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IONOSPHERIC DATA IN JAPAN

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CONTENTS

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INTRODUCTION

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

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.5'N	141°41.2'E	35.3°N	206.5°	Vertical Sounding (I)
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

SEP. 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	52	52	48	45	46	52	60	64	65	61	62	61	68	72	68	66	79	67	65	72	65	74	65	66
2	60	60	54	53	48	52	63	72	67	79	77	74	70	78	68	68	67	67	71	73	74	66	63	58
3	55	51	51	48	40	A	30	A										62	60	60	61	54	A	44
4	52	40	31	A	A	A	A	A			A						A	A	50	A	58	52	51	44
5	46	51	35	41	32		91	A						51	57	63	62	66	60	63	56	50	38	38
6	40	43	43	38	26	34	51	52	66							62	67		72	63	63	61	52	52
7	42	44	46	43	35	A		69			68		58	B	B		58	A	65	66	64	51	51	51
8	48	44	50	44	40	38	A	A	57			61	64	67	59	62	62	71	66	64	67	52	51	48
9	48	43	47	37	38	A	A	A							63	57	61	62	52	49	43	39	35	51
10	32	A	26	N	A	A												52	46	53	48	53	42	40
11	37	A	29	35	34	A	A	98	A		A	A			A			35	A	58	32	43	34	A
12	34	31	25	26	30	38	51	61	61	56	57	43		67	67	72	68	74	56	58	53	50	53	52
13	44	43	43	37	37	38	52	58	67	70	73	68	70	76	70	72	66	76	67	62	67	62	58	60
14	54	52	51	48	46	51	61	68	66	67	78	84	72	72	81	82	74	76	83	74	72	66	63	54
15	54	53	52	51	48	52	68	81	81	85	75	73	80	87	86	86	85	90	62	66	66	56	55	54
16	55	55	55	55	53	70	72	85	91	90	79	87	88	96	87	83	84	81	86	66	66	62	57	54
17	37	51	51	45	40	45	54	70	78	86	82	84	82	86	87	97	87	101	87	86	64	72	58	58
18	41	31	A	A	A	A	A			57	A	A	55		62	61	60	62	55	54	54	52	53	46
19	42	48	40	37	32	A	63	66	78	68	68	A	74	68	65	64	66	67	67	62	A	A	52	51
20	47	44	43	47	41	31	52	58	79	74	76	88	73	74	77	77	85	84	70	73	77	55	51	51
21	51	50	51	50	47	44	66	63	70	80	72	77	70	80	83	76	77	73	76	66	64	61	58	A
22	60	54	53	52	46	53	65	66	75	86	78	80	88	90	96	86	75	72	66	63	51	61	55	51
23	49	48	48	48	52	54	59	70	73	71	85	86	85	86	84	92	86	92	84	62	58	58	54	54
24	54	55	55	56	52	54	74	80	87	88	86	84	83	88	78	84	82	80	73	63	64	62	58	54
25	64	53	53	53	51	54	72	86	82	91	78	80	86	80	82	77	78	86	78	66	63	63	61	53
26	54	52	54	53	48	52	71	88	81	86	90	87	87	90	86	80	86	84	83	77	70	64	63	54
27	51	52	43	46	43	50	69	71	75	94	88	91	87	88	92	85	92	92	74	74	63	54	58	53
28	52	53	48	47	44	44	67	73	93	86	87	87	91	84	86	83	C	86	86	76	67	61	62	49
29	41	43	48	44	44	50	57	68	73	85	82	95	88	83	76	88	104	87	90	80	72	64	63	53
30	54	53	54	A	44	43	54	61	60	60	70	67	64	77	78	67	67	75	70	43	44	40	38	34
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	28	29	26	27	21	23	23	22	21	21	20	22	22	24	25	25	27	29	29	29	29	29	28
MED	50	51	48	46	44	50	63	69	74	80	78	82	77	80	78	77	75	75	70	64	64	58	55	52
U Q	54	53	52	51	48	52	69	80	81	86	83	87	87	87	86	84	85	86	80	73	67	62	59	54
L Q	42	43	43	41	37	40	54	63	66	67	71	70	70	72	67	65	66	67	61	61	55	52	51	48

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT WAKKANAI

SEP. 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	G	G	G	24	36	50	40	G	G	G	G	G	G	G	G	G	62	36	33	59	40	37	33
2	33	33	32	28	24	27	110	39	G	G	G	G	G	G	G	G	G	G	G	28	26	25	28	25
3	26	24	32	28	32	53	38	57	G	G	G	G		G	G	G	G	33	33	34	37	31	48	31
4	33	24	23	28	31	33	65	45	G		54	G			G		56	40	32	55	42	59	G	G
5	G	34	27	29	27		G	36	G					G	G	G	G	G	G	G	G	G	G	G
6	G	G	27	34	36	G	G	G	G							G	G	144	31	29	G	33	55	G
7	G	G	36	34	G	35		38	G	G	G		G	B	B	G	G	67	90	63	61	31	G	33
8	G	G	G	26	G	30	35	42	G	G	G	G	G	G	G	G	G	G	50	35	33	G	G	28
9	G	G	G	26	40	40	64	71	G	G		G			G	G	40	70	38	34	G	G	G	G
10	24	28	24	24	29	32	G	G									G	G	G	25	26	G	G	26
11	34	26	25	24	28	33	36	95	56	G	74	68	G		60	G	G	G	65	104	34	32	70	34
12	G	23	23	26	G	31	36	G	G	G	G	G	G	G	G	G	45	40	29	24	G	40	31	24
13	38	30	27	G	28	26	G	G	G		G	G	50	G	G	G	38	38	38	32	29	30	27	22
14	G	G	G	26	G	34	33	G	G	48	G	G	G	G	G	G	G	G	G	G	38	G	G	G
15	G	26	G	G	G	G	G	G	G	G	G	51	G	G	G	G	G	G	26	35	G	G	G	G
16	25	26	24	23	26	G	G	G	G	G	G	G	G	G	G	G	G	36	40	G	G	G	G	G
17	G	G	G	G	30	28	39	39	G	G	50	G	G	G	62	G	G	G	G	G	G	G	G	24
18	23	36	38	36	35	30	41	G	G	G	64	61	G	G	G	G	G	38	30	58	38	31	36	G
19	32	G	G	G	G	36	38	40	G	G	G	52	G	51	G	G	G	G	G	G	70	55	41	27
20	30	G	29	28	24	27	G	G	G	G	G	G	G	G	G	G	46	38	G	G	29	27	G	G
21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	34	30	38	70
22	36	32	G	28	36	32	G	45	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24
23	G	G	G	G	34	34	36	G	G	G	G	G	G	G	G	G	34	G	G	G	G	34	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	28	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	44	32	27	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G	G	28	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	30	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	C	G	G	G	26	23	G	G
29	G	G	G	G	G	G	G	G	G	G	G	59	G	G	G	G	G	39	G	G	G	G	G	G
30	G	26	32	40	28	G	G	G	G	46	G	G	G	G	G	G	36	36	46	G	27	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	29	30	29	26	26	26	24	24	27	28	29	30	30	30	30	30	30	30
MED	G	G	G	24	24	28	G	G	G	G	G	G	G	G	G	G	G	G	28	26	26	24	G	G
U Q	26	26	27	28	30	33	38	40	G	G	G	G	G	G	G	G	34	38	38	34	34	32	31	26
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT WAKKANAI

SEP. 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	15	15	15	15	15	15	18	21	20	22	27	26	27	21	18	27	26	17	16	15	16	15	15	15
2	15	16	16	15	15	16	18	17	28	28	45	49	46	34	46	46	18	17	17	16	15	15	16	16
3	16	15	15	16	15	15	18	21	21	30	30			28		48		18	16	16	17	15	14	16
4	15	15	15	14	14	14	17	24			32	30			34		26	20	16	14	14	15	15	15
5	15	15	15	15	15		18	22	26					48	46	45	32	26	16	16	16	16	17	16
6	17	16	15	15	15	16	24	45	46							30	33	24	16	16	17	16	16	16
7	17	17	15	15	14	15		21		29	49		48	B	B	71	47	20	16	15	15	16	15	15
8	15	15	14	14	15	15	20	27	30	24	27	47	46	46	27	45	30	27	15	16	15	15	15	15
9	15	15	15	15	15	15	21	21	23	23		29			46	30	24	17	15	14	15	16	15	
10	15	15	16	17	14	15	18											18	18	15	15	16	15	16
11	15	16	16	15	15	17	24	24	46	32	30	32			33			30	15	15	15	14	15	15
12	15	15	16	15	14	16	21	22	22	47	45	44		44	48	21	18	17	18	16	15	16	14	15
13	15	15	14	15	15	16	24	22	22	29	29	26	26	18	22	18	18	16	16	15	15	16	16	15
14	16	15	15	14	14	16	16	30	22	27	46	49	45	47	24	45	29	22	18	17	15	16	16	16
15	15	16	15	14	15	16	26	21	24	43	45	29	49	28	46	21	29	23	16	16	15	16	15	15
16	15	15	15	15	15	17	26	28	21	45	46	46	47	46	46	32	30	17	15	15	15	16	16	15
17	14	15	15	15	14	14	17	18	24	47	32	49	46	46	32	33	22	27	16	15	15	15	15	16
18	15	15	14	14	14	15	21			29	29	29	48	71	46	28	41	18	15	16	15	16	16	15
19	15	16	15	16	17	15	22	28	43	28	48	29	45	32	23	30	30	24	15	15	15	15	16	17
20	17	15	15	15	15	16	27	29	33	44	20	46	46	44	45	29	21	17	15	16	16	15	16	16
21	15	15	14	15	14	15	28	30	32	32	45	33	44	47	46	32	28	24	15	14	16	15	16	18
22	16	15	15	15	15	15	29	21	32	33	44	46	26	24	22	42	28	23	17	15	15	15	16	16
23	16	15	15	15	15	16	18	30	44	47	46	48	43	43	33	38	29	20	15	17	15	16	16	15
24	15	15	15	15	14	16	21	28	42	22	45	44	45	45	28	32	28	17	16	15	16	16	15	16
25	15	15	15	15	15	15	24	18	20	22	45	45	45	46	42	30	21	24	15	16	16	16	15	15
26	15	15	15	14	15	15	24	18	32	42	45	45	47	44	45	32	28	22	16	14	15	18	16	16
27	15	15	15	15	15	16	23	18	30	45	44	45	45	46	39	32	27	21	15	15	16	15	16	16
28	15	15	14	15	14	15	23	18	22	43	45	43	46	43	33	29	C	22	15	15	15	15	15	15
29	15	15	15	15	15	15	24	29	30	47	33	34	44	43	23	32	26	18	15	15	16	15	15	15
30	16	16	14	14	16	15	29	36	41	30	49	44	46	44	39	18	24	16	15	15	15	15	16	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	29	28	26	26	26	25	22	24	26	27	26	30	30	30	30	30	30	29
MED	15	15	15	15	15	15	22	22	29	31	45	44	46	44	36	32	28	20	16	15	15	16	16	15
U Q	16	15	15	15	15	16	24	28	33	44	45	46	46	46	46	42	30	24	16	16	16	16	16	16
L Q	15	15	15	15	14	15	18	21	22	28	30	29	44	33	27	29	24	17	15	15	15	15	15	15

HOURLY VALUES OF FOF2 AT AKITA

SEP. 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	51	45	50	48	48	51	72	70	68	55	55	68	75	78	78	75	A	67	51	77	A	48	56	68
2	53	52	51	54	46	47	50	68	71	71	74	78	85	67	72	70	68	67	74	74	74	71	54	33
3	51	48	51	47	48	43	A	A	52	A	A	A	44	A	A	52	56	A	A	55	52	48	A	A
4	34	48	31	A	25	A	30	A	A	A				A	A	A	48	A	A	A	55	53	52	52
5	52	52	43	44	45	37	48	51	51	71	65	71	70	65	55	63	68	67	72	52	25	51	48	47
6	47	46	50	40	41	43	55	54	64	68	64	49	54	58	65	62	61	67	55	A	61	51	51	50
7	48	48	46	A	40	A	48	63	68	55	44	76	70	B	63	55	67	67	54	69	51	51	53	45
8	45	46	46	46	43	42	51	51	50	65	66	67	65	61	67	67	67	73	76	63	43	47	65	46
9	47									38			A	40	61	70	66	77	62	A	44	43	36	36
10	42	32	A	A	A	A	A	A				A		A		A	A	44	A	54	65	64	43	37
11	46	43	39	34	A	A	45	A							49	A	51	51	52	47	A	59	63	47
12	46	46	42	31	28	37	52	70	71	N	56	A	46	67	73	72	52	71	64	55	A	48	51	A
13	A	44	43	44	38	38	52	54	67	73	75	78	74	71	72	78	82	A	70	A	A	51	54	48
14	56	54	51	50	47	47	58	76	67	52	74	85	82	76		80	86	84	84	75	58	46	62	38
15	51	44	48	48	46	59	54	88	86	80	78	76	85	78	83	94	86	84	78	55	58	35	25	58
16	43	25	48	46	50	59	49	78	84	84	83	92	96	98	96	90	87	91	87	70	60	62	65	65
17	48	50	45	48	43	45	66	52	90	98	97	86	86	86	87	101	94	110	107	50	66	67	60	49
18	51	48	45	A	A	A	A	A	A					47	A	53	51	56	65	49	53	50	48	47
19	42	46	36	43	43	43	40	69	67	62	67	A	57	72	74	71	56	72	72	64	51	47	48	47
20	43	45	48	48	37	A	52	67	72	77	75	78	80	A	81	81	80	80	83	64	74	44	44	47
21	47	44	47	48	43	43	60	73	75	81	85	70	82	82	90	81	80	76	64	56	60	52	53	50
22	51	48	57	50	48	50	63	84	87	86	76	85	88	94	101	92	86	79	51	55	52	52	52	48
23	48	44	45	44	46	50	63	71	72	80	81	87	97	93	91	91	95	86	90	54	51	52	52	49
24	52	51	49	48	44	46	52	85	85	87	86	81	84	90	82	82	86	100	78	68	59	56	46	62
25	54	51	51	48	48	46	54	87	102	84	80	80	85	87	77	87	86	90	86	54	53	53	59	50
26	56	48	51	52	47	46	67	86	100	83	84	88	91	90	92	90	87	89	86	78	52	55	51	50
27	48	43	45	50	50	50	69	87	83	103	95	82	82	86	86	81	86	87	89	72	70	66	58	53
28	53	52	52	51	50	47	70	85	87	82	82	88	90	86	86	86	88	94	86	71	67	63	57	54
29	52	53	65	50	50	50			90	103	90	100	107	86		103	107	103		78	48	86	78	N
30	67	49	65	A	72	111	146	82	81	66	82	86	86	86	78	72	77	80	66	46	48	46	65	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	24	26	23	25	23	25	24	24	22	25	24	24	27	28	27	26	26	26	30	29	26
MED	48	48	48	48	46	46	54	71	72	78	77	80	82	80	78	80	80	79	73	60	54	52	53	48
U Q	52	50	51	50	48	50	64	85	86	84	83	86	87	86	86	90	86	89	86	71	61	59	59	52
L Q	46	44	45	44	43	43	49	63	67	65	66	76	70	67	69	70	63	67	64	54	51	48	48	47

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT AKITA

SEP. 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	28	26	G	G	G	30	34	52	58	44	G	G	G	G	92	48	61	58	110	44	94	40	40	45
2	55	45	45	33	33	G	33	43	48	48	44	46	46	G	G	G	45	40	34	45	40	43	26	41
3	33	G	G	G	G	G	46	85	89	55	74	53	G	55	51	43	42	60	61	49	30	30	61	84
4	49	G	26	27	34	34	36	38	56	53	G	G	G	51	48	54	45	93	91	107	90	53	59	26
5	G	G	25	37	30	30	34	38	G	G	G	G	G	G	G	G	G	G	G	40	29	30	G	28
6	26	G	G	24	G	24	30	G	G	G	G	G	G	52	58	45	43	34	49	53	55	G	43	36
7	56	56	51	38	37	46	33	G	G	G	G	G	G	B	G	G	G	G	G	112	103	102	51	G
8	G	G	G	G	G	G	34	45	40	47	G	G	G	G	G	50	41	47	38	37	40	31	28	G
9	G									49	G	G	55	G	G	44	42	35	34	58	33	G	G	G
10	G	25	28	26	29	28	30	37		G	G	61	G	50	G	55	37	56	92	107	48	G	G	G
11	G	G	G	38	70	55	37	50	G	G	G	G	G	G	77	51	38	34	31	32	48	30	27	34
12	26	G	G	G	G	G	G	36	40	G	G	51	G	G	47	46	55	43	28	58	51	34	49	34
13	32	32	31	28	28	G	G	36	40	43	G	G	58	G	G	41	60	61	53	58	40	31	G	24
14	25	29	33	G	G	G	G	36	G	G	G	G	G	G	G	G	G	42	37	G	G	34	29	44
15	G	G	26	G	G	G	33	G	G	G	50	G	G	G	G	G	G	32	24	27	G	31	31	G
16	G	G	G	G	G	G	31	40	43	G	G	G	G	G	G	47	43	G	31	34	26	27	G	G
17	G	G	G	G	G	G	35	56	50	G	G	52	49	G	48	G	77	51	41	G	G	G	G	33
18	29	30	42	54	42	31	45	38	41	G	G	G	G	50	43	41	37	33	G	31	27	49	33	G
19	G	29	G	30	G	G	29	G	G	G	G	57	G	G	G	G	G	G	G	G	G	G	G	G
20	G	G	G	G	30	26	30	G	G	55	47	G	50	64	62	52	42	40	36	52	49	G	G	G
21	G	G	G	G	G	G	G	40	G	G	G	46	50	52	84	57	44	37	34	32	G	G	G	G
22	G	G	G	G	33	G	G	34	G	58	G	G	G	G	G	G	G	G	G	G	G	G	G	G
23	G	G	G	G	G	G	28	35	G	G	G	G	G	G	G	G	G	47	29	G	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	37	34	G	G	30	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	55	37	29	G	29	G	G	G	G
26	G	G	G	G	G	G	49	G	39	G	G	G	G	G	G	G	G	32	26	G	G	G	G	G
27	G	G	G	G	G	G	G	35	40	G	G	G	G	G	G	G	G	31	31	25	24	28	24	G
28	G	G	G	G	G	G	G	54	G	44	G	G	G	G	G	G	G	62	30	27	G	G	G	G
29	G	G	G	G	G	G	G	G	63	G	51	G	G	G	G	G	48	58	41	166	33	G	G	129
30	149	30	24	40	30	29	41	128	155	G	109	G	G	G	56	39	40	30	34	G	G	G	G	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	29	29	29	29	28	30	30	30	30	29	30	30	30	30	30	30	30	30	30	29
MED	G	G	G	G	G	G	30	36	20	G	G	G	G	G	G	40	39	37	34	33	28	28	G	G
U 0	28	27	26	29	30	28	34	44	45	44	G	G	G	25	48	48	44	51	41	53	48	31	31	34
L 0	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	26	G	G	G	G	G

HOURLY VALUES OF FMIN AT AKITA

SEP. 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	16	17	15	17	16	15	16	16	16	17	20	18	23	21	21	17	16	16	16	16	17	17	16	16
2	15	16	16	16	17	16	18	15	17	18	21	23	18	21	15	18	16	15	16	16	16	16	16	18
3	17	16	16	16	17	18	16	16	16	18	22	18	24	17	18	16	16	15	16	17	16	16	17	17
4	16	18	17	16	16	15	16	16	16	20	26	23	26	24	22	21	17	16	17	16	16	17	16	16
5	16	18	18	17	16	15	16	16	21	44	24	24	22	26	20	17	17	16	21	16	16	15	16	17
6	16	18	18	17	16	17	15	16	18	23	38	49	46	21	21	22	23	17	16	15	16	18	16	16
7	17	16	16	15	15	16	22	16	18	20	28	50	23	B	40	23	21	16	18	17	16	17	16	16
8	16	16	16	15	16	17	17	18	24	23	21	24	18	28	17	16	16	15	16	17	18	17	18	15
9	17									21	22	23	27	23	22	18	16	16	16	16	15	17		
10	16	16	16	17	17	17	16	18		18	20	22	36	20	20	20	17	16	17	16	18	16	17	20
11	17	16	16	16	15	16	17	16		20	20	23	38		32	20	17	16	16	17	15	16	16	16
12	15	16	16	18	17	17	17	16	17	18	22	21	45	23	26	23	17	18	17	15	16	15	17	16
13	16	16	16	17	16	18	17	17	18	23	23	27	23	26	22	18	16	17	16	16	16	17	17	18
14	17	16	16	16	17	16	18	16	17	17	20	26	26	26	24	18	18	17	16	16	16	16	16	16
15	16	18	15	16	15	17	17	17	18	23	23	26	26	20	20	17	16	16	16	16	16	15	16	17
16	15	18	17	17	16	17	16	18	17	21	21	36	20	23	41	30	18	15	16	16	16	18	16	16
17	18	16	16	16	15	16	16	17	18	23	21	24	26	20	21	20	16	15	16	17	16	17	16	16
18	16	16	16	15	16	16	16	17	16	18	20	23	22	20	21	21	17	16	17	16	17	15	16	18
19	21	18	17	17	17	17	22	17	18	18	22	22	20	18	17	17	18	17	17	17	16	17	16	16
20	17	16	16	17	15	16	15	18	20	22	22	16	29	23	21	18	17	16	15	16	16	17	20	17
21	17	16	18	16	16	16	22	17	20	22	23	22	22	22	23	18	17	17	15	17	16	16	17	16
22	16	16	15	17	15	16	17	16	16	17	21	21	21	20	21	17	16	22	16	16	16	17	17	16
23	16	16	17	16	16	15	15	15	16	18	20	17	22	18	16	16	17	16	16	17	17	17	17	17
24	17	18	17	16	17	16	22	17	17	17	21	21	21	21	18	15	17	16	16	16	15	15	18	18
25	17	16	16	16	16	17	22	16	17	18	21	23	21	21	17	17	16	16	16	17	16	16	17	18
26	15	17	17	16	16	16	21	17	16	18	20	26	24	21	16	18	17	16	15	16	17	16	16	16
27	17	17	16	17	16	18	20	16	16	17	16	20	23	21	21	16	16	16	16	16	16	16	16	17
28	16	18	15	17	17	18	17	16	17	17	18	21	23	20	20	16	17	16	15	16	16	16	16	16
29	17	18	15	15	15	17			17	21	20	20	17	21		16	17	16	15	16	14	16	16	16
30	16	16	16	16	16	15	16	16	16	18	21	18	20	17	17	16	17	16	16	17	21	17	16	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	29	29	28	28	27	30	30	30	30	28	29	30	30	30	30	30	30	30	29	28
MED	16	16	16	16	16	16	17	16	17	18	21	23	23	21	21	18	17	16	16	16	16	16	16	16
U Q	17	18	17	17	17	17	19	17	18	22	22	24	26	23	22	20	17	16	16	17	16	17	17	17
L Q	16	16	16	16	15	16	16	16	16	18	20	21	21	20	17	16	16	16	16	16	16	16	16	16

HOURLY VALUES OF FOF2 AT KOKUBUNJI

SEP. 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	52	56	56	52	56	56	73	68	A	63	72	75	86	82	83	80	68	67	79	81	80	76	72	58
2	68	58	56	51	46	50	68	68	80	70	75	86	86	76	71	78	79	78	80	78	73	68	74	68
3	69	58	50	57	55	48	50	A	A	A	50	A	58	71	50	63	62	A	78	77	A	A	47	46
4	57	A	44	31	A	A	A	47	A	A	A	A	45		A	50	A	A	61	54	57	51	54	57
5	55	51	50	47	45	42	57	71	64	77	69	78	68			64	75	75	78	57	51	51	51	51
6	48	48	50	43	34	37	56	68	70	71	67	67	66	A	68	68	65	72	73	66	58	47	57	57
7	51	49	47	45	43	42	61	70	67	58	A	76	76	B	66	70	80	73	66	68	70	49	A	45
8	43	47	46	47	44	43	55	80	81	72	72	76	72	67	70	73	71	82	78	72	61	57	51	46
9	50	43	43	46	46	42	51	45	46	A	53		61	62	67	78	66	83	72	A	40	48	46	41
10	48	46	A	A	26	A	A	37	46					62	50	62	62	61	53	A	A	47	48	44
11	45	47	44	38	45	45	48	48	46	A		38		51	54	A	71	57	50	51	48	54	57	57
12	45	50	47	41	38	37	56	64	72	68	63	56	67	70	74	80	77	72	72	66	48	49	57	60
13	48	47	46	45	38	43	55	73	75	77	77	78	81	75	76	85	82	77	82	80	70	70	57	56
14	55	56	56	53	50	46	67	71	75	74	73	86	90	80	76	85	98	92	92	83	74	69	63	68
15	54	53	56	48	40	47	70	92	92	76	88	87	90	87	88	102	104	90	90	68	57	55	57	57
16	53	52	53	50	48	57	80	80	80	86	87	94	97	102	100	101	98	96	92	77	52	53	58	60
17	54	56	54	57	46	46	61	78	94	93	94	95	91	90	93	105	110	112	112	81	77	82	82	57
18	61	58	51	47	51	41	50	A		A		A	A	A	62	61	61	70	61	55	53	57	58	46
19	48	46	43	43	41	40	57	71	67	57	66	75	71	76	83	80	76	80	81	66	47	47	44	46
20	48	50	47	46	34	35	68	75	71	75	78	77	85	87	85	84	82	85	93	78	66	57	57	57
21	57	50	57	51	40	44	61	80	77	86	78	82	88	88	92	94	91	88	73	64	61	62	54	60
22	61	60	55	57	50	48	70	92	99	78	90	87	98	113	112	107	97	83	74	68	68	70	53	49
23	57	45	48	48	48	48	71	70	72	84	88	91	103	103	102	102	103	100	95	82	52	57	51	52
24	57	56	52	57	45	46	73	92	97	81	86	84	94	104	87	88	90	97	92	84	68	54	56	51
25	57	57	57	50	46	48	68	101	106	81	78	84	86	86	86	91	106	105	96	74	50	51	56	57
26	57	68	57	56	57	45	65	85	117	86	79	86	100	102	100	107	107	97	95	84	68	52	57	57
27	56	57	57	46	48	50	74	82	104	114	92	85	91	92	86	87	91	93	95	80	66	66	57	56
28	56	51	57	57	52	50	74	94	93	88	92	86	91	97	92	94	98	102	91	69	61	60	58	49
29	56	52	47	52	57	50	68	94	92	100	91	100	106	97	97	108	117	124	91	92	86	84	86	80
30	60	68	68	62	58	60	76	113	106	79	86	101	91	95	90	86	85	84	60	57	47	52	52	54
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	29	28	28	28	26	24	25	25	27	25	28	29	29	28	30	28	28	29	29	30
MED	55	52	51	48	46	46	66	74	78	78	78	84	86	87	84	85	82	84	80	73	61	55	57	56
U Q	57	57	56	54	50	49	70	88	94	86	88	87	91	97	92	97	98	96	92	80	69	67	58	57
L Q	48	47	47	45	40	42	56	68	70	71	70	76	71	73	69	71	71	74	72	66	51	51	51	49

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT KOKUBUNJI

SEP. 1992

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	30	G	G	G	G	37	40	63	55	G	G	G	45	66	90	46	40	28	62	54	54	56	92
2	58	51	29	30	28	G	G	46	55	50	G	45	53	49	51	44	40	40	60	56	52	56	58	39
3	29	G	G	G	G	G	38	60	102	88	49	57	58	64	48	G	52	105	60	43	59	57	59	53
4	44	60	32	27	38	44	40	44	55	56	47	48	G	G	56	G	79	100	66	56	58	38	47	48
5	37	40	G	G	G	G	29	36	49	G	G	G	G	G	G	G	G	34	36	42	34	36	40	36
6	31	G	G	G	G	G	G	G	G	48	52	58	G	48	46	G	44	34	28	30	30	73	48	G
7	25	28	41	29	G	27	G	G	G	G	47	49	G	B	G	G	G	38	29	G	61	41	70	44
8	26	G	G	G	G	G	40	50	G	G	G	G	G	G	G	G	G	G	31	31	40	36	31	47
9	G	G	G	G	G	24	32	G	G	49	G	G	G	G	G	46	44	33	28	53	28	G	G	G
10	G	G	29	26	26	26	32	37	40	G	G	G	G	G	G	51	46	37	G	74	59	61	26	G
11	29	G	G	G	G	25	74	38	G	59	G	53	G	49	49	64	64	41	58	28	30	29	26	24
12	G	G	G	G	G	G	G	G	45	48	G	G	G	G	G	G	58	43	51	58	38	34	34	34
13	G	37	27	G	G	G	G	40	43	43	G	G	G	44	48	43	39	G	G	35	34	41	38	30
14	34	29	27	G	G	G	G	G	G	G	G	50	G	G	46	48	42	48	34	47	G	33	26	G
15	G	G	G	30	G	G	G	G	G	43	G	G	G	G	G	G	G	35	24	26	G	46	27	23
16	G	G	23	G	G	G	30	38	53	58	G	G	G	G	46	45	44	37	30	31	58	G	29	G
17	G	G	G	G	G	G	30	38	53	58	62	46	48	47	50	54	90	62	58	28	31	35	G	G
18	G	G	29	37	34	34	35	57	G	45	G	48	51	50	53	43	38	33	26	30	30	G	34	G
19	G	G	G	G	G	G	30	36	G	G	G	G	G	G	G	G	37	32	G	29	G	G	G	G
20	G	G	G	G	G	G	G	70	G	43	46	47	52	52	52	48	55	44	40	50	36	42	29	G
21	G	G	24	G	G	G	G	G	44	G	55	64	80	53	58	93	40	40	40	40	37	28	28	G
22	G	G	G	G	G	26	G	G	G	G	54	48	G	G	G	G	G	G	G	25	24	24	G	G
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	53	45	51	31	G	G	G	G	G
24	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	34	34	36	31	G	25	G
25	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	49	42	32	G	G	26	30	G	G
26	G	G	G	G	G	G	G	34	40	G	G	G	G	G	G	G	G	31	26	24	G	G	G	G
27	G	G	G	G	G	G	28	36	G	G	G	51	50	G	43	G	37	36	27	24	31	G	G	G
28	G	G	G	G	G	G	48	39	G	G	G	G	G	G	G	G	G	36	41	44	G	29	G	G
29	G	G	G	G	G	G	42	36	55	49	G	G	G	G	G	G	62	52	51	38	38	32	42	58
30	70	50	28	27	G	G	34	42	G	44	44	G	G	G	G	42	40	28	G	G	G	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30
MED	G	G	G	G	G	G	30	36	G	43	G	G	G	G	G	22	41	36	30	33	31	32	28	G
U Q	29	28	27	G	G	G	35	40	49	49	46	48	G	47	49	48	46	43	41	47	40	41	40	36
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	26	26	24	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT KOKUBUNJI

SEP. 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	14	14	15	15	14	15	15	16	16	20	17	18	18	17	16	15	14	15	16	15	14	15	15
2	15	14	15	14	15	15	14	14	16	17	20	21	29	32	20	16	16	14	16	15	14	15	14	15
3	15	15	15	15	14	16	15	15	16	16	17	29	24	17	21	17	15	15	14	15	15	14	14	15
4	14	15	14	14	15	14	16	14	15	18		35	38		23	21	16	14	14	15	15	15	14	15
5	15	14	15	14	15	15	15	16	18	43	28	28	28	26	22	20	22	16	15	16	14	14	15	15
6	14	15	15	15	15	15	23	15	16	21	39	39	40	34	34	21	29	16	14	14	15	15	15	15
7	15	14	15	14	15	15	34	18	20	35	29	29	22	B	43	23	23	16	16	16	15	15	15	15
8	16	16	14	16	15	17	16	16	33	23	23	21	21	20	18	16	15	14	14	15	15	16	15	14
9	15	16	16	14	15	15	15	16	17	21		38	48	45	22	22	17	15	14	14	15	17	15	14
10	16	14	14	14	14	14	15	15	17	20				47	35	18	17	15	18	14	15	15	16	15
11	14	15	14	15	14	15	16	16	41	17	23	22		35	18	16	15	15	14	14	15	15	15	16
12	15	16	14	14	15	15	14	15	17	16	30	29	33	36	34	17	16	15	14	15	15	15	14	15
13	15	14	15	14	15	15	16	14	15	22	24	38	26	27	22	20	17	14	16	14	15	15	15	15
14	15	15	15	15	14	14	15	16	17	18	36	30	41	18	20	17	15	15	14	15	15	14	15	14
15	14	14	16	14	15	15	15	14	16	20	29	29	24	27	21	20	16	14	15	14	15	14	14	15
16	15	14	15	15	16	15	15	14	16	18	22	23	22	18	16	16	17	15	15	14	15	14	14	15
17	15	15	15	14	14	15	17	15	20	30	30	32	33	20	20	17	15	15	14	14	14	14	15	15
18	15	16	14	14	14	14	15	14	15	17	20	24	21	20	18	16	15	14	14	15	14	15	14	16
19	15	15	15	14	15	15	14	14	16	22	18	21	20	35	17	16	17	14	15	14	15	14	15	15
20	15	14	14	15	17	14	22	15	16	17	16	16	15	23	20	18	16	14	15	15	15	15	15	16
21	16	15	15	14	14	14	17	16	17	20	32	30	26	32	17	17	15	14	14	14	15	15	14	15
22	14	15	14	14	15	16	17	15	17	16	17	33	35	44	18	17	15	22	15	15	15	15	15	15
23	17	15	14	16	14	15	20	14	16	21	21	22	18	17	16	14	14	14	15	16	15	15	15	15
24	15	14	14	14	14	14	15	14	15	15	17	21	18	21	18	16	15	16	15	14	15	15	16	15
25	15	14	14	14	14	14	15	14	15	18	18	21	18	21	22	18	15	14	15	14	14	14	16	14
26	15	16	14	14	14	14	20	14	16	16	17	36	18	22	18	16	15	14	14	14	15	14	14	15
27	14	14	16	17	16	14	16	15	18	16	17	17	18	20	18	16	15	14	14	14	15	14	15	15
28	15	14	14	14	14	14	16	14	15	18	18	21	27	24	16	16	14	14	15	15	14	14	14	14
29	15	15	15	14	15	15	21	15	17	16	17	22	22	21	17	16	15	14	15	15	15	14	14	15
30	14	14	14	16	14	15	15	14	15	16	20	18	18	21	21	17	15	14	14	15	15	15	15	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	27	29	28	28	30	30	30	30	30	30	30	30	30	30
MED	15	15	14	14	15	15	16	15	16	18	20	24	23	22	20	17	15	14	15	15	15	15	15	15
U Q	15	15	15	15	15	15	17	15	17	21	29	31	31	33	22	18	17	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	15	14	16	16	17	21	18	20	18	16	15	14	14	14	15	14	14	15

HOURLY VALUES OF FOF2 AT YAMAGAWA

SEP. 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	48	44	48			37	52	66		67	74	77	80	92	101	A	81	A	81			76	73	
2	63	54	56	54	42	38	54		67	81	84		82	85	78	85	93	97	107	104		78	72	70
3	66	57			52	50	51			A	66	66		A	65	66	A		77	82		A		
4	32		A	A	23	46	31			A	A		46		A		48	A	50	52	A	A	49	A
5	25	47	50	46		33	43	54	62	72	70	81	72		65	67	84	87		60	47		57	52
6	52	52	50	51		25	48	66		82	84	88		80	85	94	100	100	96				62	A
7		52	58	52	52	47	51	72	67		71	75		72	76	82	85	80	80		82	52		46
8	52		48	43	41	39	43		75		75	84		75	78	84		80	83	84	60		47	43
9	A	44	43		40	46	46	53	55		62	67	76	74	71	86	75		67	60	49	77	77	68
10	65		A	A	A		A	34	54			49		61	69	57	68	67	60	63	62	18		42
11		42	44	42	50	46		52	74	56	85	63			58	65		67	A	68				53
12	34	52	52	36	37		52	55		73	71	76		90	105	91	85		84	78			53	53
13	52	52		55	43	34	45	71	78		85		98	116	122	132		127	110	111		66	51	
14		56	51		40	37			77	76		92	97	101	101	103		108	96	86	73	62		64
15		54	52			40	52		78	76	81	100	100	96	102	111		108	104	77	48	53	46	18
16			54	53		52	54		78	90	92		94	101		104	108	104	90					56
17	53	52	58		35	34		66	86		88	85	91	96	110	118		112	111		96	83	62	52
18	52		53	53	48	43	52	62	54	A		A	A	A	A	A	58	58					44	43
19	38	37	50	41		50	54		66	66			80	90	103	93	97	113	111	97		52	52	
20	46	52	52	58	34	46		67	76		70	80		93	97	91	95	104	102	86	58	A	48	
21	56	51		56		46	52	68	80	77	77		91	106	110	115	126	124	100	87	74	77	82	106
22	80		66	52	51	47	52	77	92	86		91	107	116	126	132	130	124	111	107	85	74	63	
23	58	58	N	54	51	50		66		83	81	92	111	112	118	117	114	118	107	101	67		58	62
24		66	60		50			88	94		78	80	96	102	110	102	98	104	110		84	58	66	83
25	52			54	40			85	97	82	94	94	84	90	91		108	111	101	87				53
26	58	61			47			87	100		80	94		116	114	118	108	111	111	92			49	49
27	53	54	50	46	53	47		72	100	112	87	87		101	97		95	111	106		62	52	53	58
28	53	43	48	51	54		51		88		88		96	104	105	104	103	106	100	71		52	52	
29	70	53		54	52	52	63	83	90	100		88	101	121	126	128	138	134	111	124	111	106	104	90
30	87	77	72		70		80		108	101	100	100	101	105	107	100	94	80	76		62	73	64	60
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	23	21	19	22	23	20	20	24	17	23	22	19	25	27	25	23	25	27	21	16	17	23	21
MED	53	52	52	52	48	46	52	66	78	81	81	84	94	96	101	100	95	106	100	86	64	66	57	53
U Q	63	56	57	54	52	47	53	74	91	88	87	92	100	105	110	116	108	112	110	99	83	77	66	66
L Q	48	47	49	46	40	37	47	58	67	72	71	76	80	87	78	84	84	83	81	69	59	52	49	47

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT YAMAGAWA

SEP. 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	38	26	36			24	26	36		G	68	69	52	60	70	97	84	78	62			83	40	
2	32	36	41	29	24	G	G		42	51	61		G	G	G	G	46	48	60	G		G	G	24
3	29	G			G	G	25			87	45	G		67	46	53	79		94	30		48		
4	33		43	48	38	26	36			69	61		52		50		71	56	44	52	32	32	38	32
5	30	29	23	G		G	G	34	41	G	45	G	G		45	44	45	47		31	40		34	34
6	24	31	24	25		G	23	G		G	G	G		G	49	G	G	G	G	G			55	39
7		30	G	G	G	G	G	G	42		G	G		G	G	47	G	51	57		34	30		47
8	33		G	G	G	G	G		G		53	G		G	G	G		38	33	40	26		32	G
9	25	G	G		G	G	G	G	G		G	46	G	G	G	G	46		G	23	G	G	G	G
10	G		44	48	54		33	32	40		G	G		G	G	G	G	G	29	32	37	26		31
11		G	G	G	24	G		36	39	47	96	72			G	46		54	78	52				24
12	G	G	G	G	G		G	G		G	G	G		G	44	46	58		46	34			G	38
13	29	29		G	G	G	G	32	44		47		G	G	G	G		G	31	33		24	30	
14		G	G		G	G			G	42		G	G	G	46	G		71	46	33	40	40		30
15		G	G			G	G		40	G	47	G	G	G	46	61		37	G	24	34	G	G	G
16			G	G		G	G		G	45	G		54	G	G	46	G	G	42					39
17	29	G	24		G	G		G	41		54	72	57	G	G	G	54	G	G	G	G	31	24	G
18	G		G	G	G	26	32	40	50	56		65	59	59	56	56	54	45					40	G
19	G	G	G	G		G	G		G	G			G	G	G	G	G	36	G	G		G	G	
20	24	G	28	27	27	G		G	G		44	50		G	G	G	G	G	49	28	40	40	32	
21	G	G		G		G	G	34	G	G	G		G	G	62	51	49	62	78	29	84	29	38	G
22	25		G	G	G	G	G	G	G	G		G	G	G	G	43	40	37	47	33	30	28	24	
23	G	G	G	G	G	G		G		G	G	G	G	G	G	G	48	G	31	24	24		G	G
24		G	G		G			G	40		G	G	G	G	G	G	G	G	33	G	25	G	24	G
25	G			G	G			45	G	G	G	97	G	G	48		40	G	36	G				G
26	G	G			G			G	42		G	48		G	G	G	G	38	32	G			G	G
27	G	G	G	G	G	G		G	G	G	G	49	G	G	50		41	G	29		G	G	29	24
28	G	G	G	G	G		G		43		49		G	G	G	G	43	46	43	54		43	57	
29	G	G		24	G	G	G	32	40	G		G	G	G	G	G	G	37	G	25	G	24	G	40
30	39	43	38		29		28	31	39	44	G	G	G	G	G	G	41	39	G		G	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	23	24	21	23	23	21	21	24	20	25	23	21	27	30	27	25	27	28	24	17	20	23	23
MED	24	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	41	37	34	28	30	27	24	24
U Q	29	29	26	24	24	G	25	34	41	46	51	50	26	G	46	46	51	48	48	33	38	36	38	34
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	15	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT YAMAGAWA

SEP. 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	15	15	15			15	16	16		17	27	32	30	29	28	20	17	15	15			15	15	
2	15	15	15	15	15	15	16		15	17	34		39	35	36	21	17	15	15			15	15	15
3	15	15			15	16	15			23	18	34		33	32	34	17		15	15		15		
4	16		15	15	15	15	15			18	34		36		35		17	15	15	15	15	15	15	15
5	15	15	15	18		15	17	15	17	43	32	47	46		26	18	17	15		15	16		15	16
6	15	15	15	15		15	16	18		39	38	49		49	36	44	35		22				15	15
7		15	15	15	15	15	20	16	17		47	46		58	48	34	34	17	15		15	16		15
8	15		15	15	15	16	17		36		35	48		39	38	22		15	15	15	15		15	15
9	16	15	15		15	16	17	16	16		48	26	53	49	48	18	16		15	15	15	15	16	15
10	15		15	15	15		15	16	17					49	49	35	23	17	16	15	15	15		15
11		16	15	15	15	17		15	40	22	33	35			44	33		15	15	16				15
12	15	15	15	15	15		17	16		34	38	48			27	21	20		15	15			15	15
13	15	15		15	15	15	16	15	16		32			49	30	35			15	15		15	16	
14		15	15		15	15			18	21		51	47		30			16	15	15	15	15		15
15		16	15			15	15		16	20	27		48	48	38	21		15	20	15	15	16	15	15
16			15	15		15	16		17	20			39			35			15					15
17	15	15	15		15	15		15	16		35	36	36		38	21	16					15	15	15
18	15		15	16	15	15	15	16	16	32		36	36	36	35	21	16	15					15	17
19	15	15	15	15		15	16		16	18			44	21	35	22	17	15				15	15	
20	15	15	15	15	15	15		16	18		23	35			46	21	18		15	15	15	15	15	
21	15	15		15		16	16	15	16	18	26		45		34	16	17	16	16	15	15	15	15	
22	16		15	15	15	15	15	16		16		45		47	17	16	17	15	15	15	15	15	16	
23	15	15	15	15	15	15		23		22	28	17	44	42	37	17	15		15	15	15		15	16
24		15	15		15			15	16		18	42	46	38	38	17	17	16	15		15	15	15	15
25	15			15	15			15	16	20	24	38	41	38	35		17	15	15	15				15
26	15	15			15			15	16		18	34		44	43	18	16	16	15	15			15	15
27	15	15	15	15	15	15		15	15	17	23	17		38	35		17		15		15	15	15	15
28	15	15	15	15	15		15		15		32		40	36	38	34	17	15	15	15		15	15	
29	15	15		15	15	15	15	16	16	18		38	47	45	36	17		15		15		15		16
30	15	15	15		15		15	15	15	16	36		45	18	38		17	15	17		16	15	15	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	23	24	21	23	23	21	21	23	20	23	20	18	21	29	25	23	20	25	19	15	20	22	22
MED	15	15	15	15	15	15	16	16	16	20	32	37	44	39	36	21	17	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	16	16	17	22	35	46	46	48	38	34	17	16	15	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	16	17	24	34	39	35	33	18	17	15	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT OKINAWA

SEP. 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	42	37	49	51	34	N	34	55	63	73	85	87	N	91	111	105	107	91	N	87	A	74	80	77
2	73	66	53	54	29	37	43	60	77	81	86	81	86	87	94	104	106	105	161	166	108	87	80	63
3	62	64	54	53	50	37	42	54	55	55	78	78	70	A	76	80	87	84	A	A	A	A	A	A
4	A	A	A	A	A	A	A	36	54	53	C	C	C	A	A	A	64	43	55	A	40	42	43	42
5	37	52	52	35	38	32	31	53	70	55	C	C	C	C	C	C	C	C	86	77	A	60	60	A
6	60	54	53	50	34	28	36	66	72	76	84	92	92	90	102	112	121	111	107	91	86	54	66	62
7	53	20	A	41	43	42	42	70	66	70	70	85	87	91	97	105	107	96	90	110	87	76	52	27
8	61	28	53	26	40	34	34	77	64	61	C	C	C	C	C	C	C	C	106	87	66	62	53	54
9	62	53	43	50	62	52	59	62	66	67	C	C	C	C	C	C	C	95	78	A	54	84	86	54
10	66	53	32	58	35			42	55	52	C	C	C	C	C	C	C	94	87	90	80	42	35	A
11	35	38	38	40	42	34	41	64	81	81	C	C	C	C	C	C	80	84	86	80	27	A	55	54
12	53	53	53	35	32	34	37	58	70	87	95	102	125	161	167	158	142	130	127	110	105	88	A	83
13	88	90	109	81	37	34	42	71	90	86	78	80	104	146	162	164	162	168	162	145	138	90	88	87
14	86	87	87	87	58	A	43	70	73	77	85	94	104	111	111	122	112	122	110	87	77	78	66	66
15	66	67	66	59	42	34	42	86	76	80	87	108	122	122	125	126	144	143	111	88	85	85	66	62
16	72	75	78	67	74	63	53	66	70	88	C	C	C	C	C	C	C	C	110	124	120	90	73	53
17	61	53	52	65	40	A	34	64	80	87	C	C	C	C	C	C	C	C	110	87	90	81	63	53
18	A	52	52	35	40	37	38	66	53	A	C	C	C	C	C	C	C	61	55	28	28	25	40	38
19	38	34	38	42	44	43	38	61	66	74	72	75	94	112	119	125	129	160	164	144	90		80	89
20	90	83	103	80	45	46	50	76	66	79	C	C	C	98	102	106	111	121	106	88	86	85	66	59
21	66	66	66	66	40	32	34	66	77	86	81	88	101	106	122	145	162	170	168	144	124	146	146	107
22	103	90	86	64	54	44	52	76	78	90	100	93	112	96	146	160	167	167	167	145	146	87	103	88
23	88	86	85	86	76	45	37	65	76	81	90	98	112	122	112	129	146	158	144	110	106	86	88	86
24	90	110	93	86	67	53	52	87	87	88	72	86	100	119	126	128	121	130	160	162	134	109	168	128
25	110	134	110	82	44	34	37	72	86	85	105	95	97	106	98	105	121	121	107	85	83	62	54	55
26	53	37	44	54	35		34	85	92	86	91	102	124	146	161	161	162	166	145	120	105	87	80	66
27	67	66	54	66	63	30	34	73	99	105	87	105	120	130	112	111	119	112	107	81	66	61	53	39
28	34	54	64	65	48	34	37	78	84	90	90	103	126	145	145	126	124	119	97	77	54	25	62	58
29	23	A	53	42	51	46	52	78	77	92	101	90	97	122	156	164	165	145	161	164	163	142	145	145
30	128	121	86	77	79	80	78	110	110	99	104	105	104	111	124	120	100	81	80	72	72	66	66	66
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	29	29	24	28	30	30	29	20	20	19	20	21	21	23	26	28	27	27	27	28	27
MED	64	59	54	58	43	37	40	66	74	81	86	92	104	112	119	125	121	120	108	90	86	81	66	62
U Q	87	84	85	72	56	45	46	76	81	87	93	102	120	126	145	151	146	145	152	144	108	87	83	86
L Q	53	52	52	42	37	34	35	61	66	71	79	85	94	97	102	105	107	94	88	85	66	61	54	54

HOURLY VALUES OF FES AT OKINAWA

SEP. 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	32	29	32	33	24	G	25	34	39	G	50	72	85	83	65	71	62	76	62	72	92	79	62	43
2	32	G	G	40	35	G	G	G	42	61	58	55	57	61	63	57	59	43	46	36	25	24	G	G
3	G	G	G	G	G	G	G	34	42	54	50	56	81	61	G	G	46	76	94	114	68	62	82	50
4	112	92	91	44	66	44	30	59	51	50	C	C	C	64	66	96	57	62	59	55	32	24	G	G
5	30	G	G	G	G	G	26	33	G	G	C	C	C	C	C	C	C	C	66	41	66	84	41	41
6	32	32	G	G	G	25	23	G	G	G	G	G	56	52	G	G	G	41	G	25	29	40	58	37
7	33	27	46	30	24	32	23	48	G	47	53	G	53	66	G	G	G	G	42	G	G	68	G	38
8	37	59	28	37	28	26	26	G	G	59	C	C	C	C	C	C	C	C	37	29	28	38	G	32
9	32	25	25	G	22	G	G	G	G	55	C	C	C	C	C	C	C	45	38	49	24	G	G	G
10	G	G	G	G	G			G	G	G	C	C	C	C	C	C	C	G	G	G	G	24	24	40
11	32	30	27	G	G	G	24	36	44	51	C	C	C	C	C	C	61	41	46	41	84	90	59	40
12	32	G	G	G	G	G	G	G	38	61	48	G	G	G	G	82	76	61	49	38	62	85	82	28
13	30	23	28	G	G	G	G	30	38	44	62	G	G	56	G	G	G	G	32	37	28	G	G	G
14	G	33	25	26	24	41	G	48	G	41	46	G	G	G	64	66	66	74	83	56	34	G	G	29
15	38	G	G	G	G	24	55	48	38	G	G	48	53	54	59	63	46	40	46	42	29	31	73	G
16	32	G	G	G	G	G	G	32	39	G	C	C	C	C	C	C	C	C	71	82	59	91	33	28
17	28	34	25	G	G	24	G	47	43	48	C	C	C	C	C	C	C	C	61	57	59	32	G	24
18	37	G	G	G	G	G	G	39	50	59	C	C	C	C	C	C	C	48	38	39	33	30	40	30
19	G	G	G	G	G	G	G	G	G	G	61	G	G	G	G	G	G	38	32	25	26		G	G
20	G	G	G	G	G	G	24	35	41	47	C	C	C	G	55	73	44	46	37	27	41	40	34	33
21	30	33	G	G	G	G	G	33	G	47	G	G	60	57	58	48	G	G	39	25	83	41	59	33
22	G	G	G	G	G	G	G	G	G	G	G	G	47	47	46	G	50	40	32	31	G	G	G	G
23	G	G	G	G	G	G	G	48	G	42	G	G	56	58	51	48	47	45	58	48	40	G	G	G
24	G	G	G	G	G	G	25	40	40	43	G	G	G	G	G	G	G	39	38	36	24	34	37	G
25	G	G	G	G	G	G	20	36	G	G	G	G	G	64	G	50	58	58	39	23	33	33	30	22
26	28	G	G	30	G		G	33	43	46	45	60	G	G	G	45	49	56	42	91	59	33	G	G
27	G	G	G	G	G	11	G	30	G	G	G	G	52	51	61	48	G	50	59	34	36	24	29	29
28	24	G	G	24	G	G	G	31	44	47	60	46	50	G	G	45	47	51	51	56	26	39	G	G
29	29	29	G	G	G	25	23	G	39	44	44	57	56	G	49	G	42	39	31	39	32	G	G	34
30	33	32	32	25	22	24	38	38	G	41	78	63	G	G	G	G	78	59	37	G	32	28	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	28	29	30	30	30	20	20	20	22	22	22	23	26	30	30	30	29	30	30
MED	30	G	G	G	G	G	G	33	38	44	46	G	51	52	24	46	47	45	42	38	32	33	12	28
U Q	32	30	25	25	22	24	24	39	42	50	55	55	56	61	59	63	59	58	59	55	59	51	41	34
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	37	27	26	24	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT OKINAWA

SEP. 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	14	15	15	15	15	15	15	16	32	30	34	30	28	26	22	16	14	15	14	15	15	15
2	15	15	14	15	15	15	16	16	16	22	28	20	29	36	32	23	22	17	14	15	15	15	15	15
3	15	15	15	15	15	16	15	14	15	18	28	28	28	33	29	22	21	15	15	15	15	15	15	15
4	15	14	14	15	14	15	14	15	15	17	C	C	C	28	26	18	17	14	15	15	15	15	15	15
5	15	15	15	16	15	15	14	15	20	39	C	C	C	C	C	C	C	C	15	15	16	15	15	15
6	15	14	15	16	15	16	15	15	15	24	40	50	40	30	29	42	32	16	15	16	15	15	15	15
7	15	15	15	15	15	15	15	15	17	21	26	30	28	55	50	29	29	17	16	15	15	15	15	15
8	15	15	14	15	14	14	14	15	33	24	C	C	C	C	C	C	C	C	15	15	15	15	15	15
9	15	15	15	15	14	15	15	14	16	17	C	C	C	C	C	C	C	14	14	14	15	15	16	15
10	15	15	15	15	15			14	15	27	C	C	C	C	C	C	C	22	14	15	15	15	15	15
11	14	15	15	16	15	15	14	15	28	20	C	C	C	C	C	C	17	16	15	15	15	15	15	15
12	15	15	15	15	17	15	15	15	15	16	34	36	30	18	30	24	23	16	15	15	15	15	15	14
13	15	15	15	15	15	15	15	15	15	18	26	27	29	29	27	36	23	15	15	15	14	14	15	15
14	15	15	15	15	16	15	15	26	20	23	26	36	27	27	26	27	23	16	15	15	15	15	16	15
15	15	15	16	16	15	15	14	17	15	21	23	28	27	28	26	23	17	15	14	14	15	15	15	16
16	16	15	15	15	15	15	15	15	15	16	C	C	C	C	C	C	C	C	15	15	15	15	15	14
17	15	14	15	15	15	15	15	16	16	29	C	C	C	C	C	C	C	C	14	15	15	15	15	15
18	15	15	15	15	14	15	15	16	16	30	C	C	C	C	C	C	C	15	15	15	15	15	15	15
19	15	15	15	15	15	15	15	15	16	20	24	47	28	26	27	17	14	16	14	15	15		18	15
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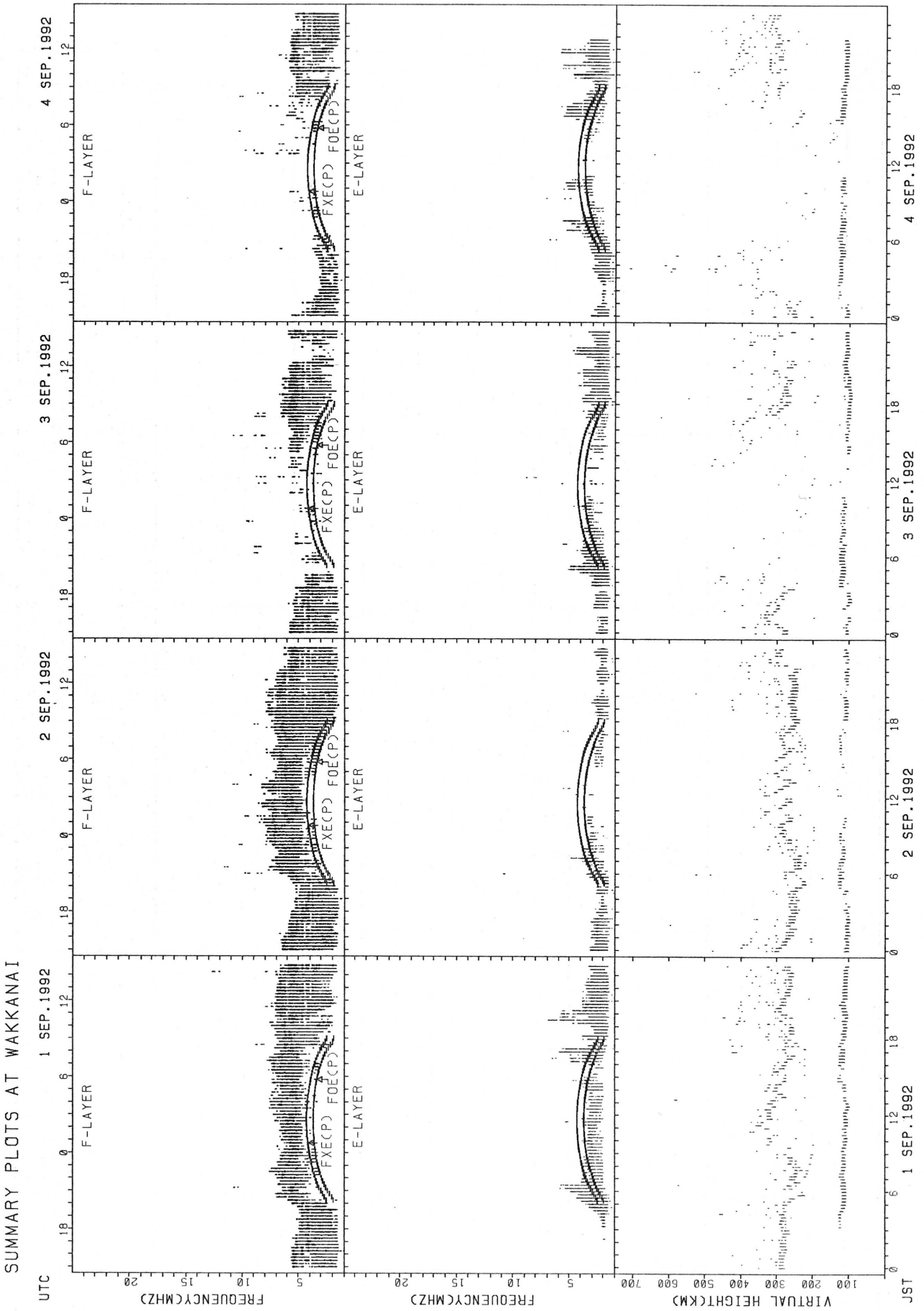
L Q	15	15	15	15	15	15	14	15	15	17	24	27	28	27	26	23	17	15	14	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN


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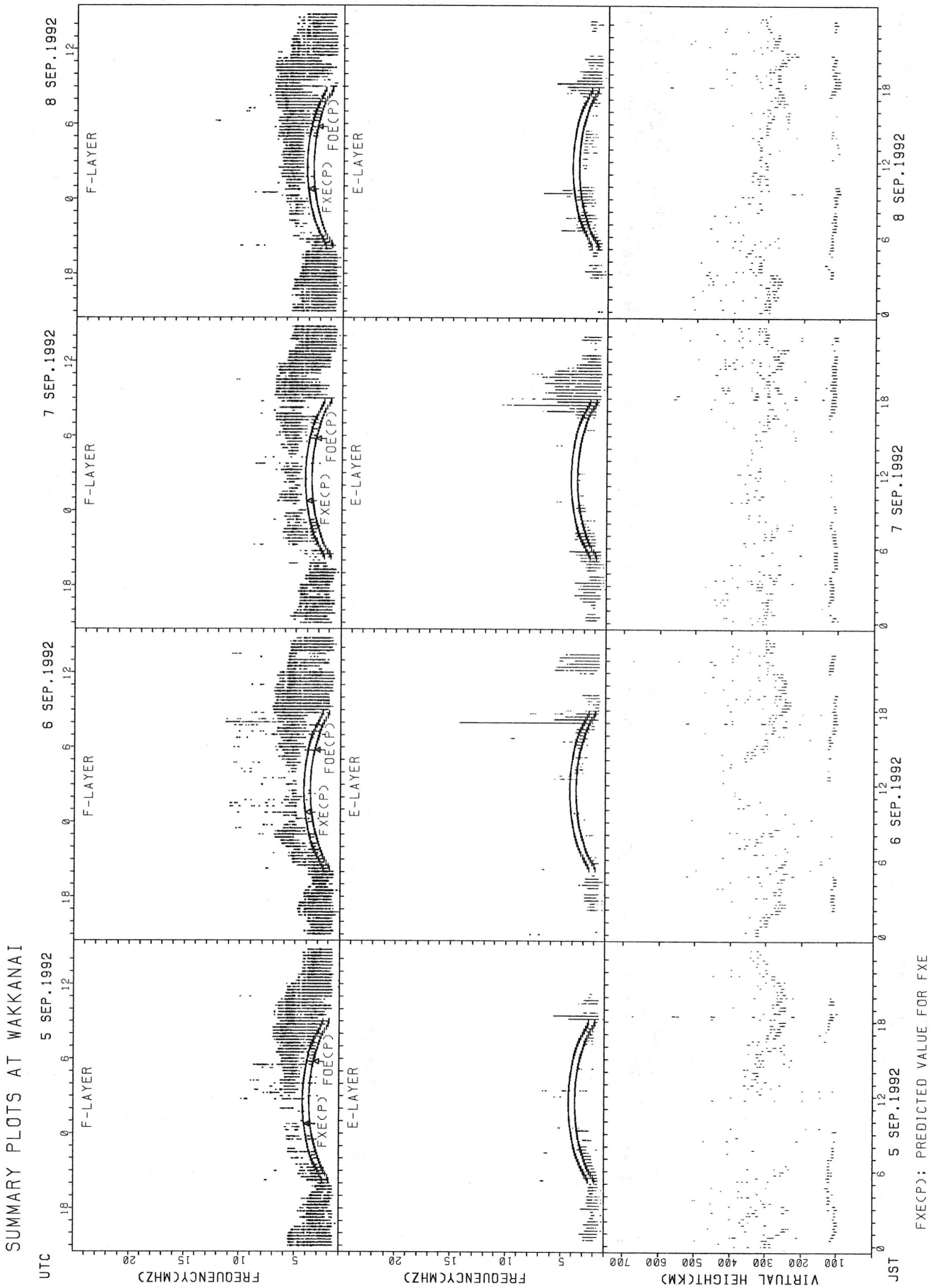
3 SEP.1992
4 SEP.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE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UTC
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F-LAYER
E-LAYER
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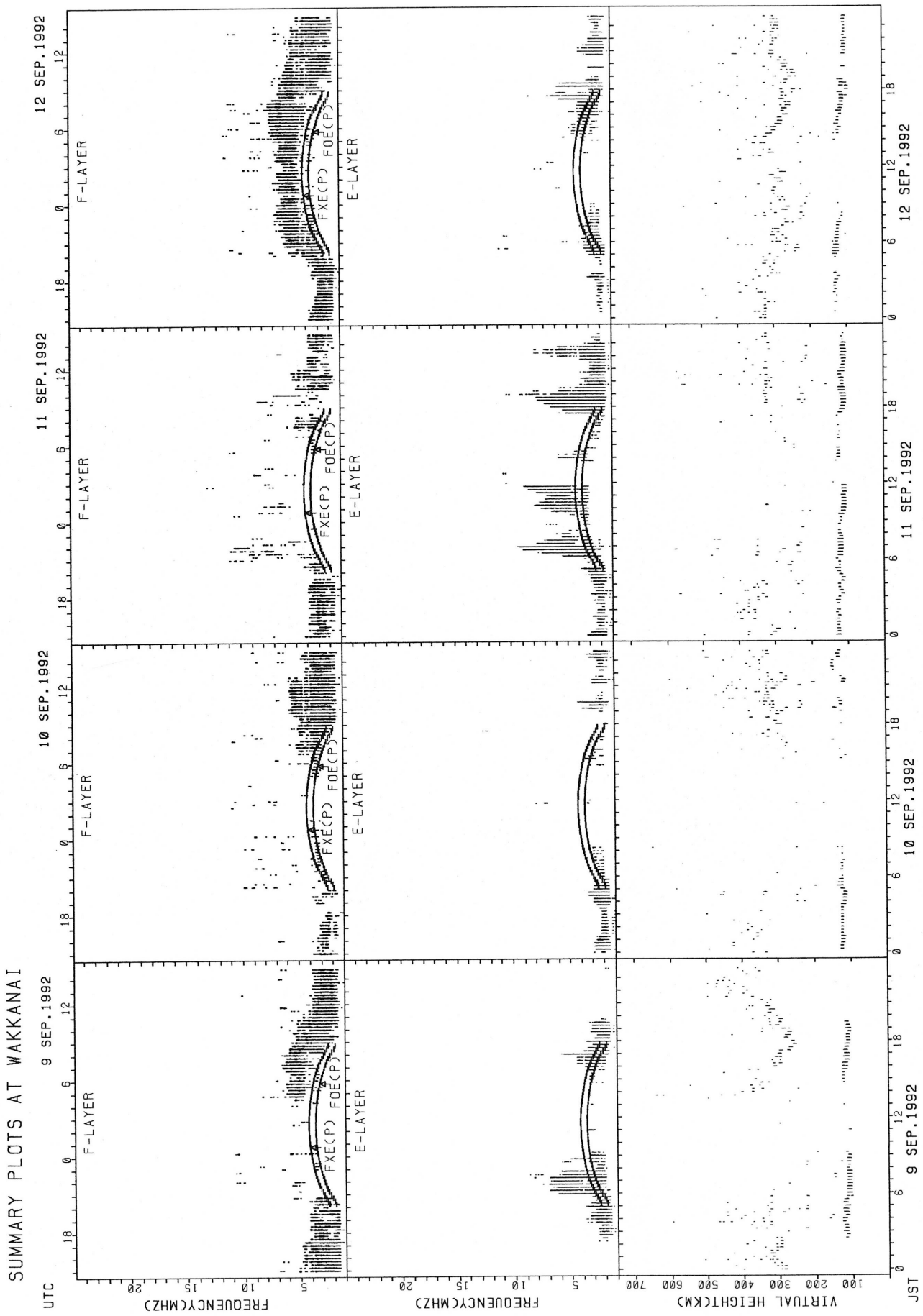
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F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
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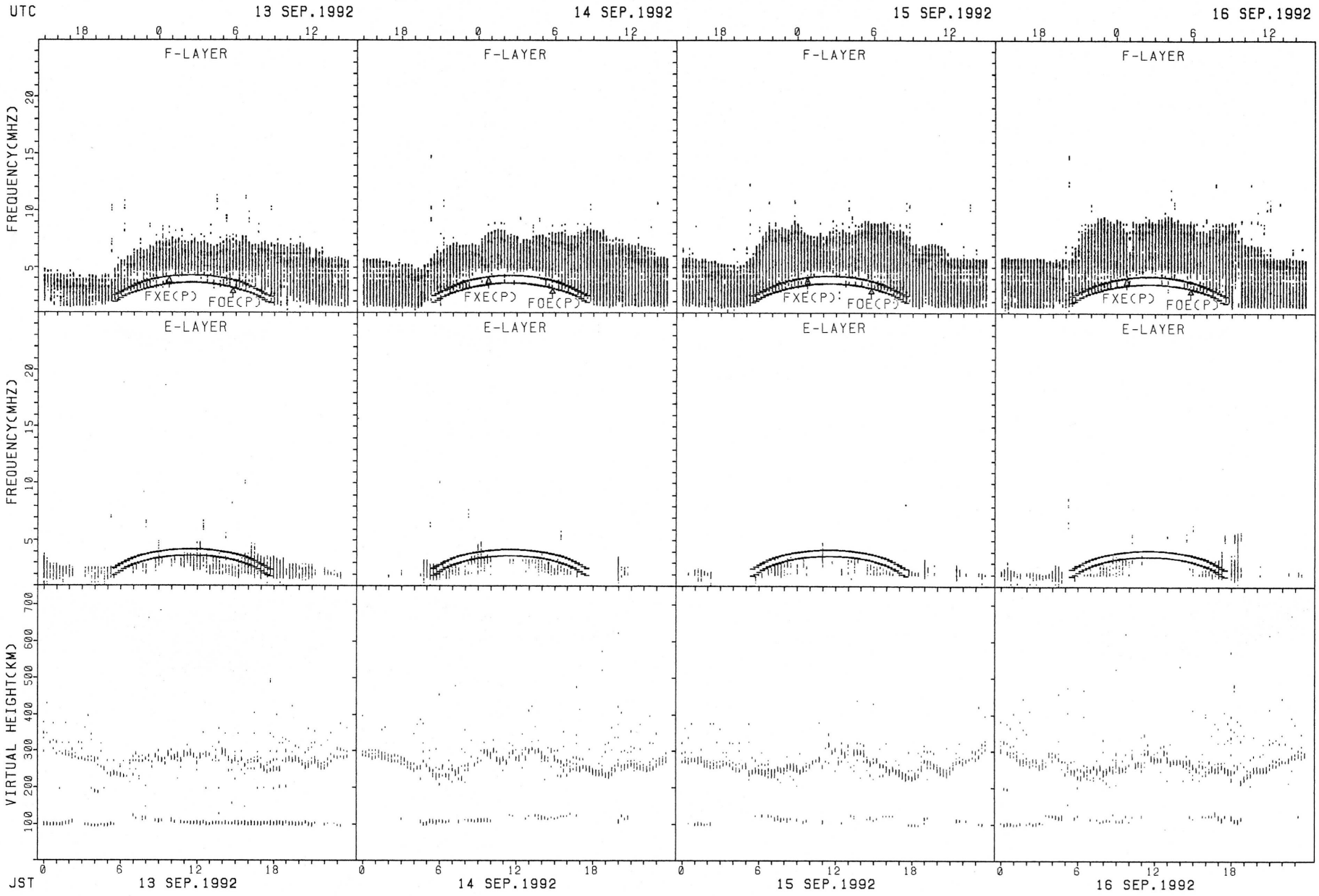
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT WAKKANAI



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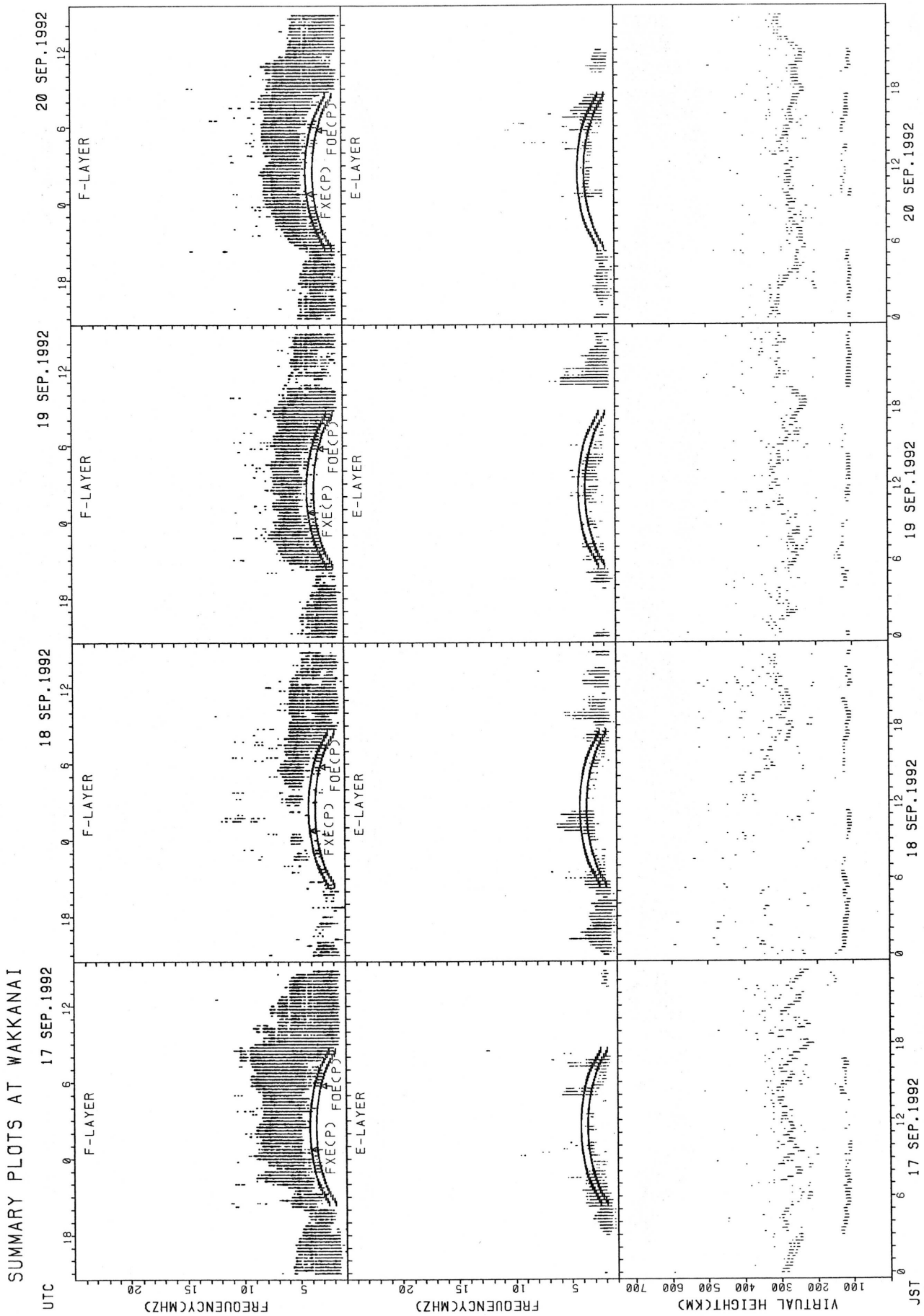
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E-LAYER
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FOE(P)
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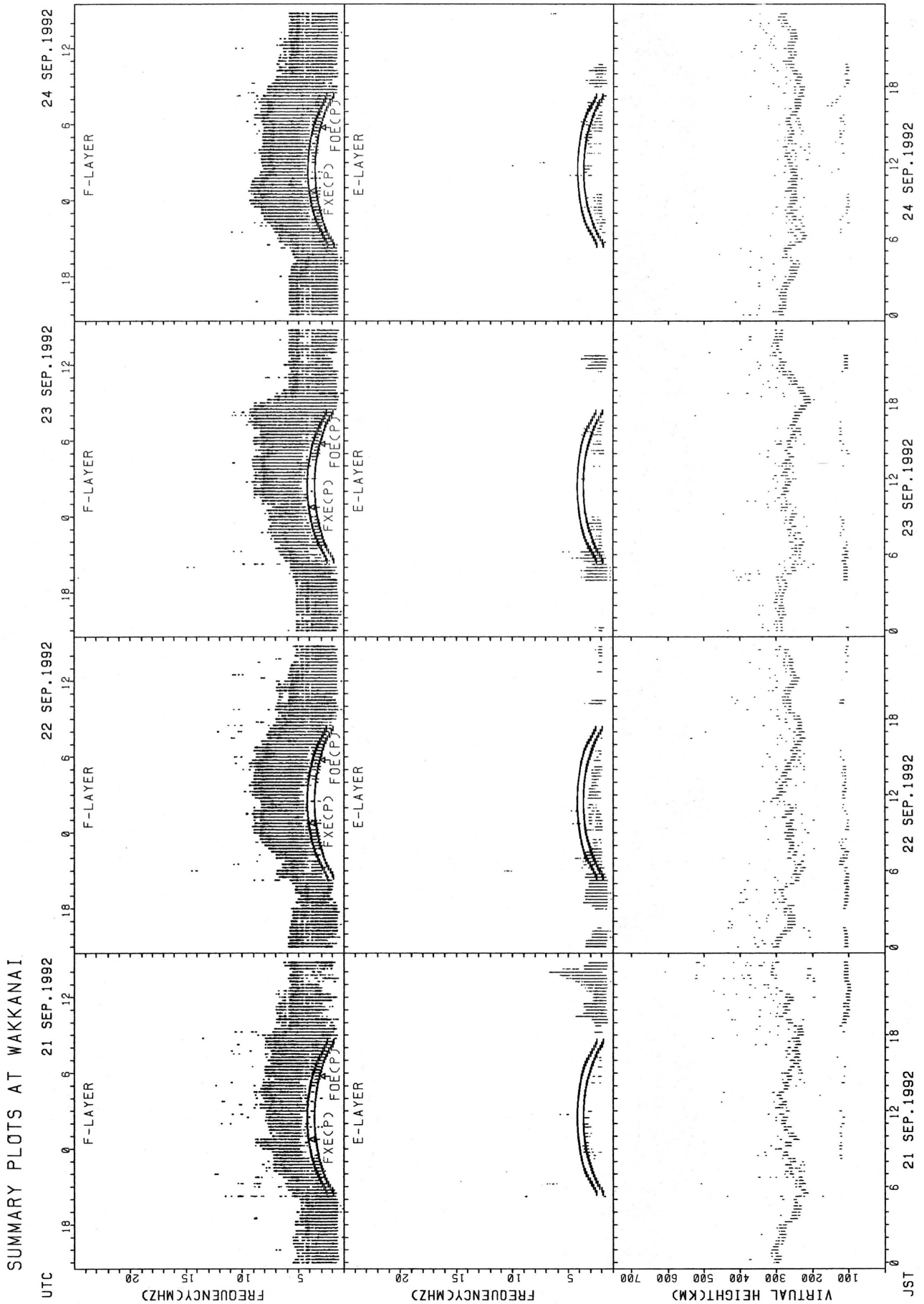
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JST
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E-LAYER
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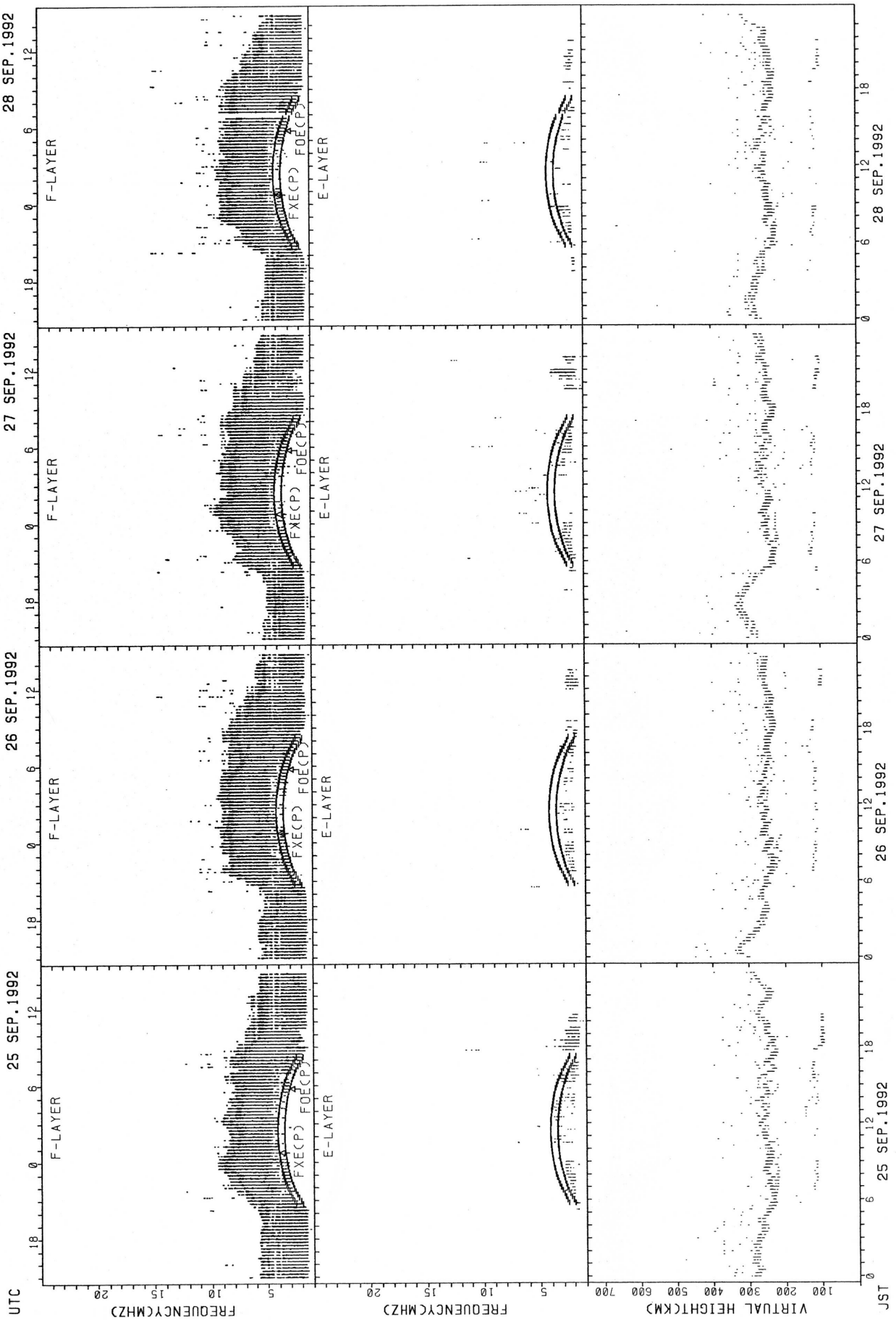
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JST
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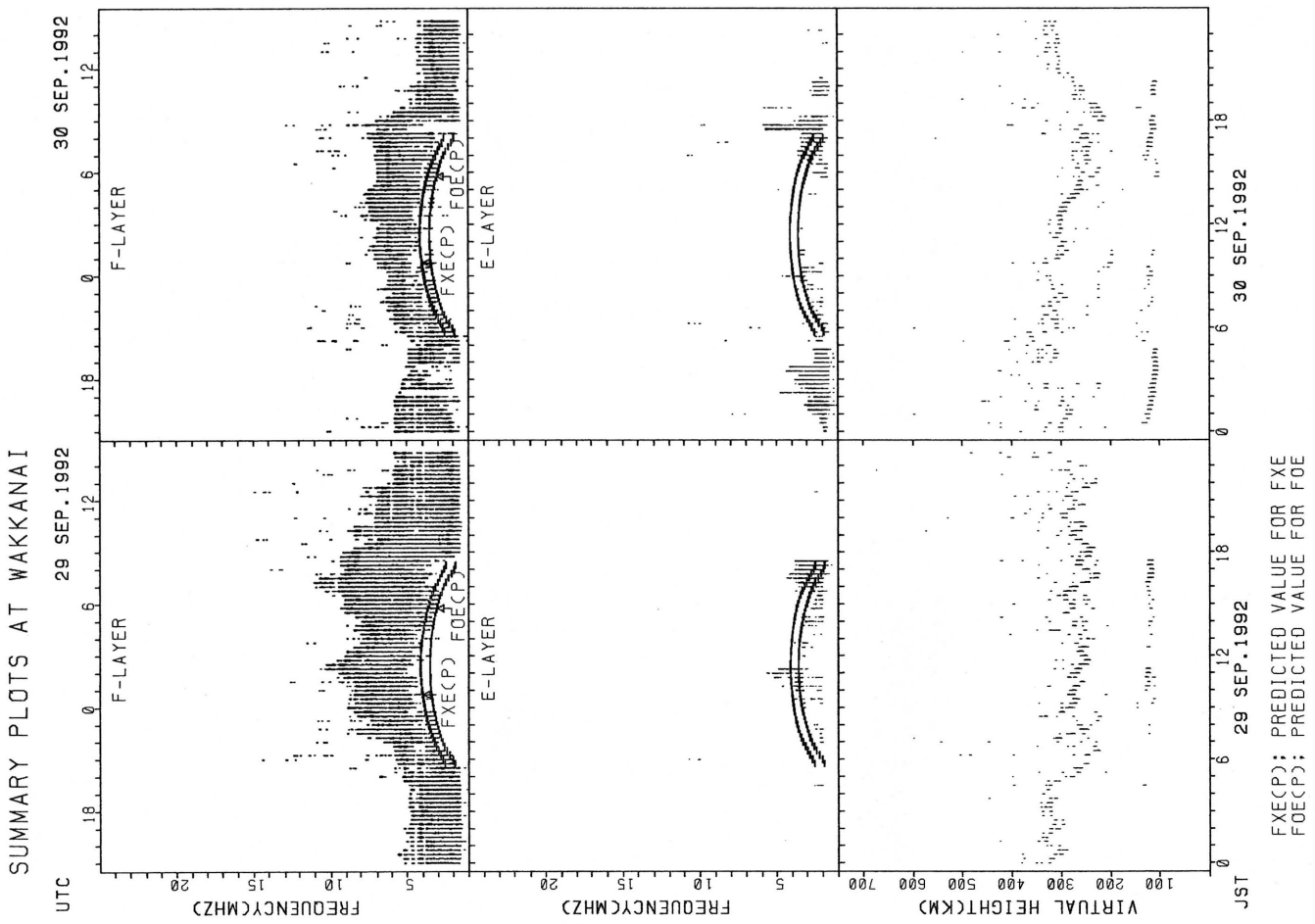
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F-LAYER
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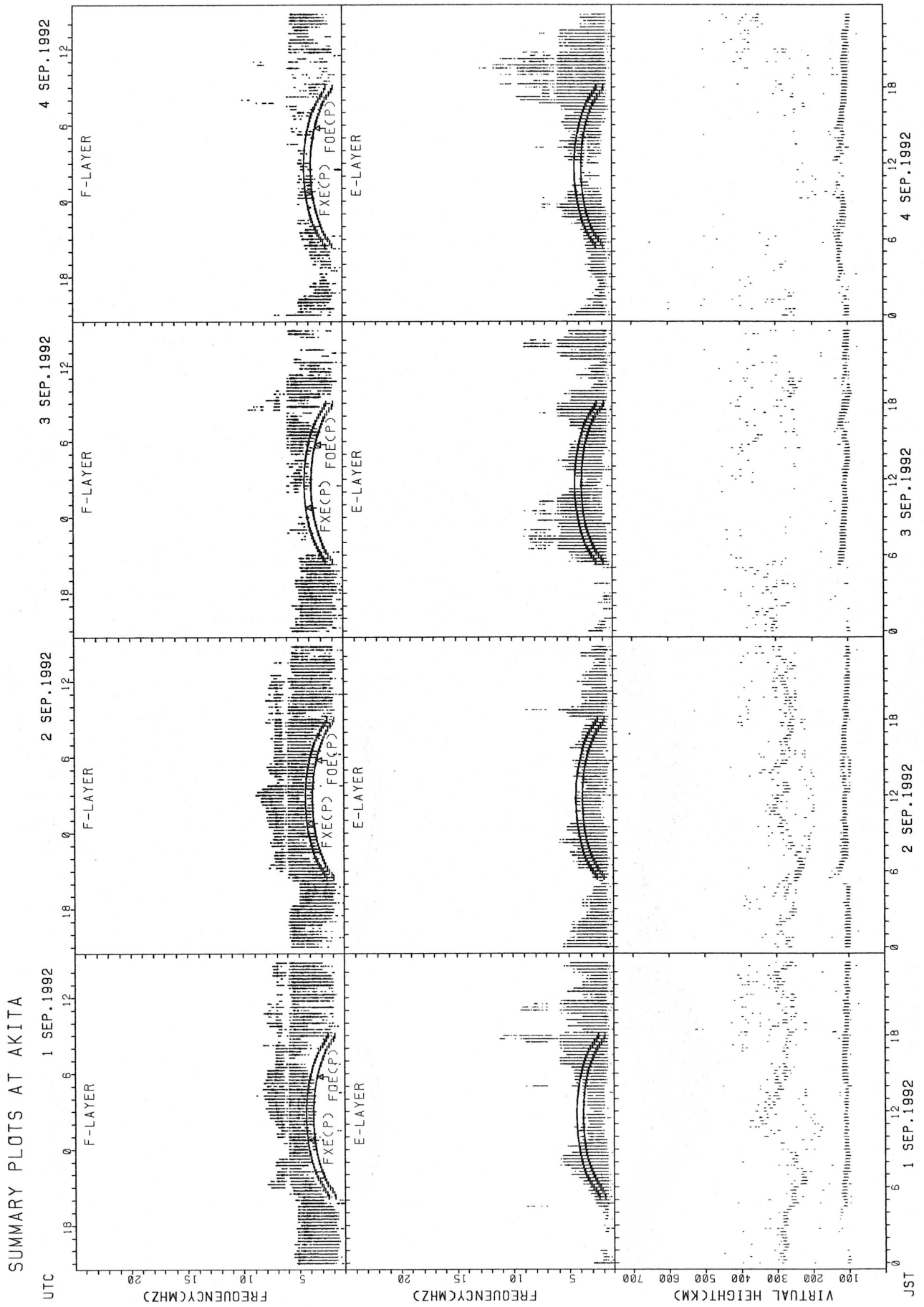
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F-LAYER
E-LAYER
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FREQUENCY(MHZ)
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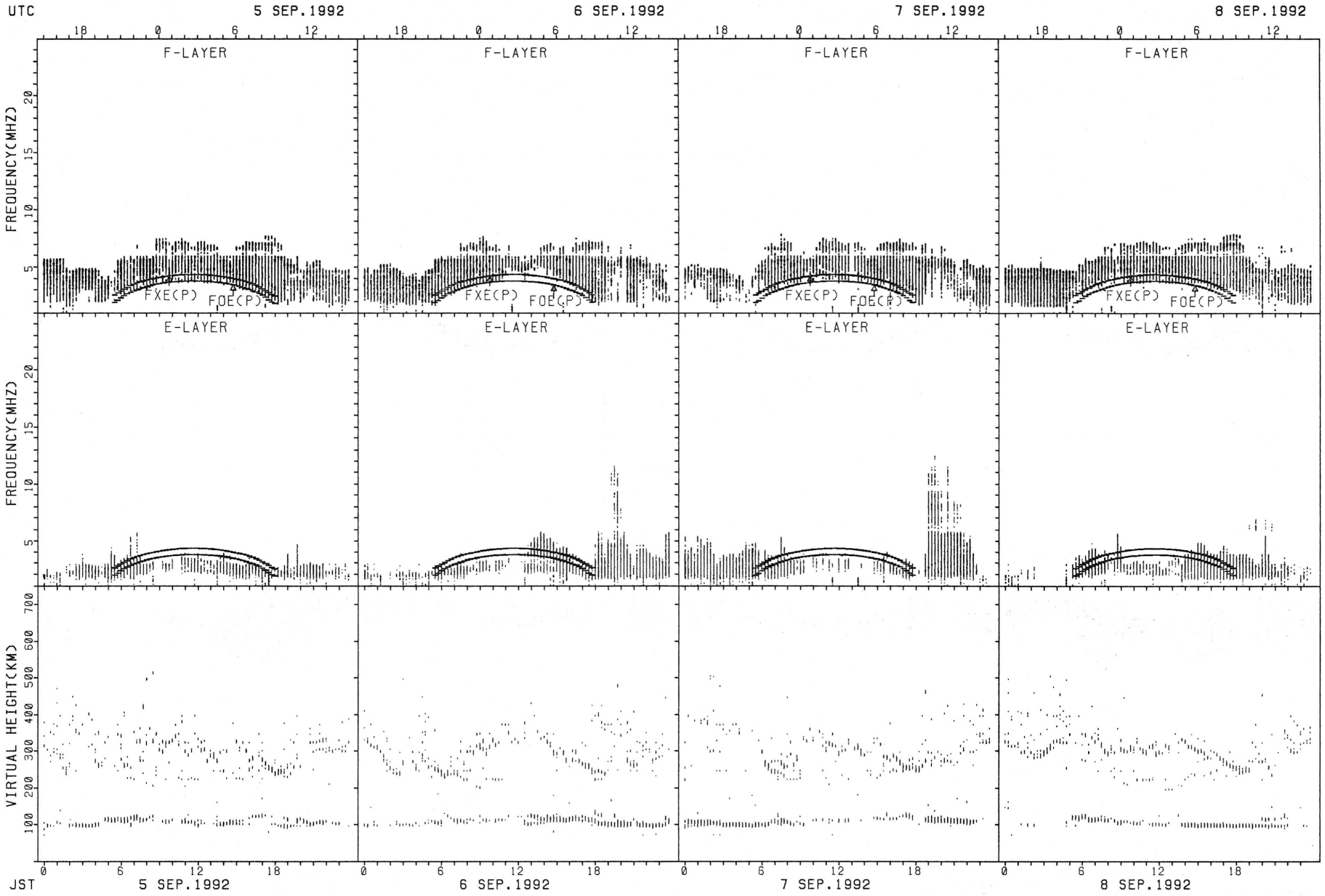
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT AKITA



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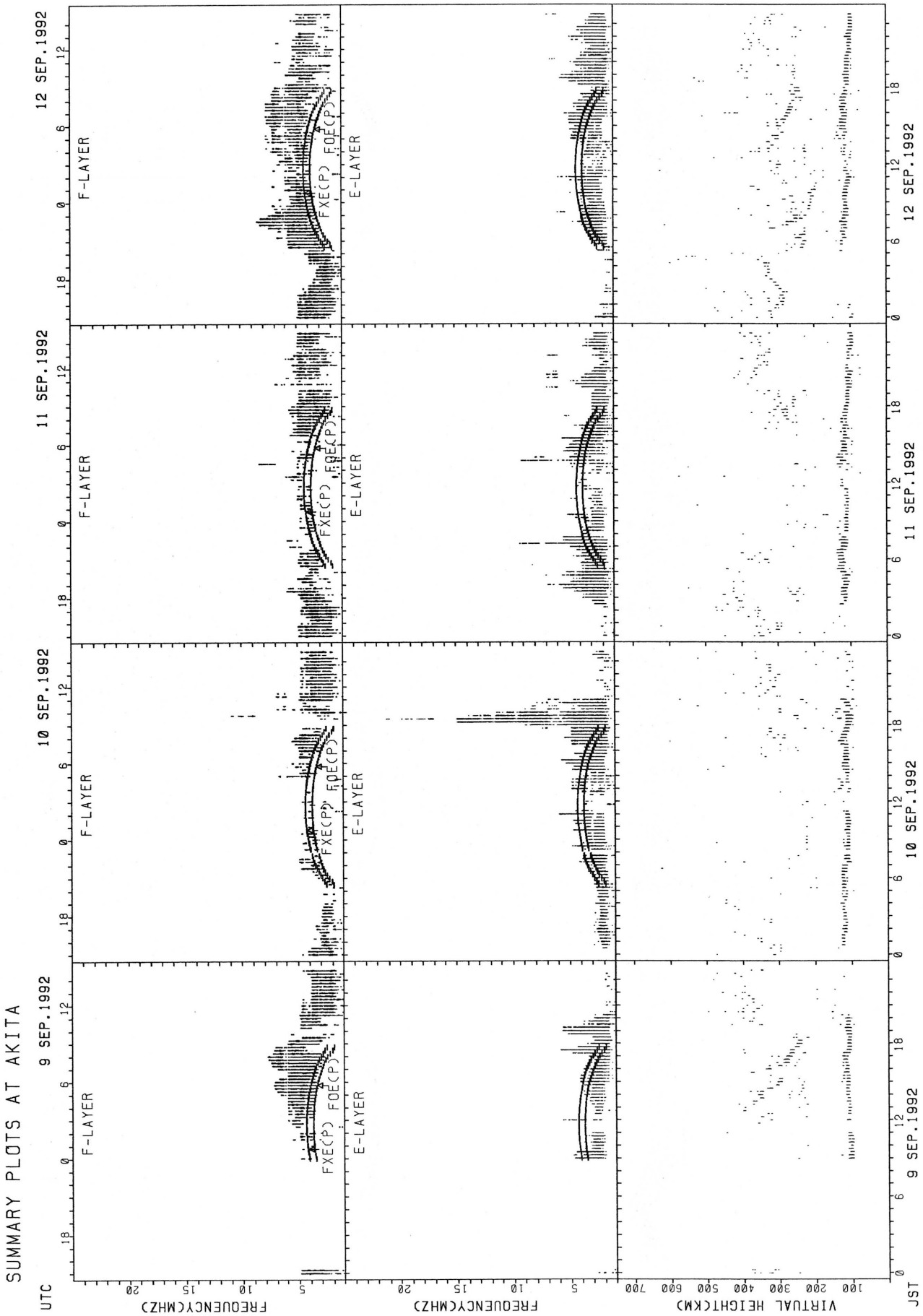
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E-LAYER
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FOE(P)
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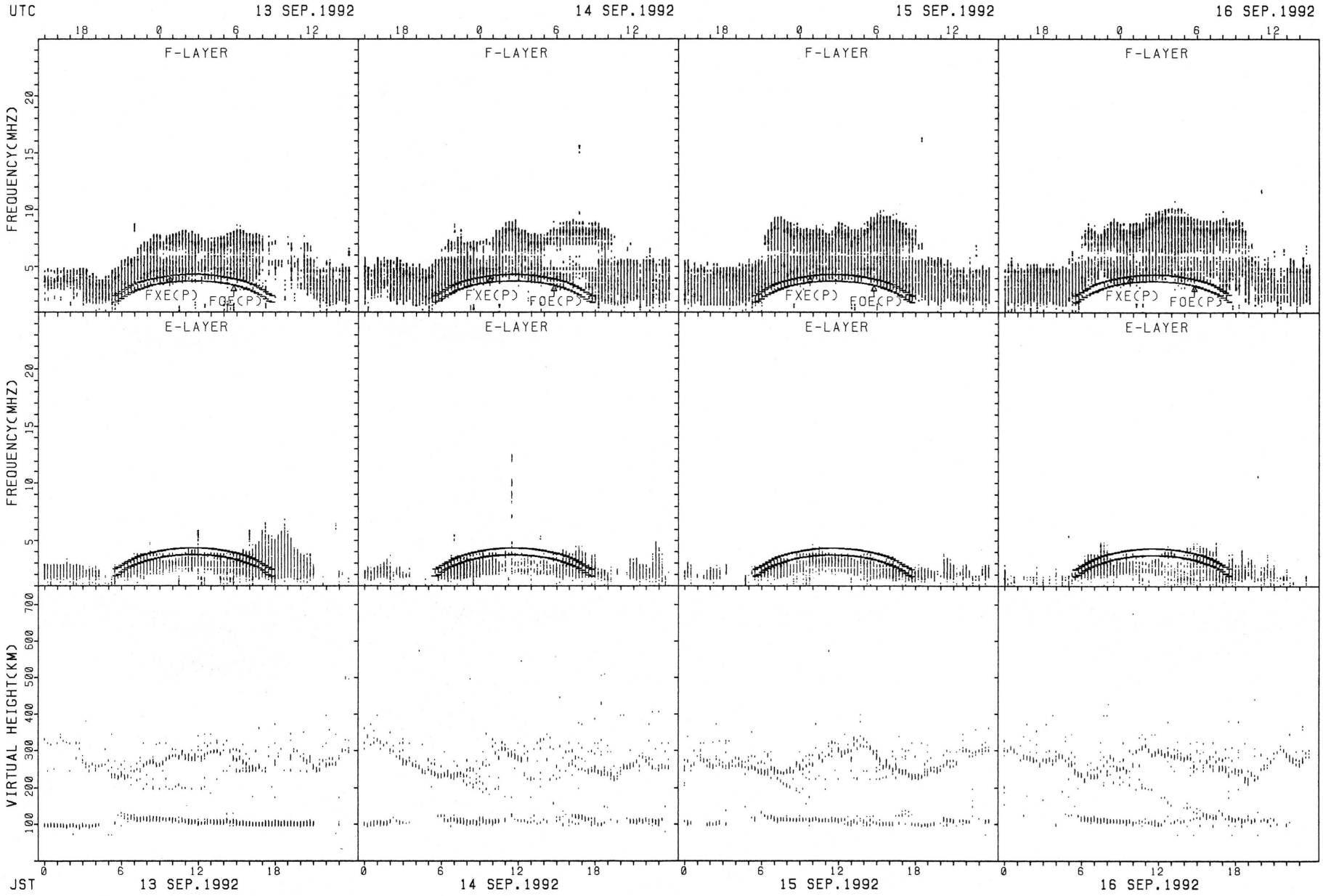
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT AKITA



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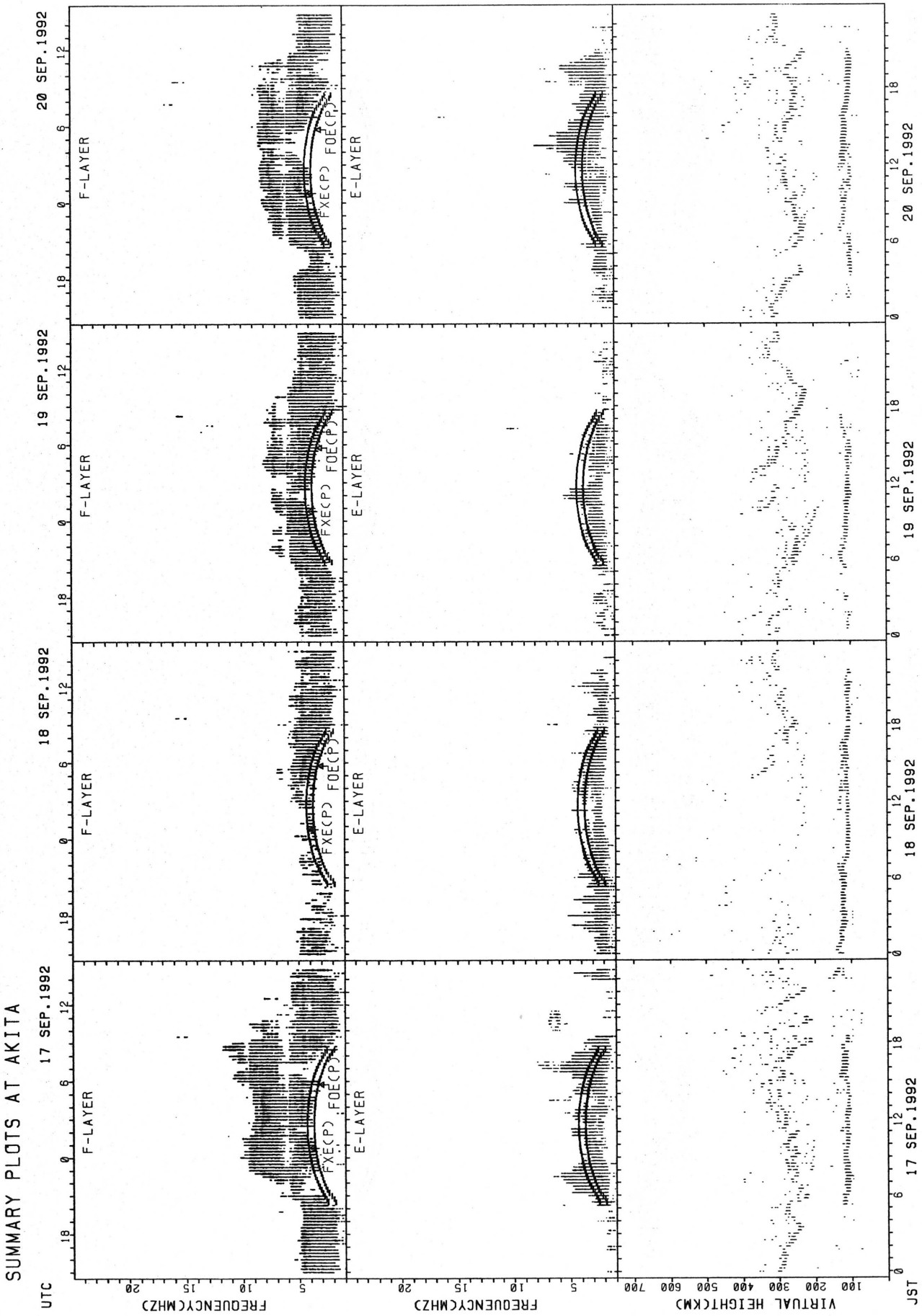
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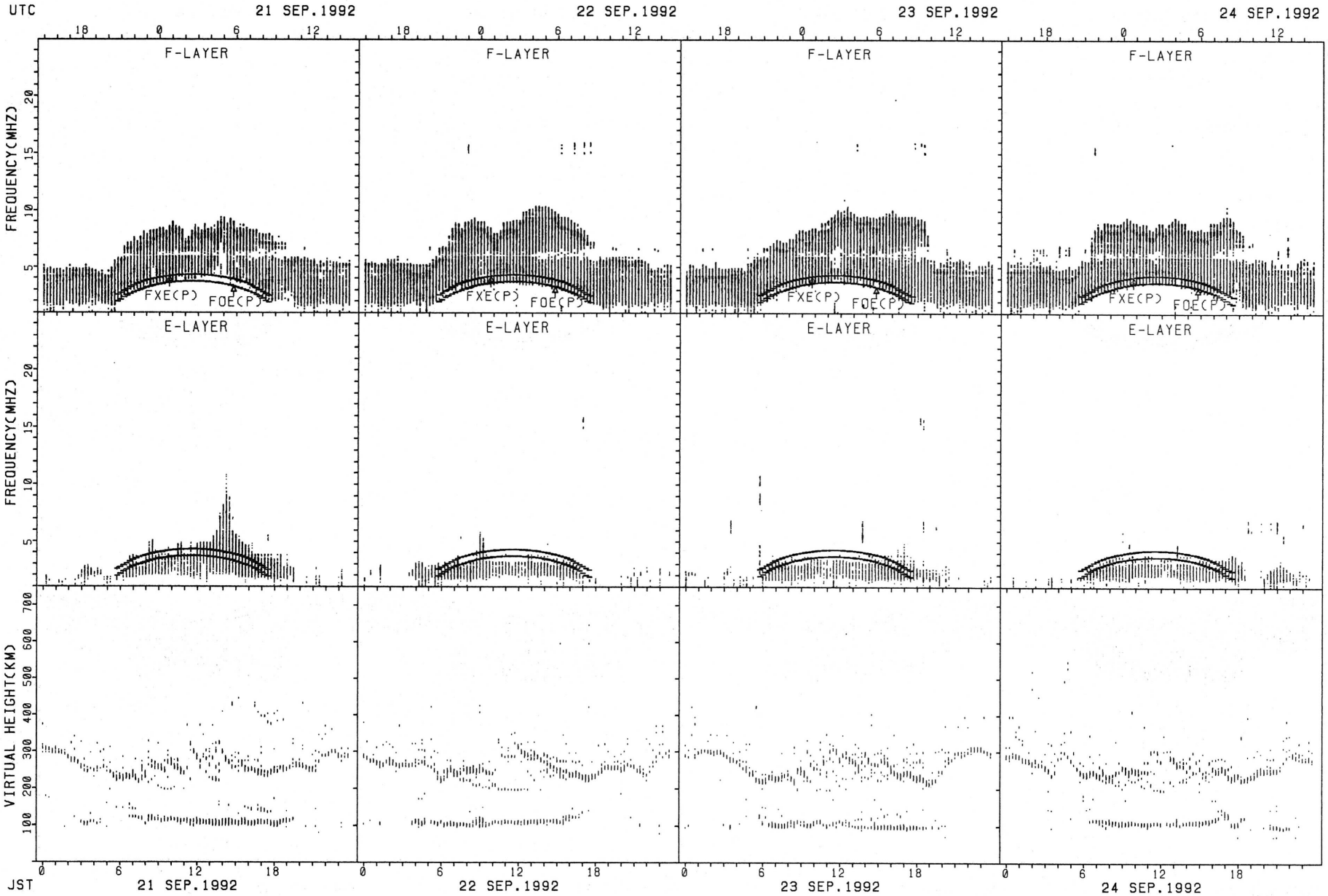
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT AKITA



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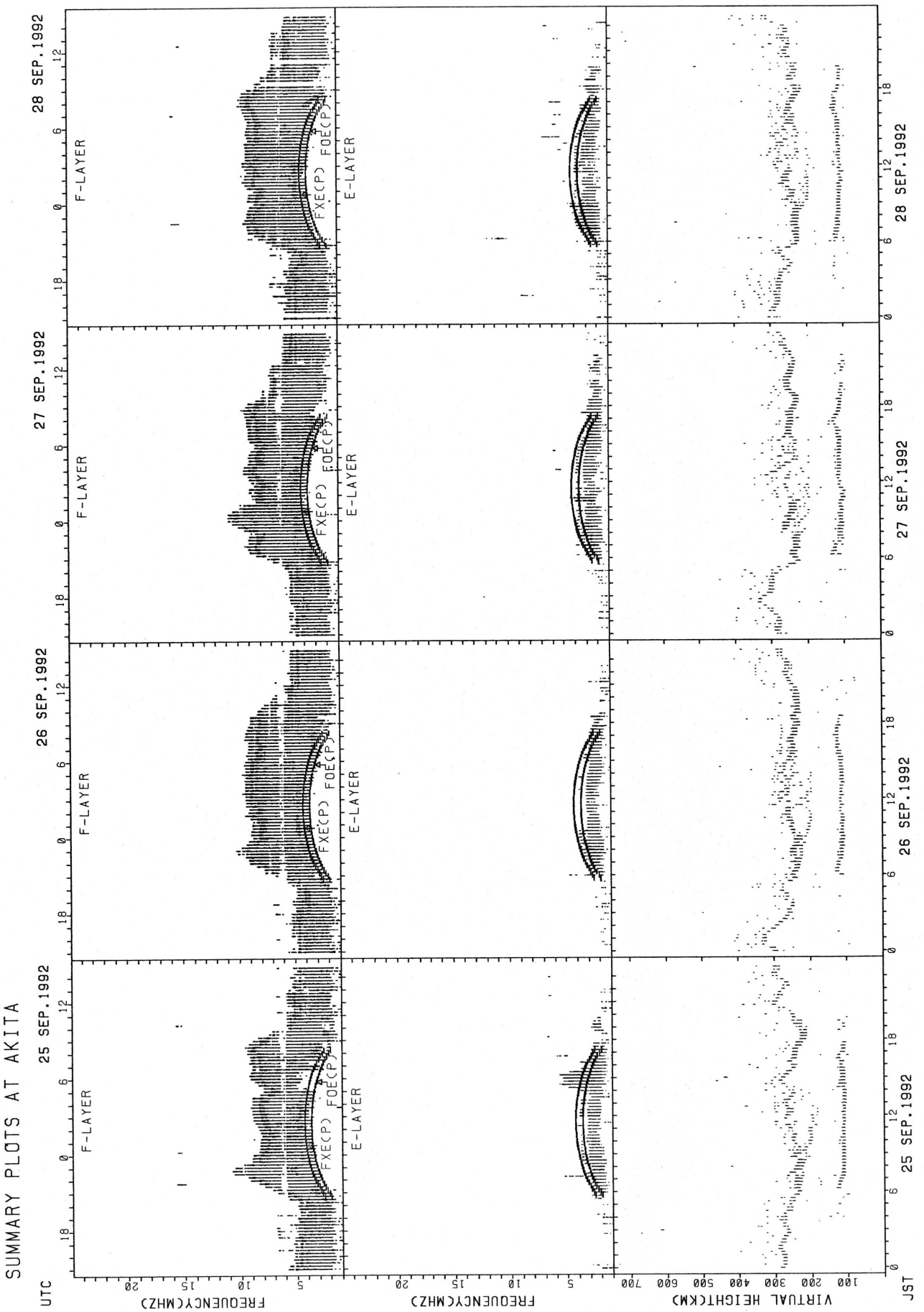
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E-LAYER
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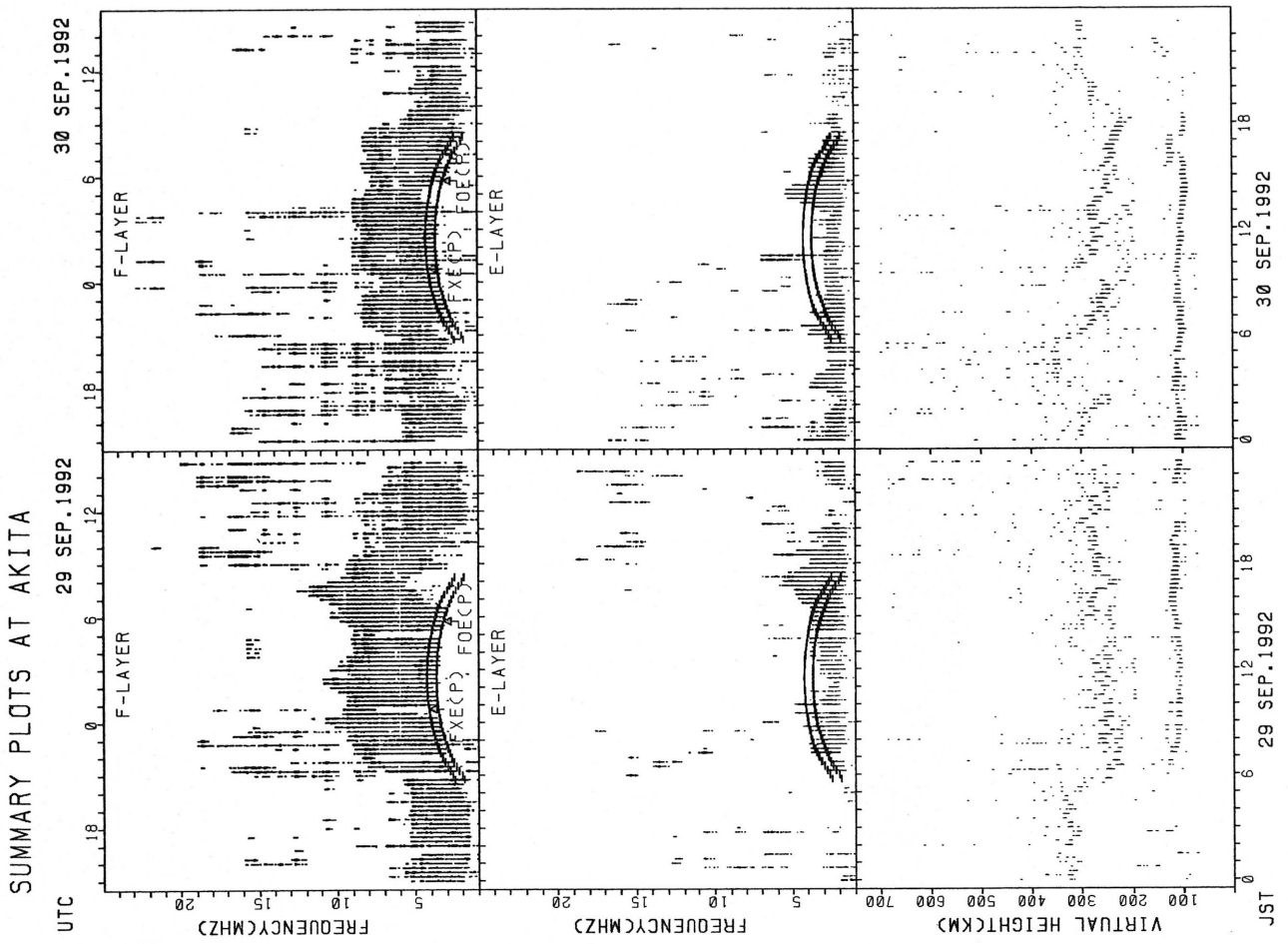
VIRTUAL HEIGHT(KM)
UTC
JST
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE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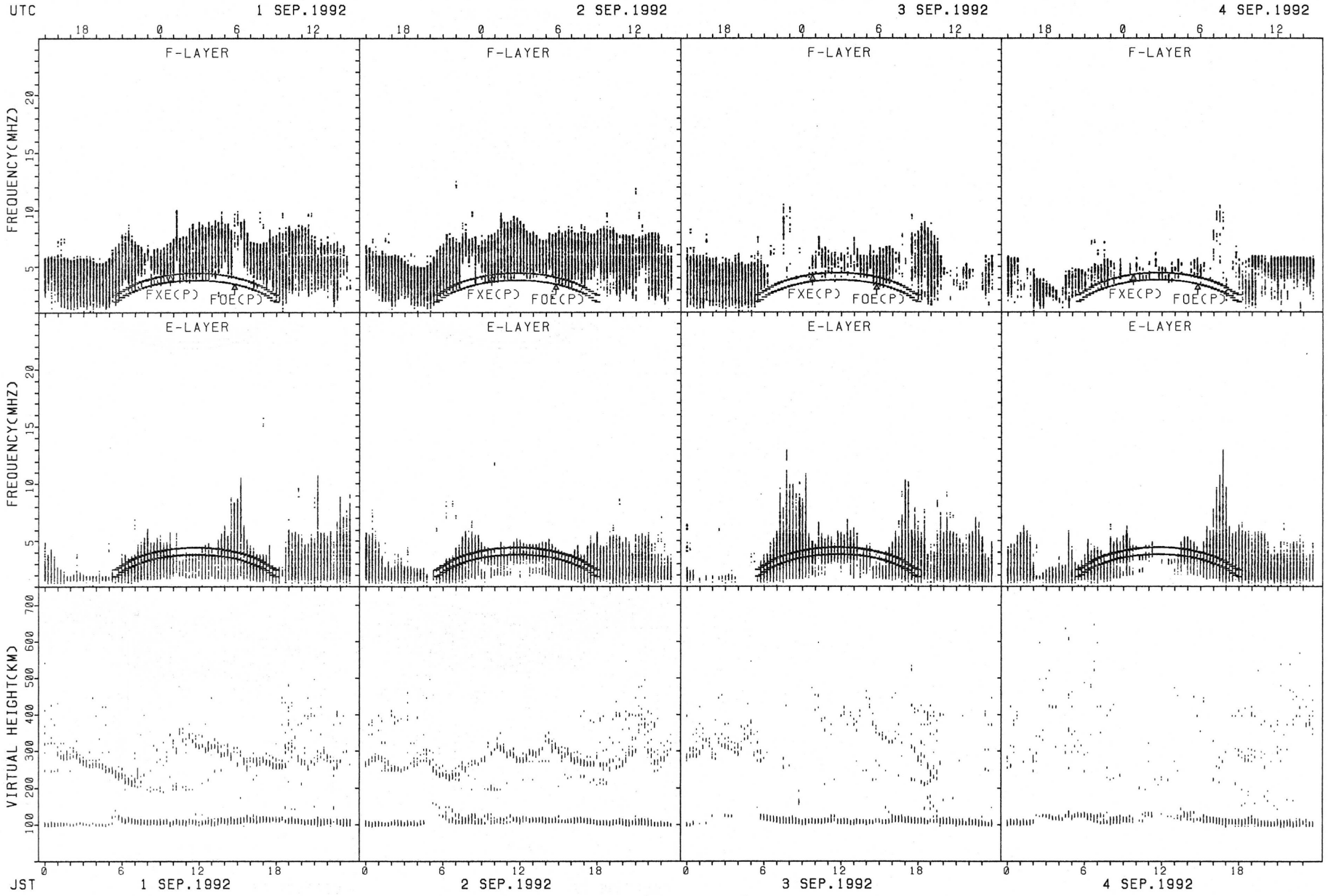
SUMMARY PLOTS AT KOKUBUNJI TOKYO



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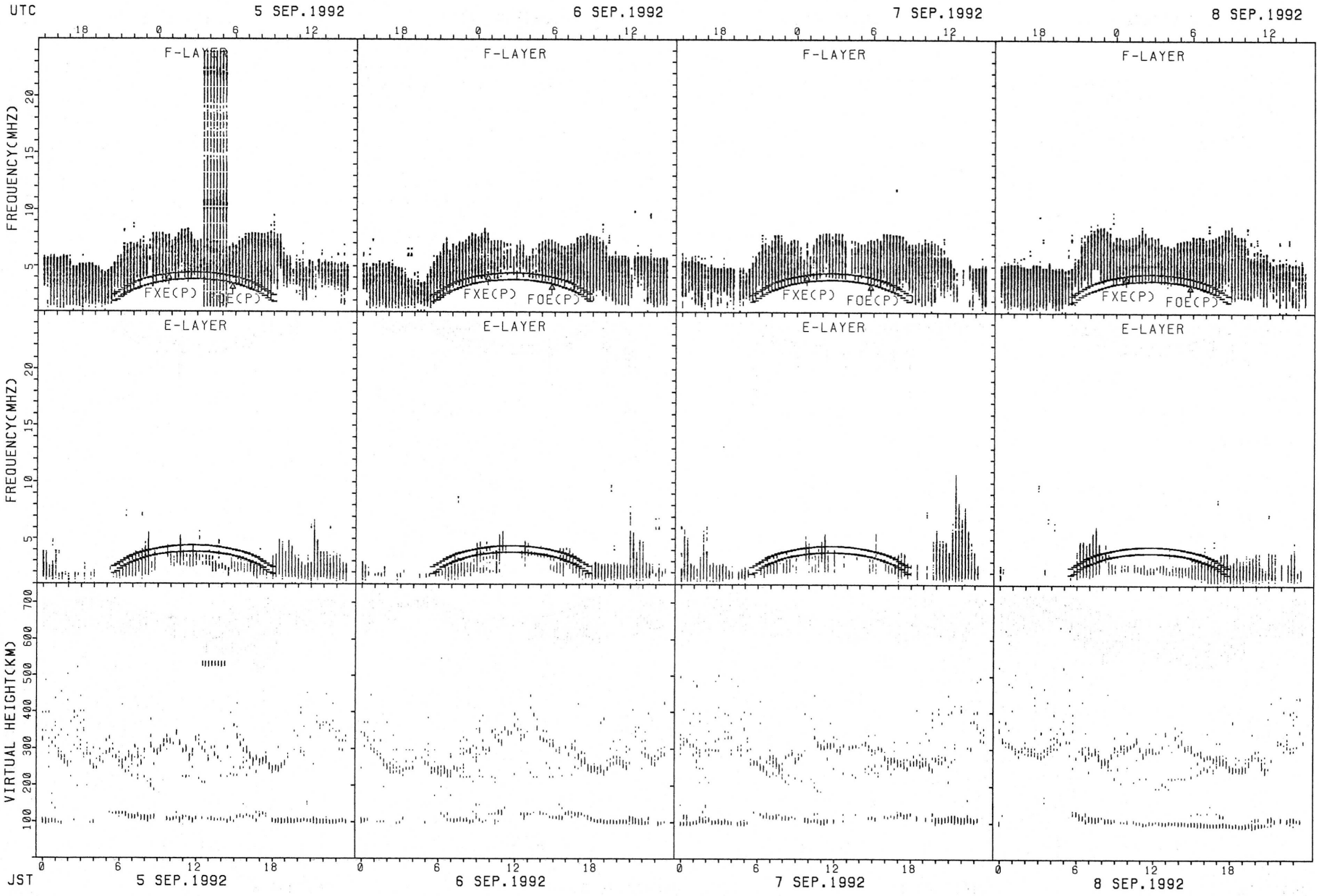
SUMMARY PLOTS AT KOKUBUNJI TOKYO



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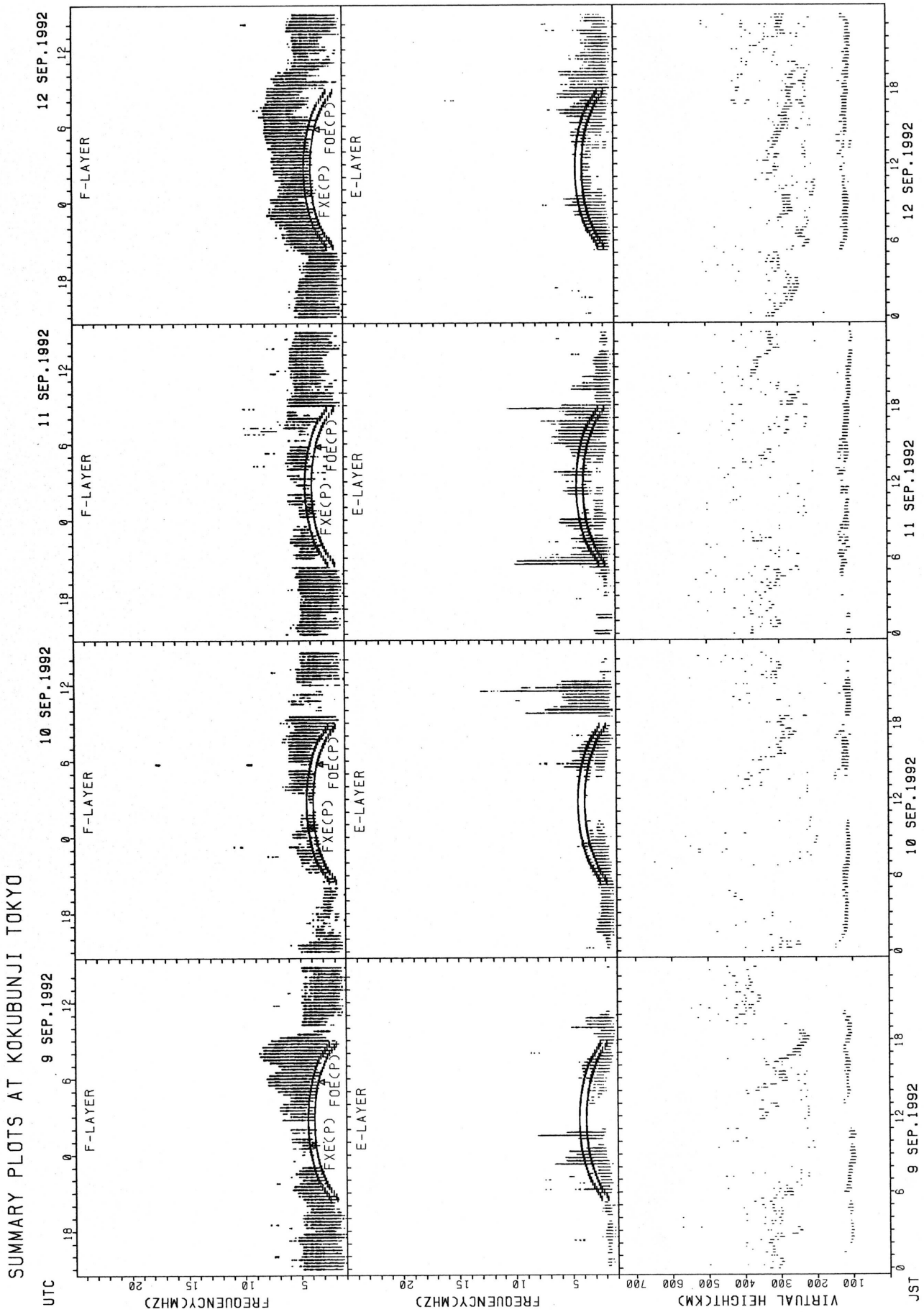
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E-LAYER
FXE(P) FOE(P)
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VIRTUAL HEIGHT(KM)
JST
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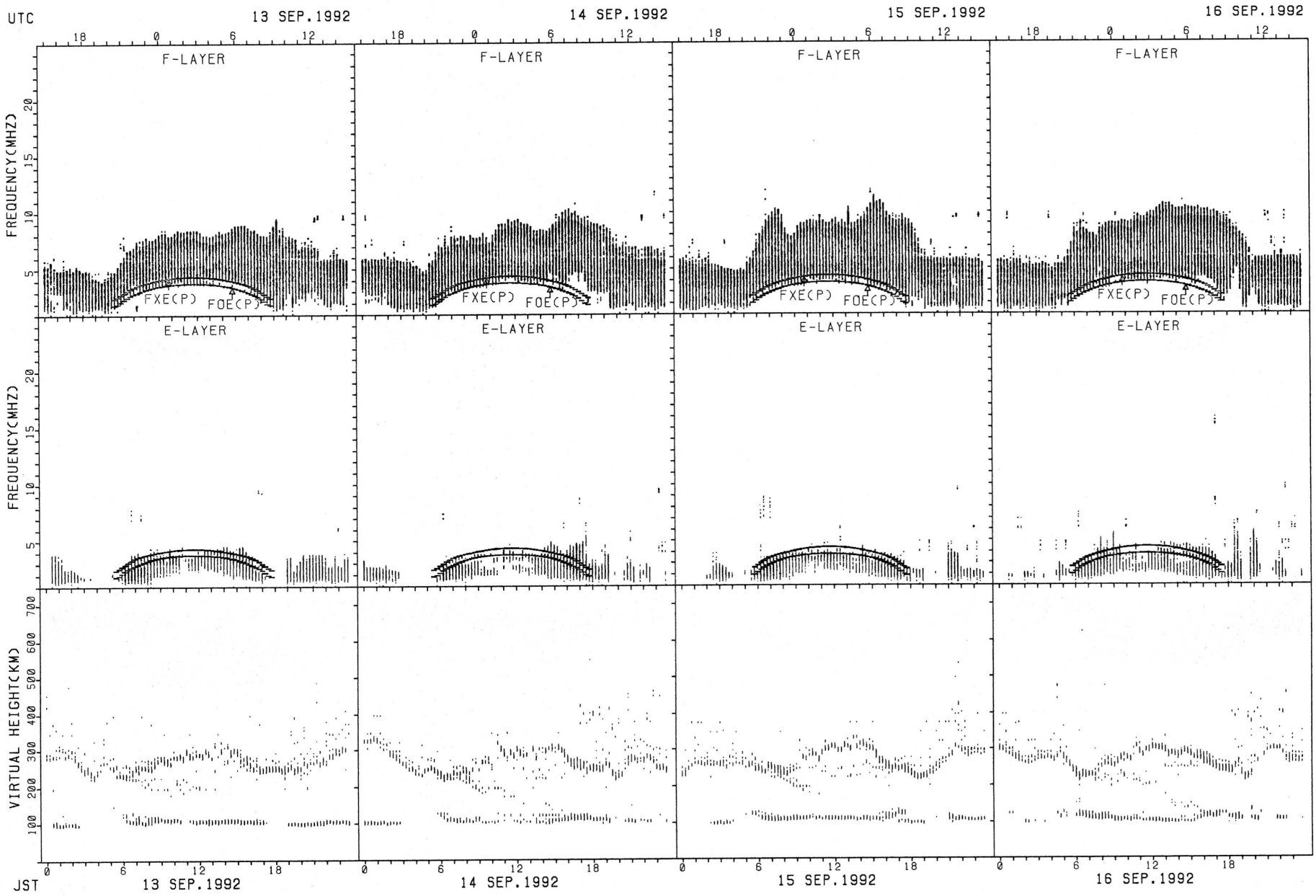
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FOE(P)
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VIRTUAL HEIGHT(KM)
JST
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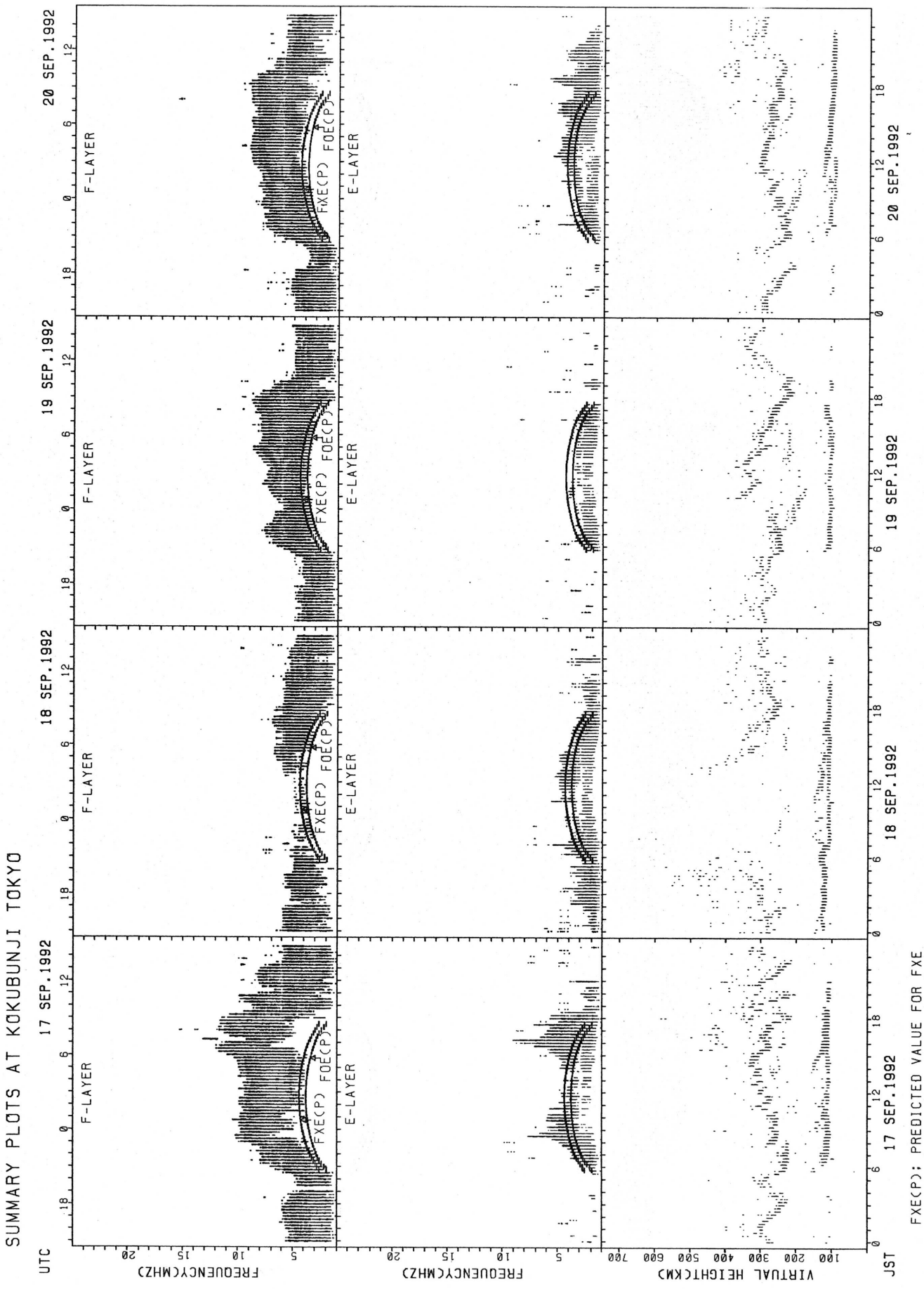
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FXE(P) FOE(P)
FREQUENCY(MHZ)
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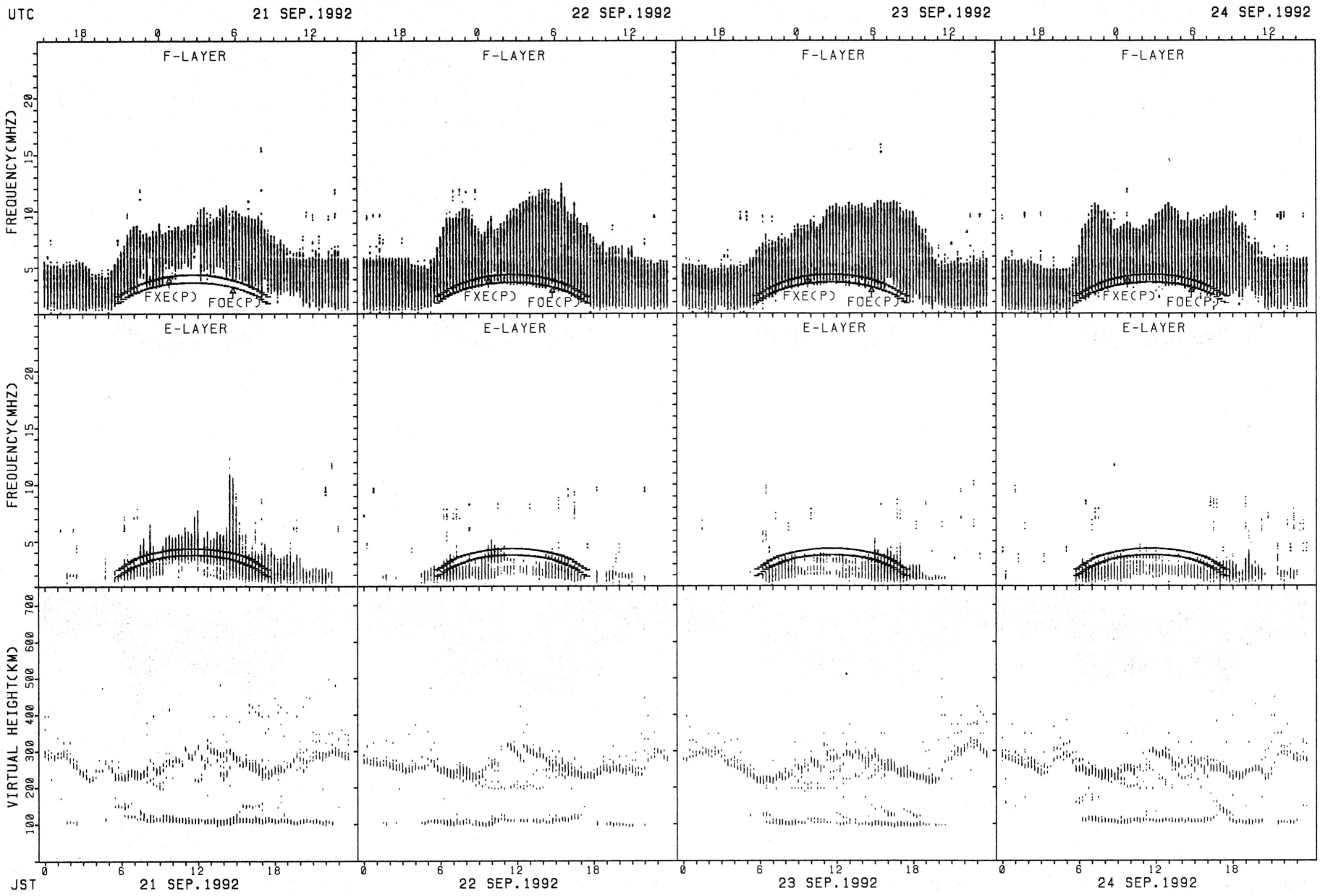
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



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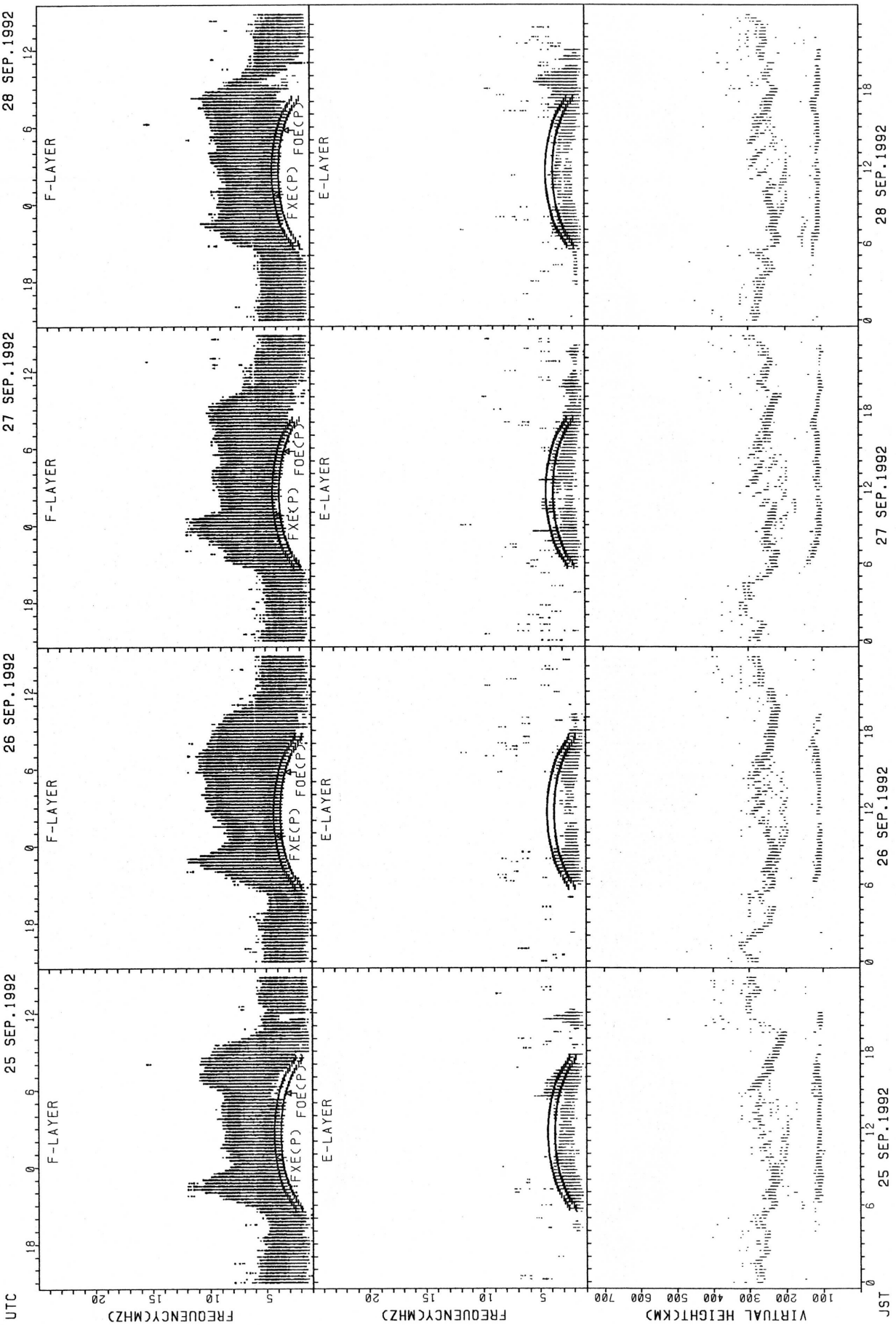
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FOE(P)
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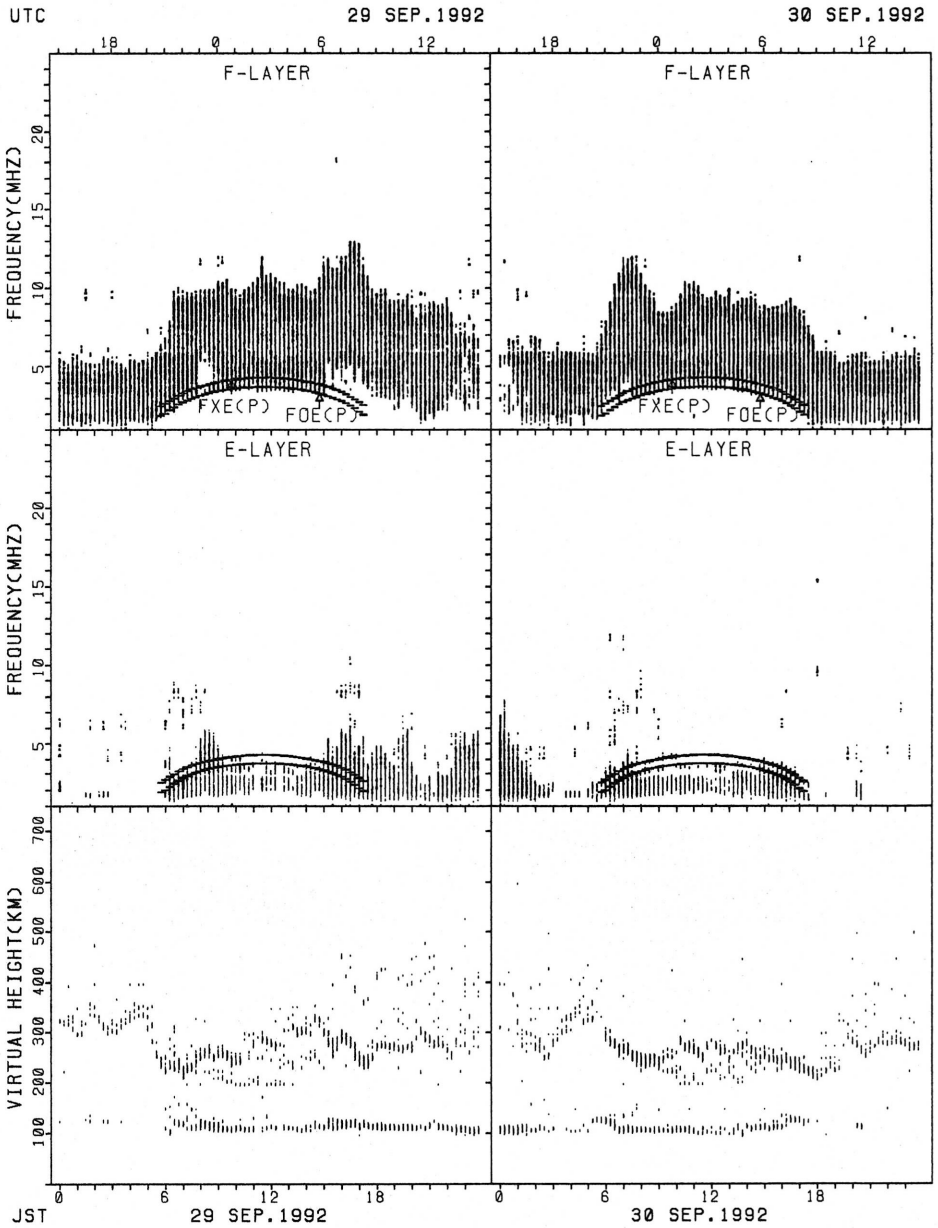
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT KOKUBUNJI TOKYO



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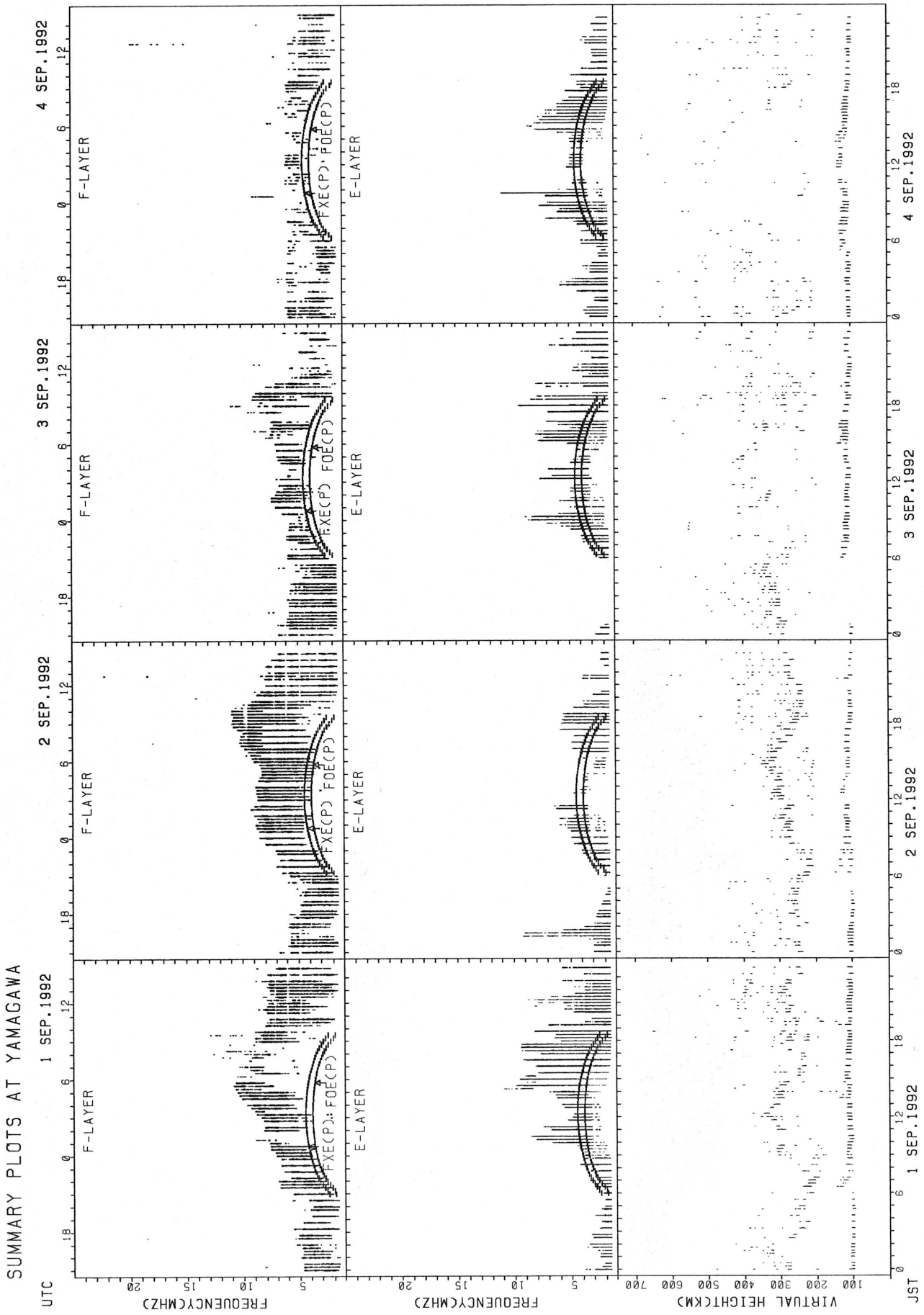
SUMMARY PLOTS AT YAMAGAWA
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F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
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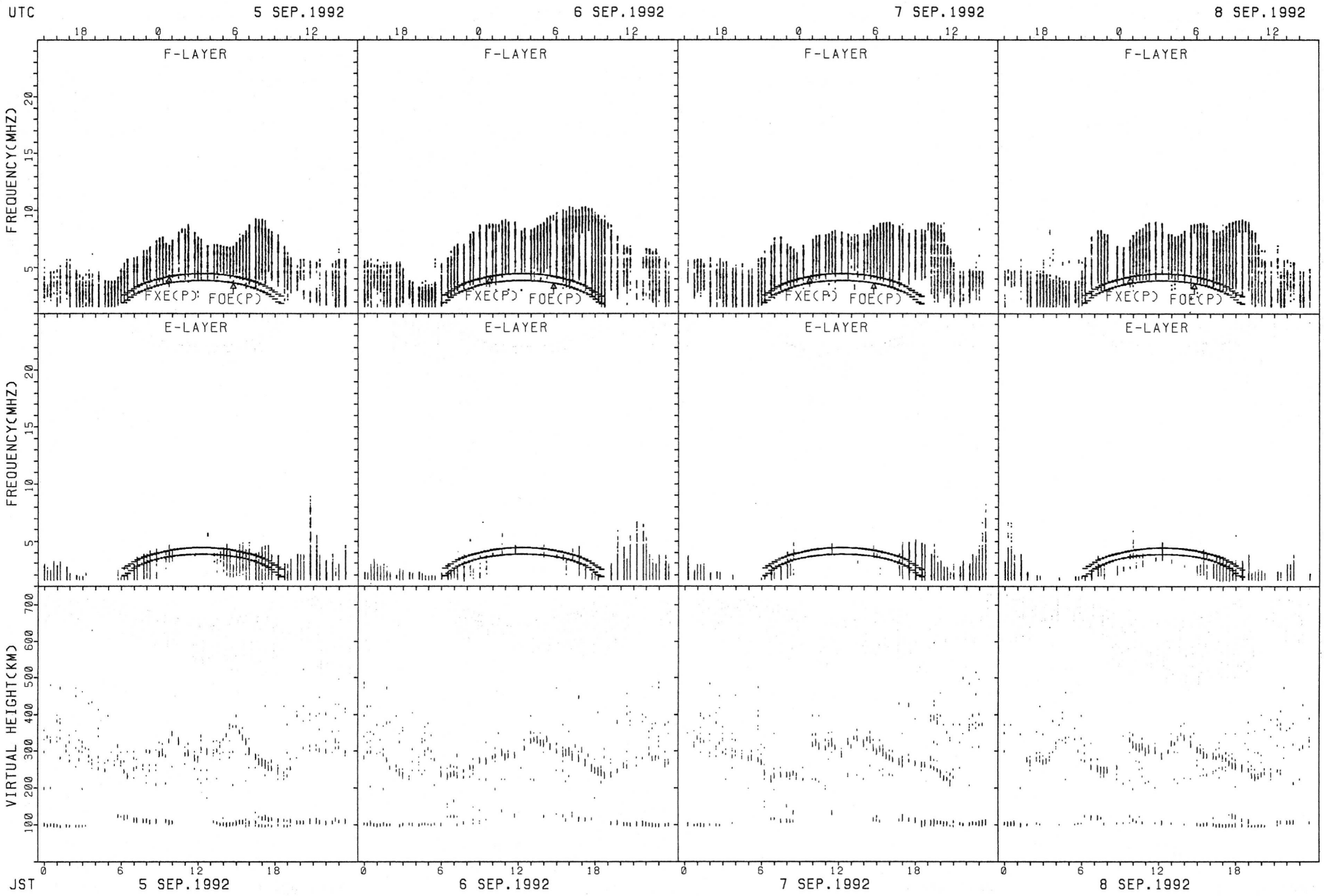
SUMMARY PLOTS AT YAMAGAWA



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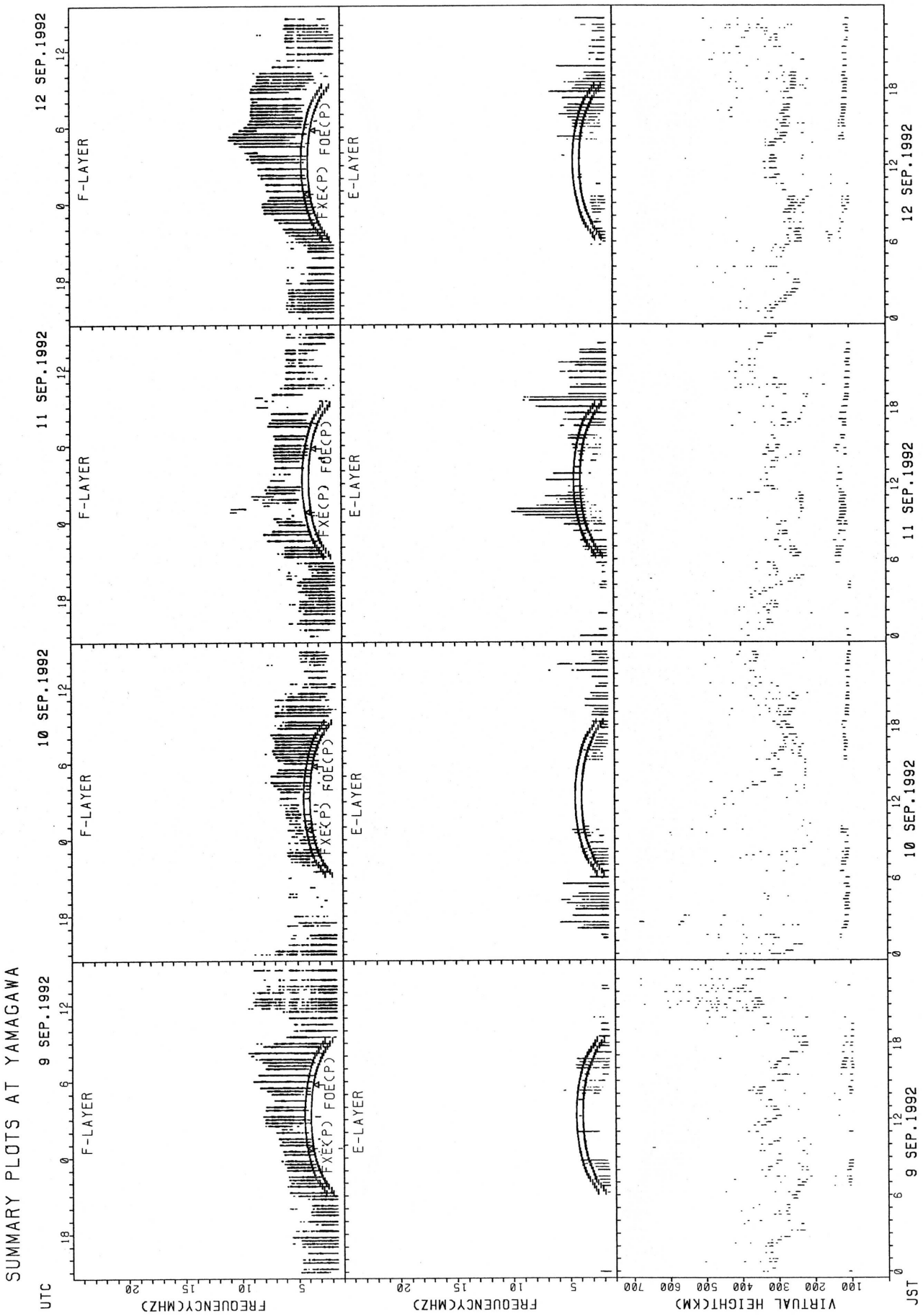
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FREQUENCY(MHZ)
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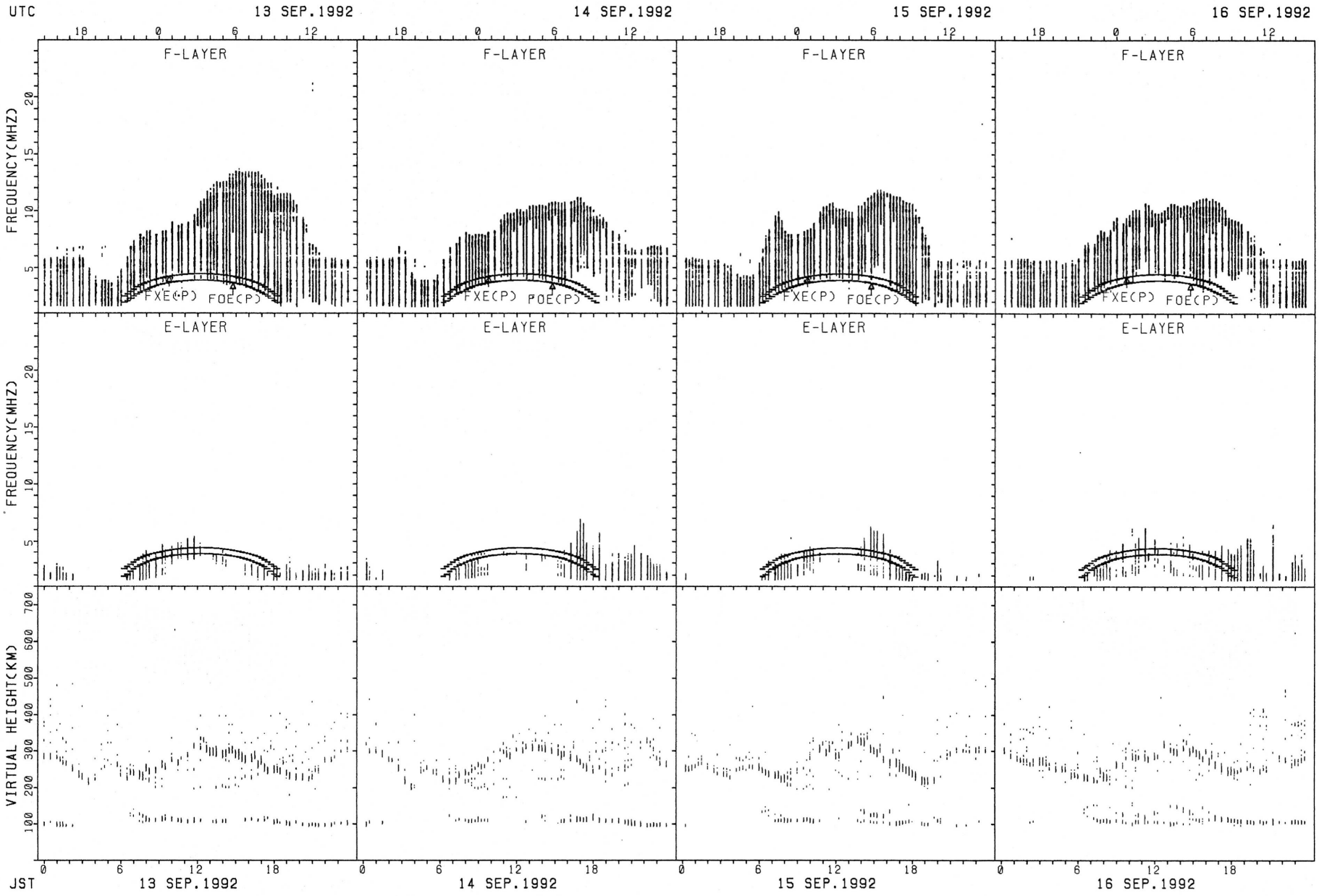
SUMMARY PLOTS AT YAMAGAWA



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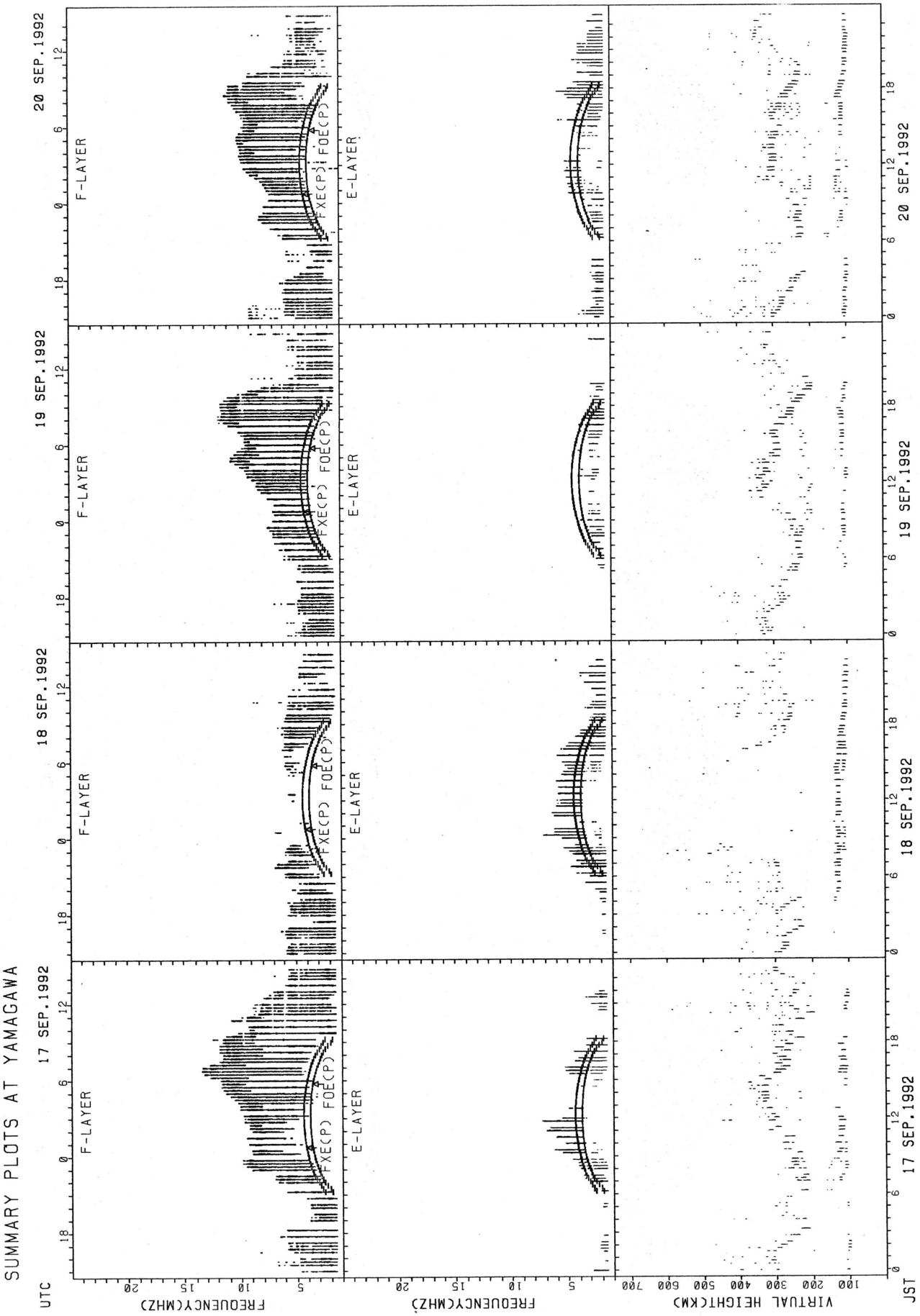
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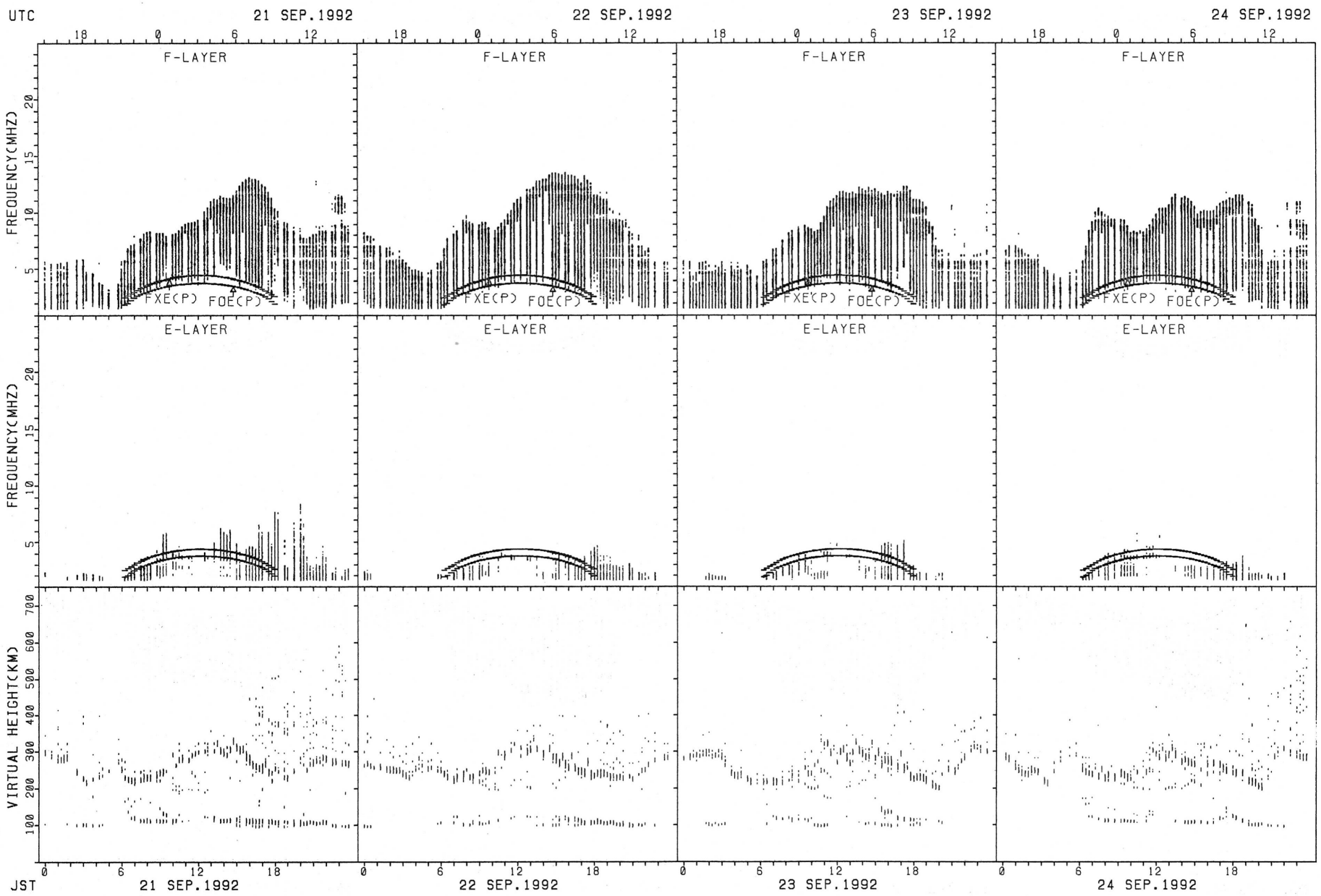
SUMMARY PLOTS AT YAMAGAWA



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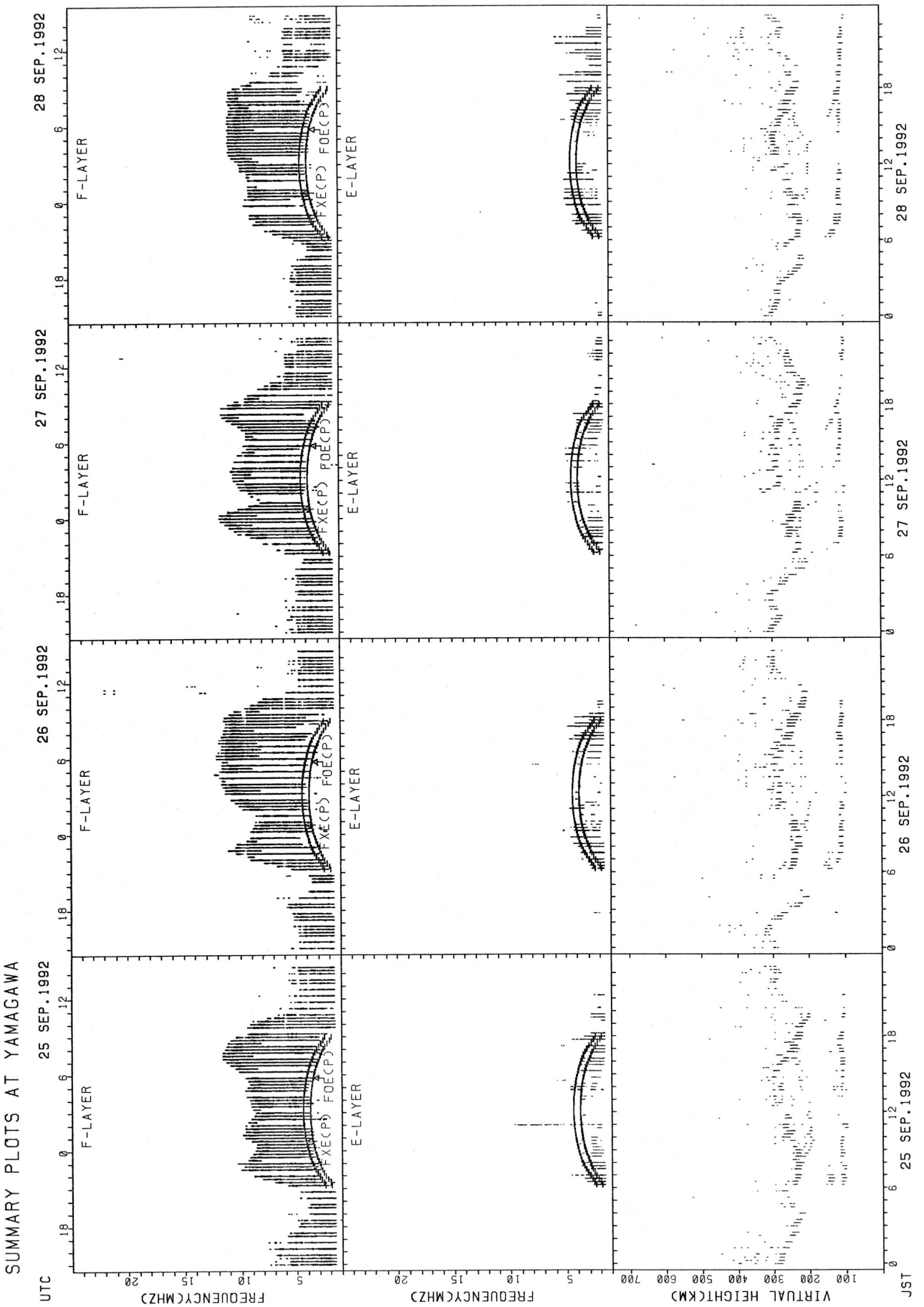
SUMMARY PLOTS AT YAMAGAWA
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F-LAYER
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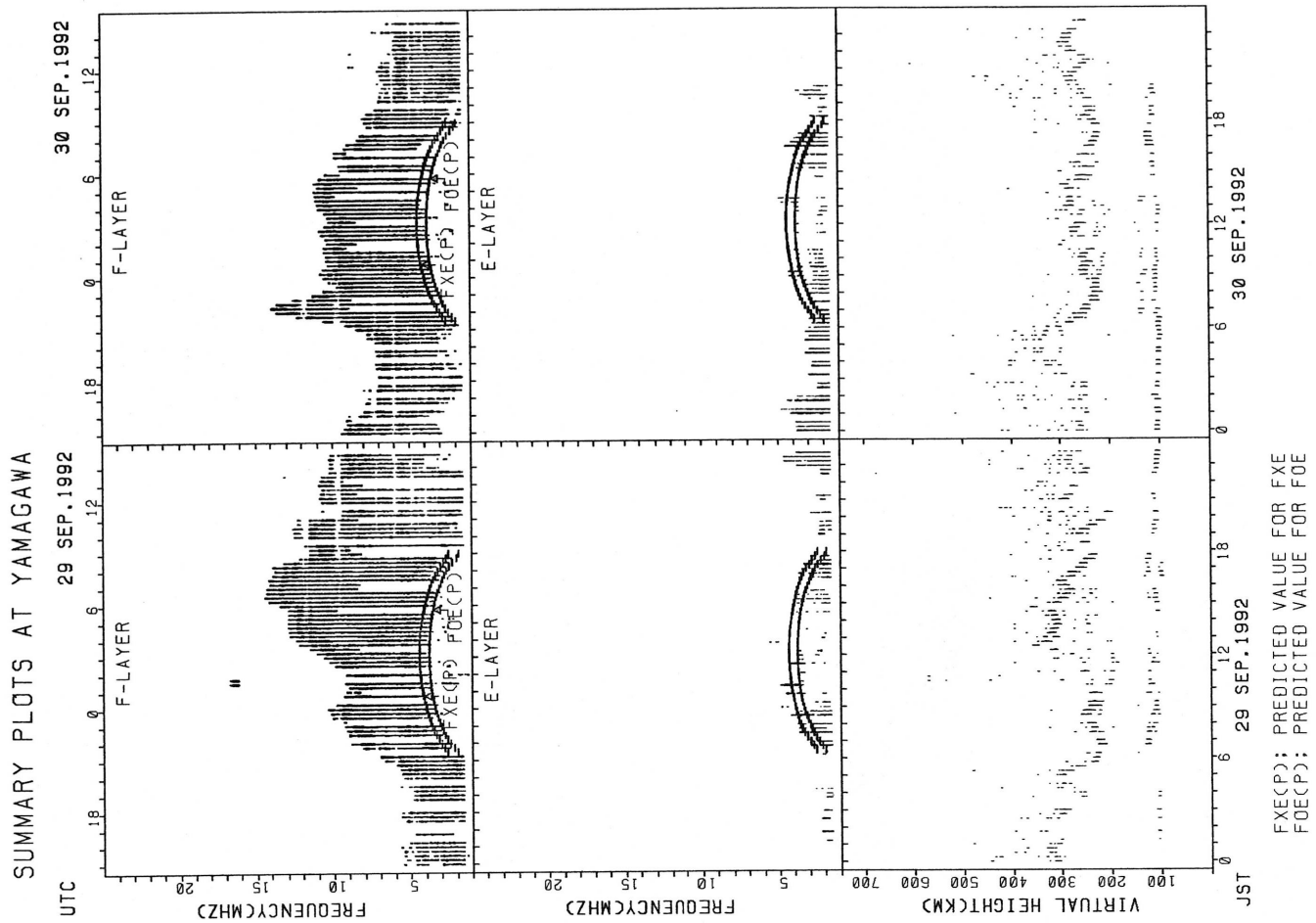
SUMMARY PLOTS AT YAMAGAWA
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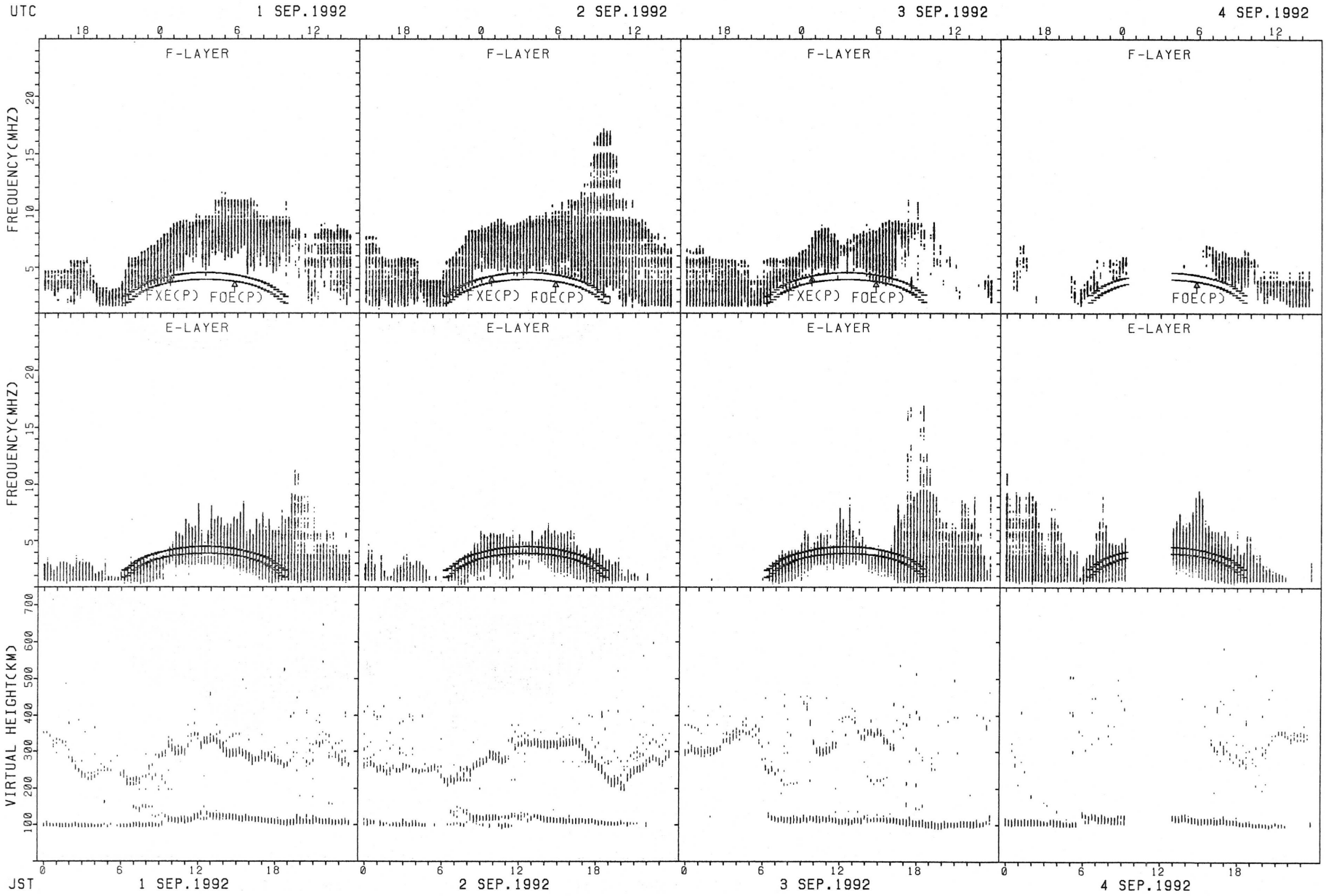
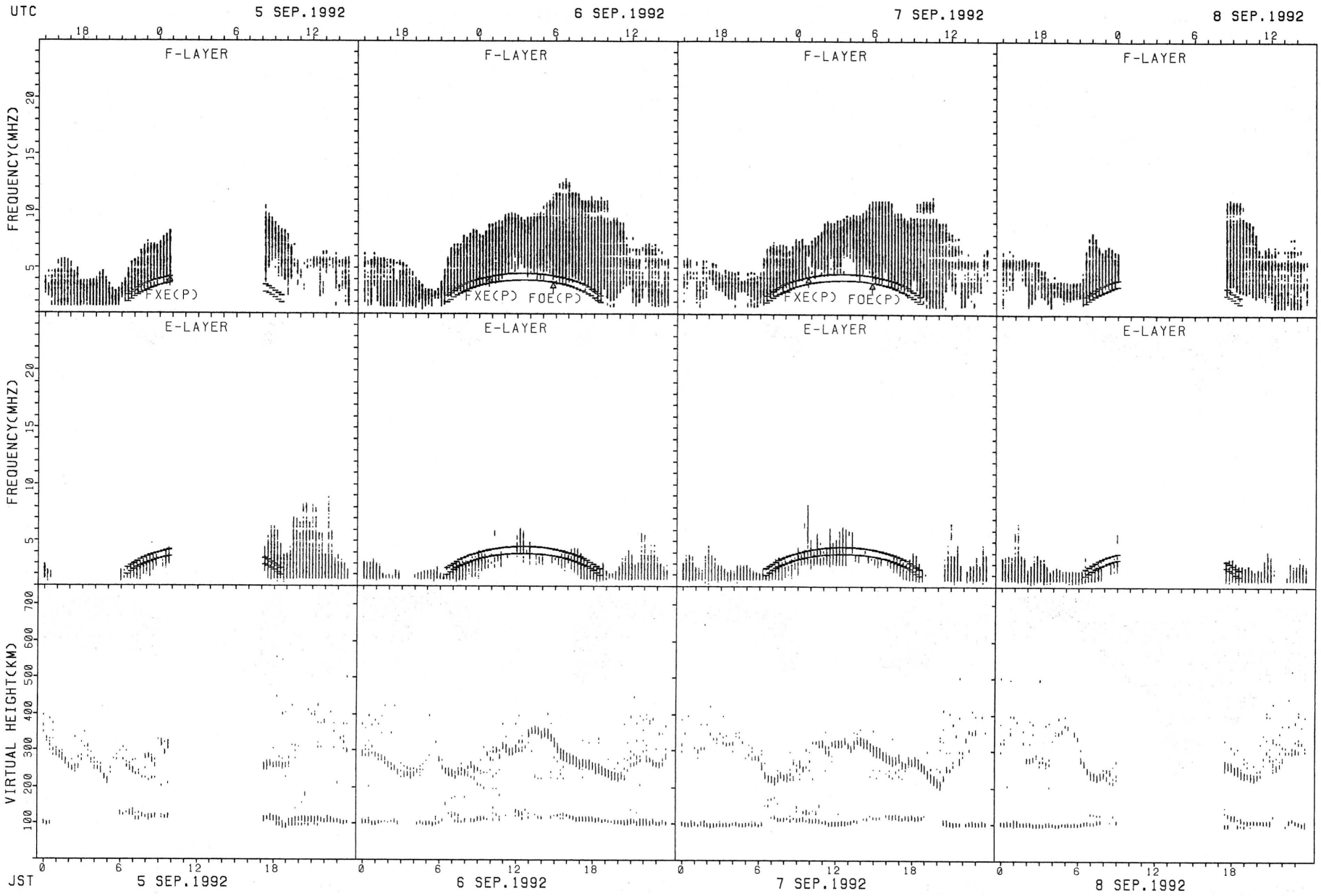
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT OKINAWA

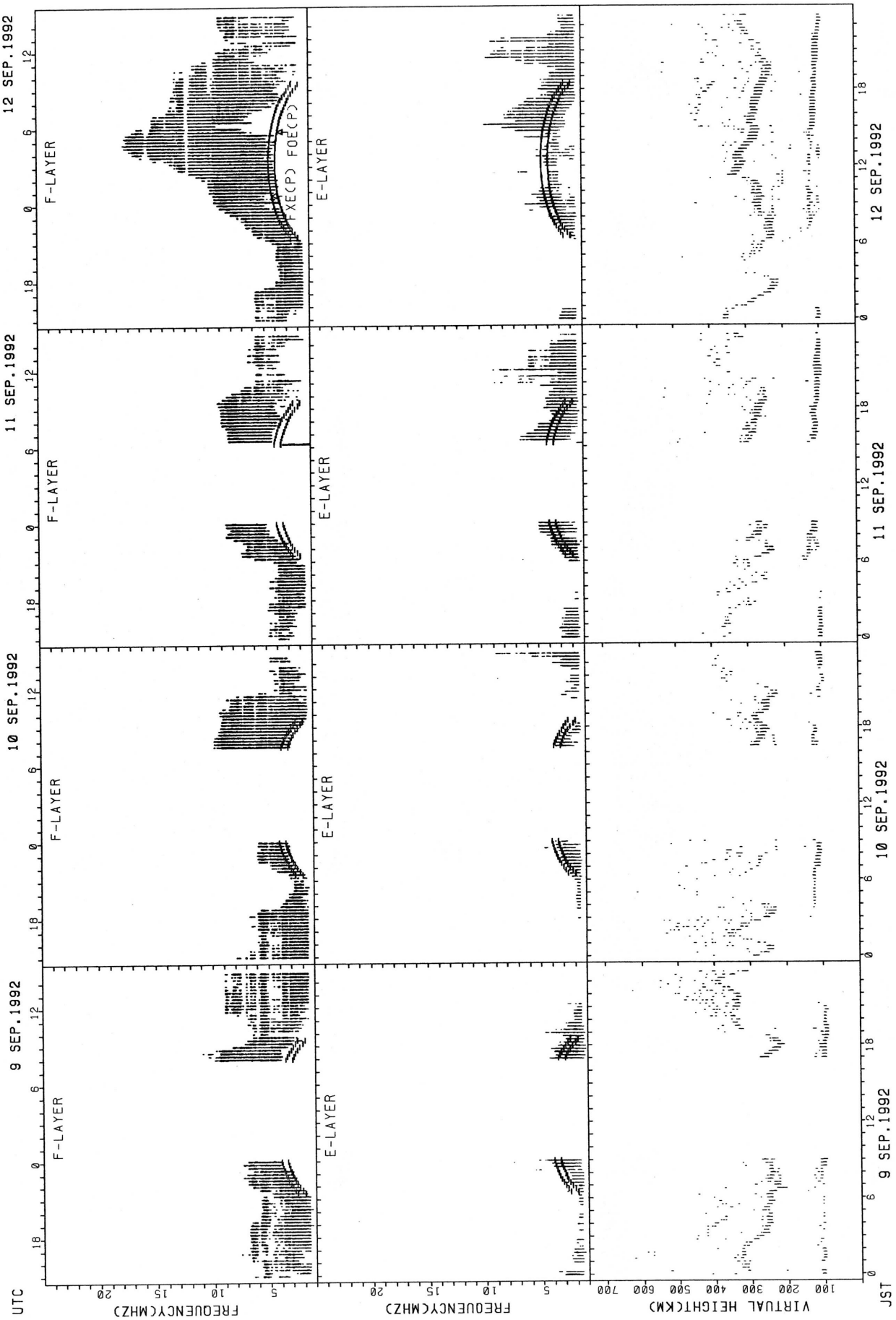


FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

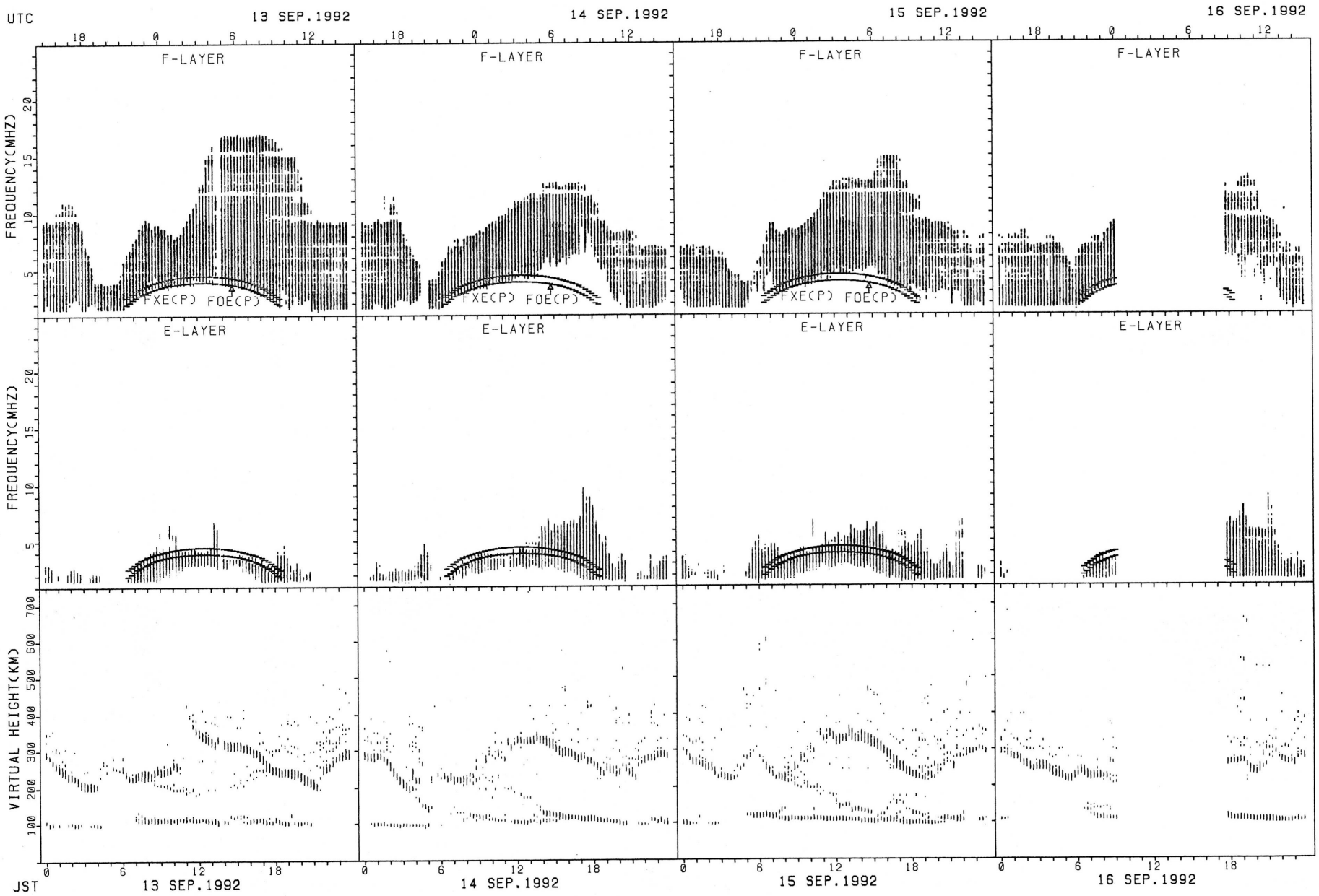
SUMMARY PLOTS AT OKINAWA



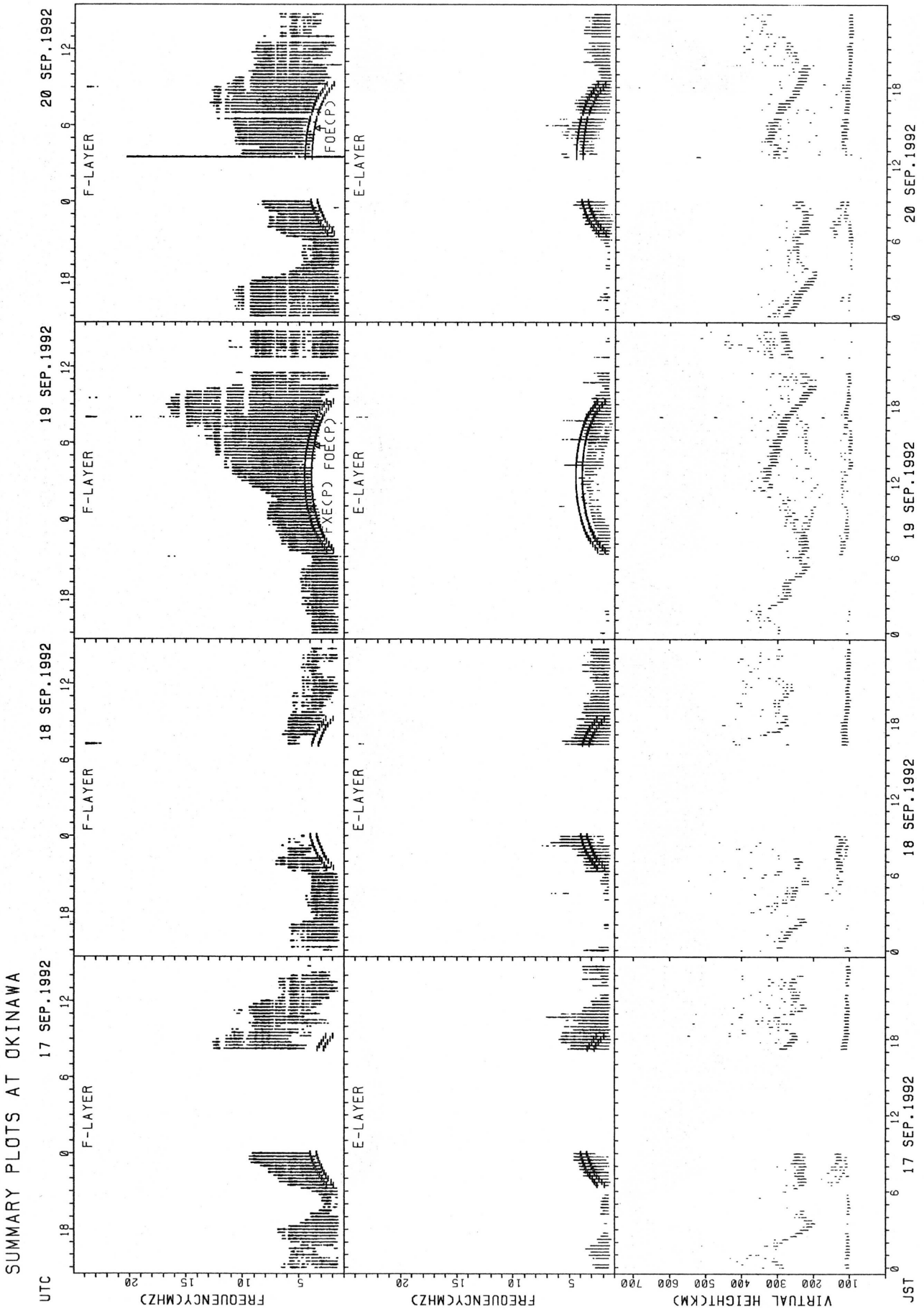
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE


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

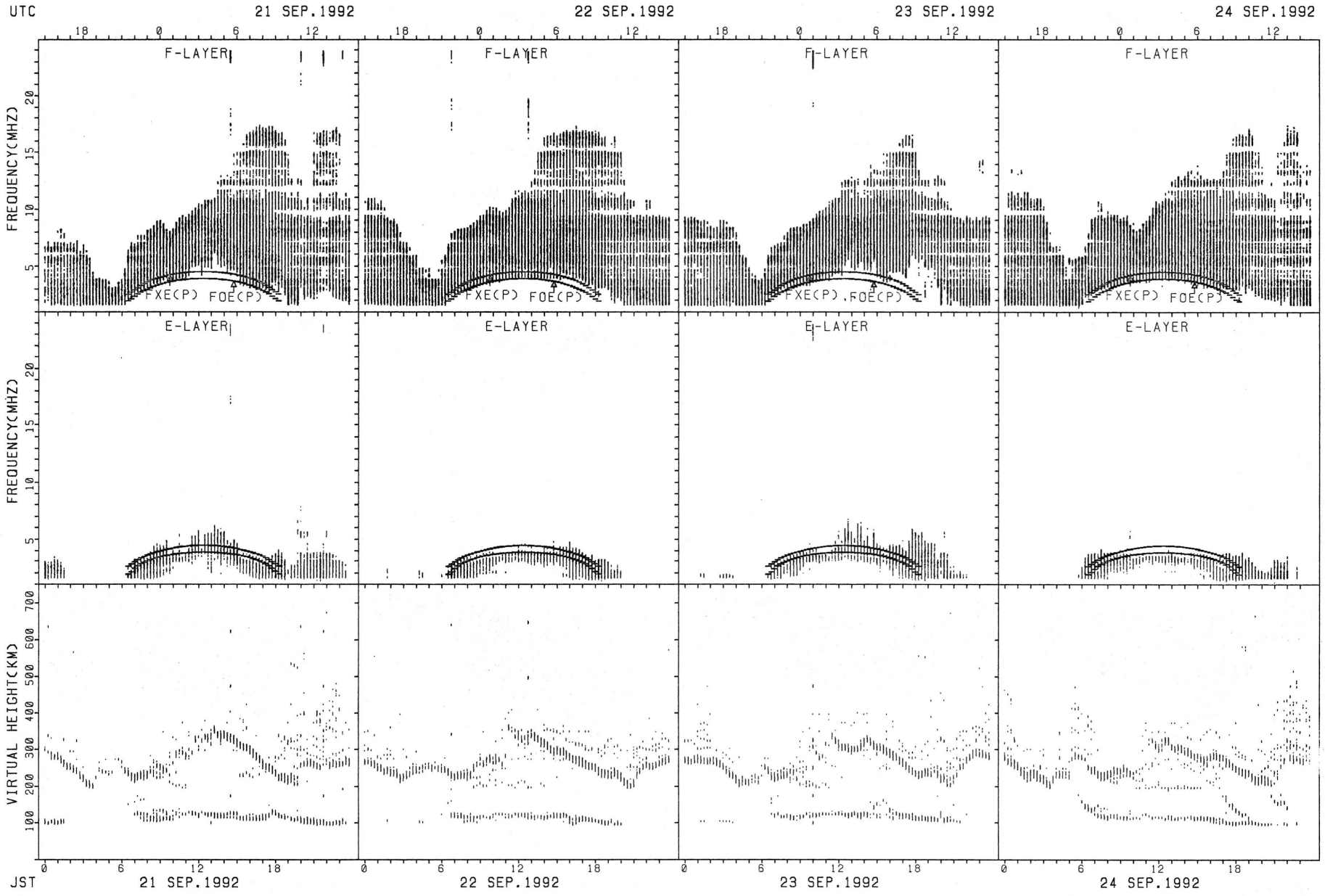
SUMMARY PLOTS AT OKINAWA



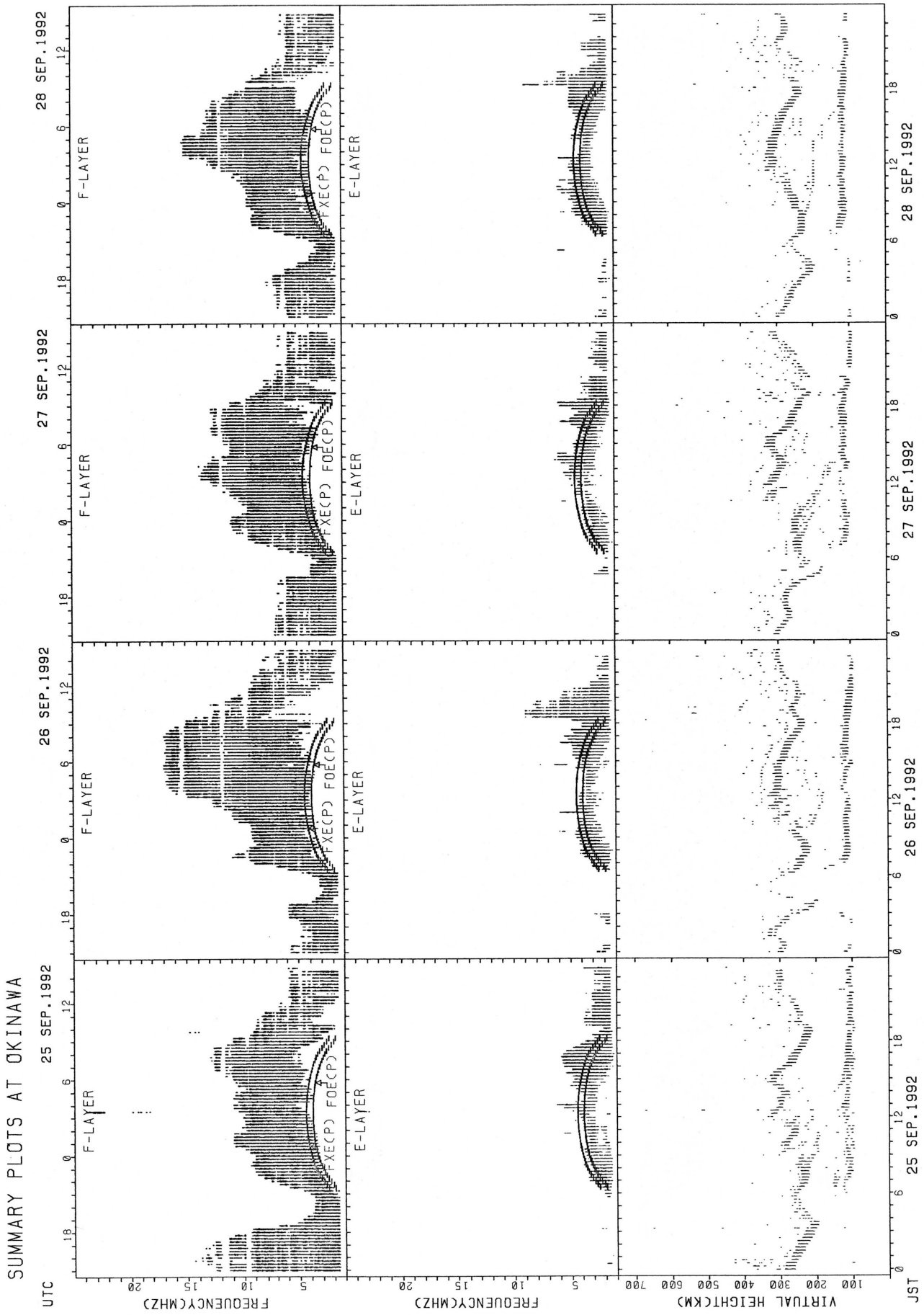
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
17 SEP.1992
18 SEP.1992
19 SEP.1992
20 SEP.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

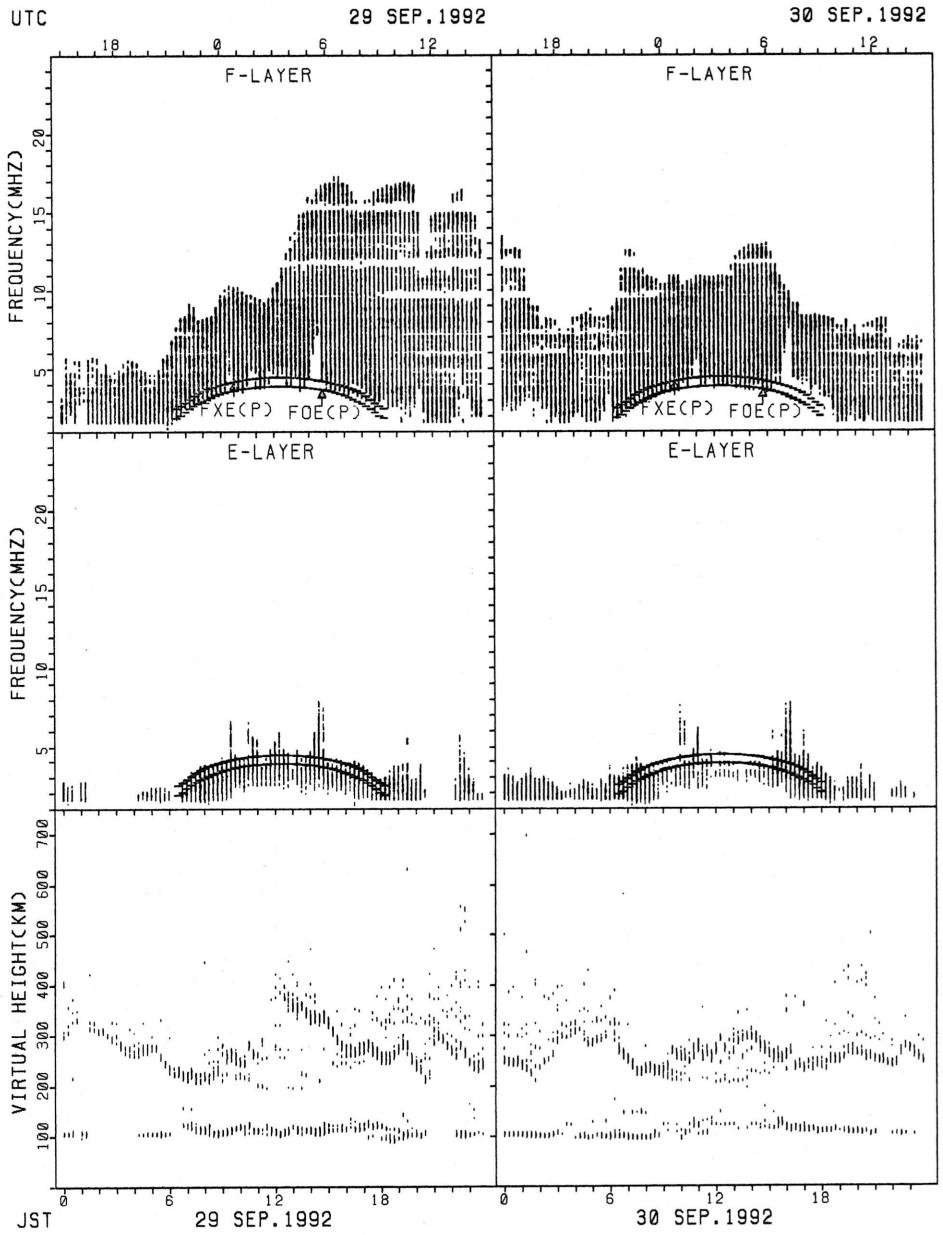
SUMMARY PLOTS AT OKINAWA



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


SUMMARY PLOTS AT OKINAWA
25 SEP.1992
26 SEP.1992
27 SEP.1992
28 SEP.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 OKINAWA



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

MONTHLY MEDIANS OF H'F AND H'ES

SEP. 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								17	20						10	19	19	20	15					
MED								258	260						271	278	274	269	268					
U Q								281	273						280	292	282	277	278					
L Q								239	250						260	268	262	255	246					

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	12	14	15	18	18	19	14	13									10	14	18	18	18	17	13	14
MED	109	108	117	116	116	115	125	117									120	117	115	114	112	109	107	109
U Q	119	123	123	123	121	121	133	120									129	119	119	125	117	115	110	113
L Q	106	103	105	107	109	109	113	115									117	113	107	109	107	107	103	107

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								14	23							19	15	18						
MED								254	262							288	276	273						
U Q								266	278							306	290	300						
L Q								246	252							282	264	254						

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	12	10	11	12	12	11	20	21	16	11					12	17	20	25	25	23	19	17	14	13
MED	105	109	107	113	111	117	116	117	117	113					121	119	117	117	111	109	111	105	107	105
U Q	123	119	119	121	118	123	124	124	137	117					128	125	120	125	115	113	115	110	111	116
L Q	101	105	101	102	100	109	111	113	114	107					104	110	114	112	104	103	105	103	105	101

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							11	23	22							25	23	22	20	14				
MED							248	252	252							290	270	256	256	265				
U Q							282	274	264							304	282	284	281	292				
L Q							244	244	236							273	258	246	247	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	12		11				19	20	14	17	10	14		11	15	16	23	28	25	27	24	22	21	13
MED	105		107				127	117	113	115	121	125		121	121	122	119	116	111	109	107	109	109	107
U Q	107		121				155	124	119	123	133	131		133	143	126	125	121	115	113	109	109	112	109
L Q	102		105				117	112	111	111	109	111		109	111	114	115	113	107	105	105	107	104	104

MONTHLY MEDIANS OF H'F AND H'ES

SEP. 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	20	17						13	23	22	26	15				
MED								241	239	258						288	280	266	252	256				
U Q								248	253	272						308	294	290	268	272				
L Q								232	224	242						279	266	248	238	244				

H'ES

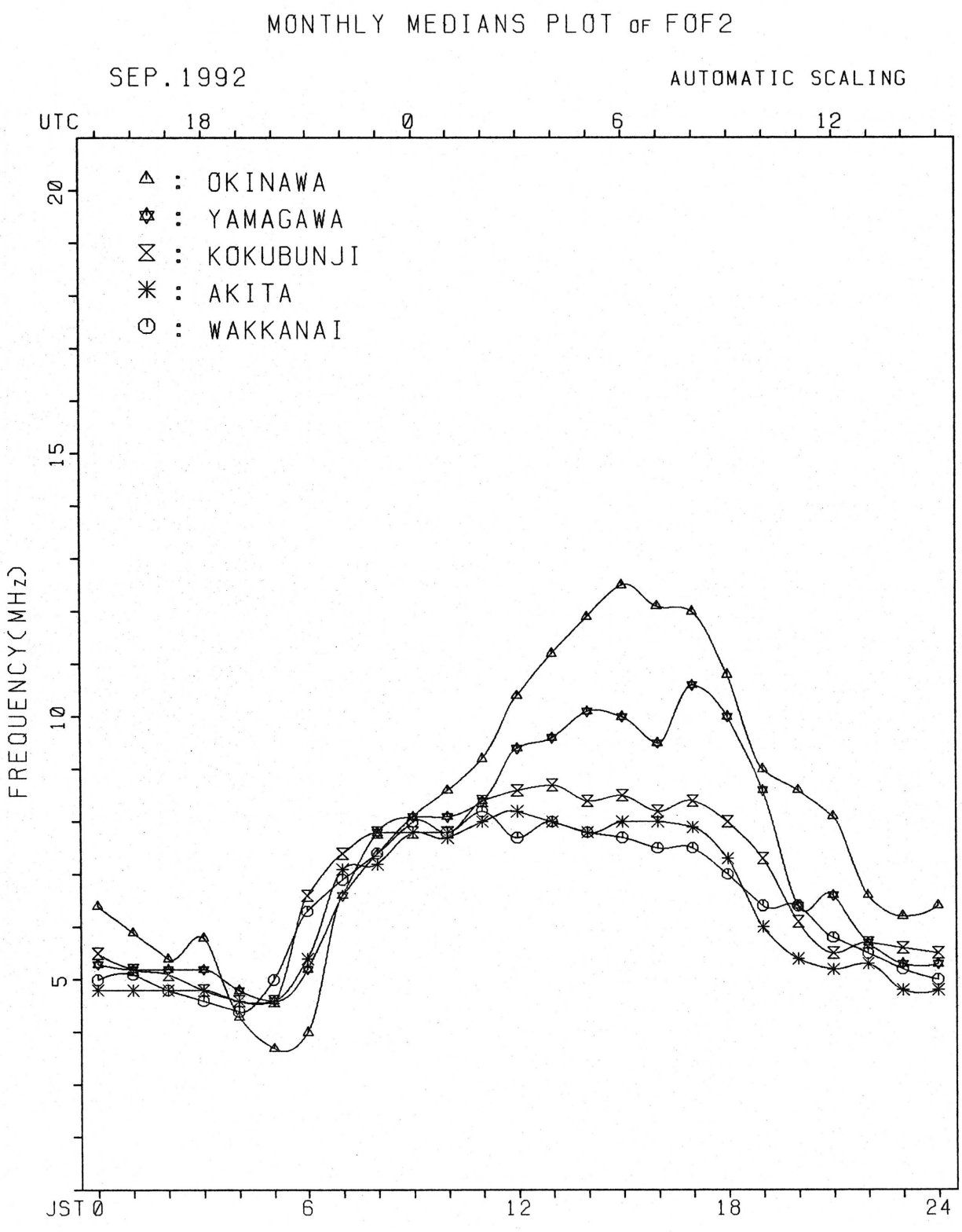
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14		10					11	15		13	10			13	12	17	18	22	18	13	14	15	13
MED	105		104					127	121		113	117			121	119	119	113	111	106	109	108	105	105
U Q	107		107					137	143		118	123			129	125	128	121	115	113	111	109	107	108
L Q	103		103					121	115		111	109			113	117	114	111	107	103	103	103	103	103

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	11	12						20	22	21						12	26	27	28	25	20	15	10	10
MED	318	274						239	247	254						306	275	264	250	250	253	284	338	321
U Q	344	324						253	262	270						314	286	274	259	274	291	326	366	346
L Q	304	268						232	234	240						287	270	250	237	236	236	268	294	292

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	21	14	11	10		10	14	22	17	21	13		13	14	12	14	23	27	29	28	28	25	16	19
MED	105	104	103	105		107	115	134	125	119	117		121	121	119	119	121	115	111	107	107	109	107	105
U Q	109	111	109	111		123	129	161	131	128	137		146	125	128	149	232	119	116	111	113	115	118	107
L Q	103	101	99	99		101	101	125	118	114	114		112	117	115	113	115	111	109	106	103	106	105	101


MONTHLY MEDIANS PLOT OF FOF2
SEP. 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

SEP. 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	61	X 58	X 57	X 57	X 54			74												84	X 87	X 77	X 77	O X 76
2	X 70	X 64	X 63	X 54	X 51															X 83	X 78	X 76	79	X 74
3	X 69	X 64	X 59	X 57	X 60															X 82	X 56	X 51	X 53	X 51
4	X 62	A	X 47	X 34	X 31					A										X 62	X 58	X 60	58	60
5	X 58	58	X 53	51	50															X 61	X 56	X 56	X 56	X 56
6	X 54	X 54	X 54	X 47	X 38															X 69	X 66	X 58	X 63	X 59
7	55	X 55	X 51	X 49	X 48	X 47														X 75	X 71	X 59	55	50
8	51	52	X 50	X 51	49	X 47														X 76	X 66	X 57	X 56	X 54
9	X 53	X 52	X 51	X 43	X 47	X 45														X 50	X 51	X 52	X 48	X 47
10	X 52	X 39	X 34	X 35	X 34	X 30														A	X 55	X 53	X 54	X 49
11	X 51	X 53	X 48	X 47	X 50	51										A				X 56	X 56	X 59	X 59	X 57
12	X 54	X 54	X 51	X 44	X 41	42														X 69	X 54	X 55	X 56	55
13	X 54	X 52	X 51	X 49	X 41	X 42														X 81	X 71	X 74	X 63	X 63
14	X 61	X 60	X 60	X 58	X 56	X 50														X 86	X 74	X 69	X 69	X 70
15	X 62	X 57	X 57	X 54	X 49	X 51														X 67	X 61	X 60	X 59	X 59
16	X 58	X 57	X 57	X 55	X 54	X 56														X 80	X 63	X 62	X 64	X 63
17	X 58	X 58	X 58	X 58	X 48	X 48														X 88	X 81	X 84	X 78	X 63
18	X 65	X 60	X 55	X 54	56	50		A											X 66	X 61	X 59	X 56	X 56	X 52
19	X 49	X 47	X 48	X 42	X 43	X 44													X 86	X 69	X 53	X 52	X 51	X 51
20	X 53	X 50	X 55	X 51	X 38	X 39													X 92	X 84	X 70	X 60	X 58	X 58
21	X 56	X 55	X 55	X 57	X 45	X 45													X 78	X 70	X 67	X 66	X 65	X 65
22	X 65	X 65	X 64	X 60	X 54	X 52													X 78	X 72	X 69	X 68	X 58	X 56
23	X 57	X 54	X 54	X 53	X 52	X 53													X 100	X 79	X 57	X 57	X 57	X 57
24	X 58	X 58	X 57	X 54	X 49	X 50													X 96	X 81	X 73	X 59	X 61	X 62
25	X 61	X 57	X 57	X 54	X 50	X 50													X 98	X 76	X 56	X 56	X 59	X 57
26	X 57	X 55	X 57	X 56	X 51	X 49													X 99	X 88	X 69	X 59	X 57	X 56
27	X 55	X 55	X 53	X 53	X 52	X 54													X 99	X 83	X 72	X 69	X 62	X 56
28	X 58	X 56	X 56	X 56	X 54	X 53													X 92	X 74	X 65	X 65	X 63	X 59
29	X 57	X 57	X 54	X 56	X 54	X 56													X 98	X 94	X 91	X 94	X 92	X 80
30	X 69	X 68	X 70	X 61	X 61	X 62													X 66	X 57	X 58	X 56	X 56	X 56
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	24		1											13	29	30	30	30	30
MED	X 58	X 56	X 55	X 54	X 50	X 50		74											X 92	X 76	X 66	X 59	X 58	X 57
U Q	X 61	X 58	X 57	X 56	X 54	X 52													X 98	X 83	X 71	X 68	X 63	X 63
L Q	X 54	X 54	X 51	X 49	X 45	X 45													X 78	X 68	X 56	X 56	X 56	X 55

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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 51	52	51	51	48	52	71	64	58	62	69	71	81	81	82	79	68	67	73	F 76	81	71	71	U S 70
2	64	58	57	48	45	47	69	67	71	68	75	84	86	75	70	76	76	75	78	77	72	70	F 71	68
3	63	58	53	51	54	49	48	48	56	52	58	R 59	58	58	55	61	61	58	76	76	50	45	47	45
4	56	I A 45	41	28	25	41	41	49	51	A	E G 44	48	51	50	48	50	50	49	52	57	52	55	F 51	F 53
5	52	53	47	F 43	F 44	40	56	63	63	76	70	78	67	66	57	62	73	72	75	55	50	50	50	50
6	48	48	48	41	32	35	60	64	69	R 70	65	66	66	V 60	68	67	63	71	71	63	60	52	57	53
7	F 49	49	45	43	42	41	60	68	66	69	H 62	74	75	68	65	68	74	71	65	69	65	54	F 45	F 43
8	F 44	F 45	44	45	F 42	42	54	V 72	80	71	71	78	71	63	68	71	69	73	78	70	60	51	50	48
9	47	46	45	H 37	41	39	50	44	48	48	53	56	61	62	66	74	66	80	71	44	45	46	42	41
10	46	33	28	29	28	24	34	44	48	47	45	E G 43	E G 44	58	55	55	54	57	50	I A 50	49	F 46	48	43
11	45	47	42	41	V 44	43	48	48	49	48	R 50	53	I S 49	56	54	A	55	53	55	50	50	53	53	51
12	48	48	45	38	35	F 33	56	V 60	72	66	62	64	66	67	72	73	75	71	71	63	48	49	50	F 48
13	48	46	45	43	35	36	52	65	73	76	76	79	79	74	77	83	82	76	78	75	65	68	57	57
14	55	54	54	52	50	44	65	72	73	72	71	85	88	82	79	83	98	92	87	80	68	63	63	64
15	56	51	51	48	43	45	68	92	91	75	85	85	88	85	87	101	99	87	89	61	55	54	53	53
16	52	51	51	49	48	50	79	78	78	85	86	92	96	101	98	99	97	94	88	74	57	56	58	57
17	52	52	52	52	42	42	64	74	90	93	92	94	91	88	94	105	108	113	112	82	75	78	72	57
18	59	54	49	48	F 48	F 41	43	I A 43	46	E G 41	E G 44	R 49	R 50	55	60	60	60	64	60	55	53	50	50	46
19	43	41	42	36	37	38	60	69	66	58	65	72	69	74	81	74	74	78	80	63	47	46	45	45
20	47	44	49	45	32	33	61	72	70	74	78	76	83	86	83	83	80	84	86	78	64	54	52	52
21	50	49	49	51	39	39	60	81	77	77	77	81	84	87	89	96	89	85	72	64	61	60	60	59
22	59	59	58	54	48	46	71	89	98	77	83	87	98	108	111	106	95	84	72	66	63	62	52	50
23	51	48	48	47	46	47	63	69	71	83	86	91	102	101	101	101	101	98	94	73	52	51	51	51
24	52	52	51	48	43	44	62	95	95	80	86	82	91	100	87	87	89	97	90	75	67	53	55	56
25	55	51	51	48	44	44	64	99	101	80	78	81	83	86	84	90	104	102	92	70	50	50	53	51
26	51	49	51	50	45	43	63	89	111	84	82	88	98	99	97	104	105	95	93	82	63	53	51	50
27	49	49	47	47	46	48	73	81	103	108	87	84	89	91	85	86	90	93	93	77	66	63	56	51
28	52	50	50	50	48	47	72	90	86	86	87	86	90	92	91	92	97	100	86	68	59	59	57	53
29	51	51	48	50	48	50	67	92	92	100	90	98	104	97	97	109	112	123	92	88	85	88	86	74
30	63	62	64	55	55	56	74	H 112	104	80	86	99	90	87	89	83	84	81	60	51	52	50	50	50
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	51	50	49	48	44	43	62	70	72	75	76	80	83	82	82	83	81	80	78	70	60	54	52	51
U Q	55	52	51	50	48	47	68	89	91	82	86	86	90	91	89	98	97	94	89	76	65	62	57	57
L Q	48	47	45	43	39	39	54	63	63	64	62	66	66	63	66	70	68	71	71	61	50	50	50	48

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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	L	U L 500	490	490	500	500			L	L						
2							L	L		L 490	L 520	500	500	500	L 540	L 450	U L 430	L						
3						L			U A 420	U A 440	460	470	470	480	U L 480	460	L							
4							320	390	410		440	420	420	H 450		420								
5							L	U L 410	L 460	H 460	490	490	500	460	L	480	410	L						
6							L	L 480	L	L	480	510	490	L	480	470	L 430	U L 370						
7								L	L	460	L	H 510	510		L	U L 480	L							
8							L	L 420	L 470	U L 470	L 480	500	490	L 520	L 500	460	L	L						
9							U L 300		450	L	460	470	490	480	480	L 460	L 440	U L 360						
10							280	370	390	410	430	430	440	440	430	440	L 400	L						
11								380	L 420		440	450		450	460									
12								L	L 440	460	L 490	U L 520	L 480	U L 520	U L 500	U L 470								
13								L	U L 450	L 495	L 500	U L 540	L 530	L 490	U L 500	L 480	L	L						
14								L	L	L	L	500	L 540	L	L	L	U L 440							
15								L	U L 460	L	U L 520	L	L 535	490	U L 520	U L 500	L							
16									L	L	L 500	510	L 520	L 520	L	L	L							
17									L		L 490	L 550	L	L 490	U L 510	L								
18							U L 330		400	410	440	430	460	460	470	440	L 430	L						
19								L	L 440	L 500	490	480	500	480	470	L 470	U L 430	L						
20								L	L	L 470	L 500	U L 540	L 530	L 510	L	U L 450	L							
21								L	U L 430	U L 470				U L 540		L	L	L						
22								L	U L 470	L	L	L	L 520	U L 520	U L 500	L	L							
23								L	L	L	U L 500	L	L 520	U L 550	L 450	U L 490	L	L						
24								L	L	L	U L 470	L	L 530	L 520	L	L	L							
25								L	L	U L 480	L	L	U L 520	L	L	L	L	L						
26								L	L	L	U L 480	L	L 510	U L 530	U L 500	L	L							
27								L	L	U L 480	430	L	L 580	U L 500	L	L	L							
28								L	L	L	U L 505	U L 620	U L 590	U L 520	U L 530	L	L							
29									L	L	L 460	U L 550	L	L	L	L								
30							L	U L 400	U L 400	U L 480	L	470	L	L	L	L	L								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	7	15	16	24	22	25	24	17	16	8	2						
MED							310	L 400	L 440	L 470	L 485	L 500	L 510	L 500	L 500	L 465	L 430	U L 365						
U Q							325	L 420	L 460	L 485	L 500	U L 520	L 530	U L 520	U L 505	U L 480	U L 435							
L Q							290	380	410	460	460	470	490	480	470	450	L 420							

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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						B	A	A	A	A	A	355	370	A	A	U A 345	U A 335	U A 295	220	A				
2						B	215	270	305	330	A	A	A	A	A	U A 330	290	U A 220	A					
3						B	A	U A 280	A	A	A	A	A	A	A	315	290	235	A					
4						B	200	255	290	A	350	350	355	355	350	325	U A 290	A	A					
5						B	A	U A 245	A	R	A	360	360	350	335	320	280	U A 225	A					
6						B	205	270	325	355	370	385	385	350	U B 345	325	305	230	A					
7							B	285	320	355	A	A	380	B	B	340	295	240	B					
8							A 210	A 275	B	340	R	360	R	R	345	325	300	A 230	B					
9							A	260	A	A	B	R 355	B	365	345	325	280	220	B					
10							A	A 255	290	340	340	R 360	U B 355	345	330	310	275	230	B					
11							210	265	B	320	U R 345	340	S	345	335	315	275	A	B					
12							205	270	A	A	A	R 355	A	355	340	315	280	205	B					
13							185	A 245	A 275	A	355	360	A	A	A	A	A	225	B					
14							200	A	295	335	U R 360	370	375	365	350	320	285	U A 225	B					
15							205	265	315	A	350	370	365	355	345	310	280	210	B					
16							A 195	A	305	A	345	365	A 365	A 365	340	310	280	200	B					
17							190	255	U A 295	A	A	A	A	A 355	340	315	270	205	B					
18							A 185	245	280	315	340	345	360	345	335	305	260	A						
19							A	A	300	325	340	355	355	R	325	305	270	A						
20							190	265	310	320	340	350	355	345	335	300	U A 245	A						
21							180	270	315	330	A 350	A	A	A	A	A	A	200						
22							A 180	255	300	320	U A 320	U A 335	355	345	325	A	260	200						
23							195	250	A	330	350	350	365	345	335	300	265	A						
24							165	245	300	330	345	340	345	345	335	300	260	190						
25							160	250	300	330	350	355	345	340	335	305	270	A						
26							170	260	U A 285	R 320	340	350	355	340	335	305	260	185						
27							155	250	305	330	345	355	355	350	335	310	260	180						
28							160	A 260	295	335	355	365	360	345	335	305	260	A						
29							165	250	300	315	U A 325	340	355	340	335	310	260	A						
30							A	240	285	315	340	340	345	340	335	300	260	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							22	26	22	20	21	25	21	22	25	27	28	20						
MED							190	258	300	330	345	355	355	345	335	310	275	220						
U Q							205	270	305	335	350	360	365	355	345	325	288	228						
L Q							170	250	290	320	340	348	355	345	335	305	260	200						

SEP. 1992 FOE (0.01MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 27	J A 22	20	21	20	19	J A 33	J A 33	J A 54	J A 50	40	G 34	40	39	J A 66	J A 83	J A 41	J A 34	21	J A 52	J A 47	J A 45	J A 49	J A 85
2	J A 51	J A 44	J A 23	29	J A 21	J A 13	25	J A 39	J A 49	J A 43	38	40	J A 46	42	J A 44	38	34	J A 33	59	55	J A 44	J A 51	J A 51	J A 32
3	J A 22	18	20	20	E B 13	E B 13	J A 31	J A 55	J A 95	J A 83	J A 42	J A 51	J A 51	J A 51	J A 43	G	J A 46	J A 98	J A 53	21	J A 55	J A 52	J A 52	J A 48
4	J A 37	60	28	J A 19	J A 32	J A 39	30	J A 37	J A 49	J A 50	G	40	G	G	J A 49	37	78	J A 93	J A 54	J A 50	J A 52	J A 31	J A 36	J A 36
5	J A 27	20	E B 13	E B 14	22	E B 14	22	29	J A 42	G 35	39	J A 41	39	G	G	34	31	28	J A 29	J A 37	33	30	J A 34	J A 31
6	J A 23	19	E B 13	19	17	19	G	31	36	41	43	J A 53	G	42	38	34	38	27	20	J A 22	J A 24	58	J A 43	21
7	J A 18	J A 21	J A 24	J A 21	J A 18	J A 21	E B 34	G	G	G	J A 42	J A 43	42	E B 65	E B 38	G	G	31	21	E B 16	J A 55	J A 36	J A 65	J A 39
8	19	E B 16	E B 14	E B 15	E B 13	J A 14	29	J A 41	37	G	G 28	G 27	G 26	G 27	G 28	G 28	32	27	J A 25	J A 25	J A 33	J A 29	J A 24	J A 34
9	E B 14	E B 14	20	21	19	J A 17	25	G 25	29	J A 42	E B 35	G 25	E B 38	39	37	36	36	25	22	J A 46	J A 22	E B 13	E B 13	E B 14
10	E B 15	J A 15	J A 23	J A 19	J A 18	J A 19	25	30	34	G	G	40	39	37	37	J A 44	J A 38	30	18	J A 67	J A 52	J A 53	J A 19	20
11	J A 22	20	E B 14	J A 14	J A 14	J A 20	J A 71	33	39	J A 54	G	J A 47	S	42	44	J A 57	J A 58	35	J A 52	27	J A 25	J A 22	25	J A 19
12	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	J A 22	G	J A 39	J A 41	37	G	37	G	39	34	J A 52	42	J A 43	J A 51	J A 32	J A 27	J A 27	J A 26
13	18	29	J A 21	20	19	E B 13	22	J A 32	35	36	G 35	40	39	38	J A 42	J A 35	J A 33	23	E B 16	J A 28	J A 27	J A 34	J A 38	J A 23
14	J A 27	J A 22	J A 20	E B 14	E B 13	E B 13	G	29	G 29	G 32	G 25	G 29	39	40	40	41	J A 36	J A 42	J A 28	J A 35	J A 18	J A 26	J A 19	E B 13
15	E B 13	E B 13	19	J A 23	21	J A 17	G 20	G 25	G 29	J A 36	G 34	G 34	G	G	G 30	34	33	28	23	J A 19	22	J A 36	J A 20	22
16	18	19	21	19	E B 15	J A 21	24	30	J A 46	J A 51	G 31	G	39	42	39	38	37	J A 30	J A 23	J A 24	J A 53	E B 13	29	E B 13
17	22	E B 13	E B 13	E B 13	E B 13	E B 14	23	J A 32	J A 47	J A 54	J A 56	J A 41	42	41	43	J A 47	J A 85	J A 55	J A 51	J A 20	J A 24	J A 28	E B 14	E B 14
18	J A 13	20	J A 22	35	J A 27	J A 28	28	55	33	38	37	41	43	42	J A 45	36	J A 33	J A 27	J A 19	J A 22	J A 23	E B 13	J A 27	E B 14
19	E B 13	E B 13	E B 14	E B 13	J A 13	E B 13	22	29	32	36	G	39	G	G	36	35	30	J A 24	J A 14	J A 21	18	15	20	E B 13
20	E B 13	E B 13	20	20	J A 13	J A 15	G	J A 47	34	37	38	39	45	45	45	J A 41	53	42	39	40	28	J A 37	J A 22	18
21	E B 14	E B 13	22	E B 14	E B 13	E B 14	G	30	41	36	J A 49	J A 58	76	J A 47	57	J A 89	J A 34	J A 38	30	J A 32	J A 29	J A 21	J A 21	J A 18
22	E B 13	E B 13	E B 13	E B 13	E B 13	J A 19	21	J A 26	G 20	34	J A 48	41	G	G	37	31	27	G	E B 14	J A 19	J A 17	22	19	J A 18
23	E B 15	E B 13	E B 13	E B 13	E B 13	E B 13	G	G 19	J A 32	35	G	41	G 25	G 22	36	J A 49	J A 39	J A 46	J A 24	20	J A 15	E B 13	E B 15	E B 13
24	E B 14	E B 13	E B 13	E B 13	E B 13	J A 14	J A 16	29	34	36	37	38	37	G	36	G	31	27	J A 27	J A 29	J A 24	E B 13	J A 18	J A 19
25	E B 13	E B 13	E B 13	E B 13	18	J A 14	J A 18	G	32	G	J G 32	G	G	40	37	J A 42	J A 35	23	E B 14	E B 13	J A 19	J A 23	E B 15	E B 13
26	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	G	27	34	G 29	G	G	G	G	G	32	29	23	J A 18	J A 19	E B 14	E B 13	E B 13	E B 13
27	E B 13	E B 13	E B 14	E B 16	E B 15	E B 14	20	29	G 30	G	G	40	G 20	G	39	G	29	23	J A 20	J A 17	J A 24	J A 16	J A 16	19
28	E B 13	E B 13	E B 13	J A 14	19	J A 13	18	31	34	35	G	39	G	G	36	33	28	J A 29	J A 36	J A 37	E B 13	J A 21	E B 13	E B 14
29	E B 14	E B 15	E B 13	18	E B 14	E B 14	J A 35	29	J A 48	J A 43	36	36	G	38	38	34	J A 54	J A 44	J A 43	J A 30	J A 32	J A 27	J A 24	J A 51
30	J A 63	J A 44	J A 21	J A 18	20	J A 16	27	J A 35	32	36	37	36	36	36	G	34	34	22	E B 13	E B 13	J A 14	21	E B 13	E B 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30
MED	15	E B 15	16	17	15	J A 14	22	30	34	36	G	40	37	38	38	35	34	30	J A 24	J A 26	J A 24	J A 26	J A 22	19
U Q	J A 22	J A 20	J A 21	20	19	J A 19	28	J A 33	J A 42	J A 43	J A 39	J A 41	41	42	J A 43	J A 41	J A 41	J A 42	J A 39	J A 37	J A 33	J A 36	J A 34	J A 31
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G 27	G 32	G	G	G	G	G	G 36	G 33	31	25	19	20	J A 19	E B 16	E B 16	E B 14

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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	22	21	E B 14	E B 13	E B 14	E B 13	26	30	35	35	35	G 31	40	38	55	64	34	27	19	34	30	27	30	30
2	29	24	E B 13	18	E B 14	E B 14	24	31	44	40	37	39	41	40	40	36	32	30	51	44	28	21	21	18
3	E B 13	E B 13	E B 14	E B 13	E B 13	E B 13	27	41	42	44	37	38	42	40	36	G	40	51	21	E B 15	41	26	19	19
4	24	A A 60	E B 13	17	18	22	24	28	36	A A 50	G	40	G	G	46	35	44	34	31	14	23	19	20	17
5	23	E B 13	E B 13	E B 14	E B 14	E B 14	22	28	32	U G 35	39	G 31	38	G	G	33	30	27	27	31	25	22	24	20
6	18	E B 13	E B 13	E B 13	E B 13	E B 15	G	31	34	38	42	47	G	40	38	34	36	25	19	19	17	E B 14	20	E B 13
7	E B 14	17	21	16	E B 14	18	E B 34	G	G	G	41	40	41	E B 65	E B 38	G	G	30	20	E B 16	32	21	25	19
8	18	E B 16	E B 14	E B 15	E B 13	14	24	35	36	G	U G 28	G 27	U G 26	U G 27	G 28	G 27	32	G	19	21	25	22	20	16
9	E B 14	E B 14	16	E B 13	E B 14	17	24	G 23	U Y 29	40	E B 35	G 25	E B 38	39	36	35	35	25	20	34	E B 13	E B 13	E B 13	E B 14
10	E B 15	E B 13	20	16	16	16	24	28	33	G	G	39	39	37	36	40	34	25	16	A A 67	32	15	17	E B 16
11	18	E B 13	E B 14	E B 13	E B 13	E B 13	32	30	37	45	G	40	S	40	37	A A 57	44	28	17	18	E B 13	17	17	17
12	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	G 16	G	34	36	36	G	37	G	38	34	51	32	20	33	16	16	21	E B 13
13	E B 14	20	16	E B 13	E B 13	E B 13	20	28	33	35	G 33	40	38	37	38	34	30	G 21	E B 16	23	24	25	18	20
14	20	20	20	E B 14	E B 13	E B 13	G	27	G 26	G 31	G 25	G 28	39	40	38	36	30	30	22	19	E B 13	15	E B 14	E B 13
15	E B 13	E B 13	E B 13	18	E B 13	E B 13	G 16	G 21	G 28	35	G 31	G 33	G	G	G 30	34	33	24	17	16	E B 15	16	E B 13	E B 13
16	E B 13	E B 13	E B 13	E B 13	E B 15	E B 14	22	29	G 27	39	G 31	G	38	40	37	37	34	29	18	22	23	E B 13	E B 13	E B 13
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	22	30	38	42	40	40	41	39	40	37	63	51	15	E B 13	14	22	E B 14	E B 14
18	E B 13	17	17	26	21	22	25	A A 55	32	35	36	40	39	40	37	32	28	21	17	E B 14	16	E B 13	22	E B 14
19	E B 13	E B 13	E B 14	E B 13	E B 13	E B 13	21	28	31	34	G	38	G	G	34	34	29	22	E B 14	17	E B 14	15	15	E B 13
20	E B 13	E B 13	E B 13	E B 13	E B 14	E B 13	G	G	33	34	38	39	42	42	42	36	39	32	28	32	20	25	20	16
21	E B 14	E B 13	E B 13	E B 14	E B 13	E B 14	G	29	34	34	45	55	69	42	50	37	28	G 17	18	16	24	21	18	E B 13
22	E B 13	E B 13	E B 13	E B 13	E B 13	17	G 18	G 23	G 20	34	37	38	G	G	37	31	27	G	E B 14	E B 13	E B 13	E B 13	E B 14	E B 13
23	E B 15	E B 13	E B 13	E B 13	E B 13	E B 13	G	G 18	32	34	G	37	G 25	G 22	36	G 25	29	19	17	16	E B 13	E B 13	E B 15	E B 13
24	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	G 12	28	33	35	36	38	37	G	35	G	30	24	23	20	16	E B 13	E B 13	E B 13
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	32	G	G 31	G	G	39	37	38	30	22	E B 14	E B 13	15	16	E B 15	E B 13
26	E B 14	E B 14	E B 13	E B 13	E B 13	E B 13	G	G	33	G 28	G	G	G	G	G	32	28	21	18	E B 13	E B 14	E B 13	E B 13	E B 13
27	E B 13	E B 13	E B 14	E B 16	E B 15	E B 14	20	28	G 24	G	G	40	G 20	G	G	G	28	22	18	E B 13	18	E B 13	E B 13	E B 13
28	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	31	33	G	G	G 37	G	G	35	32	28	23	19	23	E B 13	E B 20	E B 13	E B 14
29	E B 14	E B 15	E B 13	E B 13	E B 14	E B 14	G	28	34	34	34	36	G	37	36	G	40	41	26	28	27	21	20	25
30	37	23	16	E B 14	E B 13	E B 14	24	32	31	34	37	35	36	35	G	33	27	20	E B 13	E B 13	E B 13	E B 13	E B 13	E B 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30
MED	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	20	28	33	G	E G 34	38	37	37	36	34	31	25	18	18	16	16	17	E B 14
U Q	18	17	14	15	E B 14	14	24	30	34	38	37	40	40	40	38	36	36	30	21	28	25	21	20	17
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G 31	34	G	G 36	G	G	G 35	G 31	28	21	E B 17	E B 14	E B 14	E B 13	E B 13	E B 13

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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	14	13	14	13	14	13	13	13	16	17	19	18	17	17	16	16	14	13	13	14	13	13	14	14
2	13	13	13	14	14	14	13	13	15	17	18	20	17	20	19	17	16	13	15	15	13	15	14	13
3	13	13	14	13	13	13	13	14	17	16	17	24	20	17	18	17	14	14	13	15	15	15	14	13
4	14	13	13	13	13	13	15	13	14	19	20	28	22	20	18	20	16	13	13	13	13	13	13	13
5	13	13	13	14	14	14	14	14	17	31	26	25	26	25	22	18	18	15	13	15	13	13	13	13
6	13	13	13	13	13	15	17	14	16	20	19	33	34	24	34	21	23	14	13	13	13	14	15	13
7	14	13	13	13	14	14	34	17	18	21	21	28	21	65	38	22	21	15	14	16	14	13	15	13
8	13	16	14	15	13	13	16	16	32	21	23	20	20	20	17	17	14	13	13	14	13	14	13	13
9	14	14	13	13	14	13	14	16	16	20	35	21	38	27	20	19	17	14	14	13	13	13	13	14
10	15	13	13	13	13	14	13	14	17	19	18	24	36	21	21	19	17	14	13	13	15	13	13	16
11	13	13	14	13	13	13	13	14	34	16	20	21	S	26	19	16	15	14	13	13	13	13	14	15
12	14	13	13	13	13	14	13	14	15	16	19	20	18	26	22	17	16	14	13	13	14	13	13	13
13	14	13	14	13	13	13	14	13	13	20	23	29	25	26	20	19	17	14	16	13	13	14	13	13
14	13	16	14	14	13	13	15	15	17	17	20	25	25	18	20	17	14	14	14	14	13	14	14	13
15	13	13	13	13	13	13	13	13	15	18	21	25	23	25	20	18	15	14	13	13	15	13	13	13
16	13	13	13	13	15	14	13	13	16	17	19	21	20	19	17	16	16	14	13	13	13	13	13	13
17	13	13	13	13	13	14	14	13	17	19	23	19	25	20	19	17	14	15	13	13	12	13	14	14
18	13	14	14	13	14	14	13	13	14	16	18	22	20	18	17	15	13	13	13	14	13	13	13	14
19	13	13	14	13	13	13	13	13	16	21	18	21	19	20	17	16	15	13	14	13	14	13	13	13
20	13	13	13	13	14	13	14	15	16	16	16	17	16	20	18	17	15	13	13	13	13	13	13	13
21	14	13	13	14	13	14	14	16	17	20	21	24	19	22	17	17	13	13	13	13	13	13	13	13
22	13	13	13	13	13	14	13	15	17	16	17	20	22	22	16	17	13	14	14	13	13	13	14	13
23	15	13	13	13	13	13	17	13	16	20	19	20	19	17	17	13	13	13	13	13	13	13	15	13
24	14	13	13	13	13	13	13	13	14	14	16	20	17	20	18	16	14	13	13	13	13	13	13	13
25	13	13	13	13	13	13	13	13	15	18	17	21	18	19	20	18	14	13	14	13	13	13	15	13
26	14	14	13	13	13	13	14	13	15	16	17	20	18	20	17	16	14	13	13	13	14	13	13	13
27	13	13	14	16	15	14	13	15	16	16	17	19	16	18	17	16	15	13	13	13	14	13	13	13
28	13	13	13	13	13	13	13	13	15	18	18	20	20	23	16	14	13	13	13	14	13	13	13	14
29	14	15	13	13	14	14	13	13	17	16	17	18	17	19	17	16	15	13	13	13	13	13	14	15
30	13	13	14	14	13	14	13	15	14	16	17	17	18	17	20	17	15	14	13	13	13	13	13	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30
MED	13	13	13	13	13	13	13	14	16	18	19	21	20	20	18	17	15	14	13	13	13	13	13	13
U Q	14	13	14	13	14	14	14	15	17	20	21	24	24	24	20	18	16	14	14	14	14	13	14	14
L Q	13	13	13	13	13	13	13	13	15	16	17	20	18	19	17	16	14	13	13	13	13	13	13	13

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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	F 290	295	290	300	305	330	355	360	355	310	305	300	305	300	315	320	315	310	315	F 275	305	290	300	U S 330
2	310	295	310	310	290	300	350	355	355	325	305	315	330	320	305	320	325	315	305	305	290	275	F 290	285
3	285	275	275	270	280	255	300	225	275	260	280	R 305	300	305	270	300	295	285	305	320	270	250	265	255
4	305	A	320	260	250	265	250	275	275	A	G	255	270	275	A	300	295	300	315	270	280	275	F 270	F 260
5	275	285	295	F 290	F 300	290	325	330	295	320	305	325	310	330	325	295	315	320	330	300	280	280	265	280
6	265	275	300	320	315	320	325	340	315	R 325	325	325	290	V 270	305	315	310	325	325	315	300	300	290	285
7	F 275	275	285	280	290	270	330	335	330	345	H 275	310	320	B 325	310	315	325	325	310	295	310	305	F 275	F 270
8	F 270	F 275	290	295	F 280	260	290	V 315	340	315	315	325	320	300	310	320	320	315	325	320	285	315	270	265
9	270	260	270	H 320	280	285	330	335	245	260	295	285	300	310	295	315	290	330	350	A 255	245	250	240	235
10	270	270	260	270	255	250	225	235	270	240	215	G	G	305	300	300	320	325	295	A	F 260	260	275	260
11	255	285	265	255	V 270	295	300	260	305	260	R 250	290	S	310	320	A	315	305	315	270	260	260	270	270
12	265	290	305	305	295	F 300	330	V 320	335	330	330	320	315	305	315	320	325	320	325	325	275	275	285	F 285
13	285	295	290	305	305	310	345	350	350	325	325	315	325	315	305	315	320	315	305	310	310	315	275	280
14	280	275	290	295	315	310	355	360	360	325	315	315	315	310	305	295	315	325	315	300	305	290	290	300
15	295	290	305	305	295	310	330	340	360	300	310	310	310	305	295	300	330	320	335	325	280	285	270	280
16	275	290	290	285	305	300	350	335	330	325	315	320	305	310	305	310	320	325	330	330	295	270	280	300
17	285	275	300	320	325	290	335	350	320	310	335	305	305	295	285	280	305	295	335	250	300	265	300	270
18	280	280	320	265	F 270	F 245	270	A	245	G	G	R 230	R 210	275	285	310	285	315	315	275	275	285	270	270
19	270	270	290	285	295	300	345	345	330	345	290	315	300	295	315	310	315	315	335	340	270	270	265	270
20	285	290	305	325	H 290	300	345	360	345	340	330	305	315	310	315	315	325	320	320	320	300	285	280	280
21	280	280	295	330	300	300	345	360	350	345	325	315	310	305	295	320	325	345	325	305	280	280	295	280
22	290	295	300	310	300	290	340	350	350	355	315	285	290	295	305	315	320	330	315	305	300	305	290	280
23	285	280	280	285	305	325	360	340	330	340	325	300	305	300	310	305	320	330	330	335	285	285	270	275
24	280	295	305	300	295	290	335	350	360	345	350	310	310	315	325	325	315	325	320	320	325	275	280	290
25	295	295	305	295	295	305	335	345	360	360	330	315	315	315	315	305	325	335	345	350	275	275	275	285
26	290	265	290	305	305	295	340	335	360	360	335	315	310	310	300	305	320	325	330	330	310	295	290	290
27	290	295	275	265	280	305	355	340	340	345	350	305	310	310	305	315	320	325	325	340	295	300	300	280
28	290	290	290	300	315	300	355	355	365	355	350	315	305	320	310	310	325	330	345	320	305	295	300	290
29	270	275	265	280	270	275	300	350	330	310	315	290	310	290	290	290	295	320	295	290	285	280	290	265
30	255	275	290	275	265	265	290	H 305	345	355	305	335	315	320	325	335	335	350	305	305	290	285	285	295
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	30	30	29	30	29	30	30	29	30	29	29	30	30	30	29	30	30	30	30
MED	280	280	290	295	295	298	335	340	338	325	315	310	310	308	305	310	320	322	322	310	288	282	280	280
U Q	290	292	305	305	305	305	345	350	355	345	330	315	315	315	315	318	325	325	330	325	300	295	290	285
L Q	270	275	285	280	280	275	300	325	315	310	295	300	300	300	298	300	315	315	315	292	275	275	270	270

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	U L 355	380	390	355	350	A	A	L	L						
2							L	L	A	L 365	L 360	375	375	365	L 330	L 380	U L 345	L						
3						L		A	A	A	390	380	380	355	U L 355	345	L	A						
4							335	355	A 325	A	380	A 355	430	H 360	A	365	A	A	A					
5							L	U L 350	L 340	H 380	365	365	360	390	L	335	370	L						
6							L	L 365	L	L	375	A 345	380	L	345	345	L 355	L						
7								L	L	H 390	L	H 385	350	B	L	U L 345	L							
8							L	L 345	L 345	U L 365	L 375	L 360	370	L 345	L 335	L 355	L	L						
9							U L 360		340	L	370	380	370	355	355	L 350	L 325	L						
10							310	330	390	405	395	360	380	H 370	395	A 335	A	L						
11								300	L 345	A	380	370	S	390	345	A	A							
12								L	L 355	370	L 390	U L 360	L 375	U L 340	U L 350	U L 350	A							
13								L	U L 380	L 370	L 375	U L 355	L 360	L 375	U L 355	L 350	L	L						
14								L	L	L	L	410	L 345	L	L	L	L							
15								L	L	L	U L 360	L	L 345	370	U L 330	U L 350	L							
16									L	L	L 375	380	L 370	L 340	L	L	L							
17									L		L 375	L 365	L	L 365	U L 350	L	A	A						
18							U L 285	A	345	370	370	380	355	370	345	340	L 320	L						
19								L	L 380	L 375	400	380	350	365	365	L 335	U L 345	L						
20								L	L	L 395	L 370	U L 360	L 350	L 345	L	U L 380	L							
21								L	U L 395	U L 400	A	A	A	U L 330	A	L	L	L						
22								L	L	L	L	L	L 345	U L 340	U L 345	L	L							
23								L	L	L	U L 370	L	L 360	U L 335	380	U L 355	L	L						
24								L	L	L	U L 390	L	L 345	L 345	L	L	L							
25								L	L	U L 385	L	L	U L 365	L	L	L	L	L						
26								L	L	L	U L 395	L	L 370	U L 350	U L 355	L	L							
27								L	L	U L 365	445	L	H 345	U L 365	L	L	L							
28								L	L	L	U L 385	U L 350	U L 350	U L 340	U L 340	L	L							
29									L	L	L 405	U L 360	L	L	L	L								
30							L	U L 355	U L 385	L	L	400	L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	7	12	14	24	22	25	24	17	16	6							
MED							L 322	L 350	L 350	L 372	L 378	L 368	360	L 355	L 350	L 350	L 345							
U Q							L 348	L 355	U L 382	390	L 390	380	372	368	355	L 355	355							
L Q							298	330	342	U L 365	L 370	360	L 350	U L 342	L 342	342	L 325							

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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							235	220	235	315	315	320	310	315	290	E A 295	270	280						
2							240	240	250	285	310	290	275	295	335	300	275	265						
3						360		570	405	465	415	360	370	370	L 440	350	330	A						
4							495	430	415	A	G	530	480	475	A	370	E A 370	E A 310	A 290					
5							270	270	300	290	320	295	330	270	L 260	365	290	265						
6							235	280	300	270	300	315	370	L 370	330	315	310	280						
7								280	255	265	L 320	310	315	B	315	300	275							
8							310	295	270	310	305	300	295	350	320	300	275	275						
9							275		575	L 490	415	420	350	320	370	285	340	250						
10							640	560	455	575	Y 655	G	G	355	355	355	300	270						
11								435	375	A	525	415	S	355	350	A	325							
12								290	270	270	285	310	310	330	300	280	A 265							
13								250	250	280	285	300	290	280	295	290	260	250						
14								240	240	280	265	285	300	300	310	310	270							
15								250	235	250	285	300	310	310	320	300	260							
16									250	250	275	290	300	290	280	280	260							
17									270		255	305	300	300	305	320	A 270	A 275						
18							425	A	535	G	G	645	740	445	375	315	350	290						
19								250	265	290	365	320	340	340	290	305	280	260						
20								230	240	255	275	305	310	300	275	280	270							
21								240	240	250	260	310	A 310	300	290	275	260	235						
22								240	245	235	270	320	290	295	285	265	245							
23								220	245	250	275	320	285	290	280	290	250	230						
24								245	235	240	250	300	295	280	270	270	265							
25								245	235	230	280	250	290	270	275	295	260	245						
26								250	235	230	250	265	270	275	275	270	255							
27								250	250	240	230	300	305	270	265	275	255							
28								230	225	235	250	300	300	270	290	275	255							
29									245	255	240	280	280	300	305	305								
30							305	265	240	230	H 260	260	280	250	280	260	245							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	10	25	30	27	30	30	29	29	29	29	29	15	1					
MED						360	290	250	250	265	285	305	305	300	295	295	270	265	A 290					
U Q							425	285	300	290	320	320	335	345	325	312	295	280						
L Q							240	240	240	240	260	295	290	280	280	278	260	250						

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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	300	285	270	265	250	240	210	200	195	H 195	195	210	225		A	A 230	A 240	260	A 310	270	265	280	A 270
2	250	280	255	240	270	270	240	225	A	210	195	205	215	210	A 245	205	230	A 255	A	A 265	A 260	300	300	280
3	285	295	285	310	290	320	A 265	A	A	A	215	210	235	A 250	230	240	A	A	275	240	A	A 365	310	365
4	280	A	275	A 370	A 435	350	A 260	240	A	A	215	A	220	H 215	A	240	A	A	A	280	300	300	335	325
5	A 315	285	255	290	250	290	250	A 235	220	210	205	220	220	200	225	230	230	255	240	A 260	310	A 330	A 340	310
6	315	295	250	240	245	265	250	230	220	225	230	A	235	A 260	225	230	245	240	240	230	265	250	290	260
7	290	290	300	300	305	300	260	230	225	H 210	A 245	H 190	240	B	230	250	245	260	260	260	260	240	355	335
8	340	305	295	280	300	350	275	E A 265	255	220	210	205	210	205	225	230	255	H 200	250	240	285	240	325	300
9	310	315	325	235	300	320	A	230	H 235	A 250	215	230	225	235	230	235	E A 260	260	230	A	375	365	390	390
10	325	290	A 375	320	365	420	E A 315	270	215	200	H 205	265	250	H 220	225	A	A	265	300	A	E A 340	310	310	325
11	350	300	325	355	310	305	A 265	275	E A 280	A	235	A 255	S	230	A 240	A	A	A 265	265	275	315	335	315	305
12	315	280	255	250	295	305	210	225	220	205	200	H 180	200	220	225	210	A	250	245	255	240	315	305	295
13	285	290	285	240	230	255	230	220	205	H 180	180	210	200	195	220	225	220	235	245	250	250	260	260	290
14	315	315	290	265	240	250	230	220	215	190	190	180	230	220	220	235	240	250	245	250	230	270	270	255
15	235	265	260	260	260	255	250	230	215	200	185	H 190	H 185	215	230	235	A 240	245	235	220	245	280	300	290
16	300	285	270	275	280	270	225	230	205	225	215	210	200	240	225	240	240	245	235	230	250	290	300	265
17	265	295	270	235	235	285	230	230	215	245	205	210	235	215	245	255	A	A	220	330	210	300	240	265
18	280	310	235	A 300	320	A 380	A 330	A	260	245	235	A 255	235	240	230	240	240	270	260	270	290	280	325	305
19	295	305	285	270	290	285	255	240	220	210	195	200	200	230	220	220	235	250	235	230	245	290	325	330
20	290	295	265	240	H 235	295	235	235	215	210	205	190	225	A	A	240	A	260	250	250	250	280	315	300
21	290	285	275	240	230	260	230	230	220	205	A	A	A	A 250	A	A	245	250	240	240	280	280	290	295
22	270	265	260	250	255	265	250	230	230	H 210	200	205	205	205	230	230	240	230	230	245	250	245	255	295
23	280	290	290	290	260	230	215	H 180	H 205	210	190	H 190	200	H 200	210	230	245	240	230	215	210	280	300	310
24	280	270	255	235	275	290	245	240	230	220	200	205	H 200	190	225	H 200	230	245	230	225	240	230	290	275
25	270	265	260	260	240	260	235	235	215	210	200	210	200	235	240	235	A 245	245	225	210	250	300	300	280
26	280	320	290	245	235	270	235	230	220	210	200	205	200	H 190	205	245	240	240	235	225	220	235	260	270
27	275	260	310	315	295	250	230	220	H 210	200	180	H 210	H 180	200	205	H 220	245	245	235	220	260	250	240	260
28	280	275	265	265	235	255	220	225	215	205	200	H 200	H 190	190	210	230	250	240	220	230	235	270	255	265
29	300	300	335	305	325	310	225	210	220	210	200	205	190	230	245	230	A 270	A 240	255	270	265	285	260	300
30	E A 335	300	270	270	310	320	275	255	230	230	210	210	225	H 220	220	230	230	225	210	230	285	260	280	275
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	30	29	28	27	27	29	27	28	28	26	26	23	27	28	28	29	30	30	30
MED	289	290	275	268	272	285	240	230	220	210	200	205	210	220	225	230	240	245	240	242	255	280	300	295
U Q	315	300	290	300	300	310	A 260	238	230	220	215	210	228	232	230	240	245	255	252	262	285	300	315	310
L Q	280	280	260	240	240	260	230	225	215	205	195	H 195	200	202	220	230	230	240	230	230	242	260	270	270

SEP. 1992 H'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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							B 115	110	110	A	A	A 125	110	A	110	110	110	115	A					
2							B 120	A 125	110	110	110	110	110	110	110	110	110	110	A					
3							B 120	110	110	110	A	A	A	A	A	110	115	115	A					
4							B 125	110	110	110	110	120	115	115	115	120	115	A	A					
5							B	A 115	A	A	A	A 130	A 125	115	115	115	120	A 120	A					
6							B 140	A 125	A 125	120	A 115	E A 130	125	115	B	120	120	120	A					
7							B	120	115	115	A	A	A 125	B	B	115	120	120	B					
8							125	115	B	110	A	E Y 135	A	A	E A 125	E A 125	E A 130	A	B					
9							A	E A 130	A	A	B	115	B	115	110	110	110	115	B					
10							A	115	110	110	110	115	B	115	115	115	115	120	B					
11							125	115	B	110	110	110	S	120	110	110	115	A	B					
12							A 130	115	110	110	A	120	A	120	115	110	110	120	B					
13							120	A 120	A 115	115	A 135	120	A	A	A	A	A	E A 160	B					
14							120	A	110	A 130	115	120	Y 125	120	A 115	110	A 135	115	B					
15							A 125	A 125	A 125	A	A 130	A 125	120	120	E A 130	110	115	A 130	B					
16							A	115	A 135	A	A	110	A	A	A 120	110	110	120	B					
17							E B 145	115	115	115	A	115	115	A	115	110	110	120	B					
18							130	115	110	110	110	115	115	110	110	110	110	A						
19							A	A	115	A 125	110	120	115	115	A 115	115	110	A						
20							135	120	115	115	115	A 115	A 120	120	120	115	115	A						
21							135	120	115	115	115	120	120	120	A	A	A	E A 150						
22							A	A 130	120	A 110	A 115	115	110	110	110	A	115	130						
23							E B 160	115	A	E A 130	110	115	A 120	A 115	115	A 115	A 115	A						
24							B 155	A 125	110	110	110	110	110	110	110	110	110	120						
25							B 145	115	A 120	110	A 130	110	115	110	110	110	110	A						
26							120	115	110	A 125	110	110	110	110	110	110	110	120						
27							140	115	115	105	110	105	115	110	110	110	110	115						
28							135	A	A 135	110	110	A 120	110	115	110	110	115	A						
29							135	115	110	110	110	110	110	110	110	115	115	A						
30							A	A 125	110	105	110	105	115	110	110	110	110	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							22	27	25	25	21	28	22	23	25	27	28	19						
MED							128	115	115	110	110	115	115	115	110	110	114	120						
U Q							B 140	A 125	A 118	A 115	A 115	A 120	A 120	120	A 115	115	115	A 120						
L Q							120	115	110	110	110	110	110	110	110	110	110	115						

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

IONOSPHERIC DATA STATION KOKUBUNJI

SEP. 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

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	105	105	105	105	105	110	115	115	110	110	110	110	E G 190	115	115	110	120	120	115	110	110	110	110	110
2	105	105	110	105	105	115	150	130	120	115	120	120	115	110	110	120	125	115	105	105	105	120	105	100
3	100	105	125	130	B	B	120	110	110	105	110	110	110	105	110	G	125	110	110	115	110	110	110	120
4	105	105	110	125	120	125	125	125	115	115	G	125	G	G	130	145	115	105	110	110	105	110	105	110
5	105	105	B	B	105	B	120	120	110	120	110	115	E G 185	G	G	E G 165	140	125	105	105	105	110	105	105
6	110	110	B	105	110	105	G	170	150	145	140	125	G	120	120	130	130	130	110	110	105	110	105	105
7	105	105	105	105	105	100	B	G	G	G	110	105	170	B	B	G	G	130	120	B	110	110	110	110
8	105	B	B	B	B	125	125	115	120	G	110	105	105	105	105	100	150	130	95	95	110	110	110	110
9	B	B	110	105	110	110	115	110	110	100	B	110	B	E G 165	155	125	120	120	115	110	120	B	B	B
10	B	130	120	120	115	115	115	115	120	G	G	E G 200	155	E G 165	140	120	120	135	120	110	110	130	110	105
11	110	105	B	120	135	125	125	140	130	115	G	120	S	135	130	115	115	110	115	105	105	105	100	100
12	B	B	B	B	B	B	115	G	115	110	115	G	115	G	135	135	115	115	110	110	110	110	105	110
13	110	100	100	100	100	B	130	120	115	120	110	E G 200	110	105	110	110	110	105	B	100	100	100	105	105
14	105	105	105	B	B	B	G	110	120	110	110	105	E G 170	160	150	130	140	120	115	115	120	110	110	B
15	B	B	105	100	110	125	120	110	110	120	115	115	G	G	110	E G 160	140	125	100	100	120	115	115	110
16	110	125	105	105	B	130	150	120	115	105	110	G	E G 155	160	140	130	120	120	115	110	110	B	110	B
17	110	B	B	B	B	B	150	125	115	110	125	130	115	150	140	140	120	120	120	120	110	110	B	B
18	145	130	125	125	125	125	130	120	140	135	150	140	130	130	120	135	125	115	110	110	110	B	105	B
19	B	B	B	B	140	B	115	110	E G 160	140	G	185	G	G	130	135	140	120	120	110	115	100	110	B
20	B	B	110	115	110	115	G	105	155	120	120	130	125	120	120	120	110	110	110	105	105	105	105	105
21	B	B	110	B	B	B	G	160	130	130	115	110	110	110	110	125	110	110	110	110	110	110	110	120
22	B	B	B	B	B	110	110	105	110	140	120	120	G	G	E G 200	110	160	G	B	100	100	100	100	110
23	B	B	B	B	B	B	G	105	105	E G 185	G	130	105	105	160	100	125	95	120	100	105	B	B	B
24	B	B	B	B	B	115	110	170	160	150	140	130	135	G	E G 200	G	E G 190	140	125	105	105	B	110	110
25	B	B	B	B	120	120	115	G	E G 170	G	110	G	G	175	170	125	120	115	B	B	110	110	B	B
26	B	B	B	B	B	B	G	130	115	110	G	G	G	G	G	E G 185	145	120	115	115	B	B	B	B
27	B	B	B	B	B	B	130	125	115	G	G	165	105	G	125	G	150	120	115	110	105	110	110	105
28	B	B	B	130	125	125	120	150	150	160	G	120	G	G	165	E G 160	145	120	110	110	B	110	B	B
29	B	B	B	110	B	B	110	155	120	120	115	130	G	E G 195	140	160	120	115	115	115	110	115	110	110
30	105	105	105	110	105	130	125	130	160	140	130	E G 150	E G 155	E G 160	G	140	130	120	B	B	120	115	B	B
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	14	15	17	17	18	23	27	29	25	21	26	19	19	26	26	29	29	26	27	28	24	23	19
MED	105	105	110	110	110	118	120	120	118	120	115	121	118	120	129	126	125	120	115	110	110	110	110	110
U Q	110	110	110	122	122	125	130	130	145	140	122	130	E G 155	E G 160	150	E G 140	140	122	115	110	110	110	110	110
L Q	105	105	105	105	105	110	115	110	112	110	110	110	110	110	115	120	120	112	110	105	105	110	105	105

SEP. 1992 H'ES (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

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

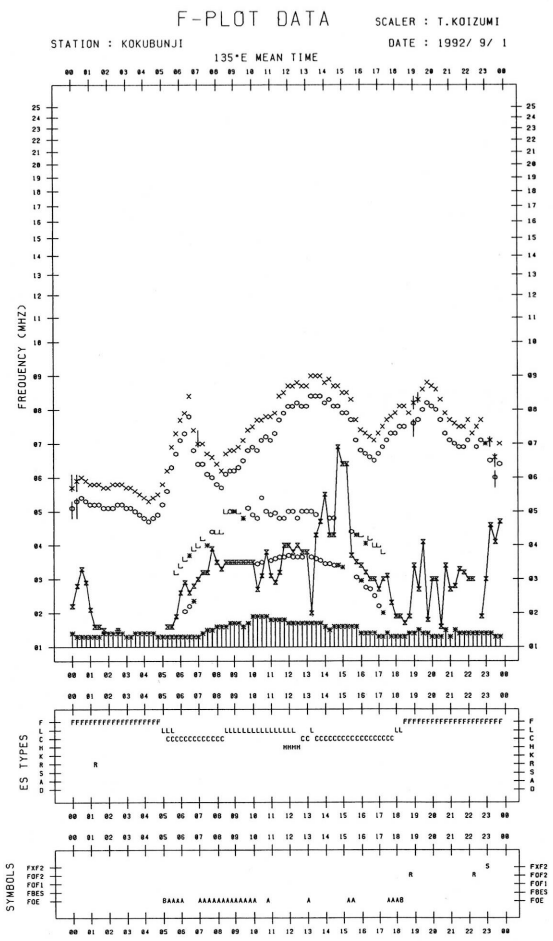
LAT. 35° 42.4'N LON. 139° 29.3'E SWEEP 1.0MHZ TO 25.0MHZ IN 24.0SEC IN MANUAL SCALING

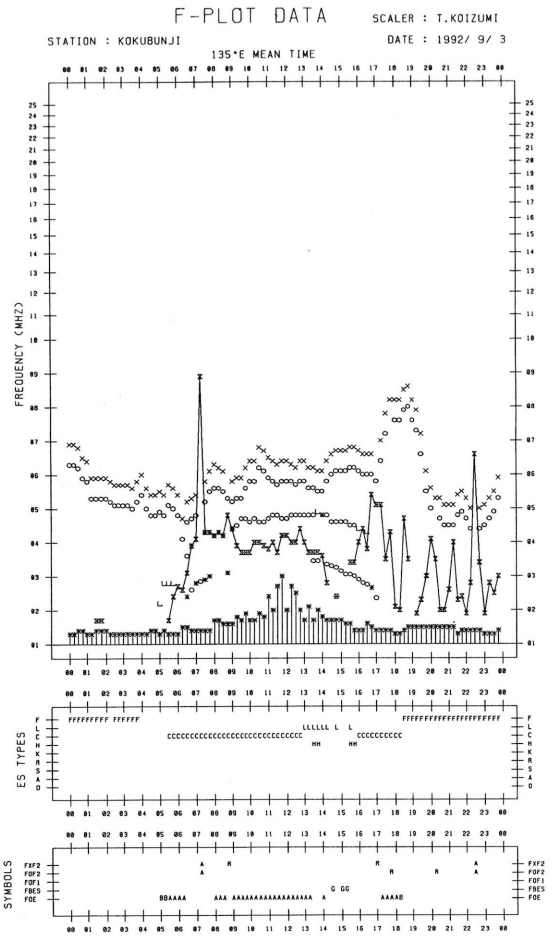
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 4	F 3	F 2	F 2	F 3	L 1	C 2	C 2	C 3	L 2	L 1	LL 11	HL 11	C 1	C 3	C 3	C 2	C 3	L 2	F 4	F 4	F 5	F 5	F 4
2	F 4	F 4	F 3	F 3	F 3	L 1	H 1	HL 22	C 3	C 2	C 1	C 1	C 2	C 2	C 2	C 2	C 1	C 3	C 5	F 4	F 4	FF 15	F 3	F 2
3	F 2	F 1	F 1	F 2	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

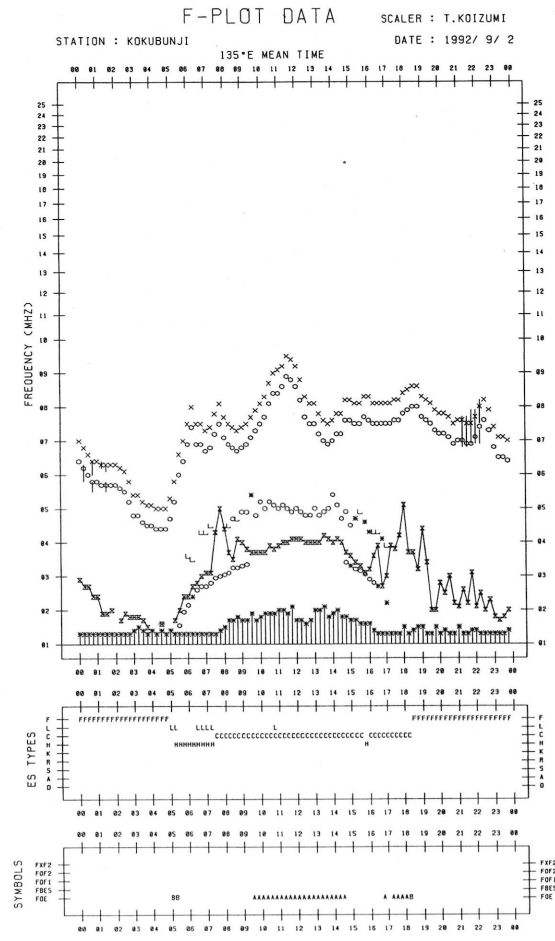
SEP. 1992 TYPES OF ES COMMUNICATIONS RESEARCH LABORATORY, JAPAN

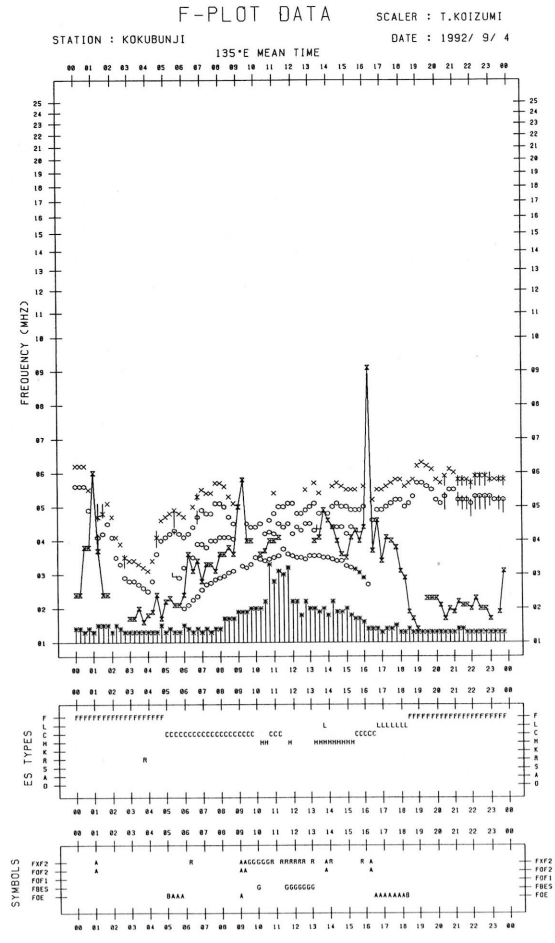
f-PLOTS OF IONOSPHERIC DATA

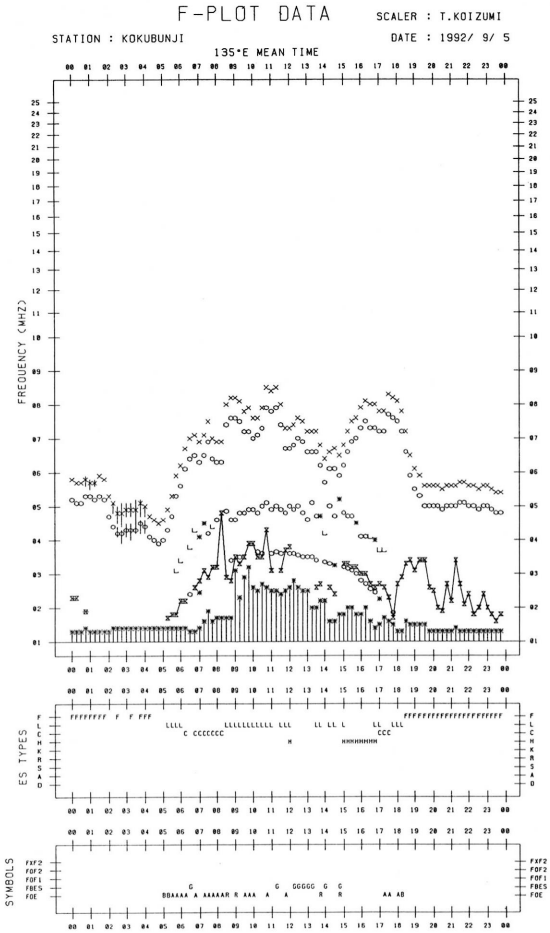
KEY OF F-PLOT	
|	SPREAD
⬡	FOF2, FOF1, FOE
×	FXF2
✳	DOUBTFUL FOF2, FOF1, FOE
⧖	FBES
⌊	ESTIMATED FOF1
⫯, Y	FMIN
∧	GREATER THAN
∨	LESS THAN

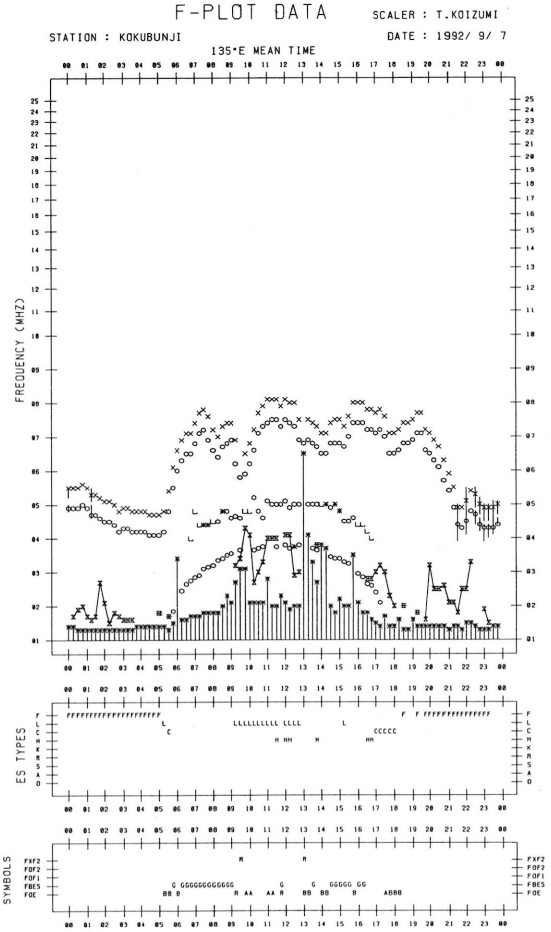

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 1
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

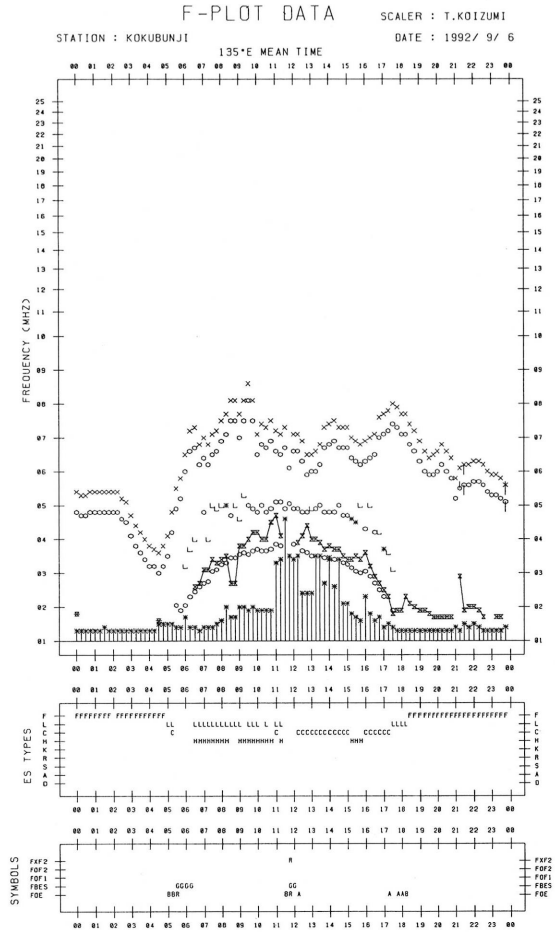

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 3
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

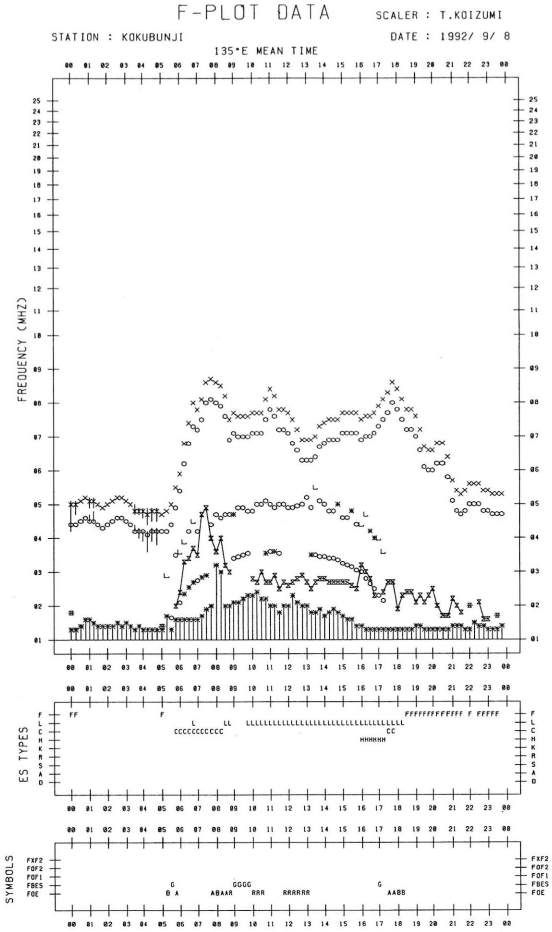

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 2
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

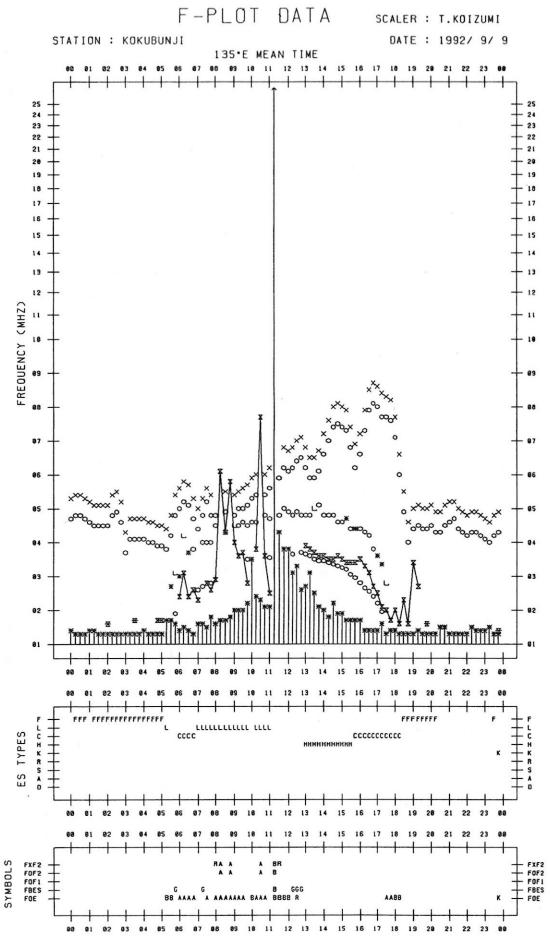

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 4
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

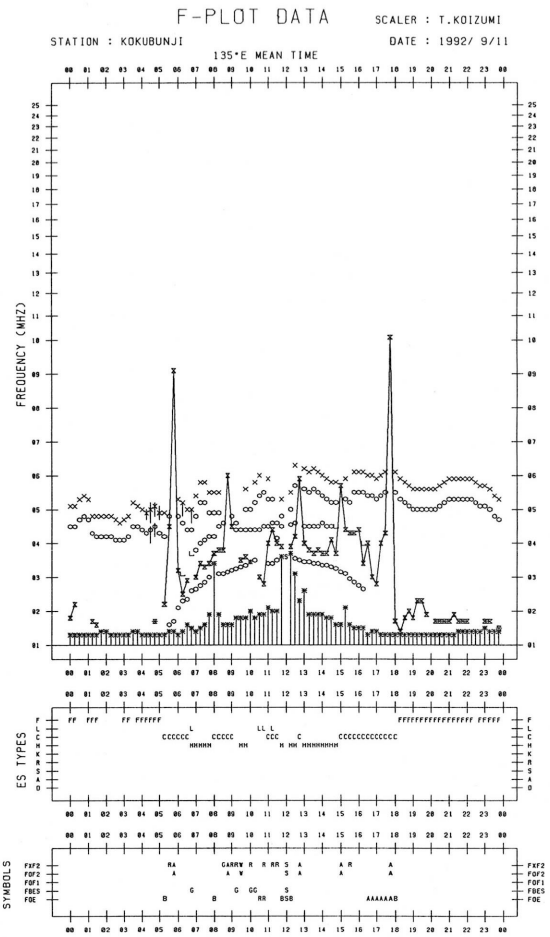

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 5
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

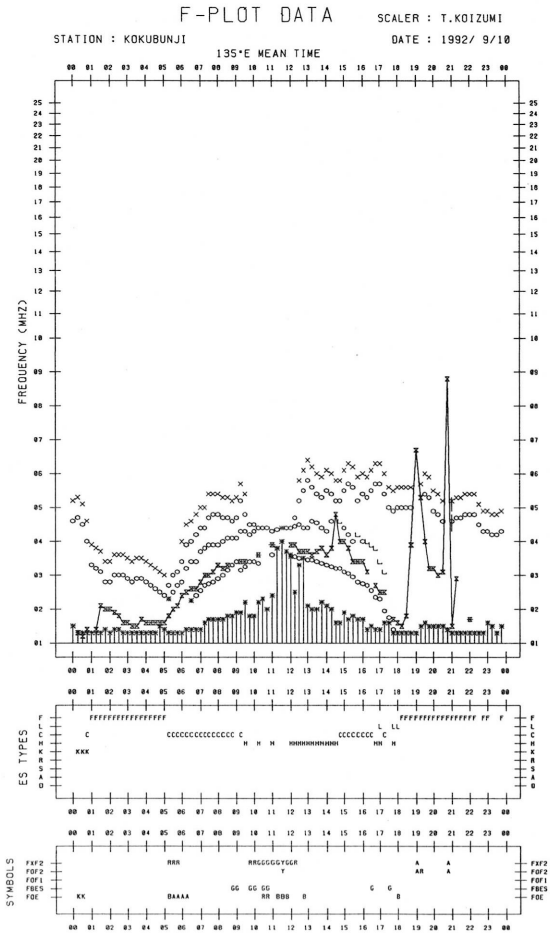

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 7
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

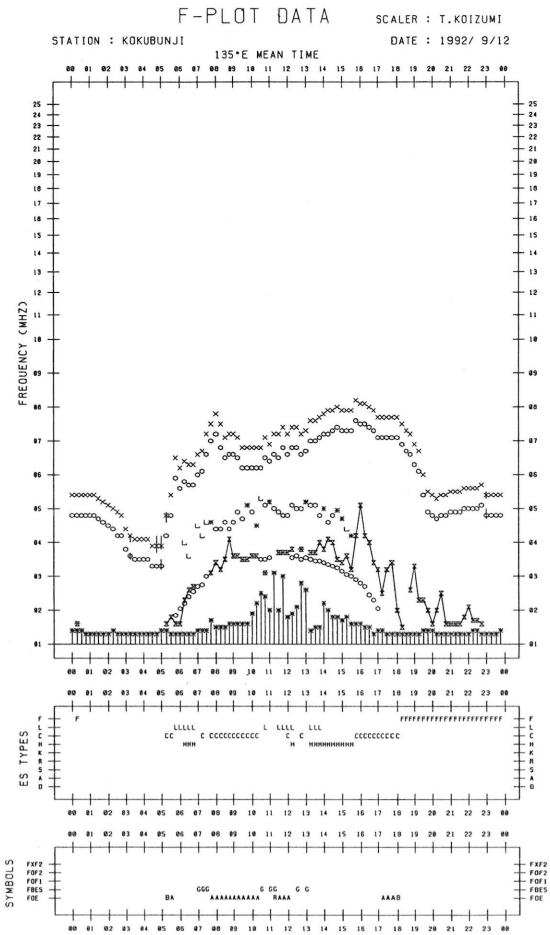

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 6
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

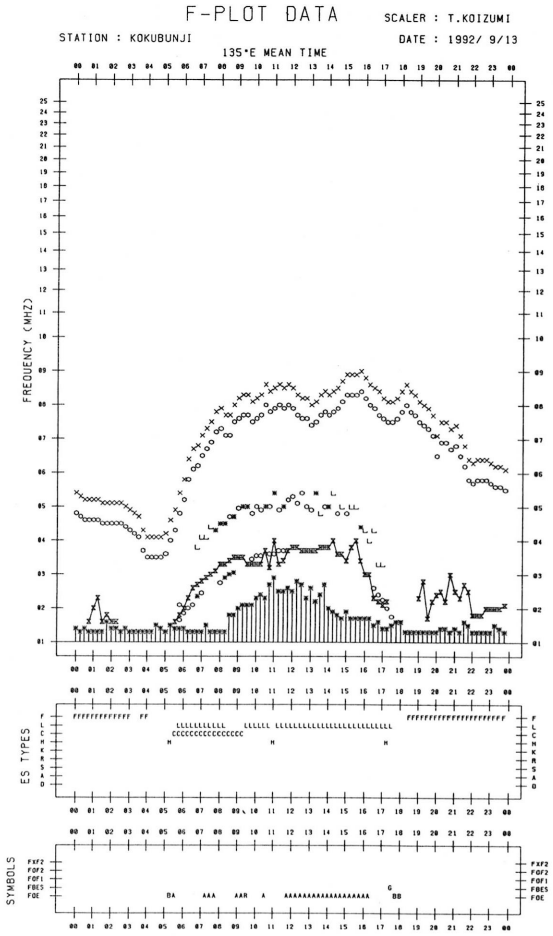

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 8
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

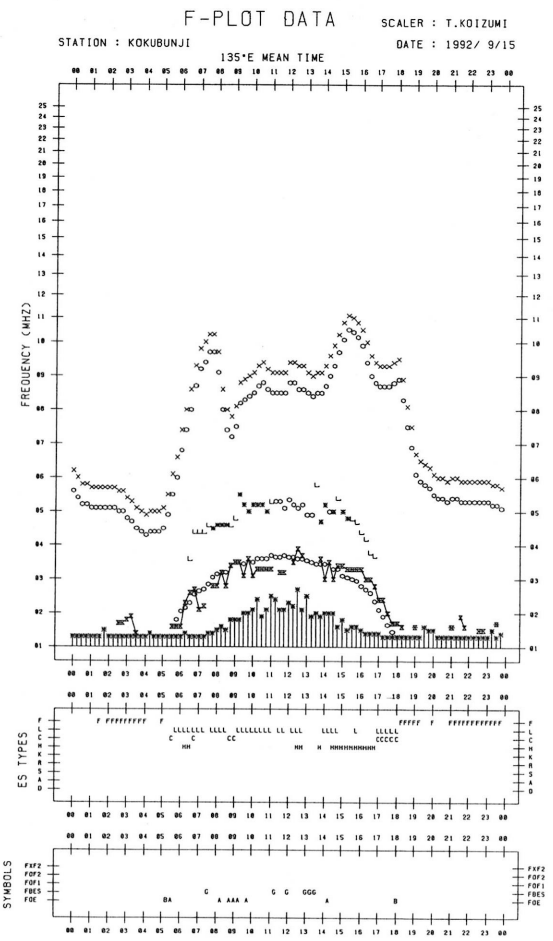

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/ 9
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

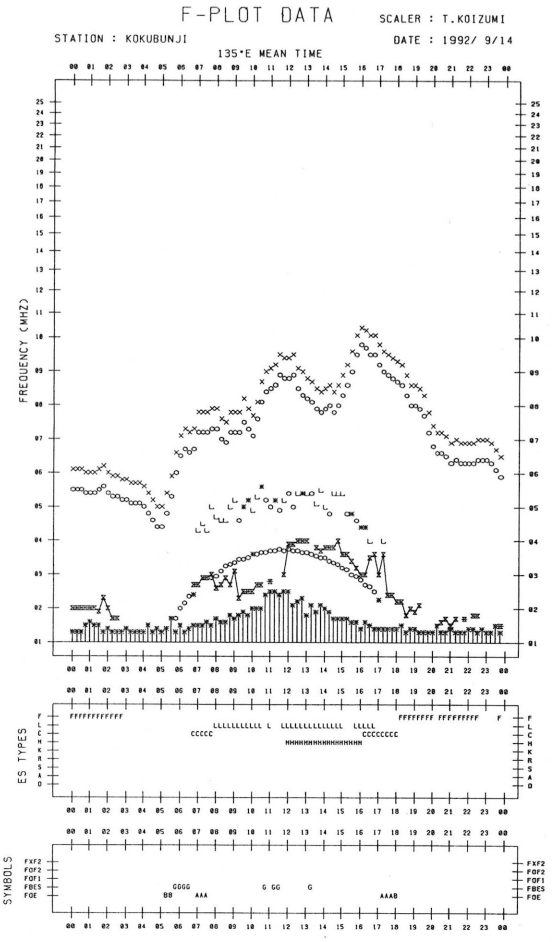

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/11
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

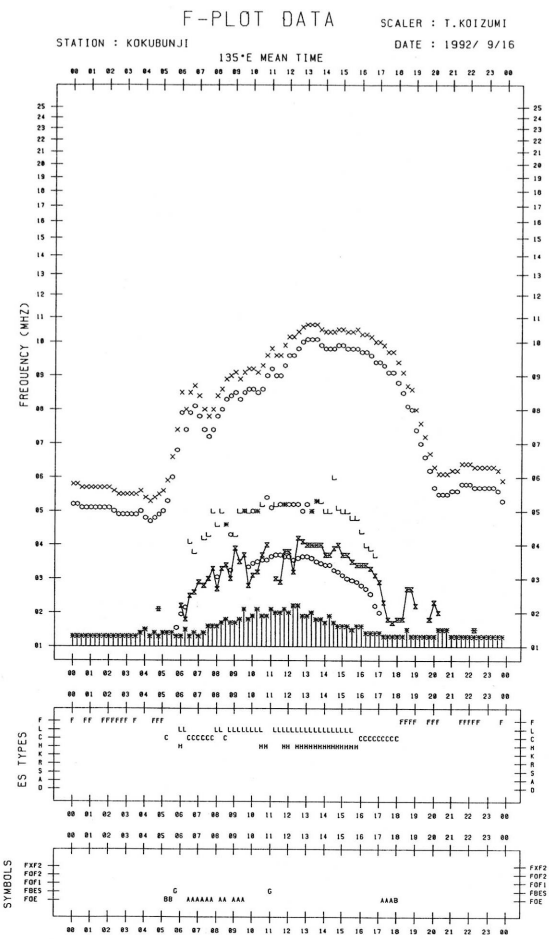

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/10
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

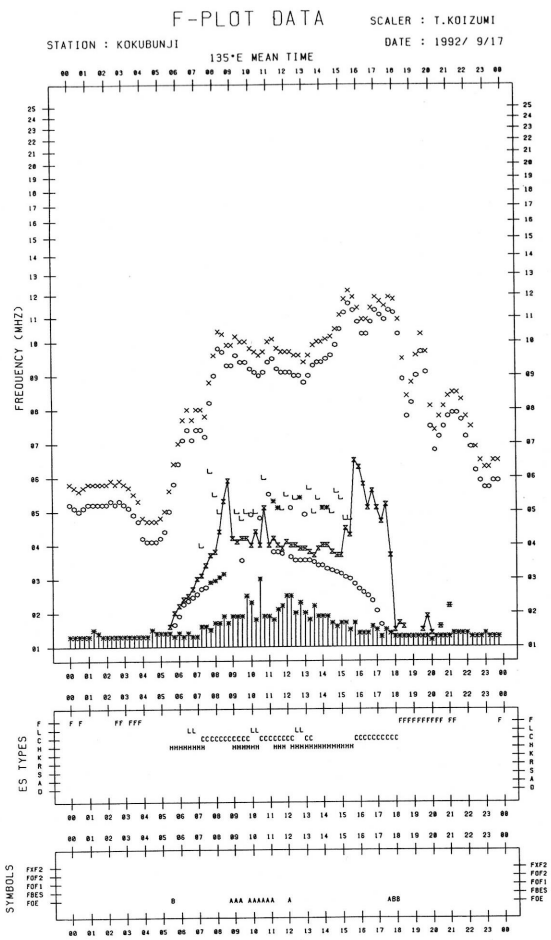

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/12
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

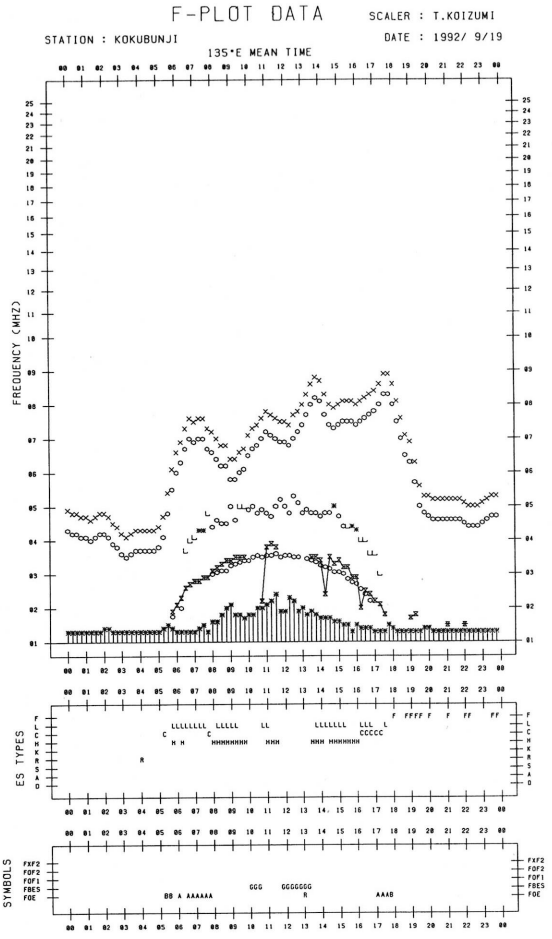

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/13
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

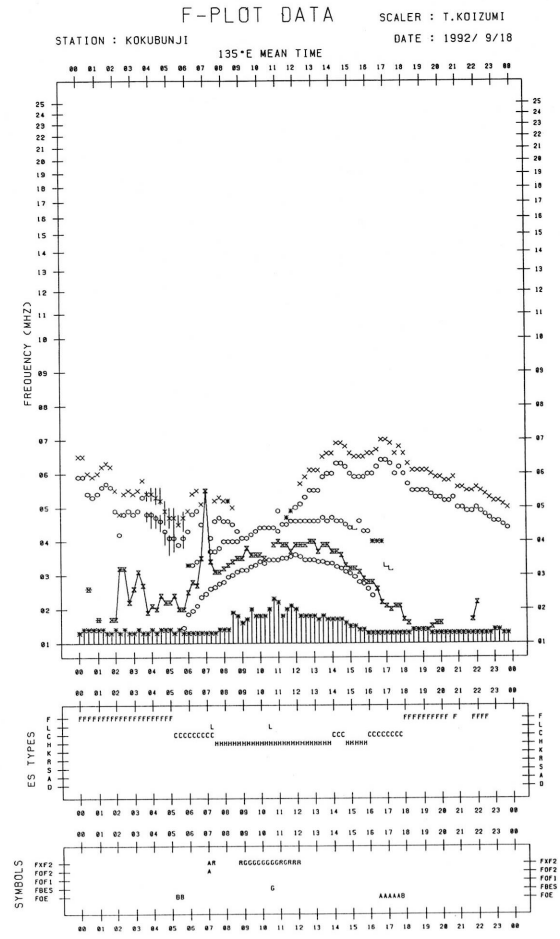

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/15
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

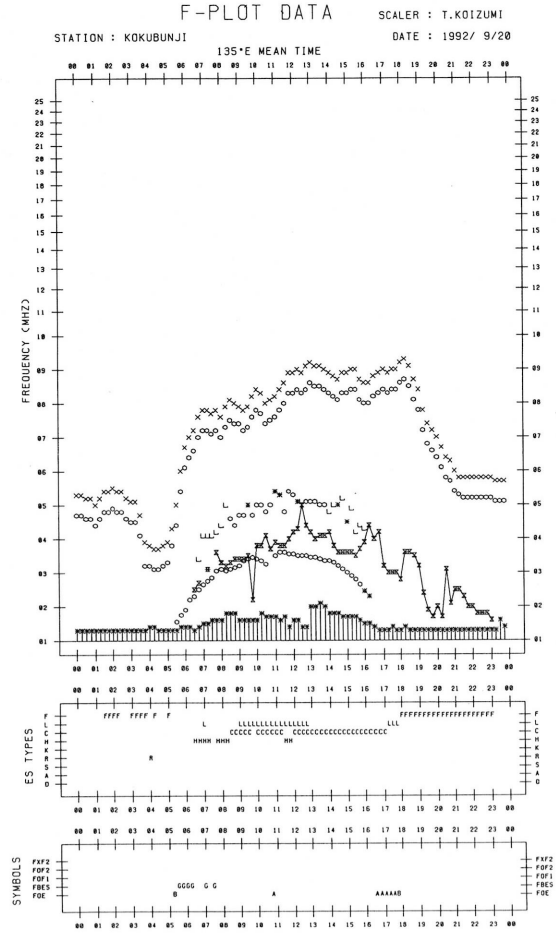

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/14
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

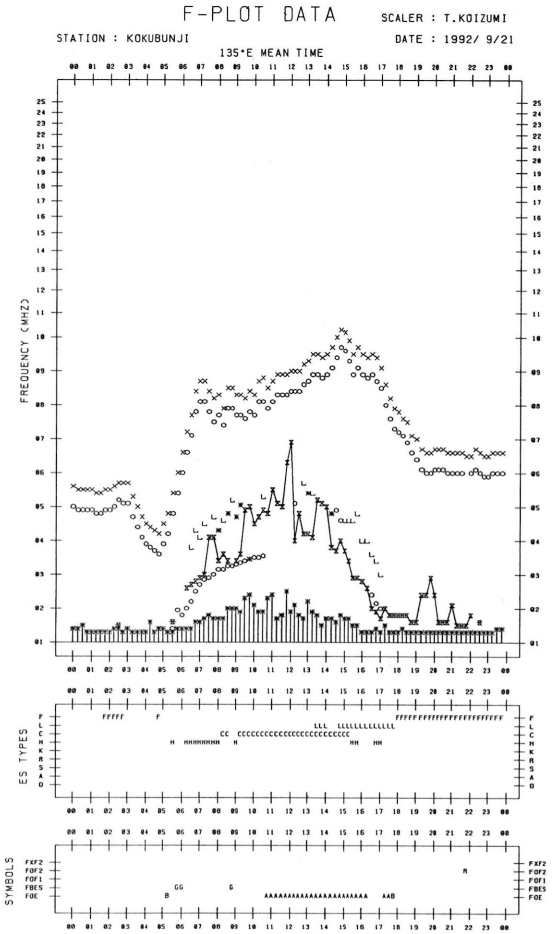

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/16
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

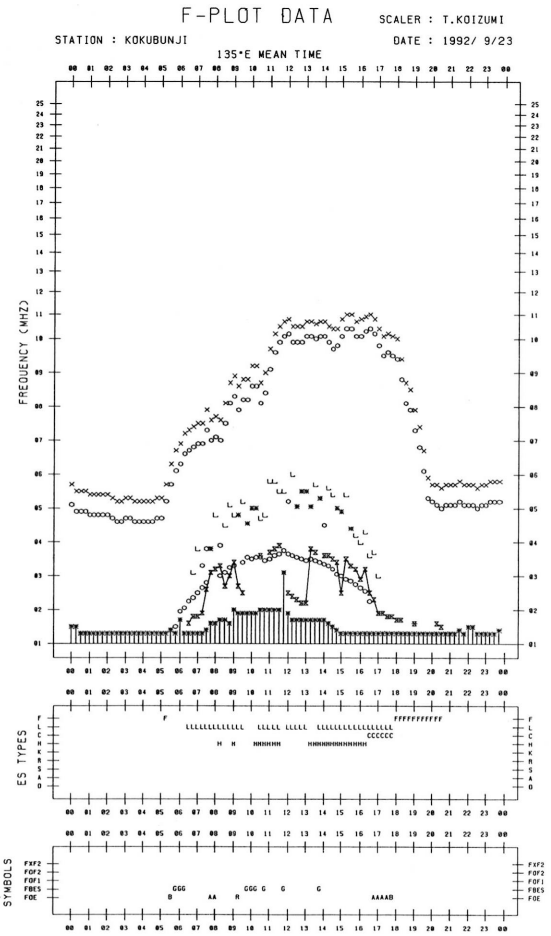

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/17
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

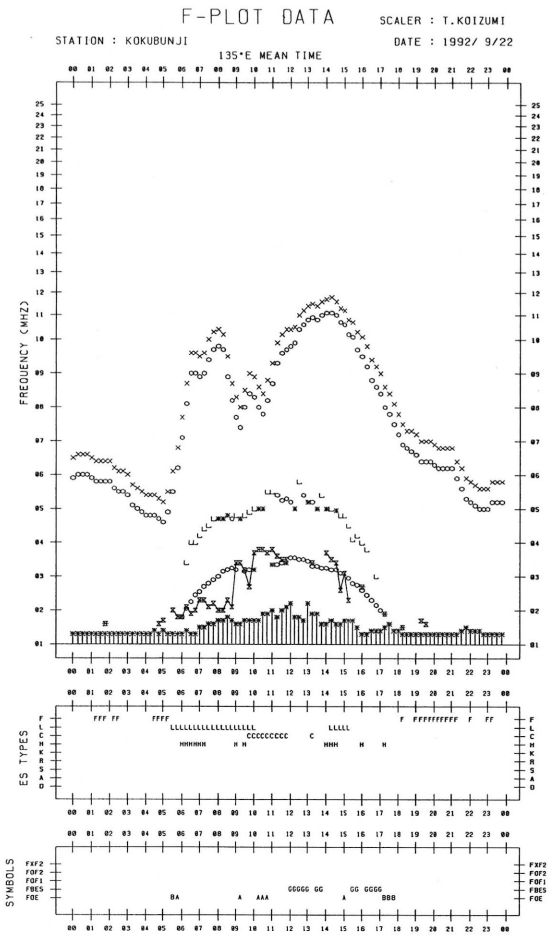

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/19
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

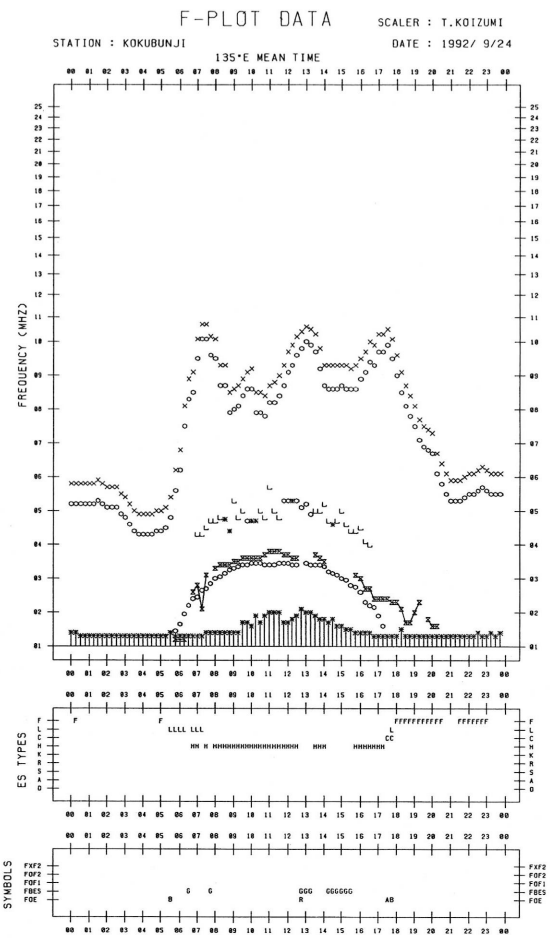

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/18
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

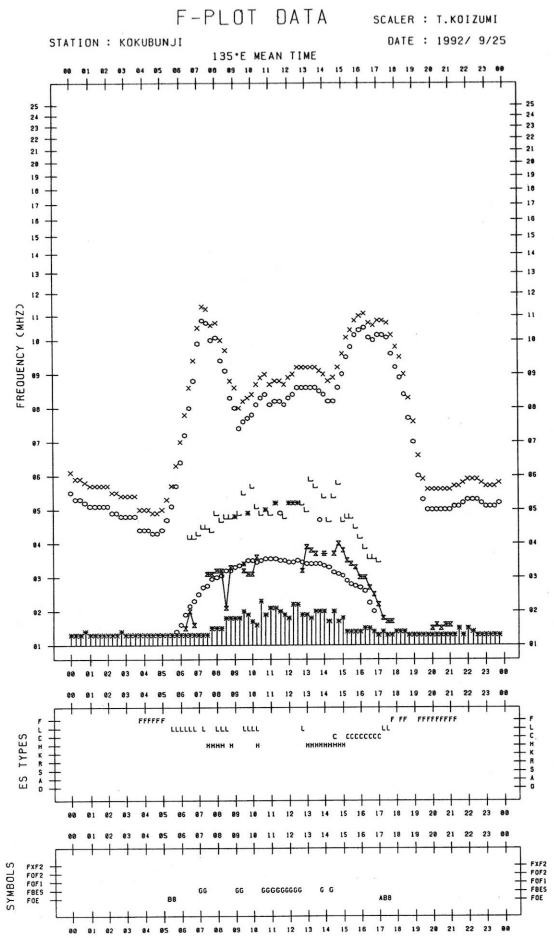

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/20
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

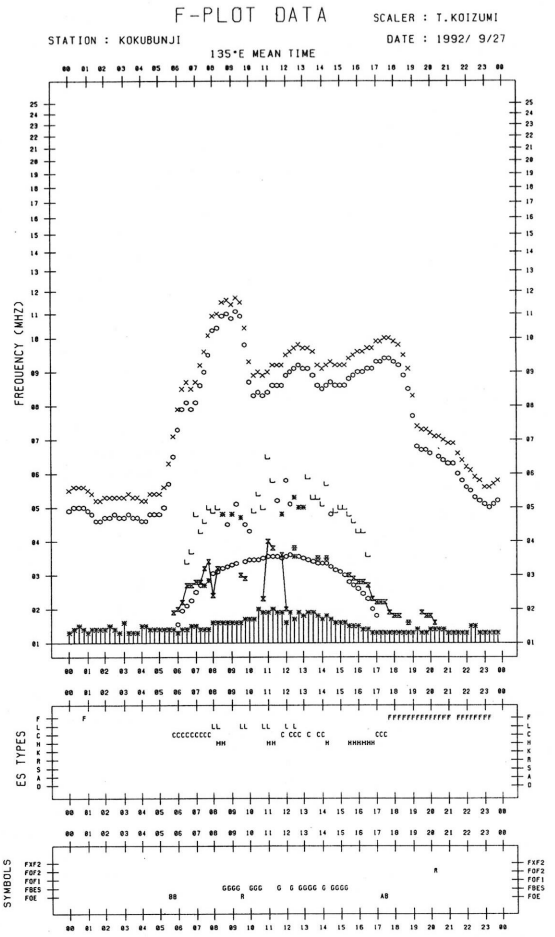

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/21
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

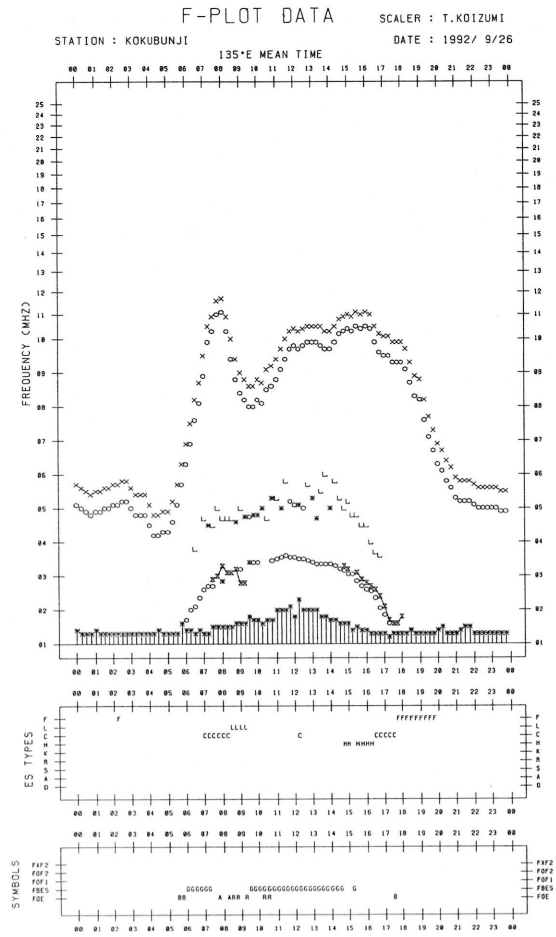

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/23
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

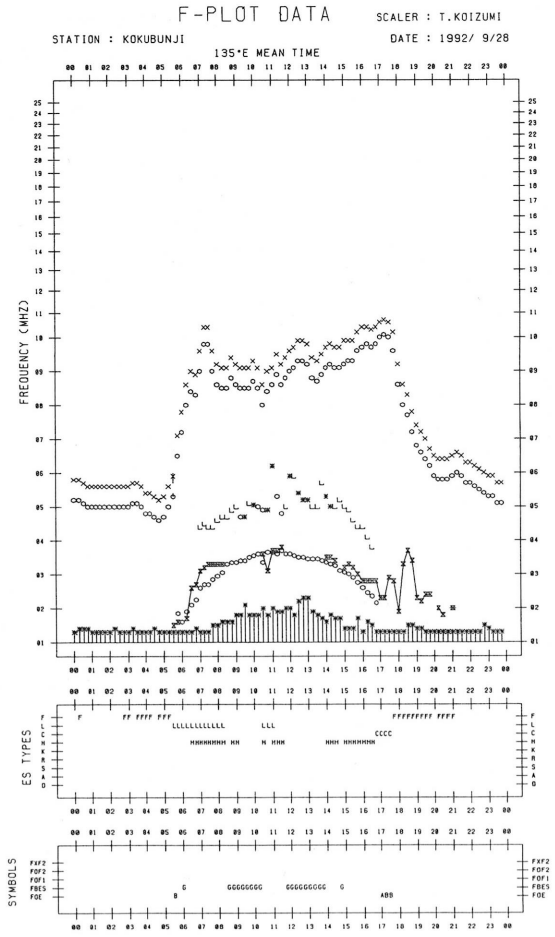

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/22
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

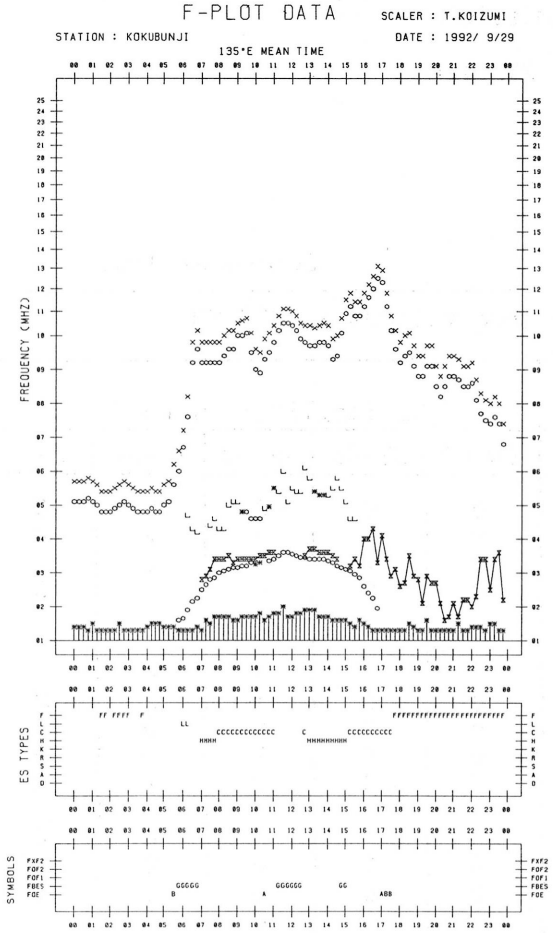

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/24
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

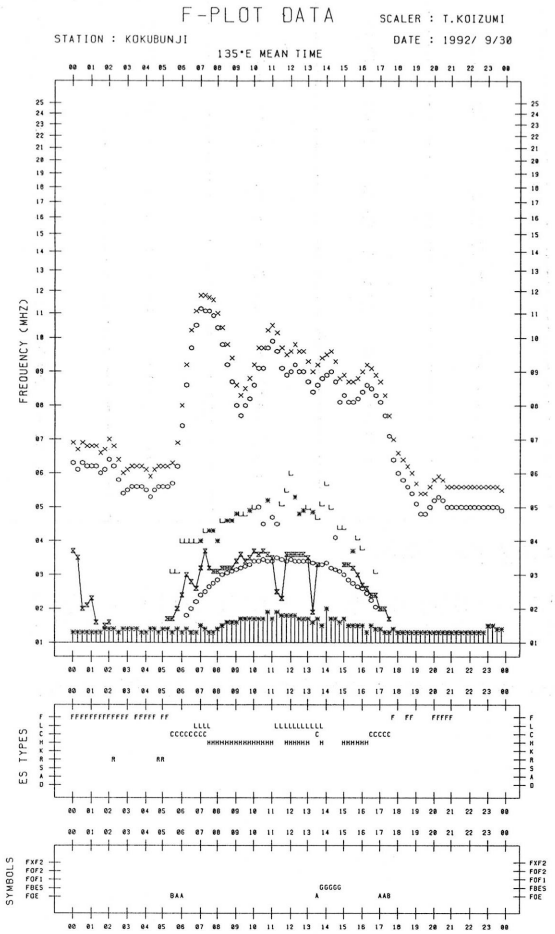

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/25
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/27
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/26
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/28
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/29
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 9/30
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 September 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	7	6	6	6	7	0	0	0	0	0
2	*	*	*	B	*	*	*	*	2	*
3	B	B	B	7	B	2	1	1	0	2
4	7	6	6	-	6	0	0	0	-	0
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	9	9	B	B	B	0	0	1	2	0
8	B	8	8	10	B	0	0	0	0	1
9	8	B	12	-	B	0	0	1	-	0
10	7	7	8	-	7	0	0	0	-	0
11	9	B	10	10	B	0	1	0	0	0
12	8	8	8	9	8	0	0	0	0	0
13	8	7	8	9	8	0	0	0	0	0
14	9	8	8	8	8	0	0	0	0	0
15	6	7	7	9	7	0	0	0	0	0
16	8	7	B	15	B	0	0	1	0	0
17	14	12	12	B	13	0	0	0	0	0
18	*	*	*	*	*	*	*	*	*	*
19	8	8	8	*	8	0	0	0	*	0
20	7	6	6	-	6	0	0	0	-	0
21	6	6	6	*	6	0	0	0	*	0
22	7	6	*	*	7	0	0	*	*	0
23	7	6	*	-	7	0	0	*	-	0
24	7	6	7	*	7	0	0	0	*	0
25	6	7	8	8	7	0	0	0	0	0
26	8	*	*	B	8	0	*	*	1	0
27	-	8	8	B	B	-	0	0	1	0
28	B	B	B	12	B	1	1	1	0	1
29	12	12	12	B	12	0	0	0	3	0
30	B	B	B	B	B	1	3	3	2	2

Notes: No observations during the following periods.

4th 2035 - 7th 0025 9th 2040 - 10th 0035 10th 2040 - 2354
20th 2040 - 21st 0027 23rd 2040 - 2352 27th 0008 - 0417

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

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso September 1992

Single-frequency observations

Normal observing period: 2050 - 0800 U.T. (sunrise to sunset)

SEP. 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
2	200	44 NS	2035E	0105	745D	80	20	0
4	200	46 C	0135.6	0135.6	1.0	300	80	0
	200	8 S	0742.2	0742.6	0.5	800	-	ML
7	100	44 NS	0025E	0715	510D	300	30	WL
	200	46 C	0153.2	0153.5	2.0	5000	500	0
	200	46 C	0352.0	0352.8	2.7	500	90	WL
	200	27 RF	0637.4	0653.8	130D	40	25	WL
	200	44 NS	2035E	2316	235D	100	60	ML
	100	44 NS	2035E	2338	420D	400	100	ML
9	200	8 S	0235.8	0235.9	0.6	100	-	0
	200	43 NS	0510	0526	63	80	30	WL
11	200	46 C	0008.2	0010.4	4.0	2500	400	0
	100	46 C	0009.7	0020.8	8.0	600	170	WL
	100	27 RF	0033	0111	80	65	25	WL
	200	46 C	0251.2	0251.3	4.0	450	70	0
	200	43 NS	0410	0425	120	60	30	0
	200	48 C	0601.4	0604.8	8.7	5700	300	0
	100	46 C	0602	0608U	6.0	1000D	-	-
	200	8 S	2201.6	2201.8	0.3	250	-	WR
13	200	42 SER	0254.5	0254.8	5.3	1100	-	0
16	200	43 NS	0501	0747	210D	60	30	WR
22	200	46 C	2323.3	2324.7	2.7	105	30	WL
26	200	44 NS	2040E	2310	210D	40	25	ML
27	200	44 NS	2045E	0147	660D	60	15	ML
29	100	44 NS	2045E	2217	660D	200	15	ML
	200	44 NS	2045E	2235	660D	600	50	SL
30	200	44 NS	2045E	2127	660D	200	25	SL

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)

SEP 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	-14	-3	-1	-5	6	11	-1	ES -12	-12	ES -27	ES -27	ES -27	ES -10	-3	-8	-5	-6	-3	-12	-12	-12	-14	ES -9	-14
2	-8	-8	-3	6	0	6	-17	ES -26	-11	ES -26	ES -17	ES -26	ES -26	-17	ES -26	-17	-9	ES -26	ES -26	ES -26	ES -26	ES -26	ES -17	ES -26
3	-9	-13	-17	-11	-9	5	ES -17	ES -17	ES -17	ES -17	ES -17	ES -26	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25
4	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -17	-11	ES -17	ES 0	ES 0	ES 0	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-17	-17
5	-17	-17	-17	ES -26	ES -26	ES -26	ES -26	ES -11	-5	ES -5	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-4	-17	ES -11	ES -26
6	ES -26	-17	ES -26	ES -26	-17	ES -26	ES -26	ES -26	ES -17	-8	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-5	ES -26	ES -26
7	-17	ES -26	-11	3	ES -26	ES -26	ES -26	ES -26	ES -17	ES -26	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -17	ES -26
8	-5	-17	-17	-22	ES -26	ES -26	ES -26	ES -26	-17	ES -17	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
9	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -5	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
10	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -5	ES -17	ES -5	ES -8	ES -26	ES -26	ES -12	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27
11	ES -27	-14	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -14	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	-12	3	ES -27
12	ES -27	ES -12	ES -27	ES -27	ES -27	ES -18	ES -18	-12	ES -18	ES -1	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	-23	-1	S	-1
13	-6	-9	-18	ES -27	-4	-18	ES -18	ES -18	ES -12	ES 4	-3	-12	ES -27	ES -27	-14	ES -27	-9	-14	-14	ES -27	-12	-18	-6	-18
14	-13	-13	-13	-5	5	-17	ES -26	ES -26	ES -26	-11	-11	ES -26	ES -11	ES -17	ES -5	-11	-2	-3	ES -26	ES -26	-14	-17	ES 0	-22
15	ES -17	-22	-17	-11	-13	ES -26	ES -26	ES -26	ES -17	ES -3	ES -26	ES -26	ES -26	ES -26	-13	-11	-22	ES -26	ES -26	ES -26	-2	-5	ES 0	-17
16	-8	-11	0	-4	ES -26	ES -26	ES -26	-17	ES -26	0	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-7	ES -26	ES -26	-22	ES -26	S	-11
17	-17	-8	-11	5	ES -26	ES -26	ES -5	-11	ES -11	ES -5	-8	-11	-2	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26
18	-22	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-8	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-13	-1	0	-13
19	-13	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-13	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 0	-22
20	ES -26	-22	-11	0	-5	ES -26	ES -26	ES -26	-22	ES -17	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-11	-5	-8	C	C	C
21	ES -26	-13	-11	8	-17	-20	ES -26	-13	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	0	0	ES -26	ES -26	-22	-4	ES -3	-5
22	ES -17	-13	-5	1	-1	ES -26	ES -26	ES -11	ES -26	ES 0	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	1	-11	6	-11
23	-5	7	1	6	3	-17	ES -26	ES -26	-22	-5	-11	ES -26	ES -26	ES -26	ES -26	ES -26	-5	2	-1	ES -26	-3	-3	5	2
24	-8	-8	-17	7	-11	ES -26	ES -26	ES -26	ES -26	1	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	-5	-8	-3	ES -26	-5	2	2	-2
25	0	0	5	10	-3	-7	ES -26	ES -26	-6	-4	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-5	-5	ES -26	5	1	ES 5	1
26	8	2	2	-2	2	-4	ES -26	ES -26	-17	ES -17	ES -26	ES -26	-11	ES -26	-17	ES -26	ES -26	ES -26	ES -26	ES -26	-5	-7	ES -2	-5
27	-5	0	5	4	0	ES -26	ES -26	ES -26	ES -26	ES 0	ES -5	-22	-4	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-8	-4	3	1
28	-1	-1	3	-2	ES -26	ES -26	ES -26	ES -26	ES -17	ES -26	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-5	3	ES 0	1
29	-12	-1	-2	7	-6	ES -27	ES -27	ES -27	ES -27	ES -6	ES -27	ES -27	ES -6	ES -27	ES -1	ES -27	-7	3	ES -27	ES -27	ES -27	-18	-3	-12
30	ES -6	4	-12	-1	ES -27	ES -27	ES -27	-18	ES -18	ES -1	ES -18	ES -27	ES -12	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	-18	-1	-12

	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
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	27	29
MED	US -14	US -13	-12	-4	-17	ES -26	ES -26	ES -26	ES -17	ES -8	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-22	-17	ES -3	-17
UD	-1	2	3	7	3	5	ES -5	ES -11	ES -6	ES 0	ES -5	ES -12	ES -4	ES -17	ES -8	-11	-5	0	-5	ES -25	-2	1	ES 5	1
LD	ES -26	ES -26	ES -26	ES -27	ES -27	ES -27	ES -27	ES -26	ES -26	ES -26	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -26	ES -26	ES -26

C. RADIO PROPAGATION

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

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

C. Radio Propagation

C2. Radio Propagation Quality Figures at Hiraiso

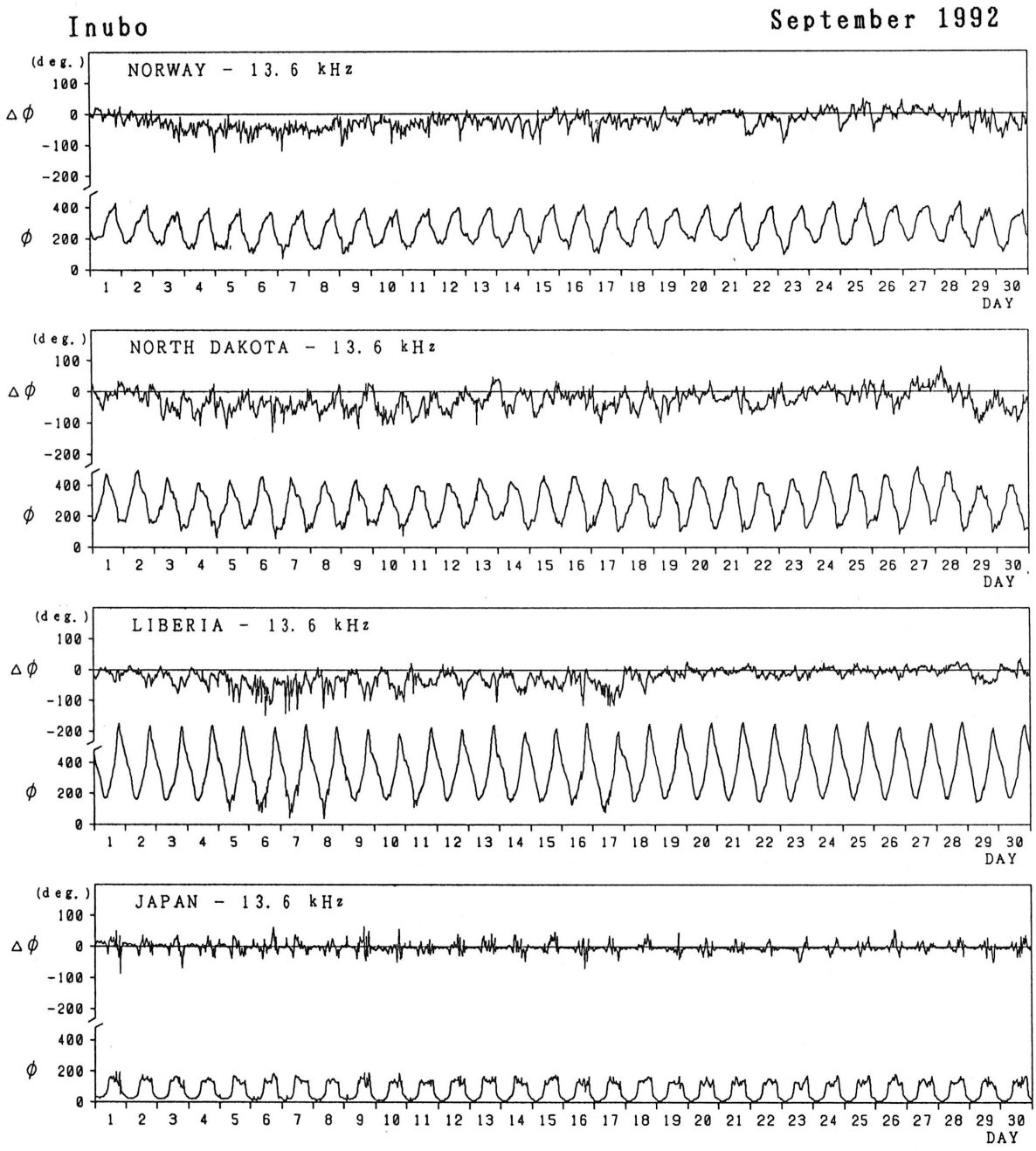
Hiraiso

Time in U.T.

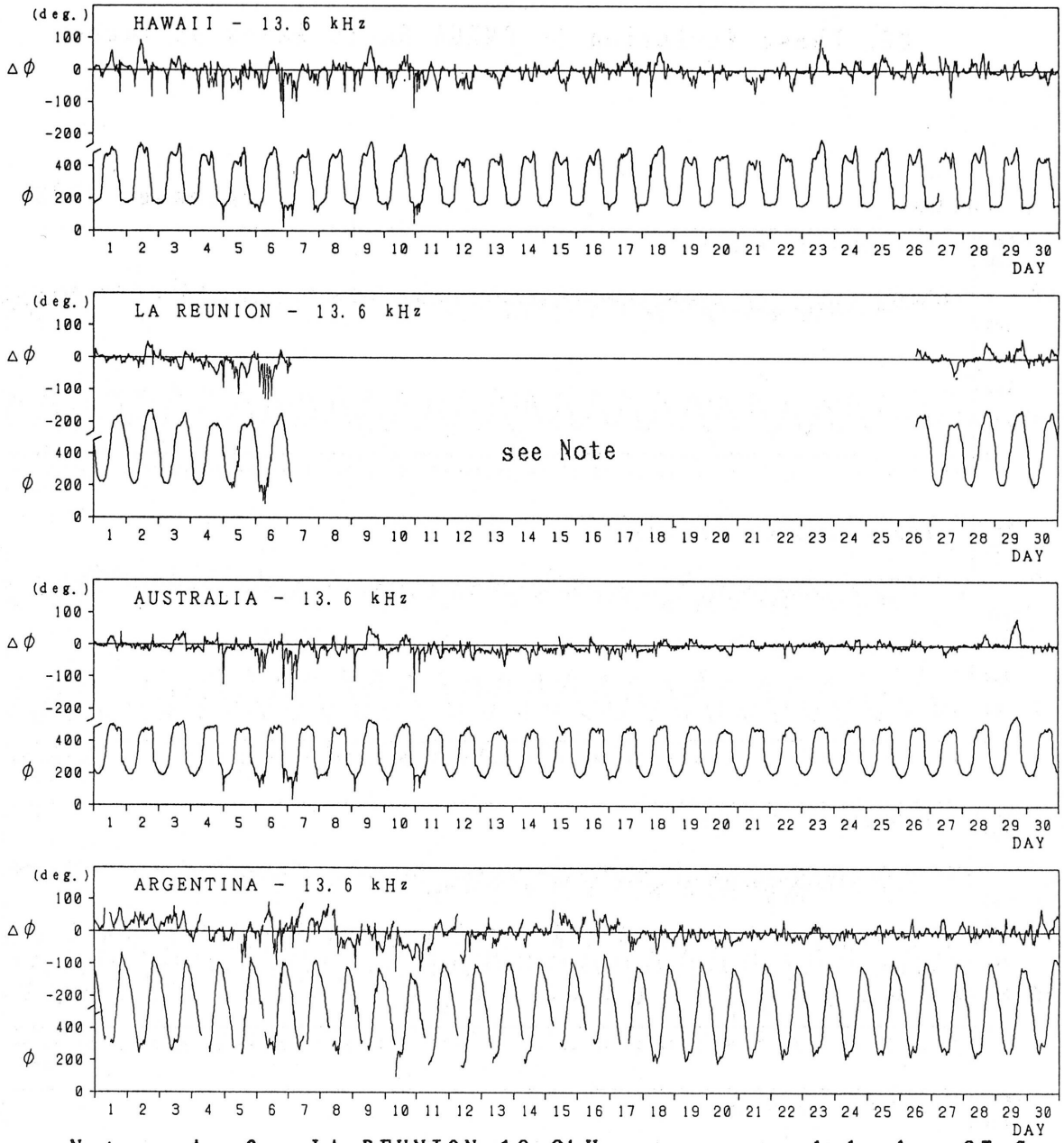
Sep. 1992	Whole Day Figure	W W V 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Conditions 00 06 12 18 / 06 12 18 24	Principal Geomagnetic Storms Start h m	End h	Range nT
1	5-	5 (4 5) 5	4 5 (5) 4	N N N N			
2	4+	5 (4 5 3)	5 5 (5) 3	N N N N	10.5	---	138
3	4-	4 - - (3)	4 5 (5 1)	U U U U	---	---	
4	3+	(3) - - (4)	2 4 - 4	U U U U	---	---	
5	4-	(3) - - (4)	4 4 - 3	U U U U	---	18	---
6	3+	(3) - - (4)	3 4 - 3	U U U U			
7	3+	(4) - - (4)	3 3 - 3	U U U U			
8	3+	3 - - (3)	4 4 - 3	U U U U			
9	3+	(3) - - (3)	4 3 - 3	U U U U	0139	---	210
10	3+	(3) - - (3)	3 4 (4) 3	U U U U	---	---	
11	3+	(3) - - (4)	4 2 - 3	U U U U	---	22	SSC
12	3+	(3) - - 5	3 2 - 3	U U U U			
13	4o	4 - (5) 4	4 4 (4) 3	U U U U			
14	3+	4 - (5 4)	4 4 (5) 4	N N N N			
15	4o	3 - (5) 5	4 3 (4) 4	N N N N			
16	4+	4 (5) - (4)	4 4 (5) 4	N N N N			
17	4o	4 (5) - (3)	4 4 (5) 2	N N N N	02.1	---	182
18	3+	(3) - - 4	2 3 - 4	U U U U	---	---	
19	3o	(3) - - (3)	4 2 - 3	U U U U	---	07	---
20	4o	(4) - - (4)	4 3 (5) 4	N N N N			
21	4o	4 - (5 4)	4 3 (5) 4	N N N N			
22	4o	4 - - 5	4 3 - 4	N N N N			
23	4+	5 (4 5) 5	4 4 - 4	N N N N			
24	4+	4 - (5) 5	5 3 - 5	N N N N			
25	5-	5 (4 5) 5	5 4 - 4	N N N N			
26	5-	5 - - 5	5 5 - 4	N N N N			
27	5-	5 - - 5	4 5 - 5	N N N N			
28	4+	4 - - 5	4 4 - 5	N N N N	12.0	---	182
29	5-	5 - (5 4)	4 5 (5) 4	N N N N	---	---	
30	4o	4 - - (4)	4 4 - 5	N N N N	---	---	
10/1				U U U U	---	21	---

C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo



Inubo September 1992



Note: As for LA REUNION-13.6kHz, no record during 07 September - 26 September, due to the maintenance of transmitter.

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

NONE

Correction (Aug. 1992)

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.05/2010D	Aug.04/2130	49
Aug.05/2010E	Aug.08/1910	Aug.06/1526	76

Corrective places

C. Radio Propagation

C4. Sudden Ionospheric Disturbance

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

Hiraiso — Time in U.T.

Sep. 1992	S W F								Correspondence	
	Drop-out Intensities(dB)					Start	Dur.	Type	Imp.	Solar * Flare	Solar Burst
	CO	HA	AUS	MOS	BBC						
3		>32			14	1306	15	2	1	-	-
4			>34			2344	26	2	3-	x	-
5					11	1131	13	1	1-	x	-
6		>22	18	x		0159	13	1	1+	x	-
6			18			0225	25	2	1+	x	-
6			15	x		0514	19	2	1	x	-
6		30			8	0902	44	3	3	x	-
6					13	1148	39	2	1	x	-
6			13			2336	7	1	1	x	-
7	x	>36	>29	x		0345	26	1	2+	x	-
7		22		14	13	0631	10	1	1	x	-
7				x	17	1306	9	1	1	x	-
7		>44				1926	46	2	3+	x	-
7		>43				2104	20	2	3+	x	x
7		>33	29			2257	23	2	2+	x	x
8		x		25	10	1205	12	1	1-	x	-
9		>37	>26			0206	37	1	2	x	x
10		>30	31			0206	56	3	2+	x	-
10		25	23			2246	23	2	2-	x	x
11		14	23			0251	15	2	2-	x	-
11		x	10			0306	15	2	1-	x	-
15			12		x	0150	21	2	1		-

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

Sep. 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
3				9	9		2346	0012	2354
4			7	19	12		0136	0200	0140
4			29	32	19		0206	0234D	0214
4			12	17	11		0234E	0300	0240
4			8				0542	0600	0548
4	41	46	68	144	112	59	2344	0052	2354
5			25	25	15		0104	0130	0118
5			27	22	7		0434	0520	0444
5			54	21			0614	0638D	0622
5			40				0638E	0714	0650
5		70	140	19			0758	0850	0806
5		—	95				1124	1230	1132
5		44					1330	1406	1340
5					25		2012	2100	2024
5				13	11		2118	2148	2126
5			14	33	28		2306	2344	2316
6				22	15		0032	0120	0044
6	25	32	112	102	66	51	0156	0224D	0206
6	32	49	119	96	66	37	0224E	0308D	0238
6			34	32			0308E	0344	0316
6		27	48	34	6		0410	0504	0426
6	43	78	154	117	37	34	0514	0630	0520
6	18	113	151	65			0654	0828	0704
6	20	69	187				0902	0942	0908
6		122	59				1148	1258	1208
6		54					1308	1348	1316
6		29					1508	1550	1518
6					25		1844	1902	1850
6					22		1926	1958	1938
6				137	140	103	2052	2152	2100
6	29	12	43	97	68	34	2336	0006D	2340
7	25	7	29	94	67	34	0006E	0026D	0012
7	25		22	67	45	24	0026E	0126	0036
7	11		27	25	15		0156	0224	0202
7			24	25	12		0236	0258	0244
7	65	88	—	153	83	54	0344	0456D	0358
7			—	60*			0456E	0552	0518
7	83	—	—	144	22	42	0632	0740	0640
7		88	—				0852	1000	0910
7		93	—				1306	1356	1316
7					66		1930	2050	1942
7				58	59	51	2108	2152	2116
7				9	8		2224	2250	2234
7	47	34	54	146	92	86	2258	0012	2308
8			—	25			0518	0600	0532

Inubo

Sep. 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
8		103	—				0830	1022	0854
8		100	—				1206	1314	1216
9				8	6		0020	0106	0036
9	58	76	—	151*	108*	59	0156	0340	0216
9			—	8			0354	0416	0404
9		24	—				1140	1212	1144
9				7	4		2226	2248	2234
10			—	83*	15		0212	0222D	0216
10	27	34	—	83	54	44	0222E	0336	0236
10			—	9			0446	0510	0452
10			14	47	43		2234	2252D	2244
10	27	27	43	137	110	69	2252E	2358	2258
11				4			0238	0254D	0246
11	25	59	—	99	51	34	0254E	0350	0304
11			—	9	4		0408	0430	0414
11	23	66	—	70	43		0604	0650	0614
11		39	—				0806	0856	0820
12				14	8		0050	0124	0058
12			—	9			0638	0648	0642
12		29					1538	1600	1544
13	14	20	—	36	14		0300	0350	0310
14				17	11		0140	0216	0144
15		23	23	29	18		0158	0236	0206
15			—	9			0636	0700	0642
16				5	5		0012	0132	0018
16		39	—				1022	1102	1032
16		51	—				1450	1546	1504
16				9	4		2112	2130	2116
16			11	45	30		2348	0018D	2356
17				16	8		0018E	0110	0036
17			—	11			0426	0448	0432
17		42	—	14			0730	0820	0746
17		39	—				0840	0918	0854
17		59	—				1118	1146	1132
17		47	—				1250	1324	1300
17				20	40		2046	2130	2056
18			—	8	4		0140	0202	0144
18			—	10	7		0236	0302	0242
18			—	10			0540	0558	0544
19				6	5		2320	2338	2328
20		11					1404	1428	1412
26				7	5		0152	0222	0200
27					12		2020	2056	2028
30			27	23			0450	0520	0456

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