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IONOSPHERIC DATA IN JAPAN

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CONTENTS

《 Real time Ionograms on the Web ..... *http://wdc-c2.crl.go.jp/index_eng.html* 》

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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, Independent Administrative Institution in 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°40.5'N	128°09.2'E	16.5°N	161.7°	Vertical Sounding	(I)
Hiraiso	36°22.0'N	140°37.5'E	26.3°N	206.8°	Solar Radio Emission	(S)
Inubo	35°42.2'N	140°51.5'E	25.6°N	207.0°	Radio Receiving	(P)

A. IONOSPHERE

Ionospheric 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. 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*).

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 descriptive letter 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 Hand-book 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 spred ***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 transmission by ***F2*** and ***F1*** layers, respectively
h'F2 ***h'F*** ***h'E*** ***h'Es***	Minimum virtual height on the ordinary wave for the ***F2***, whole ***F***, ***E*** and ***Es*** layers, respectively
Types of ***Es***	See below b. (iii)

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

G Measurement influenced by, 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.

X 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 part *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 normal *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 three parabolic antennas, one with 10-meter diameter for 200 MHz Measurement, one with 6-meter diameter for 500 MHz measurements and one with 2-meter diameter for 2800 MHz measurements, each being equipped with a pair of crossed doublet antennas as a primary radiator, and three appropriate receivers. Each pair of the crossed doublet antennas is used as a polarimeter. 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 for 500 MHz measurements. The intensities are expressed by the flux density in 10^{-22} Wm^{-2} Hz^{-1} unit.

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

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 F10.7 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.

The following symbols are used in the $F_{10.7}$ index:

*	Measurement made not at 3h U.T..
B	Measurement affected by bursts.

C. RADIO PROPAGATION

C1. 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.

C2. 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	/N	13.6	10	7820
Liberia	06°18'N	010°40'W	/L	13.6	10	14480
Hawaii	21°24'N	157°50'W	/H	13.6	10	6100
North Dakota	46°22'N	098°20'W	/ND	13.6	10	9140
La Reunion	20°58'S	055°17'E	/LR	13.6	10	10970
Argentina	43°03'S	065°11'W	/AR	13.6	10	17640
Australia	38°29'S	146°56'E	/AU	13.6	10	8270
Japan	34°37'N	129°27'E	/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

JUL. 2001

LAT. 45°23.5'N LON. 141°41.2'E 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	68	81	70	70	92	96	94	83	96	86	80	82	80	84	82	86	82	81			A	115	95	
2	68	73	74	72	69	74	94	81	A		63	75	81		81	82	81	83	77		A		80	
3	68	72	73	71	70	72	94		75	72	76		74	83	83		81	90		A		95	79	94
4	94	73	70	66	66		68	82	80	68		71		67	82	78	73	80		84	80		93	94
5	93	82	69	64	66	80	94	91		83	78	76	74	68	77	82	80	84	86	90	70	83	95	94
6	82	70	92	66	62	73	A	A	78	78	74	A	74	74	74		67			100	84		77	78
7	68	70	61	67	64		95	78	72		65		74	66	73	73	64	69		87	75	95	94	94
8	95	70	70	71	71	76	94	96	82	83	82	66	70	87	76	77	66	72	73	92		87	93	79
9	68	69	69	66	66	66	94	95	77		A		67		70	68	67		A		71	95	84	
10	70	71	67	62	63	79	93	94			70		86		81	86	69					93	93	
11			72		55	69			74		A		69			61	63	68		82	92	92	95	66
12	94	72	74	68	72	95	94	93	95	88		79	81		68	80		63				95	81	72
13	72	70	66	62	60		71		A		A	A	A				63	62	71	68	69	71		70
14	64	69	69	68	68	68	72			68			A	A	59		68						77	72
15	A		65	61	68	94	70	81	79	77			78	81	72	73	A	73	58	90	82	82		70
16	72	76		69	66		68		A		A						61	75	84		68	82	71	68
17	69	70	56	58	54			64		A				A			A		A	99		68	54	67
18		69	68	57	57	54		61	A		A	A		59			62			A	73	55	70	63
19	61	68	69	58	60	68	70	64	66	58			A	A	62	64		63		82	69		55	69
20	68	68	61		53	61		64	87	81	63		62		69		68	64	70		91	93	79	
21	69	62		68	59	63	69	80	61	63	66						59	67	63	70	70	76		
22	70	69	63	68	61		95	68				A				52		66	64	84	80		57	67
23	64	58	64	60	51	40	58	68	66	A		A						59	82	66	74	65	67	73
24	68	57	68	74	67	70	72	74	74	75	75	74	73	82	72	75	73	70	74	81	69	78	74	68
25	70	67	68	57	57	60	61	68	A	A	A	A						70			74	93	72	68
26	73	67	63	61	62	56									68	68	64	57	63					
27	61	61	60	60	60	59	73	81	83	80	A					67	64	65	67	84	77	78	82	80
28		70	68	68	68	57	58	68	68			A			69	75	69	72		65	69		94	95
29	69	71	70	68	70	69	70	70	80	A		72		64	A				63		71	66	95	
30		60	68	61	61	71		73	81	A		A					80	80		72	94	74	A	
31		68	67	56	52	69		76	79	A		A	A	74		81	A	79	87		68		76	
	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	29	29	29	31	25	23	24	20	14	11	8	14	12	18	18	22	24	15	17	22	22	26	21
MED	69	70	68	66	63	69	72	77	78	78	74	74	74	74	72	75	68	70	71	84	74	82	80	72
U Q	72	71	70	68	68	75	94	82	81	83	78	77	80	82	81	81	73	79	82	90	80	93	93	87
L Q	68	67	64	60	59	60	69	68	73	68	65	71	70	66	69	68	64	64	63	71	69	74	72	68

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Wakkanai

JUL. 2001

LAT. 45°23.5'N LON. 141°41.2'E 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	26	G	G	31	50	66	60	50	50	G	62	G	50	64	76	55	77	115	72	69	48	44
2	26	33	28	26	G	G	44	63	112	80	63	G	47	76	70	62	70	66		110	122		80	60
3	43	G		25	31	G	49	56	60	56	51	52	53	81	63	64		77	67	97	107	73	68	54
4	28	28	G	G	32		42	49	72	62	72	46	46	45	G	58	41	44		34	34		52	32
5	42	G	G	G	G	38	51	56		50	G	G	G	46	G	45	60	73		61	41	46		46
6	43	40	28	G	G	31	68	85	64	56	70	112	84	72	64	77	48		110	79	62	76	44	43
7	G	82	50	44		39	64	64	66	74	60	51	56	47	57	55	G	G		32	G	G	G	G
8	G	G	G	G	G	G	G	44	G	G	G	47	G	G	G	G	G	G	40	46	86	80		41
9	40	G	G	G	G	44	51	70	65	87	106	77	58	G	G	G	53	74	81		39		41	
10	G	28	38	33	G	G	52	63	90	97	76	63	60	87	85	45	111	109	82	115	86	72	51	88
11		76	41		39	55	86	98	56	101	98	G	65	73	58	50	41	51	70	57	48	26	50	42
12	70	45	G	32	30	G	51	45	66	61	83	60	61	74	G	45	74	61				78	71	50
13	71	30	25	31	29	41	44	58	84	105	108		117	G	66	60	49	45	34	54	45	52		29
14	40	32	45	44	30	G	G			G	74	107	116	83	62	77	58	69	77	82	90		58	71
15	76	47	38	27	G		66	64	51	51	52	59	G	64	58	64	98	61	73	38	66	77	75	60
16	65	44	46	72	50	63	69		83		84	65	76	63	G	57	50	50	52		48		47	48
17	62	34	84	40	39	60	68	51	61	98	G	58	G	60	G	98	80	158	72	114	72	33	73	50
18		28	G	29	G	40	60	50	88	44	61	64	G	G		65	42	61	111	96	50	47	40	41
19	45	82		47	39	G	44	48	G	G	G	G	76	97	45	108	61	120		86	32	58	65	49
20	38	26	G		G	G		60	63		G	G	G		61	65	107	51	76		39	59		44
21	27	27		G	30	37	50	46	53	52	54	48	G	45	G	G	G	48	47	47	32	G	28	
22	G	G	G	G	G		52	62	68	64	G	61	G	48	G	G		G	G	30	42	32	32	26
23	43	32	44	44	32	37	47	58	58	82	G	74	58	45	G	G	61	45	50	49	G	G	G	G
24	27	26	28	26	G	G	G	70	74	64	G	G	G	G	G	46	44	44	40	34	34			44
25	40	27	G	G	G	35	44	51	96	98	98	84	G	G	45	72	82	49	79		44	40	G	G
26	G	32	49	41	32	37	60	57	62	70	68	G	65	60	G	G	47	39	57	73	72	68	64	
27	51	33	45	33	29	G	44	56	73	124	98	59	59	131	68	50	45	G	50	61	71	48	60	47
28	33	47	G	G	G	G		G	60		76	88	63	50	G	42	58	59	79	86	31		50	47
29	29	54	33	40	44	G	36	60	148	100	74	59	79	49			110	85	60	156	69		50	G
30	82	59	74	62	61	51	81	79	86	90	77	92	79	76	80	74	64	60		73	68	74	108	99
31		61	33	G	G	G	42	54	75	88	81	78	80	71	75	49	117	61		41	32		60	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	31	29	29	30	28	29	29	29	29	31	30	31	30	29	29	30	30	23	26	30	22	26	27
MED	40	32	28	29	G	33	51	58	66	64	68	59	59	55	45	55	59	57	72	67	48	55	50	44
U Q	48	47	44	40	32	40	62	64	83	93	81	74	76	73	64	65	77	67	79	96	72	72	64	50
L Q	26	26	G	G	G	G	44	50	59	50	G	G	G	45	G	43	45	45	50	46	34	33	41	29

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Wakkanai

JUL. 2001

LAT. 45°23.5'N LON. 141°41.2'E 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	20	16	18	18	20	20	16	18	20	21	22	21	22	24	20	20	20	17	15	14	16	17	16	16
2	16	16	16	16	20	20	18	20	20	20	22	34	24	22	21	21	20	16	16	15	15		17	15
3	16	18	15	16	22	20	16	18	18	20	23		22	21	20	20	15	16	16	16	16	15	17	16
4	16	17	20	15	17		16	18	20	20	23	33	34	34	30	24	18	17		15	15		17	15
5	17	20	18	21	22	21	15	17		21	22		23		21	20	20	17	18	15	18	16	16	18
6	15	16	17	18	21	21	17	18	20	22	35	20	23	33	20	20	21	17	15	15	16	17	15	15
7	20	15	15	15	20	16	16	18	20	22	22		32	22	21	20	17	17		15	16	20	18	17
8	20	17	16	17	20	26	17	17	20	20	20	35	34		22	20	18	20	16	15	15	15	16	15
9	16	18	17	15	17	17	16	18	21	20	24	24	21	30	21	21	18	16	16		15	16	15	
10	16	15	17	15	20	21	16	18	20	20		34	21	24	24	20	21	17	15	14	15	16	15	15
11		14	16		15	20	15	17	21	20	22	21	21	21	21	20	20	18	15	14	15	18	18	15
12	15	16	17	16	16	17	18	20	18	21	21	36	38	22	22	18	17	16			18	17	15	15
13	16	16	18	17	18	17	15	18	20	21		36	35	26	21	22	20	15	15	15	20	15		17
14	16	15	18	16	15	23	16			20	22	22	21	23	30	20	18	17	15	15	20		16	15
15	17	18	16	20	21	21	16	20	20	21	23	21	22	24		21	29	18	15	15	15	15	15	15
16	15	15	16	15	17	17	15	17	17	18	21	22	23	24	21	20	18	17	18	15	15	15	15	15
17	15	15	17	17	16	20	15	20	20	21	21	20	21		20	20	17	17	15	15	16	16	17	16
18		18	18	16	17	17	17	18	20	20		22	22	23	21	18	17	18	17	15	18	15	16	15
19	15	16	17	18	16	20	20	21	20	22	21	24	24	27	20	18	20	20		15	17	16	16	15
20	15	15	17		20	23	17	18	21	21	26	24	22		23	18	18	18	15		15	16	20	15
21	20	17		20	18	17	16	16	20	21	20	21	21	27	20	18	18	16	16	14	16	17	18	
22	20	21	20	18	18		17	17	18	20	22	21	21	21	22	20		17	15	15	17	16	16	17
23	17	16	15	15	16	17	16	20	21	18	20	22	23	21	23	18	18	16	20	16	16	18	18	18
24	18	16	16	20	17	23	17	18	20	20		34	22		22	21	17	17	16	15	17	17	18	15
25	15	18	16	18	20	17	16	16	18	21		21	20	21	21	21	17	17	17	14	20	15	20	15
26	16	16	17	16	16	20	17	16	20	20	22	22	22	22	22	21	20	15	15	15	15	18	17	
27	15	16	16	16	18	23	15	20	18	20	22	27	21	20	21	20	16	16	15	14	18	16	15	16
28	15	16	16	17	21	26	17	17	18	20	21	26	23	22	20	20	15	15	16	15	18	21	17	16
29	18	17	17	18	17	23	15	18	17	18	21	21	24	21	21		17	16	16	14	17	16	16	18
30	16	15	15	16	16	18	16	18	18	20	21	21	26	22	20	22	18	17		15	15	15	20	16
31	15	17	15	18	20	22	16	16	20	22	21	24	21	21	29	20	20	17	15	14	17		15	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	29	31	30	29	31	29	31	30	29	31	26	28	31	26	30	30	30	31	26	28	31	27	30	28
MED	16	16	17	17	18	20	16	18	20	20	22	22	22	22	21	20	18	17	16	15	16	16	16	15
U Q	17	17	17	18	20	22	17	18	20	21	22	30	24	24	22	21	20	17	16	15	18	17	18	16
L Q	15	15	16	16	16	17	16	17	18	20	21	21	21	21	20	20	17	16	15	14	15	15	15	15

HOURLY VALUES OF foF2 AT Kokubunji

JUL. 2001

LAT. 35°42.4'N LON. 139°29.3'E 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	92	89	84	81	84	94	101	115		69			97	94	106	104	115	102	97	94	95	94	86	94
2	93	94	95	72	72		93	94	76	A	75		85	90	87	99	102	92	87	84		83		93
3	94	94	81	73	69		104	116	106		A	A	96	97	100		103	98	92	94	92	78	77	69
4	90	94	95	69	73		94	84	A								C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C			C	84	81	72						
7				66	64	94	93		A	A	A	A	A	96	81	88	84	84	83	85	93	95		
8	95	68	72	68	68		93	100	114		77	67		86	93	87	86	86	95	104	91	94	77	
9	82		71	63		71	94	96	115		A	A	A	A		96	92	81	A	A	80			
10			69	66	67		94		74					85		90	87	97	97	94	87	95	84	87
11	88	94	92	81	82	78	73	A	87	A	82	A	86	80	78	C	C	78	76		77			95
12	70	71	69	68	66	72	94	83	93	82	A	80				85	92	86	92		95	94	95	76
13	68	74		60	76		65	65				A		A	65	68	66	71		92	59		56	65
14	71		68	61			63	80		68	77		81			72	78		115	83	81	C	C	
15	94	78	69	76		72		93	90	83			81	90	83	A	82	84	82	A	84	77	74	92
16	70		62	64	66	59	63		A		A	A	A	A	A		73	76			66	66	A	
17	69	68	68	67	67	69	70	57		A	A	A	A			A				67	A	61	68	67
18		65	64	62	57	69	79		92					90	84	74	73	80	96			72	70	68
19		70	69	61	57	73	68	82	82	76	81				91	93	84	86	82	91	73		94	80
20	93	70		67	59	59	69		83	59			82	83	84	81	81	72	73	93	93	80		69
21	69	73	69	59	70	82			79						74	76	73							70
22	59	59	57	57	57		82	68		A		A	A				73	77	83	94	94	68	68	A
23	57	59	58	58		54		81	95	58							65				74		72	62
24	70	59	69	63		84	94	93		72				85	91	96	92	92		94	93	93		72
25			69	67	66	59	A		A	A	A	A		A	A	A	64		99	86		74	67	80
26	A	63	64	59						A	A	A	A		83	81	68	58		58	59	60	59	
27	59	59		59	59	59	69	92	94			67		78		77	83	91	83		95	69		69
28	94			68	70	73	80			72	81			73	83	101	102	101	93	94	73	93	83	
29			61	58	55	59	67	84	91	A	A		78	75	77	79	84	84	93	91	81	80	76	
30	68				57	63	67	91	92	101	82	74							98	97	93	92	94	
31	49	A	57	51		75	93	104			A	A	83			96	102	91	100	95	70		69	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	22	19	23	28	22	20	24	19	16	10	7	4	9	14	16	20	26	23	20	19	23	20	18	18
MED	70	70	69	65	66	72	81	91	92	72	81	70	83	86	84	86	84	84	92	93	84	80	75	71
U Q	93	89	72	68	70	76	94	96	94	82	82	77	91	90	91	96	92	92	97	94	93	93	84	87
L Q	68	63	64	59	59	59	68	81	82	68	77	67	81	80	79	78	73	77	83	85	73	70	68	69

HOURLY VALUES OF fEs AT Kokubunji

JUL. 2001

LAT. 35°42.4'N LON. 139°29.3'E 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	94	63	44	31	26	27	47	80	131	84	107	123	58	G	48	G	G	38	43	33	39	39	70	70
2	43	24	33	40	63	73	60	73	56	127	56	50	59	65	56	55	57	49	41	54	34	27	63	98
3	65	70	79	41	37	29	G	52	58	101		163	G	G	G		G	46	39	41	31	70	56	60
4	58	38	40	39	26	31	40	67	119								C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C			C	G	47	130		126	107	116	68	
7		68	72	50	33		62		119	119	98	142	109	66	61	52	57	46	35	29	24	48		71
8	50	41	23	G	G	34	51	82	87	84	59	55	94	60	53	G	G	G	36	31	29	33	40	
9	64	82	48	40		34	40	60	72	107	144	166	156	76		G	51	73	82	131	110	99	97	66
10	82		33	G	23	G	G	45	53	G		G	G	G		G	G	53	77	G	26	52	40	52
11	53	62	54	33	32	32	52	100	57	133	178	124	90	53	G	C	C	53	56	33	60			45
12	37	34	33	31	31	G	G	45	46	G	80	55	54	64		G	57	64	57	55	59	86	56	60
13	49	57	58	55	51	32	59	70	60	91	52	70	89	79	70	45	55	52	43	41	42	40	57	61
14	60	62	53	40		31	G	62	60	56	51		G	54	G	G	62	74	57	33	33	C	C	
15	26	G	G	G	G	41		52	G	54		60	G	G	62	80	68	52	62	93	74	64	80	90
16	64	64	36	35	G	29	35	54	131		84	130	59	58	54		62	92	72	62		71	71	
17	39	36	35	42	34	G	60	44	50	69	117	54	76			98	106	118	116	55	117	42	53	40
18		34	38	37	38	29	72	124	107		52		G	G	G	G	54	52	58	G	G	G	G	G
19	G	G	23	23	G	31	G	G	G	55	G			G	G	G	G	G	G	G	33		37	G
20	29	35		G	G	G	35	55	78	G	70		59	G	61	49	60	57	56	40	29	39	62	40
21	55	65	34	35	59	38	54	96	84	68		57	53	73	51	G	55	70	86	65		60	65	23
22	G	G	G	G	G	G	G	G	68	94	59	61	82	53	61	57	89	61	47	41	34	45	63	91
23	43	57	48	45		56		65	70	67	55			53	57	53	60	76	102	48	36	59	44	34
24	36	30	62	39	58	37	41	64	86	62	68	61	77	69	55	54	55	76	133	107		63	58	56
25			63	58	49	38	89	124		169	92	170	85	101	68	51	G	84	76	43		54	57	86
26		38	43	60	84	55	62	71	60	67	71	63	110	152	72	G	G	36	62	50	53	63	33	
27	116	91	90	55	36	40	G	43	59		81	54	70	59	87	53	49	41	34	33	29	51	118	73
28	70	40	75	41	31	31	70	82	63	107	116	113	73	61	59	58	60	G	43	51	68	39	33	65
29	42	34	30	29	41	51	48	53	51	117		86	70	G	G	53	52	53	51	51	31	61	69	
30	28	116	82		72	45	G	47	49	57	62	61	92	133	106	126			42	34	30	51	44	
31	73	84	54	93		33	42	82	138	132	116	125		133	84	70	G	45	61	59	72		62	40
	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	27	28	28	25	28	27	28	28	25	23	23	25	27	24	26	27	28	28	29	25	25	26	22
MED	50	41	44	39	33	32	42	63	62	84	71	63	70	59	56	50	55	53	56	43	34	52	58	60
U Q	64	65	60	43	50	39	60	81	86	112	107	125	89	73	65	55	60	73	74	57	64	63	68	71
L Q	36	34	33	30	12	29	G	49	54	56	56	55	53	G	24	G	G	45	42	33	29	39	44	40

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

JUL. 2001

LAT. 35°42.4'N LON. 139°29.3'E 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	14	15	15	17	22	18	31	29	30	22		20	14	13	15	14	13	13	14
2	13	14	14	13	14	14	13	14	18		43	43	42	44	43	42	17	13	13	14	14	14	14	14
3	14	13	13	14	13	13	15	15	15	20	34	29	31		18		15	15	14	13	14	13	14	13
4	13	13	14	13	13	14	14	14	23	49							C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C		34	C		18	14		14	13	14	13	
7		13	14	14	14	14	13	14	15	24		42	37	38	36	21	15	15	14	13	15	13		14
8	13	13	14	14	13	14	15	14	18		36	21	34	29	28	22	17	15	15	14	14	13	13	
9	14	14	13	13		14	14	15	21	39	42	42	39	40		24	20	14	14	13	14	15	13	14
10	14		14	14	14	17	14	14	17	17		63	63	59		22	20	14	14	13	13	13	13	14
11	14	14	14	13	13	13	13	13	14	20	26		42	35	31	C	C	14	14	13	13	13		13
12	13	14	13	13	14	21	14	14	24		31	35	42	42		22		18	15	14	13	14	14	13
13	14	13	13	13	14	14	13	13	17		38	39	42	39	34	23	20	17	14	13	13	14	14	13
14	14	13	14	13		14	13	14	14	17	21		59		24	20	20	15	14	14	13	C	C	
15	14	15	17	14	14	14		17	18			43		59		42	40	17	13	13	13	14	13	13
16	13	14	14	14	13	14	13	15	15		37	18		35	33		18	14	13	14	14	13	13	
17	14	14	13	14	13	18	15	18	22		33	43	43			30	21	13	13	14	13	13	13	13
18	14	14	13	13	13	14	14	17	15		39		62	62	62	36	18	15	14	21	13	14	15	13
19	14	13	14	13	14	14	14	14	21	26				26		18	18	14	15	14	14	14	13	15
20	14	13		14	14	17	13	18	20		24		33			18	17	15	13	13	13	14	13	14
21	14	14	13	14	13	14	14	15	17	38		36	36	35	25		25	14	17	13		14	13	14
22	13	14	13	14	14	20	14	14	23	18	26	44	42	38	33	40	35	15	14	13	13	14	13	14
23	13	14	13	13		14		15	17	21	30			24	20	21	15	13	13	14	14	14	13	14
24	14	13	13	13	13	14	13	14	18		39	37	37	34	24	20	15	15	13	13	13	13	13	14
25			13	13	13	15	14	14	18	18	18	21		34	20	13	17	15	14	14		14	14	13
26	13	13	13	13	13	13	15	15	15	24	39	38	37	37	37	22		15	13	13	15	13	13	
27	13	13	14	14	13	14	14	17	18	22	20		24	33	18	21	14	13	15	14	13	13	13	13
28	13	13	13	13	13	14	14	15	18	21	18	36	43	35	37	20	17	14	13	13	14	14	13	13
29	13	13	14	14	14	14	14	15	17	17	31	37	34		29	24	21	14	13	14	14	13	13	
30	14	14	13		14	14	13	18	20	22	24		40	37	35	21		14	14	13	14	14	13	
31	13	13	14	14		13	14	15	17	21		38	39	36	25	21	17	14	14	14	13	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	27	27	28	28	25	29	27	29	29	19	22	20	23	24	21	23	25	29	28	29	27	28	26	22
MED	14	13	14	14	13	14	14	15	18	21	31	38	39	36	29	22	18	14	14	14	13	14	13	14
U Q	14	14	14	14	14	14	14	15	20	24	38	42	42	39	35	24	20	15	14	14	14	14	14	14
L Q	13	13	13	13	13	14	13	14	16	18	24	33	34	34	23	20	17	14	13	13	13	13	13	13

HOURLY VALUES

IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

HOURLY VALUES OF foF2 AT Okinawa

JUL. 2001

LAT. 26°16.9'N LON. 127°48.4'E 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		152		93	93	83	94	94	76	74	82	92	102	101	117	124	124	123	111		93	82	95	91
2	93	85	81	81		82	76		90	94	77	75	92	91	105	117	117	114	92	90	94	95	83	92
3	83	81	75	74	72	72	94	87	70	91	80	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	A	A		111	117		124	A		93	94	86
5	96		116	117	94		93	80	76	74	73	73	86	91		92	112		103	109	115	81	85	86
6		94	94	95	68	69	76	A	77	103	A	89		110	114	104	124	A	110		92			68
7	94	74		76	74	70	80	86	77		69	93	94		110	A	134	147		136	115	114	95	93
8		71	92	95	66	60	67	100	91	78				92	91	95	103	111	125			81	80	
9	94	75	93	95	68	68	81	104	97	89				91	94	115	114	111	107	90	94	81	83	
10	95	80	82	91	69	72	96	93	68		68	73	87	100	95	91	94	91	90		A	A	A	80
11		80		80	71	92	95	93	94	81	92	A		A			118	123	105	99	99	91	88	77
12		93	94	79	71	71	71				73		81	72	78	88	94	101	A	88	91	80	81	77
13		81	81		70	67	58	77	97	91	A	81		91			98		93	90	91	94	93	92
14	98	94		95	62	54	57	70	77	75	77	72	78	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C				74	83	88		93	94		76	75	58	56
17	66	70	68	60	60	58	58	68	68	73	72	74		88	85	93	92	86	77	69	69	67	63	66
18	70	62	67	74	55	51		95	84	78	78	74	91	85		115	125	123	113	86	82	92	81	
19	95	74	76	74	70	62	52	70	94	86	80	78		91	103		106	112	91	78	82	80	75	61
20	72		93	75	38	40	45	67	95	76	85	93	115	95	102	91	113	103	110	111	83	90	94	72
21	68	71	71	68	68	68		99	93	72		90	90	88	92	95		94	126	90	92			
22	95	68	69	71		54	55	72	93	80	75	84	90	115	121	120	95	107	110	120	91	62	67	
23	62	59	61	64	67			84	81	68	74	84		92	94	94	91	A	93		82	72		
24	72	72	72			58	76	75	68	67	74		81	92	91		96	118	110		91		92	85
25		72	84	71	70	70	77	93	80	62		A		73	C	81	73	74	83	83	77			
26	71	72	69	51	51	59	54	73	81	94	81	90	92	98	93	114	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	122	124	88	93	85	80	76
28		69	69	71		95	57	62		77		82	90	114	117	122	123	127	124	132	132	109	120	92
29	114	92	94	92		80	71	83	80	93	80	84	76	88	90		96	106	108	111	95	95		68
30	71	76	94	72	40	37		71	94	94	73	74	90		115	124	132	143	145		120		92	92
31	82	75	70	71	62	56	58	72	95	63	72	92	A			112	131	90	106	124	115	74		94
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	25	23	25	22	25	23	24	25	24	20	20	16	22	20	21	24	22	25	18	24	21	20	20
MED	83	75	81	75	68	68	71	82	81	78	76	83	90	91	94	104	112	111	108	90	92	82	84	82
U Q	95	83	93	92	71	72	81	93	94	91	80	90	92	98	112	116	123	123	118	111	97	93	93	92
L Q	71	71	69	71	62	57	57	71	76	73	73	74	83	88	91	91	95	94	93	88	82	77	80	70

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

JUL. 2001

LAT. 26°16.9'N LON. 127°48.4'E 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		39	34	G	G	G	38	46	88	60	G	G	G	49	G	G	G	51	56		49	46	38	40
2	24	G	G	G	G	29	34	50	49	65	52	G	G	G	G	G	G	G	39	32	38	44	33	G
3	52	45	G	G	32	32	38	44	47	51	G	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C		180		91				134	164		57	39
5	32	26	G	G	28	43	G	39	55	50	56	G	G	G	59	G	58	68	53	56	42	38	70	71
6		41	56	36	37	32	38	55	106	80	93	69	51	G	50	G	52			140	109	97	70	70
7	44	41	35	44	27	37	60	124	82	96	52	81	82	101	97		151			G	G	39	29	30
8	31		34	25	G	G	G	38	49	83	92	92	78	G	58	58	G	81	79	68	94	73	68	61
9	49	33	34	36	G	25	G	42	101		85	65	153	74	G	G	G	G	42	44	32	28	38	43
10	33	36	28	26	G	G	G	G	G	59	50	73	48	G	60	69	80	97	95	84	149	121	96	41
11	28		44	42	37	43	33	45	56	G	61	149		157	128		93	83	36	51	25	28	28	G
12		25	G	G	36	66	G	47	93	81	52	G	58	67	G	48	51	43	108	38	60	48		36
13		44	G	G	G	G	G	G	59		112	64	81	62	80	96	78	96	47	92	72	44	G	G
14	G	G	G	39	G	46	48	44	51	55	62	65	77	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	65	78	81	G	G	G	73	61	50		53	G	G	61
17	28		26	25	G	G	G	37	G	G	G	G	58	G	G	55	G	G	38	34	38	27	G	G
18	27	G	G	G	G	G	G	35	47	G	52	47	67	94	182		75	41	42	32	34	37	24	60
19	G	G	G	44	34	34	35	38	43	58	58	52	82	58	67	54	54	48	58	37	36	44	G	24
20	G	G	G	G	G	G	G	38	44	50	66	G	G	G	80	G	G	47	44	64	59	48	60	40
21	29	29	28	25	22	G	G	40	52	48	74	75	69	58	57	69	95	58	56	94	117	81	88	81
22		41	40	26		G	61	86	44	48	58	G	72	70	66	69	57	64	62	68	60		24	
23	38	33	G	33	G		40	36	G	G	G	66	61	G	84	57	58	97	80	92	35	59	93	70
24	59	66	42			G	G	37	G	G	57	81	G	G	G	G	64	78	71	68	42	39	95	88
25		65	40	40	40	46	41	40	63	75	66	80	82	G	C	47	52	56	45	36	32	96	86	72
26	54	39	32	37	38	44	26	40	44	57	45	57	86	67	57	G	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	52	44	47	44	33	25	26
28	G	G	G	G		G	G	59	G	G	G	G	G	63	73	G	58	52	39	28	66	58	36	60
29	42	47	44	G	G	G	G	G	G	44	50	65	66	G	G	50	70	61	40	57	42	G	67	47
30	37	31	G	G	G	G	31	38	58	70	86	50	G	G	G	G	G	G	44	28	26	36	34	34
31	34	G	27	G	G	G	G	G	45	60	113	87	134	98	124	83	48	64	70	62	61	60	60	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	21	24	27	26	24	26	27	27	27	25	28	27	26	27	25	24	25	24	24	25	27	25	26	26
MED	32	33	27	25	G	G	G	40	49	55	58	65	66	49	58	48	57	57	48	56	44	44	38	40
U Q	43	41	35	36	33	37	38	46	59	67	70	78	81	70	80	63	74	73	66	76	66	59	70	61
L Q	25	G	G	G	G	G	G	37	43	22	50	G	G	G	G	G	G	45	42	35	35	34	25	27

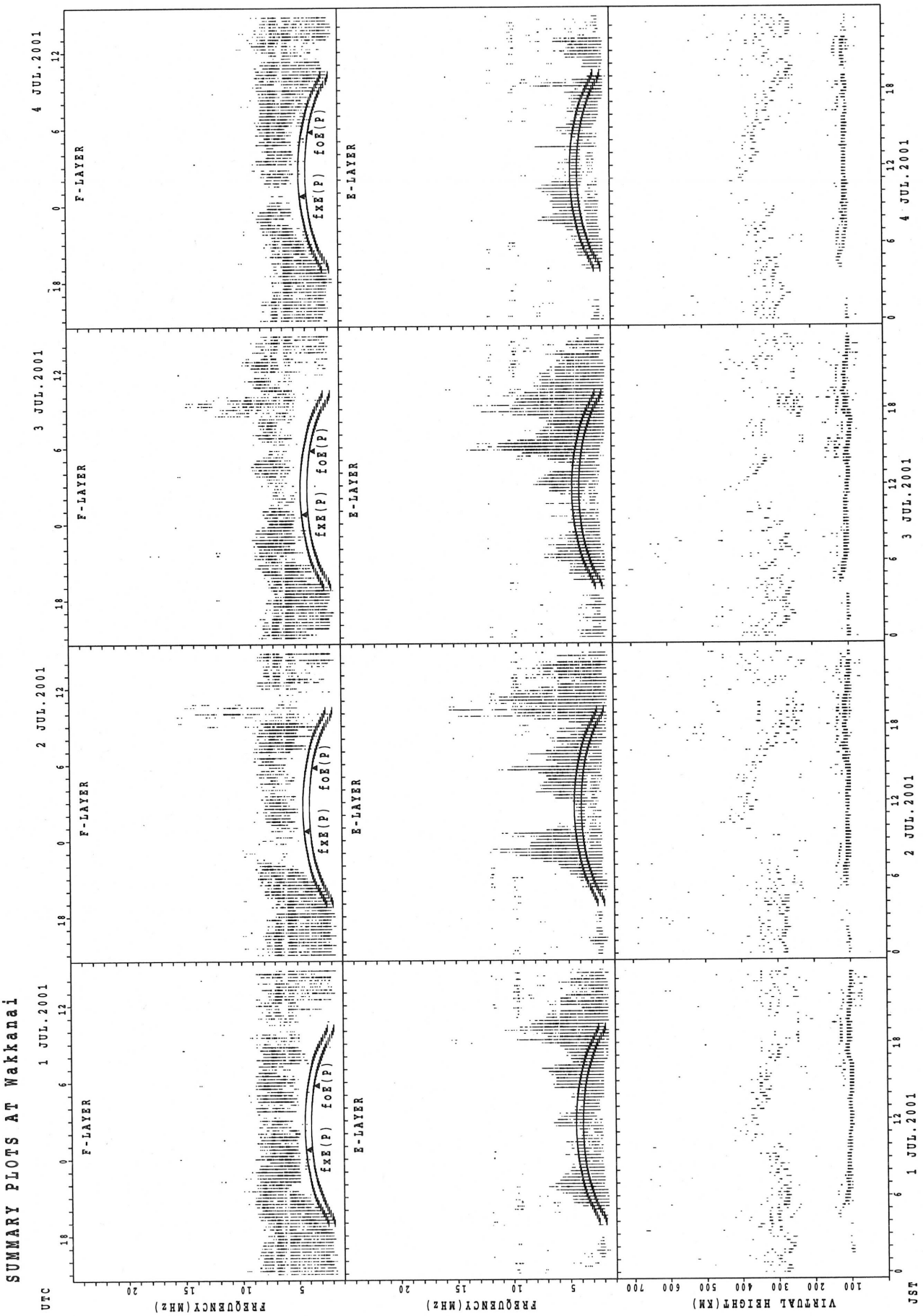
COMMUNICATIONS RESEARCH LABORATORY, JAPAN

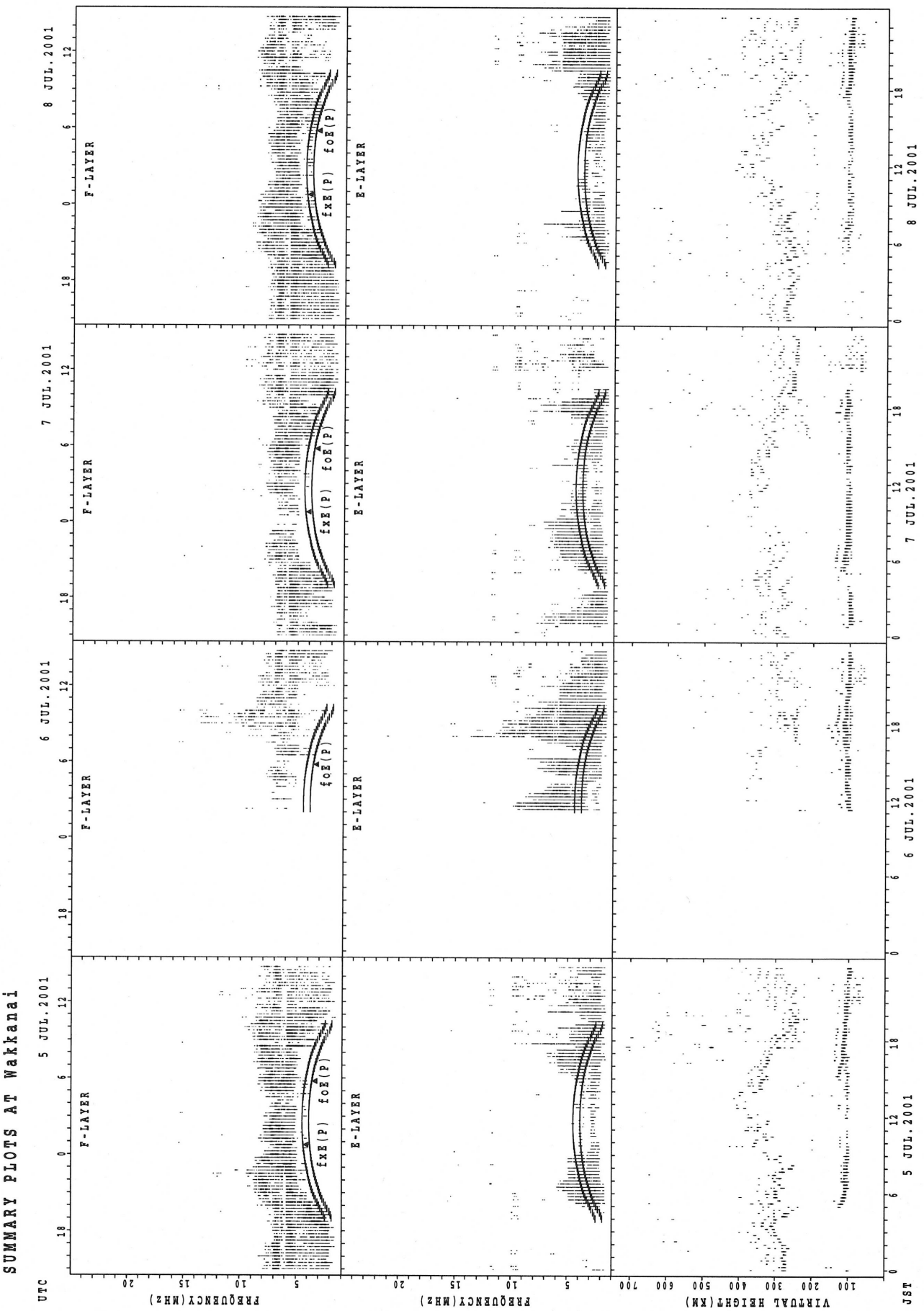
HOURLY VALUES OF fmin AT Okinawa

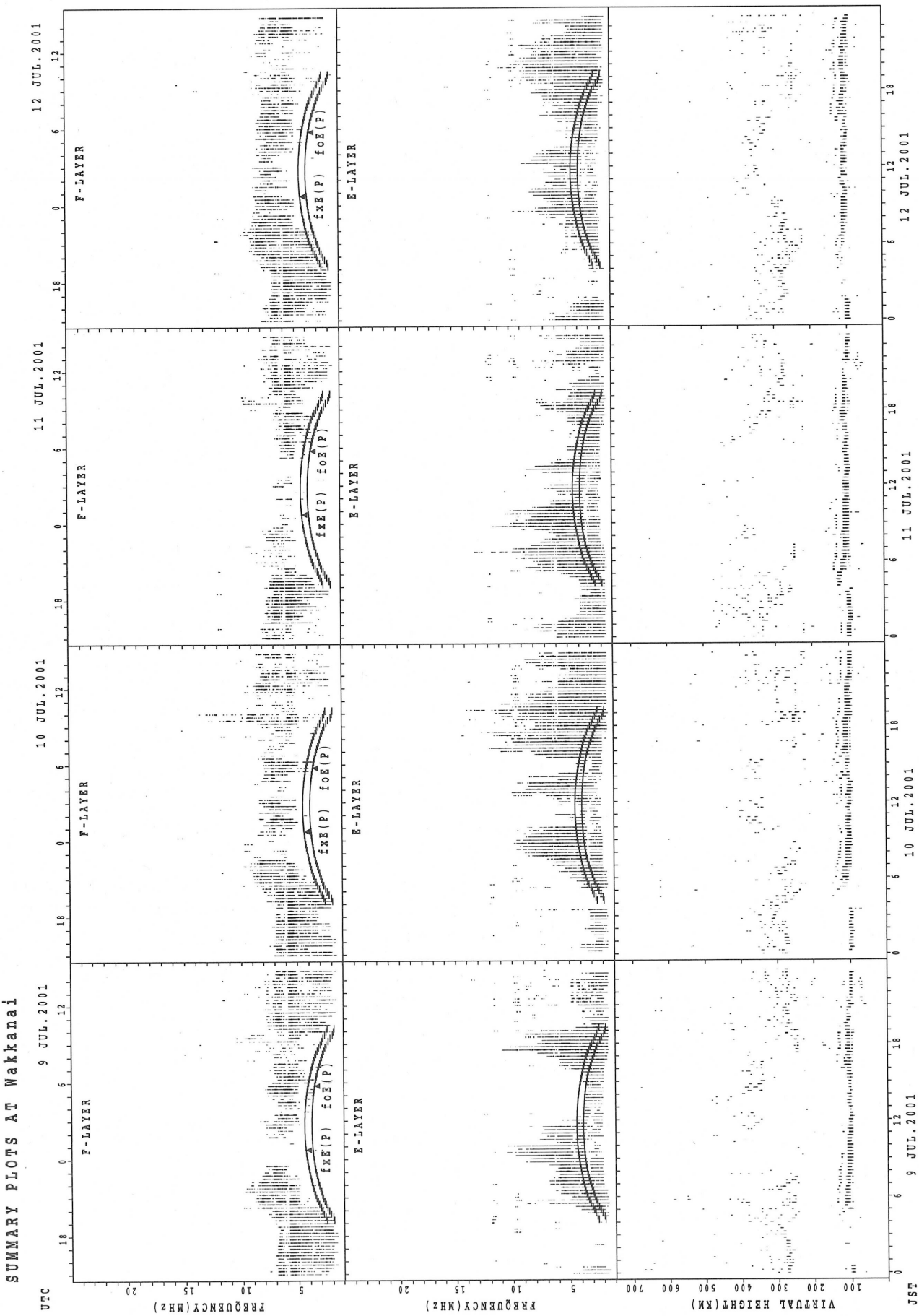
JUL. 2001

LAT. 26°16.9'N LON. 127°48.4'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

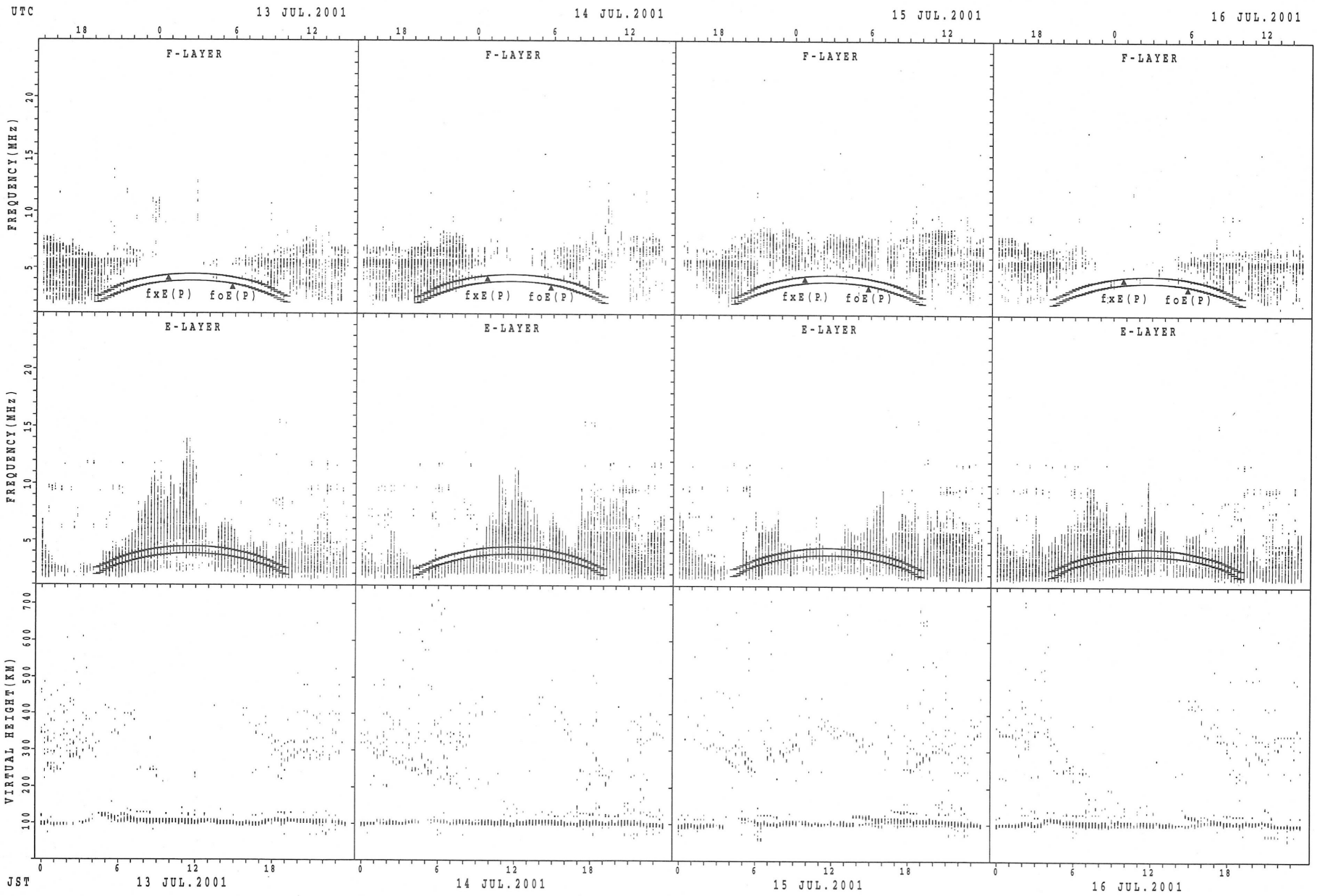
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		14	14	15	16	15	14	14	16		30		56	40	28	28	26	18	16		14	14	15	15
2	15	15	15	14	14	15	15	15	16	21	28	33		63	32		20	15	14	14	15	14	14	15
3	15	14	14	15	14	14	16	15	16	20	28	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	38	40	32	30	18		15	15	14	14	14	15
5	15	14	15	14	14	14	16	16	18	24	28		57	36	30		28	16	14	14	14	14	14	14
6		15	15	15	14	14	14	15	16	17	34	28	41	32	40	50	35	17	16	14	14	14	15	15
7	15	15	14	15	14	14	15	15	16	18	30	39	30		30	28	26	17		15	15	15	14	14
8	15	15	14	14	14	14	18	15	16	18		34	36		46	30	29	16	16	14	14	14	14	14
9	14	14	15	14	14	15	15	15	16	20	29	39	32	29	29	32	21	17	15	15	15	14	14	14
10	15	14	15	15	15	15	23	15	17	22	29	29	34	33	30	28	27	17	15	15	14	14	14	14
11	14	15	14	14	14	14	16	15	20	27	29	34		35	30		28	27	17	14	14	14	14	14
12		14	15	15	14	15	26	15	22	20	30	30	38	40	32	29	28	21	16	15	15	15	15	14
13		15	15	15	15	14	20	16	27	26	34	29	45	38	38	32	30	24	16	14	15	14	15	14
14	15	15	15	14	14	14	15	14	16	20	22	32	32	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	28		48		56	56		21	15		14	15	15	14
17	14	14	15	16	16	15	26	15	17	27	29	34	36	29		32	29	24	15	15	14	14	14	16
18	15	15	14	16	15	15		15	17		35		43	42	36	29	26	16	15	14	14	15	15	14
19	14	17	16	14	14	15	15	15	24	27	30	33	35	38	36	32	28	26	15	14	14	14	16	15
20	15	16	14	15	15	14	20	15	16	26	29	32		57	44	30	23	17	15	14	14	14	14	14
21	15	14	14	14	14	15	22	14	17	26	29	32	36	36	39	42	28	21	16	14	14	14	14	15
22	14	14	14	15		15	14	15	18	24	32	35	42	35	30	39	32	16	15	14	14	15	20	
23	15	14	15	15	14		15	14	15	23		29	35		28	28	26	21	15	15	14	14	14	14
24	14	15	14	14		15	21	16	18	21	32	35		58	58	56	26	20	15	14	15	14	15	14
25		14	15	15	14	14	14	14	16	24	28	30	34	30	C	27	28	20	15	14	15	14	14	14
26	15	14	14	16	14	15	15	15	16	18	29	32		42	30		C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	17	14	14	14	14	14	14
28	15	16	15	14		14	18	15	16		29		54		42		27	21	15	14	15	15	14	14
29	14	15	14	16	16	14	22	14	16	20	27	32	28	33	32	26	20	16	15	14	14	14	15	14
30	14	14	15	16	15	15	16	14	16	20	28	29	30	32	30	27	18	17	16	14	15	14	14	15
31	14	15	15	15	14	14	18	16	18	23	29	32	32	34	32	30	27	20	14	14	15	14	15	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	27	27	27	24	26	26	27	27	24	26	22	23	22	25	22	25	26	26	25	27	27	27	26
MED	15	15	15	15	14	14	16	15	16	22	29	32	36	36	32	30	27	18	15	14	14	14	14	14
U Q	15	15	15	15	15	15	20	15	18	25	30	34	43	40	39	32	28	21	16	15	15	14	15	15
L Q	14	14	14	14	14	14	15	14	16	20	28	30	32	33	30	28	24	17	15	14	14	14	14	14


SUMMARY PLOTS AT Wakkanai
1 JUL.2001
2 JUL.2001
3 JUL.2001
4 JUL.2001
UTC
JST
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P): PREDICTED VALUE FOR fxE
foE(P): PREDICTED VALUE FOR foE

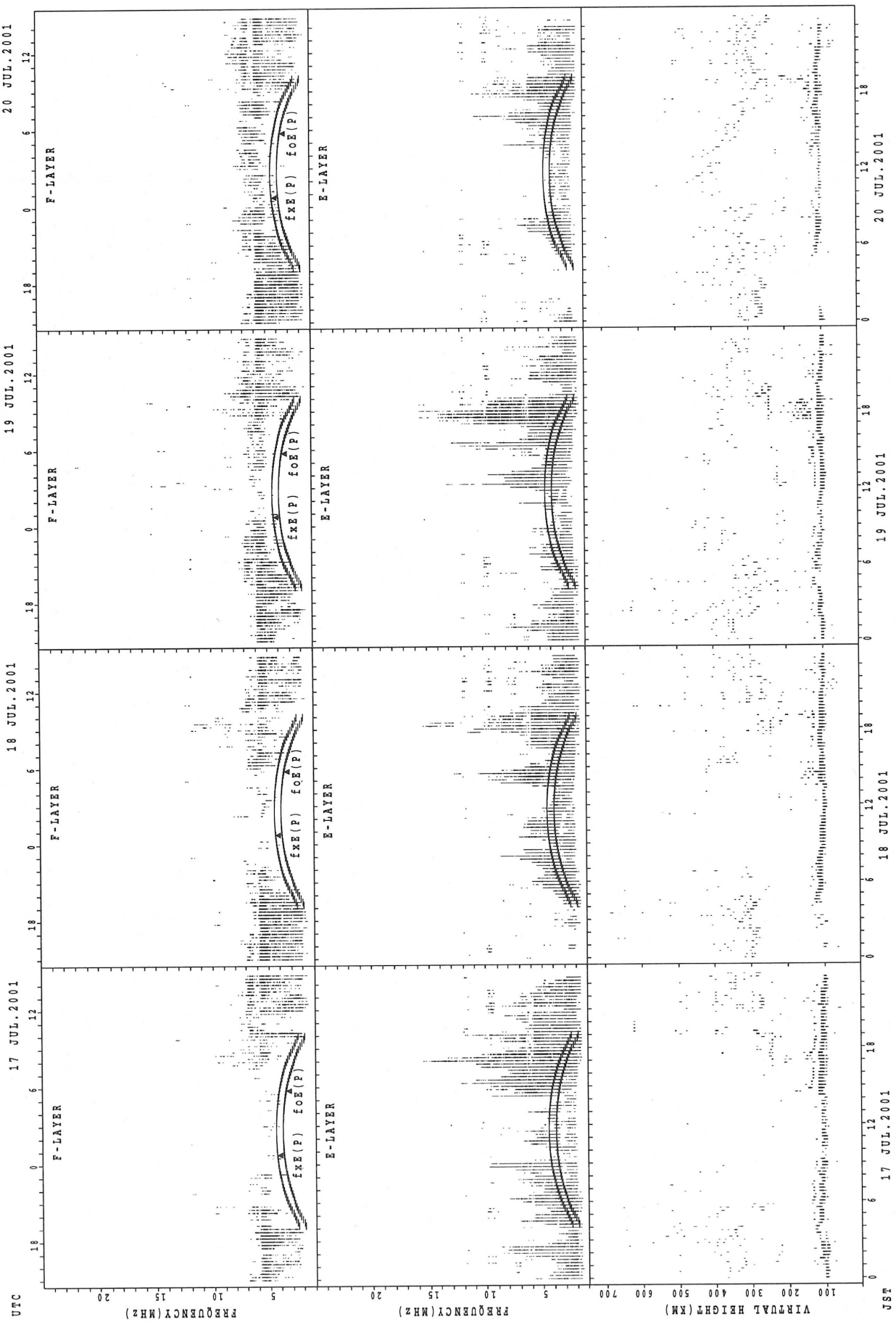

SUMMARY PLOTS AT Wakkanai
UTC
JST
5 JUL.2001
6 JUL.2001
7 JUL.2001
8 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
9 JUL.2001
10 JUL.2001
11 JUL.2001
12 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

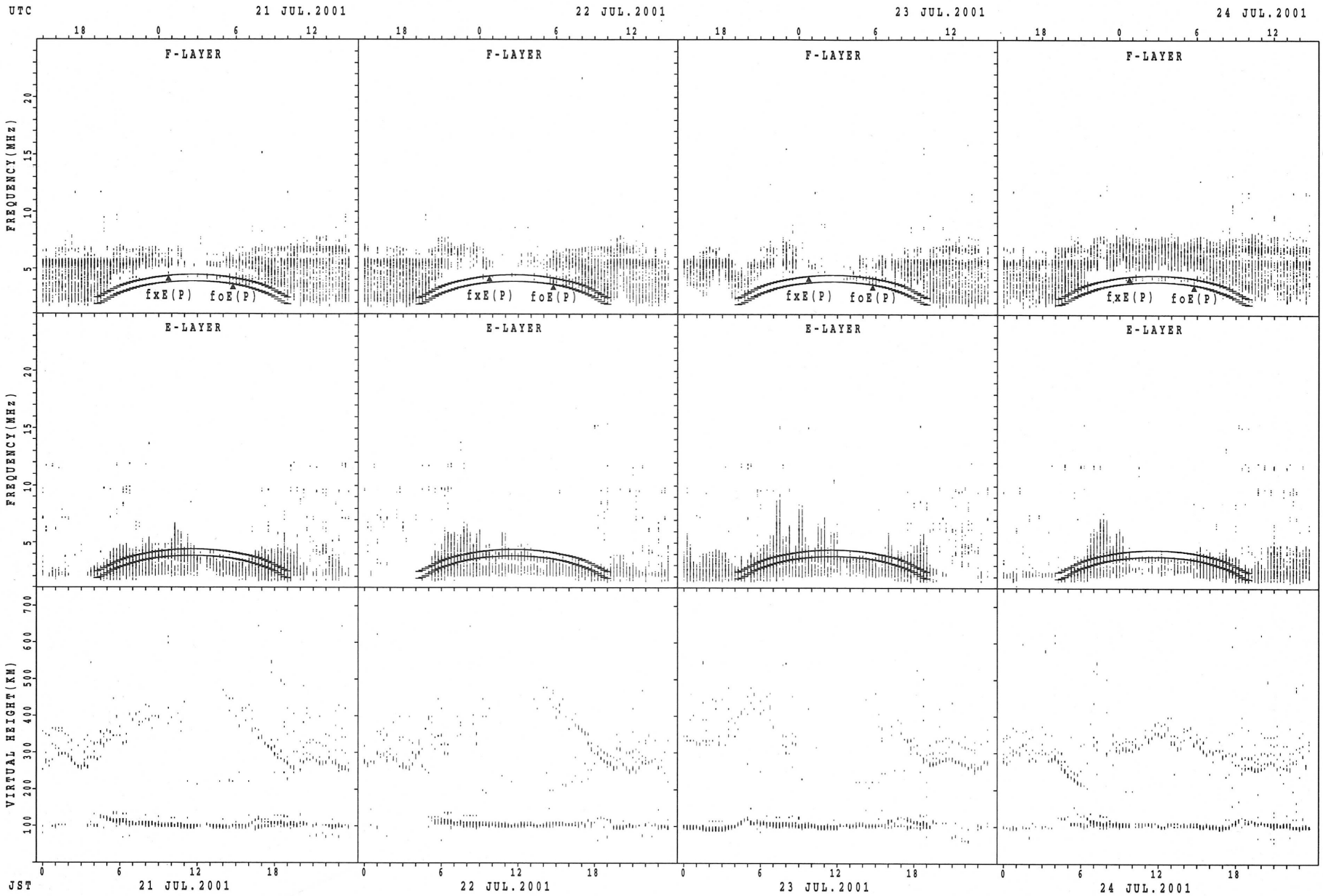
SUMMARY PLOTS AT Wakkanai



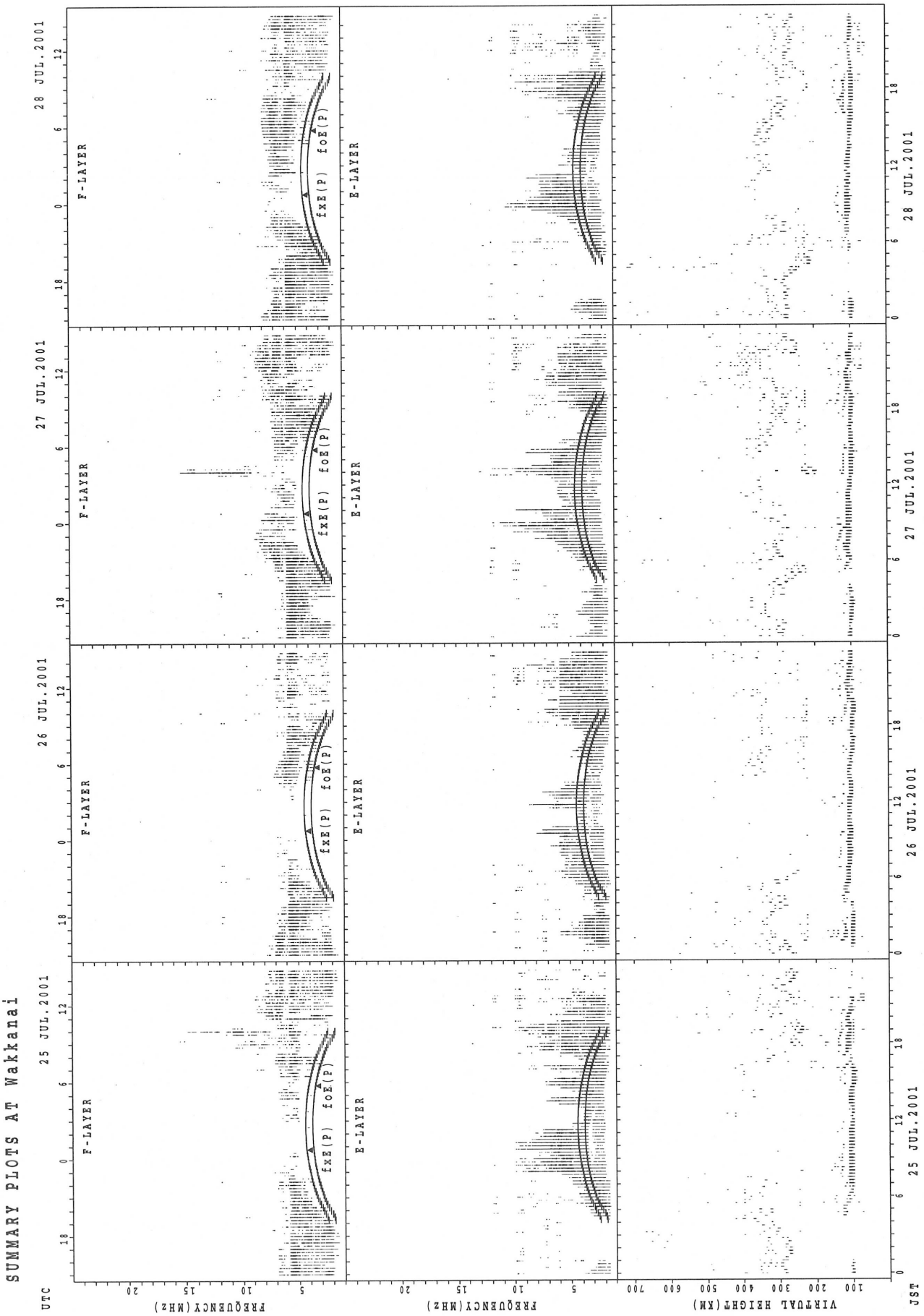
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
17 JUL.2001
18 JUL.2001
19 JUL.2001
20 JUL.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
UTC
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

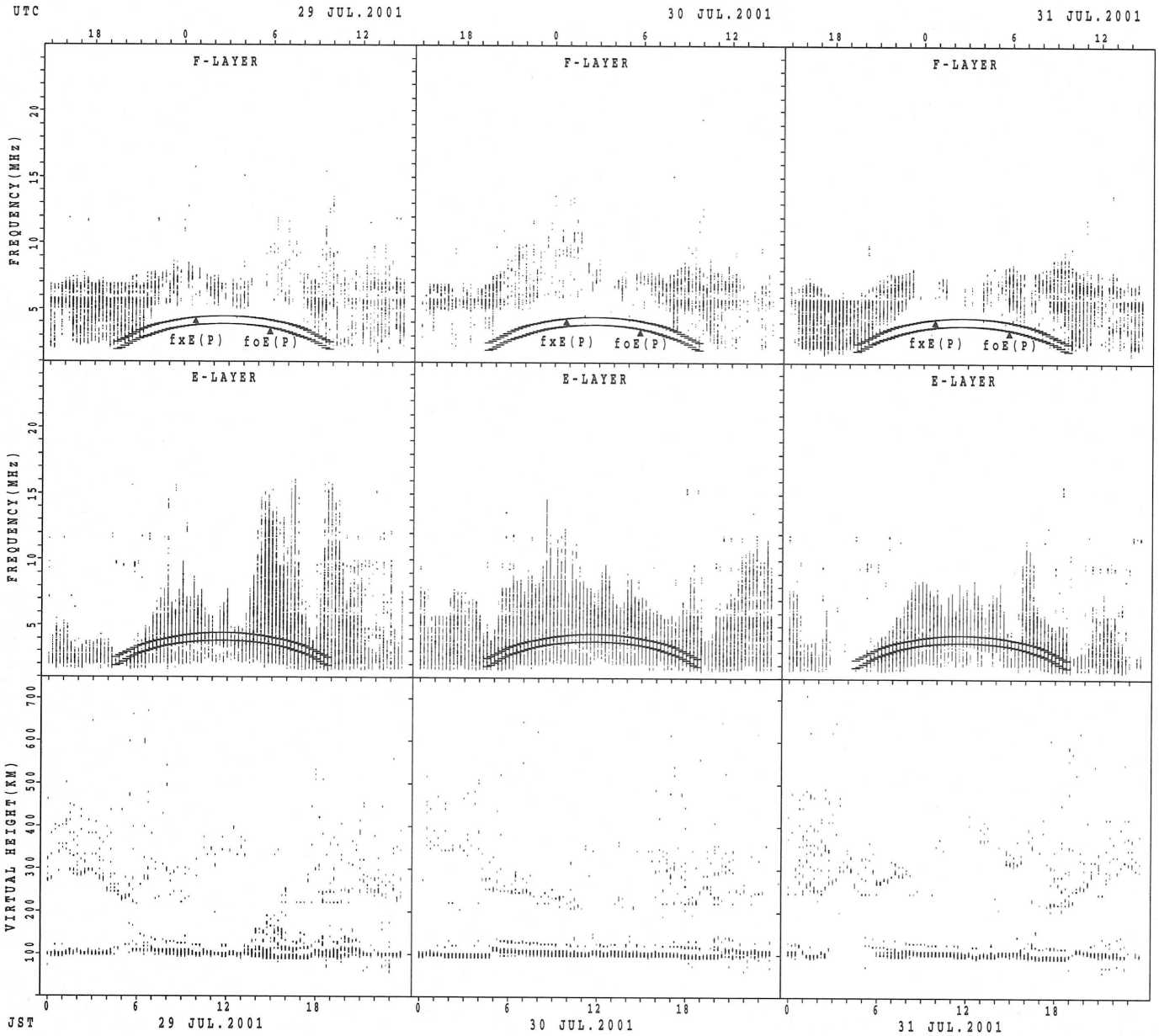
SUMMARY PLOTS AT Wakkanai



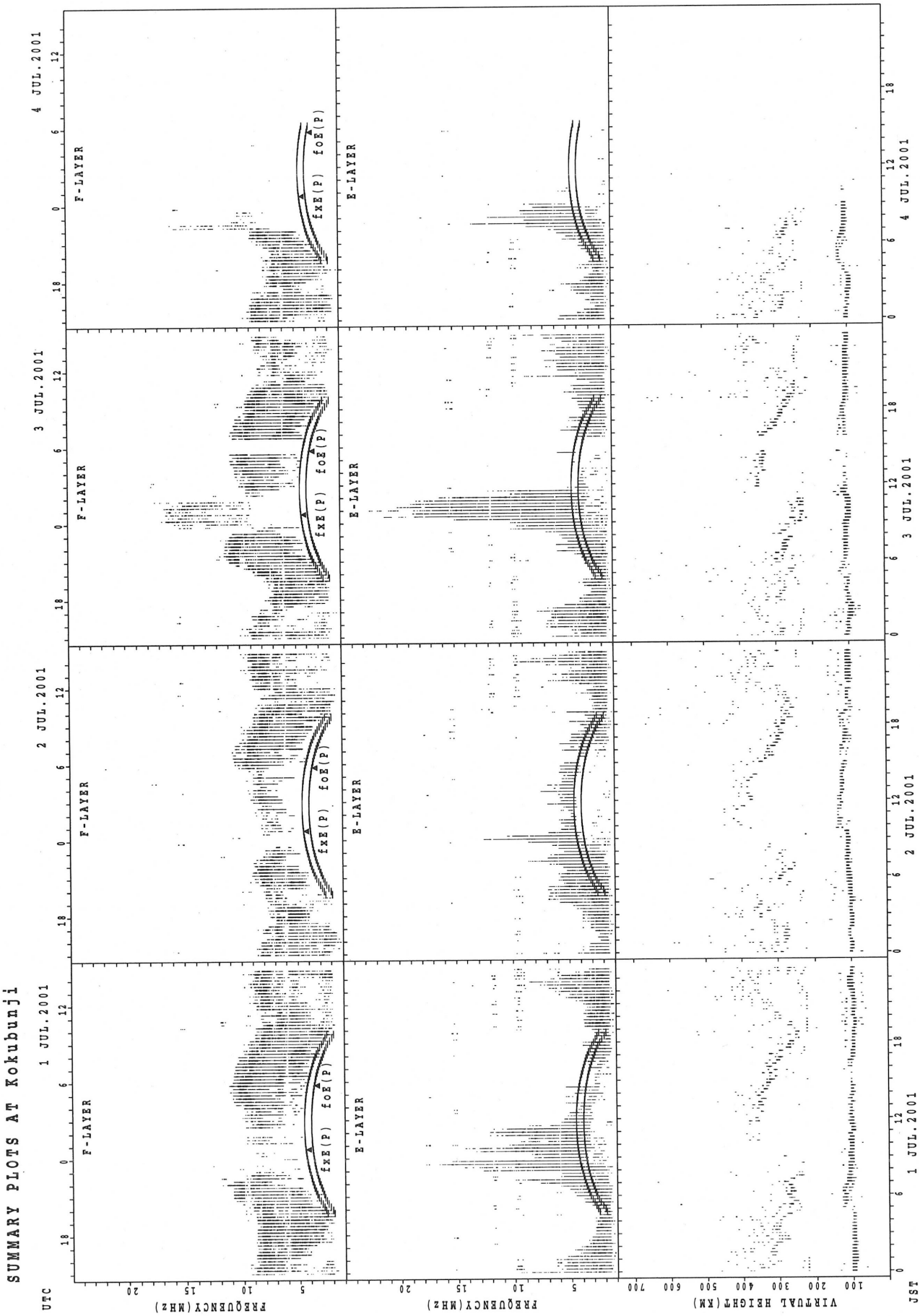
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

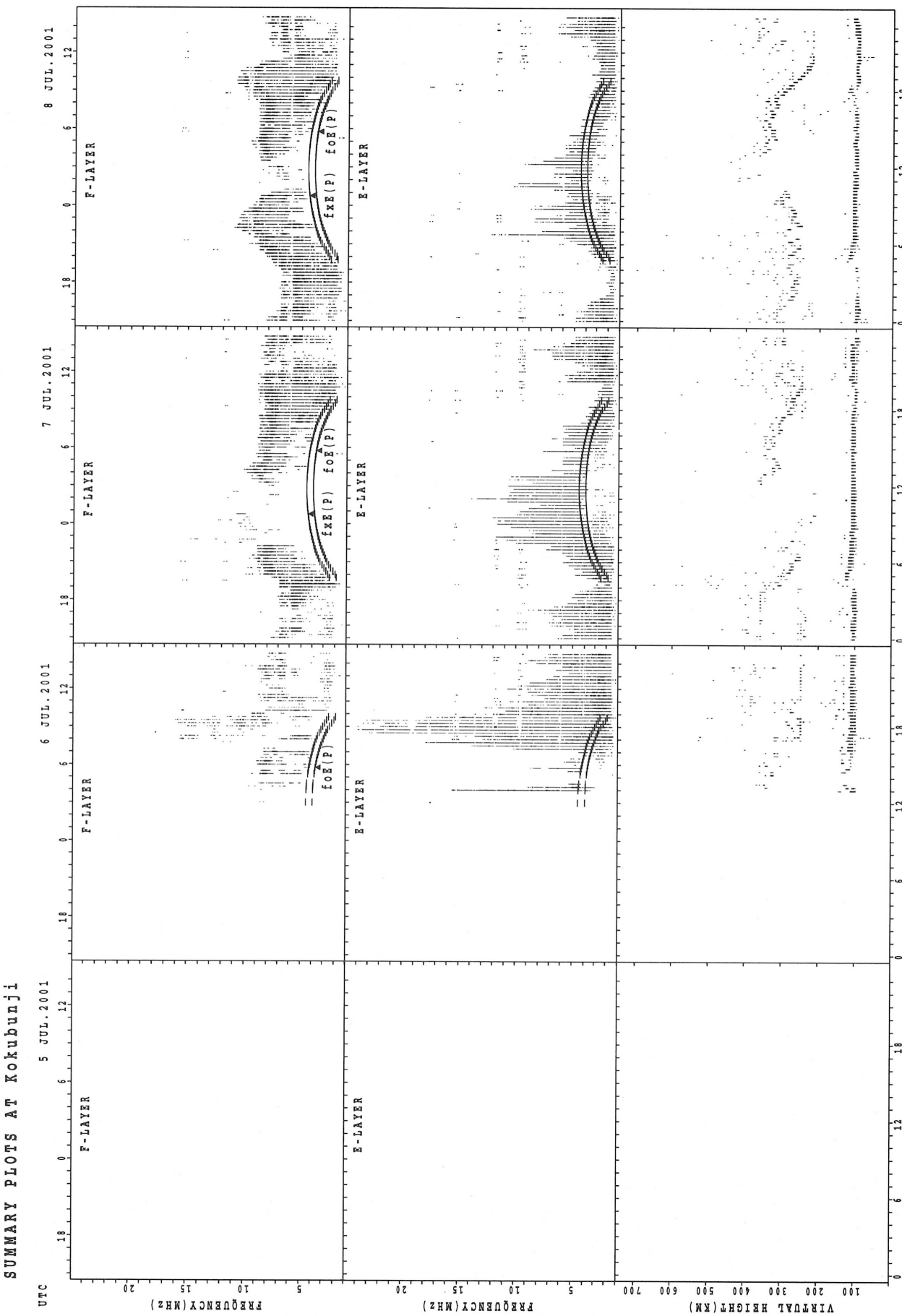

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 JUL.2001
26 JUL.2001
27 JUL.2001
28 JUL.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

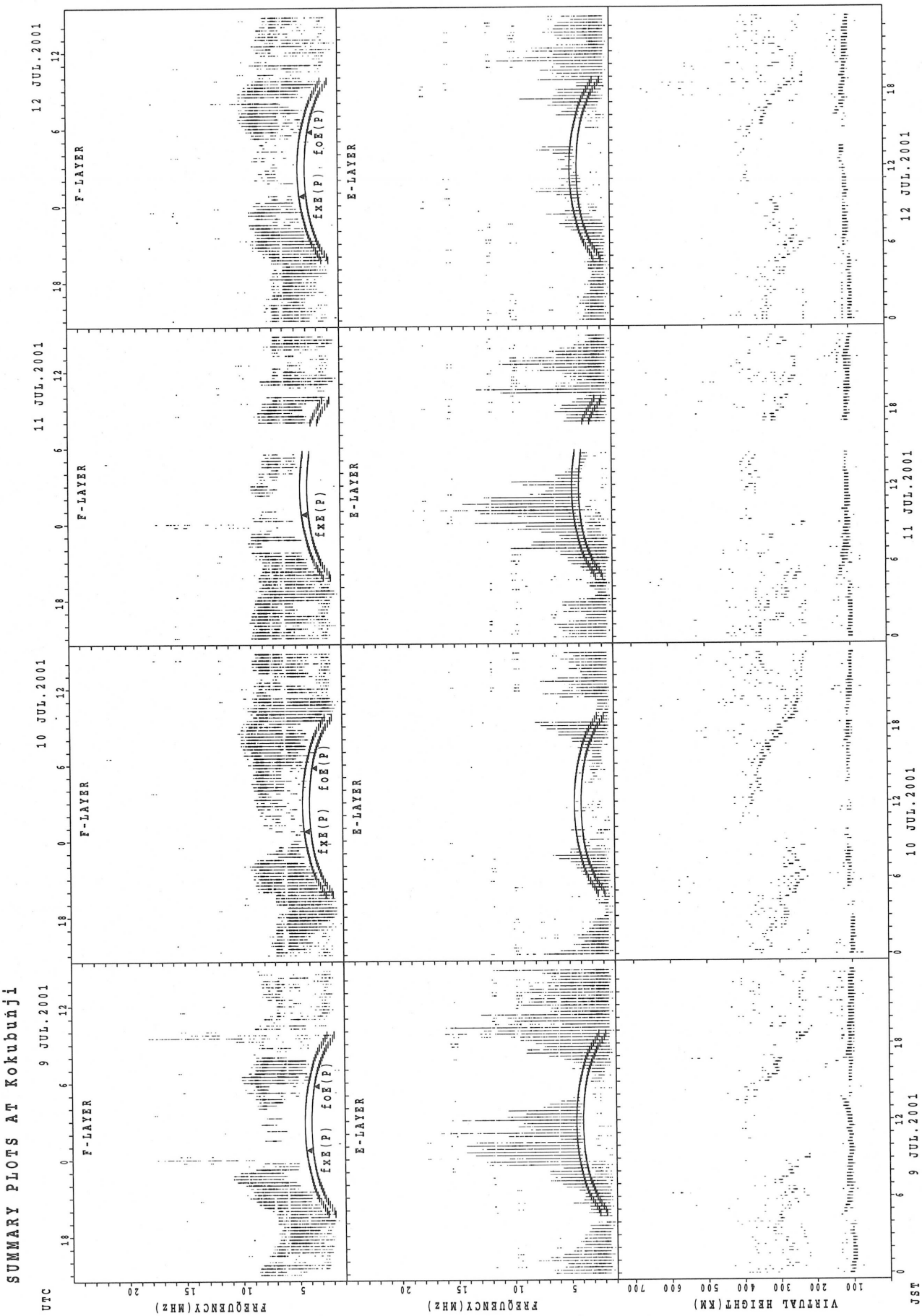
SUMMARY PLOTS AT Wakkanai



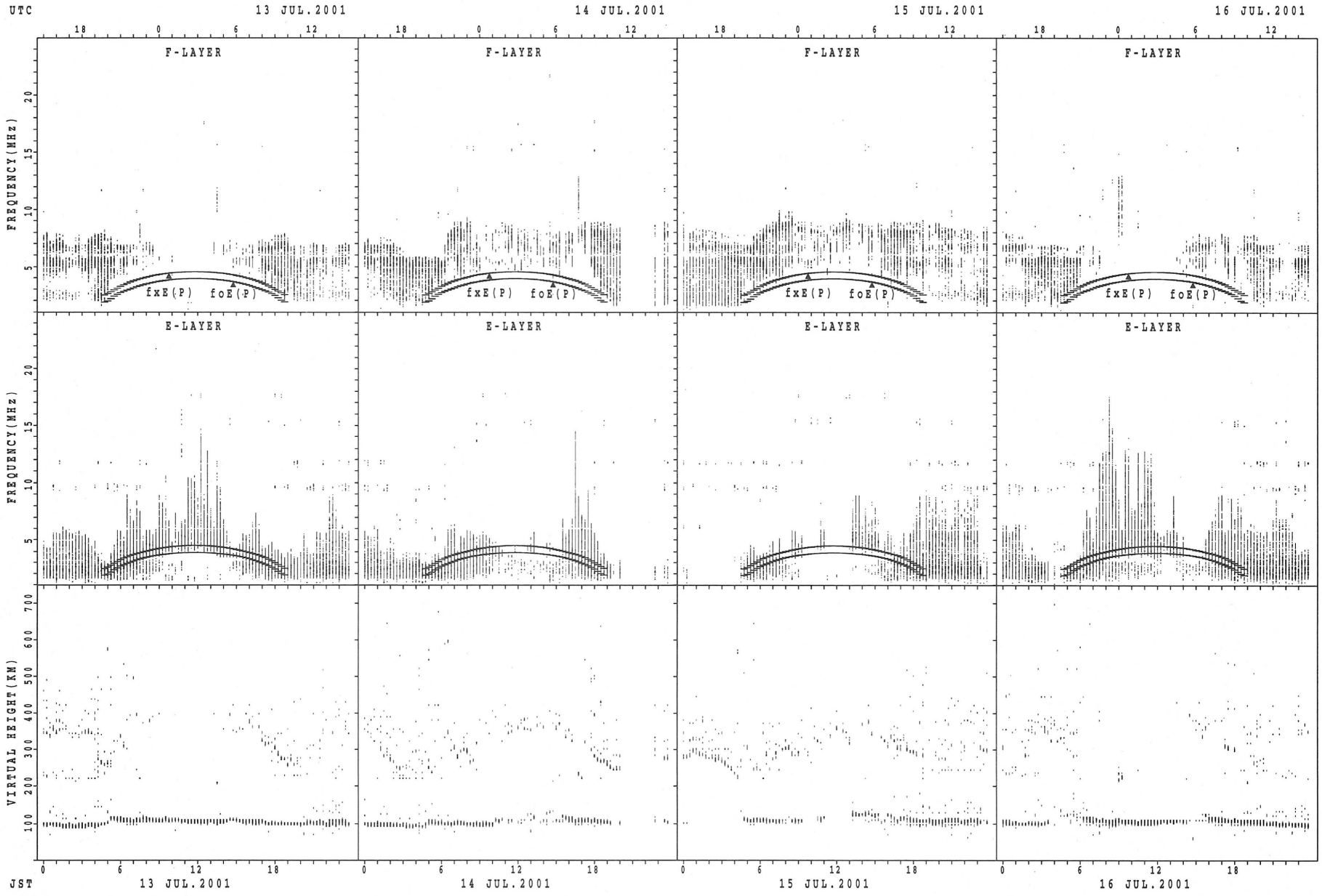
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
1 JUL.2001
2 JUL.2001
3 JUL.2001
4 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

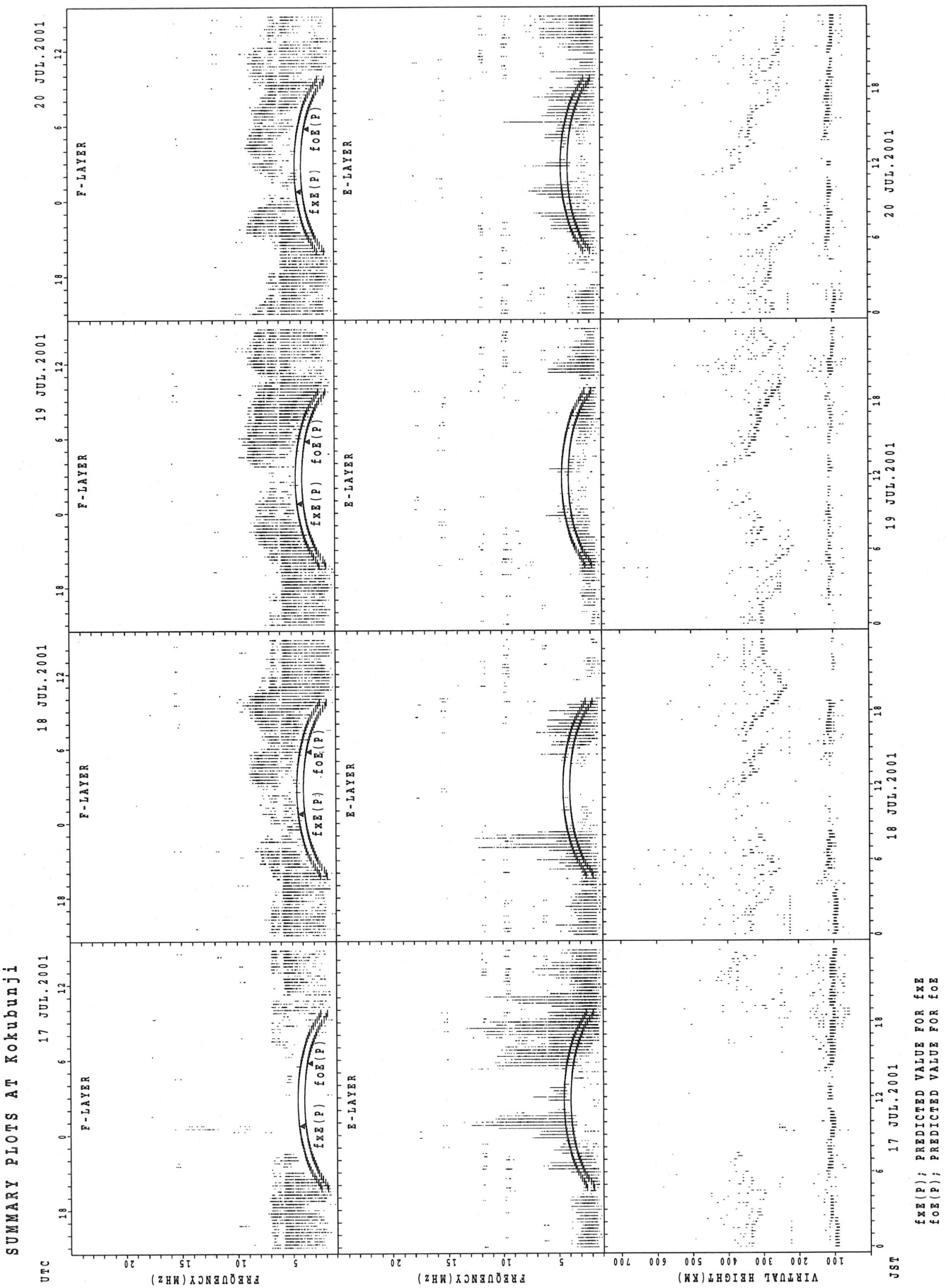

SUMMARY PLOTS AT Kokubunji
UTC
JST
5 JUL.2001
6 JUL.2001
7 JUL.2001
8 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
9 JUL.2001
10 JUL.2001
11 JUL.2001
12 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

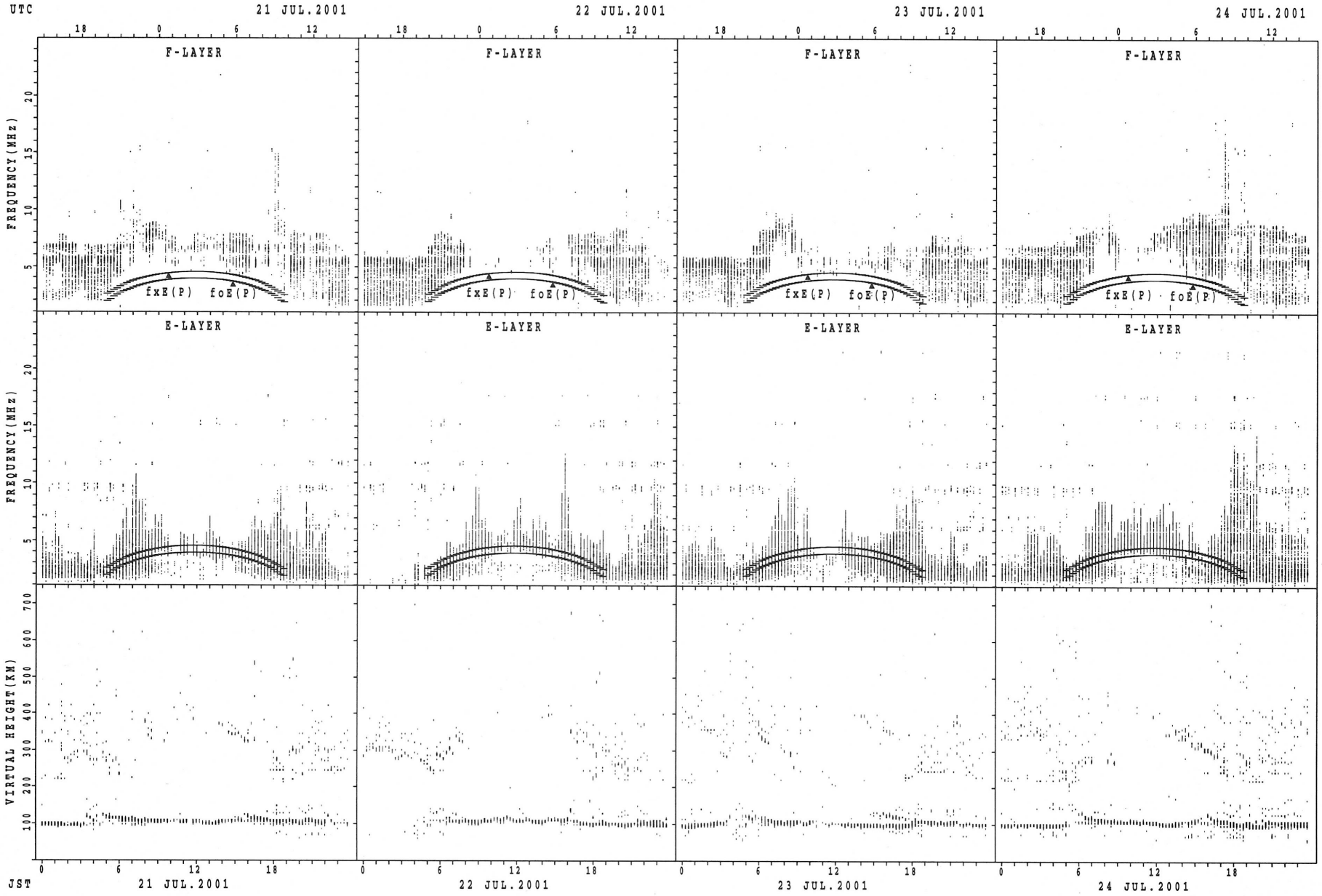
SUMMARY PLOTS AT Kokubunji



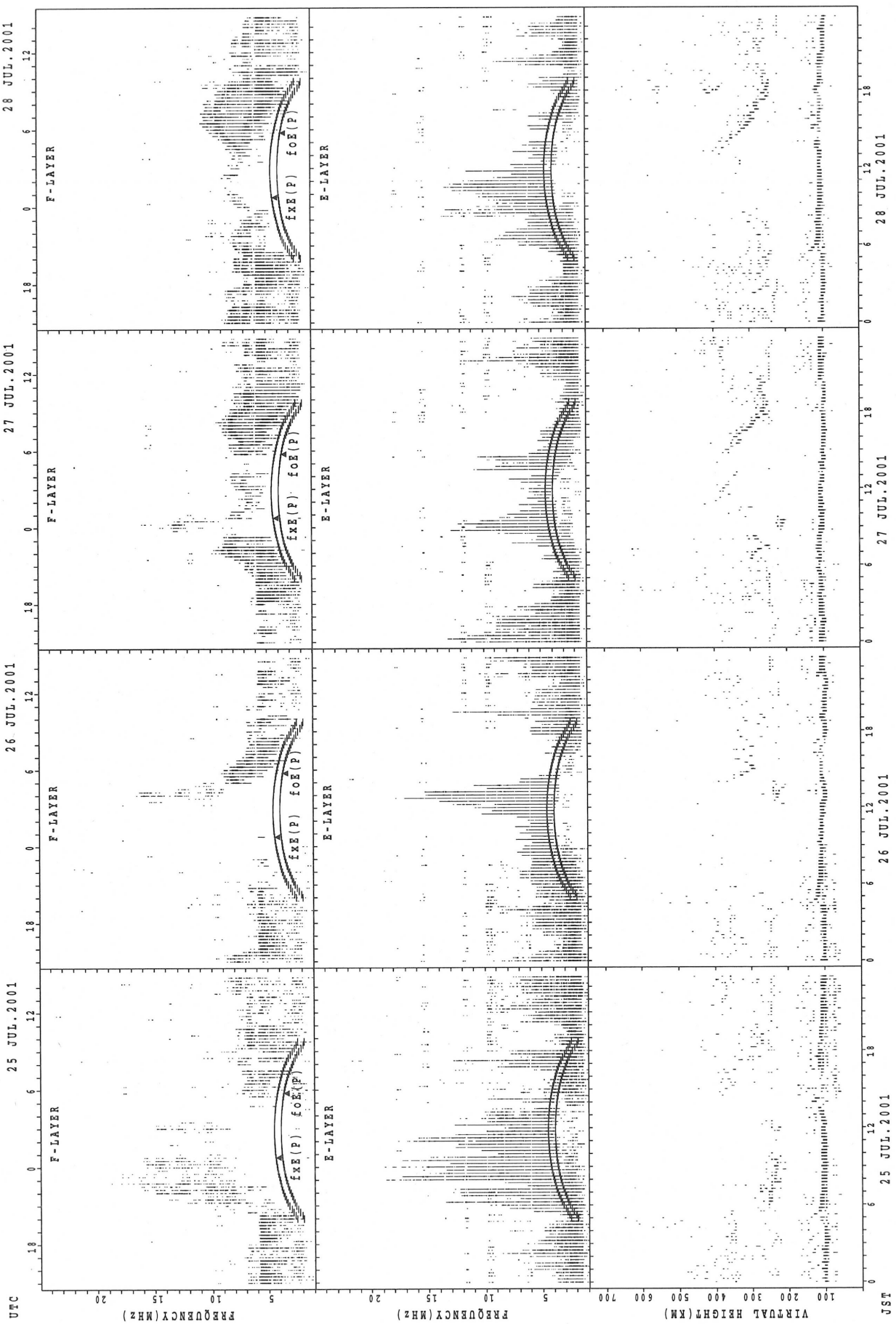
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
17 JUL.2001
18 JUL.2001
19 JUL.2001
20 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P): PREDICTED VALUE FOR fxE
foE(P): PREDICTED VALUE FOR foE

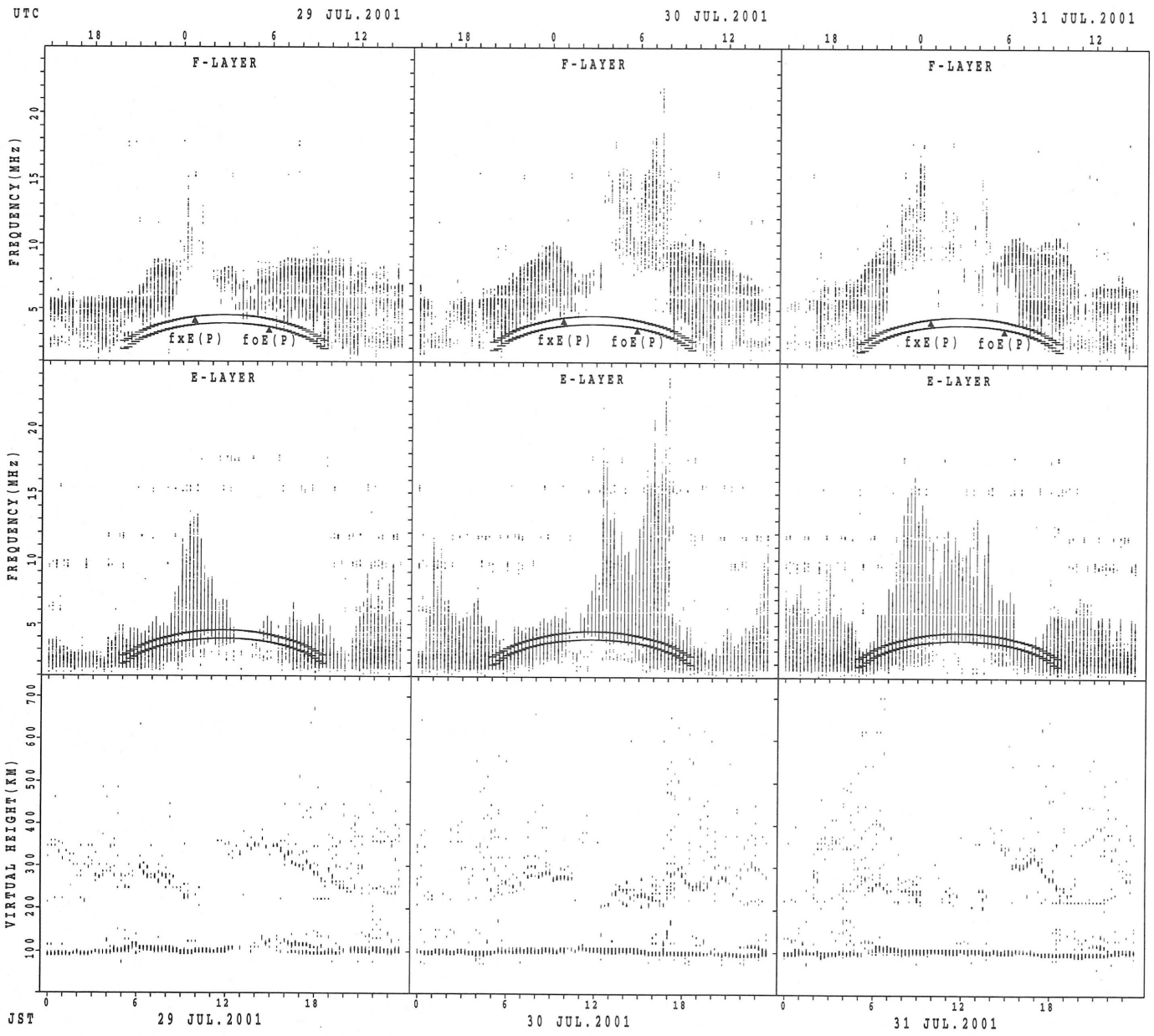
SUMMARY PLOTS AT Kokubunji



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


SUMMARY PLOTS AT Kokubunji
UTC
JST
25 JUL.2001
26 JUL.2001
27 JUL.2001
28 JUL.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

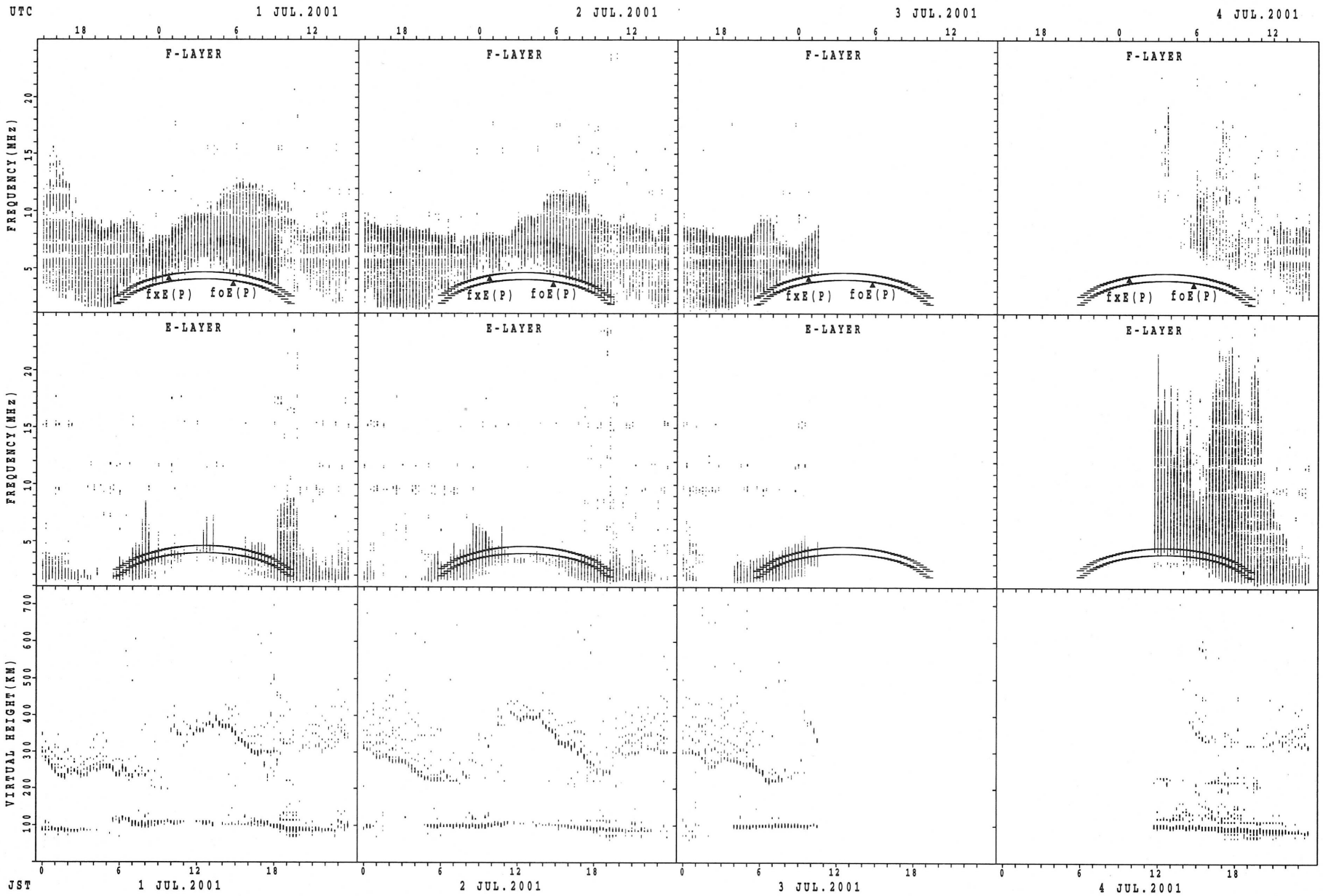


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

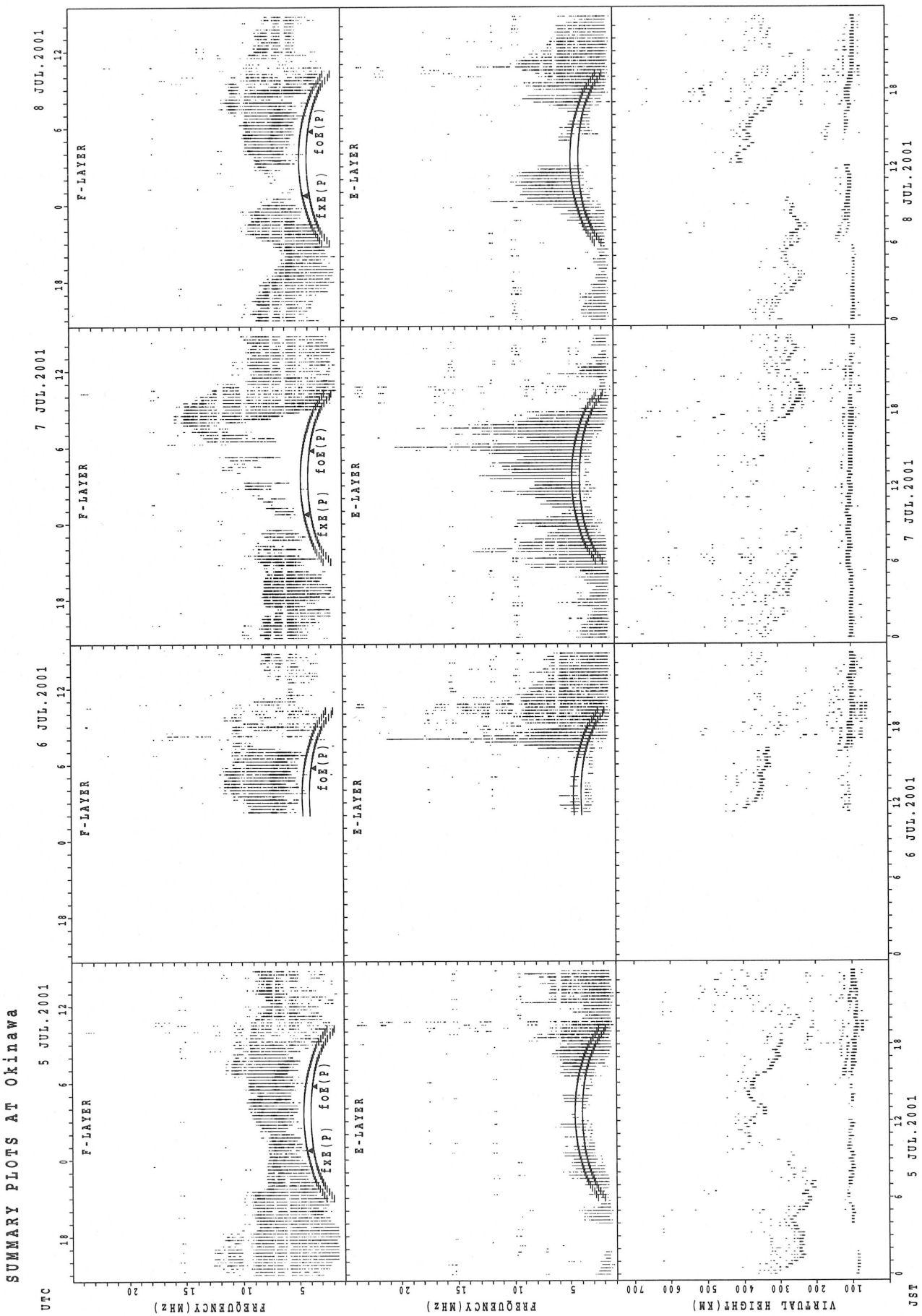
SUMMARY PLOTS

IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

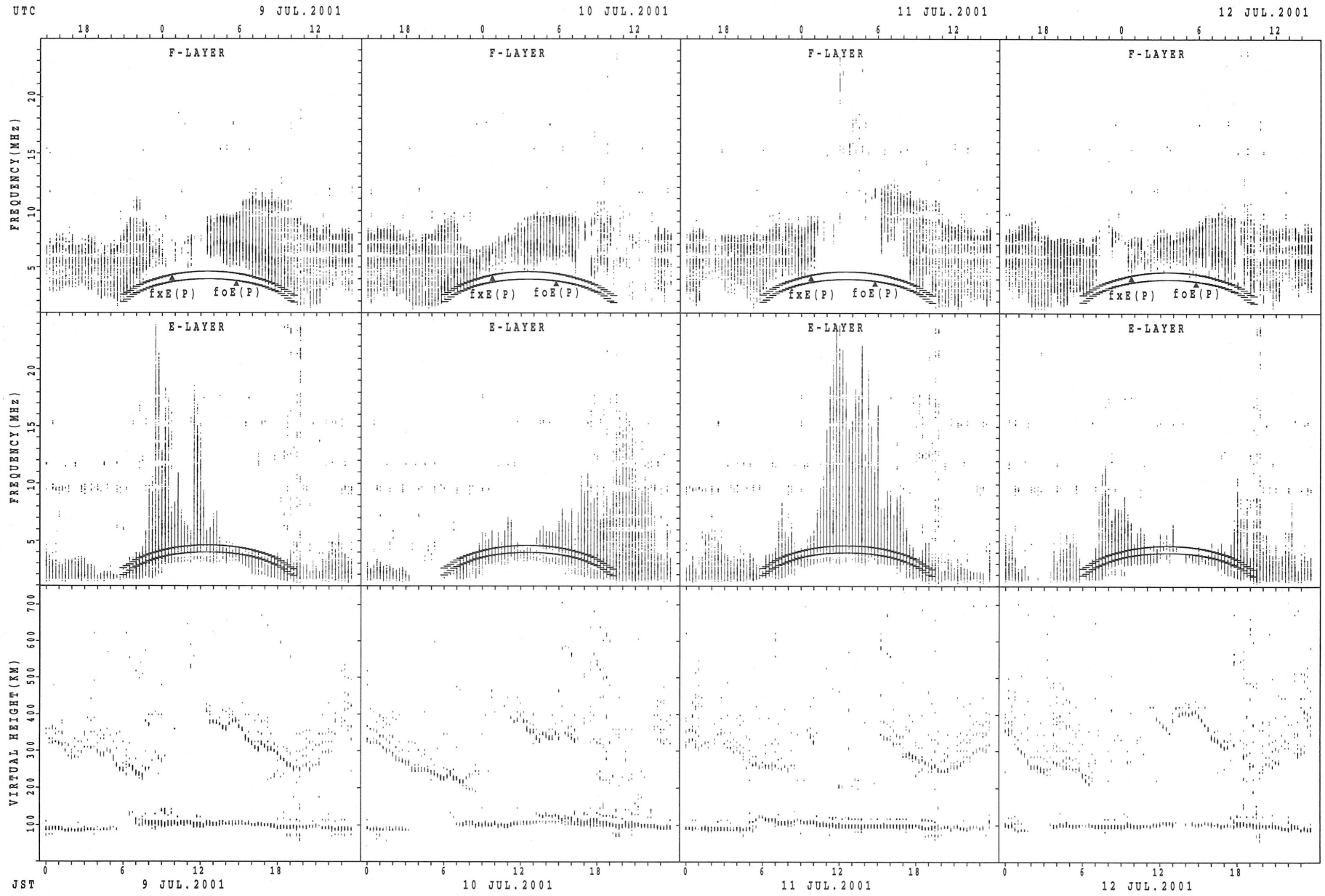
SUMMARY PLOTS AT Okinawa



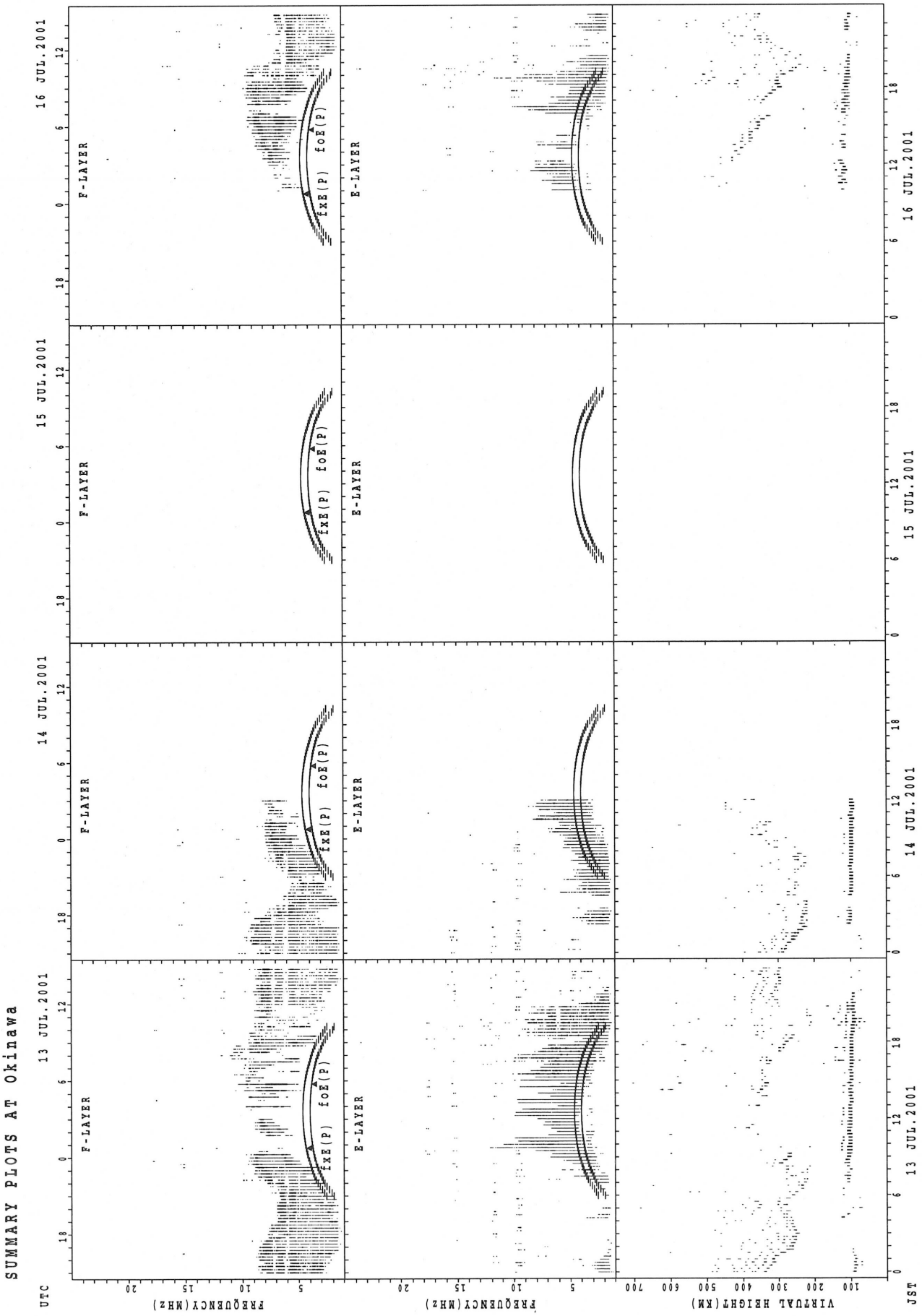
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
5 JUL.2001
6 JUL.2001
7 JUL.2001
8 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

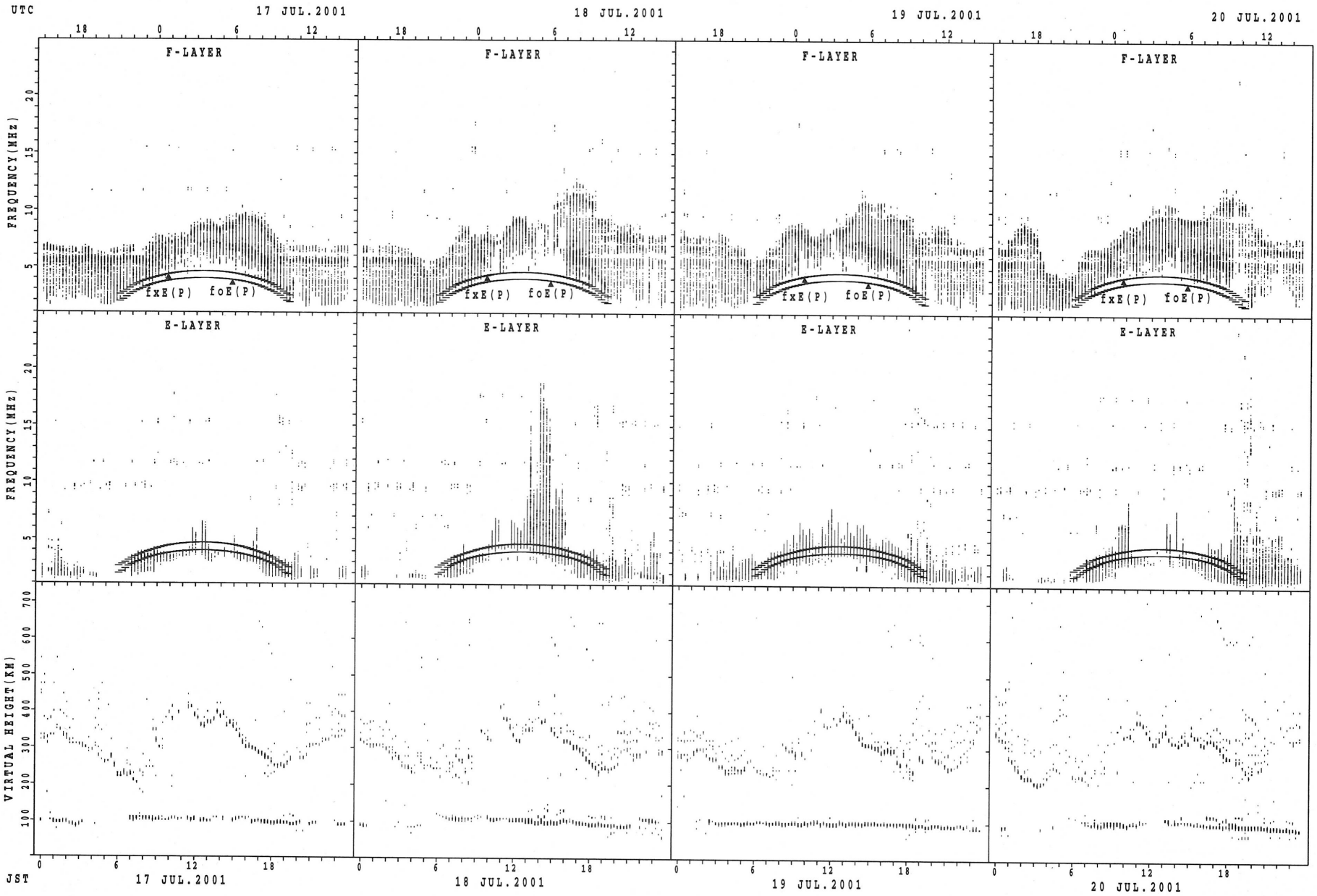
SUMMARY PLOTS AT Okinawa



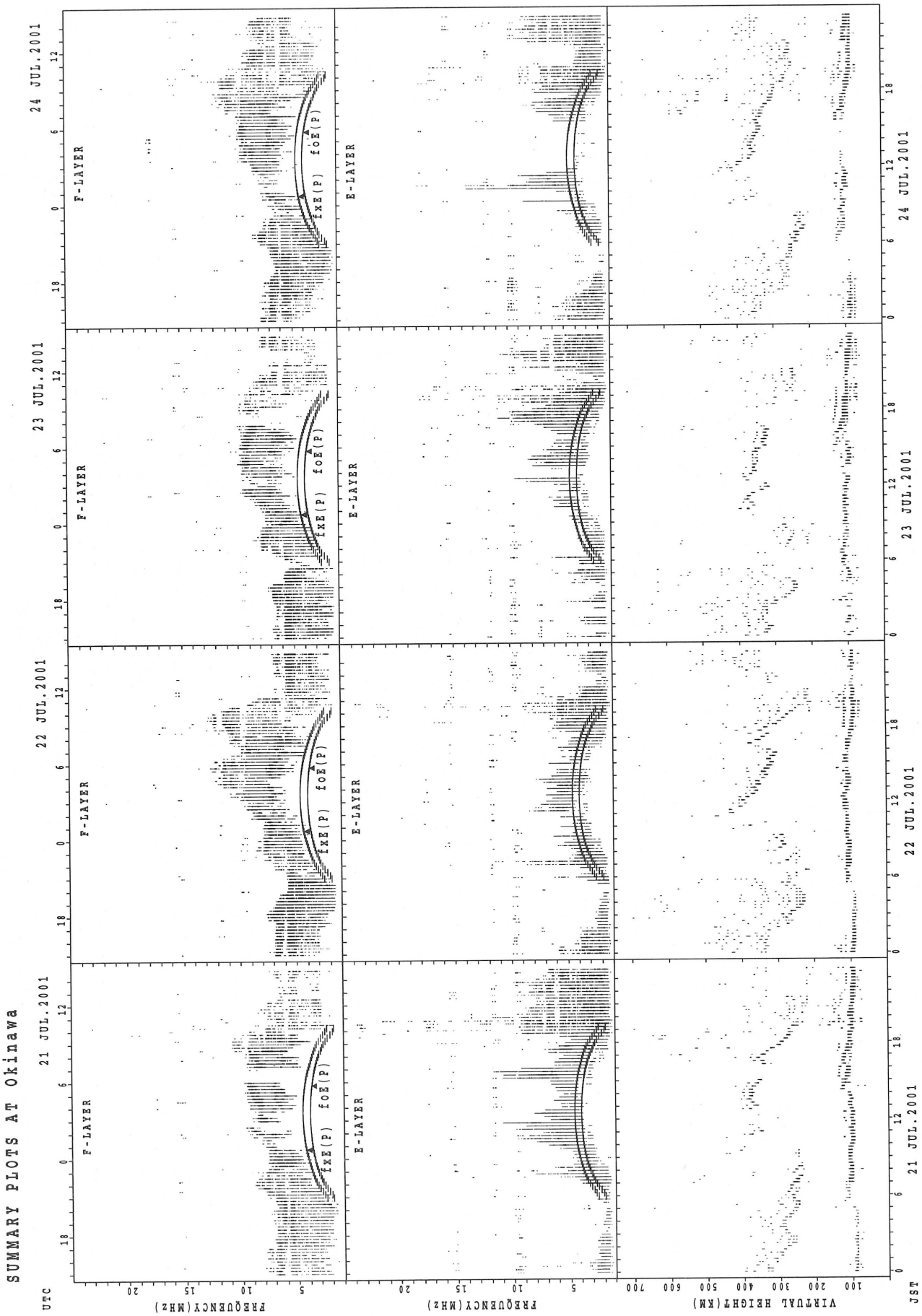
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
13 JUL.2001
14 JUL.2001
15 JUL.2001
16 JUL.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

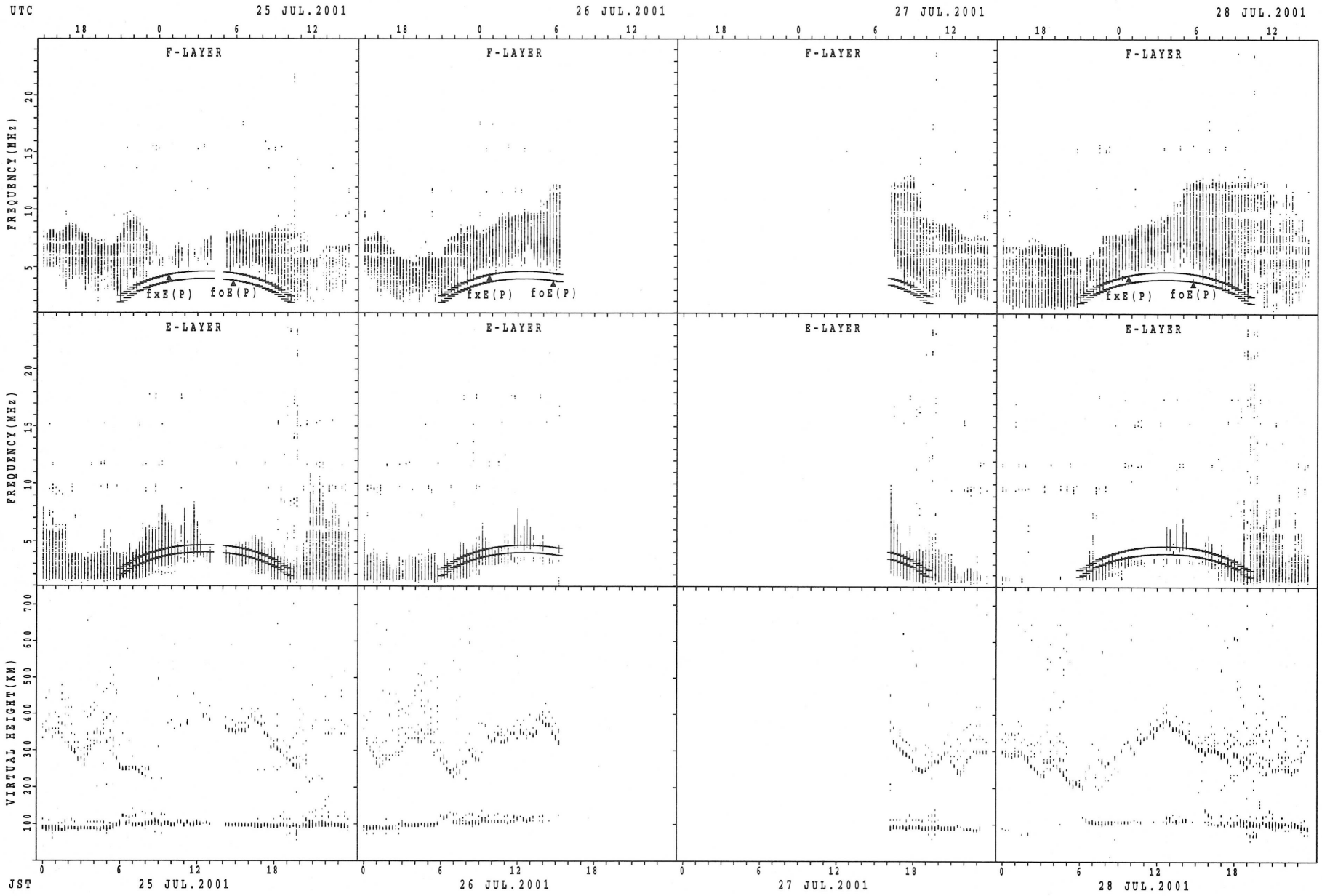
SUMMARY PLOTS AT Okinawa



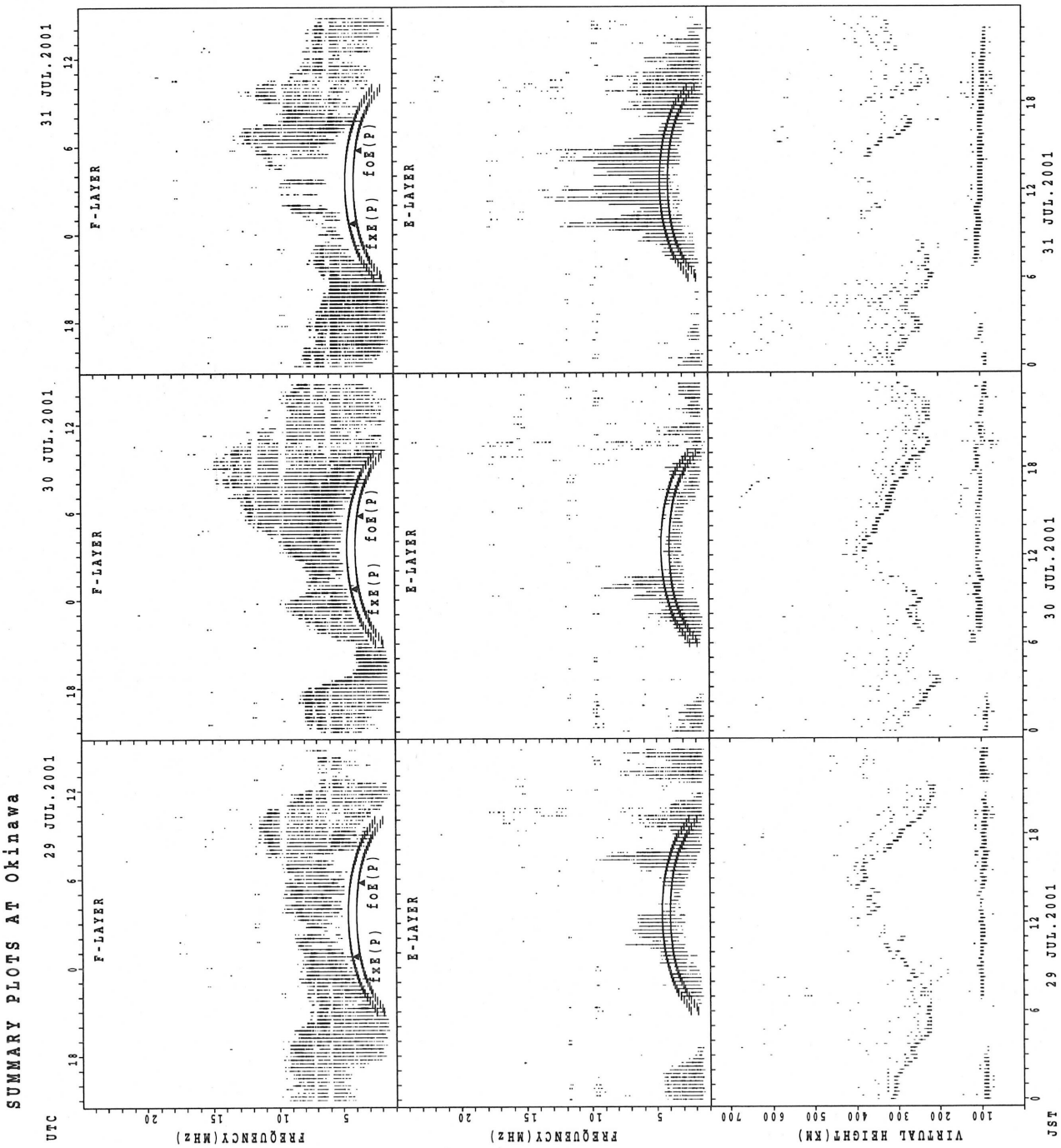
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
21 JUL.2001
22 JUL.2001
23 JUL.2001
24 JUL.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
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 JUL.2001
30 JUL.2001
31 JUL.2001
F-LAYER
E-LAYER
fxE(P)
foE(P)
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

JUL. 2001 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION Wakkanai LAT. 45°23.5'N LON. 141°41.2'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	13	7	5	8	13	16	16									7	15	13	23	14	22	21	13
MED	338	354	344	390	348	312	311	303									346	320	286	250	305	330	328	332
U Q	395	388	402	406	398	349	350	332									356	330	322	302	322	356	361	389
L Q	323	334	300	367	325	276	282	267									294	308	243	242	298	304	304	312

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	22	24	19	18	15	16	27	28	26	26	22	22	21	23	18	24	27	27	25	28	29	24	27	23
MED	100	101	103	103	109	120	113	113	111	107	106	106	105	105	110	107	109	115	113	108	109	109	105	103
U Q	103	103	105	107	119	121	119	114	113	111	111	109	108	107	119	114	121	121	116	112	113	113	111	107
L Q	99	98	99	99	103	115	111	111	107	105	105	103	103	101	103	104	103	107	109	104	107	105	101	99

h'F STATION Kokubunji LAT. 35°42.4'N LON. 139°29.3'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	13	12	8	8	14	17	16	4								23	20	20	19	15	17	15	12
MED	354	364	356	365	386	339	296	288	286								326	308	299	296	320	358	378	362
U Q	396	383	379	386	418	388	315	306	302								334	326	306	318	344	392	400	374
L Q	328	330	336	339	371	316	282	270	258								320	291	287	284	310	318	326	350

h'Es

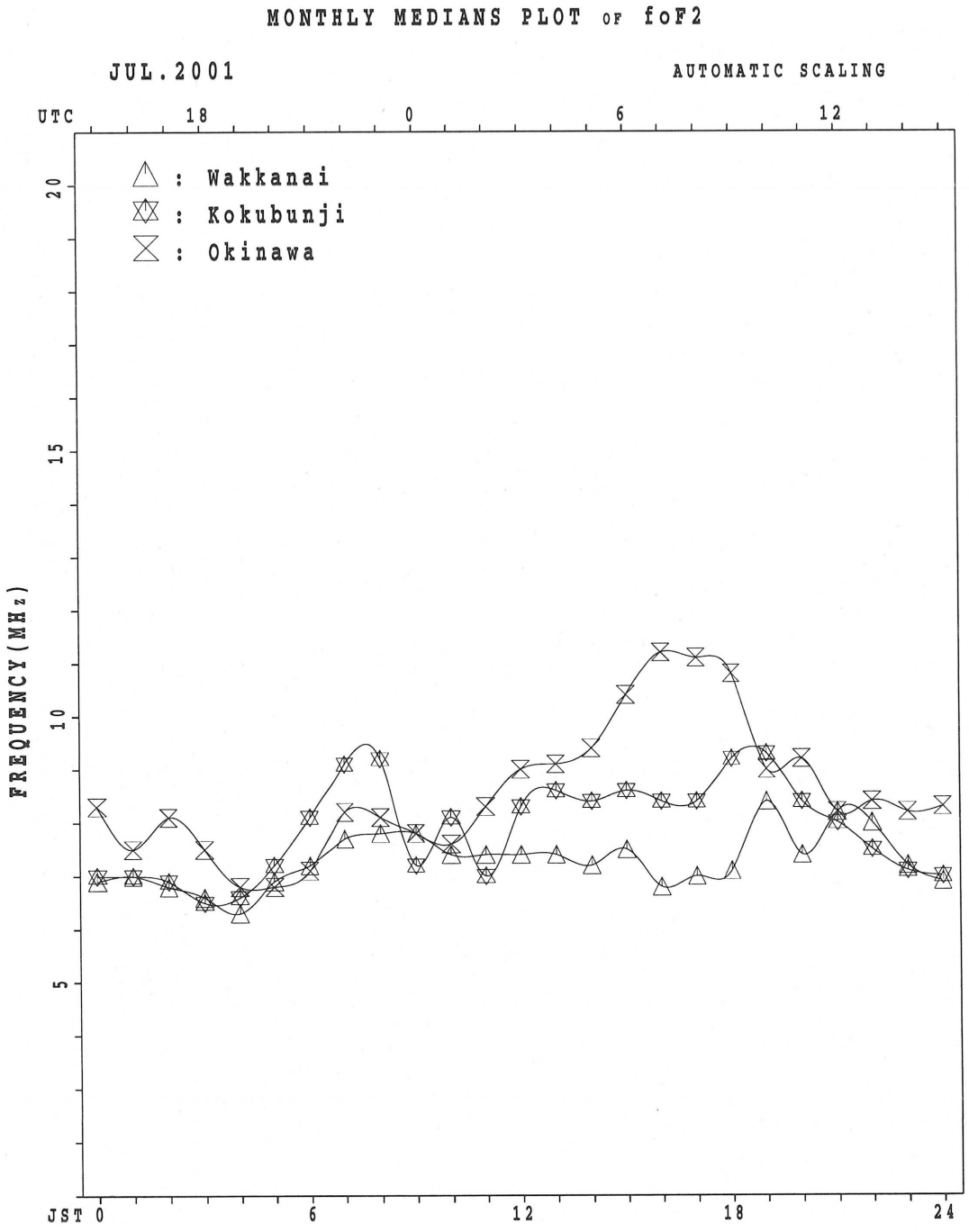
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	26	23	19	24	19	27	27	24	24	22	21	20	18	15	19	26	27	26	26	27	25	20
MED	105	103	101	99	103	112	115	113	111	106	107	109	107	110	108	115	119	114	111	107	105	107	105	105
U Q	107	105	103	105	111	121	119	115	113	112	113	113	113	117	113	123	123	119	115	111	109	111	110	109
L Q	99	97	99	97	97	105	113	109	107	105	105	107	107	103	105	105	113	109	105	103	103	101	102	103

h'F STATION Okinawa LAT. 26°16.9'N LON. 127°48.4'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	21	19	20	14	9	15	21	20	12							10	21	25	19	21	17	12	11
MED	350	330	316	313	303	378	266	252	264	291							319	304	294	280	280	326	339	352
U Q	402	353	332	347	342	411	296	286	276	311							320	331	304	296	298	343	359	448
L Q	334	313	270	287	288	273	254	236	249	275							302	300	279	266	267	292	329	336

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	18	19	14	14	9	11	12	22	20	19	22	18	20	14	17	15	19	22	26	24	26	25	23	22
MED	93	91	90	91	99	99	108	109	105	107	106	105	105	104	111	105	111	107	101	97	95	99	95	98
U Q	95	99	95	97	101	103	116	113	112	111	111	109	110	111	125	123	125	113	111	106	105	106	105	107
L Q	91	89	89	89	92	95	103	105	103	101	103	101	103	103	101	101	97	99	95	95	93	94	91	91


MONTHLY MEDIANS PLOT OF foF2
JUL.2001
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⛛ : Kokubunji
⧖ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	O X 95	X 97	O X 92	98	90																X 90	X 92	X 96	S 92
2	X 94	X 83	X 82	X 77	X 76																R 72	X 91	X 94	O X 96
3	O X 104	X 97	X 85	X 79	X 76																X 90	X 85	X 82	R 87
4	X 96	X 95	X 85	X 77	X 78																			
5																								
6																					O X 90	X 86	87	R 70
7	X 80	O X 77	O X 76	X 70	74																X 92	X 89	X 87	X 86
8	X 85	X 81	X 78	X 76	X 76																O X 101	X 80	X 82	X 81
9	X 88	X 82	X 76	X 71	X 71																X 84	X 81	X 87	X 86
10	X 81	O X 76	O X 76	X 71	X 69																X 95	X 88	X 88	X 93
11	X 92	X 95	X 92	X 86	X 86																X 83	X 75	X 73	X 80
12	X 76	X 79	X 75	X 73	X 71																X 88	X 87	X 85	X 81
13	X 84	X 86	X 85	X 81	81																X 71	X 75	X 71	O X 78
14	X 74	X 75	X 75	X 68	X 60																X 86			
15	X 89	X 87	X 86	X 82	X 75																X 91	X 86	X 85	X 83
16	X 82	X 78	X 73	X 71	75																X 77	X 74	A	X 73
17	X 75	X 73	X 74	X 71	X 72																A	X 68	X 70	X 73
18	X 75	X 72	X 74	X 68	X 63																X 83	X 77	X 77	O X 77
19	X 76	X 73	X 74	X 68	X 63																X 78	91	X 95	X 85
20	X 84	X 75	X 74	X 71	X 64																X 92	X 86	X 80	X 75
21	X 75	X 75	X 74	X 68	X 67																X 81	X 82	X 81	X 74
22	X 69	X 68	X 68	X 66	X 65																O X 88	X 74	X 73	A
23	X 62	X 62	X 65	X 64	X 57																X 80	X 74	X 79	X 72
24	X 69	X 68	X 70	76	75																X 93	X 90	90	X 81
25	X 69	X 70	X 75	X 72	72																X 81	X 79	X 78	X 88
26		X 75	X 68	X 64	O X 74																X 70	X 65	X 65	A
27	X 66	X 69	A	68	X 61															X 81	X 86	O X 80	O X 80	75
28	X 86	88	X 87	74	80															O X 80	X 81	X 84	X 79	X 74
29	R 66	X 67	X 64	X 63	X 60															X 95	X 90	X 84	X 81	X 82
30	X 75	O X 62	58	62	X 68															X 104	X 98	X 92	X 78	X 74
31	X 70	A	X 70	R 57	74															X 106	X 72	X 73	X 78	X 76
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	29	29															5	28	28	27	26
MED	X 78	X 76	X 75	X 71	X 72															X 95	X 86	X 83	X 81	X 80
U Q	X 87	X 84	X 84	X 76	X 76															X 105	X 90	X 88	X 87	X 86
L Q	X 72	X 71	X 72	X 68	X 64															X 80	X 80	X 75	X 78	X 74

JUL. 2001 fxI (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	U R 89	R 91	R 86	F 86	F	90	106	109	88	R 68	91	R 93	97	R 100	107	107	103	101	95	88	84	86	90	R
2	R 88	R 77	76	71	70	76	83	86	75	A	79	81	87	91	92	101	102	96	89	84	R	85	88	90
3	S 98	R 91	R 79	73	70	F	104	111	106	83	A	A	96	100	104	C	103	98	91	92	R 84	79	R 76	R
4	R 90	R 89	U R 79	72	72	69	78	83	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	86	80	R 77	A	R 91	R 84	R 80	F	R
7	R 74	R 71	R 70	R 64	F	77	92	86	A	A	A	A	84	95	89	86	84	83	82	R 87	86	R 83	R 81	R 80
8	R 78	R 75	72	70	R 70	F	89	99	103	96	77	R 74	R 77	89	94	88	88	87	97	R 105	U S 95	R 74	76	R 75
9	82	76	70	R 65	65	72	93	R 94	100	A	A	A	A	87	88	97	90	86	A	A	R 79	R 75	R 81	R 80
10	R 75	R 70	R 70	65	63	74	87	91	73	R 57	75	80	84	88	87	90	94	96	96	92	89	82	R 82	87
11	V 86	89	86	80	80	77	77	A	87	A	83	A	87	78	R 78	C	C	78	77	R 75	77	69	U R 66	U R 74
12	70	R 73	69	R 67	65	72	84	82	86	R 82	A	R 79	80	82	85	90	92	92	91	U R 80	82	80	79	R 75
13	78	R 80	R 79	R 74	F 71	R 71	70	68	69	64	R 67	A	R 68	A	70	R 68	66	70	74	74	65	69	R 65	U S 72
14	R 68	R 68	69	62	54	58	R 64	86	91	76	77	83	80	78	77	73	77	83	87	86	R 80	C	C	C
15	83	81	U R 78	76	69	71	81	R 90	94	R 89	86	R 81	86	R 89	82	A	81	84	84	A	85	80	R 78	77
16	76	72	67	65	F	60	60	65	A	A	A	A	A	65	68	74	74	75	71	R 74	R 71	68	A	U R 67
17	R 69	R 67	68	65	66	63	R 64	64	R	A	A	58	A	57	R 52	A	64	68	66	65	A	R 62	R 64	R 67
18	69	66	68	62	57	U S 63	73	79	67	68	U R 72	U R 73	80	U R 89	84	74	72	78	88	R 91	77	R 70	71	S 71
19	70	67	68	62	57	63	67	80	81	R 77	76	R 72	R 69	84	90	92	87	84	82	R 76	72	F	89	79
20	78	69	68	65	58	58	54	R 90	82	R 67	R 65	71	80	84	83	79	80	72	71	R 85	R 86	80	74	69
21	R 69	R 69	68	62	U R 61	68	72	76	82	82	72	U R 72	75	R 72	74	74	72	71	R 69	U R 75	S 74	R 76	S 75	U R 68
22	63	R 62	62	60	59	68	78	R 68	R 68	A	U R 60	A	A	U R 75	R 71	70	74	76	77	78	82	68	67	A
23	56	56	59	58	51	F	74	82	84	70	R 64	U R 63	U R 65	R 62	64	R 61	66	65	65	70	S 73	69	73	66
24	R 63	62	64	F	F 65	66	72	77	83	73	U R 75	R 71	80	85	92	94	92	88	R 86	R 93	V 87	84	F	R 75
25	R 62	U R 64	69	U R 65	F	F	A	A	A	A	A	A	A	A	U R 67	71	69	74	R	76	R 75	73	R 72	82
26		R 69	R 62	U R 58	R 68	F	62	U R 56	60	A	A	U R 72	A	A	83	84	70	63	64	64	R 64	59	59	A
27	R 60	S 63	A	F	R 55	57	68	87	85	86	80	71	74	77	R 72	76	80	88	81	R 75	80	U R 74	R 74	F
28	R 80	F	U R 81	F	F	R 70	73	76	67	72	82	84	80	76	84	100	101	100	88	R 74	75	78	73	U R 68
29	R	R 61	58	57	54	57	66	83	83	A	A	77	78	74	75	78	84	C	88	R 89	U R 83	78	75	U R 75
30	R 69	R 56	F	F	U R 62	F	69	80	89	98	88	74	82	A	A	A	92	96	96	98	92	86	72	R 67
31	U R 64	A	64	R	F	F	R 86	104	A	A	A	A	84	86	90	98	101	94	98	100	R 66	67	R 72	70
	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	27	24	23	22	28	27	23	17	18	19	22	24	27	24	28	28	26	27	27	27	25	22
MED	R 74	R 69	69	65	65	68	74	83	83	76	76	R 74	80	84	83	85	82	84	85	R 84	80	76	74	R 74
U Q	82	R 77	R 78	72	70	72	85	90	89	84	82	81	84	89	90	93	92	93	91	91	85	80	80	79
L Q	R 68	R 64	67	62	57	63	68	76	73	R 68	R 72	71	R 77	76	R 72	74	73	74	74	75	74	69	72	R 68

JUL. 2001 foF2 (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	L 704	A	A	A	U L 560	544	U L 580	U L 520	L	L						
2						A	L	A	A	A	U L 592	L 596	U L 552	A	A	A	A	L	A	A				
3							L	L	A	A	A	A	U L 552	U L 540	U L 552	C	L 512	L	L					
4						L	L	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	L	L	L	A					
7						L	A	A	A	A	A	A	A	A	A	U L 524	L	U L 448	L					
8						L	L	A	A	A	L	U L 580	A	U L 528	A	508	484	L	L					
9							L	L	A	A	A	A	A	A	504	492	460	A	A	A				
10							L	U L 488	488	480	U R 580	U L 552	536	552	U L 532	U L 516	U L 472	L	A					
11							L	A	A	A	A	A	A	524	524	C	C	L	A					
12							L	L	U L 536	L	A	U L 544	A	A	520	504	A	A	A					
13							U L 436	A	A	A	496	A	A	A	A	U L 496	U L 492	U L 440	L					
14							L	U L 468	A	U L 556	U L 568	536	U L 552	A	520	U L 508	U L 508	A				C	C	C
15						A		L	L	L	L	L	U L 568	U L 512	A	A	A	L	A	A				
16						L	U L 440	444	A	A	A	A	A	U L 524	U L 512	500	A	A	A					
17						L	396	444	U L 476	A	A	U L 500	A	U L 508	U L 444	A	A	A	A					
18							L	A	A	U L 548	520	U L 552	540	500	U L 548	U L 512	U L 492	L	A					
19						L		L	L	U L 520	536	U L 548	U L 572	U R 588	U L 560	U L 520	L 484	U L 452	L					
20						L	L	L	A	A	A	U L 568	A	552	U L 540	L 512	A	L	L					
21							A	A	492	A	U L 520	L 544	A	A	508	508	L 472	A	A					
22							L	L	A	A	A	A	A	U L 524	A	A	A	L	A					
23						U L 352	U L 400	A	A	492	U L 524	520	516	508	500	U L 540	U L 472	A	A					
24							L	A	A	A	L	A	A	A	L	L 504	L	L	A					
25						L	A	A	A	A	A	A	A	A	A	U L 488	L 516	A	L					
26						A	A	A	A	A	A	A	A	A	A	488	U L 468	L	A					
27							L	L	A	A	A	540		A	A	504	L 492	L 488	L	L				
28							A	A	A	A	A	A	A	A	U L 552	L	L	L						
29						A	L	A	L 488	A	A	A	A	L 532	L 520	A	U L 476	C	A					
30							L	L	L	496	A	A	A	A	A	A	A	A						
31								A	A	A	A	A	A	A	A	A	476	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	4	4	6	6	8	12	9	14	17	18	15	3						
MED						U L 352	U L 418	456	490	L 508	L U 530	U L 546	U L 552	526	U L 520	L 508	L 484	U L 448						
U Q							U L 438	U L 478	L 536	U L 548	U L 574	U L 560	U L 564	544	U L 550	U L 516	L 492	U L 452						
L Q							398	444	488	492	520	538	538	512	506	L 496	L U 472	L U 440						

JUL. 2001 foF1 (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						188	A	312	A	A	A	A	A	A	A	R	A	A	A	B				
2						A	A	U A 328	352	A	R	R	R	B	R	R	U R 324	284	A	B				
3						168	264	A	A	A	A	A	R	R	R	C	340	292	228	B				
4						164	264	304	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	R	R	284	A	B				
7						U A 188	U A 264	U A 308	A	A	A	A	A	A	A	A	A	A	A	B				
8						164	264	A	A	A	A	A	A	A	A	R	R	U R 284	U A 212	B				
9						U A 172	260	312	A	B	A	A	A	R	R	R	U R 332	284	U R 212	B				
10						U A 188	U A 268	300	A	R	A	R	R	R	R	R	U R 332	A	U A 216	B				
11						U A 188	A	U A 312	340	R	A	A	A	A	R	C	C	A	A	B				
12						U R 188	U R 288	A	A	A	A	A	A	B	B	R	A	292	212	B				
13						A	U A 264	308	344	A	R	A	A	A	A	A	A	A	A	B				
14						B	A	A	A	A	A	R	R	R	R	R	U R 336	292	A	B		C	C	C
15						B	232	A	A	A	A	R	R	B	B	R	U R 352	U R 344	A	212	B			
16						U A 188	256	A	A	R	A	A	A	A	A	R	R	288	U A 208	B				
17						B	260	A	R	A	A	B	B	B	R	A	A	A	A	B				
18						A	A	A	A	A	R	R	B	R	R	R	332	A	U A 216	B				
19						B	A	U R 312	U R 348	A	A	B	A	A	B	R	U R 364	R	R	B				
20						B	A	A	A	A	A	R	A	U R 416	R	R	U A 324	U A 288	A	B				
21						B	248	300	A	A	B	A	A	A	A	A	332	284	U A 192	B				
22						B	U A 256	A	R	A	A	A	A	A	A	A	A	A	A	B				
23						U R 168	252	300	A	A	A	R	A	A	A	A	A	A	A	B				
24						B	256	316	A	A	R	A	A	A	A	A	R	280	A	B				
25						B	A	A	A	A	A	A	A	A	U R 384	R	R	284	A	B				
26						U R 160	U A 260	A	A	U R 352	B	A	A	A	A	R	U R 328	U R 288	A	B				
27						A	A	A	344	A	A	A	A	A	A	A	A	A	U R 212					
28						B	U A 256	A	A	A	A	A	A	A	A	U R 352	328	276	A					
29						B	A	A	A	A	A	A	A	R	R	R	R	C	U R 168					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
31						B	U A 248	A	A	A	A	A	A	A	A	A	R	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						12	18	12	5	1				1	1	2	12	14	11					
MED						U 180	260	310	344	U R 352				U R 416	U R 384	U R 352	U R 332	284	U 212					
U Q						U A 188	U A 264	U 312	350								U R 338	288	U A 216					
L Q						166	256	302	342								U 328	284	U A 208					

JUL. 2001 foE (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 80	J A 53	J A 39	J A 24	J A 23	25	J A 41	J A 77	J A 126	J A 80	J A 101	J A 117	J A 52	46	J A 42	G 30	36	J A 32	J A 36	J A 26	J A 33	J A 33	J A 54	J A 76
2	J A 38	23	J A 27	J A 36	J A 58	J A 65	J A 54	J A 76	J A 49	J A 120	53	50	J A 53	65	52	J A 56	J A 52	J A 42	34	J A 48	J A 29	J A 23	J A 53	J A 99
3	J A 59	J A 64	J A 72	J A 34	J A 33	22	32	J A 46	J A 52	J A 94	J A 226	J A 160	G 42	G 29	45	C	42	J A 42	32	42	J A 24	J A 65	J A 50	J A 37
4	J A 50	24	J A 34	J A 33	J A 22	24	34	J A 60	J A 113	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J A 46	45	J A 122	J A 242	J A 121	J A 100	J A 110	J A 62	J A 78
7	J A 55	J A 64	J A 66	J A 40	J A 28	J A 45	J A 57	J A 68	J A 114	J A 114	J A 92	J A 136	J A 103	59	56	J A 48	J A 51	J A 40	J A 29	J A 23	24	J A 42	J A 79	J A 64
8	J A 45	J A 35	24	22	J A 24	25	J A 44	J A 76	J A 84	J A 77	J A 52	J A 49	J A 89	J A 54	53	G 31	G 34	32	30	J A 26	J A 23	J A 27	J A 32	J A 63
9	J A 53	J A 80	J A 41	J A 34	22	26	32	J A 53	J A 66	J A 101	J A 137	J A 162	J A 156	75	G 31	G 30	37	J A 66	76	J A 124	J A 102	J A 88	J A 97	J A 64
10	J A 83	J A 35	J A 27	22	23	22	30	39	44	G 32	J A 46	G	46	G	G 31	G 31	G 30	J A 47	J A 70	J A 21	J A 20	J A 48	J A 37	J A 44
11	J A 49	J A 54	J A 50	J A 27	J A 25	J A 26	J A 46	J A 94	J A 51	J A 128	J A 182	J A 118	J A 87	J A 50	G 38	C	C	J A 48	J A 49	J A 28	J A 57	J A 77	J A 82	J A 41
12	J A 34	J A 27	J A 28	J A 25	J A 26	G 18	G 25	J A 40	J A 43	40	J A 77	J A 50	54	63	E B 42	G 31	J A 50	64	J A 52	57	J A 53	J A 82	J A 49	J A 52
13	J A 44	J A 50	J A 52	J A 49	J A 46	J A 25	J A 52	J A 64	J A 54	J A 85	J A 52	72	J A 87	82	J A 66	J A 41	J A 50	J A 46	J A 36	J A 35	J A 37	J A 38	52	J A 54
14	J A 56	J A 56	J A 47	J A 32	J A 34	J A 26	32	J A 55	J A 54	J A 50	J A 46	G 30	44	47	G 32	G 32	J A 54	J A 68	J A 52	J A 27	J A 26	C	C	C
15	J A 23	E B 14	E B 14	E B 14	E B 15	40	J A 32	J A 48	35	J A 48	J A 74	J A 62	E B 47	E B 46	65	J A 74	J A 62	J A 47	J A 56	J A 86	68	J A 53	J A 83	J A 84
16	J A 58	J A 59	J A 29	J A 28	J A 20	22	30	J A 48	J A 124	J A 95	J A 80	J A 123	62	J A 54	J A 49	G 29	61	J A 87	J A 65	J A 65	J A 52	J A 66	J A 64	33
17	J A 34	J A 30	J A 29	J A 30	J A 29	20	J A 36	38	J A 44	J A 62	J A 116	J A 48	J A 71	48	G 32	J A 88	J A 102	J A 119	J A 109	J A 50	J A 112	35	50	38
18	J A 32	J A 28	J A 31	36	20	J A 27	J A 65	J A 118	J A 100	42	46	J A 45	E B 43	G	48	40	44	J A 46	J A 52	E B 20	E B 14	22	E B 22	14
19	20	E B 15	22	J A 16	J A 24	J A 25	30	G 28	40	J A 52	42	E B 46	42	41	E B 41	G 32	G 32	31	G	20	J A 24	J A 50	J A 38	E B 16
20	J A 22	J A 29	J A 17	E B 15	E B 14	20	30	J A 53	J A 72	44	J A 66	G	J A 54	49	J A 56	J A 50	J A 56	J A 50	J A 49	39	J A 24	J A 33	J A 54	50
21	J A 52	J A 60	J A 28	J A 30	J A 53	J A 32	J A 54	J A 81	J A 82	J A 62	E B 43	J A 51	52	J A 66	J A 48	42	J A 52	J A 64	J A 75	66	J A 47	J A 53	J A 60	20
22	E B 12	E B 14	E B 13	E B 16	E B 23	J A 22	32	38	J A 61	J A 91	52	J A 56	J A 76	54	J A 55	J A 51	J A 86	J A 54	J A 46	J A 38	J A 27	J A 41	J A 54	J A 92
23	J A 44	J A 51	J A 41	J A 40	J A 20	J A 26	33	J A 61	J A 63	J A 84	J A 52	G 36	J A 46	J A 50	J A 51	46	J A 55	J A 73	J A 97	J A 42	J A 32	J A 47	J A 27	28
24	J A 36	J A 23	J A 52	J A 34	J A 53	J A 28	34	J A 58	J A 82	J A 58	J A 62	J A 83	J A 71	J A 62	J A 50	50	J A 50	J A 63	J A 128	J A 103	J A 65	J A 54	J A 51	J A 49
25	J A 33	J A 53	J A 52	J A 55	J A 44	J A 24	J A 85	J A 119	J A 217	J A 186	J A 87	J A 167	J A 80	J A 99	J A 64	45	37	J A 80	J A 72	J A 40	J A 36	J A 48	J A 53	J A 85
26		J A 36	J A 44	J A 52	J A 77	J A 52	J A 54	J A 65	J A 55	66	J A 64	63	J A 104	J A 145	J A 65	39	38	J A 40	54	J A 50	J A 46	J A 45	J A 27	J A 61
27	J A 102	J A 84	J A 86	J A 50	J A 29	J A 34	29	37	J A 54	J A 102	J A 74	J A 51	J A 64	J A 52	J A 81	J A 48	J A 44	J A 35	26	J A 29	24	J A 46	J A 109	J A 65
28	J A 63	J A 34	J A 66	J A 36	J A 26	25	J A 63	J A 76	J A 57	J A 102	J A 109	J A 107	J A 68	J A 55	J A 53	J A 52	J A 55	32	J A 36	J A 44	J A 56	J A 33	33	J A 62
29	J A 41	J A 28	J A 24	28	J A 33	J A 45	J A 41	J A 46	J A 50	J A 110	J A 130	J A 80	J A 63	G 30	G 31	J A 46	44	C	J A 45	J A 45	J A 27	J A 50	J A 67	J A 78
30	J A 22	J A 110	J A 76	J A 52	J A 68	J A 40	30	44	J A 44	J A 51	J A 58	J A 55	J A 85	J A 127	J A 99	J A 118	J A 228	J A 52	42	J A 28	25	J A 45	J A 38	33
31	J A 68	J A 76	J A 49	J A 88	J A 49	J A 28	34	J A 76	J A 135	J A 126	J A 110	J A 118	J A 84	J A 126	J A 80	69	G 32	J A 38	J A 54	J A 52	J A 65	J A 46	J A 56	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	28	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	28	28	29	29	29	28	28	28
MED	J A 44	J A 36	J A 39	J A 33	J A 26	J A 26	34	J A 58	J A 57	J A 82	J A 70	J A 59	J A 64	54	50	46	J A 50	J A 48	J A 52	J A 42	J A 33	J A 46	J A 53	53
U Q	J A 57	J A 60	J A 52	J A 40	J A 45	J A 33	J A 53	J A 76	J A 92	J A 102	J A 105	J A 118	J A 84	J A 66	J A 60	J A 51	J A 55	J A 65	J A 71	J A 54	J A 56	J A 54	J A 63	J A 70
L Q	J A 34	28	27	24	22	23	31	45	J A 50	52	52	48	50	46	G 42	G 32	38	J A 40	36	J A 28	J A 24	J A 36	J A 38	J A 35

JUL. 2001 foEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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

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	64	40	30	21	16	22	36	48	62	53	79	80	50	46	42	G 30	35	31	29	22	28	18	45	42
2	23	E B 16	23	21	48	51	41	50	46	A A 120	52	49	50	64	52	53	52	41	33	45	18	E B 14	20	49
3	29	48	46	20	21	21	31	42	48	65	A A 226	A A 160	G 42	G 29	44	C	40	40	29	39	19	28	43	37
4	30	E B 16	E B 15	20	16	19	31	48	A A 113	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	35	40	31	A A 242	79	42	46	50	47
7	40	44	54	20	19	27	56	58	A A 114	A A 114	A A 92	A A 136	64	U Y 59	56	37	41	36	24	21	18	20	26	41
8	30	24	16	E B 14	E B 16	22	36	64	64	62	46	46	62	49	51	G 30	G 30	31	29	23	20	18	28	31
9	45	38	24	29	E B 15	24	31	50	64	A A 101	A A 137	A A 162	A A 156	72	G 30	G 30	36	56	A A 76	A A 124	26	42	47	45
10	42	21	E B 14	17	E B 16	20	29	36	42	G 32	45	G	45	G	G 31	G 31	G 30	40	63	20	E B 14	22	26	35
11	26	41	41	E B 14	18	20	35	A A 94	46	A A 128	62	A A 118	66	47	U Y 38	C	C	37	43	22	18	23	30	19
12	24	24	18	20	18	G 17	G 25	34	41	U Y 40	A A 77	45	U Y 54	63	E B 42	G 31	50	61	49	U Y 57	26	18	23	28
13	22	41	47	31	32	20	36	54	48	55	44	A A 72	59	A A 82	60	41	38	24	26	28	22	18	25	39
14	22	38	26	21	18	22	28	34	50	45	46	U Y 30	43	U Y 47	U Y 32	U Y 32	42	63	41	22	20	C	C	C
15	E B 16	E B 14	E B 14	E B 14	E B 15	38	29	40	U Y 35	46	46	52	E B 47	E B 46	63	A A 74	47	33	45	A A 86	41	29	21	E B 16
16	29	52	17	16	E B 16	21	28	41	A A 124	A A 95	A A 80	A A 123	A A 62	48	44	G 29	58	62	39	57	27	40	A A 64	23
17	23	20	23	26	20	18	31	35	42	A A 62	A A 116	47	A A 71	48	G 32	A A 88	56	56	39	23	A A 112	28	24	18
18	22	22	20	34	E B 15	18	33	44	48	42	45	42	E B 43	G	44	38	43	35	48	E B 20	E B 14	16	16	E B 14
19	E B 16	E B 15	E B 16	E B 14	16	20	27	G 28	38	45	39	E B 46	42	U Y 41	E B 41	G 32	G 30	30	G	17	E B 15	22	23	E B 16
20	17	22	E B 14	E B 15	E B 14	20	28	41	48	42	48	G	52	49	48	44	54	34	31	36	E B 14	23	18	20
21	22	20	23	23	17	23	43	53	43	58	E B 43	50	U Y 52	64	45	42	43	59	48	59	35	27	42	16
22	E B 12	E B 14	E B 13	E B 16	E B 16	19	28	35	60	A A 91	U Y 52	A A 56	A A 76	50	54	46	63	38	42	30	24	24	35	A A 92
23	30	33	28	25	16	20	32	54	60	44	46	G 36	41	41	44	44	42	50	58	38	28	28	22	22
24	25	20	28	26	46	20	32	50	79	56	58	51	66	55	47	44	42	35	66	28	43	28	19	20
25	19	21	17	38	28	19	A A 85	A A 119	A A 217	A A 186	A A 87	A A 167	A A 80	A A 99	62	42	36	50	31	35	19	20	45	16
26		23	21	28	48	45	47	44	50	A A 66	A A 64	63	A A 104	A A 145	64	U Y 39	37	33	49	21	46	36	20	A A 61
27	21	24	A A 86	36	24	28	27	34	46	80	66	47	53	52	43	41	38	34	22	19	18	37	21	27
28	29	24	52	19	16	22	53	63	52	50	49	74	62	53	51	46	44	32	34	41	E B 16	E B 16	28	32
29	26	20	17	21	16	29	40	44	42	A A 110	A A 130	65	60	U Y 30	G 31	46	39	C	41	42	23	25	42	46
30	E B 13	42	27	33	46	24	27	41	44	44	50	54	78	A A 127	A A 99	A A 118	64	42	41	22	17	36	30	26
31	20	A A 76	21	20	46	18	33	68	A A 135	A A 126	A A 110	A A 118	64	64	77	66	G 30	33	27	34	50	31	38	19
	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	29	29	29	29	29	29	28	28	28	28	28	28	27	28	28	29	29	29	28	28	28
MED	24	24	23	21	17	21	32	44	48	60	55	53	60	50	44	41	42	36	41	30	22	24	27	28
U Q	30	40	29	27	26	24	38	54	A A 64	A A 98	A A 84	A A 99	A A 66	64	55	46	48	50	48	44	32	30	42	42
L Q	20	E B 20	E B 16	E B 16	E B 16	20	28	38	44	45	46	46	48	46	42	G 32	36	33	29	22	E B 18	19	22	19

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	16	15	16	15	14	16	17	16	17	14	19	25	23	30	23	17	16	15	14	13	16	12	16	15
2	14	16	16	16	16	16	14	16	16	23	22	28	28	44	30	25	16	15	15	16	16	14	15	16
3	16	13	17	16	16	13	14	17	17	22	24	28	31	21	19	C	15	16	16	14	13	14	16	16
4	14	16	15	16	14	13	14	15	18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	23	17	14	12	14	14	16	14	15
7	13	12	15	15	15	15	15	16	14	16	21	27	27	38	28	20	18	16	16	13	15	15	16	16
8	16	16	15	14	16	12	14	16	15	22	21	18	35	22	24	16	19	14	14	14	14	14	16	15
9	15	16	16	14	15	12	15	15	17	40	24	23	34	26	21	15	20	16	15	14	16	14	16	15
10	15	16	14	12	16	13	14	15	18	18	21	26	21	28	22	20	21	14	13	14	14	14	12	15
11	16	12	16	14	15	13	14	15	14	16	24	28	38	28	22	C	C	14	14	13	13	13	15	15
12	16	15	15	16	15	14	15	15	21	24	28	35	30	42	42	20	18	17	16	14	16	12	12	12
13	15	15	14	14	16	16	14	15	15	18	25	38	39	36	33	20	17	18	15	13	15	15	14	13
14	15	16	13	14	15	16	15	15	15	17	19	22	20	22	18	21	19	16	13	13	14	C	C	C
15	16	14	14	14	15	16	16	17	17	18	24	28	47	46	21	20	22	17	15	14	13	16	14	16
16	15	16	15	13	16	15	13	16	14	19	18	17	19	18	17	19	20	16	15	16	13	15	12	12
17	15	16	15	16	15	13	14	18	18	22	31	45	43	41	24	26	15	16	14	17	12	14	15	12
18	14	15	16	16	15	14	16	15	14	25	22	24	43	30	28	28	20	16	16	20	14	12	12	14
19	15	15	16	14	11	16	14	16	19	26	18	46	19	26	41	21	20	14	13	16	15	15	16	16
20	15	13	14	15	14	15	15	16	17	20	23	28	26	29	19	26	16	16	15	14	14	15	15	14
21	12	15	16	15	16	16	16	15	16	23	43	34	33	34	22	18	19	14	14	13	12	15	15	14
22	12	14	13	16	16	14	16	14	24	14	27	20	40	35	33	22	15	18	16	15	15	16	16	15
23	15	12	15	15	12	13	14	14	16	16	18	25	28	21	19	16	16	13	15	14	14	15	13	16
24	14	12	15	15	16	16	13	16	18	21	25	26	27	34	23	20	15	16	15	16	16	15	16	14
25	15	16	14	15	15	14	16	16	17	18	17	14	22	35	21	19	17	15	16	14	12	15	15	12
26		15	16	15	13	13	15	15	16	21	39	28	22	22	24	22	21	15	14	13	16	14	14	14
27	16	16	15	16	16	16	16	18	19	19	20	22	18	22	19	20	14	14	14	15	14	12	16	13
28	16	12	15	12	14	15	15	17	15	20	16	36	34	34	25	20	20	16	15	14	16	16	15	16
29	15	13	14	16	12	16	16	15	17	20	31	25	20	24	22	21	20	C	13	16	16	15	13	12
30	13	16	15	15	15	12	13	16	17	20	18	22	22	23	20	16	17	14	14	12	12	16	15	16
31	15	13	15	16	16	15	14	17	14	19	23	17	28	34	21	18	16	15	13	15	16	13	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	28	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	28	28	29	29	29	28	28	28
MED	15	15	15	15	15	15	15	16	17	20	22	26	28	30	22	20	18	16	15	14	14	15	15	15
U Q	16	16	16	16	16	16	16	16	18	22	25	28	34	35	26	22	20	16	15	16	16	15	16	16
L Q	14	13	14	14	14	13	14	15	15	18	19	22	22	22	20	18	16	14	14	13	13	14	14	14

JUL. 2001 fmin (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	R 268	R 278	R 269	F 278	F	279	299	299	260	R 329	265	R 270	268	R 271	270	283	279	291	285	284	270	260	264	R
2	R 285	R 274	283	268	282	297	291	299	284	A	261	249	274	263	271	276	281	294	296	290	R	258	263	265
3	S 276	R 292	R 273	276	282	F	290	301	301	295	A	A	276	278	273	C	281	294	293	299	R 282	274	R 268	R
4	R 273	R 279	R 290	266	286	285	289	315	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	283	284	294	A	R 290	R 327	R 263	F	R
7	R 267	R 290	R 262	R 270	F	288	310	307	A	A	A	A	280	286	291	286	294	291	296	R 292	R 293	R 284	R 284	R 281
8	R 278	R 283	283	276	R 280	F	296	285	306	295	319	R 266	R 260	270	280	284	281	281	283	R 305	U S 324	R 261	275	R 260
9	284	298	290	R 282	277	270	304	R 284	324	A	A	A	A	261	264	278	294	290	A	A	R 269	R 266	R 271	R 287
10	R 292	R 273	R 280	277	276	309	320	323	336	R 334	267	272	270	279	277	277	284	283	296	281	290	267	R 278	R 259
11	V 252	275	271	277	276	276	258	A	289	A	268	A	285	288	R 284	C	C	298	303	R 291	290	251	R 252	R 283
12	271	R 278	277	R 285	286	302	315	292	293	R 291	A	R 278	268	267	274	271	285	288	303	U R 295	282	272	273	R 269
13	256	R 261	R 281	R 269	F 278	R 312	287	283	282	280	R 292	A	R 274	A	295	R 295	282	298	300	305	271	272	R 259	S 275
14	R 274	R 275	302	303	280	317	R 280	291	314	269	265	275	288	283	285	281	292	293	302	295	R 281	C	C	C
15	275	273	U R 276	285	292	281	267	R 284	R 292	R 287	275	R 287	277	R 299	286	A	281	292	296	A	291	269	R 263	271
16	276	274	285	256	F	263	253	277	A	A	A	A	A	256	264	288	287	291	295	R 287	R 282	262	A	R 263
17	R 261	R 262	269	269	275	277	R 283	275	R	A	A	251	A	R 239	R 250	A	279	291	296	294	A	R 251	S 259	R 262
18	265	265	273	285	275	U S 309	276	296	325	263	U R 301	U R 281	281	U R 298	296	311	291	288	294	R 301	275	R 286	270	S 269
19	273	279	286	286	283	302	280	277	285	R 283	301	R 294	R 258	275	283	300	306	308	312	R 296	266	F	291	270
20	278	290	259	288	289	288	361	R 314	324	R 300	R 295	267	288	283	297	293	298	299	284	R 277	R 282	296	277	267
21	R 277	R 278	288	279	R 295	299	294	272	280	293	272	R 271	288	R 286	286	292	300	301	R 279	U R 270	S 290	R 277	S 292	R 285
22	270	R 278	276	289	287	309	315	R 301	R 312	A	U R 264	A	A	U R 277	R 280	277	285	280	287	277	296	281	283	A
23	259	259	262	290	267	F	278	273	296	269	R 294	U R 261	U R 255	R 269	283	R 266	282	289	276	283	S 293	278	281	276
24	R 272	267	272	F	F 287	330	308	319	318	321	R 272	R 289	272	290	277	292	293	282	R 296	R 283	V 296	R 288	F	R 272
25	R 284	R 276	R 287	R 291	F	F	A	A	A	A	A	A	A	A	R 277	284	279	280	R	284	R 280	283	R 258	270
26		R 288	R 275	R 273	R 292	F	294	R 295	288	A	A	R 259	A	A	280	314	316	306	299	298	R 277	275	R 261	A
27	R 261	R 268	A	F	R 317	301	300	307	303	295	307	279	281	295	R 287	282	287	301	308	R 286	278	R 285	R 264	F
28	R 294	F	R 297	F	F	R 309	319	324	299	285	291	292	294	276	277	294	297	312	318	R 301	275	283	301	R 304
29	R	R 282	293	298	285	314	294	310	325	A	A	310	303	303	286	275	284	C	291	R 294	U R 304	286	269	R 271
30	R 303	R 276	F	F	R 299	F	321	296	304	319	318	289	R 280	A	A	A	295	294	290	291	284	305	289	R 276
31	R 290	A	300	R	F	F	R 317	357	A	A	A	A	283	277	270	284	291	276	293	324	R 287	247	R 262	271
	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	27	24	23	22	28	27	23	17	18	19	22	24	27	24	28	28	26	27	27	27	25	22
MED	R 274	R 276	280	278	283	300	294	296	301	293	283	R 275	278	278	280	284	286	292	296	R 291	282	274	270	R 271
U Q	R 284	R 282	288	287	R 289	309	312	310	318	R 310	301	289	285	287	286	292	294	298	300	298	293	R 284	282	R 276
L Q	267	273	272	272	277	281	282	284	288	282	267	R 266	270	270	273	278	282	288	290	284	277	262	R 262	R 267

JUL. 2001 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	L 339	A	A	A	U L 332	360	U L 317	U L 364	L	L						
2						A	L	A	A	A	U L 309	L 307	U L 325	A	A	A	A	L	A	A				
3							L	L	A	A	A	A	U L 372	U L 338	U L 338	C	L 332	L	L					
4						L	L	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	L	L	L	A					
7						L	A	A	A	A	A	A	A	A	A	U L 345	L	U L 346	L					
8						L	L	A	A	A	L	U L 336	A	U L 339	A	368	347	L	L					
9							L	L	A	A	A	A	A	A	362	383	438	A	A	A				
10							L	U L 350	389	414	U R 351	U L 366	366	350	U L 352	U L 344	U L 367	L	A					
11							L	A	A	A	A	A	A	356	352	C	C	L	A					
12							L	L	U L 356	L	A	U L 354	A	A	354	370	A	A	A					
13							U L 318	A	A	A	404	A	A	A	A	U L 358	U L 333	U L 341	L					
14							L	U L 348	A	U L 338	U L 312	348	U L 360	A	359	U L 336	U L 333	A				C	C	C
15						A		L	L	L	L	L	U L 369	U L 379	A	A	A	L	A	A				
16						L	U L 325	340	A	A	A	A	A	U L 314	U L 364	337	A	A	A					
17						L	318	354	U L 371	A	A	U L 353	A	U L 357	U L 313	A	A	A	A					
18							L	A	A	U L 356	381	U L 356	369	405	U L 341	U L 355	U L 362	L	A					
19						L		L	L	U L 355	368	U L 361	U L 358	R 355	U L 350	U L 368	354	L 335	L					
20						L	L	L	A	A	A	U L 355	A	356	U L 342	L 353	A	L	L					
21							A	A	367	A	U L 377	L 319	A	A	357	349	L 362	A	A					
22							L	L	A	A	A	A	A	U L 324	A	A	A	L	A					
23						U L 299	U L 335	A	A	384	U L 330	362	384	353	359	U L 322	U L 356	A	A					
24							L	A	A	A	L	A	A	A	L	L 334	L	L	A					
25						L	A	A	A	A	A	A	A	A	A	U L 342	L 316	A	L					
26						A	A	A	A	A	A	A	A	A	A	359	U L 345	L	A					
27							L	L	A	A	A	358	A	A	362	366	L 333	L	L					
28							A	A	A	A	A	A	A	A	U L 328	L	L	L						
29						A	L	A	L 373	A	A	A	A	L 349	L 338	A	U L 344	C	A					
30							L	L	L	391	A	A	A	A	A	A	A	A						
31								A	A	A	A	A	A	A	A	A	344	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	4	4	6	6	8	12	9	14	17	18	15	3						
MED						U L 299	U L 322	349	L 369	L 370	U 360	U L 354	U L 366	354	U L 352	L 354	L 345	U L 341						
U Q							U L 330	352	373	391	379	360	U L 370	357	359	366	L 362	U L 346						
L Q							318	344	L 356	U L 355	U L 321	L 342	U L 345	U L 339	U L 338	U L 342	333	U L 335						

JUL. 2001 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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						308	280	284	410	288	E A 424	E A 396	368	352	350	322	328	320						
2						302	298	262	280	A	398	434	374	384	364	348	328	298	286	282				
3							300	274	290	E A 308	A	A	352	332	338	C	330	296	276					
4						312	322	270	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	340	324	320	A					
7						304	274	292	A	A	A	A	E A 374	332	318	338	326	314	288					
8						306	286	302	280	282	294	426	E A 402	368	348	330	336	324	304					
9							300	322	274	A	A	A	A	E A 414	370	340	314	318	A	A				
10							286	270	270	284	428	386	372	358	364	348	330	306	300					
11							352	A	314	A	E A 382	A	346	358	368	C	C	312	284					
12							260	266	328	306	A	382	378	E A 388	378	370	326	E A 316	286					
13							340	E A 328	366	E A 398	376	A	412	A	354	352	380	328	310					
14							294	308	298	384	412	370	364	354	368	364	354	344				C	C	C
15						308		300	310	294	384	360	366	316	364	A	314	310	298	A				
16						362	424	378	A	A	A	A	A	470	438	362	354	E A 354	306					
17						342	352	382	R	A	A	506	A	U R 548	520	A	E A 406	338	310					
18							280	320	306	458	348	382	370	322	336	302	348	332	296					
19						290		372	302	324	332	358	448	376	344	322	310	306	284					
20						324	244	278	290	258	E A 284	432	360	372	338	316	322	312	338					
21							286	380	356	316	356	414	368	E A 396	366	344	332	E A 330	E A 348					
22							288	296	E A 330	A	E A 468	A	A	392	378	378	E A 368	328	314					
23						398	350	336	298	284	364	464	454	454	394	464	360	328	E A 428					
24							276	274	E A 380	E A 274	400	348	392	340	342	316	310	308	E A 318					
25						378	A	A	A	A	A	A	A	A	E A 454	380	376	354	328					
26						E A 352	E A 326	E A 344	E A 382	A	A	E A 434	A	A	366	296	302	300	E A 322					
27							304	292	282	E A 386	E A 326	370	376	344	370	366	340	296	274					
28							266	E A 278	E A 308	360	338	E A 368	E A 342	E A 364	364	316	310	284						
29						258	332	282	276	A	A	330	330	332	352	334	322	C	286					
30							268	312	300	290	278	358	E A 436	A	A	A	332	294						
31								244	A	A	A	A	E A 354	358	E A 402	328	304	332	280					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						14	25	27	23	17	18	19	22	24	27	24	28	28	23	1				
MED						309	291	294	296	297	U 356	376	369	357	364	340	328	315	293	282				
U Q						352	329	328	330	372	400	432	392	390	378	363	351	329	E A 318					
L Q						304	278	274	282	284	332	360	360	342	348	322	318	306	286					

JUL. 2001 h'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	E A 362	E A 310	E A 298	Q 290	Q 290	238	E A 254	A	E A 282	A	A	A	E A 294	244	226	220	E A 226	230	E A 266	E A 252	E A 288	E A 312	E A 342	E A 332
2	E A 290	278	274	E A 318	E A 324	A	E A 278	A	A	A	E A 330	E A 304	E A 336	A	A	A	A	A	A	A	E A 262	286	E A 318	E A 330
3	E A 288	E A 286	E A 310	E A 292	E A 276	254	E A 256	A	A	A	A	A	226	E A 278	E A 262	C	254	E A 258	E A 254	E A 256	242	E A 282	E A 342	E A 338
4	E A 306	276	262	E A 292	264	250	246	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E A 250	E A 256	240	A	E A 356	260	E A 334	E A 340	E A 344
7	E A 338	E A 324	E A 388	326	E A 314	E A 262	A	A	A	A	A	A	A	A	A	214	E A 274	E A 232	244	270	244	E A 302	268	E A 330
8	E A 296	E A 304	272	264	268	244	E A 252	A	A	A	E A 276	242	A	E A 312	A	230	226	246	E A 260	260	226	220	E A 304	E A 316
9	E A 316	270	256	E A 306	298	E A 262	230	E A 296	A	A	A	A	A	A	E A 256	244	182	A	A	A	E A 280	E A 350	E A 336	E A 330
10	E A 302	E A 306	290	282	292	256	222	202	220	204	228	200	226	224	226	228	206	A	A	250	240	272	E A 306	E A 336
11	E A 338	E A 324	E A 320	266	268	242	E A 258	A	A	A	A	A	A	E A 266	234	C	C	E A 278	A	270	260	E A 316	E A 390	288
12	E A 318	E A 304	E A 290	E A 290	272	260	226	214	208	E A 246	A	218	A	A	224	226	A	A	E A	E A 320	290	276	E A 288	E A 316
13	336	E A 348	322	E A 322	312	256	E A 290	A	A	A	206	A	A	A	A	234	232	214	232	256	252	E A 280	E A 322	E A 356
14	E A 320	E A 326	274	248	E A 268	246	216	224	A	E A 266	E A 284	260	224	A	224	232	E A 270	A	286	262	250	C	C	C
15	276	290	276	268	238	A	230	E A 232	216	E A 266	236	E A 300	218	E B 256	A	A	A	240	A	A	E A 280	E A 300	E A 302	284
16	304	E A 360	286	328	308	264	226	240	A	A	A	A	A	E A 344	236	E A 280	A	A	A	E A 328	272	E A 326	A	E A 344
17	E A 332	E A 324	318	E A 312	298	256	254	234	228	A	A	E A 290	A	E A 282	E A 284	A	A	A	A	E A 278	A	E A 330	E A 346	E A 318
18	E A 322	E A 326	E A 310	E A 300	E A 278	266	E A 252	A	A	222	218	212	210	208	220	218	228	E A 242	A	252	232	262	E A 292	290
19	298	292	278	246	266	256	224	218	218	E A 258	212	200	204	210	212	226	232	222	236	252	228	334	272	278
20	280	266	278	274	262	254	208	A	A	A	A	214	A	E A 270	E A 278	E A 246	A	E A 246	E A 256	E A 292	268	252	248	E A 296
21	E A 330	298	264	286	262	258	A	A	E A 244	A	212	E A 332	A	A	E A 260	230	E A 270	A	A	E A 376	292	E A 304	E A 300	244
22	272	300	300	278	274	254	E A 252	230	A	A	A	A	A	E A 352	A	A	A	E A 258	A	E A 286	256	250	E A 284	A
23	E A 376	E A 372	E A 352	E A 302	E A 312	282	E A 252	A	A	234	E A 272	246	212	224	E A 254	E A 292	206	A	A	E A 302	E A 278	E A 298	E A 274	E A 270
24	E A 322	E A 322	E A 326	330	E A 306	234	228	A	A	A	A	A	A	A	E A 292	E A 280	E A 262	E A 244	A	E A 270	E A 288	E A 272	258	292
25	E A 322	E A 322	270	E A 326	E A 348	E A 292	A	A	A	A	A	A	A	A	A	E A 256	216	A	E A 272	E A 276	268	E A 296	E A 370	292
26		236	E A 312	E A 334	E A 328	A	A	A	A	A	A	A	A	A	A	E A 242	E A 224	E A 232	A	266	E A 322	E A 364	E A 294	A
27	E A 318	E A 318	A	E A 330	E A 282	242	224	216	A	A	A	242	A	A	228	236	E A 246	E A 254	240	268	270	E A 282	E A 302	E A 360
28	E A 278	E A 264	E A 316	244	E A 256	256	A	A	A	A	A	A	A	A	E A 292	A	A	238	256	262	274	274	E A 268	268
29	E A 310	E A 298	276	E A 292	286	A	E A 260	A	E A 232	A	A	A	A	236	222	A	E A 246	C	A	E A 288	244	E A 278	E A 342	E A 368
30	258	E A 376	E A 354	E A 296	E A 322	244	228	E A 244	E A 260	212	A	A	A	A	A	A	A	A	E A 282	250	266	266	E A 276	E A 300
31	E A 296	A	E A 280	E A 318	E A 348	256	E A 246	A	A	A	A	A	A	A	A	A	E A 242	E A 256	E A 264	240	E A 310	E A 374	E A 358	E A 286
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	29	29	25	24	11	9	8	10	13	9	14	18	19	19	17	13	26	28	28	27	26
MED	E A 313	E A 305	280	E A 292	277	255	U 232	223	218	240	U 220	U 227	218	E 261	226	227	U 219	E A 242	E A 256	260	257	E A 291	E A 302	E A 316
U Q	E A 326	E A 324	E A 317	E A 320	E A 312	261	E A 254	E A 240	E A 252	E A 262	E A 276	E A 295	E A 260	E A 282	262	250	E A 256	255	E A 269	E A 288	E A 280	E A 321	E A 342	E A 336
L Q	293	288	275	276	268	245	226	216	217	217	212	213	211	224	224	226	224	232	242	256	247	273	276	288

JUL. 2001 h'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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						122	122	122	A	A	A	A	A	A	A	120	120	A	A	B				
2						A	A	120	118	A	120	118	118	B	118	120	124	120	120	B				
3						120	120	A	A	A	A	A	120	118	122	C	126	124	118	B				
4						128	124	118	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	122	122	118	A	B				
7						124	120	118	118	A	A	A	A	A	A	A	A	A	A	B				
8						120	116	A	A	A	A	A	A	A	A	120	124	120	124	B				
9						120	120	120	122	B	A	A	A	120	122	120	118	122	116	B				
10						126	124	118	118	126	A	120	120	120	118	122	120	116	120	B				
11						122	120	120	120	118	A	A	A	A	A	C	C	A	A	B				
12						126	126	A	A	A	A	A	A	B	B	124	124	118	118	B				
13						132	122	120	120	122	122	A	A	A	A	A	A	A	A	B				
14						B	A	A	A	A	A	128	118	120	122	124	122	122	A	B		C	C	C
15						B	116	118	118	A	118	122	B	B	118	124	120	A	120	B				
16						120	126	126	120	118	A	A	A	A	A	122	128	126	116	B				
17						B	128	A	122	A	A	B	B	B	122	A	A	A	A	B				
18						E A 142	A	A	A	122	118	118	B	120	122	126	124	A	116	B				
19						B	122	124	120	118	118	B	A	A	B	122	122	120	120	B				
20						B	122	A	A	A	A	118	A	126	120	124	124	120	A	B				
21						B	120	120	A	A	B	A	A	A	A	A	122	124	116	B				
22						B	124	126	120	A	A	118	A	A	A	A	122	A	A	B				
23						124	124	118	A	A	A	124	A	A	A	A	A	A	A	B				
24						B	124	122	122	122	124	A	A	A	A	A	122	122	A	B				
25						B	122	A	A	A	A	A	A	A	126	118	122	124	122	B				
26						122	120	A	120	126	B	A	A	A	A	124	124	122	A	B				
27						A	124	124	122	A	A	A	A	A	A	A	A	A	122					
28						B	124	A	A	A	A	A	A	A	A	126	122	122	118					
29						B	122	A	A	A	A	A	A	120	120	120	120	C	120					
30						B	A	124	A	A	A	A	A	A	A	A	A	A	A					
31						B	124	A	A	A	A	A	A	A	A	A	124	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						14	25	17	14	8	6	8	4	7	11	17	22	16	15					
MED						122	122	120	120	122	119	119	119	120	122	122	122	122	120					
U Q						126	124	124	122	124	122	123	120	120	122	124	124	123	120					
L Q						120	120	118	118	118	118	118	118	120	118	120	122	120	116					

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 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	100	96	98	100	94	128	122	114	108	106	104	102	106	106	102	106	106	100	122	98	98	98	102	108
2	104	106	102	100	98	104	106	120	116	106	132	136	128	124	124	116	120	118	128	116	110	122	108	108
3	108	104	94	98	106	122	120	108	106	104	102	104	110	106	142	C	130	126	116	108	110	106	110	108
4	106	102	102	96	108	126	124	114	108	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	134	130	118	110	110	110	108	110	108
7	106	108	104	104	106	126	118	114	112	108	106	106	106	110	108	110	108	110	106	102	108	112	110	110
8	102	96	102	112	102	122	116	108	108	110	108	106	104	104	106	106	106	142	120	100	102	100	112	104
9	108	102	100	106	104	118	122	118	114	112	108	110	110	124	108	110	140	116	112	112	108	110	106	106
10	104	102	104	100	100	160	150	120	114	104	112	G	136	G	108	108	112	116	110	120	106	104	106	104
11	102	102	100	106	100	124	120	116	118	106	110	104	108	112	110	C	C	122	110	108	104	106	110	102
12	96	98	94	94	98	112	112	106	108	110	104	108	112	116	B	110	130	116	116	116	126	108	106	104
13	102	100	98	98	98	108	120	112	116	114	116	110	110	108	106	112	108	106	104	104	102	104	102	104
14	102	100	102	98	98	112	106	102	102	100	102	106	130	126	110	108	118	112	110	108	106	C	C	C
15	110	B	B	B	B	110	114	112	120	112	122	124	B	B	126	124	124	124	114	110	108	112	108	110
16	108	106	106	104	142	126	124	120	112	114	108	104	106	110	108	104	120	114	112	110	112	104	102	102
17	98	98	112	112	114	116	126	114	118	108	106	112	112	120	110	108	134	108	104	102	108	104	108	104
18	100	98	96	100	102	112	110	112	106	122	116	116	B	G	134	136	126	122	112	B	B	104	102	B
19	100	B	116	114	106	112	122	106	130	118	116	B	108	108	B	110	104	128	G	114	108	110	104	B
20	100	94	96	B	B	116	114	110	106	110	108	G	110	132	122	122	114	118	108	106	108	108	104	100
21	100	100	98	98	112	122	120	116	110	108	B	108	108	102	106	108	128	116	112	112	106	112	108	98
22	B	B	B	B	102	118	136	128	112	104	112	118	110	112	106	112	118	104	118	102	102	114	104	100
23	114	108	108	106	120	126	122	112	106	110	106	110	104	102	102	132	130	122	114	110	108	112	106	104
24	100	106	102	100	100	106	134	122	116	114	112	110	108	104	110	110	130	116	106	104	120	108	108	106
25	104	106	104	98	102	112	116	108	108	104	106	102	106	112	132	136	148	120	120	116	112	108	108	106
26		100	102	106	104	122	120	108	116	114	112	110	108	102	106	126	134	128	100	106	104	98	98	110
27	108	104	104	108	108	108	124	120	114	106	104	110	108	104	106	104	100	100	124	100	100	110	106	108
28	106	104	102	98	100	156	120	110	108	110	108	108	112	110	110	122	124	124	120	110	108	102	102	102
29	96	96	100	96	126	106	122	106	104	102	104	106	106	110	112	122	126	C	114	116	104	106	108	104
30	106	100	102	102	96	100	106	112	128	106	106	112	108	106	108	104	102	102	102	100	102	100	96	96
31	98	106	102	102	102	104	124	112	110	108	110	106	110	106	104	104	108	104	100	100	98	98	116	108
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	26	27	29	29	29	29	28	27	25	26	25	26	27	28	28	28	28	28	28	28	26
MED	102	102	102	100	102	116	120	112	112	108	108	108	108	110	108	110	122	116	112	108	108	107	106	104
U Q	106	106	104	106	108	125	124	117	116	112	112	111	110	114	112	122	130	122	117	112	109	110	108	108
L Q	100	98	98	98	100	109	115	108	108	106	106	106	106	105	106	108	108	109	107	102	103	104	103	102

IONOSPHERIC DATA STATION Kokubunji

JUL. 2001 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

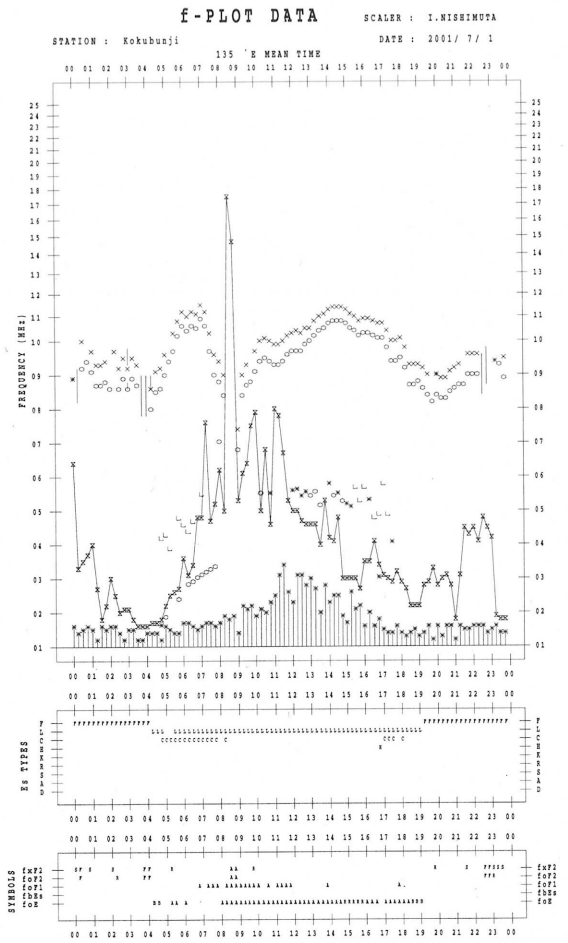
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

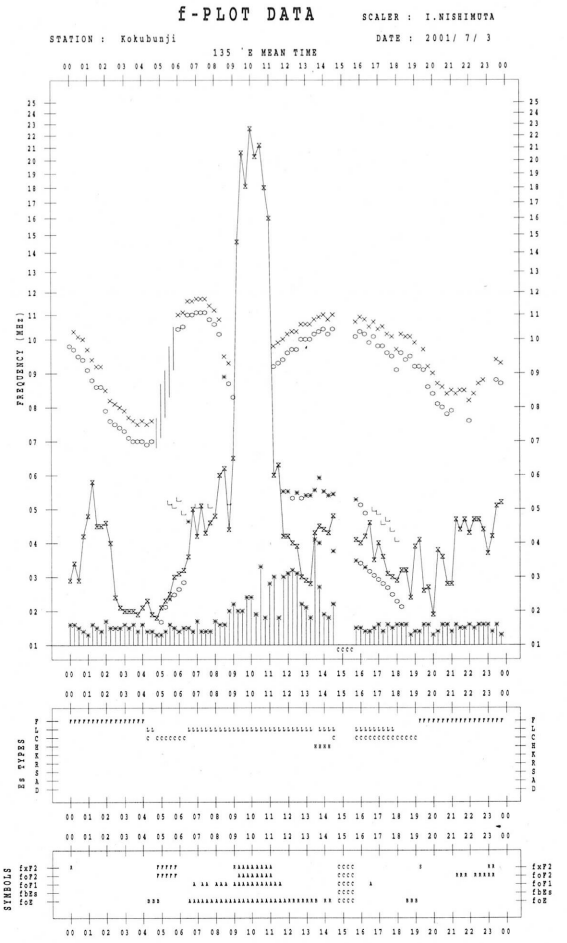
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 4	F 3	F 2	F 2	F 1	C 1	CL 21	CL 31	L 2	L 2	L 1	L 2	L 1	L 1	L 1	L 1	L 1	LC 21	CL 22	L 3	F 3	F 4	F 4	F 3
2	F 3	F 1	F 3	F 3	F 4	L 2	L 2	CL 21	CL 21	L 2	CL 11	CL 11	CL 11	C 2	C 1	C 1	CL 21	CL 21	C 3	C 3	F 2	F 1	F 2	F 3
3	F 4	F 4	F 3	F 2	F 3	C 2	C 2	L 2	L 2	L 3	L 3	L 2	L 1	L 1	HL 11		CL 11	CL 21	C 2	C 4	F 4	F 3	FF 51	F 5
4	F 4	F 2	F 2	F 2	F 1	C 2	CL 21	CL 41	L 3															
5																								
6																C 1	CL 11	CL 11	L 3	L 3	F 2	F 3	F 6	F 5
7	F 6	F 4	F 4	F 2	F 3	C 2	C 3	CL 31	CL 31	L 3	L 2	L 2	L 2	L 2	L 2	L 1	L 2	L 2	L 3	L 2	F 2	F 4	F 3	F 3
8	F 4	F 4	F 1	F 2	F 1	C 3	C 3	L 3	L 2	L 2	L 2	L 1	L 2	L 2	L 1	L 1	L 2	HL 11	CL 21	L 3	F 2	F 2	FF 25	F 3
9	F 3	F 4	F 3	F 5	F 2	C 3	CL 31	CL 21	CL 21	C 2	L 2	L 2	L 2	CL 21	L 1	L 1	HL 11	CL 31	C 4	C 4	F 3	F 3	F 3	F 3
10	F 3	F 2	F 2	F 1	F 1	H 1	HL 11	CL 11	CL 21	L 1	L 1		HL 11		L 1	L 1	L 1	CL 31	CL 41	C 1	F 2	F 3	F 4	F 4
11	F 3	F 4	F 4	F 2	F 2	C 2	CL 21	CL 31	CL 11	CL 31	L 1	L 2	L 2	L 1	L 1			CL 22	L 3	L 4	F 3	F 2	F 4	F 2
12	F 3	F 3	F 3	F 1	F 2	L 1	L 1	L 2	L 2	L 1	L 2	L 1	L 1	C 1		L 1	HL 11	C 3	C 4	L 3	FF 24	F 3	F 3	F 3
13	F 5	F 4	F 4	F 3	F 3	LC 11	CL 31	CL 21	CL 21	CL 11	CL 11	L 2	L 2	L 2	L 2	L 1	L 1	L 2	L 3	L 4	F 5	F 3	F 2	F 3
14	F 3	F 2	F 4	F 3	F 2	CL 11	L 2	L 2	L 2	L 1	L 1	L 1	CL 11	CL 11	L 1	L 1	CL 21	CL 31	L 3	L 3	F 2			
15	F 1					C 3	C 2	CL 21	CL 11	L 1	CL 11	CL 11			CL 11	CL 11	C 1	CL 11	C 2	L 3	F 3	F 3	F 2	F 3
16	F 5	F 6	F 2	F 3	F 1	C 1	CL 21	CL 22	CL 31	CL 31	L 2	L 2	L 1	L 1	L 1	L 1	CL 21	CL 31	C 2	L 3	F 3	F 5	F 3	F 2
17	F 2	F 2	FF 32	F 3	F 4	C 1	CL 11	L 1	CL 11	L 2	L 2	L 1	L 2	C 1	L 1	L 2	CL 21	L 2	L 2	L 2	F 3	F 3	F 3	F 2
18	F 5	F 3	F 5	F 3	F 1	L 1	L 2	L 2	L 2	C 1	C 1	C 1			CL 11	CL 11	CL 11	CL 22	C 3			F 1	F 1	
19	F 1		F 1	F 1	F 2	L 2	CL 11	L 1	CL 11	CL 11	CL 11		L 1	L 1		L 1	L 1	CL 11		C 2	F 1	F 2	F 3	
20	F 2	F 4	F 3			C 1	C 2	L 2	L 2	L 1	L 1		L 1	C 2	CL 11	CL 21	CL 21	CL 21	L 3	L 3	F 3	F 4	F 3	F 3
21	F 3	F 2	F 3	F 2	FF 21	CL 31	C 2	CL 31	L 2	L 2		L 2	L 2	L 2	L 1	L 1	CL 11	CL 21	C 3	C 4	F 5	F 4	F 3	F 1
22					F 1	C 1	CL 12	CL 21	CL 21	L 2	L 1	CL 11	L 2	L 2	L 2	L 2	CL 21	LH 21	CL 23	L 3	F 4	FF 14	F 3	F 3
23	FF 13	FF 23	FF 32	F 2	F 1	C 2	CL 21	CL 31	L 4	L 1	L 2	L 1	L 1	L 2	L 1	CL 12	CL 22	CL 23	CL 43	L 3	F 4	F 3	F 3	F 4
24	F 3	F 3	F 3	F 3	F 4	L 2	HL 21	CL 21	CL 21	CL 21	CL 21	L 2	L 2	L 2	L 2	L 1	CL 21	CL 21	L 3	L 4	FF 23	F 3	F 3	F 2
25	F 2	F 2	F 2	F 2	F 4	L 2	CL 41	L 4	L 4	L 3	L 3	L 2	L 3	L 1	CL 11	CL 21	HL 11	CL 21	CL 21	C 2	F 2	F 3	F 4	F 2
26		F 3	F 2	F 5	F 4	C 3	CL 32	L 2	CL 21	CL 21	C 2	L 2	L 2	L 2	L 3	CL 11	CL 11	CL 11	L 3	L 2	F 4	F 3	F 3	F 3
27	F 3	F 3	F 3	F 3	F 6	L 3	CL 11	CL 11	CL 21	L 2	L 2	L 2	L 2	L 2	L 1	L 2	L 2	L 3	CL 21	F 2	F 2	F 4	F 3	F 4
28	F 3	F 4	F 3	F 3	F 1	HL 21	CL 31	L 3	L 2	L 2	L 1	L 2	L 2	L 1	L 2	CL 11	CL 11	CL 31	CL 31	F 4	F 2	F 2	F 3	F 3
29	F 3	F 2	F 2	F 2	F 1	L 4	CL 23	L 3	L 1	L 3	L 2	L 2	L 2	L 1	L 1	CL 11	CL 11		CL 42	FF 42	F 3	F 3	F 5	F 4
30	F 2	F 4	F 3	F 3	F 3	L 3	L 2	CL 12	CL 12	L 2	L 2	L 1	L 2	L 3	L 3	L 3	L 3	L 2	L 3	F 3	F 2	F 3	F 3	F 5
31	F 2	F 4	F 2	F 3	F 6	L 1	CL 21	L 3	L 3	L 4	L 2	L 2	L 1	L 2	L 2	L 2	L 2	L 3	L 2	F 2	F 3	F 4	FF 33	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																								

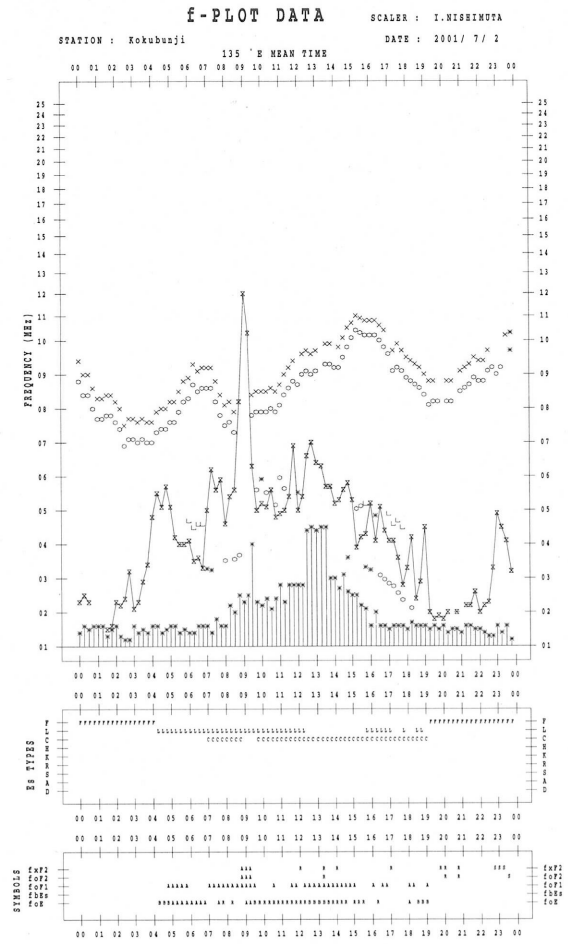
JUL. 2001 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

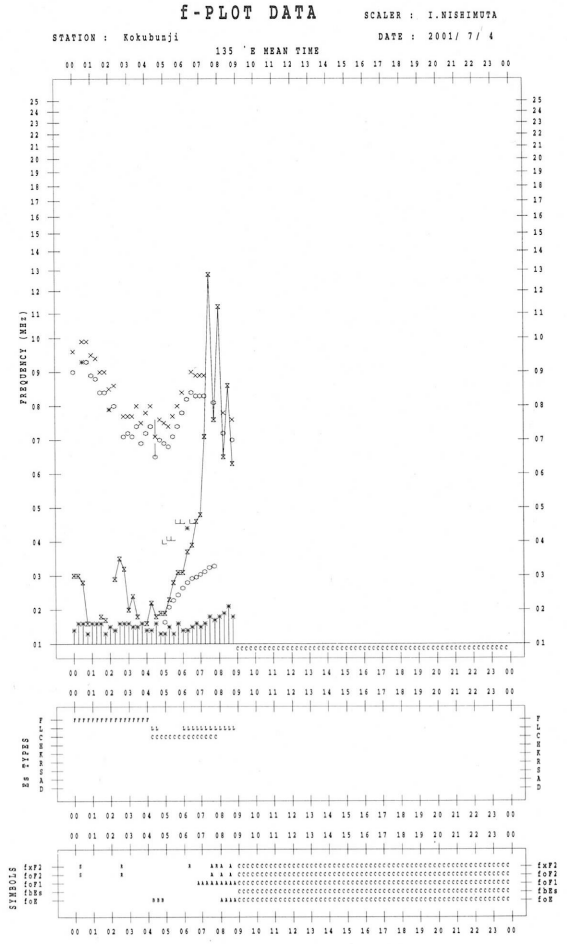
f-PLOTS OF IONOSPHERIC DATA

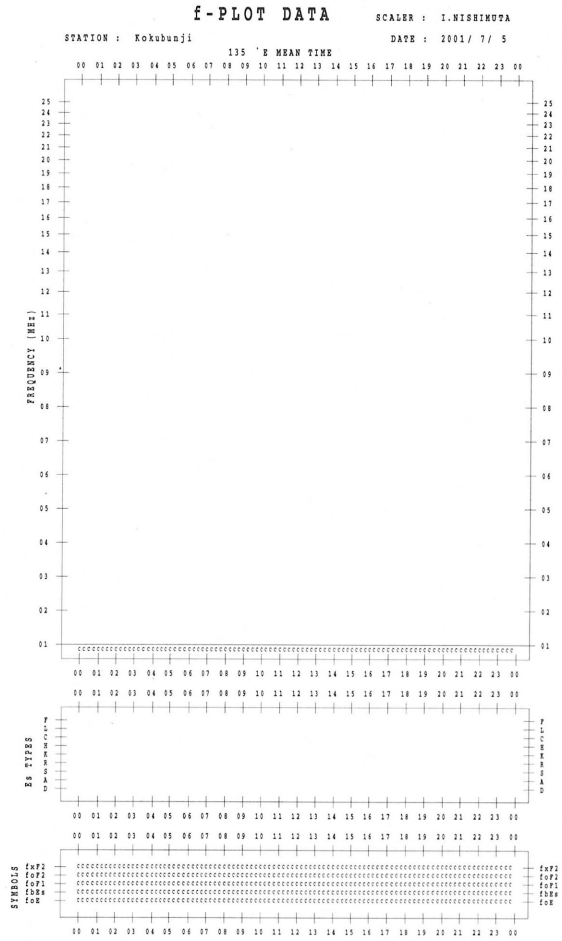
KEY OF f-PLOT	
	SPREAD
	foF2,foF1,foE
	fxF2
	DOUBTFUL foF2,foF1,foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

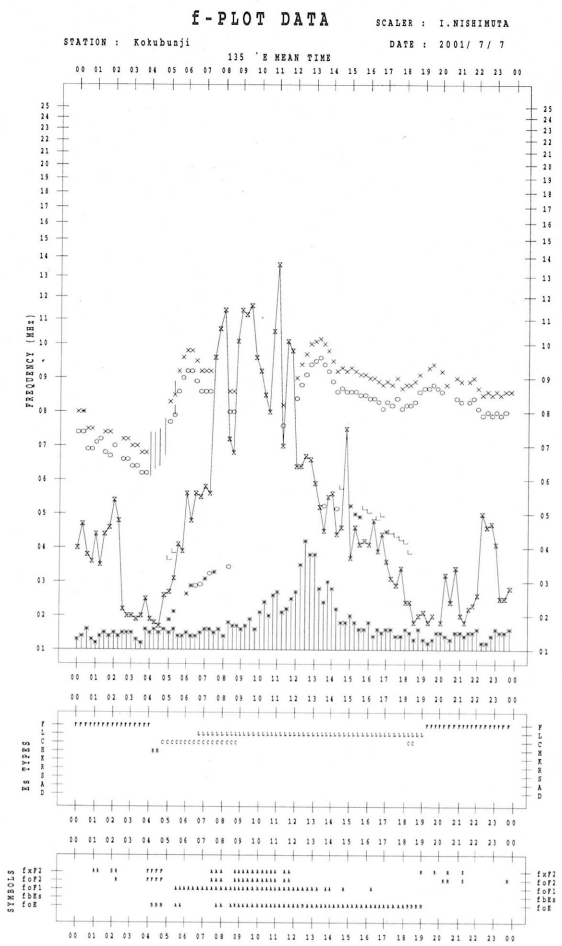

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 1
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

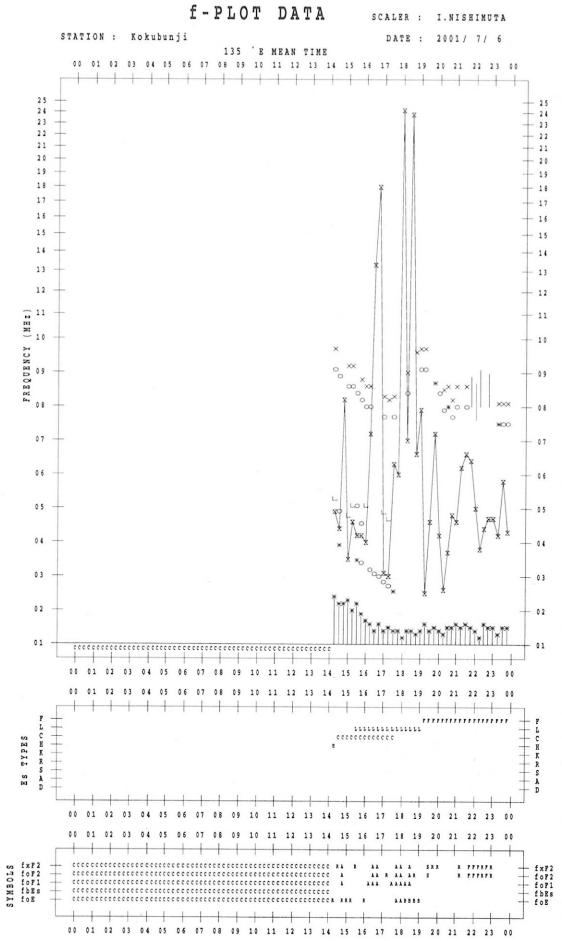

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 3
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

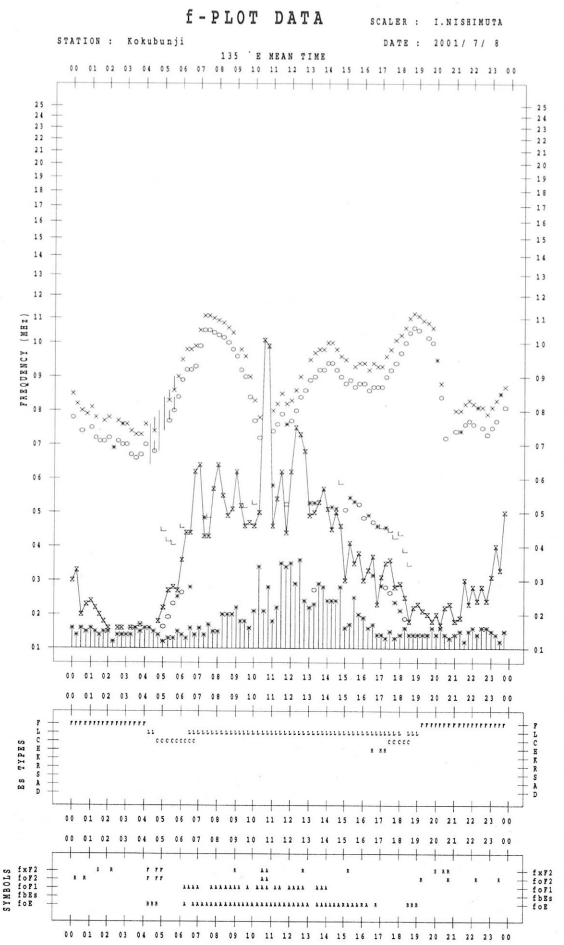

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 2
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

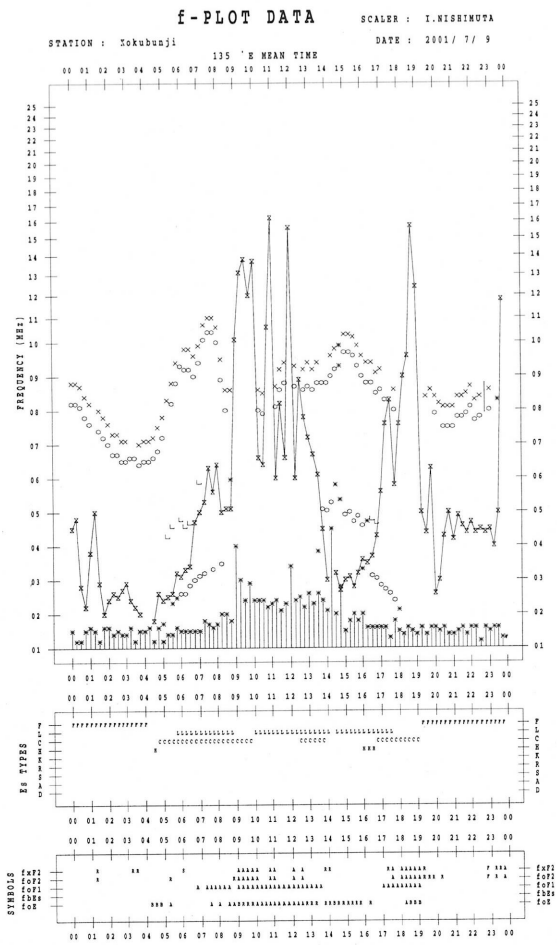

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 4
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF1
foF2
foF1
fbEs
foE

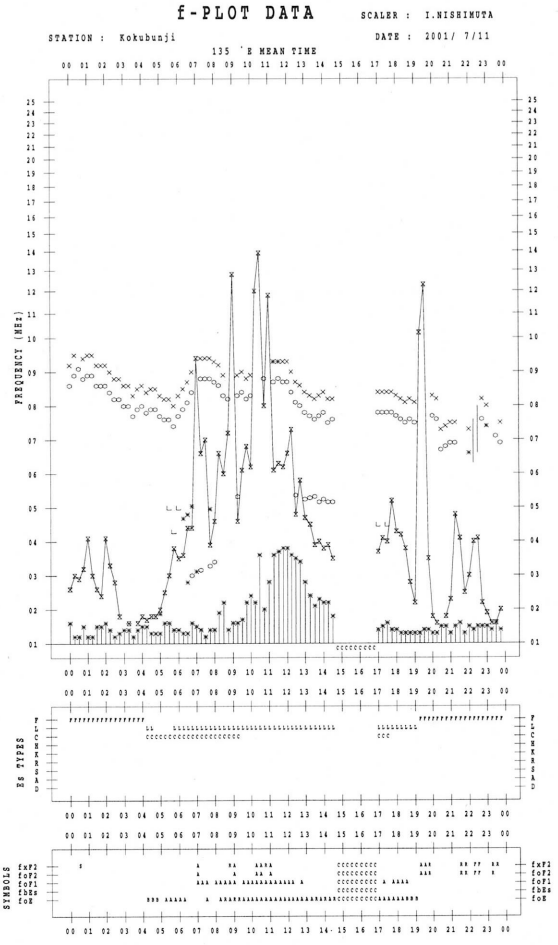

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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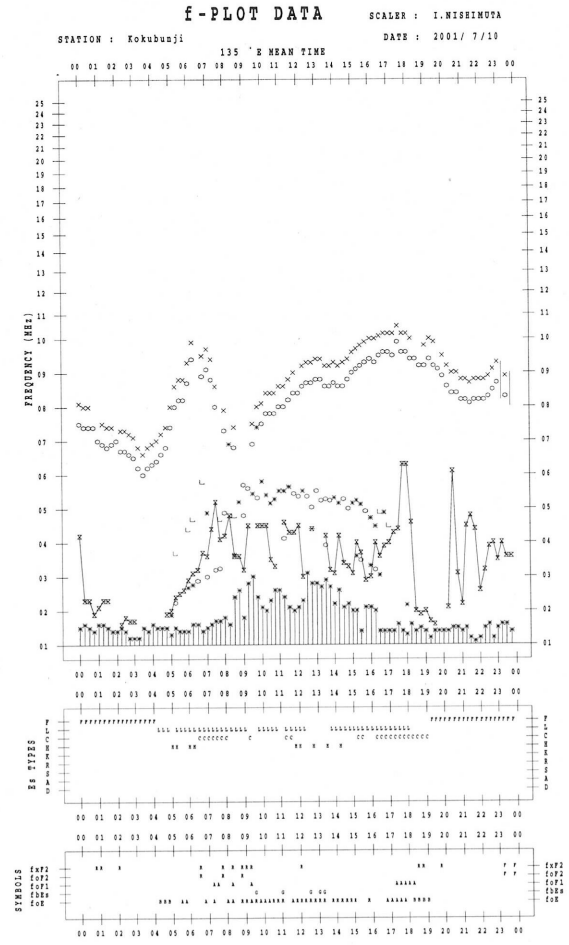
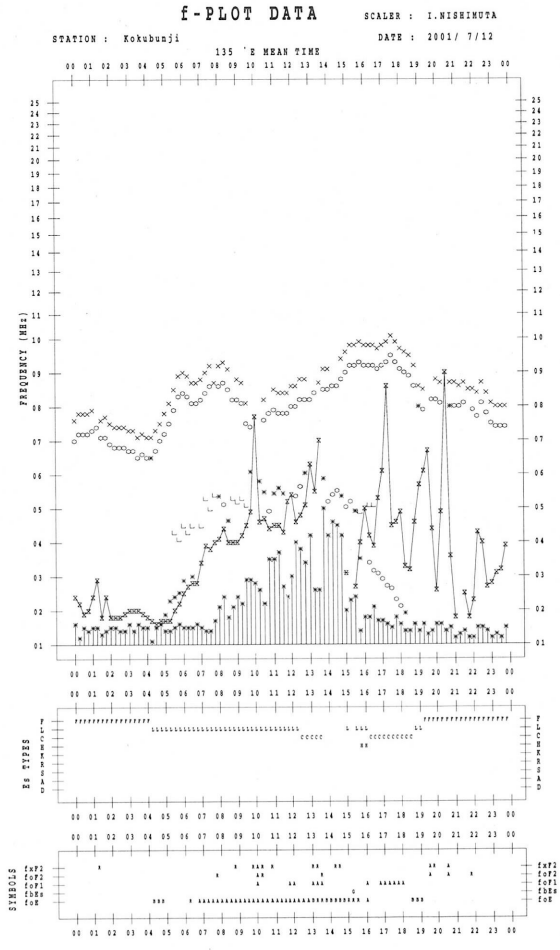
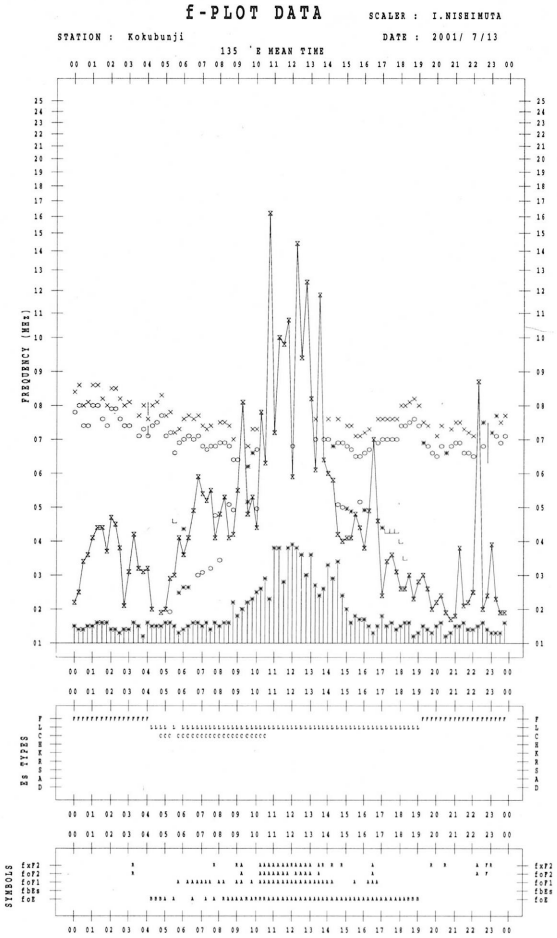
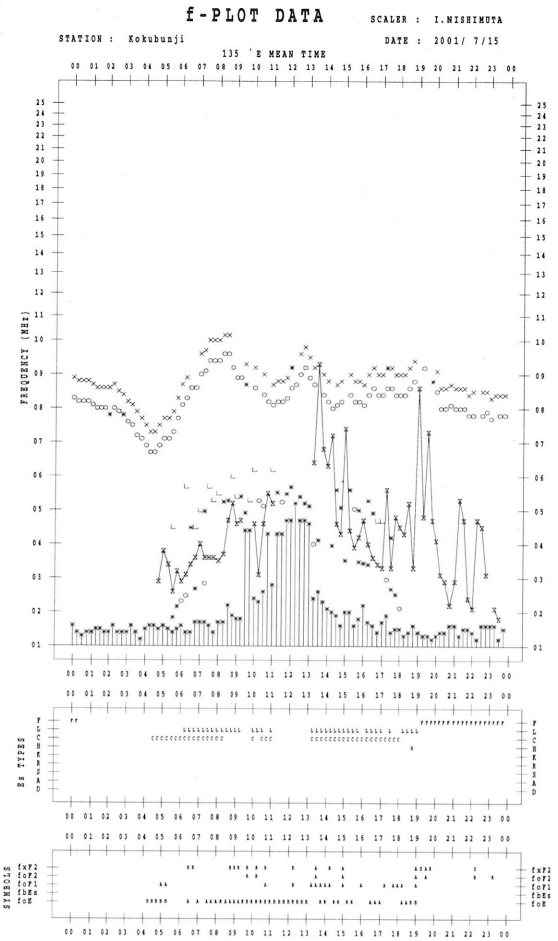
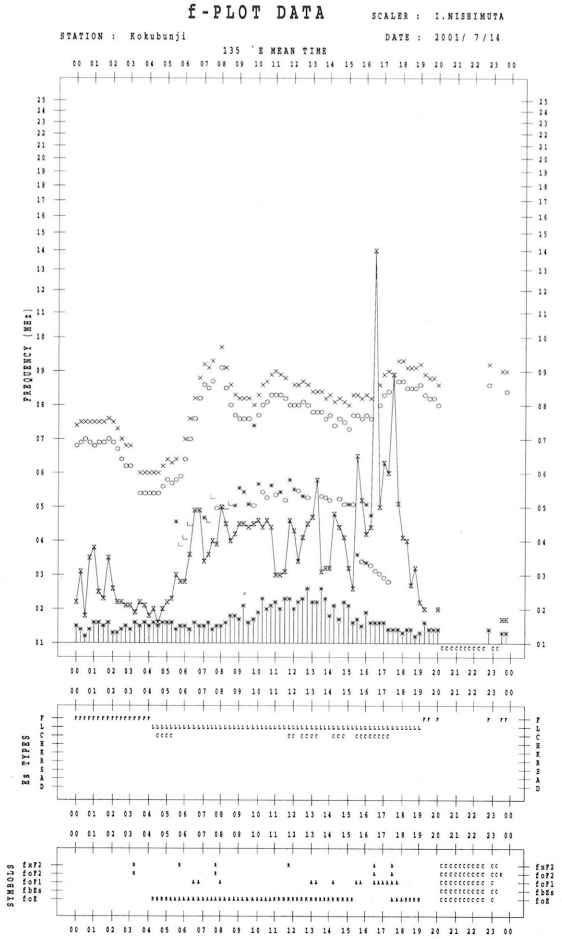
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

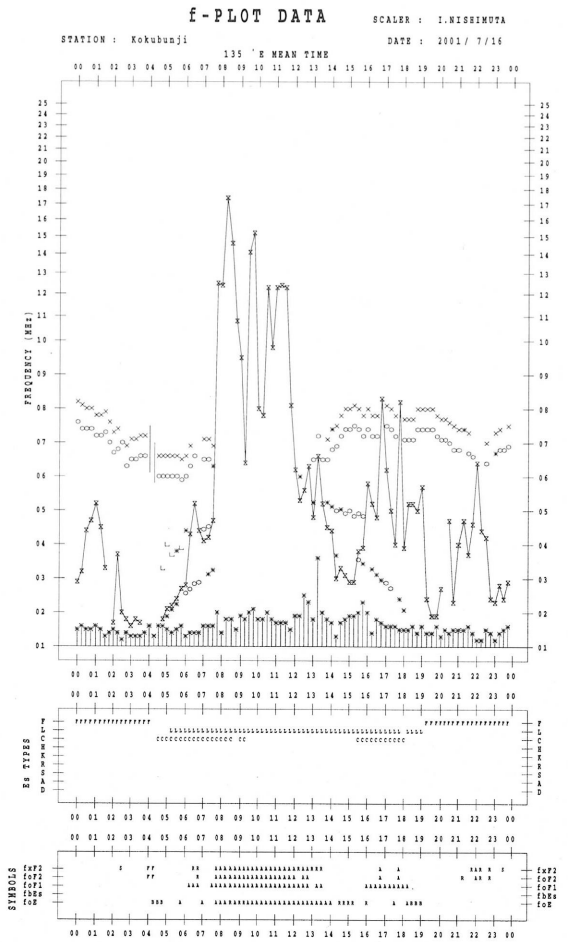

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

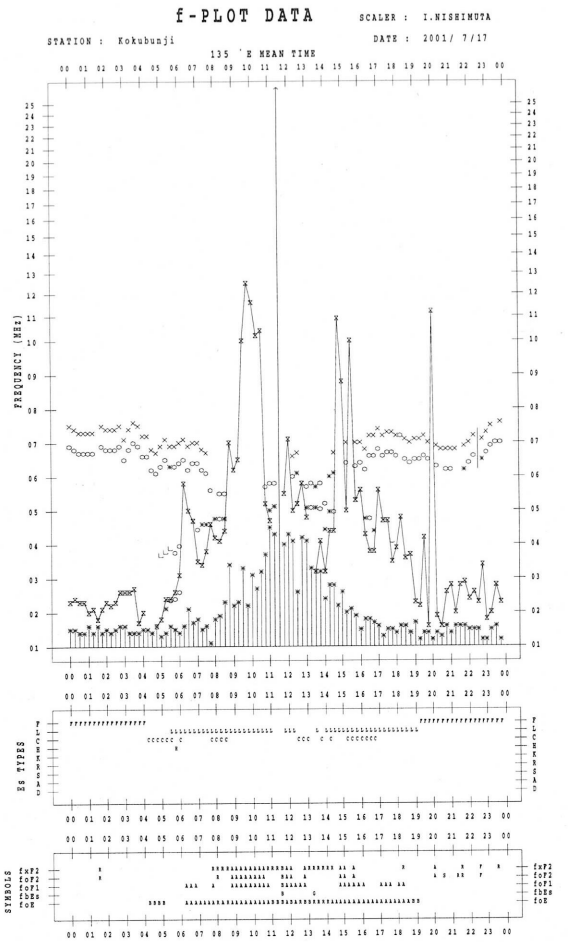

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

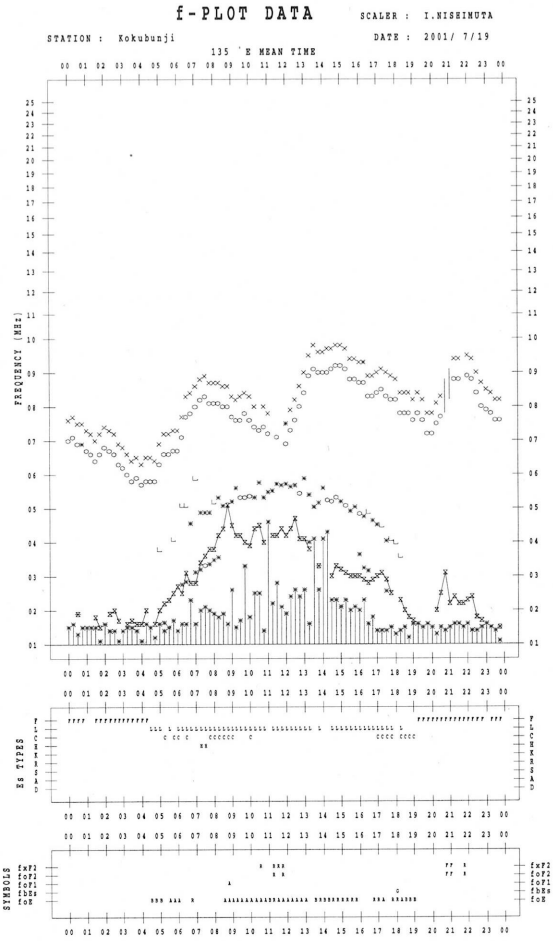

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

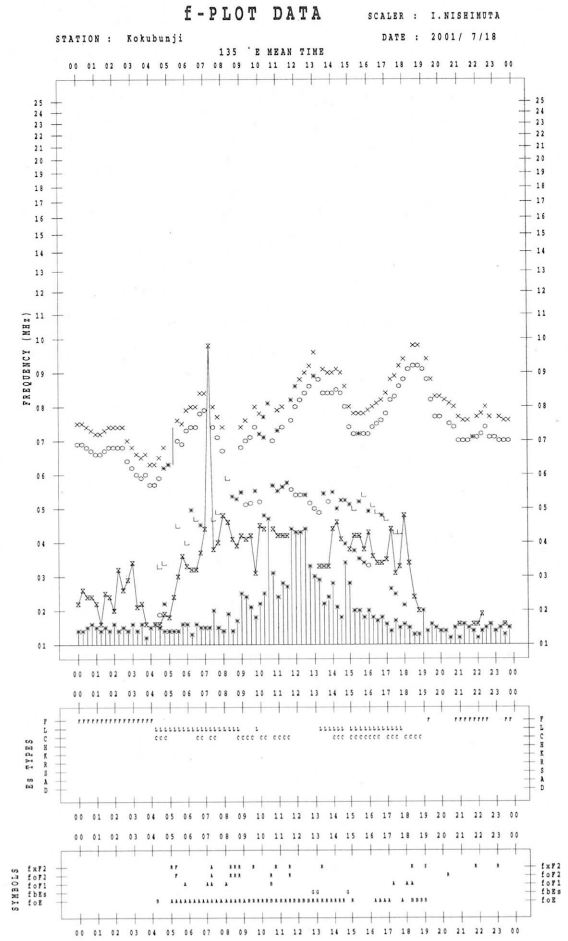

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

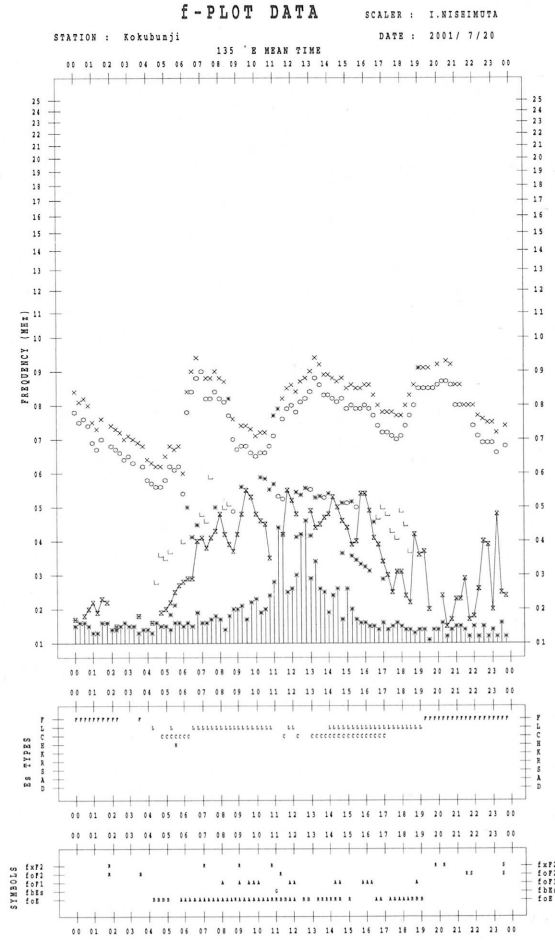

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

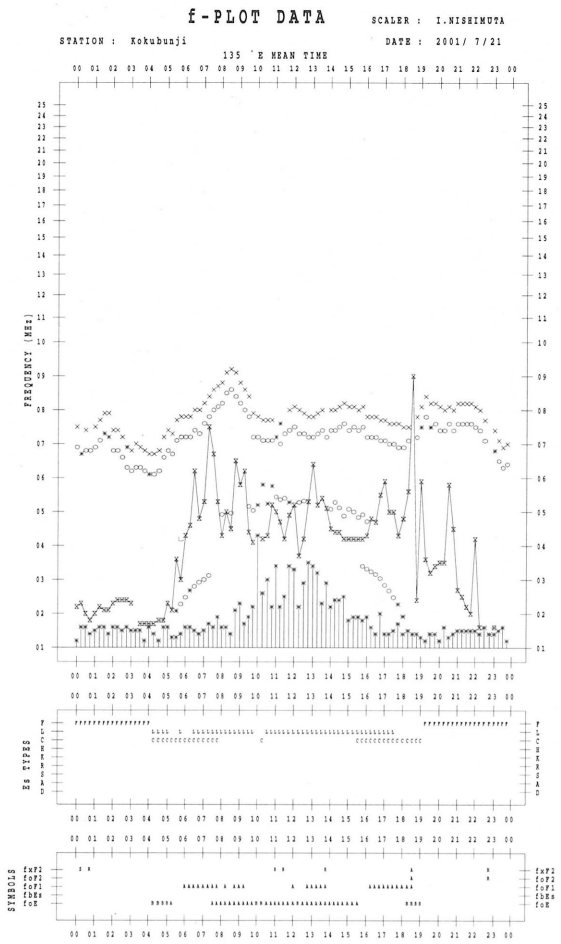

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

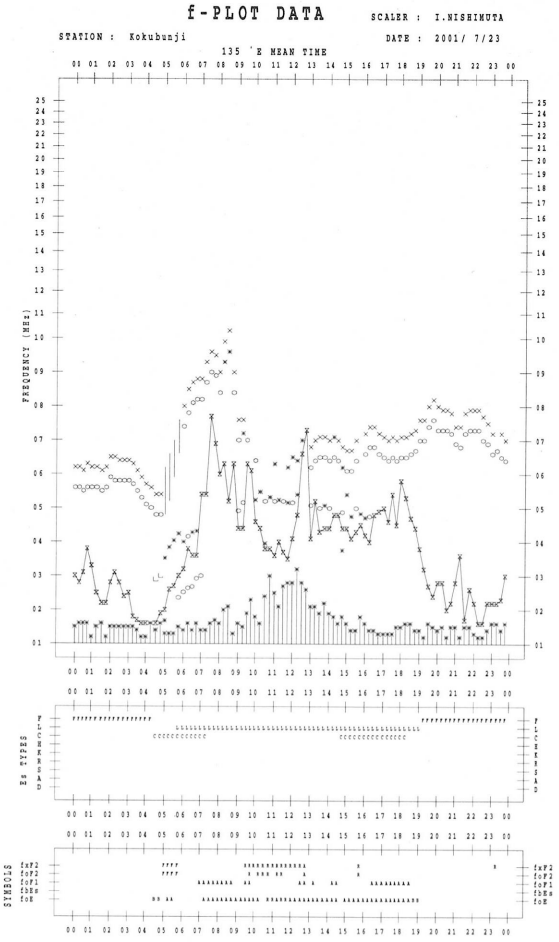

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

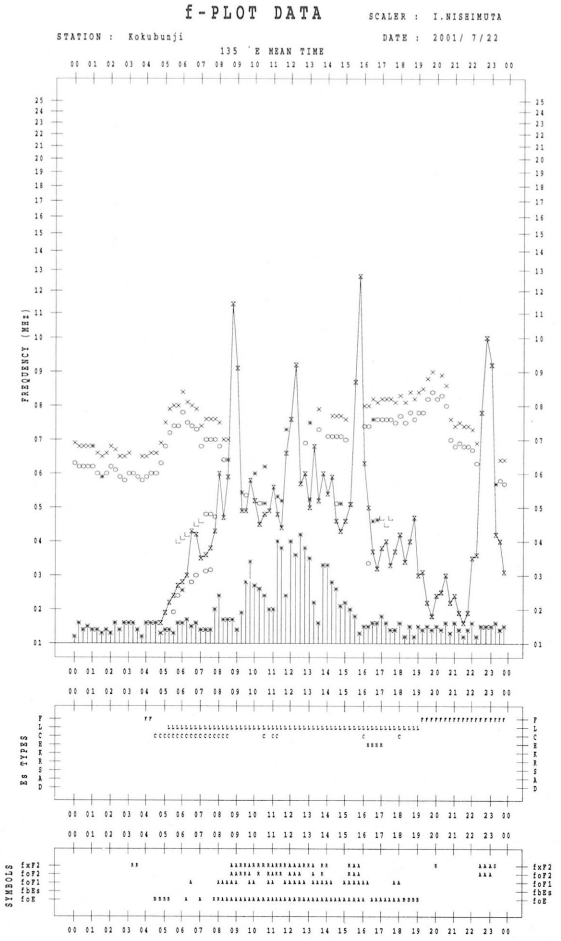

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

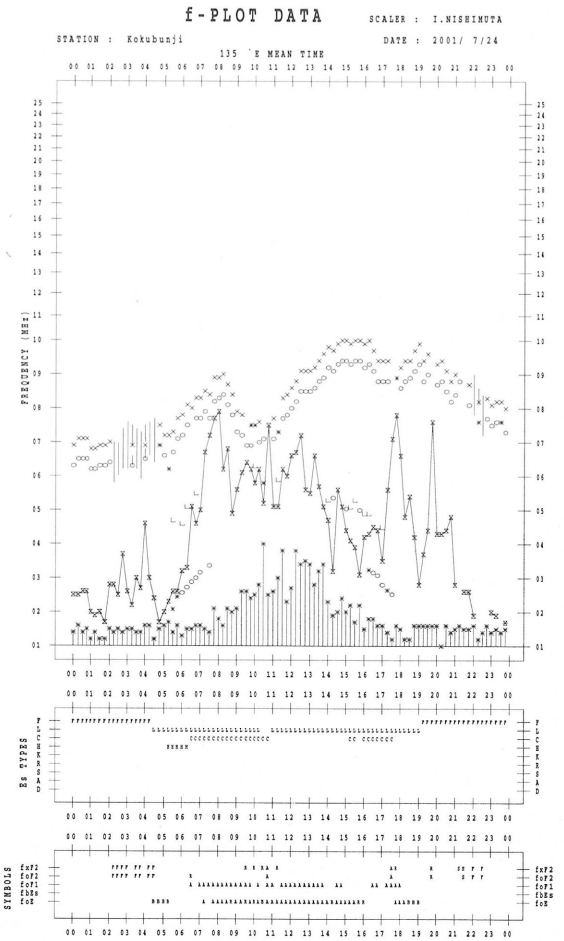

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

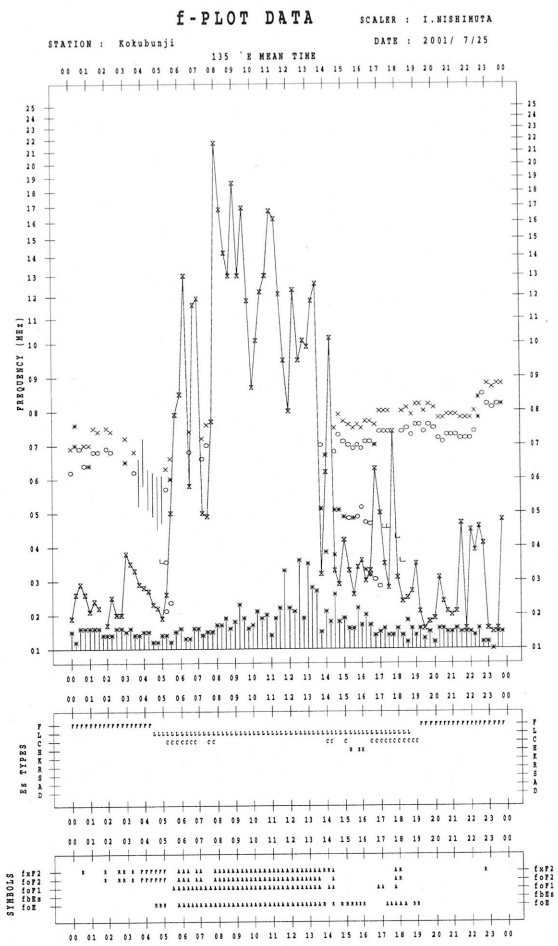

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

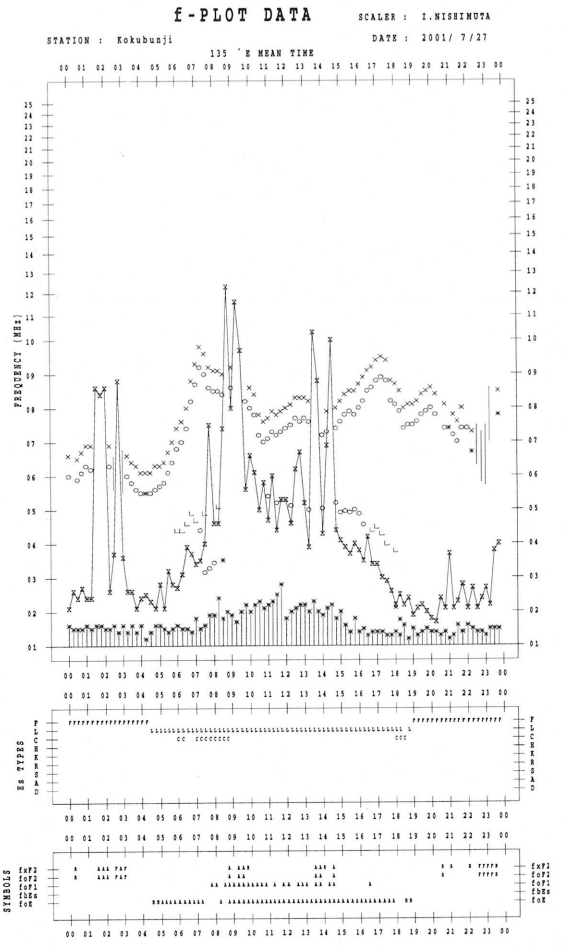

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

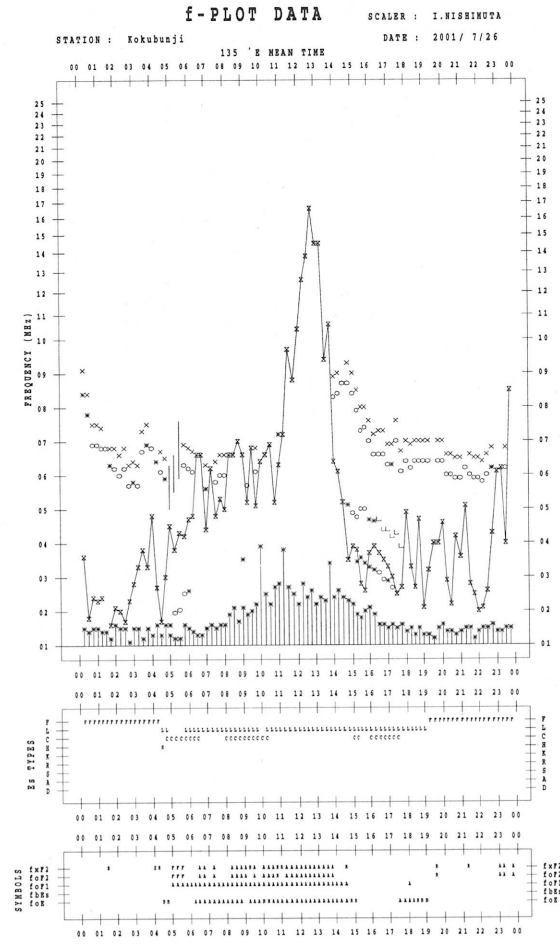

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

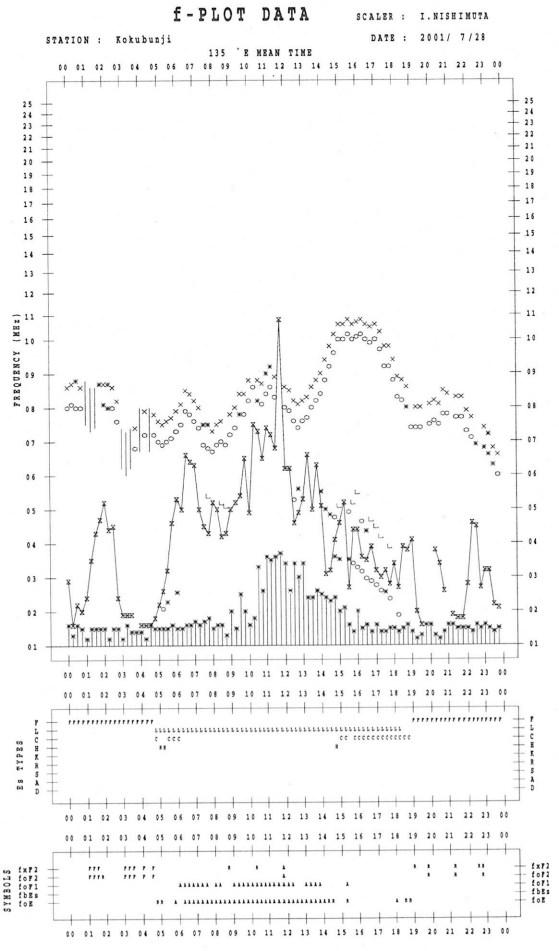

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

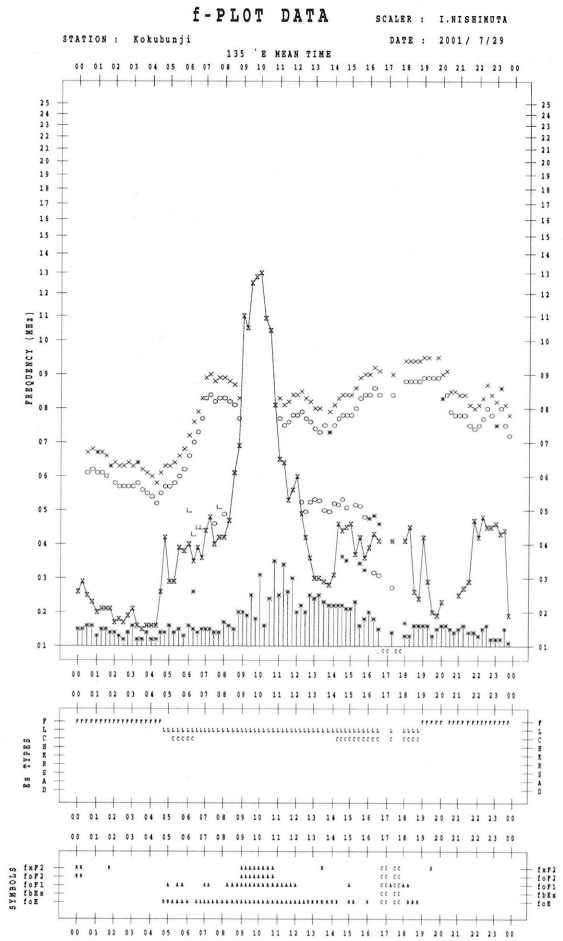

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

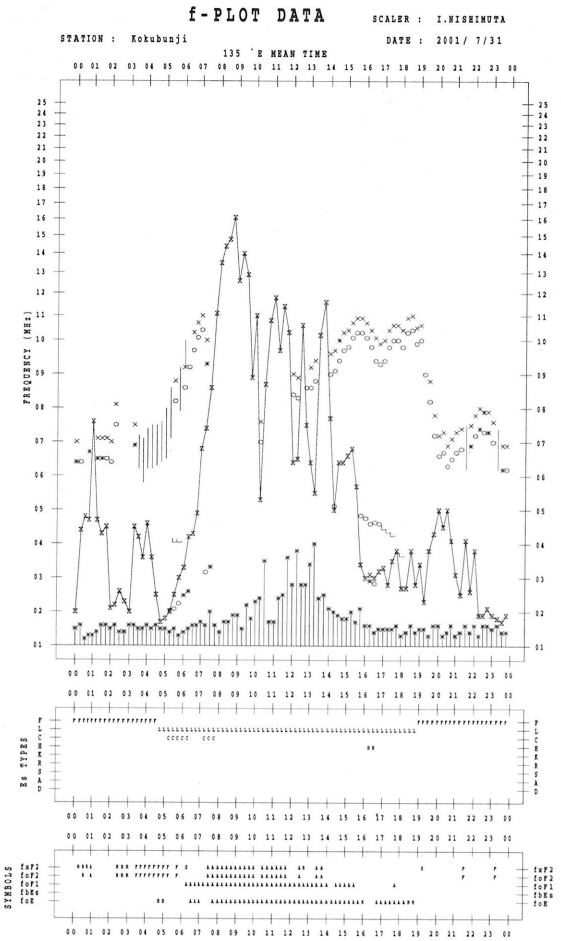

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

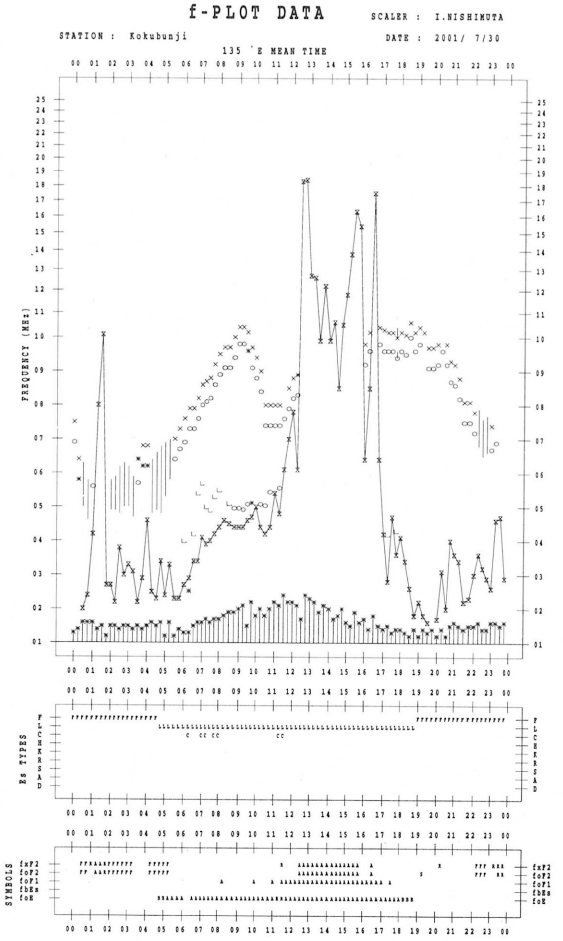

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 7/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

B. Solar Radio Emission
B1. Daily Data at Hiraiso
500 MHz

Hiraiso July 2001

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
Date \ UT	00-03	03-06	06-09	21-24	Day
1	34	32	33	36	34
2	34	34	33	36	34
3	35	33	33	37	35
4	34	35	36	35	35
5	35	34	34	36	35
6	35	35	35	33	34
7	33	34	34	35	34
8	34	33	33	37	34
9	35	35	35	38	36
10	35	35	35	38	36
11	36	34	36	35	35
12	33	31	32	34	33
13	33	33	34	36	34
14	34	34	34	36	35
15	35	35	35	35	35
16	34	36	36	38	36
17	36	35	37	39	37
18	36	37	37	35	36
19	–	36	36	–	36
20	34	35	35	37	36
21	35	33	34	36	34
22	34	33	34	36	34
23	34	34	34	37	35
24	35	35	35	36	35
25	35	34	34	38	35
26	36	36	36	35	36
27	34	33	34	35	34
28	33	33	34	35	34
29	33	33	34	35	34
30	34	33	34	33	33
31	34	33	33	34	34

Note: No data is available during the following periods.
19th 0000 - 19th 0300 19th 2000 - 19th 2400

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso July 2001

Single-frequency observations

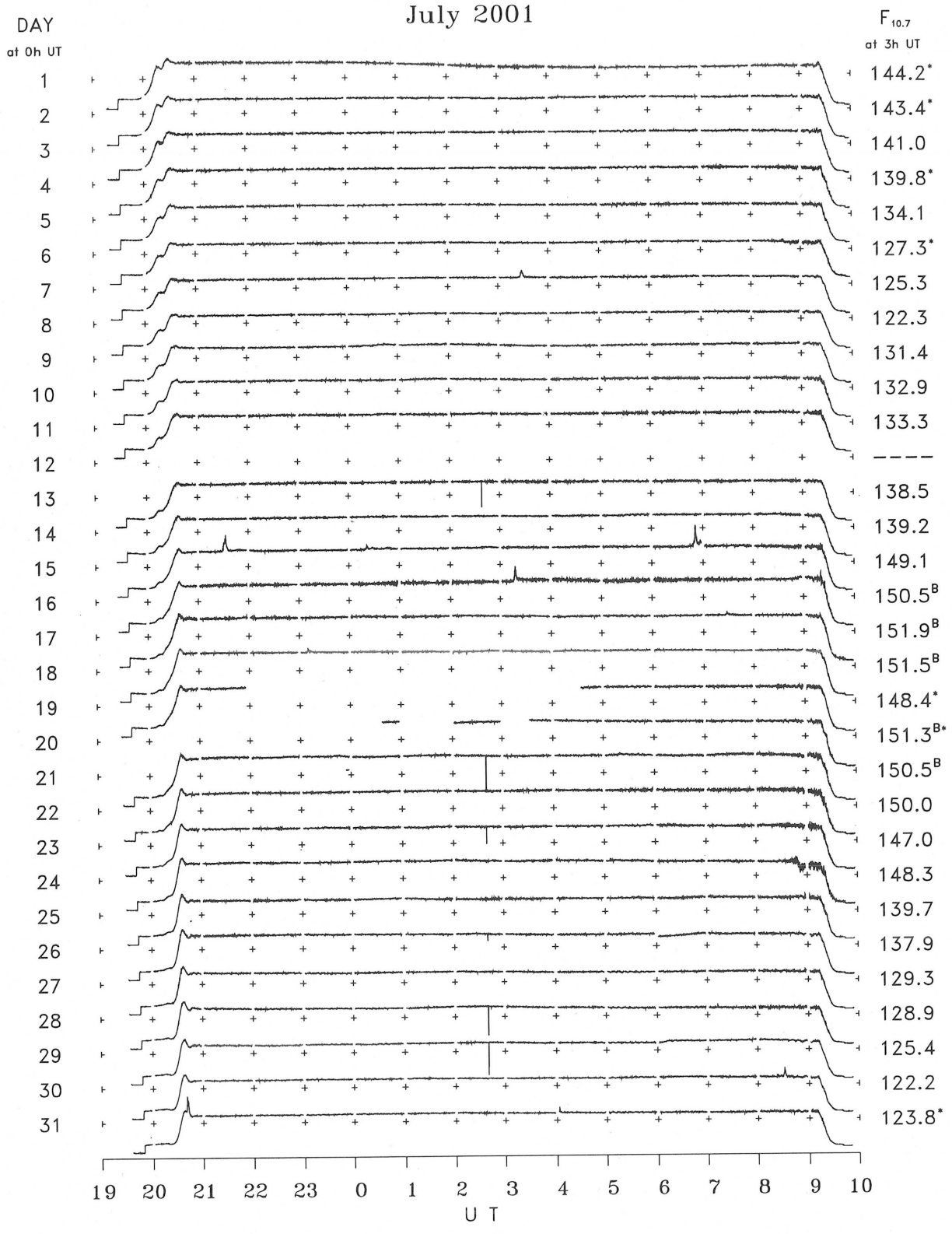
Normal observing period: 1930 – 0955 U.T. (sunrise to sunset)

JUL. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
7	500	4 S/F	0324.0	0327.0	8.0	15	–	0
7	2800	1 S	0325.0	0328.0	5.0	20	–	0
7	200	8 S	0326.0	0327.0	2.0	15	–	0
7	200	8 S	0751.0	0751.0	1.0	30	–	0
7	200	8 S	2240.0	2240.0	1.0	20	–	0
8	500	8 S	0122.0	0122.0	1.0	15	–	0
9	200	8 S	0430.0	0430.0	1.0	5	–	0
10	200	8 S	0121.0	0122.0	2.0	305	–	0
10	500	8 S	0708.0	0709.0	1.0	25	–	0
10	200	42 SER	2036.0	2036.0	4.0	40	–	0
10	200	8 S	2148.0	2148.0	2.0	20	–	WL
10	200	8 S	2225.0	2225.0	1.0	10	–	0
14	2800	4 S/F	2128.0	2133.0	8.0	50	–	0
14	500	8 S	2129.0	2132.0	7.0	260	–	0
15	200	42 SER	0048.0	0048.0	2.0	140	–	0
15	2800	7 C	0649.0	0652.0	11.0	60	–	0
15	500	7 C	0649.0	0652.0	11.0	215	–	0
15	200	7 C	0653.0	0657.0	7.0	40	–	0
16	200	8 S	0126.0	0127.0	1.0	15	–	0
16	500	8 S	0127.0	0127.0	1.0	5	–	0
16	2800	3 S	0316.0	0318.0	7.0	55	–	0
16	500	8 S	0316.0	0317.0	1.0	15	–	WL
16	200	8 S	0550.0	0550.0	1.0	200	–	0
16	200	8 S	0756.0	0756.0	1.0	50	–	0
23	500	8 S	0622.0	0623.0	3.0	315	–	
28	500	8 S	2152.0	2153.0	1.0	430	–	0
29	500	7 C	0844.0	0845.0	12.0	55	–	0
30	2800	3 S	2040.0	2041.0	5.0	45	–	0
30	500	8 S	2040.0	2041.0	3.0	55	–	0

Note: No data for 200MHz has been available since 20,July,2001.

B. Solar Radio Emission

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



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

IONOSPHERIC DATA IN JAPAN FOR JULY 2001
F-631 Vol.53 No.7 (Not for Sale)

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☎ (042) (327) ７４７８(直通)

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Communications Research Laboratory, Independent Administrative Institution, 2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN