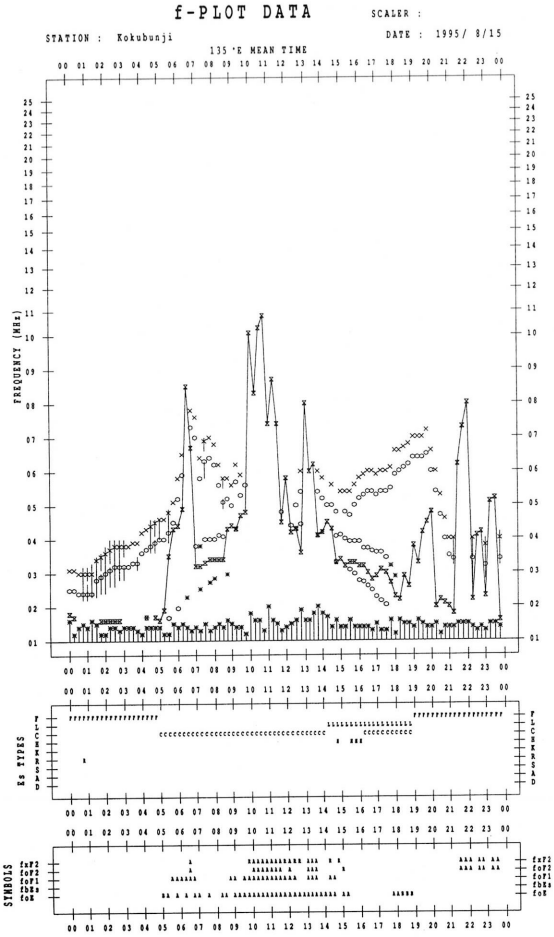
DATE : 1995/ 8/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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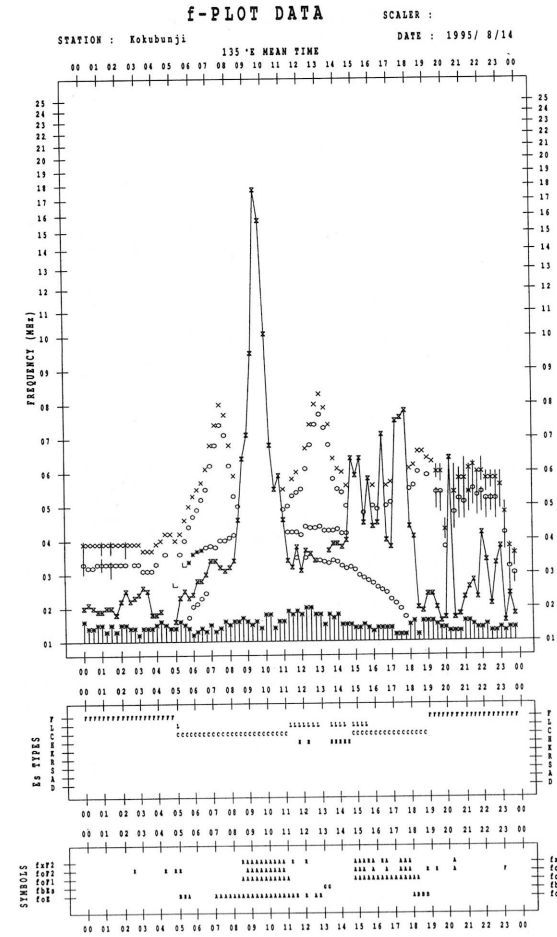
STATION : Kokubunji
DATE : 1995/ 8/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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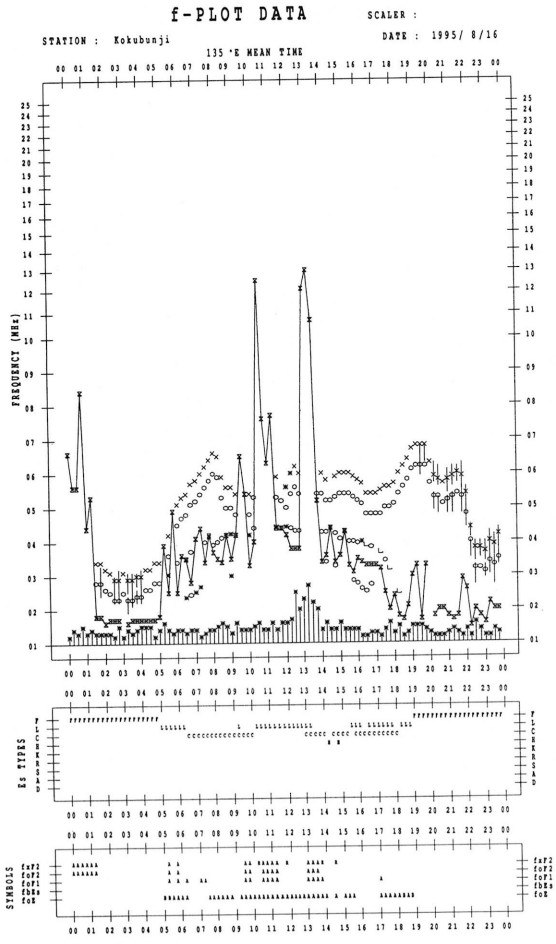
DATE : 1995/ 8/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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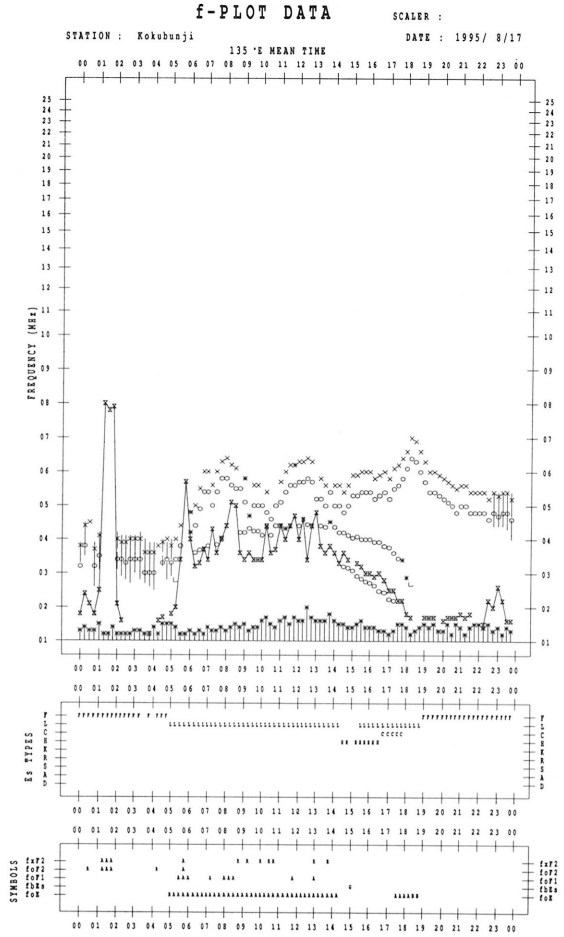
DATE : 1995/ 8/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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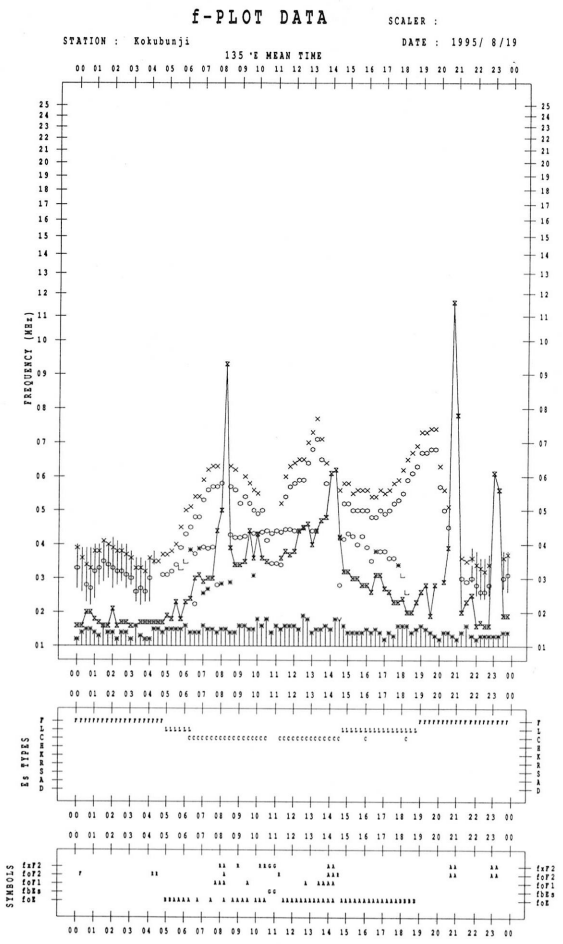
DATE : 1995/ 8/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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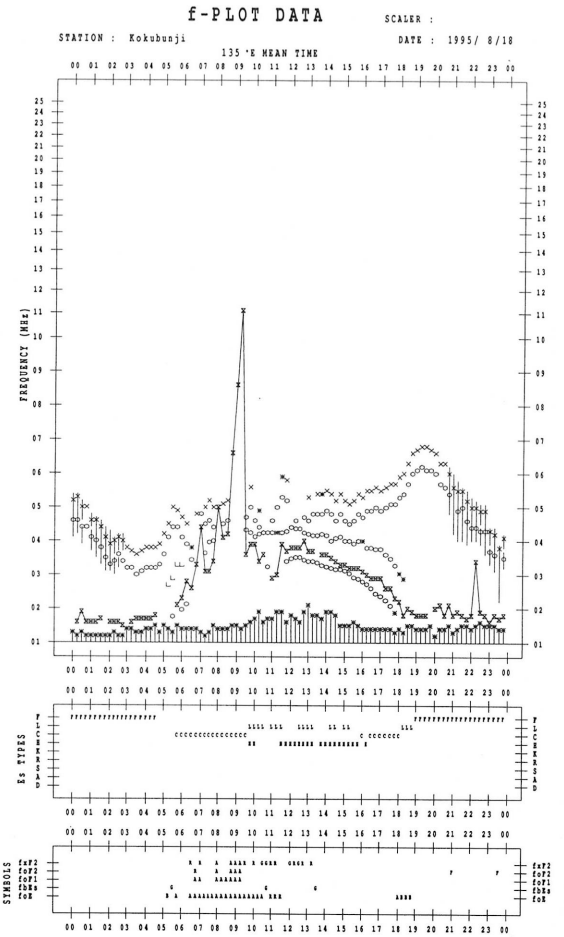
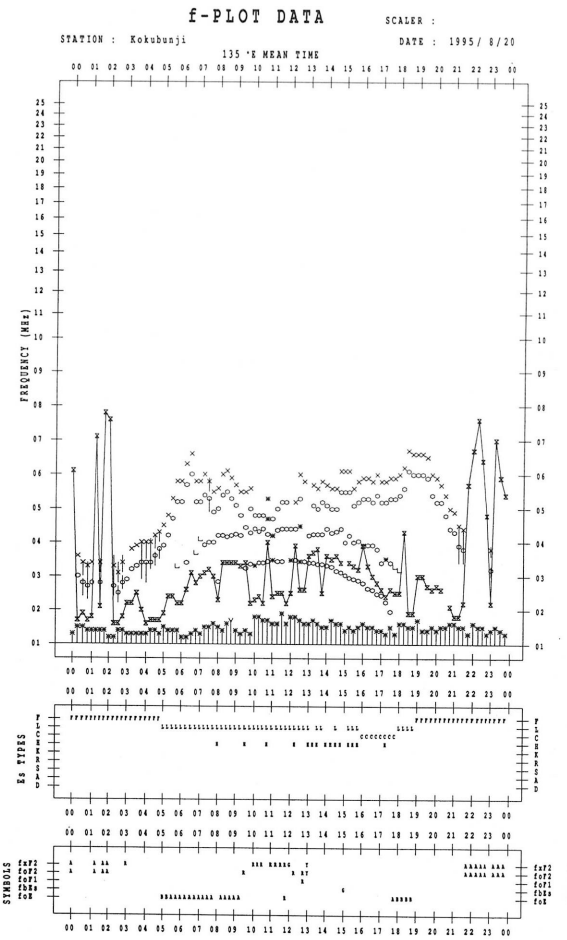
STATION : Kokubunji
DATE : 1995/ 8/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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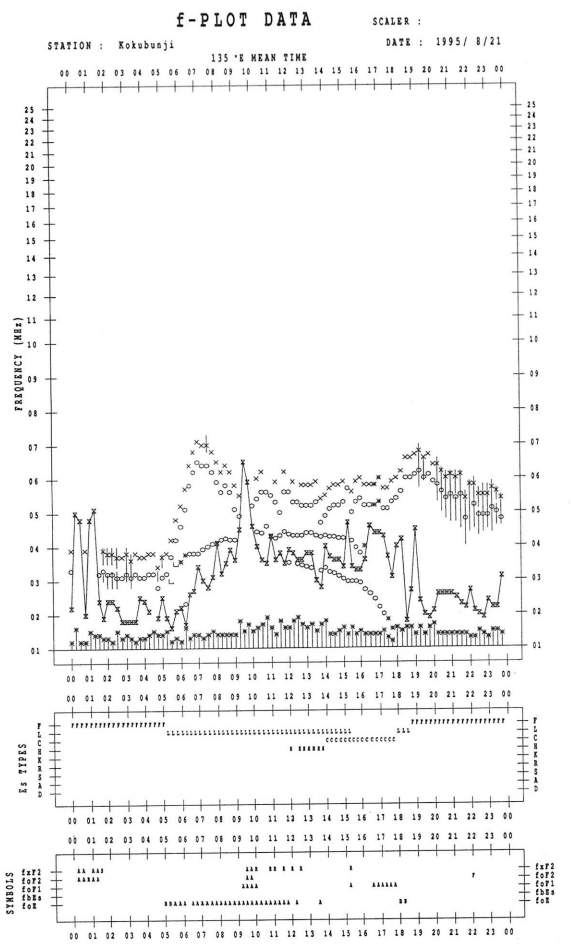
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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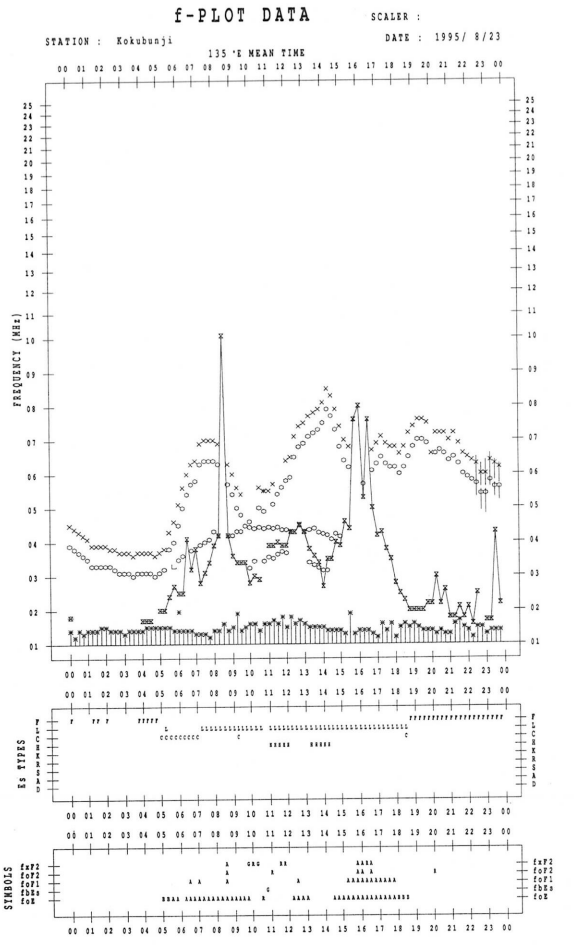
STATION : Kokubunji
DATE : 1995/ 8/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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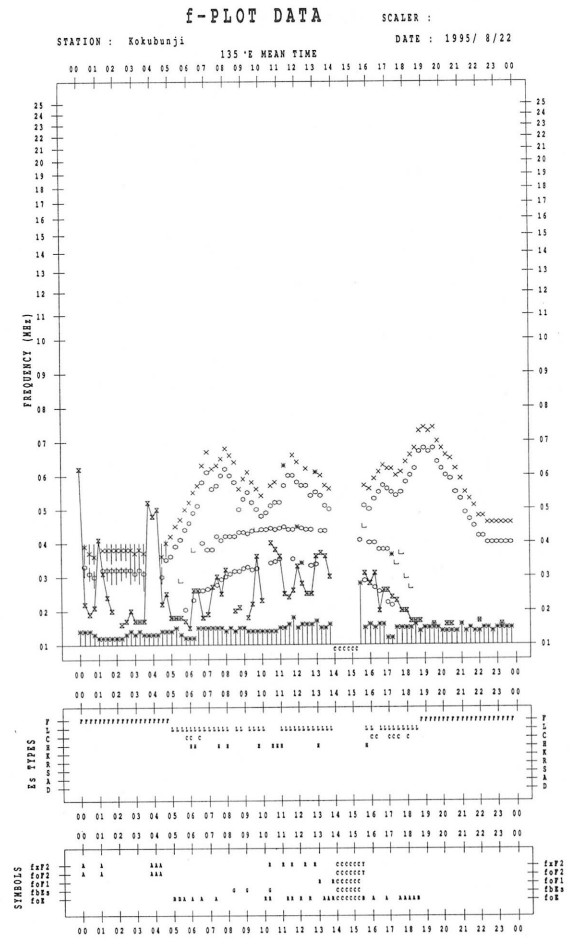
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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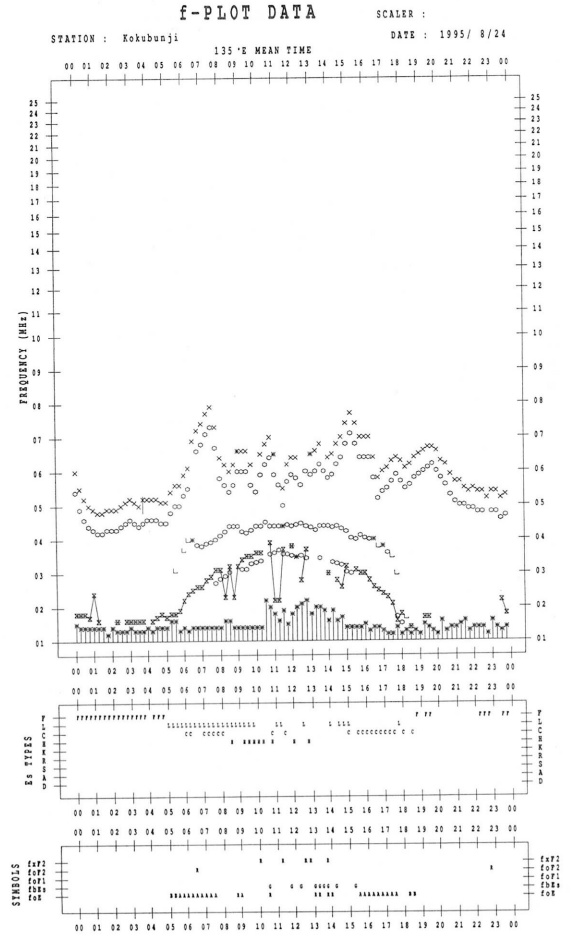
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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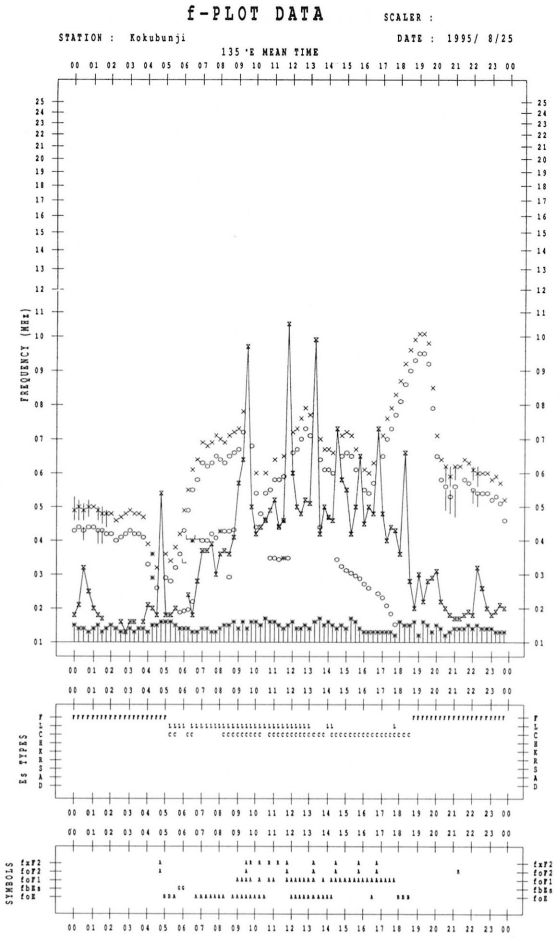
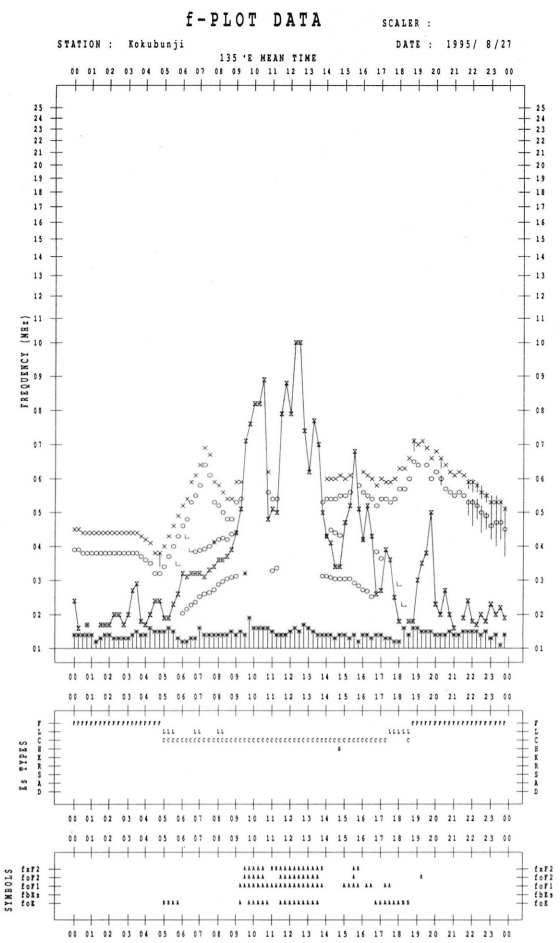
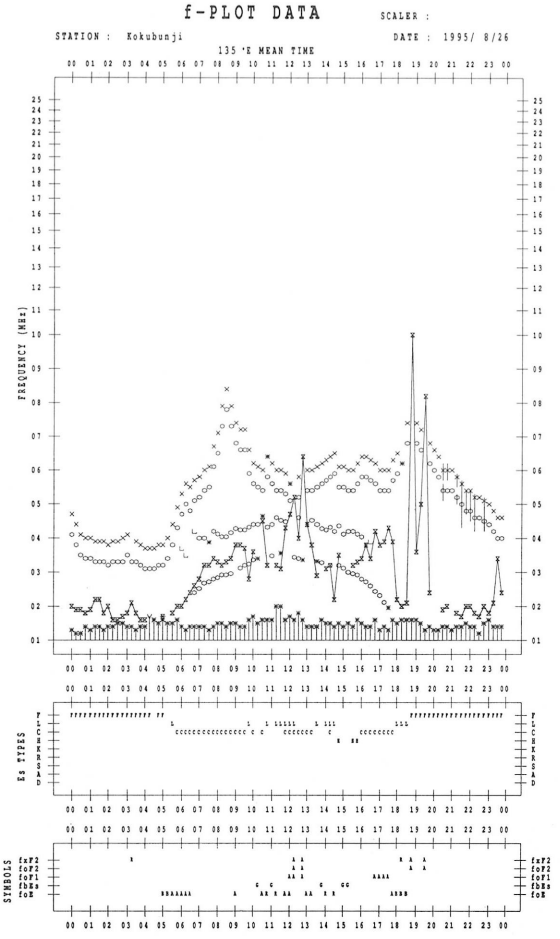
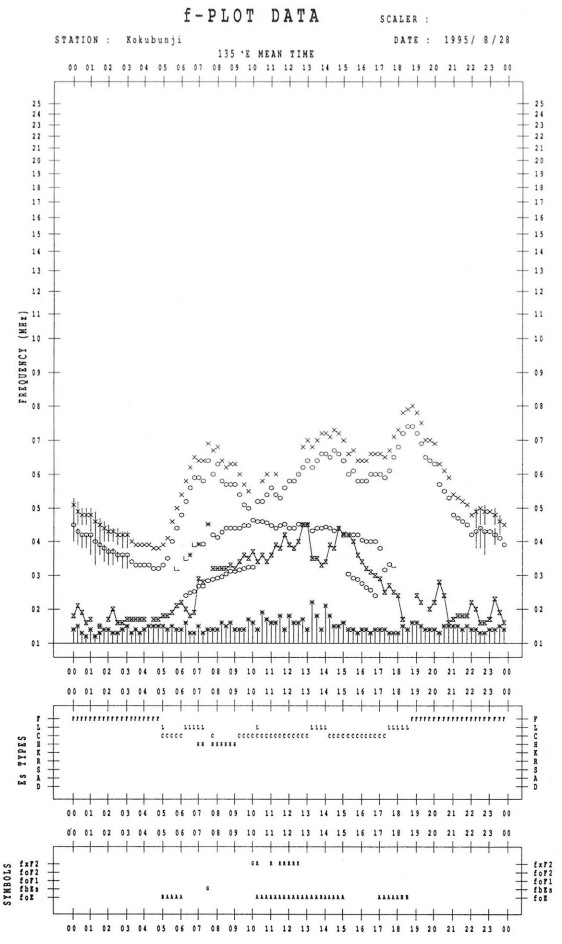
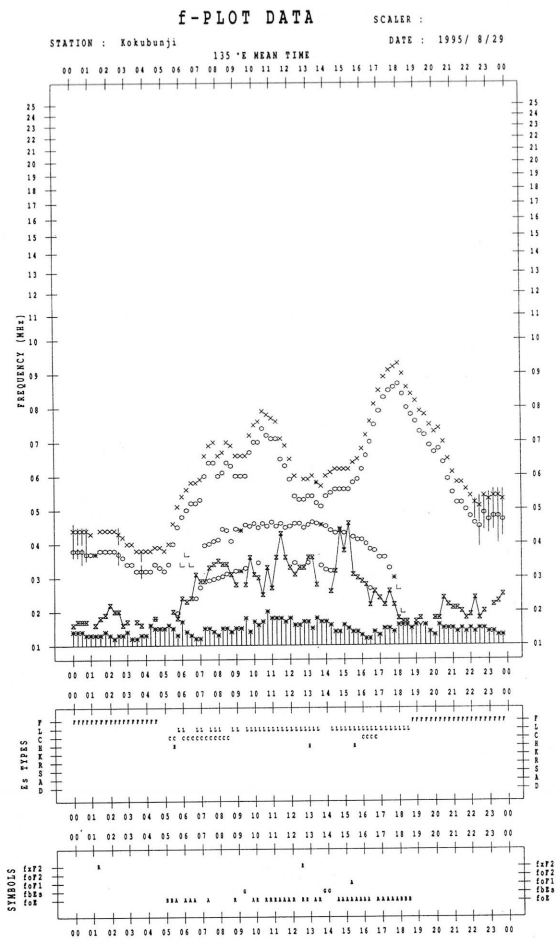
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

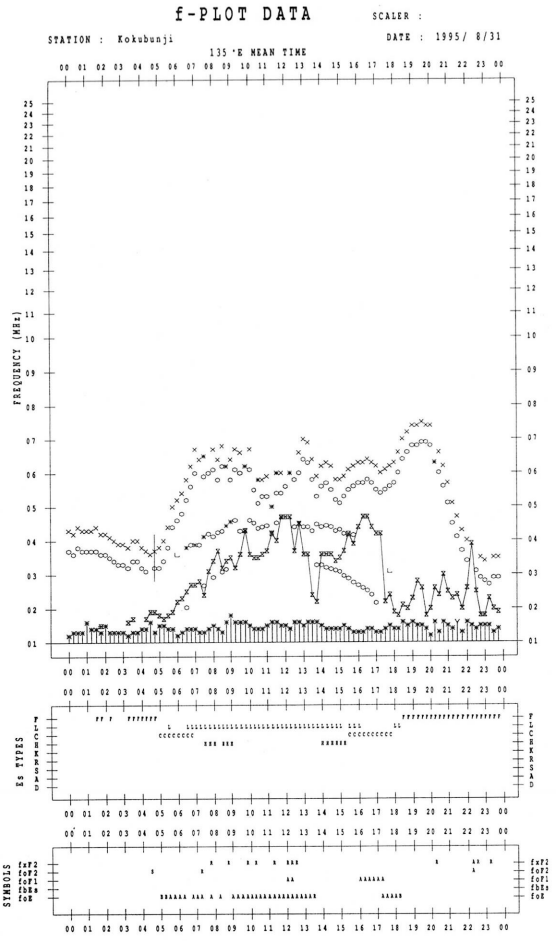

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE
fxF2

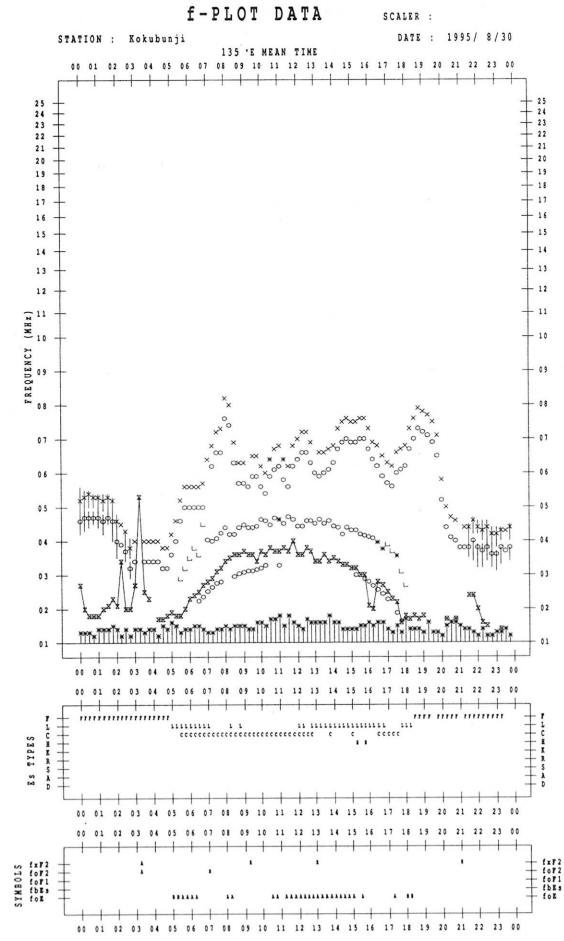

f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE
fxF2


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE
fxF2


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE
fxF2


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER :
STATION : Kokubunji
DATE : 1995/ 8/30
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 August 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	24	24	24	26	24
2	25	25	25	-	25
3	25	24	25	25	25
4	25	25	25	25	25
5	25	24	24	25	25
6	25	24	24	25	25
7	25	24	24	25	25
8	25	24	24	25	25
9	25	25	25	24	25
10	24	25	25	25	25
11	24	24	24	25	24
12	24	24	24	24	24
13	24	24	24	24	24
14	24	24	24	24	24
15	24	23	24	24	24
16	24	23	24	24	24
17	24	24	24	24	24
18	24	24	25	24	24
19	24	24	25	-	24
20	-	-	-	-	-
21	-	-	-	-	-
22	24	25	25	25	25
23	25	24	24	25	24
24	25	25	25	28	25
25	26	25	25	25	26
26	25	24	24	25	25
27	25	25	24	26	25
28	25	25	25	26	25
29	26	25	25	25	26
30	25	25	25	26	25
31	26	25	25	25	25

Note: No observations during the following periods.

2nd 2035-2353 19th 0810-21st 2359 31st 0000-0040

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso August 1995

Single-frequency observations

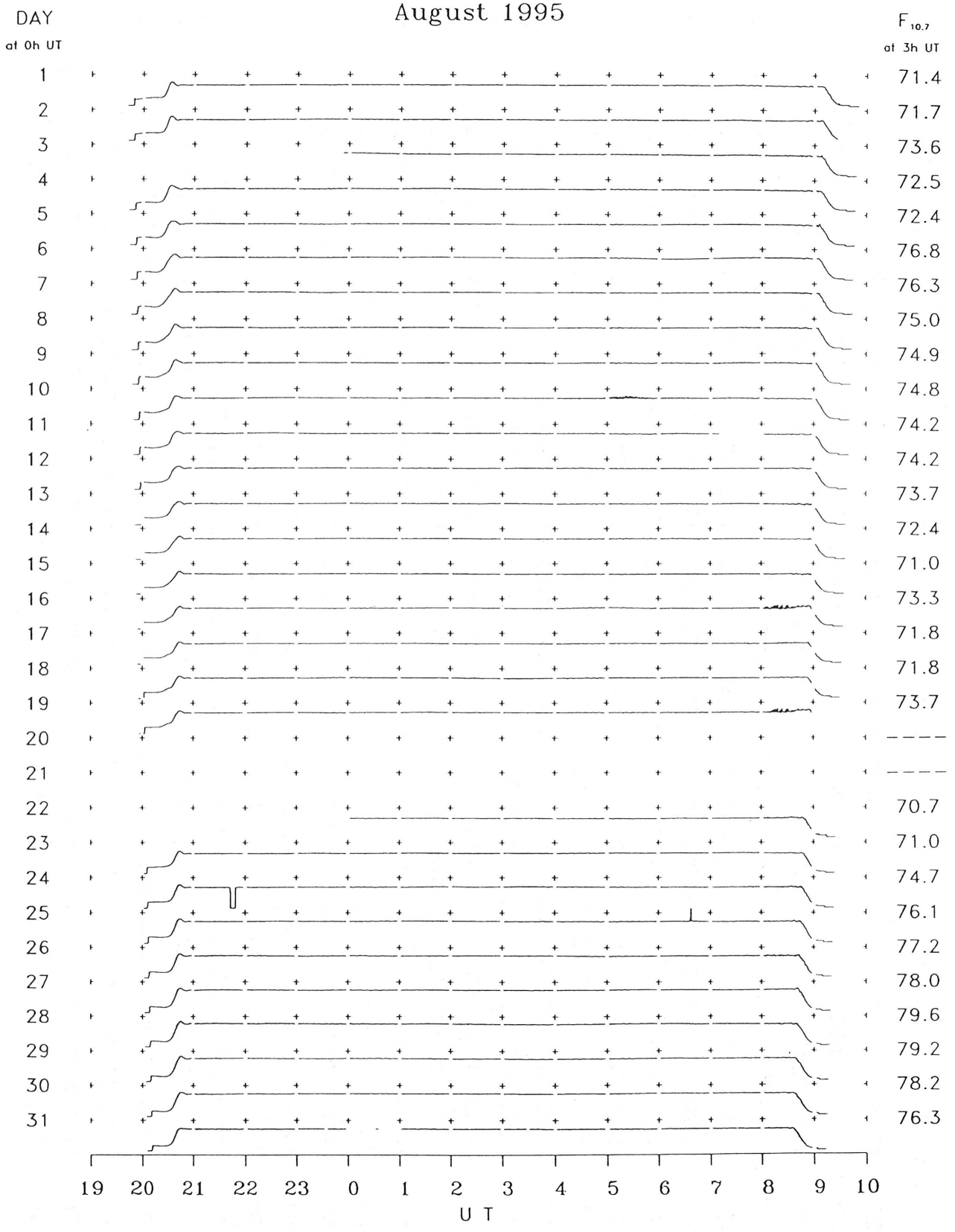
Normal observing period: 1955 - 0935 U.T. (sunrise to sunset)

AUG. 1995	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
13	200	6 S	2338.5	2339.6	1.0	34	15	0
25	500	42 SER	0636.3	0637.3	7.5	66	-	0
	2800	3 S	0637.1	0638.0	2.0	40	33	WR

B. Solar Radio Emission

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

August 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)

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

MEASURED AT HIRAISO

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

C. RADIO PROPAGATION

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

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

C. Radio Propagation

C2. Radio Propagation Quality Figures at Hiraiso

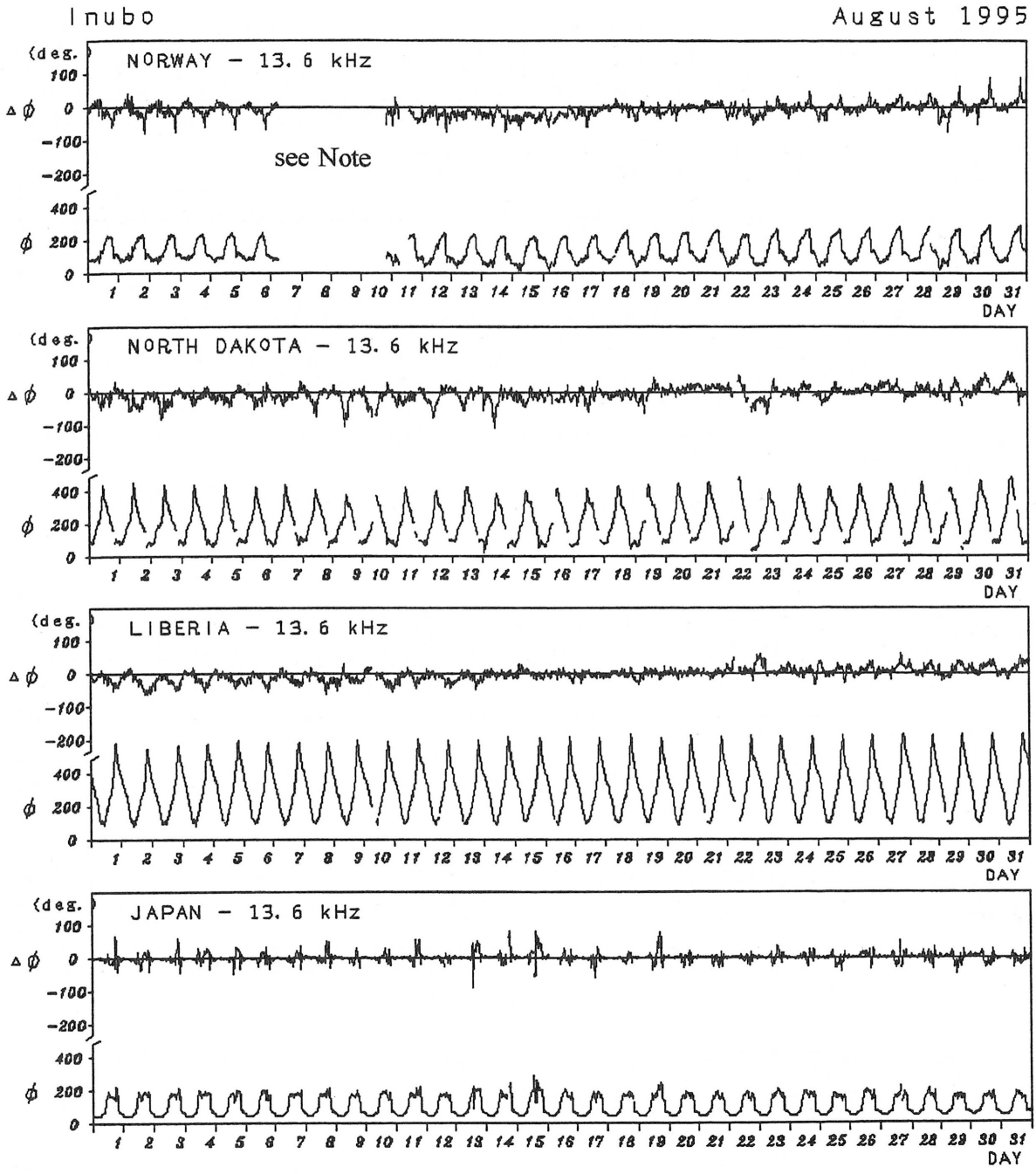
Hiraiso

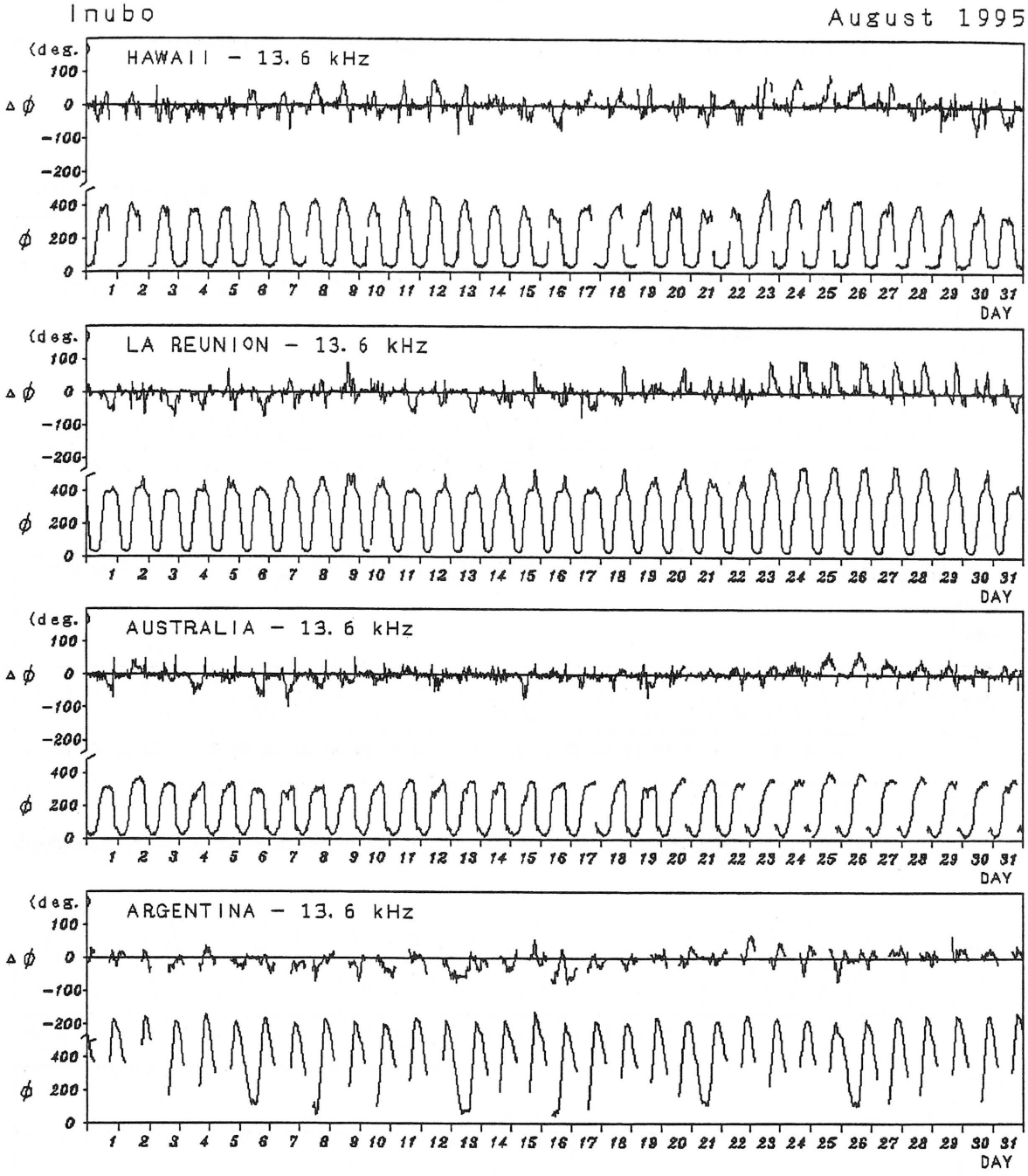
Time in U.T.

AUG. 1995	Whole Day Figure	W W V 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Condition 00 06 12 18 / 06 12 18 24	Principal Geomagnetic Storms Start h m	End h	Range nT
1	4+ U	- - - -	4 4 5U 4	N N N N	None		
2	4o U	- 5U - -	4 3 - 4	N N N N			
3	4+ U	- - - -	4 4 5U 4	N N N N			
4	4+ U	- 5U - -	4 4 5U 4	N N N N			
5	4+ U	- - - -	4 4 5U 4	N N N N			
6	4+ U	5U - 5U -	4 4 - 4	N N N N			
7	4+ U	- 5U - -	4 4 5U 4	N N N N			
8	5- U	5U - - -	4 5 5U 4	N N N N			
9	4+ U	- - - -	4 5 5U 3	N N N N			
10	4+ U	- - - -	4 5 5U 4	N N N N			
11	4- U	- - - -	3 4 - 4	N N N N			
12	4- U	- - - -	3 4 - 4	N N N N			
13	4+ U	- - - -	4 5 - 4	N N N N			
14	4+ U	- 5U - -	4 4 5U 3	N N N N			
15	3- U	- - - -	2 3 - 3U	N U U U			
16	3+ U	- - - -	4 3U - 3	U U U U			
17	4o U	- 5U - -	4 4 - 3	U U U U			
18	3+ U	- - - -	3 3U - 4	U N N N			
19	4o U	- - - -	4 3 5U 4	N N N N			
20	4o U	- - - -	4 4 - 4	N N N N			
21	4+ U	- 5U - -	4 4 - 4	N N N N			
22	4- U	- - - 5U	4 2U - 4	N N N N			
23	4+ U	5U - - -	4 3 5U 4	N N N N			
24	4- U	- - - -	4 3 - 4	N N N N			
25	4o U	5U - - -	4 4 - 3	N N N N			
26	4o U	5U - - 5U	4 3U - 3	N N N N			
27	4- U	- - - -	4 3 - 4	N N N N			
28	3o U	- - - -	4 3 - 2U	N N N N			
29	4o U	- - - -	4 5 - 3	N N N N			
30	4- U	- - - -	4 3 - 4	N N N N			
31	4- U	- - - -	4 3U - 4	N N N N			

C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo





Note : As for NORWAY-13.6kHz, no record during 7 August 0700 UT to 11 August 1502 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.

Aug. 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:Colorade(WWV) HA:Hawaii(WWVH) AUS:Australia MOS:Moscow BBC:London

* Optical and X-ray Flares

(b) Sudden Phase Anomaly (SPA) at Inubo

Inubo

Aug. 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
24				7			0318	0342	0330
25			4				0639	0651	0642

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