ISSN 0021-0382

F—526

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1992

VOL. 44 NO. 10

CONTENTS

COMMUNICATIONS RESEARCH LABORATORY
MINISTRY OF POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

INTRODUCTION

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

Median (MED) is defined as the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the *lower quartile* (LQ) is the median value of the lower half.

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972" and its revision of chapters 1-4, published in July 1978.

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.
C Measurement influenced by, or impossible because of, any non-ionospheric reason.
D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
F Measurement influenced by, or impossible because of, the presence of spread echoes.
G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.
H Measurement influenced by, or impossible because of, the presence of a stratification.
K Presence of particle *E* layer.
L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
N Conditions are such that the measurement cannot be interpreted.
O Measurement refers to the ordinary component.
P Man-made perturbations of the observed parameter; or spur type spread *F* present.
Q Range spread present.
R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
S Measurement influenced by, or impossible because of, interference or atmospherics.
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V Forked trace which may influence the measurement.
W Measurement influenced or impossible because the echo lies outside the height range recorded.
X Measurement refers to the extraordinary component.
Y Lacuna phenomena, severe layer tilt.
Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.
l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the particle *E* layer minimum virtual height.
c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.
r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.
a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.
s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin*.
n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

Median (MED) is the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the *lower quartile* (LQ) is the median value of the lower half.

B. SOLAR RADIO EMISSION

Solar radio observations at 100, 200 and 500 MHz are carried out at Hiraiso. The observation equipment consists of two parabolic antennas, one with 10-meter diameter for 100 and 200 MHz measurements and one with 6-meter diameter for 500 MHz measurements, each being equipped with a pair of crossed doublet antennas as a primary radiator, and three appropriate receivers. Each pair of the crossed doublet antennas is used as a polarimeter. Observations are continuously carried out almost from sunrise to sunset.

B1. Daily Data at Hiraiso

The three-hourly mean and daily mean values of the solar radio emission intensities at the base-level are tabulated separately for 200 and 500 MHz measurements. Here, the base-level intensity is defined as the intensity recorded during the time when no radio emission burst is taking place. The intensities are expressed by the flux density in 10^{-22} Wm^{-2} Hz^{-1} unit.

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

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

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

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

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

C. RADIO PROPAGATION

C1. H.F. Field Strength at Hiraiso

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

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

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

C2. Radio Propagation Quality Figures at Hiraiso

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

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

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

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

C	artificial accident,
S	propagational accident,
U	inaccurate.

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

N	normal,
U	unstable,
W	disturbed.

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

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

C3. Phase Variation in OMEGA Radio Waves at Inubo

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

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

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

C4. Sudden Ionospheric Disturbances

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

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

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

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

Types of fade-out are as follows:

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

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

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

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

b. Sudden Phase Anomaly (SPA) at Inubo

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

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

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

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

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

Transmitting Stations

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

HOURLY VALUES OF FOF2 AT WAKKANAI

OCT. 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	38	34	31	34	30	56	42	63	58	71		81	80	78	70	77	78	66	43	50	54	79	42	37
2	43	49	26	26	37	36	90	60	63	63	67	78	80	77	80	74	70	72	54	58	54	49	47	47
3	43	43	37	31	40	43	60	66	68	75	74	80	86	81	78	75	72	72	61	54	54	51	48	52
4	34	48	48	42	43	31	55	78	86	86	91	88	86	85	81	80	76	65	57	A	53	50	A	48
5	43	54	46	46	44	48	62	96	80	90	85	90	86	94	88	83	80	84	71	66	52	54	54	63
6	53	50	50	48	44	53	64	86	85	90	91	96	87	88	98	100	89	85	67	60	61	62	54	50
7	51	52	48	43	44	50	64	90	108	106	107	106	108	96	86	86	88	84	73	66	60	61	54	55
8	52	52	48	50	48	48	62	86	92	104	107	106	111	106	106	98	88	86	67	66	63	58	52	51
9	53	52	51	53	50	74	73	89	103	101	111	117	109	106	90	90	102	91	85	62	63	58	54	50
10	50	50	31	42	37	36	35	63	72	81	78	86	88	85	84	86	78	72	58	69	54	52	A	A
11	43	A	A	A	A	A	58	82	74	87	96	87	90	85	89	86	82	88	64	58	60	49	54	49
12	51	34	37	A	40	48	58	77	83	90	98	111	102	97	87	86	70	84	67	66	63	63	54	42
13	54	A	34	A	A	A	47	77	103	107	111	100	95	85	82	84	77	88	64	60	54	48	48	44
14	43	44	41	43	48	38	62	70	86	76	86	104	101	102	87	90	88	70	66	66	66	64	64	58
15	61	66	62	62	62	53	52	82	77	96	91	110	118	114	84	87	87	80	78	62	52	51	55	60
16	61	56	44	47	52	52	62	79	80	85	84	96	109	89	85	87	78	74	63	A	A	38	51	52
17	53	50	49	52	49	46	63	85	90	106	89	101	89	92	88	98	86	79	66	66	53	A	A	A
18	A	50	A	28	40	25	60	78	109	106	86	90	92	85	88	80	86	66	54	62	48	A	43	38
19	A	40	40	37	42	38	49	86	87	94	98	110	90	102	85	90	110	66	58	60	54	53	50	52
20	43	46	35	53	46	43	52	73	91	88	104	110	111	106	98	88	87	67	57	56	52	A	53	52
21	44	40	44	45	43	40	59	84	87	106	108	108	89	87	87	90	91	66	64	57	48	46	43	42
22	29	43	53	53	51	51	66	86	90	105	101	108	107	88	88	88	90	84	63	62	55	A	42	38
23	43	A	43	43	43	37	63	82	101	87	106	103	107	98	87	76	90	74	61	56	52	50	43	42
24	38	43	43	43	44	43	56	85	85	88	100	110	107	97	100	87	87	77	62	54	A	29	37	31
25	38	37	38	40	40	38	52	87	106	90	92	100	111	100	95	88	87	78	58	52	52	49	43	40
26	38	37	22	40	40	38	63	85	106	106	112	125	106	94	107	102	90	75	54	60	57	54	53	47
27	40	38	43	43	37	46	62	98	120	112	119	127	113	106	111	108	89	78	70	71	A	60	62	53
28	52	35	43	40	38	44	62	93	129	129	122	134	135	111	102	106	96	72	58	A	45	42	35	43
29	44	A	38	37	40	87	62	90	126	118	122	130	118	115	112	95	92	65	55	58	51	37	A	43
30	49	52	37	43	40	43	62	99	97	110	111	109	125	118	107	101	87	80	54	58	48	44	A	50
31	51	A	A	44	A	A	72	91	111	118	113	120	112	107	112	111	106	72	62	52	30	53	52	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	28	28	28	28	31	31	31	31	30	31	31	31	31	31	31	31	31	28	28	27	26	29
MED	44	47	43	43	43	44	62	85	90	94	99	106	106	96	88	88	87	75	62	60	54	51	52	49
U Q	52	52	48	47	47	50	63	89	106	106	111	110	111	106	100	98	90	84	67	66	58	58	54	52
L Q	41	40	37	40	40	38	55	77	80	87	89	90	89	85	85	84	78	70	57	56	52	48	43	42

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT WAKKANAI

OCT. 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	G	G	G	39	38	G	G	G	G	G	G	G	G	G	G	G	G	30	25	G
2	G	33	32	37	49	29	G	G	G	G	G	G	G	G	G	36	35	40	32	40	32	G	G	G
3	26	28	32	54	54	23	G	G	G	G	G	56	52	50	52	38	59	60	38	29	G	G	G	G
4	G	28	35	40	36	60	G	G	G	47	G	50	46	G	G	54	52	41	59	72	40	34	36	30
5	G	G	30	38	31	26	G	G	G	G	G	G	G	G	G	50	46	48	93	38	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	G	30	G	27	G	G	G
7	G	G	G	G	26	24	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	32	24	G	G	G
9	G	G	G	G	G	G	G	38	G	G	G	G	G	G	G	G	G	56	36	60	32	65	54	27
10	G	G	24	26	G	24	32	36	46	49	G	G	G	G	107	G	41	46	33	88	29	60	57	41
11	38	48	40	45	43	32	38	36	116	50	46	G	G	G	G	G	35	G	G	G	G	G	G	26
12	32	33	24	31	G	G	G	44	38	52	G	G	G	G	G	36	G	G	30	26	32	G	G	G
13	26	28	33	45	37	47	36	38	60	54	G	G	G	G	G	G	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	G	57	G	G	G	G	G	G	G	G	G	G	23	G	G	G	G	28
15	30	34	25	G	G	G	G	G	G	G	G	G	G	G	52	G	33	82	72	59	40	40	36	33
16	28	28	27	37	G	25	G	G	38	54	64	59	59	44	40	54	66	35	92	60	91	58	28	G
17	G	G	G	26	26	G	G	36	49	105	52	G	56	G	38	52	59	38	61	66	77	84	66	96
18	39	62	59	45	118	34	36	32	50	47	60	48	G	G	83	39	50	41	40	31	24	37	32	33
19	44	29	27	G	31	30	31	G	56	G	G	46	G	G	G	G	G	37	41	33	32	32	30	28
20	G	G	32	G	G	G	G	G	40	G	G	54	G	G	G	50	54	37	36	33	41	51	37	32
21	44	93	38	25	G	25	G	G	G	38	G	G	62	G	G	G	G	33	33	24	41	G	40	33
22	30	30	25	24	G	G	G	G	G	G	G	56	G	84	G	36	G	G	G	30	37	46	35	32
23	G	40	37	34	34	32	G	G	G	G	G	G	49	G	39	40	40	40	37	32	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	84	56	G	G
25	G	G	G	G	29	G	G	G	39	G	40	G	G	G	38	39	G	24	G	G	G	40	36	33
26	G	28	28	26	G	30	G	G	G	G	45	67	55	57	G	G	G	G	35	G	G	G	G	G
27	G	33	G	29	34	G	G	G	G	G	G	59	G	G	G	G	G	39	64	60	79	31	46	28
28	25	G	27	G	G	G	G	G	G	G	81	G	G	G	39	40	62	46	38	42	G	G	24	34
29	G	26	26	G	G	G	G	G	G	G	G	G	46	G	G	G	G	39	31	G	30	G	56	33
30	28	24	32	26	26	G	56	34	40	60	58	G	G	G	G	39	36	33	58	64	61	33	69	34
31	41	42	33	29	33	42	29	G	61	59	46	59	G	G	G	41	39	G	G	32	44	40	42	58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	G	28	27	26	G	G	G	G	G	G	G	G	G	G	G	G	31	35	33	32	30	30	28	28
U Q	30	33	32	37	34	30	G	36	40	49	45	50	46	G	38	40	46	41	41	59	41	40	40	33
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	23	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT WAKKANAI

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

HOURLY VALUES OF FOF2 AT AKITA

OCT. 1992

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	74	59	38	41		50	63	72	80	73		96	111	94		83	80	77	54	A	49	48	42	43
2	46		40		59	59	54			86	84	91	91	86		78		62	66	53	53	52	50	44
3	48	48	69	41	38	42	56	66	104	53		84	90	91	81	81	80	A	55	A	52	A	47	51
4	51			43	44	46	53	80	87	91	91	91	92	86	86	91	86	76	63	66	56	48	48	50
5		48	59	47	45	47	66	82	84	86	91	86	100	94	91	90	80	78	76	61	50	54		48
6	52	53	51	51	44	A	67	90	85	85	96	104	97	90	88	110	101	80	68	63	62	58	62	
7	51	49	49	48	46	52	67		97	105	111	110	111	101	91	88	97	90	74	63	64	60	58	55
8	54	49	49		51	50	70	84	101	101	106	111	118	106	107	107	97	83	78	69	66	54		50
9	51	50	50	51	50	44	66	86	100	A	116	114	116	104	106	107	102	98	78	64	55	53		51
10	43	50	42	43	48	53	56	74	97	106	111	104	102	96	87	86	77	74	51		62	54	53	51
11	44	44	42	42	42		55	80	93	96	91	95	98	90	83	94	90	90	73	A	47	A	46	43
12	43	49	48	48			63	85	86	96	97	104	110	101	96	90	86	85	66	71	66	66	66	63
13	48	40	40	44	A	35	61	100	111	121	114	110	90	90	91	86	78	78	53	51	50	48	48	46
14	43	53	46	43		35	61	78	102	96	90	100	106	112	103	96	83	67	54	53	51	43	48	50
15	43	47	48	57	43	44	62	72	100	103	108	113	113	112	103	87	80	80	78	66	A	52	A	61
16	58	A	A	46	50	54	68	87	86	97	103	96	111	106	104	91	88	78	66	58	52	A	A	52
17	51	52	52	51	51	52	62	73	87	90	118	108	110	89	80	A	87	81	70	67	A	41	38	46
18	42	43	40	40	41	41	52	86	102	103	96	96	92	95	90	86	86	80	51	55	53	43	A	A
19	A	A	A	41	40	38	54	82	104	108	100	102	98	96	90	88	82	72	52	54	53	52	51	43
20	44	48	41	46	64	40	52	81	99	90	100	106	114	110	101	96	87	74	57	61	51	56		A
21	A	42	44	43	43	66	55	97	105	94	96	102	105	96	92	90	90	73		A	A	A	A	A
22	69	A	40	43		86	52	82		N		106	111	95	86	86		86	51	53	65			
23	38	22	A	41		39	52		90	112	101	117	103	100	102		77		65	53		44		38
24	60	65	43	42	43	37	57			98	102	110	100	98	95	97		80	60	54	69		A	A
25	A	A	A	40	64	87	88	87	106	106		123		105	106			73	51		A	55	79	41
26	43	43	49	72	38	A	68	84	104		100	106	101	102	102			71	54		83	75		46
27		53	65	45	A	43	54	90		106			112	112		111	91	71	64	76	60	53	53	56
28	73	48	26	A	40	38		107	130	135	147	131		122			88	86	66	33	66	56	60	A
29	A	A	41	48	40	41	53	105	120	120	118	131	113	111		106	109	86	66	61	66	46	64	A
30	42	52	A	A	66		74	100		123		136		116	118	108		87	62	47	47	48		48
31	48	A	A	A	A	79	62	104	120	118	106	118												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	23	24	26	23	26	30	27	26	28	25	30	27	30	25	25	24	28	29	23	25	24	17	22
MED	48	49	45	44	44	45	61	84	100	100	101	106	105	99	92	90	86	79	64	61	55	52	51	49
U Q	53	52	49	48	51	53	66	90	104	107	111	113	111	106	103	101	90	85	69	66	65	55	61	51
L Q	43	44	40	42	41	40	54	80	87	90	96	96	98	94	87	86	80	73	54	53	51	48	47	44

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT AKITA

OCT. 1992

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	148	G	31	29	G	G	G	42	60	94		54	50	44	G	G	G	50	51	33	31	68	28	30
2	68	90	29	56	G	29	110	G		44	64	158	G	G	G	G	G	G	G	G	G	G	G	G
3	G	11	109	G	G	G	68	54	148	61		G	N	45	44	50	116	103	92	36	60	40	30	27
4	G			G	70	26	33	G	G	51	G	G	54	G	50	43	35	45	G	29	32	91	29	G
5		G	G	G	G	58	40	42	G	G	G	G	G	G	G	G	G	27	31	54	34	G		26
6	37	32	24	G	G	108	G	G	G	G	G	56	71	G	G	59	G	G	33	G	G	G	G	
7	G	G	27	23	25	G	36	G	G	43	G	G	G	G	G	42	35	83	37	54	25	G	G	G
8	G	G	G		G	G	G	48	G	61	G	G	G	G	51	G	40	46	47	32	G	G		G
9	G	G	G	G	G	70	G	G	53	106	57	54	G	G	G	G	G	31	G	G	29	44		40
10	29	G	G	G	G	G	28	G	44	40	G	G	G	G	44	45	55	62	58		29	40	G	G
11	G	G	G	G	G		G	45	59	G	84	G	G	52	G	G	G	G	G	54	26	28	G	G
12	G	G	G	G			G	41	44	54	43	55	G	G	G	39	41	43	30	G	G	G	G	G
13	G	25	27	35	38	25	G	41	41	44	44	66	61	74	62	G	43	41	G	40	54	G	G	G
14	G	G	G	G		G	G	G	G	43	68	G	G	G	55	40	43	40	37	33	G	G	G	24
15	G	G	G	G	27	G	G	G	G	44	G	G	49	43	G	G	41	40	36	54	72	83	53	30
16	29	60	70	42	37	28	28	39	52	50	60	58	62	G	G	G	40	47	33	46	58	92	90	40
17	31	G	G	G	G	G	30	G	55	60	59	61	65	48	68	95	82	25	G	41	52	38	44	38
18	68	26	G	G	G	G	G	G	38	G	G	G	G	69	G	37	34	28	28	28	G	29	46	38
19	116	56	44	36	68	25	27	G	G	G	G	G	G	69	G	G	35	G	G	G	25	29	26	G
20	G	29	29	G	G	G	34	G	G	43	G	G	G	G	G	G	G	30	G	34	G	30	49	85
21	58	G	34	30	33	30	29	33	38	42	G	49	44	53	49	50	64	34	78	84	84	49	65	56
22	55	69	26	G	29	G	G	159	G	162	42	G	54	G	43	G	31	29	61	166	79	35	129	51
23	27	89	79	G	G	G	G	32	38	106	G	70	G	51	G	162	G	G	G	37	G	129	G	67
24	115	G	G	G	129	68	50	G	G	139	88	G	G	G	G	168	108	107	149	36	79	29	72	56
25	46	N	37	G	26	25	129	78	158	39	64	49	G	G	61	55	G	149	G	29	148	36	30	67
26	149	139	G	23	G	24	G	G	159	43	G	59	148	G	154	108	G	128	56	165	108	69	109	G
27	G	109	G	G	87	30	G	G	128	140	128	250	42	G	G	G	G	G	106	33	33	G	G	109
28	116	40	124	N	31	G	G	159	59	46	50	47	84	74	54	58	51	54	114	57	79	148	G	68
29	58	41	80	33	26	G	G	58	39	129	52	138	46	109	69	46	74	33	149	139	108	G	G	68
30	129	30	128	43	37	G	G	G	49	74	108	78	92	109	52	137	61	37	80	G	29	26	109	65
31	128	158	33	44	52	G	G	G	53	54	66	63												
	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	29	29	29	31	31	30	31	29	31	29	30	30	30	30	30	30	29	30	30	27	29
MED	30	25	26	G	25	G	G	G	40	46	43	49	G	G	G	40	35	38	34	36	32	30	28	30
U 0	68	58	37	31	37	28	33	42	55	74	64	61	57	52	52	55	51	50	61	54	72	49	53	60
L 0	G	G	G	G	G	G	G	G	G	42	G	G	G	G	G	G	G	27	G	28	G	G	G	G

HOURLY VALUES OF FMIN AT AKITA

OCT. 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	17	15	16	18	20	20	17	20	17	18		20	20	20		16	16	15	16	14	15	16	18	16
2	15	17	17	18	18	16	17	16		17	17	20	21	21		16	17	22	17	18	17	17	18	16
3	18	16	17	17	17	16	17	17	21	16			24	20	21	18	16	17	17	20	16	16	17	16
4	17			17	17	16	16	16	14	17	22	21	20	16	21	20	15	20	16	15	16	15	16	16
5		15	17	18	16	15	16	15	18	16	21	22	21		18	20	16	17	15	15	17	17		17
6	15	16	16	16	15		21	17	17	21	18	20	18	16	22	18	17	20	17	17	16	17	17	
7	16	16	17	15	16	15	20		17	17	21	21	20	18	17	17	15	17	16	16	17	18	17	18
8	17	17	17		18	16	20	16	20	17	18	18		20	23	20	16	16	16	16	17	16		16
9	16	16	18	17	15	16	18	16	16	16	18	18		17	18	18	16	16	16	16	15	16		16
10	18	16	17	16	16	16	16		16	18	17	20		18	17	18	16	15	15		16	16	16	16
11	17	16	16	16	16		20	16	16		17	17	18	15	16	20		18	27	17	18	17	16	18
12	17	16	15	16			21	16	17	17	24	20	23	18	16	16	16	16	16	17	17	16	17	17
13	16	17	16	15	16	17	18	17	16	16	17	17	15	18	16	18	16	16	16	16	16	16	17	17
14	16	17	17	21		16	21	17	21	17	17	20	20	23	20	16	16	16	17	16	16	16	18	16
15	17	17	18	16	17	15	18	16	18	16	18	20	17	17	16	16	15	16	17	15	16	17	16	16
16	16	15	15	15	15	16	16	15	16	18	17	18	20	17	18	17	15	16	16	16	14	16	16	17
17	16	16	17	16	16	15	20	16	15	16	16	16	16	18	18	16	16	16	16	16	15	16	16	16
18	17	16	18	17	17	16	20	16	17	17	18	20	17	16	16	16	16	16	17	18	18	16	17	16
19	16	17	16	15	18	17	16	16	17	16	16	16	16	16	18	17	17	17	16	18	16	16	17	17
20	16	15	15	16	15	17	17	18	17	23	21	20	21	18	16	18	15	17	17	17	16	17	15	16
21	16	17	16	16	16	16	16	16	16	18	16	16	17	17	18	16	15	16	16	16	17	15	16	17
22	17	17	16	16	16	17	17	16	16	18	17	17	17	16	17	16	16	16	16	16	15	16	16	16
23	16	16	17	18	18	16	18	17	17	18	44	23	36	16	16	17	26	16	15	18	21	18	16	17
24	16	20	16	16	16	14	20	17	18	16	14	20	18	22	16	18	23	14	16	16	15	17	16	18
25	15	16	15	15	17	17	14	16	17	18	28	17	16	20	27	14	17	16	18	17	18	17	17	16
26	16	18	20	17	15	16	17	16	16	17	18	21	22	17	17	17	16	18	15	16	17	17	17	17
27	17	18	16	16	20	16	15	18	17	17	18	44	22	26	18	20	18	17	15	17	16	16	18	14
28	17	15	16	16	15	20	14	14	16	21	17	21	18	18	18	16	18	16	16	16	17	18	18	17
29	17	15	16	15	16	18	17	17	20	20	23	21	15	22	18	16	17	17	16	16	17	17	20	16
30	17	16	17	16	15	14	17	24	18	18	14	22	26	14	14	17	14	15	17	17	16	17	17	16
31	15	16	16	16	15	16	20	18	20	21	24	21												
	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	29	28	31	29	30	30	29	30	27	29	28	30	29	30	30	29	30	30	27	29
MED	16	16	16	16	16	16	17	16	17	17	18	20	20	18	18	17	16	16	16	16	16	16	17	16
U Q	17	17	17	17	17	17	20	17	18	18	21	21	21	20	18	18	17	17	17	17	17	17	17	17
L Q	16	16	16	16	15	16	16	16	16	16	17	18	17	16	16	16	15	16	16	16	16	16	16	16

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT KOKUBUNJI

OCT. 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	57	46	47	44	34	34	63	79	82	88	91	103	122	114	84	81	93	79	73	50	47	A	52	58
2	48	48	46	38	36	41	59	81	92	97	92	102	111	97	87	80		86	82	62	60	51	45	48
3	47	47	54	46	41	45	69	82	87	86	86	100	91	92	93	86	86	93	66	54	52	57	52	57
4	57	50	52	46	46	40	62	80	102	94	94	95	102	106	84	98	100	86	66	56	50	51	52	56
5	56	62	48	50	57	50	71	85	95	82	91	104	104	104	94	96	86	90	81	62	58	58	56	48
6	52	52	51	58	42	41	72	86	92	87	98	108	108	102	95	114	107	86	66	67	61	63	67	58
7	54	56	43	56	45	56	68	82	94	108	115	114	112	105	97	98	97	96	80	62	64	67	60	57
8	58	47	53	50	51	56	67	84	97	100	96	114	123	112	117	115	105	92	82	74	63	60	58	51
9	57	52	55	57	54	51	68	80	94	107	116	116	121	110	120	112	102	102	82	68	57	57	51	56
10	56	52	51	47	46	47	60	78	116	123	121	121	116	96	102	96	88	84	58	67	57	51	53	57
11	48	48	48	47	46	38	70	93	114	106	95	102	103	97	90	103	105	95	71	44	A	47	57	46
12	41	50	42	42	39	48	67	85	94	96	114	98	114	110	107	111	93	90	74	71	71	69	77	70
13	48	46	47	50		30	68	116	121	115	118	115	100	95	102	85	84	81	71	62	56	57	56	48
14	46	46	47	46	41	47	56	82	101	112	94	96	112	121	116	96	85	86	60	A	62	57	56	57
15	58	57	45	50	37	37	54	72	94	114	106	121	121	114	125	95	90	82	80	66	53	A	A	A
16	47	51	40	37	41	44	70	91	94		104	101	102	111	118	106	94	92	58	62	58	A	48	48
17	A	50	49	51	51	49	58	73	80	98	117	116	110	101	92	84	92	84	80	62	45	A	43	A
18	49	43	43	38	41	40	67	86	93	106	108	100	104	98	94	90	86	87	68	57	56	47	47	41
19	A	47	A	40	38	38	56	86	102	113	101	111	100	104	97	91	85	83	68	60	54	58	56	57
20	56	43	42	44	40	41	55	84	100	97	96	98	114	120	106	96	93	84	80	46	62	62	49	48
21	47	A	43	42	A	37	56	97	118	96	96	106	105	102	100	95	97	90	A	54	50	35	A	A
22	46	38	41	41	41	37	60	86	88	88	101	116	110	98	100	98	102	106	67	51	48	57	38	44
23	66	44	37	40	38	44	60	84	98	112	104	123	118	107	111	92	79	74	66	56	47	50	46	48
24	38	48	43	46	46	35	61	87	92	102	114	110	106	101	101	104	88	85	67	55	45	43	41	40
25	43	47	43	46	40	37	60	98	106	114	110	97	102	112	107	94	80	80	60	67	48	46	44	42
26	49	41	50	47	34	34	57	83	100	100	113	107	110	120	112	107	94	78	62	61	58	56	48	46
27	47	44	46	47	41	37	58	88	122	126	111	118	117	115	114	120	96	82	66	74	60	60	57	58
28	56	48	48	47	40	36	57	88	120	134	144	132	124	125	112	99	92	95	A	67	50	A	A	45
29	50	A	44	44	45	42	57	100	128	138	124	130	121	118	118	120	102	91	66	62	56	54	43	42
30	43	40	43	40	36	44	58	88	112	118	138	138	134	131	130	123	102	96	67	57	58	54	50	53
31		46	37	44	45	45	62	94	115	130	116	122	132	131	128	127	117	90	58	56	52	56	54	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	30	31	29	31	31	31	31	30	31	31	31	31	31	31	30	31	29	30	30	26	28	27
MED	49	47	46	46	41	41	60	85	98	106	106	110	111	107	102	98	93	86	67	62	56	56	52	48
U Q	56	50	49	50	46	47	68	88	114	114	116	118	121	115	116	111	102	92	80	67	60	58	56	57
L Q	47	45	43	42	38	37	57	82	93	96	96	101	104	101	94	92	86	83	66	56	50	51	46	46

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT KOKUBUNJI

OCT. 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	G	G	G	G	G	G	G	40	48	61	61	69	95	63	49	45	36	G	G	46	41	41	29	30
2	G	G	64	G	G	G	28	G	43	52	G	G	G	G	G	44		G	28	G	G	G	G	G
3	G	G	G	G	G	G	G	G	G	G	47	49	G	G	63	40	G	43	G	34	31	40	30	G
4	G	G	24	G	25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	37	G	G	28	28	G	G	G
6	G	G	G	G	G	G	31	39	G	G	44	G	G	G	G	G	39	G	G	G	26	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	49	44	G	42	39	37	50	46	55	27	G	G	G
8	G	G	G	G	G	G	28	G	40	G	G	G	G	G	G	G	44	56	34	38	29	27	G	G
9	G	G	G	G	G	G	G	34	39	51	44	79	G	G	G	G	G	G	G	G	G	24	29	50
10	36	29	G	G	G	G	G	38	38	G	G	G	G	G	G	G	36	35	41	59	49	54	28	G
11	G	G	G	G	G	G	G	43	38	G	50	G	58	G	55	54	G	29	G	G	54	G	G	G
12	G	G	G	G	G	G	G	44	62	56	58	45	60	52	50	40	34	50	54	40	28	G	G	G
13	G	23	G	26		25	G	G	43	58	57	G	54	G	G	G	43	34	37	44	32	G	G	28
14	25	G	G	G	G	G	29	65	G	G	G	47	55	47	46	55	G	G	55	62	54	40	40	G
15	G	G	G	G	24	G	G	G	40	41	G	48	G	G	51	58	47	51	51	59	49	60	56	55
16	38	38	29	29	28	28	47	G	44	96	G	G	55	63	G	G	62	50	59	46	29	76	104	56
17	68	40	30	25	G	G	G	G	G	41	G	G	G	G	G	G	G	34	G	G	40	59	42	54
18	27	33	G	G	G	G	44	36	40	63	G	65	G	G	G	G	41	40	38	G	29	25	27	40
19	56	40	31	29	44	G	28	38	G	G	G	G	G	G	G	G	G	30	31	31	36	30	32	G
20	G	G	G	29	28	25	G	47	G	G	52	G	G	43	G	48	36	29	30	52	54	51	45	29
21	39	43	G	38	40	28	G	G	51	44	44	44	48	51	57	46	54	61	109	105	60	60	69	61
22	55	33	35	23	G	G	27	G	G	46	G	G	G	44	G	G	35	60	50	33	G	39	24	30
23	28	30	23	G	26	G	28	32	47	46	G	G	G	44	G	G	34	30	34	33	41	48	35	G
24	G	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G	G	G	27	32	34	29	28	G
25	G	G	G	G	G	G	26	46	40	G	55	G	G	G	G	41	47	60	37	G	G	60	34	37
26	33	38	30	44	G	G	G	G	39	40	G	G	G	G	G	G	32	G	G	27	G	25	G	G
27	G	G	G	G	G	G	23	G	40	G	G	G	G	G	G	39	G	37	37	28	28	27	32	28
28	30	G	41	G	26	G	G	G	40	46	46	44	G	G	40	37	55	59	97	95	49	74	38	108
29	41	54	41	36	42	G	G	G	G	40	G	47	60	75	86	114	62	51	36	45	27	G	23	24
30	25	G	G	G	G	G	G	G	43	72	84	49	G	60	82	62	53	52	27	50	40	28	26	G
31		30	42	29	34	G	25	37	G	47	G	43	48	48	44	52	58	54	G	G	G	G	31	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	39	40	G	G	G	G	G	37	36	35	34	33	29	28	28	G
U Q	33	33	30	26	26	G	28	38	43	51	47	47	48	47	49	46	47	51	46	50	41	51	35	40
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G	G

HOURLY VALUES OF FOF2 AT YAMAGAWA

OCT. 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	55		47	48			53	75			97	111	131	131	130	111	101	100	91			A	53	43
2	47	40	41	42	40			66		87	101	105	117	110	106	104	95	96	88		66		42	48
3		43			43		40		86		90	103	112	106	112	106	105	104		66	61		51	52
4			42	44		43	43		111	92	88	112	131	146	144	131	118	100			53	58		
5	62	55	45	48	46		51	72	87	94	97	116	122	114		111	106	100	90	78				54
6	58		52	46	35		36		88	96	97	120	125	121	118	114	112	105		83	80	76	66	58
7		52		50	52	43		66		107	111	118	132	118	117	112	105		102	80		63	62	60
8	67	52	48		48		44		90	97	102	114	121	122	127	122	120		106	77	64	66		
9	51		62		52	38	42		87	111	111	121	134	136	132	122	114	108	90		65	87	87	
10				56	54	60	53	64	112	129	111	136	146	138	130	126	106	95		64	66	53		A
11	56	52	50	51	37	38		81		101	104	111	116	112	118	120	121	108	95		52	A		33
12	54	53	46	42		38	46	90	90	97		117	123	134	130	122	110			A	A	87		76
13	52	37	43	43	31	34	41		109	130	125	112	115	122	130	112	105	94			60	66		54
14	28		54	47		34		72	88	107	96	94	131	137	145	140	117	101		82	66		52	53
15	A	A		53		26		66		102	105	108	128	136	153	142	137	122	118	111			72	57
16	58	51	38	41	50	36	52	78	88	97	104	111	110	120	127	115	103	114	107	68		53	38	A
17	A	A		44		41		60	77	87	110	116	118	108	104	105	94		91	66	58	A	37	A
18	42		40	41		31	43	77	88	84	94	111	111	107	120	112		90	74		50		52	A
19	A	A	A		40	A	43	80	98	100	107	108	110	114	116	101	94	96	95	86	72	66		53
20		42	47	43	37		54		80	92	101	102	121	134	126	111	96	97	106	86	88	84	52	53
21		A	A	41		35	43	91	111	92	100	106	117	117	124	127	112		117		84	74	72	62
22	52	A	52	42	42	45		71	90	85	100	116		108	118	112	105	107	105	72		74		42
23	38	31		A		37	34		101	108	115	122	131	127	136	122	105	87	83		51		51	A
24	48	48	46		36	45	34		90	102	111	110	110	105	114	112	96	95	87	54	45		50	37
25	43		50	45	38	37		74	90	111	114	111	118	127	128	111	98	90		61	60	54		42
26	A	47	47		46	36	31	75	98	100	114	115	124	142	141	122	109	104	96	81	73	52	59	
27	43		48	52			40	67	111	122	114	121	135		141	140	126	107	94	86	84	81	52	
28	67	52		42	30		42	70	105	126	144	137	122		120	105	96	113	110	85	80		53	30
29	39	45	37			37	43		122	118	122	124	111		131	137	131	112	110	78	78		A	38
30	40	42	40		40			75		120	154	161	135	138	157	158	146	141	126	106	91	100	84	83
31	74		54		45	46		78		122	136	134	141	156	163	157	143	136	103		58	62	48	38
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	16	22	21	20	20	21	21	24	29	30	31	30	28	30	31	30	26	23	20	24	18	20	21
MED	52	48	47	44	41	38	43	74	90	101	106	114	122	122	128	115	106	102	96	79	66	66	52	53
U Q	58	52	50	49	47	43	48	78	107	114	114	121	131	136	136	127	118	108	107	85	79	81	64	57
L Q	42	42	42	42	37	35	40	66	88	93	100	110	116	113	118	111	101	96	90	67	58	58	50	40

HOURLY VALUES OF FMIN AT KOKUBUNJI

OCT. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	15	15	15	16	15	15	15	16	18	20	21	20	17	16	15	18	14	14	14	14	14	14
2	14	14	14	16	17	15	15	14	16	16	18	18	20	18	18	17		15	15	15	15	16	15	18
3	15	14	16	14	15	15	20	15	16	17	22	20	23	18	17	17	15	15	15	15	15	15	15	15
4	15	16	15	16	14	14	15	15	17	17	20	18	22	20	18	15	15	15	15	15	15	15	15	15
5	14	20	14	15	15	15	18	16	21	18	23	15	20	35	17	17	16	21	16	15	14	15	15	16
6	20	15	14	16	15	16	16	15	15	16	16	21	38	16	16	20	16	16	15	15	15	15	14	15
7	14	15	16	15	15	14	20	15	15	17	21	20	18	20	16	17	15	14	16	15	15	14	15	17
8	15	14	15	14	15	14	15	17	16	17	17	36	44	16	23	17	14	14	14	14	15	15	15	15
9	16	15	14	14	15	14	20	15	16	20	20	22	18	16	27	18	16	14	14	14	15	15	14	15
10	15	15	14	14	14	15	14	14	16	17	18	18	22	21	18	17	14	14	15	14	14	14	14	14
11	15	14	14	16	15	16	18	14	15	18	20	35	17	17	15	20	18	15	14	14	14	15	15	15
12	15	15	15	16	15	15	17	16	18	16	18	22	26	20	17	15	14	14	15	14	14	14	15	15
13	15	14	15	15		15	17	16	16	16	17	18	16	17	16	15	14	14	14	15	15	14	14	15
14	15	15	15	14	14	15	15	15	15	16	36	26	18	21	18	15	15	16	15	14	14	15	15	15
15	14	14	14	14	14	16	17	14	15	16	17	20	20	16	16	15	14	14	15	16	14	15	15	14
16	15	15	15	15	15	15	14	15	14	17	16	17	17	20	20	16	15	14	14	17	14	15	14	15
17	15	15	14	16	14	14	15	15	14	15	16	15	18	20	15	16	15	14	14	15	14	14	15	14
18	15	14	14	15	17	15	16	15	15	16	15	16	16	17	15	15	14	17	16	18	14	15	15	15
19	15	14	14	16	14	15	15	14	14	15	17	20	16	18	15	18	14	15	15	15	14	15	15	15
20	15	15	14	14	14	15	17	16	18	17	20	21	21	26	20	16	15	14	15	16	15	15	15	14
21	15	15	15	15	15	14	16	14	15	17	17	18	18	17	16	15	15	14	15	15	15	14	15	15
22	14	15	15	14	14	15	15	15	15	17	17	18	17	16	16	14	14	15	14	15	15	21	15	15
23	15	14	14	14	15	14	14	14	16	22	44	21	20	16	16	16	14	15	14	15	15	15	15	15
24	15	15	15	16	14	15	14	15	17	15	18	17	16	18	21	16	15	15	17	14	15	15	15	15
25	16	16	14	18	15	15	17	14	16	16	20	18	16	16	16	18	16	15	16	15	16	14	15	15
26	14	14	14	15	15	15	16	14	15	16	26	26	22	17	16	16	15	16	14	14	14	15	14	15
27	15	14	14	14	14	16	17	14	15	15	17	36	17	35	15	15	18	16	15	14	14	14	14	15
28	14	15	14	15	14	16	16	14	15	20	17	20	18	18	15	17	14	14	15	16	15	15	15	14
29	15	14	14	14	15	15	18	15	18	17	21	22	23	21	20	20	15	15	15	15	15	15	15	14
30	14	14	15	15	14	15	16	14	18	17	22	21	23	26	21	15	14	15	15	15	15	16	15	15
31		14	15	14	15	15	17	16	18	33	30	21	34	21	22	16	14	14	23	17	15	14	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	15	15	14	15	15	15	16	15	16	17	18	20	20	18	17	16	15	15	15	15	15	15	15	15
U Q	15	15	15	16	15	15	17	15	17	17	21	22	22	21	20	17	15	15	15	15	15	15	15	15
L Q	14	14	14	14	14	15	15	14	15	16	17	18	17	17	16	15	14	14	14	14	14	14	14	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT YAMAGAWA

OCT. 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	G		G	G			G	35			50	56	G	53	53	62	G	40	34			32	G	G
2	G	G	G	G	G			G		G	G	G	G	G	G	G	G	G	G		G		G	G
3		G			G		G		39		G	53	G	G	G	G	G	G		30	31		G	28
4			G	G		G	24		G	G	G	G	G	G	G	G	G	G			G	G		
5	G	G	G	G	G		G	G	G	G	G	G	G	G		G	41	41	G	31				25
6	G		G	G	G		G		G	52	G	51	G	G	G	G	39	G		G	28	G	G	G
7		G		G	G	G		33		43	G	G	G	G	G	58	G		26	25		G	G	G
8	G	G	26		G		G		G	G	G	G	G	G	G	47	48		59	48	32	G		
9	G		G		G	G	G		48	G	G	G	49	G	49	G	G	40	G		30	31	G	
10	32		G	G	G	G	G	G	42	51	56	G	G	45	54	G	41	39		46	32	33		72
11	34	28	25	G	G	G		32		45	G	G	G	56	43	G	G	40	31		G	39		25
12	30	28	G	G		G	24	33	42	44		G	G	G	56	50	61			96	92	92	36	G
13	26	G	G	24	25	24	G		G	G	G	G	G	G	G	G	G	33			58	57		41
14	31		G	26		G		G	37	G	G	G	G	G	G	G	G	32		28	40		30	60
15	48	54		G		G		G	G	56	G	55	G	49	68	92	G	47	33	24			40	33
16	59	58	45	34	24	24	26	38	42	G	63	G	77	47	G	G	G	G	G	26		25	40	49
17	50	44		28		G		40	40	G	G	47	G	G	G	G	36	G	47	G	45	38	40	43
18	34		G	G		G	G	G	G	G	G	G	G	G	G	42		31	G		58		39	44
19	43	69	40		30	38	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G
20		G	25	24	23		24		G	G	G	G	G	G	G	45	38	G	G	G	G	24	26	40
21		33	41	37		G	G	32	38	41	G	G	G	62	46	G	40	G	40		55	93	28	G
22	29	88	39	G	G	G		31	37	50	53	G		G	G	G	40	32	G	46		46		23
23	26	24		29		G	G		40	49	G	G	G	43	G	G	G	G	25		28		G	90
24	30	24	G		G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	23		G	G
25	24		G	G	G	G		G	G	G	G	G	G	G	G	60	45	42		G	G	28		G
26	26	27	25		G	G	G	G	G	G	G	44	G	48	G	G	G	G	G	23	29	24	24	
27	G		G	G			G	G	35	G	G	G	G	G	G	46	G	32	G	24	25	24	G	
28	24	G		G	24		G	G	G	52	58	43	G		G	G	G	G	G	G	G		G	G
29	58	39	28			29	26		G	G	G	55	52	G	45	44	49	37	G	38	60		38	32
30	23	G	G		G			G	G	42	G	47	G	G	52	50	G	G	G	G	G	G	G	31
31	32		26		G	G		29		G	G	60	48	G	G	G	G	G	G		G	G	24	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	21	25	22	20	21	21	21	26	29	30	31	30	30	30	31	30	28	23	21	25	21	22	26
MED	28	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	28	25	12	25
U Q	34	41	26	24	12	G	24	32	39	44	G	47	G	43	45	46	40	38	31	34	42	38	36	41
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 YAMAGAWA

OCT. 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	15			34	36		34	34	18		16	15			15	15	15
2	15	15	15	15	15			22		15	16		44	44		15	16	16	17		15		15	15
3		15			15		15		16			36	43	39	36					15	15		15	15
4			15	15		15	15		17	34	22	38	44	42		16	17	16			15	15		
5	15	15	15	15	15		15	15	33	34		38	44	16		38	17	16	16	15				15
6	15		15	15	15		15		18	17	35	36		38	41	35	16	15		15	15	15	15	15
7		15		15	15	15		15		17		39		40		17	18		15	15		15	15	15
8	15	15	15		15		15		16		36	43		38	44	32	16		15	15	15	15		
9	15		15		15	15	15		15	21	24		42		16	16	16	15			15	15	15	
10	15		15	15	15	15	15	15	16	16	26		32	21	20		18	16		15	16	15		15
11	15	15	15	15	15	15		15		17	20	22		18	23	17		15	15		15	16		18
12	16	15	15	15		15	15	15	16	16		32		40	32	30	16			16	15	15	15	15
13	15	16	15	15	15	15	15		15	17	35	37	22	21	18	16	15	17			15	15		15
14	15		15	15		15		15	15		18	36	39	43			16	16		15	15		15	15
15	15	15		15		16		15		18		22		30	17	16		15	15	15			15	15
16	15	15	15	15	16	15	16	17	15		16		20	17	20	16			15	16		15	15	15
17	15	15		15		15		15	15	16		17	16	16	16		15		16	15	15	15	15	15
18	15		15	15		15	15	16	16	16	15		40	36	22	16		16	16		15		15	15
19	15	15	15		15	15	15	15	15	17	18	23		18		34		15	15	16	15	15		15
20		15	15	15	15		15		18	16		43	42	38	34	18	16	16		15	15	15	15	15
21		15	15	15		15	15	15	15	16	16	18		21	27		17		15		15	15	15	15
22	15	15	16	16	15	15		15	15	20	17	38		22		17	15	16		15		15		15
23	15	15		15		15	15		15	16	57		24	18	17		16	16	16		15		15	15
24	15	16	15		15	16	15		17		17	38		29	35	17			16	15	15		15	15
25	15		15	15	15	16		15	15		35	38	42	40	26	21	15	16		15	15	15		15
26	15	15	15		15	16	15	22	16	16		26	36	27		21		15		15	15	15	16	
27	15		15	15			15	15	15		35	38	39	14		27		15		15	16	15	15	
28	15	15		15	16		15	15	17	16	22	32	39		18	15	18		15	15	15		15	15
29	15	15	15			15	15		16	17		35	35		32	24	16	15		15	15		15	15
30	15	15	15		15			23		20	36	38			33	26	16	22	15	15	15	15	15	15
31	16		15		15	15		15			39	36	35	34		36	16		21		17	16	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	21	25	22	20	21	21	21	24	22	22	25	19	27	21	25	21	21	17	21	25	21	22	26
MED	15	15	15	15	15	15	15	15	16	17	23	36	39	30	26	18	16	16	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	15	16	18	35	38	42	39	34	28	17	16	16	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	15	16	17	29	32	18	18	16	16	15	15	15	15	15	15	15

HOURLY VALUES OF FOF2 AT OKINAWA

OCT. 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	58	42	38	43	40	38	52	74	84	85	100	112	136	166	182	168	166	164	145	110	88	27	54	32
2	34	38	36	42	35	34	32	72	77	90	110	111	121	131	130	130	140	144	127	111	104	35	59	54
3	54	53	55	54	36	34	37	74	90	90	98	111	110	121	122	134	143	111	97	91	86	90	88	77
4	34	59	52	43	40	43	34	76	105	92	108	122	158	175	188	170	179	162	145	107	109	88	88	90
5	87	87	66	66	58	38	35	66	85	97	111	126	147	146	147	146	143	111	109	90	107	89	90	85
6	78	86	66	55	43	34	38	79	85	90	107	130	158	165	167	160	162	144	145	109	145	128	90	88
7	87	74	53	54	66	35	37	66	88	107	120	122	135	131	145	131	128	122	111	88	85	80	84	84
8	76	53	48	48	44	34	34	66	86	100	108	111	131	138	143	131	142	137	110	108	86	87	90	89
9	86	84	79	80	38	28	34	66	87	107	111	121	146	167	168	161	143	112	110	90	88	89	87	88
10	109	87	90	63	65	62	63	66	107	127	121	160	166	168	167	162	136	111	90	78	73	80	52	53
11	61	54	35	46	37	A	34	77	90	92	111	122	127	144	160	145	141	110	110	85	80	68	86	77
12	86	86	78	66	52	52	43	88	90	90	108	122	129	158	166	160	143	111	110	89	103	90		87
13	66	37	41	36	31	34	37	78	108	124	121	111	130	145	145	130	109	110	104	89	76	78	66	61
14	42	62	60	43	31	34	31	66	80	111	100	104	146	167	170	156	167	144	143	111	91	90	77	53
15	52	44	53	55	30	N	29	66	87	98	101	106	125	146	181	177	168	165	167	162	111	108	90	87
16	88	84	76	54	54	25	A	66	108	90	111	111	111	135	144	143	140	145	145	90	77	83	60	54
17	43	A	42	42	46	37	34	66	76	89	106	120	125	122	112	99	122	110	90	79	62	66	52	53
18	52	54	A	40	34	34	38	77	77	82	95	111	118	122	147	145	144	131	124	105	86	84	77	29
19	A	A	A	40	40	37	37	80	88	98	111	122	128	125	146	145	128	144	111	111	111	100	87	78
20	62	53		48	40	31	34	77	82	85	102	122	122	141	146	145	127	144	145	167	146	138	90	86
21	51	32	36	34	32	32	34	86	90	90	103	111	126	137	144	160	145	154	168	168	143	110	110	89
22	78	66	43	40	42	32	31	66	90	90	104	122	122	128	130	146	145	144	144	109	122	128	90	66
23	58	44	44	40	41	29	A	67	90	108	122	127	146	172	176	189	170	153	110	110	98	89	90	85
24	62	52	48	31	A			66	87	97	111	111	110	130	128	134	118	108	110	90	78	72	66	63
25	52	54	54	48	31	30	31	66	98	105	122	131	145	167	166	162	145	143	111	90	90	90	85	63
26	A	53	47	41	31		26	63	90	111	111	143	161	170	171	162	146	144	124	110	90	90	90	84
27	67	53	52	51	31		31	62	104	111	108	120	145	162	167	165	164	144	120	111	104	110	87	87
28	89	66	34	45	26	34	48	74	80	122	146	146	130	138	138	112	112	112	141	110	108		111	86
29	84	63	26	A	A	44	52	78	108	111	111	111	121	128	142	146	146	145	144	110	97	90	78	53
30	61	52	54	52	45	42	38	77	87	108	160	159	154	165	170	190	190	201	189	170	168	196	159	108
31	89	88	90	86	66	44	38	80	104	111	142	146	147	170	200	204	197	187	170	145	111	111	87	73
	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	30	29	26	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31
MED	62	54	52	47	40	34	34	72	88	98	111	122	130	145	147	146	143	144	124	109	97	90	87	78
U Q	86	79	63	54	45	38	38	77	98	111	120	127	146	167	170	162	164	145	145	111	111	108	90	87
L Q	52	52	41	41	31	32	33	66	85	90	104	111	122	131	143	134	136	111	110	90	86	80	77	54

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT OKINAWA

OCT. 1992

LAT. 26.3N LON. 127.8E 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	G	G	G	G	G	G	G	33	42	59	48	72	93	50	50	45	40	45	50	33	G	34	24	G
2	33	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G	G	G	G
3	G	G	G	G	30	G	G	33	39	G	G	58	G	G	G	58	G	G	G	33	25	G	28	34
4	40	30	G	G	G	G	G	30	57	G	G	G	G	G	46	G	42	40	39	31	G	G	G	G
5	G	G	G	G	G	G	G	31	G	G	60	G	G	G	G	G	40	61	G	58	38	33	28	G
6	G	G	G	G	G	28	G	34	37	47	50	49	52	50	48	45	42	44	29	42	30	G	G	G
7	G	G	G	G	G	G	G	40	45	44	51	50	G	47	48	55	39	G	G	29	G	G	G	G
8	G	G	G	G	G	G	G	30	38	42	44	47	G	G	G	61	61	62	60	33	33	28	29	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	34	33	28	G	G	G	G
10	G	G	32	G	G	G	G	G	G	G	G	G	G	48	58	G	G	G	29	33	25	30	34	G
11	G	23	36	31	33	30	G	32	38	42	57	G	G	G	G	G	58	84	44	60	56	31	40	25
12	31	24	G	31	23	G	G	33	42	67	51	63	76	83	70	108	99	66	51	85	45	37	179	92
13	40	33	24	24	23	G	G	G	37	41	G	45	46	46	G	G	G	36	G	G	24	G	58	24
14	G	G	G	G	G	G	G	46	50	43	47	49	51	47	48	57	43	49	41	40	G	45	26	28
15	31	G	24	24	29	G	25	28	40	G	55	56	G	51	G	G	41	38	38	34	G	40	41	24
16	23	58	34	26	30	23	27	38	44	80	67	G	G	94	51	64	44	G	25	11	G	32	40	34
17	30	36	29	37	30	28	24	G	G	41	46	69	G	45	77	46	49	40	30	G	26	G	G	G
18	G	58	56	32	G	G	G	32	45	40	G	G	G	G	57	41	42	40	40	28	38	30	G	40
19	69	45	36	31	28	G	G	31	G	G	G	G	G	G	G	G	G	G	30	32	32	G	G	G
20	G	G	28	G	G	24	G	31	G	G	G	62	48	48	45	41	G	G	G	G	31	41	33	24
21	33	32	24	28	G	G	24	30	39	41	G	G	45	47	G	G	41	33	28	34	29	G	G	33
22	40	34	34	31	30	G	G	31	37	44	48	45	45	G	43	42	G	32	40	32	32	G	G	G
23	G	G	G	28	G	G	38	30	38	43	G	G	G	G	45	44	40	42	40	31	G	32	G	G
24	G	33	58	40	30			31	40	41	G	45	45	45	43	G	G	32	G	39	40	G	24	33
25	36	33	34	33	G	G	G	28	G	41	49	73	48	G	48	45	G	36	G	30	31	32	29	G
26	37	21	34	32	61		G	29	36	G	G	G	49	45	58	G	37	35	27	25	26	33	G	G
27	G	G	G	G	G		G	28	36	42	59	G	G	G	46	44	38	36	35	32	40	G	32	32
28	30	G	G	G	G	G	G	29	81	72	G	64	G	G	G	G	42	32	32	G	25	33	28	G
29	32	G	33	60	40	G	G	41	38	G	G	57	G	G	61	61	47	38	32	44	33	33	34	30
30	32	24	G	25	G	G	G	28	G	41	46	48	G	54	46	43	G	G	26	23	30	G	G	G
31	G	G	G	G	G	G	G	29	35	G	G	G	64	68	60	G	G	40	39	26	G	32	32	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	28	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	G	G	G	24	G	G	G	30	38	41	G	45	G	45	46	41	40	36	30	32	26	30	26	G
U Q	33	33	34	31	30	G	G	33	42	43	50	57	48	48	51	46	42	42	40	34	33	33	33	30
L Q	G	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	25	25	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT OKINAWA

OCT. 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	15	15	15	15	15	15	16	21	26	28	26	28	26	27	17	15	15	15	15	14	15	16
2	15	15	15	15	15	15	15	23	15	18	38	22	22	28	18	16	16	16	15	15	15	16	15	15
3	15	15	15	14	15	15	15	15	16	18	24	28	30	28	28	34	22	14	20	15	15	15	15	15
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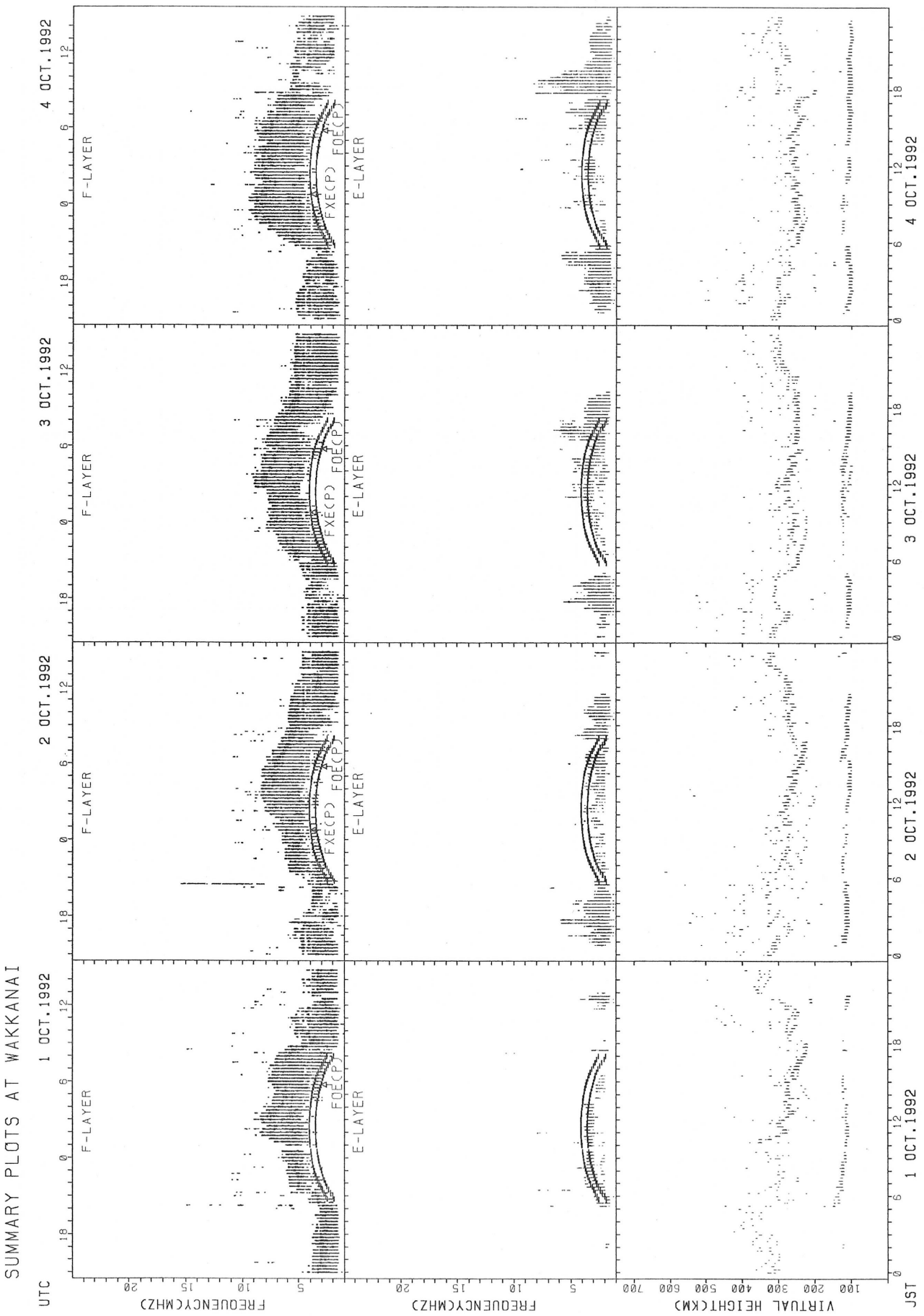
COMMUNICATIONS RESEARCH LABORATORY, JAPAN


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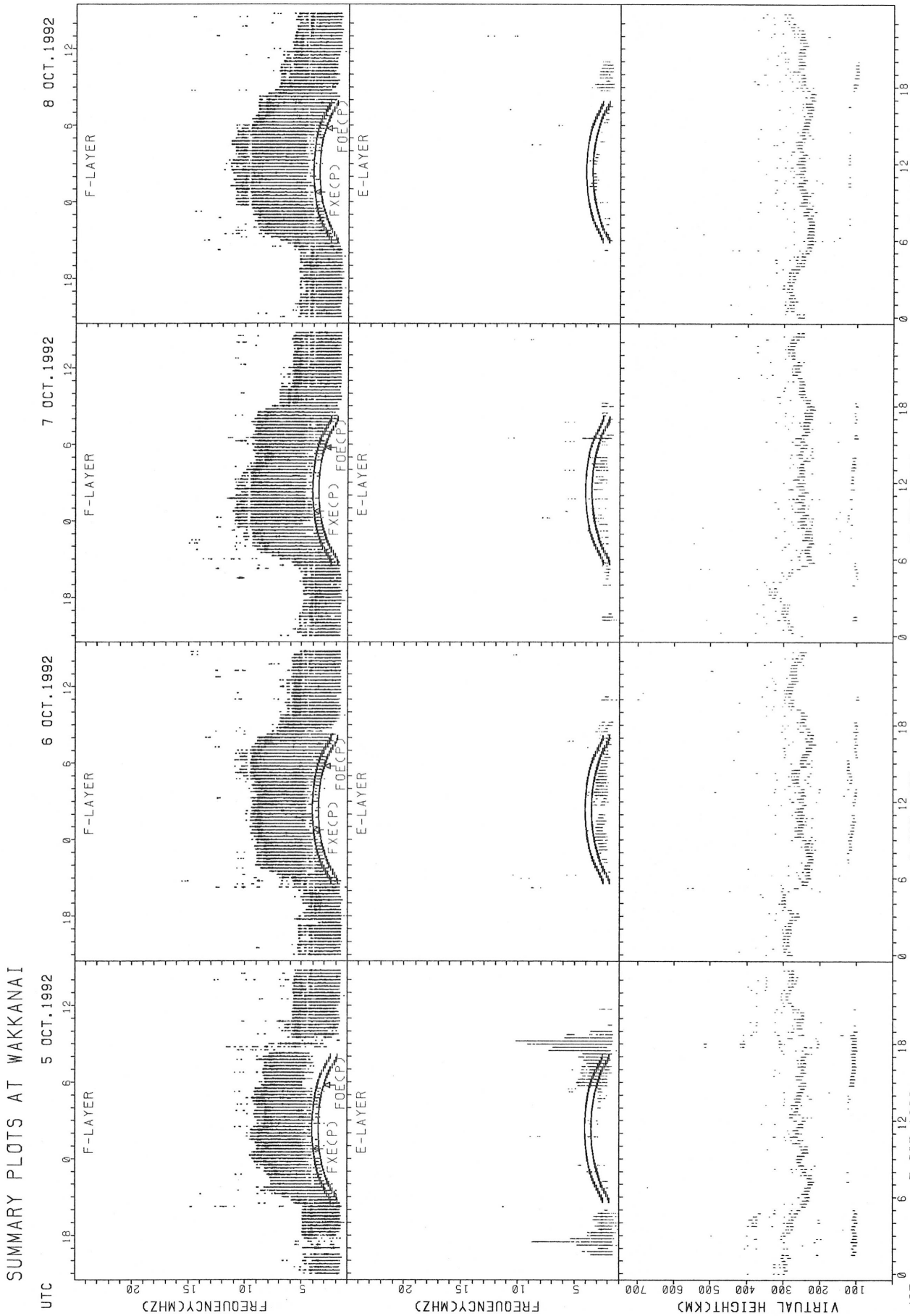
FOE(P); PREDICTED VALUE FOR FOE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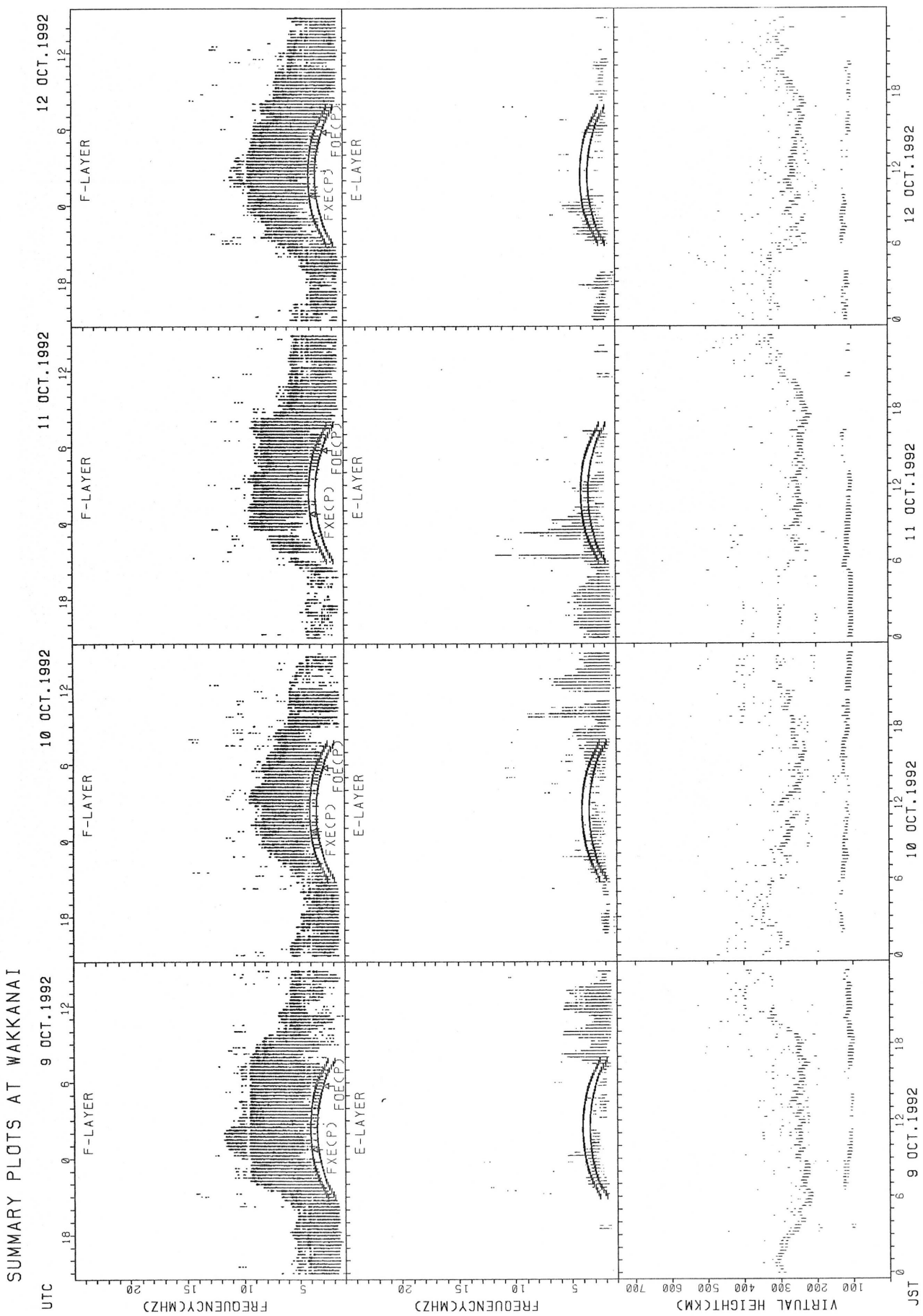
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FOE(P)
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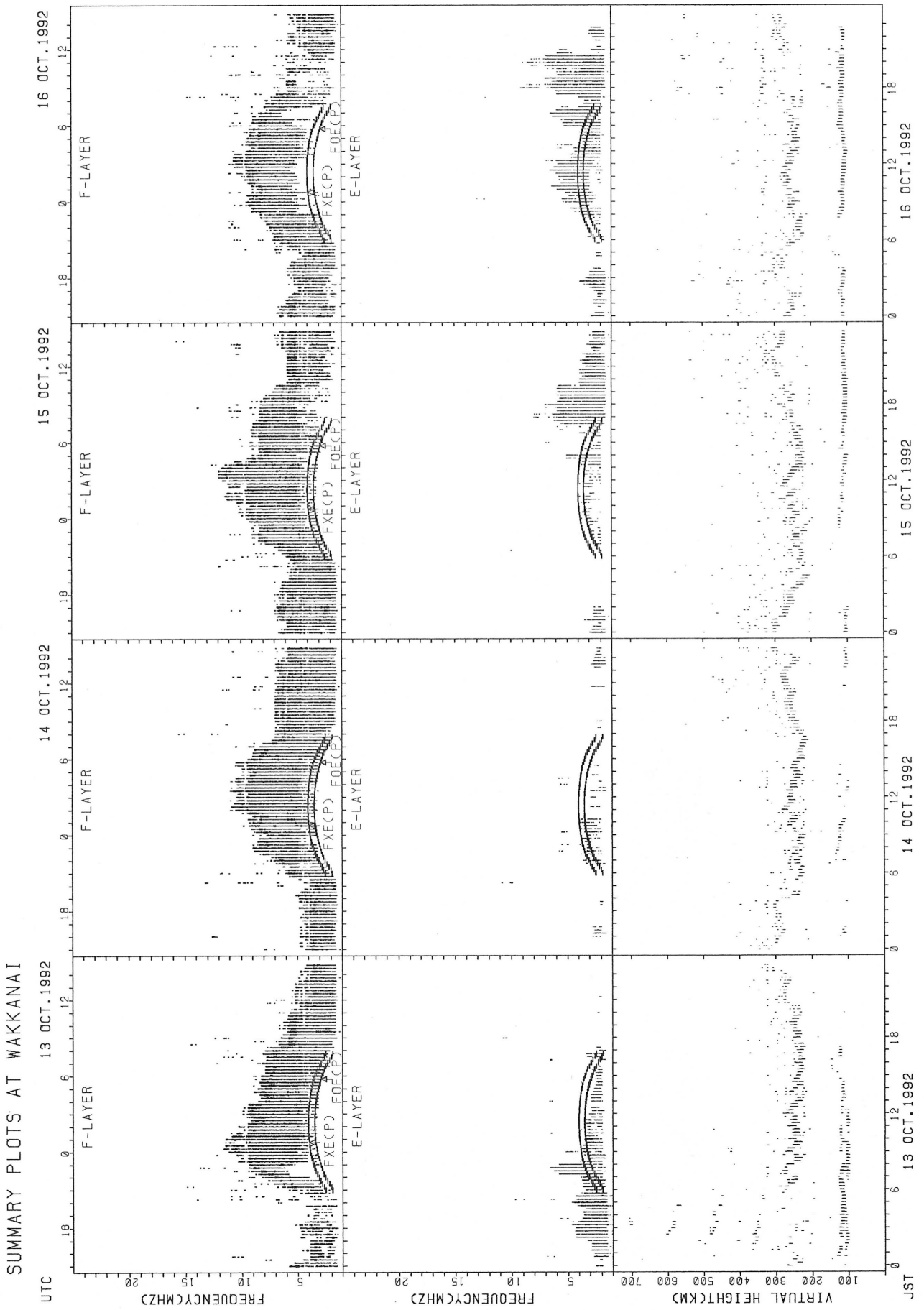
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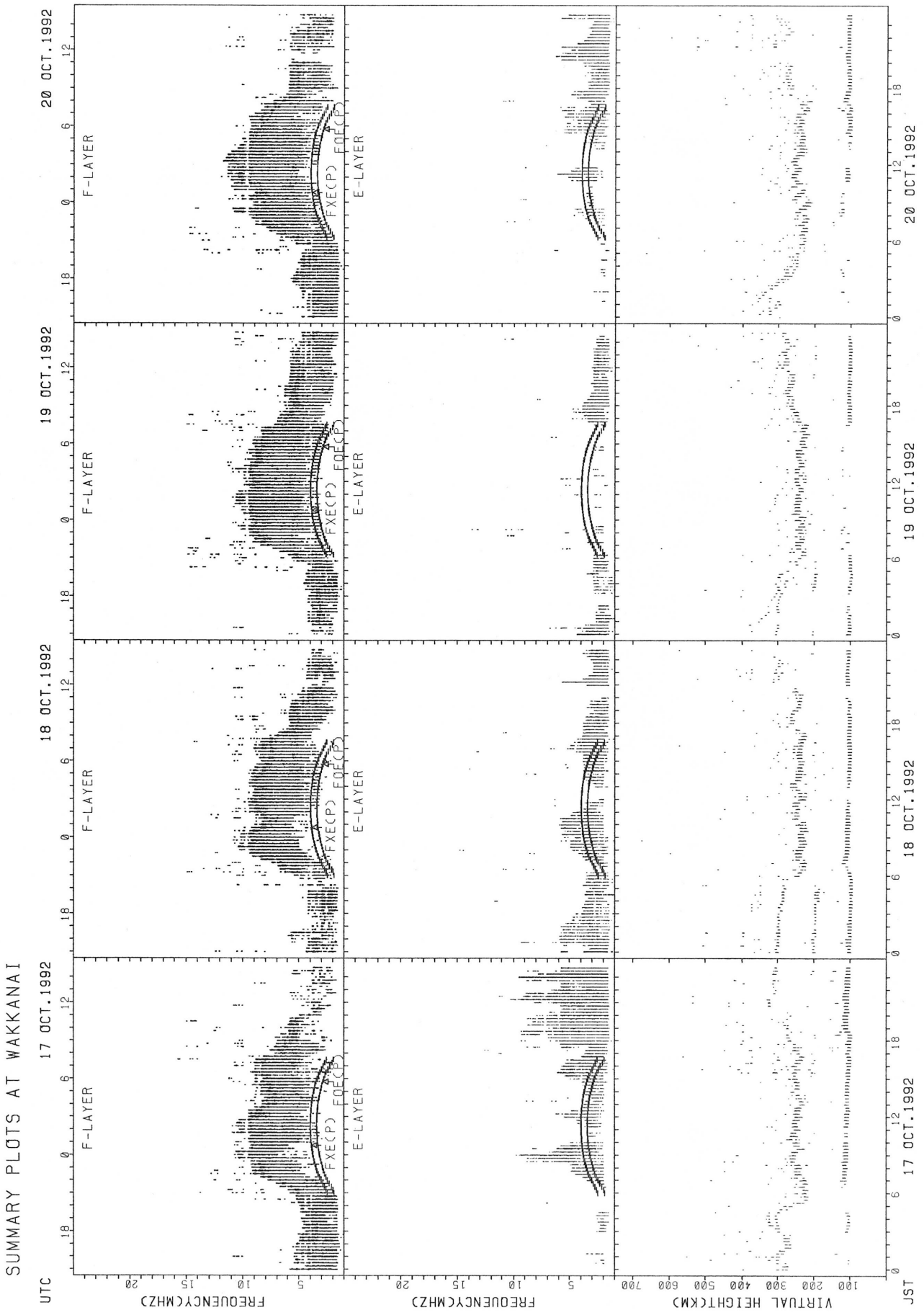
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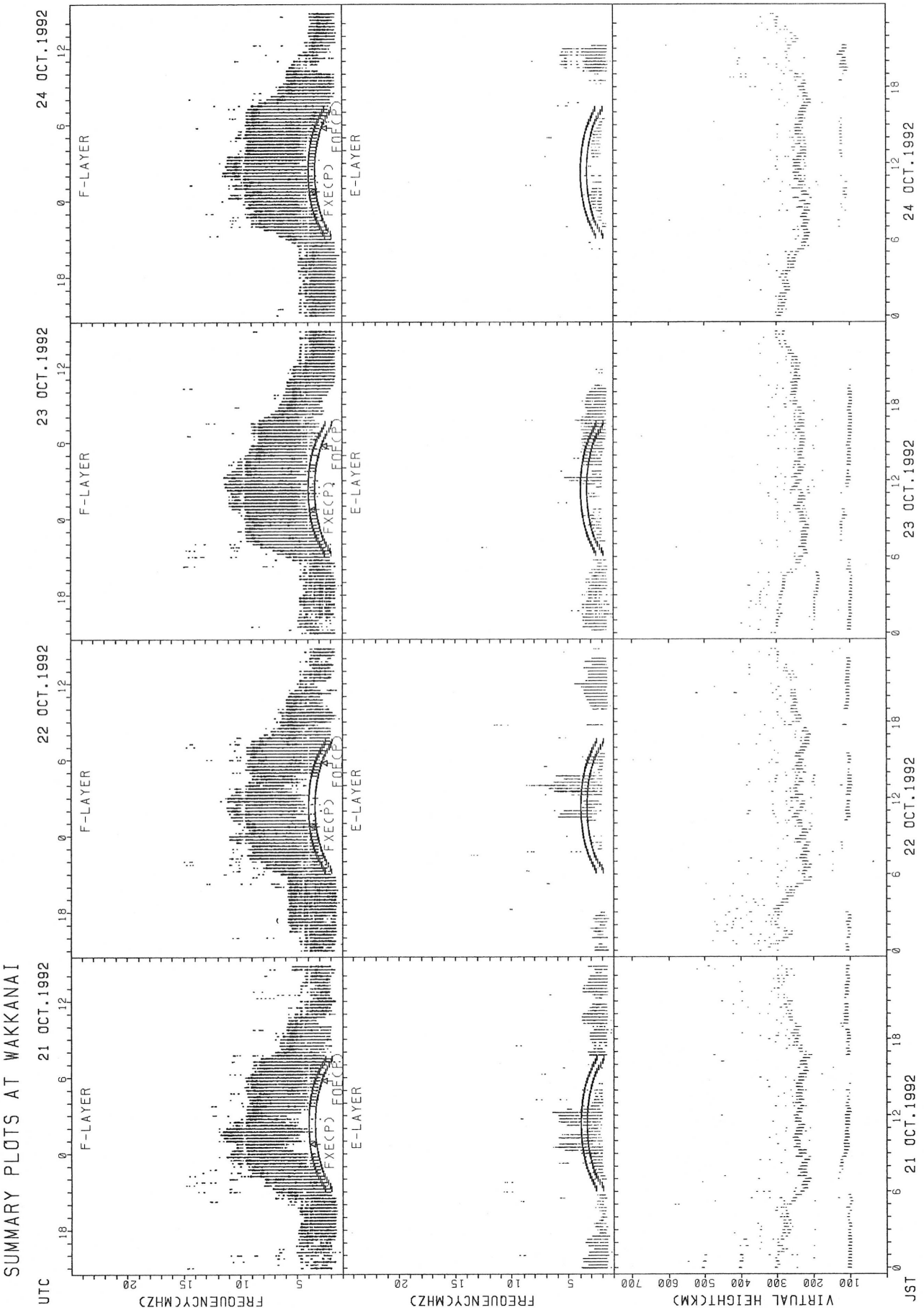
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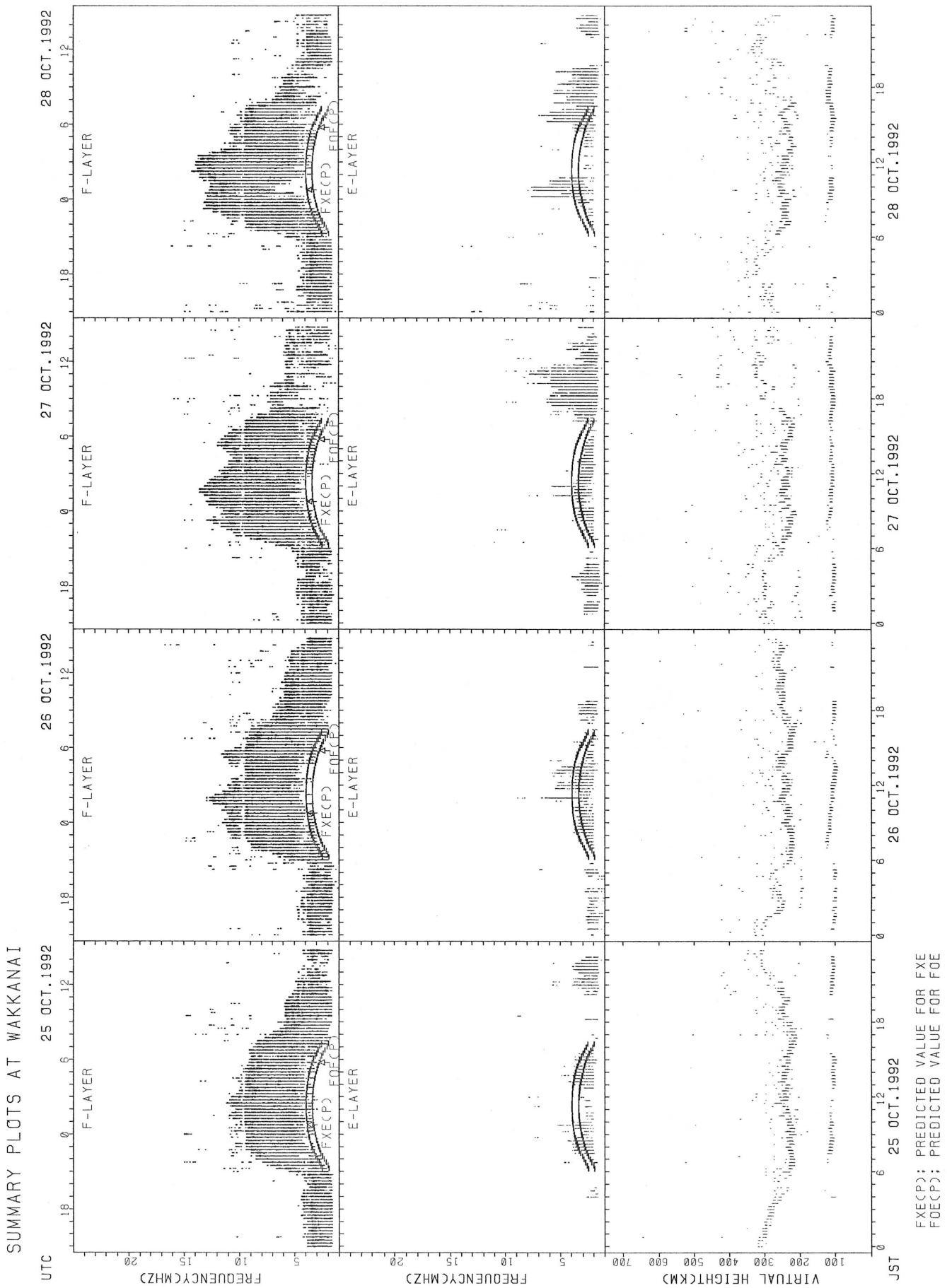
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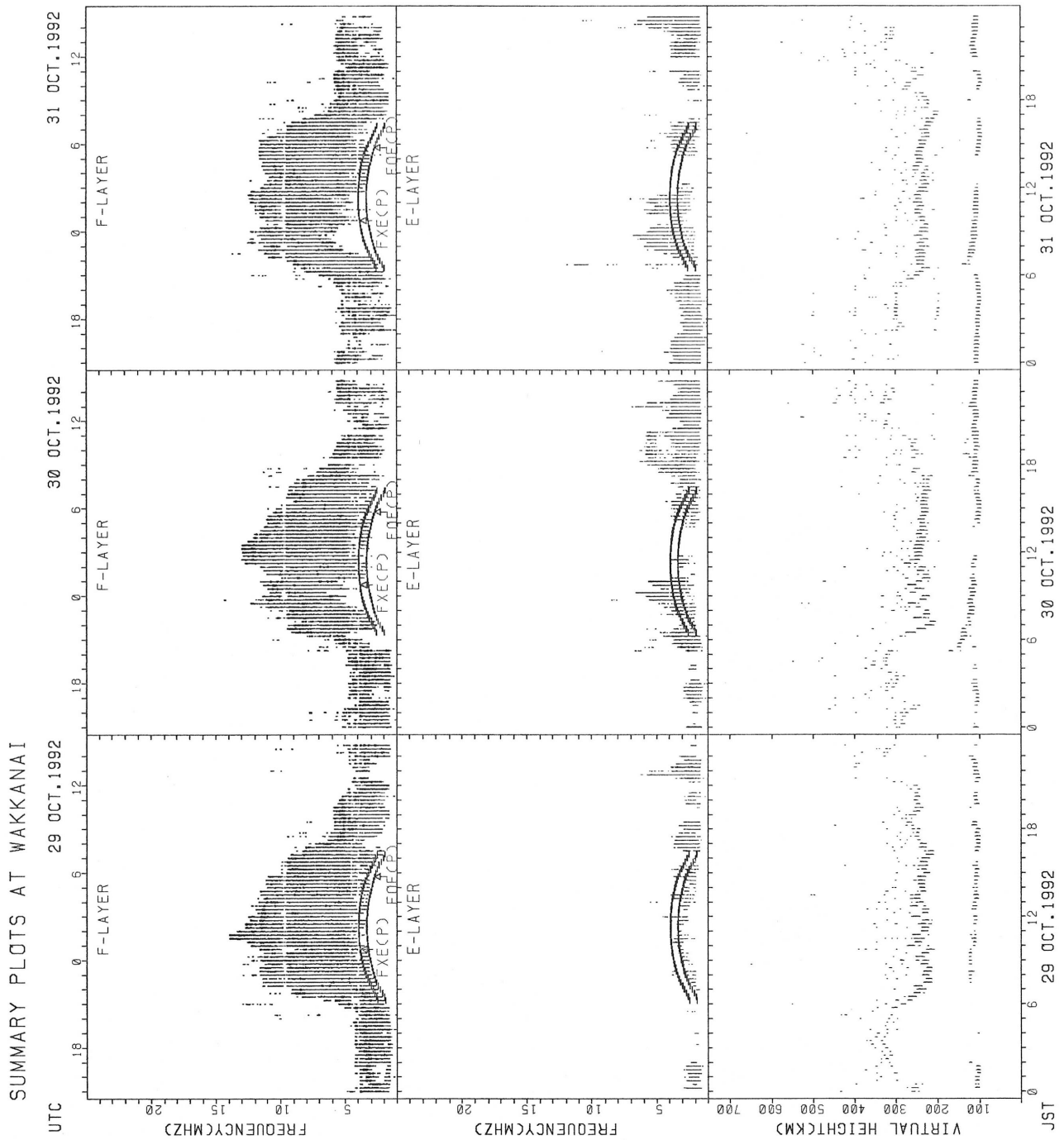
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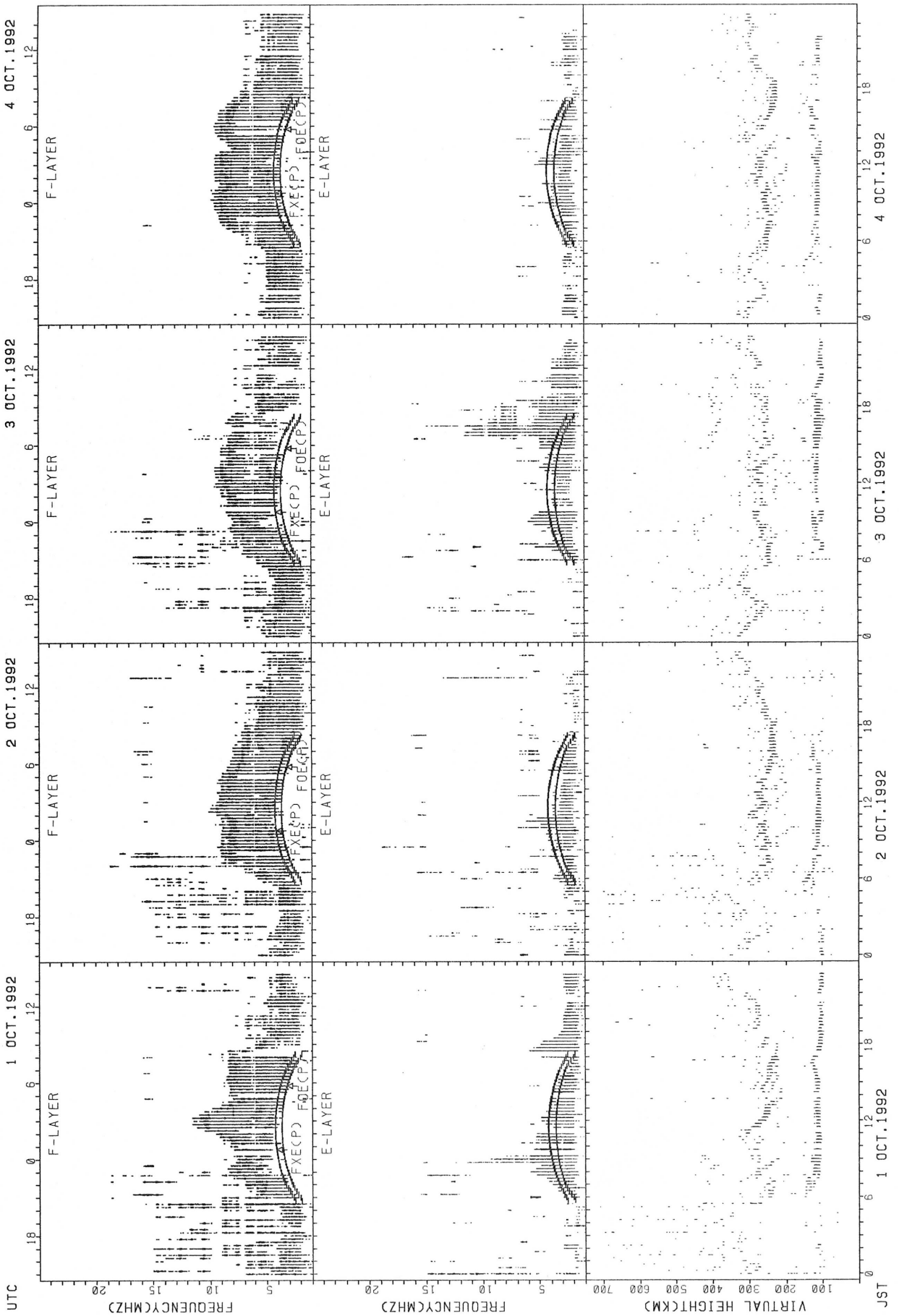
SUMMARY PLOTS AT AKITA
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4 OCT.1992
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E-LAYER
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FOE(P)
FREQUENCY(MHZ)
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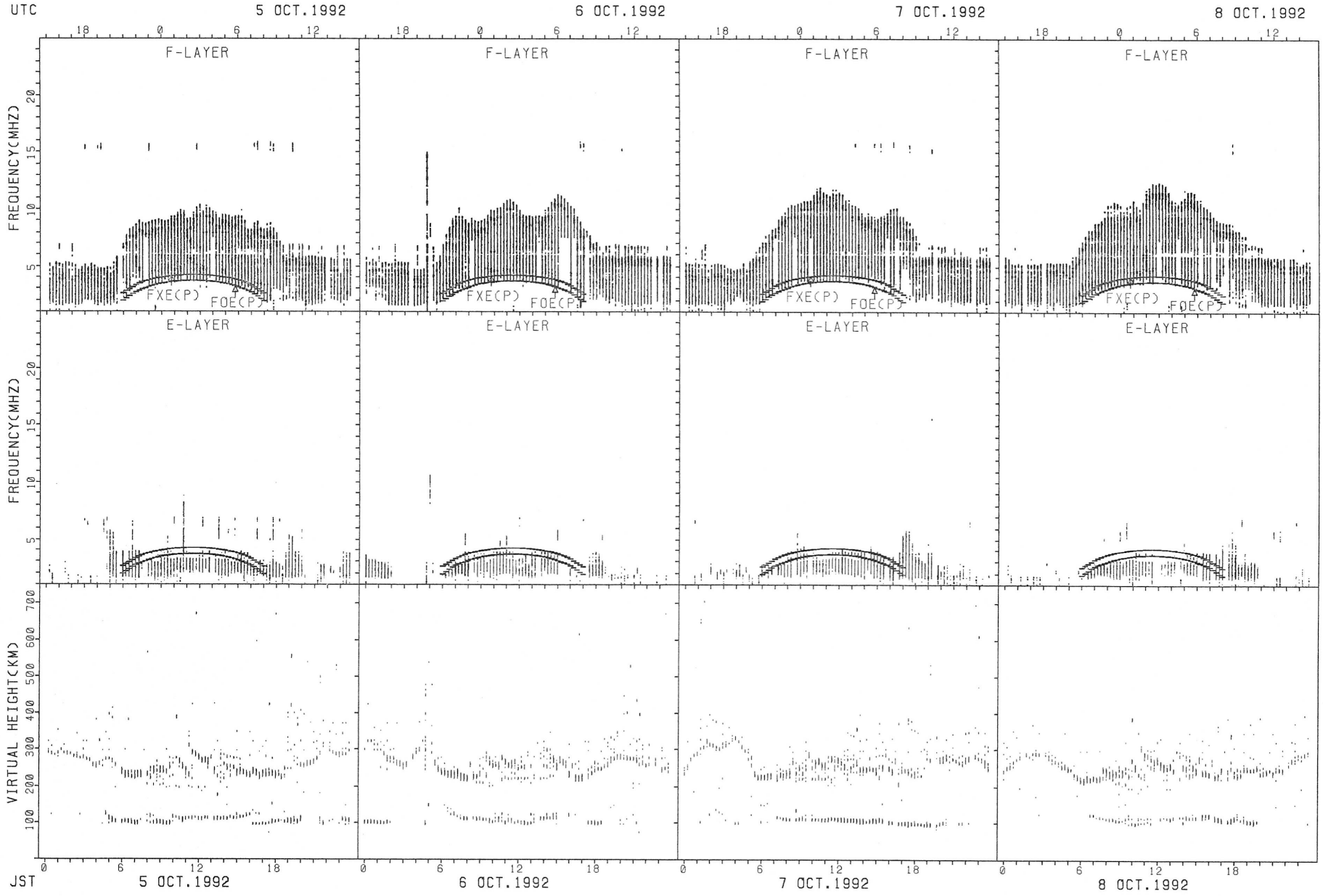
SUMMARY PLOTS AT AKITA



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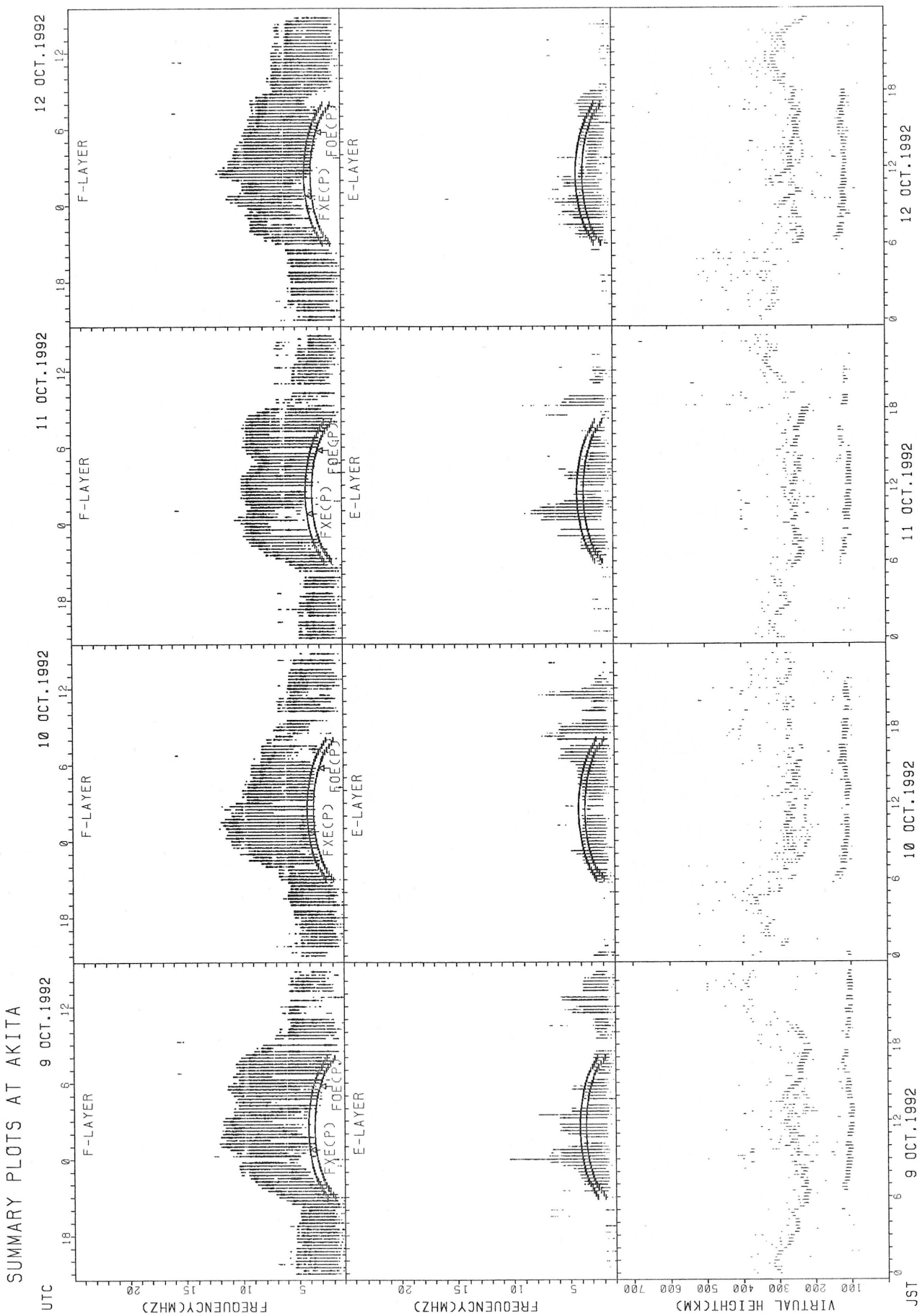
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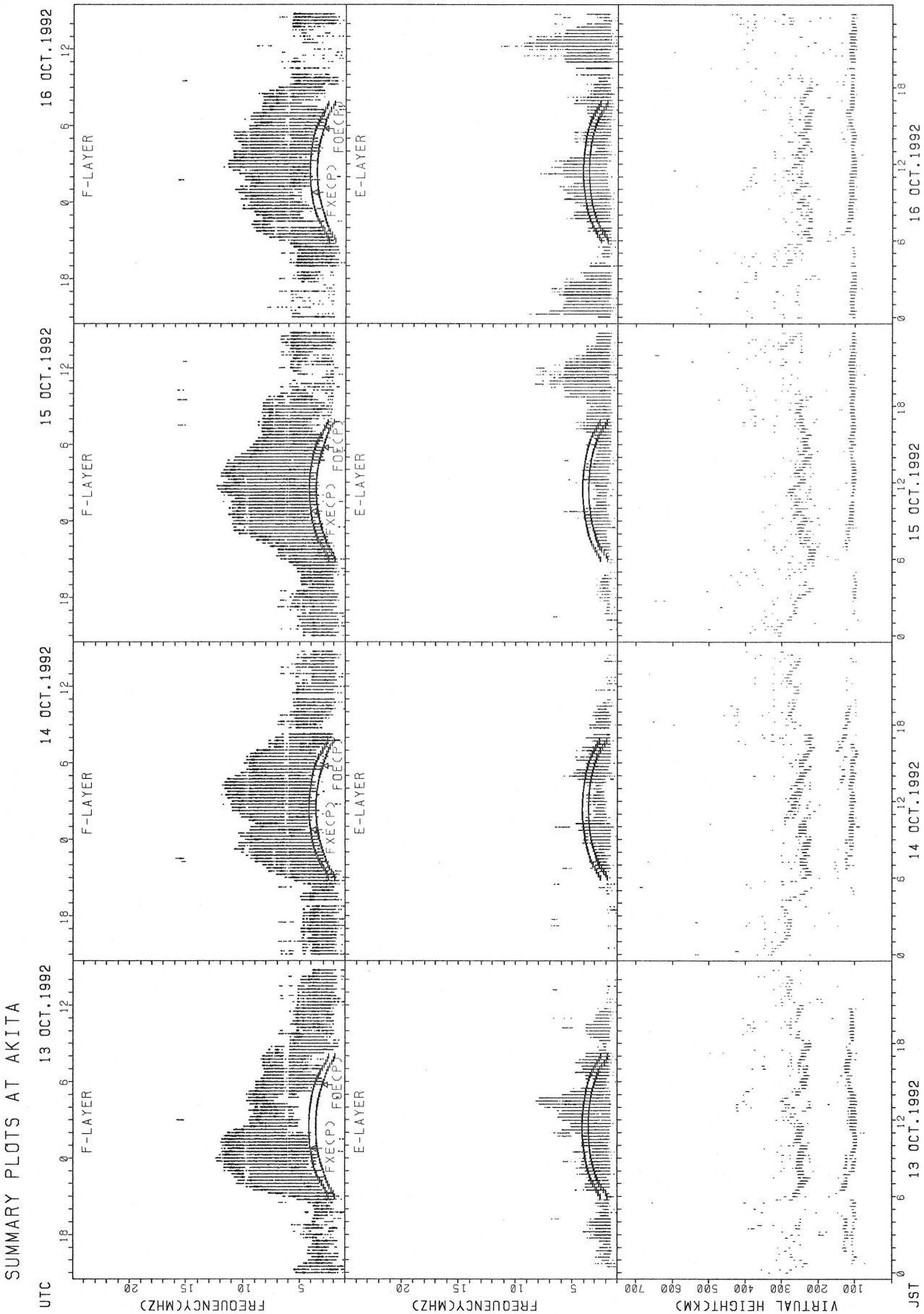
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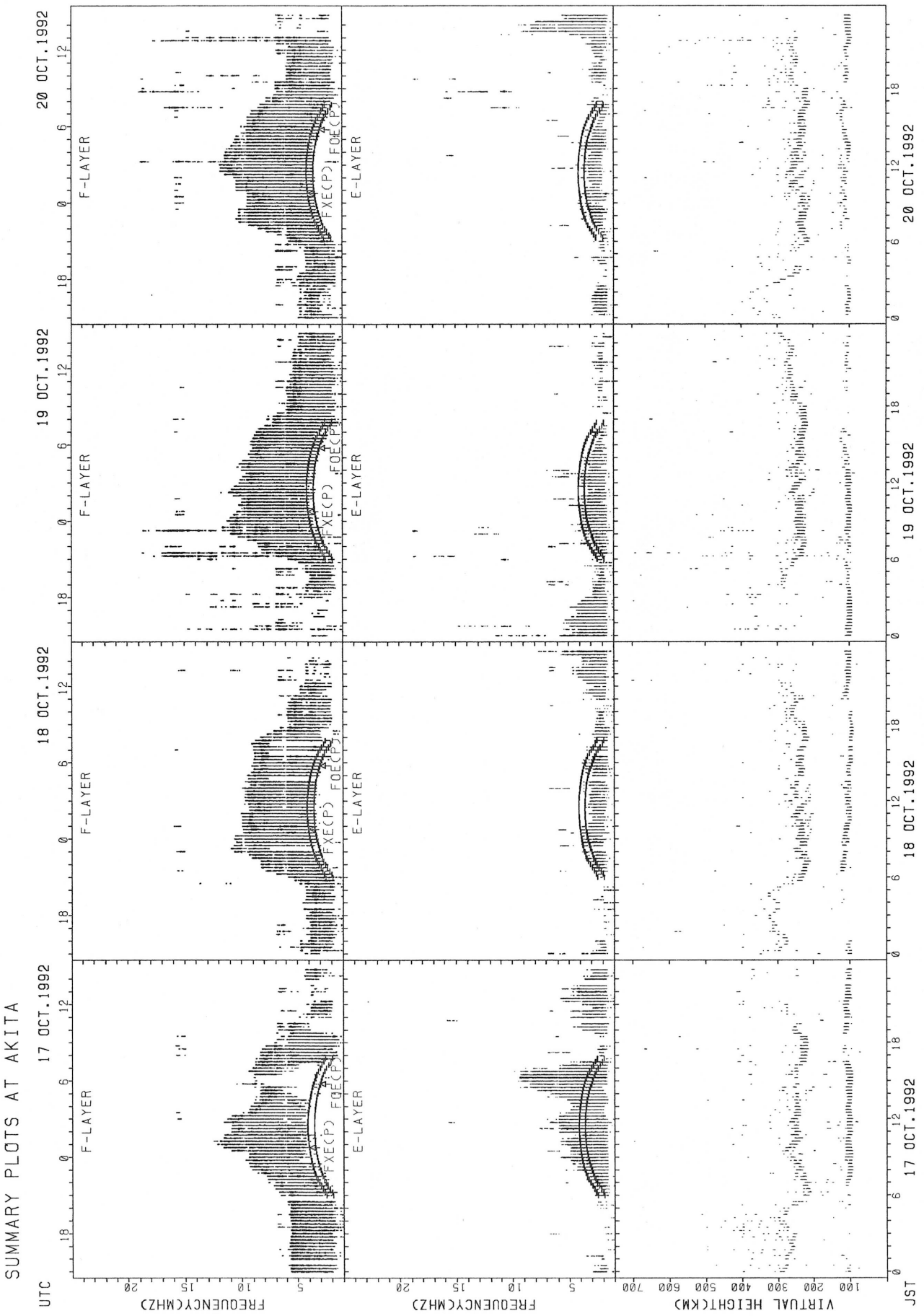
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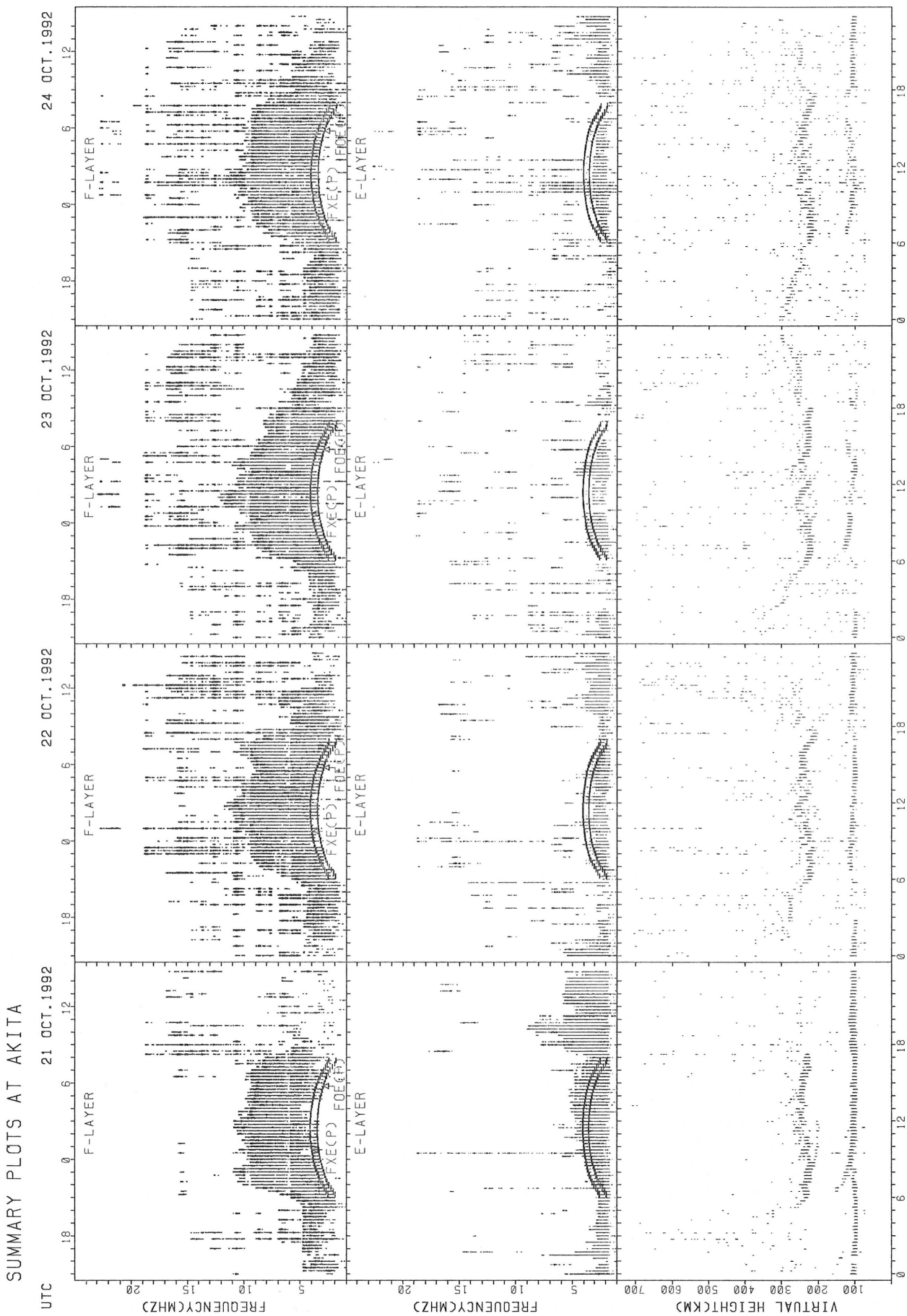
FOE(P); PREDICTED VALUE FOR FOE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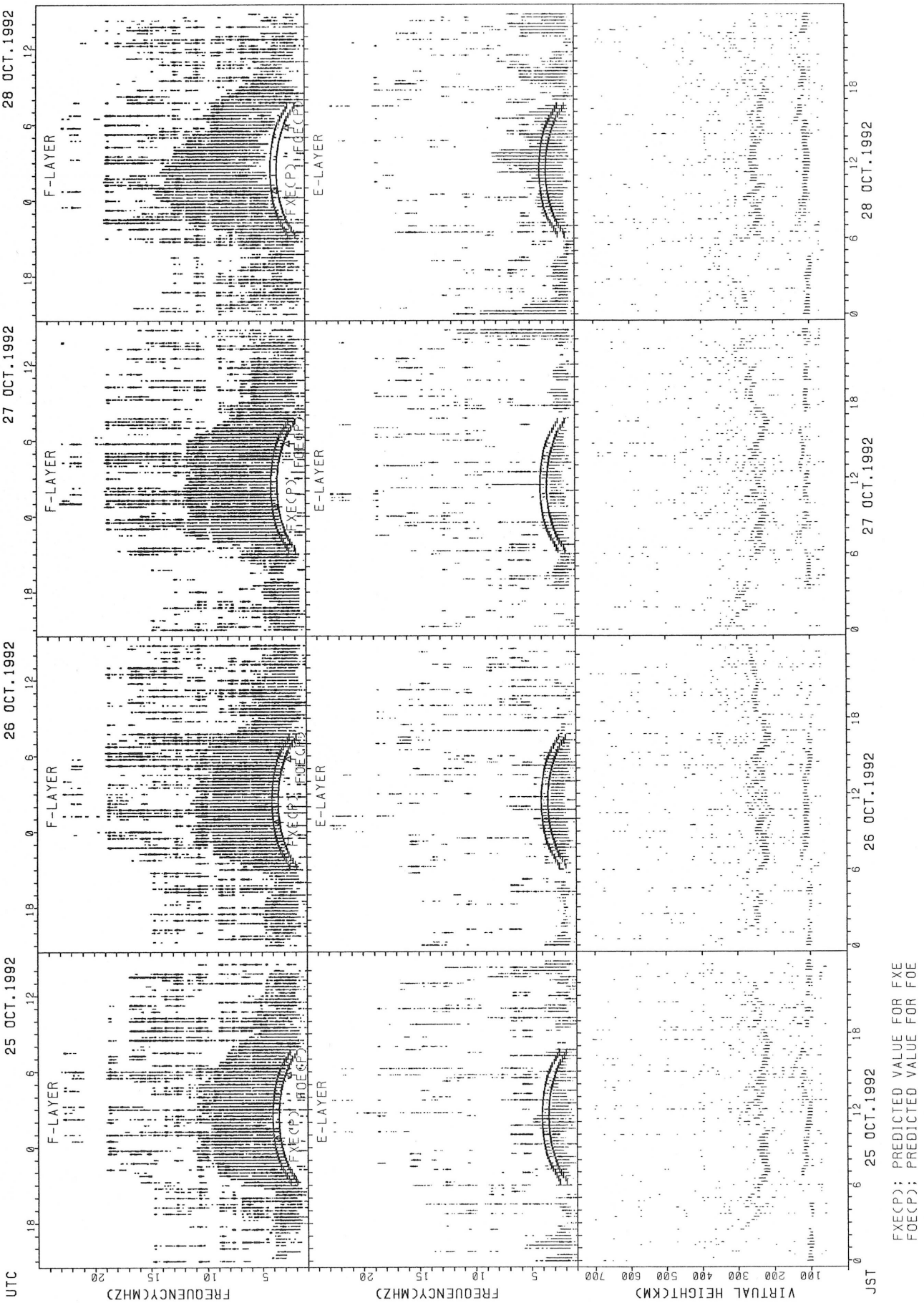
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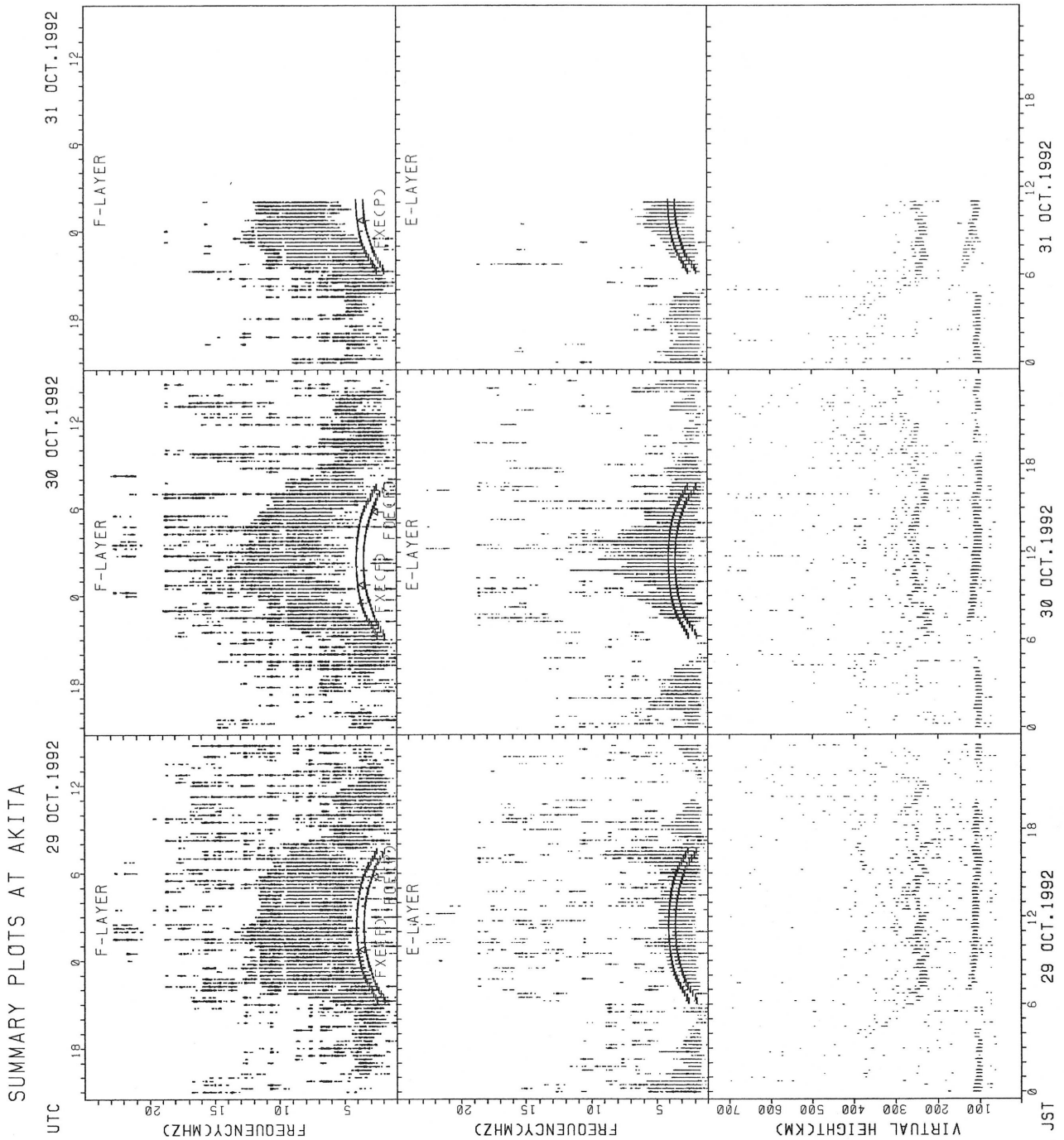
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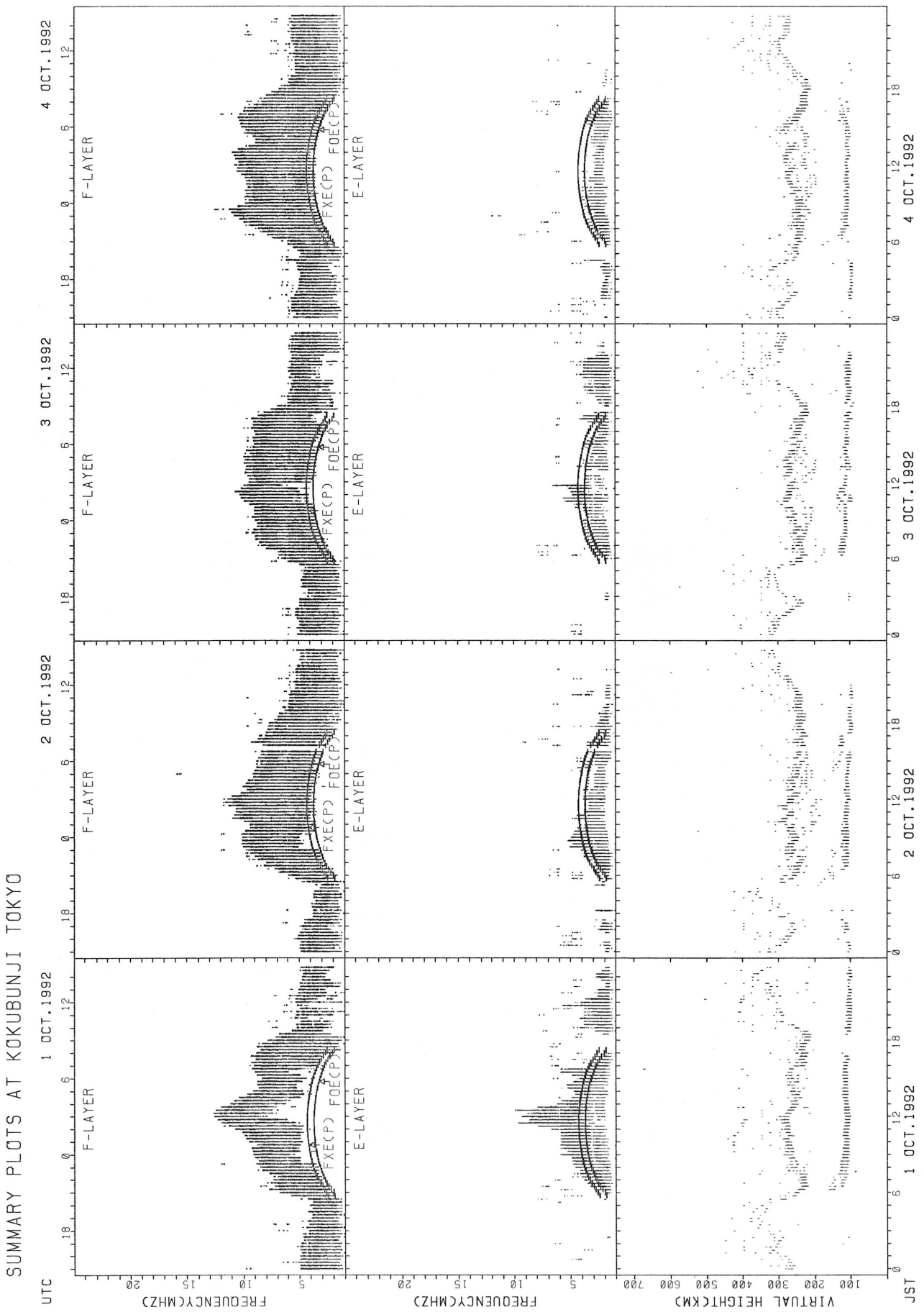
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FOE(P)
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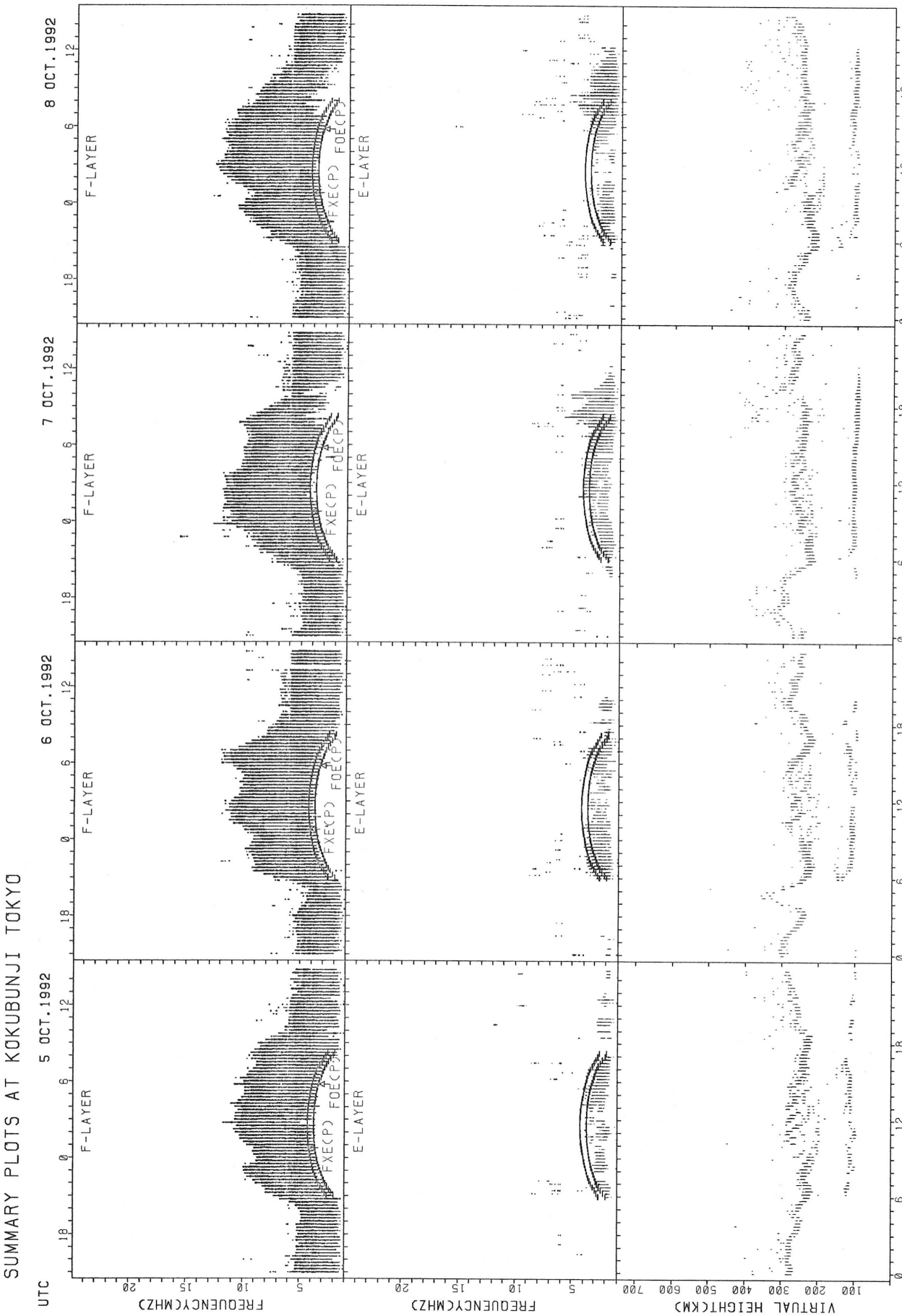
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FOE(P)
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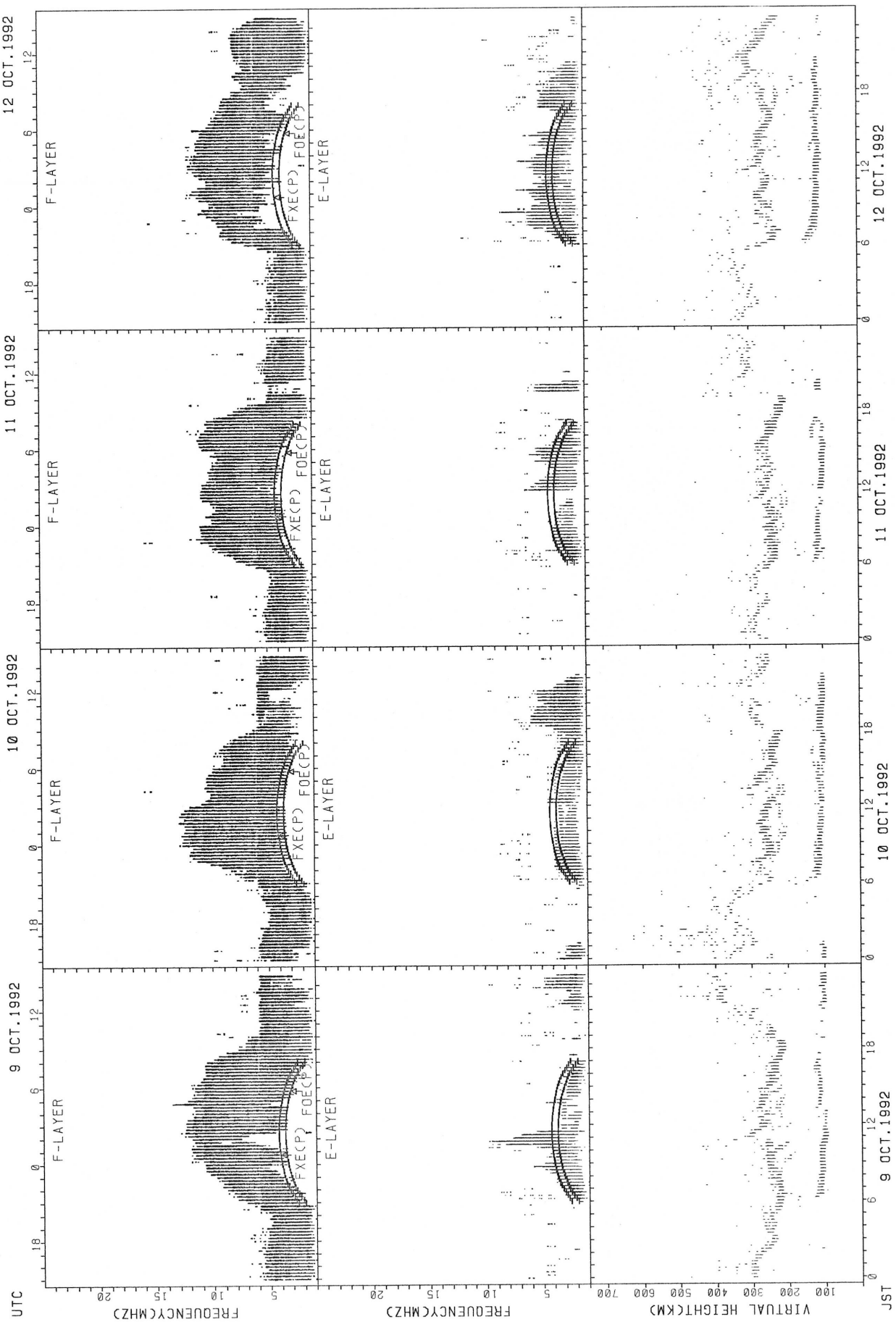
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11 OCT.1992
12 OCT.1992
F-LAYER
E-LAYER
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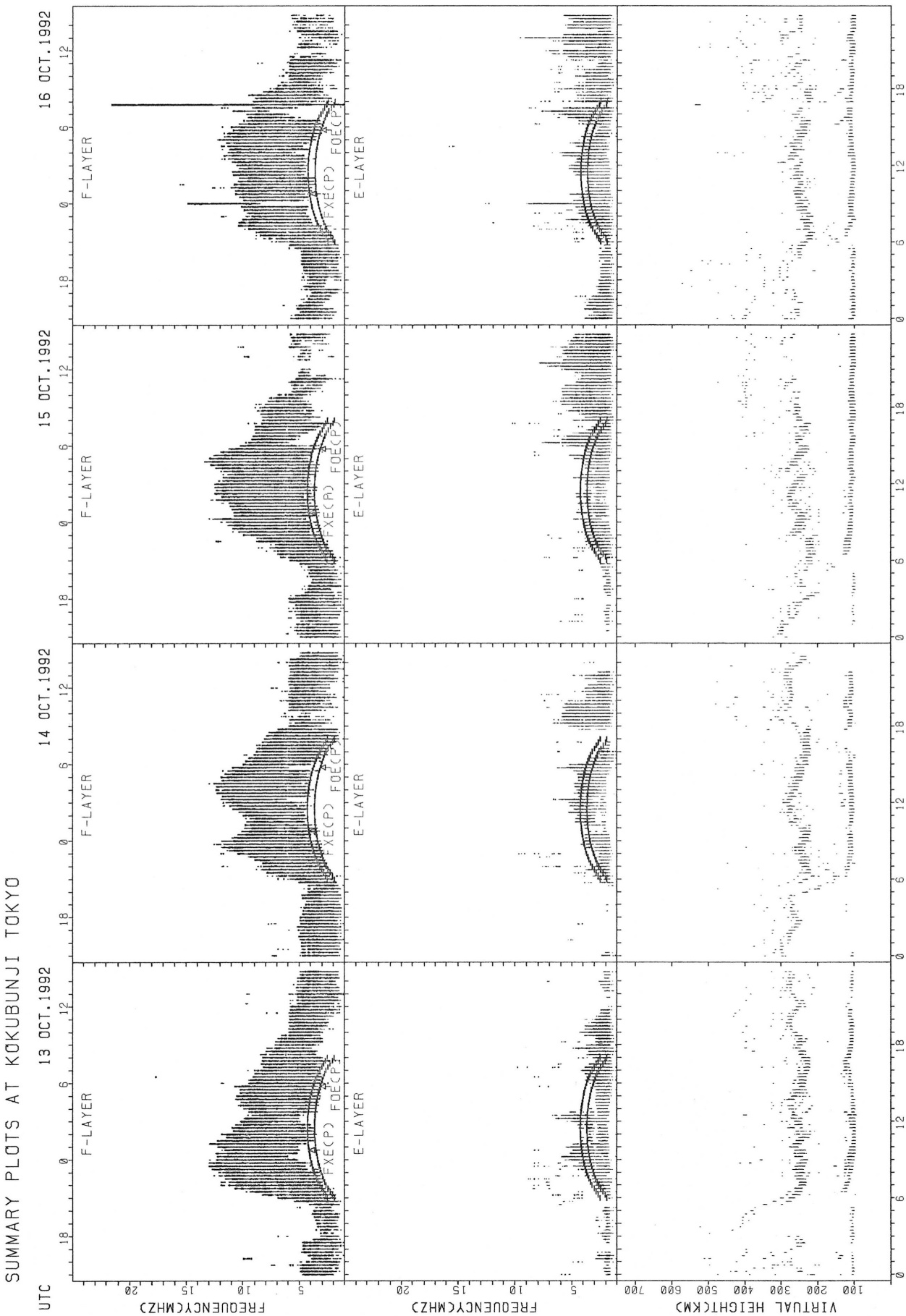
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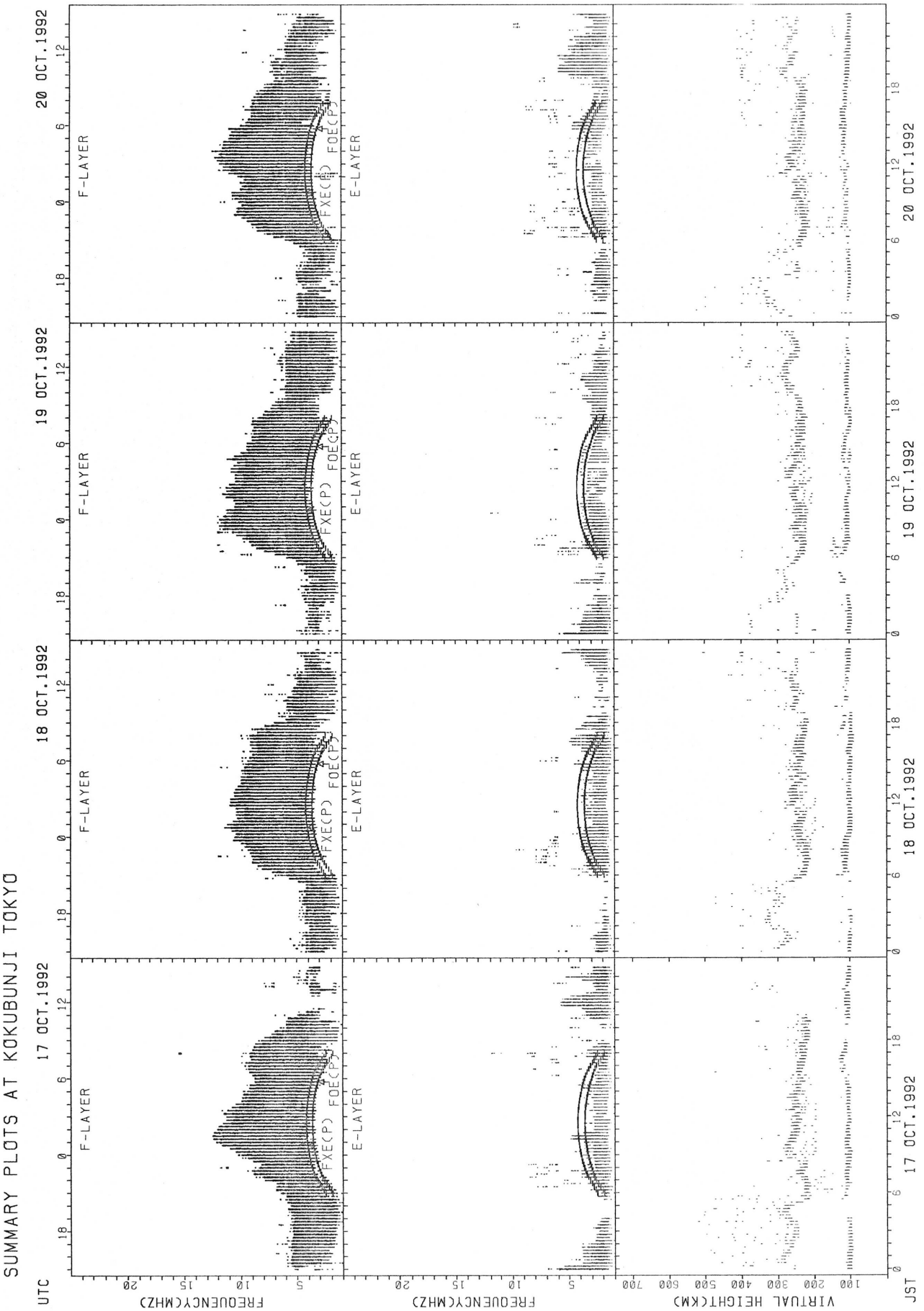
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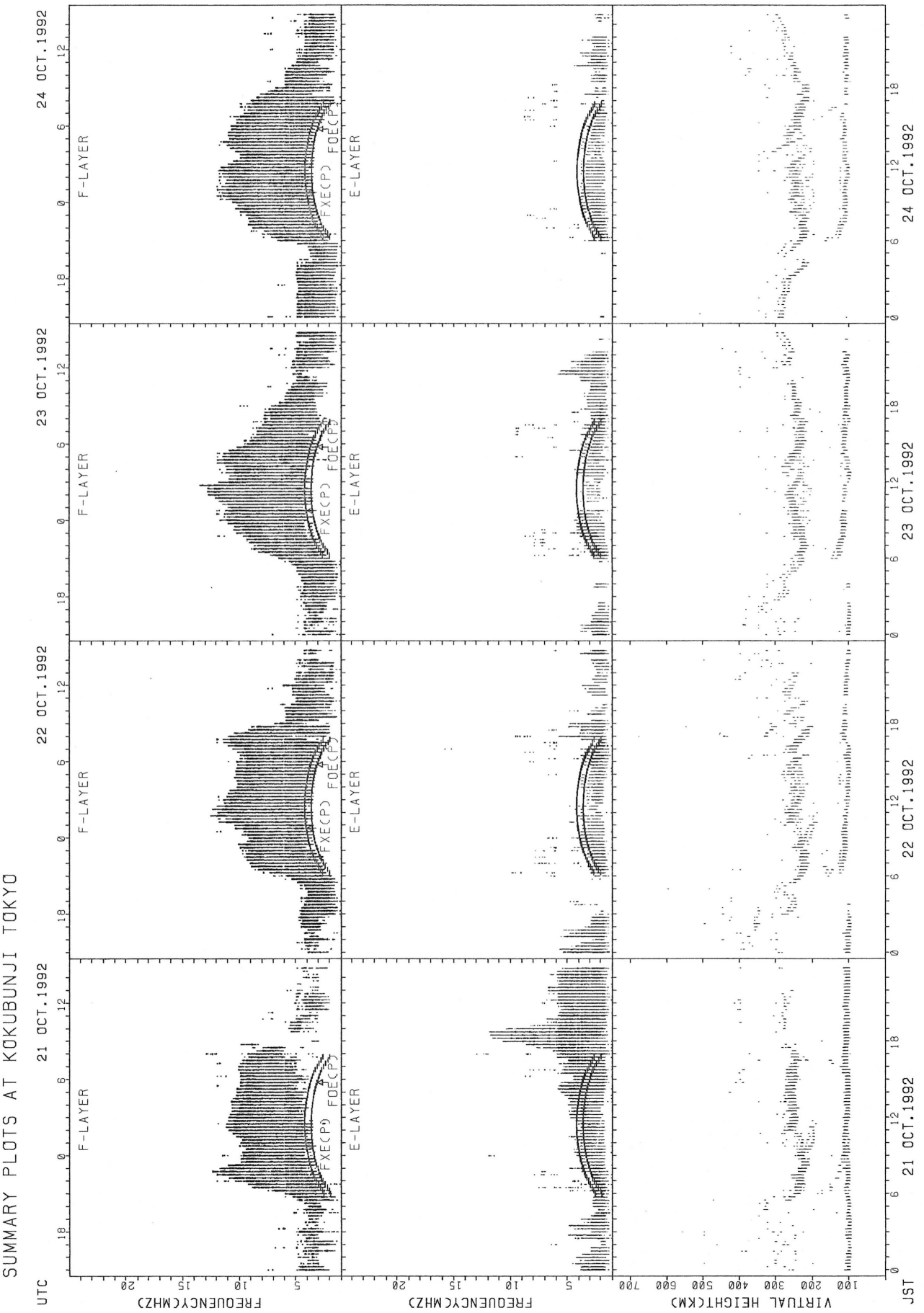
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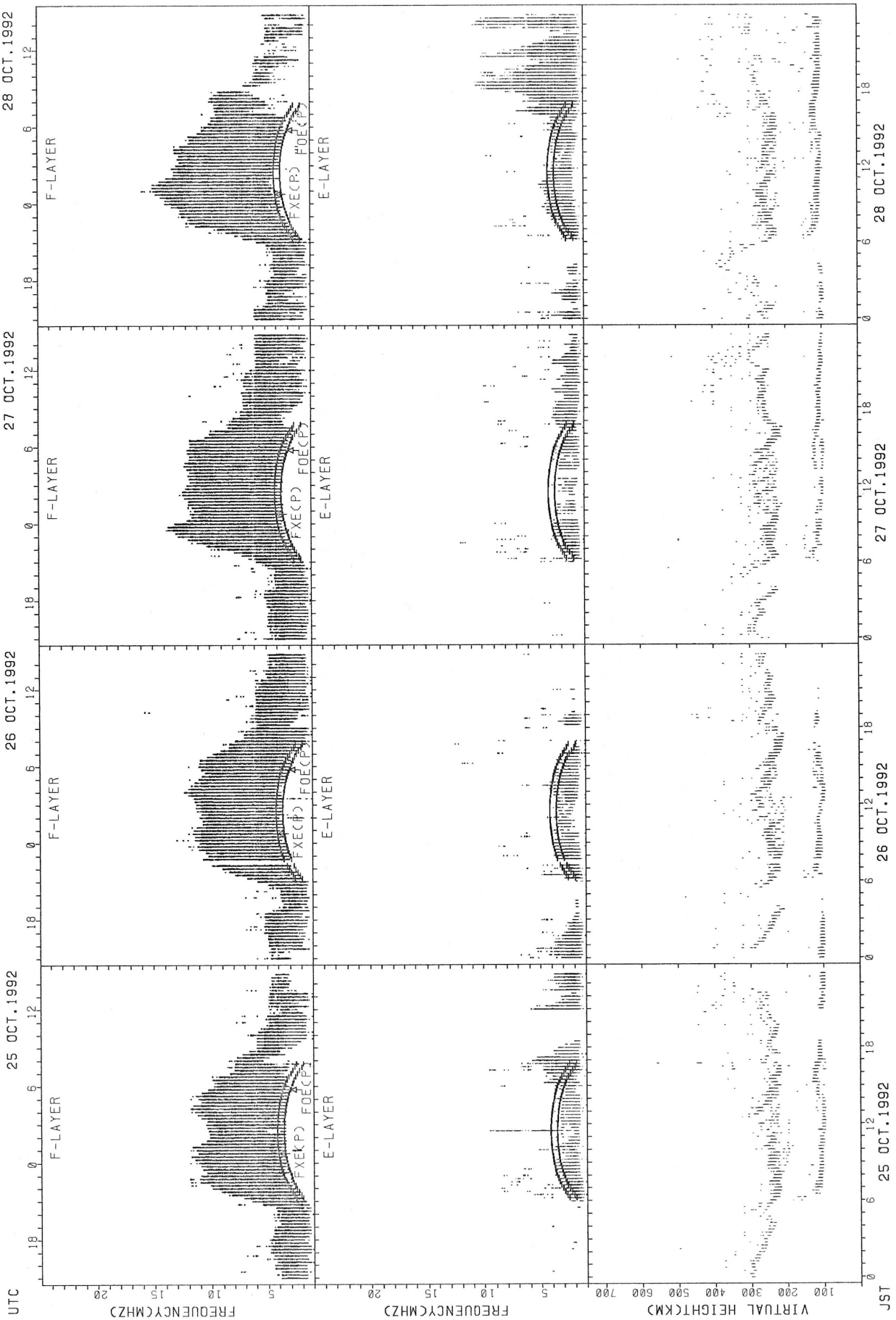
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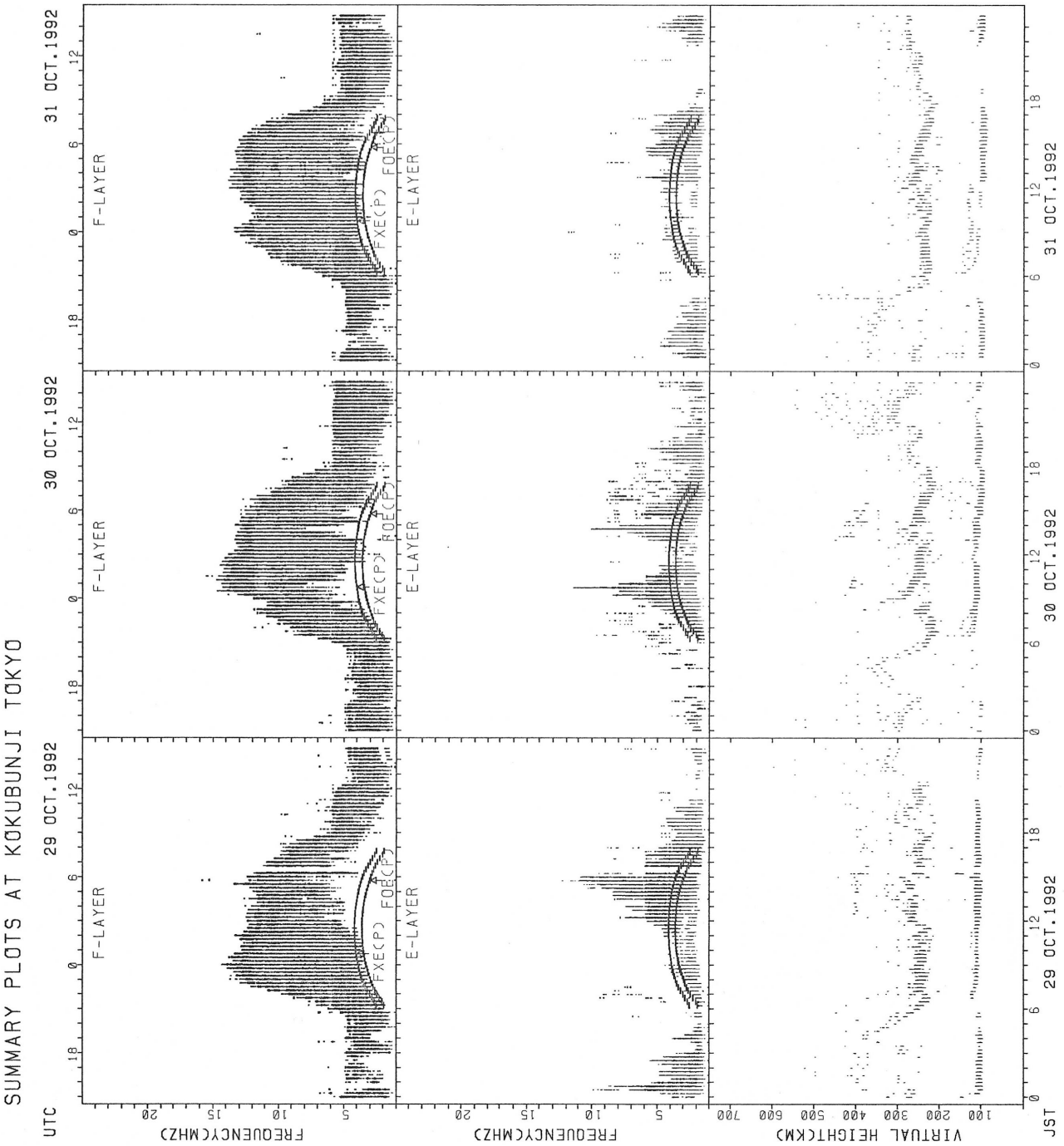
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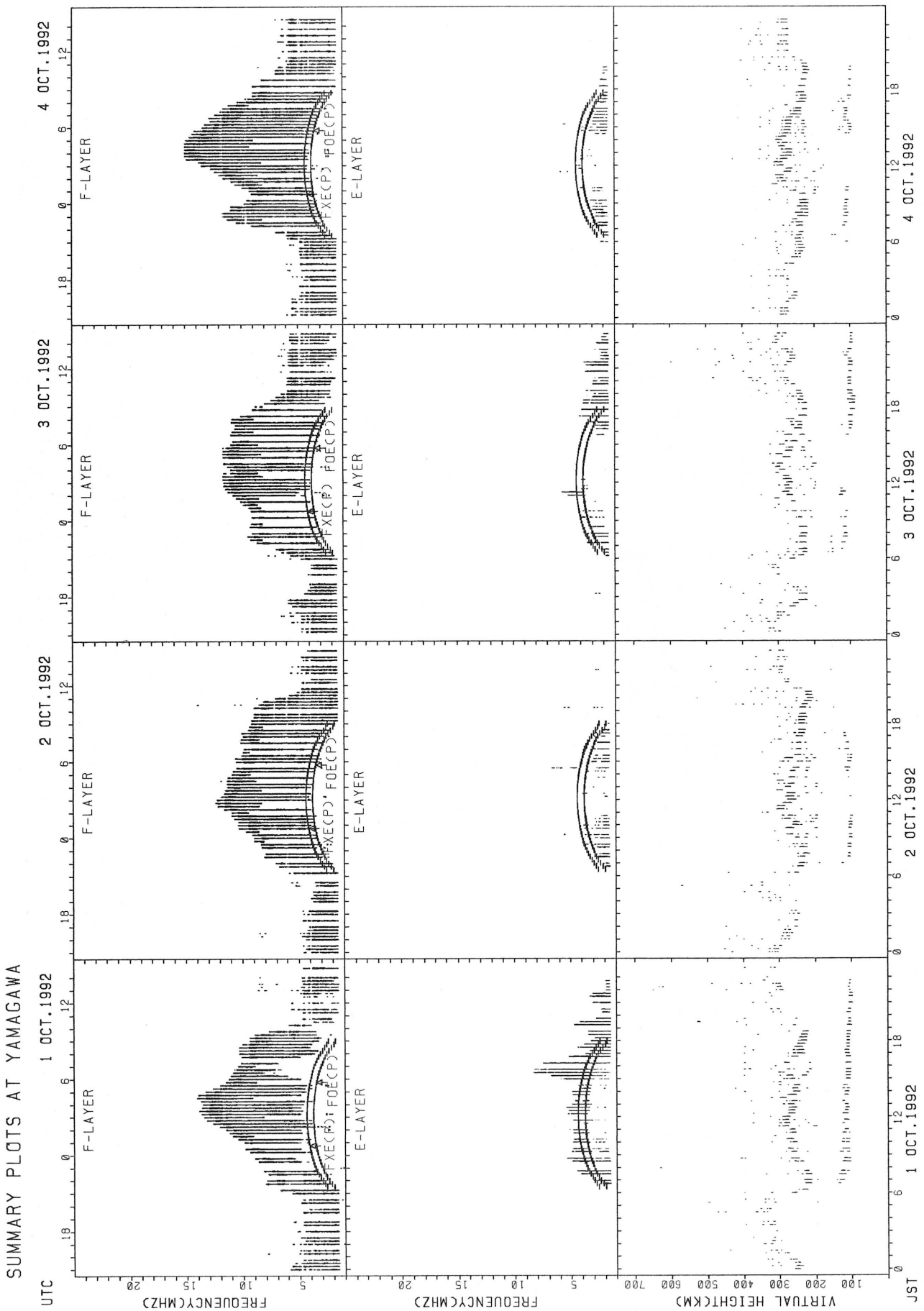
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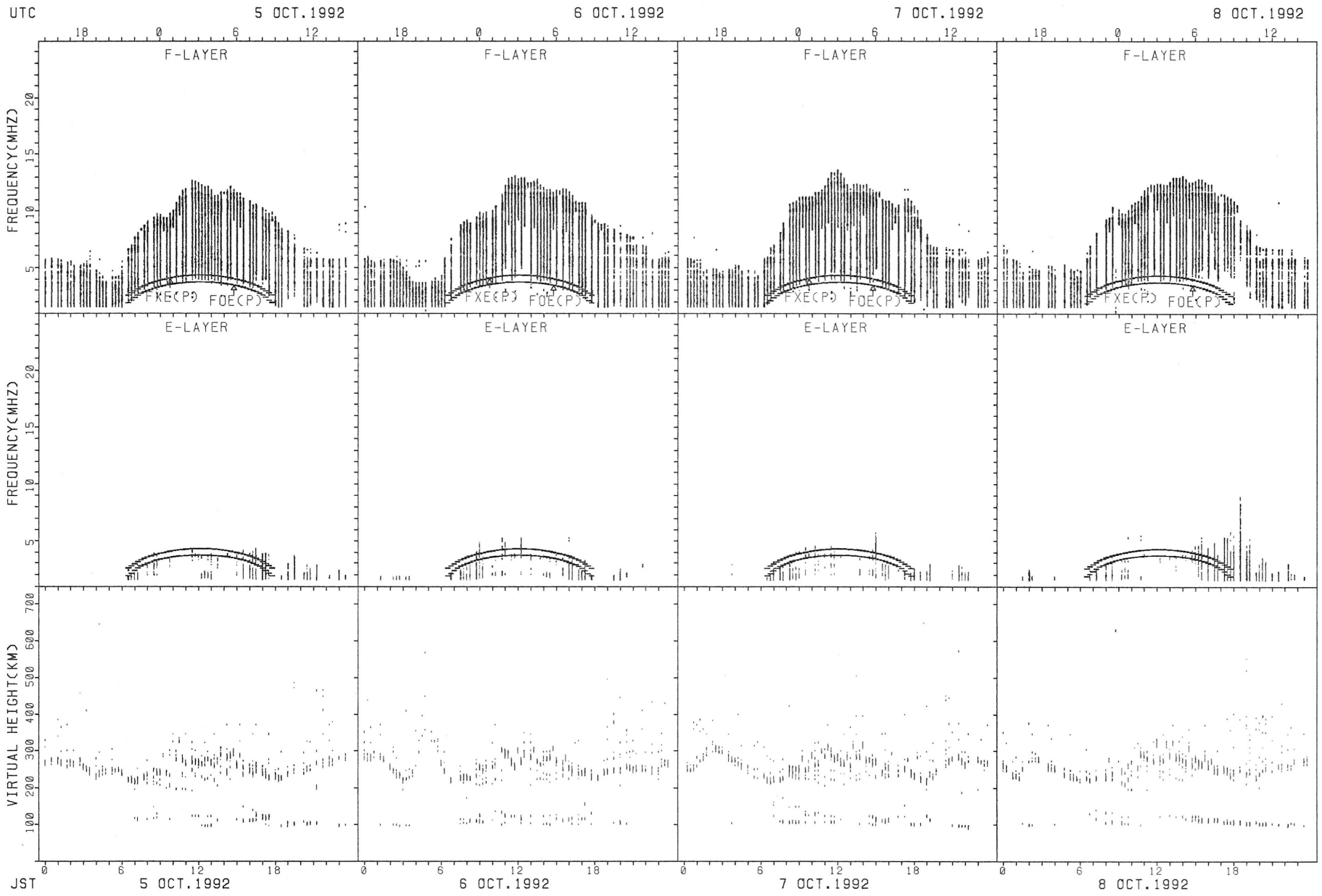
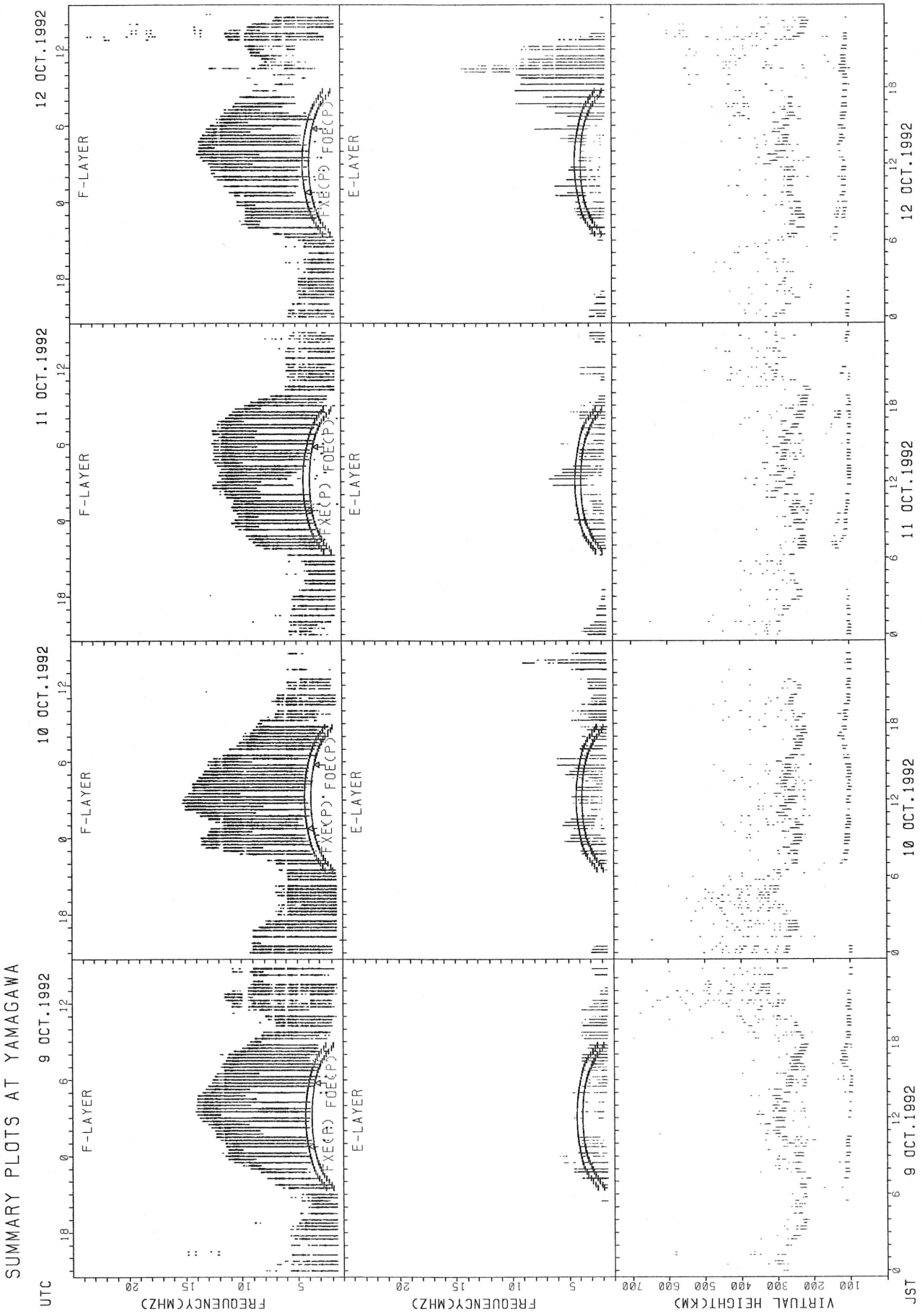
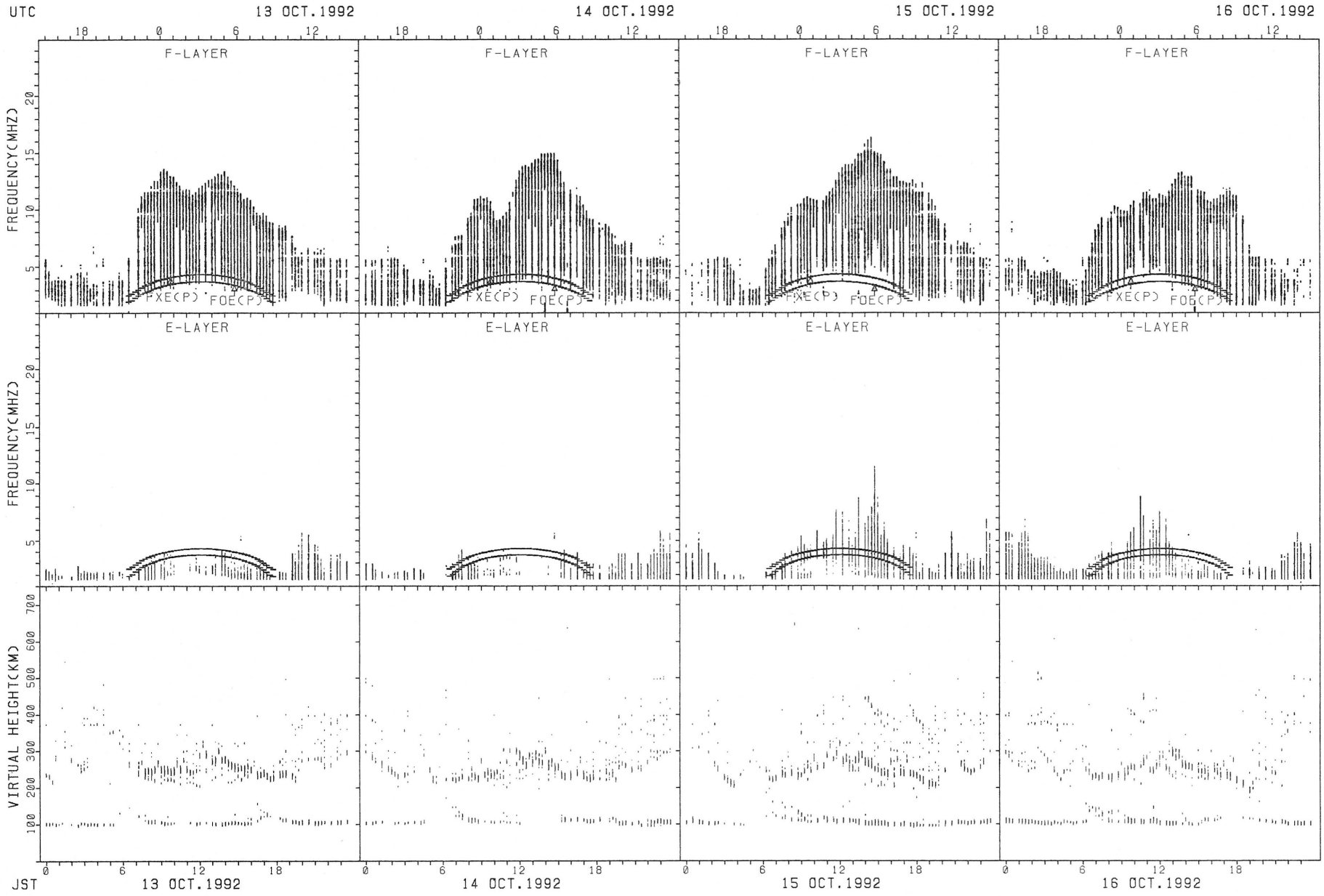


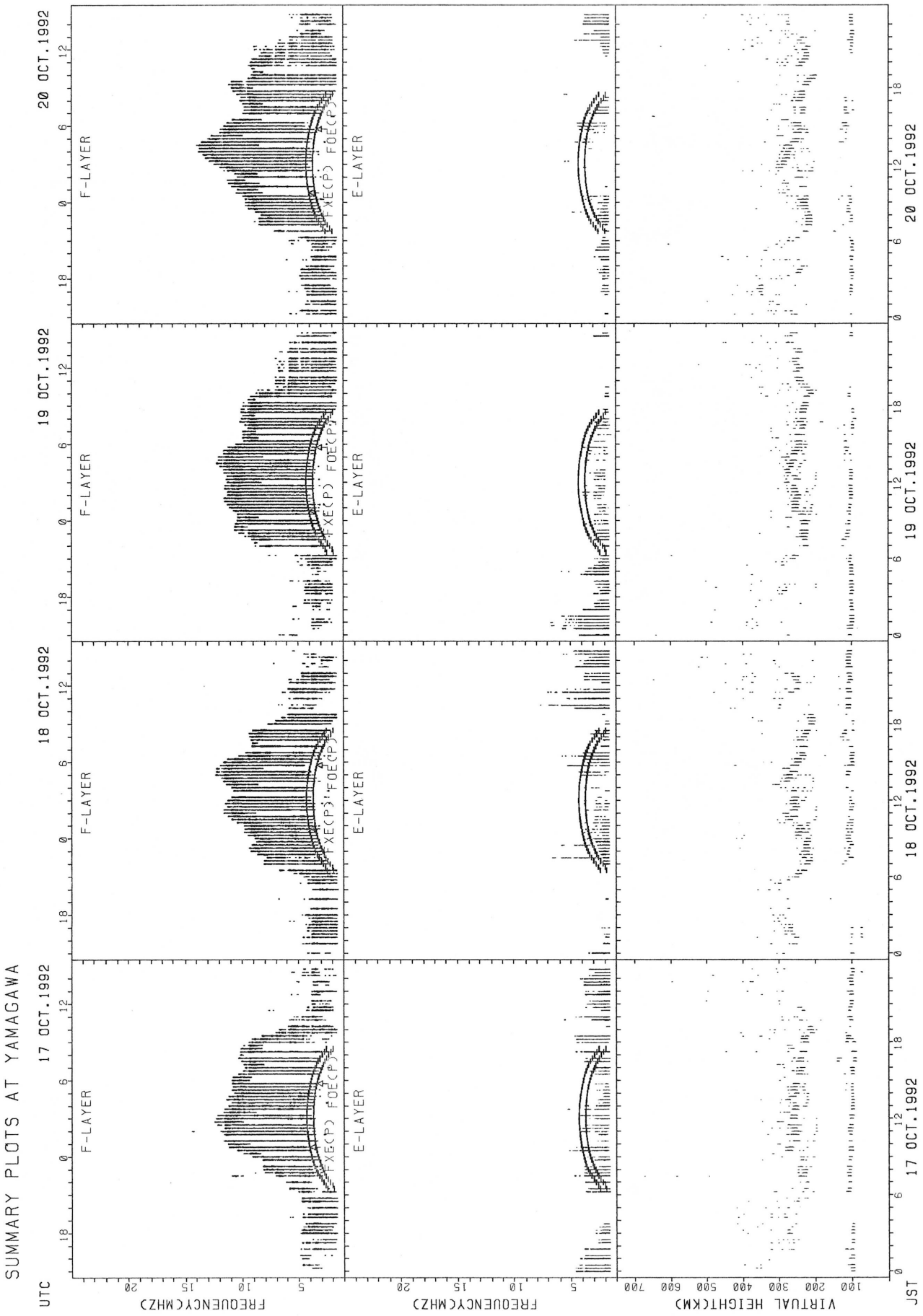
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

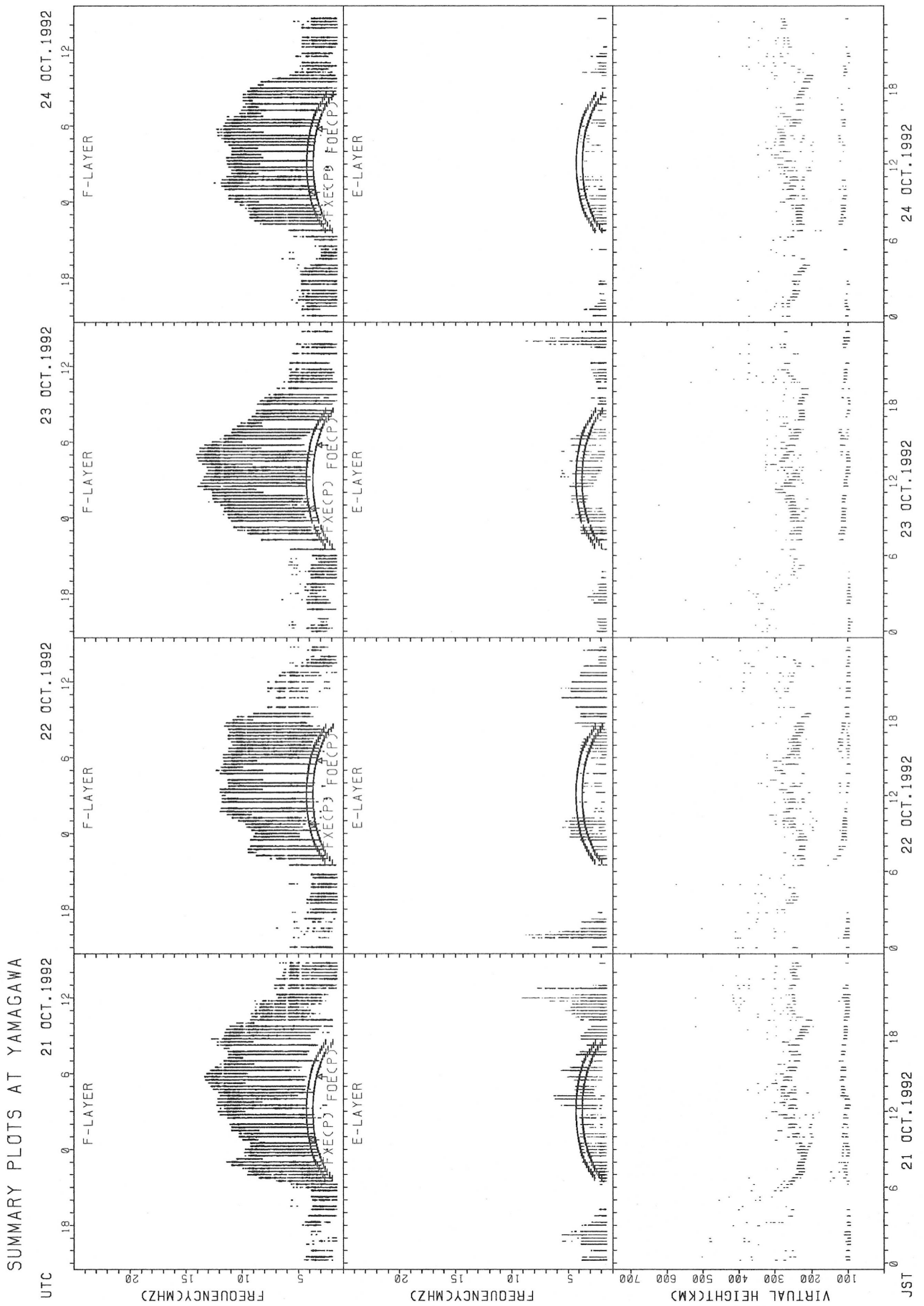

SUMMARY PLOTS AT YAMAGAWA
UTC
9 OCT.1992
10 OCT.1992
11 OCT.1992
12 OCT.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

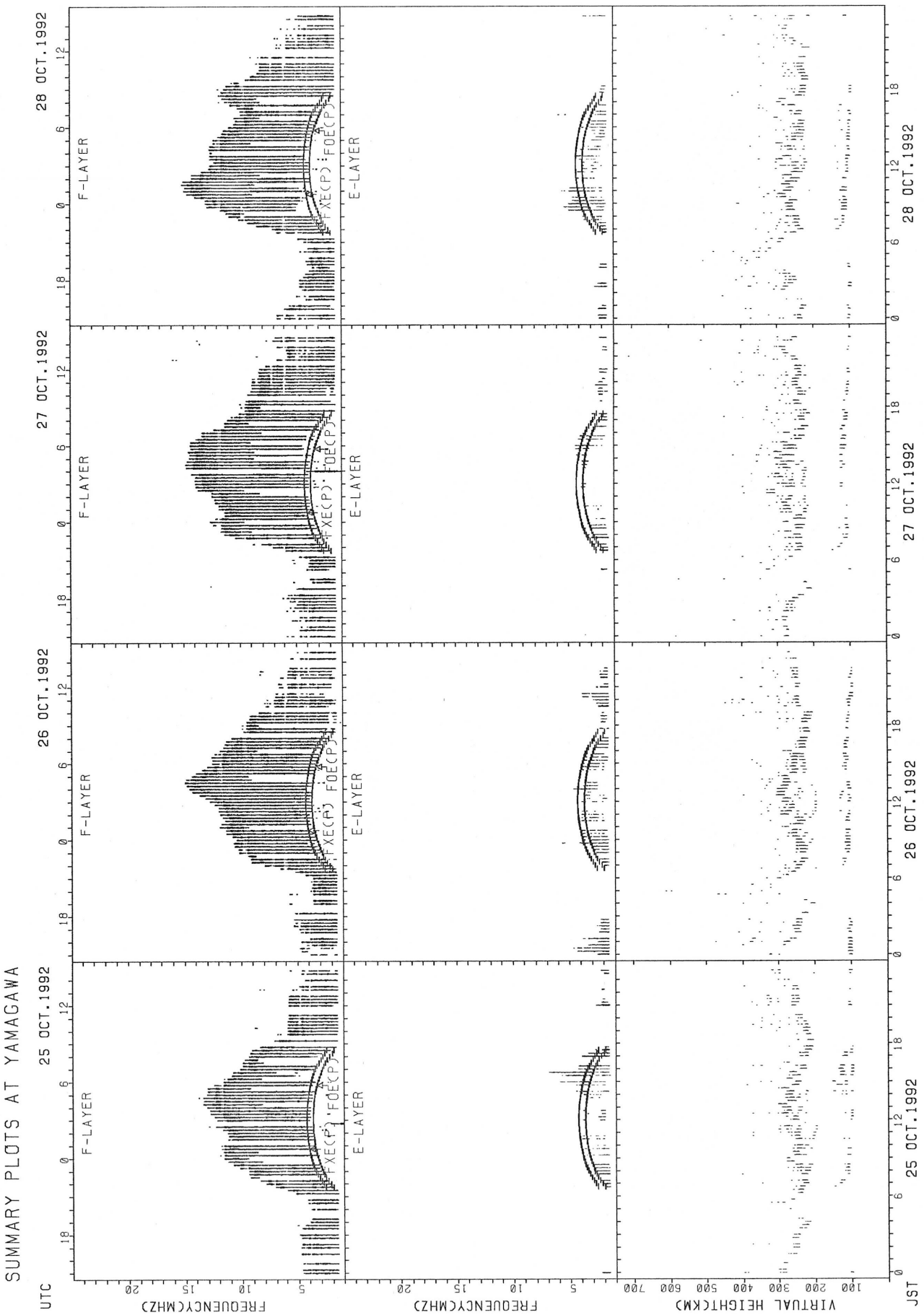
SUMMARY PLOTS AT YAMAGAWA

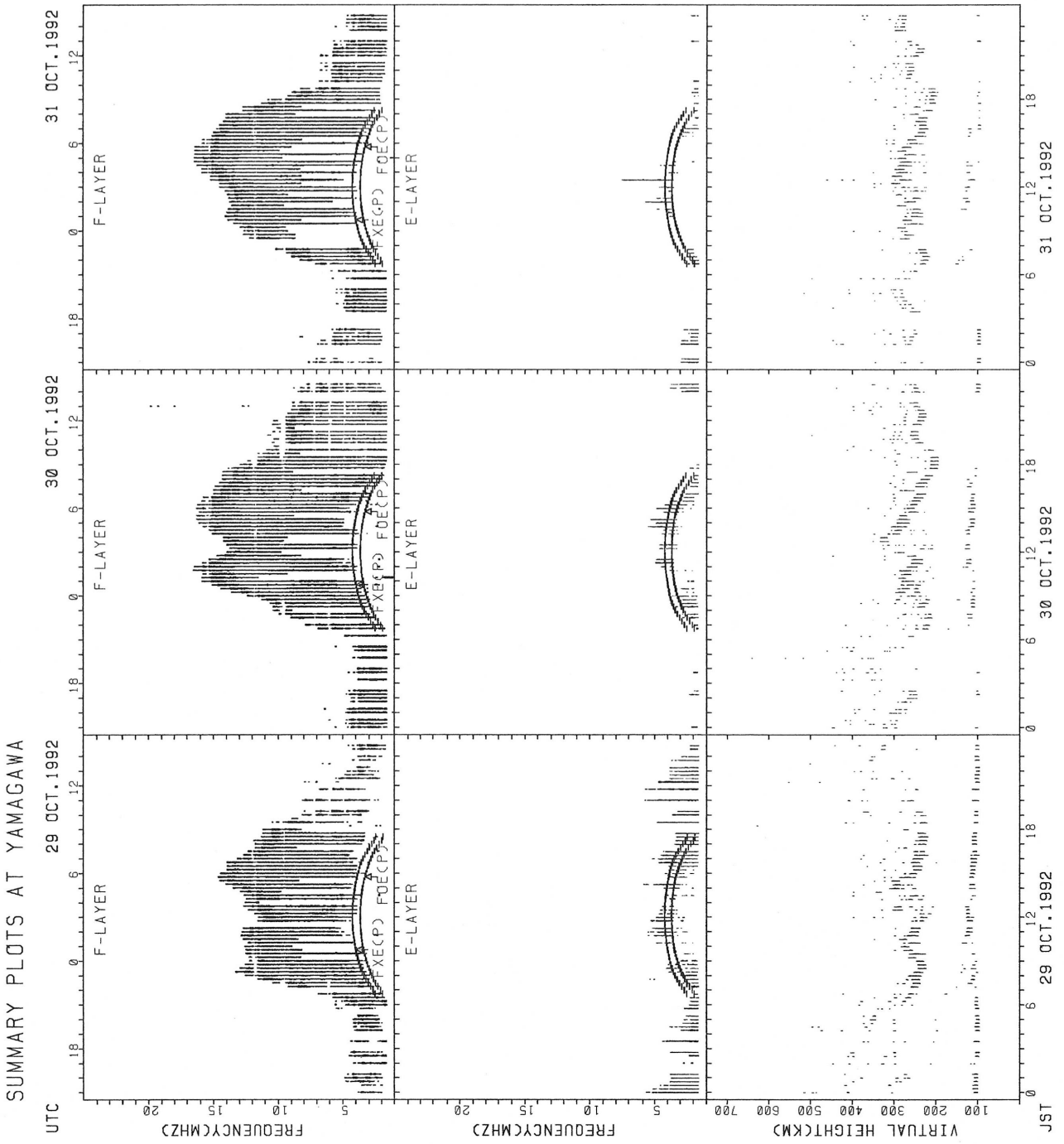


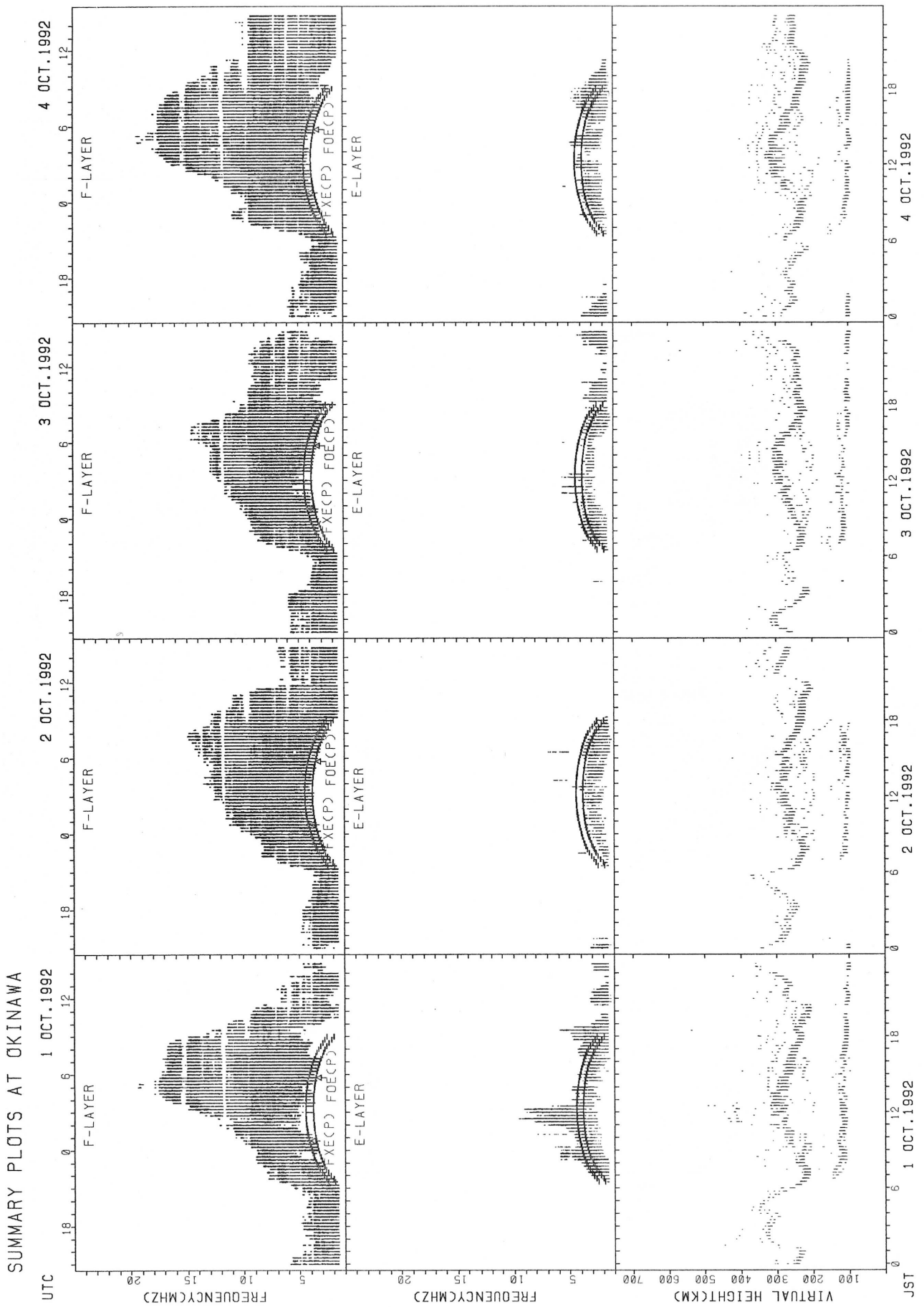
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE


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

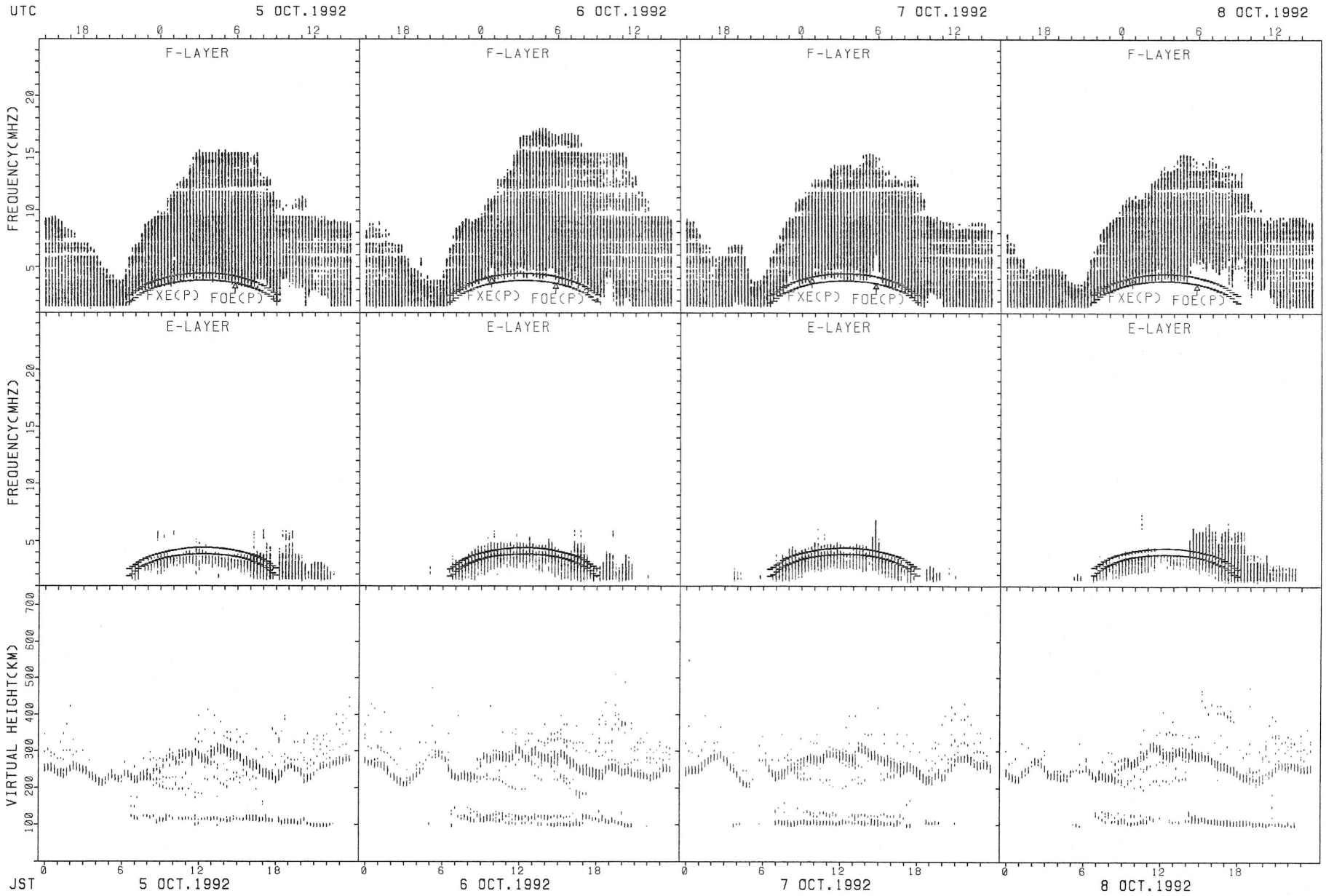

SUMMARY PLOTS AT YAMAGAWA
UTC
JST
21 OCT.1992
22 OCT.1992
23 OCT.1992
24 OCT.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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

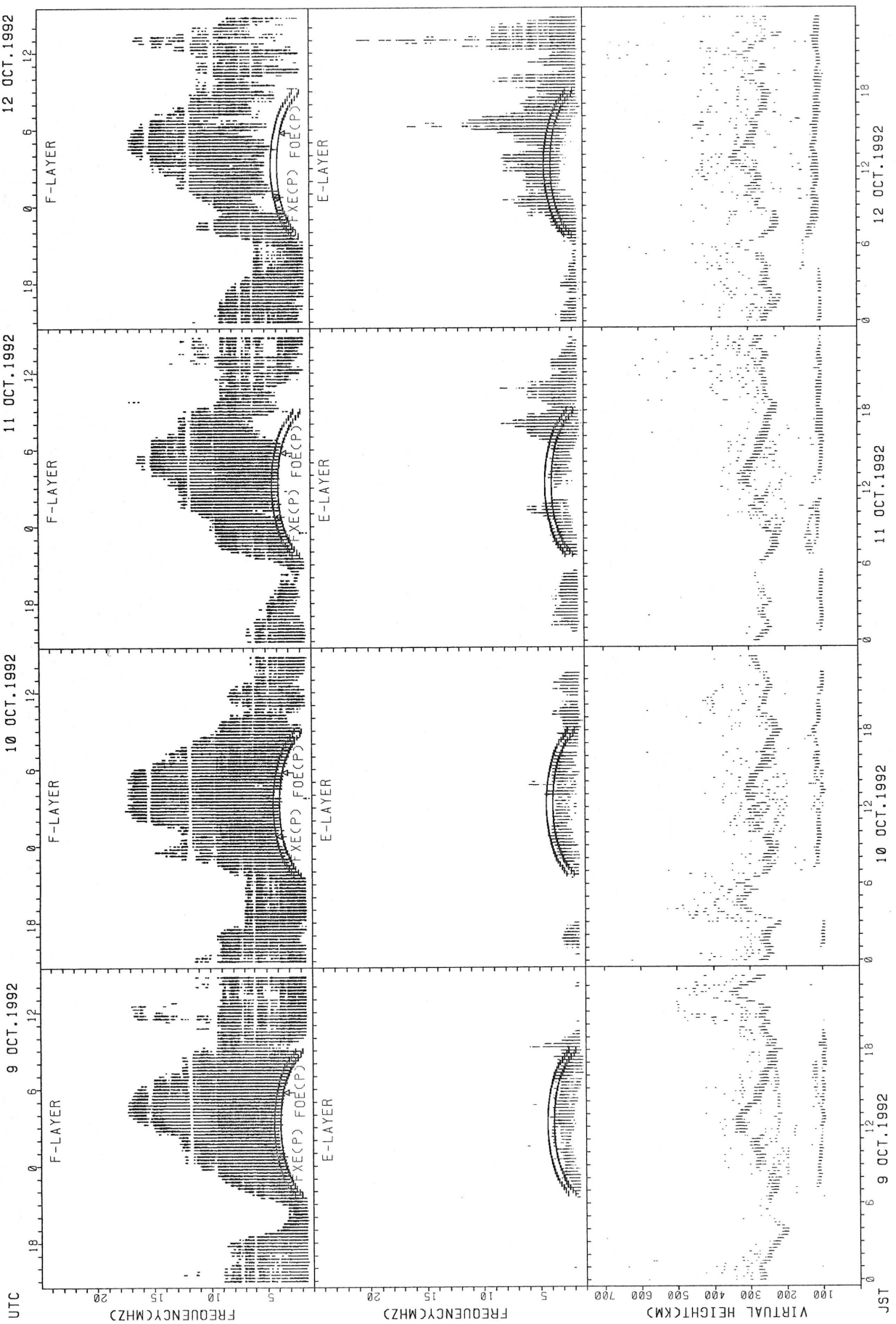

SUMMARY PLOTS AT YAMAGAWA
UTC
29 OCT.1992
30 OCT.1992
31 OCT.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

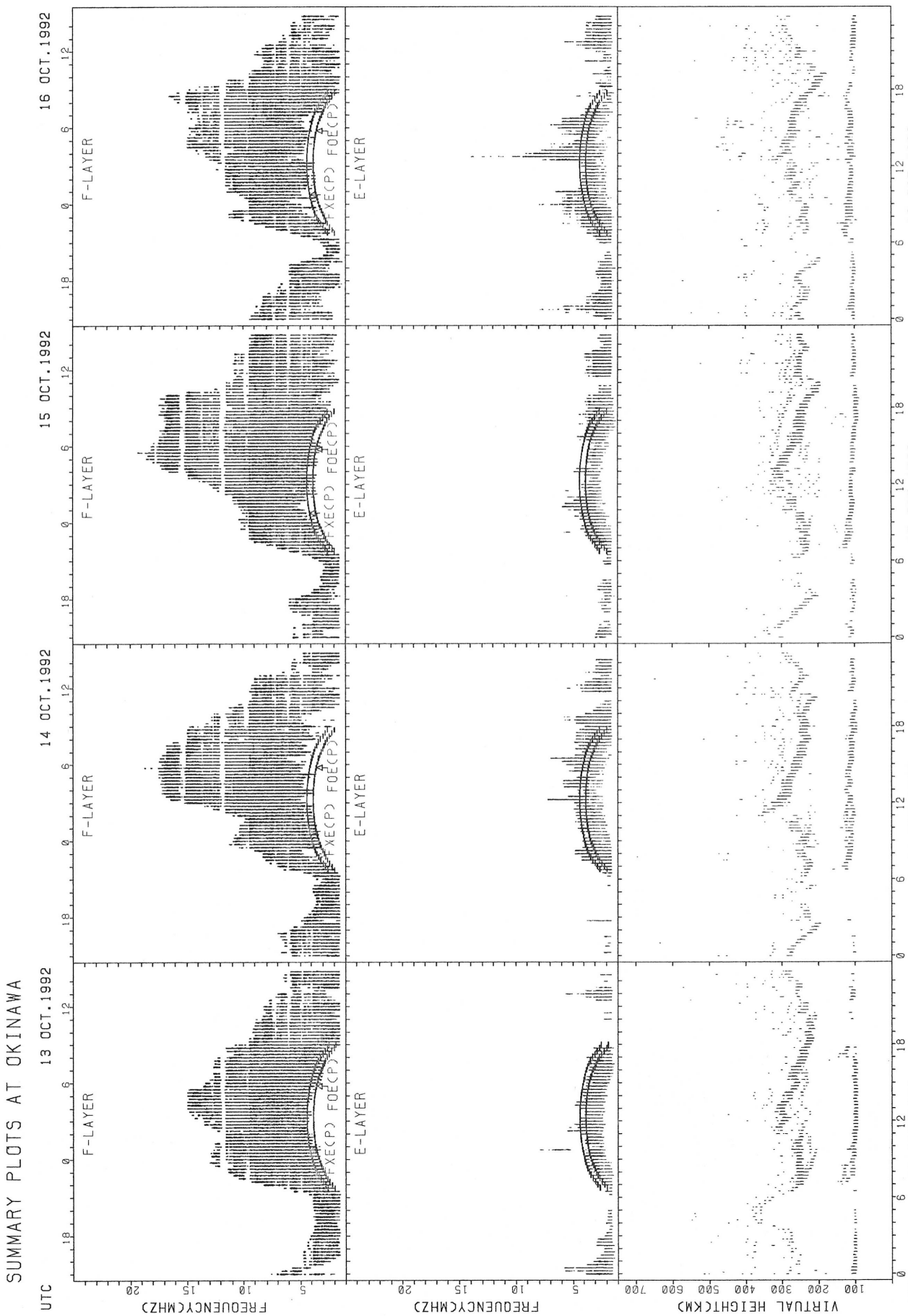

SUMMARY PLOTS AT OKINAWA
1 OCT.1992
2 OCT.1992
3 OCT.1992
4 OCT.1992
UTC
JST
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

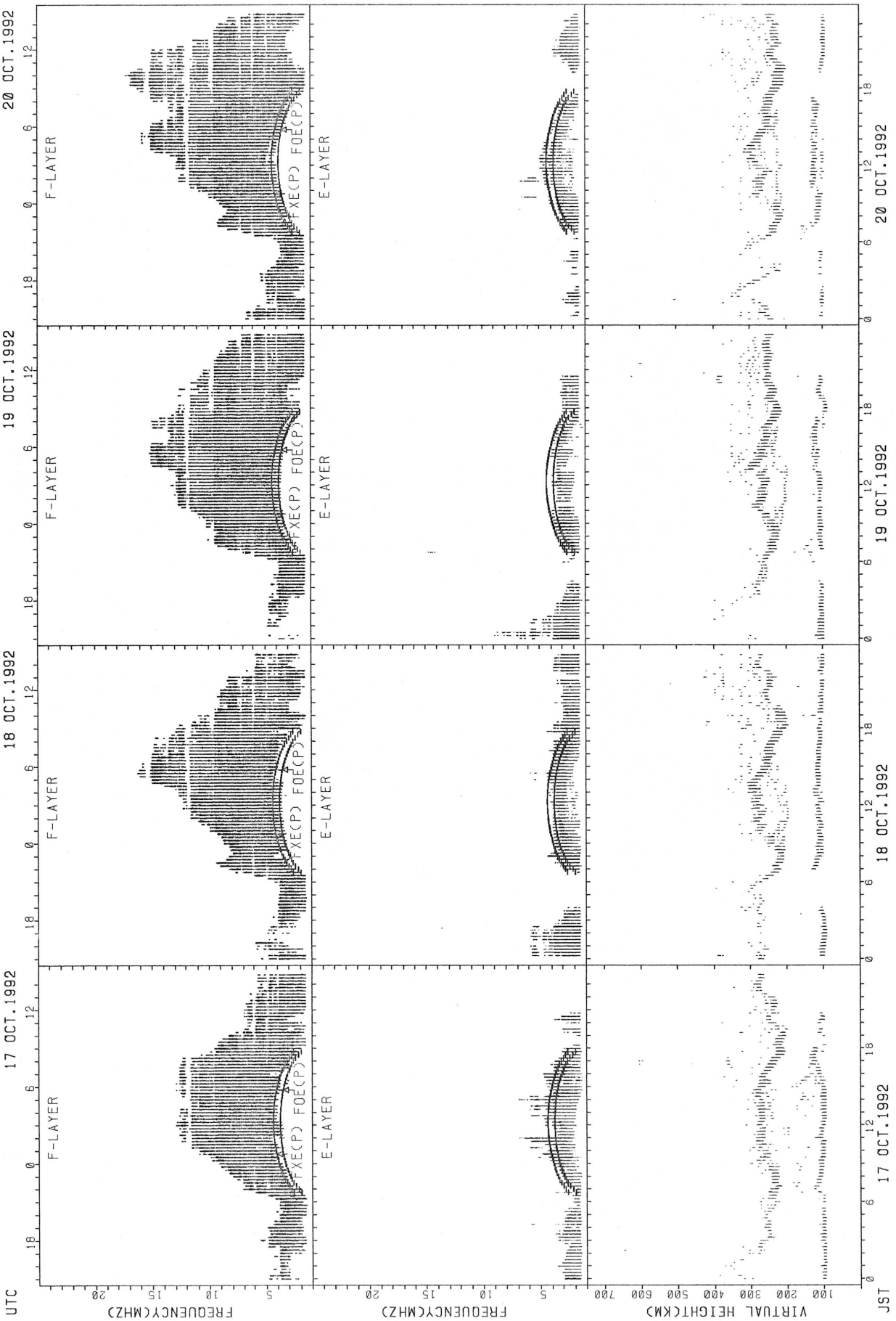
SUMMARY PLOTS AT OKINAWA

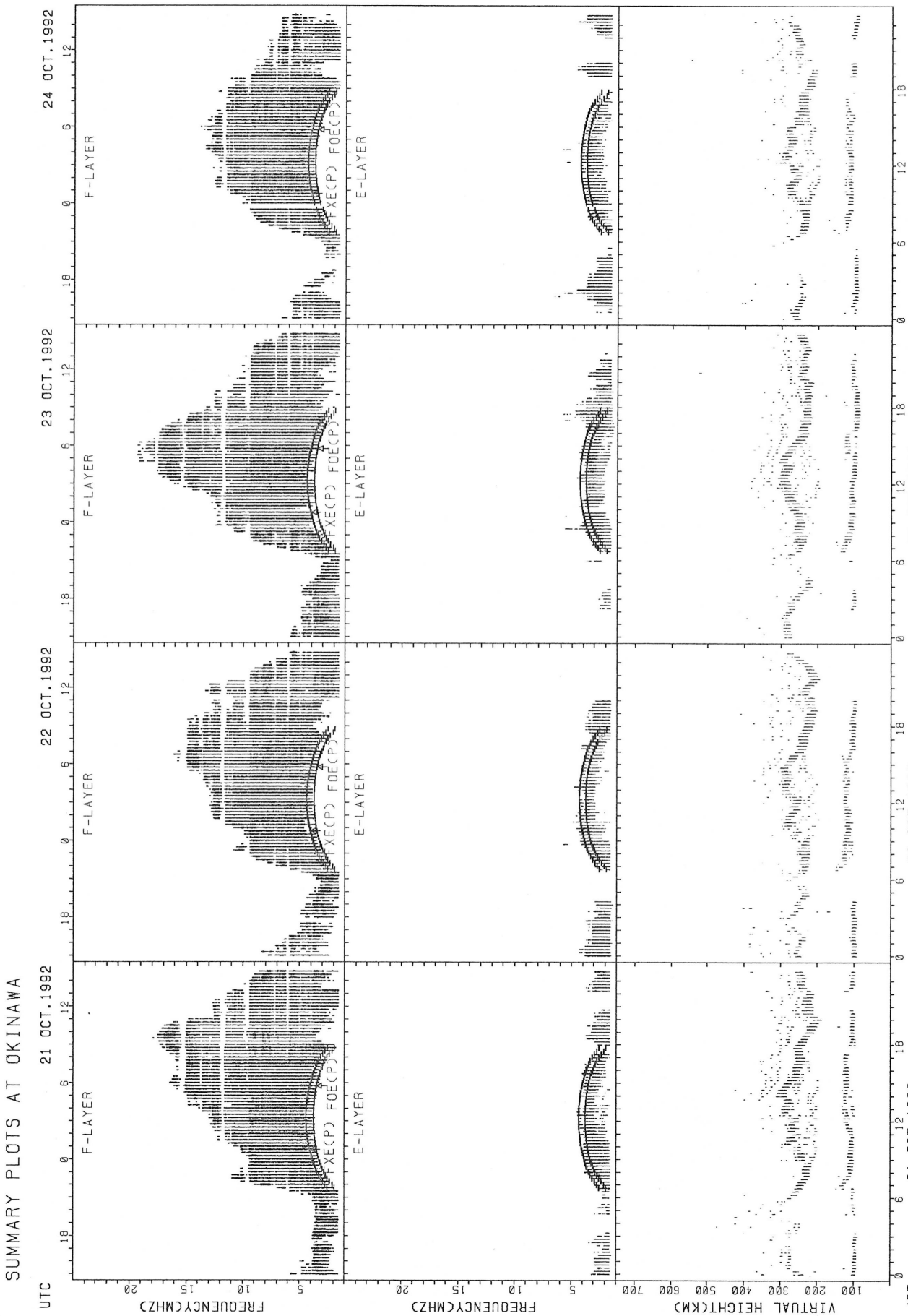


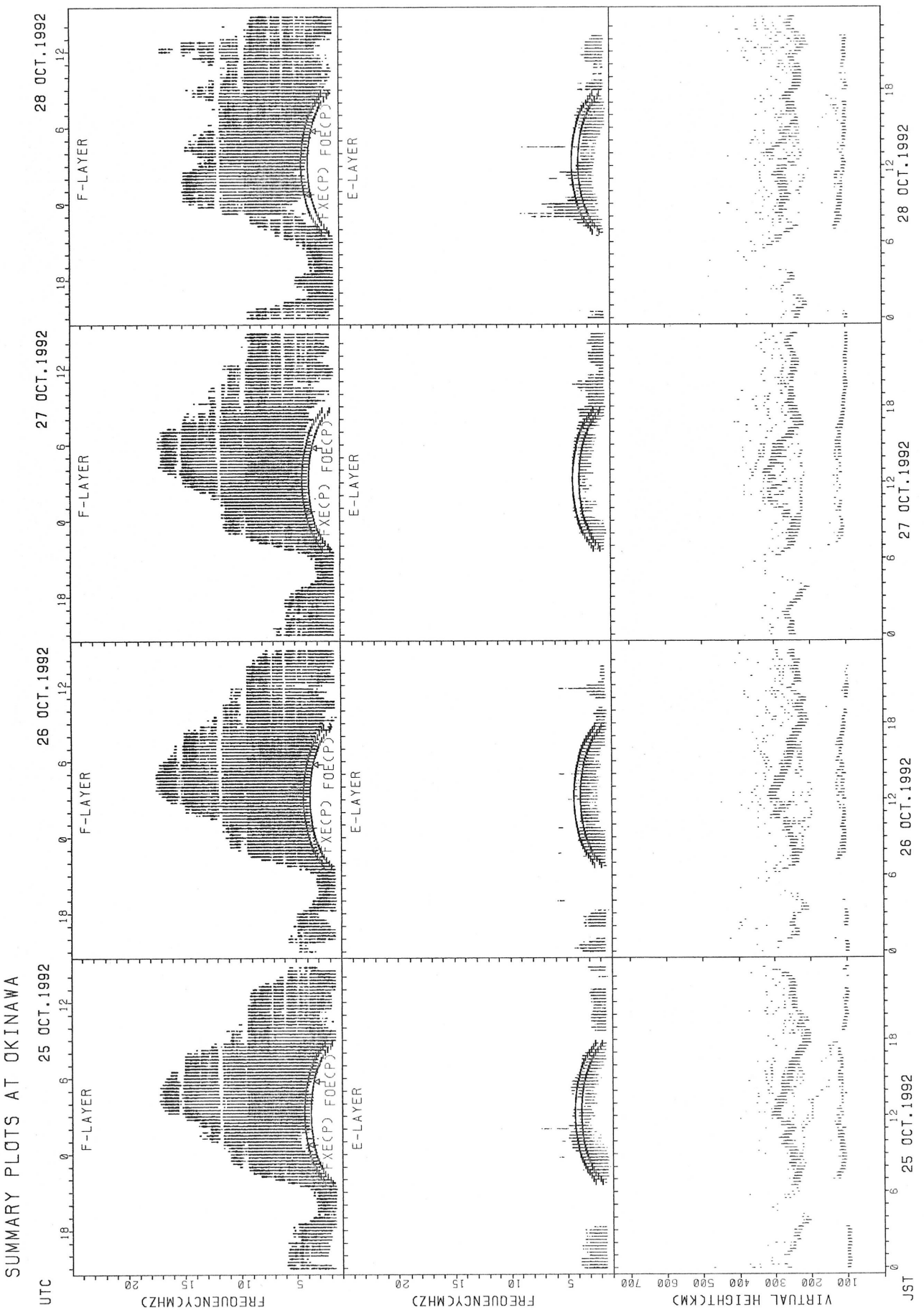
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

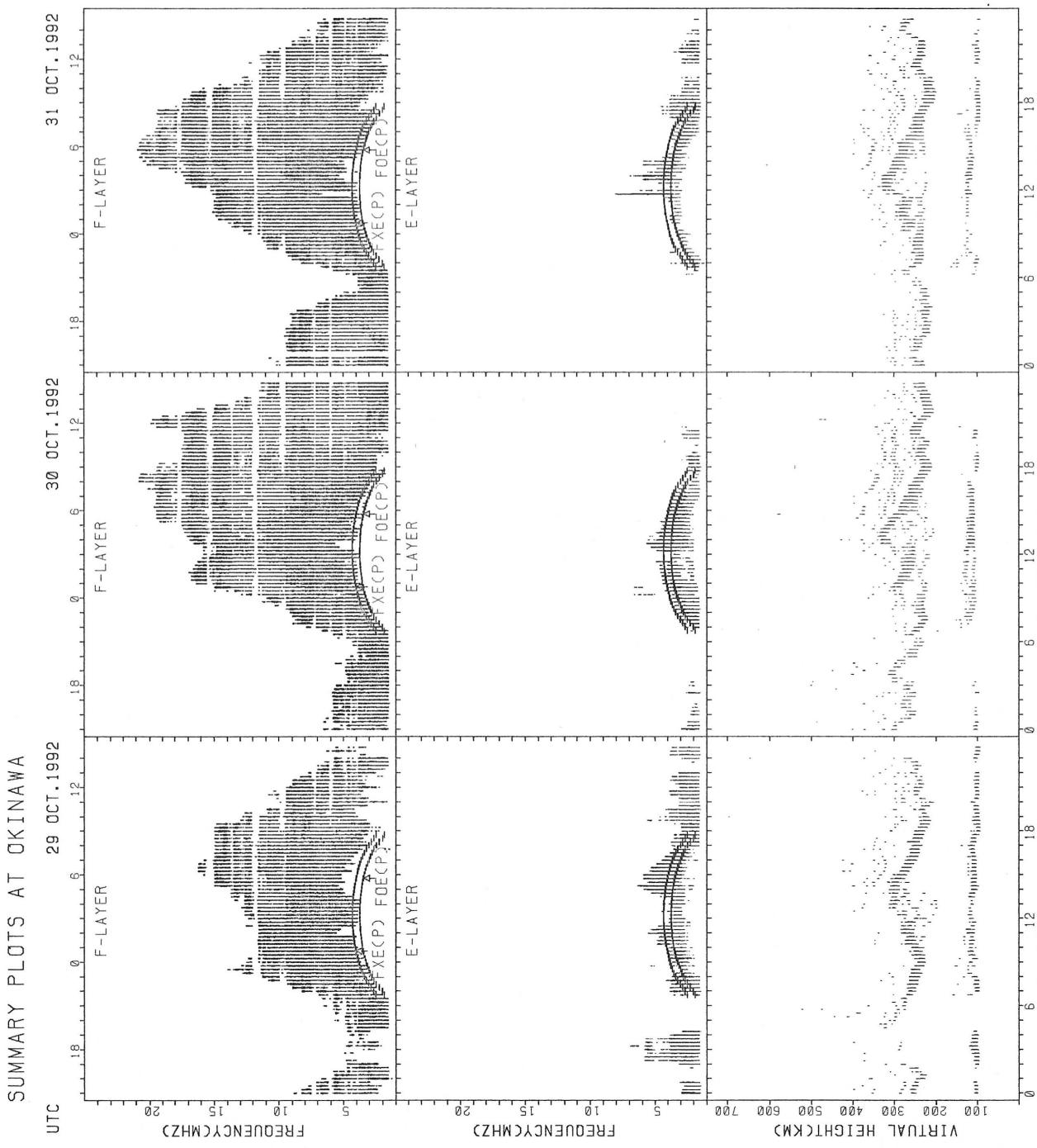

SUMMARY PLOTS AT OKINAWA
9 OCT.1992
10 OCT.1992
11 OCT.1992
12 OCT.1992
UTC
JST
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT OKINAWA
UTC
13 OCT.1992
14 OCT.1992
15 OCT.1992
16 OCT.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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


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


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


SUMMARY PLOTS AT OKINAWA
UTC
29 OCT.1992
30 OCT.1992
31 OCT.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

MONTHLY MEDIANS OF H'F AND H'ES

OCT.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								25	28	30	19	11	13	22	31	31	30	19						
MED								248	239	243	242	240	244	246	256	250	248	256						
U Q								258	248	254	252	252	255	252	272	256	254	284						
L Q								236	230	232	238	234	241	238	246	238	240	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	13	18	21	18	15	15		10	13	11		10				15	16	19	24	21	20	16	18	18
MED	111	110	109	110	107	105		121	119	115		110				107	108	111	107	109	111	111	111	109
U Q	114	113	120	113	113	117		127	123	119		113				109	117	121	110	116	114	118	117	113
L Q	105	105	106	105	103	103		117	113	111		109				103	106	107	105	106	108	109	109	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								27	30	29	14			16	28	30	30	28	11					
MED								242	241	240	241			252	255	257	247	255	266					
U Q								266	250	258	250			261	265	262	256	265	294					
L Q								232	234	233	236			247	245	248	240	248	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	18	15	17	11	15	13	13	14	19	25	16	16	13	14	15	18	19	25	21	24	23	20	16	20
MED	106	105	105	103	105	107	119	118	117	117	110	107	111	114	111	111	121	115	113	110	111	111	109	105
U Q	113	111	121	137	113	137	148	131	119	119	117	113	113	123	145	139	151	122	123	114	167	117	116	119
L Q	103	101	100	103	99	104	106	99	113	111	106	104	105	107	103	101	105	104	100	107	109	108	105	103

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								30	31	30	11			11	31	31	30	30	10					
MED								241	238	242	244			258	258	250	244	244	263					
U Q								252	250	252	252			274	266	256	252	254	268					
L Q								230	232	234	238			252	252	242	240	238	256					

H'ES

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	12	11	10	10		13	13	18	16	12	13	10	11	12	16	22	22	21	22	24	21	21	15
MED	105	102	101	103	103		155	121	116	113	113	111	109	107	111	116	116	110	109	110	109	109	105	105
U Q	107	105	105	105	107		161	134	123	117	115	120	119	115	114	123	125	113	113	115	109	110	109	107
L Q	103	101	101	103	101		139	112	113	111	111	108	107	103	106	105	111	101	107	107	106	107	105	103

MONTHLY MEDIANS OF H'F AND H'ES

OCT. 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								17	24	28	21				17	30	26	25	20	13				
MED								244	235	244	254				270	258	248	242	242	268				
U Q								249	247	266	269				278	270	256	248	249	274				
L Q								232	230	238	243				254	248	240	235	235	250				

H'ES

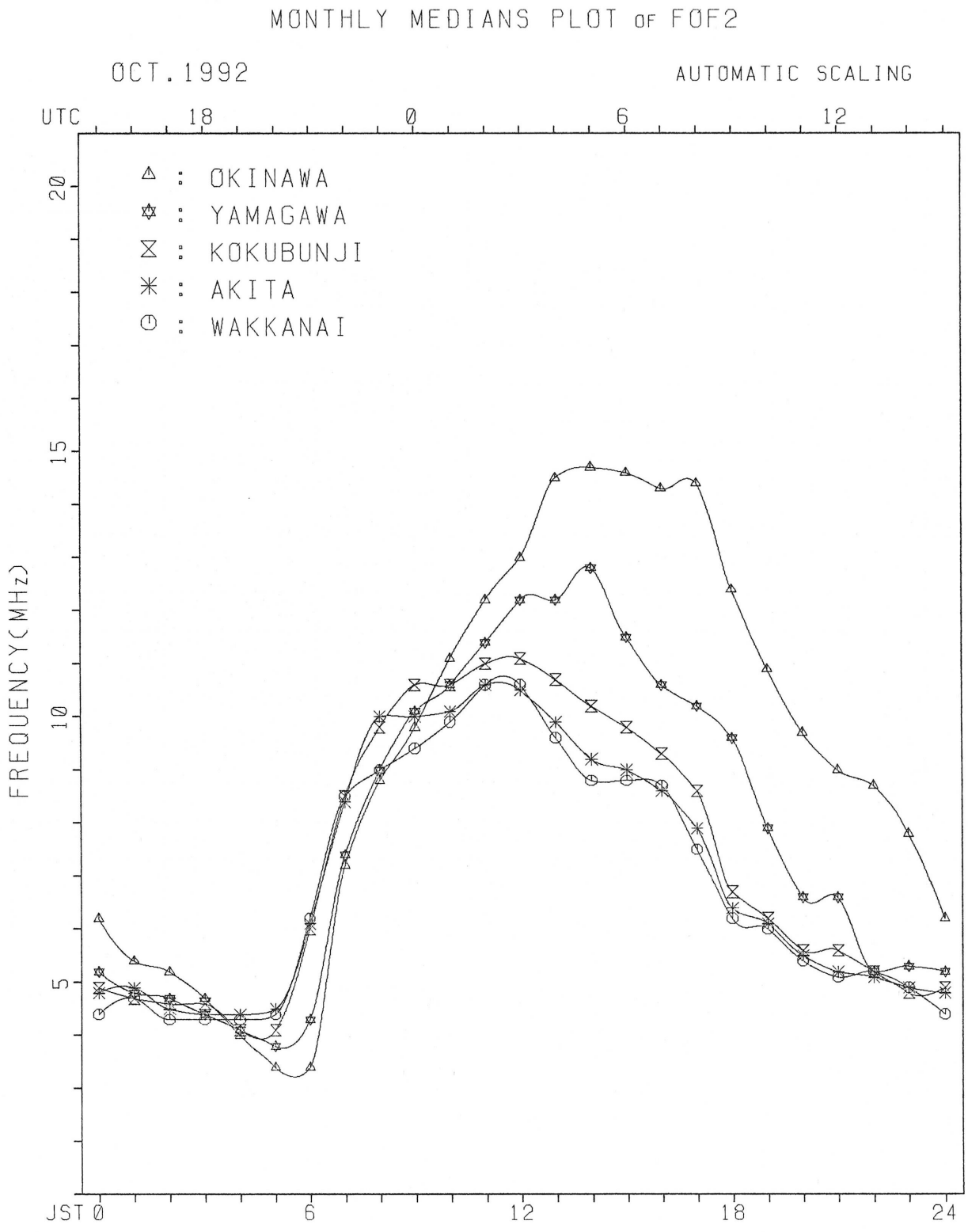
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	12	10						11	11		10				11	11	13		13	16	14	11	15
MED	105	105	103						117	119		117				115	117	117		107	106	106	103	103
U Q	105	108	109						127	125		123				119	131	127		112	110	107	105	107
L Q	101	102	101						111	111		113				111	109	110		101	104	103	101	101

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10							21	31	30	27					31	31	31	31	30	26	23	21	15
MED	283							250	246	248	272					266	254	240	234	244	260	268	270	306
U Q	290							268	256	268	280					276	260	246	240	260	272	284	303	322
L Q	274							243	230	240	262					258	250	232	228	234	250	250	247	268

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	15	14	15	16	12			26	22	19	15	17	12	16	20	17	20	23	24	25	21	17	18	13
MED	103	103	103	103	105			143	119	119	119	117	118	117	116	117	119	113	108	107	107	105	104	105
U Q	105	107	103	107	109			151	131	125	125	122	123	121	119	122	125	125	121	109	109	106	107	110
L Q	101	101	99	101	102			131	113	113	113	113	113	108	113	112	111	107	102	102	103	101	101	103


MONTHLY MEDIANS PLOT OF FOF2
OCT. 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

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 54	X 50	X 49	X 45	X 43	X 44													X 77	X 54	X 54	X 55	X 54	X 50
2	X 51	X 52	X 47	X 39	X 38	X 38													X 78	X 68	X 63	X 56	X 53	X 53
3	X 52	X 51	X 54	X 45	X 47	X 46													X 70	X 61	X 57	X 58	X 58	X 58
4	X 55	X 57	X 54	X 50	X 51	X 50													X 69	X 57	X 55	X 55	X 58	X 57
5	X 57	X 55	X 53	X 54	X 51	X 51													X 85	X 65	X 64	X 60	X 56	X 56
6	X 55	X 54	X 56	X 55	X 47	X 46													X 75	X 67	X 68	X 68	X 68	X 62
7	X 59	X 53	X 52	X 52	X 50	X 54													X 80	X 67	X 71	X 68	X 65	X 63
8	X 63	X 56	X 54	X 54	X 57	X 56													X 87	X 77	X 68	X 66	X 62	X 60
9	X 58	X 56	X 57	X 54	X 53	X 51													X 82	X 69	X 63	X 64	X 59	X 60
10	X 58	X 58	56	X 54	X 55	X 56													X 67	X 64	X 61	X 61	X 58	X 58
11	X 54	X 52	X 54	X 50	X 48	X 47													X 80	X 50	X 50	X 52	X 51	X 50
12	X 48	X 48	X 47	X 46	X 48	X 45													X 76	X 76	X 75	X 79	81	75
13	44	X 44	X 48	X 35	X 36	X 39													X 75	X 63	X 62	X 59	X 54	X 54
14	X 50	X 50	X 53	X 51	X 46	X 46													X 64	X 65	X 63	X 62	X 59	X 61
15	X 52	X 55	X 54	X 60	X 42	X 41													X 84	X 71	X 57	X 52	X 54	X 56
16	X 55	X 52	X 39	X 42	45	49													X 77	X 64	X 64	A	52	54
17	53	55	55	55	54	56													X 83	X 67	X 48	X 39	X 40	X 44
18	X 45	X 45	X 41	X 43	X 45	X 44													X 71	X 58	X 59	X 52	X 46	X 47
19	X 46	X 44	X 44	X 42	X 43	X 43													X 72	X 63	X 63	X 65	X 65	X 56
20	X 52	X 48	X 47	X 50	X 44	X 43													X 79	X 71	X 71	X 63	X 57	X 50
21	X 48	X 45	X 45	X 45	X 41	X 42													A	X 64	X 53	X 51	X 48	X 45
22	X 44	43	X 44	46	X 42	X 41													X 69	X 62	X 54	X 53	X 46	X 47
23	X 45	X 43	X 42	X 45	X 44	X 47													X 72	X 60	X 52	X 54	X 51	X 48
24	X 48	X 48	X 48	X 50	X 46	X 39													X 69	X 61	X 50	X 47	X 45	X 45
25	X 46	X 46	X 47	X 47	X 45	X 41													X 63	X 61	X 53	X 49	X 48	X 47
26	X 47	X 50	X 54	X 52	X 38	X 39													X 66	X 66	X 64	X 59	X 52	X 50
27	X 48	X 48	X 50	X 52	X 42	X 45													X 71	X 71	X 69	X 64	X 61	X 63
28	X 60	X 52	X 51	X 48	X 46	X 47													0 X 80	X 69	X 60	X 50	X 51	X 49
29	X 54	X 49	X 48	X 48	X 46	X 47													X 68	X 61	X 63	X 54	X 44	X 47
30	X 47	X 47	X 45	X 45	X 45	X 45													X 66	X 61	X 59	X 57	X 58	X 56
31	57	50	48	48	X 48	X 50													X 63	X 55	X 57	X 54	X 54	X 54
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31													30	31	31	30	31	31
MED	X 52	X 50	X 49	X 48	X 46	X 46													X 74	X 64	X 61	X 56	X 54	X 54
U Q	X 55	X 54	X 54	X 52	X 48	X 50													X 80	X 68	X 64	X 63	X 59	X 58
L Q	X 47	X 47	X 47	X 45	X 43	X 42													X 69	X 61	X 54	X 52	X 51	X 48

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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	48	44	43	39	37	38	62	69	80	86	89	103	121	107	87	81	86	82	71	48	48	49	48	44
2	45	46	41	33	32	32	57	77	91	Z 96	90	H 100	109	91	86	80	80	75	72	62	57	50	47	47
3	46	45	48	39	V 41	40	59	79	85	84	84	98	90	91	91	84	84	86	64	55	51	52	52	52
4	49	51	48	44	45	44	61	81	102	93	91	93	99	102	83	97	98	79	63	51	49	49	52	51
5	51	49	47	48	45	45	69	84	94	82	90	101	102	102	93	94	85	84	79	59	58	54	50	50
6	49	48	50	49	41	40	69	85	90	86	97	107	107	96	94	111	106	80	69	61	62	62	62	56
7	53	47	46	46	44	48	65	86	90	107	108	112	112	104	96	94	91	95	74	61	65	62	59	57
8	57	50	48	48	51	50	67	83	95	98	93	113	118	110	111	113	102	88	81	71	62	60	56	54
9	52	50	51	48	47	45	67	84	93	103	112	115	119	112	111	111	101	98	76	63	57	58	53	54
10	52	52	48	48	49	50	58	77	114	118	120	119	115	97	100	91	87	79	61	58	55	55	52	52
11	48	46	48	44	42	41	63	87	107	99	92	101	101	96	89	97	104	99	74	44	44	46	45	44
12	42	42	41	40	42	39	64	84	89	93	111	97	114	109	106	99	89	84	70	71	69	73	74	65
13	F 36	38	42	29	30	33	64	107	118	119	118	107	98	94	101	90	81	78	69	57	56	53	48	48
14	44	44	47	45	40	40	56	76	100	111	92	95	111	118	115	94	83	75	58	59	57	56	53	55
15	46	49	48	54	36	35	53	71	93	110	104	113	121	112	124	98	84	79	78	65	51	46	48	50
16	49	46	33	36	35	F 42	65	90	91	99	103	99	101	107	R 111	103	91	86	71	58	58	I A 44	U F 45	F 45
17	F 46	F 46	F 48	F 47	F 46	F 49	59	70	78	94	117	115	107	98	89	82	89	87	77	61	42	33	34	38
18	39	39	35	37	39	39	61	84	91	100	107	97	103	98	90	89	85	83	65	52	53	46	40	41
19	40	38	38	36	37	37	54	84	102	112	99	107	99	102	99	89	84	78	66	57	57	59	59	50
20	46	42	41	44	38	37	55	80	97	96	93	98	114	112	105	95	86	83	73	65	65	57	51	44
21	42	39	39	39	35	36	56	96	111	92	91	105	104	99	98	93	97	86	I A 60	58	47	45	42	39
22	38	36	38	F 38	36	35	57	84	87	87	99	111	109	98	98	97	101	103	63	56	48	47	40	41
23	40	37	36	39	38	41	58	79	97	106	108	120	110	105	109	89	79	72	66	54	46	48	45	42
24	42	42	42	44	40	33	55	83	91	101	111	109	105	99	103	101	92	84	63	55	44	41	39	39
25	40	40	41	41	39	35	58	88	99	108	109	96	101	111	107	Z 93	79	73	57	55	47	43	42	41
26	41	44	48	46	32	33	54	85	98	105	110	103	108	118	105	105	92	72	60	60	58	53	46	44
27	42	42	44	46	36	39	54	85	119	124	109	118	116	114	112	114	95	78	65	65	63	58	55	57
28	54	46	45	42	40	41	53	92	118	131	148	132	123	122	111	98	89	93	74	63	54	44	45	43
29	48	43	42	42	40	41	56	93	127	136	123	127	119	116	118	118	105	89	62	55	57	48	38	41
30	41	41	39	39	39	39	56	86	110	117	139	139	132	130	129	120	106	86	60	55	53	F 47	F 49	50
31	48	F 42	F 40	F 42	42	44	60	93	114	129	114	122	132	131	128	126	117	88	57	49	51	48	48	48
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	46	44	43	42	40	40	58	84	97	101	107	107	109	105	103	97	89	84	66	58	55	49	48	48
U Q	49	47	48	46	42	44	64	87	110	112	112	115	118	112	111	105	101	88	74	62	58	57	53	52
L Q	41	41	40	39	36	36	56	79	91	93	92	99	102	98	93	90	84	78	62	55	48	46	45	42

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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

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	U L 500	U L 575		L	L	L	L							
2								L	L	L	L 490	L 500	L 520	L	U L 450		L 310							
3								L	L	L	U L 500	U L 520	U L 520	U L 500	L	L								
4								L	L	L	L	L	L	L		L								
5								L	L	L	L	U L 520	U L 580	U L 600	L	L								
6									U L 410	L	L	L	L	L	L	L								
7									L	L	L	L	L	L	L	L								
8									L	L	L	U L 560	L		L	L								
9								L		L	L		L	L	U L 460	U L 400	U L 330							
10								L	U L 480	L	L 490	U L 500	U L 500	L	L	L								
11								L	L	L	L	U L 550	L	L	L	L	L							
12									L		L	L	L 500	L	L	L								
13								L	L	L		L	L	L	L									
14								U L 345	L	L	L	L	L	L	L									
15									U L 540	L 420	L	L	L	L	L	L								
16										L	L	U L 500	U L 500	L	U L 480	L								
17							L	L		L	L	U L 500	L	L	L	L								
18									L	L	L	L	U L 490	U L 480	L	L								
19									L	L	L	L	L	L	L	L								
20									L	L	L	L	L	L	L									
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	L	L	L									
23									L	L	L	L	L	L	L									
24									L	L	L	L	L	L	L	L								
25									L	L	L	U L 480	U L 520	L	L	L								
26									L	L	L	L	L	U L 530	L	L								
27									L	L	L	L	L	L	L	L								
28									L	L	L	L	L	L	L									
29										L	L	L	L		L									
30									L	L		L	L	L		L								
31										L		L	L		L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	3	1	4	10	8	4	3	1	2							
MED								U L 345	U L 480	L 420	L 495	U L 510	U L 510	U L 515	U L 460	U L 400	L 320							
U Q									U L 540		U L 500	U L 550	U L 520	U L 565	U L 480									
L Q									U L 410		L 490	U L 500	U L 500	U L 490	U L 450									

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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							H 200	255	290	320	330	A 340	A	A 335	325	A 295	A	170						
2							175	250	305	325	U A 340	350	350	335	A 320	305	265	A 190						
3							195	A 240	300	335	350	350	355	340	335	A	255	A						
4							160	250	305	330	345	355	U R 355	U R 345	320	305	270	165						
5							165	265	320	335	R 350	360	360	350	330	300	255	160						
6							170	255	310	340	A	U R 355	355	345	330	305	260	B						
7							170	265	295	335	345	A	A	340	A	A	A	A						
8							160	265	300	A	340	R 350	R	350	340	300	A	A						
9							A	A 240	A	A	A	A	350	345	330	300	245	A						
10							165	A	A	335	345	360	355	345	335	300	250	A						
11							165	225	A	A 315	340	345	A	A 335	A	A	240	A						
12							165	245	280	310	A	A	A	A	A	A	240	A						
13							175	240	290	315	A 325	A	A	340	310	290	235	B						
14							A	240	290	A 310	A 335	A	A	A	A	A	220	B						
15							160	240	A	A 310	320	330	A	R	315	A	A	A						
16							145	235	A	A	A	345	A	335	320	280	A	B						
17							155	A	275	R	325	330	340	325	310	275	235	B						
18							150	A	A	A	325	R	340	330	315	275	A	A						
19							B	240	300	325	340	345	345	335	A	R	225	B						
20							B	210	280	R	340	340	350	340	325	290	U A 220	B						
21							155	240	U A 275	A 285	330	A	A	A	A	A	A	B						
22							150	225	280	320	340	345	345	335	315	275	225	B						
23							A	240	A	A	B	345	340	335	315	280	A	B						
24							B	240	295	325	340	345	345	335	325	280	205	B						
25							B	245	295	325	340	350	345	340	330	280	220	B						
26							B	240	A	320	340	355	355	345	325	295	A 225	B						
27							150	245	295	320	345	B	R	B	320	290	A	B						
28							145	245	290	325	U A 340	A	R	340	330	285	220	B						
29							B	230	295	320	340	340	A	A	A	A	A	B						
30							B	235	285	A	A 330	A	R	A	A	300	A	B						
31							135	240	290	320	340	350	340	A	A	A	A	B						
	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	28	23	23	26	21	17	23	22	21	19	4						
MED							160	240	295	320	340	345	350	340	325	290	235	168						
U Q							170	248	300	330	340	352	355	345	330	300	255	180						
L Q							150	240	285	A 315	330	342	342	335	315	280	220	162						

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	33	39	J A 54	J A 55	J A 63	94	J A 54	J A 42	38	28	G 17	E B 13	30	J A 34	40	J A 22	28
2	J A 15	19	J A 20	E B 13	E B 13	E B 14	G	28	34	J A 45	39	G	G	37	35	37	G	21	J A 23	J A 17	20	19	E B 15	E B 17
3	E B 15	E B 13	E B 13	20	E B 13	E B 15	G	27	32	G	40	43	39	38	G	J A 34	G 21	J A 35	20	J A 27	J A 28	J A 33	28	E B 14
4	20	21	23	20	25	J A 14	J A 48	G	G	36	G	G	G	G 28	G 25	J A 40	G 16	20	E B 14	J A 14	E B 13	E B 14	E B 14	E B 13
5	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	34	G	G	G 25	39	G	35	33	31	G	E B 14	J A 21	J A 21	J A 16	J A 16	J A 18
6	20	J A 19	E B 13	E B 13	E B 13	E B 13	24	32	36	G	J A 38	G 33	G	G 24	G 19	G	33	22	19	E B 14	J A 19	E B 13	E B 13	E B 13
7	E B 13	E B 14	E B 15	E B 13	E B 14	19	G	G 22	33	35	38	41	38	G 34	34	J A 32	J A 31	J A 44	J A 38	J A 48	26	E B 14	E B 14	E B 14
8	E B 14	20	E B 13	E B 13	E B 13	E B 13	21	G	33	34	G 32	G 33	G 34	G 34	G	32	J A 37	J A 30	J A 30	30	J A 23	J A 21	E B 13	E B 13
9	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	17	J A 28	33	J A 44	J A 37	78	G 25	G 24	G	G	G	E B 19	J A 13	16	23	J A 19	J A 22	J A 44
10	J A 29	J A 24	E B 13	E B 13	E B 13	E B 13	G	30	J A 33	G	G	G	G	G 28	G	34	31	33	J A 36	J A 53	J A 42	J A 48	J A 21	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 14	J A 20	J A 19	J A 37	31	34	G	36	J A 51	J A 38	J A 48	J A 42	28	21	E B 15	E B 13	J A 47	E B 13	20	E B 14
12	E B 14	J A 18	E B 14	20	E B 13	E B 13	G	J A 36	J A 52	J A 49	J A 51	J A 41	J A 54	J A 45	J A 43	J A 33	27	49	45	39	J A 22	E B 13	E B 15	E B 13
13	20	22	E B 15	J A 18	21	J A 18	G	27	37	J A 51	56	36	J A 49	G 29	G 24	30	J A 36	J A 26	J A 32	J A 40	J A 24	J A 17	21	26
14	24	E B 13	E B 13	E B 13	20	E B 13	22	26	33	36	35	J A 41	J A 50	J A 40	J A 40	J A 47	26	20	53	J A 55	J A 42	J A 35	J A 32	E B 14
15	E B 14	20	J A 17	18	21	21	19	G	J A 33	34	36	40	J A 37	G 30	J A 43	J A 49	42	J A 44	J A 44	J A 53	J A 42	J A 51	J A 50	J A 48
16	J A 32	J A 31	J A 22	J A 22	J A 20	J A 21	20	27	37	J A 51	J A 36	G 32	J A 49	J A 54	38	G	60	J A 42	J A 52	J A 37	J A 22	72	98	J A 50
17	61	J A 35	J A 24	J A 19	J A 20	E B 13	J A 17	J A 24	31	G 30	G 30	G 29	G 30	G 29	34	G	G	J A 27	22	22	J A 35	J A 54	J A 18	J A 47
18	J A 21	J A 27	18	20	E B 14	E B 14	18	28	J A 32	J A 34	G 27	G 30	G 30	G 25	G 27	G 26	J A 34	J A 34	J A 32	E B 14	J A 22	J A 18	J A 20	J A 33
19	J A 49	J A 35	J A 26	J A 21	J A 37	E B 15	20	J A 33	G 28	G 30	G 31	G 27	G 23	G 30	32	G 28	G 22	26	J A 24	J A 24	J A 28	J A 23	26	20
20	E B 14	19	20	J A 22	J A 21	J A 17	E B 15	G	30	G	J A 45	G	G 26	39	35	J A 41	28	21	J A 24	J A 45	54	J A 47	J A 41	J A 22
21	J A 34	J A 38	20	J A 29	J A 33	J A 23	J A 18	26	J A 43	37	J A 38	J A 38	J A 42	J A 43	J A 50	J A 39	J A 50	J A 54	J A 102	J A 102	J A 53	J A 52	J A 64	J A 55
22	J A 49	27	J A 31	21	E B 13	E B 13	G	G 22	31	J A 41	G	G 26	G 27	J A 40	G 25	29	J A 31	J A 52	J A 42	J A 28	17	J A 26	23	J A 24
23	J A 22	J A 23	22	19	J A 21	E B 13	21	28	J A 38	34	E B 41	G	G 24	J A 41	G 22	G 25	27	J A 23	J A 26	J A 26	40	J A 42	J A 29	E B 15
24	21	E B 14	E B 14	E B 14	E B 13	E B 15	20	G	G 23	34	G	G 25	G	G	G	G	G	20	19	J A 25	J A 32	J A 23	J A 22	E B 14
25	22	E B 13	20	E B 16	E B 13	E B 14	E B 13	J A 42	G 28	G 28	J A 48	G	G 25	G 24	G 22	34	J A 40	J A 53	J A 30	E B 15	E B 16	E B 55	J A 26	J A 31
26	J A 26	J A 31	J A 23	22	20	E B 14	E B 13	G	J A 33	G 32	G 33	G	G 25	G 34	G 22	G	25	E B 15	E B 13	J A 19	E B 13	J A 18	E B 13	E B 14
27	E B 14	E B 13	E B 13	E B 13	E B 13	E B 15	J A 33	G	32	34	G	E B 35	G 34	E B 35	G 20	31	27	J A 30	J A 31	J A 22	J A 22	J A 20	J A 25	J A 22
28	J A 22	E B 14	J A 34	20	J A 21	E B 14	G	G	J A 34	36	38	38	G 31	G 27	G	34	J A 49	49	J A 92	J A 84	J A 43	J A 69	J A 33	J A 118
29	J A 35	J A 48	J A 38	J A 30	J A 29	19	J A 18	G	G	37	36	37	J A 53	J A 69	J A 81	J A 106	J A 54	J A 44	J A 29	43	20	20	21	22
30	J A 19	20	20	E B 14	E B 13	E B 13	E B 16	G	36	J A 64	81	J A 42	G 34	J A 54	J A 76	J A 55	J A 41	27	J A 21	J A 43	J A 31	J A 21	J A 20	J A 19
31	E B 13	J A 23	J A 36	J A 22	J A 28	E B 14	16	29	34	39	37	42	41	47	44	53	J A 51	J A 47	19	E B 16	E B 14	E B 13	J A 27	J A 46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	20	20	18	18	E B 14	E B 14	17	26	33	34	36	G	G	G	32	33	31	27	J A 26	J A 27	J A 24	J A 21	J A 22	20
U O	J A 26	J A 27	J A 23	J A 21	J A 21	J A 17	20	29	36	J A 41	40	41	J A 42	J A 41	J A 42	J A 40	J A 40	J A 44	J A 38	J A 43	J A 40	J A 47	J A 28	J A 33
L O	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G 31	G	G	G 33	G 30	G 29	G 25	G	G 25	21	E B 19	E B 17	20	E B 17	E B 16	E B 14

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	30	34	37	40	40	86	44	40	36	28	G 16	E B 13	18	20	28	19	21
2	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	G	27	34	41	36	G	G	36	35	35	G	G 19	16	E B 14	16	16	E B 15	E B 17
3	E B 15	E B 13	E B 13	E B 13	E B 13	E B 15	G	G 24	31	G	38	41	38	36	G	32	G 21	31	19	23	19	18	17	E B 14
4	E B 14	E B 15	16	E B 14	17	E B 13	G	G	G	35	G	G	G	G 27	G 23	G 18	G 15	20	E B 14	E B 13	E B 13	E B 14	E B 14	E B 13
5	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	34	G	G	G 22	39	G	34	32	29	G	E B 14	15	17	E B 14	E B 13	E B 13
6	18	E B 13	E B 13	E B 13	E B 13	E B 13	22	30	34	G	36	G 32	G	G 24	G 18	G	30	20	E B 14	E B 14	17	E B 13	E B 13	E B 13
7	E B 13	E B 14	E B 15	E B 13	E B 14	E B 13	G	G 18	32	35	38	40	38	G 33	34	32	28	25	32	31	19	E B 14	E B 14	E B 14
8	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	20	G	33	33	G 28	G 32	U G 34	G 33	G	31	35	20	17	17	17	E B 14	E B 13	E B 13
9	E B 14	E B 13	E B 13	E B 13	E B 13	E B 13	G	G 24	32	36	37	70	G 24	G 23	G	G	G	18	E B 13	E B 13	E B 14	E B 14	17	30
10	17	E B 13	E B 13	E B 13	E B 13	E B 13	G	24	30	G	G	G	G	G 25	G	34	29	24	19	21	30	32	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 14	E B 14	G 16	G 19	31	34	G	36	36	G 31	33	33	27	18	E B 15	E B 13	25	E B 13	E B 13	E B 14
12	E B 14	E B 15	E B 14	E B 14	E B 13	E B 13	G	34	39	46	41	37	37	35	34	31	G	48	32	30	17	E B 13	E B 15	E B 13
13	E B 13	E B 13	E B 15	15	17	16	G	26	33	39	50	35	39	G 28	G 23	30	34	23	21	23	19	E B 13	E B 14	18
14	16	E B 13	E B 13	E B 13	E B 13	E B 13	20	G	31	34	35	38	38	37	35	34	26	19	19	47	18	23	18	E B 14
15	E B 14	E B 13	E B 13	E B 13	15	E B 15	18	G	30	G 31	34	37	35	G 28	G 27	31	31	24	30	42	26	32	18	24
16	16	27	E B 13	E B 13	17	16	19	26	27	42	35	G 31	36	39	35	G	52	19	18	22	16	A A 72	16	31
17	36	21	18	16	E B 13	E B 13	G	23	30	U G 30	G 27	G 29	G 29	G 29	33	G	G	18	E B 14	E B 14	18	25	E B 14	18
18	17	16	E B 13	E B 13	E B 14	E B 14	G	26	30	34	G 23	U G 30	G 29	G 23	G 23	G 25	25	20	24	E B 14	17	E B 13	17	26
19	30	22	17	17	E B 13	E B 15	20	27	G 20	G 22	G 30	G 25	G 22	G 29	32	U G 28	G 21	20	23	22	16	18	20	E B 14
20	E B 14	E B 14	E B 13	18	17	16	E B 15	G	30	G	G	G	G 26	G	34	35	26	19	20	36	22	32	17	E B 14
21	20	29	E B 13	16	22	17	G	26	32	34	G 30	35	35	34	39	34	26	51	A A 102	31	30	20	40	28
22	21	E B 13	20	E B 14	E B 13	E B 13	G	G 20	31	G 27	G	G 25	G 24	G 26	G 24	G 22	G 19	16	30	17	16	22	16	16
23	18	16	E B 13	E B 13	E B 13	E B 13	18	27	34	34	E B 41	G	G 23	G 27	G 20	G 23	26	18	23	24	31	22	25	E B 15
24	E B 14	E B 14	E B 14	E B 14	E B 13	E B 15	19	G	G 21	34	G	G 23	G	G	G	G	G	E B 14	18	22	17	16	16	E B 14
25	E B 15	E B 13	E B 13	E B 16	E B 13	E B 14	E B 13	G 19	G 26	G 27	G 26	G	G 23	G 21	G 21	32	36	37	28	E B 15	E B 16	20	17	20
26	17	20	17	E B 14	E B 13	E B 14	E B 13	G	30	G 29	G 32	G	G 24	G 32	G 20	G	G 23	E B 15	E B 13	18	E B 13	17	E B 13	E B 14
27	E B 14	E B 13	E B 13	E B 13	E B 13	E B 15	G	G	32	34	G	E B 35	U G 34	E B 35	G 20	31	26	26	26	17	18	15	19	17
28	16	E B 14	20	E B 13	E B 13	E B 14	G	G	31	34	38	36	U G 31	G 27	G	33	38	36	57	46	34	23	20	E B 13
29	E B 14	22	23	17	16	E B 13	E B 16	G	G	35	36	37	48	43	57	31	46	28	25	38	18	E B 14	16	E B 13
30	E B 13	E B 13	E B 13	E B 14	E B 13	E B 13	E B 16	G	31	58	70	38	U G 34	35	48	31	26	18	E B 13	19	20	20	17	E B 14
31	E B 13	17	24	18	E B 14	E B 14	16	27	33	38	37	37	40	45	35	40	34	27	19	E B 16	E B 14	E B 13	E B 14	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	G	G	31	34	E G 34	G	G	G 32	G	31	26	20	19	19	18	17	16	E B 14
U Q	17	16	16	15	14	15	18	26	33	36	38	37	38	35	35	33	31	26	26	30	20	23	18	20
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G 30	G	G	G 32	G 29	G 27	G 23	G	G	18	E B 14	E B 15	E B 16	E B 14	E B 14	E B 13

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

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

OCT. 1992 FMIN (0.1MHZ) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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	U L 370	L	A	L	L	L	L							
2								L	L	L	L 390	L 360	L 370	L	U L 375		L 400							
3								L	L	L	U L 375	U L 360	U L 370	U L 370	L	L								
4								L	L	L	L	L	L	L		L								
5								L	L	L	L	U L 385	U L 350	L	L	L								
6									U L 390	L	L	L	L	L	L	L								
7									L	L	L	L	L	L	L	L								
8									L	L	L	U L 335	L		L	L								
9								L		L	L	A	L	L	U L 380	U L 360	U L 375							
10								L	L	L	L 365	U L 355	U L 390	L	L	L								
11								L	L	L	L	U L 370	L	L	L	L	L							
12									L		L	L	L 360	L	L	L								
13								L	L	L	A	L	L	L	L									
14								U L 375	L	L	L	L	L	L	L									
15									L	L 395	L	L	L	L	L	L								
16										L	L	U L 365	L	L	U L 355	L								
17								L	L		L	U L 350	L	L	L	L								
18									L	L	L	L	U L 350	L	L	L								
19									L	L	L	L	L	L	L	L								
20									L	L	L	L	L	L	L									
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	L	L	L									
23									L	L	L	L	L	L	L									
24									L	L	L	L	L	L	L	L								
25									L	L	L	U L 380	U L 355	L	L	L								
26									L	L	L	L	L	U L 345	L	L								
27									L	L	L	L	L	L	L	L								
28									L	L	L	L	L	L	L									
29										L	L	L	L		L									
30									L	L	A	L	L	L		L								
31										L		L	L		L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	1	1	4	9	7	2	3	1	2							
MED								U L 375	U L 390	L 395	L 372	U L 360	U L 360	U L 358	U L 375	U L 360	L 388							
U Q											L 382	U L 375	U L 370		U L 380									
L Q											L 368	U L 352	U L 350		U L 355									

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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

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									255	260	265	280	A 280	250	260	265	240							
2								240	260	250	270	265	265	260	250		235							
3								245	255	255	265	265	255	265	270	255								
4								250	240	240	245	280	280	270		275								
5								235	235	225	L 280	280	280	285	255	250								
6									230	245	280	255	270	285	290	270								
7									230	255	260	265	265	255	260	245								
8									240	230	L 310	280	260		265	255								
9								220		260	270	A 300	270	275	265	255	240							
10								280	250	255	260	260	260	310	280	250								
11								230	240	240	240	280	260	255	265	280	240							
12									260		260	250	280	265	270	250								
13								245	250	240	260	260	H 255	275	265									
14								230	250	230	245	290	280	260	250									
15									270	245	265	280	260	290	255	225								
16										255	255	255	260	265	255	240								
17							235	220		260	265	250	250	255	245	250								
18									225	240	245	250	250	250	250	245								
19									240	235	235	260	305	260	250	245								
20									230	240	240	310	270	255	240									
21									220	225	230	265	245	250	255	250								
22									220	220	280	265	250	255	255									
23									240	240	255	260	240	260	255									
24									230	255	245	260	255	300	265	250								
25									225	240	250	250	270	275	245	230								
26									225	240	250	260	270	275	260	250								
27									245	230	260	275	285	285	260	250								
28									255	260	265	245	255	255	255									
29										245	245	255	270		290									
30									240	300	255	250	250	270		240								
31										245		250	280		265	250								
	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	26	30	30	31	31	28	29	23	4							
MED							235	238	240	242	260	260	265	265	260	250	240							
U Q								245	250	255	265	280	280	275	265	255	240							
L Q								230	230	240	245	255	255	255	252	245	238							

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	280	305	300	355	350	250	230	230	230	220	210	A	A 245	A 240	225	230	220	220	235	A 290	A 320	310	A 350
2	310	275	230	270	300	365	260	240	230	A	205	H 185	H 185	220	210	235	220	225	235	240	240	265	285	310
3	315	300	260	260	305	305	240	235	230	210	205	225	220	205	H 200	220	240	235	220	250	305	325	300	290
4	290	285	250	270	295	250	240	235	230	210	210	H 190	H 190	220	230	235	240	220	220	235	270	295	290	275
5	270	280	270	265	250	255	225	220	220	210	205	H 190	230	215	230	230	240	235	225	225	260	250	265	280
6	295	290	265	240	280	325	240	215	210	220	215	210	200	H 210	H 220	H 220	230	220	240	240	280	265	250	245
7	245	280	320	290	305	270	215	225	210	220	220	230	220	215	225	235	240	230	235	A 300	280	270	255	270
8	240	255	270	275	260	240	220	220	230	205	H 210	195	H 195	225	225	230	240	230	235	240	240	250	245	260
9	295	295	270	240	240	240	220	220	230	205	H 185	A	H 200	230	220	225	235	230	220	250	280	290	385	A 405
10	330	300	310	310	370	310	255	240	240	225	210	220	225	210	230	240	240	230	H 220	285	285	A 305	285	260
11	255	285	280	250	290	285	240	225	215	210	210	H 200	220	210	230	240	250	230	210	H 210	335	310	305	285
12	330	295	300	310	315	365	255	220	230	A 240	E A 260	205	210	245	235	235	240	A 250	245	310	300	295	260	250
13	210	280	270	260	405	360	270	240	230	A 240	A	220	A 230	220	H 210	240	230	230	240	250	265	240	265	280
14	295	285	265	260	270	235	235	H 185	220	210	230	220	220	250	230	230	230	230	240	A	255	275	285	250
15	290	290	260	230	240	260	220	H 200	210	195	H 195	225	230	H 210	220	245	235	230	245	A 250	A 280	E A 355	290	305
16	250	A 250	275	300	290	250	235	230	220	E A 245	220	210	220	A 245	225	230	E A 245	225	210	260	250	A	290	E A 330
17	A	280	265	250	270	265	215	190	225	205	205	200	H 200	H 190	230	220	235	230	220	220	215	E A 365	310	300
18	310	260	300	310	290	305	230	220	210	220	200	205	H 200	220	225	235	235	225	220	255	240	255	265	A 325
19	E A 360	330	315	290	260	285	245	230	225	225	220	210	H 215	215	230	240	230	220	230	265	275	280	255	250
20	265	320	320	300	235	275	240	220	220	215	220	210	230	245	230	235	230	230	225	A 280	260	275	250	250
21	260	E A 315	265	280	A 300	305	240	230	225	220	205	190	205	210	A 235	A 240	240	A 240	A	A 270	A 260	260	A	A 335
22	285	300	335	270	250	285	235	215	220	210	200	H 190	H 210	220	230	245	245	215	235	255	235	250	240	295
23	290	280	310	275	280	245	225	215	220	210	B 240	210	210	220	215	230	230	220	230	240	E A 285	300	A 270	260
24	280	280	265	260	220	265	230	220	215	H 200	195	H 205	H 200	H 210	235	235	235	215	210	245	230	255	265	280
25	295	290	270	260	240	270	240	220	225	205	200	185	H 190	235	230	220	220	235	240	240	235	270	255	320
26	310	280	245	230	215	310	250	225	220	210	215	210	215	225	235	230	220	215	230	255	240	250	240	265
27	265	290	260	260	225	310	250	235	230	230	220	230	230	225	225	245	220	225	260	260	260	250	305	270
28	255	230	300	280	350	340	255	235	240	H 220	230	220	215	230	230	230	230	A 250	A	A	A 290	A 280	325	295
29	270	A 290	335	290	340	310	260	235	240	245	230	220	A 250	250	A	250	240	240	230	E A 305	250	245	295	315
30	300	290	260	330	335	305	235	220	230	A	A	225	225	220	A 255	235	225	210	210	265	250	305	310	270
31	260	260	A 330	300	315	275	245	225	230	240	235	220	225	A 255	220	235	225	220	230	260	260	250	270	290
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	29	29	30	30	31	30	31	31	31	29	29	31	30	30	31
MED	285	285	270	270	290	285	240	225	225	212	210	210	215	220	230	235	235	230	230	250	260	270	278	280
U Q	300	295	310	300	315	310	250	235	230	228	220	220	225	235	230	240	240	230	238	265	280	300	300	A 310
L Q	260	280	265	260	250	260	230	220	220	210	205	200	H 200	210	220	230	230	220	220	240	240	250	255	260

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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

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							150	120	110	110	110	110	110	110	110	115	115	A						
2							140	115	110	110	110	110	105	110	A	A 130	120	A						
3							155	A	110	110	115	115	115	110	110	A	125	A						
4							140	115	110	110	110	110	110	120	A 120	115	120	B 140						
5							135	115	120	110	110	110	110	115	115	115	115	120						
6							140	110	110	110	105	A 125	110	110	115	115	115	B						
7							155	A 120	110	110	110	A	A	A	A	A	A	A						
8							B 135	120	110	110	120	A	A	E A 140	115	110	110	A						
9							A	A	110	110	A	A	A 115	A 115	120	120	120	A						
10							140	115	A	115	110	110	110	A 120	115	120	120	A						
11							A 165	A 135	A	A	115	120	A	E A 130	A	A	120	A						
12							145	120	115	110	110	A	A	A	A	A	110	A						
13							B 160	120	115	120	E A 125	A	A	A 130	120	120	115	B						
14							A	115	115	A	A	A	A	A	A	A	120	B						
15							B 190	120	A	A	110	A 125	A	A 120	E A 135	A	A	A						
16							B 140	120	110	A	A	A 130	A	A 130	A 130	110	115	B						
17							B 155	A	E A 140	A	A 125	A 125	A 125	E A 130	A 125	110	115	B						
18							140	115	110	A	A 115	A	A 120	A 115	A 120	A 125	A	A						
19							B	A 125	A 120	A 130	A 125	A 120	A 120	A 125	A	A	A	B						
20							B	120	115	110	115	115	A 120	120	120	115	120	B						
21							160	A 130	A 120	A 115	E A 135	A	A	A	A	A	A	B						
22							150	E A 150	E A 140	A 130	115	A 120	A 120	A 120	A 120	A 120	A 125	B						
23							A	120	A	A	B	115	A 115	A 120	115	A 120	A	B						
24							B	120	A 120	115	110	A 115	105	110	115	115	115	B						
25							B	A 130	E A 140	A 120	A 120	110	A 120	115	A 115	115	120	B						
26							B	115	A	E A 145	E A 130	115	A 120	E A 130	A 115	110	A	B						
27							B 150	115	A 130	110	110	B	A	B	A 120	120	A	B						
28							B 155	120	115	110	110	A	A	A 120	110	115	120	B						
29							B	120	115	110	110	110	115	110	A	A	A	B						
30							B	125	115	115	115	115	A	A	A	A 130	A	B						
31							B	120	A 125	115	A 130	E Y 135	A 120	A	A	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							20	28	26	24	27	21	19	24	21	21	20	2						
MED							150	120	114	110	112	115	A 115	A 118	115	115	120	130						
U Q							B 155	A 120	A 120	A 115	A 120	A 122	A 120	E A 128	A 120	A 120	120							
L Q							140	115	110	110	110	110	110	112	115	115	115							

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

IONOSPHERIC DATA STATION KOKUBUNJI

OCT. 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

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	B	B	B	B	B	G	140	120	120	110	110	110	110	115	115	115	115	B	105	105	105	105	100
2	110	110	110	B	B	B	G	155	140	115	120	G	G	155	E G 160	135	G	120	100	100	100	100	B	B
3	B	B	B	105	B	B	G	115	E G 180	G	130	130	125	125	G	110	110	105	100	100	105	105	100	B
4	105	105	100	100	95	120	105	G	G	135	G	G	G	110	110	110	105	135	B	130	B	B	B	B
5	B	B	B	B	B	B	G	G	160	G	G	100	E G 190	G	E G 190	160	130	G	B	115	110	110	105	105
6	100	120	B	B	B	B	140	140	130	G	120	110	G	100	100	G	125	100	100	B	105	B	B	B
7	B	B	B	B	B	105	G	110	E G 185	E G 170	130	105	125	110	110	110	105	95	100	100	95	B	B	B
8	B	110	B	B	B	B	150	G	130	125	115	110	115	115	G	160	120	110	110	110	110	110	B	B
9	B	B	B	B	B	B	130	115	110	110	110	100	100	105	G	G	G	120	B	110	115	110	105	105
10	105	110	B	B	B	B	G	120	120	G	G	G	G	110	G	140	135	100	110	110	105	105	105	B
11	B	B	B	B	B	115	125	100	110	155	G	E G 170	120	100	100	100	130	120	B	B	110	B	115	B
12	B	120	B	105	B	B	G	130	120	115	110	155	110	105	115	120	140	110	110	120	110	B	B	B
13	110	110	B	110	110	105	G	150	130	120	115	120	110	105	110	E G 175	130	120	110	110	110	120	115	110
14	110	B	B	B	120	B	155	165	180	170	E G 200	110	130	110	110	120	140	185	115	110	125	110	110	B
15	B	110	110	110	105	105	200	G	120	115	130	125	110	110	110	110	110	110	110	110	110	110	110	105
16	110	105	110	110	110	110	145	180	110	110	110	110	100	115	135	G	115	110	135	110	110	105	115	105
17	105	100	100	100	105	B	115	110	E G 180	110	110	110	105	105	170	G	G	115	115	115	110	105	120	105
18	105	100	105	105	B	B	120	115	115	115	100	100	100	110	110	100	105	100	120	B	110	110	110	105
19	105	100	105	105	120	B	140	140	110	110	110	105	105	115	120	120	110	100	110	110	110	110	105	110
20	B	110	110	105	105	105	B	G	155	G	105	G	110	135	135	125	120	115	110	110	105	105	105	100
21	100	100	100	115	100	100	105	155	110	110	110	110	105	100	105	105	110	110	110	110	105	110	105	105
22	125	105	100	105	B	B	G	115	E G 185	110	G	110	105	105	100	100	95	115	110	110	110	110	110	100
23	100	100	100	115	100	B	135	155	115	110	B	G	105	105	105	110	110	115	110	110	105	110	105	B
24	110	B	B	B	B	B	160	G	110	125	G	105	G	G	G	G	G	105	110	105	110	110	105	B
25	110	B	110	B	B	B	B	115	110	110	110	G	105	100	105	140	120	110	110	B	B	110	105	105
26	105	100	105	105	110	B	B	G	110	110	110	G	110	100	105	G	110	B	B	120	B	115	B	B
27	B	B	B	B	B	B	110	G	140	130	G	B	120	B	100	130	115	110	110	110	110	110	105	105
28	110	B	100	110	105	B	G	G	130	125	115	110	110	105	G	150	120	120	110	110	110	110	110	110
29	145	105	105	110	105	110	110	G	G	125	130	125	110	110	110	130	110	110	110	110	110	110	110	110
30	110	105	105	B	B	B	B	G	120	110	115	115	120	135	110	105	100	100	110	110	110	110	110	115
31	B	100	100	105	140	B	150	140	140	120	130	135	125	100	100	120	105	100	105	B	B	B	110	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	20	17	17	14	9	17	20	29	26	23	23	26	28	25	25	27	29	25	26	27	25	24	18
MED	110	105	105	105	105	105	135	135	120	115	112	110	110	110	110	120	115	110	110	110	110	110	108	105
U Q	110	110	110	110	110	112	150	152	148	125	130	125	120	112	118	138	125	118	110	110	110	110	110	110
L Q	105	100	100	105	105	105	112	115	110	110	110	105	105	105	105	110	110	102	110	110	105	105	105	105

IONOSPHERIC DATA STATION KOKUBUNJI

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

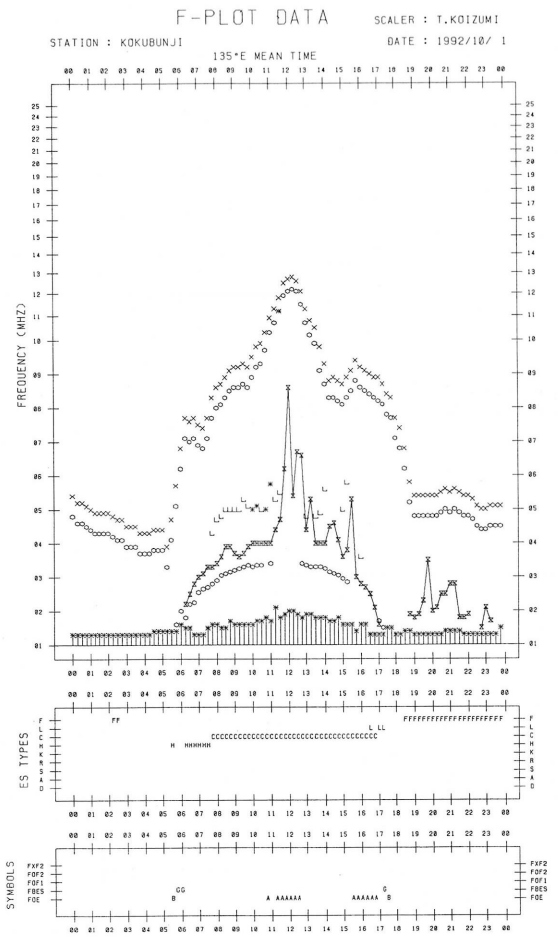
LAT. 35° 42.4'N LON. 139° 29.3'E SWEEP 1.0MHZ TO 25.0MHZ IN 24.0SEC IN MANUAL SCALING

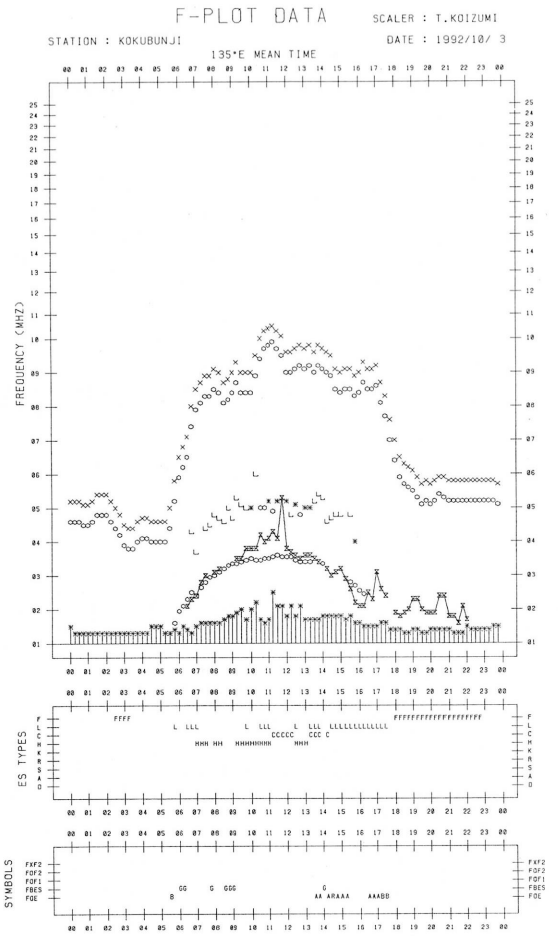
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								H 2	C 2	C 2	C 2	C 2	C 2	C 3	C 2	C 3	C 3	L 1		F 3	F 5	F 6	F 2	F 5
2	F 2	F 1	F 1					H 1	H 2	C 2	C 1			H 1	HL 11	HL 12		L 1	F 2	F 1	F 1	F 1		
3				F 1				LH 21	H 1		H 1	HL 21	C 1	H 1		L 2	L 2	LL 21	F 2	F 2	F 2	F 2	F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

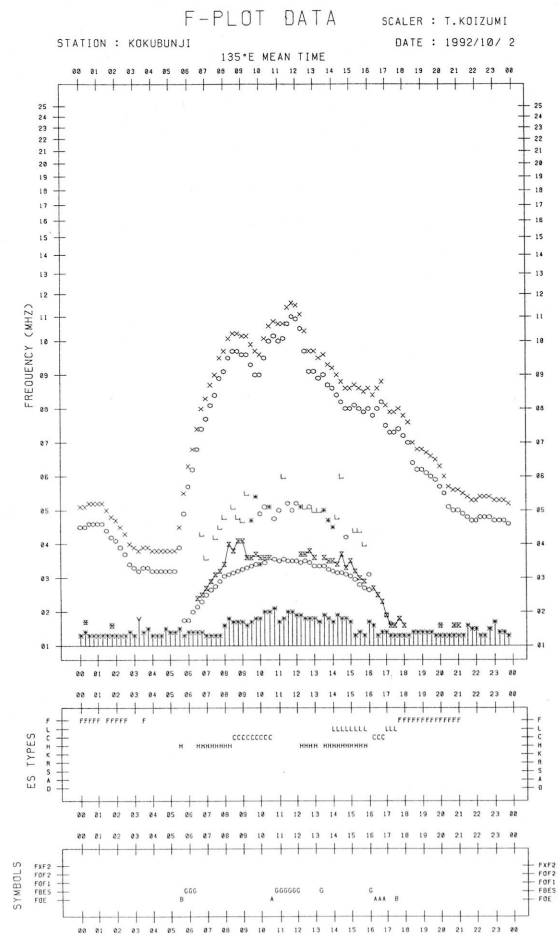
OCT. 1992 TYPES OF ES COMMUNICATIONS RESEARCH LABORATORY, JAPAN

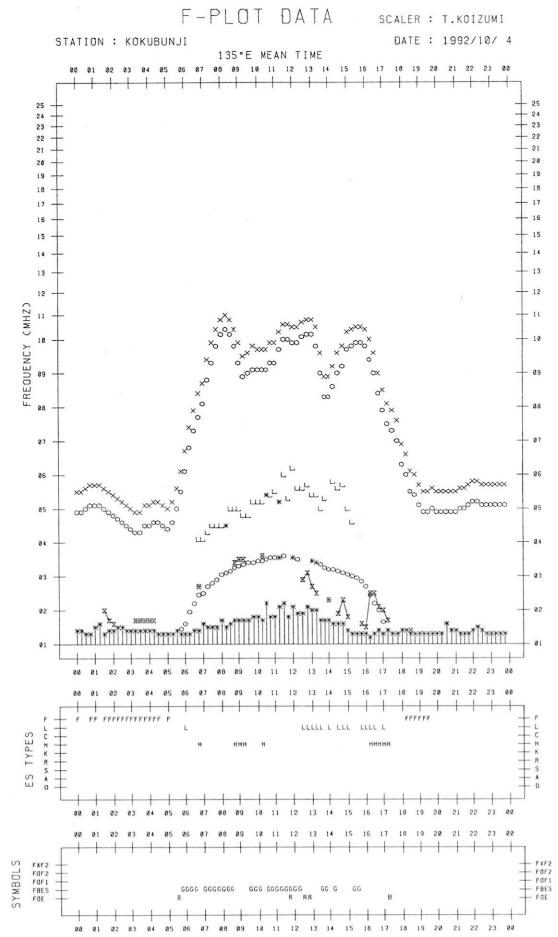
f-PLOTS OF IONOSPHERIC DATA

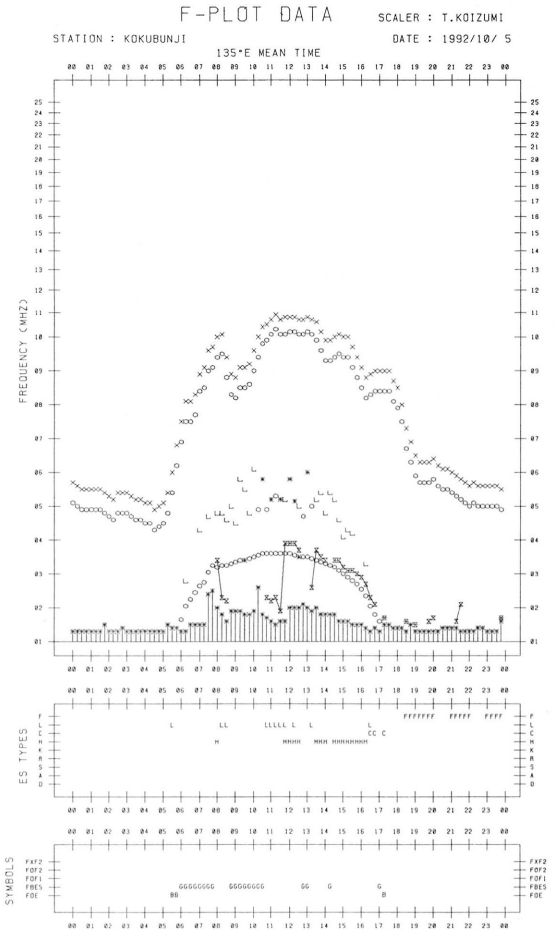
KEY OF F-PLOT	
|	SPREAD
○	FOF2, FOF1, FOE
×	FXF2
✳	DOUBTFUL FOF2, FOF1, FOE
⧖	FBES
⌊	ESTIMATED FOF1
↑, Y	FMIN
∧	GREATER THAN
∨	LESS THAN

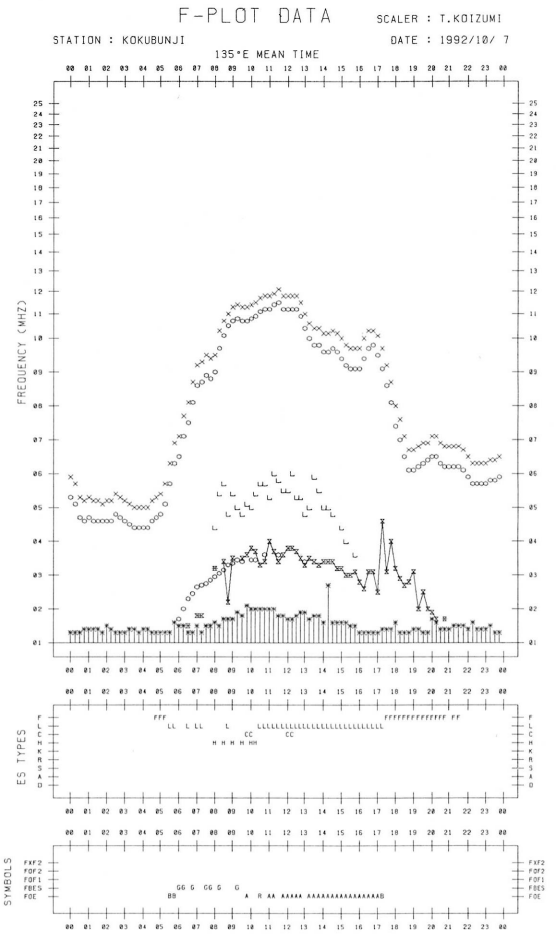

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 1
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 3
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 2
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 4
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 5
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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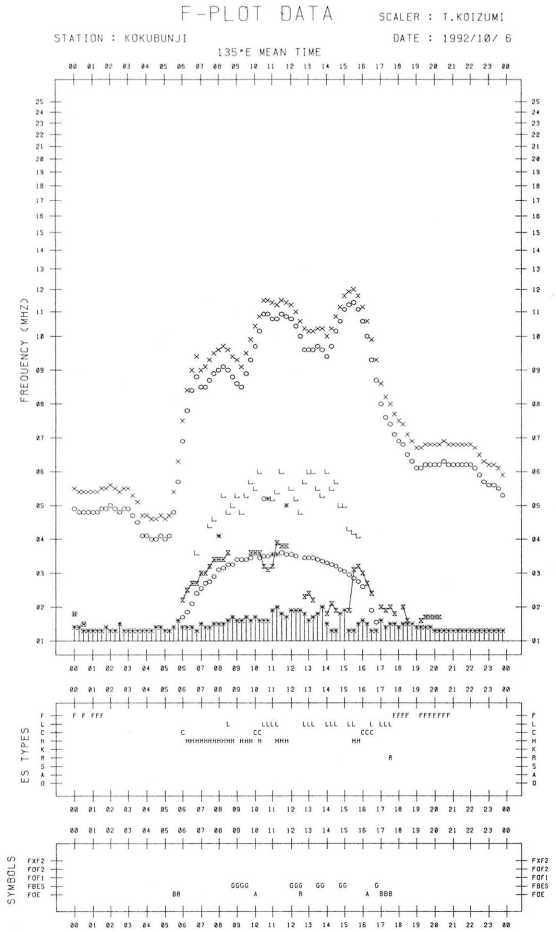
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/ 7
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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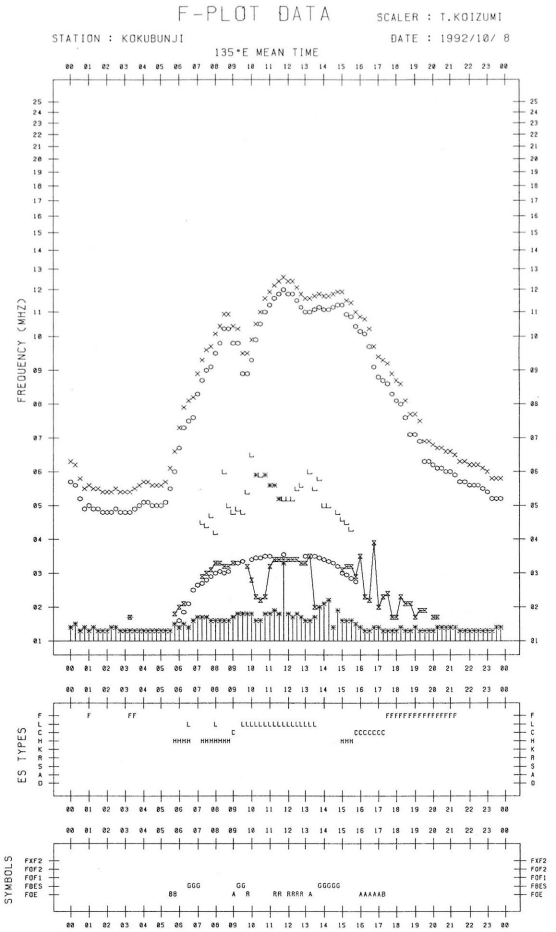
STATION : KOKUBUNJI
DATE : 1992/10/ 6
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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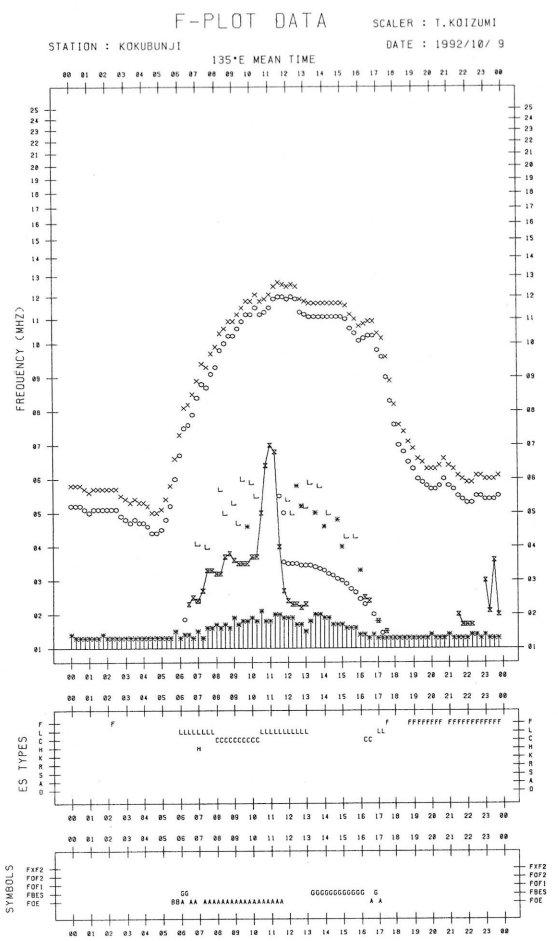
STATION : KOKUBUNJI
DATE : 1992/10/ 8
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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DATE : 1992/10/ 9
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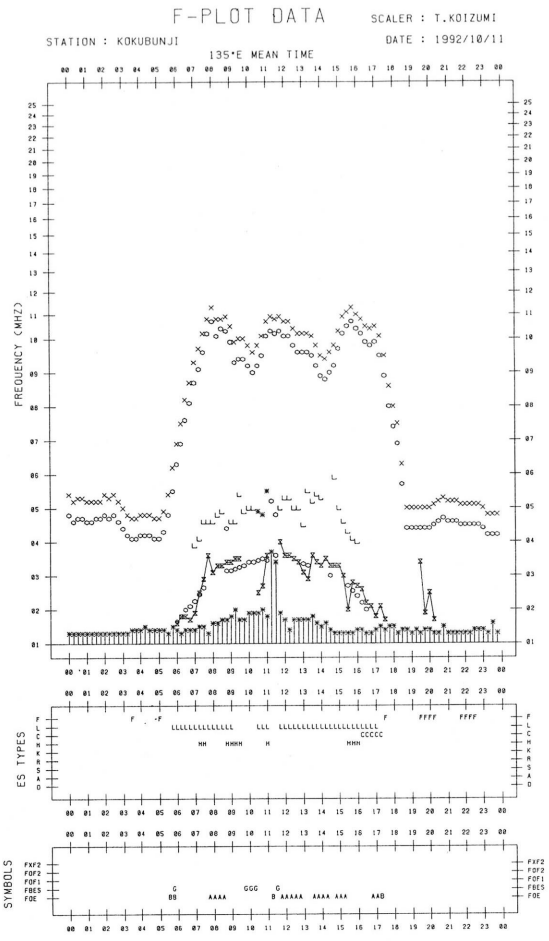
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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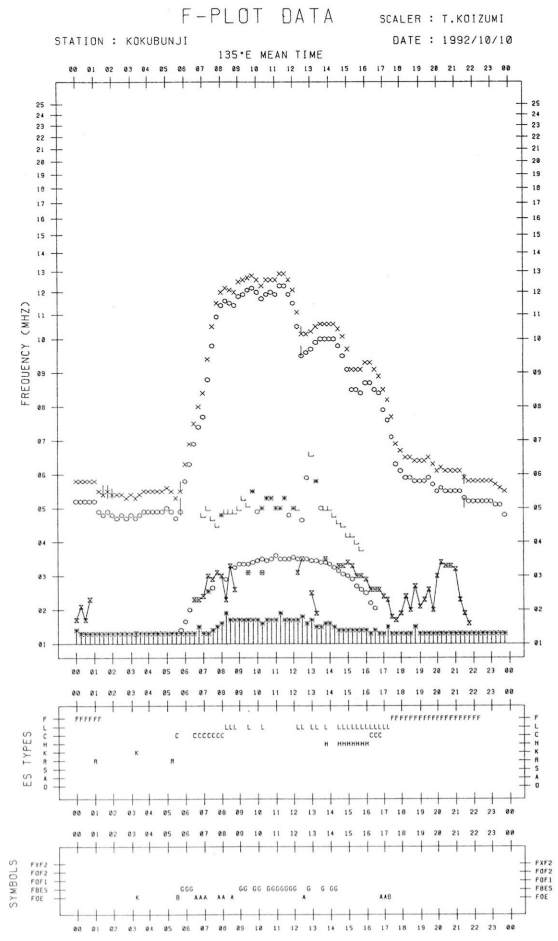
STATION : KOKUBUNJI
DATE : 1992/10/11
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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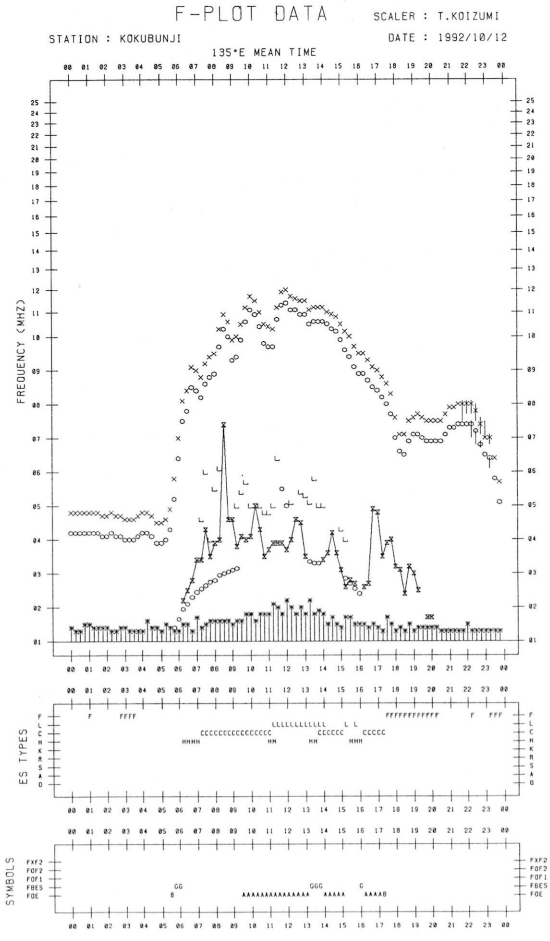
DATE : 1992/10/10
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS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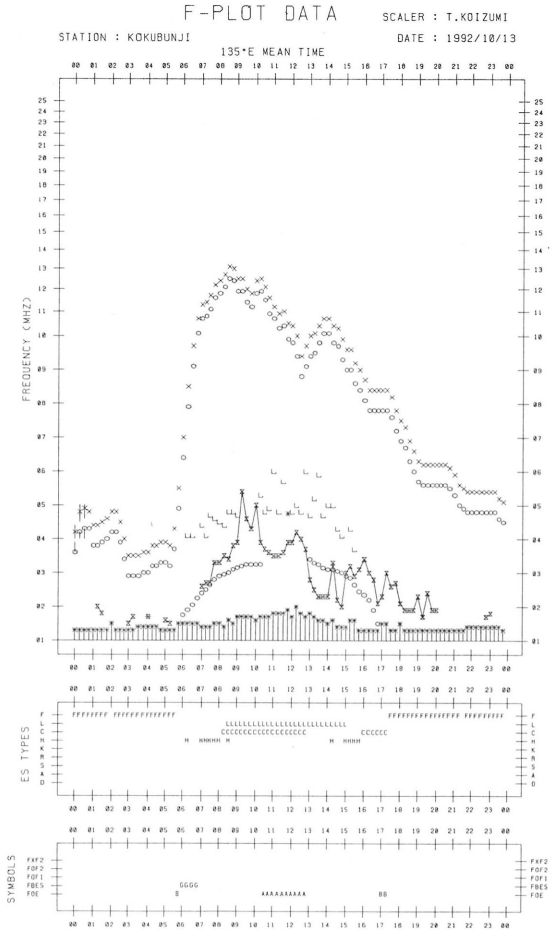
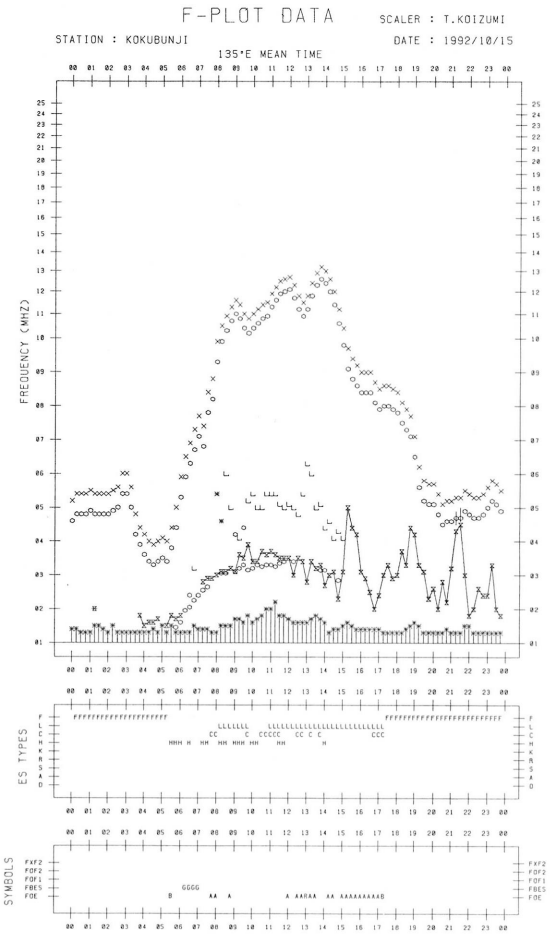
STATION : KOKUBUNJI
DATE : 1992/10/12
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/13
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
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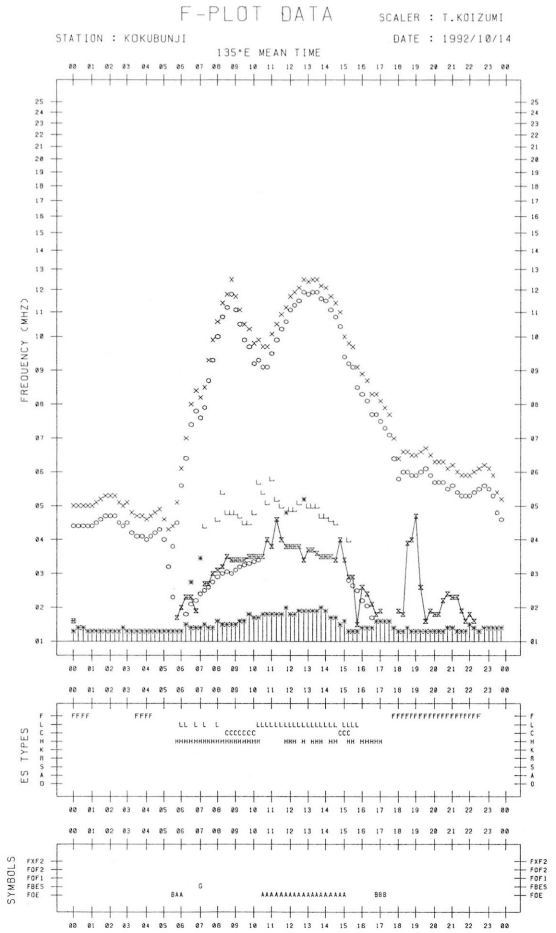
STATION : KOKUBUNJI
DATE : 1992/10/15
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
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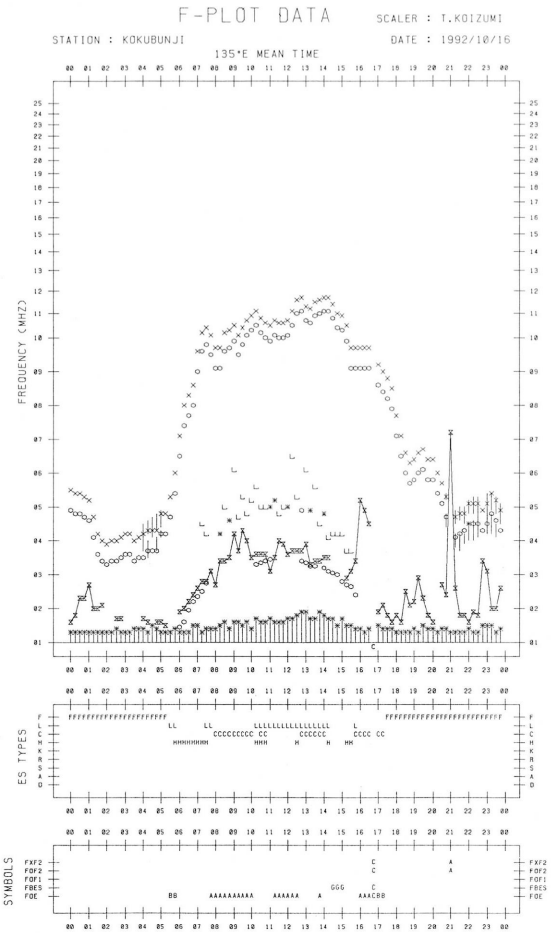
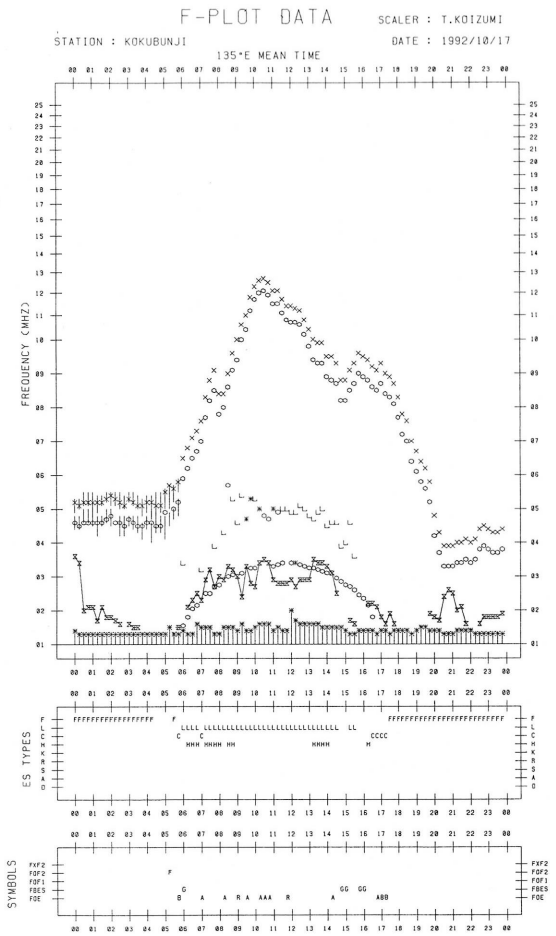
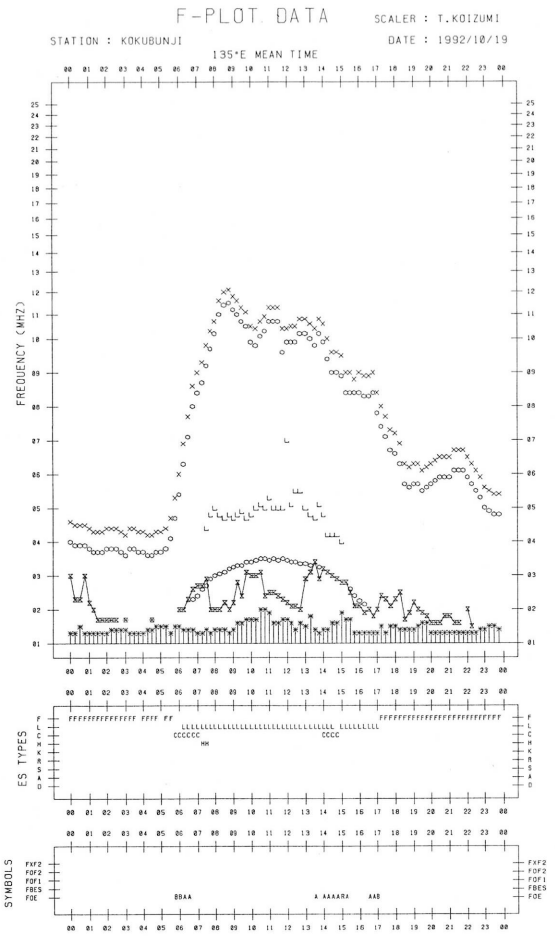
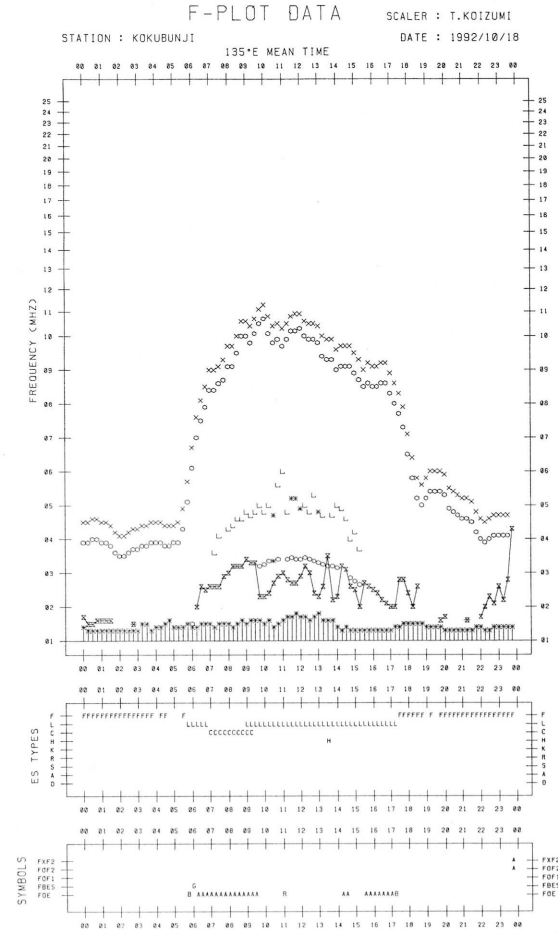
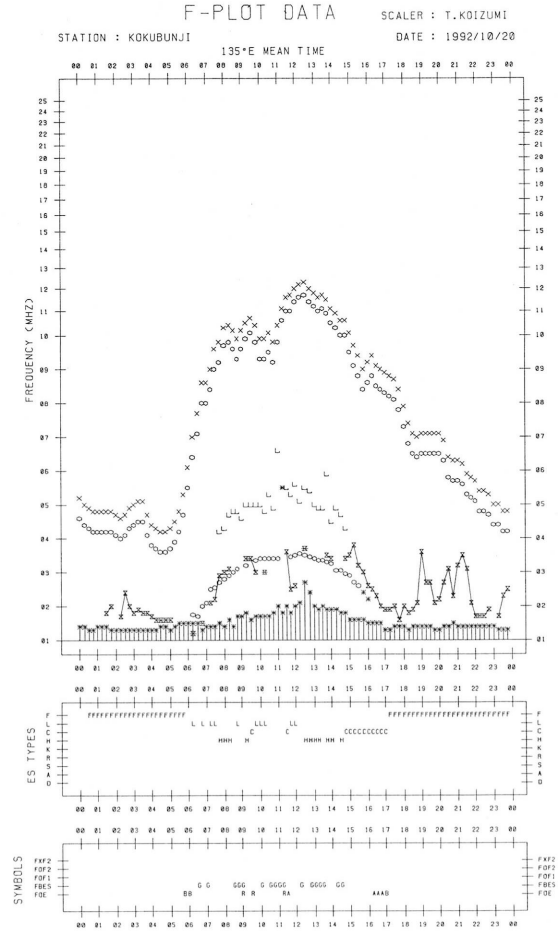
STATION : KOKUBUNJI
DATE : 1992/10/14
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

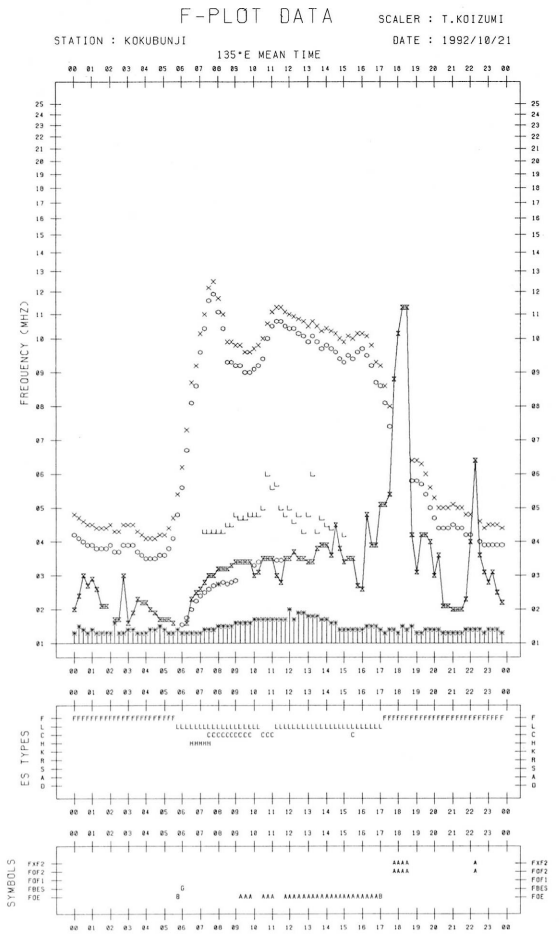

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/16
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

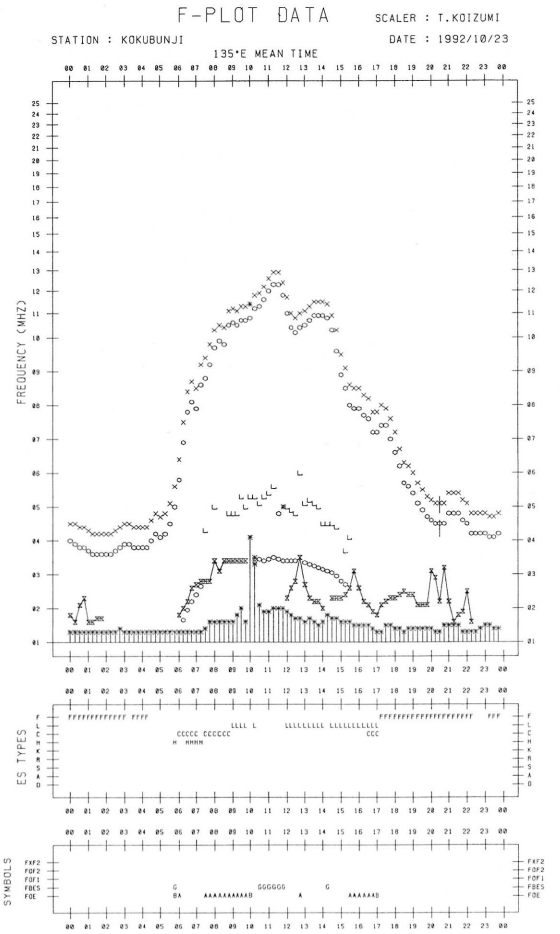

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/17
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

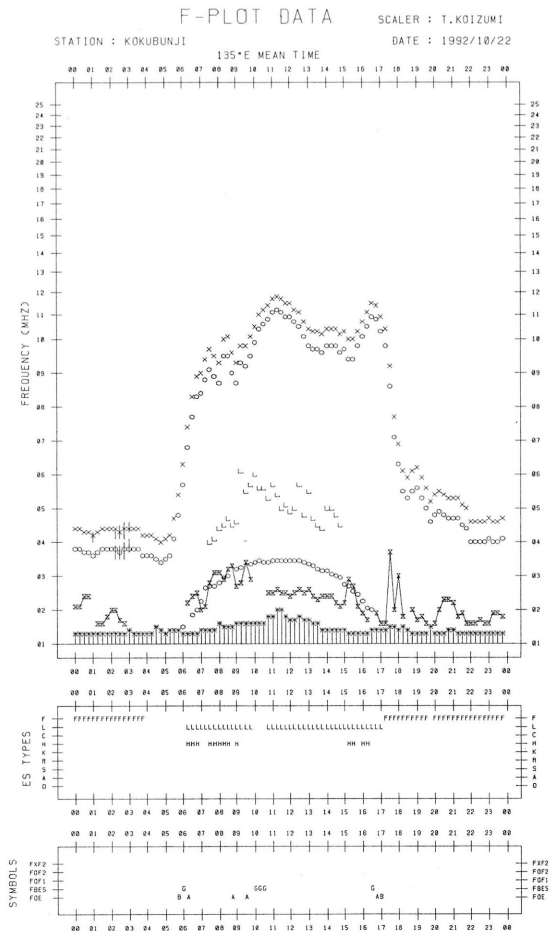

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/19
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

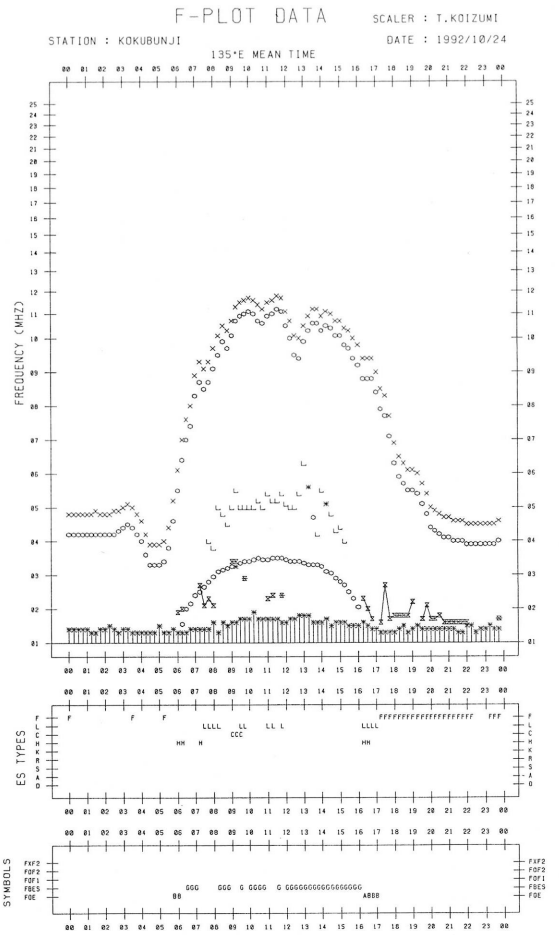

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/18
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

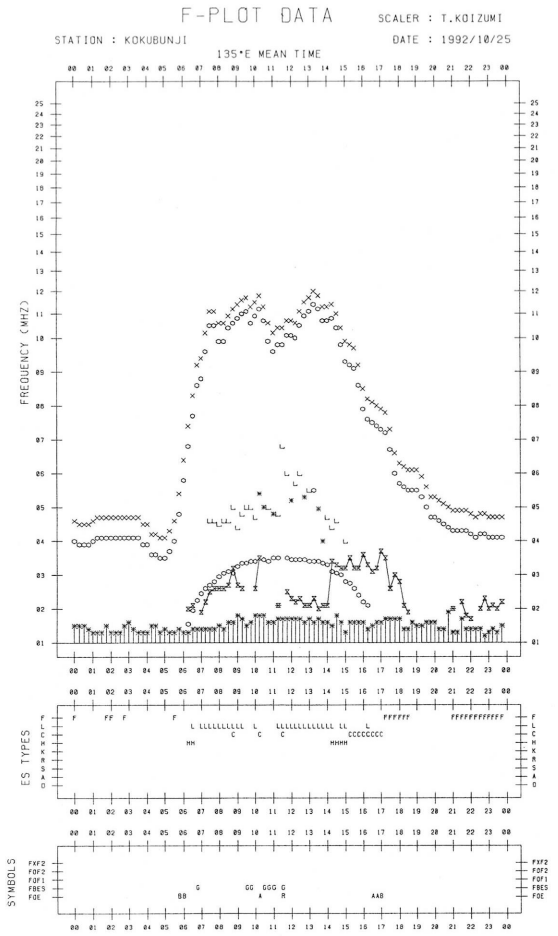

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/20
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

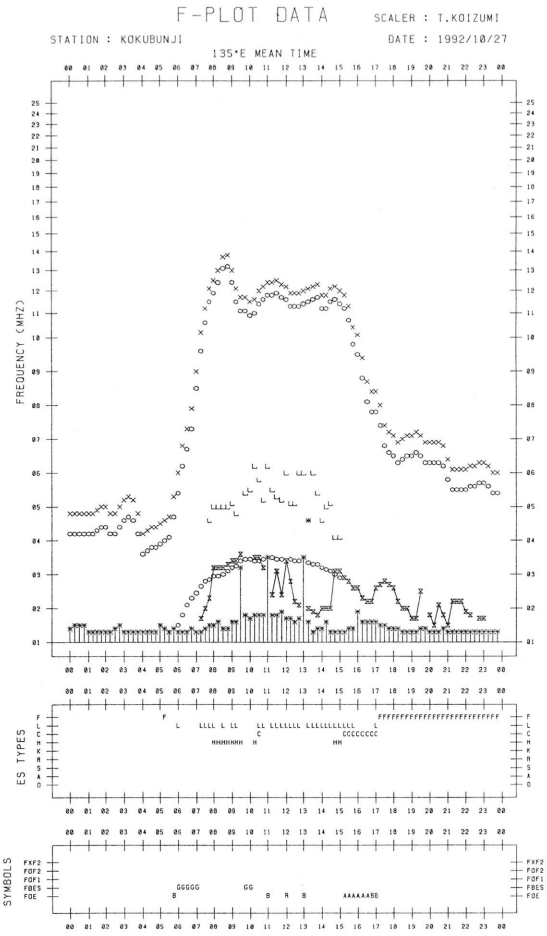

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/21
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

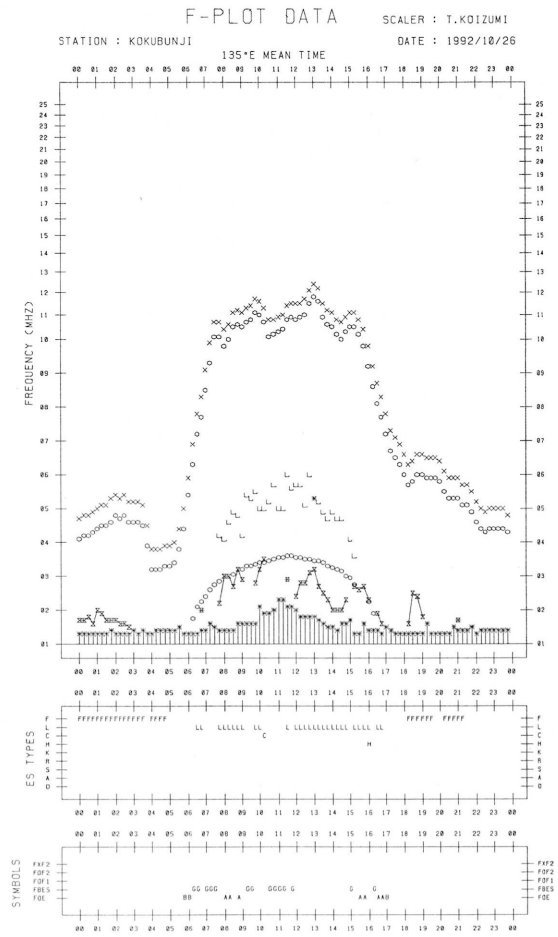

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/23
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

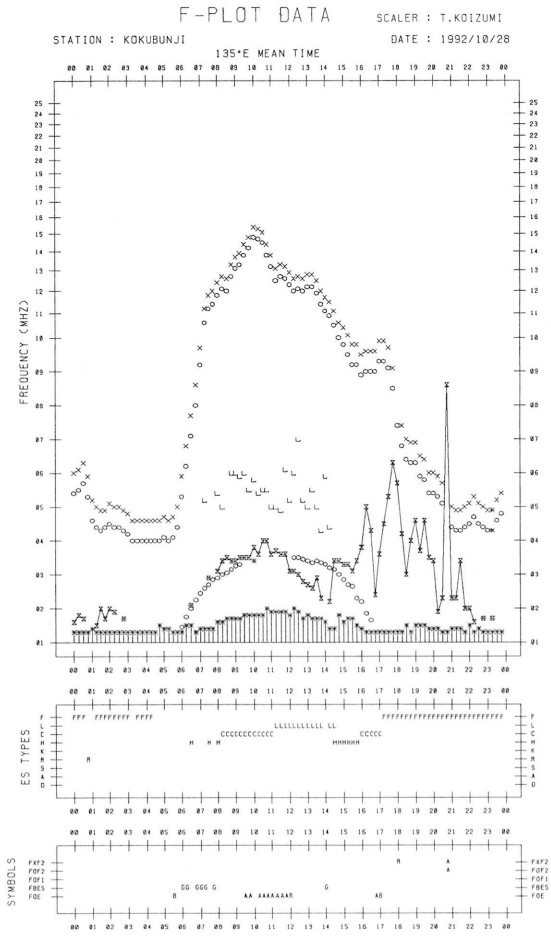

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/22
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/24
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/25
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/27
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/26
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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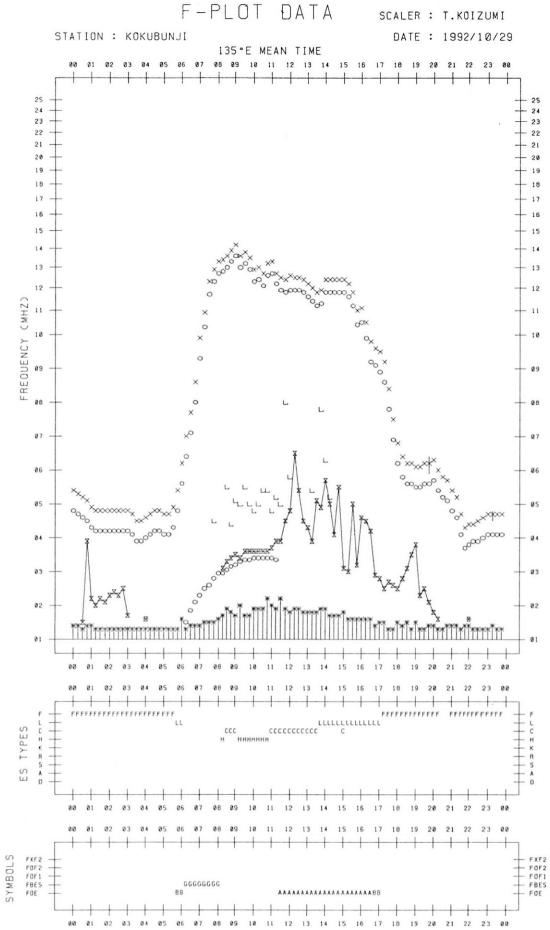
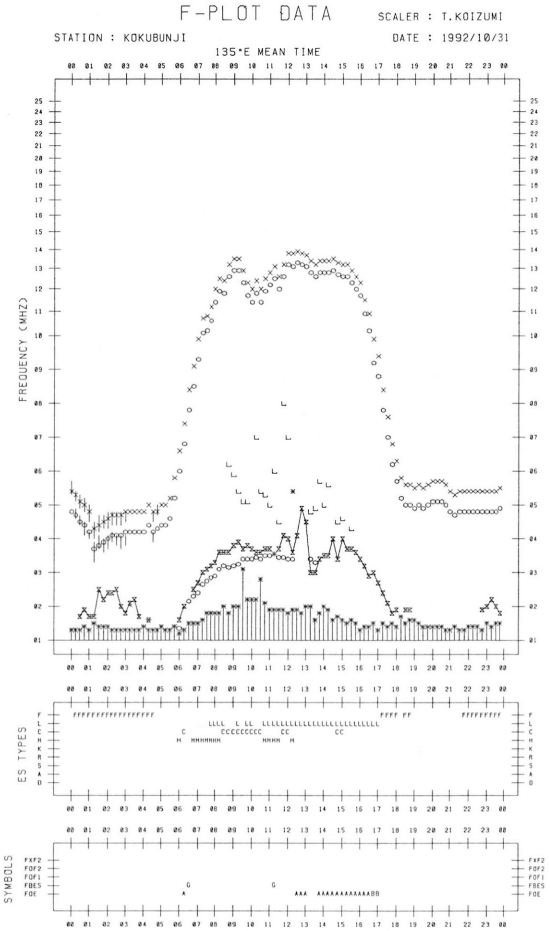
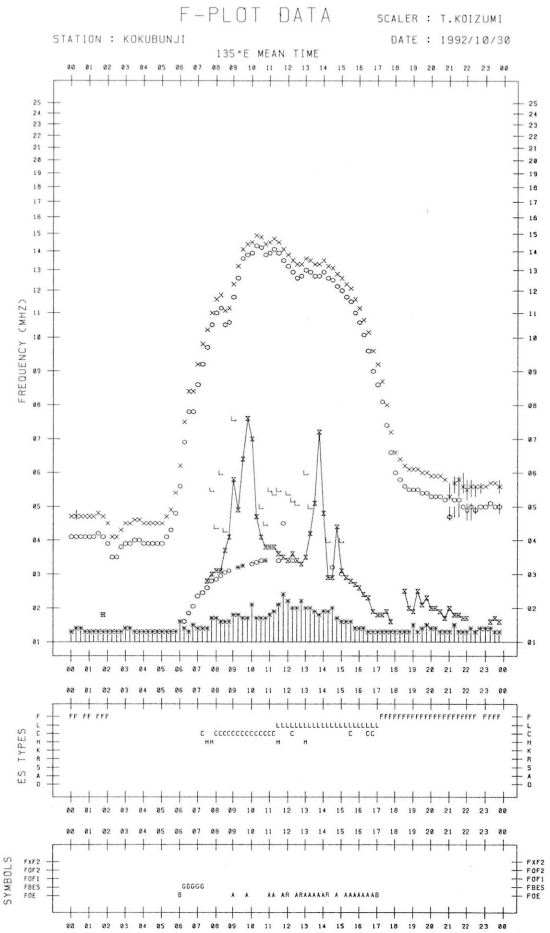
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/28
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/29
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/31
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/10/30
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 October 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	B	B	B	10	B	1	1	1	0	1
2	9	*	*	6	10	0	*	*	0	0
3	6	6	*	6	6	0	0	*	0	0
4	6	6	6	*	6	0	0	0	*	0
5	*	*	*	*	*	*	*	*	*	*
6	6	6	6	*	6	0	0	0	*	0
7	*	*	*	*	*	*	*	*	*	*
8	*	*	*	6	*	*	*	*	0	*
9	6	6	6	6	6	0	0	0	0	0
10	6	6	6	6	6	0	0	0	0	0
11	6	6	6	6	6	0	0	0	0	0
12	6	6	6	6	6	0	0	0	0	0
13	6	*	*	*	6	0	*	*	*	0
14	*	*	6	6	*	*	*	0	0	*
15	6	6	6	6	6	0	0	0	0	0
16	6	6	6	6	6	0	0	0	0	0
17	*	*	*	6	*	*	*	*	0	*
18	6	*	*	10	6	0	*	*	0	0
19	9	8	8	B	9	0	0	0	1	0
20	B	B	*	-	B	1	1	*	-	1
21	B	B	B	B	B	2	2	2	3	2
22	B	B	B	B	B	3	2	2	1	3
23	B	B	B	B	B	1	2	1	1	1
24	B	B	B	B	B	1	1	1	1	1
25	B	B	B	10	B	1	1	1	0	1
26	9	8	8	*	9	0	0	0	*	0
27	B	B	B	*	B	1	1	1	*	1
28	B	B	B	B	B	1	1	1	3	1
29	B	B	B	-	B	3	3	3	-	3
30	10	-	-	B	10	0	-	-	2	0
31	B	B	B	B	B	1	1	1	1	1

Notes: No observations during the following periods.

20th 2100 - 2400 29th 2100 - 2400 30th 0300 - 0715

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

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso October 1992

Single-frequency observations

Normal observing period: 2100 - 0800 U.T. (sunrise to sunset)

OCT. 1992	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22}Wm^{-2}Hz^{-1}) PEAK	FLUX DENSITY (10^{-22}Wm^{-2}Hz^{-1}) MEAN	POLARIZATION REMARKS
1	200	46 C	2301.7	2303.2	6.7	330	50	WL
	100	46 C	2302.0	2302.4	5.3	610	300	WL
4	200	46 C	2221.8	2222.8	11	95	20	WL
7	200	46 C	0503.5	0505.9	4.7	550	100	0
11	100	46 C	0202.9	0202.9	1.3	450	200	WL
	200	46 C	0202.9	0205.4	6.0	110	40	0
	100	46 C	0207.3	0209.2	3.0	75	40	0
19	200	44 NS	2100E	0008	660D	40	15	WL
21	200	44 NS	0000E	0622	480D	120	60	WR
	200	44 NS	2100E	2325	660D	200	80	SL
22	100	44 NS	0000E	0700	480D	600	80	SL
	200	44 NS	2100E	0030	660D	80	30	ML
23	200	48 C	0100.4	0104.4	3.3	16000	1500	0
	100	48 C	0101.8	0103.0	5.3	6200	1500	WL
	100	46 C	0109.0	0111.2	5.7	900	400	ML
	200	46 C	0109.8	0113.2	3.7	320	120	WL
	200	48 C	0220.1	0220.9	3.3	60000D	-	0
	100	46 C	0220.4	0221.2	1.2	7000	1000	0
	200	48 C	0258.6	0258.8	1.2	15000	1000	0
	100	8 S	0259.6	0300.0	0.8	150	-	0
	200	44 NS	2100E	0237	660D	50	20	WL
24	200	44 NS	2100E	2318	660D	50	20	WL
27	200	44 NS	0000E	0530	480D	40	20	0
28	200	44 NS	0000E	0448	480D	90	25	WR
	200	44 NS	2100E	2127	660D	250	80	SL
30	200	44 NS	2105E	2210	650D	100	40	WL
	100	44 NS	2105E	0433	650D	45	15	WL
31	200	44 NS	2105E	0628	650D	100	40	ML

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)

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

C. RADIO PROPAGATION

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

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

C. Radio Propagation

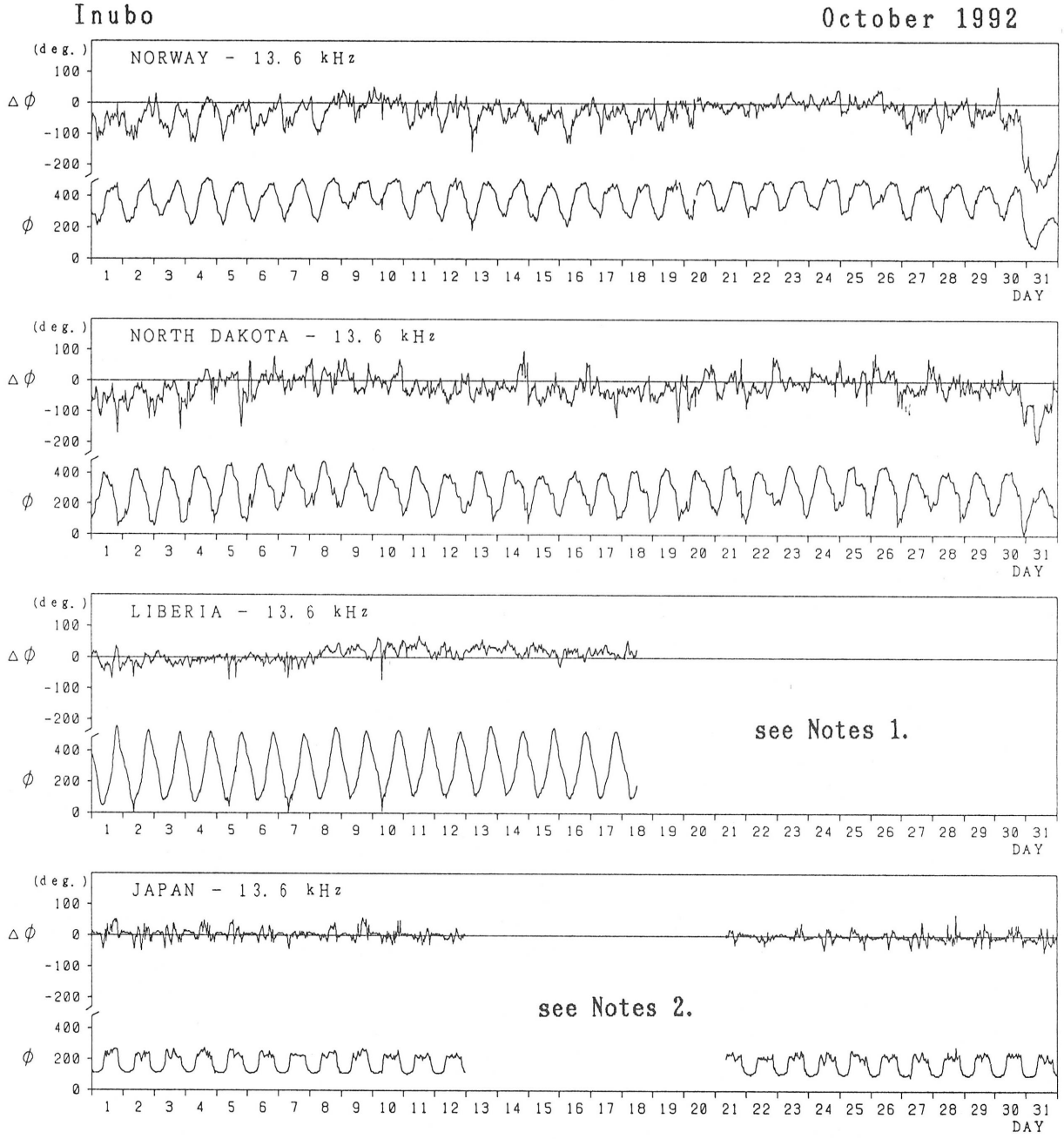
C2. Radio Propagation Quality Figures at Hiraiso

Hiraiso — Time in U.T.

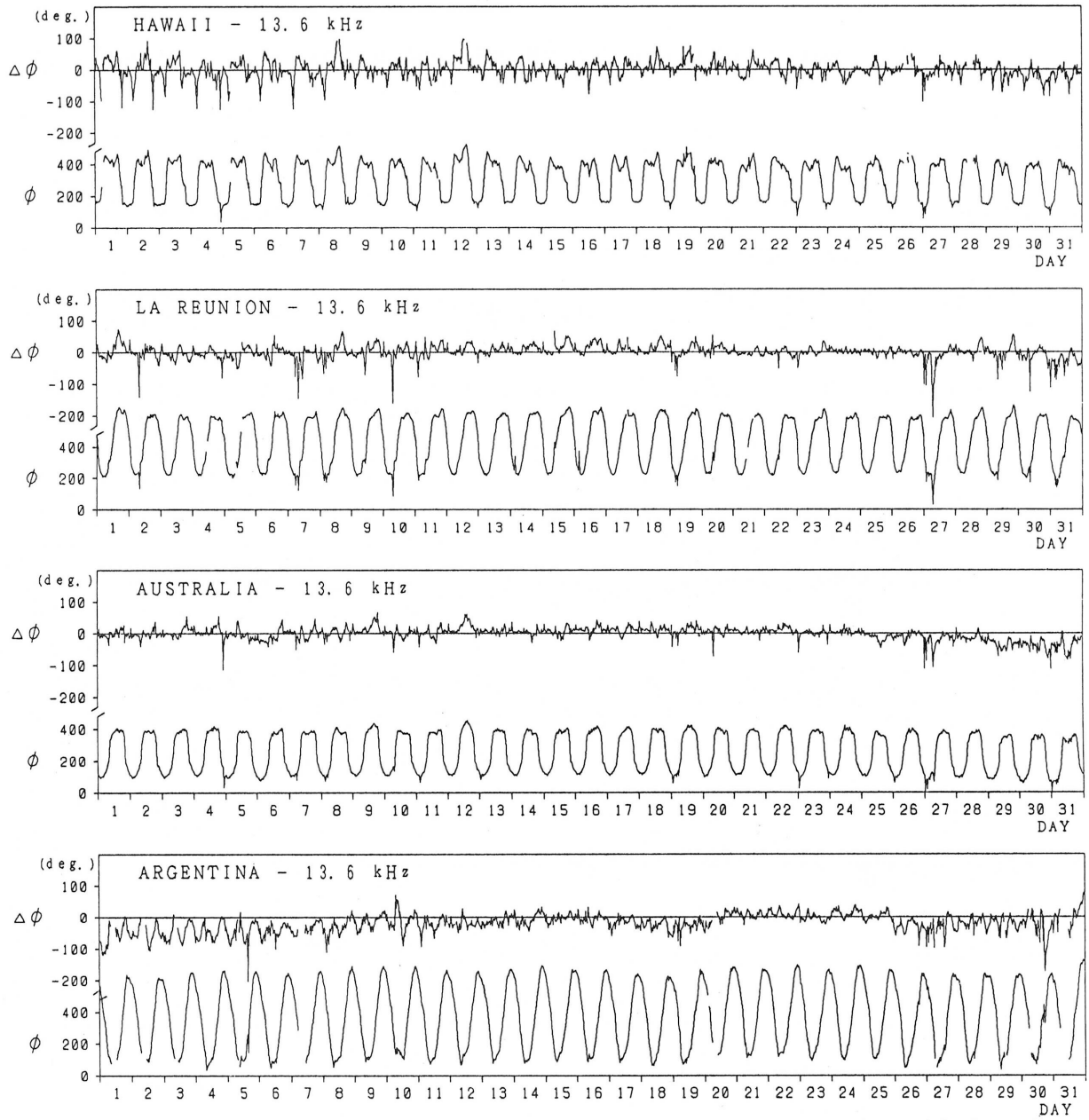
Oct. 1992	Whole Day Figure	W W V 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Conditions 00 06 12 18 / 06 12 18 24	Principal Geomagnetic Storms Start h m	End h	Range nT
1	3+	3 - - (3)	4 3 - 4	U U U U			
2	4-	4 - - (3)	4 4 - 4	U U U U			
3	4-	3 - - 4	4 4 - 4	N N N N			
4	4-	4 - - 4	4 3 - 3	N N N N			
5	4o	4 - - 4	4 4 (5) 4	N N N N			
6	4o	4 - (5) 4	4 4 (4) 4	N N N N			
7	4+	4 (4 5) 4	4 5 (5) 4	N N N N			
8	4+	4 - (5) 4	4 4 (5) 4	N N N N	1839	----	153
9	4-	4 4 - 3	4 5 - 3	N N N N	----	----	
10	4o	(3) - - 4	4 5 - 4	N N N N	----	17	SSC
11	4o	4 - - 4	4 4 (5) 4	N N N N	09.6	----	123
12	4o	3 5 - 4	4 4 - 4	N N N N	----	21	---
13	4-	3 - - 4	4 4 - 4	N N N N			
14	4o	4 - (5) 4	4 (3 5) 4	N N N N			
15	4+	4 - - 5	4 4 (5) 4	N N N N			
16	4-	3 - - 4	4 4 (4) 4	N N N N			
17	4o	4 - - 4	4 4 - 4	N N N N			
18	4-	4 - - 4	4 3 - 4	N N N N			
19	4-	4 - - 4	4 2 - 4	N N N N			
20	4o	4 (5 5) 4	4 4 (5) 4	N N N N			
21	4+	4 (5 5) 4	4 3 (5) 4	N N N N			
22	4-	4 - - 4	4 3 - 4	N N N N			
23	4o	4 - (5) 4	4 3 (4) 4	N N N N			
24	4-	4 - - 4	4 3 - 4	N N N N			
25	4o	4 - - 4	4 4 - 4	N N N N			
26	4+	5 - (5) 4	4 5 - 4	N N N N			
27	4+	4 - - 5	4 4 (5) 4	N N N N			
28	4+	5 - - 5	4 4 - 4	N N N N			
29	4+	4 - - 4	4 5 - 4	N N N N			
30	4o	4 - - 3	4 5 (5) 3	N N N N			
31	4+	4 - (5) 4	4 4 (5) 4	N N N N			

C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo



Inubo October 1992



Notes: 1. As for LIBERIA-13.6kHz, no record during 18 October - 30 October, due to the maintenance of transmitter.
2. As for JAPAN-13.6kHz, no record during 13 October - 21 October, due to the maintenance of transmitter.

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

Start (U.T.)	End (U.T.)	Max. (U.T.)	Max. Phase Deviation (negative value, deg.)
Oct.30/1924	Nov.02/0342D	Oct.31/0710	226

C. Radio Propagation

C4. Sudden Ionospheric Disturbance

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

Hiraiso — Time in U.T.

Oct. 1992	S W F									Correspondence	
	Drop-out Intensities(dB)					Start	Dur.	Type	Imp.	Solar * Flare	Solar Burst
	CO	HA	AUS	MOS	BBC						
2			12			0750	8	1	1	x	
4		>43	20			2215	20	2	2	x	
7	>36	>37	15			0028	28	2	3+	x	
7	x	x	25	x		0502	34	1	2	x	x
7			10			0755	17	2	1-	x	
8			18			0238	17	1	1+	x	x
8	x		14			0432	11	1	1	x	
10			24			0715	43	2	2	x	
11	x	x	15			0200	34	2	1	x	x
19			7			0027	7	1	1-	-	
19			19			0117	25	2	1+	x	x
19			12			0405	21	2	1	x	
23	>37	>38	>41			0058	21	1	3+	x	x
23			12			2245	33	2	1	x	
27			17			0017	5	1	1+	x	x
27	x	x	23			0022	15	2	2-	x	
27	17	22	20			0144	20	2	2-	x	x
27			16			0319	13	2	1+	-	
27			8	x		0826	17	2	1-	x	
29			11			0730	16	1	1-	x	

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

* Optical and X-ray Flares

(b) Sudden Phase Anomaly (SPA) at Inubo

Inubo

Oct. 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
1				22	19		2304	2348	2312
2		49	155	20			0748	0838	0754
4			7	8	4		0206	0236	0212
4			5	5			0336	0354	0344
4	31	23	40	128	108	89	2214	2344	2228
5				9			0112	0138	0116
5		91	56				0924	1030	0940
5		57					1514	1600	1528
6				4			0152	0218	0156
6			4				0414	0434	0418
6		30	7				0958	1046	1010
6		18					1214	1242	1220
7	17	15	22	47	34	18	0030	0130	0042
7	54	93	189	127	47	44	0502	0604	0510
7		49	68	7			0732	0754D	0740
7		106	112	6			0754E	0836	0802
7		66	29				1010	1056	1020
7		22					1502	1522	1508
7				9	9	12	2116	2136	2126
7				22	22	24	2148	2200	2154
7				12	11	15	2300	2316	2310
8	10	12	18	26	14	22	0200	0236D	0212
8	22	36	97	72	48	39	0236	0324	0244
8	18	33	95	65	18	24	0430	0526	0436
8			24	11			0538	0600	0542
8			10				0658	0712	0702
8			18				0736	0750	0740
9				21	21		2238	2316	2246
10			14				0554	0624	0602
10	70	132	171	54			0714	0816	0722
10		64	12				1230	1300	1238
11	27	31	86	75	53	43	0202	0304	0214
12				7			0128	0144	0132
12			7				0524	0548	0530
12				16	15		2152	2220	2158
13			11				0746	0804	0752
13			7				0954	1008	0958
17				5			0134	0154	0138
18			11	7			0414	0446	0424
18			7				0626	0700	0636

Inubo

Oct. 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
19		—		7	4		0024	0056	0036
19	27	—	43	58	41	24	0114	0216	0126
19		—	86	59	14		0404	0510	0414
19		—	89	47	7		0556	0656	0604
19		—	5				0832	0852	0836
19		—	19				0940	1012	0948
19		—		11	7		2340	0002	2350
20		—		14	10		0042	0130	0052
20		—	11	21	14		0134	0200	0140
20		—	10	12			0322	0350	0328
20		—	30				0604	0640	0614
20		—	40				0910	0942	0918
21		—	10	9	7		0338	0406	0344
21		—	14	8			0424	0508	0430
21		—	14	7			0548	0610	0554
22		—	19	14	6	14	0324	0358	0332
22		—	22				0734	0758	0742
22		—		7	6		2248	2304	2252
23	61	—	133	164	137	111	0056	0208	0104
23		—		6	8		2226	2246D	2236
23		—	11	59	56	22	2246E	2334	2254
24		—	9	6			0500	0532	0508
24		—	7				0712	0744	0720
24		—	9				0910	0938	0916
25		—		8	8		0000	0030	0008
25		—		10	10		0052	0110	0100
25		—	11	6			0520	0550	0526
25		—	11				0730	0742	0734
26	14	—	17	53	43	39	0050	0200	0058
26		—	14	17	8		0230	0306	0236
26		—	5	6			0506	0518	0510
26		—		14	—		2142	2212	2148
26		—		13	10		2254	2322	2304
27	32*	—	29*	102*	86*	39*	0012	0116	0032
27	33	—	119*	92*	66*	43	0146	0258	0152
27		—	23*	11*			0340	0424	0358
27		—	10	7			0430	0454	0436
27		—	66	22			0616	0652D	0626
27	43	—	188	104			0652E	0738D	0704
27		—	135				0738E	0826D	0742

Inubo

Oct. 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
27		—	158				0826E	0934D	0836
27		—	42				0934E	1022	0942
27		—	7				1136	1150	1140
27		—		32	28	32	2216	2256D	2222
27		—		35	33	22	2256E	2344	2310
28		—		16	5		0142	0226	0150
28		—	18	12			0420	0508	0426
28		—	11				0652	0724	0656
28		—	4				0852	0900	0856
28		—	8				1150	1210	1156
28		—		12	9		2324	2348	2326
29		—		4	6		0204	0222	0210
29		—	14	11			0524	0556	0534
29		—	18				0632	0656	0640
29		—	145	25			0730	0830	0742
29		—	4				0936	0956	0942
29		—	65				1106	1148	1112
29		—		7	7		2216	2230	2220
29		—		18	13		2242	2318	2248
30	19	—	25	68	54	20	0000	0044	0008
30		—		9			0054	0122	0058
30		—	19	11			0218	0244	0224
30		—	38	31	14		0254	0334	0304
30		—	17	8			0432	0502	0444
30		—	14	11			0552	0614	0556
30		—	14				0740	0802	0744
30		—	191				0810	0856	0820
30		—	4				0948	1006	0952
30		—	6				1016	1026	1020
30		—	7				1134	1154	1138
30		—		11	6		2216	2240	2220
30		—		10	6		2254	2332	2312
31	16	—	32	68*	52*	27	0018	0136	0030
31		—	7	6			0158	0228	0204
31		—	62	45	7		0348	0430D	0356
31		—	30	19			0430E	0450D	0436
31		—	60	39			0450E	0530D	0500
31		—	71	45			0530E	0648	0544
31		—	45*				0658	0756	0720
31		—	60				1028	1136	1038

IONOSPHERIC DATA IN JAPAN FOR OCTOBER 1992
F-526 Vol.44 No.10 (Not for Sale)

電離層月報（1992年10月）
第44巻 第10号（非売品）
1993年1月25日 印刷
1993年1月30日 発行
編集兼 郵政省通信総合研究所
発行所 〒184 東京都小金井市貫井北町4丁目2－1
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