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IONOSPHERIC DATA IN JAPAN

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COMMUNICATIONS RESEARCH LABORATORY
MINISTRY OF POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

INTRODUCTION

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

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.5'N	141°41.2'E	35.3°N	206.5°	Vertical Sounding (I)
Akita	39°43.5'N	140°08.0'E	29.5°N	205.9°	" (I)
Kokubunji	35°42.4'N	139°29.3'E	25.5°N	205.8°	" (I)
Yamagawa	31°12.1'N	130°37.1'E	20.4°N	198.3°	" (I)
Okinawa	26°16.9'N	127°48.4'E	15.3°N	196.0°	" (I)
Hiraiso	36°22.0'N	140°37.5'E	26.3°N	206.8°	Radio Receiving (S, P)
Inubo	35°42.2'N	140°51.5'E	25.6°N	207.0°	" (P)

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

- A Impossible measurement because of the presence of a lower thin layer, for example *Es* (for *foF2*).
- B Impossible measurement because of absorption in the vicinity of *fmin*.
- C Impossible measurement because of any failure in observation.
- G Impossible automatic scaling because of too small ionization density of the layer (for *fEs*).
- N Impossible automatic scaling because of complex echoes.
- Blank No digital record because of trouble in the automatic data processing system, but existence of film record.

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

Median count (CNT) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a 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 Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972" and its revision of chapters 1-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spread *F* trace
foF2 *foF1* *foE* *foEs*	Ordinary wave critical frequency for the *F2*, *F1*, *E* and *Es* including particle *E* layers, respectively.
fbEs	Blanketing frequency of the *Es* layer, e.g. the lowest ordinary wave frequency visible through *Es*
fmin	Lowest frequency which shows vertical ionospheric reflections
M(3000)F2 *M(3000)F1*	Maximum usable frequency factor for a path of 3000 km for 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 or impossible because the ionization density of the layer is too small to enable it to be made accurately.
H Measurement influenced by, or impossible because of, the presence of a stratification.
K Presence of particle *E* layer.
L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
N Conditions are such that the measurement cannot be interpreted.
O Measurement refers to the ordinary component.
P Man-made perturbations of the observed parameter; or spur type spread *F* present.
Q Range spread present.
R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
S Measurement influenced by, or impossible because of, interference or atmospherics.
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V Forked trace which may influence the measurement.
W Measurement influenced or impossible because the echo lies outside the height range recorded.
X Measurement refers to the extraordinary component.
Y Lacuna phenomena, severe layer tilt.
Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.
D Greater than.
E Less than.
I Missing value has been replaced by an interpolated value.
J Ordinary component characteristic deduced from the extraordinary component.
M Mode interpretation uncertain.
O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U Uncertain or doubtful numerical value.
Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.
l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the particle *E* layer minimum virtual height.
c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the 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 100, 200 and 500 MHz are carried out at Hiraiso. The observation equipment consists of two parabolic antennas, one with 10-meter diameter for 100 and 200 MHz measurements and one with 6-meter diameter for 500 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 at the base-level are tabulated separately for 200 and 500 MHz measurements. Here, the base-level intensity is defined as the intensity recorded during the time when no radio emission burst is taking place. The intensities are expressed by the flux density in 10^{-22} Wm^{-2} Hz^{-1} unit.

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

0 quiet or no burst,
1 a few bursts,
2 many bursts,
3 very many bursts.

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

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

* Measurement impossible because of interference.
B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

The table is a list of outstanding occurrences of solar radio emission bursts observed at Hiraiso during a month. Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T. expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in 10^{-22} Wm^{-2} Hz^{-1} unit, and the polarization.

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

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

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

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

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

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

C. RADIO PROPAGATION

C1. H.F. Field Strength at Hiraiso

Field strength observation of 15 MHz standard waves transmitted from WWV and WWVH stations which are located respectively at Fort Collins, Colorado and Kauai, Hawaii, is carried out at Hiraiso. In order to avoid interference among the same frequency waves, the upper sideband of WWV or WWVH with the audio tone 660 Hz is picked up by the use of a narrow band-pass filter with 80 Hz bandwidth. Particulars of the transmitters and the receiver are summarized in the following table.

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

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

C2. Radio Propagation Quality Figures at Hiraiso

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

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

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

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

C	artificial accident,
S	propagational accident,
U	inaccurate.

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

N	normal,
U	unstable,
W	disturbed.

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

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

C3. Phase Variation in OMEGA Radio Waves at Inubo

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

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

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

C4. Sudden Ionospheric Disturbances

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

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

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

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

Types of fade-out are as follows:

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

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

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

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

b. Sudden Phase Anomaly (SPA) at Inubo

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

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

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

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

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

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

HOURLY VALUES OF FOF2 AT WAKKANAI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	54	57	53	52	52	54	63	55	74	68	A	A	96	68	65	61	61	A	64	73	75	81	73	64
2	58	63	52	47	45	54	65	66	68	77	A	87	77	82	68	65	66	62	64	82	80	82	84	76
3	73	66	62	62	58	60	66	70	A	80	72	68	66	76	68	62	62	66	67	74	86	74	72	74
4	64	63	64	67	63	62	65	62	76	68	61	67	73	67		58	68	67	71	84	76	66		61
5	60	55	64	54	51	51	72	63	74	A	A	60	A	70	73	84	84	74	67	67	71	60	78	64
6	60	63	54	53	44	50		A	A	A						A	A	A	52	51	61	54	55	58
7	52	29	52	43	32	A	A	A	A	A	A	A	A			62	A	A	66	A	65	63	A	55
8	52	20	38	70	A	A	A	60	A		A	A	A		A	A	A	60	A	58	63	58	55	62
9	A	A	37	46	A	A	A		A	A							57	58	55	A	65	61	62	56
10	62	53	47	23		40	A	52	A	A	A			65	A	66	67	73	70	73	77	66	64	A
11	N		62	52	57	55	A	A	57	A	A	A		A	A	62	60	62	62	A	87	A	63	58	53
12	55	53	44	40	41	51	57	52	A		A						55	62	60	60	66	73	63	55	54
13	54	A	49	52	48	38	A	56	65	A	A	55	A			61	60	66	67	72	74	54	66	A	A
14	46	50	53	51	A	A	A		A		50					55	68	57	60	66	62	62	52	60	54
15	52	55	49	54	A		53	51	A	59	A	A	A	A		61	60	61	69	65	51	75	72	72	60
16	53	60	50	48	44	54	61	61	63	76	A	68	70	67	57	67	70	73	80	82	84	67	66	63
17	59	56	51	56	44	34	61	60	62	55			60		68	60	A	67	62	50	78	64	63	62
18	A	52	55	54	50	57	63	63	70	70	66	A	68	70	74	72	66	70	67	73	78	70	66	64
19	39	66	62	57	58	60	87	66	66	66	71	73	80	77	73	79	80	77	50	80	73	70	64	62
20	54	55	54	54	54	57	63	75	73		A	A	73	73	76	79	67	84	73	88	72	72	64	62
21	65	52	44	44	38	39	A	58	A				60	62	59	57	A	A	63	67	67	58	57	57
22	60	51	A	A	44	A	A	A	A	A		54	62	70	A	62	73	82	A	65	66	63	52	55
23	49	53	51	40	A	A	A	A	A	C				A		61	A	57	58	52	38	A	A	A
24	35	43	51	52	34	A	A	A				A	58	64	55	72	72	A	66	34	62	62	53	52
25	42	44	47	43	43	50	57	57	57	65	65	64	67	61	58	60	67	73	80	86	54	66	60	62
26	50	54	52	51	48	52	58	56	73	73	73	73	76	70	68	67	70	73	82	82	68	A	64	54
27	55	54	54	52	37	34	A	A	A	A	A	A	A	A	81	61	A	A	91	A	73	60	A	A
28	38	34	A	37	35	A	A	54	A	A				A		55	53	58	60	63	63	59	61	54
29	52	48	48	43	43	50	66	66	73	67		69	73	67	76	76	86	64	67	71	66	64	68	63
30	55	47	42	40	37	A	A	64	66	59	62	57	60	70	72	62	58	65	72	77	74	68	63	54
31	51	54	48	47	40	43	66	67	68	67	68	63	62	66	70	A	A	61	70	79	78	58	55	55
	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	30	25	21	16	22	16	14		13	17	18	21	27	23	25	28	28	30	29	26	27
MED	54	54	51	52	44	51	63	60	68	68		67	68	69	68	62	66	67	66	73	72	64	63	60
U Q	59	58	54	54	51	55	66	66	73	73		71	74	70	73	68	70	73	71	81	76	69	66	63
L Q	50	49	47	43	39	41	59	56	64	65		58	61	66	60	60	61	60	62	62	63	60	57	54

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT WAKKANAI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	27	36	31	G	G	G	38	47	53	57	66	G	56	G	G	52	64	54	92	123	73	31	G
2	36	33	40	36	32	31	38	G	59	65	63	63	64	G	G	43	G	39	41	36	37	42	105	G
3	G	G	G	G	28	32	40	52	64	49	G	G	G	67	G	G	63	57	56	92	70	36	34	44
4	39	30	24	G	G	G	G	60	G	58	G	59	62	78	G	G	58	G	34	27	32	30	G	G
5	30	27	G	G	G	31	36	54	58	76	107	G	63	54	G	G	G	46	45	40	49	79	65	32
6	26	G	24	G	24	28	G	41	48	63	G	G	G		G	75	55	49	33	38	G	24	26	G
7	34	30	G	G	24	32	50	58	62	60	64	86	68		G	G	56	80	82	71	29	76	65	38
8	25	26	26	23	31	58	35	38	46	G	59	52	65		55	68	116	91	65	50	41	G	G	G
9	40	33	24	26	33	40	58	G	77	64						G	G	G	33	59	52	31	26	G
10	G	24	G	29	28	32	36	G	67	76	55	G	G	G	56	G	G	40	44	53	38	54	60	58
11	32	25	G	32	38	34	49	54	61	59	54	G	79	62	55	G	46	55	117	128	144	69	55	36
12	30	G	G	G	G	38	36	45	78	G	117	G			G	G	G	48	55	45	56	81	52	33
13	35	36	30	G	G	G	50	54	71	91	46	G	57	G	G	G	G	39	35	34	69	58	108	91
14	68	64	34	34	58	52	58	G	54	G	G			G	G	G	52	36	32	55	39	33	30	32
15	38	24	28	33	58	36	50	63	G	137	54	117	89	76	G	124	52	49	41	64	71	31	51	70
16	26	105	26	33	45	36	36	38	55	62	66	57	56	G	G	45	48	54	G	27	29	36	G	G
17	28	29	G	G	G	G	46	G	G	G	G	G	G	G	G	G	38	38	57	67	45	83	57	41
18	65	64	49	57	26	33	G	G	G	52	52	61	54	59	58	G	G	50	48	48	39	34	32	27
19	36	27	27	28	26	G	G	G	59	51	G	G	G	G	G	56	46	52	65	39	G	G	33	41
20	26	34	33	G	24	G	39	50	40	86	109	67	66	G	45	G	G	G	73	54	38	31	36	34
21	28	25	G	G	22	G	38	G	58	G	G		G	G	G	51	66	127	47	G	G	31	63	70
22	70	62	85	41	30	68	37	95	74	105	G	G	G	58	86	56	65	64	70	90	G	58	56	G
23	G	G	48	44	46	43	47	40	48	G	G		G	49	G	G	39	38	40	40	25	32	44	40
24	G	26	33	30	30	46	49	54	G		G	51	G	G	75	84	62	141	126	66	26	42	G	32
25	29	G	G	32	37	G	G	G	G	G	G	G	G	G	G	G	G	39	36	36	59	40	33	30
26	36	32	25	24	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G	G	41	65	67	61
27	50	40	37	36	26	29	53	69	61	68	65	96	95	134	54	48	105	118	96	81	36	37	36	40
28	30	26	31	25	25	34	33	G	53	46			G	56		G	56	43	52	37	28	G	40	31
29	G	G	G	G	24	35	33	G	G	G	G	G	G	G	G	G	G	35	30	33	G	106	54	G
30	27	G	G	G	30	53	38	37	G	104	G	G	G	G	G	G	G	34	29	39	55	24	G	25
31	24	G	26	G	23	G	G	45	G	G	G	G	G	G	G	54	67	54	39	G	30	G	32	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	29	26	28	26	29	31	31	31	31	31	31	31	31	31
MED	30	27	26	25	26	32	37	40	53	56	G	G	G	G	G	G	46	48	45	45	38	36	36	32
U Q	36	33	33	33	32	38	49	54	61	68	61	61	63	58	49	51	58	57	65	66	55	65	57	41
L Q	25	G	G	G	22	G	G	G	G	G	G	G	G	G	G	G	G	38	34	36	28	31	30	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT WAKKANAI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	15	17	16	16	29	22	23	32	28	34	32	30	33	44	24	18	16	15	16	15	15	15
2	15	15	15	15	16	17	23	20	22	30	30	34	32	28	50	20	46	17	17	16	15	16	16	16
3	16	16	15	16	16	16	23	21	46	53	53	54	54	30	47	50	33	29	16	15	15	15	16	15
4	16	15	15	16	16	16		22	24	23	27	44	24	26	54	52	23	46	17	17	16	15	21	16
5	16	16	15	15	18	16	20	20	32	32	32	54	46	30	32	26	20	20	16	15	14	15	16	15
6	15	16	15	16	15	15	18	21	20	30	30	30	28			33	30	24	16	15	16	15	18	15
7	15	16	16	15	17	16	23	26	32	34	45	42	44			46	32	18	16	15	15	15	15	15
8	17	16	17	16	16	16	18	20	20	32	26	30	28			33	30	21	17	16	16	16	14	16
9	16	16	17	17	16	16	28		34	33							28	42	15	15	15	15	17	15
10	15	16	15	15	15	15	20	18	26	32	27	29		54	27	46	30	26	16	15	16	16	16	16
11	16	16	16	15	15	16	23	29	28	30	32	30	30	32	28	49	30	18	16	17	14	15	16	15
12	15	17	16	16	16	15	18	28	32	49	32					32	21	20	17	16	15	15	15	15
13	16	16	16	18	17	17	26	27	29	30	33		28	28	29	29	45	20	16	15	17	14	16	15
14	14	16	15	16	15	16	20	18	30	30				66	28	47	46	18	17	15	15	15	16	17
15	17	16	17	15	14	17	22	27	32	48		33	32	45	29	30	32	18	16	17	16	16	16	16
16	15	16	16	16	15	15	18	21	22	34	38	34	33	49	27	24	22	20	16	16	16	17	16	15
17	17	16	15	17	15	18	20	27	23	24	30		32	57	24	28	23	21	17	15	15	17	17	16
18	16	16	16	16	17	16	29	21	32	48	32	32	27	28	22	21	18	26	16	15	16	15	14	17
19	16	16	17	15	16	18	27	20	30	33	32	23	49	27	26	18	17	21	20	15	15	15	15	15
20	15	14	16	14	15	17	21	29	32	33	32	33	32	50	29	49	46	17	16	16	17	14	16	15
21	14	17	17	15	20	20	22	23	32	33	48		50	49	46	33	29	22	16	16	16	14	16	15
22	18	15	15	14	16	15	20	20	30	32	39		33	32	30	32	20	21	17	16	16	15	14	15
23	16	15	14	14	14	17	20	27	28	30	30		28	28	28	21	20	17	17	17	15	15	15	15
24	15	15	15	15	14	15	22	23	27				30	46	35	33	28	17	15	15	15	15	15	16
25	16	15	15	15	15	16	29	22	23	48	21	22	20	46	21	46	44	18	15	16	18	16	15	16
26	15	16	15	15	16	17	24	18	24	48	50	46	52	46	48	20	30	27	16	16	15	15	15	15
27	15	15	15	15	14	18	17	22	22	29	32	29	28	28	30	23	20	18	16	16	15	15	15	15
28	16	15	15	15	15	15	18	22	21	29			28	29		30	18	18	16	16	15	16	15	16
29	15	15	15	15	15	15	17	21	33	46		48	50	45	46	32	30	27	16	15	16	16	15	15
30	15	15	16	15	15	15	20		27	47	48	48	49	49	48	44	30	20	16	15	16	16	15	16
31	16	16	16	15	15	16	18	29	47	31	45	45	50	50	48	32	18	21	14	15	15	14	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	30	29	31	30	25	21	27	26	25	30	31	31	31	31	31	31	31	31
MED	16	16	15	15	15	16	20	22	28	32	32	34	32	38	30	32	29	20	16	15	15	15	16	15
U Q	16	16	16	16	16	17	23	27	32	46	42	45	49	49	46	46	32	24	17	16	16	16	16	16
L Q	15	15	15	15	15	15	18	20	23	30	30	30	28	28	27	26	20	18	16	15	15	15	15	15

HOURLY VALUES OF FOF2 AT AKITA

AUG. 1992

LAT. 39.7N LON. 140.1E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

UT \ HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	55	34	52	50	51	53	54	72	49	55	67	A	83	81	55	A	61	63	67	55	N	55	A	75
2	52	53	54	48	47	51	65	79	78	A	81	81	77	77	76	A	71	A	52	72	76	74	41	73
3	68	52	52	52	53	27	55	74	84	85	A	A	A	76	74	68	67	67	A	52	43	76	55	67
4	52	61	53	52	51	58	73	82	67	71	55	71	A	72	A	81	72	76	82	90	54	A	55	A
5	A	55	54	59	51	53	66	55	67	75	59	78	A	A	76	90	93	78	67	54	55	35	58	65
6	66	62	52	57	58	52	53	A	45	A	A	A	A	A	A	A	A	A	A	A	38	A	52	63
7	35	47	51	51	45	42	A	A	A	A	A	A	A	A	64	69	67	104	A	110	A	76	A	54
8	52	54	A	A	45	35	54	A	A	83		A	A	51	37	A	54	66	A	A	A	A		
9																								
10		C	C	C	C	C	C	C	C	C	C	C	C	C				76		A	74	A	58	53
11	55	54	64	55	51	A	A	A	A	79	A	A	A		A	A	68		A			A	52	A
12	A	A	A	48	46	48	A	64	A	A	A	A	A	A	A	68	68	A	A	C	73	35	54	62
13	54	51	52	54	49	44	50	51	64	60	A	64	A	62	65	66	68	67	74	78	79	55	55	57
14	55	52	51	51	46	36	A	50	54	A	A	A	49	55	A	58	56	64		A	52	51	A	A
15	48	A	51	48	51	A	54	54	54	68	A	72	79	A	A	67	67	67	70	76	73	73	69	A
16	53	51	52	51	44	50	51	70	70	50	A	A	A	70	67	70	67	72	78	83	84	34	73	52
17	53	52	52	48	A	50	63	68	67	62	67	68	78	A	74	86	A	66	57	88	52	54	48	51
18	34	54	51	51	44	50	52	67	72	69	72	74	73	76	80	80	78	73	72	50	76	72	55	46
19	54	52	50	54	51	52	72	68	72	93	70	71	76	81	80	84		86	81	78	A	A	A	52
20	51	53	51	A	52	51	55	78	74	75	73	A	78	82	82	84	A	85	91	90	51	70	54	73
21	73	52	51	46	40	37	52	51	A	A	A	69	64	68	A	A	A		A	A	86		44	A
22	79	A	A	A	A	51	A	A	54	49	88	64	A	80	81	74	73	82		74	A	51	52	50
23	47	47	50	47	40	A	A	A	A	A	A	A	98	122	62	84	62	71	71	54	44	A	51	38
24	49	48	53	52	41	42	A	50	50	A	60	61	56	68	73	67	A	52	A	A	A	52	51	43
25	A	A	46	A	43	45	A	55	62	68	64	67	58	68	67	68	70	72	87	87	77	52	62	48
26	47	52	48	46	44	45	52	72	72	68	80	75	70	78	80	77	75	81	88	86	55	52	51	49
27	47	45	48	45	43	43	51	63	68	48	71	54	76	68	63	63	67	73	82	73	70	50	A	46
28	A	43	41	40	40	A	A	48	A	58	55	58	56	58	51	57	60	A	A	52	34	56	52	57
29	51	49	44	44	42	45	61	77	76	71	63	72	76	78	83	80	72	66	67	57	52	50	35	A
30	51	47	43	40	37	36	A	73	83	70	62	64	55	77	66	67	55	67	70	83	74	A	58	53
31	52	52	48	47	43	44	61	67	72	73	56	58	49	68	75	68	67	67	90	77	67	55	A	45
	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	25	26	25	27	25	19	23	22	21	17	18	18	22	22	23	23	24	18	22	23	21	23	23
MED	52	52	51	50	45	45	54	67	68	69	67	68	74	74	74	69	67	72	73	76	67	54	54	53
U Q	55	53	52	52	51	51	63	73	72	75	72	72	78	78	80	81	72	77	82	86	76	71	58	63
L Q	48	47	48	46	43	42	52	54	54	59	59	64	56	68	64	67	62	66	67	55	52	50	51	48

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT AKITA

AUG. 1992

LAT. 39.7N LON. 140.1E 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	60	49	G	G	G	40	34	G	51	59	93	102	60	92	G	54	51	G	G	30	46	40	68	115
2	58	G	49	40	41	30	46	46	61	88	62	58	61	70	60	60	61	62	50	57	41	56	29	G
3	G	G	G	G	G	33	34	48	70	59	101	92	95	93	G	G	G	G	72	60	49	58	40	35
4	30	29	28	G	G	G	G	G	50	69	G	53	57	58	71	69	69	40	G	70	38	39	41	38
5	27	G	G	G	G	G	33	38	50	84	58	51	78	50	G	G	44	46	37	30	46	115	51	54
6	38	40	31	28	38	G	38	40	52	50	52	61	52	51	44	42	69	73	106	124	52	92	41	49
7	41	28	G	28	G	30	40	58	57	49	55	104	84	74	56	G	53	126	126	143	103	131	92	32
8	G	37	46	30	30	30	55	61	134	72	G	62	84	G	50	95	50	115	94	73	58	44		
9																								
10		C	C	C	C	C	C	C	C	C	C	C	C	C				92	49	58	44	58	50	32
11	28	G	G	28	40	58	54	57	71	54	52	80	54	85	80	91	68	111	158	115	177	113	85	115
12	114	57	46	30	116	31	85	84	62	118	56	74	84	57	85	50	61	92	150	170	114	52	59	54
13	46	40	37	37	G	G	G	51	53	56	74	54	96	50	G	G	40	G	30	32	38	58	82	40
14	40	57	40	G	28	38	54	51	59	68	60	51	48	G	49	49	79	93	125	84	34	30	44	114
15	131	106	92	38	32	96	54	48	51	55	61	G	88	72	54	52	41	G	33	26	112	112	40	82
16	37	58	32	30	G	G	35	44	47	57	70	91	77	52	58	57	51	50	37	29	43	32	G	G
17	G	G	G	G	54	30	41	50	50	G	G	G	55	79	84	74	103	46	35	72	80	40	40	56
18	38	33	30	41	30	40	44	G	G	52	61	51	G	54	44	G	G	35	36	57	54	30	32	G
19	25	G	26	G	G	29	38	51	62	100	74	49	47	50	48	57	61	113	136	57	169	59	136	51
20	53	38	28	44	45	49	40	55	61	57	55	103	57	65	74	74	84	55	82	60	112	44	45	40
21	48	29	36	30	37	30	34	44	55	58	96	54	G	51	75	95	137	156	157	160	114	91	115	111
22	59	91	54	58	57	27	83	58	58	55	74	54	64	62	G	48	53	92	112	110	113	53	30	G
23	G	30	41	40	40	38	93	54	102	91	99	92	60	G	G	G	67	54	34	27	49	50	38	40
24	50	34	49	41	36	G	56	54	54	88	49	G	50	57	56	58	133	50	73	78	71	92	46	32
25	41	52	38	55	34	34	56	49	42	42	G	G	G	G	G	G	41	51	30	26	G	32	31	40
26	32	37	28	25	G	G	33	50	G	G	G	G	G	G	G	G	40	80	89	38	44	G	G	G
27	G	29	29	G	G	28	34	43	71	49	82	G	G	G	G	G	43	51	46	131	46	104	49	33
28	43	31	G	G	26	41	36	48	40	44	44	45	G	G	G	G	49	54	71	86	52	32	G	30
29	30	29	27	28	G	G	37	54	44	G	G	G	G	G	43	G	G	43	G	G	32	54	149	112
30	79	32	G	G	G	G	49	38	50	50	45	G	G	G	G	42	38	34	36	30	31	48	42	53
31	G	52	26	G	26	G	38	43	G	45	46	G	55	45	44	G	82	49	73	84	32	41	54	26
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	29	29
MED	38	33	29	28	28	30	40	49	53	56	56	53	55	51	44	48	53	52	60	60	49	52	44	40
U Q	51	50	40	39	39	38	54	54	61	70	74	77	77	67	59	59	69	92	106	86	103	91	63	55
L Q	26	28	G	G	G	G	34	43	48	49	44	G	G	G	G	G	41	43	35	30	41	40	35	31

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT AKITA

AUG. 1992

LAT. 39.7N LON. 140.1E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	18	18	16	17	18	15	15	16	17	18	21	22	27	24	23	21	21	16	16	18	17	17	17	16
2	15	15	15	16	16	16	16	16	17	21	24	28	30	23	23	22	17	15	15	17	15	16	17	17
3	17	18	17	17	16	16	16	16	35	23	24	34	23	23	24	18	22	20	15	16	18	16	16	16
4	16	17	18	16	18	21	16	16	21	22	21	23	22	21	41	21	18	20	22	16	16	16	17	17
5	17	18	21	17	15	22	17	16	18	21	22	26	23	23	21	17	15	17	15	16	16	16	16	17
6	16	16	16	16	15	20	15	17	17	21	22	21	20	16	17	18	16	16	15	15	16	17	16	16
7	16	17	16	16	18	15	16	15	18	21	24	24	23	24	18	20	17	16	15	17	16	16	16	17
8	16	16	16	16	17	15	15	15	17	17	18	21	21	18	21	20	17	16	15	15	15	16		
9																								
10		C	C	C	C	C	C	C	C	C	C	C	C	C				16	15	15	16	16	16	15
11	16	17	17	15	15	16	17	20	22	26	22	24	22	24	21	17	17	16	16	16	16	15	15	16
12	16	16	16	16	16	15	17	16	17	17	21	23	23	21	21	15	16	16	16	17	17	16	16	17
13	16	15	16	17	16	16	16	17	17	18	22	21	24	24	C	18	17	16	16	15	16	17	17	16
14	18	16	16	16	18	15	16	16	18	18	21	22	27	20	24	18	15	15	16	16	15	16	17	16
15	16	16	16	16	16	15	16	16	18	18	18	23	27	32	27	20	17	15	15	16	16	16	16	16
16	16	15	16	16	17	17	16	16	17	17	18	21	21	20	21	18	18	15	15	16	15	16	16	17
17	17	17	17	16	17	15	16	17	16	16	22	21	22	17	20	20	18	15	16	16	16	15	16	15
18	16	15	16	15	17	15	15	15	17	20	22	21	20	18	21	20	16	15	17	16	16	15	16	17
19	16	18	16	18	17	16	16	16	16	20	23	21	27	20	18	18	16	16	16	15	16	17	17	16
20	16	15	16	16	16	16	16	16	18	17	22	21	24	27	23	23	16	15	16	16	15	17	16	16
21	17	15	15	16	17	15	16	20	20	21	22	21	22	21	18	21	17	16	16	17	16	16	17	16
22	17	16	16	16	16	16	16	15	17	17	34	23	22	23	22	20	16	16	16	16	17	16	16	17
23	16	16	16	16	17	15	16	16	16	20	24	23	24	24	22	17	16	16	15	16	16	16	16	16
24	16	16	16	15	16	17	16	16	17	21	21	21	22	21	23	16	15	15	16	17	17	17	16	17
25	16	17	15	15	16	16	16	16	17	20	21	17	17	20	18	17	15	15	15	16	16	16	16	16
26	16	16	16	16	18	16	16	16	17	22	20	23	22	18	21	17	20	16	15	16	15	18	17	16
27	17	16	16	16	17	16	16	16	18	17	20	21	18	20	16	18	16	15	16	15	15	16	17	15
28	15	16	17	18	15	15	17	16	16	21	21	23	21	23	18	18	17	15	16	16	15	16	17	16
29	16	15	16	16	16	16	16	15	18	23	24	26	24	24	21	20	17	15	18	16	16	16	16	16
30	15	14	17	16	16	20	16	16	18	18	20	22	21	26	16	18	18	15	16	16	15	16	16	16
31	16	14	17	17	17	17	16	16	16	18	18	18	22	20	17	17	16	16	17	16	16	14	16	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	30	30	30	30	30	29	29
MED	16	16	16	16	16	16	16	16	17	20	22	22	22	21	21	18	17	16	16	16	16	16	16	16
U Q	17	17	17	16	17	16	16	16	18	21	22	23	24	24	23	20	17	16	16	16	16	16	17	17
L Q	16	15	16	16	16	15	16	16	17	17	20	21	21	20	18	17	16	15	15	16	15	16	16	16

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT KOKUBUNJI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	58	63	55	47	50	51	61	72	74	69	A	76	87	86	68	65	64	71	70	75	65	62	54	76
2	53	54	63	55	50	48	63	74	84	95	87	87	85	87	87	82	77	66	66	71	66	70	73	70
3	66	62	61	52	54	54	61	78	88	81	78	77	82	85	78	75	71	73	76	58	50	65	72	67
4	64	63	60	55	55	55	76	76	71	68	67	68	77	82	84	87	82	86	90	76	57	64	68	66
5	67	55	67	64	60	54	52	67	74	86	78	A	74	76	81	97	105	77	67	60	70	68	67	68
6	68	64	57	54	57	50	52	58	54		A	A	A	A	A	A	51	A	A	55	A	62	54	62
7	54	51	54	55	47	46	48	A	59	A	A	A	A	A	70	75	71	65	66	76	73	73	66	66
8	59	70	53	48	52	47	63	70	51	48	52	61	47	54	58	55	66	88	A	A	53	A	54	54
9	54	54	55	47	44	A		50	A	A	A	A	A			62	64	63	64	62	52	60	59	A
10	61	51	51	51	44	43	54	68	A	70	68	66	70	77	76	75	86	77	67	A	52	54	68	54
11	67	66	67	60	52	54	60	66	62	A	A	A	N		A	A	76	72	73	A	66	A	68	A
12	54	49	51	46	46	45	63	73	77	A	71	52	74	82	A	A	74	72	67	75	53	53	54	62
13	66	62	65	60	50	48	51	61	63	65	52	50		64	72	75	71	67	77	80	76	66	52	54
14	51	52	50	52	44		47	A	70	A	A	A	53	62	A	60	A	A	A	55	56	54	55	54
15	A	54	52	A	52	51	54	80	78	85	A	A	N	73	A	71	71	74	73	77	76	73	63	68
16	55	52	54	52	50	45	60	72	77	66	65	68	72	76	71	71	72	75	83	80	85	50	73	63
17	61	56	58	55	48	54	65	76	74	74	75	80	78	84	A	87	82	74	68	A	66	A	66	70
18	66	68	52	52	50	47	51	55	72	A	73	77	82	90	87	92	87	86	82	77	73	61	70	67
19	61	52	55	51	52	60	64	80	70	A	A	A	A	84	87	96	104	107	90	A	53	A	63	57
20	A	54	54	52	52	52	66	76	76	80	A	74	85	90	94	96	A	87	A	87	66	62	66	66
21	63	71	62	48	47	44	A	A	A	A	A	80	82	A	99	A	83	100	92	77	70	63	52	52
22	A	A	52	48		51	71	62	A	65	66	72	78	85	98	91	A	78	98	A	A	52	54	52
23	51		A	48	A	A	A	A	A	A	A		96	46	71	90	74	78	79	55	41	46	A	51
24	A	44	45	46	44	A	51	51	64	57	66	72	63	71	78	77	76	80	76	80	77	48	51	51
25	48	49	47	48	42	45	55	61	66	70	66	66	71	81	74	77	78	81	90	87	72	61	63	61
26	54	52	51	48	41	43	61	75	72	77	76	77	68	83	92	92	87	92	95	92	51	47	52	58
27	44	48	48	43	40	40	58	78	85	80	92	87	86	80	71	72	75	85	88	75	51	52	52	54
28	47	47	46	46	40	A	47	53	57	60	56	60	63	A	58	60	63	62	63	70	54	51	56	52
29	56	51	46	46	43	42	65	75	75	71	68	78	82	81	77	84	83	66	A	53	71	67	58	68
30	68	55	45	41	35	36	56	83		70	65	70	67	76		65	72	68	77	87	82	61	61	56
31	56	54	52	48	47	44	61	78	74	71	62	67	74	84	75	83	A	74	79	80	74	54	54	54
	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	29	30	30	29	26	28	27	25	21	20	22	24	25	23	27	27	29	26	25	29	27	30	29
MED	58	54	54	50	48	48	60	72	72	70	68	72	76	81	77	77	75	75	76	76	66	61	60	61
U Q	66	62	58	54	52	52	63	76	76	80	75	77	82	84	87	90	83	85	88	80	73	65	67	67
L Q	54	51	51	47	44	44	52	61	63	65	65	66	69	74	71	71	71	69	67	61	53	52	54	54

HOURLY VALUES OF FES AT KOKUBUNJI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	27	42	48	30	51	37	57	G	G	48	G	G	G	G	45	54	39	41	25	33	65	58	53
2	83	59	29	30	28	27	32	50	50	59	69	59	61	53	50	G	G	G	32	25	25	26	40	28
3	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	G	39	34	60	56	69	36
4	40	29	27	G	G	G	34	37	45	69	50	G	66	55	58	62	85	48	38	31	29	41	40	29
5	29	G	G	G	G	G	G	41	49	49	74	80	G	G	G	46	47	60	50	26	G	49	67	55
6	31	30	27	28	31	27	41	50	49	G	66	88	64	96	51	166	54	59	110	37	92	38	40	G
7	G	38	50	31	G	G	40	64	57	51	68	63	60	78	58	54	70	40	30	26	50	G	29	34
8	28	29	24	33	G	43	43	43	48	50	G	54	G	G	G	48	61	50	73	92	58	59	54	35
9	40	24	28	G	27	66	G	59	70	60	73	101	60	G	G	53	40	44	54	43	26	34	58	59
10	29	G	G	G	G	30	37	50	66	61	47	51	52	60	G	50	54	50	61	61	49	60	24	G
11	G	G	54	33	G	40	44	54	56	60	65	144	121	146	148	152	53	48	66	150	60	78	38	80
12	59	43	34	38	30	45	54	93	69	74	61	55	57	72	115	97	48	46	52	49	67	131	36	49
13	53	30	32	38	33	G	G	41	58	G	48	52	G	G	G	G	G	G	37	38	41	40	128	59
14	84	49	38	28	24		38	68	48	70	61	55	50	G	68	61	66	74	85	60	54	40	92	59
15	60	48	59	61	41	24	34	45	58	82	74	134	109	62	67	52	51	G	30	G	25	59	59	G
16	54	54	28	G	G	26	34	41	47	53	54	61	62	48	G	47	55	47	47	71	61	58	26	25
17	G	24	29	40	G	G	40	44	54	G	G	G	65	62	100	48	G	38	61	58	40	60	58	102
18	37	G	62	70	44	35	58	54	50	99	51	47	59	92	56	52	61	54	72	58	59	34	44	29
19	34	29	G	G	54	55	48	66	60	80	82	159	150	62	81	68	70	62	92	103	60	85	59	59
20	86	49	64	45	30	G	34	47	60	51	58	47	68	70	57	60	102	83	95	60	28	44	54	36
21	40	34	30	30	53	34	59	66	67	61	77	74	64	78	170	136	64	85	138	66	61	60	59	60
22	110	94	72	58		130	62	54	58	59	G	58	47	G	60	89	136	78	80	84	97	80	56	32
23	40		59	78	91	107	43	56	84	100	98	G	80	G	48	62	54	55	73	91	56	38	65	27
24	40	41	39	34	40	55	43	40	46	47	G	G	53	62	58	55	46	66	70	56	59	58	71	57
25	40	33	59	35	37	41	48	48	50	44	G	54	50	54	G	52	43	36	48	33	28	G	G	29
26	24	22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	G	31	27	59	60	G
27	G	G	24	G	G	26	39	36	44	50	G	G	G	G	48	45	42	50	30	33	33	54	32	58
28	54	32	G	G	31	33	37	38	55	G	G	G	G	59	G	G	G	40	60	27	61	60	58	56
29	26	G	G	28	26	G	34	41	46	56	46	G	G	G	G	G	45	59	92	59	32	30	41	58
30	58	54	32	38	29	26	31	84	50	48	52	G	G	G	49	44	52	35	40	58	55	41	33	29
31	47	24	26	G	27	24	33	47	42	G	G	G	48	48	46	52	88	60	61	58	52	30	44	58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	40	30	29	30	28	27	37	48	50	51	51	52	53	53	49	52	53	48	60	56	52	54	54	36
U Q	54	43	50	38	33	43	43	57	58	61	68	63	64	62	60	62	64	60	73	61	60	60	59	58
L Q	26	22	24	G	G	G	33	41	46	G	G	G	G	G	G	45	42	38	39	31	29	38	38	29

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT KOKUBUNJI

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	14	14	14	14	15	15	16	18	29	30	32	28	51	20	16	16	16	16	14	15	15	15
2	15	15	15	15	15	17	14	15	16	18	21	28	29	23	21	20	16	14	15	16	15	16	15	15
3	15	17	16	15	15	18	18	15	45	21	27	23	20	30	21	17	26	18	16	14	15	14	15	15
4	14	15	15	15	14	21	16	14	17	17	30	21	21	20	36	17	17	15	15	14	15	15	15	15
5	15	16	16	16	16	17	16	16	18	18	23	34	41	24	20	22	16	16	15	15	15	15	15	15
6	15	15	15	15	15	14	15	16	16	21	32	32	29	23	28	39	15	15	16	16	15	15	15	15
7	15	14	14	14	16	18	16	16	17	20	23	36	28	33	34	20	18	15	16	16	15	17	15	15
8	15	15	14	15	15	16	14	15	16	18	21	20	21	23	18	20	17	15	16	17	15	15	15	15
9	15	16	15	15	15	15	17	16	21	23	23	28	22	22	21	17	16	14	16	15	15	15	15	15
10	15	15	15	15	15	15	15	14	16	18	21	23	20	20	17	17	23	14	15	15	15	15	15	15
11	15	16	14	14	14	15	17	18	32	26	35		33	34	20	27	18	15	15	15	15	15	15	15
12	15	14	15	14	14	15	17	17	18	22	18	36	33	21	24	16	16	15	16	15	15	15	15	15
13	15	15	15	14	14	17	18	15	16	21	21	34	27	28	23	20	16	17	14	15	15	15	14	15
14	14	15	15	14	15		16	15	17	22	22	24	34	23	21	17	16	15	16	15	15	15	15	15
15	15	15	14	15	15	18	16	15	16	18	20	33	34	23	24	26	16	16	16	15	15	15	15	15
16	15	15	15	15	15	16	16	16	17	20	33	26	32	33	39	20	16	14	15	15	15	15	14	15
17	15	15	15	15	16	17	15	17	17	18	29	22	24	33	18	18	17	17	16	15	15	15	15	15
18	15	14	15	15	15	15	15	15	17	32	24	29	22	29	18	17	17	15	15	14	16	15	15	15
19	15	15	15	15	15	15	15	15	18	16	21	34	24	23	20	18	16	15	16	15	15	17	14	15
20	15	14	15	15	15	15	16	15	16	20	21	21	33	30	23	23	17	15	16	15	15	17	15	15
21	15	15	15	14	16	15	16	16	20	20	34	32	30	35	27	28	26	16	18	17	15	14	15	15
22	15	15	15	14		14	16	15	16	18	32	32	32	28	22	17	16	15	24	17	15	14	15	15
23	15		15	15	15	15	15	16	17	18	28	23	23	23	22	17	16	14	17	15	15	16	15	15
24	15	15	15	15	14	14	15	15	23	20	32	21	38	22	18	20	16	15	15	14	15	15	16	15
25	15	15	15	15	14	14	15	15	17	20	21	23	22	21	20	16	15	14	15	14	14	16	16	15
26	15	15	14	14	15	15	22	16	16	21	36	36	38	36	26	21	18	15	17	15	15	15	15	15
27	14	14	15	15	16	16	15	16	17	20	21	22	21	17	18	18	16	14	15	15	15	14	15	14
28	14	15	15	15	14	15	16	14	17	18	22	26	29	24	20	16	16	15	15	15	15	14	15	14
29	14	15	14	14	14	16	17	16	18	32	33	48	38	30	20	17	15	14	14	15	14	15	15	15
30	15	14	14	15	14	15	16	15	17	20	24	20	17	17	33	18	16	15	15	15	15	15	15	15
31	15	14	14	15	14	16	16	15	17	22	23	22	24	18	22	17	15	14	14	15	15	14	14	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	30	30	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	16	15	17	20	23	27	29	23	21	18	16	15	16	15	15	15	15	15
U Q	15	15	15	15	15	17	16	16	18	21	32	33	33	30	26	20	17	15	16	15	15	15	15	15
L Q	15	15	14	14	14	15	15	15	16	18	21	22	22	22	20	17	16	14	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT YAMAGAWA

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	84				52	48			68	62		66	76	88	88	95	100	100	86		66	52	64	63
2	62	67		53	53	51		66		94		80	86	101	112	111	100	90	80		72			66
3	67	66	63		56	59	53	78	65			72	75		82	84	84		70	72		65	64	
4		54		55	58	50	63	67		71	67		76	82	85		A	114	A	76	78		73	86
5		66	77	80		66	78		73	78	78	67	66	75		91	111	96		74	71			
6		58	52	50	58			71	A	67			A	A	A	A	62	A	64	A	63	67	51	66
7	67	53	56		59	55		51	66	61	53	67			73		A	74	86	81		66	66	66
8	64			51	48	53	63	68	68	65	72		74	72		76			87	85	78		52	
9	66		56	60			58	51	53	61	57	62	70	72	75			75	81		55	63	61	
10	64	61	54	47	48	40	52	63	65	71	70	70			84	C	C	C	C	109	A	76	78	85
11	82	80	85		66	66	66		66	66	65	66	80	86			95		81				72	65
12	66		73			42	54	85	65	A	A		A	102	107	83		80	83	81		A	64	
13		63	64	54			51	72		67	67		71		85	A	80		87	92	82	77	64	57
14	54	53		51	51	A		71	75	68		A	A	80	81					77	70	54	66	67
15	79		54		62	A	65	90	A	A	A	78	86	88	78		A		78	82	74	73		
16	71	74		63	54		56	81	84	64	67	72		87	87	86	78	78	84	82	86		78	73
17	65	66	68	53	52	52			80	77	A	80	78	91	101	111	117		96		75			66
18	63	A		52	54	47	58	78		65	A	75	80	83	88	90		86		87	86		64	
19		60		52	53	45		77	81	66		A	A		107		A	118	A	98	A			A
20	A		54	61	54	52			75	70		78	87	104	107	108	105	94	111	101	86			76
21	76		50	45	63	56	66		60	67	81	A	100	110	A	92	100	101		80	77	66		A
22	A	A	62	A	54	54		A	A	A	A		A	93	114	110	101	100	101		A	A	A	A
23		54	52	63	41	45		66	A	52	A	69	65		A	A	A	83	97		54	44		52
24	A	A	56	53	51			61	66			78	75	76	84		80	86			A	51	A	
25		52	53	52	41					70	67	75	84	78	86		87	96	90	90				61
26	51	52	51	53				72	78		78	67	82	91	95	102	107	112	104	90	67	52	52	53
27	53	52			50		55	75	90	80	82	90	106	102	94	96	104	105	105	85	52	51	A	54
28		52	58	59	52	42	50	42		59		70	63	68	68	77		67	67			58	55	58
29	52		52	47	41	36	43	65	66	68	68	80		92		90	88	76	71	82	78	67		
30		53	53	48	37	42	48	80	88				86	91	91	86	82	87	93	97	78	63		
31	72	54	62	51	44	42		72	86	A		74	80	84	90	85	88	100	107	74	52	51		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	19	20	22	23	26	21	17	23	21	23	14	21	22	24	24	18	19	22	23	21	21	18	16	17
MED	66	56	56	53	52	50	56	71	68	67	68	72	79	88	88	90	95	92	86	82	74	63	64	66
U Q	72	66	63	59	56	54	64	78	80	71	78	78	86	92	98	102	104	100	97	91	78	67	69	70
L Q	62	53	53	51	48	42	51	65	65	64	67	67	74	79	83	85	82	80	80	78	64	52	58	57

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT YAMAGAWA

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30				36	39			46	G		G	54	52	G	50	G	G	50		G	G	32	40
2	92	32		39	33	25		52		57		64	48	60	53	G	42	G	34		G			40
3	26	25	26		G	G	28	43	G			64	G		52	G	62		78	41		32	46	
4		43		26	30	25	28	51		G	46		G	54	G		132	54	127	125	79		G	25
5		29	G	29		G	G		G	44	53	G	G	56		G	46	48		57	57			
6		39	32	24	28			G	72	54			94	70	70	68	50	62	57	93	40	G	25	G
7	G	G	G		G	24		45	49	64	G	64			90	148	125	62	G	78		30	40	36
8	38			24	G	32	42	48	G	42	46		51	54		G		G	56	41	27		29	G
9	G		G	24			G	G	44	G	53	51	54	G	N			46	G		28	24	30	
10	85	44	41	26	24	24	32	42	44	60	51	65			54	C	C	C	C	117	160	68	69	126
11	92	24	G		G	29	G		42	G	G	G	G	49			44		36				30	41
12	85		34			G	34	G	60	153	167	114	125	G	125	G		G	70	31	G	83	38	
13		31	33	G			G	G		G	G		G		G	94	52		37	37	32	85	68	33
14	32	30		31	G	46		51	70	51	82	98	118	G	G					52	95	81	40	G
15	30		G		26	43	45	G	96	106	82	68	68	86	51		111		47	90	57	28		
16	26	25		31	40		29	38	57	69	48	71		56	G	N	50	50	44	33	78		40	54
17	40	24	G	G	G	G			55	56	102	51	G	G	G	48	106		49		82	30		45
18	68	79		54	86	40	30	55		110	83	83	73	63	G	44		G		39	27		45	
19		41		G	G	G		42	46	44		72	106	141	94	166	146	109	147	G	143	110		57
20	92		54	31	26	43			84	45		90	127	76	G	51	55	64	34	41	G			31
21	G		G	G	24	G	G		43	52	72	109	96	78	94	78	61	72		44	43	133		65
22	92	92	88	83	61	30		69	90	152	98	109	178	G	G	74	116	G	70	149	130	108	84	76
23		33	G	G	34	40		48	74	54	75	G	62		85	105	130	51	57		67	26		G
24	150	51	49	58	32			37	40			G	49	56	G		64	51			58	48	39	
25		23	24	G	G					55	52	56	55	55	52	G	52	59	55	G				G
26	G	G	30	40				39	82		56	46	G	G	G	G	44	48	47	54	56	36	39	32
27	25	40			44		G	G	G	55	48	G	G	G	G	46	G	39	G	25	40	41	32	60
28		29	32	82	50	25	30	36		46		69	G	G	G	G		45	33			G	68	70
29	24		30	24	23	29	G	36	53	47	G	G	G	G		G	52	48	34	48	55	44		G
30		G	23	G	24	G	29	36	50				48	G	52	47	48	G	38	45	54	84		
31	31	36	32	29	27	G		41	53	73		60	46	G	52	G	46	80	61	78	53	43		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	23	22	24	26	23	17	24	25	27	21	26	28	26	26	23	24	24	25	23	26	22	19	23
MED	32	31	28	26	26	25	28	40	50	54	53	64	50	53	26	46	52	48	47	45	54	42	39	40
U Q	85	41	33	35	34	39	31	48	71	64	82	72	83	60	54	74	108	60	59	78	78	83	46	60
L Q	25	24	G	G	G	G	G	18	42	44	46	G	G	G	G	G	46	G	34	37	28	28	30	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT YAMAGAWA

AUG. 1992

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

DAY \ HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15				15	15			15	17		40	38	36	30	34			15		15	15	15	15
2	15	15		15	15	15		15		17		30	33	26	21		16	16	15		15			15
3	15	15	15		15	15	15	15	35			38	39		38	38	39		15	15		16	15	
4		15		15	15	15	15	15		17	33		34	35	40		17	16		15	15		15	15
5		15	15	16		15	17		17	22	36	36		42		53	28	18		16	16			
6		15	15	15	15			16	16	22			34	34	33	21	18	16	15		15	15	15	16
7	15	15	15		15	15		16	20	27	39	38			38	36		18		15		15	16	15
8	15			15	15	15	15	15	16	20	33		34	39		23			15	16	15		15	
9	16		15	15			17	16	21	48	22	36	39	39	34			17	16		15	16	16	
10	15	15	15	15	15	15	15	15	16	18	34	38			23	C	C	C	C	15	15	15	15	15
11	15	15			15	15	15		20	24	30	33	57	36			17		15				15	16
12	15		15			15	15		18		33	32			28	22		16	15	15		15	15	
13		15	15	15			16	15		36	49		52		50	35	21		15	15	15	15	15	15
14	15	15		15	15	15		15	20	26	34	35	38	34	39					15	15	15	15	15
15	15		16		16	15	15		15		33	34	39	38	35		23		15	15	15	15		
16	16	15		15	15		15	17	16	18	22	36		24	48	40	20	17	15	15	15		15	15
17	15	15	15	15	15	15			16	34	34	35	33		53	35	18		15		15	15		15
18	15	15		15	15	15	15	15		24	30	30	26	24	24	26		15		15	15		15	
19		15		15	15	15		17	18	24		34	37	38	38	36	20	17	15		15	15		15
20	15		15	15	15	15			16	22		33	35	35		35	21	16	15	15	15			15
21	15		15	15	15	15	15		17	23	27	27		36	35	35	20	17		15	15	15		15
22	15	15	15	15	15	15		15	16	18	36	36	36	49	35	34	18		16	15	16	15	15	15
23		15	15	15	15	15		16	16	18	35	50	29		37	23	16	16	15		15	15		16
24		16	15	15	15			15	16			45	45	38	36		18	17			16	15	15	
25		15	16	16	15					17	18	23	24	26	38		16	16	15					15
26	15	15	15	15				15	16		29	30	38	38		23	17	15	16	15	15	15	15	16
27	15	15			15		18	16	18	17	22	46	52	39	45	17		17	20	15	15	16	15	15
28		15	15	15	15	16	15	15		17		23	46	23	46	24		16	15			15	15	15
29	16		15	16	16	15	15	16	16	22	36	49		52			17	16	15	15	15	15		
30		16	15	15	15	15	15	16	16				33	23	27	21	17	16	15	15	15	15		
31	15	15	15	15	16	15		16	17	21		35	35	47	36	20	17	15	14	15	15	16		15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	21	24	26	23	17	22	25	25	21	26	24	24	25	21	21	21	23	20	25	22	19	21
MED	15	15	15	15	15	15	15	15	16	22	33	35	36	36	36	34	18	16	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	16	18	24	35	38	39	39	39	35	20	17	15	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	16	17	28	32	33	30	31	22	17	16	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT OKINAWA

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	86	82	55	44	48	54	76	45	62	71	63	72	86	94	95	107	118	107	86	63	62	51	42
2	58	54	60	49	42	44	51	62	78	76	84	82	92	122	144	138	136	138	130	87	80	78	86	87
3	84	85	85	76	53	54	62	62	67	66	76	78	80	95	94	91	A	97	77	66	62	54	62	40
4	A															C								
5																								
6										A	A	61	A	A	81	A	151	A	A	78	72	74	66	67
7	66	64	54	60	55	58	51	66	77	70	A	71	84	85	94	91	90	90	85	85	87	76	81	A
8	63	67	66	43	42	52	54	66	66	82	77	87	92	87	85	A	A	A	A	A	85	77	A	66
9	66	66	59	54	51	38	46	60	73	62	66	74	82	90	87	86	92	95	89	78	63	66	63	60
10	54	52	54	45	45	38	38	65	66	70	74	82	91	90	101	103	77	A	86	85	84	78	80	87
11	84	90	86	86	65	66	66	66	66	74	64	82	94	104	110	N	120	106	108	86	A	66	A	62
12	62	62	34	24	42	37	57	66	63	C	72	82	95	105	A	104	96	95	107	89	78	66	66	62
13	67	66	66	58	53	32	54	66	65	61	76	79	86	95	104	97	A	92	104	104	86	65	A	29
14	53	44	44	48	51	34	38	77	64	80	87	100	108	103	112	122	120	112	91	88	83	84	87	87
15	88	87	86	84	84	85	78	86	82	76	80	92	95	102	106	104	94	90	84	91	91	80	58	54
16	52	62	78	48	45	42	54	85	75	59	71	75	88	95	104	107	95	80	90	106	85	78	77	80
17	73	74	80	60	52	43	52	74	77	78	81	82	89	105	100	146	146	146	143	110	85	85	66	61
18	55	33	64	A	30	A	53	80	65	67	67	77	85	87	91	103	101	102	101	90	96	66	52	53
19	55	66	63	66	60	54	72	87	66	A	64	68	87	104	112	126	127	145	146	109	81	85	85	A
20	86	84	86	71	66	62	62	82	80	A	78	A	95	105	108	130	130	120	143	110	108	86	85	77
21	78	72	66	40	48	54	78	66	61	68	C	C	C	C	C	C	C	137	119	105	90	83	66	40
22	61	62	73	A	52	34	52	55	51	78	C	C	C	C	C	C	C	138	116	104	83	169	67	66
23	74	63	75	76	A	A	A	88	56	57	70	87	85	74	98	105	A	105	108	87	66	41	A	52
24	54	51	34	52	30	34	A	58	75	66	C	C	C	C	C	C	C	100	111	109	A	A	A	A
25	52	53	54	50	28	23	44	64	62	66	80	81	91	88	95	105	106	112	105	104	84	78	78	76
26	72	66	83	N	37	A	25	78	81	82	C	C	C	C	C	C	122	120	91	90	64	55	34	42
27	A	43	49	40	38	31	38	74	74	86	92	103	121	133	121	119	143	157	122	110	80	66	54	53
28	52	43	38	44	41	35	37	50	66	65	72	72	84	72	85	85	77	77	78	78	A	34	42	A
29	A	A	52	43	31	34	37	55	62	67	81	86	105	118	105	111	112	111	91	104	88	A	52	54
30	54	52	52		35	34	37	73	72	72	92	103	104	112	121	119	128	126	122	128	84	87	86	87
31	72	66	73	66	35	37	43	86	71	69	A	85	87	105	81	106	120	167	145	85	76	72	52	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	27	28	24	27	25	26	28	28	25	22	24	24	24	24	22	22	26	27	28	26	27	24	25
MED	63	64	65	53	45	38	52	66	66	69	76	82	90	98	100	105	116	112	107	90	84	76	66	61
U Q	73	72	79	66	53	54	57	79	75	77	81	86	95	105	109	119	128	137	122	105	86	83	80	76
L Q	54	52	53	44	37	34	38	63	63	65	71	74	85	87	92	97	95	95	90	85	76	66	53	47

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT OKINAWA

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	37	33	25	G	G	24	33	41	46	46	64	68	48	G	G	84	58	41	39	33	G	G	28	25
2	92	34	28	G	25	G	33	36	42	46	68	84	58	84	61	G	G	G	G	27	34	G	G	G
3	G	24	G	30	G	G	G	38	47	50	G	152	145	72	G	58	108	60	91	G	40	29	24	23
4	22															C								
5																								
6										85	74	84	94	80	84	84	160	179	169	84	39	34	G	34
7	G	G	G	G	G	23	34	43	43	72	83	61	61	67	67	84	150	82	50	32	38	32	33	57
8	28	38	33	G	G	29	30	36	41	49	51	G	59	66	55	89	90	111	136	175	68	32	37	G
9	G	G	G	G	G	G	G	38	42	84	51	53	56	G	91	49	50	45	40	41	58	32	34	G
10	38	33	40	25	G	G	29	32	49	60	47	50	G	54	85	61	88	116	113	42	31	G	40	43
11	38	28	G	G	G	25	36	40	41	42	G	48	G	48	49	45	48	G	36	48	60	69	58	45
12	42	38	38	85	38	29	39	45	59	C	50	67	89	56	109	50	52	49	39	33	32	24	37	30
13	33	36	G	38	30	29	46	34	40	57	52	62	54	81	G	78	160	138	91	91	92	80	58	37
14	29	34	35	34	28	24	30	42	71	46	94	65	95	94	87	56	48	51	60	110	59	59	38	28
15	34	26	24	G	25	G	25	38	55	42	62	51	69	G	63	54	49	66	42	43	48	72	39	32
16	23	26	30	G	G	G	29	42	60	61	72	63	57	62	60	52	47	89	83	61	31	48	40	57
17	36	25	G	G	G	G	26	39	51	64	60	63	94	81	51	G	45	67	66	57	46	58	48	82
18	44	34	38	91	39	40	41	40	48	51	59	G	G	65	55	52	63	65	61	93	37	35	40	38
19	38	38	27	27	29	24	24	44	60	72	49	55	55	62	72	63	G	G	33	G	G	25	66	88
20	83	43	58	90	65	39	24	48	55	76	108	93	85	80	101	45	48	56	46	26	90	29	G	G
21	G	G	G	G	G	G	G	34	38	G	C	C	C	C	C	C	C	68	50	32	70	37	G	26
22	G	39	45	56	36	38	41	72	80	148	C	C	C	C	C	C	C	46	50	30	58	176	67	40
23	39	24	34	67	112	88	70	48	44	G	G	49	58	71	77	69	87	73	85	45	30	30	40	30
24	32	32	84	34	31	38	58	43	48	50	C	C	C	C	C	C	C	46	47	44	49	56	58	58
25	38	G	23	37	34	26	23	32	41	45	50	68	55	54	57	78	81	76	83	62	39	35	24	23
26	24	G	G	G	30	57	58	36	44	56	C	C	C	C	C	C	48	56	61	49	41	G	G	G
27	66	G	26	G	30	27	36	45	G	46	G	G	G	G	G	47	43	40	G	24	25	26	G	27
28	33	G	G	G	G	G	44	G	56	63	55	G	G	G	G	G	G	39	33	30	84	28	39	69
29	46	37	26	G	25	G	30	32	43	G	56	70	49	G	G	54	44	44	49	28	45	58	30	G
30	23	G	G		G	G	G	G	40	48	50	160	66	51	85	82	55	43	40	35	40	26	41	44
31	66	60	32	G	G	G	25	33	46	72	127	74	74	66	71	48	44	38	32	38	41	48	49	28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	28	27	28	28	28	28	28	28	25	25	25	25	25	25	26	29	29	29	29	29	29	29
MED	34	30	26	G	25	24	30	38	46	50	55	63	58	62	61	54	50	56	50	41	41	32	38	30
U Q	40	36	34	37	30	29	40	43	55	68	70	72	79	76	84	78	87	74	83	59	58	57	44	44
L Q	23	G	G	G	G	G	24	34	41	46	49	49	48	24	25	47	45	42	39	30	33	26	24	23

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT OKINAWA

AUG. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	16	15	15	15	15	14	14	15	20	27	29	26	29	24	20	17	16	15	15	15	15	15
2	15	15	15	15	15	15	15	14	15	16	22	24	22	26	17	18	16	15	15	15	14	15	15	15
3	15	15	15	14	15	15	16	15	32	23	27	26	28	29	29	24	40	26	16	15	15	15	15	15
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5																								
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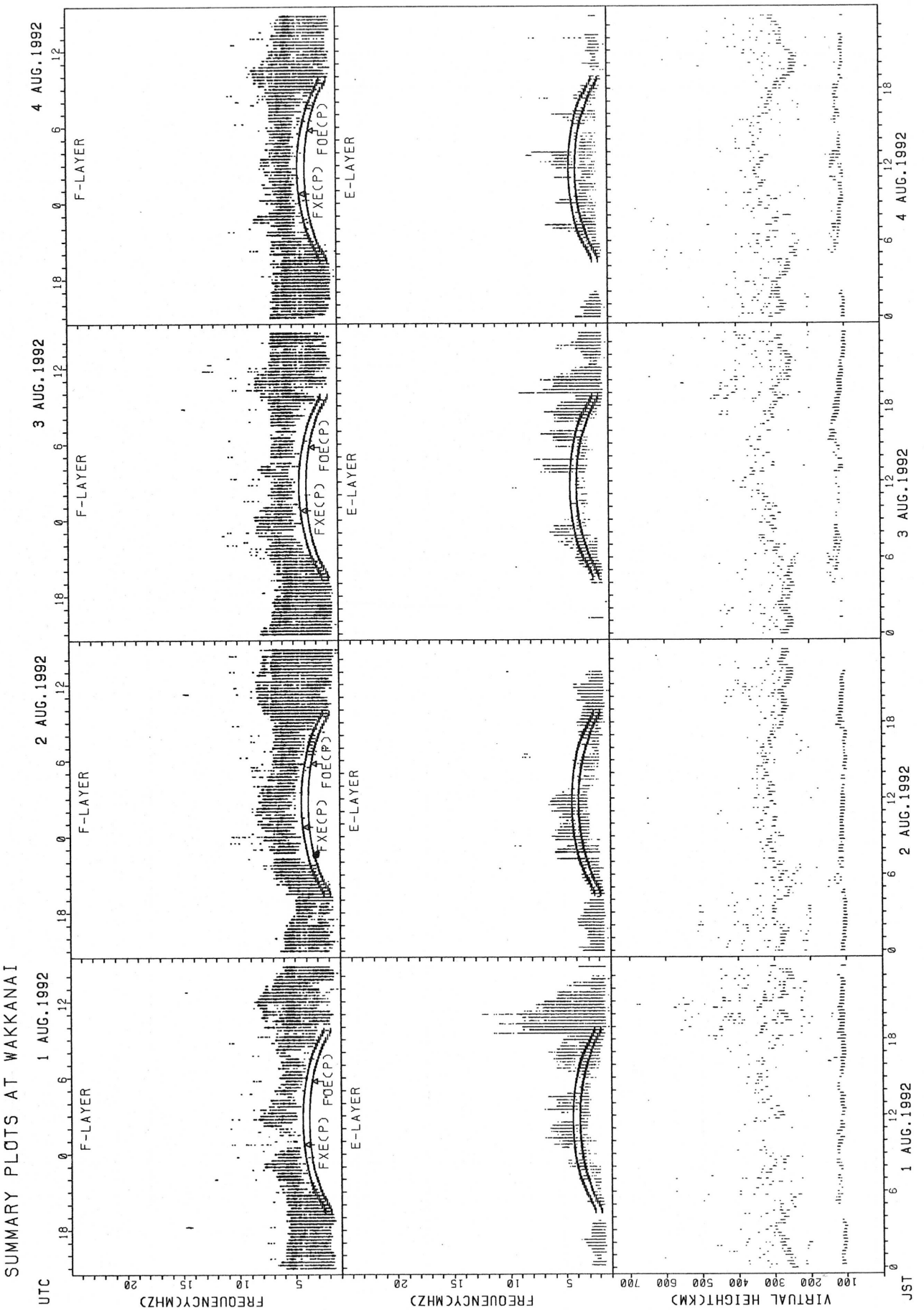
COMMUNICATIONS RESEARCH LABORATORY, JAPAN


SUMMARY PLOTS AT WAKKANAI
UTC
JST
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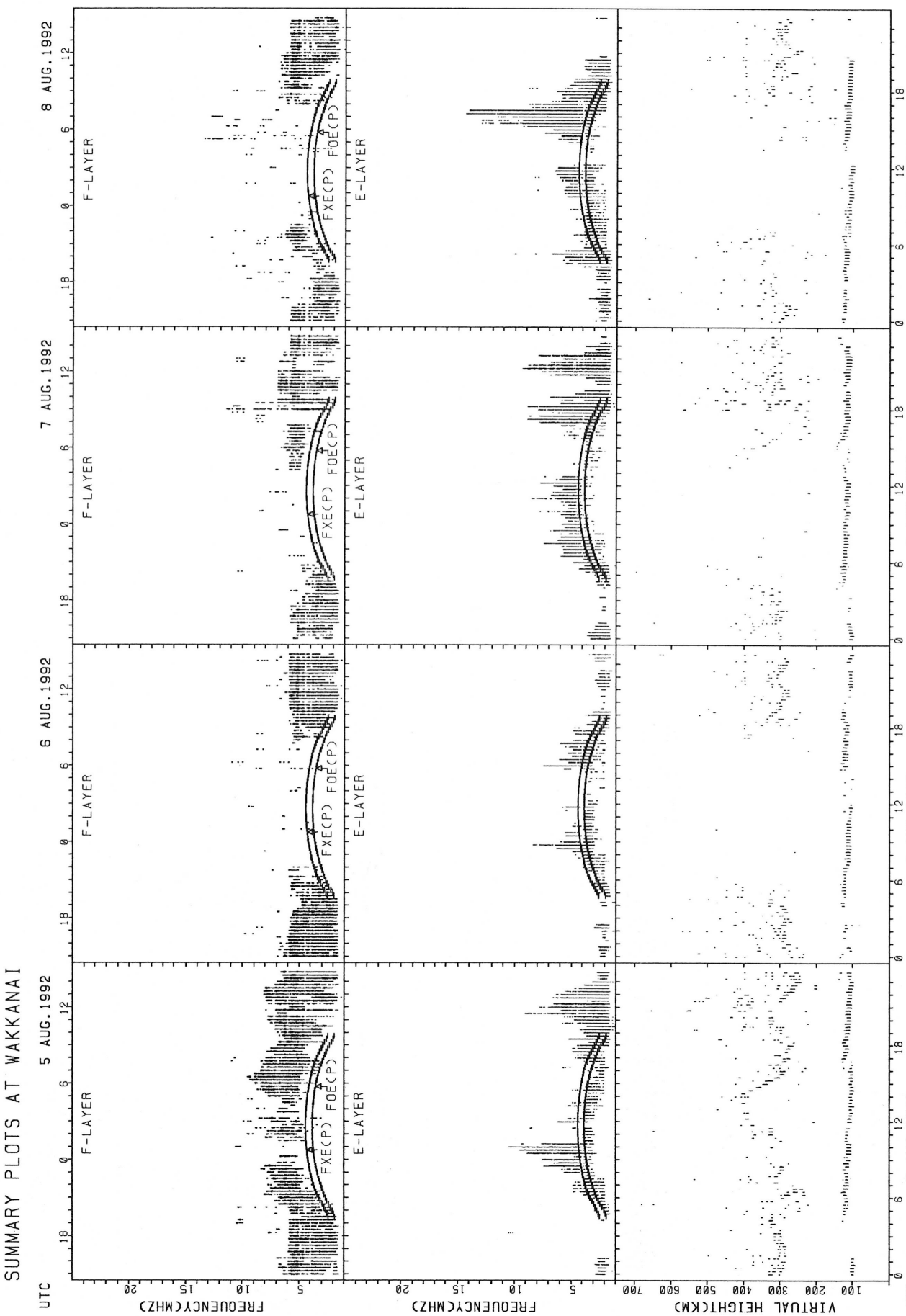
3 AUG.1992
4 AUG.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE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F-LAYER
E-LAYER
FXE(P) FOE(P)
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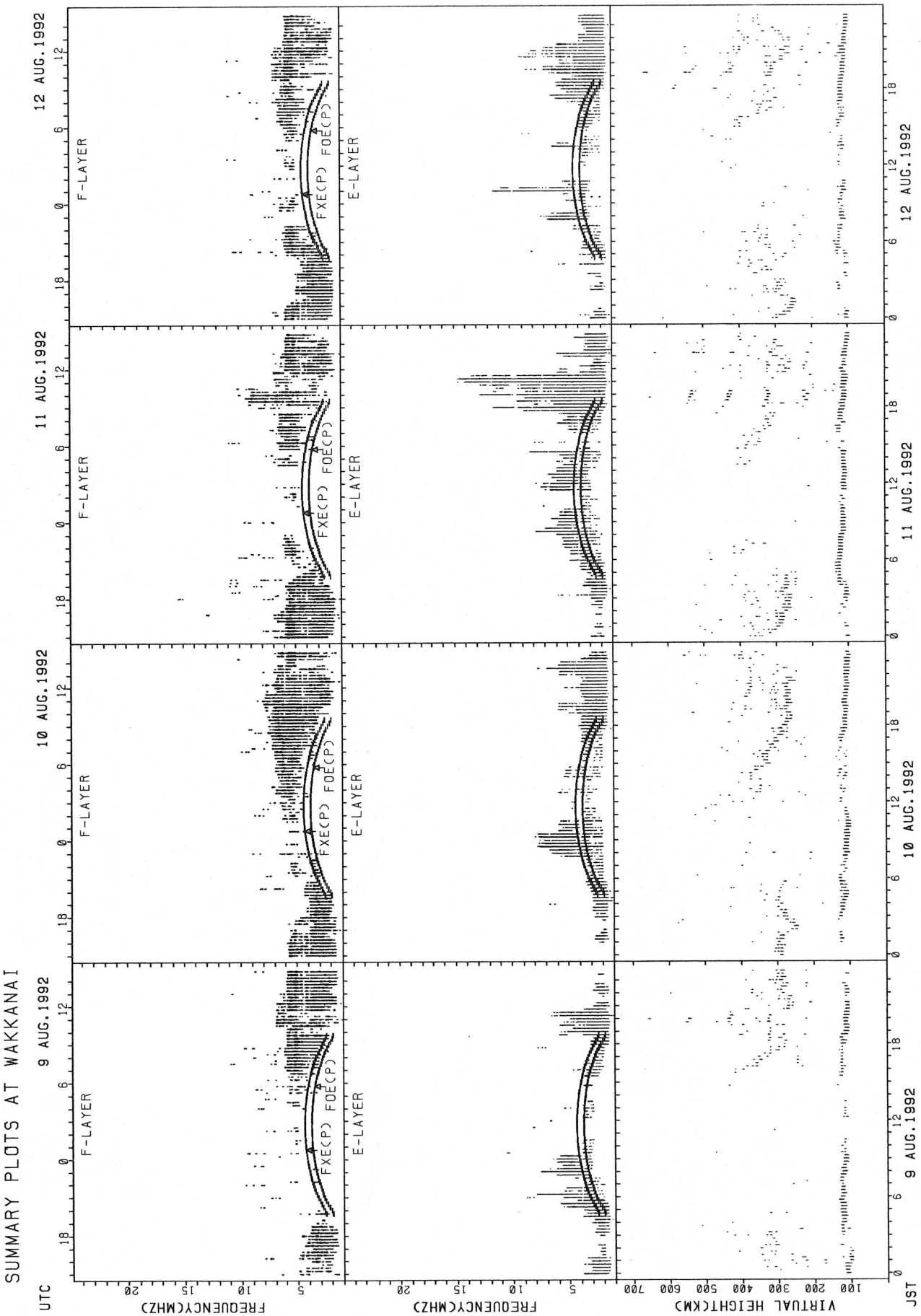
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE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UTC
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11 AUG.1992
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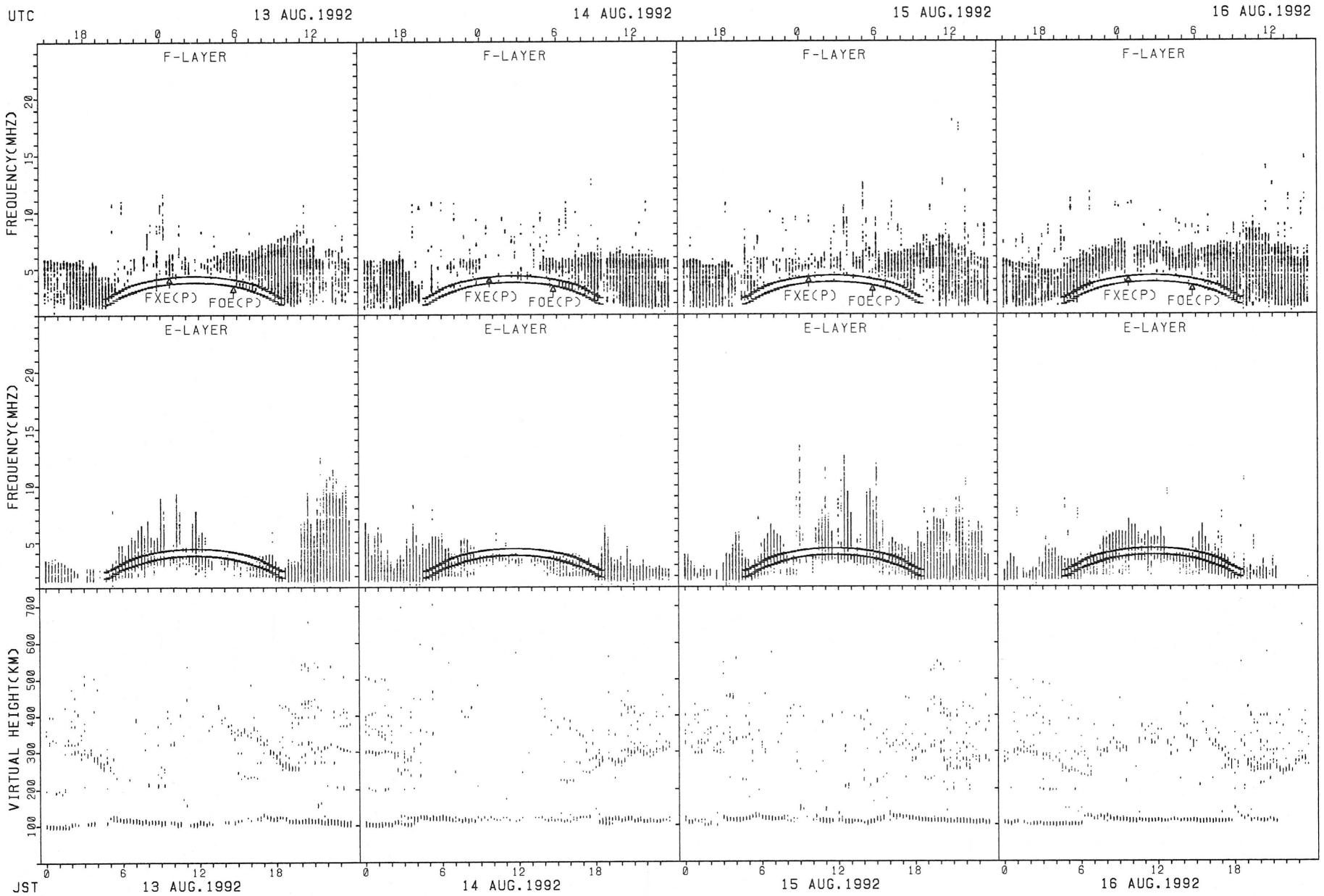
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT WAKKANAI



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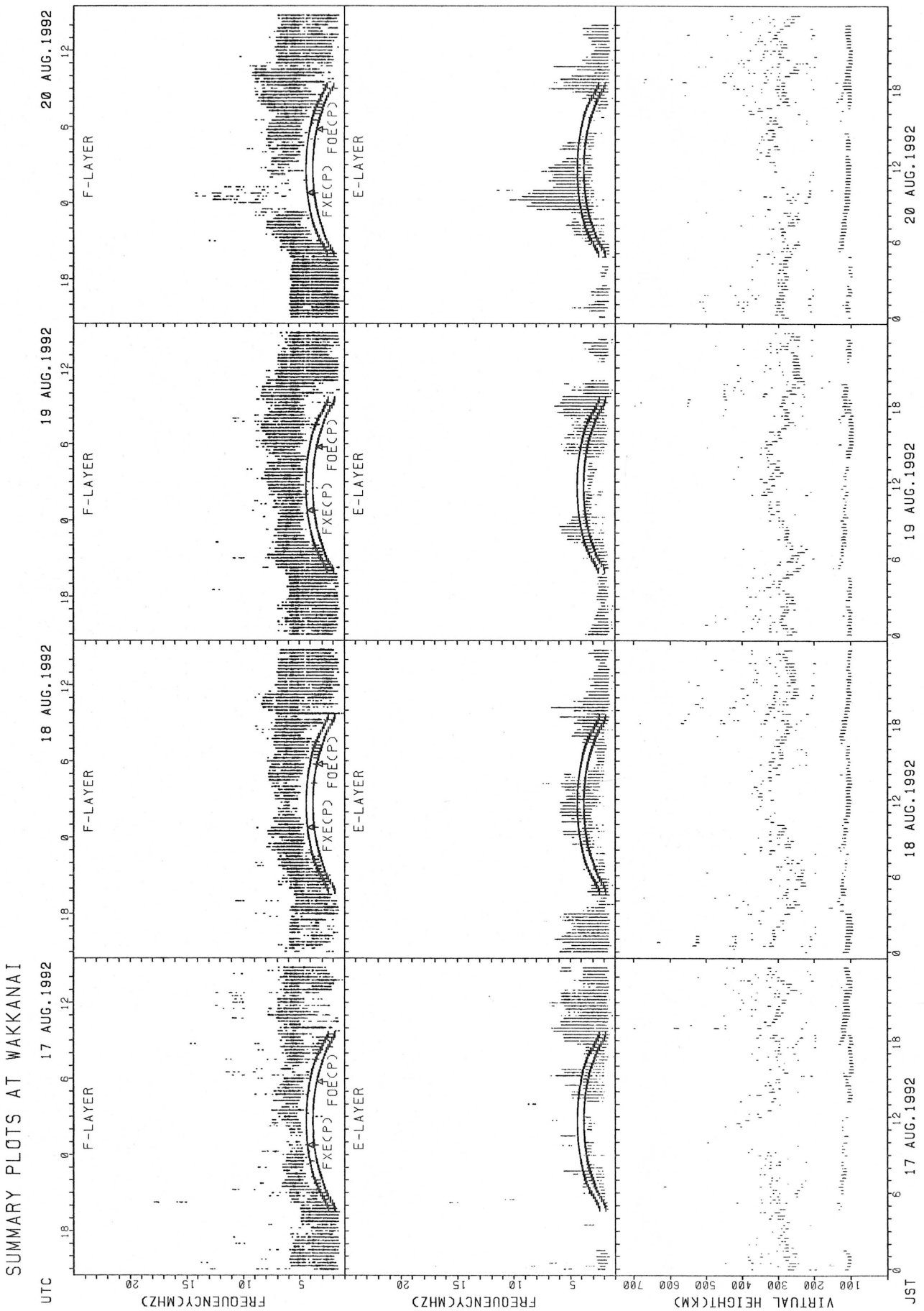
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E-LAYER
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FREQUENCY(MHZ)
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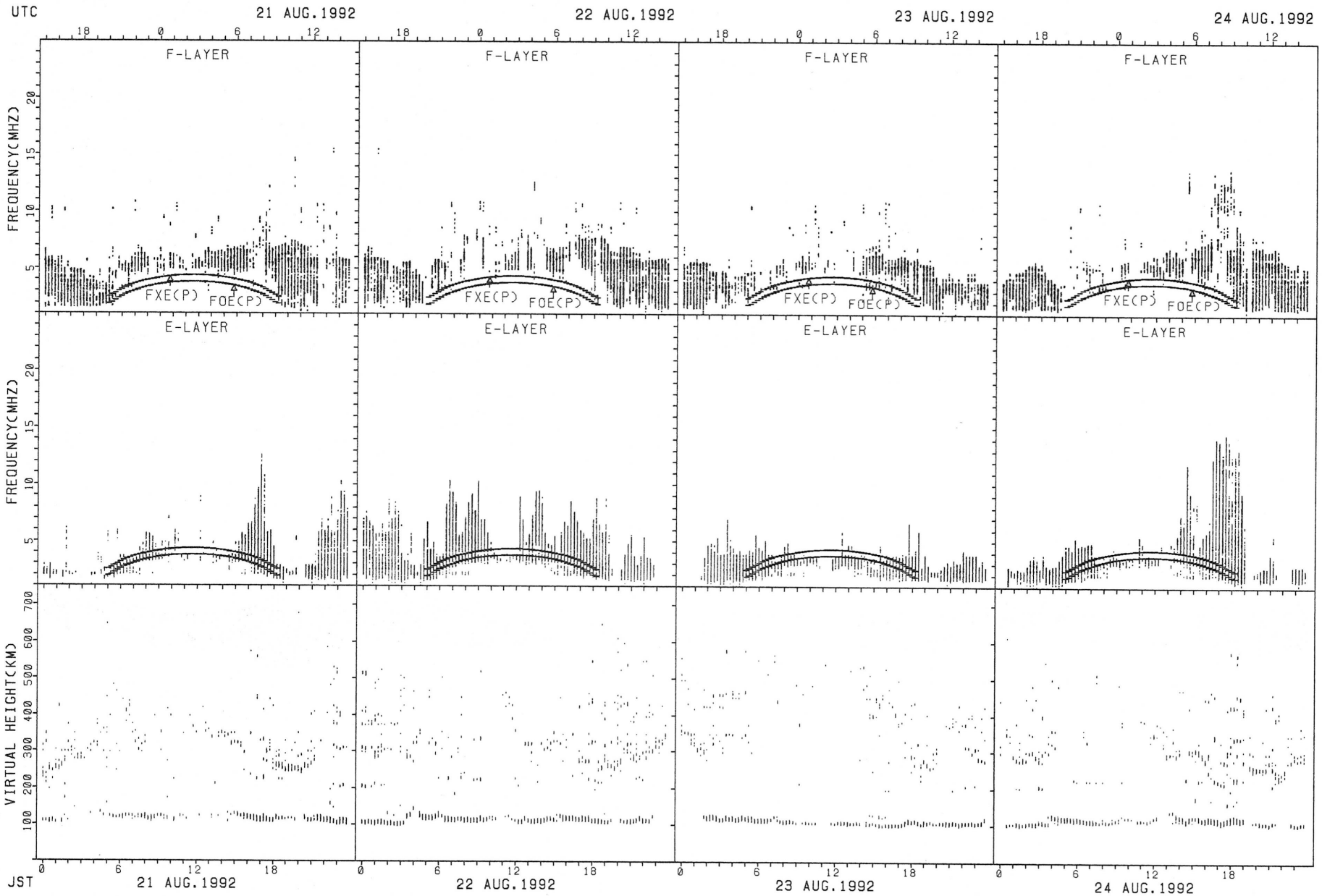
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT WAKKANAI



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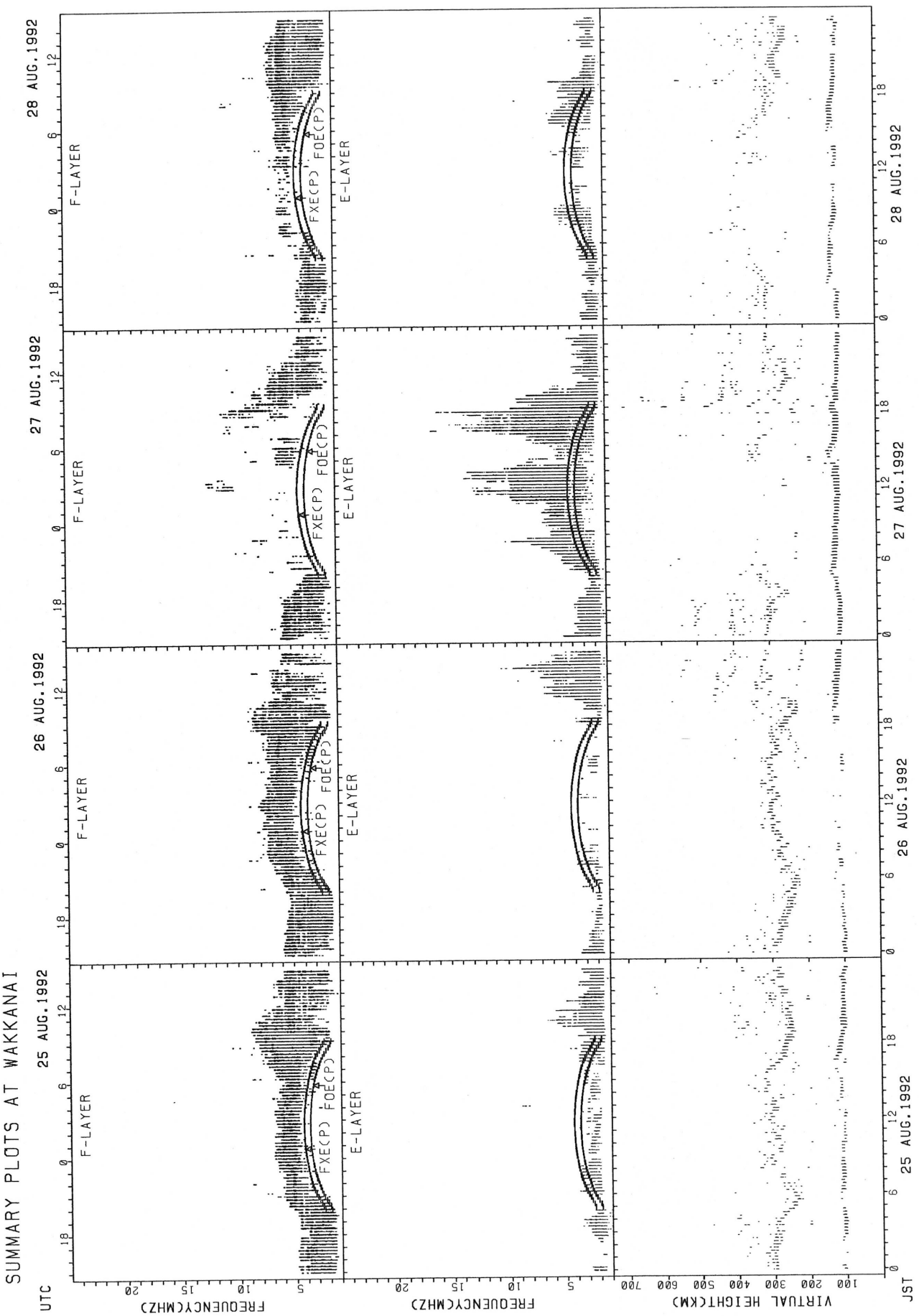
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FREQUENCY(MHZ)
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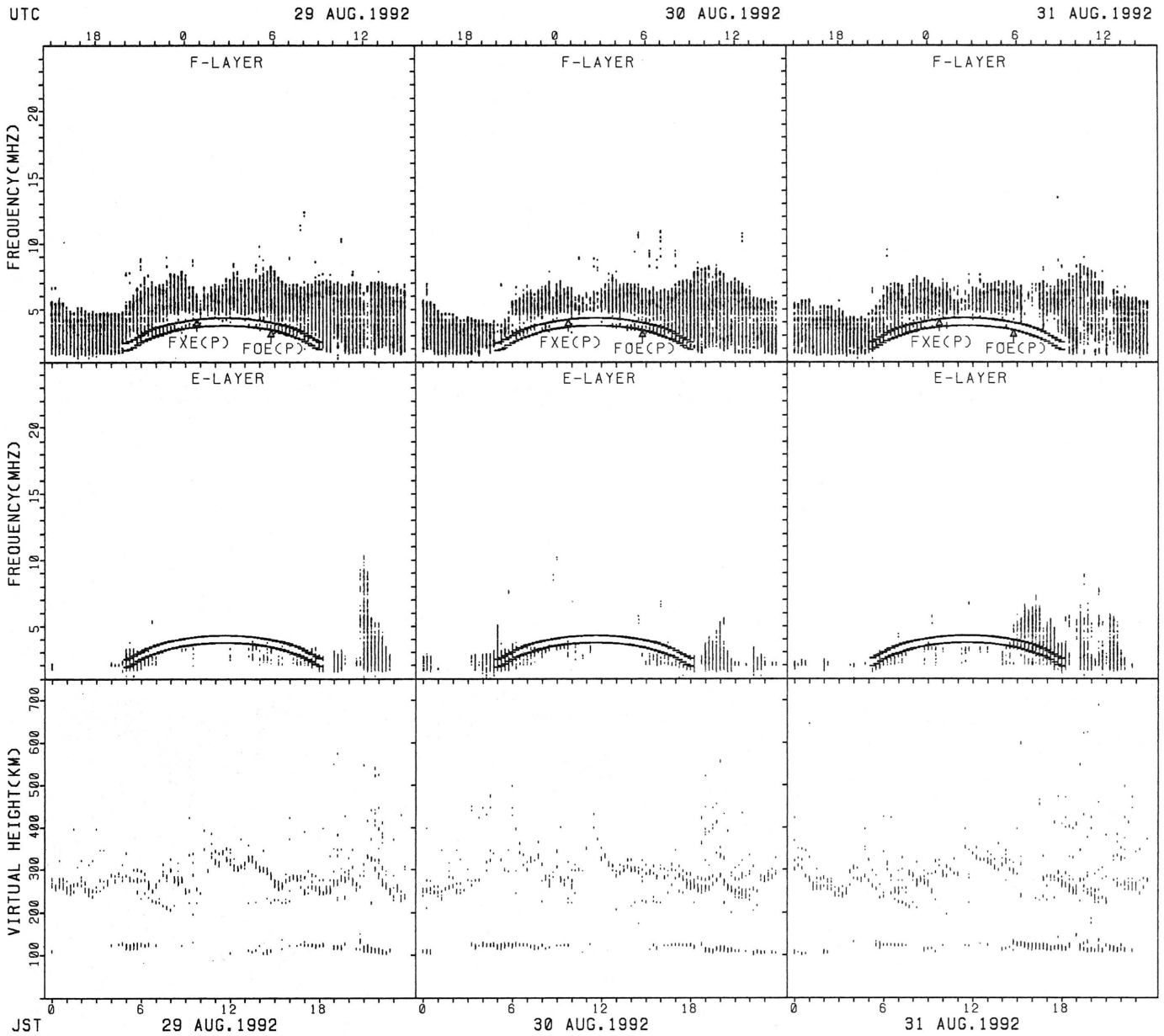
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT WAKKANAI



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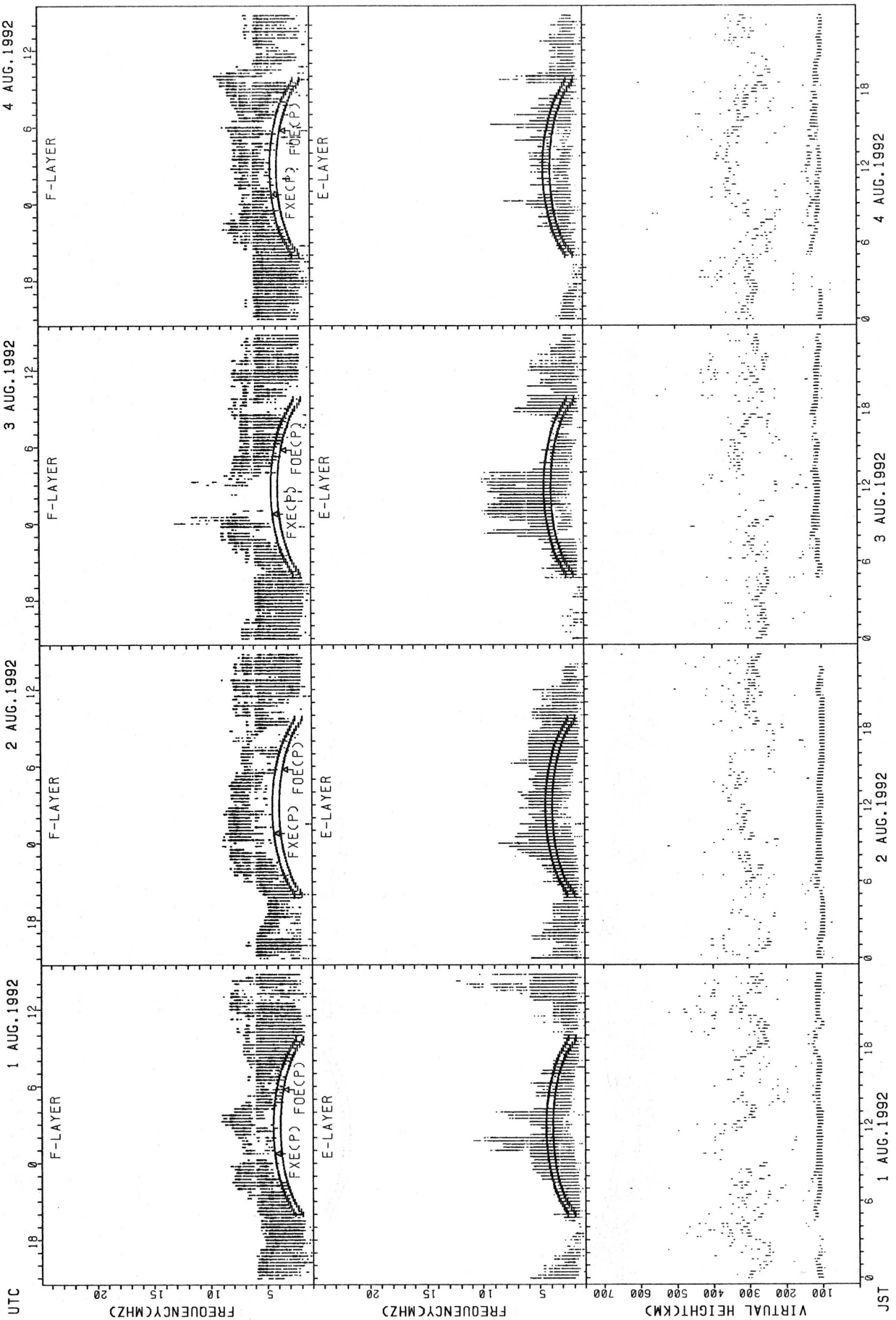
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F-LAYER
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FXE(P) FOE(P)
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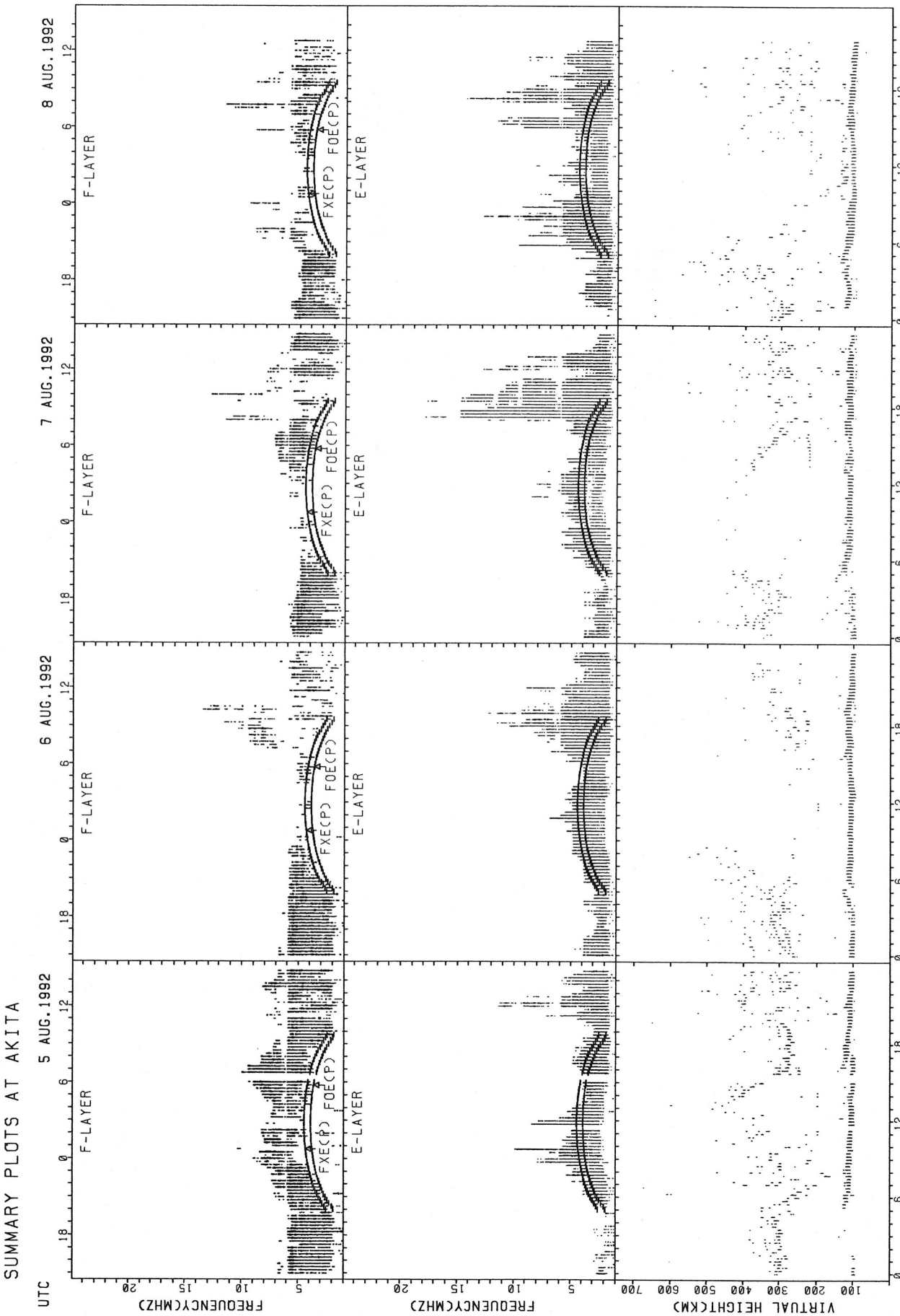
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F-LAYER
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FREQUENCY(MHZ)
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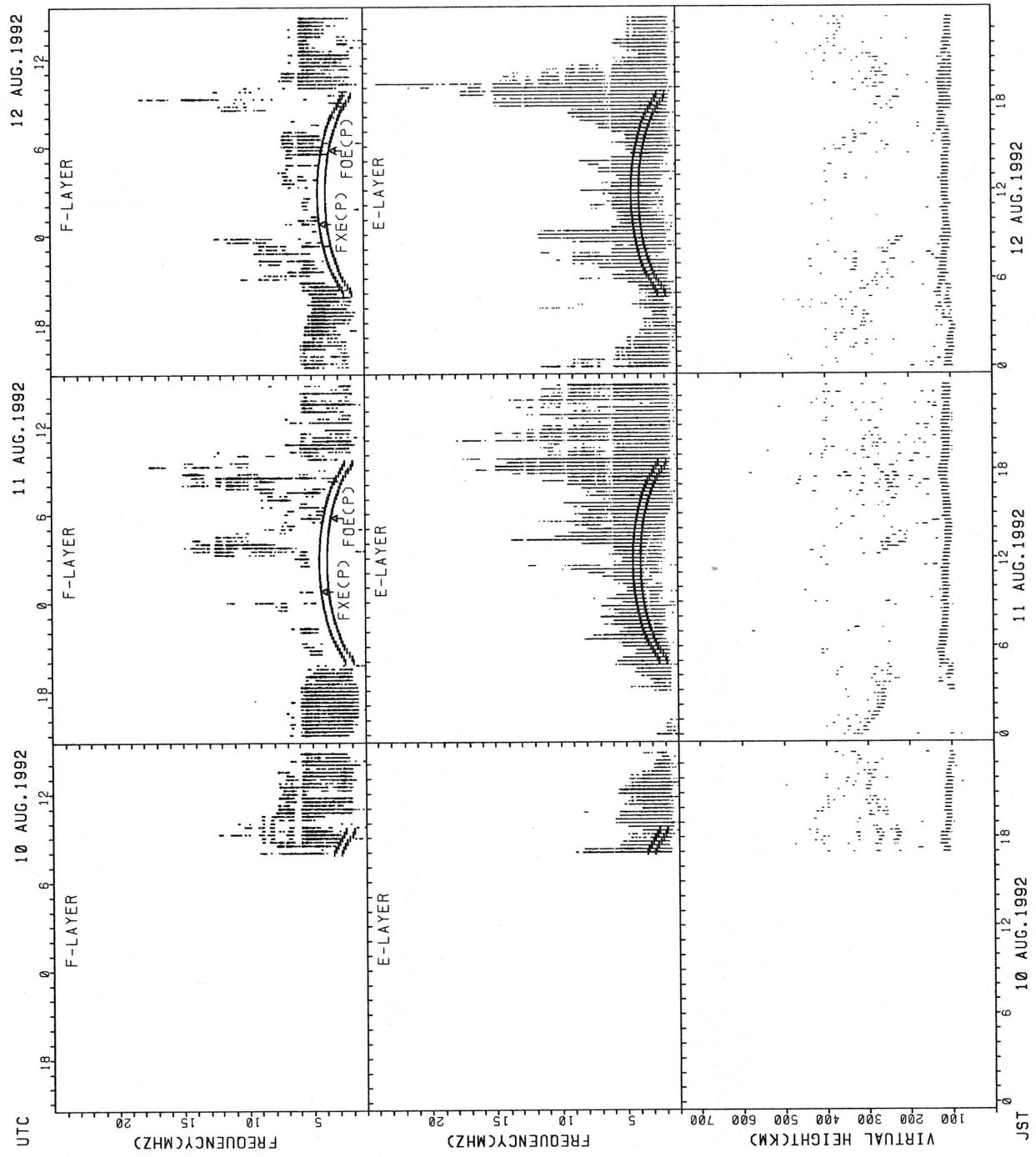
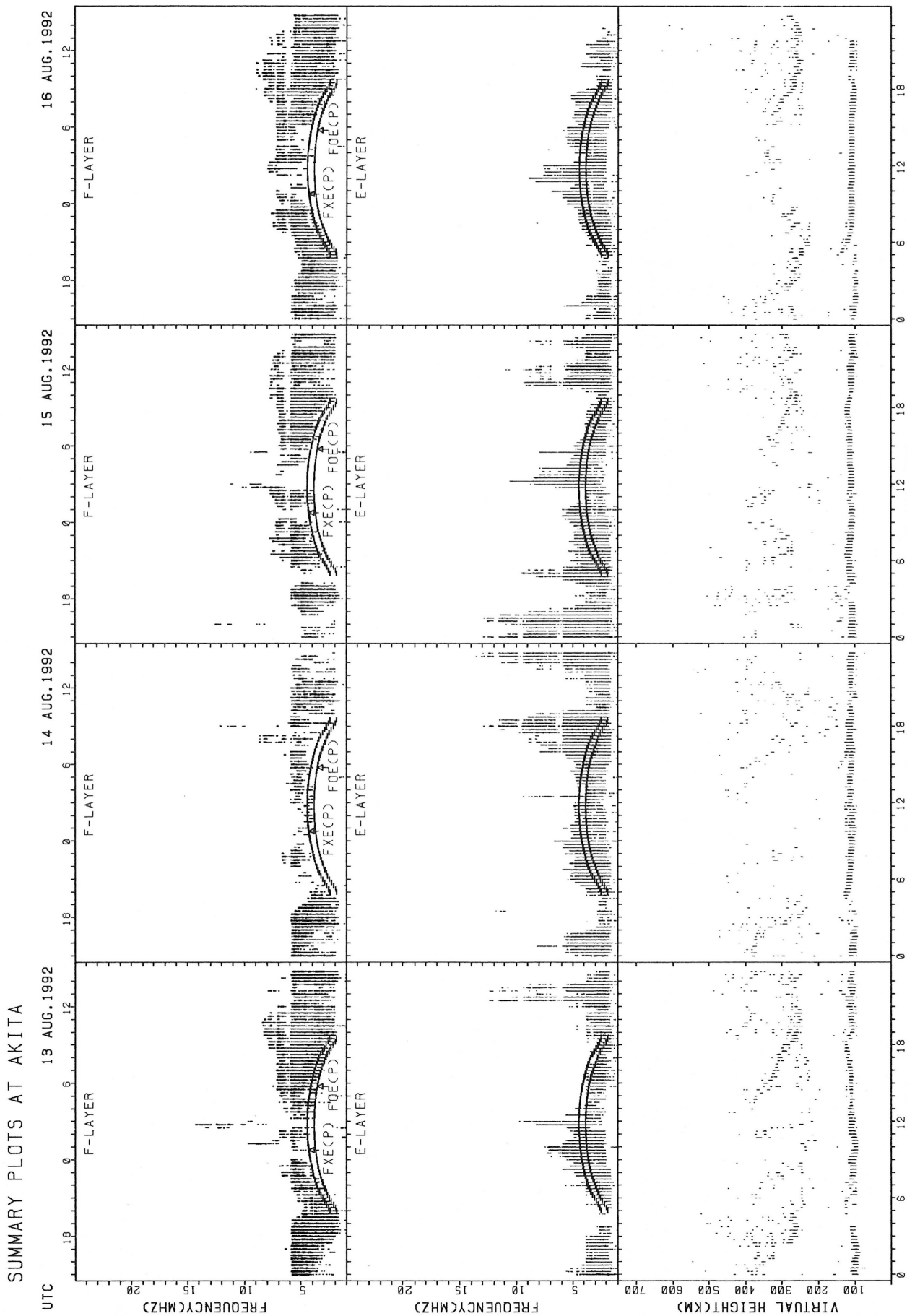
FOE(P); PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT AKITA

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F-LAYER
E-LAYER
FXE(P)
FOE(P)
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VIRTUAL HEIGHT(KM)
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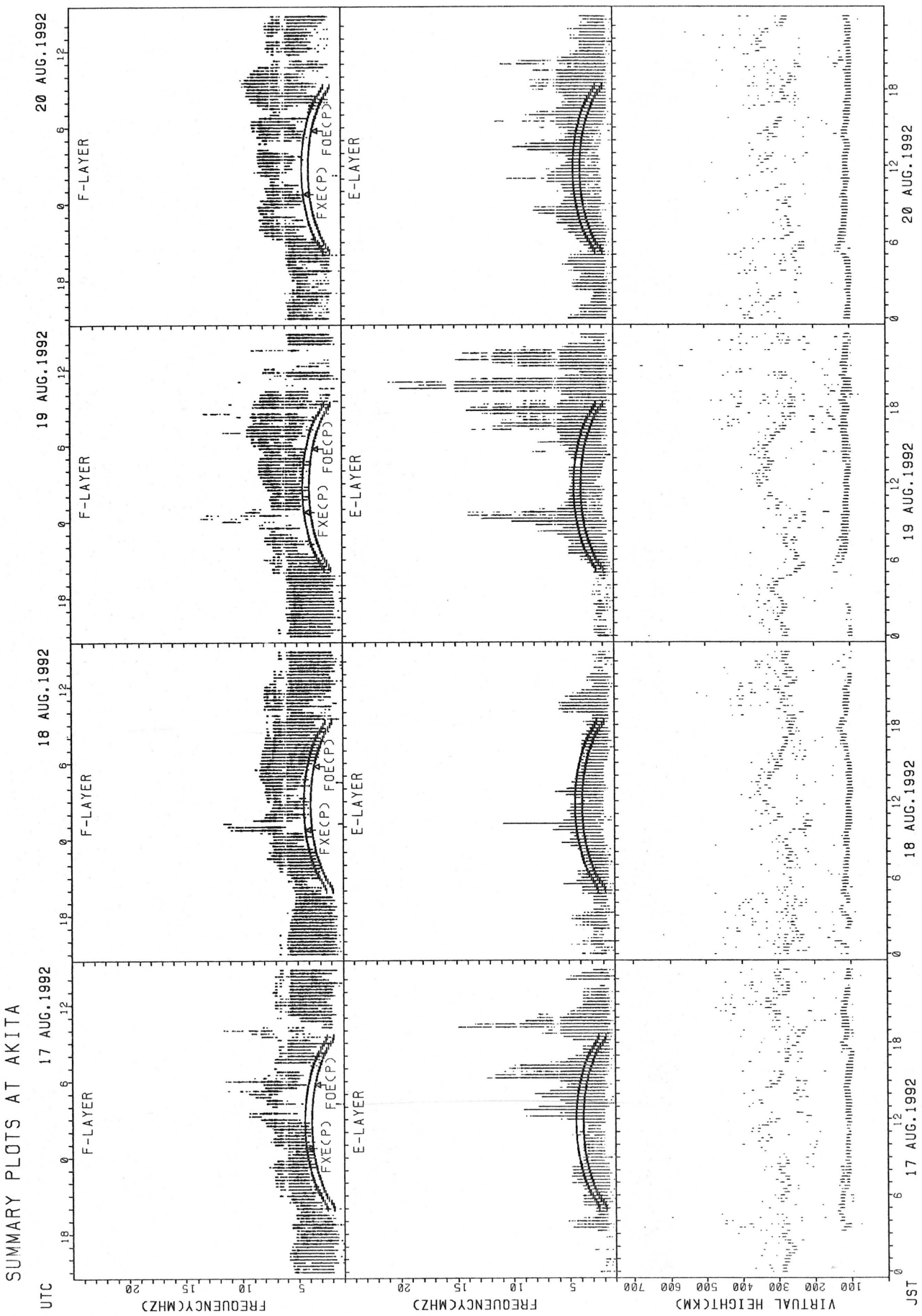
FOE(P); PREDICTED VALUE FOR FOE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FXE(P) FOE(P)
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VIRTUAL HEIGHT(KM)
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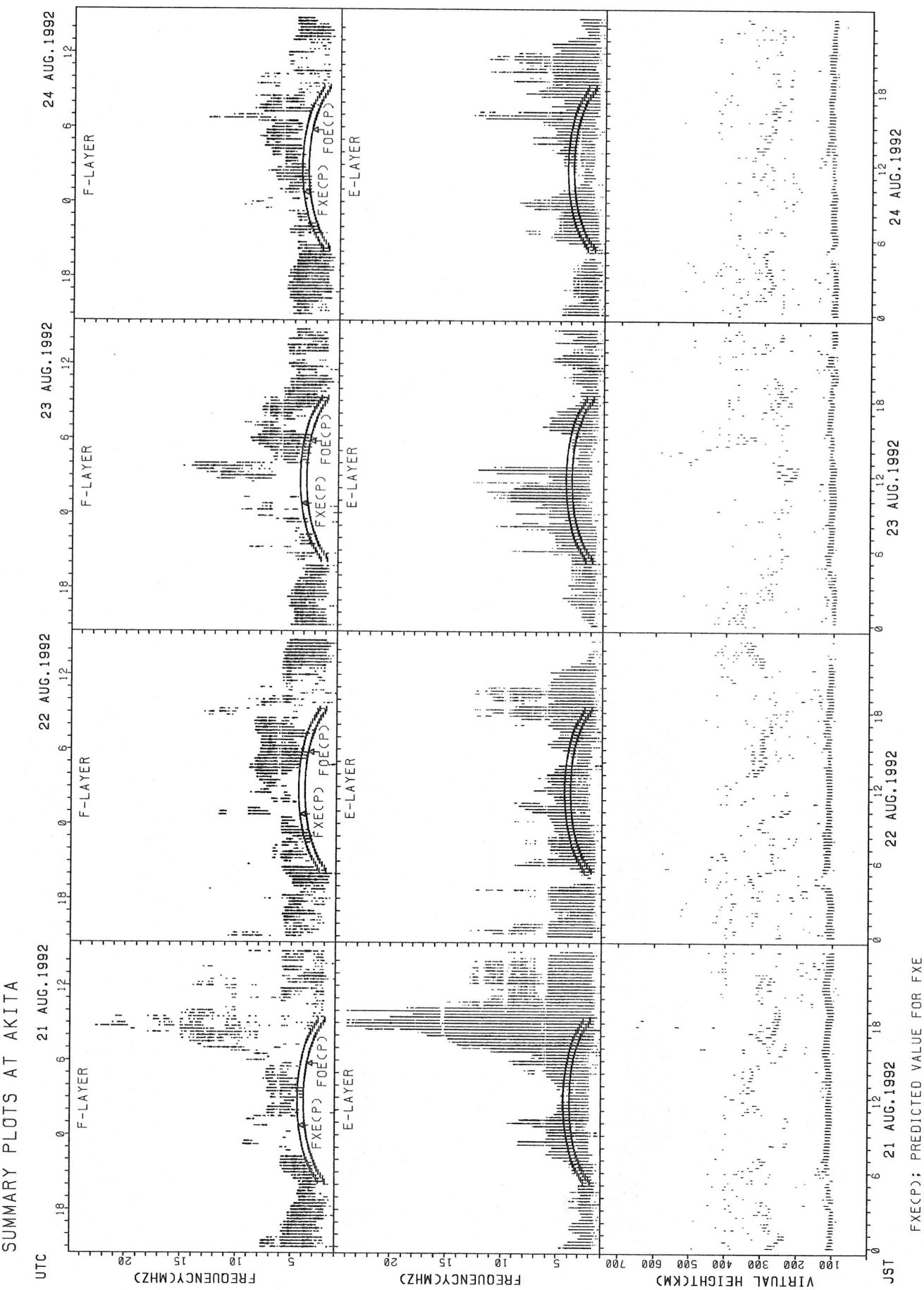
FOE(P): PREDICTED VALUE FOR FOE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24 AUG.1992
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FOE(P)
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VIRTUAL HEIGHT(KM)
JST
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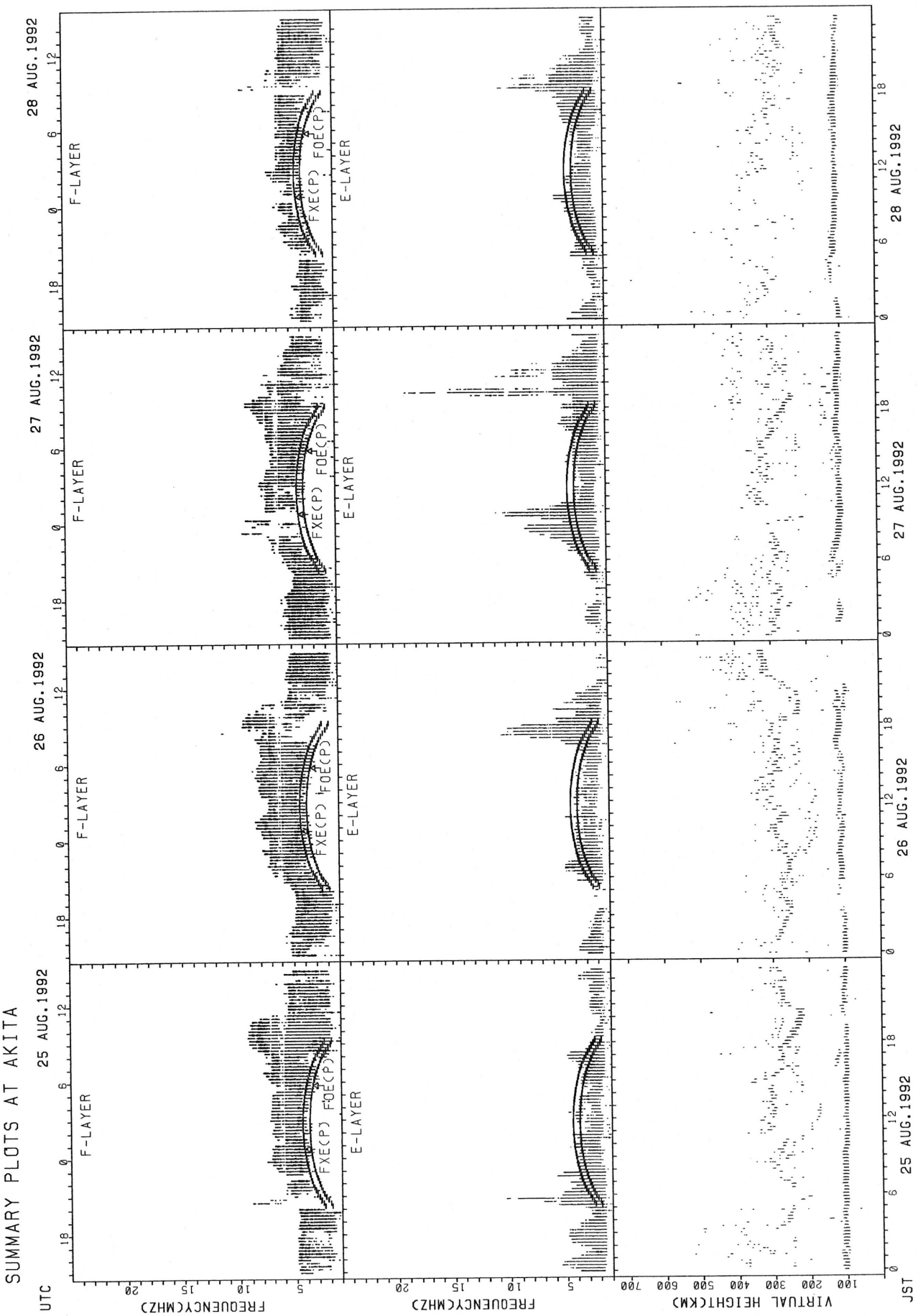
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UTC
JST
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VIRTUAL HEIGHT(KM)
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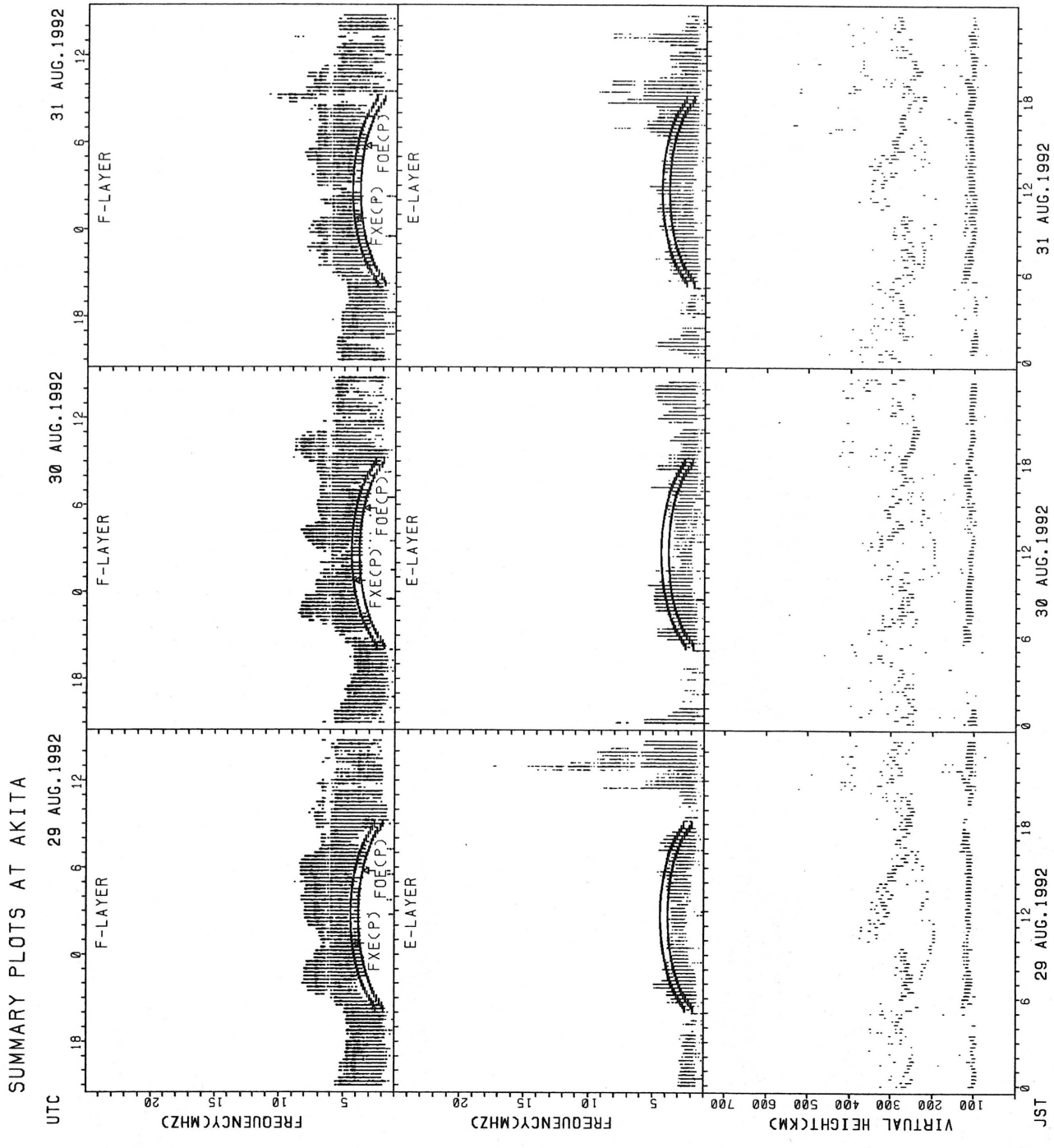
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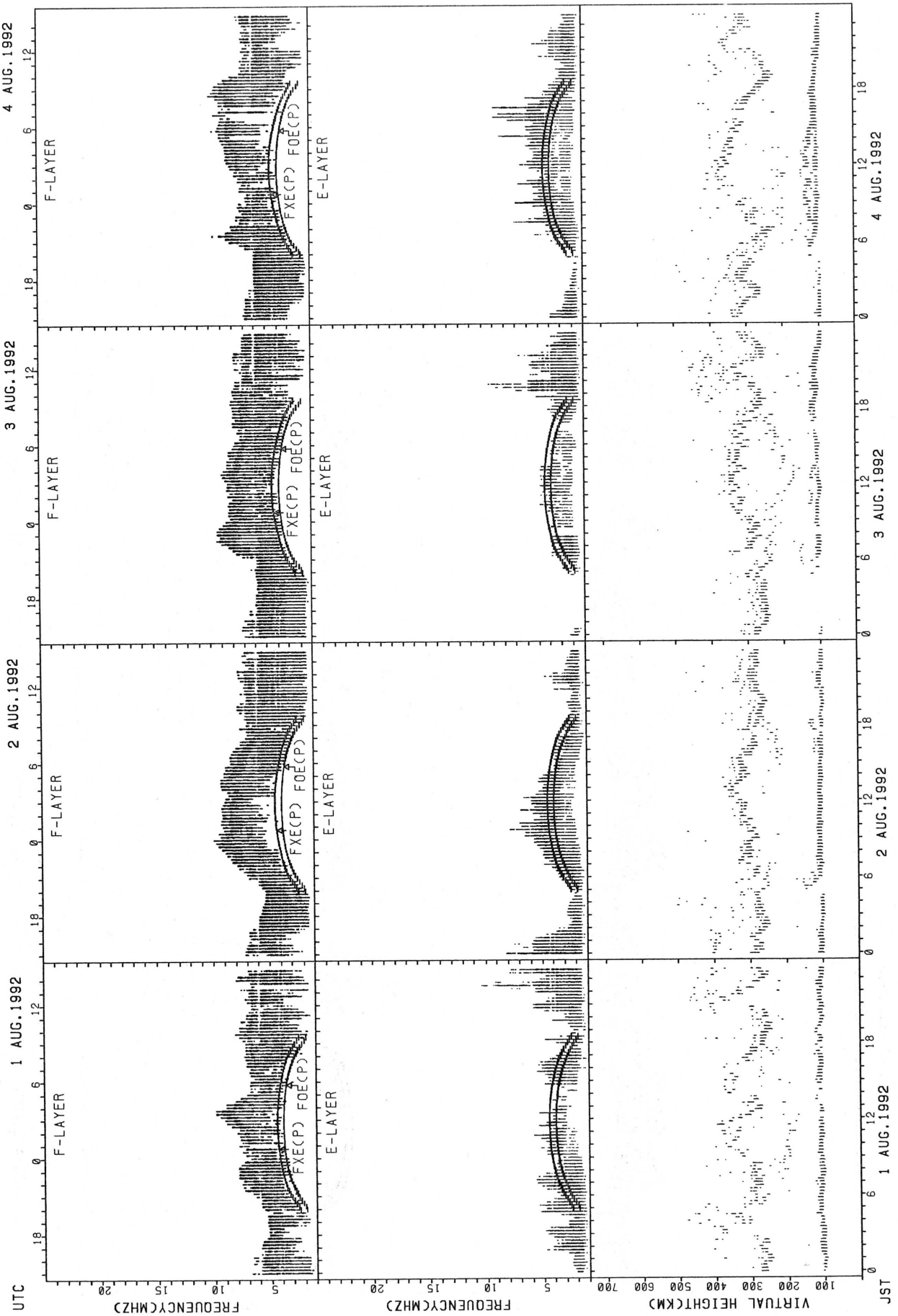
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4 AUG.1992
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FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
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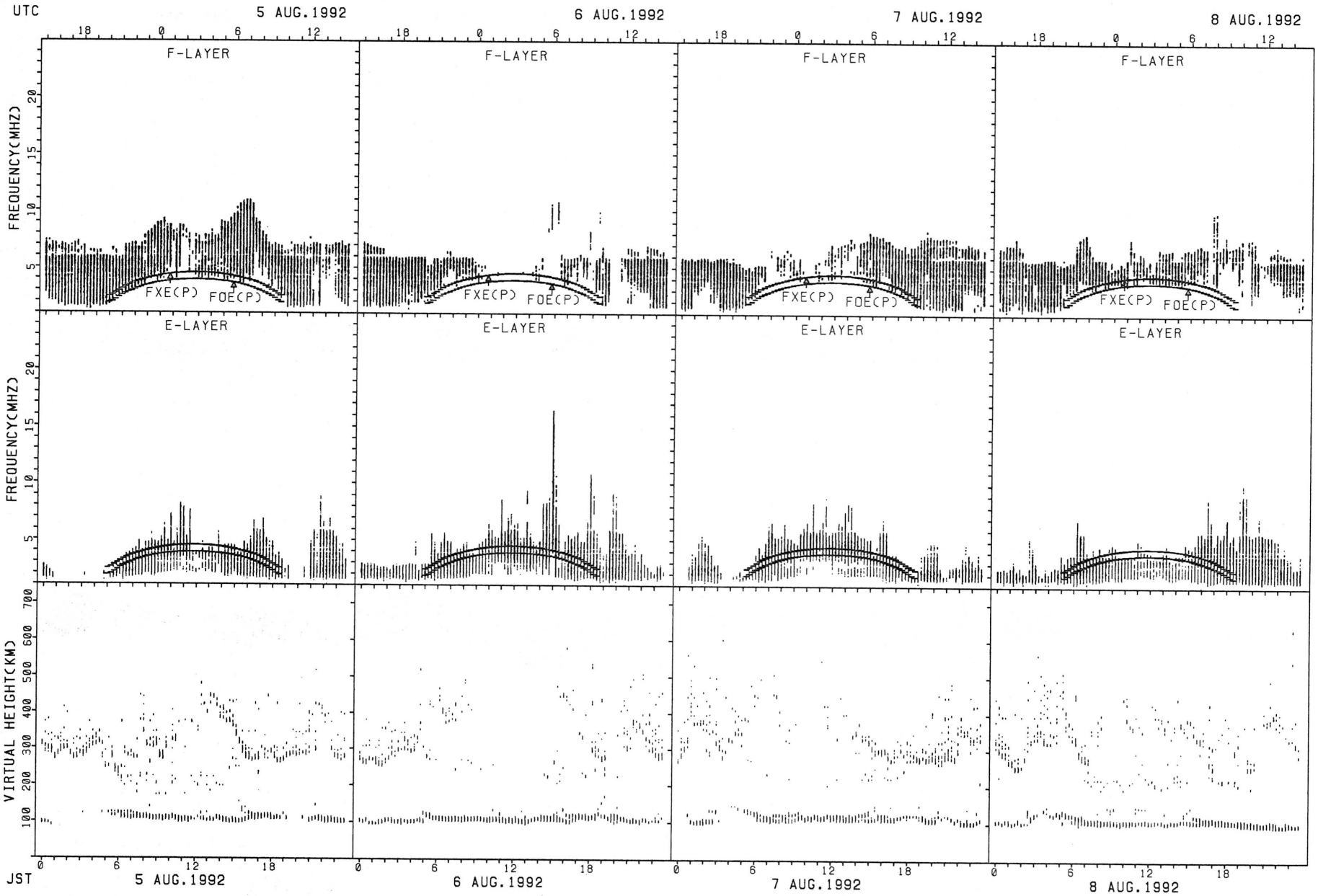
FOE(P); PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



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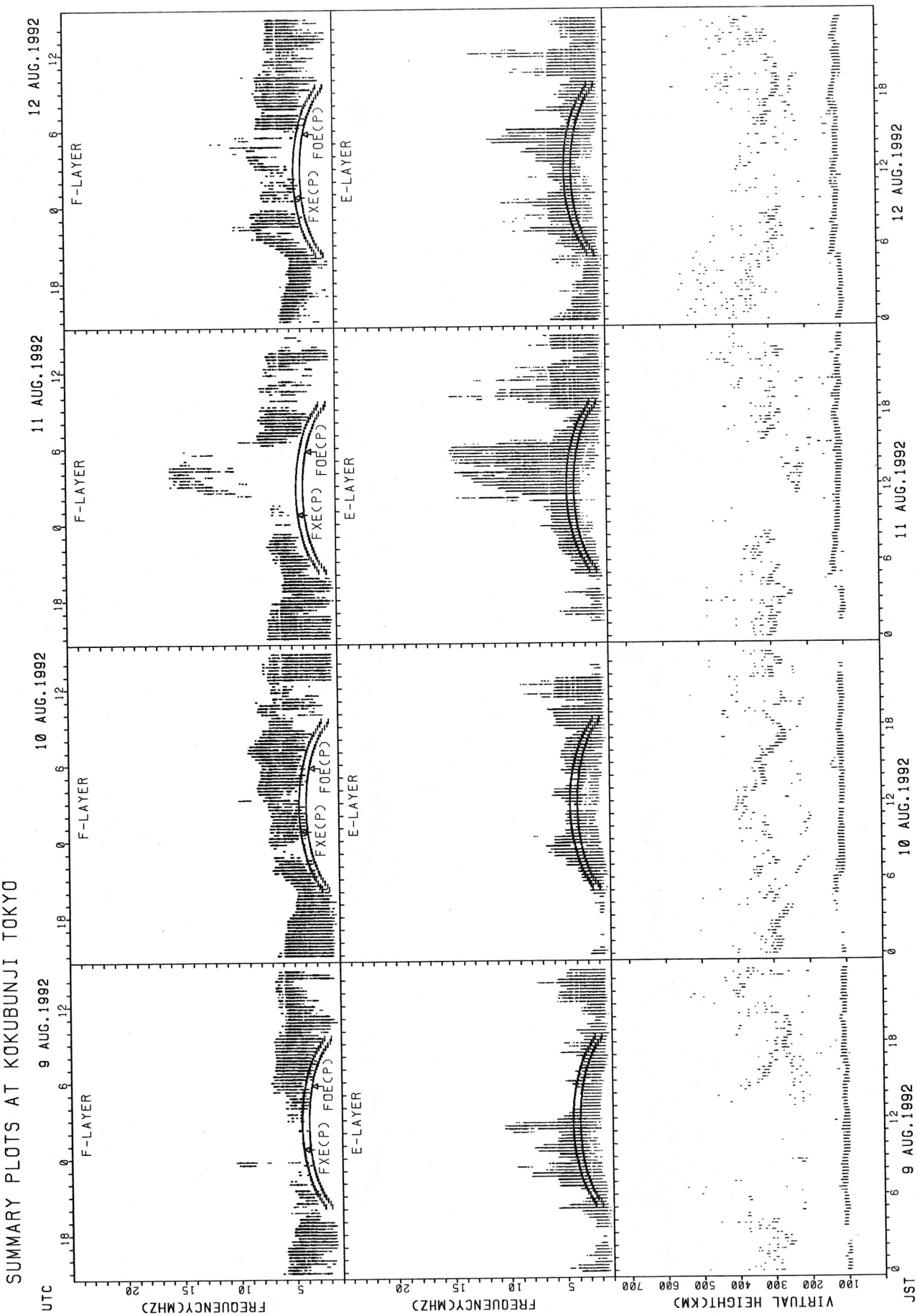
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F-LAYER
E-LAYER
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FOE(P)
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VIRTUAL HEIGHT(KM)
UTC
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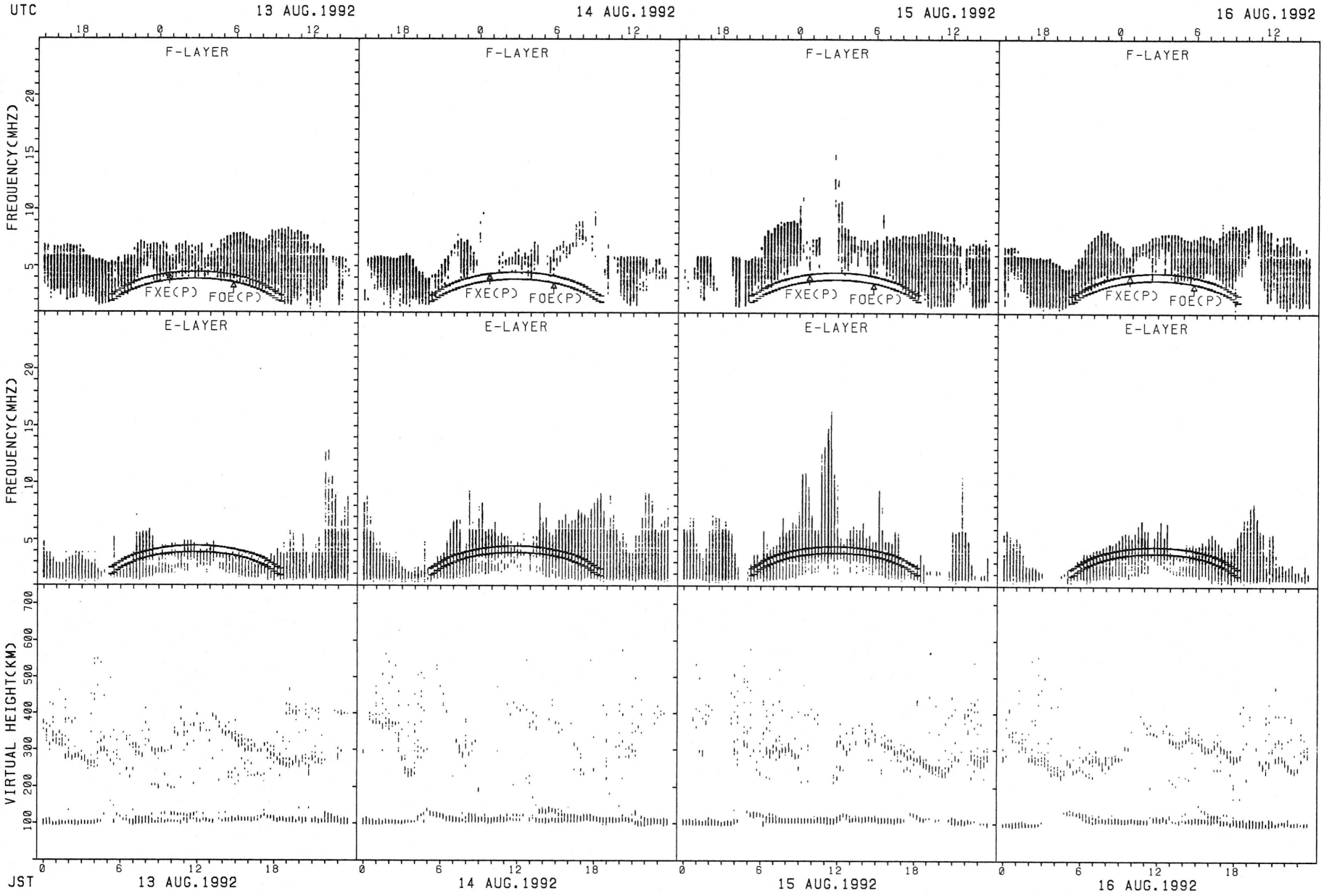

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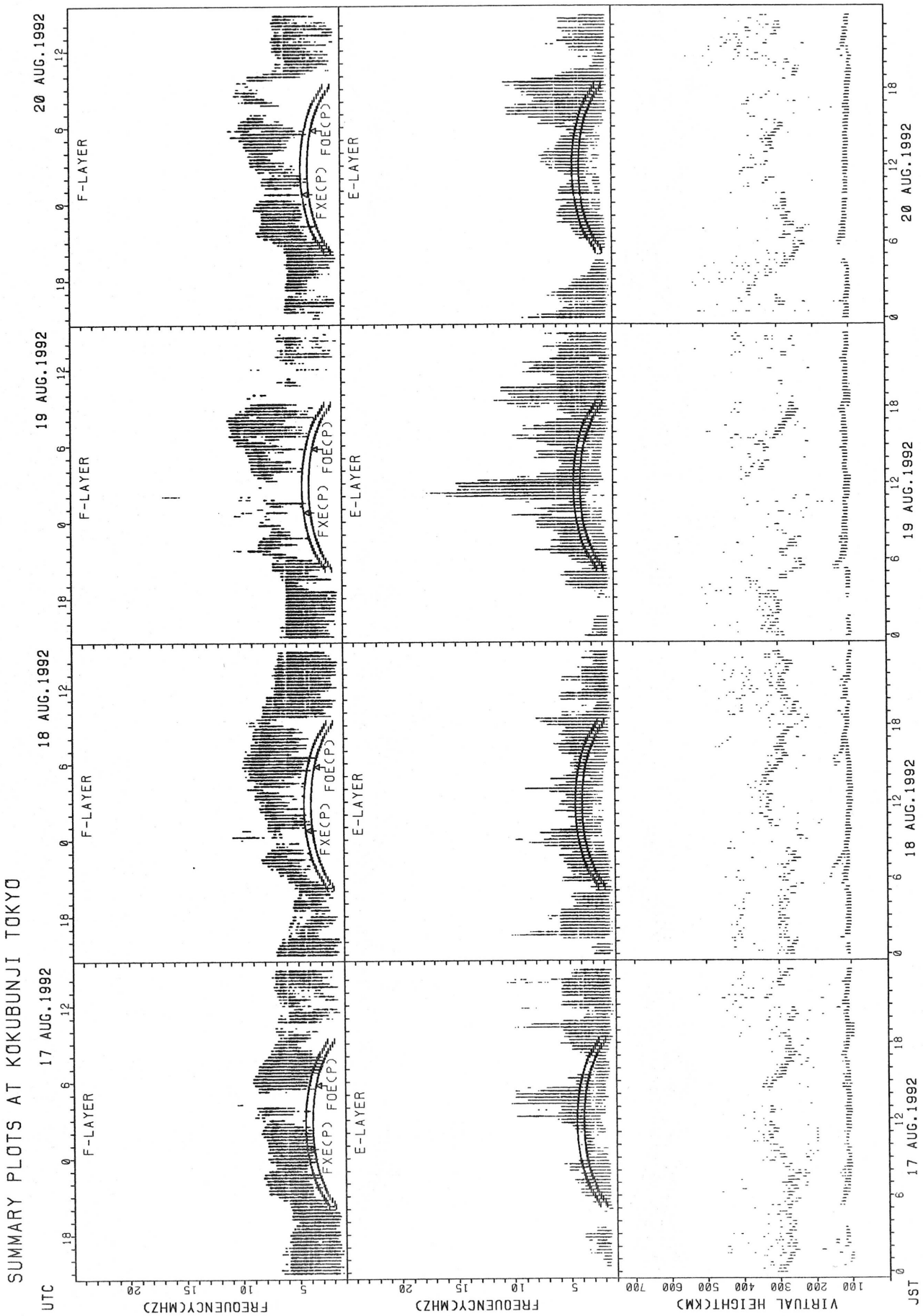
SUMMARY PLOTS AT KOKUBUNJI TOKYO
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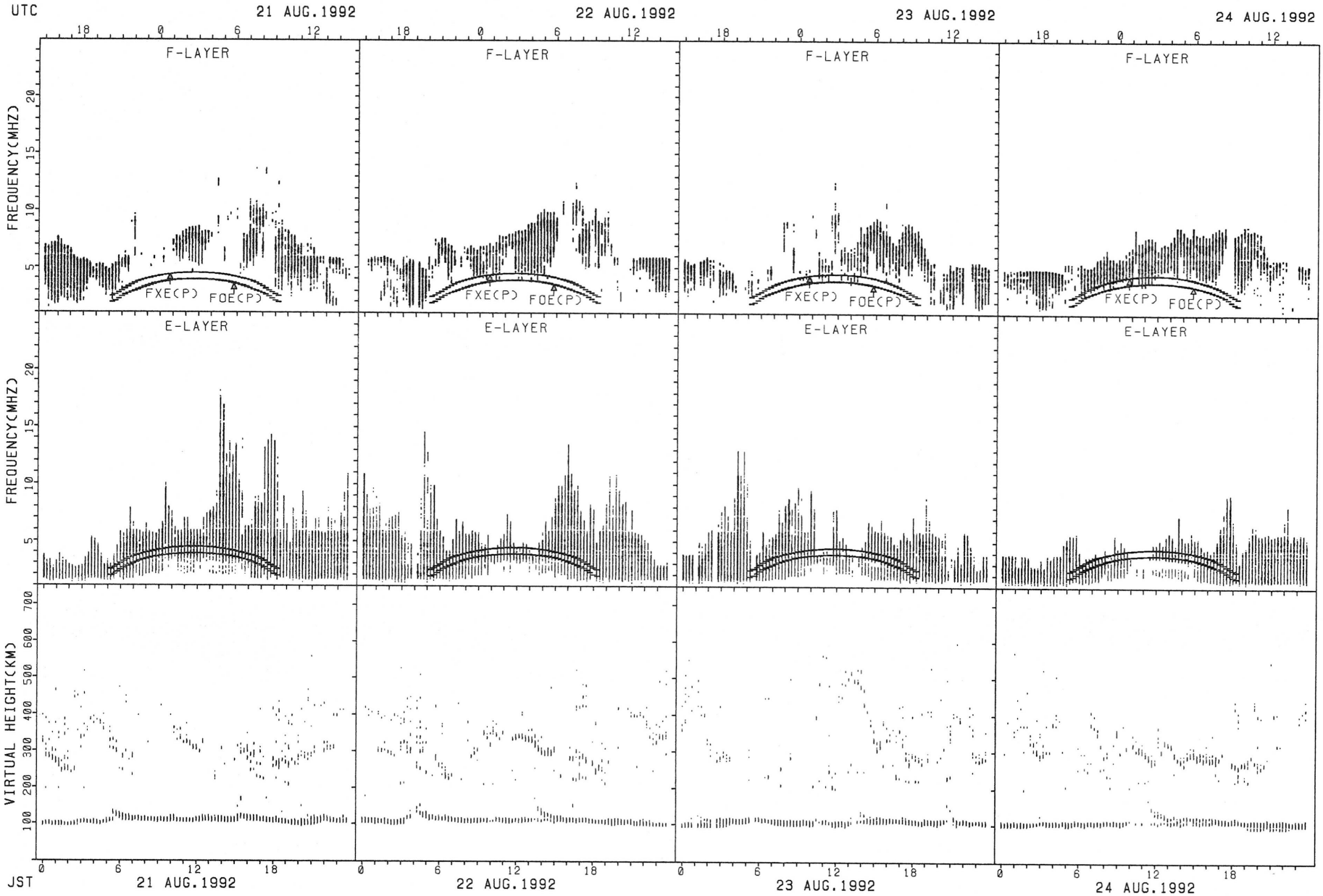
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FOE(P)
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VIRTUAL HEIGHT(KM)
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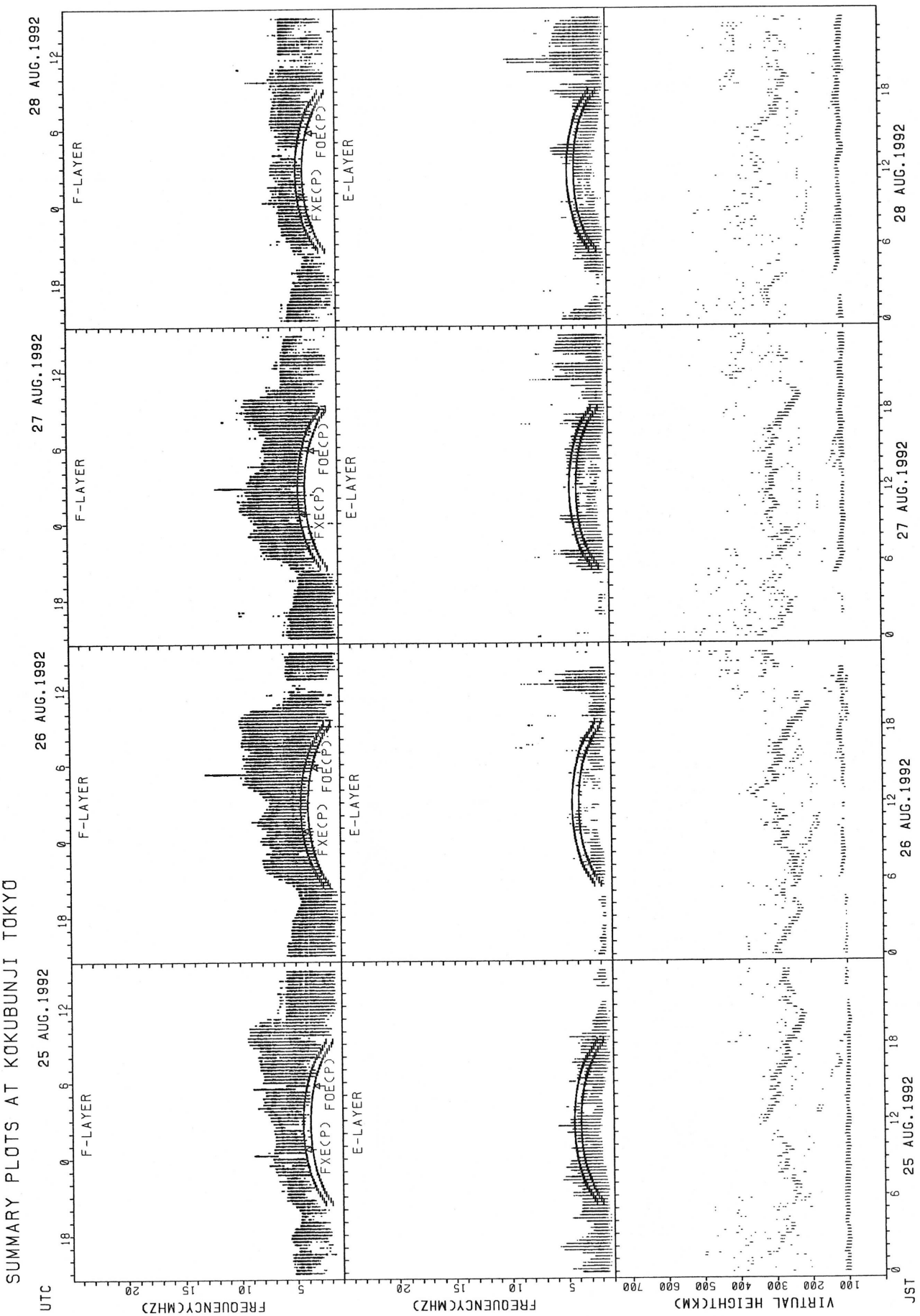
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FREQUENCY(MHZ)
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FXE(P): PREDICTED VALUE FOR FXE
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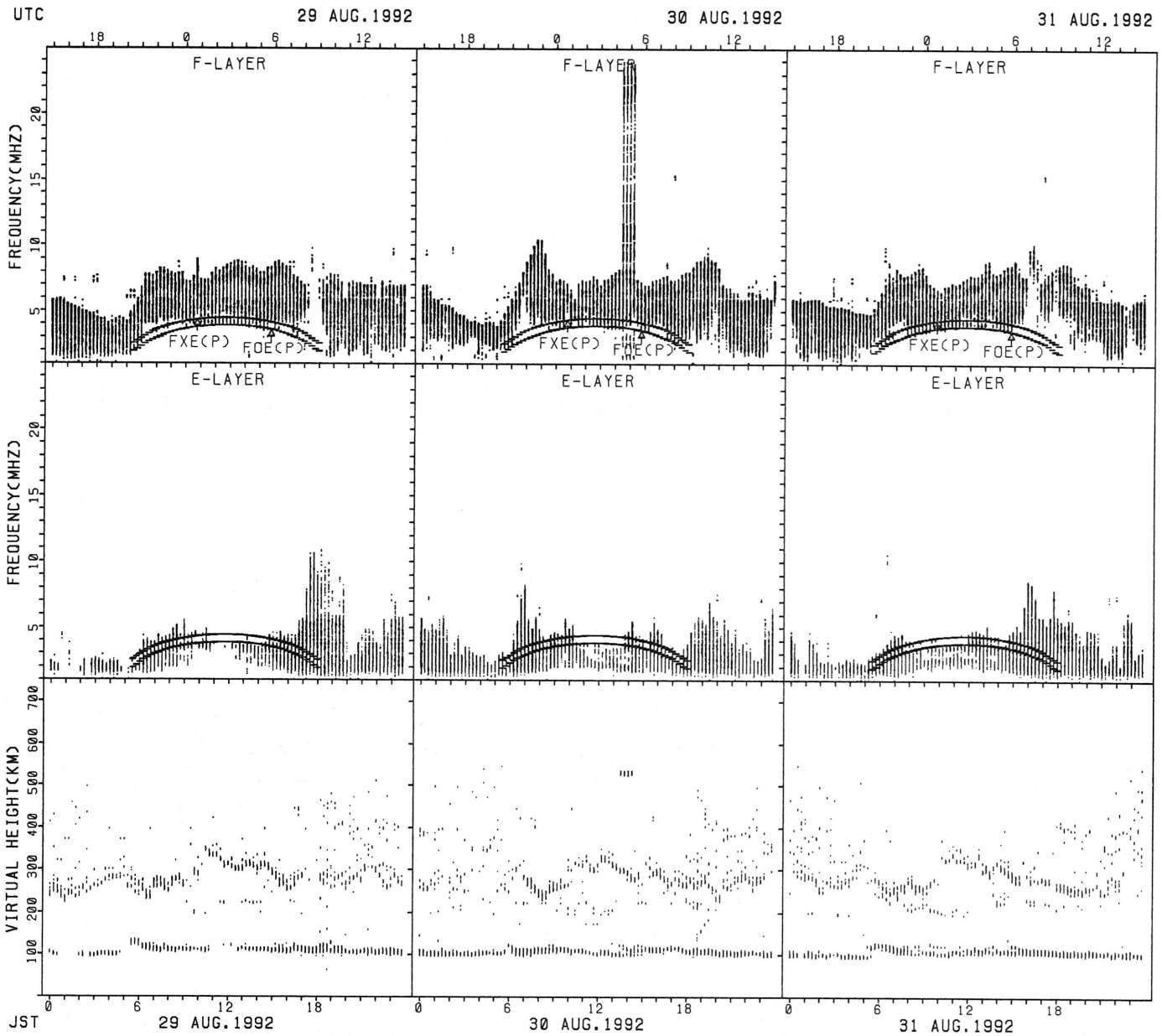
SUMMARY PLOTS AT KOKUBUNJI TOKYO



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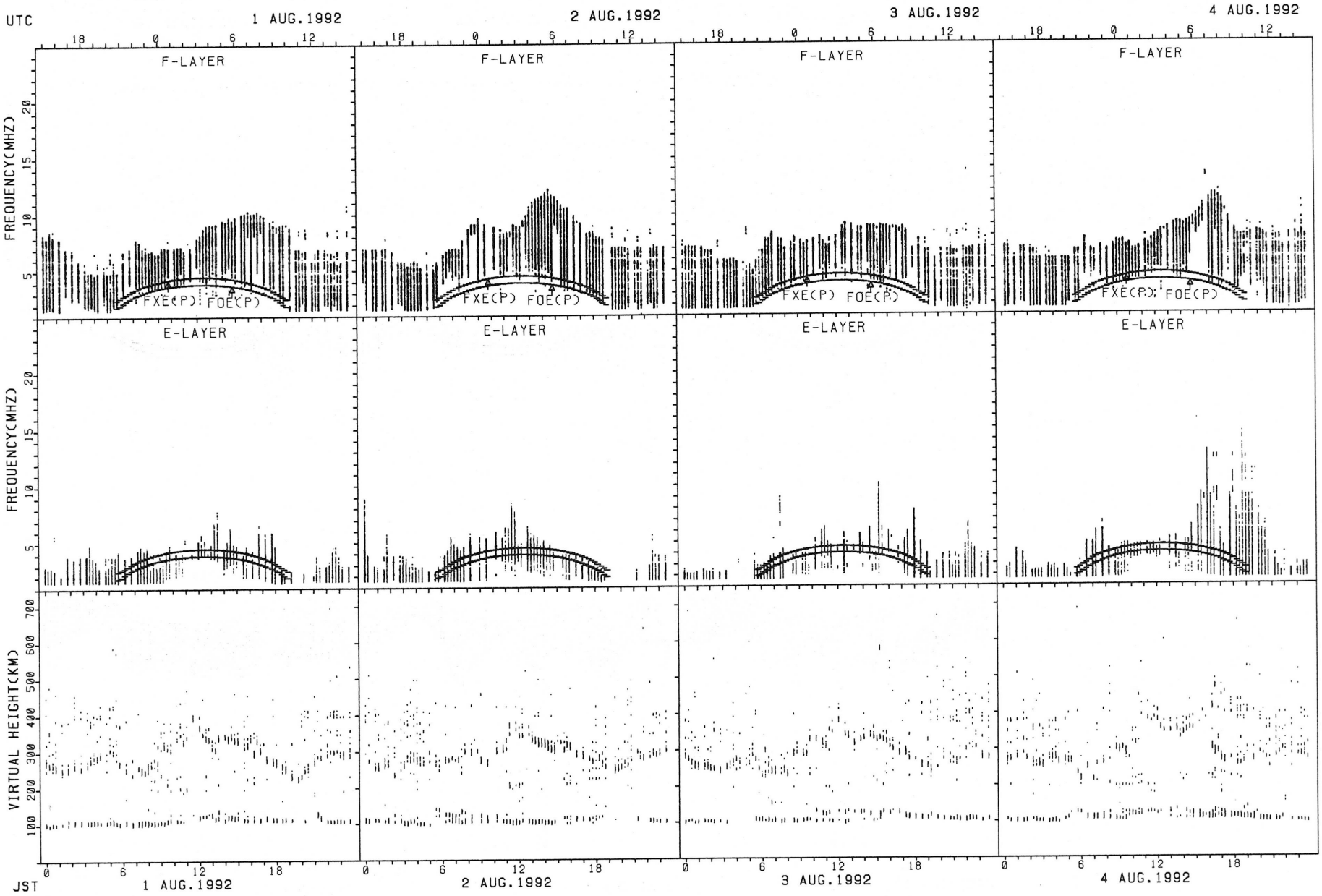
SUMMARY PLOTS AT YAMAGAWA



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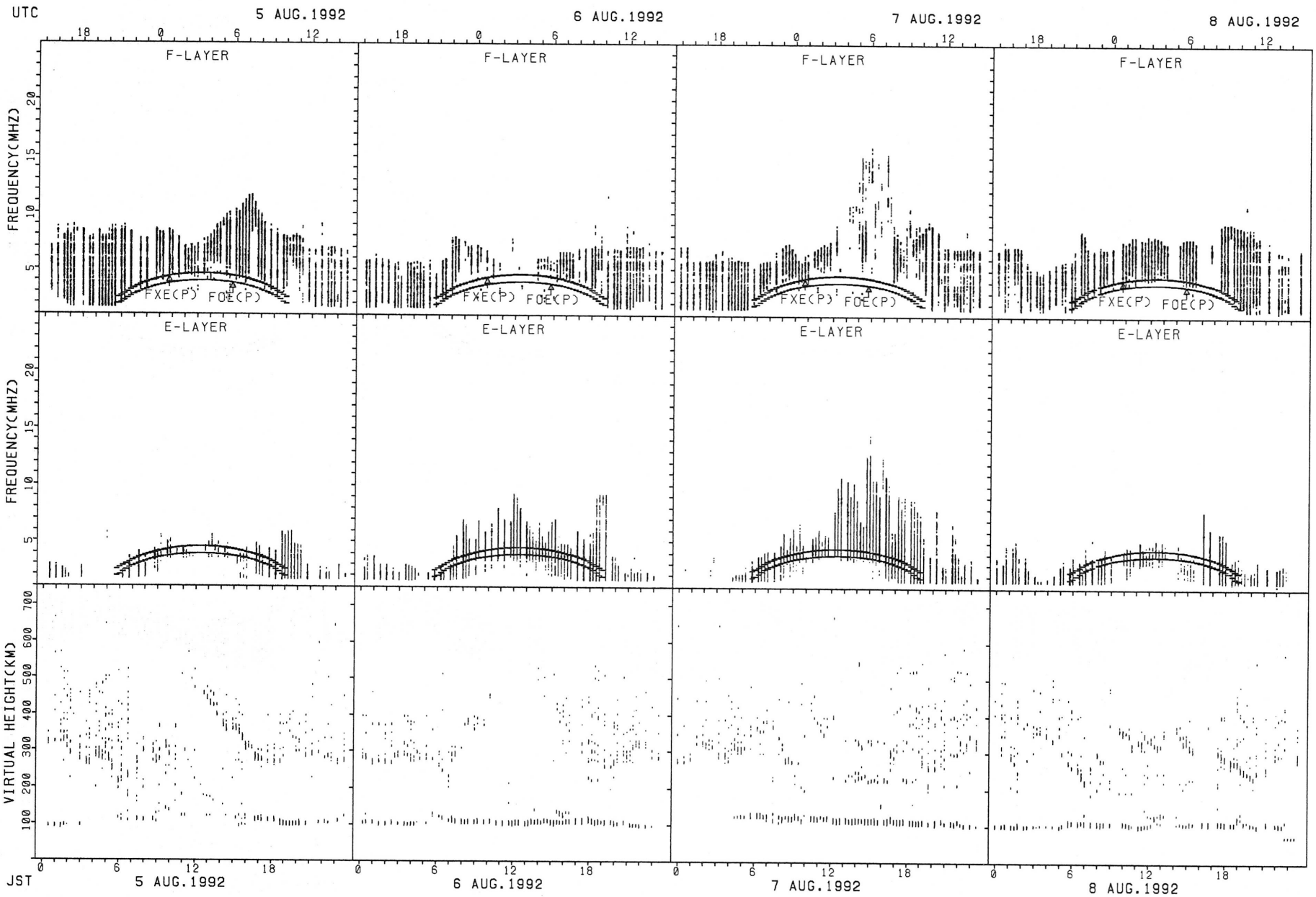
SUMMARY PLOTS AT YAMAGAWA



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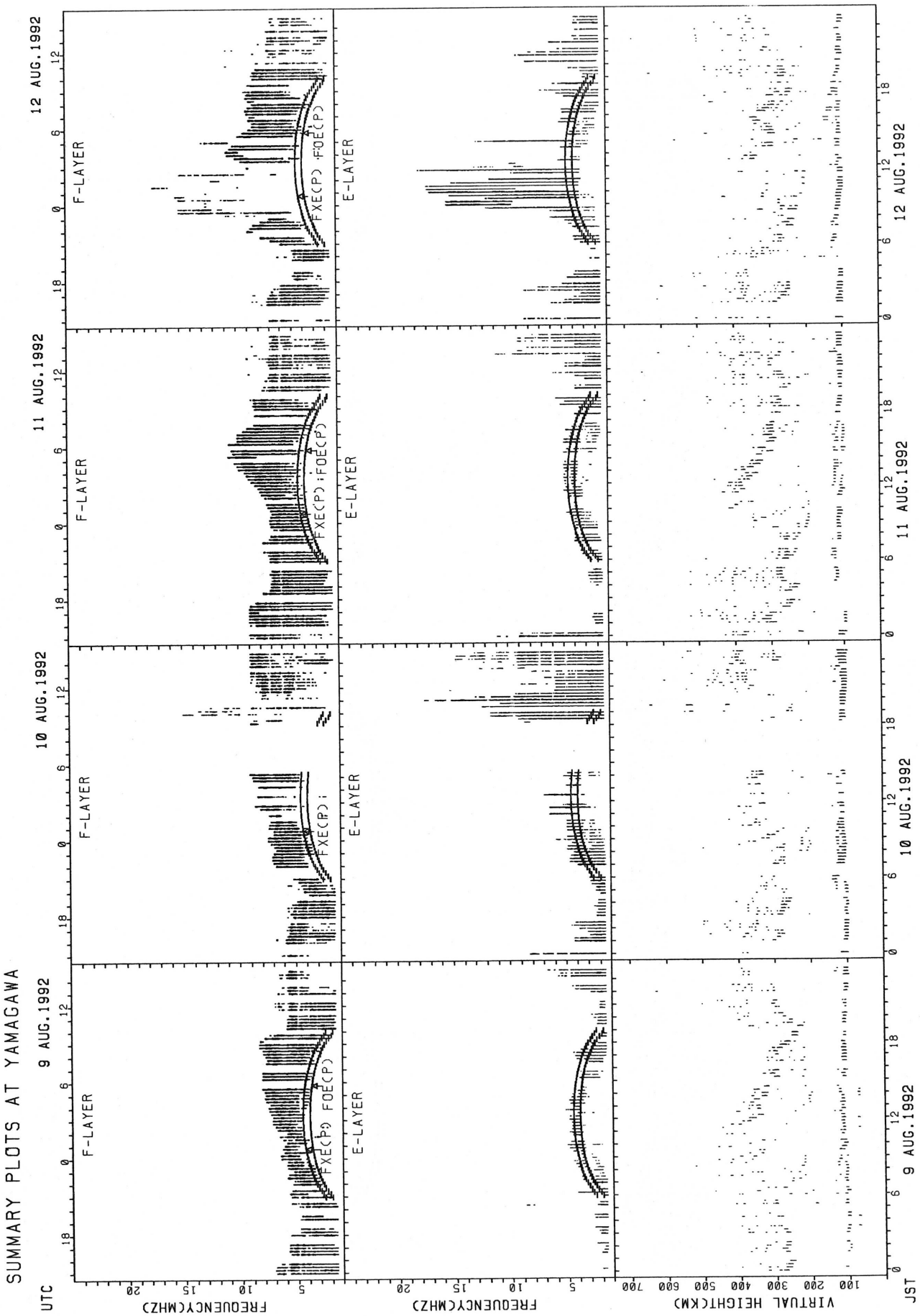
FOE(P); PREDICTED VALUE FOR FOE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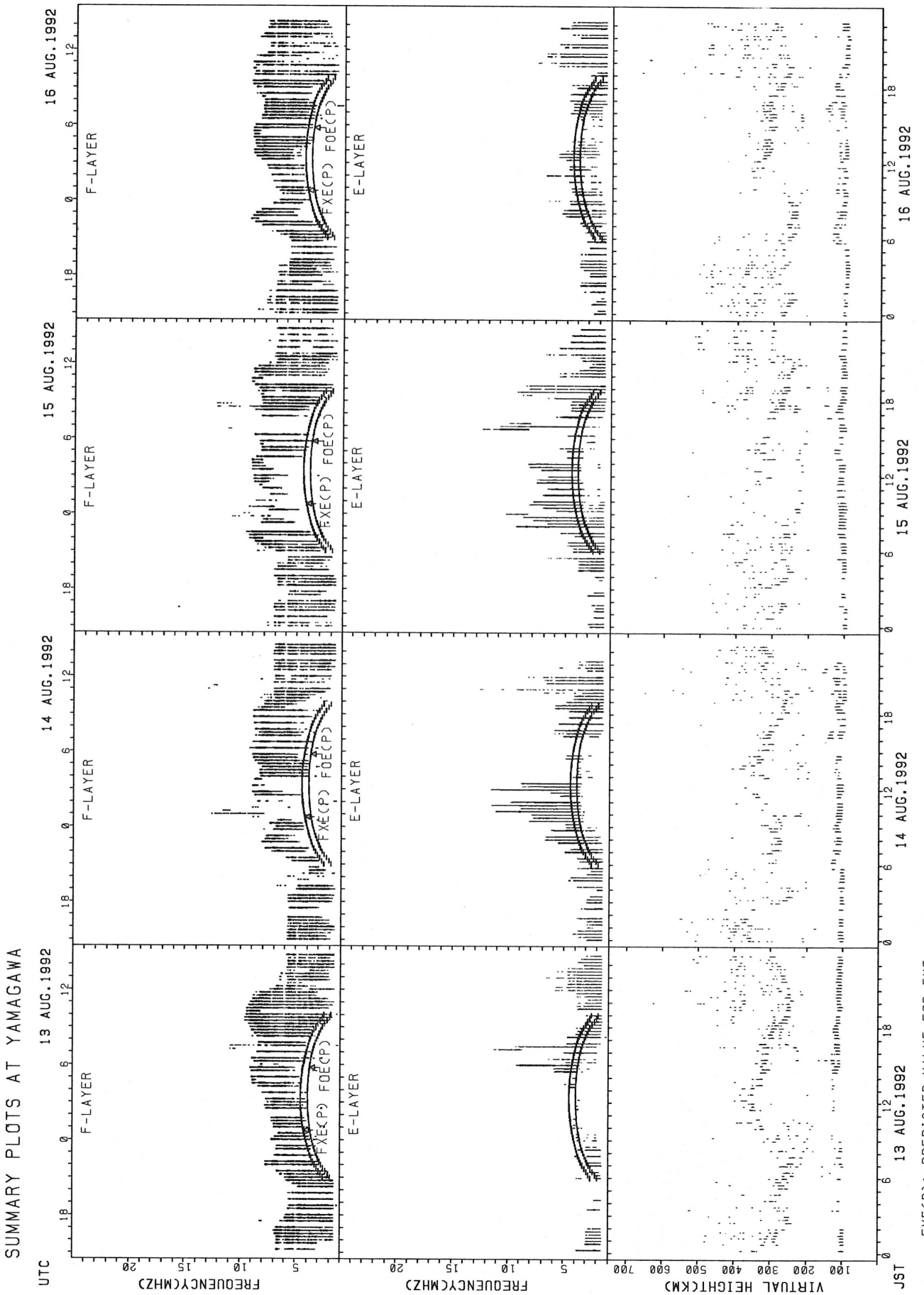
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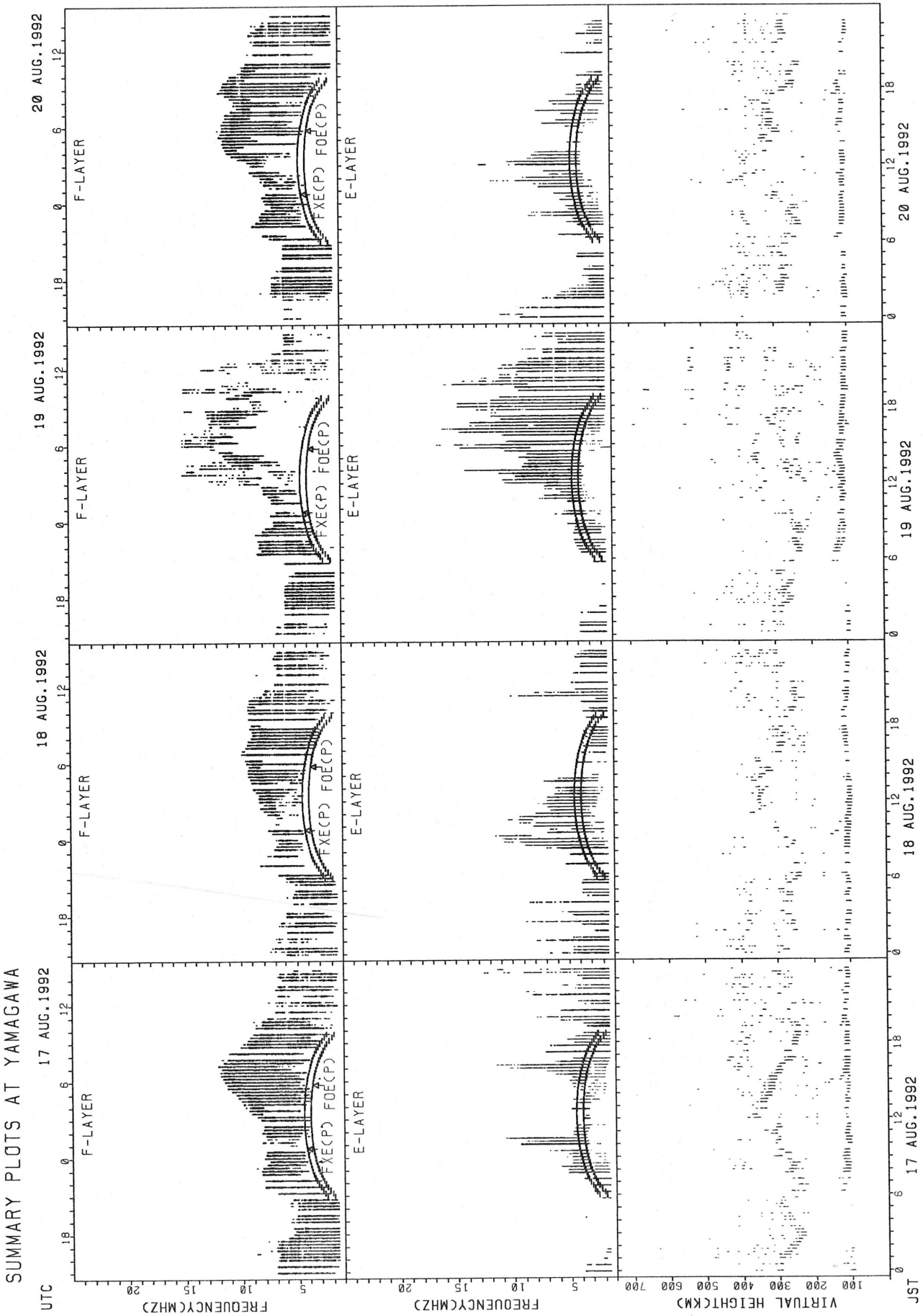
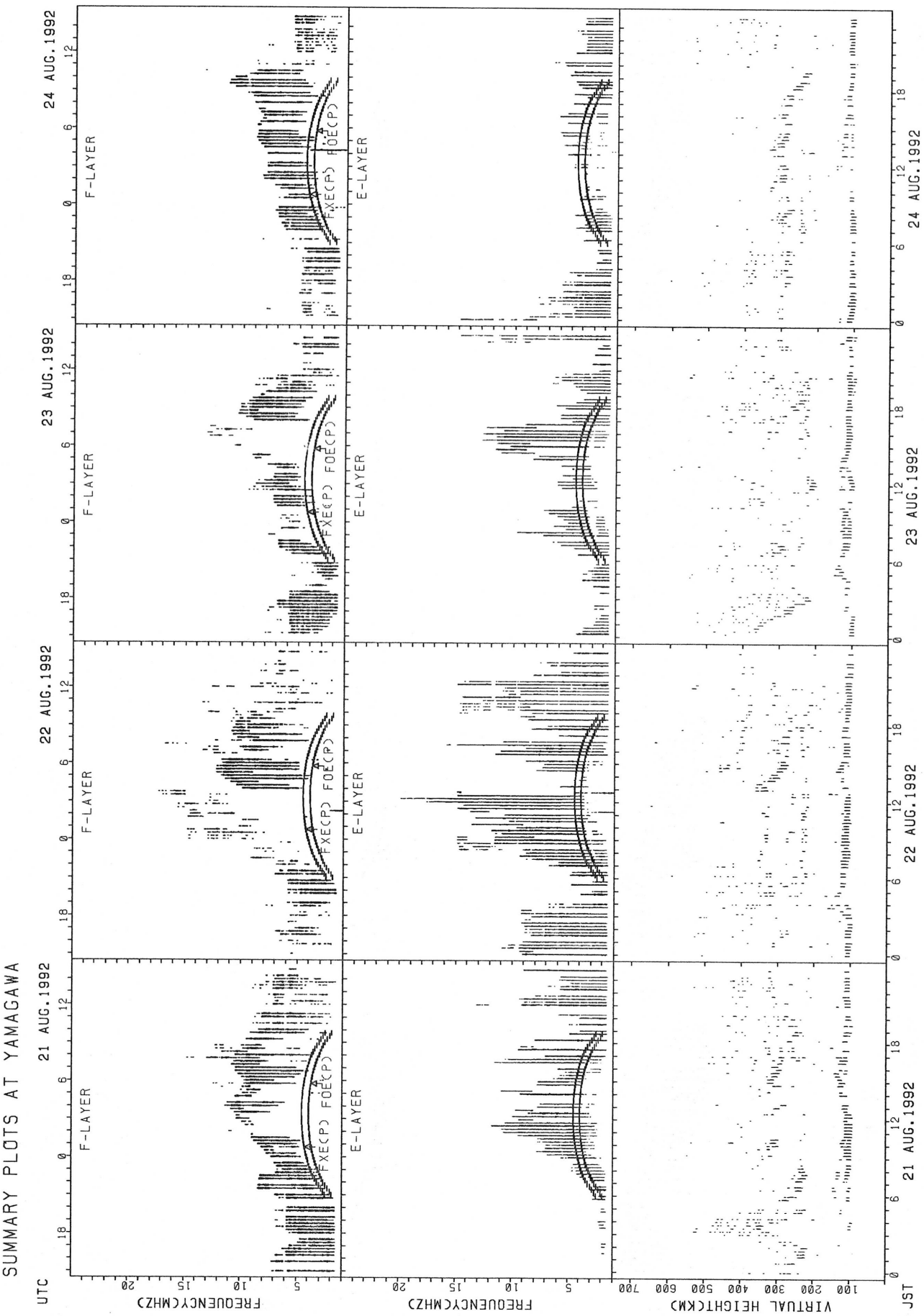
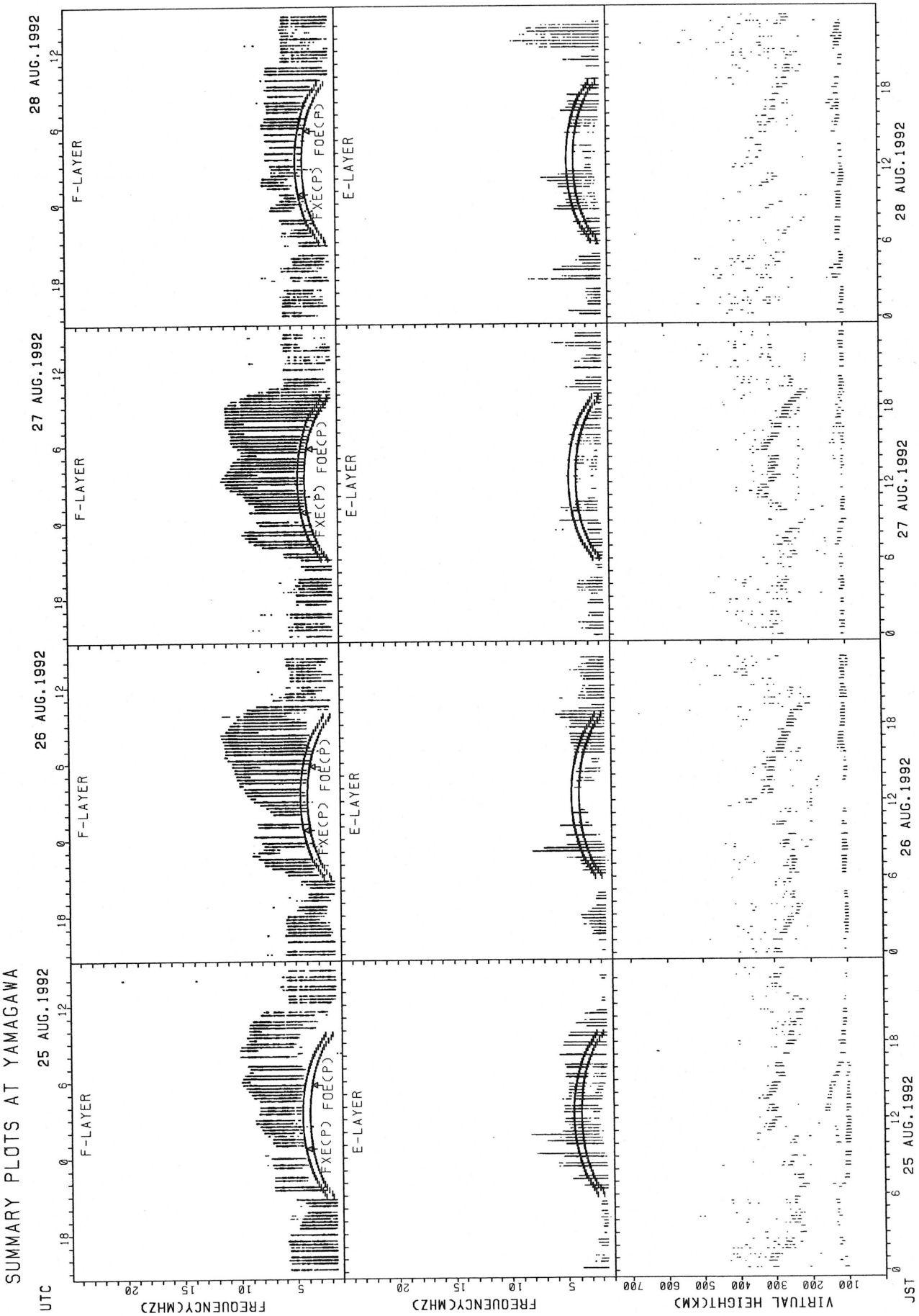
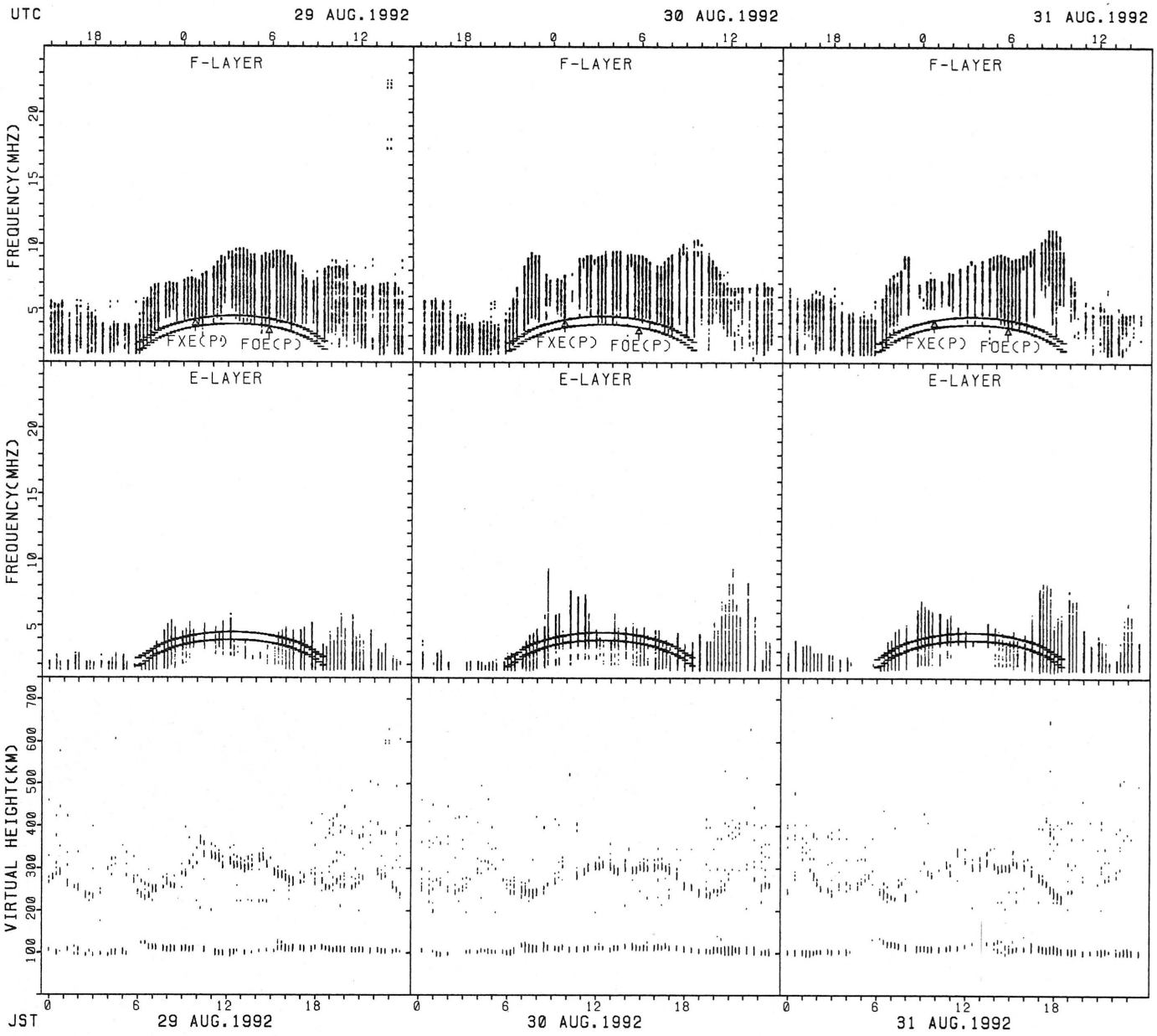
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT YAMAGAWA
17 AUG.1992
18 AUG.1992
19 AUG.1992
20 AUG.1992
UTC
JST
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

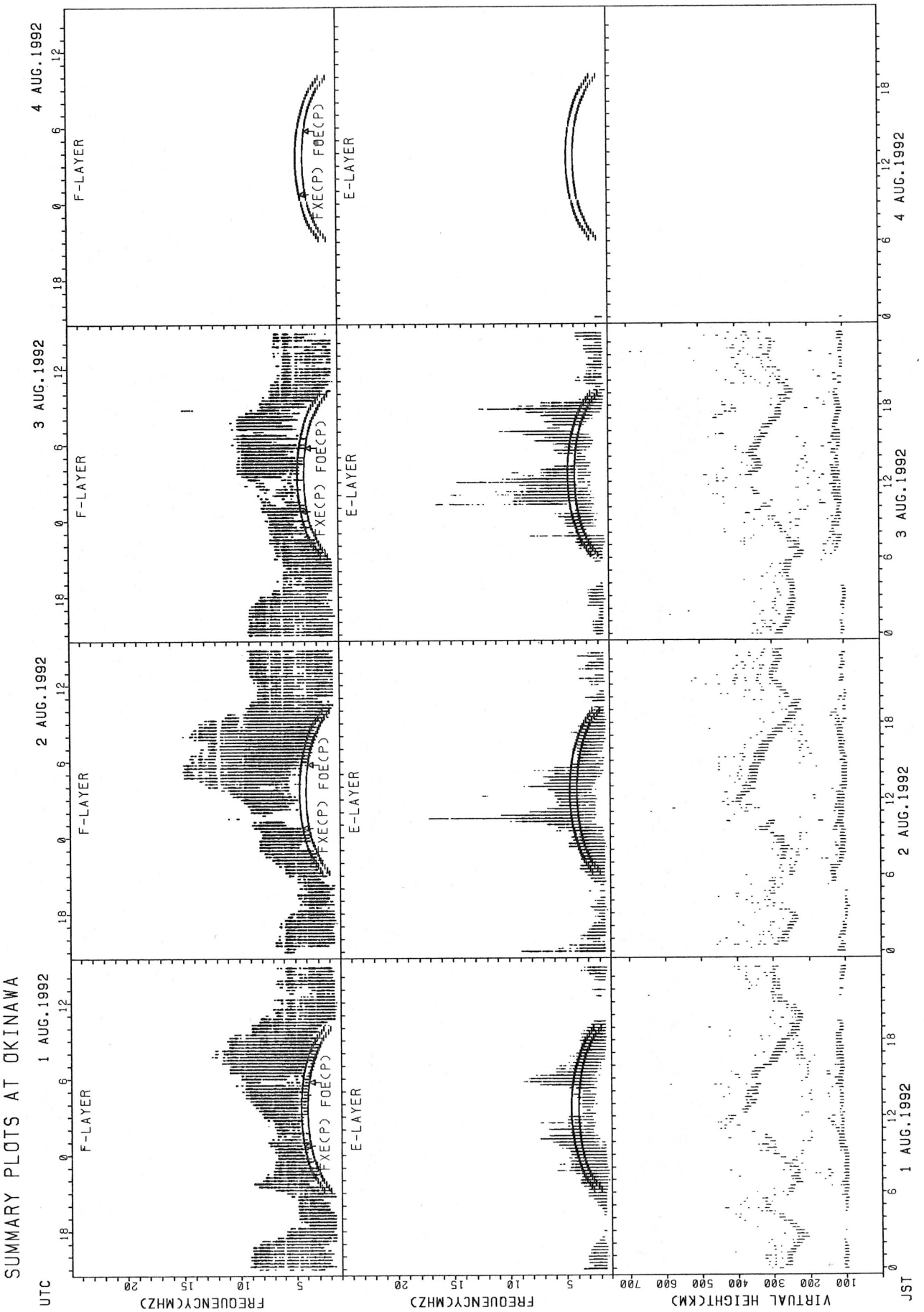

SUMMARY PLOTS AT YAMAGAWA
UTC
21 AUG.1992
22 AUG.1992
23 AUG.1992
24 AUG.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT YAMAGAWA
UTC
25 AUG.1992
26 AUG.1992
27 AUG.1992
28 AUG.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

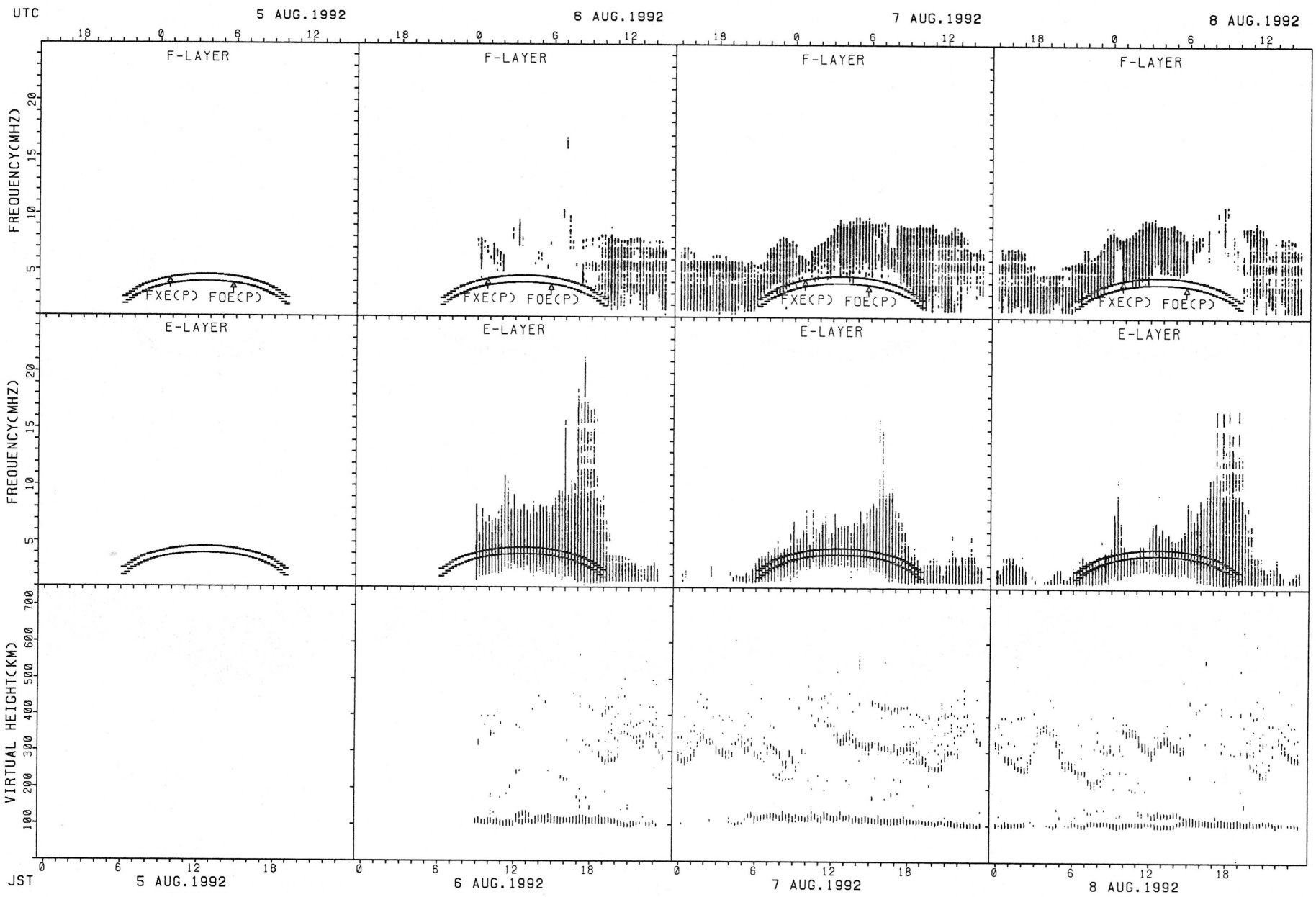
SUMMARY PLOTS AT YAMAGAWA



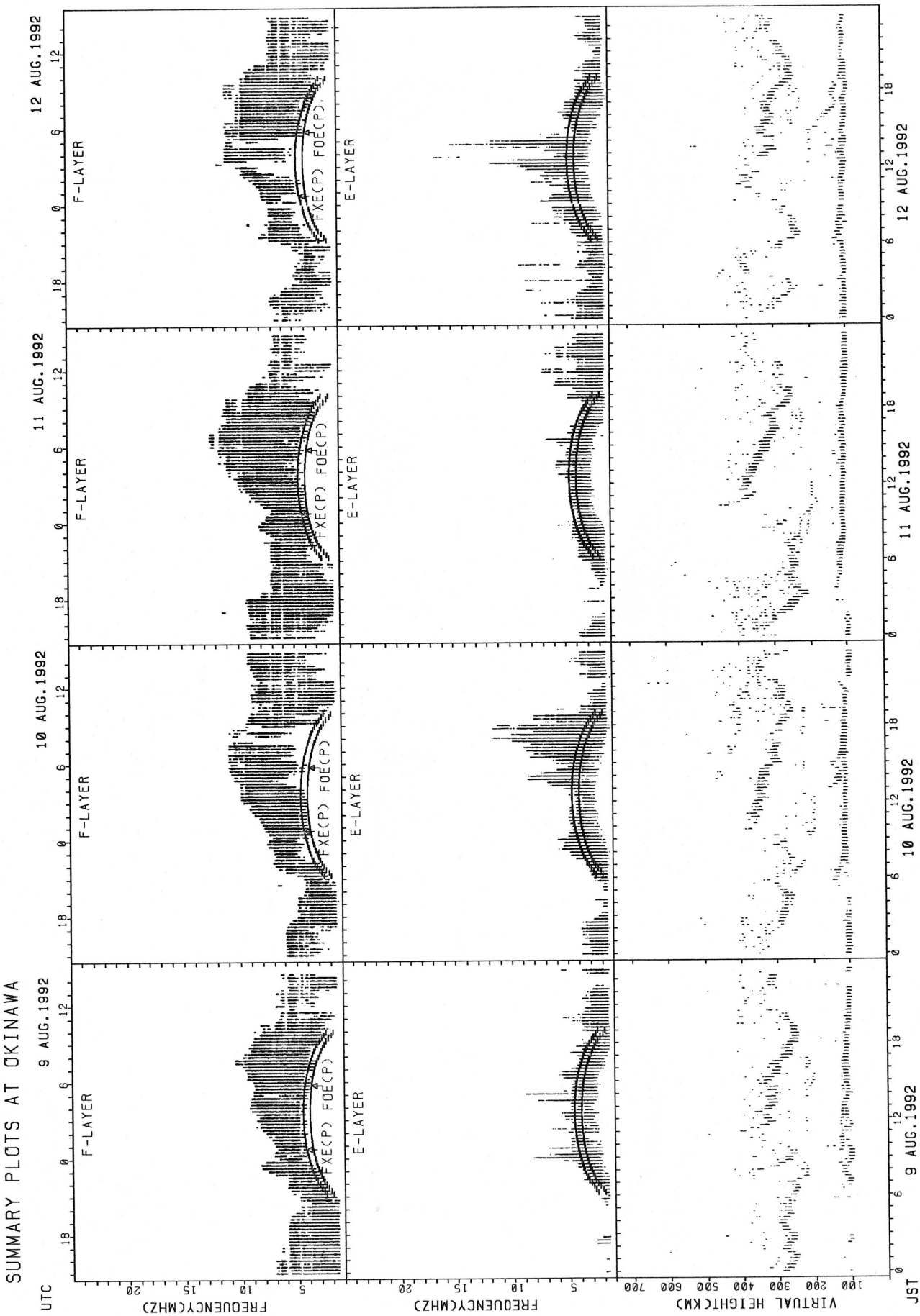
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
1 AUG.1992
2 AUG.1992
3 AUG.1992
4 AUG.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

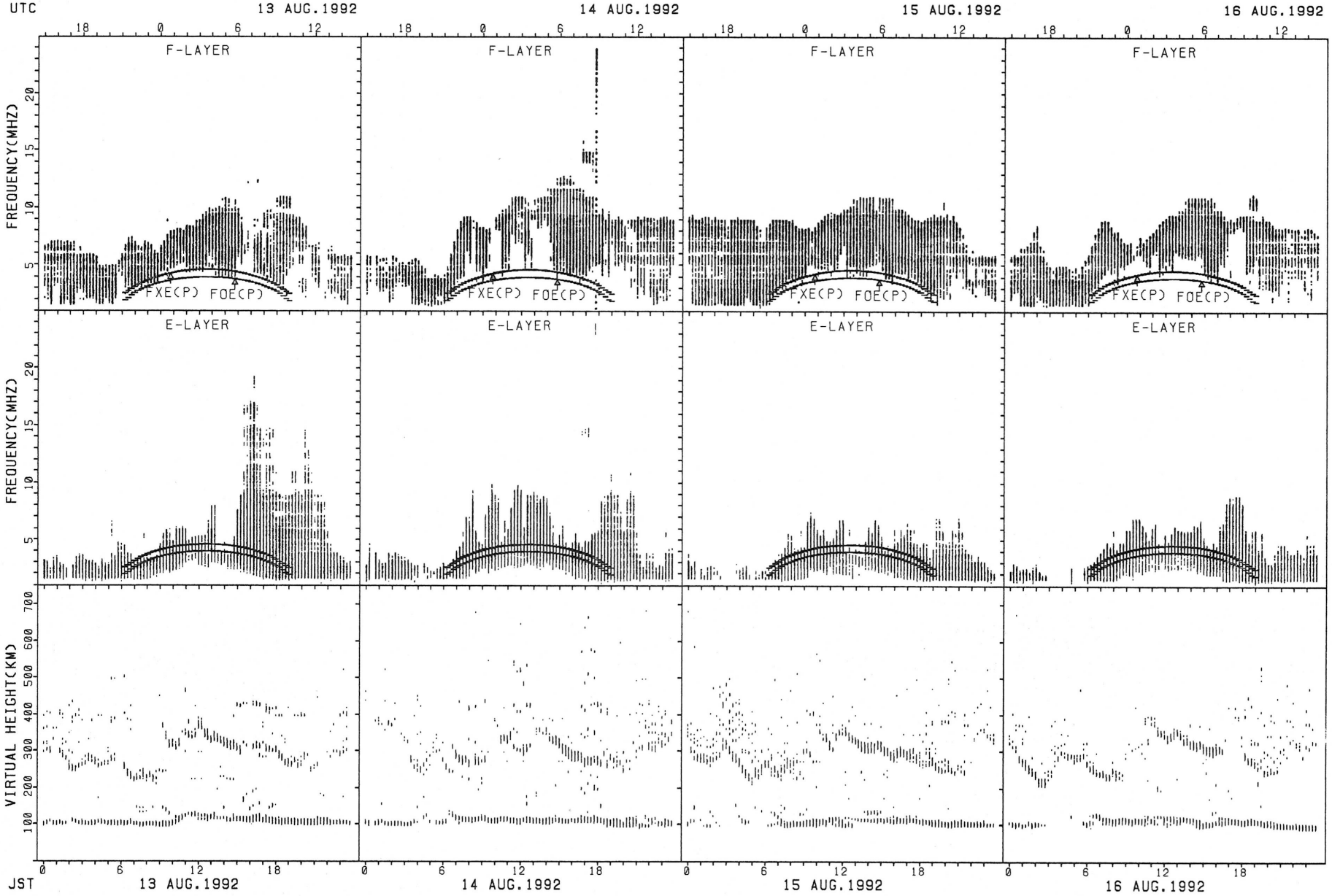
SUMMARY PLOTS AT OKINAWA



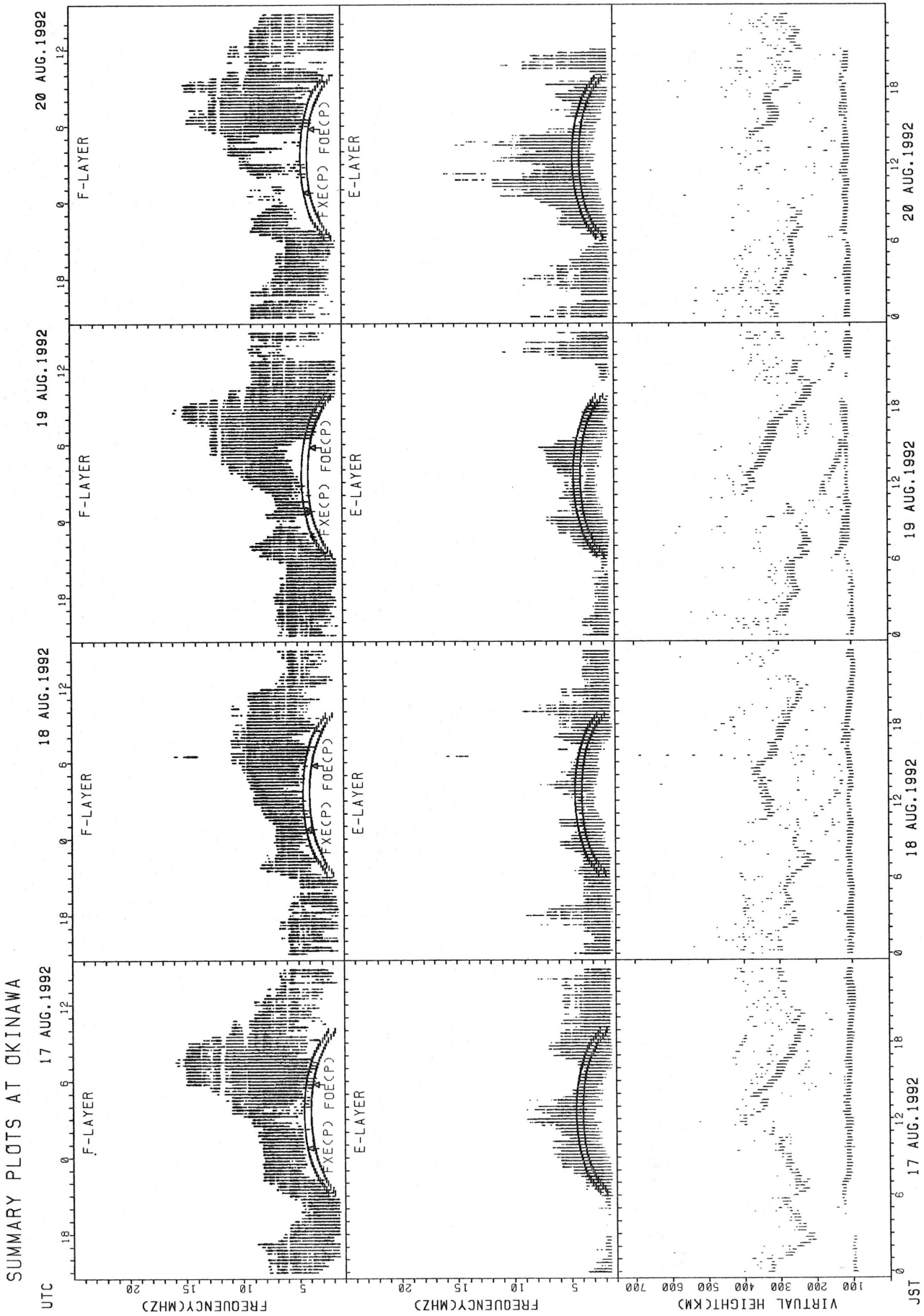
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

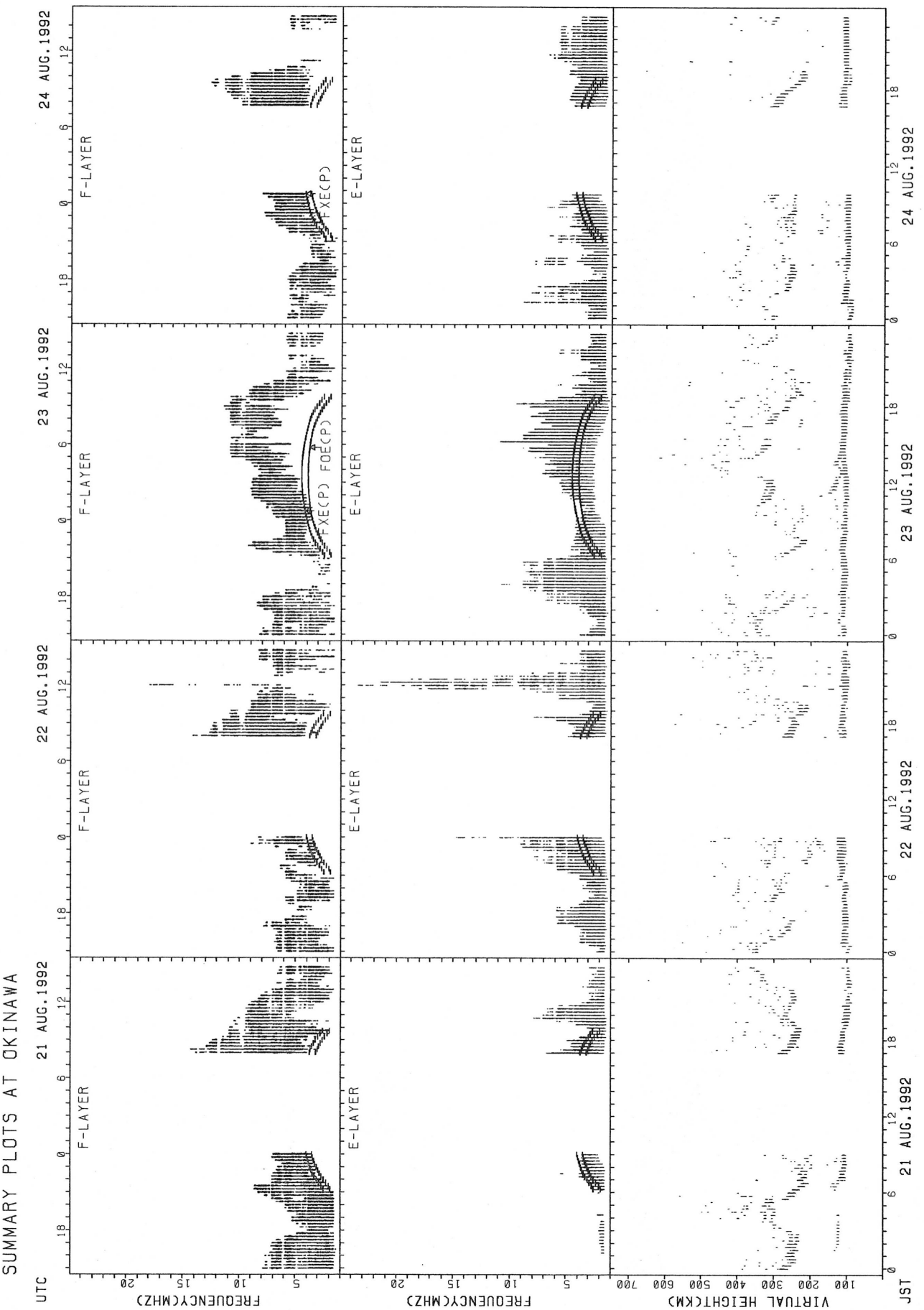

SUMMARY PLOTS AT OKINAWA
UTC
9 AUG.1992
10 AUG.1992
11 AUG.1992
12 AUG.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

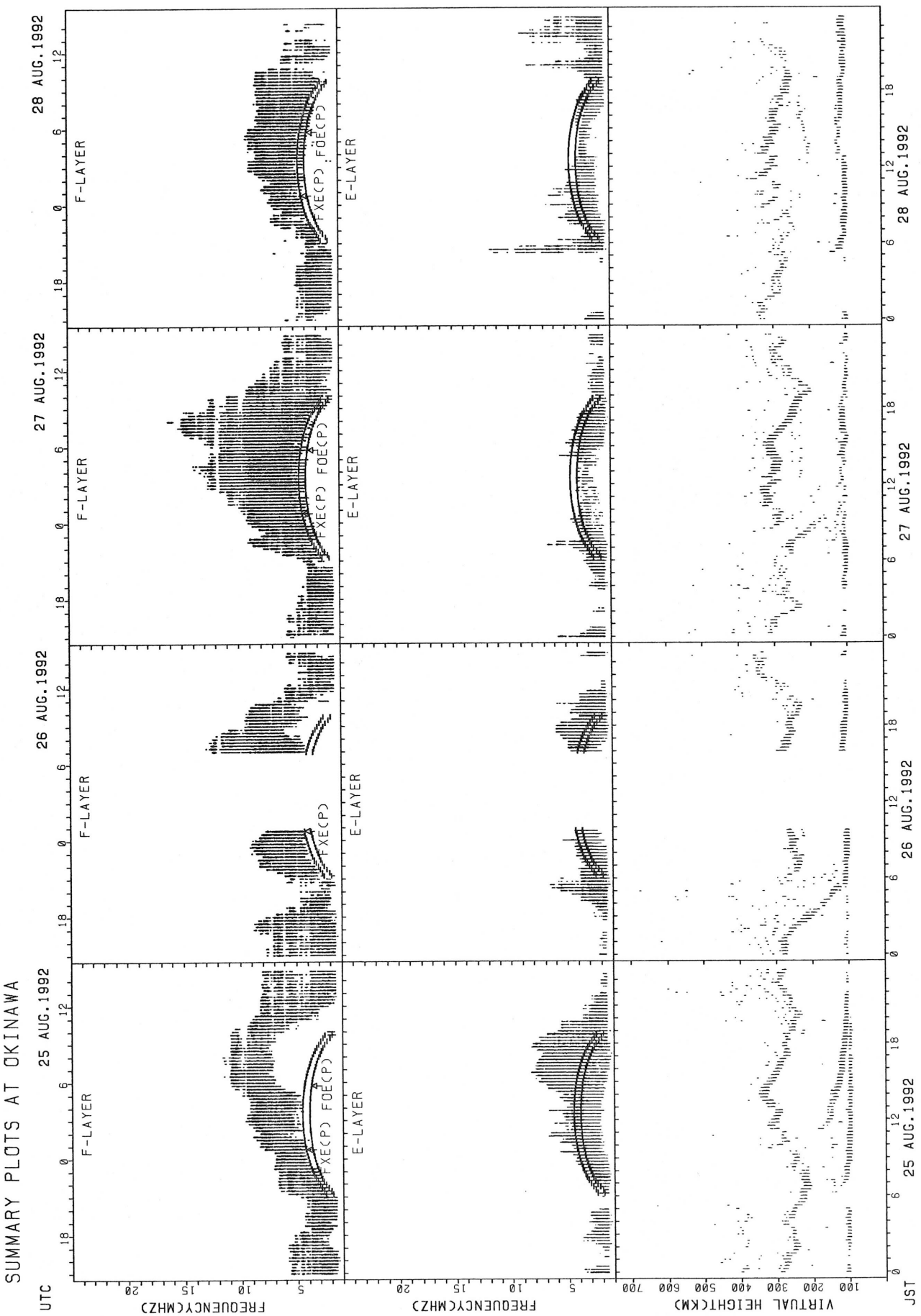
SUMMARY PLOTS AT OKINAWA



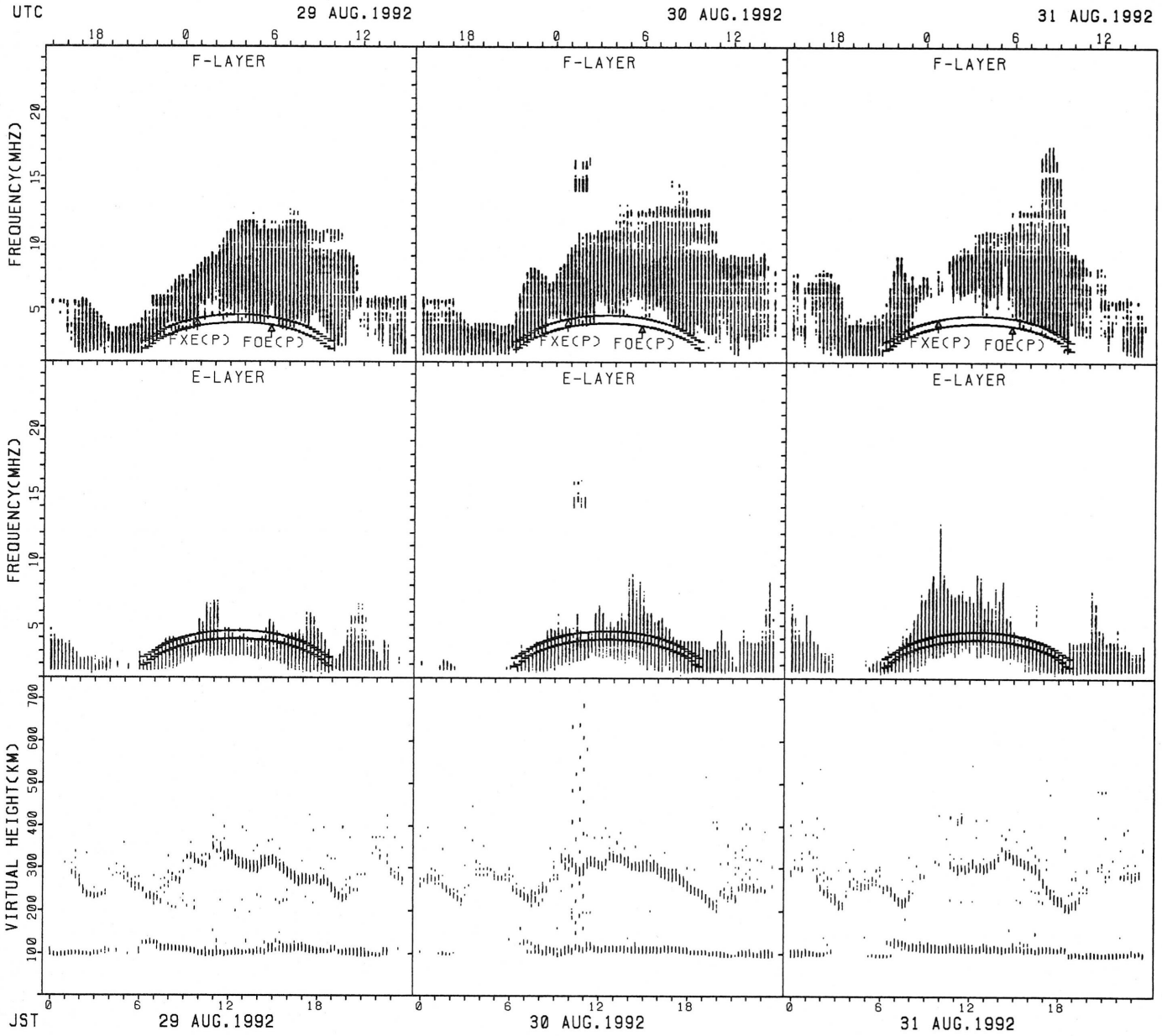
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
17 AUG.1992
18 AUG.1992
19 AUG.1992
20 AUG.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
21 AUG.1992
22 AUG.1992
23 AUG.1992
24 AUG.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
25 AUG.1992
26 AUG.1992
27 AUG.1992
28 AUG.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT OKINAWA



FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

MONTHLY MEDIANS OF H'F AND H'ES

AUG. 1992 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								10										10	11	13				
MED								292										299	300	284				
U Q								322										320	320	314				
L Q								282										286	278	279				

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	23	20	18	24	21	23	20	21	20	14	11	12	11		11	19	27	29	28	26	27	26	21
MED	109	107	107	110	123	119	123	119	117	115	113	113	113	111		119	119	119	117	114	113	111	111	107
U Q	113	113	109	121	132	123	125	122	119	120	117	123	116	117		131	127	123	121	118	115	115	115	111
L Q	105	103	105	105	110	119	119	115	115	112	109	107	108	109		117	115	117	115	111	111	109	107	106

H'F STATION AKITA LAT. 39.7N LON. 140.1E

	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									11	11	10				
MED									290									272	278	268				
U Q									301									300	294	300				
L Q									273									244	234	232				

H'ES

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	23	21	18	17	19	27	26	26	26	23	20	21	19	18	17	26	26	27	29	29	29	26	24
MED	107	105	103	102	111	117	117	116	115	113	109	112	109	111	112	115	117	117	113	113	111	113	109	107
U Q	113	113	105	111	128	127	123	119	117	115	113	115	118	119	119	127	123	121	119	118	116	119	115	114
L Q	101	103	101	101	106	113	113	111	111	109	109	107	107	107	111	111	113	115	111	110	108	108	107	104

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								19	18								22	22	17	17				
MED								292	286								304	286	276	278				
U Q								314	296								314	302	292	310				
L Q								262	266								280	258	262	245				

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	23	24	20	19	21	26	30	28	23	21	19	21	18	19	25	25	27	30	30	30	29	30	27
MED	105	105	104	104	105	113	121	116	114	113	111	111	111	113	115	115	117	115	113	111	110	109	112	107
U Q	107	107	107	113	107	127	125	119	119	115	113	115	115	119	123	121	124	119	115	117	113	119	115	109
L Q	102	101	103	101	103	105	115	111	109	109	107	107	105	107	109	111	112	113	111	107	107	107	105	103

MONTHLY MEDIANS OF H'F AND H'ES

AUG. 1992 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								14	17	15							17	21	21	17	11			
MED								254	250	290							298	286	256	260	272			
U Q								274	305	302							308	301	284	287	294			
L Q								238	240	270							278	264	235	239	252			

H'ES

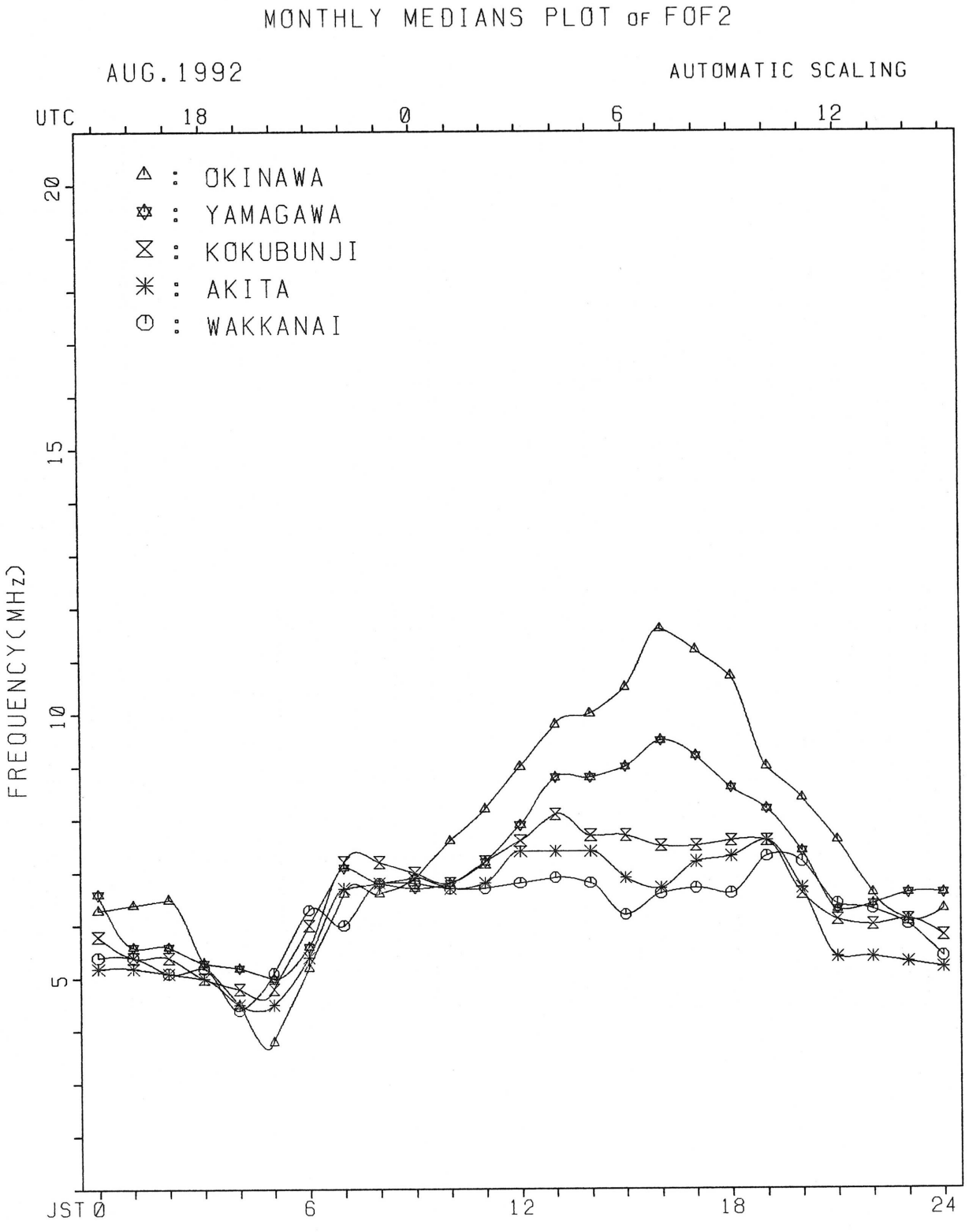
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	20	14	17	18	15	10	18	21	22	17	19	18	15	13	13	22	17	22	21	22	19	18	17
MED	108	105	105	105	106	107	112	119	115	113	113	109	113	113	125	119	117	115	114	109	109	109	108	107
U Q	115	109	105	107	109	119	121	121	118	119	119	113	123	129	137	127	123	122	117	116	113	115	113	110
L Q	105	101	103	103	101	103	107	111	109	109	106	105	107	107	117	114	115	113	111	109	107	109	107	104

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			10					20	17	20							24	24	26	26	17			
MED			288					244	250	289							293	277	268	249	290			
U Q			328					258	268	317							303	293	286	266	314			
L Q			274					232	241	274							278	263	252	238	256			

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	24	20	18	12	15	16	24	26	27	26	21	21	20	19	19	22	26	26	27	27	27	25	23	23
MED	105	104	105	105	107	105	112	119	113	113	113	113	117	117	113	117	119	117	113	109	107	111	105	107
U Q	108	107	109	115	117	110	126	123	131	119	120	122	124	127	131	125	131	117	117	113	109	114	109	111
L Q	101	100	103	102	105	103	107	109	109	107	108	109	107	109	109	115	115	113	111	107	103	104	101	99


MONTHLY MEDIANS PLOT OF FOF2
AUG. 1992
AUTOMATIC SCALING
UTC
18
0
6
12
△ : OKINAWA
✡ : YAMAGAWA
⧖ : KOKUBUNJI
✳ : AKITA
◷ : WAKKANAI
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FXI (0.1MHZ) 135° E MEAN TIME (G.M.T. + 9H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 71	X 67	X 62	53	55															X 81	X 76	X 70	76	X 82
2	76	74	69	X 60	55															X 79	X 76	X 78	X 78	X 76
3	X 73	X 73	X 67	X 61	X 59															X 80	78	79	X 82	76
4	71	X 68	X 66	62	62															X 84	X 71	X 72	X 73	X 75
5	X 76	X 74	X 72	X 70	X 66															X 69	X 77	X 76	71	X 76
6	X 73	X 70	X 63	X 63	X 63							A				A			A	X 65	0 X 65	71	X 68	X 68
7	X 64	X 57	62	61	X 57															X 81	X 80	X 78	X 74	X 73
8	X 70	X 76	X 59	X 58	62	55	70													X 80	X 77	X 64	X 67	X 66
9	X 65	X 59	X 62	X 54	X 49															X 67	X 66	X 67	68	X 70
10	X 67	X 62	X 58	X 56	X 50															X 82	X 76	76	X 77	X 80
11	X 76	X 71	X 72	X 68	X 58							A	A							X 78	X 75	X 77	78	62
12	59	X 57	57	51	53	50									A					X 80	X 77	69	75	71
13	73	71	74	X 66	57	53														X 86	X 82	X 73	X 64	69
14	63	61	59	64	50					A	A									X 66	X 63	X 63	X 62	62
15	61	61	59	57	61	56	69	86	91	86	74									X 83	X 81	X 77	71	74
16	X 68	68	61	61	54															X 87	X 90	X 79	X 79	X 68
17	X 68	X 65	X 65	X 59	X 54															X 74	X 72	X 66	73	77
18	X 71	X 67	X 61	X 57	X 54					A										X 83	X 79	76	X 75	73
19	X 67	X 63	X 63	62	61	69						A	A							X 89	X 70	A	70	66
20	A	63	61	58	57			82												X 93	X 70	74	74	X 73
21	71	X 76	68	57	54			A	A							A				X 83	X 76	72	64	61
22	A	62	62	56	58	53											A			X 84	A	63	65	64
23	60	56	61	X 54	X 42		A	A	A		A		A							X 67	X 53	X 54	X 54	X 56
24	X 49	X 48	. X 50	X 51	50															X 86	X 81	X 59	X 62	X 57
25	X 53	55	56	56	49															X 94	X 79	X 68	X 69	X 66
26	X 60	X 58	X 55	X 53	X 47	49														X 94	X 64	X 54	57	X 58
27	55	54	54	48	47															X 80	X 62	63	X 63	X 59
28	54	52	50	X 47	X 44															X 71	X 65	61	63	61
29	X 59	X 54	X 50	X 46	X 46															X 79	X 75	X 73	X 75	X 72
30	X 70	X 58	53	X 44	X 41	42														X 92	X 83	X 66	X 65	X 64
31	62	X 58	X 56	X 54	X 51												A			X 80	X 69	X 61	X 60	60
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	31	31	31	8	2	2	1	1	1									31	30	30	31	31
MED	X 67	X 62	X 61	X 57	54	53	70	84	91	86	74									X 81	X 76	X 70	X 70	X 68
U Q	X 71	X 70	X 65	X 61	58	56														X 86	X 79	X 76	X 75	X 74
L Q	60	57	56	X 53	X 49	50														X 78	X 69	X 63	X 64	62

AUG. 1992 FXI (0.1MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FOF2 (0.1MHZ) 135°E MEAN TIME (G.M.T. + 9H)

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	65	61	56	F 46	F 45	50	61	J R 72	V 73	69	71	76	88	87	68	63	64	69	70	75	70	64	F 64	76
2	F 69	F 64	F 62	54	J F 49	47	63	73	84	93	86	87	85	86	88	80	76	66	66	73	71	72	72	70
3	67	67	61	55	53	56	61	78	V 90	81	78	76	81	84	78	74	70	73	76	74	F 71	F	76	F 69
4	F 65	62	60	F 56	F 55	56	76	78	70	67	68	70	77	81	84	86	82	86	90	78	66	66	67	69
5	V 70	68	66	64	60	57	59	65	76	V 84	80	R 82	75	75	86	97	105	77	66	63	71	70	F 63	70
6	67	64	57	57	57	51	57	59	55	51	R 50	A	R 49	R 51	48	I A 52	54	58	I A 58	59	59	F 64	Z 62	62
7	58	52	F 54	F 52	51	47	49	49	59	56	53	54	67	68	J R 69	74	69	64	67	75	74	72	68	67
8	64	70	53	52	F 55	F 48	F 63	69	56	E G 50	61	62	54	63	V 58	62	65	65	66	74	71	58	61	60
9	59	53	56	48	43	40	V 44	53	R 51	R 51	Y	E G 49	56	58	R 61	66	64	63	64	61	60	61	F 61	64
10	61	56	52	50	44	42	54	64	62	69	68	66	71	77	76	75	83	76	71	76	71	F 68	71	74
11	70	65	66	61	52	54	60	65	62	V 59	63	A	A	75	81	77	76	71	71	71	J R 69	71	F 68	F 55
12	F 52	51	F 48	F 43	F 44	F 42	63	73	76	65	J R 70	68	73	82	I A 76	75	72	70	72	74	71	F 60	F 67	F 64
13	F 66	F 63	63	60	F 48	F 47	52	63	64	64	60	66	J R 64	63	70	74	71	68	77	80	77	67	58	F 58
14	F 55	F 54	F 51	F 55	F 40	36	47	65	69	I A 56	I A 55	55	61	R 62	61	63	64	67	73	60	57	57	56	F 56
15	F 54	F 53	F 50	F 48	F 52	F 47	F 61	F 77	F 83	F 78	F 67	77	R 81	72	69	69	70	72	72	77	75	71	F 62	J F 67
16	J R 62	F 60	F 54	F 51	F 47	44	57	71	76	65	64	67	75	76	70	70	71	74	83	81	84	73	73	62
17	62	59	59	53	48	53	67	75	68	74	73	80	79	82	80	86	81	73	68	68	66	60	F 65	F 69
18	65	61	55	51	48	46	57	73	72	I A 68	72	77	83	82	87	95	87	85	80	77	73	F 68	69	F 65
19	61	58	57	53	F 51	F 58	65	80	69	77	71	I A 76	I A 78	84	87	95	104	105	92	83	64	I A 66	F 63	F 60
20	I A 66	F 54	F 54	F 50	F 50	52	65	F 75	76	80	I Y 70	73	84	90	94	96	82	88	98	87	64	F 65	F 65	67
21	F 65	70	F 61	F 50	F 46	42	58	I A 56	I A 56	56	68	78	81	76	78	I A 76	76	77	79	77	70	64	F 56	F 53
22	I A 60	F 55	F 55	J F 49	F 51	F 44	70	61	J R 61	64	65	72	78	85	95	90	I A 81	82	90	78	I A 54	F 55	F 58	F 56
23	53	F 48	F 55	49	36	36	A	A	A	54	A	55	A	64	75	91	75	78	79	61	47	49	48	50
24	43	42	44	45	F 42	41	51	50	59	57	R 61	71	62	70	78	76	76	81	74	80	75	53	56	52
25	47	F 45	F 46	F 47	F 42	43	58	60	64	69	65	66	69	76	73	71	78	78	89	88	73	62	63	61
26	54	52	49	47	41	F 42	61	73	67	75	75	76	69	82	87	90	85	92	93	88	58	48	F 51	V 52
27	F 47	F 46	F 47	F 42	F 40	39	57	73	82	H 79	91	87	85	78	69	71	71	83	87	74	57	F 55	57	53
28	F 48	F 44	F 42	41	38	34	J R 46	53	54	61	V 60	59	62	60	57	58	62	60	63	65	59	F 53	F 56	F 53
29	53	48	44	40	40	41	63	72	75	70	70	75	81	80	75	82	74	64	69	73	69	68	J R 69	66
30	64	52	F 45	38	35	F 34	55	80	98	69	64	68	66	77	77	66	70	67	76	86	77	60	59	58
31	F 55	52	50	48	46	42	60	76	72	72	61	66	71	76	75	80	I A 72	71	81	74	63	55	V 54	F 52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	30	30	30	31	29	29	29	31	31	31	31	31	31	31	31	30	31	31
MED	61	55	54	50	F 47	44	60	72	69	68	68	71	75	76	76	75	74	73	74	75	70	64	63	62
U Q	65	63	59	54	51	51	63	75	76	75	72	76	81	82	84	86	81	81	83	80	73	68	68	67
L Q	54	52	F 49	47	42	41	55	61	61	57	61	66	65	68	69	69	70	67	68	71	60	57	57	55

AUG. 1992 FOF2 (0.1MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FOF1 (0.01MHZ) 135°E MEAN TIME (G.M.T. + 9H)

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						L	L	430	450	460	480	H 500	480	480	L 540	460	L 460	420	L					
2							L	L 460	480	490	U A 480	490	U A 500	500	490	490	450	U L 440	L					
3								L 440	L 490	H 500	510	530	H 520	500	500	480	480	L	L					
4							U L 410	L	480		520	480	490	510	490			430	L					
5							U L 360	L	470	470			U L 570	500	490	500	450	U L 440						
6							L	410	430	465			480	460	400		450	420						
7						U L 270	370		440	510	U L 470	L	510	530	510	490	U L 480	L	L					
8						260	370	420	470	500	490	500	510	500	500	510	450	L						
9						L	360	410	440	U A 460	R 470	490	490	500	490	480	L 480	L						
10						L	L 410	450			510	L 540	550	510	510	510	L 480	L						
11							U L 400		460								L 460	L 420						
12									480		U A 500	500	510			470	450	L						
13							L	U L 440	490	490	490	510	530	L 480	500	470	470	L 420	L					
14							370		450			510	510	480		480								
15								430	L 500				U A 510			490	L 470	U L 420	L					
16							L	L	L 470	L 480	U L 520	U A 520	U A 530	510	500	500	470	U L 440						
17							L	420	440	500	510	510	510	520		480	L 460	L						
18								U L 460	L		480	520	U A 500		H 500	470	L 450							
19														520		L	450		L					
20							L		480	480	U R 540	510	500		490	U A 460								
21						L	L						500											
22										U L 480	490		480	460	490									
23										450		470		480	460									
24							U L 340	400	430	470	L	500	L 480			L 470	L							
25								L	L 440	L 490	460	L 490	510	480	470	L 470	L 440	L						
26							L	L	L	460	H 520	H 490	500	480	480	460	440	U L 400	L					
27							L 390	U L 430	U L 470	L 520	480	500	500	480	480	450	L 450	U L 390	L					
28							L	400	440	440	470	470	480	480	450	470	U L 430	L						
29							L	U L 470	L 450	L 470	480	510	480	480	490	450	U L 440							
30							L		450	470	470	500	480	480	480	L	L	L						
31							L	L	U L 460	460	L	500	480	480	L 500	460								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	10	15	24	22	21	23	28	24	23	23	22	11						
MED						265	L 370	430	460	475	490	500	500	480	490	470	L 450	U L 420						
U Q							U L 400	L 450	480	490	510	510	510	505	500	490	L 470	U L 440						
L Q							U L 360	410	440	460	475	490	480	480	480	460	450	U L 420						

AUG. 1992 FOF1 (0.01MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FOE (0.01MHZ) 135°E MEAN TIME (G.M.T. + 9H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	245	A	325	345	A	A	A	A	370	340	A	285	A					
2						A	240	300	A	A	A	A	A	A	A	340	315	275	210					
3						A	225	290	B	365	365	380	A	385	R 365	345	335	305	A 220					
4						190	A 250	305	335	360	375	385	380	380	365	340	310	275	A					
5						B	230	A	A	A	U A 360	A	395	380	375	350	325	280	A					
6						A	A	A	A	355	A	A	A	A	375	A	315	275	A					
7					J K 140	175	A 245	290	335	355	380	385	U A 385	370	365	360	335	A 280	A					
8						150	250	295	335	345	365	380	385	370	365	345	330	U A 270	A					
9						A	250	275	A	A	A	A	A	380	375	A	335	A	A					
10						A	240	295	325	350	U A 375	A	A	A	A 365	350	325	265	A					
11						A	U A 245	285	330	355	365	375		A	A	A	A	A	A 295	A				
12						A	230	290	315	340	A	375	385	375	A 355	A	315	260	A					
13						155	245	285	305	365	355	A 360	370	380	370	345	A 315	270	A					
14						A	220	280	325	345	365	370	U A 375	385	A	345	315	265	A					
15						170	A	280	300	A 335	U A 350	A	A	370	A 355	A	A	270	A					
16						A	225	285	320	A 340	355	A	U A 365	A 370	365	A	320	265	A					
17						A	225	280	315	A	A	380	A	360	A	335	310	265	A					
18						A	A 220	285	320	A	A	A	A	A	A	A 345	310	265	A					
19						A	230	280	315	345	U A 365	A	A	A	A	A 335	305	250	A					
20						B	225	A 285	A	A	A	A	A	A	A	A	A	A	A					
21						A	235	290	330	A 340	A	A	A	370	355	A	315	250	B					
22						A	210	270	305	A	A	A	A	370	360	335	300	230	A					
23						A	220	A	A	A	A	A	A	355	350	320	280	240	A					
24						B	A	A	A	A	R 340	355	R 360	345	340	330	300	255	A					
25						B	A	A	A	A	A	A	A	350	A 340	A	290	A	A					
26						B	205	A	A	340	A	R 360	370	350	U R 335	320	295	U A 245	A					
27						B	A	U A 265	A	A	R	365	365	360	345	325	A 280	A	A					
28						B	A	250	U A 285	A	A	R	375	A	345	330	290	230	B					
29						B	205	265	300	325	A	A	375	355	350	335	300	A	A					
30						B	A	A	295	325	A	R 360	360	350	330	335	A	A	A					
31						B	A	270	300	R	340	A	A	A	A	325	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	5	23	23	20	18	14	13	14	21	23	22	25	24	2					
MED					J K 140	170	230	285	318	345	365	375	375	370	360	338	315	265	215					
U Q						182	245	290	328	355	365	380	385	380	365	345	322	275						
L Q						152	220	275	302	340	355	360	365	355	345	330	300	252						

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FOES (0.1MHZ) 135°E MEAN TIME (G.M.T. + 9H)

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	21	J A 20	J A 43	J A 43	J A 24	J A 48	J A 31	J A 51	G 24	37	J A 41	40	39	39	G	J A 41	J A 47	J A 34	J A 36	16	32	J A 60	J A 52	J A 44
2	J A 78	J A 55	J A 23	J A 22	J A 22	19	30	J A 43	J A 44	J A 51	J A 62	J A 53	J A 54	J A 46	J A 43	G 30	37	30	26	J A 18	J A 19	J A 20	J A 34	J A 24
3	J A 19	E B 14	E B 14	E B 15	E B 13	J A 20	27	33	37	39	41	J A 48	41	44	G	G	G	33	J A 33	34	J A 54	J A 51	J A 65	J A 31
4	J A 34	27	27	22	20	J A 20	27	33	J A 42	J A 63	J A 44	42	J A 59	J A 50	J A 52	J A 55	85	J A 43	J A 35	30	29	J A 41	J A 34	28
5	J A 22	19	E B 15	20	E B 13	E B 16	G	J A 36	J A 42	J A 43	J A 67	J A 75	G 34	G 30	G 32	42	40	60	J A 44	J A 20	E B 13	J A 47	J A 64	J A 50
6	J A 24	J A 23	J A 20	J A 22	J A 27	24	J A 37	J A 44	J A 42	38	J A 59	J A 81	J A 60	J A 82	45	J A 147	J A 48	J A 54	J A 103	J A 41	85	37	33	22
7	E B 14	J A 34	J A 46	J A 24	J K 14	20	32	J A 58	J A 50	J A 52	J A 62	J A 56	J A 54	J A 71	J A 52	J A 48	J A 71	J A 35	24	J A 33	J A 44	20	J A 22	J A 37
8	J A 21	J A 22	23	J A 27	J A 19	J A 36	J A 38	37	41	43	40	46	42	43	41	42	J A 54	50	J A 66	J A 85	J A 54	J A 55	J A 47	J A 32
9	J A 34	J A 19	J A 26	E B 14	J A 21	J A 65	G 25	J A 52	J A 64	60	J A 69	98	J A 54	41	G 33	J A 43	G 28	J A 37	42	J A 37	J A 22	27	52	J A 54
10	J A 22	J A 19	E B 15	E B 13	J A 20	23	31	J A 46	J A 60	J A 56	42	J A 46	45	J A 54	39	43	J A 44	J A 42	J A 54	60	48	J A 65	23	E B 14
11	E B 13	J A 18	J A 47	J A 28	E B 13	J A 34	J A 37	J A 47	J A 49	J A 53	J A 58	J A 100	120	141	J A 153	J A 180	J A 50	J A 43	J A 59	J A 145	54	J A 70	J A 31	J A 80
12	J A 53	39	J A 31	J A 31	J A 25	J A 53	J A 47	J A 72	J A 62	J A 67	J A 54	J A 51	J A 50	J A 67	110	J A 92	J A 42	43	J A 44	J A 43	J A 62	J A 134	J A 30	J A 43
13	J A 47	J A 26	J A 28	J A 33	J A 26	G	G	33	J A 51	39	41	44	40	40	G	G	32	G	J A 30	J A 35	J A 43	J A 34	J A 123	J A 56
14	J A 79	J A 42	J A 34	J A 21	24	19	30	68	40	69	61	J A 48	43	41	J A 61	J A 54	J A 59	75	86	59	J A 46	J A 33	J A 86	J A 53
15	61	J A 44	J A 53	J A 58	J A 36	G	J A 34	J A 41	J A 52	J A 75	J A 66	J A 129	108	J A 55	J A 60	J A 47	J A 44	30	22	J A 18	23	J A 53	J A 52	19
16	J A 49	J A 48	J A 22	J A 19	E B 14	19	28	35	40	47	J A 47	J A 55	J A 54	41	G	40	J A 49	J A 42	J A 41	65	J A 55	J A 50	J A 20	24
17	19	23	J A 24	J A 35	E B 14	18	J A 34	J A 37	J A 42	37	39	G	J A 59	J A 55	J A 99	J A 42	G	J A 33	J A 55	57	J A 34	J A 55	J A 52	J A 63
18	30	E B 13	61	J A 64	43	J A 31	J A 52	J A 49	J A 43	89	J A 44	46	59	J A 77	J A 50	46	J A 55	J A 49	71	J A 53	J A 53	J A 29	J A 39	J A 23
19	J A 30	J A 24	J A 21	J A 19	J A 47	J A 48	J A 42	66	J A 55	79	J A 75	173	J A 152	J A 58	80	J A 56	J A 74	J A 54	J A 85	J A 97	J A 54	J A 82	58	53
20	J A 84	J A 43	J A 58	J A 41	J A 25	E B 15	28	J A 41	J A 53	J A 45	58	41	J A 63	J A 64	J A 52	J A 56	94	J A 80	J A 88	J A 54	27	J A 44	J A 48	J A 31
21	J A 34	J A 27	J A 24	J A 23	J A 47	J A 28	J A 54	J A 64	66	J A 55	J A 70	J A 68	J A 59	J A 72	J A 175	J A 131	J A 51	84	J A 133	65	61	J A 54	J A 55	60
22	J A 114	82	J A 65	J A 51	J A 50	J A 124	J A 55	J A 47	J A 54	J A 54	40	J A 51	J A 40	39	J A 51	J A 83	J A 130	78	J A 65	84	J A 97	J A 74	J A 49	J A 27
23	J A 34	J A 36	J A 55	J A 74	J A 84	J A 103	42	55	83	J A 95	97	38	79	J A 36	42	J A 55	J A 47	54	72	J A 84	J A 51	J A 33	J A 59	27
24	J A 35	31	J A 32	J A 31	J A 33	J A 49	J A 37	J A 33	J A 36	J A 41	G	G	47	J A 54	J A 51	J A 48	J A 40	65	J A 65	J A 49	J A 53	J A 51	J A 66	J A 53
25	J A 33	32	J A 54	J A 28	J A 30	J A 35	J A 45	J A 41	J A 44	43	38	J A 46	49	42	38	46	36	29	J A 44	J A 27	27	22	21	J A 23
26	22	21	20	18	20	E B 13	G	28	31	G	37	G	G	G	G	G	G	31	20	J A 22	J A 21	J A 52	J A 55	E B 13
27	E B 13	E B 13	23	20	E B 14	20	32	29	J A 37	49	G 30	39	41	41	42	39	J A 35	J A 45	J A 24	J A 27	J A 26	J A 46	30	J A 52
28	J A 47	J A 26	20	E B 13	J A 25	J A 26	30	32	J A 48	34	37	G 35	G	J A 52	40	G 30	31	30	J A 54	J A 21	J A 53	J A 54	J A 52	J A 50
29	J A 19	E B 13	20	J A 21	J A 20	20	27	34	39	J A 52	38	37	G	37	G	40	J A 39	J A 52	J A 85	J A 52	25	J A 23	J A 36	J A 51
30	J A 51	J A 47	J A 24	J A 30	J A 22	J A 19	24	83	J A 43	J A 41	J A 44	39	38	G 28	J A 42	38	J A 45	J A 30	39	J A 50	J A 49	J A 34	J A 28	J A 21
31	J A 39	J A 18	J A 20	22	J A 21	J A 18	26	J A 40	34	G	37	38	41	41	J A 40	J A 44	85	59	57	J A 52	J A 46	24	33	J A 52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 34	J A 26	J A 24	J A 23	J A 22	J A 20	31	J A 41	J A 43	49	44	46	49	44	42	J A 44	J A 45	43	J A 54	J A 49	J A 46	J A 47	J A 48	J A 37
U Q	J A 49	J A 39	J A 46	J A 33	J A 30	J A 36	J A 38	52	J A 53	60	J A 62	J A 56	J A 59	J A 58	J A 52	J A 55	J A 55	54	J A 71	J A 60	J A 54	J A 55	J A 55	J A 53
L Q	21	19	20	20	E B 19	19	27	34	40	39	39	39	40	40	G	G 40	36	33	35	J A 27	27	J A 33	J A 31	24

AUG. 1992 FOES (0.1MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FBES (0.1MHZ) 135°E MEAN TIME (G.M.T. + 9H)

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 B 13	E B 14	21	25	17	22	G 22	31	G 21	36	40	39	39	38	G	37	36	30	25	16	23	30	32	20
2	27	45	17	16	16	18	30	33	40	46	48	47	50	44	38	G 30	G	30	G	16	16	16	E B 13	16
3	E B 13	E B 14	E B 14	E B 15	E B 13	18	27	32	36	37	40	40	40	42	G	G	G	G	27	28	40	20	16	20
4	25	17	16	E B 13	E B 13	G 12	G 24	32	36	47	41	41	45	44	44	50	72	37	32	22	23	17	21	18
5	16	E B 15	E B 15	E B 13	E B 13	E B 16	G	32	37	40	57	63	G 33	G 30	G 31	G 31	35	30	36	E B 13	E B 13	16	41	23
6	16	16	16	17	18	19	30	33	35	37	48	A A 81	44	42	40	A A 147	36	37	A A 103	17	45	20	18	E B 13
7	E B 14	E B 13	17	16	U K 14	G	31	43	40	41	44	43	42	46	41	38	42	30	22	16	16	17	16	15
8	15	18	20	16	E B 13	18	31	31	38	39	38	45	41	40	40	40	35	32	55	55	29	41	29	19
9	20	17	16	E B 14	16	25	G 22	35	37	46	42	44	42	40	G 33	37	G 25	34	35	33	E B 13	21	28	26
10	E B 14	E B 14	E B 15	E B 13	16	20	28	34	48	49	40	41	41	40	38	40	40	40	49	57	40	22	E B 13	E B 14
11	E B 13	E B 14	27	16	E B 13	33	35	45	43	50	55	A A 100	A A 120	61	57	61	40	32	44	26	35	43	18	37
12	21	30	21	19	20	19	42	44	40	57	50	46	45	58	A A 110	39	35	31	33	23	25	37	18	14
13	18	16	20	25	18	G	G	32	45	39	40	42	39	G 35	G	G	32	G	25	16	E B 13	24	27	17
14	20	17	15	17	19	17	28	60	35	A A 69	A A 61	46	41	40	54	46	55	64	73	30	20	17	19	34
15	40	21	24	26	16	G	26	34	43	56	62	64	51	50	60	41	40	28	22	16	E B 14	20	32	E B 13
16	25	20	16	E B 13	E B 14	16	26	33	39	42	45	52	53	40	G	36	42	35	35	50	39	31	E B 14	E B 13
17	E B 13	E B 15	E B 13	E B 14	E B 14	16	29	32	35	36	37	G	46	47	68	37	G	28	44	53	20	30	23	28
18	16	E B 13	31	23	30	20	41	40	37	A A 89	41	40	50	64	44	37	39	41	63	25	E B 16	18	17	E B 13
19	17	17	17	E B 14	16	35	37	55	48	75	64	A A 173	A A 152	41	68	45	40	47	20	74	45	A A 82	18	36
20	A A 84	17	27	25	18	E B 15	25	38	38	41	48	39	45	61	45	46	72	56	72	42	21	22	21	20
21	25	18	22	18	28	18	35	A A 64	A A 66	54	58	57	47	66	50	A A 131	49	58	33	32	29	32	19	26
22	A A 114	30	27	21	16	30	45	39	48	38	40	51	40	38	44	74	A A 130	54	62	72	A A 97	42	29	19
23	27	26	25	23	25	23	A A 42	A A 55	A A 83	35	A A 97	37	A A 79	G 32	37	50	46	42	61	36	20	E B 13	26	E B 15
24	24	19	20	E B 13	20	26	22	29	34	37	G	G	43	51	49	44	38	56	30	38	39	40	50	34
25	20	21	24	18	20	31	36	36	40	37	36	44	42	41	38	36	33	28	28	22	18	E B 15	E B 14	17
26	E B 14	E B 13	E B 13	E B 13	E B 14	E B 13	G	28	U Y 31	G	36	G	G	G	G	G	G	29	17	E B 14	18	26	19	E B 13
27	E B 13	E B 13	E B 13	E B 14	E B 14	18	27	29	34	42	U G 30	39	40	40	39	35	32	30	18	18	23	25	20	27
28	29	18	E B 13	E B 13	24	23	27	30	34	34	36	U G 35	G	45	G 32	G 29	31	26	32	E B 13	30	44	31	32
29	E B 13	E B 13	E B 13	17	15	E B 14	25	33	37	37	37	37	G	G 32	G	35	35	40	57	18	17	17	34	23
30	20	26	21	25	17	16	22	50	36	37	38	39	38	G 27	40	34	41	27	30	28	28	15	17	17
31	25	E B 13	E B 13	E B 14	E B 13	E B 14	22	34	34	G	36	37	40	40	36	40	A A 85	45	50	47	40	16	17	23
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	20	17	17	16	16	18	27	34	37	40	41	42	42	41	40	38	38	32	33	26	23	22	19	19
U Q	25	20	22	21	19	23	35	43	43	49	50	51	47	47	49	46	42	42	55	42	39	32	29	26
L Q	E B 14	E B 14	E B 15	E B 14	E B 14	15	G	32	35	37	37	39	40	G 38	G	G 35	G 32	29	25	16	E B 17	17	17	E B 15

AUG. 1992 FBES (0.1MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 FMIN (0.1MHZ) 135° E MEAN TIME (G.M.T. + 9H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	14	13	13	13	13	14	14	16	16	20	19	30	26	25	20	17	15	16	13	13	15	14	15
2	15	14	14	13	13	13	13	14	16	17	20	23	24	20	20	20	16	13	13	13	14	14	13	14
3	13	14	14	15	13	15	14	14	35	18	21	20	20	20	20	15	21	18	16	13	13	13	14	14
4	14	14	13	13	13	15	15	14	13	17	20	19	18	18	19	17	17	14	15	14	13	13	14	14
5	13	15	15	13	13	16	16	15	17	16	19	21	18	21	18	16	15	16	14	13	13	13	13	13
6	13	13	13	14	13	13	13	16	16	21	20	25	18	23	20	18	15	14	16	14	14	14	13	13
7	14	13	13	13	13	13	15	16	18	17	21	27	21	20	20	19	18	14	16	13	13	14	13	14
8	15	13	13	13	13	13	13	13	16	16	16	20	20	20	17	18	17	14	14	16	14	13	15	14
9	13	15	13	14	13	13	15	16	19	20	21	22	20	21	20	18	17	14	14	14	13	15	14	13
10	14	14	15	13	13	14	13	13	15	18	20	21	20	20	17	16	18	14	13	13	14	14	13	14
11	13	14	13	13	13	13	17	18	21	22	32	27	31	21	20	20	17	14	13	14	13	13	14	15
12	14	13	13	15	13	13	16	15	17	18	17	22	22	18	21	16	15	13	14	14	14	14	13	13
13	13	13	13	13	13	13	15	13	16	21	20	22	22	27	22	19	17	13	14	14	13	13	13	14
14	13	13	13	13	14	13	13	13	17	19	22	23	24	21	17	16	16	14	13	15	13	14	15	14
15	14	14	13	14	14	13	16	15	16	17	18	29	19	21	22	20	17	14	13	13	14	14	13	13
16	13	14	13	13	14	13	14	16	17	17	20	21	20	23	19	19	17	13	13	14	15	13	14	13
17	13	15	13	14	14	13	14	16	16	18	25	18	19	18	17	17	16	15	16	14	15	14	16	13
18	13	13	13	13	13	13	14	14	17	24	21	26	20	19	18	17	18	13	14	13	16	13	13	13
19	15	14	14	14	14	14	14	14	17	16	18	18	21	22	19	18	16	14	14	15	14	15	13	14
20	15	13	14	15	13	15	16	15	17	20	20	21	33	31	20	20	18	14	14	13	13	16	15	13
21	14	14	13	13	14	13	15	15	18	19	32	20	25	18	18	19	16	17	18	16	13	13	13	14
22	13	13	13	13	13	14	15	14	16	19	32	24	26	21	21	18	17	14	14	17	14	13	15	14
23	15	13	15	13	13	13	15	17	17	19	23	20	18	20	21	16	16	14	16	14	13	13	13	15
24	13	13	13	13	13	13	14	15	17	18	25	20	22	18	18	18	17	15	13	14	14	14	14	15
25	14	14	13	14	13	14	14	14	17	18	20	20	21	20	19	17	15	13	15	13	13	15	14	14
26	14	13	13	13	14	13	14	14	17	19	24	23	27	20	18	18	17	14	14	14	13	14	13	13
27	13	13	13	14	14	14	14	15	17	19	20	22	20	18	17	17	15	13	13	13	14	14	13	14
28	13	14	13	13	13	14	15	13	17	18	18	23	22	21	18	17	16	14	13	13	15	13	15	13
29	13	13	13	13	13	14	16	16	19	24	24	32	33	25	19	17	15	13	13	15	13	13	13	14
30	14	13	13	13	15	13	14	14	16	18	21	19	17	18	17	16	17	13	14	15	13	13	13	13
31	13	13	13	14	13	14	15	14	17	21	22	20	24	18	18	17	16	14	13	14	14	13	13	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	13	13	13	13	13	13	14	14	17	18	20	21	21	20	19	18	17	14	14	14	13	14	13	14
U Q	14	14	13	14	14	14	15	16	17	20	23	23	24	21	20	19	17	14	15	14	14	14	14	14
L Q	13	13	13	13	13	13	14	14	16	17	20	20	20	18	18	17	16	13	13	13	13	13	13	13

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9H)

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

D/H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	310	310	F 290	F 290	295	310	J R 315	V 320	300	280	295	290	315	300	305	290	315	310	315	300	290	F 290	300
2	F 300	F 325	F 310	290	J F 270	300	315	295	295	325	300	300	300	285	300	295	310	315	310	295	280	275	285	280
3	290	300	305	300	290	295	305	300	V 295	320	300	280	290	300	295	305	300	310	320	315	F 280	F	300	F 290
4	F 280	280	300	F 285	F 285	285	320	320	330	315	290	285	290	280	280	300	300	310	320	315	285	265	270	275
5	V 270	280	270	275	265	280	335	315	295	V 315	295	R 305	270	260	265	265	305	305	305	270	265	265	F 255	270
6	280	285	275	270	275	275	245	285	280	230	R 225	A	R 205	R 245	220	A	270	295	A	285	280	F 260	Z 260	275
7	280	260	F 270	F 270	260	270	270	250	290	255	240	Y 295	290	295	J R 295	310	315	310	295	290	275	275	255	270
8	265	295	270	250	F 250	F 250	F 280	335	300	G	260	290	Y 240	290	V 305	285	295	300	295	290	300	280	250	265
9	290	280	305	275	270	270	V 250	285	R 260	R 240	Y	G	260	270	R 285	305	310	310	305	300	265	270	F 270	275
10	275	275	280	295	275	295	295	320	315	320	320	290	285	295	305	295	305	325	310	285	305	F 255	265	285
11	270	275	285	310	290	295	285	305	320	V 275	285	A	A	290	310	305	310	310	305	290	J R 275	290	F 285	F 275
12	F 285	300	F 285	F 285	F 285	F 290	305	290	315	A	J R 300	305	290	305	A	305	310	295	320	290	295	F 270	F 275	F 270
13	F 270	F 285	290	305	F 275	F 285	310	295	300	330	310	310	J R 280	280	305	305	315	300	305	295	290	290	295	F 285
14	F 295	F 270	F 265	F 305	F 330	255	250	A 295	305	A	A	250	285	R 300	295	290	295	A 310	A	315	275	275	265	F 265
15	F 260	F 280	F 270	F 255	F 275	F 280	F 290	F 305	F 305	F 330	F 290	300	R 315	315	305	305	305	315	305	295	305	300	F 265	J F 290
16	J R 295	F 290	F 275	F 295	F 300	300	315	330	335	335	295	295	295	305	310	300	315	300	310	280	305	285	300	285
17	275	285	290	290	290	285	320	320	335	330	300	305	280	300	285	300	315	325	330	295	300	270	F 275	F 305
18	295	300	300	300	310	300	325	335	325	A	320	290	290	295	295	310	310	305	315	305	300	F 290	290	F 290
19	285	280	280	275	F 270	F 340	335	350	330	A	A	A	A	285	290	275	300	320	330	A 320	310	A	F 295	F 285
20	A	F 285	F 275	F 280	F 290	295	310	F 315	320	330	Y	310	300	300	295	310	300	275	305	320	285	F 250	F 270	275
21	F 280	300	F 300	F 275	F 275	285	325	A	A	A 295	295	305	305	300	315	A	310	315	315	295	300	290	F 280	F 285
22	A	F 275	F 280	J F 275	F 290	F 280	355	365	J R 280	310	315	290	285	285	305	320	A	320	330	A 340	A	F 275	F 270	F 280
23	255	F 265	F 295	305	315	310	A	A	A	330	A	245	A	240	225	280	275	260	310	305	270	260	265	295
24	285	270	280	285	F 275	280	315	290	335	305	R 300	320	330	310	335	320	310	315	320	315	330	260	A 300	275
25	285	F 280	F 305	F 320	F 320	325	365	360	335	325	330	315	310	315	320	315	325	315	310	325	325	290	290	290
26	290	300	310	320	305	F 295	340	345	330	340	305	320	290	295	310	310	305	315	325	350	310	275	F 280	V 275
27	F 265	F 285	F 305	F 265	F 270	290	315	330	315	H 295	305	295	310	325	325	320	305	320	330	340	280	F 295	295	290
28	F 260	F 290	F 280	290	275	265	J R 295	290	300	290	V 275	305	305	315	325	300	315	315	300	310	290	F 295	F 300	F 290
29	300	305	305	295	285	290	330	345	330	335	315	295	300	305	305	320	340	320	310	300	285	280	J R 290	285
30	310	305	F 300	305	275	F 265	310	330	360	345	320	325	300	305	325	310	320	315	305	300	345	290	295	290
31	F 280	280	300	290	295	295	325	350	315	355	310	300	315	320	300	330	A	320	330	325	325	300	V 280	F 275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	31	31	31	31	30	29	29	27	26	28	28	31	30	29	29	31	29	31	30	29	31	31
MED	280	285	290	290	F 285	290	312	315	315	320	300	298	290	300	302	305	310	315	310	300	292	275	280	285
U Q	292	300	305	300	290	295	325	335	330	330	310	305	302	305	310	310	315	315	320	315	305	290	295	F 290
L Q	270	280	F 275	275	275	280	295	295	298	295	290	290	285	285	295	298	300	305	305	290	280	268	265	275

AUG. 1992 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9H)

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L 365		380	415	425	H 410	H 415	385	L 335	360	L 350	340	L					
2							L 340		L 335	A 330	A	A	A	380	380	H 350	355	U L 345	L					
3								L 370	L 355	H 375	H 375	370	H 405	H 410	385	365	355	L	L					
4							U L 360	L	390	A	385	425	420	365	380	A	A	350	L					
5							U L 380	L	390	425	A	A	U L 350	395	385	315	350	U L 350	A					
6							L	345	370	375	A	A	410	440	450	A	370	A 325	A					
7						L	A 325	A	380	360	U L 325	L	395	345	365	365	A	L	L					
8						A 285	A 335	375	H 385	355	395	A 350	395	395	370	H 355	355	L	A					
9						L	335	370	390	A	R 330	380	375	365	380	370	L 340	L						
10						L	L 325	350	A	A	370	L 365	350	370	360	350	L 345	L	A					
11							A	A	A	A	A	A	A	A	A	A	L 365	L 345	A					
12							A		345	A	A	A 350	390	A	A	355	355	L	A					
13							L	U L 355	A 365	390	400	H 390	360	L 435	365	365	345	L 340	L					
14							315	A	A 360	A	A	A 345	365	395	A	A	A	A	A					
15								355	L 350	A	A	A	A	A	A	355	L 335	U L 345	L					
16							L	L	L 365	L 375	U L 355	A	A	350	H 360	340	A	U L 330						
17							L	365	400	350	365	370	A 365	A 335	A	355	L 345	L	A					
18							A	U L 360	L	A	400	375	A	A	H 365	345	L 350	A						
19								A	A	A	A	A	A	355	A	L	A 350	A	L					
20							L		375	375	U R 350	370	A 380	A	A	A	A	A	A					
21						L	L	A	A	A	A	A	A	A	A	A	A	A						
22									A	U L 345	365	A	400	400	A	A	A	A	A					
23							A	A	A	370	A	390	A	340	345	A	A	A						
24							U L 340	350	360	355	L	360	L 370	A	A	A	L	A						
25								L	L 370	L 365	400	L 385	350	365	365	L 345	L 350	L						
26							L	L	L	410	H 370	H 415	390	395	365	340	345	L	L					
27							L 320	U L 345	U L 365	L 345	395	350	350	365	355	350	L 350	L	L					
28							L	360	345	380	395	375	365	A 335	395	340	U L 345	L						
29							L	U L 365	L 380	L 370	380	360	380	365	365	370	U L 370	A						
30							L	A	360	380	410	350	390	380	355	L	L	L						
31							L	L	U L 370	380	L	375	385	385	L 360	A 350	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	9	15	23	21	19	21	23	24	21	20	20	9						
MED						A 285	L 335	360	370	375	380	370	380	375	365	352	L 350	L 345						
U Q							U L 350	365	380	380	400	388	395	395	380	362	355	U L 348						
L Q							322	350	360	355	U 365	355	365	360	360	345	L 345	335						

AUG. 1992 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 H'F2 (KM) 135°E MEAN TIME (G.M.T. + 9H)

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						L 350	300	280	285	325	345	340	340	275	365	350	355	310	270					
2							300	310	305	280	305	325	315	350	310	325	295	290	285					
3								290	290	295	340	355	350	310	325	320	335	275	260					
4							275	240	280	320	375	360	350	360	340	315	E A 345	300	260					
5							240	290	350	310	325	A 305	380	405	390	365	280	270	290					
6							330	375	405	610	A	A	755	560	700	A	430	350	A					
7						350	425	505	375	525	L 525	L 380	375	370	355	320	305	300	310					
8						430	340	280	360	G	450	380	Y 580	390	370	390	335	315	E A 340					
9						L 385	510	380	475	580	550	G	495	460	410	340	315	315						
10						L 350	350	300	320	310	320	360	385	350	330	340	310	270	A 280					
11							350	335	310	A 420	410	A	A	A 365	320	335	310	300	300					
12							305		285	A	360	335	360	325	A	330	305	310	270					
13							305	310	325	300	310	345	400	L 330	350	325	300	300	290					
14							475	E A 380	310	A	A	550	420	370	E A 385	380	A 360	A	A					
15								300	300	285	A	A 350	315	305	A 340	330	310	300	280					
16							L 300	275	270	280	360	360	345	330	320	330	300	305						
17							275	280	250	290	315	315	345	325	A 365	320	290	260	260					
18							A 280	280	260	A	310	350	325	E A 330	335	295	280	285						
19								A 250	A 260	A	A	A	A	340	A 340	335	295	265	245					
20							270		270	275	Y	310	330	320	320	285	A	345	A					
21						350	305	A	A	A	A 360	320	310	A 350	310	A	300	A 290						
22									E A 350	310	320	340	340	335	300	E A 300	A	A 280	A 265					
23							A	A	A	A 335	A	A 535	A	500	480	330	340	A 345						
24							315	380	290	360	L 360	305	275	325	270	295	285	E A 280						
25								240	275	295	280	300	330	310	295	310	280	275						
26							250	250	260	270	325	290	335	335	295	285	285	265	255					
27							310	265	260	310	290	300	300	290	305	300	310	270	245					
28							345	380	350	365	405	365	340	335	320	360	290	285						
29							270	265	255	265	290	335	315	305	310	290	260	270						
30							305	290	240	260	310	315	315	310	295	300	295	270						
31							275	255	275	255	280	340	315	300	320	280	A	280	A 260					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	25	26	29	26	25	28	28	31	30	29	28	30	18					
MED						350	305	288	288	310	325	340	340	335	325	325	301	288	269					
U Q						385	342	335	338	360	368	360	378	365	365	338	325	305	290					
L Q						350	275	265	265	280	310	315	315	310	310	300	290	270	260					

AUG. 1992 H'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 H'F (KM) 135°E MEAN TIME (G.M.T. + 9H)

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	265	250	265	310	310	270	240	230	H 210	200	190	H 190	H 180	210	220	205	235	235	250	250	260	320	A 330	270
2	280	E A 280	250	275	280	270	255	240	A 250	A	A	A	A	240	190	H 205	215	230	250	270	260	280	285	280
3	280	255	245	255	255	265	240	230	235	H 200	H 225	215	H 185	H 200	195	205	230	H 245	255	A 260	A 325	340	260	270
4	305	305	270	305	290	275	260	225	215	A	H 210	205	215	A 250	A 240	A	A	A 250	A	240	250	290	325	300
5	300	275	300	280	310	250	225	205	205	185	A	A	210	200	200	265	235	240	A	270	290	290	A	285
6	270	270	270	300	300	310	A 260	A 255	A 235	240	A	A	225	205	215	A	230	A	A	275	A	305	340	300
7	270	330	335	320	330	320	E A 290	A	A 240	220	A	240	200	E A 270	230	225	A	240	265	280	280	285	300	310
8	310	270	255	340	320	E A 320	E A 295	230	H 210	225	205	E A 290	220	210	230	H 210	235	A 240	A	A	260	A	A 360	315
9	290	305	260	290	295	A 330	255	H 220	230	A	A	235	230	230	220	215	230	A 245	A 275	280	270	320	A 360	320
10	300	280	290	270	285	290	265	A 240	A	A	210	200	220	210	220	245	A 260	A	A	A	A 260	335	305	280
11	300	290	A 295	265	280	A 280	A	A	A	A	A	A	A	A	A	A	230	A 265	A	A 260	300	A 310	280	E A 350
12	300	305	300	310	320	275	A	E A 270	A 250	A	A	A	A 235	A	A	240	230	235	A	270	260	E A 350	315	320
13	320	305	280	280	255	290	235	220	A	H 190	195	H 200	205	185	200	210	235	240	260	255	245	270	260	285
14	310	320	330	270	235	300	A 270	A	245	A	A	A	220	210	A	A	A	A	A	250	260	295	330	E A 375
15	E A 400	330	A 330	A 415	295	315	240	250	E A 275	A	A	A	A	A	A	240	E A 270	245	265	255	240	255	A 380	260
16	275	300	280	270	245	270	250	230	230	A 250	A 245	A	A	220	H 205	230	A	E A 280	270	A	A 270	A 290	270	250
17	290	275	255	275	265	270	A 255	230	220	220	205	195	A	A	A	230	210	245	A	A	250	E A 335	335	300
18	265	260	285	285	A 275	A 265	A	A 270	A 245	A	205	185	A	A	A 250	235	A 270	A	A	255	260	280	290	270
19	285	300	300	310	320	A 255	240	A	A	A	A	A	A	200	A	A	A	A	250	A	A 290	A	280	E A 330
20	A	285	335	310	275	255	235	230	210	A 225	E A 275	195	E A 245	A	A	A	A	A	A	A 245	265	355	330	295
21	310	270	250	310	355	330	A 265	A	A	A	A	A	A	A	A	A	A	A	270	265	265	A 280	300	A 335
22	A	A 335	A 295	305	275	E A 320	A 245	230	A	230	215	A	220	205	A	A	A	A	A	A	A	E A 390	A 350	310
23	A 350	380	310	270	E A 285	A 270	A	A	A	225	A	210	A	245	255	A	A	A	A	A 250	275	340	A 370	280
24	A 290	320	315	290	325	A 305	245	225	240	220	H 200	205	E A 260	A	A	A	A 260	A	A 255	A 270	A 245	A	A	E A 335
25	315	330	315	270	270	A 280	230	A	240	210	195	225	A 240	250	240	240	245	230	265	240	220	260	255	275
26	290	280	265	240	235	280	240	220	210	205	H 185	H 180	200	190	200	H 195	225	A 250	255	220	220	E A 345	325	300
27	330	275	260	240	305	275	250	245	235	A 250	H 180	220	230	220	245	230	225	E A 260	250	220	255	340	270	310
28	360	A 320	310	280	A 330	E A 400	A 260	220	215	200	190	200	230	A	210	225	225	240	A 275	250	300	A	A 285	A 350
29	240	230	240	265	280	290	245	230	240	205	200	185	220	220	205	230	250	A	A	260	260	280	A 300	270
30	260	A 265	275	A 295	310	310	250	A	A 245	220	205	220	210	210	A 245	230	A	225	A 260	265	230	260	285	270
31	325	285	255	265	270	300	240	A 240	215	220	210	200	210	200	220	A	A	A	A	A 255	E A 255	240	275	A 355
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	31	31	31	31	27	23	24	20	19	20	22	22	21	20	20	19	16	25	29	27	29	31
MED	295	285	280	280	285	278	248	230	234	220	205	201	219	210	220	230	231	240	260	255	260	290	300	292
U Q	312	320	310	310	310	310	A 260	A 240	A 242	225	210	220	A 230	230	240	238	A 248	A 250	268	270	272	340	A 332	A 320
L Q	278	270	260	270	270	270	240	225	215	202	195	195	210	200	202	210	228	235	252	250	250	280	280	275

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 H'E (KM) 135°E MEAN TIME (G.M.T. + 9H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A 110	A	A	110	110	110	A	A	A	120	115	115	115	A					
2						A 120	A 120	A 125	110	110	A	A	A	A	A	A 125	120	A 115	A 120					
3						A 110	A 130	B	110	A	A 125	A 120	A 130	110	110		120	115	125					
4						B 110	A	110	A 120	A 120	110	A 125	A 120	110	110		110	110	A					
5						B 120	115	115	A	110	110	A 120	A 120	A 120	A 125		110	110	125					
6						A	A 110		A 125	A 110		A	A	A	A 130	A	110	110	B 120					
7					B 140	125	110	110	110	110	115	120	110	115	115	115	115	A	A					
8					E B 150	115	110	110	110	110	110	110	110	110	110	115	110	110	A					
9						A 135	A 110	110	110	110	A	A	A	A 130	A 125	A	A 120	A	A					
10						A 120	110	110	110	110	110	110	110	110	A	A 125	110	110	A					
11						A 130	120	120	120	120	B 130	115	A	115	110	A	A	120	A					
12						A 120	115	110	110	110	110	A 120	115	110	110	110	110	115	125					
13					125	120	A	A 120	110	110	110	A 120	A 115	A 120	110	115	110	115	A					
14						A 120	110	A 120	E A 135	E A 130	110	115	115	A	A 130	110	110	A						
15					130	A	110	110	110	110	110	120	115	110	115	115	A	A 130	125					
16						A 120	110	115	110	110	110	110	110	110	110	110	E A 135	A 140	A					
17						A 120	110	110	110	A	115	110	110	110	110	115	120	A						
18						A 120	A 130	110	110	A	A	A	A	A	A	A	110	115	A					
19						A 120	110	110	110	110	A	A	A 110	110	110	110	110	110	A					
20						B 125	110		A	A	A	110	A	A	A	A	A	A	A					
21						A 120	115	115	110	115		A	A 115	115	115	115	115	115	B					
22						A	B 125	115	110	110	A	120	A	A	115	110	110	110	A					
23						A 120		A	A	A	A	A	A	A 130	115	110	110	110	A					
24						B	A	A	A	A	115	115	115	115	110	115	115	120	A					
25						B	A	A	A	A	A	A	A	A 120	A	A	E A 135	A	A					
26						B 120		A	A	115	A	115	115	115	115	110	115	120	A					
27						B	A	A 120	A	A	A	A	A 120	115	A 120	120	110	A	A					
28						B 120	110	110		A	A	A	120	A	A 125	A 130	115	110	B					
29						B 135	115	115	115		A	A	120	A 130	115	115	A 130	A	A					
30						B	A	A	110	115		A	A 110	A 120	115	115	115	A	A					
31						B 125	115	A 120	115	A 120	A 120		120	110	A	110	110	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						4	23	24	23	24	17	18	19	24	24	25	28	23	6					
MED						132	120	110	110	110	110	115	115	115	115	115	111	115	125					
U Q						145	125	A 115	115	115	A 118	A 120	A 120	A 120	A 118	A 118	115	120	125					
L Q						128	120	110	110	110	110	110	110	110	110	110	110	110	120					

AUG. 1992 H'E (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 H'ES (KM) 135°E MEAN TIME (G.M.T. + 9H)

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	110	100	110	105	110	115	115	110	105	E G 180	115	115	110	115	G	125	115	125	115	120	110	110	115	110
2	110	110	105	100	105	140	140	105	115	110	110	110	110	110	105	110	120	150	130	100	105	110	110	105
3	105	B	B	B	B	120	155	140	150	E G 160	125	125	125	160	G	G	G	E G 155	120	115	115	120	110	100
4	100	100	100	100	105	135	120	175	125	125	135	145	130	135	130	120	115	115	115	110	110	120	100	100
5	100	105	B	125	B	B	G	120	115	110	110	110	110	110	110	105	135	120	115	120	B	110	110	110
6	110	100	110	105	105	125	115	110	110	150	105	125	105	120	130	110	130	120	115	160	115	110	105	110
7	B	120	105	135	B	150	130	115	125	125	120	120	120	115	120	130	120	120	120	150	110	120	115	125
8	110	110	105	125	140	130	135	120	135	140	E G 180	145	155	140	150	135	120	120	110	110	105	100	100	105
9	110	105	105	B	110	110	110	115	110	110	105	120	105	E G 170	110	105	105	110	110	110	120	110	110	110
10	110	120	B	B	135	130	130	115	110	115	120	110	110	110	170	130	120	115	110	110	110	110	115	B
11	B	120	105	120	B	125	125	120	120	115	115	125	110	105	105	110	110	125	115	125	105	110	110	105
12	105	100	95	95	105	100	120	110	115	115	110	110	120	115	110	110	130	125	120	115	110	120	115	110
13	110	100	105	100	105	G	G	140	115	E G 200	125	120	125	110	G	G	120	G	115	115	110	110	125	110
14	105	105	105	105	130	135	125	115	130	115	110	115	120	130	130	130	125	120	120	110	110	130	115	110
15	110	105	120	105	105	G	130	120	110	110	110	110	115	115	115	115	110	145	125	120	115	120	110	110
16	110	115	95	110	B	135	130	125	120	115	115	110	115	125	G	115	130	125	120	110	110	110	110	105
17	110	105	120	115	B	135	125	120	120	120	115	G	110	110	110	120	G	130	115	110	115	115	115	110
18	110	B	110	110	110	115	115	145	120	110	110	110	100	100	105	140	125	120	110	135	120	115	105	110
19	115	105	110	110	105	105	130	120	115	115	110	105	105	110	110	115	120	115	120	110	110	110	110	110
20	110	110	105	100	105	B	135	120	115	110	110	110	105	110	105	105	100	100	100	95	95	125	115	100
21	100	100	100	110	110	110	125	120	115	115	115	110	110	115	110	110	120	115	110	105	105	120	115	110
22	110	110	110	110	135	135	120	115	110	110	125	110	115	145	135	125	110	110	110	110	110	110	105	105
23	100	125	115	110	115	110	120	110	105	120	105	110	100	105	135	120	120	115	110	110	110	140	115	110
24	105	105	105	130	110	110	110	110	110	110	G	G	140	125	120	120	125	115	115	115	110	110	110	110
25	110	105	105	105	110	110	105	105	105	105	105	100	100	170	175	100	135	130	120	100	100	100	110	105
26	105	110	110	110	110	B	G	120	115	G	120	G	G	G	G	G	G	120	120	115	115	115	115	B
27	B	B	110	110	B	120	130	120	110	105	110	170	160	150	130	125	120	110	110	110	110	110	110	110
28	110	110	120	B	120	120	115	115	115	115	115	115	G	105	110	110	150	120	115	120	110	110	110	110
29	110	B	105	100	105	120	130	120	120	115	115	120	G	120	G	120	125	115	110	130	110	110	110	110
30	110	105	105	105	105	110	125	115	115	120	115	180	170	105	120	120	115	120	115	110	110	105	110	105
31	105	110	105	110	100	100	120	120	120	G	125	120	120	120	120	125	115	110	110	105	105	110	105	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	27	24	26	28	31	31	29	30	28	28	30	25	28	28	30	31	31	30	31	31	29
MED	110	105	105	110	110	120	125	120	115	115	115	115	112	115	120	120	120	120	115	110	110	110	110	110
U Q	110	110	110	110	112	135	130	120	120	122	120	122	122	130	130	125	125	125	120	120	110	120	115	110
L Q	105	105	105	105	105	110	118	115	110	110	110	110	108	110	110	110	115	115	110	110	110	110	110	105

IONOSPHERIC DATA STATION KOKUBUNJI

AUG. 1992 TYPES OF ES 135°E MEAN TIME (G.M.T. + 9H)

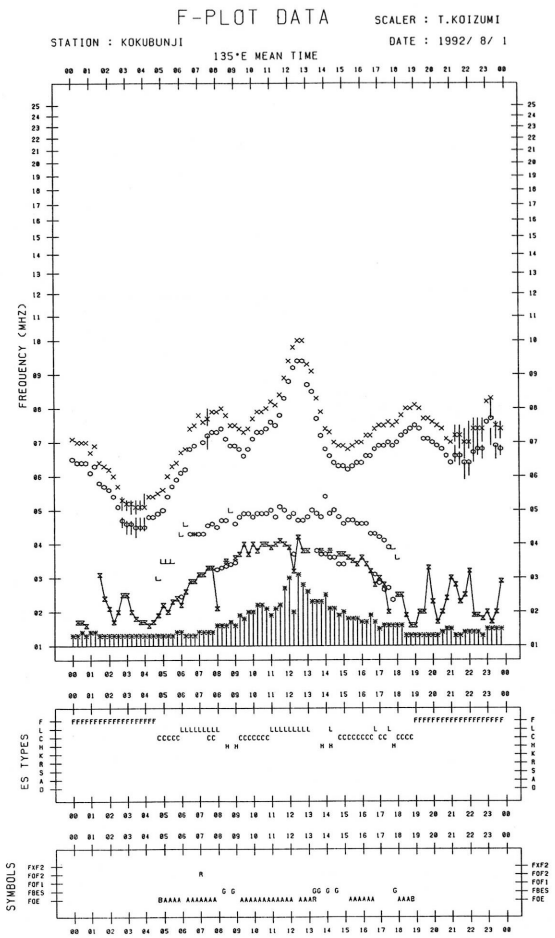
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHZ TO 25.0MHZ IN 24.0SEC IN MANUAL SCALING

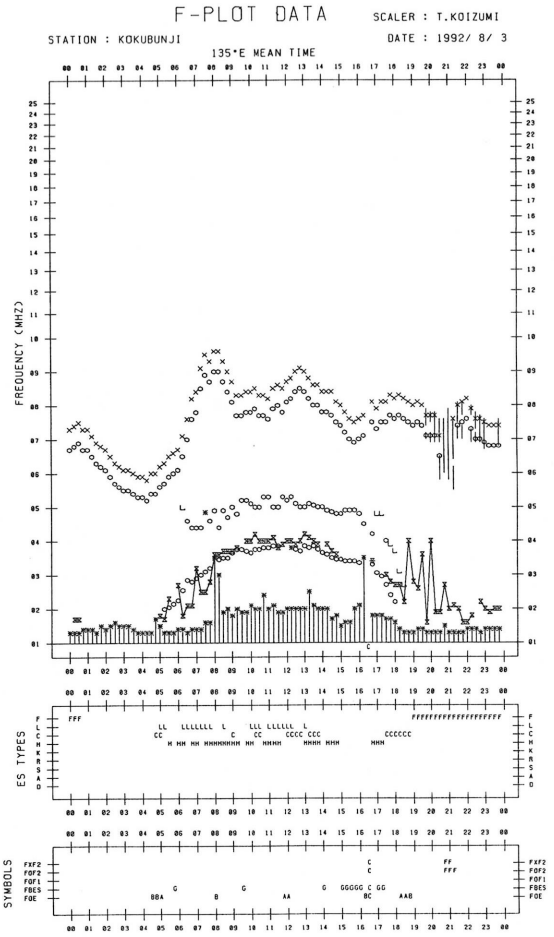
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 2	F 2	FF 42	F 5	F 4	C 3	L 2	L 2	L 1	H 1	C 1	L 1	L 1	L 1		C 1	C 2	C 1	C 2	F 1	F 3	F 3	F 5	F 3
2	F 3	F 4	F 2	F 2	F 2	H 1	HL 12	LCL 11	C 2	C 2	C 3	L 2	L 2	LH 21	L 2	L 1	CL 12	HL 12	HL 12	F 2	F 1	F 1	F 1	F 2
3	F 1					LC 11	H 1	HL 12	H 1	HC 11	HL 11	HL 11	CL 11	HL 11				H 1	C 2	F 4	F 5	F 6	F 2	F 3
4	F 4	F 2	F 2	F 2	F 1	L 1	L 2	H 1	H 1	HL 21	HL 11	H 1	HL 21	HL 21	H 2	C 2	C 3	C 3	C 3	F 4	F 2	FF 12	F 3	F 2
5	F 1	F 1		F 1				C 1	C 2	L 2	C 2	L 3	L 1	L 1	L 1	LH 21	H 2	C 2	C 4	F 1		F 2	F 3	F 3
6	F 2	F 2	F 2	F 2	F 2	CL 22	C 2	C 4	C 2	HL 11	C 2	HL 12	L 2	CL 12	HL 11	C 2	H 2	C 3	C 3	FF 22	FF 42	F 3	F 3	F 2
7		FF 12	F 3	FF 21	K 1	H 1	C 2	C 3	C 3	C 2	C 2	C 2	C 1	C 2	C 1	H 1	C 2	CH 11	C 3	FF 12	F 2	F 2	F 2	FF 22
8	F 2	F 2	F 4	F 2	F 2	C 2	H 2	C 1	H 2	H 2	HL 11	H 1	H 1	HL 11	H 1	H 1	C 2	C 3	C 4	F 4	F 4	F 3	F 3	F 2
9	FF 23	F 1	F 1		F 2	L 4	L 2	C 3	C 2	L 2	L 2	CL 22	L 2	HL 11	L 1	L 2	L 2	L 2	L 3	F 4	F 2	F 4	F 4	F 3
10	F 2	F 1			F 1	C 2	C 2	C 2	C 3	C 2	C 1	C 1	L 1	C 1	HL 11	HL 21	CL 32	C 4	C 3	C 7	F 5	F 3	F 2	
11		F 1	F 3	FF 22		CL 31	C 2	C 3	C 2	C 2	C 3	CC 12	C 3	C 3	C 2	L 2	C 3	C 2	C 3	FF 24	F 5	F 4	F 4	F 4
12	F 5	F 3	F 5	F 2	F 2	LC 11	C 4	C 3	C 2	C 3	C 2	LC 12	C 2	C 2	C 3	C 2	H 2	C 2	C 3	F 4	FF 32	FFF 23	F 3	F 2
13	FF 22	F 2	F 3	F 4	F 3			HL 12	CL 32	H 1	C 1	CL 21	HL 11	L 1			C 1		C 3	F 2	F 2	F 3	FF 13	F 2
14	F 4	F 3	F 2	F 3	FF 12	C 1	C 2	C 5	HC 11	CL 31	CL 21	C 2	C 1	C 1	HC 22	HL 31	C 4	C 4	C 5	FF 41	F 4	FF 12	FF 23	F 4
15	F 4	F 3	FF 13	F 4	F 3		C 2	C 3	C 3	C 3	C 2	C 2	C 3	C 2	C 3	C 2	C 3	HL 12	C 2	F 1	F 1	FF 22	F 3	F 1
16	FF 22	FF 23	F 2	F 1		C 2	C 2	C 2	C 2	C 2	C 2	C 3	C 2	C 1		C 2	HL 32	CL 33	CL 44	FF 34	FF 43	FF 33	F 2	F 1
17	F 2	F 2	F 1	F 2		C 1	C 2	C 2	C 2	C 1	C 1		C 2	C 2	C 2	C 1		C 1	C 3	FF 42	F 4	F 3	F 4	F 4
18	F 4		F 4	F 3	F 5	L 2	C 4	HC 22	C 2	C 3	L 2	L 2	L 2	L 2	L 3	HL 12	C 3	C 4	C 4	FF 14	F 2	F 2	F 2	F 2
19	FF 11	F 1	F 1	F 1	F 3	L 3	C 2	C 5	C 3	C 3	C 2	C 3	L 2	C 1	C 2	C 3	C 2	C 5	CL 11	FF 52	F 4	F 5	F 4	F 6
20	F 4	FF 22	F 6	F 5	F 4		C 1	C 2	C 2	L 3	L 2	L 1	L 2	L 2	L 2	L 3	L 4	L 4	L 4	L 5	F 2	FF 12	FF 13	F 2
21	F 3	F 2	F 2	F 2	F 3	L 2	C 2	C 4	C 3	C 3	C 2	CL 21	C 2	C 2	C 2	C 2	C 3	C 5	C 3	F 3	F 4	FF 34	F 2	F 3
22	F 6	F 4	F 5	F 6	F 2	HC 15	C 3	C 4	C 3	C 2	CL 11	L 2	L 1	HL 11	H 2	C 3	C 4	C 4	C 4	F 6	F 7	F 5	F 4	F 4
23	F 5	FF 23	FF 23	FF 22	F 4	C 3	C 3	C 3	C 3	CL 12	L 3	L 1	L 2	L 1	H 1	C 3	C 3	C 4	C 4	F 6	F 3	FF 21	F 4	F 2
24	F 4	F 2	F 3	FF 22	F 3	L 4	L 2	L 3	L 2	L 2			H 2	H 2	C 2	C 2	C 2	C 4	C 5	F 7	FF 52	FF 42	FF 52	F 4
25	F 5	F 4	F 4	F 5	F 4	L 5	L 4	L 4	L 3	L 2	L 2	L 2	L 2	HL 11	HL 12	L 2	HL 13	HL 13	CL 32	F 3	F 3	F 1	F 1	F 2
26	F 2	F 2	F 2	F 1	F 2			L 2	L 1		L 1							C 3	C 2	FF 22	F 2	FF 42	F 3	
27			F 2	F 1		C 2	CL 22	CL 22	L 2	L 3	L 1	HL 11	HL 11	H 1	HC 11	HL 21	C 2	C 4	C 2	F 1	F 3	F 3	F 4	F 3
28	F 4	F 2	F 1		F 6	C 4	C 3	C 2	C 2	C 1	C 1	L 1		L 2	L 1	L 2	H 1	C 1	C 2	F 1	F 3	F 5	F 3	F 5
29	F 1		F 2	F 2	F 2	C 1	C 2	C 2	C 2	LC 11	L 1	L 1		L 1		C 1	CL 22	C 4	C 4	FF 24	F 2	F 2	F 5	F 5
30	F 4	F 4	F 3	F 4	F 2	L 2	L 2	CL 33	C 2	C 2	C 1	HL 11	HL 11	L 1	CL 21	CL 11	C 3	C 2	C 3	F 5	F 4	F 3	F 4	F 3
31	F 3	F 2	F 2	F 1	F 2	L 1	C 1	C 3	CL 11		CL 11	CL 11	CL 21	C 2	C 1	H 2	C 4	C 4	C 5	F 5	F 4	F 4	F 3	F 5
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

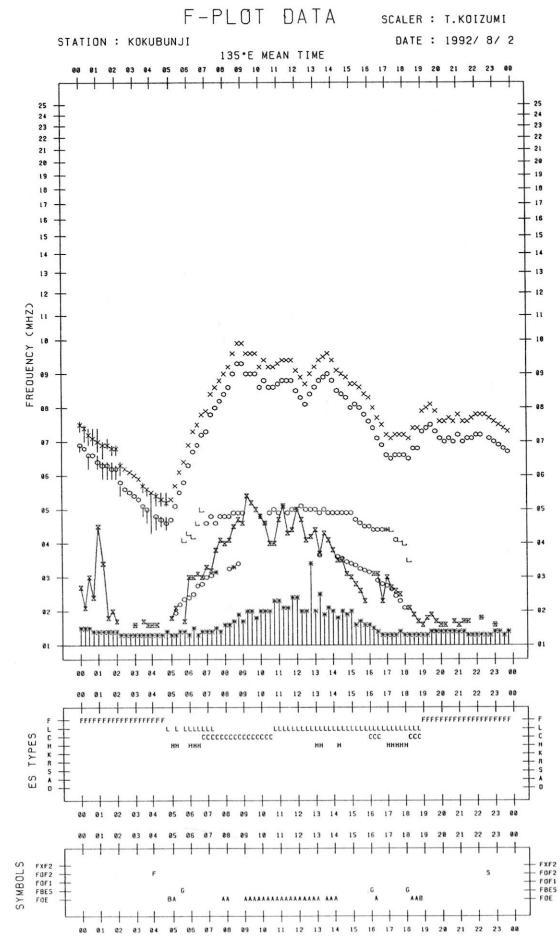
AUG. 1992 TYPES OF ES COMMUNICATIONS RESEARCH LABORATORY, JAPAN

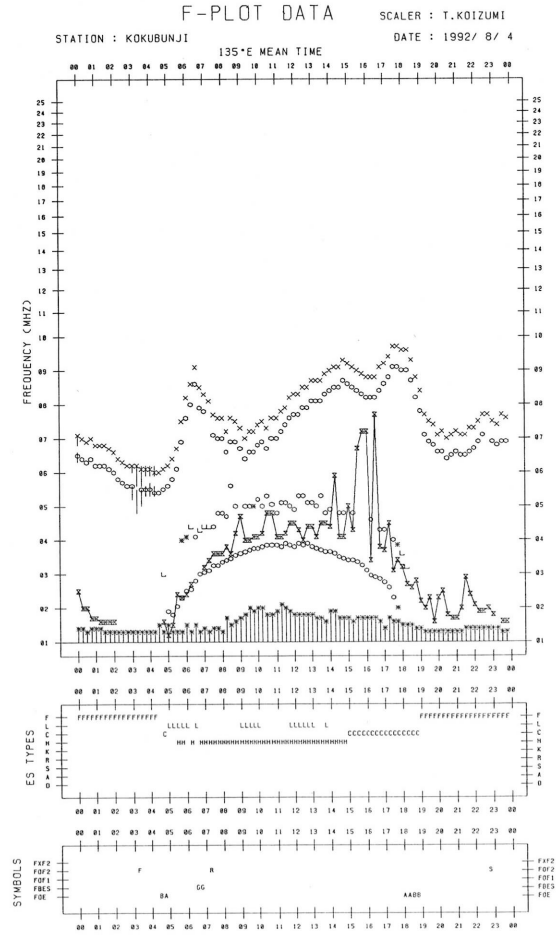
f-PLOTS OF IONOSPHERIC DATA

KEY OF F-PLOT	
I	SPREAD
○	FOF2, FOF1, FOE
×	FXF2
✳	DOUBTFUL FOF2, FOF1, FOE
⧖	FBES
⌊	ESTIMATED FOF1
↑, Y	FMIN
∧	GREATER THAN
∨	LESS THAN


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 1
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 3
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 2
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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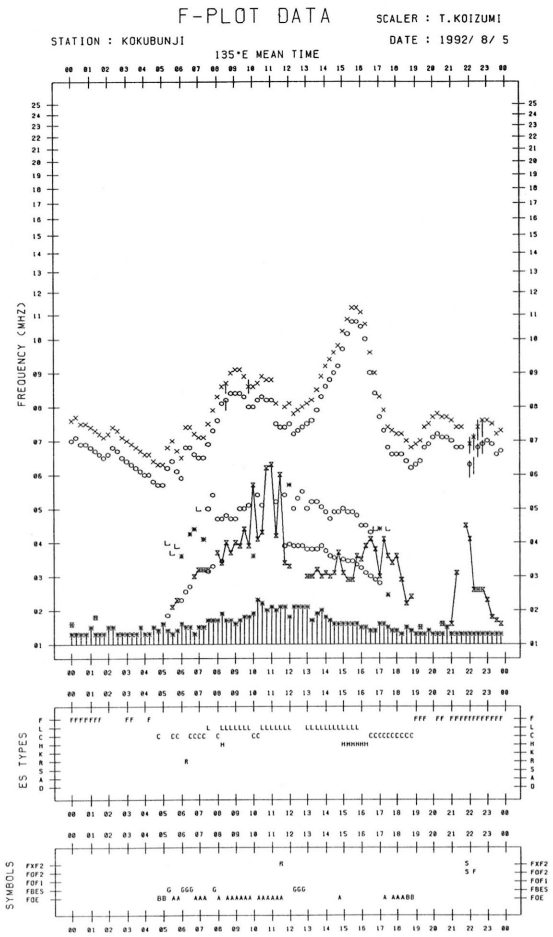
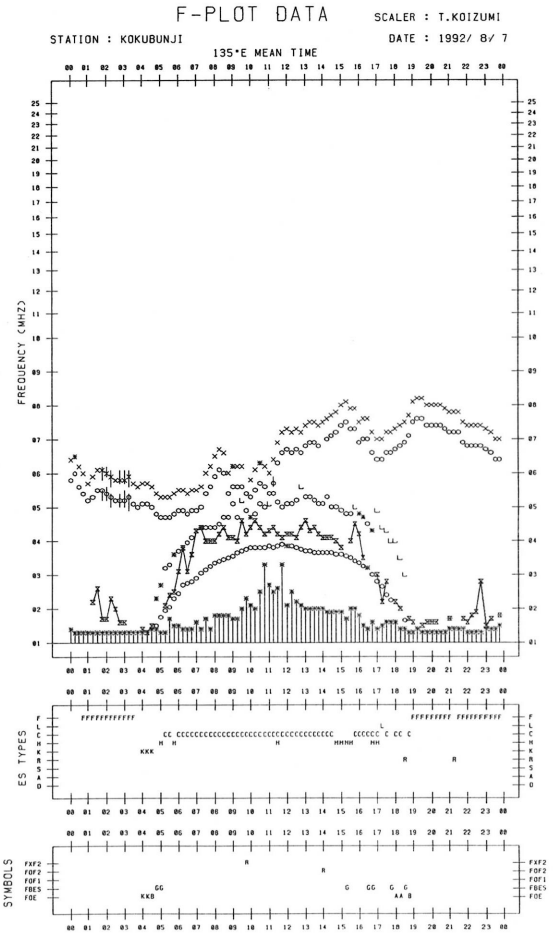
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 4
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 5
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 7
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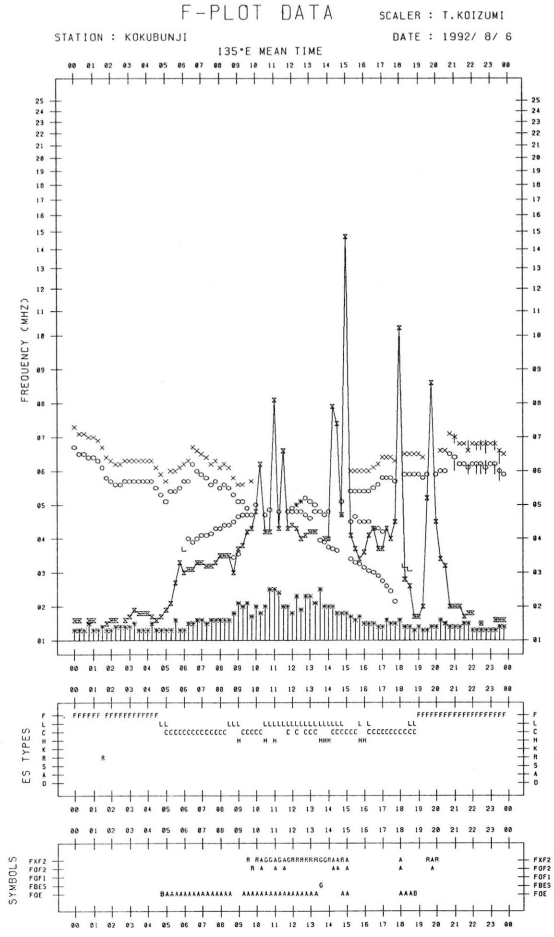
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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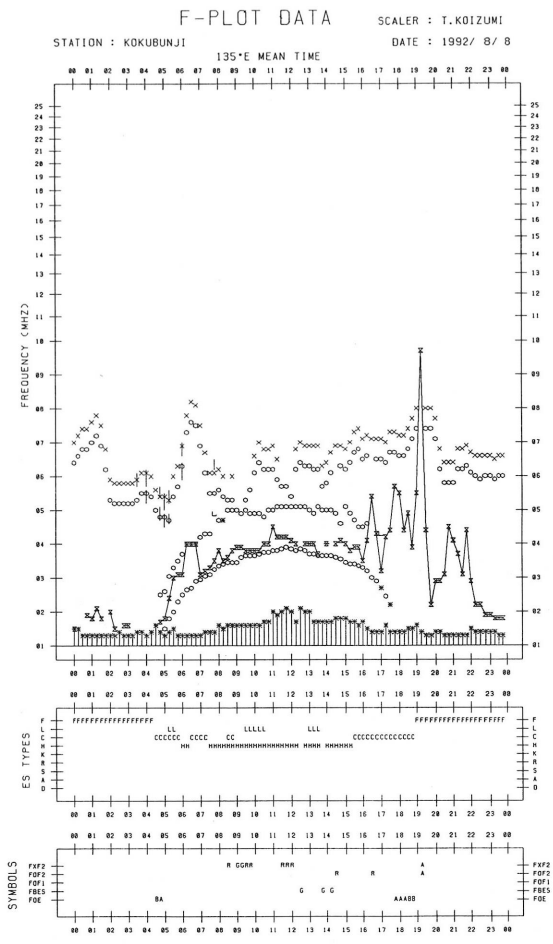
STATION : KOKUBUNJI
DATE : 1992/ 8/ 6
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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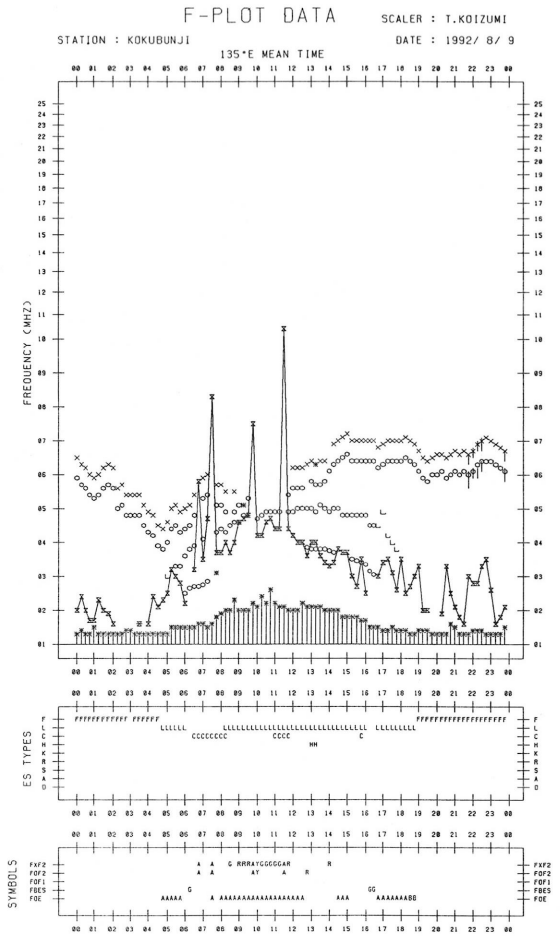
STATION : KOKUBUNJI
DATE : 1992/ 8/ 8
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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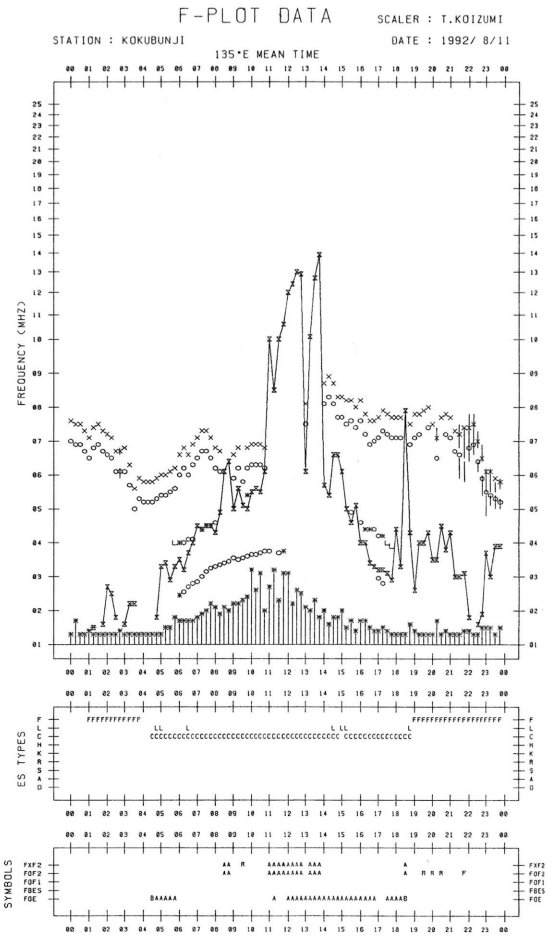
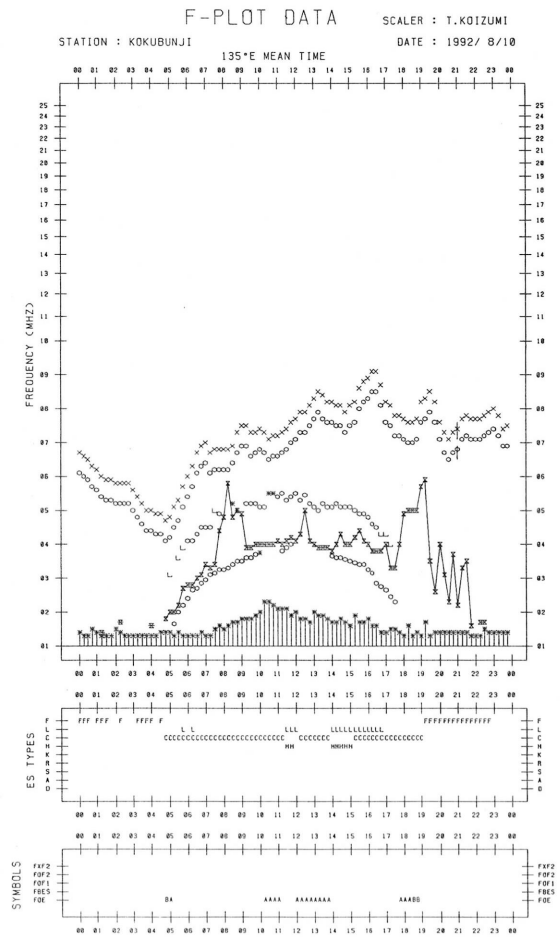
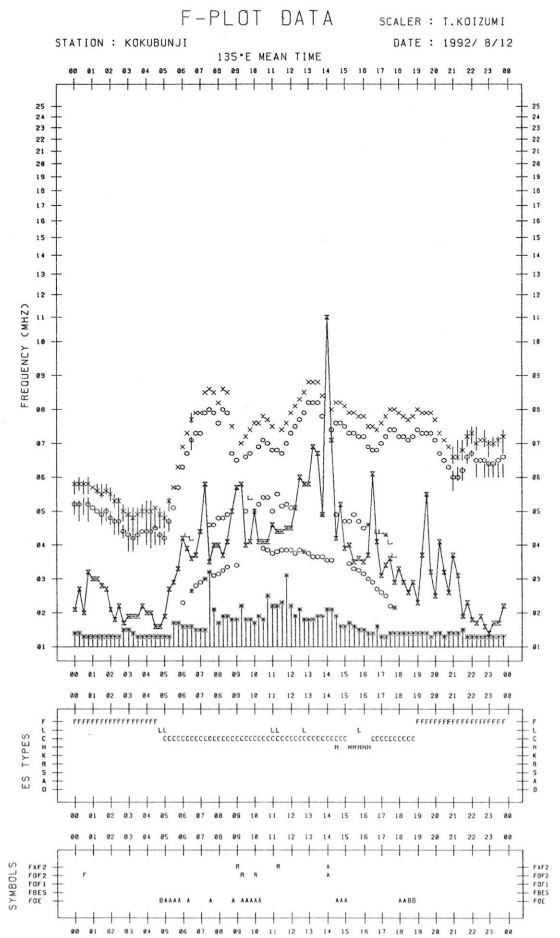
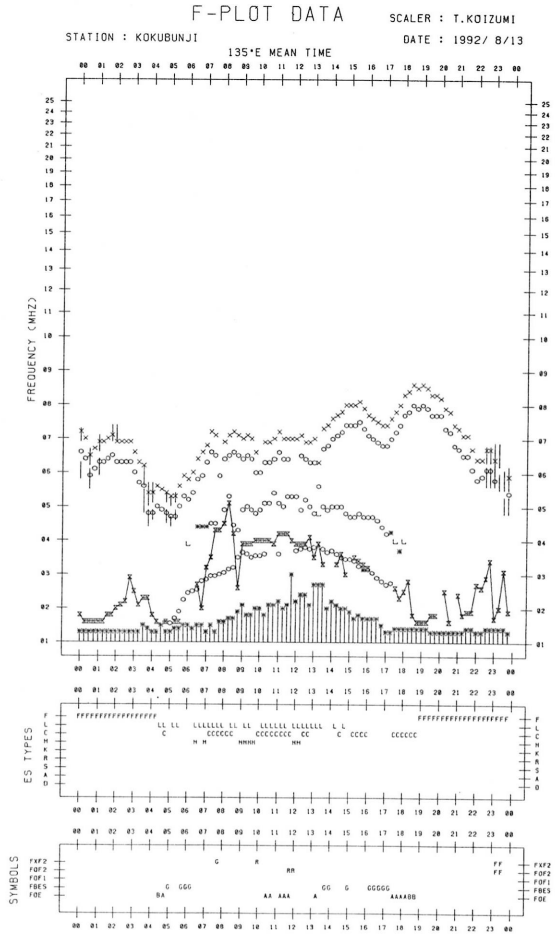
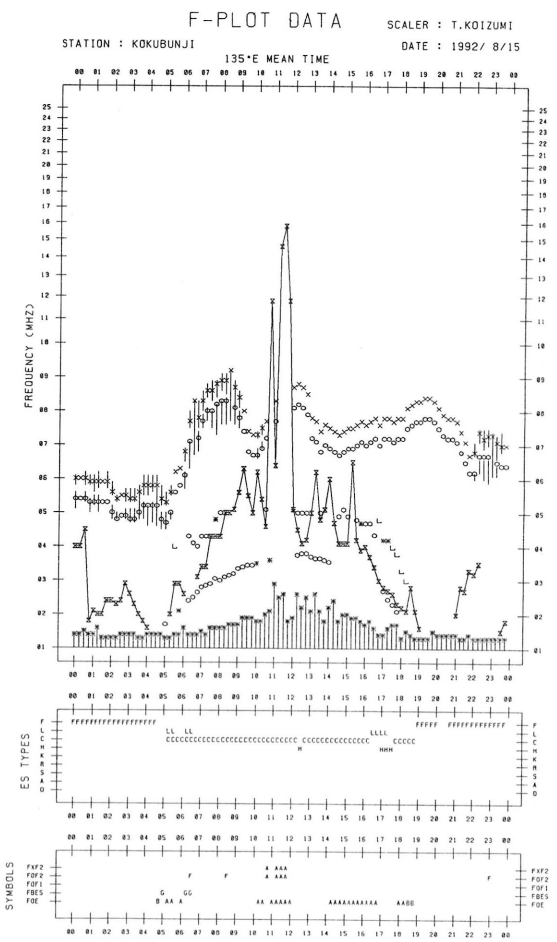
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/ 9
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

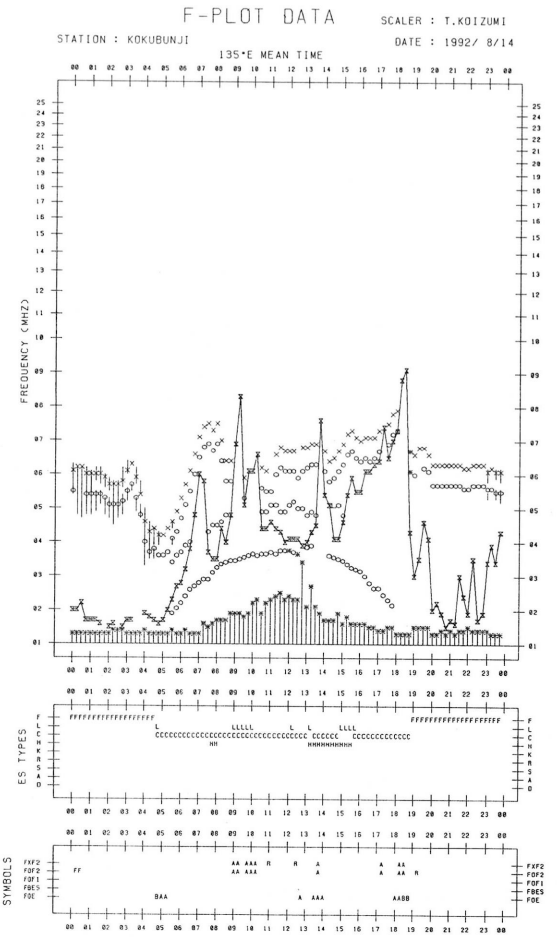

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/11
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

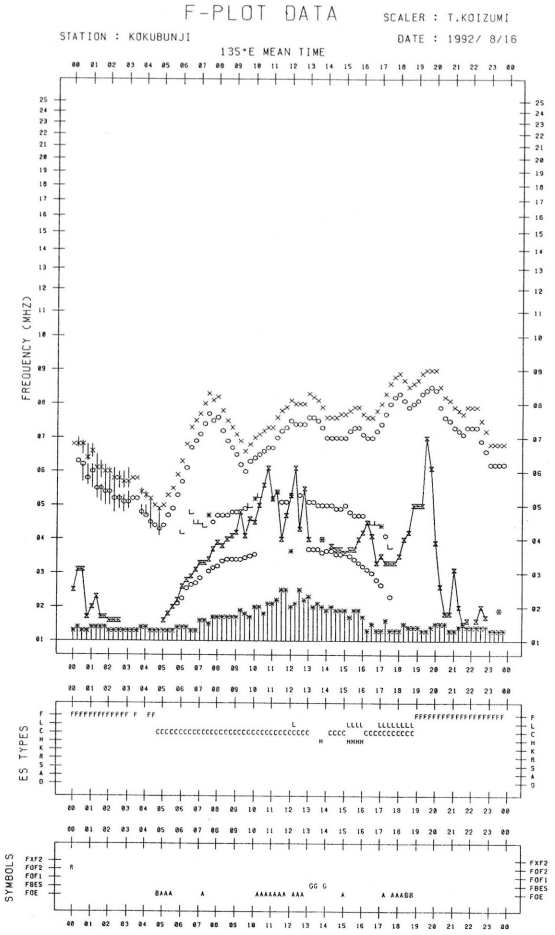

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/10
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

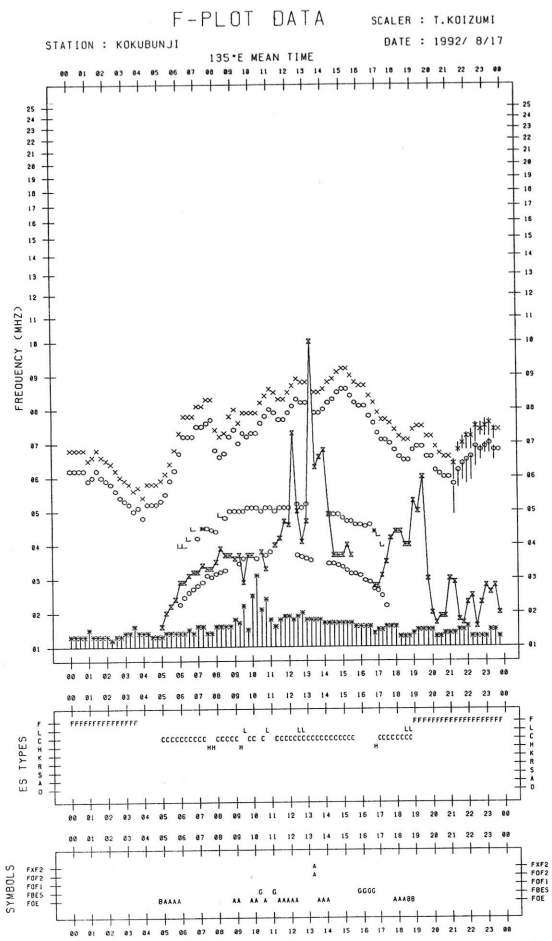

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/12
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

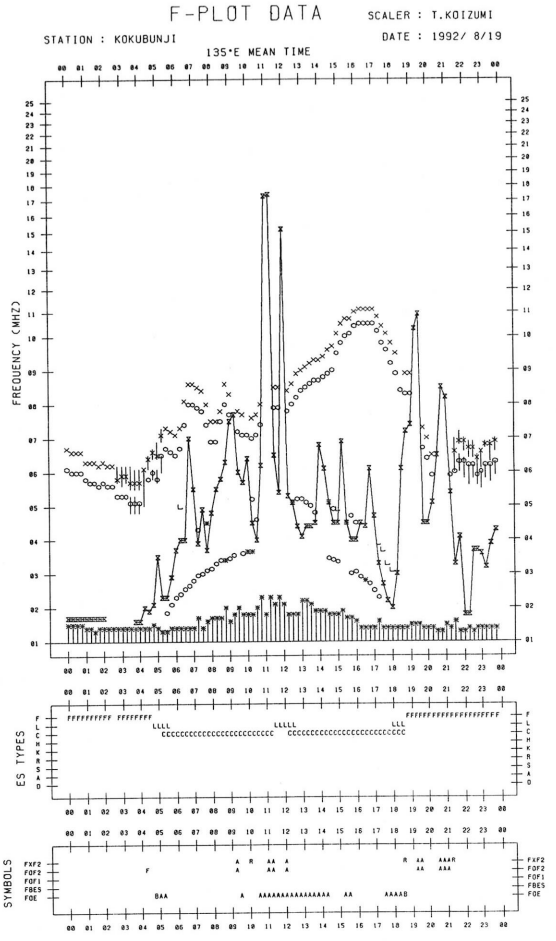

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/13
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

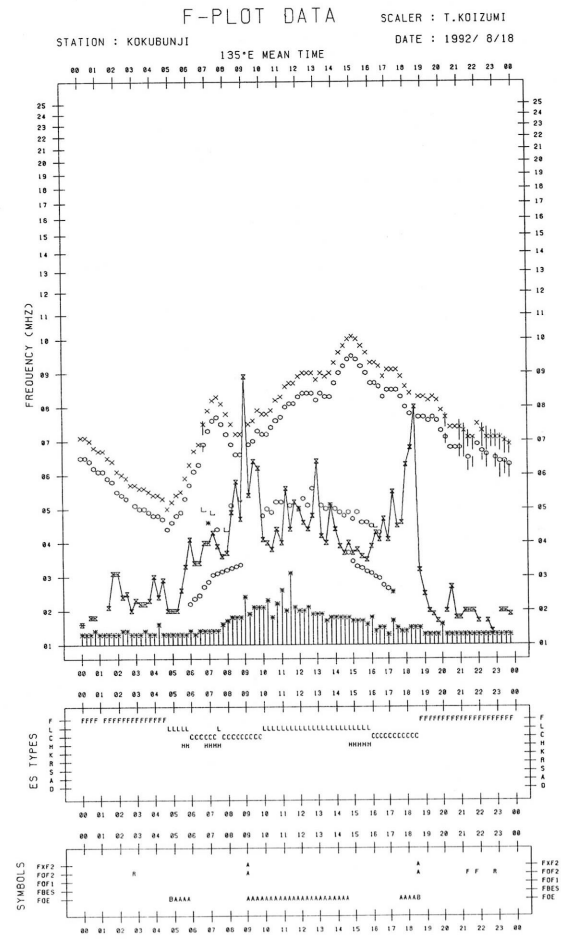

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/15
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

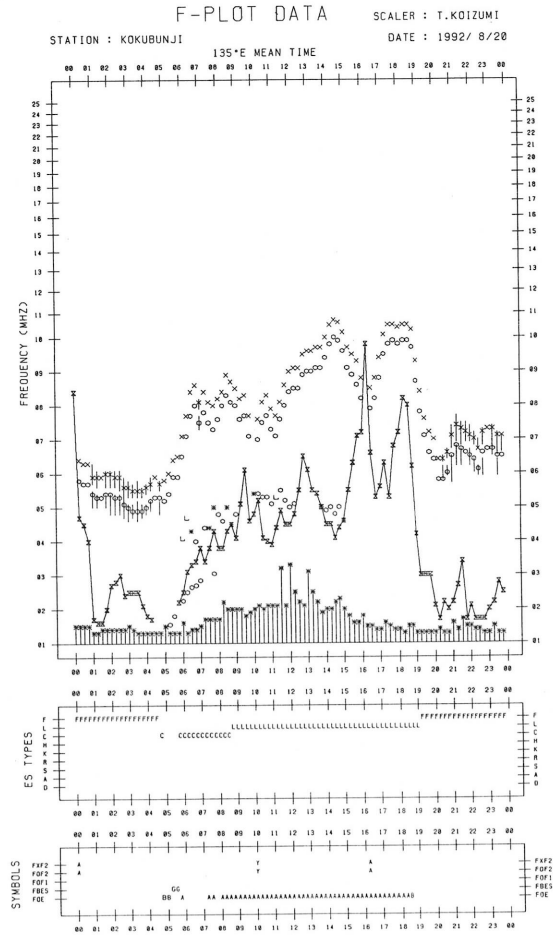

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/14
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

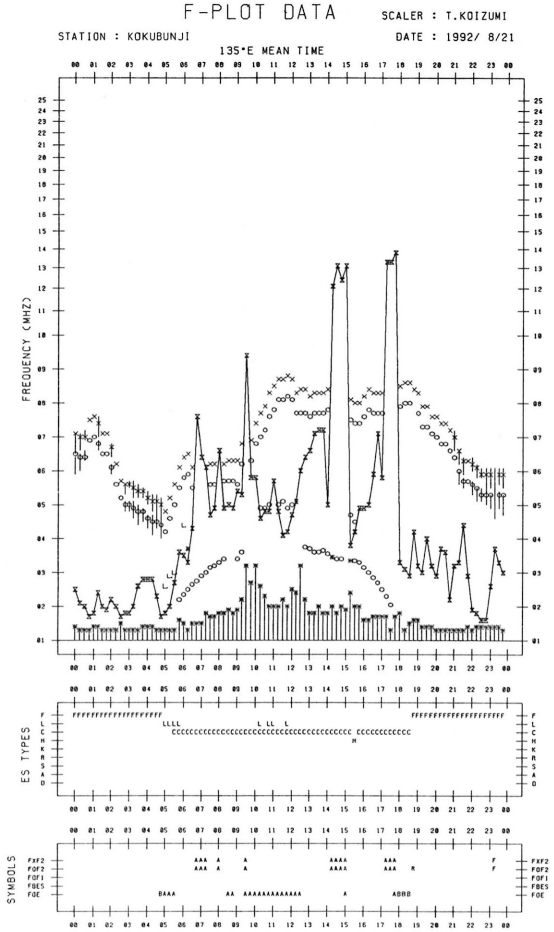

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/16
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

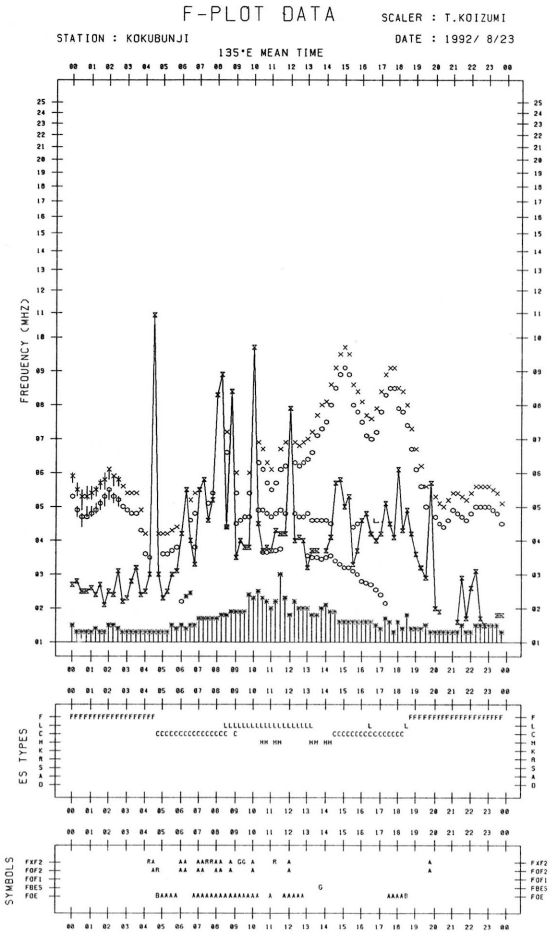

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/17
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

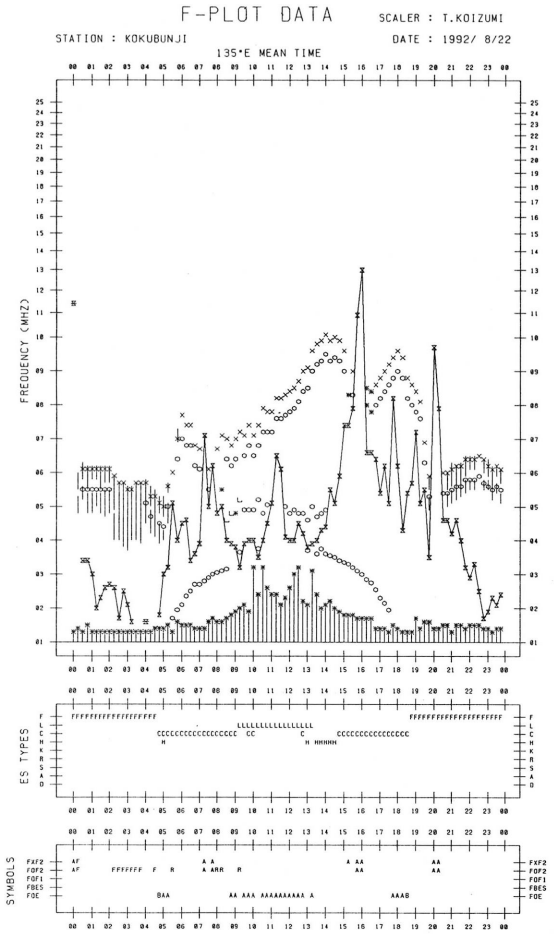

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/19
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

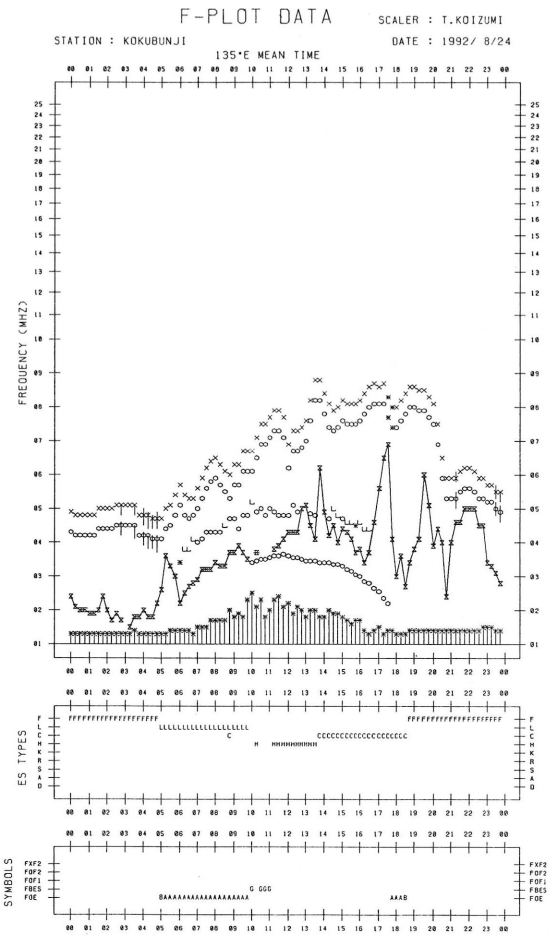

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/18
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

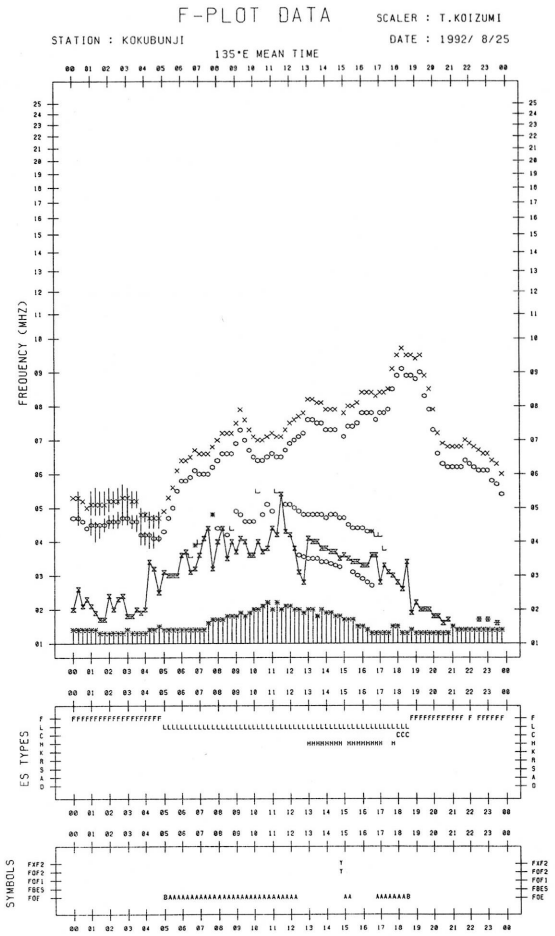

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/20
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

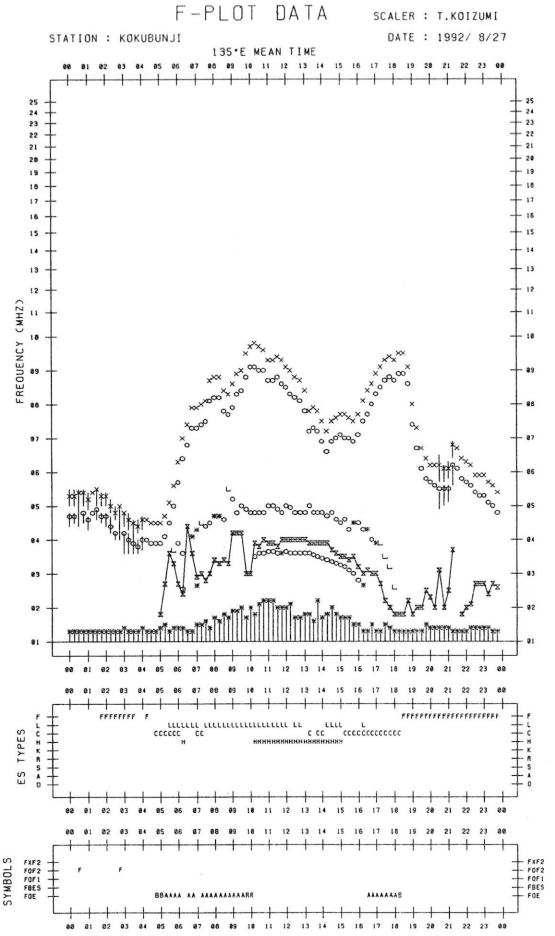

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/21
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

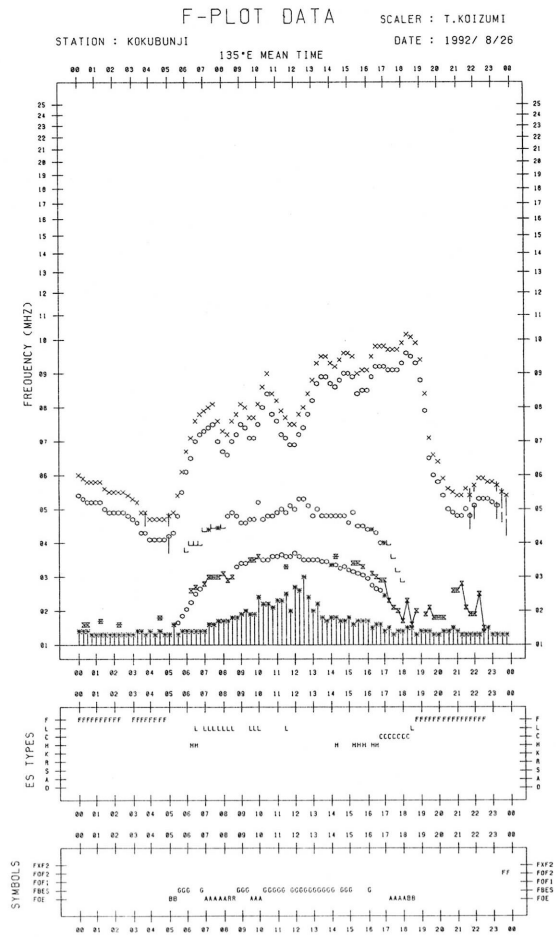

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/23
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/22
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/24
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/25
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FQF2
FQF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/27
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FQF2
FQF1
FBES
FOE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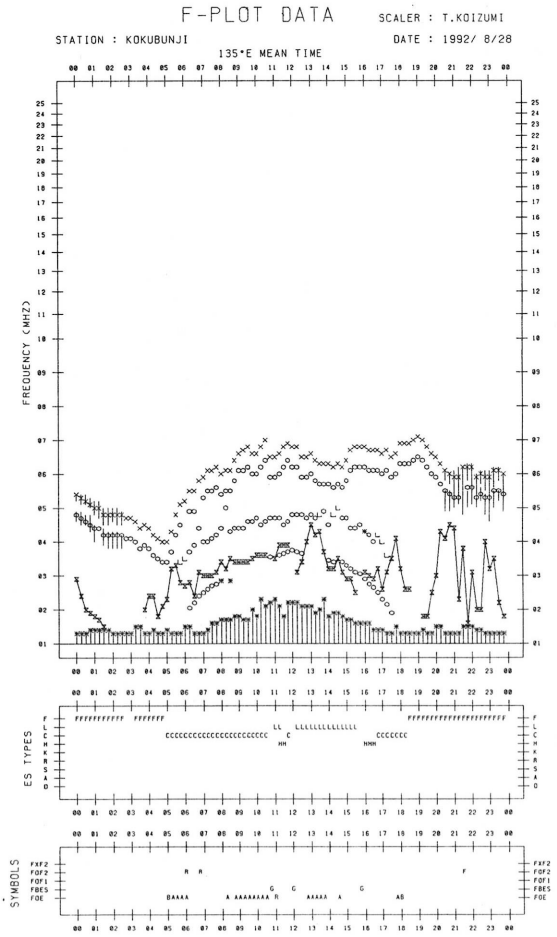
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/26
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FQF2
FQF1
FBES
FOE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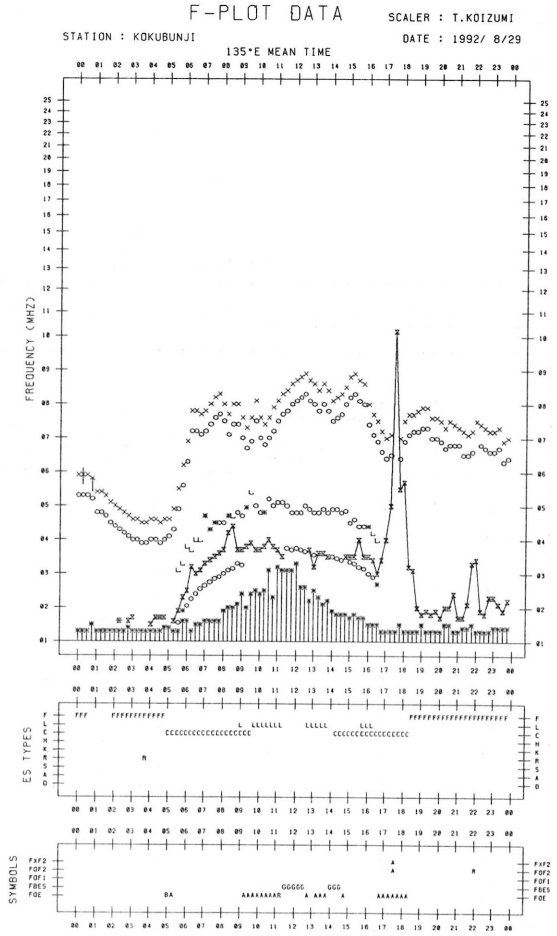
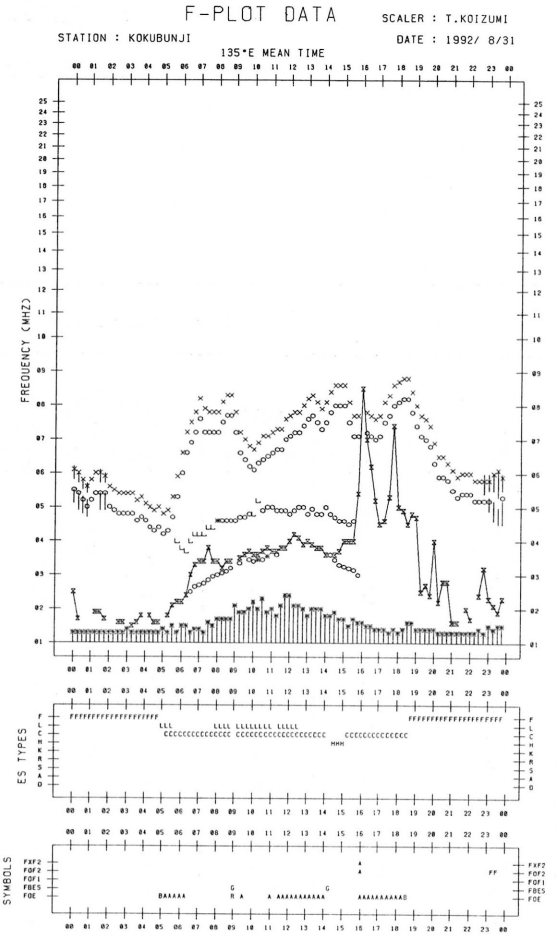
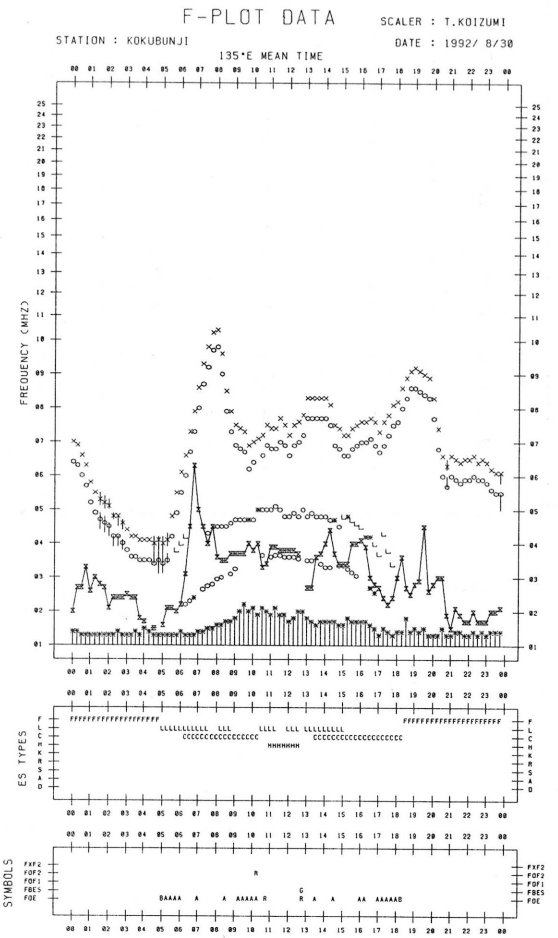
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/28
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FQF2
FQF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/29
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/31
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 8/30
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

B. Solar Radio Emission

B1. Daily Data at Hiraiso

200 MHz

Hiraiso August 1992

Single-frequency total flux observations at 200 MHz

	Flux density: 10^{-22}Wm^{-2}Hz^{-1}					Variability: 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	8	8	8	11	8	0	0	0	0	0
2	*	*	*	7	*	*	*	*	0	*
3	*	B	B	B	B	*	1	1	1	1
4	B	B	B	B	B	1	2	1	1	1
5	B	B	B	8	B	1	1	1	0	1
6	8	7	10	B	8	0	0	0	1	0
7	B	B	B	10	B	1	1	1	0	1
8	8	*	*	B	10	0	*	*	1	0
9	*	*	*	9	*	*	*	*	0	*
10	9	8	*	B	8	0	0	*	1	0
11	B	B	B	12	B	1	1	1	0	1
12	10	9	*	13	10	0	0	*	0	0
13	11	10	*	9	11	0	0	*	0	0
14	9	9	*	10	9	0	0	*	0	0
15	8	8	*	B	9	0	0	*	1	0
16	B	7	*	9	B	1	0	*	0	1
17	10	9	*	B	9	0	0	*	2	0
18	B	B	B	B	B	1	1	1	1	1
19	B	B	B	B	B	2	2	1	1	2
20	B	B	B	B	B	1	3	3	2	2
21	B	B	B	B	B	2	1	1	1	2
22	B	B	B	-	B	1	2	1	-	1
23	-	-	-	-	-	-	-	-	-	-
24	7	6	*	*	7	0	0	*	*	0
25	10	10	*	*	10	0	0	*	*	0
26	*	*	*	*	*	*	*	*	*	*
27	*	*	*	8	*	*	*	*	0	*
28	*	*	*	8	*	*	*	*	0	*
29	*	*	*	*	*	*	*	*	*	*
30	*	*	*	*	*	*	*	*	*	*
31	*	*	*	8	*	*	*	*	0	*

Notes: No observations during the following periods.

22nd 2000 - 23rd 2355

No observations for 500 MHz due to equipment failure by lightning.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso

August 1992

Single-frequency observations

Normal observing period: 2000 - 0930 U.T. (sunrise to sunset)

AUG. 1992	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22}Wm^{-2}Hz^{-1}) PEAK	FLUX DENSITY (10^{-22}Wm^{-2}Hz^{-1}) MEAN	POLARIZATION REMARKS
1	200	46 C	0122.2	0123.0	2.3	310	70	O
	200	42 SER	0550.8	0552.0	2.0	210	90	WL
2	200	46 C	0351.1	0351.6	1.0	4300	1000	-
3	200	44 NS	0400E	0625	330D	80	20	ML
	200	46 C	0422.0	0423.2	2.7	6500	500	WL
	100	46 C	0422.3	0423.2	2.0	600	200	WL
	200	44 NS	2000E	0407	780D	100	20	ML
4	200	44 NS	2000E	0133	780D	50	15	ML
	200	42 SER	2120.6	2121.4	6.0	2300	-	WL
5	200	46 C	2350.6	2352.9	2.7	700	150	WL
	100	46 C	2351.0	2352.0	2.3	700	200	ML
6	200	46 C	0148.6	0148.8	1.6	105	50	SL
	200	44 NS	2000E	0233	780D	60	15	ML
8	200	44 NS	2000E	2232	780D	40	15	ML
	200	8 S	2008.8	2009.0	0.7	1200	-	O
	100	8 S	2009.1	2009.2	0.7	900	-	WL
10	200	44 NS	2000E	0449	780D	50	25	ML
14	200	46 C	0739.5	0740.5	1.0	80	40	WR
15	200	44 NS	2010E	2330	420D	30	16	MR
16	200	46 C	0508.5	0509.2	2.0	4500	1000	O
	100	46 C	0509.0	0509.8	2.0	1000D	-	WL
17	200	44 NS	2010E	2200	780D	120	25	MR
18	200	44 NS	2010E	0347	780D	120	40	ML
19	200	8 S	0144.8	0144.8	0.6	2000	-	O
	200	44 NS	2010E	0759	780D	2000	500	SR
20	100	24 R	0347	0722	300D	1000	650	SR
	100	44 NS	2010E	2056	780D	400	80	SL
	200	44 NS	2010E	0000	780D	120	40	MR
21	200	46 C	0015.3	0016.0	1.3	800	300	WR
	100	46 C	0015.8	0016	1.0	1000D	-	WL
	200	46 C	0842.0	0842.5	2.0	200	60	O
	200	44 NS	2010E	0400	780D	90	30	MR

Note: No observations for 500 MHz due to equipment failure by lightning.

C. RADIO PROPAGATION

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

AUG 1992 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 17M	01H 17M	02H 17M	03H 17M	04H 17M	05H 17M	06H 17M	07H 17M	08H 17M	09H 17M	10H 17M	11H 17M	12H 17M	13H 17M	14H 17M	15H 17M	16H 17M	17H 17M	18H 17M	19H 17M	20H 17M	21H 17M	22H 17M	23H 17M
1	8	-9	-6	14	-9	ES -26	ES -26	ES -26	ES -26	ES -4	ES -15	ES -12	ES -21	12	9	5	3	8	ES -26	-6	-6	-2	5	-6
2	-2	-15	-12	0	1	5	-7	-4	-21	ES -26	ES -26	-17	ES -26	13	-8	5	5	7	1	-2	-2	-6	-2	ES -26
3	-12	-1	-12	-9	6	11	8	ES -26	ES -26	ES -26	ES -26	ES -26	ES 0	20	-21	-2	-12	1	-2	-12	-1	-33	-6	-6
4	-4	-6	-12	-2	-3	4	-2	-21	-2	-2	3	-12	-3	19	-6	-3	-2	9	-2	-6	5	-1	-12	-12
5	-6	4	0	1	-2	-12	ES -21	1	-7	-15	-21	ES -21	ES -21	ES -21	-23	-4	-6	ES -21	ES -21	ES -21	ES -21	ES -26	ES -26	ES -26
6	ES -27	ES -22	ES -27	ES -27	-13	-13	-18	ES -27	-16	-4	-4	ES -27	ES -36	ES -27	ES -27	-22	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27
7	ES -27	ES -27	ES -27	ES -27	5	5	-8	-25	ES -22	ES -27	ES -22	ES -22	ES -13	ES -27	-22	ES -27	ES -27	ES -27	ES -27	ES -27	-22	ES -13	ES -27	ES -22
8	ES -27	-25	ES -22	ES -27	-22	-16	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-3	-2	ES -26
9	ES -26	ES -26	-11	-11	-13	-11	ES -26	-20	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-4	-22	-5	ES -26	ES -26	ES -26	ES -26	-6	-20	-17
10	ES -26	ES -26	ES -26	ES -26	ES -26	-1	-20	-5	0	ES -17	-17	-17	ES -5	ES -26	ES 0	ES -26	-13	-6	-20	ES -26	-7	-5	ES -4	ES -26
11	ES -26	ES -26	ES -26	5	-3	0	ES -26	-17	ES -26	ES -26	ES -26	ES -26	-11	ES -26	0	-11	-3	-17	ES -26	ES -26	-11	4	ES -8	ES -26
12	-22	ES -26	ES -26	-11	5	0	ES -26	5	-3	ES -26	-8	ES -17	ES -26	ES -26	ES -26	-11	-5	-11	ES -26	ES -26	ES -26	-11	-8	-2
13	-2	-2	-7	-2	7	0	-2	0	ES -26	ES -26	ES -26	ES -26	ES -11	ES -26	ES -11	ES -26	ES -26	ES -26	ES -26	ES -26	-14	-14	ES -5	-11
14	ES -26	ES -26	ES -26	-8	-5	1	-17	-17	-17	ES -17	ES -26	ES -26	ES -5	ES -26	ES -26	ES -26	-17	-13	ES -26	ES -26	ES -26	-13	ES -26	ES -26
15	ES -26	ES -26	ES -26	-11	-5	-3	-3	ES -17	ES -17	ES -17	ES -26	ES -26	ES -26	ES -26	-17	ES -26	ES -26	ES -26	ES -26	-13	0	2	-3	-8
16	-8	-17	-5	0	15	10	3	-13	-11	-11	ES -17	-13	ES -17	-11	-2	-13	4	-11	ES -26	ES -26	-2	-3	-8	-8
17	-5	-11	0	-2	7	2	4	-11	ES -17	-17	ES -26	ES -26	ES -8	-7	-11	-7	15	4	0	-12	-11	-8	-3	-13
18	-13	-8	-8	1	11	14	1	ES -17	-11	-17	ES -17	ES -17	ES -17	-22	1	-8	10	12	ES -26	-11	5	0	0	-3
19	-3	-5	-8	2	3	13	4	-8	ES -17	ES -17	ES -17	ES -26	ES -17	6	-8	-8	-5	7	-11	-5	-8	-8	-11	-13
20	-5	-3	-7	-5	1	10	ES -17	ES -17	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-17	-11	ES -26	ES -26	ES -26	ES -26	-4	ES -26	-17
21	ES -26	-17	2	-22	10	-13	0	-11	-17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC
24	ES -26	ES -26	ES -26	ES -26	ES -26	-8	-8	4	4	-8	ES -26	ES -26	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-17	-20	ES -11	ES -26
25	-5	-11	-11	ES -26	ES -17	ES -17	ES -8	ES -8	ES -11	ES -26	-20	ES -26	-17	-17	-17	ES -26	-11	-11	-11	ES -26	-6	-5	-5	-8
26	-3	-5	0	-11	-3	10	4	ES -17	ES -8	ES -13	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-17	-7	ES -26	ES -26	-8	-5	ES -26
27	-17	-11	-17	-3	-8	-9	ES -26	ES -26	ES -17	ES -5	ES -26	ES -26	ES -8	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-11	-1	4
28	-8	5	9	5	3	-5	ES -26	ES -26	-17	-17	ES -26	ES -26	ES -26	ES -26	ES -26	-11	0	0	ES -26	ES -26	-5	0	2	-11
29	-8	-2	-3	-8	0	10	1	-17	-17	ES -17	ES -26	ES -26	ES -26	ES -26	-13	-13	-11	-17	ES -26	ES -26	5	-5	0	-5
30	1	-5	2	13	-5	-11	-17	-17	ES -11	ES -17	ES -26	ES -26	-11	ES -26	-17	ES -26	ES -26	ES -26	ES -26	ES -26	0	2	0	2
31	ES -17	2	0	7	8	-8	ES -17	ES -17	ES -3	ES -17	ES -17	-17	ES -17	ES -26	ES -5	-8	10	-5	ES -26	ES -26	-3	-3	-8	-3
CNT	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	-12	-11	-11	-5	-2	0	US -8	US -17	ES -17	ES -17	ES -24	ES -26	ES -17	ES -26	ES -17	-15	-11	-15	ES -26	ES -26	-10	-6	US -6	-12
UD	-2	2	2	7	10	11	4	1	-2	ES -4	-8	ES -13	ES -5	13	0	-2	10	8	-2	-6	5	2	0	-2
LD	ES -27	ES -26	ES -26	ES -27	ES -22	-16	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26

C. RADIO PROPAGATION

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

AUG 1992 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

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

C. Radio Propagation

C2. Radio Propagation Quality Figures at Hiraiso

Hiraisdo

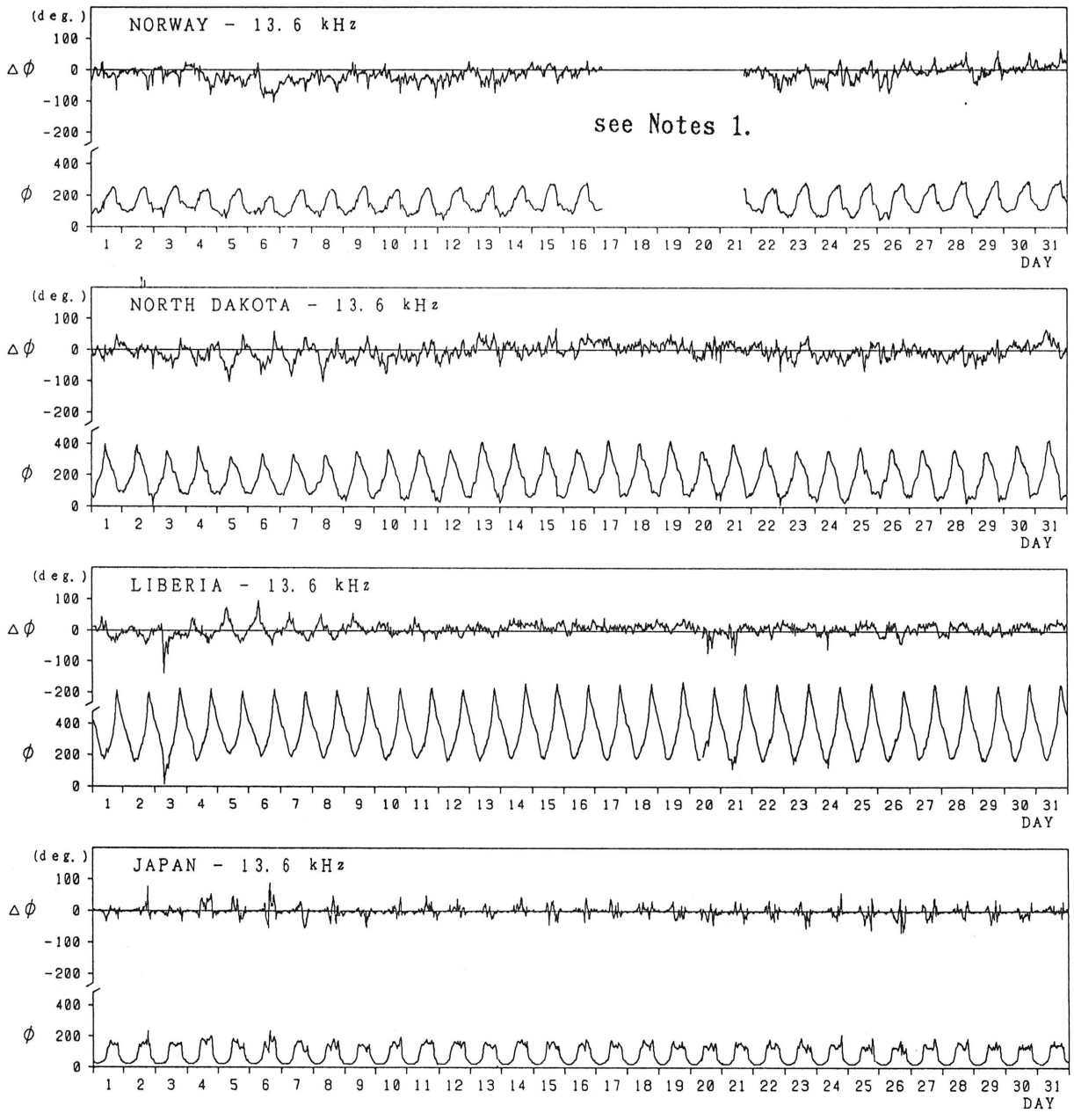
Time in U.T.

Aug. 1992	Whole Day Figure	W W V 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Conditions 00 06 12 18 / 06 12 18 24	Principal Geomagnetic Storms Start h m	End h	Range nT
1	4o	3 (2 5) 5	4 4 4 4	N N N N			
2	4+	4 (4 5) 4	4 4 5 4	N N N N			
3	4+	5 (4 5) 4	4 4 4 4	N N N N			
4	4+	4 (5 5) 4	4 4 4 4	N N N N	14.7	----	143
5	4-	4 (4 4 2)	4 4 4 3	N N N N	----	23	SSC
6	3o	3 (4 3 2)	3 3 3 2	U U U U			
7	3o	3 (3 3 3)	3 4 3 3	U U U U			
8	3o	2 (3 3 3)	3 4 3 3	U U U U			
9	3+	3 (3 4 3)	3 4 3 3	N N N N			
10	4o	2 (5 4 4)	4 4 4 4	N N N N			
11	4o	3 (3 5 4)	4 4 5 4	N N N N			
12	4o	3 (4 4 4)	4 4 4 4	N N N N			
13	4o	5 (5 3 4)	4 4 3 3	N N N N			
14	3+	3 (4 3 3)	4 4 2 3	N N N N			
15	4-	3 (4 3) 4	4 4 3 4	N N N N			
16	4+	4 (5 5) 4	4 4 5 4	N N N N			
17	4+	4 (5 5) 4	4 4 4 4	N N N N			
18	4+	5 (4 5) 5	4 4 5 4	N N N N			
19	4+	5 (5 5) 4	4 4 5 4	N N N N			
20	4-	4 (3 4 3)	4 4 5 3	N N N N			
21	C	4 (5) C C	4 C C C	N N N N			
22	C	C C C C	C C C C	N N N N	07.6	----	130
23	C	C C C C	C C C C	N N N N	----	24	SG
24	3+	(2 5 3 3)	5 3 3 4	U U U U			
25	4-	3 (4 4) 4	4 3 4 4	U N N N			
26	4o	5 (4 3 3)	4 4 3 5	N N N N			
27	3+	3 (2 3 4)	4 4 3 3	N N N N			
28	4o	4 (3 5) 4	4 3 4 4	U U U U			
29	4o	4 (4 4) 5	4 3 3 4	N N N N			
30	4-	4 (3 3) 5	4 4 3 4	N N N N			
31	4-	4 (3 5) 4	4 3 3 4	N N N N			

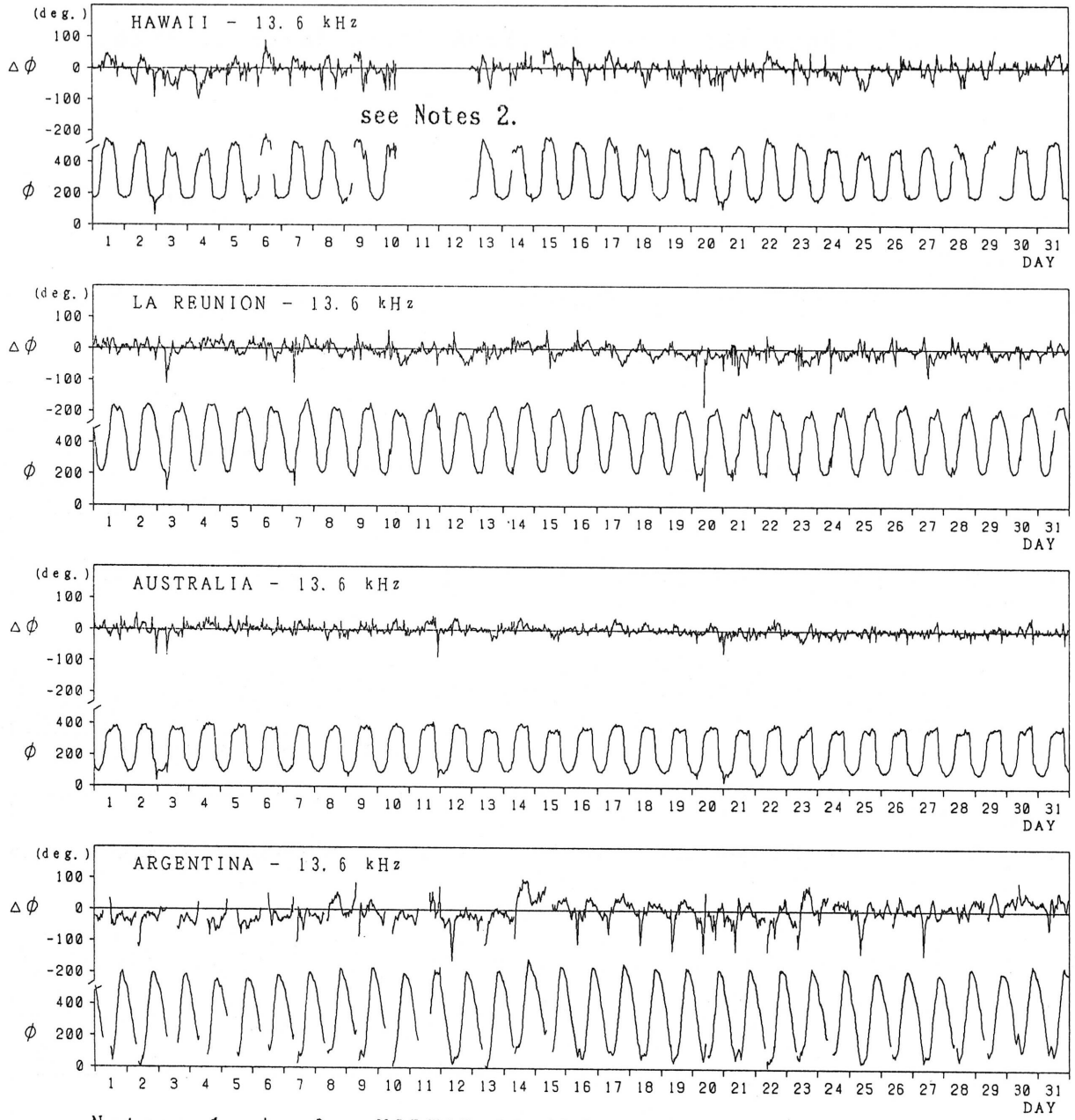
C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo

Inubo August 1992



Inubo August 1992



Notes: 1. As for NORWAY-13.6kHz, no record during August
17 - August 21, due to the maintenance of transmitter.
2. As for HAWAII-13.6kHz, no record during August
10 - August 12, due to the maintenance of transmitter.

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

Start (U.T.)	End (U.T.)	Max. (U.T.)	Max. Phase Deviation (negative value, deg.)
Aug.04/1414	Aug.04/2130	Aug.05/2010D	49
Aug.05/2010E	Aug.06/1526	Aug.08/1910	76

C. Radio Propagation

C4. Sudden Ionospheric Disturbance

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

Hiraiso

Time in U.T.

Aug. 1992	SWF								Correspondence	
	Drop-out Intensities(dB)					Start	Dur.	Type	Imp.	Solar * Flare	Solar Burst
	CO	HA	AUS	MOS	BBC						
2	>30	>42				2246	38	2	3+	x	x
3				19	x	0634	9	1	1+	x	-
3		>47	30	x	>13	0700	42	2	3+	x	-
3				x	12	1009	12	2	1-	x	-
11		18	16	x	x	2225	22	2	1+	x	x
12			19			0230	16	2	1+	x	-
13			7			0409	24	2	1-	x	-
17			12	x		2359	11	2	1	x	-
20			10			0350	15	2	1-	x	x
20				>22	19	0904	41	3	1+	x	-
20					6	1433	12	1	1-	x	-
20		>37				2028	14	2	3+	x	-
21		x	22			0012	24	2	2-	x	x
21					5	0844	7	1	1-	x	x
21			10		11	1100	37	2	1-	x	-
21			10		14	1156	51	2	1+	x	-
24			8			0113	31	12	1-	x	-

NOTE CO:Colorado(WWV) HA:Hawaii(WWVH) Aus:Australia Mos:Moscow BBC London

* Optical and X-ray Flares

(b) Sudden Phase Anomaly (SPA) at Inubo

Inubo

Aug. 1992	S P A								
	Phase Advance (degrees)						Time (U.T.)		
Date	Ω/N	Ω/L	Ω/LR	Ω/AU	Ω/H	Ω/ND	Start	End	Maximum
2				11	11	7	0110	0200	0118
2			12	11	6		0346	0414	0354
2		20	18				1006	1054	1012
2					16	20	1930	2006	1940
2	47	41	58	126	99	91	2254	0016	2306
3			7				0424	0444	0428
3			5	4			0514	0536	0518
3	108*	—	252*	133*	40	17	0630	1000	0708
3		32	40				1010	1034	1016
4			—	16			0718	0738	0722
5			20	14			0420	0452	0426
5	9			24	35	23	2122	2208	2130
7			18	14			0614	0656	0622
7					11		2056	2128	2104
8					24		2010	2044	2016
8				32	28		2220	0022	2244
9	15	10	25	54	37	20	0140	0228	0148
10				13	11		0100	0124	0106
10			18	7	—		0522	0546	0528
10			14	13	—		0612	0632	0620
10			36		—		0806	0838	0816
10				16	—	29	2100	2134	2106
10				25	—	20	2224	2300	2234
11		20			—		1350	1412	1400
11	36	32	36	104	—	69	2224	2320	2234
12			12	18	—	15	0140	0212	0146
12	31	31	89	81	—	30	0232	0314	0236
12			9		—		0710	0728	0716
13			26	21	11		0414	0450	0420
13			20	34	29		2358	0038	0006
16			7	5			0404	0428	0408
17	—			13	9		0108	0142	0120
17	—	20	27	58	46	34	2358	0100	0006
18	—		17	11			0508	0542	0516
19	—			4			0230	0244	0234
19	—		11	8			0504	0530	0508
19	—		13	7			0606	0648	0612
19	—	13		11	9		2316	2336	2320
20	—		22	25	16	15	0158	0236	0206
20	—		8	12	4		0248	0320	0256

Inubo

Aug. 1992	S			P		A			
	Phase Advance (degrees)						Time (U.T.)		
Date	Ω/N	Ω/L	Ω/LR	Ω/AU	Ω/H	Ω/ND	Start	End	Maximum
20	—	17	53	40	25	16	0350	0430	0356
20	—		5	4			0442	0506	0448
20	—		12	6			0640	0700	0650
20	—		5				0716	0752	0720
20	—	—	216				0902	1006	0916
20	—	103					1428	1524	1442
20	—	29					1606	1638	1614
20	—				79	98	2034	2122	2040
20	—		11	23	29	22	2204	2230	2212
21	—	35	68*	99*	79*	64	0014	0122	0020
21	—		34	27	15	16	0320	0410	0334
21	—		7	6			0424	0450	0430
21	—	46*	55*	19*			0538	0704	0610
21	—		23				0740	0808	0746
21	—	64	104				0842	0918	0850
21	—	21	12				0930	0954	0940
21	—		11				1030	1048	1034
21	—	89	47				1100	1152	1114
21	—	76	22				1158	1248	1206
22	14	24	32	37*	28*	27	0054	0144	0110
22	11		32	27	17	14	0316	0352	0322
22		20	22				0716	0758	0724
22		30	27				0824	0850	0834
22			18				0846	0904	0856
22		34					1340	1412	1348
22				9	11		2236	2254	2240
22				14	9		2334	0010	2342
23				14*	9*		0034	0130	0048
23			8	5			0444	0500	0448
23		34	47	12			0714	0756	0722
23		25	—				0922	0954	0928
23					19		2040	2104	2046
24	17	20	14	25	22	22	0112	0122D	0116
24			35	45	29		0122E	0132D	0126
24			18	41	25		0132E	0148	0138
24			12	12			0428	0458	0432
24			22	12			0608	0634	0614
24		54	65*				0936	1100	1000
25			30*	13			0628	0702	0650
30				6	7		0016	0034	0020
30		20	22				0704	0730	0710
30			11				0830	0858	0838

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Queries about "Ionospheric Data in Japan" should be forwarded to:
Communications Research Laboratory, Ministry of Posts and Telecommunications,
2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184 JAPAN.